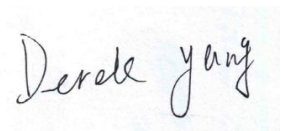
SGS-CSTC Standards Technical Services Co., Ltd.
Xi'an Branch

TEST REPORT

Application No.:	ZR/2019/C0035
Applicant:	TCL Communication Ltd.
Address of Applicant:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Manufacturer:	TCL Communication Ltd.
Address of Manufacturer:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
EUT Description:	LTE/UMTS/GSM mobile phone
Model No.:	5029E
Trade Mark:	alcatel
FCC ID:	2ACCJH119
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2019-12-30
Date of Test:	2020-01-07 to 2020-01-13
Date of Issue:	2020-01-13
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		*2019-01-13*		*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

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	LTE/UMTS/GSM mobile phone		
Model No.(EUT):	5029E		
Trade Mark:	alcatel		
Product Phase:	production unit		
FCC ID:	2ACCJH119		
SN:	AYGYY9L7GEYHMJAA/NRMZ4HX4ONPJOFM7		
Hardware Version:	PIO		
Software Version:	v4F5E		
Antenna Type:	Inner 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:	14	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 2/4/5/7/13/17/66)		
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 13	777~787	746~756
	LTE Band 17	704~716	734~746
	LTE Band 66	1710~1780	2110~2180
	WIFI 2.4G	2412~2462	2412~2462
	BT	2402~2480	2402~2480
	FM	/	88~108
	GNSS(GPS/BDS/GLONASS/Galileo)	/	1559~1610
Adaptor Information 1#:	Model:	UC13US(CBA0059AGAC7)	
	SEC:	5V/2A	
	Manufacturer:	Chenyang	
Adaptor Information 1#:	Model:	UC13US(CBA0059AGAC5)	
	SEC:	5V/2A	
	Manufacturer:	PUAN	
EUT 1 Battery Information 1#:	Model:	CAC3860024C1	
	Normal Voltage:	3.85V	

	Rated capacity:	3860mAh
	Manufacturer:	Shenzhen BYD Lithium Battery Company Limited
EUT 2 Battery Information 2#:	Model:	CAC3860025C7
	Normal Voltage:	3.85V
	Rated capacity:	3860mAh
	Manufacturer:	Ningbo Veken Battery Company Limited
Headset Information1#:	Model:	CCB0046A10C1
	Manufacturer:	JUWEI
Headset Information2#:	Model:	CCB0049A10C1
	Manufacturer:	JUWEI
Headset Information3#:	Model:	CCB0046A10C4
	Manufacturer:	MEIHAO
Headset Information4#:	Model:	CCB0049A10C4
	Manufacturer:	MEIHAO
Headset Information5#:	Model:	CCB0046A15C1（CCB0046A15C1 Same with CCB0046A10C1, only remove alcatel logo）
	Manufacturer:	JUWEI
Headset Information6#:	Model:	CCB0046A15C4（CCB0046A15C4 Same with CCB0046A10C4, only remove alcatel logo）
	Manufacturer:	MEIHAO
Headset Information7#:	Model:	CCB0049A12C1（CCB0049A12C1 Same with CCB0049A10C1， only remove alcatel logo）
	Manufacturer:	JUWEI
Headset Information8#:	Model:	CCB0049A12C4（CCB0049A12C4 Same with CCB0049A10C4， only remove alcatel logo ）
	Manufacturer:	MEIHAO
USB cable Information1#:	Model:	CDA0000024C8
	Manufacturer:	PUAN
USB cable Information2#:	Model:	CDA0000024C2
	Manufacturer:	JUWEI

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

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, shanxi China. 518057.

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	XAW040101	2019/6/11	2022/6/9
BiConiLog Antenna (30MHz-3GHz)	rosenberge	VULB 9163	XAW010901	2018/8/8	2021/8/7
Horn Antenna (800MHz-18GHz)	rosenberger	BBHA 9120D	XAW010902	2018/7/18	2021/7/17
Horn Antenna (18-40GHz)	rosenberge	BBHA 9170	XAW010903	2018/8/1	2021/7/31
Amplifier(9kHz-3GHz)	Tonscend	TAP00903040	XAW030601	2019/11/18	2020/11/18
Amplifier(100MHz-18GHz)	Tonscend	TAP01018048	XAW030602	2019/11/18	2020/11/18
Amplifier(18-40GHz)	Tonscend	TAP18040048	XAW030603	2019/11/18	2020/11/18
Radio Communication Analyzers	Anritsu	Mt8820c	XAW020223	2019/6/27	2020/6/26
Test receiver	Rohde & Schwarz	ESR	XAW010801	2019/9/7	2020/9/6
MXA signal analyzer	Rohde & Schwarz	FSV	XAW040103	2019/4/1	2020/3/31
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	N/A	2019/7/16	2020/7/16

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:

a: Transfer data between the EUT1 and the PC+USB cable 1

d: Transfer data between the EUT2 and the PC+USB cable 2

e: GSM850 Idle+BT+WLAN+GPS Rx+playing MP4 (SD card)+earphone+EUT1+USB cable1+adapter1

f: GSM1900 Idle+BT+WLAN+BDS Rx+camera (Front) +earphone+EUT2+USB cable1+adapter2

g: WCDMA II Idle+BT+WLAN+GLONASS Rx+camera (Back) +earphone+EUT(worst)+USB cable1+adapter1

h: WCDMA V Idle +BT+FM +WLAN+ Galileo Rx+earphone+EUT2+USB cable1+adapter2

i: WCDMA IV Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

j: LTE band 2 Idle +BT+FM+ WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

k: LTE band 4 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

l: LTE band 5 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

m: LTE band 7 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

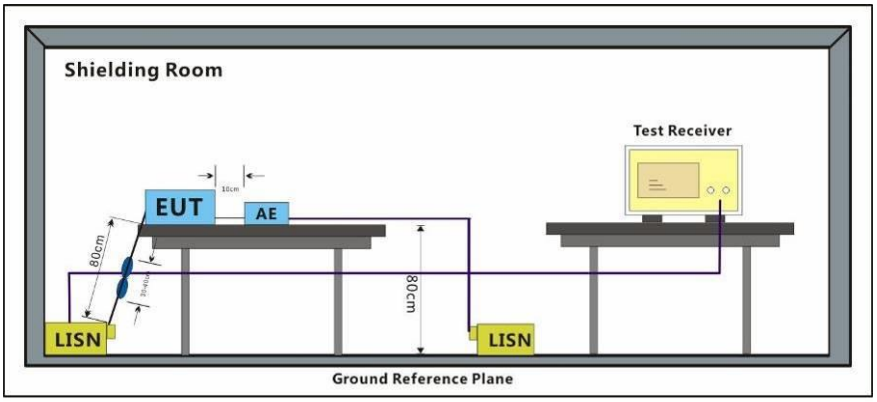
n: LTE band 13 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

o: LTE band 17 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

p: LTE band 66 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

The worst case for final test: l: LTE band 5 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

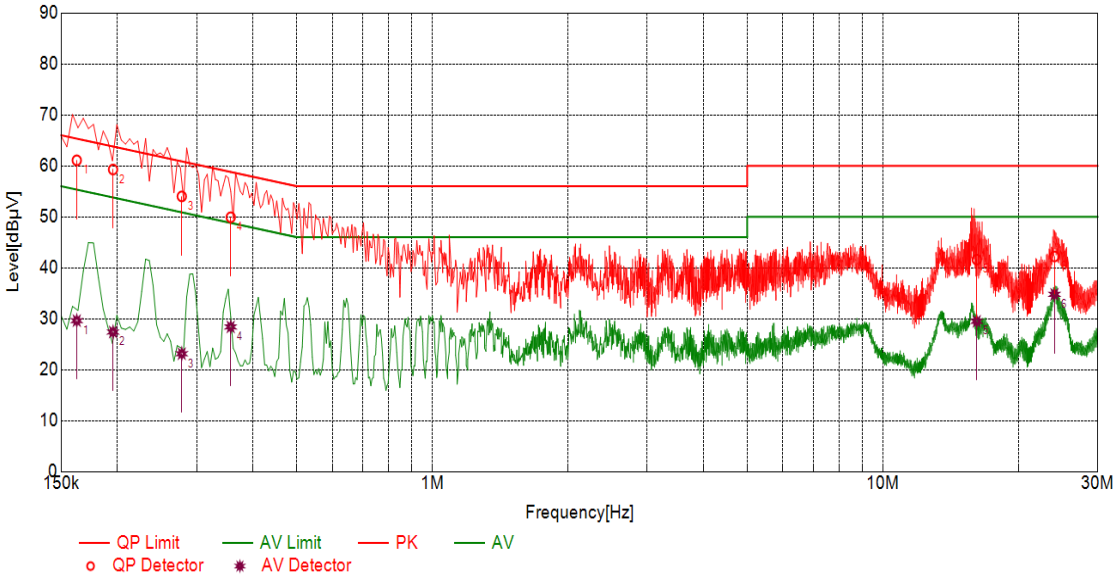
6.1.2 Test Setup Diagram



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.

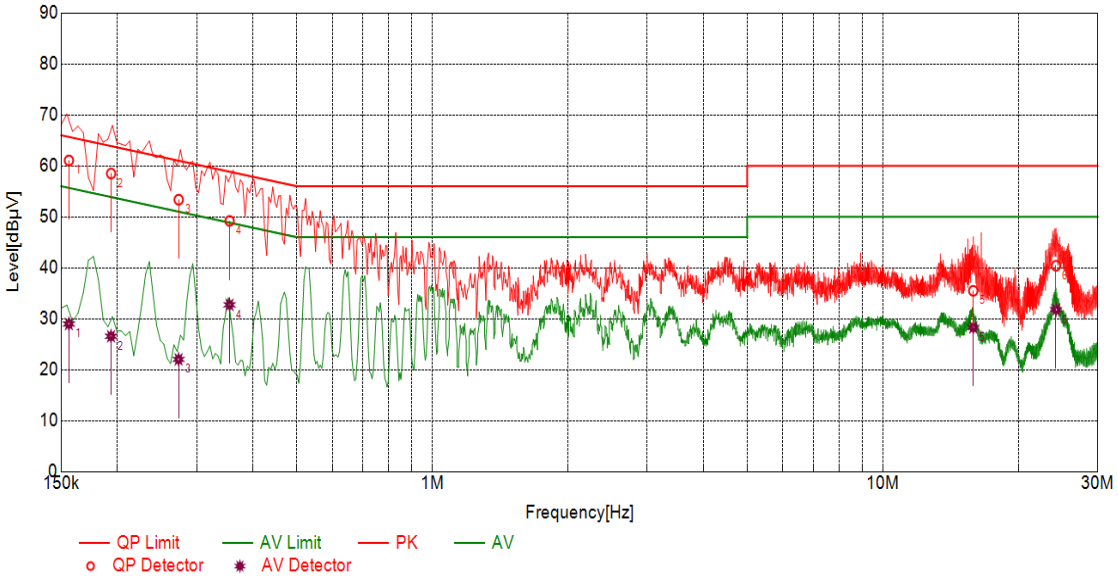
Mode:I; Line:Live Line



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	0.1625	10.10	61.09	65.33	4.24	29.62	55.33	25.71	L
2	0.1956	10.10	59.29	63.79	4.50	27.40	53.79	26.39	L
3	0.2779	10.10	54.01	60.88	6.87	23.13	50.88	27.75	L
4	0.3569	10.10	49.92	58.80	8.88	28.40	48.80	20.40	L
5	16.1610	10.11	41.61	60.00	18.39	29.49	50.00	20.51	L
6	24.0362	10.11	42.24	60.00	17.76	34.79	50.00	15.21	L

Mode:I; 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	0.1561	10.10	61.07	65.67	4.60	28.96	55.67	26.71	N
2	0.1936	10.10	58.50	63.88	5.38	26.56	53.88	27.32	N
3	0.2735	10.10	53.36	61.01	7.65	22.02	51.01	28.99	N
4	0.3548	10.10	49.20	58.85	9.65	32.73	48.85	16.12	N
5	15.8714	10.11	35.48	60.00	24.52	28.29	50.00	21.71	N
6	24.2282	10.11	40.41	60.00	19.59	31.78	50.00	18.22	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: Transfer data between the EUT1 and the PC+USB cable 1

d: Transfer data between the EUT2 and the PC+USB cable 2

e: GSM850 Idle+BT+WLAN+GPS Rx+playing MP4 (SD card)+earphone+EUT1+USB cable1+adapter1

f: GSM1900 Idle+BT+WLAN+BDS Rx+camera (Front) +earphone+EUT2+USB cable1+adapter2

g: WCDMA II Idle+BT+WLAN+GLONASS Rx+camera (Back) +earphone+EUT(worst)+USB cable1+adapter1

h: WCDMA V Idle +BT+FM +WLAN+ Galileo Rx+earphone+EUT2+USB cable1+adapter2

i: WCDMA IV Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

j: LTE band 2 Idle +BT+FM+ WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

k: LTE band 4 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

l: LTE band 5 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

m: LTE band 7 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

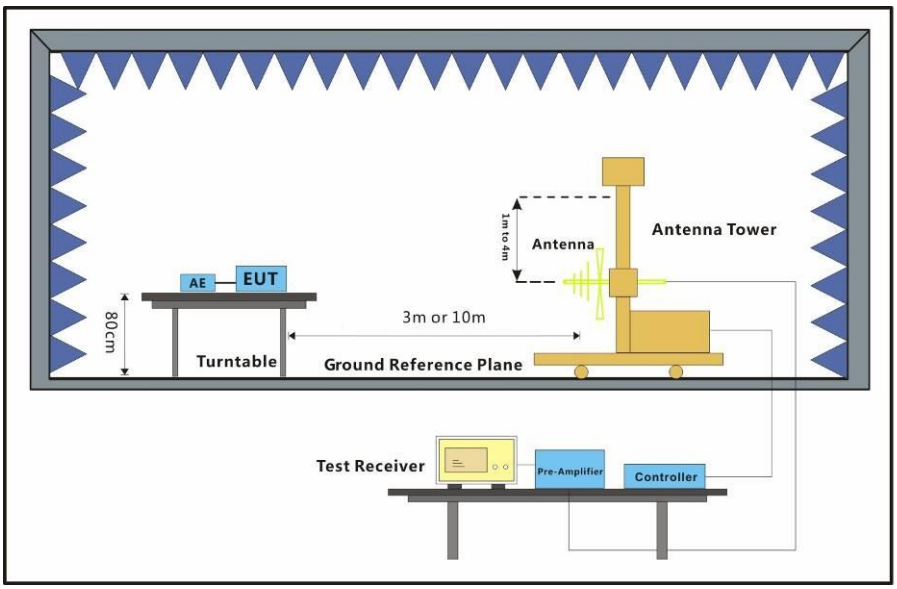
n: LTE band 13 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

o: LTE band 17 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

p: LTE band 66 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

The worst case for final test: m: LTE band 7 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

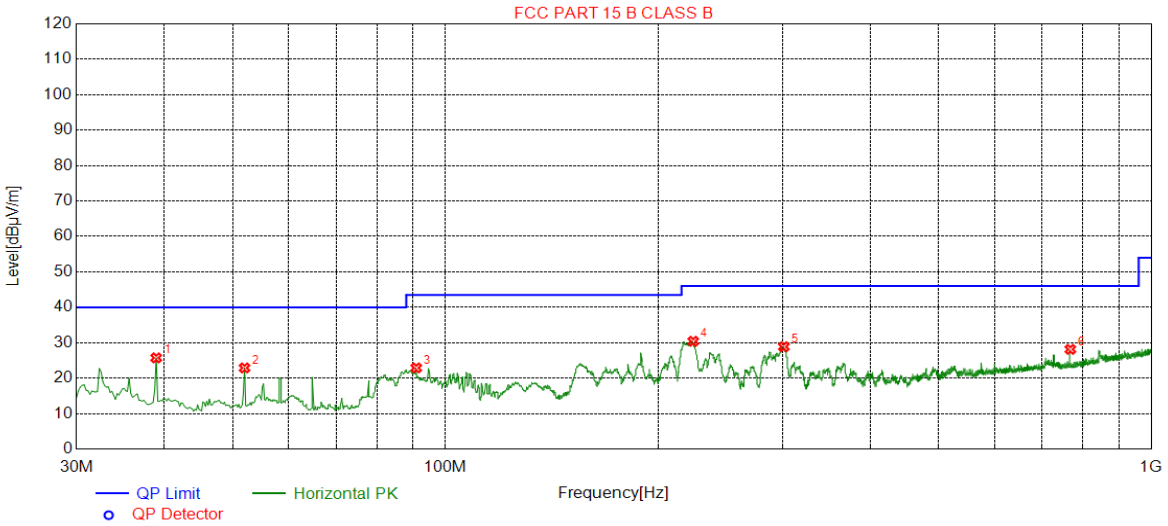
6.2.2 Test Setup Diagram



6.2.3 Measurement Data

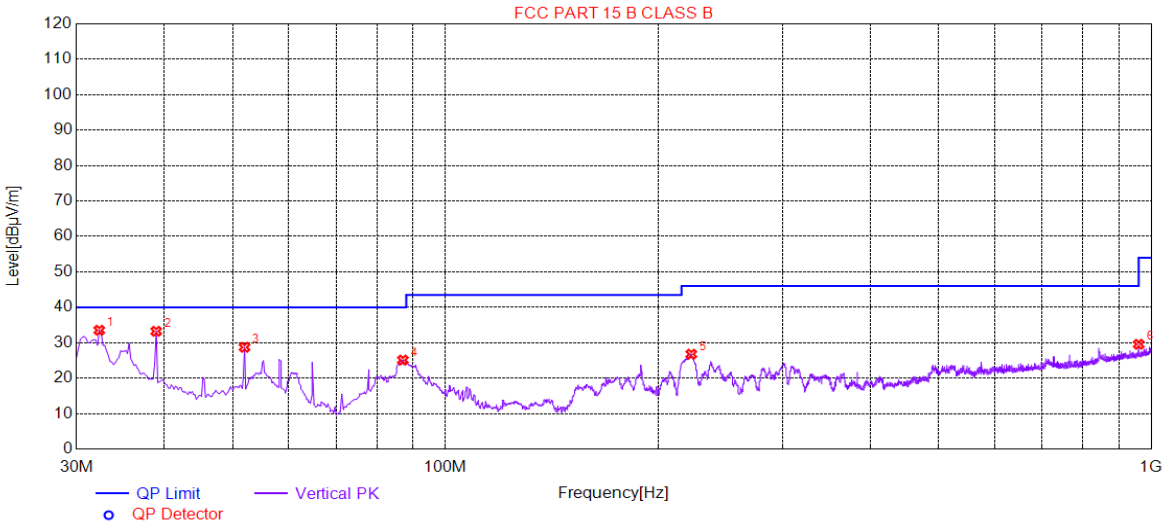
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:m; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.9258	25.73	-28.69	40.00	14.27	100	18	Horizontal
2	51.9264	22.89	-30.65	40.00	17.11	100	26	Horizontal
3	90.9282	22.89	-33.56	43.50	20.61	200	90	Horizontal
4	224.426	30.41	-30.58	46.00	15.59	100	219	Horizontal
5	301.654	28.86	-28.21	46.00	17.14	100	246	Horizontal
6	768.123	28.13	-18.13	46.00	17.87	100	311	Horizontal

Mode:m; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	32.3285	33.52	-30.02	40.00	6.48	100	278	Vertical
2	38.9258	33.24	-28.69	40.00	6.76	100	68	Vertical
3	51.9264	28.72	-30.65	40.00	11.28	100	34	Vertical
4	87.0474	25.11	-34.44	40.00	14.89	100	290	Vertical
5	223.068	26.77	-30.62	46.00	19.23	100	25	Vertical
6	960.028	29.57	-15.34	54.00	24.43	100	301	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:

a: Transfer data between the EUT1 and the PC+USB cable 1

d: Transfer data between the EUT2 and the PC+USB cable 2

e: GSM850 Idle+BT+WLAN+GPS Rx+playing MP4 (SD card)+earphone+EUT1+USB cable1+adapter1

f: GSM1900 Idle+BT+WLAN+BDS Rx+camera (Front) +earphone+EUT2+USB cable1+adapter2

g: WCDMA II Idle+BT+WLAN+GLONASS Rx+camera (Back) +earphone+EUT(worst)+USB cable1+adapter1

h: WCDMA V Idle +BT+FM +WLAN+ Galileo Rx+earphone+EUT2+USB cable1+adapter2

i: WCDMA IV Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

j: LTE band 2 Idle +BT+FM+ WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

k: LTE band 4 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter1

l: LTE band 5 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable2+adapter2

m: LTE band 7 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

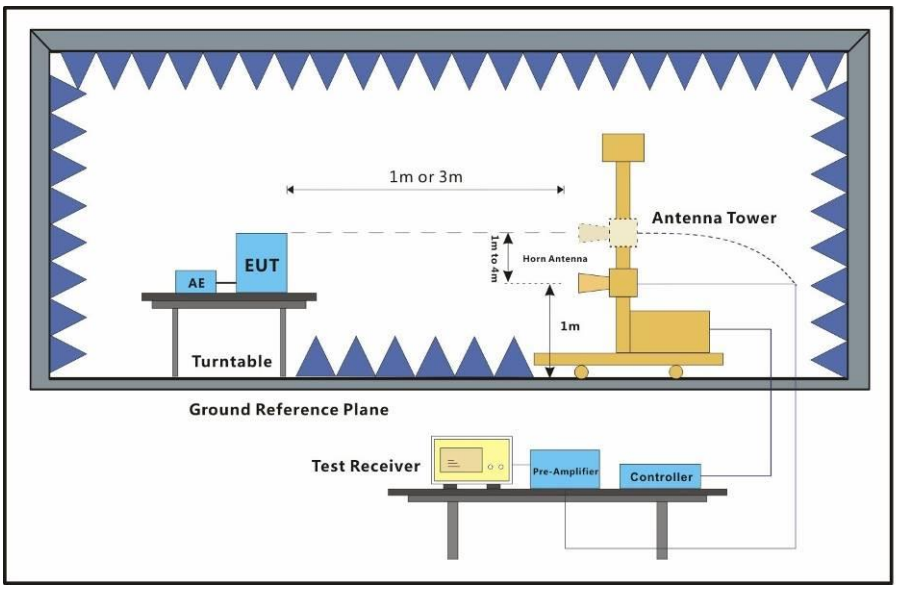
n: LTE band 13 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

o: LTE band 17 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

p: LTE band 66 Idle +BT+FM +WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

The worst case for final test: m: LTE band 7 Idle +BT+FM+WLAN+GPS Rx+earphone+EUT2+USB cable1+adapter2

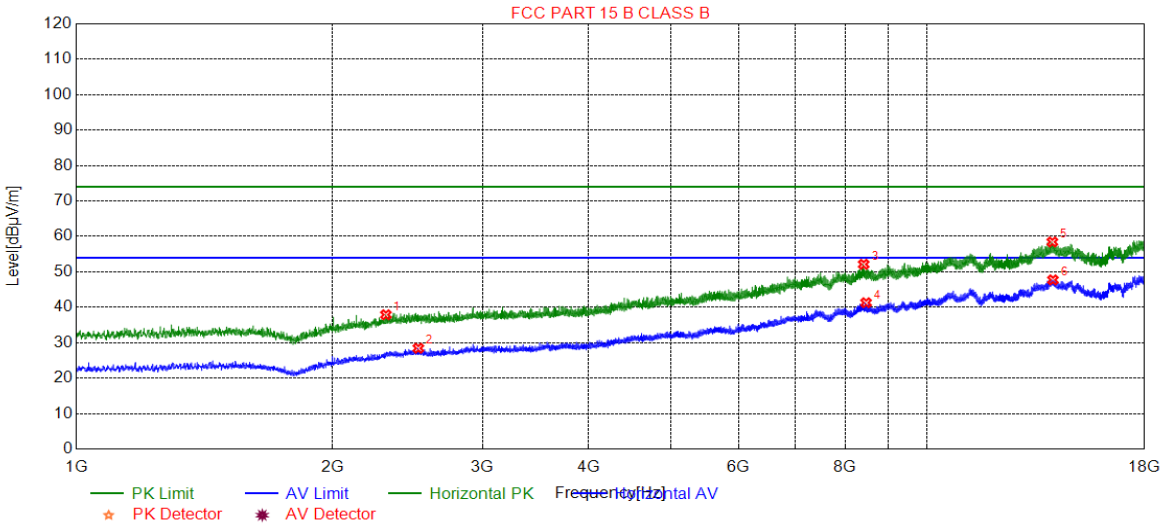
6.3.2 Test Setup Diagram



6.3.3 Measurement Data

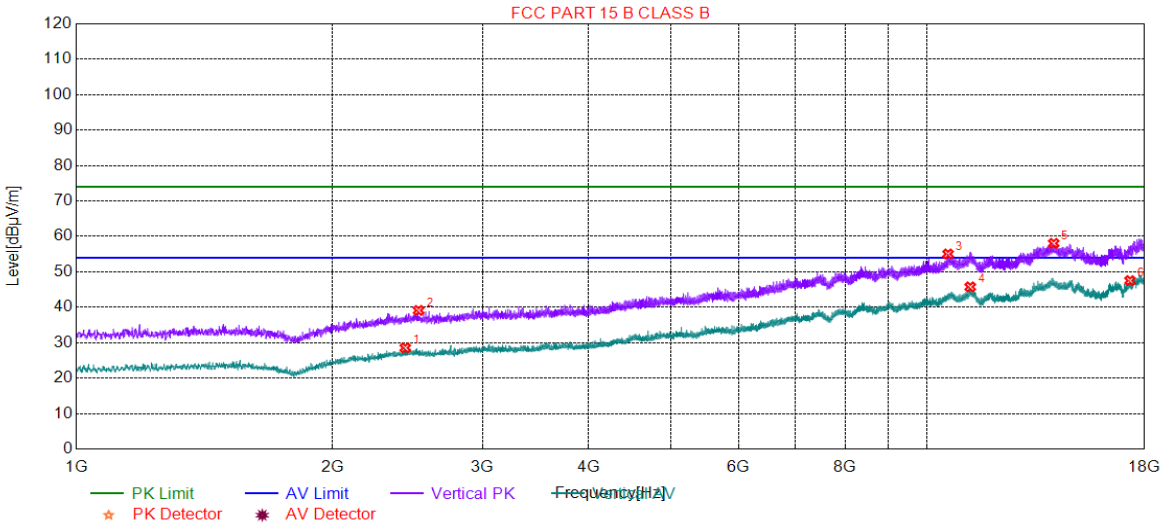
An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Mode:m; Polarization:Horizontal



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2310.76	37.90	-26.80	74.00	36.10	100	218	Horizontal
2	2522.42	28.44	-25.87	54.00	25.56	200	172	Horizontal
3	8416.62	52.13	-7.76	74.00	21.87	200	232	Horizontal
4	8471.87	41.29	-7.65	54.00	12.71	200	342	Horizontal
5	14022.6	58.44	2.27	74.00	15.56	100	18	Horizontal
6	14044.7	47.73	2.29	54.00	6.27	100	268	Horizontal

Mode:m; Polarization:Vertical



Suspected List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2434.87	28.55	-26.27	54.00	25.45	100	167	Vertical
2	2524.12	39.11	-25.87	74.00	34.89	200	142	Vertical
3	10574.8	55.04	-3.32	74.00	18.96	100	117	Vertical
4	11230.2	45.76	-2.81	54.00	8.24	100	360	Vertical
5	14074.5	58.04	2.33	74.00	15.96	100	268	Vertical
6	17302.9	47.52	-0.48	54.00	6.48	100	360	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 -