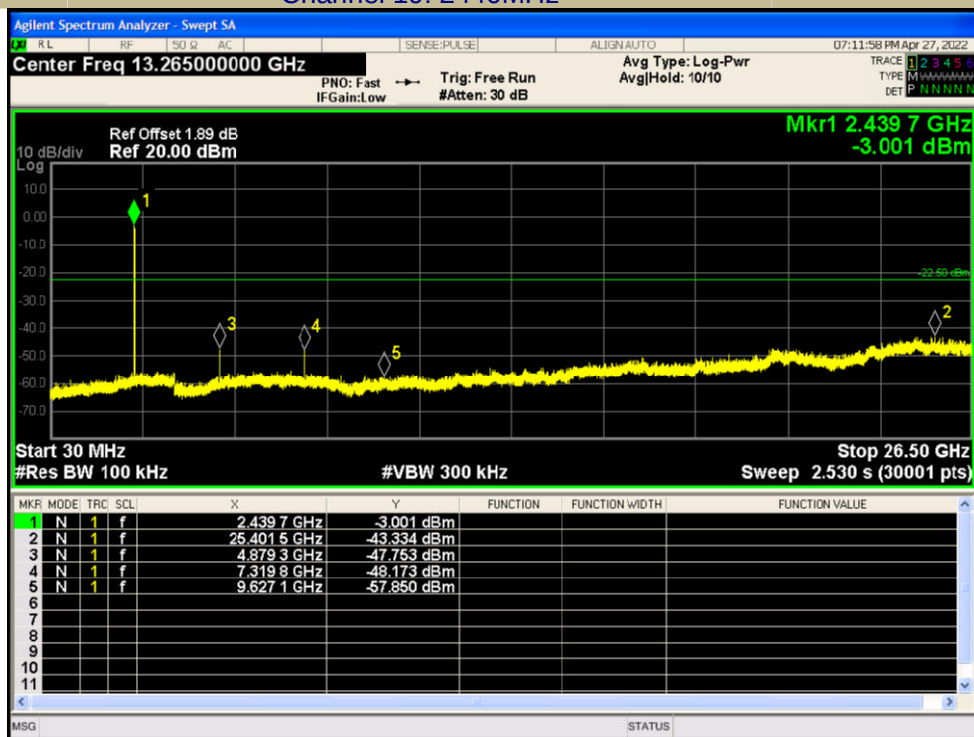


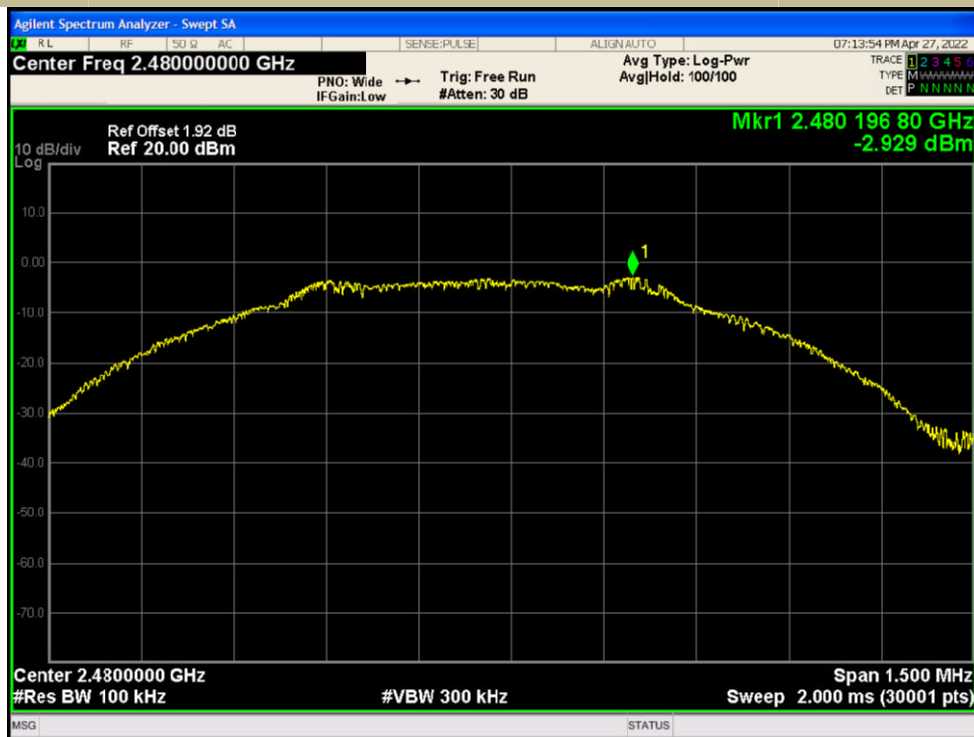
Test Model

Unwanted Emissions In Non-Restricted Frequency Bands
 Bluetooth V5.0 DTS (1Mbps)
 Channel 19: 2440MHz

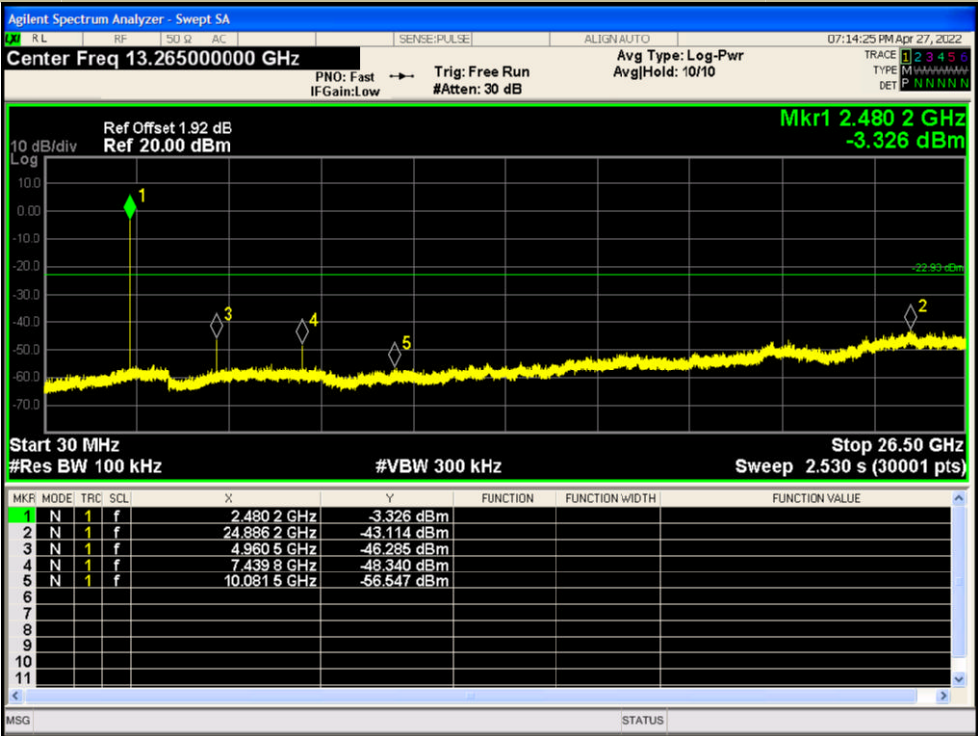


Test Model

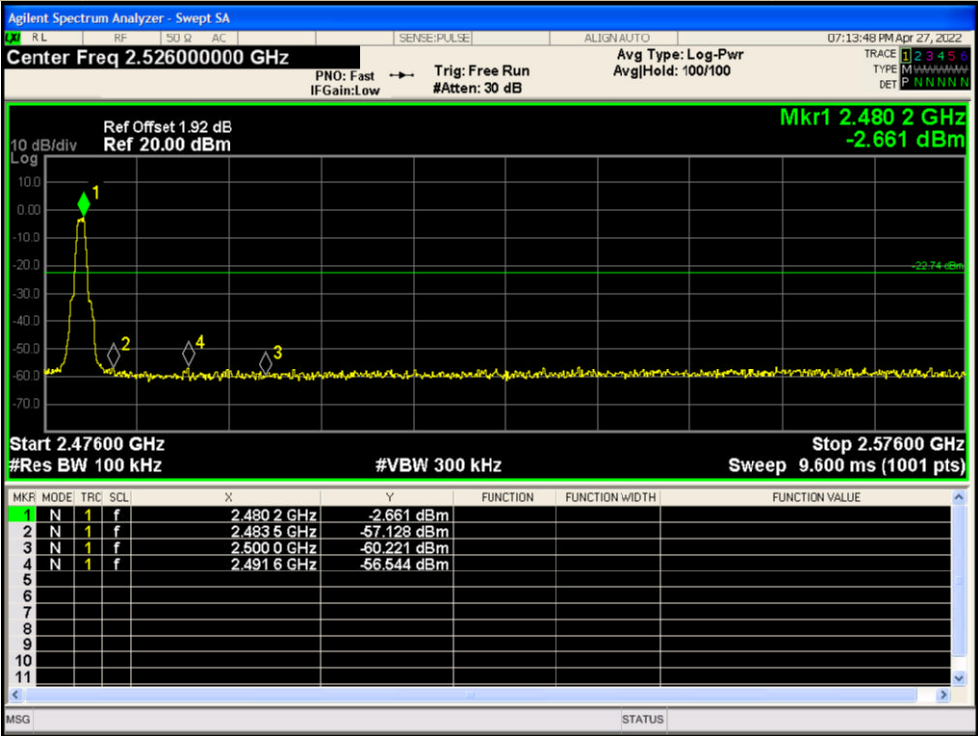
PSD(Power Spectral Density) RBW=100kHz
 Bluetooth V5.0 DTS (1Mbps)
 Channel 19: 2480MHz



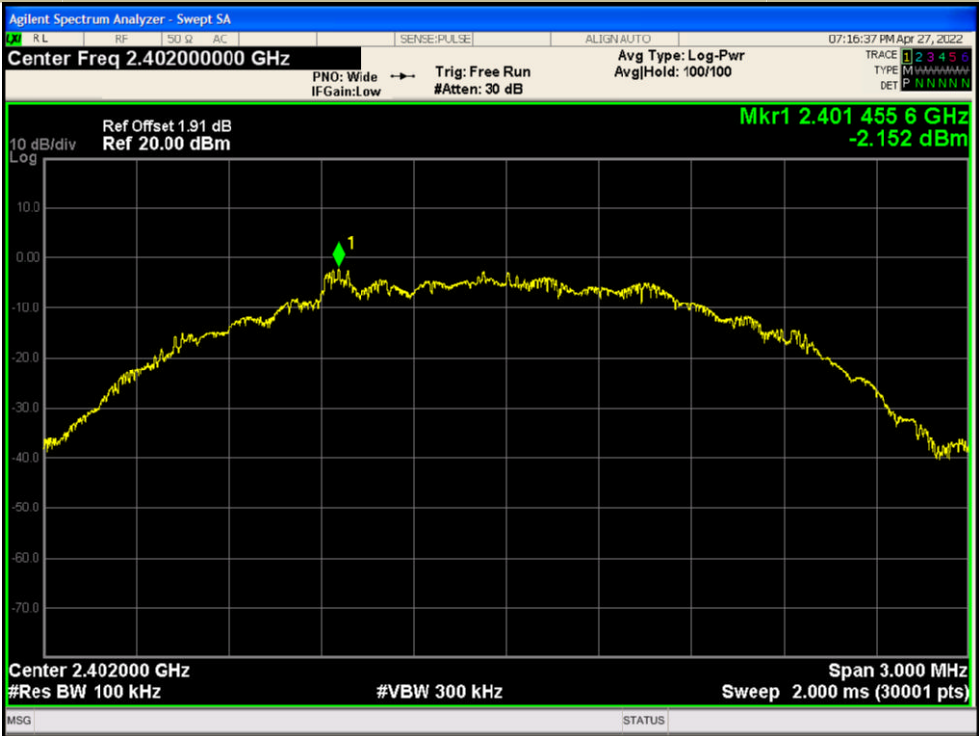
Test Model	Unwanted Emissions In Non-Restricted Frequency Bands
	Bluetooth V5.0 DTS (1Mbps)
Channel 39: 2480MHz	



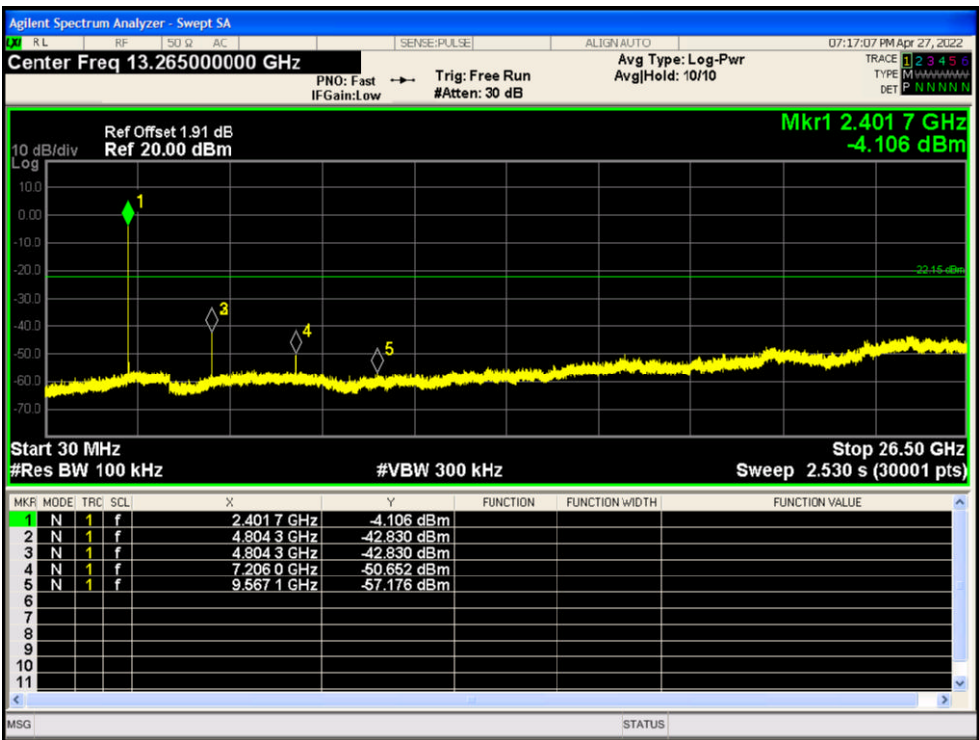
Test Model	Band edge
	Bluetooth V5.0 DTS (1Mbps)
Channel 39: 2480MHz	



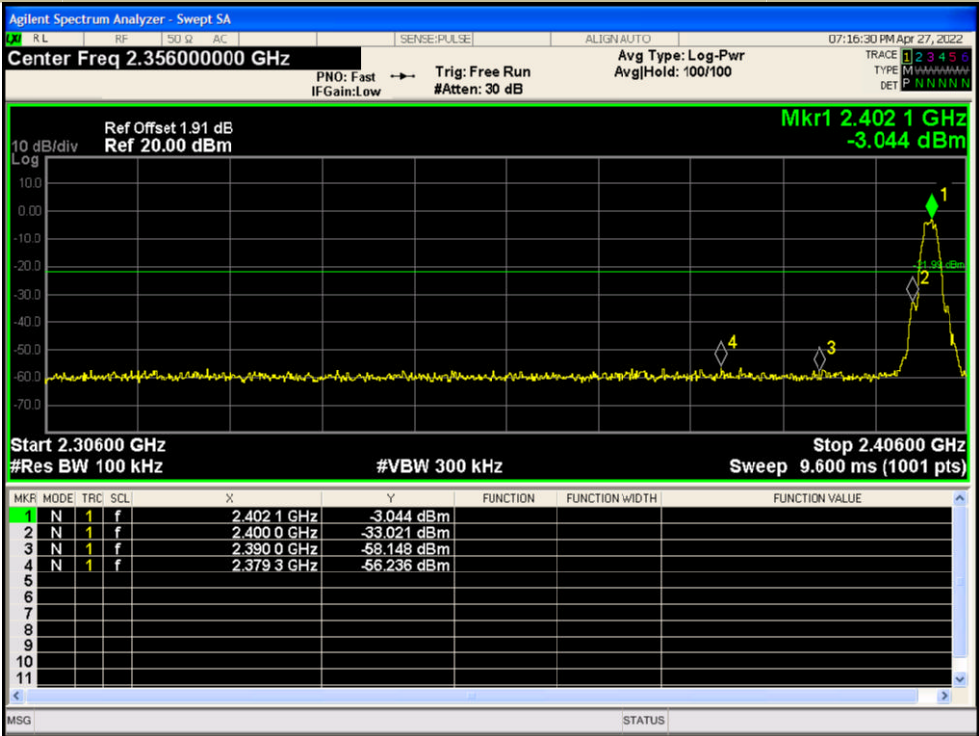
Test Model	PSD(Power Spectral Density) RBW=100kHz
	Bluetooth V5.0 DTS (2Mbps)
	Channel 0: 2402MHz



Test Model	Unwanted Emissions in non-restricted frequency bands
	Bluetooth V5.0 DTS (2Mbps)
	Channel 0: 2402MHz



Test Model	PSD(Power Spectral Density) RBW=100kHz
	Bluetooth V5.0 DTS (2Mbps)
	Channel 0: 2402MHz

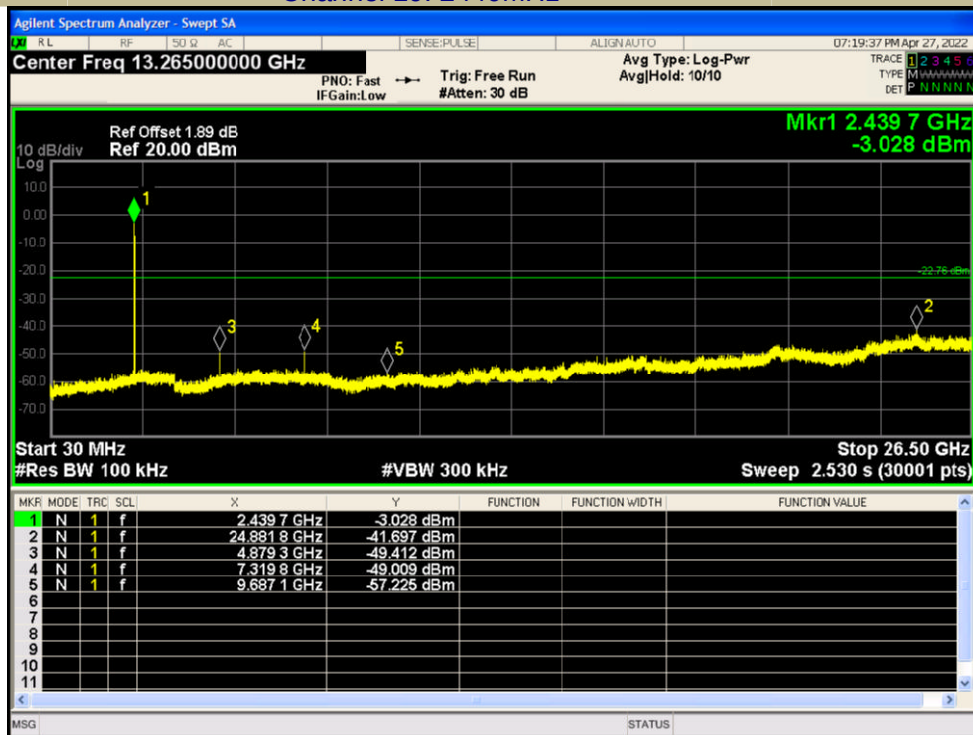


Test Model	Unwanted Emissions in non-restricted frequency bands
	Bluetooth V5.0 DTS (2Mbps)
	Channel 0: 2440MHz



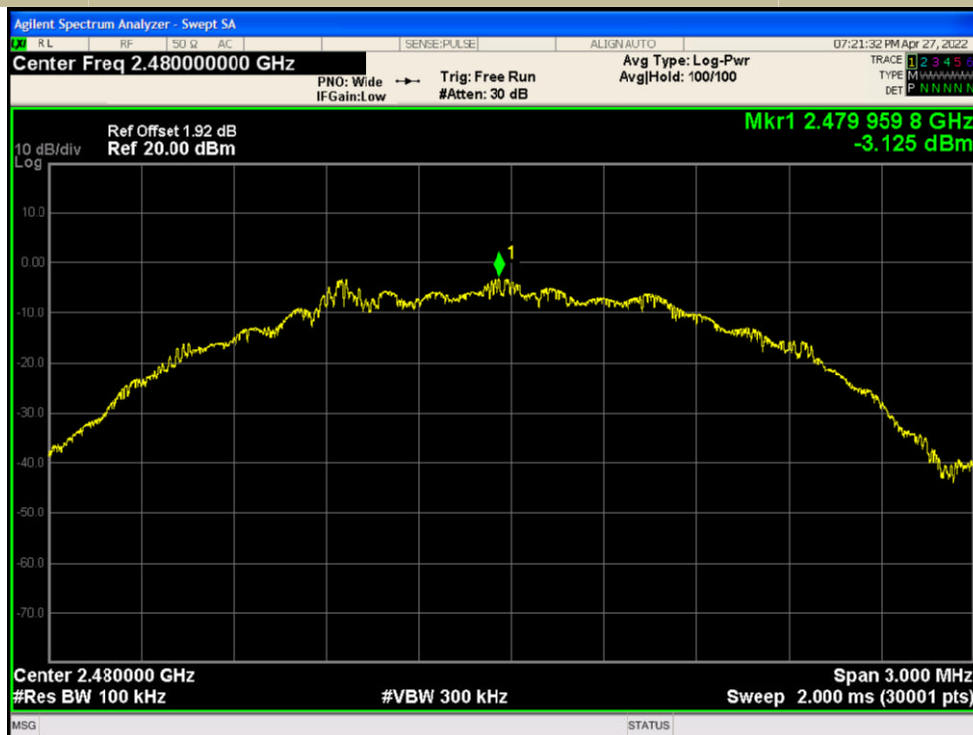
Test Model

Unwanted Emissions In Non-Restricted Frequency Bands
 Bluetooth V5.0 DTS (2Mbps)
 Channel 19: 2440MHz

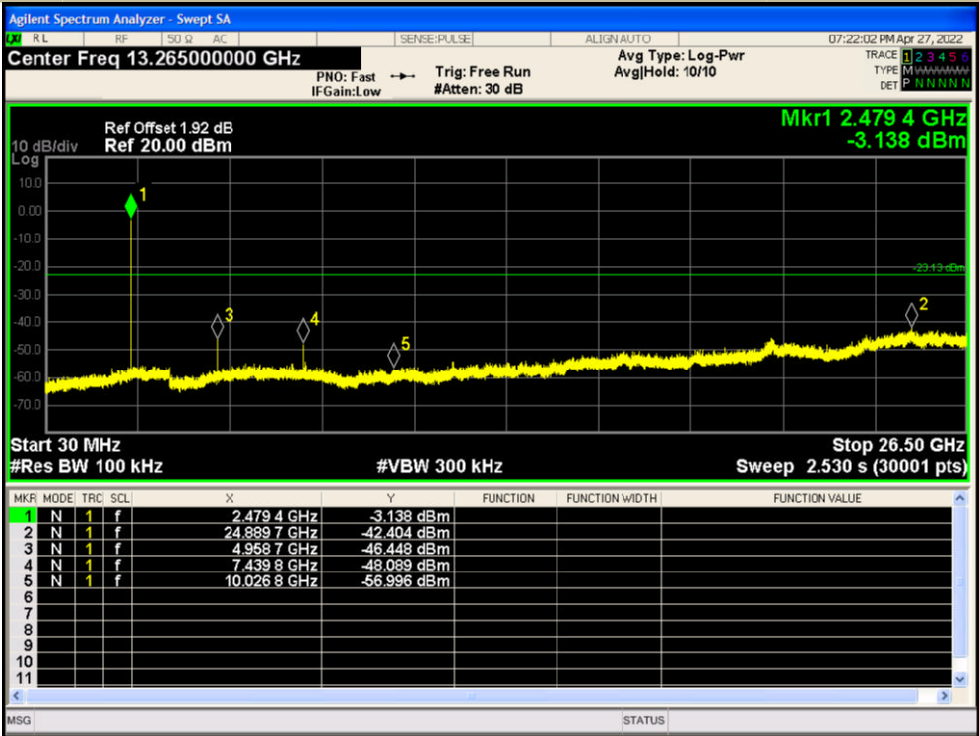


Test Model

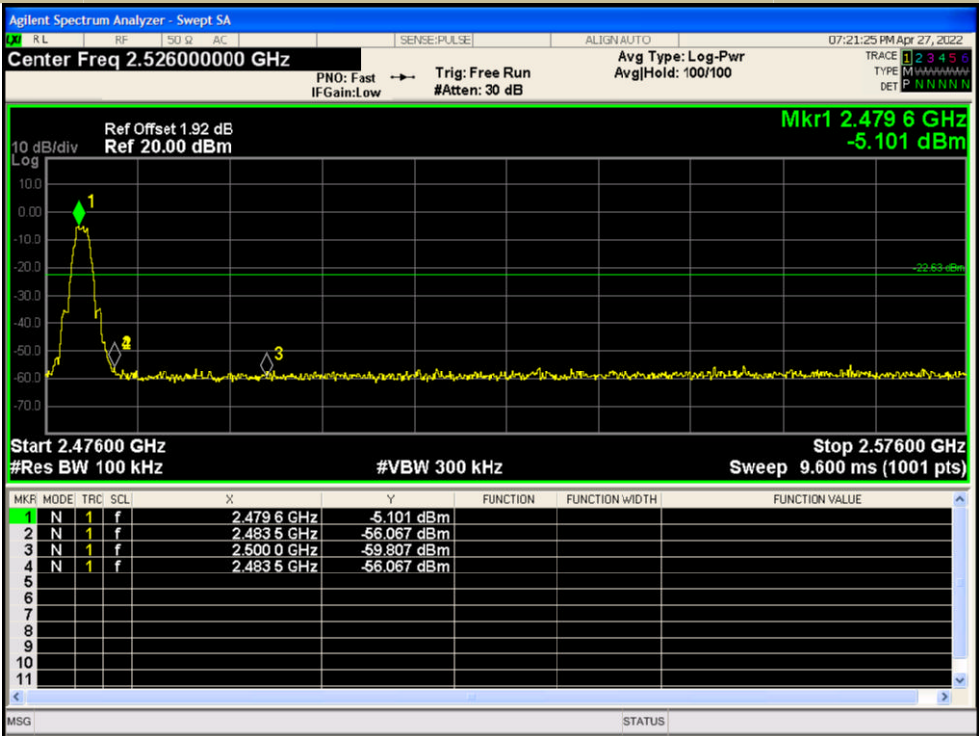
PSD(Power Spectral Density) RBW=100kHz
 Bluetooth V5.0 DTS (2Mbps)
 Channel 19: 2480MHz



Test Model	Unwanted Emissions In Non-Restricted Frequency Bands
	Bluetooth V5.0 DTS (2Mbps)
Channel 39: 2480MHz	



Test Model	Band edge
	Bluetooth V5.0 DTS (2Mbps)
Channel 39: 2480MHz	



7.5 RADIATED SPURIOUS EMISSION

7.5.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and KDB 558074 D01 15.247 Meas Guidance v05r02

7.5.2 Conformance Limit

According to FCC Part 15.247(d): 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)).

According to FCC Part 15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

According to FCC Part 15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300
0.490-1.705	2400/F(KHz)	20 log (uV/m)	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

7.5.3 Test Configuration

Test according to clause 6.2 radio frequency test setup 2

7.5.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

The EUT was placed on a turn table which is 0.8m above ground plane.

Maximum procedure was performed on the highest emissions to ensure EUT compliance.

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz (1GHz to 25GHz), 100 kHz for $f < 1$ GHz (30MHz to 1GHz)

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.

Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from $20\log(\text{dwell time}/100 \text{ ms})$, in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

Repeat above procedures until all frequency measured was complete.

7.5.5 Test Results

Temperature:	26° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

■ Spurious Emission below 30MHz (9KHz to 30MHz)

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible

limit has no need to be reported.

Distance extrapolation factor = $40\log(\text{Specific distance}/\text{test distance})$ (dB);

Limit line = Specific limits(dBuV) + distance extrapolation factor

■ Spurious Emission Above 1GHz (1GHz to 25GHz)

Bluetooth V5.0 DTS mode have been tested, and the worst result was report as below:

Test mode: BLE

Frequency:

Channel 0: 2402MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4806.54	V	59.48	46.15	74	54	-14.52	-7.85
7207.05	V	59.25	43.17	74	54	-14.75	-10.83
10773.92	V	57.54	45.34	74	54	-16.46	-8.66
4805.92	H	58.21	43.16	74	54	-15.79	-10.84
7210.05	H	57.30	44.31	74	54	-16.70	-9.69
11023.97	H	56.54	45.24	74	54	-17.46	-8.76

Test mode: BLE

Frequency:

Channel 19: 2440MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4880.62	V	59.41	43.83	74	54	-14.59	-10.17
7320.82	V	59.67	47.48	74	54	-14.33	-6.52
10753.40	V	57.64	45.61	74	54	-16.36	-8.39
4880.58	H	56.91	45.35	74	54	-17.09	-8.65
7322.90	H	55.47	44.48	74	54	-18.53	-9.52
11024.77	H	55.46	46.29	74	54	-18.54	-7.71

Test mode: BLE

Frequency:

Channel 39: 2480MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4960.03	V	59.14	43.42	74	54	-14.86	-10.58
7440.69	V	57.55	43.21	74	54	-16.45	-10.79
10767.19	V	57.56	43.62	74	54	-16.44	-10.38
4961.73	H	57.92	47.20	74	54	-16.08	-6.80
7444.73	H	55.78	43.51	74	54	-18.22	-10.49
11008.86	H	58.38	45.56	74	54	-15.62	-8.44

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).

(2) Emission Level= Reading Level+Correct Factor +Cable Loss.

(3) Correct Factor= Ant_F + Cab_L - Preamp

(4)Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

■ Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2321.20	H	43.92	74	34.65	54
2318.64	V	45.13	74	36.62	54

Frequency (MHz)	Polarity	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2494.55	H	48.70	74	39.95	54
2493.49	V	48.75	74	39.20	54

Note: (1) All Readings are Peak Value (VBW=3MHz) and Peak Value (VBW=10Hz).

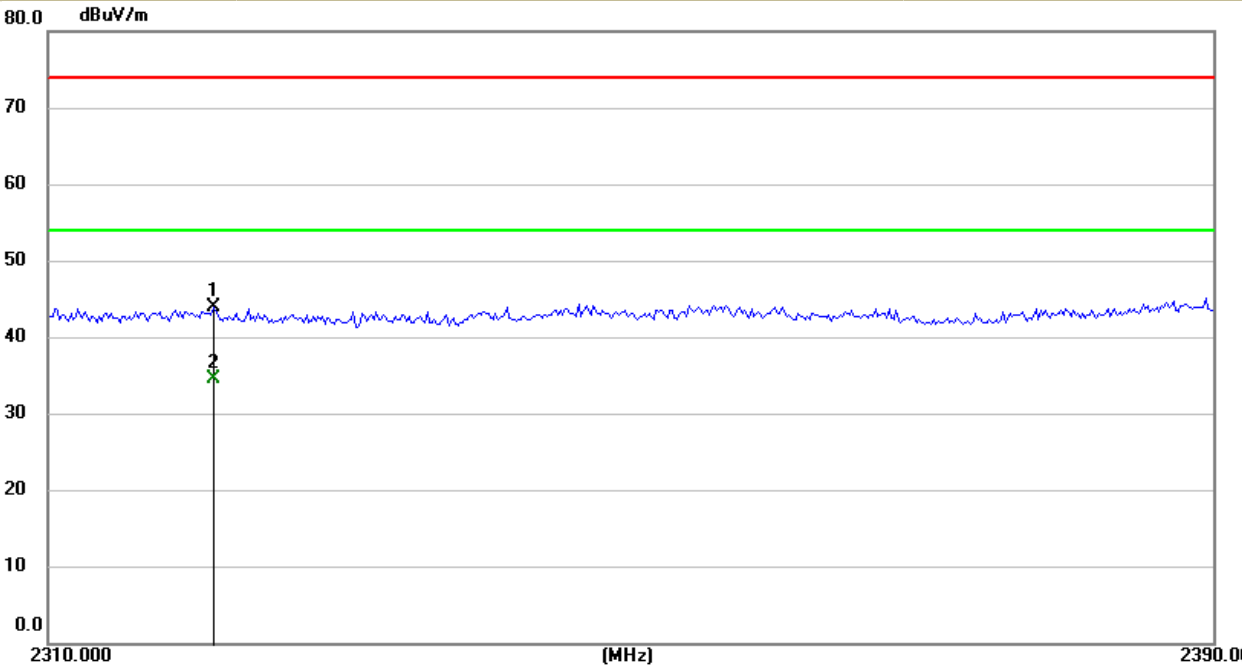
(2) Emission Level= Reading Level+Correct Factor +Cable Loss.

(3) Correct Factor= Ant_F + Cab_L - Preamp

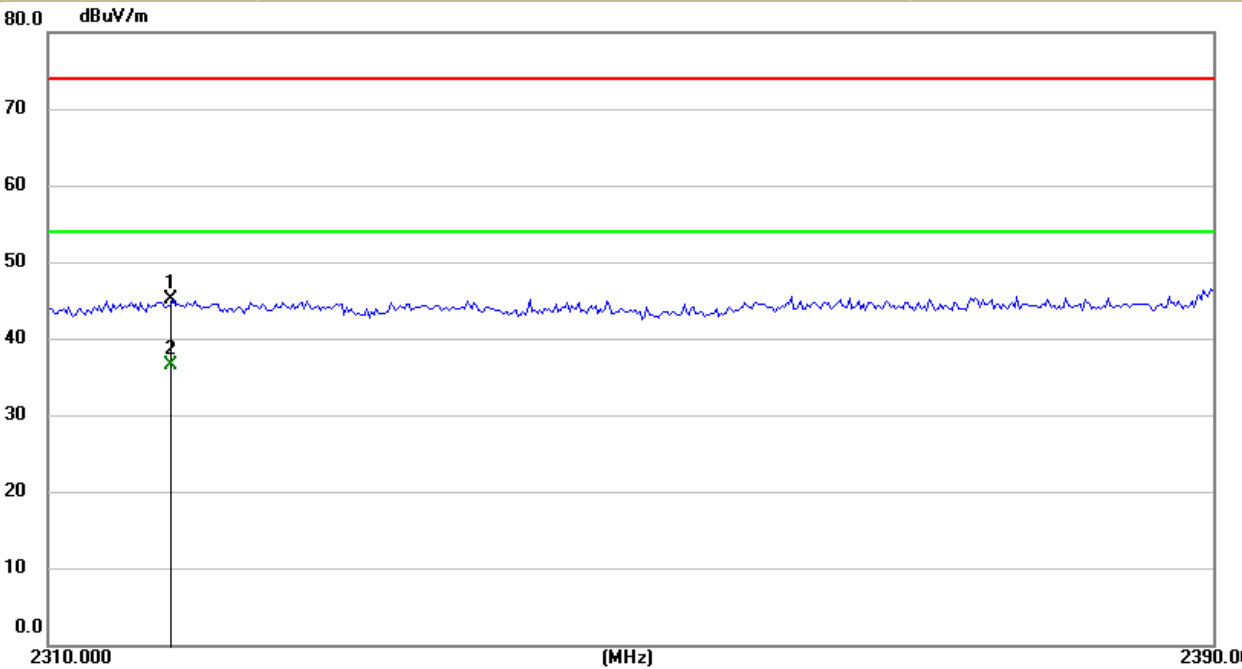
(4) Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

All the modulation modes were tested, the data of the worst mode are described in the following table

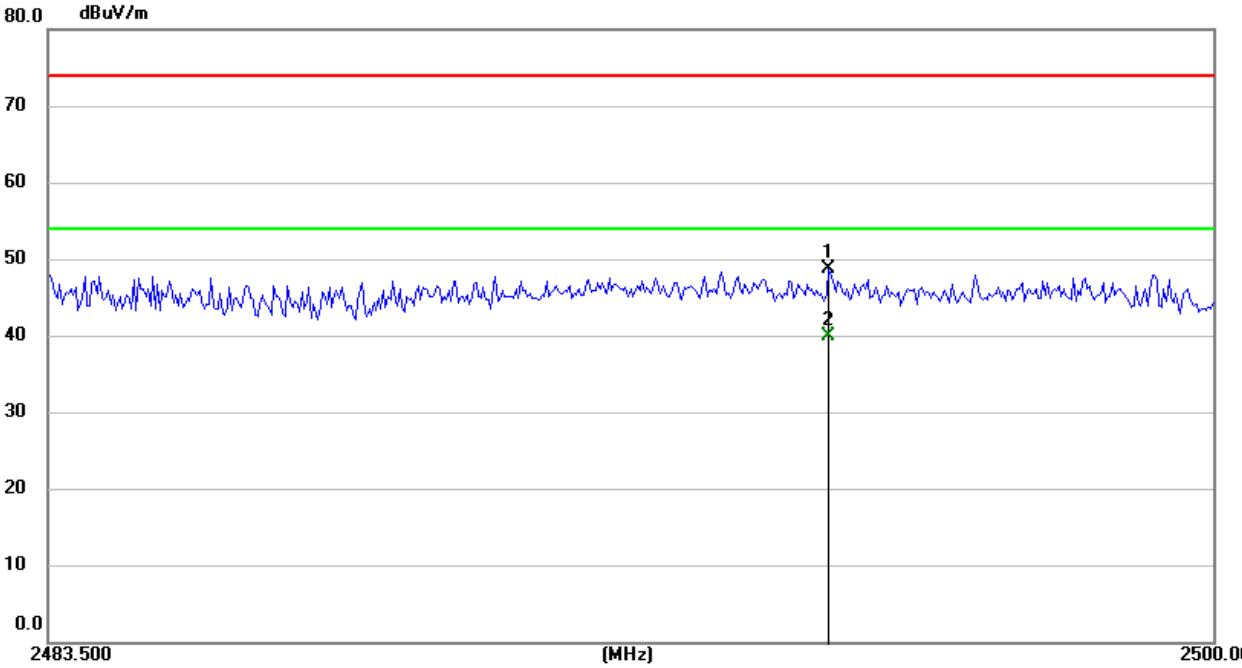
Test Model	Spurious Emission in Restricted Band 2310-2390MHz	
	Bluetooth V5.0 DTS	
	Channel 0: 2402MHz	H



Test Model	Spurious Emission in Restricted Band 2310-2390MHz	
	Bluetooth V5.0 DTS	
	Channel 0: 2402MHz	V



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	Bluetooth V5.0 DTS		
	Channel 39: 2480MHz		H



Test Model	Spurious Emission in Restricted Band 2483.5-2500MHz		
	Bluetooth V5.0 DTS		
	Channel 39: 2480MHz		V

