



#### 4.8. Conducted Emissions Test

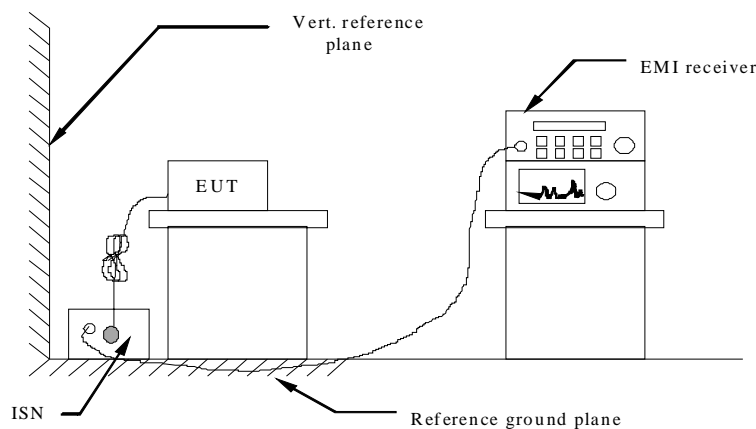
The frequency spectrum from 0.15 MHz to 30 MHz was investigated. The LISN used was 50 ohm / 50 u Henry as specified by section 5.1 of ANSI C63.4 - 2009. Cables and peripherals were moved to find the maximum emission levels for each frequency.

##### Limit

##### **FCC part 15.107(a)**

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

##### **TEST CONFIGURATION**



##### **TEST PROCEDURE**

- 1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
- 2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
- 4 If a EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5 All support equipments received AC power from a second LISN, if any
- 6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7 Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8 During the above scans, the emissions were maximized by cable manipulation.

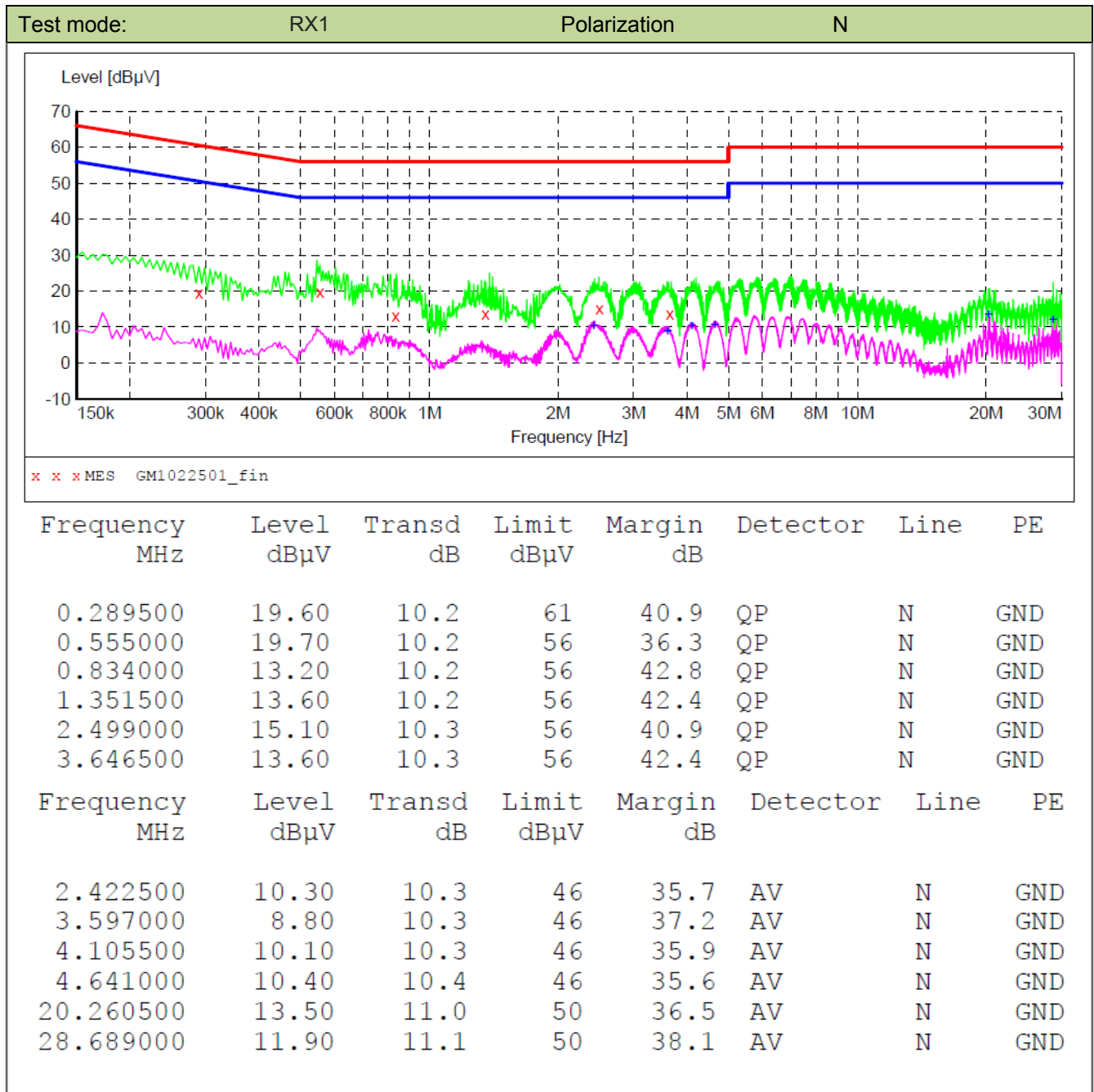
**TEST MODE:**

Please reference to the section 2.4

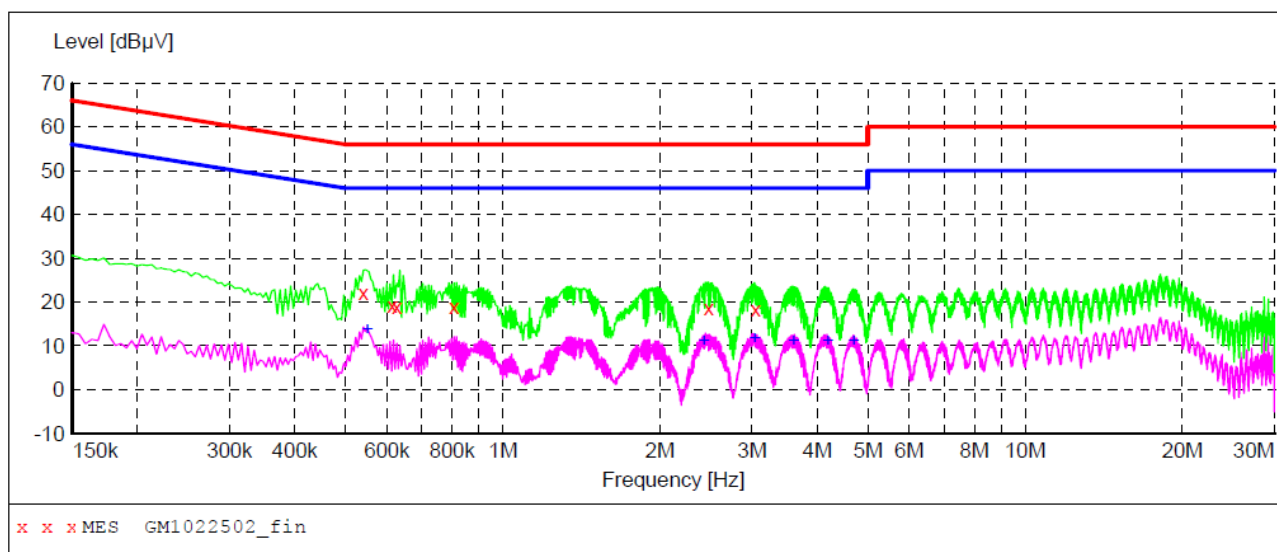
**TEST RESULTS**☒ **Passed**      ☐ **Not Applicable**

Note:

We tested Battery Model:BL1608 and BL2505, Charger Model CH10A05 and CH10A07; recorded the Battery Model:BL2505 and Charger Model CH10A07 at worst case.



Test mode:	RX1	Polarization	L1
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Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.541500	22.00	10.2	56	34.0	QP	L1	GND
0.613500	19.10	10.2	56	36.9	QP	L1	GND
0.627000	18.90	10.2	56	37.1	QP	L1	GND
0.807000	19.00	10.2	56	37.0	QP	L1	GND
2.476500	18.70	10.3	56	37.3	QP	L1	GND
3.052500	18.40	10.3	56	37.6	QP	L1	GND
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.550500	13.70	10.2	46	32.3	AV	L1	GND
2.427000	10.90	10.3	46	35.1	AV	L1	GND
3.034500	11.50	10.3	46	34.5	AV	L1	GND
3.597000	11.10	10.3	46	34.9	AV	L1	GND
4.191000	11.10	10.3	46	34.9	AV	L1	GND
4.690500	11.10	10.4	46	34.9	AV	L1	GND

## 4.9. Radiated Spurious Emission

### LIMIT

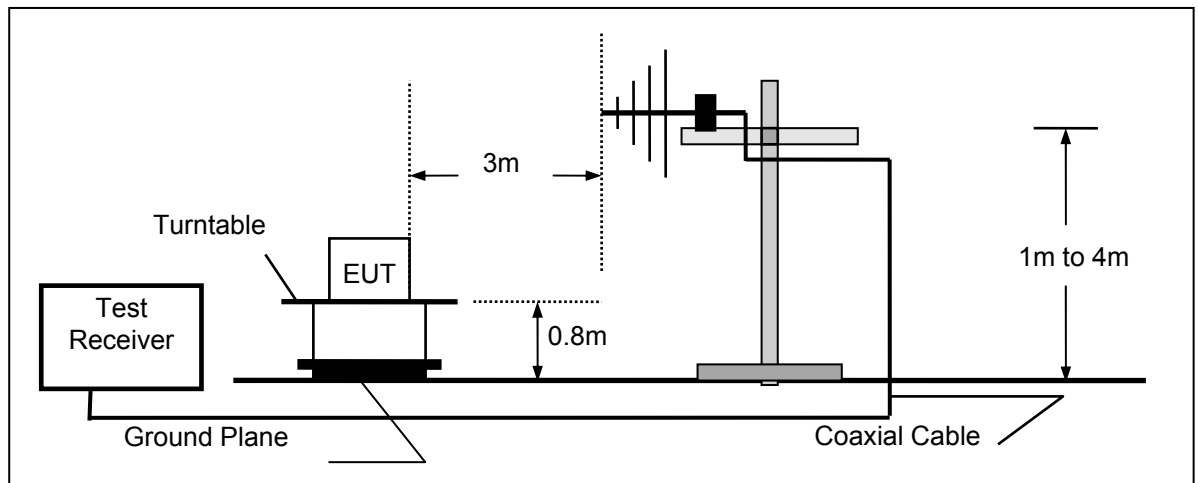
For unintentional device, according to § 15.109(a) except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dB $\mu$ V/m)	Radiated ( $\mu$ V/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

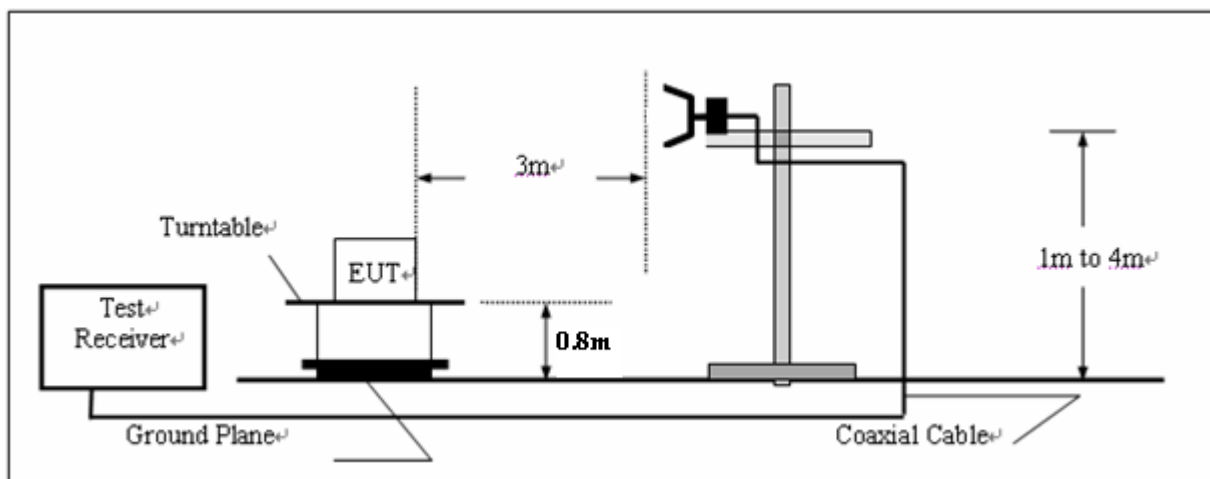
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

### TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency below 1000MHz



(B) Radiated Emission Test Set-Up, Frequency above 1000MHz



**TEST PROCEDURE**

- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
- 2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0°C to 360°C to acquire the highest emissions from EUT
- 3 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4 Repeat above procedures until all frequency measurements have been completed.

**TEST MODE:**

Please reference to the section 2.4

**TEST RESULTS**

☒ **Passed**      ☐ **Not Applicable**

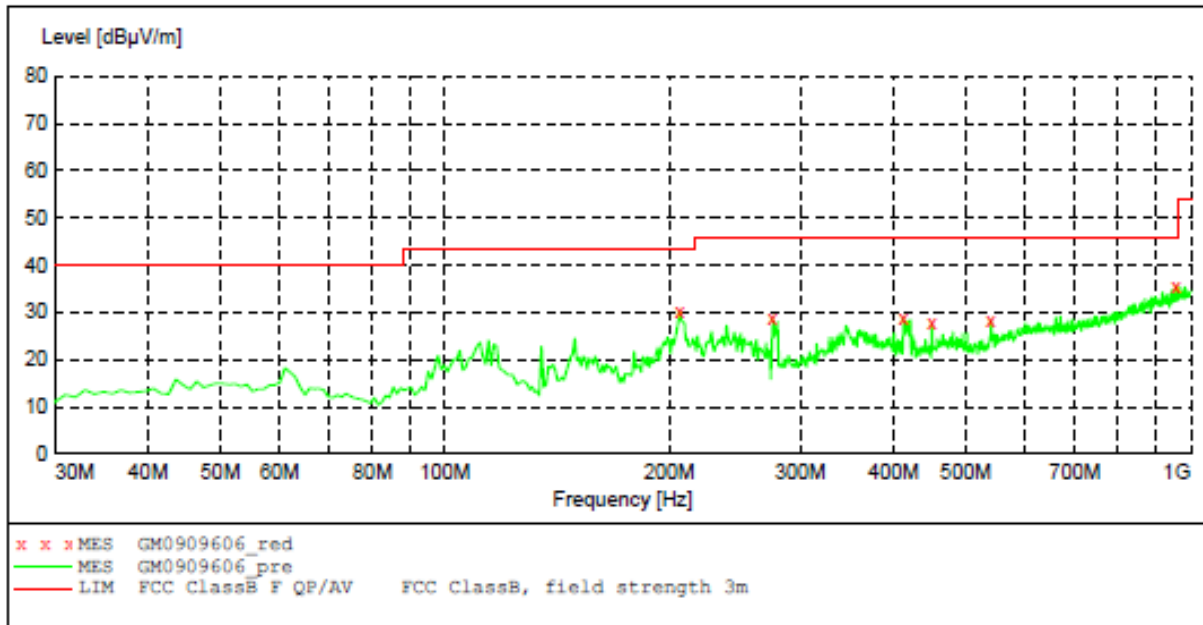
Note:

- 1.The EUT shall be scanned from 30 MHz to the 5th harmonic of the highest oscillator frequency in the digital devices or 1 GHz whichever is higher.
- 2.We tested Battery Model:BL1608 and BL2505, Charger Model CH10A05 and CH10A07; recorded the Battery Model:BL2505 and Charger Model CH10A07 at worst case.

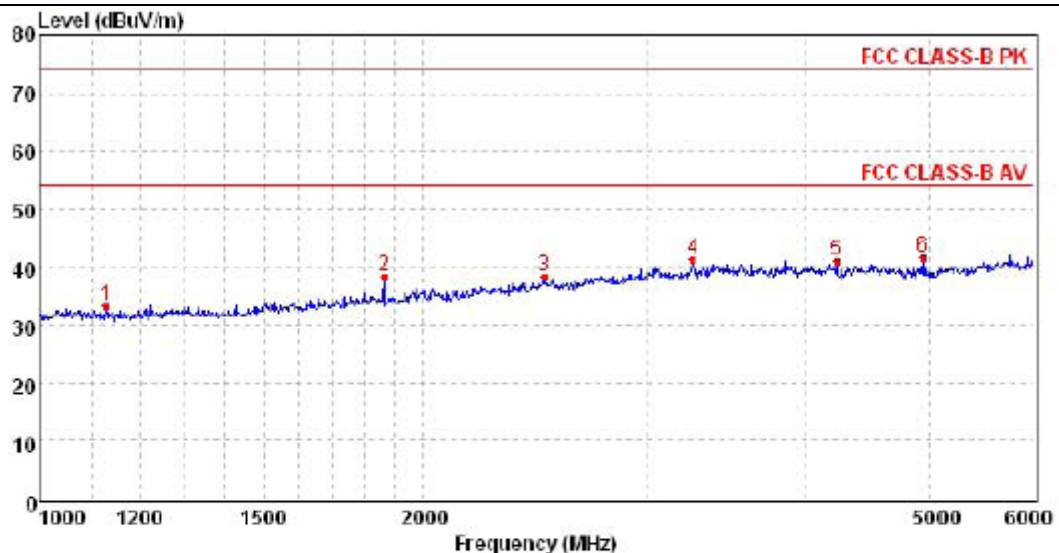
*Please refer to the below test data:*



Test mode:	RX1	Polarity:	Horizontal
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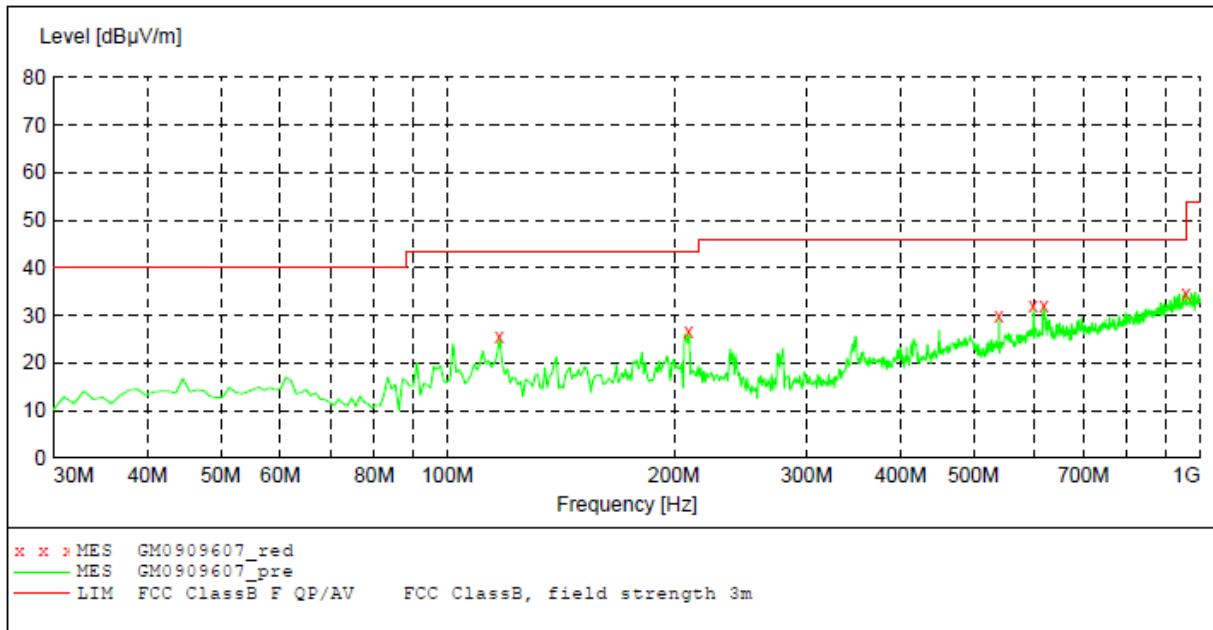


Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
206.540000	30.20	-13.9	43.5	13.3	QP	100.0	109.00	HORIZONTAL
275.410000	28.90	-14.6	46.0	17.1	QP	100.0	241.00	HORIZONTAL
412.180000	29.00	-10.3	46.0	17.0	QP	100.0	333.00	HORIZONTAL
450.010000	27.60	-9.0	46.0	18.4	QP	100.0	81.00	HORIZONTAL
540.220000	28.30	-5.3	46.0	17.7	QP	100.0	53.00	HORIZONTAL
957.320000	35.50	3.8	46.0	10.5	QP	300.0	254.00	HORIZONTAL

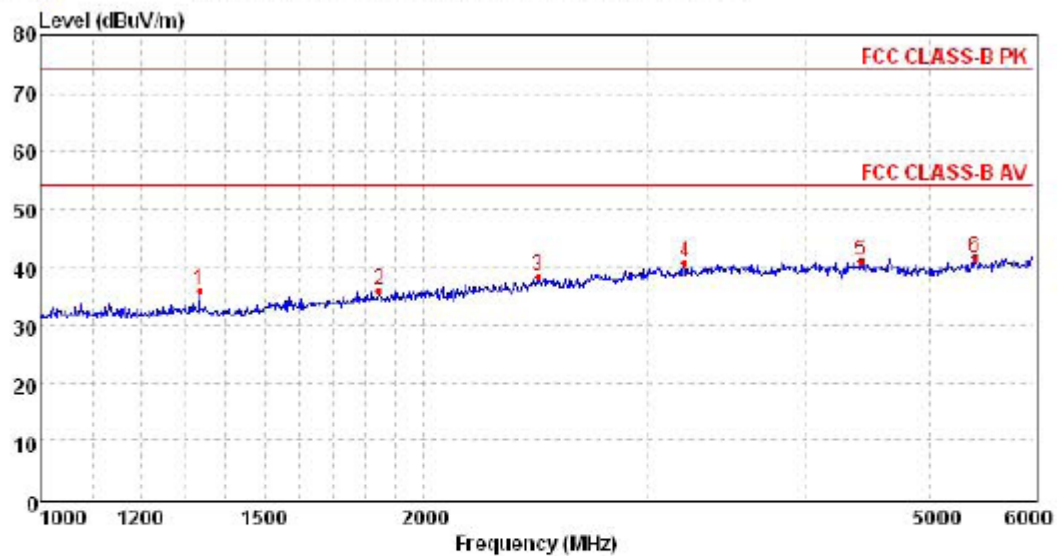


Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	1129.57	41.07	24.35	4.36	36.42	33.36	74.00	-40.64	Peak
2	1865.51	43.91	25.76	5.92	37.15	38.44	74.00	-35.56	Peak
3	2489.31	41.27	27.88	6.96	37.65	38.46	74.00	-35.54	Peak
4	3256.88	42.09	28.61	8.51	37.99	41.22	74.00	-32.78	Peak
5	4223.12	40.24	30.13	8.78	38.14	41.01	74.00	-32.99	Peak
6	4926.68	39.89	31.16	9.29	38.61	41.73	74.00	-32.27	Peak

Test mode:	RX1	Polarity:	Vertical
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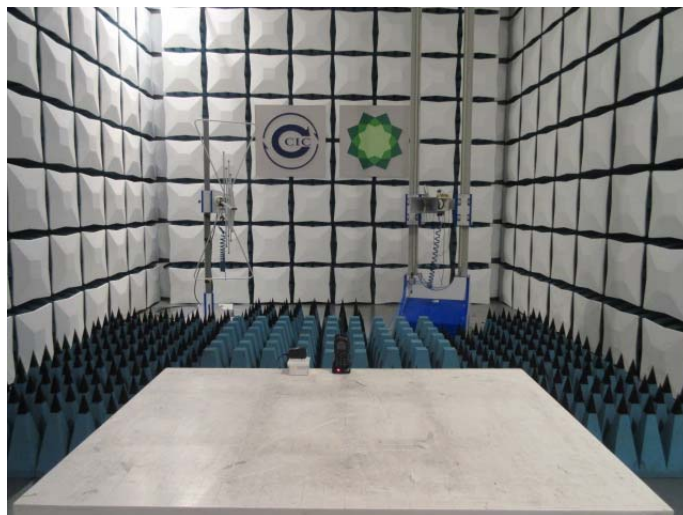


Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
117.300000	25.40	-15.7	43.5	18.1	QP	100.0	228.00	VERTICAL
209.450000	26.60	-14.0	43.5	16.9	QP	100.0	170.00	VERTICAL
540.220000	29.90	-5.3	46.0	16.1	QP	100.0	358.00	VERTICAL
600.360000	31.90	-2.7	46.0	14.1	QP	100.0	360.00	VERTICAL
619.760000	32.10	-2.5	46.0	13.9	QP	100.0	105.00	VERTICAL
957.320000	34.70	3.8	46.0	11.3	QP	100.0	75.00	VERTICAL



Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	1334.39	43.17	24.56	4.84	36.67	35.90	74.00	-38.10	Peak
2	1845.56	41.61	25.71	5.88	37.13	36.07	74.00	-37.93	Peak
3	2458.28	41.42	27.76	6.91	37.63	38.46	74.00	-35.54	Peak
4	3204.78	41.58	28.59	8.45	37.99	40.63	74.00	-33.37	Peak
5	4408.69	39.71	30.65	8.92	38.27	41.01	74.00	-32.99	Peak
6	5398.09	38.37	32.15	9.57	38.34	41.75	74.00	-32.25	Peak

## 5. Test Setup Photos of the EUT

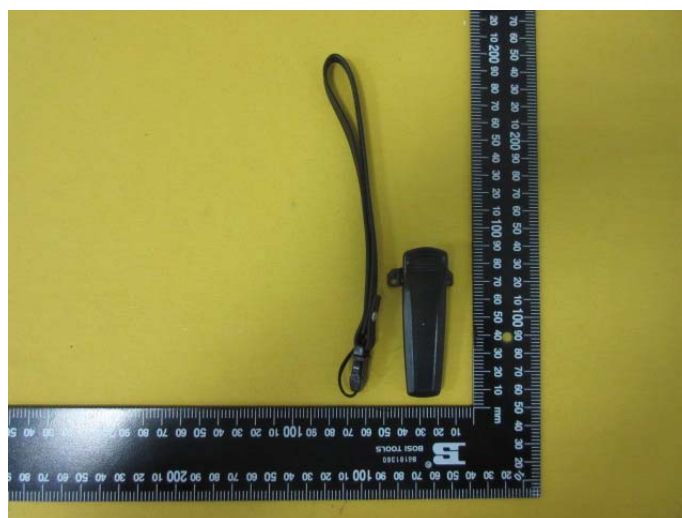






## 6. External and Internal Photos of the EUT

### External photos of the EUT

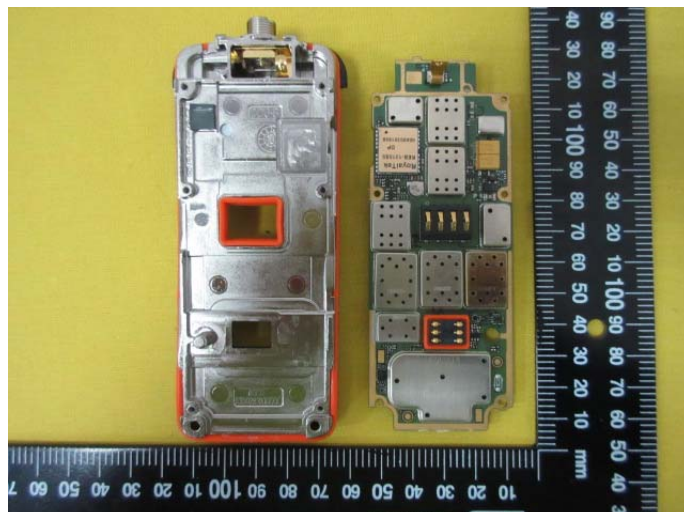
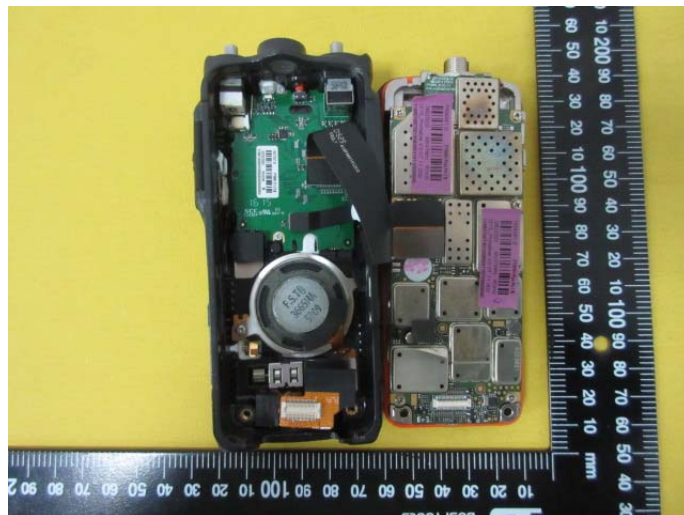


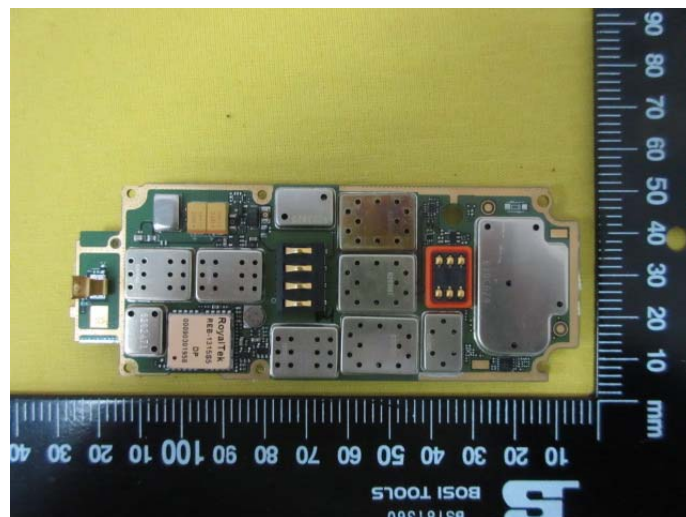
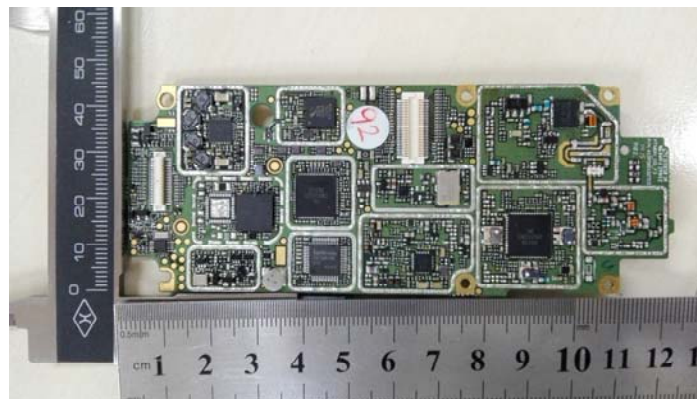
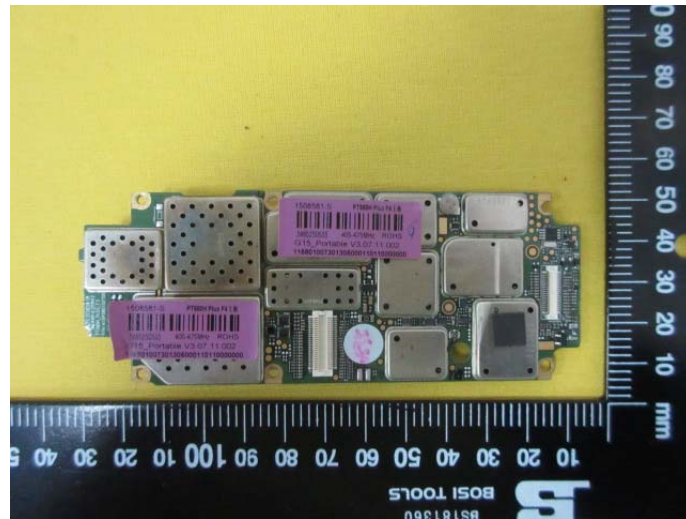




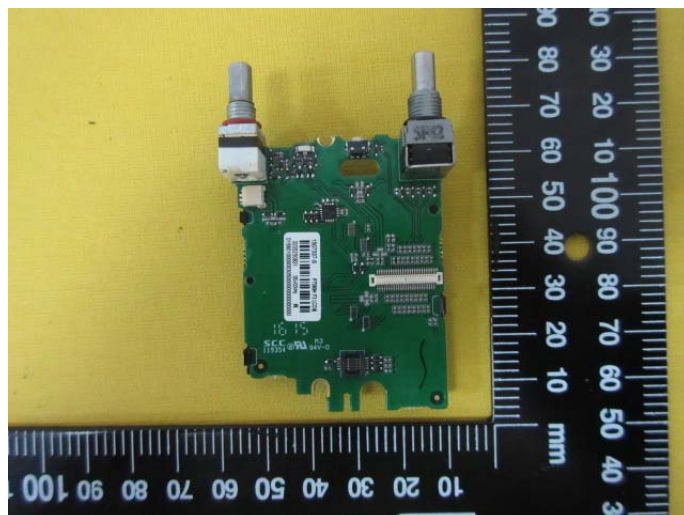
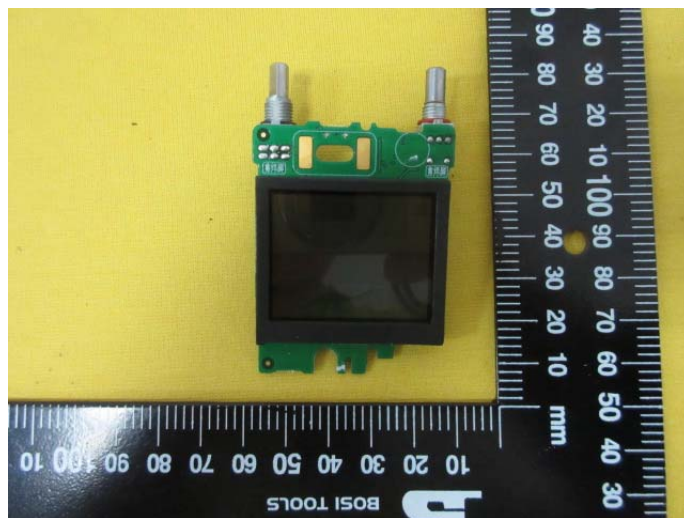
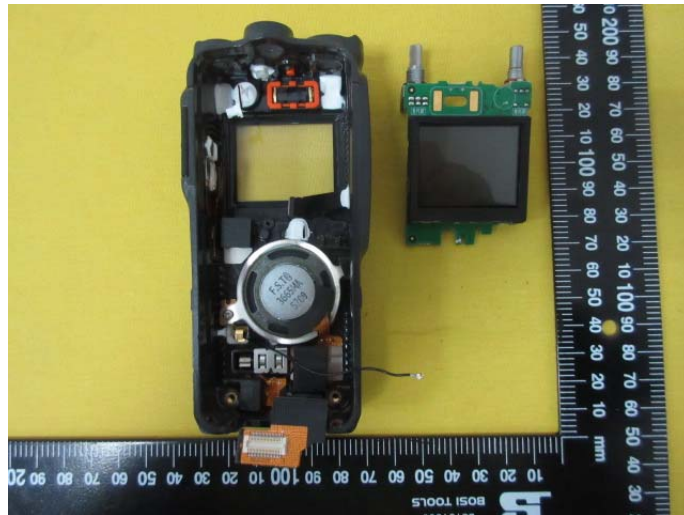


**Internal photos of the EUT**

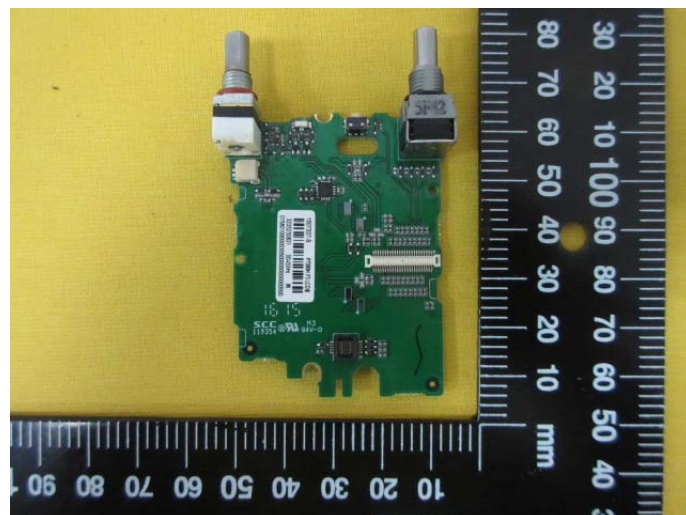
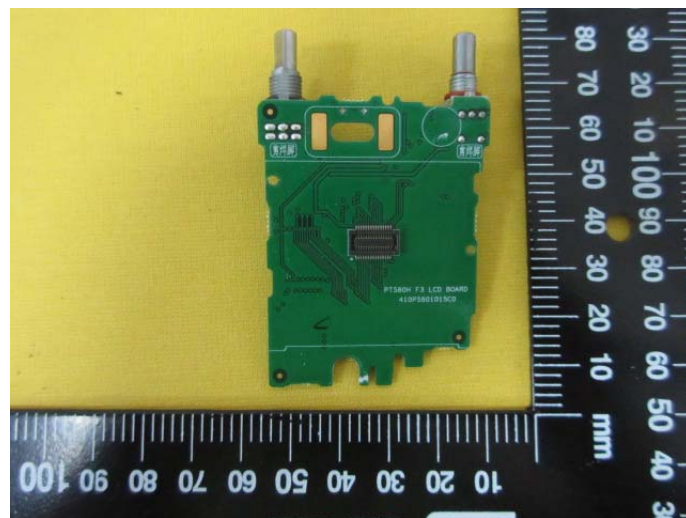
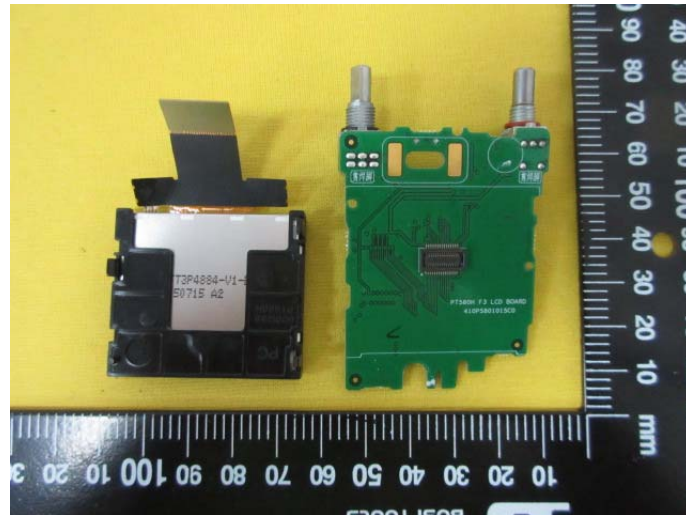


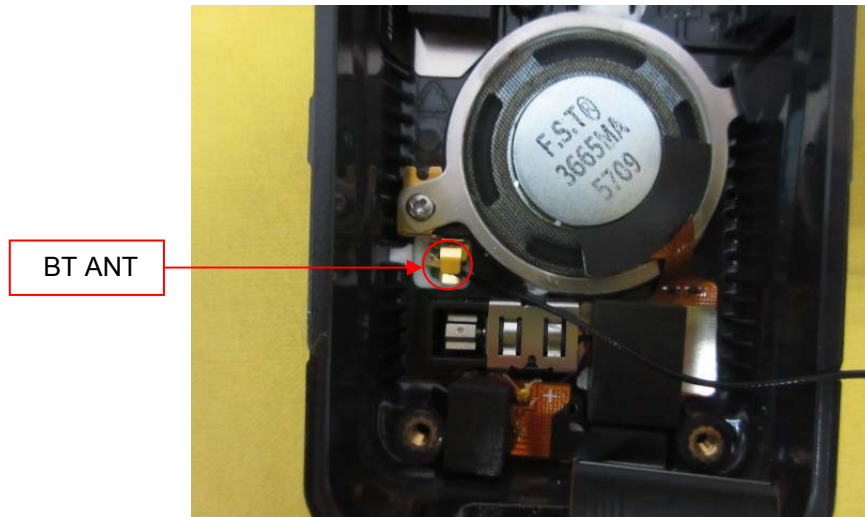












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