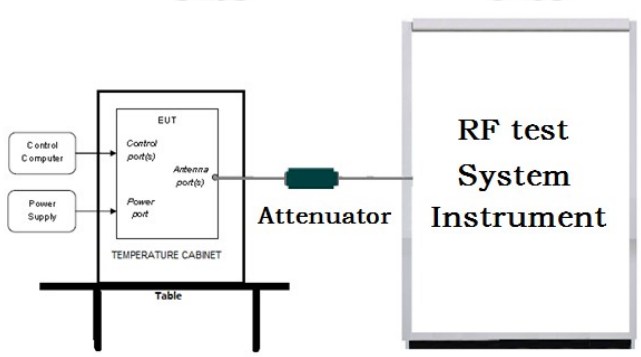
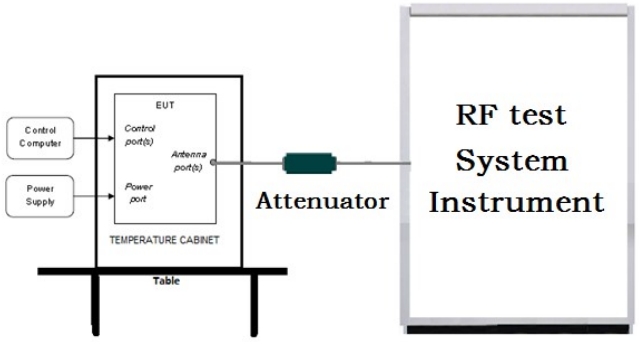
5.4 Maximum Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)
Test Method:	ANSI C63.10-2020
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Test Procedure:	a) Set analyzer center frequency to DTS channel center frequency. b) Set the span to 1.5 times the DTS bandwidth. c) Set the RBW to 3 kHz ⩽ RBW ⩽ 100 kHz. d) Set the VBW ⩾ [3 × RBW]. e) Detector = peak. f) Sweep time = auto couple. g) Trace mode = max hold. h) Allow trace to fully stabilize. i) Use the peak marker function to determine the maximum amplitude level within the RBW. j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
Limit:	≤8.00dBm/3kHz
Test Mode:	Refer to clause 3.3
Test Results:	Refer to Appendix A

5.5 Band Edge measurements and Conducted Spurious Emission

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10-2020
Test Setup:	 Remark: Offset=Cable loss+ attenuation factor.
Test Procedure:	a) Set RBW =100KHz. b) Set VBW = 300KHz. c) Sweep time = auto couple. d) Detector = peak. e) Trace mode = max hold. f) Allow trace to fully stabilize. g) Use peak marker function to determine the peak amplitude level.
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.
Test Mode:	Refer to clause 3.3
Test Results:	Refer to Appendix A

5.6 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 C63.10-2020</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>Quasi-peak</td><td>100 kHz</td><td>300kHz</td><td>Quasi-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>10kHz</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:	

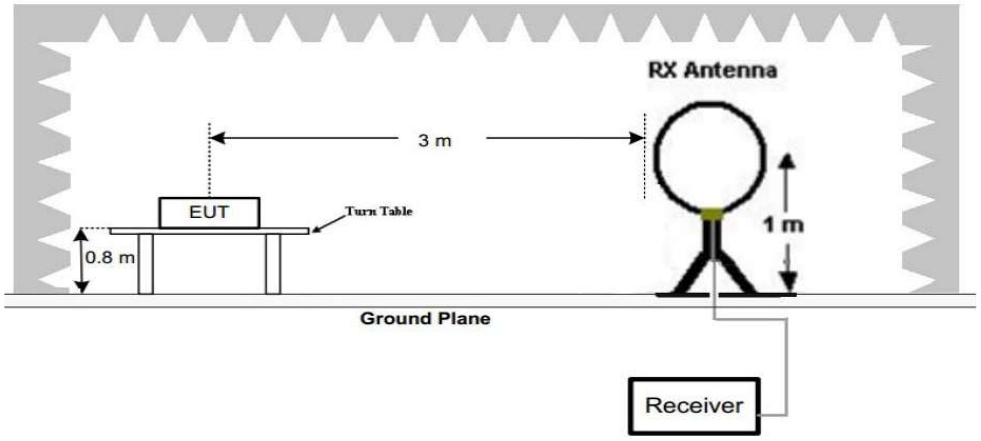


Figure 1. Below 30MHz

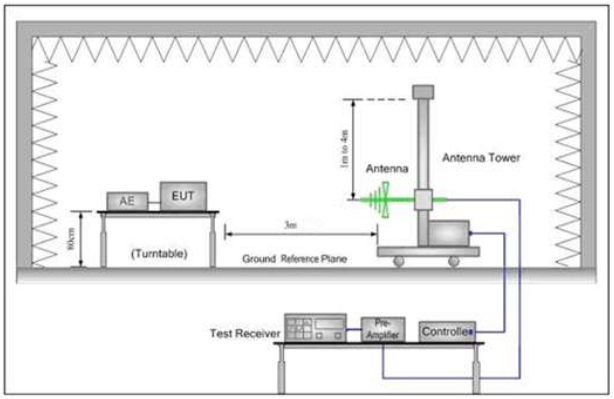


Figure 2. 30MHz to 1GHz

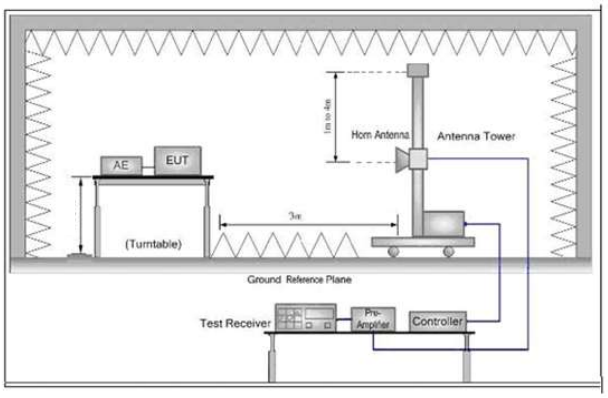


Figure 3. Above 1 GHz

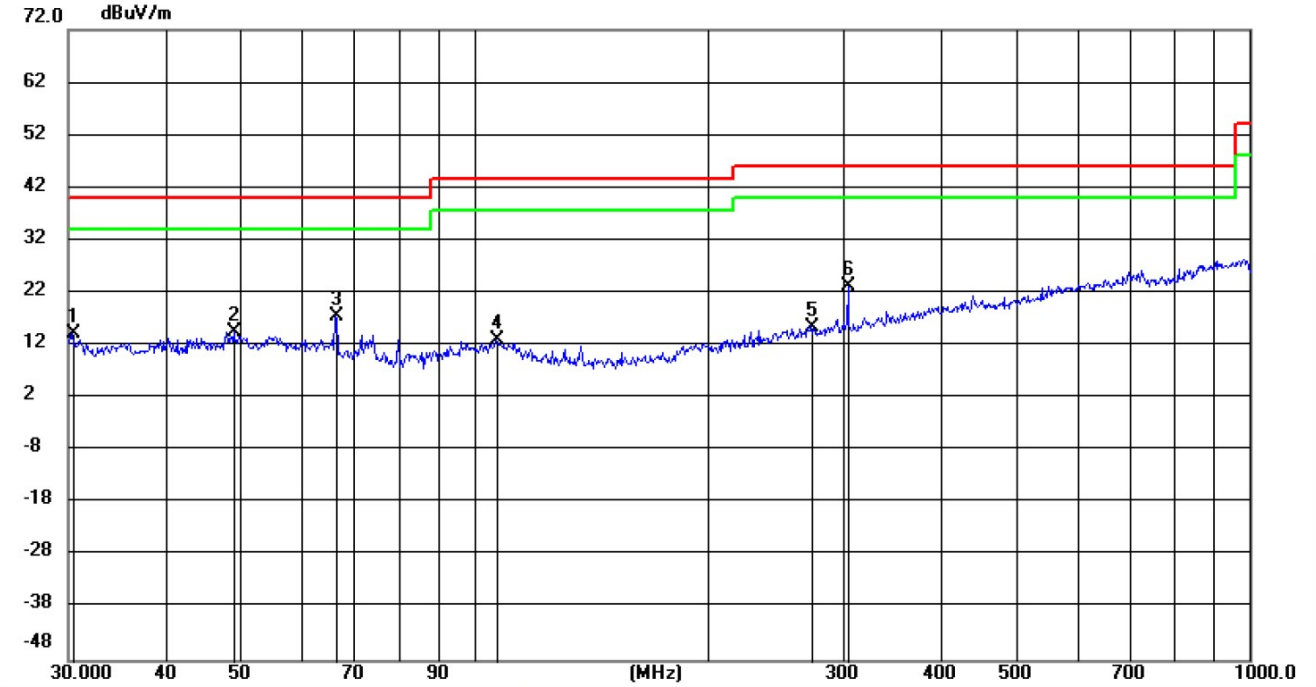
Test Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters 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 (2440MHz),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.
Test Mode:	Refer to clause 3.3
Test Results:	Pass

Radiated Spurious Emission below 1GHz:

Test Graph

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.3651	1.68	12.49	14.17	40.00	-25.83	QP	100	85	
2		49.1693	-0.01	14.53	14.52	40.00	-25.48	QP	100	238	
3	*	66.4173	5.73	11.91	17.64	40.00	-22.36	QP	100	212	
4		107.1337	-0.81	13.92	13.11	43.50	-30.39	QP	100	304	
5		272.3730	0.28	15.32	15.60	46.00	-30.40	QP	100	179	
6		304.1830	6.89	16.46	23.35	46.00	-22.65	QP	100	8	

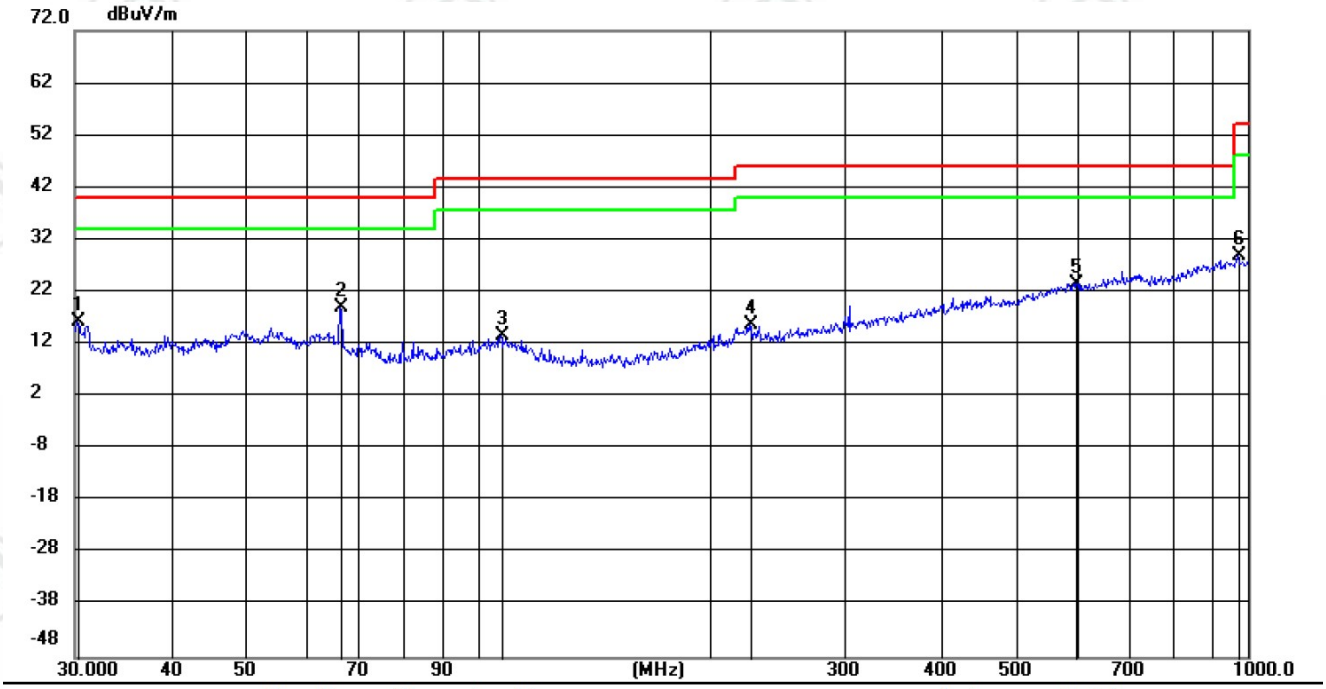
Remark:

1. Margin=Measurement(Level)-Limit.

2. Measurement(Level)=Reading Level+Correct Factor.

3. In the test results, an asterisk (*) indicates Maximum Data, a cross (X) indicates over Limit, an exclamation mark (!) indicates over -6dB margin Limit.

Vertical:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.3119	3.80	12.49	16.29	40.00	-23.71	QP	100	218	
2	*	66.4057	7.20	11.91	19.11	40.00	-20.89	QP	100	72	
3		107.1525	-0.38	13.92	13.54	43.50	-29.96	QP	100	252	
4		225.3870	2.33	13.45	15.78	46.00	-30.22	QP	100	269	
5		597.3281	0.78	22.90	23.68	46.00	-22.32	QP	100	115	
6		972.3374	1.74	27.34	29.08	54.00	-24.92	QP	100	303	

Remark:

1. Margin=Measurement(Level)-Limit.

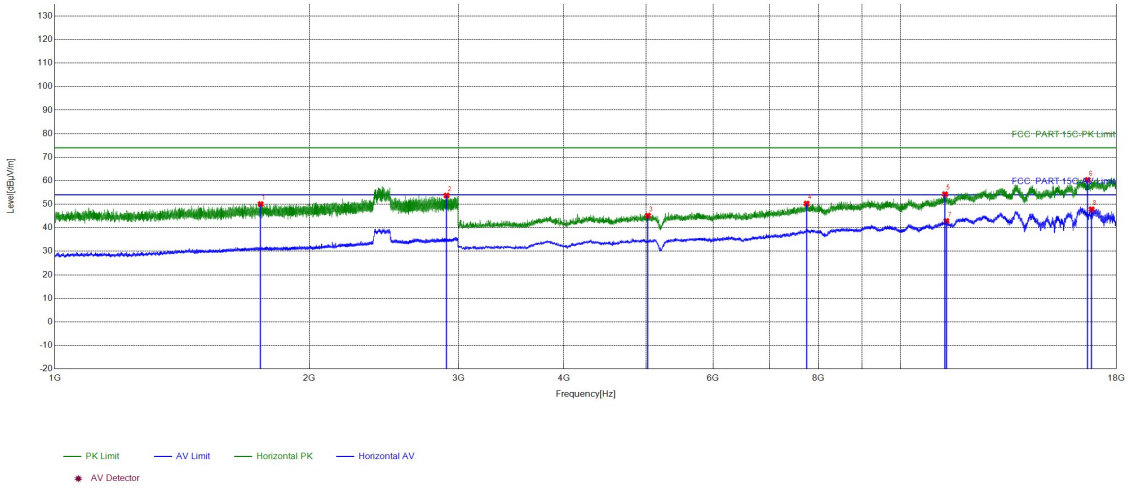
2. Measurement(Level)=Reading Level+Correct Factor.

3. In the test results, an asterisk (*) indicates Maximum Data, a cross (X) indicates over Limit, an exclamation mark (!) indicates over -6dB margin Limit.

Radiated Spurious Emission above 1GHz:

Test_Mode	GFSK Transmitting	Test_Frequency	2402MHz
Remark:	\	Test_Date	2026/6/25

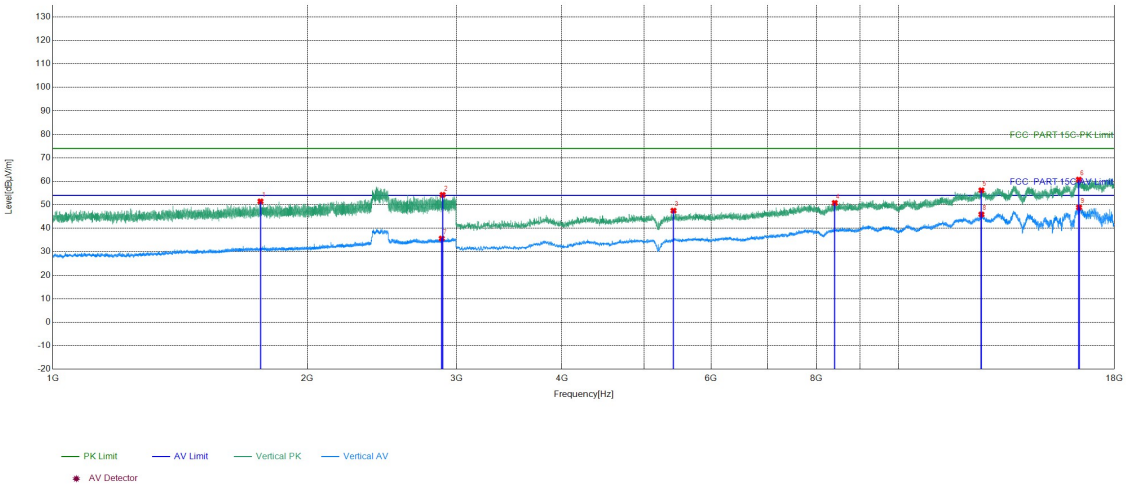
Test Graph



Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	1751.5168	14.09	35.97	50.06	74.00	23.94	PASS	Horizont	PK
2	2905.727	17.75	35.95	53.70	74.00	20.30	PASS	Horizont	PK
3	5027.1351	-8.02	53.19	45.17	74.00	28.83	PASS	Horizont	PK
4	7744.3163	-1.46	51.74	50.28	74.00	23.72	PASS	Horizont	PK
5	11289.5526	2.43	51.83	54.26	74.00	19.74	PASS	Horizont	PK
6	16648.9099	11.34	48.98	60.32	74.00	13.68	PASS	Horizont	PK
7	11330.5554	2.34	40.52	42.86	54.00	11.14	PASS	Horizont	AV
8	16824.9217	12.24	35.59	47.83	54.00	6.17	PASS	Horizont	AV

Test_Mode	GFSK Transmitting	Test_Frequency	2402MHz
Remark:	\	Test_Date	2026/6/25

Test Graph

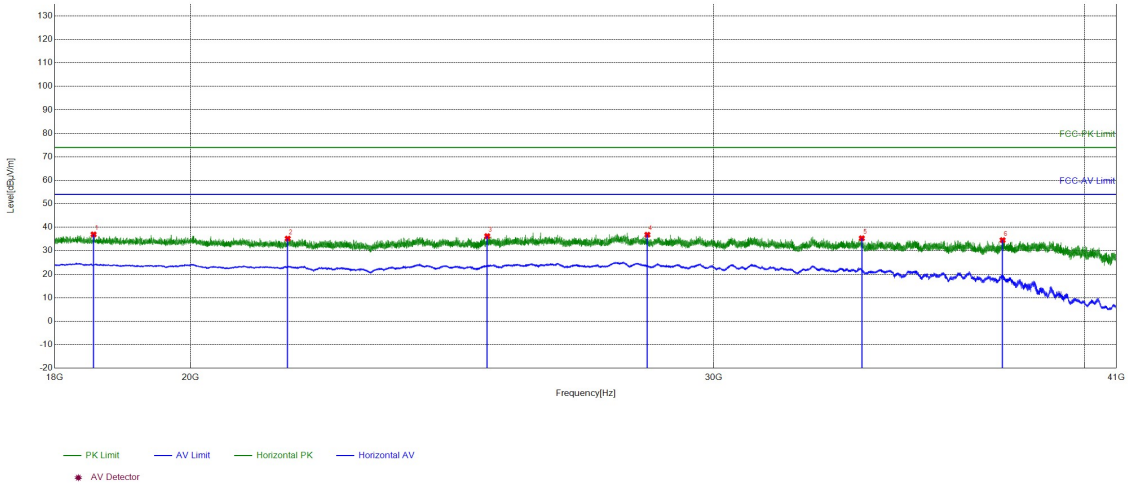


Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	1760.184	14.23	37.21	51.44	74.00	22.56	PASS	Vertical	PK
2	2890.126	17.60	36.63	54.23	74.00	19.77	PASS	Vertical	PK
3	5419.1613	-6.61	54.12	47.51	74.00	26.49	PASS	Vertical	PK
4	8407.3605	-0.80	51.59	50.79	74.00	23.21	PASS	Vertical	PK
5	12532.6355	4.18	52.00	56.18	74.00	17.82	PASS	Vertical	PK
6	16339.8893	11.46	49.27	60.73	74.00	13.27	PASS	Vertical	PK
7	2883.0589	17.47	18.16	35.63	54.00	18.37	PASS	Vertical	AV
8	12531.6354	4.17	41.72	45.89	54.00	8.11	PASS	Vertical	AV
9	16347.8899	11.56	37.32	48.88	54.00	5.12	PASS	Vertical	AV

Test_Mode	GFSK Transmitting	Test_Frequency	2402MHz

Remark:	\	Test_Date	2026/6/25

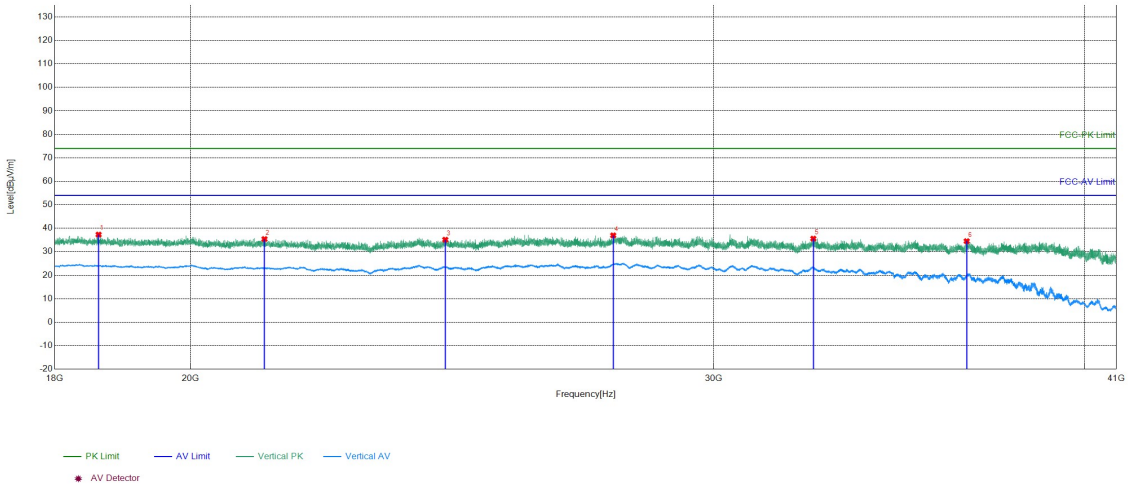
Test Graph



Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	18549.262	-26.69	63.64	36.95	74.00	37.05	PASS	Horizont	PK
2	21563.3025	-25.77	60.94	35.17	74.00	38.83	PASS	Horizont	PK
3	25171.6869	-21.20	57.42	36.22	74.00	37.78	PASS	Horizont	PK
4	28499.46	-21.72	58.53	36.81	74.00	37.19	PASS	Horizont	PK
5	33654.4262	-17.45	52.76	35.31	74.00	38.69	PASS	Horizont	PK
6	37536.0614	-15.16	49.68	34.52	74.00	39.48	PASS	Horizont	PK

Test_Mode	GFSK Transmitting	Test_Frequency	2402MHz
Remark:	\	Test_Date	2026/6/25

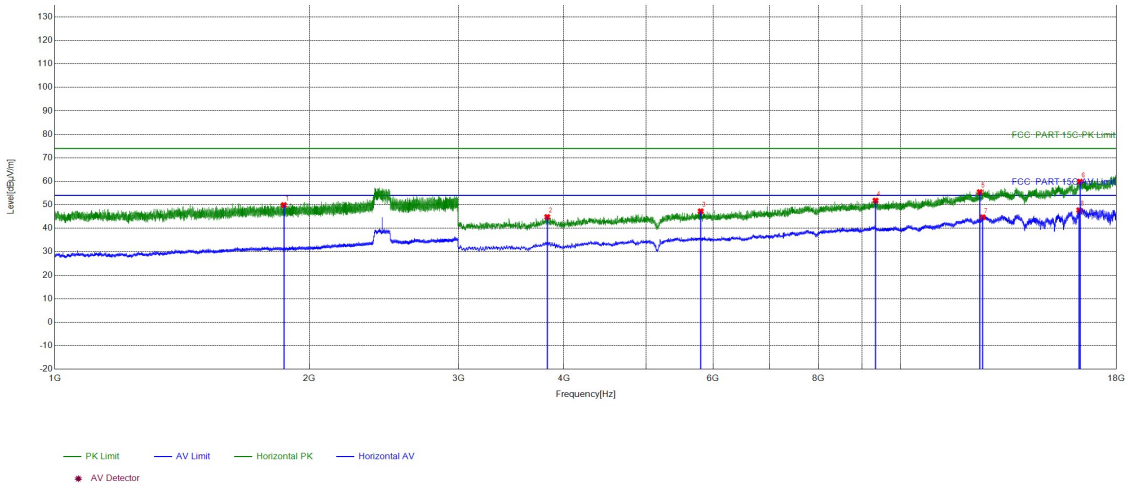
Test Graph



Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	18621.9449	-26.65	63.96	37.31	74.00	36.69	PASS	Vertical	PK
2	21177.8071	-25.77	61.17	35.40	74.00	38.60	PASS	Vertical	PK
3	24365.7346	-21.84	56.96	35.12	74.00	38.88	PASS	Vertical	PK
4	27753.3101	-21.18	58.14	36.96	74.00	37.04	PASS	Vertical	PK
5	32412.3765	-18.08	53.67	35.59	74.00	38.41	PASS	Vertical	PK
6	36505.6202	-16.21	50.71	34.50	74.00	39.50	PASS	Vertical	PK

Test_Mode	GFSK Transmitting	Test_Frequency	2440MHz
Remark:	\	Test_Date	2026/6/25

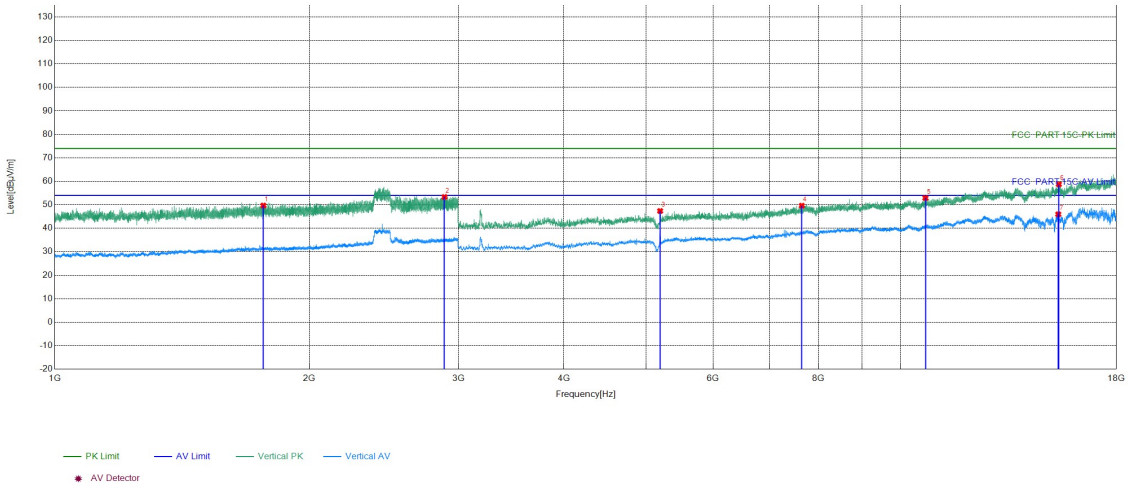
Test Graph



Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	1865.5244	14.52	35.38	49.90	74.00	24.10	PASS	Horizont	PK
2	3822.0548	-12.28	57.09	44.81	74.00	29.19	PASS	Horizont	PK
3	5804.1869	-5.76	53.01	47.25	74.00	26.75	PASS	Horizont	PK
4	9341.4228	1.02	50.77	51.79	74.00	22.21	PASS	Horizont	PK
5	12407.6272	3.83	51.56	55.39	74.00	18.61	PASS	Horizont	PK
6	16301.8868	10.99	48.88	59.87	74.00	14.13	PASS	Horizont	PK
7	12506.6338	4.01	40.70	44.71	54.00	9.29	PASS	Horizont	AV
8	16268.8846	10.63	37.06	47.69	54.00	6.31	PASS	Horizont	AV

Test_Mode	GFSK Transmitting	Test_Frequency	2440MHz
Remark:	\	Test_Date	2026/6/25

Test Graph



Suspected List									
NO	Freq. [MHz]	Factor [dB]	Reading [dBµV]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Result	Polarity	Remark
1	1764.5843	14.30	35.39	49.69	74.00	24.31	PASS	Vertical	PK
2	2889.0593	17.58	35.75	53.33	74.00	20.67	PASS	Vertical	PK
3	5197.1465	-7.73	55.09	47.36	74.00	26.64	PASS	Vertical	PK
4	7643.3096	-2.25	51.87	49.62	74.00	24.38	PASS	Vertical	PK
5	10701.5134	2.48	50.39	52.87	74.00	21.13	PASS	Vertical	PK
6	15387.8259	10.97	47.75	58.72	74.00	15.28	PASS	Vertical	PK
7	15364.8243	10.08	35.88	45.96	54.00	8.04	PASS	Vertical	AV