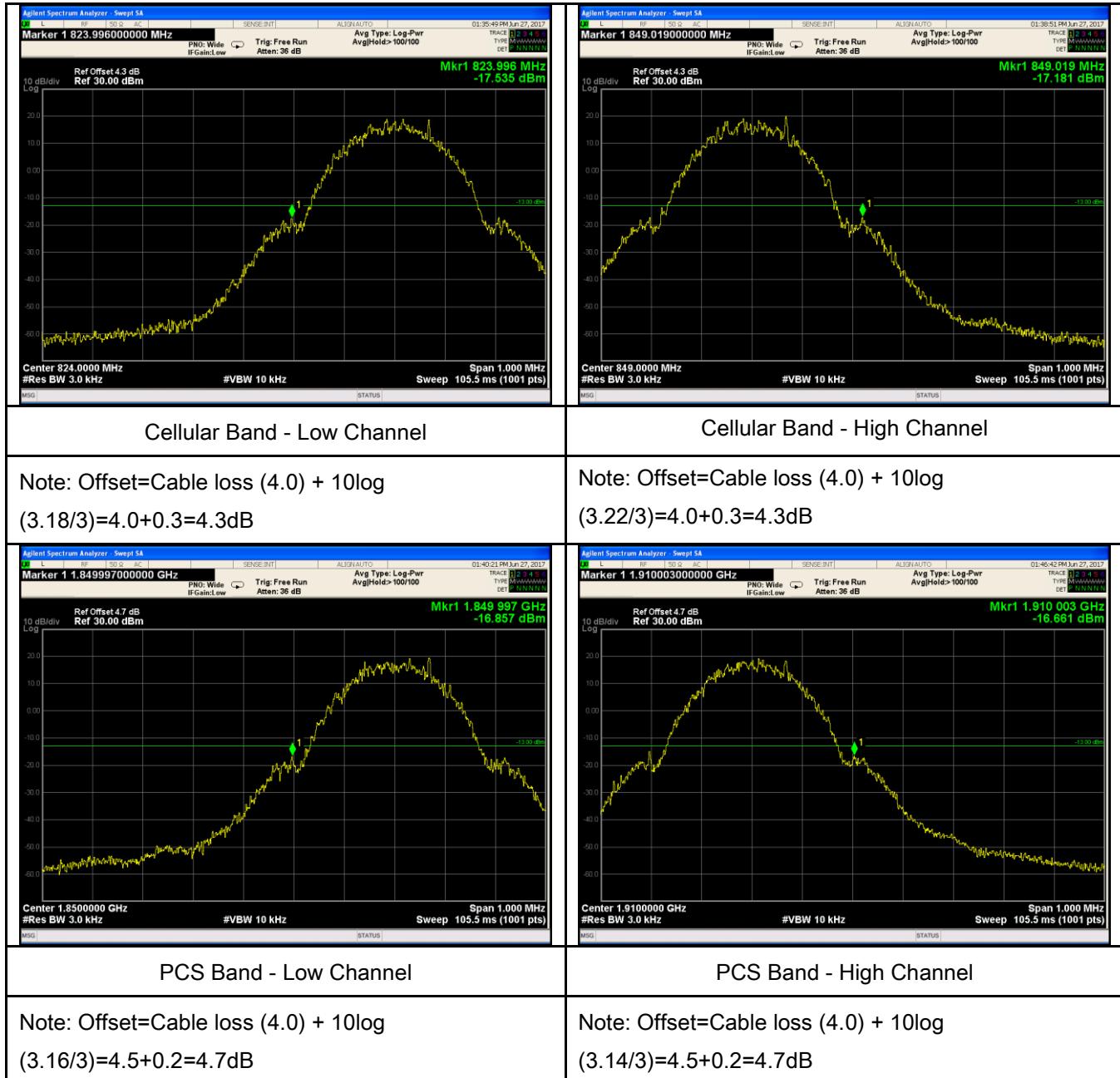


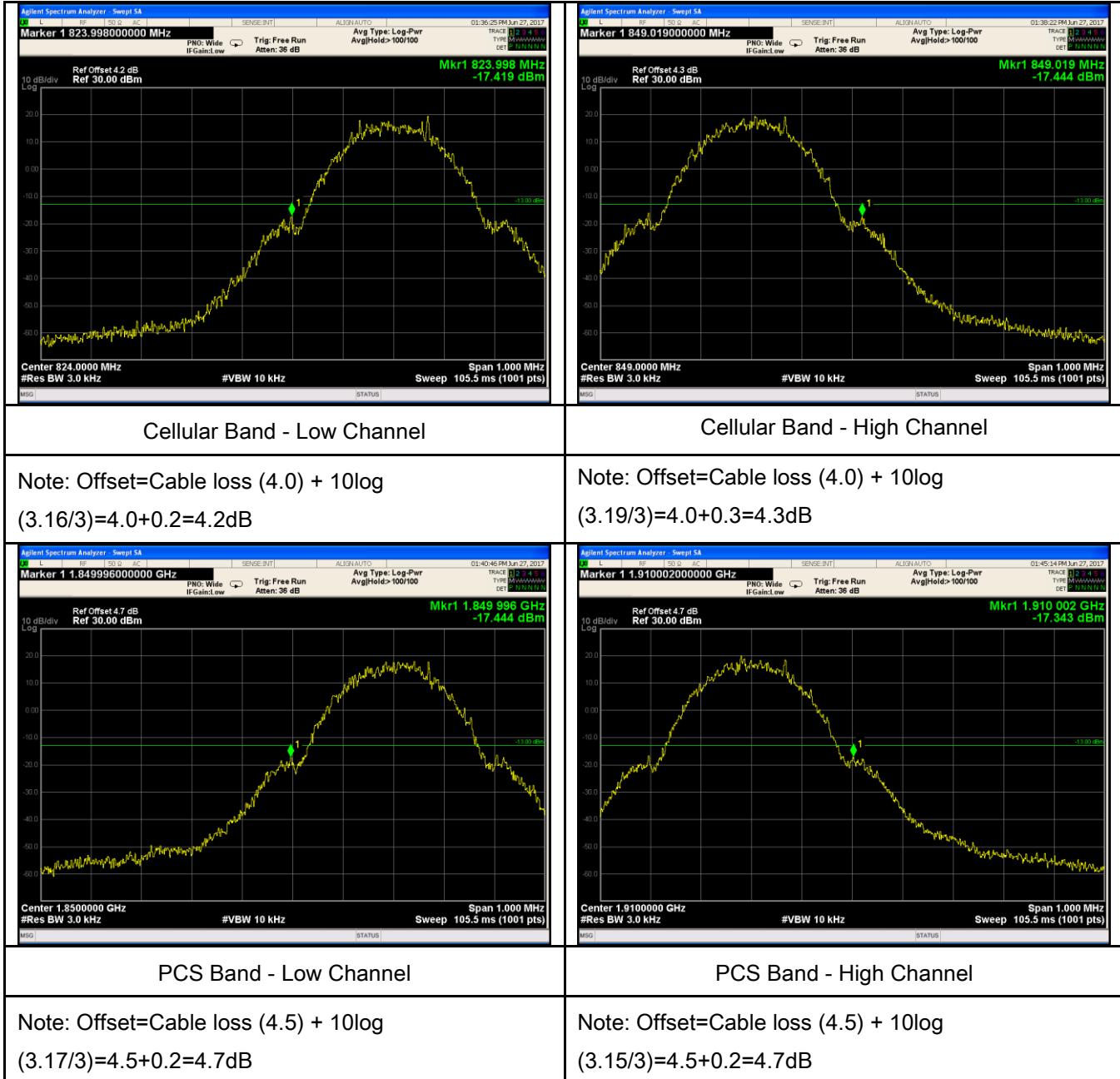
GSM Voice:

Test Plots



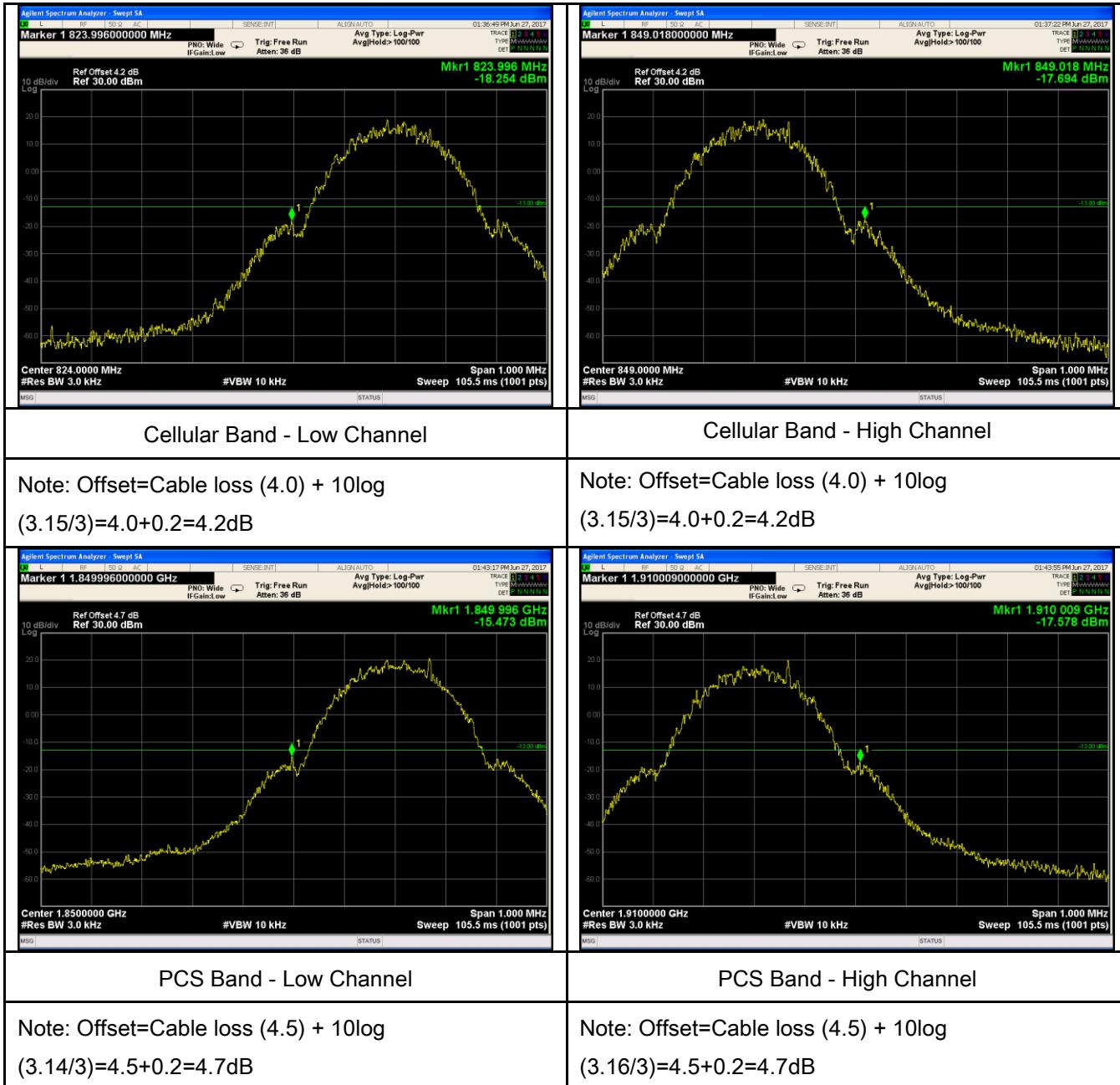
GPRS:

Test Plots



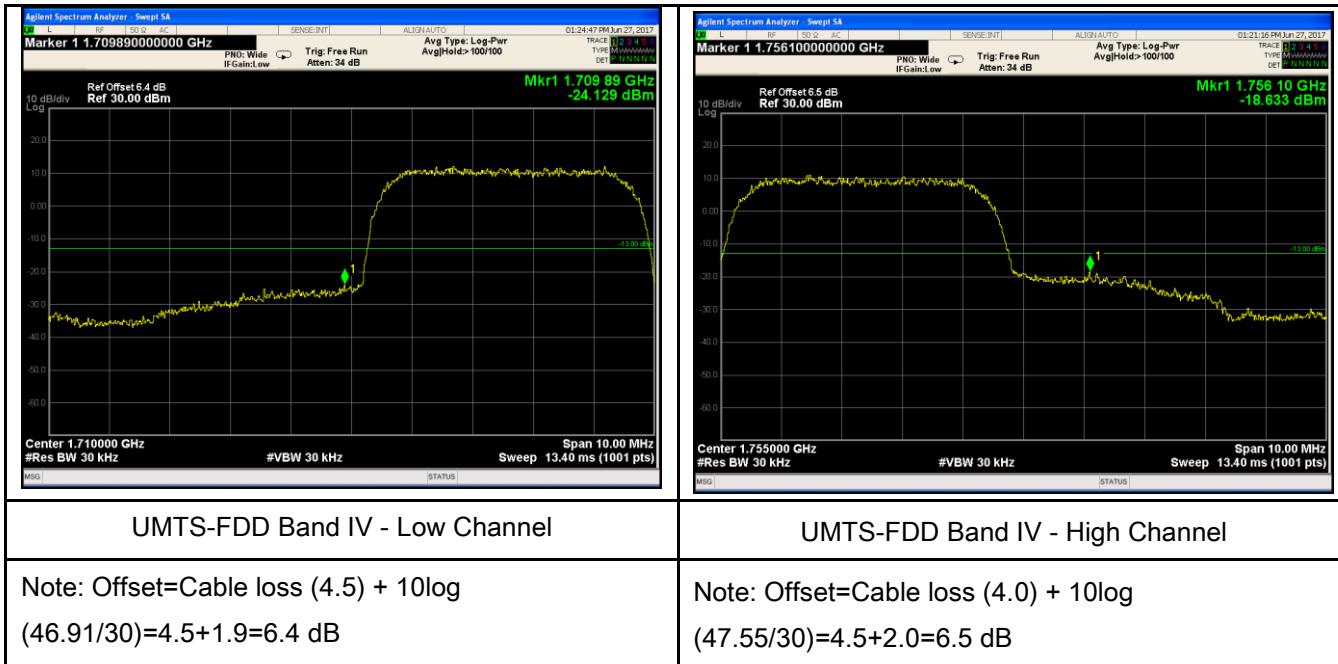
EGPRS (MCS1):

Test Plots



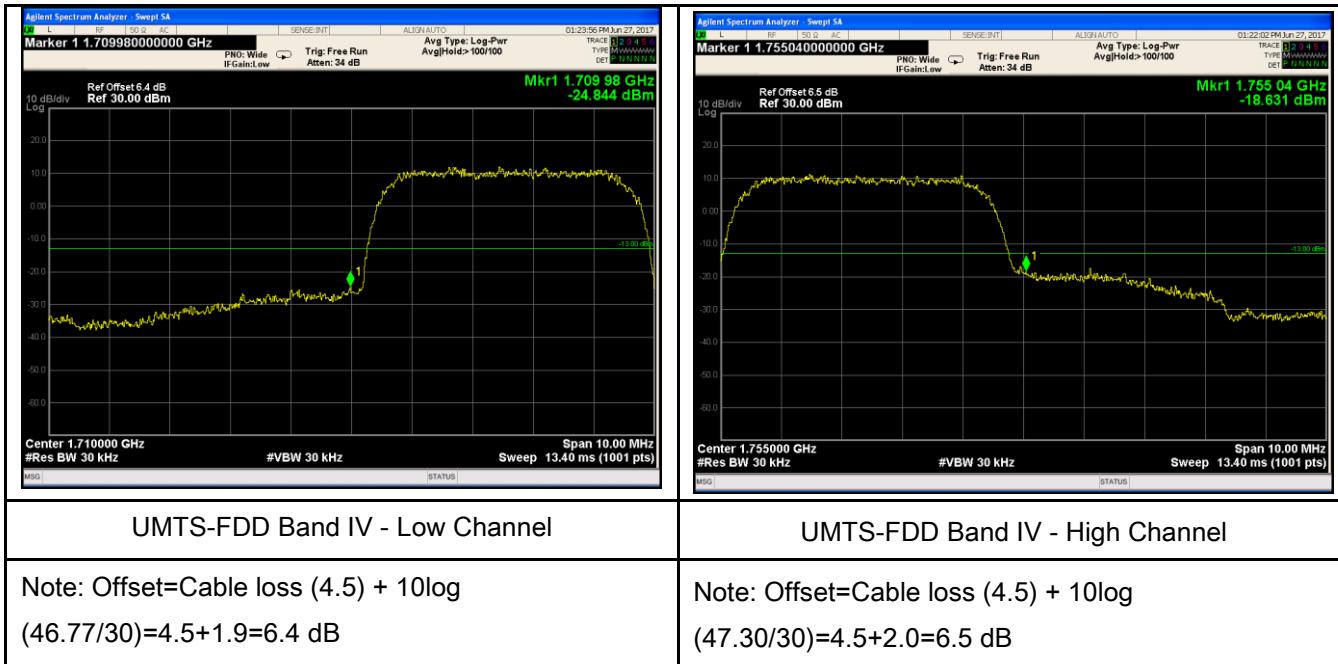
RMC:

 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 823.760000000 MHz</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 824.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 849.070000000 MHz</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 849.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band V - Low Channel</p> <p>Note: Offset=Cable loss (4.0) + 10log (46.51/30)=4.0+1.9=5.9 dB</p>	<p>UMTS-FDD Band V - High Channel</p> <p>Note: Offset=Cable loss (4.0) + 10log (43.70/30)=4.0+1.9=5.9 dB</p>
 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 1.849980000000 GHz</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 1.850000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 1.910040000000 GHz</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 1.910000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band II - Low Channel</p> <p>Note: Offset=Cable loss (4.5) + 10log (47.45/30)=4.5+2.0=6.5 dB</p>	<p>UMTS-FDD Band II - High Channel</p> <p>Note: Offset=Cable loss (4.5) + 10log (47.03/30)=4.5+2.0=6.5 dB</p>

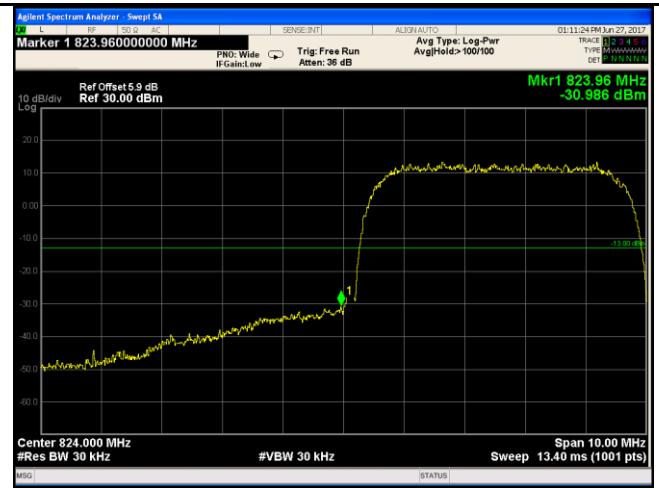


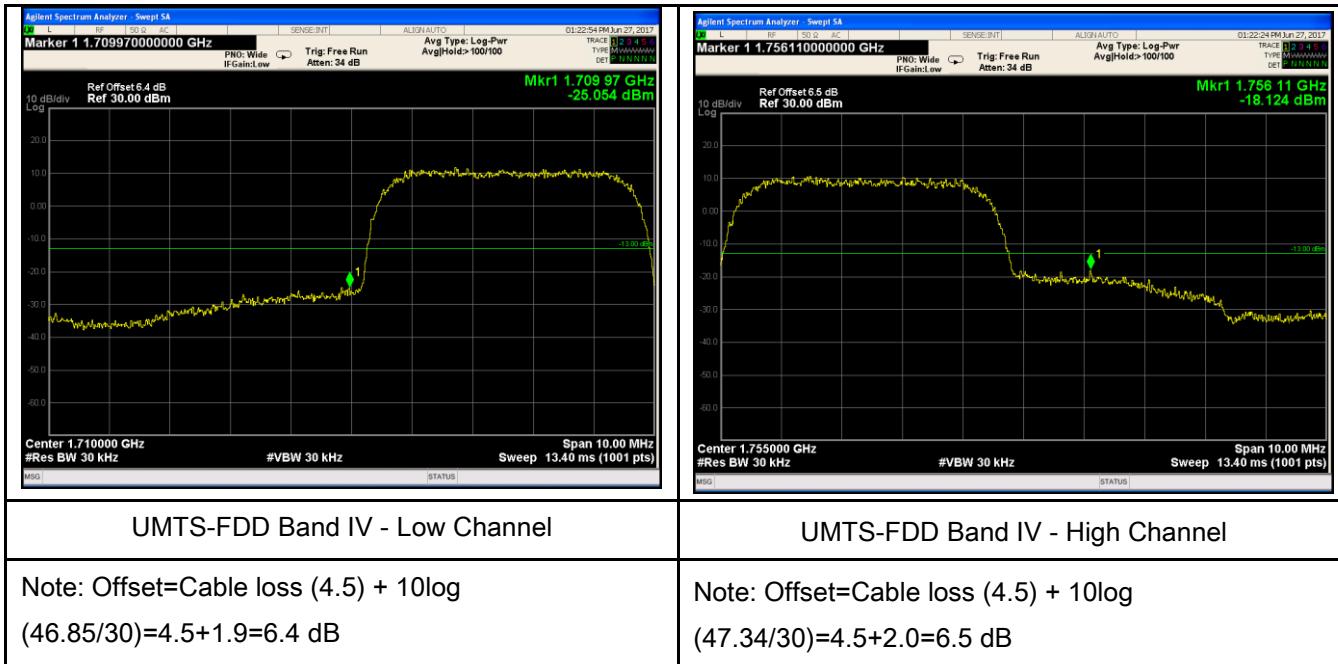
HSUPA:

 <p>Marker 1 823.740000000 MHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 36 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Mkr1 823.74 MHz -30.843 dBm</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 824.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Marker 1 849.080000000 MHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 36 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Mkr1 849.08 MHz -31.380 dBm</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 849.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band V - Low Channel</p>	<p>UMTS-FDD Band V - High Channel</p>
<p>Note: Offset=Cable loss (4.0) + 10log (46.78/30)=4.0+1.9=5.9 dB</p>	<p>Note: Offset=Cable loss (4.0) + 10log (46.55/30)=4.0+1.9=5.9 dB</p>
 <p>Marker 1 1.849880000000 GHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 34 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Mkr1 1.849.88 GHz -21.290 dBm</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 1.850000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Marker 1 1.910040000000 GHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 34 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Mkr1 1.910.04 GHz -26.828 dBm</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm</p> <p>10 dB/div Log</p> <p>Center 1.910000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band II - Low Channel</p>	<p>UMTS-FDD Band II - High Channel</p>
<p>Note: Offset=Cable loss (4.5) + 10log (47.65/30)=4.5+2.0=6.5 dB</p>	<p>Note: Offset=Cable loss (4.5) + 10log (47.04/30)=4.5+2.0=6.5 dB</p>



HSDPA:

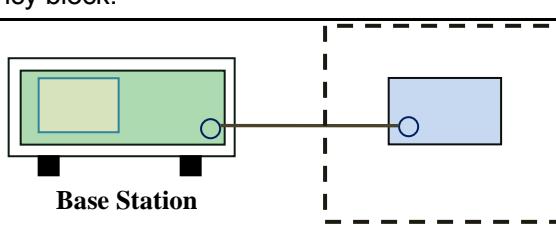
 <p>Agilent Spectrum Analyzer - Swept SA Marker 1 823.960000000 MHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 36 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm Mkr1 823.96 MHz -30.986 dBm</p> <p>10 dB/div Log</p> <p>Center 824.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Agilent Spectrum Analyzer - Swept SA Marker 1 849.080000000 MHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 36 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Ref Offset 5.9 dB Ref 30.00 dBm Mkr1 849.08 MHz -33.451 dBm</p> <p>10 dB/div Log</p> <p>Center 849.000 MHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band V - Low Channel</p>	<p>UMTS-FDD Band V - High Channel</p>
<p>Note: Offset=Cable loss (4.0) + 10log $(46.58/30)=4.0+1.9=5.9$ dB</p>	<p>Note: Offset=Cable loss (4.0) + 10log $(46.67/30)=4.0+1.9 =5.9$ dB</p>
 <p>Agilent Spectrum Analyzer - Swept SA Marker 1 1.849930000000 GHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 34 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm Mkr1 1.849.93 GHz -21.640 dBm</p> <p>10 dB/div Log</p> <p>Center 1.850000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>	 <p>Agilent Spectrum Analyzer - Swept SA Marker 1 1.910050000000 GHz PNO: Wide IF-Gain:Low Trig: Free Run Atten: 34 dB Avg Type: Log-Pwr Avg Hold>100/100</p> <p>Ref Offset 6.5 dB Ref 30.00 dBm Mkr1 1.910.05 GHz -27.883 dBm</p> <p>10 dB/div Log</p> <p>Center 1.910000 GHz #Res BW 30 kHz #VBW 30 kHz Sweep 13.40 ms (1001 pts)</p>
<p>UMTS-FDD Band II - Low Channel</p>	<p>UMTS-FDD Band II - High Channel</p>
<p>Note: Offset=Cable loss (4.5) + 10log $(47.48/30)=4.5+2.0=6.5$ dB</p>	<p>Note: Offset=Cable loss (4.5) + 10log $(47.07/30)=4.5+2.0=6.5$ dB</p>



6.8 Frequency Stability

Temperature	23 °C
Relative Humidity	54%
Atmospheric Pressure	1020mbar
Test date :	June 28, 2017
Tested By :	Loren Luo

Requirement(s):

Spec	Item	Requirement	Applicable																																
§2.1055, §22.355 & §24.235 § 27.5(h); § 27.54	a)	<p>According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:</p> <p>Frequency Tolerance for Transmitters in the Public Mobile Services</p> <table border="1"> <thead> <tr> <th>Frequency Range (MHz)</th> <th>Base, fixed (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> <th>Mobile ≤ 3 watts (ppm)</th> </tr> </thead> <tbody> <tr> <td>25 to 50</td> <td>20.0</td> <td>20.0</td> <td>50.0</td> </tr> <tr> <td>50 to 450</td> <td>5.0</td> <td>5.0</td> <td>50.0</td> </tr> <tr> <td>45□to 512</td> <td>2.5</td> <td>5.0</td> <td>□0</td> </tr> <tr> <td>821 to 896</td> <td>1.5</td> <td>2.5</td> <td>2.5</td> </tr> <tr> <td>928 to □29.</td> <td>5.0</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>929 to 960.</td> <td>1.5</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>2110 to 2220</td> <td>10.0</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency block.</p>	Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)	25 to 50	20.0	20.0	50.0	50 to 450	5.0	5.0	50.0	45□to 512	2.5	5.0	□0	821 to 896	1.5	2.5	2.5	928 to □29.	5.0	N/A	N/A	929 to 960.	1.5	N/A	N/A	2110 to 2220	10.0	N/A	N/A	<input checked="" type="checkbox"/>
Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)																																
25 to 50	20.0	20.0	50.0																																
50 to 450	5.0	5.0	50.0																																
45□to 512	2.5	5.0	□0																																
821 to 896	1.5	2.5	2.5																																
928 to □29.	5.0	N/A	N/A																																
929 to 960.	1.5	N/A	N/A																																
2110 to 2220	10.0	N/A	N/A																																
Test setup		 <p>Base Station</p> <p>Thermal Chamber</p>																																	

Procedure	A communication link was established between EUT and base station. The frequency error was monitored and measured by base station under variation of ambient temperature and variation of primary supply voltage. Limit: The frequency stability of the transmitter shall be maintained within ±0.00025% ($\pm 2.5\text{ppm}$) of the center frequency.
Remark	
Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

Test Data Yes N/A

Test Plot Yes (See below) N/A

GSM Voice:

Cellular Band (Part 22H) result

Middle Channel, $f_0 = 836.6$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.8	21	0.0251	2.5
0		16	0.0191	2.5
10		17	0.0203	2.5
20		16	0.0191	2.5
30		14	0.0167	2.5
40		15	0.0179	2.5
50		21	0.0251	2.5
55		18	0.0215	2.5
25		19	0.0227	2.5
	3.2	20	0.0239	2.5

PCS Band (Part 24E) result

Middle Channel, $f_0 = 1880$ MHz				
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.8	15	0.0080	2.5
0		12	0.0064	2.5
10		14	0.0074	2.5
20		15	0.0080	2.5
30		16	0.0085	2.5
40		17	0.0090	2.5
50		14	0.0074	2.5
55		19	0.0101	2.5
25		17	0.0090	2.5
	3.2	21	0.0112	2.5

RMC:

UMTS-FDD Band V (Part 22H)

Middle Channel, $f_0 = 835$ MHz					
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	
-10	3.8	14	0.0168	2.5	
0		15	0.0180	2.5	
10		17	0.0204	2.5	
20		16	0.0192	2.5	
30		14	0.0168	2.5	
40		9	0.0108	2.5	
50		18	0.0216	2.5	
55		16	0.0192	2.5	
25		4.3	17	0.0204	2.5
		3.2	12	0.0144	2.5

UMTS-FDD Band II (Part 24E)

Middle Channel, $f_0 = 1880$ MHz					
Temperature (°C)	Power Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	
-10	3.8	16	0.0085	2.5	
0		14	0.0074	2.5	
10		15	0.0080	2.5	
20		9	0.0048	2.5	
30		10	0.0053	2.5	
40		13	0.0069	2.5	
50		9	0.0048	2.5	
55		11	0.0059	2.5	
25		4.3	14	0.0074	2.5
		3.2	12	0.0064	2.5

UMTS-FDD Band IV (Part 27)

Middle Channel, $f_0 = 1733$ MHz				
Temperature (°C)	Power Supplied (V _{dc})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-10	3.8	15	0.0180	2.5
0		15	0.0180	2.5
10		14	0.0168	2.5
20		16	0.0192	2.5
30		15	0.0180	2.5
40		10	0.0120	2.5
50		13	0.0156	2.5
55		14	0.0168	2.5
25		4.3	0.0120	2.5
		3.2	0.0204	2.5

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Due	In use
RF Conducted Test					
Agilent ESA-E SERIES SPECTRUM ANALYZER	E4407B	MY45108319	09/15/2016	09/14/2017	<input checked="" type="checkbox"/>
Power Splitter	1#	1#	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
Universal Radio Communication Tester	CMU200	121393	09/24/2016	09/23/2017	<input checked="" type="checkbox"/>
Temperature/Humidity Chamber	UHL-270	001	10/08/2016	10/07/2017	<input checked="" type="checkbox"/>
DC Power Supply	E3640A	MY40004013	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
RF Power Sensor	Dare RPR3006C/P/W	AY554013	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
Radiated Emissions					
EMI test receiver	ESL6	100262	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
OPT 010 AMPLIFIER (0.1-1300MHz)	8447E	2727A02430	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
Microwave Preamplifier (1 ~ 26.5GHz)	8449B	3008A02402	03/23/2017	03/22/2018	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~6GHz)	JB6	A110712	09/20/2016	09/19/2017	<input checked="" type="checkbox"/>
Bilog Antenna (30MHz~2GHz)	JB1	A112017	09/20/2016	09/19/2017	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71259	09/23/2016	09/22/2017	<input checked="" type="checkbox"/>
Double Ridge Horn Antenna (1 ~18GHz)	AH-118	71283	09/23/2016	09/22/2017	<input checked="" type="checkbox"/>
SYNTHESIZED SIGNAL GENERATOR	8665B	3744A01293	09/16/2016	09/15/2017	<input checked="" type="checkbox"/>
Power Amplifier	SMC150D	R1553-0313	03/08/2017	03/07/2018	<input checked="" type="checkbox"/>
Power Amplifier	S41-25D	R1553-0314	05/26/2017	05/24/2018	<input checked="" type="checkbox"/>
Tunable Notch Filter	3NF-800/1000-S	AA4	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>



Test Report	17070437-FCC-R1-V1
Page	86 of 103

Tunable Notch Filter	3NF- 1000/2000-S	AM 4	08/31/2016	08/30/2017	<input checked="" type="checkbox"/>
----------------------	---------------------	------	------------	------------	-------------------------------------

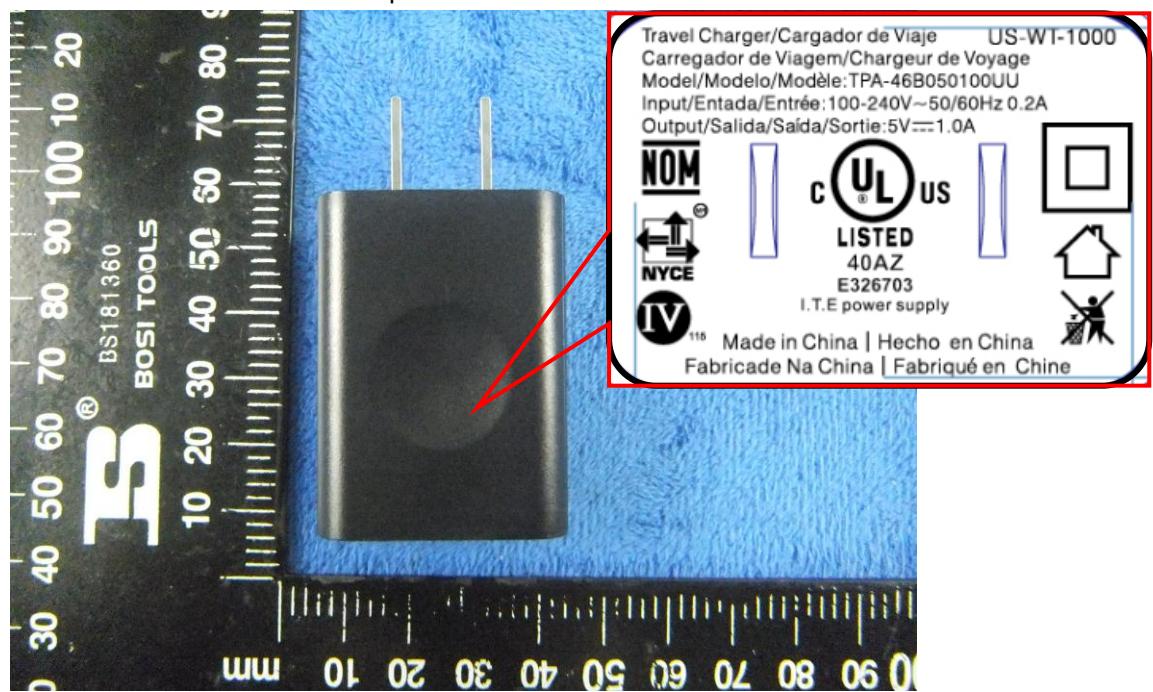
Annex B. EUT And Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

Whole Package View



Adapter - Front View



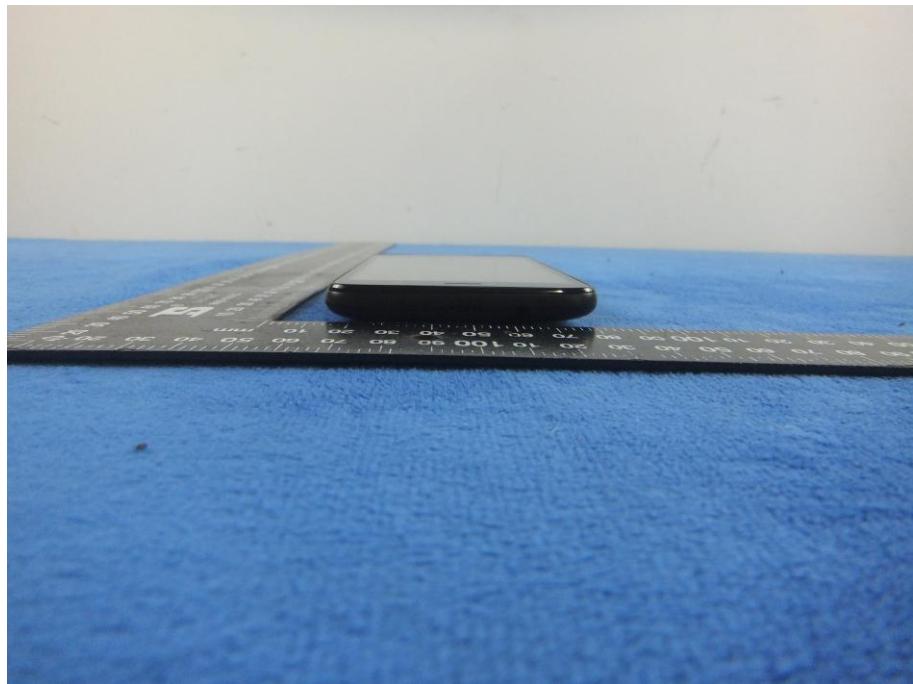
EUT - Front View



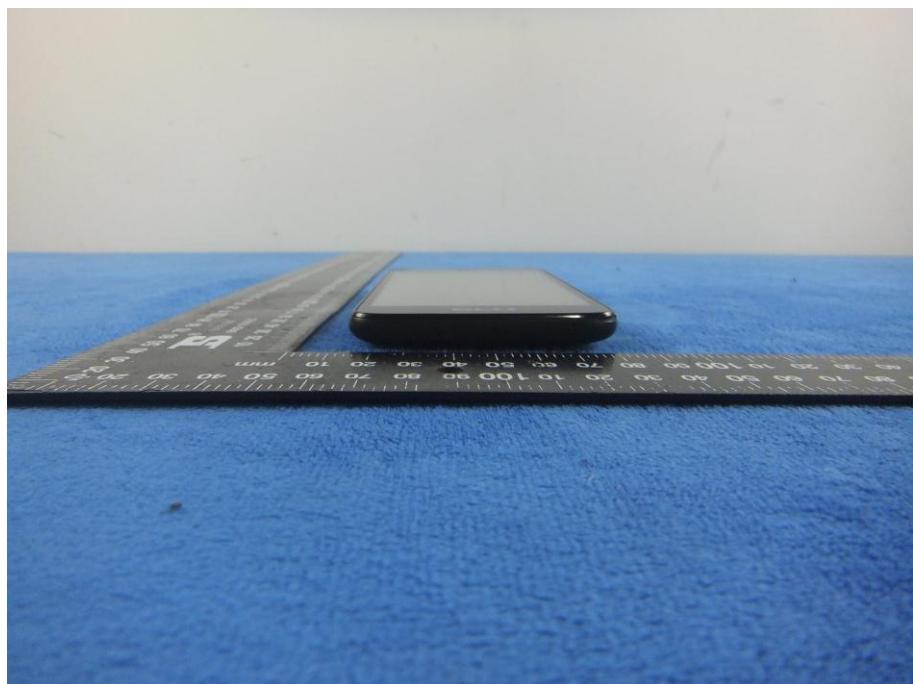
EUT - Rear View



EUT - Top View



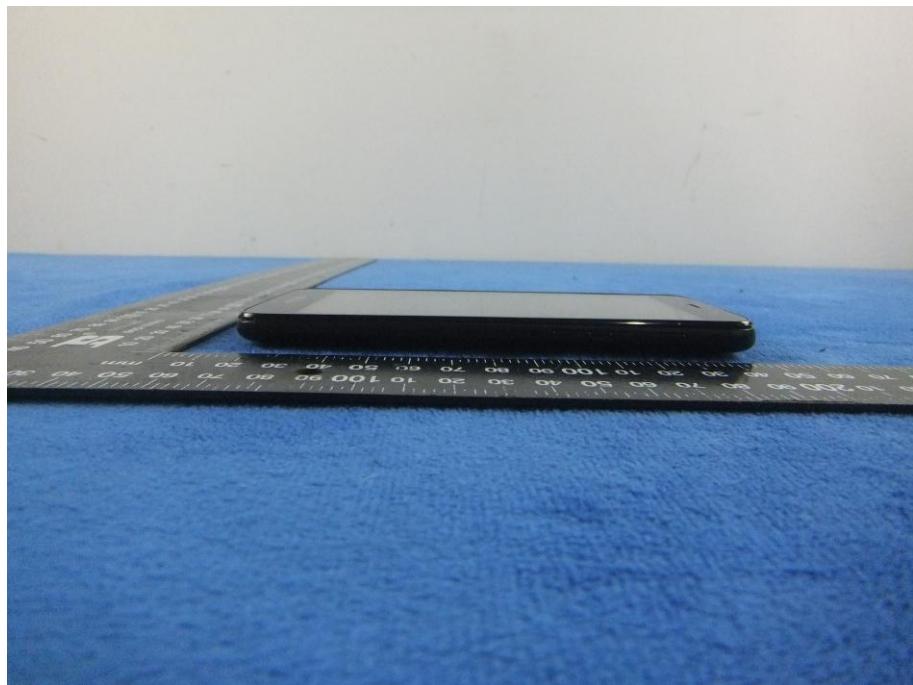
EUT - Bottom View



EUT - Left View



EUT - Right View



Annex B.ii. Photograph: EUT Internal Photo

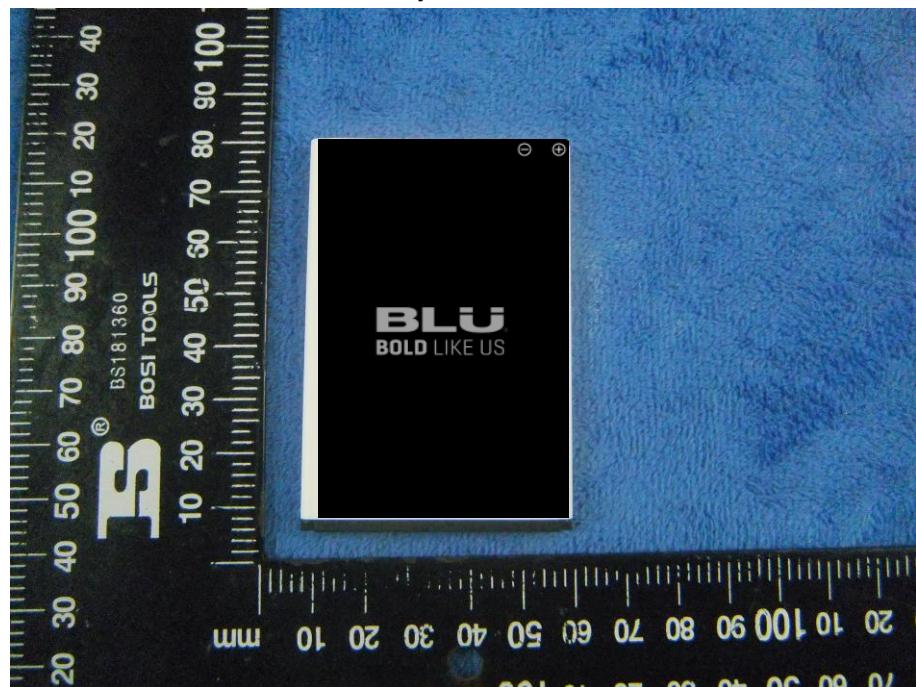
Cover Off - Top View 1



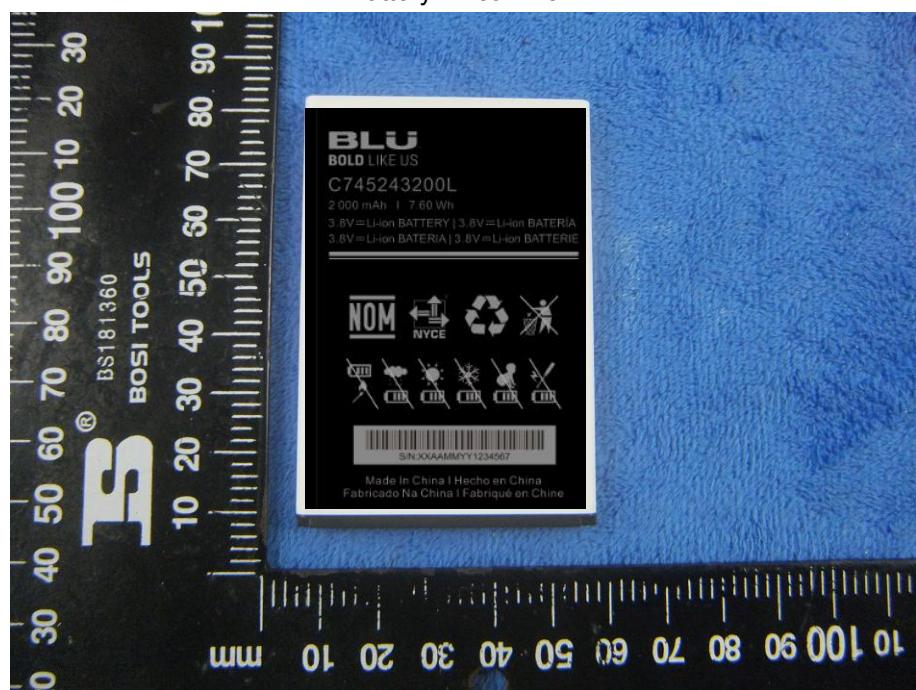
Cover Off - Top View 2



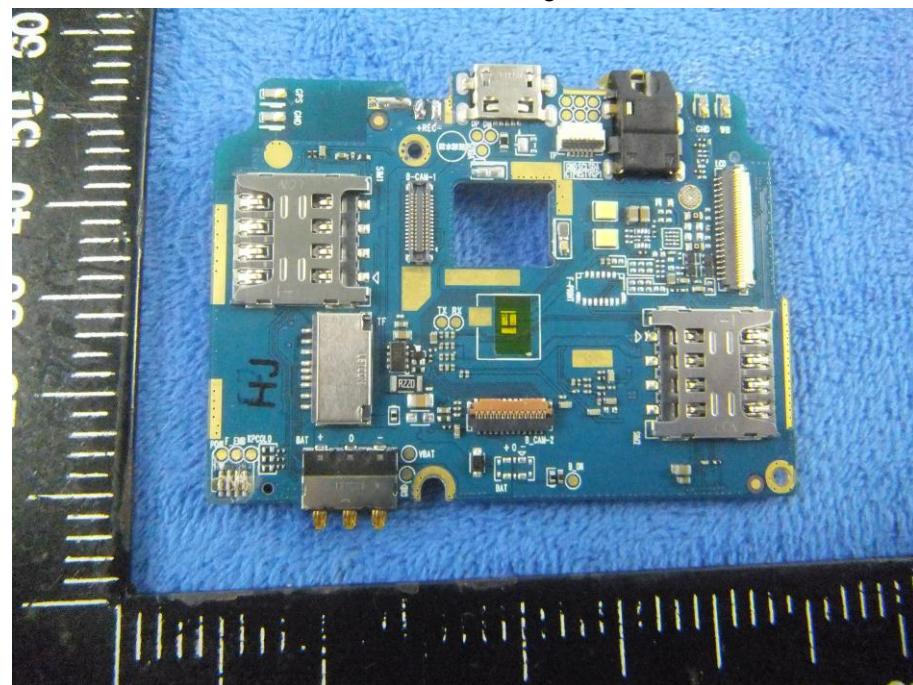
Battery - Front View



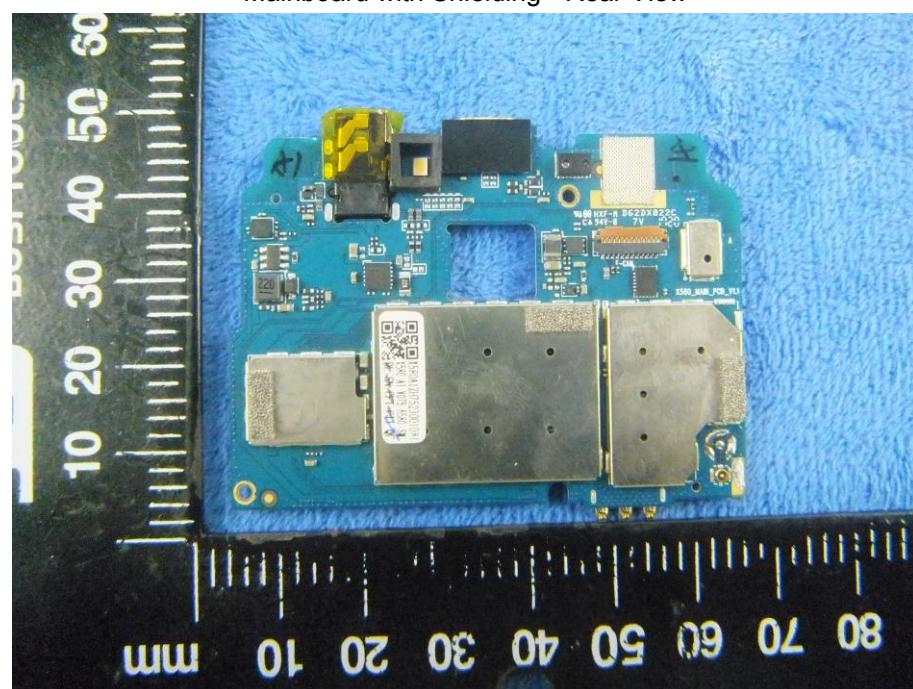
Battery - Rear View



Mainboard without Shielding - Front View



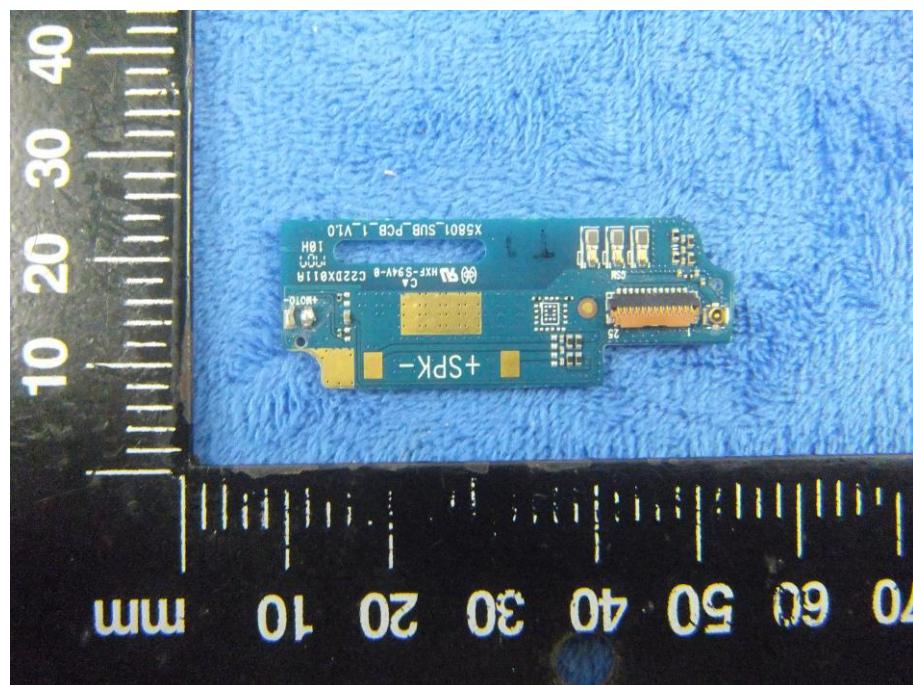
Mainboard with Shielding - Rear View



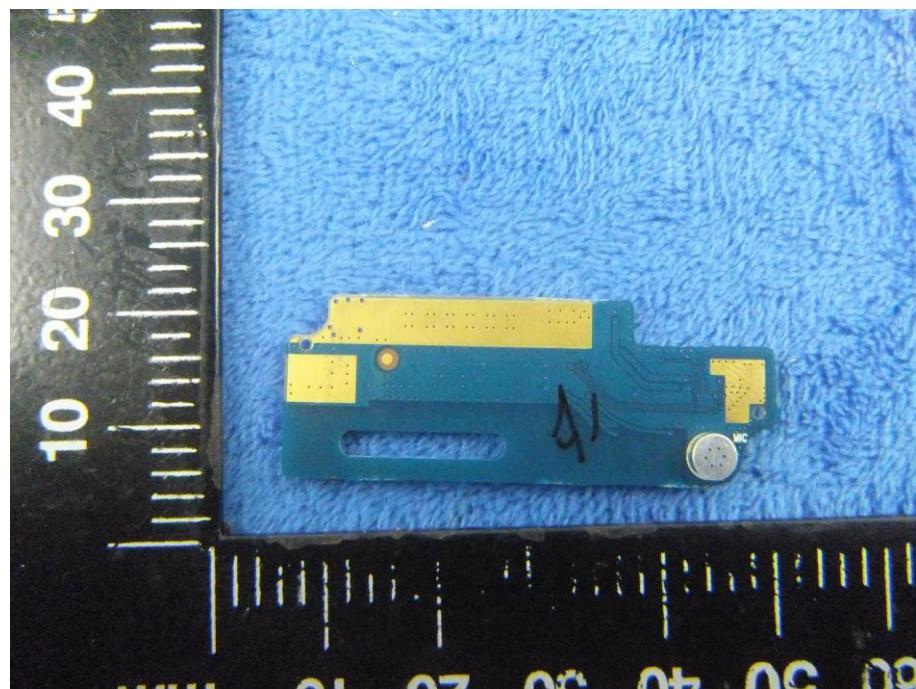
Mainboard without Shielding - Rear View



Small Mainboard - Front View



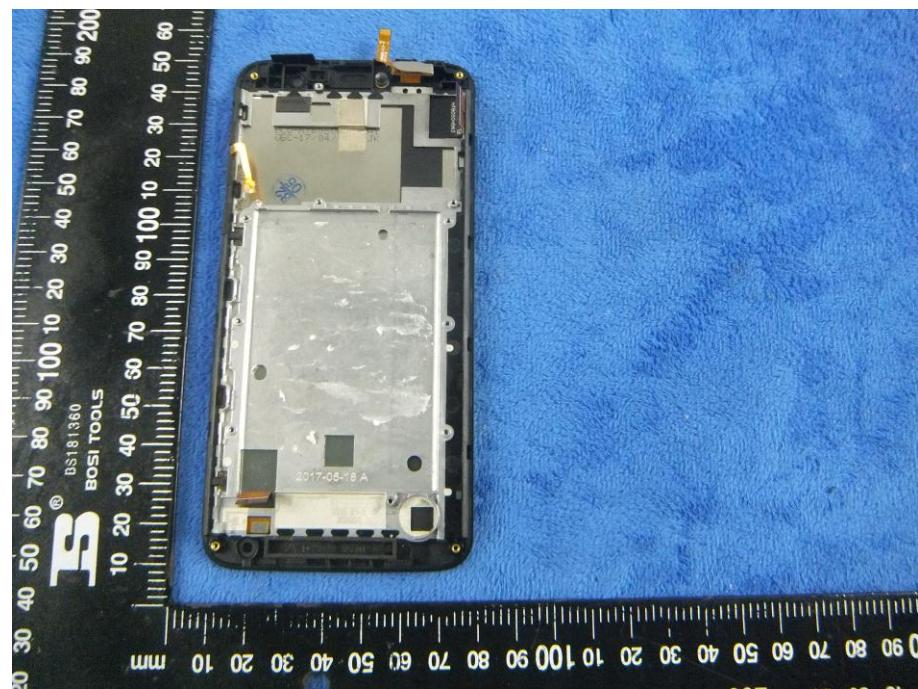
Small Mainboard - Rear View



LCD – Front View



LCD – Rear View



GSM/PCS/UMTS - Antenna View



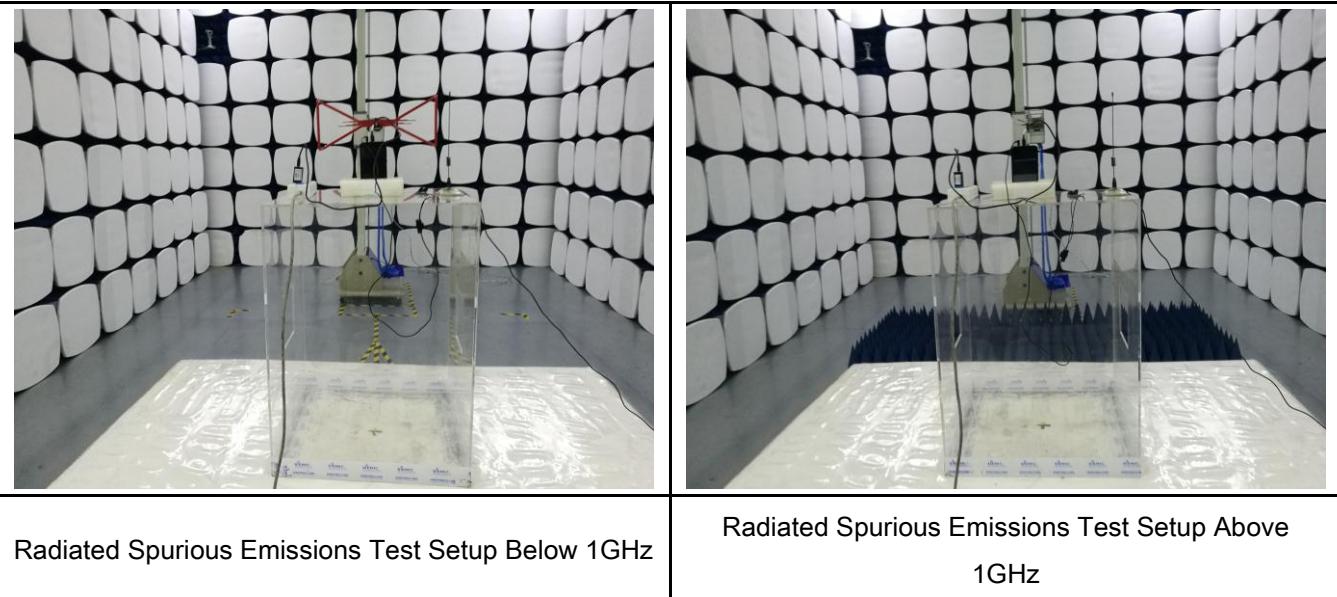
BT/WIFI - Antenna View



GPS - Antenna View



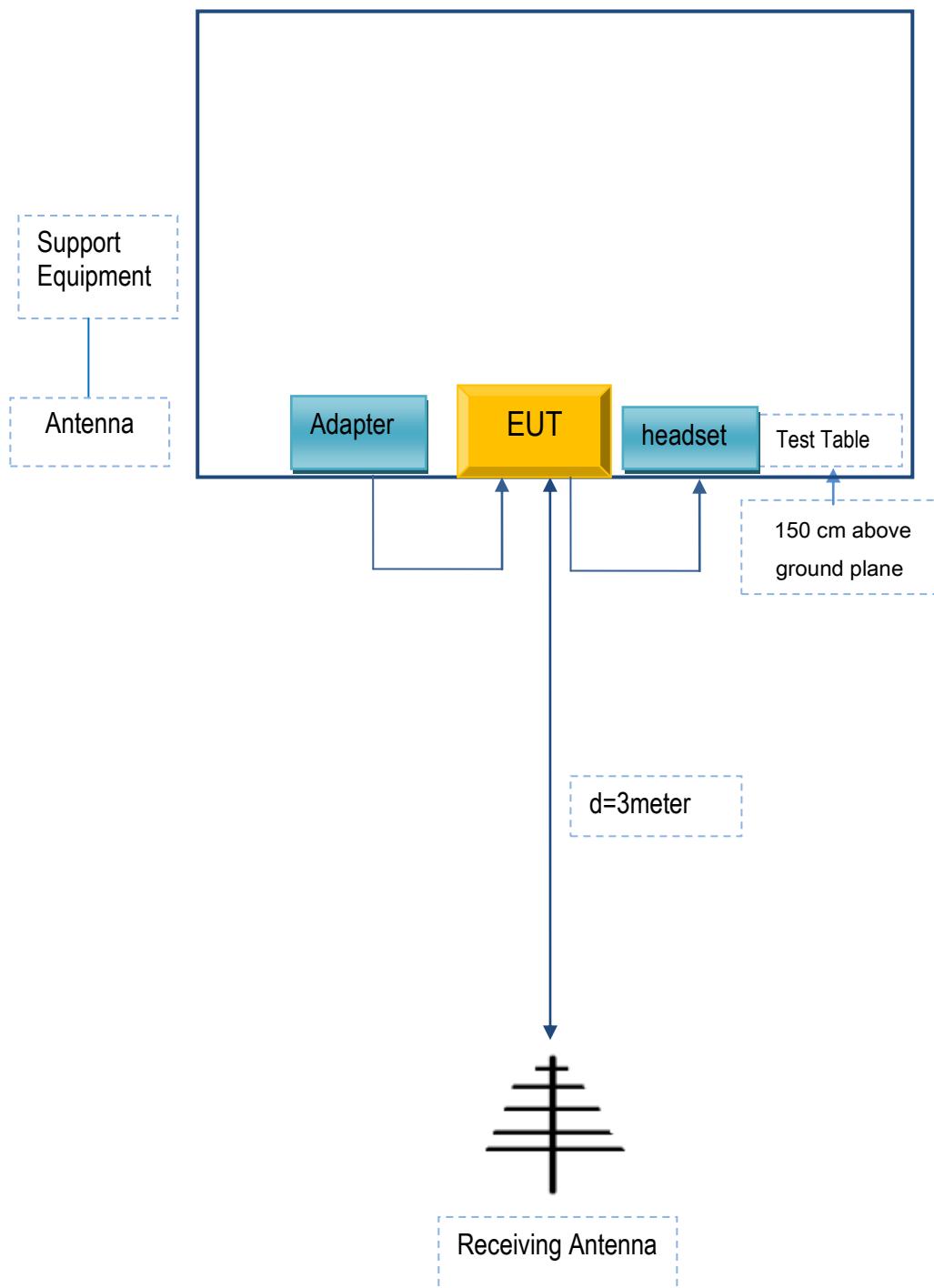
Annex B.iii. Photograph: Test Setup Photo



Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

Block Configuration Diagram for Radiated Emissions



Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

Supporting Equipment:

Manufacturer	Equipment Description	Model	Serial No
BLU Products , Inc	Adapter	TPA-46B050100UU	N/A
SAMSUNG	headset	HS330	N/A

Supporting Cable:

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

Annex C.ii. EUT OPERATING CONDITIONS

N/A

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

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A