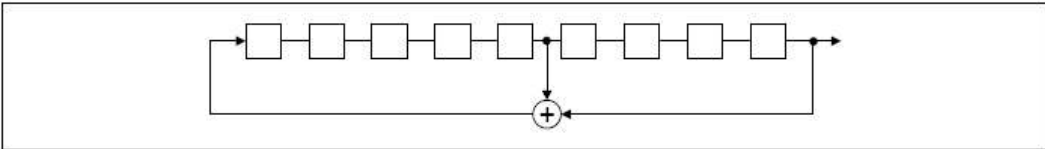
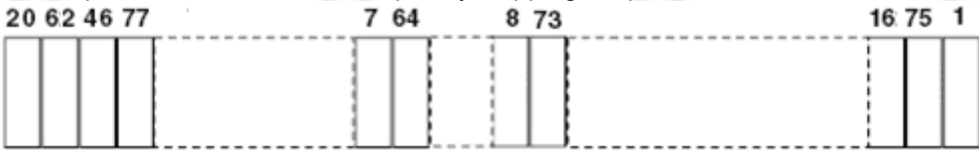


## Appendix H) Pseudorandom Frequency Hopping Sequence

<b>Test Requirement:</b>	<b>47 CFR Part 15C Section 15.247 (a)(1) requirement:</b>
<p>Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.</p> <p>Alternatively, Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. 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.</p>	
<b>EUT Pseudorandom Frequency Hopping Sequence</b>	
<p>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.</p> <ul style="list-style-type: none"> <li>• Number of shift register stages: 9</li> <li>• Length of pseudo-random sequence: <math>2^9 - 1 = 511</math> bits</li> <li>• Longest sequence of zeros: 8 (non-inverted signal)</li> </ul>	
	
<p><i>Linear Feedback Shift Register for Generation of the PRBS sequence</i></p>	
<p>An example of Pseudorandom Frequency Hopping Sequence as follow:</p>	
	
<p>Each frequency used equally on the average by each transmitter.</p> <p>The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.</p>	
<p>The device does not have the ability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.</p>	

## Appendix I) Antenna Requirement

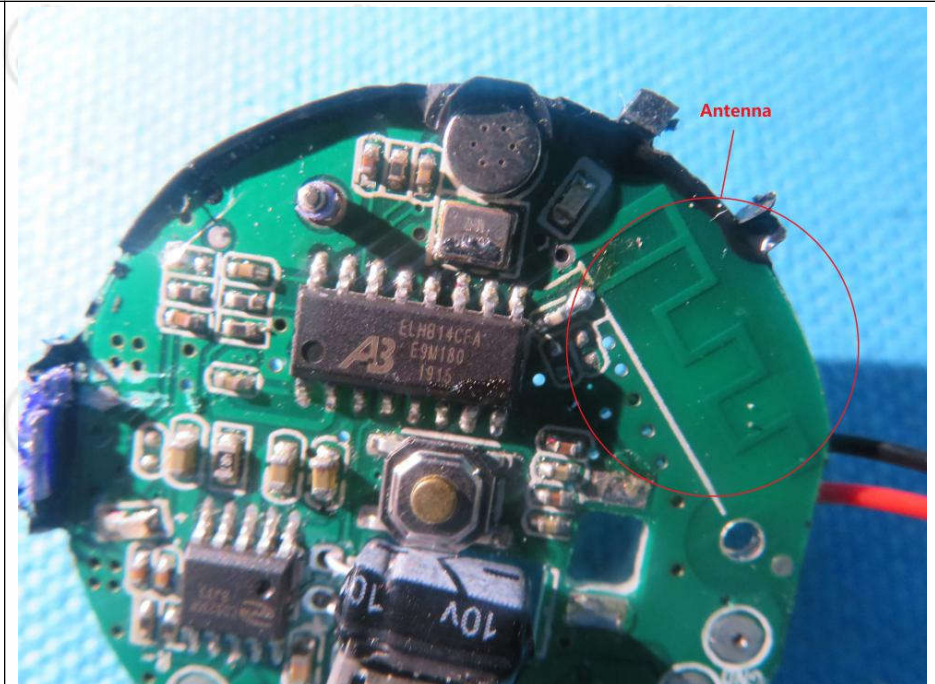
15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**EUT Antenna:**



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0 dBi.

## Appendix J) AC Power Line Conducted Emission

<p>Test Procedure:</p>	<p>Test frequency range :150KHz-30MHz</p> <ol style="list-style-type: none"> <li>1) The mains terminal disturbance voltage test was conducted in a shielded room.</li> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a <math>50\Omega/50\mu\text{H} + 5\Omega</math> 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.</li> <li>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,</li> <li>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.</li> <li>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.</li> </ol>																
<p>Limit:</p>	<table border="1" data-bbox="497 1167 1367 1384"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table> <p>* The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.</p> <p>NOTE : The lower limit is applicable at the transition frequency</p>			Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)																
	Quasi-peak	Average															
0.15-0.5	66 to 56*	56 to 46*															
0.5-5	56	46															
5-30	60	50															

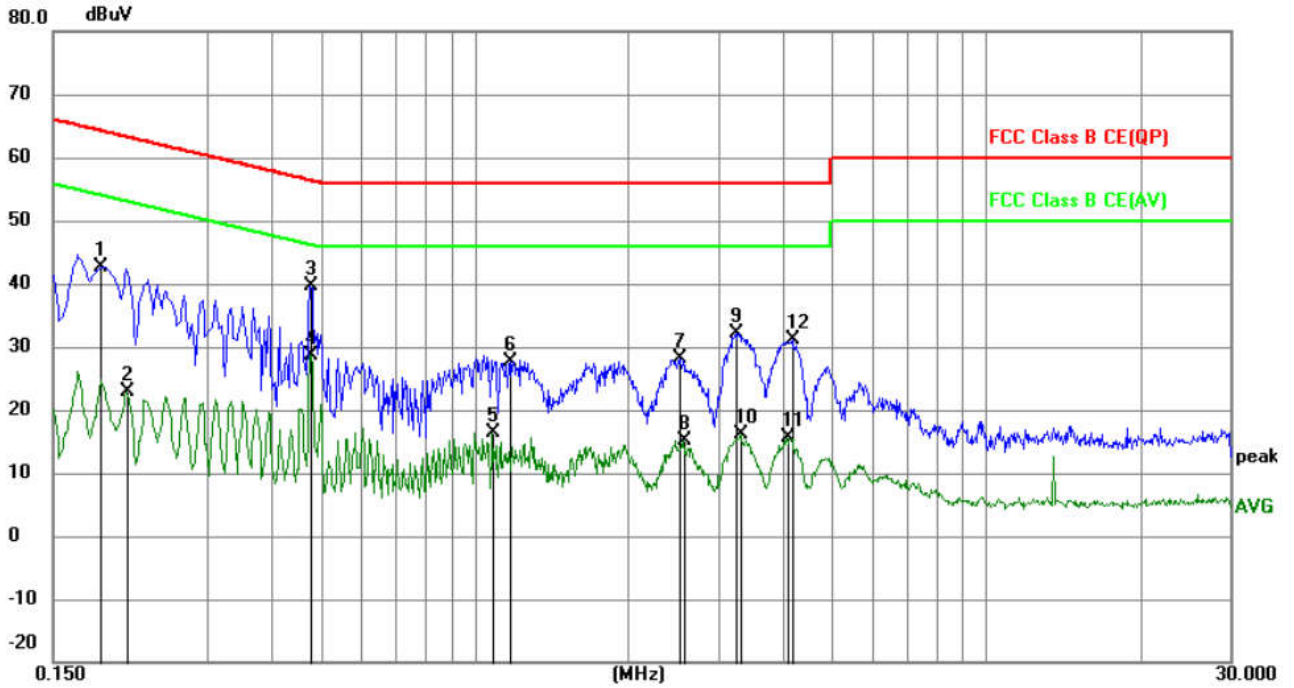


**Measurement Data**

An initial pre-scan was performed on the live and neutral lines with peak detector.

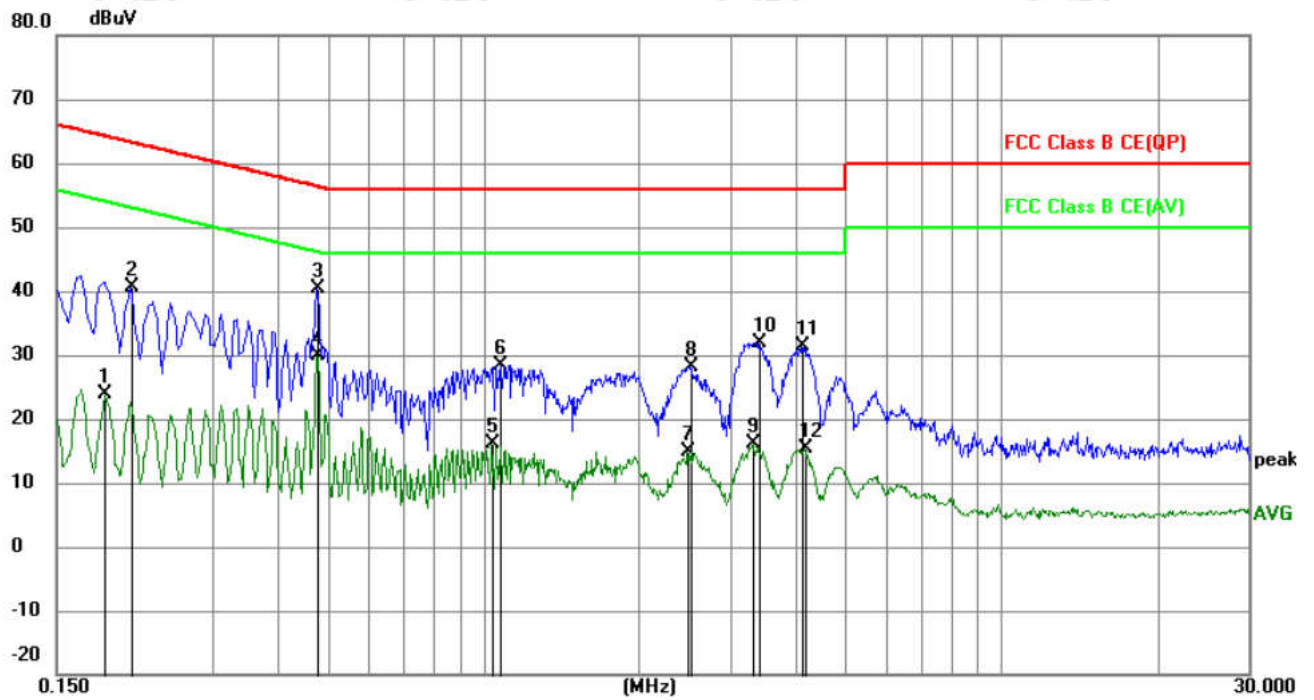
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1860	32.66	10.01	42.67	64.21	-21.54	QP	
2		0.2085	12.93	10.03	22.96	53.26	-30.30	AVG	
3	*	0.4785	29.52	10.00	39.52	56.37	-16.85	QP	
4		0.4785	18.72	10.00	28.72	46.37	-17.65	AVG	
5		1.0859	6.49	9.90	16.39	46.00	-29.61	AVG	
6		1.1760	17.81	9.90	27.71	56.00	-28.29	QP	
7		2.5260	18.22	9.83	28.05	56.00	-27.95	QP	
8		2.5665	5.26	9.83	15.09	46.00	-30.91	AVG	
9		3.2550	22.21	9.83	32.04	56.00	-23.96	QP	
10		3.3180	6.26	9.83	16.09	46.00	-29.91	AVG	
11		4.0875	5.76	9.83	15.59	46.00	-30.41	AVG	
12		4.1865	21.26	9.83	31.09	56.00	-24.91	QP	

Neutral line:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1860	13.78	10.01	23.79	54.21	-30.42	AVG	
2		0.2085	30.48	10.03	40.51	63.26	-22.75	QP	
3	*	0.4785	30.44	10.00	40.44	56.37	-15.93	QP	
4		0.4785	19.87	10.00	29.87	46.37	-16.50	AVG	
5		1.0410	6.19	9.91	16.10	46.00	-29.90	AVG	
6		1.0815	18.60	9.90	28.50	56.00	-27.50	QP	
7		2.4765	4.95	9.83	14.78	46.00	-31.22	AVG	
8		2.5080	18.42	9.83	28.25	56.00	-27.75	QP	
9		3.3135	6.20	9.83	16.03	46.00	-29.97	AVG	
10		3.4170	22.12	9.83	31.95	56.00	-24.05	QP	
11		4.1280	21.49	9.83	31.32	56.00	-24.68	QP	
12		4.1685	5.53	9.83	15.36	46.00	-30.64	AVG	

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

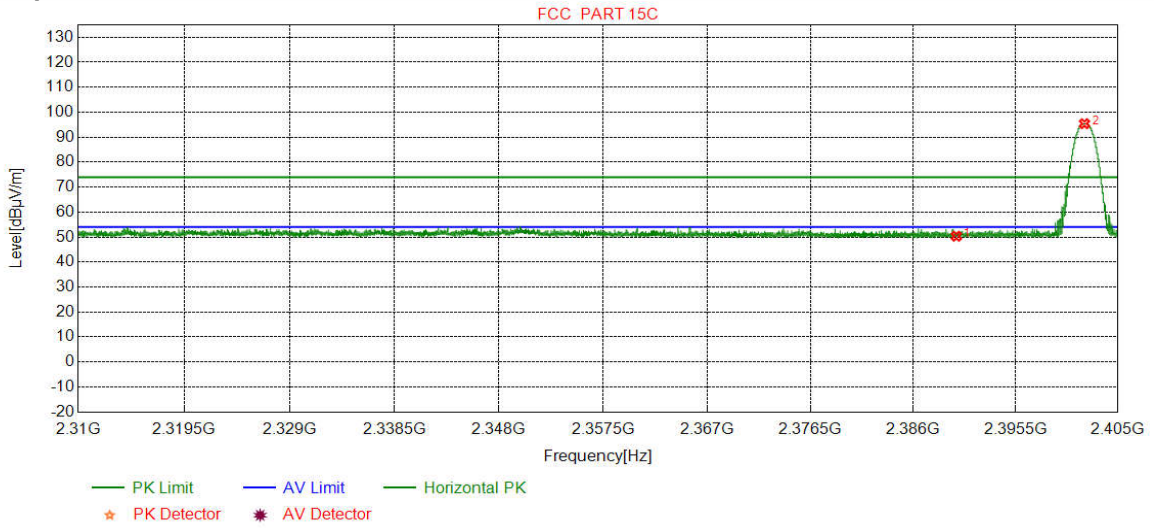
## Appendix K) Restricted bands around fundamental frequency (Radiated)

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Test Procedure:	<p><b>Below 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>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.</li> <li>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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel</li> </ol> <p><b>Above 1GHz test procedure as below:</b></p> <ol style="list-style-type: none"> <li>Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre( Above 18GHz the distance is 1 meter and table is 1.5 metre).</li> <li>b. Test the EUT in the lowest channel , the Highest channel</li> <li>The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case.</li> <li>Repeat above procedures until all frequencies measured was complete.</li> </ol>				
Limit:	Frequency	Limit (dBuV/m @3m)	Remark		
	30MHz-88MHz	40.0	Quasi-peak Value		
	88MHz-216MHz	43.5	Quasi-peak Value		
	216MHz-960MHz	46.0	Quasi-peak Value		
	960MHz-1GHz	54.0	Quasi-peak Value		
	Above 1GHz	54.0	Average Value		
		74.0	Peak Value		

**Test plot as follows:**

Mode:	GFSK Transmitting	Channel:	2402
Remark:	PK		

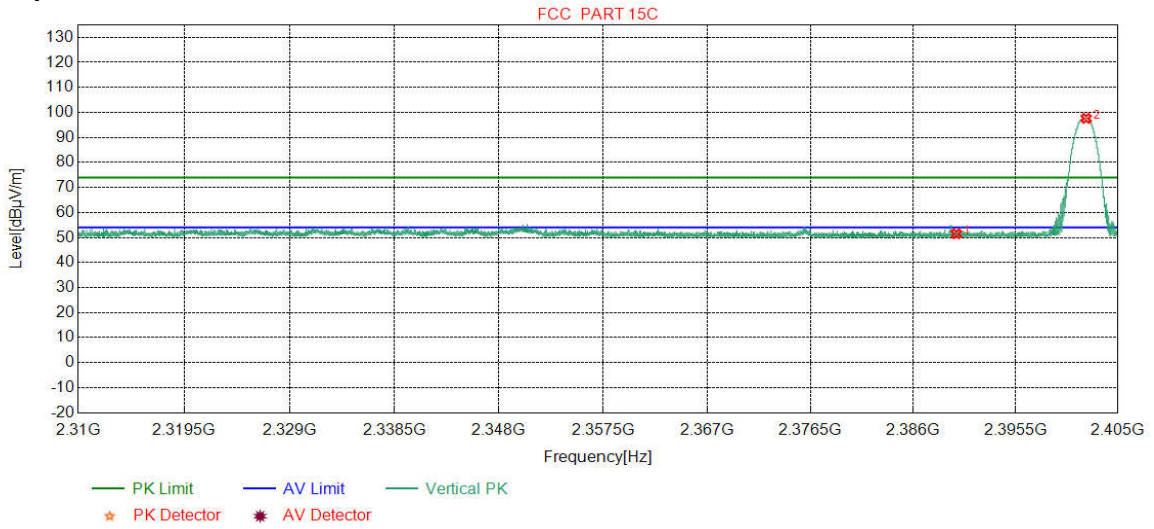
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	47.84	50.34	74.00	23.66	Pass	Horizontal
2	2401.8965	32.26	13.31	-43.12	92.95	95.40	74.00	-21.40	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2402
Remark:	PK		

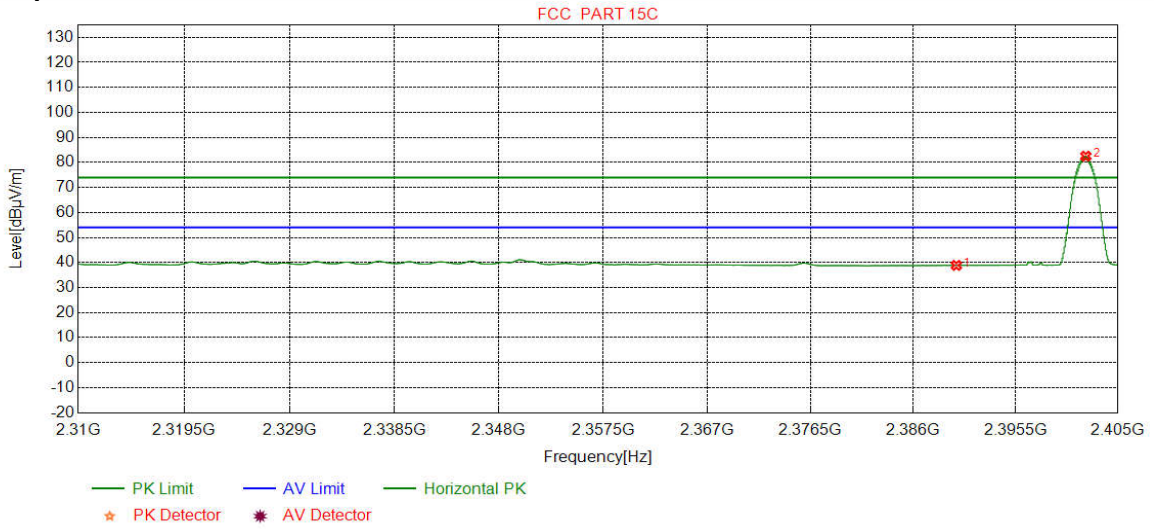
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	48.98	51.48	74.00	22.52	Pass	Vertical
2	2402.0548	32.26	13.31	-43.12	95.16	97.61	74.00	-23.61	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2402
Remark:	AV		

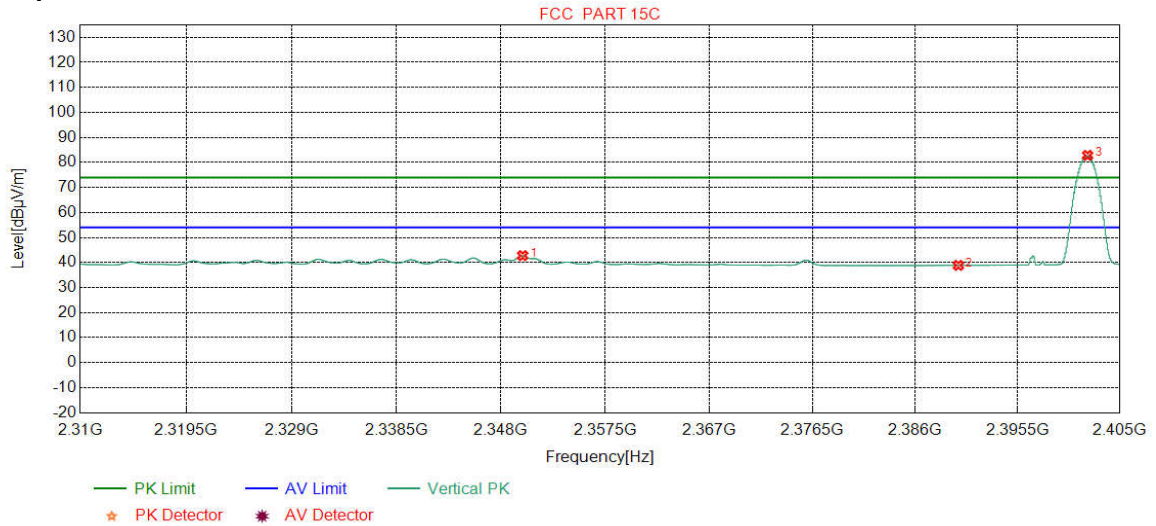
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	36.36	38.86	54.00	15.14	Pass	Horizontal
2	2402.0231	32.26	13.31	-43.12	80.06	82.51	54.00	-28.51	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2402
Remark:	AV		

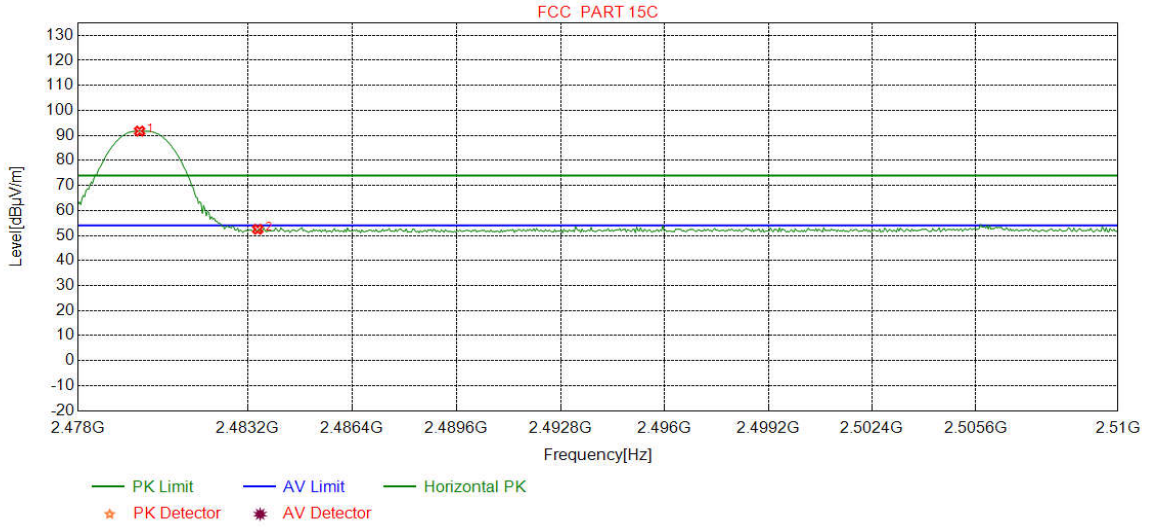
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2349.9723	32.19	13.67	-43.13	40.03	42.76	54.00	11.24	Pass	Vertical
2	2390.0000	32.25	13.37	-43.12	36.37	38.87	54.00	15.13	Pass	Vertical
3	2402.0041	32.26	13.31	-43.12	80.37	82.82	54.00	-28.82	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2480
Remark:	PK		

**Test Graph**

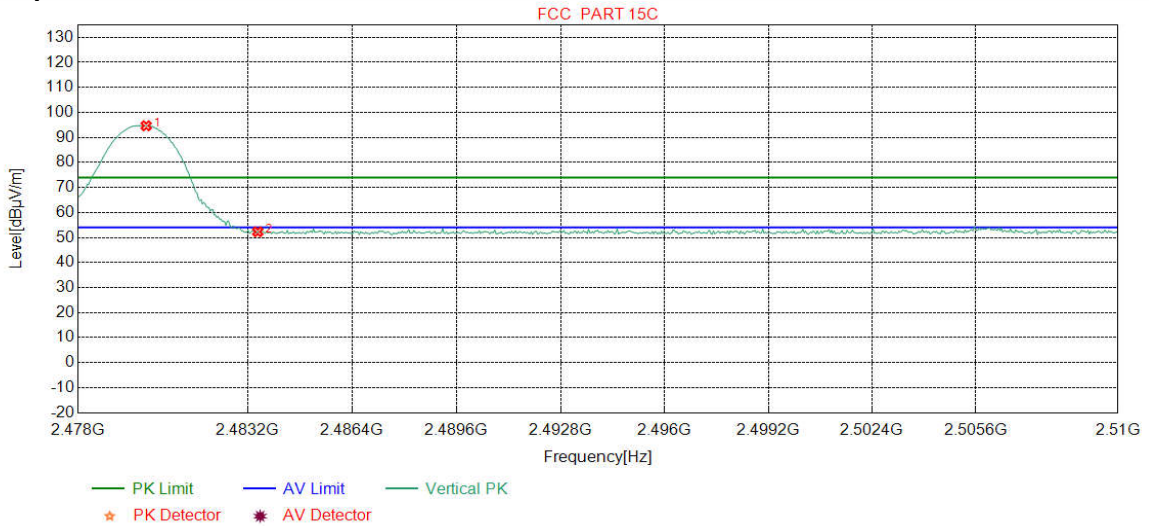


NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2479.8824	32.37	13.39	-43.10	89.06	91.72	74.00	-17.72	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	49.83	52.48	74.00	21.52	Pass	Horizontal



Mode:	GFSK Transmitting	Channel:	2480
Remark:	PK		

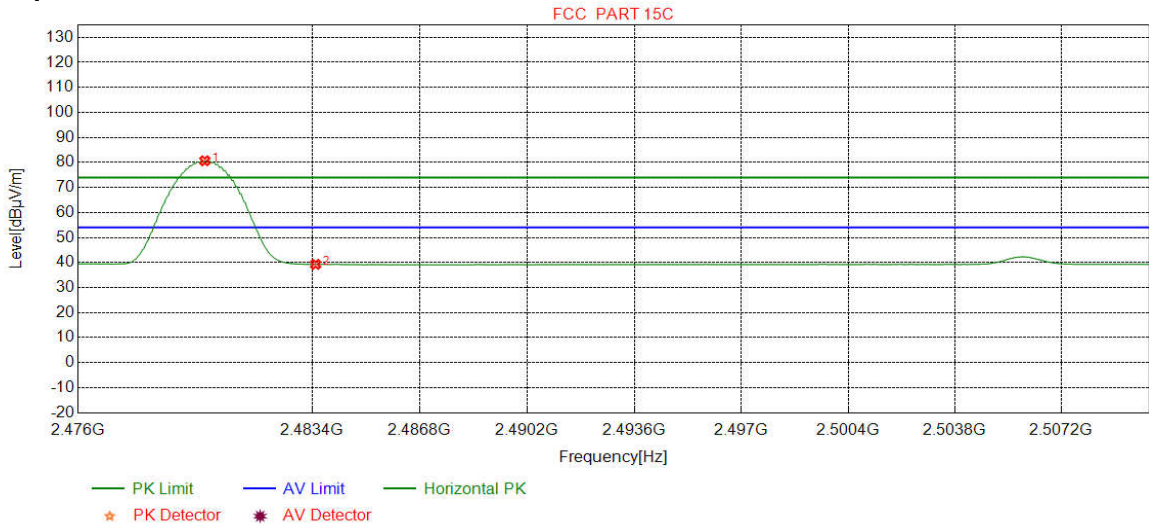
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0826	32.37	13.39	-43.10	92.00	94.66	74.00	-20.66	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	49.65	52.30	74.00	21.70	Pass	Vertical

Mode:	GFSK Transmitting	Channel:	2480
Remark:	AV		

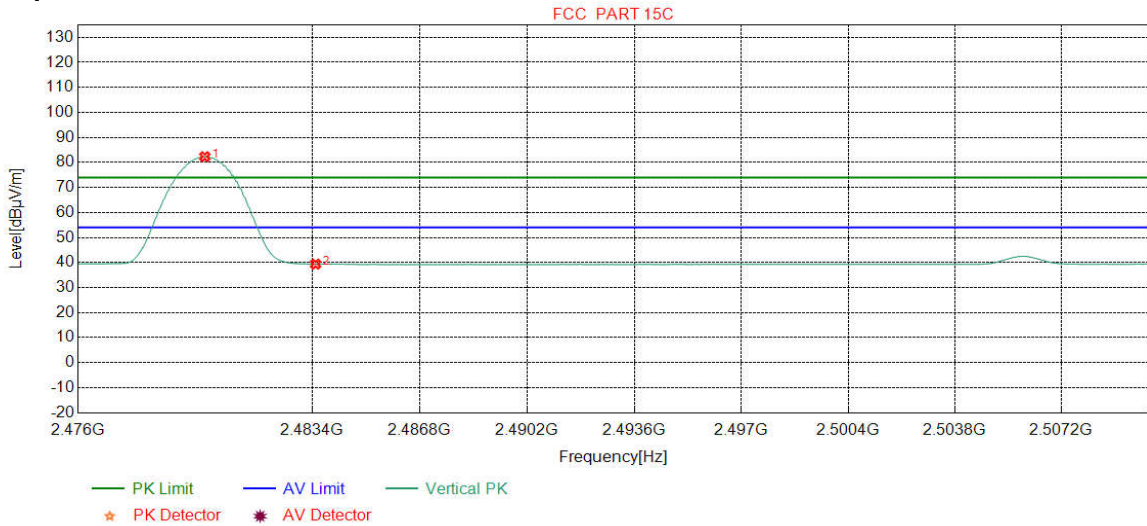
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	78.00	80.66	54.00	-26.66	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	36.62	39.27	54.00	14.73	Pass	Horizontal

Mode:	GFSK Transmitting	Channel:	2480
Remark:	AV		

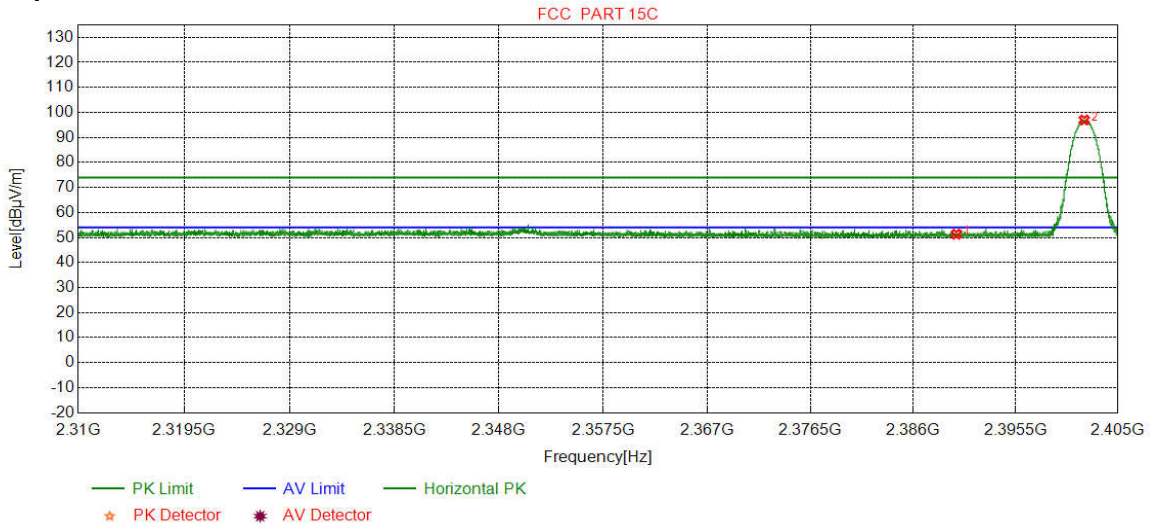
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	79.66	82.32	54.00	-28.32	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	36.71	39.36	54.00	14.64	Pass	Vertical

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	PK		

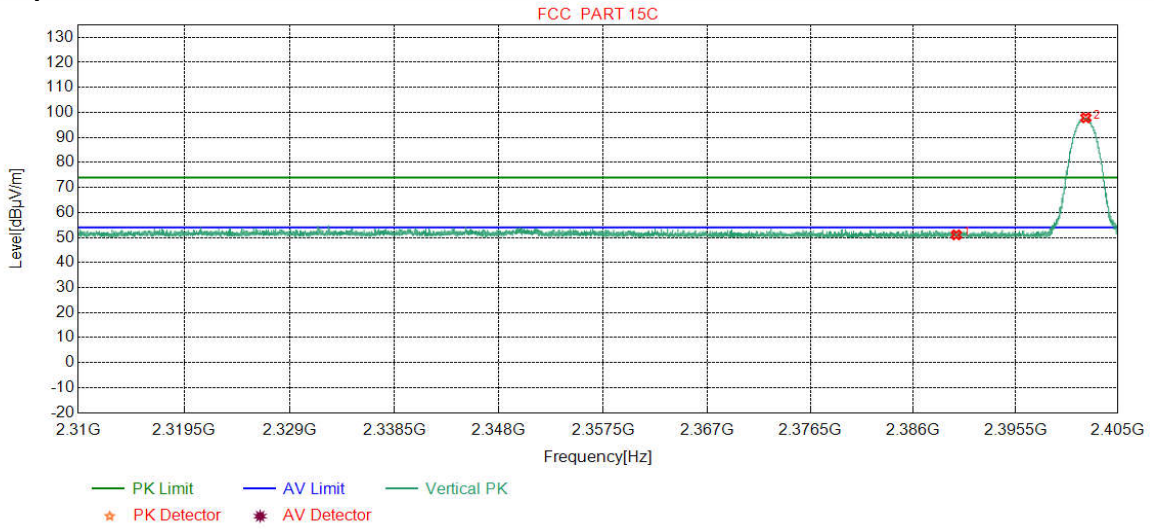
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	48.82	51.32	74.00	22.68	Pass	Horizontal
2	2401.8775	32.26	13.31	-43.12	94.51	96.96	74.00	-22.96	Pass	Horizontal

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	PK		

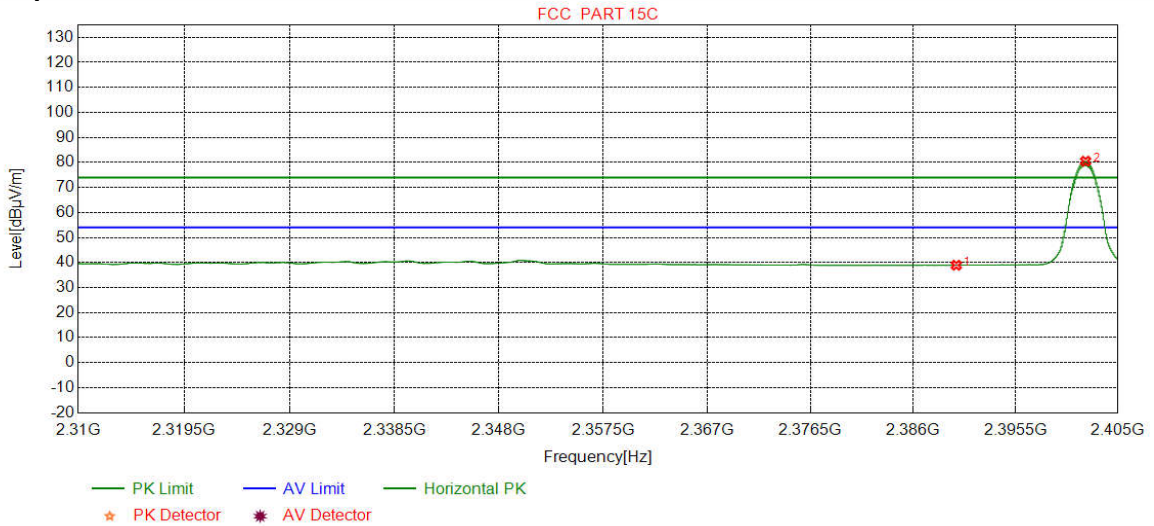
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	48.55	51.05	74.00	22.95	Pass	Vertical
2	2402.0295	32.26	13.31	-43.12	95.38	97.83	74.00	-23.83	Pass	Vertical

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	AV		

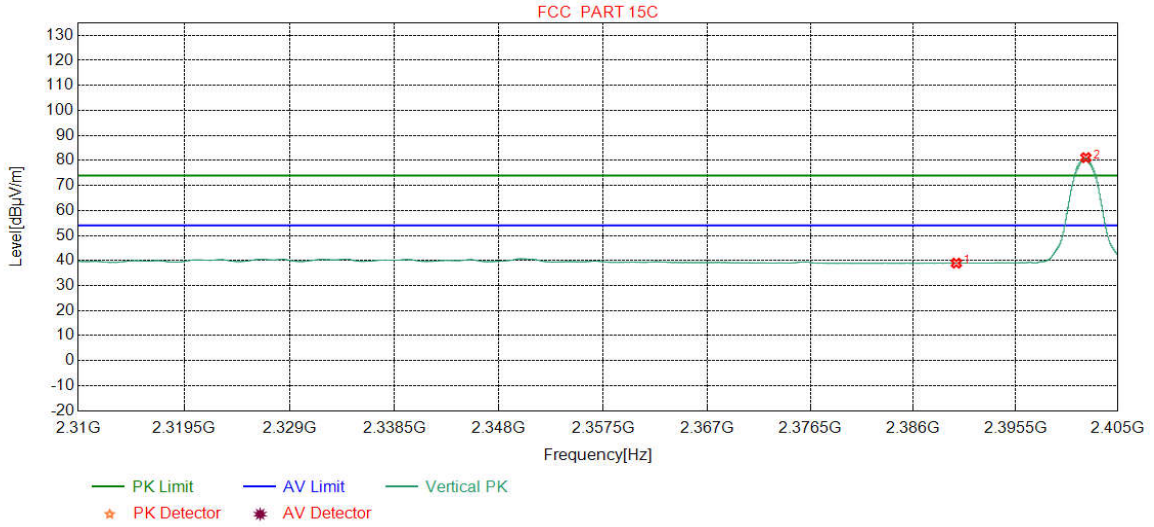
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	36.43	38.93	54.00	15.07	Pass	Horizontal
2	2402.0041	32.26	13.31	-43.12	78.05	80.50	54.00	-26.50	Pass	Horizontal

Mode:	8DPSK Transmitting	Channel:	2402
Remark:	AV		

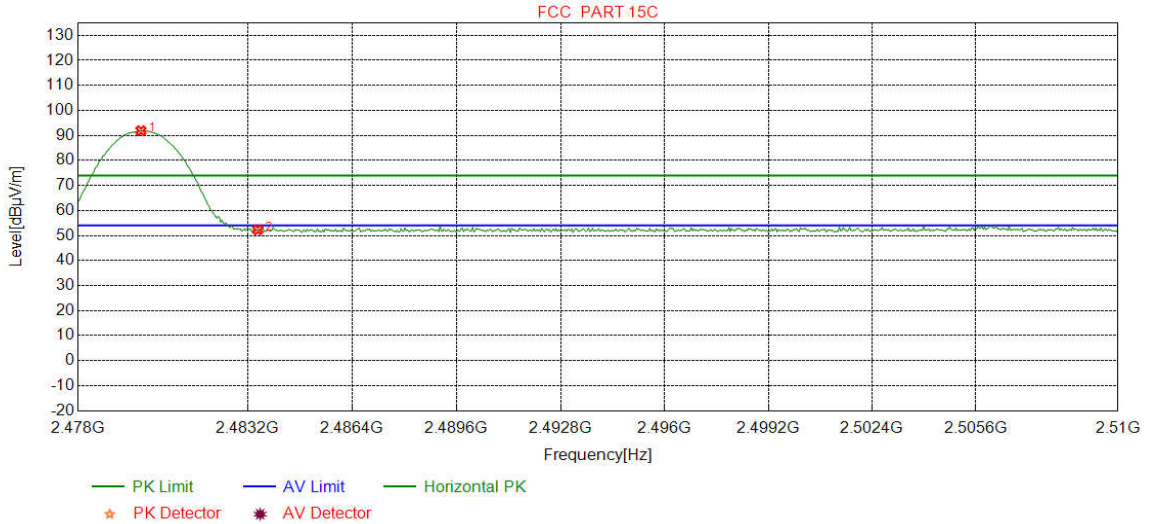
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2390.0000	32.25	13.37	-43.12	36.45	38.95	54.00	15.05	Pass	Vertical
2	2402.0295	32.26	13.31	-43.12	78.66	81.11	54.00	-27.11	Pass	Vertical

Mode:	8DPSK Transmitting	Channel:	2480
Remark:	PK		

**Test Graph**

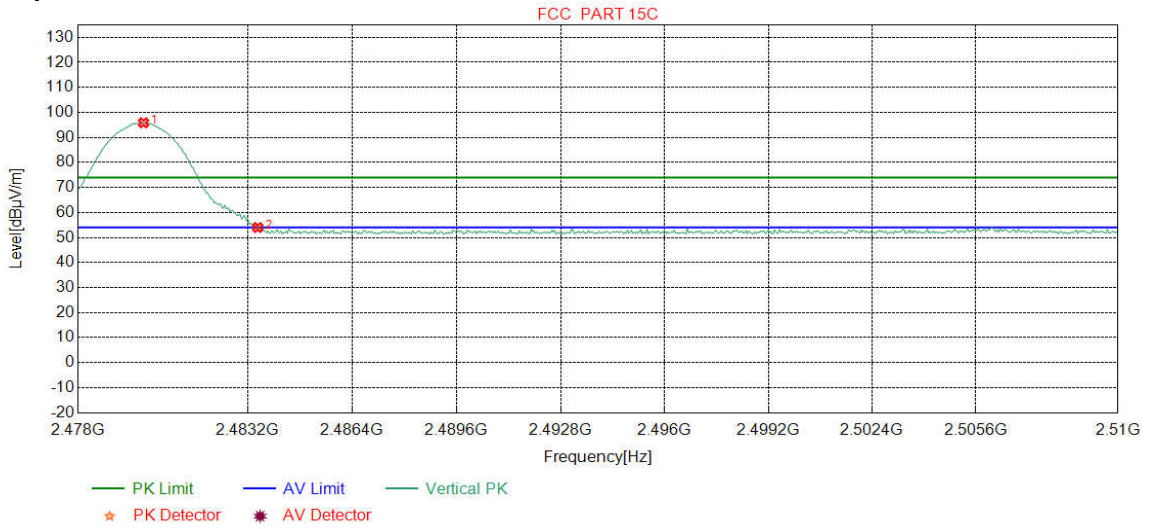


NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2479.9224	32.37	13.39	-43.10	89.22	91.88	74.00	-17.88	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	49.62	52.27	74.00	21.73	Pass	Horizontal



Mode:	8DPSK Transmitting	Channel:	2480
Remark:	PK		

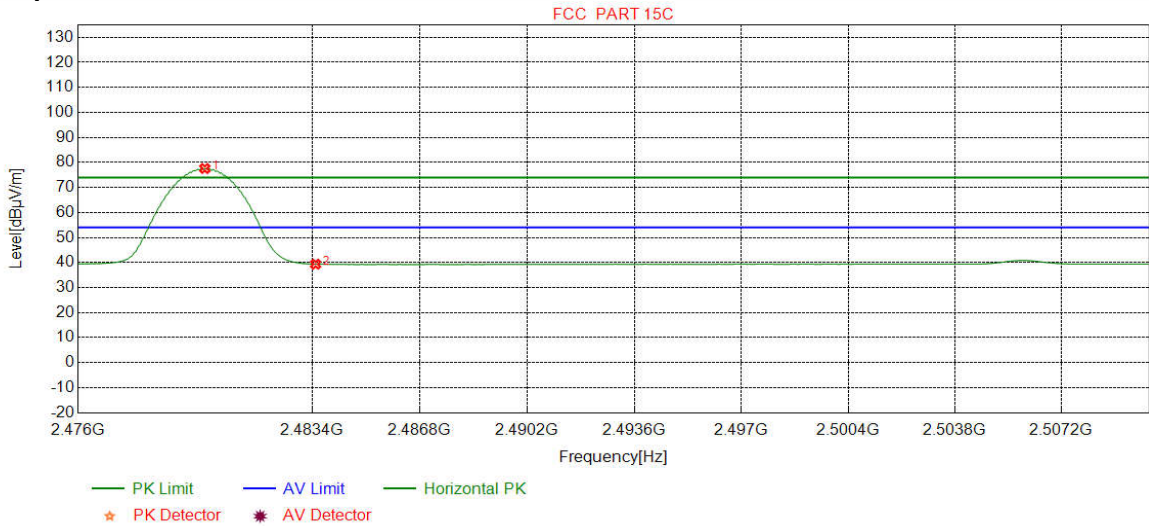
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0025	32.37	13.39	-43.10	93.20	95.86	74.00	-21.86	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	51.35	54.00	74.00	20.00	Pass	Vertical

Mode:	8DPSK Transmitting	Channel:	2480
Remark:	AV		

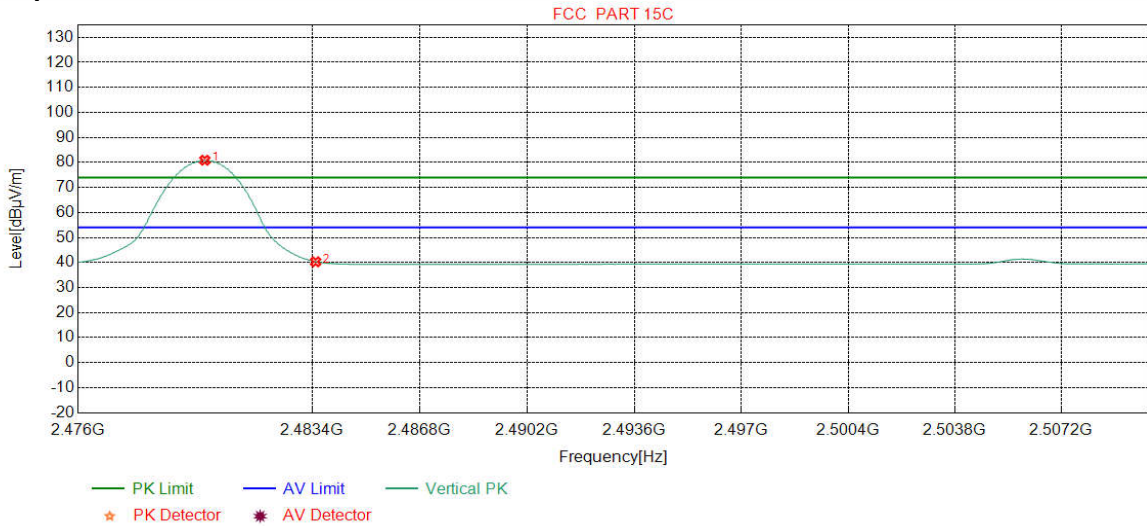
**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	74.91	77.57	54.00	-23.57	Pass	Horizontal
2	2483.5000	32.38	13.38	-43.11	36.69	39.34	54.00	14.66	Pass	Horizontal

Mode:	8DPSK Transmitting	Channel:	2480
Remark:	AV		

**Test Graph**



NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity
1	2480.0000	32.37	13.39	-43.10	78.23	80.89	54.00	-26.89	Pass	Vertical
2	2483.5000	32.38	13.38	-43.11	37.63	40.28	54.00	13.72	Pass	Vertical

**Note:**

1) Through Pre-scan Non-hopping transmitting mode and charge+transmitter mode with all kind of modulation and all kind of data type, find the DH5 of data type is the worse case of GFSK modulation type in charge + transmitter mode.

2) 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 - Correct Factor

Correct Factor = Preamplifier Factor - Antenna Factor - Cable Factor

## Appendix L) Radiated Spurious Emissions

Receiver Setup:					
Frequency	Detector	RBW	VBW	Remark	
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak	
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average	
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak	
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average	
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	
30MHz-1GHz	Quasi-peak	120 kHz	300kHz	Quasi-peak	
Above 1GHz	Peak	1MHz	3MHz	Peak	
	Peak	1MHz	10Hz	Average	

Test Procedure:					
<b>Below 1GHz test procedure as below:</b>					
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.					
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.					
<b>Above 1GHz test procedure as below:</b>					
g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre( Above 18GHz the distance is 1 meter and table is 1.5 metre).					
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 worse case.					
j. Repeat above procedures until all frequencies measured was complete.					
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
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.					

**Radiated Spurious Emissions test Data:**  
**Radiated Emission below 1GHz**

Mode:			GFSK Transmitting				Channel:		2441		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	71.9082	8.64	0.97	-32.02	52.85	30.44	40.00	9.56	Pass	H	PK
2	95.9666	10.35	1.13	-31.97	53.78	33.29	43.50	10.21	Pass	H	PK
3	155.9186	7.76	1.46	-31.99	52.19	29.42	43.50	14.08	Pass	H	PK
4	300.1720	13.20	2.06	-31.40	51.17	35.03	46.00	10.97	Pass	H	PK
5	555.1135	18.10	2.81	-31.97	50.92	39.86	46.00	6.14	Pass	H	PK
6	974.9715	22.55	3.75	-30.95	42.69	38.04	54.00	15.96	Pass	H	PK
7	39.6040	12.17	0.71	-31.30	43.36	24.94	40.00	15.06	Pass	V	PK
8	84.0344	8.03	1.06	-31.98	51.05	28.16	40.00	11.84	Pass	V	PK
9	120.0250	9.20	1.30	-32.07	53.78	32.21	43.50	11.29	Pass	V	PK
10	315.2085	13.53	2.11	-31.86	46.19	29.97	46.00	16.03	Pass	V	PK
11	554.4344	18.09	2.80	-31.97	49.28	38.20	46.00	7.80	Pass	V	PK
12	974.9715	22.55	3.75	-30.95	42.54	37.89	54.00	16.11	Pass	V	PK

**Transmitter Emission above 1GHz**

Mode:			GFSK Transmitting				Channel:		2402		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	2657.3657	32.65	4.09	-43.09	55.90	49.55	74.00	24.45	Pass	H	PK
2	3735.0490	33.59	4.32	-43.06	50.03	44.88	74.00	29.12	Pass	H	PK
3	4804.0000	34.50	4.55	-42.80	55.36	51.61	74.00	22.39	Pass	H	PK
4	7206.0000	36.31	5.81	-42.16	46.75	46.71	74.00	27.29	Pass	H	PK
5	9608.0000	37.64	6.63	-42.10	48.28	50.45	74.00	23.55	Pass	H	PK
6	12010.0000	39.31	7.60	-41.90	46.32	51.33	74.00	22.67	Pass	H	PK
7	2125.9126	31.88	3.62	-43.18	58.32	50.64	74.00	23.36	Pass	V	PK
8	3984.0656	33.79	4.33	-43.00	54.20	49.32	74.00	24.68	Pass	V	PK
9	4804.0000	34.50	4.55	-42.80	59.26	55.51	74.00	18.49	Pass	V	PK
10	7206.0000	36.31	5.81	-42.16	50.30	50.26	74.00	23.74	Pass	V	PK
11	9608.4406	37.64	6.63	-42.10	54.77	56.94	74.00	17.06	Pass	V	PK
12	12010.0000	39.31	7.60	-41.90	46.76	51.77	74.00	22.23	Pass	V	PK
13	4803.4703	34.50	4.55	-42.80	49.92	46.17	54.00	7.83	Pass	V	AV
14	9607.5106	37.64	6.63	-42.10	43.74	45.91	54.00	8.09	Pass	V	AV

Mode:			GFSK Transmitting				Channel:		2441		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	2126.9127	31.88	3.62	-43.18	58.82	51.14	74.00	22.86	Pass	H	PK
2	3899.0599	33.72	4.34	-43.02	51.49	46.53	74.00	27.47	Pass	H	PK
3	4882.0000	34.50	4.81	-42.80	56.00	52.51	74.00	21.49	Pass	H	PK
4	7323.0000	36.42	5.85	-42.13	47.39	47.53	74.00	26.47	Pass	H	PK
5	9764.0000	37.71	6.71	-42.10	46.91	49.23	74.00	24.77	Pass	H	PK
6	12205.0000	39.42	7.67	-41.89	45.74	50.94	74.00	23.06	Pass	H	PK
7	3092.0061	33.24	4.74	-43.11	50.00	44.87	74.00	29.13	Pass	V	PK
8	4253.0835	34.15	4.50	-42.89	52.82	48.58	74.00	25.42	Pass	V	PK
9	4882.0000	34.50	4.81	-42.80	60.29	56.80	74.00	17.20	Pass	V	PK
10	7323.0000	36.42	5.85	-42.13	50.95	51.09	74.00	22.91	Pass	V	PK
11	12205.0000	39.42	7.67	-41.89	46.31	51.51	74.00	22.49	Pass	V	PK
12	4881.5154	34.50	4.81	-42.80	51.53	48.04	54.00	5.96	Pass	V	AV

Mode:			GFSK Transmitting				Channel:		2480		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	2479.7480	32.37	4.01	-43.10	57.55	50.83	74.00	23.17	Pass	H	PK
2	3026.0017	33.21	4.88	-43.10	50.26	45.25	74.00	28.75	Pass	H	PK
3	4260.0840	34.16	4.49	-42.89	51.54	47.30	74.00	26.70	Pass	H	PK
4	4960.0000	34.50	4.82	-42.80	48.34	44.86	74.00	29.14	Pass	H	PK
5	7440.0000	36.54	5.85	-42.11	48.01	48.29	74.00	25.71	Pass	H	PK
6	9920.0000	37.77	6.79	-42.10	46.02	48.48	74.00	25.52	Pass	H	PK
7	3185.0123	33.27	4.63	-43.10	49.99	44.79	74.00	29.21	Pass	V	PK
8	3983.0655	33.79	4.33	-43.00	53.20	48.32	74.00	25.68	Pass	V	PK
9	4960.0000	34.50	4.82	-42.80	47.99	44.51	74.00	29.49	Pass	V	PK
10	7440.0000	36.54	5.85	-42.11	47.17	47.45	74.00	26.55	Pass	V	PK
11	9920.0000	37.77	6.79	-42.10	46.61	49.07	74.00	24.93	Pass	V	PK
12	12400.0000	39.54	7.86	-41.90	45.69	51.19	74.00	22.81	Pass	V	PK

Mode:			8DPSK Transmitting				Channel:		2402		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dB $\mu$ V]	Level [dB $\mu$ V/m]	Limit [dB $\mu$ V/m]	Margin [dB]	Result	Polarity	Remark
1	2664.9665	32.66	4.10	-43.10	55.29	48.95	74.00	25.05	Pass	H	PK
2	3981.0654	33.78	4.33	-43.00	51.44	46.55	74.00	27.45	Pass	H	PK
3	4804.0000	34.50	4.55	-42.80	54.34	50.59	74.00	23.41	Pass	H	PK
4	7206.0000	36.31	5.81	-42.16	49.23	49.19	74.00	24.81	Pass	H	PK
5	8830.3887	37.33	6.40	-42.00	48.32	50.05	74.00	23.95	Pass	H	PK
6	12010.0000	39.31	7.60	-41.90	46.09	51.10	74.00	22.90	Pass	H	PK
7	3984.0656	33.79	4.33	-43.00	54.79	49.91	74.00	24.09	Pass	V	PK
8	4804.0000	34.50	4.55	-42.80	49.18	45.43	74.00	28.57	Pass	V	PK
9	6362.2241	35.87	5.42	-42.52	48.45	47.22	74.00	26.78	Pass	V	PK
10	7206.0000	36.31	5.81	-42.16	48.03	47.99	74.00	26.01	Pass	V	PK
11	9608.0000	37.64	6.63	-42.10	47.45	49.62	74.00	24.38	Pass	V	PK
12	12010.0000	39.31	7.60	-41.90	46.84	51.85	74.00	22.15	Pass	V	PK

Mode:			8DPSK Transmitting				Channel:		2441		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	3915.0610	33.73	4.34	-43.01	50.40	45.46	74.00	28.54	Pass	H	PK
2	4882.1255	34.50	4.81	-42.80	58.54	55.05	74.00	18.95	Pass	H	PK
3	5746.1831	35.39	4.95	-42.60	49.61	47.35	74.00	26.65	Pass	H	PK
4	7323.0000	36.42	5.85	-42.13	48.12	48.26	74.00	25.74	Pass	H	PK
5	9764.0000	37.71	6.71	-42.10	46.75	49.07	74.00	24.93	Pass	H	PK
6	12205.0000	39.42	7.67	-41.89	46.01	51.21	74.00	22.79	Pass	H	PK
7	2945.5946	33.11	4.40	-43.10	50.64	45.05	74.00	28.95	Pass	V	PK
8	3520.0347	33.42	4.47	-43.10	49.39	44.18	74.00	29.82	Pass	V	PK
9	4882.0000	34.50	4.81	-42.80	61.15	57.66	74.00	16.34	Pass	V	PK
10	7323.0000	36.42	5.85	-42.13	49.71	49.85	74.00	24.15	Pass	V	PK
11	9764.0000	37.71	6.71	-42.10	51.34	53.66	74.00	20.34	Pass	V	PK
12	12205.0000	39.42	7.67	-41.89	46.26	51.46	74.00	22.54	Pass	V	PK
13	4881.5255	34.50	4.81	-42.80	49.65	46.16	54.00	7.84	Pass	V	AV

Mode:			8DPSK Transmitting				Channel:		2480		
NO	Freq. [MHz]	Ant Factor [dB]	Cable loss [dB]	Pream gain [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	3817.0545	33.65	4.37	-43.04	50.13	45.11	74.00	28.89	Pass	H	PK
2	4957.1305	34.50	4.82	-42.80	50.14	46.66	74.00	27.34	Pass	H	PK
3	5917.1945	35.67	5.15	-42.60	49.22	47.44	74.00	26.56	Pass	H	PK
4	7440.0000	36.54	5.85	-42.11	48.77	49.05	74.00	24.95	Pass	H	PK
5	9920.0000	37.77	6.79	-42.10	48.20	50.66	74.00	23.34	Pass	H	PK
6	12400.0000	39.54	7.86	-41.90	44.94	50.44	74.00	23.56	Pass	H	PK
7	2976.9977	33.16	4.48	-43.10	50.43	44.97	74.00	29.03	Pass	V	PK
8	4266.0844	34.17	4.47	-42.89	53.00	48.75	74.00	25.25	Pass	V	PK
9	4960.0000	34.50	4.82	-42.80	65.26	61.78	74.00	12.22	Pass	V	PK
10	7440.0000	36.54	5.85	-42.11	48.02	48.30	74.00	25.70	Pass	V	PK
11	9920.0000	37.77	6.79	-42.10	51.51	53.97	74.00	20.03	Pass	V	PK
12	12400.0000	39.54	7.86	-41.90	45.33	50.83	74.00	23.17	Pass	V	PK
13	4959.6807	34.50	4.82	-42.80	53.72	50.24	54.00	3.76	Pass	V	AV

**Note:**

1) Through Pre-scan Non-hopping transmitting mode and charge+transmitter mode with all kind of modulation and all kind of data type, find the DH5 of data type is the worse case of GFSK modulation type in charge + transmitter mode.

2) 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 - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

3) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.