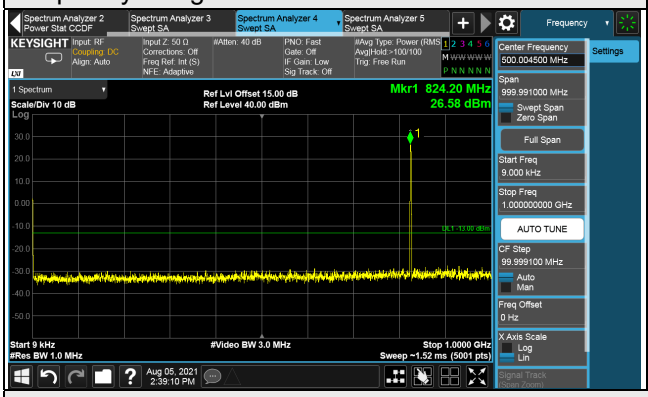
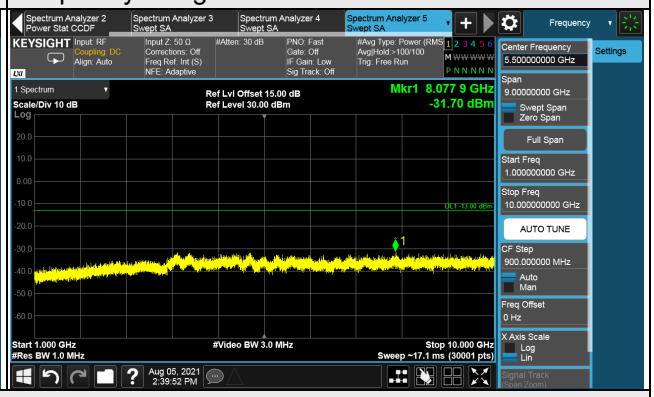
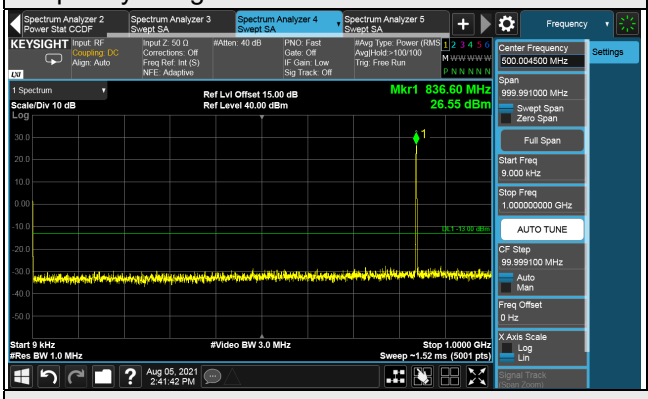
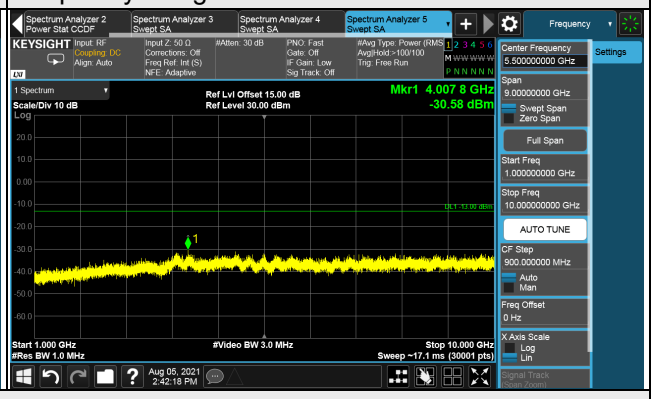
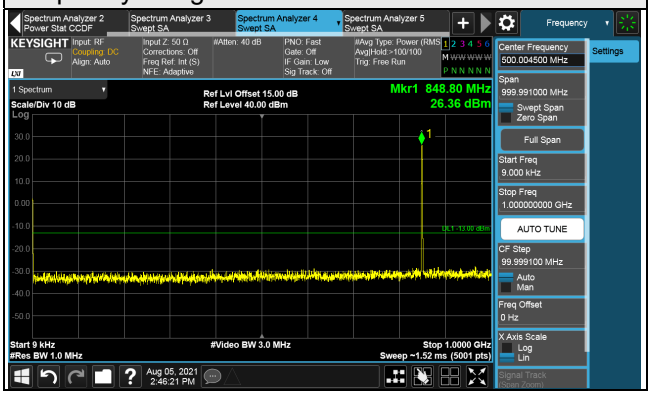
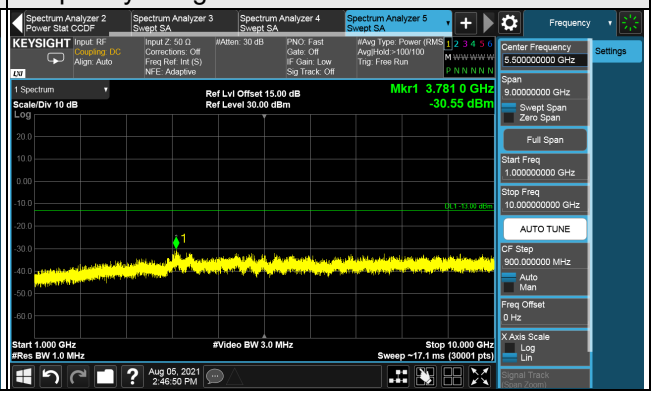
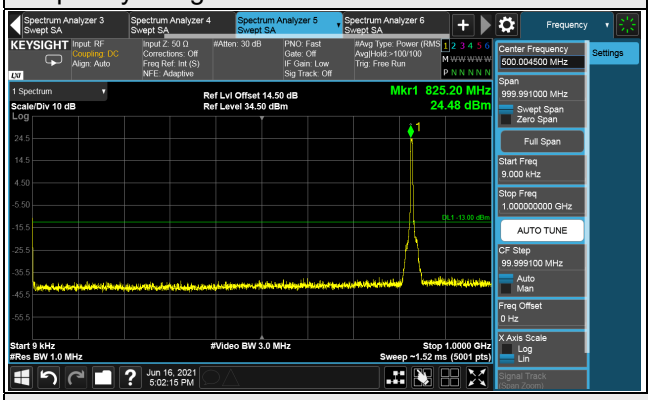
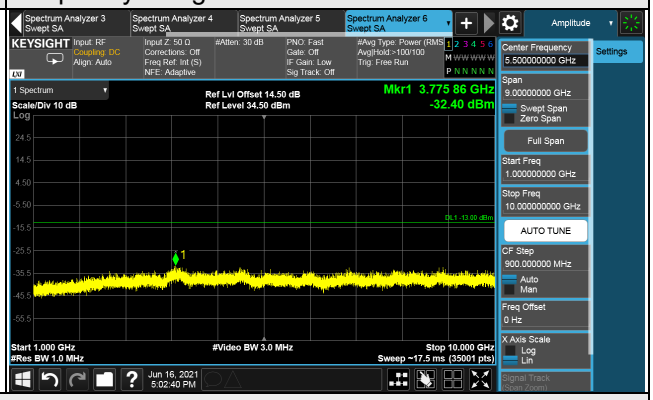
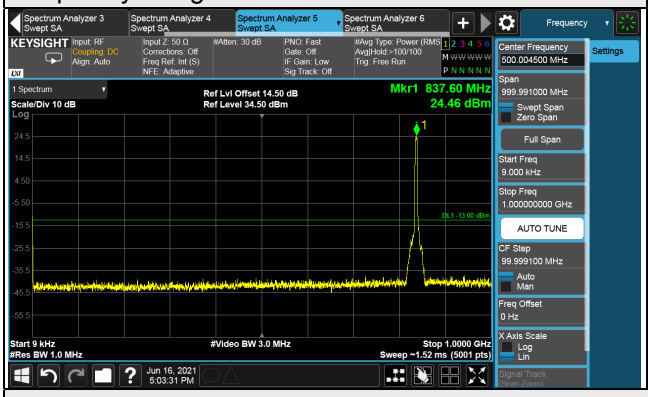
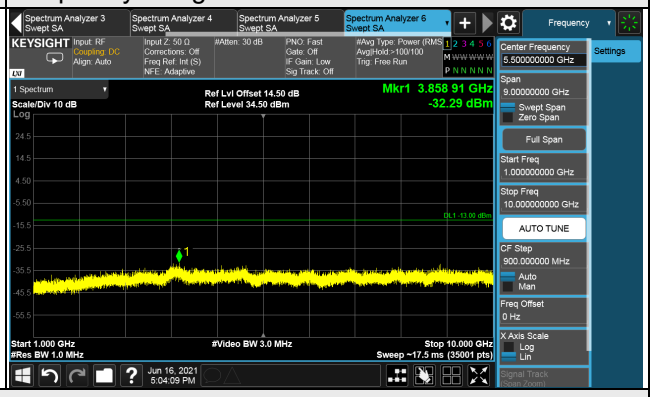
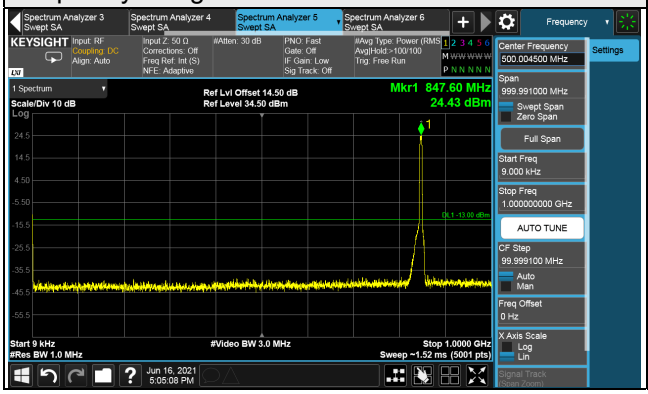
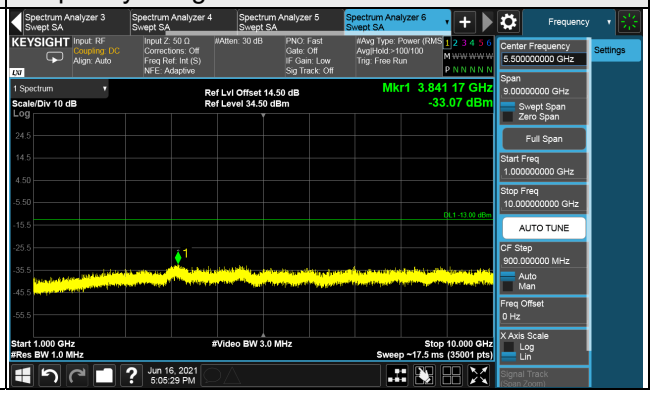
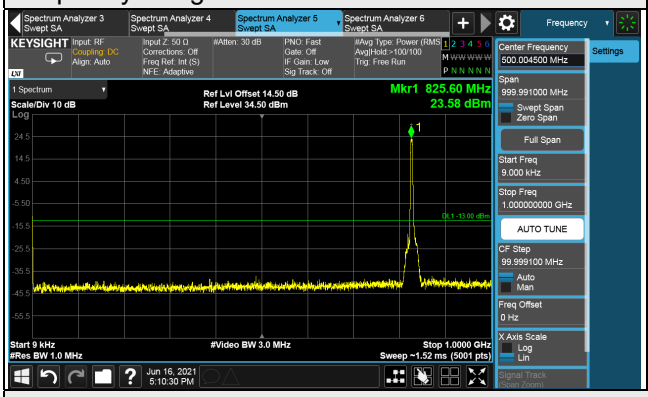
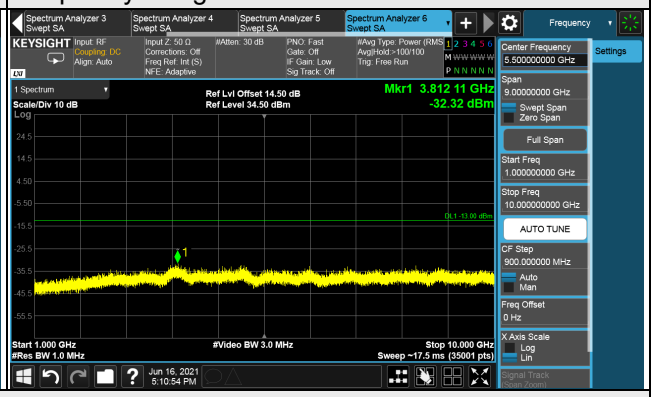
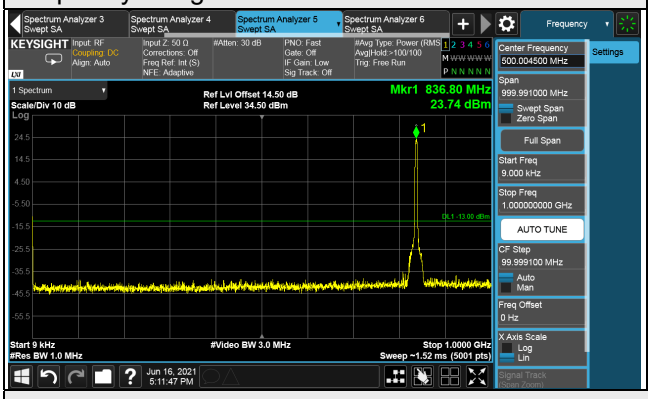
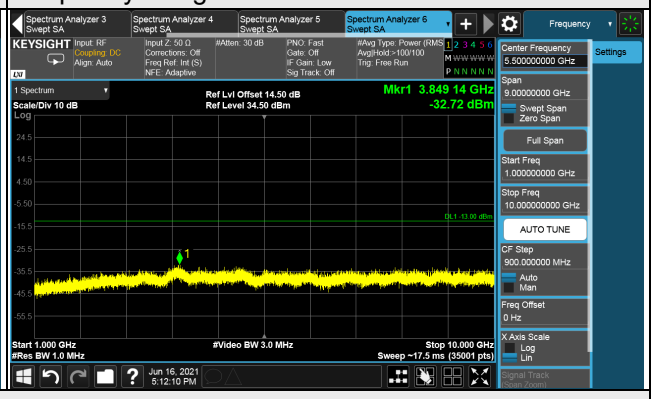
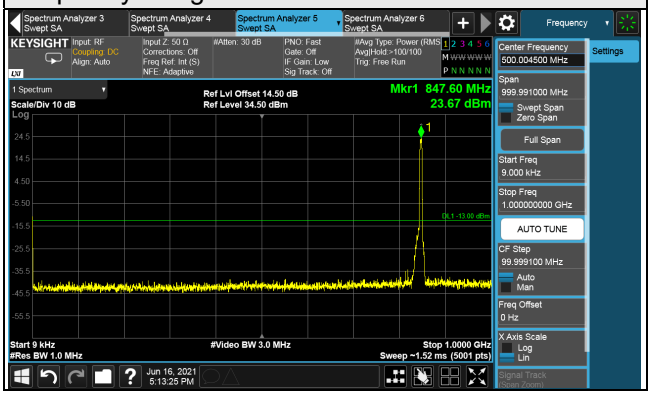
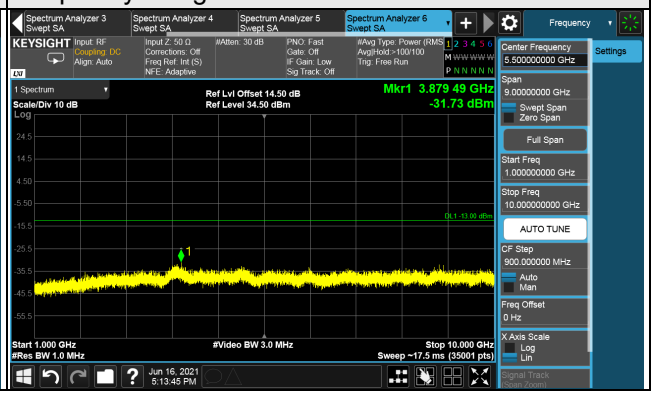
EDGE	
Channel 128 (824.2MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 189 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 251 (848.8MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

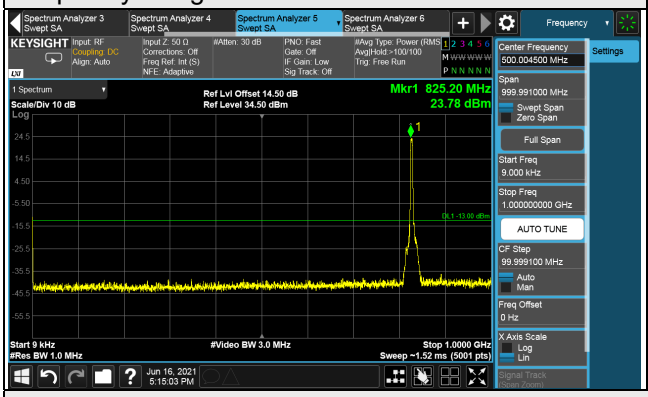
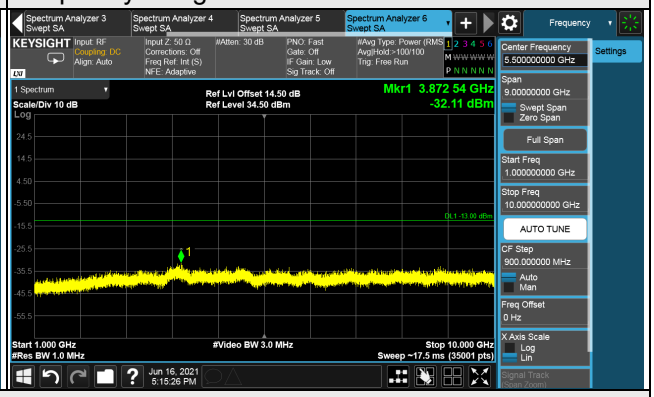
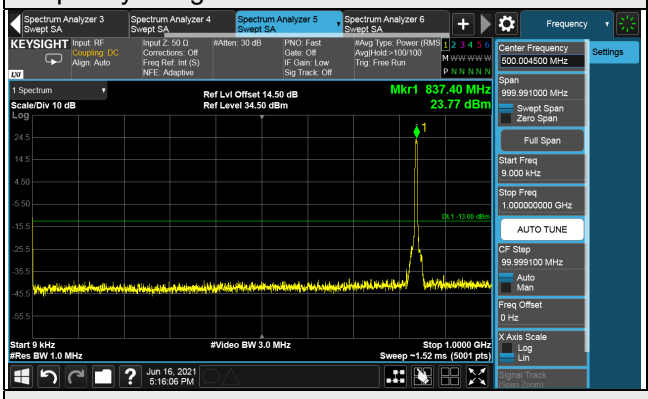
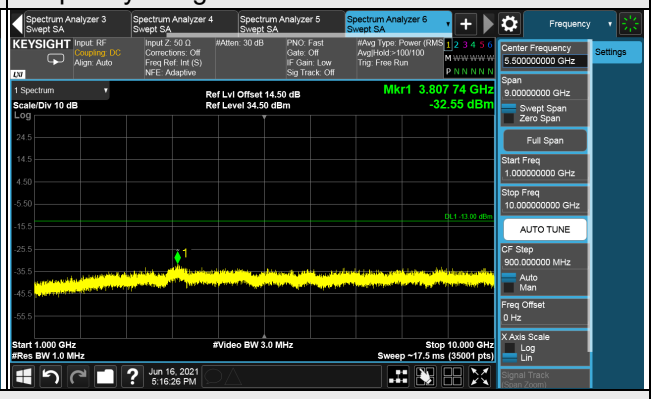
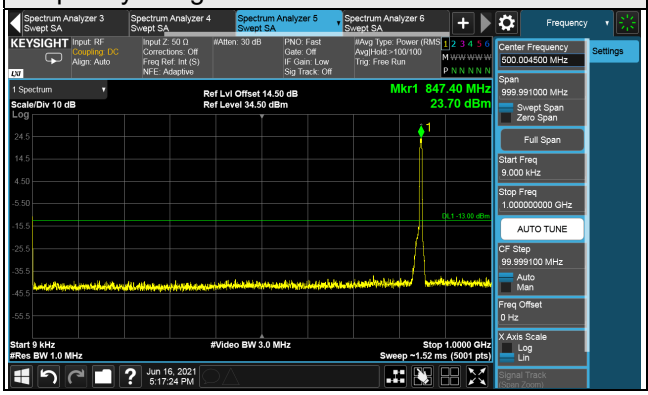
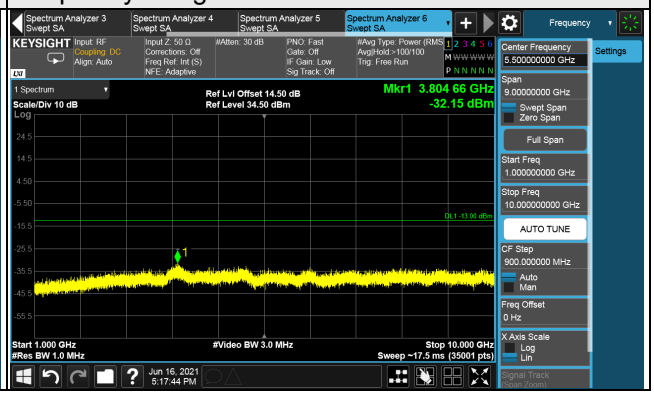
*The 9 kHz tone is from the spectrum analyzer.

WCDMA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

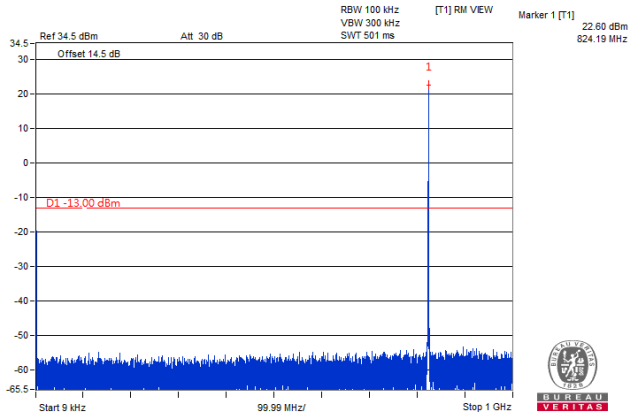
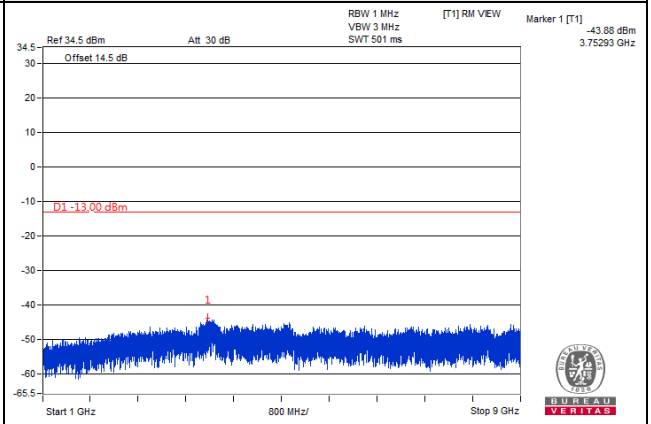
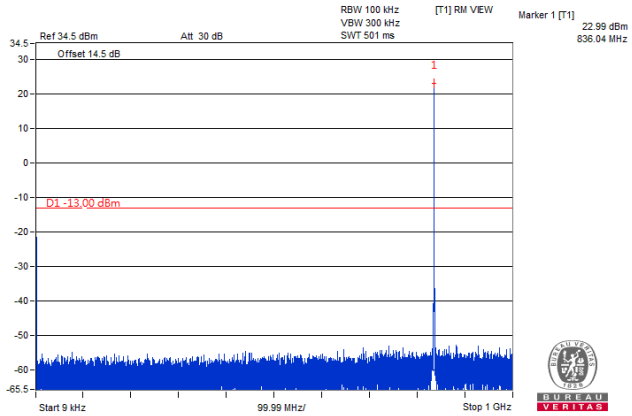
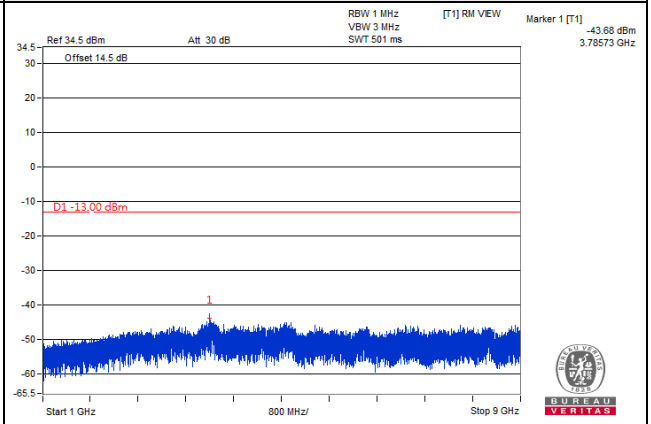
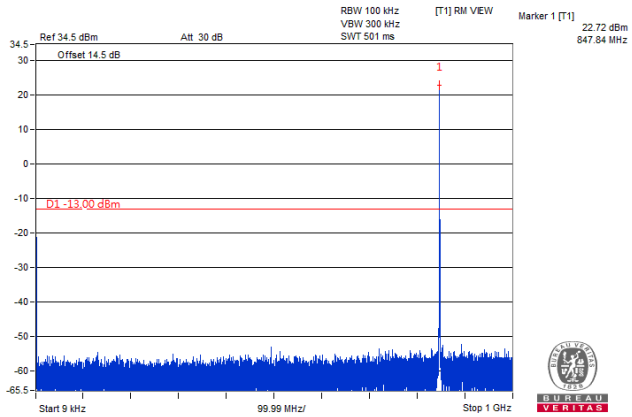
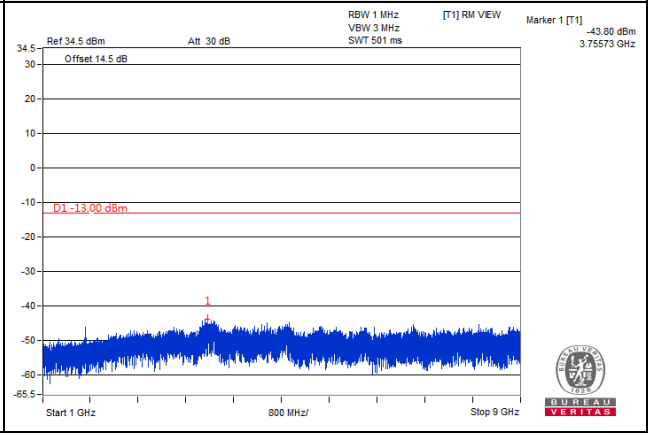
*The 9 kHz tone is from the spectrum analyzer.

HSDPA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

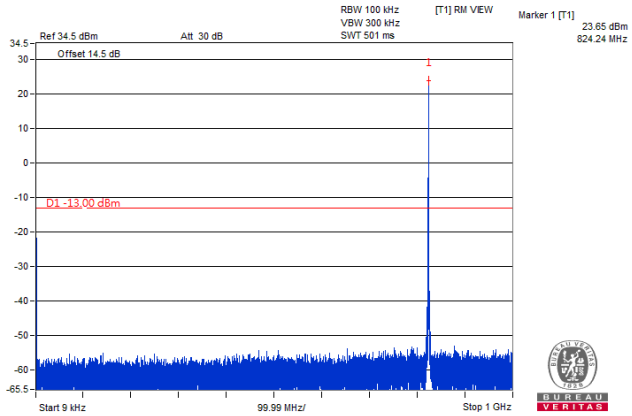
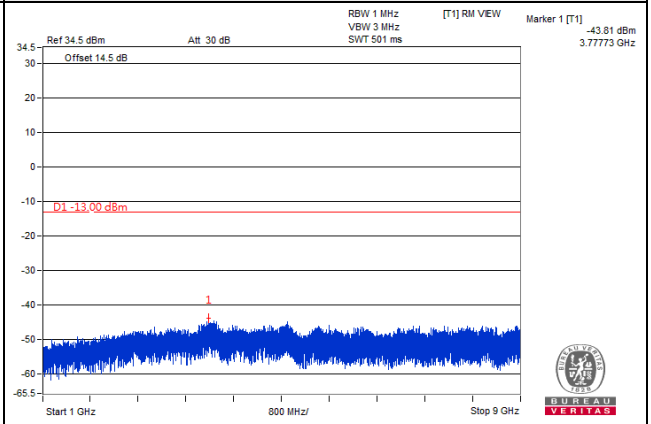
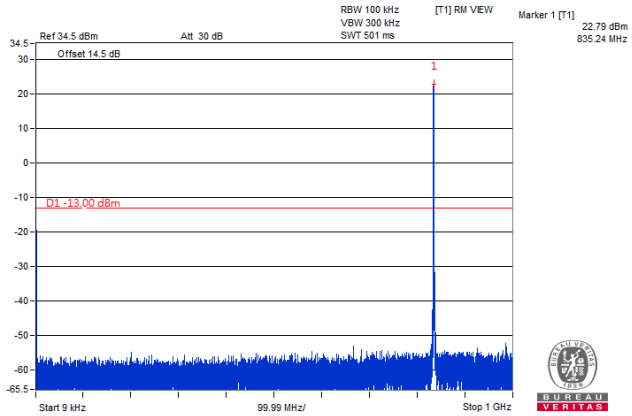
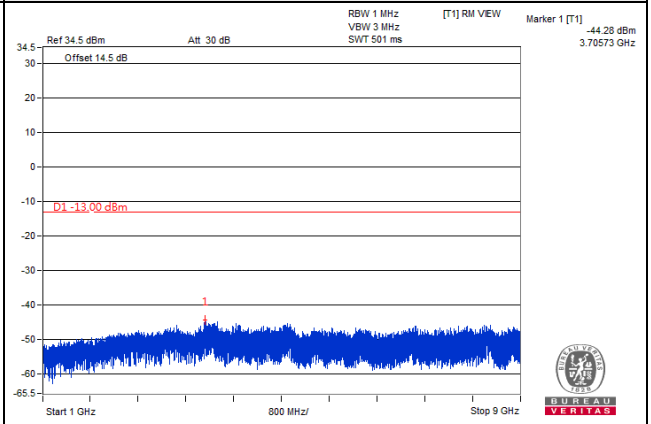
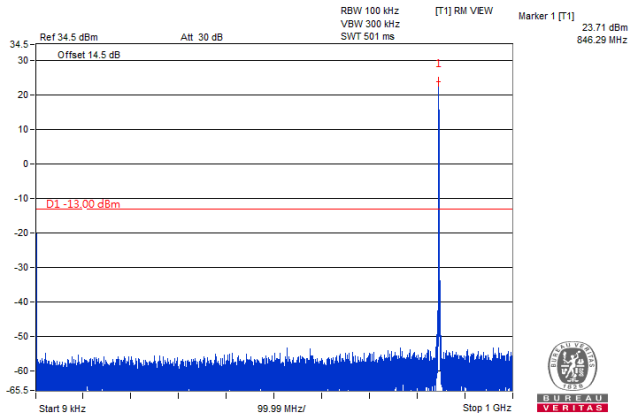
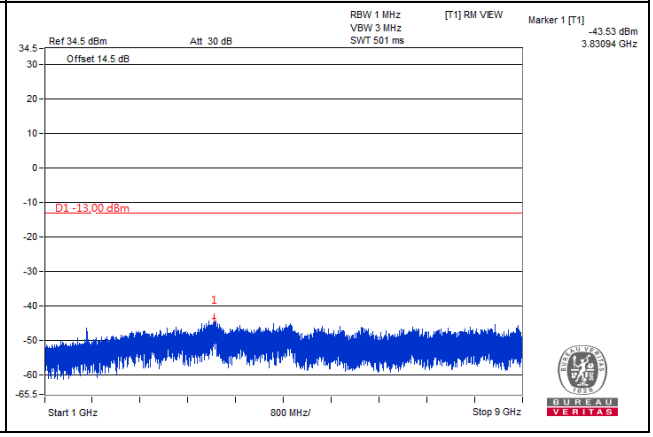
*The 9 kHz tone is from the spectrum analyzer.

HSUPA	
Channel 4132 (826.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4182 (836.4MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	
Channel 4233 (846.6MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 10GHz
	

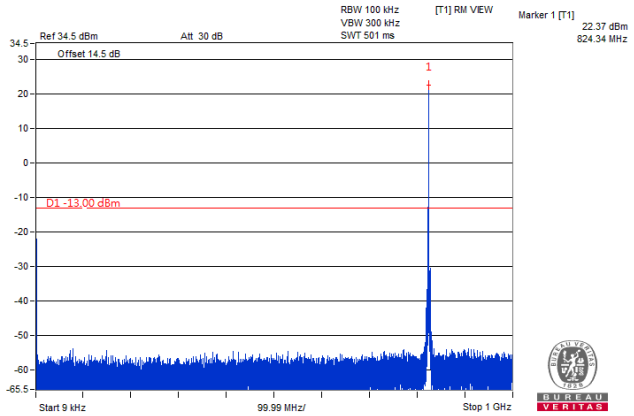
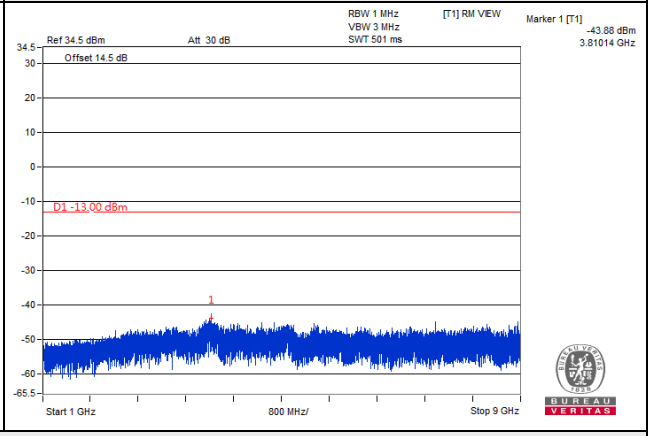
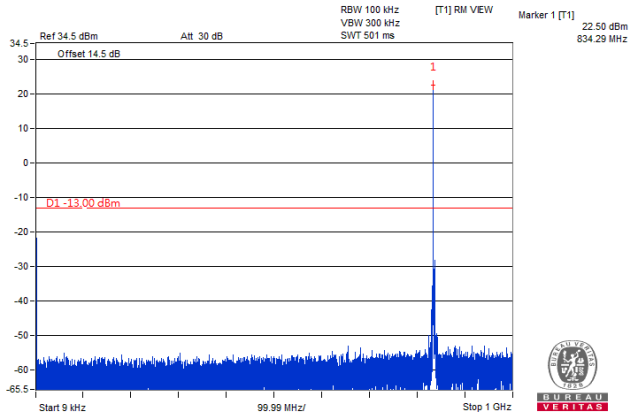
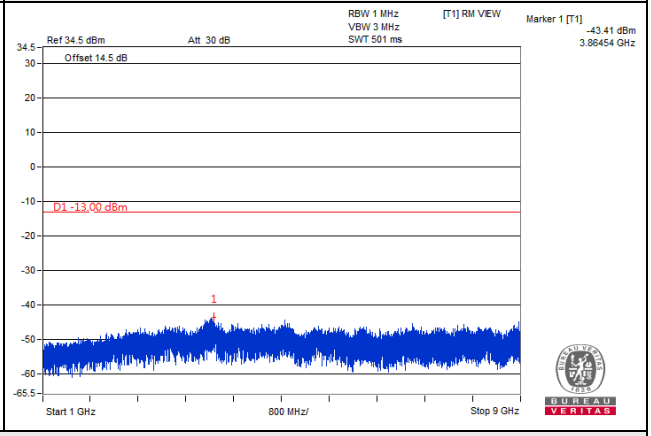
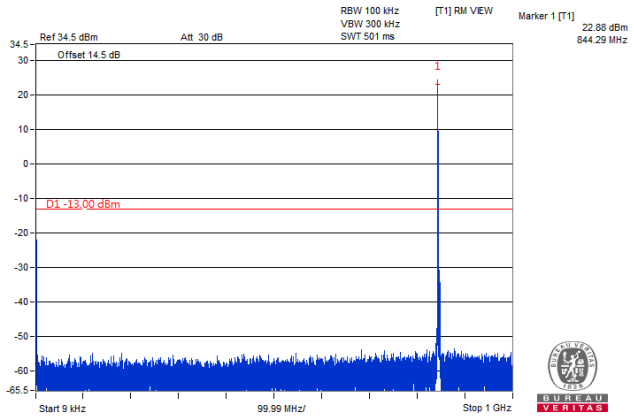
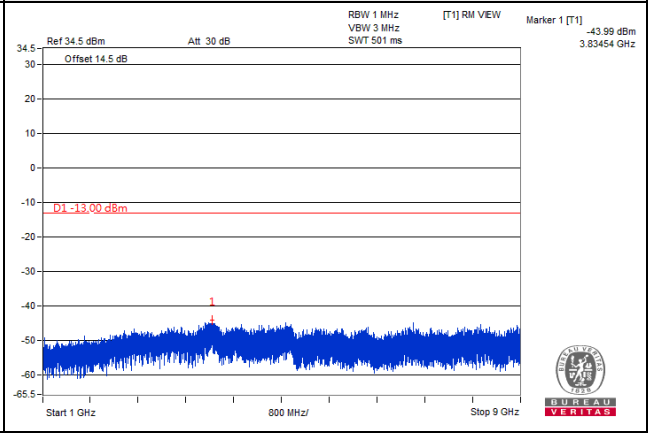
*The 9 kHz tone is from the spectrum analyzer.

LTE Band 5, Channel Bandwidth 1.4MHz	
Channel 20407 (824.7MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20643 (848.3MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	

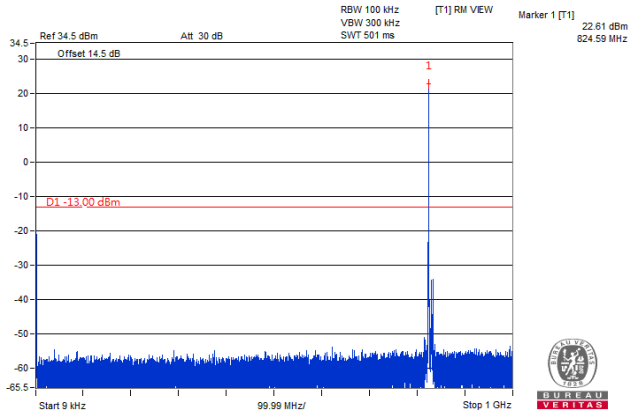
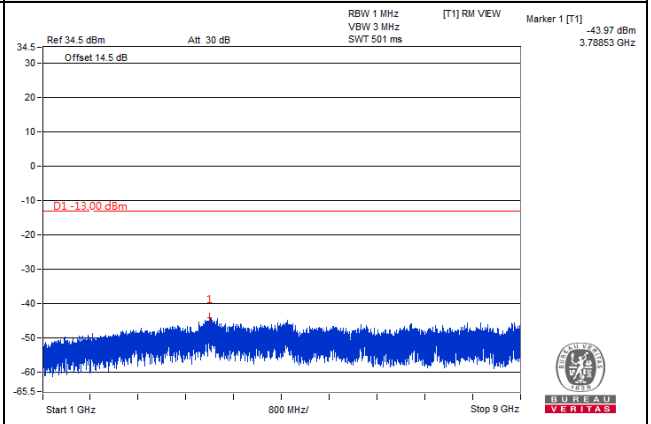
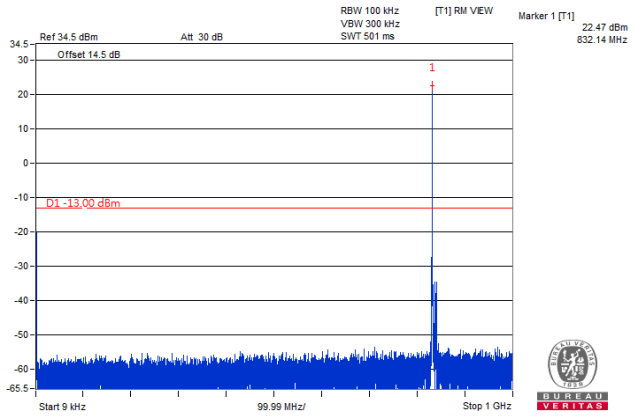
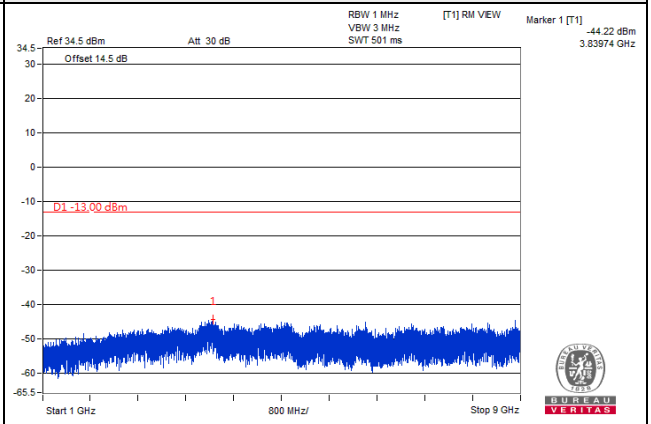
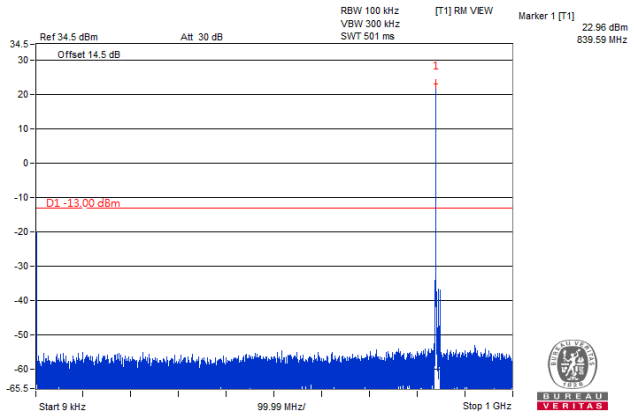
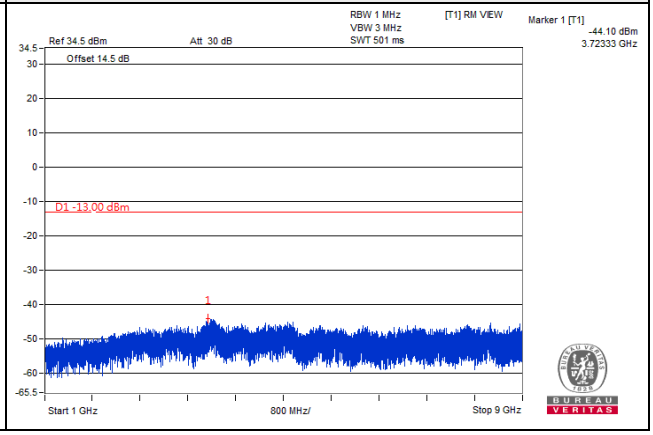
*The 9 kHz tone is from the spectrum analyzer.

LTE Band 5, Channel Bandwidth 3MHz	
Channel 20415 (825.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20635 (847.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	

*The 9 kHz tone is from the spectrum analyzer.

LTE Band 5, Channel Bandwidth 5MHz	
Channel 20425 (826.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20625 (846.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	

*The 9 kHz tone is from the spectrum analyzer.

LTE Band 5, Channel Bandwidth 10MHz	
Channel 20450 (829.0MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20525 (836.5MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	
Channel 20600 (844.0MHz)	
Frequency Range : 9kHz ~ 1GHz	Frequency Range : 1GHz ~ 9GHz
	

*The 9 kHz tone is from the spectrum analyzer.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

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. The emission limit equal to –13dBm.

4.8.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.

d. Following C63.26 section 5.5 and 5.2.7
   - EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.
   - ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

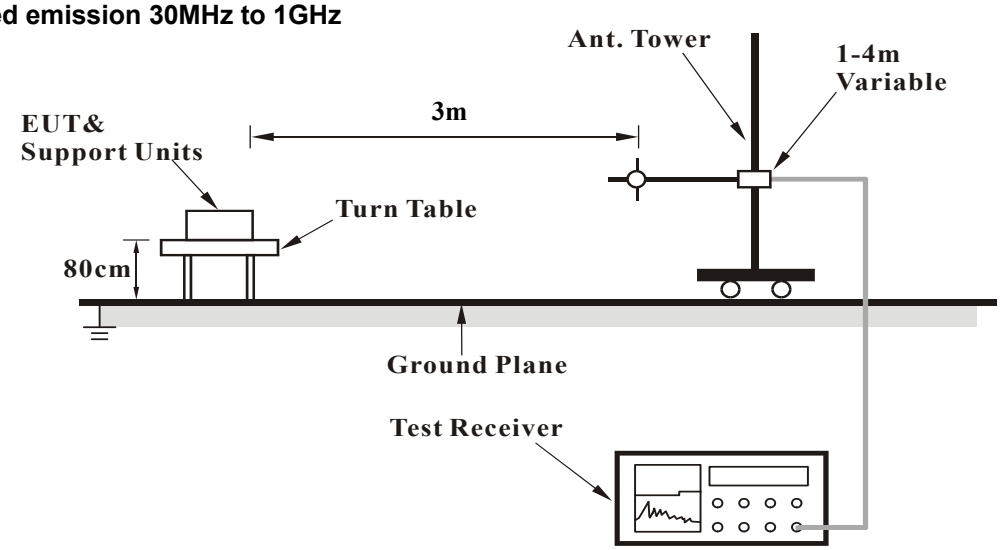
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

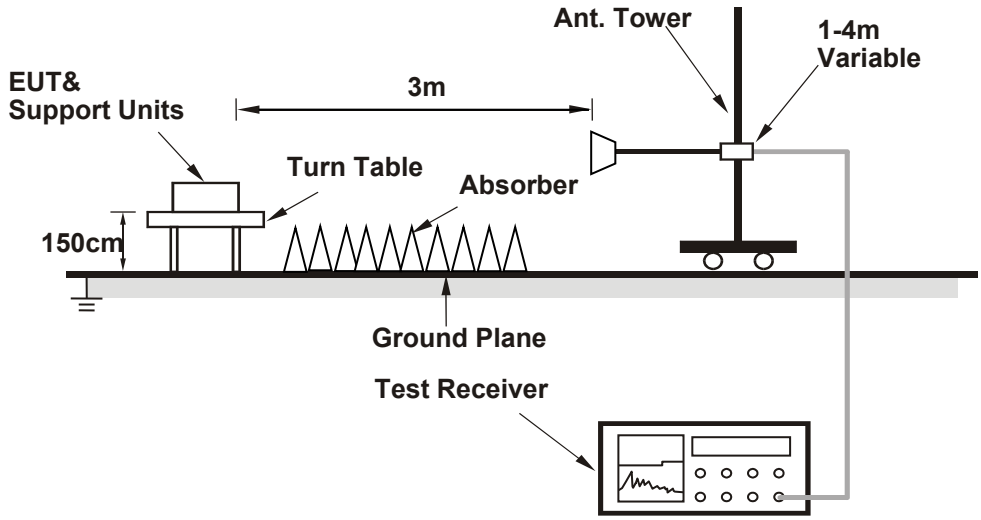
No deviation.

4.8.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 Test Results

Below 1GHz

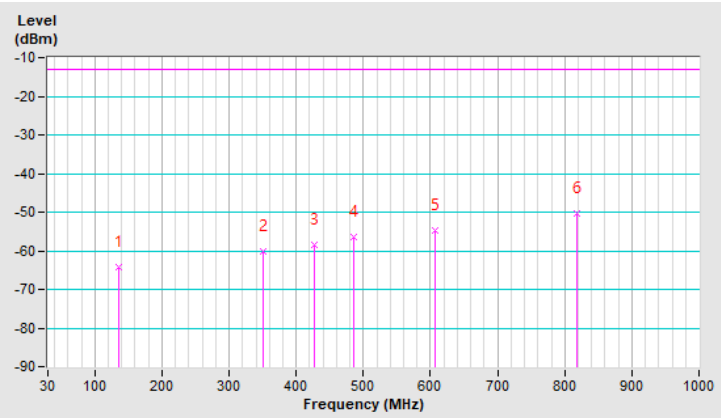
GSM

Mode	TX channel 189 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	134.76	-64.18	-13.00	-51.18	3.35 H	95	-52.47	-11.71
2	350.10	-60.25	-13.00	-47.25	1.18 H	352	-52.30	-7.95
3	426.73	-58.64	-13.00	-45.64	3.40 H	42	-52.68	-5.96
4	484.93	-56.39	-13.00	-43.39	1.48 H	187	-51.61	-4.78
5	607.15	-54.67	-13.00	-41.67	3.91 H	46	-52.40	-2.27
6	818.61	-50.46	-13.00	-37.46	2.28 H	123	-52.04	1.58

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

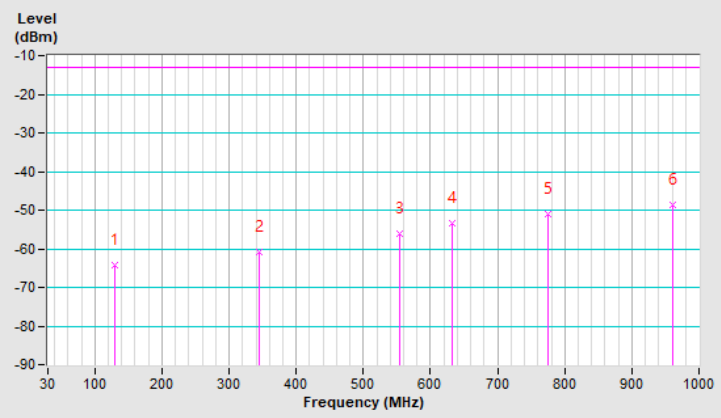


Mode	TX channel 189 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	128.94	-64.36	-13.00	-51.36	2.35 V	326	-52.03	-12.33
2	344.28	-60.84	-13.00	-47.84	2.23 V	273	-52.82	-8.02
3	554.77	-55.94	-13.00	-42.94	1.71 V	334	-52.39	-3.55
4	631.40	-53.41	-13.00	-40.41	2.71 V	159	-51.66	-1.75
5	775.93	-51.09	-13.00	-38.09	1.27 V	64	-51.96	0.87
6	960.23	-48.59	-13.00	-35.59	2.62 V	127	-52.95	4.36

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



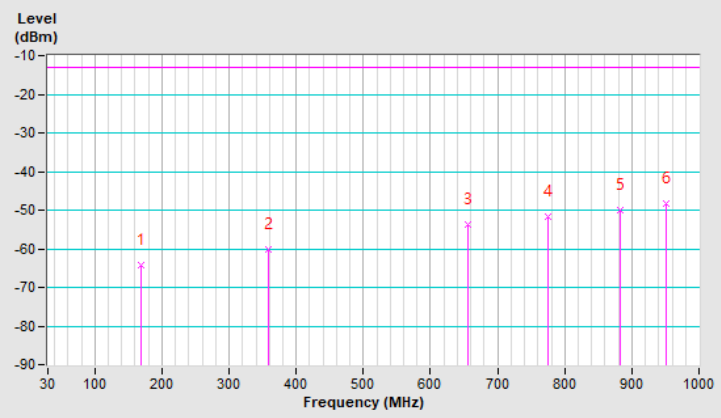
WCDMA Band 5

Mode	TX channel 4182 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	168.71	-64.34	-13.00	-51.34	3.81 H	205	-53.34	-11.00
2	358.83	-60.04	-13.00	-47.04	2.64 H	218	-52.31	-7.73
3	655.65	-53.87	-13.00	-40.87	1.08 H	250	-52.31	-1.56
4	775.93	-51.67	-13.00	-38.67	2.48 H	154	-52.54	0.87
5	883.60	-50.05	-13.00	-37.05	2.35 H	222	-52.88	2.83
6	**950.53**	**-48.16**	**-13.00**	**-35.16**	**1.70 H**	**128**	**-52.49**	**4.33**

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

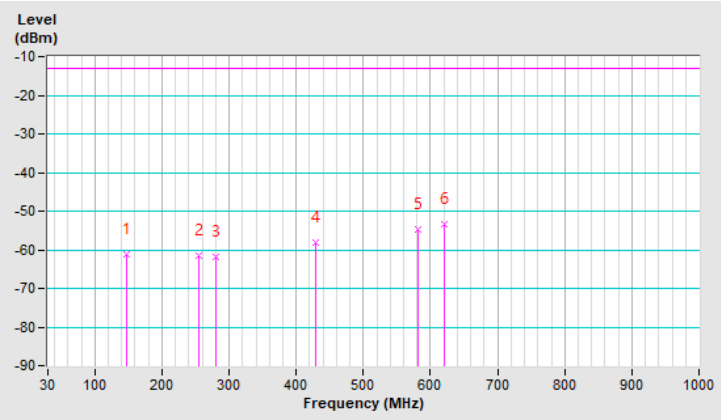


Mode	TX channel 4182 (836.4MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	147.37	-61.16	-13.00	-48.16	2.95 V	125	-50.33	-10.83
2	255.04	-61.50	-13.00	-48.50	1.57 V	282	-50.73	-10.77
3	280.26	-61.78	-13.00	-48.78	3.38 V	165	-52.36	-9.42
4	428.67	-58.28	-13.00	-45.28	3.57 V	151	-52.38	-5.90
5	581.93	-54.66	-13.00	-41.66	2.02 V	181	-51.88	-2.78
6	620.73	-53.51	-13.00	-40.51	3.98 V	263	-51.56	-1.95

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



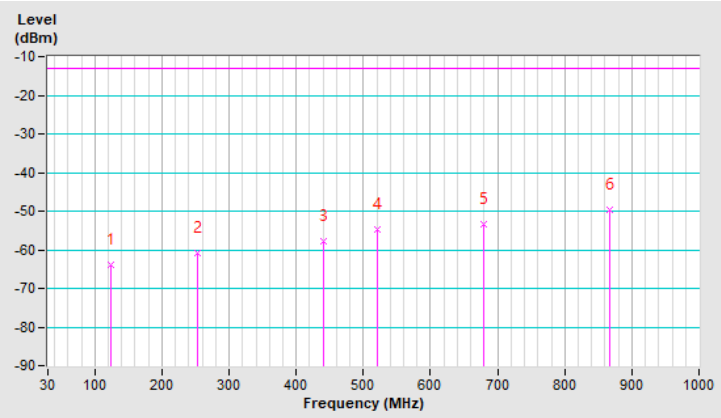
LTE Band 5, Channel Bandwidth 10MHz

Mode	TX channel 20525 (836.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	124.09	-63.83	-13.00	-50.83	2.60 H	305	-51.04	-12.79
2	252.13	-60.97	-13.00	-47.97	1.77 H	81	-50.10	-10.87
3	440.31	-57.66	-13.00	-44.66	1.14 H	116	-52.10	-5.56
4	521.79	-54.78	-13.00	-41.78	3.23 H	35	-50.78	-4.00
5	678.93	-53.41	-13.00	-40.41	2.20 H	261	-52.22	-1.19
6	867.11	-49.63	-13.00	-36.63	2.75 H	123	-52.12	2.49

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

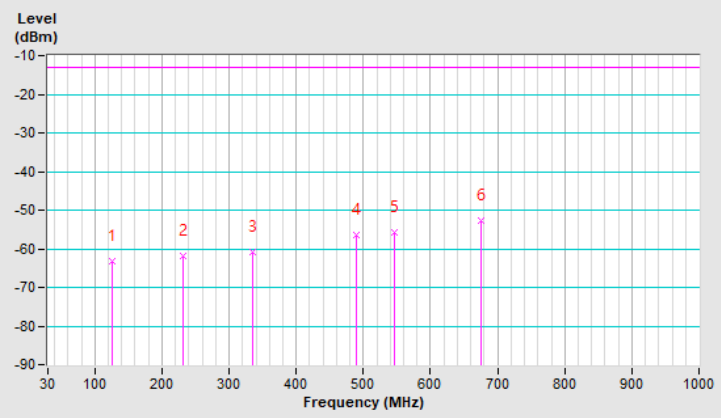


Mode	TX channel 20525 (836.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	126.03	-63.30	-13.00	-50.30	1.51 V	234	-50.84	-12.46
2	231.76	-61.94	-13.00	-48.94	3.45 V	118	-49.55	-12.39
3	334.58	-60.81	-13.00	-47.81	3.35 V	60	-52.84	-7.97
4	488.81	-56.33	-13.00	-43.33	3.58 V	169	-51.66	-4.67
5	546.04	-55.86	-13.00	-42.86	3.14 V	118	-52.18	-3.68
6	676.02	-52.82	-13.00	-39.82	2.09 V	324	-51.55	-1.27

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.



Above 1GHz
GSM

Mode	TX channel 128 (824.2MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1648.40	-59.35	-13.00	-46.35	2.35 H	317	42.68	-102.03
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1648.40	-59.55	-13.00	-46.55	1.12 V	350	42.48	-102.03

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 189 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-58.44	-13.00	-45.44	2.26 H	314	43.52	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-58.67	-13.00	-45.67	1.06 V	350	43.29	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 251 (848.8MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1697.60	-58.72	-13.00	-45.72	2.27 H	315	43.16	-101.88
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1697.60	-59.49	-13.00	-46.49	1.13 V	351	42.39	-101.88

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

EDGE

Mode	TX channel 128 (824.2MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1648.40	-62.35	-13.00	-49.35	2.35 H	317	39.68	-102.03
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1648.40	-63.55	-13.00	-50.55	1.12 V	350	38.48	-102.03

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 189 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-62.44	-13.00	-49.44	2.26 H	314	39.52	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-62.89	-13.00	-49.89	1.16 V	354	39.07	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 251 (848.8MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1697.60	-62.72	-13.00	-49.72	2.26 H	313	39.16	-101.88
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1697.60	-63.37	-13.00	-50.37	1.20 V	355	38.51	-101.88

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

WCDMA Band 5

Mode	TX channel 4132 (826.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1652.80	-59.09	-13.00	-46.09	1.32 H	276	42.94	-102.03
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1652.80	-59.37	-13.00	-46.37	1.95 V	321	42.66	-102.03

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 4182 (836.4MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-58.30	-13.00	-45.30	1.26 H	275	43.66	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-58.58	-13.00	-45.58	1.92 V	322	43.38	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 4233 (846.6MHz)	Frequency Range	1GHz ~ 10GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.20	-58.77	-13.00	-45.77	1.31 H	276	43.13	-101.90
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.20	-58.96	-13.00	-45.96	1.91 V	319	42.94	-101.90

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 5, Channel Bandwidth 1.4MHz

Mode	TX channel 20407 (824.7MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1649.40	-56.01	-13.00	-43.01	1.31 H	207	46.02	-102.03
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1649.40	-58.72	-13.00	-45.72	1.16 V	296	43.31	-102.03

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-55.78	-13.00	-42.78	1.35 H	205	46.18	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-58.28	-13.00	-45.28	1.16 V	296	43.68	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20643 (848.3MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1696.60	-55.46	-13.00	-42.46	1.34 H	203	46.43	-101.89
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1696.60	-58.83	-13.00	-45.83	1.15 V	297	43.06	-101.89

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 5, Channel Bandwidth 5MHz

Mode	TX channel 20425 (826.5MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1653.00	-55.58	-13.00	-42.58	1.36 H	296	46.45	-102.03
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1653.00	-58.87	-13.00	-45.87	1.14 V	296	43.16	-102.03

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-55.18	-13.00	-42.18	1.30 H	206	46.78	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-58.66	-13.00	-45.66	1.19 V	293	43.30	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20625 (846.5MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.00	-55.22	-13.00	-42.22	1.30 H	206	46.68	-101.90
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.00	-58.02	-13.00	-45.02	1.19 V	294	43.88	-101.90

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

LTE Band 5, Channel Bandwidth 10MHz

Mode	TX channel 20450 (829.0MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1658.00	-55.17	-13.00	-42.17	1.29 H	206	46.84	-102.01
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1658.00	-58.39	-13.00	-45.39	1.21 V	295	43.62	-102.01

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20525 (836.5MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-55.01	-13.00	-42.01	1.28 H	203	46.95	-101.96
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-57.90	-13.00	-44.90	1.20 V	297	44.06	-101.96

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

Mode	TX channel 20600 (844.0MHz)	Frequency Range	1GHz ~ 9GHz
Environmental Conditions	22deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Han Wu		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1688.00	-55.79	-13.00	-42.79	1.30 H	202	46.12	-101.91
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1688.00	-58.25	-13.00	-45.25	1.14 V	298	43.66	-101.91

Remarks:

1. ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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