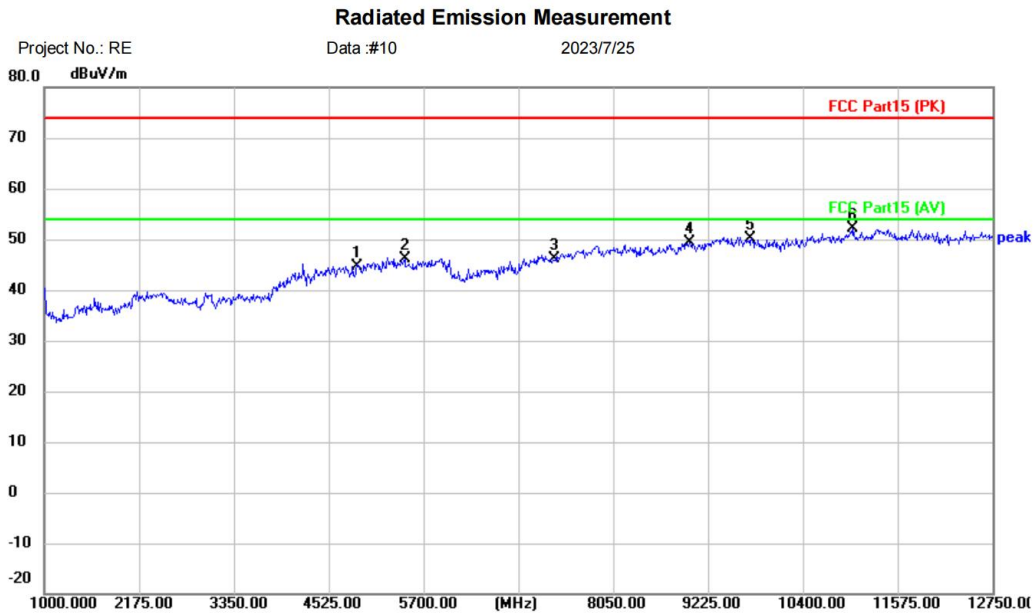


[TestMode: TX mid channel]; [Polarity: Vertical]



Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: HE-059 TWS bluetooth headset		
M/N: HE-059		
Mode: TX-M		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4882.000	40.03	4.60	44.63	74.00	-29.37	peak	
2		5465.000	39.97	6.22	46.19	74.00	-27.81	peak	
3		7323.000	38.41	7.82	46.23	74.00	-27.77	peak	
4		8990.000	38.69	10.63	49.32	74.00	-24.68	peak	
5		9764.000	38.39	11.76	50.15	74.00	-23.85	peak	
6	*	11022.75	38.34	13.69	52.03	74.00	-21.97	peak	

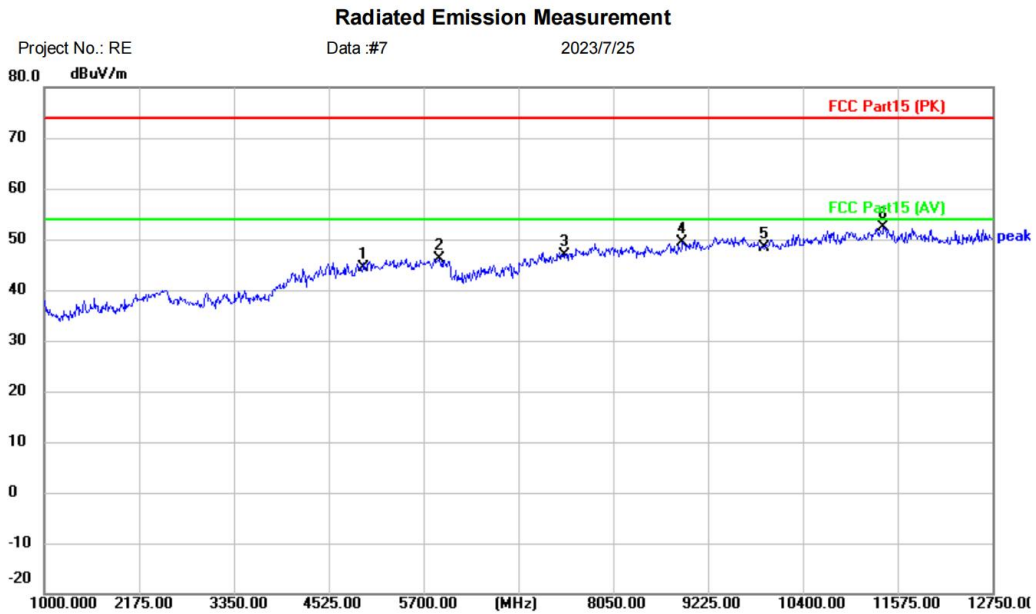
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Horizontal]



Site: Polarization: **Horizontal** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: HE-059 TWS bluetooth headset
 M/N: HE-059
 Mode: TX-H
 Note:

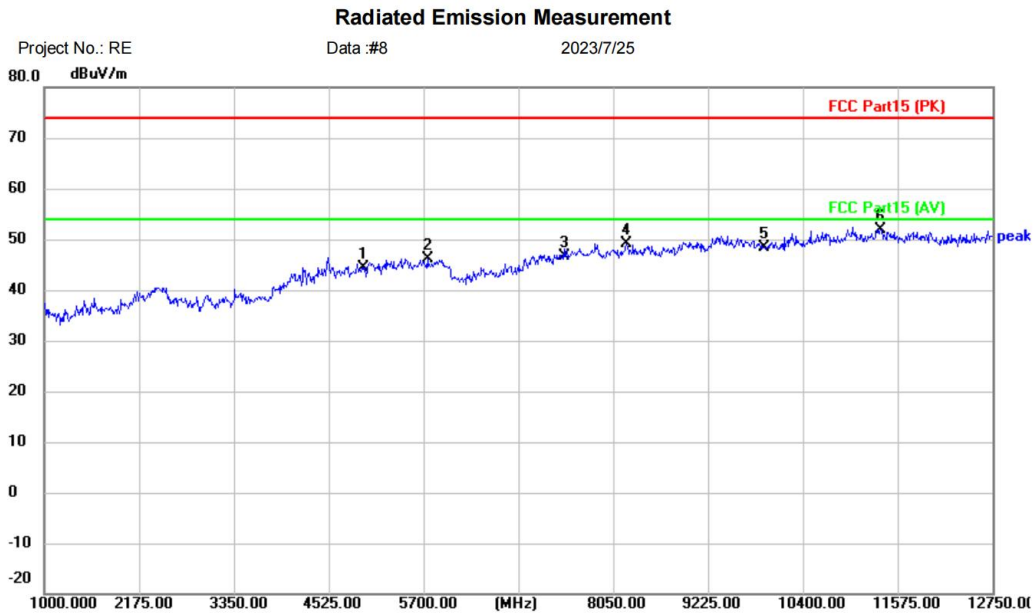
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4960.000	38.95	5.47	44.42	74.00	-29.58	peak	
2		5888.000	39.47	6.71	46.18	74.00	-27.82	peak	
3		7440.000	38.62	8.24	46.86	74.00	-27.14	peak	
4		8907.750	38.89	10.37	49.26	74.00	-24.74	peak	
5		9920.000	36.44	11.96	48.40	74.00	-25.60	peak	
6	*	11398.75	38.96	13.41	52.37	74.00	-21.63	peak	

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Vertical]



Site: Polarization: **Vertical** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: HE-059 TWS bluetooth headset
 M/N: HE-059
 Mode: TX-H
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4960.000	38.85	5.47	44.32	74.00	-29.68	peak	
2		5747.000	39.73	6.44	46.17	74.00	-27.83	peak	
3		7440.000	38.31	8.24	46.55	74.00	-27.45	peak	
4		8214.500	40.62	8.57	49.19	74.00	-24.81	peak	
5		9920.000	36.52	11.96	48.48	74.00	-25.52	peak	
6	*	11363.50	38.58	13.40	51.98	74.00	-22.02	peak	

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

Remark:

1. Final Level = Receiver Read level + Correct factor
2. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

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16 RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS

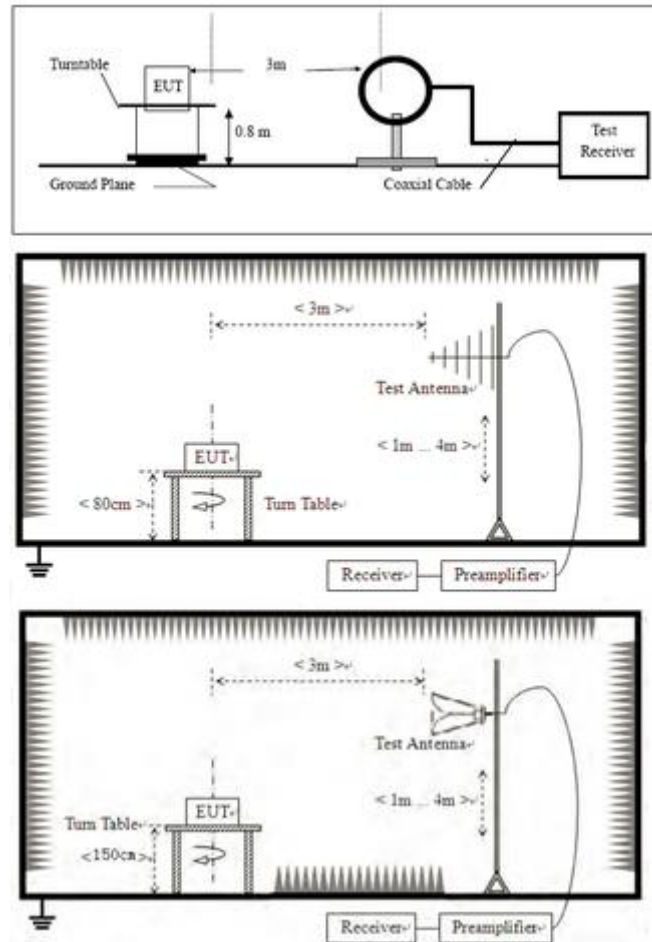
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.10.5
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

16.1 LIMITS

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 PROCEDURE

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

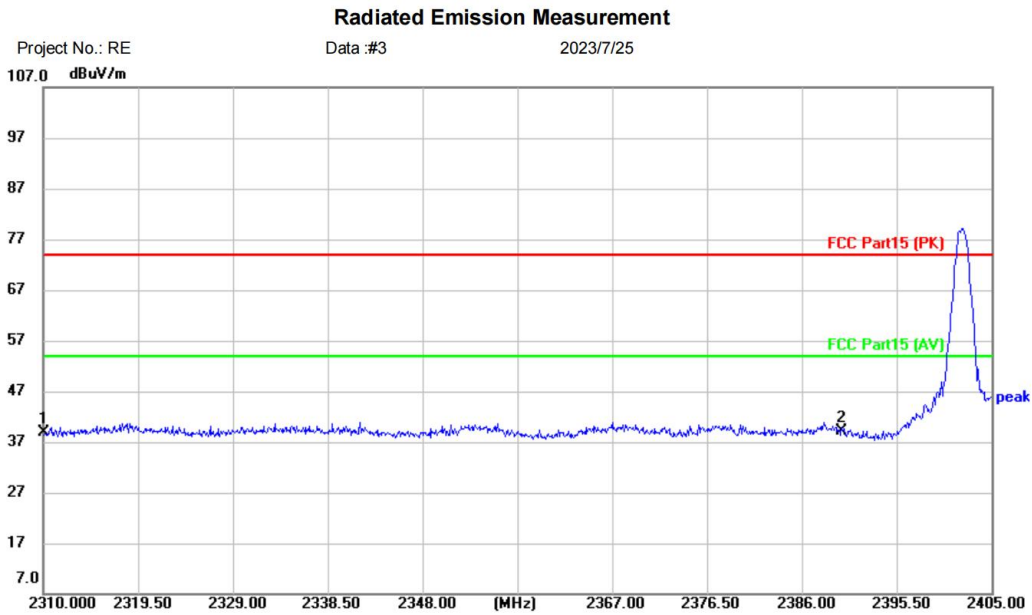
Remark 1: $Level = Read\ Level + Cable\ Loss + Antenna\ Factor - Preamp\ Factor$

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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16.4 TEST DATA

[TestMode: TX low channel]; [Polarity: Horizontal]



Site	Polarization: <i>Horizontal</i>	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: HE-059 TWS bluetooth headset		
M/N: HE-059		
Mode: TX-L		
Note:		

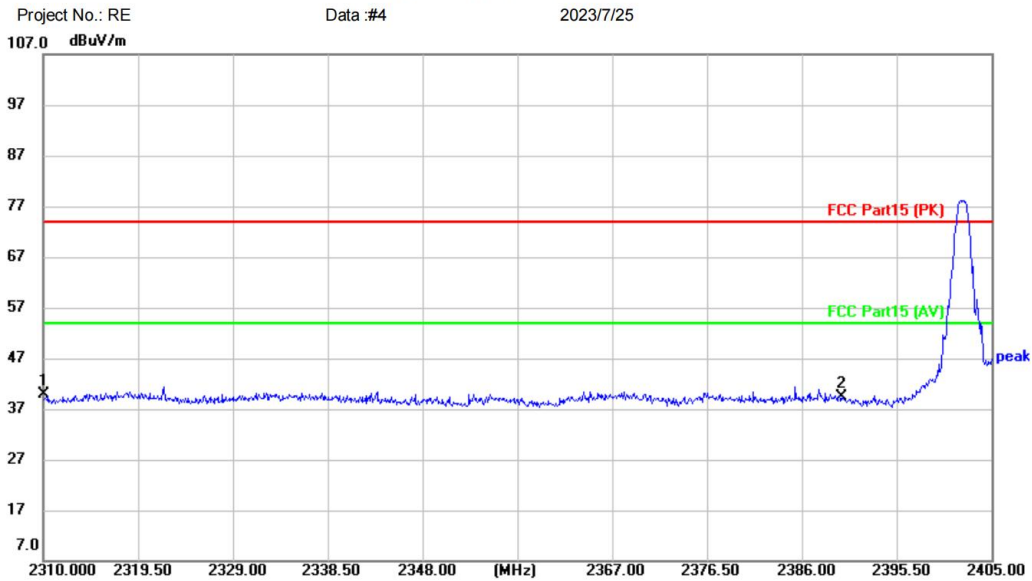
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	43.23	-4.40	38.83	74.00	-35.17	peak	
2	*	2390.000	43.56	-4.31	39.25	74.00	-34.75	peak	

*:Maximum data		x:Over limit	!:over margin	(Reference Only)
Receiver:	ESR_1	Spectrum Analyzer:	FSP40	
Antenna:	EZ 9120D 1G-18G new	Engineer Signature:		

Test Result: Pass

[TestMode: TX low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Polarization: **Vertical** Temperature: (C)
 Limit: FCC Part15 (PK) Power: Humidity: %RH
 EUT: HE-059 TWS bluetooth headset
 M/N: HE-059
 Mode: TX-L
 Note:

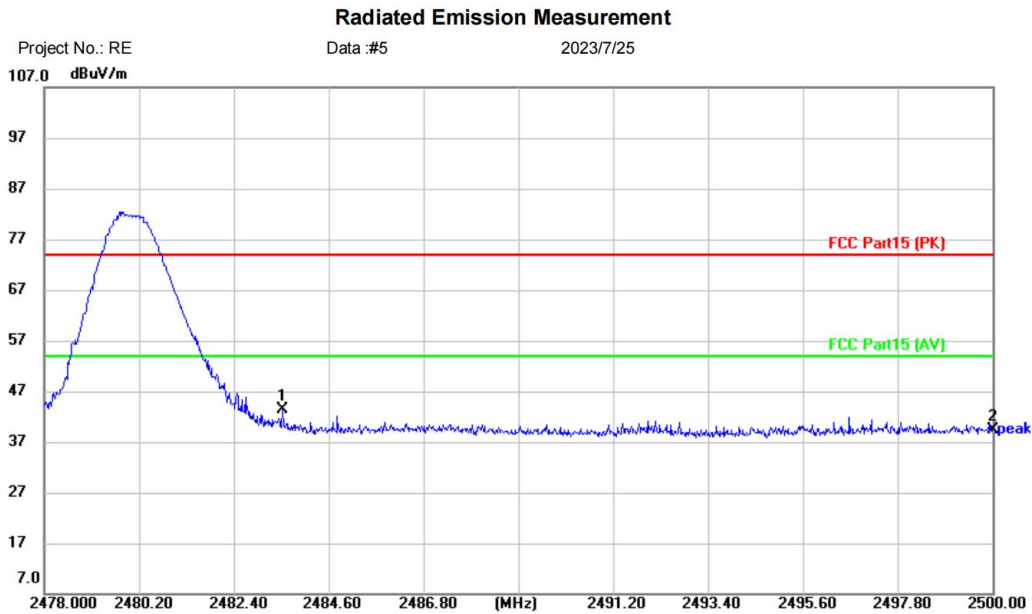
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2310.000	44.20	-4.40	39.80	74.00	-34.20	peak	
2		2390.000	43.69	-4.31	39.38	74.00	-34.62	peak	

*:Maximum data x:Over limit !:over margin (Reference Only)

Receiver: ESR_1 Spectrum Analyzer: FSP40
 Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Horizontal]



Site	Polarization: Horizontal	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: HE-059 TWS bluetooth headset		
M/N: HE-059		
Mode: TX-H		
Note:		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1	*	2483.522	48.09	-4.64	43.45	74.00	-30.55	peak	
2		2500.000	44.08	-4.75	39.33	74.00	-34.67	peak	

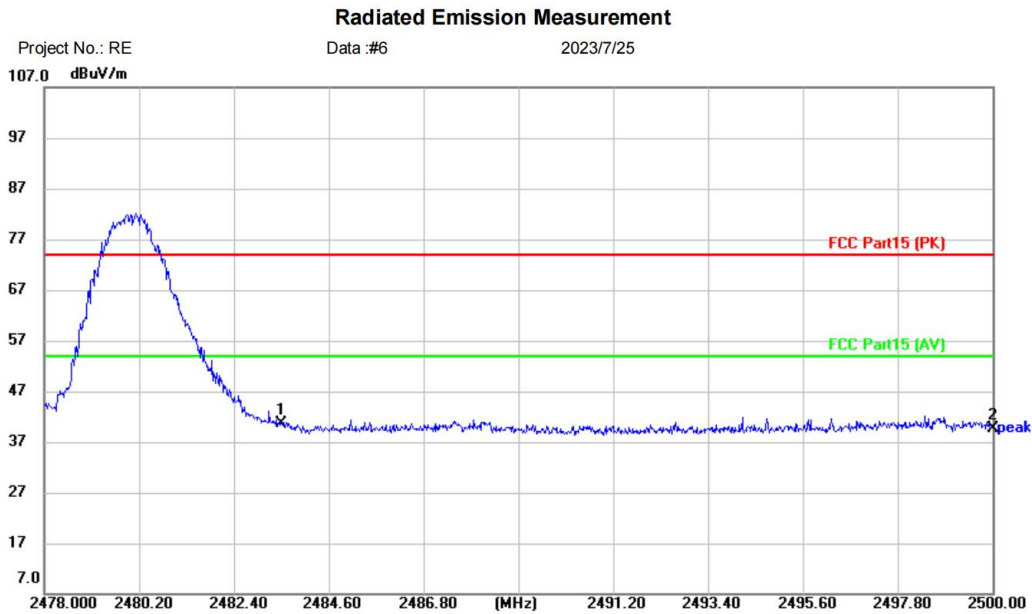
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

[TestMode: TX high channel]; [Polarity: Vertical]



Site	Polarization: Vertical	Temperature: (C)
Limit: FCC Part15 (PK)	Power:	Humidity: %RH
EUT: HE-059 TWS bluetooth headset		
M/N: HE-059		
Mode: TX-H		
Note:		

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	2483.500	45.26	-4.64	40.62	74.00	-33.38	peak	
2		2500.000	44.31	-4.75	39.56	74.00	-34.44	peak	

*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Antenna: EZ 9120D 1G-18G new Engineer Signature:

Test Result: Pass

Remark:

1. Final Level = Receiver Read level + Correct factor
2. Correct factor = Antenna Factor + Cable Loss – Preamplifier Factor
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

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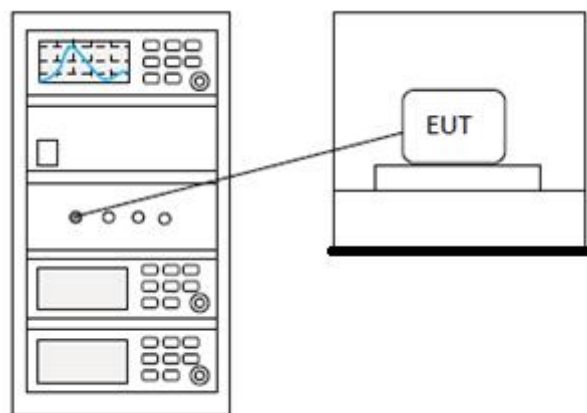
17 CONDUCTED BAND EDGES MEASUREMENT

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.8 & Section 11.13.3.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

17.1 LIMITS

Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
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17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

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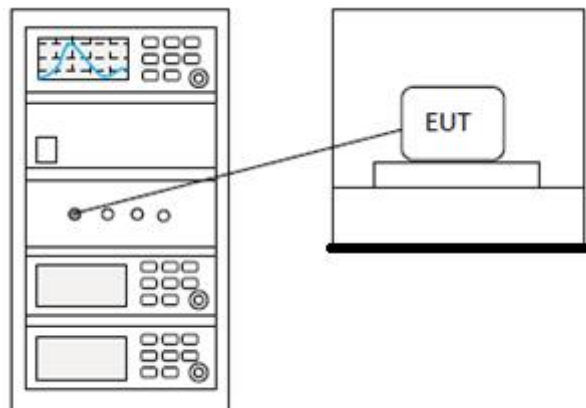
18 DWELL TIME

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.4
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

18.1 LIMITS

Frequency(MHz)	Limit
902-928	0.4S within a 20S period(20dB bandwidth<250kHz)
	0.4S within a 10S period(20dB bandwidth≥250kHz)
2400-2483.5	0.4S within a period of 0.4S multiplied by the number of hopping channels
5725-5850	0.4S within a 30S period

18.2 BLOCK DIAGRAM OF TEST SETUP



18.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

BlueAsia

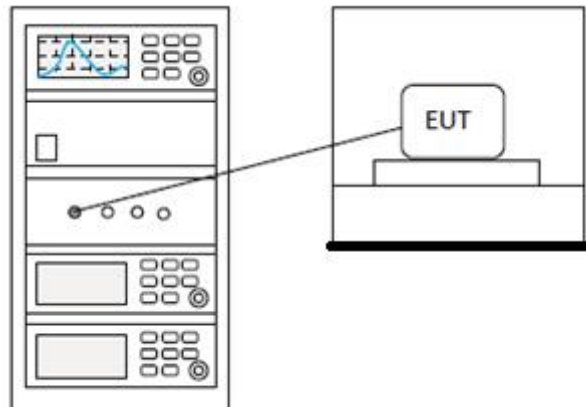
19 HOPPING CHANNEL NUMBER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.3
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

19.1 LIMITS

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

19.2 BLOCK DIAGRAM OF TEST SETUP



19.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

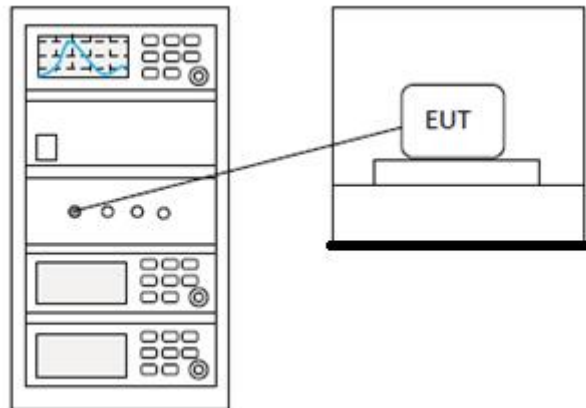
20 CARRIER FREQUENCIES SEPARATION

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

20.1 LIMITS

Limit: 2/3 of the 20dB bandwidth base on the transmission power is less than 0.125W

20.2 BLOCK DIAGRAM OF TEST SETUP



20.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

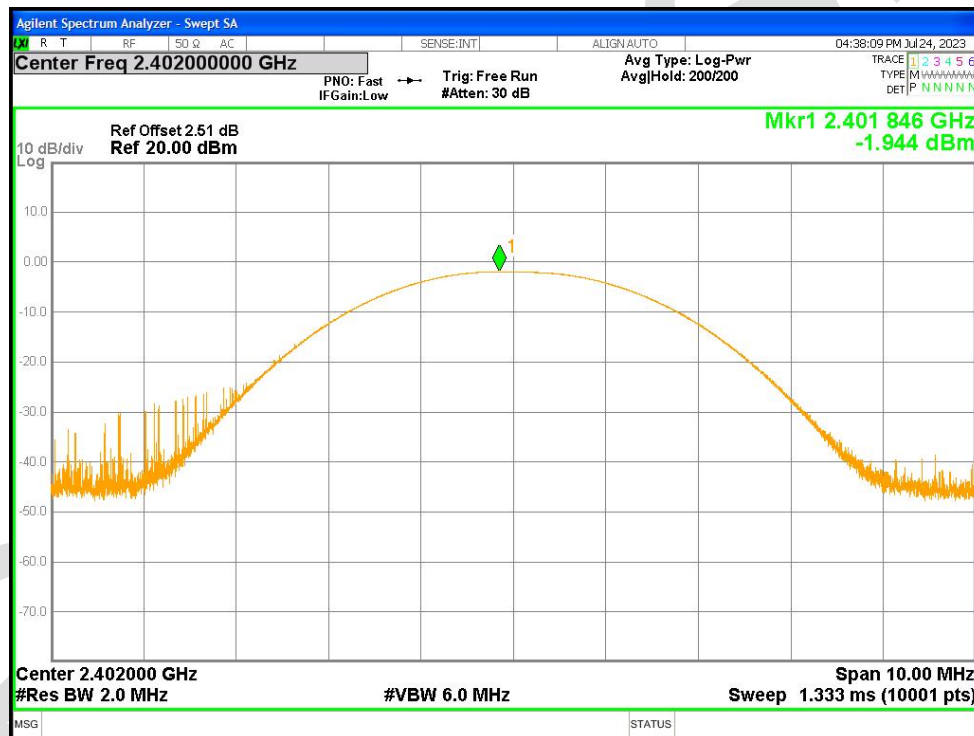
21 APPENDIX

Appendix1

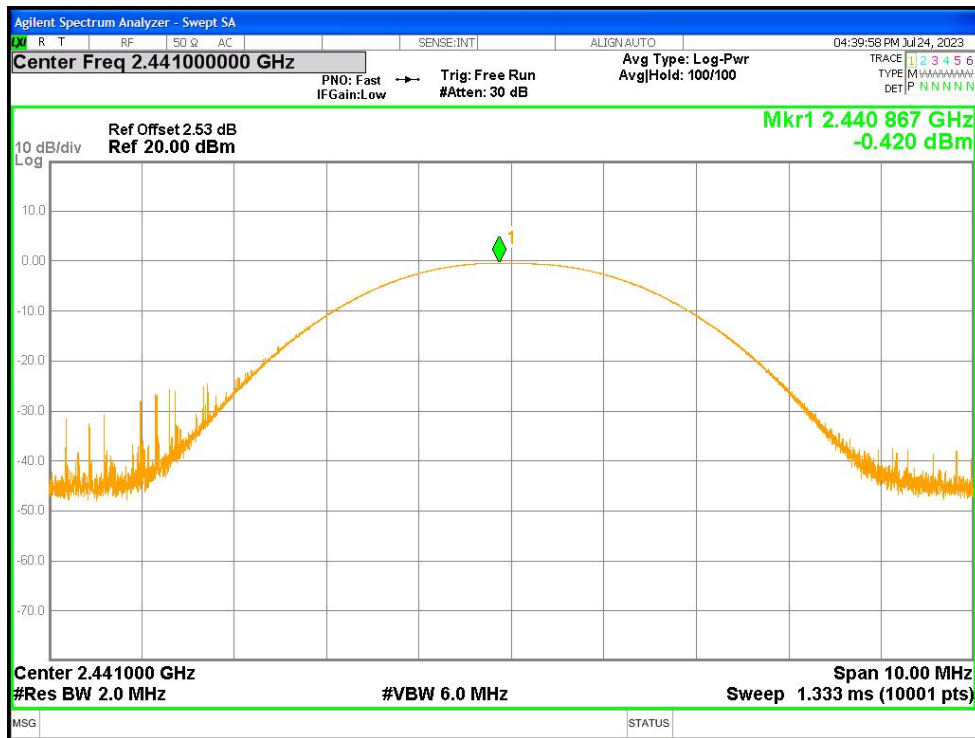
Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-1.944	21	Pass
NVNT	1-DH1	2441	Ant1	-0.42	21	Pass
NVNT	1-DH1	2480	Ant1	-0.419	21	Pass
NVNT	2-DH1	2402	Ant1	-1.123	21	Pass
NVNT	2-DH1	2441	Ant1	0.389	21	Pass
NVNT	2-DH1	2480	Ant1	0.373	21	Pass

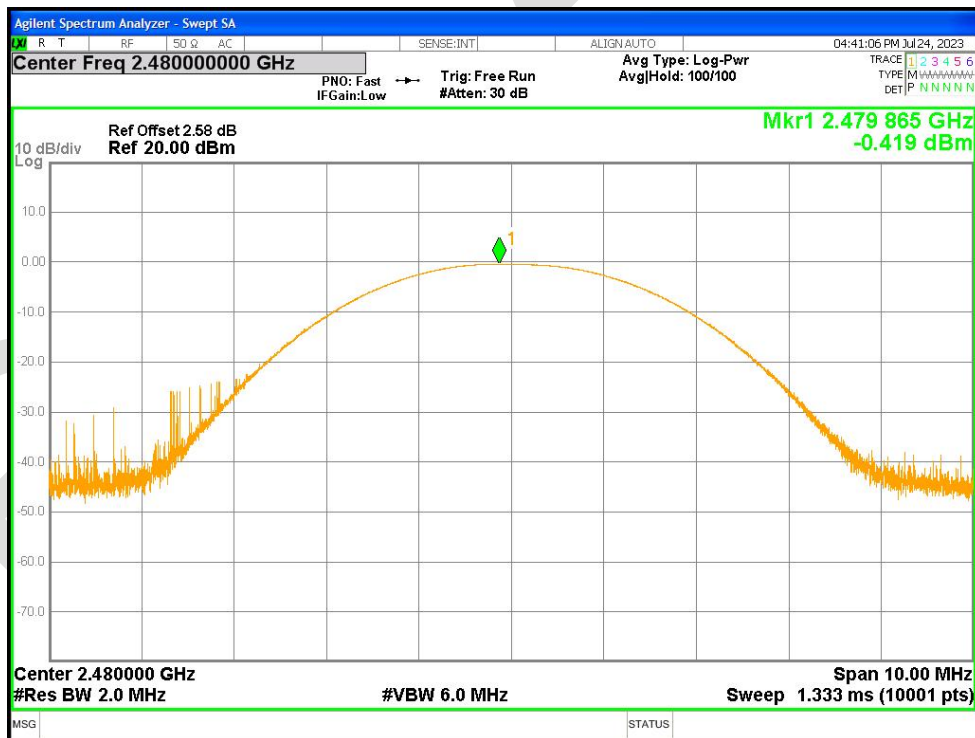
Power NVNT 1-DH1 2402MHz Ant1



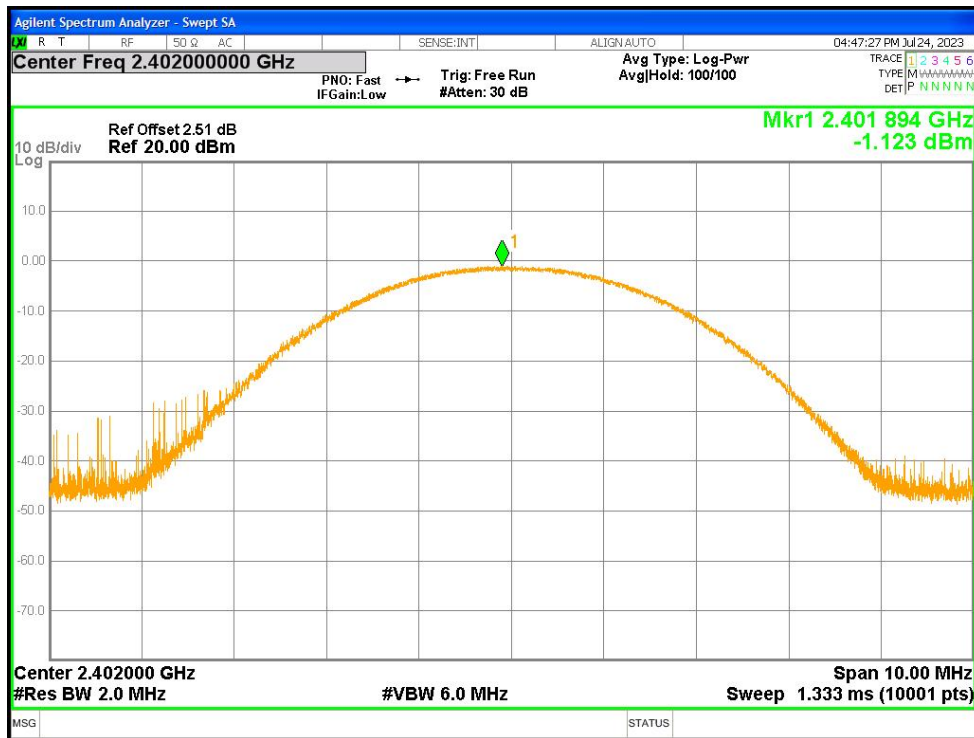
Power NVNT 1-DH1 2441MHz Ant1



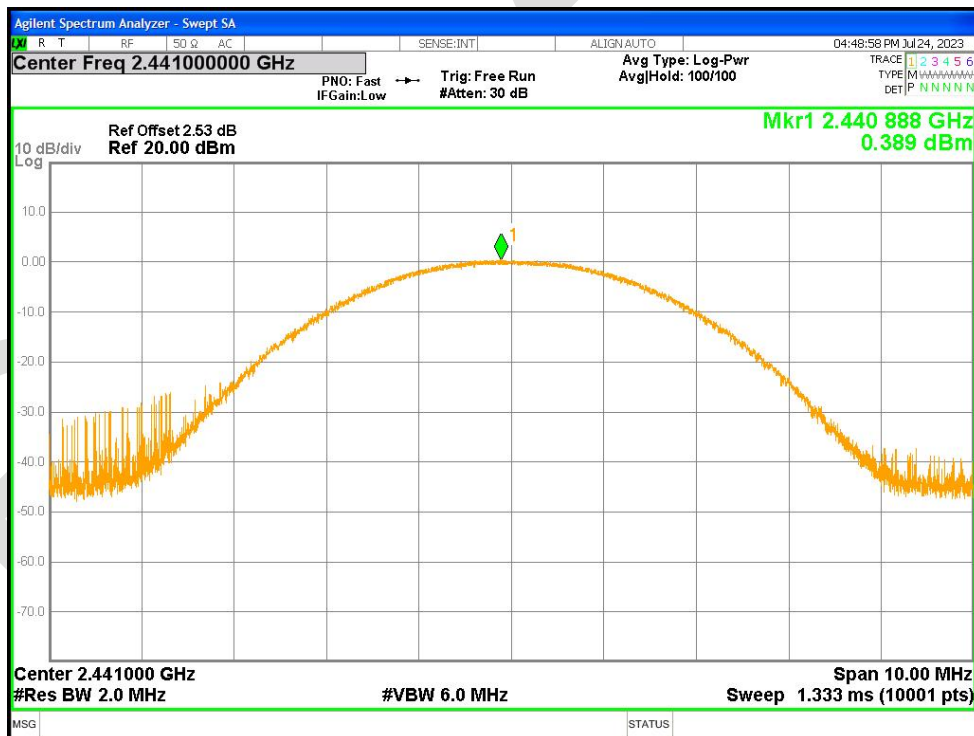
Power NVNT 1-DH1 2480MHz Ant1



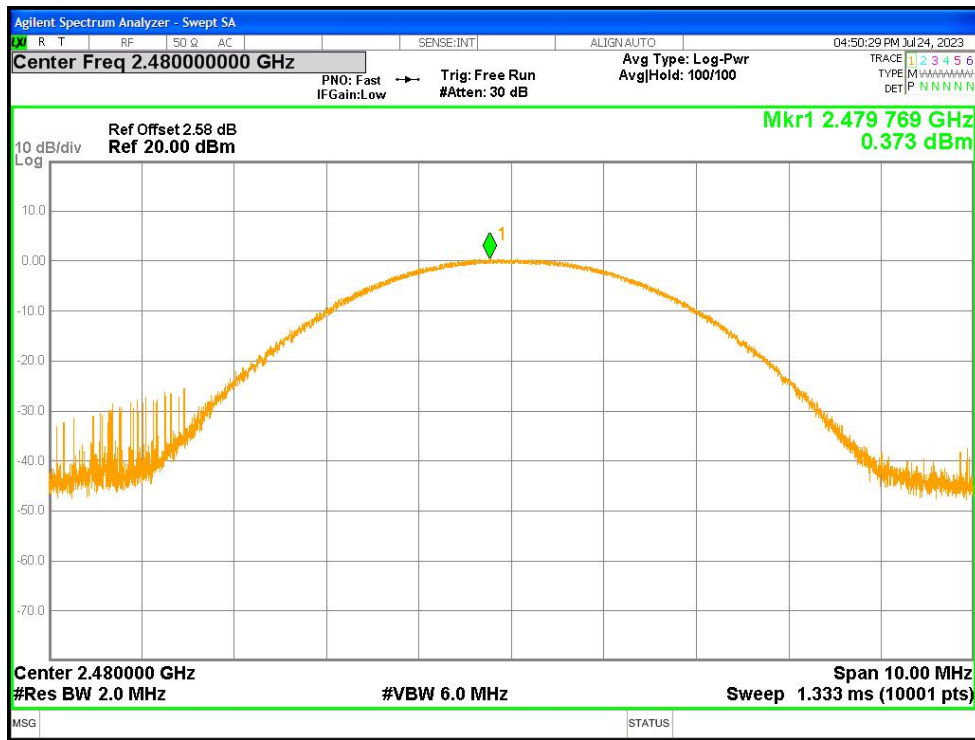
Power NVNT 2-DH1 2402MHz Ant1



Power NVNT 2-DH1 2441MHz Ant1

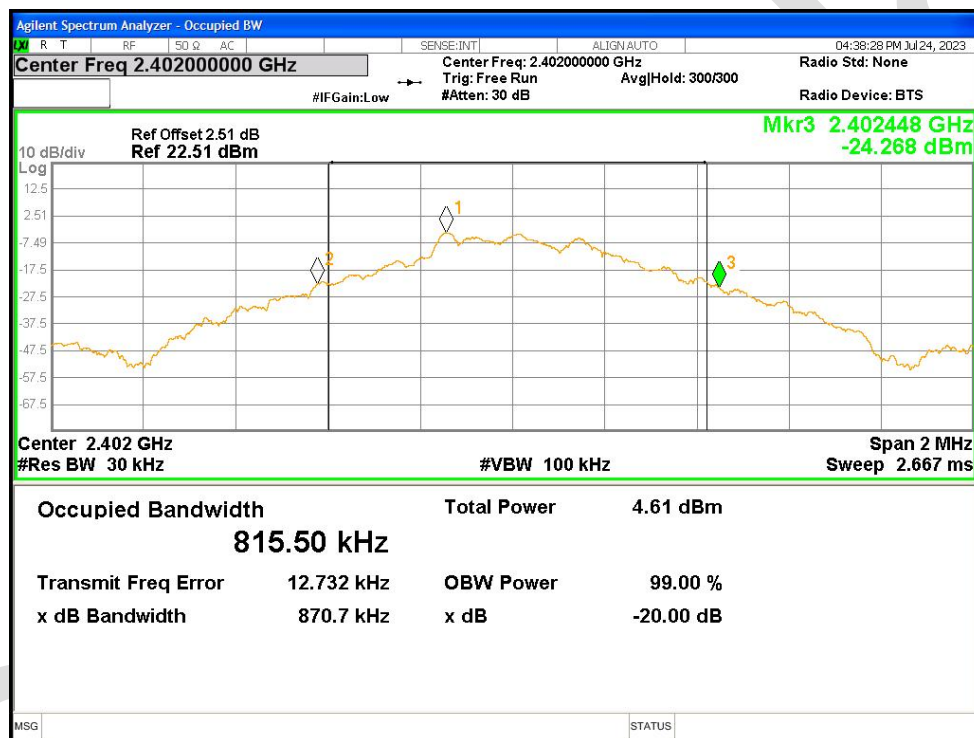


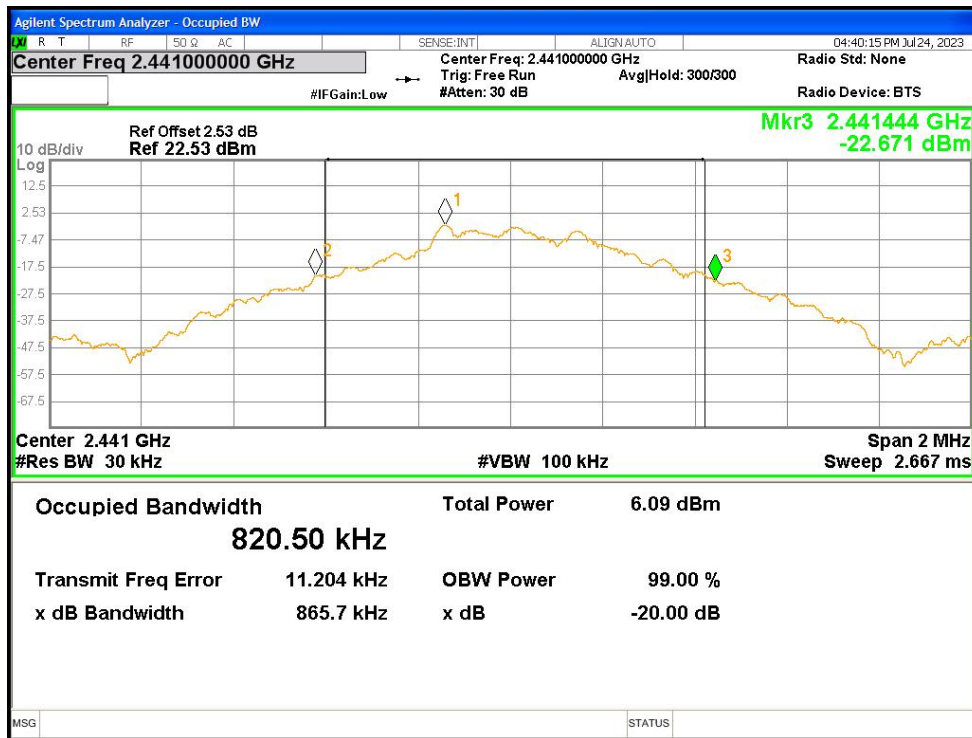
Power NVNT 2-DH1 2480MHz Ant1



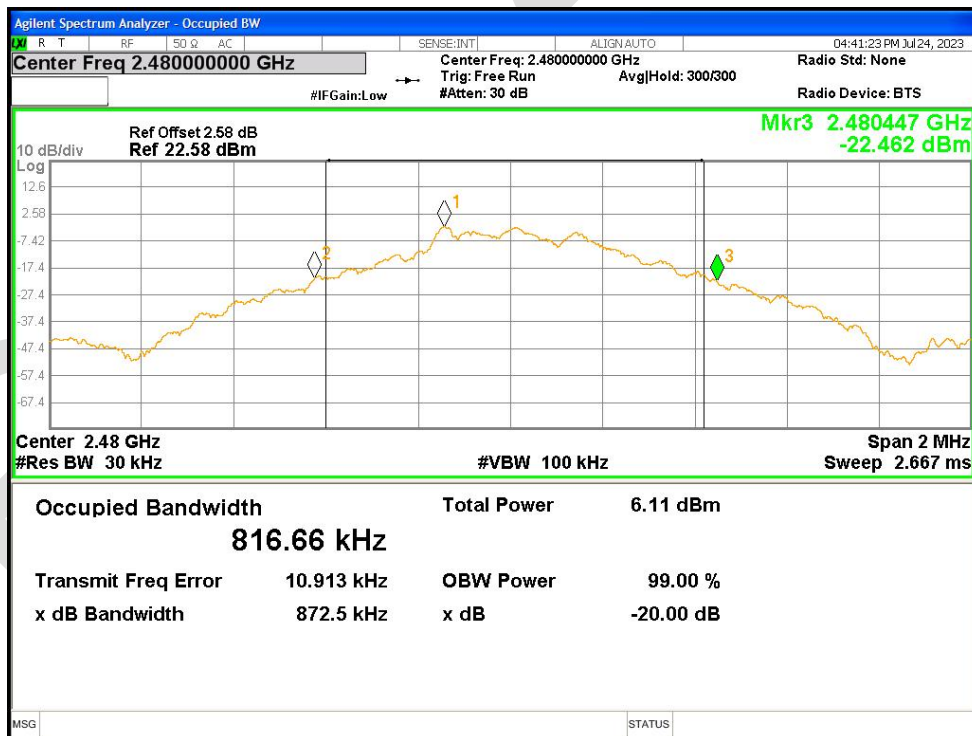
-20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.871	0	Pass
NVNT	1-DH1	2441	Ant1	0.866	0	Pass
NVNT	1-DH1	2480	Ant1	0.872	0	Pass
NVNT	2-DH1	2402	Ant1	1.248	0	Pass
NVNT	2-DH1	2441	Ant1	1.248	0	Pass
NVNT	2-DH1	2480	Ant1	1.249	0	Pass

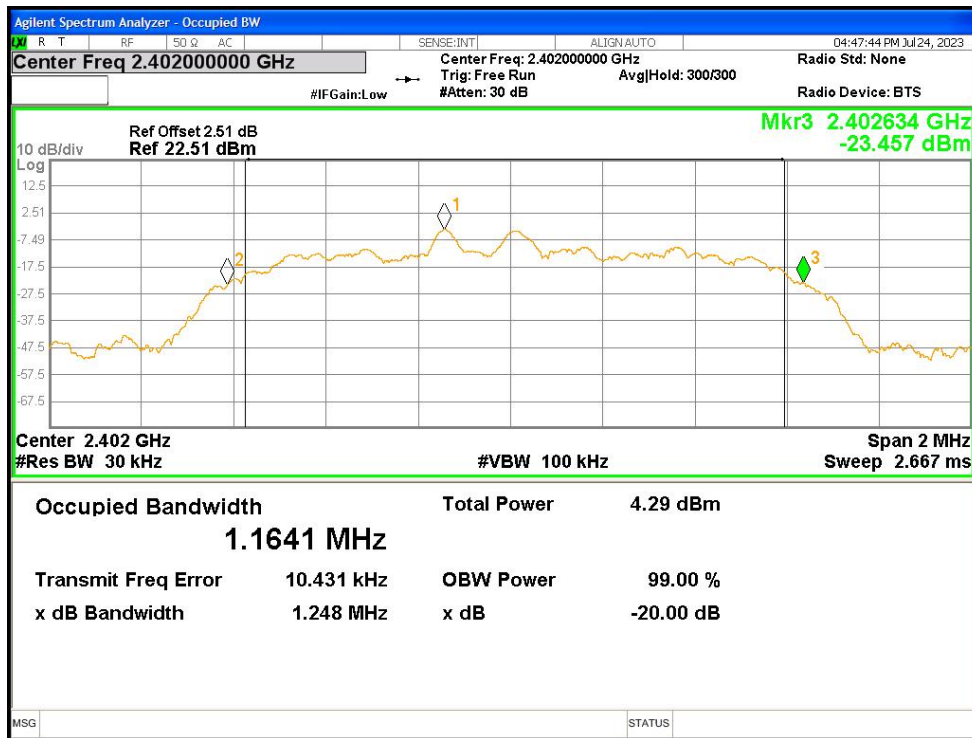
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1

-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



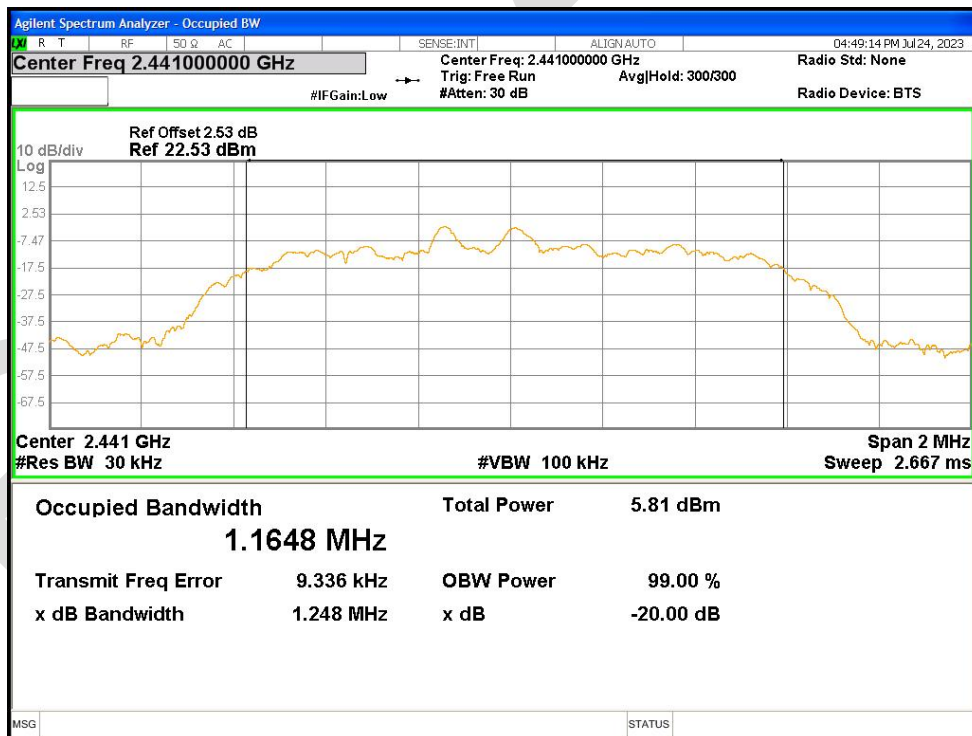
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



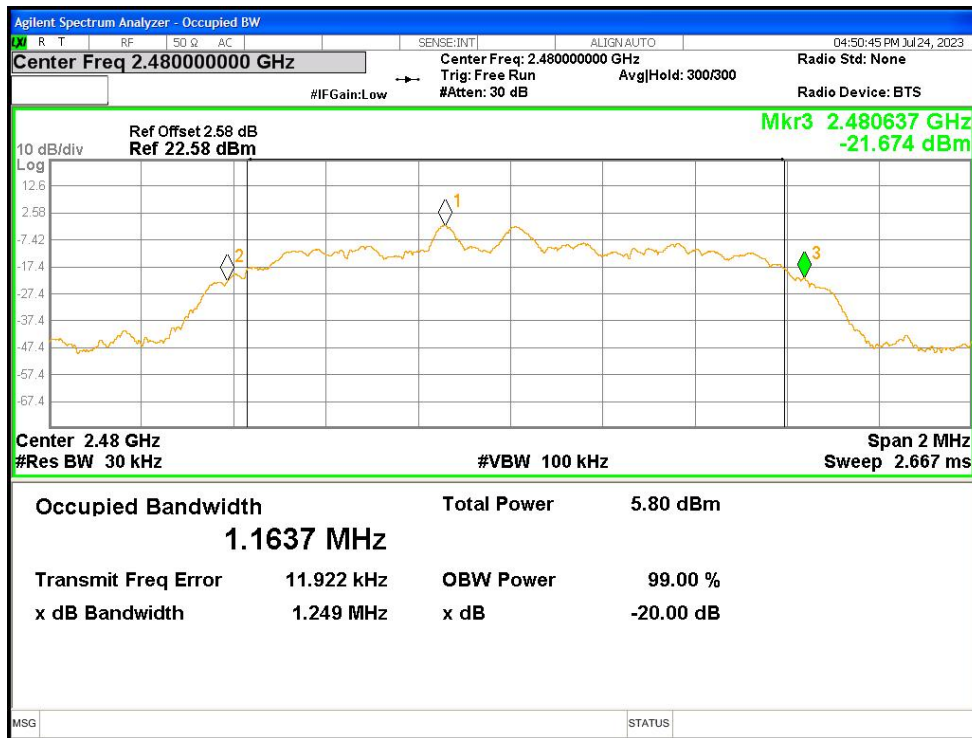
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



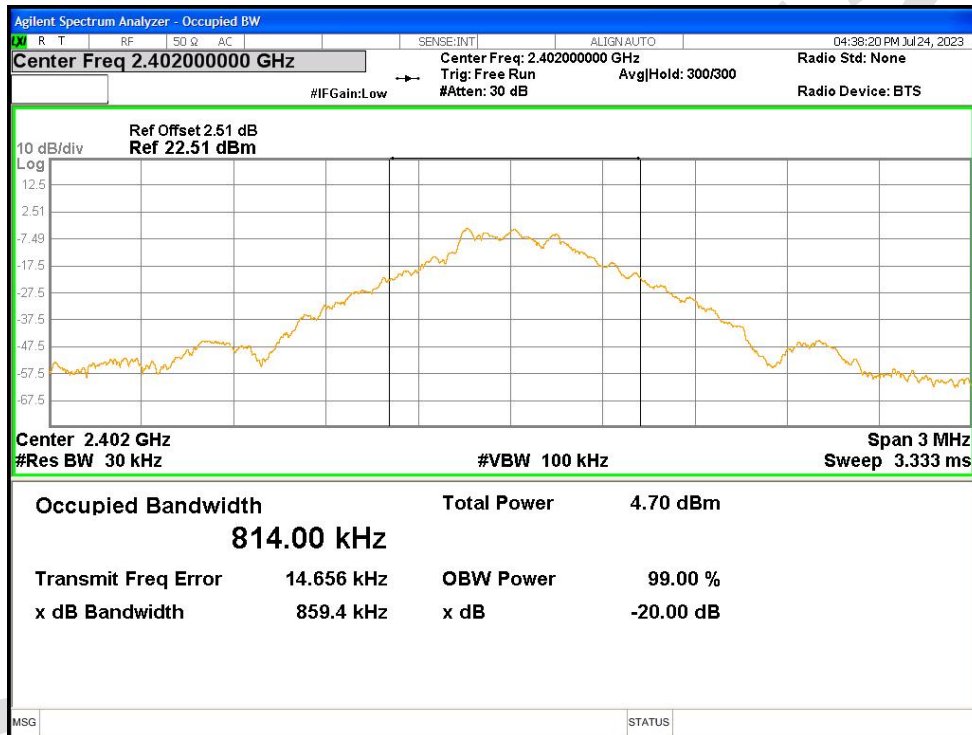
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1



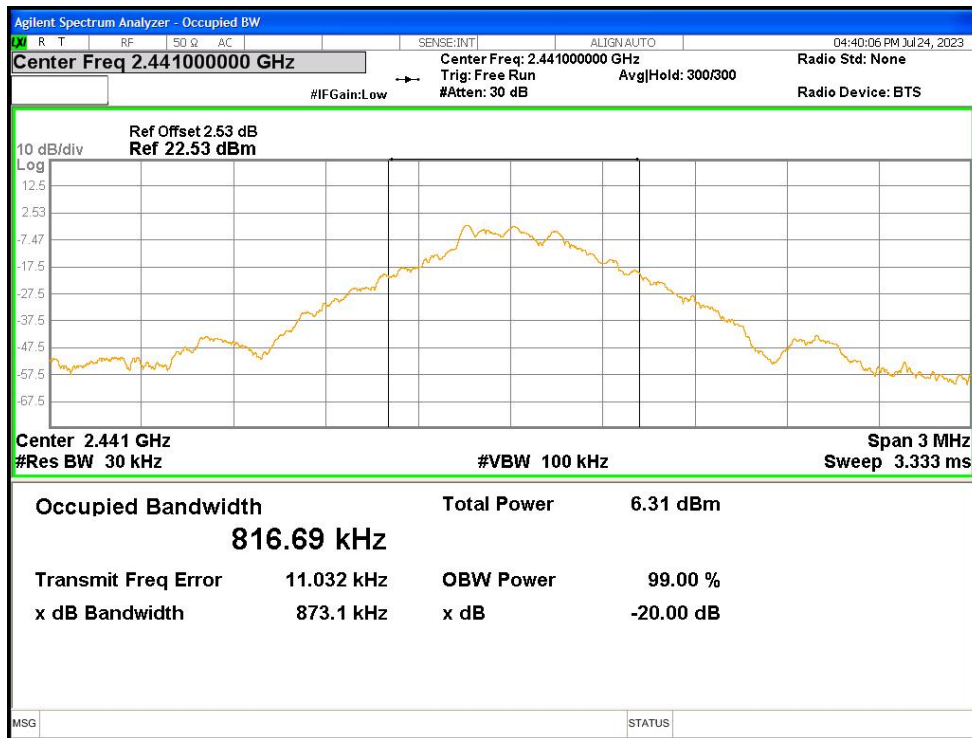
Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.81400
NVNT	1-DH1	2441	Ant1	0.81669
NVNT	1-DH1	2480	Ant1	0.82000
NVNT	2-DH1	2402	Ant1	1.1679
NVNT	2-DH1	2441	Ant1	1.1668
NVNT	2-DH1	2480	Ant1	1.1678

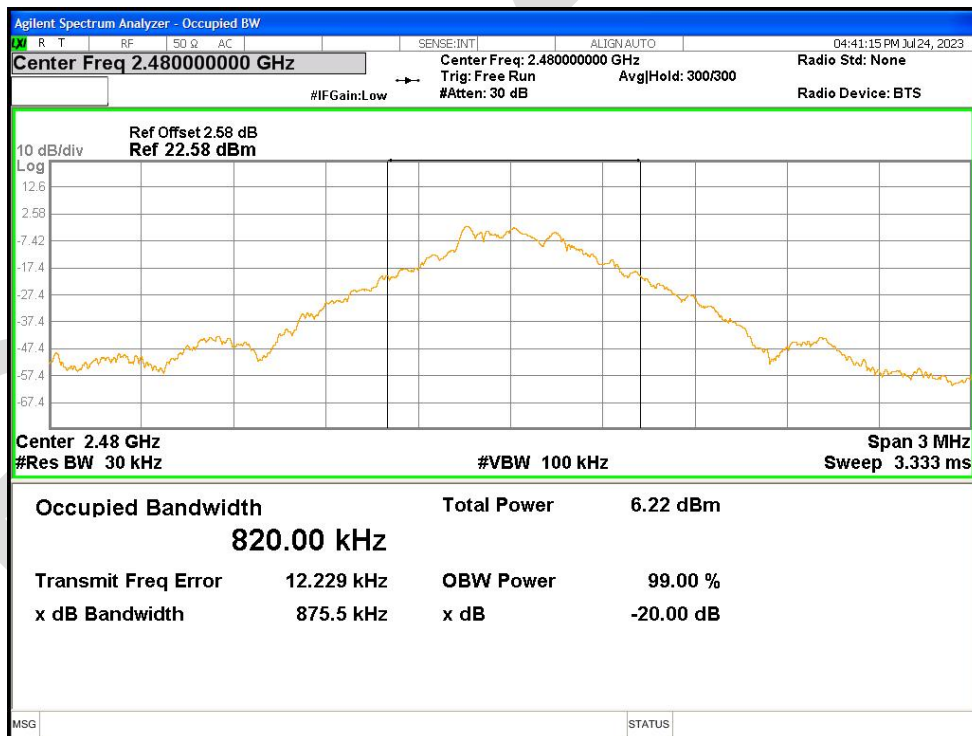
OBW NVNT 1-DH1 2402MHz Ant1



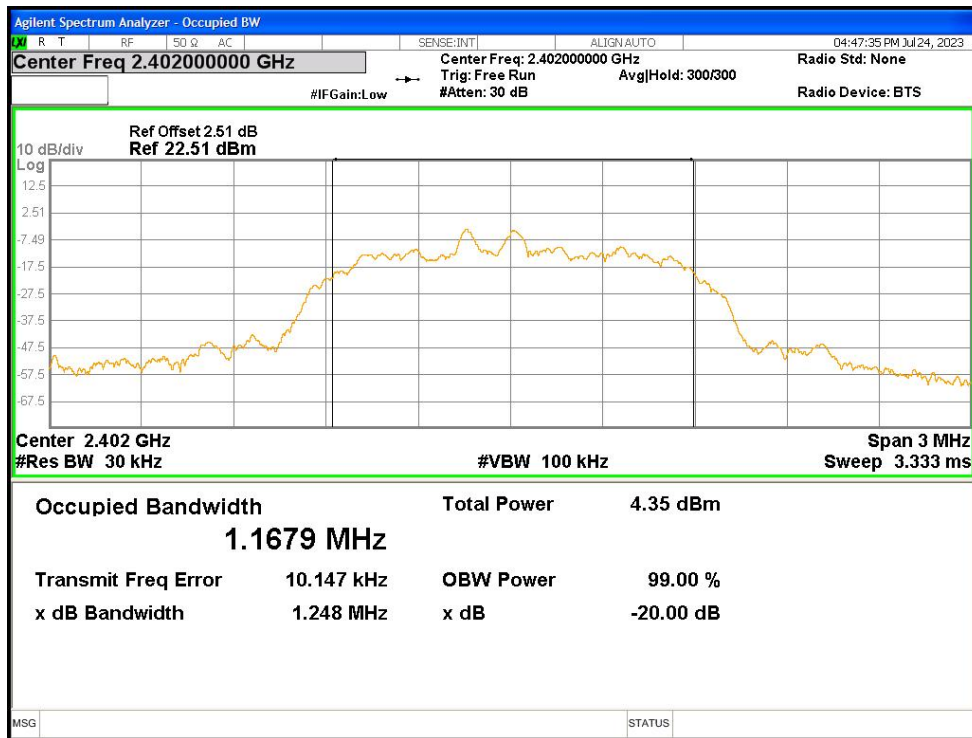
OBW NVNT 1-DH1 2441MHz Ant1



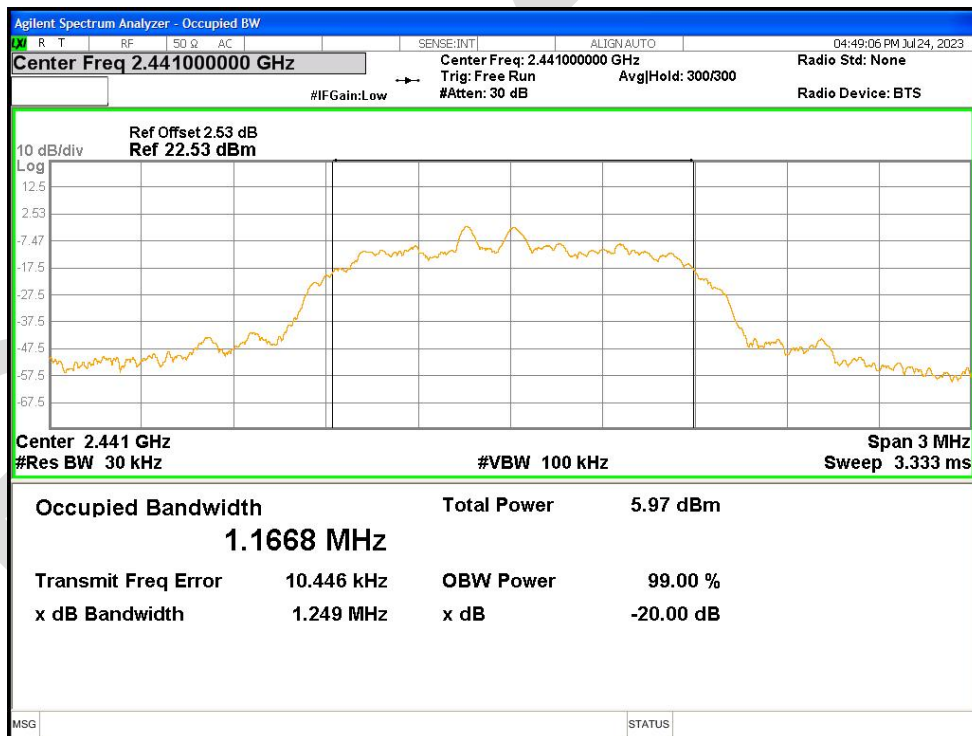
OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1

