



Appendix C

Bluetooth BR+EDR Radiated Spurious Emissions



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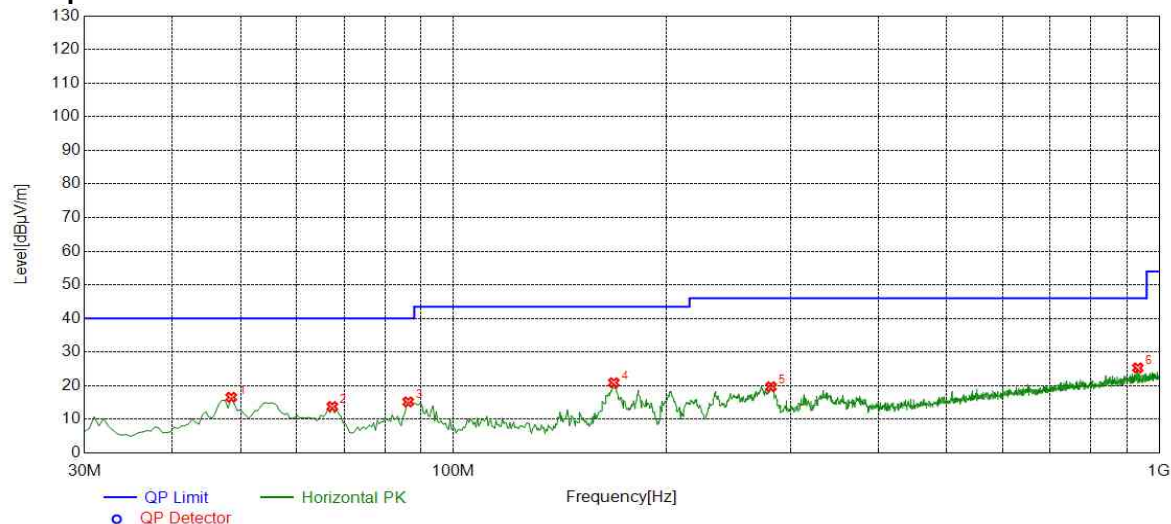
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1.1 Radiated Spurious Emission

1.1.1 Radiated Emission below 1GHz

1.1.1.1 Charge + Transmitting

Test Graph



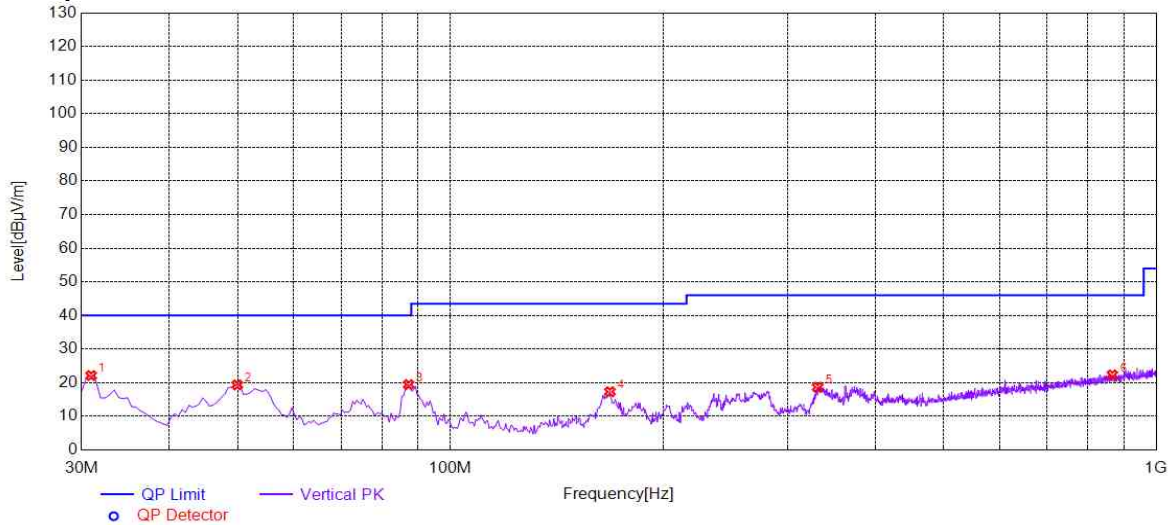
Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	48.4392	16.59	-30.19	40.00	23.41	150	201	Horizontal
2	67.3637	13.83	-33.51	40.00	26.17	150	220	Horizontal
3	86.2881	15.20	-34.32	40.00	24.80	150	44	Horizontal
4	168.779	20.92	-33.69	43.50	22.58	150	327	Horizontal
5	281.840	19.73	-28.34	46.00	26.27	150	16	Horizontal
6	932.551	25.33	-14.74	46.00	20.67	150	251	Horizontal

Final Data List



Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	30.9705	22.15	-32.82	40.00	17.85	150	118	Vertical
2	49.8949	19.37	-30.18	40.00	20.63	150	344	Vertical
3	87.2586	19.45	-34.09	40.00	20.55	150	58	Vertical
4	168.294	17.33	-33.73	43.50	26.17	150	329	Vertical
5	331.335	18.70	-26.95	46.00	27.30	150	310	Vertical
6	866.558	22.36	-15.77	46.00	23.64	150	184	Vertical

Final Data List



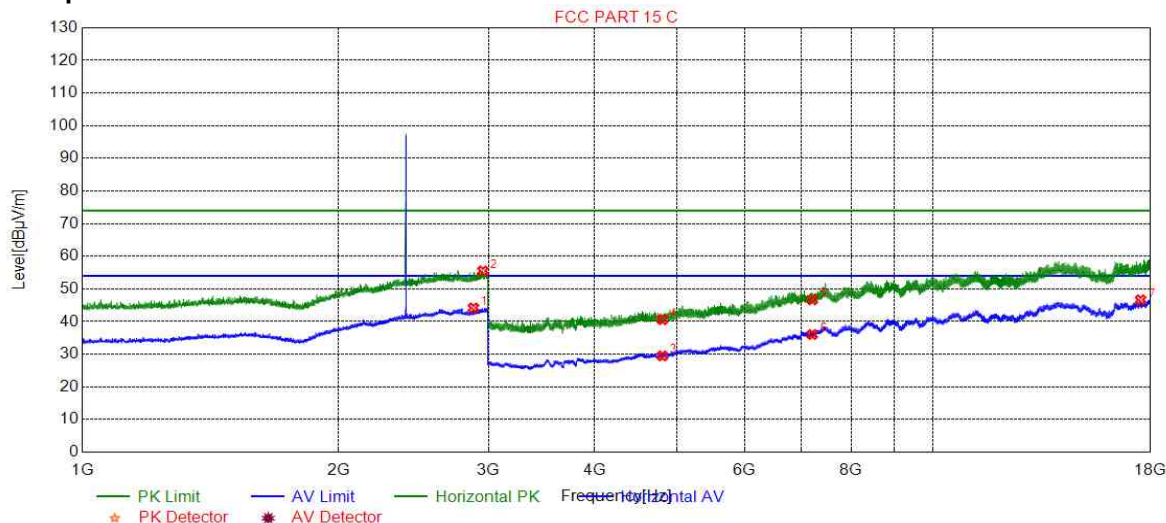
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1.1.2 Transmitter Emission above 1GHz

1.1.2.1 GFSK_Channel 0

Test Graph



Suspected List

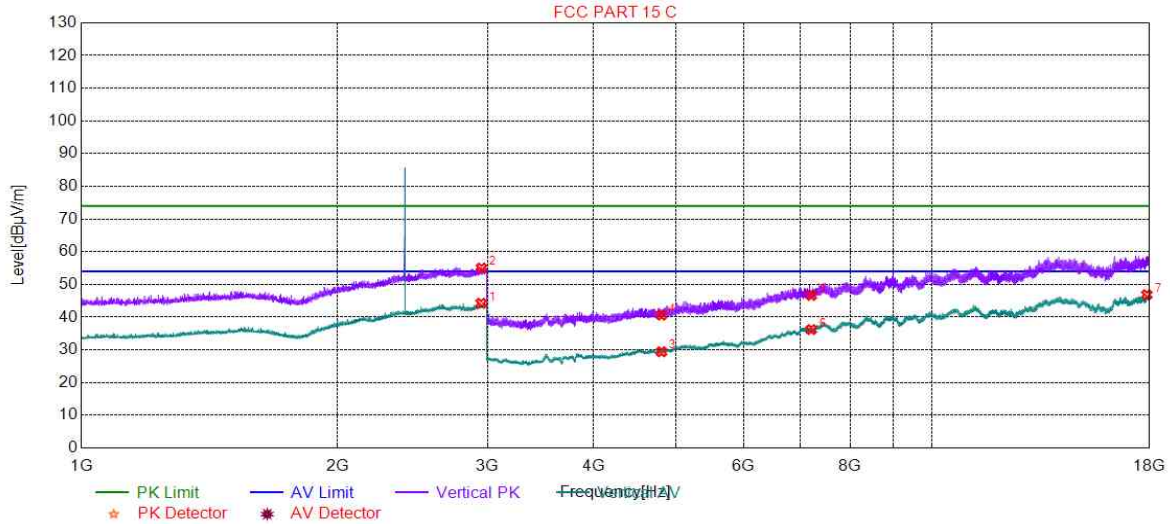
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2880.9702	44.19	9.18	54.00	9.81	150	347	Horizontal
2	2955.4889	55.53	9.65	74.00	18.47	150	18	Horizontal
3	4804.0000	29.50	-18.30	54.00	24.50	150	237	Horizontal
4	4804.0000	40.60	-18.30	74.00	33.40	150	182	Horizontal
5	7206.0000	46.68	-10.09	74.00	27.32	150	191	Horizontal
6	7206.0000	36.05	-10.09	54.00	17.95	150	342	Horizontal
7	17517.075	46.65	0.99	54.00	7.35	150	342	Horizontal

Final Data List



1.1.2.2 GFSK_Channel 0

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2949.4874	44.27	9.67	54.00	9.73	150	150	Vertical
2	2952.4881	55.04	9.67	74.00	18.96	150	94	Vertical
3	4804.0000	29.43	-18.30	54.00	24.57	150	319	Vertical
4	4804.0000	40.65	-18.30	74.00	33.35	150	264	Vertical
5	7206.0000	46.66	-10.09	74.00	27.34	150	140	Vertical
6	7206.0000	36.22	-10.09	54.00	17.78	150	241	Vertical
7	17866.8933	46.88	0.25	54.00	7.12	150	90	Vertical

Final Data List

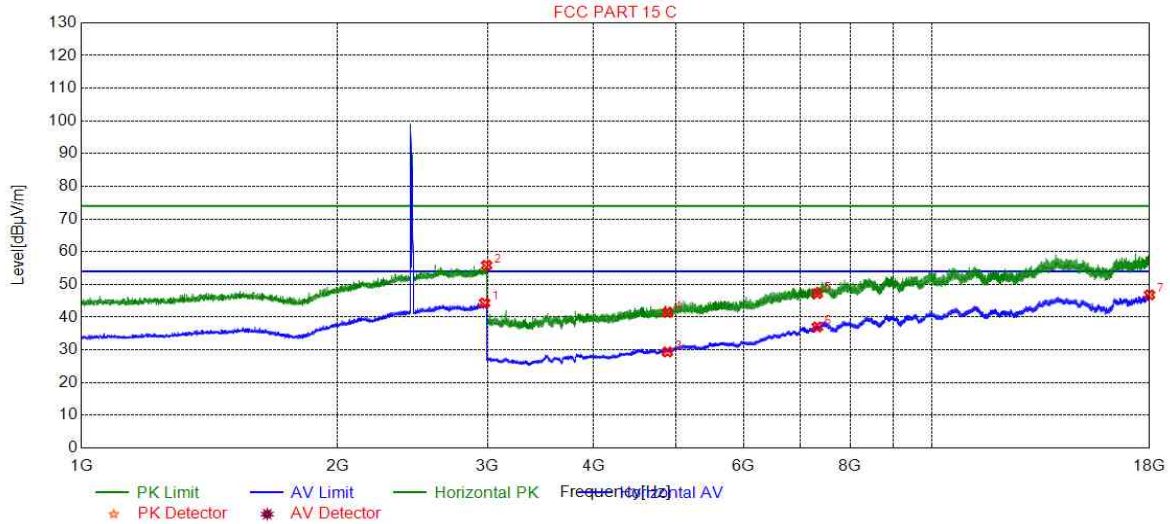


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1.1.2.3 GFSK_Channel 39

Test Graph



Suspected List

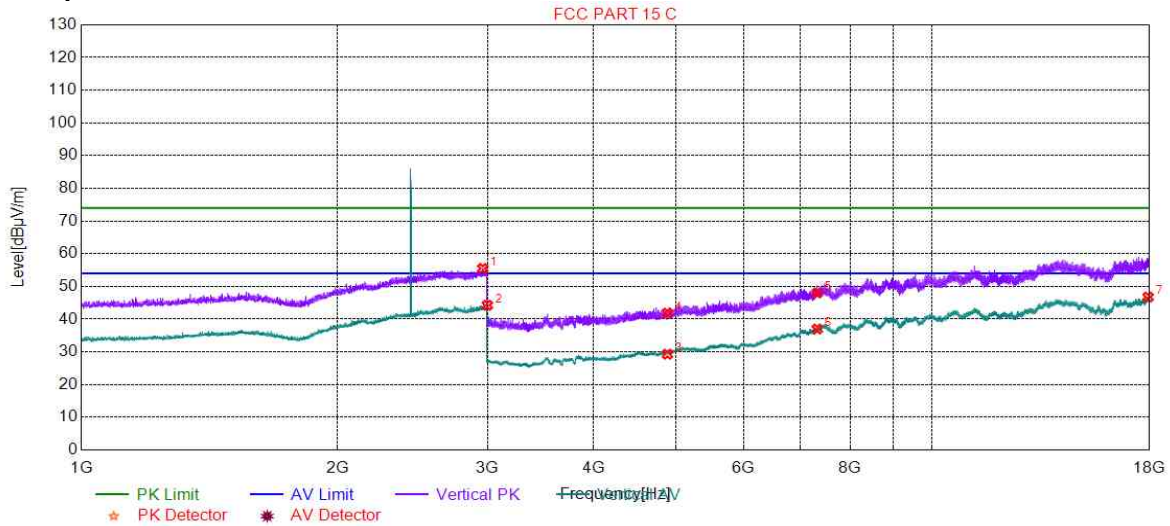
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2977.4944	44.34	9.55	54.00	9.66	150	44	Horizontal
2	2994.4986	55.86	9.48	74.00	18.14	150	308	Horizontal
3	4882.0000	29.36	-17.96	54.00	24.64	150	100	Horizontal
4	4882.0000	41.44	-17.96	74.00	32.56	150	155	Horizontal
5	7323.0000	47.24	-9.71	74.00	26.76	150	241	Horizontal
6	7323.0000	37.02	-9.71	54.00	16.98	150	141	Horizontal
7	17995.0498	46.82	0.72	54.00	7.18	150	41	Horizontal

Final Data List



1.1.2.4 GFSK_Channel 39

Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2962.4906	55.52	9.62	74.00	18.48	150	191	Vertical
2	2999.4999	44.26	9.45	54.00	9.74	150	67	Vertical
3	4882.0000	29.31	-17.96	54.00	24.69	150	155	Vertical
4	4882.0000	41.88	-17.96	74.00	32.12	150	128	Vertical
5	7323.0000	48.03	-9.71	74.00	25.97	150	142	Vertical
6	7323.0000	37.01	-9.71	54.00	16.99	150	142	Vertical
7	17926.2963	46.78	0.70	54.00	7.22	150	292	Vertical

Final Data List



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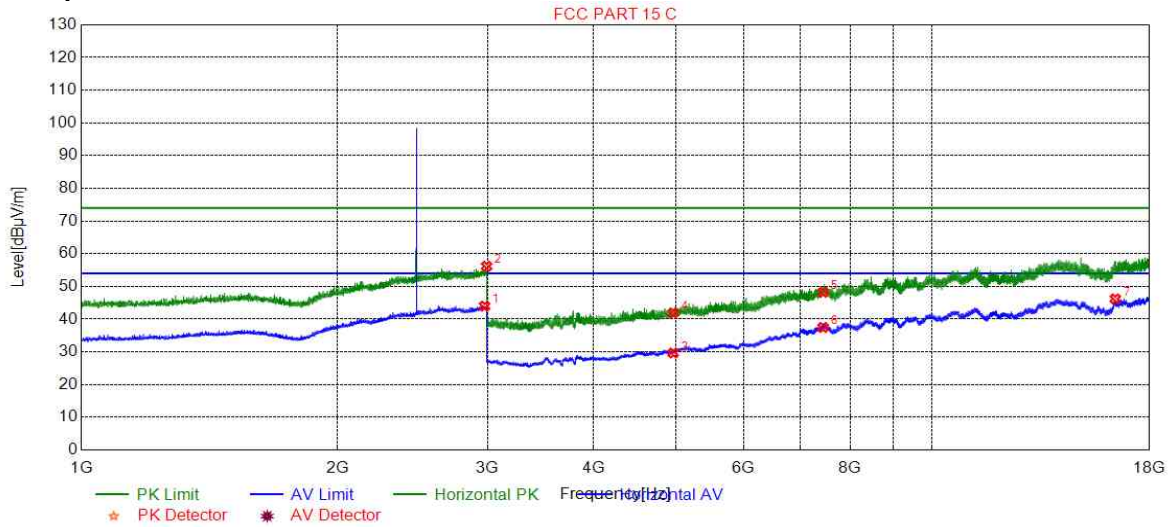
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1.1.2.5 GFSK_Channel 78

Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2976.9942	44.00	9.56	54.00	10.00	150	85	Horizontal
2	2993.9985	56.19	9.48	74.00	17.81	150	18	Horizontal
3	4960.0000	29.67	-17.47	54.00	24.33	150	265	Horizontal
4	4960.0000	41.94	-17.47	74.00	32.06	150	210	Horizontal
5	7440.0000	48.20	-9.35	74.00	25.80	150	292	Horizontal
6	7440.0000	37.47	-9.35	54.00	16.53	150	142	Horizontal
7	16402.7201	46.21	-0.11	54.00	7.79	150	0	Horizontal

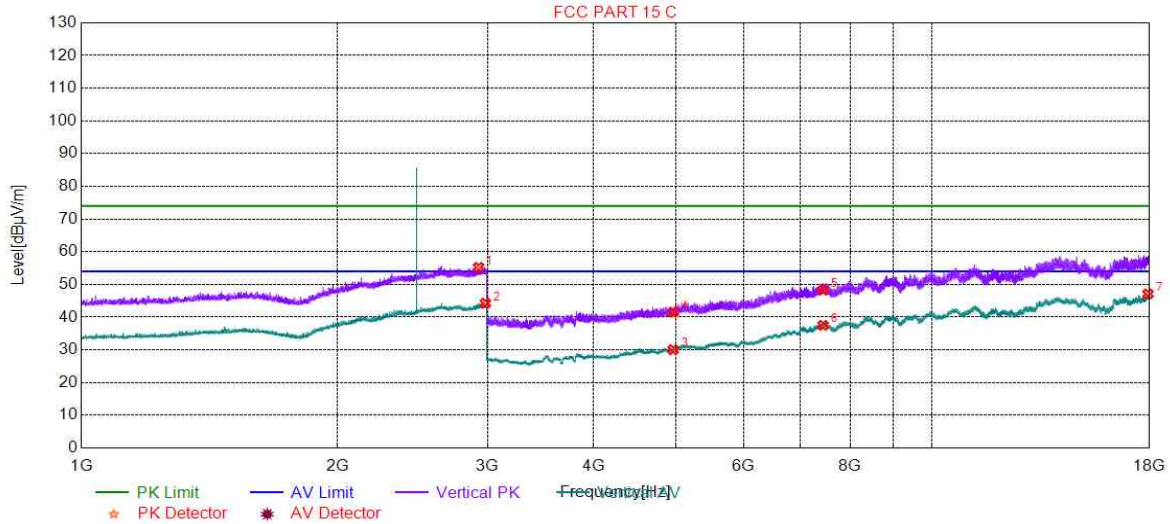
Final Data List



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1.1.2.6 GFSK_Channel 78

Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2928.9822	55.24	9.45	74.00	18.76	150	206	Vertical
2	2983.4959	44.27	9.53	54.00	9.73	150	28	Vertical
3	4960.0000	30.06	-17.47	54.00	23.94	150	46	Vertical
4	4960.0000	41.53	-17.47	74.00	32.47	150	73	Vertical
5	7440.0000	48.30	-9.35	74.00	25.70	150	191	Vertical
6	7440.0000	37.51	-9.35	54.00	16.49	150	291	Vertical
7	17921.3461	47.11	0.70	54.00	6.89	150	342	Vertical

Final Data List

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:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

2) Scan from 9kHz to 25GHz, the disturbance between 9KHz to 30MHz and 18GHz to 25GHz was very low, and the above harmonics were the highest point could be found when testing, The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

4) All Modes have been tested, but only the worst case data displayed in this report.

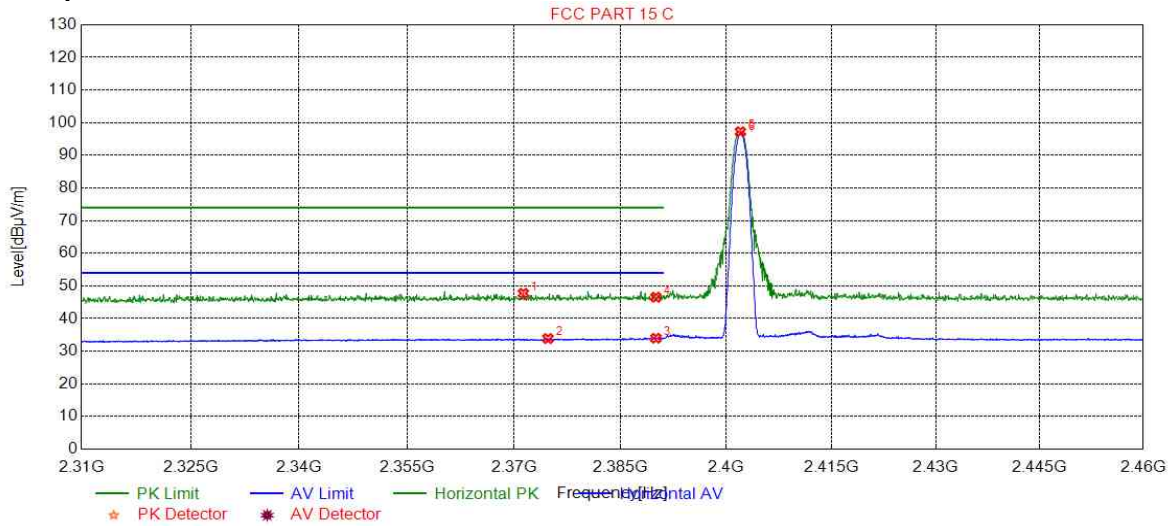


1.2 Restricted bands around fundamental frequency

1.2.1 Test plots

1.2.1.1 Worst Case Mode (GFSK(DH5)) _Lowest Channel

Test Graph



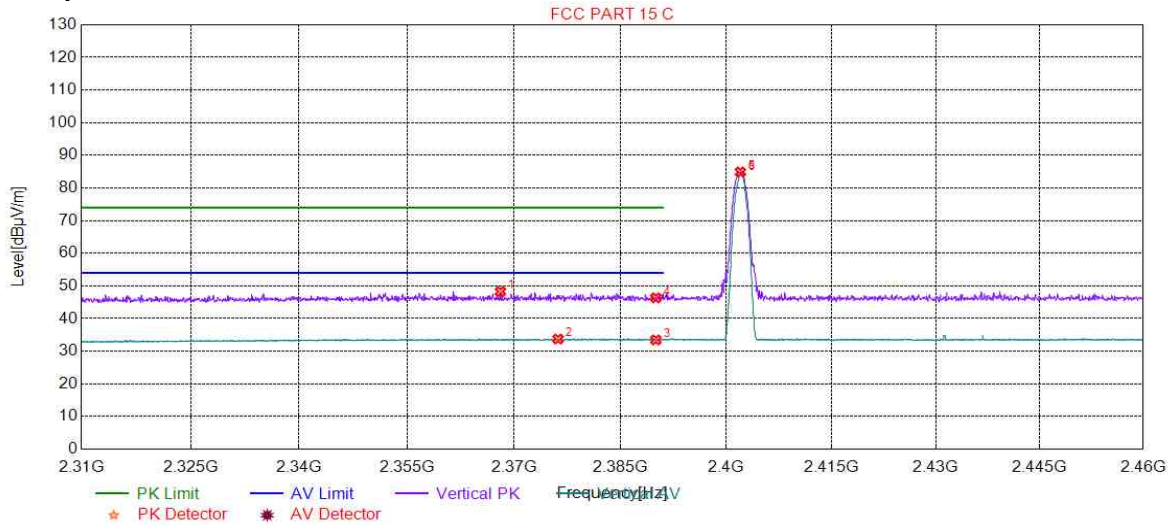
Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2371.3057	47.75	7.79	74.00	26.25	150	179	Horizontal
2	2374.7574	33.89	7.79	54.00	20.11	150	267	Horizontal
3	2390.0000	34.00	7.77	54.00	20.00	150	234	Horizontal
4	2390.0000	46.55	7.77	74.00	27.45	150	212	Horizontal
5	2402.0000	97.24	7.77	0.00	-97.24	150	234	Horizontal
6	2402.0000	96.92	7.77	0.00	-96.92	150	234	Horizontal

Final Data List



Test Graph



Suspected List

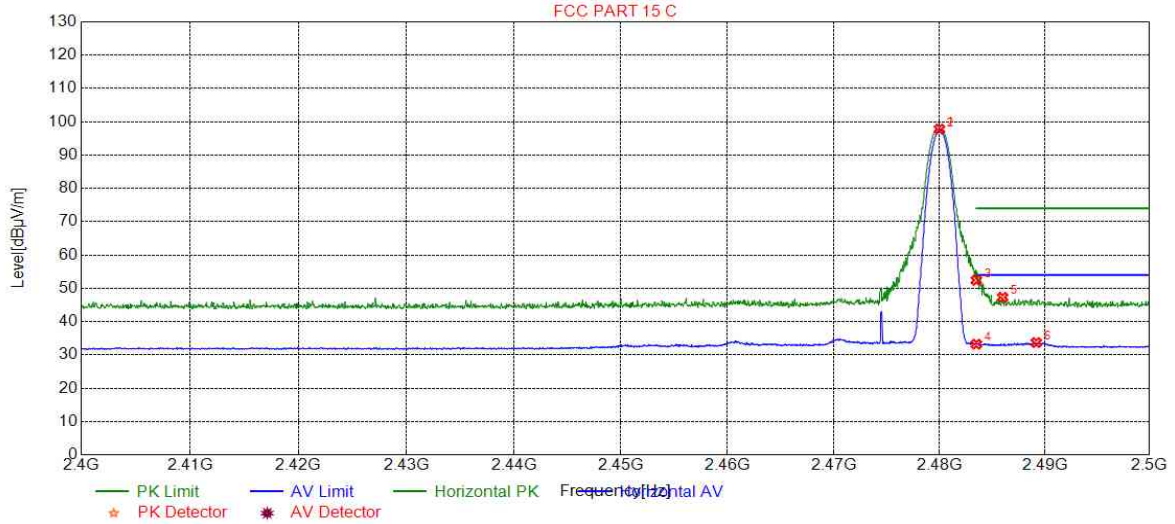
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2368.0790	48.28	7.79	74.00	25.72	150	215	Vertical
2	2376.1831	33.74	7.78	54.00	20.26	150	105	Vertical
3	2390.0000	33.48	7.77	54.00	20.52	150	231	Vertical
4	2390.0000	46.35	7.77	74.00	27.65	150	72	Vertical
5	2402.0000	84.91	7.77	0.00	-84.91	150	330	Vertical
6	2402.0000	84.54	7.77	0.00	-84.54	150	330	Vertical

Final Data List



1.2.1.2 Worst Case Mode (GFSK(DH5)) _Highest Channel

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.0000	97.80	8.01	0.00	-97.80	150	217	Horizontal
2	2480.0000	97.56	8.01	0.00	-97.56	150	211	Horizontal
3	2483.5000	52.43	8.01	74.00	21.57	150	250	Horizontal
4	2483.5000	33.26	8.01	54.00	20.74	150	228	Horizontal
5	2485.9930	47.31	8.01	74.00	26.69	150	211	Horizontal
6	2489.1946	33.73	8.02	54.00	20.27	150	234	Horizontal

Final Data List

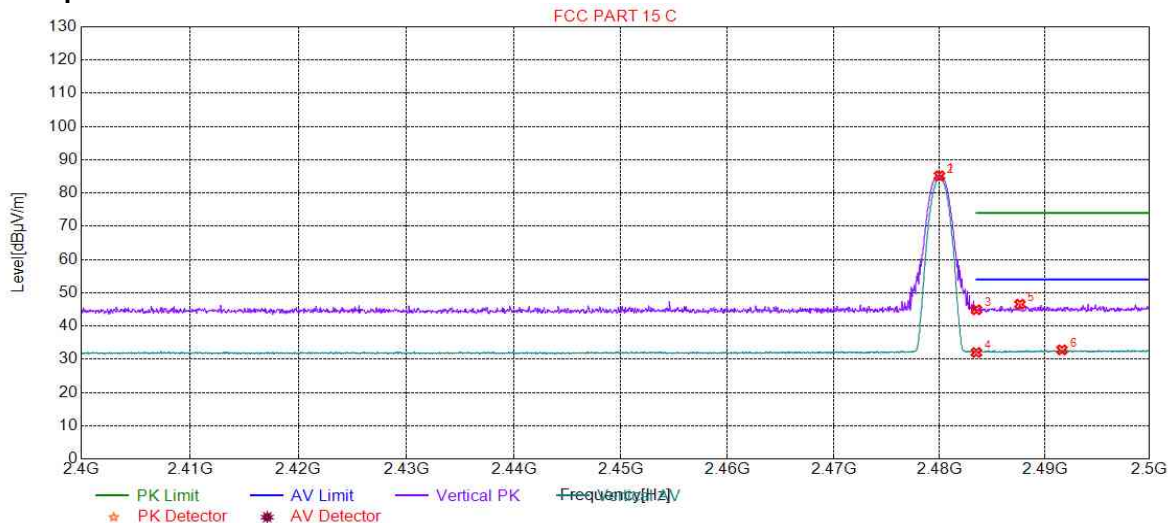


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Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2480.0000	85.18	8.01	0.00	-85.18	150	346	Vertical
2	2480.0000	84.92	8.01	0.00	-84.92	150	346	Vertical
3	2483.5000	44.90	8.01	74.00	29.10	150	298	Vertical
4	2483.5000	32.06	8.01	54.00	21.94	150	276	Vertical
5	2487.6438	46.57	8.02	74.00	27.43	150	143	Vertical
6	2491.6458	32.84	8.02	54.00	21.16	150	76	Vertical

Final Data List

Remark:

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

All Modes have been tested, but only the worst case data displayed in this report.



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