

## 18 CONDUCTED EMISSIONS AT AC POWER LINE (150KHZ-30MHZ)

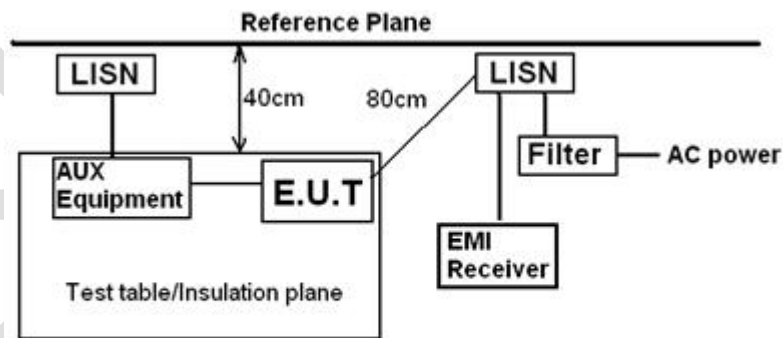
Test Standard	47 CFR Part 15, Subpart C 15.247
Test Method	ANSI C63.10 (2013) Section 6.2
Test Mode (Pre-Scan)	TX
Test Mode (Final Test)	TX
Tester	Jozu
Temperature	25°C
Humidity	60%

### 18.1 LIMITS

Frequency of emission(MHz)	Conducted limit(dB $\mu$ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

### 18.2 BLOCK DIAGRAM OF TEST SETUP



Remark:  
 E.U.T: Equipment Under Test  
 LISN: Line Impedance Stabilization Network  
 Test table height=0.8m

### 18.3 PROCEDURE

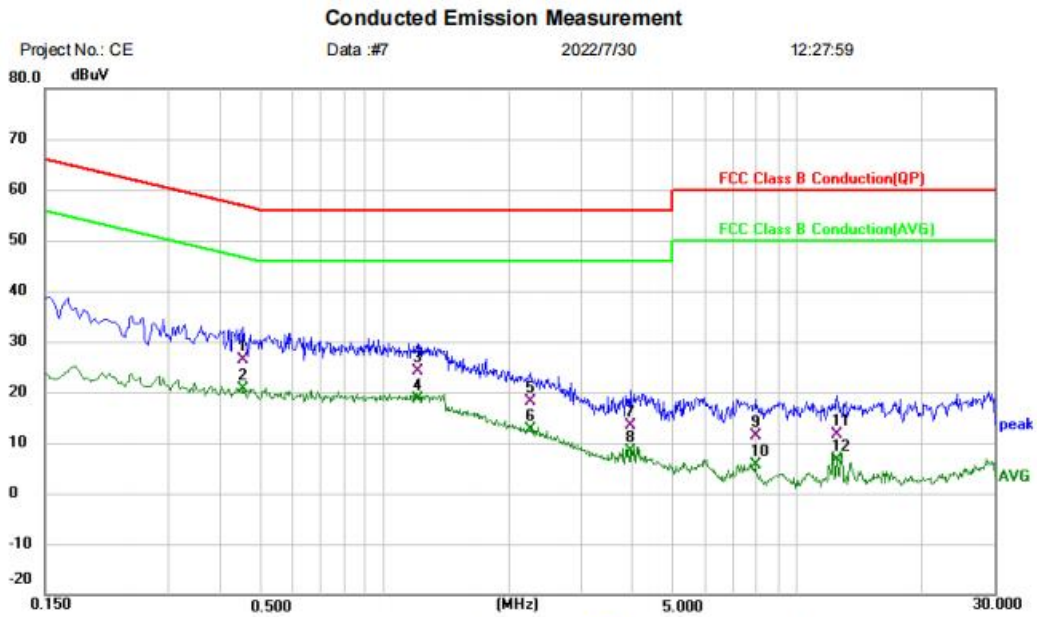
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50H + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
  - 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
  - 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
- Remark: LISN=Read Level+ Cable Loss+ LISN Factor

BlueAsia

### 18.4 TEST DATA

[TestMode: TX]; [Line: Nutral] ;[Power:AC120V/60Hz]



Site      Phase: **N**      Temperature: (C)  
 Limit: FCC Class B Conduction(QP)      Power:      Humidity: %RH  
 EUT: Smart Bulb  
 M/N: HT-US-T1A199.5W950-RGBCW2E-V2  
 Mode: 2.4Gwifi mode  
 Note:

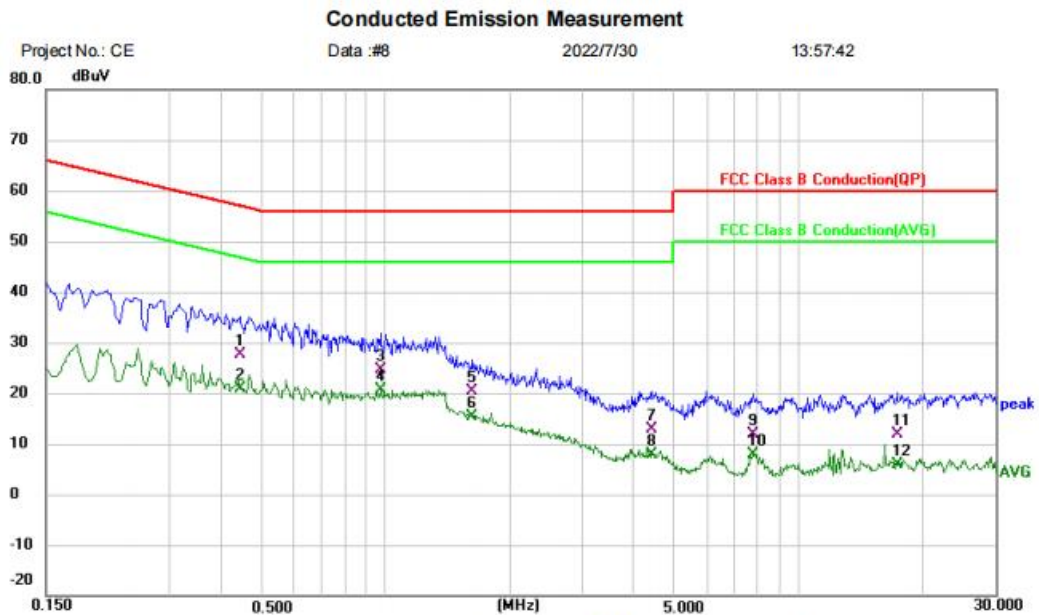
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.4540	16.61	9.79	26.40	56.80	-30.40	QP	
2	*	0.4540	10.77	9.79	20.56	46.80	-26.24	AVG	
3		1.1980	14.21	9.84	24.05	56.00	-31.95	QP	
4		1.1980	8.81	9.84	18.65	46.00	-27.35	AVG	
5		2.2540	8.20	9.87	18.07	56.00	-37.93	QP	
6		2.2540	2.70	9.87	12.57	46.00	-33.43	AVG	
7		3.9300	3.57	9.91	13.48	56.00	-42.52	QP	
8		3.9300	-1.63	9.91	8.28	46.00	-37.72	AVG	
9		7.9060	1.25	10.06	11.31	60.00	-48.69	QP	
10		7.9060	-4.36	10.06	5.70	50.00	-44.30	AVG	
11		12.5060	1.27	10.24	11.51	60.00	-48.49	QP	
12		12.5060	-3.60	10.24	6.64	50.00	-43.36	AVG	

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

(Reference Only)

**Test Result: Pass**

[TestMode: TX]; [Line: Line] ;[Power:AC120V/60Hz]



Site      Phase: **L1**      Temperature: (C)

Limit: FCC Class B Conduction(QP)      Power:      Humidity: %RH

EUT: Smart Bulb

M/N: HT-US-T1A199.5W950-RGBCW2E-V2

Mode: 2.4Gwifi mode

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.4420	17.83	9.85	27.68	57.02	-29.34	QP	
2		0.4420	10.96	9.85	20.81	47.02	-26.21	AVG	
3		0.9700	14.75	9.92	24.67	56.00	-31.33	QP	
4	*	0.9700	10.70	9.92	20.62	46.00	-25.38	AVG	
5		1.6260	10.34	9.93	20.27	56.00	-35.73	QP	
6		1.6260	5.51	9.93	15.44	46.00	-30.56	AVG	
7		4.4140	2.87	9.93	12.80	56.00	-43.20	QP	
8		4.4140	-1.94	9.93	7.99	46.00	-38.01	AVG	
9		7.7620	1.81	10.10	11.91	60.00	-48.09	QP	
10		7.7620	-2.32	10.10	7.78	50.00	-42.22	AVG	
11		17.3700	1.45	10.39	11.84	60.00	-48.16	QP	
12		17.3700	-4.56	10.39	5.83	50.00	-44.17	AVG	

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

(Reference Only)

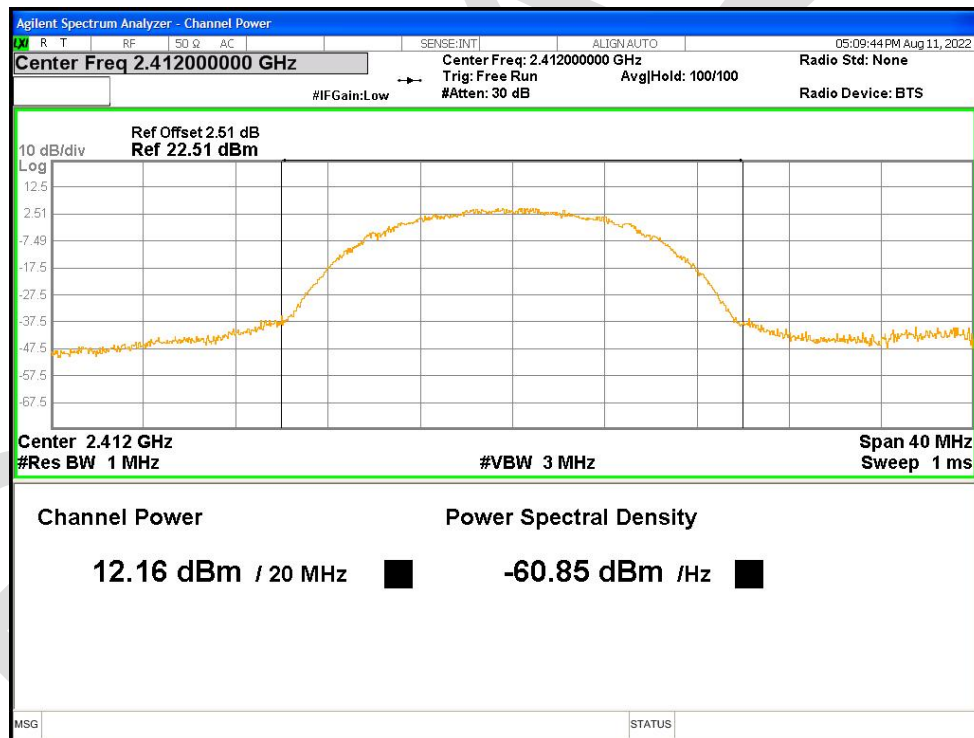
**Test Result: Pass**

## 19 APPENDIX

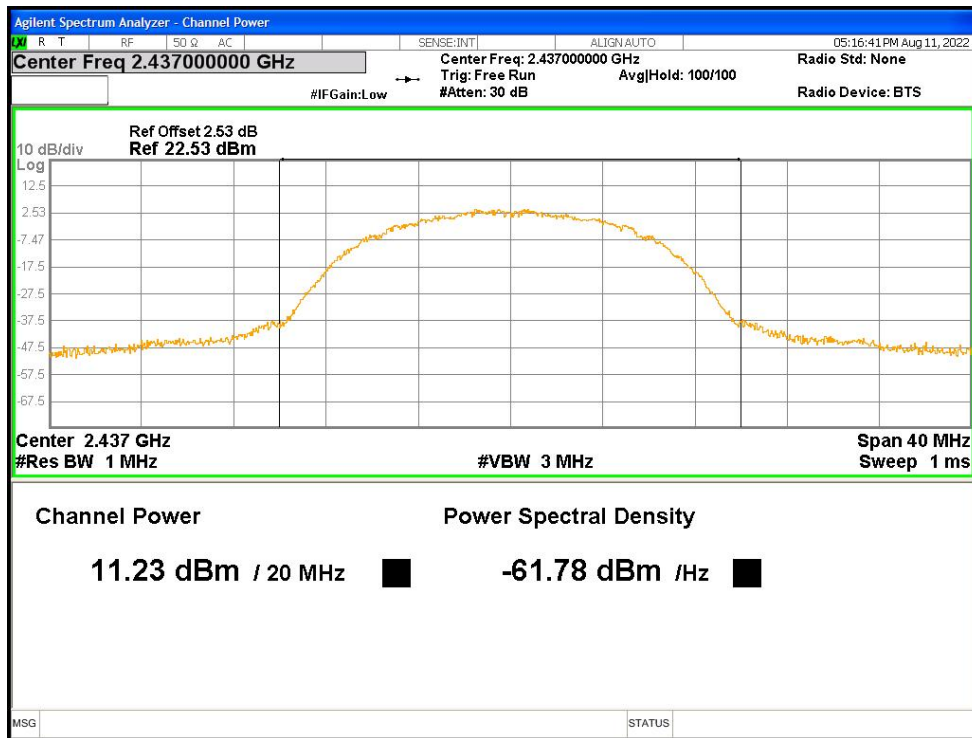
### Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	b	2412	Ant1	12.162	30	Pass
NVNT	b	2437	Ant1	11.23	30	Pass
NVNT	b	2462	Ant1	13.032	30	Pass
NVNT	g	2412	Ant1	11.17	30	Pass
NVNT	g	2437	Ant1	9.895	30	Pass
NVNT	g	2462	Ant1	12.01	30	Pass
NVNT	n20	2412	Ant1	10.361	30	Pass
NVNT	n20	2437	Ant1	8.878	30	Pass
NVNT	n20	2462	Ant1	10.868	30	Pass
NVNT	n40	2422	Ant1	9.411	30	Pass
NVNT	n40	2437	Ant1	8.232	30	Pass
NVNT	n40	2452	Ant1	8.931	30	Pass

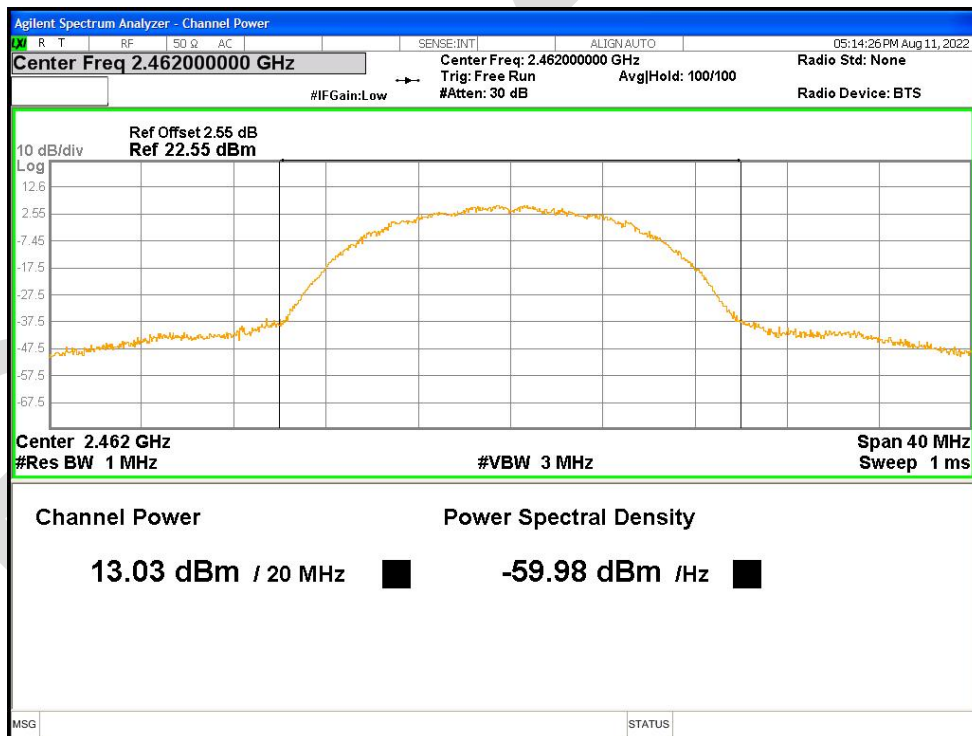
Power NVNT b 2412MHz Ant1



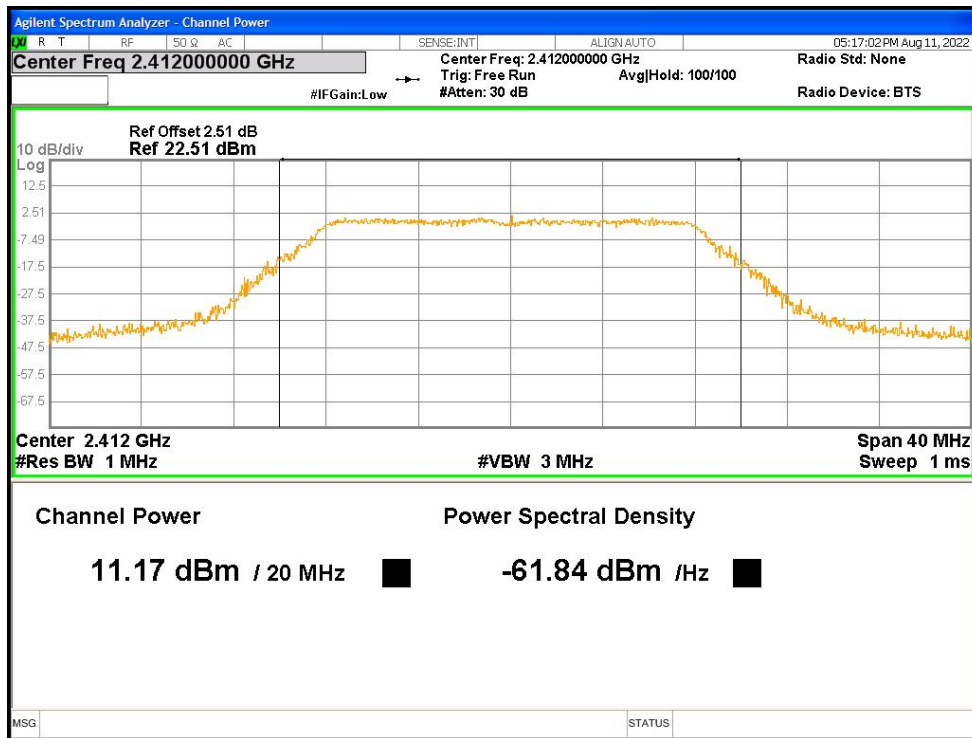
Power NVNT b 2437MHz Ant1



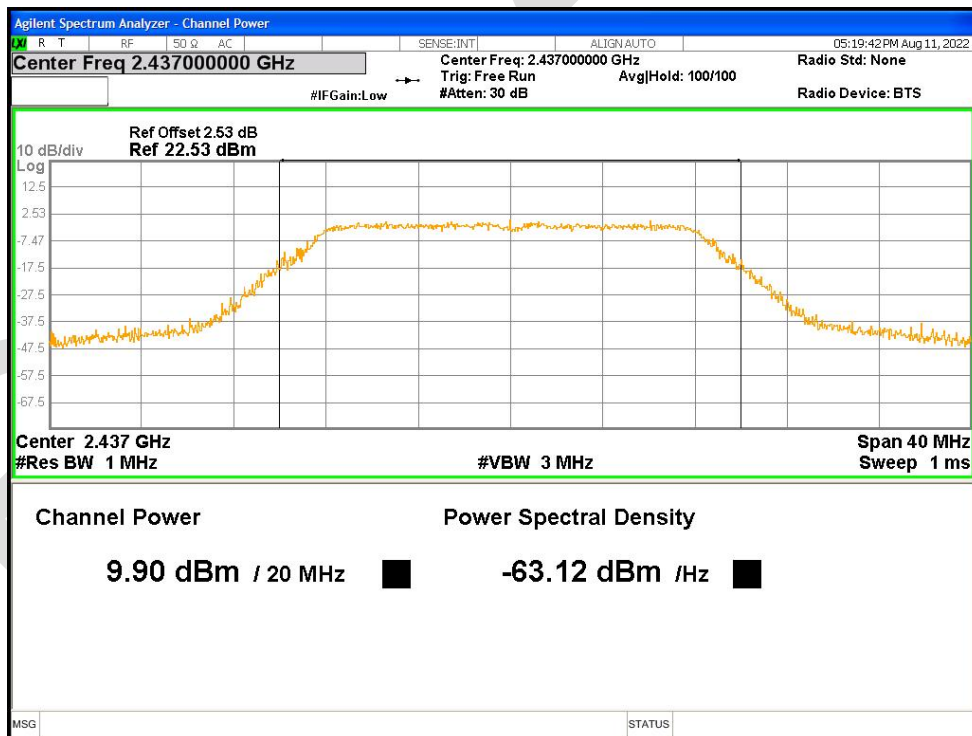
Power NVNT b 2462MHz Ant1



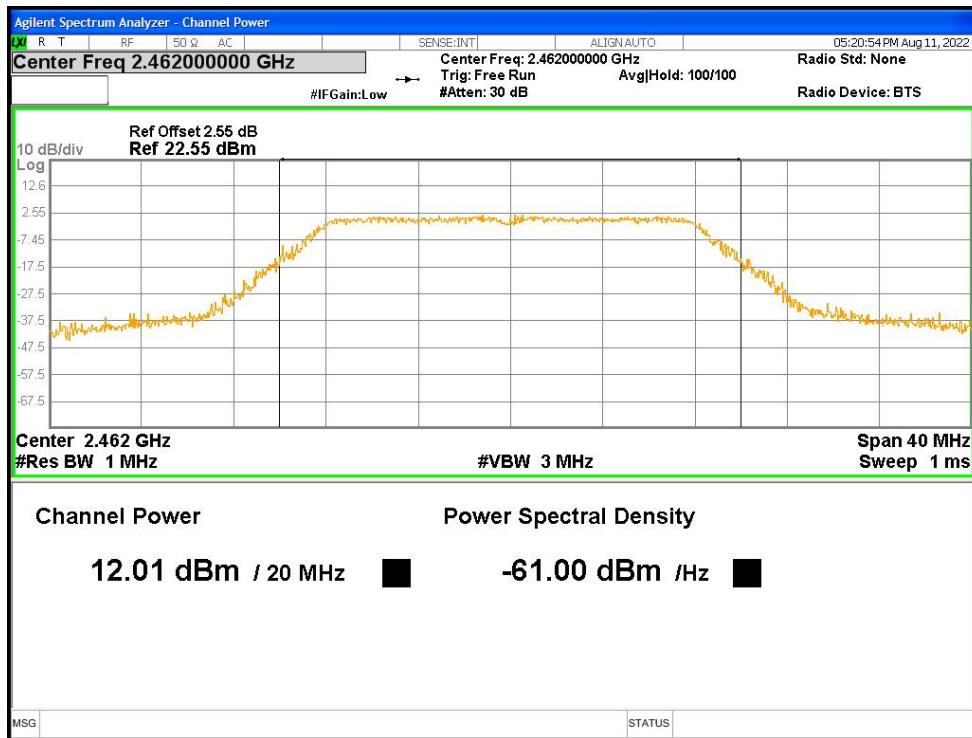
Power NVNT g 2412MHz Ant1



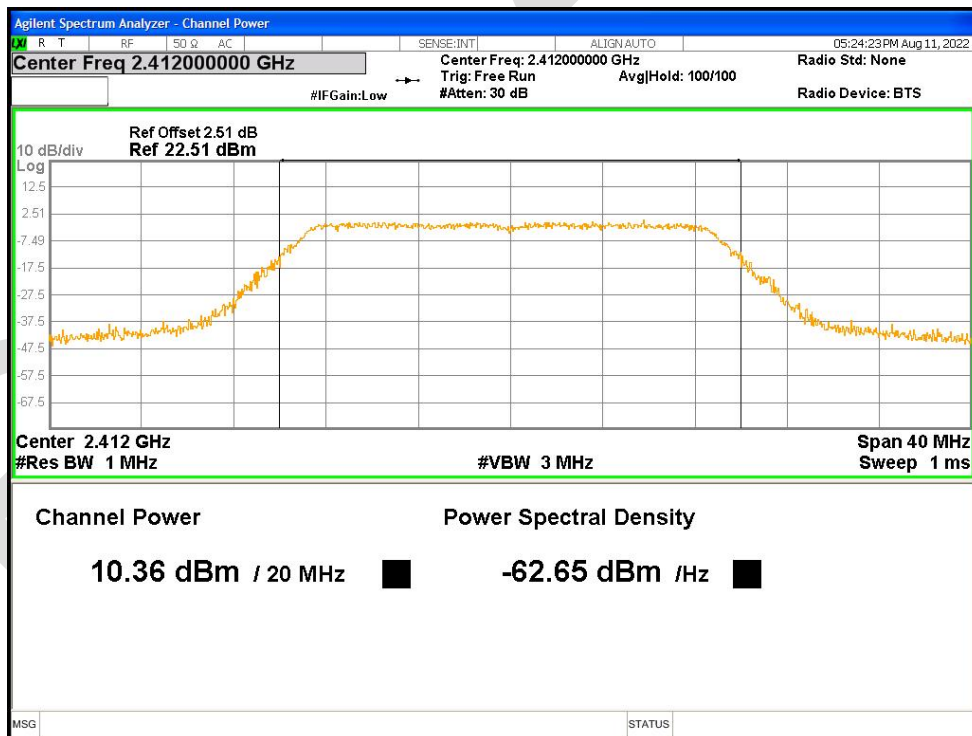
Power NVNT g 2437MHz Ant1



Power NVNT g 2462MHz Ant1

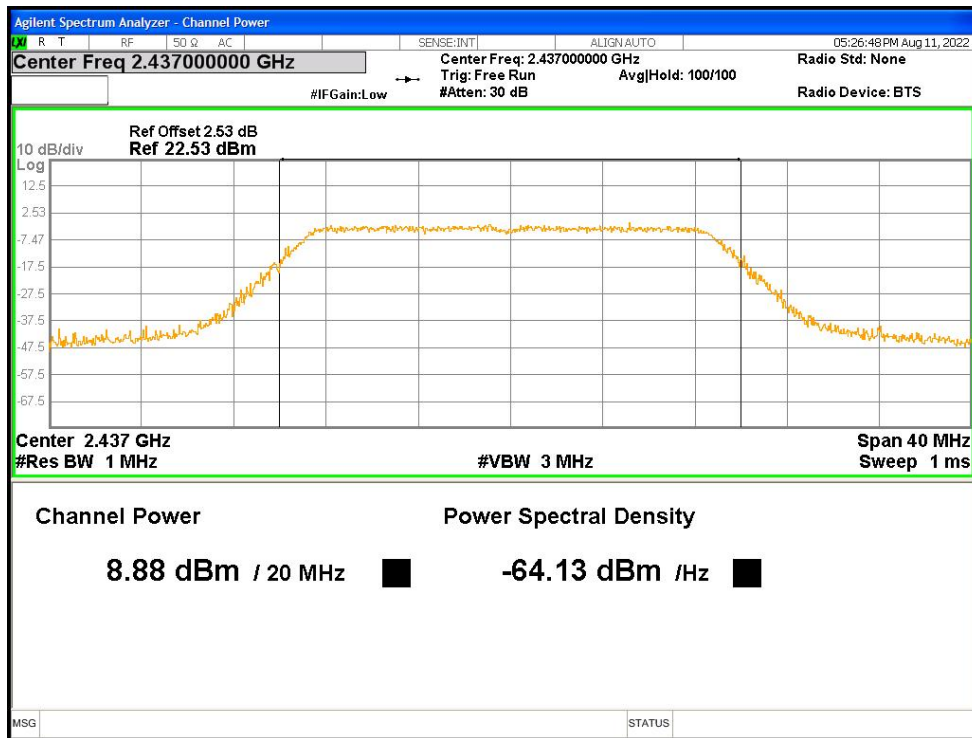


Power NVNT n20 2412MHz Ant1

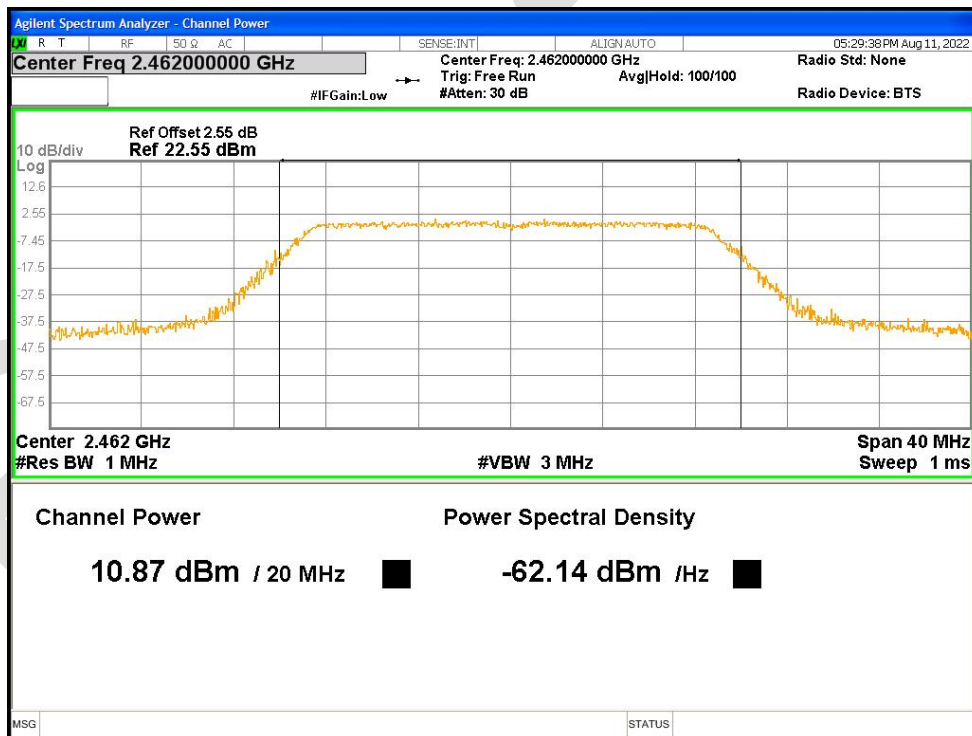


Power NVNT n20 2437MHz Ant1

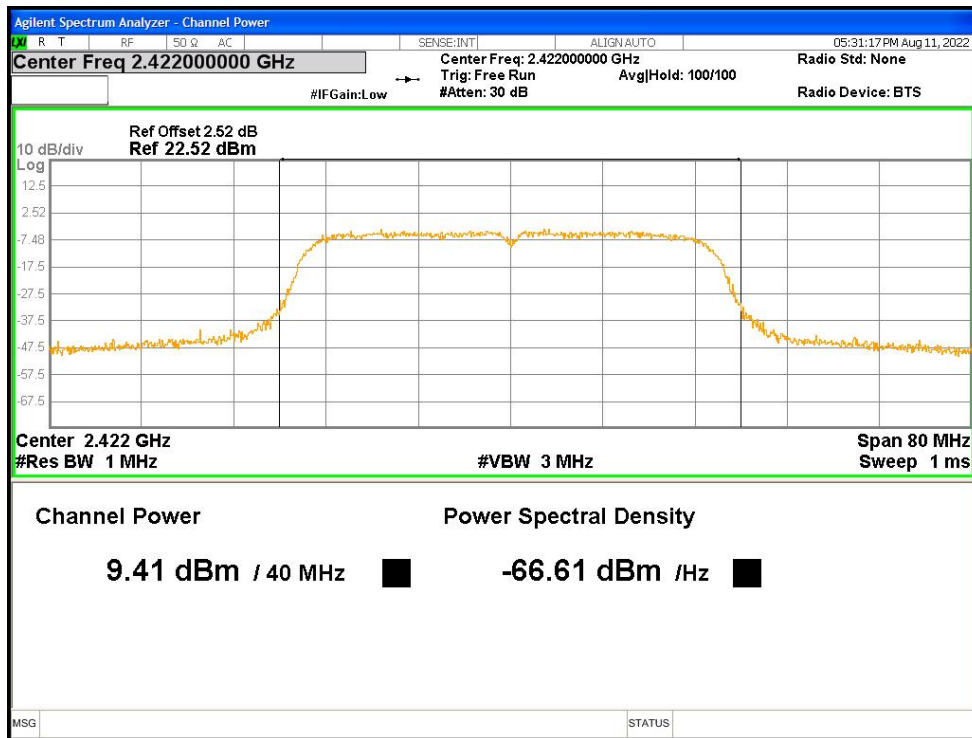




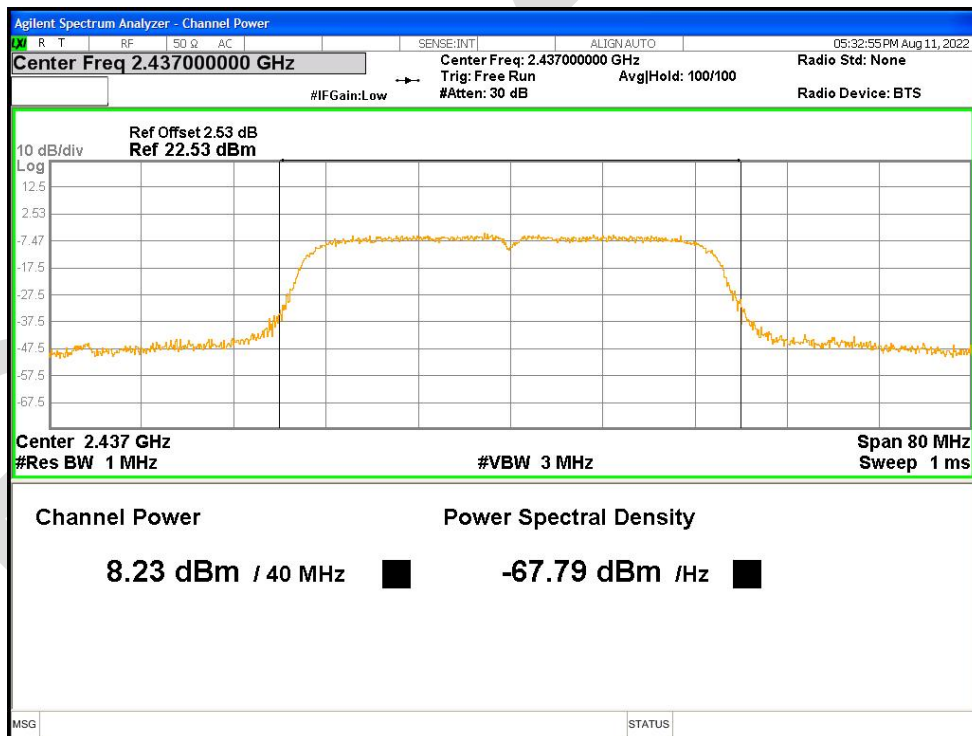
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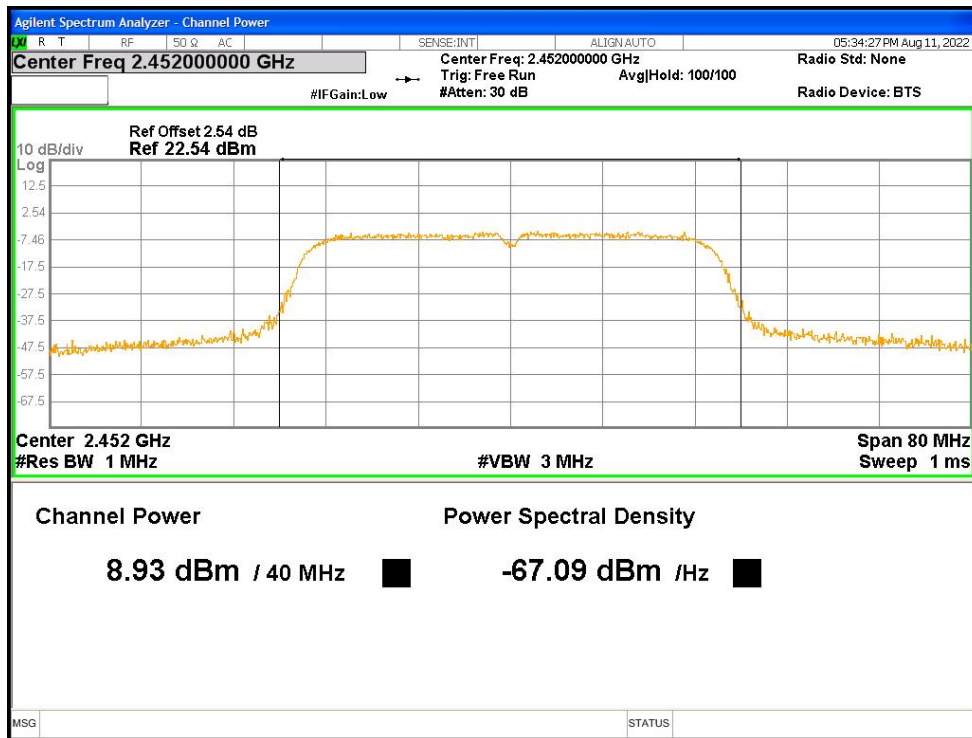
Power NVNT n40 2422MHz Ant1



Power NVNT n40 2437MHz Ant1



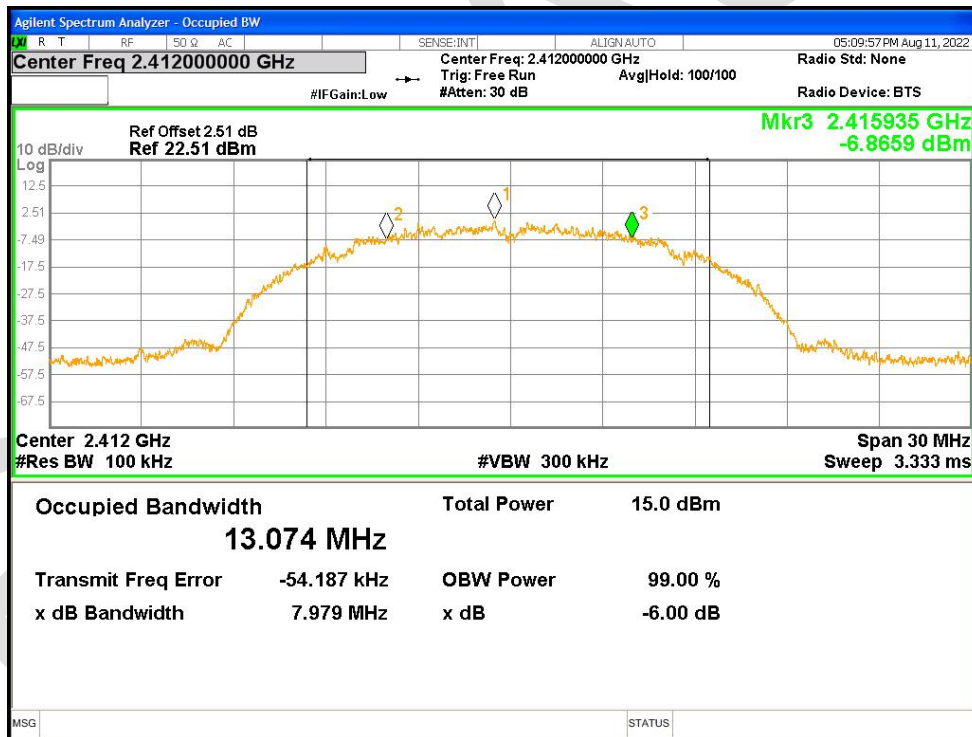
Power NVNT n40 2452MHz Ant1



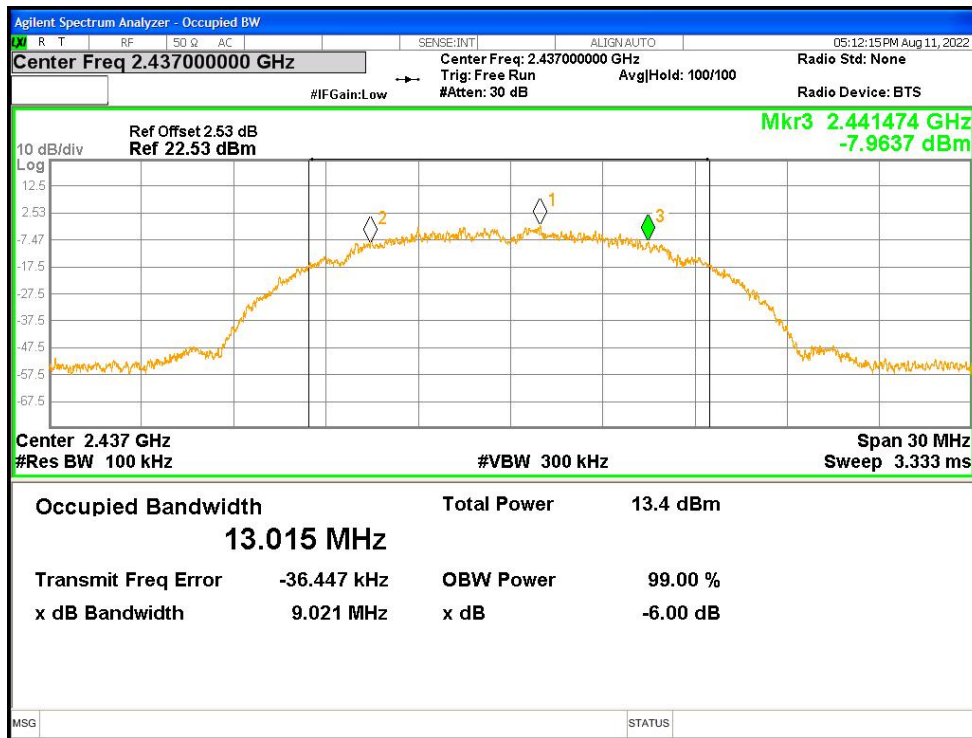
**-6dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	b	2412	Ant1	7.979	0.5	Pass
NVNT	b	2437	Ant1	9.021	0.5	Pass
NVNT	b	2462	Ant1	9.8	0.5	Pass
NVNT	g	2412	Ant1	16.399	0.5	Pass
NVNT	g	2437	Ant1	16.459	0.5	Pass
NVNT	g	2462	Ant1	16.327	0.5	Pass
NVNT	n20	2412	Ant1	17.579	0.5	Pass
NVNT	n20	2437	Ant1	17.627	0.5	Pass
NVNT	n20	2462	Ant1	17.619	0.5	Pass
NVNT	n40	2422	Ant1	32.221	0.5	Pass
NVNT	n40	2437	Ant1	32.51	0.5	Pass
NVNT	n40	2452	Ant1	32.797	0.5	Pass

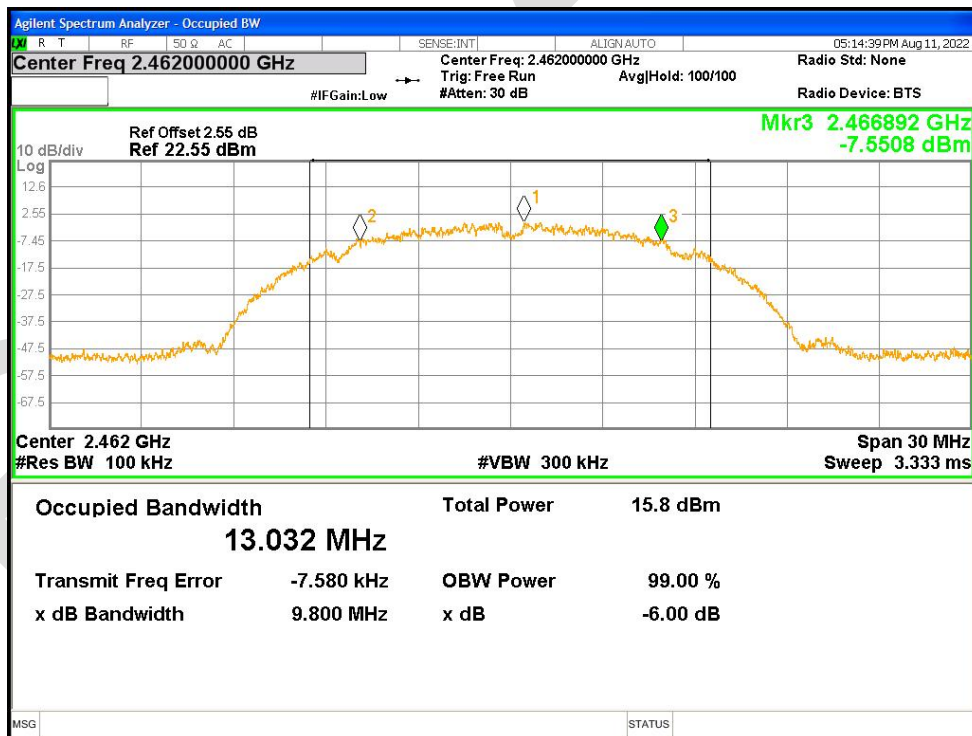
-6dB Bandwidth NVNT b 2412MHz Ant1



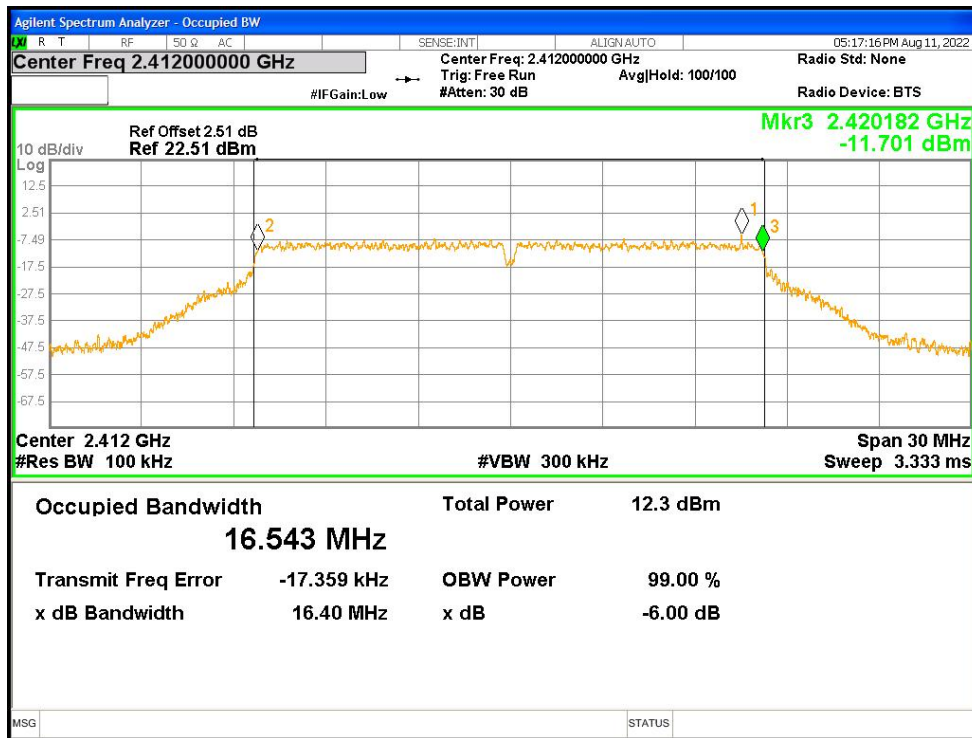
-6dB Bandwidth NVNT b 2437MHz Ant1



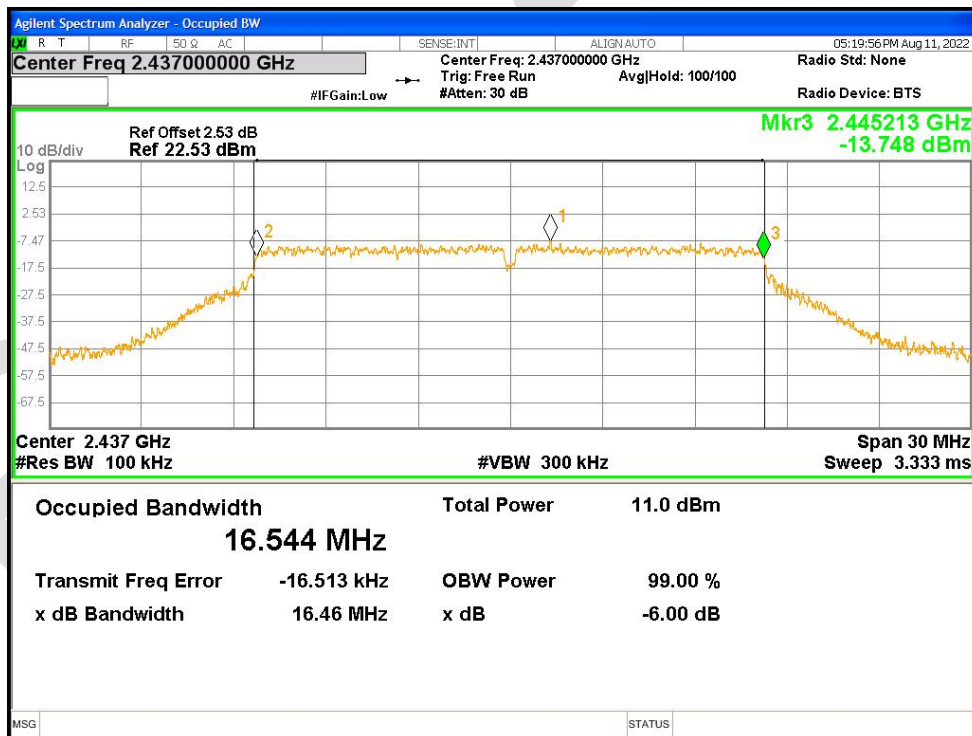
-6dB Bandwidth NVNT b 2462MHz Ant1



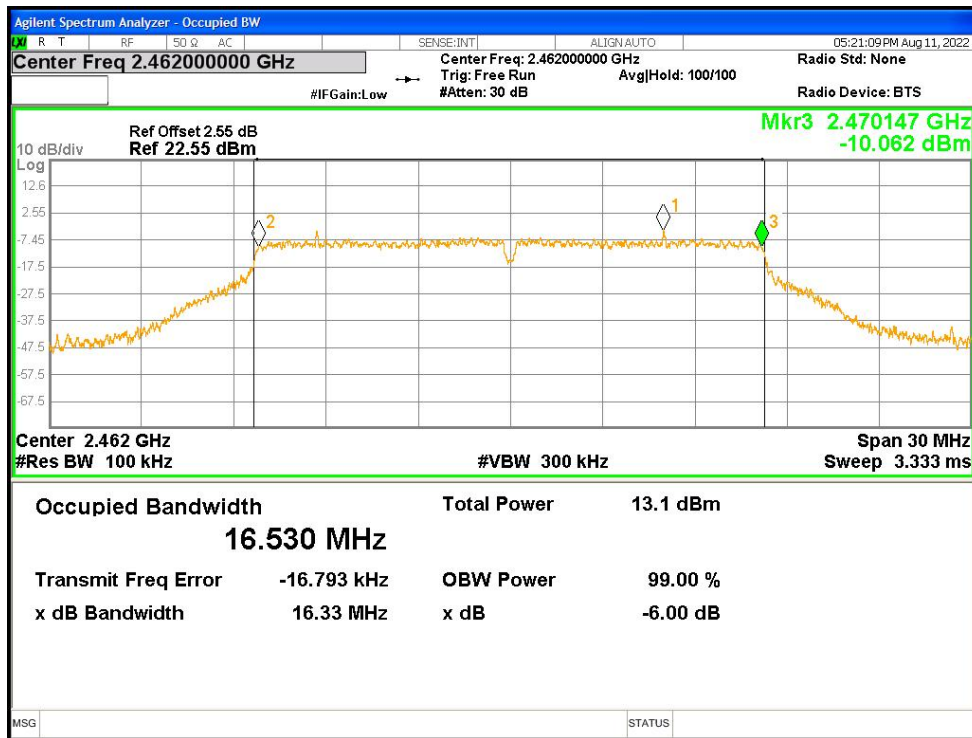
-6dB Bandwidth NVNT g 2412MHz Ant1



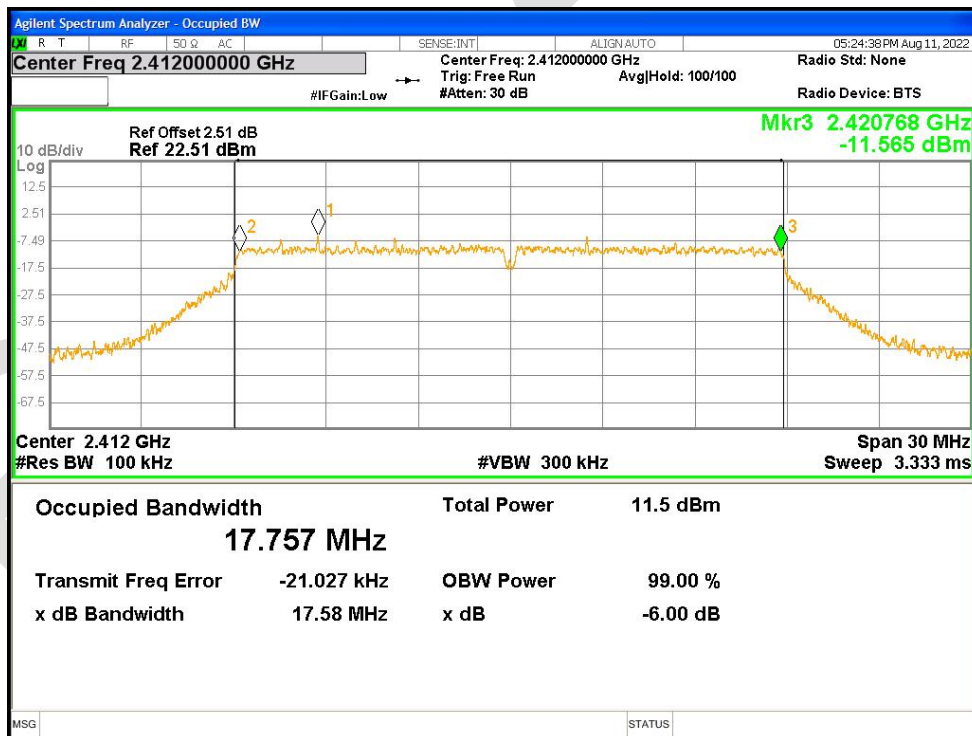
-6dB Bandwidth NVNT g 2437MHz Ant1



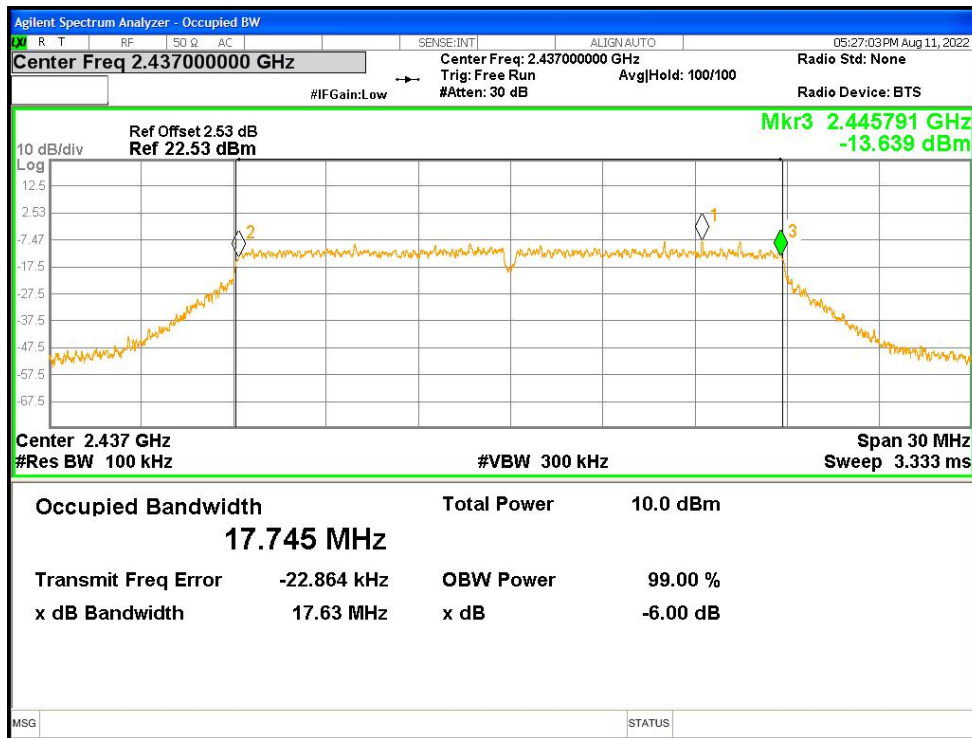
-6dB Bandwidth NVNT g 2462MHz Ant1



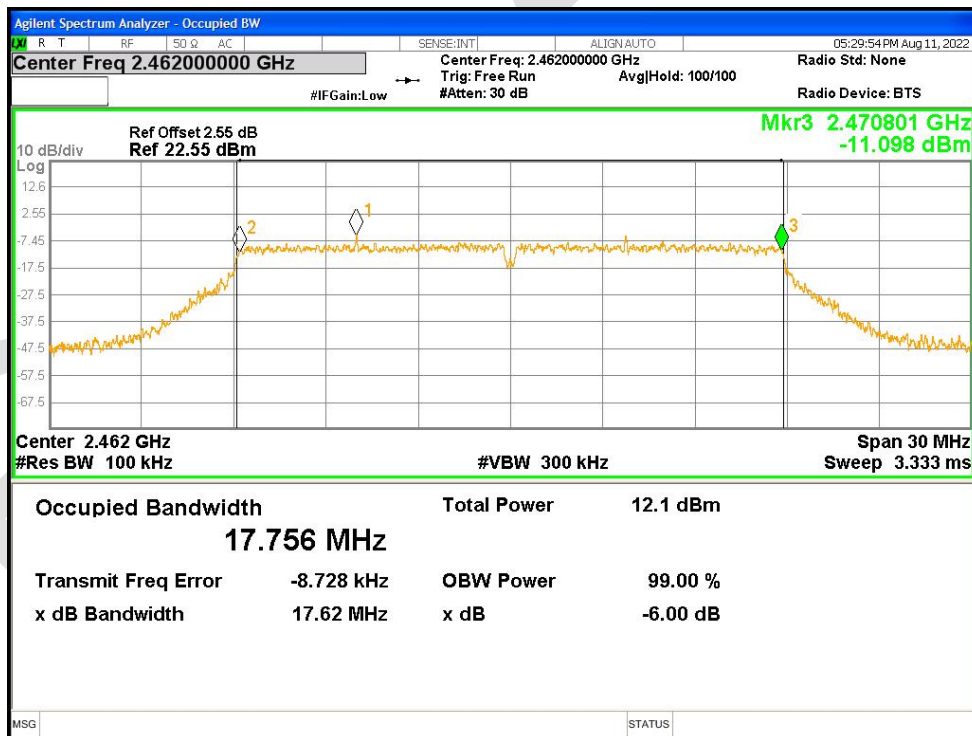
-6dB Bandwidth NVNT n20 2412MHz Ant1



-6dB Bandwidth NVNT n20 2437MHz Ant1

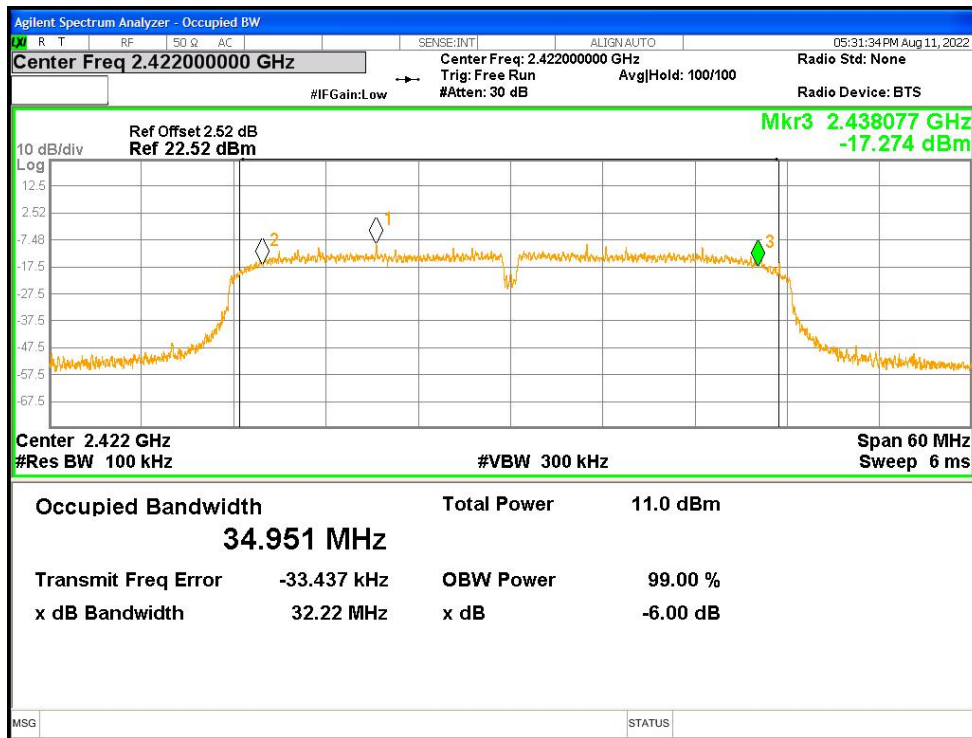


-6dB Bandwidth NVNT n20 2462MHz Ant1

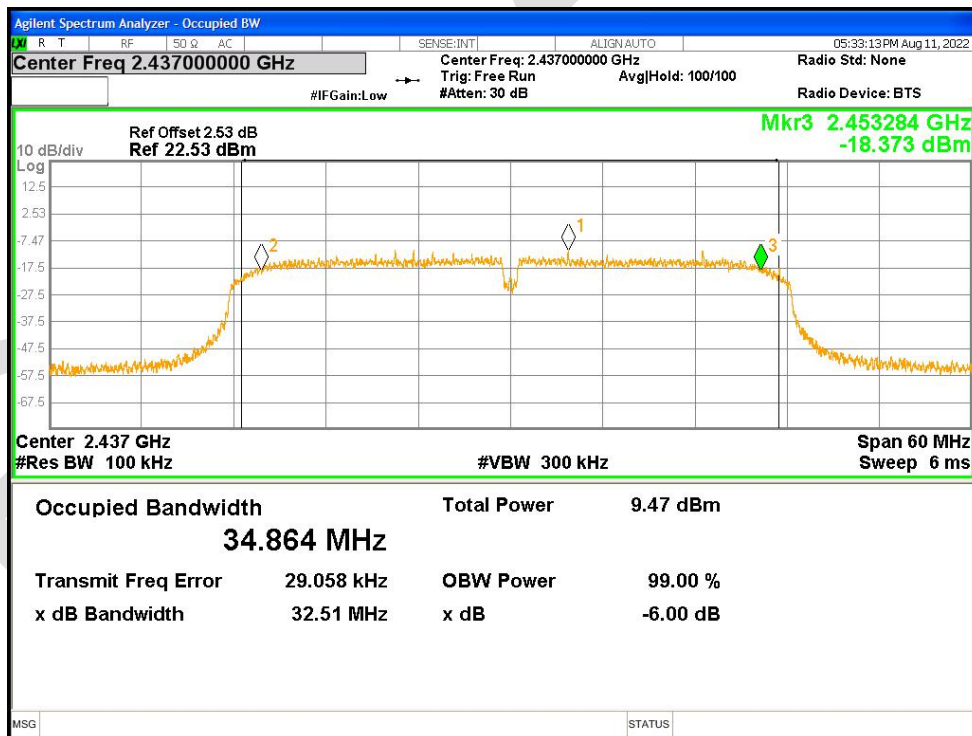


-6dB Bandwidth NVNT n40 2422MHz Ant1

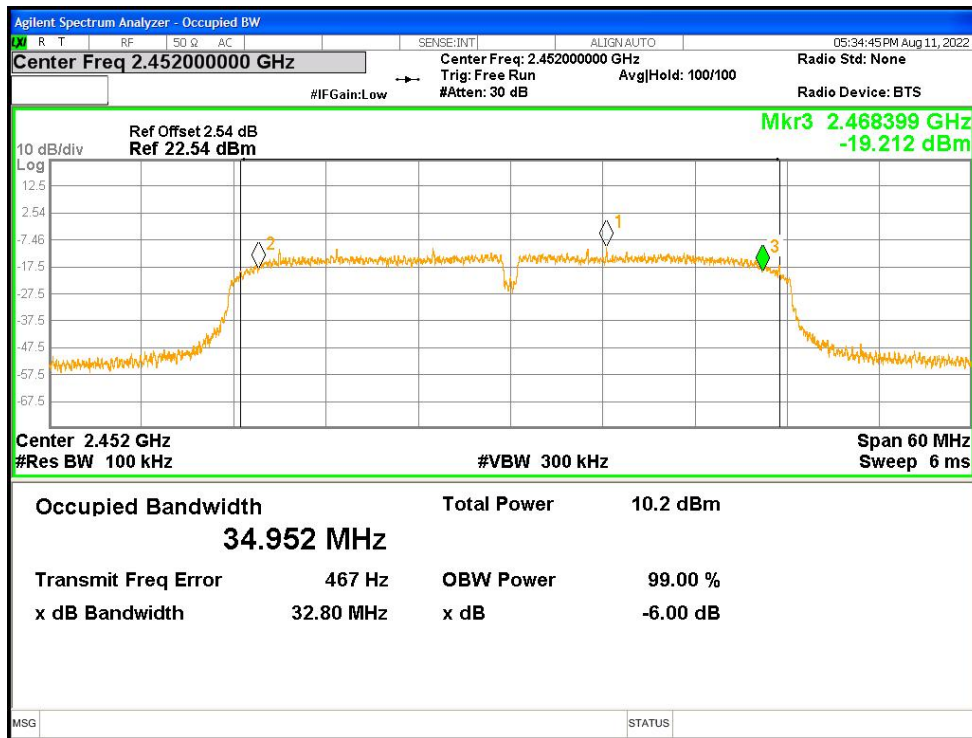




-6dB Bandwidth NVNT n40 2437MHz Ant1



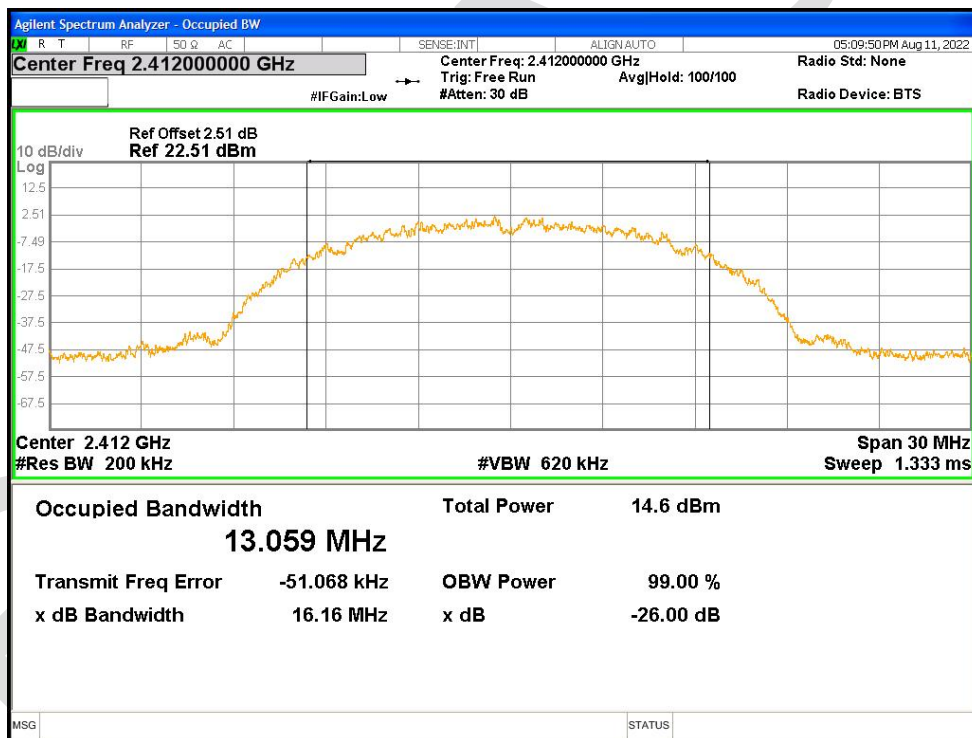
-6dB Bandwidth NVNT n40 2452MHz Ant1



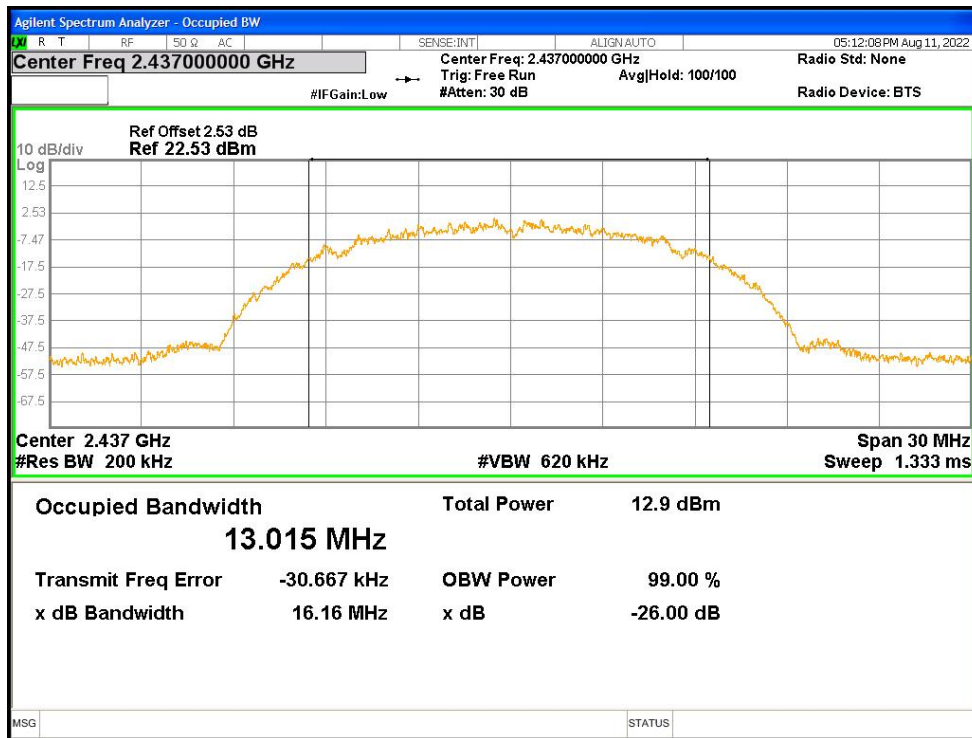
**Occupied Channel Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	b	2412	Ant1	13.05852148
NVNT	b	2437	Ant1	13.01517815
NVNT	b	2462	Ant1	13.04366277
NVNT	g	2412	Ant1	16.77853805
NVNT	g	2437	Ant1	16.72603364
NVNT	g	2462	Ant1	16.7209149
NVNT	n20	2412	Ant1	17.87524837
NVNT	n20	2437	Ant1	17.90152604
NVNT	n20	2462	Ant1	17.94091977
NVNT	n40	2422	Ant1	34.91015557
NVNT	n40	2437	Ant1	34.93574459
NVNT	n40	2452	Ant1	34.98126071

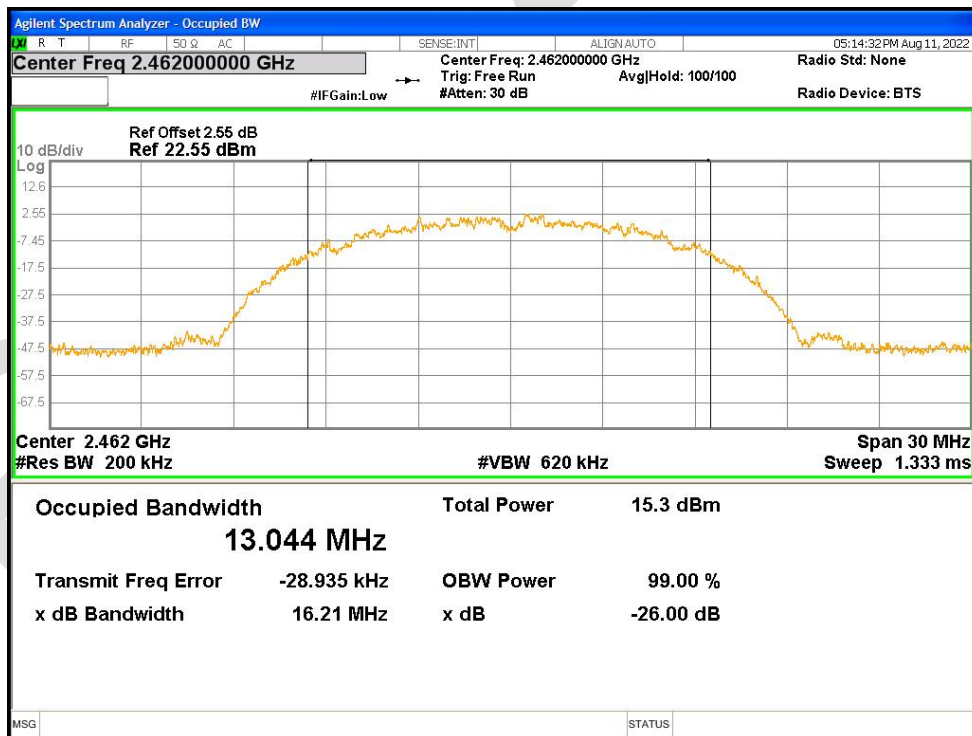
OBW NVNT b 2412MHz Ant1



OBW NVNT b 2437MHz Ant1



OBW NVNT b 2462MHz Ant1



OBW NVNT g 2412MHz Ant1