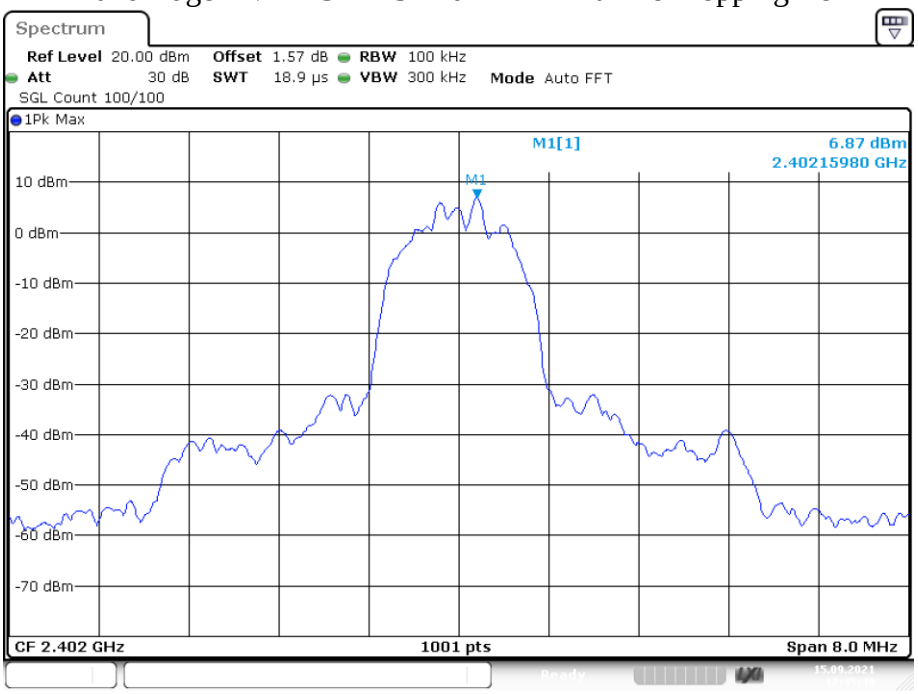
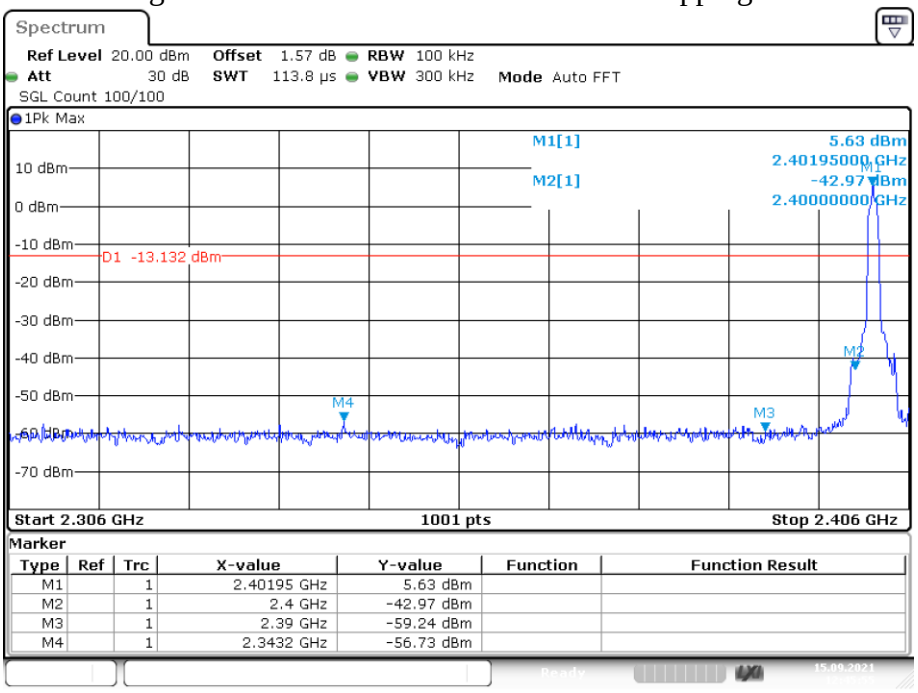
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



Date: 15.SEP.2021 12:45:49

Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

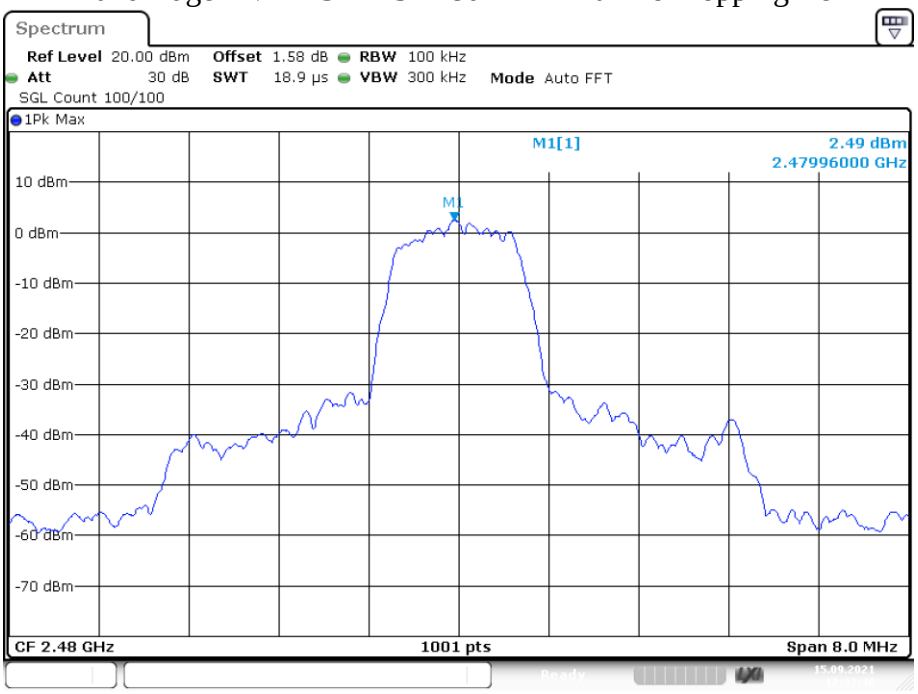


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40195 GHz	5.63 dBm		
M2		1	2.4 GHz	-42.97 dBm		
M3		1	2.39 GHz	-59.24 dBm		
M4		1	2.3432 GHz	-56.73 dBm		

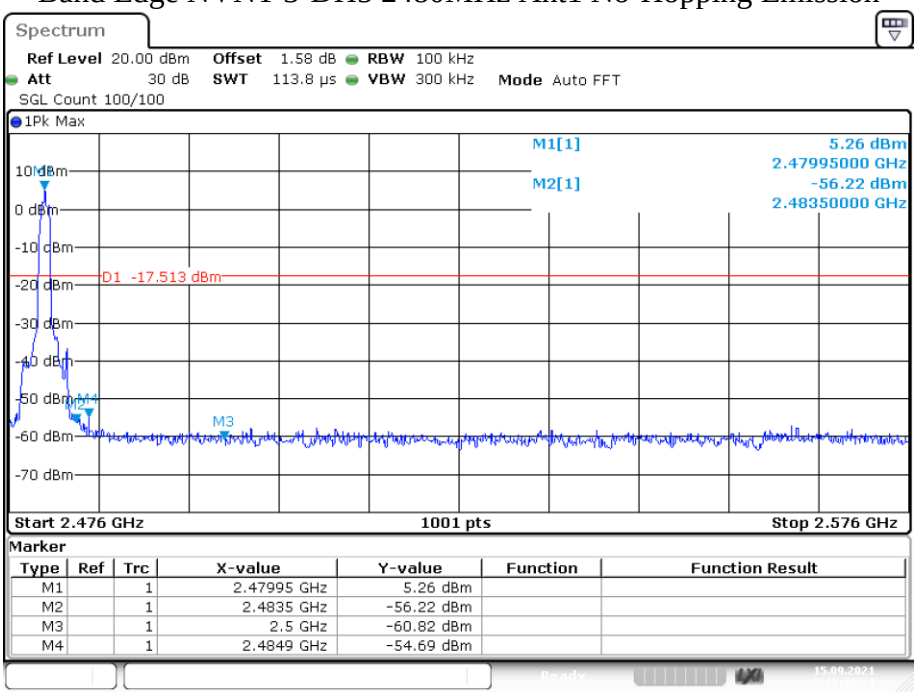
Date: 15.SEP.2021 12:45:55

Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Date: 15.SEP.2021 12:43:47

Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission



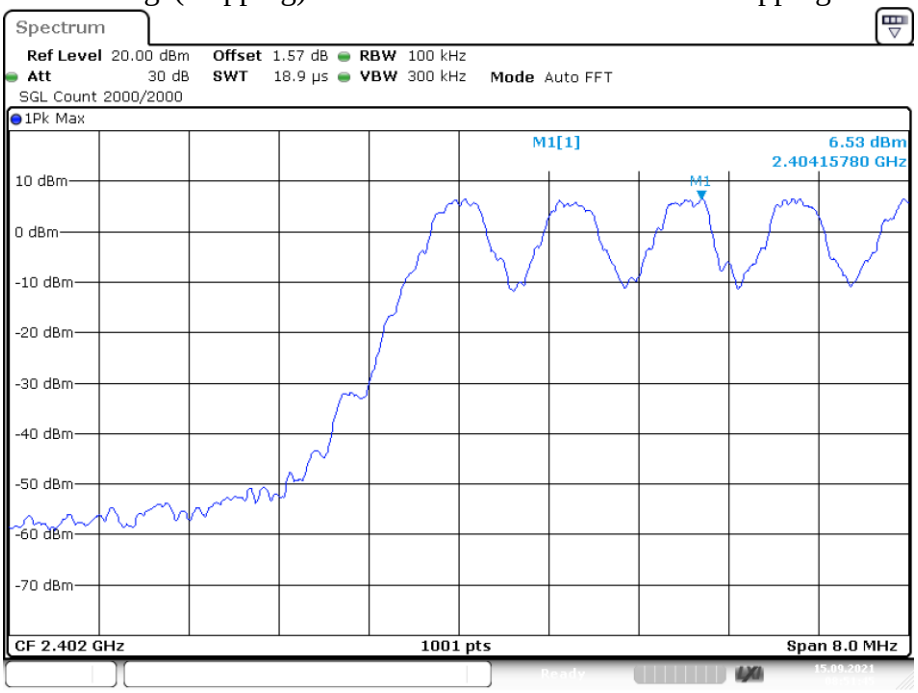
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47995 GHz	5.26 dBm		
M2		1	2.4835 GHz	-56.22 dBm		
M3		1	2.5 GHz	-60.82 dBm		
M4		1	2.4849 GHz	-54.69 dBm		

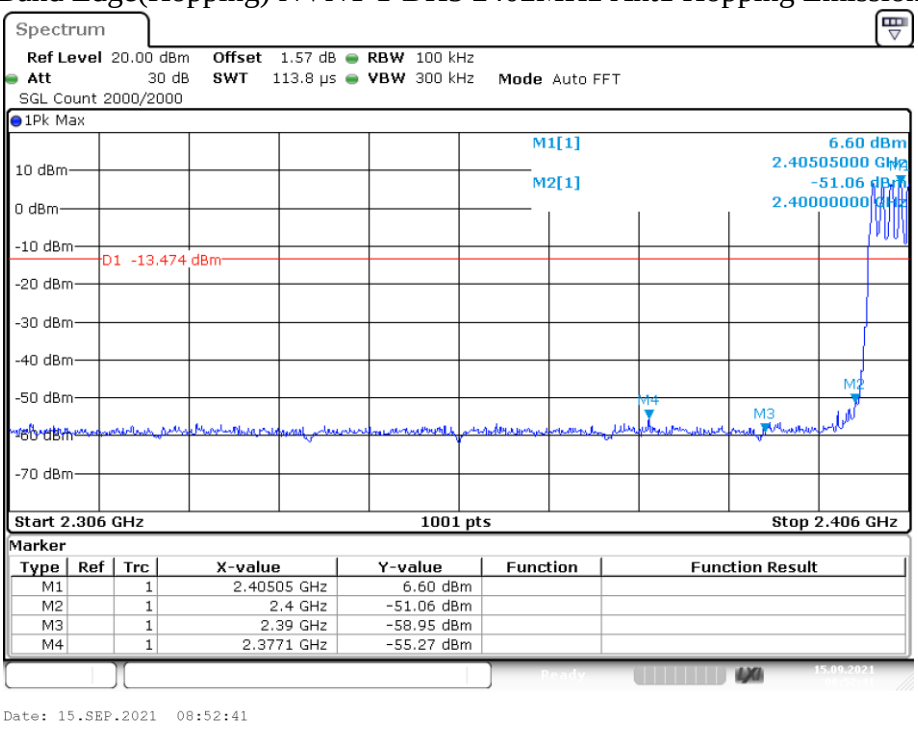
Date: 15.SEP.2021 12:43:53

Band Edge(Hopping)

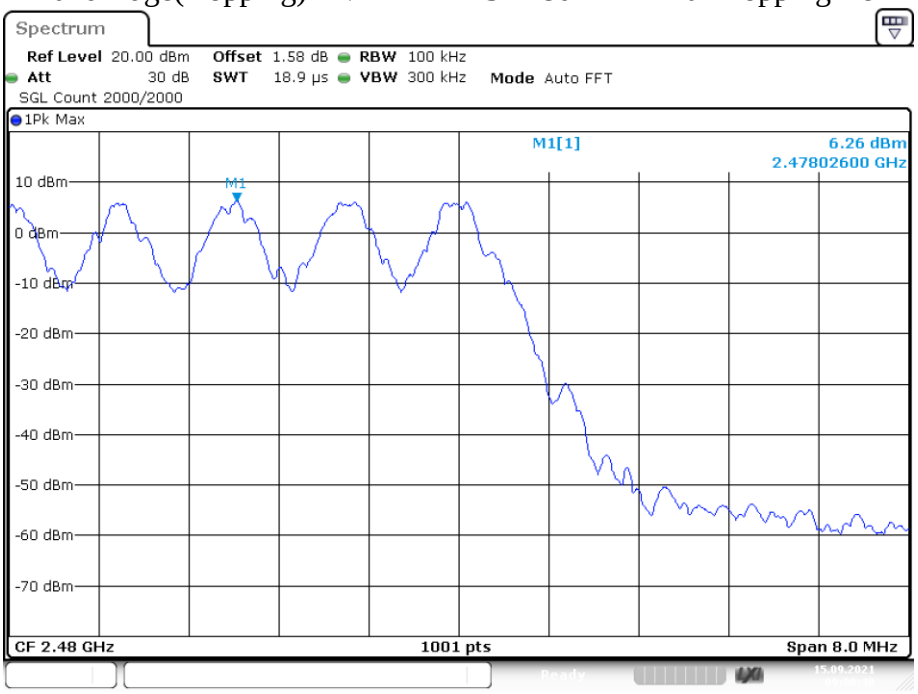
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

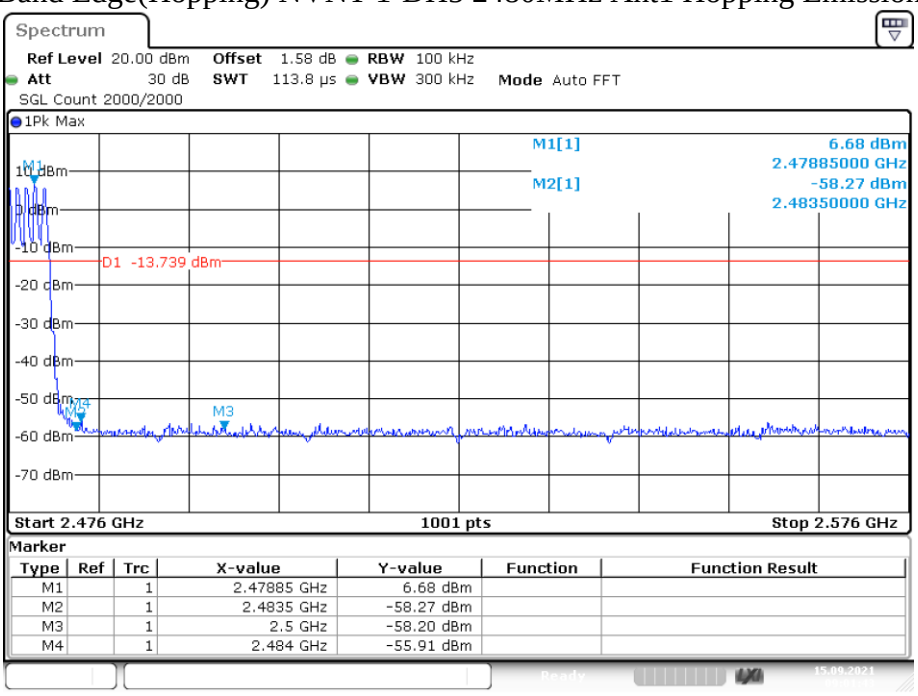


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



Date: 15.SEP.2021 09:00:48

Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

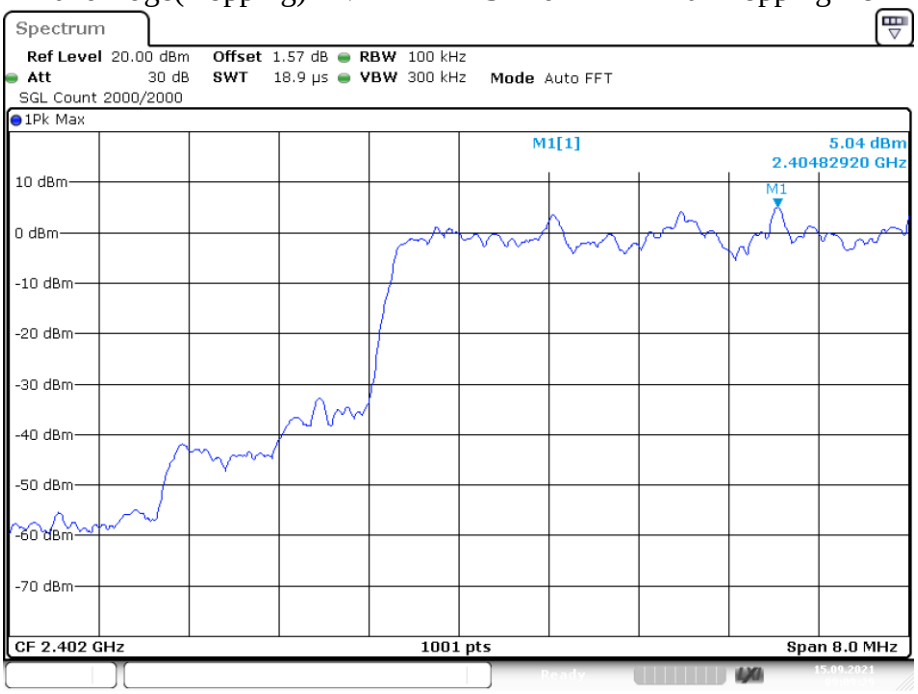


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47885 GHz	6.68 dBm		
M2		1	2.4835 GHz	-58.27 dBm		
M3		1	2.5 GHz	-58.20 dBm		
M4		1	2.484 GHz	-55.91 dBm		

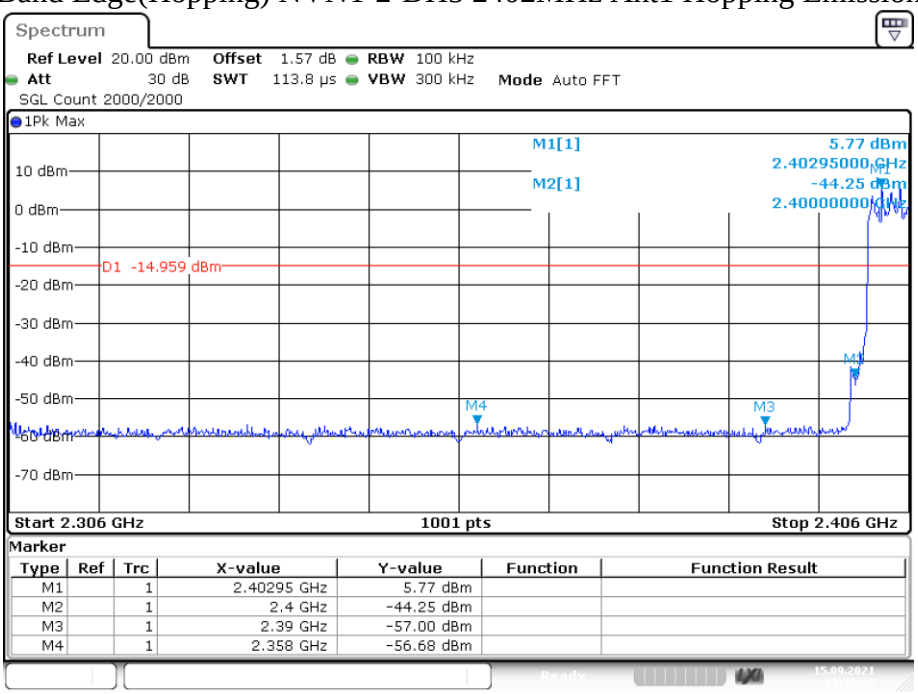
Date: 15.SEP.2021 09:01:43

Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



Date: 15.SEP.2021 09:09:29

Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



Marker

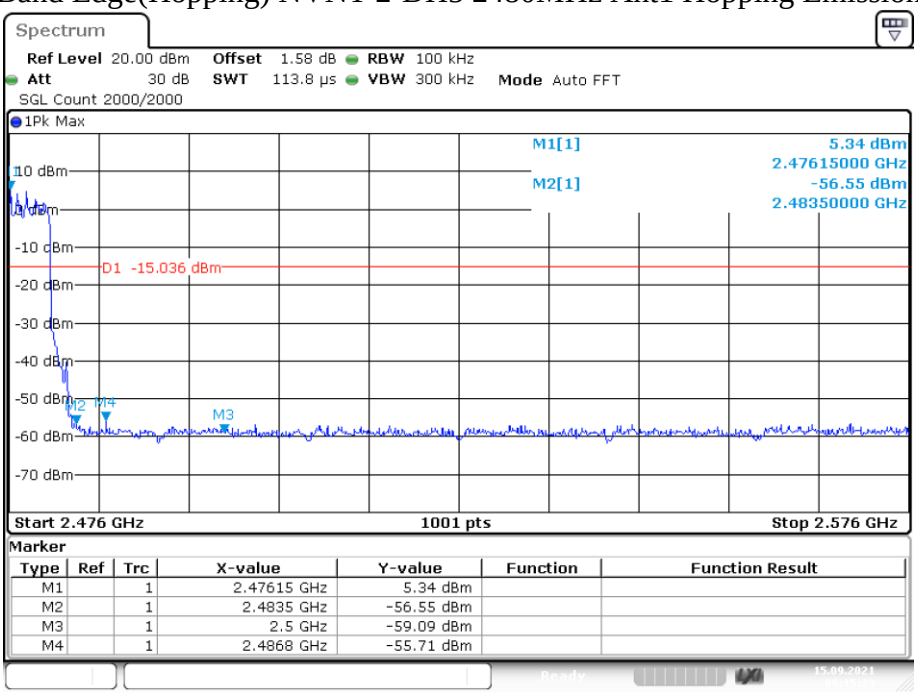
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40295 GHz	5.77 dBm		
M2		1	2.4 GHz	-44.25 dBm		
M3		1	2.39 GHz	-57.00 dBm		
M4		1	2.358 GHz	-56.68 dBm		

Date: 15.SEP.2021 09:10:25

Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref

Date: 15.SEP.2021 09:14:29

Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

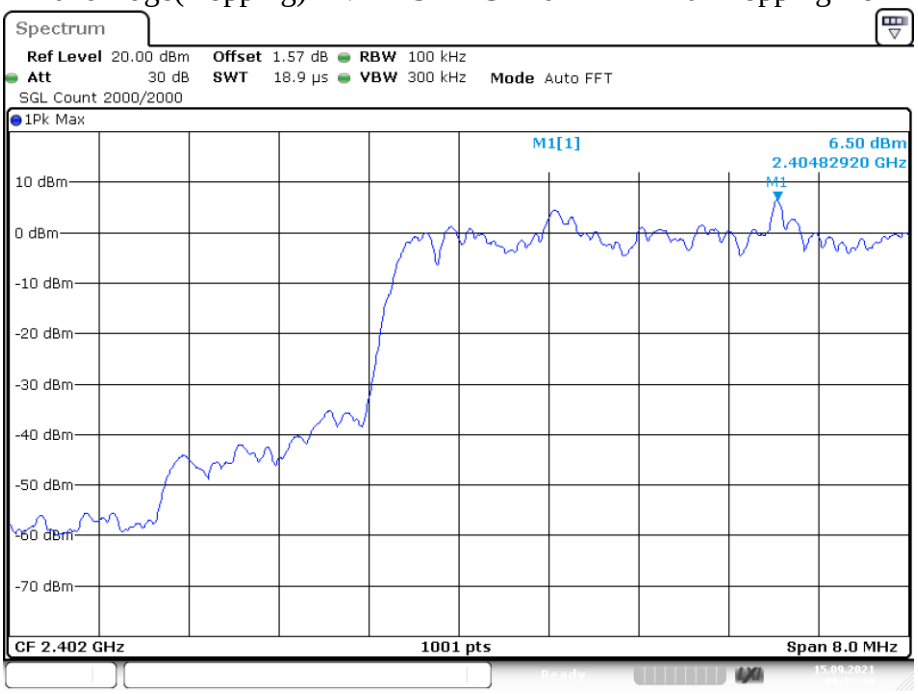


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47615 GHz	5.34 dBm		
M2		1	2.4835 GHz	-56.55 dBm		
M3		1	2.5 GHz	-59.09 dBm		
M4		1	2.4868 GHz	-55.71 dBm		

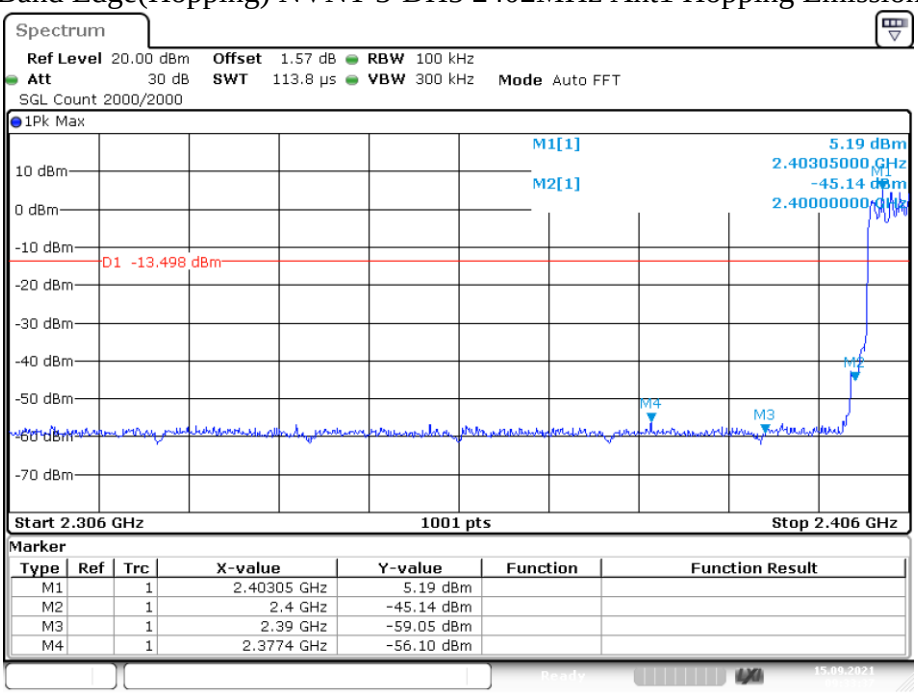
Date: 15.SEP.2021 09:15:23

Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



Date: 15.SEP.2021 09:32:40

Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Marker

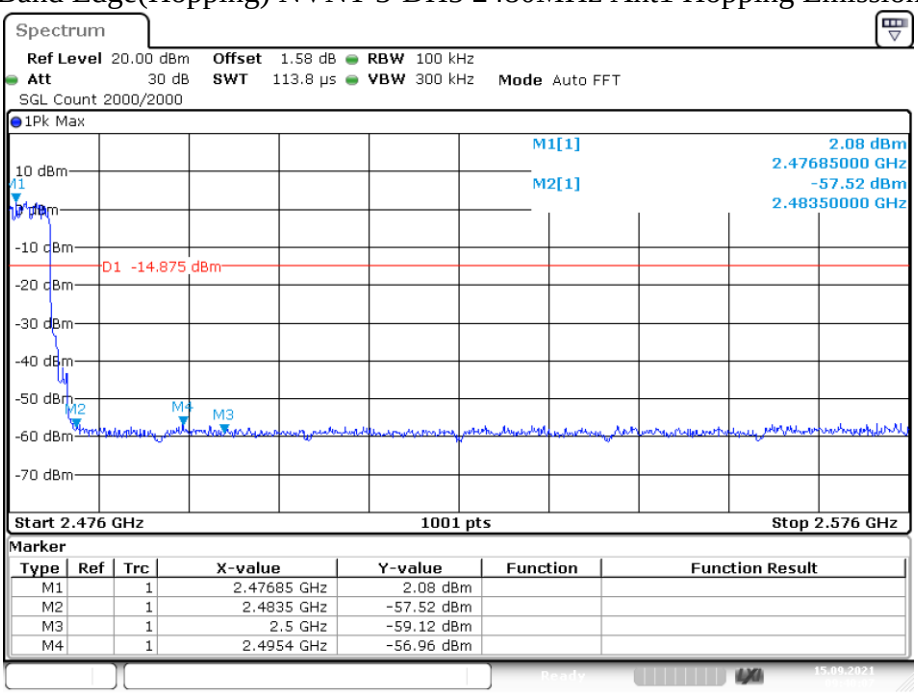
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40305 GHz	5.19 dBm		
M2		1	2.4 GHz	-45.14 dBm		
M3		1	2.39 GHz	-59.05 dBm		
M4		1	2.3774 GHz	-56.10 dBm		

Date: 15.SEP.2021 09:33:36

Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref

Date: 15.SEP.2021 09:39:12

Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

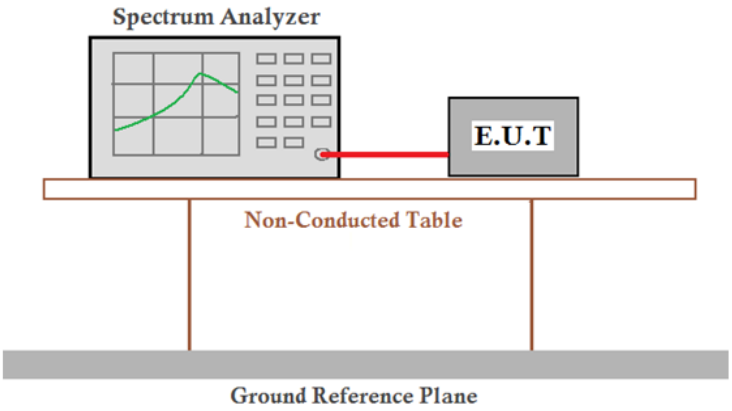


Marker

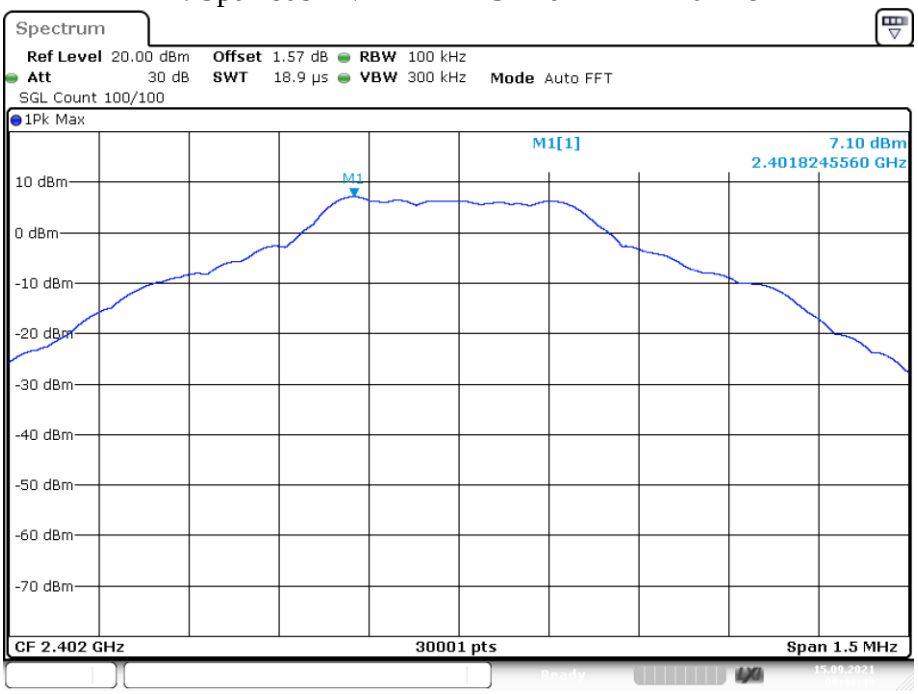
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.47685 GHz	2.08 dBm		
M2		1	2.4835 GHz	-57.52 dBm		
M3		1	2.5 GHz	-59.12 dBm		
M4		1	2.4954 GHz	-56.96 dBm		

Date: 15.SEP.2021 09:40:07

5.9 Spurious RF Conducted Emissions

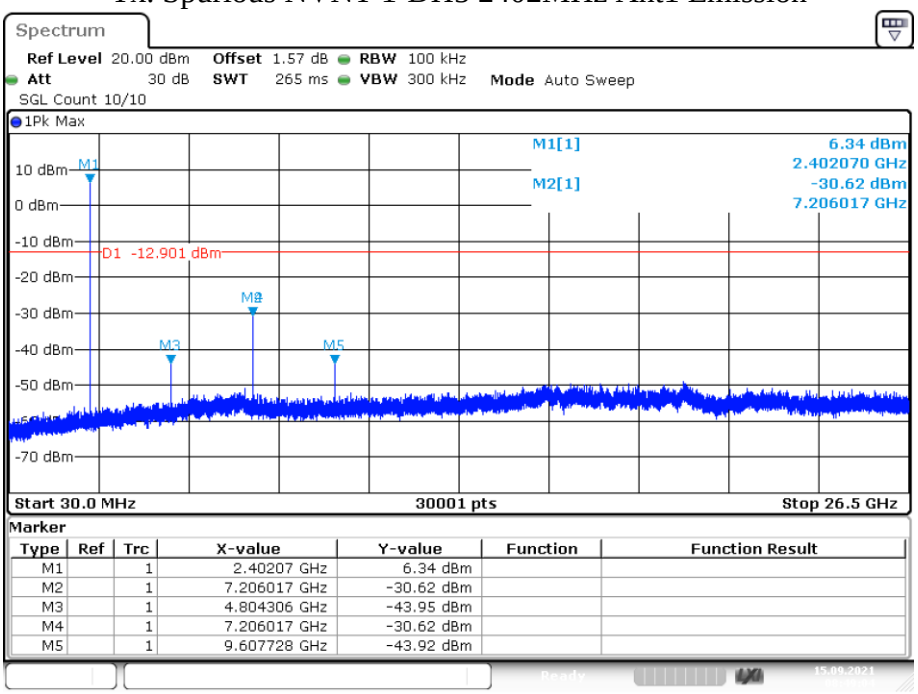
Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Test Setup:	 Remark: Factor: the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the 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.
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH1 of data type is the worst case of GFSK modulation type, 2-DH1 of data type is the worst case of π/4DQPSK modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation type.
Test Results:	Pass

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



Date: 15.SEP.2021 08:48:49

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

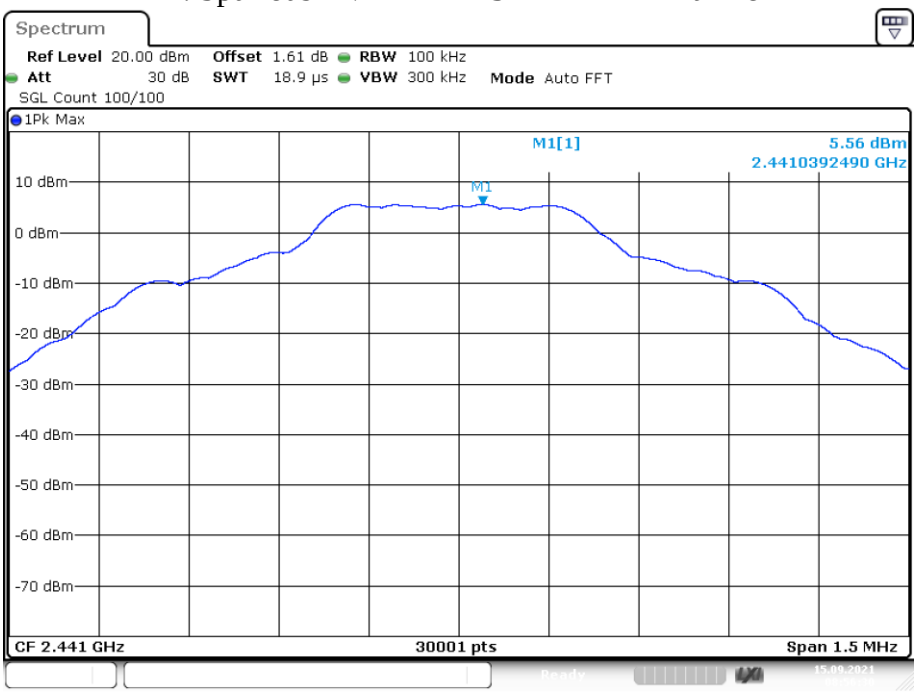


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	6.34 dBm		
M2		1	7.206017 GHz	-30.62 dBm		
M3		1	4.804306 GHz	-43.95 dBm		
M4		1	7.206017 GHz	-30.62 dBm		
M5		1	9.607728 GHz	-43.92 dBm		

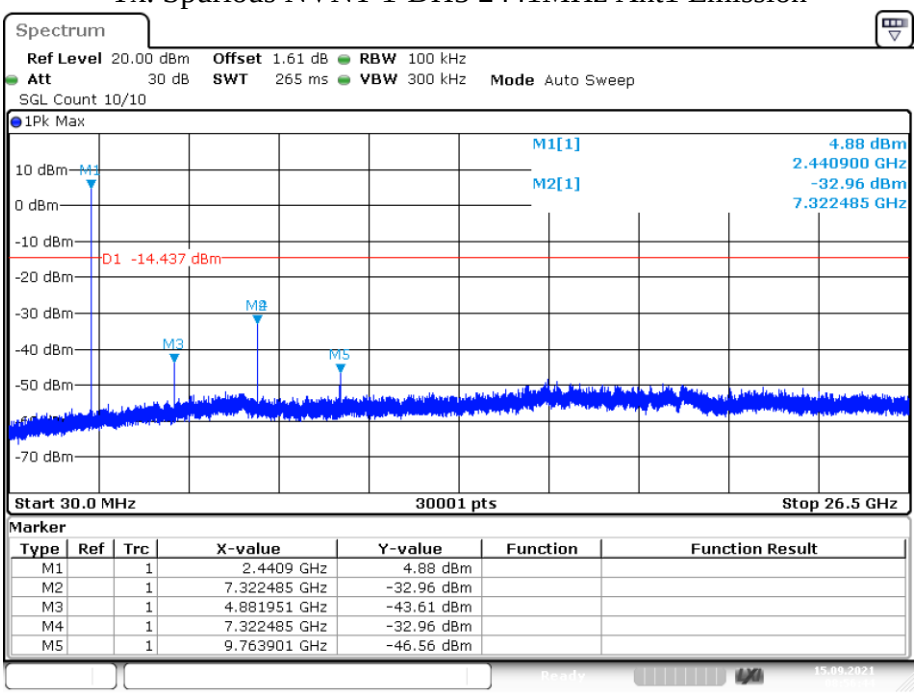
Date: 15.SEP.2021 08:49:03

Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



Date: 15.SEP.2021 08:56:31

Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

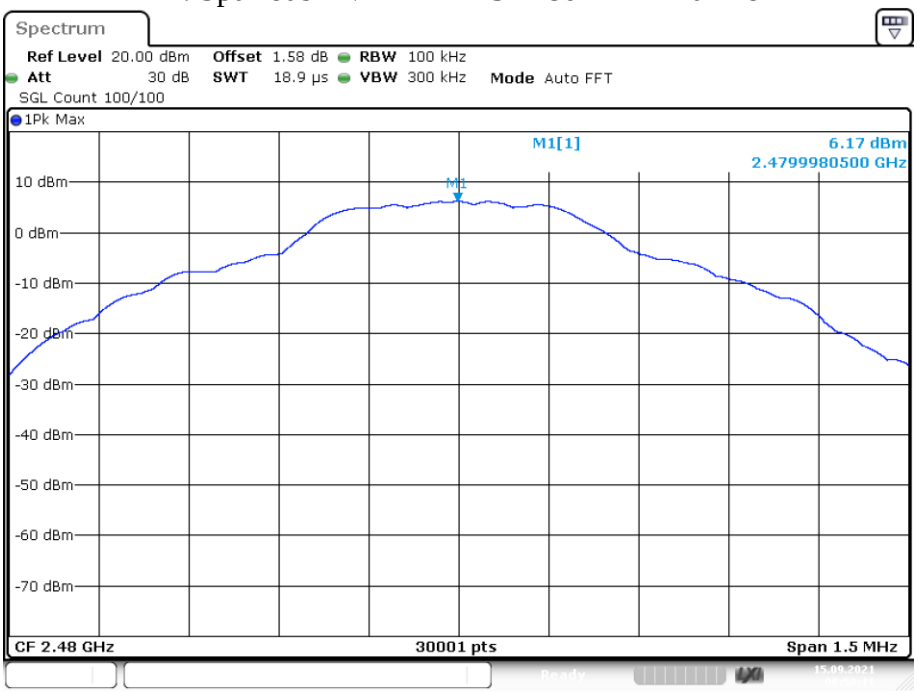


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	4.88 dBm		
M2		1	7.322485 GHz	-32.96 dBm		
M3		1	4.881951 GHz	-43.61 dBm		
M4		1	7.322485 GHz	-32.96 dBm		
M5		1	9.763901 GHz	-46.56 dBm		

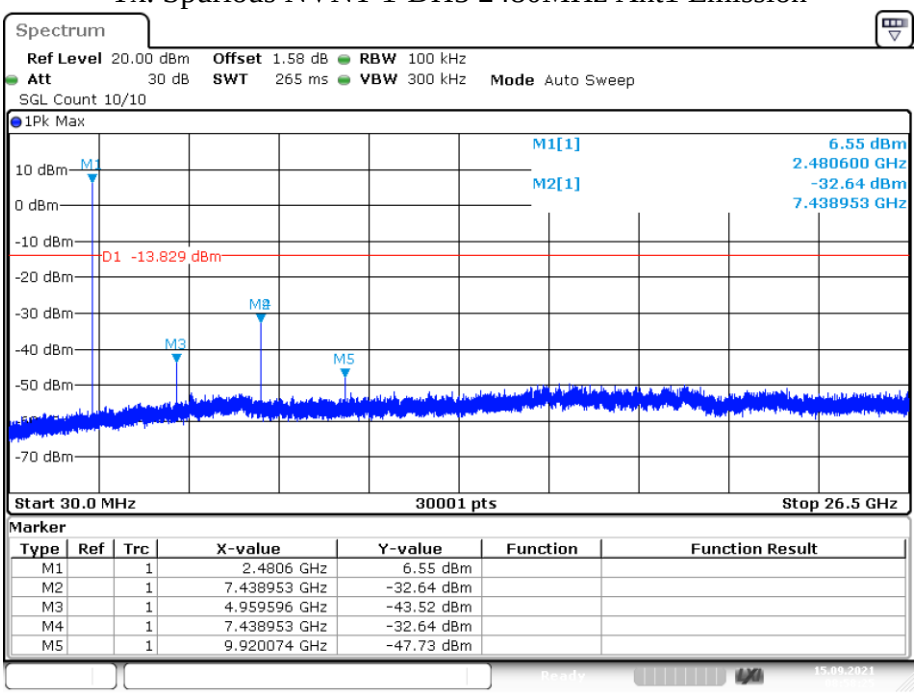
Date: 15.SEP.2021 08:56:44

Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



Date: 15.SEP.2021 08:58:11

Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

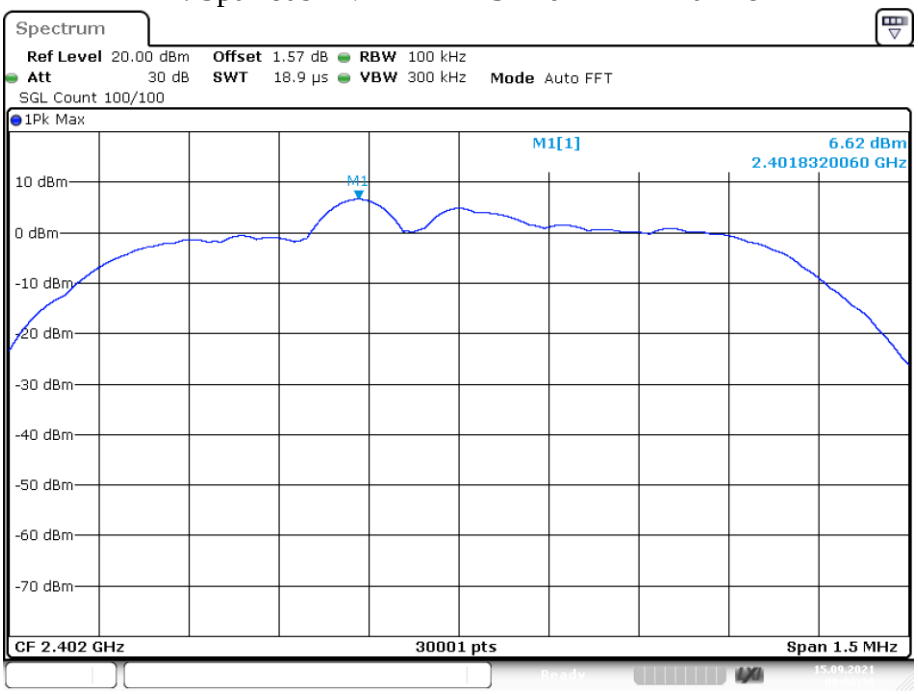


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4806 GHz	6.55 dBm		
M2		1	7.438953 GHz	-32.64 dBm		
M3		1	4.959596 GHz	-43.52 dBm		
M4		1	7.438953 GHz	-32.64 dBm		
M5		1	9.920074 GHz	-47.73 dBm		

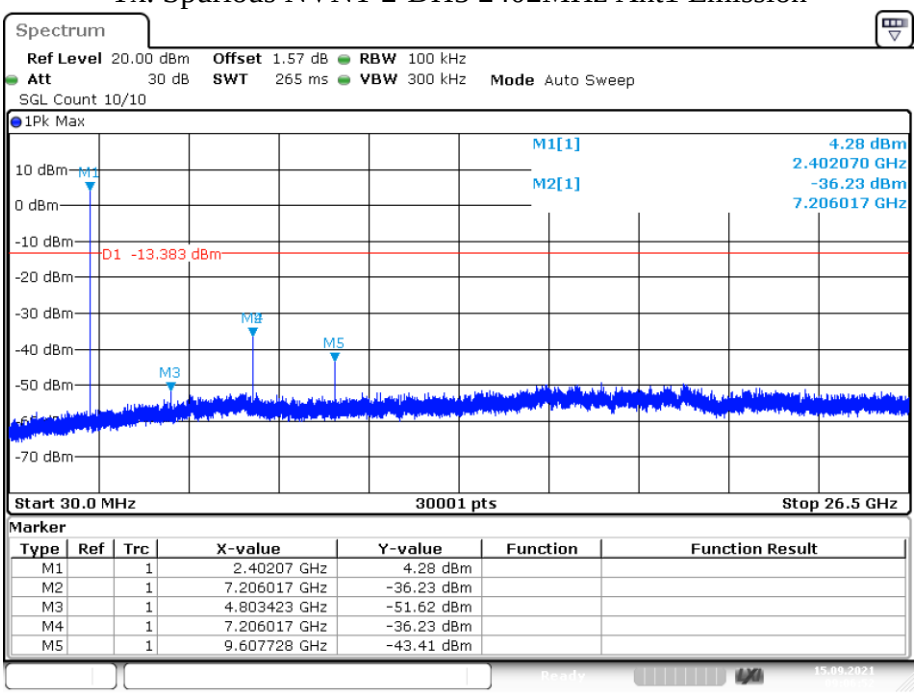
Date: 15.SEP.2021 08:58:25

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



Date: 15.SEP.2021 09:06:38

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission

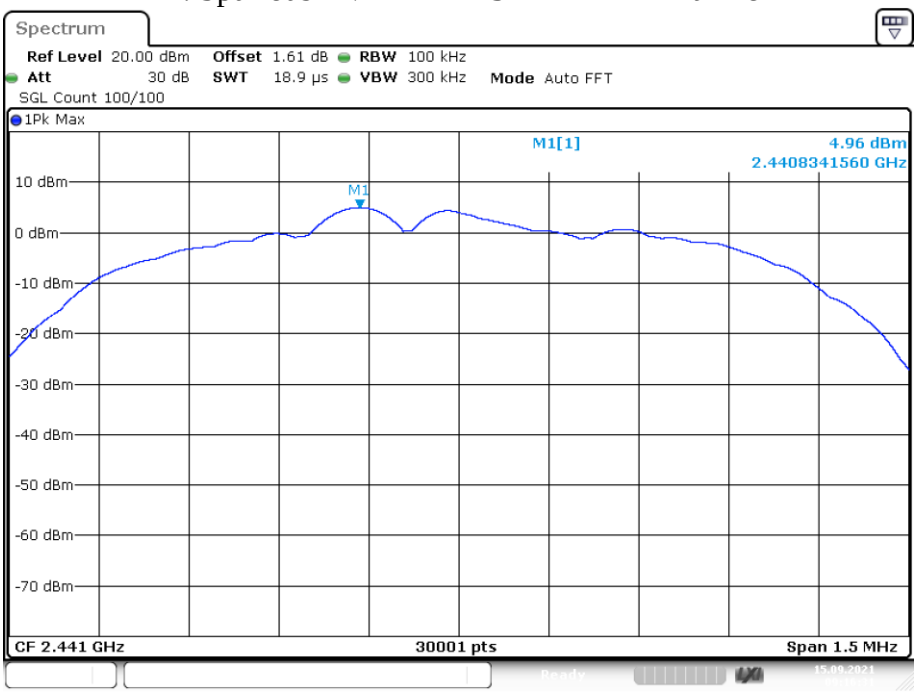


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	4.28 dBm		
M2		1	7.206017 GHz	-36.23 dBm		
M3		1	4.803423 GHz	-51.62 dBm		
M4		1	7.206017 GHz	-36.23 dBm		
M5		1	9.607728 GHz	-43.41 dBm		

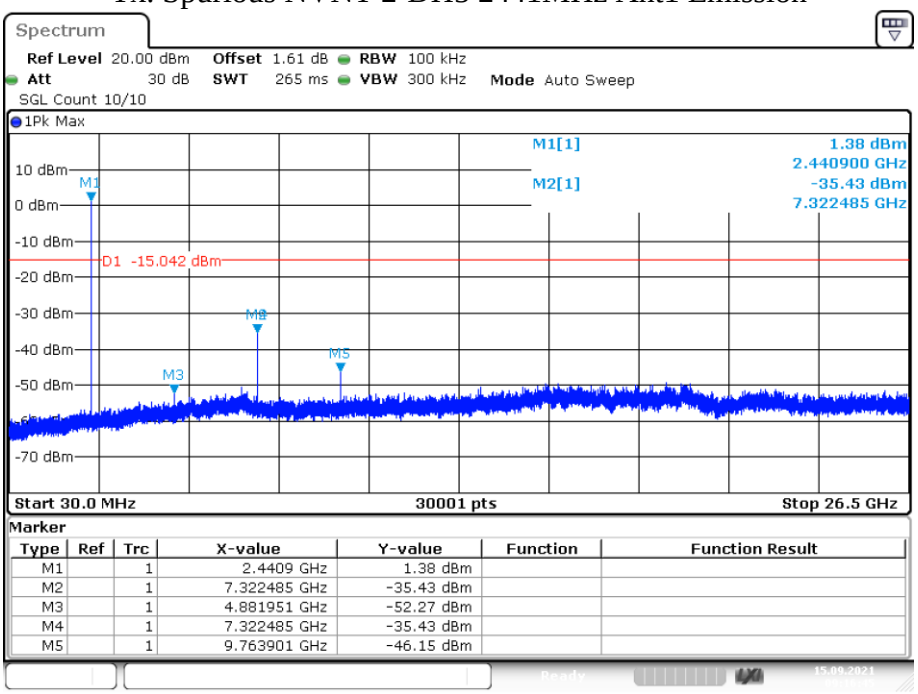
Date: 15.SEP.2021 09:06:52

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



Date: 15.SEP.2021 09:16:30

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission

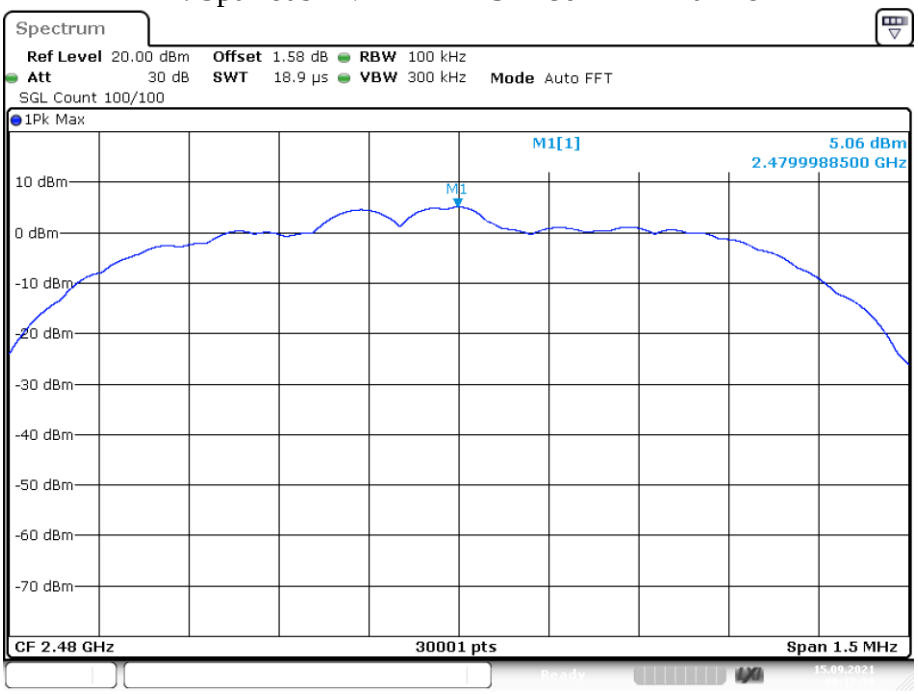


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	1.38 dBm		
M2		1	7.322485 GHz	-35.43 dBm		
M3		1	4.881951 GHz	-52.27 dBm		
M4		1	7.322485 GHz	-35.43 dBm		
M5		1	9.763901 GHz	-46.15 dBm		

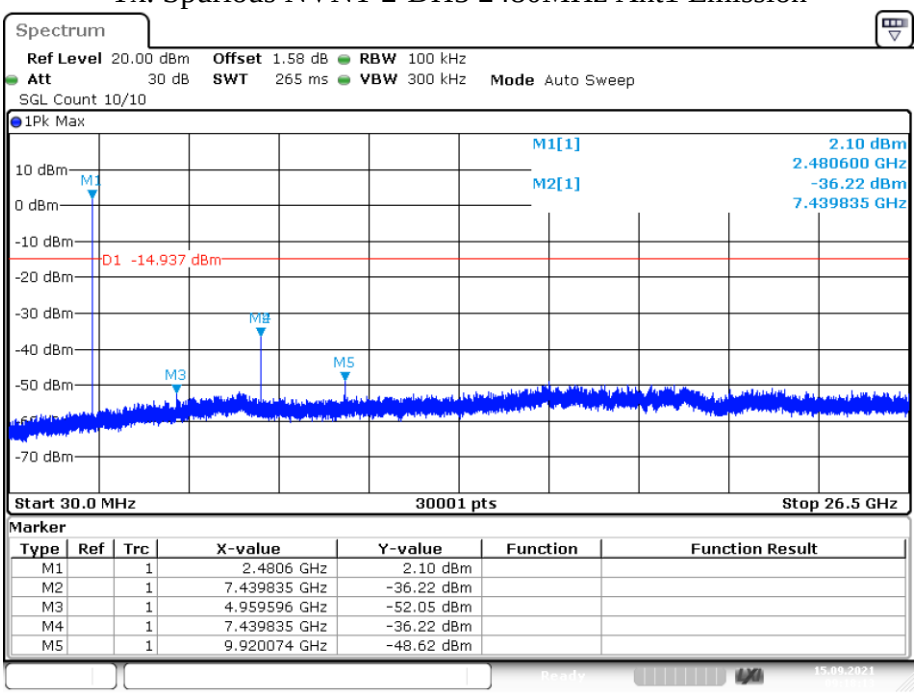
Date: 15.SEP.2021 09:16:44

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



Date: 15.SEP.2021 09:17:59

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission

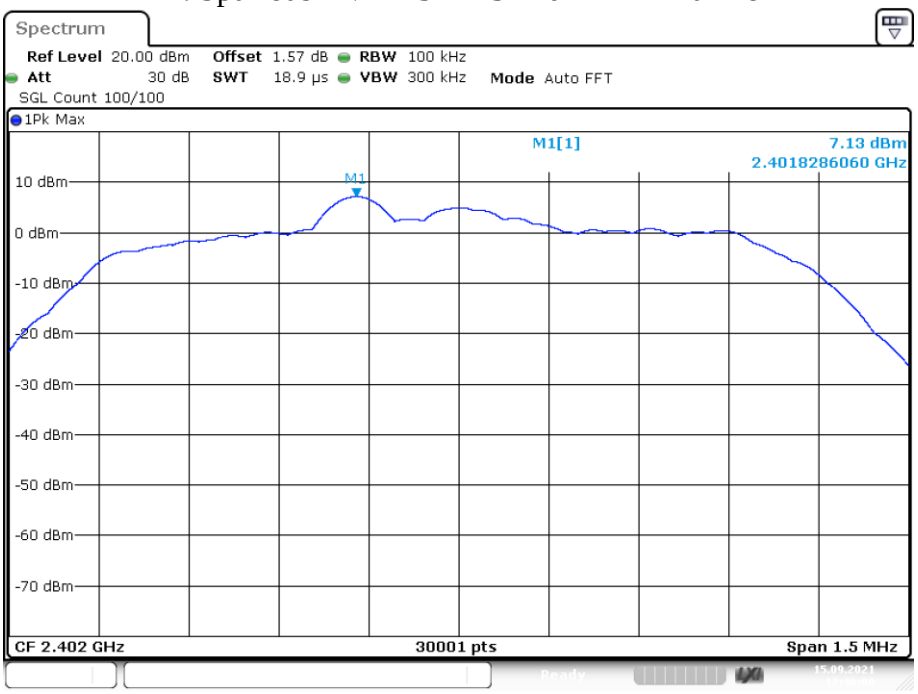


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4806 GHz	2.10 dBm		
M2		1	7.439835 GHz	-36.22 dBm		
M3		1	4.959596 GHz	-52.05 dBm		
M4		1	7.439835 GHz	-36.22 dBm		
M5		1	9.920074 GHz	-48.62 dBm		

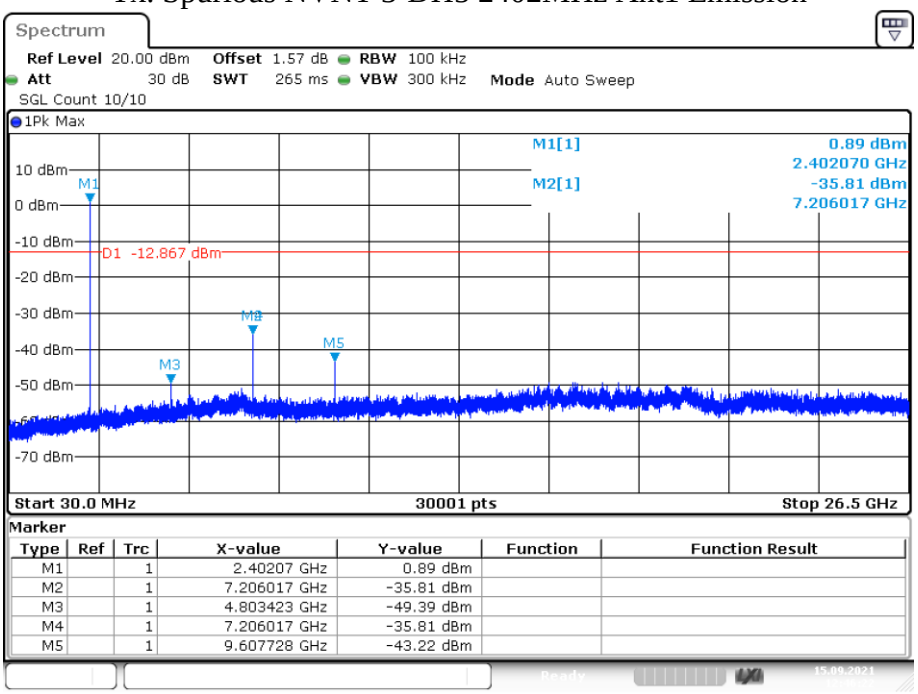
Date: 15.SEP.2021 09:18:13

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



Date: 15.SEP.2021 12:46:08

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission

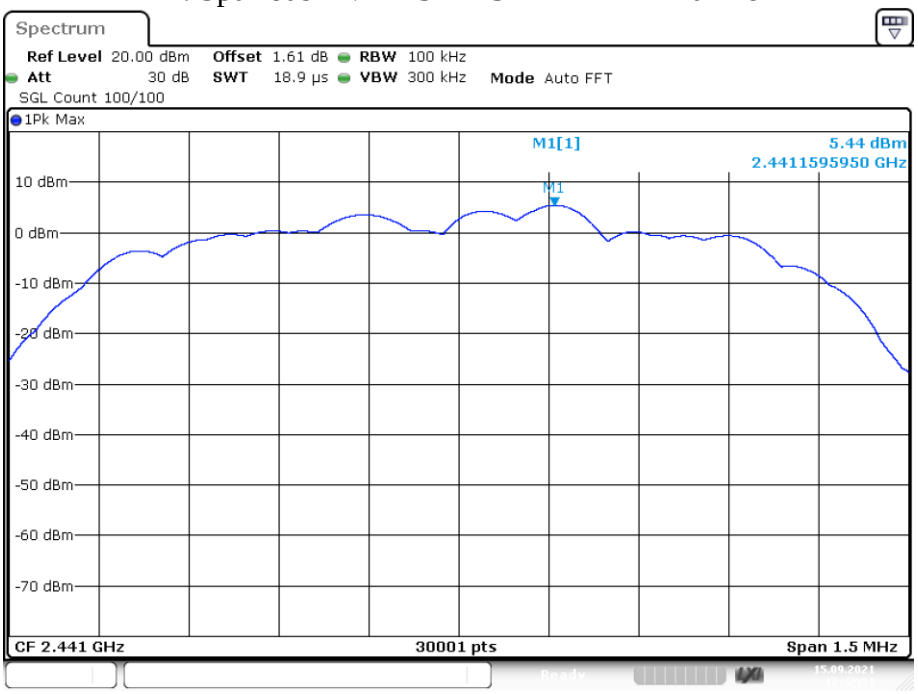


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40207 GHz	0.89 dBm		
M2		1	7.206017 GHz	-35.81 dBm		
M3		1	4.803423 GHz	-49.39 dBm		
M4		1	7.206017 GHz	-35.81 dBm		
M5		1	9.607728 GHz	-43.22 dBm		

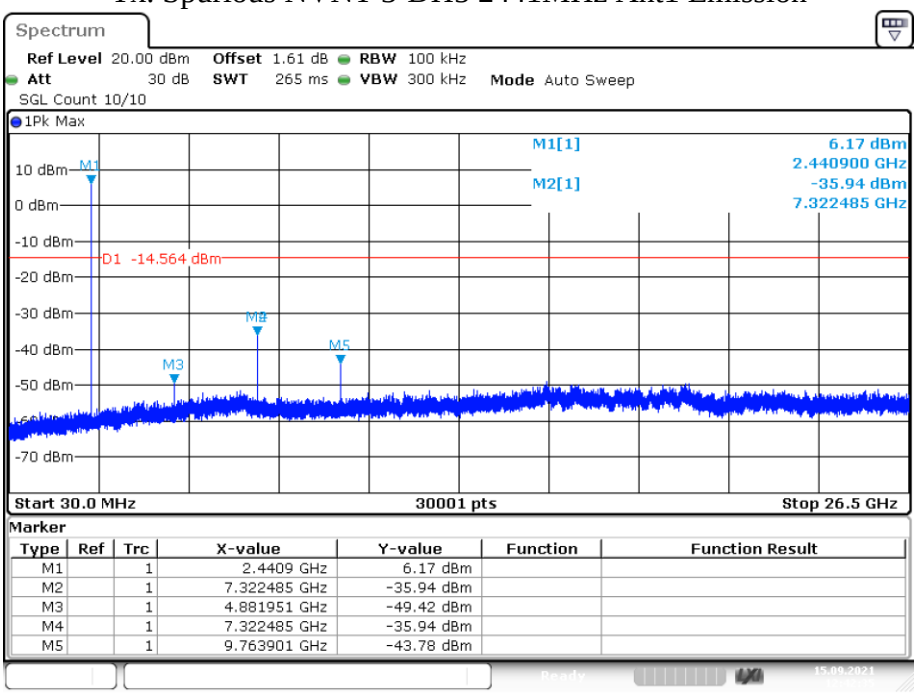
Date: 15.SEP.2021 12:46:22

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



Date: 15.SEP.2021 12:42:21

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission

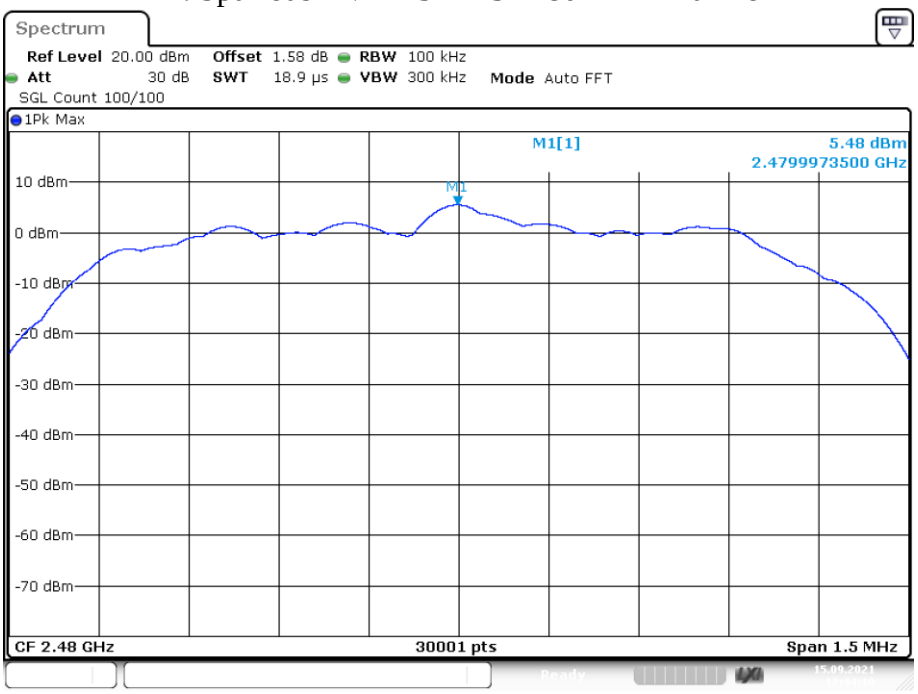


Marker

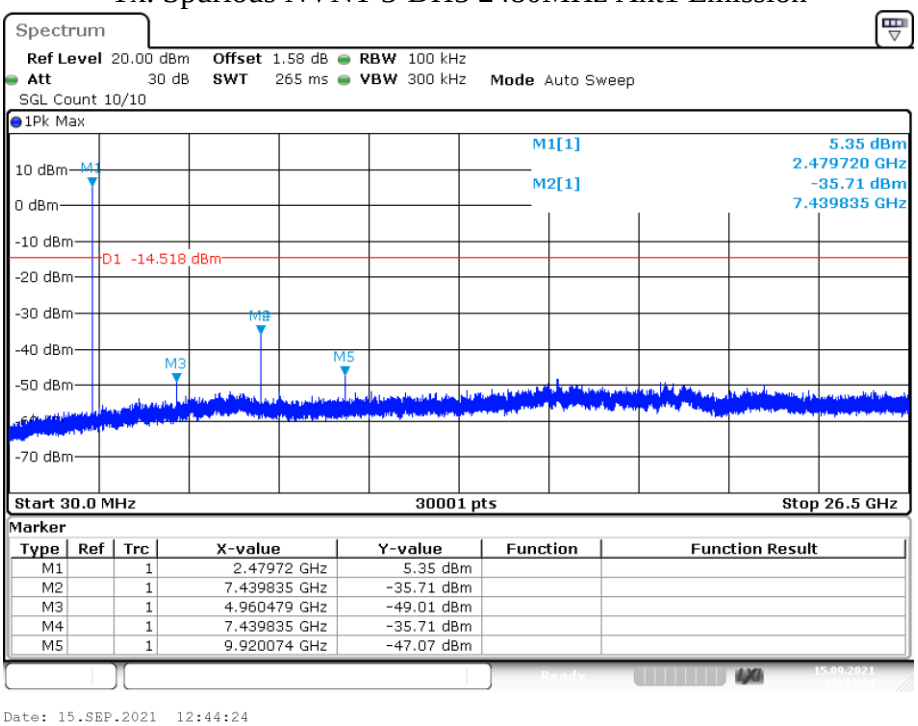
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4409 GHz	6.17 dBm		
M2		1	7.322485 GHz	-35.94 dBm		
M3		1	4.881951 GHz	-49.42 dBm		
M4		1	7.322485 GHz	-35.94 dBm		
M5		1	9.763901 GHz	-43.78 dBm		

Date: 15.SEP.2021 12:42:35

Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission



Remark:

Pre test 9kHz to 25GHz, find the highest point when testing, so only the worst data were shown in the test report. Per FCC Part 15.33 (a) and 15.31 (o) ,The amplitude of spurious emissions from intentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this part.

5.10 Other requirements Frequency Hopping Spread Spectrum System

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1), (h) requirement:

The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

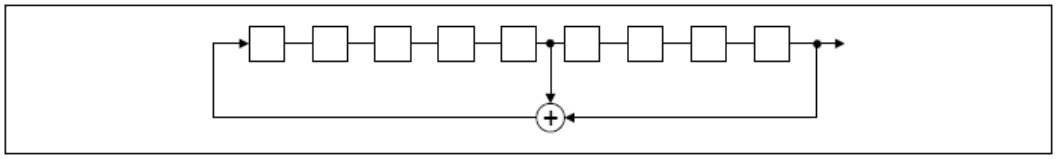
Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Compliance for section 15.247(a)(1)

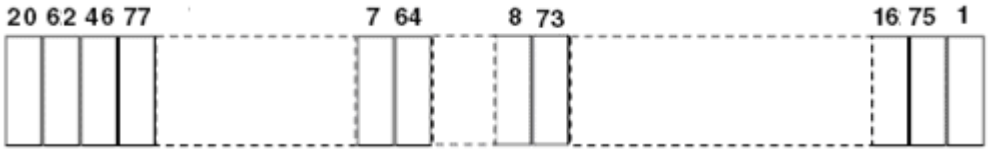
According to Bluetooth Core Specification, the pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage
outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: 2^9 -1 = 511 bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

According to Bluetooth Core Specification, Bluetooth receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any Bluetooth transmitters and shift frequencies in synchronization with the transmitted signals.

Compliance for section 15.247(g)

According to Bluetooth Core Specification, the Bluetooth system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the Bluetooth system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

Compliance for section 15.247(h)

According to Bluetooth Core specification, the Bluetooth system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels.

According to the Bluetooth Core specification, the Bluetooth system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.

5.11 Radiated Spurious Emission & Restricted bands

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Test Site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>0.009MHz-0.090MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr>
<tr><td>0.009MHz-0.090MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr>
<tr><td>0.090MHz-0.110MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr>
<tr><td>0.110MHz-0.490MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr>
<tr><td>0.110MHz-0.490MHz</td><td>Average</td><td>10kHz</td><td>30kHz</td><td>Average</td></tr>
<tr><td>0.490MHz -30MHz</td><td>Quasi-peak</td><td>10kHz</td><td>30kHz</td><td>Quasi-peak</td></tr>
<tr><td>30MHz-1GHz</td><td>Peak</td><td>100 kHz</td><td>300kHz</td><td>Peak</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Field strength (microvolt/meter)</th><th>Limit (dBuV/m)</th><th>Remark</th><th>Measurement distance (m)</th></tr>
<tr><td>0.009MHz-0.490MHz</td><td>2400/F(kHz)</td><td>-</td><td>-</td><td>300</td></tr>
<tr><td>0.490MHz-1.705MHz</td><td>24000/F(kHz)</td><td>-</td><td>-</td><td>30</td></tr>
<tr><td>1.705MHz-30MHz</td><td>30</td><td>-</td><td>-</td><td>30</td></tr>
<tr><td>30MHz-88MHz</td><td>100</td><td>40.0</td><td>Quasi-peak</td><td>3</td></tr>
<tr><td>88MHz-216MHz</td><td>150</td><td>43.5</td><td>Quasi-peak</td><td>3</td></tr>
<tr><td>216MHz-960MHz</td><td>200</td><td>46.0</td><td>Quasi-peak</td><td>3</td></tr>
<tr><td>960MHz-1GHz</td><td>500</td><td>54.0</td><td>Quasi-peak</td><td>3</td></tr>
<tr><td>Above 1GHz</td><td>500</td><td>54.0</td><td>Average</td><td>3</td></tr>
</table>
Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.
</td></tr>
</table>

Test Setup:	

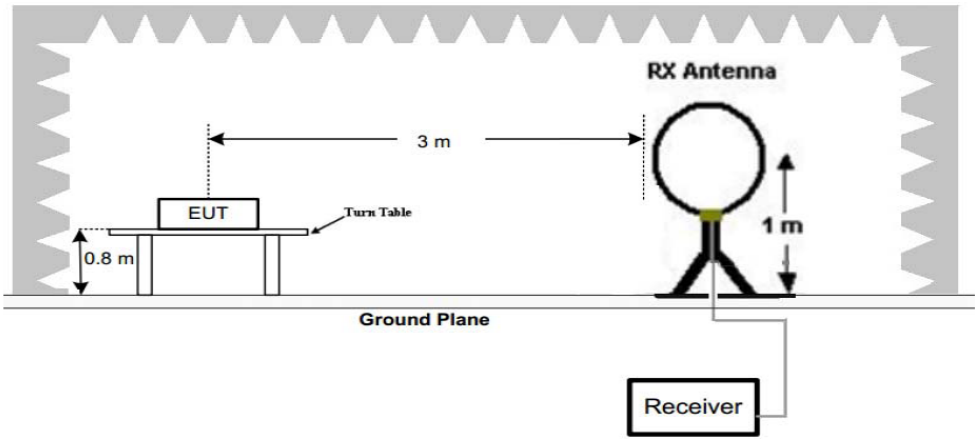


Figure 1. Below 30MHz

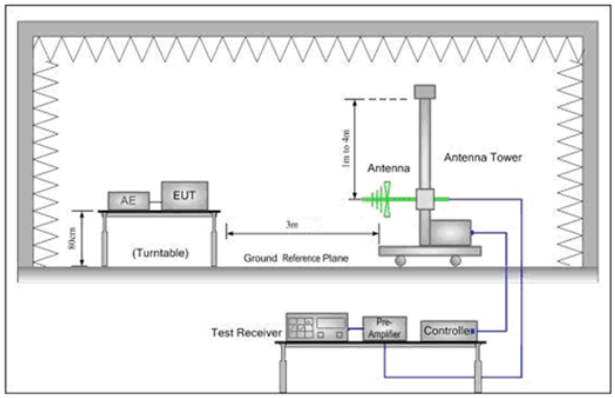


Figure 2. 30MHz to 1GHz

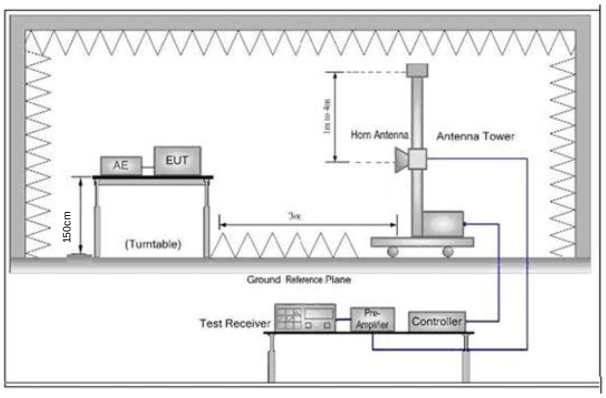


Figure 3. Above 1 GHz

Test Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. Note: For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. 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. d. 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. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. 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. g. Test the EUT in the lowest channel (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz) h. 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. i. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of data type
Final Test Mode:	Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode, For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Test Results:	Pass

5.11.1 Radiated Emission below 1GHz

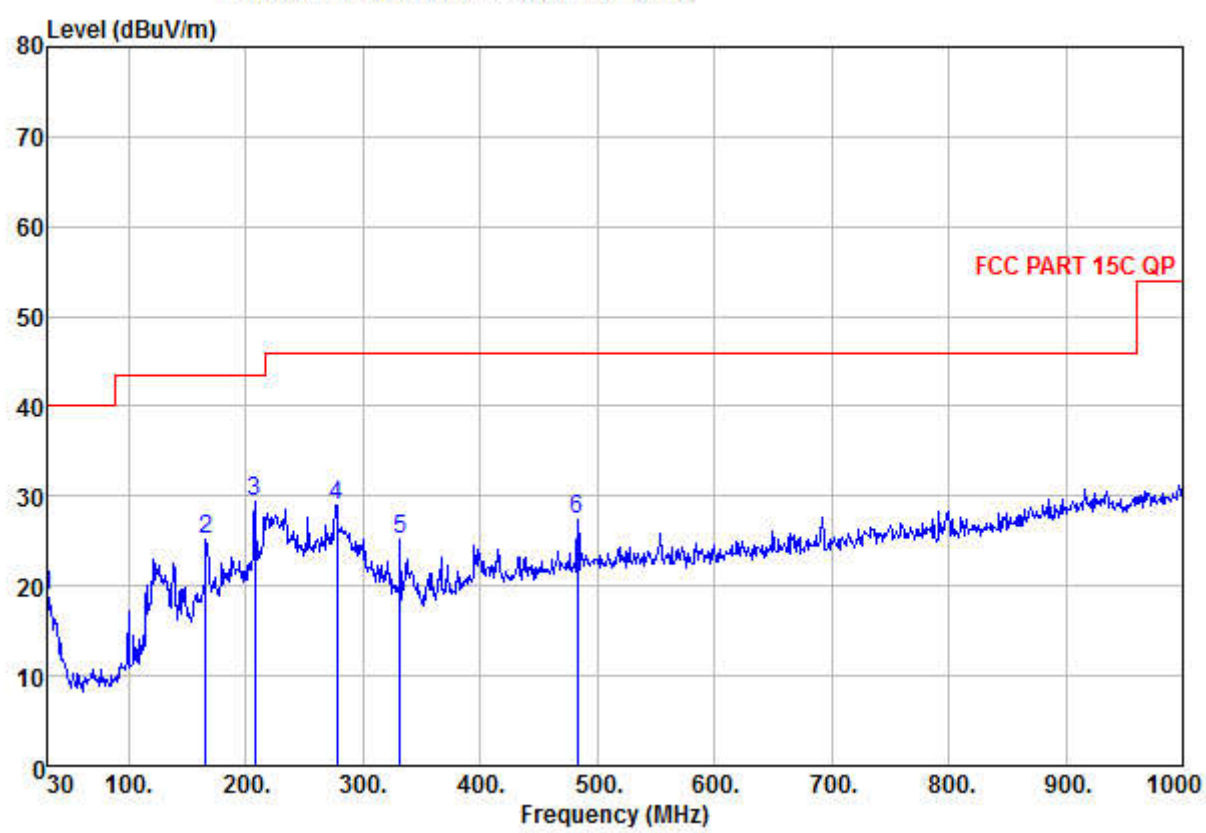
9kHz~30MHz (PEAK)		
Test mode:	Transmitting	Vertical

9kHz~30MHz Test result

The Low frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not report

5.11.2 Radiated Emission below 1GHz

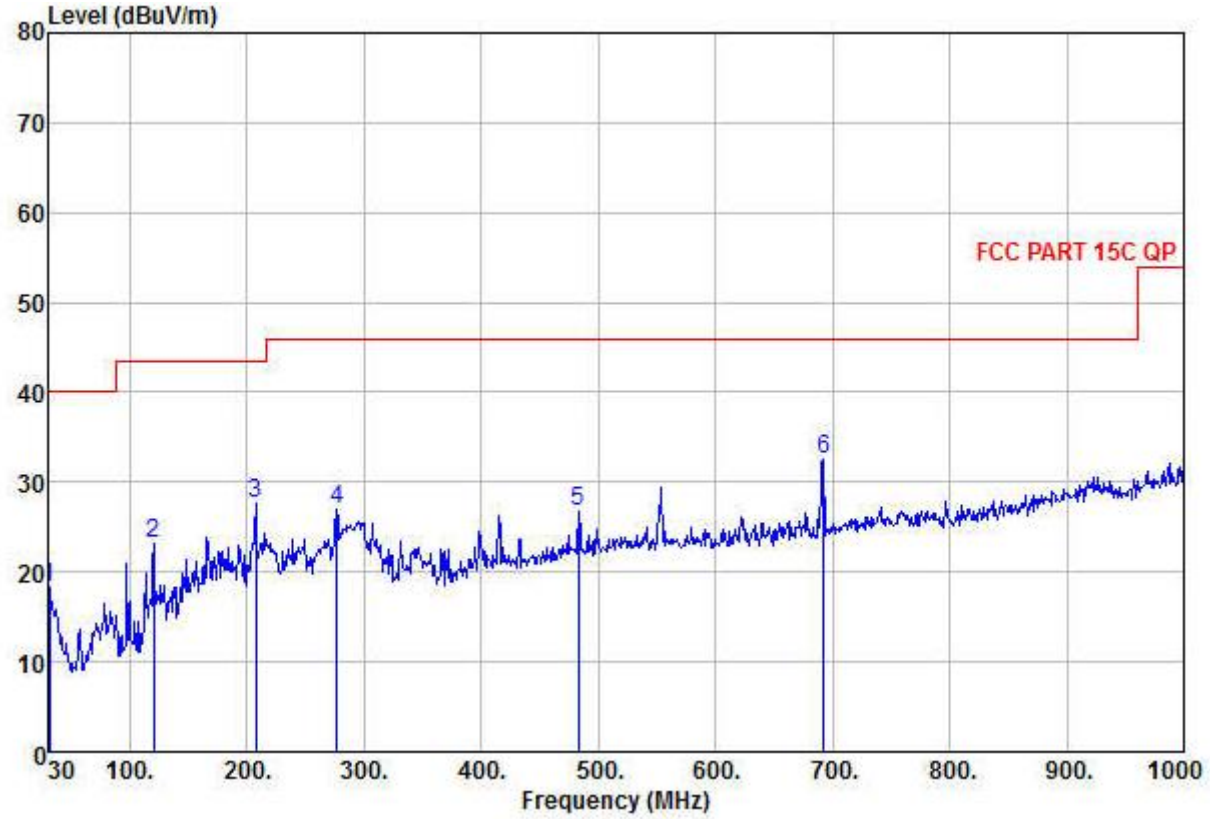
30MHz~1GHz (PEAK)		
Test mode:	Transmitting	Vertical



No.	Freq	Reading	Antenna Factor	Cable Loss	Measured	Limit Line	Preamp Factor	Over limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	dB	
1	30.00	33.99	17.20	0.12	18.91	40.00	32.40	-21.09	Peak
2	165.80	46.77	10.31	0.27	25.28	43.50	32.07	-18.22	Peak
3	207.51	50.12	10.97	0.32	29.49	43.50	31.92	-14.01	Peak
4	277.35	46.37	13.44	0.37	28.95	46.00	31.23	-17.05	Peak
5	331.67	41.42	14.31	0.40	25.13	46.00	31.00	-20.87	Peak
6	482.99	38.85	19.06	0.49	27.40	46.00	31.00	-18.60	Peak

Note: 1. Standards need to read Quasi-peak values.
2. Measured= Antenna Factor + Cable Loss + Reading - Preamp Factor

Test mode:	Transmitting	Horizontal



No.	Freq	Reading	Antenna Factor	Cable Loss	Measured	Limit Line	Preamp Factor	Over limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	dB	
1	30.97	33.82	16.69	0.12	18.22	40.00	32.41	-21.78	Peak
2	120.21	46.67	8.42	0.22	23.15	43.50	32.16	-20.35	Peak
3	207.51	48.37	10.97	0.32	27.74	43.50	31.92	-15.76	Peak
4	276.38	44.33	13.42	0.37	26.88	46.00	31.24	-19.12	Peak
5	482.99	38.12	19.06	0.49	26.67	46.00	31.00	-19.33	Peak
6	692.51	41.13	21.64	0.59	32.55	46.00	30.81	-13.45	Peak

Note: 1. Standards need to read Quasi-peak values.
2. Measured= Antenna Factor + Cable Loss + Reading - Preamp Factor

5.11.3 Transmitter Emission 1-26.5GHz

Worse case mode:	GFSK(DH5)	Test channel:	Lowest

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4804	48.92	-5.18	43.74	74	-30.26	peak	H
4804	37.51	-5.18	32.33	54	-21.67	AVG	H
7206	48.54	-6.45	42.09	74	-31.91	peak	H
7206	35.33	-6.45	28.88	54	-25.12	AVG	H
4804	49.67	-5.18	44.49	74	-29.51	peak	V
4804	36.80	-5.18	31.62	54	-22.38	AVG	V
7206	48.90	-6.45	42.45	74	-31.55	peak	V
7206	36.23	-6.45	29.78	54	-24.22	AVG	V

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2390	48.38	-4.36	44.02	74	-29.98	peak	H
2390	35.02	-4.36	30.66	54	-23.34	AVG	H
2400	53.18	-4.36	48.82	74	-25.18	peak	H
2400	40.65	-4.36	36.29	54	-17.71	AVG	H
2390	45.70	-4.36	41.34	74	-32.66	peak	V
2390	34.72	-4.36	30.36	54	-23.64	AVG	V
2400	54.23	-4.36	49.87	74	-24.13	peak	V
2400	41.13	-4.36	36.77	54	-17.23	AVG	V

Worse case mode:	GFSK(DH5)	Test channel:	Middle

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4882	49.42	-5.19	44.23	74	-29.77	peak	H
4882	36.09	-5.19	30.90	54	-23.10	AVG	H
7323	48.39	-6.47	41.92	74	-32.08	peak	H
7323	36.54	-6.47	30.07	54	-23.93	AVG	H
4882	49.83	-5.19	44.64	74	-29.36	peak	V
4882	36.22	-5.19	31.03	54	-22.97	AVG	V
7323	49.14	-6.47	42.67	74	-31.33	peak	V
7323	36.09	-6.47	29.62	54	-24.38	AVG	V

Worse case mode:	GFSK(DH5)	Test channel:	Highest

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
4960	49.27	-5.2	44.07	74	-29.93	peak	H
4960	37.07	-5.2	31.87	54	-22.13	AVG	H
7440	51.23	-6.47	44.76	74	-29.24	peak	H
7440	37.76	-6.47	31.29	54	-22.71	AVG	H
4960	49.84	-5.2	44.64	74	-29.36	peak	V
4960	38.28	-5.2	33.08	54	-20.92	AVG	V
7440	51.05	-6.47	44.58	74	-29.42	peak	V
7440	37.59	-6.47	31.12	54	-22.88	AVG	V

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
2483.5	59.65	-4.22	55.43	74	-18.57	peak	H
2483.5	47.30	-4.22	43.08	54	-10.92	AVG	H
2483.5	61.32	-4.22	57.10	74	-16.90	peak	V
2483.5	45.98	-4.22	41.76	54	-12.24	AVG	V

Remark:

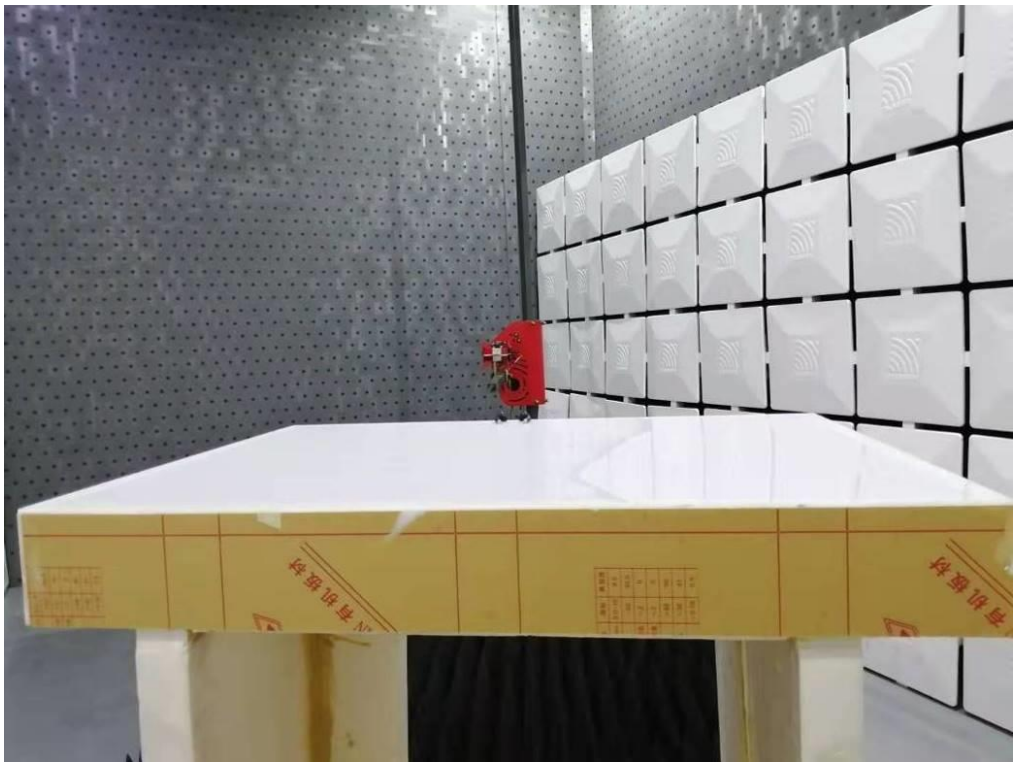
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low.

6 Photographs - EUT Test Setup

6.1 Radiated Emission

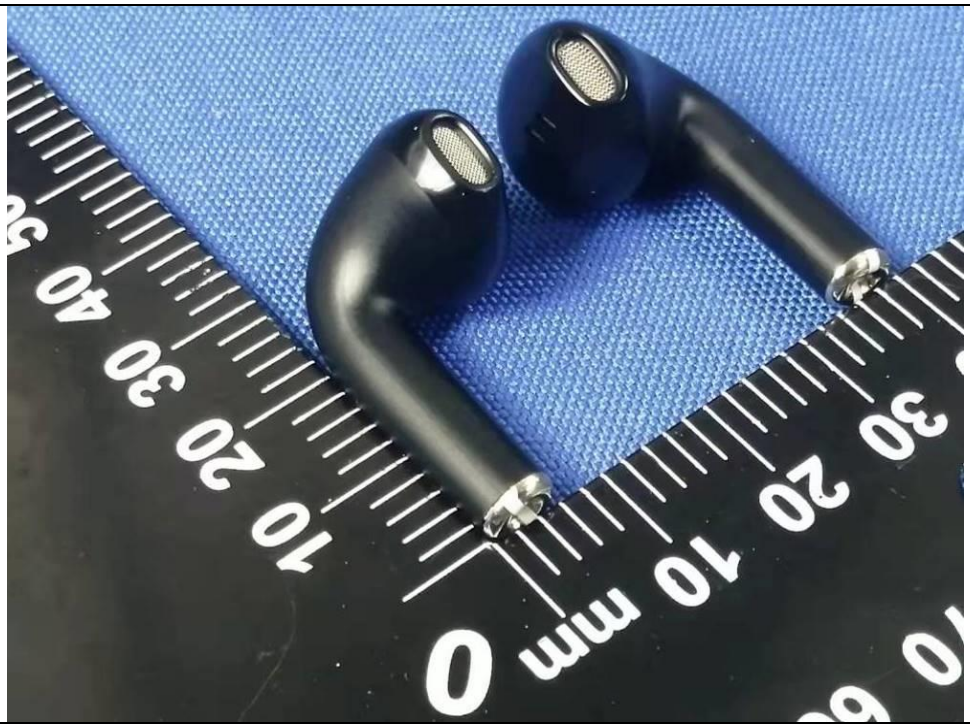
Below 1GHz:

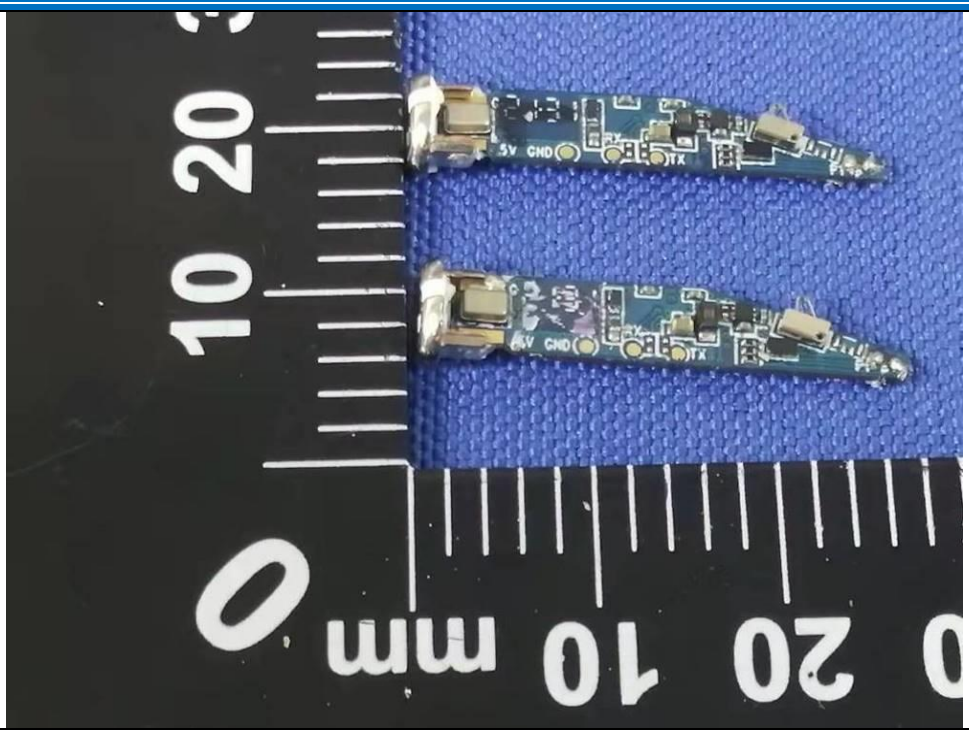
Above 1GHz:

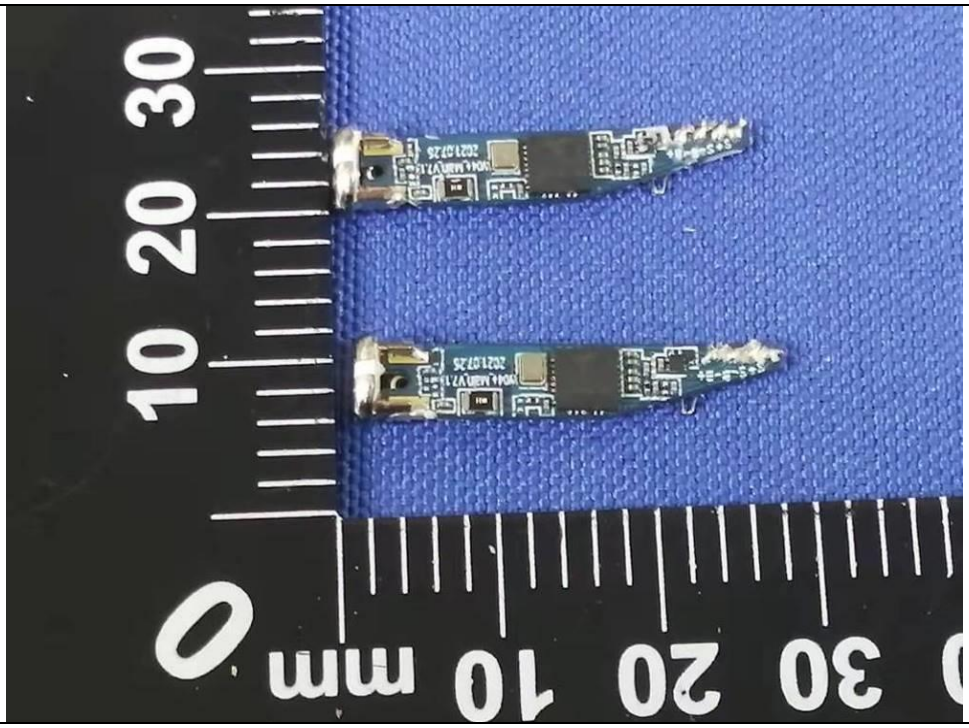


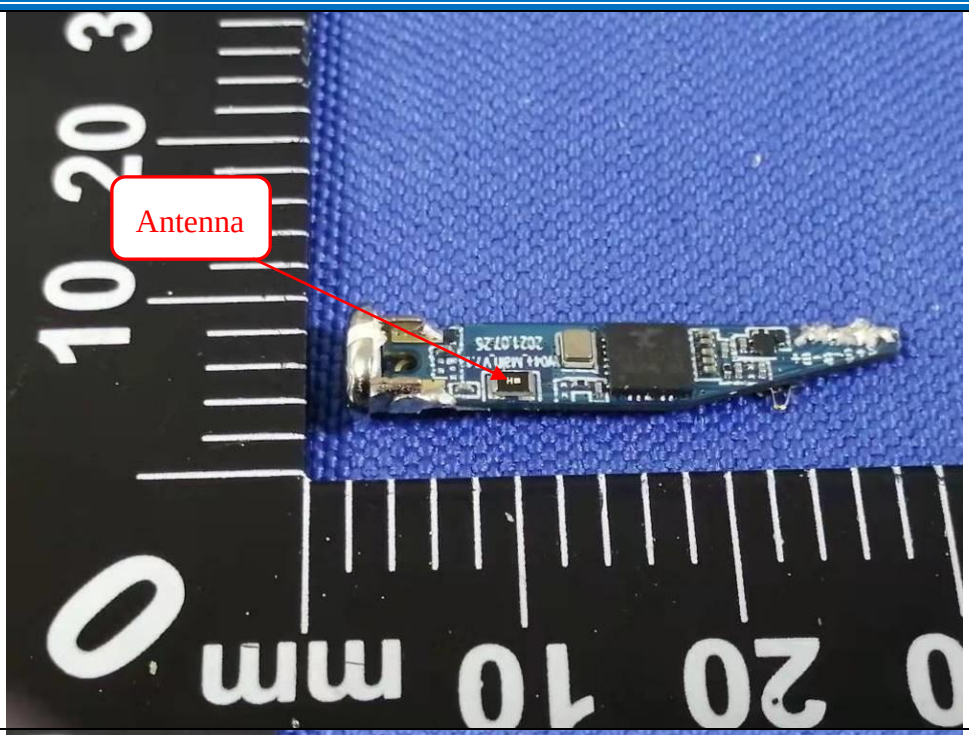
Conducted Emissions

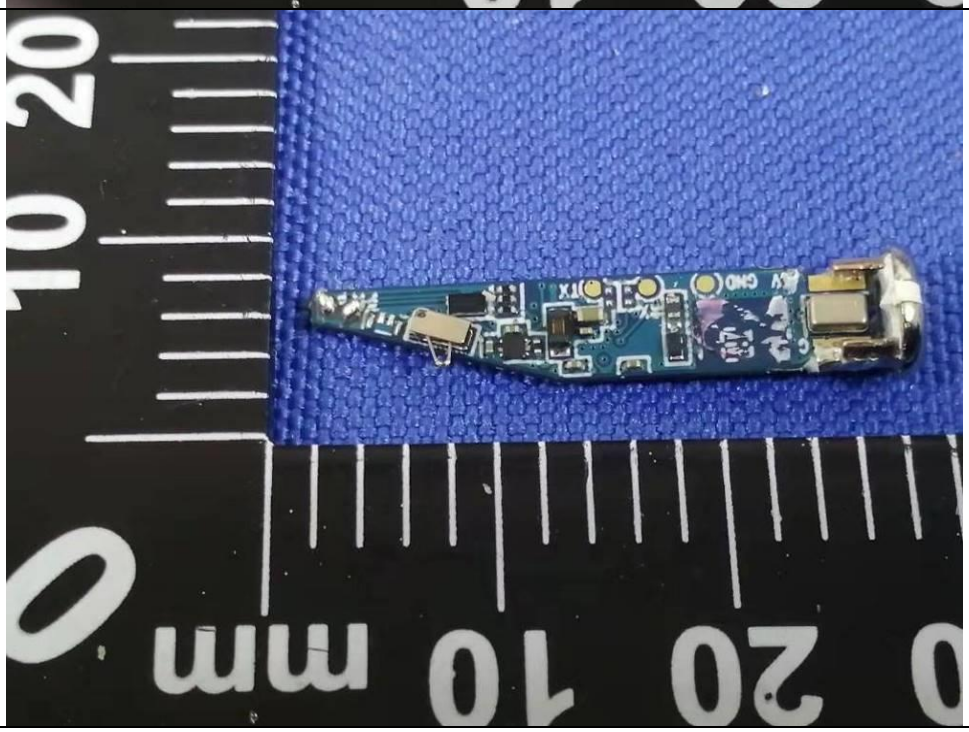
7 Photographs - EUT Constructional Details




5V GND TX
5V GND TX
0 10 20 mm 0 10 20


0 10 20 30 mm 0 10 20 30





*** End of Report ***