SATVOICE Filing and Performance

ISPACG/31 - FIT/24

6-7 March 2017

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Federal Aviation Administration

Overview

- SAT Voice filing
  - Flight plan example
  - Filing summary by FAA oceanic FIR
  - Filing summary by “M” code(s)
  - Filing summary by operator
- Summary of voice transaction counts by month
- Actual Surveillance Performance (ASP) and Actual Communication Performance (ACP)
  - PBCS guidance material
  - ASP for HF voice vs. SAT voice
  - ACP for HF voice vs. SAT voice

Flight Plan Example

(FPL-ACA101-IS

-B773/H-SHXW**M1M3**/S

-EGLL1400

-N0450F310 L9 UL9 STU285036/M082F310 UL9 LIMRI

52N020W 52N030W 50N040W 49N050W

-CYQX0455 CYYR

-EET/EISN0026 EGGX0111 CZQX0228

REG/CFIUV SEL/FQHS **CODE/C0173E**)

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SATVOICE Equipage Filing

	New York			Oakland			Anchorage		
	Dec-15	Jun-16	Dec-16	Dec-15	Jun-16	Dec-16	Dec-15	Jun-16	Dec-16
Total Flights	21,266	19,424	21,810	23,358	22,900	25,552	5,537	6,505	5,644
% Flights Filing "M" Code in Field 10A	47%	53%	53%	69%	69%	71%	95%	94%	95%
% Flights Filing "M" Code in Field 10A that also filed CODE\ in Field 18	34%	47%	41%	51%	73%	65%	68%	72%	73%

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SATVOICE Equipage Filing – Dec 2016

Field 10A "M" codes Filed	New York		Oakland		Anchorage	
	Count of flights	% with CODE/ in Field 18	Count of flights	% with CODE/ in Field 18	Count of flights	% with CODE/ in Field 18
M1 only	8,493	36%	11,405	59%	3,711	67%
M2 only	1	0%		-	-	-
M3 only	1,517	72%	2,998	73%	560	84%
M1, M2, M3	12	42%	4	100%	1	100%
M1, M2	1,302	34%	2,477	75%	753	93%
M1, M3	208	49%	1,198	77%	345	79%
M2, M3	4	100%	3	-		-
No "M" codes	10,273	47%	7,467	51%	274	40%

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New York FIR - SATVOICE Filing by Operator

ICAO code	Total flights Dec 2016	% of all flights in FIR	% Filing M code(s)	% of flights with M code that have CODE/ filed
AFR	926	4%	100%	6%
AAL	1,790	8%	51%	34%
IBE	841	4%	98%	0%
JBU	2,996	14%	26%	88%
BAW	641	3%	99%	66%
DAL	1,820	8%	34%	61%
AEA	468	2%	100%	87%
VIR	429	2%	100%	44%
UAL	1624	7%	26%	74%
WJA	354	2%	100%	0%
FWI	323	1%	91%	78%
DLH	302	1%	93%	10%
BER	281	1%	99%	10%
TOM	288	1%	94%	31%
TAP	191	1%	95%	95%
CFG	485	2%	33%	28%
TFL	153	1%	97%	1%
EWG	145	1%	100%	12%
AZA	145	1%	100%	30%
SWR	144	1%	100%	87%

Oakland FIR - SATVOICE Filing by Operator

ICAO code	Total flights Dec 2016	% of all flights in FIR	% Filing M code(s)	% of flights with M code that have CODE/ filed
UAL	4,116	16%	70%	87%
HAL	1,737	7%	98%	98%
DAL	1,920	8%	74%	84%
KAL	1,070	4%	95%	70%
JAL	925	4%	100%	97%
AAL	1,801	7%	42%	13%
CPA	680	3%	100%	87%
ANA	665	3%	100%	78%
QFA	597	2%	99%	65%
EVA	563	2%	97%	14%
ANZ	514	2%	99%	56%
CAL	506	2%	95%	39%
FDX	464	2%	98%	63%
AAR	575	2%	78%	38%
WJA	419	2%	99%	0%
PAL	463	2%	79%	0%
CES	372	1%	97%	96%
UPS	370	1%	97%	94%
JST	298	1%	100%	97%
ACA	282	1%	100%	0%

Anchorage FIR - SATVOICE Filing by Operator

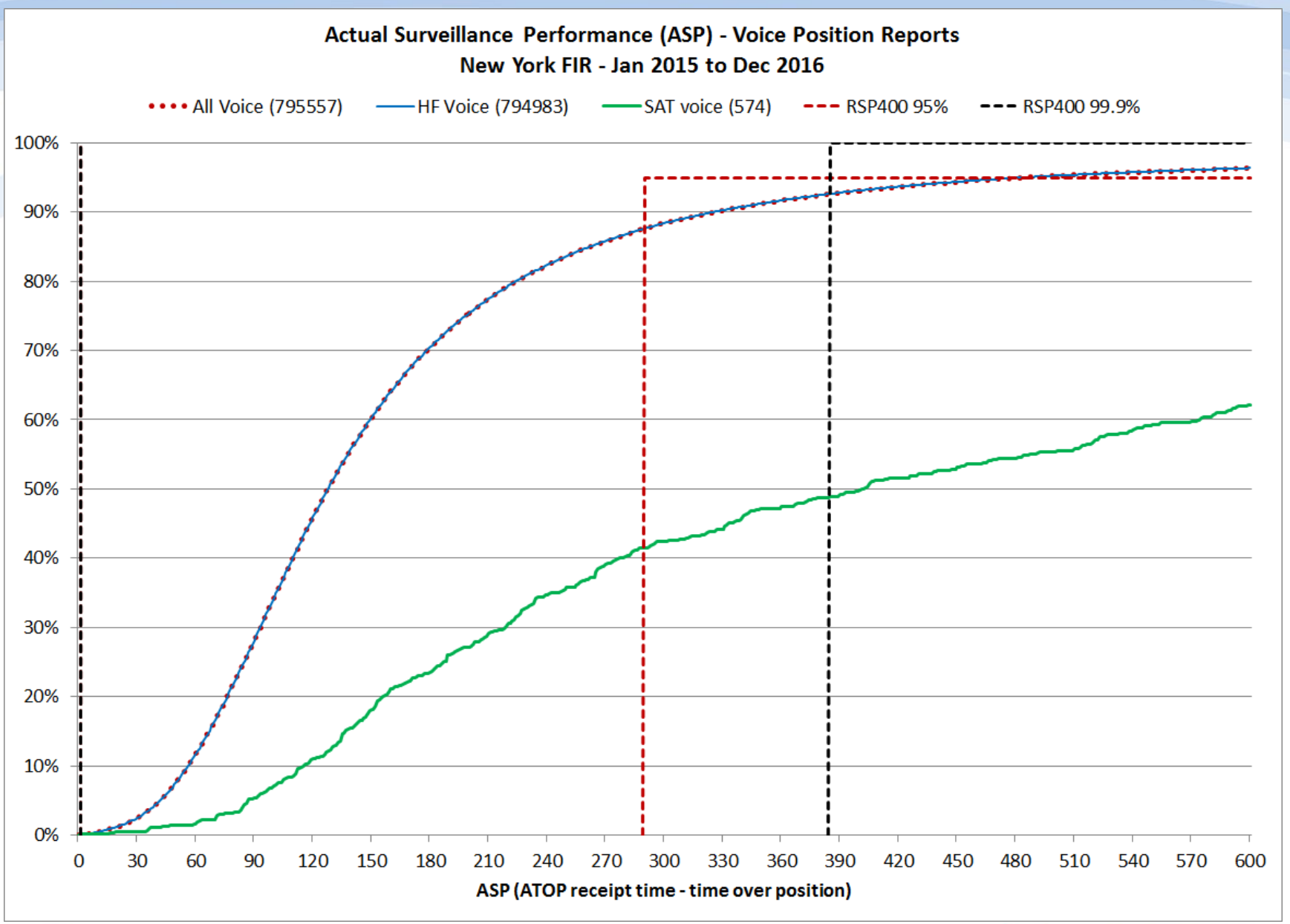
ICAO code	Total flights Dec 2016	% of all flights in FIR	% Filing M code(s)	% of flights with M code that have CODE/ filed
UAL	532	9%	96%	80%
CPA	451	8%	100%	96%
KAL	405	7%	99%	89%
UPS	378	7%	100%	88%
CAL	359	6%	97%	60%
ANA	344	6%	100%	95%
EVA	346	6%	97%	48%
JAL	314	6%	100%	94%
FDX	256	5%	99%	84%
ACA	254	5%	98%	0%
DAL	249	4%	98%	88%
PAC	197	3%	98%	97%
AAL	195	3%	98%	34%
CES	175	3%	99%	98%
AAR	165	3%	98%	62%
NCA	127	2%	100%	98%
CSN	117	2%	98%	0%
GTI	80	1%	99%	97%
CKK	62	1%	97%	0%
CLX	60	1%	98%	100%

Voice ASP Analysis

- Data source: Ocean21 DR&A - ACARS data
- Analysis Procedure:
  - Identify all voice position report (DL) clearance messages (key on “AEP”, “POS”)
  - Distinguish SAT (key on "DT SFO SV” for KZAK, "DT NYC SP” for KZNY)
  - Calculate time difference between Ocean21 receipt time of position report and time over “OV/” reported

$$\text{OC21 Receipt Time}_{\text{DL pos rpt}} - \text{Reported Time Over Position} = \text{ASP}_{\text{Voice}}$$

- Analysis period:
  - 2 years: January 2015 – December 2016
- Analysis Criteria: RSP400
  - 95% within 290 sec
  - 99.9% within 385 sec


Actual Surveillance Performance (ASP) - Voice Position Reports
New York FIR - Jan 2015 to Dec 2016
All Voice (795557)
HF Voice (794983)
SAT voice (574)
RSP400 95%
RSP400 99.9%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
390
420
450
480
510
540
570
600
ASP (ATOP receipt time - time over position)

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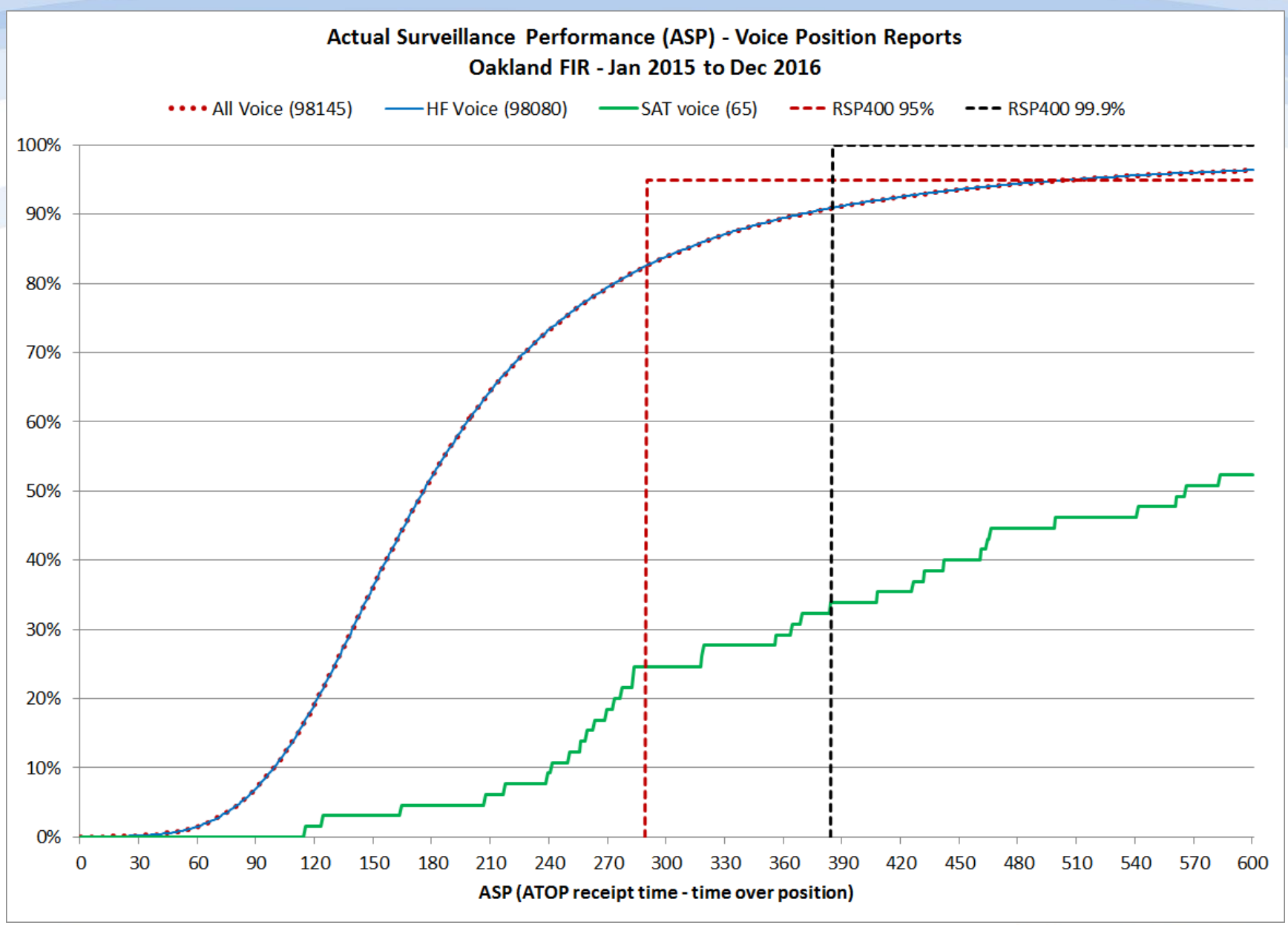
Actual Surveillance Performance (ASP) - Voice Position Reports
Oakland FIR - Jan 2015 to Dec 2016
All Voice (98145)
HF Voice (98080)
SAT voice (65)
RSP400 95%
RSP400 99.9%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
300
330
360
390
420
450
480
510
540
570
600
ASP (ATOP receipt time - time over position)

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SAT Voice ASP Summary

FIR	ZAK		ZNY	
	HF	SAT	HF	SAT
Total position reports observed	98,080	65	794,983	574
Maximum latency (sec)	5,589	1,888	9,657	3,765
Average latency (sec)	223	671	182	645
% within 290 sec (95% criteria)	82.7%	24.6%	87.6%	41.5%
% within 385 sec (99.9% criteria)	91.0%	33.8%	92.6%	49.0%
Actual 95% performance (sec)	507	1,610	485	1,906
Actual 99.9% performance (sec)	2,310	1,873	2,552	3,682

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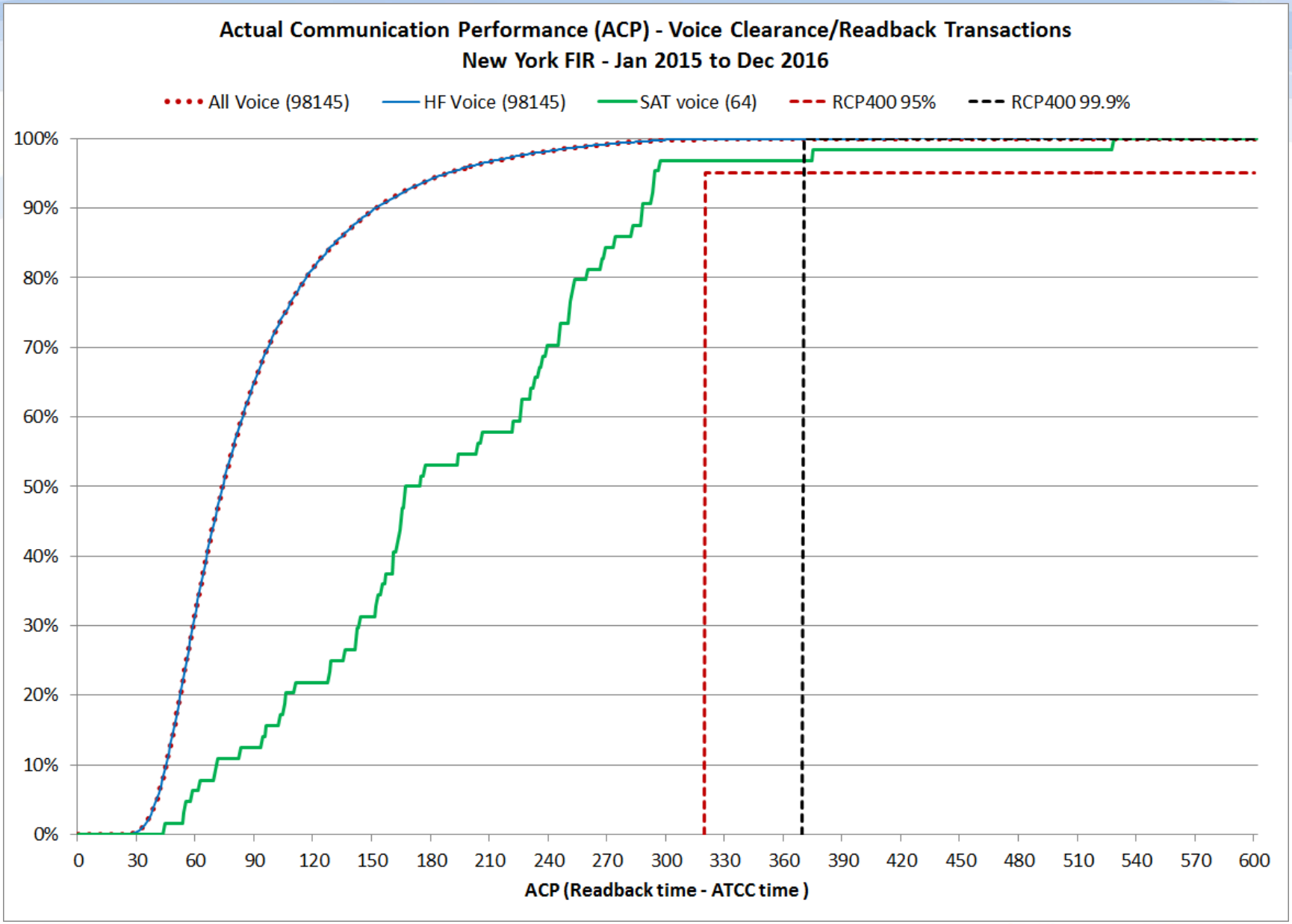
Voice ACP Analysis

- Data source: Ocean21 DR&A - ACARS data
- Analysis Procedure:
  - Identify all voice uplink (UL) clearance messages (key on “ATCC”)
  - Match downlink (DL) readback message (key on “RB” and matching timestamp within message)
  - Distinguish SAT (key on "DT SFO SV” for KZAK, "DT NYC SP” for KZNY)
  - Calculate time difference between Ocean21 receipt time of downlink readback and generation time of uplink clearance message

$$\text{OC21 Receipt Time}_{\text{DL readback}} - \text{Send Time}_{\text{UL clearance}} = \text{ACP}_{\text{Voice}}$$

- Analysis period:
  - 2 years: January 2015 – December 2016
- Analysis Criteria: RCP400
  - 95% within 320 sec
  - 99.9% within 370 sec


Actual Communication Performance (ACP) - Voice Clearance/Readback Transactions
New York FIR - Jan 2015 to Dec 2016
All Voice (98145)
HF Voice (98145)
SAT voice (64)
RCP400 95%
RCP400 99.9%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
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360
390
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570
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ACP (Readback time - ATCC time)

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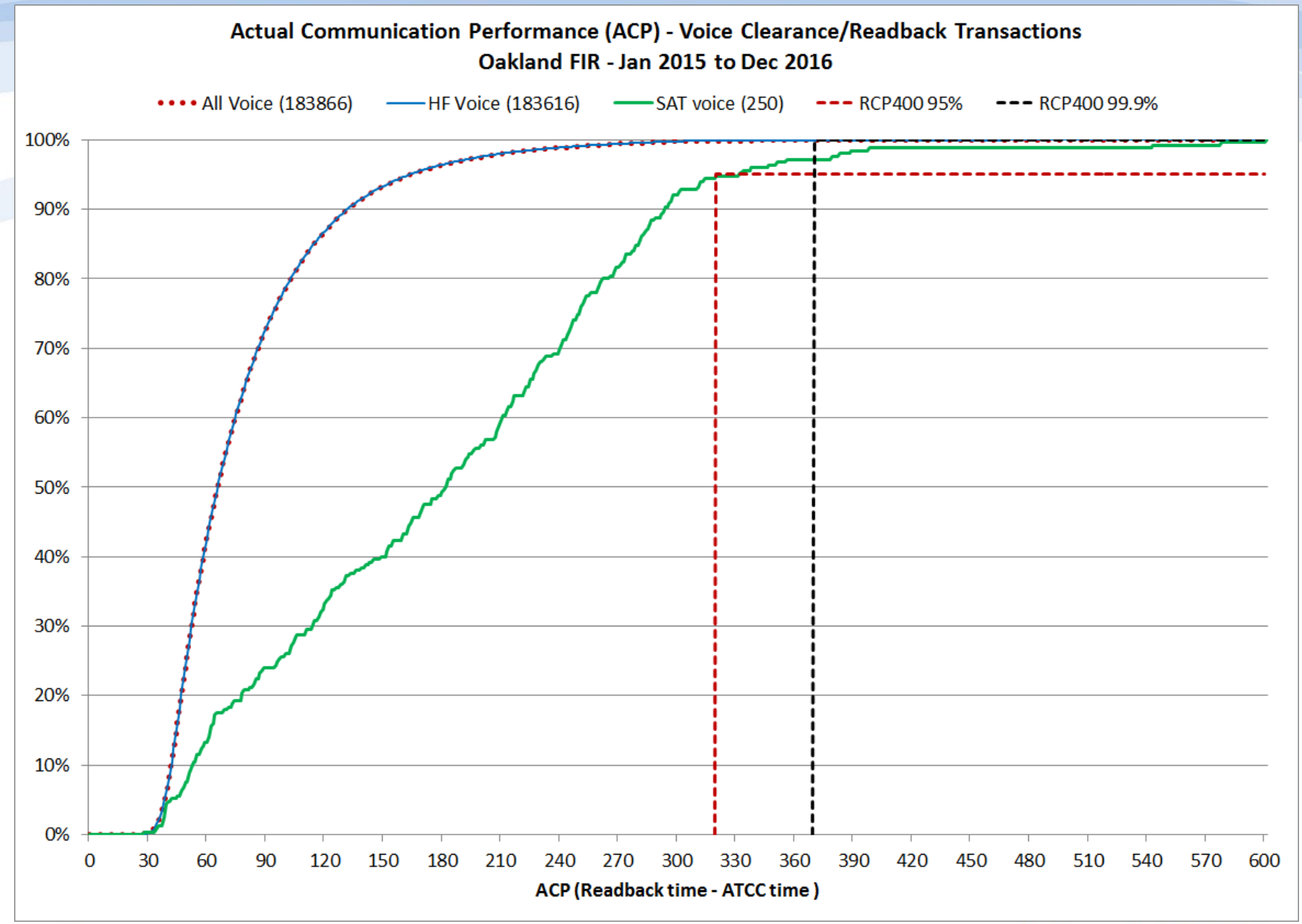
Actual Communication Performance (ACP) - Voice Clearance/Readback Transactions
Oakland FIR - Jan 2015 to Dec 2016
All Voice (183866)
HF Voice (183616)
SAT voice (250)
RCP400 95%
RCP400 99.9%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
30
60
90
120
150
180
210
240
270
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330
360
390
420
450
480
510
540
570
600
ACP (Readback time - ATCC time)

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SAT Voice ACP Summary

FIR	ZAK		ZNY	
	HF	SAT	HF	SAT
Total clearances observed	190,393	250	121,809	64
Total clearances with readback matched	183,616	250	98,145	64
Maximum transaction time (sec)	709	715	714	528
Average transaction time (sec)	79	181	88	190
% within 320 sec (95% criteria)	99.8%	94.8%	99.9%	96.9%
% within 370 sec (99.9% criteria)	99.9%	97.2%	99.9%	96.9%
Actual 95% performance (sec)	164	327	189	294
Actual 99.9% performance (sec)	344	681	319	518

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