TEST REPORT

Report Number: 15496224-E24V1

Applicant	:	APPLE INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A3256 (Parent Model) A3522, A3523 (Variant Models)
Brand	:	APPLE
FCC ID	:	BCG-E8949A (Parent Model) BCG-E8957A, BCG-E8958A (Variant Models)
IC	:	579C-E8949A (Parent Model) 579C-E8957A, 579C-E8958A (Variant Models)
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC 47 CFR PART 2, PART 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-170 ISSUE 4

Date Of Issue:
2025-07-08

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
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ACCREDITED
CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2025-07-08	Initial Review	--

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10.3.

1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	A3256 (Parent Model) A3522, A3523 (Variant Models)
Brand	APPLE
FCC ID	BCG-E8949A (Parent Model) BCG-E8957A, BCG-E8958A (Variant Models)
IC	579C-E8949A (Parent Model) 579C-E8957A, 579C-E8958A (Variant Models)
EUT Description	SMARTPHONE
Serial Number	Radiated: N4QD07QXJ9, CP2H9NGP6C Conducted: C07HG80000L0000WGT, C07HG80000T0000WGT
Sample Receipt Date	2024-11-11
Date Tested	2025-02-06 to 2025-07-08
Applicable Standards	FCC 47 CFR PART 2, PART 25 ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-170 ISSUE 4
Test Results	COMPLIES

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc.and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc.will constitute fraud and shall nullify the document.

Approved & Released By:	Prepared & Reviewed By:
	
Thu Chan Staff Engineer UL Verification Services Inc.	Eric Ting Senior Test Engineer UL Verification Services Inc.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Below is a list of the data provided by the customer:

1. Antenna gain, type and cable loss (see Section 6.4)
2. Cable loss (see Section 8)

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (ISED)	Result	Remarks
RF Output Power	25.204 (a)	RSS-170 §5.5	Complies	
Occupied Bandwidth	2.1049	RSS-Gen	Complies	
Emissions Mask - within 250% of Authorized Bandwidth	25.202 (f)(1)&(2)	RSS-170 §5.8 (a) (b)	Complies	
Out of Band Emissions	25.202 (f)(3)	RSS-170 §5.8 (c)	Complies	
Frequency Stability	25.202 (d)	RSS-170 §5.3	Complies	
Field Strength of Spurious Radiation	25.202 (f)(3)	RSS-170 §5.8 (c)	Complies	
Additional Unwanted Emission (1559-1610MHz)	25.216 (c)&(g) FCC 03-283	RSS-170 §5.9.1	Complies	
Carrier-Off State Emissions (1559-1610MHz)	25.216 (i) FCC 03-283	RSS-170 §5.10	Complies	

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following.
FCC published lists of measurement procedures for compliance testing.
ISED published lists of normative test standards and acceptable alternatives procedures.

- ANSI C63.26:2015
- ANSI/TIA-603-E (2016)
- FCC 47 CFR Part 2, Part 25
- FCC KDB 971168 D01 : Power Meas License Digital Systems (ISED acceptable alternative procedure)
- FCC KDB 971168 D02 : Misc Rev Approv License Devices
- FCC KDB 412172 D01 : Determining ERP and EIRP
- ISED RSS-GEN ISSUE 5 + A1 + A2, RSS-170 ISSUE 4

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☐	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☐	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.1. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Conducted Antenna Port Emission Measurement	1.940 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using Power Meter	0.450 dB Ave. 1.300 dB Peak
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

6. EQUIPMENT UNDER TEST

DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

6.1.

MAXIMUM OUTPUT POWER

LIMITS

FCC: §25.204
(a) **6.2.** In bands shared coequally with terrestrial radio communication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station, other than an ESV, operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided for in paragraph (c) of this section:

+ 40 dBW in any 4 kHz band for θ ≤0°

+ 40 + 3θ dBW in any 4 kHz band for 0° <θ ≤5°

where θ is the angle of elevation of the horizon viewed from the center of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

ISED: RSS-170§5.5: Transmitter output power for MESs (Mobile Earth Stations)
The application for MES certification shall state the MES e.i.r.p. that is necessary for satisfactory communication. The maximum permissible e.i.r.p. will be the stated e.i.r.p. plus a 2 dB margin. If a detachable antenna is used, the certification application shall state the recommended antenna type and manufacturer, the antenna gain and the maximum transmitter output power at the antenna terminal.

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

EIRP = PMeas + GT − LC
where: EIRP = effective isotropic radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

The transmitter has a maximum average conducted and EIRP output powers as follows:

Frequency (MHz)	Conducted Average Power (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
				(dBm)	(W)		
1610.17	27.990	-1.8	10000	26.19	0.416	201.92	202KG1D
1618.40	28.000		10000	26.20	0.417	201.86	202KG1D
1626.03	27.992		10000	26.19	0.416	201.17	201KG1D

SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.08.00.

MAXIMUM ANTENNA GAIN AND MAXIMUM ALLOWED OUTPUT POWER

The antenna(s) gain/allowed output power as provided by the manufacturer' are as follows:

6.3.

Frequency Range (MHz)	ANT 2 Gain (dBi)	ANT 3 Gain (dBi)
1610.0 - 1626.5	-1.8	-3.9

6.4.

WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X/Y/Z on all available antennas to determine the worst-case orientation. The full tests of the EUT have made upon the orientations shown in the table below.

6.5.

ANT3	ANT2
X	Y

The emissions mask tests were performed based on declared authorized bandwidths of 200kHz, 230kHz and 280kHz.

Radiated spurious emissions below 1GHz were performed with the highest output power on both ANT 3 and ANT 2 as worst-case scenario.

Radiated spurious emissions were investigated from 9kHz to 30MHz and 30MHz-1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 30MHz and 30MHz-1GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GHz WLAN, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

DESCRIPTION OF TEST SETUP

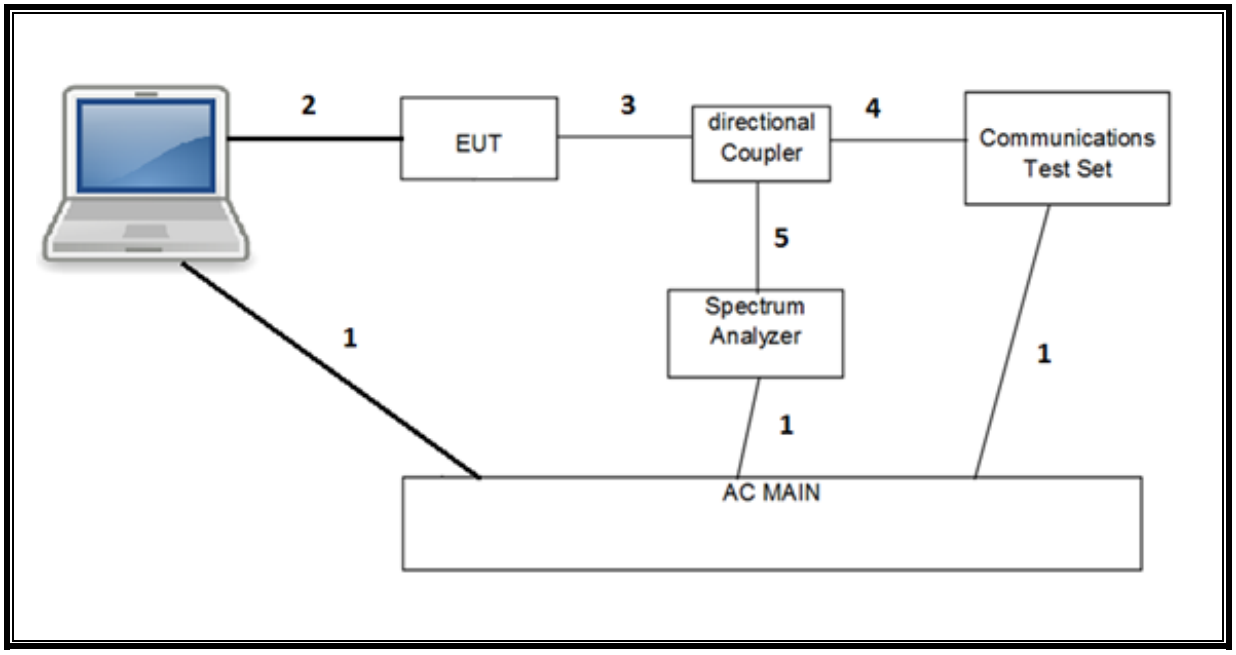
SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
Laptop	Apple	MacBook Pro	DLP9QC65WT	DoC
Laptop AC/DC Adapter	Apple	61W Charger	C06939403RAJFYFBU	DoC
EUT AC/DC Cable	Apple	A246F	FTLHDB001KW0001061	DoC
EUT AC/DC Adapter	Apple	B820	C4H9516000GPF4F4H	DoC

6.6.

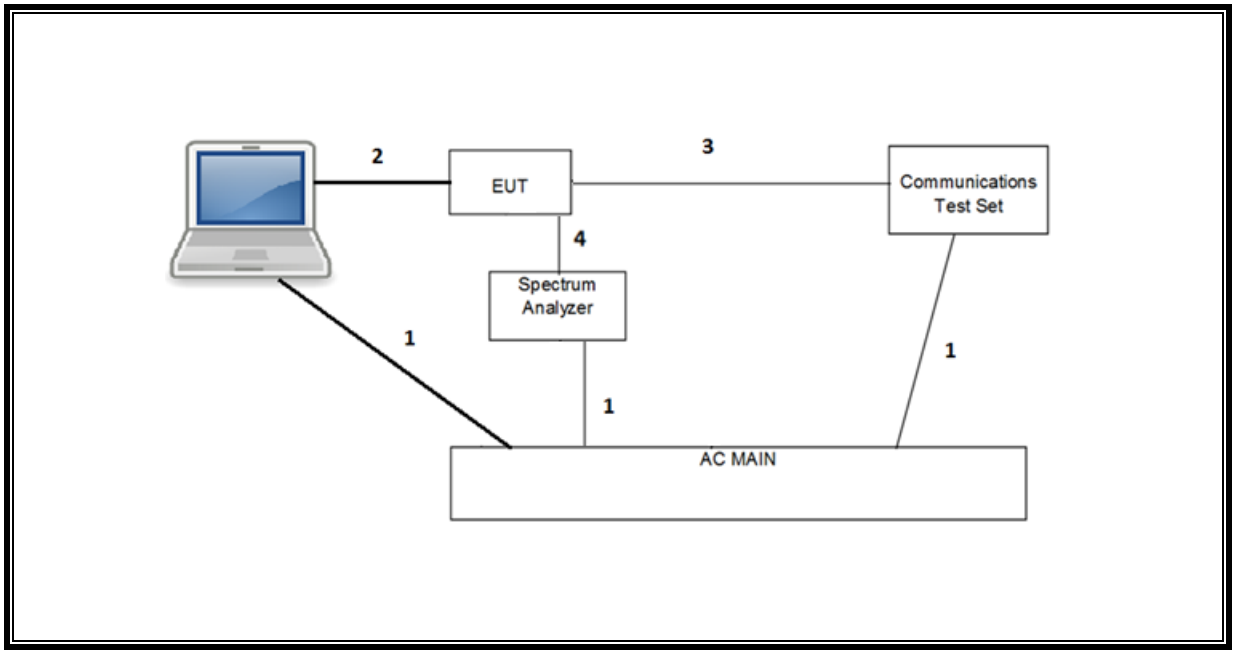
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# Of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	3	US 115V	Un-shielded	2.0	N/A
2	USB	1	Type-C	Shielded	2.0	N/A
3	RF In/Out	1	SMA	Shielded	1.0	N/A
4	RF In/Out	1	SMA	Shielded	0.5	N/A
5	RF In/Out	1	SMA Adapter	N/A	N/A	N/A

I/O CABLES (RF RADIATED TEST)						
Cable No.	**Port**	**# Of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	Type-C	Un-shielded	1.0	N/A

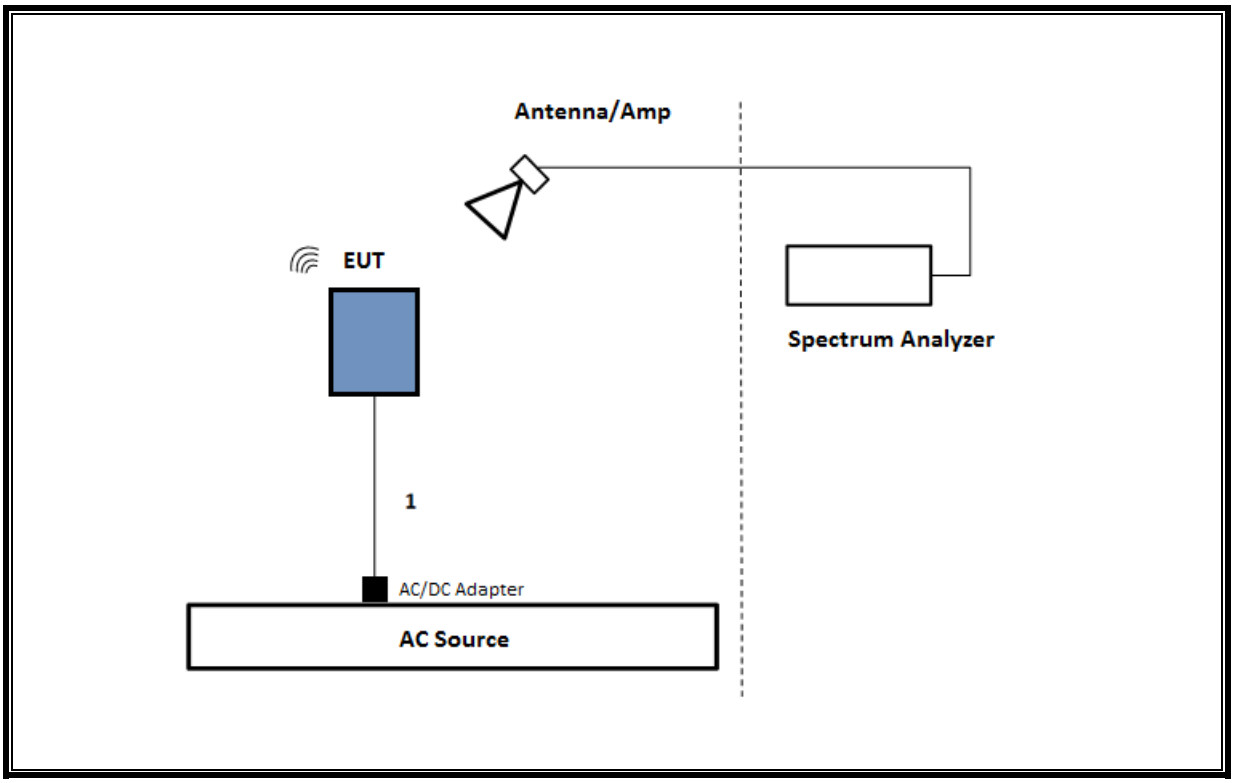
CONDUCTED SETUP ANT 1



CONDUCTED SETUP ANT 2



RADIATED SETUP



7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	223462	02-28-2026
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	200784	03-31-2027
RF Filter Box, 1-18GHz	UL-FR1	N/A	168534	02-28-2026
* Antenna, Broadband Hybrid, 30MHz to 2GHz	Sunol Sciences Corp.	JB3	85150	12-30-2025
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	29637	09-30-2026
Antenna, Passive Loop 100kHz to 30MHz	ELECTRO-METRICS	EM-6872	29640	09-30-2026
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310N	170649	08-31-2025
Directional Coupler	KRYTAR	152610	254457	10-31-2025
PXA Signal Analyzer	Keysight Technologies Inc	N9030B	262734	04-30-2026
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	A0U396816	07-12-2025
UL AUTOMATION SOFTWARE				
Conducted Software	UL	Antenna Port	Ver.2022.8.16& 2021.5.13	
Conducted Software	UL	Station Tool	Ver. 5.0 & 5.3	

NOTES:

1. * Testing is completed before equipment expiration date.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

8. RF OUTPUT POWER VERIFICATION

LIMITS

FCC: §25.204
(a) In bands shared coequally with terrestrial radio communication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station, other than an ESV, operating in frequency bands between 1 and 15 GHz, shall not exceed the following limits except as provided for in paragraph (c) of this section:

+ 40 dBW in any 4 kHz band for θ ≤0°
+ 40 + 3θ dBW in any 4 kHz band for 0° <θ ≤5°

where θ is the angle of elevation of the horizon viewed from the center of radiation of the antenna of the earth station and measured in degrees as positive above the horizontal plane and negative below it.

ISED: RSS-170§5.5: Transmitter output power for MESs (Mobile Earth Stations)
The application for MES certification shall state the MES e.i.r.p. that is necessary for satisfactory communication. The maximum permissible e.i.r.p. will be the stated e.i.r.p. plus a 2 dB margin. If a detachable antenna is used, the certification application shall state the recommended antenna type and manufacturer, the antenna gain and the maximum transmitter output power at the antenna terminal.

TEST PROCEDURE

The transmitter output is connected to a wideband power meter/sensor which is greater than the occupied bandwidth as worst-case scenario, also the total power readings still comply with the required limit.

The cable assembly insertion loss of 12.79 dB (ANT 2) / 12.13 dB (ANT 3) (including 10.70 dB coupler and 2.09 dB cable (ANT 2) / 10 dB pad and 2.13 dB cable (ANT 3)) was entered as an offset in the power meter to allow for a gated average reading of power.

RESULTS

Test Engineer ID:	26118	Test Date:	2025-02-06

Test Frequency (MHz)	Conducted Average Power (dBm)		Antenna Gain (dBi)		EIRP Average Power (dBm)	
	ANT 2	ANT 3	ANT 2	ANT 3	ANT 2	ANT 3
1610.17	27.990	27.961	-1.8	-3.9	26.19	24.06
1618.40	**28.000**	27.985			**26.20**	24.09
1626.03	27.992	**28.000**			26.19	24.10

9. CONDUCTED TEST RESULTS

OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS-GEN

LIMITS 9.1

For reporting purposes only.

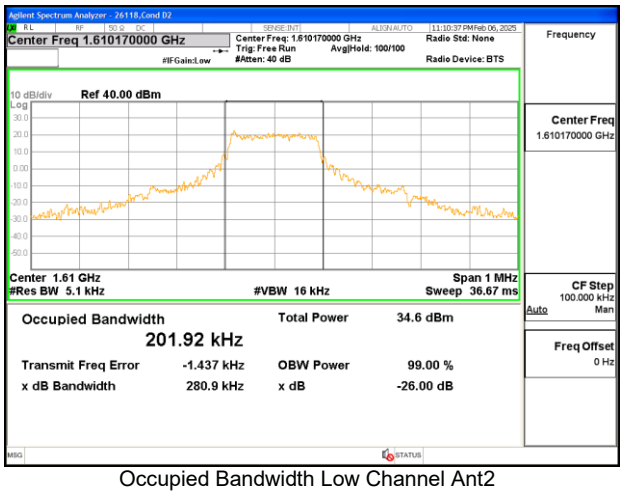
TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the middle channel in each band. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW. The 99% bandwidths were measured and recorded.

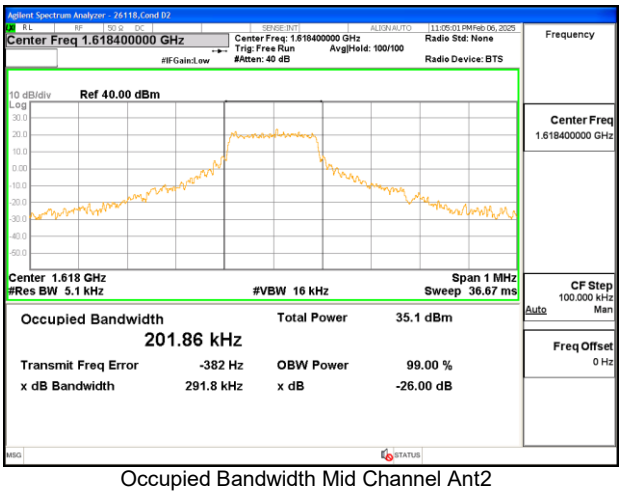
RESULTS

Test Engineer ID:	26118	Test Date:	2025-02-06

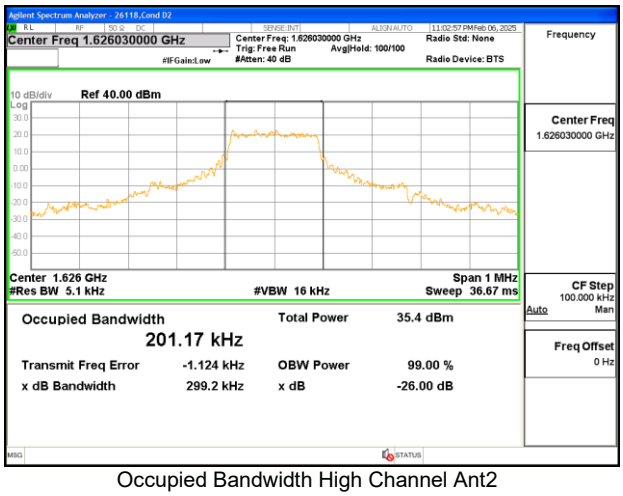
Test Frequency (MHz)	99% Bandwidth (kHz) ANT 2	99% Bandwidth (kHz) ANT 3
1610.17	201.92	201.44
1618.40	201.86	202.62
1626.03	201.17	201.79



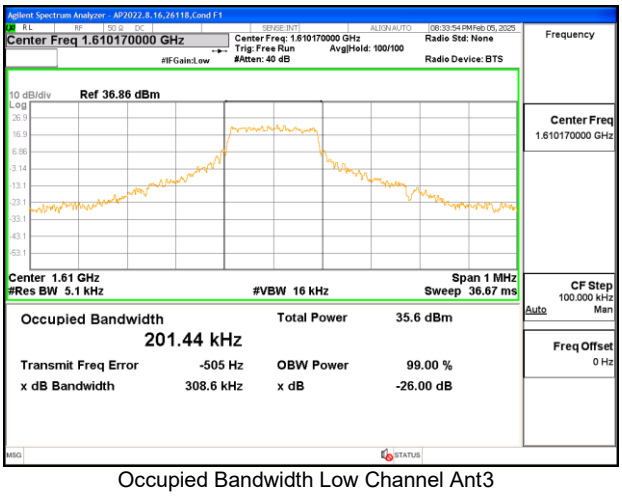
Occupied Bandwidth Low Channel Ant2



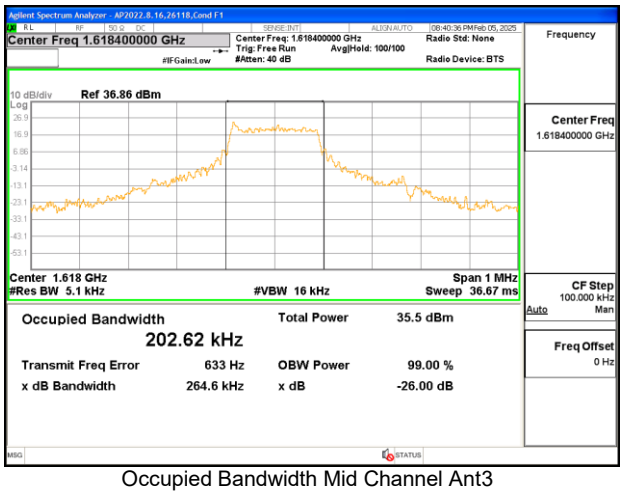
Occupied Bandwidth Mid Channel Ant2



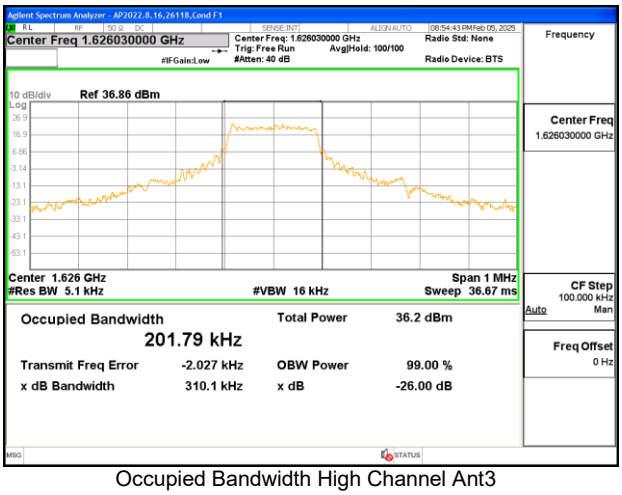
Occupied Bandwidth High Channel Ant2



Occupied Bandwidth Low Channel Ant3



Occupied Bandwidth Mid Channel Ant3



Occupied Bandwidth High Channel Ant3

EMISSIONS MASK WITHIN 250% OF AUTHORIZED BANDWIDTH

LIMITS

FCC §25.202
(f) Emission limitations. Except for SDARS terrestrial repeaters and as provided for in paragraph (i), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section. The out-of-band emissions of SDARS terrestrial repeaters shall be attenuated in accordance with the schedule set forth in paragraph (h) of this section.

9.2.

(1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;

(2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;

ISED RSS-170§ 5.8: Unwanted emission limits for MESs in all frequency bands
The average power of unwanted emissions shall be attenuated below the average output power, P (dBW), of the transmitter, as specified below:

a. 25 dB in any 4 kHz, the frequency of which is offset from the channel centre frequency by more than 50%, up to and including 100% of the occupied bandwidth or necessary bandwidth, whichever is greater
b. 35 dB in any 4 kHz, the frequency of which is offset from the channel centre frequency by more than 100%, up to and including 250% of the occupied bandwidth or necessary bandwidth, whichever is greater

TEST PROCEDURE

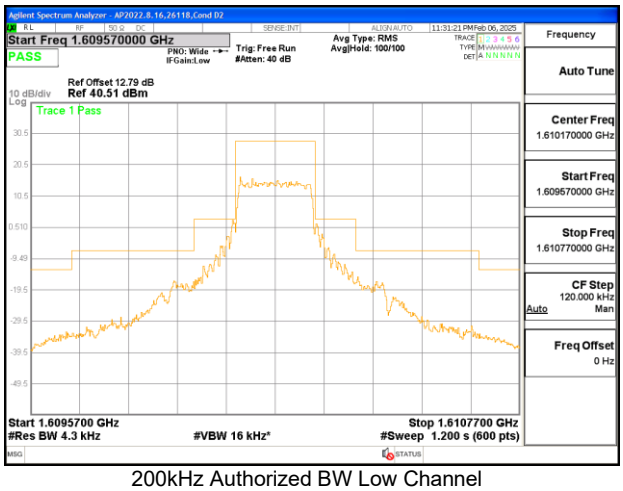
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The channel edge emissions were measured on the low, mid and high channels. The limits within 250% of the authorized bandwidth are relative to the total in-band (channel) power. The measurement bandwidth (RBW) is set to >= 4kHz and VBW set to at least 3 times the RBW. To measure the average value of the emissions the detector is set to rms while observing the minimum required number of points as detailed in ANSI C63.26 for average rms measurements. The sweep time is set to 2ms multiplied by the number of points to obtain the average over 2ms. Multiple sweeps with max hold enabled are made to capture the maximum average value.

RESULTS

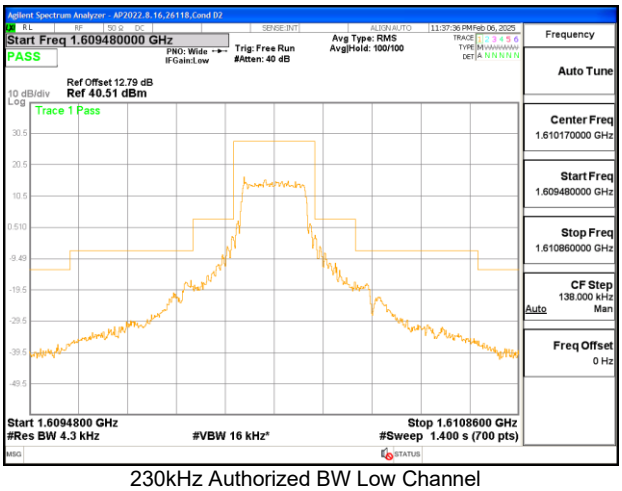
The tests were performed based on declared authorized bandwidths of 200kHz, 230kHz and 280kHz.

Test Engineer ID:	26118	Test Date:	2025-02-06

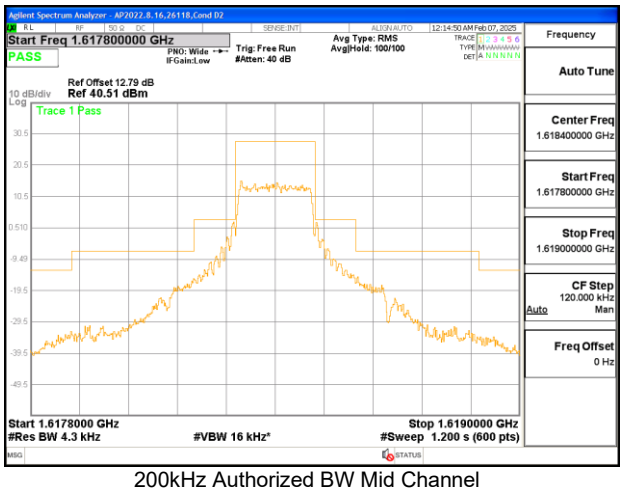
ANT 2



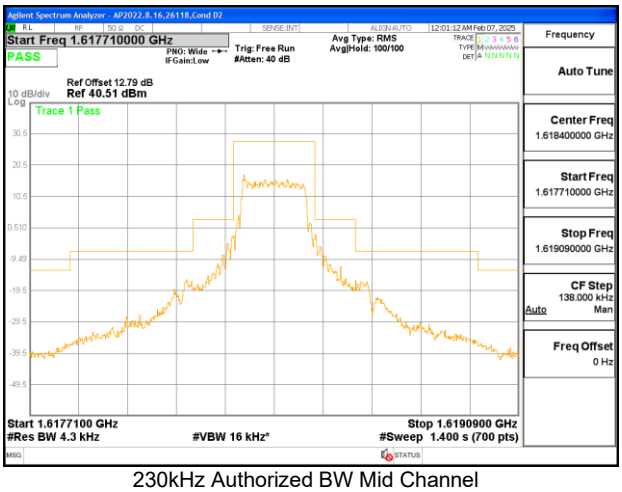
200kHz Authorized BW Low Channel



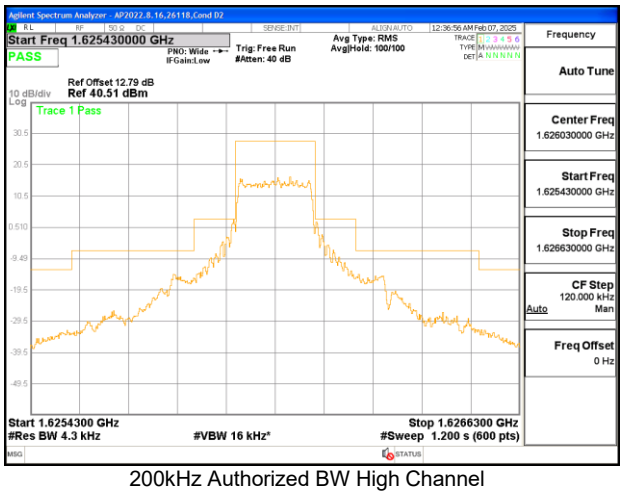
230kHz Authorized BW Low Channel



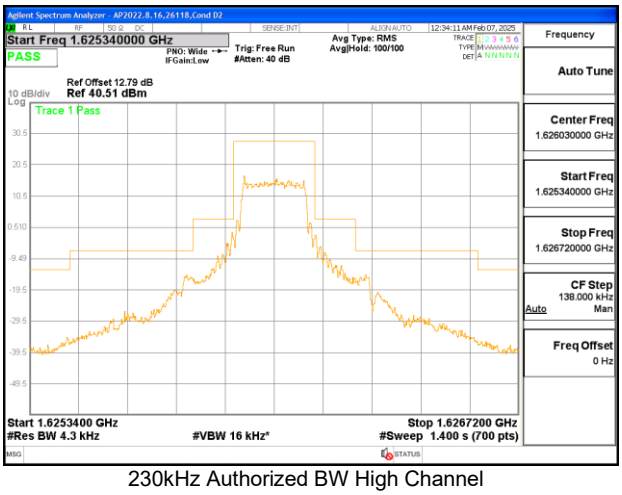
200kHz Authorized BW Mid Channel



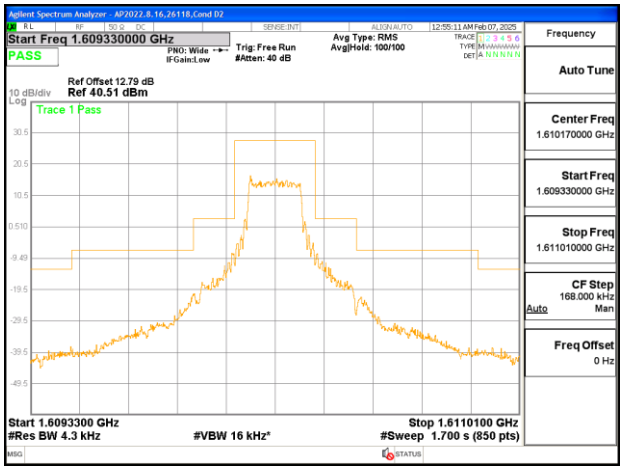
230kHz Authorized BW Mid Channel



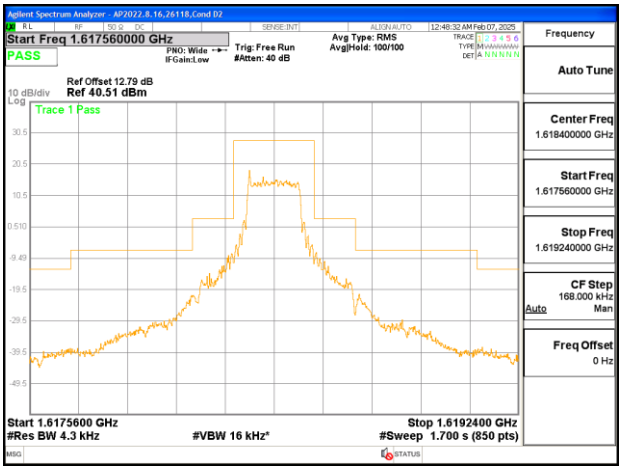
200kHz Authorized BW High Channel



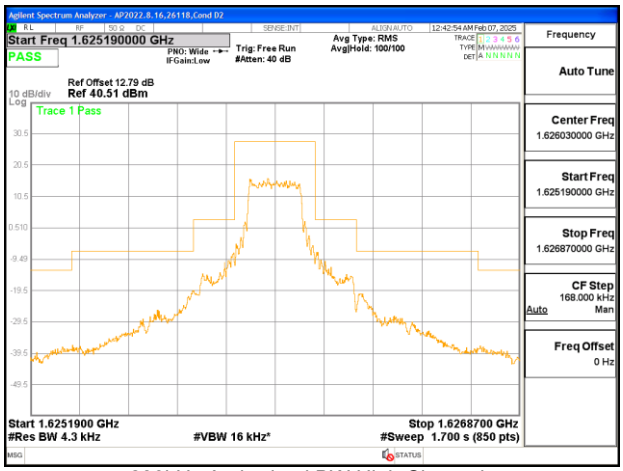
230kHz Authorized BW High Channel



280kHz Authorized BW Low Channel



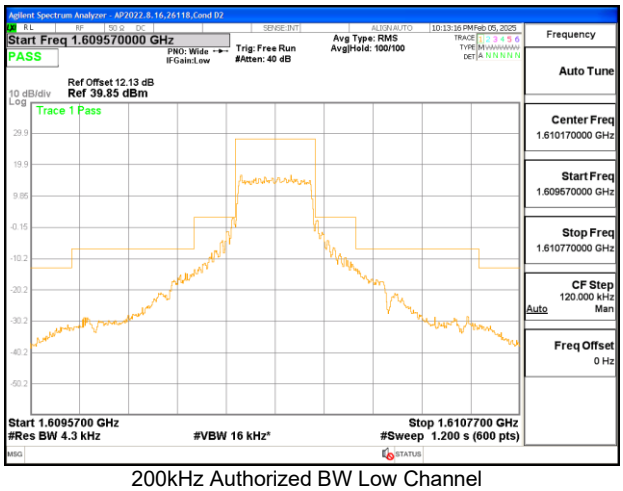
280kHz Authorized BW Mid Channel



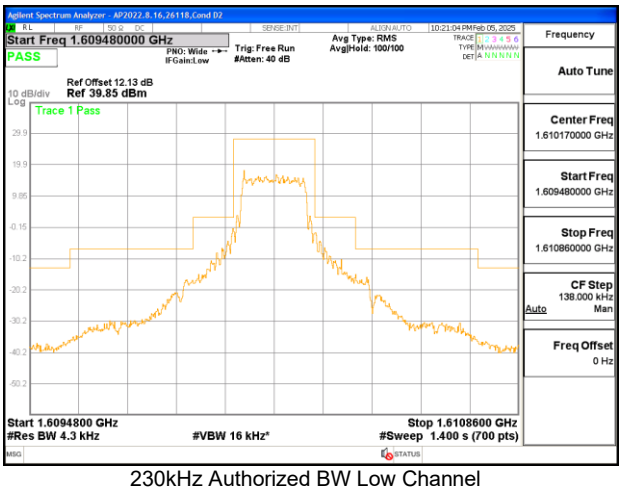
280kHz Authorized BW High Channel

Intentionally Blank

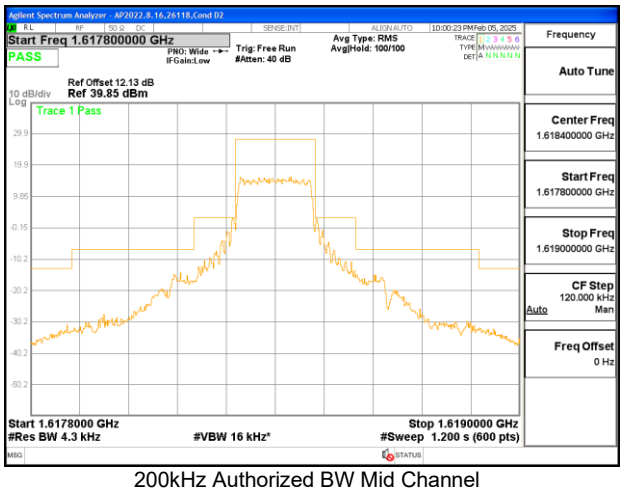
ANT 3



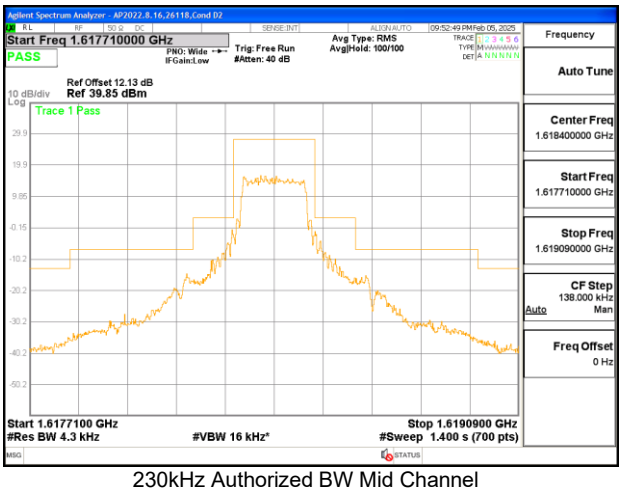
200kHz Authorized BW Low Channel



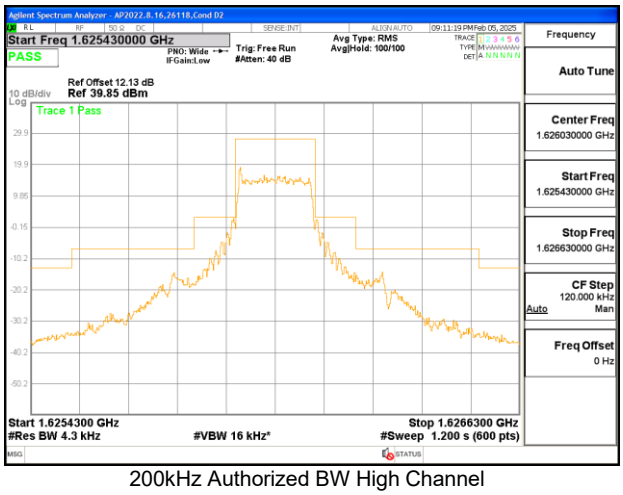
230kHz Authorized BW Low Channel



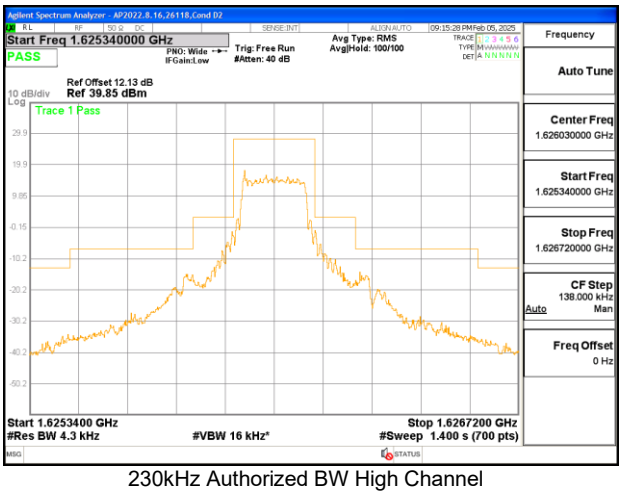
200kHz Authorized BW Mid Channel



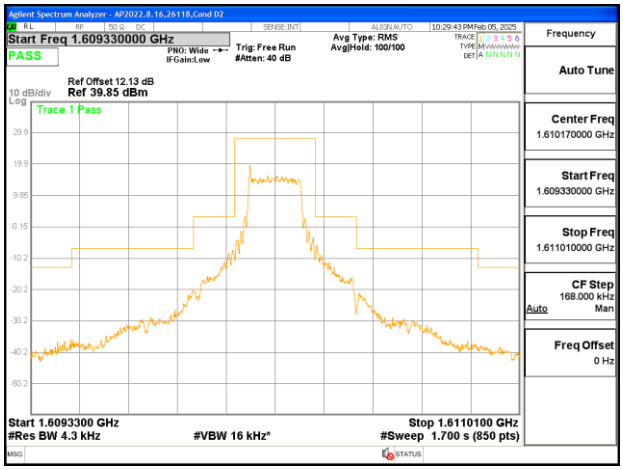
230kHz Authorized BW Mid Channel



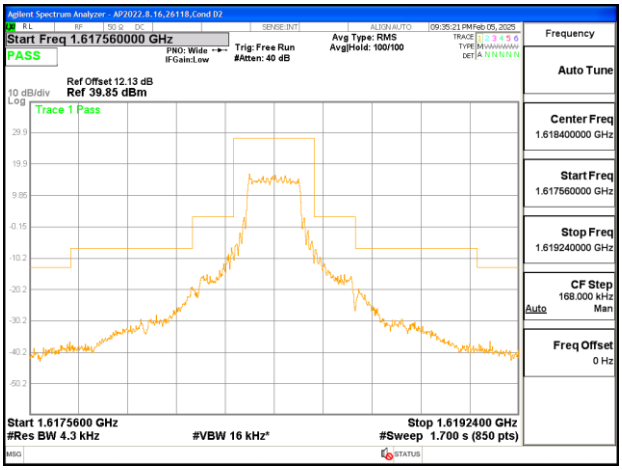
200kHz Authorized BW High Channel



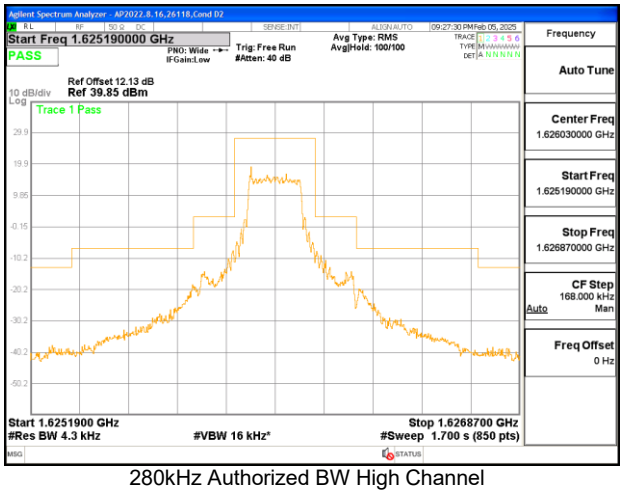
230kHz Authorized BW High Channel



280kHz Authorized BW Low Channel



280kHz Authorized BW Mid Channel



280kHz Authorized BW High Channel

Intentionally Blank

OUT OF BAND EMISSIONS

LIMITS

FCC §25.202 and
(f) Emission limitations. Except for SDARS terrestrial repeaters and as provided for in paragraph (i), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section. The out-of-band emissions of SDARS terrestrial repeaters shall be attenuated in accordance with the schedule set forth in paragraph (h) of this section.

(3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts.

ISED RSS-170§5.8: Unwanted emission limits for MESs in all frequency bands

c. 43 + 10 log p (watts) in any 4 kHz, the frequency of which is offset from the channel centre frequency by more than 250% of the occupied bandwidth or necessary bandwidth, whichever is greater

TEST PROCEDURE

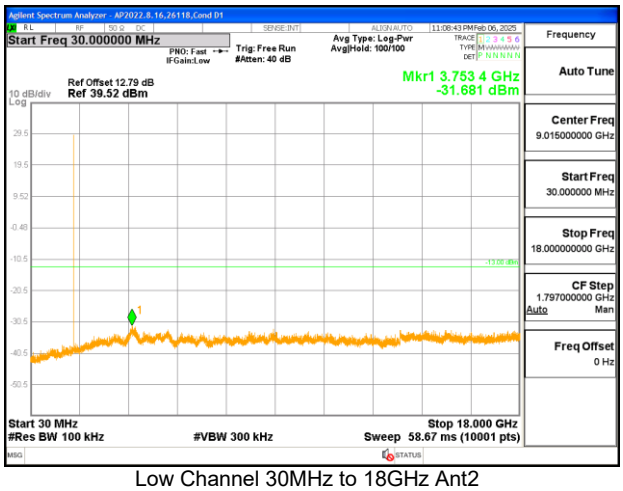
KDB 971168 D01/D02

For each out of band emissions measurement:

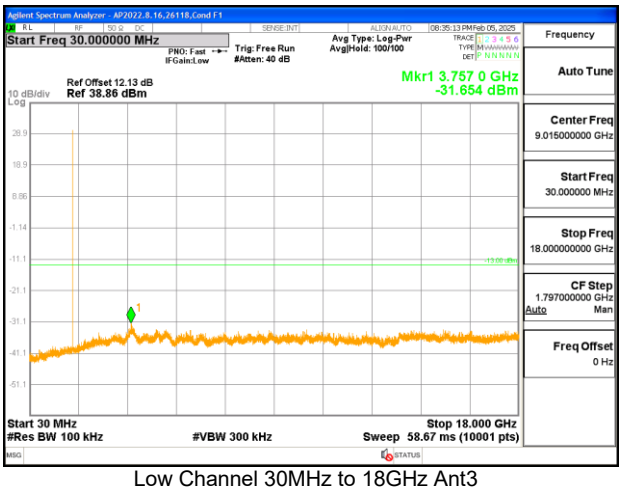
- Set display line at -13 dBm (the limit of 43 + 10Log(P))
- Set RBW >= 4kHz and VBW >= 3 x RBW with peak detector for all measurements. The limit is an average limit so any emissions that exceed the limit using the peak detector are measured using rms detection with an averaging time of 2ms.

RESULTS

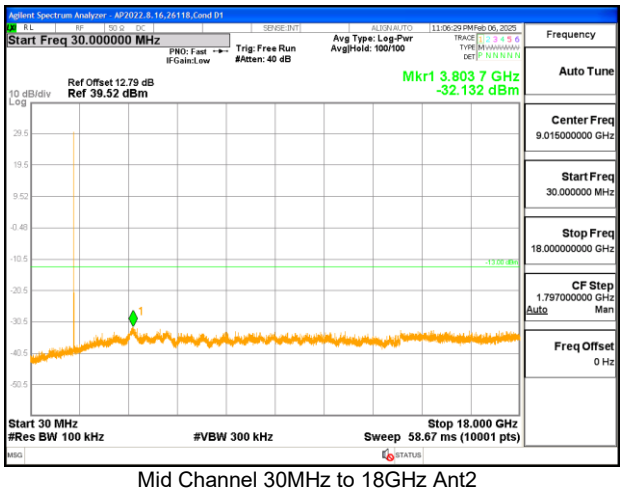
Test Engineer ID:	26118	Test Date:	2025-02-06



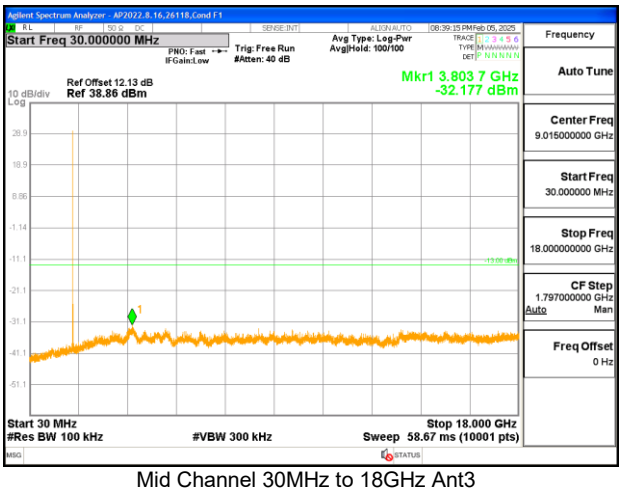
Low Channel 30MHz to 18GHz Ant2



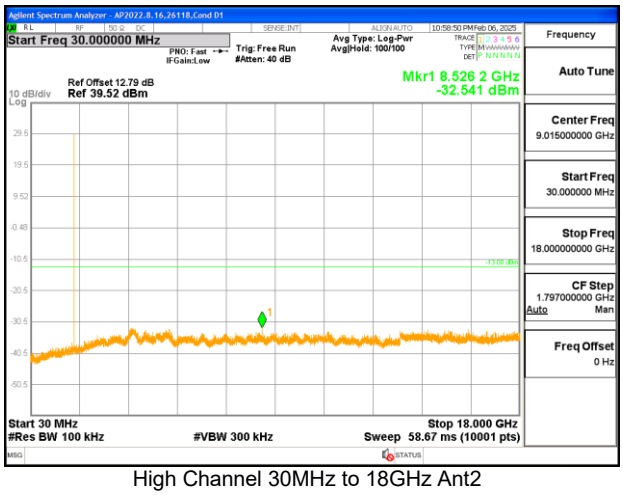
Low Channel 30MHz to 18GHz Ant3



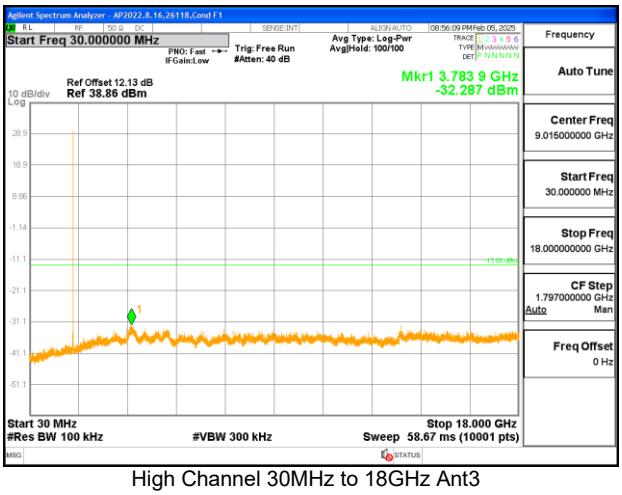
Mid Channel 30MHz to 18GHz Ant2



Mid Channel 30MHz to 18GHz Ant3



High Channel 30MHz to 18GHz Ant2



High Channel 30MHz to 18GHz Ant3

FREQUENCY STABILITY

LIMITS

FCC §25.202
(d) Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

ISED RSS-170: 5.3
9.4.
For MES equipment, the carrier frequency shall not drift from the reference frequency by more than ±10 ppm.

TEST PROCEDURE

Use spectrum with Frequency Error measurement capability.

- Temp. = −30°C to +50°C
- Voltage = (85% - 115%)

  Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
  End Voltage, 2.95VDC.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

RESULTS

Test Engineer ID: 26118 **Test Date:** 5/9/2025
5/10/2025

Frequency Reference (MHz)		1610.17013		Frequency Reading (MHz)	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -10dB BW (MHz)	F high @ -10dB BW (MHz)			
Temperature	Voltage					
Normal (20 C)	Normal	1610.079494	1610.260763	1610.17013		
Extreme (50C)		1610.079051	1610.261201	1610.17013	-2.5	0.00
Extreme (40C)		1610.078482	1610.261702	1610.17009	-36.5	-0.02
Extreme (30C)		1610.078419	1610.260575	1610.16950	-631.5	-0.39
Extreme (10C)		1610.079304	1610.259761	1610.16953	-596.0	-0.37
Extreme (0C)		1610.078735	1610.261138	1610.16994	-192.0	-0.12
Extreme (-10C)		1610.078925	1610.260888	1610.16991	-222.0	-0.14
Extreme (-20C)		1610.079051	1610.261201	1610.17013	-2.5	0.00
Extreme (-30C)		1610.079494	1610.259636	1610.16957	-563.5	-0.35
20C	15%	1610.078229	1610.260638	1610.169434	-695.0	-0.43
	-15%	1610.07766	1610.26189	1610.169775	-353.5	-0.22
	End Point	1610.078672	1610.261013	1610.169843	-286.0	-0.18

10. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, the radiated emissions is measured directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement.

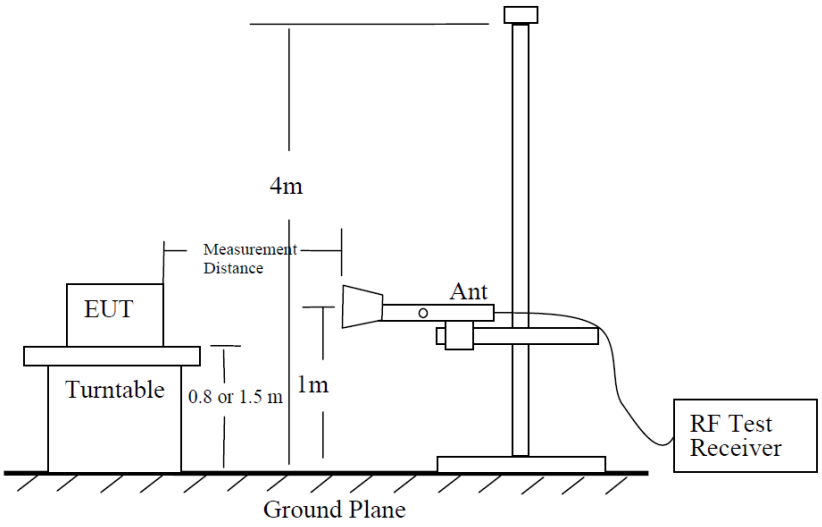


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

Radiated Power Measurement Calculation According to ANSI C63.26-2015

a) E (dBµV/m) = Measured amplitude level (dBµV) + Cable Loss (dB) + Antenna Factor (dB/m).
b) E (dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).
c) E (dBµV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.
d) EIRP (dBm) = E (dBµV/m) + 20log(D) − 104.8; where D is the measurement distance (in the far field region) in m.

So, from d)

The measuring distance is usually at 3m, then 20*Log(3)=9.5424

Then, EIRP (dBm) = E (dBµV/m) + 9.5424 − 104.8 = E (dBµV/m) – 95.2576

FIELD STRENGTH OF SPURIOUS RADIATION

LIMITS

FCC §25.202
(f) Emission limitations. Except for SDARS terrestrial repeaters and as provided for in paragraph (i), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section. The out-of-band emissions of SDARS terrestrial repeaters shall be attenuated in accordance with the schedule set forth in paragraph (h) of this section.

10.1.

(3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

ISED RSS-170§5.8: Unwanted emission limits for MESs in all frequency bands

c. 43 + 10 log p (watts) in any 4 kHz, the frequency of which is offset from the channel centre frequency by more than 250% of the occupied bandwidth or necessary bandwidth, whichever is greater

TEST PROCEDURE

KDB 971168 D01/D02

For each out of band emissions measurement:

- Set display line at -13 dBm (the limit of 43 + 10Log(P))
- Set RBW >= 4kHz and VBW >= 3 x RBW with peak detector for all measurements. The limit is an average limit so any emissions that exceed the limit using the peak detector are measured using rms detection with an averaging time of 2ms.

RESULTS

Plots are provided for the center channel. Tabular data for all channels is presented.

ANT 2 (Above 1GHz)

Date:	4/23/2025
Test Engineer:	31300
Configuration:	EUT Only
Mode:	Tx
Chamber #:	01-RDE-B

LOW CHANNEL DATA

10.1.1.

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.220315	42.39	Pk	32.9	-95.2	-33.46	-53.37	-13	-40.37	209	195	H
2	3.220323	40.08	Pk	32.9	-95.2	-33.46	-55.68	-13	-42.68	350	105	V
3	4.830491	36.37	Pk	34.0	-95.2	-30.20	-55.03	-13	-42.03	198	102	H
4	4.830466	38.06	Pk	34.0	-95.2	-30.20	-53.34	-13	-40.34	169	360	V
5	*6.440504	26.25	Pk	35.6	-95.2	-27.30	-60.65	-13	-47.65	0-360	149	H
6	*6.441457	25.65	Pk	35.6	-95.2	-27.30	-61.25	-13	-48.25	0-360	149	V

Pk - Peak detector
* - Noise floor

MID CHANNEL DATA

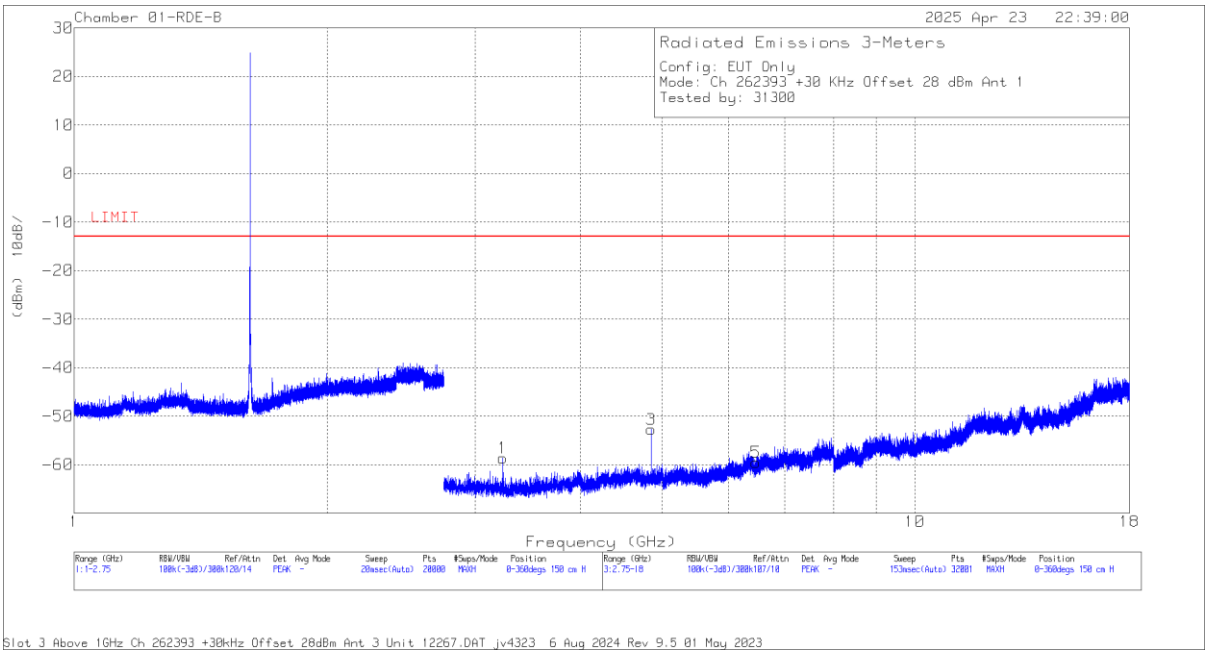
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.236846	40.30	Pk	32.9	-95.2	-33.40	-55.40	-13	-42.40	200	136	H
2	3.236855	39.40	Pk	32.9	-95.2	-33.40	-56.30	-13	-43.30	19	109	V
3	4.855290	38.62	Pk	34.0	-95.2	-30.20	-52.78	-13	-39.78	185	132	H
4	4.855262	35.25	Pk	34.0	-95.2	-30.20	-56.15	-13	-43.15	34	117	V
5	*6.47434	27.49	Pk	35.6	-95.2	-27.37	-59.48	-13	-46.48	0-360	150	H
6	*6.473863	26.73	Pk	35.6	-95.2	-27.30	-60.17	-13	-47.17	0-360	150	V

Pk - Peak detector
* - Noise floor

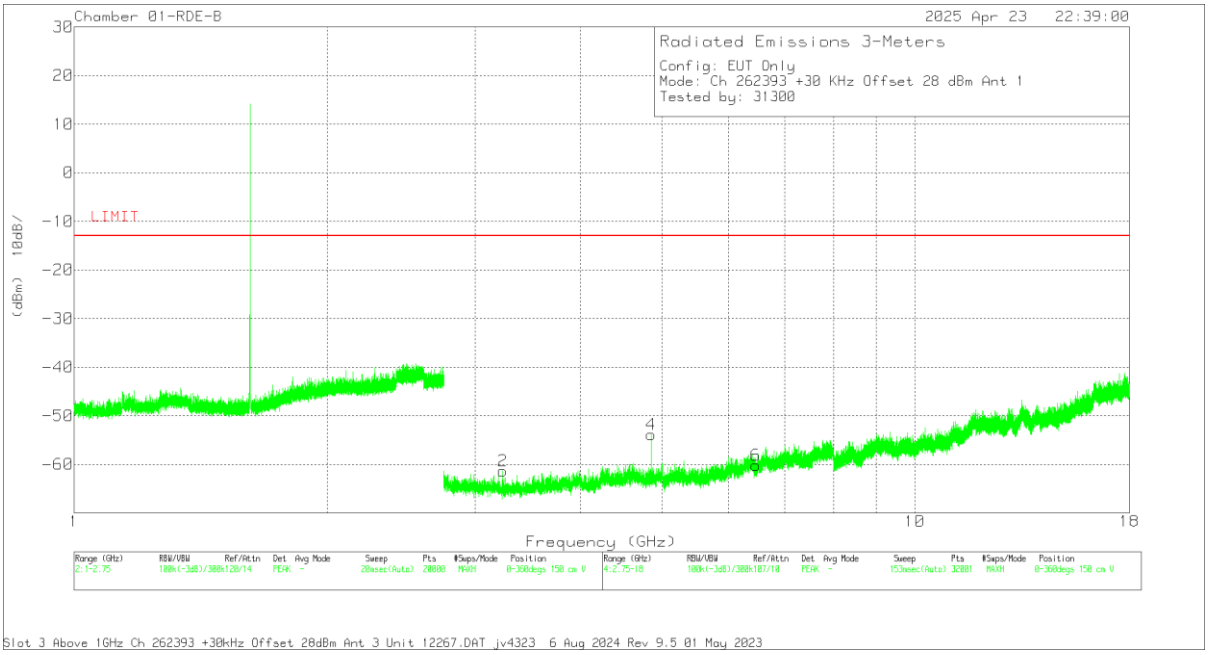
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.252059	39.22	Pk	32.8	-95.2	-33.51	-56.69	-13	-43.69	277	114	H
2	3.252120	37.03	Pk	32.8	-95.2	-33.51	-58.88	-13	-45.88	48	220	V
3	4.878101	38.90	Pk	34.0	-95.2	-29.79	-52.09	-13	-39.09	183	107	H
4	4.878109	37.47	Pk	34.0	-95.2	-29.79	-53.52	-13	-40.52	13	108	V
5	6.506270	27.31	Pk	35.6	-95.2	-27.45	-59.74	-13	-46.74	0-360	149	H
6	6.501981	28.30	Pk	35.6	-95.2	-27.50	-58.80	-13	-45.80	0-360	149	V

Pk - Peak detector
* - Noise floor



MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

ANT 3 (Above 1GHz)

Date:	4/24/2025
Test Engineer:	31300
Configuration:	EUT Only
Mode:	Tx
Chamber #:	01-RDE-B

LOW CHANNEL DATA

10.1.2.

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.220347	41.36	Pk	32.9	-95.2	-33.47	-54.41	-13	-41.41	196	125	H
2	3.220336	43.18	Pk	32.9	-95.2	-33.47	-52.59	-13	-39.59	256	317	V
3	4.830508	44.10	Pk	34.0	-95.2	-30.20	-47.30	-13	-34.30	28	359	H
4	4.830482	42.23	Pk	34.0	-95.2	-30.20	-49.17	-13	-36.17	264	119	V
5	*6.441457	25.76	Pk	35.6	-95.2	-27.30	-61.14	-13	-48.14	0-360	149	H
6	*6.441457	26.77	Pk	35.6	-95.2	-27.30	-60.13	-13	-47.13	0-360	149	V

Pk - Peak detector
* - Noise floor

MID CHANNEL DATA

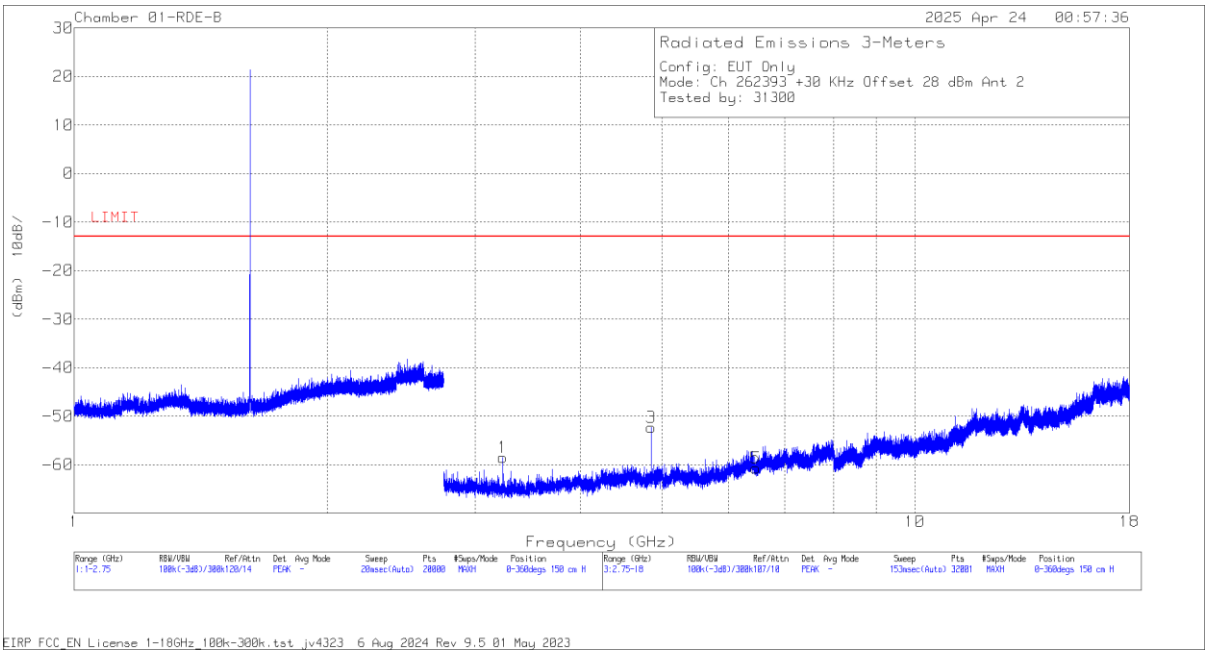
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.236884	42.57	Pk	32.9	-95.2	-33.4	-53.13	-13	-40.13	201	107	H
2	3.236842	41.63	Pk	32.9	-95.2	-33.4	-54.07	-13	-41.07	121	125	V
3	4.855294	43.92	Pk	34.0	-95.2	-30.2	-47.48	-13	-34.48	29	358	H
4	4.855283	43.63	Pk	34.0	-95.2	-30.2	-47.77	-13	-34.77	266	130	V
5	*6.473387	26.24	Pk	35.6	-95.2	-27.3	-60.66	-13	-47.66	0-360	150	H
6	*6.473387	26.78	Pk	35.6	-95.2	-27.3	-60.12	-13	-47.12	0-360	150	V

Pk - Peak detector
* - Noise floor

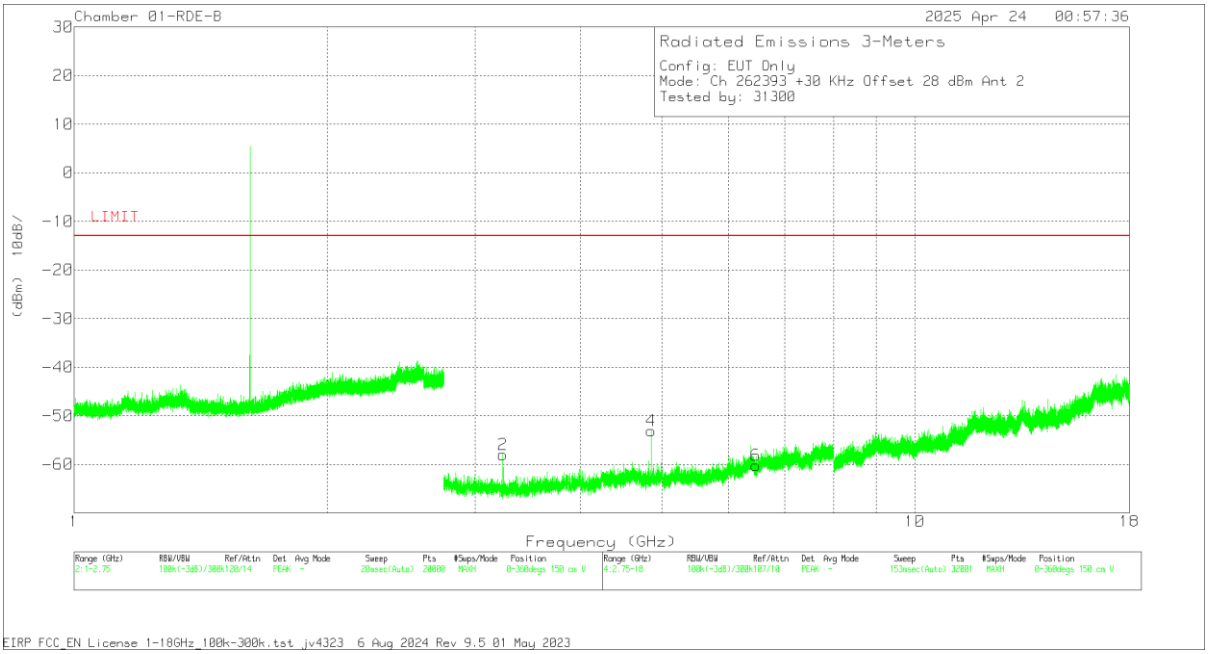
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 226671 (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.252061	43.14	Pk	32.8	-95.2	-33.51	-52.77	-13	-39.77	191	101	H
2	3.252054	41.52	Pk	32.8	-95.2	-33.51	-54.39	-13	-41.39	310	125	V
3	4.878079	44.21	Pk	34.0	-95.2	-29.79	-46.78	-13	-33.78	27	273	H
4	4.878052	42.75	Pk	34.0	-95.2	-29.79	-48.24	-13	-35.24	267	203	V
5	*6.504840	26.63	Pk	35.6	-95.2	-27.42	-60.39	-13	-47.39	0-360	150	H
6	*6.504840	26.56	Pk	35.6	-95.2	-27.42	-60.46	-13	-47.46	0-360	150	V

Pk - Peak detector
* - Noise floor



MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

ANT 2 (Below 1GHz)

Date:	3/21/2025
Test Engineer:	24943
Configuration:	EUT + Charger
Mode:	Tx
Chamber #:	01-RDE-B

10.1.3. LOW CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.358	37.15	Pk	26.3	-31.5	-95.2	-63.25	-13	-50.25	0-360	149	V
1	76.172	37.69	Pk	13.8	-31.0	-95.2	-74.71	-13	-61.71	0-360	149	H
5	98.191	39.74	Pk	15.7	-30.8	-95.2	-70.56	-13	-57.56	0-360	149	V
2	157.070	41.76	Pk	18.0	-30.4	-95.2	-65.84	-13	-52.84	0-360	149	H
6	215.367	39.77	Pk	16.3	-30.1	-95.2	-69.23	-13	-56.23	0-360	149	V
3	215.755	46.96	Pk	16.3	-30.1	-95.2	-62.04	-13	-49.04	0-360	149	H

Pk - Peak detector
* - Noise floor

MID CHANNEL DATA

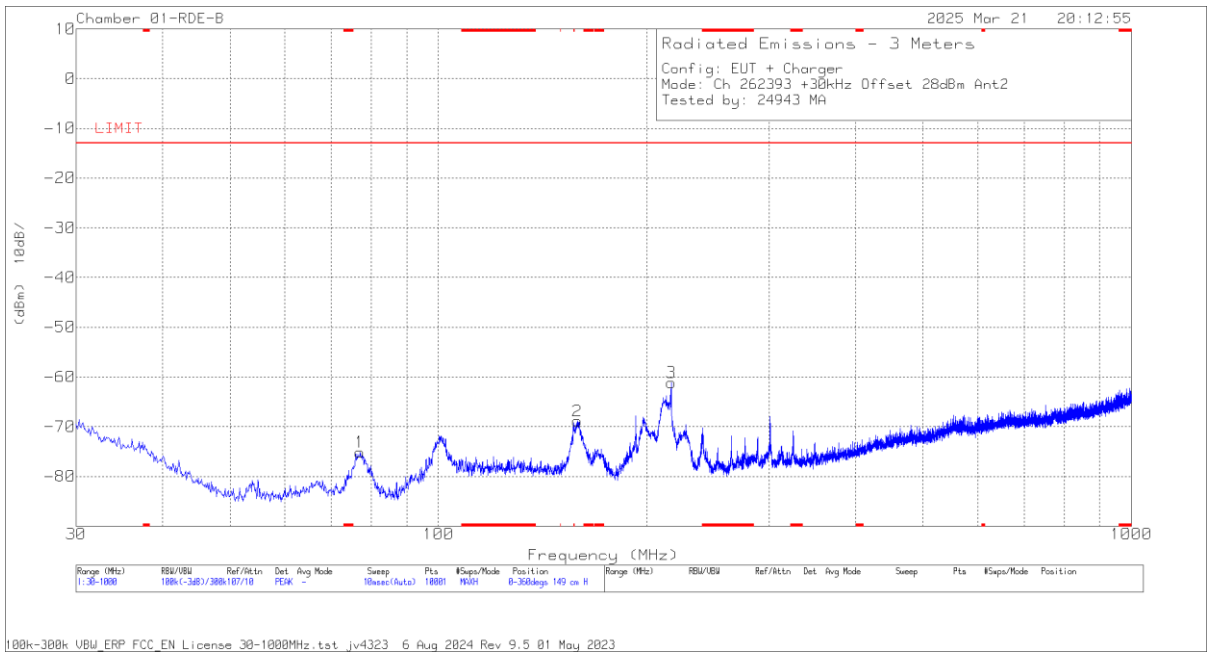
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.649	36.89	Pk	26.1	-31.5	-95.2	-63.71	-13	-50.71	0-360	149	V
5	78.112	41.80	Pk	13.6	-31.0	-95.2	-70.80	-13	-57.80	0-360	149	V
1	102.071	38.14	Pk	16.7	-30.8	-95.2	-71.16	-13	-58.16	0-360	149	H
2	159.495	36.35	Pk	17.9	-30.4	-95.2	-71.35	-13	-58.35	0-360	149	H
3	216.531	46.12	Pk	16.3	-30.1	-95.2	-62.88	-13	-49.88	0-360	149	H
6	216.725	41.50	Pk	16.3	-30.1	-95.2	-67.50	-13	-54.50	0-360	149	V

Pk - Peak detector
* - Noise floor

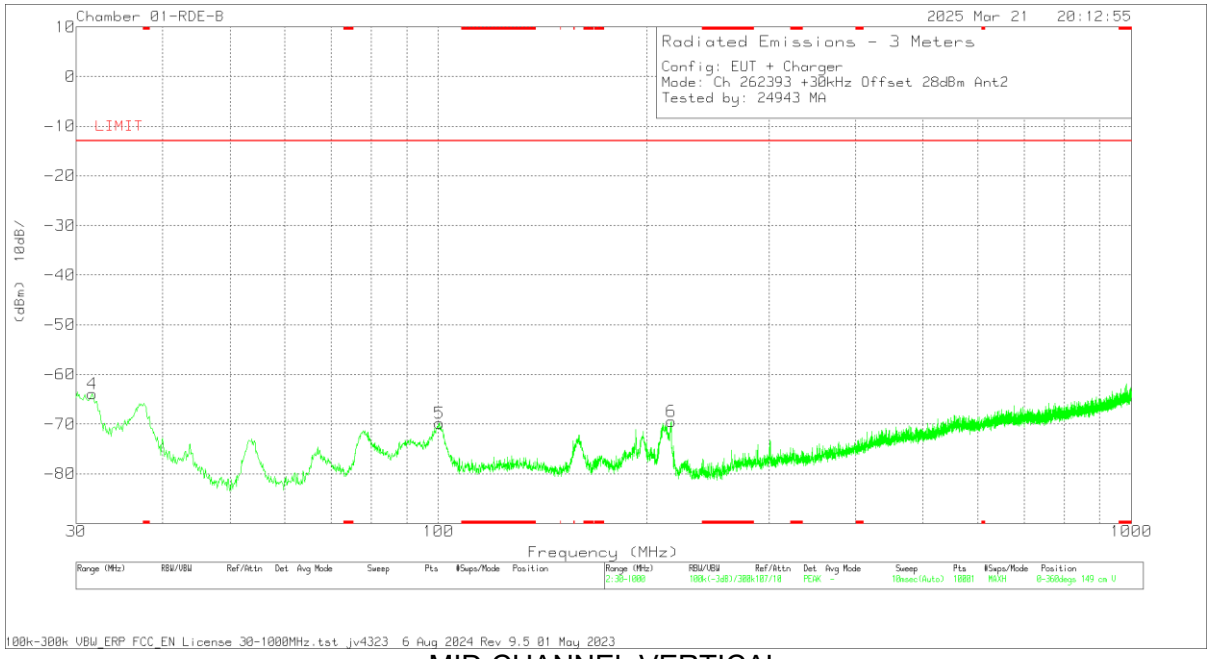
HIGH CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.455	36.49	Pk	26.2	-31.5	-95.2	-64.01	-13	-51.01	0-360	150	V
5	100.034	39.66	Pk	16.2	-30.8	-95.2	-70.14	-13	-57.14	0-360	150	V
1	101.974	38.68	Pk	16.7	-30.8	-95.2	-70.62	-13	-57.62	0-360	149	H
2	158.913	38.13	Pk	17.9	-30.4	-95.2	-69.57	-13	-56.57	0-360	149	H
3	216.531	47.00	Pk	16.3	-30.1	-95.2	-62.00	-13	-49.00	0-360	149	H
6	216.725	41.12	Pk	16.3	-30.1	-95.2	-67.88	-13	-54.88	0-360	150	V

Pk - Peak detector
* - Noise floor



MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

ANT 3 (Below 1GHz)

Date:	3/21/2025
Test Engineer:	24943
Configuration:	EUT + Charger
Mode:	Tx
Chamber #:	01-RDE-B

10.1.4.
LOW CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.843	36.41	Pk	26.0	-31.5	-95.2	-64.29	-13	-51.29	0-360	149	V
5	100.810	39.72	Pk	16.4	-30.8	-95.2	-69.88	-13	-56.88	0-360	149	V
1	101.295	38.02	Pk	16.6	-30.8	-95.2	-71.38	-13	-58.38	0-360	149	H
2	159.495	37.54	Pk	17.9	-30.4	-95.2	-70.16	-13	-57.16	0-360	149	H
6	216.240	40.77	Pk	16.3	-30.1	-95.2	-68.23	-13	-55.23	0-360	149	V
3	216.337	45.66	Pk	16.3	-30.1	-95.2	-63.34	-13	-50.34	0-360	149	H

Pk - Peak detector
* - Noise floor

MID CHANNEL DATA

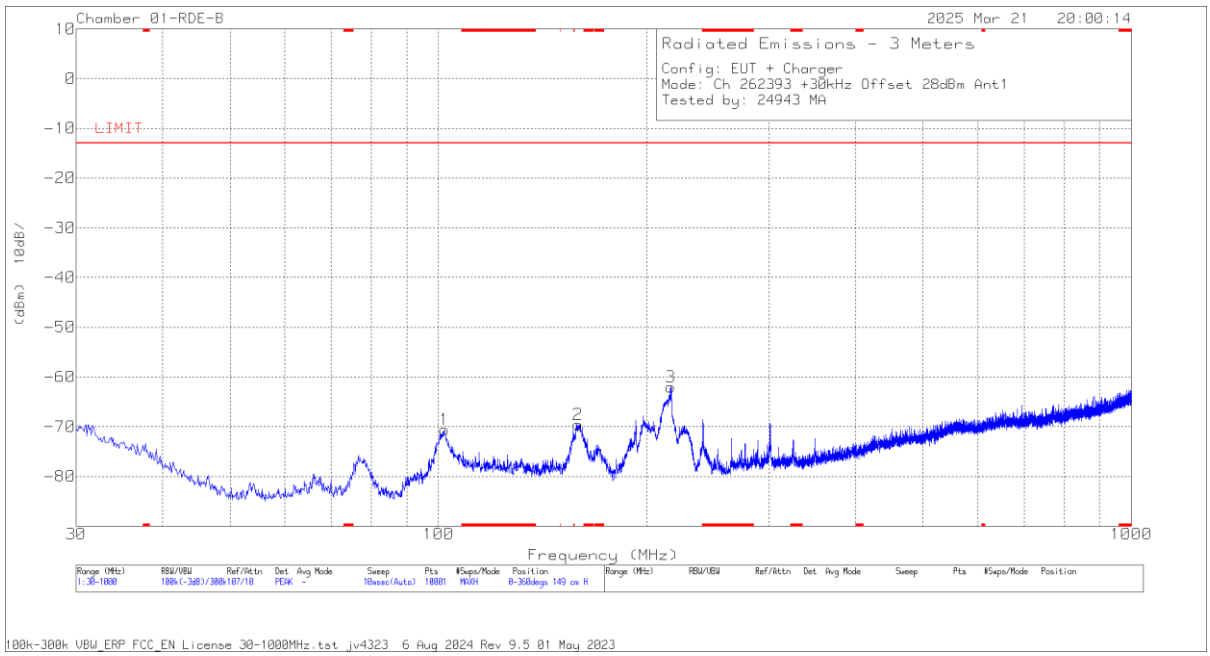
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.358	36.48	Pk	26.3	-31.5	-95.2	-63.92	-13	-50.92	0-360	149	V
5	100.519	39.73	Pk	16.4	-30.8	-95.2	-69.87	-13	-56.87	0-360	149	V
1	100.907	37.72	Pk	16.5	-30.8	-95.2	-71.78	-13	-58.78	0-360	149	H
2	158.525	38.77	Pk	17.9	-30.4	-95.2	-68.93	-13	-55.93	0-360	149	H
3	216.628	45.05	Pk	16.3	-30.1	-95.2	-63.95	-13	-50.95	0-360	149	H
6	216.628	39.47	Pk	16.3	-30.1	-95.2	-69.53	-13	-56.53	0-360	149	V

Pk - Peak detector
* - Noise floor

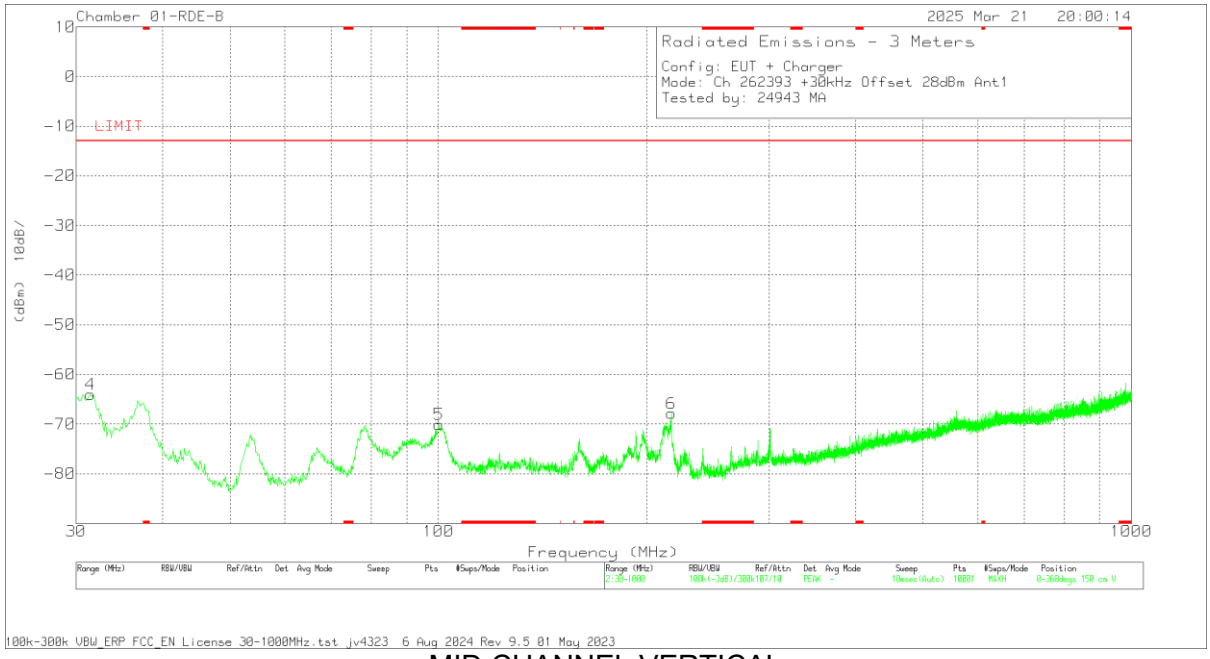
HIGH CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85150 ACF (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	31.649	36.64	Pk	26.1	-31.5	-95.2	-63.96	-13	-50.96	0-360	149	V
1	77.045	37.39	Pk	13.7	-31.0	-95.2	-75.11	-13	-62.11	0-360	149	H
5	100.325	39.88	Pk	16.3	-30.8	-95.2	-69.82	-13	-56.82	0-360	149	V
2	158.719	38.81	Pk	17.9	-30.4	-95.2	-68.89	-13	-55.89	0-360	149	H
3	216.628	47.89	Pk	16.3	-30.1	-95.2	-61.11	-13	-48.11	0-360	149	H
6	216.725	39.50	Pk	16.3	-30.1	-95.2	-69.50	-13	-56.50	0-360	149	V

Pk - Peak detector
* - Noise floor



MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

ADDITIONAL UNWANTED EMISSION (1559MHz – 1610MHz)

LIMITS

FCC §25.216

Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

(a) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 …

(b) The e.i.r.p. density of emissions from mobile earth stations placed in service on or before July 21, 2002 …

10.2.

(c) The e.i.r.p. density of emissions from mobile earth stations placed in service after July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed −70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559-1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed −80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559-1605 MHz band.

FCC §25.216

(g) Mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies in the 1610-1626.5 MHz band shall suppress the power density of emissions in the 1605-1610 MHz band-segment to an extent determined by linear interpolation from −70 dBW/MHz at 1605 MHz to −10 dBW/MHz at 1610 MHz averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from −80 dBW at 1605 MHz to −20 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

ISED RSS-170§ 5.9.1: Band 1610-1626.5 MHz

For MESs with transmitting frequencies between 1610 MHz and 1626.5 MHz, the e.i.r.p. density of unwanted emissions shall not exceed the limits shown below, which are the same as those for the band 1605-1610 MHz, averaged over any 2 ms active transmission interval:

a. -70 dBW/MHz at 1605 MHz, linearly interpolated to -10 dBW/MHz at 1610 MHz, for broadband emissions
b. -80 dBW/kHz at 1605 MHz, linearly interpolated to -20 dBW/kHz at 1610 MHz, for discrete emissions

TEST PROCEDURE

KDB 971168 D01/D02

Measure wideband emissions using either:

RBW = 1MHz, VB = 3MHz
RBW < 1MHz, integrate over 1MHz if necessary

Measure narrowband emissions using:

RBW = 10kHz, VB = 30kHz as worst-case setting

Set detector = rms, sweep time ~ number of points x 2ms, and sweep multiple times with max hold enabled. When the detector is set to rms the number of points is set to exceed the minimum number required by ANSI C63.26 for average measurements. A peak detector may be used (e.g. to avoid slow sweep times for the narrowband emissions measurements) in lieu of average rms detection as this will provide a more conservative (higher) measured value than the rms value.

RESULTS

Both horizontal / vertical polarizations and low/ mid/ high channels were investigated on ANT 2 and ANT 3. It was found low channel to be worst case for both antennas.

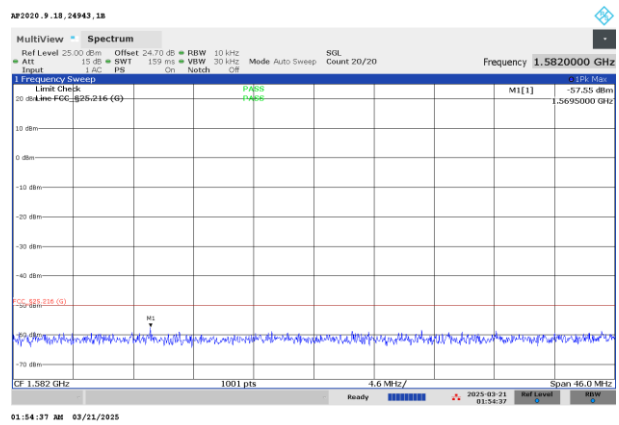
Date:	7/8/2025
Test Engineer:	24943
Configuration:	EUT + Charger
Mode:	TX
Chamber #:	01-RDE-B

Offset Calculation= Antenna Factor + Amp/Cbl/Fltr/Pad + EIRP CF

Antenna Factor (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Offset (dB)
28.21	-15.31	11.8	24.7

Plots for Determining Wide Band or Narrow Band Emissions

RBW=1MHz, VBW=3MHz

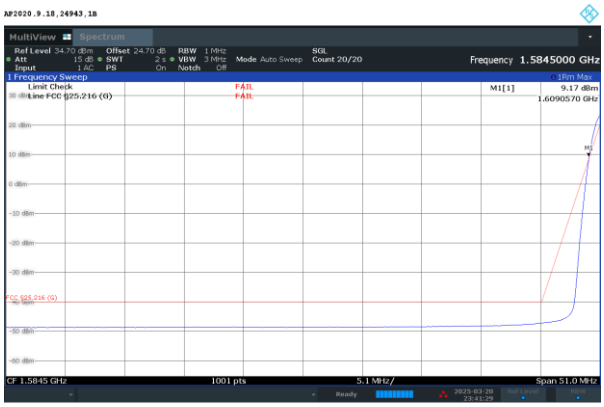


RBW=10kHz, VBW=30kHz

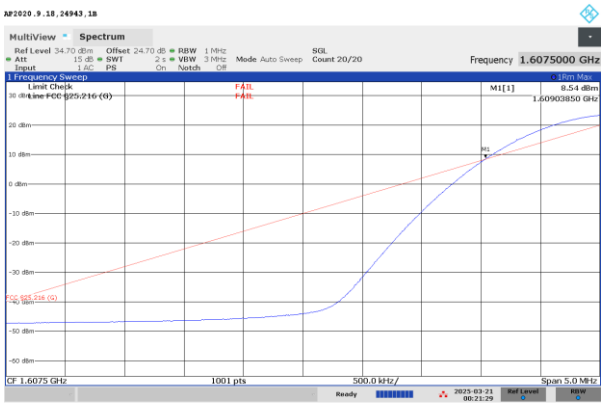
Note: No emissions were found.

ANT 2 (HORIZONTAL)

Wideband Low Channel 1610.17MHz

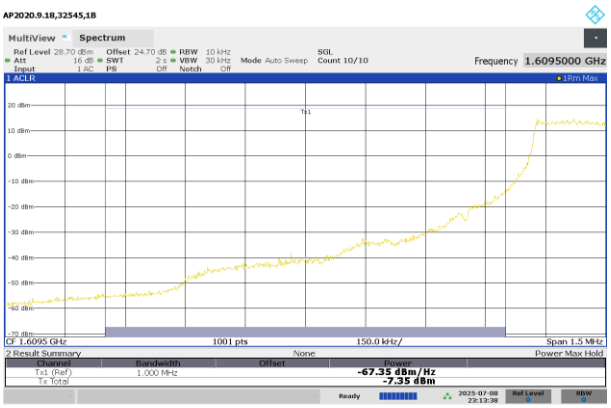


1559MHz -1610MHz

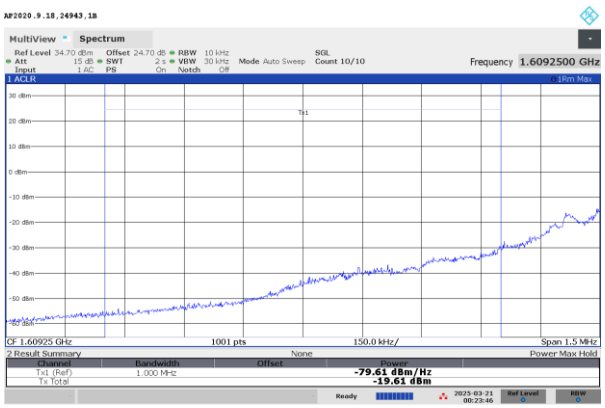


1605MHz -1610MHz (Zoom-in)

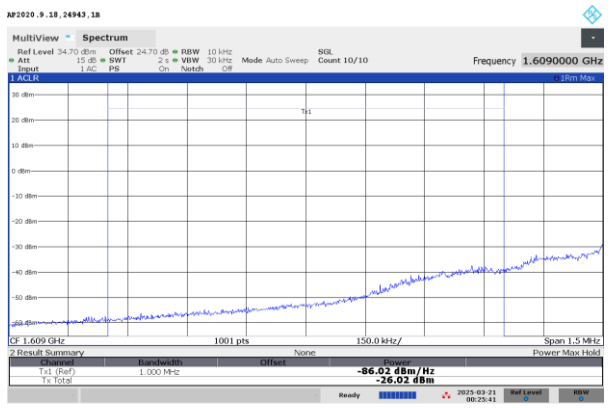
Plots below show passing result using integration method:



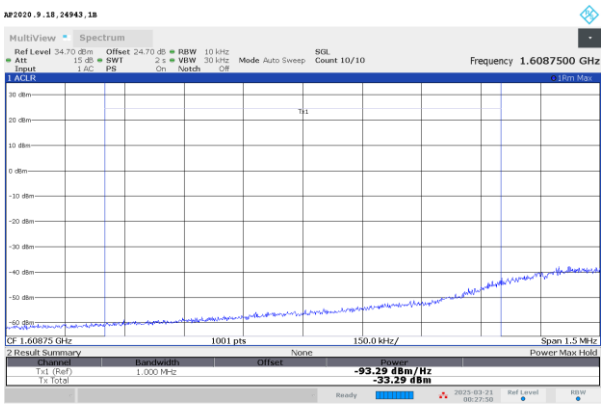
1609.5MHz, 1MHz Integration



1609.25MHz, 1MHz Integration

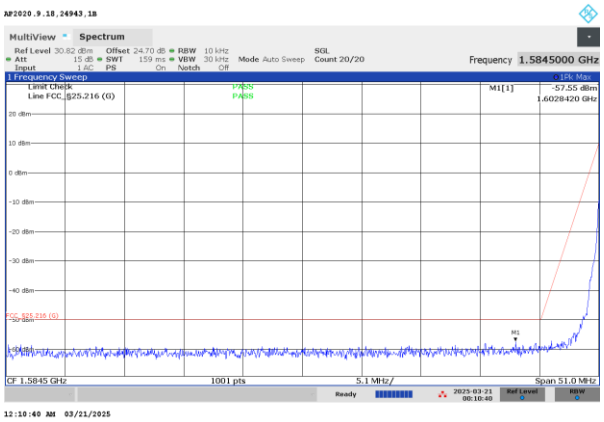


1609.0MHz, 1MHz Integration



1608.75MHz, 1MHz Integration

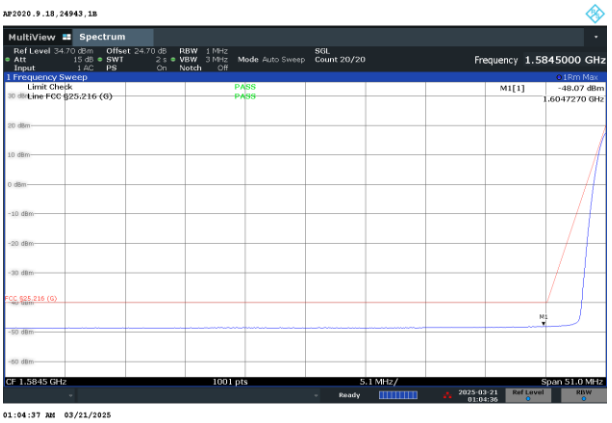
Narrowband Low Channel 1610.17MHz



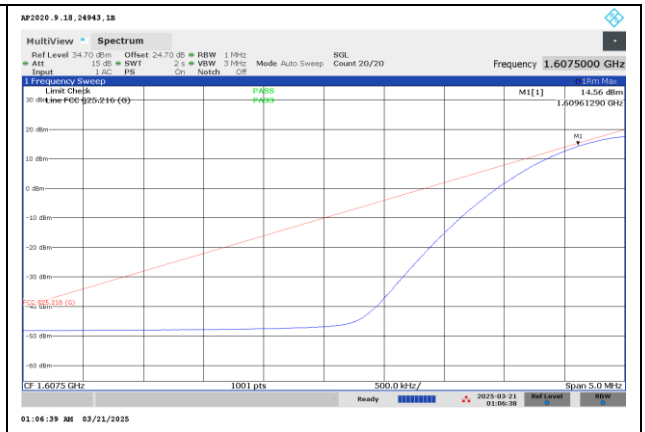
1559MHz – 1610MHz

ANT 2 (VERTICAL)

Wideband Low Channel 1610.17MHz



1559MHz -1610MHz

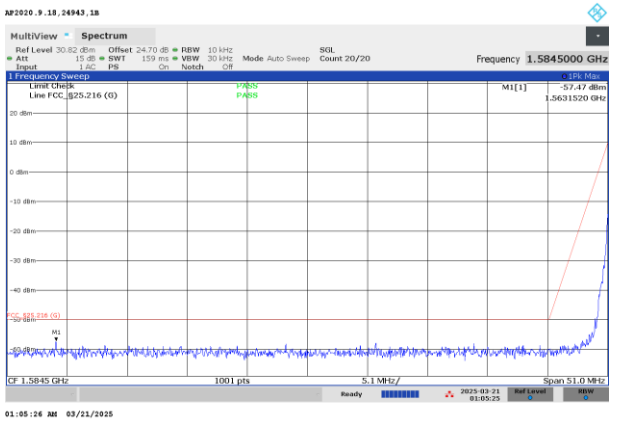


1605MHz -1610MHz (Zoom-in)

Plot below shows passing result using integration method:

1609.5MHz, 1MHz Integration

Narrowband Low Channel 1610.17MHz

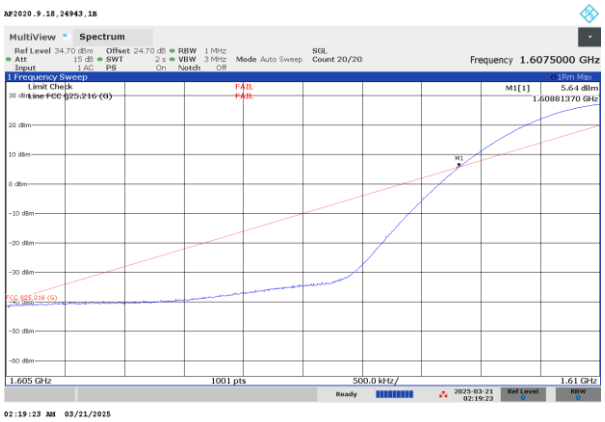


1559MHz – 1610MHz

ANT 3 (HORIZONTAL)

Wideband Low Channel 1610.17MHz missing data

1559MHz -1610MHz

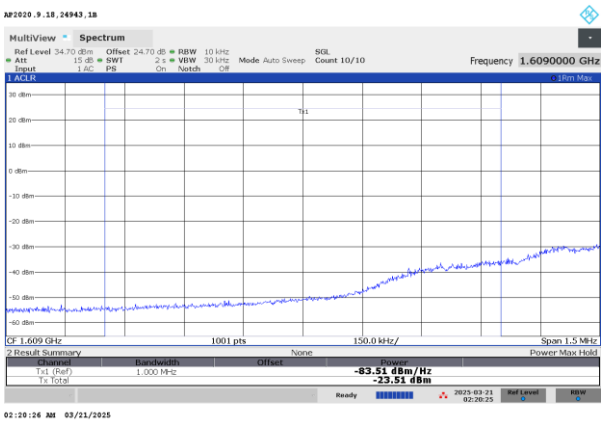


1605MHz -1610MHz (Zoom-in)

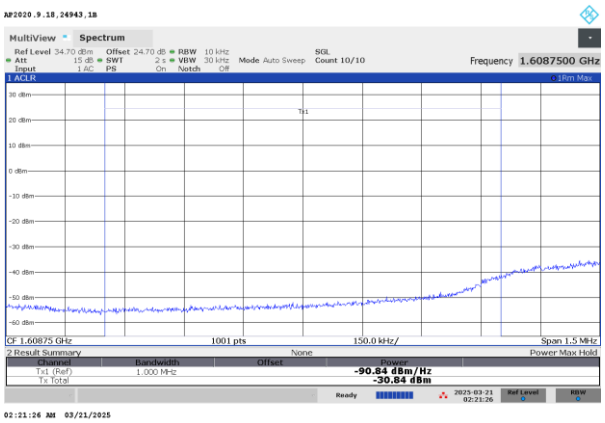
Plots below show passing result using integration method:

1609.5MHz, 1MHz Integration

1609.25MHz, 1MHz Integration

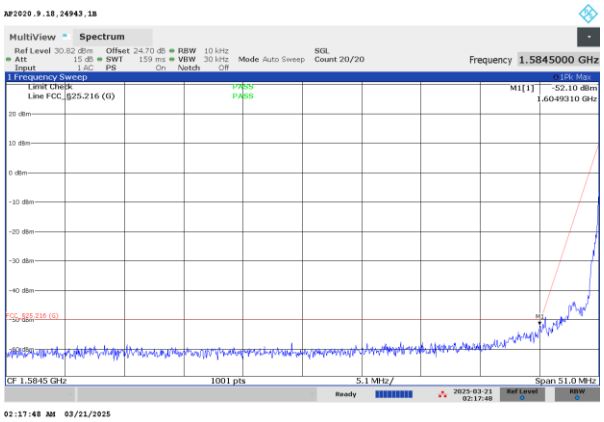


1609.0MHz, 1MHz Integration



1608.75MHz, 1MHz Integration

Narrowband Low Channel 1610.17MHz Vertical:

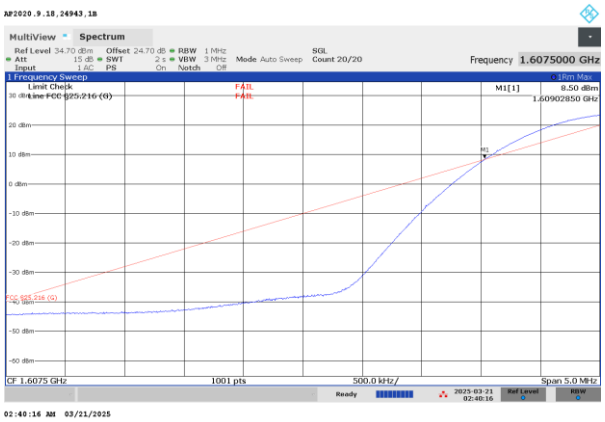


1559MHz – 1610MHz

ANT 3 (VERTICAL)

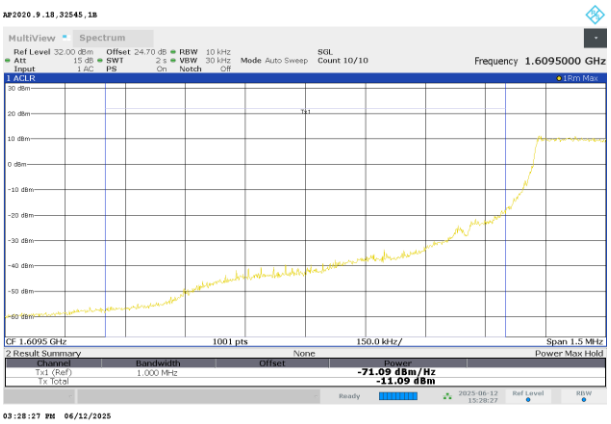
Wideband Low Channel 1610.17MHz

1559MHz -1610MHz



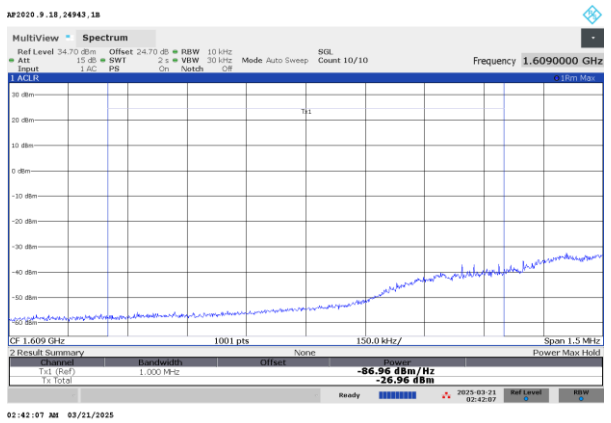
1605MHz -1610MHz (Zoom-in)

Plots below show passing result using integration method:

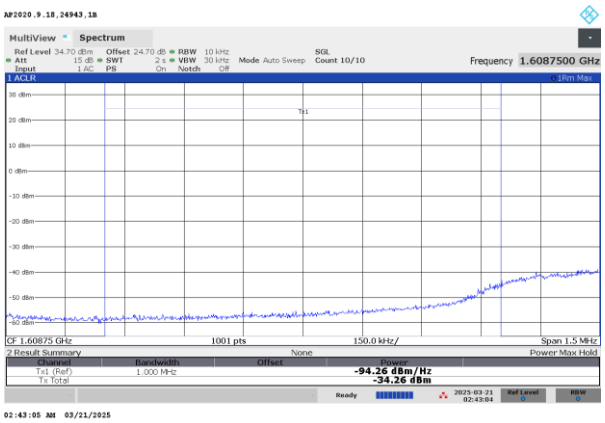


1609.5MHz, 1MHz Integration

1609.25MHz, 1MHz Integration

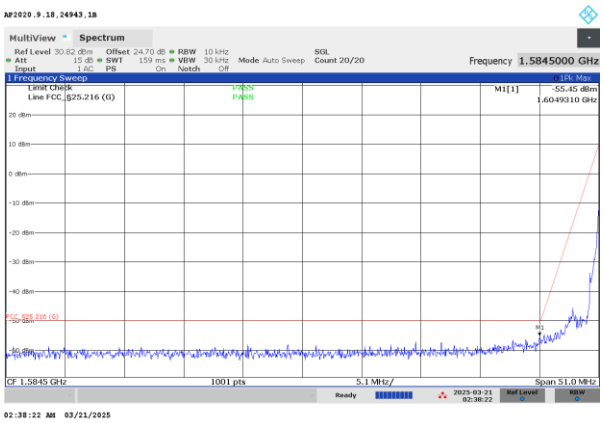


1609.0MHz, 1MHz Integration



1608.75MHz, 1MHz Integration

Narrowband Low Channel 1610.17MHz



1559MHz – 1610MHz

CARRIER-OFF STATE EMISSIONS (1559MHz – 1610MHz)

LIMITS

FCC §25.216

Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service

(i) The e.i.r.p density of carrier-off state emissions from mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies between 1 and 3 GHz shall not exceed −80 dBW/MHz in the 1559-1610 MHz band averaged over any two millisecond interval.

10.3

ISED RSS-170§ 5.10: Carrier-off State Emissions

MESs with transmitting frequencies between 1 GHz and 3 GHz shall not exceed -80 dBW/MHz, which is the e.i.r.p. density of carrier-off state emissions in the band 1559-1610 MHz.

TEST PROCEDURE

KDB 971168 D01/D02

Set RBW = 1MHz, VB = 3MHz, detector = rms, sweep time ~ number of points x 2ms, and sweep multiple times with max hold enabled.

RESULTS

No emissions were found on both horizontal and vertical polarization for ANT 2 and ANT 3.

Date:	3/21/2025
Test Engineer:	24943
Configuration:	EUT + Charger
Mode:	Rx (Tx Off)
Chamber #:	01-RDE-B

LOW CHANNEL, 1610.17 MHz Ant2

LOW CHANNEL, 1610.17 MHz Ant3

11. SETUP PHOTOS

Refer to 15496224-EP1V1 for setup photos

APPENDIX A – SPOT CHECK EVALUATION

1. SPOT CHECK EVALUATION

1.1. MODEL DIFFERENCES

The manufacturer hereby declares the following for models A3256, A3522, A3523 and A3524.

These models have the same PCB layout, design, common components, antennas, antenna locations and housing cases, except for FR2 is removed from variants and disabled/enabled cellular bands via software as shown below.

Model	FCC ID	IC ID	Feature Difference	Sim Support	Reference Model
A3256	BCG-E8949A	579C-E8949A	-With FR2/LTE/5GNR B14/29/71 -No B11/21 -With UL MIMO (n41/48/77)	eSIM	-
A3522	BCG-E8957A	579C-E8957A	-Without FR2 -Added B11/21 -No UL MIMO	eSIM	A3256
A3523	BCG-E8958A	579C-E8958A	-Without FR2 -No LTE/5GNR B14/29/71 -No LTE B11/21 -No UL MIMO	eSIM+pSIM	

Note:

The spot check plan allows for data reuse from the reference model where the variant model data meets the limits and has not changed by more than the criteria from KDB 484596 D01 v03 equation (4).

$$d_{dBmax}(M_{dB}) = \begin{cases} (3 + M_{dB}/20)\ dB & \text{, for } 0 \le M_{dB} \le 60\ dB \\ 6\ \text{dB} & \text{, for } M_{dB} > 60\ \text{dB} \end{cases} \quad (4)$$

Where: d_{dB} deviation from Reference data, V_{dB} variant spot check level, and R_{dB} measurement level

1.1. SPOT CHECK VERIFICATION RESULTS SUMMARY FOR A3522

A3522 SPOT CHECK RESULTS								
Equipment Class / Technology	Worst Mode	Test Item	Measured Frequency (MHz)	Original Model: A3256 FCC ID : BCG-E8949A IC : 579C-E8949A	Sub Model: A3522 FCC ID: BCG-E8957A IC : 579C-E8957A	Delta (dB or MHz)	Margin	Remarks
TNE / MSS	Ant 2	Avg EIRP Power (dBm)	1618.4 (-1.8dBi)	26.20	26.20	0.00	-1.80	Note 1
		Additional Unwated Emission (dBm)	1609.5 (Horizontal)	-7.35	-7.67	-0.32	-21.67	Note 1
	Ant 3	Out-Of-Band Emission (dBm)	1000 - 18000 (High Channel)	-46.78	-46.68	0.10	-33.68	Note 1

Note 1: Deviation from reference to variant within the value allowed by equation (4) in KDB 484596. Additional tests not required.
Note 2: Deviation from reference to variant exceeds the value allowed by equation (4) in KDB 484596. Additional tests performed on second channel.

1.2. SPOT CHECK VERIFICATION RESULTS SUMMARY FOR A3523

A3256 SPOT CHECK RESULTS								
Equipment Class / Technology	Worst Mode	Test Item	Measured Frequency (MHz)	Original Model: A3256 FCC ID : BCG-E8949A IC : 579C-E8949A	Sub Model: A3523 FCC ID: BCG-E8958A IC : 579C-E8958A	Delta (dB or MHz)	Margin	Remarks
TNE / MSS	Ant 2	Avg EIRP Power (dBm)	1618.4 (-1.8dBi)	26.20	26.20	0.00	-1.80	Note 1
		Additional Unwated Emission (dBm)	1609.5 (Horizontal)	-7.35	-7.85	-0.50	-21.85	Note 1
	Ant 3	Out-Of-Band Emission (dBm)	1000 - 18000 (High Channel)	-46.78	-46.60	0.18	-33.60	Note 1

Note 1: Deviation from reference to variant within the value allowed by equation (4) in KDB 484596. Additional tests not required.
Note 2: Deviation from reference to variant exceeds the value allowed by equation (4) in KDB 484596. Additional tests performed on second channel.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701i
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 319-4000 FAX: (510) 661-0888