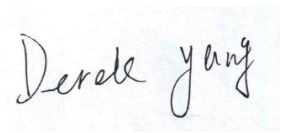
SGS-CSTC Standards Technical Services Co., Ltd.
Xi'an Branch

TEST REPORT

Application No.:	HR/2019/90003
Applicant:	Unimax communications
Address of Applicant:	18201 McDurmott St.West Suite E,Irvine,CA 92614.
Manufacturer:	Unimax communications
Address of Manufacturer:	18201 McDurmott St.West Suite E,Irvine,CA 92614.
Factory:	Unimax communications
Address of Factory:	18201 McDurmott St.West Suite E,Irvine,CA 92614.
EUT Description:	Smartphone
Model No.:	U693CL
Trade Mark:	UMX
FCC ID:	P46-U693CL
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2019-11-5
Date of Test:	2019-11-6 to 2019-11-20
Date of Issue:	2019-11-20
Test Result:	**Pass***

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

Authorized Signature:



Derek Yang
Wireless Laboratory Manager

Revision Record				
Version	***Chapter***	***Date***	***Modifier***	***Remark***
01		*2019-11-20*		*Original*

Authorized for issue by:				
		Louis He **(Louis He) /Project Engineer**		
		David Chen **(David Chen) /Reviewer**		

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

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

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Adapter model: TPA-5950100UU Input: 100-240V~50/60Hz, 0.2A Out Power: 5V / 1A
EUT Description::	Smartphone
Model No.:	U693CL
Trade Mark:	UMX
Hardware Version:	Q5009-V1.0
Software Version:	TBD
Antenna Gain:	CDMA/EVDO BC0: -1.4dBi CDMA/EVDO BC1: -0.2dBi CDMA/EVDO BC10: -1.4dBi WCDMA Band II: -0.2dBi WCDMA Band IV: -0.03dBi WCDMA Band V: -1.4dBi LTE Band 2: -0.2dBi; LTE Band 4: -0.07dBi LTE Band 5: -1.4dBi LTE Band 12: -2.8dBi LTE Band 25: -0.2dBi LTE Band 26: -1.4dBi LTE Band 41: 1.1dBi LTE Band 66: -0.07dBi LTE Band 71: -2.8dBi Bluetooth/2.4G WiFi: 0.8dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800
Mouse	Lenovo	M-U0025-O	REF. No.:SEA2400
Router	NETGEAR	DGN2200	REF. No.SEA2200

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conduction Emission	± 3.4dB (150kHz to 30MHz)
2	Radiated Emission	± 4.8dB (30MHz-1GHz)
		± 5.2dB (1GHz-6GHz)
		± 5.5dB (6GHz-18GHz)
		± 5.02dB (18GHz-40GHz)
3	Temperature test	± 1°C
4	Humidity test	± 3%

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Xi'an Branch

Single floor D, building 1, Kanghong orange square science and technology park, No.137 keyuan 3rd road, fengdong new town, Xi 'an city, shanxi China. 518057.

Tel: +86 (0) 29 6282 7885 Fax: +86 (0) 29 6282 7885

No tests were sub-contracted.

4.5 Test Facility

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

- **A2LA (Certificate No. 4854.01)**

SGS-CSTC STANDARDS TECHNICAL SERVICES CO., LTD. XIAN BRANCH

is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4854.01.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Radiated Emissions (30MHz~ 40GHz)					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date**	**Cal.Due date**
				(yyyy-mm-dd)	**(yyyy-mm-dd)**
966 Test chamber	Brilliant-emc	NA	XAW040101	2019/6/11	2022/6/9
BiConiLog Antenna (30MHz-3GHz)	rosenberge	VULB 9163	XAW010901	2018/8/8	8/7/2021
Horn Antenna (800MHz-18GHz)	rosenberger	BBHA 9120D	XAW010902	2018/7/18	7/17/2021
Horn Antenna (18-40GHz)	rosenberge	BBHA 9170	XAW010903	2018/8/1	7/31/2021
Amplifier(9kHz-3GHz)	Tonscend	TAP00903040	XAW030601	2018/12/25	2019/12/24
Amplifier(100MHz-18GHz)	Tonscend	TAP01018048	XAW030602	2018/12/25	2019/12/24
Amplifier(18-40GHz)	Tonscend	TAP18040048	XAW030603	2018/12/25	2019/12/24
Radio Communication Analyzers	Anritsu	Mt8820c	XAW020223	6/27/2019	6/26/2020
Test receiver	Rohde & Schwarz	ESR	XAW010801	9/7/2019	9/6/2020
MXA signal analyzer	Rohde & Schwarz	FSV	XAW040103	4/1/2019	3/31/2020
Measurement Software	Tonscend	TS+	N/A	N/A	N/A
Filter bank	Tonscend	JS0806-F	N/A	N/A	N/A
Filter bank	Tonscend	JS0806s	N/A	N/A	N/A
Artificial network	Rohde & Schwarz	ENV216	7/16/2019	7/16/2020	7/16/2019

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date**	**Cal.Due date**
				(yyyy-mm-dd)	**(yyyy-mm-dd)**
Shield Room	Brilliant-emc	NA	XAW08043	NA	NA
Test receiver	Rohde & Schwarz	ESR	XAW010801	9/7/2019	9/6/2020
Artificial network	Rohde & Schwar	ENV216	XAW010401	7/16/2019	7/15/2020
Artificial network	Rohde & Schwar	ENV216	XAW013001	3/11/2019	3/10/2020
Cabel	SGS	NA	NA	NA	NA

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:

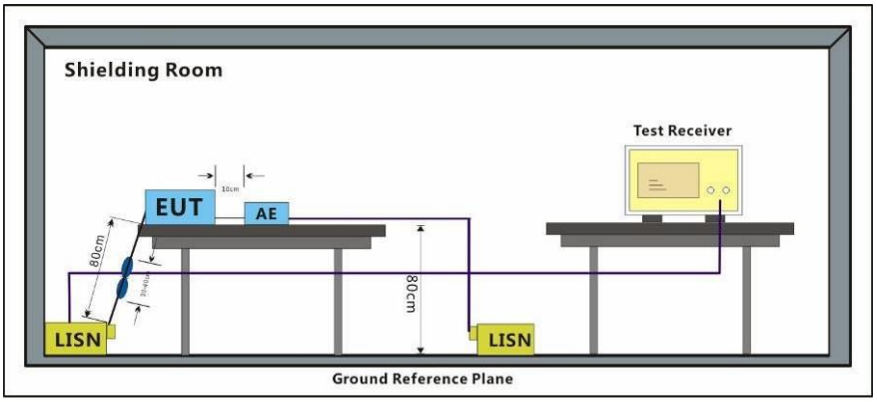
Temperature: 18.9 °C Humidity: 55.1 % RH Atmospheric Pressure: 1000 mbar

Pretest these modes to find the worst case:

i: CDMA BC0 Rx+WiFi +BT +Adapter+Camera Front+Earphone
j: CDMA BC1 Rx +WiFi +BT +Adapter+MP4+Earphone
k: CDMA BC10 Rx +WiFi +BT + Adapter+ Camera rear +Earphone
l: WCDMA Band 2 Link +WiFi +BT +Adapter + Camera rear +Earphone
m: WCDMA Band 4 Link +WiFi +BT +Adapter+ MP4+Earphone
n: WCDMA Band 5 Link +WiFi +BT +Adapter+ Camera Front +Earphone
o: LTE Band 2 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
p: LTE Band 4 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
q: LTE Band 5 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
r: LTE Band 12 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
s: LTE Band 25 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
t: LTE Band 26 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
u: LTE Band 41 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
v: LTE Band 66 Rx +WiFi +BT+GPS Rx+Adapter+FM +Earphone
z: LTE Band 71 Rx +WiFi +BT+GPS Rx+PC Date Link +Earphone

The worst case for final test: o: LTE Band 2 Rx +WiFi +BT R+GPS Rx+Adapter+FM+Earphone

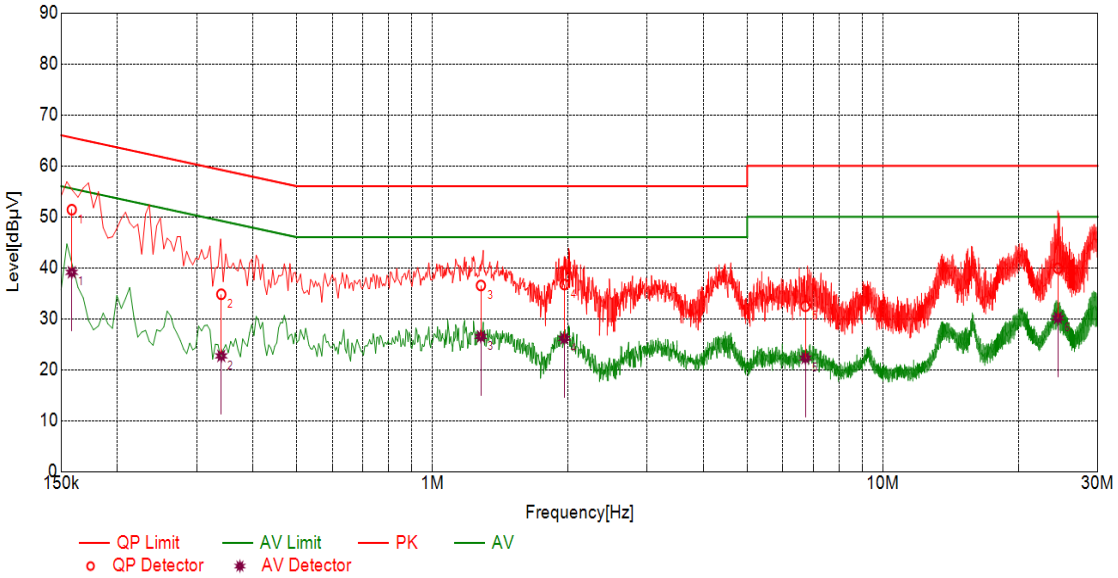
6.1.2 Test Setup Diagram



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.

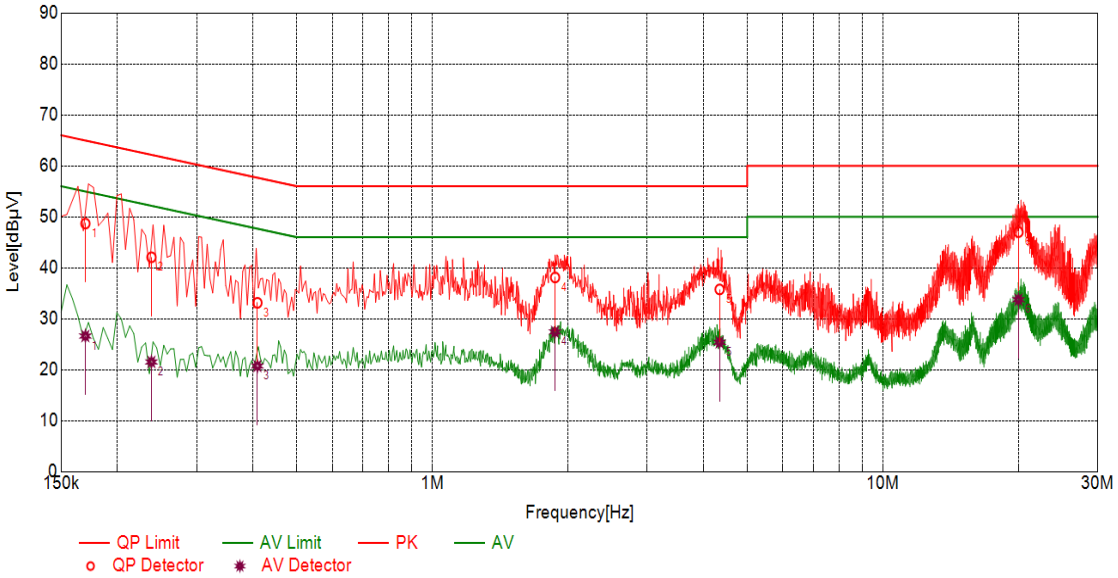
Mode:o; Line:Live Line



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1584	10.10	51.41	65.55	14.14	39.12	55.55	16.43	L
2	0.3401	10.10	34.81	59.20	24.39	22.71	49.20	26.49	L
3	1.2818	10.10	36.53	56.00	19.47	26.52	46.00	19.48	L
4	1.9642	10.10	36.71	56.00	19.29	26.15	46.00	19.85	L
5	6.7336	10.10	32.47	60.00	27.53	22.30	50.00	27.70	L
6	24.4770	10.11	39.90	60.00	20.10	30.16	50.00	19.84	L

Mode:o; Line:Neutral Line



Final Data List									
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Type
1	0.1698	10.10	48.68	64.97	16.29	26.60	54.97	28.37	N
2	0.2380	10.10	42.07	62.17	20.10	21.52	52.17	30.65	N
3	0.4091	10.10	33.13	57.67	24.54	20.73	47.67	26.94	N
4	1.8727	10.10	38.10	56.00	17.90	27.41	46.00	18.59	N
5	4.3415	10.10	35.76	56.00	20.24	25.37	46.00	20.63	N
6	19.9999	10.11	47.00	60.00	13.00	33.74	50.00	16.26	N

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: 25 °C Humidity: 66.5 % RH Atmospheric Pressure: 1010 mbar

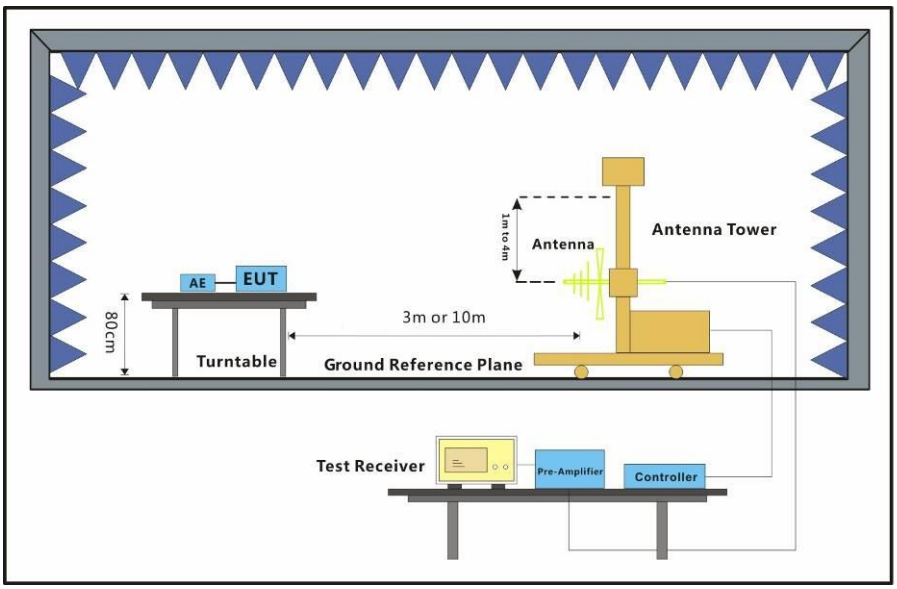
Pretest these modes to find the worst case:

i: CDMA BC0 Rx+WiFi +BT +Adapter+Camera Front+Earphone
j: CDMA BC1 Rx +WiFi +BT +Adapter+MP4+Earphone
k: CDMA BC10 Rx +WiFi +BT + Adapter+ Camera rear +Earphone
l: WCDMA Band 2 Link +WiFi +BT +Adapter + Camera rear +Earphone
m: WCDMA Band 4 Link +WiFi +BT +Adapter+ MP4+Earphone
n: WCDMA Band 5 Link +WiFi +BT +Adapter+ Camera Front +Earphone
o: LTE Band 2 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
p: LTE Band 4 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
q: LTE Band 5 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
r: LTE Band 12 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
s: LTE Band 25 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
t: LTE Band 26 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
u: LTE Band 41 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
v: LTE Band 66 Rx +WiFi +BT+GPS Rx+Adapter+ EUT+Earphone
z: LTE Band 71 Rx +WiFi +BT+GPS Rx+PC Date Link +Earphone

The worst case for final test:

o: LTE Band 2 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
z: LTE Band 71 Rx +WiFi +BT+GPS Rx+PC Date Link +Earphone

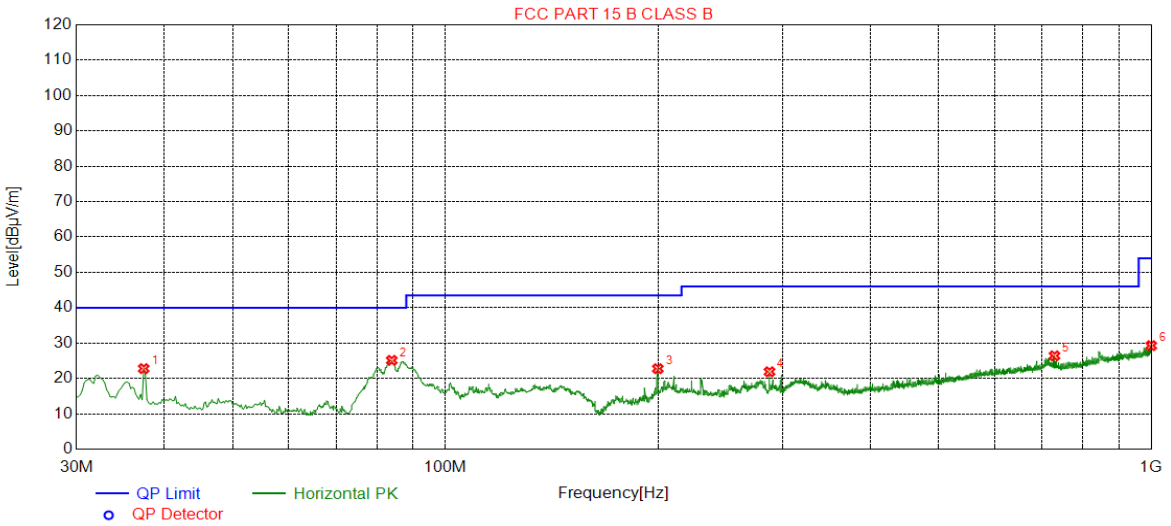
6.2.2 Test Setup Diagram



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.

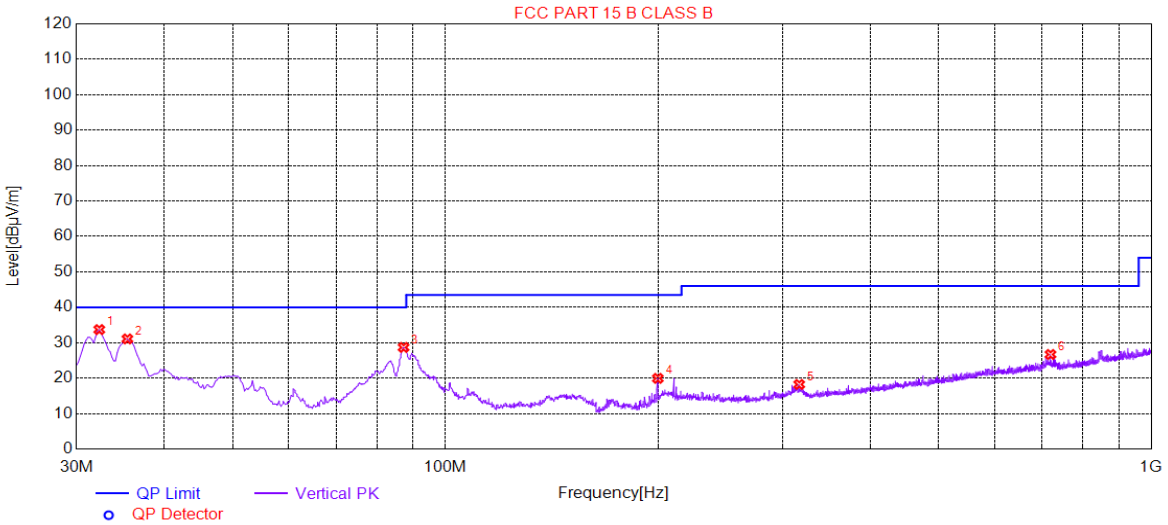
Mode:o; Polarization:Horizontal



Suspected List

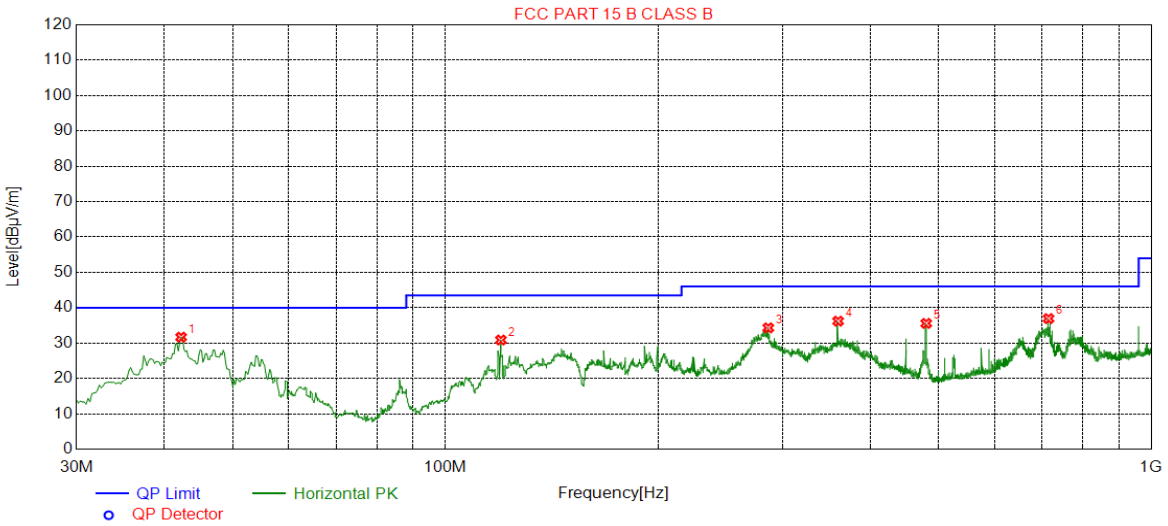
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.3735	22.79	-29.19	40.00	17.21	200	263	Horizontal
2	83.9428	25.12	-35.20	40.00	14.88	200	252	Horizontal
3	199.978	22.76	-31.18	43.50	20.74	100	63	Horizontal
4	287.877	21.89	-28.72	46.00	24.11	100	105	Horizontal
5	729.509	26.41	-18.81	46.00	19.59	100	185	Horizontal
6	1000.00	29.28	-14.79	54.00	24.72	100	21	Horizontal

Mode:o; Polarization:Vertical



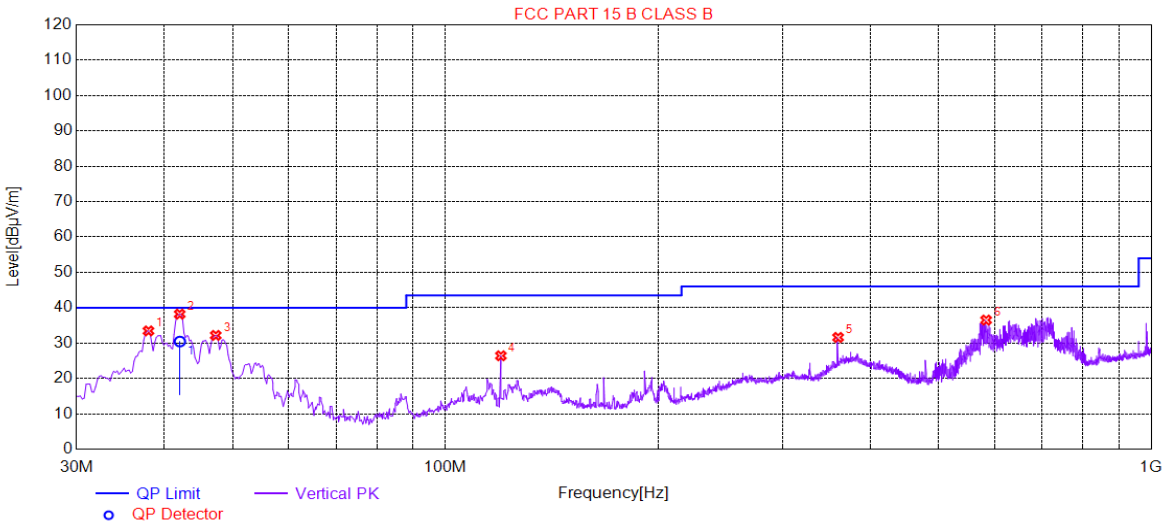
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.3285	33.71	-30.02	40.00	6.29	100	346	Vertical
2	35.4331	31.08	-29.82	40.00	8.92	100	314	Vertical
3	87.2414	28.68	-34.39	40.00	11.32	100	59	Vertical
4	199.978	19.94	-31.18	43.50	23.56	200	169	Vertical
5	317.177	18.23	-27.78	46.00	27.77	100	161	Vertical
6	720.002	26.69	-19.04	46.00	19.31	200	178	Vertical

Mode:z; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.2244	31.68	-29.27	40.00	8.32	200	144	Horizontal
2	119.840	30.87	-33.54	43.50	12.63	200	298	Horizontal
3	286.713	34.31	-28.76	46.00	11.69	100	346	Horizontal
4	360.060	36.20	-26.60	46.00	9.80	100	0	Horizontal
5	479.976	35.57	-23.82	46.00	10.43	200	304	Horizontal
6	715.345	36.93	-19.15	46.00	9.07	100	323	Horizontal

Mode:z; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.9556	33.44	-29.00	40.00	6.56	100	103	Vertical
2	42.0304	38.19	-29.19	40.00	1.81	100	343	Vertical
3	47.2695	32.18	-30.40	40.00	7.82	100	346	Vertical
4	119.840	26.41	-33.54	43.50	17.09	100	262	Vertical
5	360.060	31.60	-26.60	46.00	14.40	200	316	Vertical
6	583.592	36.51	-21.09	46.00	9.49	100	138	Vertical

Final Data List								
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	42.0444	-29.19	30.45	40.00	9.55	104	342.3	Vertical

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: 21.7 °C Humidity: 56.4 % RH Atmospheric Pressure: 1010 mbar

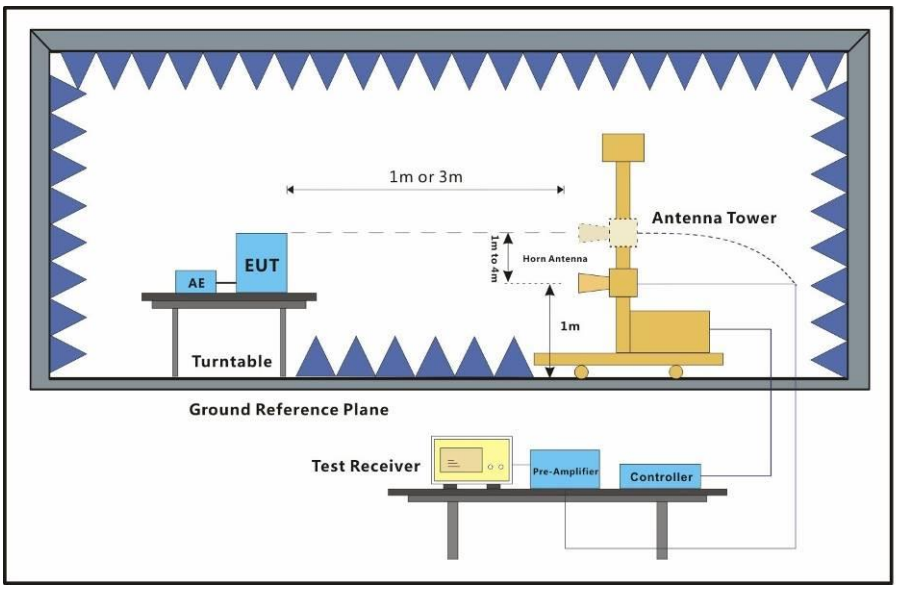
Pretest these modes to find the worst case:

i: CDMA BC0 Rx+WiFi +BT +Adapter+Camera Front+Earphone
j: CDMA BC1 Rx +WiFi +BT +Adapter+MP4+Earphone
k: CDMA BC10 Rx +WiFi +BT + Adapter+ Camera rear +Earphone
l: WCDMA Band 2 Link +WiFi +BT +Adapter + Camera rear +Earphone
m: WCDMA Band 4 Link +WiFi +BT +Adapter+ MP4+Earphone
n: WCDMA Band 5 Link +WiFi +BT +Adapter+ Camera Front +Earphone
o: LTE Band 2 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
p: LTE Band 4 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
q: LTE Band 5 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
r: LTE Band 12 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
s: LTE Band 25 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
t: LTE Band 26 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
u: LTE Band 41 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
v: LTE Band 66 Rx +WiFi +BT+GPS Rx+Adapter+ EUT+Earphone
z: LTE Band 71 Rx +WiFi +BT+GPS Rx+PC Date Link +Earphone

The worst case for final test:

o: LTE Band 2 Rx +WiFi +BT+GPS Rx+Adapter+FM+Earphone
z: LTE Band 71 Rx +WiFi +BT+GPS Rx+PC Date Link +Earphone

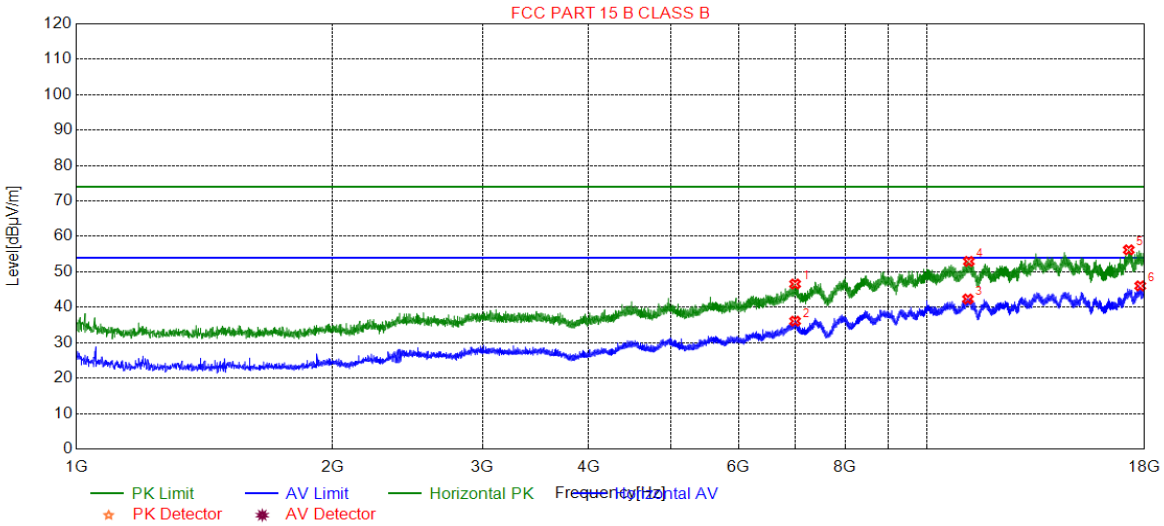
6.3.2 Test Setup Diagram



6.3.3 Measurement Data

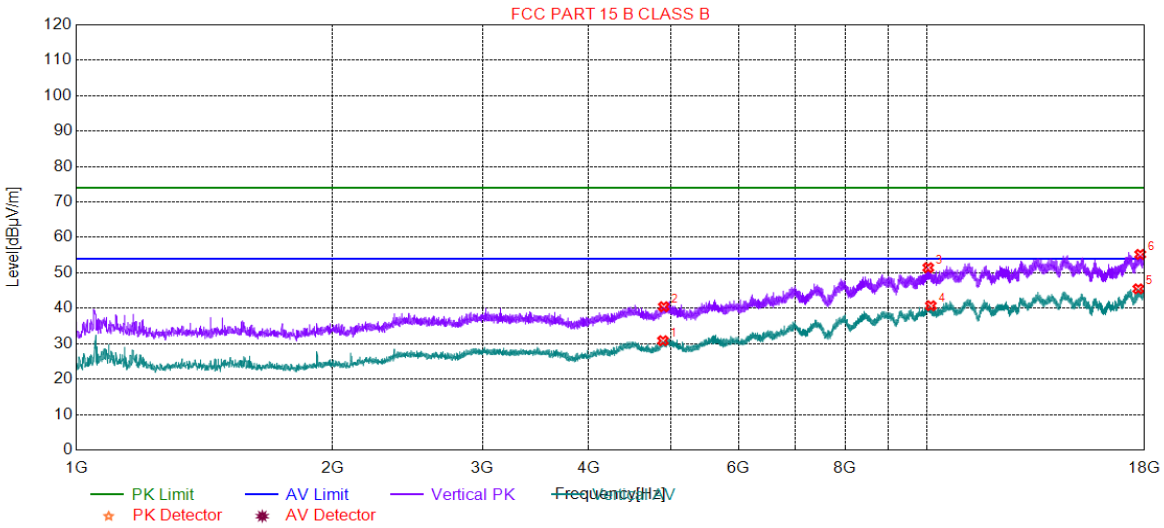
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Mode:o; Polarization:Horizontal



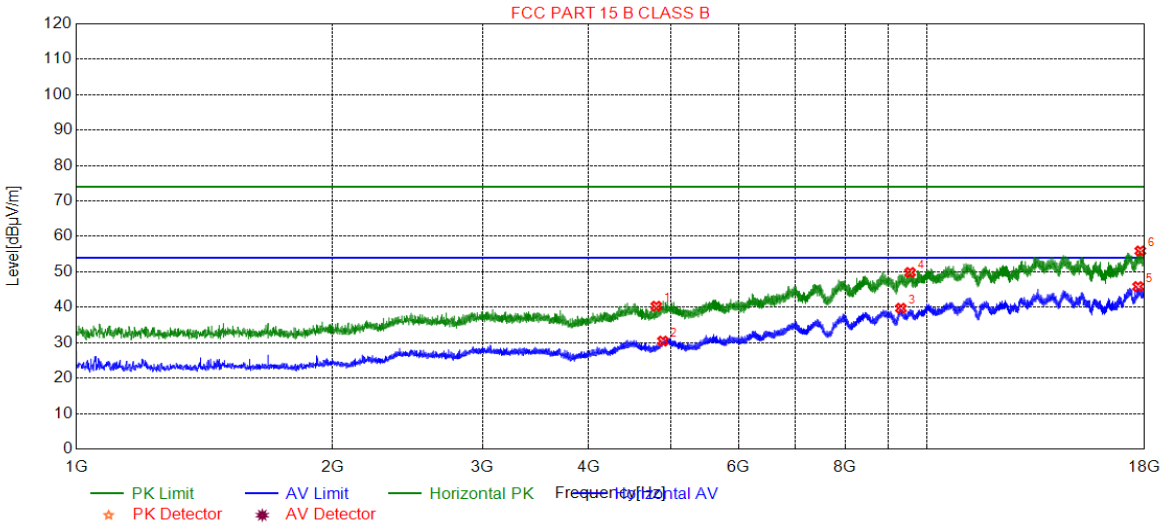
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	6991.09	46.57	-12.53	74.00	27.43	100	220	Horizontal
2	6991.09	36.09	-12.53	54.00	17.91	100	220	Horizontal
3	11160.5	42.33	-3.94	54.00	11.67	100	18	Horizontal
4	11186.9	52.95	-3.99	74.00	21.05	100	220	Horizontal
5	17243.4	56.21	-1.94	74.00	17.79	100	270	Horizontal
6	17788.3	46.04	-1.63	54.00	7.96	100	270	Horizontal

Mode:o; Polarization:Vertical



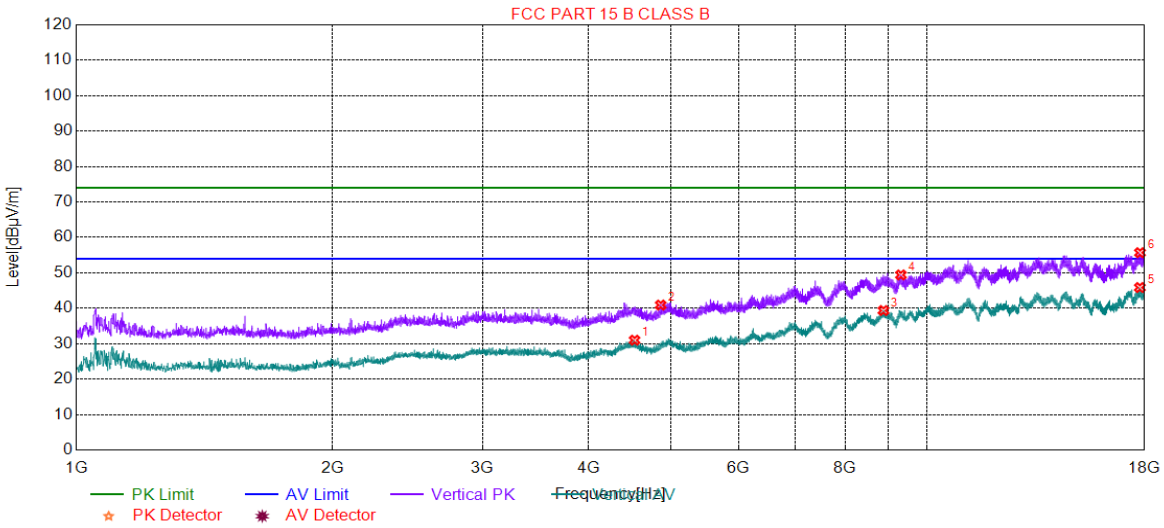
Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4889.79	30.85	-19.45	54.00	23.15	100	0	Vertical
2	4899.99	40.45	-19.31	74.00	33.55	100	241	Vertical
3	10024.0	51.45	-5.90	74.00	22.55	100	191	Vertical
4	10094.6	40.71	-5.71	54.00	13.29	100	0	Vertical
5	17693.9	45.49	-0.83	54.00	8.51	100	241	Vertical
6	17789.1	55.21	-1.64	74.00	18.79	100	40	Vertical

Mode:z; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4802.24	40.31	-20.63	74.00	33.69	100	119	Horizontal
2	4888.94	30.46	-19.46	54.00	23.54	100	360	Horizontal
3	9308.31	39.74	-7.07	54.00	14.26	100	269	Horizontal
4	9542.92	49.82	-7.19	74.00	24.18	100	68	Horizontal
5	17685.4	45.84	-0.90	54.00	8.16	100	18	Horizontal
6	17790.8	55.91	-1.65	74.00	18.09	100	169	Horizontal

Mode:o; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4528.52	31.01	-20.37	54.00	22.99	100	241	Vertical
2	4860.04	40.92	-19.85	74.00	33.08	100	0	Vertical
3	8879.04	39.37	-7.91	54.00	14.63	100	140	Vertical
4	9310.01	49.42	-7.08	74.00	24.58	100	241	Vertical
5	17769.6	45.86	-1.45	54.00	8.14	100	291	Vertical
6	17776.4	55.69	-1.51	74.00	18.31	100	291	Vertical

7 Photographs

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

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

7.3 Radiated Emissions (above 1GHz) Test Setup

7.4 EUT Constructional Details (EUT Photos)

Refer to Photographs of EUT Constructional Details

- End of the Report -