

Test Result:

Test Mode:	Transmitting Mode
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Frequency range: 9KHz - 30MHz

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

Note:

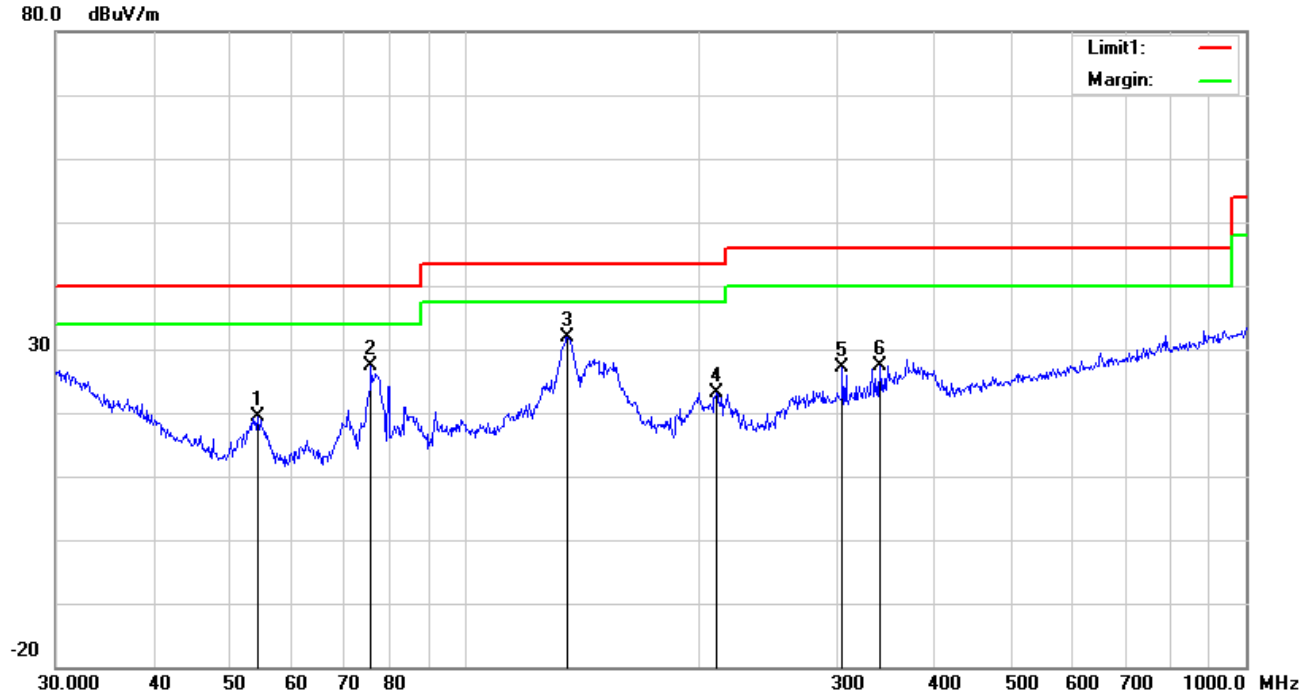
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

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

Test Mode: Bluetooth Mode

30MHz -1GHz



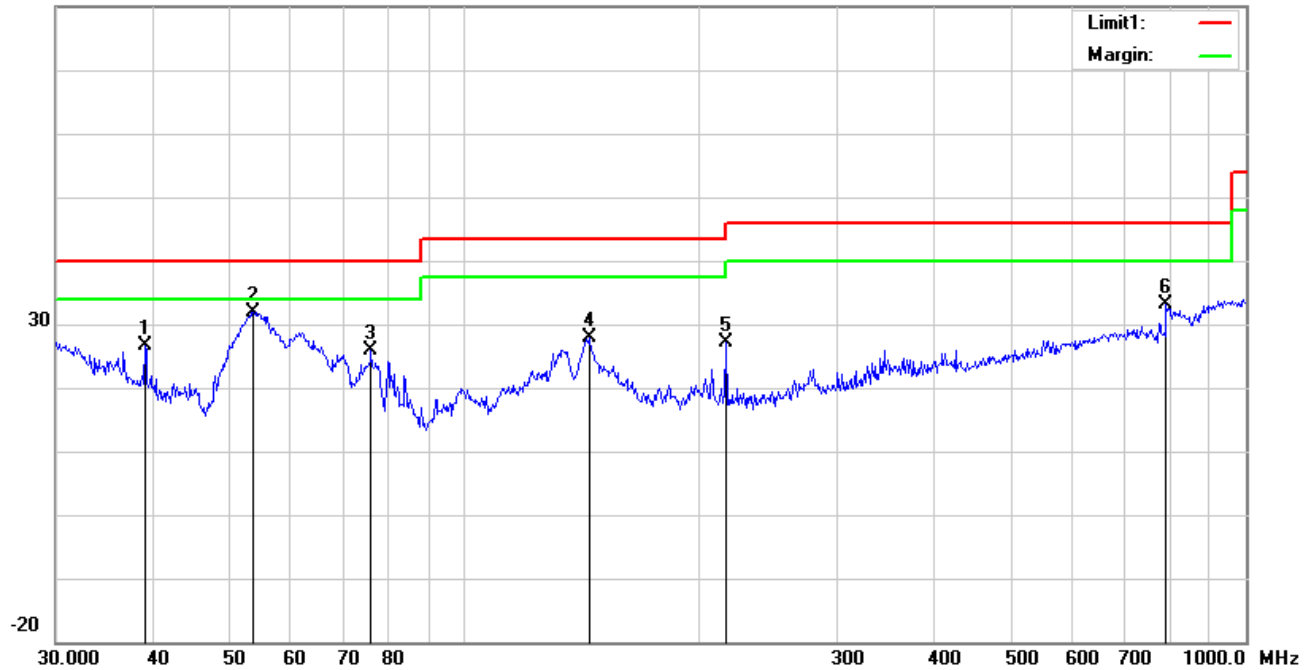
Test Data

Horizontal Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect or	Ant_F	PA_G	Cab_L	Result	Limit	Margin	Height	Degr ee
		(MHz)	(dBuV/m)		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)
1	H	54.4516	33.02	peak	7.91	22.39	0.78	19.32	40.00	-20.68	100	14
2	H	75.9773	41.24	peak	7.68	22.40	0.98	27.50	40.00	-12.50	100	321
3	H	135.5062	40.26	peak	12.89	22.40	1.24	31.99	43.50	-11.51	100	281
4	H	210.0482	32.01	peak	11.96	22.36	1.57	23.18	43.50	-20.32	100	292
5	H	304.6100	33.90	peak	13.70	22.28	1.81	27.13	46.00	-18.87	100	229
6	H	340.7817	33.15	peak	14.46	22.18	1.99	27.42	46.00	-18.58	100	110

30MHz -1GHz

80.0 dBuV/m



Test Data

Vertical Polarity Plot @3m

No.	P/L	Frequency	Reading	Detect or	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	39.0245	33.42	peak	14.61	22.27	0.78	26.54	40.00	-13.46	100	354
2	V	53.6932	45.54	peak	7.99	22.39	0.79	31.93	40.00	-8.07	100	75
3	V	75.9773	39.66	peak	7.68	22.40	0.98	25.92	40.00	-14.08	100	165
4	V	144.8418	36.42	peak	12.60	22.38	1.30	27.94	43.50	-15.56	200	59
5	V	216.0240	36.07	peak	11.88	22.35	1.59	27.19	46.00	-18.81	100	20
6	V	790.6188	30.16	peak	21.29	21.17	2.94	33.22	46.00	-12.78	100	83

Above 1GHz

Test Mode:	Transmitting Mode
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Frequency	Meter Reading	Antenna Factor	Cable loss	Preamplifier 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	38.68	28.72	3.36	26.32	44.44	74	-29.56	peak	Vertical
4804	29.49	32.94	3.98	27.49	38.92	54	-15.08	Average	Vertical
4804	40.23	32.94	3.98	27.49	49.66	74	-24.34	peak	Vertical
7206	30.33	25.28	5.51	27.94	33.18	54	-20.82	Average	Vertical
7206	41.35	25.28	5.51	27.94	44.20	74	-29.80	peak	Vertical
2390	39.72	28.72	3.36	26.32	45.48	74	-28.52	peak	Horizontal
4804	29.69	32.94	3.98	27.49	39.12	54	-14.88	Average	Horizontal
4804	40.42	32.94	3.98	27.49	49.85	74	-24.15	peak	Horizontal
7206	30.18	25.28	5.51	27.94	33.03	54	-20.97	Average	Horizontal
7206	41.83	25.28	5.51	27.94	44.68	74	-29.32	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	40.17	32.11	4.04	27.53	48.79	74	-25.21	peak	Vertical
7323	31.64	24.33	5.58	27.96	33.59	54	-20.41	Average	Vertical
7323	41.22	24.33	5.58	27.96	43.17	74	-30.83	peak	Vertical
4882	30.44	32.11	4.04	27.53	39.06	54	-14.94	Average	Horizontal
4882	42.75	32.11	4.04	27.53	51.37	74	-22.63	peak	Horizontal
7323	31.32	24.33	5.58	27.96	33.27	54	-20.73	Average	Horizontal
7323	42.35	24.33	5.58	27.96	44.30	74	-29.70	peak	Horizontal
High Channel:GFSK Mode(Worst Case)-2480MHz									
2483.5	39.65	28.79	3.48	26.34	45.58	74	-28.42	peak	Vertical
4960	30.78	31.32	4.12	27.58	38.64	54	-15.36	Average	Vertical
4960	40.61	31.32	4.12	27.58	48.47	74	-25.53	peak	Vertical
7440	30.48	24.38	5.68	27.99	32.55	54	-21.45	Average	Vertical
7440	41.35	24.38	5.68	27.99	43.42	74	-30.58	peak	Vertical
2483.5	39.49	28.79	3.48	26.34	45.42	74	-28.58	peak	Horizontal
4960	29.43	31.32	4.12	27.58	37.29	54	-16.71	Average	Horizontal
4960	40.25	31.32	4.12	27.58	48.11	74	-25.89	peak	Horizontal
7440	31.54	24.38	5.68	27.99	33.61	54	-20.39	Average	Horizontal

Restricted Band

Frequency	Meter Reading	antenna Factor	cable loss	preamp factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
GFSK									
2390	39.58	28.72	3.36	26.32	45.34	74	-28.66	peak	Vertical
2390	39.63	28.72	3.36	26.32	45.39	74	-28.61	peak	Horizontal
2483.5	39.06	28.79	3.48	26.34	44.99	74	-29.01	peak	Vertical
2483.5	37.37	28.79	3.48	26.34	43.30	74	-30.70	peak	Horizontal
$\pi/4$ DQPSK									
2390	39.54	28.72	3.36	26.32	45.30	74	-28.70	peak	Vertical
2390	38.39	28.72	3.36	26.32	44.15	74	-29.85	peak	Horizontal
2483.5	37.34	28.79	3.48	26.34	43.27	74	-30.73	peak	Vertical
2483.5	37.86	28.79	3.48	26.34	43.79	74	-30.21	peak	Horizontal
8-DPSK									
2390	38.81	28.72	3.36	26.32	44.57	74	-29.43	peak	Vertical
2390	38.49	28.72	3.36	26.32	44.25	74	-29.75	peak	Horizontal
2483.5	39.07	28.79	3.48	26.34	45.00	74	-29.00	peak	Vertical
2483.5	38.84	28.79	3.48	26.34	44.77	74	-29.23	peak	Horizontal

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	03/23/2017	03/22/2018	☒
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

EUT - Front View



EUT - Rear View



EUT - Top View



EUT - Bottom View



EUT - Left View



EUT - Right View

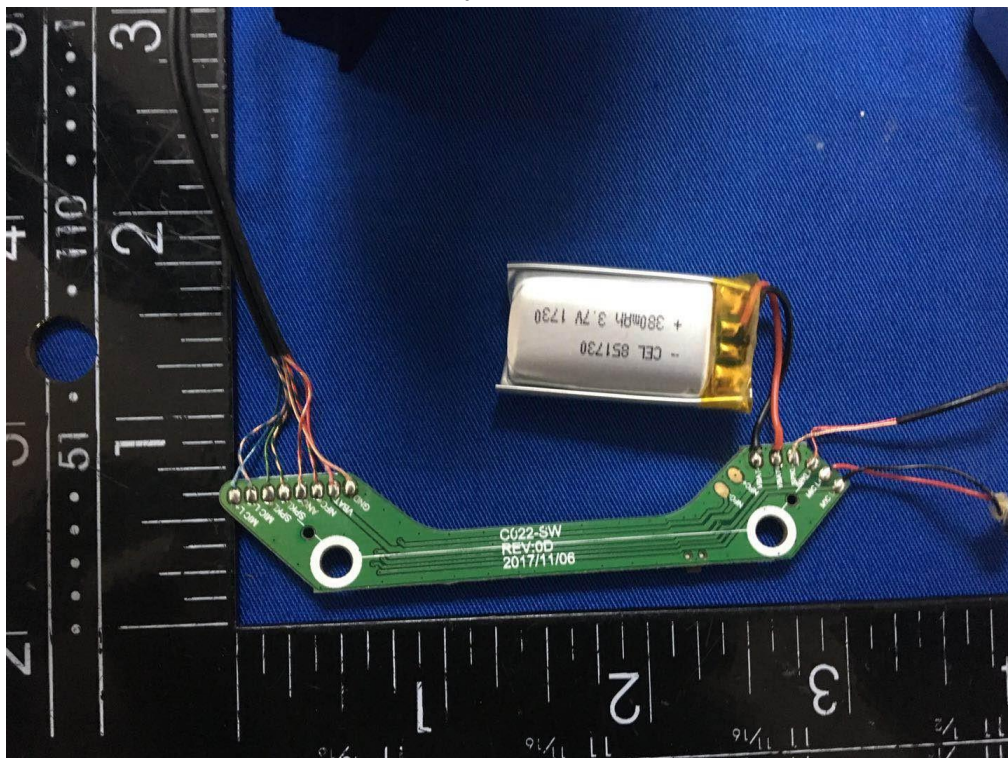


Annex B.ii. Photograph: EUT Internal Photo

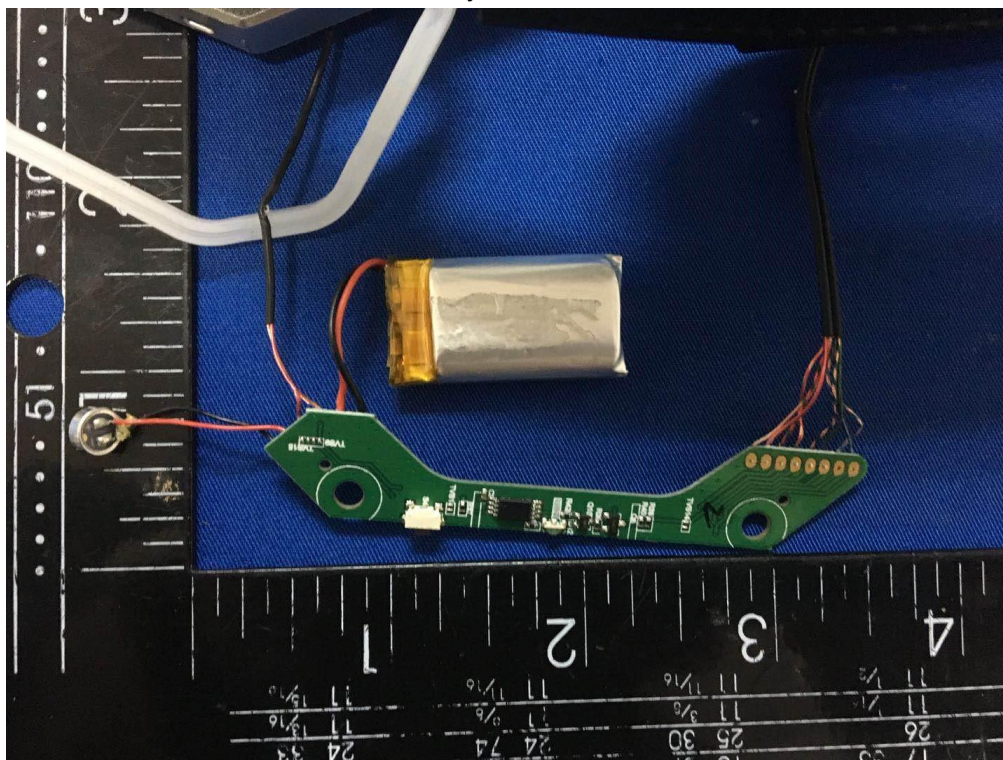
Cover Off - Top View



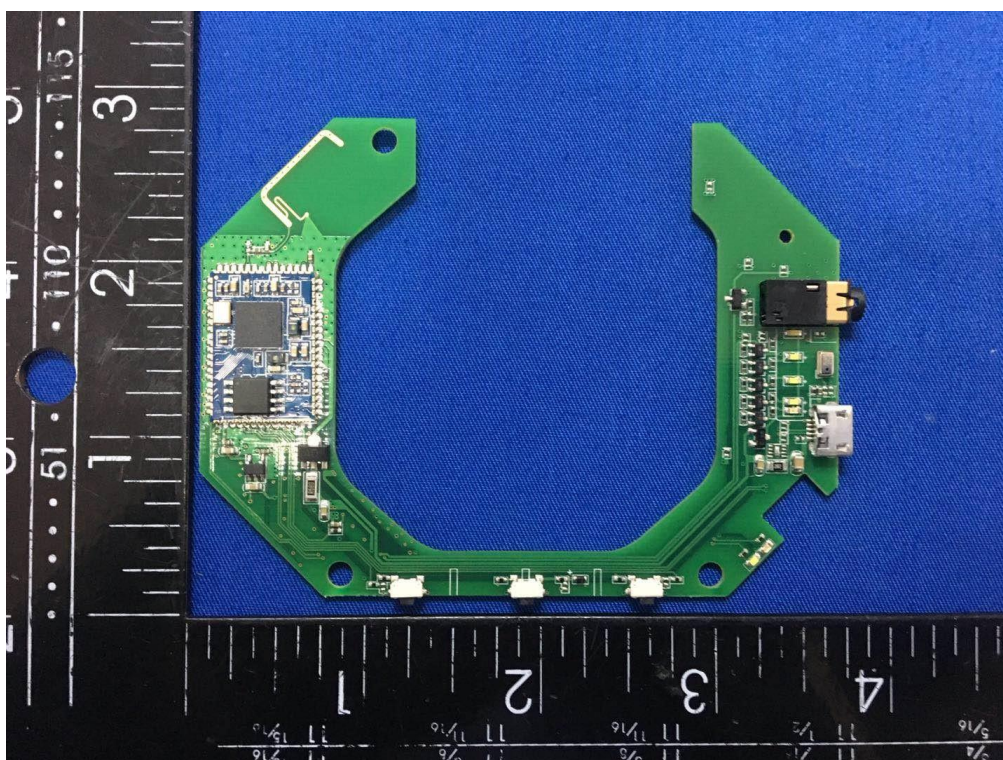
Battery - Front View



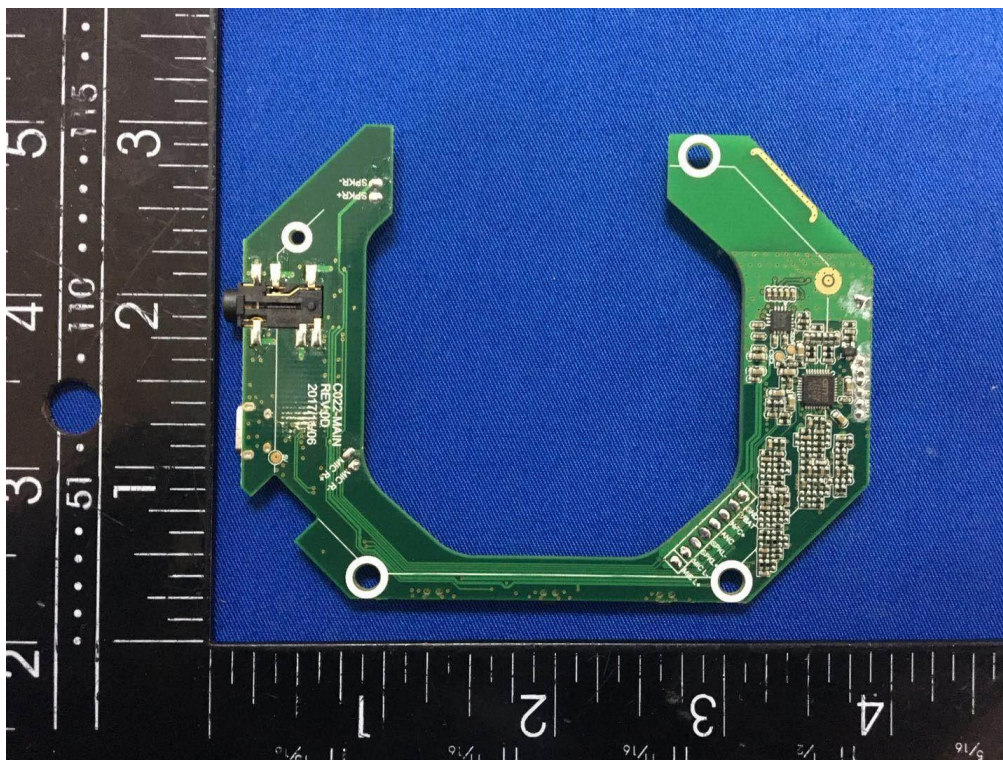
Battery - Rear View



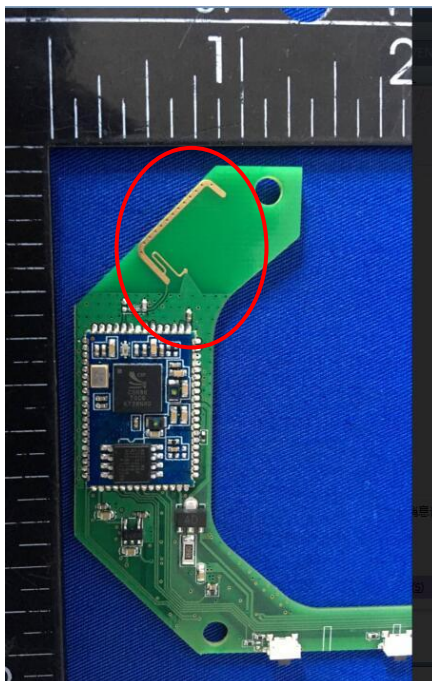
Mainboard - Front View



Mainboard – Rear View



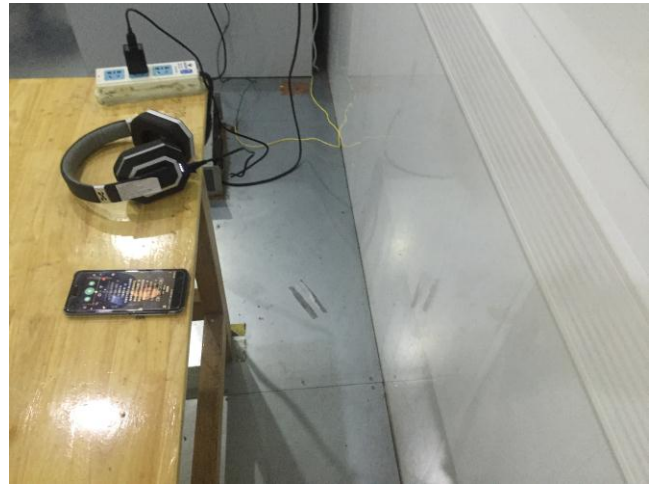
BT/BLE - Antenna View



Annex B.iii. Photograph: Test Setup Photo



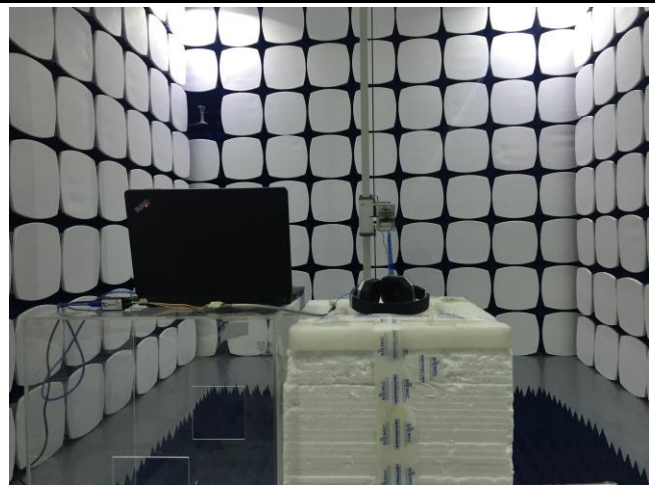
Conducted Emissions Test Setup Front View



Conducted Emissions Test Setup Side View



Radiated Spurious Emissions Test Setup Below 1GHz

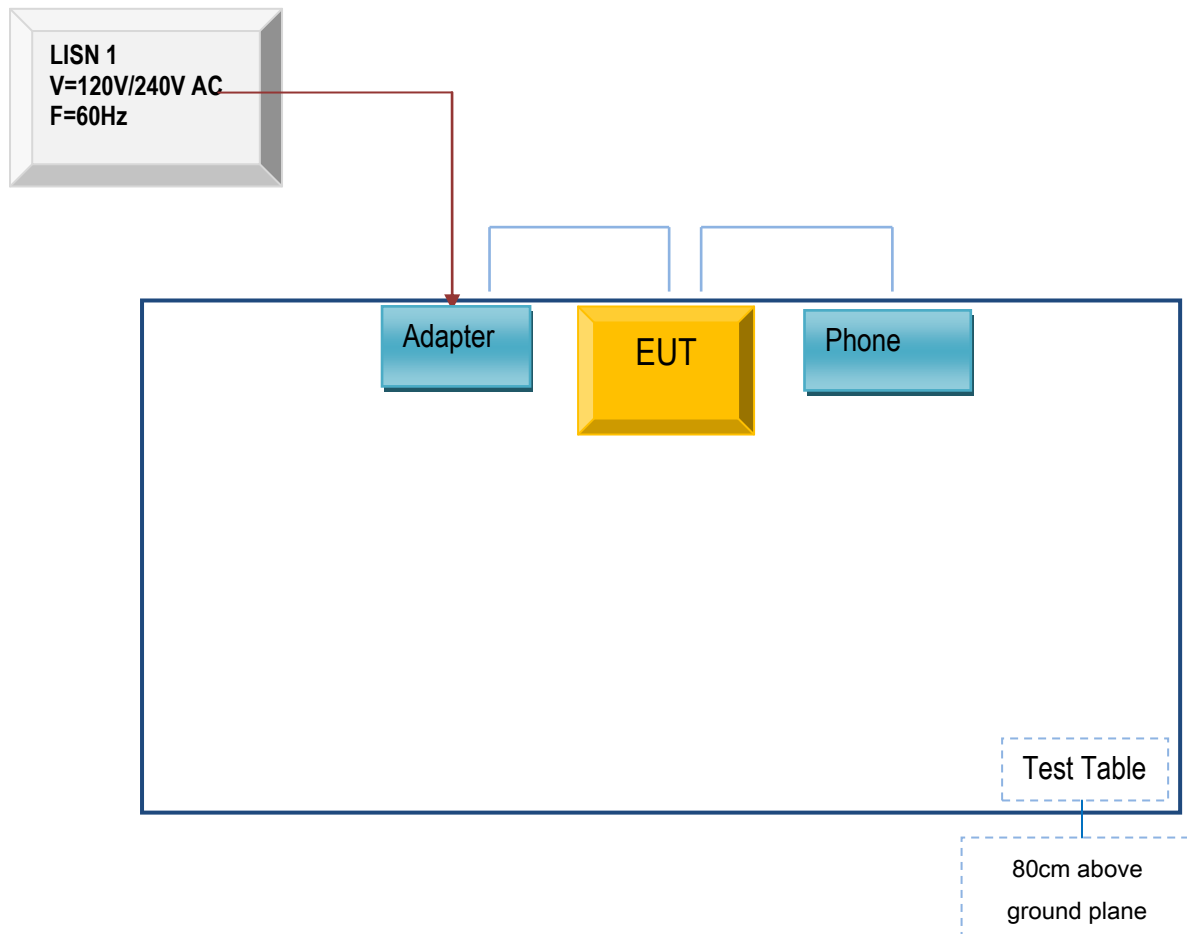


Radiated Spurious Emissions Test Setup Above
1GHz

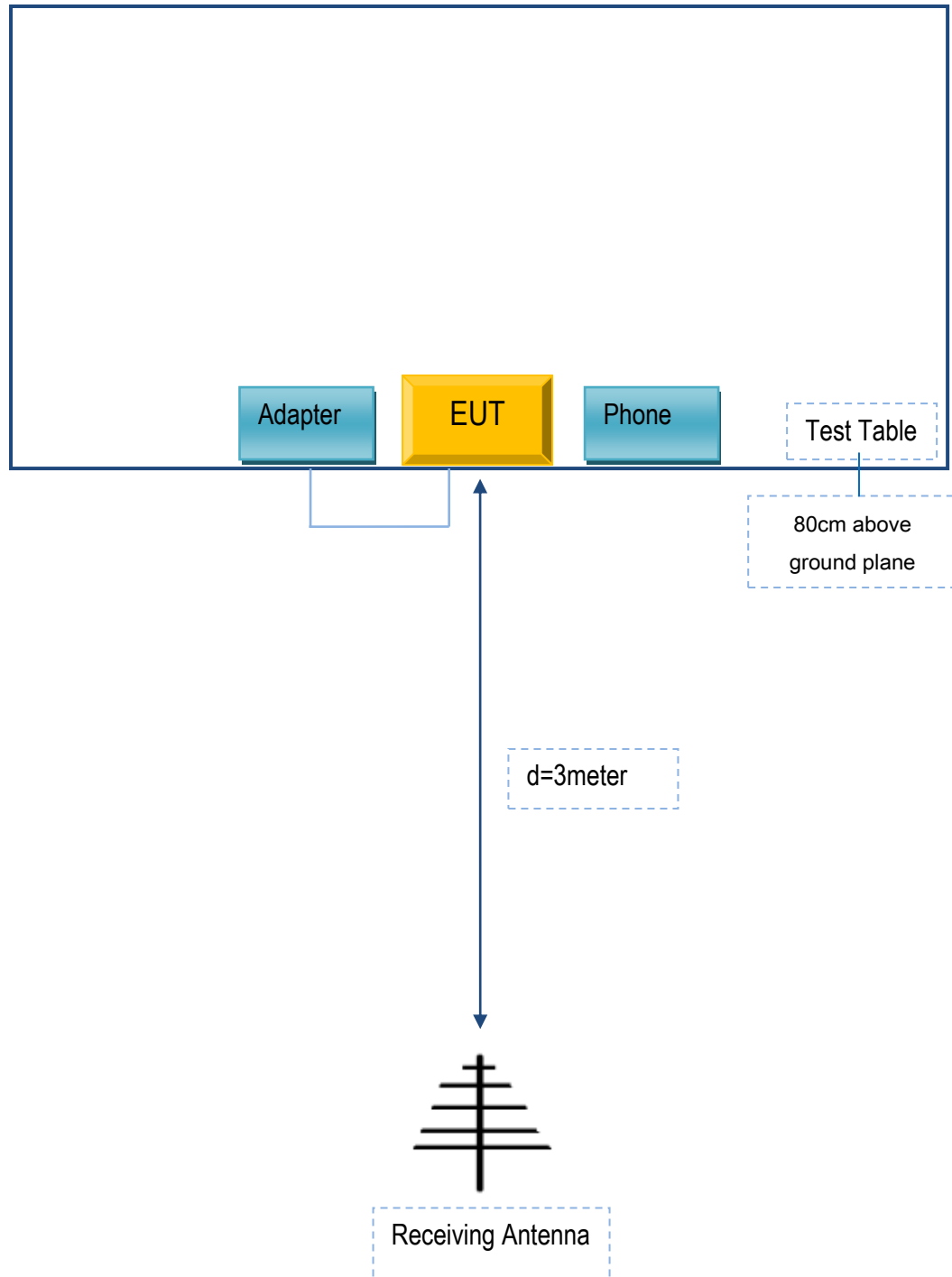
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

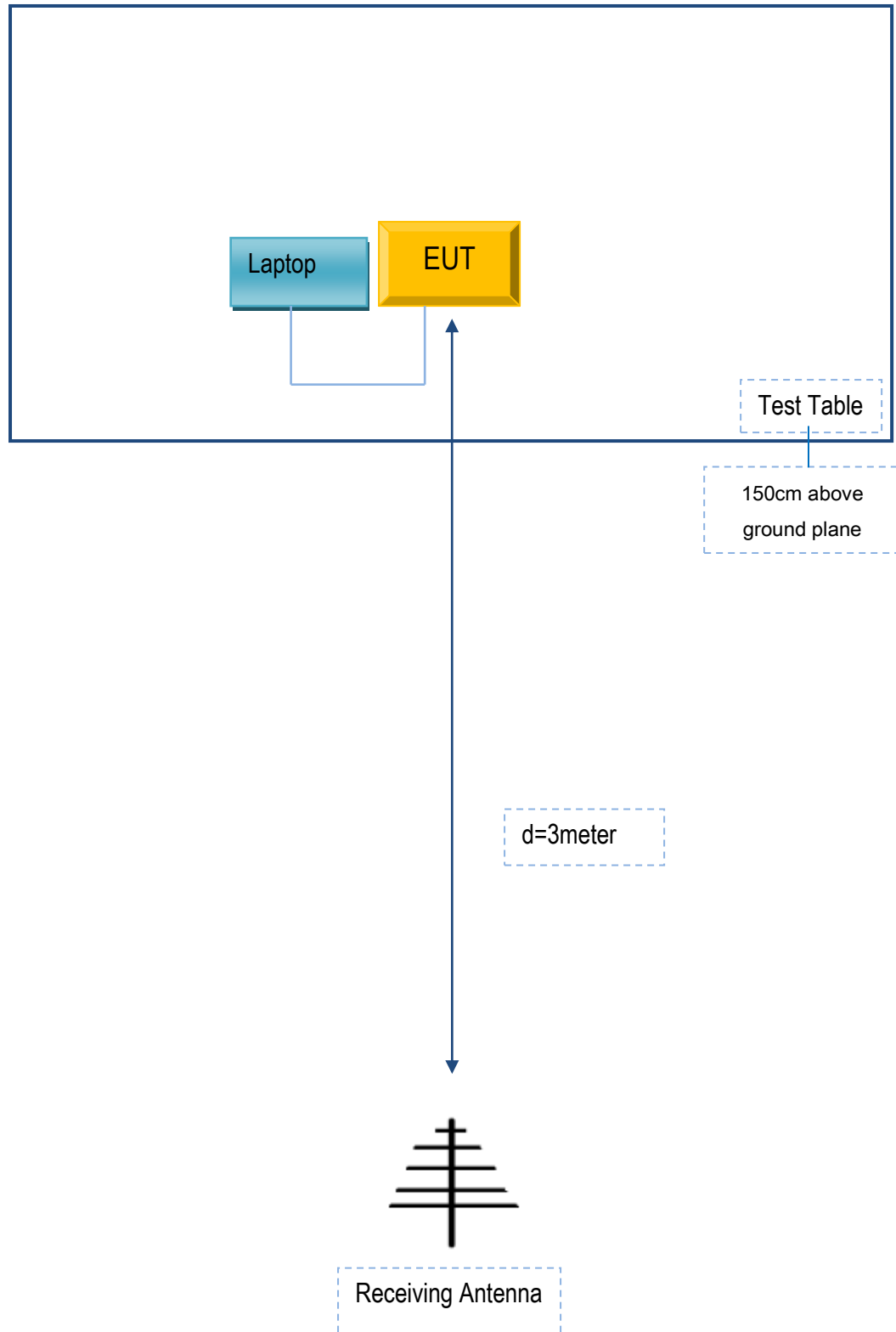
Block Configuration Diagram for AC Line Conducted Emissions



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



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



Annex C. ii. 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
DCA	Adaptor	E2164A	LR-1EHRX
NOKIA	Phone	S6	N/A
Lenovo	Laptop	E40	N/A

Supporting Cable:

Cable type	Shield Type	Ferrite Core	Length	Serial No
Power Cable	Un-shielding	No	0.8m	N/A
USB Cable	Un-shielding	No	0.8m	N/A

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

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A