Table 10-1: Updated Longitude column with negative values.

Satellite Navigation Branch, ANG-E66
NSTB/WAAS T&E Team

WIDE AREA AUGMENTATION SYSTEM PERFORMANCE ANALYSIS REPORT

October 2020

Report #74
Reporting Period: July 01 to September 30, 2020
http://www.nstb.tc.faa.gov

FAA William J. Hughes Technical Center
Atlantic City International Airport, NJ 08405

DOCUMENT VERSION CONTROL

VERSION	DESCRIPTION OF CHANGE	DATE
0.1	Initial Version of Document	10/22/2020
0.2	Technical Edit	10/23/2020
0.3	Peer Review	11/2/2020
0.4	2nd Peer Review	11/18/2020
1.0	Final Report	11/19/2020
2.0	Updated Table 10-1	08/16/2022

Executive Summary

Since 1999, the Wide Area Augmentation System (WAAS) Test Team at the FAA William J. Hughes Technical Center has reported GPS performance as measured against the GPS Standard Positioning Service (SPS) Signal Specification in quarterly GPS Performance Analysis Network (PAN) Reports. In addition to the GPS PAN reports, the WAAS Test Team has provided quarterly reports on WAAS performance. The current WAAS PAN Report #74 provides WAAS performance data from the July 01 through September 30, 2020 reporting period. Note that the WJHTC had a lab outage from July 25 to July 27, 2020. As a result, real-time Range and Iono errors and SQM data are unavailable for those 3 days.

This report provides the following results: accuracy, availability, coverage, safety index, range accuracy, WAAS broadcast message rates, geostationary satellite ranging availability, WAAS airport availability, WAAS Code Noise and Multipath analysis, WAAS reference station survey validation, and WAAS Signal Quality Monitoring.

The following table shows observations for accuracy and availability made during the reporting period for Continental United States (CONUS) and Alaska sites (the international sites are presented in the body of this report). Localizer Performance (LP) service is available when the calculated horizontal protection level (HPL) is less than 40 meters. Localizer Performance with Vertical Guidance (LPV) service is available when the calculated HPL is less than 40 meters and the Vertical Protection Level (VPL) is less than 50 meters. Localizer Performance with Vertical Guidance to 200-foot decision height (LPV200) service is available when the calculated HPL is less than 40 meters and the VPL is less than 35 meters. The FAA's National Satellite Test Bed sites—Grand Forks, North Dakota, Atlantic City, New Jersey, and Arcata, California—are outliers due to receiver quality issues, and not because of the WAAS signal in space quality.

Parameter	CONUS Site/Maximum	CONUS Site/Minimum	Alaska Site/Maximum	Alaska Site/Minimum
95% Horizontal Accuracy (HPL <= 40 meters)	Arcata 1.526 meters	Dallas 0.388 meters	Cold Bay 0.638 meters	Juneau 0.514 meters
95% Vertical Accuracy (VPL <= 50 meters)	Arcata 1.652 meters	Salt Lake City 0.718 meters	Barrow 1.131 meters	Juneau 0.859 meters
LP Availability (HPL <= 40 meters)	All Sites 100%	All Sites 100%	All Sites 100%	All Sites 100%
LPV Availability (HPL <= 40 meters & VPL <= 50 meters)	All Sites 100%	All Sites 100%	All Sites 100%	All Sites 100%
LPV200 Availability (HPL <= 40 meters & VPL <= 35 meters)	Multiple Sites 100%	Multiple Sites 99.99%	Multiple Sites 100%	Barrow 99.43%
99% HPL	Miami 15.442 meters	Dallas 10.711 meters	Cold Bay 20.287 meters	Juneau 12.957 meters
99% VPL	Oakland 29.499 meters	Chicago 19.318 meters	Barrow 33.032 meters	Multiple Sites 21.575 meters

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1.0 INTRODUCTION

The FAA monitors the Wide Area Augmentation System (WAAS) and GPS Standard Positioning Service (SPS) performance to ensure the safe and effective use of the satellite navigation system in the National Airspace System (NAS). The WAAS augments timely integrity monitoring and improves GPS position accuracy and availability within the WAAS coverage area.

The objectives of this report are:

1. To evaluate and monitor the WAAS ability to augment GPS by characterizing important performance parameters.
2. To analyze the effects of GPS satellite operation and maintenance as well as ionospheric activity on WAAS performance.
3. To investigate GPS and WAAS anomalies and determine potential user impact.
4. To archive GPS and WAAS performance for future evaluations.

The evaluation uses the WAAS data transmitted from geostationary satellites (GEOs) pseudo-random noise (PRN) 131 (SM9), 133 (S15), and 138 (CRE). SM9, S15 and CRE GEOs provide a precision approach (PA) ranging capability that supports all levels of WAAS service.

In this report, the terms "PA" and "NPA" are used in reference of the two modes of user equipment operation. These terms were used in the original WAAS specification, FAA-E-2892. See Table 1-1 for a mapping of PA and NPA to the user service levels.

Table 1-1. WAAS Service Levels

User Service	NPA or PA	WAAS Protection Levels
RNP 0.3	NPA	HPL <= 0.3 nmi
RNP 0.1	NPA	HPL <= 0.1 nmi
LNAV	NPA	HPL <= 556 m
LNAV/VNAV	PA	HPL <= 556 m VPL <= 50 m
LP	PA	HPL <= 40 m
LPV	PA	HPL <= 40 m VPL <= 50 m
LPV200	PA	HPL <= 40 m VPL <= 35 m

The receivers in PA mode are required to: (1) use all WAAS corrections, (2) use only corrected satellites, (3) never mix corrections from multiple GEOs, (4) exclusively use the designated Space Based Augmentation System (SBAS) for the published approach procedure, and (5) never use ranging from a GPS or GEO satellite with a User Differential Range Error (UDRE) status of greater than 15 meters. The receivers in NPA mode are allowed to: (1) mix corrected and uncorrected satellites, (2) mix corrections from different GEOs or SBASs, (3) use either the WAAS ionosphere corrections or the GPS Klobuchar model for ionosphere corrections, and (4) use ranging from a GPS or GEO satellite with a UDRE status of greater than 15 meters. The receivers in NPA mode can also operate using Fault Detection/Fault Detection Exclusion (FD/FDE) in the absence of an SBAS. The data presented in this report does not take credit for the additional NPA mode availability and continuity through use of either full or partial FD/FDE, which allowed the mixing of corrected and uncorrected satellites. To remain conservative, the NPA accuracy data presented in this report uses Klobuchar ionosphere corrections.

The results in this report are based on the application of the WAAS corrections to receiver data from the WAAS network and the FAA's National Satellite Test Bed (NSTB) network, and from analyses based on the WAAS-broadcasted correction data. Table 1-2 lists the receivers used in the PA analyses, and Table 1-3 lists the receivers used in the NPA analyses.

Table 1-2. PA Evaluation Sites

Location	Number of Days Evaluated	Number of Samples
NSTB:		
Arcata	86	7409216
Atlantic City	73	6270633
Oklahoma City	89	7669715
WAAS:		
Albuquerque	92	7944445
Anchorage	92	7944372
Atlanta	92	7944247
Barrow	85	7334859
Bethel	91	7881369
Billings	92	7947323
Boston	92	7947539
Chicago	92	7946096
Cleveland	92	7925973
Cold Bay	92	7947497
Dallas	92	7945963
Denver	92	7942884
Fairbanks	92	7947395
Gander	92	7942203
Goose Bay	92	7946700
Houston	92	7945031
Iqaluit	92	7941499
Jacksonville	92	7947391
Juneau	92	7946851
Kansas City	92	7940635
Kotzebue	92	7915998
Los Angeles	92	7933878
Memphis	92	7945472
Merida	91	7854525
Mexico City	91	7858927
Miami	92	7943980
Minneapolis	92	7947573
New York	92	7946788
Oakland	92	7943723
Puerto Vallarta	92	7944990
Salt Lake City	92	7947010
San Jose Del Cabo	75	6443035
Seattle	92	7942150
Washington DC	92	7947457
Winnipeg	92	7947537

Table 1-3. NPA Evaluation Site

Location	Number of Days Evaluated	Number of Samples
Albuquerque	90	7766035
Anchorage	90	7767203
Atlanta	90	7767198
Barrow	83	7199576
Bethel	89	7700778
Billings	90	7766523
Boston	90	7764657
Cleveland	90	7767199
Cold Bay	90	7766988
Fairbanks	90	7767065
Gander	90	7764770
Honolulu	90	7751335
Houston	90	7767197
Iqaluit	90	7758143
Juneau	90	7767121
Kansas City	90	7766825
Kotzebue	89	7723994
Los Angeles	90	7767200
Merida	89	7686156
Miami	90	7767079
Minneapolis	90	7767202
Oakland	90	7767202
Salt Lake City	90	7764943
San Jose Del Cabo	74	6393963
San Juan	90	7767192
Seattle	90	7767198
Tapachula	89	7660587
Washington DC	90	7767202

The report is divided by the performance category:

1. WAAS Position Accuracy
2. WAAS Operational Service Availability
3. WAAS Coverage
4. WAAS Integrity
5. WAAS Range Domain Accuracy
6. WAAS GEO Ranging Performance
7. WAAS Airport Availability
8. WAAS Code Noise and Multipath (CNMP) Analysis
9. WAAS Antenna Survey Validation
10. WAAS Signal Quality Monitor (SQM) Analysis

Table 1-4 lists the evaluated WAAS performance parameters for this report. Note that these are the performance parameters associated with the WAAS system, and that these requirements are extracted from FAA Specifications FAA-E-2892C and FAA-E-2976, as applicable.

Table 1-4. WAAS Performance Parameters

Performance Parameter	Expected WAAS Performance
LPV Accuracy Horizontal	≤ 1.5m error 95% of the time
LPV Accuracy Vertical	≤ 2m error 95% of the time
LNAV Accuracy Horizontal	≤ 36m error 95% of the time
Availability LPV CONUS	99% availability of 100% of CONUS
Availability LPV Alaska	95% availability of 75% of Alaska
Availability LNAV CONUS	99.99% availability with HPL < 556m
Availability LNAV Alaska	99.9% availability with HPL < 556m
Availability En Route OCONUS	99.9% availability with HPL < 2nmi
Probability of Hazardous Misleading Information	<10e-7 per approach

1.1 Event Summary

Events Table 1-5 lists events that affected WAAS performance or the ability to determine the WAAS performance during the reporting period. The events include GPS or WAAS anomalies, relevant receiver malfunctions, receiver maintenance, and ionospheric activity. The reporting of ionospheric activity includes reference to the planetary index (Kp) for the event time period. The Kp index quantifies the disturbance in the Earth's magnetic field and is an indicator of solar storms causing geomagnetic disturbances resulting in an unpredictable ionosphere. The detection of an ionospheric disturbance causes the WAAS to increase Grid Ionospheric Vertical Error (GIVE) values, making PA service unavailable.

Analyses of events that merit more detailed investigations are documented in the Discrepancy Reports (DRs). The DRs are available at http://www.nstb.tc.faa.gov under “WAAS Technical Reports” and also accessible via hyperlink in Events Table 1-5. Note that “TOW” is the time of GPS week, which is the cumulative number of seconds beginning 00:00:00 Sunday (GMT without leap seconds). WAAS Upgrades Table 1-6 lists events related to WAAS upgrades during this reporting period, and GUS Switchovers Table 1-7 lists events related to ground uplink station (GUS) switchovers, which are transitions from one GEO uplink site to another GEO uplink site.

Table 1-5. Events

Start Date	End Date	Location Satellite	Service Affected	Event Description
6/11/2020	7/21/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV), PRN133	LPV200_Alaska	Starting June 11, 2020 the WJHTC observed UDREi spikes on PRN133. The elevated UDREs worsened on a daily basis until June 19 when there was a GUS switchover in an attempt to solve the issue. The UDREi spikes returned on June 23 and continued to worsen, frequently setting PRN133 to Do Not Use. Ranging was turned off and the C&Vs were cold started on July 11. On July 20, ranging was turned back on. The elevated UDREs caused minor to moderate degradation of LPV200 service coverage in Alaska.

Start Date	End Date	Location Satellite	Service Affected	Event Description
7/11/2020	7/11/2020	GEO133,Brewster (BR1)	RNP3_Alaska, RNP1_Alaska	GEO 133 was cold started on July 11 as a step to resolve the ranging issues described in Event 15483. GEO 133 switched to South Mountain, Brewster faulted. This caused minor degradation of RNP0.1 and RNP0.3 service coverage in Alaska all day. TOW 594231-595737 Please see plot(s): RNP1_7/11/2020RNP3_7/11/2020
7/22/2020	7/22/2020	All Satellites	World Wide	There was a GPS event in which illegal characters were broadcast in the GPS special message. This caused some receivers to stop working.
7/23/2020	7/23/2020	GEO133,Brewster (BR1)	LPV200_Alaska, RNP3_Alaska, RNP1_Alaska	The uplink for the S15 GEO, PRN133, switched from the Brewster uplink site to the South Mountain uplink site at 17:55:54 GMT. This caused a 19-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 caused minor degradation of: (1) LPV200 service coverage in Alaska from 17:56 GMT to 18:01 GMT; (2) RNP0.1 service coverage in Alaska from 17:55 GMT to 18:00 GMT; and (3) RNP0.3 service coverage in Alaska from 17:55 GMT to 18:00 GMT. The elevated UDREs TOW 410172-410192 Please see plot(s): LPV200_7/23/2020 RNP1_7/23/2020 RNP3_7/23/2020
7/25/2020	7/27/2020		None	The WJHTC had a lab outage from July 25 to July 27, 2020. As a result, real-time Range and Iono errors and SQM data are unavailable for these 3 days.
7/28/2020	7/28/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:30 GMT to 16:15 GMT. The elevated IGPs caused moderate degradation of: (1) LPV200 service coverage in Canada and (2) LPV service coverage in Canada. Please see plot(s): LPV_7/28/2020 LPV200_7/28/2020 Cov_vs_Time_Canada_7/28/2020
7/29/2020	7/29/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:30 GMT to 16:30 GMT. The elevated IGPs caused minor degradation of: (1) LPV200 service coverage in Canada. Please see plot(s): LPV200_7/29/2020

Start Date	End Date	Location Satellite	Service Affected	Event Description
7/30/2020	7/30/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:30 GMT to 16:00 GMT. The elevated IGPs caused minor degradation of LPV200 service coverage in Canada. Please see plot(s): LPV200_7/30/2020
7/31/2020	7/31/2020	GEO131	LPV200_Alaska	The uplink for the SM9 GEO, PRN131 switched from the Santa Paula uplink site to the Southbury uplink site at 07:03:18 GMT. This caused a 4-second outage of the GEO 131 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN131. The elevated UDREs on PRN131 as well as 133 caused minor degradation of LPV200 service coverage in Alaska from 11:05 GMT to 11:30 GMT. TOW 457416-457420 Please see plot(s): LPV200_7/31/2020
7/31/2020	7/31/2020	GEO133	LPV200_Alaska	The uplink for the S15 GEO, PRN133 switched from the South Mountain uplink site to the Brewster uplink site at 07:11:48 GMT. This caused a 4-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 along with PRN131 caused minor degradation of LPV200 service coverage in Alaska from 11:05 GMT to 11:30 GMT. TOW 457930-457934 Please see plot(s): LPV200_7/31/2020
8/3/2020	8/3/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 3:35 GMT to 04:00 GMT. The elevated IGPs caused: (1) Moderate degradation of LPV200 service coverage in Canada and (2) Minor degradation of LPV service coverage in Canada. Please see plot(s): LPV_8/3/2020 LPV200_8/3/2020
8/8/2020	8/8/2020	Washington D.C. (CnV), Los Angeles (CnV), Atlanta (CnV)	LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:48 GMT to 16:36 GMT. The elevated IGPs caused moderate degradation of: (1) LPV200 service coverage in Canada and (2) LPV service coverage in Canada. Please see plot(s): LPV_8/8/2020 LPV200_8/8/2020

Start Date	End Date	Location Satellite	Service Affected	Event Description
8/11/2020	8/11/2020		LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:40 GMT to 16:10 GMT. The elevated IGPs caused: (1) Moderate degradation of LPV200 service coverage in Canada and (2) Minor degradation of LPV service coverage in Canada. Please see plot(s): LPV_8/11/2020 LPV200_8/11/2020
9/3/2020	9/16/2020	San Jose Del Cabo (MSD1), San Jose Del Cabo (MSD2), San Jose Del Cabo (MSD3)	LPV200_CONUS	Communication outages from the San Jose Del Cabo WRS reduced observations in the Southern region of CONUS. This elevated GIVE values in the region. The elevated GIVEs resulted in minor degradation of LPV200 service coverage in CONUS (AZ and NM). Please see plot(s): LPV200_9/3/2020
9/8/2020	9/8/2020	GEO133	LPV200_Alaska	The uplink for the S15 GEO, PRN133 switched from the South Mountain uplink site to the Brewster uplink site at 03:35:29 GMT. This caused a 22-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 caused minor degradation of LPV200 service coverage in Alaska from 10:00 GMT to 10:10 GMT. TOW 185747-185770 Please see plot(s): LPV200_9/8/2020
9/15/2020	9/15/2020		LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:30 GMT to 16:35 GMT. The elevated IGPs caused moderate degradation of LPV200 and LPV service coverage in Canada. Please see plot(s): LPV_9/15/2020 LPV200_9/15/2020
9/18/2020	9/18/2020		LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 15:35 GMT to 16:50 GMT. The elevated IGPs caused moderate degradation of LPV200 and LPV service coverage in Canada. Please see plot(s): LPV_9/18/2020 LPV200_9/18/2020

Start Date	End Date	Location Satellite	Service Affected	Event Description
9/20/2020	9/20/2020	PRN4	LPV200_Alaska, LPV200_Canada, LPV200_Mexico	The reduction in LPV200 service in CONUS, Alaska, and Canada was due to a GPS NANU on PRN4 (see NANU2020043), which was unusable from 00:31 GMT 05:47 GMT. The NANU caused moderate degradation of: (1) LPV200 service coverage in CONUS from 02:51 GMT to 03:10 GMT; (2) LPV200 service coverage in Alaska from 02:16 GMT to 02:46 GMT; and (3) LPV200 service coverage in Canada from 02:00 GMT to 03:30 GMT. Please see plot(s): LPV200_9/20/2020
9/22/2020	9/23/2020	PRN32	LPV200_CONUS, LPV200_Canada	The reduction in LPV200 service in CONUS and Canada was due to a GPS NANU on PRN32 (see NANU2020044) which was unusable from 21:36 GMT on 09/22 to 02:35 GMT on 9/23. The NANU caused moderate degradation of LPV200 service coverage in Canada from 22:45 GMT to 23:45 GMT. The NANU also caused very minor degradation of LPV200 service coverage in CONUS from 22:55 GMT to 23:00 GMT. Please see plot(s): LPV200_9/22/2020
9/30/2020	9/30/2020		LPV_Canada, LPV200_Canada	Subframe reasonability warnings and PID Down faults at Iqaluit resulted in IGPs at Latitude 70 and Longitudes -70 to -50 getting set to a "not monitored" state from 03:35 GMT to 04:10 GMT and from 15:45 GMT to 16:15 GMT. The elevated IGPs caused moderate degradation of LPV200 and LPV service coverage in Canada. Please see plot(s): LPV_9/30/2020 LPV200_9/30/2020

Table 1-6. WAAS Upgrades

Start Date	End Date	Location Satellite	Event Description
N/A	N/A	N/A	N/A

Table 1-7. GUS Switchovers

Start Date	End Date	GUS Switch	Location Satellite	Service Affected	Event Description
7/6/2020	7/6/2020	Manual	GEO138,Brewster-B (BRE-B)	None	The uplink for the CRE GEO, PRN138, switched from the Brewster-B uplink site to the Woodbine uplink site at 01:01:43 GMT. This caused a 4-second outage of the GEO 138 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN138. There was no impact on coverage. TOW 90121-90126

Start Date	End Date	GUS Switch	Location Satellite	Service Affected	Event Description
7/11/2020	7/11/2020	Faulted	GEO133,Brewster (BR1)	RNP3_Alaska, RNP1_Alaska	GEO 133 was cold started on this day as a step to resolve the ranging issues described in Event 15483. GEO 133 switched to South Mountain, Brewster faulted. This caused minor degradation of RNP0.1 and RNP0.3 service coverage in Alaska all day. TOW 594231-595737 Please see plot(s): RNP1_7/11/2020 RNP3_7/11/2020
7/11/2020	7/11/2020	Faulted	GEO138,Woodbine (QWE)	None	The uplink for the CRE GEO, PRN138, switched from the Woodbine uplink site to the Brewster-B uplink site at 21:59:20 GMT. This caused a 19-second outage of the GEO 138 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN138. There was no impact on coverage. TOW 597578-597598
7/13/2020	7/13/2020	Faulted	GEO133,South Mountain (CM1)	None	The uplink for the S15 GEO, PRN133, switched from the South Mountain uplink site to the Brewster uplink site at 19:34:37 GMT. This caused a 17-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. There was no impact on coverage. TOW 156895-156913
7/23/2020	7/23/2020	Faulted	GEO133,Brewster (BR1)	LPV200_Alaska, RNP3_Alaska, RNP1_Alaska	The uplink for the S15 GEO, PRN133, switched from the Brewster uplink site to the South Mountain uplink site at 17:55:54 GMT. This caused a 19-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 caused minor degradation of: (1) LPV200 service coverage in Alaska from 17:56 GMT to 18:01 GMT; (2) RNP0.1 service coverage in Alaska from 17:55 GMT to 18:00 GMT; and (3) RNP0.3 service coverage in Alaska from 17:55 GMT to 18:00 GMT. The elevated UDREs TOW 410172-410192 Please see plot(s): LPV200_7/23/2020 RNP1_7/23/2020 RNP3_7/23/2020
7/24/2020	7/24/2020	Faulted	GEO131,Santa_Paula (SZ1)	None	The uplink for the SM9 GEO, PRN131, switched from the Santa Paula uplink site to the Southbury uplink site at 09:00:54 GMT. This caused an 18-second outage of the GEO 131 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN131. There was no impact on coverage. TOW 464472-464491

Start Date	End Date	GUS Switch	Location Satellite	Service Affected	Event Description
7/28/2020	7/28/2020	Manual	GEO138	None	The uplink for the CRE GEO, PRN138 switched from the Brewster-B uplink site to the Woodbine uplink site at 03:08:19 GMT. This caused a 4-second outage of the GEO 138 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN138. There was no impact on coverage. TOW 184113-184117
7/31/2020	7/31/2020	Manual	GEO133	LPV200_Alaska	The uplink for the S15 GEO, PRN133, switched from the South Mountain uplink site to the Brewster uplink site at 07:11:48 GMT. This caused a 4-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 along with PRN131 caused minor degradation of LPV200 service coverage in Alaska from 11:05 GMT to 11:30 GMT. TOW 457930-457934 Please see plot(s): LPV200_7/31/2020
7/31/2020	7/31/2020	Manual	GEO131	LPV200_Alaska	The uplink for the SM9 GEO, PRN131, switched from the Santa Paula uplink site to the Southbury uplink site at 07:03:18 GMT. This caused a 4-second outage of the GEO 131 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN131. The elevated UDREs on PRN131 as well as 133 caused minor degradation of LPV200 service coverage in Alaska from 11:05 GMT to 11:30 GMT. TOW 457416-457420 Please see plot(s): LPV200_7/31/2020
8/6/2020	8/6/2020	Faulted	GEO138	None	The uplink for the CRE GEO, PRN138, switched from the Woodbine uplink site to the Brewster-B uplink site at 07:11:54 GMT. This caused a 4-second outage of the GEO 138 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN138. There was no impact on coverage. TOW 371532-371536
9/7/2020	9/7/2020	Manual	GEO138,Brewster-B (BRE-B)	None	The uplink for the CRE GEO, PRN138, switched from the Brewster-B uplink site to the Woodbine uplink site at 23:31:48 GMT. This caused a 4-second outage of the GEO 138 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN138. There was no impact on coverage. TOW 171126-171130

Start Date	End Date	GUS Switch	Location Satellite	Service Affected	Event Description
9/8/2020	9/8/2020	Faulted	GEO131,Santa_Paula (SZ1)	None	The uplink for the SM9 GEO, PRN131, switched from the Southbury uplink site to the Santa Paula uplink site at 20:26:33 GMT. This caused a 3-second outage of the GEO 131 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN131. There was no impact on coverage. TOW 246411-246415
9/8/2020	9/8/2020	Faulted	GEO133	LPV200_Alaska	The uplink for the S15 GEO, PRN133, switched from the South Mountain uplink site to the Brewster uplink site at 03:35:29 GMT. This caused a 22-second outage of the GEO 133 broadcast and also caused the WAAS carrier smoothing algorithm to reinitialize for PRN133. The elevated UDREs on PRN133 caused minor degradation of LPV200 service coverage in Alaska from 10:00 GMT to 10:10 GMT. TOW 185747-185770 Please see plot(s): LPV200_9/8/2020

1.2 Report Overview

Section 2.0 provides the observed Localizer Performance with Vertical Guidance (LPV) and NPA performance for the evaluated receiver locations (see PA Evaluation Sites and NPA Evaluation Site). This section also shows tabulated data for the 95% accuracy and the maximum inaccuracy. In addition, the daily 95% accuracy for each receiver and the histograms of vertical and horizontal error are shown.

Section 3.0 provides the summary of the WAAS instantaneous availability performance at each receiver for three operational service levels. In addition, the daily availability, number of outages, and outage rate for each evaluated receiver are also reported.

Section 4.0 provides geographic plots of the WAAS service availability. Also shown in this section are plots of the percentage of the Continental United States (CONUS) and Alaska service areas covered by various levels of service availability.

Section 5.0 provides the summary of the Hazardous Misleading Information (HMI) analysis as well as a safety margin index for each receiver. This section also shows update rates of WAAS messages transmitted from CRE, SM9, and S15.

Section 6.0 provides the UDRE and GIVE bounding percentages and the 95% index of the range and ionospheric accuracy for each satellite tracked by the WAAS receiver at 12 locations.

Section 7.0 provides the GEO ranging performance for CRE, SM9 and S15.

Section 8.0 provides the WAAS LPV availability and outages at selected airports.

Section 9.0 provides the assessment of WAAS CNMP bounding for 114 WAAS receivers.

Section 10.0 provides surveyed positions of all Wide-Area Reference Equipment (WRE) and the difference between the WRE survey positions and the survey positions using both the National Geodetic Survey (NGS) Online Positioning Use Server (OPUS) and the Canadian Spatial Reference System (CSRS) Precise Point Positioning (PPP) service.

Section 11.0 provides the daily and quarterly average of SQM PRN type biases and PRN biases.

2.0 WAAS POSITION ACCURACY

Navigation error data, collected from WAAS and NSTB reference stations, was processed to determine position accuracy at each location. This was accomplished by using the GPS/WAAS position solution tool to compute a RTCA DO-229D-weighted least squares user navigation solution and WAAS horizontal protection level (HPL) and vertical protection level (VPL) once every second. The user position calculated for each receiver was compared to the surveyed position of the antenna to assess position error associated with the WAAS signal in space (SIS) over time. The position errors were analyzed and statistics were generated for the operational service levels shown in Table 1-1.

Table 2-1 shows PA horizontal and vertical position accuracy maintained for 95% of the time at LP, LPV and lateral navigation (LNAV)/vertical navigation (VNAV) operational service levels as well as 95% SPS accuracy for certain locations. Note that WAAS accuracy statistics presented are compiled only when all WAAS corrections (i.e., fast, long term, and ionospheric corrections) for at least four satellites are available; this is referred to as PA navigation mode. Table 2-1 also shows the percentage of time PA navigation mode was supported by WAAS at each receiver. The maximum and minimum LPV errors for this reporting period are:

- The maximum 95% CONUS horizontal LPV error was 1.526 meters observed at Arcata.
- The maximum 95% CONUS vertical LPV error was 1.652 meters observed at Arcata.
- The minimum 95% CONUS horizontal LPV errors was 0.388 meters observed at Dallas.
- The minimum 95% CONUS vertical LPV error was 0.718 meters observed at Salt Lake City.

Table 2-1. PA 95% Horizontal and Vertical Accuracy

Location	Horizontal (HAL=40m) (Meters)	Horizontal (HAL=556m) (Meters)	Vertical (VAL=50m) (Meters)	Percentage in PA mode (%)	SPS Accuracy	
					95% Horizontal	95% Vertical
Arcata	1.526	1.526	1.652	100	*	*
Atlantic City	1.121	1.121	1.54	100	*	*
Oklahoma City	0.983	0.983	1.149	100	*	*
Albuquerque	0.558	0.558	0.849	100	1.48	3.72
Anchorage	0.519	0.519	0.887	100	1.48	3.60
Atlanta	0.684	0.684	1.073	100	1.49	3.53
Barrow	0.595	0.595	1.131	100	1.39	3.99
Bethel	0.545	0.545	0.912	100	1.44	3.79
Billings	0.468	0.468	0.724	100	1.51	3.33
Boston	0.627	0.627	0.939	100	1.56	3.36
Chicago	0.813	0.813	0.984	100	*	*
Cleveland	0.522	0.522	0.967	100	1.55	3.53
Cold Bay	0.638	0.638	0.88	100	1.51	3.45
Dallas	0.388	0.388	1.062	100	*	*
Denver	0.448	0.448	0.741	100	*	*
Fairbanks	0.516	0.516	0.956	100	1.53	3.58
Gander	0.758	0.758	1.03	100	1.64	2.94
Goose Bay	0.596	0.596	0.878	100	*	*
Houston	0.538	0.538	1.169	100	1.52	3.91
Iqaluit	0.708	0.708	1.073	99.999	1.453	3.406
Jacksonville	0.516	0.516	1.045	100	*	*
Juneau	0.514	0.514	0.859	100	1.47	3.12
Kansas City	0.427	0.427	0.984	100	1.50	3.57
Kotzebue	0.537	0.537	1.016	100	1.60	3.89
Los Angeles	0.712	0.712	1.481	100	1.76	4.30
Memphis	0.446	0.446	1.069	100	*	*
Merida	0.515	0.515	1.171	100	2.09	3.55

Location	Horizontal (HAL=40m) (Meters)	Horizontal (HAL=556m) (Meters)	Vertical (VAL=50m) (Meters)	Percentage in PA mode (%)	SPS Accuracy	
					95% Horizontal	95% Vertical
Mexico City	0.59	0.59	1.277	100	*	*
Miami	0.661	0.661	0.994	100	1.67	3.39
Minneapolis	0.61	0.61	0.959	100	1.53	3.44
New York	0.551	0.551	0.973	100	*	*
Oakland	0.708	0.708	1.515	100	1.72	4.35
Puerto Vallarta	0.637	0.637	1.023	100	*	*
Salt Lake City	0.496	0.496	0.718	100	1.52	3.73
San Jose Del Cabo	0.631	0.631	1.303	100	2.21	3.48
Seattle	0.490	0.490	0.847	100	1.59	3.53
Washington DC	0.716	0.716	1.026	100	1.56	3.47
Winnipeg	0.509	0.509	0.808	100	*	*

* SPS data not available

NPA navigation mode is when only WAAS fast and long term corrections are available to a user (i.e., no ionospheric corrections). Table 2-2 shows the 95%, 99.999%, and maximum NPA horizontal position accuracy. The maximum and minimum NPA errors for this reporting period are as below:

- The maximum 95% horizontal error was 2.500 meters observed at Honolulu.
- The maximum 99.999% horizontal error was 5.580 meters observed at San Juan.
- The minimum 95% horizontal error was 0.800 meters observed at Iqaluit.
- The minimum 99.999% horizontal error was 1.504 meters observed at Albuquerque.

Table 2-2. NPA 95% and 99.999% Horizontal Accuracy

Location	95% Horizontal (Meters)	99.999% Horizontal (Meters)	Percentage in NPA Mode (%)	Maximum Horizontal Error (Meters)
Albuquerque	0.899	1.504	100	2.511
Anchorage	1.003	2.284	100	2.415
Atlanta	0.909	1.830	100	1.968
Barrow	0.834	2.248	100	2.541
Bethel	1.091	2.305	100	2.443
Billings	1.056	1.660	100	1.749
Boston	1.049	1.895	100	2.577
Cleveland	0.949	1.925	100	2.195
Cold Bay	1.160	2.335	100	2.465
Fairbanks	1.005	2.416	100	2.549
Gander	1.192	2.110	100	2.248
Honolulu	2.500	4.762	100	4.961
Houston	1.263	2.454	100	2.716
Iqaluit	0.800	1.765	100	2.852
Juneau	0.881	2.125	100	2.205
Kansas City	0.958	2.423	100	3.974
Kotzebue	0.982	2.489	100	3.836
Los Angeles	1.378	3.191	100	3.849
Merida	1.389	4.373	100	4.591
Miami	1.245	3.293	100	3.472
Minneapolis	1.145	1.805	100	1.909
Oakland	1.383	2.348	100	2.501
Salt Lake City	0.955	1.856	100	2.069

Location	95% Horizontal (Meters)	99.999% Horizontal (Meters)	Percentage in NPA Mode (%)	Maximum Horizontal Error (Meters)
San Jose Del Cabo	1.636	3.256	100	3.422
San Juan	1.104	5.580	100	5.940
Seattle	0.995	1.784	100	2.034
Tapachula	1.747	4.989	100	5.198
Washington DC	1.150	2.288	100	2.454

Table 2-3 shows the quarterly maximum LPV error statistics: (1) the column Horizontal Error column shows the maximum position errors while the calculated HPL meets the LPV service level defined in Table 1-1, (2) the Vertical Error column shows the maximum position errors while the calculated VPL meets the LPV service level, (3) the Horizontal Error/HPL column and the Vertical Error/VPL column show the ratio of position error to protection level at the time the maximum error occurred, (4) the Horizontal Maximum Ratio column and the Vertical Maximum Ratio column show the maximum position error to protection level ratio for the quarter. During this reporting period, the maximum LPV horizontal error of 3.154 meters occurred at Oklahoma City and the maximum vertical LPV error of 4.654 meters occurred at Barrow.

Table 2-3. Maximum LPV Error Statistics

Location	Horizontal Error (m)	Horizontal Error HPL	Horizontal Maximum Ratio	Vertical Error (m)	Vertical Error VPL	Vertical Maximum Ratio
Arcata	2.533	0.190	0.214	3.737	0.132	0.187
Atlantic City	1.778	0.116	0.167	3.124	0.197	0.197
Oklahoma City	3.154	0.145	0.241	4.164	0.199	0.240
Albuquerque	1.138	0.108	0.116	2.547	0.077	0.133
Anchorage	1.572	0.116	0.117	2.372	0.120	0.146
Atlanta	1.362	0.117	0.130	2.371	0.122	0.160
Barrow	2.144	0.110	0.147	4.654	0.144	0.144
Bethel	1.775	0.087	0.114	2.005	0.077	0.114
Billings	1.075	0.123	0.123	1.918	0.134	0.134
Boston	1.302	0.098	0.110	2.185	0.128	0.143
Chicago	1.430	0.116	0.149	2.602	0.169	0.169
Cleveland	1.229	0.088	0.125	2.374	0.122	0.174
Cold Bay	1.705	0.095	0.100	2.030	0.082	0.102
Dallas	0.976	0.099	0.108	2.313	0.092	0.168
Denver	1.043	0.122	0.129	1.930	0.096	0.119
Fairbanks	1.529	0.137	0.150	2.937	0.137	0.144
Gander	1.591	0.110	0.110	2.784	0.084	0.128
Goose Bay	1.420	0.108	0.109	2.367	0.110	0.110
Houston	1.267	0.123	0.123	2.910	0.162	0.165
Iqaluit	2.434	0.064	0.137	4.642	0.174	0.175
Jacksonville	1.063	0.072	0.115	2.462	0.112	0.138
Juneau	1.133	0.119	0.118	3.227	0.136	0.139
Kansas City	1.143	0.119	0.119	2.375	0.147	0.176
Kotzebue	1.561	0.141	0.141	3.097	0.087	0.134
Los Angeles	1.583	0.113	0.133	2.980	0.159	0.165
Memphis	1.018	0.108	0.115	2.484	0.145	0.174
Merida	1.397	0.083	0.109	2.838	0.091	0.126
Mexico City	1.682	0.090	0.118	3.232	0.071	0.111
Miami	1.492	0.095	0.116	2.390	0.081	0.134
Minneapolis	1.291	0.145	0.144	2.522	0.138	0.198
New York	1.226	0.102	0.112	2.273	0.148	0.152
Oakland	1.786	0.130	0.133	2.823	0.138	0.156

Location	Horizontal Error (m)	Horizontal Error HPL	Horizontal Maximum Ratio	Vertical Error (m)	Vertical Error VPL	Vertical Maximum Ratio
Puerto Vallarta	1.772	0.125	0.127	2.552	0.069	0.119
Salt Lake City	1.297	0.116	0.118	1.891	0.102	0.122
San Jose Del Cabo	1.659	0.074	0.106	3.457	0.107	0.125
Seattle	1.137	0.119	0.122	2.572	0.107	0.131
Washington DC	1.444	0.117	0.131	2.319	0.117	0.166
Winnipeg	1.267	0.117	0.128	2.446	0.129	0.155

Figure 2-1 through Figure 2-3 show the daily LPV 95% horizontal accuracy at the PA evaluation sites, and Figure 2-4 through Figure 2-6 show the daily LPV 95% vertical accuracy. There were no noteworthy increases in the 95% PA position errors over multiple evaluation sites due to geomagnetic activity.

Figure 2-1. LPV 95% Horizontal Accuracy

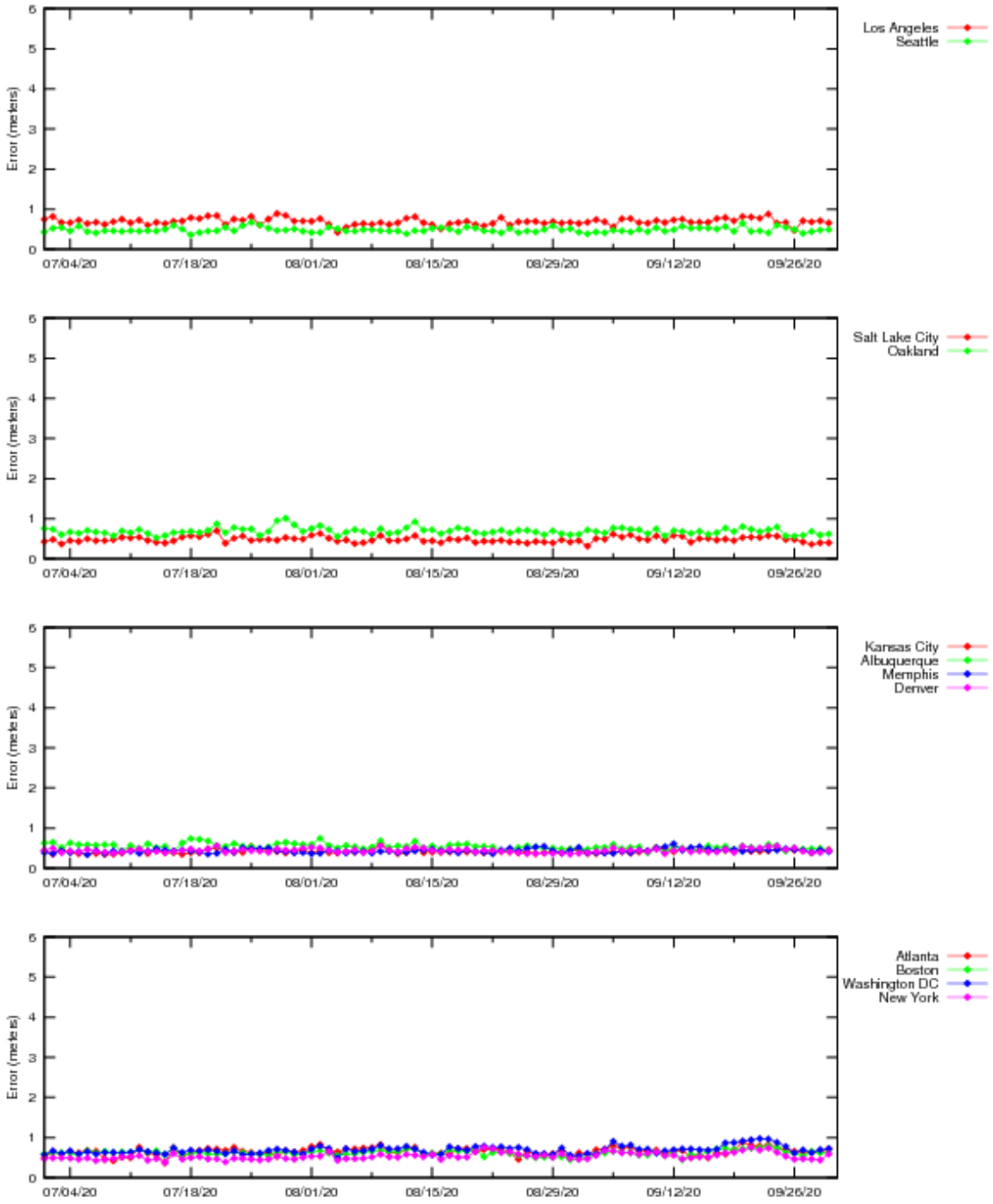


Figure 2-2. LPV 95% Horizontal Accuracy

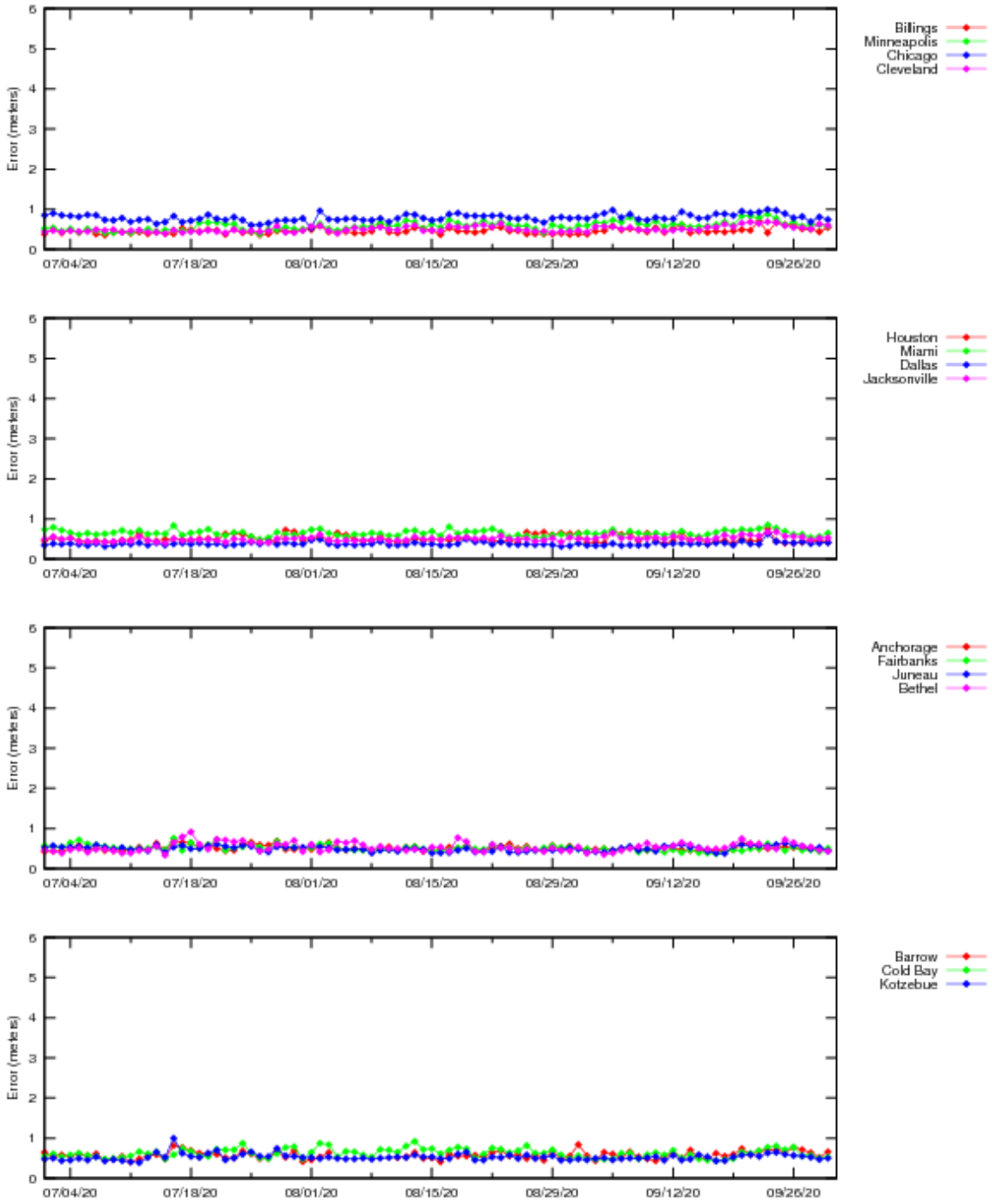


Figure 2-3. LPV 95% Horizontal Accuracy

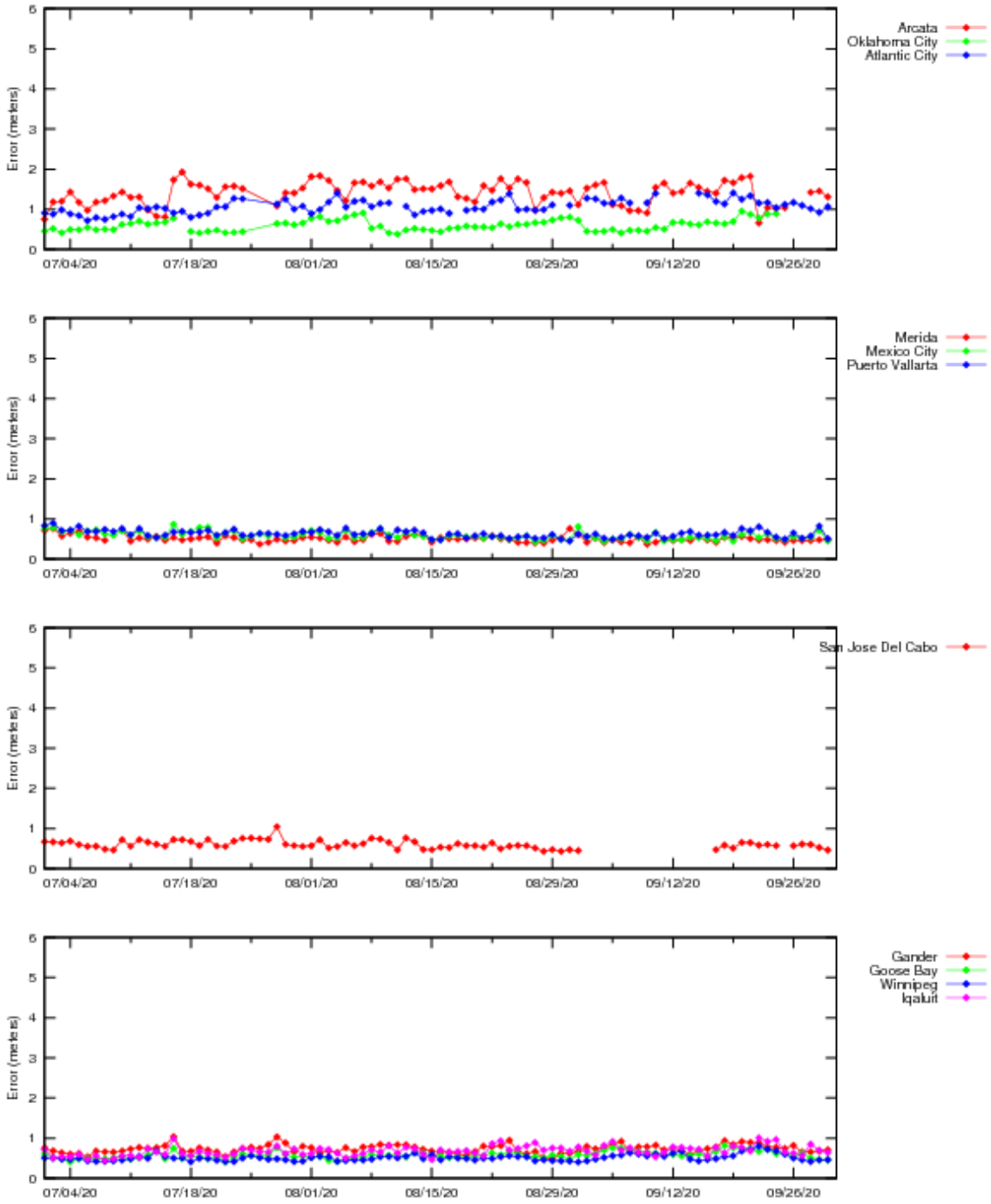


Figure 2-4. LPV 95% Vertical Accuracy

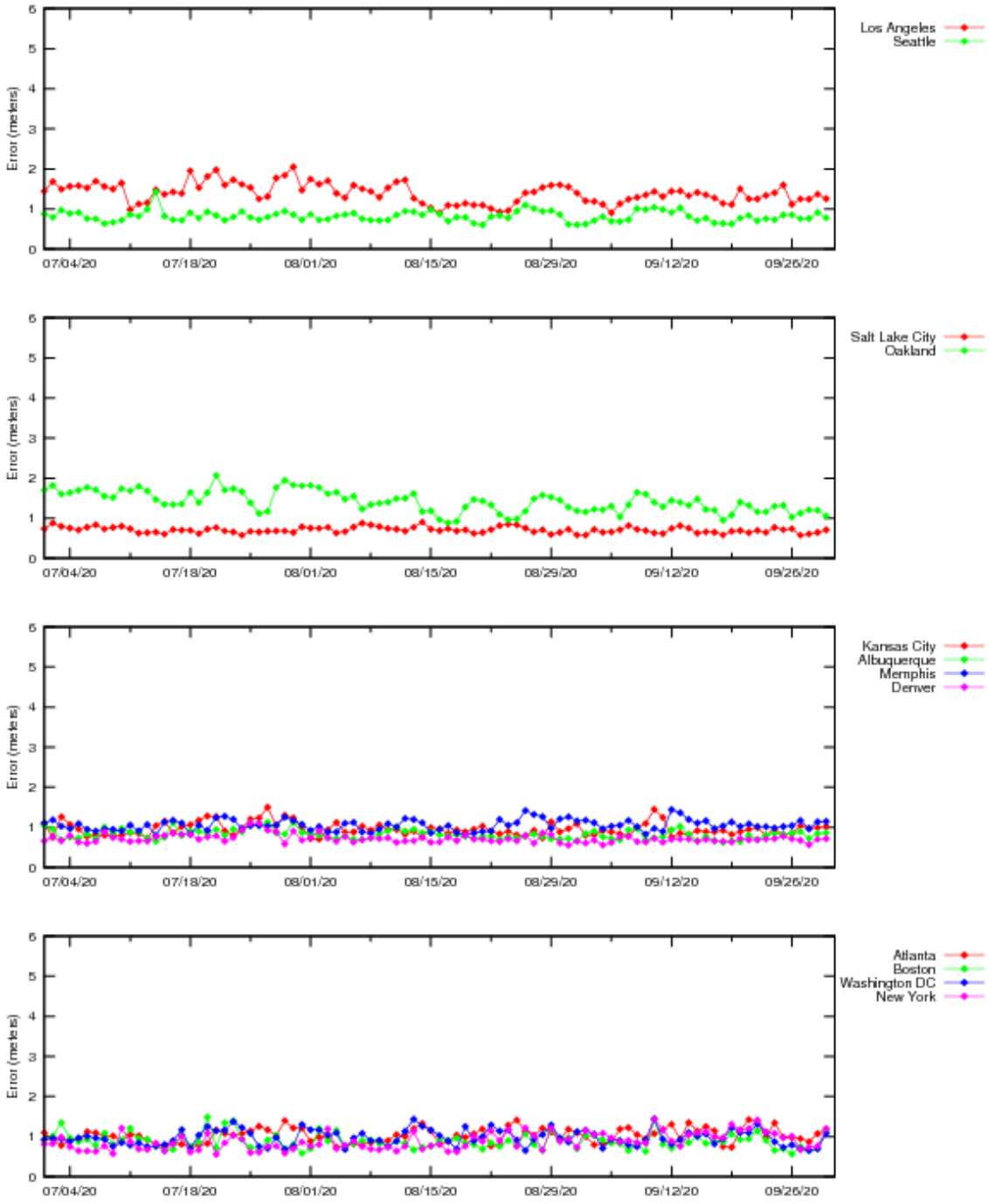


Figure 2-5. LPV 95% Vertical Accuracy

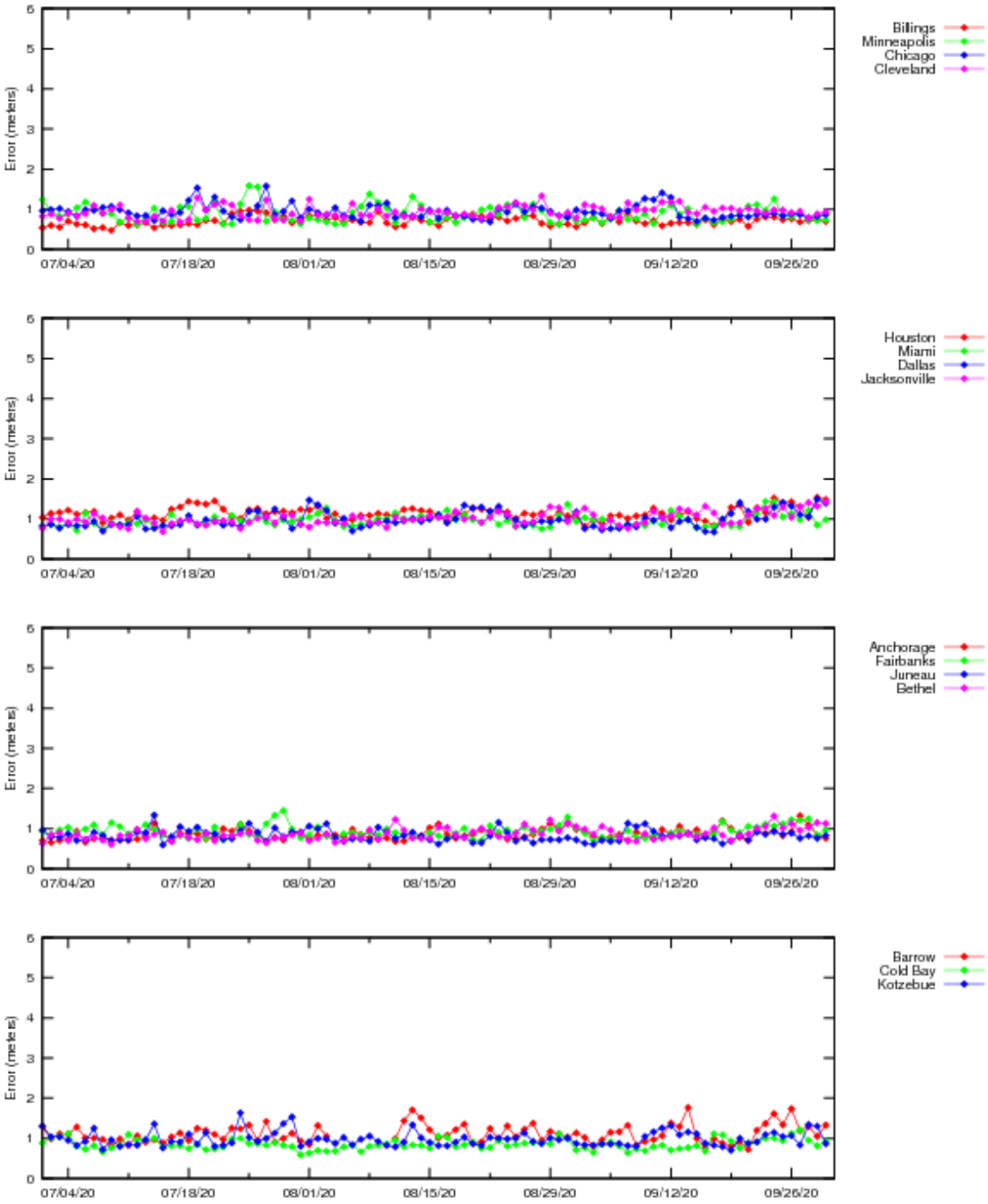


Figure 2-6. LPV 95% Vertical Accuracy

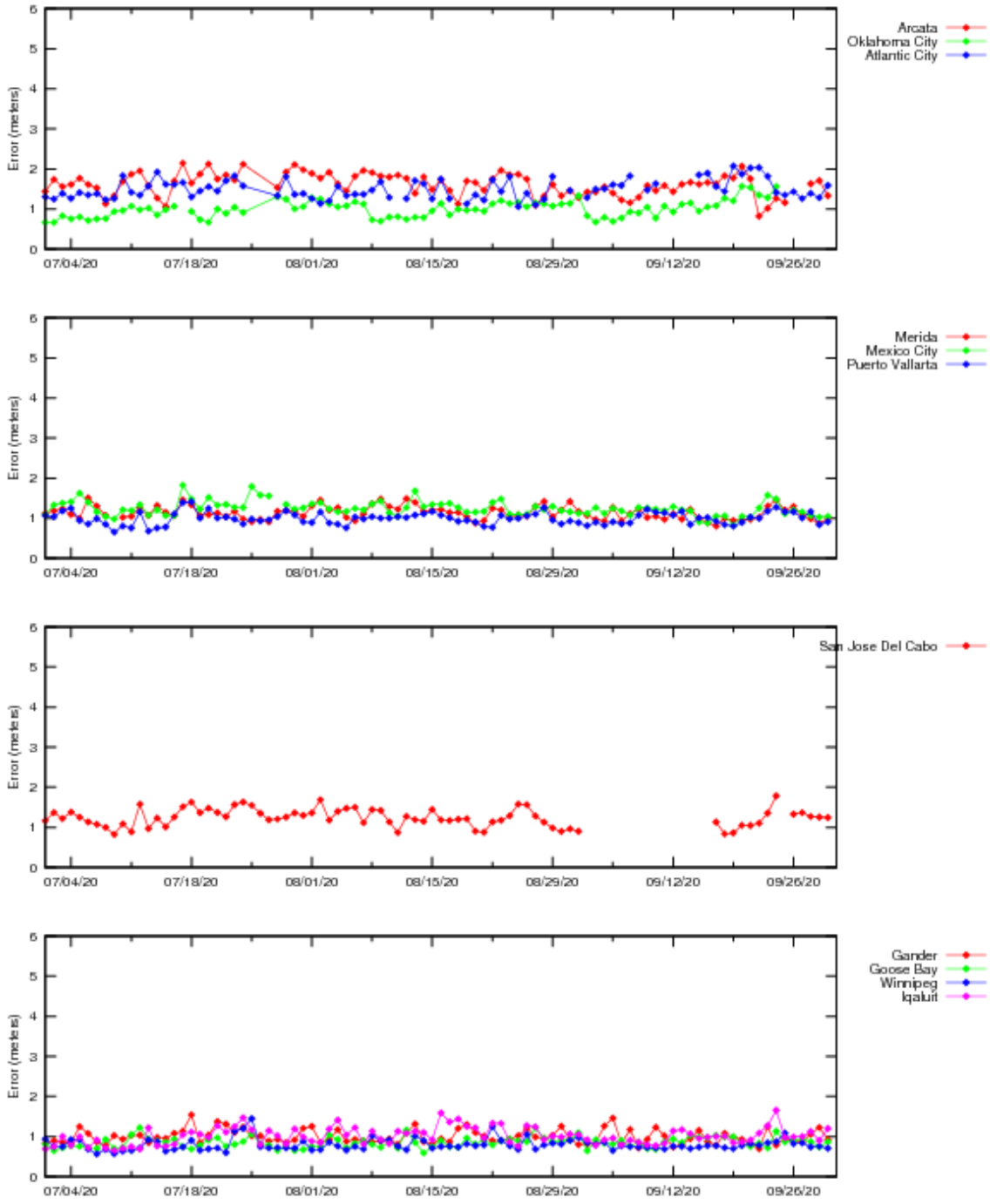


Figure 2-7 and Figure 2-8 show the daily NPA 95% horizontal accuracy at the NPA evaluation sites for the reporting period. There were no noteworthy increases in 95% NPA position errors due to geomagnetic activity.

Figure 2-7. NPA 95% Horizontal Accuracy

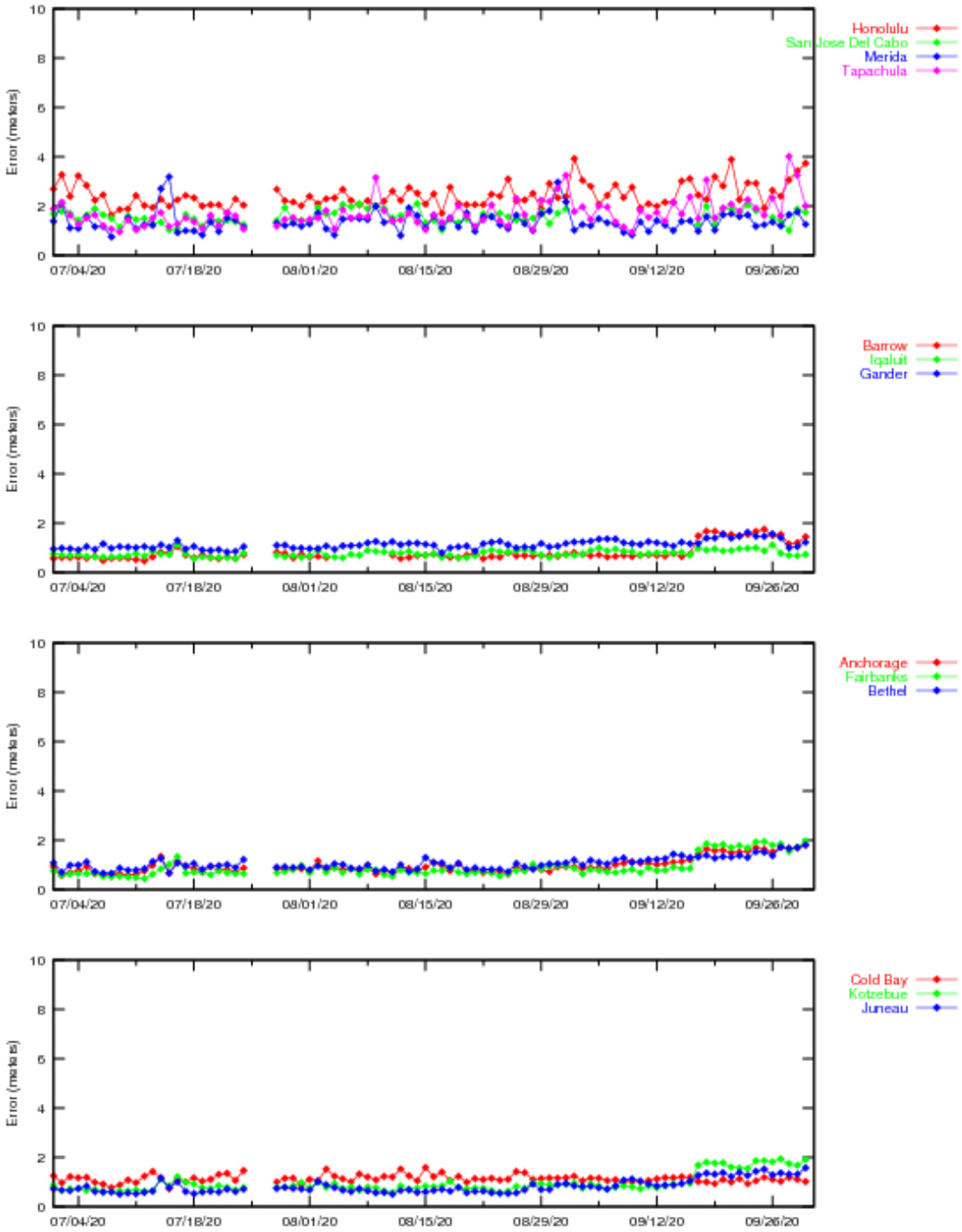


Figure 2-8. NPA 95% Horizontal Accuracy

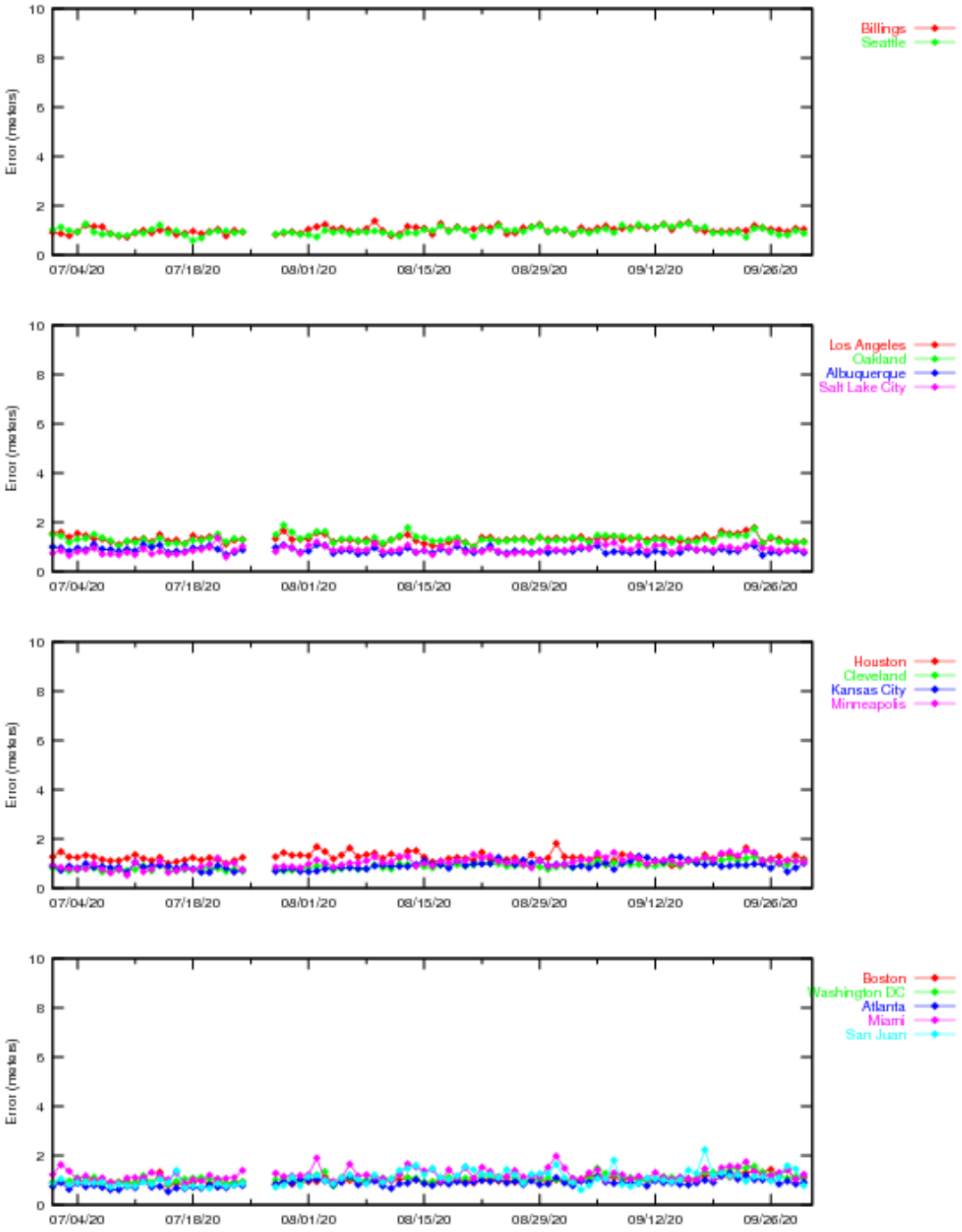


Figure 2-9 through Figure 2-12 show the distributions of the vertical and horizontal errors at all 38 WAAS receiver for the quarter. Figure 2-9 and Figure 2-10 show the triangular distributions of vertical position error (VPE) versus VPL and horizontal position error (HPE) versus HPL: (1) the horizontal axis is the position error, (2) the vertical axis is the WAAS protection level where lower protection levels equate to better availability, (3) the diagonal line shows the point where error equals protection level, (4) above and to the left of the diagonal line show where errors are bounded (WAAS is providing integrity in the position domain), and (5) below and to the right show where errors are not bounded (HMI could be present). Figure 2-11 and Figure 2-12 show the 2-D histograms of HPE, VPE, and normalized position errors: (1) the blue trace shows the distributions of the actual HPE and VPE; (2) the horizontal

axis is the position errors and the vertical axis is the total count of data samples (log scale) in each 0.1-meter bin; (3) the magenta trace shows the distributions of the actual horizontal and vertical errors normalized by one-sigma value of the protection level: horizontal protection level (HPL/6.0) and vertical protection level (VPL/5.33); (4) the horizontal axis is the standard units and vertical axis is the observed distribution of normalized errors data samples in each 0.1-sigma bin. The narrowness of the normalized error distributions indicates good safety performance.

Figure 2-9. LPV Horizontal Error Bounding Triangle Chart

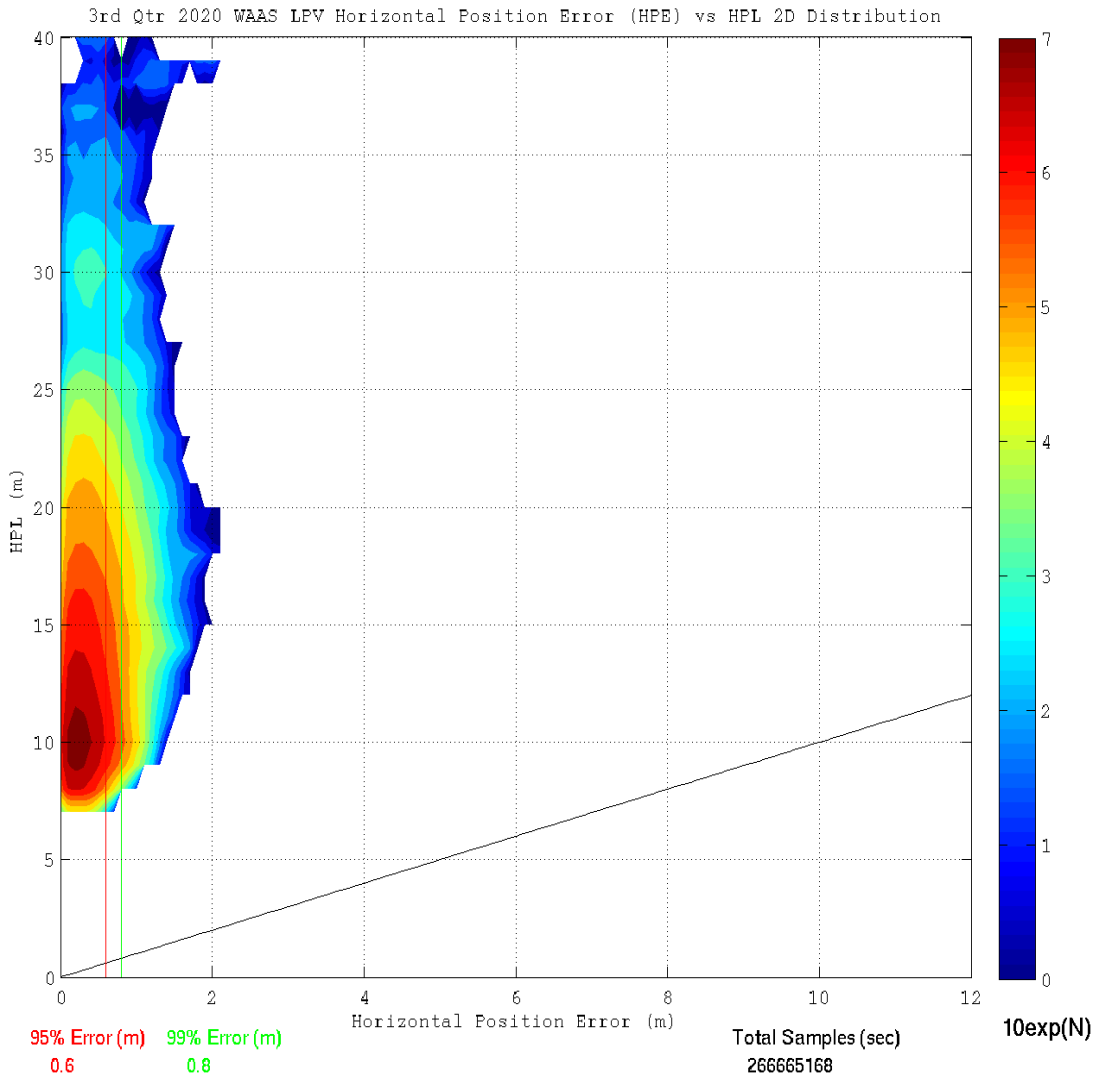


Figure 2-10. LPV Vertical Error Bounding Triangle Chart

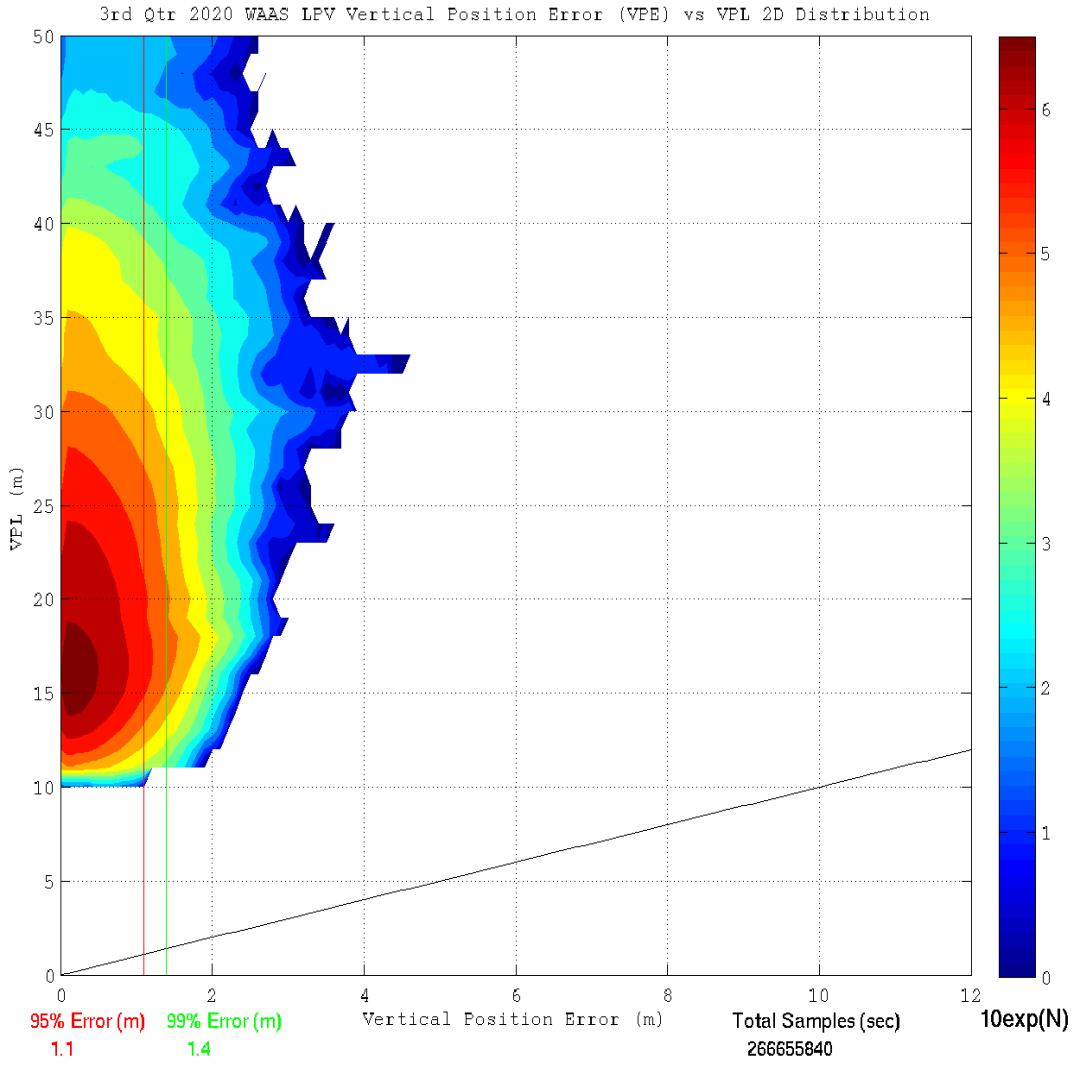


Figure 2-11. LPV 2-D Horizontal Error Distribution Histogram

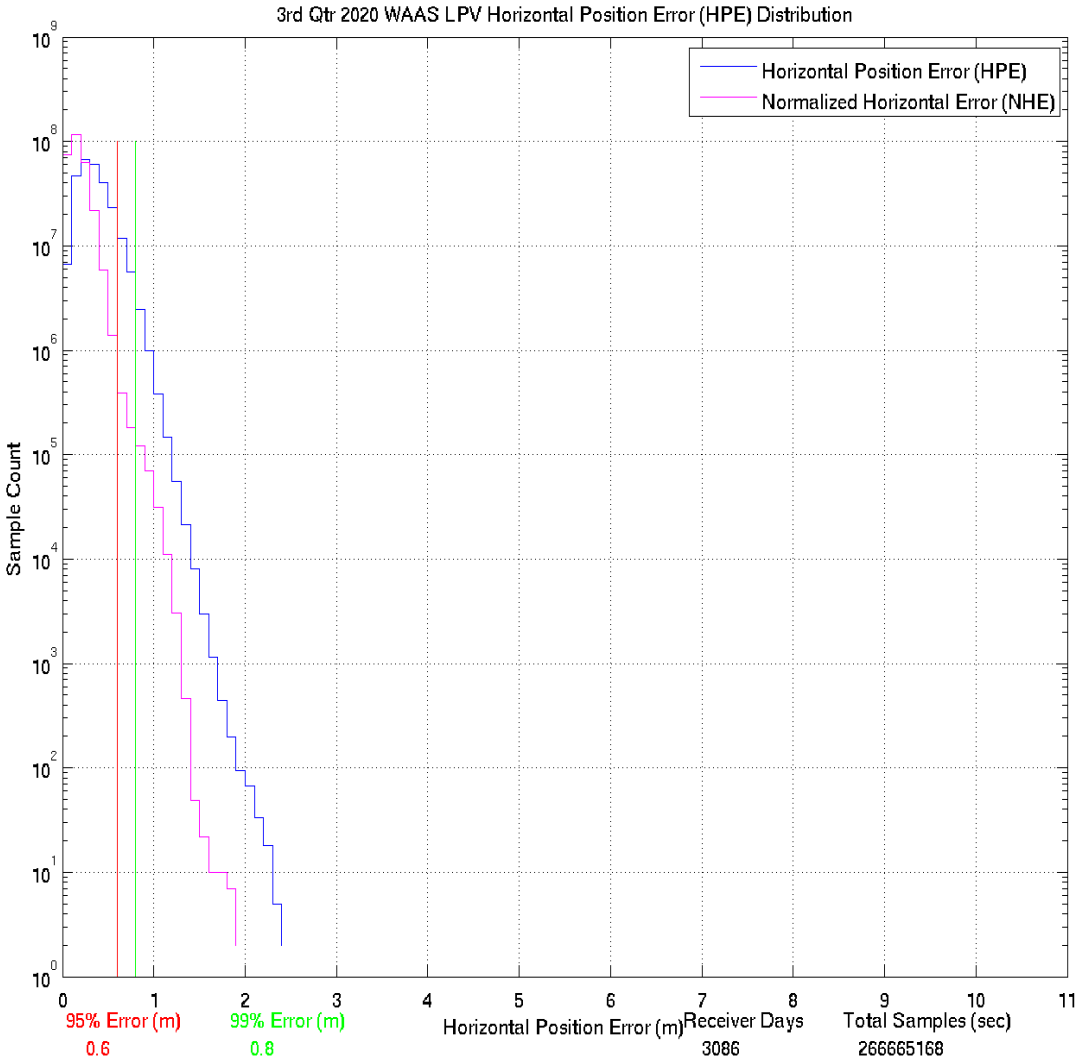
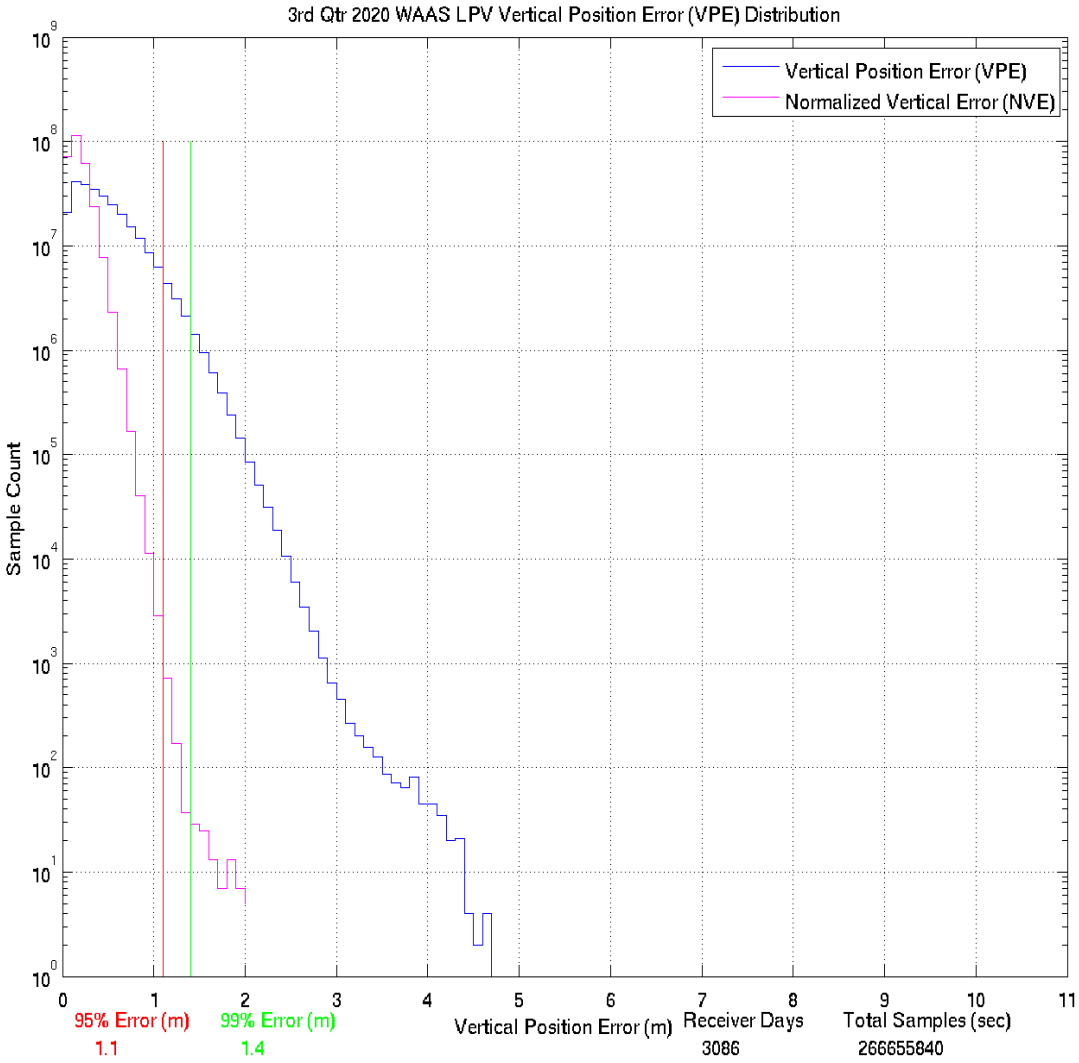


Figure 2-12. LPV 2-D Vertical Error Distribution Histogram



3.0 AVAILABILITY

The WAAS availability evaluation documents the percentage of time the WAAS provided service for the operational service levels defined in Table 1-1. The RTCA DO-229D VPL and HPL were computed for each evaluated receiver. Table 3-1 shows the evaluated receivers, the 99% maintained protection levels, and the percentage in PA mode (described in Section 2.0). The maximum and minimum VPL and HPL for this reporting period are listed as:

- The maximum 99% CONUS HPL was 15.442 meters observed at Miami
- The maximum 99% CONUS VPL was 29.499 meters observed at Oakland
- The minimum 99% CONUS HPL was 10.711 meters observed at Dallas
- The minimum 99% CONUS VPL was 19.318 meters observed at Chicago
- The maximum 99% Alaska HPL was 20.287 meters observed at Cold Bay
- The maximum 99% Alaska VPL was 33.032 meters observed at Barrow
- The minimum 99% Alaska HPL was 12.957 meters observed at Juneau
- The minimum 99% Alaska VPL was 21.575 meters observed at Anchorage and Juneau

Table 3-1. 99% Protection Level

Location	99% HPL (Meters)	99% VPL (Meters)	Percentage in PA mode (%)
Arcata	13.85	28.837	100
Atlantic City	13.76	22.429	100
Oklahoma City	10.777	22.535	100
Albuquerque	12.024	22.372	100
Anchorage	13.816	21.575	100
Atlanta	12.185	22.839	100
Barrow	16.131	33.032	100
Bethel	15.954	24.691	100
Billings	11.689	20.169	100
Boston	14.548	20.991	100
Chicago	11.549	19.318	100
Cleveland	14.805	24.532	100
Cold Bay	20.287	28.968	100
Dallas	10.711	23.105	100
Denver	10.748	20.203	100
Fairbanks	13.735	22.852	100
Gander	20.678	27.599	100
Goose Bay	17.511	24.521	100
Houston	10.893	24.182	100
Iqaluit	18.565	31.864	99.999
Jacksonville	12.902	24.715	100
Juneau	12.957	21.575	100
Kansas City	10.755	19.578	100
Kotzebue	17.189	28.845	100
Los Angeles	14.359	28.792	100
Memphis	11.152	25.315	100
Merida	17.101	34.721	100
Mexico City	21.587	40.318	100
Miami	15.442	27.849	100
Minneapolis	11.797	19.716	100
New York	13.778	20.897	100
Oakland	14.159	29.499	100
Puerto Vallarta	23.464	38.766	100
Salt Lake City	10.906	21.855	100
San Jose Del Cabo	22.141	37.021	100
Seattle	13.485	24.156	100
Washington DC	12.748	20.854	100
Winnipeg	13.419	20.828	100

Availability of LP, LPV, and LPV200 services are evaluated by monitoring the WAAS protection levels at receiver locations. Service is available when the VPL is less than the vertical alert limit (VAL) and the HPL is less than the horizontal alert limit (HAL). When the protection level exceeds the alert limit, the service is unavailable and an outage in service is recorded along with its duration. The operational service is not available again until both protection levels are within the alert limits for at least 15 minutes. Although this will cause minimal reduction in operational service availability, it will substantially reduce the number of service outages and prevent excessive switching in/out of service availability.

Table 3-2 shows the percentage of time LP, LPV, and LPV200 service is available using the 15-minute window criteria. Table 3-3 shows LP, LPV, and LPV200 service outages and associated outage rates. The outage rate is the percentage of theoretically interrupted approaches through a loss of operational service once the approach had started.

Figure 3-1 through Figure 3-6 show the daily availability of LPV and LPV200 service levels. Figure 3-7 through Figure 3-12 show the daily interruptions of LPV and LPV200 service levels.

Table 3-2. PA Availability (15-minute window)

Location	LP WAAS With 15 Minute Window (%)	LPV WAAS With 15 Minute Window (%)	LPV200 WAAS With 15 Minute Window (%)
Arcata	100	100	99.99
Atlantic City	100	100	100
Oklahoma City	100	100	100
Albuquerque	100	100	100
Anchorage	100	100	99.99
Atlanta	100	100	100
Barrow	100	100	99.43
Bethel	100	100	100
Billings	100	100	100
Boston	100	100	100
Chicago	100	100	100
Cleveland	100	100	100
Cold Bay	100	100	99.94
Dallas	100	100	100
Denver	100	100	100
Fairbanks	100	100	99.99
Gander	100	100	99.99
Goose Bay	100	100	99.99
Houston	100	100	100
Iqaluit	99.83	99.82	99.51
Jacksonville	100	100	100
Juneau	100	100	100
Kansas City	100	100	100
Kotzebue	100	100	99.84
Los Angeles	100	100	100
Memphis	100	100	100
Merida	100	100	98.78
Mexico City	100	99.75	93.06
Miami	100	100	100
Minneapolis	100	100	100
New York	100	100	100
Oakland	100	100	99.99
Puerto Vallarta	100	99.99	95.05
Salt Lake City	100	100	100
San Jose Del Cabo	100	99.95	98.12
Seattle	100	100	100
Washington DC	100	100	100
Winnipeg	100	100	100

Table 3-3. LPV and LPV200 Outage Rate (Per 150 sec approach)

Location	LP Outages (Number)	LP Outage Rates	LPV Outages (Number)	LPV Outage Rates	LPV200 Outages (Number)	LPV200 Outage Rates
Arcata	0	0	0	0	2	0.00004
Atlantic City	0	0	0	0	0	0
Oklahoma City	0	0	0	0	1	0.00002
Albuquerque	0	0	0	0	0	0
Anchorage	0	0	0	0	1	0.000019
Atlanta	0	0	0	0	0	0
Barrow	1	0.00002	5	0.000102	58	0.001193
Bethel	0	0	0	0	1	0.000019
Billings	0	0	0	0	0	0
Boston	0	0	0	0	0	0
Chicago	0	0	0	0	0	0
Cleveland	0	0	0	0	0	0
Cold Bay	0	0	0	0	13	0.000246
Dallas	0	0	0	0	0	0
Denver	0	0	0	0	0	0
Fairbanks	0	0	0	0	3	0.000057
Gander	0	0	0	0	3	0.000057
Goose Bay	0	0	0	0	1	0.000019
Houston	0	0	0	0	0	0
Iqaluit	16	0.000303	18	0.000341	52	0.000987
Jacksonville	0	0	0	0	0	0
Juneau	0	0	0	0	0	0
Kansas City	0	0	0	0	0	0
Kotzebue	0	0	0	0	22	0.000418
Los Angeles	0	0	0	0	0	0
Memphis	0	0	0	0	0	0
Merida	0	0	1	0.000019	190	0.003673
Mexico City	0	0	96	0.001837	663	0.013598
Miami	0	0	0	0	0	0
Minneapolis	0	0	0	0	0	0
New York	0	0	0	0	0	0
Oakland	0	0	0	0	2	0.000038
Puerto Vallarta	0	0	26	0.000491	447	0.008879
Salt Lake City	0	0	0	0	0	0
San Jose Del Cabo	0	0	8	0.000186	255	0.00605
Seattle	0	0	0	0	0	0
Washington DC	0	0	0	0	0	0
Winnipeg	0	0	0	0	1	0.000019

Figure 3-1. LPV Instantaneous Availability

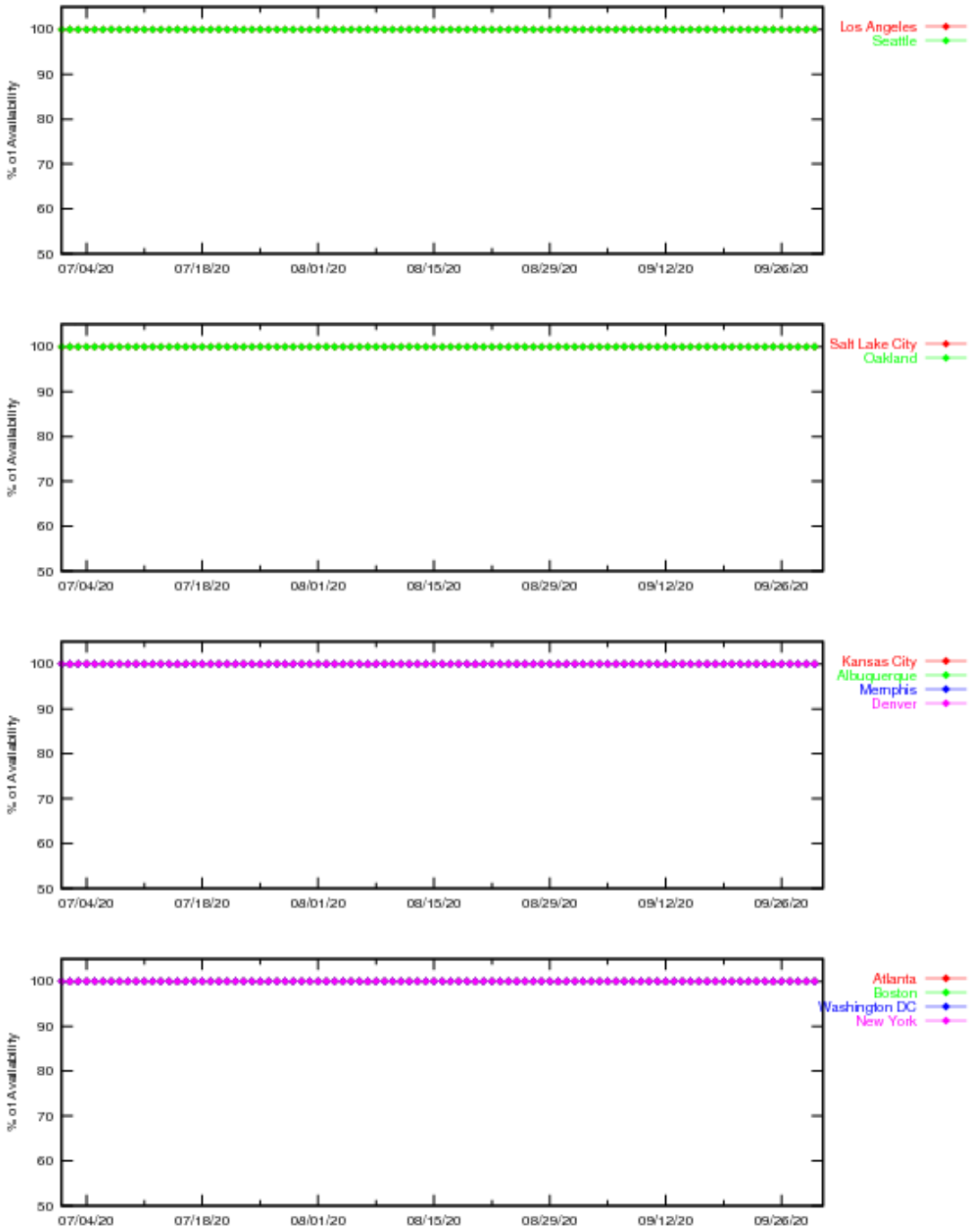


Figure 3-2. LPV Instantaneous Availability

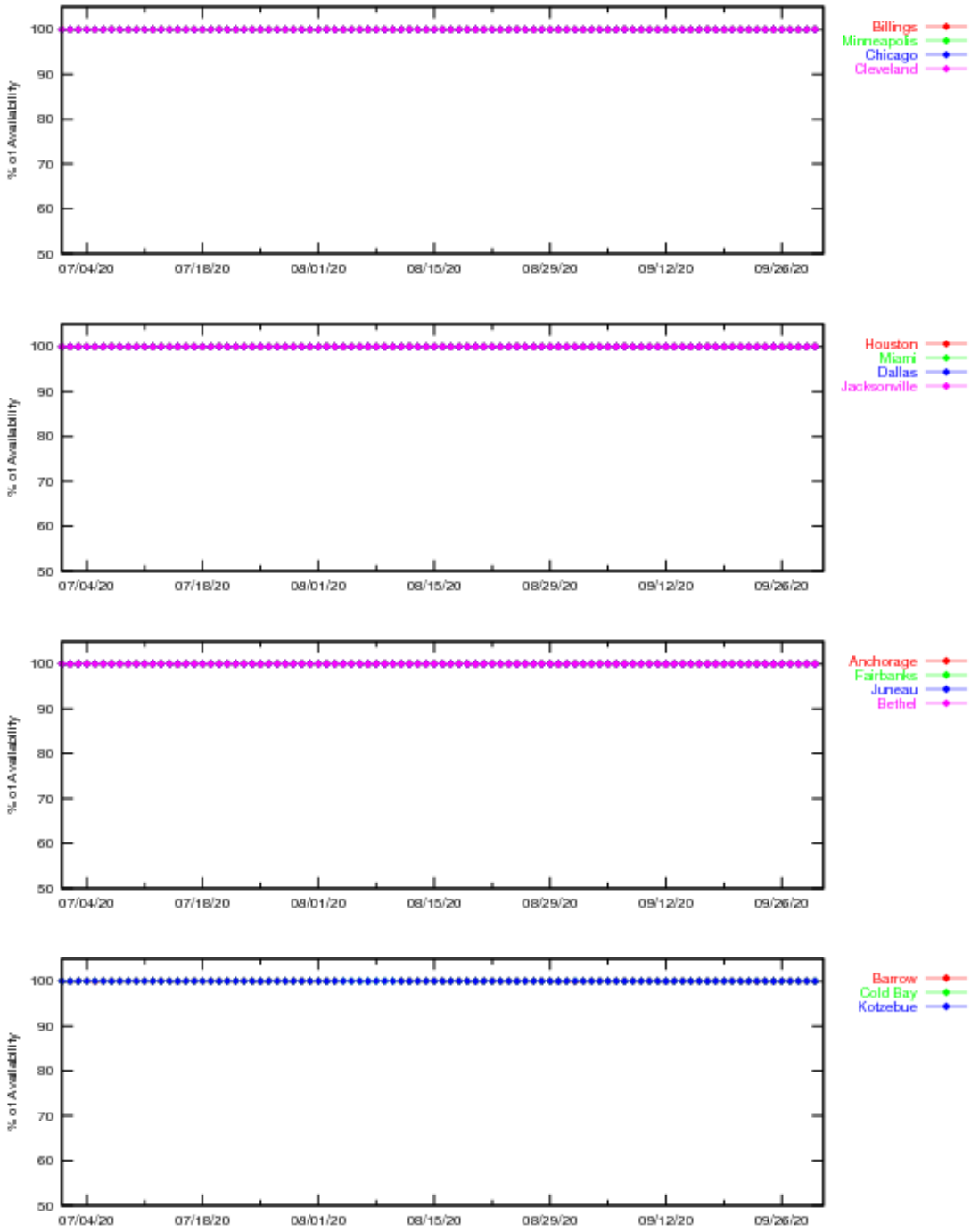


Figure 3-3. LPV Instantaneous Availability

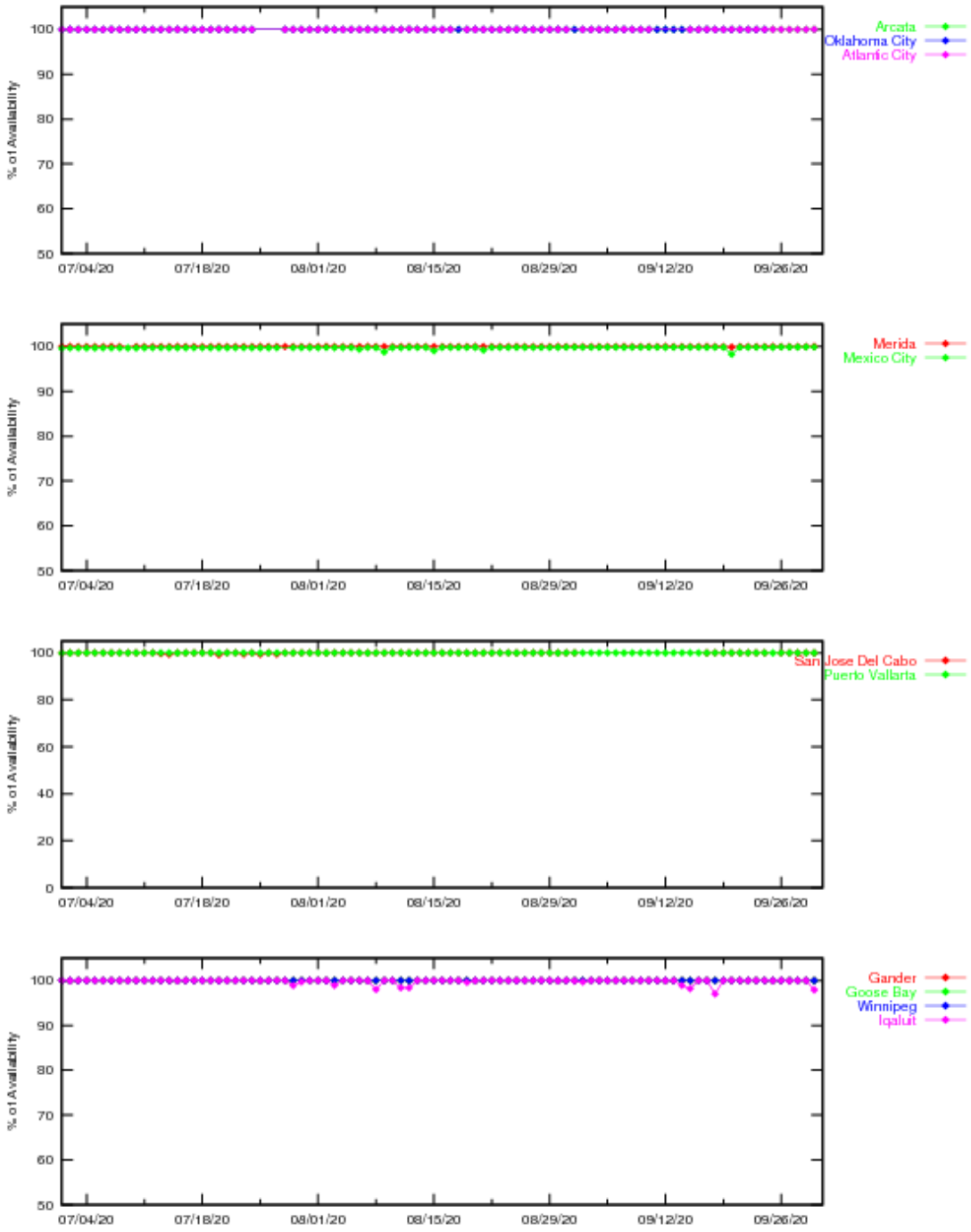


Figure 3-4. LPV200 Instantaneous Availability

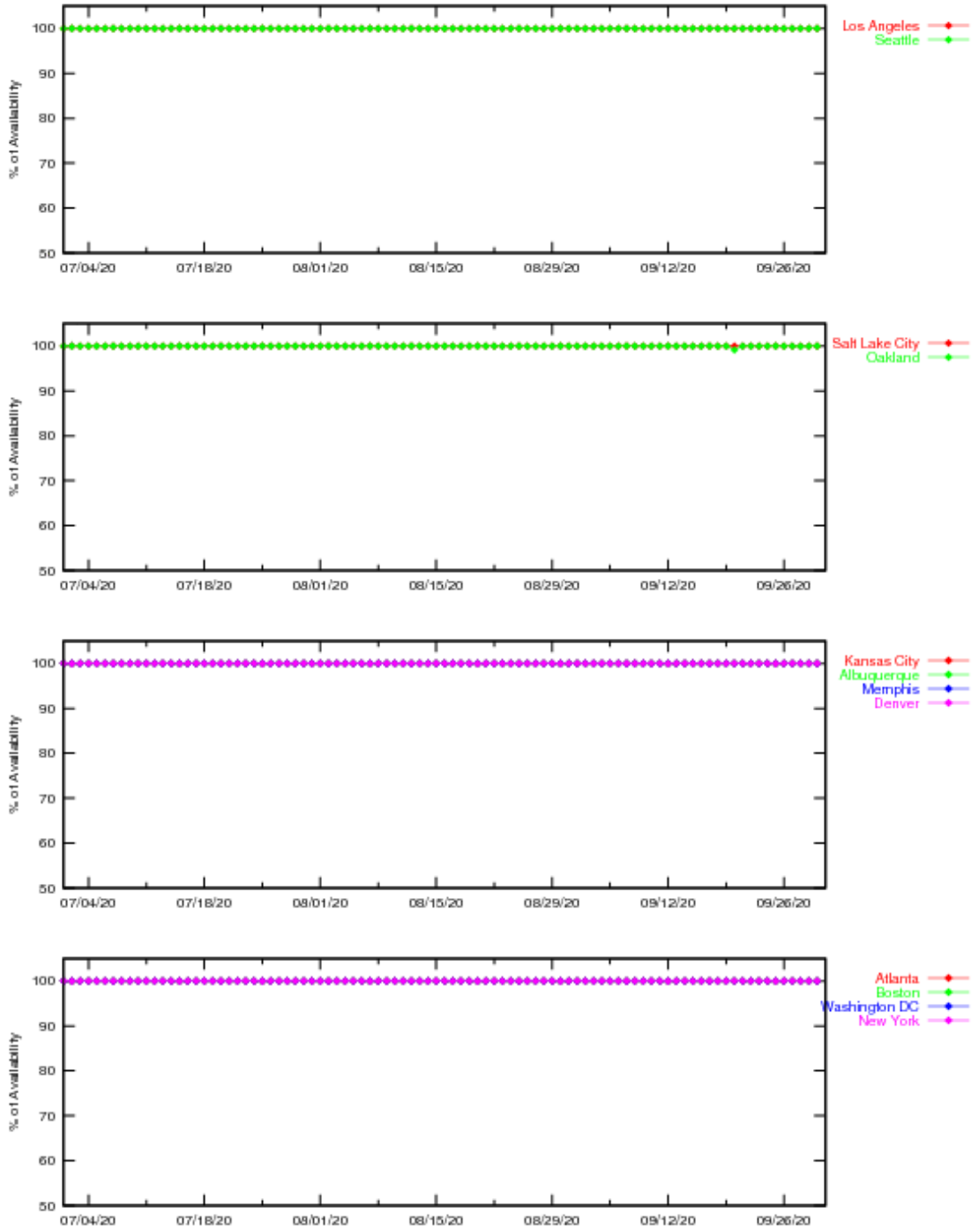


Figure 3-5. LPV200 Instantaneous Availability

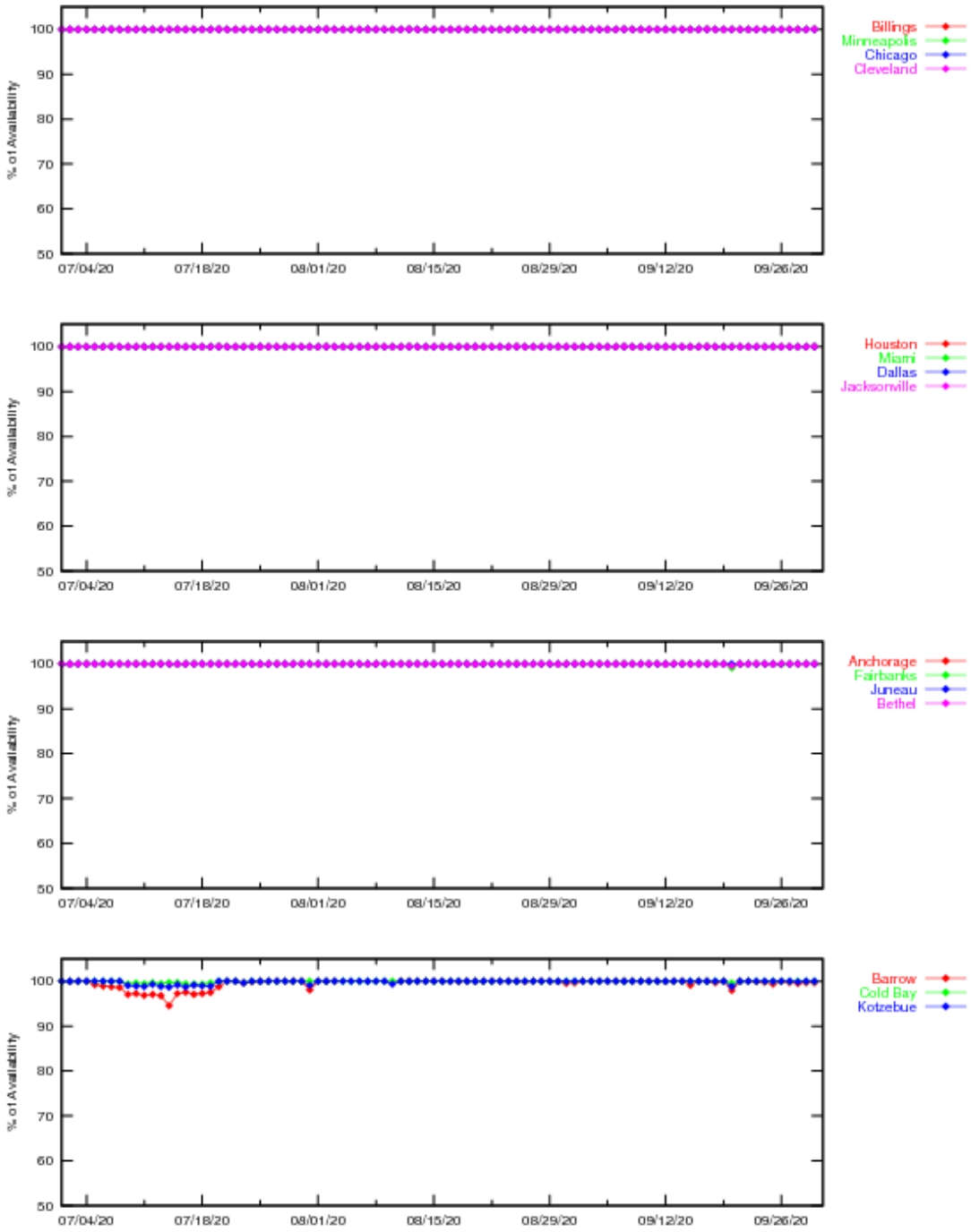


Figure 3-6. LPV200 Instantaneous Availability

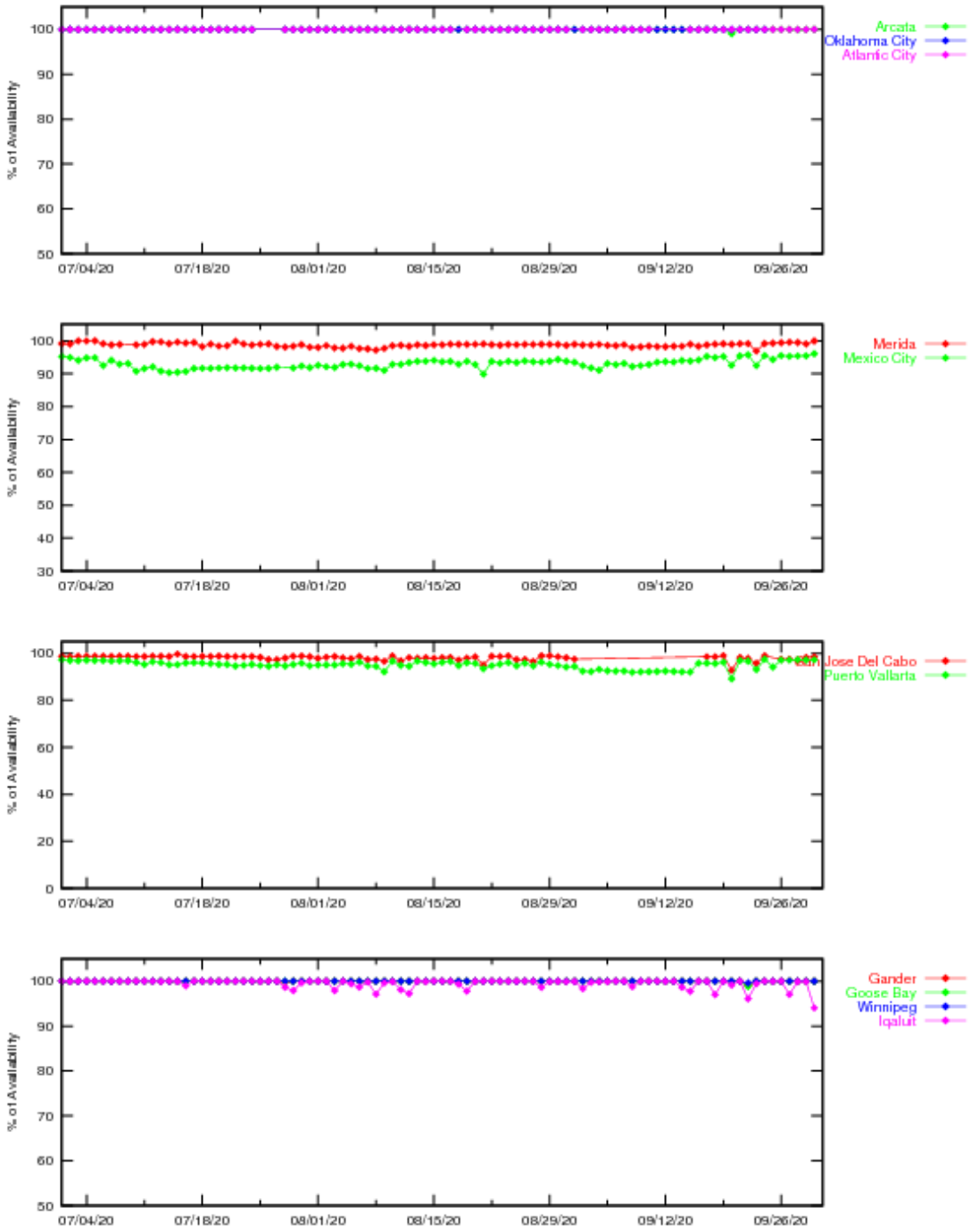


Figure 3-7. LPV Outages

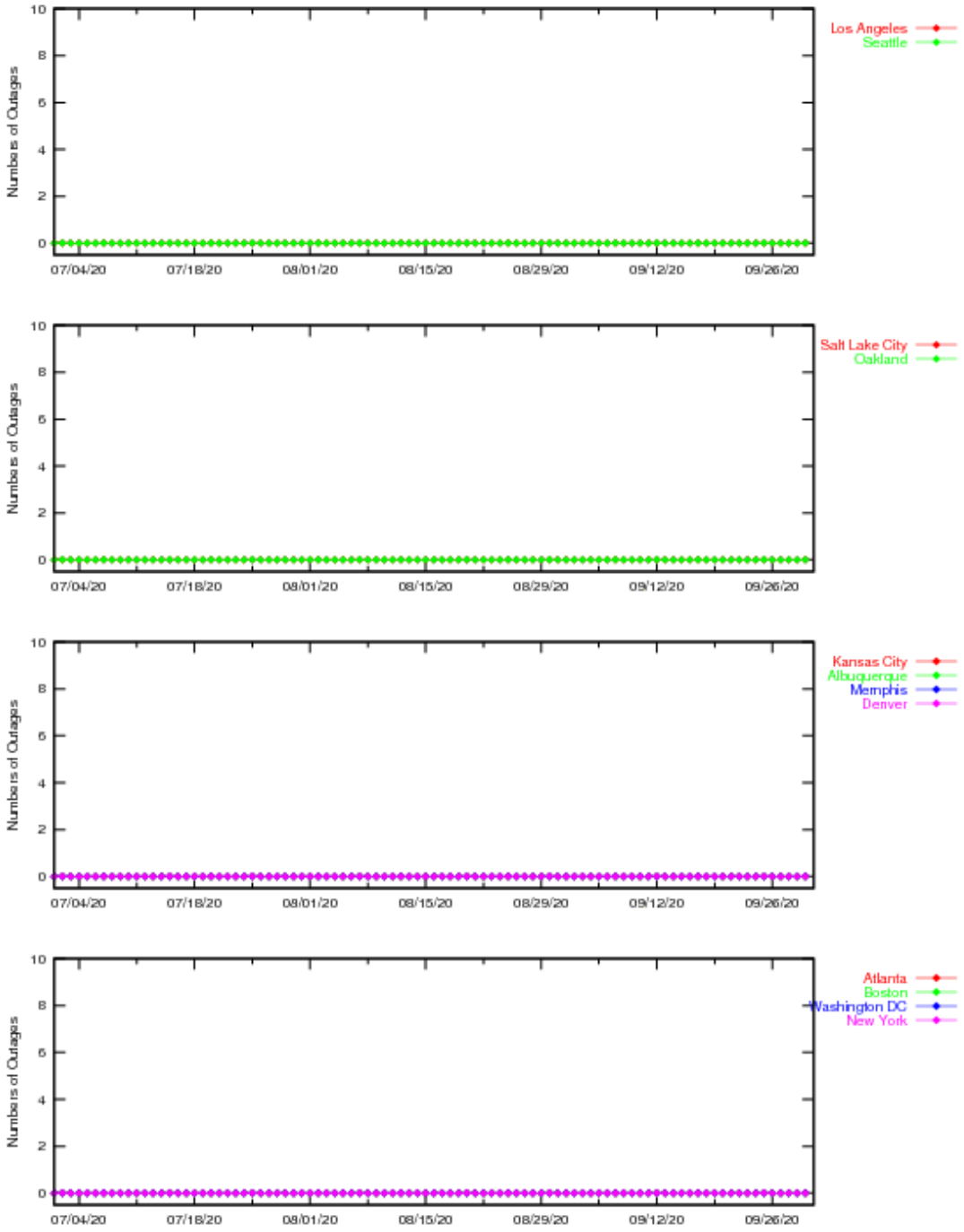


Figure 3-8. LPV Outages

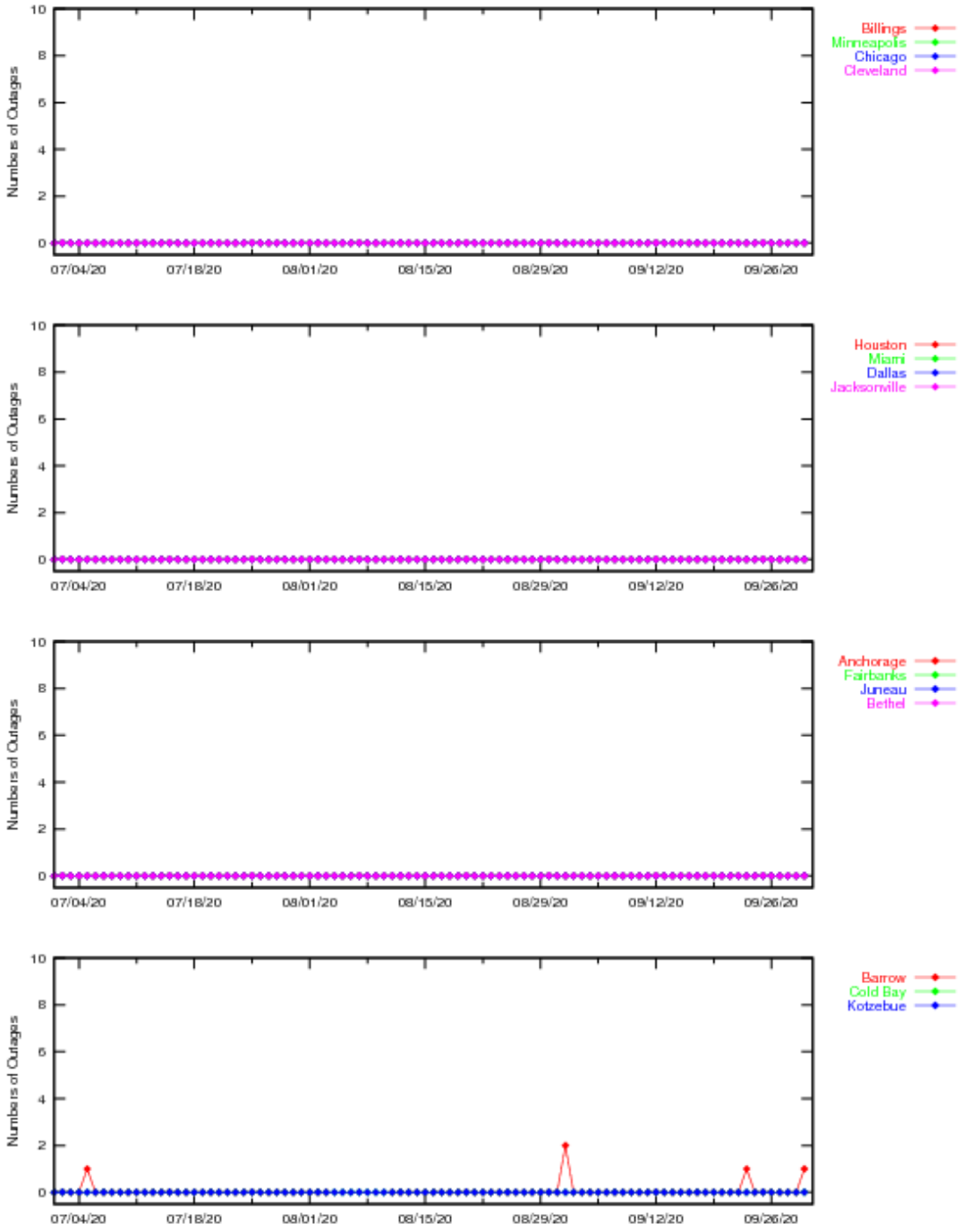


Figure 3-9. LPV Outages

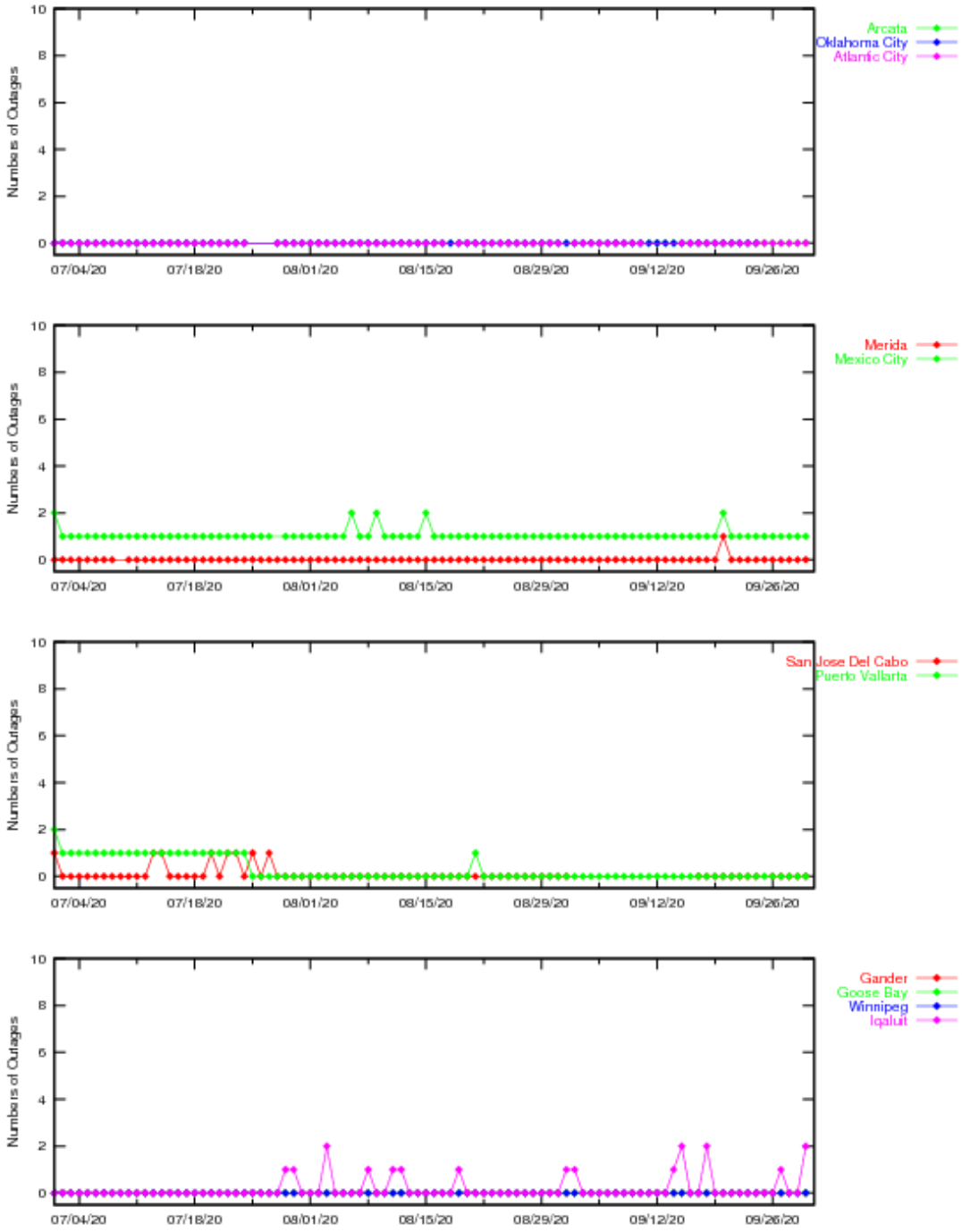


Figure 3-10. LPV200 Outages

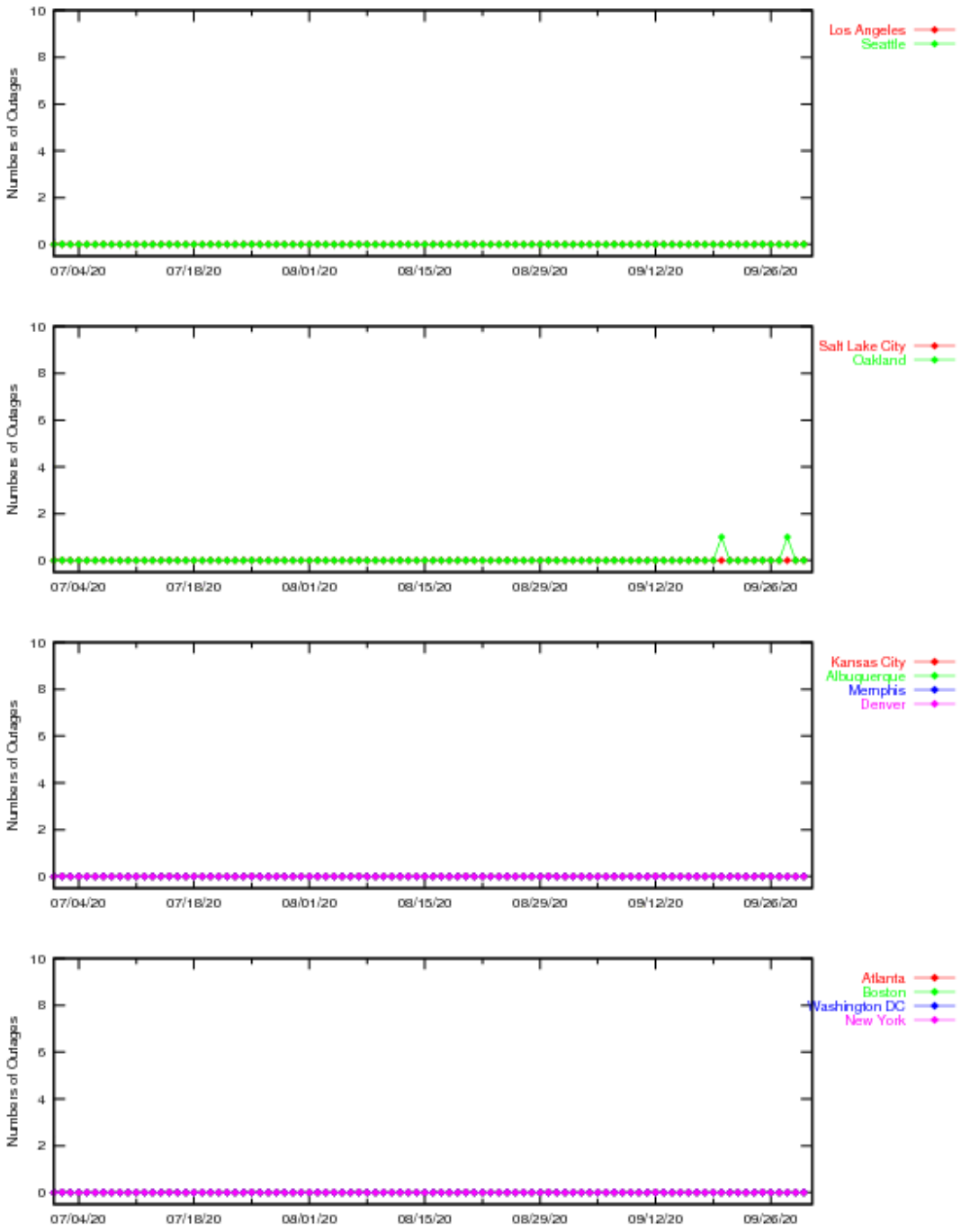


Figure 3-11. LPV200 Outages

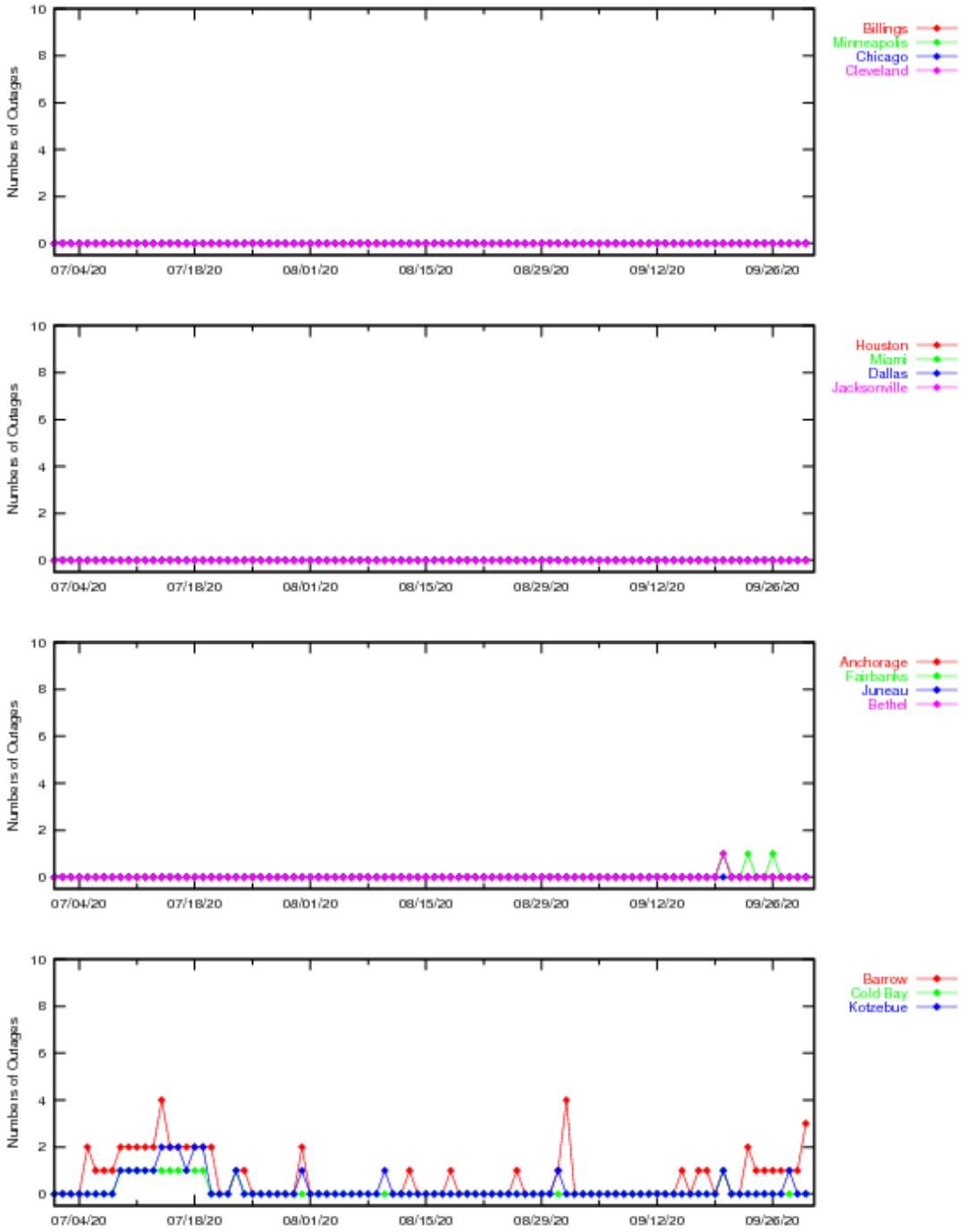
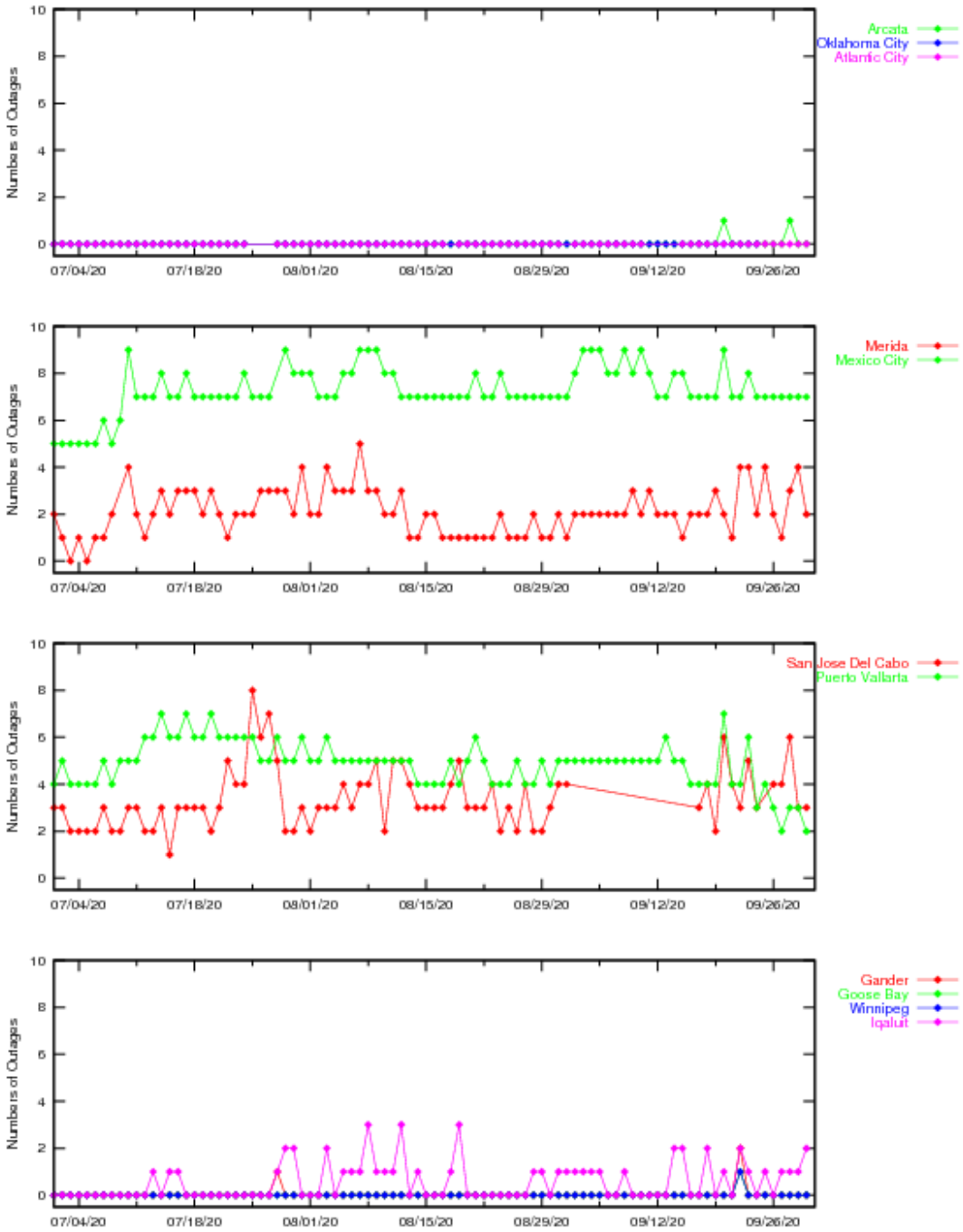


Figure 3-12. LPV200 Outages



Availability of NPA service is evaluated by monitoring the WAAS HPL at receiver locations. Service is available when the HPL is less than a HAL of 556 meters. The service is unavailable when HPL exceeds the HAL or when a WAAS navigation message is not received, and the service outage and its duration are recorded. NPA service is not available again until the HPL is within the HAL for at least 15 minutes. Table 3-4 shows the percentage of time that NPA service is available using the 15-minute window criteria. Table 3-5 shows the NPA service outages and associated outage rates. The outage rate is the percentage of theoretically interrupted NPA approaches through a loss of operational service once the approach had started.

Table 3-4. NPA Availability (15-minute window)

Location	NPA Availability (Excluding RAIM/FDE) (%)
Arcata	99.4527
Oklahoma City	99.9956
Albuquerque	100
Anchorage	100
Atlanta	100
Barrow	100
Bethel	100
Billings	100
Boston	100
Cleveland	100
Cold Bay	100
Fairbanks	100
Gander	100
Honolulu	100
Houston	100
Iqaluit	100
Juneau	100
Kansas City	100
Kotzebue	100
Los Angeles	100
Merida	100
Miami	100
Minneapolis	100
Oakland	100
Salt Lake City	100
San Jose Del Cabo	100
San Juan	100
Seattle	100
Tapachula	100
Washington DC	100

Table 3-5. NPA Outage Rates (Excluding FD/FDE)

Location	NPA Outages (Number)	NPA Outage Rates
Albuquerque	0	0
Anchorage	0	0
Atlanta	0	0
Barrow	0	0
Bethel	0	0
Billings	0	0
Boston	0	0
Cleveland	0	0
Cold Bay	0	0
Fairbanks	0	0
Gander	0	0
Honolulu	0	0
Houston	0	0
Iqaluit	0	0
Juneau	0	0
Kansas City	0	0
Kotzebue	0	0
Los Angeles	0	0
Merida	0	0
Miami	0	0
Minneapolis	0	0
Oakland	0	0
Salt Lake City	0	0
San Jose Del Cabo	0	0
San Juan	0	0
Seattle	0	0
Tapachula	1	0.000020
Washington DC	0	0

The availability decreases for this quarter were due to satellite maintenance, GUS switchovers, and elevated UDRE and GIVE values. Noteworthy events that affected availability are:

- Jun11–Jul 31–Elevated UDREs on PRN133 reduced LPV200 availability in Alaska.
- Jul 23–A GUS switchover on S15 caused a reduction of LPV200 availability in Alaska.
- Jul 28-30–Subframe reasonability warnings elevated GIVEs and reduced LPV and LPV200 availability in Canada.
- Jul 31–A GUS switchover on SM9 caused a reduction of LPV200 availability in Alaska.
- Jul 31–A GUS switchover on S15 caused a reduction of LPV200 availability in Alaska.
- Aug 3–SubFrame reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.
- Aug 8–Subframe reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.
- Aug 11–Subframe reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.
- Sep 3–16–Communication outages at San Jose Del Cabo (MSD) increased GIVEs and reduced LPV200 availability in CONUS.
- Sep 8–A GUS switchover on SM9 caused a reduction of LPV200 availability in Alaska.
- Sep 15–Subframe reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.
- Sep 18–Subframe reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.
- Sep 20–Satellite maintenance elevated UDREs on PRN4 and reduced LPV200 availability in CONUS, Alaska, and Canada.
- Sep 22–Satellite maintenance elevated UDREs on PRN32 and reduced LPV200 availability in CONUS and Canada.

- Sep 30–Subframe reasonability warnings elevated GIVEs and reduced LPV200 availability in Canada.

4.0 COVERAGE

The WAAS coverage area evaluation estimates the percent of service volume where WAAS provided service for the operational service levels defined in Table 1-1. The WAAS message and GPS/GEO satellite status are used to determine WAAS availability across North America. For PA coverage, protection levels were calculated at 30-second intervals at 1-degree spacing over the PA service volume, whereas for NPA coverage, the protection levels were calculated at 30-second intervals at 5-degree spacing over the NPA service volume.

Daily PA analysis was conducted for LP, LPV, and LPV200 service levels. The PA coverage plots provide 100%, 99.9%, 99%, 98%, and 95% availability contours. Figure 4-1 shows the rollup LP North America coverage, Figure 4-2 shows the rollup LPV North America coverage, Figure 4-3 shows the rollup LPV200 North America coverage, Figure 4-4 shows the daily LPV and LPV200 CONUS coverage, Figure 4-5 shows the daily LPV Alaska coverage at 99% availability and ionosphere Kp index values, and Figure 4-6 shows the daily LPV and LPV200 Canada coverage at 99% availability and ionosphere Kp index values. See Appendix B for coverage plots of 98% LP and LPV availability contour and 99% LPV200 availability contour. Kp quantifies the disturbance in the Earth's magnetic field and is an indicator of solar storms causing geomagnetic disturbances, which can cause an unpredictable ionosphere. When the WAAS detects a disturbed ionosphere, it increases GIVE values that may result in unavailable PA service.

Figure 4-1. LP North America Coverage for the Quarter

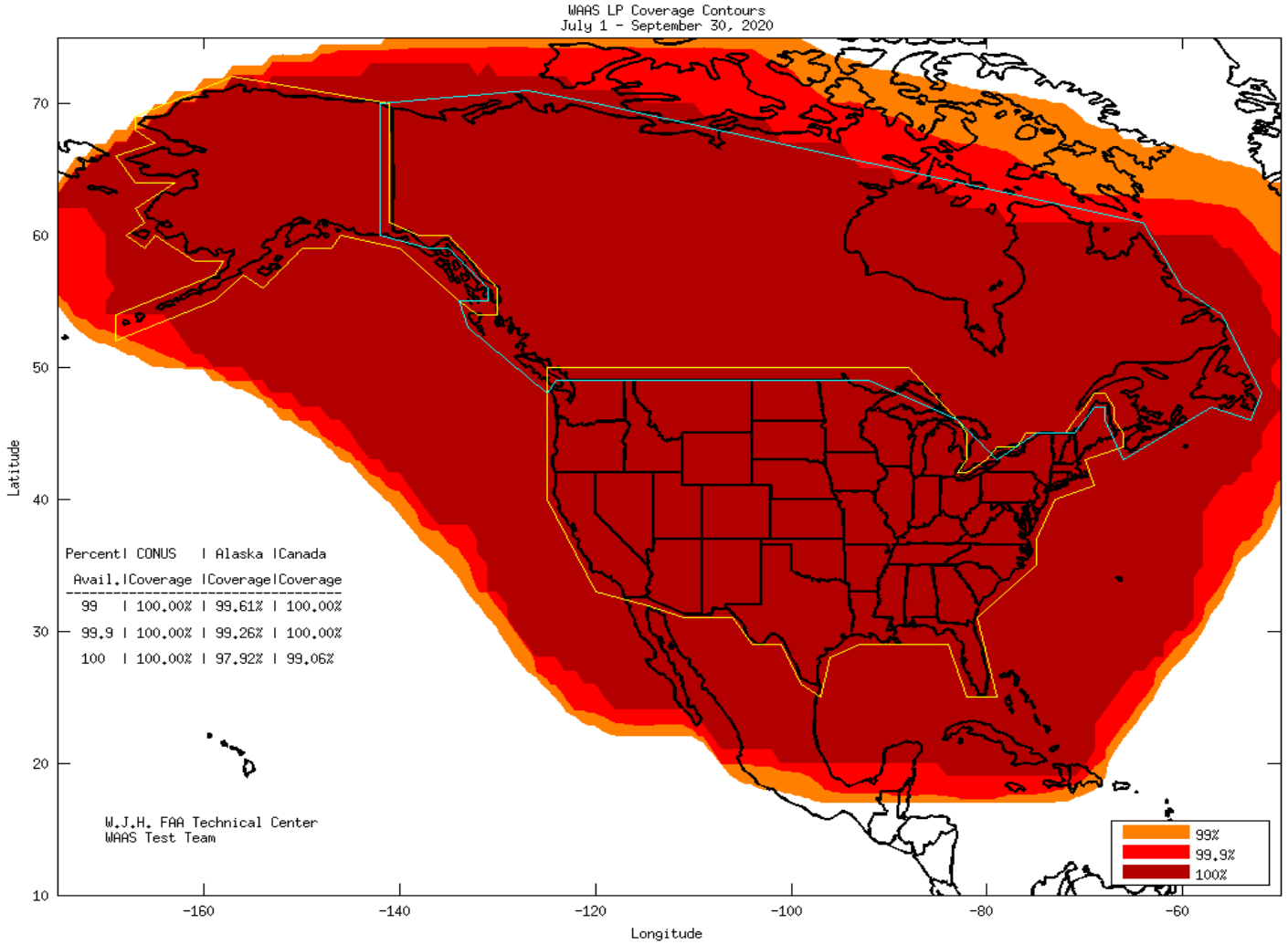


Figure 4-2. LPV North America Coverage for the Quarter

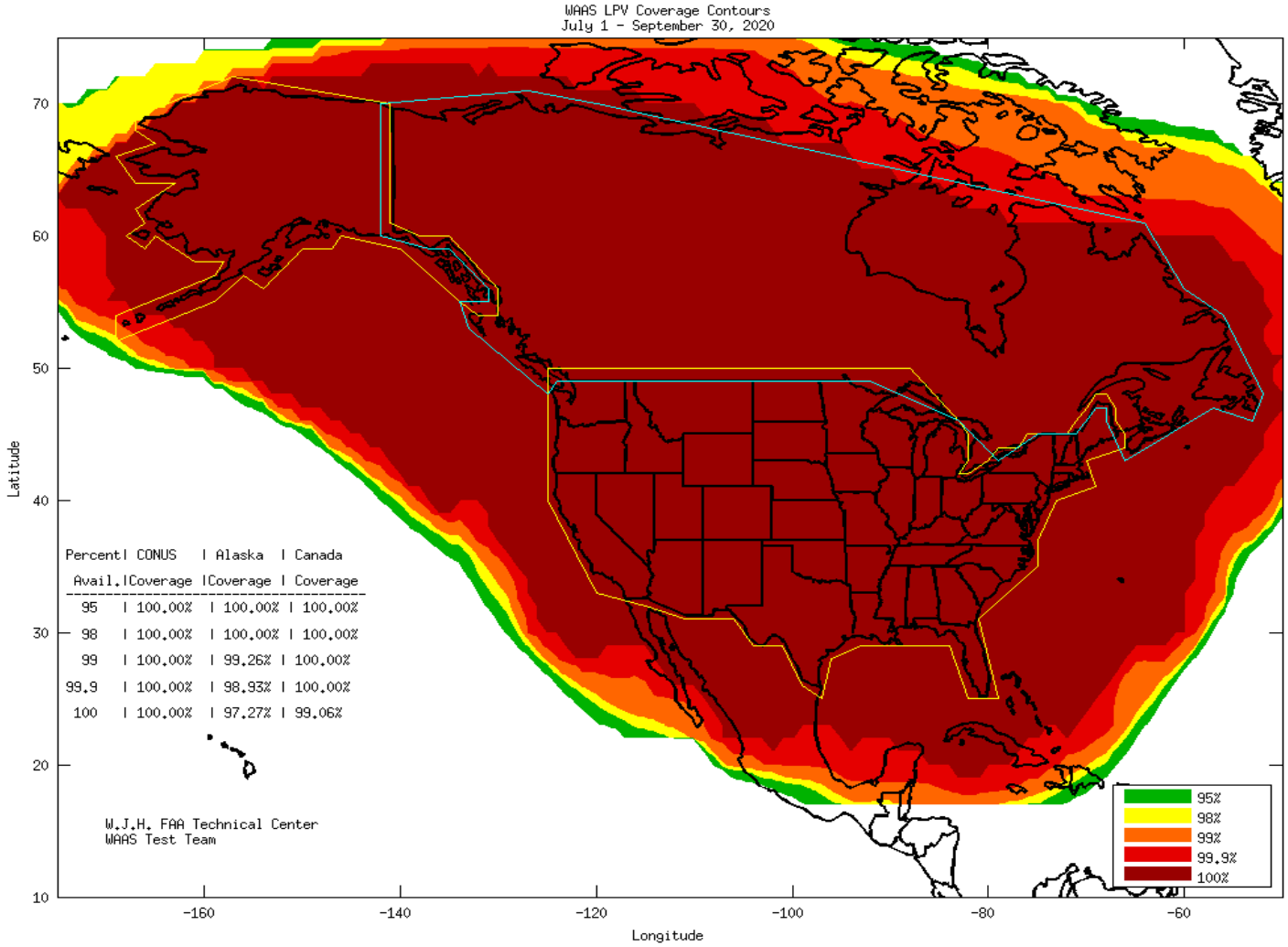


Figure 4-3. LPV200 North America Coverage for the Quarter

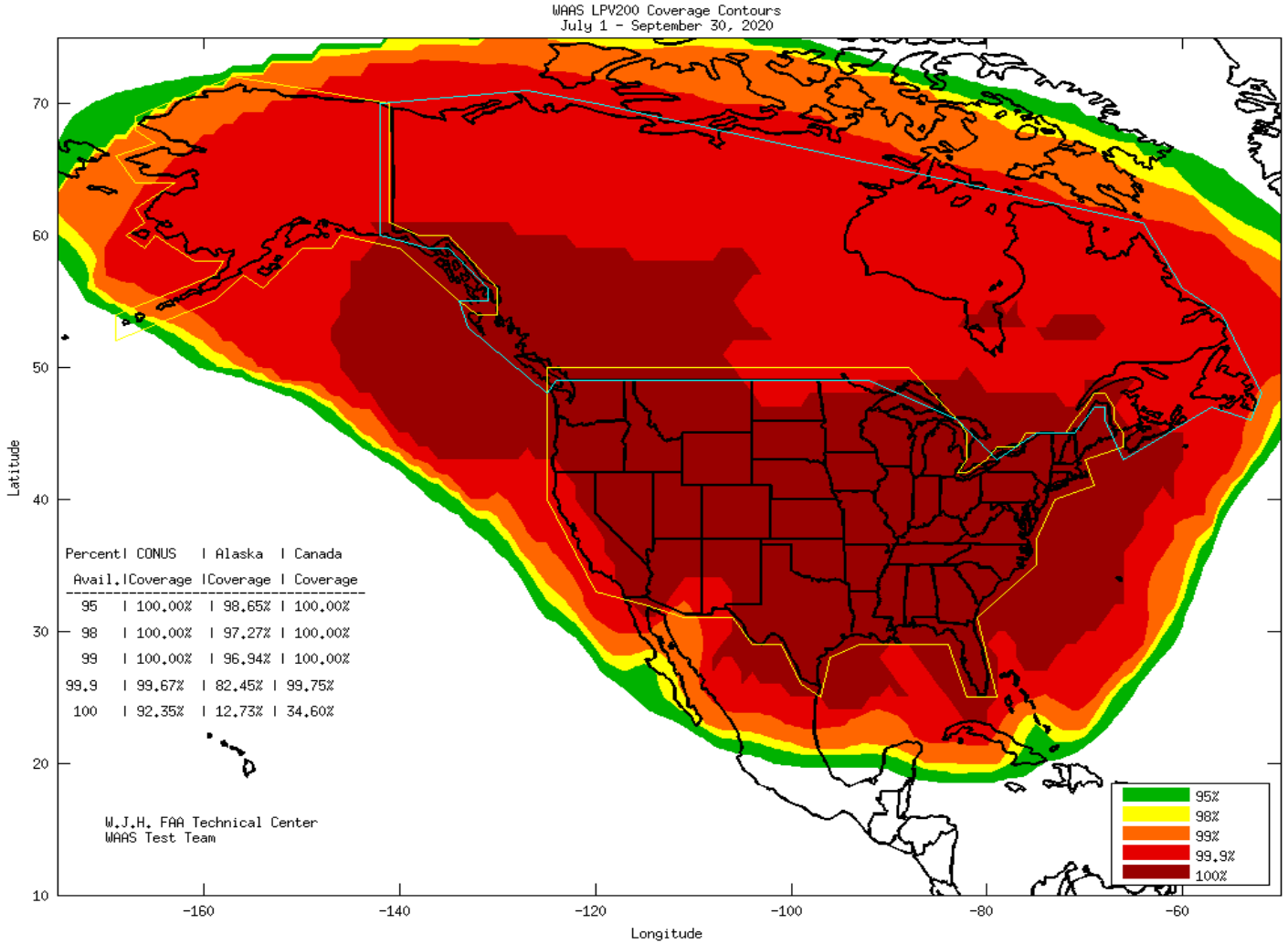


Figure 4-4. Daily LPV and LPV200 CONUS Coverage

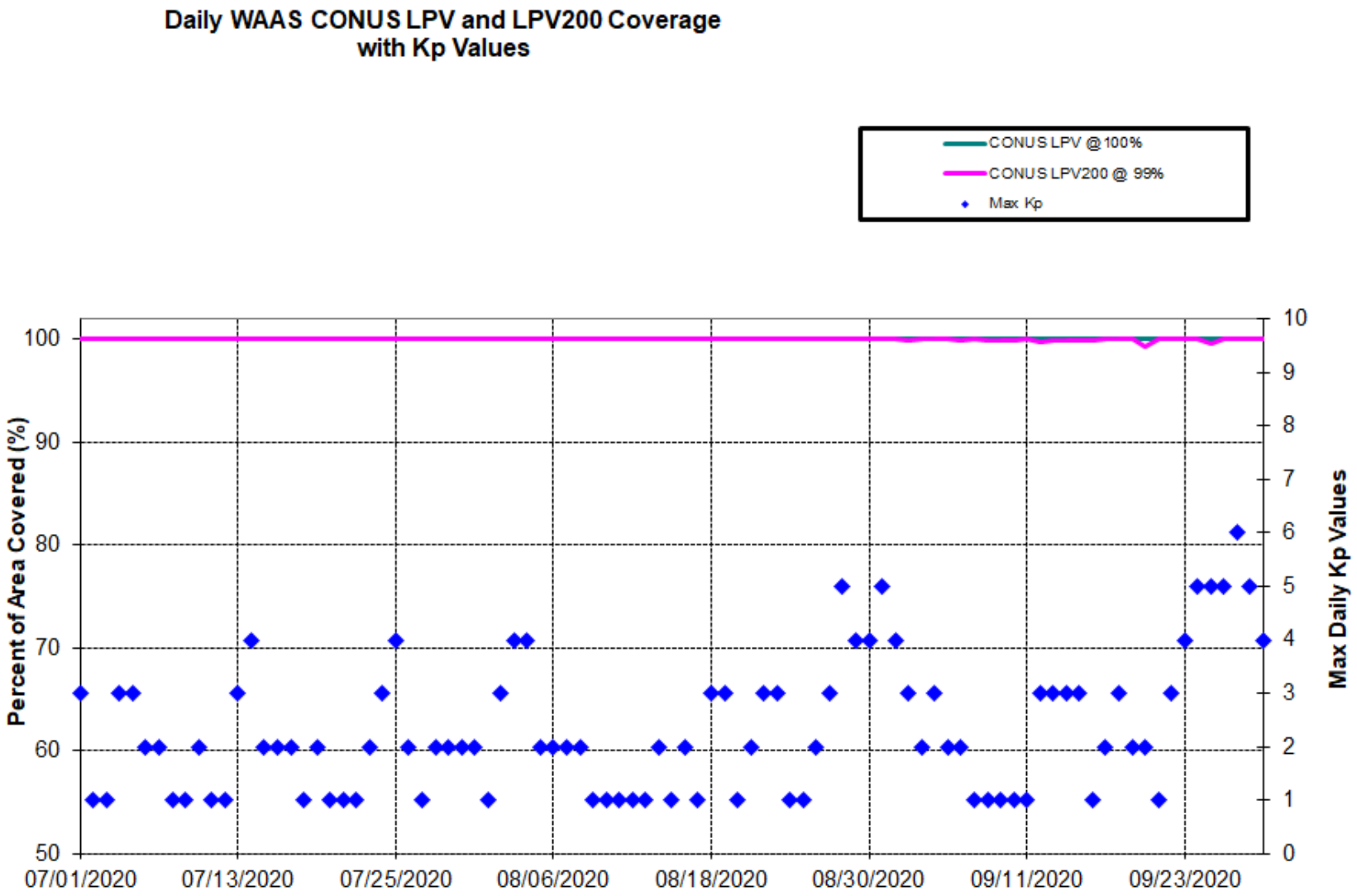


Figure 4-5. Daily LPV and LPV200 Alaska Coverage

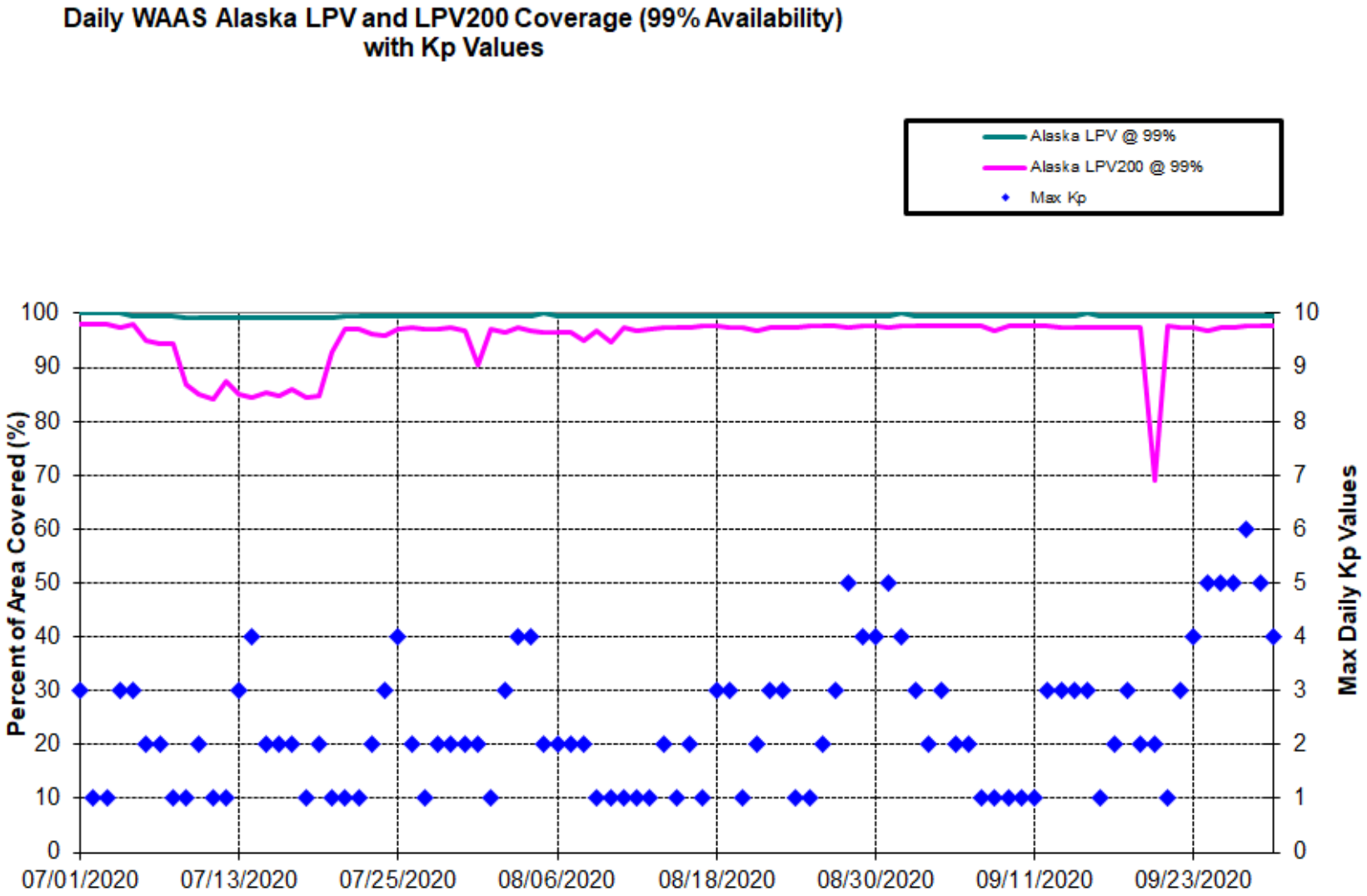
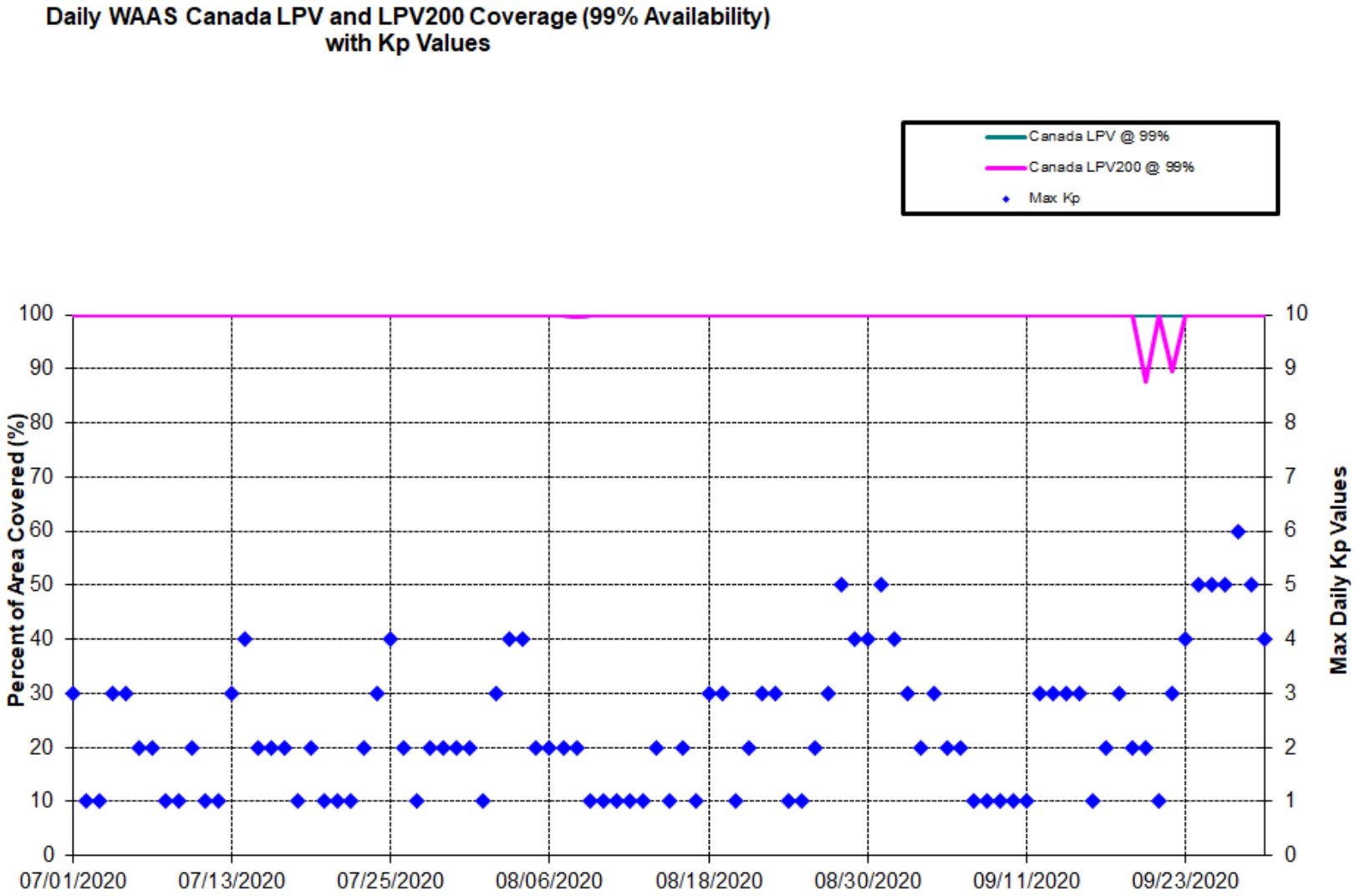


Figure 4-6. Daily LPV and LPV200 Canada Coverage



Daily analysis for NPA was conducted for the Required Navigation Performance (RNP) 0.1 and RNP 0.3 service levels based on a 100% availability requirement. The NPA coverage plots provide 100%, 99.9%, and 99% availability contours. Figure 4-7 shows the rollup RNP 0.1 coverage and Figure 4-8 shows the rollup RNP 0.3 coverage for the quarter. Figure 4-9 shows the daily RNP coverage at 100% availability and ionosphere Kp index values for this quarter.

Figure 4-7. RNP 0.1 Coverage for the Quarter

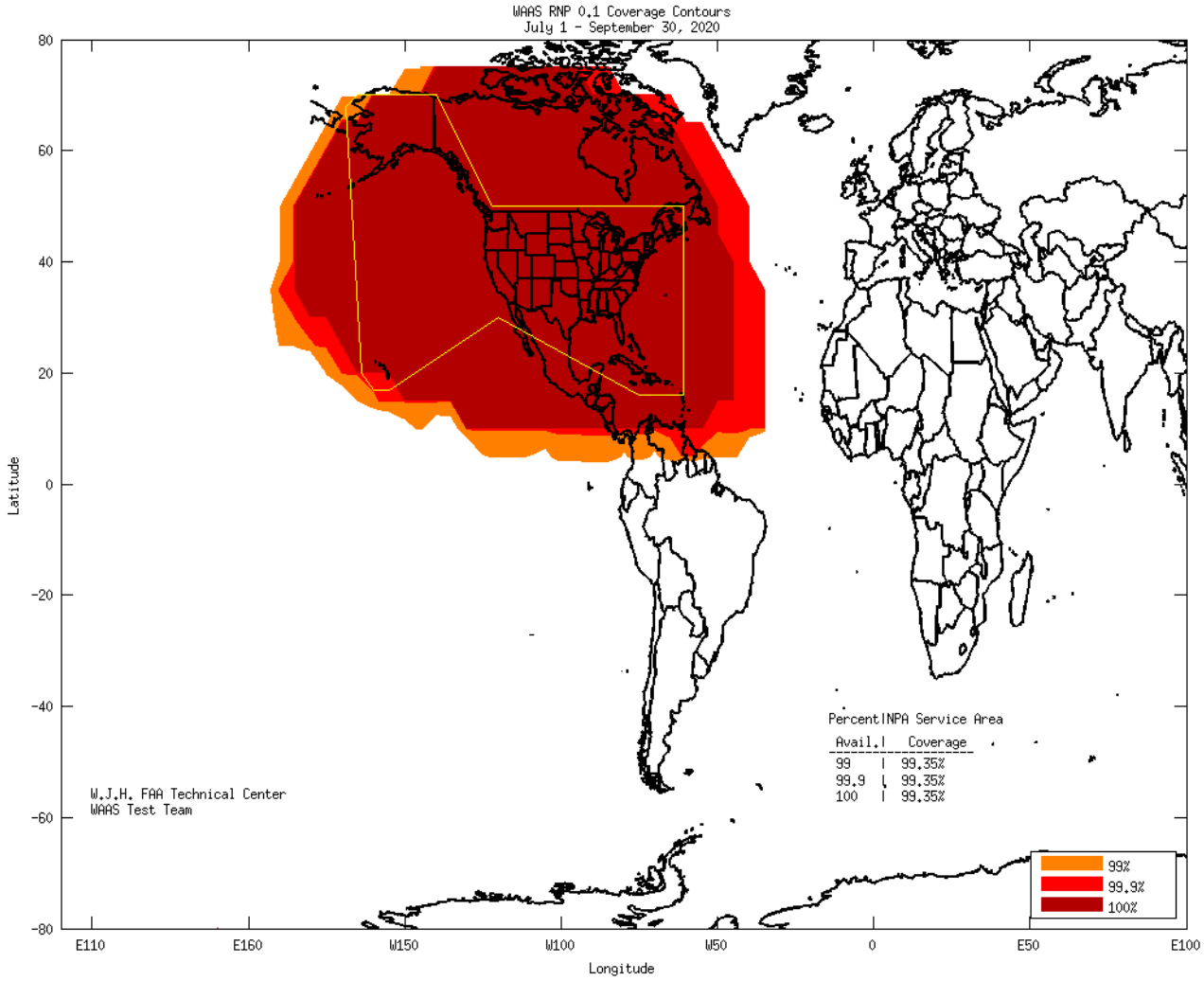


Figure 4-8. RNP 0.3 Coverage for the Quarter

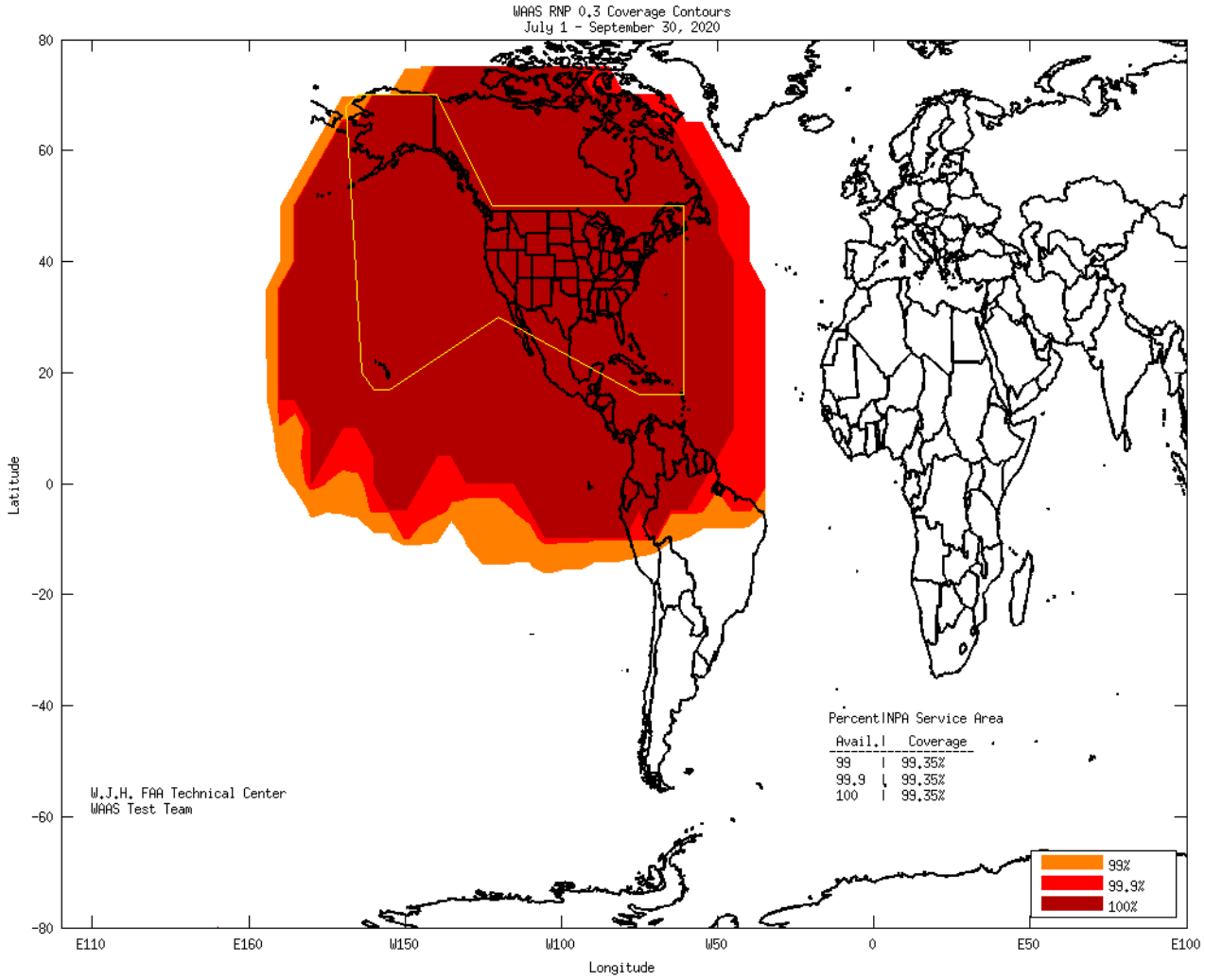
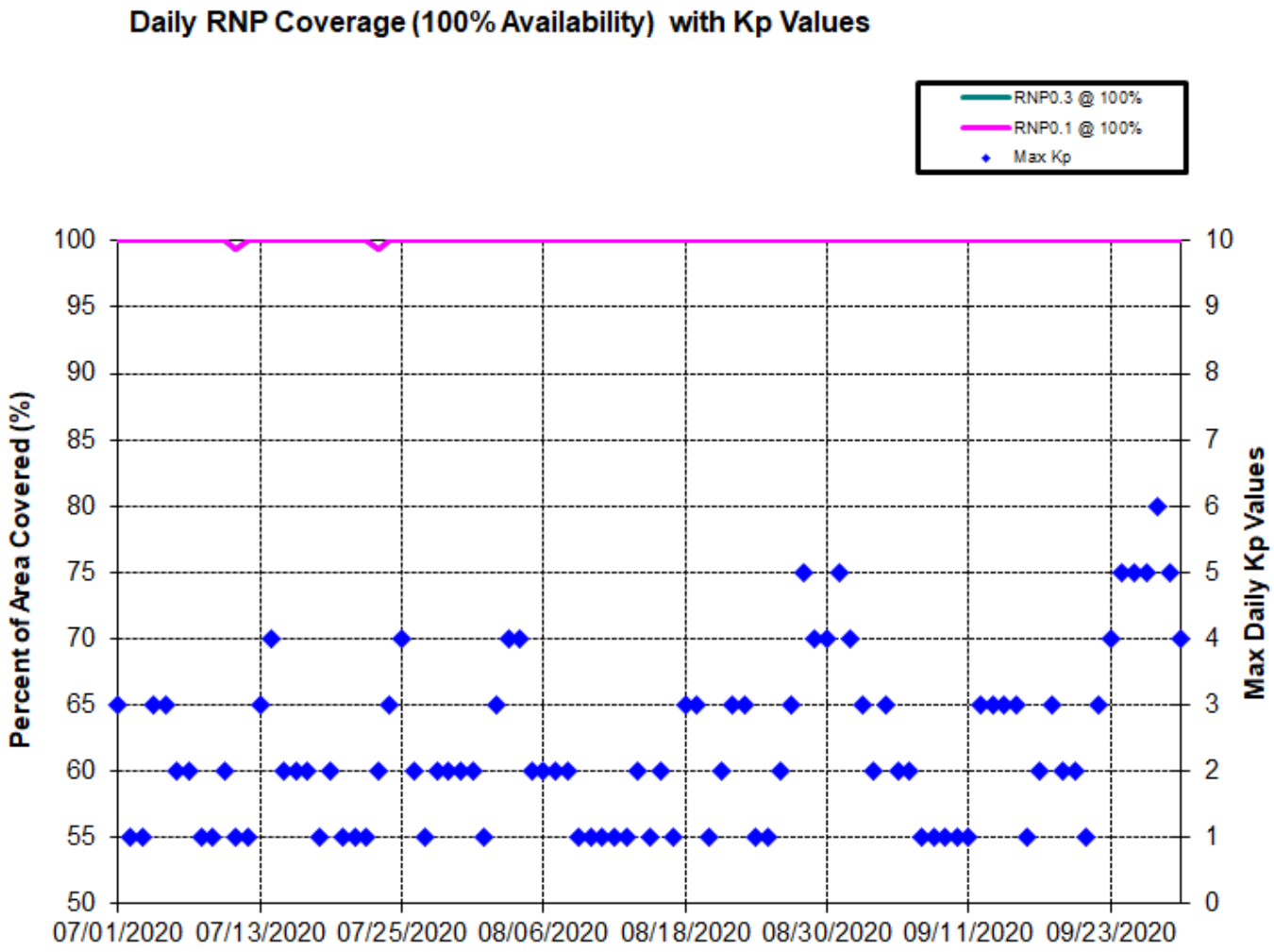


Figure 4-9. Daily RNP Coverage



The coverage decreases for this quarter were due to satellite maintenance, GUS switchovers, and elevated UDRE and GIVE values. Noteworthy events that affected coverage are:

- Jun11–Jul 31–Elevated UDREs on PRN133 reduced LPV200 coverage in Alaska.
- Jul 23–A GUS switchover on S15 caused a reduction of LPV200 coverage in Alaska.
- Jul 28-30–Subframe reasonability warnings elevated GIVEs and reduced LPV and LPV200 coverage in Canada.
- Jul 31–A GUS switchover on SM9 caused a reduction of LPV200 coverage in Alaska.
- Jul 31–A GUS switchover on S15 caused a reduction of LPV200 coverage in Alaska.
- Aug 3–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.
- Aug 8–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.
- Aug 11–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.
- Sep 3–16–Communication outages at San Jose Del Cabo (MSD) increased GIVEs and reduced LPV200 coverage in CONUS.
- Sep 8–A GUS switchover on SM9 caused a reduction of LPV200 coverage in Alaska.
- Sep 15–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.
- Sep 18–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.
- Sep 20–Satellite maintenance elevated UDREs on PRN4 and reduced LPV200 coverage in CONUS, Alaska, and Canada.
- Sep 22–Satellite maintenance elevated UDREs on PRN32 and reduced LPV200 coverage in CONUS and Canada.
- Sep 30–Subframe reasonability warnings elevated GIVEs and reduced LPV200 coverage in Canada.

5.0 INTEGRITY

5.1 HMI Analysis

Integrity analysis includes the identification and evaluation of HMI as well as the generation of the safety index to illustrate the safety margin provided by WAAS protection levels. The safety index is a metric that shows how well the protection levels are bounding the maximum observed error when LPV service is available. The horizontal and vertical safety margin index is the ratio of HPL/HPE and VPL/VPE, respectively, at the time the maximum position error occurred. Section 2.0 provides a detailed description of the methodology for computing HPL, VPL, and position errors.

A computed safety margin index of greater than one indicates safe bounding of the greatest observed error, less than one indicates that the maximum error was not bounded, and a result equal to one means that the maximum position error was equal to the protection level. An HMI event occurs if the position error exceeds the protection level in the vertical or horizontal dimensions at any time and coupled with the passage of 6.2 seconds before this event is corrected by WAAS.

Table 5-1 lists the safety margin index and the number of HMI events. For this reporting period, the lowest safety margin index is 5.032 at Oklahoma City and there were no HMI events. There has not been an HMI event since WAAS was made available to the public in August 2000. In July 2003, WAAS was commissioned by the FAA for safety of life services.

Table 5-1. Minimum Safety Margin Index and HMI Statistics

Location	Horizontal Safety Index (meters)	Vertical Safety Index (meters)	Number of HMIs
Arcata	5.255	7.549	0
Atlantic City	7.436	6.409	0
Oklahoma City	6.887	5.032	0
Albuquerque	9.255	12.909	0
Anchorage	8.643	8.325	0

Location	Horizontal Safety Index (meters)	Vertical Safety Index (meters)	Number of HMIs
Atlanta	8.535	8.177	0
Barrow	9.056	6.926	0
Bethel	11.434	12.972	0
Billings	8.146	7.484	0
Boston	10.169	7.81	0
Chicago	8.597	5.92	0
Cleveland	11.401	8.213	0
Cold Bay	10.486	12.249	0
Dallas	10.093	10.846	0
Denver	8.204	10.384	0
Fairbanks	7.293	7.294	0
Gander	9.089	11.884	0
Goose Bay	9.219	9.083	0
Houston	8.119	6.189	0
Iqaluit	15.723	5.736	0
Jacksonville	13.894	8.891	0
Juneau	8.437	7.369	0
Kansas City	8.391	6.797	0
Kotzebue	7.087	11.502	0
Los Angeles	8.825	6.298	0
Memphis	9.256	6.913	0
Merida	12.037	10.968	0
Mexico City	11.106	14.035	0
Miami	10.485	12.351	0
Minneapolis	6.919	7.222	0
New York	9.762	6.773	0
Oakland	7.702	7.223	0
Puerto Vallarta	7.972	14.472	0
Salt Lake City	8.599	9.817	0
San Jose Del Cabo	13.55	9.354	0
Seattle	8.395	9.375	0
Washington DC	8.576	8.536	0
Winnipeg	8.578	7.772	0

5.2 Broadcast Alerts

The WAAS transmits alert messages for user protection when the active WAAS corrections are no longer bound by the UDREs. Alerts increase the UDRE for one or more PRNs, which can reduce the weighting of the satellite or exclude the satellite from the navigation solution. An increase in UDREs after an alert effectively increases the user protection levels (HPL and VPL), which affects the availability. Additionally, if an alert message sequence lasts for more than 12 seconds, the WAAS fast corrections can time out and cause a loss of continuity. Table 5-2 shows the total number of alerts and the average number of alerts per day.

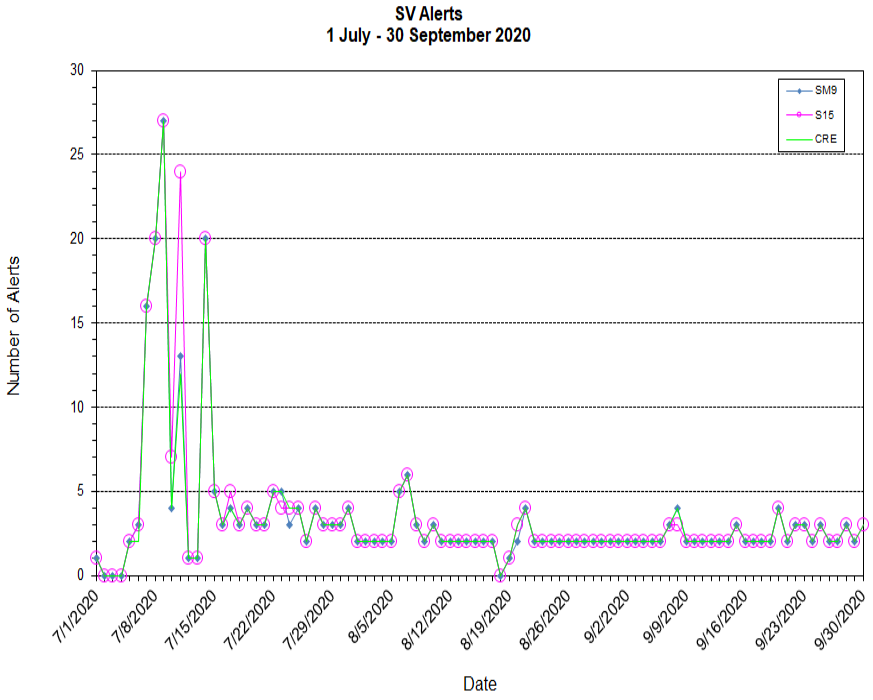
Table 5-2. WAAS SV Alert

	Number of Alerts			Average Alerts Per Day		
Message Type	**SM9**	**S15**	**CRE**	**SM9**	**S15**	**CRE**
T2	15	15	15	0.163043478	0.163043478	0.163043478
T3	194	196	195	2.108695652	2.130434783	2.119565217
T4	101	114	100	1.097826087	1.239130435	1.086956522
T5	0	0	0	0	0	0
T6	0	0	0	0	0	0
T24	0	0	0	0	0	0

T26	0	0	0	0	0	0
Total SV Alerts	310	325	311	3.369565217	3.532608696	3.380434783
Days in Service	92	92	92			

Figure 5-1 provides the daily SV alerts. The number of alerts on one GEO is often the same as the number of alerts on the other GEO, therefore, lines tend to overlap in most points on this plot.

Figure 5-1. SV Daily Alert Trend



5.3 Availability of WAAS Messages (SM9, S15, and CRE)

Accurate and current calculations of user position are dependent on the broadcast and receipt of the WAAS message within precise time specifications. This aspect of the WAAS is critical to maintaining continuity requirements. Each message type in the WAAS SIS has a specific timeout interval and expected worst-case broadcast interval. Table 5-3 lists the maximum intervals at which each message must broadcast to meet system requirements.

Table 5-3. Update Rates for WAAS Messages

Data	Associated Message Types	Maximum Update Interval (seconds)	En Route, Terminal, NPA Timeout (seconds)	Precision Approach Timeout (seconds)
WAAS in Test Mode	0	6	N/A	N/A
PRN Mask	1	60	None	None
UDREI	2-6, 24	6	18	12
Fast Corrections	2-5, 24	See Table A-8 in RTCA DO-229C	See Table A-8 in RTCA DO-229C	See Table A-8 in RTCA DO-229C
Long Term Corrections	24, 25	120	360	240
GEO Nav. Data	9	120	360	240
Fast Correction Degradation	7	120	360	240
Weighting Factors	8	120	240	240
Degradation Parameters	10	120	360	240
Ionospheric Grid Mask	18	300	None	None
Ionospheric Corrections	26	300	600	600
UTC Timing Data	12	300	None	None
Almanac Data	17	300	None	None

GUS switchovers and broadcast WAAS alerts can interrupt the normal broadcast message stream. If these events occur when the maximum interval of a specific message is approaching, that message may be delayed, resulting in its late transmittal.

For this quarter, statistics reported for late messages were mainly caused by GEO SIS outages, GUS switchovers, and SV alerts; excluding message type 7 and 10. Furthermore, the delay of message types 7 and 10 had little or no impact on user performance and safety, and were not caused by GEO SIS outages, GUS switchovers, or SV alerts. Table 5-4 through Table 5-8 show statistics for fast correction, long correction, ephemeris covariance, ionosphere correction, and ionospheric mask message rates broadcasted on SM9 GEO. Table 5-9 through Table 5-13 show statistics for message rates broadcasted on S15 GEO. Table 5-14 through Table 5-18 show statistics for message rates broadcasted on CRE GEO. The high Max Late Length for S15 GEO messages occurred after a C&V cold start on July 11.

Table 5-4. WAAS Fast Correction and Degradation Message Rates–SM9

Message Type	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	100761	1	174
2	1324672	121	24
3	1325228	106	25
4	1325010	43	23
7	94476	8	127
9	93143	1	178
10	94511	3	131
17	31151	0	0

Table 5-5. WAAS Long Correction Message Rates (Type 24 and 25)–SM9

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	49035	0	0
2	48075	0	0
3	48117	0	0

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
4	47065	0	0
5	47824	0	0
6	47839	0	0
7	47260	0	0
8	48944	0	0
9	47200	0	0
10	47129	0	0
11	49560	0	0
12	47541	0	0
13	49080	0	0
14	4550	0	0
15	47802	0	0
16	47661	1	167
17	47755	0	0
18	47007	0	0
19	46504	0	0
20	46178	0	0
21	49050	1	176
22	48515	0	0
24	49445	0	0
25	48974	0	0
26	48506	0	0
27	49167	0	0
28	47818	0	0
29	47421	0	0
30	47165	0	0
31	48044	0	0
32	46564	0	0

Table 5-6. WAAS Ephemeris Covariance Message Rates (Type 28)–SM9

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	40237	0	0
2	39473	0	0
3	39508	0	0
4	38641	1	158
5	39226	1	210
6	39258	0	0
7	38788	1	156
8	40191	0	0
9	38772	0	0
10	38685	0	0
11	40723	0	0
12	39054	0	0
13	40320	9	205
14	3737	0	0
15	39274	0	0
16	39126	1	206
17	39251	0	0
18	38538	4	206
19	38181	0	0
20	37901	0	0
21	40310	1	205

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
22	39889	0	0
24	40586	1	192
25	40275	0	0
26	39843	0	0
27	40405	0	0
28	39288	1	136
29	38950	0	0
30	38741	1	210
31	39380	0	0
32	38215	1	210
131	76156	1	5496
133	64520	0	0
138	76229	0	0

Table 5-7. WAAS Ionospheric Correction Message Rates (Type 26)–SM9

Band	Block	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	0	26697	2	306
0	1	26695	0	0
0	2	26711	0	0
1	0	26706	1	301
1	1	26710	1	305
1	2	26691	3	579
1	3	26699	0	0
1	4	26700	3	307
2	0	26702	1	301
2	1	26695	0	0
2	2	26709	2	303
2	3	26707	0	0
2	4	26703	0	0
3	0	26703	0	0
3	1	26695	0	0
3	2	26706	0	0
9	0	26696	2	301
9	1	26707	0	0
9	2	26698	1	301
9	3	26700	3	586
9	4	26706	1	589
9	5	26698	2	304
9	6	26695	0	0

Table 5-8. WAAS Ionospheric Mask Message Rates (Type 18)–SM9

Band	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	35272	0	0
1	35252	0	0
2	35292	0	0
3	35291	0	0
9	35299	0	0

Table 5-9. WAAS Fast Correction and Degradation Message Rates–S15

Message Type	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	103951	4	1624
2	1324364	135	1509
3	1324921	122	1508
4	1324740	51	1510
7	97099	4	1599
9	93090	2	1624
10	97090	3	1604
17	31403	2	1629

Table 5-10. WAAS Long Correction Message Rates (Type 24 and 25)–S15

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	48997	0	0
2	48052	3	187
3	48095	0	0
4	47063	0	0
5	47806	0	0
6	47811	1	167
7	47245	1	174
8	48895	0	0
9	47182	0	0
10	47105	0	0
11	49504	0	0
12	47491	0	0
13	49056	0	0
14	4551	0	0
15	47734	1	171
16	47632	0	0
17	47734	0	0
18	46959	1	177
19	46486	0	0
20	46113	0	0
21	48983	0	0
22	48468	1	174
24	49406	0	0
25	48921	0	0
26	48474	0	0
27	49119	1	168
28	47768	0	0
29	47401	0	0
30	47144	1	171
31	47988	1	180
32	46521	1	180

Table 5-11. WAAS Ephemeris Covariance Message Rates (Type 28)–S15

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	40223	1	154
2	39478	1	1665
3	39493	2	208

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
4	38631	1	210
5	39218	0	0
6	39254	0	0
7	38766	2	1583
8	40164	0	0
9	38760	1	208
10	38636	0	0
11	40691	3	162
12	39012	1	128
13	40320	4	160
14	3736	0	0
15	39233	1	1664
16	39105	0	0
17	39237	0	0
18	38518	1	1664
19	38143	0	0
20	37841	1	127
21	40237	1	140
22	39873	1	128
24	40554	1	336
25	40206	1	208
26	39809	1	159
27	40333	0	0
28	39276	1	210
29	38924	1	166
30	38722	1	159
31	39338	0	0
32	38157	1	208
131	76089	3	5475
133	64489	2	170
138	76179	3	210

Table 5-12. WAAS Ionospheric Correction Message Rates (Type 26)–S15

Band	Block	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	0	27561	4	2015
0	1	27547	3	1724
0	2	27559	4	1707
1	0	27564	5	1714
1	1	27557	5	1724
1	2	27564	5	1719
1	3	27560	5	1709
1	4	27551	6	1761
2	0	27557	4	1756
2	1	27555	3	1762
2	2	27550	4	1754
2	3	27560	6	1761
2	4	27557	5	1759
3	0	27556	2	1787
3	1	27550	4	1808
3	2	27562	7	1797
9	0	27555	2	1798
9	1	27557	2	1786

Band	Block	On Time (number received)	Late (number received)	Max Late Length (seconds)
9	2	27564	5	1773
9	3	27548	5	1779
9	4	27556	4	2036
9	5	27559	5	2030
9	6	27558	7	2030

Table 5-13. WAAS Ionospheric Mask Message Rates (Type 18)–S15

Band	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	35692	1	1864
1	35672	1	1724
2	35708	2	1715
3	35627	2	1921
9	35660	1	1677

Table 5-14. WAAS Fast Correction and Degradation Message Rates–CRE

Message Type	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	107015	2	143
2	1324641	118	27
3	1325197	104	27
4	1324970	45	21
7	100243	4	172
9	93109	1	184
10	100165	8	153
17	31661	1	305

Table 5-15. WAAS Long Correction Message Rates (Type 24 and 25)–CRE

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	48988	0	0
2	48081	0	0
3	48087	0	0
4	47070	0	0
5	47830	1	161
6	47843	0	0
7	47263	0	0
8	48888	0	0
9	47202	0	0
10	47104	0	0
11	49503	0	0
12	47500	0	0
13	49078	0	0
14	4551	0	0
15	47761	0	0
16	47652	0	0
17	47734	0	0
18	46976	0	0
19	46496	0	0
20	46121	1	161
21	48992	1	178

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
22	48462	0	0
24	49404	0	0
25	48927	0	0
26	48501	0	0
27	49123	0	0
28	47755	0	0
29	47421	0	0
30	47167	0	0
31	48009	0	0
32	46508	0	0

Table 5-16. WAAS Ephemeris Covariance Message Rates (Type 28)–CRE

PRN	On Time (number received)	Late (number received)	Max Late Length (seconds)
1	40208	0	0
2	39482	1	208
3	39481	2	208
4	38634	0	0
5	39233	1	207
6	39274	1	168
7	38788	0	0
8	40147	0	0
9	38769	0	0
10	38637	0	0
11	40691	0	0
12	39012	0	0
13	40339	0	0
14	3736	0	0
15	39234	0	0
16	39120	0	0
17	39236	0	0
18	38529	0	0
19	38140	0	0
20	37848	0	0
21	40251	1	176
22	39844	1	144
24	40535	0	0
25	40207	1	200
26	39836	0	0
27	40347	1	207
28	39246	0	0
29	38951	0	0
30	38735	0	0
31	39367	0	0
32	38156	0	0
131	76098	2	201
133	64454	2	136
138	76182	1	197

Table 5-17. WAAS Ionospheric Correction Message Rates (Type 26)–CRE

Band	Block	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	0	27572	12	435
0	1	27549	7	435
0	2	27547	5	421
1	0	27573	4	306
1	1	27569	5	306
1	2	27565	5	304
1	3	27554	8	307
1	4	27559	3	306
2	0	27552	2	301
2	1	27587	0	0
2	2	27553	5	301
2	3	27569	1	301
2	4	27567	3	301
3	0	27557	4	444
3	1	27561	8	444
3	2	27546	7	414
9	0	27560	7	578
9	1	27541	5	580
9	2	27566	5	579
9	3	27555	5	446
9	4	27548	7	450
9	5	27553	6	446
9	6	27562	5	444

Table 5-18. WAAS Ionospheric Mask Message Rates (Type 18)–CRE

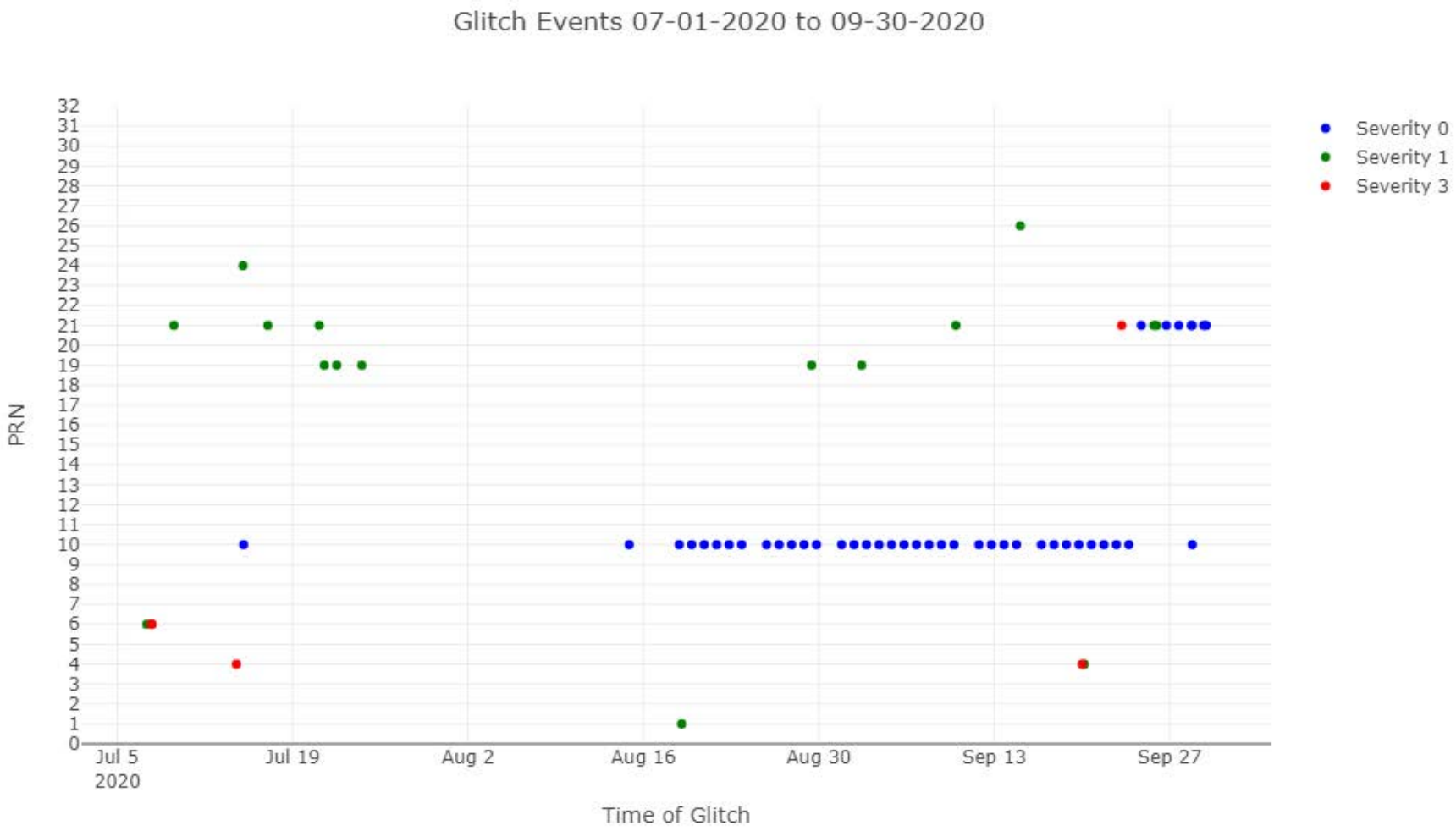
Band	On Time (number received)	Late (number received)	Max Late Length (seconds)
0	36114	0	0
1	36091	0	0
2	36075	0	0
3	36087	1	365
9	36088	2	382

5.4 Satellite Glitches

The GPS satellites will occasionally experience periods of signal carrier stability glitches of varying magnitude. These glitches are short degradations in the signal, which in severe cases may cause WAAS to lose track or cycle slip for some or all of the WAAS receivers. The more severe glitches will cause the WAAS-reported UDRE to increase to "Not Monitored" and result in an alert.

Figure 5-2 shows satellite glitches visible to WAAS for the quarter. Glitches are categorized into four severity levels. Severity zero glitches occur when a WAAS reference station receiver tracks more than 14 satellites. The WAAS reference station software is limited to sending data for no more than 14 satellites. Severity one glitches cause a significant number of the receivers to report bad subframe parity data, cycle slips, or when the receivers lose track of L1 and/or L2. Severity two glitches cause all of the receivers to report bad subframe parity data and no SQM data. Severity three glitches cause all of the receivers to lose track of both L1 and L2.

Figure 5-2. SV Glitch Trend



For this reporting period, severity zero glitches were observed for a short period of time daily on PRN10 and PRN21 when more than 14 GPS satellites were visible to the Alaska region.

6.0 SV RANGE ACCURACY

Range accuracy evaluation computes the probability that the WAAS UDRE and GIVE statistically bound 99.9% of the range residuals for each satellite tracked by the receiver. A UDRE is broadcasted by the WAAS for each monitored satellite and the 99.9% bound (3.29 sigma) of the pseudorange residual error after application of fast and long-term corrections is checked. The pseudorange residual error is determined by taking the difference between the raw pseudorange and a calculated reference range. The reference range is equal to the true range between the corrected satellite position and surveyed user antenna plus all corrections (i.e., WAAS fast clock, WAAS long-term clock, WAAS ionospheric delay, tropospheric delay, receiver clock bias, and multipath). Because the true ionospheric delay and multipath error are not precisely known, the estimated variance in these error sources are added to the UDRE before comparing it to the residual error.

The GPS satellite range residual errors were calculated for 12 WAAS receivers during the quarter. Table 6-1 and Table 6-2 show the range error 95% index and 99.9% bounding statistics for each SV at the selected locations. Figure 6-1 through Figure 6-3 show the 95% range error for each SV measured by the WAAS receivers at the Washington D.C. reference station.

Table 6-1. Range Error 95% Index and 3.29 Sigma Bounding

Site	Minneapolis		Chicago		Boston		Juneau		Honolulu		Salt Lake City	
PRN ↓	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)
1*	1.155	100	0.859	100	1.040	100	0.793	100	1.458	100	0.924	100
2	0.837	100	0.900	100	0.826	100	1.117	100	2.185	100	0.908	100
3*	0.841	100	1.296	100	1.314	100	0.774	100	1.332	100	1.052	100
4	1.016	100	0.915	100	1.039	100	1.039	100	0.949	100	0.775	100
5	1.073	100	1.156	100	1.045	100	1.102	100	1.257	100	0.790	100
6*	0.814	100	0.828	100	0.840	100	0.958	100	1.111	100	1.409	100
7	1.089	100	0.866	100	1.049	100	1.165	100	1.488	100	0.759	100
8*	1.353	100	0.947	100	0.993	100	1.060	100	1.130	100	0.862	100
9*	1.206	100	0.805	100	1.063	100	1.034	100	1.337	100	0.930	100
10	0.797	100	1.012	100	0.968	100	0.865	100	0.828	100	0.890	100
11	0.950	100	0.933	100	0.972	100	0.872	100	3.018	100	1.592	100
12	0.852	100	1.269	100	1.502	100	1.065	100	1.542	100	0.956	100
13	0.903	100	0.959	100	1.037	100	0.964	100	0.792	100	1.158	100
14	0.898	100	1.032	100	0.621	100	1.411	100	0.846	100	0.713	100
15	1.115	100	0.789	100	0.866	100	1.053	100	0.954	100	0.929	100
16	1.030	100	0.916	100	0.952	100	1.191	100	1.058	100	0.871	100
17	0.885	100	1.430	100	1.074	100	0.936	100	1.782	100	1.130	100
18	1.077	100	0.879	100	0.950	100	0.872	100	0.953	100	0.989	100
19	0.788	100	1.073	100	0.896	100	1.016	100	1.421	100	0.959	100
20	1.517	100	0.933	100	1.000	100	0.997	100	0.949	100	1.055	100
21	0.820	100	1.102	100	1.076	100	1.110	100	1.280	100	1.062	100
22	0.982	100	1.151	100	1.131	100	1.389	100	1.309	100	1.447	100
23	-	-	-	-	-	-	-	-	-	-	-	-
24*	1.084	100	0.886	100	1.123	100	1.095	100	1.429	100	0.898	100
25*	1.146	100	0.913	100	1.293	100	1.046	100	0.855	100	1.054	100
26*	0.868	100	0.970	100	0.763	100	0.952	100	1.013	100	0.986	100
27*	1.277	100	1.088	100	1.256	100	0.841	100	0.833	100	0.827	100
28	1.179	100	1.454	100	1.439	100	1.490	100	0.928	100	0.983	100
29	0.861	100	0.886	100	0.997	100	1.024	100	0.829	100	1.036	100
30*	0.908	100	1.154	100	0.968	100	0.938	100	1.511	100	0.733	100
31	0.881	100	0.811	100	0.885	100	0.814	100	1.012	100	0.912	100
32	1.078	100	0.793	100	0.869	100	1.091	100	1.170	100	0.897	100

Site	Minneapolis		Chicago		Boston		Juneau		Honolulu		Salt Lake City	
PRN ↓	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)
131	1.612	100	1.127	100	1.453	100	2.100	100	1.380	100	1.018	100
133	2.484	100	1.870	100	1.678	100	1.194	100	1.313	100	1.163	100
138	1.552	100	1.291	100	1.701	100	1.478	100	1.572	100	1.145	100

*Note: Reduced ranging bounding on Block IIF space vehicles due to the difference between L1 C/A and L1P satellite signal delays.

Table 6-2. Range Error 95% Index and 99.9% Bounding

Site	Billings		Miami		Albuquerque		Kansas City		Los Angeles		Atlanta	
PRN ↓	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)
1*	0.837	100	1.160	100	0.993	100	1.116	100	1.581	100	0.873	100
2	1.431	100	1.239	100	0.910	100	1.252	100	1.116	100	1.139	100
3*	0.829	100	1.081	100	0.875	100	1.070	100	1.474	100	1.084	100
4	1.140	100	0.643	100	0.823	100	0.810	100	1.062	100	0.741	100
5	0.963	100	0.907	100	0.985	100	1.080	100	1.248	100	0.907	100
6*	0.969	100	2.386	100	1.002	100	1.509	100	1.742	100	0.910	100
7	0.762	100	1.766	100	0.850	100	0.862	100	1.268	100	0.846	100
8*	0.973	100	0.719	100	0.914	100	0.950	100	1.438	100	0.776	100
9*	0.840	100	0.752	100	0.733	100	1.044	100	1.222	100	0.801	100
10	1.059	100	0.897	100	0.641	100	1.250	100	0.937	100	0.743	100
11	0.875	100	2.595	100	1.825	100	1.168	100	1.475	100	0.826	100
12	1.197	100	1.479	100	0.904	100	0.928	100	1.330	100	1.092	100
13	0.808	100	0.903	100	0.854	100	0.924	100	1.392	100	0.791	100
14	0.726	100	0.668	100	1.677	100	0.802	100	1.353	100	0.647	100
15	0.927	100	0.972	100	0.818	100	1.352	100	1.529	100	0.786	100
16	0.947	100	0.817	100	0.997	100	1.302	100	1.343	100	0.777	100
17	1.030	100	1.120	100	0.771	100	1.457	100	1.249	100	0.808	100
18	0.714	100	2.012	100	0.816	100	0.895	100	1.012	100	0.801	100
19	1.650	100	0.909	100	1.021	100	0.878	100	1.074	100	1.021	100
20	1.071	100	0.945	100	0.981	100	1.060	100	1.118	100	0.802	100
21	1.002	100	1.162	100	1.068	100	1.092	100	1.146	100	0.914	100
22	1.269	100	1.019	100	0.838	100	0.965	100	1.617	100	1.086	100

Site	Billings		Miami		Albuquerque		Kansas City		Los Angeles		Atlanta	
PRN ↓	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)	0.95 Range Error (Meters)	3.29 Sigma Bounding (%)
23	-	-	-	-	-	-	-	-	-	-	-	-
24*	0.961	100	0.963	100	0.999	100	1.195	100	1.210	100	0.777	100
25*	1.435	100	0.992	100	0.899	100	1.011	100	1.177	100	0.901	100
26*	0.796	100	0.668	100	0.947	100	0.961	100	1.438	100	0.732	100
27*	1.063	100	1.087	100	1.207	100	0.928	100	1.824	100	0.697	100
28	0.954	100	1.070	100	0.775	100	0.844	100	1.241	100	1.062	100
29	0.870	100	0.974	100	0.762	100	1.000	100	1.358	100	0.853	100
30*	1.415	100	0.998	100	1.072	100	0.757	100	1.345	100	0.856	100
31	0.912	100	1.238	100	0.951	100	1.752	100	1.769	100	1.080	100
32	1.149	100	0.928	100	1.064	100	0.949	100	1.097	100	0.767	100
131	1.677	100	1.105	100	2.093	100	1.398	100	1.850	100	1.531	100
133	1.401	100	1.133	100	1.875	100	2.271	100	2.028	100	1.603	100
138	1.243	100	1.834	100	1.151	100	2.094	100	2.972	100	1.320	100

*Note: Reduced ranging bounding on Block IIF space vehicles due to the difference between L1 C/A and L1P satellite signal delays.

Figure 6-1. Range Error (PRN1–PRN16)–Washington D.C.

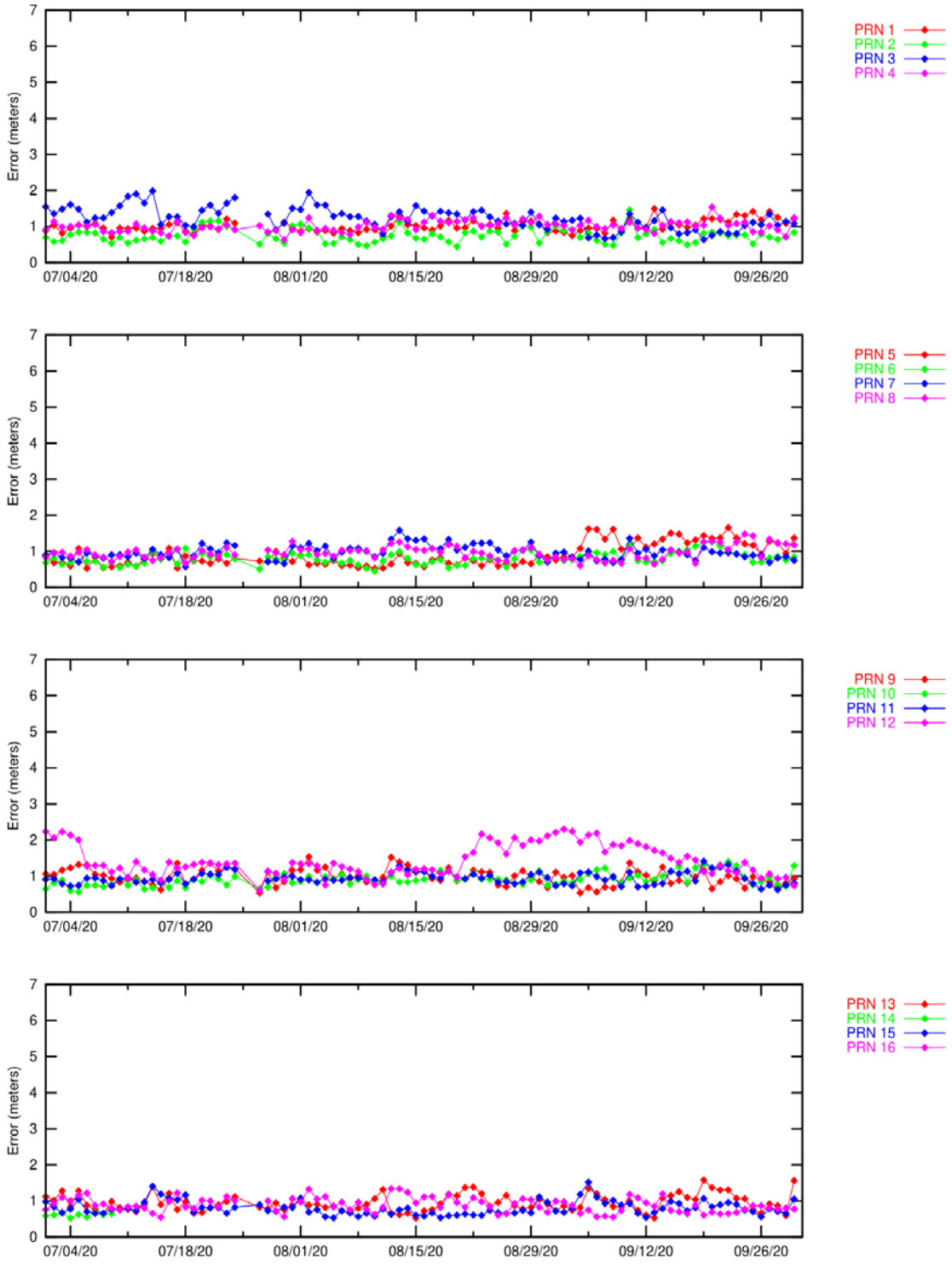


Figure 6-2. Range Error (PRN17–PRN32)–Washington D.C.

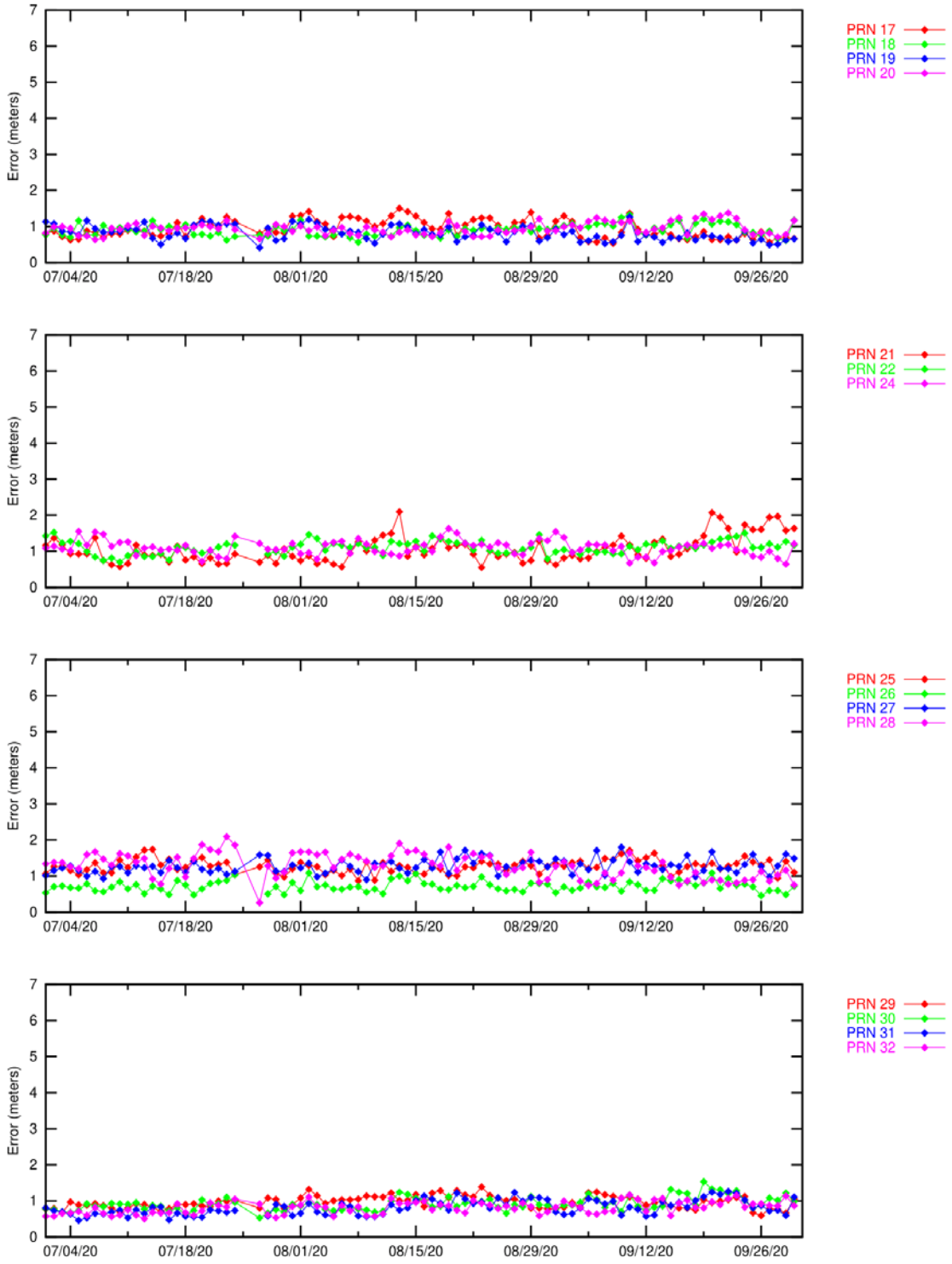
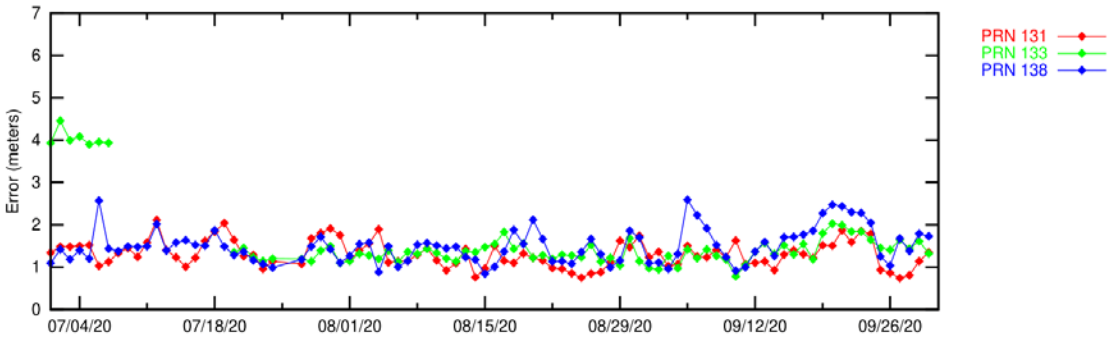


Figure 6-3. Range Error (PRN131, PRN133, PRN 138)–Washington D.C.



A GIVE is broadcasted by the WAAS for each monitored ionospheric grid point (IGP) and the 99.9% bound of the ionospheric error is checked. The WAAS broadcasts the ionospheric model using IGPs at predefined geographic locations. Each IGP contains the vertical ionospheric delay and the delay error in the form of the GIVE. The ionospheric error is determined by taking the difference between the WAAS vertical ionospheric delay interpolated from the IGP and GPS dual frequency measurement at that GPS satellite.

The GPS satellite ionospheric errors were calculated for 12 WAAS receivers during the quarter. Table 6-3 and Table 6-4 show the ionospheric error 95% index and 99.9% bounding statistics for each SV at the selected locations. Figure 6-4 and Figure 6-5 show the 95% ionospheric error for each SV measured by the WAAS receiver at the Washington D.C. reference station.

Table 6-3. Ionospheric Error 95% Index and 99.9% Sigma Bounding

Site	Minneapolis		Chicago		Boston		Juneau		Honolulu		Salt Lake City	
PRN ↓	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)
1	0.344	100	0.361	100	0.290	100	0.462	100	0.524	100	0.331	100
2	0.493	100	0.464	100	0.288	100	0.533	100	1.153	100	0.540	100
3	0.426	100	0.465	100	0.339	100	0.317	100	0.544	100	0.449	100
4	0.313	100	0.425	100	0.550	100	0.376	100	0.475	100	0.399	100
5	0.264	100	0.565	100	0.441	100	0.410	100	0.537	100	0.394	100
6	0.345	100	0.535	100	0.293	100	0.270	100	0.528	100	0.625	100
7	0.435	100	0.445	100	0.331	100	0.382	100	0.636	100	0.307	100
8	0.533	100	0.294	100	0.230	100	0.290	100	0.667	100	0.325	100
9	0.356	100	0.333	100	0.319	100	0.269	100	0.515	100	0.431	100
10	0.374	100	0.350	100	0.405	100	0.399	100	0.314	100	0.397	100
11	0.393	100	0.392	100	0.232	100	0.393	100	1.484	100	0.398	100
12	0.335	100	0.399	100	0.399	100	0.313	100	0.669	100	0.492	100
13	0.271	100	0.376	100	0.390	100	0.263	100	0.326	100	0.347	100
14	0.670	100	0.637	100	0.308	100	0.694	100	0.309	100	0.297	100
15	0.384	100	0.366	100	0.253	100	0.316	100	0.568	100	0.344	100
16	0.331	100	0.404	100	0.301	100	0.372	100	0.504	100	0.306	100
17	0.303	100	0.636	100	0.264	100	0.290	100	0.796	100	0.587	100
18	0.524	100	0.412	100	0.401	100	0.348	100	0.419	100	0.419	100
19	0.332	100	0.362	100	0.280	100	0.271	100	0.562	100	0.591	100
20	0.529	100	0.268	100	0.243	100	0.440	100	0.443	100	0.340	100
21	0.339	100	0.430	100	0.407	100	0.431	100	0.566	100	0.490	100
22	0.308	100	0.307	100	0.327	100	0.489	100	0.535	100	0.695	100
23	-	-	-	-	-	-	-	-	-	-	-	-
24	0.408	100	0.373	100	0.437	100	0.333	100	0.385	100	0.271	100
25	0.320	100	0.348	100	0.329	100	0.332	100	0.309	100	0.586	100
26	0.312	100	0.319	100	0.240	100	0.290	100	0.632	100	0.323	100
27	0.417	100	0.434	100	0.333	100	0.421	100	0.347	100	0.222	100
28	0.543	100	0.349	100	0.409	100	0.494	100	0.428	100	0.420	100
29	0.357	100	0.341	100	0.403	100	0.458	100	0.386	100	0.515	100
30	0.361	100	0.623	100	0.555	100	0.297	100	0.732	100	0.257	100
31	0.311	100	0.364	100	0.278	100	0.299	100	0.647	100	0.380	100
32	0.718	100	0.393	100	0.504	100	0.435	100	0.873	100	0.543	100

Table 6-4. Ionospheric Error 95% Index and 99.9% Sigma Bounding

Site	Billings		Miami		Albuquerque		Kansas City		Atlanta		Los Angeles	
PRN ↓	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)	0.95 Iono Error (Meters)	3.29 Sigma Bounding (%)
1	0.378	100	0.439	100	0.369	100	0.460	100	0.441	100	0.611	100
2	0.897	100	0.554	100	0.414	100	0.575	100	0.376	100	0.348	100
3	0.319	100	0.497	100	0.485	100	0.506	100	0.554	100	0.484	100
4	0.378	100	0.300	100	0.515	100	0.310	100	0.373	100	0.370	100
5	0.534	100	0.358	100	0.475	100	0.511	100	0.254	100	0.522	100
6	0.445	100	0.910	100	0.476	100	0.784	100	0.558	100	0.733	100
7	0.321	100	0.859	100	0.388	100	0.417	100	0.249	100	0.357	100
8	0.292	100	0.331	100	0.273	100	0.448	100	0.284	100	0.720	100
9	0.377	100	0.496	100	0.409	100	0.452	100	0.360	100	0.258	100
10	0.630	100	0.392	100	0.266	100	0.445	100	0.213	100	0.255	100
11	0.424	100	0.952	100	0.916	100	0.416	100	0.315	100	0.495	100
12	0.424	100	0.394	100	0.367	100	0.350	100	0.482	100	0.290	100
13	0.440	100	0.314	100	0.243	100	0.267	100	0.316	100	0.459	100
14	0.322	100	0.318	100	1.103	100	0.376	100	0.224	100	0.377	100
15	0.290	100	0.331	100	0.228	100	0.499	100	0.240	100	0.624	100
16	0.370	100	0.470	100	0.414	100	0.626	100	0.307	100	0.417	100
17	0.473	100	0.493	100	0.362	100	0.584	100	0.223	100	0.344	100
18	0.383	100	1.168	100	0.338	100	0.349	100	0.311	100	0.302	100
19	0.961	100	0.299	100	0.436	100	0.347	100	0.242	100	0.262	100
20	0.392	100	0.384	100	0.252	100	0.252	100	0.268	100	0.386	100
21	0.480	100	0.468	100	0.478	100	0.444	100	0.369	100	0.371	100
22	0.540	100	0.401	100	0.397	100	0.307	100	0.421	100	0.334	100
23	-	-	-	-	-	-	-	-	-	-	-	-
24	0.245	100	0.392	100	0.345	100	0.440	100	0.252	100	0.526	100
25	0.511	100	0.314	100	0.458	100	0.392	100	0.266	100	0.313	100
26	0.316	100	0.340	100	0.312	100	0.334	100	0.270	100	0.363	100
27	0.327	100	0.438	100	0.463	100	0.358	100	0.271	100	0.457	100
28	0.351	100	0.371	100	0.287	100	0.326	100	0.288	100	0.338	100
29	0.443	100	0.427	100	0.314	100	0.475	100	0.331	100	0.511	100
30	0.610	100	0.336	100	0.623	100	0.257	100	0.344	100	0.322	100
31	0.340	100	0.619	100	0.461	100	0.808	100	0.380	100	0.476	100
32	0.708	100	0.413	100	0.619	100	0.593	100	0.433	100	0.522	100

Figure 6-4. Ionospheric Error (PRN1–PRN16)–Washington D.C.

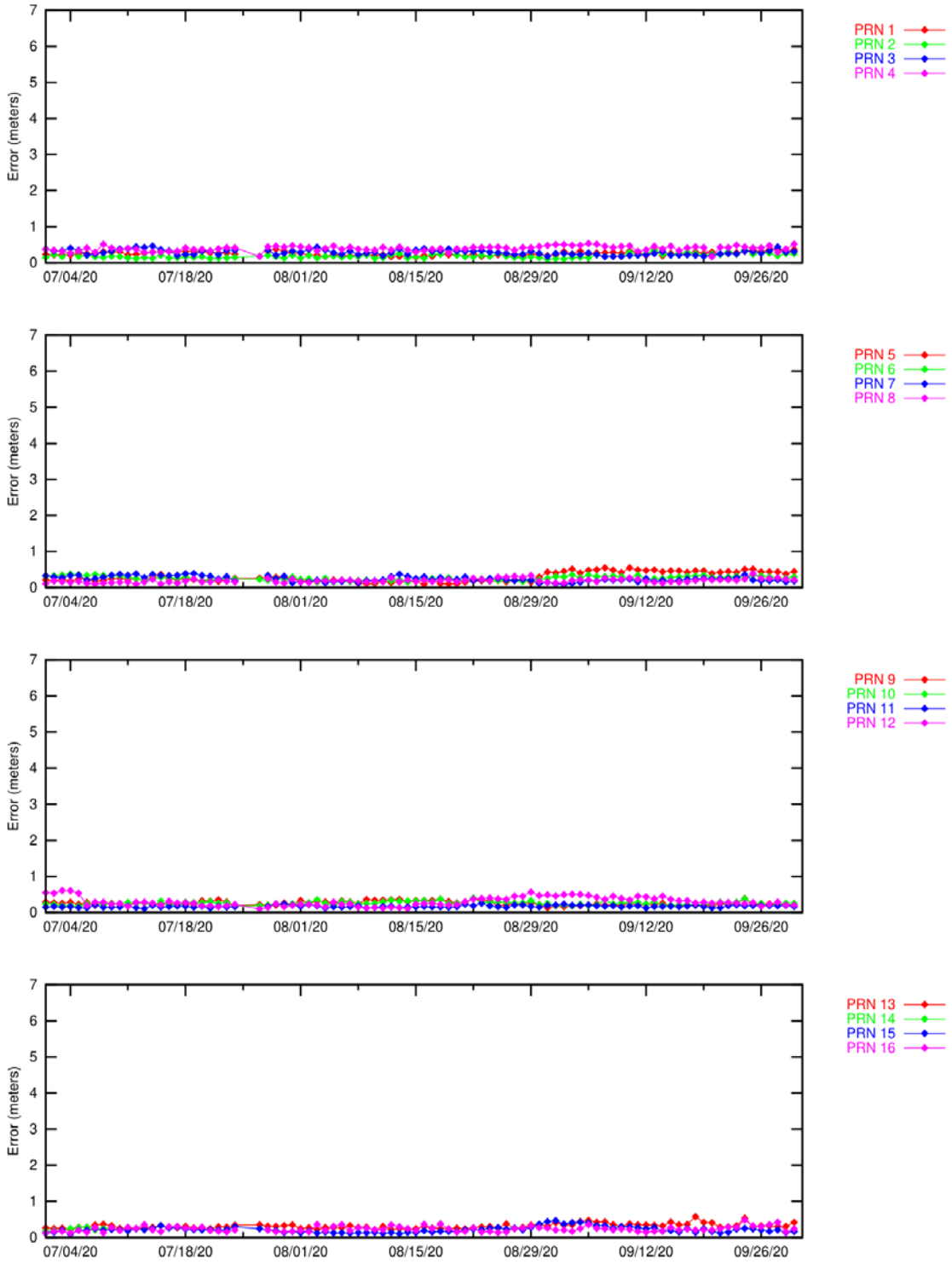
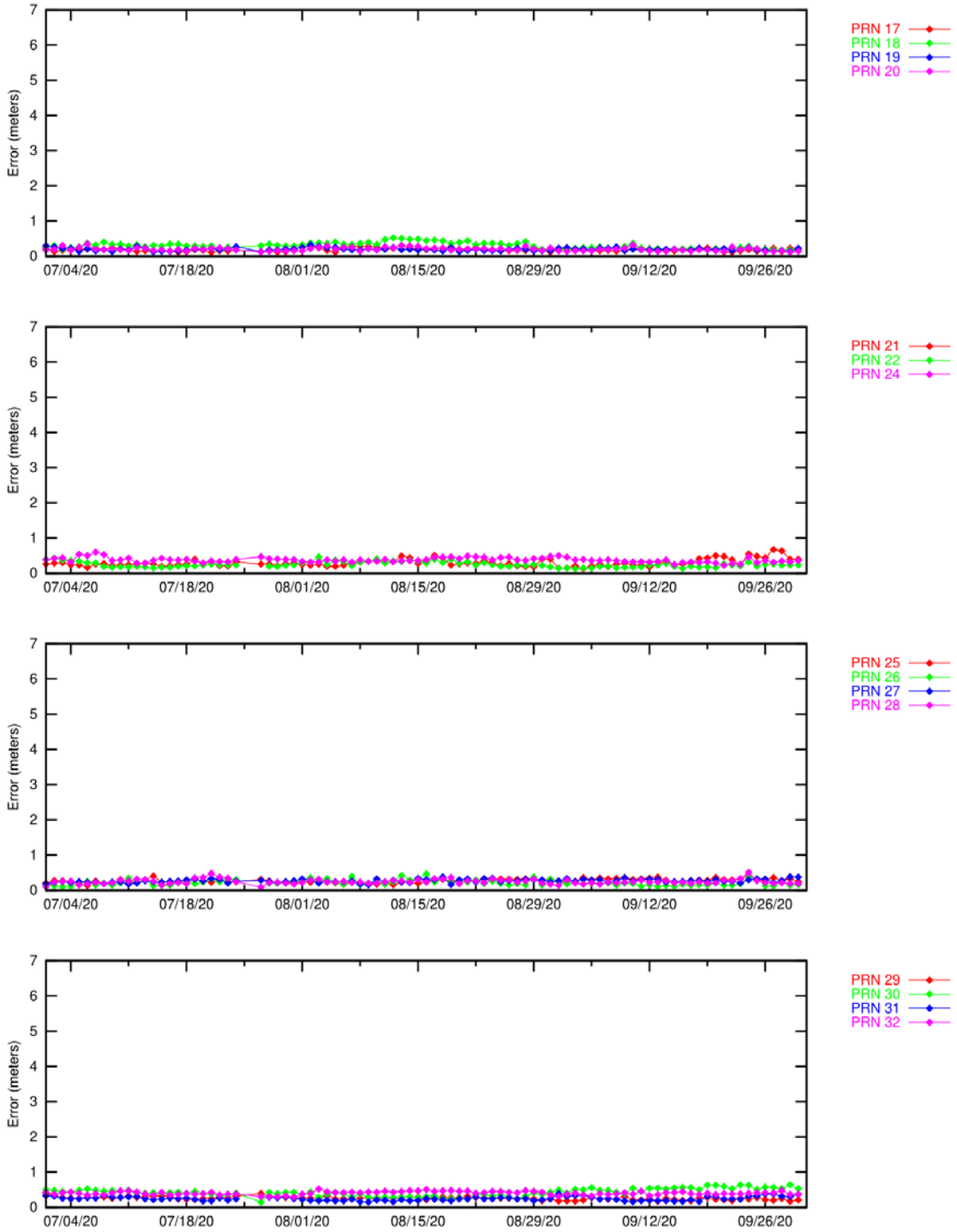


Figure 6-5. Ionospheric Error (PRN17–PRN32)–Washington D.C.



For this reporting period, most satellite range errors were bounded at least 99.9% of the time by UDRE. Other unbounded errors (i.e., errors bounded less than 100% of the time) were due to geomagnetic activity, noise, and/or multipath. PRN23 was unavailable for the quarter.

7.0 GEO RANGING PERFORMANCE

The WAAS GEO navigation messages provide corrections and UDRE values for each satellite. The GEO ranging availability from each GEO navigation message source was evaluated separately to determine the quality of service provided.

Table 7-1 shows the GEO PA and NPA ranging availability as well as the percentage of time the GEO UDRE was set to "Not Monitored" and "Do Not Use." Figure 7-1 to Figure 7-3 show the trend of SM9, S15 and CRE GEO PA ranging availability, respectively.

The reductions in SM9 GEO PA, S15 GEO PA and CRE GEO PA ranging availability were due to GUS switchovers (see Figure 7-1 to Figure 7-3). Additional reductions in S15 GEO PA ranging availability were due to UDREi spikes occurring prior to the start of the quarter. S15 GEO PA ranging was turned off and the C&Vs were cold started on July 11. On July 20, S15 GEO PA ranging was turned back on. Refer to Table 1-7 for detailed information on the GUS switchovers for this reporting period.

Table 7-1. GEO Ranging Availability

GEO Source	GEO	PA (%)	NPA (%)	Not Monitored (%)	Do Not Use (%)
SM9 131	SM9	99.54	0.04	0.26	0.17
SM9 131	S15	84.10	0.22	14.24	1.44
SM9 131	CRE	99.58	0.06	0.37	0.00
S15 133	SM9	99.50	0.04	0.29	0.17
S15 133	S15	84.09	0.22	14.27	1.42
S15 133	CRE	99.54	0.06	0.41	0.00
CRE 138	SM9	99.52	0.04	0.28	0.17
CRE 138	S15	84.08	0.22	14.26	1.43
CRE 138	CRE	99.56	0.06	0.39	0.00

Figure 7-1. Daily PA SM9 GEO Ranging Availability Trend

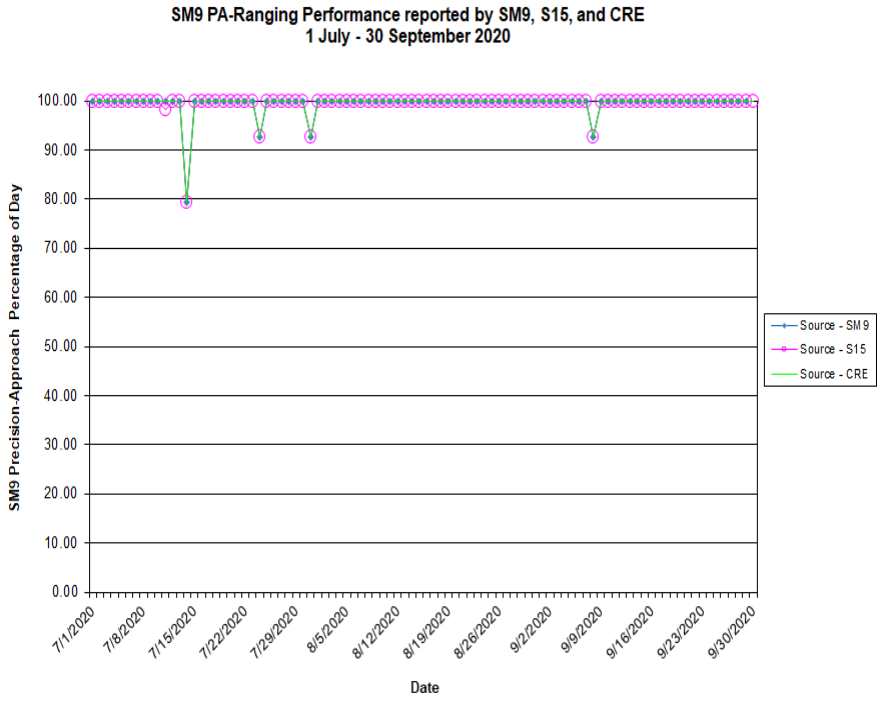


Figure 7-2. Daily PA S15 GEO Ranging Availability Trend

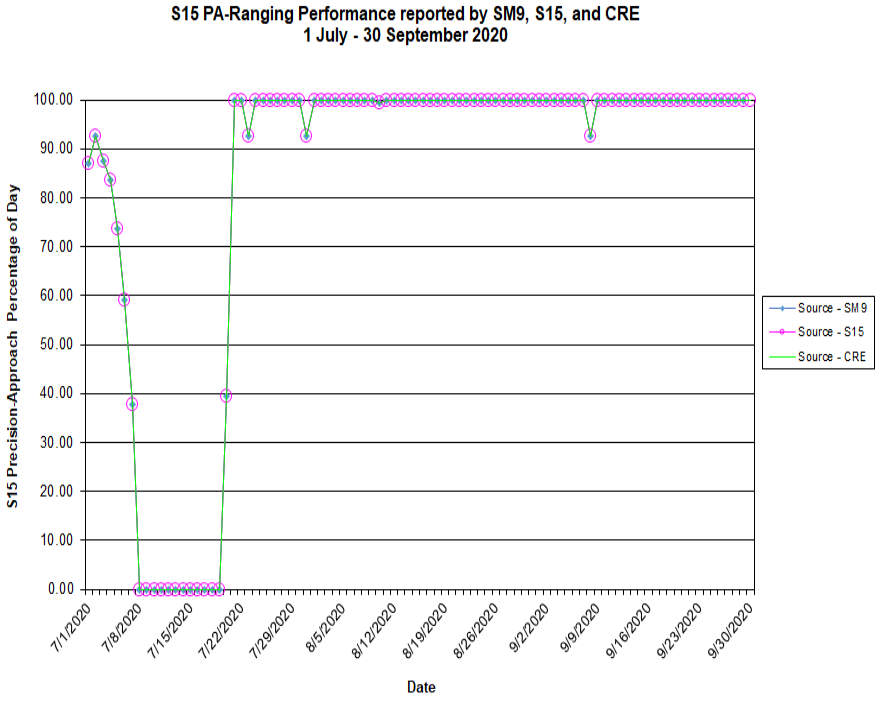
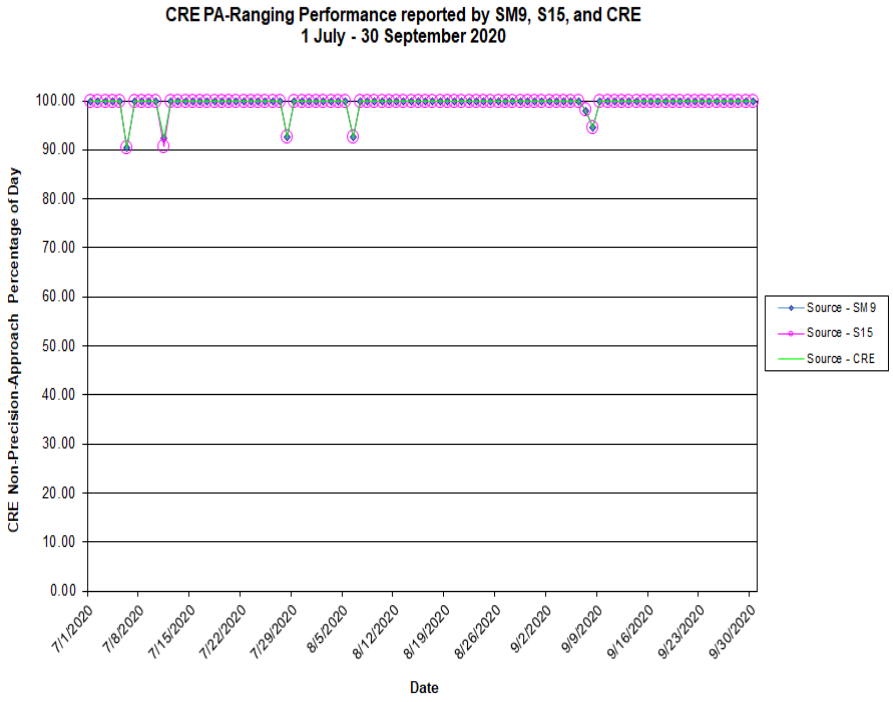


Figure 7-3. Daily PA CRE GEO Ranging Availability Trend



8.0 WAAS AIRPORT AVAILABILITY

The WAAS airport availability evaluation determines the number and length of LPV service outages at selected airports using the transmitted WAAS navigation message. The navigation messages transmitted from all GEO satellites are processed simultaneously, and WAAS protection levels (VPL and HPL) are computed at each airport once every 30 seconds in accordance with the RTCA DO-229D. The WAAS LPV service is available for a user when the VPL is less than or equal to the VAL of 50 meters and the HPL is less than or equal to the HAL of 40 meters. If both conditions are met, WAAS LPV service is available at that airport. Consequently, if either one of the conditions are not met, the WAAS LPV service outage and its duration is recorded.

When the LPV service becomes unavailable, it is not considered available again until protection levels are below or equal to alert limits for at least 15 minutes. Although this will minimally reduce LPV service availability, it substantially reduces the number of service outages and prevents excessive switching in and out of service availability. Similar service analyses are computed for the LP and LPV200 services in accordance with HAL and VAL shown in Table 1-1. Table 8-1 shows the WAAS LPV service availability and outages at selected airports in the US and Canada. Figure 8-1 through Figure 8-6 provide graphical representation of the LP, LPV, and LPV200 availability and outage counts at airports in the US and Canada that have published GPS area navigation (RNAV) Instrument Approach Procedures (IAPs). These results are geographically depicted on an interactive web page and are accessible at http://www.nstb.tc.faa.gov/AirportOutages/.

To use the interactive web page, select the current quarter from the dropdown menu in the upper left corner, and click "Submit Request". The WAAS LPV airport layer will appear providing color-coded availability results, as shown in Figure 8-1 and Figure 8-2. Rolling the cursor over any airport will display the LPV availability and outages for the reporting period. The "WAAS Layer" menu in the upper right of the display allows the user to select WAAS LP or LPV200 availability and outage results, as shown in Figure 8-3 through Figure 8-6. Selecting "Show All Airports" displays WAAS availability for US airports with GPS RNAV IAPs; not selecting "Show All Airports" displays only airports with approved LPV approaches, as shown in Table 8-1.

Table 8-1. WAAS LP, LPV, and LPV200 Outages and Availability

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
2C7	SHAKTOOLIK	AK	LPV	0	100	0	100	1	99.992
6A8	ALLAKAKET	AK	LP	0	100	0	100	1	99.985
7KA	TATITLEK	AK	LP	0	100	0	100	1	99.996
9A3	CHUATHBALUK	AK	LPV	0	100	0	100	1	99.997
ADQ	KODIAK	AK	LPV	0	100	0	100	1	99.997
AFM	AMBLER	AK	LPV	0	100	0	100	1	99.986
AKN	KING SALMON	AK	LPV	0	100	0	100	1	99.997
AKW	KLAWOCK	AK	LP	0	100	0	100	0	100
ANC	TED STEVENS ANCHORAGE INTL	AK	LPV200	0	100	0	100	1	99.994
ANI	ANIAK	AK	LPV	0	100	0	100	1	99.997
AQH	QUINHAGAK	AK	LPV	0	100	0	100	1	99.997
AQT	NUIQSUT	AK	LPV	0	100	0	100	1	99.976
AWI	WAINWRIGHT	AK	LPV	0	100	0	100	43	99.529
BET	BETHEL	AK	LPV200	0	100	0	100	1	99.997
BRW	WILEY POST-WILL ROGERS MEMORIA	AK	LPV	0	100	0	100	46	99.491
BVK	BUCKLAND	AK	LPV	0	100	0	100	1	99.989
CDB	COLD BAY	AK	LPV200	0	100	0	100	13	99.942
CDV	MERLE K (MUDHOLE) SMITH	AK	LPV	0	100	0	100	1	99.997
CEM	CENTRAL	AK	LP	0	100	0	100	1	99.981
CLP	CLARKS POINT	AK	LPV	0	100	0	100	1	99.997
CXF	COLDFOOT	AK	LP	0	100	0	100	1	99.981
D76	ROBERT/BOB/CURTIS MEMORIAL	AK	LPV	0	100	0	100	19	99.889
DEE	DEERING	AK	LPV	0	100	0	100	16	99.878
DLG	DILLINGHAM	AK	LPV	0	100	0	100	1	99.997
ELI	ELIM	AK	LPV	0	100	0	100	1	99.991
ENA	KENAI MUNICIPAL	AK	LPV200	0	100	0	100	1	99.997
ENM	EMMONAK	AK	LPV	0	100	0	100	1	99.994
FAI	FAIRBANKS INTL	AK	LPV200	0	100	0	100	1	99.990
FYU	FORT YUKON	AK	LPV	0	100	0	100	1	99.979
GAL	EDWARD G PITKA SR	AK	LPV	0	100	0	100	1	99.990
GAM	GAMBELL	AK	LPV	0	100	0	100	29	99.592
GKN	GULKANA	AK	LPV	0	100	0	100	1	99.993
GST	GUSTAVUS	AK	LP	0	100	0	100	0	100
HLA	HUSLIA	AK	LPV	0	100	0	100	1	99.989
HOM	HOMER	AK	LPV	0	100	0	100	1	99.997

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
HPB	HOOPER BAY	AK	LP	0	100	0	100	1	99.992
HRR	HEALY RIVER	AK	LP	0	100	0	100	1	99.990
IIK	KIPNUK	AK	LPV	0	100	0	100	1	99.995
ILI	ILIAMNA	AK	LPV	0	100	0	100	1	99.997
IWK	WALES	AK	LP	0	100	0	100	28	99.709
IYS	WASILLA	AK	LPV	0	100	0	100	1	99.993
KAL	KALTAG	AK	LPV	0	100	0	100	1	99.991
KGX	GRAYLING	AK	LP	0	100	0	100	1	99.994
KSM	ST MARY'S	AK	LPV200	0	100	0	100	1	99.996
KTN	KETCHIKAN INTL	AK	LPV	0	100	0	100	0	100
KTS	BREVIG MISSION	AK	LPV	0	100	0	100	21	99.819
KWT	KWETHLUK	AK	LPV	0	100	0	100	1	99.997
KYU	KOYUKUK	AK	LPV	0	100	0	100	1	99.990
MCG	MC GRATH	AK	LP	0	100	0	100	1	99.994
MDM	MARSHALL DON HUNTER SR	AK	LP	0	100	0	100	1	99.997
MDO	MIDDLETON ISLAND	AK	LP	0	100	0	100	1	99.998
MLY	MANLEY HOT SPRINGS	AK	LP	0	100	0	100	1	99.987
OME	NOME	AK	LPV	0	100	0	100	15	99.869
OOK	TOKSOOK BAY	AK	LP	0	100	0	100	1	99.993
ORT	NORTHWAY	AK	LP	0	100	0	100	1	99.990
OTZ	RALPH WIEN MEMORIAL	AK	LPV	0	100	0	100	20	99.853
PAQ	WARREN BUDWOODS PALMER MUNICIPAL	AK	LP	0	100	0	100	1	99.993
PBV	ST GEORGE	AK	LPV	0	100	0	100	31	99.812
PHO	POINT HOPE	AK	LPV	0	100	0	100	34	99.599
PTU	PLATINUM	AK	LPV	0	100	0	100	1	99.996
RBY	RUBY	AK	LPV	0	100	0	100	1	99.990
RSH	RUSSIAN MISSION	AK	LP	0	100	0	100	1	99.997
SCC	DEADHORSE	AK	LPV200	0	100	0	100	1	99.973
SCM	SCAMMON BAY	AK	LP	0	100	0	100	1	99.993
SDP	SAND POINT	AK	LPV	0	100	0	100	1	99.997
SHG	SHUNGNAK	AK	LP	0	100	0	100	1	99.986
SHX	SHAGELUK	AK	LPV	0	100	0	100	1	99.995
SIT	SITKA ROCKY GUTIERREZ	AK	LP	0	100	0	100	0	100
SMK	ST MICHAEL	AK	LPV	0	100	0	100	1	99.993
SXQ	SOLDOTNA	AK	LP	0	100	0	100	1	99.997
TKA	TALKEETNA	AK	LPV	0	100	0	100	1	99.992
TOG	TOGIAK	AK	LP	0	100	0	100	1	99.997

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
WLK	SELAWIK	AK	LPV	0	100	0	100	1	99.987
WMO	WHITE MOUNTAIN	AK	LP	0	100	0	100	1	99.991
WNA	NAPAKIAK	AK	LPV	0	100	0	100	1	99.997
WSN	SOUTH NAKNEK NR 2	AK	LPV	0	100	0	100	1	99.997
WTK	NOATAK	AK	LPV	0	100	0	100	25	99.813
YAK	YAKUTAT	AK	LPV200	0	100	0	100	0	100
02A	CHILTON COUNTY	AL	LP	0	100	0	100	0	100
06A	MOTON FIELD MUNICIPAL	AL	LPV	0	100	0	100	0	100
09A	BUTLER-CHOCTAW COUNTY	AL	LPV	0	100	0	100	0	100
0J6	HEADLAND MUNICIPAL	AL	LPV	0	100	0	100	0	100
0R1	ATMORE MUNICIPAL	AL	LPV	0	100	0	100	0	100
11A	CLAYTON MUNICIPAL	AL	LPV	0	100	0	100	0	100
12J	BREWTON MUNICIPAL	AL	LPV	0	100	0	100	0	100
1A9	PRATTVILLE - GROUBY FIELD	AL	LPV	0	100	0	100	0	100
1M4	POSEY FIELD	AL	LPV	0	100	0	100	0	100
1R8	BAY MINETTE MUNICIPAL	AL	LPV	0	100	0	100	0	100
2R5	ST ELMO	AL	LPV	0	100	0	100	0	100
33J	GENEVA MUNICIPAL	AL	LP	0	100	0	100	0	100
3M8	NORTH PICKENS	AL	LP	0	100	0	100	0	100
4A9	ISBELL FIELD	AL	LPV	0	100	0	100	0	100
5R1	ROY WILCOX	AL	LP	0	100	0	100	0	100
5R4	FOLEY MUNICIPAL	AL	LPV	0	100	0	100	0	100
71J	OZARK-BLACKWELL FIELD	AL	LPV	0	100	0	100	0	100
79J	SOUTH ALABAMA RGNL AT BILL BEN	AL	LPV	0	100	0	100	0	100
8A0	ALBERTVILLE RGNL-THOMAS J BRUM	AL	LPV	0	100	0	100	0	100
8A1	GUNTERSVILLE MUNICIPAL - JOE STARNE	AL	LPV	0	100	0	100	0	100
9A4	COURTLAND	AL	LPV200	0	100	0	100	0	100
A08	VAIDEN FIELD	AL	LPV	0	100	0	100	0	100
ALX	THOMAS C RUSSELL FLD	AL	LPV	0	100	0	100	0	100
ANB	ANNISTON RGNL	AL	LPV	0	100	0	100	0	100
ASN	TALLADEGA MUNICIPAL	AL	LPV200	0	100	0	100	0	100
AUO	AUBURN UNIVERSITY RGNL	AL	LPV200	0	100	0	100	0	100
BFM	MOBILE DOWNTOWN	AL	LPV200	0	100	0	100	0	100
BHM	BIRMINGHAM-SHUTTLESWORTH INTL	AL	LPV200	0	100	0	100	0	100
CMD	CULLMAN RGNL-FOLSOM FIELD	AL	LPV	0	100	0	100	0	100
CQF	H L SONNY CALLAHAN	AL	LPV200	0	100	0	100	0	100
DCU	PRYOR FIELD RGNL	AL	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
DHN	DOTHAN RGNL	AL	LPV200	0	100	0	100	0	100
DYA	DEMOPOLIS RGNL	AL	LPV	0	100	0	100	0	100
EDN	ENTERPRISE MUNICIPAL	AL	LPV	0	100	0	100	0	100
EET	SHELBY COUNTY	AL	LPV	0	100	0	100	0	100
EKY	BESSEMER	AL	LPV	0	100	0	100	0	100
EUF	WEEDON FIELD	AL	LPV	0	100	0	100	0	100
GAD	NORTHEAST ALABAMA RGNL	AL	LPV200	0	100	0	100	0	100
GZH	EVERGREEN RGNL/MIDDLETON FIELD	AL	LP	0	100	0	100	0	100
HAB	MARION COUNTY-RANKIN FITE	AL	LPV	0	100	0	100	0	100
HSV	HUNTSVILLE INTL-CARL T JONES F	AL	LPV200	0	100	0	100	0	100
JFX	WALKER COUNTY-BEVILL FIELD	AL	LPV	0	100	0	100	0	100
JKA	JACK EDWARDS NATIONAL	AL	LPV200	0	100	0	100	0	100
M95	RICHARD ARTHUR FIELD	AL	LPV	0	100	0	100	0	100
MDQ	HUNTSVILLE EXECUTIVE TOM SHARP	AL	LPV200	0	100	0	100	0	100
MGM	MONTGOMERY RGNL (DANNELLY FIEL	AL	LPV200	0	100	0	100	0	100
MOB	MOBILE RGNL	AL	LPV200	0	100	0	100	0	100
MSL	NORTHWEST ALABAMA RGNL	AL	LPV200	0	100	0	100	0	100
PLR	ST CLAIR COUNTY	AL	LPV	0	100	0	100	0	100
PYP	CENTRE-PIEDMONT-CHEROKEE COUNT	AL	LPV	0	100	0	100	0	100
SCD	MERKEL FIELD SYLACAUGA MUNICIPAL	AL	LPV	0	100	0	100	0	100
SEM	CRAIG FIELD	AL	LPV200	0	100	0	100	0	100
TCL	TUSCALOOSA RGNL	AL	LPV	0	100	0	100	0	100
TOI	TROY MUNICIPAL AT N KENNETH CAMPBEL	AL	LPV	0	100	0	100	0	100
0M0	BILLY FREE MUNICIPAL	AR	LPV	0	100	0	100	0	100
42A	MELBOURNE MUNICIPAL - JOHN E MILLER	AR	LP	0	100	0	100	0	100
4A5	SEARCY COUNTY	AR	LPV	0	100	0	100	0	100
4M1	CARROLL COUNTY	AR	LP	0	100	0	100	0	100
4M3	CARLISLE MUNICIPAL	AR	LPV	0	100	0	100	0	100
6M7	MARIANNA/LEE COUNTY-STEVE EDWA	AR	LPV	0	100	0	100	0	100
7M1	MC GEHEE MUNICIPAL	AR	LP	0	100	0	100	0	100
9M8	SHERIDAN MUNICIPAL	AR	LPV	0	100	0	100	0	100
ADF	DEXTER B FLORENCE MEMORIAL FIE	AR	LPV	0	100	0	100	0	100
ARG	WALNUT RIDGE RGNL	AR	LPV200	0	100	0	100	0	100
ASG	SPRINGDALE MUNICIPAL	AR	LPV	0	100	0	100	0	100
AWM	WEST MEMPHIS MUNICIPAL	AR	LPV	0	100	0	100	0	100
BPK	BAXTER COUNTY	AR	LPV	0	100	0	100	0	100
BVX	BATESVILLE RGNL	AR	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
BYH	ARKANSAS INTL	AR	LPV200	0	100	0	100	0	100
CDH	HARRELL FIELD	AR	LPV	0	100	0	100	0	100
CXW	CANTRELL FLD	AR	LPV	0	100	0	100	0	100
DRP	DELTA RGNL	AR	LPV	0	100	0	100	0	100
ELD	SOUTH ARKANSAS RGNL AT GOODWIN	AR	LPV	0	100	0	100	0	100
FLP	MARION COUNTY RGNL	AR	LPV	0	100	0	100	0	100
FSM	FORT SMITH RGNL	AR	LPV200	0	100	0	100	0	100
FYV	DRAKE FIELD	AR	LPV	0	100	0	100	0	100
H34	HUNTSVILLE MUNICIPAL	AR	LPV	0	100	0	100	0	100
HEE	THOMPSON-ROBBINS	AR	LPV	0	100	0	100	0	100
HRO	BOONE COUNTY	AR	LPV	0	100	0	100	0	100
JBR	JONESBORO MUNICIPAL	AR	LPV200	0	100	0	100	0	100
LIT	BILL AND HILLARY CLINTON NATIO	AR	LPV200	0	100	0	100	0	100
LLQ	MONTICELLO MUNICIPAL/ELLIS FIELD	AR	LPV	0	100	0	100	0	100
M18	HOPE MUNICIPAL	AR	LP	0	100	0	100	0	100
M19	NEWPORT RGNL	AR	LPV	0	100	0	100	0	100
M32	LAKE VILLAGE MUNICIPAL	AR	LP	0	100	0	100	0	100
M70	POCAHONTAS MUNICIPAL	AR	LPV	0	100	0	100	0	100
M77	HOWARD COUNTY	AR	LP	0	100	0	100	0	100
MXA	MANILA MUNICIPAL	AR	LPV	0	100	0	100	0	100
ORK	NORTH LITTLE ROCK MUNICIPAL	AR	LPV	0	100	0	100	0	100
PBF	PINE BLUFF RGNL AIRPORT GRIDER	AR	LPV	0	100	0	100	0	100
ROG	ROGERS EXECUTIVE - CARTER FIEL	AR	LPV	0	100	0	100	0	100
RUE	RUSSELLVILLE RGNL	AR	LPV	0	100	0	100	0	100
SGT	STUTTGART MUNICIPAL CARL HUMPHREY F	AR	LPV	0	100	0	100	0	100
SLG	SMITH FIELD	AR	LPV	0	100	0	100	0	100
SRC	SEARCY MUNICIPAL	AR	LPV	0	100	0	100	0	100
SUZ	SALINE COUNTY RGNL	AR	LPV	0	100	0	100	0	100
TXK	TEXARKANA RGNL-WEBB FIELD	AR	LPV	0	100	0	100	0	100
VBT	BENTONVILLE MUNICIPAL/LOUISE M THAD	AR	LPV	0	100	0	100	0	100
XNA	NORTHWEST ARKANSAS RGNL	AR	LPV200	0	100	0	100	0	100
AVQ	MARANA RGNL	AZ	LP	0	100	0	100	17	99.862
AZC	COLORADO CITY MUNICIPAL	AZ	LPV	0	100	0	100	0	100
CGZ	CASA GRANDE MUNICIPAL	AZ	LPV	0	100	0	100	0	100
DVT	PHOENIX DEER VALLEY	AZ	LPV	0	100	0	100	0	100
FFZ	FALCON FLD	AZ	LP	0	100	0	100	0	100
FHU	SIERRA VISTA MUNICIPAL-LIBBY AAF	AZ	LPV200	0	100	0	100	21	99.835

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
FLG	FLAGSTAFF PULLIAM	AZ	LPV	0	100	0	100	0	100
GCN	GRAND CANYON NATIONAL PARK	AZ	LPV	0	100	0	100	0	100
GEU	GLENDALE MUNICIPAL	AZ	LPV	0	100	0	100	0	100
GYR	PHOENIX GOODYEAR	AZ	LP	0	100	0	100	0	100
HII	LAKE HAVASU CITY	AZ	LPV	0	100	0	100	0	100
IFP	LAUGHLIN/BULLHEAD INTL	AZ	LPV	0	100	0	100	0	100
IGM	KINGMAN	AZ	LPV	0	100	0	100	0	100
IWA	PHOENIX-MESA GATEWAY	AZ	LPV200	0	100	0	100	0	100
JTC	SPRINGERVILLE MUNICIPAL	AZ	LP	0	100	0	100	0	100
P20	AVI SUQUILLA	AZ	LPV	0	100	0	100	0	100
P33	COCHISE COUNTY	AZ	LPV	0	100	0	100	16	99.911
PGA	PAGE MUNICIPAL	AZ	LPV	0	100	0	100	0	100
PHX	PHOENIX SKY HARBOR INTL	AZ	LPV	0	100	0	100	0	100
PRC	PRESCOTT RGNL - ERNEST A LOVE	AZ	LPV200	0	100	0	100	0	100
RQE	WINDOW ROCK	AZ	LP	0	100	0	100	0	100
RYN	RYAN FIELD	AZ	LPV	0	100	0	100	19	99.837
SAD	SAFFORD RGNL	AZ	LPV	0	100	0	100	2	99.986
SJN	ST JOHNS INDUSTRIAL AIR PARK	AZ	LP	0	100	0	100	0	100
SOW	SHOW LOW RGNL	AZ	LPV200	0	100	0	100	0	100
TUS	TUCSON INTL	AZ	LPV	0	100	0	100	19	99.844
AAT	ALTURAS MUNICIPAL	CA	LPV	0	100	0	100	0	100
ACV	CALIFORNIA REDWOOD COAST-HUMBO	CA	LPV	0	100	0	100	1	99.992
APC	NAPA COUNTY	CA	LPV	0	100	0	100	1	99.994
APV	APPLE VALLEY	CA	LPV	0	100	0	100	0	100
AUN	AUBURN MUNICIPAL	CA	LPV	0	100	0	100	0	100
BFL	MEADOWS FIELD	CA	LPV	0	100	0	100	0	100
BLH	BLYTHE	CA	LP	0	100	0	100	0	100
BUR	BOB HOPE	CA	LP	0	100	0	100	0	100
C83	BYRON	CA	LPV	0	100	0	100	1	99.996
CCB	CABLE	CA	LP	0	100	0	100	0	100
CCR	BUCHANAN FIELD	CA	LPV	0	100	0	100	1	99.994
CEC	JACK MC NAMARA FIELD	CA	LPV	0	100	0	100	1	99.993
CIC	CHICO MUNICIPAL	CA	LPV	0	100	0	100	1	99.999
CMA	CAMARILLO	CA	LPV	0	100	0	100	1	99.997
CNO	CHINO	CA	LPV	0	100	0	100	0	100
CPU	CALAVERAS CO-MAURY RASMUSSEN F	CA	LP	0	100	0	100	0	100
CRQ	MC CLELLAN-PALOMAR	CA	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CVH	HOLLISTER MUNICIPAL	CA	LPV	0	100	0	100	1	99.990
DAG	BARSTOW-DAGGETT	CA	LPV	0	100	0	100	0	100
DWA	YOLO COUNTY	CA	LPV	0	100	0	100	1	99.997
F70	FRENCH VALLEY	CA	LPV	0	100	0	100	0	100
FAT	FRESNO YOSEMITE INTL	CA	LPV200	0	100	0	100	1	99.999
GOO	NEVADA COUNTY	CA	LPV	0	100	0	100	0	100
HAF	HALF MOON BAY	CA	LPV	0	100	0	100	1	99.990
HHR	JACK NORTHROP FIELD/HAWTHORNE	CA	LPV	0	100	0	100	0	100
HJO	HANFORD MUNICIPAL	CA	LPV	0	100	0	100	1	99.997
HWD	HAYWARD EXECUTIVE	CA	LPV	0	100	0	100	1	99.994
L35	BIG BEAR CITY	CA	LP	0	100	0	100	0	100
LAX	LOS ANGELES INTL	CA	LPV200	0	100	0	100	0	100
LGB	LONG BEACH /DAUGHERTY FIELD/	CA	LPV	0	100	0	100	0	100
LHM	LINCOLN RGNL/KARL HARDER FIELD	CA	LPV200	0	100	0	100	1	99.999
LLR	LITTLE RIVER	CA	LP	0	100	0	100	1	99.987
LSN	LOS BANOS MUNICIPAL	CA	LPV	0	100	0	100	1	99.996
LVK	LIVERMORE MUNICIPAL	CA	LPV200	0	100	0	100	1	99.995
MAE	MADERA MUNICIPAL	CA	LPV	0	100	0	100	1	99.997
MCE	MERCED RGNL/MACREADY FIELD	CA	LPV	0	100	0	100	1	99.997
MER	CASTLE	CA	LPV200	0	100	0	100	1	99.997
MHR	SACRAMENTO MATHER	CA	LPV200	0	100	0	100	1	99.997
MIT	SHAFTER-MINTER FIELD	CA	LPV	0	100	0	100	1	99.999
MOD	MODESTO CITY-CO-HARRY SHAM FLD	CA	LPV	0	100	0	100	1	99.997
MRY	MONTEREY RGNL	CA	LPV	0	100	0	100	1	99.987
MYF	MONTGOMERY-GIBBS EXECUTIVE	CA	LPV200	0	100	0	100	0	100
MYV	YUBA COUNTY	CA	LPV200	0	100	0	100	1	99.999
NUQ	MOFFETT FEDERAL AFLD	CA	LPV200	0	100	0	100	1	99.992
O02	NERVINO	CA	LPV	0	100	0	100	0	100
O08	COLUSA COUNTY	CA	LPV	0	100	0	100	1	99.997
O27	OAKDALE	CA	LPV	0	100	0	100	1	99.997
O32	REEDLEY MUNICIPAL	CA	LPV	0	100	0	100	0	100
O69	PETALUMA MUNICIPAL	CA	LPV	0	100	0	100	1	99.994
O88	RIO VISTA MUNICIPAL	CA	LP	0	100	0	100	1	99.996
OAK	METROPOLITAN OAKLAND INTL	CA	LPV200	0	100	0	100	1	99.992
ONT	ONTARIO INTL	CA	LPV200	0	100	0	100	0	100
OVE	OROVILLE MUNICIPAL	CA	LPV	0	100	0	100	0	100
OXR	OXNARD	CA	LPV	0	100	0	100	1	99.992

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
PMD	PALMDALE USAF PLANT 42	CA	LPV200	0	100	0	100	0	100
POC	BRACKETT FIELD	CA	LPV	0	100	0	100	0	100
PRB	PASO ROBLES MUNICIPAL	CA	LPV	0	100	0	100	1	99.988
PVF	PLACERVILLE	CA	LPV	0	100	0	100	0	100
RAL	RIVERSIDE MUNICIPAL	CA	LPV	0	100	0	100	0	100
RBL	RED BLUFF MUNICIPAL	CA	LPV	0	100	0	100	1	99.999
RDD	REDDING MUNICIPAL	CA	LPV	0	100	0	100	0	100
RHV	REID-HILLVIEW OF SANTA CLARA C	CA	LPV	0	100	0	100	1	99.992
RIV	MARCH ARB	CA	LPV200	0	100	0	100	0	100
SAC	SACRAMENTO EXECUTIVE	CA	LPV	0	100	0	100	1	99.997
SAN	SAN DIEGO INTL	CA	LPV	0	100	0	100	0	100
SBA	SANTA BARBARA MUNICIPAL	CA	LPV	0	100	0	100	1	99.988
SBD	SAN BERNARDINO INTL	CA	LPV	0	100	0	100	0	100
SBP	SAN LUIS COUNTY RGNL	CA	LPV200	0	100	0	100	1	99.986
SCK	STOCKTON METROPOLITAN	CA	LPV200	0	100	0	100	1	99.997
SDM	BROWN FIELD MUNICIPAL	CA	LPV200	0	100	0	100	0	100
SEE	GILLESPIE FIELD	CA	LP	0	100	0	100	0	100
SFO	SAN FRANCISCO INTL	CA	LPV200	0	100	0	100	1	99.992
SJC	NORMAN Y MINETA SAN JOSE INTL	CA	LPV200	0	100	0	100	1	99.992
SMF	SACRAMENTO INTL	CA	LPV200	0	100	0	100	1	99.997
SMO	SANTA MONICA MUNICIPAL	CA	LPV	0	100	0	100	0	100
SMX	SANTA MARIA PUB/CAPT G ALLAN H	CA	LPV200	0	100	0	100	1	99.986
SNA	JOHN WAYNE AIRPORT-ORANGE COUN	CA	LPV200	0	100	0	100	0	100
SNS	SALINAS MUNICIPAL	CA	LPV200	0	100	0	100	1	99.988
STS	CHARLES M SCHULZ - SONOMA COUN	CA	LPV200	0	100	0	100	1	99.994
TCY	TRACY MUNICIPAL	CA	LPV	0	100	0	100	1	99.996
TNP	TWENTYNINE PALMS	CA	LP	0	100	0	100	0	100
TOA	ZAMPERINI FIELD	CA	LPV	0	100	0	100	0	100
TRK	TRUCKEE-TAHOE	CA	LP	0	100	0	100	0	100
TRM	JACQUELINE COCHRAN RGNL	CA	LPV	0	100	0	100	0	100
TVL	LAKE TAHOE	CA	LP	0	100	0	100	0	100
VCB	NUT TREE	CA	LPV	0	100	0	100	1	99.995
VCV	SOUTHERN CALIFORNIA LOGISTICS	CA	LPV	0	100	0	100	0	100
VIS	VISALIA MUNICIPAL	CA	LPV	0	100	0	100	0	100
WJF	GENERAL WM J FOX AIRFIELD	CA	LPV	0	100	0	100	0	100
WLW	WILLOWS-GLENN COUNTY	CA	LPV	0	100	0	100	1	99.997
WVI	WATSONVILLE MUNICIPAL	CA	LPV	0	100	0	100	1	99.989

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
1V6	FREMONT COUNTY	CO	LPV	0	100	0	100	0	100
20V	MC ELROY AIRFIELD	CO	LPV	0	100	0	100	0	100
2V5	WRAY MUNICIPAL	CO	LPV200	0	100	0	100	0	100
2V6	YUMA MUNICIPALCIPAL	CO	LPV200	0	100	0	100	0	100
4V0	RANGELY	CO	LPV	0	100	0	100	0	100
4V1	SPANISH PEAKS AIRFIELD	CO	LPV	0	100	0	100	0	100
AEJ	CENTRAL COLORADO RGNL	CO	LP	0	100	0	100	0	100
AJZ	BLAKE FIELD	CO	LPV	0	100	0	100	0	100
AKO	COLORADO PLAINS RGNL	CO	LPV	0	100	0	100	0	100
ALS	SAN LUIS VALLEY RGNL/BERGMAN F	CO	LPV200	0	100	0	100	0	100
APA	CENTENNIAL	CO	LPV200	0	100	0	100	0	100
BJC	ROCKY MOUNTAIN METROPOLITAN	CO	LPV200	0	100	0	100	0	100
CAG	CRAIG-MOFFAT	CO	LP	0	100	0	100	0	100
CEZ	CORTEZ MUNICIPAL	CO	LPV	0	100	0	100	0	100
COS	CITY OF COLORADO SPRINGS MUNICIPAL	CO	LPV200	0	100	0	100	0	100
DEN	DENVER INTL	CO	LPV200	0	100	0	100	0	100
DRO	DURANGO-LA PLATA COUNTY	CO	LPV200	0	100	0	100	0	100
FMM	FORT MORGAN MUNICIPAL	CO	LPV	0	100	0	100	0	100
FNL	NORTHERN COLORADO RGNL	CO	LPV200	0	100	0	100	0	100
FTG	FRONT RANGE	CO	LPV200	0	100	0	100	0	100
GJT	GRAND JUNCTION REGIONAL	CO	LPV200	0	100	0	100	0	100
GXY	GREELEY-WELD COUNTY	CO	LPV200	0	100	0	100	0	100
HDN	YAMPA VALLEY	CO	LPV200	0	100	0	100	0	100
ITR	KIT CARSON COUNTY	CO	LPV	0	100	0	100	0	100
LAA	LAMAR MUNICIPAL	CO	LPV	0	100	0	100	0	100
LHX	LA JUNTA MUNICIPAL	CO	LPV	0	100	0	100	0	100
LMO	VANCE BRAND	CO	LPV	0	100	0	100	0	100
MTJ	MONTROSE RGNL	CO	LPV	0	100	0	100	0	100
MVI	MONTE VISTA MUNICIPAL	CO	LPV	0	100	0	100	0	100
PSO	STEVENS FIELD	CO	LP	0	100	0	100	0	100
PUB	PUEBLO MEMORIAL	CO	LPV200	0	100	0	100	0	100
RCV	ASTRONAUT KENT ROMINGER	CO	LPV	0	100	0	100	0	100
RIL	RIFLE GARFIELD COUNTY	CO	LPV	0	100	0	100	0	100
STK	STERLING MUNICIPAL	CO	LPV	0	100	0	100	0	100
TEX	TELLURIDE RGNL	CO	LP	0	100	0	100	0	100
4B8	ROBERTSON FIELD	CT	LP	0	100	0	100	0	100
BDL	BRADLEY INTL	CT	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
BDR	IGOR I SIKORSKY MEMORIAL	CT	LPV	0	100	0	100	0	100
DXR	DANBURY MUNICIPAL	CT	LP	0	100	0	100	0	100
GON	GROTON-NEW LONDON	CT	LPV	0	100	0	100	0	100
HVN	TWEED-NEW HAVEN	CT	LPV	0	100	0	100	0	100
IJD	WINDHAM	CT	LP	0	100	0	100	0	100
MMK	MERIDEN MARKHAM MUNICIPAL	CT	LP	0	100	0	100	0	100
OXC	WATERBURY-OXFORD	CT	LPV	0	100	0	100	0	100
DCA	RONALD REAGAN WASHINGTON NATIO	DC	LPV	0	100	0	100	0	100
HEF	MANASSAS RGNL/HARRY P DAVIS FI	DC	LPV	0	100	0	100	0	100
IAD	WASHINGTON DULLES INTL	DC	LPV200	0	100	0	100	0	100
33N	DELAWARE AIRPARK	DE	LP	0	100	0	100	0	100
DOV	DOVER AFB	DE	LPV200	0	100	0	100	0	100
EVY	SUMMIT	DE	LPV	0	100	0	100	0	100
GED	DELAWARE COASTAL	DE	LPV	0	100	0	100	0	100
ILG	NEW CASTLE	DE	LPV	0	100	0	100	0	100
1J0	TRI-COUNTY	FL	LP	0	100	0	100	0	100
24J	SUWANNEE COUNTY	FL	LPV	0	100	0	100	0	100
28J	PALATKA MUNICIPAL - LT KAY LARKIN F	FL	LPV	0	100	0	100	0	100
40J	PERRY-FOLEY	FL	LPV	0	100	0	100	0	100
54J	DEFUNIAK SPRINGS	FL	LP	0	100	0	100	0	100
AAF	APALACHICOLA RGNL-CLEVE RANDOL	FL	LPV	0	100	0	100	0	100
APF	NAPLES MUNICIPAL	FL	LPV	0	100	0	100	0	100
AVO	AVON PARK EXECUTIVE	FL	LPV	0	100	0	100	0	100
BCT	BOCA RATON	FL	LPV	0	100	0	100	0	100
BKV	BROOKSVILLE-TAMPA BAY RGNL	FL	LPV	0	100	0	100	0	100
BOW	BARTOW EXECUTIVE	FL	LPV	0	100	0	100	0	100
CEW	BOB SIKES	FL	LPV	0	100	0	100	0	100
CGC	CRYSTAL RIVER-CAPTAIN TOM DAVI	FL	LP	0	100	0	100	0	100
CHN	WAUCHULA MUNICIPAL	FL	LP	0	100	0	100	0	100
COI	MERRITT ISLAND	FL	LPV	0	100	0	100	0	100
CRG	JACKSONVILLE EXECUTIVE AT CRAI	FL	LPV200	0	100	0	100	0	100
CTY	CROSS CITY	FL	LPV	0	100	0	100	0	100
DAB	DAYTONA BEACH INTL	FL	LPV200	0	100	0	100	0	100
DED	DELAND MUNICIPAL-SIDNEY H TAYLOR FI	FL	LPV	0	100	0	100	0	100
DTS	DESTIN EXECUTIVE	FL	LPV	0	100	0	100	0	100
ECP	NORTHWEST FLORIDA BEACHES INTL	FL	LPV200	0	100	0	100	0	100
EVB	NEW SMYRNA BEACH MUNICIPAL	FL	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
EYW	KEY WEST INTL	FL	LPV	0	100	0	100	0	100
F45	NORTH PALM BEACH COUNTY GENERA	FL	LPV	0	100	0	100	0	100
FHB	FERNANDINA BEACH MUNICIPAL	FL	LPV	0	100	0	100	0	100
FIN	FLAGLER EXECUTIVE	FL	LPV	0	100	0	100	0	100
FLL	FORT LAUDERDALE/HOLLYWOOD INTL	FL	LPV200	0	100	0	100	0	100
FMY	PAGE FIELD	FL	LPV	0	100	0	100	0	100
FPR	TREASURE COAST INTL	FL	LPV	0	100	0	100	0	100
FXE	FORT LAUDERDALE EXECUTIVE	FL	LPV200	0	100	0	100	0	100
GIF	WINTER HAVEN RGNL	FL	LPV	0	100	0	100	0	100
GNV	GAINESVILLE RGNL	FL	LPV	0	100	0	100	0	100
HEG	HERLONG RECREATIONAL	FL	LPV	0	100	0	100	0	100
IMM	IMMOKALEE RGNL	FL	LPV	0	100	0	100	0	100
ISM	KISSIMMEE GATEWAY	FL	LPV200	0	100	0	100	0	100
JAX	JACKSONVILLE INTL	FL	LPV200	0	100	0	100	0	100
LAL	LAKELAND LINDER INTL	FL	LPV200	0	100	0	100	0	100
LCQ	LAKE CITY GATEWAY	FL	LPV	0	100	0	100	0	100
LEE	LEESBURG INTL	FL	LPV	0	100	0	100	0	100
LNA	PALM BEACH COUNTY PARK	FL	LP	0	100	0	100	0	100
MAI	MARIANNA MUNICIPAL	FL	LPV	0	100	0	100	0	100
MCO	ORLANDO INTL	FL	LPV200	0	100	0	100	0	100
MIA	MIAMI INTL	FL	LPV200	0	100	0	100	0	100
MKY	MARCO ISLAND EXECUTIVE	FL	LPV	0	100	0	100	0	100
MLB	MELBOURNE INTL	FL	LPV200	0	100	0	100	0	100
MTH	THE FLORIDA KEYS MARATHON INTL	FL	LPV	0	100	0	100	0	100
OBE	OKEECHOBEE COUNTY	FL	LPV	0	100	0	100	0	100
OCF	OCALA INTL-JIM TAYLOR FIELD	FL	LPV200	0	100	0	100	0	100
OMN	ORMOND BEACH MUNICIPAL	FL	LPV	0	100	0	100	0	100
OPF	MIAMI-OPA LOCKA EXECUTIVE	FL	LPV200	0	100	0	100	0	100
ORL	EXECUTIVE	FL	LPV200	0	100	0	100	0	100
PBI	PALM BEACH INTL	FL	LPV200	0	100	0	100	0	100
PCM	PLANT CITY	FL	LPV	0	100	0	100	0	100
PGD	PUNTA GORDA	FL	LPV200	0	100	0	100	0	100
PHK	PALM BEACH CO GLADES	FL	LPV	0	100	0	100	0	100
PIE	ST PETE-CLEARWATER INTL	FL	LPV200	0	100	0	100	0	100
PMP	POMPANO BEACH AIRPARK	FL	LPV	0	100	0	100	0	100
PNS	PENSACOLA INTL	FL	LPV200	0	100	0	100	0	100
RSW	SOUTHWEST FLORIDA INTL	FL	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
SEF	SEBRING RGNL	FL	LPV	0	100	0	100	0	100
SFB	ORLANDO SANFORD INTL	FL	LPV200	0	100	0	100	0	100
SGJ	NORTHEAST FLORIDA RGNL	FL	LPV	0	100	0	100	0	100
SRQ	SARASOTA/BRADENTON INTL	FL	LPV200	0	100	0	100	0	100
SUA	WITHAM FIELD	FL	LPV	0	100	0	100	0	100
TIX	SPACE COAST RGNL	FL	LPV200	0	100	0	100	0	100
TLH	TALLAHASSEE INTL	FL	LPV200	0	100	0	100	0	100
TMB	MIAMI EXECUTIVE	FL	LPV200	0	100	0	100	0	100
TNT	DADE-COLLIER TRAINING AND TRAN	FL	LPV200	0	100	0	100	0	100
TPA	TAMPA INTL	FL	LPV200	0	100	0	100	0	100
TPF	PETER O KNIGHT	FL	LP	0	100	0	100	0	100
TTS	NASA SHUTTLE LANDING FACILITY	FL	LPV200	0	100	0	100	0	100
VDF	TAMPA EXECUTIVE	FL	LPV	0	100	0	100	0	100
VNC	VENICE MUNICIPAL	FL	LP	0	100	0	100	0	100
VQQ	CECIL	FL	LPV200	0	100	0	100	0	100
VRB	VERO BEACH RGNL	FL	LPV200	0	100	0	100	0	100
X07	LAKE WALES MUNICIPAL	FL	LP	0	100	0	100	0	100
X14	LA BELLE MUNICIPAL	FL	LPV	0	100	0	100	0	100
X23	UMATILLA MUNICIPAL	FL	LP	0	100	0	100	0	100
X35	MARION COUNTY	FL	LP	0	100	0	100	0	100
X50	MASSEY RANCH AIRPARK	FL	LP	0	100	0	100	0	100
X51	MIAMI HOMESTEAD GENERAL AVIATI	FL	LPV	0	100	0	100	0	100
ZPH	ZEPHYRHILLS MUNICIPAL	FL	LPV	0	100	0	100	0	100
09J	JEKYLL ISLAND	GA	LPV200	0	100	0	100	0	100
15J	COOK COUNTY	GA	LPV	0	100	0	100	0	100
17J	DONALSONVILLE MUNICIPAL	GA	LPV	0	100	0	100	0	100
18A	FRANKLIN COUNTY	GA	LPV	0	100	0	100	0	100
19A	JACKSON COUNTY	GA	LPV	0	100	0	100	0	100
2J3	LOUISVILLE MUNICIPAL	GA	LPV	0	100	0	100	0	100
2J5	MILLEN	GA	LPV	0	100	0	100	0	100
3J7	GREENE COUNTY RGNL	GA	LPV	0	100	0	100	0	100
48A	COCHRAN	GA	LPV	0	100	0	100	0	100
49A	GILMER COUNTY	GA	LPV	0	100	0	100	0	100
4A4	POLK COUNTY AIRPORT- CORNELIUS	GA	LPV	0	100	0	100	0	100
4J1	BRANTLEY COUNTY	GA	LPV	0	100	0	100	0	100
4J2	BERRIEN CO	GA	LPV	0	100	0	100	0	100
4J5	QUITMAN BROOKS COUNTY	GA	LP	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
52A	MADISON MUNICIPAL	GA	LP	0	100	0	100	0	100
6A1	BUTLER MUNICIPAL	GA	LPV	0	100	0	100	0	100
6A2	GRIFFIN-SPALDING COUNTY	GA	LPV	0	100	0	100	0	100
70J	CAIRO-GRADY COUNTY	GA	LPV	0	100	0	100	0	100
75J	TURNER COUNTY	GA	LP	0	100	0	100	0	100
9A5	BARWICK LAFAYETTE	GA	LP	0	100	0	100	0	100
ABY	SOUTHWEST GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
ACJ	JIMMY CARTER RGNL	GA	LPV	0	100	0	100	0	100
AGS	AUGUSTA RGNL AT BUSH FIELD	GA	LPV200	0	100	0	100	0	100
AHN	ATHENS/BEN EPPS	GA	LPV200	0	100	0	100	0	100
AJR	HABERSHAM COUNTY	GA	LPV	0	100	0	100	0	100
AMG	BACON COUNTY	GA	LPV	0	100	0	100	0	100
ATL	HARTSFIELD - JACKSON ATLANTA I	GA	LPV200	0	100	0	100	0	100
AYS	WAYCROSS-WARE COUNTY	GA	LPV200	0	100	0	100	0	100
BGE	DECATUR COUNTY INDUSTRIAL AIR	GA	LPV200	0	100	0	100	0	100
BHC	BAXLEY MUNICIPAL	GA	LPV	0	100	0	100	0	100
BIJ	EARLY COUNTY	GA	LPV	0	100	0	100	0	100
BQK	BRUNSWICK GOLDEN ISLES	GA	LPV200	0	100	0	100	0	100
CCO	NEWNAN COWETA COUNTY	GA	LPV	0	100	0	100	0	100
CKF	CRISP COUNTY-CORDELE	GA	LPV	0	100	0	100	0	100
CNI	CHEROKEE COUNTY	GA	LPV	0	100	0	100	0	100
CSG	COLUMBUS	GA	LPV	0	100	0	100	0	100
CTJ	WEST GEORGIA RGNL - O V GRAY F	GA	LPV	0	100	0	100	0	100
CVC	COVINGTON MUNICIPAL	GA	LPV	0	100	0	100	0	100
CWV	CLAXTON-EVANS COUNTY	GA	LPV	0	100	0	100	0	100
CXU	CAMILLA-MITCHELL COUNTY	GA	LPV	0	100	0	100	0	100
CZL	TOM B DAVID FLD	GA	LPV	0	100	0	100	0	100
D73	MONROE-WALTON COUNTY	GA	LP	0	100	0	100	0	100
DBN	W H 'BUD' BARRON	GA	LPV200	0	100	0	100	0	100
DNL	DANIEL FIELD	GA	LPV	0	100	0	100	0	100
DNN	DALTON MUNICIPAL	GA	LPV	0	100	0	100	0	100
DQH	DOUGLAS MUNICIPAL	GA	LPV200	0	100	0	100	0	100
EBA	ELBERT COUNTY-PATZ FIELD	GA	LP	0	100	0	100	0	100
EZM	HEART OF GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
FFC	ATLANTA RGNL FALCON FIELD	GA	LPV	0	100	0	100	0	100
FTY	FULTON COUNTY AIRPORT-BROWN FI	GA	LPV	0	100	0	100	0	100
FZG	FITZGERALD MUNICIPAL	GA	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
GVL	LEE GILMER MEMORIAL	GA	LPV	0	100	0	100	0	100
HOE	HOMERVILLE	GA	LPV	0	100	0	100	0	100
HQU	THOMSON-MCDUFFIE COUNTY	GA	LPV	0	100	0	100	0	100
IIY	WASHINGTON-WILKES COUNTY	GA	LPV	0	100	0	100	0	100
JCA	JACKSON COUNTY	GA	LPV	0	100	0	100	0	100
JES	JESUP-WAYNE COUNTY	GA	LPV	0	100	0	100	0	100
JYL	PLANTATION ARPK	GA	LPV	0	100	0	100	0	100
JZP	PICKENS COUNTY	GA	LPV	0	100	0	100	0	100
LGC	LAGRANGE-CALLAWAY	GA	LPV200	0	100	0	100	0	100
LHW	WRIGHT AAF (FORT STEWART)/MIDC	GA	LPV	0	100	0	100	0	100
LZU	GWINNETT COUNTY - BRISCOE FIEL	GA	LPV200	0	100	0	100	0	100
MAC	MACON DOWNTOWN	GA	LPV	0	100	0	100	0	100
MCN	MIDDLE GEORGIA RGNL	GA	LPV200	0	100	0	100	0	100
MGR	MOULTRIE MUNICIPAL	GA	LPV200	0	100	0	100	0	100
MHP	METTER MUNICIPAL	GA	LPV	0	100	0	100	0	100
MLJ	BALDWIN COUNTY RGNL	GA	LPV	0	100	0	100	0	100
MQW	TELFAIR-WHEELER	GA	LPV	0	100	0	100	0	100
OKZ	KAOLIN FIELD	GA	LPV	0	100	0	100	0	100
OPN	THOMASTON-UPSON COUNTY	GA	LPV200	0	100	0	100	0	100
PIM	HARRIS COUNTY	GA	LPV	0	100	0	100	0	100
PUJ	PAULDING NORTHWEST ATLANTA	GA	LPV200	0	100	0	100	0	100
PXE	PERRY-HOUSTON COUNTY	GA	LPV	0	100	0	100	0	100
RMG	RICHARD B RUSSELL REGIONAL - J	GA	LPV	0	100	0	100	0	100
RVJ	SWINTON SMITH FLD AT REIDSVILL	GA	LP	0	100	0	100	0	100
RYY	COBB COUNTY INTL-MCCOLLUM FIEL	GA	LPV200	0	100	0	100	0	100
SAV	SAVANNAH/HILTON HEAD INTL	GA	LPV200	0	100	0	100	0	100
SBO	EAST GEORGIA REGIONAL	GA	LPV	0	100	0	100	0	100
TBR	STATESBORO-BULLOCH COUNTY	GA	LPV	0	100	0	100	0	100
TMA	HENRY TIFT MYERS	GA	LPV	0	100	0	100	0	100
TOC	TOCCOA RG LETOURNEAU FIELD	GA	LPV	0	100	0	100	0	100
TVI	THOMASVILLE RGNL	GA	LPV	0	100	0	100	0	100
VDI	VIDALIA RGNL	GA	LPV200	0	100	0	100	0	100
VLD	VALDOSTA RGNL	GA	LPV	0	100	0	100	0	100
VPC	CARTERSVILLE	GA	LPV	0	100	0	100	0	100
WDR	BARROW COUNTY	GA	LPV	0	100	0	100	0	100
3Y2	GEORGE L SCOTT MUNICIPAL	IA	LPV	0	100	0	100	0	100
4C8	ALBIA MUNICIPAL	IA	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
AIO	ATLANTIC MUNICIPAL	IA	LPV	0	100	0	100	0	100
ALO	WATERLOO RGNL	IA	LPV200	0	100	0	100	0	100
AMW	AMES MUNICIPAL	IA	LPV	0	100	0	100	0	100
AWG	WASHINGTON MUNICIPAL	IA	LPV200	0	100	0	100	0	100
BNW	BOONE MUNICIPAL	IA	LPV	0	100	0	100	0	100
BRL	SOUTHEAST IOWA RGNL	IA	LPV200	0	100	0	100	0	100
CAV	CLARION MUNICIPAL	IA	LPV	0	100	0	100	0	100
CBF	COUNCIL BLUFFS MUNICIPAL	IA	LPV200	0	100	0	100	0	100
CCY	NORTHEAST IOWA RGNL	IA	LPV	0	100	0	100	0	100
CID	THE EASTERN IOWA	IA	LPV200	0	100	0	100	0	100
CIN	ARTHUR N NEU	IA	LPV	0	100	0	100	0	100
CKP	CHEROKEE COUNTY RGNL	IA	LPV	0	100	0	100	0	100
CSQ	CRESTON MUNICIPAL	IA	LPV	0	100	0	100	0	100
CWI	CLINTON MUNICIPAL	IA	LPV200	0	100	0	100	0	100
DBQ	DUBUQUE RGNL	IA	LPV200	0	100	0	100	0	100
DEH	DECORAH MUNICIPAL	IA	LPV	0	100	0	100	0	100
DNS	DENISON MUNICIPAL	IA	LPV	0	100	0	100	0	100
DSM	DES MOINES INTL	IA	LPV200	0	100	0	100	0	100
DVN	DAVENPORT MUNICIPAL	IA	LPV200	0	100	0	100	0	100
EAG	EAGLE GROVE MUNICIPAL	IA	LPV	0	100	0	100	0	100
EBS	WEBSTER CITY MUNICIPAL	IA	LPV	0	100	0	100	0	100
EFW	JEFFERSON MUNICIPAL	IA	LPV	0	100	0	100	0	100
EOK	KEOKUK MUNICIPAL	IA	LPV	0	100	0	100	0	100
EST	ESTHERVILLE MUNICIPAL	IA	LPV	0	100	0	100	0	100
FFL	FAIRFIELD MUNICIPAL	IA	LPV	0	100	0	100	0	100
FOD	FORT DODGE RGNL	IA	LPV200	0	100	0	100	0	100
FSW	FORT MADISON MUNICIPAL	IA	LPV	0	100	0	100	0	100
FXY	FOREST CITY MUNICIPAL	IA	LPV	0	100	0	100	0	100
GCT	GUTHRIE COUNTY RGNL	IA	LPV	0	100	0	100	0	100
GFZ	GREENFIELD MUNICIPAL	IA	LPV	0	100	0	100	0	100
GGI	GRINNELL RGNL	IA	LPV	0	100	0	100	0	100
HPT	HAMPTON MUNICIPAL	IA	LPV	0	100	0	100	0	100
I75	OSCEOLA MUNICIPAL	IA	LPV	0	100	0	100	0	100
ICL	SCHENCK FIELD	IA	LPV	0	100	0	100	0	100
IFA	IOWA FALLS MUNICIPAL	IA	LPV	0	100	0	100	0	100
IIB	INDEPENDENCE MUNICIPAL	IA	LPV	0	100	0	100	0	100
IKV	ANKENY RGNL	IA	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
IOW	IOWA CITY MUNICIPAL	IA	LPV	0	100	0	100	0	100
LRJ	LE MARS MUNICIPAL	IA	LPV	0	100	0	100	0	100
MCW	MASON CITY MUNICIPAL	IA	LPV200	0	100	0	100	0	100
MIW	MARSHALLTOWN MUNICIPAL	IA	LPV	0	100	0	100	0	100
MPZ	MOUNT PLEASANT MUNICIPAL	IA	LPV	0	100	0	100	0	100
MUT	MUSCATINE MUNICIPAL	IA	LPV200	0	100	0	100	0	100
MXO	MONTICELLO RGNL	IA	LP	0	100	0	100	0	100
OOA	OSKALOOSA MUNICIPAL	IA	LPV	0	100	0	100	0	100
OQW	MAQUOKETA MUNICIPAL	IA	LPV	0	100	0	100	0	100
ORC	ORANGE CITY MUNICIPAL	IA	LPV	0	100	0	100	0	100
OTM	OTTUMWA RGNL	IA	LPV	0	100	0	100	0	100
OXV	KNOXVILLE MUNICIPAL	IA	LPV	0	100	0	100	0	100
PEA	PELLA MUNICIPAL	IA	LPV	0	100	0	100	0	100
POH	POCAHONTAS MUNICIPAL	IA	LPV	0	100	0	100	0	100
PRO	PERRY MUNICIPAL	IA	LPV200	0	100	0	100	0	100
RDK	RED OAK MUNICIPAL	IA	LPV	0	100	0	100	0	100
RRQ	ROCK RAPIDS MUNICIPAL	IA	LP	0	100	0	100	0	100
SDA	SHENANDOAH MUNICIPAL	IA	LPV	0	100	0	100	0	100
SHL	SHELDON RGNL	IA	LPV	0	100	0	100	0	100
SKI	SAC CITY MUNICIPAL	IA	LPV	0	100	0	100	0	100
SLB	STORM LAKE MUNICIPAL	IA	LPV	0	100	0	100	0	100
SPW	SPENCER MUNICIPAL	IA	LPV200	0	100	0	100	0	100
SUX	SIOUX GATEWAY/BRIG GEN BUD DAY	IA	LPV200	0	100	0	100	0	100
SXK	SIOUX COUNTY RGNL	IA	LPV200	0	100	0	100	0	100
TNU	NEWTON MUNICIPAL-EARL JOHNSON FIELD	IA	LPV200	0	100	0	100	0	100
TVK	CENTERVILLE MUNICIPAL	IA	LPV	0	100	0	100	0	100
TZT	BELLE PLAINE MUNICIPAL	IA	LPV	0	100	0	100	0	100
VTI	VINTON VETERANS MEMORIAL ARPK	IA	LPV	0	100	0	100	0	100
1U7	BEAR LAKE COUNTY	ID	LPV	0	100	0	100	0	100
BOI	BOISE AIR TERMINAL/GOWEN FLD	ID	LPV200	0	100	0	100	0	100
COE	COEUR D'ALENE - PAPPY BOYINGTO	ID	LPV200	0	100	0	100	0	100
DIJ	DRIGGS-REED MEMORIAL	ID	LP	0	100	0	100	0	100
EUL	CALDWELL INDUSTRIAL	ID	LPV	0	100	0	100	0	100
GNG	GOODING MUNICIPAL	ID	LPV	0	100	0	100	0	100
IDA	IDAHO FALLS RGNL	ID	LPV200	0	100	0	100	0	100
JER	JEROME COUNTY	ID	LPV	0	100	0	100	0	100
LWS	LEWISTON-NEZ PERCE COUNTY	ID	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MAN	NAMPA MUNICIPAL	ID	LPV	0	100	0	100	0	100
MYL	MC CALL MUNICIPAL	ID	LPV	0	100	0	100	0	100
PIH	POCATELLO RGNL	ID	LPV200	0	100	0	100	0	100
SUN	FRIEDMAN MEMORIAL	ID	LP	0	100	0	100	0	100
SZT	SANDPOINT	ID	LP	0	100	0	100	0	100
TWF	JOSLIN FIELD - MAGIC VALLEY RG	ID	LPV200	0	100	0	100	0	100
U76	MOUNTAIN HOME MUNICIPAL	ID	LPV	0	100	0	100	0	100
1H2	EFFINGHAM COUNTY MEMORIAL	IL	LPV	0	100	0	100	0	100
3LF	LITCHFIELD MUNICIPAL	IL	LPV	0	100	0	100	0	100
3MY	MOUNT HAWLEY AUXILIARY	IL	LPV	0	100	0	100	0	100
AJG	MOUNT CARMEL MUNICIPAL	IL	LPV	0	100	0	100	0	100
ALN	ST LOUIS RGNL	IL	LPV200	0	100	0	100	0	100
ARR	AURORA MUNICIPAL	IL	LPV200	0	100	0	100	0	100
BLV	SCOTT AFB/MIDAMERICA	IL	LPV200	0	100	0	100	0	100
BMI	CENTRAL IL RGNL ARPT AT BLOOMI	IL	LPV	0	100	0	100	0	100
C15	PEKIN MUNICIPAL	IL	LPV	0	100	0	100	0	100
C73	DIXON MUNICIPAL-CHARLES R WALGREEN	IL	LPV	0	100	0	100	0	100
C75	MARSHALL COUNTY	IL	LP	0	100	0	100	0	100
CIR	CAIRO RGNL	IL	LP	0	100	0	100	0	100
CMI	UNIVERSITY OF ILLINOIS-WILLARD	IL	LPV200	0	100	0	100	0	100
CPS	ST LOUIS DOWNTOWN	IL	LPV200	0	100	0	100	0	100
CTK	INGERSOLL	IL	LPV	0	100	0	100	0	100
CUL	CARMI MUNICIPAL	IL	LP	0	100	0	100	0	100
DEC	DECATUR	IL	LPV200	0	100	0	100	0	100
DKB	DE KALB TAYLOR MUNICIPAL	IL	LPV	0	100	0	100	0	100
DNV	VERMILION REGIONAL	IL	LPV	0	100	0	100	0	100
DPA	DUPAGE	IL	LPV200	0	100	0	100	0	100
ENL	CENTRALIA MUNICIPAL	IL	LPV	0	100	0	100	0	100
EZI	KEWANEE MUNICIPAL	IL	LPV	0	100	0	100	0	100
FEP	ALBERTUS	IL	LPV	0	100	0	100	0	100
FOA	FLORA MUNICIPAL	IL	LPV	0	100	0	100	0	100
GBG	GALESBURG MUNICIPAL	IL	LPV200	0	100	0	100	0	100
GRE	GREENVILLE	IL	LPV	0	100	0	100	0	100
HSB	HARRISBURG-RALEIGH	IL	LPV	0	100	0	100	0	100
I63	MOUNT STERLING MUNICIPAL	IL	LPV	0	100	0	100	0	100
IGQ	LANSING MUNICIPAL	IL	LPV	0	100	0	100	0	100
IKK	GREATER KANKAKEE	IL	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
LOT	LEWIS UNIVERSITY	IL	LPV200	0	100	0	100	0	100
LWV	LAWRENCEVILLE-VINCENNES INTL	IL	LPV200	0	100	0	100	0	100
MDW	CHICAGO MIDWAY INTL	IL	LPV	0	100	0	100	0	100
MLI	QUAD CITY INTL	IL	LPV200	0	100	0	100	0	100
MQB	MACOMB MUNICIPAL	IL	LPV200	0	100	0	100	0	100
MTO	COLES COUNTY MEMORIAL	IL	LPV200	0	100	0	100	0	100
MVN	MOUNT VERNON	IL	LPV	0	100	0	100	0	100
MWA	VETERANS AIRPORT OF SOUTHERN I	IL	LPV200	0	100	0	100	0	100
OLY	OLNEY-NOBLE	IL	LPV	0	100	0	100	0	100
ORD	CHICAGO O'HARE INTL	IL	LPV200	0	100	0	100	0	100
PIA	GENERAL DOWNING - PEORIA INTL	IL	LPV	0	100	0	100	0	100
PJY	PINCKNEYVILLE-DU QUOIN	IL	LPV	0	100	0	100	0	100
PNT	PONTIAC MUNICIPAL	IL	LPV	0	100	0	100	0	100
PPQ	PITTSFIELD PENSTONE MUNICIPAL	IL	LPV	0	100	0	100	0	100
PRG	EDGAR COUNTY	IL	LPV	0	100	0	100	0	100
PWK	CHICAGO EXECUTIVE	IL	LPV	0	100	0	100	0	100
RFD	CHICAGO/ROCKFORD INTL	IL	LPV200	0	100	0	100	0	100
RPJ	ROCHELLE MUNICIPAL AIRPORT-KORITZ F	IL	LPV	0	100	0	100	0	100
RSV	CRAWFORD CO	IL	LPV	0	100	0	100	0	100
SAR	SPARTA COMMUNICIPALTY-HUNTER FIELD	IL	LPV	0	100	0	100	0	100
SFY	TRI-TOWNSHIP	IL	LP	0	100	0	100	0	100
SLO	SALEM-LECKRONE	IL	LPV200	0	100	0	100	0	100
SPI	ABRAHAM LINCOLN CAPITAL	IL	LPV	0	100	0	100	0	100
SQI	WHITESIDE CO ARPT-JOS H BITTOR	IL	LPV200	0	100	0	100	0	100
TIP	RANTOUL NATL AVN CNTR-FRANK EL	IL	LPV	0	100	0	100	0	100
UGN	WAUKEGAN NATIONAL	IL	LPV	0	100	0	100	0	100
UIN	QUINCY RGNL-BALDWIN FIELD	IL	LPV200	0	100	0	100	0	100
VYS	ILLINOIS VALLEY RGNL-WALTER A	IL	LPV	0	100	0	100	0	100
2R2	HENDRICKS COUNTY-GORDON GRAHAM	IN	LPV	0	100	0	100	0	100
50I	KENTLAND MUNICIPAL	IN	LPV	0	100	0	100	0	100
AID	ANDERSON MUNICIPAL-DARLINGTON FIELD	IN	LPV	0	100	0	100	0	100
ASW	WARSAW MUNICIPAL	IN	LPV	0	100	0	100	0	100
BAK	COLUMBUS MUNICIPAL	IN	LPV	0	100	0	100	0	100
BFR	VIRGIL I GRISSOM MUNICIPAL	IN	LP	0	100	0	100	0	100
BMG	MONROE COUNTY	IN	LPV200	0	100	0	100	0	100
C62	KENDALLVILLE MUNICIPAL	IN	LPV	0	100	0	100	0	100
C65	PLYMOUTH MUNICIPAL	IN	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CEV	METTEL FIELD	IN	LPV	0	100	0	100	0	100
CFJ	CRAWFORDSVILLE RGNL	IN	LPV	0	100	0	100	0	100
DCY	DAVIESS COUNTY	IN	LPV	0	100	0	100	0	100
EKM	ELKHART MUNICIPAL	IN	LPV	0	100	0	100	0	100
EVV	EVANSVILLE RGNL	IN	LPV200	0	100	0	100	0	100
EYE	EAGLE CREEK AIRPARK	IN	LPV	0	100	0	100	0	100
FKR	FRANKFORT MUNICIPAL	IN	LPV	0	100	0	100	0	100
FRH	FRENCH LICK MUNICIPAL	IN	LPV	0	100	0	100	0	100
FWA	FORT WAYNE INTL	IN	LPV200	0	100	0	100	0	100
GEZ	SHELBYVILLE MUNICIPAL	IN	LPV	0	100	0	100	0	100
GGP	LOGANSPORT/CASS COUNTY	IN	LPV200	0	100	0	100	0	100
GPC	PUTNAM COUNTY RGNL	IN	LPV	0	100	0	100	0	100
GSH	GOSHEN MUNICIPAL	IN	LPV	0	100	0	100	0	100
GWB	DE KALB COUNTY	IN	LPV	0	100	0	100	0	100
GYY	GARY/CHICAGO INTL	IN	LPV200	0	100	0	100	0	100
HFY	INDY SOUTH GREENWOOD	IN	LPV	0	100	0	100	0	100
HNB	HUNTINGBURG	IN	LPV	0	100	0	100	0	100
HUF	TERRE HAUTE RGNL	IN	LPV200	0	100	0	100	0	100
I22	RANDOLPH COUNTY	IN	LPV	0	100	0	100	0	100
I76	PERU MUNICIPAL	IN	LPV	0	100	0	100	0	100
IMS	MADISON MUNICIPAL	IN	LPV	0	100	0	100	0	100
IND	INDIANAPOLIS INTL	IN	LPV200	0	100	0	100	0	100
JVY	CLARK RGNL	IN	LPV200	0	100	0	100	0	100
LAF	PURDUE UNIVERSITY	IN	LPV	0	100	0	100	0	100
MCX	WHITE COUNTY	IN	LP	0	100	0	100	0	100
MIE	DELAWARE COUNTY RGNL	IN	LPV	0	100	0	100	0	100
MQJ	INDIANAPOLIS RGNL	IN	LPV200	0	100	0	100	0	100
MZZ	MARION MUNICIPAL	IN	LPV	0	100	0	100	0	100
OKK	KOKOMO MUNICIPAL	IN	LPV200	0	100	0	100	0	100
OVO	NORTH VERNON	IN	LPV	0	100	0	100	0	100
OXI	STARKE COUNTY	IN	LPV	0	100	0	100	0	100
PLD	PORTLAND MUNICIPAL	IN	LPV	0	100	0	100	0	100
PPO	LA PORTE MUNICIPAL	IN	LPV	0	100	0	100	0	100
RCR	FULTON COUNTY	IN	LPV	0	100	0	100	0	100
RID	RICHMOND MUNICIPAL	IN	LPV200	0	100	0	100	0	100
RWN	ARENS FIELD	IN	LPV	0	100	0	100	0	100
RZL	JASPER COUNTY	IN	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
SBN	SOUTH BEND INTL	IN	LPV200	0	100	0	100	0	100
SER	FREEMAN MUNICIPAL	IN	LPV	0	100	0	100	0	100
SIV	SULLIVAN COUNTY	IN	LPV	0	100	0	100	0	100
SMD	SMITH FIELD	IN	LPV	0	100	0	100	0	100
TEL	PERRY COUNTY MUNICIPAL	IN	LP	0	100	0	100	0	100
TYQ	INDIANAPOLIS EXECUTIVE	IN	LPV	0	100	0	100	0	100
UWL	NEW CASTLE HENRY COUNTY MARLAT	IN	LPV	0	100	0	100	0	100
VPZ	PORTER COUNTY RGNL	IN	LPV	0	100	0	100	0	100
3AU	AUGUSTA MUNICIPAL	KS	LP	0	100	0	100	0	100
3K3	SYRACUSE-HAMILTON COUNTY MUNICIPAL	KS	LPV	0	100	0	100	0	100
3K8	COMANCHE COUNTY	KS	LPV	0	100	0	100	0	100
5K2	TRIBUNE MUNICIPAL	KS	LPV	0	100	0	100	0	100
9K8	KINGMAN AIRPORT - CLYDE CESSNA	KS	LP	0	100	0	100	0	100
AAO	COLONEL JAMES JABARA	KS	LPV	0	100	0	100	0	100
ADT	ATWOOD-RAWLINS COUNTY CITY-COU	KS	LPV	0	100	0	100	0	100
ANY	ANTHONY MUNICIPAL	KS	LPV	0	100	0	100	0	100
BEC	BEECH FACTORY	KS	LPV	0	100	0	100	0	100
CBK	SHALZ FIELD	KS	LPV	0	100	0	100	0	100
CFV	COFFEYVILLE MUNICIPAL	KS	LPV	0	100	0	100	0	100
CNK	BLOSSER MUNICIPAL	KS	LP	0	100	0	100	0	100
DDC	DODGE CITY RGNL	KS	LPV200	0	100	0	100	0	100
EGT	WELLINGTON MUNICIPAL	KS	LPV200	0	100	0	100	0	100
EHA	ELKHART-MORTON COUNTY	KS	LPV	0	100	0	100	0	100
EMP	EMPORIA MUNICIPAL	KS	LPV	0	100	0	100	0	100
EQA	EL DORADO/CAPTAIN JACK THOMAS	KS	LPV200	0	100	0	100	0	100
EWK	NEWTON-CITY-COUNTY	KS	LPV	0	100	0	100	0	100
FOE	TOPEKA RGNL	KS	LPV	0	100	0	100	0	100
FSK	FORT SCOTT MUNICIPAL	KS	LPV	0	100	0	100	0	100
GBD	GREAT BEND MUNICIPAL	KS	LPV200	0	100	0	100	0	100
GCK	GARDEN CITY RGNL	KS	LPV	0	100	0	100	0	100
GLD	RENNER FLD /GOODLAND MUNICIPAL/	KS	LPV200	0	100	0	100	0	100
HLC	HILL CITY MUNICIPAL	KS	LPV	0	100	0	100	0	100
HQG	HUGOTON MUNICIPAL	KS	LPV	0	100	0	100	0	100
HRU	HERINGTON RGNL	KS	LPV	0	100	0	100	0	100
HUT	HUTCHINSON RGNL	KS	LPV200	0	100	0	100	0	100
HYS	HAYS RGNL	KS	LPV200	0	100	0	100	0	100
ICT	WICHITA DWIGHT D EISENHOWER NA	KS	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
IDP	INDEPENDENCE MUNICIPAL	KS	LPV200	0	100	0	100	0	100
IXD	NEW CENTURY AIRCENTER	KS	LPV	0	100	0	100	0	100
K38	WASHINGTON COUNTY VETERAN'S ME	KS	LPV	0	100	0	100	0	100
K78	ABILENE MUNICIPAL	KS	LPV	0	100	0	100	0	100
K79	JETMORE MUNICIPAL	KS	LPV	0	100	0	100	0	100
K81	MIAMI COUNTY	KS	LPV	0	100	0	100	0	100
K82	SMITH CENTER MUNICIPAL	KS	LPV200	0	100	0	100	0	100
K88	ALLEN COUNTY	KS	LPV	0	100	0	100	0	100
LBL	LIBERAL MID-AMERICA RGNL	KS	LPV200	0	100	0	100	0	100
LQR	LARNED-PAWNEE COUNTY	KS	LPV	0	100	0	100	0	100
LWC	LAWRENCE MUNICIPAL	KS	LPV200	0	100	0	100	0	100
LYO	LYONS-RICE COUNTY MUNICIPAL	KS	LPV	0	100	0	100	0	100
MHK	MANHATTAN RGNL	KS	LPV200	0	100	0	100	0	100
MPR	MC PHERSON	KS	LPV	0	100	0	100	0	100
MYZ	MARYSVILLE MUNICIPAL	KS	LPV	0	100	0	100	0	100
NRN	NORTON MUNICIPAL	KS	LPV	0	100	0	100	0	100
OEL	OAKLEY MUNICIPAL	KS	LPV	0	100	0	100	0	100
OIN	OBERLIN MUNICIPAL	KS	LPV	0	100	0	100	0	100
OJC	JOHNSON COUNTY EXECUTIVE	KS	LPV	0	100	0	100	0	100
OWI	OTTAWA MUNICIPAL	KS	LPV	0	100	0	100	0	100
PHG	PHILLIPSBURG MUNICIPAL	KS	LPV	0	100	0	100	0	100
PPF	TRI-CITY	KS	LPV	0	100	0	100	0	100
PTS	ATKINSON MUNICIPAL	KS	LPV	0	100	0	100	0	100
PTT	PRATT RGNL	KS	LPV	0	100	0	100	0	100
RCP	ROOKS COUNTY RGNL	KS	LPV	0	100	0	100	0	100
RPB	BELLEVILLE MUNICIPAL	KS	LPV	0	100	0	100	0	100
RSL	RUSSELL MUNICIPAL	KS	LPV	0	100	0	100	0	100
SLN	SALINA RGNL	KS	LPV	0	100	0	100	0	100
SYF	CHEYENNE COUNTY MUNICIPAL	KS	LPV	0	100	0	100	0	100
TOP	PHILIP BILLARD MUNICIPAL	KS	LPV	0	100	0	100	0	100
TQK	SCOTT CITY MUNICIPAL	KS	LPV	0	100	0	100	0	100
UKL	COFFEY COUNTY	KS	LPV	0	100	0	100	0	100
ULS	ULYSSES	KS	LPV	0	100	0	100	0	100
WLD	STROTHER FIELD	KS	LPV	0	100	0	100	0	100
0I8	CYNTHIANA-HARRISON COUNTY	KY	LP	0	100	0	100	0	100
18I	MC CREARY COUNTY	KY	LP	0	100	0	100	0	100
27K	GEORGETOWN-SCOTT COUNTY RGNL	KY	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
2I0	MADISONVILLE RGNL	KY	LPV	0	100	0	100	0	100
2M0	PRINCETON-CALDWELL COUNTY	KY	LPV	0	100	0	100	0	100
4M7	RUSSELLVILLE-LOGAN COUNTY	KY	LPV	0	100	0	100	0	100
5M9	MARION-CRITTENDEN COUNTY	KY	LPV	0	100	0	100	0	100
6I2	LEBANON SPRINGFIELD-GEORGE HOE	KY	LPV	0	100	0	100	0	100
AAS	TAYLOR COUNTY	KY	LPV	0	100	0	100	0	100
BRY	SAMUELS FIELD	KY	LPV	0	100	0	100	0	100
BWG	BOWLING GREEN-WARREN COUNTY RG	KY	LPV200	0	100	0	100	0	100
BYL	WILLIAMSBURG-WHITLEY COUNTY	KY	LPV	0	100	0	100	0	100
CEY	KYLE-OAKLEY FIELD	KY	LPV	0	100	0	100	0	100
CPF	WENDELL H FORD	KY	LPV200	0	100	0	100	0	100
CVG	CINCINNATI/NORTHERN KENTUCKY I	KY	LPV200	0	100	0	100	0	100
DVK	STUART POWELL FIELD	KY	LPV	0	100	0	100	0	100
DWU	ASHLAND RGNL	KY	LP	0	100	0	100	0	100
EHR	HENDERSON CITY-COUNTY	KY	LPV	0	100	0	100	0	100
EKQ	WAYNE COUNTY	KY	LPV	0	100	0	100	0	100
EKX	ADDINGTON FIELD	KY	LPV	0	100	0	100	0	100
FFT	CAPITAL CITY	KY	LPV	0	100	0	100	0	100
FGX	FLEMING-MASON	KY	LPV	0	100	0	100	0	100
GLW	GLASGOW MUNICIPAL	KY	LPV	0	100	0	100	0	100
HVC	HOPKINSVILLE-CHRISTIAN COUNTY	KY	LPV	0	100	0	100	0	100
I93	BRECKINRIDGE COUNTY	KY	LPV	0	100	0	100	0	100
IOB	MOUNT STERLING-MONTGOMERY COUN	KY	LPV	0	100	0	100	0	100
JQD	OHIO COUNTY	KY	LPV	0	100	0	100	0	100
K24	RUSSELL COUNTY	KY	LPV	0	100	0	100	0	100
K62	GENE SNYDER	KY	LP	0	100	0	100	0	100
KY8	HANCOCK CO-RON LEWIS FIELD	KY	LPV	0	100	0	100	0	100
LEX	BLUE GRASS	KY	LPV	0	100	0	100	0	100
LOU	BOWMAN FIELD	KY	LPV	0	100	0	100	0	100
LOZ	LONDON-CORBIN ARPT-MAGEE FIELD	KY	LPV	0	100	0	100	0	100
M20	LEITCHFIELD-GRAYSON CO	KY	LPV	0	100	0	100	0	100
M21	MUHLENBERG COUNTY	KY	LP	0	100	0	100	0	100
M25	MAYFIELD GRAVES COUNTY	KY	LPV	0	100	0	100	0	100
OWB	OWENSBORO-DAVIESS COUNTY RGNL	KY	LPV200	0	100	0	100	0	100
PAH	BARKLEY RGNL	KY	LPV200	0	100	0	100	0	100
PBX	PIKE COUNTY-HATCHER FIELD	KY	LPV200	0	100	0	100	0	100
RGA	CENTRAL KENTUCKY RGNL	KY	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
SDF	LOUISVILLE MUHAMMAD ALI INTL	KY	LPV200	0	100	0	100	0	100
SJS	BIG SANDY RGNL	KY	LPV	0	100	0	100	0	100
SME	LAKE CUMBERLAND RGNL	KY	LPV	0	100	0	100	0	100
SYM	MOREHEAD-ROWAN COUNTY CLYDE A	KY	LPV200	0	100	0	100	0	100
TWT	STURGIS MUNICIPAL	KY	LPV	0	100	0	100	0	100
TZV	TOMPKINSVILLE-MONROE COUNTY	KY	LPV	0	100	0	100	0	100
0R4	CONCORDIA PARISH	LA	LPV	0	100	0	100	0	100
0R7	THE RED RIVER	LA	LPV	0	100	0	100	0	100
3R4	HART	LA	LPV	0	100	0	100	0	100
3R7	JENNINGS	LA	LPV	0	100	0	100	0	100
5R8	DE QUINCY INDUSTRIAL AIRPARK	LA	LPV	0	100	0	100	0	100
ACP	ALLEN PARISH	LA	LPV	0	100	0	100	0	100
AEX	ALEXANDRIA INTL	LA	LPV200	0	100	0	100	0	100
APS	PORT OF SOUTH LOUISIANA EXECUT	LA	LPV	0	100	0	100	0	100
ARA	ACADIANA RGNL	LA	LPV200	0	100	0	100	0	100
BQP	MOREHOUSE MEMORIAL	LA	LPV	0	100	0	100	0	100
BTR	BATON ROUGE METROPOLITAN` RYAN	LA	LPV200	0	100	0	100	0	100
BXA	GEORGE R CARR MEMORIAL AIR FLD	LA	LPV	0	100	0	100	0	100
CWF	CHENNAULT INTL	LA	LPV200	0	100	0	100	0	100
DTN	SHREVEPORT DOWNTOWN	LA	LPV	0	100	0	100	0	100
ESF	ESLER RGNL	LA	LPV200	0	100	0	100	0	100
F88	JONESBORO	LA	LP	0	100	0	100	0	100
GAO	SOUTH LAFOURCHE LEONARD MILLER	LA	LPV200	0	100	0	100	0	100
HDC	HAMMOND NORTHSHORE RGNL	LA	LPV200	0	100	0	100	0	100
HUM	HOUMA-TERREBONNE	LA	LPV200	0	100	0	100	0	100
HZR	FALSE RIVER RGNL	LA	LPV	0	100	0	100	0	100
IER	NATCHITOCHES RGNL	LA	LPV	0	100	0	100	0	100
IYA	ABBEVILLE CHRIS CRUSTA MEMORIA	LA	LPV	0	100	0	100	0	100
L39	LEESVILLE	LA	LPV	0	100	0	100	0	100
LCH	LAKE CHARLES RGNL	LA	LPV200	0	100	0	100	0	100
LFT	LAFAYETTE RGNL/PAUL FOURNET FI	LA	LPV200	0	100	0	100	0	100
M79	JOHN H HOOKS JR MEMORIAL	LA	LPV	0	100	0	100	0	100
MLU	MONROE RGNL	LA	LPV200	0	100	0	100	0	100
MSY	LOUIS ARMSTRONG NEW ORLEANS IN	LA	LPV200	0	100	0	100	0	100
NEW	LAKEFRONT	LA	LPV	0	100	0	100	0	100
OPL	ST LANDRY PARISH-AHART FIELD	LA	LPV	0	100	0	100	0	100
PTN	HARRY P WILLIAMS MEMORIAL	LA	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
REG	LOUISIANA RGNL	LA	LPV	0	100	0	100	0	100
RSN	RUSTON RGNL	LA	LPV	0	100	0	100	0	100
SHV	SHREVEPORT RGNL	LA	LPV200	0	100	0	100	0	100
SPH	SPRINGHILL	LA	LPV	0	100	0	100	0	100
TVR	VICKSBURG TALLULAH RGNL	LA	LPV200	0	100	0	100	0	100
UXL	SOUTHLAND FIELD	LA	LPV	0	100	0	100	0	100
3B0	SOUTHBRIDGE MUNICIPAL	MA	LPV	0	100	0	100	0	100
ACK	NANTUCKET MEMORIAL	MA	LPV200	0	100	0	100	0	100
BAF	WESTFIELD-BARNES RGNL	MA	LPV	0	100	0	100	0	100
BED	LAURENCE G HANSCOM FLD	MA	LPV200	0	100	0	100	0	100
BOS	GENERAL EDWARD LAWRENCE LOGAN	MA	LPV200	0	100	0	100	0	100
BVY	BEVERLY RGNL	MA	LPV	0	100	0	100	0	100
EWB	NEW BEDFORD RGNL	MA	LPV200	0	100	0	100	0	100
GBR	WALTER J KOLADZA	MA	LP	0	100	0	100	0	100
GHG	MARSHFIELD MUNICIPAL - GEORGE HARLO	MA	LPV	0	100	0	100	0	100
HYA	BARNSTABLE MUNICIPAL-BOARDMAN/POLAN	MA	LPV200	0	100	0	100	0	100
LWM	LAWRENCE MUNICIPAL	MA	LPV200	0	100	0	100	0	100
MVY	MARTHA'S VINEYARD	MA	LPV200	0	100	0	100	0	100
ORE	ORANGE MUNICIPAL	MA	LPV	0	100	0	100	0	100
ORH	WORCESTER RGNL	MA	LPV200	0	100	0	100	0	100
OWD	NORWOOD MEMORIAL	MA	LPV	0	100	0	100	0	100
PSF	PITTSFIELD MUNICIPAL	MA	LPV	0	100	0	100	0	100
PVC	PROVINCETOWN MUNICIPAL	MA	LPV200	0	100	0	100	0	100
PYM	PLYMOUTH MUNICIPAL	MA	LPV200	0	100	0	100	0	100
TAN	TAUNTON MUNICIPAL - KING FIELD	MA	LPV	0	100	0	100	0	100
2G4	GARRETT COUNTY	MD	LPV	0	100	0	100	0	100
2W5	MARYLAND	MD	LP	0	100	0	100	0	100
2W6	ST MARY'S COUNTY RGNL	MD	LPV	0	100	0	100	0	100
BWI	BALTIMORE/WASHINGTON INTL THUR	MD	LPV200	0	100	0	100	0	100
CBE	GREATER CUMBERLAND RGNL	MD	LPV	0	100	0	100	0	100
CGE	CAMBRIDGE-DORCHESTER RGNL	MD	LPV	0	100	0	100	0	100
DMW	CARROLL COUNTY RGNL/JACK B POA	MD	LPV200	0	100	0	100	0	100
ESN	EASTON/NEWNAM FIELD	MD	LPV200	0	100	0	100	0	100
FDK	FREDERICK MUNICIPAL	MD	LPV	0	100	0	100	0	100
GAI	MONTGOMERY COUNTY AIRPARK	MD	LPV	0	100	0	100	0	100
HGR	HAGERSTOWN RGNL-RICHARD A HENS	MD	LPV200	0	100	0	100	0	100
MTN	MARTIN STATE	MD	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
OXB	OCEAN CITY MUNICIPAL	MD	LPV	0	100	0	100	0	100
SBY	SALISBURY-OCEAN CITY WICOMICO	MD	LPV200	0	100	0	100	0	100
W29	BAY BRIDGE	MD	LPV	0	100	0	100	0	100
1B0	DEXTER RGNL	ME	LP	0	100	0	100	0	100
2B7	PITTSFIELD MUNICIPAL	ME	LPV	0	100	0	100	0	100
3B1	GREENVILLE MUNICIPAL	ME	LPV	0	100	0	100	0	100
59B	NEWTON FIELD	ME	LP	0	100	0	100	0	100
81B	OXFORD COUNTY RGNL	ME	LP	0	100	0	100	0	100
AUG	AUGUSTA STATE	ME	LPV200	0	100	0	100	0	100
BGR	BANGOR INTL	ME	LPV200	0	100	0	100	0	100
BHB	HANCOCK COUNTY-BAR HARBOR	ME	LPV200	0	100	0	100	0	100
BST	BELFAST MUNICIPAL	ME	LPV	0	100	0	100	0	100
BXM	BRUNSWICK EXECUTIVE	ME	LPV200	0	100	0	100	0	100
CAR	CARIBOU MUNICIPAL	ME	LPV	0	100	0	100	0	100
EPM	EASTPORT MUNICIPAL	ME	LPV	0	100	0	100	0	100
FVE	NORTHERN AROOSTOOK RGNL	ME	LPV200	0	100	0	100	0	100
HUL	HOULTON INTL	ME	LP	0	100	0	100	0	100
IZG	EASTERN SLOPES RGNL	ME	LPV	0	100	0	100	0	100
LEW	AUBURN/LEWISTON MUNICIPAL	ME	LPV200	0	100	0	100	0	100
LRG	LINCOLN RGNL	ME	LP	0	100	0	100	0	100
MLT	MILLINOCKET MUNICIPAL	ME	LPV	0	100	0	100	0	100
OWK	CENTRAL MAINE ARPT OF NORRIDGE	ME	LPV	0	100	0	100	0	100
PQI	PRESQUE ISLE INTL	ME	LPV200	0	100	0	100	0	100
PWM	PORTLAND INTL JETPORT	ME	LPV200	0	100	0	100	0	100
RKD	KNOX COUNTY RGNL	ME	LPV200	0	100	0	100	0	100
SFM	SANFORD SEACOAST RGNL	ME	LPV200	0	100	0	100	0	100
WVL	WATERVILLE ROBERT LAFLEUR	ME	LPV200	0	100	0	100	0	100
48D	CLARE MUNICIPAL	MI	LP	0	100	0	100	0	100
4D0	ABRAMS MUNICIPAL	MI	LP	0	100	0	100	0	100
6Y1	BOIS BLANC ISLAND	MI	LP	0	100	0	100	0	100
77G	MARLETTE TOWNSHIP	MI	LPV	0	100	0	100	0	100
9D9	HASTINGS	MI	LPV	0	100	0	100	0	100
ACB	ANTRIM COUNTY	MI	LPV	0	100	0	100	0	100
ADG	LENAWEE COUNTY	MI	LPV	0	100	0	100	0	100
AMN	GRATIOT COMMUNICIPALTY	MI	LPV	0	100	0	100	0	100
ANJ	SAULT STE MARIE MUNICIPAL/SANDERSON	MI	LPV	0	100	0	100	0	100
APN	ALPENA COUNTY RGNL	MI	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
ARB	ANN ARBOR MUNICIPAL	MI	LPV	0	100	0	100	0	100
AZO	KALAMAZOO/BATTLE CREEK INTL	MI	LPV200	0	100	0	100	0	100
BAX	HURON COUNTY MEMORIAL	MI	LPV	0	100	0	100	0	100
BEH	SOUTHWEST MICHIGAN RGNL	MI	LPV200	0	100	0	100	0	100
BIV	WEST MICHIGAN RGNL	MI	LPV	0	100	0	100	0	100
BTL	W K KELLOGG	MI	LPV200	0	100	0	100	0	100
C04	OCEANA COUNTY	MI	LPV	0	100	0	100	0	100
C20	ANDREWS UNIVERSITY AIRPARK	MI	LP	0	100	0	100	0	100
CAD	WEXFORD COUNTY	MI	LPV200	0	100	0	100	0	100
CFS	TUSCOLA AREA	MI	LP	0	100	0	100	0	100
CIU	CHIPPEWA COUNTY INTL	MI	LPV	0	100	0	100	0	100
CMX	HOUGHTON COUNTY MEMORIAL	MI	LPV	0	100	0	100	0	100
CVX	CHARLEVOIX MUNICIPAL	MI	LPV	0	100	0	100	0	100
D95	DUPONT-LAPEER	MI	LP	0	100	0	100	0	100
DET	COLEMAN A YOUNG MUNICIPAL	MI	LPV	0	100	0	100	0	100
DTW	DETROIT METROPOLITAN WAYNE COU	MI	LPV200	0	100	0	100	0	100
ERY	LUCE COUNTY	MI	LPV	0	100	0	100	0	100
ESC	DELTA COUNTY	MI	LPV200	0	100	0	100	0	100
FFX	FREMONT MUNICIPAL	MI	LPV	0	100	0	100	0	100
FNT	BISHOP INTL	MI	LPV200	0	100	0	100	0	100
GDW	GLADWIN ZETTEL MEMORIAL	MI	LP	0	100	0	100	0	100
GLR	GAYLORD RGNL	MI	LPV	0	100	0	100	0	100
GRR	GERALD R FORD INTL	MI	LPV200	0	100	0	100	0	100
HTL	ROSCOMMON COUNTY - BLODGETT ME	MI	LP	0	100	0	100	0	100
HYX	SAGINAW COUNTY H W BROWNE	MI	LPV200	0	100	0	100	0	100
IKW	JACK BARSTOW	MI	LPV	0	100	0	100	0	100
IMT	FORD	MI	LPV	0	100	0	100	0	100
IRS	KIRSCH MUNICIPAL	MI	LPV	0	100	0	100	0	100
ISQ	SCHOOLCRAFT COUNTY	MI	LP	0	100	0	100	0	100
IWD	GOGEBIC-IRON COUNTY	MI	LPV200	0	100	0	100	0	100
JXN	JACKSON COUNTY-REYNOLDS FIELD	MI	LPV200	0	100	0	100	0	100
JYM	HILLSDALE MUNICIPAL	MI	LPV	0	100	0	100	0	100
LAN	CAPITAL REGION INTL	MI	LPV200	0	100	0	100	0	100
LDM	MASON COUNTY	MI	LPV	0	100	0	100	0	100
MBL	MANISTEE CO-BLACKER	MI	LPV200	0	100	0	100	0	100
MBS	MBS INTL	MI	LPV200	0	100	0	100	0	100
MCD	MACKINAC ISLAND	MI	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MKG	MUSKEGON COUNTY	MI	LPV200	0	100	0	100	0	100
MNM	MENOMINEE RGNL	MI	LPV200	0	100	0	100	0	100
MOP	MOUNT PLEASANT MUNICIPAL	MI	LPV	0	100	0	100	0	100
N98	BOYNE CITY MUNICIPAL	MI	LP	0	100	0	100	0	100
OEB	BRANCH COUNTY MEMORIAL	MI	LPV	0	100	0	100	0	100
OGM	ONTONAGON COUNTY - SCHUSTER FI	MI	LPV	0	100	0	100	0	100
OSC	OSCODA-WURTSMITH	MI	LPV200	0	100	0	100	0	100
OZW	LIVINGSTON COUNTY SPENCER J HA	MI	LPV200	0	100	0	100	0	100
PHN	ST CLAIR COUNTY INTL	MI	LPV200	0	100	0	100	0	100
PLN	PELLSTON RGNL AIRPORT OF EMMET	MI	LPV200	0	100	0	100	0	100
PTK	OAKLAND COUNTY INTL	MI	LPV200	0	100	0	100	0	100
RMY	BROOKS FIELD	MI	LP	0	100	0	100	0	100
RNP	OWOSSO COMMUNICIPALTY	MI	LPV	0	100	0	100	0	100
RQB	ROBEN-HOOD	MI	LPV200	0	100	0	100	0	100
SAW	SAWYER INTL	MI	LPV200	0	100	0	100	0	100
SLH	CHEBOYGAN COUNTY	MI	LPV	0	100	0	100	0	100
TEW	MASON JEWETT FIELD	MI	LP	0	100	0	100	0	100
TTF	CUSTER	MI	LPV	0	100	0	100	0	100
TVC	CHERRY CAPITAL	MI	LPV200	0	100	0	100	0	100
Y31	WEST BRANCH COMMUNICIPALTY	MI	LP	0	100	0	100	0	100
YIP	WILLOW RUN	MI	LPV200	0	100	0	100	0	100
16D	PERHAM MUNICIPAL	MN	LPV	0	100	0	100	0	100
3N8	MAHNOMEN COUNTY	MN	LPV	0	100	0	100	0	100
ACQ	WASECA MUNICIPAL	MN	LPV	0	100	0	100	0	100
ADC	WADENA MUNICIPAL	MN	LPV	0	100	0	100	0	100
AEL	ALBERT LEA MUNICIPAL	MN	LPV	0	100	0	100	0	100
AIT	AITKIN MUNICIPAL-STEVE KURTZ FIELD	MN	LPV	0	100	0	100	0	100
ANE	ANOKA COUNTY-BLAINE (JANES FIE	MN	LPV	0	100	0	100	0	100
AUM	AUSTIN MUNICIPAL	MN	LPV200	0	100	0	100	0	100
AXN	CHANDLER FIELD	MN	LPV	0	100	0	100	0	100
BBB	BENSON MUNICIPAL	MN	LPV	0	100	0	100	0	100
BDE	BAUDETTE INTL	MN	LPV	0	100	0	100	1	99.999
BDH	WILLMAR MUNICIPAL-JOHN L RICE FIELD	MN	LPV200	0	100	0	100	0	100
BJI	BEMIDJI RGNL	MN	LPV200	0	100	0	100	0	100
BRD	BRAINERD LAKES RGNL	MN	LPV200	0	100	0	100	0	100
CBG	CAMBRIDGE MUNICIPAL	MN	LPV	0	100	0	100	0	100
CFE	BUFFALO MUNICIPAL	MN	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CKC	GRAND MARAIS/COOK COUNTY	MN	LPV	0	100	0	100	0	100
CKN	CROOKSTON MUNICIPAL KIRKWOOD FLD	MN	LPV	0	100	0	100	0	100
CNB	MYERS FIELD	MN	LPV	0	100	0	100	0	100
COQ	CLOQUET CARLTON COUNTY	MN	LPV	0	100	0	100	0	100
CQM	COOK MUNICIPAL	MN	LP	0	100	0	100	0	100
D39	SAUK CENTRE MUNICIPAL	MN	LPV	0	100	0	100	0	100
D42	SPRINGFIELD MUNICIPAL	MN	LP	0	100	0	100	0	100
DLH	DULUTH INTL	MN	LPV200	0	100	0	100	0	100
DTL	DETROIT LAKES-WETHING FIELD	MN	LPV	0	100	0	100	0	100
DVP	SLAYTON MUNICIPAL	MN	LP	0	100	0	100	0	100
DXX	LAC QUI PARLE COUNTY	MN	LPV200	0	100	0	100	0	100
ELO	ELY MUNICIPAL	MN	LPV200	0	100	0	100	0	100
ETH	WHEATON MUNICIPAL	MN	LP	0	100	0	100	0	100
EVM	EVELETH-VIRGINIA MUNICIPAL	MN	LPV	0	100	0	100	0	100
FBL	FARIBAULT MUNICIPAL-LIZ WALL STROHF	MN	LPV	0	100	0	100	0	100
FCM	FLYING CLOUD	MN	LPV200	0	100	0	100	0	100
FFM	FERGUS FALLS MUNICIPAL-EINAR MICKEL	MN	LPV200	0	100	0	100	0	100
FKA	FILLMORE COUNTY	MN	LPV	0	100	0	100	0	100
FOZ	BIGFORK MUNICIPAL	MN	LP	0	100	0	100	0	100
FRM	FAIRMONT MUNICIPAL	MN	LPV	0	100	0	100	0	100
FSE	FOSSTON MUNICIPAL-ANDERSON FIELD	MN	LP	0	100	0	100	0	100
GHW	GLENWOOD MUNICIPAL	MN	LPV	0	100	0	100	0	100
GPZ	GRAND RAPIDS/ITASCA CO-GORDON	MN	LPV	0	100	0	100	0	100
GYL	GLENCOE MUNICIPAL	MN	LPV	0	100	0	100	0	100
HCD	HUTCHINSON MUNICIPAL-BUTLER FIELD	MN	LPV	0	100	0	100	0	100
HCO	HALLOCK MUNICIPAL	MN	LPV	0	100	0	100	1	99.998
HIB	RANGE RGNL	MN	LPV200	0	100	0	100	0	100
INL	FALLS INTL-EINARSON FIELD	MN	LPV	0	100	0	100	0	100
JKJ	MOORHEAD MUNICIPAL	MN	LPV	0	100	0	100	0	100
JMR	MORA MUNICIPAL	MN	LPV	0	100	0	100	0	100
JYG	ST JAMES MUNICIPAL	MN	LPV	0	100	0	100	0	100
LJF	LITCHFIELD MUNICIPAL	MN	LPV	0	100	0	100	0	100
LVN	AIRLAKE	MN	LPV200	0	100	0	100	0	100
LXL	LITTLE FALLS/MORRISON COUNTY-L	MN	LPV	0	100	0	100	0	100
LYV	QUENTIN AANENSON FIELD	MN	LPV200	0	100	0	100	0	100
MJQ	JACKSON MUNICIPAL	MN	LPV	0	100	0	100	0	100
MKT	MANKATO RGNL	MN	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MML	SOUTHWEST MINNESOTA RGNL MARSH	MN	LPV200	0	100	0	100	0	100
MOX	MORRIS MUNICIPAL - CHARLIE SCHMIDT	MN	LPV	0	100	0	100	0	100
MSP	MINNEAPOLIS-ST PAUL INTL/WOLD-	MN	LPV200	0	100	0	100	0	100
MVE	MONTEVIDEO-CHIPPEWA COUNTY	MN	LPV	0	100	0	100	0	100
MWM	WINDOM MUNICIPAL	MN	LPV	0	100	0	100	0	100
MZH	MOOSE LAKE CARLTON COUNTY	MN	LPV	0	100	0	100	0	100
ONA	WINONA MUNICIPAL-MAX CONRAD FLD	MN	LPV	0	100	0	100	0	100
ORB	ORR RGNL	MN	LP	0	100	0	100	0	100
OTG	WORTHINGTON MUNICIPAL	MN	LPV200	0	100	0	100	0	100
OWA	OWATONNA DEGNER RGNL	MN	LPV200	0	100	0	100	0	100
PEX	PAYNESVILLE MUNICIPAL	MN	LPV200	0	100	0	100	0	100
PKD	PARK RAPIDS MUNICIPAL-KONSHOK FIELD	MN	LPV200	0	100	0	100	0	100
PQN	PIPESTONE MUNICIPAL	MN	LPV200	0	100	0	100	0	100
RGK	RED WING RGNL	MN	LPV200	0	100	0	100	0	100
ROS	RUSH CITY RGNL	MN	LPV	0	100	0	100	0	100
ROX	ROSEAU MUNICIPAL/RUDY BILLBERG FIEL	MN	LPV	0	100	0	100	1	99.999
RRT	WARROAD INTL MEMORIAL	MN	LPV200	0	100	0	100	1	99.999
RST	ROCHESTER INTL	MN	LPV200	0	100	0	100	0	100
RWF	REDWOOD FALLS MUNICIPAL	MN	LPV	0	100	0	100	0	100
SAZ	STAPLES MUNICIPAL	MN	LPV	0	100	0	100	0	100
SBU	BLUE EARTH MUNICIPAL	MN	LPV	0	100	0	100	0	100
SGS	SOUTH ST PAUL MUNICIPAL-RICHARD E F	MN	LPV	0	100	0	100	0	100
STC	ST CLOUD RGNL	MN	LPV200	0	100	0	100	0	100
STP	ST PAUL DOWNTOWN HOLMAN FLD	MN	LPV	0	100	0	100	0	100
TOB	DODGE CENTER	MN	LPV	0	100	0	100	0	100
TVF	THIEF RIVER FALLS RGNL	MN	LPV	0	100	0	100	0	100
TWM	RICHARD B HELGESON	MN	LPV	0	100	0	100	0	100
ULM	NEW ULM MUNICIPAL	MN	LPV200	0	100	0	100	0	100
VVV	ORTONVILLE MUNICIPAL-MARTINSON FIEL	MN	LP	0	100	0	100	0	100
Y49	WALKER MUNICIPAL	MN	LP	0	100	0	100	0	100
Y63	ELBOW LAKE MUNICIPAL - PRIDE OF THE	MN	LPV	0	100	0	100	0	100
03D	MEMPHIS MEMORIAL	MO	LPV	0	100	0	100	0	100
1H0	CREVE COEUR	MO	LPV	0	100	0	100	0	100
1MO	MOUNTAIN GROVE MEMORIAL	MO	LP	0	100	0	100	0	100
2H2	JERRY SUMNERS SR AURORA MUNICIPAL	MO	LP	0	100	0	100	0	100
6M6	LEWIS COUNTY RGNL	MO	LPV	0	100	0	100	0	100
8WC	WASHINGTON COUNTY	MO	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
94K	CASSVILLE MUNICIPAL	MO	LPV	0	100	0	100	0	100
AIZ	LEE C FINE MEMORIAL	MO	LPV	0	100	0	100	0	100
BBG	BRANSON	MO	LPV200	0	100	0	100	0	100
BUM	BUTLER MEMORIAL	MO	LPV	0	100	0	100	0	100
CGI	CAPE GIRARDEAU RGNL	MO	LPV200	0	100	0	100	0	100
CHT	CHILLICOTHE MUNICIPAL	MO	LPV	0	100	0	100	0	100
COU	COLUMBIA RGNL	MO	LPV200	0	100	0	100	0	100
DMO	SEDALIA RGNL	MO	LPV	0	100	0	100	0	100
DXE	DEXTER MUNICIPAL	MO	LPV	0	100	0	100	0	100
EIW	COUNTY MEMORIAL	MO	LPV	0	100	0	100	0	100
EOS	NEOSHO HUGH ROBINSON	MO	LPV	0	100	0	100	0	100
EVU	NORTHWEST MISSOURI RGNL	MO	LPV	0	100	0	100	0	100
EZZ	CAMERON MEMORIAL	MO	LPV	0	100	0	100	0	100
FAM	FARMINGTON RGNL	MO	LPV	0	100	0	100	0	100
FTT	ELTON HENSLEY MEMORIAL	MO	LPV	0	100	0	100	0	100
FWB	BRANSON WEST MUNICIPAL - EMERSON FI	MO	LPV200	0	100	0	100	0	100
FYG	WASHINGTON RGNL	MO	LPV	0	100	0	100	0	100
GLY	CLINTON RGNL	MO	LPV	0	100	0	100	0	100
GPH	MIDWEST NATIONAL AIR CENTER	MO	LPV	0	100	0	100	0	100
H79	ELDON MODEL AIRPARK	MO	LP	0	100	0	100	0	100
H88	A PAUL VANCE FREDERICKTOWN RGN	MO	LPV	0	100	0	100	0	100
HAE	HANNIBAL RGNL	MO	LPV	0	100	0	100	0	100
HFJ	MONETT RGNL	MO	LPV	0	100	0	100	0	100
HIG	HIGGINSVILLE INDUSTRIAL MUNICIPAL	MO	LPV	0	100	0	100	0	100
IRK	KIRKSVILLE RGNL	MO	LPV200	0	100	0	100	0	100
JEF	JEFFERSON CITY MEMORIAL	MO	LPV	0	100	0	100	0	100
JLN	JOPLIN RGNL	MO	LPV	0	100	0	100	0	100
K15	GRAND GLAIZE-OSAGE BEACH	MO	LP	0	100	0	100	0	100
K57	GOULD PETERSON MUNICIPAL	MO	LPV	0	100	0	100	0	100
K89	MACON-FOWER MEMORIAL	MO	LPV	0	100	0	100	0	100
LLU	LAMAR MUNICIPAL	MO	LPV	0	100	0	100	0	100
LRY	LAWRENCE SMITH MEMORIAL	MO	LPV	0	100	0	100	0	100
LXT	LEE'S SUMMIT MUNICIPAL	MO	LPV	0	100	0	100	0	100
M05	CARUTHERSVILLE MEMORIAL	MO	LPV	0	100	0	100	0	100
M12	STEELE MUNICIPAL	MO	LPV	0	100	0	100	0	100
M17	BOLIVAR MUNICIPAL	MO	LPV	0	100	0	100	0	100
M48	HOUSTON MEMORIAL	MO	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MAW	MALDEN RGNL	MO	LPV	0	100	0	100	0	100
MBY	OMAR N BRADLEY	MO	LPV	0	100	0	100	0	100
MCI	KANSAS CITY INTL	MO	LPV200	0	100	0	100	0	100
MHL	MARSHALL MEMORIAL MUNICIPAL	MO	LPV	0	100	0	100	0	100
MKC	CHARLES B WHEELER DOWNTOWN	MO	LPV	0	100	0	100	0	100
MNF	MOUNTAIN VIEW	MO	LP	0	100	0	100	0	100
MO3	STOCKTON MUNICIPAL	MO	LP	0	100	0	100	0	100
MO8	NORTH CENTRAL MISSOURI RGNL	MO	LPV	0	100	0	100	0	100
MYJ	MEXICO MEMORIAL	MO	LPV	0	100	0	100	0	100
NVD	NEVADA MUNICIPAL	MO	LPV200	0	100	0	100	0	100
OZS	CAMDENTON MEMORIAL-LAKE RGNL	MO	LPV	0	100	0	100	0	100
PCD	PERRYVILLE RGNL	MO	LPV	0	100	0	100	0	100
PLK	M GRAHAM CLARK DOWNTOWN	MO	LPV200	0	100	0	100	0	100
POF	POPLAR BLUFF MUNICIPAL	MO	LPV	0	100	0	100	0	100
RAW	WARSAW MUNICIPAL	MO	LPV200	0	100	0	100	0	100
RCM	SKYHAVEN	MO	LPV	0	100	0	100	0	100
SGF	SPRINGFIELD-BRANSON NATIONAL	MO	LPV	0	100	0	100	0	100
SIK	SIKESTON MEMORIAL MUNICIPAL	MO	LPV	0	100	0	100	0	100
STJ	ROSECRANS MEMORIAL	MO	LPV200	0	100	0	100	0	100
STL	ST LOUIS LAMBERT INTL	MO	LPV200	0	100	0	100	0	100
SUS	SPIRIT OF ST LOUIS	MO	LPV200	0	100	0	100	0	100
TBN	WAYNESVILLE-ST ROBERT RGNL FOR	MO	LPV	0	100	0	100	0	100
TKX	KENNETT MEMORIAL	MO	LPV	0	100	0	100	0	100
TRX	TRENTON MUNICIPAL	MO	LPV	0	100	0	100	0	100
UBX	CUBA MUNICIPAL	MO	LPV	0	100	0	100	0	100
UNO	WEST PLAINS RGNL	MO	LPV	0	100	0	100	0	100
UUV	SULLIVAN RGNL	MO	LPV	0	100	0	100	0	100
VER	JESSE VIERTEL MEMORIAL	MO	LPV	0	100	0	100	0	100
VIH	ROLLA NATIONAL	MO	LPV	0	100	0	100	0	100
0R0	COLUMBIA-MARION COUNTY	MS	LPV	0	100	0	100	0	100
17M	MAGEE MUNICIPAL	MS	LP	0	100	0	100	0	100
5A4	OKOLONA MUNICIPAL-RICHARD STOVALL F	MS	LPV	0	100	0	100	0	100
5A6	WINONA-MONTGOMERY COUNTY	MS	LP	0	100	0	100	0	100
87I	YAZOO COUNTY	MS	LPV	0	100	0	100	0	100
8M1	BOONEVILLE/BALDWYN	MS	LPV	0	100	0	100	0	100
CKM	FLETCHER FIELD	MS	LPV	0	100	0	100	0	100
CRX	ROSCOE TURNER	MS	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
GLH	GREENVILLE MID-DELTA	MS	LPV200	0	100	0	100	0	100
GNF	GRENADA MUNICIPAL	MS	LPV	0	100	0	100	0	100
GPT	GULFPORT-BILOXI INTL	MS	LPV200	0	100	0	100	0	100
GTR	GOLDEN TRIANGLE RGNL	MS	LPV200	0	100	0	100	0	100
GWO	GREENWOOD-LEFLORE	MS	LPV	0	100	0	100	0	100
HBG	HATTIESBURG BOBBY L CHAIN MUNICIPAL	MS	LPV200	0	100	0	100	0	100
HEZ	HARDY-ANDERS FIELD NATCHEZ-ADA	MS	LPV200	0	100	0	100	0	100
HKS	HAWKINS FIELD	MS	LPV	0	100	0	100	0	100
HSA	STENNIS INTL	MS	LPV200	0	100	0	100	0	100
IDL	INDIANOLA MUNICIPAL	MS	LPV	0	100	0	100	0	100
JAN	JACKSON-MEDGAR WILEY EVERS INT	MS	LPV200	0	100	0	100	0	100
JVW	JOHN BELL WILLIAMS	MS	LPV200	0	100	0	100	0	100
LMS	LOUISVILLE WINSTON COUNTY	MS	LPV	0	100	0	100	0	100
LUL	HESLER-NOBLE FIELD	MS	LPV	0	100	0	100	0	100
M11	COPIAH COUNTY	MS	LPV	0	100	0	100	0	100
M40	MONROE COUNTY	MS	LPV	0	100	0	100	0	100
M41	HOLLY SPRINGS-MARSHALL COUNTY	MS	LPV	0	100	0	100	0	100
M43	PRENTISS-JEFFERSON DAVIS COUNT	MS	LPV	0	100	0	100	0	100
MBO	BRUCE CAMPBELL FIELD	MS	LPV	0	100	0	100	0	100
MCB	MC COMB/PIKE COUNTY/JOHN E LEW	MS	LPV200	0	100	0	100	0	100
MEI	KEY FIELD	MS	LPV200	0	100	0	100	0	100
MJD	PICAYUNE MUNICIPAL	MS	LPV	0	100	0	100	0	100
MMS	SELFS	MS	LPV	0	100	0	100	0	100
MPE	PHILADELPHIA MUNICIPAL	MS	LPV	0	100	0	100	0	100
OLV	OLIVE BRANCH	MS	LPV200	0	100	0	100	0	100
PIB	HATTIESBURG-LAUREL RGNL	MS	LPV200	0	100	0	100	0	100
PMU	PANOLA COUNTY	MS	LPV	0	100	0	100	0	100
PQL	TRENT LOTT INTL	MS	LPV200	0	100	0	100	0	100
RNV	CLEVELAND MUNICIPAL	MS	LPV	0	100	0	100	0	100
STF	GEORGE M BRYAN	MS	LPV200	0	100	0	100	0	100
TUP	TUPELO RGNL	MS	LPV200	0	100	0	100	0	100
UBS	COLUMBUS-LOWNDES COUNTY	MS	LPV	0	100	0	100	0	100
UOX	UNIVERSITY-OXFORD	MS	LPV	0	100	0	100	0	100
UTA	TUNICA MUNICIPAL	MS	LPV200	0	100	0	100	0	100
VKS	VICKSBURG MUNICIPAL	MS	LP	0	100	0	100	0	100
1S3	TILLITT FIELD	MT	LPV	0	100	0	100	0	100
4U6	CIRCLE TOWN COUNTY	MT	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
6S0	BIG TIMBER	MT	LPV	0	100	0	100	0	100
6S8	LAUREL MUNICIPAL	MT	LPV	0	100	0	100	0	100
7S0	RONAN	MT	LPV	0	100	0	100	0	100
7S1	TWIN BRIDGES	MT	LPV	0	100	0	100	0	100
BHK	BAKER MUNICIPAL	MT	LPV	0	100	0	100	0	100
BIL	BILLINGS LOGAN INTL	MT	LPV200	0	100	0	100	0	100
BTM	BERT MOONEY	MT	LPV	0	100	0	100	0	100
BZN	BOZEMAN YELLOWSTONE INTL	MT	LPV	0	100	0	100	0	100
CTB	CUT BANK INTL	MT	LPV200	0	100	0	100	0	100
DLN	DILLON	MT	LPV	0	100	0	100	0	100
EKS	ENNIS - BIG SKY	MT	LPV	0	100	0	100	0	100
GDV	DAWSON COMMUNICIPALTY	MT	LPV	0	100	0	100	0	100
GGW	WOKAL FIELD/GLASGOW-VALLEY COU	MT	LPV200	0	100	0	100	0	100
GPI	GLACIER PARK INTL	MT	LPV	0	100	0	100	0	100
GTF	GREAT FALLS INTL	MT	LPV200	0	100	0	100	0	100
HLN	HELENA RGNL	MT	LPV	0	100	0	100	0	100
HVR	HAVRE CITY-COUNTY	MT	LPV	0	100	0	100	0	100
LVM	MISSION FIELD	MT	LP	0	100	0	100	0	100
LWT	LEWISTOWN MUNICIPAL	MT	LPV200	0	100	0	100	0	100
M75	MALTA	MT	LP	0	100	0	100	0	100
MLS	FRANK WILEY FIELD	MT	LPV	0	100	0	100	0	100
MSO	MISSOULA INTL	MT	LPV200	0	100	0	100	0	100
OLF	L M CLAYTON	MT	LPV200	0	100	0	100	0	100
PO1	POPLAR MUNICIPAL	MT	LPV200	0	100	0	100	0	100
PWD	SHER-WOOD	MT	LPV200	0	100	0	100	0	100
RPX	ROUNDUP	MT	LPV	0	100	0	100	0	100
S01	CONRAD	MT	LPV	0	100	0	100	0	100
SBX	SHELBY	MT	LPV	0	100	0	100	0	100
SDY	SIDNEY-RICHLAND RGNL	MT	LPV	0	100	0	100	0	100
WYS	YELLOWSTONE	MT	LPV200	0	100	0	100	0	100
43A	MONTGOMERY COUNTY	NC	LP	0	100	0	100	0	100
7W6	HYDE COUNTY	NC	LP	0	100	0	100	0	100
ACZ	HENDERSON FIELD	NC	LPV	0	100	0	100	0	100
AFP	ANSON COUNTY - JEFF CLOUD FIEL	NC	LPV	0	100	0	100	0	100
AKH	GASTONIA MUNICIPAL	NC	LPV	0	100	0	100	0	100
ASJ	TRI-COUNTY	NC	LPV	0	100	0	100	0	100
AVL	ASHEVILLE RGNL	NC	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
BUY	BURLINGTON-ALAMANCE RGNL	NC	LPV	0	100	0	100	0	100
CLT	CHARLOTTE/DOUGLAS INTL	NC	LPV200	0	100	0	100	0	100
CPC	COLUMBUS COUNTY MUNICIPAL	NC	LPV	0	100	0	100	0	100
CTZ	CLINTON-SAMPSON COUNTY	NC	LPV200	0	100	0	100	0	100
DPL	DUPLIN CO	NC	LPV200	0	100	0	100	0	100
ECG	ELIZABETH CITY CG AIR STATION/	NC	LPV	0	100	0	100	0	100
EDE	NORTHEASTERN RGNL	NC	LPV200	0	100	0	100	0	100
EHO	SHELBY-CLEVELAND COUNTY RGNL	NC	LPV	0	100	0	100	0	100
EQY	CHARLOTTE-MONROE EXECUTIVE	NC	LPV200	0	100	0	100	0	100
EWN	COASTAL CAROLINA REGIONAL	NC	LPV	0	100	0	100	0	100
EXX	DAVIDSON COUNTY	NC	LPV	0	100	0	100	0	100
EYF	CURTIS L BROWN JR FIELD	NC	LPV	0	100	0	100	0	100
FAY	FAYETTEVILLE RGNL/GRANNIS FIEL	NC	LPV200	0	100	0	100	0	100
FFA	FIRST FLIGHT	NC	LP	0	100	0	100	0	100
FQD	RUTHERFORD CO - MARCHMAN FIELD	NC	LPV	0	100	0	100	0	100
GEV	ASHE COUNTY	NC	LP	0	100	0	100	0	100
GSO	PIEDMONT TRIAD INTL	NC	LPV200	0	100	0	100	0	100
GWW	WAYNE EXECUTIVE JETPORT	NC	LPV200	0	100	0	100	0	100
HBI	ASHEBORO RGNL	NC	LPV	0	100	0	100	0	100
HKY	HICKORY RGNL	NC	LPV200	0	100	0	100	0	100
HNZ	HENDERSON-OXFORD	NC	LPV	0	100	0	100	0	100
HRJ	HARNETT RGNL JETPORT	NC	LPV	0	100	0	100	0	100
ILM	WILMINGTON INTL	NC	LPV200	0	100	0	100	0	100
INT	SMITH REYNOLDS	NC	LPV200	0	100	0	100	0	100
IPJ	LINCOLNTON-LINCOLN COUNTY RGNL	NC	LPV	0	100	0	100	0	100
ISO	KINSTON RGNL JETPORT AT STALLI	NC	LPV200	0	100	0	100	0	100
IXA	HALIFAX-NORTHAMPTON RGNL	NC	LPV200	0	100	0	100	0	100
JNX	JOHNSTON RGNL	NC	LPV	0	100	0	100	0	100
JQF	CONCORD-PADGETT RGNL	NC	LPV	0	100	0	100	0	100
LBT	LUMBERTON RGNL	NC	LPV	0	100	0	100	0	100
LHZ	TRIANGLE NORTH EXECUTIVE	NC	LPV200	0	100	0	100	0	100
MCZ	MARTIN COUNTY	NC	LPV	0	100	0	100	0	100
MEB	LAURINBURG-MAXTON	NC	LPV200	0	100	0	100	0	100
MQI	DARE COUNTY RGNL	NC	LPV	0	100	0	100	0	100
MRH	MICHAEL J SMITH FIELD	NC	LPV	0	100	0	100	0	100
MRN	FOOTHILLS REGIONAL	NC	LPV	0	100	0	100	0	100
MWK	MOUNT AIRY/SURRY COUNTY	NC	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
OAJ	ALBERT J ELLIS	NC	LPV200	0	100	0	100	0	100
OCW	WASHINGTON-WARREN	NC	LPV	0	100	0	100	0	100
ONX	CURRITUCK COUNTY RGNL	NC	LPV	0	100	0	100	0	100
PGV	PITT-GREENVILLE	NC	LPV	0	100	0	100	0	100
PMZ	PLYMOUTH MUNICIPAL	NC	LP	0	100	0	100	0	100
RCZ	RICHMOND COUNTY	NC	LPV	0	100	0	100	0	100
RDU	RALEIGH-DURHAM INTL	NC	LPV200	0	100	0	100	0	100
RHP	WESTERN CAROLINA RGNL	NC	LP	0	100	0	100	0	100
RUQ	MID-CAROLINA RGNL	NC	LPV200	0	100	0	100	0	100
RWI	ROCKY MOUNT-WILSON RGNL	NC	LPV	0	100	0	100	0	100
SCR	SILER CITY MUNICIPAL	NC	LPV	0	100	0	100	0	100
SOP	MOORE COUNTY	NC	LPV200	0	100	0	100	0	100
SUT	CAPE FEAR RGNL JETPORT/HOWIE F	NC	LPV	0	100	0	100	0	100
SVH	STATESVILLE RGNL	NC	LPV200	0	100	0	100	0	100
TDF	PERSON COUNTY	NC	LPV200	0	100	0	100	0	100
TTA	RALEIGH EXEC JETPORT AT SANFOR	NC	LPV200	0	100	0	100	0	100
UKF	WILKES COUNTY	NC	LPV200	0	100	0	100	0	100
VUJ	STANLY COUNTY	NC	LPV200	0	100	0	100	0	100
W03	WILSON INDUSTRIAL AIR CENTER	NC	LPV	0	100	0	100	0	100
W40	MOUNT OLIVE MUNICIPAL	NC	LPV	0	100	0	100	0	100
ZEF	ELKIN MUNICIPAL	NC	LP	0	100	0	100	0	100
06D	ROLLA MUNICIPAL	ND	LPV	0	100	0	100	1	99.997
20U	BEACH	ND	LPV	0	100	0	100	0	100
2C8	CAVALIER MUNICIPAL	ND	LPV	0	100	0	100	1	99.998
3H4	HILLSBORO MUNICIPAL	ND	LPV	0	100	0	100	0	100
46D	CARRINGTON MUNICIPAL	ND	LPV	0	100	0	100	0	100
4E7	ELLENDALE MUNICIPAL	ND	LPV	0	100	0	100	0	100
51D	EDGELEY MUNICIPAL	ND	LPV	0	100	0	100	0	100
5L0	LAKOTA MUNICIPAL	ND	LPV	0	100	0	100	0	100
5N8	CASSELTON ROBERT MILLER RGNL	ND	LPV	0	100	0	100	0	100
6L3	LISBON MUNICIPAL	ND	LPV	0	100	0	100	0	100
7L2	LINTON MUNICIPAL	ND	LPV	0	100	0	100	0	100
9D7	CANDO MUNICIPAL	ND	LPV	0	100	0	100	1	99.998
BAC	BARNES COUNTY MUNICIPAL	ND	LPV	0	100	0	100	0	100
BIS	BISMARCK MUNICIPAL	ND	LPV200	0	100	0	100	0	100
BWP	HARRY STERN	ND	LPV	0	100	0	100	0	100
BWW	BOWMAN RGNL	ND	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
D05	GARRISON MUNICIPAL	ND	LPV	0	100	0	100	1	99.999
D09	BOTTINEAU MUNICIPAL	ND	LPV	0	100	0	100	1	99.997
D55	ROBERTSON FIELD	ND	LPV	0	100	0	100	1	99.998
D57	GLEN ULLIN RGNL	ND	LPV	0	100	0	100	0	100
D60	TIOGA MUNICIPAL	ND	LPV	0	100	0	100	1	99.998
DIK	DICKINSON - THEODORE ROOSEVELT	ND	LPV200	0	100	0	100	0	100
DVL	DEVILS LAKE RGNL	ND	LPV200	0	100	0	100	1	99.999
FAR	HECTOR INTL	ND	LPV200	0	100	0	100	0	100
GAF	HUTSON FIELD	ND	LPV	0	100	0	100	1	99.999
GFK	GRAND FORKS INTL	ND	LPV	0	100	0	100	0	100
GWR	GWINNER-ROGER MELROE FIELD	ND	LPV	0	100	0	100	0	100
HEI	HETTINGER MUNICIPAL	ND	LPV	0	100	0	100	0	100
HZE	MERCER COUNTY RGNL	ND	LPV	0	100	0	100	0	100
ISN	SLOULIN FLD INTL	ND	LPV200	0	100	0	100	0	100
JMS	JAMESTOWN RGNL	ND	LPV200	0	100	0	100	0	100
K74	ROBERT ODEGAARD FIELD	ND	LP	0	100	0	100	0	100
MOT	MINOT INTL	ND	LPV	0	100	0	100	1	99.998
RUG	RUGBY MUNICIPAL	ND	LP	0	100	0	100	1	99.998
S25	WATFORD CITY MUNICIPAL	ND	LPV	0	100	0	100	0	100
Y19	MANDAN MUNICIPAL	ND	LPV	0	100	0	100	0	100
07K	CENTRAL CITY MUNICIPAL - LARRY REIN	NE	LPV	0	100	0	100	0	100
08K	HARVARD STATE	NE	LPV	0	100	0	100	0	100
0B4	HARTINGTON MUNICIPAL/ BUD BECKER FL	NE	LPV	0	100	0	100	0	100
0C4	PENDER MUNICIPAL	NE	LPV	0	100	0	100	0	100
0F4	LOUP CITY MUNICIPAL	NE	LPV	0	100	0	100	0	100
0G3	TECUMSEH MUNICIPAL	NE	LPV	0	100	0	100	0	100
0V3	PIONEER VILLAGE FIELD	NE	LPV	0	100	0	100	0	100
12K	SUPERIOR MUNICIPAL	NE	LPV	0	100	0	100	0	100
47V	CURTIS MUNICIPAL	NE	LPV	0	100	0	100	0	100
4D9	ALMA MUNICIPAL	NE	LPV	0	100	0	100	0	100
4V9	ANTELOPE COUNTY	NE	LPV	0	100	0	100	0	100
6K3	CREIGHTON MUNICIPAL	NE	LPV	0	100	0	100	0	100
7V7	RED CLOUD MUNICIPAL	NE	LPV	0	100	0	100	0	100
8V2	STUART-ATKINSON MUNICIPAL	NE	LPV	0	100	0	100	0	100
93Y	DAVID CITY MUNICIPAL	NE	LPV	0	100	0	100	0	100
9V5	MODISETT	NE	LPV	0	100	0	100	0	100
AFK	NEBRASKA CITY MUNICIPAL	NE	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
AHQ	WAHOO MUNICIPAL	NE	LPV	0	100	0	100	0	100
AIA	ALLIANCE MUNICIPAL	NE	LPV200	0	100	0	100	0	100
ANW	AINSWORTH RGNL	NE	LPV200	0	100	0	100	0	100
AUH	AURORA MUNICIPAL - AL POTTER FIELD	NE	LPV	0	100	0	100	0	100
BBW	BROKEN BOW MUNICIPAL/KEITH GLAZE FL	NE	LPV	0	100	0	100	0	100
BFF	WESTERN NEBRASKA RGNL/WILLIAM	NE	LPV	0	100	0	100	0	100
BIE	BEATRICE MUNICIPAL	NE	LPV200	0	100	0	100	0	100
BTA	BLAIR MUNICIPAL	NE	LPV	0	100	0	100	0	100
BUB	CRAM FIELD	NE	LPV	0	100	0	100	0	100
BVN	ALBION MUNICIPAL	NE	LPV	0	100	0	100	0	100
CDR	CHADRON MUNICIPAL	NE	LPV200	0	100	0	100	0	100
CEK	CRETE MUNICIPAL	NE	LPV	0	100	0	100	0	100
CSB	CAMBRIDGE MUNICIPAL	NE	LPV	0	100	0	100	0	100
CZD	COZAD MUNICIPAL	NE	LPV	0	100	0	100	0	100
EAR	KEARNEY RGNL	NE	LPV200	0	100	0	100	0	100
FBY	FAIRBURY MUNICIPAL	NE	LPV	0	100	0	100	0	100
FET	FREMONT MUNICIPAL	NE	LPV	0	100	0	100	0	100
FMZ	FAIRMONT STATE AIRFIELD	NE	LPV	0	100	0	100	0	100
FNB	BRENNER FIELD	NE	LPV	0	100	0	100	0	100
GGF	GRANT MUNICIPAL	NE	LPV	0	100	0	100	0	100
GRI	CENTRAL NEBRASKA RGNL	NE	LPV	0	100	0	100	0	100
GRN	GORDON MUNICIPAL	NE	LPV	0	100	0	100	0	100
HDE	BREWSTER FIELD	NE	LPV	0	100	0	100	0	100
HSI	HASTINGS MUNICIPAL	NE	LPV	0	100	0	100	0	100
IBM	KIMBALL MUNICIPAL/ROBERT E ARRAJ FI	NE	LPV	0	100	0	100	0	100
IML	IMPERIAL MUNICIPAL	NE	LPV	0	100	0	100	0	100
JYR	YORK MUNICIPAL	NE	LPV	0	100	0	100	0	100
K01	FARINGTON FIELD	NE	LPV	0	100	0	100	0	100
LBF	NORTH PLATTE RGNL AIRPORT LEE	NE	LPV200	0	100	0	100	0	100
LCG	WAYNE MUNICIPAL/ STAN MORRIS FLD	NE	LPV	0	100	0	100	0	100
LNK	LINCOLN	NE	LPV200	0	100	0	100	0	100
LXN	JIM KELLY FIELD	NE	LPV	0	100	0	100	0	100
MCK	MC COOK BEN NELSON RGNL	NE	LPV	0	100	0	100	0	100
MLE	MILLARD	NE	LPV	0	100	0	100	0	100
ODX	EVELYN SHARP FIELD	NE	LPV	0	100	0	100	0	100
OFK	NORFOLK RGNL/KARL STEFAN MEMOR	NE	LPV	0	100	0	100	0	100
OGA	SEARLE FIELD	NE	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
OKS	GARDEN COUNTY/KING RHILEY FIEL	NE	LPV	0	100	0	100	0	100
OLU	COLUMBUS MUNICIPAL	NE	LPV	0	100	0	100	0	100
OMA	EPPLEY AIRFIELD	NE	LPV200	0	100	0	100	0	100
ONL	THE O'NEILL MUNICIPAL-JOHN L BAKER	NE	LPV	0	100	0	100	0	100
PMV	PLATTSMOUTH MUNICIPAL	NE	LPV	0	100	0	100	0	100
RBE	ROCK COUNTY	NE	LPV	0	100	0	100	0	100
SCB	SCRIBNER STATE	NE	LPV	0	100	0	100	0	100
SNY	SIDNEY MUNICIPAL/LLOYD W CARR FIELD	NE	LPV	0	100	0	100	0	100
SWT	SEWARD MUNICIPAL	NE	LPV	0	100	0	100	0	100
TIF	THOMAS COUNTY	NE	LPV	0	100	0	100	0	100
TQE	TEKAMAH MUNICIPAL	NE	LPV	0	100	0	100	0	100
VTN	MILLER FIELD	NE	LPV	0	100	0	100	0	100
ASH	BOIRE FIELD	NH	LPV200	0	100	0	100	0	100
CON	CONCORD MUNICIPAL	NH	LPV	0	100	0	100	0	100
DAW	SKYHAVEN	NH	LPV	0	100	0	100	0	100
EEN	DILLANT-HOPKINS	NH	LPV	0	100	0	100	0	100
HIE	MOUNT WASHINGTON RGNL	NH	LPV	0	100	0	100	0	100
LCI	LACONIA MUNICIPAL	NH	LPV	0	100	0	100	0	100
LEB	LEBANON MUNICIPAL	NH	LPV	0	100	0	100	0	100
MHT	MANCHESTER	NH	LPV200	0	100	0	100	0	100
PSM	PORTSMOUTH INTL AT PEASE	NH	LPV200	0	100	0	100	0	100
47N	CENTRAL JERSEY RGNL	NJ	LP	0	100	0	100	0	100
4N1	GREENWOOD LAKE	NJ	LP	0	100	0	100	0	100
ACY	ATLANTIC CITY INTL	NJ	LPV200	0	100	0	100	0	100
CDW	ESSEX COUNTY	NJ	LPV	0	100	0	100	0	100
EWR	NEWARK LIBERTY INTL	NJ	LPV200	0	100	0	100	0	100
MIV	MILLVILLE MUNICIPAL	NJ	LPV200	0	100	0	100	0	100
MJX	OCEAN COUNTY	NJ	LPV	0	100	0	100	0	100
MMU	MORRISTOWN MUNICIPAL	NJ	LPV	0	100	0	100	0	100
N12	LAKEWOOD	NJ	LP	0	100	0	100	0	100
N14	FLYING W	NJ	LPV	0	100	0	100	0	100
N40	SKY MANOR	NJ	LP	0	100	0	100	0	100
TEB	TETERBORO	NJ	LPV	0	100	0	100	0	100
TTN	TRENTON MERCER	NJ	LPV	0	100	0	100	0	100
VAY	SOUTH JERSEY RGNL	NJ	LP	0	100	0	100	0	100
WWD	CAPE MAY COUNTY	NJ	LPV	0	100	0	100	0	100
LFVM	MIQUELON	NL	LPV	0	100	0	100	2	99.968

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
LFVP	ST PIERRE	NL	LPV	0	100	0	100	2	99.968
0E0	MORIARTY MUNICIPAL	NM	LPV	0	100	0	100	0	100
ABQ	ALBUQUERQUE INTL SUNPORT	NM	LPV200	0	100	0	100	0	100
AEG	DOUBLE EAGLE II	NM	LPV200	0	100	0	100	0	100
ALM	ALAMOGORDO-WHITE SANDS RGNL	NM	LPV	0	100	0	100	0	100
ATS	ARTESIA MUNICIPAL	NM	LPV200	0	100	0	100	0	100
CAO	CLAYTON MUNICIPAL ARPK	NM	LPV	0	100	0	100	0	100
CNM	CAVERN CITY AIR TRML	NM	LPV200	0	100	0	100	0	100
CVN	CLOVIS MUNICIPAL	NM	LPV200	0	100	0	100	0	100
DMN	DEMING MUNICIPAL	NM	LPV	0	100	0	100	13	99.967
E06	LEA COUNTY-ZIP FRANKLIN MEMORI	NM	LPV	0	100	0	100	0	100
FMN	FOUR CORNERS RGNL	NM	LPV200	0	100	0	100	0	100
HOB	LEA COUNTY RGNL	NM	LPV	0	100	0	100	0	100
LAM	LOS ALAMOS	NM	LP	0	100	0	100	0	100
LRU	LAS CRUCES INTL	NM	LPV200	0	100	0	100	12	99.989
ONM	SOCORRO MUNICIPAL	NM	LP	0	100	0	100	0	100
ROW	ROSWELL INTL AIR CENTER	NM	LPV	0	100	0	100	0	100
SAF	SANTA FE MUNICIPAL	NM	LPV200	0	100	0	100	0	100
SRR	SIERRA BLANCA RGNL	NM	LPV200	0	100	0	100	0	100
SVC	GRANT COUNTY	NM	LPV	0	100	0	100	9	99.979
05U	EUREKA	NV	LP	0	100	0	100	0	100
67L	MESQUITE	NV	LP	0	100	0	100	0	100
BAM	BATTLE MOUNTAIN	NV	LPV	0	100	0	100	0	100
CXP	CARSON	NV	LP	0	100	0	100	0	100
ELY	ELY ARPT /YELLAND FLD/	NV	LPV	0	100	0	100	0	100
HTH	HAWTHORNE INDUSTRIAL	NV	LP	0	100	0	100	0	100
LAS	MC CARRAN INTL	NV	LPV	0	100	0	100	0	100
LOL	DERBY FIELD	NV	LPV	0	100	0	100	0	100
RNO	RENO/TAHOE INTL	NV	LPV	0	100	0	100	0	100
RTS	RENO/STEAD	NV	LPV	0	100	0	100	0	100
SPZ	SILVER SPRINGS	NV	LPV	0	100	0	100	0	100
TPH	TONOPAH	NV	LP	0	100	0	100	0	100
WMC	WINNEMUCCA MUNICIPAL	NV	LPV	0	100	0	100	0	100
06N	RANDALL	NY	LP	0	100	0	100	0	100
0G7	FINGER LAKES RGNL	NY	LPV	0	100	0	100	0	100
1B1	COLUMBIA COUNTY	NY	LPV	0	100	0	100	0	100
20N	KINGSTON-ULSTER	NY	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
44N	SKY ACRES	NY	LPV	0	100	0	100	0	100
4B6	TICONDEROGA MUNICIPAL	NY	LPV	0	100	0	100	0	100
5B2	SARATOGA COUNTY	NY	LPV	0	100	0	100	0	100
5G0	LE ROY	NY	LP	0	100	0	100	0	100
9G0	BUFFALO AIRFIELD	NY	LP	0	100	0	100	0	100
9G3	AKRON/JESSON FIELD	NY	LP	0	100	0	100	0	100
ALB	ALBANY INTL	NY	LPV200	0	100	0	100	0	100
ART	WATERTOWN INTL	NY	LPV200	0	100	0	100	0	100
BGM	GREATER BINGHAMTON/EDWIN A LIN	NY	LPV200	0	100	0	100	0	100
BUF	BUFFALO NIAGARA INTL	NY	LPV200	0	100	0	100	0	100
ELM	ELMIRA/CORNING RGNL	NY	LPV200	0	100	0	100	0	100
ELZ	WELLSVILLE MUNICIPAL ARPT`TARANTINE	NY	LPV200	0	100	0	100	0	100
FOK	FRANCIS S GABRESKI	NY	LPV200	0	100	0	100	0	100
FRG	REPUBLIC	NY	LPV200	0	100	0	100	0	100
FZY	OSWEGO COUNTY	NY	LPV	0	100	0	100	0	100
GFL	FLOYD BENNETT MEMORIAL	NY	LPV200	0	100	0	100	0	100
GVQ	GENESEE COUNTY	NY	LPV200	0	100	0	100	0	100
HPN	WESTCHESTER COUNTY	NY	LPV	0	100	0	100	0	100
HTF	HORNELL MUNICIPAL	NY	LPV	0	100	0	100	0	100
HTO	EAST HAMPTON	NY	LPV	0	100	0	100	0	100
HWV	BROOKHAVEN	NY	LPV	0	100	0	100	0	100
IAG	NIAGARA FALLS INTL	NY	LPV	0	100	0	100	0	100
ISP	LONG ISLAND MAC ARTHUR	NY	LPV200	0	100	0	100	0	100
ITH	ITHACA TOMPKINS RGNL	NY	LPV	0	100	0	100	0	100
IUA	CANANDAIGUA	NY	LPV	0	100	0	100	0	100
JFK	JOHN F KENNEDY INTL	NY	LPV200	0	100	0	100	0	100
JHW	CHAUTAUQUA COUNTY/JAMESTOWN	NY	LPV200	0	100	0	100	0	100
K09	PISECO	NY	LP	0	100	0	100	0	100
LGA	LAGUARDIA	NY	LPV	0	100	0	100	0	100
MAL	MALONE-DUFORT	NY	LPV	0	100	0	100	0	100
MGJ	ORANGE COUNTY	NY	LPV	0	100	0	100	0	100
MSS	MASSENA INTL-RICHARDS FIELD	NY	LPV	0	100	0	100	0	100
MSV	SULLIVAN COUNTY INTL	NY	LPV	0	100	0	100	0	100
N23	SIDNEY MUNICIPAL	NY	LP	0	100	0	100	0	100
N66	ONEONTA MUNICIPAL	NY	LPV	0	100	0	100	0	100
NY0	FULTON COUNTY	NY	LPV	0	100	0	100	0	100
OGS	OGDENSBURG INTL	NY	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
OIC	LT WARREN EATON	NY	LP	0	100	0	100	0	100
OLE	CATTARAUGUS COUNTY-OLEAN	NY	LPV	0	100	0	100	0	100
PBG	PLATTSBURGH INTL	NY	LPV	0	100	0	100	0	100
PEO	PENN YAN	NY	LPV	0	100	0	100	0	100
POU	HUDSON VALLEY RGNL	NY	LPV	0	100	0	100	0	100
RME	GRIFFISS INTL	NY	LPV200	0	100	0	100	0	100
ROC	GREATER ROCHESTER INTL	NY	LPV200	0	100	0	100	0	100
SCH	SCHENECTADY COUNTY	NY	LPV200	0	100	0	100	0	100
SDC	WILLIAMSON-SODUS	NY	LPV	0	100	0	100	0	100
SLK	ADIRONDACK RGNL	NY	LPV200	0	100	0	100	0	100
SWF	NEW YORK STEWART INTL	NY	LPV200	0	100	0	100	0	100
SYR	SYRACUSE HANCOCK INTL	NY	LPV200	0	100	0	100	0	100
VGC	HAMILTON MUNICIPAL	NY	LPV	0	100	0	100	0	100
0G6	WILLIAMS COUNTY	OH	LPV	0	100	0	100	0	100
10G	HOLMES COUNTY	OH	LP	0	100	0	100	0	100
16G	SENECA COUNTY	OH	LPV	0	100	0	100	0	100
17G	PORT BUCYRUS-CRAWFORD COUNTY	OH	LP	0	100	0	100	0	100
1G0	WOOD COUNTY	OH	LPV	0	100	0	100	0	100
1G3	KENT STATE UNIV	OH	LPV	0	100	0	100	0	100
2G2	JEFFERSON COUNTY AIRPARK	OH	LPV	0	100	0	100	0	100
4G5	MONROE COUNTY	OH	LP	0	100	0	100	0	100
4I3	KNOX COUNTY	OH	LPV200	0	100	0	100	0	100
5A1	NORWALK-HURON COUNTY	OH	LP	0	100	0	100	0	100
6G5	BARNESVILLE-BRADFIELD	OH	LP	0	100	0	100	0	100
7G8	GEAUGA COUNTY	OH	LP	0	100	0	100	0	100
AKR	AKRON FULTON INTL	OH	LP	0	100	0	100	0	100
AOH	LIMA ALLEN COUNTY	OH	LPV200	0	100	0	100	0	100
AXV	NEIL ARMSTRONG	OH	LPV	0	100	0	100	0	100
BJJ	WAYNE COUNTY	OH	LPV	0	100	0	100	0	100
BKL	BURKE LAKEFRONT	OH	LPV	0	100	0	100	0	100
CAK	AKRON-CANTON RGNL	OH	LPV200	0	100	0	100	0	100
CDI	CAMBRIDGE MUNICIPAL	OH	LP	0	100	0	100	0	100
CGF	CUYAHOGA COUNTY	OH	LPV200	0	100	0	100	0	100
CLE	CLEVELAND-HOPKINS INTL	OH	LPV200	0	100	0	100	0	100
CMH	JOHN GLENN COLUMBUS INTL	OH	LPV200	0	100	0	100	0	100
CQA	LAKEFIELD	OH	LPV	0	100	0	100	0	100
CYO	PICKAWAY COUNTY MEMORIAL	OH	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
DAY	JAMES M COX DAYTON INTL	OH	LPV200	0	100	0	100	0	100
DLZ	DELAWARE MUNICIPAL - JIM MOORE FIEL	OH	LPV	0	100	0	100	0	100
EDJ	BELLEFONTAINE RGNL	OH	LPV	0	100	0	100	0	100
EOP	PIKE COUNTY	OH	LP	0	100	0	100	0	100
FDY	FINDLAY	OH	LPV	0	100	0	100	0	100
FZI	FOSTORIA METROPOLITAN	OH	LPV	0	100	0	100	0	100
GQQ	GALION MUNICIPAL	OH	LP	0	100	0	100	0	100
HAO	BUTLER CO RGNL-HOGAN FIELD	OH	LPV	0	100	0	100	0	100
HOC	HIGHLAND COUNTY	OH	LP	0	100	0	100	0	100
HZY	NORTHEAST OHIO RGNL	OH	LPV	0	100	0	100	0	100
I10	NOBLE COUNTY	OH	LP	0	100	0	100	0	100
I19	GREENE COUNTY-LEWIS A JACKSON	OH	LPV	0	100	0	100	0	100
I40	RICHARD DOWNING	OH	LPV	0	100	0	100	0	100
I66	CLINTON FIELD	OH	LPV	0	100	0	100	0	100
I68	WARREN COUNTY/JOHN LANE FIELD	OH	LPV	0	100	0	100	0	100
I69	CLERMONT COUNTY	OH	LP	0	100	0	100	0	100
I74	GRIMES FIELD	OH	LPV	0	100	0	100	0	100
ILN	WILMINGTON AIR PARK	OH	LPV200	0	100	0	100	0	100
LCK	RICKENBACKER INTL	OH	LPV200	0	100	0	100	0	100
LHQ	FAIRFIELD COUNTY	OH	LPV200	0	100	0	100	0	100
LNN	WILLOUGHBY LOST NATION MUNICIPAL	OH	LPV	0	100	0	100	0	100
LPR	LORAIN COUNTY RGNL	OH	LPV200	0	100	0	100	0	100
LUK	CINCINNATI MUNICIPAL AIRPORT LUNKEN	OH	LPV	0	100	0	100	0	100
MFD	MANSFIELD LAHM RGNL	OH	LPV200	0	100	0	100	0	100
MGY	DAYTON-WRIGHT BROTHERS	OH	LPV	0	100	0	100	0	100
MNN	MARION MUNICIPAL	OH	LPV	0	100	0	100	0	100
MRT	UNION COUNTY	OH	LP	0	100	0	100	0	100
MWO	MIDDLETOWN REGIONAL/HOOK FIELD	OH	LPV	0	100	0	100	0	100
OSU	OHIO STATE UNIVERSITY	OH	LPV200	0	100	0	100	0	100
OWX	PUTNAM COUNTY	OH	LPV	0	100	0	100	0	100
OXD	MIAMI UNIVERSITY	OH	LPV	0	100	0	100	0	100
PCW	ERIE-OTTAWA INTL	OH	LPV	0	100	0	100	0	100
PHD	HARRY CLEVER FIELD	OH	LP	0	100	0	100	0	100
PMH	GREATER PORTSMOUTH RGNL	OH	LPV	0	100	0	100	0	100
POV	PORTAGE COUNTY	OH	LPV	0	100	0	100	0	100
RZT	ROSS COUNTY	OH	LPV	0	100	0	100	0	100
S24	SANDUSKY COUNTY RGNL	OH	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
SCA	SIDNEY MUNICIPAL	OH	LPV	0	100	0	100	0	100
SGH	SPRINGFIELD-BECKLEY MUNICIPAL	OH	LPV200	0	100	0	100	0	100
TDZ	TOLEDO EXECUTIVE	OH	LPV	0	100	0	100	0	100
TOL	TOLEDO EXPRESS	OH	LPV200	0	100	0	100	0	100
TSO	CARROLL COUNTY-TOLSON	OH	LP	0	100	0	100	0	100
TZR	BOLTON FIELD	OH	LPV	0	100	0	100	0	100
UNI	OHIO UNIVERSITY	OH	LPV200	0	100	0	100	0	100
USE	FULTON COUNTY	OH	LPV	0	100	0	100	0	100
UYF	MADISON COUNTY	OH	LPV	0	100	0	100	0	100
VES	DARKE COUNTY	OH	LPV	0	100	0	100	0	100
VTA	NEWARK-HEATH	OH	LP	0	100	0	100	0	100
YNG	YOUNGSTOWN-WARREN RGNL	OH	LPV	0	100	0	100	0	100
ZZV	ZANESVILLE MUNICIPAL	OH	LPV200	0	100	0	100	0	100
1F0	ARDMORE DOWNTOWN EXECUTIVE	OK	LP	0	100	0	100	0	100
1K8	SOUTH GRAND LAKE RGNL	OK	LPV	0	100	0	100	0	100
1O4	THOMAS MUNICIPAL	OK	LPV	0	100	0	100	0	100
2K4	SCOTT FIELD	OK	LPV	0	100	0	100	0	100
4O4	MC CURTAIN COUNTY RGNL	OK	LP	0	100	0	100	0	100
6K4	FAIRVIEW MUNICIPAL	OK	LPV	0	100	0	100	0	100
80F	ANTLERS MUNICIPAL	OK	LPV	0	100	0	100	0	100
ADH	ADA RGNL	OK	LPV	0	100	0	100	0	100
ADM	ARDMORE MUNICIPAL	OK	LPV	0	100	0	100	0	100
AVK	ALVA RGNL	OK	LPV	0	100	0	100	0	100
AXS	ALTUS/QUARTZ MOUNTAIN RGNL	OK	LPV	0	100	0	100	0	100
BKN	BLACKWELL-TONKAWA MUNICIPAL	OK	LPV	0	100	0	100	0	100
BVO	BARTLESVILLE MUNICIPAL	OK	LPV	0	100	0	100	0	100
CHK	CHICKASHA MUNICIPAL	OK	LPV200	0	100	0	100	0	100
CLK	CLINTON RGNL	OK	LPV	0	100	0	100	0	100
CSM	CLINTON-SHERMAN	OK	LPV200	0	100	0	100	0	100
CUH	CUSHING MUNICIPAL	OK	LPV	0	100	0	100	0	100
DUA	DURANT RGNL - EAKER FIELD	OK	LPV	0	100	0	100	0	100
DUC	HALLIBURTON FIELD	OK	LPV200	0	100	0	100	0	100
ELK	ELK CITY RGNL BUSINESS	OK	LPV	0	100	0	100	0	100
F22	PERRY MUNICIPAL	OK	LPV	0	100	0	100	0	100
FDR	FREDERICK RGNL	OK	LPV200	0	100	0	100	0	100
GCM	CLAREMORE RGNL	OK	LPV	0	100	0	100	0	100
GMJ	GROVE MUNICIPAL	OK	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
GOK	GUTHRIE-EDMOND RGNL	OK	LPV	0	100	0	100	0	100
GUY	GUYMON MUNICIPAL	OK	LPV	0	100	0	100	0	100
GZL	STIGLER RGNL	OK	LPV	0	100	0	100	0	100
H71	MID-AMERICA INDUSTRIAL	OK	LPV	0	100	0	100	0	100
HBR	HOBART RGNL	OK	LPV	0	100	0	100	0	100
HHW	STAN STAMPER MUNICIPAL	OK	LPV	0	100	0	100	0	100
HSD	SUNDANCE	OK	LPV	0	100	0	100	0	100
LAW	LAWTON-FORT SILL RGNL	OK	LPV200	0	100	0	100	0	100
MKO	MUSKOGEE-DAVIS RGNL	OK	LPV	0	100	0	100	0	100
MLC	MC ALESTER RGNL	OK	LPV	0	100	0	100	0	100
OJA	THOMAS P STAFFORD	OK	LPV	0	100	0	100	0	100
OKC	WILL ROGERS WORLD	OK	LPV200	0	100	0	100	0	100
OKM	OKMULGEE RGNL	OK	LPV200	0	100	0	100	0	100
OUN	UNIVERSITY OF OKLAHOMA WESTHEI	OK	LPV200	0	100	0	100	0	100
OWP	WILLIAM R POGUE MUNICIPAL	OK	LPV	0	100	0	100	0	100
PNC	PONCA CITY RGNL	OK	LPV	0	100	0	100	0	100
PVJ	PAULS VALLEY MUNICIPAL	OK	LPV200	0	100	0	100	0	100
PWA	WILEY POST	OK	LPV200	0	100	0	100	0	100
RCE	CLARENCE E PAGE MUNICIPAL	OK	LPV	0	100	0	100	0	100
RVS	RICHARD LLOYD JONES JR	OK	LPV200	0	100	0	100	0	100
SNL	SHAWNEE RGNL	OK	LPV200	0	100	0	100	0	100
SWO	STILLWATER RGNL	OK	LPV200	0	100	0	100	0	100
TQH	TAHLEQUAH MUNICIPAL	OK	LPV	0	100	0	100	0	100
TUL	TULSA INTL	OK	LPV200	0	100	0	100	0	100
WDG	ENID WOODRING RGNL	OK	LPV200	0	100	0	100	0	100
WWR	WEST WOODWARD	OK	LPV	0	100	0	100	0	100
3S8	GRANTS PASS	OR	LP	0	100	0	100	0	100
77S	HOBBY FIELD	OR	LPV	0	100	0	100	0	100
AST	ASTORIA RGNL	OR	LPV	0	100	0	100	0	100
BDN	BEND MUNICIPAL	OR	LPV	0	100	0	100	0	100
BKE	BAKER CITY MUNICIPAL	OR	LPV	0	100	0	100	0	100
CVO	CORVALLIS MUNICIPAL	OR	LPV200	0	100	0	100	0	100
EUG	MAHLON SWEET FIELD	OR	LPV200	0	100	0	100	0	100
GCD	GRANT CO RGNL/OGILVIE FIELD	OR	LPV	0	100	0	100	0	100
HIO	PORTLAND-HILLSBORO	OR	LPV200	0	100	0	100	0	100
LGD	LA GRANDE/UNION COUNTY	OR	LPV	0	100	0	100	0	100
LKV	LAKE COUNTY	OR	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
LMT	CRATER LAKE-KLAMATH RGNL	OR	LPV	0	100	0	100	0	100
MMV	MC MINNVILLE MUNICIPAL	OR	LPV	0	100	0	100	0	100
ONO	ONTARIO MUNICIPAL	OR	LPV	0	100	0	100	0	100
ONP	NEWPORT MUNICIPAL	OR	LPV	0	100	0	100	0	100
OTH	SOUTHWEST OREGON RGNL	OR	LPV	0	100	0	100	0	100
PDT	EASTERN OREGON RGNL AT PENDLET	OR	LPV200	0	100	0	100	0	100
PDX	PORTLAND INTL	OR	LPV200	0	100	0	100	0	100
RDM	ROBERTS FIELD	OR	LPV200	0	100	0	100	0	100
S33	MADRAS MUNICIPALCIPAL	OR	LPV	0	100	0	100	0	100
S39	PRINEVILLE	OR	LP	0	100	0	100	0	100
SLE	MCNARY FLD	OR	LPV200	0	100	0	100	0	100
SPB	SCAPPOOSE INDUSTRIAL AIRPARK	OR	LPV	0	100	0	100	0	100
UAO	AURORA STATE	OR	LPV	0	100	0	100	0	100
22N	JAKE ARNER MEMORIAL	PA	LP	0	100	0	100	0	100
29D	GROVE CITY	PA	LP	0	100	0	100	0	100
2G9	SOMERSET COUNTY	PA	LPV	0	100	0	100	0	100
6G1	TITUSVILLE	PA	LPV	0	100	0	100	0	100
6P7	MCVILLE	PA	LP	0	100	0	100	0	100
8G2	CORRY-LAWRENCE	PA	LPV	0	100	0	100	0	100
8N8	DANVILLE	PA	LP	0	100	0	100	0	100
9D4	DECK	PA	LPV	0	100	0	100	0	100
ABE	LEHIGH VALLEY INTL	PA	LPV200	0	100	0	100	0	100
AFJ	WASHINGTON COUNTY	PA	LPV200	0	100	0	100	0	100
AGC	ALLEGHENY COUNTY	PA	LPV200	0	100	0	100	0	100
AOO	ALTOONA-BLAIR COUNTY	PA	LPV	0	100	0	100	0	100
AVP	WILKES-BARRE/SCRANTON INTL	PA	LPV200	0	100	0	100	0	100
AXQ	CLARION COUNTY	PA	LPV	0	100	0	100	0	100
BFD	BRADFORD RGNL	PA	LPV	0	100	0	100	0	100
BTP	PITTSBURGH/BUTLER RGNL	PA	LPV	0	100	0	100	0	100
BVI	BEAVER COUNTY	PA	LPV	0	100	0	100	0	100
CXY	CAPITAL CITY	PA	LPV	0	100	0	100	0	100
DUJ	DUBOIS RGNL	PA	LPV200	0	100	0	100	0	100
ERI	ERIE INTL/TOM RIDGE FIELD	PA	LPV	0	100	0	100	0	100
FIG	CLEARFIELD-LAWRENCE	PA	LPV	0	100	0	100	0	100
FKL	VENANGO RGNL	PA	LPV	0	100	0	100	0	100
FWQ	ROSTRAVER	PA	LPV	0	100	0	100	0	100
GKJ	PORT MEADVILLE	PA	LP	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
HMZ	BEDFORD COUNTY	PA	LPV	0	100	0	100	0	100
HZL	HAZLETON RGNL	PA	LPV	0	100	0	100	0	100
IDI	INDIANA COUNTY/JIMMY STEWART F	PA	LPV	0	100	0	100	0	100
IPT	WILLIAMSPORT RGNL	PA	LPV	0	100	0	100	0	100
JST	JOHN MURTHA JOHNSTOWN-CAMBRIA	PA	LPV200	0	100	0	100	0	100
LBE	ARNOLD PALMER RGNL	PA	LPV200	0	100	0	100	0	100
LNS	LANCASTER	PA	LPV200	0	100	0	100	0	100
LOM	WINGS FIELD	PA	LPV	0	100	0	100	0	100
MDT	HARRISBURG INTL	PA	LPV	0	100	0	100	0	100
MPO	POCONO MOUNTAINS MUNICIPAL	PA	LPV	0	100	0	100	0	100
MQS	CHESTER COUNTY G O CARLSON	PA	LPV	0	100	0	100	0	100
N38	WELLSBORO JOHNSTON	PA	LP	0	100	0	100	0	100
N79	NORTHUMBERLAND COUNTY	PA	LPV	0	100	0	100	0	100
N96	BELLEFONTE	PA	LPV	0	100	0	100	0	100
OQN	BRANDYWINE RGNL	PA	LP	0	100	0	100	0	100
OYM	ST MARYS MUNICIPAL	PA	LPV	0	100	0	100	0	100
PHL	PHILADELPHIA INTL	PA	LPV200	0	100	0	100	0	100
PIT	PITTSBURGH INTL	PA	LPV200	0	100	0	100	0	100
PNE	NORTHEAST PHILADELPHIA	PA	LPV200	0	100	0	100	0	100
PSB	MID-STATE	PA	LPV	0	100	0	100	0	100
PTW	HERITAGE FIELD	PA	LPV	0	100	0	100	0	100
RDG	READING RGNL/CARL A SPAATZ FIE	PA	LPV	0	100	0	100	0	100
RVL	MIFFLIN COUNTY	PA	LPV	0	100	0	100	0	100
SEG	PENN VALLEY	PA	LP	0	100	0	100	0	100
THV	YORK	PA	LP	0	100	0	100	0	100
UCP	NEW CASTLE MUNICIPAL	PA	LPV	0	100	0	100	0	100
UKT	QUAKERTOWN	PA	LP	0	100	0	100	0	100
UNV	UNIVERSITY PARK	PA	LPV200	0	100	0	100	0	100
VVS	JOSEPH A HARDY CONNELLSVILLE	PA	LPV	0	100	0	100	0	100
WAY	GREENE COUNTY	PA	LPV	0	100	0	100	0	100
WBW	WILKES-BARRE WYOMING VALLEY	PA	LPV	0	100	0	100	0	100
XLL	ALLENTOWN QUEEN CITY MUNICIPAL	PA	LP	0	100	0	100	0	100
ZER	SCHUYLKILL COUNTY/JOE ZERBEY	PA	LPV200	0	100	0	100	0	100
BID	BLOCK ISLAND STATE	RI	LPV	0	100	0	100	0	100
OQU	QUONSET STATE	RI	LPV200	0	100	0	100	0	100
PVD	THEODORE FRANCIS GREEN STATE	RI	LPV200	0	100	0	100	0	100
SFZ	NORTH CENTRAL STATE	RI	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
35A	UNION COUNTY` TROY SHELTON FIE	SC	LP	0	100	0	100	0	100
6J0	LEXINGTON COUNTY	SC	LPV	0	100	0	100	0	100
AIK	AIKEN RGNL	SC	LPV200	0	100	0	100	0	100
AND	ANDERSON RGNL	SC	LPV200	0	100	0	100	0	100
AQX	ALLENDALE COUNTY	SC	LPV	0	100	0	100	0	100
ARW	BEAUFORT COUNTY	SC	LPV200	0	100	0	100	0	100
BBP	MARLBORO COUNTY JETPORT - H E	SC	LPV	0	100	0	100	0	100
BNL	BARNWELL RGNL	SC	LPV	0	100	0	100	0	100
CAE	COLUMBIA METROPOLITAN	SC	LPV200	0	100	0	100	0	100
CDN	WOODWARD FIELD	SC	LPV	0	100	0	100	0	100
CEU	OCONEE COUNTY RGNL	SC	LPV200	0	100	0	100	0	100
CHS	CHARLESTON AFB/INTL	SC	LPV200	0	100	0	100	0	100
CKI	WILLIAMSBURG RGNL	SC	LPV	0	100	0	100	0	100
CQW	CHERAW MUNICIPAL/LYNCH BELLINGER FI	SC	LPV	0	100	0	100	0	100
CRE	GRAND STRAND	SC	LPV200	0	100	0	100	0	100
CUB	JIM HAMILTON L B OWENS	SC	LPV	0	100	0	100	0	100
DCM	CHESTER CATAWBA RGNL	SC	LPV	0	100	0	100	0	100
DYB	SUMMERVILLE	SC	LPV200	0	100	0	100	0	100
FDW	FAIRFIELD COUNTY	SC	LPV	0	100	0	100	0	100
FLO	FLORENCE RGNL	SC	LPV	0	100	0	100	0	100
GGE	GEORGETOWN COUNTY	SC	LPV	0	100	0	100	0	100
GMU	GREENVILLE DOWNTOWN	SC	LPV200	0	100	0	100	0	100
GRD	GREENWOOD COUNTY	SC	LPV	0	100	0	100	0	100
GSP	GREENVILLE SPARTANBURG INTL	SC	LPV200	0	100	0	100	0	100
GYH	DONALDSON FIELD	SC	LPV	0	100	0	100	0	100
HVS	HARTSVILLE RGNL	SC	LPV	0	100	0	100	0	100
HXD	HILTON HEAD	SC	LPV	0	100	0	100	0	100
HYW	CONWAY-HORRY COUNTY	SC	LPV	0	100	0	100	0	100
JZI	CHARLESTON EXECUTIVE	SC	LPV200	0	100	0	100	0	100
LKR	LANCASTER COUNTY-MC WHIRTER FI	SC	LPV200	0	100	0	100	0	100
LQK	PICKENS COUNTY	SC	LPV	0	100	0	100	0	100
LRO	MT PLEASANT RGNL-FAISON FIELD	SC	LPV	0	100	0	100	0	100
LUX	LAURENS COUNTY	SC	LPV	0	100	0	100	0	100
MAO	MARION COUNTY	SC	LPV	0	100	0	100	0	100
MKS	BERKELEY COUNTY	SC	LPV	0	100	0	100	0	100
MYR	MYRTLE BEACH INTL	SC	LPV200	0	100	0	100	0	100
OGB	ORANGEBURG MUNICIPAL	SC	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
PYG	PAGELAND	SC	LPV	0	100	0	100	0	100
RBW	LOWCOUNTRY RGNL	SC	LPV200	0	100	0	100	0	100
SMS	SUMTER	SC	LPV200	0	100	0	100	0	100
SPA	SPARTANBURG DOWNTOWN MEMORIAL/	SC	LPV200	0	100	0	100	0	100
UDG	DARLINGTON COUNTY	SC	LPV	0	100	0	100	0	100
UZA	ROCK HILL/YORK CO/BRYANT FIELD	SC	LPV200	0	100	0	100	0	100
0D8	GETTYSBURG MUNICIPAL	SD	LP	0	100	0	100	0	100
49B	STURGIS MUNICIPAL	SD	LPV	0	100	0	100	0	100
4X4	WESSINGTON SPRINGS	SD	LP	0	100	0	100	0	100
8D3	SISSETON MUNICIPAL	SD	LPV	0	100	0	100	0	100
8D7	CLARK COUNTY	SD	LP	0	100	0	100	0	100
8V3	PARKSTON MUNICIPAL	SD	LPV	0	100	0	100	0	100
98D	ONIDA MUNICIPAL	SD	LP	0	100	0	100	0	100
9D0	HIGHMORE MUNICIPAL	SD	LPV	0	100	0	100	0	100
9D1	GREGORY MUNICIPAL - FLYNN FLD	SD	LPV	0	100	0	100	0	100
9V6	MARTIN MUNICIPAL	SD	LPV	0	100	0	100	0	100
9V9	CHAMBERLAIN MUNICIPAL	SD	LP	0	100	0	100	0	100
ABR	ABERDEEN RGNL	SD	LPV200	0	100	0	100	0	100
AGZ	WAGNER MUNICIPAL	SD	LPV	0	100	0	100	0	100
ATY	WATERTOWN RGNL	SD	LPV200	0	100	0	100	0	100
BKX	BROOKINGS RGNL	SD	LPV200	0	100	0	100	0	100
EFC	BELLE FOURCHE MUNICIPAL	SD	LPV	0	100	0	100	0	100
FSD	JOE FOSS FIELD	SD	LPV200	0	100	0	100	0	100
HON	HURON RGNL	SD	LPV200	0	100	0	100	0	100
HSR	HOT SPRINGS MUNICIPAL	SD	LP	0	100	0	100	0	100
ICR	WINNER RGNL	SD	LPV	0	100	0	100	0	100
IEN	PINE RIDGE	SD	LPV	0	100	0	100	0	100
LEM	LEMMON MUNICIPAL	SD	LPV	0	100	0	100	0	100
MBG	MOBRIDGE MUNICIPAL	SD	LPV	0	100	0	100	0	100
MDS	MADISON MUNICIPAL	SD	LPV	0	100	0	100	0	100
MHE	MITCHELL MUNICIPAL	SD	LPV	0	100	0	100	0	100
MKA	MILLER MUNICIPAL	SD	LPV	0	100	0	100	0	100
PHP	PHILIP	SD	LPV	0	100	0	100	0	100
PIR	PIERRE RGNL	SD	LPV	0	100	0	100	0	100
RAP	RAPID CITY RGNL	SD	LPV200	0	100	0	100	0	100
SPF	BLACK HILLS-CLYDE ICE FIELD	SD	LPV	0	100	0	100	0	100
SUO	ROSEBUD SIOUX TRIBAL	SD	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
VMR	HAROLD DAVIDSON FIELD	SD	LPV	0	100	0	100	0	100
YKN	CHAN GURNEY MUNICIPAL	SD	LPV200	0	100	0	100	0	100
0A3	SMITHVILLE MUNICIPAL	TN	LPV	0	100	0	100	0	100
0M3	JOHN A BAKER FLD	TN	LP	0	100	0	100	0	100
0M4	BENTON COUNTY	TN	LPV	0	100	0	100	0	100
0M5	HUMPHREYS COUNTY	TN	LP	0	100	0	100	0	100
1A3	MARTIN CAMPBELL FIELD	TN	LP	0	100	0	100	0	100
1M5	PORTLAND MUNICIPAL	TN	LPV	0	100	0	100	0	100
2A0	MARK ANTON	TN	LPV	0	100	0	100	0	100
2M2	LAWRENCEBURG-LAWRENCE COUNTY	TN	LPV	0	100	0	100	0	100
2M8	CHARLES W BAKER	TN	LPV	0	100	0	100	0	100
3A2	NEW TAZEWELL MUNICIPAL	TN	LP	0	100	0	100	0	100
3M7	LAFAYETTE MUNICIPAL	TN	LPV	0	100	0	100	0	100
8A3	LIVINGSTON MUNICIPAL	TN	LP	0	100	0	100	0	100
BGF	WINCHESTER MUNICIPAL	TN	LPV	0	100	0	100	0	100
BNA	NASHVILLE INTL	TN	LPV200	0	100	0	100	0	100
CHA	LOVELL FIELD	TN	LPV200	0	100	0	100	0	100
CKV	OUTLAW FIELD	TN	LPV	0	100	0	100	0	100
CSV	CROSSVILLE MEMORIAL-WHITSON FI	TN	LPV200	0	100	0	100	0	100
DYR	DYERSBURG RGNL	TN	LPV	0	100	0	100	0	100
FYE	FAYETTE COUNTY	TN	LPV	0	100	0	100	0	100
FYM	FAYETTEVILLE MUNICIPAL	TN	LPV	0	100	0	100	0	100
GCY	GREENEVILLE-GREENE COUNTY MUNICIPAL	TN	LPV	0	100	0	100	0	100
GHM	CENTERVILLE MUNICIPAL	TN	LP	0	100	0	100	0	100
GKT	GATLINBURG-PIGEON FORGE	TN	LPV	0	100	0	100	0	100
GZS	ABERNATHY FIELD	TN	LPV	0	100	0	100	0	100
HZD	CARROLL COUNTY	TN	LPV	0	100	0	100	0	100
JAU	COLONEL TOMMY C STINER AIRFIEL	TN	LP	0	100	0	100	0	100
JWN	JOHN C TUNE	TN	LPV	0	100	0	100	0	100
LUG	ELLINGTON	TN	LPV	0	100	0	100	0	100
M01	GENERAL DEWITT SPAIN	TN	LPV	0	100	0	100	0	100
M08	WILLIAM L WHITEHURST FIELD	TN	LP	0	100	0	100	0	100
M53	HUMBOLDT MUNICIPAL	TN	LPV	0	100	0	100	0	100
M54	LEBANON MUNICIPAL	TN	LPV	0	100	0	100	0	100
M91	SPRINGFIELD ROBERTSON COUNTY	TN	LPV	0	100	0	100	0	100
MBT	MURFREESBORO MUNICIPAL	TN	LPV	0	100	0	100	0	100
MEM	MEMPHIS INTL	TN	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MKL	MC KELLAR-SIPES RGNL	TN	LPV200	0	100	0	100	0	100
MMI	MCMINN COUNTY	TN	LPV	0	100	0	100	0	100
MNV	MONROE COUNTY	TN	LPV	0	100	0	100	0	100
MOR	MOORE-MURRELL	TN	LPV	0	100	0	100	0	100
MQY	SMYRNA	TN	LPV200	0	100	0	100	0	100
MRC	MAURY COUNTY	TN	LPV	0	100	0	100	0	100
NQA	MILLINGTON-MEMPHIS	TN	LPV200	0	100	0	100	0	100
PHT	HENRY COUNTY	TN	LPV200	0	100	0	100	0	100
PVE	BEECH RIVER RGNL	TN	LPV	0	100	0	100	0	100
RKW	ROCKWOOD MUNICIPAL	TN	LPV	0	100	0	100	0	100
RNC	WARREN COUNTY MEMORIAL	TN	LPV	0	100	0	100	0	100
RVN	HAWKINS COUNTY	TN	LP	0	100	0	100	0	100
RZR	CLEVELAND RGNL JETPORT	TN	LPV200	0	100	0	100	0	100
SCX	SCOTT MUNICIPAL	TN	LPV	0	100	0	100	0	100
SNH	SAVANNAH-HARDIN COUNTY	TN	LPV	0	100	0	100	0	100
SRB	UPPER CUMBERLAND RGNL	TN	LPV	0	100	0	100	0	100
SYI	BOMAR FIELD-SHELBYVILLE MUNICIPAL	TN	LPV	0	100	0	100	0	100
SZY	ROBERT SIBLEY	TN	LPV	0	100	0	100	0	100
TGC	GIBSON COUNTY	TN	LP	0	100	0	100	0	100
THA	TULLAHOMA RGNL ARPT/WM NORTHER	TN	LPV	0	100	0	100	0	100
TRI	TRI-CITIES	TN	LPV200	0	100	0	100	0	100
TYS	MC GHEE TYSON	TN	LPV200	0	100	0	100	0	100
UCY	EVERETT-STEWART RGNL	TN	LPV200	0	100	0	100	0	100
XNX	SUMNER COUNTY RGNL	TN	LPV	0	100	0	100	0	100
0F2	BOWIE MUNICIPAL	TX	LPV	0	100	0	100	0	100
11R	BRENHAM MUNICIPAL	TX	LPV	0	100	0	100	0	100
2R9	KENEDY RGNL	TX	LP	0	100	0	100	0	100
3R9	LAKEWAY AIRPARK	TX	LP	0	100	0	100	0	100
3T5	FAYETTE RGNL AIR CENTER	TX	LPV	0	100	0	100	0	100
41F	FLOYDADA MUNICIPAL	TX	LP	0	100	0	100	0	100
45R	HAWTHORNE FIELD	TX	LP	0	100	0	100	0	100
4T2	KENNETH COPELAND	TX	LPV	0	100	0	100	0	100
50R	LOCKHART MUNICIPAL	TX	LPV	0	100	0	100	0	100
5C1	BOERNE STAGE FIELD	TX	LP	0	100	0	100	0	100
5T9	MAVERICK COUNTY MEMORIAL INTL	TX	LPV	0	100	0	100	0	100
60R	NAVASOTA MUNICIPAL	TX	LPV	0	100	0	100	0	100
6R3	CLEVELAND MUNICIPAL	TX	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
77F	WINTERS MUNICIPAL	TX	LP	0	100	0	100	0	100
8F3	CROSBYTON MUNICIPAL	TX	LP	0	100	0	100	0	100
ABI	ABILENE RGNL	TX	LPV200	0	100	0	100	0	100
ACT	WACO RGNL	TX	LPV200	0	100	0	100	0	100
ADS	ADDISON	TX	LPV	0	100	0	100	0	100
AFW	FORT WORTH ALLIANCE	TX	LPV200	0	100	0	100	0	100
ALI	ALICE INTL	TX	LPV	0	100	0	100	0	100
AMA	RICK HUSBAND AMARILLO INTL	TX	LPV200	0	100	0	100	0	100
ARM	WHARTON RGNL	TX	LPV	0	100	0	100	0	100
ASL	HARRISON COUNTY	TX	LPV	0	100	0	100	0	100
AUS	AUSTIN-BERGSTROM INTL	TX	LPV200	0	100	0	100	0	100
AXH	HOUSTON-SOUTHWEST	TX	LPV	0	100	0	100	0	100
BAZ	NEW BRAUNFELS RGNL	TX	LPV	0	100	0	100	0	100
BBD	CURTIS FIELD	TX	LPV	0	100	0	100	0	100
BEA	BEEVILLE MUNICIPAL	TX	LPV	0	100	0	100	0	100
BFE	TERRY COUNTY	TX	LPV	0	100	0	100	0	100
BGD	HUTCHINSON COUNTY	TX	LPV	0	100	0	100	0	100
BKD	STEPHENS COUNTY	TX	LP	0	100	0	100	0	100
BKS	BROOKS COUNTY	TX	LPV	0	100	0	100	0	100
BMT	BEAUMONT MUNICIPAL	TX	LPV	0	100	0	100	0	100
BPG	BIG SPRING MC MAHON-WRINKLE	TX	LPV200	0	100	0	100	0	100
BPT	JACK BROOKS RGNL	TX	LPV200	0	100	0	100	0	100
BRO	BROWNSVILLE/SOUTH PADRE ISLAND	TX	LPV200	0	100	0	100	0	100
BWD	BROWNWOOD RGNL	TX	LPV	0	100	0	100	0	100
BYY	BAY CITY RGNL	TX	LPV	0	100	0	100	0	100
CDS	CHILDRESS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
CFD	COULTER FIELD	TX	LPV	0	100	0	100	0	100
CLL	EASTERWOOD FIELD	TX	LPV200	0	100	0	100	0	100
CNW	TSTC WACO	TX	LPV200	0	100	0	100	0	100
COM	COLEMAN MUNICIPAL	TX	LPV	0	100	0	100	0	100
COT	COTULLA-LA SALLE COUNTY	TX	LPV	0	100	0	100	0	100
CPT	CLEBURNE RGNL	TX	LPV	0	100	0	100	0	100
CRP	CORPUS CHRISTI INTL	TX	LPV200	0	100	0	100	0	100
CVB	CASTROVILLE MUNICIPAL	TX	LPV	0	100	0	100	0	100
CWC	KICKAPOO DOWNTOWN	TX	LPV	0	100	0	100	0	100
CXO	CONROE-NORTH HOUSTON RGNL	TX	LPV200	0	100	0	100	0	100
CZT	DIMMIT COUNTY	TX	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
DAL	DALLAS LOVE FIELD	TX	LPV200	0	100	0	100	0	100
DFW	DALLAS-FORT WORTH INTL	TX	LPV200	0	100	0	100	0	100
DHT	DALHART MUNICIPAL	TX	LPV	0	100	0	100	0	100
DKR	HOUSTON COUNTY	TX	LP	0	100	0	100	0	100
DRT	DEL RIO INTL	TX	LPV	0	100	0	100	0	100
DTO	DENTON ENTERPRISE	TX	LPV200	0	100	0	100	0	100
DUX	MOORE COUNTY	TX	LPV200	0	100	0	100	0	100
DWH	DAVID WAYNE HOOKS MEMORIAL	TX	LPV	0	100	0	100	0	100
E01	ROY HURD MEMORIAL	TX	LP	0	100	0	100	0	100
E11	ANDREWS COUNTY	TX	LPV	0	100	0	100	0	100
E19	GRUVER MUNICIPAL	TX	LP	0	100	0	100	0	100
E30	BRUCE FIELD	TX	LPV	0	100	0	100	0	100
E38	ALPINE-CASPARIS MUNICIPAL	TX	LPV	0	100	0	100	0	100
EBG	SOUTH TEXAS INTL AT EDINBURG	TX	LPV	0	100	0	100	0	100
EDC	AUSTIN EXECUTIVE	TX	LPV200	0	100	0	100	0	100
EFD	ELLINGTON	TX	LPV200	0	100	0	100	0	100
ELA	EAGLE LAKE	TX	LP	0	100	0	100	0	100
ELP	EL PASO INTL	TX	LP	0	100	0	100	0	100
ERV	KERRVILLE MUNICIPAL/LOUIS SCHREINER	TX	LPV	0	100	0	100	0	100
ETN	EASTLAND MUNICIPAL	TX	LP	0	100	0	100	0	100
F00	JONES FIELD	TX	LPV	0	100	0	100	0	100
F05	WILBARGER COUNTY	TX	LPV	0	100	0	100	0	100
F49	SLATON MUNICIPAL	TX	LPV	0	100	0	100	0	100
F98	YOAKUM COUNTY	TX	LPV	0	100	0	100	0	100
FST	FORT STOCKTON-PECOS COUNTY	TX	LPV	0	100	0	100	0	100
FTW	FORT WORTH MEACHAM INTL	TX	LPV200	0	100	0	100	0	100
FWS	FORT WORTH SPINKS	TX	LPV200	0	100	0	100	0	100
GDJ	GRANBURY RGNL	TX	LPV	0	100	0	100	0	100
GGG	EAST TEXAS RGNL	TX	LPV	0	100	0	100	0	100
GKY	ARLINGTON MUNICIPAL	TX	LPV200	0	100	0	100	0	100
GLE	GAINESVILLE MUNICIPAL	TX	LPV	0	100	0	100	0	100
GLS	SCHOLES INTL AT GALVESTON	TX	LPV200	0	100	0	100	0	100
GNC	GAINES COUNTY	TX	LPV	0	100	0	100	0	100
GRK	ROBERT GRAY AAF	TX	LPV200	0	100	0	100	0	100
GTU	GEORGETOWN MUNICIPAL	TX	LPV	0	100	0	100	0	100
GVT	MAJORS	TX	LPV200	0	100	0	100	0	100
GYI	NORTH TEXAS RGNL/PERRIN FIELD	TX	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
HBV	JIM HOGG COUNTY	TX	LPV	0	100	0	100	0	100
HDO	SOUTH TEXAS RGNL AT HONDO	TX	LPV	0	100	0	100	0	100
HHF	HEMPHILL COUNTY	TX	LPV	0	100	0	100	0	100
HOU	WILLIAM P HOBBY	TX	LPV200	0	100	0	100	0	100
HQZ	MESQUITE METRO	TX	LPV	0	100	0	100	0	100
HRL	VALLEY INTL	TX	LPV200	0	100	0	100	0	100
HRX	HEREFORD MUNICIPAL	TX	LPV200	0	100	0	100	0	100
HYI	SAN MARCOS RGNL	TX	LPV200	0	100	0	100	0	100
IAH	GEORGE BUSH INTERCONTINENTAL/H	TX	LPV200	0	100	0	100	0	100
IKG	KLEBERG COUNTY	TX	LPV	0	100	0	100	0	100
ILE	SKYLARK FIELD	TX	LPV200	0	100	0	100	0	100
INJ	HILLSBORO MUNICIPAL	TX	LPV	0	100	0	100	0	100
INK	WINKLER COUNTY	TX	LPV200	0	100	0	100	0	100
IWS	WEST HOUSTON	TX	LP	0	100	0	100	0	100
JAS	JASPER COUNTY-BELL FIELD	TX	LPV	0	100	0	100	0	100
JSO	CHEROKEE COUNTY	TX	LPV	0	100	0	100	0	100
JWY	MID-WAY RGNL	TX	LPV200	0	100	0	100	0	100
JXI	FOX STEPHENS FIELD - GILMER MU	TX	LP	0	100	0	100	0	100
LBB	LUBBOCK PRESTON SMITH INTL	TX	LPV200	0	100	0	100	0	100
LBX	TEXAS GULF COAST RGNL	TX	LPV	0	100	0	100	0	100
LFK	ANGELINA COUNTY	TX	LPV	0	100	0	100	0	100
LHB	HEARNE MUNICIPAL	TX	LPV200	0	100	0	100	0	100
LIU	LITTLEFIELD TAYLOR BROWN MUNICIPAL	TX	LPV	0	100	0	100	0	100
LLN	LEVELLAND MUNICIPAL	TX	LPV	0	100	0	100	0	100
LNC	LANCASTER RGNL	TX	LPV200	0	100	0	100	0	100
LRD	LAREDO INTL	TX	LPV200	0	100	0	100	0	100
LUD	DECATUR MUNICIPAL	TX	LPV	0	100	0	100	0	100
LUV	LAMESA MUNICIPAL	TX	LPV200	0	100	0	100	0	100
LVJ	PEARLAND RGNL	TX	LPV	0	100	0	100	0	100
LXY	MEXIA-LIMESTONE CO	TX	LP	0	100	0	100	0	100
MAF	MIDLAND INTL AIR AND SPACE POR	TX	LPV200	0	100	0	100	0	100
MDD	MIDLAND AIRPARK	TX	LPV	0	100	0	100	0	100
MFE	MC ALLEN MILLER INTL	TX	LPV200	0	100	0	100	0	100
MKN	COMANCHE COUNTY-CITY	TX	LPV	0	100	0	100	0	100
MNZ	HAMILTON MUNICIPAL	TX	LPV	0	100	0	100	0	100
MWL	MINERAL WELLS	TX	LPV200	0	100	0	100	0	100
OCH	NACOGDOCHES A L MANGHAM JR RGN	TX	LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
ODO	ODESSA-SCHLEMEYER FIELD	TX	LPV200	0	100	0	100	0	100
ONY	OLNEY MUNICIPAL	TX	LPV	0	100	0	100	0	100
ORG	ORANGE COUNTY	TX	LPV	0	100	0	100	0	100
PEQ	PECOS MUNICIPAL	TX	LPV200	0	100	0	100	0	100
PIL	PORT ISABEL-CAMERON COUNTY	TX	LPV	0	100	0	100	0	100
PKV	CALHOUN COUNTY	TX	LPV	0	100	0	100	0	100
PPA	PERRY LEFORS FIELD	TX	LPV	0	100	0	100	0	100
PRX	COX FIELD	TX	LPV	0	100	0	100	0	100
PSX	PALACIOS MUNICIPAL	TX	LPV	0	100	0	100	0	100
PVW	HALE COUNTY	TX	LPV	0	100	0	100	0	100
PWG	MC GREGOR EXECUTIVE	TX	LPV	0	100	0	100	0	100
PYX	PERRYTON OCHILTREE COUNTY	TX	LPV	0	100	0	100	0	100
RAS	MUSTANG BEACH	TX	LPV	0	100	0	100	0	100
RBD	DALLAS EXECUTIVE	TX	LPV200	0	100	0	100	0	100
RBO	NUECES COUNTY	TX	LPV	0	100	0	100	0	100
RKP	ARANSAS CO	TX	LPV	0	100	0	100	0	100
RYW	LAGO VISTA TX - RUSTY ALLEN	TX	LPV	0	100	0	100	0	100
SAT	SAN ANTONIO INTL	TX	LPV200	0	100	0	100	0	100
SGR	SUGAR LAND RGNL	TX	LPV200	0	100	0	100	0	100
SJT	SAN ANGELO RGNL/MATHIS FIELD	TX	LPV	0	100	0	100	0	100
SLR	SULPHUR SPRINGS MUNICIPAL	TX	LPV	0	100	0	100	0	100
SNK	WINSTON FIELD	TX	LPV200	0	100	0	100	0	100
SWI	SHERMAN MUNICIPAL	TX	LP	0	100	0	100	0	100
SWW	AVENGER FIELD	TX	LPV	0	100	0	100	0	100
T23	ALBANY MUNICIPAL	TX	LPV	0	100	0	100	0	100
T41	LA PORTE MUNICIPAL	TX	LPV	0	100	0	100	0	100
T74	TAYLOR MUNICIPAL	TX	LPV	0	100	0	100	0	100
T78	LIBERTY MUNICIPAL	TX	LP	0	100	0	100	0	100
T82	GILLESPIE COUNTY	TX	LPV	0	100	0	100	0	100
TDW	TRADEWIND	TX	LPV	0	100	0	100	0	100
TFP	MCCAMPBELL-PORTER	TX	LPV	0	100	0	100	0	100
TKI	MCKINNEY NATIONAL	TX	LPV200	0	100	0	100	0	100
TME	HOUSTON EXECUTIVE	TX	LPV	0	100	0	100	0	100
TPL	DRAUGHON-MILLER CENTRAL TEXAS	TX	LPV200	0	100	0	100	0	100
TRL	TERRELL MUNICIPAL	TX	LPV	0	100	0	100	0	100
TX2	CHASE FIELD INDUSTRIAL	TX	LPV	0	100	0	100	0	100
TXW	MID VALLEY	TX	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
TYR	TYLER POUNDS RGNL	TX	LPV200	0	100	0	100	0	100
UTS	HUNTSVILLE MUNICIPAL	TX	LPV	0	100	0	100	0	100
VCT	VICTORIA RGNL	TX	LPV200	0	100	0	100	0	100
XBP	BRIDGEPORT MUNICIPAL	TX	LPV	0	100	0	100	0	100
41U	MANTI-EPHRAIM	UT	LPV	0	100	0	100	0	100
74V	ROOSEVELT MUNICIPAL	UT	LPV	0	100	0	100	0	100
BCE	BRYCE CANYON	UT	LPV	0	100	0	100	0	100
BDG	BLANDING MUNICIPAL	UT	LPV	0	100	0	100	0	100
BMC	BRIGHAM CITY RGNL	UT	LP	0	100	0	100	0	100
CDC	CEDAR CITY RGNL	UT	LPV	0	100	0	100	0	100
CNY	CANYONLANDS FIELD	UT	LP	0	100	0	100	0	100
DTA	DELTA MUNICIPAL	UT	LP	0	100	0	100	0	100
ENV	WENDOVER	UT	LPV	0	100	0	100	0	100
FOM	FILLMORE MUNICIPAL	UT	LPV	0	100	0	100	0	100
LGU	LOGAN-CACHE	UT	LPV	0	100	0	100	0	100
OGD	OGDEN-HINCKLEY	UT	LPV	0	100	0	100	0	100
PUC	CARBON COUNTY RGNL/BUCK DAVIS	UT	LP	0	100	0	100	0	100
PVU	PROVO MUNICIPAL	UT	LPV200	0	100	0	100	0	100
RIF	RICHFIELD MUNICIPAL	UT	LP	0	100	0	100	0	100
SGU	ST GEORGE RGNL	UT	LPV	0	100	0	100	0	100
SLC	SALT LAKE CITY INTL	UT	LPV200	0	100	0	100	0	100
SPK	SPANISH FORK ARPT SPRINGVILLE-	UT	LP	0	100	0	100	0	100
TVY	BOLINDER FIELD-TOOELE VALLEY	UT	LPV200	0	100	0	100	0	100
U14	NEPHI MUNICIPAL	UT	LPV	0	100	0	100	0	100
U42	SOUTH VALLEY RGNL	UT	LPV	0	100	0	100	0	100
U55	PANGUITCH MUNICIPAL	UT	LPV200	0	100	0	100	0	100
VEL	VERNAL RGNL	UT	LPV	0	100	0	100	0	100
0V4	BROOKNEAL/CAMPBELL COUNTY	VA	LPV	0	100	0	100	0	100
0VG	LEE COUNTY	VA	LPV	0	100	0	100	0	100
AVC	MECKLENBURG-BRUNSWICK RGNL	VA	LPV	0	100	0	100	0	100
BCB	VIRGINIA TECH/MONTGOMERY EXECU	VA	LPV	0	100	0	100	0	100
BKT	ALLEN C PERKINSON BLACKSTONE A	VA	LPV	0	100	0	100	0	100
CHO	CHARLOTTESVILLE-ALBEMARLE	VA	LPV200	0	100	0	100	0	100
CJR	CULPEPER RGNL	VA	LPV	0	100	0	100	0	100
CPK	CHESAPEAKE RGNL	VA	LPV200	0	100	0	100	0	100
DAN	DANVILLE RGNL	VA	LPV200	0	100	0	100	0	100
EMV	EMPORIA-GREENSVILLE RGNL	VA	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
FCI	RICHMOND EXECUTIVE-CHESTERFIEL	VA	LPV	0	100	0	100	0	100
FKN	FRANKLIN RGNL	VA	LPV	0	100	0	100	0	100
FVX	FARMVILLE RGNL	VA	LPV	0	100	0	100	0	100
FYJ	MIDDLE PENINSULA RGNL	VA	LPV	0	100	0	100	0	100
HLX	TWIN COUNTY	VA	LPV	0	100	0	100	0	100
HSP	INGALLS FIELD	VA	LPV	0	100	0	100	0	100
HWY	WARRENTON-FAUQUIER	VA	LPV200	0	100	0	100	0	100
JFZ	TAZEWELL COUNTY	VA	LPV	0	100	0	100	0	100
JYO	LEESBURG EXECUTIVE	VA	LPV	0	100	0	100	0	100
LKU	LOUISA COUNTY/FREEMAN FIELD	VA	LPV	0	100	0	100	0	100
LNP	LONESOME PINE	VA	LPV	0	100	0	100	0	100
LUA	LURAY CAVERNS	VA	LP	0	100	0	100	0	100
LYH	LYNCHBURG RGNL/PRESTON GLENN F	VA	LPV	0	100	0	100	0	100
MFV	ACCOMACK COUNTY	VA	LPV	0	100	0	100	0	100
MKJ	MOUNTAIN EMPIRE	VA	LPV	0	100	0	100	0	100
MTV	BLUE RIDGE	VA	LPV	0	100	0	100	0	100
OFP	HANOVER COUNTY MUNICIPAL	VA	LPV	0	100	0	100	0	100
OKV	WINCHESTER RGNL	VA	LPV200	0	100	0	100	0	100
ORF	NORFOLK INTL	VA	LPV200	0	100	0	100	0	100
PHF	NEWPORT NEWS/WILLIAMSBURG INTL	VA	LPV200	0	100	0	100	0	100
PSK	NEW RIVER VALLEY	VA	LPV200	0	100	0	100	0	100
PTB	DINWIDDIE COUNTY	VA	LPV	0	100	0	100	0	100
PVG	HAMPTON ROADS EXECUTIVE	VA	LPV200	0	100	0	100	0	100
RIC	RICHMOND INTL	VA	LPV200	0	100	0	100	0	100
RMN	STAFFORD RGNL	VA	LPV	0	100	0	100	0	100
ROA	ROANOKE-BLACKSBURG RGNL/WOODRU	VA	LPV	0	100	0	100	0	100
SFQ	SUFFOLK EXECUTIVE	VA	LPV	0	100	0	100	0	100
SHD	SHENANDOAH VALLEY RGNL	VA	LPV200	0	100	0	100	0	100
VJI	VIRGINIA HIGHLANDS	VA	LPV	0	100	0	100	0	100
W78	WILLIAM M TUCK	VA	LPV	0	100	0	100	0	100
W96	NEW KENT COUNTY	VA	LP	0	100	0	100	0	100
WAL	WALLOPS FLIGHT FACILITY	VA	LPV	0	100	0	100	0	100
XSA	TAPPAHANNOCK-ESSEX COUNTY	VA	LPV	0	100	0	100	0	100
BTV	BURLINGTON INTL	VT	LPV200	0	100	0	100	0	100
EFK	NORTHEAST KINGDOM INTL	VT	LP	0	100	0	100	0	100
FSO	FRANKLIN COUNTY STATE	VT	LPV	0	100	0	100	0	100
MPV	EDWARD F KNAPP STATE	VT	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
MVL	MORRISVILLE-STOWE STATE	VT	LPV	0	100	0	100	0	100
RUT	RUTLAND - SOUTHERN VERMONT RGN	VT	LPV	0	100	0	100	0	100
ALW	WALLA WALLA RGNL	WA	LPV200	0	100	0	100	0	100
AWO	ARLINGTON MUNICIPAL	WA	LPV200	0	100	0	100	0	100
BLI	BELLINGHAM INTL	WA	LPV200	0	100	0	100	0	100
BVS	SKAGIT RGNL	WA	LPV	0	100	0	100	0	100
CLM	WILLIAM R FAIRCHILD INTL	WA	LPV	0	100	0	100	0	100
CLS	CHEHALIS-CENTRALIA	WA	LPV	0	100	0	100	0	100
DEW	DEER PARK	WA	LPV	0	100	0	100	0	100
EPH	EPHRATA MUNICIPAL	WA	LPV	0	100	0	100	0	100
FHR	FRIDAY HARBOR	WA	LPV	0	100	0	100	0	100
GEG	SPOKANE INTL	WA	LPV200	0	100	0	100	0	100
HQM	BOWERMAN	WA	LPV200	0	100	0	100	0	100
MWH	GRANT CO INTL	WA	LPV200	0	100	0	100	0	100
OLM	OLYMPIA RGNL	WA	LPV200	0	100	0	100	0	100
ORS	ORCAS ISLAND	WA	LP	0	100	0	100	0	100
PAE	SNOHOMISH COUNTY (PAINE FLD)	WA	LPV200	0	100	0	100	0	100
PLU	PIERCE COUNTY - THUN FIELD	WA	LPV	0	100	0	100	0	100
PSC	TRI-CITIES	WA	LPV200	0	100	0	100	0	100
PWT	BREMERTON NATIONAL	WA	LPV200	0	100	0	100	0	100
RLD	RICHLAND	WA	LPV	0	100	0	100	0	100
RNT	RENTON MUNICIPAL	WA	LPV	0	100	0	100	0	100
SEA	SEATTLE-TACOMA INTL	WA	LPV200	0	100	0	100	0	100
SFF	FELTS FIELD	WA	LPV	0	100	0	100	0	100
SHN	SANDERSON FIELD	WA	LPV	0	100	0	100	0	100
TDO	ED CARLSON MEMORIAL FIELD - SO	WA	LPV	0	100	0	100	0	100
TIW	TACOMA NARROWS	WA	LPV	0	100	0	100	0	100
YKM	YAKIMA AIR TERMINAL/MCALLISTER	WA	LPV200	0	100	0	100	0	100
3T3	BOYCEVILLE MUNICIPAL	WI	LPV	0	100	0	100	0	100
57C	EAST TROY MUNICIPAL	WI	LPV	0	100	0	100	0	100
61C	FORT ATKINSON MUNICIPAL	WI	LP	0	100	0	100	0	100
82C	MAUSTON-NEW LISBON UNION	WI	LP	0	100	0	100	0	100
8D1	NEW HOLSTEIN MUNICIPAL	WI	LPV	0	100	0	100	0	100
AHH	AMERY MUNICIPAL	WI	LP	0	100	0	100	0	100
AIG	LANGLADE COUNTY	WI	LPV	0	100	0	100	0	100
ARV	LAKELAND/NOBLE F LEE MEMORIAL	WI	LPV	0	100	0	100	0	100
ASX	JOHN F KENNEDY MEMORIAL	WI	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
ATW	APPLETON INTL	WI	LPV200	0	100	0	100	0	100
AUW	WAUSAU DOWNTOWN	WI	LPV200	0	100	0	100	0	100
BCK	BLACK RIVER FALLS AREA	WI	LPV	0	100	0	100	0	100
BUU	BURLINGTON MUNICIPAL	WI	LP	0	100	0	100	0	100
C29	MIDDLETON MUNICIPAL - MOREY FIELD	WI	LPV	0	100	0	100	0	100
C35	REEDSBURG MUNICIPAL	WI	LP	0	100	0	100	0	100
C47	PORTAGE MUNICIPAL	WI	LP	0	100	0	100	0	100
CLI	CLINTONVILLE MUNICIPAL	WI	LPV	0	100	0	100	0	100
CMY	SPARTA/FORT MC COY	WI	LPV	0	100	0	100	0	100
CWA	CENTRAL WISCONSIN	WI	LPV200	0	100	0	100	0	100
DLL	BARABOO-WISCONSIN DELLS RGNL	WI	LPV	0	100	0	100	0	100
EAU	CHIPPEWA VALLEY RGNL	WI	LPV200	0	100	0	100	0	100
EGV	EAGLE RIVER UNION	WI	LPV	0	100	0	100	0	100
ENW	KENOSHA RGNL	WI	LPV200	0	100	0	100	0	100
ETB	WEST BEND MUNICIPAL	WI	LPV	0	100	0	100	0	100
EZS	SHAWANO MUNICIPAL	WI	LPV	0	100	0	100	0	100
FLD	FOND DU LAC COUNTY	WI	LPV	0	100	0	100	0	100
GRB	GREEN BAY-AUSTIN STRAUBEL INTL	WI	LPV200	0	100	0	100	0	100
GTG	GRANTSBURG MUNICIPAL	WI	LP	0	100	0	100	0	100
HXF	HARTFORD MUNICIPAL	WI	LPV	0	100	0	100	0	100
HYR	SAWYER COUNTY	WI	LPV	0	100	0	100	0	100
ISW	ALEXANDER FIELD SOUTH WOOD COU	WI	LPV	0	100	0	100	0	100
JVL	SOUTHERN WISCONSIN RGNL	WI	LPV200	0	100	0	100	0	100
LNR	TRI-COUNTY RGNL	WI	LPV	0	100	0	100	0	100
LSE	LA CROSSE RGNL	WI	LPV	0	100	0	100	0	100
LUM	MENOMONIE MUNICIPAL-SCORE FIELD	WI	LPV	0	100	0	100	0	100
MDZ	TAYLOR COUNTY	WI	LPV	0	100	0	100	0	100
MFI	MARSHFIELD MUNICIPAL	WI	LPV	0	100	0	100	0	100
MKE	GENERAL MITCHELL INTL	WI	LPV200	0	100	0	100	0	100
MRJ	IOWA COUNTY	WI	LPV200	0	100	0	100	0	100
MSN	DANE COUNTY RGNL-TRUAX FIELD	WI	LPV200	0	100	0	100	0	100
MTW	MANITOWOC COUNTY	WI	LPV200	0	100	0	100	0	100
MWC	LAWRENCE J TIMMERMAN	WI	LPV	0	100	0	100	0	100
OCQ	OCONTO-J DOUGLAS BAKE MUNICIPAL	WI	LP	0	100	0	100	0	100
OEO	L O SIMENSTAD MUNICIPAL	WI	LPV200	0	100	0	100	0	100
OSH	WITTMAN RGNL	WI	LPV200	0	100	0	100	0	100
OVS	BOSCOBEL	WI	LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
PBH	PRICE COUNTY	WI	LPV	0	100	0	100	0	100
PCZ	WAUPACA MUNICIPAL	WI	LPV	0	100	0	100	0	100
PVB	PLATTEVILLE MUNICIPAL	WI	LPV	0	100	0	100	0	100
RAC	BATTEN INTL	WI	LPV	0	100	0	100	0	100
RCX	RUSK COUNTY	WI	LPV	0	100	0	100	0	100
RHI	RHINELANDER-ONEIDA COUNTY	WI	LPV200	0	100	0	100	0	100
RNH	NEW RICHMOND RGNL	WI	LPV	0	100	0	100	0	100
RPD	RICE LAKE RGNL - CARL'S FIELD	WI	LPV200	0	100	0	100	0	100
RRL	MERRILL MUNICIPAL	WI	LPV	0	100	0	100	0	100
SBM	SHEBOYGAN COUNTY MEMORIAL	WI	LPV200	0	100	0	100	0	100
STE	STEVENS POINT MUNICIPAL	WI	LPV	0	100	0	100	0	100
SUE	DOOR COUNTY CHERRYLAND	WI	LPV	0	100	0	100	0	100
SUW	RICHARD I BONG	WI	LP	0	100	0	100	0	100
TKV	TOMAHAWK RGNL	WI	LP	0	100	0	100	0	100
UBE	CUMBERLAND MUNICIPAL	WI	LPV	0	100	0	100	0	100
UES	WAUKESHA COUNTY	WI	LPV200	0	100	0	100	0	100
UNU	DODGE COUNTY	WI	LPV	0	100	0	100	0	100
VIQ	NEILLSVILLE MUNICIPAL	WI	LPV	0	100	0	100	0	100
Y50	WAUTOMA MUNICIPAL	WI	LP	0	100	0	100	0	100
Y55	CRANDON/STEVE CONWAY MUNICIPAL	WI	LPV	0	100	0	100	0	100
Y72	BLOYER FIELD	WI	LP	0	100	0	100	0	100
3I2	MASON COUNTY	WV	LPV	0	100	0	100	0	100
6L4	LOGAN COUNTY	WV	LPV	0	100	0	100	0	100
BKW	RALEIGH COUNTY MEMORIAL	WV	LPV200	0	100	0	100	0	100
BLF	MERCER COUNTY	WV	LPV	0	100	0	100	0	100
CKB	NORTH CENTRAL WEST VIRGINIA	WV	LPV200	0	100	0	100	0	100
CRW	YEAGER	WV	LPV200	0	100	0	100	0	100
HLG	WHEELING OHIO CO	WV	LPV200	0	100	0	100	0	100
HTS	TRI-STATE/MILTON J FERGUSON FI	WV	LPV200	0	100	0	100	0	100
I18	JACKSON COUNTY	WV	LPV200	0	100	0	100	0	100
LWB	GREENBRIER VALLEY	WV	LPV	0	100	0	100	0	100
MGW	MORGANTOWN MUNICIPAL-WALTER L BILL	WV	LPV200	0	100	0	100	0	100
MRB	EASTERN WV RGNL/SHEPHERD FLD	WV	LPV	0	100	0	100	0	100
PKB	MID-OHIO VALLEY RGNL	WV	LPV	0	100	0	100	0	100
USW	BOGGS FIELD	WV	LPV	0	100	0	100	0	100
W22	UPSHUR COUNTY RGNL	WV	LPV	0	100	0	100	0	100
W35	POTOMAC AIRPARK	WV	LP	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
W99	GRANT COUNTY	WV	LPV	0	100	0	100	0	100
BYG	JOHNSON COUNTY	WY	LPV	0	100	0	100	0	100
COD	YELLOWSTONE RGNL	WY	LPV	0	100	0	100	0	100
CPR	CASPER/NATRONA COUNTY INTL	WY	LPV	0	100	0	100	0	100
CYS	CHEYENNE RGNL/JERRY OLSON FIEL	WY	LPV200	0	100	0	100	0	100
DGW	CONVERSE COUNTY	WY	LPV200	0	100	0	100	0	100
DWX	DIXON	WY	LP	0	100	0	100	0	100
ECS	MONDELL FIELD	WY	LPV	0	100	0	100	0	100
EMM	KEMMERER MUNICIPAL	WY	LPV	0	100	0	100	0	100
EVW	EVANSTON-UINTA COUNTY BURNS FI	WY	LPV	0	100	0	100	0	100
FBR	FORT BRIDGER	WY	LP	0	100	0	100	0	100
GCC	GILLETTE-CAMPBELL COUNTY	WY	LPV	0	100	0	100	0	100
GEY	SOUTH BIG HORN COUNTY	WY	LPV	0	100	0	100	0	100
GUR	CAMP GUERNSEY	WY	LP	0	100	0	100	0	100
HSG	HOT SPRINGS COUNTY	WY	LPV	0	100	0	100	0	100
JAC	JACKSON HOLE	WY	LPV200	0	100	0	100	0	100
LAR	LARAMIE RGNL	WY	LPV	0	100	0	100	0	100
PNA	RALPH WENZ FIELD	WY	LPV	0	100	0	100	0	100
POY	POWELL MUNICIPAL	WY	LPV	0	100	0	100	0	100
RIW	RIVERTON RGNL	WY	LPV200	0	100	0	100	0	100
RKS	SOUTHWEST WYOMING RGNL	WY	LPV200	0	100	0	100	0	100
RWL	RAWLINS MUNICIPAL/HARVEY FIELD	WY	LPV	0	100	0	100	0	100
SAA	SHIVELY FIELD	WY	LPV	0	100	0	100	0	100
SHR	SHERIDAN COUNTY	WY	LPV	0	100	0	100	0	100
U68	NORTH BIG HORN COUNTY	WY	LPV	0	100	0	100	0	100
W43	HULETT MUNICIPAL	WY	LPV	0	100	0	100	0	100
WRL	WORLAND MUNICIPAL	WY	LPV	0	100	0	100	0	100
CAJ4	ANAHIM LAKE		LPV	0	100	0	100	0	100
CAL4	ALBIAN		LPV	0	100	0	100	0	100
CAU4	VANDERHOOF		LPV	0	100	0	100	0	100
CBN9	TSAY KEH		LP	0	100	0	100	0	100
CCN2	GRAND MANAN		LPV	0	100	0	100	0	100
CDJ4	CLEARWATER		LPV	0	100	0	100	0	100
CDK2	DIAVIK		LPV	0	100	0	100	1	99.990
CEB5	FAIRVIEW		LPV	0	100	0	100	0	100
CEC4	JASPER-HINTON		LP	0	100	0	100	0	100
CEL8	ELEONORE		LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CEQ3	CAMROSE		LPV	0	100	0	100	0	100
CET2	CONKLIN (LEISMER)		LPV	0	100	0	100	0	100
CEV3	VEGREVILLE		LPV	0	100	0	100	0	100
CEW3	ST. PAUL		LPV	0	100	0	100	0	100
CEZ3	COOKING LAKE		LPV	0	100	0	100	0	100
CFB6	JOSEPHBURG		LPV	0	100	0	100	0	100
CFM4	DONNELLY		LPV	0	100	0	100	0	100
CFX5	RENARD		LPV	0	100	0	100	0	100
CGK2	GAHCHO KUE		LPV	0	100	0	100	1	99.989
CJA3	MORDEN REGIONAL		LPV	0	100	0	100	1	99.997
CJC5	SHAUNAVON		LPV	0	100	0	100	0	100
CJE3	WEYBURN		LPV	0	100	0	100	1	99.995
CJH3	MAIDSTONE		LPV	0	100	0	100	0	100
CJP9	CHARLOT RIVER		LP	0	100	0	100	1	99.992
CJQ4	MAPLE CREEK		LPV	0	100	0	100	0	100
CJW7	CIGAR LAKE		LPV	0	100	0	100	0	100
CJY3	TISDALE		LPV	0	100	0	100	0	100
CJZ3	MELFORT (MILLER FIELD)		LPV	0	100	0	100	0	100
CKQ8	MCARTHUR RIVER		LPV	0	100	0	100	0	100
CKZ7	WINKLER		LPV	0	100	0	100	1	99.997
CMB2	MEADOWBANK		LPV	0	100	0	100	3	99.978
CNV8	EDENVALE		LPV	0	100	0	100	0	100
CNY3	COLLINGWOOD		LPV	0	100	0	100	0	100
CRL4	KIRBY LAKE		LP	0	100	0	100	0	100
CSC3	DRUMMONDVILLE		LPV	0	100	0	100	0	100
CSD4	MONT-LAURIER		LPV	0	100	0	100	0	100
CSE5	MONTMAGNY		LPV	0	100	0	100	0	100
CSH4	LEBEL-SUR-QUEVILLON		LPV	0	100	0	100	1	99.998
CSK6	SNAP LAKE		LPV	0	100	0	100	1	99.989
CSR3	VICTORIAVILLE		LPV	0	100	0	100	0	100
CTP9	DONALDSON		LPV	0	100	0	100	2	99.983
CTT5	LA ROMAINE		LPV	0	100	0	100	1	99.999
CTU2	FONTANGES		LPV	0	100	0	100	0	100
CVB2	VOISEY'S BAY		LPV	0	100	0	100	1	99.989
CYAC	CAT LAKE		LPV	0	100	0	100	1	99.997
CYAD	LA GRANDE-3		LPV	0	100	0	100	0	100
CYAH	LA GRANDE-4		LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CYAS	KANGIRSUK		LPV	0	100	0	100	1	99.980
CYBE	URANIUM CITY		LPV	0	100	0	100	1	99.992
CYBF	BONNYVILLE		LPV	0	100	0	100	0	100
CYBK	BAKER LAKE		LPV	0	100	0	100	3	99.979
CYBL	CAMPBELL RIVER		LPV	0	100	0	100	0	100
CYBR	BRANDON MUNICIPALCIPALITY		LPV	0	100	0	100	1	99.994
CYBU	NIPAWIN		LPV	0	100	0	100	0	100
CYBW	SPRINGBANK		LPV	0	100	0	100	0	100
CYBX	LOURDES-DE-BLANC-SABLON		LPV	0	100	0	100	1	99.991
CYCD	NANAIMO		LPV	0	100	0	100	0	100
CYCH	MIRAMICHI		LPV	0	100	0	100	1	99.998
CYCK	CHATHAM-KENT		LPV	0	100	0	100	0	100
CYCL	CHARLO		LPV	0	100	0	100	0	100
CYCS	CHESTERFIELD INLET		LPV	0	100	0	100	3	99.978
CYCZ	FAIRMONT HOT SPRINGS		LPV	0	100	0	100	0	100
CYDF	DEER LAKE		LPV200	0	100	0	100	2	99.991
CYDQ	DAWSON CREEK		LPV	0	100	0	100	0	100
CYEE	HURONIA		LPV	0	100	0	100	0	100
CYEG	EDMONTON INTL		LPV200	0	100	0	100	0	100
CYEK	ARVIAT		LPV	0	100	0	100	2	99.983
CYEN	ESTEVAN REGIONAL		LPV	0	100	0	100	1	99.996
CYES	EDMUNDSTON		LPV	0	100	0	100	0	100
CYEV	INUVIK (MIKE ZUBKO)		LPV	0	100	0	100	1	99.981
CYEY	MAGNY		LPV	0	100	0	100	1	99.999
CYFA	FORT ALBANY		LPV	0	100	0	100	1	99.994
CYFB	IQALUIT		LPV	13	99.845	14	99.840	35	99.576
CYFC	FREDERICTON INTL		LPV	0	100	0	100	0	100
CYFI	FIREBAG		LPV	0	100	0	100	0	100
CYFO	FLIN FLON		LPV	0	100	0	100	1	99.995
CYFS	FORT SIMPSON		LPV	0	100	0	100	1	99.988
CYGH	FORT GOOD HOPE		LPV	0	100	0	100	1	99.990
CYGK	KINGSTON		LPV	0	100	0	100	0	100
CYGL	LA GRANDE RIVIERE		LPV	0	100	0	100	0	100
CYGR	ILES-DE-LA-MADELEINE		LPV	0	100	0	100	1	99.996
CYGV	HAVRE ST-PIERRE		LPV	0	100	0	100	1	99.999
CYGW	KUUJJUARAPIK		LPV	0	100	0	100	1	99.999
CYGX	GILLAM		LPV	0	100	0	100	1	99.992

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CYHA	QUAQTAQ		LPV	0	100	0	100	2	99.977
CYHD	DRYDEN REGIONAL		LPV	0	100	0	100	1	99.997
CYHH	NEMISCAU		LPV	0	100	0	100	1	99.998
CYHM	HAMILTON		LPV	0	100	0	100	0	100
CYHR	CHEVERY		LPV	0	100	0	100	1	99.998
CYHU	ST-HUBERT		LPV	0	100	0	100	0	100
CYHZ	STANFIELD INTL		LPV200	0	100	0	100	0	100
CYIF	ST-AUGUSTIN		LPV	0	100	0	100	1	99.999
CYIK	IVUJIVIK		LPV	2	99.991	2	99.991	4	99.970
CYIV	ISLAND LAKE		LPV	0	100	0	100	1	99.990
CYJT	STEPHENVILLE		LPV	0	100	0	100	2	99.978
CYKA	KAMLOOPS		LPV	0	100	0	100	0	100
CYKC	COLLINS BAY		LPV	0	100	0	100	1	99.999
CYKF	WATERLOO		LPV200	0	100	0	100	0	100
CYKG	KANGIQSUJUAQ (WAKEHAM BAY)		LPV	0	100	0	100	2	99.975
CYKJ	KEY LAKE		LPV	0	100	0	100	0	100
CYKM	KINCARDINE		LPV	0	100	0	100	0	100
CYKO	AKULIVIK		LPV	0	100	0	100	1	99.984
CYKQ	WASKAGANISH		LPV	0	100	0	100	1	99.997
CYLB	LAC LA BICHE		LPV	0	100	0	100	0	100
CYLL	LLOYDMINSTER		LPV	0	100	0	100	0	100
CYLS	LAKE SIMCOE		LPV	0	100	0	100	0	100
CYLU	KANGIQSUALUJJUAQ (GEORGES RIVER)		LPV	0	100	0	100	1	99.984
CYLW	KELOWNA		LPV	0	100	0	100	0	100
CYMJ	AIR VICE MARSHAL C.M. MCEWEN		LP	0	100	0	100	1	99.997
CYMM	FORT MCMURRAY		LPV	0	100	0	100	0	100
CYMT	CHAPAIS		LPV	0	100	0	100	1	99.999
CYMU	UMIUJAQ		LPV	0	100	0	100	1	99.994
CYMX	MONTREAL INTL (MIRABEL)		LPV200	0	100	0	100	0	100
CYNC	WEMINDJI		LPV	0	100	0	100	0	100
CYND	GATINEAU		LPV	0	100	0	100	0	100
CYNL	POINTS NORTH LANDING		LPV	0	100	0	100	0	100
CYNR	HORIZON		LPV	0	100	0	100	0	100
CYOA	EKATI		LPV	0	100	0	100	1	99.990
CYOC	OLD CROW		LPV	0	100	0	100	1	99.977
CYOD	GROUP CAPTAIN R.W. MCNAIR		LP	0	100	0	100	0	100
CYOO	OSHAWA EXECUTIVE AIRPORT		LPV	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CYOP	RAINBOW LAKE		LPV	0	100	0	100	0	100
CYOS	BILLY BISHOP REGIONAL		LPV	0	100	0	100	0	100
CYOW	MACDONALD-CARTIER INTL		LPV200	0	100	0	100	0	100
CYPA	PRINCE ALBERT (GLASS FIELD)		LPV	0	100	0	100	0	100
CYPE	PEACE RIVER		LPV	0	100	0	100	0	100
CYPK	PITT MEADOWS		LPV	0	100	0	100	0	100
CYPL	PICKLE LAKE		LPV	0	100	0	100	1	99.995
CYPQ	PETERBOROUGH		LPV	0	100	0	100	0	100
CYPR	PRINCE RUPERT		LPV	0	100	0	100	0	100
CYPX	PUVIRNITUQ		LPV	0	100	0	100	1	99.986
CYPZ	BURNS LAKE		LP	0	100	0	100	0	100
CYQB	JEAN LESAGE INTL		LPV200	0	100	0	100	0	100
CYQD	THE PAS		LPV	0	100	0	100	1	99.995
CYQF	RED DEER REGIONAL		LPV	0	100	0	100	0	100
CYQH	WATSON LAKE		LPV	0	100	0	100	0	100
CYQI	YARMOUTH		LPV	0	100	0	100	0	100
CYQL	LETHBRIDGE		LPV200	0	100	0	100	0	100
CYQM	GREATER MONCTON ROMEO LEBLANC INTL		LPV	0	100	0	100	1	99.998
CYQR	REGINA INTL		LPV200	0	100	0	100	1	99.994
CYQS	ST. THOMAS MUNICIPALCIPALITY		LPV	0	100	0	100	0	100
CYQT	THUNDER BAY		LPV200	0	100	0	100	0	100
CYQU	GRANDE PRAIRIE		LPV	0	100	0	100	0	100
CYQW	NORTH BATTLEFORD		LPV	0	100	0	100	0	100
CYQX	GANDER INTL		LPV200	0	100	0	100	3	99.990
CYQY	J.A. DOUGLAS MCCURDY		LPV	0	100	0	100	1	99.999
CYQZ	QUESNEL		LPV	0	100	0	100	0	100
CYRB	RESOLUTE BAY		LPV	183	97.688	185	97.595	768	91.593
CYRI	RIVIERE-DU-LOUP		LPV	0	100	0	100	0	100
CYRJ	ROBERVAL		LPV	0	100	0	100	1	99.999
CYRL	RED LAKE		LPV	0	100	0	100	1	99.994
CYRQ	TROIS-RIVIERES		LPV200	0	100	0	100	0	100
CYRT	RANKIN INLET		LPV	0	100	0	100	3	99.979
CYSA	STRATFORD MUNICIPALCIPALITY		LPV	0	100	0	100	0	100
CYSB	SUDBURY		LPV	0	100	0	100	0	100
CYSC	SHERBROOKE		LPV	0	100	0	100	0	100
CYSG	ST-GEORGES		LPV	0	100	0	100	0	100
CYSJ	SAINT JOHN		LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CYSK	SANIKILUAQ		LPV	0	100	0	100	1	99.997
CYSM	FORT SMITH		LPV	0	100	0	100	1	99.990
CYSN	NIAGARA DISTRICT		LPV	0	100	0	100	0	100
CYTF	ALMA		LPV	0	100	0	100	0	100
CYTH	THOMPSON		LPV200	0	100	0	100	1	99.988
CYTL	BIG TROUT LAKE		LPV	0	100	0	100	1	99.991
CYTQ	TASIUJAQ		LPV	0	100	0	100	1	99.992
CYTS	TIMMINS (VICTOR M. POWER)		LPV	0	100	0	100	0	100
CYTZ	BILLY BISHOP TORONTO CITY AIRPORT		LPV	0	100	0	100	0	100
CYUL	PIERRE-ELLIOTT-TRUDEAU INTL		LPV200	0	100	0	100	0	100
CYUY	ROUYN-NORANDA		LPV200	0	100	0	100	0	100
CYVB	BONAVENTURE		LPV	0	100	0	100	0	100
CYVO	VAL-DOR		LPV200	0	100	0	100	0	100
CYVQ	NORMAN WELLS		LPV	0	100	0	100	1	99.989
CYVR	VANCOUVER INTL		LPV200	0	100	0	100	0	100
CYVV	WIARTON		LPV	0	100	0	100	0	100
CYWG	JAMES ARMSTRONG RICHARDSON INTL		LPV200	0	100	0	100	1	99.996
CYWK	WABUSH		LPV	0	100	0	100	1	99.999
CYWL	WILLIAMS LAKE		LPV	0	100	0	100	0	100
CYWM	ATHABASCA		LPV	0	100	0	100	0	100
CYWP	WEBEQUIE		LPV	0	100	0	100	1	99.994
CYXE	JOHN G. DIEFENBAKER INTL		LPV200	0	100	0	100	0	100
CYXH	MEDICINE HAT		LPV	0	100	0	100	0	100
CYXJ	FORT ST. JOHN		LPV	0	100	0	100	0	100
CYXL	SIOUX LOOKOUT		LPV	0	100	0	100	1	99.997
CYXS	PRINCE GEORGE		LPV200	0	100	0	100	0	100
CYXT	TERRACE		LPV	0	100	0	100	0	100
CYXU	LONDON		LPV200	0	100	0	100	0	100
CYXX	ABBOTSFORD		LPV	0	100	0	100	0	100
CYXY	ERIK NIELSEN INTL		LPV200	0	100	0	100	0	100
CYYB	NORTH BAY		LPV200	0	100	0	100	0	100
CYYC	YYC CALGARY INTL		LPV200	0	100	0	100	0	100
CYYD	SMITHERS		LPV	0	100	0	100	0	100
CYYF	PENTICTON		LPV	0	100	0	100	0	100
CYYG	CHARLOTTETOWN		LPV	0	100	0	100	1	99.999
CYYH	TALOYOAK		LPV	13	99.946	13	99.946	25	99.724
CYYJ	VICTORIA INTL		LPV200	0	100	0	100	0	100

Airport	Airport Name	State/ Province	Service	LP Outages	LP Avail (%)	LPV Outages	LPV Avail (%)	LPV200 Outages	LPV200 Avail (%)
CYYQ	CHURCHILL		LPV	0	100	0	100	1	99.987
CYYR	GOOSE BAY		LP	0	100	0	100	1	99.995
CYYT	ST. JOHN'S INTL		LPV	0	100	0	100	33	99.873
CYYW	ARMSTRONG		LPV	0	100	0	100	1	99.997
CYYY	MONT-JOLI		LPV	0	100	0	100	0	100
CYYZ	LESTER B. PEARSON INTL		LPV200	0	100	0	100	0	100
CYZD	DOWNSVIEW		LPV	0	100	0	100	0	100
CYZF	YELLOWKNIFE		LPV	0	100	0	100	1	99.986
CYZG	SALLUIT		LPV	2	99.995	2	99.995	4	99.975
CYZP	SANDSPIT		LPV	0	100	0	100	0	100
CYZR	SARNIA (CHRIS HADFIELD)		LPV	0	100	0	100	0	100
CYZT	PORT HARDY		LPV	0	100	0	100	0	100
CYZU	WHITECOURT		LPV	0	100	0	100	0	100
CYZV	SEPT-ILES		LPV200	0	100	0	100	1	99.991
CYZX	GREENWOOD		LP	0	100	0	100	0	100
CZBB	BOUNDARY BAY		LPV	0	100	0	100	0	100
CZBF	BATHURST		LPV	0	100	0	100	1	99.999
CZJG	JENPEG		LPV	0	100	0	100	1	99.987
CZPB	SACHIGO LAKE		LP	0	100	0	100	1	99.990
CZPC	PINCHER CREEK		LPV	0	100	0	100	0	100
CZVL	VILLENEUVE		LPV	0	100	0	100	0	100

Figure 8-1. WAAS LP Availability at Airports in the US and Canada with GPS RNAV IAPs

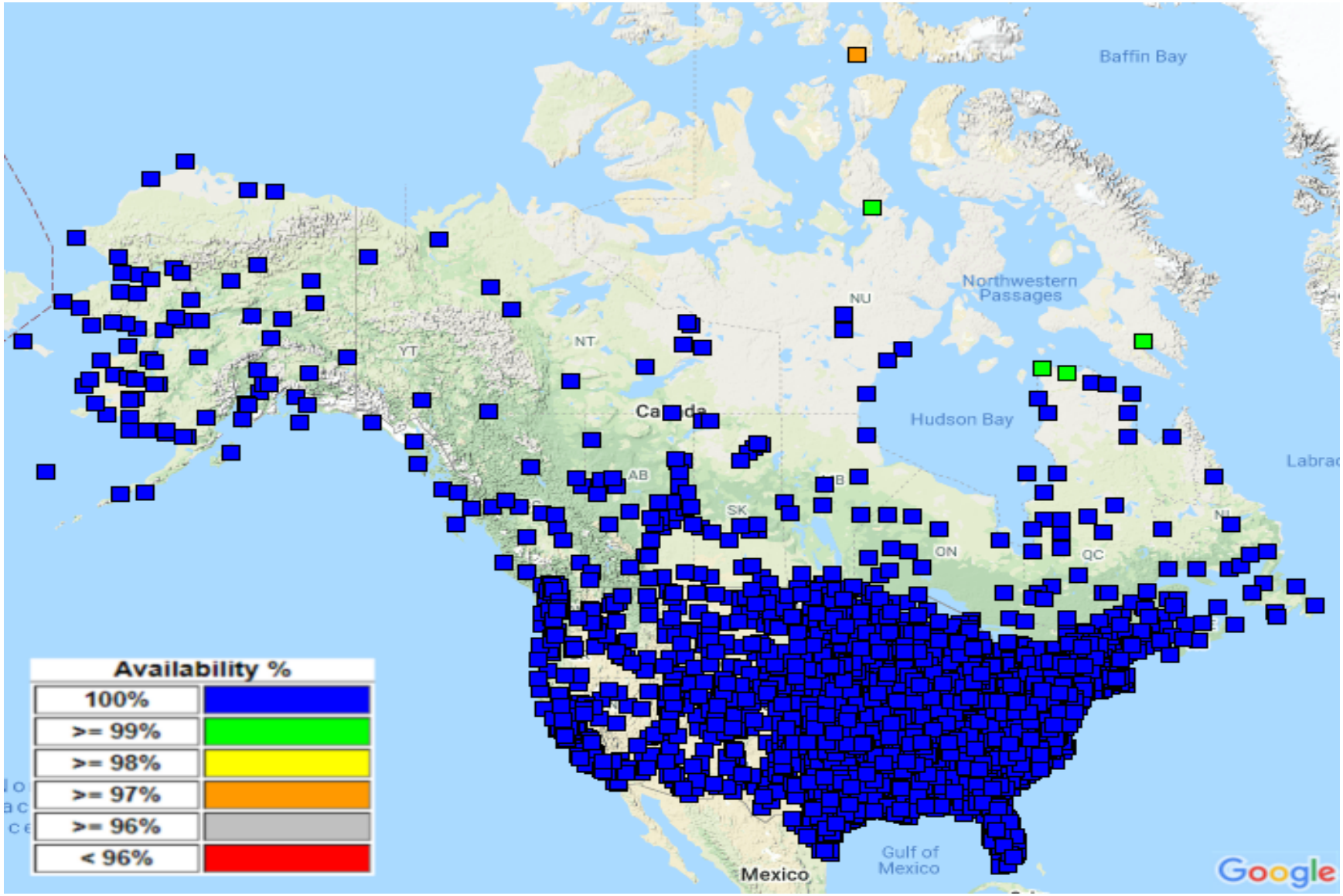


Figure 8-2. WAAS LP Outages at Airports in the US and Canada with GPS RNAV IAPs

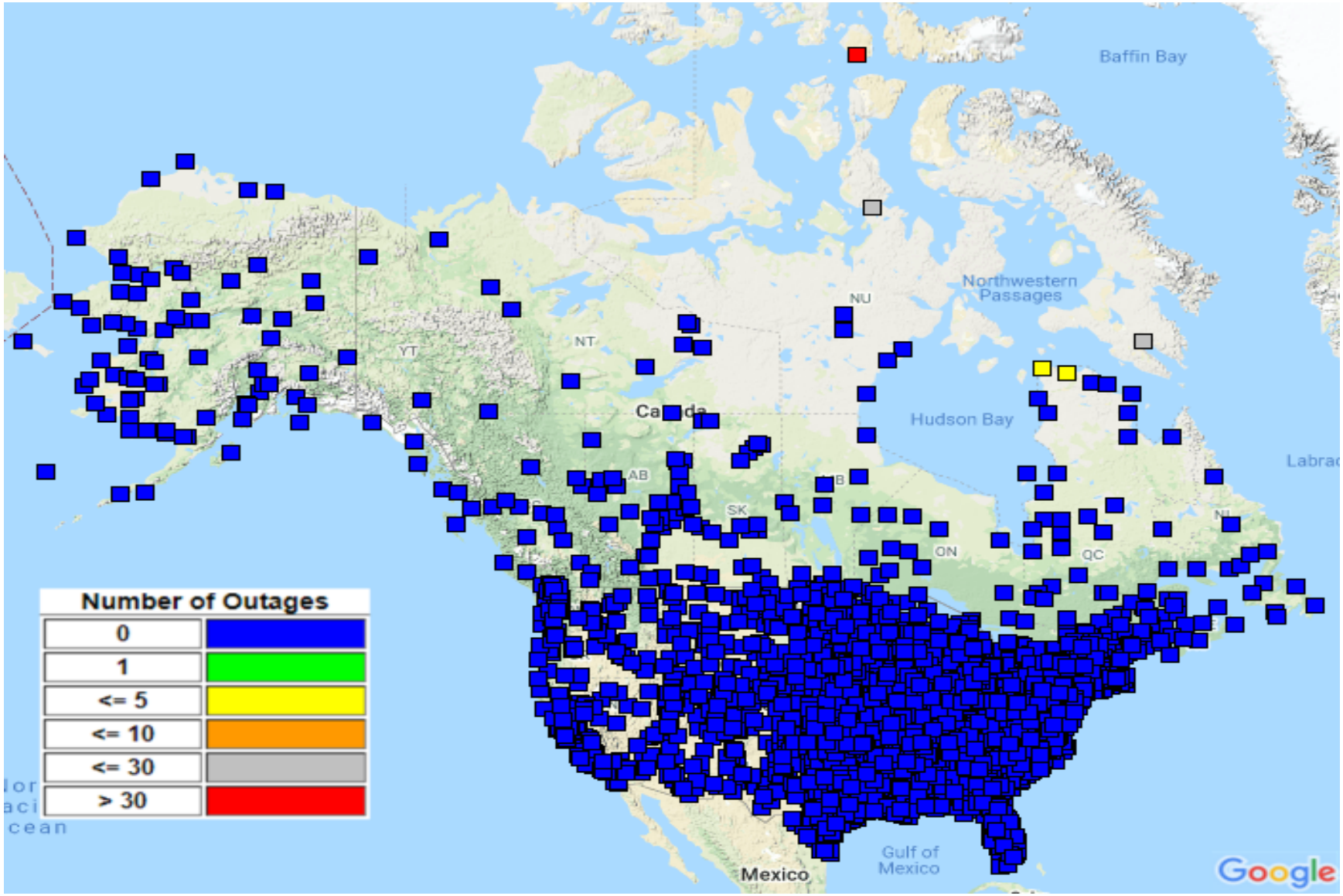


Figure 8-3. WAAS LPV Availability Airports in the US and Canada with GPS RNAV IAPs

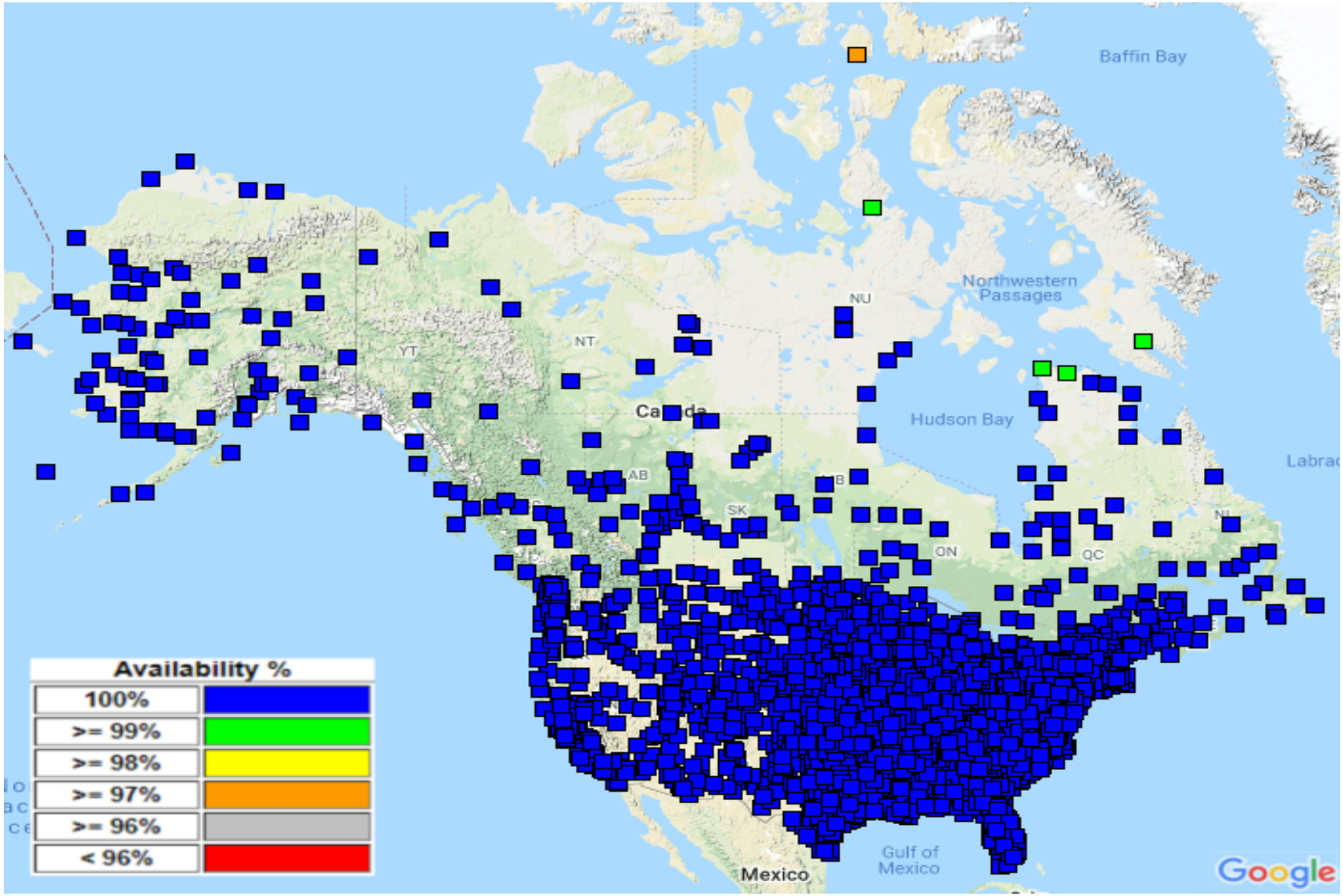


Figure 8-4. WAAS LPV Outages at Airports in the US and Canada with GPS RNAV IAPs

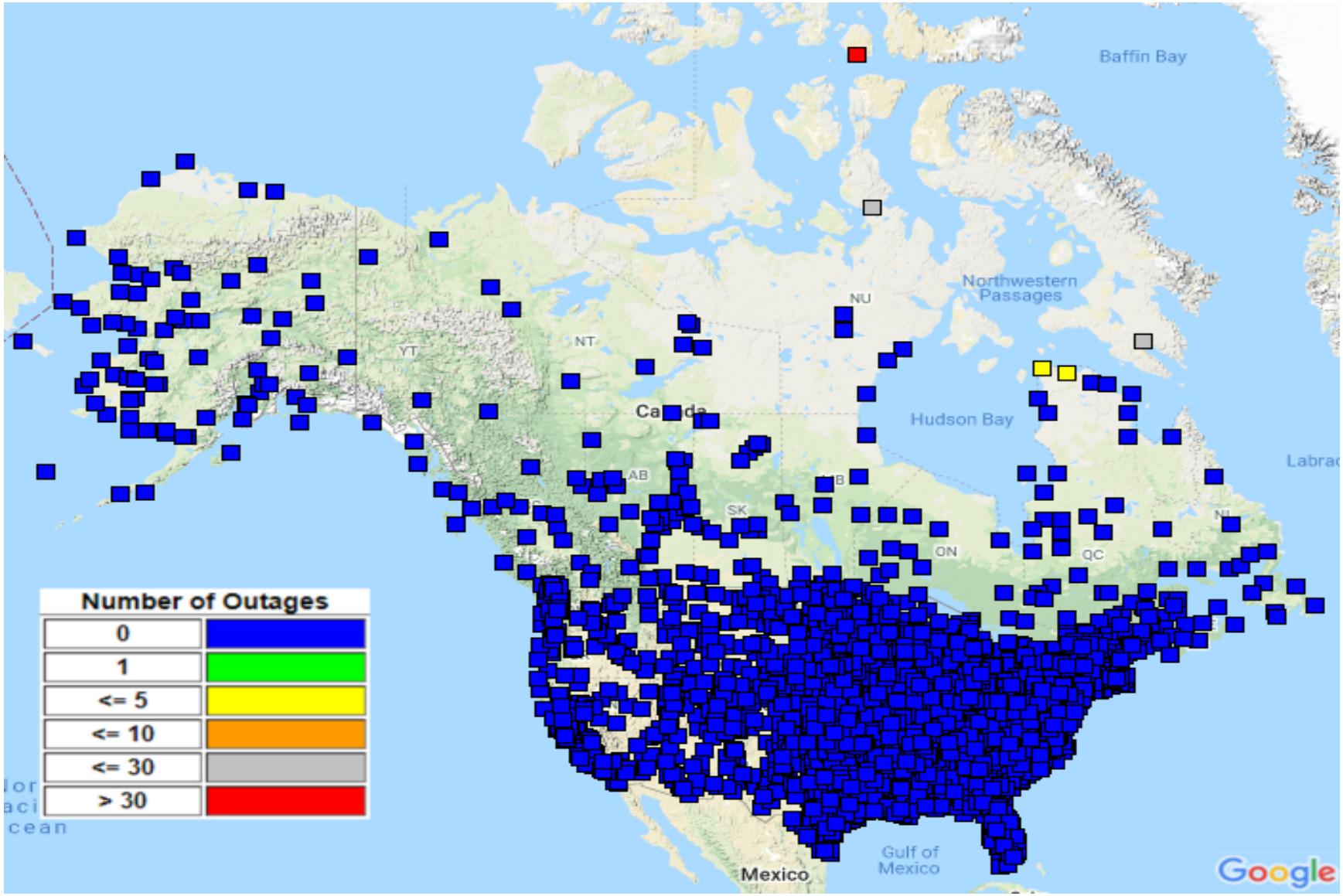


Figure 8-5. WAAS LPV200 Availability at Airports in the US and Canada with GPS RNAV IAPs

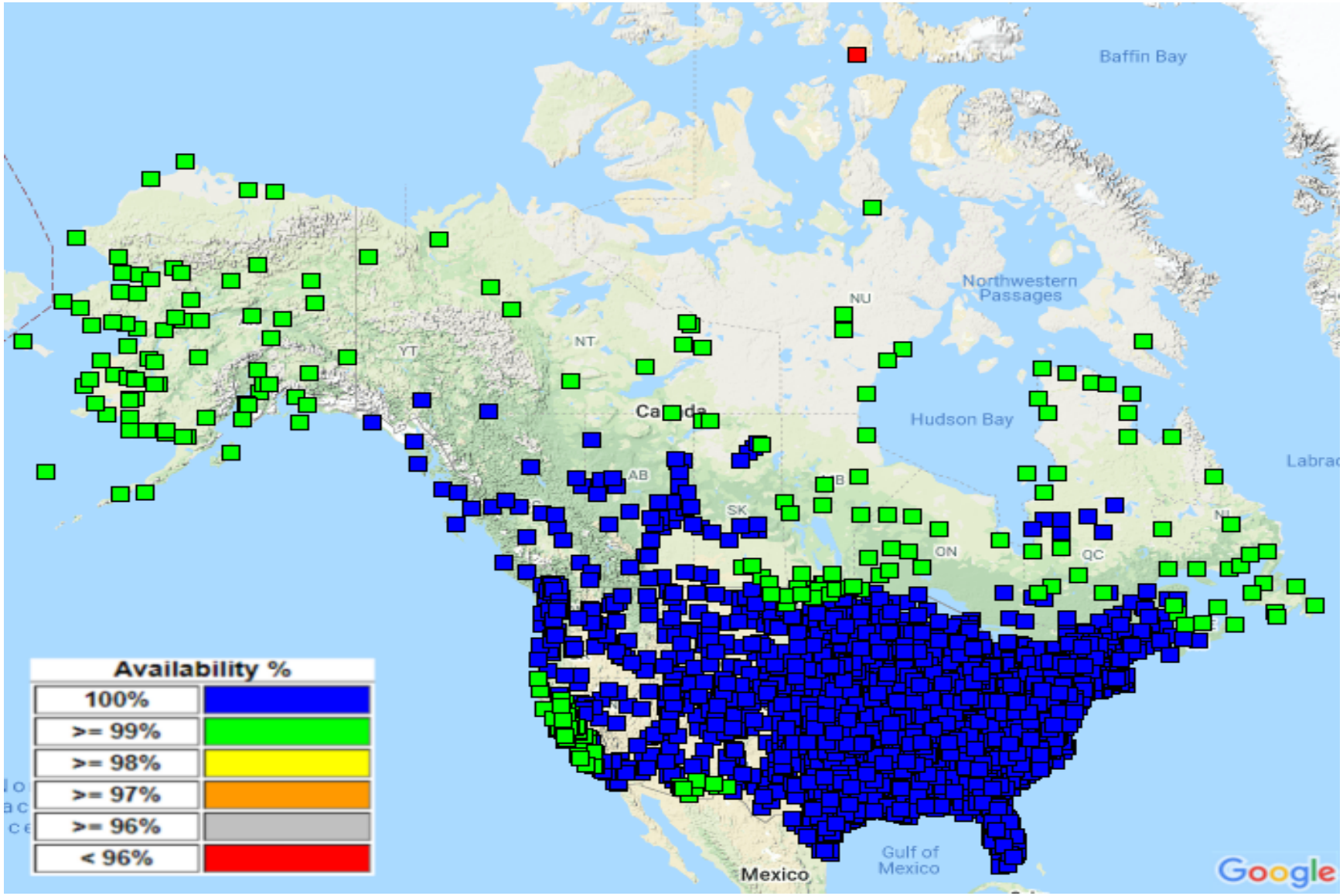
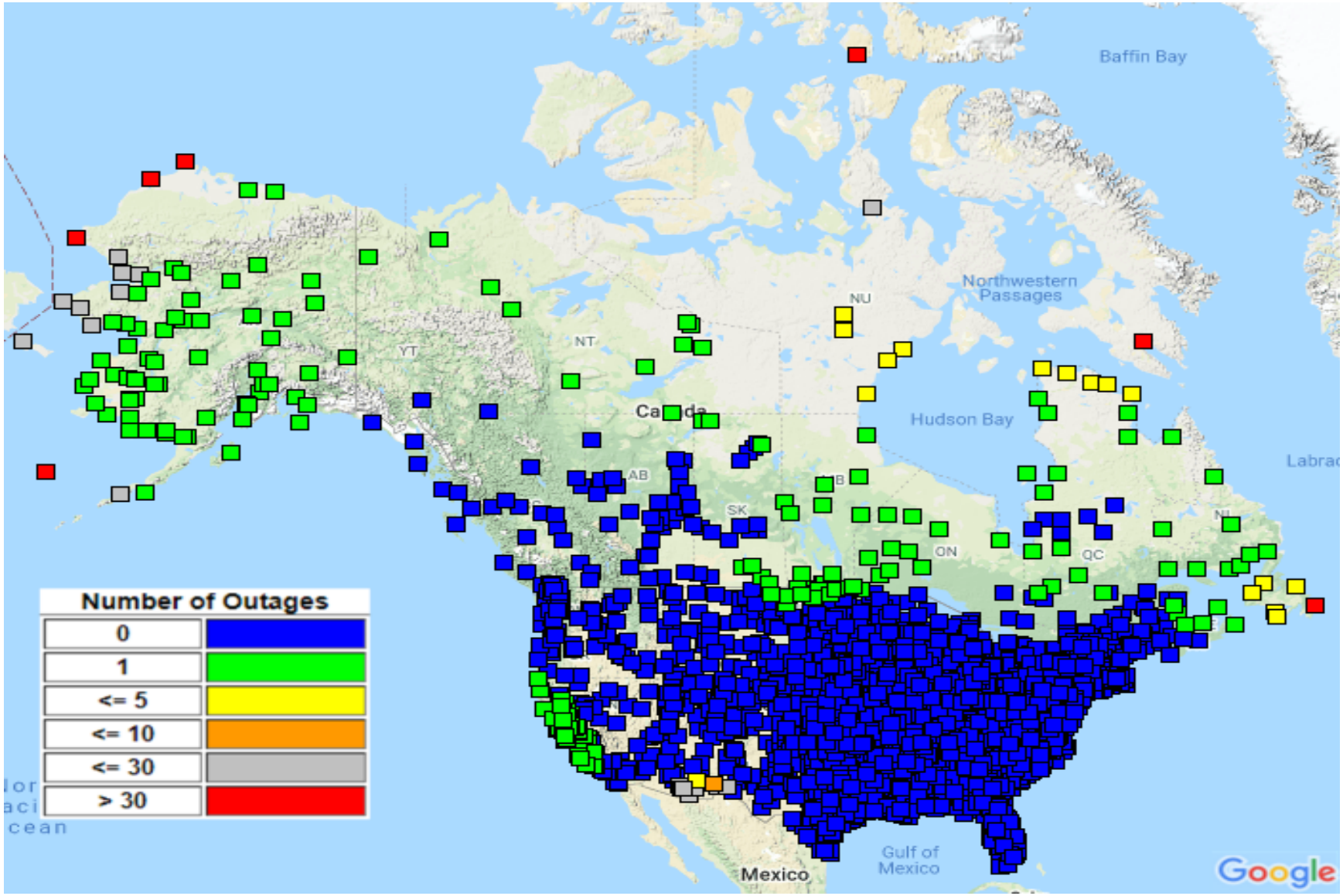


Figure 8-6. WAAS LPV200 Outages at Airports in the US and Canada with GPS RNAV IAPs



9.0 WAAS CNMP BOUNDING ANALYSIS

The purpose of the WAAS CNMP Bounding Analysis is to evaluate the performance of the CNMP algorithm and identify any undetected anomalous events to limit exposure to faulted receivers and persistent large multipath errors. The identification of undetected anomalous events ensures that the probability of more than one WAAS reference station (WRS)-producing persistent unbounded measurement errors is negligible. This offline analysis is critical to ensure that CNMP bounding is not invalidated by changes in WRE environmental conditions.

The operational CNMP functionality resides in the WAAS safety processor. The CNMP algorithm estimates, and corrects for, observed code noise and multipath and provides confidence estimates for residual error in multipath-corrected pseudorange measurements. These confidence terms provide a conservative Gaussian overbound of the true error distribution, which integrity monitors use in the weighting of the measurements.

The measurement data from the offline analysis is post-processed to estimate the carrier phase ambiguity of each entire arc of measurements for each satellite pass. The ambiguity estimate is used to level the carrier measurement, which is then used as a multipath-free truth estimate. The WAAS real-time CNMP smoothing algorithm is then applied to the original measurements, and the difference between the smoothed measurements and the multipath-free truth estimates is the observed residual error. To minimize the impacts of non-zero mean multipath biasing the truth estimates, only arcs with a continuous carrier phase greater than 7200 seconds are used for this analysis. The WAAS dual frequency cycle slip detector algorithm is used to detect any discontinuities in the carrier phase.

Statistics are calculated based on how well Gaussian distributions with 0.1 multiples of the CNMP standard deviation bound the observed residual error. Subsequently, these statistics are compared to a theoretical Gaussian distribution and an extensive set of plots are generated and manually reviewed. Figure 9-1 shows the analysis results for the previous 12 months for all three threads of WRE at each WAAS reference station. The color coding represents four levels of performance based on the magnitude and probability distribution of the residual error and the bounding performance of the CNMP algorithm.

Figure 9-1. CNMP Bounding Statistics

WAAS Site	WRE	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20
Albuquerque	A												
	B												
	C												
Anchorage	A												
	B												
	C												
Atlanta	A												
	B												
	C												
Barrow	A												
	B												
	C												
Bethel	A												
	B												
	C												
Billings	A												
	B												
	C												
Boston	A												
	B												
	C												
Chicago	A												
	B												
	C												
Cleveland	A												
	B												
	C												
Cold Bay	A												
	B												
	C												
Dallas	A												
	B												
	C												
Denver	A												
	B												
	C												
Fairbanks	A												
	B												
	C												
Gander	A												
	B												
	C												
Goose Bay	A												
	B												
	C												
Honolulu	A												
	B												
	C												
Houston	A												
	B												
	C												
Iqaluit	A												
	B												
	C												
Jacksonville	A												
	B												
	C												

WAAS Site	WRE	Oct 19	Nov 19	Dec 19	Jan 20	Feb 20	Mar 20	Apr 20	May 20	Jun 20	Jul 20	Aug 20	Sep 20
Juneau	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Kansas City	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Kotzebue	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Los Angeles	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Memphis	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Merida	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Mexico City	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Miami	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Minneapolis	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
New York	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Oakland	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Puerto Vallarta	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Salt Lake City	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
San Jose Del Cabo	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
San Juan	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Seattle	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Tapachula	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Washington, DC	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•
Winnipeg	A	•	•	•	•	•	•	•	•	•	•	•	•
	B	•	•	•	•	•	•	•	•	•	•	•	•
	C	•	•	•	•	•	•	•	•	•	•	•	•

• **Excellent** - 3.29σ bounded 100%
• **Good** - 4σ bounded 100%
• **Fair** - 4σ bounded 100% with one worst satellite excluded (Requires manual review if symptoms repeat from month to month)
• **Poor** - Requires manual review
- **N/A** - No data available

10.0 WRS ANTENNA SURVEY VALIDATION

Antenna L1 phase center position surveys were performed for all the WAAS Reference Station antennas using 24-hour sets on 10/03/2020. Each WAAS WRS has three independent threads of WRE: (1) Thread A is also referred to as Thread 1, (2) Thread B is also referred to as Thread 2, and (3) Thread C is referred to as Thread 3.

Duplicate surveys were performed using both the NGS OPUS and the CSRS PPP services. The International GPS Service (IGS) 08 reference frame is used for the OPUS solutions. A value of -0.4445 meters was used for the antenna reference point (ARP) to antenna phase center (APC) offset for the MicroPulse MPL-WAAS-2225W WAAS antennas in the processing of the data.

The OPUS-reported RMS quality metrics were 26cm or less. The CSRS surveys' RSSs of the reported ECEF sigmas were 6mm or less. The OPUS and CSRS surveys agreed to an average of 1.2cm with a standard deviation of 9.9 mm. The maximum of difference was 5.2 cm at Mexico City-C (MMX3).

The OPUS positions were compared to the positions in the currently fielded WAAS Release 53, which was fielded starting April 10, 2020. The OPUS surveys agree with the Release 53 to better or equal to 2.6 cm for most sites. The maximum difference was 12.8cm at Mexico City-C (MMX3). After Mexico City, the next maximum difference is Puerto Vallarta-A (MPR1). The antenna positions are interpolated forward in time.

Table 10-1 lists the WAAS antenna L1 phase center positions using the OPUS data.

Table 10-1. WAAS Antenna Positions (OPUS IGS08) as of 10/03/2020

WRE	X(m)	Y(m)	Z(m)	LATITUDE	LONGITUDE	H(m)
BET1	-2965385.193	-972576.634	5543892.812	60.787914	-161.8417256	52.178
BET2	-2965385.96	-972580.367	5543891.759	60.7878945	-161.8416648	52.182
BET3	-2965388.529	-972577.498	5543890.902	60.7878787	-161.8417296	52.189
BIL1	-1416445.986	-4223577.012	4550862.085	45.8037062	-108.5397243	1112.216
BIL2	-1416450.066	-4223574.864	4550862.811	45.8037156	-108.5397829	1112.221
BIL3	-1416441.684	-4223574.264	4550865.942	45.803756	-108.5396831	1112.211
BRW1	-1886759.078	-809058.7	6018494.408	71.2827634	-156.7899255	15.557
BRW2	-1886756.493	-809055.961	6018495.591	71.2827961	-156.7899673	15.569
BRW3	-1886755.402	-809059.736	6018495.413	71.2827915	-156.7898585	15.556
CDB1	-3484099.204	-1084748.798	5213678.53	55.1923725	-162.7064052	49.701
CDB2	-3484105.838	-1084741.602	5213675.58	55.1923265	-162.706544	49.673
CDB3	-3484112.123	-1084734.823	5213672.832	55.192283	-162.706675	49.692
FAI1	-2304741.975	-1448715.339	5748843.698	64.8096287	-147.8473416	150.02
FAI2	-2304741.513	-1448706.529	5748846.089	64.809679	-147.8474934	150.021
FAI3	-2304732.992	-1448707.465	5748849.243	64.8097456	-147.8473813	150.017
JNU1	-2354255.092	-2388549.701	5407043.154	58.3625734	-134.5857088	16.227
JNU2	-2354253.006	-2388565.813	5407036.992	58.3624679	-134.5854902	16.232
JNU3	-2354239.791	-2388568.667	5407041.447	58.3625443	-134.5852952	16.225
MMD1	35070.349	-5959686.652	2264365.762	20.9319093	-89.6628414	29.103
MMD2	35065.427	-5959687.031	2264364.983	20.9319016	-89.6628887	29.152
MMD3	35065.088	-5959685.236	2264369.633	20.9319466	-89.6628919	29.135
MMX1	-948700.798	-5943933.451	2109212.025	19.4316543	-99.0683901	2233.317
MMX2	-948696.365	-5943933.273	2109214.45	19.4316776	-99.0683486	2233.299
MMX3	-948705.228	-5943933.638	2109209.606	19.431631	-99.0684314	2233.345
MPR1	-1570142.267	-5759530.609	2238184.763	20.6790033	-105.2492036	10.996
MPR2	-1570139.438	-5759530.12	2238188.804	20.6790414	-105.2491786	11.286
MPR3	-1570143.548	-5759527.997	2238190.575	20.6790594	-105.249222	11.006
MSD1	-1979520.099	-5523222.84	2493106.964	23.1604486	-109.7176523	104.286
MSD2	-1979521.668	-5523225.177	2493100.559	23.1603857	-109.717659	104.276
MSD3	-1979526.11	-5523221.908	2493104.23	23.1604218	-109.7177106	104.269
MTP1	-254854.397	-6162909.136	1617805.084	14.7913662	-92.3679996	54.919
MTP2	-254850.78	-6162910.174	1617801.652	14.7913342	-92.3679656	54.901
MTP3	-254855.552	-6162910.279	1617800.124	14.7913201	-92.3680099	54.803
OTZ1	-2396056.174	-750356.199	5843502.422	66.8873305	-162.6113731	10.861
OTZ2	-2396053.0	-750354.37	5843503.946	66.8873654	-162.6113913	10.859
OTZ3	-2396052.981	-750358.311	5843503.453	66.8873541	-162.6113054	10.861
YFB1	1035381.303	-2634289.661	5696539.589	63.731491	-68.5431863	10.056

WRE	X(m)	Y(m)	Z(m)	LATITUDE	LONGITUDE	H(m)
YFB2	1035372.09	-2634296.079	5696538.217	63.7314646	-68.5434074	9.978
YFB3	1035366.014	-2634306.842	5696534.445	63.7313869	-68.5436016	10.045
YQX1	2430424.517	-3419640.42	4788223.91	48.9664908	-54.5976337	146.908
YQX2	2430432.463	-3419639.076	4788220.854	48.9664489	-54.5975346	146.905
YQX3	2430440.363	-3419637.713	4788217.848	48.9664077	-54.5974359	146.913
YWG1	-520164.529	-4083475.976	4855843.002	49.9005737	-97.2593997	222.107
YWG2	-520150.66	-4083468.912	4855850.398	49.9006768	-97.2592206	222.122
YWG3	-520152.531	-4083478.032	4855842.576	49.9005677	-97.2592304	222.118
YYR1	1885341.287	-3321428.39	5091171.731	53.3086478	-60.4194703	37.882
YYR2	1885344.252	-3321419.908	5091176.143	53.3087141	-60.4193688	37.887
YYR3	1885339.968	-3321413.093	5091182.148	53.3088043	-60.4193742	37.897
ZAB1	-1488636.949	-5003946.531	3654557.673	35.173575	-106.567351	1620.123
ZAB2	-1488631.612	-5003948.218	3654557.65	35.1735744	-106.5672895	1620.188
ZAB3	-1488632.393	-5003950.799	3654553.792	35.1735319	-106.5672897	1620.17
ZAN1	-2659536.769	-1549114.712	5567750.752	61.2292012	-149.780253	80.727
ZAN2	-2659548.524	-1549110.756	5567746.258	61.2291175	-149.7804268	80.718
ZAN3	-2659541.473	-1549106.631	5567750.733	61.2292011	-149.7804271	80.709
ZAU1	138703.998	-4761244.129	4227763.919	41.7826581	-88.3313381	195.868
ZAU2	138704.261	-4761248.75	4227758.76	41.7825957	-88.3313366	195.88
ZAU3	138710.965	-4761248.483	4227758.838	41.7825966	-88.3312559	195.879
ZBW1	1490299.1	-4448983.181	4306010.519	42.7357208	-71.4804273	39.109
ZBW2	1490304.215	-4448981.174	4306010.867	42.7357248	-71.4803603	39.141
ZBW3	1490305.924	-4448984.796	4306006.553	42.735672	-71.4803545	39.134
ZDC1	1069125.647	-4839598.988	4001126.52	39.1015961	-77.5427478	80.053
ZDC2	1069128.044	-4839603.618	4001120.316	39.1015241	-77.5427323	80.05
ZDC3	1069123.946	-4839602.706	4001122.513	39.1015496	-77.5427763	80.058
ZDV1	-1273628.72	-4711375.567	4094890.075	40.1873029	-105.1272256	1541.349
ZDV2	-1273623.017	-4711377.085	4094890.089	40.1873031	-105.1271564	1541.34
ZDV3	-1273625.031	-4711380.286	4094885.803	40.1872526	-105.1271694	1541.337
ZFW1	-659983.291	-5324060.774	3438276.453	32.8306495	-97.0664728	155.616
ZFW2	-659988.564	-5324063.32	3438271.455	32.8305962	-97.0665253	155.574
ZFW3	-659983.589	-5324063.856	3438271.662	32.8305981	-97.0664719	155.619
ZHN1	-5508637.202	-2234492.795	2303722.466	21.3129929	-157.9208325	24.676
ZHN2	-5508656.383	-2234483.109	2303687.209	21.3126498	-157.9209885	25.029
ZHN3	-5508647.779	-2234497.055	2303694.309	21.3127186	-157.9208328	25.065
ZHU1	-513864.551	-5506451.637	3166720.431	29.9618963	-95.3314272	10.776
ZHU2	-513867.198	-5506455.034	3166714.266	29.9618318	-95.3314512	10.84
ZHU3	-513873.477	-5506457.675	3166708.669	29.9617736	-95.3315134	10.829
ZJX1	772646.356	-5434462.192	3237231.755	30.6988598	-81.908186	2.134

WRE	X(m)	Y(m)	Z(m)	LATITUDE	LONGITUDE	H(m)
ZJX2	772649.684	-5434463.751	3237228.363	30.6988242	-81.9081539	2.133
ZJX3	772645.619	-5434466.177	3237225.252	30.6987917	-81.9081995	2.118
ZKC1	-415247.623	-4954556.376	3982161.096	38.8801593	-94.7908351	305.882
ZKC2	-415231.23	-4954557.699	3982161.153	38.88016	-94.7906455	305.878
ZKC3	-415237.35	-4954561.046	3982155.955	38.8801018	-94.7907126	305.61
ZLA1	-2474410.105	-4637294.516	3602183.577	34.6035188	-118.0838976	763.505
ZLA2	-2474404.817	-4637297.315	3602183.579	34.6035189	-118.0838324	763.49
ZLA3	-2474411.437	-4637297.004	3602179.602	34.6034749	-118.0838977	763.571
ZLC1	-1808273.343	-4486410.794	4145302.967	40.7860428	-111.9521791	1287.415
ZLC2	-1808274.731	-4486414.421	4145298.469	40.7859893	-111.9521783	1287.416
ZLC3	-1808270.527	-4486416.124	4145298.471	40.7859893	-111.9521246	1287.424
ZMA1	966042.219	-5662999.817	2761581.522	25.8246125	-80.3191906	-7.595
ZMA2	966029.245	-5662999.118	2761586.008	25.8246602	-80.319317	-8.225
ZMA3	966037.322	-5662997.957	2761586.362	25.8246622	-80.3192356	-7.878
ZME1	4070.789	-5226189.291	3644028.416	35.0673941	-89.9553711	68.594
ZME2	4070.819	-5226186.744	3644032.532	35.0674376	-89.9553708	68.874
ZME3	4064.625	-5226186.615	3644032.686	35.0674395	-89.9554387	68.853
ZMP1	-249978.499	-4539297.484	4458955.019	44.6374631	-93.152087	262.625
ZMP2	-249972.696	-4539297.827	4458955.024	44.637463	-93.1520137	262.645
ZMP3	-249973.793	-4539302.106	4458950.544	44.6374069	-93.1520245	262.58
ZNY1	1406144.521	-4627343.992	4144322.081	40.7843289	-73.097167	6.446
ZNY2	1406146.318	-4627347.022	4144317.3	40.7842762	-73.0971571	5.914
ZNY3	1406140.757	-4627348.68	4144317.338	40.7842766	-73.0972258	5.915
ZOA1	-2684437.041	-4293337.243	3865351.921	37.5430546	-122.0159504	-3.504
ZOA2	-2684434.031	-4293341.321	3865349.495	37.543027	-122.015897	-3.506
ZOA3	-2684438.406	-4293342.2	3865345.64	37.5429826	-122.0159338	-3.425
ZOB1	650770.068	-4754715.663	4187420.751	41.2971546	-82.2064461	223.663
ZOB2	650777.747	-4754714.835	4187422.767	41.2971669	-82.2063539	225.16
ZOB3	650776.076	-4754719.66	4187414.976	41.2970872	-82.2063815	223.439
ZSE1	-2308930.346	-3668169.666	4663526.426	47.2869927	-122.1883737	82.083
ZSE2	-2308934.74	-3668175.215	4663520.023	47.2869072	-122.1883838	82.152
ZSE3	-2308935.801	-3668179.489	4663516.078	47.2868555	-122.1883656	82.09
ZSU1	2462589.47	-5529372.065	2003724.564	18.4313366	-65.9934763	-28.106
ZSU2	2462587.542	-5529377.435	2003712.276	18.4312196	-65.9935136	-28.081
ZSU3	2462594.169	-5529375.175	2003710.197	18.4311999	-65.9934476	-28.139
ZTL1	529840.309	-5305248.808	3489342.85	33.3796886	-84.296727	261.125
ZTL2	529846.685	-5305247.966	3489343.134	33.3796918	-84.2966579	261.111
ZTL3	529847.37	-5305251.405	3489337.901	33.3796351	-84.2966543	261.146

Figure 10-1 through Figure 10-3 show the RSS of the ECEF differences between the OPUS survey antenna phase center locations and the locations in the Build WE7.164c software. Figure 10-4 through Figure 10-6 shows the OPUS surveys overall RMS quality indications.

Figure 10-1. Build WE7164c Antenna Positions Deltas OPUS Survey

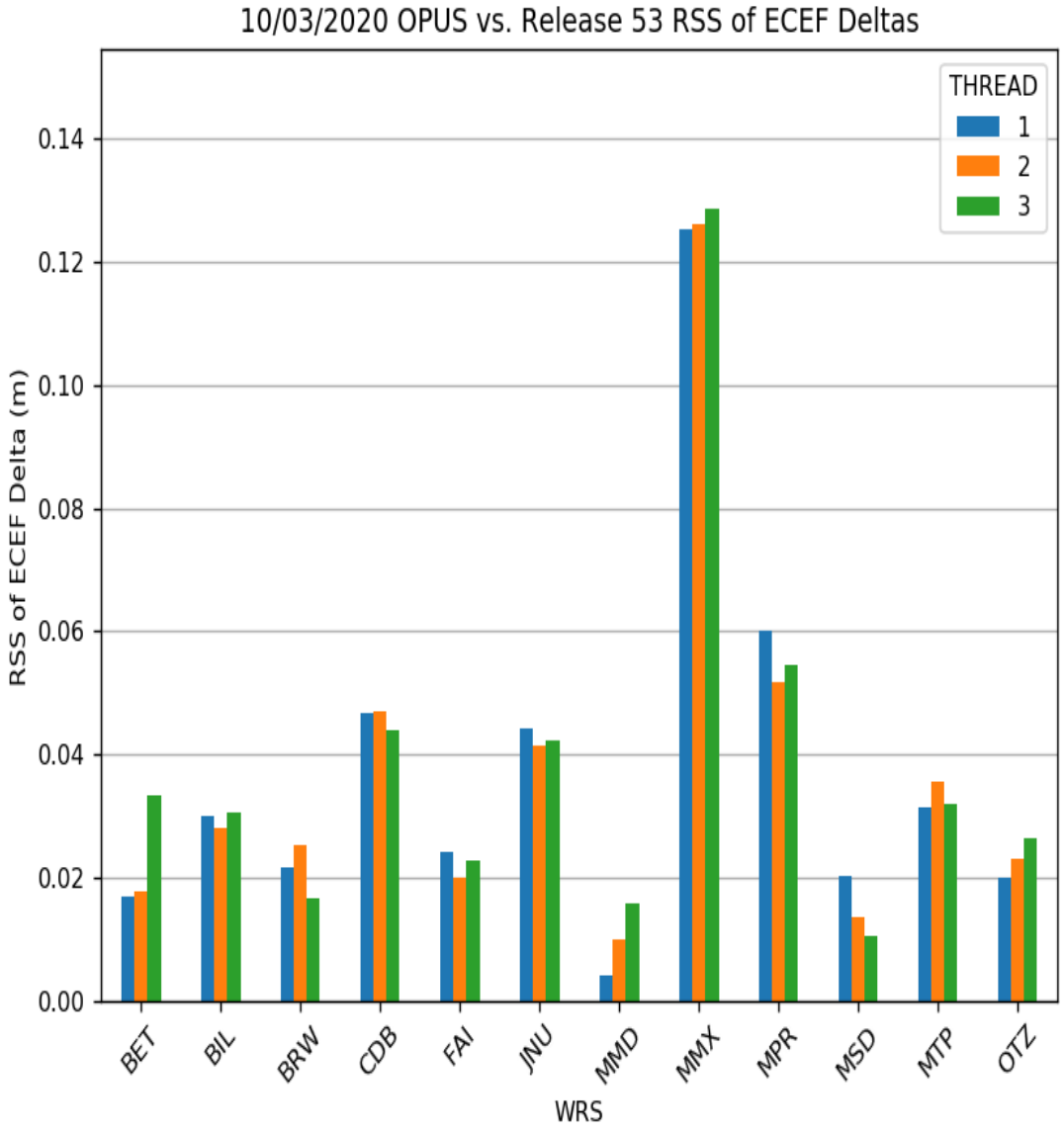


Figure 10-2. Build WE7.164c Antenna Positions Deltas OPUS Survey

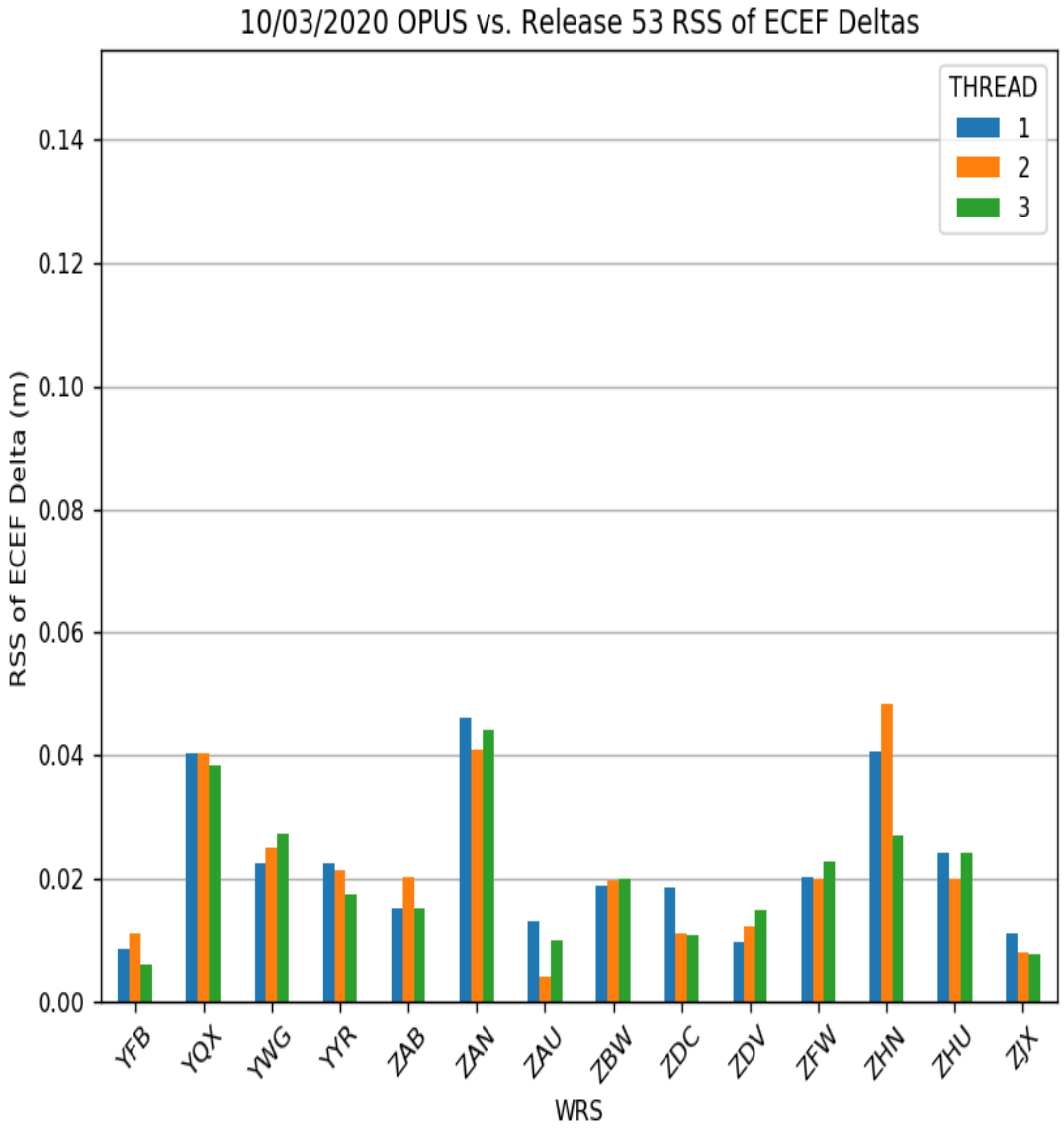


Figure 10-3. Build WE7.164c Antenna Positions Deltas OPUS Survey

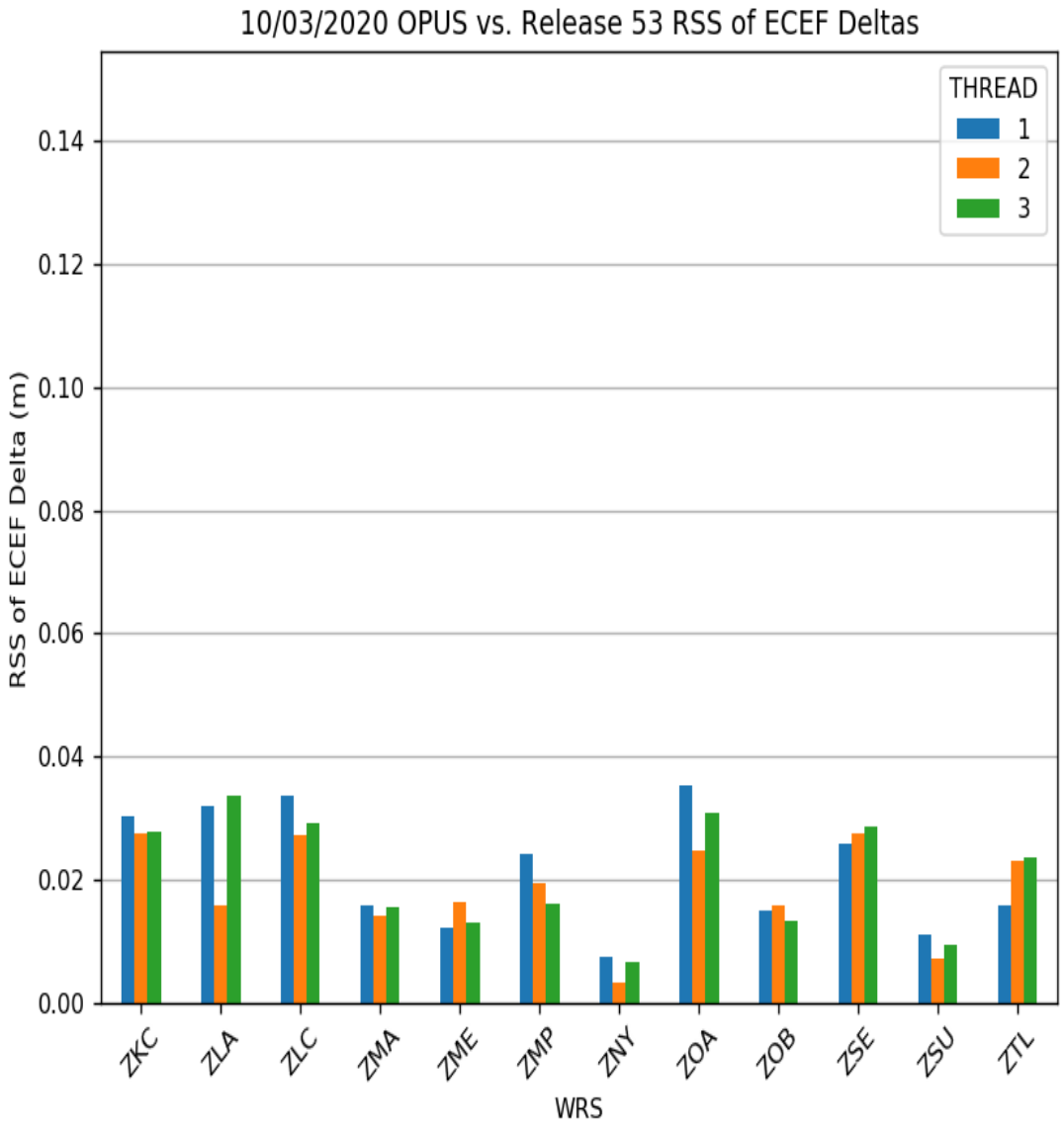


Figure 10-4. OPUS Survey Overall RMS Qualities

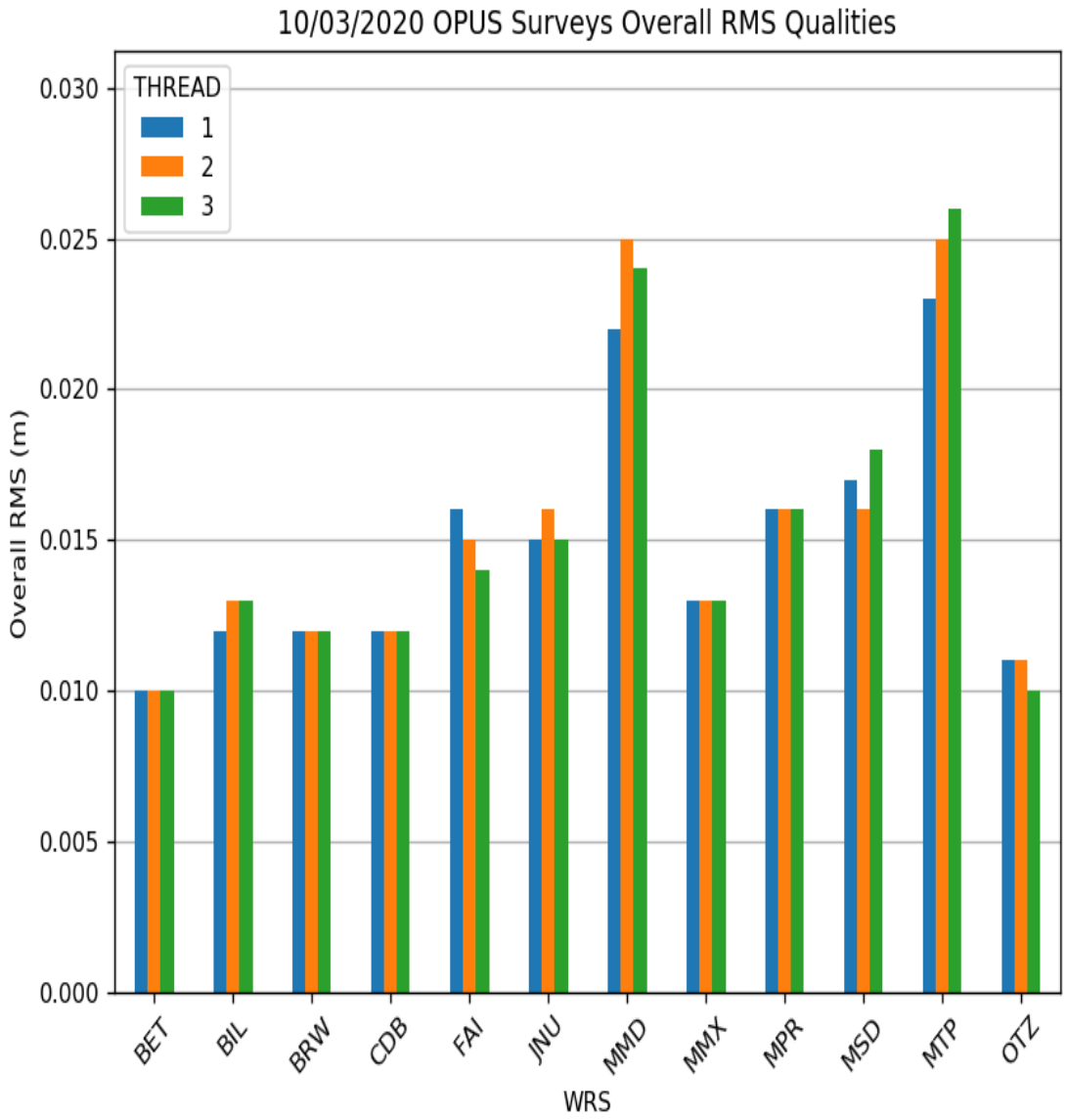


Figure 10-5. OPUS Survey Overall RMS Qualities

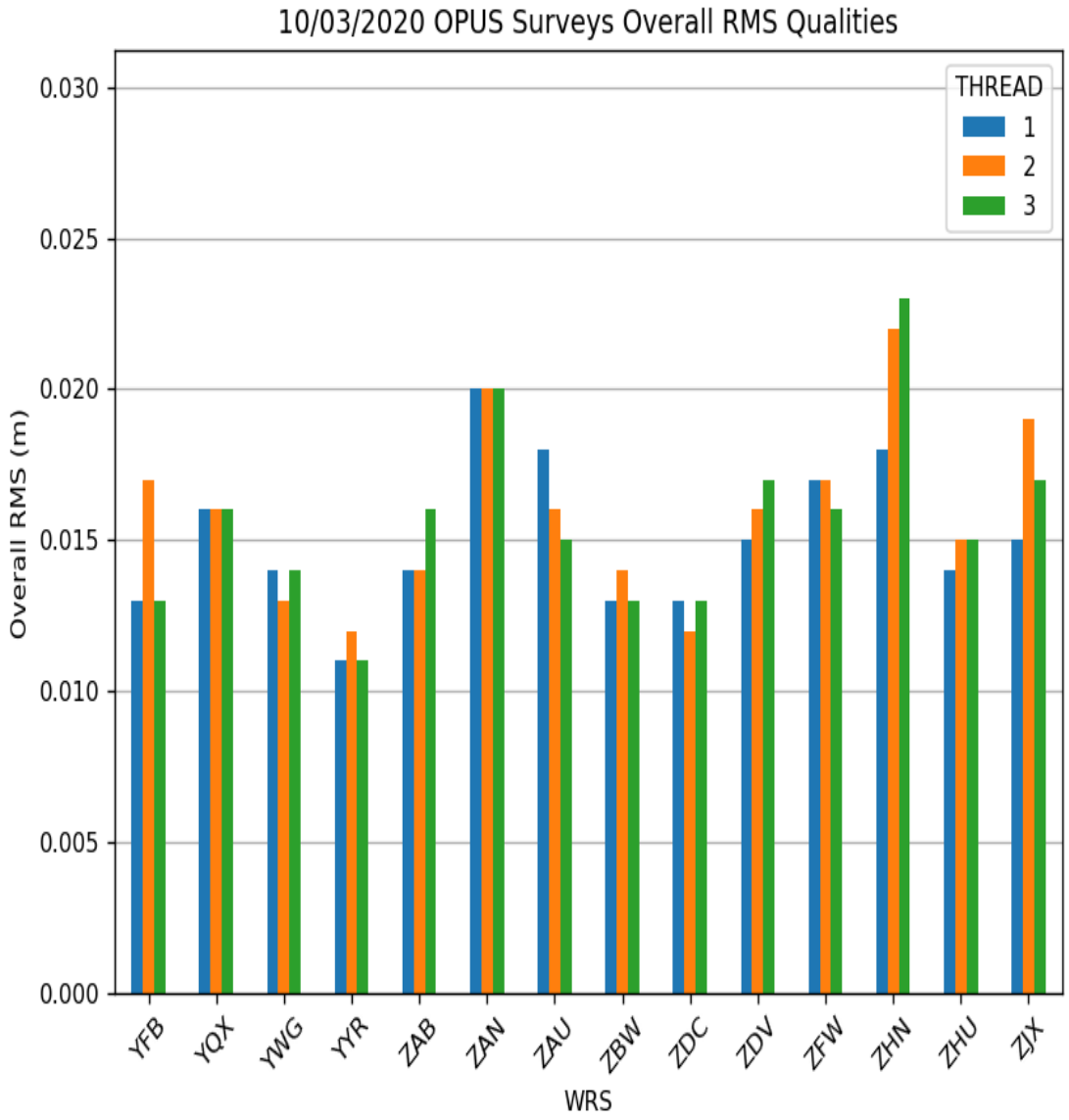
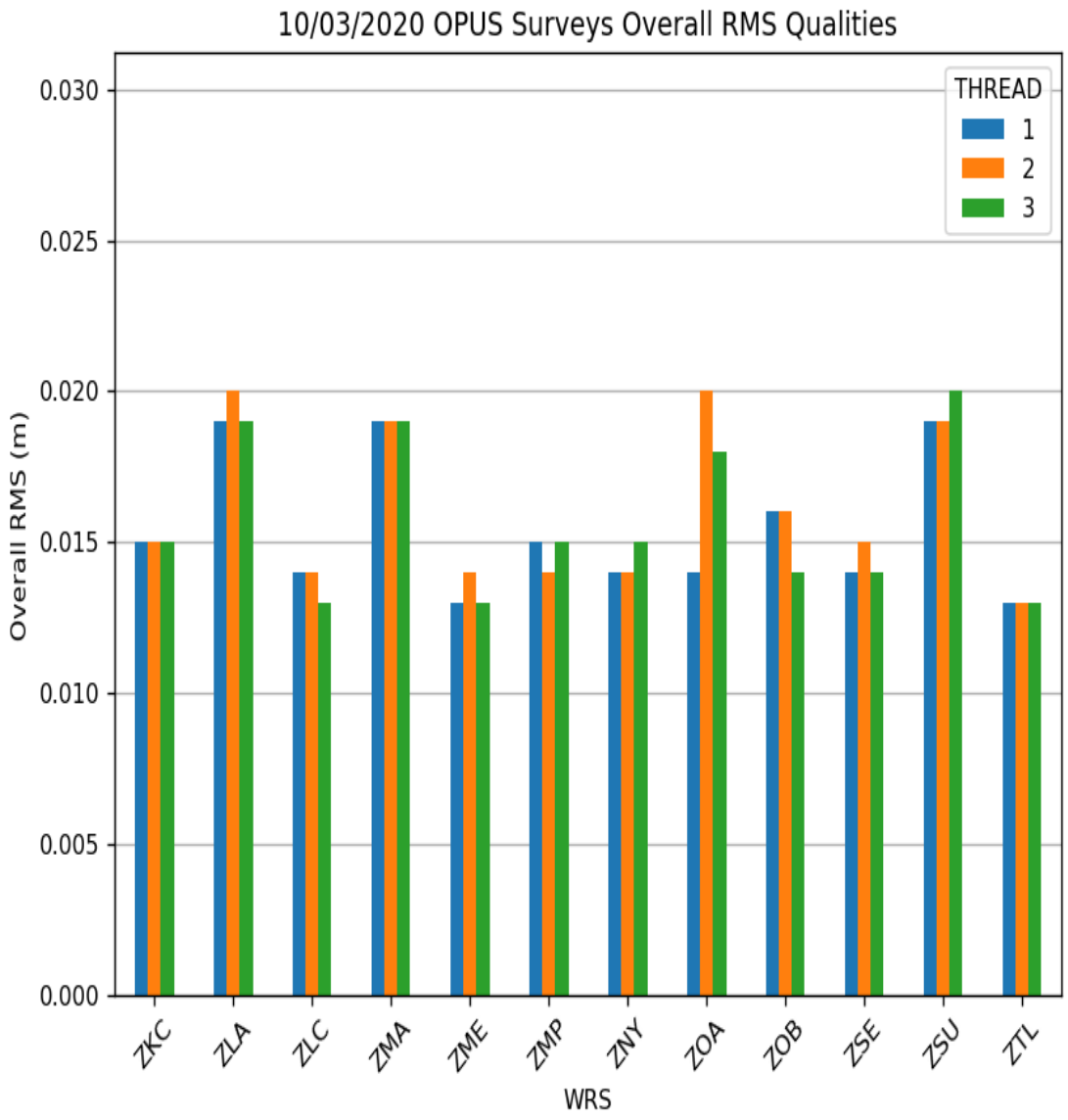


Figure 10-6. OPUS Survey Overall RMS Qualities



The “take action” threshold established by the WAAS Integrity Performance Panel (WIPP) is 25 cm for Mexico City and 10 cm for the remaining sites. The large MMX allowance is required because of the rapid subsidence in Mexico City (approximately 28 to 30 cm/year).

Figure 10-7 through Figure 10-9 show the RSS of the ECEF difference between the OPUS positions and the CSRS positions. Note that the OPUS positions are in IGS08 and the CSRS positions are in ITRF-2008. Figure 10-10 to Figure 10-12 show the RSS of the ECEF sigma's survey qualities reported by CSRS.

Figure 10-7. OPUS vs. CSRS RSS ECEF Deltas

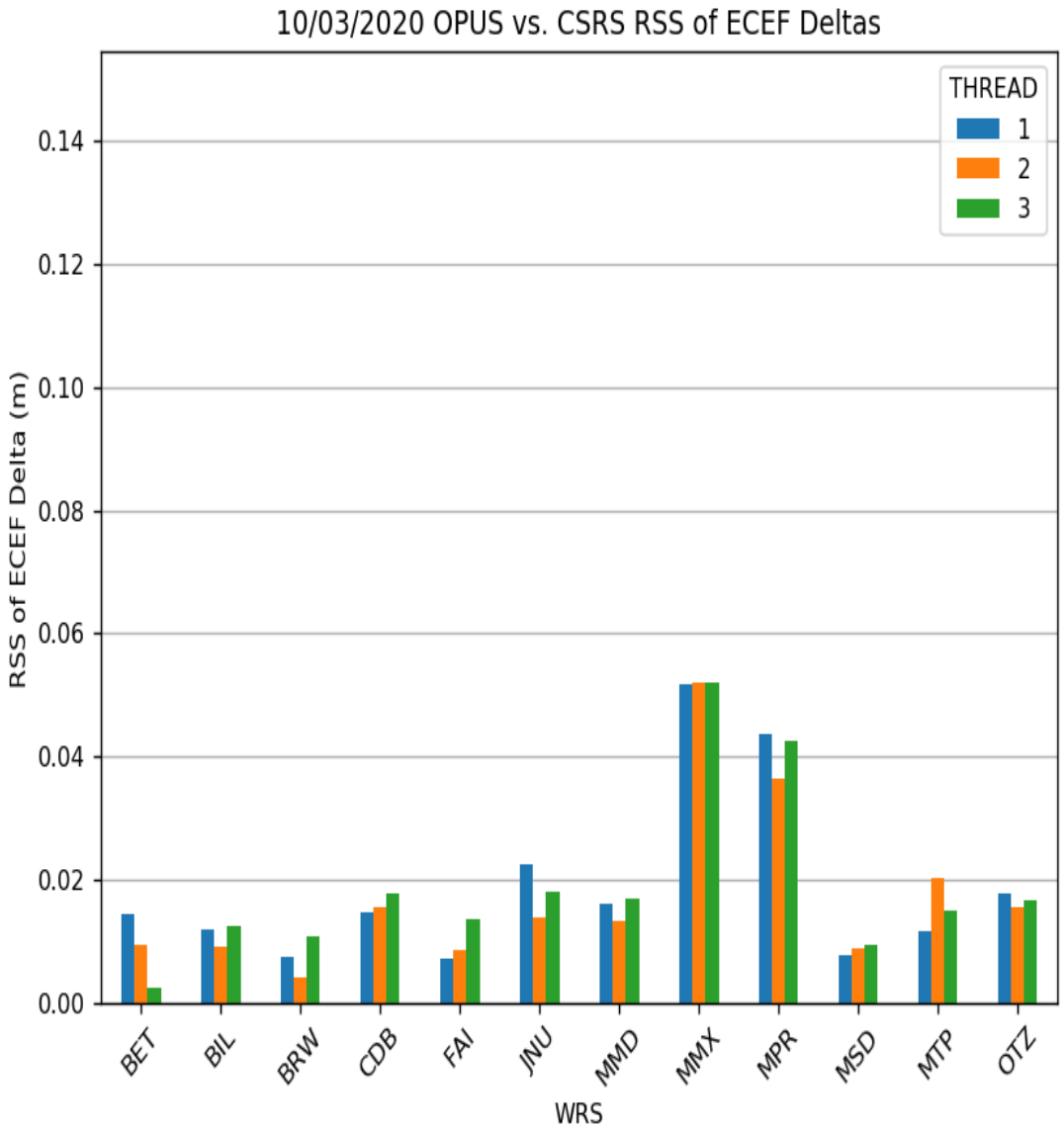


Figure 10-8. OPUS vs. CSRS RSS ECEF Deltas

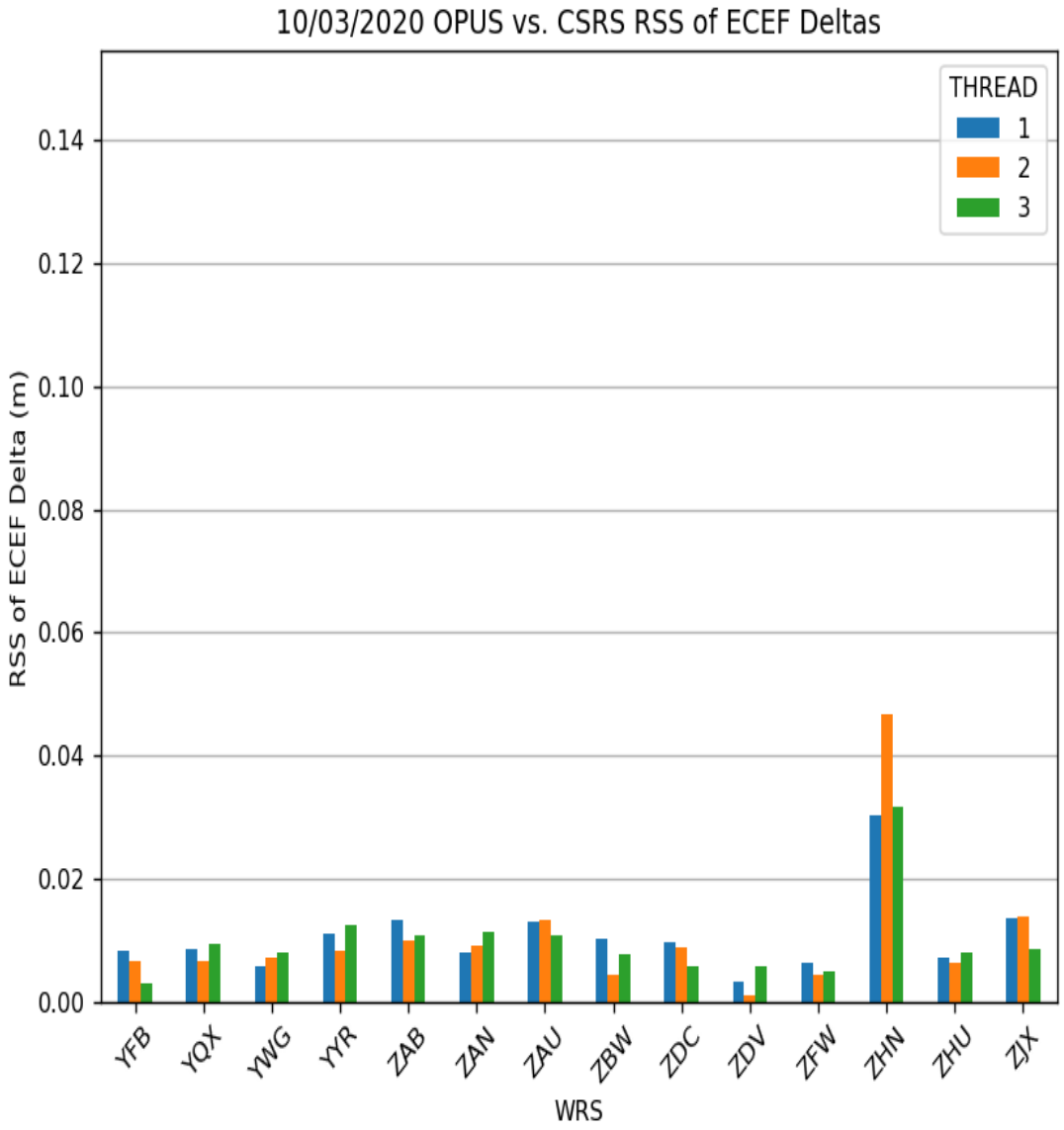


Figure 10-9. OPUS vs. CSRS RSS ECEF Deltas

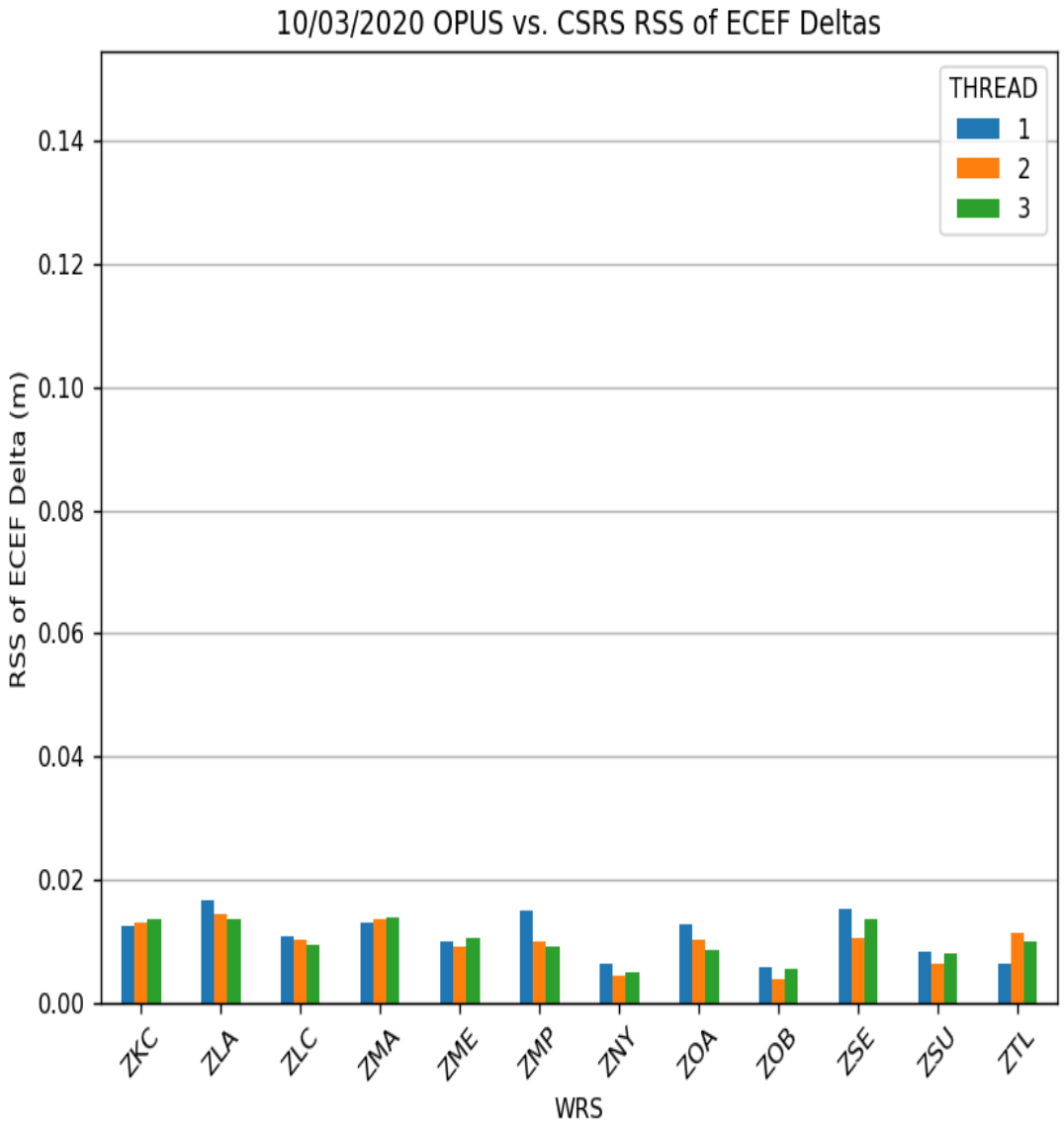


Figure 10-10. CSRS Survey Qualities

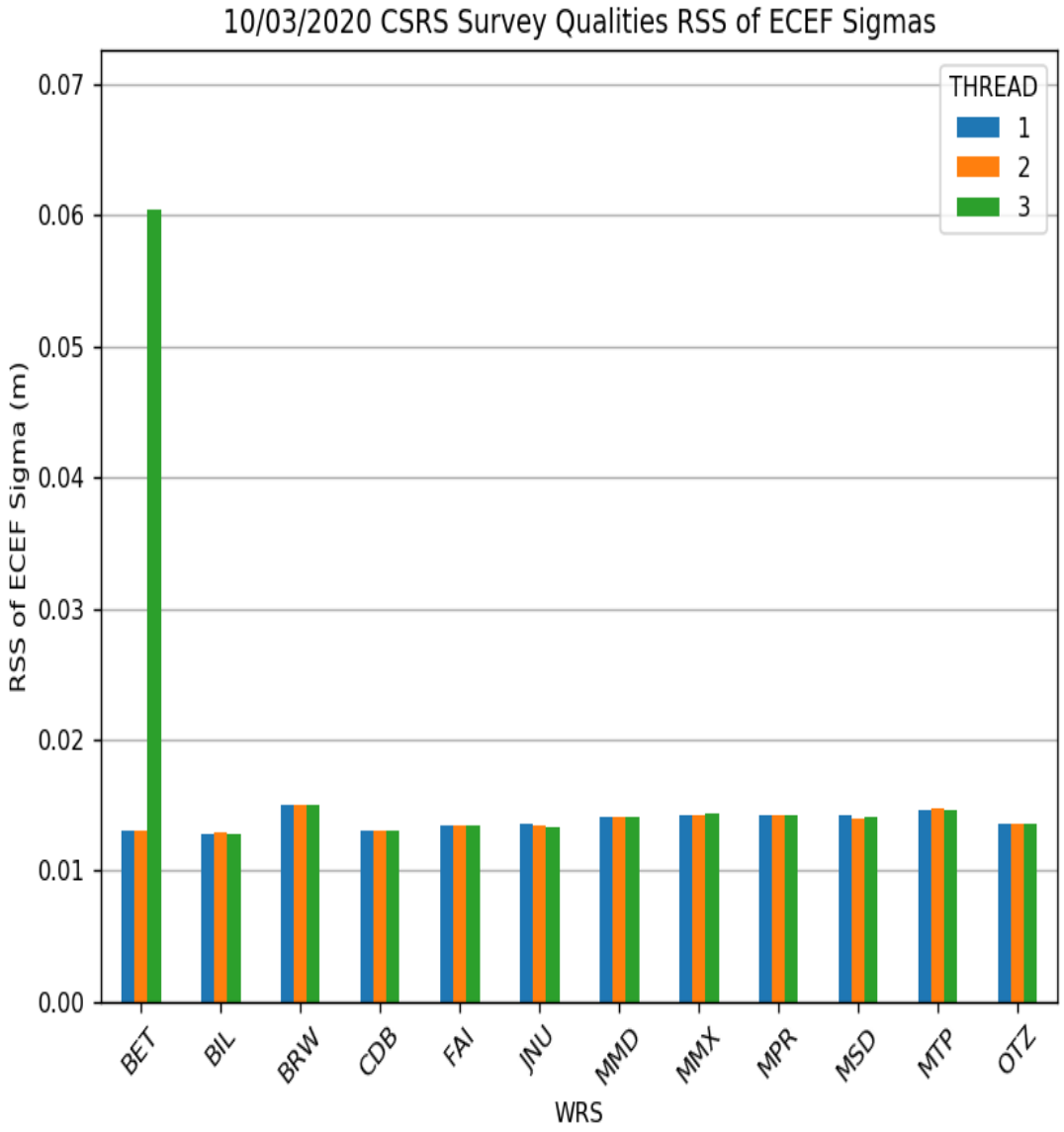


Figure 10-11. CSRS Survey Qualities

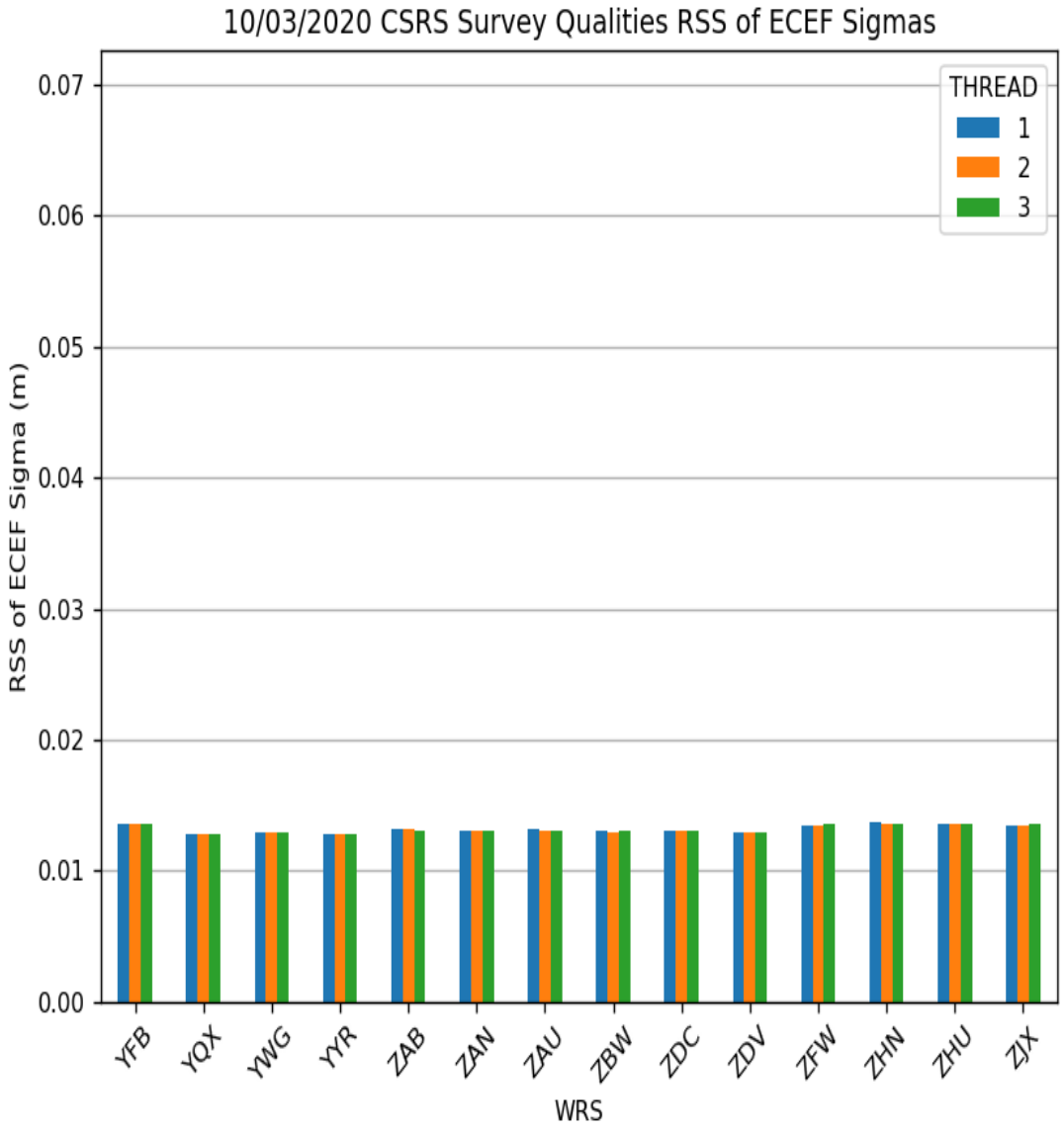
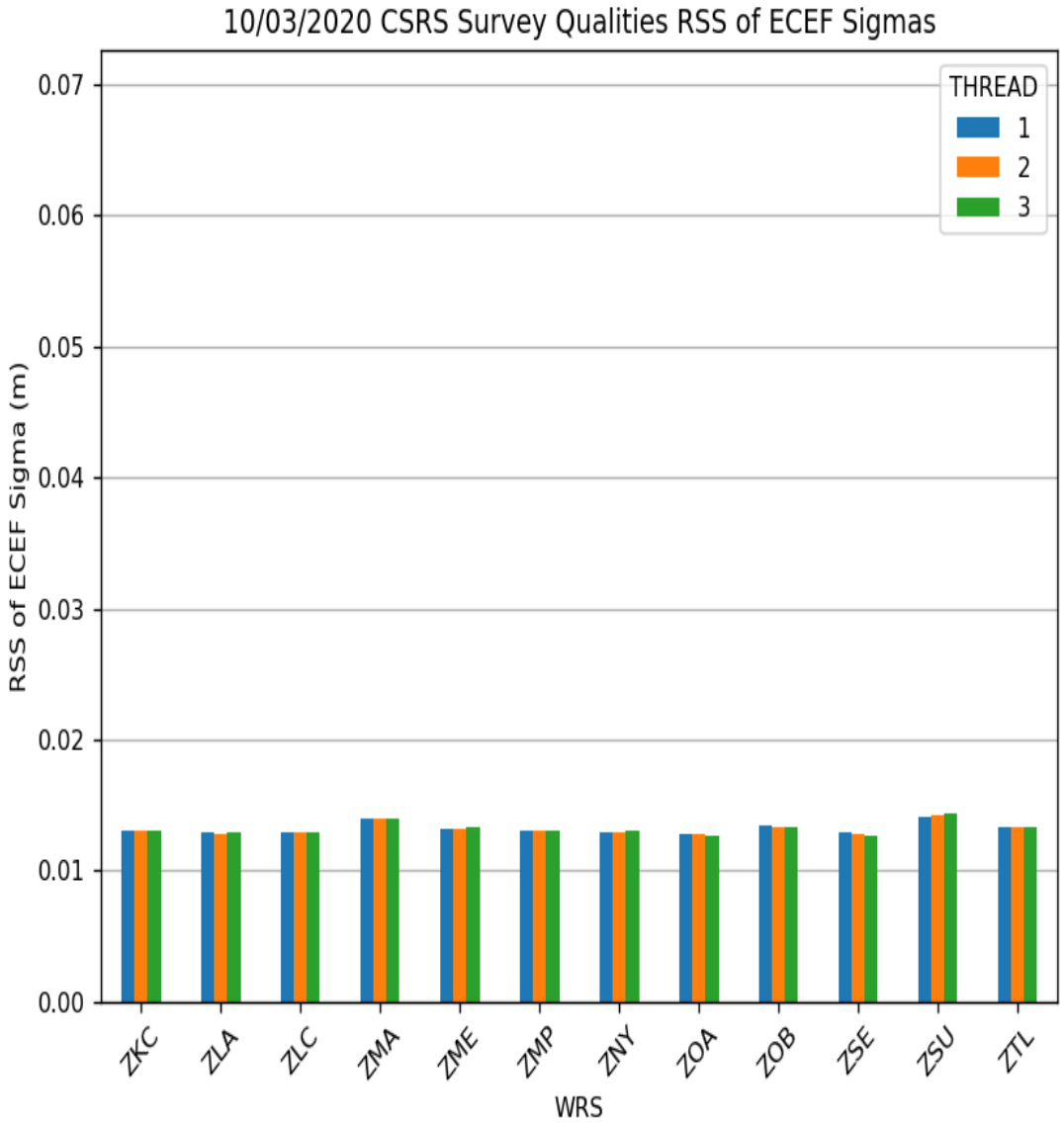


Figure 10-12. CSRS Survey Qualities



11.0 SQM

The SQM is designed to detect signal deformations originating from the GPS or GEO satellites and to ensure that the UDRE values are sufficiently inflated given the monitor's current observations. The SQM processes various correlator spacing measurements produced by the reference station receivers. These measurements are used to form four detection metrics for each receiver, and statistics are calculated based on the observed performance against "ideal" signal correlation peaks, resulting in an overall estimated deformation per satellite. The estimated deformation is compared against threshold values, which includes the acceptable error levels per UDRE value. If the estimated deformation exceeds threshold, the SQM trips for the given satellite and the UDRE value is set to "Don't Use". Currently, all 114 WAAS WREs are being used in the SQM computations because SQM depends on the entire ground network to ensure the satellite is the source of any detected problem rather than a localized effect.

The WAAS SQM offline monitoring effort includes the monitoring of the PRN type biases, trips, and the estimated deformation for each satellite (referred to as PRN bias in this report).

11.1 Alpha Metrics

The alpha metrics values are pre-determined by offline integrity analysis and are defined as constants in the SQM algorithm. These values remained unchanged for this reporting period and are listed in Table 11-1. Currently there are four sets of alpha metrics in the WAAS SQM algorithm that form four detection metrics for each receiver channel. For this report, the four detection metrics (DM) will be referred to as: DM1, DM2, DM3, and DM4.

Table 11-1. Alpha Metrics

Correlator Spacing	DM1	DM2	DM3	DM4
-0.1	0	0.43407318	0	-0.36110353
-0.075	0	0.48570652	-0.0058771682	-0.74860302
-0.05	-0.4071265	-0.69931105	-0.011382325	0.23726003
-0.025	1	-0.010099034	0.00037033029	-0.0076011735
0	0	0	0	0
0.025	-0.25	0.13317879	0.99991788	-0.062414070
0.05	1.008525	-0.22851782	0	0.25177272
0.075	0	0.10209042	0	0.42875623
0.1	0	0.078436452	0	0.41602138

11.2 Type Bias

The PRN type biases are evaluated as part of the WAAS SQM offline monitoring effort. Depending on the PRN number of any given GPS satellite, it can be classified into three categories of correlation function shapes: skinny (Type 0), nominal (Type 1), and broad (Type 2). Note that wideband GEOs are considered a different type (Type 3). The PRN type biases are estimates that are computed at each epoch, and daily averages are computed for each type, for four detection metrics.

For this reporting period, the GEO-type biases were not evaluated. Table 11-2 shows the rollup averages for the quarter. Table 11-3 shows the rollup averages since January 1, 2008. Figure 11-1 shows the daily averages of the four detection metrics for the quarter.

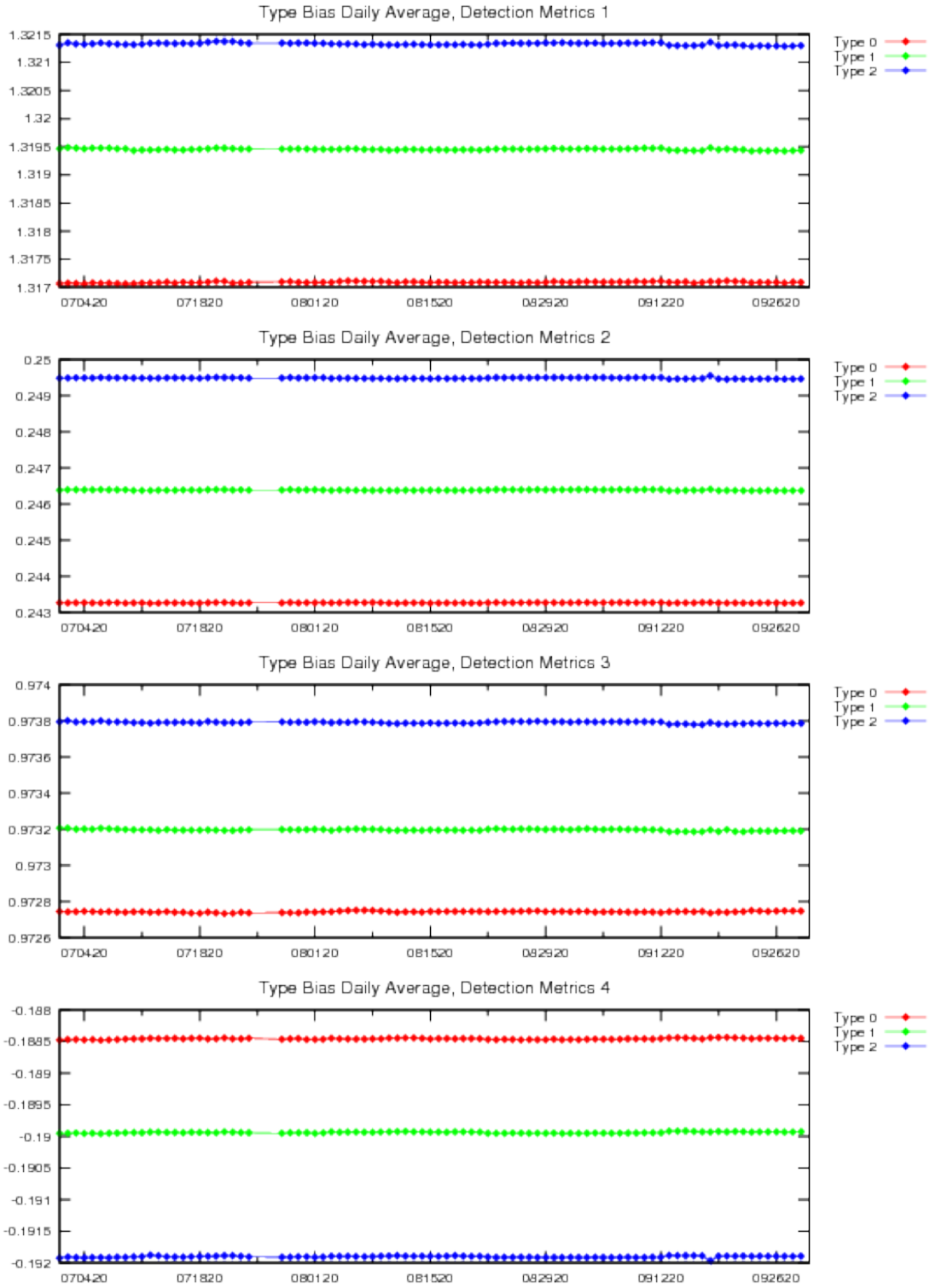
Table 11-2. Type Bias Average for the Quarter

Detection Metric	Type 0	Type 1	Type 2
DM 1	1.31709	1.31946	1.32133
DM 2	0.243266	0.246389	0.249489
DM 3	0.972743	0.973197	0.973791
DM 4	-0.188457	-0.189939	-0.191902

Table 11-3. Type Bias Average since January 1, 2008

Detection Metric	Type 0	Type 1	Type 2
DM 1	1.31946	1.32166	1.32337
DM 2	0.241752	0.244966	0.248104
DM 3	0.973016	0.973525	0.974089
DM 4	-0.187069	-0.188746	-0.190764

Figure 11-1. Type Bias Average Trend



11.3 PRN Bias

The PRN biases are evaluated as part of the WAAS SQM offline monitoring effort. A PRN bias is the overall estimated deformation per satellite across receivers. Detection metrics are adjusted for inter-receiver bias, corrected for PRN-type bias, and combined across receivers for each satellite. Relying on the assertion that the majority of the SV signals are healthy and normal, detection metrics are normalized over all the orbiting satellites, which results in an overall PRN bias for each satellite. PRN biases are collected at each epoch and daily averages are computed for each satellite for four detection metrics.

Table 11-4 and Figure 11-2 show the rollup PRN bias averages for the quarter with the maximum values for each detection metrics as follows: (1) the maximum average for DM1 is 0.0012437 observed on PRN11, (2) the maximum average for DM2 is 0.0002077 observed on PRN11, (3) the maximum average for DM3 is 0.0004723 observed on PRN18, (4) the maximum average for DM4 is 0.0004155 observed on PRN21.

Table 11-4. PRN Bias Average for the Quarter

PRN	DM 1	DM 2	DM 3	DM 4
1	0.000234293	8.42091e-05	5.26955e-05	0.000137857
2	0.000196353	5.74591e-05	0.000110165	0.000108264
3	0.000168435	5.41716e-05	8.27807e-05	0.000133652
4	0.000736669	0.000258105	0.000422383	0.000270881
5	0.000156302	7.14443e-05	0.000121259	0.000118206
6	0.000659545	0.000102799	7.10784e-05	0.000223568
7	0.000146139	0.000102411	5.1225e-05	0.000108794
8	0.000379106	0.000104761	9.01614e-05	0.000134309
9	0.000206765	3.96966e-05	0.000141406	0.000175745
10	0.000161025	5.80625e-05	9.20057e-05	0.000202906
11	0.00124368	0.000207748	8.88818e-05	0.0003182
12	0.000249272	8.25045e-05	8.98114e-05	8.30682e-05
13	0.000580149	4.88807e-05	6.14455e-05	0.000283558
14	0.000815767	0.000132533	5.35e-05	0.000221967
15	0.000285759	9.93011e-05	4.97659e-05	0.000104382
16	0.000174867	4.90102e-05	9.63864e-05	0.000179137
17	0.000278781	0.000106987	5.69602e-05	8.39432e-05
18	0.000679592	0.0001967	0.000472261	0.000297914
19	0.00067022	0.000202643	9.98523e-05	0.000144917
20	0.000165715	5.75886e-05	6.71193e-05	0.000120241
21	0.000234022	7.08011e-05	8.0367e-05	0.000415528
22	0.000156645	4.28648e-05	9.05091e-05	0.0002187
23	Offline	Offline	Offline	Offline
24	0.000192383	7.8433e-05	0.000168991	0.000208147
25	0.000503952	9.1025e-05	4.14864e-05	0.000174835
26	0.000203543	0.000114005	8.56682e-05	0.000142393
27	0.000413855	0.000190168	0.000159067	0.000290778
28	0.000251519	4.99648e-05	5.64136e-05	0.000123422
29	0.000252209	0.000102287	0.00017336	0.000302097
30	0.000270423	7.30386e-05	8.38625e-05	8.925e-05
31	0.000259731	9.09705e-05	8.61625e-05	0.000159108
32	0.000216524	6.92682e-05	4.66659e-05	0.000204065

Figure 11-2. PRN Bias Average for the Quarter

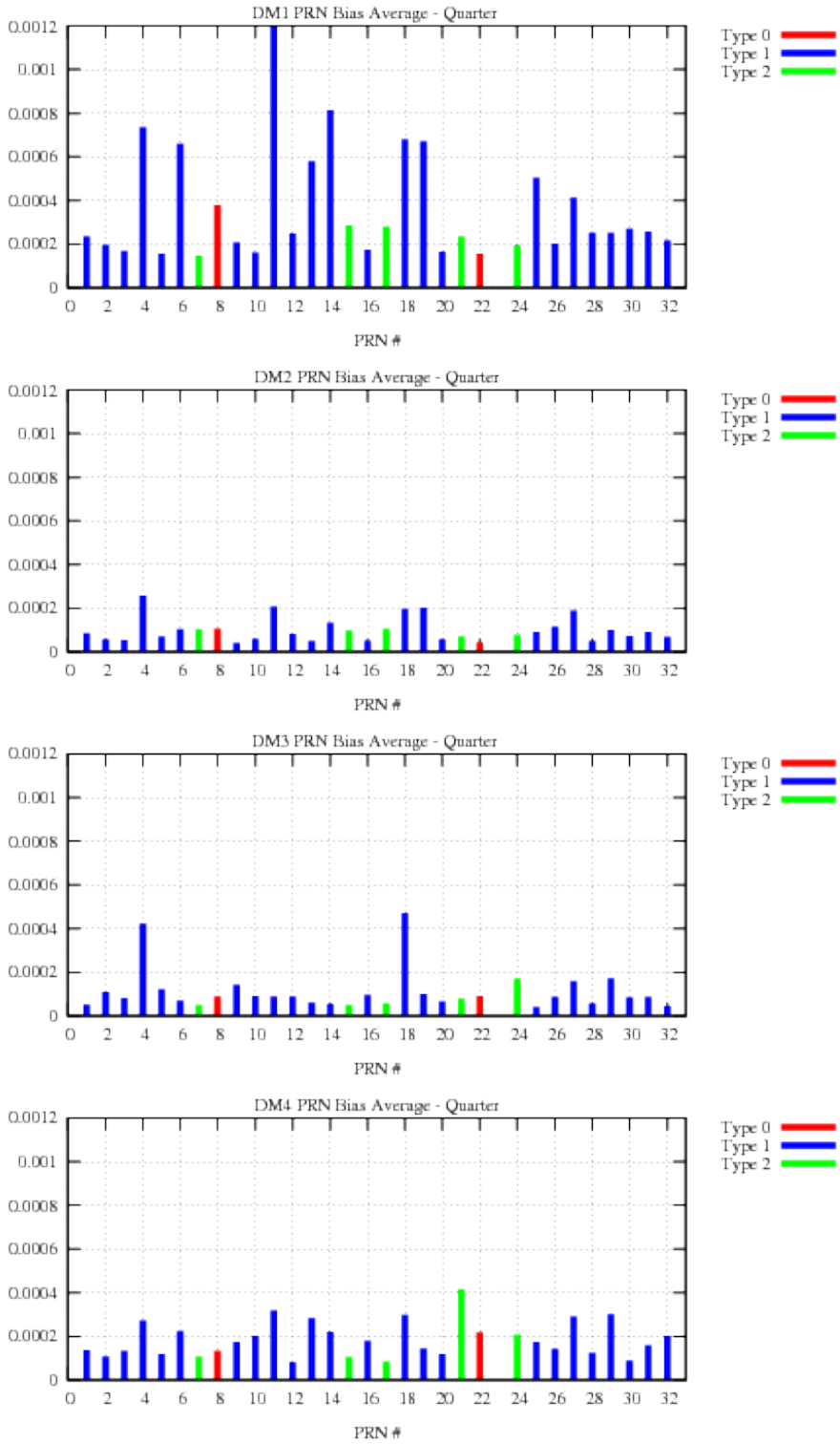


Figure 11-3 to Figure 11-10 show the daily PRN bias for each PRN, for four detection metrics. Small bumps were due to NANU's. Slight shifts in trend, more noticeable on PRNs 3, 6, 12, 27, 30, and 32, were likely due to the median metrics (taken across all SVs) shifting a bit more significantly with the addition of the GPS-III satellites. The median

metrics are removed from the metrics of each satellite in the PRN bias computation, and the median metrics were fairly stable with the older GPS SVs but may differ a bit more with the addition of the GPS-IIIs satellites. The slight shifts in trend have no impact on the WAAS availability. PRN14/SVN41 was set to unusable beginning July 9, 2020 (NANU2020031) until further notice.

Figure 11-3. PRN Bias Average Trend (PRN1–PRN4)

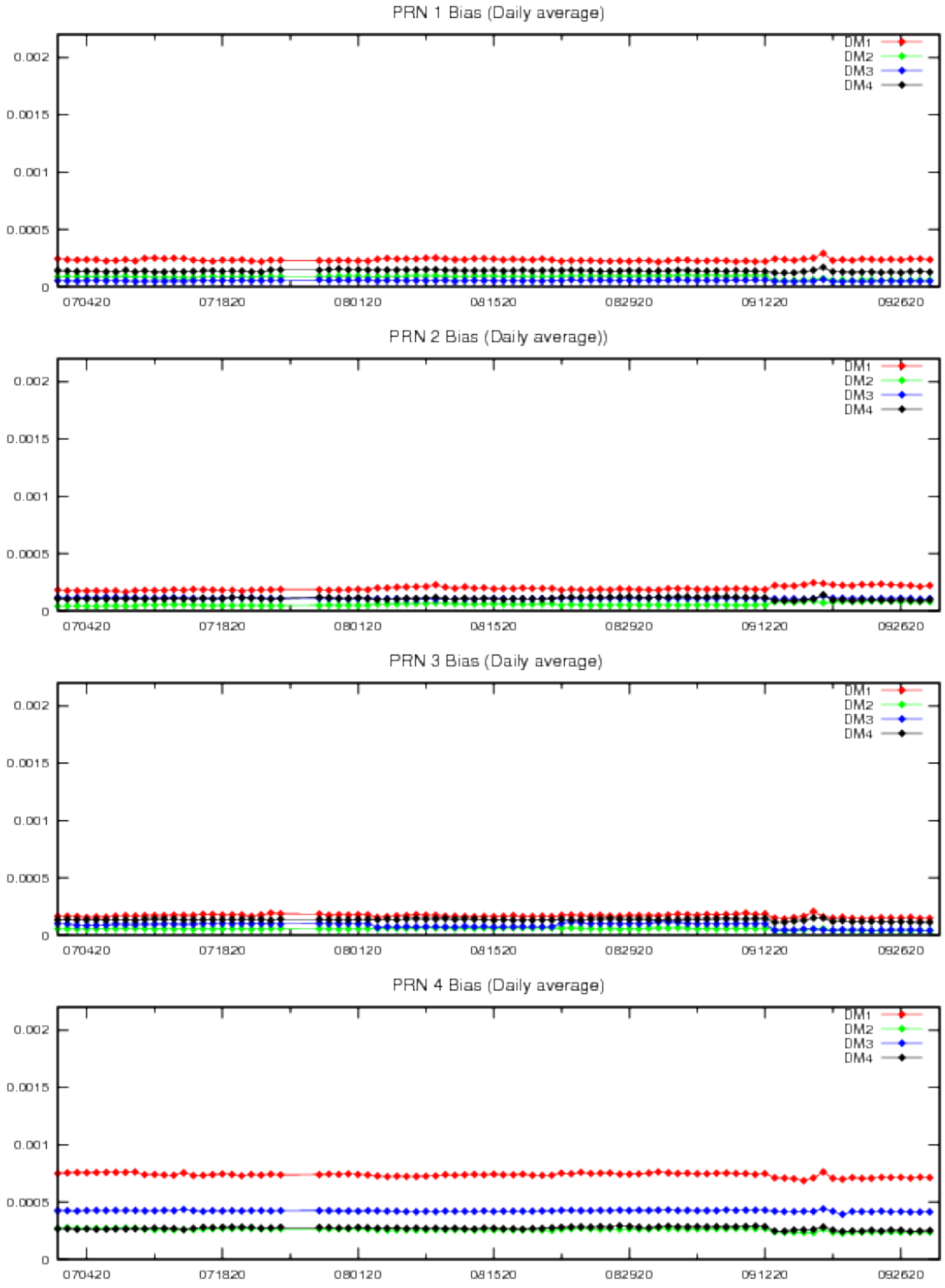


Figure 11-4. PRN Bias Average Trend (PRN5–PRN8)

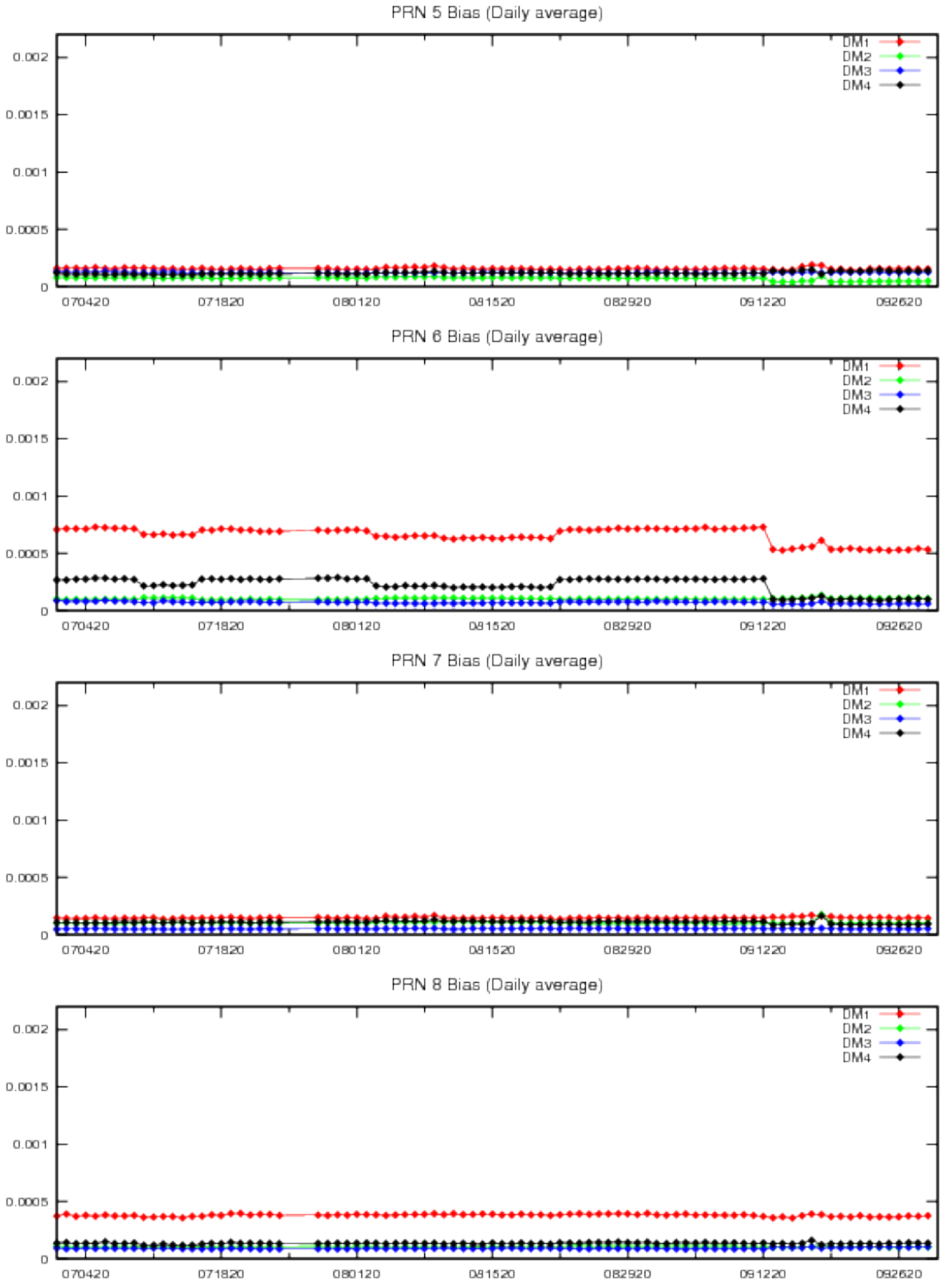


Figure 11-5. PRN Bias Average Trend (PRN9–PRN12)

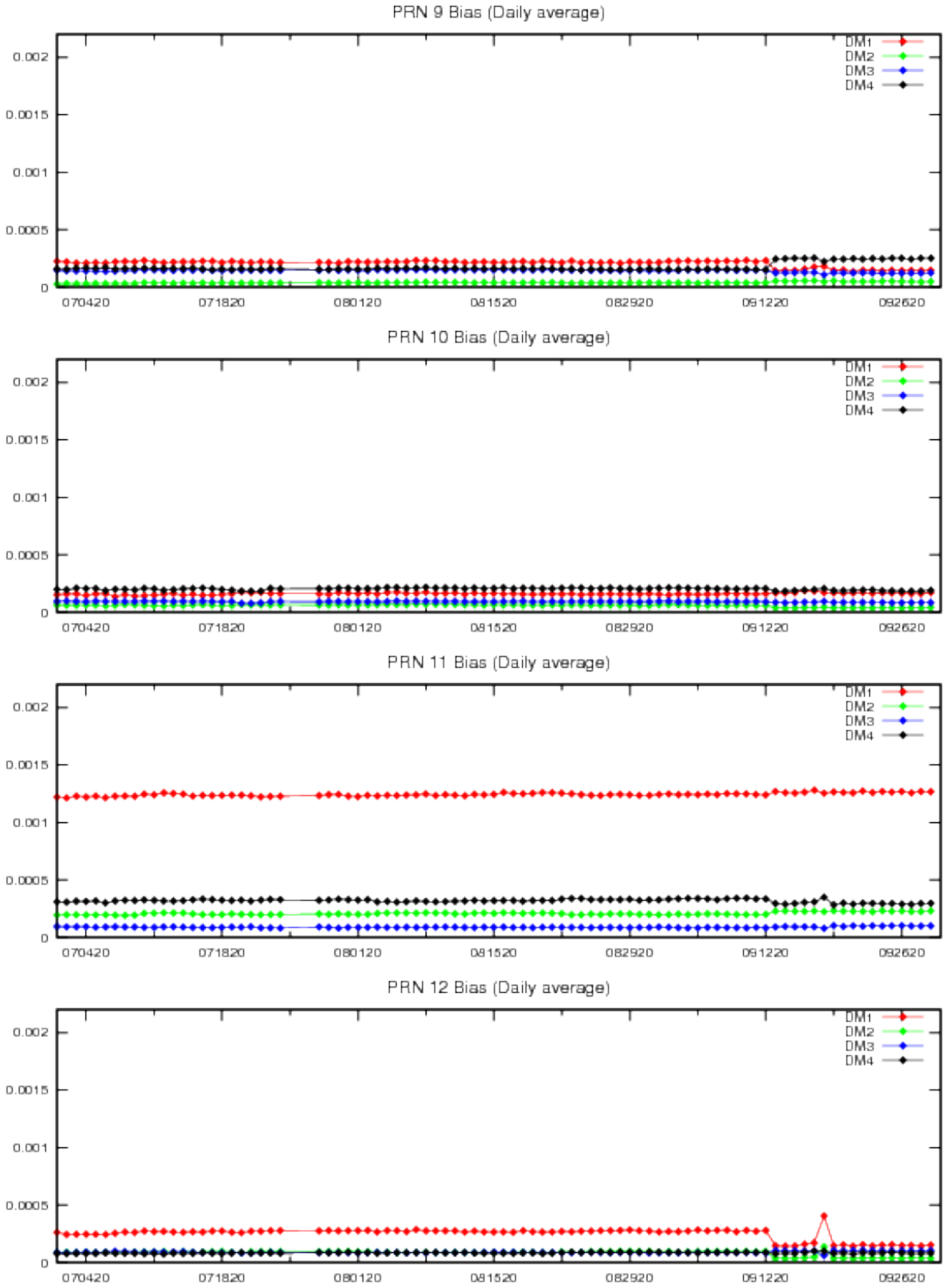


Figure 11-6. PRN Bias Average Trend (PRN13–PRN16)

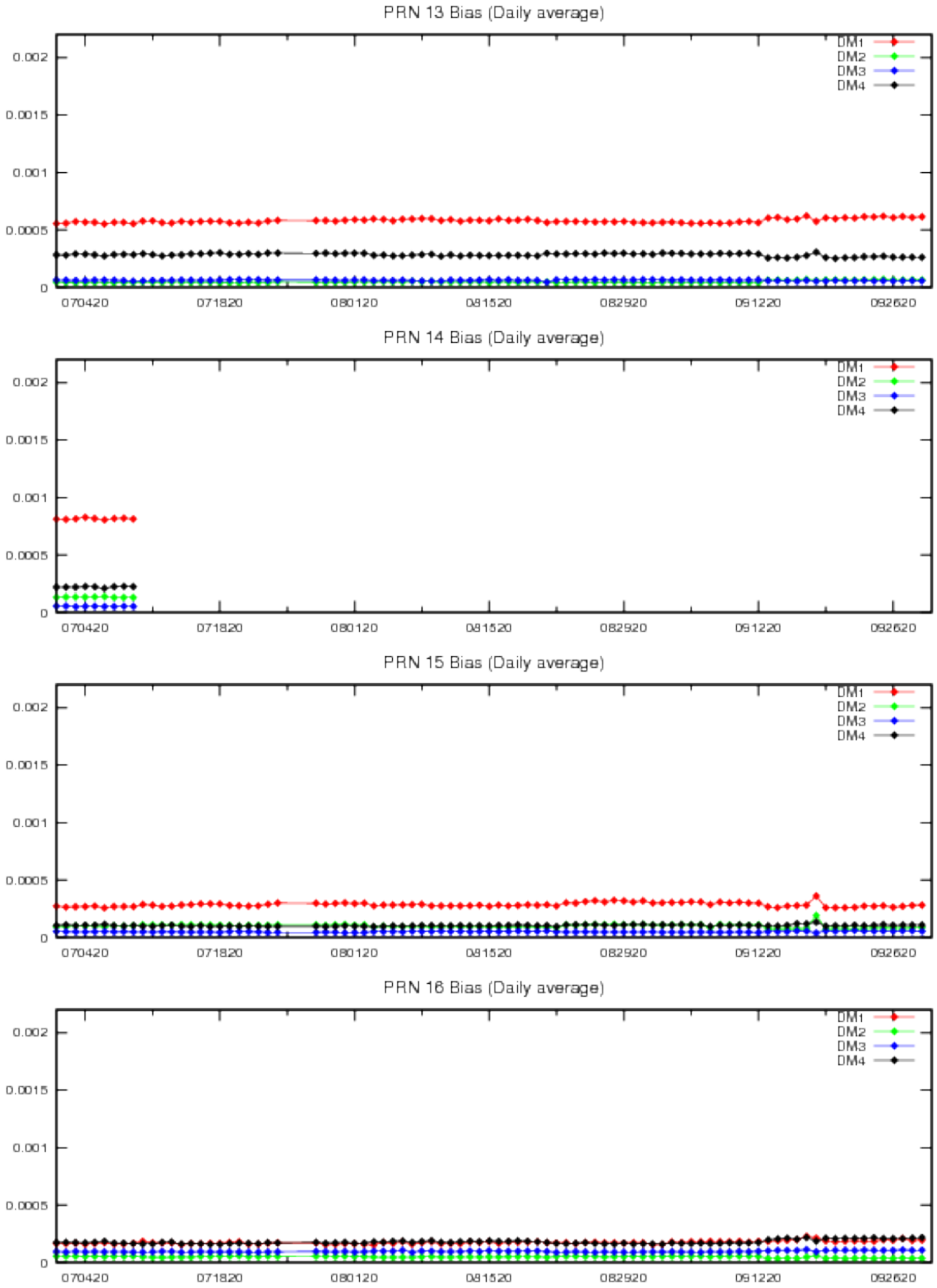


Figure 11-7. PRN Bias Average Trend (PRN17–PRN20)

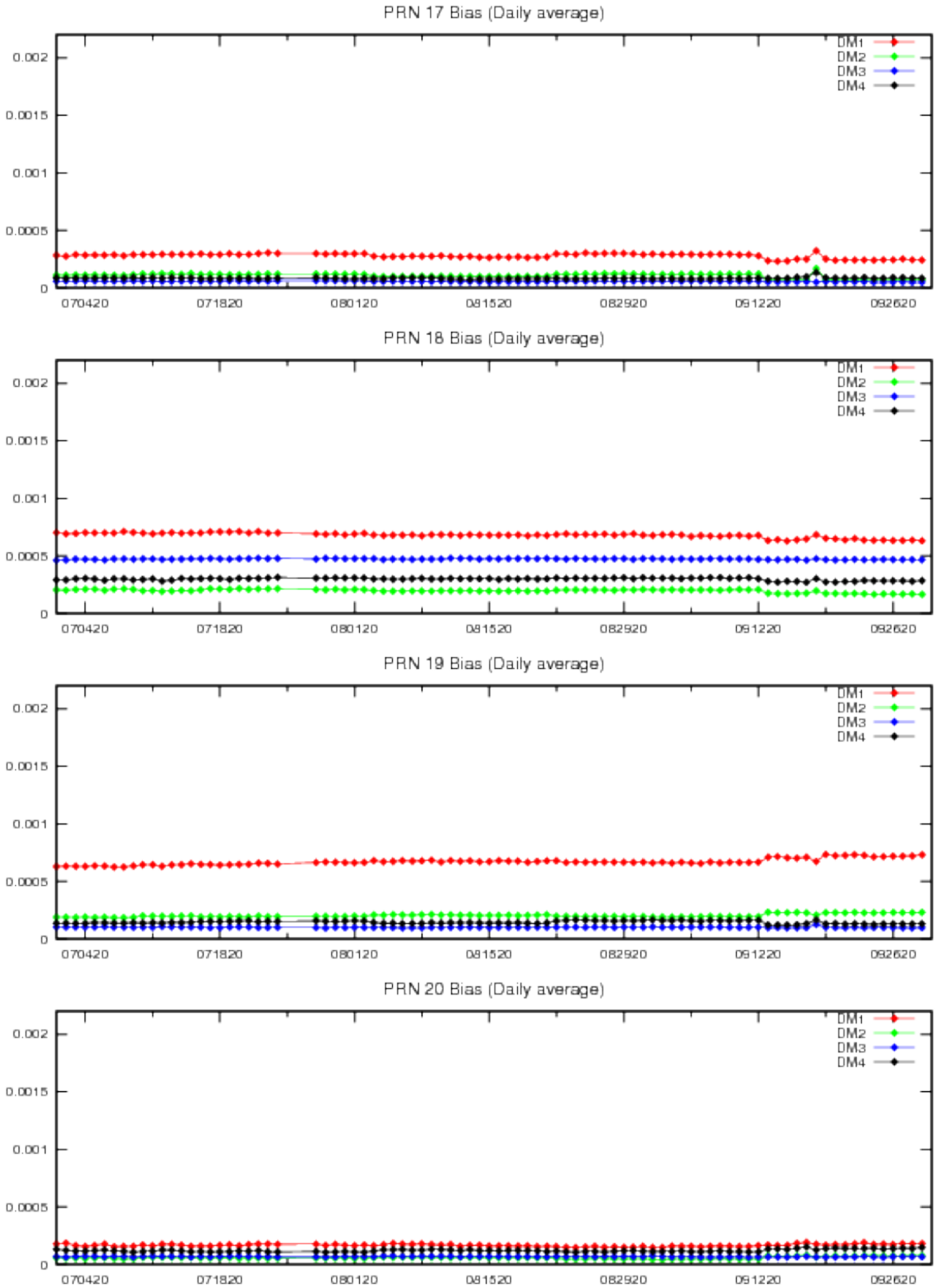


Figure 11-8. PRN Bias Average Trend (PRN21–PRN24)

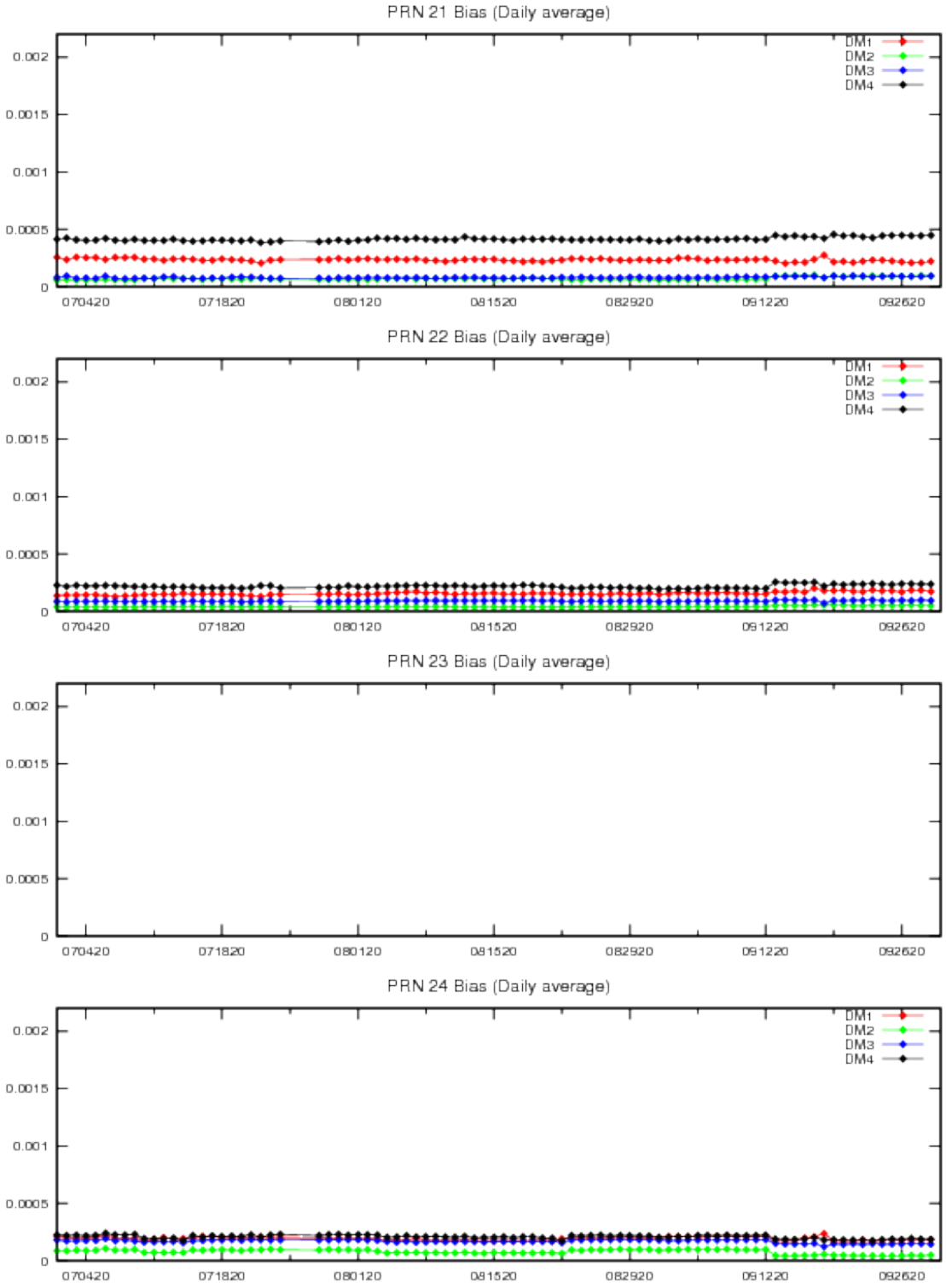


Figure 11-9. PRN Bias Average Trend (PRN25–PRN28)

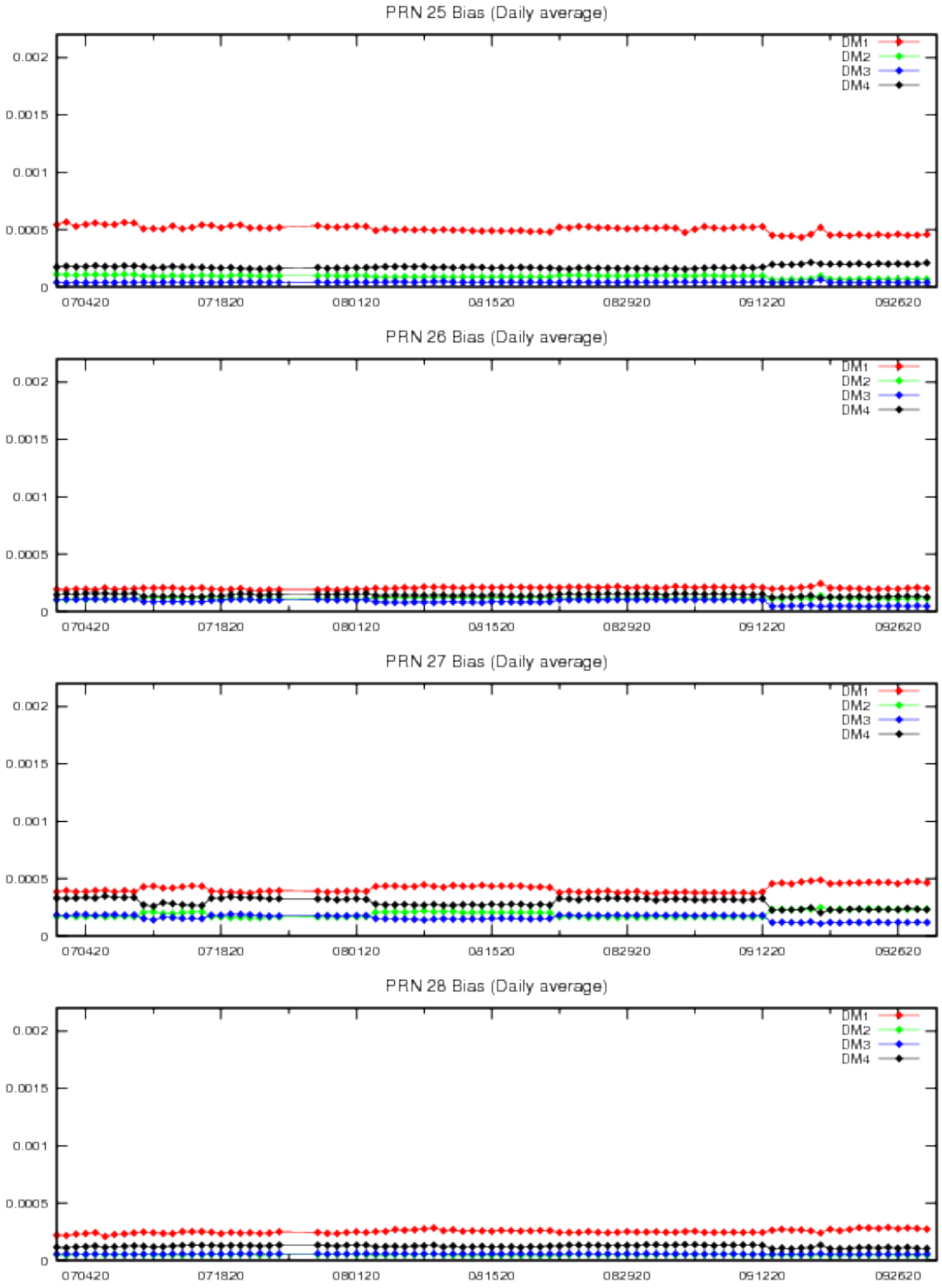
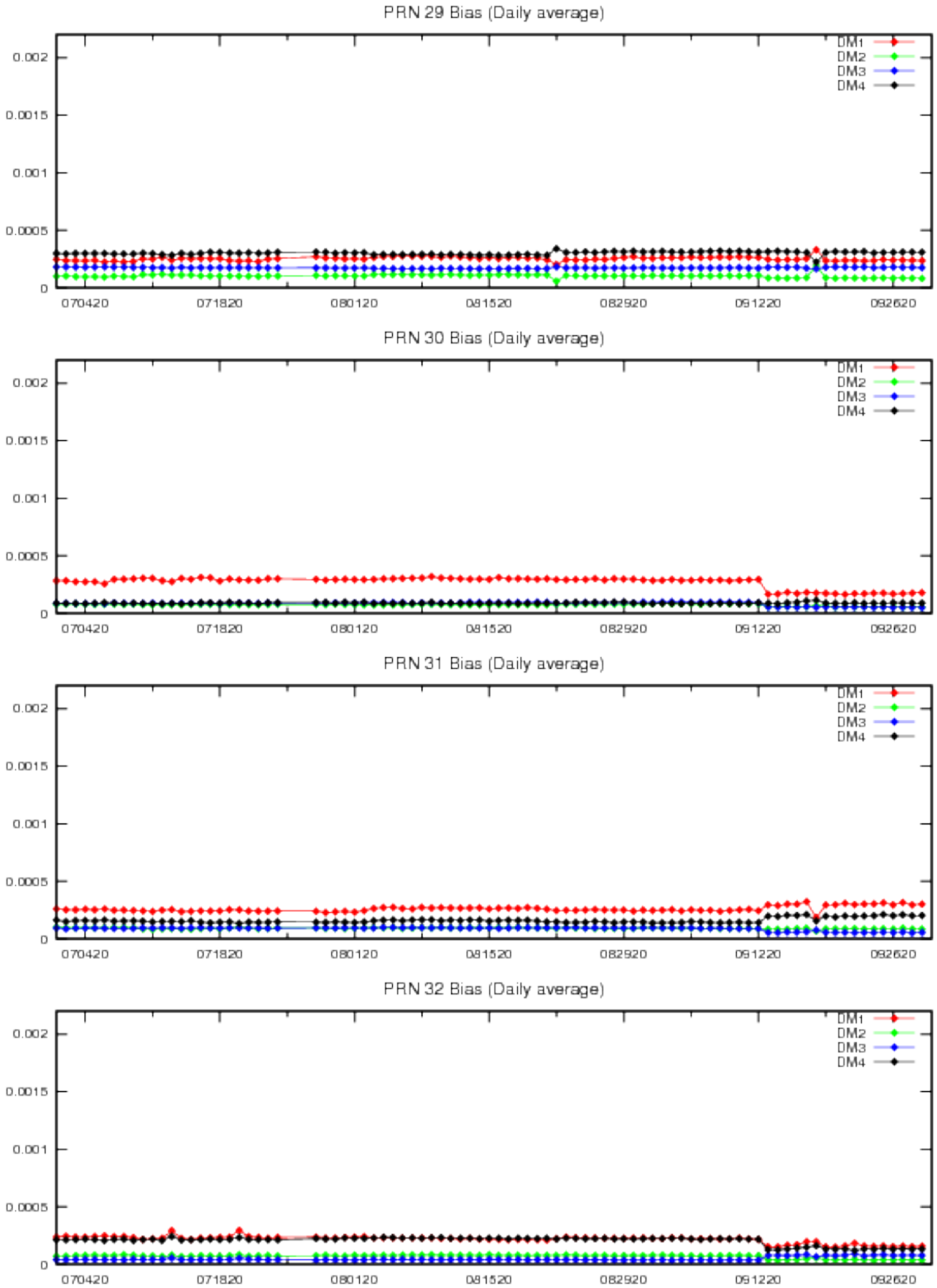


Figure 11-10. PRN Bias Average Trend (PRN29–PRN32)



11.4 SQM Trips

A SQM trip occurs when the estimated deformation exceeds threshold. There were no SQM trips for this reporting period.

Appendix A: Glossary and Acronyms

General Terms and Definitions

Alert. An alert is an indication provided by the GPS/WAAS equipment to inform the user when the positioning performance achieved by the equipment does not meet the integrity requirements.

AMR. GEO PRN133

APC. Antenna phase center

ARP. Antenna reference point

Availability. The availability of a navigation system is the ability of the system to provide the required function and performance at the initiation of the intended operation. Availability is an indication of the ability of the system to provide usable service within the specified coverage area.

C&V. The Correction and Verification Subsystem

CNMP. Code noise and multipath

CONUS. Continental United States

Continuity. The continuity of a system is the ability of the total system (comprising all elements necessary to maintain aircraft position within the defined airspace) to perform its function without interruption during the intended operation. More specifically, continuity is the probability that the specified system performance will be maintained for the duration of a phase of operation, presuming that the system was available at the beginning of that phase of operation.

Coverage. The coverage provided by a radio navigation system is the surface area or space volume in which the signals are adequate to permit the user to determine position to a specified level of accuracy. Coverage is influenced by system geometry, signal power levels, receiver sensitivity, atmospheric noise conditions, and other factors that affect signal availability.

CRE. GEO PRN138

CRW. GEO PRN135

CSRS. Canadian Spatial Reference System

DM. Detection metrics

DR. Discrepancy Report.

ECEF. Earth-centered, Earth-fixed.

FAA. Federal Aviation Administration

FD. Fault Detection

FDE. Fault Detection and Exclusion. A receiver processing scheme that autonomously provides integrity monitoring for the position solution using redundant range measurements. The FDE consists of two distinct parts: fault detection and fault exclusion. The fault detection part detects the presence of an unacceptably large position error for a given mode of flight. Upon the detection, fault exclusion follows and excludes the source of the unacceptably large position error, thereby allowing navigation to return to normal performance without an interruption in service.

GEO. Geostationary satellite

GMT. Greenwich Mean Time

GPS. Global Positioning System. A space-based positioning, velocity, and time system composed of space, control, and user segments. The space segment, when fully operational, will be composed of 24 satellites in six orbital planes. The control segment consists of five monitor stations, three ground antennas, and a master control station. The user segment consists of antennas and receiver-processors that provide positioning, velocity, and precise timing to the user.

GIVE. Grid Ionospheric Vertical Error. Indicate the accuracy of ionospheric vertical delay correction at a geographically defined IGP. WAAS transmits one GIVE for each IGP in the mask.

GUS. Ground uplink station

HMI. Hazardous Misleading Information. Any position data that has an error larger than the current protection level (HPL/VPL), without any indication of the error (e.g., alert message sequence).

HAL. Horizontal alert limit. The radius of a circle in the horizontal plane (the local plane tangent to the WGS-84 ellipsoid), with its center being at the true position, which describes the region that is required to contain the indicated horizontal position with a probability of $1\text{-}10^{-7}$ per flight hour, for a particular navigation mode, assuming the probability of a GPS satellite integrity failure being included in the position solution is less than or equal to 10^{-4} per hour.

HPE. Horizontal position error

HPL. Horizontal protection level. The radius of a circle in the horizontal plane (the plane tangent to the WGS-84 ellipsoid), with its center being at the true position, which describes the region that is assured to contain the indicated horizontal position. It is based on the error estimates provided by WAAS.

IAP. Instrument Approach Procedures

IGS. International GPS Service.

IGP. Ionsopheric grid point. A geographically defined point for which the WAAS provides the vertical ionospheric delay.

Kp. Planetary index

LNAV. Lateral navigation

LP. Localizer Performance. A WAAS operational service level with a HAL equal to 40 meters.

LPV. Localizer Performance with Vertical Guidance. A WAAS operational service level with a HAL equal to 40 meters and a VAL equal to 50 meters.

LPV200. Localizer Performance with Vertical Guidance to 200 ft decision height. A WAAS operational service level with a HAL equal to 40 meters and a VAL equal to 35 meters.

NANU. Notice Advisory to Navstar Users. NANU is an advisory message to inform users of a change in the GPS constellation. These messages inform users in advance of planned maintenance and also notify users of unscheduled outages.

NAS. National Airspace System

Navigation Message. Message structure designed to carry navigation data.

NGS. National Geodetic Survey

NPA Navigation Mode. Non-precision approach navigation mode. Refers to the navigation solution operating with a minimum of four satellites with fast and long term WAAS corrections (no WAAS ionospheric corrections) available.

NTSB. National Satellite Test Bed

OCONUS. Outside Contiguous United States

OPUS. Online Positioning Use Server

PAN. Performance Analysis Network

Position Solution. The use of ranging signal measurements and navigation data from at least four satellites to solve for three position coordinates and a time offset.

PPP. Precise Point Positioning.

PA Navigation Mode. Precision approach navigation mode. Refers to the navigation solution operating with a minimum of four satellites with all WAAS corrections (fast, long term, and ionospheric) available.

PRN. Pseudo-random noise

RAIM. Receiver autonomous integrity monitoring

RFI. Radio frequency interference

RNAV. Area navigation

RNP. Required Navigation Performance

RSS. Residual sum of squares.

S15. GEO PRN133

SBAS. Space Based Augmentation System

SIS. Signal in space

SM9. GEO PRN131

SQM. Signal quality monitor. Monitors correlator measurements to detect signal deformations that originate in the GPS or GEO satellites and ensures that the UDREs are sufficiently inflated to protect given the monitor's current observations.

SSM. System support modification

SPS. Standard positioning service. Three-dimensional position and time determination capability provided to a user equipped with a minimum capability GPS SPS receiver in accordance with GPS national policy and the performance specifications.

SV. Space vehicle.

SVN. Space Vehicle Number.

TOW. Time of GPS week

UDRE. User differential range error. Indicates the accuracy of combined fast and slow error corrections. WAAS transmits one UDRE for each satellite in the mask.

VAL. Vertical alert limit. Half the length of a segment on the vertical axis (perpendicular to the horizontal plane of WGS-84 ellipsoid), with its center being at the true position, which describes the region that is required to contain the indicated vertical position with a probability of $1\text{-}10^{-7}$ per flight hour, for a particular navigation mode, assuming the probability of a GPS satellite integrity failure being included in the position solution is less than or equal to 10^{-4} per hour.

VPE. Vertical position error

VPL. Vertical protection level. Half the length of a segment on the vertical axis (perpendicular to the horizontal plane of WGS-84 ellipsoid), with its center being at the true position, which describes the region that is assured to contain the indicated vertical position. It is based upon the error estimates provided by WAAS.

VNAV. Vertical navigation

WAAS. Wide Area Augmentation System. Made up of an integrity reference monitoring network, processing facilities, geostationary satellites, and control facilities. Wide-area reference stations and integrity monitors are widely dispersed data collection sites that contain GPS/WAAS ranging receivers that monitor all signals from the GPS and the WAAS geostationary satellites. The reference stations collect measurements from the GPS and WAAS satellites so that differential corrections, ionospheric delay information, GPS/WAAS accuracy, WAAS network time, GPS time, and UTC can be determined. The wide-area reference station and integrity monitor data are forwarded to the central data processing sites. These sites process the data to determine differential corrections, ionospheric delay information, and GPS/WAAS accuracy, as well as verify residual error bounds for each monitored satellite. The central data processing sites also generate navigation messages for the geostationary satellites and WAAS messages. This information is modulated on the GPS-like signal and broadcast to the users from geostationary satellites.

WIPP. WAAS Integrity Performance Panel

WJHTC. William J. Hughes Technical Center

WRE. Wide-Area Reference Equipment

WRS. WAAS reference station

Appendix B: Additional Coverage Plots

Appendix B includes the coverage plots with 99% LPV200 availability contour, 98% LPV availability contours, and 98% LP availability contours for the quarter. Figure B-1 shows CONUS coverage with 98% LP availability contour. Figure B-2 shows Alaska coverage with 98% LP availability contour. Figure B-3 shows CONUS coverage with 98% LPV availability contour. Figure B-4 shows Alaska coverage with 98% LPV availability contour. Figure B-5 shows CONUS coverage with 99% LPV200 availability contour. Figure B-6 shows Alaska coverage with 99% LPV200 availability contour.

Figure B-1. 98% CONUS LP Availability Contour

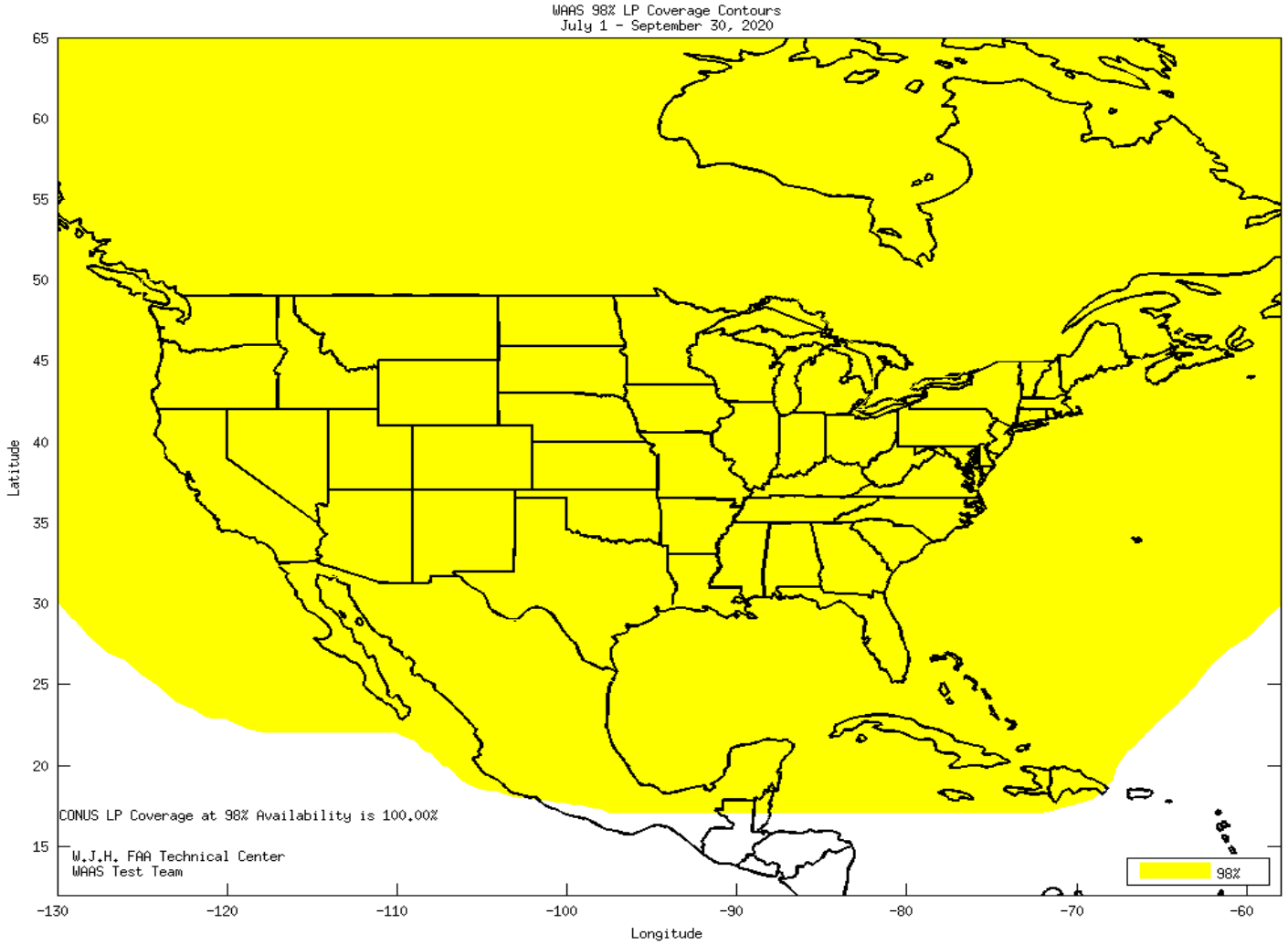


Figure B-2. 98% Alaska LP Availability Contour

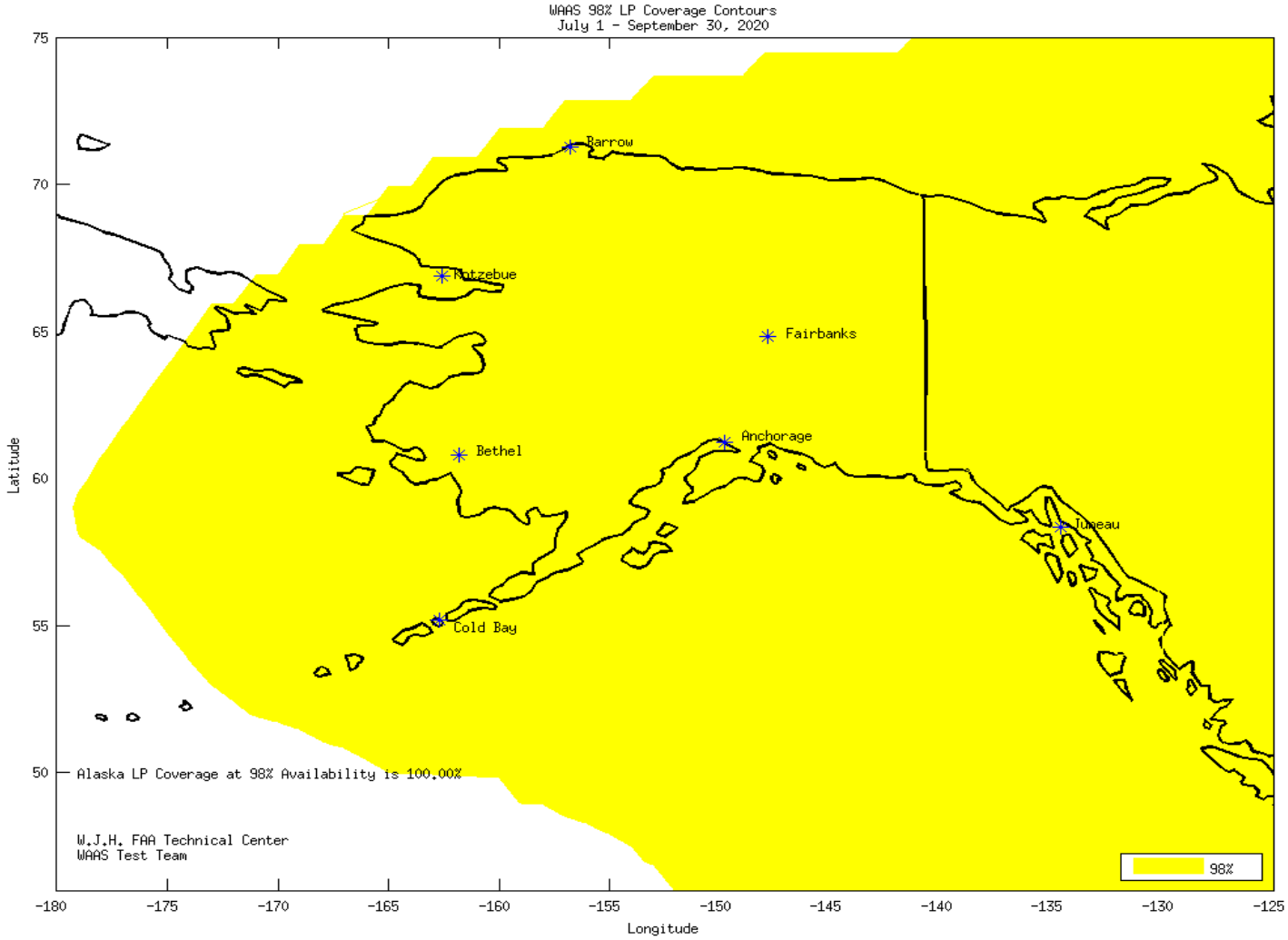


Figure B-3. 98% CONUS LPV Availability Contour

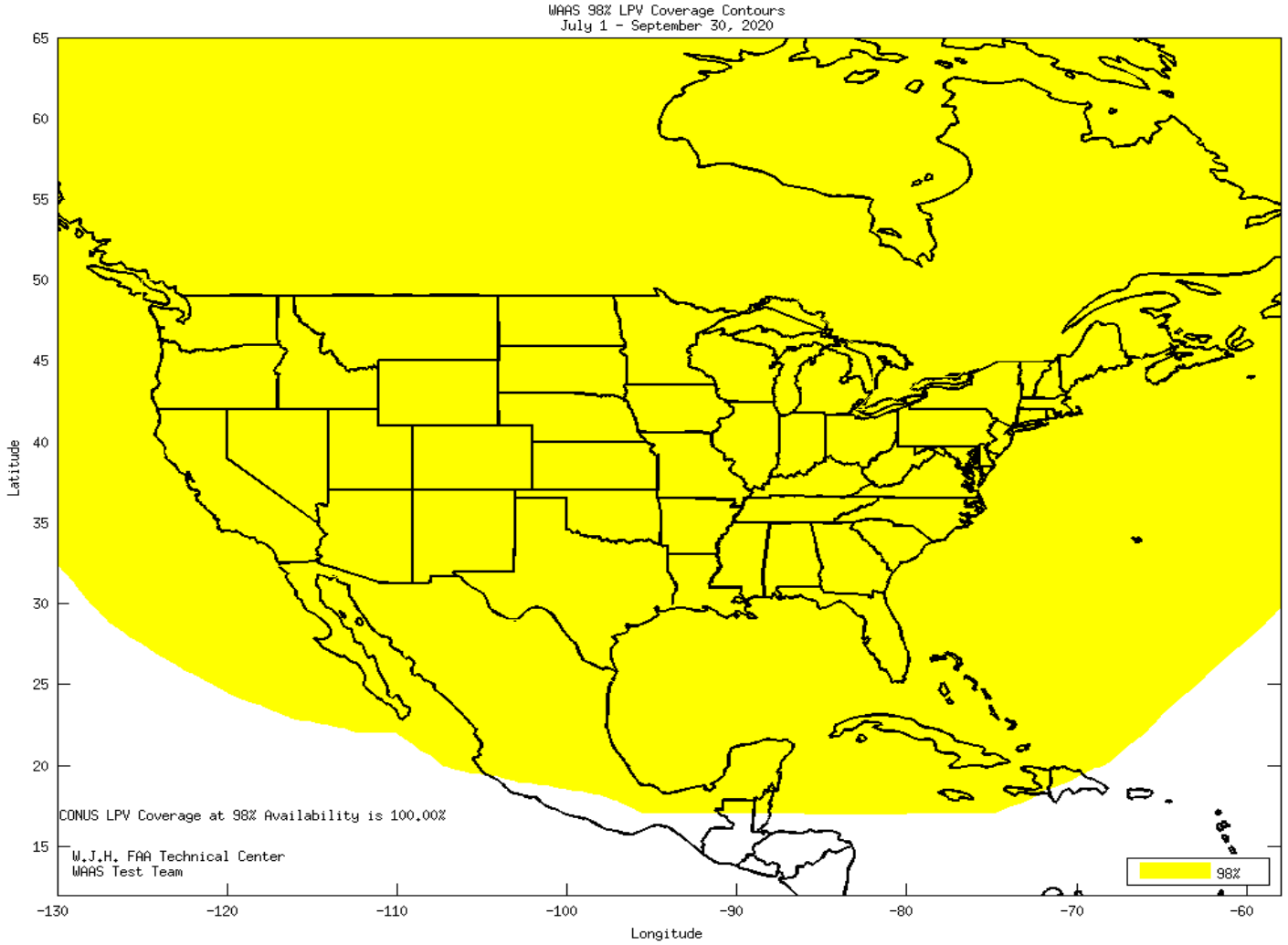


Figure B-4. 98% Alaska LPV Availability Contour

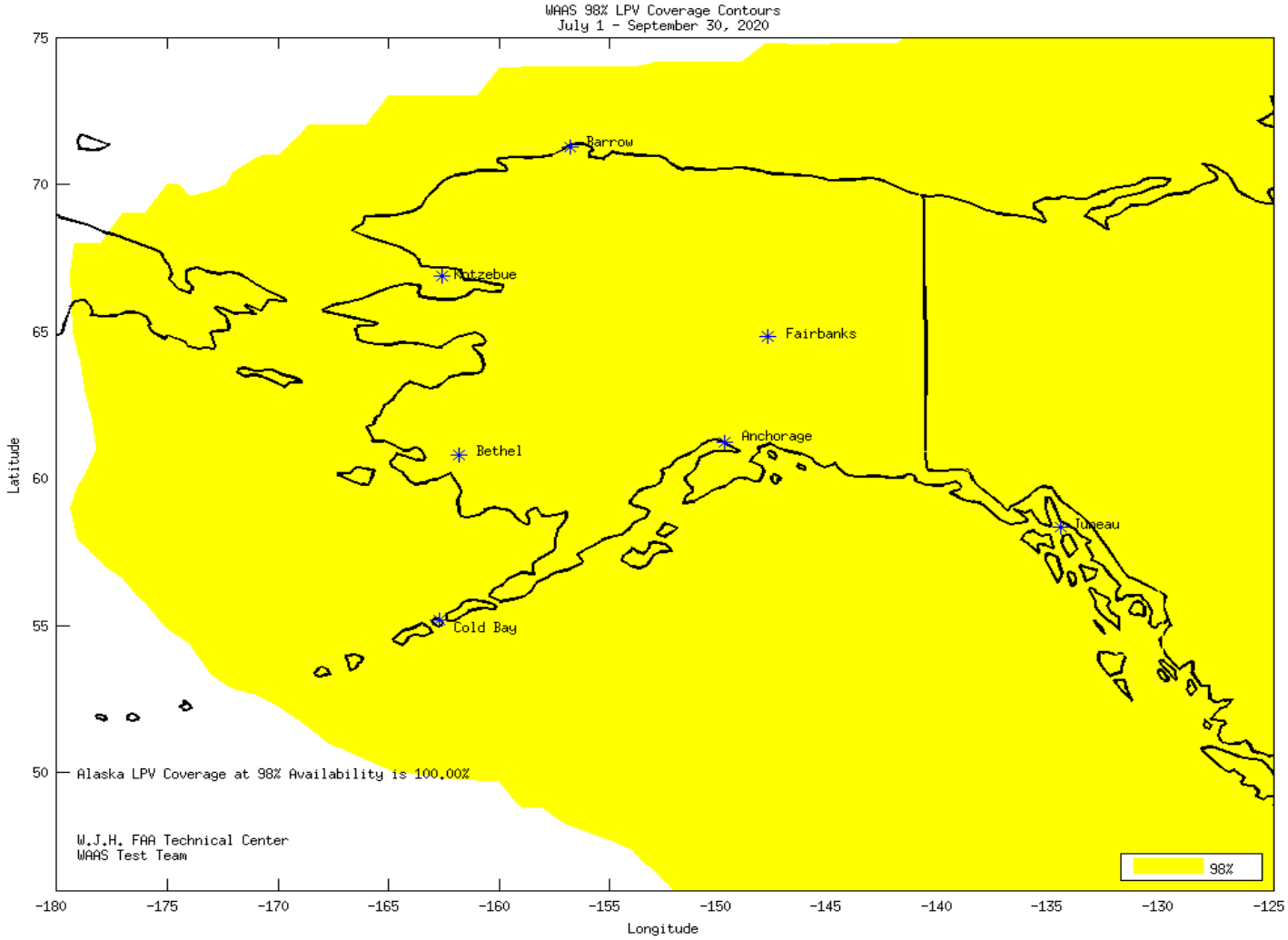


Figure B-5. 98% CONUS LPV200 Availability Contour

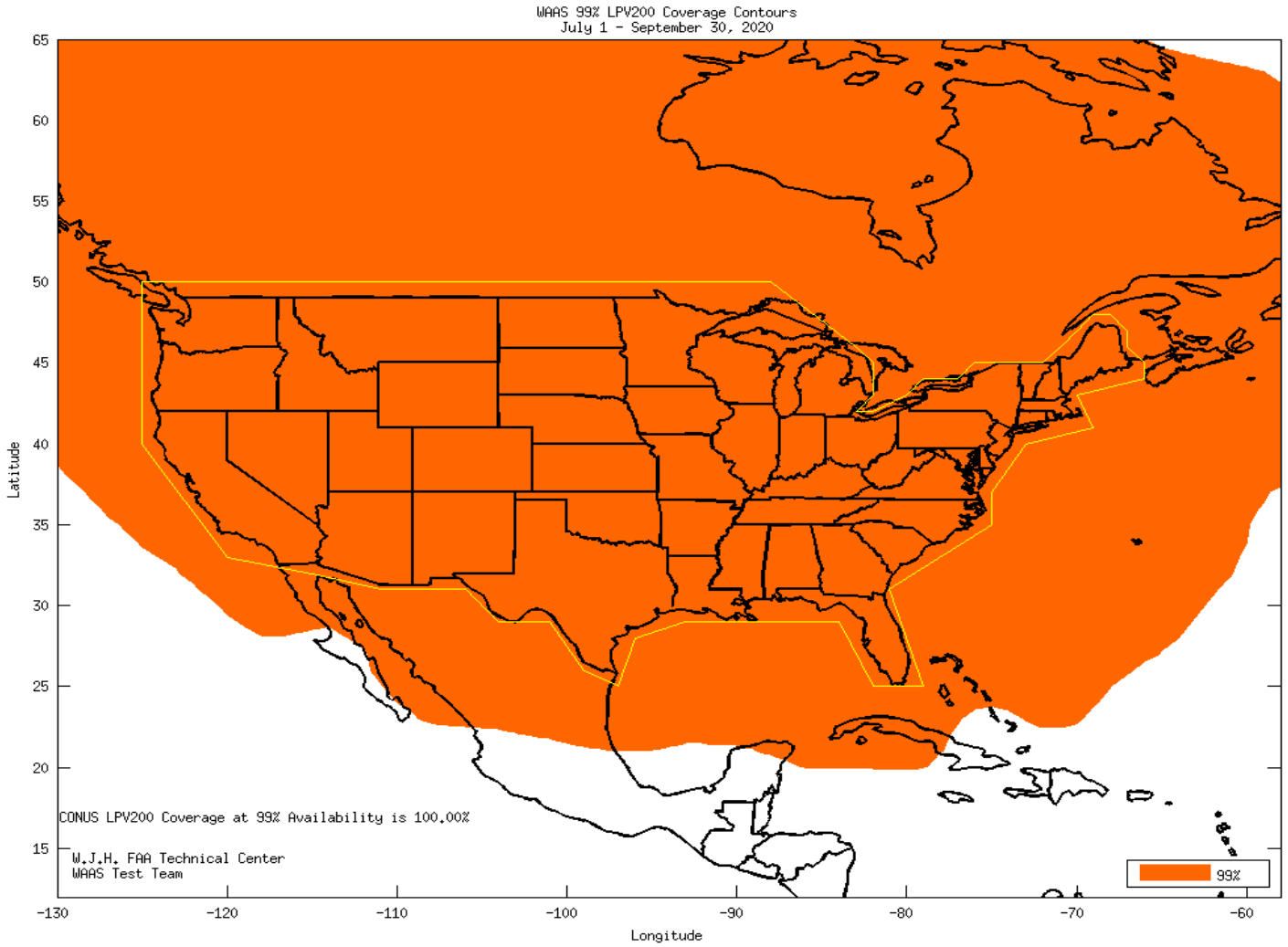


Figure B-6. 98% Alaska LPV200 Availability Contour