

TEST REPORT

Application No.: SZEM2006004828CR
Applicant: DT Research. Inc.
Address of Applicant: 3RD FL NO 36 WUQUAN 7TH RD WUGU DISTRICT, NEW TAIPEI, Taiwan.
Manufacturer: DT Research. Inc.
Address of Manufacturer: 2000 Concourse Drive. San Jose. CA 95131. U.S.A
Factory: DT Research. Inc. Taiwan Branch
Address of Factory: 6F., No.36 Wuquan 7th Rd., Wugu Dist. New Taipei City 248 Taiwan
Equipment Under Test (EUT):
EUT Name: Rugged Tablet
Model No.: DT311Yxx(X=blank, A-Z or 0~9) ♣
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: DT Research. Inc.
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2020-06-09
Date of Test: 2020-06-16 to 2020-06-17
Date of Issue: 2020-07-10

Test Result:

Pass*

* In the configuration tested, the EUT complied with the standards specified above.


Keny Xu

Keny Xu
 EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2020-07-10		Original

Authorized for issue by:			
			
		Edison Li /Project Engineer	
			
		Eric Fu /Reviewer	



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2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions* (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

*: the tests were requested as per applicant's requirement.

Internal Source	Upper Frequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Remark:

Model No.: DT311Yxx(X=blank, A-Z or 0~9)

Only the model DT311Y was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on model No..

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4 General Information

4.1 Details of E.U.T.

Power Supply:	AC Adapter Model: A17-065N1A Input: AC 100-240V, 50/60Hz, 1.8A Output: DC 20V, 3.25A/DC15V, 3A/DC9V, 2A/DC5V, 2A Rechargeable Lithium-Ion Polymer Battery Model: ACC-006-60K(3ICP9/36/115) Rated Capacity: 5400mAh Voltage: DC 11.4V Watt-Hour: 61.56Wh Max Charge Voltage: 13.05V Wall Cradle: ACC-WM210R-311Y Desktop Cradle: ACC-DC210-311Y
Test Voltage:	DC 11.4V
Internal Source:	More than 108MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Earphone	PHILIPS	SHE6000	REF. No.SEA1000
HDMI Cable	Apple	MC838FE/B	REF. No.SEA0900
Network Cable	SGS	N/A	REF. No.SEA1100
Television	SONY	KDL-24EX520	6351646
U-disk	Sandisk	SDCZ60-016G	REF. No.SEA0100

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)
2	Radiated Emission	± 4.5dB (30MHz-1GHz)
		± 4.8dB (1GHz-6GHz)
3	Temperature test	± 1 °C
4	Humidity test	± 3%

4.4 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2019-06-13	2022-06-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2019-07-11	2020-07-10
LISN	Rohde & Schwarz	ENV216	SEM007-01	2019-09-24	2020-09-23
LISN	ETS-LINDGREN	3816/2	SEM007-02	2020-04-01	2021-03-31
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2020-03-24	2021-03-23

Radiated Emissions (30MHz-1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2019-07-11	2020-07-10
MXE EMI receiver	KEYSIGHT	N9038A	SEM004-15	2019-12-16	2020-12-15
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31

Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2019-07-11	2020-07-10
EXA Spectrum Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde & Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-24	2020-09-23

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-26	2020-09-25
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-26	2020-09-25
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06



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6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	150kHz to 30MHz
Limit:	
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

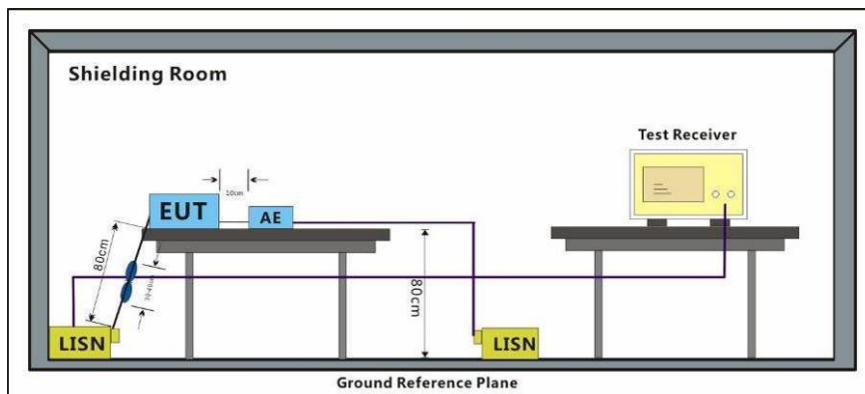
Temperature: 25 °C Humidity: 51 % RH Atmospheric Pressure: 1005 mbar

Pretest these
modes to find
the worst case:

- a: Idle mode, Keep the EUT at standby mode.
 - b: Charging mode, keep EUT in charging with Adapter, earphone.
 - c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - d: LTE band 4+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - e: LTE band 5+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - f: LTE band 12+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - g: LTE band 13+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - h: Telecom Idle + BT+ WLAN + GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.
 - j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.
- The worst case
for final test:
- b: Charging mode, keep EUT in charging with Adapter, earphone.
 - c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
 - i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.
 - j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.



6.1.2 Test Setup Diagram

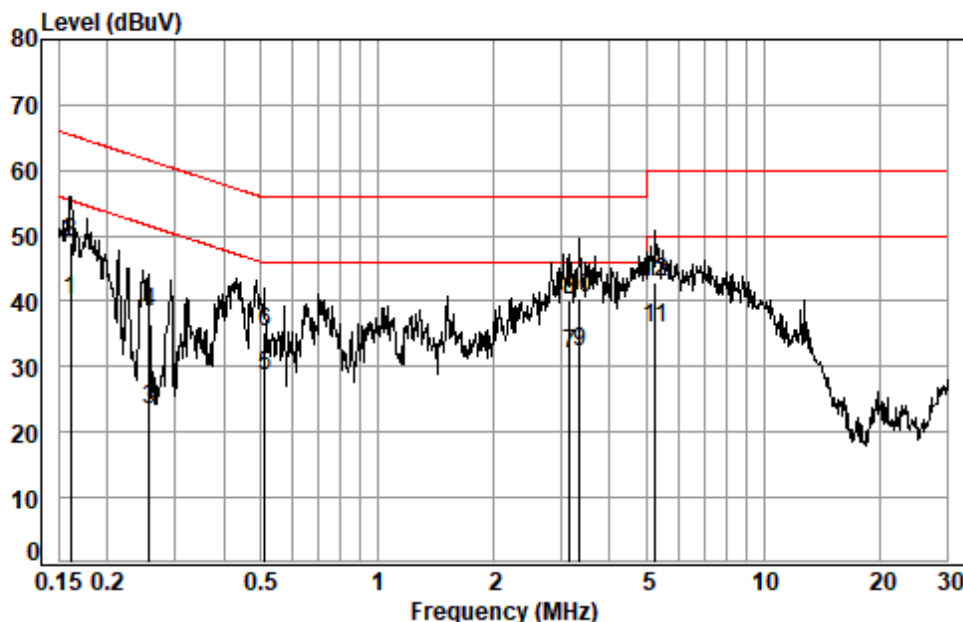


6.1.3 Measurement Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.



Mode:b; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 04828CR

Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.1607	0.01	9.59	30.52	40.12	55.43 -15.31	Average
2	0.1607	0.01	9.59	39.49	49.09	65.43 -16.34	QP
3	0.2575	0.03	9.59	13.82	23.44	51.51 -28.07	Average
4	0.2575	0.03	9.59	28.64	38.26	61.51 -23.25	QP
5	0.5128	0.06	9.59	18.87	28.52	46.00 -17.48	Average
6	0.5128	0.06	9.59	25.49	35.14	56.00 -20.86	QP
7	3.1397	0.16	9.67	22.08	31.91	46.00 -14.09	Average
8	3.1397	0.16	9.67	30.32	40.15	56.00 -15.85	QP
9	3.3458	0.16	9.66	22.28	32.10	46.00 -13.90	Average
10	3.3458	0.16	9.66	30.65	40.47	56.00 -15.53	QP
11	5.2491	0.17	9.68	25.91	35.76	50.00 -14.24	Average
12	5.2491	0.17	9.68	33.04	42.89	60.00 -17.11	QP

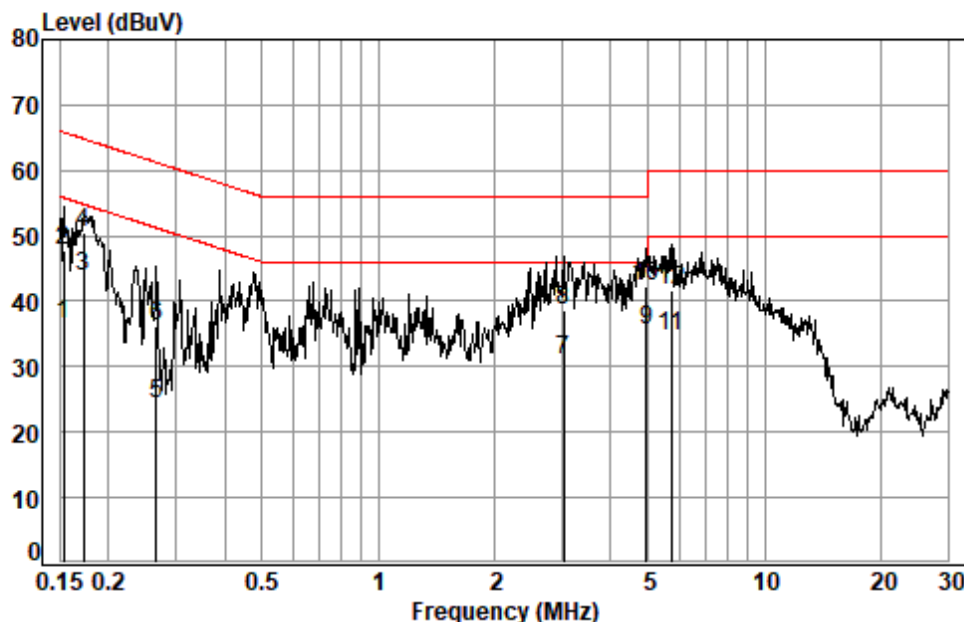


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Mode:b; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 04828CR

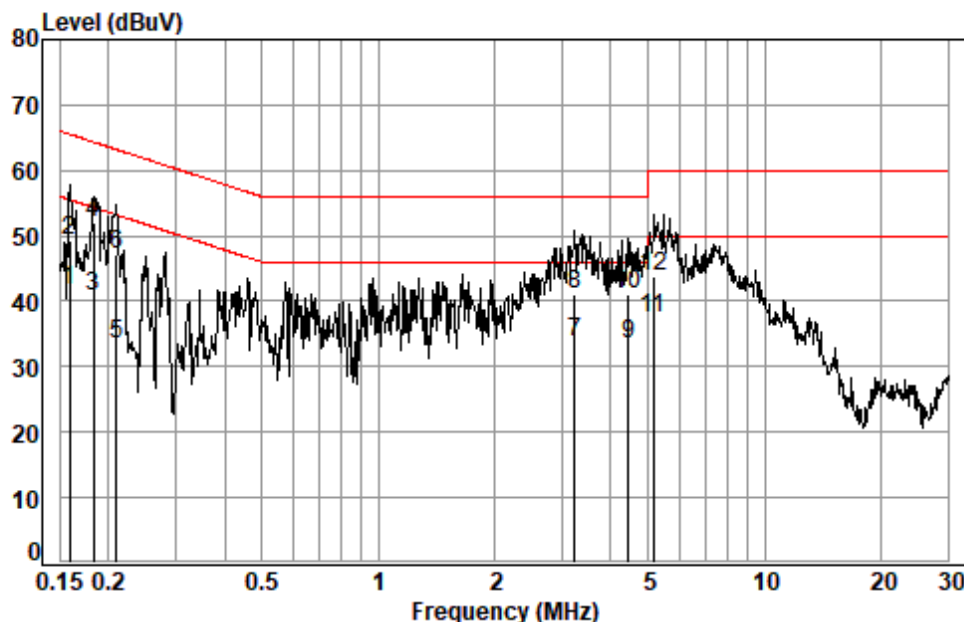
Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1532	0.01	9.55	26.95	36.51	55.82	-19.31	Average
2	0.1532	0.01	9.55	38.16	47.72	65.82	-18.10	QP
3	0.1731	0.02	9.55	34.22	43.79	54.81	-11.02	Average
4	0.1731	0.02	9.55	40.98	50.55	64.81	-14.26	QP
5	0.2658	0.03	9.54	14.88	24.45	51.25	-26.80	Average
6	0.2658	0.03	9.54	26.59	36.16	61.25	-25.09	QP
7	3.0253	0.16	9.58	21.28	31.02	46.00	-14.98	Average
8	3.0253	0.16	9.58	29.00	38.74	56.00	-17.26	QP
9	4.9519	0.17	9.63	25.65	35.45	46.00	-10.55	Average
10	4.9519	0.17	9.63	32.45	42.25	56.00	-13.75	QP
11	5.7438	0.17	9.65	24.92	34.74	50.00	-15.26	Average
12	5.7438	0.17	9.65	31.92	41.74	60.00	-18.26	QP



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Mode:c; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 04828CR

Test mode: c

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1590	0.01	9.59	31.92	41.52	55.52	-14.00	Average
2	0.1590	0.01	9.59	39.71	49.31	65.52	-16.21	QP
3	0.1835	0.02	9.59	31.14	40.75	54.33	-13.58	Average
4	0.1835	0.02	9.59	42.52	52.13	64.33	-12.20	QP
5	0.2094	0.02	9.59	23.87	33.48	53.23	-19.75	Average
6	0.2094	0.02	9.59	37.59	47.20	63.23	-16.03	QP
7	3.2239	0.16	9.66	23.97	33.79	46.00	-12.21	Average
8	3.2239	0.16	9.66	31.11	40.93	56.00	-15.07	QP
9	4.4305	0.16	9.66	23.78	33.60	46.00	-12.40	Average
10	4.4305	0.16	9.66	31.36	41.18	56.00	-14.82	QP
11	5.1663	0.17	9.67	27.53	37.37	50.00	-12.63	Average
12	5.1663	0.17	9.67	33.92	43.76	60.00	-16.24	QP

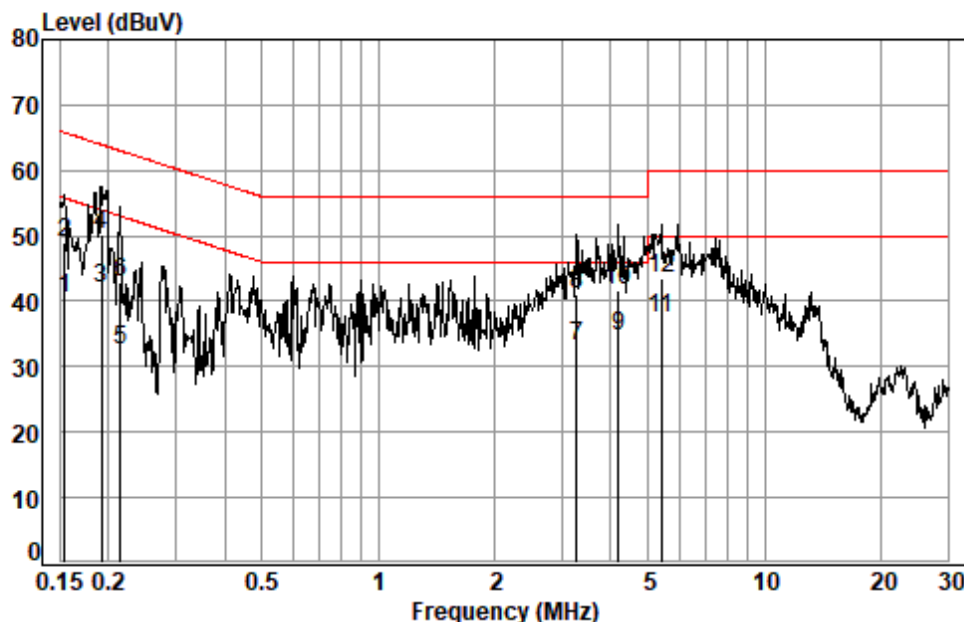


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Mode:c; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 04828CR

Test mode: c

	Freq	Cable Loss	LISN Factor	Read Level	Limit	Over	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.1540	0.01	9.55	30.88	40.44	55.78	Average
2	0.1540	0.01	9.55	39.51	49.07	65.78	QP
3	0.1924	0.02	9.55	32.29	41.86	53.93	Average
4	0.1924	0.02	9.55	40.74	50.31	63.93	QP
5	0.2151	0.03	9.55	22.88	32.46	53.01	Average
6	0.2151	0.03	9.55	33.18	42.76	63.01	QP
7	3.2583	0.16	9.59	23.53	33.28	46.00	Average
8	3.2583	0.16	9.59	31.44	41.19	56.00	QP
9	4.1796	0.16	9.61	24.78	34.55	46.00	Average
10	4.1796	0.16	9.61	31.79	41.56	56.00	QP
11	5.4186	0.17	9.64	27.58	37.39	50.00	Average
12	5.4186	0.17	9.64	33.76	43.57	60.00	QP

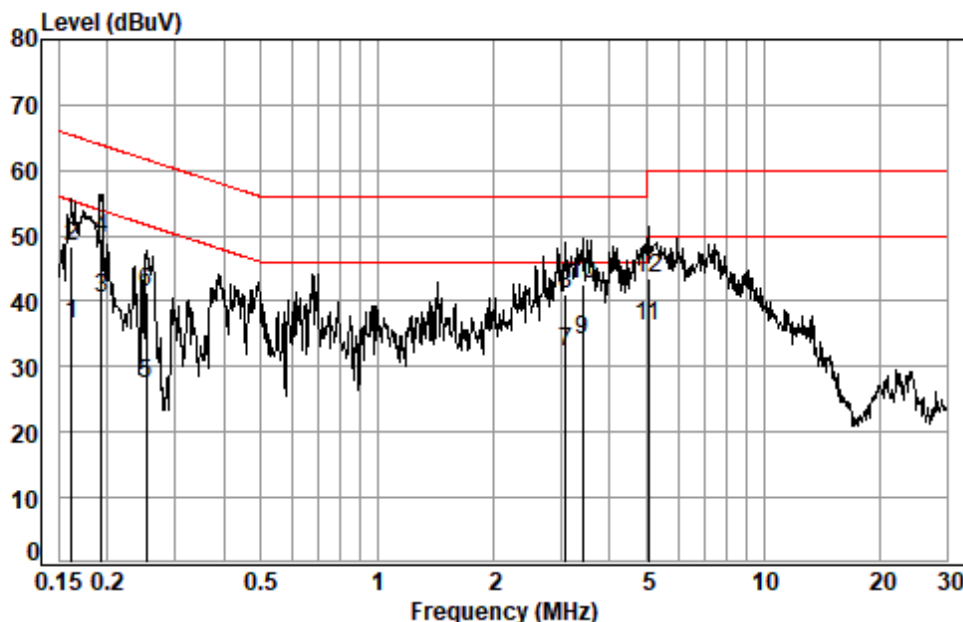


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Mode:i; Line:Live Line



Site : Shielding Room

Condition: Line

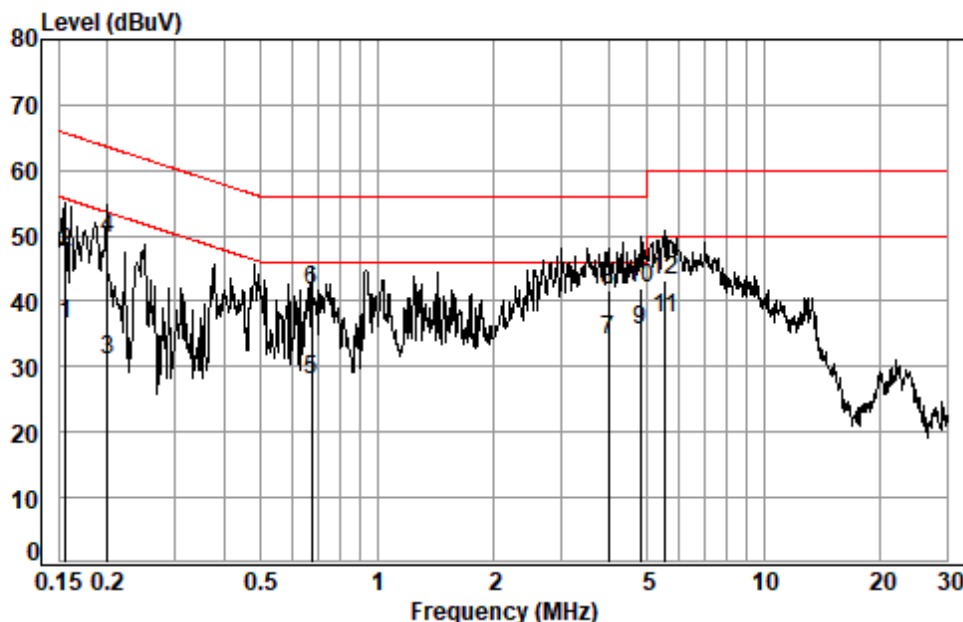
Job No. : 04828CR

Test mode: i

	Freq	Cable Loss	LISN Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1615	0.01	9.59	26.90	36.50	55.38	-18.88	Average
2	0.1615	0.01	9.59	38.91	48.51	65.38	-16.87	QP
3	0.1934	0.02	9.59	30.89	40.50	53.89	-13.39	Average
4	0.1934	0.02	9.59	39.96	49.57	63.89	-14.32	QP
5	0.2521	0.03	9.59	17.71	27.33	51.69	-24.36	Average
6	0.2521	0.03	9.59	31.72	41.34	61.69	-20.35	QP
7	3.0738	0.16	9.67	22.55	32.38	46.00	-13.62	Average
8	3.0738	0.16	9.67	31.19	41.02	56.00	-14.98	QP
9	3.3994	0.16	9.66	24.35	34.17	46.00	-11.83	Average
10	3.3994	0.16	9.66	32.72	42.54	56.00	-13.46	QP
11	5.0312	0.17	9.67	26.50	36.34	50.00	-13.66	Average
12	5.0312	0.17	9.67	33.59	43.43	60.00	-16.57	QP



Mode:i; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

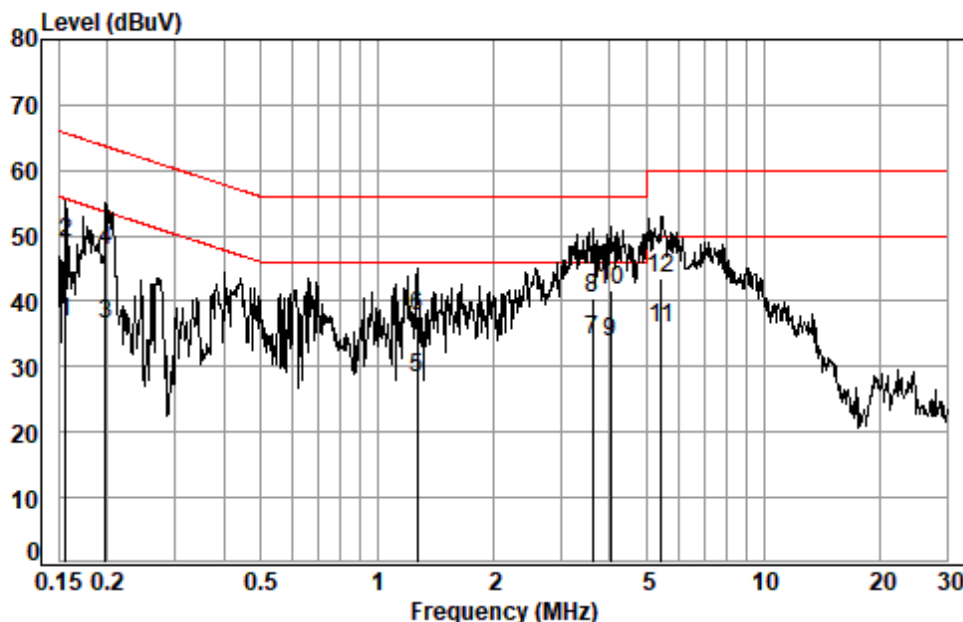
Job No. : 04828CR

Test mode: i

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.1557	0.01	9.55	26.94	36.50	55.69	-19.19	Average
2	0.1557	0.01	9.55	37.83	47.39	65.69	-18.30	QP
3	0.1997	0.02	9.55	21.43	31.00	53.62	-22.62	Average
4	0.1997	0.02	9.55	39.88	49.45	63.62	-14.17	QP
5	0.6754	0.07	9.55	18.24	27.86	46.00	-18.14	Average
6	0.6754	0.07	9.55	32.13	41.75	56.00	-14.25	QP
7	3.9639	0.16	9.60	24.17	33.93	46.00	-12.07	Average
8	3.9639	0.16	9.60	31.82	41.58	56.00	-14.42	QP
9	4.7969	0.17	9.62	25.91	35.70	46.00	-10.30	Average
10	4.7969	0.17	9.62	32.21	42.00	56.00	-14.00	QP
11	5.5641	0.17	9.65	27.58	37.40	50.00	-12.60	Average
12	5.5641	0.17	9.65	33.24	43.06	60.00	-16.94	QP



Mode:j; Line:Live Line



Site : Shielding Room

Condition: Line

Job No. : 04828CR

Test mode: j

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.1565	0.01	9.59	27.16	36.76	55.65	Average
2	0.1565	0.01	9.59	39.43	49.03	65.65	QP
3	0.1976	0.02	9.59	26.92	36.53	53.71	Average
4	0.1976	0.02	9.59	38.21	47.82	63.71	QP
5	1.2688	0.11	9.60	18.49	28.20	46.00	Average
6	1.2688	0.11	9.60	27.93	37.64	56.00	QP
7	3.6034	0.16	9.66	24.17	33.99	46.00	Average
8	3.6034	0.16	9.66	30.70	40.52	56.00	QP
9	4.0275	0.16	9.65	23.99	33.80	46.00	Average
10	4.0275	0.16	9.65	31.95	41.76	56.00	QP
11	5.4474	0.17	9.68	26.12	35.97	50.00	Average
12	5.4474	0.17	9.68	33.65	43.50	60.00	QP

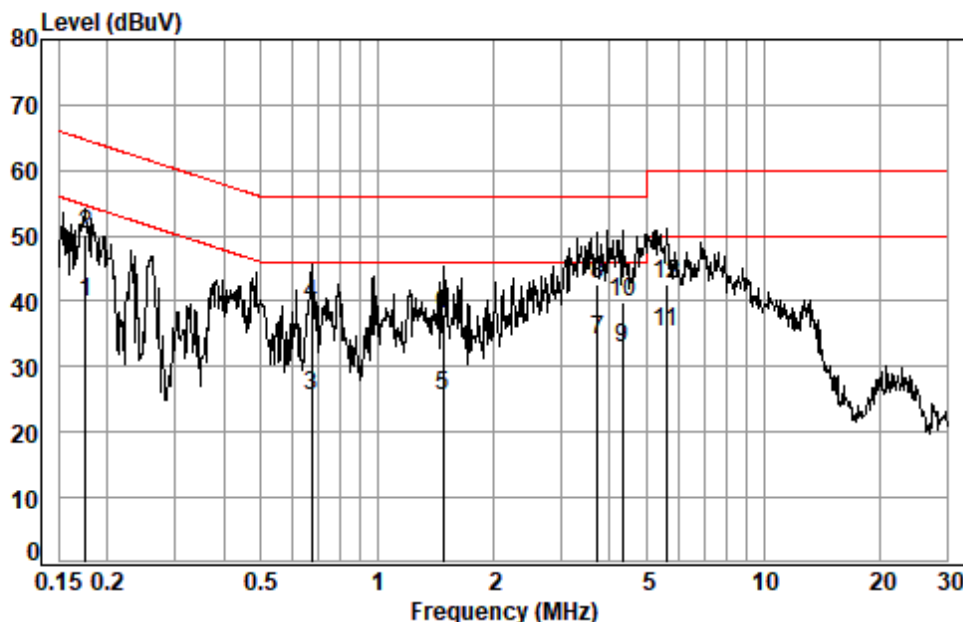


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Mode:j; Line:Neutral Line



Site : Shielding Room

Condition: Neutral

Job No. : 04828CR

Test mode: j

	Freq	Cable Loss	LISN Factor	Read Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dB	
1	0.1758	0.02	9.55	30.18	39.75	54.68	-14.93 Average
2	0.1758	0.02	9.55	40.52	50.09	64.68	-14.59 QP
3	0.6754	0.07	9.55	15.86	25.48	46.00	-20.52 Average
4	0.6754	0.07	9.55	29.86	39.48	56.00	-16.52 QP
5	1.4796	0.13	9.56	15.77	25.46	46.00	-20.54 Average
6	1.4796	0.13	9.56	28.34	38.03	56.00	-17.97 QP
7	3.7198	0.16	9.59	24.28	34.03	46.00	-11.97 Average
8	3.7198	0.16	9.59	32.72	42.47	56.00	-13.53 QP
9	4.3146	0.16	9.61	23.21	32.98	46.00	-13.02 Average
10	4.3146	0.16	9.61	30.21	39.98	56.00	-16.02 QP
11	5.5936	0.17	9.65	25.46	35.28	50.00	-14.72 Average
12	5.5936	0.17	9.65	32.84	42.66	60.00	-17.34 QP



6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.9 °C Humidity: 57 % RH Atmospheric Pressure: 1005 mbar

Pretest these modes to find the worst case: a: Idle mode, Keep the EUT at standby mode.

b: Charging mode, keep EUT in charging with Adapter, earphone.

c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

d: LTE band 4+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

e: LTE band 5+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

f: LTE band 12+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

g: LTE band 13+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

h: Telecom Idle + BT+ WLAN + GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.

j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.

The worst case for final test:

b: Charging mode, keep EUT in charging with Adapter, earphone.

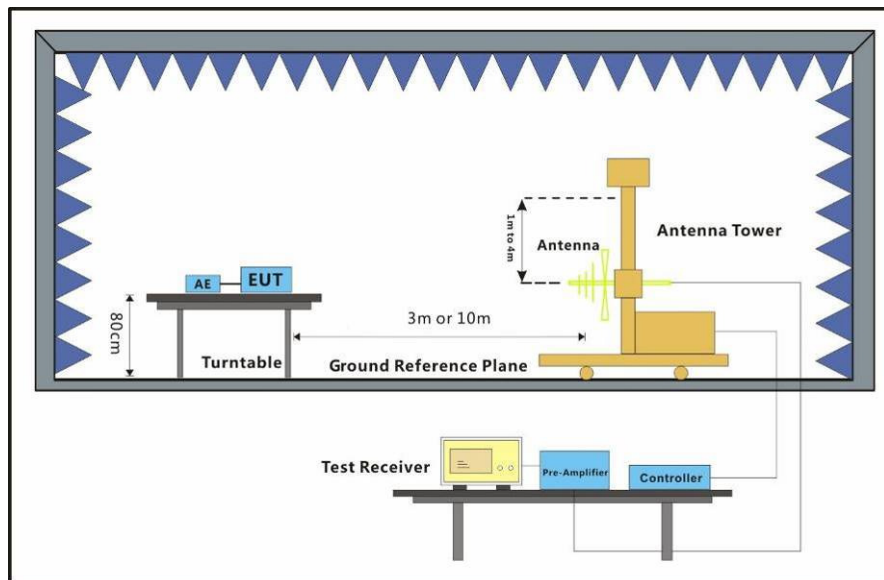
c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.

i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.

j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.



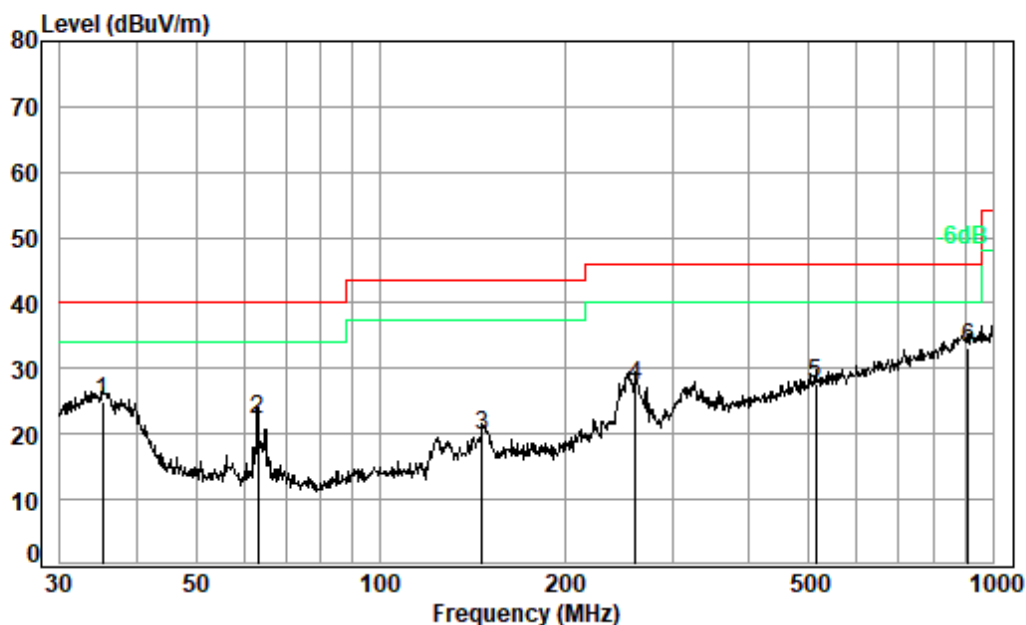
6.2.2 Test Setup Diagram



6.2.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:b; Polarization:Horizontal



Condition: 3m HORIZONTAL

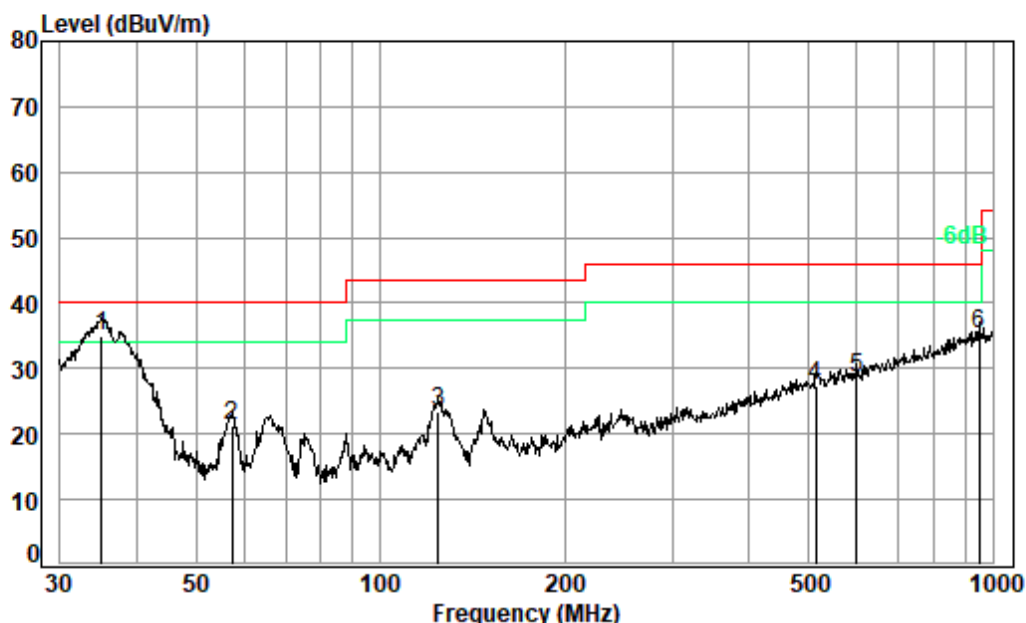
Job No. : 04828CR

Test Mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.25	0.60	19.70	27.72	32.35	24.93	40.00	-15.07	QP
2	63.09	0.80	13.07	27.66	35.96	22.17	40.00	-17.83	QP
3	146.89	1.31	14.35	27.35	31.32	19.63	43.50	-23.87	QP
4	261.06	1.73	19.08	26.96	33.51	27.36	46.00	-18.64	QP
5	513.63	2.62	24.90	27.85	28.09	27.76	46.00	-18.24	QP
6 pp	912.86	3.61	29.87	27.10	26.90	33.28	46.00	-12.72	QP



Mode:b; Polarization:Vertical



Condition: 3m VERTICAL

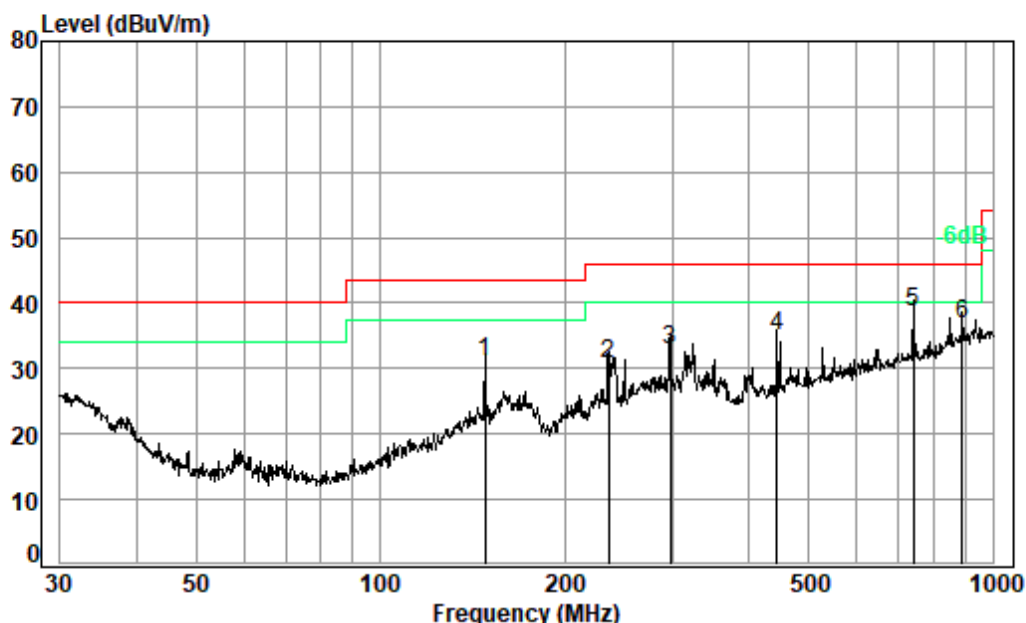
Job No. : 04828CR

Test Mode: b

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	35.13	0.60	19.76	27.72	42.23	34.87	40.00	-5.13	QP
2	57.19	0.80	13.46	27.67	34.80	21.39	40.00	-18.61	QP
3	124.13	1.26	13.23	27.46	36.38	23.41	43.50	-20.09	QP
4	513.63	2.62	24.90	27.85	27.85	27.52	46.00	-18.48	QP
5	599.32	2.70	26.59	28.13	27.50	28.66	46.00	-17.34	QP
6	948.76	3.65	30.05	26.91	28.42	35.21	46.00	-10.79	QP



Mode:c; Polarization:Horizontal



Condition: 3m HORIZONTAL

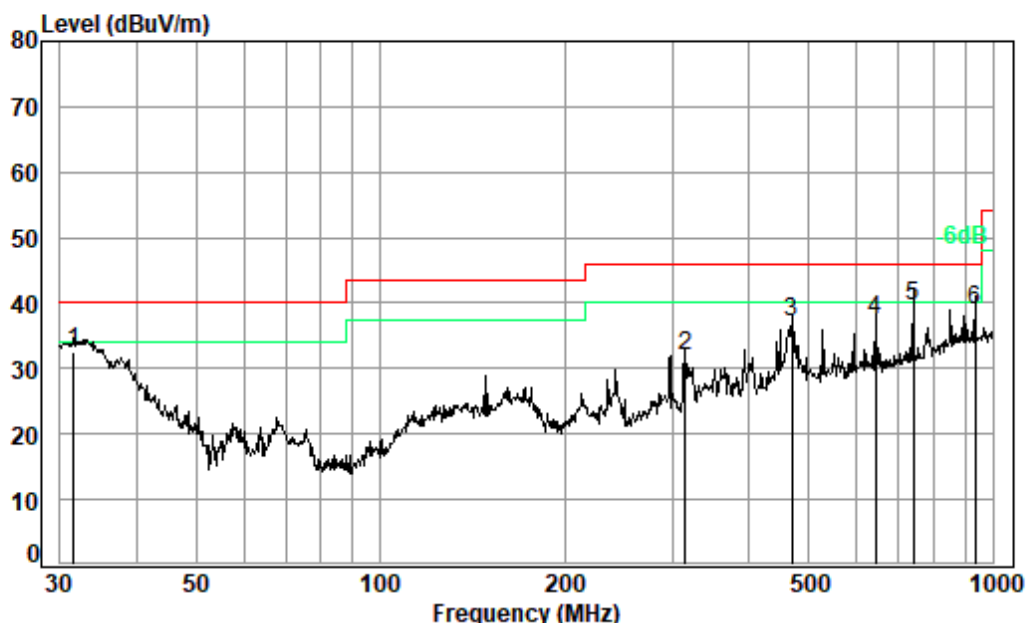
Job No. : 04828CR

Test Mode: c

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	148.44	1.31	14.49	27.34	42.63	31.09	43.50	-12.41	QP
2	235.82	1.60	18.48	27.03	37.63	30.68	46.00	-15.32	QP
3	297.22	1.89	19.49	26.88	38.36	32.86	46.00	-13.14	QP
4	444.85	2.39	23.45	27.59	36.65	34.90	46.00	-11.10	QP
5 pp	742.26	3.03	28.16	27.83	35.18	38.54	46.00	-7.46	QP
6	890.73	3.56	29.69	27.21	30.71	36.75	46.00	-9.25	QP



Mode:c; Polarization:Vertical



Condition: 3m VERTICAL

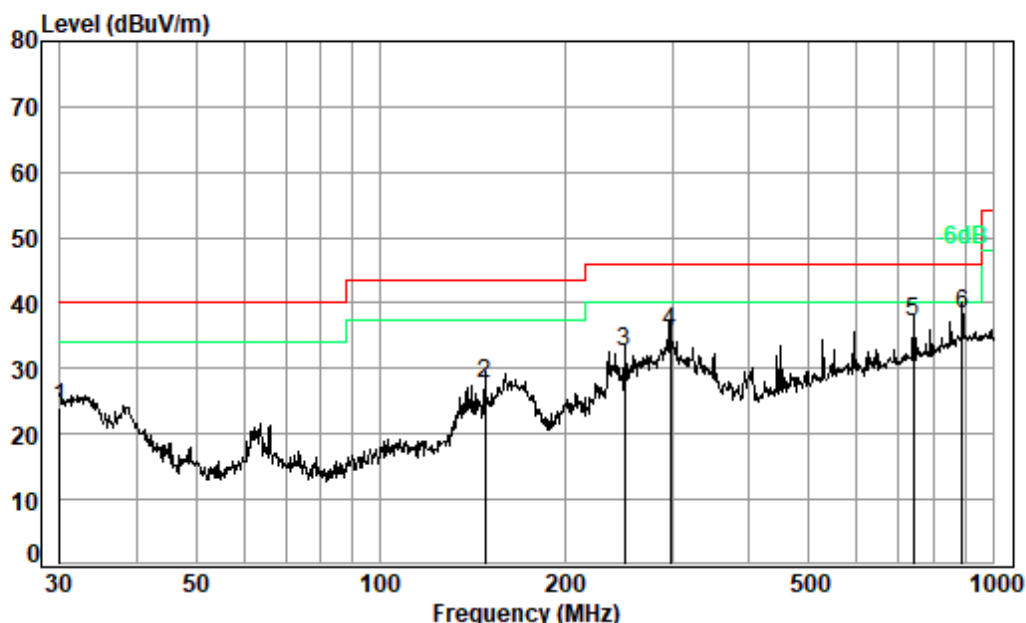
Job No. : 04828CR

Test Mode: c

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	31.62	0.60	21.59	27.73	38.21	32.67	40.00	-7.33	QP
2	314.38	1.95	20.06	26.96	36.99	32.04	46.00	-13.96	QP
3	470.52	2.49	24.00	27.69	38.32	37.12	46.00	-8.88	QP
4	642.86	2.79	27.18	28.03	35.41	37.35	46.00	-8.65	QP
5 pp	742.26	3.03	28.16	27.83	36.20	39.56	46.00	-6.44	QP
6	935.55	3.64	29.98	26.98	32.41	39.05	46.00	-6.95	QP



Mode:i; Polarization:Horizontal



Condition: 3m HORIZONTAL

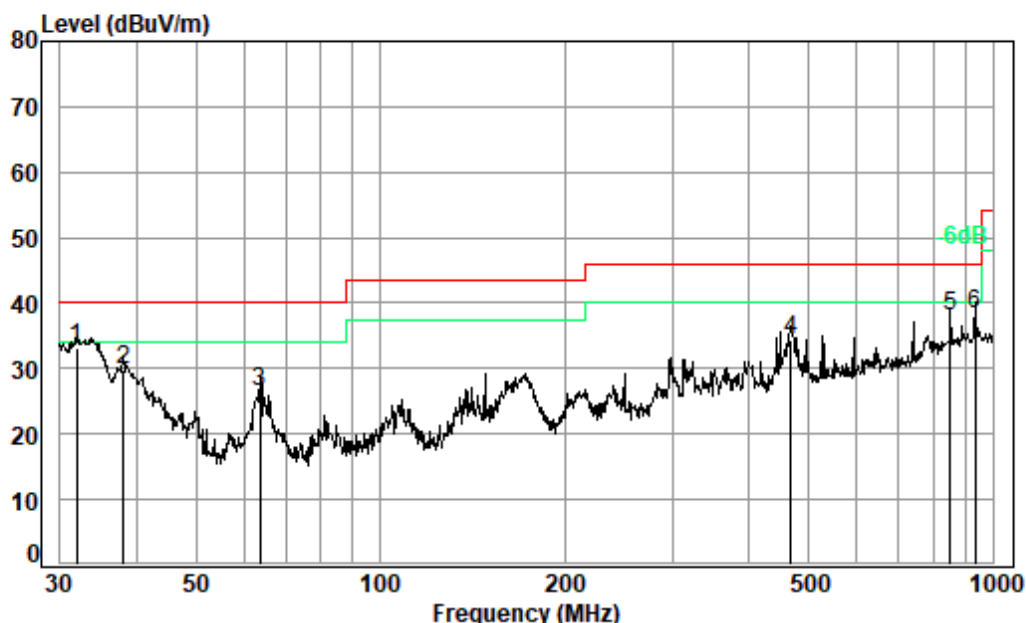
Job No. : 04828CR

Test Mode: i

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB		dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.00	0.60	22.50	27.74	28.67	24.03	40.00	-15.97	QP
2	148.44	1.31	14.49	27.34	39.18	27.64	43.50	-15.86	QP
3	250.30	1.68	18.96	26.99	38.80	32.45	46.00	-13.55	QP
4	297.22	1.89	19.49	26.88	40.98	35.48	46.00	-10.52	QP
5	742.26	3.03	28.16	27.83	33.70	37.06	46.00	-8.94	QP
6 pp	890.73	3.56	29.69	27.21	32.18	38.22	46.00	-7.78	QP



Mode:i; Polarization:Vertical



Condition: 3m VERTICAL

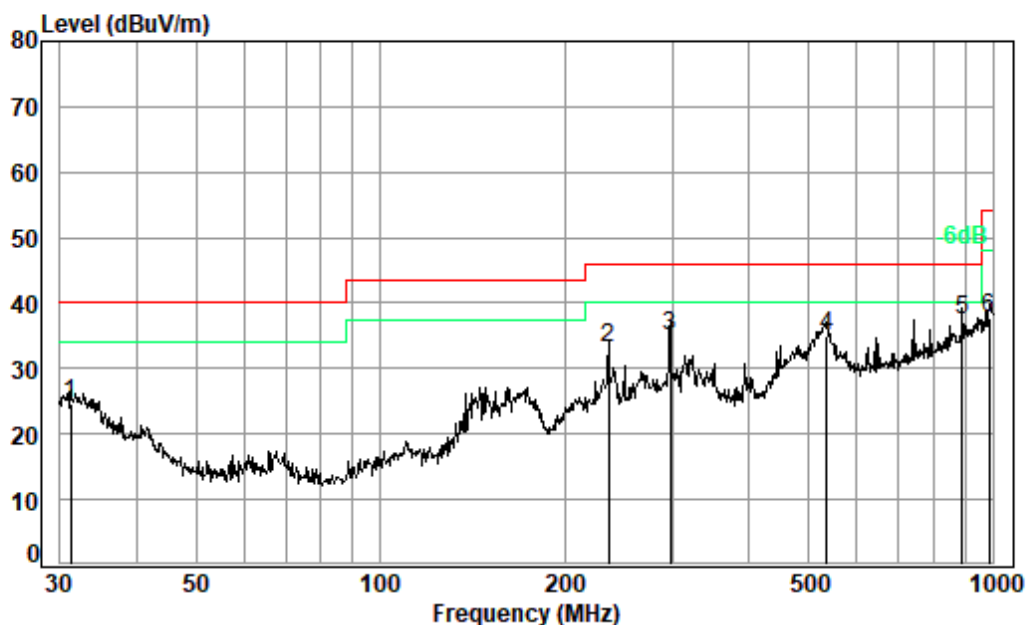
Job No. : 04828CR

Test Mode: i

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	31.95	0.60	21.40	27.73	38.82	33.09	40.00	-6.91	QP
2	38.08	0.60	18.36	27.71	38.55	29.80	40.00	-10.20	QP
3	63.54	0.80	13.05	27.66	40.38	26.57	40.00	-13.43	QP
4	467.24	2.48	23.93	27.68	35.68	34.41	46.00	-11.59	QP
5	851.04	3.41	29.18	27.43	32.87	38.03	46.00	-7.97	QP
6	935.55	3.64	29.98	26.98	31.59	38.23	46.00	-7.77	QP



Mode:j; Polarization:Horizontal



Condition: 3m HORIZONTAL

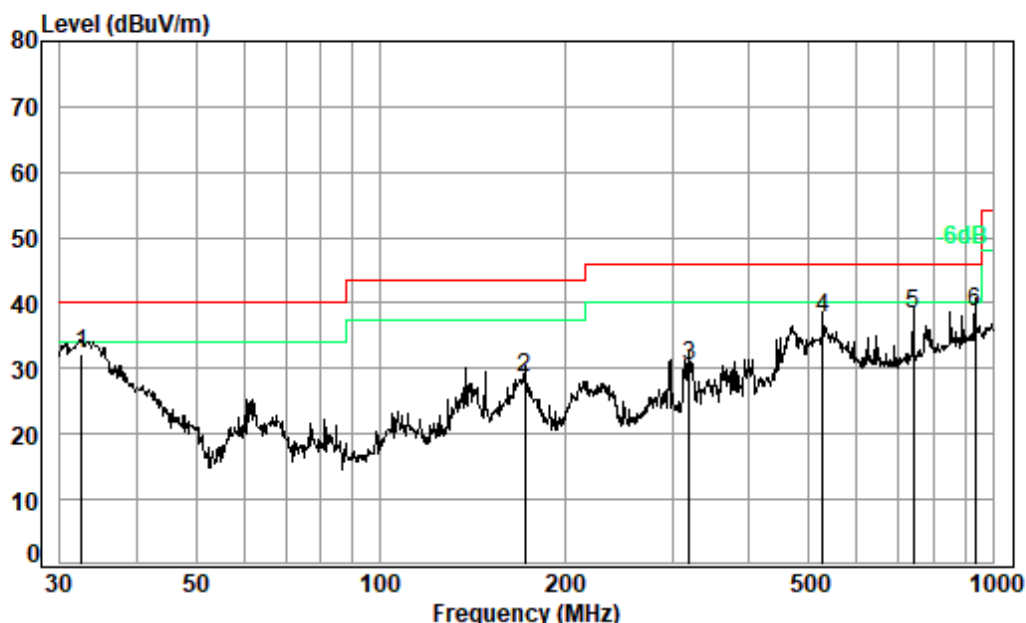
Job No. : 04828CR

Test Mode: j

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	31.18	0.60	21.83	27.73	29.94	24.64	40.00	-15.36	QP
2	235.82	1.60	18.48	27.03	40.25	33.30	46.00	-12.70	QP
3	297.22	1.89	19.49	26.88	40.51	35.01	46.00	-10.99	QP
4	535.71	2.64	25.36	27.92	34.97	35.05	46.00	-10.95	QP
5 pp	890.73	3.56	29.69	27.21	31.33	37.37	46.00	-8.63	QP
6	986.07	3.69	30.23	26.73	30.51	37.70	54.00	-16.30	QP



Mode:j; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : 04828CR

Test Mode: j

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.52	0.60	21.10	27.73	38.34	32.31	40.00	-7.69	QP
2	171.99	1.36	15.75	27.24	38.65	28.52	43.50	-14.98	QP
3	319.94	1.97	20.23	26.99	35.26	30.47	46.00	-15.53	QP
4	528.25	2.63	25.20	27.90	37.72	37.65	46.00	-8.35	QP
5	742.26	3.03	28.16	27.83	34.97	38.33	46.00	-7.67	QP
6 pp	935.55	3.64	29.98	26.98	32.00	38.64	46.00	-7.36	QP



6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014
Frequency Range: Above 1GHz
Measurement Distance: 3m
Limit:
Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C Humidity: 55.1 % RH Atmospheric Pressure: 1005 mbar

Pretest these
modes to find
the worst case:

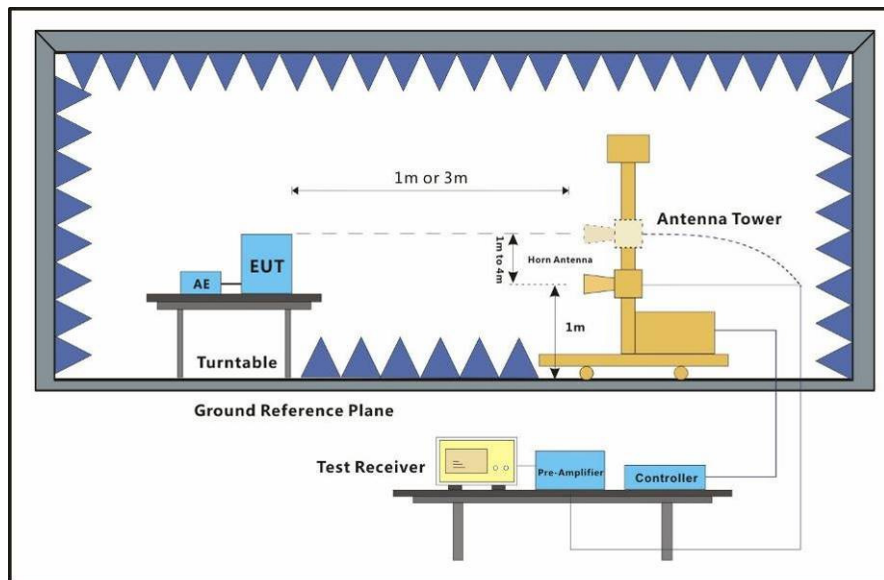
- a: Idle mode, Keep the EUT at standby mode.
- b: Charging mode, keep EUT in charging with Adapter, earphone.
- c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- d: LTE band 4+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- e: LTE band 5+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- f: LTE band 12+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- g: LTE band 13+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- h: Telecom Idle + BT+ WLAN + GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.
- j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.

The worst case
for final test:

- b: Charging mode, keep EUT in charging with Adapter, earphone.
- c: LTE band 2+ BT+WLAN+ GPS Rx + battery + adapter + Earphone + USB + LAN + Keyboard Cradle.
- i: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Desktop Cradle.
- j: a~h worse mode + BT+ WLAN + GPS Rx + battery + adapter + USB + LAN + Wall Cradle.



6.3.2 Test Setup Diagram

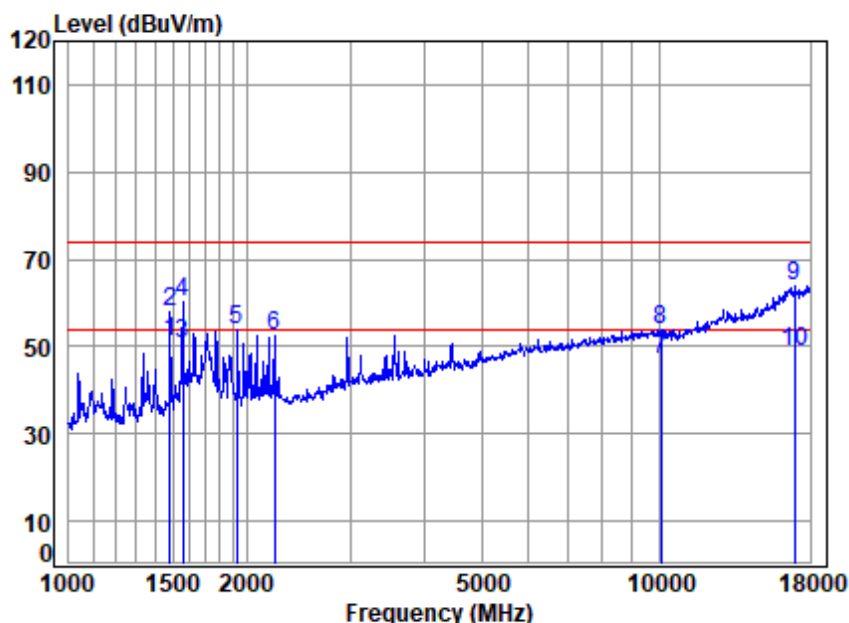


6.3.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Note: Add the High Pass Filter for above 1GHz Radiated Emission testing.

Mode:b; Polarization:Horizontal

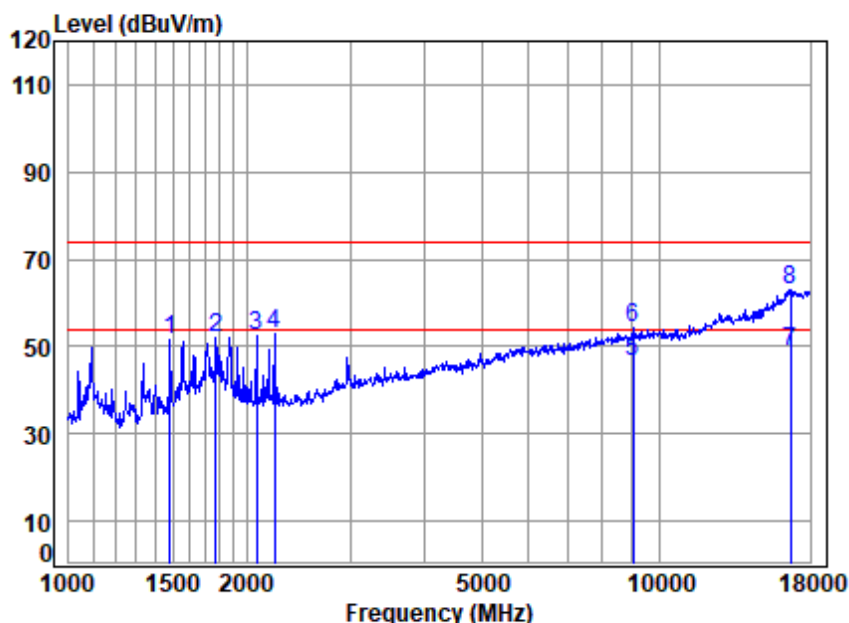


Site : chamber
Condition: 3m HORIZONTAL
Job No : 04828CR
Mode : b
Note :

	Freq	Cable Loss	Ant Factor	Preamplifier Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1485.841	3.24	25.75	40.50	62.50	50.99	54.00	-3.01	Average
2	1485.841	3.24	25.75	40.50	69.49	57.98	74.00	-16.02	Peak
3	1560.673	3.31	26.08	40.55	61.68	50.52	54.00	-3.48	Average
4	1560.673	3.31	26.08	40.55	71.22	60.06	74.00	-13.94	Peak
5	1927.289	3.60	27.54	40.76	63.24	53.62	74.00	-20.38	Peak
6	2226.950	4.07	28.23	40.90	61.05	52.45	74.00	-21.55	Peak
7	10068.450	10.67	37.87	38.03	36.39	46.90	54.00	-7.10	Average
8	10068.450	10.67	37.87	38.03	43.39	53.90	74.00	-20.10	Peak
9	16939.940	14.25	42.55	40.53	47.65	63.92	74.00	-10.08	Peak
10	16939.940	14.25	42.55	40.53	32.67	48.94	54.00	-5.06	Average



Mode:b; Polarization:Vertical

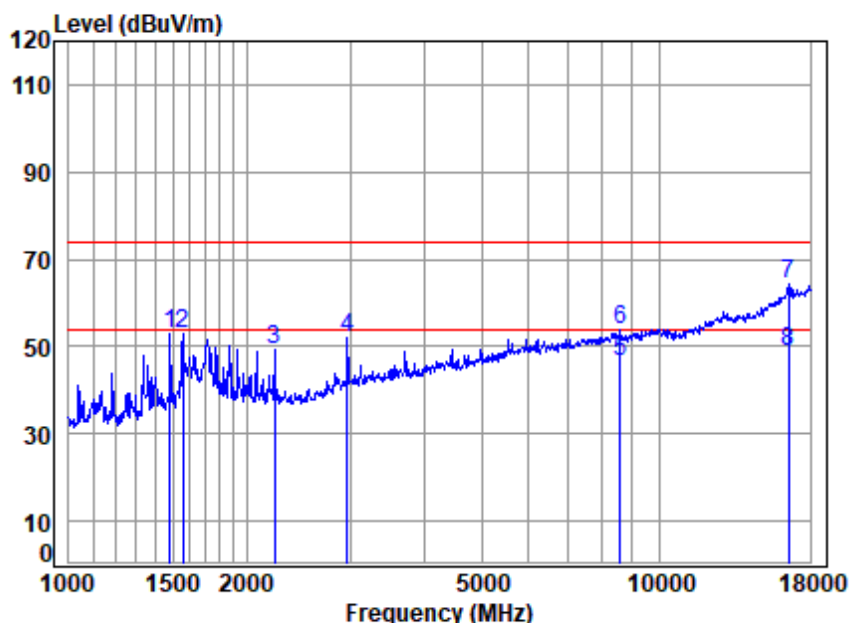


Site : chamber
Condition: 3m VERTICAL
Job No : 04828CR
Mode : b
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1485.841	3.24	25.75	40.50	63.20	51.69	74.00	-22.31	Peak
2	1777.458	3.49	26.98	40.68	62.29	52.08	74.00	-21.92	Peak
3	2077.705	3.80	27.95	40.83	61.36	52.28	74.00	-21.72	Peak
4	2226.950	4.07	28.23	40.90	61.52	52.92	74.00	-21.08	Peak
5	9021.160	10.32	37.22	39.48	38.47	46.53	54.00	-7.47	Average
6	9021.160	10.32	37.22	39.48	46.26	54.32	74.00	-19.68	Peak
7	16696.880	14.56	42.36	40.54	32.24	48.62	54.00	-5.38	Average
8	16696.880	14.56	42.36	40.54	46.76	63.14	74.00	-10.86	Peak



Mode:c; Polarization:Horizontal

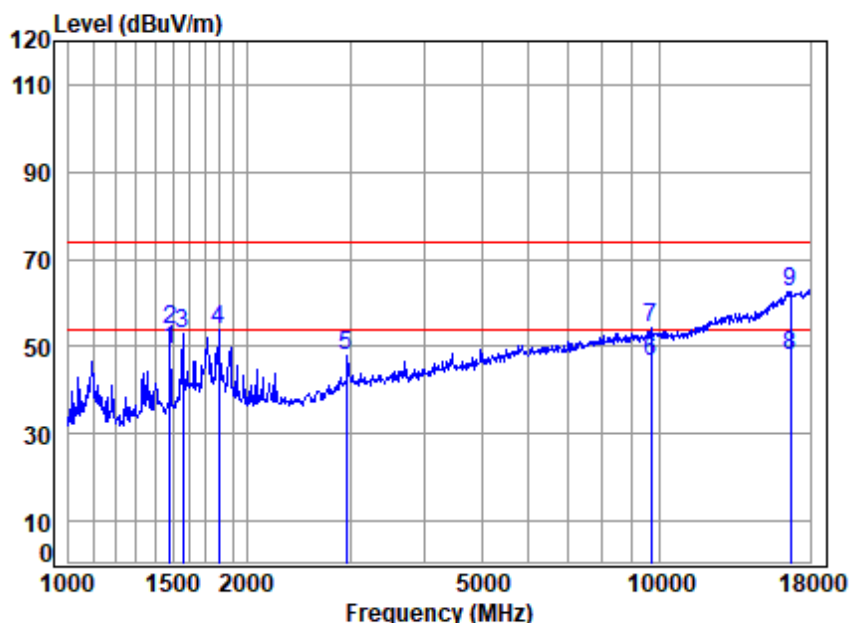


Site : chamber
Condition: 3m HORIZONTAL
Job No : 04828CR
Mode : c
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1485.841	3.24	25.75	40.50	64.55	53.04	74.00	-20.96	Peak
2	1560.673	3.31	26.08	40.55	64.22	53.06	74.00	-20.94	Peak
3	2226.950	4.07	28.23	40.90	57.99	49.39	74.00	-24.61	Peak
4	2964.712	4.84	30.76	41.19	57.70	52.11	74.00	-21.89	Peak
5	8588.607	10.14	37.04	40.18	39.35	46.35	54.00	-7.65	Average
6	8588.607	10.14	37.04	40.18	46.94	53.94	74.00	-20.06	Peak
7	16552.730	14.75	42.24	40.55	47.98	64.42	74.00	-9.58	Peak
8	16552.730	14.75	42.24	40.55	32.40	48.84	54.00	-5.16	Average



Mode:c; Polarization:Vertical

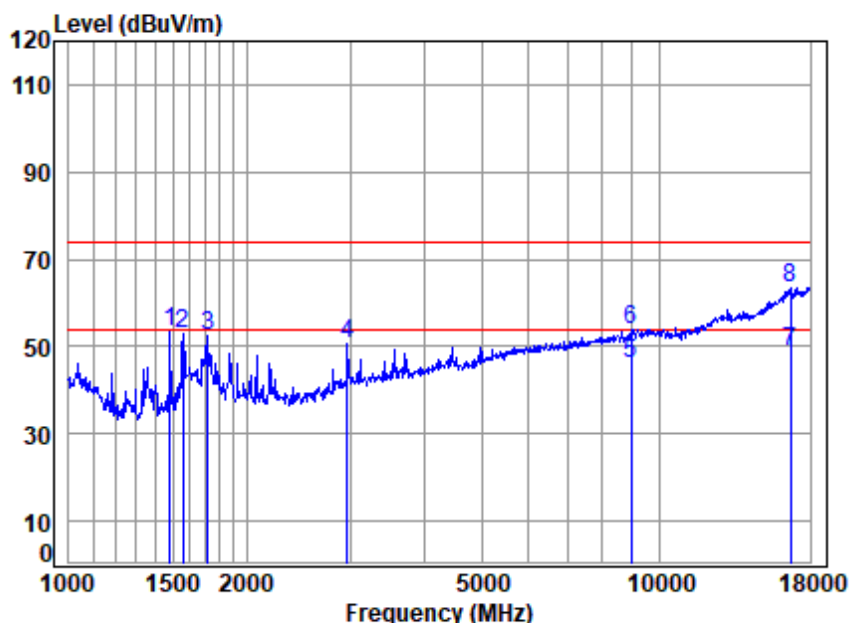


Site : chamber
Condition: 3m VERTICAL
Job No : 04828CR
Mode : c
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1485.841	3.24	25.75	40.50	60.69	49.18	54.00	-4.82	Average
2	1485.841	3.24	25.75	40.50	65.31	53.80	74.00	-20.20	Peak
3	1560.673	3.31	26.08	40.55	64.20	53.04	74.00	-20.96	Peak
4	1792.937	3.50	27.04	40.68	63.85	53.71	74.00	-20.29	Peak
5	2956.155	4.83	30.72	41.19	53.41	47.77	74.00	-26.23	Peak
6	9669.164	10.79	37.70	38.48	36.36	46.37	54.00	-7.63	Average
7	9669.164	10.79	37.70	38.48	44.13	54.14	74.00	-19.86	Peak
8	16696.880	14.56	42.36	40.54	31.69	48.07	54.00	-5.93	Average
9	16696.880	14.56	42.36	40.54	46.24	62.62	74.00	-11.38	Peak



Mode:i; Polarization:Horizontal

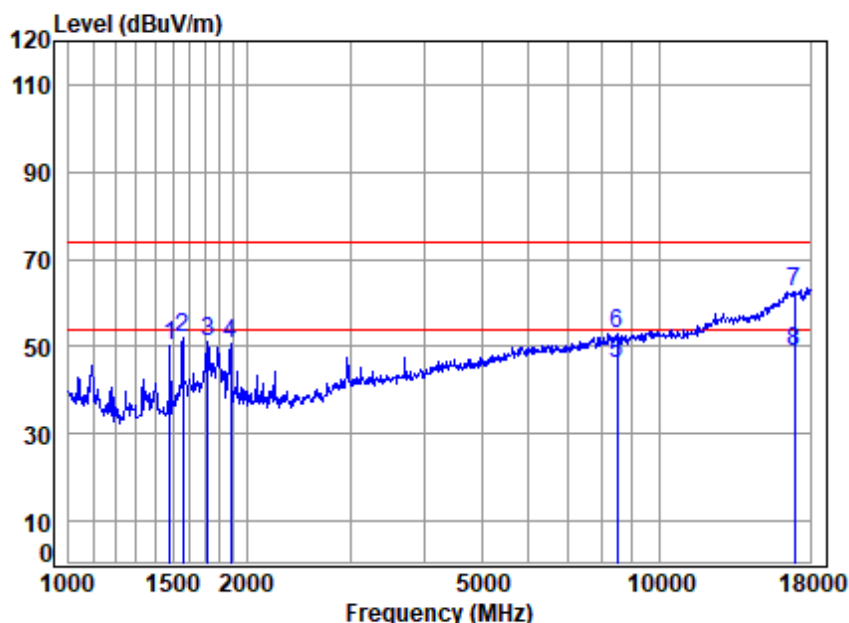


Site : chamber
Condition: 3m HORIZONTAL
Job No : 04828CR
Mode : i
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1481.553	3.23	25.73	40.49	64.92	53.39	74.00	-20.61	Peak
2	1560.673	3.31	26.08	40.55	63.86	52.70	74.00	-21.30	Peak
3	1716.864	3.44	26.74	40.64	62.83	52.37	74.00	-21.63	Peak
4	2964.712	4.84	30.76	41.19	56.03	50.44	74.00	-23.56	Peak
5	8943.274	10.28	37.18	39.60	38.38	46.24	54.00	-7.76	Average
6	8943.274	10.28	37.18	39.60	46.05	53.91	74.00	-20.09	Peak
7	16696.880	14.56	42.36	40.54	32.36	48.74	54.00	-5.26	Average
8	16696.880	14.56	42.36	40.54	46.94	63.32	74.00	-10.68	Peak



Mode:i; Polarization:Vertical

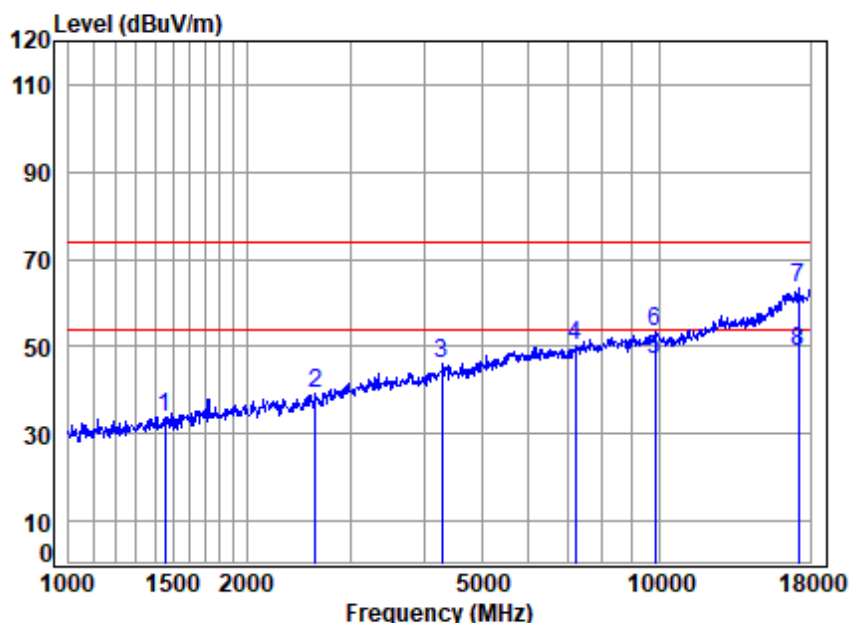


Site : chamber
Condition: 3m VERTICAL
Job No : 04828CR
Mode : i
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1485.841	3.24	25.75	40.50	61.60	50.09	74.00	-23.91	Peak
2	1560.673	3.31	26.08	40.55	63.30	52.14	74.00	-21.86	Peak
3	1716.864	3.44	26.74	40.64	61.56	51.10	74.00	-22.90	Peak
4	1877.800	3.56	27.36	40.73	60.44	50.63	74.00	-23.37	Peak
5	8489.882	10.09	36.99	40.35	39.39	46.12	54.00	-7.88	Average
6	8489.882	10.09	36.99	40.35	46.09	52.82	74.00	-21.18	Peak
7	16939.940	14.25	42.55	40.53	46.40	62.67	74.00	-11.33	Peak
8	16939.940	14.25	42.55	40.53	32.69	48.96	54.00	-5.04	Average



Mode:j; Polarization:Horizontal



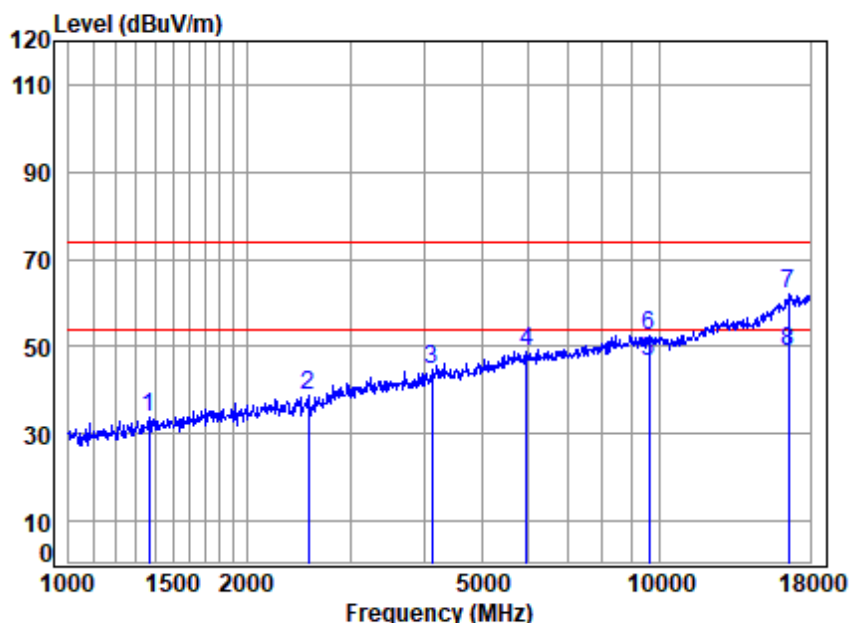
Site : chamber
Condition: 3m HORIZONTAL
Job No : 04828CR
Mode : j
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1456.081	3.19	25.64	40.48	45.57	33.92	74.00	-40.08	Peak
2	2618.218	4.61	29.26	41.06	46.65	39.46	74.00	-34.54	Peak
3	4291.977	6.57	33.24	42.39	48.57	45.99	74.00	-28.01	Peak
4	7221.150	8.75	36.08	41.57	46.88	50.14	74.00	-23.86	Peak
5	9838.312	10.74	37.80	38.23	36.68	46.99	54.00	-7.01	Average
6	9838.312	10.74	37.80	38.23	42.86	53.17	74.00	-20.83	Peak
7	17236.280	14.09	42.74	40.52	46.90	63.21	74.00	-10.79	Peak
8	17236.280	14.09	42.74	40.52	32.38	48.69	54.00	-5.31	Average



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Mode:j; Polarization:Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 04828CR
Mode : j
Note :

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1366.374	3.05	25.29	40.41	45.81	33.74	74.00	-40.26	Peak
2	2543.625	4.55	28.91	41.03	46.30	38.73	74.00	-35.27	Peak
3	4121.768	6.40	32.93	42.26	47.48	44.55	74.00	-29.45	Peak
4	5967.033	8.25	35.07	42.26	47.96	49.02	74.00	-24.98	Peak
5	9613.430	10.81	37.67	38.57	36.68	46.59	54.00	-7.41	Average
6	9613.430	10.81	37.67	38.57	42.54	52.45	74.00	-21.55	Peak
7	16552.730	14.75	42.24	40.55	45.41	61.85	74.00	-12.15	Peak
8	16552.730	14.75	42.24	40.55	32.37	48.81	54.00	-5.19	Average



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7 Photographs

7.1 Conducted Emissions at Mains Terminals (150kHz-30MHz) Test Setup

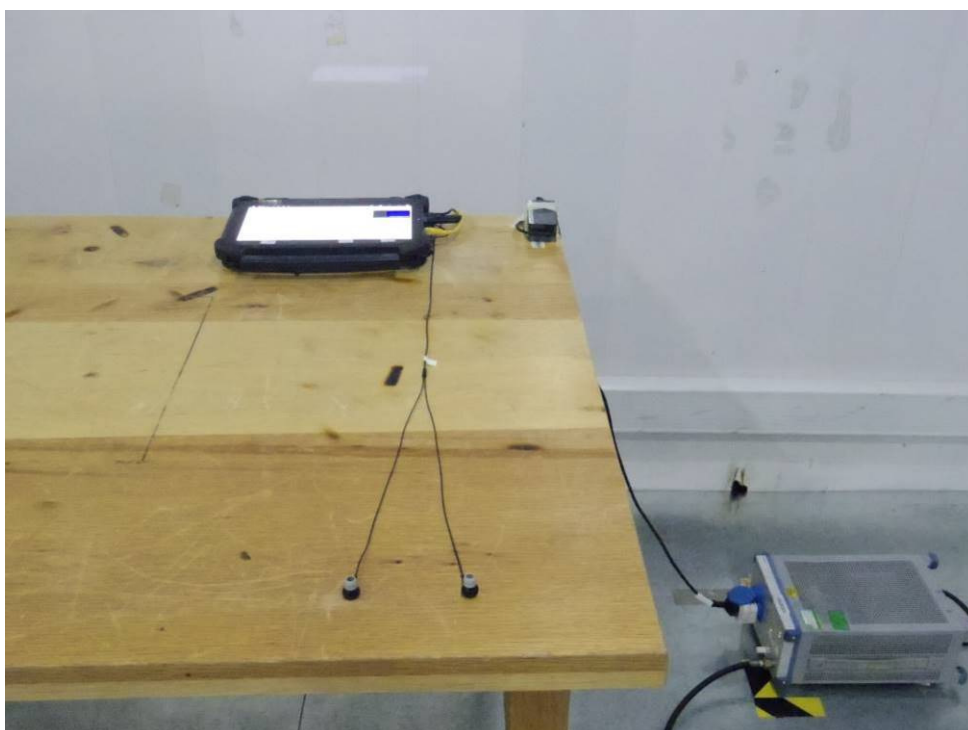


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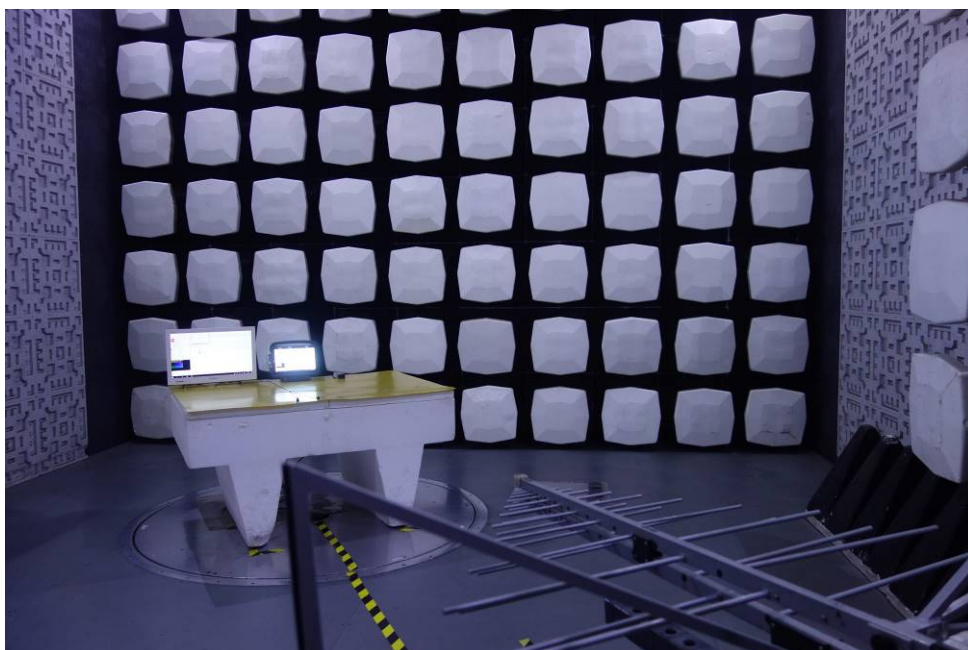
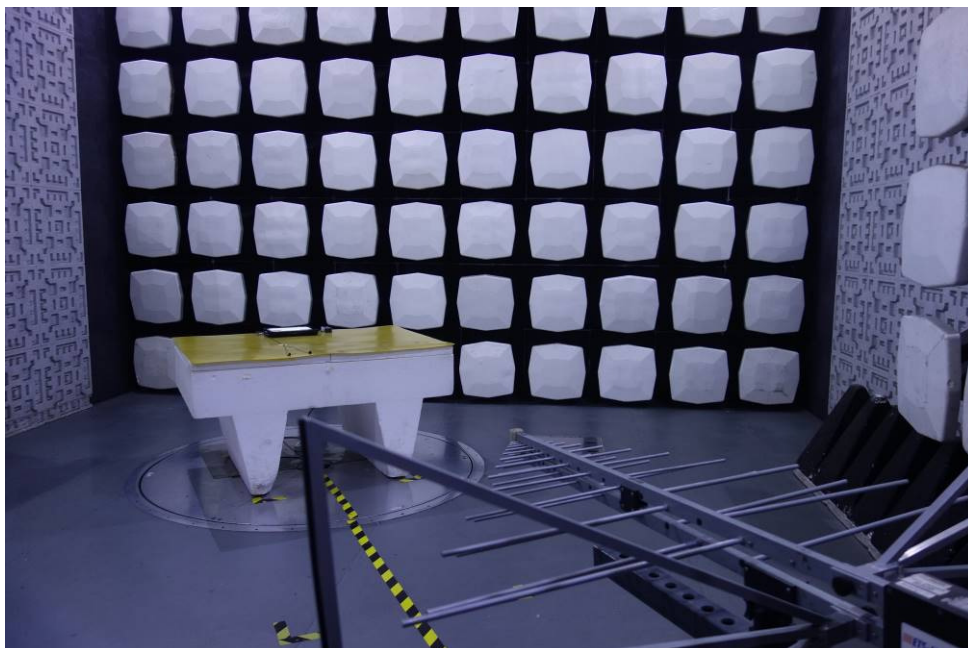
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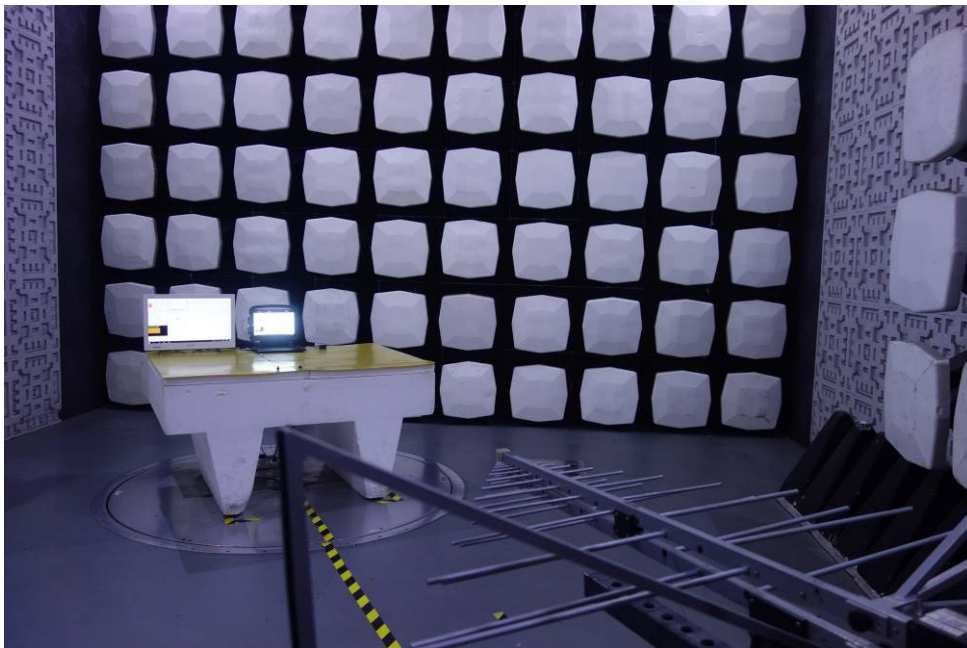
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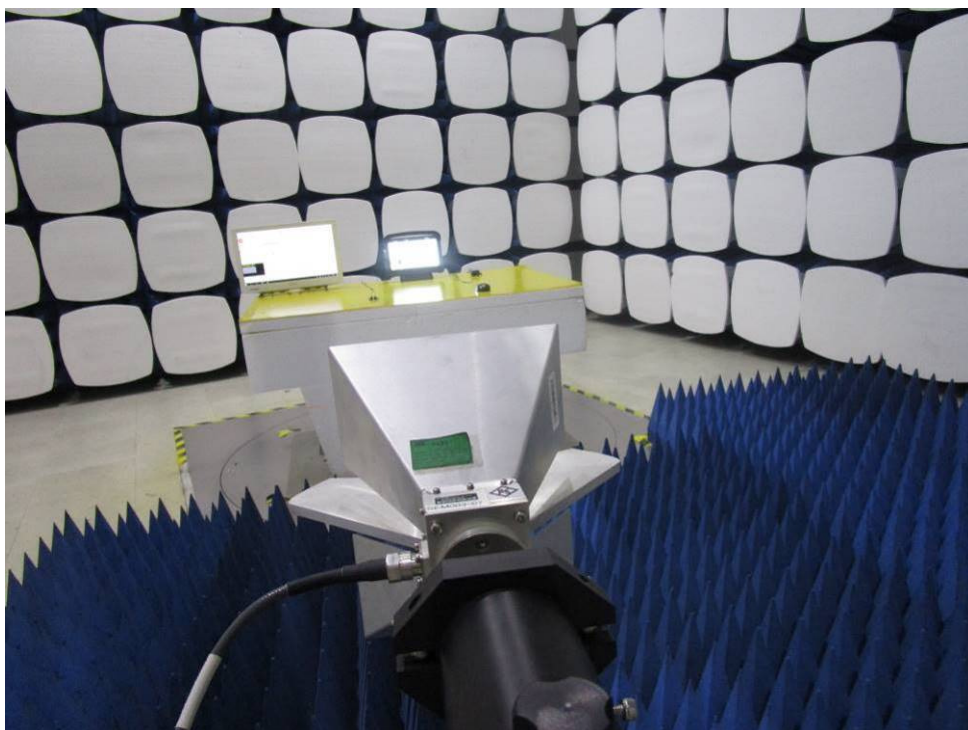
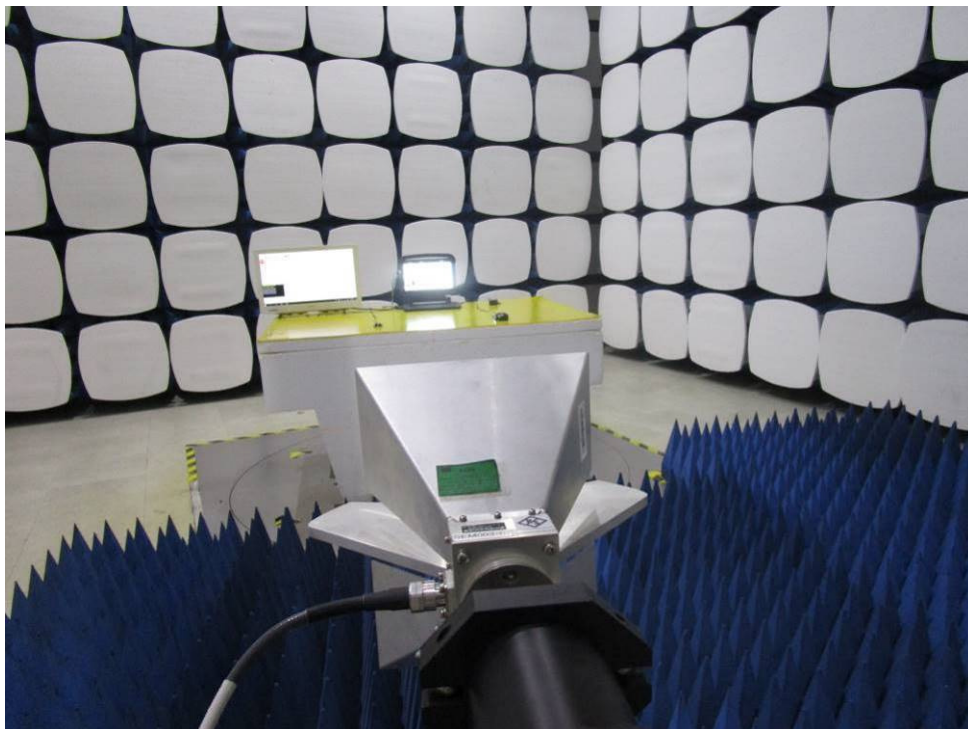


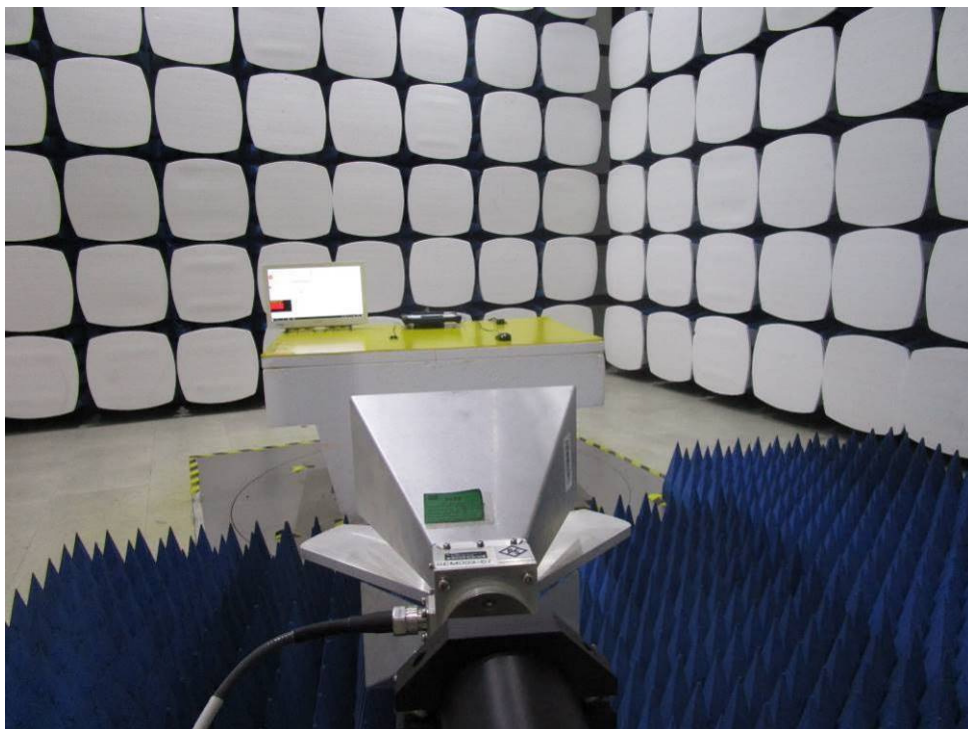
7.2 Radiated Emissions (30MHz-1GHz) Test Setup





7.3 Radiated Emissions (above 1GHz) Test Setup





7.4 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -

