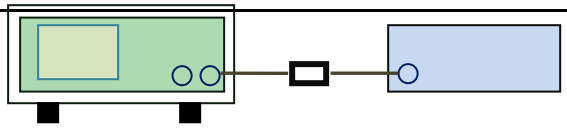
6.4 Peak Output Power

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(b) (3)	a)	FHSS in 2400-2483.5MHz with ≥ 75 channels: ≤ 1 Watt	☑
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt	☐
	c)	For all other FHSS in the 2400-2483.5MHz band: ≤ 0.125 Watt.	☑
	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt	☐
	e)	FHSS in 902-928MHz with ≥ 25 & <50 channels: ≤ 0.25 Watt	☐
	f)	DTS in 902-928MHz, 2400-2483.5MHz: ≤ 1 Watt	☐
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	The test follows FCC Public Notice DA 00-705 Measurement Guidelines. Use the following spectrum analyzer settings: - Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel - RBW > the 20 dB bandwidth of the emission being measured - VBW ≥ RBW - Sweep = auto - Detector function = peak - Trace = max hold - Allow the trace to stabilize.		

	- Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power (see the note above regarding external attenuation and cable loss). The limit is specified in one of the subparagraphs of this Section. Submit this plot. A peak responding power meter may be used instead of a spectrum analyzer.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

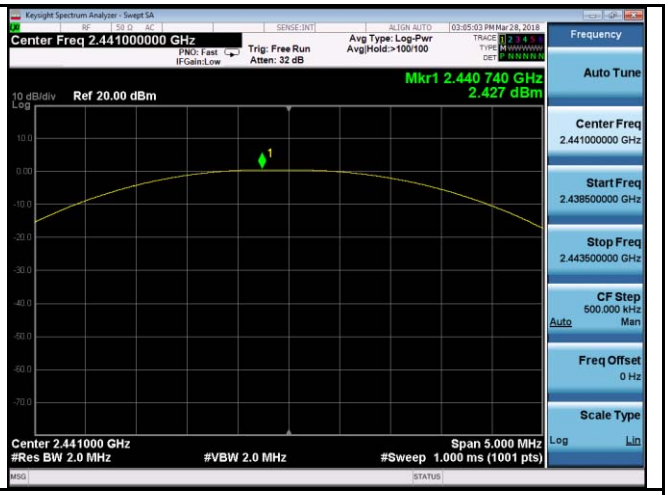
Peak Output Power measurement result

Type	Modulation	CH	Frequency (MHz)	Conducted Power (dBm)	Limit (mW)	Result
Output power	GFSK	Low	2402	2.327	1000	Pass
		Mid	2441	2.427	1000	Pass
		High	2480	2.429	1000	Pass
	π /4 DQPSK	Low	2402	2.482	125	Pass
		Mid	2441	2.418	125	Pass
		High	2480	2.423	125	Pass
	8-DPSK	Low	2402	2.472	125	Pass
		Mid	2441	2.338	125	Pass
		High	2480	2.245	125	Pass

Test Plots

Output Power measurement result

GFSK Output power - Low CH 2402



GFSK Output power - Mid CH 2441

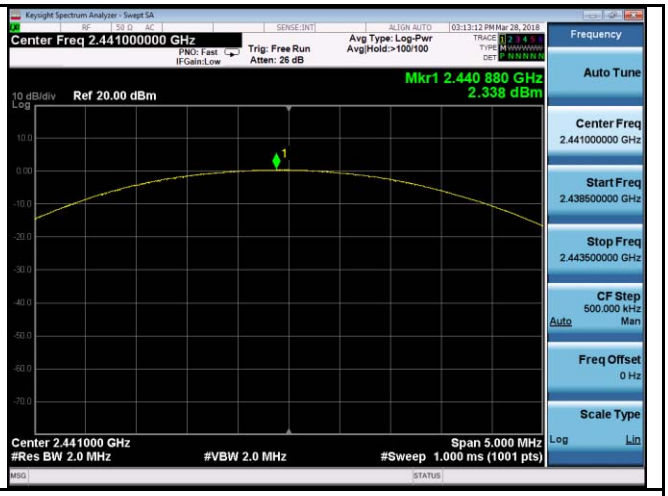
GFSK Output power - High CH 2480

π /4 DQPSK Output power - Low CH 2402

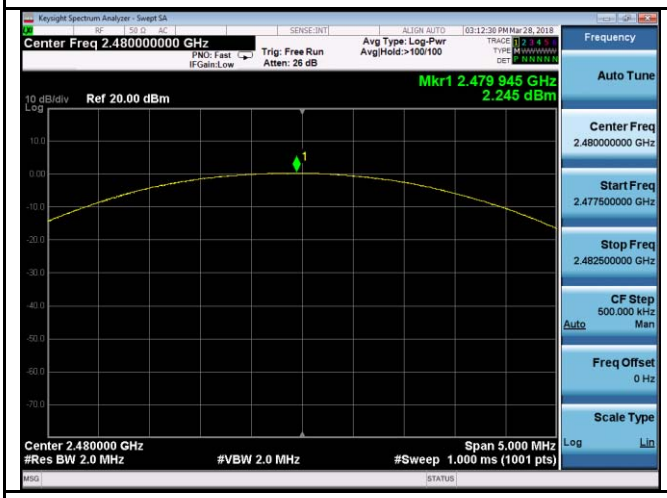
π /4 DQPSK Output power - Mid CH 2441

π /4 DQPSK Output power - High CH 2480

8DPSK Output power - Low CH 2402



8DPSK Output power - Mid CH 2441

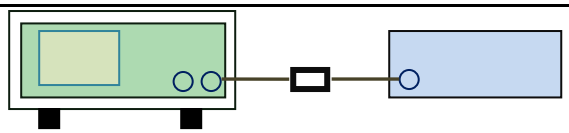


8DPSK Output power - High CH 2480

6.5 Number of Hopping Channel

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(a)(1)(iii)	a)	FHSS in 2400-2483.5MHz ≥ 15 channels	☑
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	The test follows FCC Public Notice DA 00-705 Measurement Guidelines. Use the following spectrum analyzer settings: The EUT must have its hopping function enabled. - Span = the frequency band of operation - RBW ≥ 1% of the span - VBW ≥ RBW - Sweep = auto - Detector function = peak - Trace = max hold - Allow trace to fully stabilize. - It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).		
Remark			
Result	☑ Pass	☐ Fail	

Test Data ☑ Yes ☐ N/A

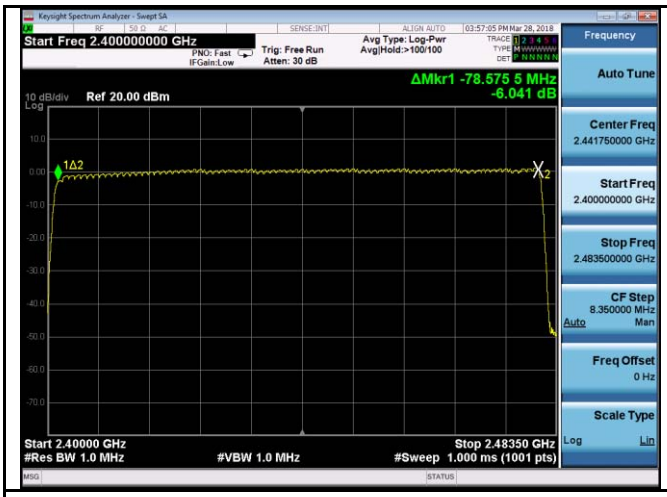
Test Plot ☑ Yes (See below) ☐ N/A

Number of Hopping Channel measurement result

Type	Modulation	Frequency Range	Number of Hopping Channel	Limit
Number of Hopping Channel	GFSK	2400-2483.5	79	15
	π /4 DQPSK	2400-2483.5	79	15
	8-DPSK	2400-2483.5	79	15

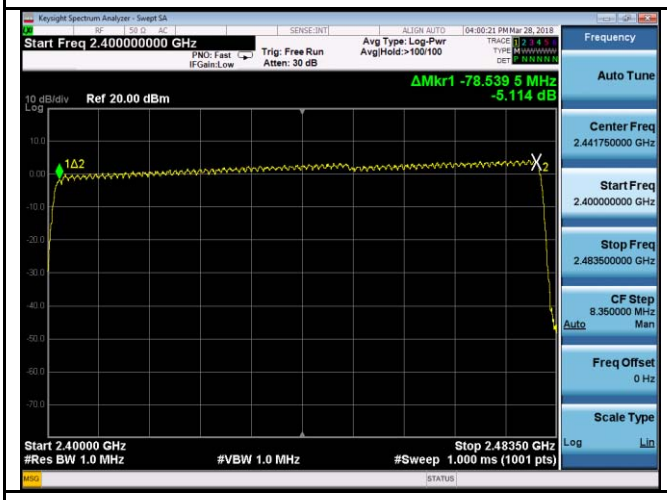
Test Plots

Number of Hopping Channels measurement result



GFSK

π /4DQPSK

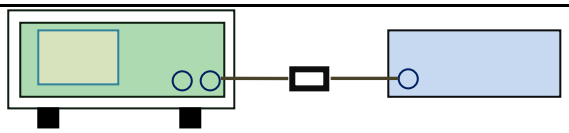


8DPSK

6.6 Time of Occupancy (Dwell Time)

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(a)(1)(iii)	a)	Dwell Time < 0.4s	☑
Test Setup			
Test Procedure	The test follows FCC Public Notice DA 00-705 Measurement Guidelines. Use the following spectrum analyzer - Span = zero span, centered on a hopping channel - RBW = 1 MHz - VBW ≥ RBW - Sweep = as necessary to capture the entire dwell time per hopping channel - Detector function = peak - Trace = max hold - use the marker-delta function to determine the dwell time		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

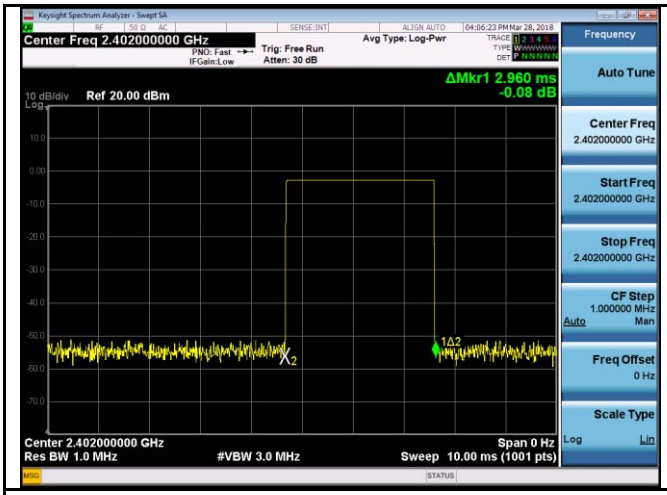
Test Plot ☑ Yes (See below) ☐ N/A

Dwell Time measurement result

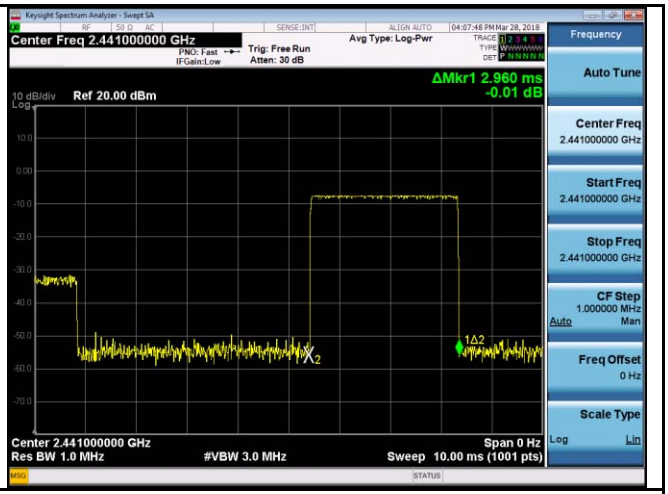
Type	Modulation	CH	Pulse Width (ms)	Dwell Time (ms)	Limit (ms)	Result
Dwell Time	GFSK	Low	2.96	315.733	400	Pass
		Mid	2.96	315.733	400	Pass
		High	2.96	315.733	400	Pass
	π /4 DQPSK	Low	2.98	317.867	400	Pass
		Mid	2.98	317.867	400	Pass
		High	2.98	317.867	400	Pass
	8-DPSK	Low	2.95	314.667	400	Pass
		Mid	2.95	314.667	400	Pass
		High	2.94	313.600	400	Pass
Note: Dwell time=Pulse Time (ms) × (1600 ÷ 6 ÷ 79) ×31.6						

Test Plots

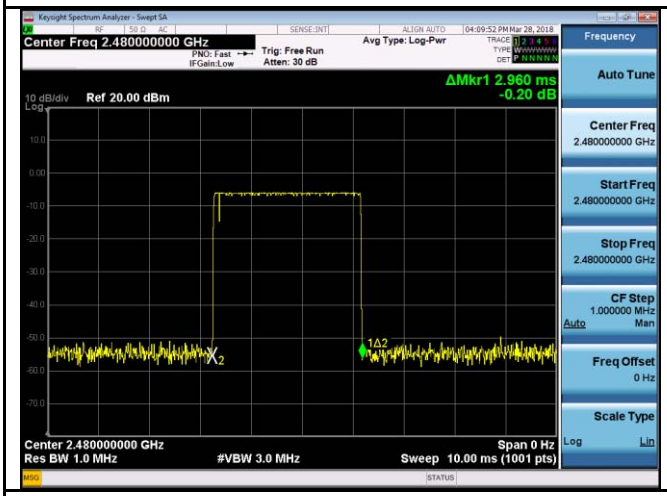
Dwell Time measurement result



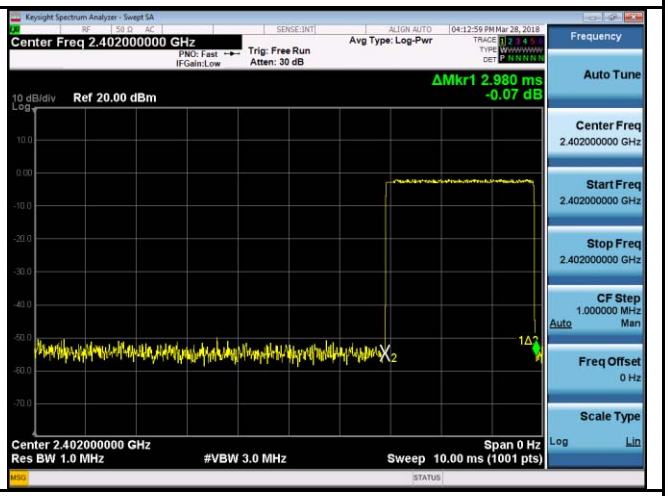
GFSK - Low CH 2402



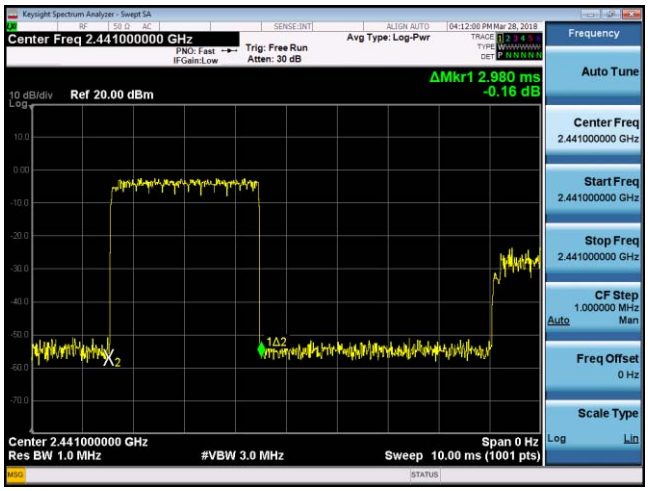
GFSK - Mid CH 2441



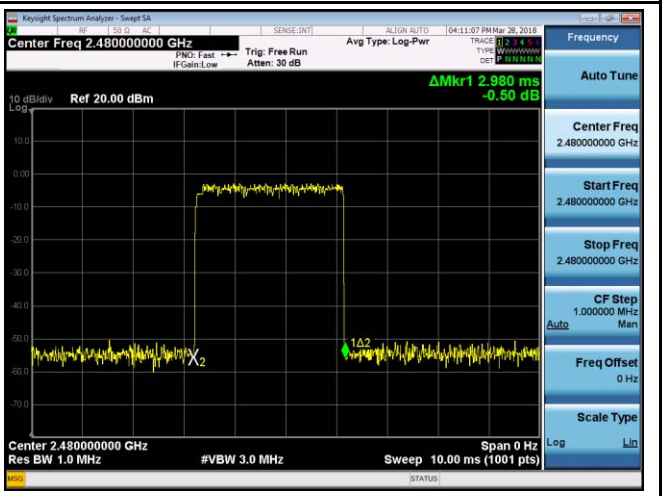
GFDK - High CH 2480



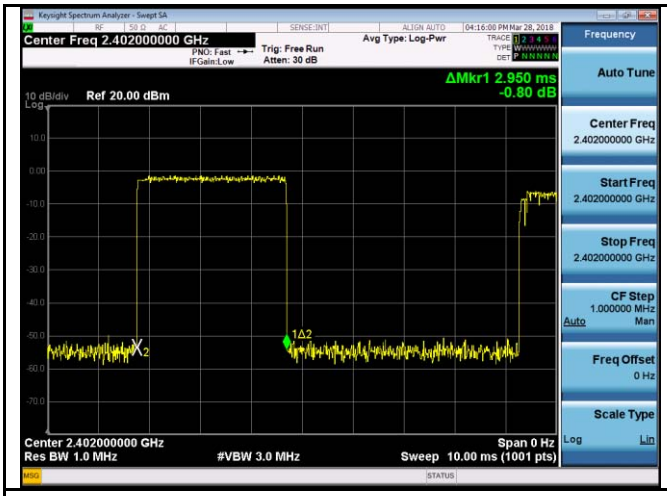
π /4 DQPSK - Low CH 2402



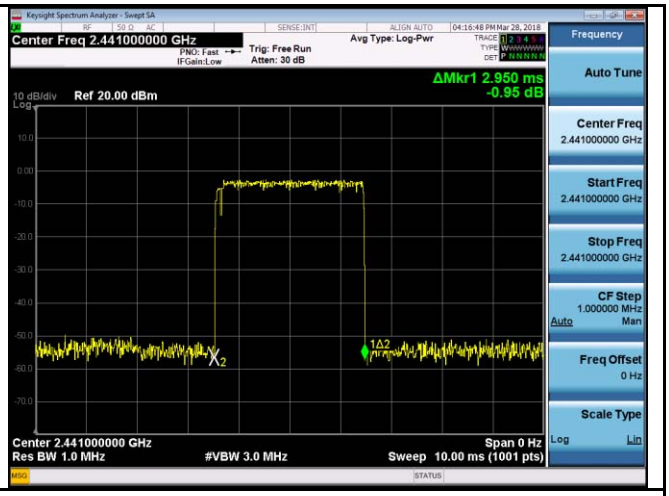
π /4 DQPSK - Mid CH 2441



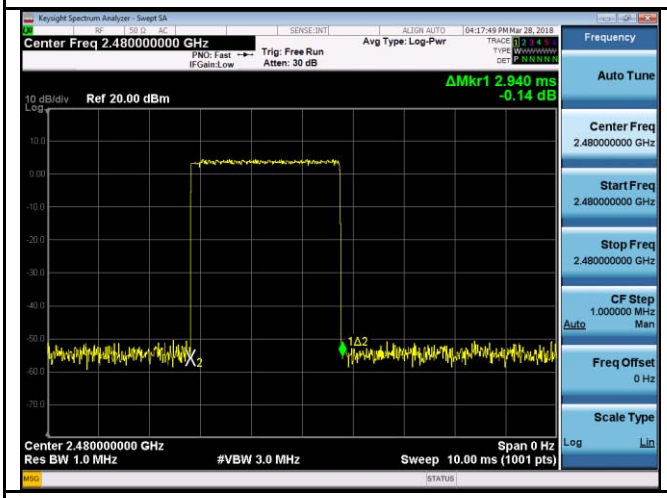
π /4 DQPSK - High CH 2480



8DPSK - Low CH 2402



8DPSK - Mid CH 2441

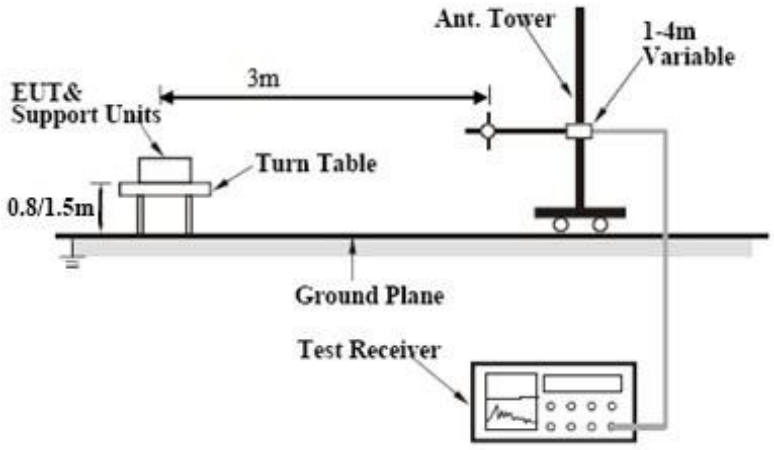


8DPSK - High CH 2480

6.7 Band Edge & Restricted Band

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(a)(1)(iii)	a)	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits.☐	☑
Test Setup			
Test Procedure	The test follows FCC Public Notice DA 00-705 Measurement Guidelines. Radiated Method Only - 1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. - 2. Position the EUT without connection to measurement instrument. Put it on the Rotated table and turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range,		

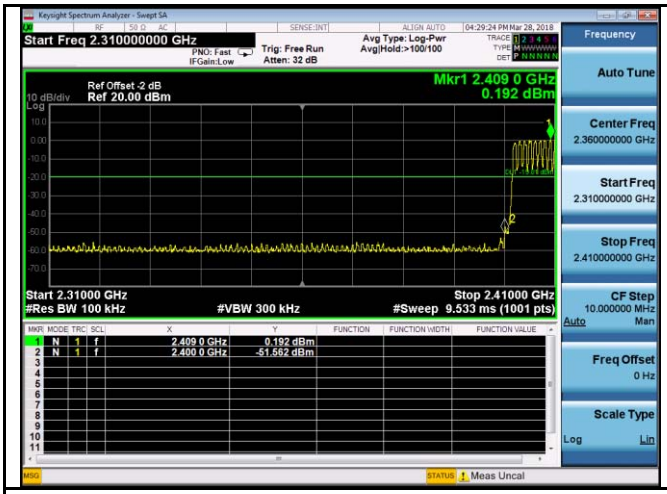
	and make sure the instrument is operated in its linear range. - 3. First, set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, check the emission of EUT, if pass then set Spectrum Analyzer as below: a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz. b. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz. c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz. - 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. - 5. Repeat above procedures until all measured frequencies were complete.
Remark	
Result	☑ Pass ☐ Fail

Test Data ☐ Yes ☑ N/A

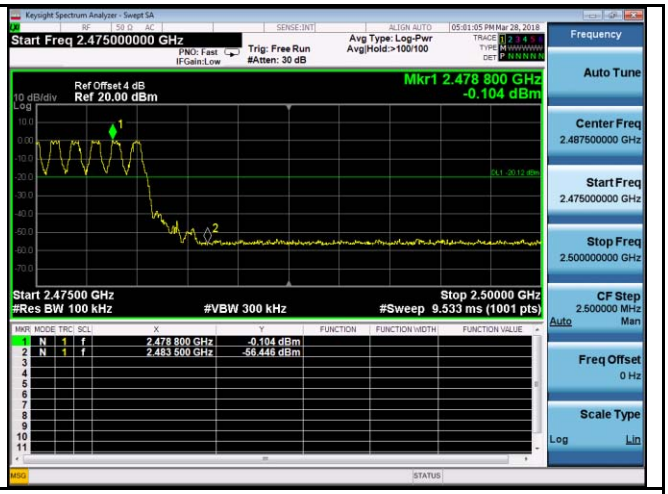
Test Plot ☑ Yes (See below) ☐ N/A

Test Plots

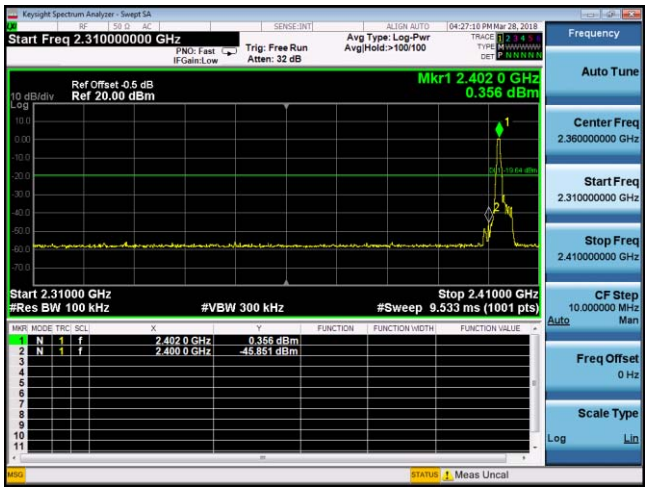
GFSK Mode:



GFSK-Hopping Left Side



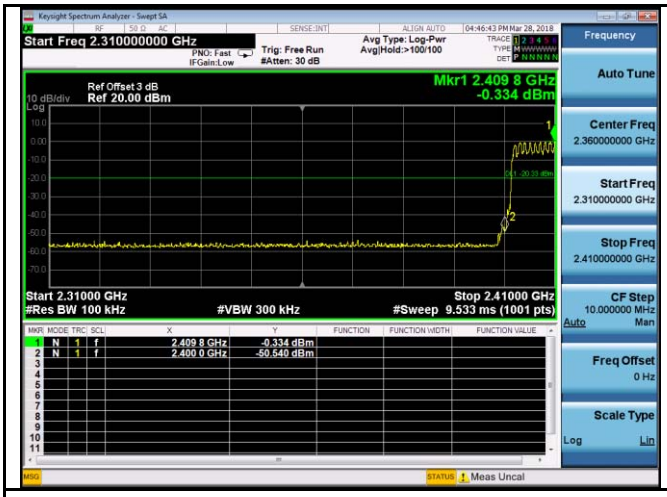
GFSK-Hopping Right Side



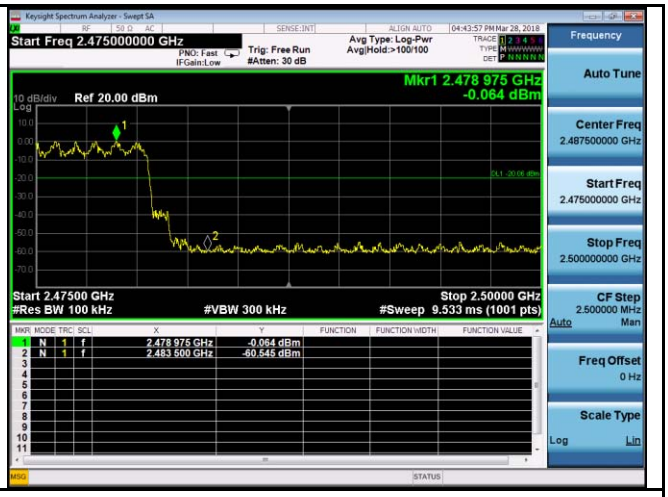
GFSK-Left Side

GFSK-Right Side

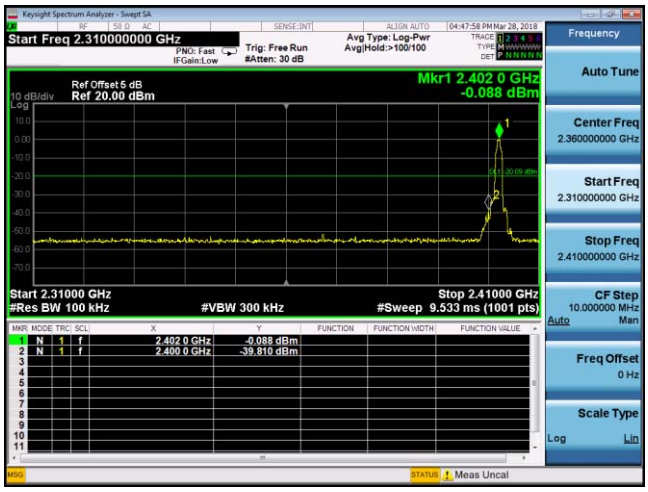
π /4 DQPSK Mode:



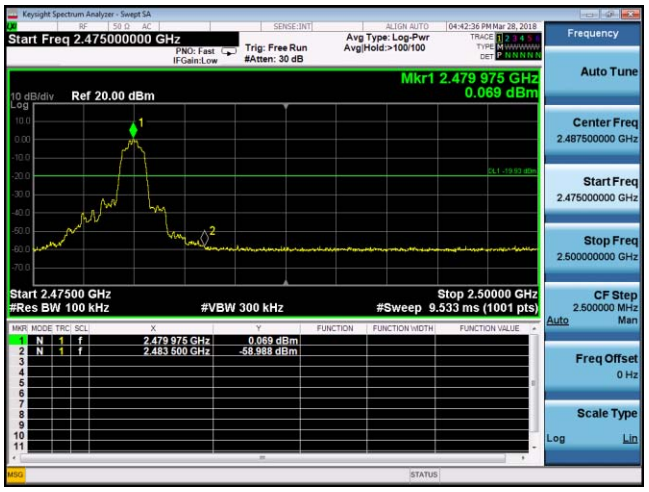
π /4 DQPSK-Hopping Left Side



π /4 DQPSK-Hopping Right Side

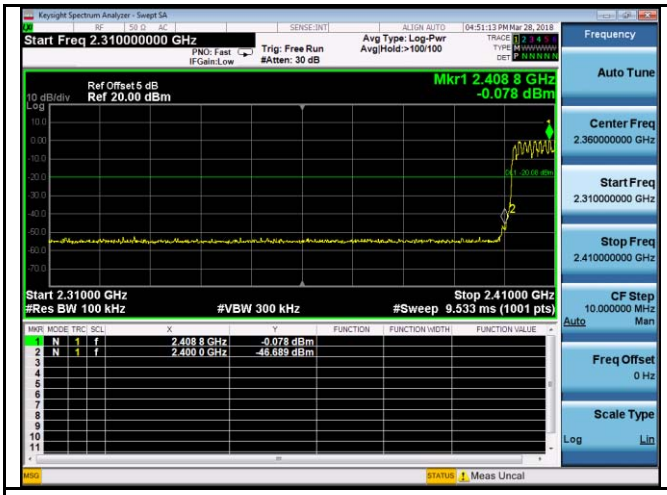


π /4 DQPSK-Left Side

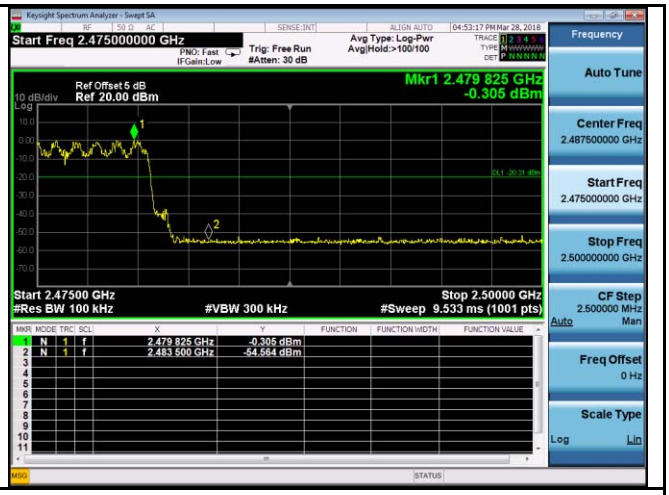


π /4 DQPSK-Right Side

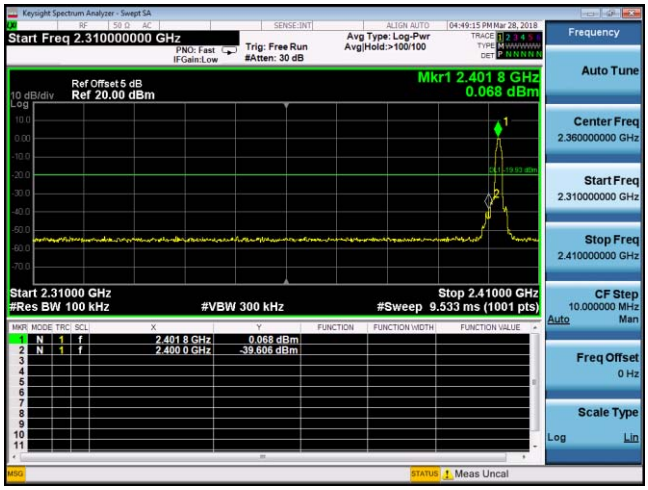
8-DPSK Mode:



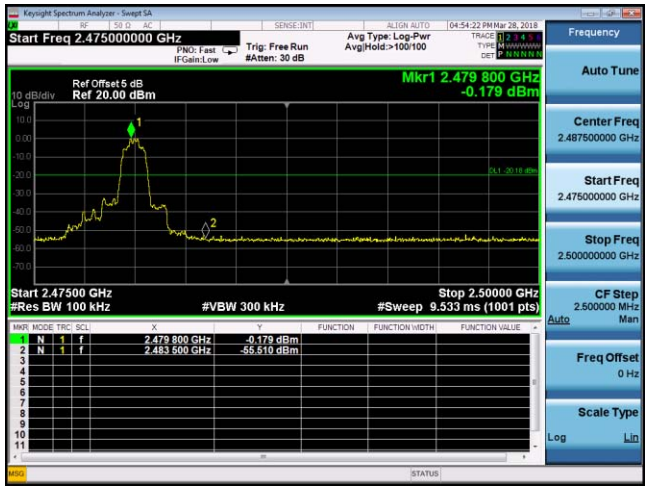
8DPSK-Hopping Left Side



8DPSK-Hopping Right Side



8DPSK-Left Side

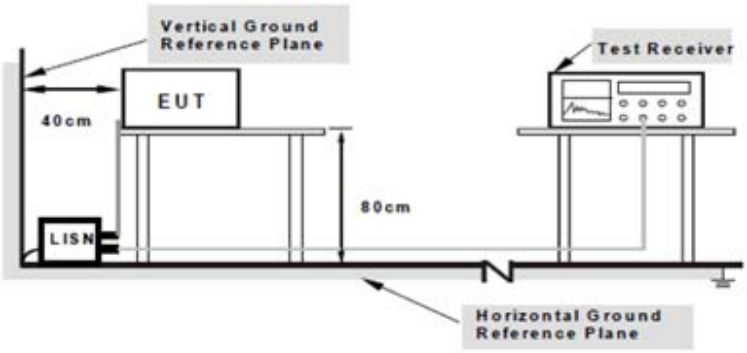


8DPSK-Right Side

6.8 AC Power Line Conducted Emissions

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.207, RSS210 (A8.1)</td><td>a)</td><td>For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 [mu]H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.
<table>
<tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>QP</th><th>Average</th></tr>
<tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 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>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 

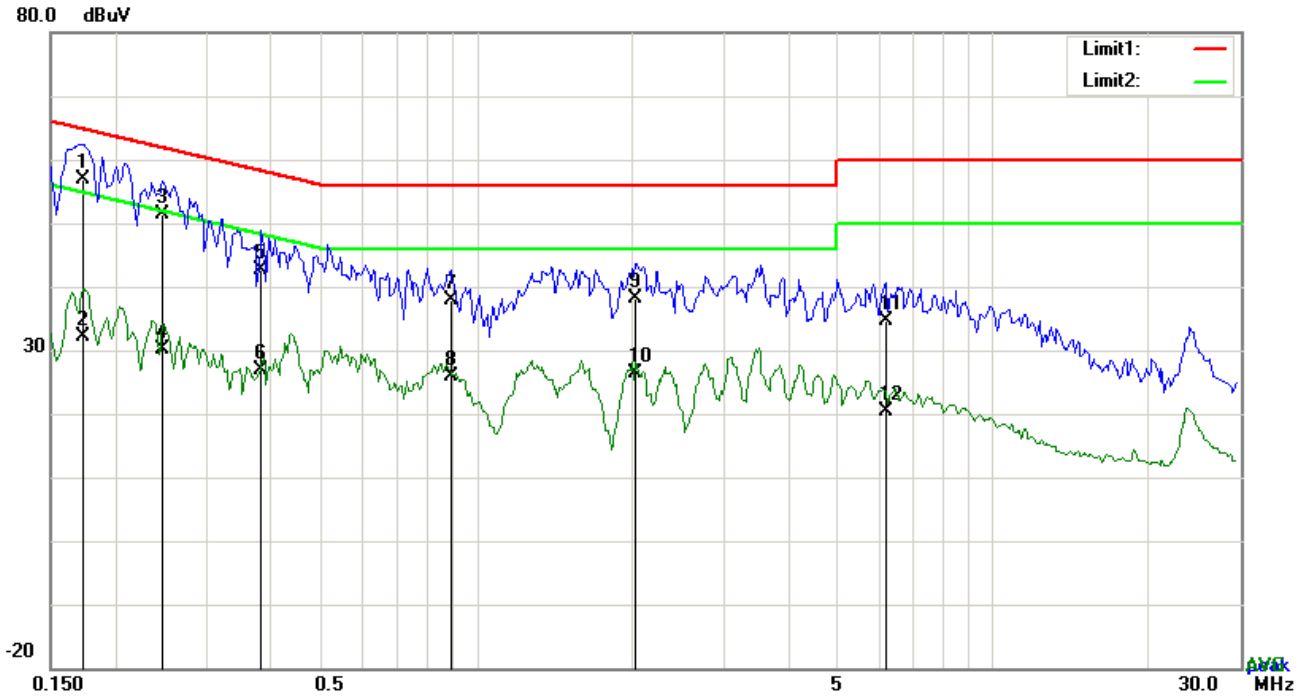
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss</td></tr>
</table>

	coaxial cable. 4. All other supporting equipment were powered separately from another main supply. 5. The EUT was switched on and allowed to warm up to its normal operating condition. 6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver. 7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. 8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).
Remark	
Result	☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Mode:	Bluetooth Mode

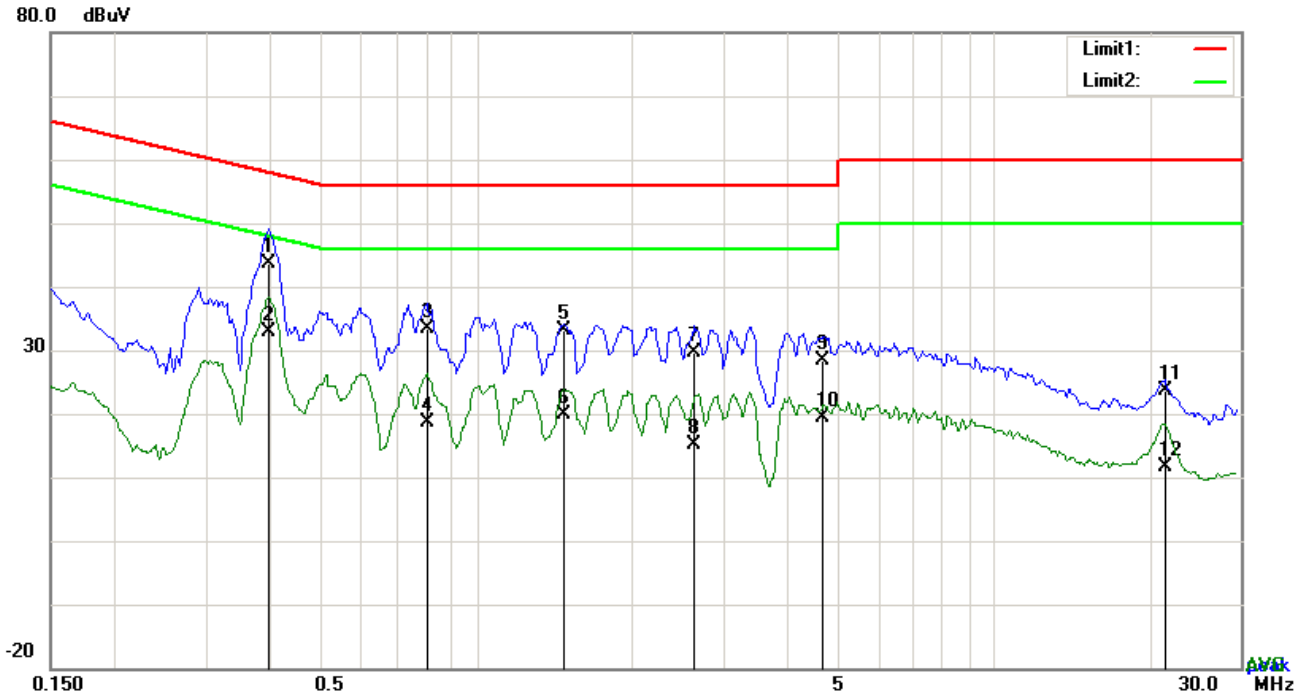


Test Data

Phase Line Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1734	46.88	QP	10.03	56.91	64.80	-7.89
2	L1	0.1734	22.01	AVG	10.03	32.04	54.80	-22.76
3	L1	0.2475	41.27	QP	10.03	51.30	61.84	-10.54
4	L1	0.2475	20.04	AVG	10.03	30.07	51.84	-21.77
5	L1	0.3840	32.48	QP	10.03	42.51	58.19	-15.68
6	L1	0.3840	16.79	AVG	10.03	26.82	48.19	-21.37
7	L1	0.8910	27.74	QP	10.03	37.77	56.00	-18.23
8	L1	0.8910	15.74	AVG	10.03	25.77	46.00	-20.23
9	L1	2.0298	28.12	QP	10.04	38.16	56.00	-17.84
10	L1	2.0298	16.43	AVG	10.04	26.47	46.00	-19.53
11	L1	6.1980	24.53	QP	10.10	34.63	60.00	-25.37
12	L1	6.1980	10.27	AVG	10.10	20.37	50.00	-29.63

Test Mode:	Bluetooth Mode

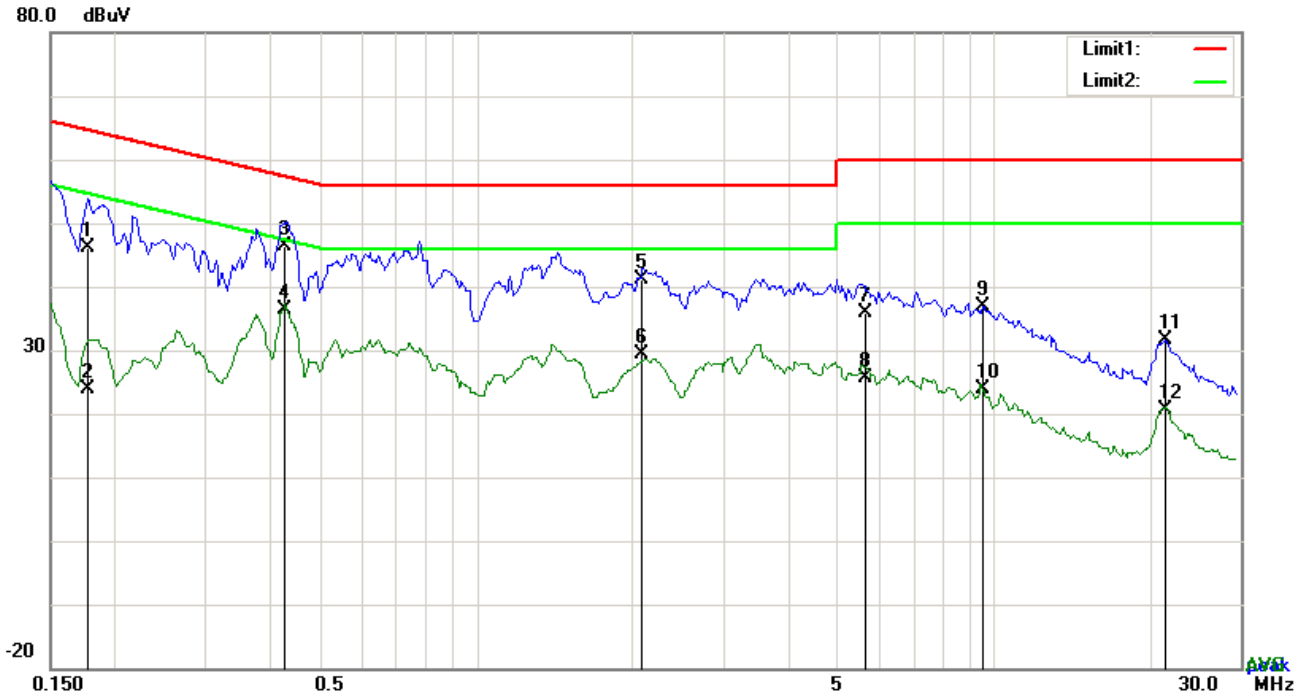


Test Data

Phase Neutral Plot at 120Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.3957	33.68	QP	10.02	43.70	57.94	-14.24
2	N	0.3957	22.92	AVG	10.02	32.94	47.94	-15.00
3	N	0.8013	23.33	QP	10.03	33.36	56.00	-22.64
4	N	0.8013	8.60	AVG	10.03	18.63	46.00	-27.37
5	N	1.4760	23.18	QP	10.03	33.21	56.00	-22.79
6	N	1.4760	9.92	AVG	10.03	19.95	46.00	-26.05
7	N	2.6421	19.67	QP	10.05	29.72	56.00	-26.28
8	N	2.6421	5.10	AVG	10.05	15.15	46.00	-30.85
9	N	4.6887	18.21	QP	10.07	28.28	56.00	-27.72
10	N	4.6887	9.19	AVG	10.07	19.26	46.00	-26.74
11	N	21.5055	13.32	QP	10.28	23.60	60.00	-36.40
12	N	21.5055	1.42	AVG	10.28	11.70	50.00	-38.30

Test Mode:	Bluetooth Mode

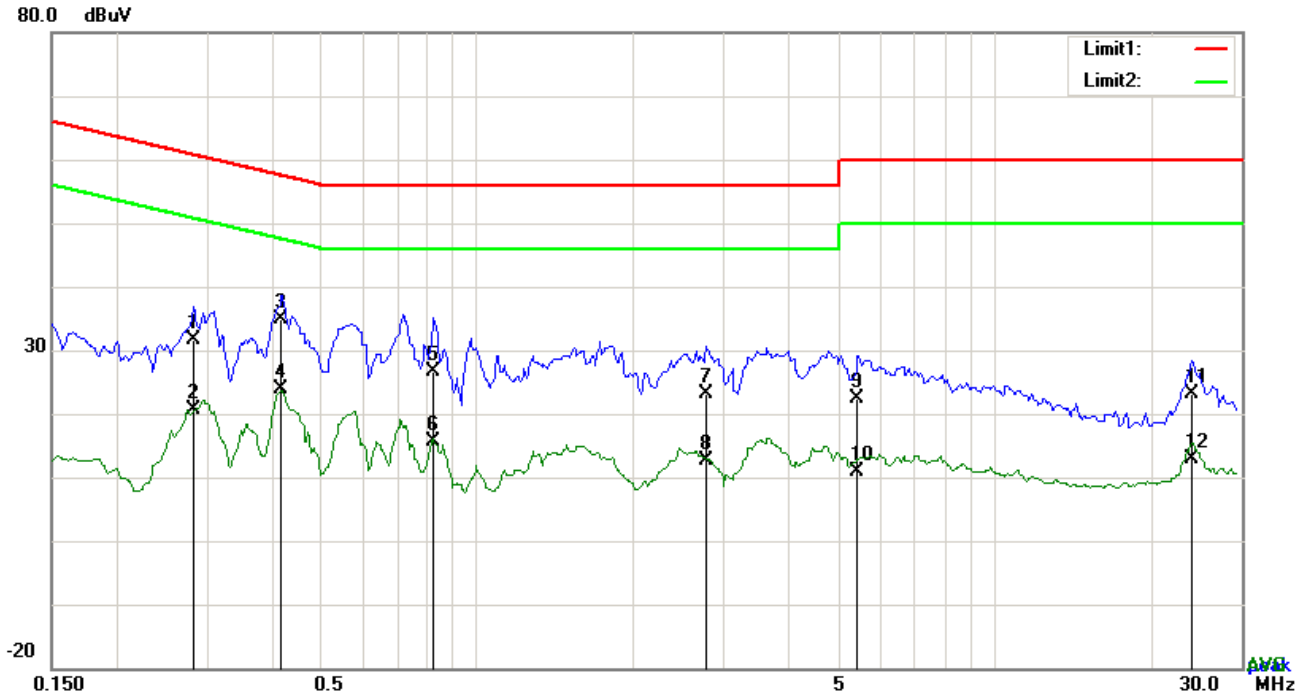


Test Data

Phase Line Plot at 240Vac, 60Hz

No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	L1	0.1773	36.07	QP	10.03	46.10	64.61	-18.51
2	L1	0.1773	13.80	AVG	10.03	23.83	54.61	-30.78
3	L1	0.4269	36.29	QP	10.03	46.32	57.31	-10.99
4	L1	0.4269	26.41	AVG	10.03	36.44	47.31	-10.87
5	L1	2.0961	30.99	QP	10.04	41.03	56.00	-14.97
6	L1	2.0961	19.32	AVG	10.04	29.36	46.00	-16.64
7	L1	5.6676	25.77	QP	10.09	35.86	60.00	-24.14
8	L1	5.6676	15.44	AVG	10.09	25.53	50.00	-24.47
9	L1	9.5481	26.78	QP	10.14	36.92	60.00	-23.08
10	L1	9.5481	13.66	AVG	10.14	23.80	50.00	-26.20
11	L1	21.4236	21.42	QP	10.33	31.75	60.00	-28.25
12	L1	21.4236	10.42	AVG	10.33	20.75	50.00	-29.25

Test Mode:	Bluetooth Mode



Test Data

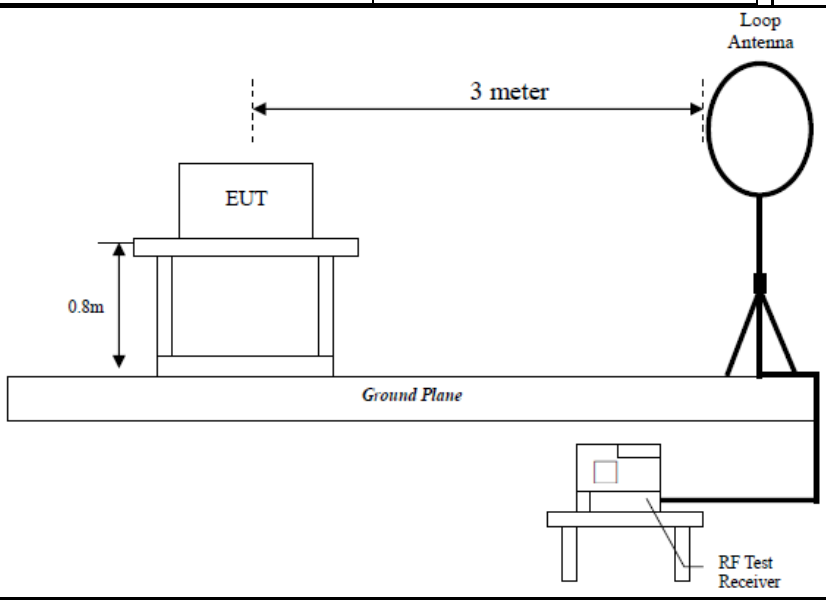
Phase Neutral Plot at 240Vac, 60Hz

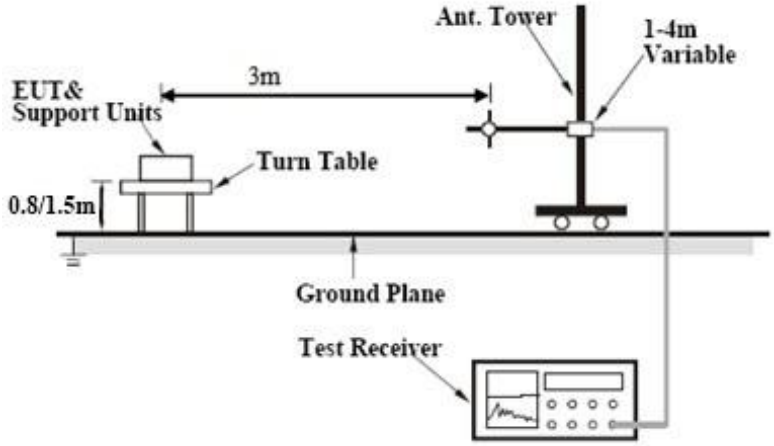
No.	P/L	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
		(MHz)	(dBuV)		(dB}	(dBuV)	(dBuV)	(dB)
1	N	0.2826	21.54	QP	10.02	31.56	60.74	-29.18
2	N	0.2826	10.50	AVG	10.02	20.52	50.74	-30.22
3	N	0.4191	24.87	QP	10.02	34.89	57.47	-22.58
4	N	0.4191	13.84	AVG	10.02	23.86	47.47	-23.61
5	N	0.8208	16.58	QP	10.03	26.61	56.00	-29.39
6	N	0.8208	5.64	AVG	10.03	15.67	46.00	-30.33
7	N	2.7669	13.17	QP	10.05	23.22	56.00	-32.78
8	N	2.7669	2.48	AVG	10.05	12.53	46.00	-33.47
9	N	5.4453	12.18	QP	10.08	22.26	60.00	-37.74
10	N	5.4453	0.70	AVG	10.08	10.78	50.00	-39.22
11	N	24.1302	12.74	QP	10.33	23.07	60.00	-36.93
12	N	24.1302	2.46	AVG	10.33	12.79	50.00	-37.21

6.9 Radiated Emissions & Restricted Band

Temperature	23℃
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	March 28, 2018
Tested By :	Aaron Liang

Requirement(s):

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.205, §15.209, §15.247(d)</td><td>a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr>
<tr><td>0.009~0.490</td><td>2400/F(KHz)</td></tr>
<tr><td>0.490~1.705</td><td>24000/F(KHz)</td></tr>
<tr><td>1.705~30.0</td><td>30</td></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 
</td></tr>
</table>



Procedure

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
   a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
   b. The EUT was then rotated to the direction that gave the maximum emission.
   c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz.
   The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz.
5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

Remark

Result ☑ Pass ☐ Fail

Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

Test Result:

Test Mode:	Transmitting Mode

Frequency range: 9KHz - 30MHz

Freq. (MHz)	Detection value	Factor (dB/m)	Reading (dBuV/m)	Result (dBuV/m)	Limit@3m (dBuV/m)	Margin (dB)
--	--	--	--	--	--	>20
--	--	--	--	--	--	>20

Note:

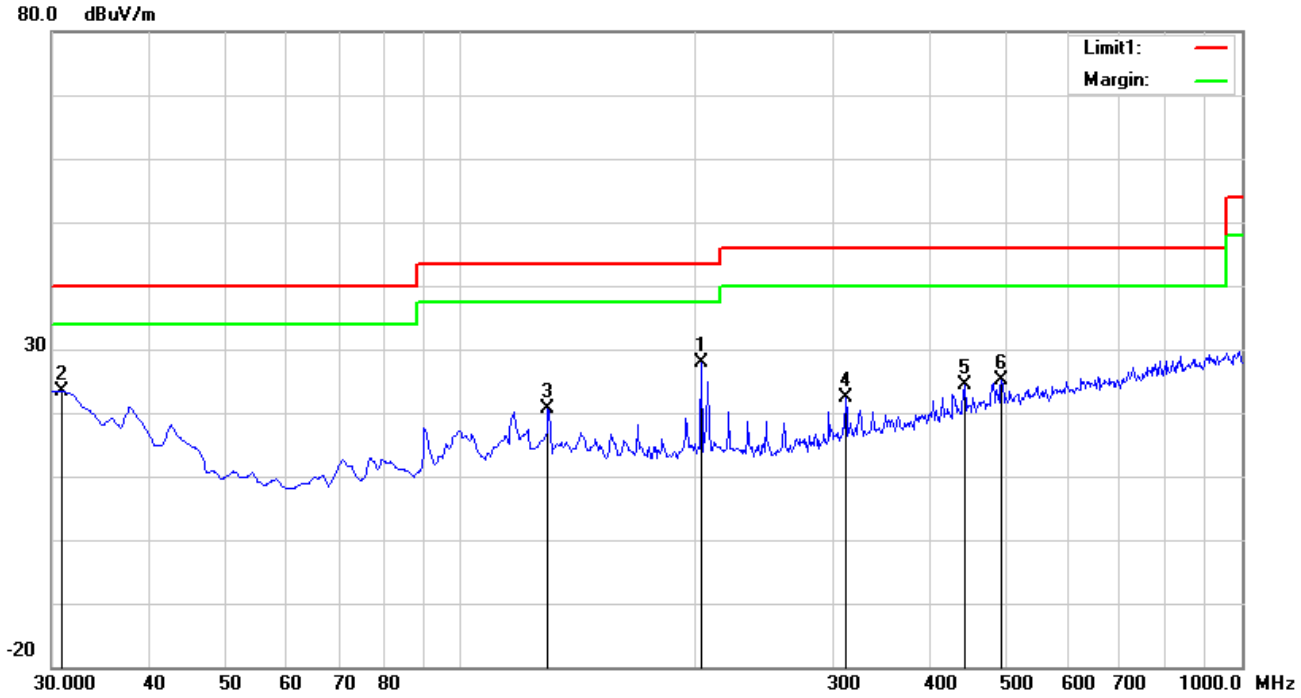
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Test Mode:	Bluetooth Mode

30MHz -1GHz

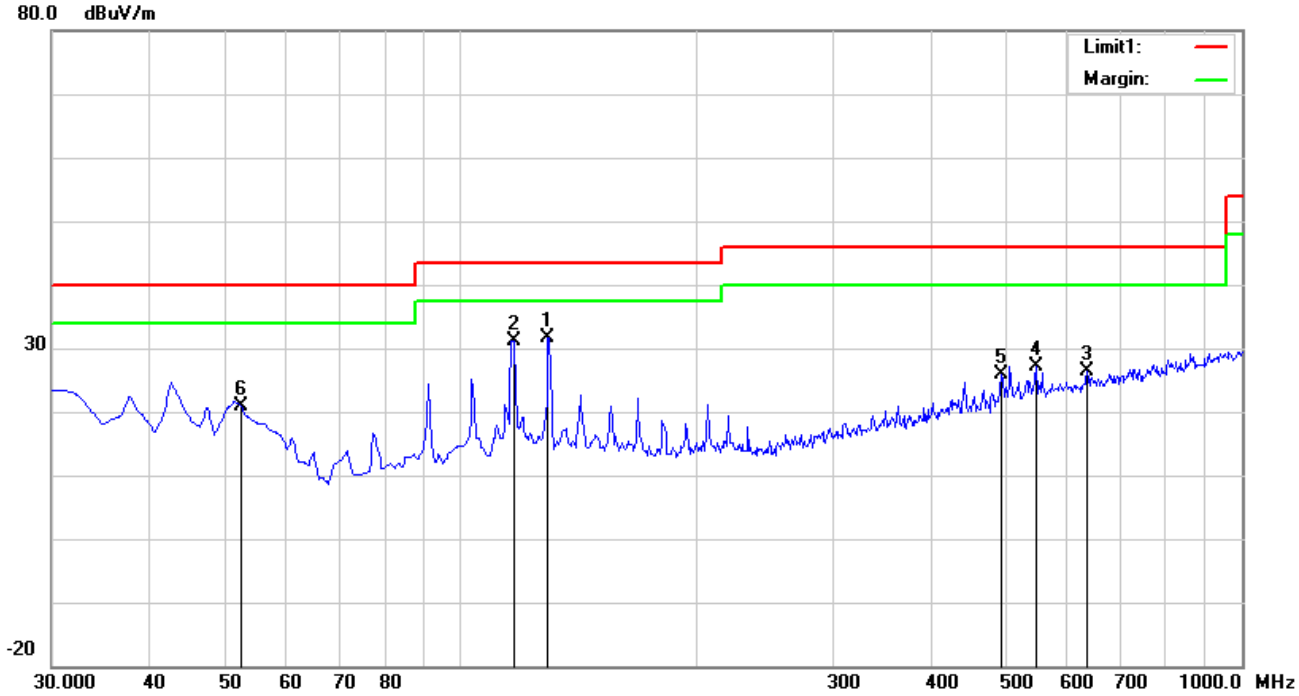


Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	( )
1	H	203.6300	36.74	peak	12.05	22.37	1.55	27.97	43.50	-15.53	100	63
2	H	30.9700	24.45	peak	20.65	22.27	0.65	23.48	40.00	-16.52	100	191
3	H	129.9100	28.45	peak	13.26	22.38	1.20	20.53	43.50	-22.97	100	320
4	H	311.3000	29.06	peak	13.84	22.26	1.85	22.49	46.00	-23.51	100	24
5	H	442.2500	27.67	peak	16.54	21.93	2.11	24.39	46.00	-21.61	100	342
6	H	493.6600	27.08	peak	17.57	21.82	2.38	25.21	46.00	-20.79	100	228

30MHz -1GHz



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detector	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degree
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	V	129.9100	39.65	peak	13.26	22.38	1.20	31.73	43.50	-11.77	100	156
2	V	117.3000	38.95	peak	13.43	22.35	1.16	31.19	43.50	-12.31	100	109
3	V	635.2800	25.90	peak	19.49	21.50	2.59	26.48	46.00	-19.52	100	65
4	V	546.0400	28.10	peak	18.34	21.70	2.48	27.22	46.00	-18.78	100	213
5	V	493.6600	27.74	peak	17.57	21.82	2.38	25.87	46.00	-20.13	100	68
6	V	52.3913	34.42	peak	8.14	22.39	0.79	20.96	40.00	-19.04	100	82

Above 1GHz

Test Mode:	Transmitting Mode

Frequency	Meter Reading	Antenna Factor	Cable loss	Preamp factor	Emission Level	Limits	Margin	Detector	Polarity
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	(PK/AV)	(H/V)
Low Channel:GFSK Mode(Worst Case)-2402MHz									
2390	40.31	28.72	3.36	26.32	46.07	74	-27.93	peak	Vertical
4804	29.07	32.94	3.98	27.49	38.50	54	-15.50	Average	Vertical
4804	39.47	32.94	3.98	27.49	48.90	74	-25.10	peak	Vertical
7206	32.96	25.28	5.51	27.94	35.81	54	-18.19	Average	Vertical
7206	42.49	25.28	5.51	27.94	45.34	74	-28.66	peak	Vertical
2390	41.03	28.72	3.36	26.32	46.79	74	-27.21	peak	Horizontal
4804	31.42	32.94	3.98	27.49	40.85	54	-13.15	Average	Horizontal
4804	42.43	32.94	3.98	27.49	51.86	74	-22.14	peak	Horizontal
7206	32.58	25.28	5.51	27.94	35.43	54	-18.57	Average	Horizontal
7206	44.14	25.28	5.51	27.94	46.99	74	-27.01	peak	Horizontal
Middle Channel:GFSK Mode(Worst Case)-2441MHz									
4882	30.83	32.11	4.04	27.53	39.45	54	-14.55	Average	Vertical
4882	39.26	32.11	4.04	27.53	47.88	74	-26.12	peak	Vertical
7323	30.28	24.33	5.58	27.96	32.23	54	-21.77	Average	Vertical
7323	41.21	24.33	5.58	27.96	43.16	74	-30.84	peak	Vertical
4882	31.13	32.11	4.04	27.53	39.75	54	-14.25	Average	Horizontal
4882	41.44	32.11	4.04	27.53	50.06	74	-23.94	peak	Horizontal
7323	35.46	24.33	5.58	27.96	37.41	54	-16.59	Average	Horizontal
7323	41.42	24.33	5.58	27.96	43.37	74	-30.63	peak	Horizontal
High Channel:GFSK Mode(Worst Case)-2480MHz									
2483.5	38.74	28.79	3.48	26.34	44.67	74	-29.33	peak	Vertical
4960	30.16	31.32	4.12	27.58	38.02	54	-15.98	Average	Vertical
4960	39.57	31.32	4.12	27.58	47.43	74	-26.57	peak	Vertical
7440	30.12	24.38	5.68	27.99	32.19	54	-21.81	Average	Vertical
7440	41.24	24.38	5.68	27.99	43.31	74	-30.69	peak	Vertical
2483.5	40.66	28.79	3.48	26.34	46.59	74	-27.41	peak	Horizontal
4960	30.48	31.32	4.12	27.58	38.34	54	-15.66	Average	Horizontal
4960	41.74	31.32	4.12	27.58	49.60	74	-24.40	peak	Horizontal
7440	33.98	24.38	5.68	27.99	36.05	54	-17.95	Average	Horizontal
7440	41.49	24.38	5.68	27.99	43.56	74	-30.44	peak	Horizontal
NOTE:1.Absolute Level= ReadingLevel+antenna Factor+cable loss-preamp factor. 2.EUT Pre-scan X/Y/Z orientation, only the worst case is presented in the report (Z orientation)									

Note:

*1, The testing has been conformed to 10*2480MHz=24,800MHz*
2, All other emissions more than 30 dB below the limit
3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.
4, The radiated spurious test above 18GHz is subcontracted to SIEMIC (Nanjing-China) Laboratories. and found 30dB below the limit at least.

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
AC Line Conducted					
EMI test receiver	ESCS30	8471241027	09/15/2017	09/14/2018	☑
Line Impedance	LI-125A	191106	09/23/2017	09/22/2018	☑
Line Impedance	LI-125A	191107	09/23/2017	09/22/2018	☑
ISN	ISN T800	34373	09/23/2017	09/22/2018	☐
Transient Limiter	LIT-153	531118	08/30/2017	08/29/2018	☐
RF conducted test					
Agilent ESA-E SERIES	E4407B	MY45108319	09/15/2017	09/14/2018	☑
Power Splitter	1#	1#	08/30/2017	08/29/2018	☑
DC Power Supply	E3640A	MY40004013	09/15/2017	09/14/2018	☑
Radiated Emissions					
EMI test receiver	ESL6	100262	09/15/2017	09/14/2018	☑
Positioning Controller	UC3000	MF780208282	11/17/2017	11/16/2018	☑
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/30/2017	08/29/2018	☑
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/22/2018	03/21/2019	☑
Horn Antenna	BBHA9170	3145226D1	09/27/2017	09/26/2018	☑
Active Antenna (9kHz-30MHz)	AL-130	121031	10/12/2017	10/11/2018	☑
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/19/2017	09/18/2018	☑
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/22/2017	09/21/2018	☑
Universal Radio Communication Tester	CMU200	121393	09/23/2017	09/22/2018	☑

Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

Whole Package View 1

Whole Package View 2

EUT - Front View

EUT - Rear View

EUT - Top View

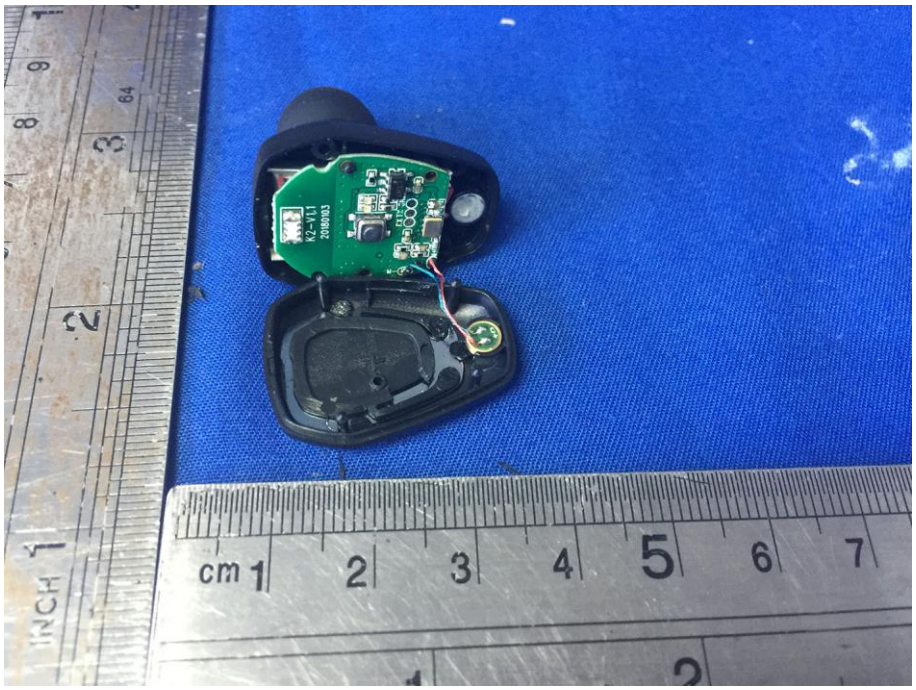
EUT - Bottom View

EUT - Left View

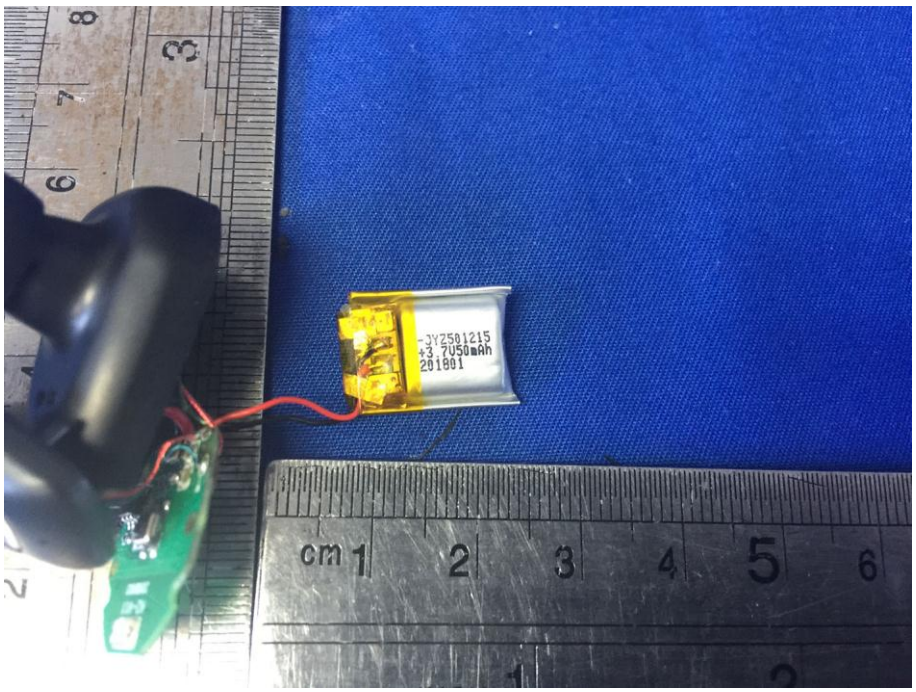
EUT - Right View

Annex B.ii. Photograph: EUT Internal Photo

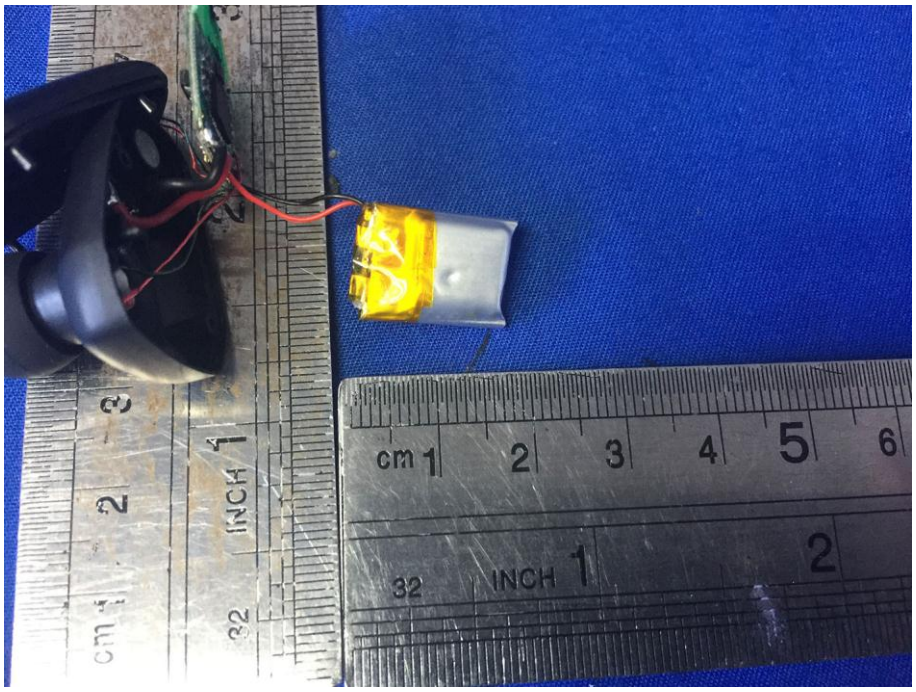
Cover off



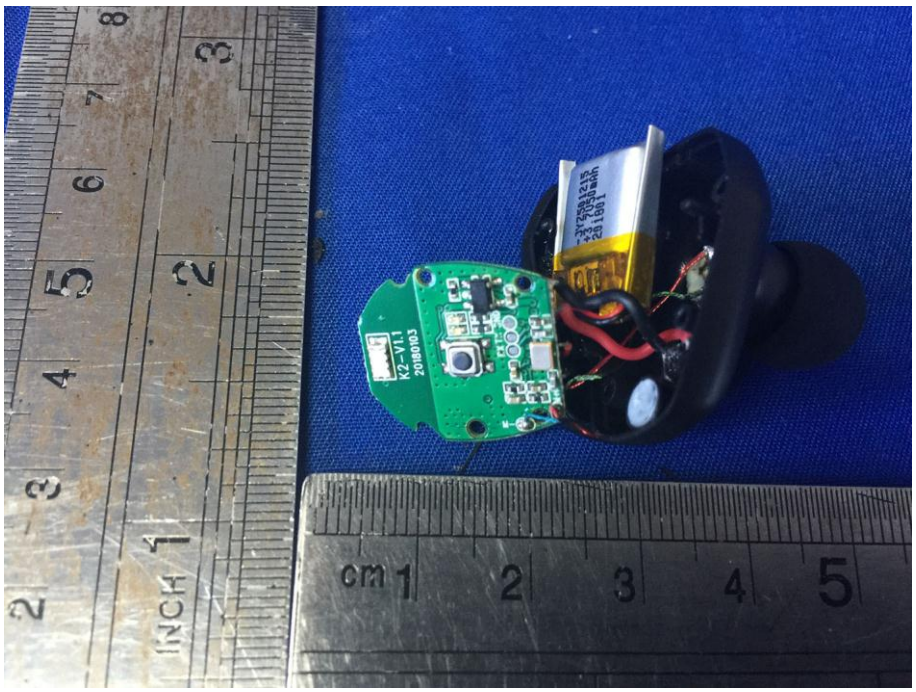
Battery - Front View



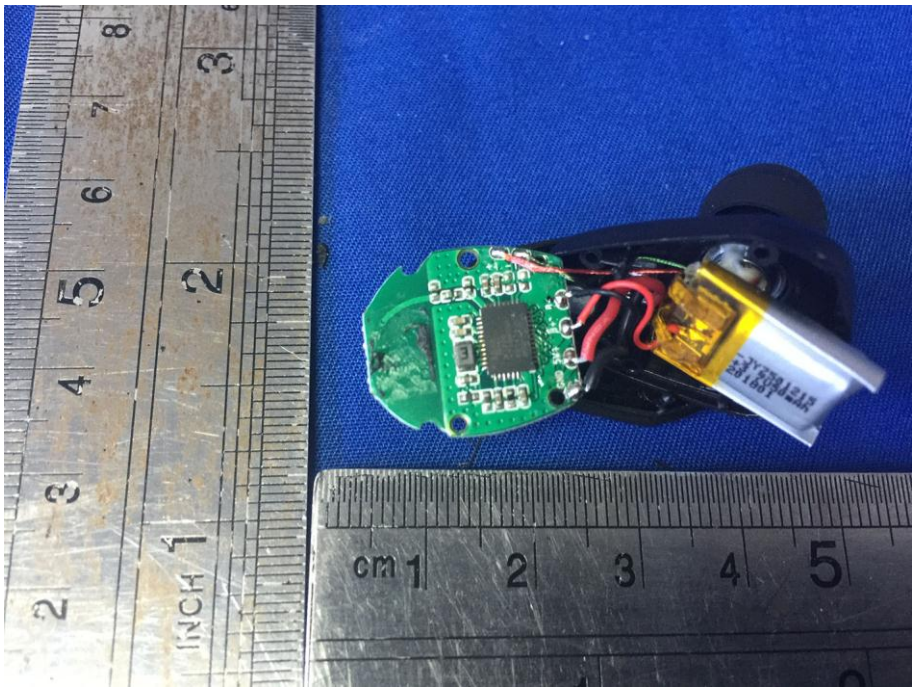
Battery - Rear View



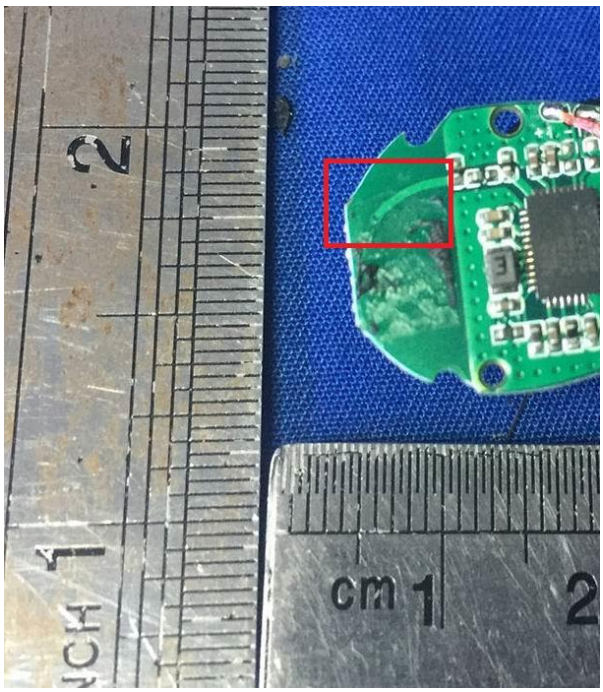
Mainboard - Front View



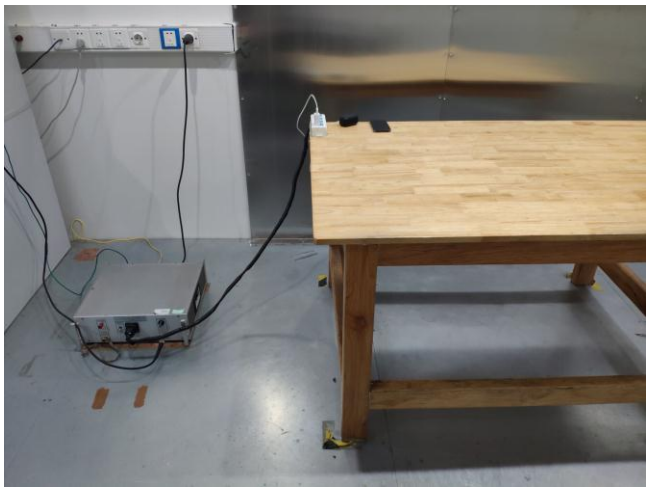
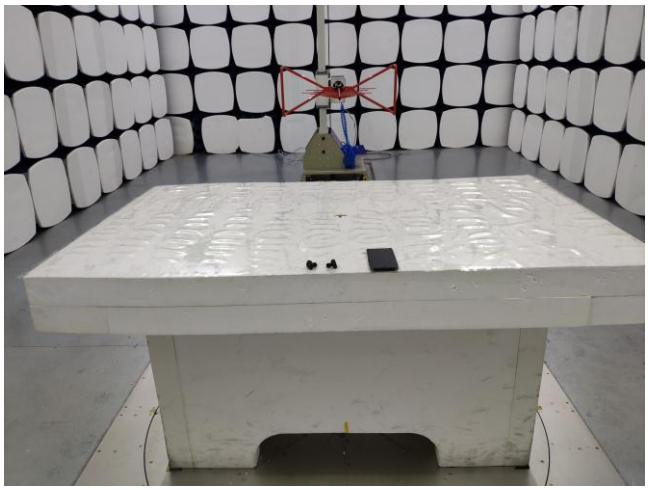
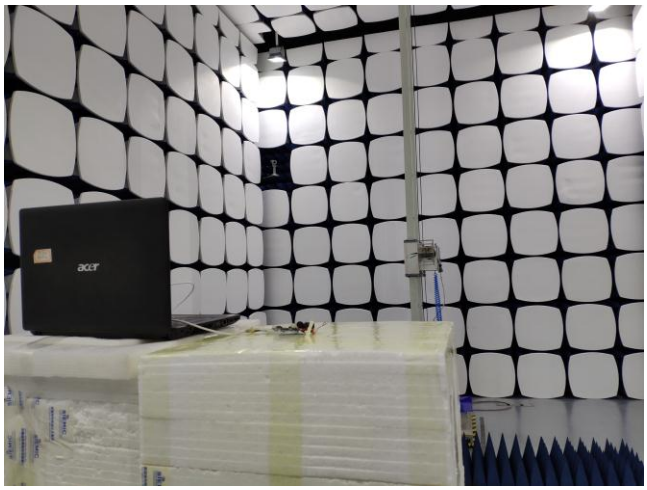
Mainboard – Rear View



BT - Antenna View



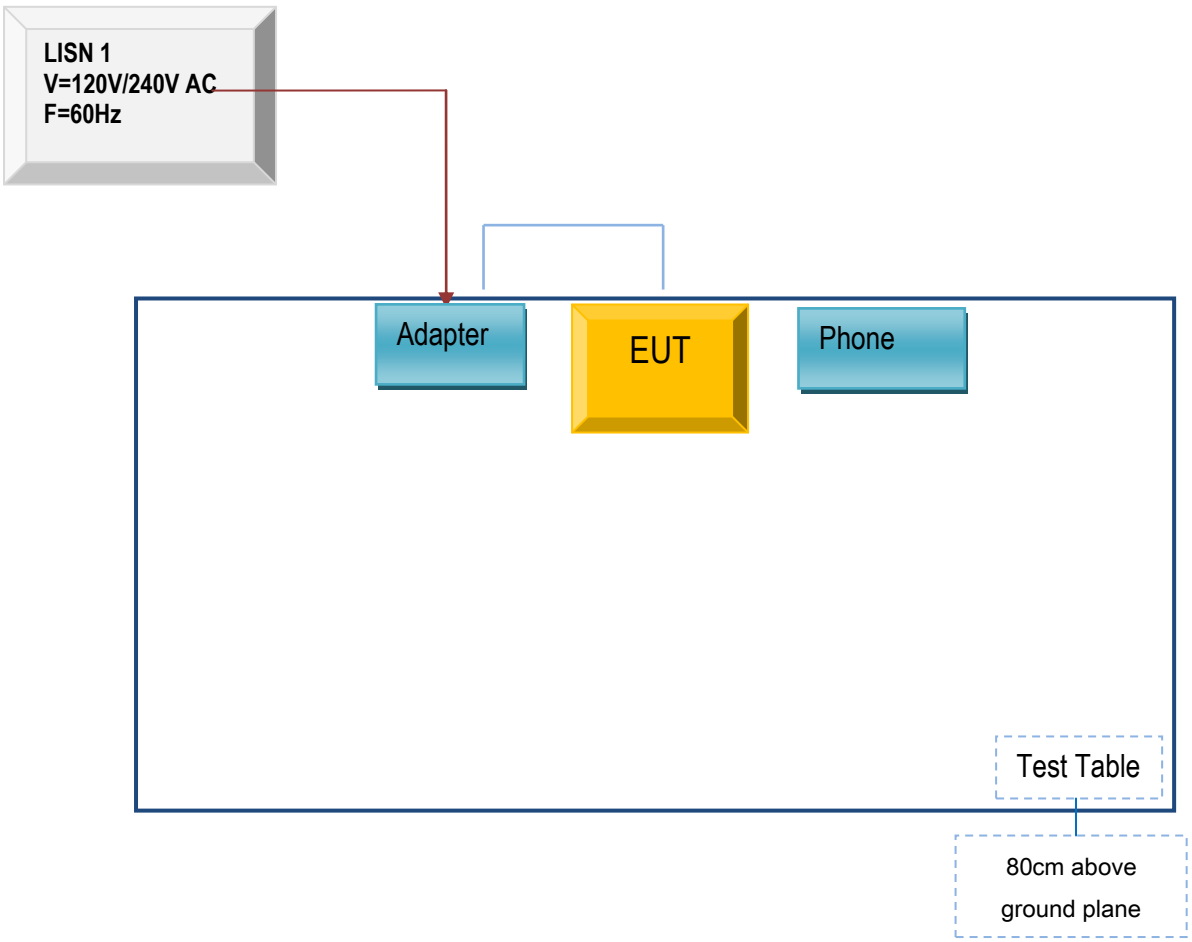
Annex B.iii. Photograph: Test Setup Photo

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Conducted Emissions Test Setup Front View</td><td>Conducted Emissions Test Setup Side View</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Radiated Spurious Emissions Test Setup Below 1GHz</td><td>Radiated Spurious Emissions Test Setup Above 1GHz</td></tr>
</table>

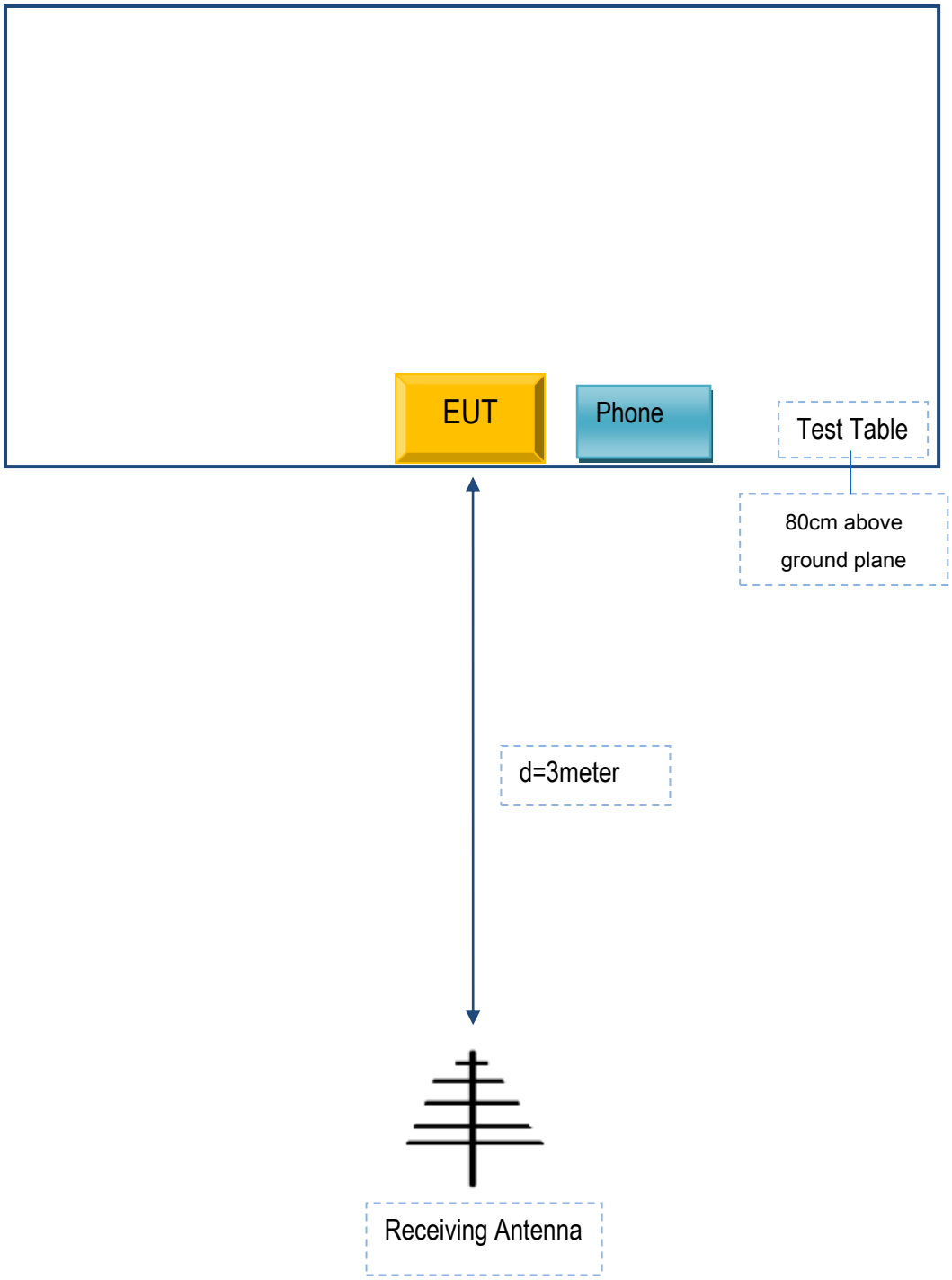
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

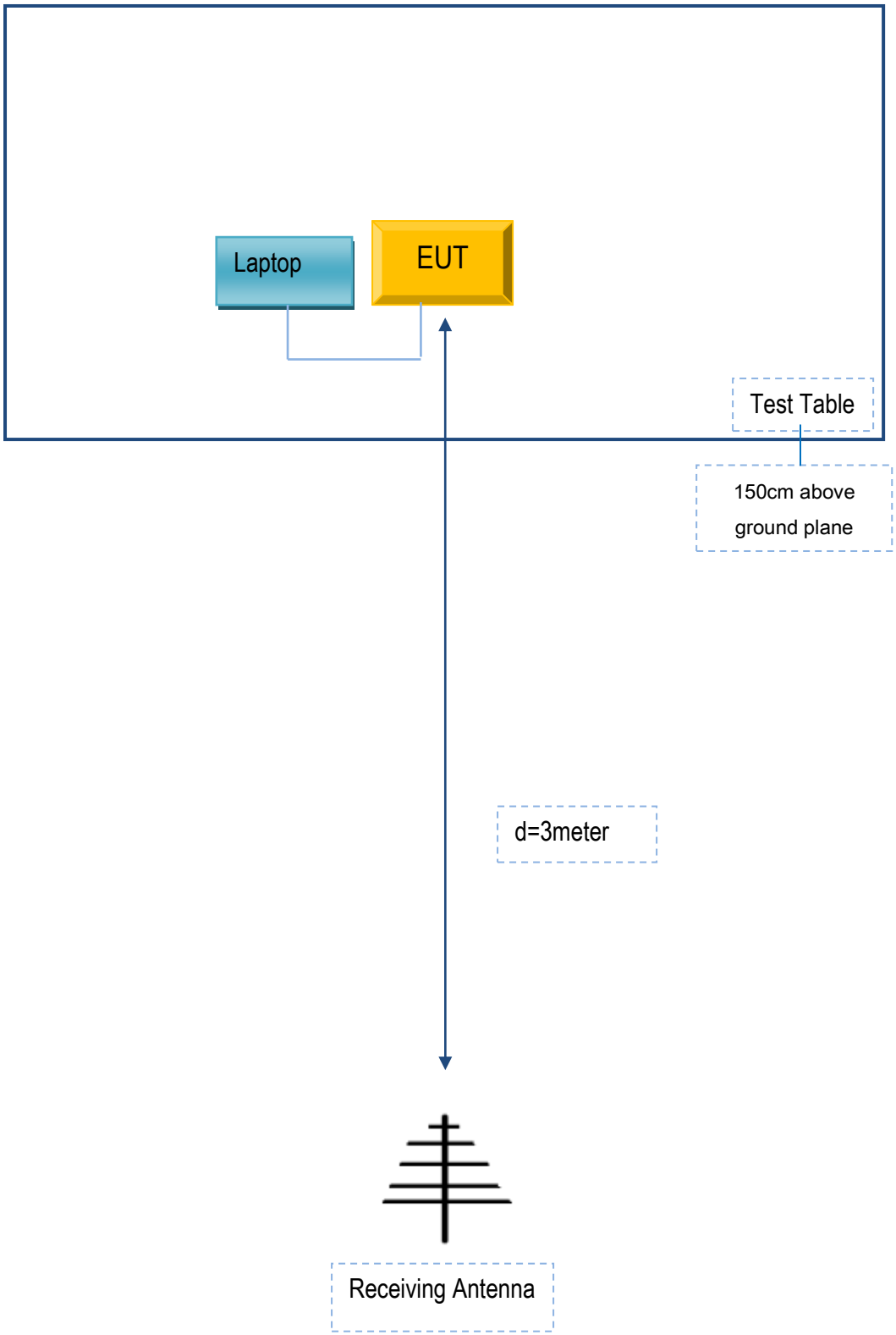
Block Configuration Diagram for AC Line Conducted Emissions



Block Configuration Diagram for Radiated Emissions （Below 1GHz）.



Block Configuration Diagram for Radiated Emissions （Above 1GHz）.



Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Serial No
Lenovo	Laptop	E40	LR-1EHRX
Apple	Phone	Iphone4s	N/A

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
N/A	N/A	N/A	N/A	N/A

Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A