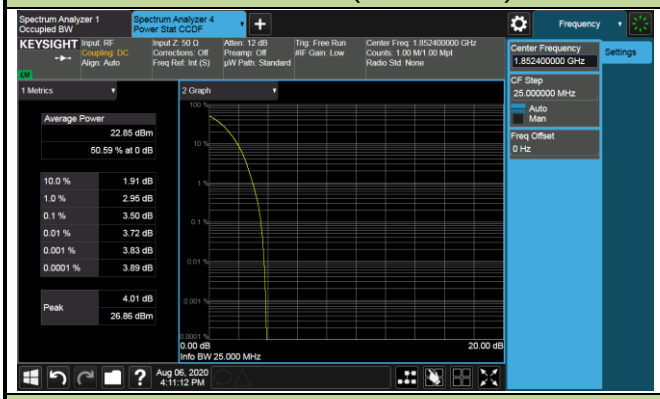
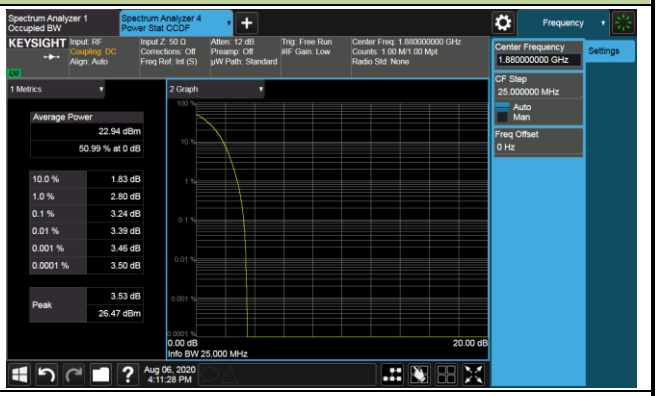
WCDMA Band II

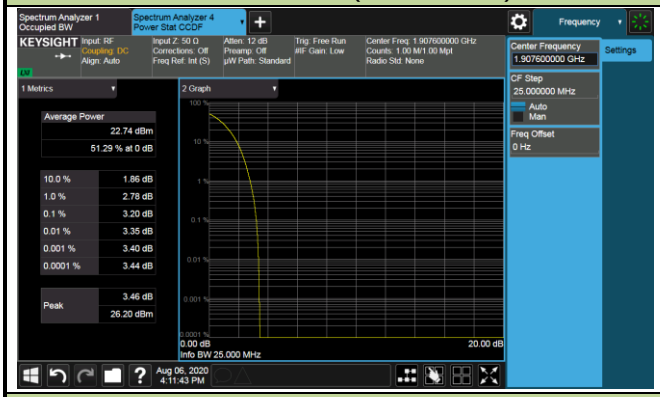
Channel 9262 (1852.4MHz)



Channel 9400 (1880.0MHz)

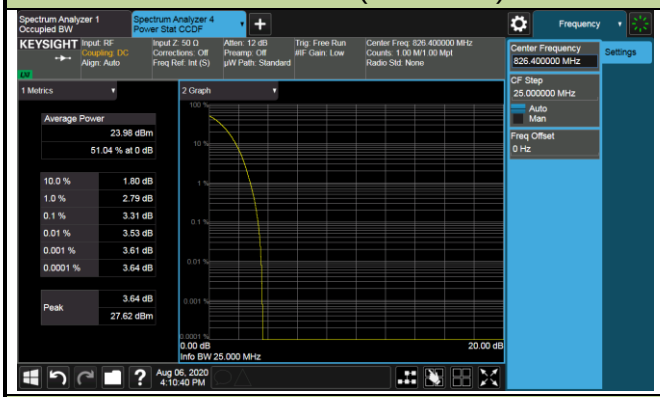


Channel 9538 (1907.6MHz)

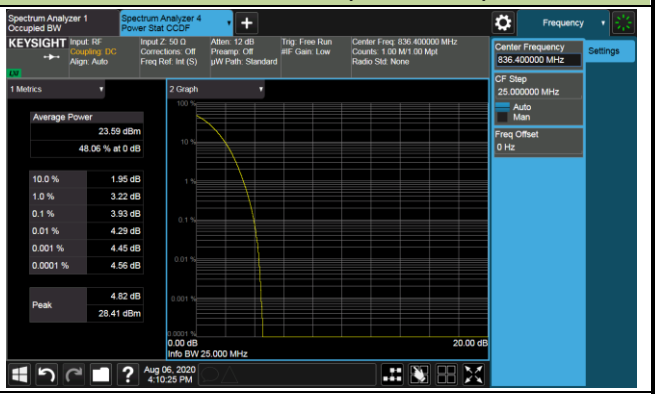


WCDMA Band V

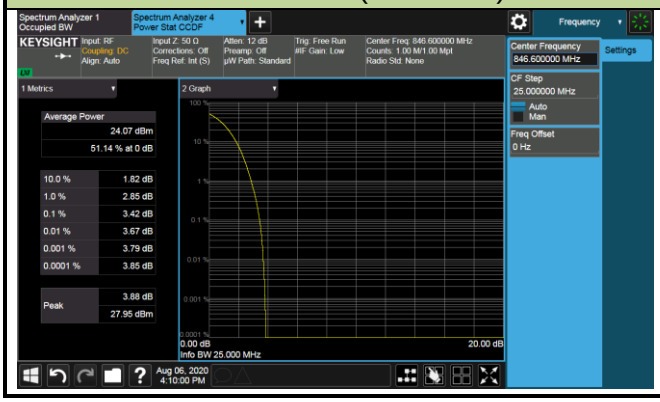
Channel 4132 (826.4MHz)



Channel 4183 (836.4MHz)



Channel 4233 (846.6MHz)



5.7. Conducted Spurious Emissions

5.7.1. Test Limit

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

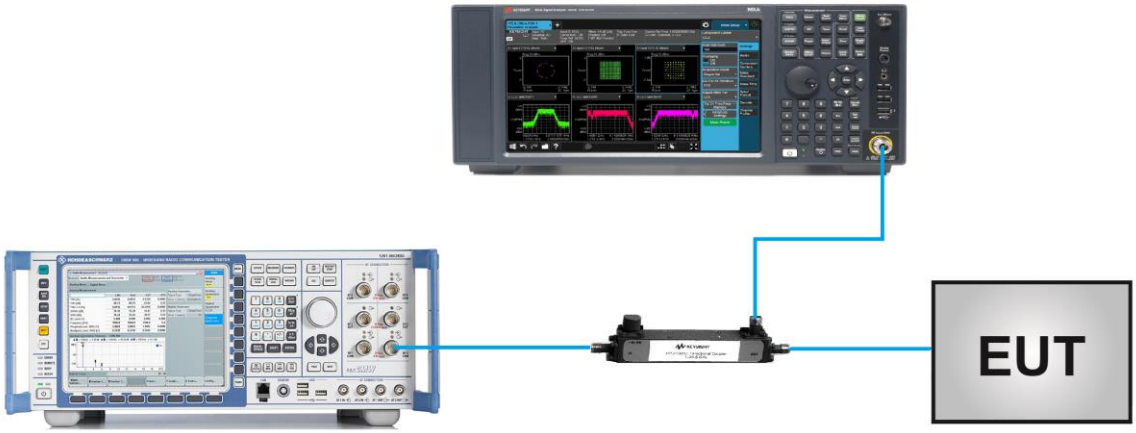
5.7.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.7

5.7.3. Test Setting

1. Set the analyzer frequency to low, mid, high channel.
2. RBW = 1MHz
3. VBW ≥ 3*RBW
4. Detector = power averaging (rms)
5. Set sweep trigger to “free run.”
6. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
7. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

5.7.4. Test Setup



5.7.5. Test Result

Product	UMTS/HSPA+Module	Test Engineer	Candy Luo
Test Date	2020/08/06	Test Site	SR6
Test Result	Pass		

Mode	Frequency (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
GSM 850	824.2	30 ~ 10000	-43.37	≤ -13.00	Pass
	836.4	30 ~ 10000	-41.97	≤ -13.00	Pass
	848.8	30 ~ 10000	-43.44	≤ -13.00	Pass
PCS 1900	1850.2	30 ~ 20000	-42.55	≤ -13.00	Pass
	1880.0	30 ~ 20000	-44.51	≤ -13.00	Pass
	1909.8	30 ~ 20000	-43.91	≤ -13.00	Pass
EDGE 850	824.2	30 ~ 10000	-39.93	≤ -13.00	Pass
	836.4	30 ~ 10000	-40.72	≤ -13.00	Pass
	848.8	30 ~ 10000	-40.84	≤ -13.00	Pass
EDGE 1900	1850.2	30 ~ 20000	-41.39	≤ -13.00	Pass
	1880.0	30 ~ 20000	-42.29	≤ -13.00	Pass
	1909.8	30 ~ 20000	-41.87	≤ -13.00	Pass
WCDMA Band II	1852.4	30 ~ 20000	-43.53	≤ -13.00	Pass
	1880.0	30 ~ 20000	-43.42	≤ -13.00	Pass
	1907.6	30 ~ 20000	-44.04	≤ -13.00	Pass
WCDMA Band V	826.4	30 ~ 10000	-43.64	≤ -13.00	Pass
	836.4	30 ~ 10000	-42.60	≤ -13.00	Pass
	846.6	30 ~ 10000	-43.60	≤ -13.00	Pass

GSM 850

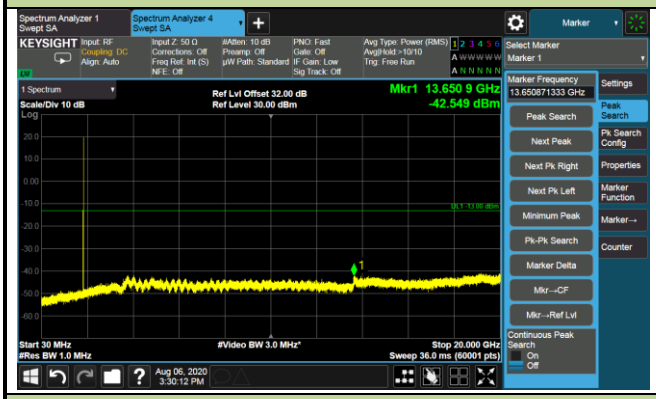
Lowest Channel

Middle Channel

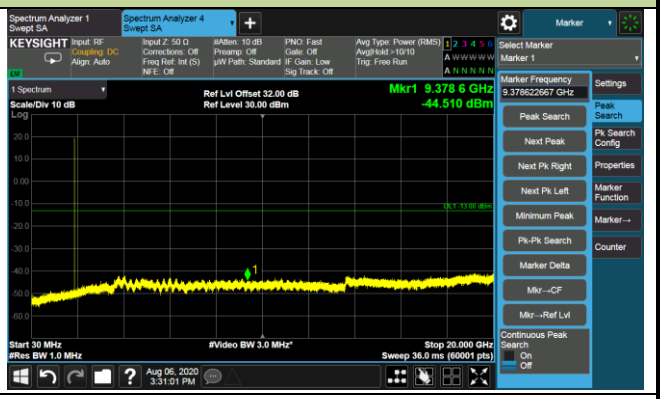
Highest Channel

PCS 1900

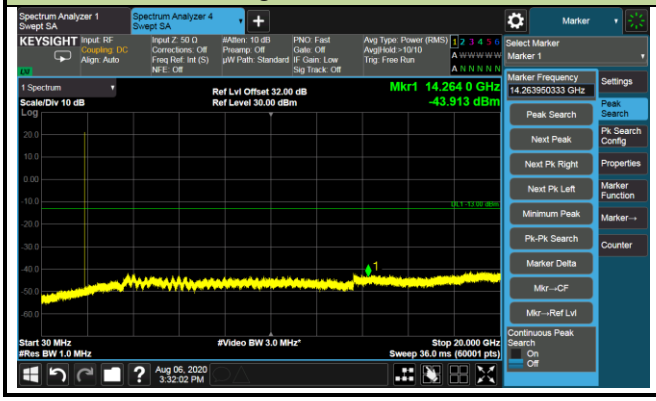
Lowest Channel



Middle Channel



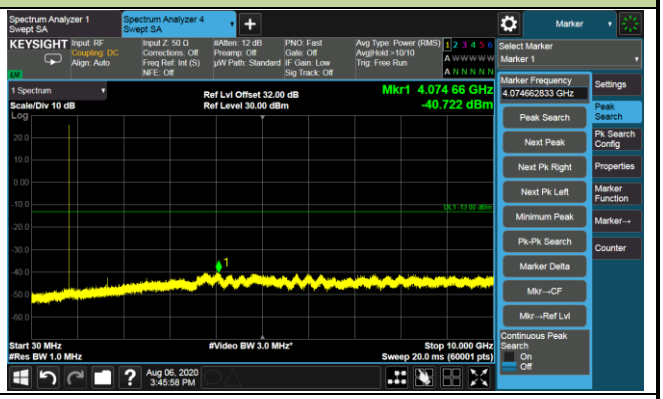
Highest Channel



EDGE 850

Lowest Channel

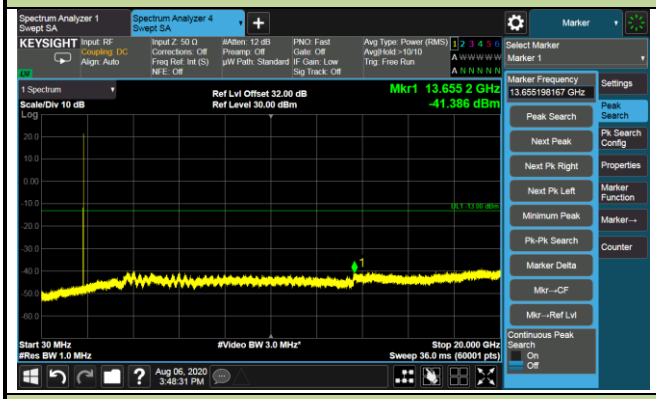
Middle Channel



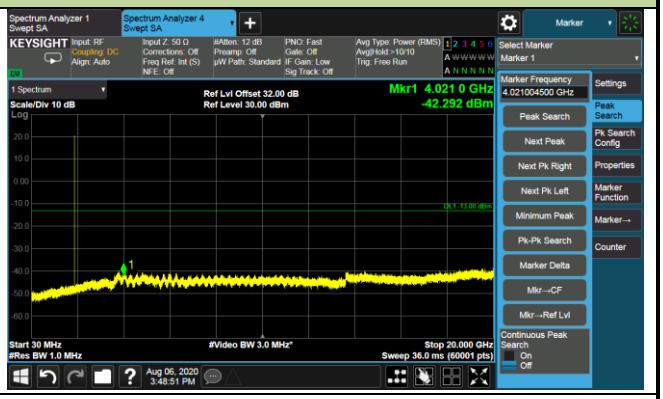
Highest Channel

EDGE 1900

Lowest Channel



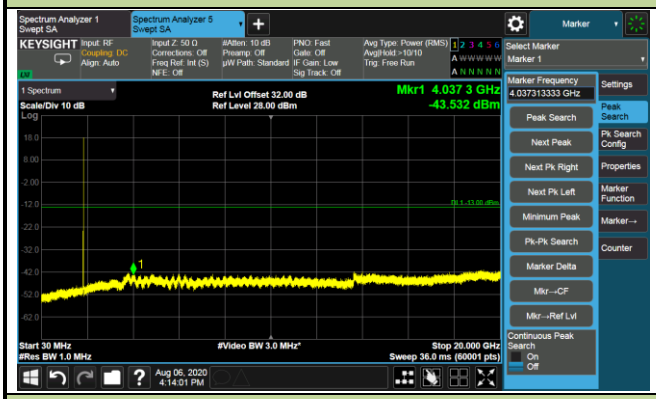
Middle Channel



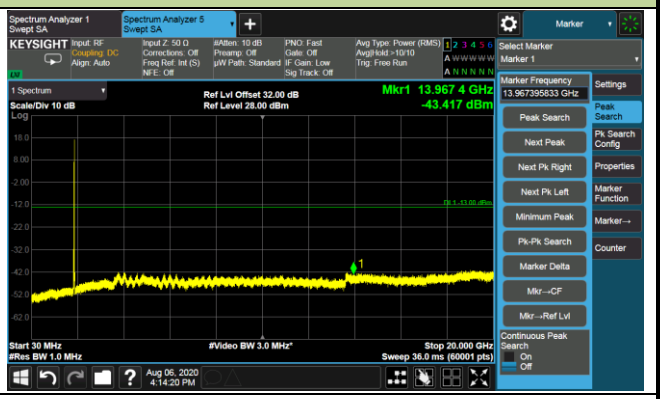
Highest Channel

WCDMA Band II

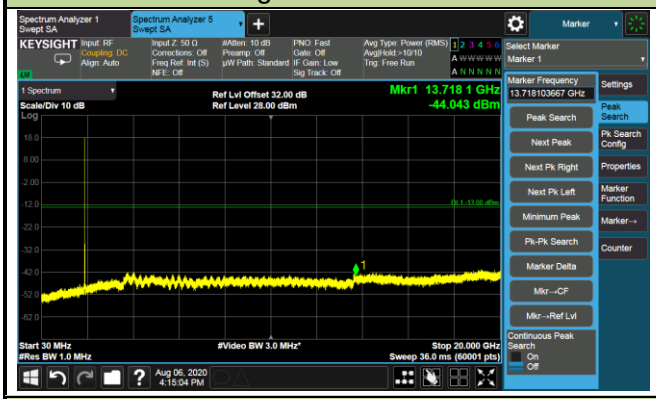
Lowest Channel



Middle Channel



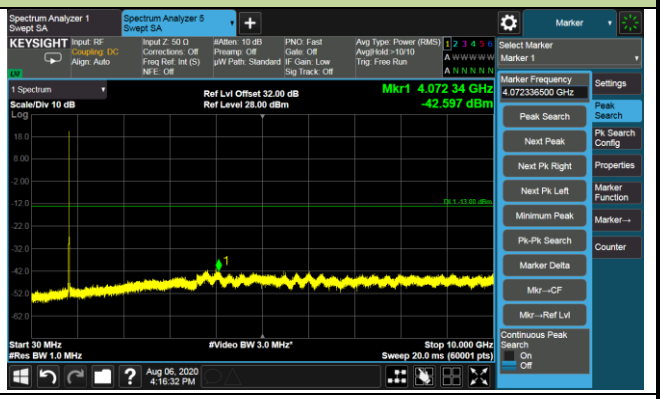
Highest Channel



WCDMA Band V

Lowest Channel

Middle Channel



Highest Channel

5.8. Radiated Spurious Emissions Measurements

5.8.1. Test Limit

Out of band emissions: The powerof any emission outside of theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factorof at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dBμV/m.

5.8.2. Test Procedure Used

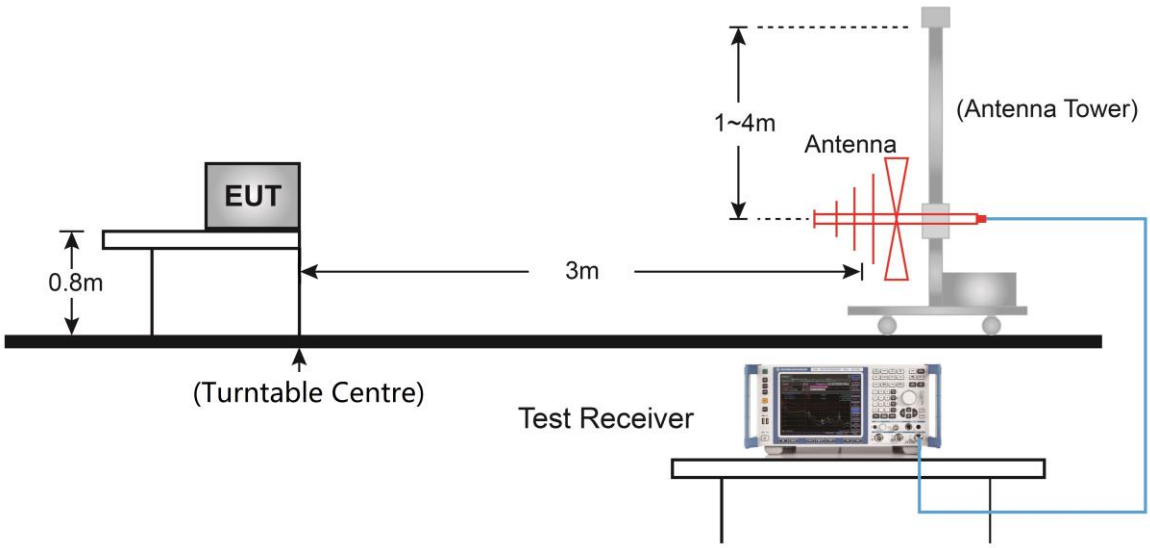
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.8.3. Test Setting

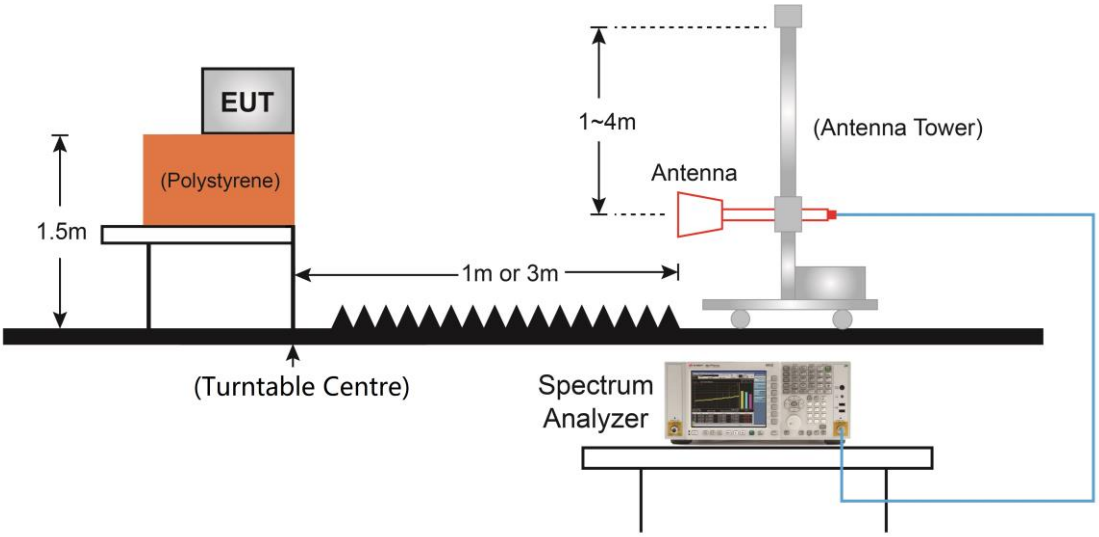
1. RBW = 1MHz
2. VBW≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.8.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.8.5. Test Result

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	GSM 850		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 128 (824.2MHz)							
153.2	16.7	14.9	31.6	82.3	-50.7	Peak	Horizontal
492.2	5.7	24.3	30.0	82.3	-52.3	Peak	Horizontal
139.6	16.9	14.8	31.7	82.3	-50.6	Peak	Vertical
679.4	6.0	27.1	33.1	82.3	-49.2	Peak	Vertical
1646.0	57.9	-7.4	50.5	82.3	-31.8	Peak	Horizontal
2470.5	53.0	-5.0	48.0	82.3	-34.3	Peak	Horizontal
1646.0	58.6	-7.4	51.2	82.3	-31.1	Peak	Vertical
2470.5	61.1	-5.0	56.1	82.3	-26.2	Peak	Vertical
Middle CH 189 (836.4MHz)							
155.6	15.2	15.1	30.3	82.3	-52.0	Peak	Horizontal
625.6	5.9	26.0	31.9	82.3	-50.4	Peak	Horizontal
47.5	11.9	20.3	32.2	82.3	-50.1	Peak	Vertical
139.1	17.4	14.8	32.2	82.3	-50.1	Peak	Vertical
1671.5	57.2	-7.5	49.7	82.3	-32.6	Peak	Horizontal
2513.0	52.6	-5.1	47.5	82.3	-34.8	Peak	Horizontal
1671.5	57.7	-7.5	50.2	82.3	-32.1	Peak	Vertical
2513.0	61.0	-5.1	55.9	82.3	-26.4	Peak	Vertical
Top CH 251 (848.8MHz)							
156.1	15.6	15.1	30.7	82.3	-51.6	Peak	Horizontal
623.2	5.4	26.1	31.5	82.3	-50.8	Peak	Horizontal
39.7	12.9	19.1	32.0	82.3	-50.3	Peak	Vertical
137.7	17.3	14.8	32.1	82.3	-50.2	Peak	Vertical
1697.0	51.6	-7.2	44.4	82.3	-37.9	Peak	Horizontal
2547.0	54.6	-5.1	49.5	82.3	-32.8	Peak	Horizontal
1697.0	60.0	-7.2	52.8	82.3	-29.5	Peak	Vertical
2547.0	61.3	-5.1	56.2	82.3	-26.1	Peak	Vertical

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	PCS 1900		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 512 (1850.4MHz)							
157.6	11.8	15.2	27.0	82.3	-55.3	Peak	Horizontal
304.5	9.7	20.2	29.9	82.3	-52.4	Peak	Horizontal
41.6	14.1	19.6	33.7	82.3	-48.6	Peak	Vertical
138.6	12.7	14.8	27.5	82.3	-54.8	Peak	Vertical
3703.0	49.7	-3.7	46.0	82.3	-36.3	Peak	Horizontal
7995.5	36.2	8.8	45.0	82.3	-37.3	Peak	Horizontal
3703.0	54.3	-3.7	50.6	82.3	-31.7	Peak	Vertical
5547.5	44.6	0.7	45.3	82.3	-37.0	Peak	Vertical
Middle CH 661 (1880.0MHz)							
155.6	11.9	15.1	27.0	82.3	-55.3	Peak	Horizontal
304.5	10.0	20.2	30.2	82.3	-52.1	Peak	Horizontal
43.6	12.9	20.1	33.0	82.3	-49.3	Peak	Vertical
136.7	13.2	14.8	28.0	82.3	-54.3	Peak	Vertical
3762.5	44.6	-3.4	41.2	82.3	-41.1	Peak	Horizontal
7188.0	34.2	7.9	42.1	82.3	-40.2	Peak	Horizontal
3762.5	48.6	-3.4	45.2	82.3	-37.1	Peak	Vertical
5641.0	42.9	1.2	44.1	82.3	-38.2	Peak	Vertical
Top CH 810 (1909.8MHz)							
156.6	12.8	15.1	27.9	82.3	-54.4	Peak	Horizontal
274.9	9.9	19.7	29.6	82.3	-52.7	Peak	Horizontal
42.1	14.6	19.7	34.3	82.3	-48.0	Peak	Vertical
137.7	12.8	14.8	27.6	82.3	-54.7	Peak	Vertical
3822.0	42.5	-3.5	39.0	82.3	-43.3	Peak	Horizontal
7018.0	34.7	6.7	41.4	82.3	-40.9	Peak	Horizontal
3822.0	47.3	-3.5	43.8	82.3	-38.5	Peak	Vertical
5726.0	43.2	1.4	44.6	82.3	-37.7	Peak	Vertical

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	EDGE 850		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 128 (824.2MHz)							
155.1	16.5	15.0	31.5	82.3	-50.8	Peak	Horizontal
504.8	5.6	24.3	29.9	82.3	-52.4	Peak	Horizontal
39.7	12.4	19.1	31.5	82.3	-50.8	Peak	Vertical
140.1	16.2	14.7	30.9	82.3	-51.4	Peak	Vertical
1646.0	58.1	-7.4	50.7	82.3	-31.6	Peak	Horizontal
2470.5	52.0	-5.0	47.0	82.3	-35.3	Peak	Horizontal
1646.0	59.4	-7.4	52.0	82.3	-30.3	Peak	Vertical
2470.5	60.1	-5.0	55.1	82.3	-27.2	Peak	Vertical
Middle CH 189 (836.4MHz)							
155.1	15.6	15.0	30.6	82.3	-51.7	Peak	Horizontal
521.3	6.4	24.3	30.7	82.3	-51.6	Peak	Horizontal
42.1	12.9	19.7	32.6	82.3	-49.7	Peak	Vertical
138.6	16.2	14.8	31.0	82.3	-51.3	Peak	Vertical
1671.5	57.6	-7.5	50.1	82.3	-32.2	Peak	Horizontal
2513.0	52.9	-5.1	47.8	82.3	-34.5	Peak	Horizontal
1671.5	57.3	-7.5	49.8	82.3	-32.5	Peak	Vertical
2513.0	61.4	-5.1	56.3	82.3	-26.0	Peak	Vertical
Top CH 251 (848.8MHz)							
154.2	16.3	15.0	31.3	82.3	-51.0	Peak	Horizontal
583.9	5.0	25.9	30.9	82.3	-51.4	Peak	Horizontal
38.7	14.9	18.8	33.7	82.3	-48.6	Peak	Vertical
138.6	17.2	14.8	32.0	82.3	-50.3	Peak	Vertical
1697.0	51.8	-7.2	44.6	82.3	-37.7	Peak	Horizontal
2547.0	54.3	-5.1	49.2	82.3	-33.1	Peak	Horizontal
1697.0	59.0	-7.2	51.8	82.3	-30.5	Peak	Vertical
2547.0	61.7	-5.1	56.6	82.3	-25.7	Peak	Vertical

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	EDGE 1900		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 512 (1850.4MHz)							
154.6	10.6	15.0	25.6	82.3	-56.7	Peak	Horizontal
252.6	9.8	19.4	29.2	82.3	-53.1	Peak	Horizontal
39.7	13.7	19.1	32.8	82.3	-49.5	Peak	Vertical
139.6	11.5	14.8	26.3	82.3	-56.0	Peak	Vertical
3703.0	49.2	-3.7	45.5	82.3	-36.8	Peak	Horizontal
7205.0	34.0	8.1	42.1	82.3	-40.2	Peak	Horizontal
3703.0	54.0	-3.7	50.3	82.3	-32.0	Peak	Vertical
5547.5	44.8	0.7	45.5	82.3	-36.8	Peak	Vertical
Middle CH 661 (1880.0MHz)							
155.6	12.7	15.1	27.8	82.3	-54.5	Peak	Horizontal
289.5	11.8	20.1	31.9	82.3	-50.4	Peak	Horizontal
42.1	14.3	19.7	34.0	82.3	-48.3	Peak	Vertical
140.1	12.4	14.7	27.1	82.3	-55.2	Peak	Vertical
3762.5	44.4	-3.4	41.0	82.3	-41.3	Peak	Horizontal
7188.0	33.8	7.9	41.7	82.3	-40.6	Peak	Horizontal
3762.5	47.8	-3.4	44.4	82.3	-37.9	Peak	Vertical
5641.0	42.8	1.2	44.0	82.3	-38.3	Peak	Vertical
Top CH 810 (1909.8MHz)							
156.6	12.8	15.1	27.9	82.3	-54.4	Peak	Horizontal
289.5	10.7	20.1	30.8	82.3	-51.5	Peak	Horizontal
43.6	13.1	20.1	33.2	82.3	-49.1	Peak	Vertical
137.7	13.0	14.8	27.8	82.3	-54.5	Peak	Vertical
3822.0	42.5	-3.5	39.0	82.3	-43.3	Peak	Horizontal
8080.5	36.7	8.9	45.6	82.3	-36.7	Peak	Horizontal
3822.0	46.7	-3.5	43.2	82.3	-39.1	Peak	Vertical
5726.0	44.1	1.4	45.5	82.3	-36.8	Peak	Vertical

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	WCDMA Band II		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 9263 (1852.4MHz)							
139.6	9.9	14.8	24.7	82.3	-57.6	Peak	Horizontal
507.2	5.7	24.3	30.0	82.3	-52.3	Peak	Horizontal
41.6	14.1	19.6	33.7	82.3	-48.6	Peak	Vertical
139.6	10.9	14.8	25.7	82.3	-56.6	Peak	Vertical
3703.0	44.7	-3.7	41.0	82.3	-41.3	Peak	Horizontal
13911.5	34.5	21.6	56.1	82.3	-26.2	Peak	Horizontal
3703.0	49.6	-3.7	45.9	82.3	-36.4	Peak	Vertical
5556.0	39.6	0.5	40.1	82.3	-42.2	Peak	Vertical
Middle CH 9400 (1880.0MHz)							
157.1	11.0	15.1	26.1	82.3	-56.2	Peak	Horizontal
539.3	6.4	24.7	31.1	82.3	-51.2	Peak	Horizontal
42.1	12.6	19.7	32.3	82.3	-50.0	Peak	Vertical
140.6	10.2	14.7	24.9	82.3	-57.4	Peak	Vertical
3779.5	42.8	-3.2	39.6	82.3	-42.7	Peak	Horizontal
13920.0	33.4	21.7	55.1	82.3	-27.2	Peak	Horizontal
3779.5	46.0	-3.2	42.8	82.3	-39.5	Peak	Vertical
5666.5	38.5	1.3	39.8	82.3	-42.5	Peak	Vertical
Top CH 9537 (1907.6MHz)							
153.2	9.5	14.9	24.4	82.3	-57.9	Peak	Horizontal
489.8	5.6	24.2	29.8	82.3	-52.5	Peak	Horizontal
42.1	12.7	19.7	32.4	82.3	-49.9	Peak	Vertical
138.6	10.2	14.8	25.0	82.3	-57.3	Peak	Vertical
3813.5	41.3	-3.4	37.9	82.3	-44.4	Peak	Horizontal
7094.5	35.1	7.7	42.8	82.3	-39.5	Peak	Horizontal
3813.5	45.1	-3.4	41.7	82.3	-40.6	Peak	Vertical
5717.5	41.2	1.5	42.7	82.3	-39.6	Peak	Vertical

Product	UMTS/HSPA+Module	Temperature	23°C
Test Engineer	Buter Shi	Relative Humidity	55%
Test Site	AC1	Test Date	2020/08/09
Test Mode	WCDMA Band V		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom CH 4132 (826.4MHz)							
105.2	3.7	18.2	21.9	82.3	-60.4	Peak	Horizontal
362.2	5.4	21.3	26.7	82.3	-55.6	Peak	Horizontal
39.2	11.4	18.9	30.3	82.3	-52.0	Peak	Vertical
686.7	6.0	27.2	33.2	82.3	-49.1	Peak	Vertical
11591.0	32.5	16.4	48.9	82.3	-33.4	Peak	Horizontal
13945.5	34.7	21.1	55.8	82.3	-26.5	Peak	Horizontal
8140.0	35.0	8.7	43.7	82.3	-38.6	Peak	Vertical
14226.0	33.6	21.7	55.3	82.3	-27.0	Peak	Vertical
Middle CH 4182 (836.4MHz)							
55.2	3.6	19.9	23.5	82.3	-58.8	Peak	Horizontal
258.9	5.1	19.6	24.7	82.3	-57.6	Peak	Horizontal
55.2	7.2	19.9	27.1	82.3	-55.2	Peak	Vertical
545.6	4.8	24.9	29.7	82.3	-52.6	Peak	Vertical
11497.5	33.4	15.6	49.0	82.3	-33.3	Peak	Horizontal
14370.5	34.6	21.3	55.9	82.3	-26.4	Peak	Horizontal
8318.5	35.7	8.4	44.1	82.3	-38.2	Peak	Vertical
13835.0	35.1	21.1	56.2	82.3	-26.1	Peak	Vertical
Top CH 4233 (846.6MHz)							
106.6	4.3	18.2	22.5	82.3	-59.8	Peak	Horizontal
484.0	4.8	24.0	28.8	82.3	-53.5	Peak	Horizontal
54.7	7.8	20.0	27.8	82.3	-54.5	Peak	Vertical
403.0	4.7	22.7	27.4	82.3	-54.9	Peak	Vertical
7961.5	34.8	8.5	43.3	82.3	-39.0	Peak	Horizontal
12143.5	32.6	16.2	48.8	82.3	-33.5	Peak	Horizontal
1654.5	44.7	-7.4	37.3	82.3	-45.0	Peak	Vertical
13877.5	34.7	21.3	56.0	82.3	-26.3	Peak	Vertical

6. CONCLUSION

The data collected relate only the item(s) tested and show that unit is compliance with FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “2008RSU006-UT” file.

Appendix B - EUT Photograph

Refer to “2008RSU006-UE” file.