

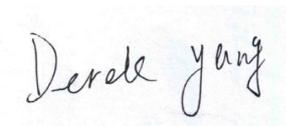
TEST REPORT

Application No.: ZR/2020/50042
Applicant: Xiaomi Communications Co., Ltd.
Address of Applicant: #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer: Xiaomi Communications Co., Ltd.
Address of Manufacturer: #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
EUT Description: Mobile Phone
Model No.: M2006C3LVG
Trade Mark: Redmi
FCC ID: 2AFZZC3LVG
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2020-05-26
Date of Test: 2020-06-05 to 2020-06-10
Date of Issue: 2020-07-06

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Derek Yang

Wireless Laboratory Manager



<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2020-07-06		Original

Authorized for issue by:				
		<i>Louis He</i> (Louis He) /Project Engineer		
		<i>David Chen</i> (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

	Page
1 COVER PAGE	1
2 TEST SUMMARY	3
3 CONTENTS	4
4 GENERAL INFORMATION.....	5
4.1 DESCRIPTION OF SUPPORT UNITS	6
4.2 MEASUREMENT UNCERTAINTY	6
4.3 TEST LOCATION.....	7
4.4 TEST FACILITY.....	7
4.5 DEVIATION FROM STANDARDS.....	7
4.6 ABNORMALITIES FROM STANDARD CONDITIONS	7
5 EQUIPMENT LIST.....	8
6 EMISSION TEST RESULTS	9
6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz).....	9
6.1.1 <i>E.U.T. Operation</i>	9
6.1.2 <i>Test Setup Diagram</i>	10
6.1.3 <i>Measurement Data</i>	10
6.2 RADIATED EMISSIONS (30MHz-1GHz).....	13
6.2.1 <i>E.U.T. Operation</i>	13
6.2.2 <i>Test Setup Diagram</i>	14
6.2.3 <i>Measurement Data</i>	14
6.3 RADIATED EMISSIONS (ABOVE 1GHz).....	17
6.3.1 <i>E.U.T. Operation</i>	17
6.3.2 <i>Test Setup Diagram</i>	18
6.3.3 <i>Measurement Data</i>	18
7 PHOTOGRAPHS.....	21
7.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz) TEST SETUP	21
7.2 RADIATED EMISSIONS (30MHz-1GHz) TEST SETUP	21
7.3 RADIATED EMISSIONS (ABOVE 1GHz) TEST SETUP	21
7.4 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS).....	21

4 General Information

Product Name:	Mobile Phone		
Model No.(EUT):	M2006C3LVG		
Trade Mark:	Redmi		
FCC ID:	2AFZZC3LVG		
Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Phase:	Identical Prototype		
Hardware Version:	P2		
Software Version:	MIUI 12		
Antenna Type:	Fixed Internal Antenna		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK,16QAM(HSPA+); LTE: QPSK,16QAM WIFI: DSSS, OFDM; BT: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	24	HSUPA UE Category	7
DC-HSDPA UE Category:	24		
Power Class	4, tested with power level 5(GSM850)		
	1, tested with power level 0(GSM1900)		
	3, tested with power control "all 1"(WCDMA Band II/IV/V)		
	3, tested with power control Max Power(LTE Band 2/4/5/7/38)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	WCDMA Band IV	1710~1755	2110~2155
	WCDMA Band V	824~849	869~894
	LTE Band 2	1850 ~1910	1930 ~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869-894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 38	2570~2620	2570~2620
	Wi-Fi 2.4G	2402~2472	2402~2472
	Bluetooth	2402~2480	2402~2480
	GNSS(GPS/BDS/G LONASS)	/	1559~1610
FM	87.5~108		
Battery Information:	Model:	BN56	
	Normal Voltage:	+3.85V	
	Rated capacity:	4900mAh	
	Manufacturer:	Ningde Amperex Technology Limited	
Adaptor Information1 #:	Model:	MDY-09-EQ	
	Brand Name:	MI	
	SEC:	I/P: 100 - 240 Vac, 0.35 A, O/P:5.0V,2A;	
	Manufacturer:	Jiangsu Chenyang Electron Co.,Ltd.	
Adaptor Information2 #:	Model:	MDY-09-EQ	
	Brand Name:	MI	
	SEC:	I/P: 100 - 240 Vac, 0.35 A, O/P:5.0V,2A;	
	Manufacturer:	Jiangxi jian Aohai Technology Co.,Ltd.	

USB Cable Information :	Model:	H52210
	Signal Line	0.8 meter, shielded cable
	Manufacturer:	Dehong

4.1 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
Headset	Tiinlab Acoustic Technology (Shenzhen) Co., Ltd.	EM023	REF. No.SEA2222

4.2 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%



4.3 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, Shaanxi China. 710000.

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

No tests were sub-contracted.

4.4 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.

Test Site No.:	SGS Xian Site No.		FCC Designation No.
	CO01-XA	03CH01-XA	CN1271

4.5 Deviation from Standards

None

4.6 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	NA	2019/9/12	2020/9/11
BiConiLog Antenna (30MHz-3GHz)	rosenberge	VULB 9163	01170	2019/10/13	2021/10/12
Horn Antenna (800MHz-18GHz)	rosenberger	BBHA 9120D	01574	2019/10/13	2021/10/12
Horn Antenna (18-40GHz)	rosenberge	BBHA 9170	00852	2019/10/13	2021/10/12
Amplifier(9kHz-3GHz)	Tonscend	TAP00903040	AP188060016	2019/11/18	2020/11/17
Amplifier(100MHz-18GHz)	Tonscend	TAP01018048	AP188060017	2019/11/18	2020/11/17
Amplifier(18-40GHz)	Tonscend	TAP18040048	AP188060018	2019/11/18	2020/11/17
Wideband Radio CommunicationTester	Rohde & Schwarz	CMW500	103990	2020/4/2	2021/4/1
Test receiver	Rohde & Schwarz	ESR	101990	2019/9/7	2020/9/6
MXA signal analyzer	Keysight	N9020A	MY5443024	2020/4/2	2021/4/1
Measurement Software	Tonscend	TS+	NA	N/A	N/A
Filter bank	Tonscend	JS0806-F	NA	N/A	N/A
Filter bank	Tonscend	JS0806s	NA	N/A	N/A

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	2019/9/7	2020/9/6
Artificial network	Rohde & Schwarz	ENV216	XAW010401	2019/7/16	2020/7/15
Artificial network	Rohde & Schwarz	ENV216	XAW013001	2019/7/16	2020/7/15
Cabel	SGS	NA	NA	NA	NA
Test receiver	Rohde & Schwarz	ESR	101990	2019/9/7	2020/9/6

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:

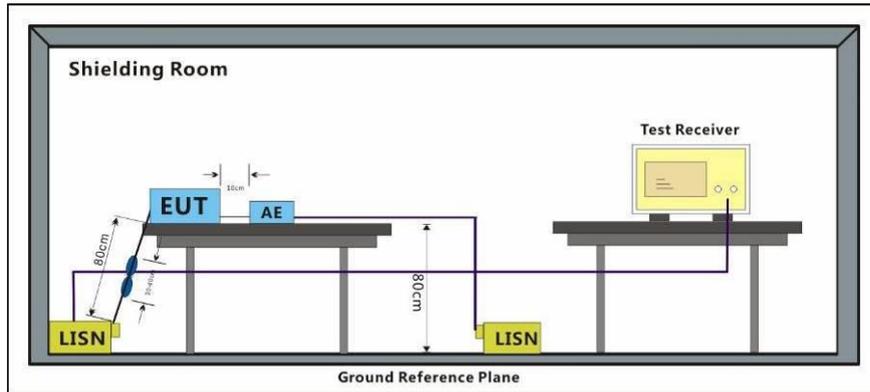
Temperature: 18.9 °C Humidity: 55.1 % RH Atmospheric Pressure: 1000 mbar

Pretest these modes to find the worst case:

- a: GSM850 Link+BT+WLAN2.4G+GPS Rx+playing MP4 (SD card)+earphone+EUT+USB cable+adapter1
- b: GSM1900 Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
- c: WCDMA II Link +BT+WLAN2.4G+GPS Rx+camera (Front)+earphone+EUT+USB cable+adapter1
- d: WCDMA IV Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
- e: WCDMA V Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
- f: LTE band 2 Link +BT+ WLAN2.4G +GPS Rx +earphone+EUT+USB cable+adapter1
- g: LTE band 4 Idle +BT+FM +WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- h: LTE band 5 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- i: LTE band 7 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- j: LTE band 38 Link +BT+FM +WLAN2.4G+GPS Rx +earphone+EUT+USB cable+adapter1
- k: Transfer data between the EUT and the PC+USB cable
- l: GSM850 Link+BT+WLAN2.4G+GPS Rx+playing MP4 (SD card)+earphone+EUT+USB cable+adapter2

The worst case for final test: a: GSM850 Link+BT+WLAN2.4G+GPS Rx+playing MP4 (SD card)+earphone+EUT+USB cable+adapter1

6.1.2 Test Setup Diagram

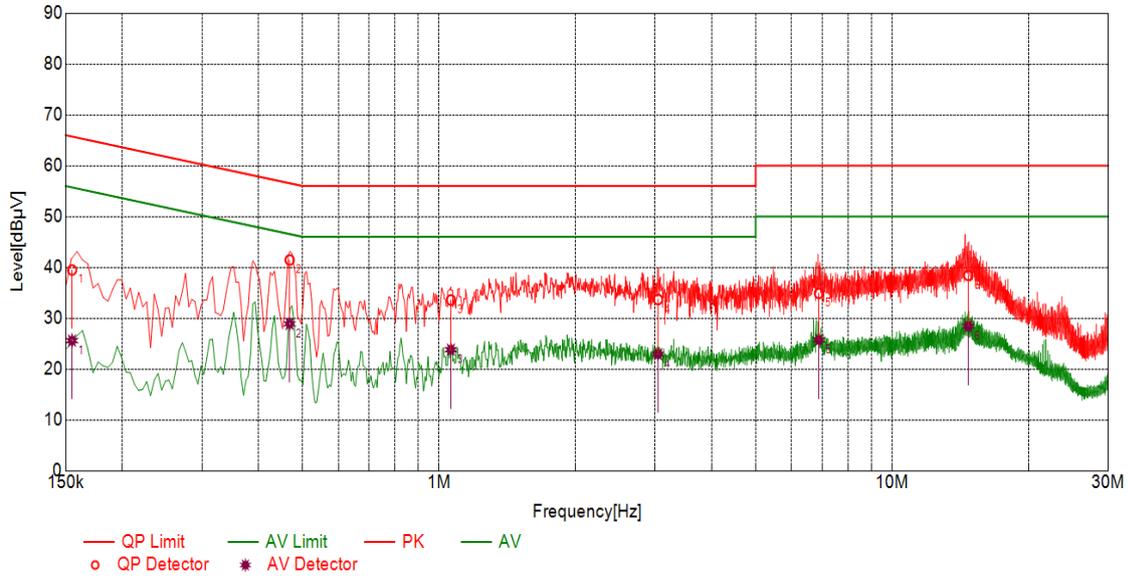


6.1.3 Measurement Data

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.



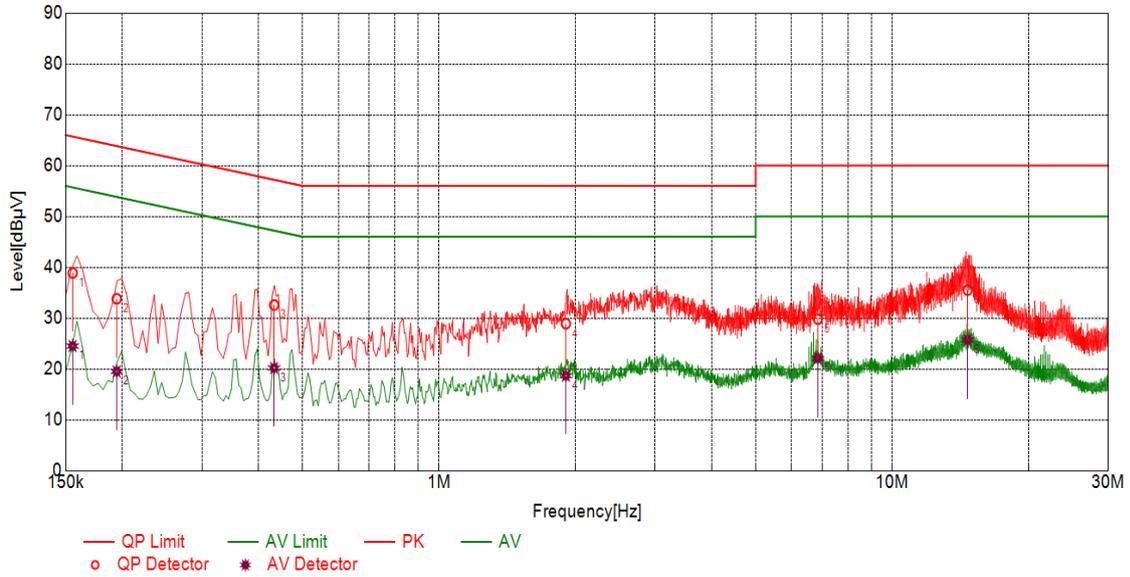
Mode:a; Line:Live Line



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	0.1550	10.10	39.49	65.73	26.24	25.60	55.73	30.13	L
2	0.4683	10.10	41.47	56.54	15.07	28.89	46.54	17.65	L
3	1.0627	10.10	33.59	56.00	22.41	23.82	46.00	22.18	L
4	3.0443	10.10	33.69	56.00	22.31	22.93	46.00	23.07	L
5	6.8950	10.10	34.89	60.00	25.11	25.73	50.00	24.27	L
6	14.7247	10.11	38.42	60.00	21.58	28.42	50.00	21.58	L



Mode:a; 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	0.1555	10.10	38.87	65.70	26.83	24.51	55.70	31.19	N
2	0.1945	10.10	33.82	63.84	30.02	19.52	53.84	34.32	N
3	0.4328	10.10	32.60	57.20	24.60	20.20	47.20	27.00	N
4	1.9059	10.10	28.91	56.00	27.09	18.67	46.00	27.33	N
5	6.8565	10.10	29.80	60.00	30.20	22.10	50.00	27.90	N
6	14.6776	10.11	35.52	60.00	24.48	25.72	50.00	24.28	N

6.2 Radiated Emissions (30MHz-1GHz)

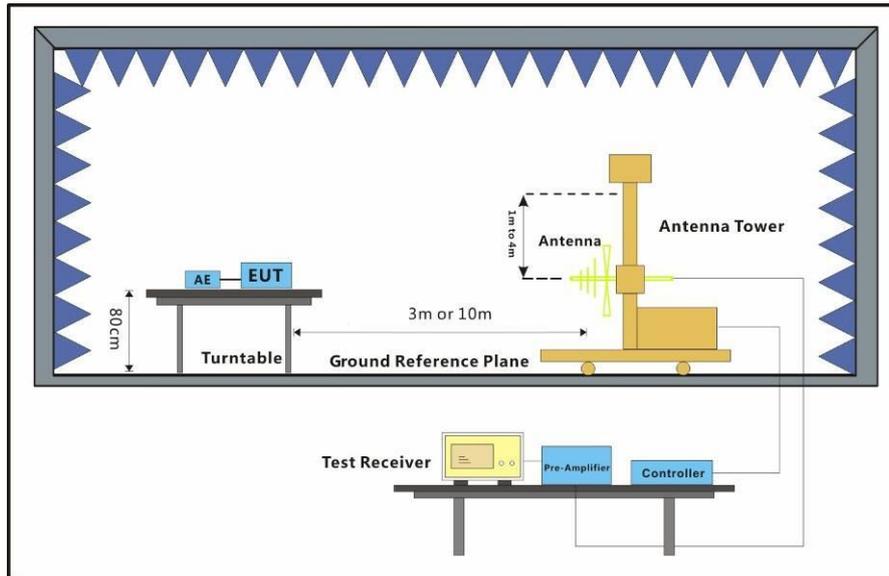
Test Requirement: 47 CFR Part 15, Subpart B
 Test Method: ANSI C63.4:2014
 Frequency Range: 30MHz to 1GHz
 Measurement Distance: 3m
 Limit:
 30MHz -88MHz 40.0(dBμV/m) quasi-peak
 88MHz-216MHz 43.5(dBμV/m) quasi-peak
 216MHz-960MHz 46.0(dBμV/m) quasi-peak
 960MHz-1000MHz 54.0(dBμV/m) quasi-peak
 Detector: 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:
 a: GSM850 Link+BT+WLAN2.4G+GPS Rx+playing MP4 (SD card)+earphone+EUT+USB cable+adapter1
 b:GSM1900 Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
 c:WCDMA II Link +BT+WLAN2.4G+GPS Rx+camera (Front)+earphone+EUT+USB cable+adapter1
 d:WCDMA IV Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
 e:WCDMA V Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter2
 f:LTE band 2 Link +BT+ WLAN2.4G +GPS Rx +earphone+EUT+USB cable+adapter1
 g:LTE band 4 Idle +BT+FM +WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
 h:LTE band 5 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
 i:LTE band 7 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
 j:LTE band 38 Link +BT+FM +WLAN2.4G+GPS Rx +earphone+EUT+USB cable+adapter1
 k:Transfer data between the EUT and the PC+USB cable

The worst case for final test: k:Transfer data between the EUT and the PC+USB cable

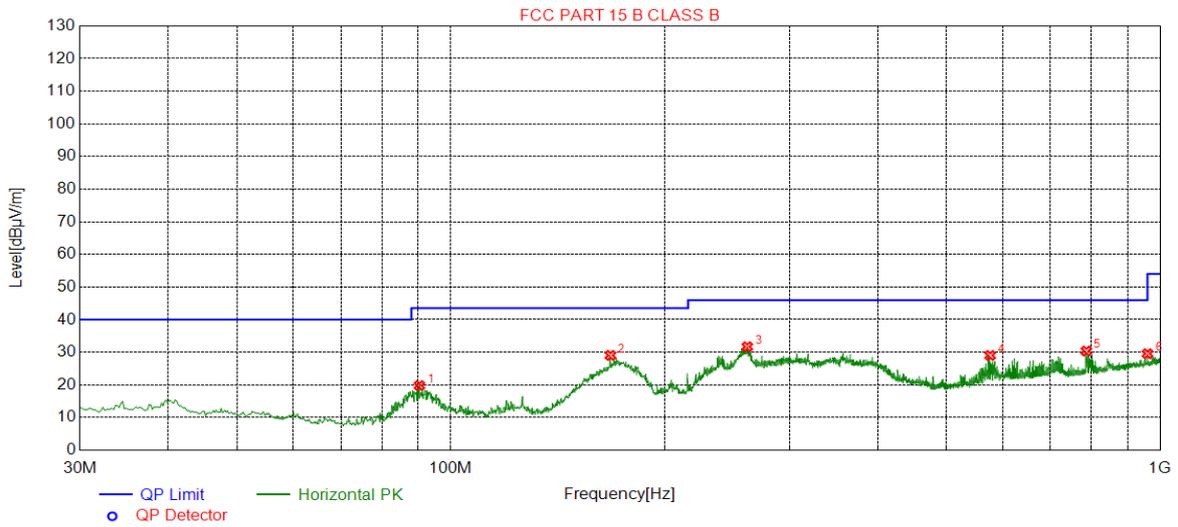
6.2.2 Test Setup Diagram



6.2.3 Measurement Data

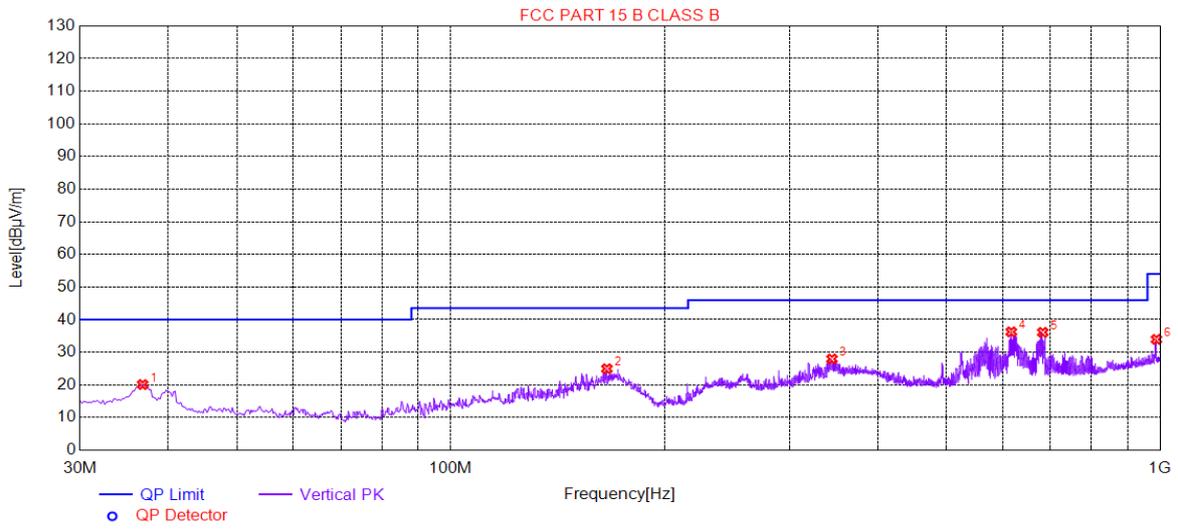
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:k; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	90.3461	19.82	-33.65	43.50	23.68	200	54	Horizontal
2	167.961	29.07	-34.16	43.50	14.43	200	16	Horizontal
3	261.876	31.72	-29.33	46.00	14.28	100	159	Horizontal
4	576.025	29.04	-21.31	46.00	16.96	200	92	Horizontal
5	787.139	30.40	-17.93	46.00	15.60	200	34	Horizontal
6	960.028	29.58	-15.34	54.00	24.42	100	167	Horizontal

Mode k; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7914	20.13	-29.38	40.00	19.87	100	329	Vertical
2	166.021	24.98	-34.27	43.50	18.52	100	338	Vertical
3	344.730	27.97	-27.00	46.00	18.03	100	14	Vertical
4	616.967	36.28	-20.43	46.00	9.72	100	154	Vertical
5	683.328	36.13	-19.68	46.00	9.87	100	165	Vertical
6	988.357	33.98	-14.95	54.00	20.02	100	352	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(dB μ V/m) peak, 54(dB μ V/m) average
Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

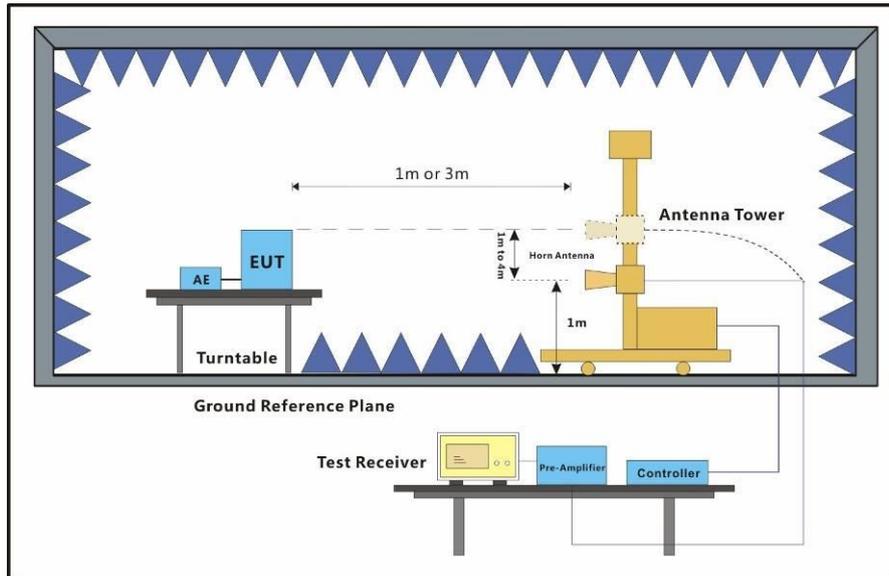
Temperature: 21.7 °C Humidity: 56.4 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

- a: GSM850 Link+BT+WLAN2.4G+GPS Rx+playing MP4 (SD card)+earphone+EUT+USB cable+adapter1
- b:GSM1900 Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
- c:WCDMA II Link +BT+WLAN2.4G+GPS Rx+camera (Front)+earphone+EUT+USB cable+adapter1
- d:WCDMA IV Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter1
- e:WCDMA V Link +BT+WLAN2.4G+GPS Rx+camera (Back)+earphone+EUT+USB cable+adapter2
- f:LTE band 2 Link +BT+ WLAN2.4G +GPS Rx +earphone+EUT+USB cable+adapter1
- g:LTE band 4 Idle +BT+FM +WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- h:LTE band 5 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- i:LTE band 7 Idle +BT+FM+WLAN2.4G+GPS Rx+earphone+EUT+USB cable+adapter1
- j:LTE band 38 Link +BT+FM +WLAN2.4G+GPS Rx +earphone+EUT+USB cable+adapter1
- k:Transfer data between the EUT and the PC+USB cable

The worst case for final test: j:LTE band 38 Link +BT+FM +WLAN2.4G+GPS Rx +earphone+EUT+USB cable+adapter1

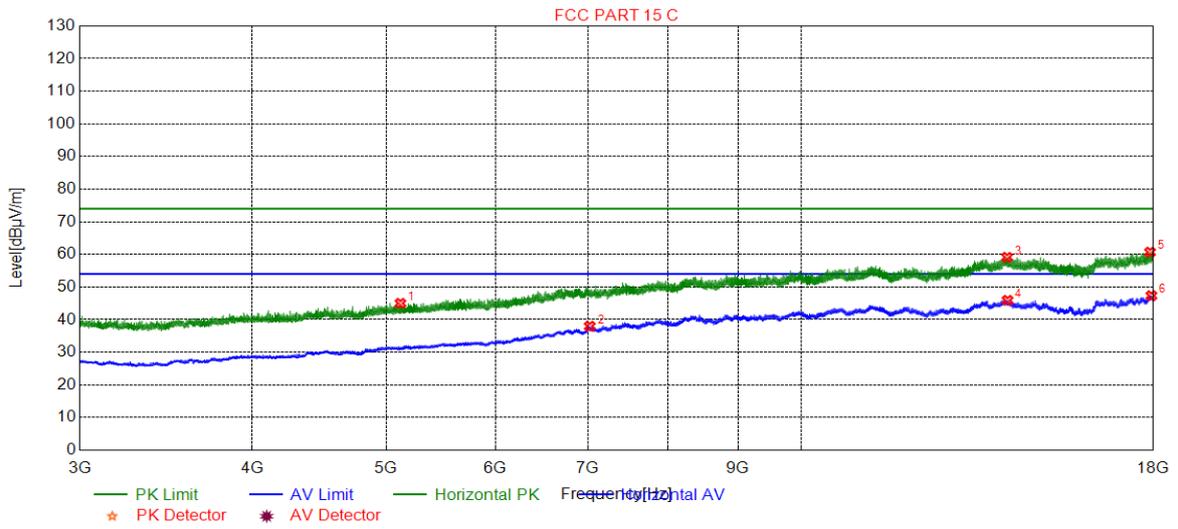
6.3.2 Test Setup Diagram



6.3.3 Measurement Data

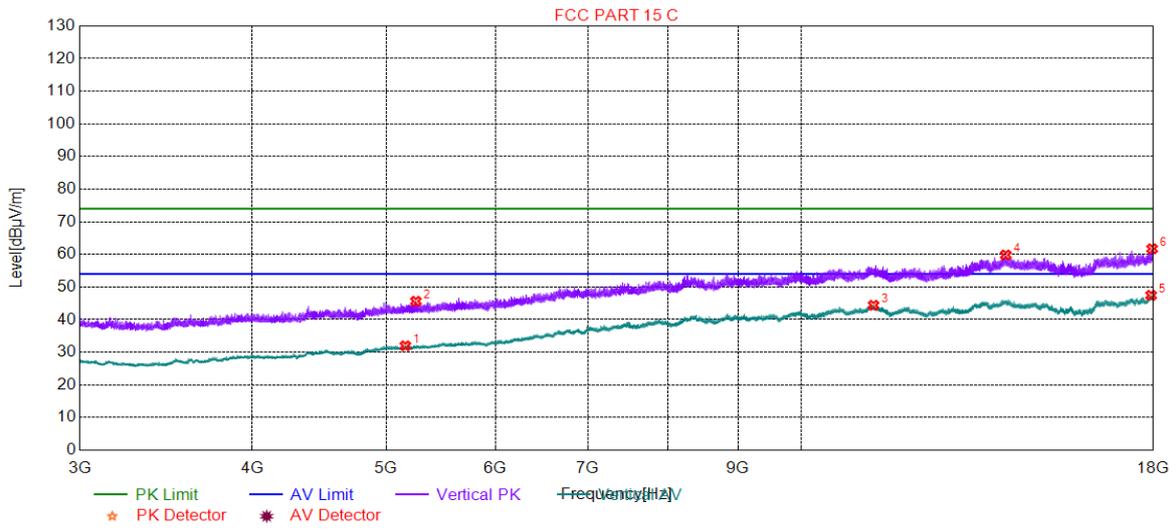
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Mode:j; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5122.61	45.02	-17.08	74.00	28.98	150	100	Horizontal
2	7025.85	38.01	-10.33	54.00	15.99	150	292	Horizontal
3	14098.1	59.13	2.74	74.00	14.87	150	194	Horizontal
4	14109.6	45.95	2.70	54.00	8.05	150	144	Horizontal
5	17897.6	60.70	0.66	74.00	13.30	150	194	Horizontal
6	17938.3	47.36	0.70	54.00	6.64	150	243	Horizontal

Mode:j; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	5165.01	31.99	-16.88	54.00	22.01	150	126	Vertical
2	5256.62	45.66	-16.73	74.00	28.34	150	45	Vertical
3	11281.9	44.42	-2.28	54.00	9.58	150	94	Vertical
4	14068.4	59.83	2.68	74.00	14.17	150	0	Vertical
5	17929.0	47.47	0.70	54.00	6.53	150	143	Vertical
6	17959.2	61.73	0.71	74.00	12.27	150	94	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 -