

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

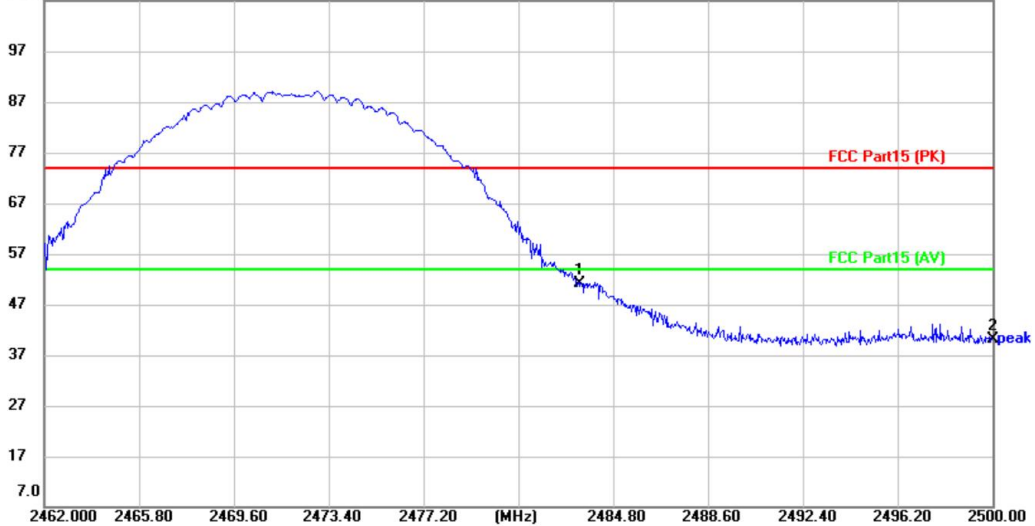
Radiated Emission Measurement

Project No.: RE

Data :#10

2023/6/12

107.0 dBuV/m



Site

Polarization: **Vertical**

Temperature: (C)

Limit: FCC Part15 (PK)

Power:

Humidity: %RH

EUT: Dash Cam

M/N: N1 Dual

Mode: 11B 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	55.18	-3.96	51.22	74.00	-22.78	peak	
2		2500.000	44.10	-4.00	40.10	74.00	-33.90	peak	

*:Maximum data x:Over limit !:over margin

⟨Reference Only

Receiver: ESR_1

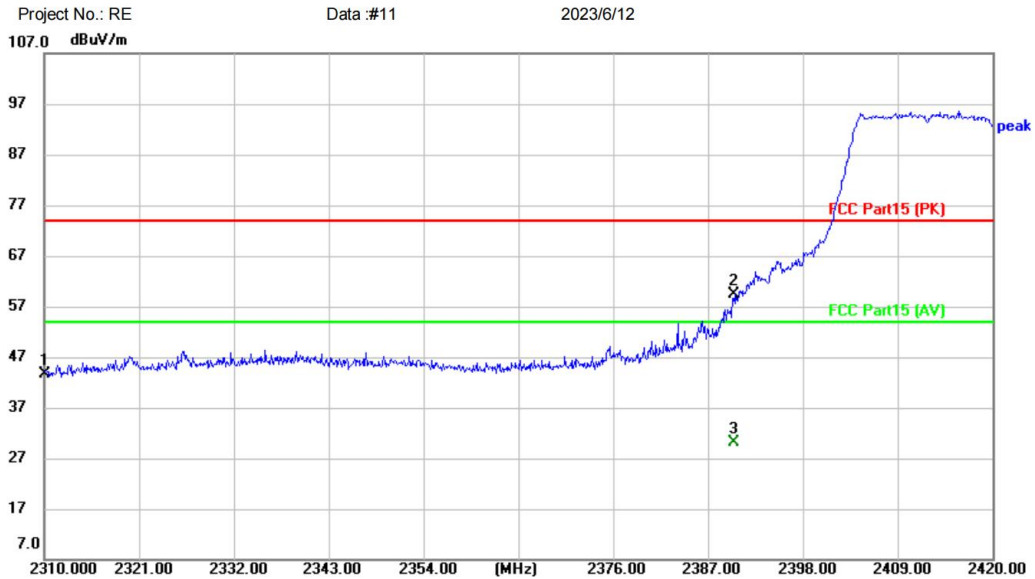
Spectrum Analyzer:

FSP40

Test Result: Pass

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

Radiated Emission Measurement



Site Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Dash Cam
M/N: N1 Dual
Mode: 11G 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	47.87	-4.27	43.60	74.00	-30.40	peak	
2	*	2390.000	63.26	-3.82	59.44	74.00	-14.56	peak	
3		2390.000	33.88	-3.82	30.06	54.00	-23.94	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

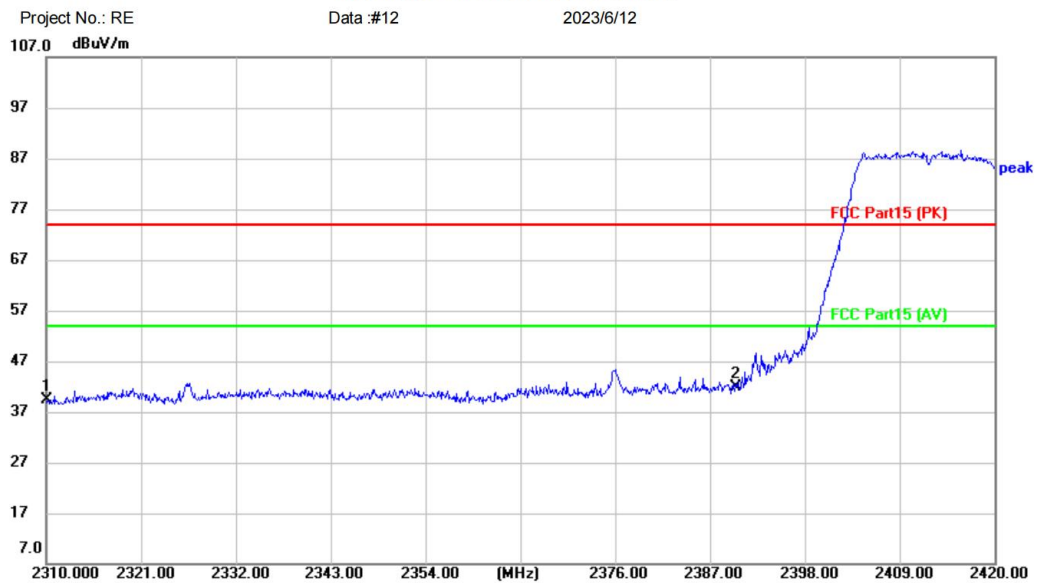
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

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

Radiated Emission Measurement



Site: Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Dash Cam
M/N: N1 Dual
Mode: 11G TX-L
Note:

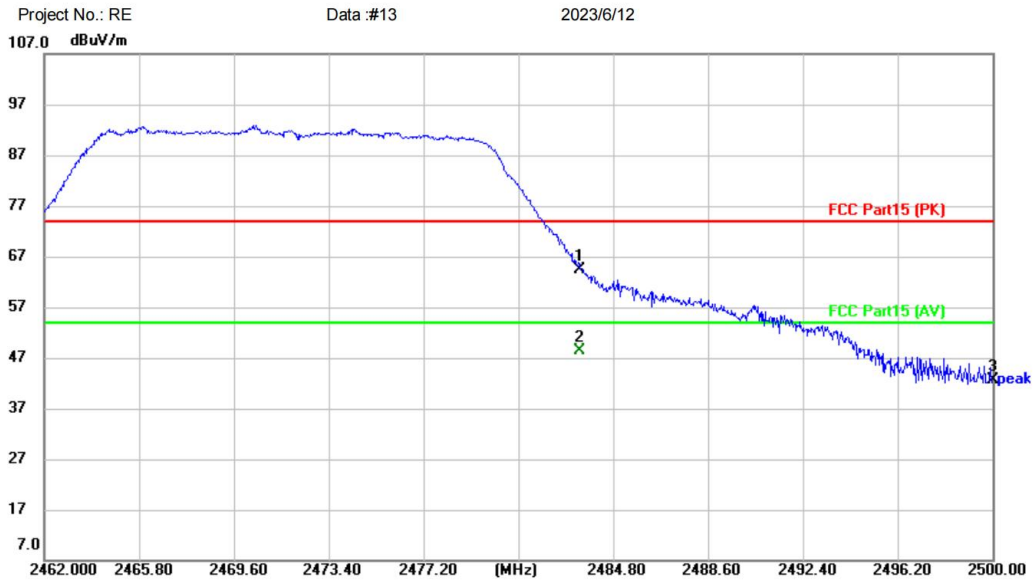
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2310.000	43.58	-4.27	39.31	74.00	-34.69	peak	
2	*	2390.000	45.82	-3.82	42.00	74.00	-32.00	peak	

*:Maximum data x:Over limit !:over margin (Reference Only)
Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

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

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Dash Cam
M/N: N1 Dual
Mode: 11G 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	68.35	-3.96	64.39	74.00	-9.61	peak	
2	*	2483.500	52.33	-3.96	48.37	54.00	-5.63	AVG	
3		2500.000	46.68	-4.00	42.68	74.00	-31.32	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

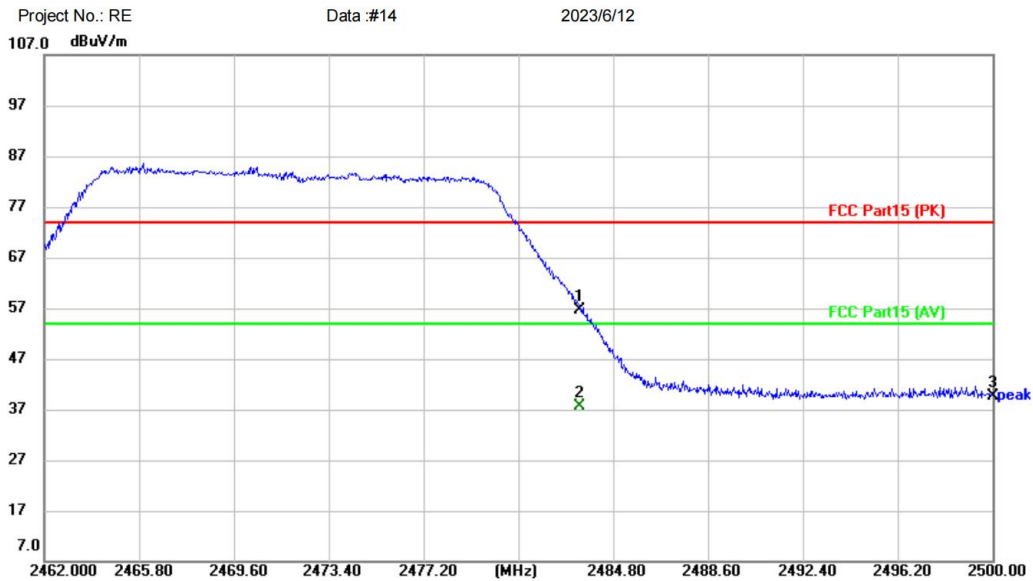
Spectrum Analyzer:

FSP40

Test Result: Pass

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

Radiated Emission Measurement



Site
Limit: FCC Part15 (PK)
EUT: Dash Cam
M/N: N1 Dual
Mode: 11G TX-H
Note:

Polarization: **Vertical**
Power:
Temperature: (C)
Humidity: %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2483.500	60.66	-3.96	56.70	74.00	-17.30	peak	
2	*	2483.500	41.65	-3.96	37.69	54.00	-16.31	AVG	
3		2500.000	43.67	-4.00	39.67	74.00	-34.33	peak	

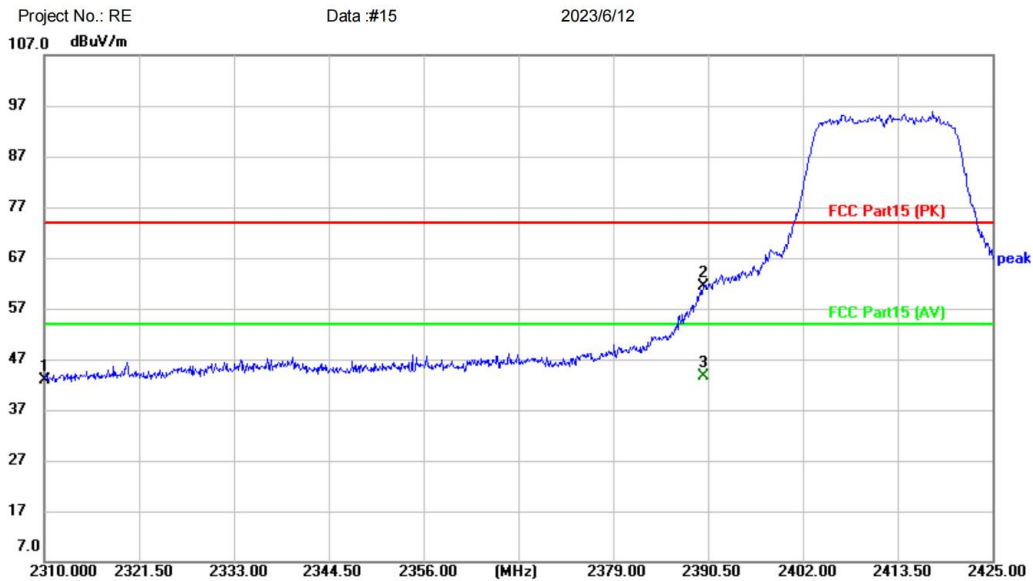
*:Maximum data x:Over limit !:over margin <Reference Only

Receiver: ESR_1 Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 low channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site: Polarization: **Horizontal** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Dash Cam
M/N: N1 Dual
Mode: 11N20 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	47.15	-4.27	42.88	74.00	-31.12	peak	
2		2390.000	65.26	-3.82	61.44	74.00	-12.56	peak	
3	*	2390.000	47.48	-3.82	43.66	54.00	-10.34	AVG	

*:Maximum data x:Over limit !:over margin

(Reference Only)

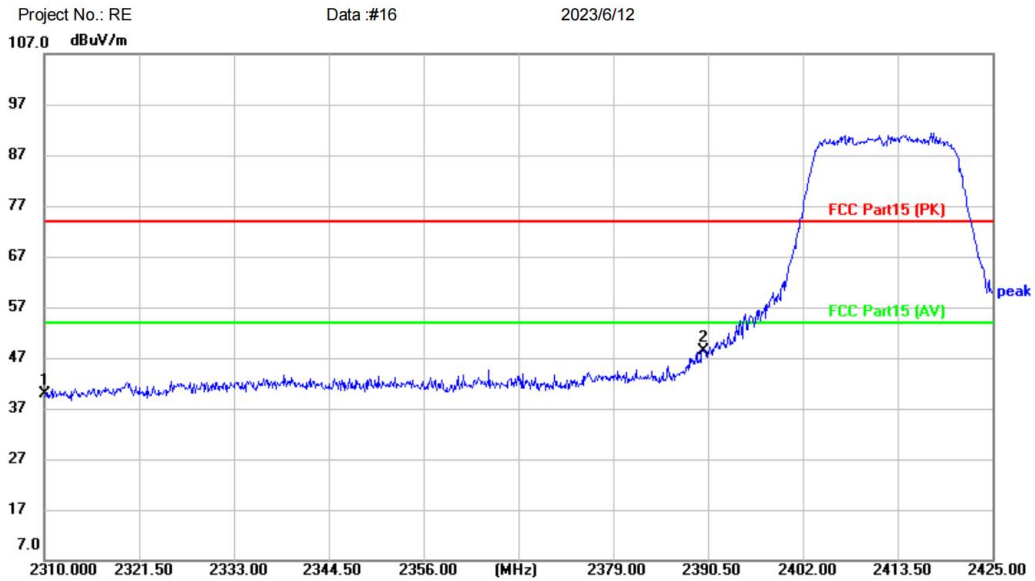
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 low channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Polarization: **Vertical** Temperature: (C)
Limit: FCC Part15 (PK) Power: Humidity: %RH
EUT: Dash Cam
M/N: N1 Dual
Mode: 11N20 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	44.26	-4.27	39.99	74.00	-34.01	peak	
2	*	2390.000	52.28	-3.82	48.46	74.00	-25.54	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

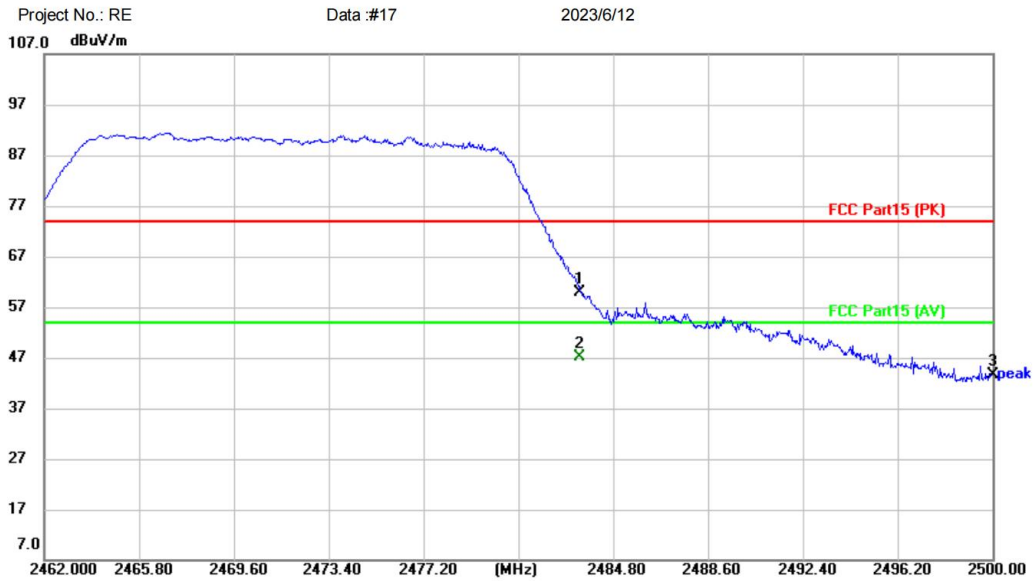
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 high channel]; [Polarity: Vertical]

Radiated Emission Measurement



Site Limit: FCC Part15 (PK) Polarization: **Horizontal** Temperature: (C)
EUT: Dash Cam Power: Humidity: %RH
M/N: N1 Dual
Mode: 11N20 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	63.95	-3.96	59.99	74.00	-14.01	peak	
2	*	2483.500	51.12	-3.96	47.16	54.00	-6.84	AVG	
3		2500.000	47.62	-4.00	43.62	74.00	-30.38	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

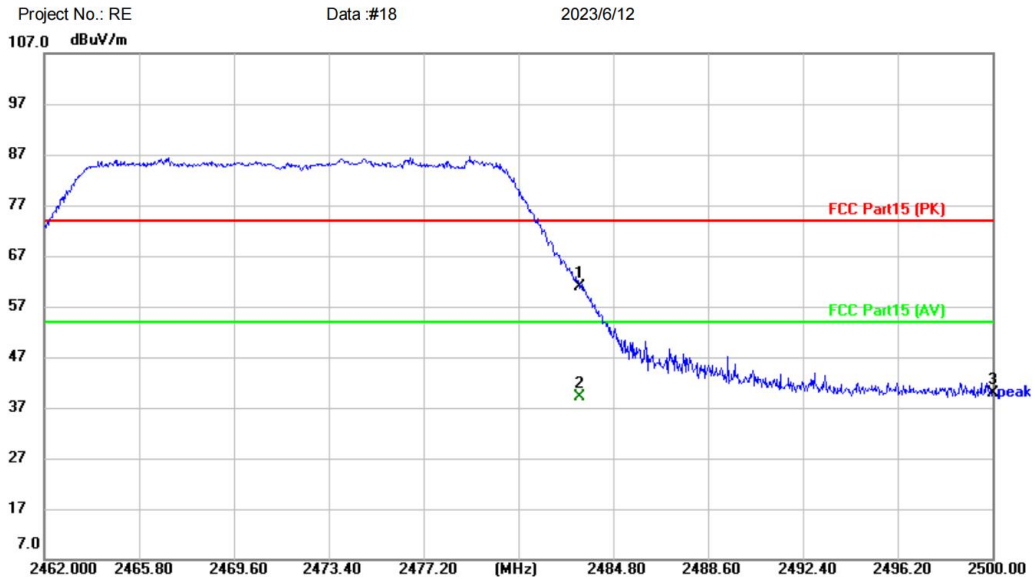
Receiver: ESR_1

Spectrum Analyzer: FSP40

Test Result: Pass

[TestMode: TX n20 high channel]; [Polarity: Horizontal]

Radiated Emission Measurement



Site Limit: FCC Part15 (PK) Polarization: **Vertical** Temperature: (C)
EUT: Dash Cam Power: Humidity: %RH
M/N: N1 Dual
Mode: 11N20 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	64.74	-3.96	60.78	74.00	-13.22	peak	
2		2483.500	43.19	-3.96	39.23	54.00	-14.77	AVG	
3		2500.000	43.88	-4.00	39.88	74.00	-34.12	peak	

*:Maximum data x:Over limit !:over margin

(Reference Only)

Receiver: ESR_1

Spectrum Analyzer:

FSP40

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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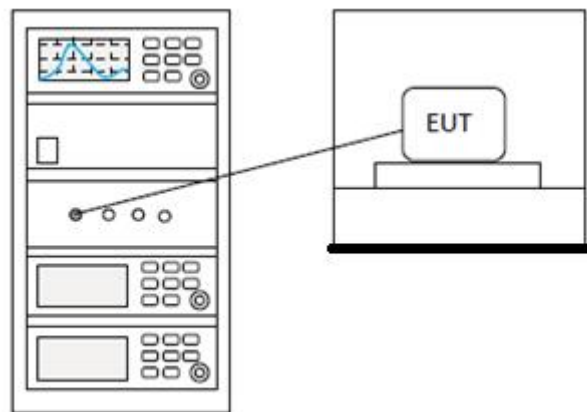
13 CONDUCTED SPURIOUS EMISSIONS

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.6 & Section 11.11
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

13.1 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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13.2 BLOCK DIAGRAM OF TEST SETUP



13.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

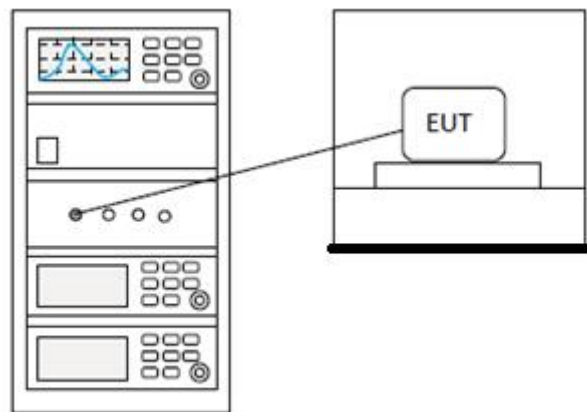
14 CONDUCTED BAND EDGES MEASUREMENT

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%

14.1 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)).
--------	--

14.2 BLOCK DIAGRAM OF TEST SETUP



14.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

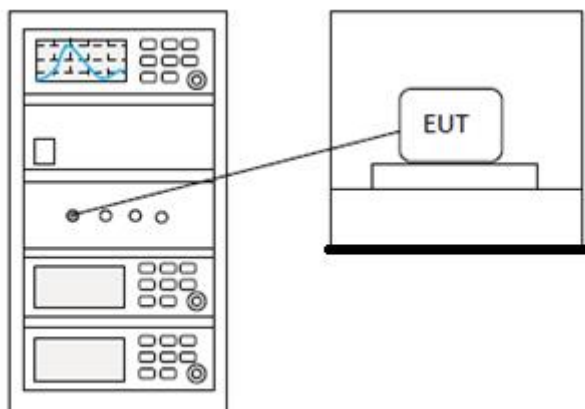
15 MINIMUM 6DB BANDWIDTH

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.8.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

15.1 LIMITS

Limit:	≥500 kHz
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15.2 BLOCK DIAGRAM OF TEST SETUP



15.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

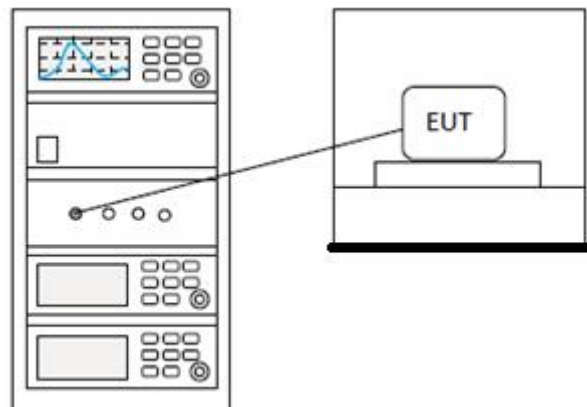
16 POWER SPECTRUM DENSITY

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 11.10.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

16.1 LIMITS

Limit:	≤8dBm in any 3 kHz band during any time interval of continuous transmission
--------	---

16.2 BLOCK DIAGRAM OF TEST SETUP



16.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

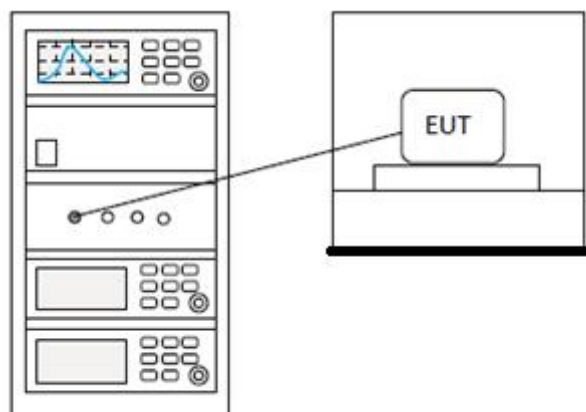
17 CONDUCTED PEAK OUTPUT POWER

Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 7.8.5 & Section 11.9.1
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25℃
Humidity	60%

17.1 LIMITS

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq \text{hopping channels} < 50$
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

17.2 BLOCK DIAGRAM OF TEST SETUP



17.3 TEST DATA

Pass: Please Refer To Appendix: Appendix1 For Details

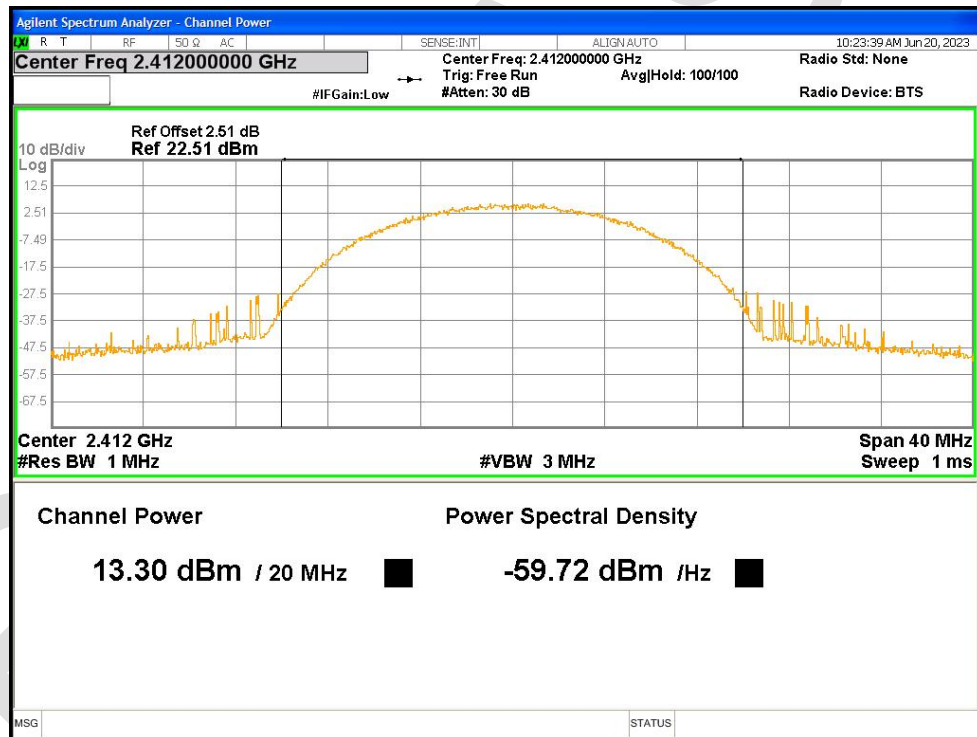
BlueAsia

18 APPENDIX

Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	13.30	30	Pass
NVNT	b	2437	Ant1	12.59	30	Pass
NVNT	b	2462	Ant1	11.30	30	Pass
NVNT	g	2412	Ant1	11.77	30	Pass
NVNT	g	2437	Ant1	11.17	30	Pass
NVNT	g	2462	Ant1	9.89	30	Pass
NVNT	n20	2412	Ant1	12.05	30	Pass
NVNT	n20	2437	Ant1	11.28	30	Pass
NVNT	n20	2462	Ant1	9.75	30	Pass

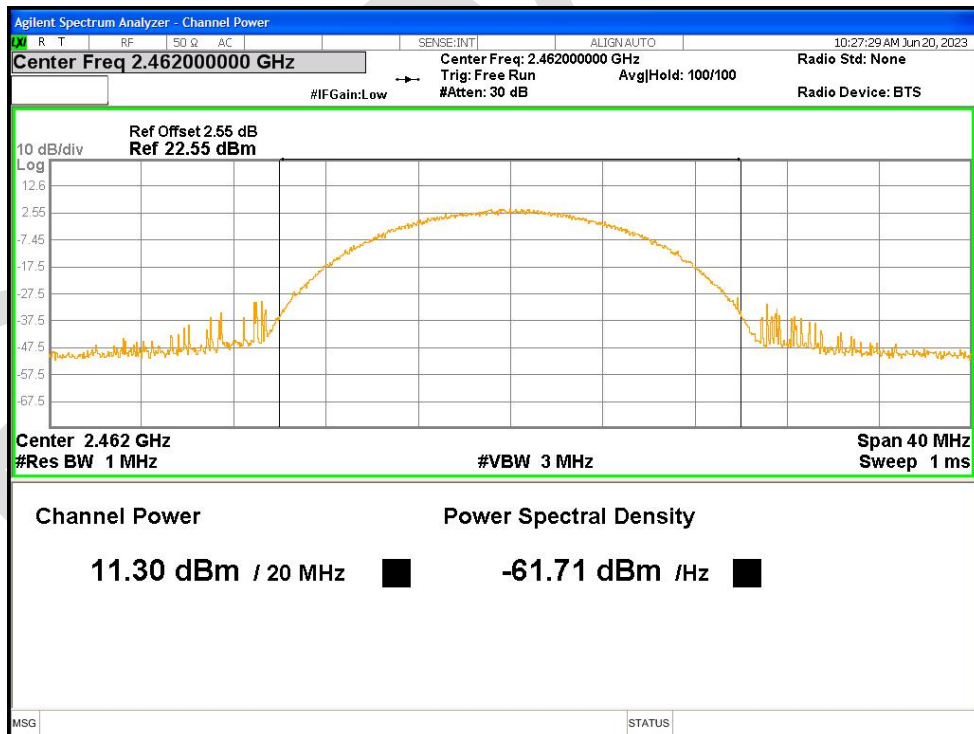
Power NVNT b 2412MHz Ant1



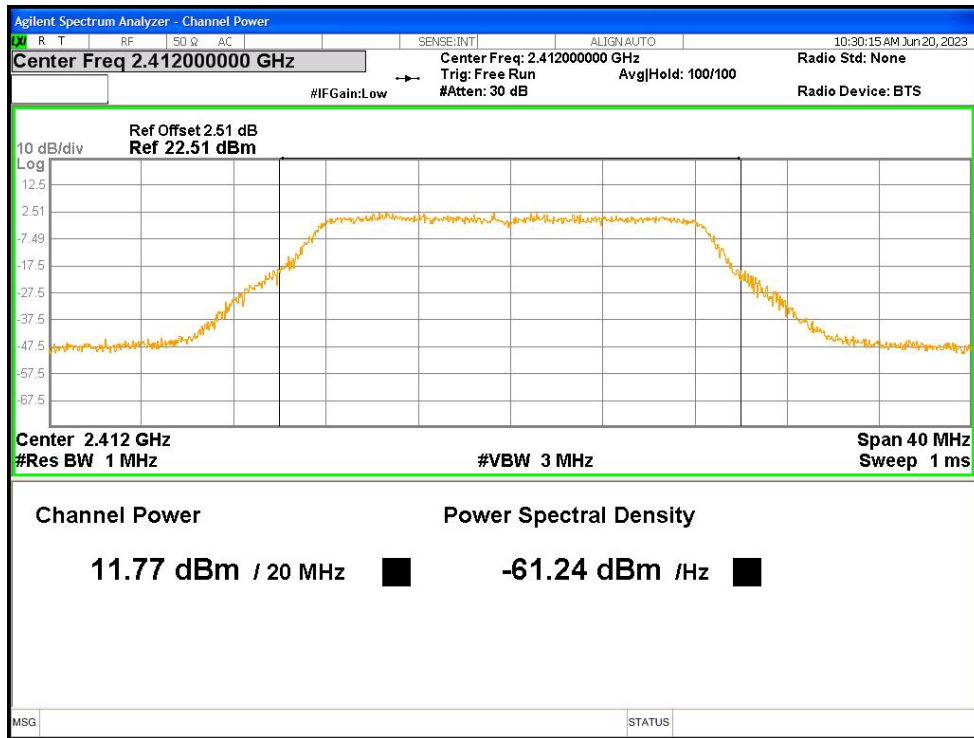
Power NVNT b 2437MHz Ant1



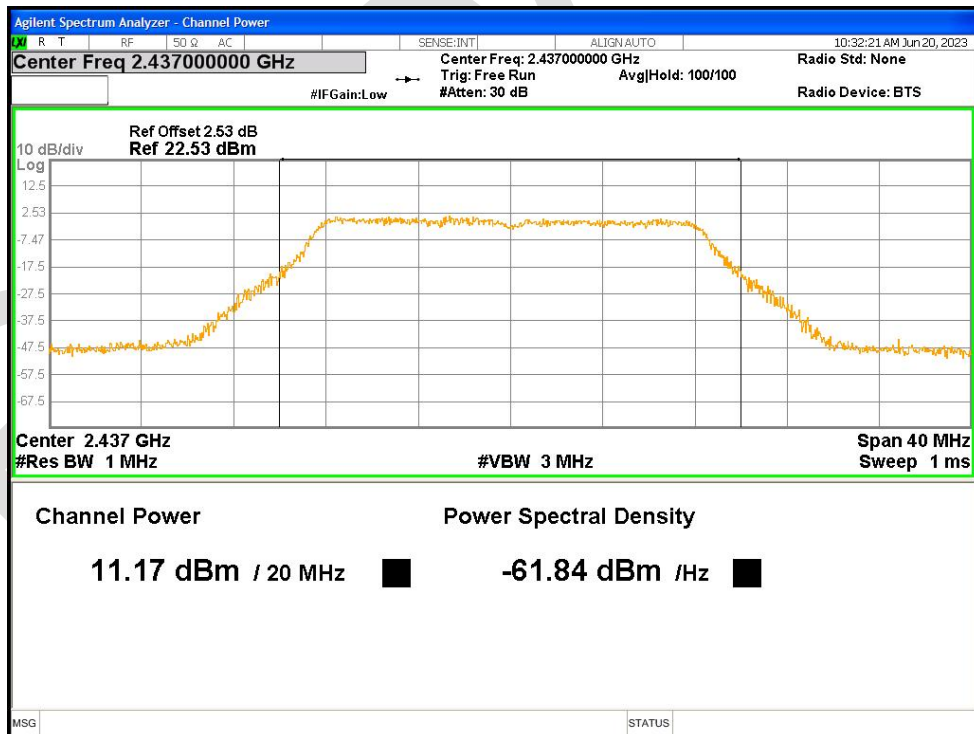
Power NVNT b 2462MHz Ant1



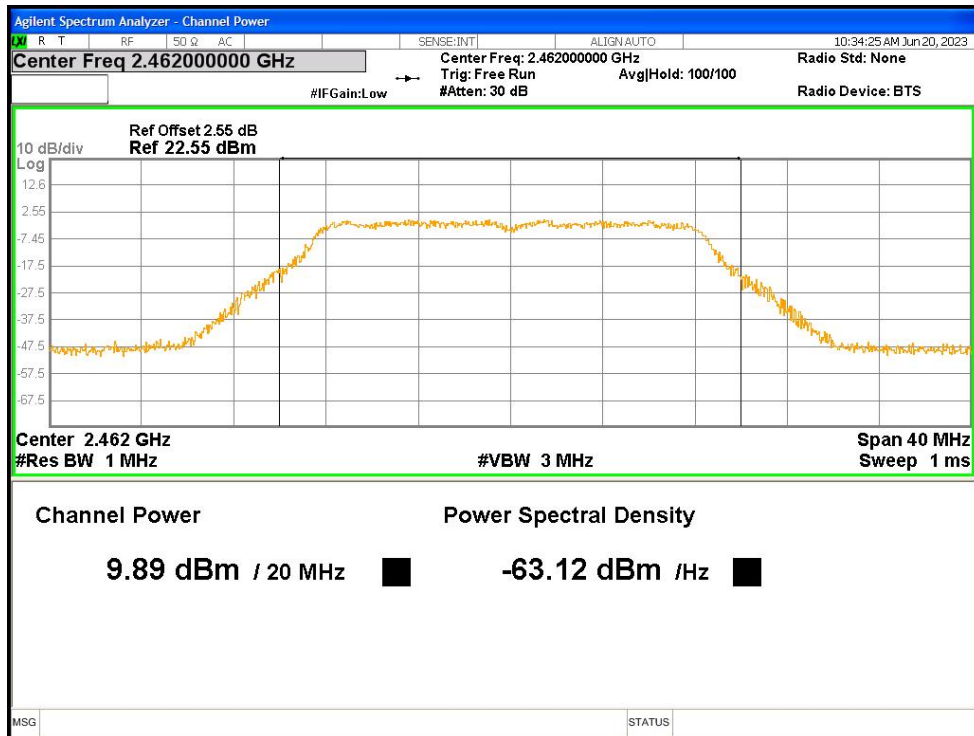
Power NVNT g 2412MHz Ant1



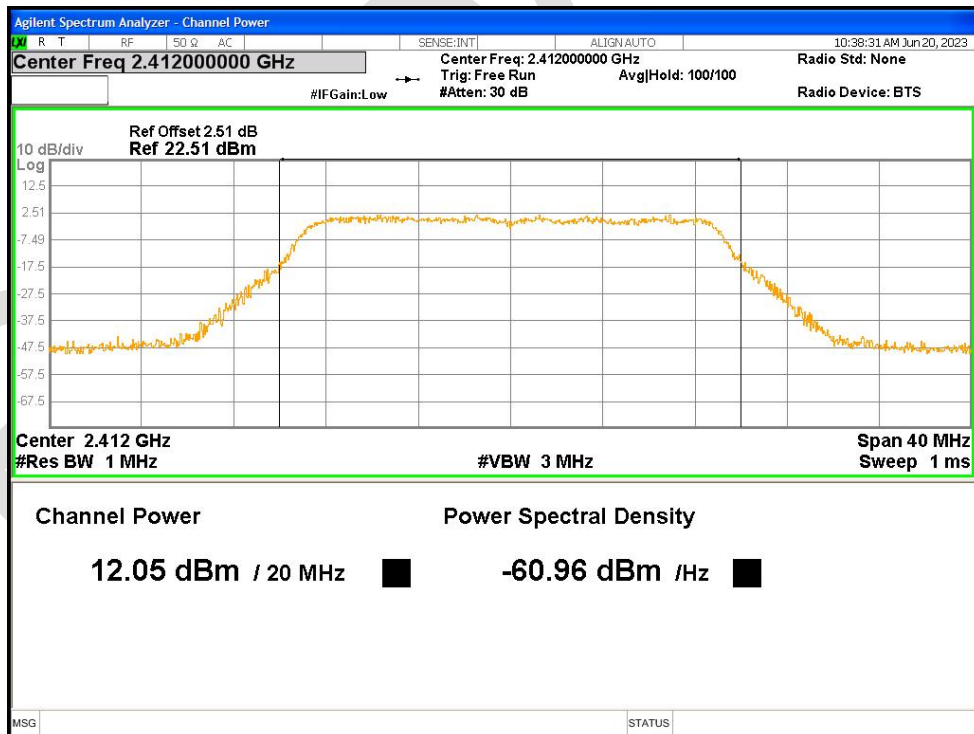
Power NVNT g 2437MHz Ant1



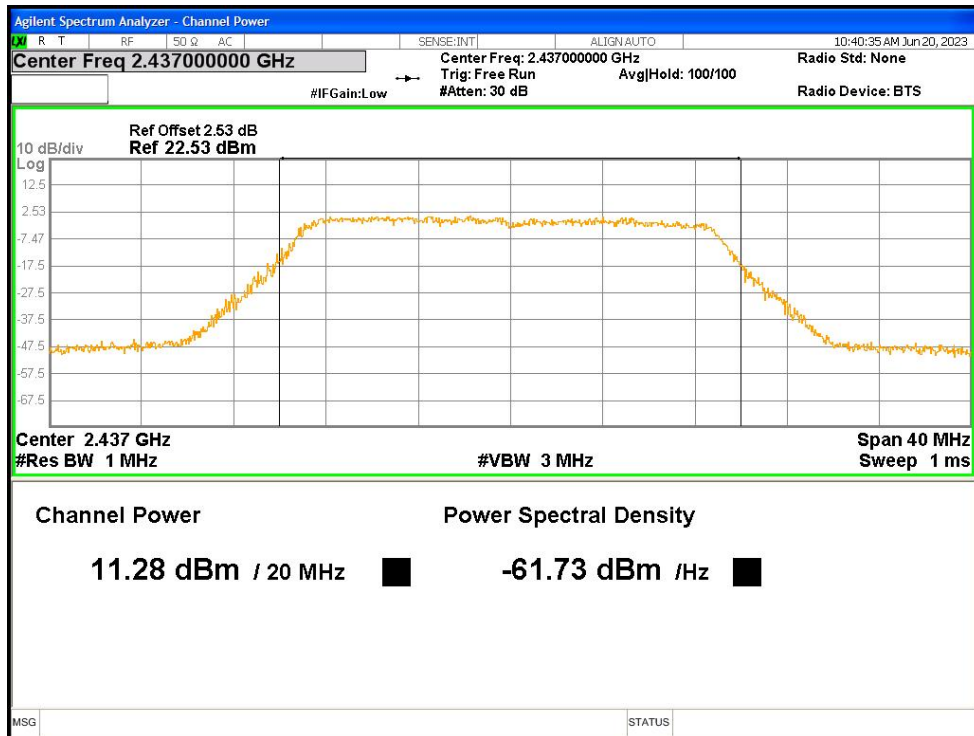
Power NVNT g 2462MHz Ant1



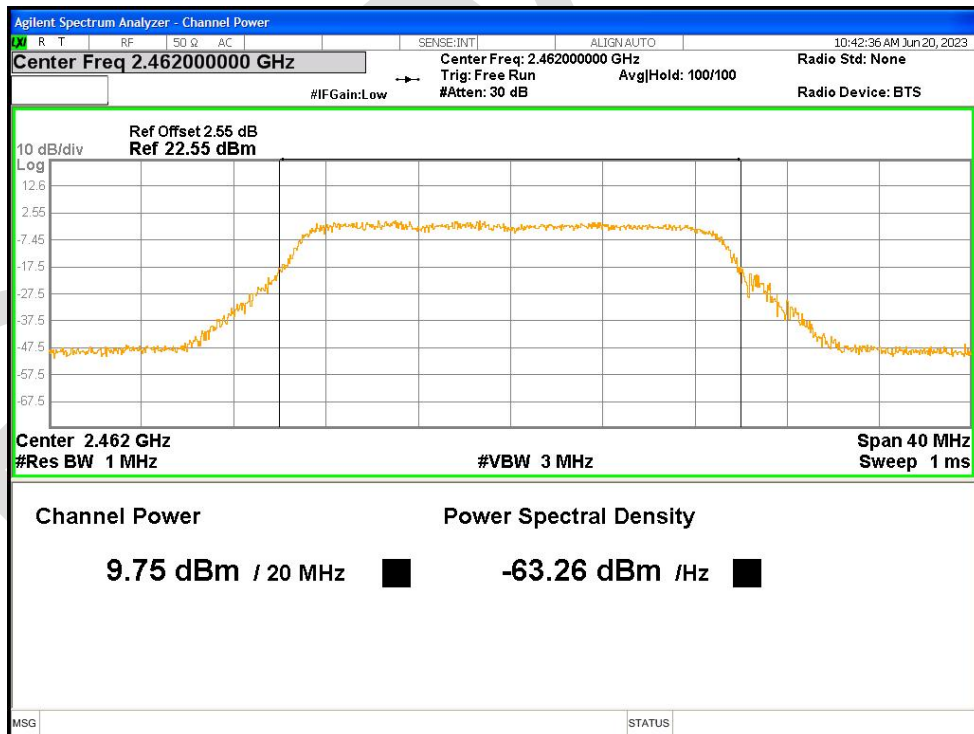
Power NVNT n20 2412MHz Ant1



Power NVNT n20 2437MHz Ant1



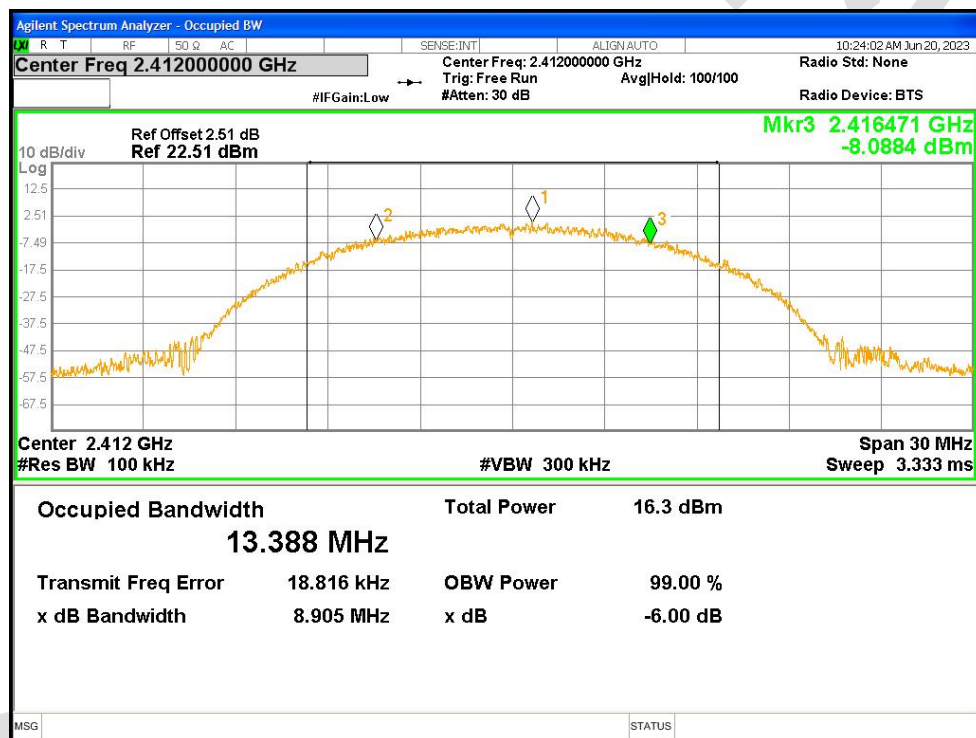
Power NVNT n20 2462MHz Ant1



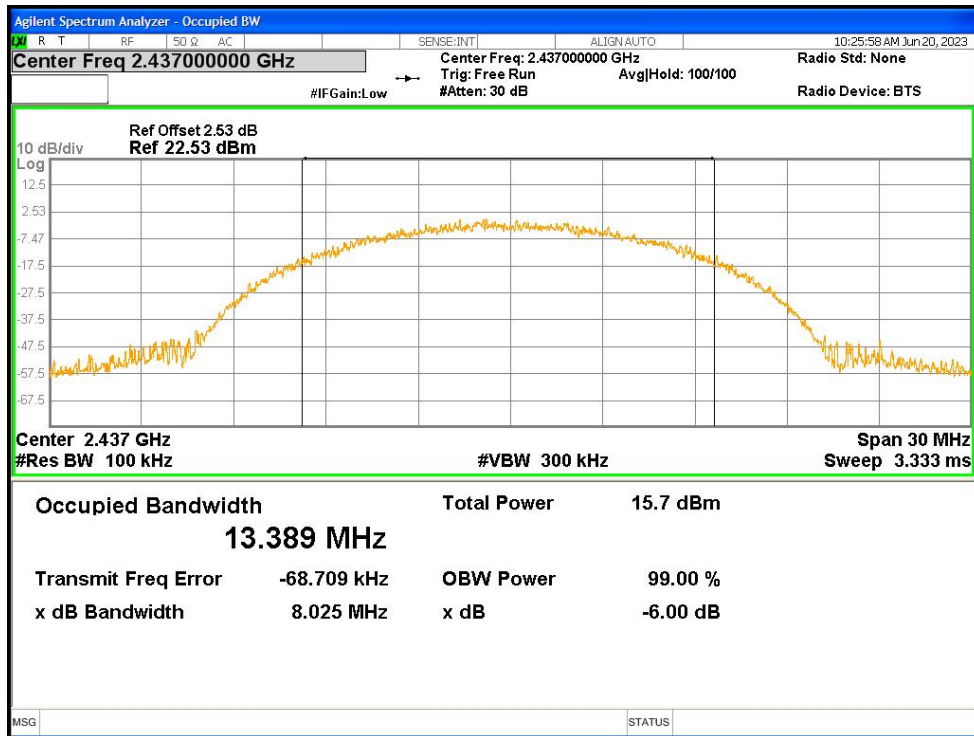
-6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	8.905	0.5	Pass
NVNT	b	2437	Ant1	8.025	0.5	Pass
NVNT	b	2462	Ant1	8.181	0.5	Pass
NVNT	g	2412	Ant1	16.431	0.5	Pass
NVNT	g	2437	Ant1	16.329	0.5	Pass
NVNT	g	2462	Ant1	16.349	0.5	Pass
NVNT	n20	2412	Ant1	17.312	0.5	Pass
NVNT	n20	2437	Ant1	17.532	0.5	Pass
NVNT	n20	2462	Ant1	17.612	0.5	Pass

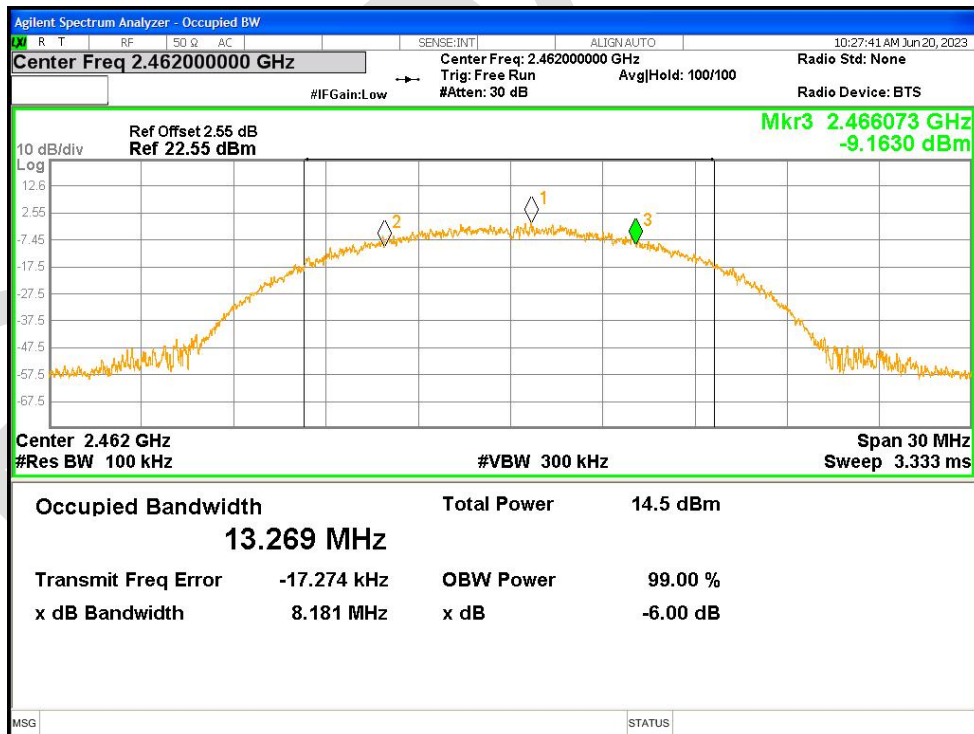
-6dB Bandwidth NVNT b 2412MHz Ant1



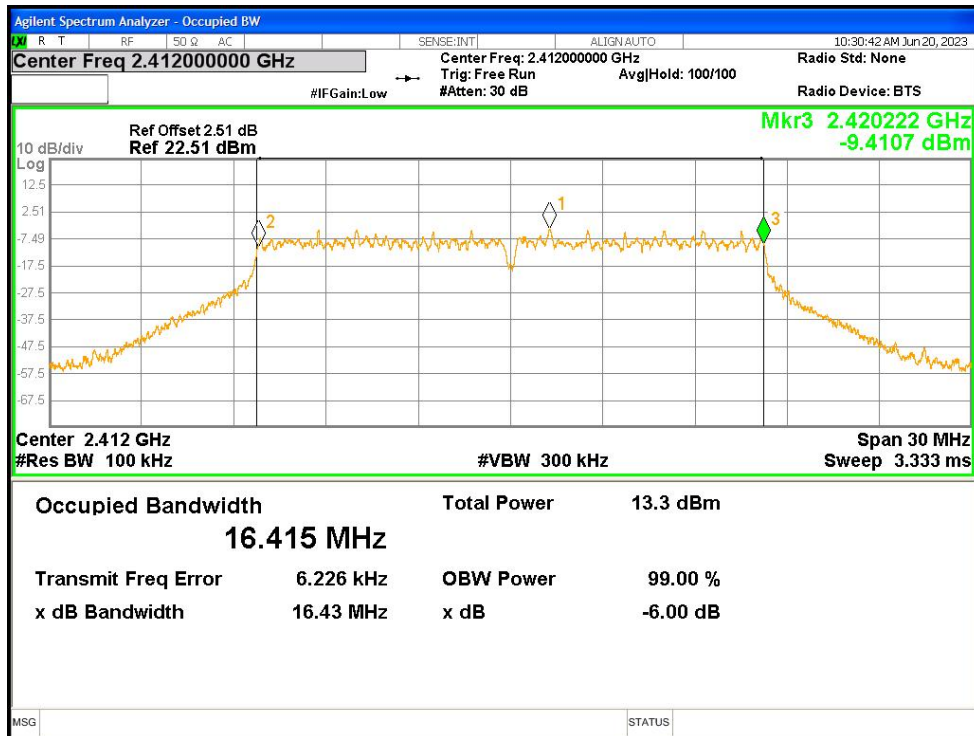
-6dB Bandwidth NVNT b 2437MHz Ant1



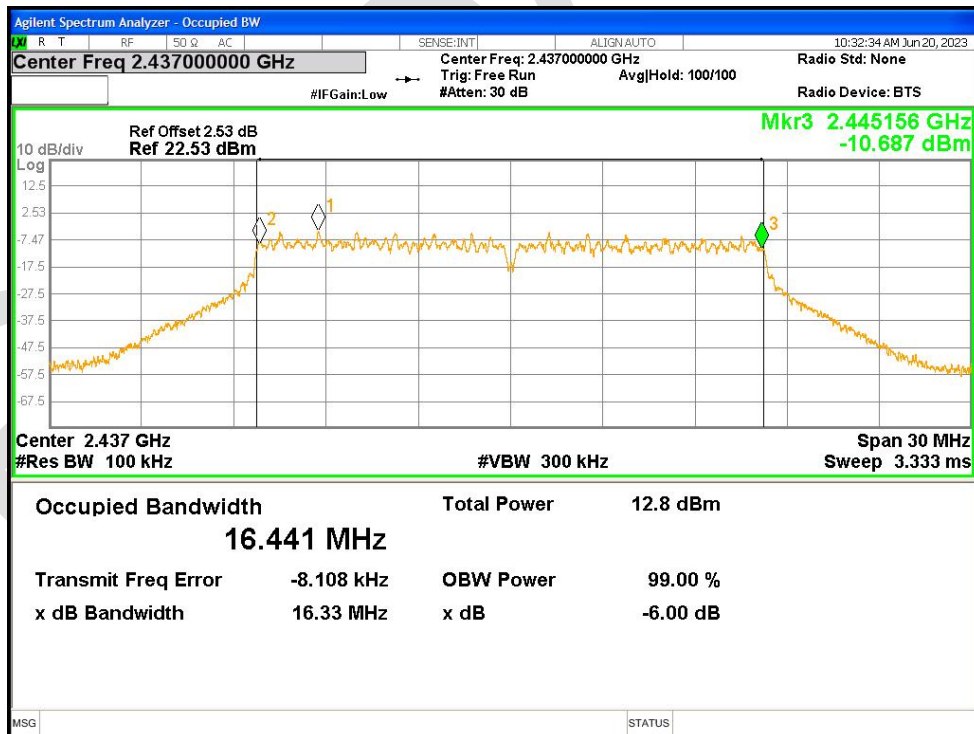
-6dB Bandwidth NVNT b 2462MHz Ant1



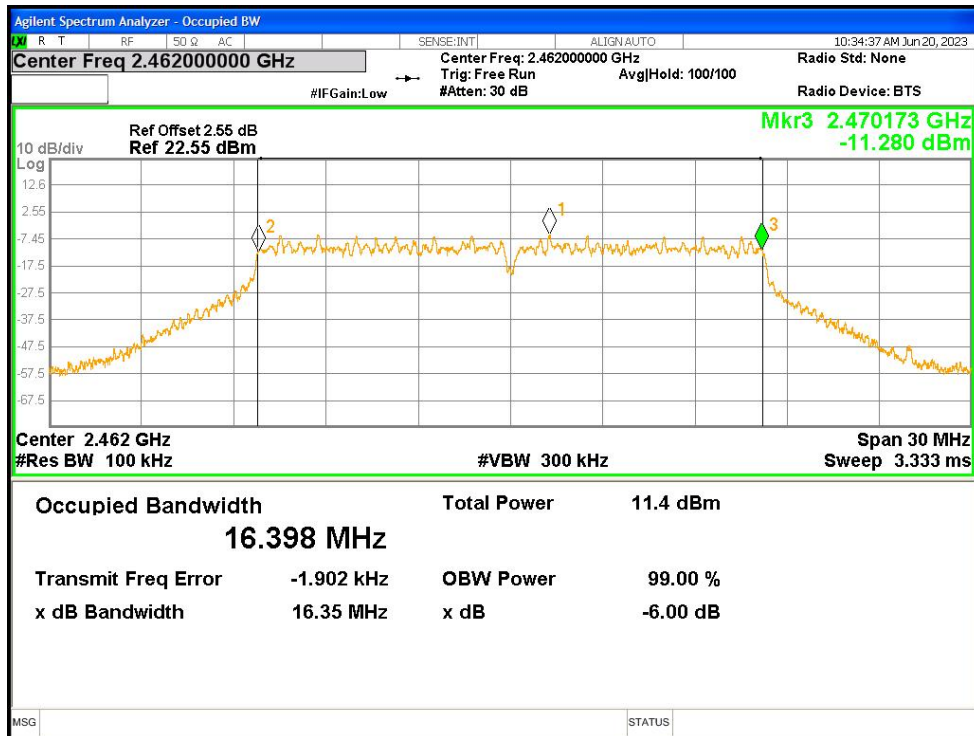
-6dB Bandwidth NVNT g 2412MHz Ant1



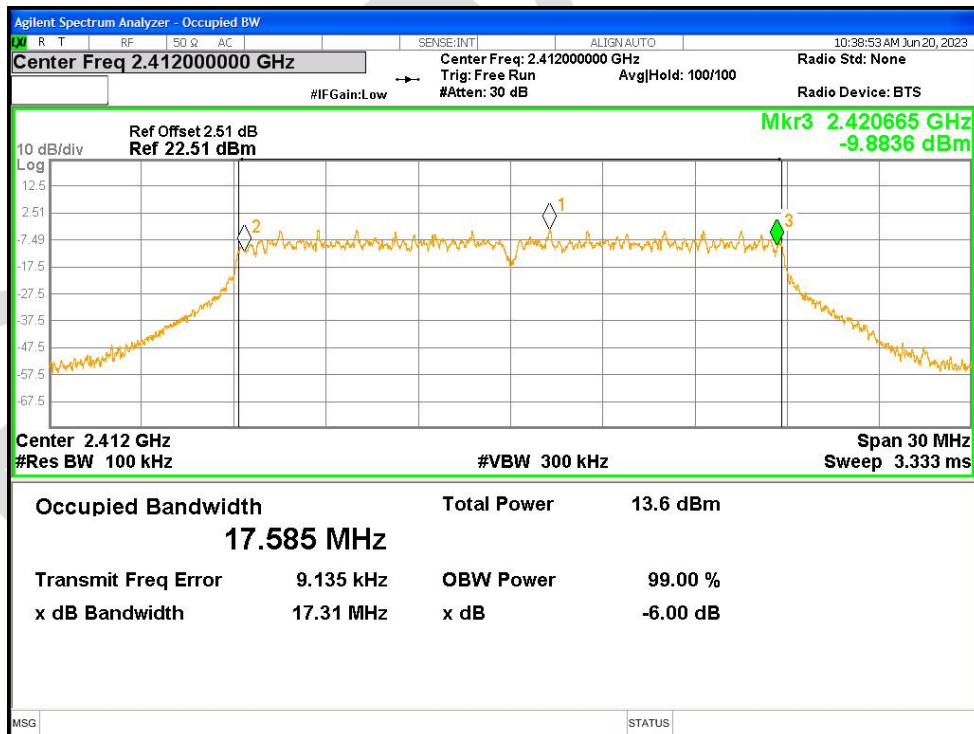
-6dB Bandwidth NVNT g 2437MHz Ant1



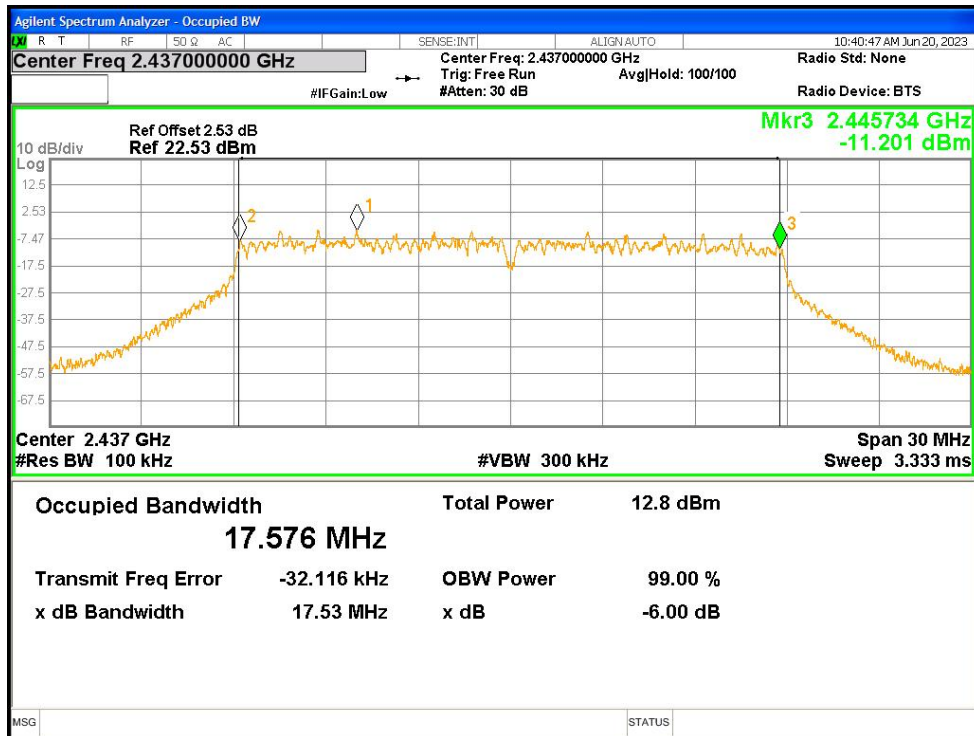
-6dB Bandwidth NVNT g 2462MHz Ant1



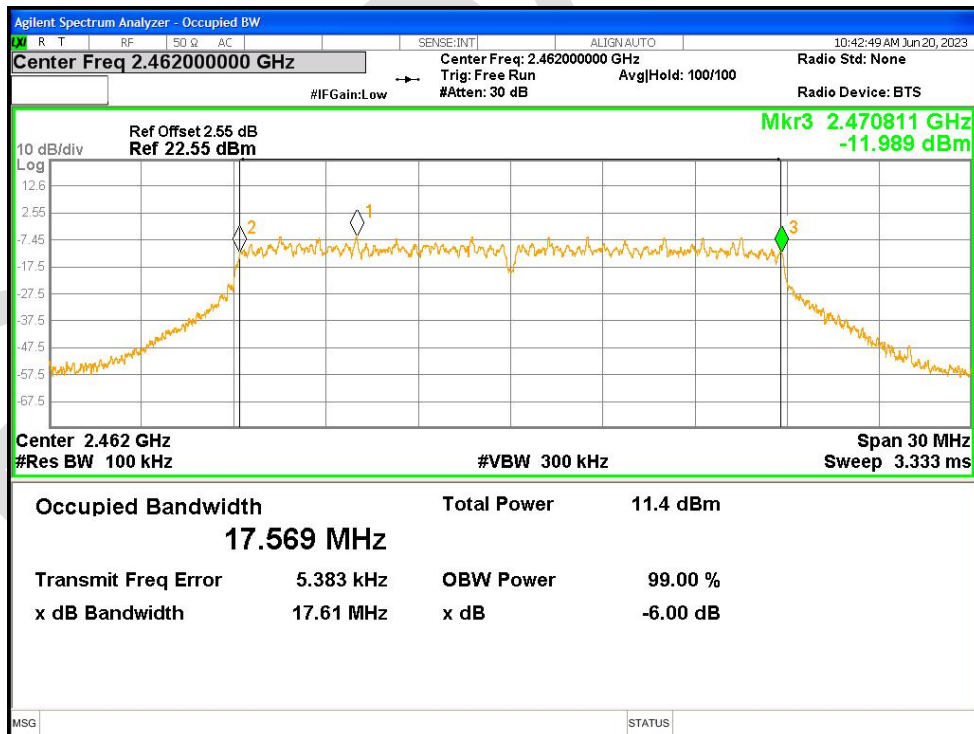
-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1



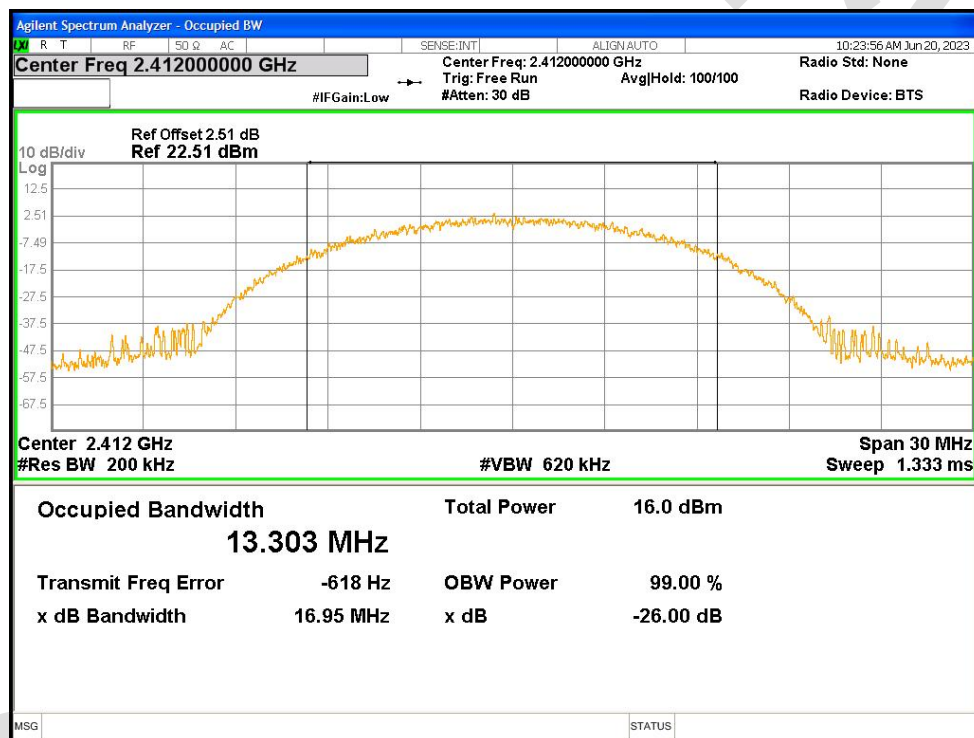
-6dB Bandwidth NVNT n20 2462MHz Ant1



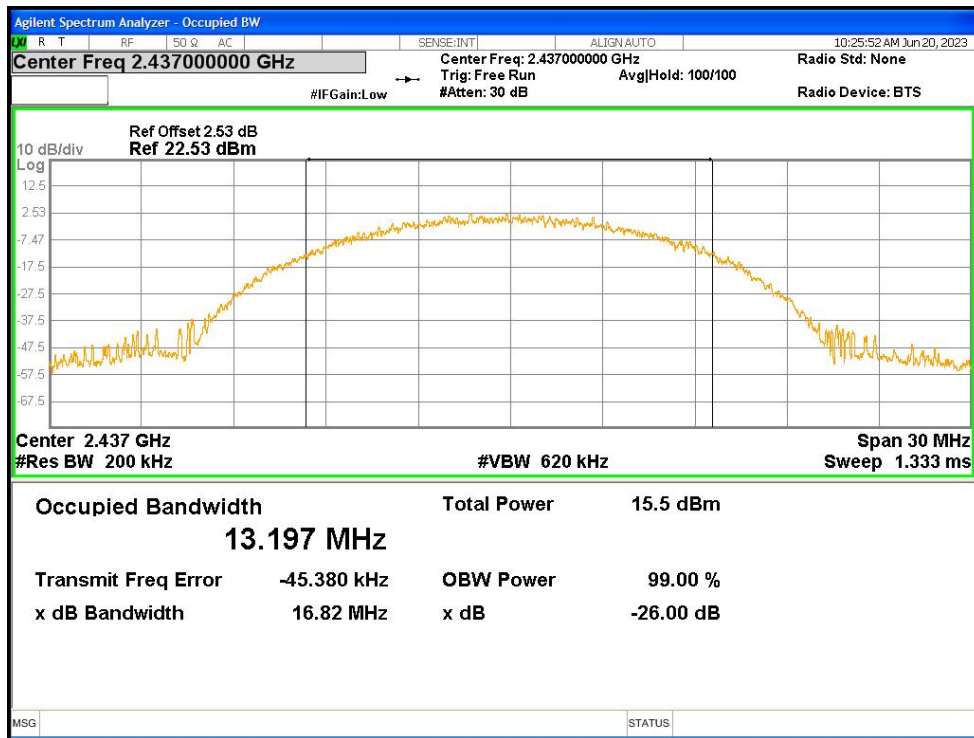
Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	13.30291235
NVNT	b	2437	Ant1	13.19665129
NVNT	b	2462	Ant1	13.31462266
NVNT	g	2412	Ant1	16.50426034
NVNT	g	2437	Ant1	16.50554221
NVNT	g	2462	Ant1	16.48237231
NVNT	n20	2412	Ant1	17.61052842
NVNT	n20	2437	Ant1	17.66533963
NVNT	n20	2462	Ant1	17.62400403

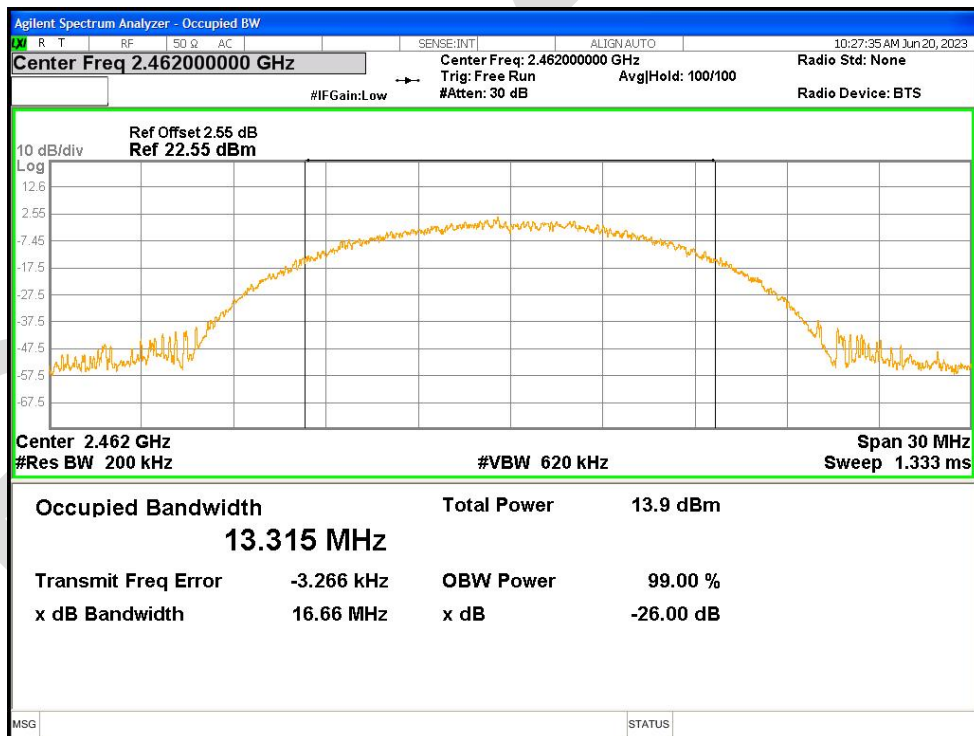
OBW NVNT b 2412MHz Ant1



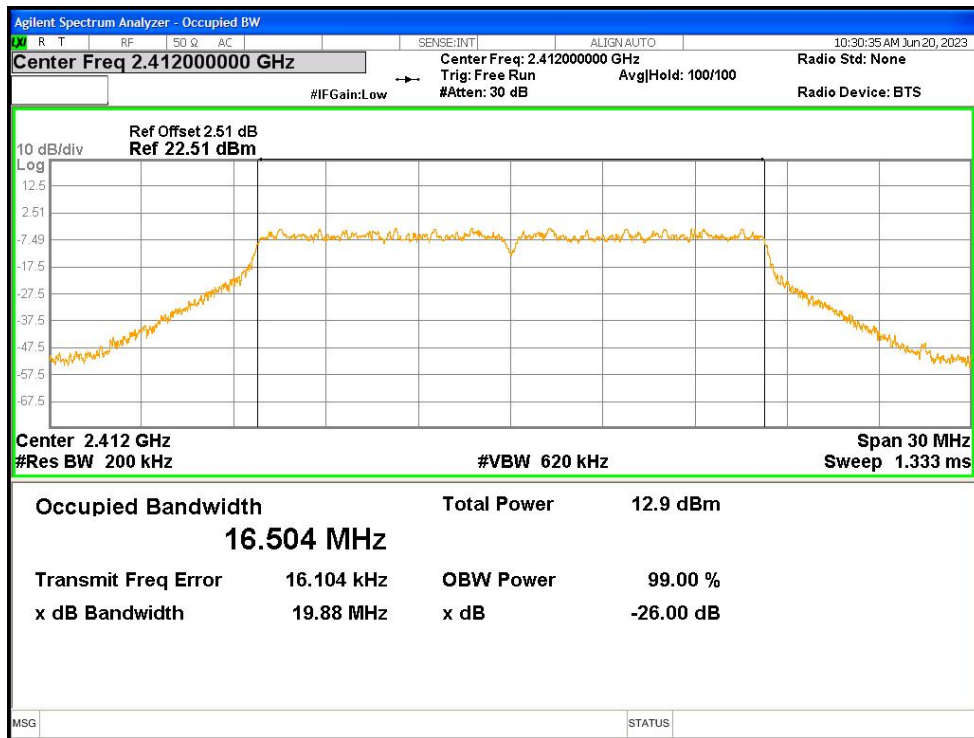
OBW NVNT b 2437MHz Ant1



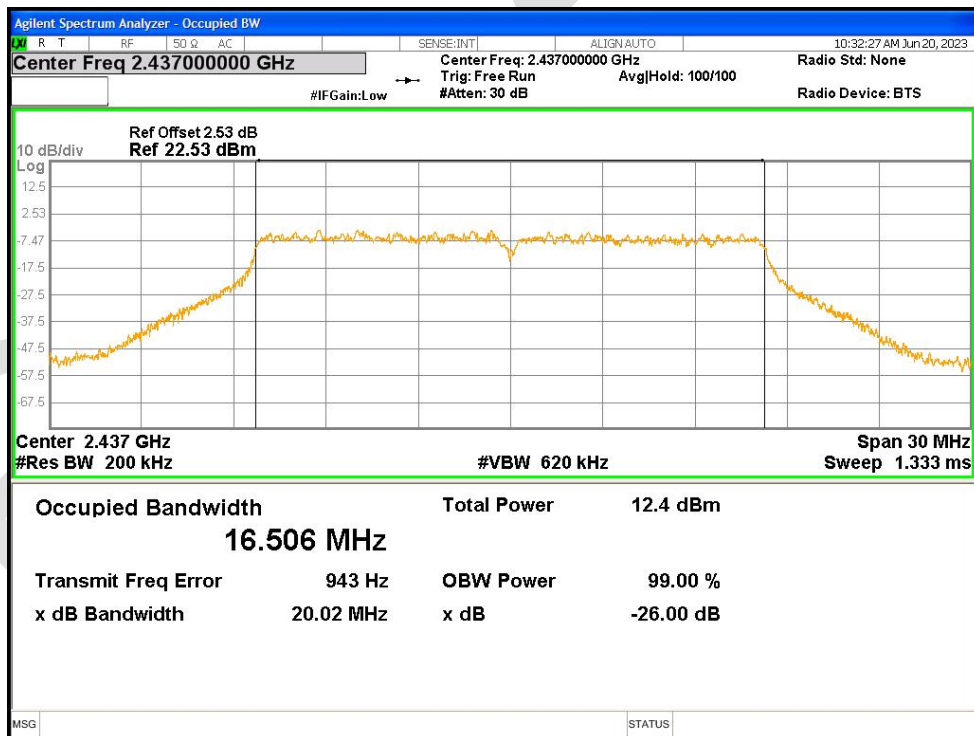
OBW NVNT b 2462MHz Ant1



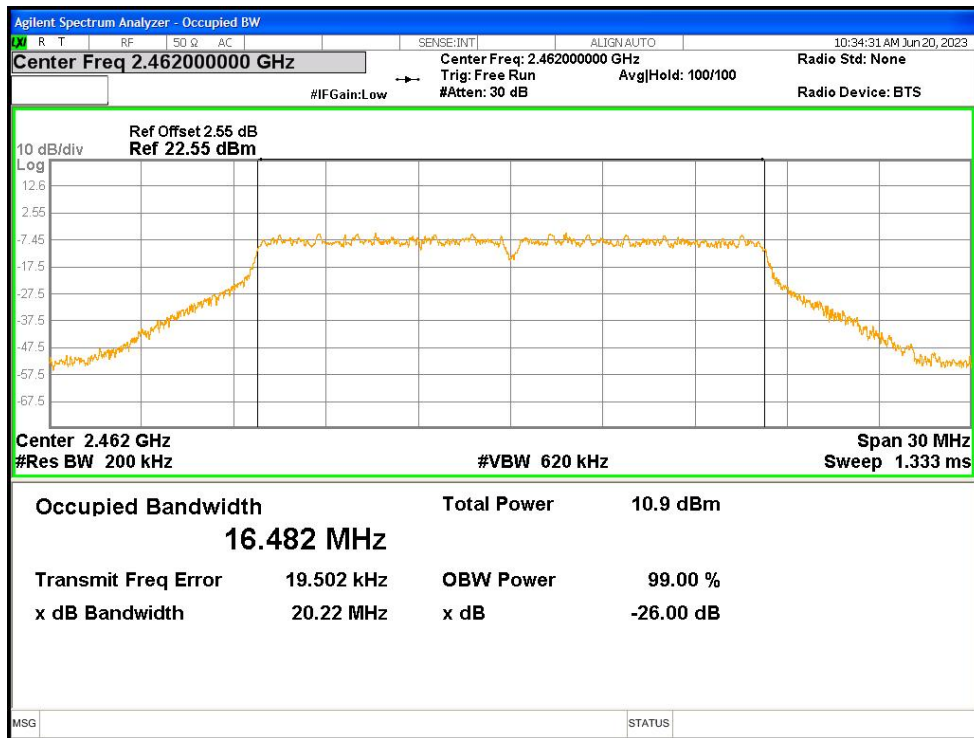
OBW NVNT g 2412MHz Ant1



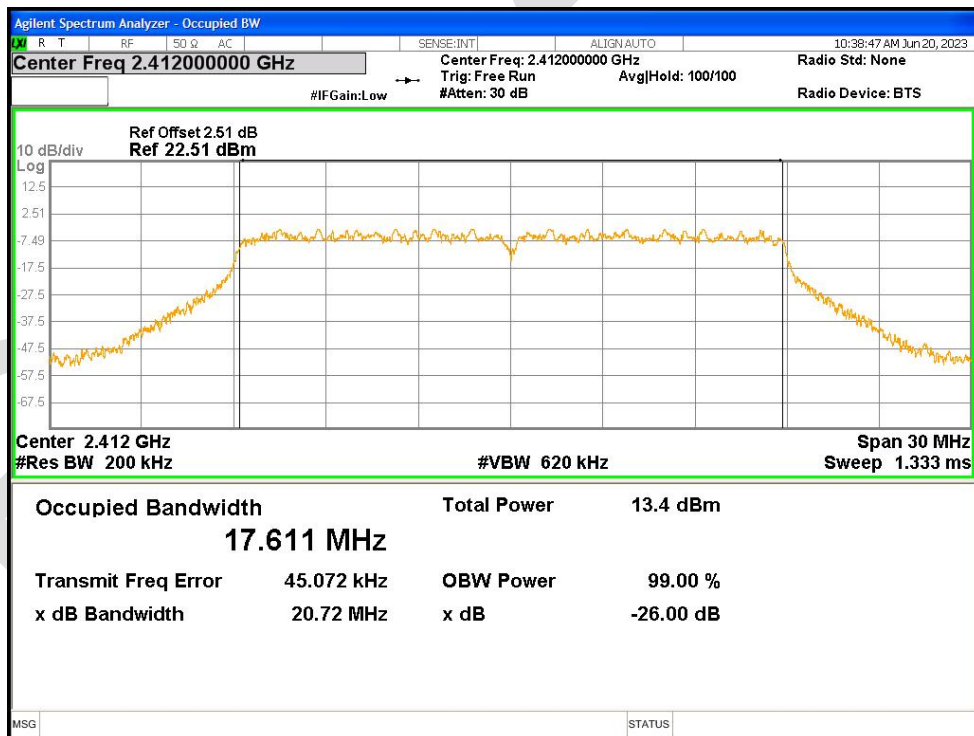
OBW NVNT g 2437MHz Ant1



OBW NVNT g 2462MHz Ant1



OBW NVNT n20 2412MHz Ant1



OBW NVNT n20 2437MHz Ant1