

TEST REPORT

FCC Test for PSR-78-9533-NB
Certification

APPLICANT
ADRF KOREA, Inc.

REPORT NO.
HCT-RF-2602-FC004-R1

DATE OF ISSUE
February 20, 2026

Tested by
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TEST REPORT

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HCT-RF-2602-FC004-R1

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February 20, 2026

Applicant**ADRF KOREA, Inc.**

196-16 IYEO-RO BAEKSA-MYEON ICHEON-SI, GYEONGGI-DO, 17316, KOREA

Product Name

Public Safety Repeater

Model Name

PSR-78-9533-NB

FCC ID

N52-PSR-78-NB

Date of Test

December 2, 2026 ~ February 20, 2026

Location of Test☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

Test Standard Used

CFR 47 Part 90

Test Results

PASS

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	February 10, 2026	Initial Release
1	February 20, 2026	- Revised the test results in Section 5.2 - Updated the test results in Section 5.3 - Revised the test results in Section 5.4 - Added plots for the Input/Output power in Section 5.5. - Revised the test results in Section 5.6

Notice

Content

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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1. GENERAL INFORMATION

1.1. APPLICANT INFORMATION

Company Name	ADRF KOREA, Inc.
Company Address	196-16 IYEO-RO BAEKSA-MYEON ICHEON-SI, GYEONGGI-DO, 17316, KOREA

1.2. PRODUCT INFORMATION

EUT Type	Public Safety Repeater		
EUT Serial Number	P789533NBXXXXXX		
Power Supply	AC 110~220 Vac		
Frequency Range	Band Name	Uplink (MHz)	Downlink (MHz)
	PS Narrowband	799 ~ 805	769 ~ 775
	NPSPAC	806 ~ 809	851 ~ 854
	B/ILT; SMR	809 ~ 816	854 ~ 861
	ESMR	817 ~ 824	862 ~ 869
Tx Output Power	Uplink: 30 dBm, Downlink: 33 dBm		
Antenna Peak Gain	Band Name	Uplink	Downlink
	PS Narrowband	6.5 dBd	2.6 dBi
	NPSPAC		3.9 dBi
	B/ILT; SMR		
	ESMR		

1.3. TEST INFORMATION

FCC Rule Parts	CFR 47 Part 90
Measurement Standards	KDB 935210 D05 v01r04, KDB 971168 D01 v03r01, ANSI C63.26-2015
Test Location	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea

2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3. TEST SPECIFICATIONS

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR 47 Part 2, Part 90.

Description	Reference	Results
AGC threshold	KDB 935210 D05 v01r04 4.2	Compliant
Out-of-band rejection	KDB 935210 D05 v01r04 4.3	Compliant
Occupied Bandwidth	§ 2.1049 § 90.209, § 90.219(e)(4)(ii)	Compliant
Input-versus-output signal comparison	§ 90.210, § 90.219(e)(4)(iii)	Compliant
Input/output power and amplifier/booster gain	§ 2.1046, § 90.219(e)(1)	Compliant
Noise figure	§ 90.219(e)(2)	Compliant
Out-of-band/out-of-block emissions and spurious emissions	§ 2.1051, § 90.219(e)(3), § 90.543(f)	Compliant
Spurious emissions radiated	§ 2.1053	Compliant
Frequency Stability	§ 90.213	Compliant

Note: The decision rule applies 'simple acceptance'

3.2. ADDITIONAL DESCRIPTIONS ABOUT TEST

- Except for the following cases, EUT was tested under normal operating conditions.
: Out-of-band rejection test requires maximum gain condition without AGC.
- The test was generally based on the method of KDB 935210 D05 v01r04 and only followed ANSI C63.26-2015 if there was no test method in KDB standard.
- The EUT was tested using test signals required by the test procedures, configured based on the manufacturer's specifications.

Band Name	Uplink		Downlink	
	Frequency (MHz)	Test Signal	Frequency (MHz)	Test Signal
Public Safety Narrowband	799 ~ 805	CW, FM (12.5 kHz, 25 kHz) P25 Phase 1 (C4FM) P25 Phase 2 (H-CPM)	769 ~ 775	CW, FM (12.5 kHz, 25 kHz) P25 Phase 1 (C4FM), P25 Phase 1 (CQPSK) P25 Phase 2 (H-CPM)
NPSPAC	806 ~ 809	CW, FM (12.5 kHz) P25 Phase 1 (C4FM) P25 Phase 2 (H-CPM)	851 ~ 854	CW, FM (12.5 kHz) P25 Phase 1 (C4FM), P25 Phase 1 (CQPSK) P25 Phase 2 (H-CPM)
B/ILT; SMR	809 ~ 816	CW, FM (12.5 kHz, 25 kHz) P25 Phase 1 (C4FM) P25 Phase 2 (H-CPM)	854 ~ 861	CW, FM (12.5 kHz, 25 kHz) P25 Phase 1 (C4FM), P25 Phase 1 (CQPSK) P25 Phase 2 (H-CPM)
ESMR	817 ~ 824		862 ~ 869	

- Simultaneous transmission band condition

700 MHz band	800 MHz band
Public Safety Narrowband	NPSPAC, B/ILT; SMR, ESMR

The tests results included actual loss value for attenuator and cable combination as shown in the table below.

: Input Path

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
600	0.283	800	0.402
650	0.336	850	0.286
700	0.333	900	0.256
750	0.388	950	0.394

: Output Path

Correction factor table			
Frequency (MHz)	Factor (dB)	Frequency (MHz)	Factor (dB)
2	28.964	2 000	30.856
10	29.034	2 100	30.846
30	29.169	2 200	30.939
50	29.246	2 300	31.049
100	29.346	2 400	31.098
200	29.556	2 500	31.171
300	29.747	2 600	31.111
400	29.870	2 700	31.251
500	29.848	2 800	31.253
600	30.042	2 900	31.235
700	30.163	3 000	31.225
800	30.132	4 000	31.733
900	30.217	5 000	32.018
1 000	30.356	6 000	32.350
1 100	30.365	7 000	33.543
1 200	30.530	8 000	34.023
1 300	30.523	9 000	34.324
1 400	30.580	10 000	35.259
1 500	30.625	-	-
1 600	30.780	-	-
1 700	30.676	-	-
1 800	30.604	-	-
1 900	30.673	-	-

3.3. MEASUREMENT UNCERTAINTY

Parameter		Expanded Uncertainty
Radiated Disturbance	9 kHz ~ 30 MHz	4.36 dB
	30 MHz ~ 1 GHz	5.68 dB
	1 GHz ~ 18 GHz	5.75 dB
	18 GHz ~ 40 GHz	5.82 dB

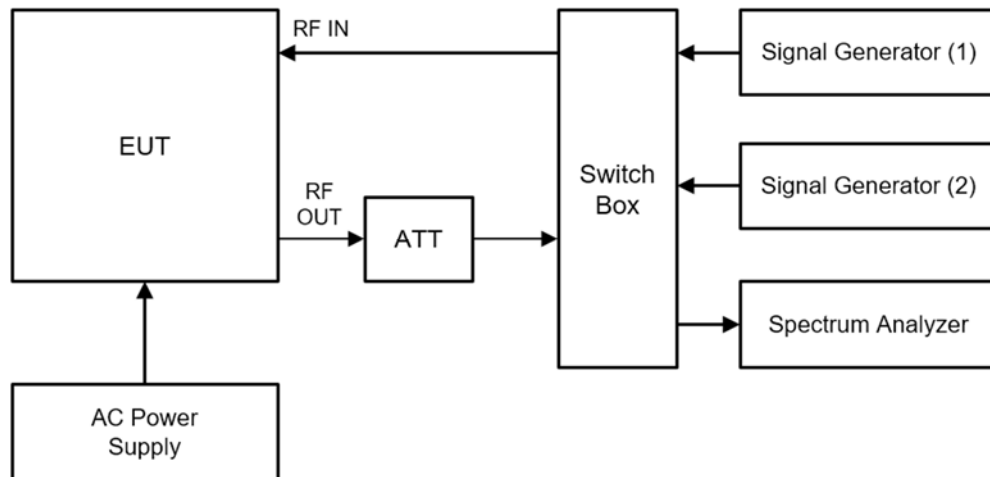
Coverage factor $k=2$, Confidence levels of 95 %

3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature	+15 °C to +35 °C
Relative humidity	30 % to 60 %
Air pressure	860 mbar to 1 060 mbar

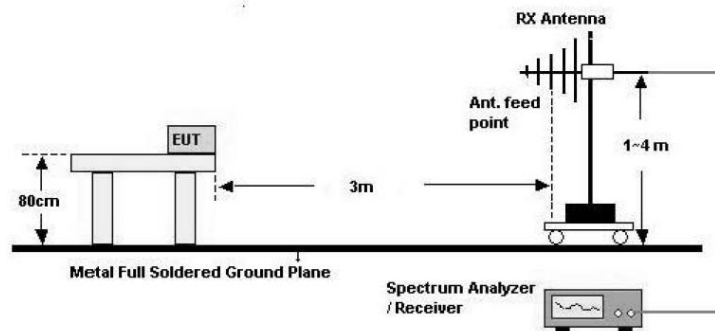
3.5. TEST DIAGRAMS

Conducted Test

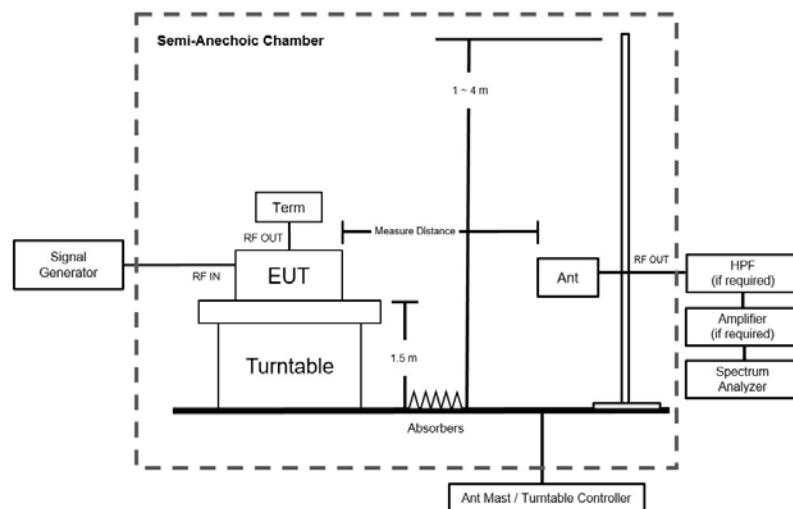


Radiated Test

30 MHz ~ 1 GHz

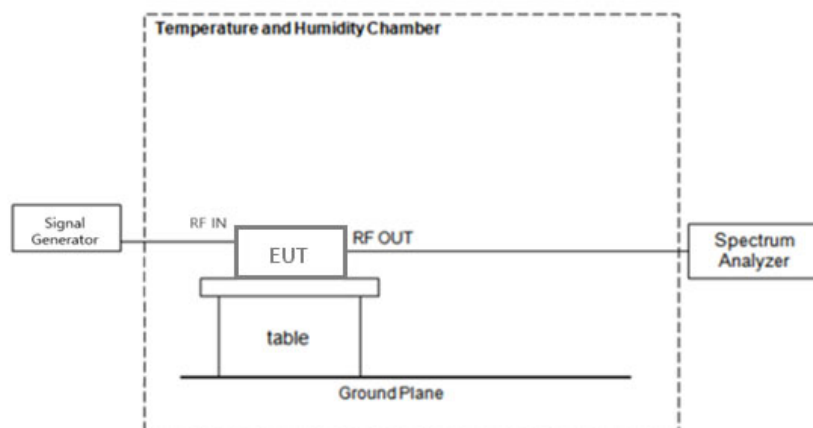


Above 1 GHz



Note: Measure distance for Above 1 GHz is 3 m.

Frequency Stability



4. TEST EQUIPMENTS

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
MXA Signal Analyzer	N9020A	Agilent	MY51110063	03/24/2026	Annual
# MXG Vector Signal Generator	N5182A	Agilent	MY47070230	03/19/2026	Annual
SIGNAL GENERATOR	SMBV100B	ROHDE&SCHWARZ	101177	02/25/2026	Annual
# 30 dB Attenuator	WA93-30-33	Weinschel Associates	0113	11/05/2026	Annual
AC Power Supply	PCR2000MA	KIKUSUI	ZL002530	12/17/2026	Annual
Switch	S46-SV11	KEITHLEY	1088025	N/A	N/A
# 50Ω Termination	908A	H.P.	N/A	N/A	N/A
Temperature and Humidity Chamber	NY-THR18750	NANGYEAL	NY-200912201A	12/16/2026	Annual
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090002	N/A	N/A
Controller(Antenna Mast & Turn Table)	CO3000	Innco systems	CO3000/1251/48920320/P	N/A	N/A
Antenna Mast	MA4640	Innco systems	S4AM	08/01/2026	Annual
Turn Table	1060	Innco systems	N/A	N/A	N/A
Turn Table	Turn Table	Ets	N/A	N/A	N/A
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/07/2026	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-937	02/07/2027	Biennial
RF Switching System	FBSR-04C (LNA)	TNM system	S4L4	03/12/2026	Annual
RF Switching System	FBSR-04C (Thru)	TNM system	S4L6	03/12/2026	Annual
Low Noise Amplifier	TK-PA1840H	TESTEK	170011-L	09/29/2026	Annual
High Pass Filter	WHKX10-900-1000-15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/10/2026	Annual

Multiple pieces of equipment were used depending on the test configuration; however, only one is listed for simplicity.

Note: All test equipment was within its valid calibration period at the time of testing.

5. TEST RESULT

5.1. AGC THRESHOLD

Test Requirement:

KDB 935210 D05 v01r04

Testing at and above the AGC threshold is required.

Test Procedures:

Measurements were in accordance with the test methods section 4.2 of KDB 935210 D05 v01r04.

Testing at and above the AGC threshold will be required. The AGC threshold shall be determined by applying the procedure of 3.2, but with the signal generator configured to produce a test signal defined in Table 1, a CW input signal, or a digitally modulated signal, consistent with the discussion about signal types in 4.1.

Measurement were in accordance with the test methods in subclause 7.2.3.1 of ANSI C63.26.

- a) Connect a signal generator to the input of the EUT.
- b) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation.
- c) The signal generator must be set for CW operation.
- d) While monitoring the output of the EUT, increase the input level until a 1 dB increase in the input signal no longer causes a 1 dB increase in the output signal.
- e) This is the AGC threshold level of the EUT.

Test Results:

Test Band	Link	Test Signal	Center Frequency (MHz)	AGC Threshold Level (dBm)	Output Level (dBm)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	802.00	-65	29.60
		P25 Phase 2 (H-CPM)	802.00	-65	29.64
		CW	802.00	-65	29.54
	Downlink	P25 Phase 1 (C4FM)	772.00	-62	32.60
		P25 Phase 1 (CQPSK)	772.00	-62	32.70
		P25 Phase 2 (H-DQPSK)	772.00	-62	32.64
		FM	772.00	-62	32.54
NPSPAC	Uplink	P25 Phase 1 (C4FM)	807.50	-65	29.50
		P25 Phase 2 (H-CPM)	807.50	-65	29.53
		FM	807.50	-65	29.55
	Downlink	P25 Phase 1 (C4FM)	852.50	-62	32.57
		P25 Phase 1 (CQPSK)	852.50	-62	32.69
		P25 Phase 2 (H-DQPSK)	852.50	-62	32.78
		FM	852.50	-62	32.94
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	812.50	-65	29.50
		P25 Phase 2 (H-CPM)	812.50	-65	29.64
		FM	812.50	-65	29.72
	Downlink	P25 Phase 1 (C4FM)	857.50	-62	32.54
		P25 Phase 1 (CQPSK)	857.50	-62	32.67
		P25 Phase 2 (H-DQPSK)	857.50	-62	32.66
		FM	857.50	-62	32.52
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	-65	29.59
		P25 Phase 2 (H-CPM)	820.50	-65	29.70
		FM	820.50	-65	29.63
	Downlink	P25 Phase 1 (C4FM)	865.50	-62	32.60
		P25 Phase 1 (CQPSK)	865.50	-62	32.64
		P25 Phase 2 (H-DQPSK)	865.50	-62	32.81
		FM	865.50	-62	32.55

5.2. OUT-OF-BAND REJECTION

Test Requirement:

KDB 935210 D05 v01r04

Out-of-band rejection required.

Test Procedures:

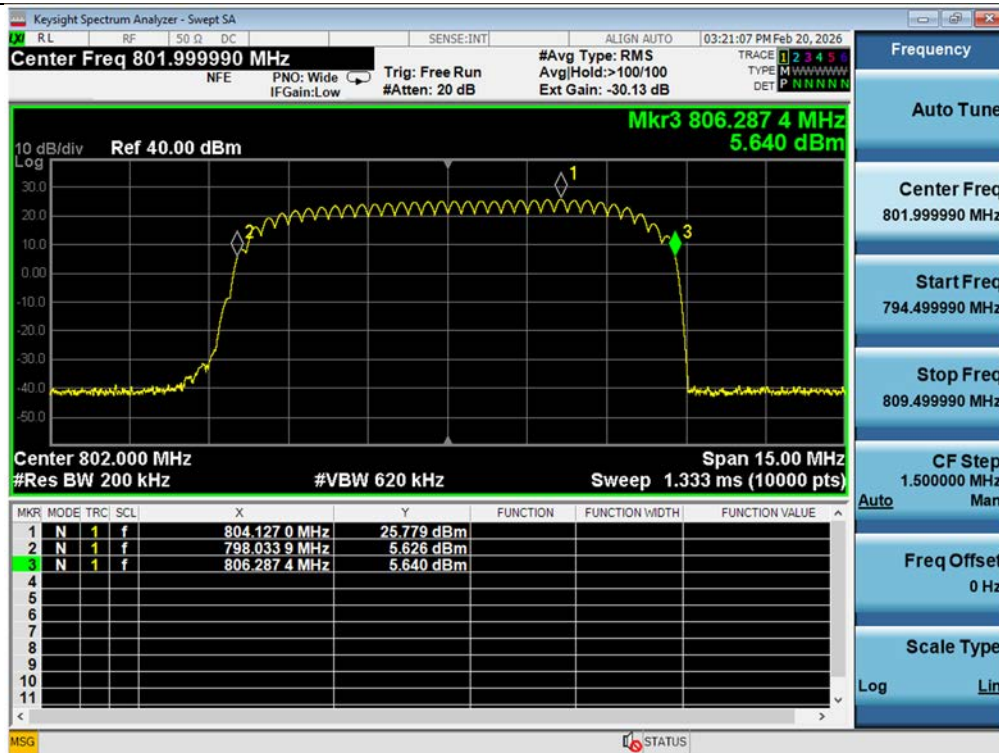
Measurements were in accordance with the test methods section 4.3 of KDB 935210 D05 v01r04.

A signal booster shall reject amplification of other signals outside of its passband. Adjust the internal gain control of the EUT to the maximum gain for which equipment certification is sought.

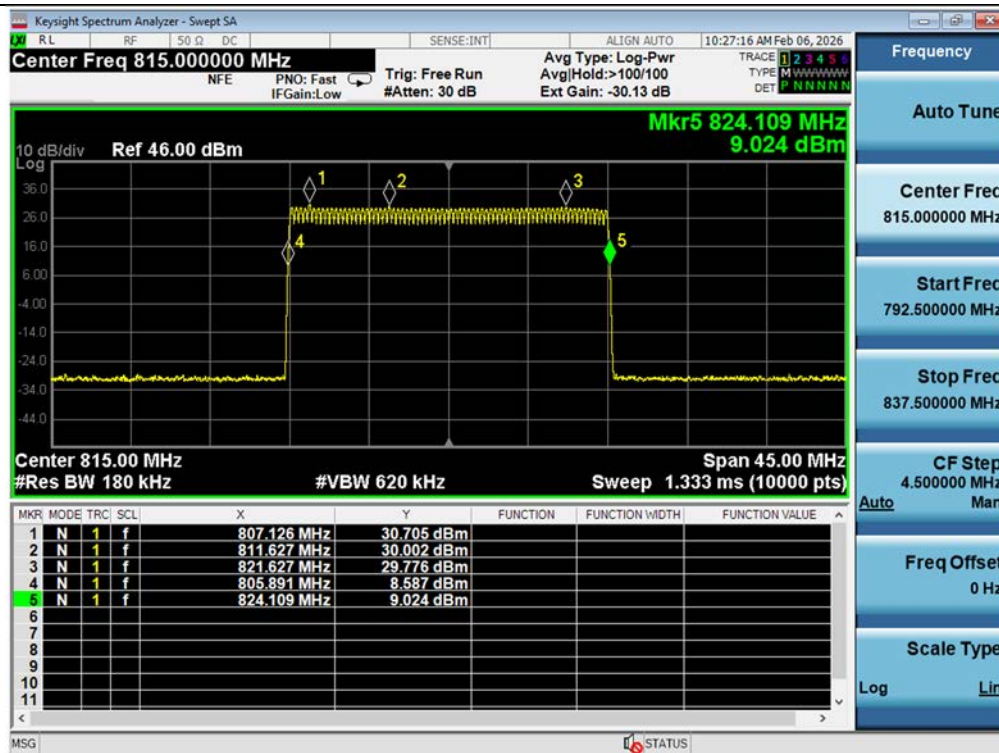
- a) Connect a signal generator to the input of the EUT.
- b) Configure a swept CW signal with the following parameters:
 - 1) Frequency range = ± 250 % of the manufacturer's specified pass band.
 - 2) The CW amplitude shall be 3 dB below the AGC threshold (see 4.2), and shall not activate the AGC threshold throughout the test.
 - 3) Dwell time = approximately 10 ms.
 - 4) Frequency step = 50 kHz.
- c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.
- d) Set the RBW of the spectrum analyzer to between 1 % and 5 % of the manufacturer's rated passband, and VBW = $3 \times$ RBW.
- e) Set the detector to Peak and the trace to Max-Hold.
- f) After the trace is completely filled, place a marker at the peak amplitude, which is designated as f_0 , and with two additional markers (use the marker-delta method) at the 20 dB bandwidth (i.e., at the points where the level has fallen by 20 dB).
- g) Capture the frequency response plot for inclusion in the test report.

Test Results:

Public Safety Narrowband / Uplink

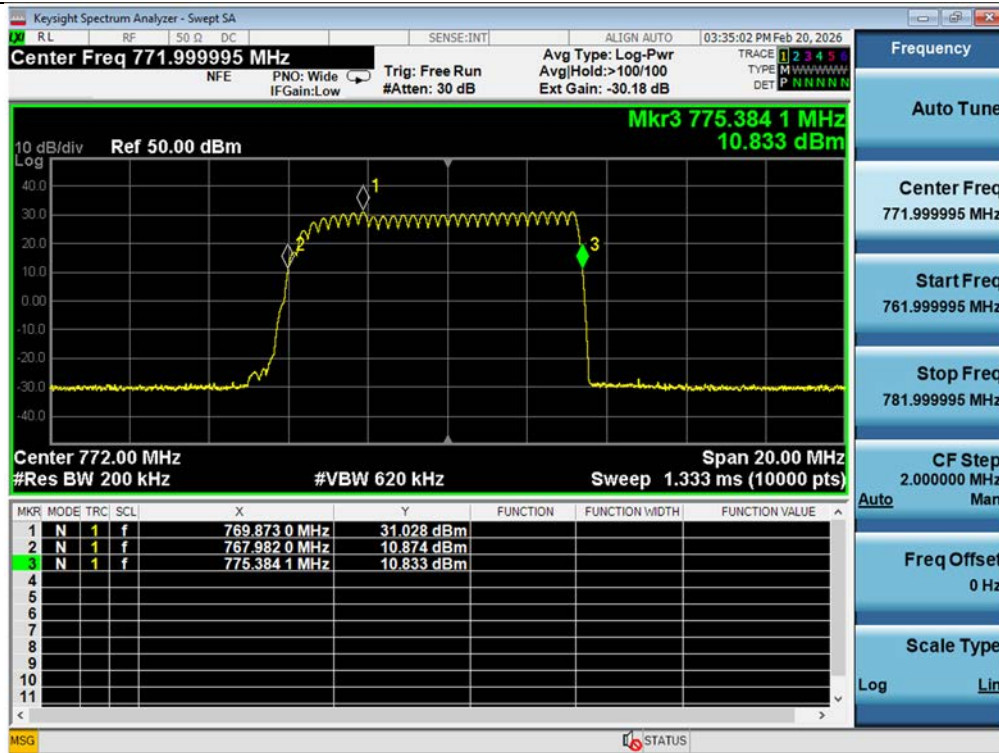


800 MHz (NPSPAC, B/ILT; SMR, ESMR) / Uplink

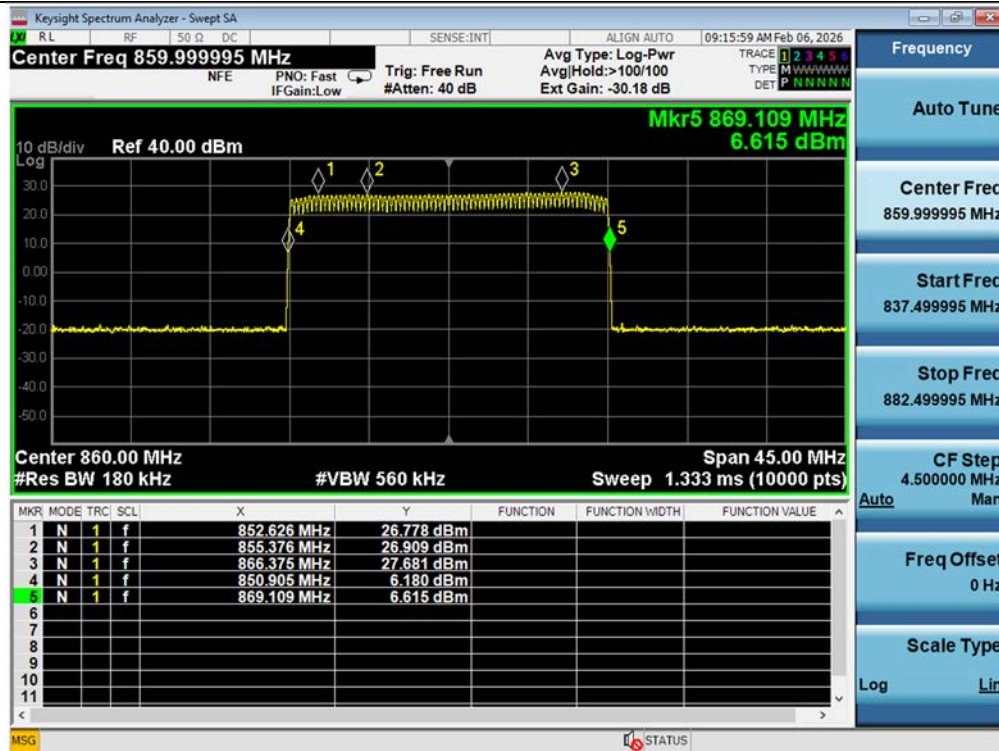


Note: The EUT supports amplification from 806 to 824 MHz; however, this report includes results only for the 806 ~ 809 MHz, 809 ~ 816 MHz, and 817 ~ 824 MHz bands.

Public Safety Narrowband / Downlink



800 MHz (NPSPAC, B/ILT; SMR, ESMR) / Downlink



Note: The EUT supports amplification from 851 to 869 MHz; however, this report includes results only for the 851 ~ 854 MHz, 854 ~ 861 MHz, and 862 ~ 869 MHz bands.

5.3. OCCUPIED BANDWIDTH

Test Requirement:

§ 2.1049 Measurements required: Occupied bandwidth.

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the specified conditions of § 2.1049 (a) through (i) as applicable.

§ 90.209 Bandwidth limitations.

Table 1 to § 90.209(b)(5) - Standard Channel Spacing/Bandwidth

Frequency band (MHz)	Channel spacing (kHz)	Authorized bandwidth (kHz)
Below 25		
25-50	20	20
72-76	20	20
150-174	7.5	¹ 20/11.25/6
216-220	6.25	20/11.25/6
220-222	5	4
406-512	6.25	20/11.25/6
806-809/851-854 [#]	12.5	20
809-817/854-862	12.5	20/11.25
817-824/862-869	25	20
896-901/935-940	12.5	13.6
902-928		
929-930	25	20
1427-1432	12.5	12.5
2450-2483.5		
Above 2500		

§ 90.219 Use of signal boosters.

(e) Device Specifications. In addition to the general rules for equipment certification in § 90.203(a)(2) and part 2, subpart J of this chapter, a signal booster must also meet the rules in this paragraph.

(4) A signal booster must be designed such that all signals that it retransmits meet the following requirements:

(ii) There is no change in the occupied bandwidth of the retransmitted signals.

Test Procedures:

Measurements were in accordance with the test methods section 5.4.4 of ANSI C63.26-2015.

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient).
- b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.
- c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.
- d) Set the detection mode to peak, and the trace mode to max-hold.
- e) Omit
- f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Test Results:

Tabular data of Input Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (kHz)	26 dB OBW (kHz)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	802.00	8.215	10.95
		P25 Phase 2 (H-CPM)	802.00	8.140	10.70
		FM (12.5 kHz)	802.00	11.418	12.99
		FM (25 kHz)	802.00	16.401	18.70
	Downlink	P25 Phase 1 (C4FM)	772.00	8.254	11.21
		P25 Phase 1 (CQPSK)	772.00	4.876	5.436
		P25 Phase 2 (H-DQPSK)	772.00	9.776	12.13
		FM (12.5 kHz)	772.00	11.414	12.99
NPSPAC	Uplink	P25 Phase 1 (C4FM)	807.50	8.260	11.18
		P25 Phase 2 (H-CPM)	807.50	8.113	10.69
		FM (12.5 kHz)	807.50	11.462	12.99
	Downlink	P25 Phase 1 (C4FM)	852.50	8.269	11.31
		P25 Phase 1 (CQPSK)	852.50	4.878	5.439
		P25 Phase 2 (H-DQPSK)	852.50	9.771	12.15
		FM (12.5 kHz)	852.50	11.430	12.99
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	812.50	8.232	11.24
		P25 Phase 2 (H-CPM)	812.50	8.130	10.72
		FM (12.5 kHz)	812.50	11.468	12.99
		FM (25 kHz)	812.50	16.405	18.71
	Downlink	P25 Phase 1 (C4FM)	857.50	8.223	11.23
		P25 Phase 1 (CQPSK)	857.50	4.879	5.433
		P25 Phase 2 (H-DQPSK)	857.50	9.779	12.14
		FM (12.5 kHz)	857.50	11.424	12.98
ESMR	Uplink	FM (25 kHz)	857.50	16.397	18.69
	Uplink	P25 Phase 1 (C4FM)	820.50	8.345	11.24
		P25 Phase 2 (H-CPM)	820.50	8.123	10.73
		FM (12.5 kHz)	820.50	11.447	12.99
		FM (25 kHz)	820.50	16.405	18.69
	Downlink	P25 Phase 1 (C4FM)	865.50	8.223	11.01
		P25 Phase 1 (CQPSK)	865.50	4.884	5.430
		P25 Phase 2 (H-DQPSK)	865.50	9.764	12.14
		FM (12.5 kHz)	865.50	11.429	12.99
		FM (25 kHz)	865.50	16.398	18.70

Tabular data of Output Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (kHz)	26 dB OBW (kHz)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	802.00	8.275	10.89
		P25 Phase 2 (H-CPM)	802.00	8.100	10.70
		FM (12.5 kHz)	802.00	11.393	12.98
		FM (25 kHz)	802.00	16.345	18.65
	Downlink	P25 Phase 1 (C4FM)	772.00	8.267	11.18
		P25 Phase 1 (CQPSK)	772.00	4.879	5.434
		P25 Phase 2 (H-DQPSK)	772.00	9.699	12.09
		FM (12.5 kHz)	772.00	11.392	12.98
		FM (25 kHz)	772.00	16.346	18.66
NPSPAC	Uplink	P25 Phase 1 (C4FM)	807.50	8.151	11.18
		P25 Phase 2 (H-CPM)	807.50	8.105	10.69
		FM (12.5 kHz)	807.50	11.351	12.97
	Downlink	P25 Phase 1 (C4FM)	852.50	8.110	11.32
		P25 Phase 1 (CQPSK)	852.50	4.880	5.428
		P25 Phase 2 (H-DQPSK)	852.50	9.685	12.07
		FM (12.5 kHz)	852.50	11.351	12.97
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	812.50	8.258	11.23
		P25 Phase 2 (H-CPM)	812.50	8.107	10.70
		FM (12.5 kHz)	812.50	11.349	12.97
		FM (25 kHz)	812.50	16.248	18.59
	Downlink	P25 Phase 1 (C4FM)	857.50	8.092	11.17
		P25 Phase 1 (CQPSK)	857.50	4.883	5.418
		P25 Phase 2 (H-DQPSK)	857.50	9.691	12.06
		FM (12.5 kHz)	857.50	11.352	12.98
		FM (25 kHz)	857.50	16.250	18.60
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.149	11.19
		P25 Phase 2 (H-CPM)	820.50	8.106	10.69
		FM (12.5 kHz)	820.50	11.383	12.98
		FM (25 kHz)	820.50	16.345	18.66
	Downlink	P25 Phase 1 (C4FM)	865.50	8.209	11.04
		P25 Phase 1 (CQPSK)	865.50	4.886	5.429
		P25 Phase 2 (H-DQPSK)	865.50	9.690	12.11
		FM (12.5 kHz)	865.50	11.386	12.98
		FM (25 kHz)	865.50	16.346	18.66

Tabular data of 3 dB above the AGC threshold Input Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (kHz)	26 dB OBW (kHz)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	802.00	8.244	11.16
		P25 Phase 2 (H-CPM)	802.00	8.120	10.72
		FM (12.5 kHz)	802.00	11.417	12.99
		FM (25 kHz)	802.00	16.395	18.69
	Downlink	P25 Phase 1 (C4FM)	772.00	8.222	11.09
		P25 Phase 1 (CQPSK)	772.00	4.878	5.437
		P25 Phase 2 (H-DQPSK)	772.00	9.783	12.15
		FM (12.5 kHz)	772.00	11.414	12.99
		FM (25 kHz)	772.00	16.390	18.69
NPSPAC	Uplink	P25 Phase 1 (C4FM)	807.50	8.333	11.23
		P25 Phase 2 (H-CPM)	807.50	8.138	10.76
		FM (12.5 kHz)	807.50	11.424	12.99
	Downlink	P25 Phase 1 (C4FM)	852.50	8.317	11.12
		P25 Phase 1 (CQPSK)	852.50	4.881	5.430
		P25 Phase 2 (H-DQPSK)	852.50	9.767	12.14
		FM (12.5 kHz)	852.50	11.414	12.99
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	812.50	8.213	11.19
		P25 Phase 2 (H-CPM)	812.50	8.133	10.73
		FM (12.5 kHz)	822.50	11.436	12.99
		FM (25 kHz)	812.50	16.394	18.70
	Downlink	P25 Phase 1 (C4FM)	857.50	8.260	11.26
		P25 Phase 1 (CQPSK)	857.50	4.880	5.438
		P25 Phase 2 (H-DQPSK)	857.50	9.791	12.13
		FM (12.5 kHz)	857.50	11.415	12.98
		FM (25 kHz)	857.50	16.393	18.69
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.358	11.24
		P25 Phase 2 (H-CPM)	820.50	8.129	10.70
		FM (12.5 kHz)	820.50	11.428	12.99
		FM (25 kHz)	820.50	16.397	18.70
	Downlink	P25 Phase 1 (C4FM)	865.50	8.276	11.17
		P25 Phase 1 (CQPSK)	865.50	4.878	5.419
		P25 Phase 2 (H-DQPSK)	865.50	9.772	12.14
		FM (12.5 kHz)	865.50	11.413	12.98
		FM (25 kHz)	865.50	16.392	18.69

Tabular data of 3 dB above the AGC threshold Output Occupied Bandwidth

Test Band	Link	Signal	Center Frequency (MHz)	99 % OBW (kHz)	26 dB OBW (kHz)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	802.00	8.267	11.20
		P25 Phase 2 (H-CPM)	802.00	8.114	10.69
		FM (12.5 kHz)	802.00	11.390	12.98
		FM (25 kHz)	802.00	16.345	18.66
	Downlink	P25 Phase 1 (C4FM)	772.00	8.382	11.05
		P25 Phase 1 (CQPSK)	772.00	4.880	5.430
		P25 Phase 2 (H-DQPSK)	772.00	9.703	12.08
		FM (12.5 kHz)	772.00	11.385	12.98
NPSPAC	Uplink	P25 Phase 1 (C4FM)	807.50	8.138	11.16
		P25 Phase 2 (H-CPM)	807.50	8.100	10.69
		FM (12.5 kHz)	807.50	11.351	12.97
	Downlink	P25 Phase 1 (C4FM)	852.50	8.063	11.20
		P25 Phase 1 (CQPSK)	852.50	4.787	5.425
		P25 Phase 2 (H-DQPSK)	852.50	9.687	12.11
		FM (12.5 kHz)	852.50	11.353	12.98
		FM (25 kHz)	852.50	16.335	18.64
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	812.50	8.219	11.09
		P25 Phase 2 (H-CPM)	812.50	8.097	10.69
		FM (12.5 kHz)	812.50	11.349	12.98
		FM (25 kHz)	812.50	16.249	18.61
	Downlink	P25 Phase 1 (C4FM)	857.50	8.113	11.32
		P25 Phase 1 (CQPSK)	857.50	4.879	5.426
		P25 Phase 2 (H-DQPSK)	857.50	9.691	12.11
		FM (12.5 kHz)	857.50	11.357	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98
ESMR	Uplink	P25 Phase 1 (C4FM)	820.50	8.217	11.22
		P25 Phase 2 (H-CPM)	820.50	8.103	10.69
		FM (12.5 kHz)	820.50	11.382	12.98
		FM (25 kHz)	820.50	16.346	18.65
	Downlink	P25 Phase 1 (C4FM)	865.50	8.243	11.14
		P25 Phase 1 (CQPSK)	865.50	4.882	5.428
		P25 Phase 2 (H-DQPSK)	865.50	9.682	12.12
		FM (12.5 kHz)	865.50	11.386	12.98

Measured Occupied Bandwidth Comparison

Test Band	Link	Signal	Variant of Input and output Occupied Bandwidth (%)	Variant of Input and 3 dB above the AGC threshold output Occupied Bandwidth (%)
Public Safety Narrowband	Uplink	P25 Phase 1 (C4FM)	-0.57	0.40
		P25 Phase 2 (H-CPM)	0.00	-0.26
		FM (12.5 kHz)	-0.08	-0.05
		FM (25 kHz)	-0.26	-0.20
	Downlink	P25 Phase 1 (C4FM)	-0.27	-0.36
		P25 Phase 1 (CQPSK)	-0.04	-0.13
		P25 Phase 2 (H-DQPSK)	-0.36	-0.63
		FM (12.5 kHz)	-0.04	-0.04
NPS PAC	Uplink	P25 Phase 1 (C4FM)	-0.02	-0.56
		P25 Phase 2 (H-CPM)	-0.02	-0.63
		FM (12.5 kHz)	-0.08	-0.09
	Downlink	P25 Phase 1 (C4FM)	0.09	0.72
		P25 Phase 1 (CQPSK)	-0.20	-0.09
		P25 Phase 2 (H-DQPSK)	-0.66	-0.25
		FM (12.5 kHz)	-0.08	-0.07
		FM (25 kHz)	-0.16	-0.25
B/ILT; SMR	Uplink	P25 Phase 1 (C4FM)	-0.09	-0.87
		P25 Phase 2 (H-CPM)	-0.17	-0.33
		FM (12.5 kHz)	-0.08	-0.08
		FM (25 kHz)	-0.64	-0.49
	Downlink	P25 Phase 1 (C4FM)	-0.53	0.53
		P25 Phase 1 (CQPSK)	-0.28	-0.22
		P25 Phase 2 (H-DQPSK)	-0.63	-0.24
		FM (12.5 kHz)	-0.08	-0.07
ESMR	Uplink	P25 Phase 1 (C4FM)	-0.51	-0.20
		P25 Phase 2 (H-CPM)	-0.34	-0.10
		FM (12.5 kHz)	-0.07	-0.05
		FM (25 kHz)	-0.16	-0.26
	Downlink	P25 Phase 1 (C4FM)	0.27	-0.27
		P25 Phase 1 (CQPSK)	-0.02	0.17
		P25 Phase 2 (H-DQPSK)	-0.31	-0.16
		FM (12.5 kHz)	-0.05	-0.03
		P25 Phase 1 (C4FM)	-0.24	-0.17
		P25 Phase 2 (H-CPM)	-0.34	-0.10
		FM (12.5 kHz)	-0.07	-0.05
		FM (25 kHz)	-0.16	-0.26
		P25 Phase 1 (C4FM)	0.27	-0.27
		P25 Phase 1 (CQPSK)	-0.02	0.17
		P25 Phase 2 (H-DQPSK)	-0.31	-0.16
		FM (12.5 kHz)	-0.05	-0.03
		FM (25 kHz)	-0.24	-0.17

Change in input-output OBW is less than $\pm 5\%$.

Plot data of Occupied Bandwidth

Input / Public Safety Narrowband / Uplink / P25 Phase 1 (C4FM)



Output/ Public Safety Narrowband / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold Input / Public Safety Narrowband / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold output / Public Safety Narrowband / Uplink / P25 Phase 1 (C4FM)



Input / Public Safety Narrowband / Uplink / P25 Phase 2 (H-CPM)



Output / Public Safety Narrowband / Uplink / P25 Phase 2 (H-CPM)



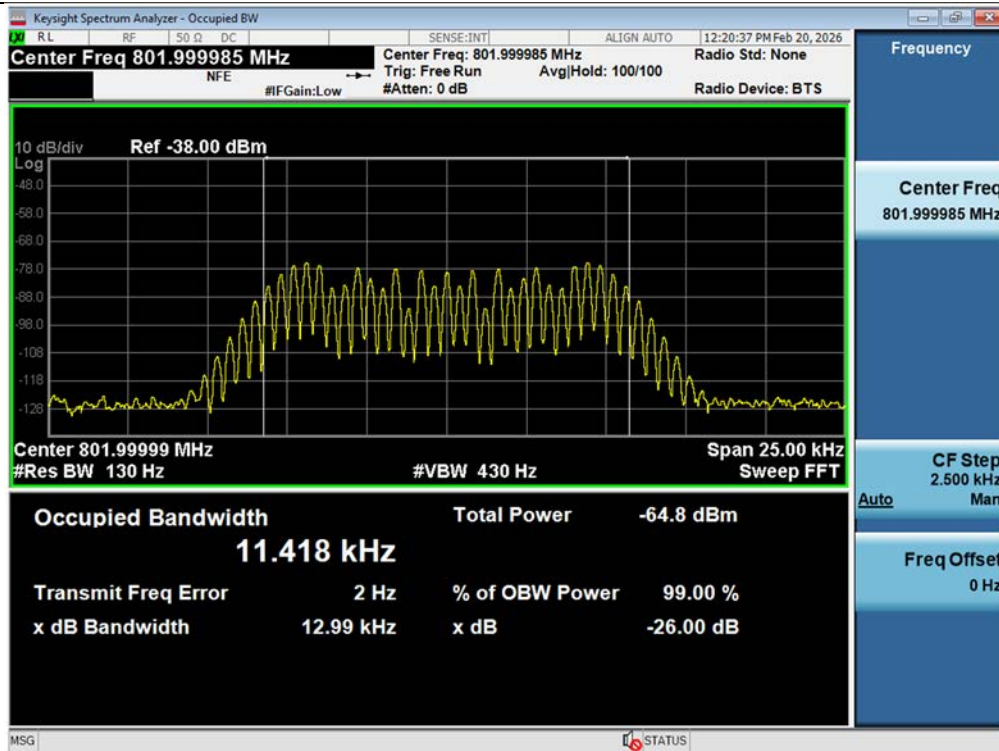
3 dB above the AGC threshold Input / Public Safety Narrowband / Uplink / P25 Phase 2 (H-CPM)



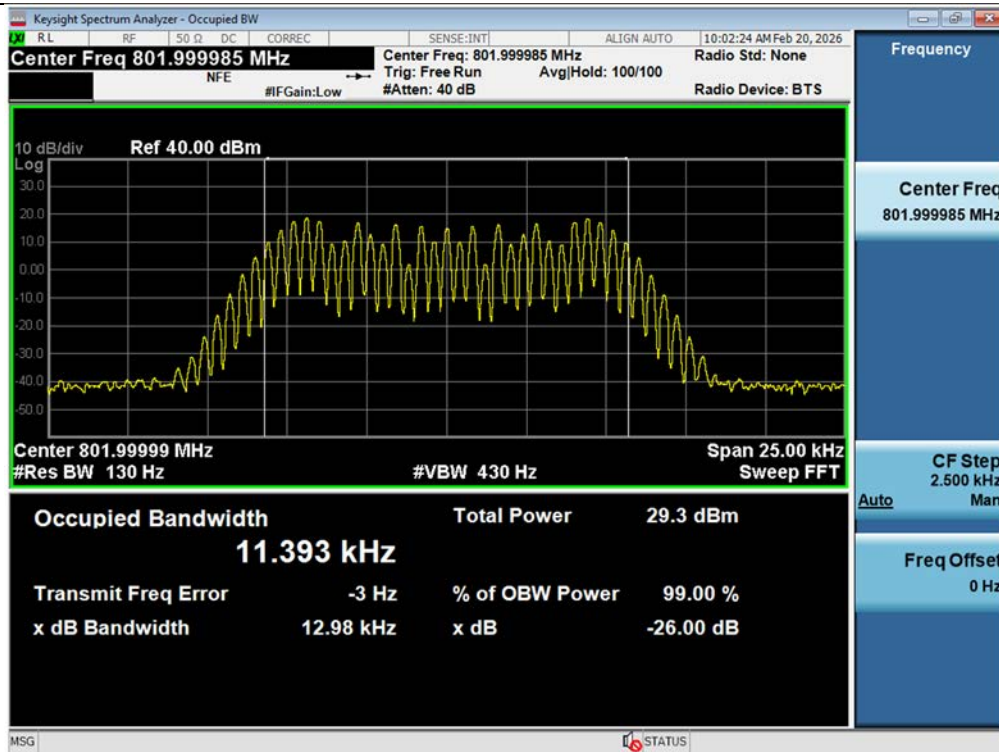
3 dB above the AGC threshold output / Public Safety Narrowband / Uplink / P25 Phase 2 (H-CPM)



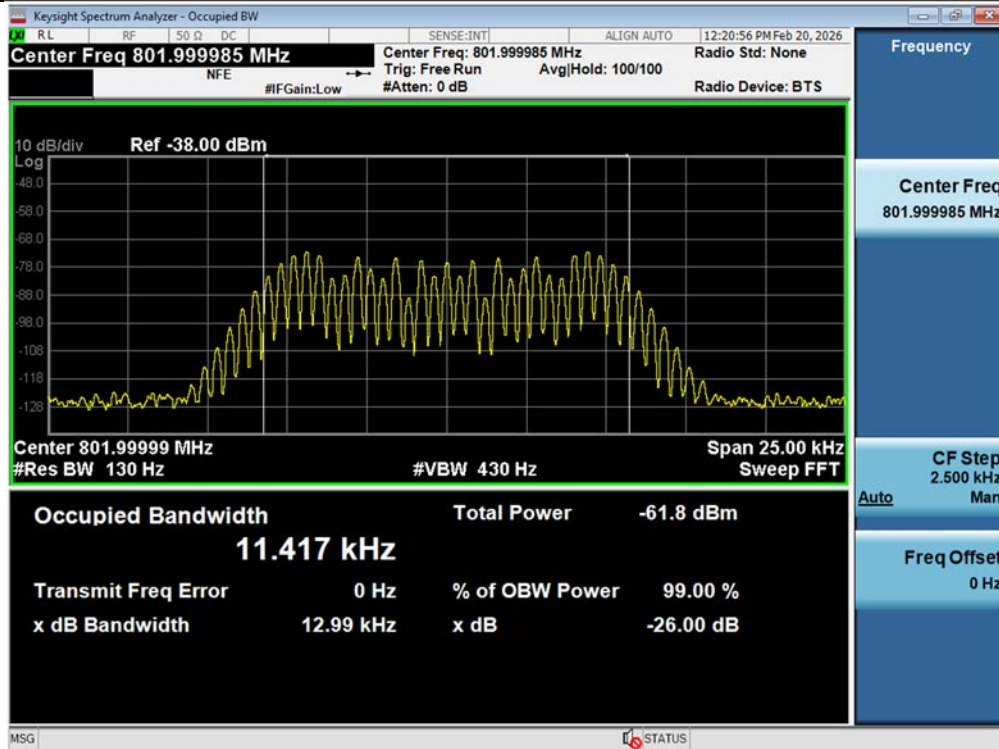
Input / Public Safety Narrowband / Uplink / FM (12.5 kHz)



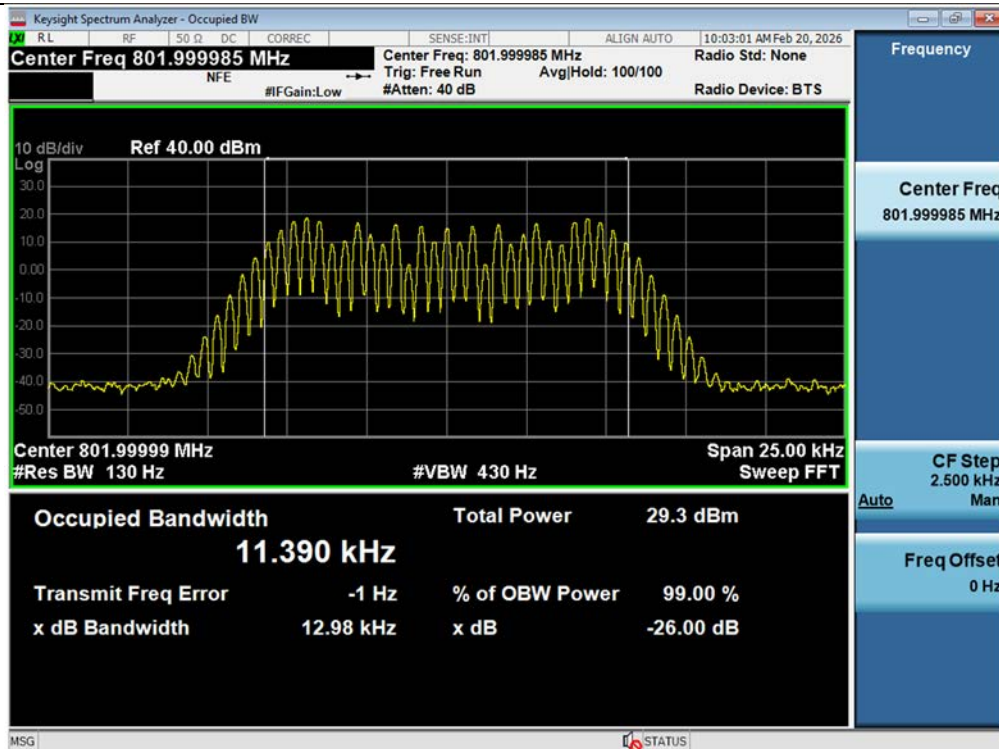
Output / Public Safety Narrowband / Uplink / FM (12.5 kHz)



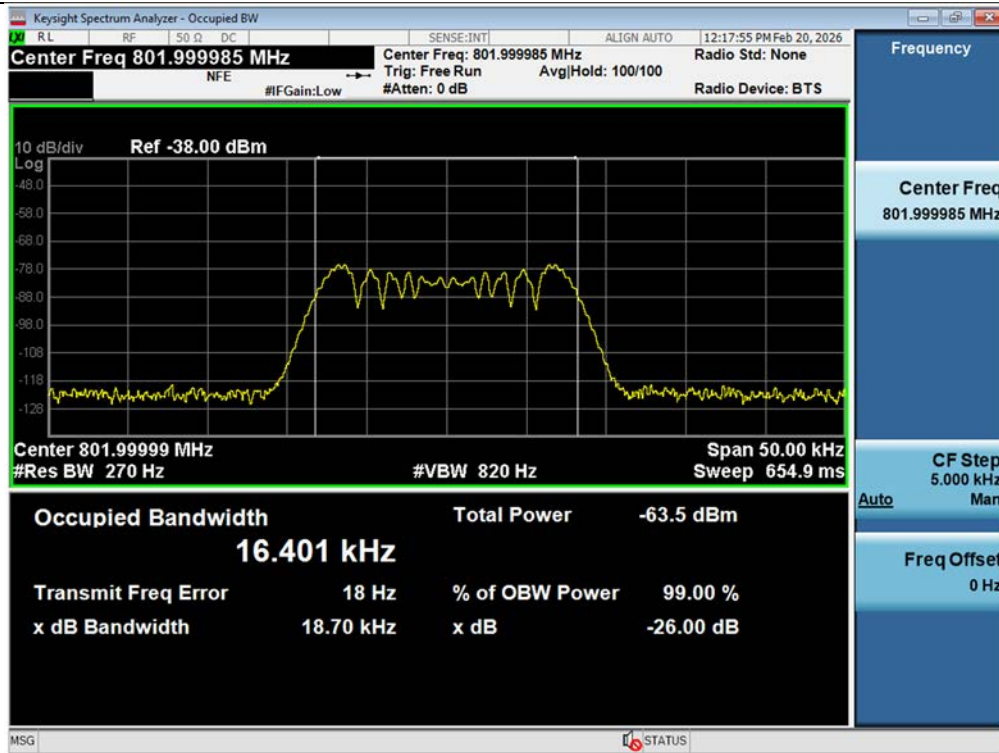
3 dB above the AGC threshold Input / Public Safety Narrowband / Uplink / FM (12.5 kHz)



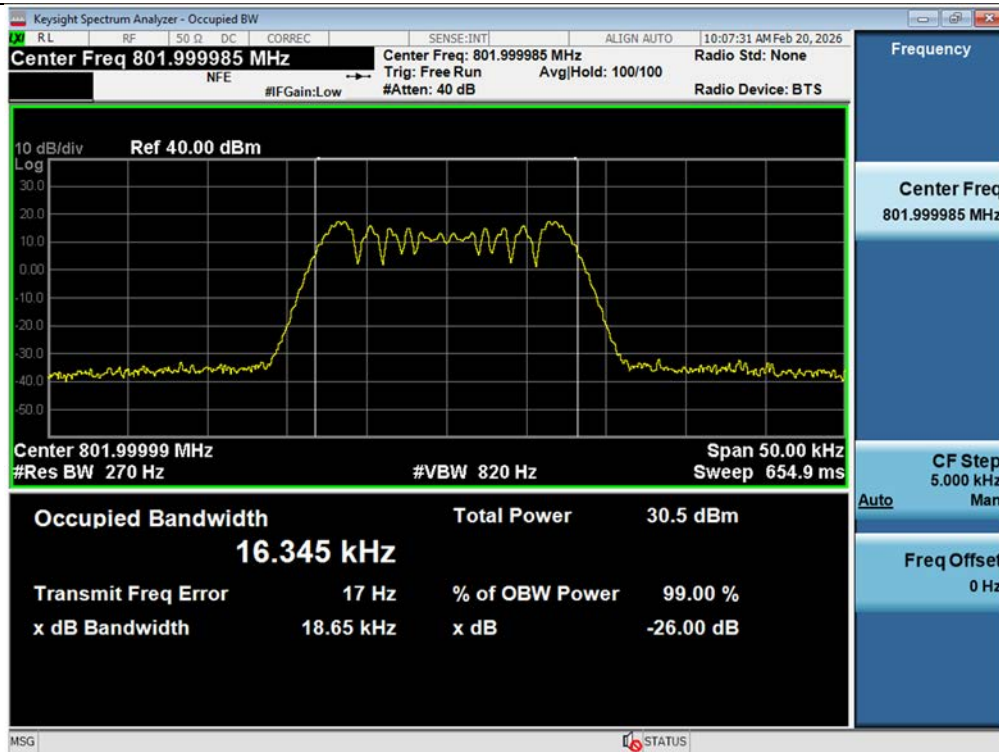
3 dB above the AGC threshold output / Public Safety Narrowband / Uplink / FM (12.5 kHz)



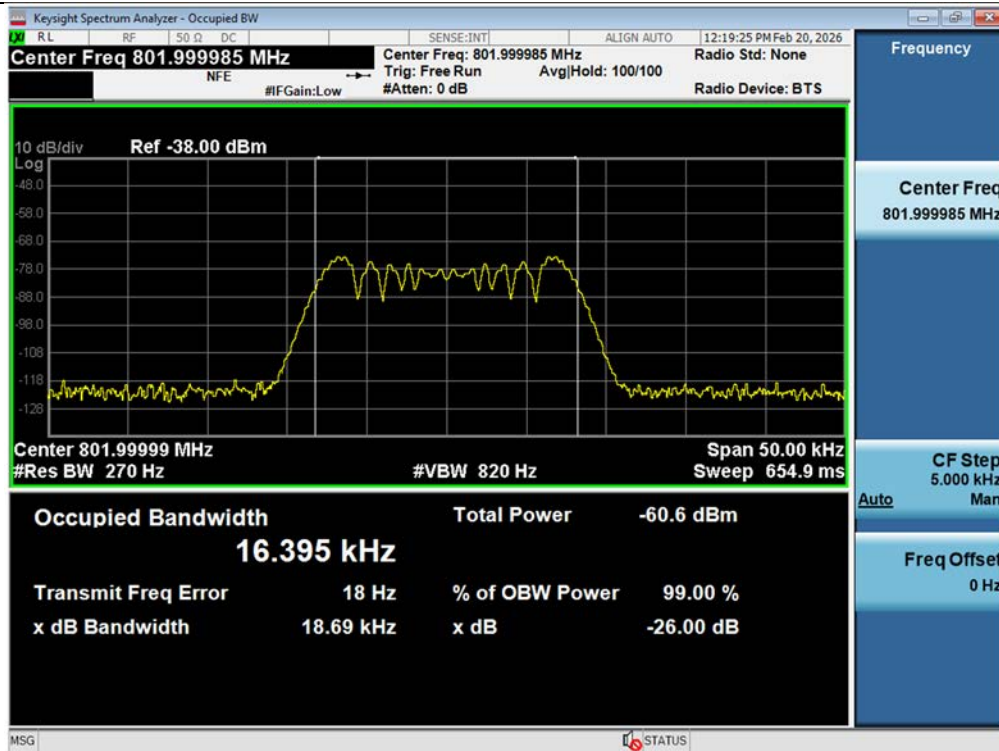
Input / Public Safety Narrowband / Uplink / FM (25 kHz)



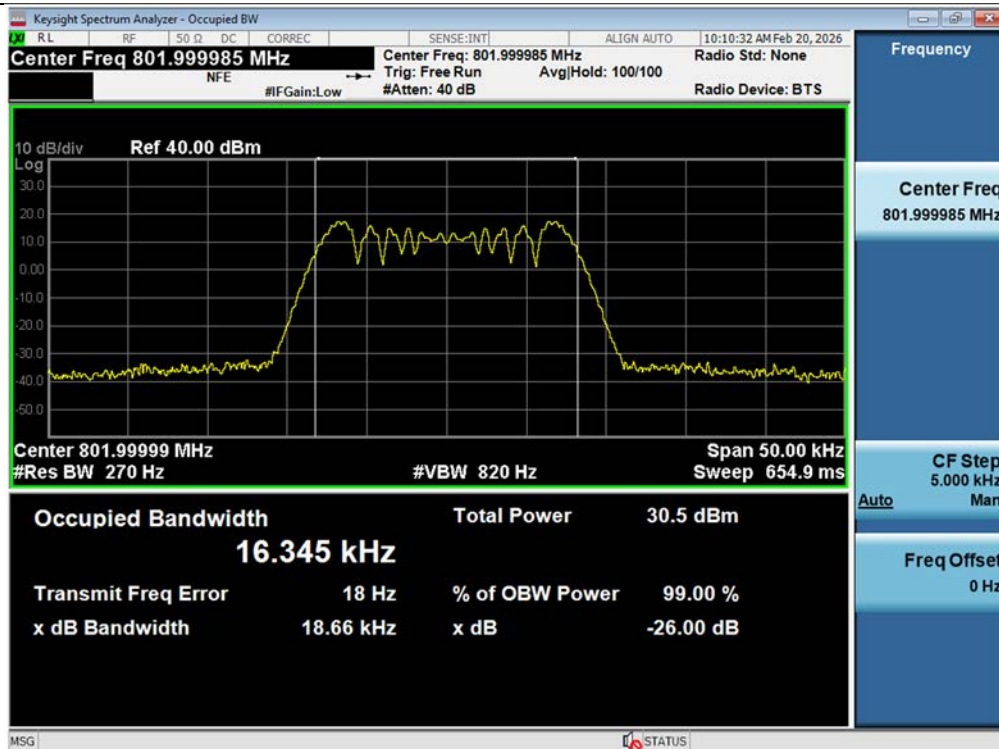
Output / Public Safety Narrowband / Uplink / FM (25 kHz)



3 dB above the AGC threshold Input / Public Safety Narrowband / Uplink / FM (25 kHz)



3 dB above the AGC threshold output / Public Safety Narrowband / Uplink / FM (25 kHz)



Input / NPSPAC / Uplink / P25 Phase 1 (C4FM)



Output / NPSPAC / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold Input / NPSPAC / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold output / NPSPAC / Uplink / P25 Phase 1 (C4FM)



Input / NPSPAC / Uplink / P25 Phase 2 (H-CPM)



Output / NPSPAC / Uplink / P25 Phase 2 (H-CPM)



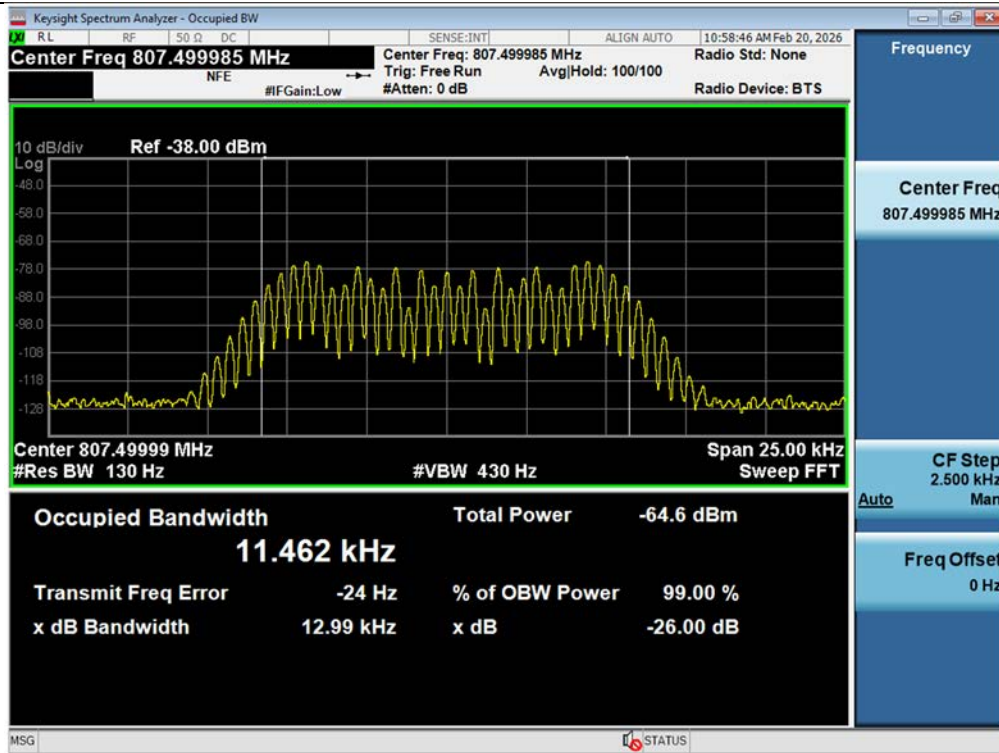
3 dB above the AGC threshold Input / NPSPAC / Uplink / P25 Phase 2 (H-CPM)



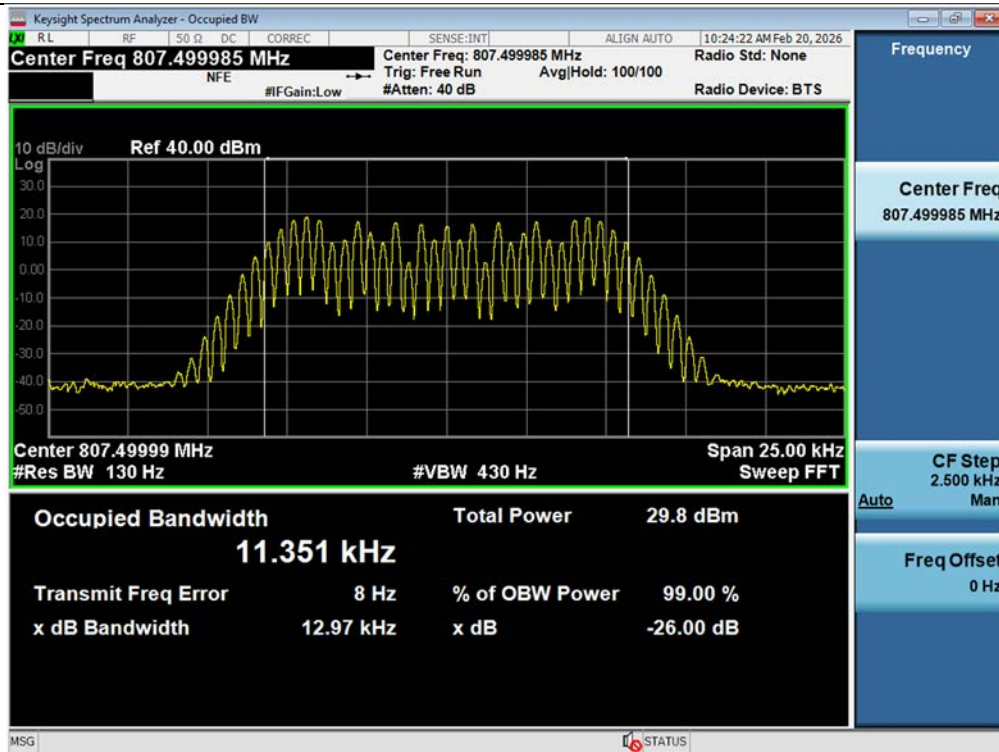
3 dB above the AGC threshold output / NPSPAC / Uplink / P25 Phase 2 (H-CPM)



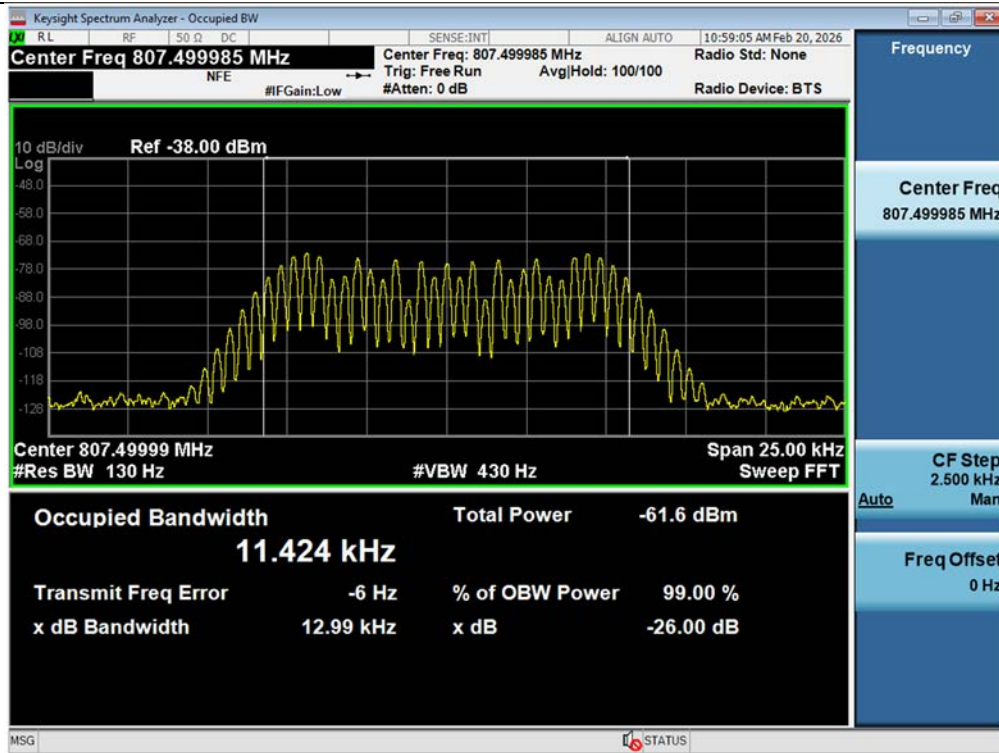
Input / NPSPAC / Uplink / FM (12.5 kHz)



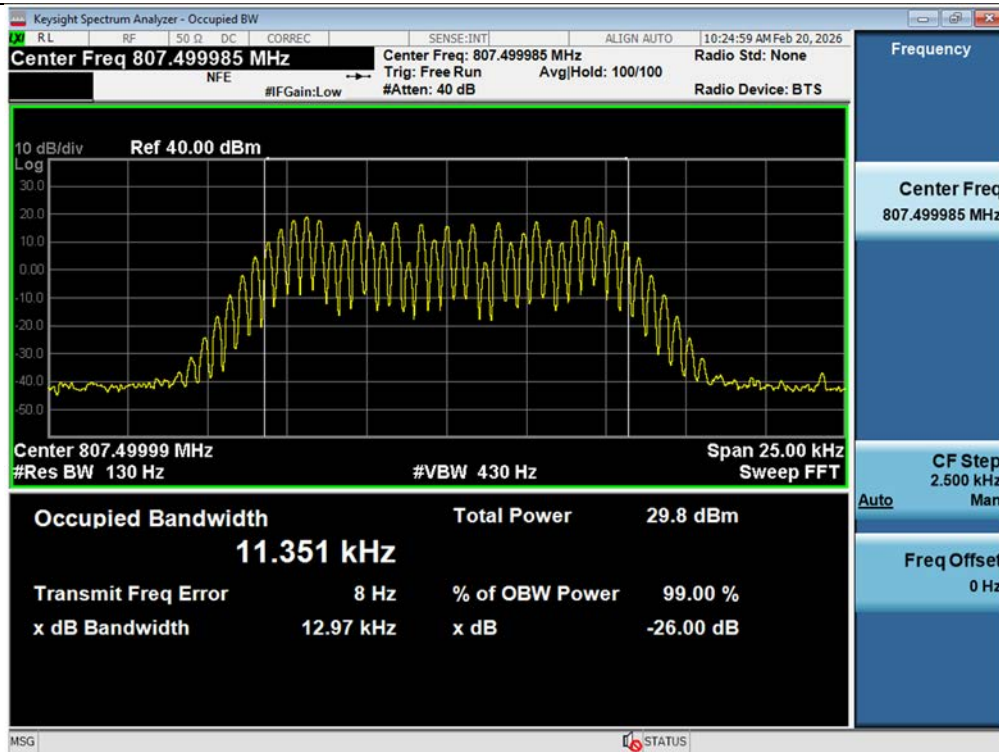
Output / NPSPAC / Uplink / FM (12.5 kHz)



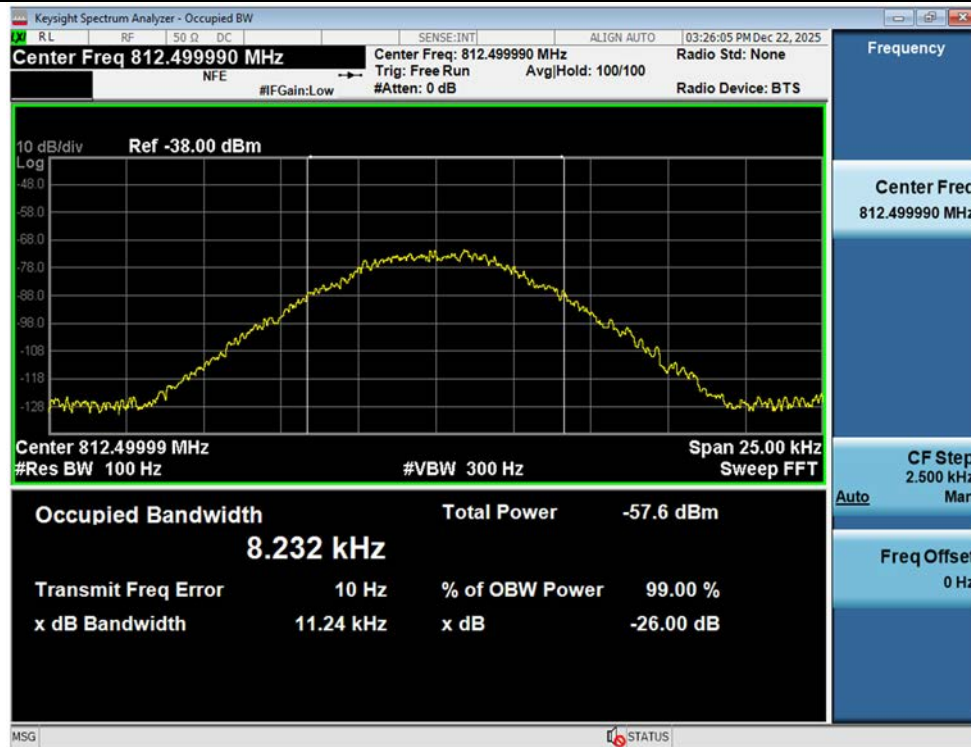
3 dB above the AGC threshold Input / NPSPAC / Uplink / FM (12.5 kHz)



3 dB above the AGC threshold output / NPSPAC / Uplink / FM (12.5 kHz)



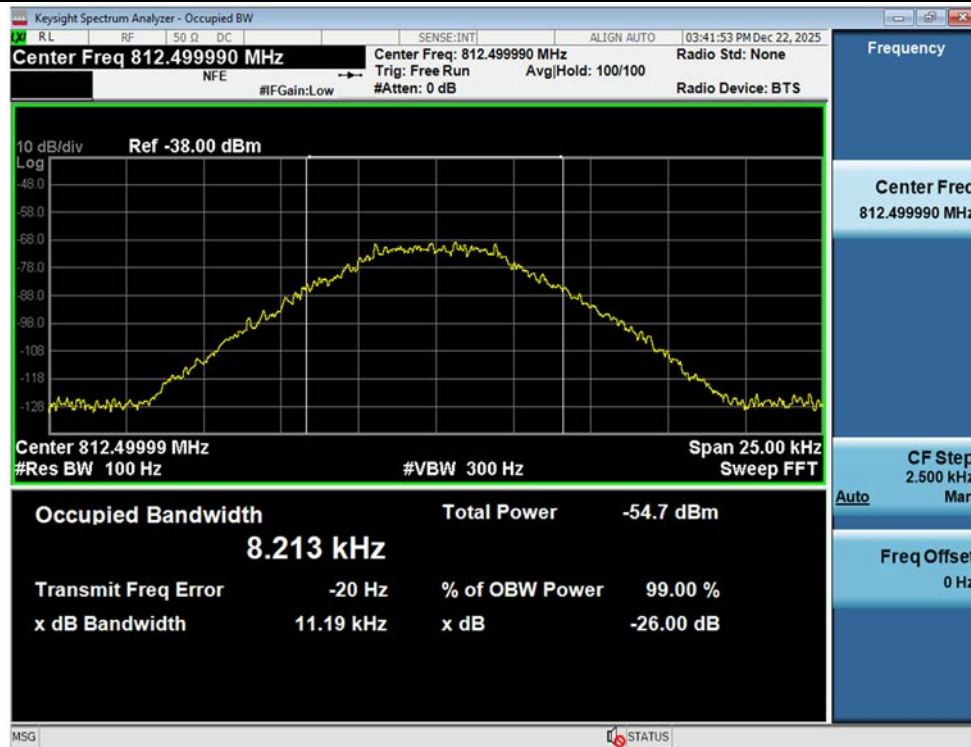
Input / B/ILT; SMR / Uplink / P25 Phase 1 (C4FM)



Output / B/ILT; SMR / Uplink / P25 Phase 1 (C4FM)



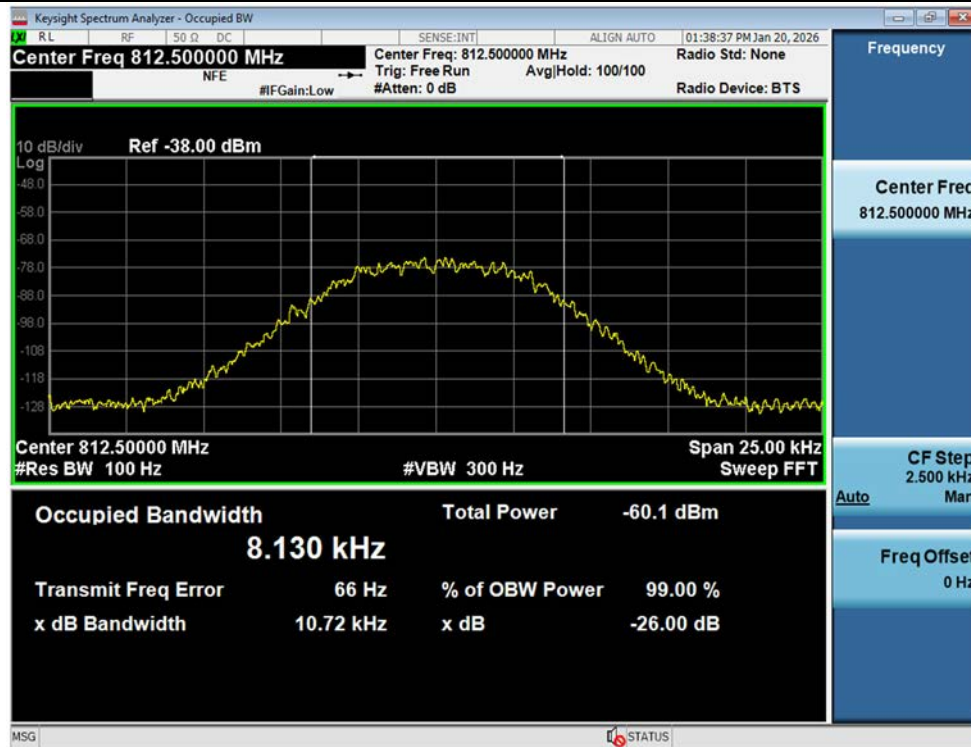
3 dB above the AGC threshold Input / B/ILT; SMR / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold output / B/ILT; SMR / Uplink / P25 Phase 1 (C4FM)



Input / B/ILT; SMR / Uplink / P25 Phase 2 (H-CPM)



Output / B/ILT; SMR / Uplink / P25 Phase 2 (H-CPM)



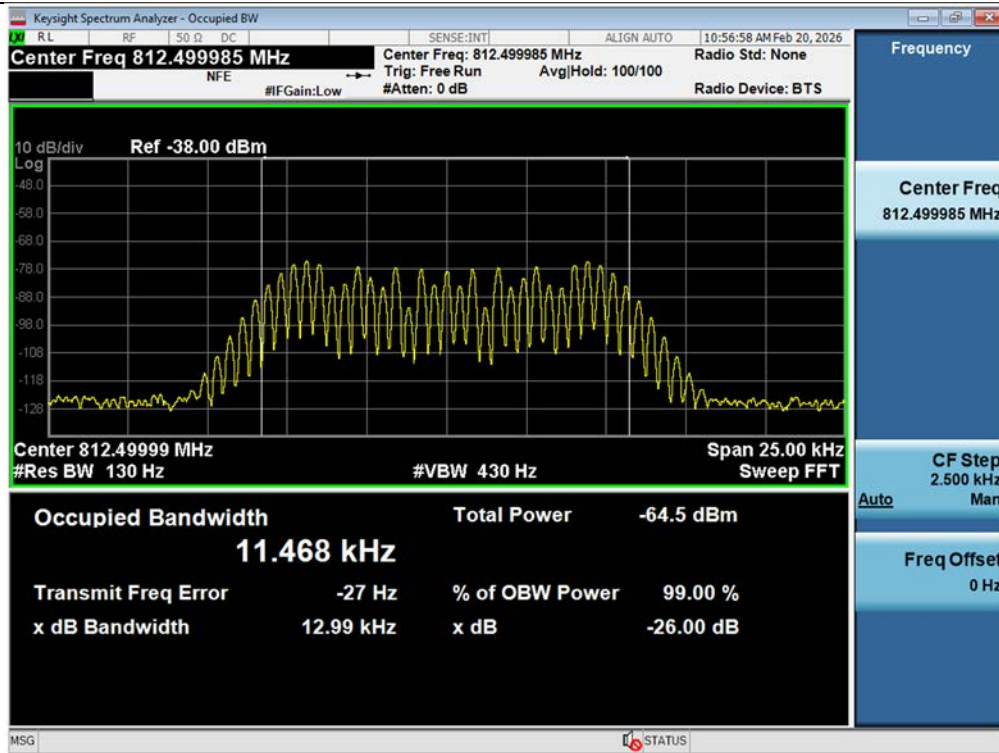
3 dB above the AGC threshold Input / B/ILT; SMR / Uplink / P25 Phase 2 (H-CPM)



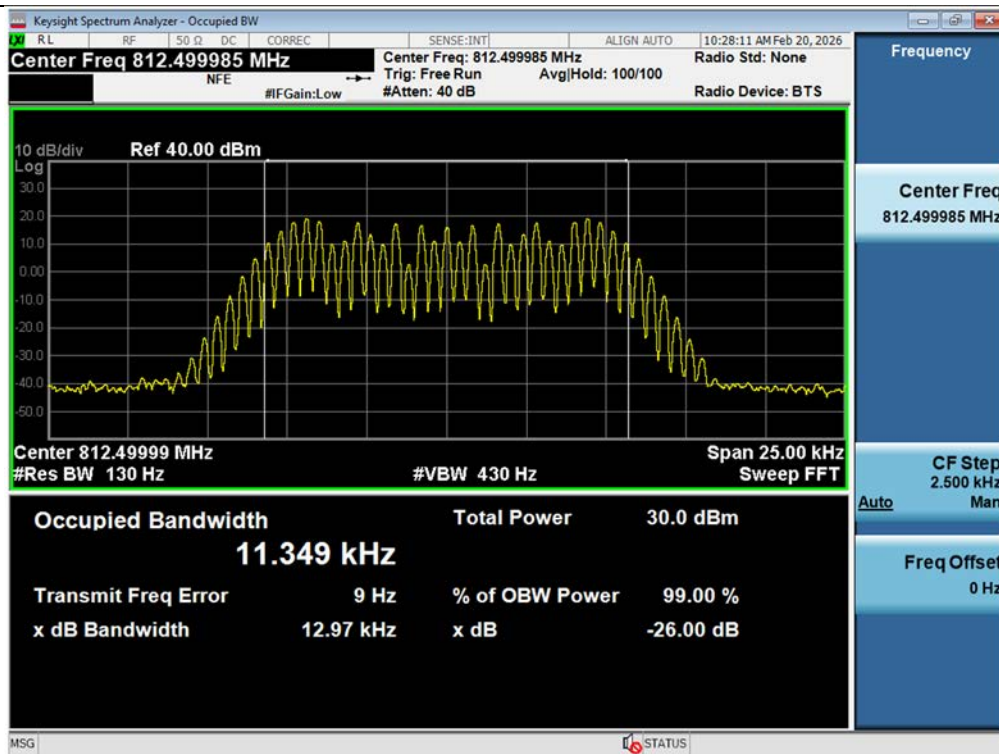
3 dB above the AGC threshold output / B/ILT; SMR / Uplink / P25 Phase 2 (H-CPM)



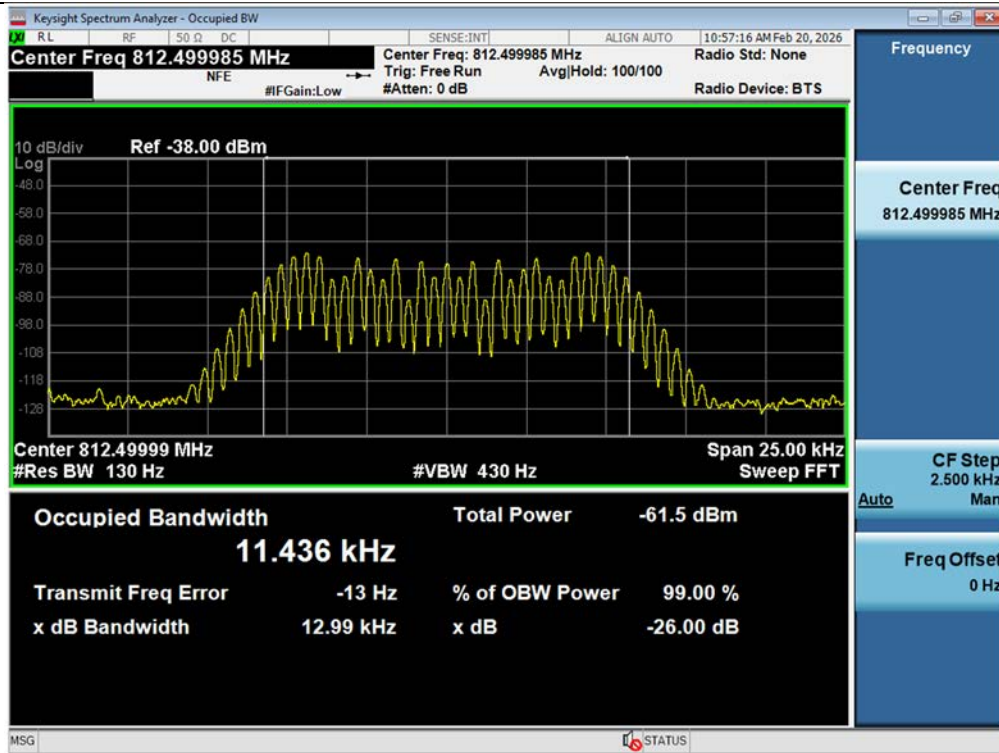
Input / B/ILT; SMR / Uplink / FM (12.5 kHz)



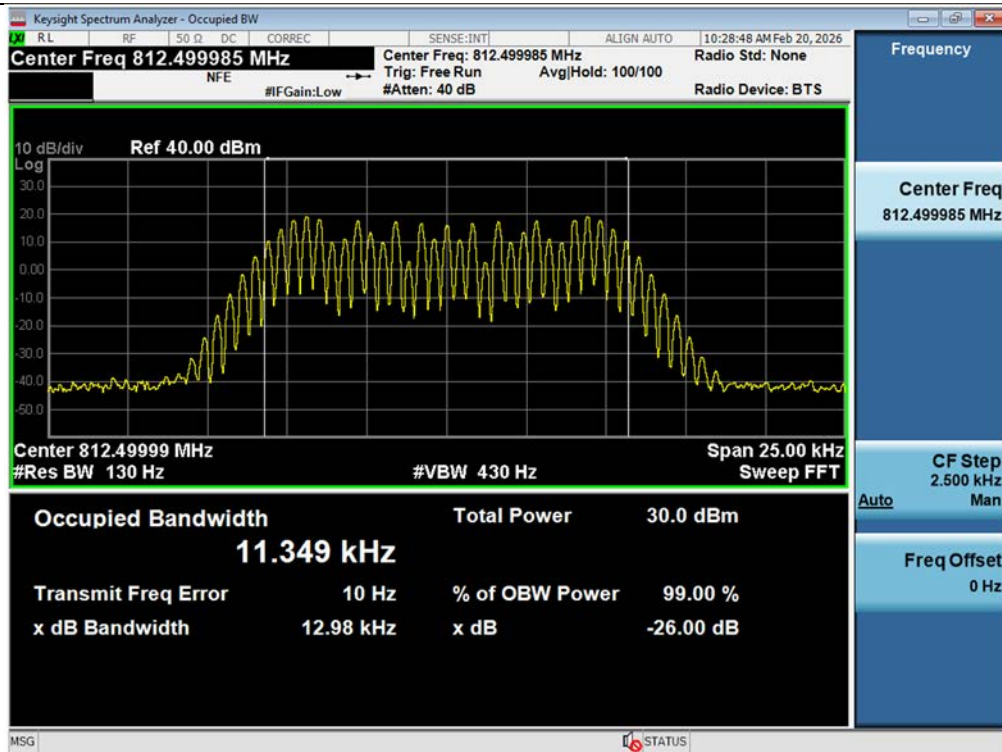
Output / B/ILT; SMR / Uplink / FM (12.5 kHz)



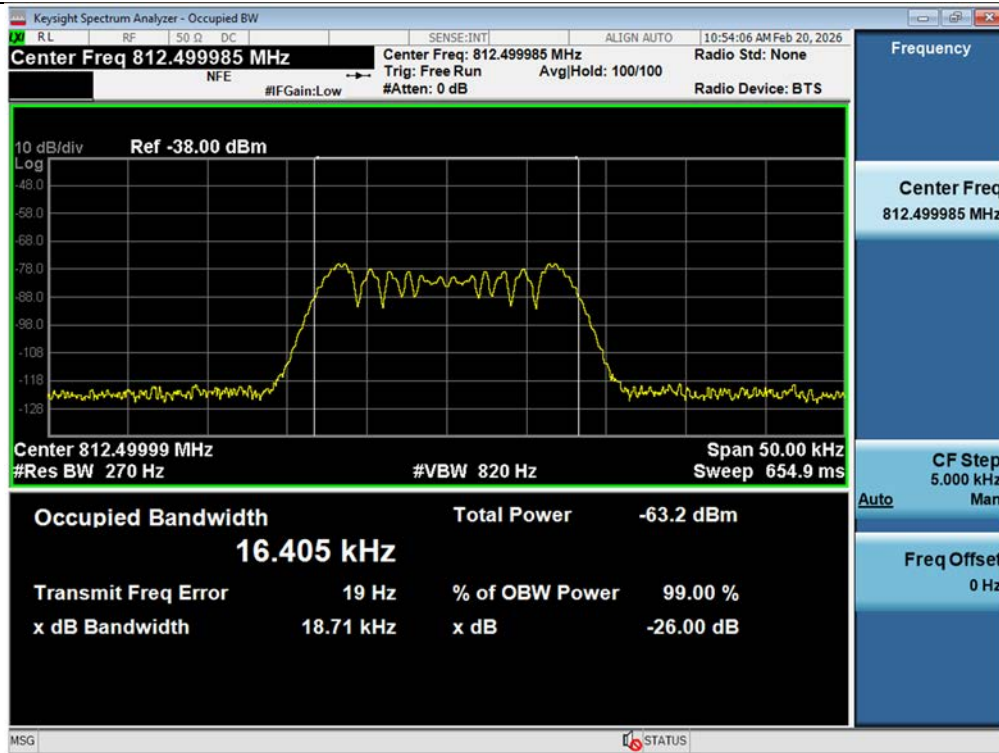
3 dB above the AGC threshold Input / B/ILT; SMR / Uplink / FM (12.5 kHz)



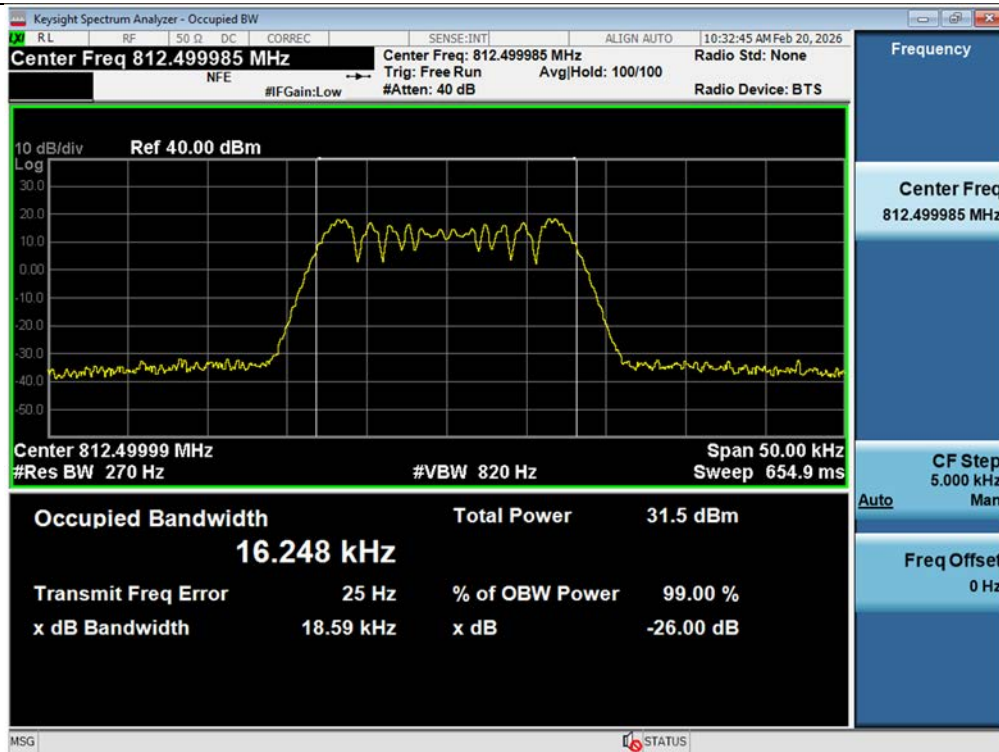
3 dB above the AGC threshold output / B/ILT; SMR / Uplink / FM (12.5 kHz)



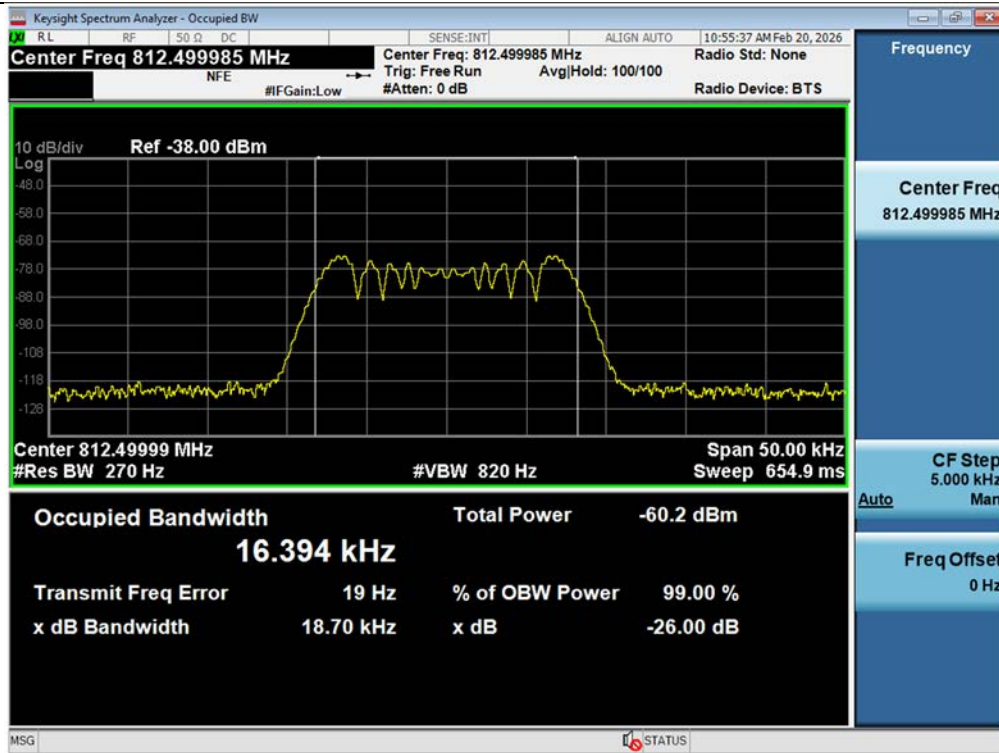
Input / B/ILT; SMR / Uplink / FM (25 kHz)



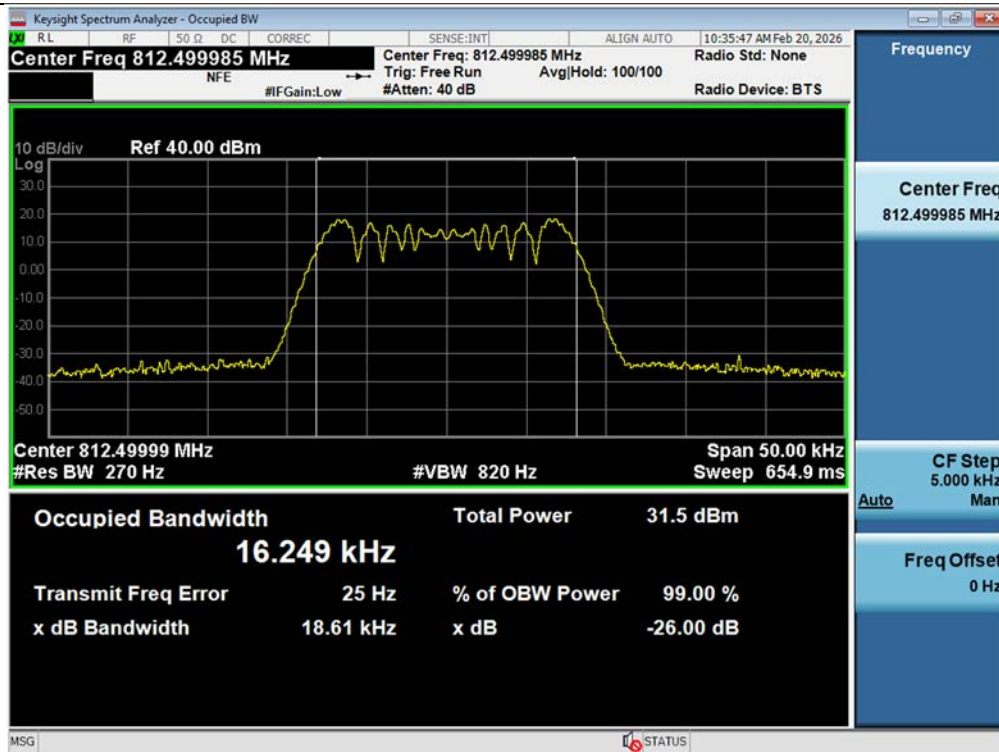
Output / B/ILT; SMR / Uplink / FM (25 kHz)



3 dB above the AGC threshold Input / B/ILT; SMR / Uplink / FM (25 kHz)



3 dB above the AGC threshold output / B/ILT; SMR / Uplink / FM (25 kHz)



Input / ESMR / Uplink / P25 Phase 1 (C4FM)



Output / ESMR / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold Input / ESMR / Uplink / P25 Phase 1 (C4FM)



3 dB above the AGC threshold output / ESMR / Uplink / P25 Phase 1 (C4FM)



Input / ESMR / Uplink / P25 Phase 2 (H-CPM)



Output / ESMR / Uplink / P25 Phase 2 (H-CPM)



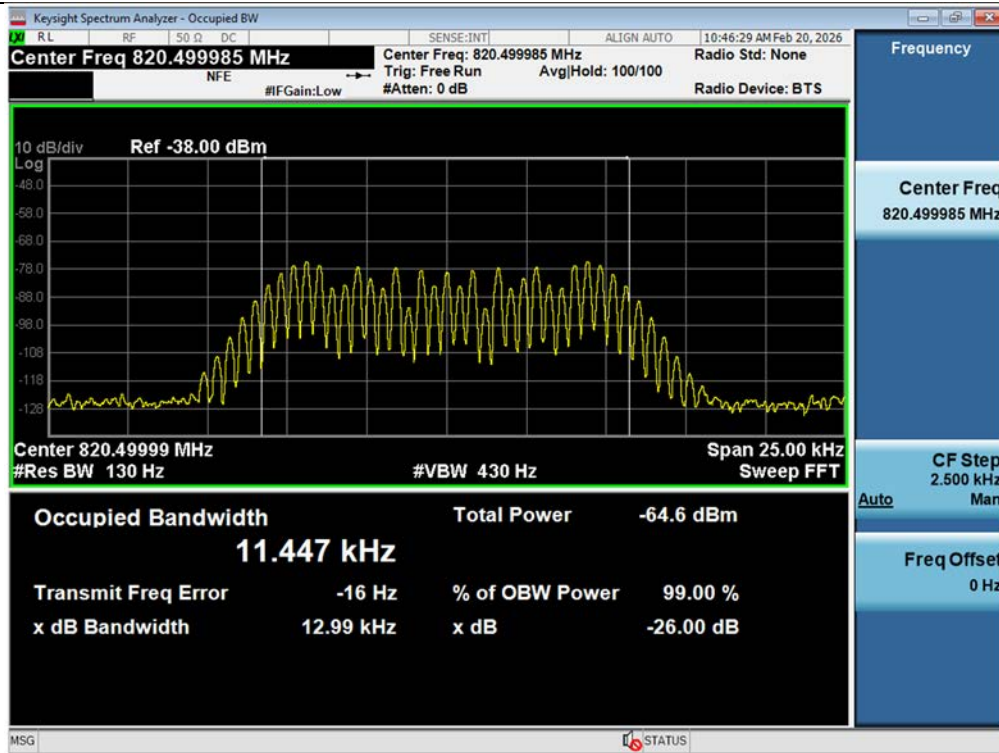
3 dB above the AGC threshold Input / ESMR / Uplink / P25 Phase 2 (H-CPM)



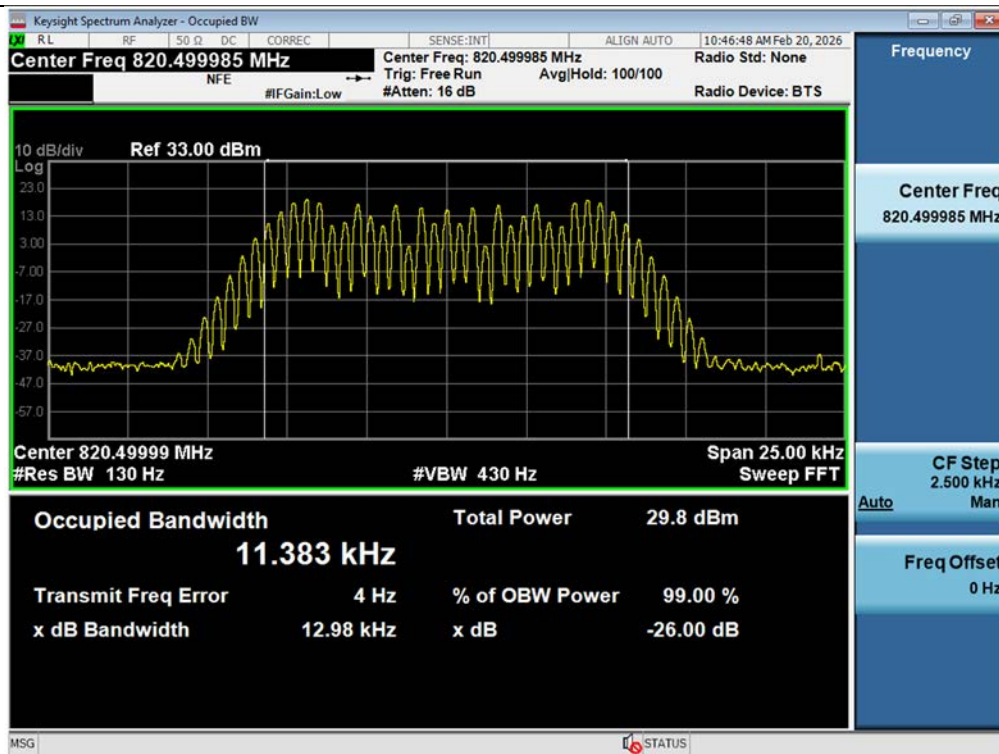
3 dB above the AGC threshold output / ESMR / Uplink / P25 Phase 2 (H-CPM)



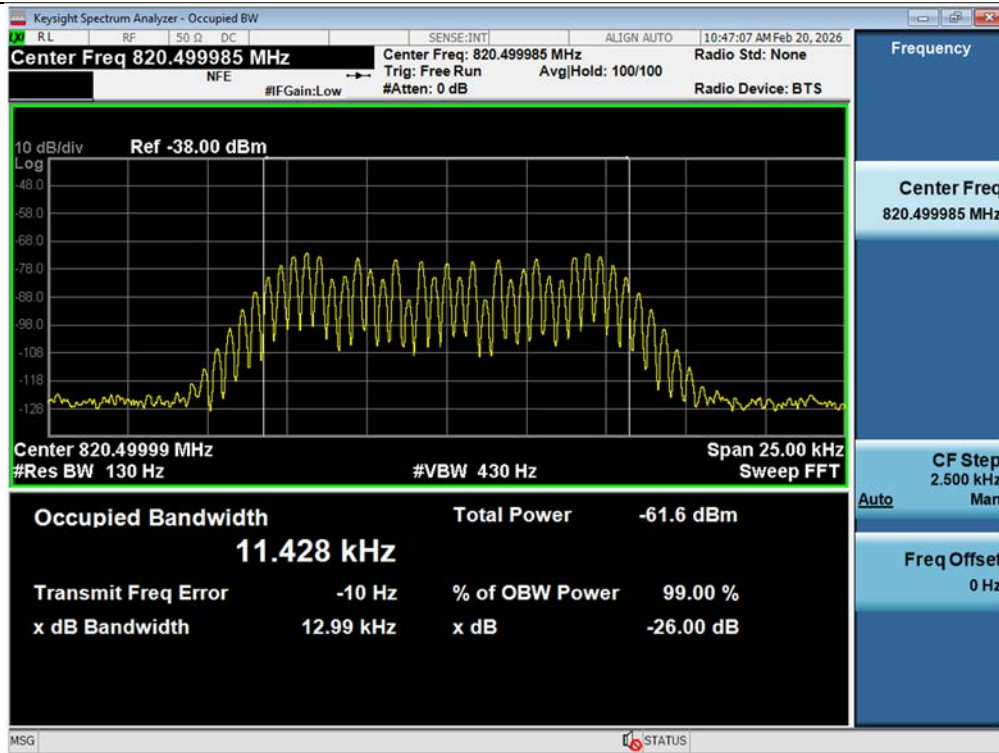
Input / ESMR / Uplink / FM (12.5 kHz)



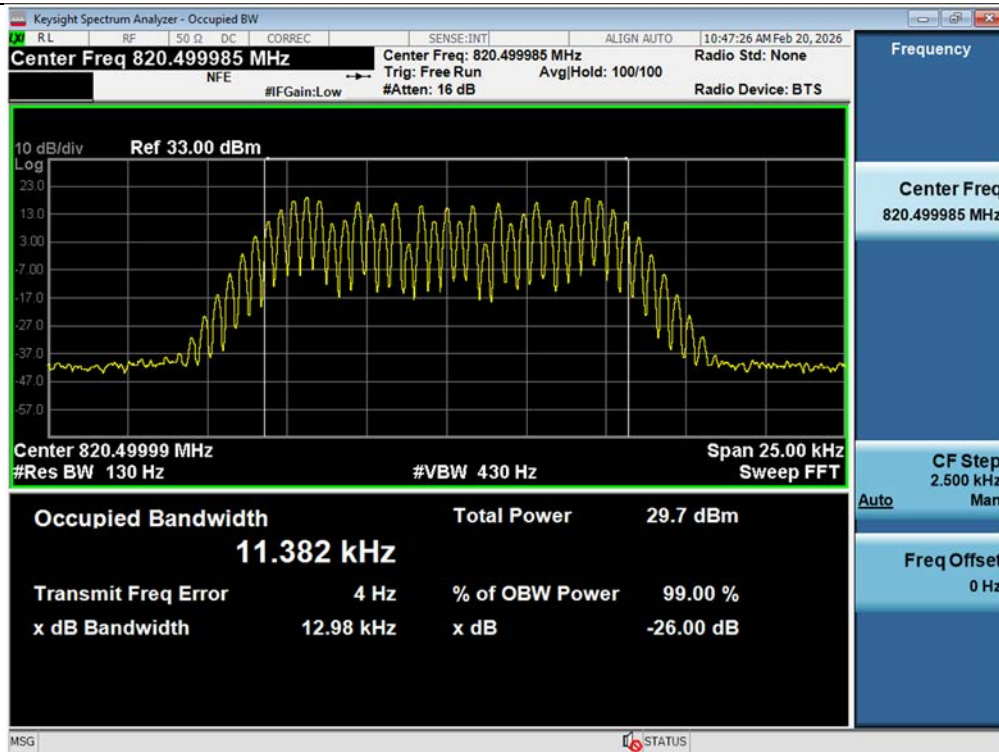
Output / ESMR / Uplink / FM (12.5 kHz)



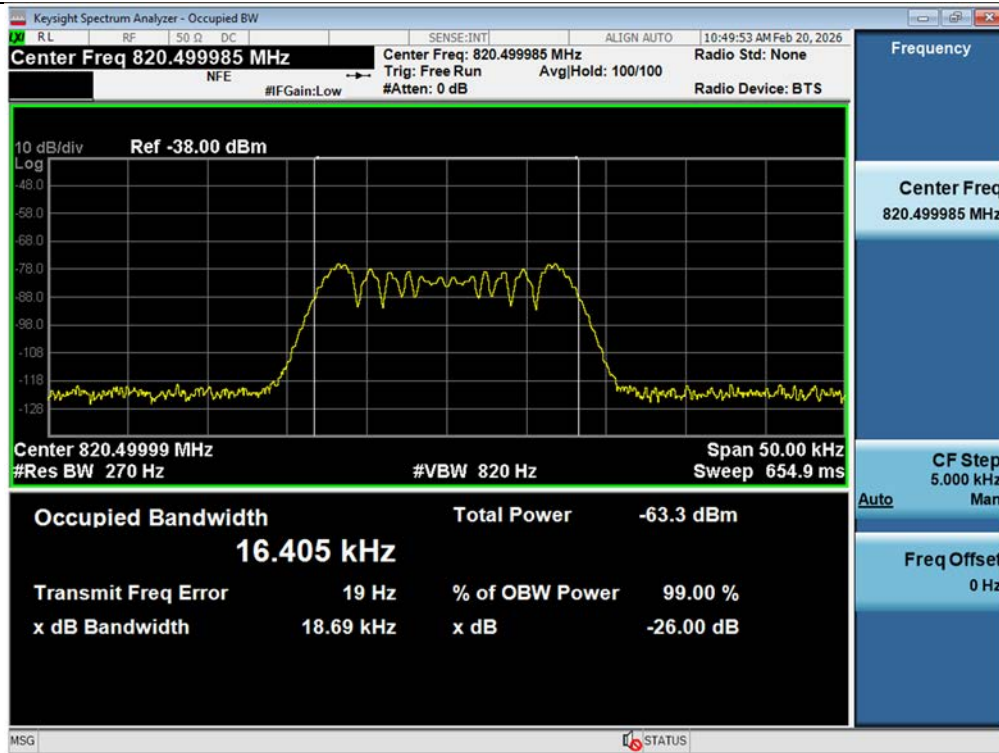
3 dB above the AGC threshold Input / ESMR / Uplink / FM (12.5 kHz)



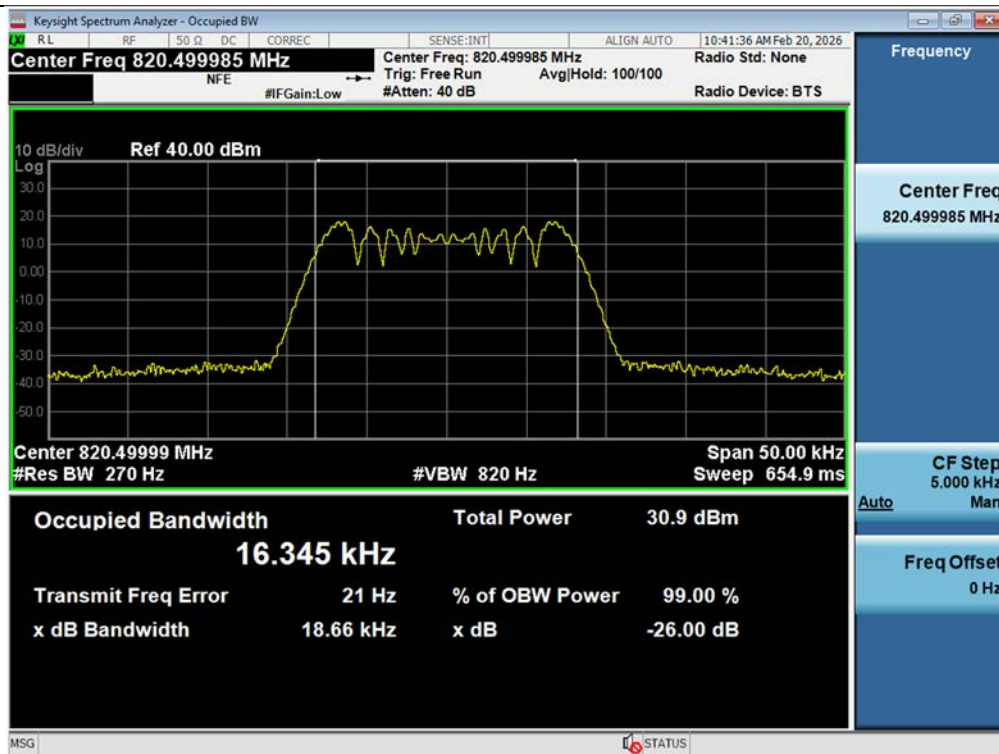
3 dB above the AGC threshold output / ESMR / Uplink / FM (12.5 kHz)



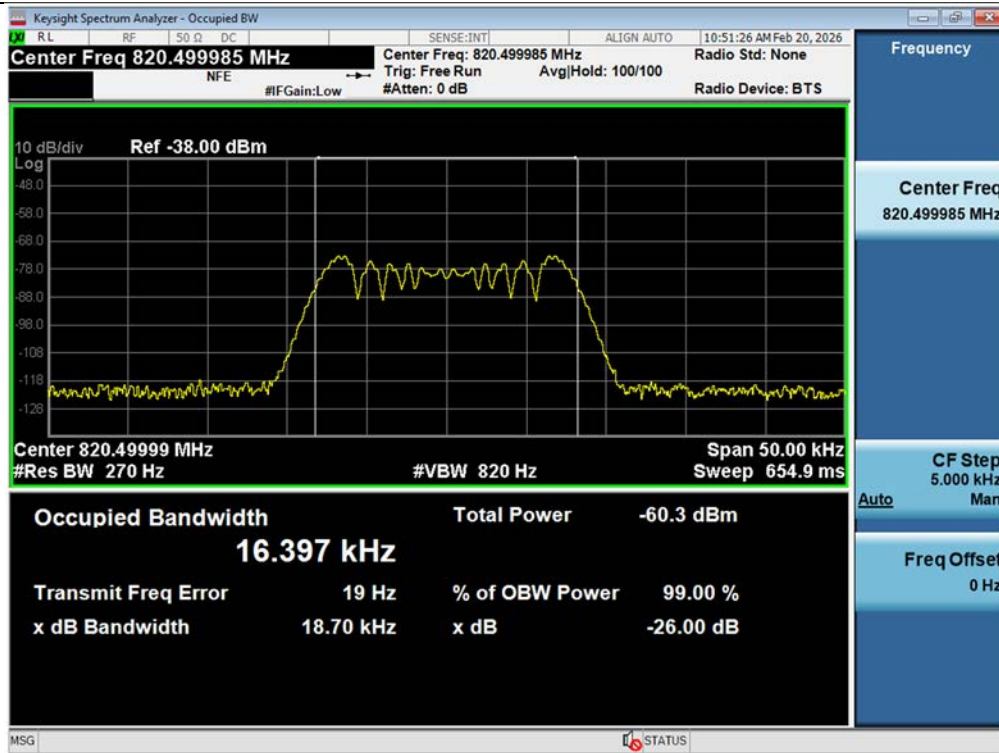
Input / ESMR / Uplink / FM (25 kHz)



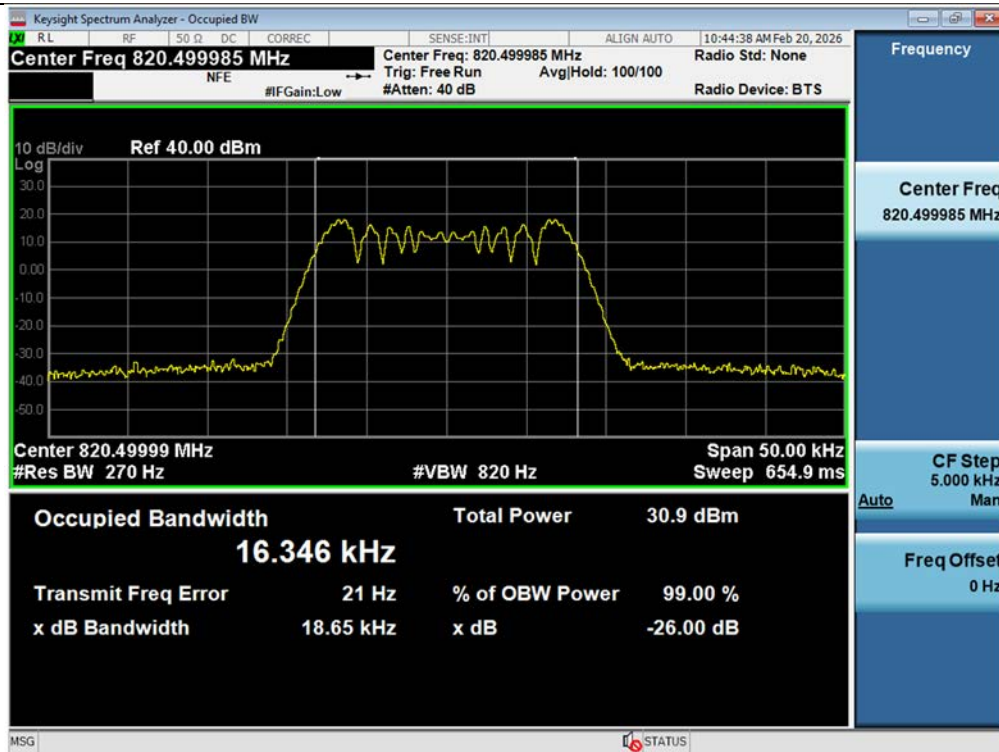
Output / ESMR / Uplink / FM (25 kHz)



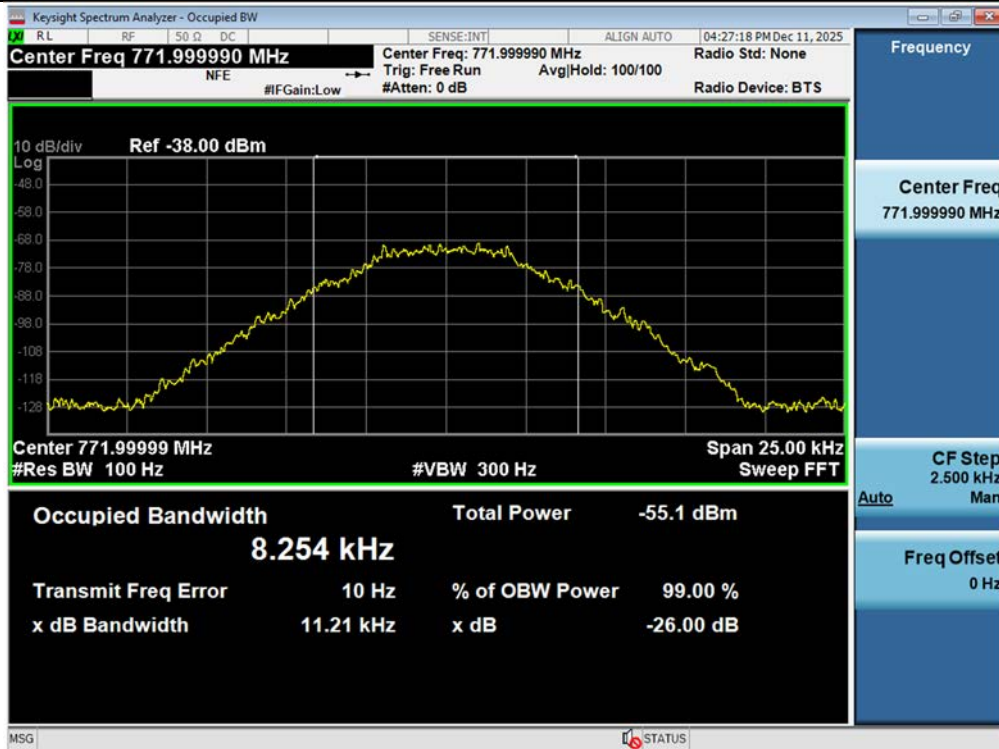
3 dB above the AGC threshold Input / ESMR / Uplink / FM (25 kHz)



3 dB above the AGC threshold output / ESMR / Uplink / FM (25 kHz)



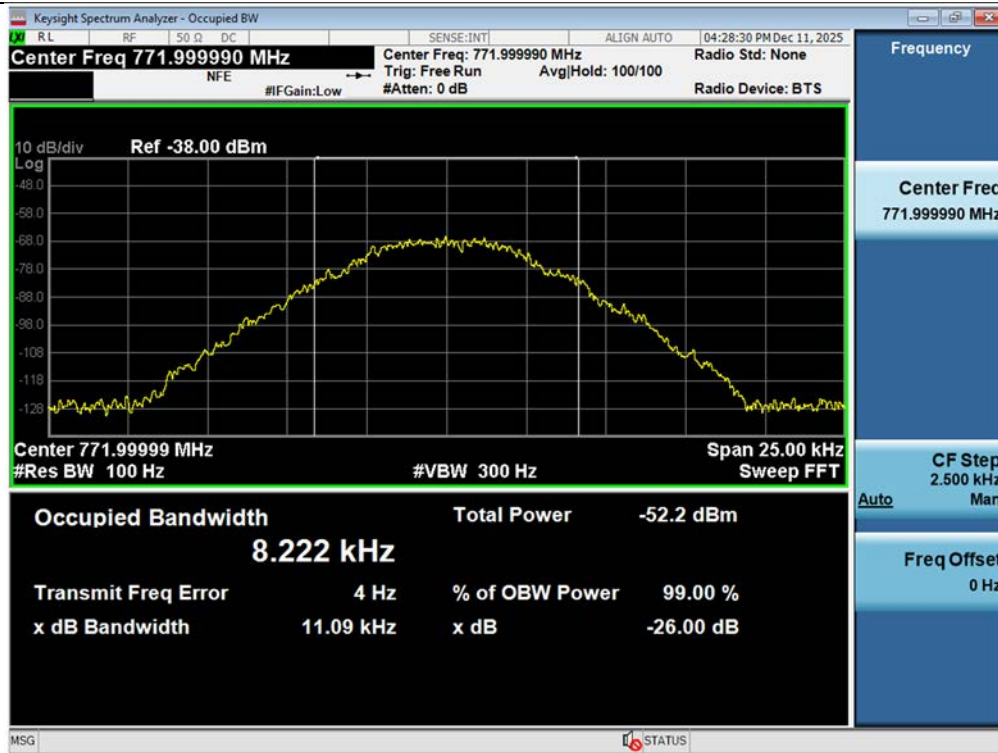
Input / Public Safety Narrowband / Downlink / P25 Phase 1 (C4FM)



Output/ Public Safety Narrowband / Downlink / P25 Phase 1 (C4FM)



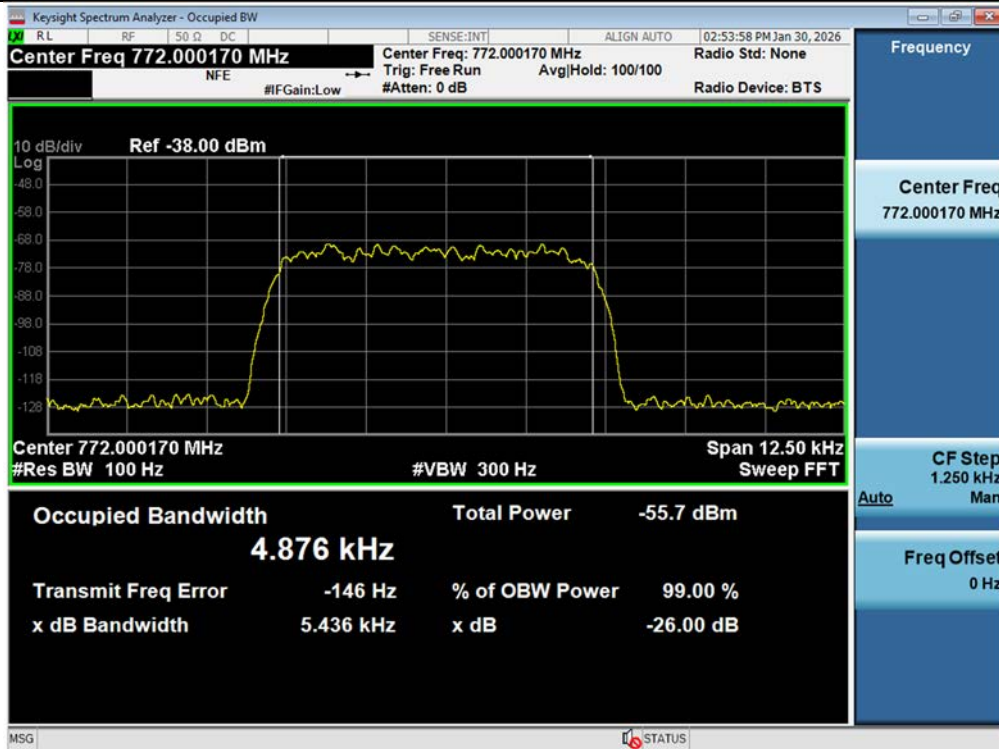
3 dB above the AGC threshold Input / Public Safety Narrowband / Downlink / P25 Phase 1 (C4FM)



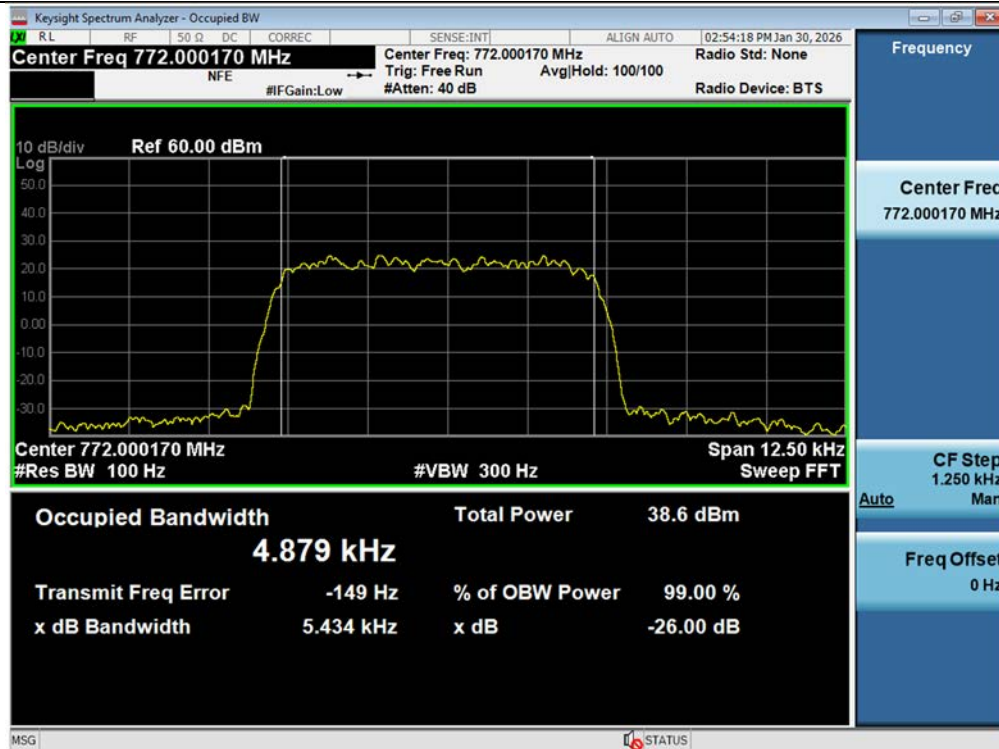
3 dB above the AGC threshold output / Public Safety Narrowband / Downlink / P25 Phase 1 (C4FM)



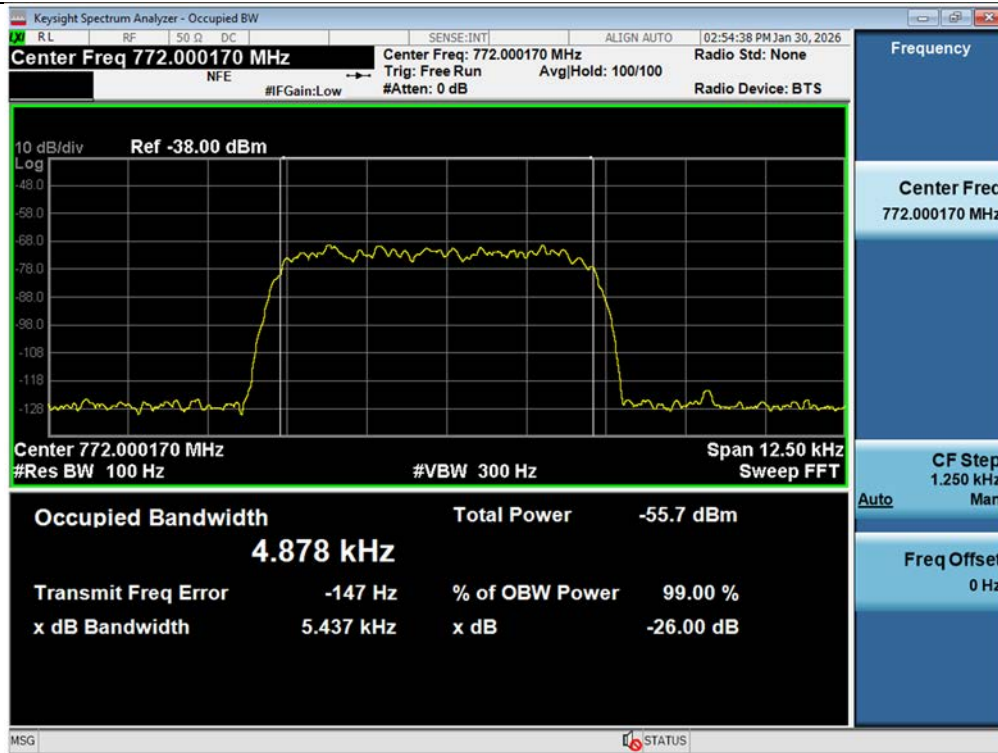
Input / Public Safety Narrowband / Downlink / P25 Phase 1 (CQPSK)



Output/ Public Safety Narrowband / Downlink / P25 Phase 1 (CQPSK)



3 dB above the AGC threshold Input / Public Safety Narrowband / Downlink / P25 Phase 1 (CQPSK)



3 dB above the AGC threshold output / Public Safety Narrowband / Downlink / P25 Phase 1 (CQPSK)

