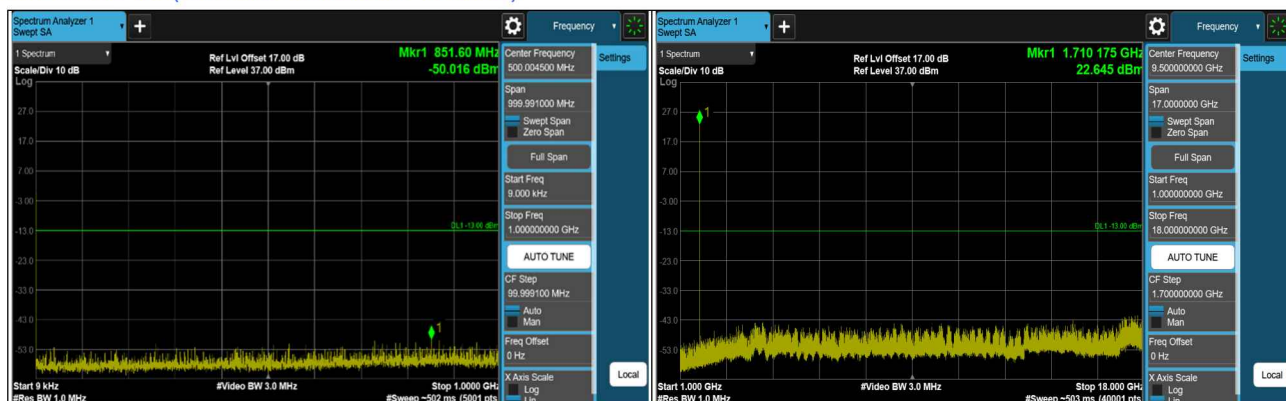
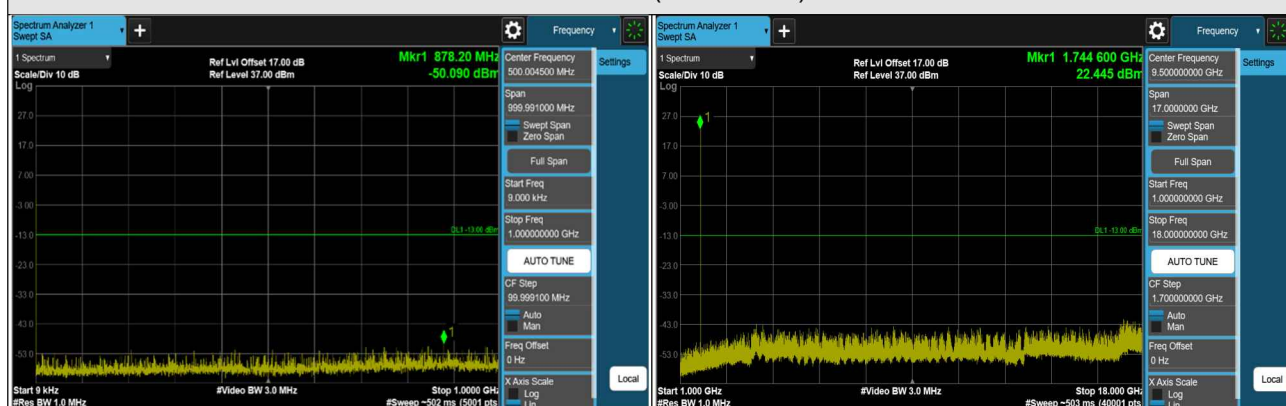


LTE Band 66 (Channel Bandwidth 1.4MHz)



CH 131979 (1710.7MHz)



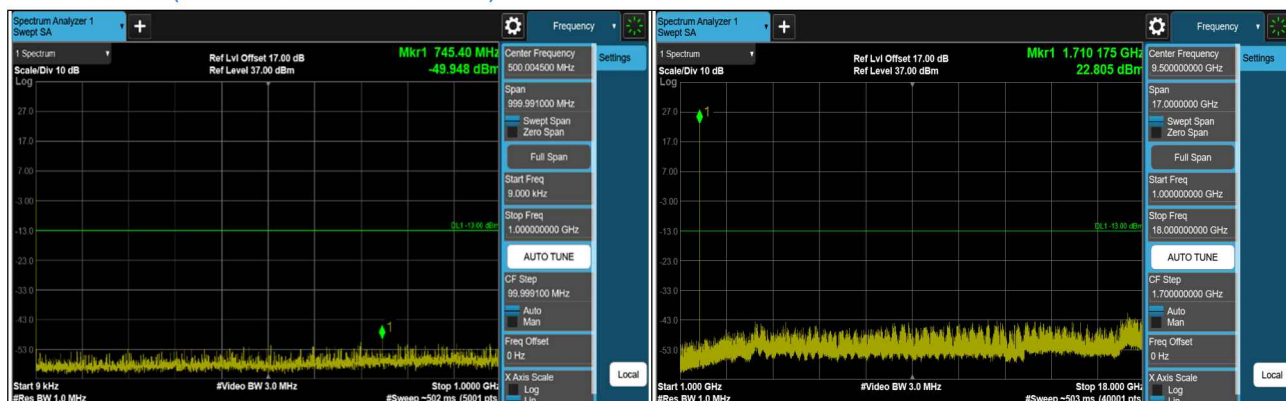
CH 132322 (1745MHz)



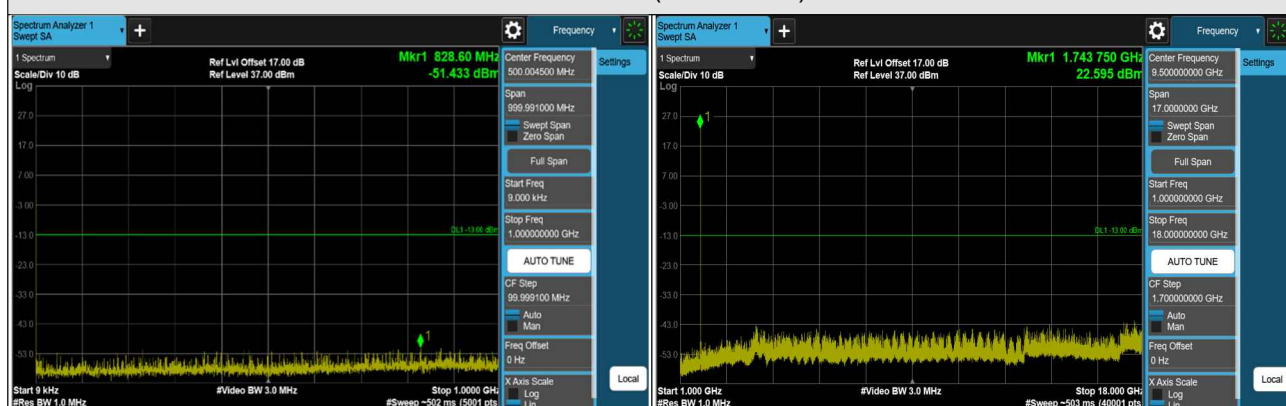
CH 132665 (1779.3MHz)

*The 9kHz signal over the limit is from Spectrum.

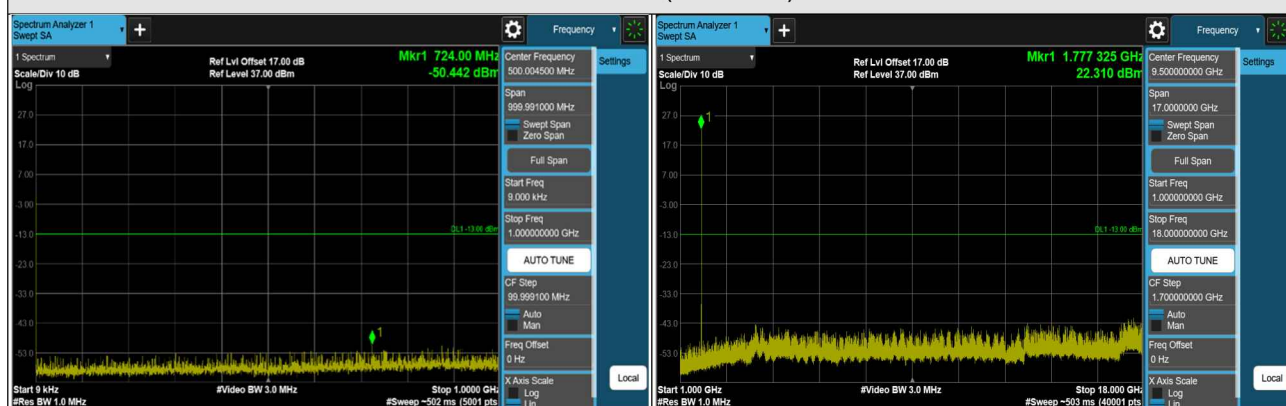
LTE Band 66 (Channel Bandwidth 3MHz)



CH 131987 (1711.5MHz)



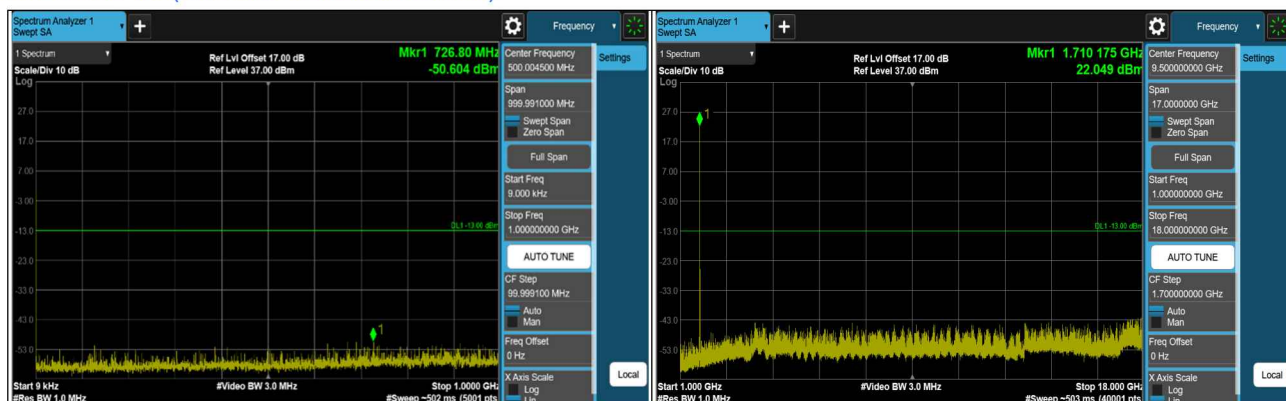
CH 132322 (1745MHz)



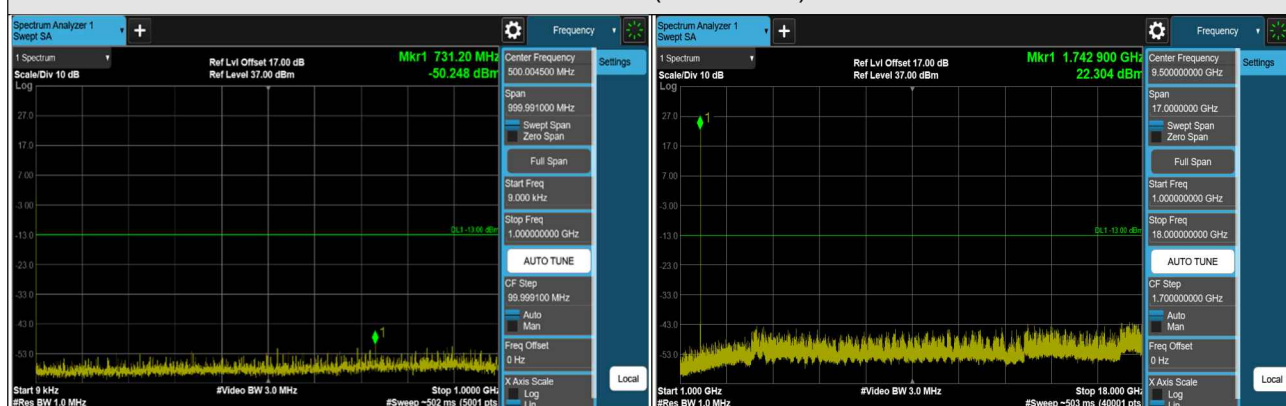
CH 132657 (1778.5MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 66 (Channel Bandwidth 5MHz)



CH 131997 (1712.5MHz)



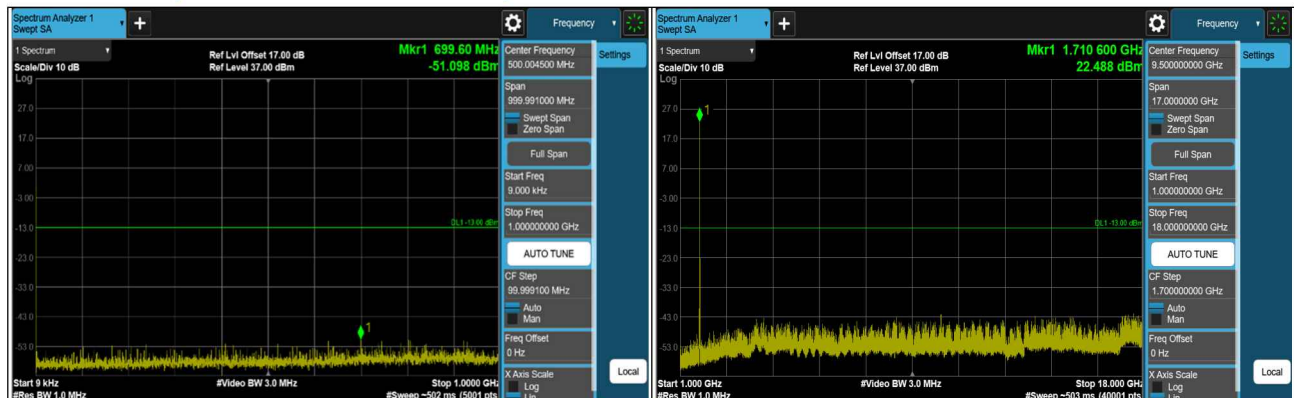
CH 132322 (1745MHz)



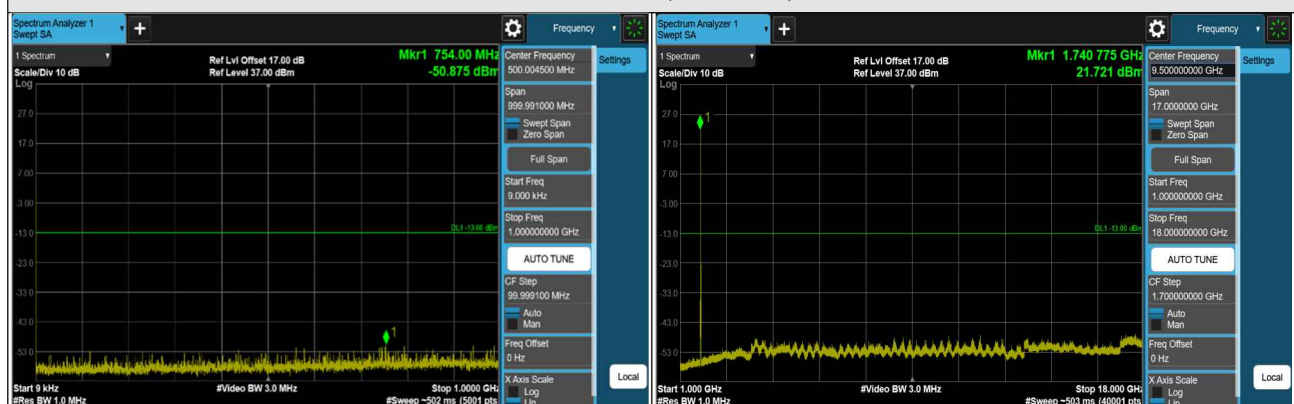
CH 132647 (1777.5MHz)

*The 9kHz signal over the limit is from Spectrum.

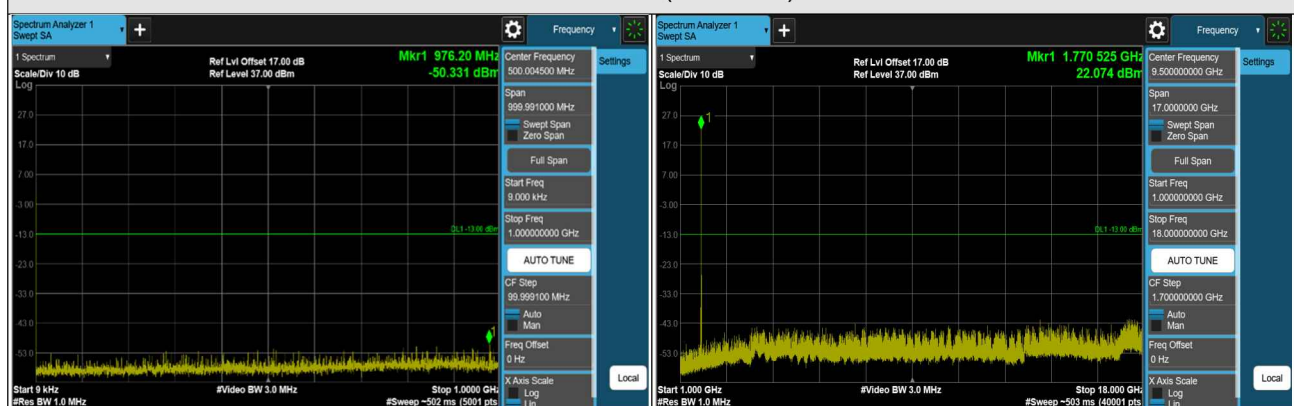
LTE Band 66 (Channel Bandwidth 10MHz)



CH 132022 (1715MHz)



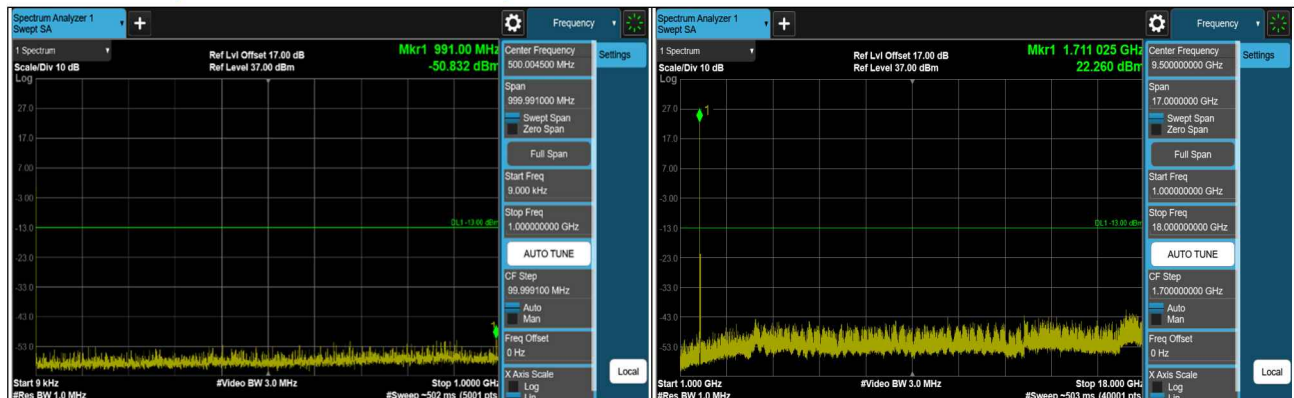
CH 132322 (1745MHz)



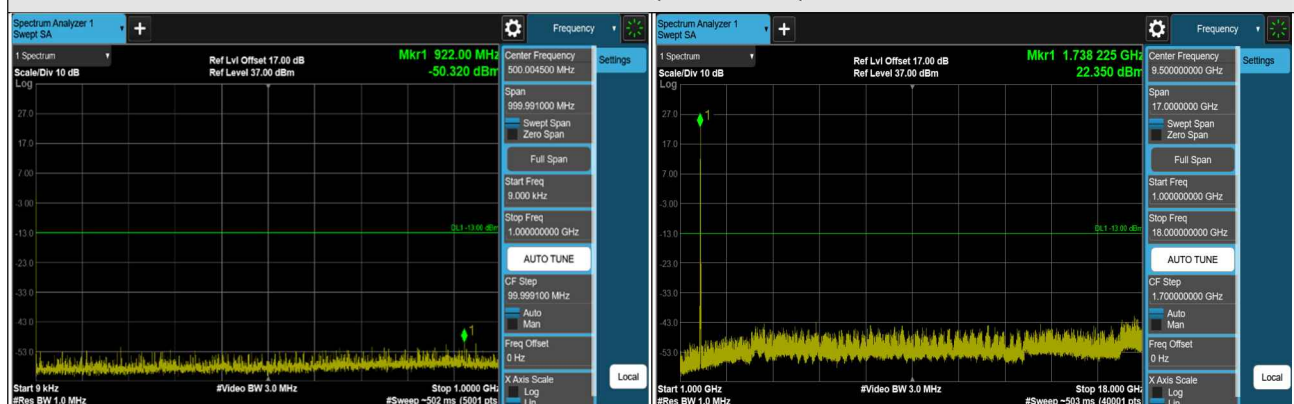
CH 132622 (1775MHz)

*The 9kHz signal over the limit is from Spectrum.

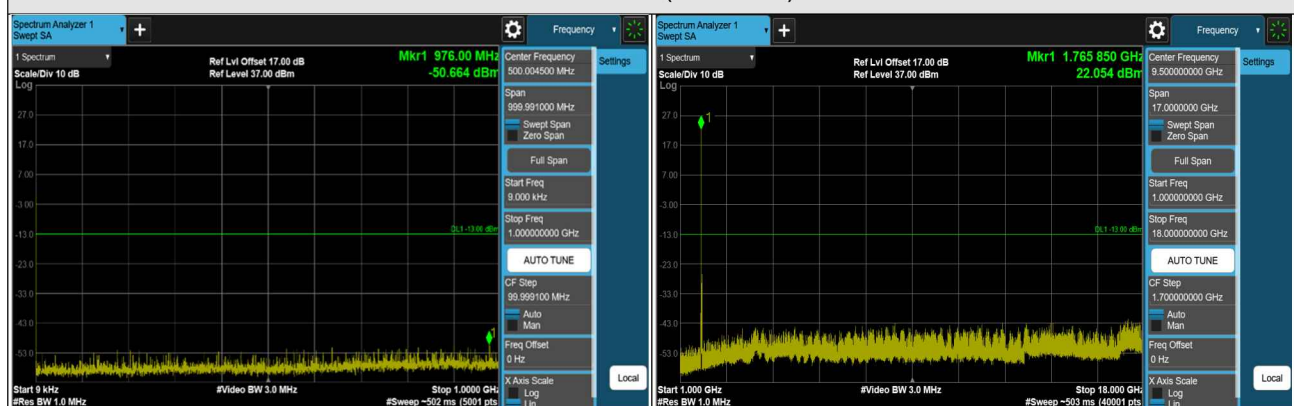
LTE Band 66 (Channel Bandwidth 15MHz)



CH 132047 (1717.5MHz)



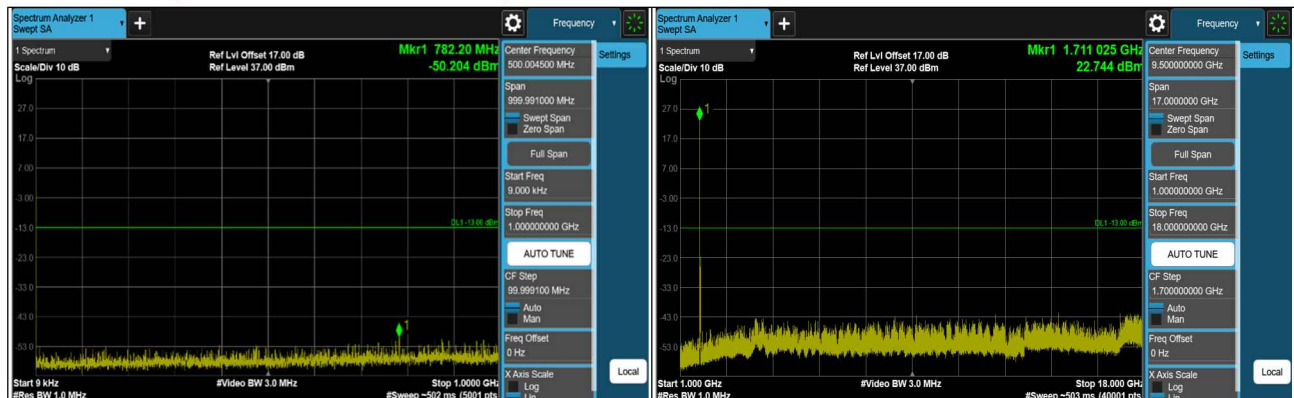
CH 132322 (1745MHz)



CH 132597 (1772.5MHz)

*The 9kHz signal over the limit is from Spectrum.

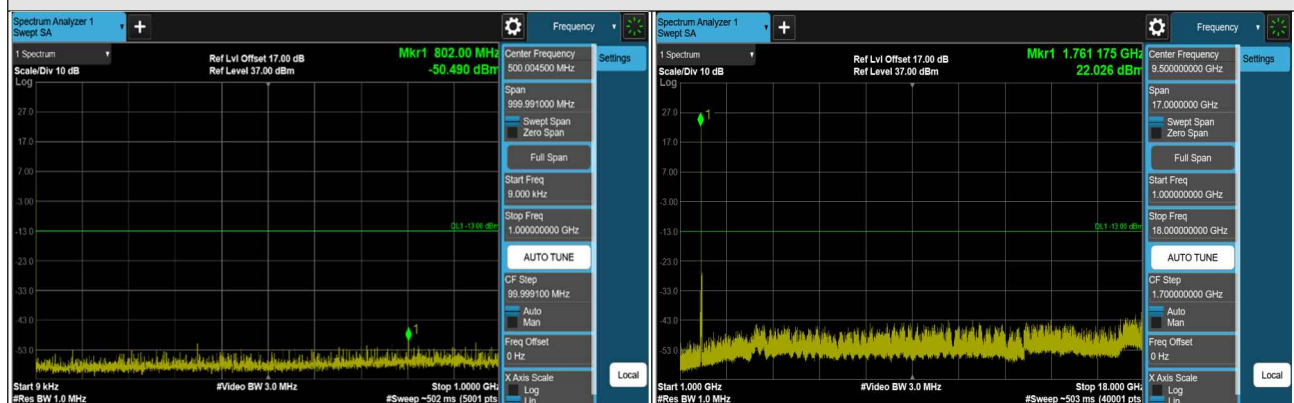
LTE Band 66 (Channel Bandwidth 20MHz)



CH 132072 (1720MHz)



CH 132322 (1745MHz)



CH 132572 (1770MHz)

*The 9kHz signal over the limit is from Spectrum.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For LTE Band 4, LTE Band 66:

According to FCC 27.53(h), for operations in the 1695-1710MHz, 1710-1755MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log (P)$ dB.

For LTE Band 7:

According to FCC 27.53(m)(4), on any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $55 + 10 \log (P)$ dB. The emission limit equal to -25dBm .

For LTE Band 12, LTE Band 17:

According to FCC 27.53(g), for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. The limit of emissions is equal to -13dBm .

4.8.2 Test Procedure

- a. 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
 - $\text{EIRP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
 - $\text{ERP (dBm)} = E (\text{dB}\mu\text{V/m}) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

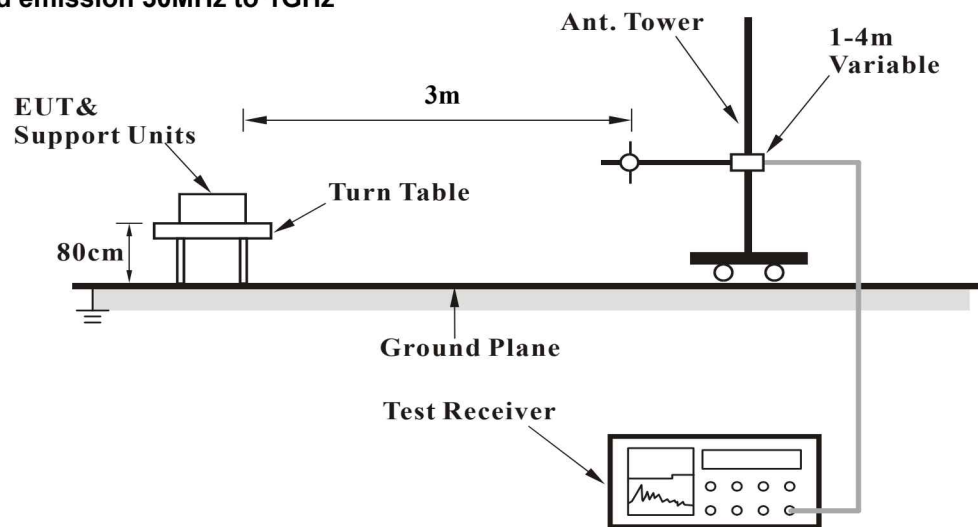
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

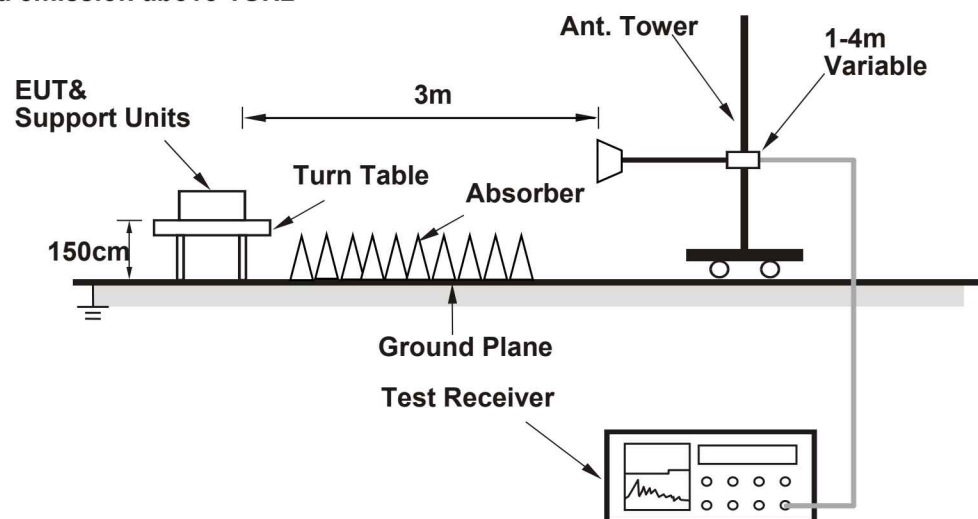
No deviation.

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

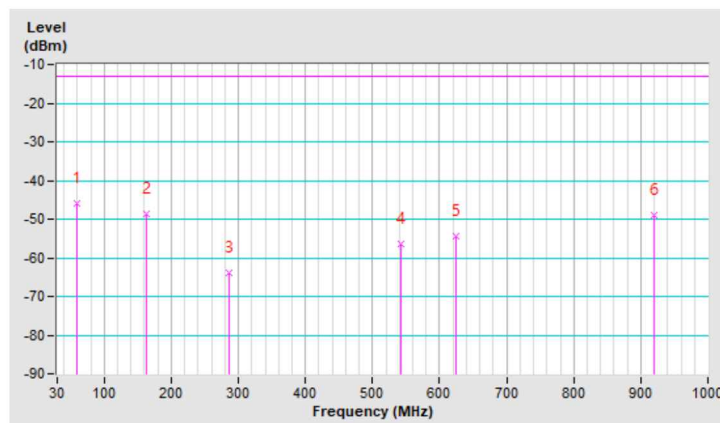
LTE Band 4 (Channel Bandwidth 20MHz)

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	59.10	-45.87	-13.00	-32.87	1.27 H	63	62.48	-108.35
2	163.86	-48.58	-13.00	-35.58	2.63 H	71	59.41	-107.99
3	287.05	-63.99	-13.00	-50.99	3.38 H	45	43.94	-107.93
4	542.16	-56.58	-13.00	-43.58	2.57 H	144	43.98	-100.56
5	623.64	-54.35	-13.00	-41.35	1.42 H	13	43.82	-98.17
6	920.46	-48.91	-13.00	-35.91	2.09 H	120	44.27	-93.18

Remarks:

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

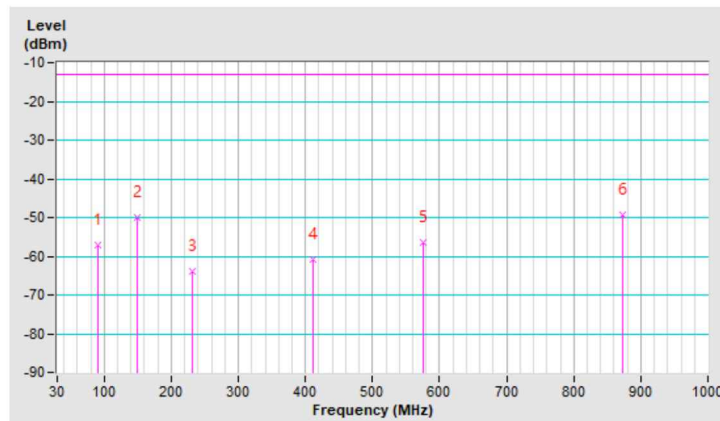


Mode	TX channel 20175 (1732.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	91.11	-57.18	-13.00	-44.18	1.63 V	300	56.28	-113.46
2	148.34	-50.09	-13.00	-37.09	2.87 V	34	57.43	-107.52
3	230.79	-64.05	-13.00	-51.05	3.87 V	126	46.91	-110.96
4	412.18	-60.72	-13.00	-47.72	1.58 V	206	43.48	-104.20
5	575.14	-56.51	-13.00	-43.51	2.32 V	4	43.23	-99.74
6	872.93	-49.31	-13.00	-36.31	1.07 V	316	44.61	-93.92

Remarks:

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



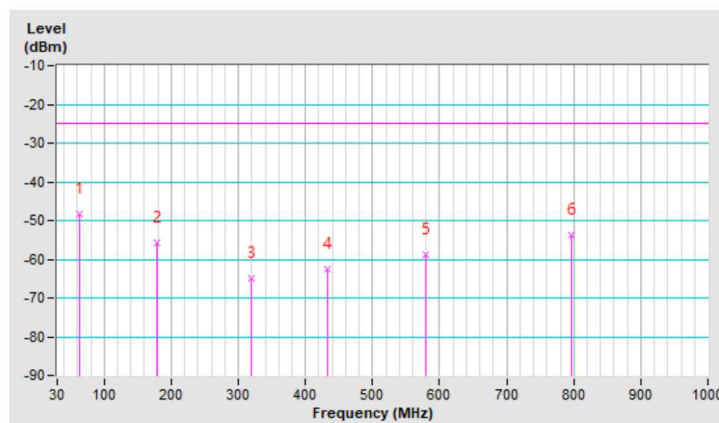
LTE Band 7 (Channel Bandwidth 20MHz)

Mode	TX channel 21350 (2560.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	62.98	-48.44	-25.00	-23.44	1.23 H	67	60.66	-109.10
2	179.38	-55.64	-25.00	-30.64	1.57 H	275	53.79	-109.43
3	319.06	-64.80	-25.00	-39.80	2.52 H	18	41.70	-106.50
4	433.52	-62.70	-25.00	-37.70	3.94 H	46	40.42	-103.12
5	579.99	-58.96	-25.00	-33.96	1.51 H	140	40.55	-99.51
6	797.27	-53.65	-25.00	-28.65	1.29 H	13	41.37	-95.02

Remarks:

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

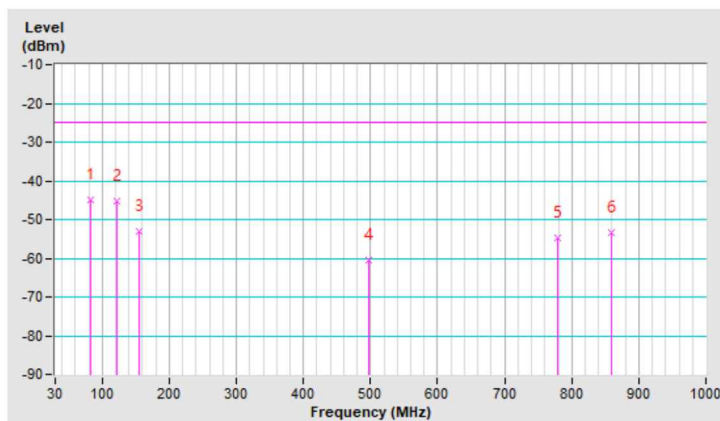


Mode	TX channel 21350 (2560.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	83.35	-44.80	-25.00	-19.80	1.32 V	232	68.61	-113.41
2	121.18	-45.40	-25.00	-20.40	1.24 V	80	64.10	-109.50
3	155.13	-53.04	-25.00	-28.04	1.74 V	64	54.42	-107.46
4	497.54	-60.40	-25.00	-35.40	2.52 V	17	40.99	-101.39
5	779.81	-54.70	-25.00	-29.70	1.97 V	172	40.51	-95.21
6	858.38	-53.35	-25.00	-28.35	2.23 V	309	40.77	-94.12

Remarks:

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



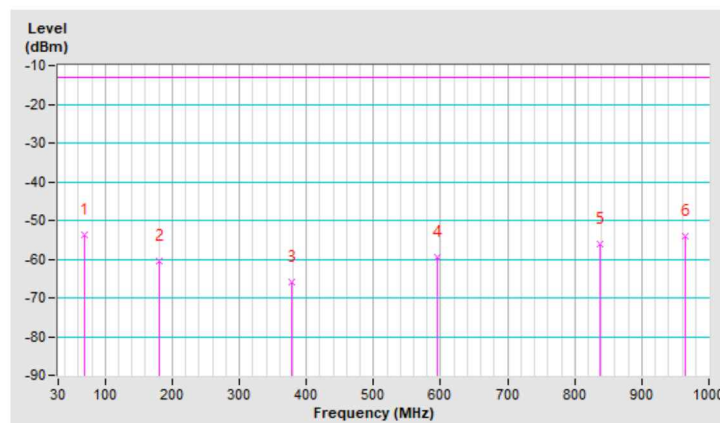
LTE Band 12 (Channel Bandwidth 10MHz)

Mode	TX channel 23095 (707.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

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	68.80	-53.88	-13.00	-40.88	1.23 H	64	58.45	-112.33
2	181.32	-60.67	-13.00	-47.67	2.35 H	52	51.20	-111.87
3	377.26	-65.77	-13.00	-52.77	1.87 H	142	41.26	-107.03
4	594.54	-59.43	-13.00	-46.43	2.39 H	115	41.62	-101.05
5	837.04	-56.02	-13.00	-43.02	2.52 H	6	40.28	-96.30
6	964.11	-54.14	-13.00	-41.14	1.88 H	160	40.38	-94.52

Remarks:

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

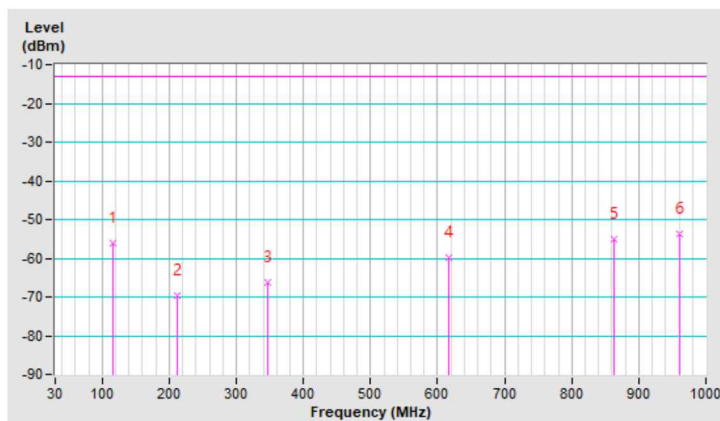


Mode	TX channel 23095 (707.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

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	116.33	-56.05	-13.00	-43.05	1.24 V	1	56.01	-112.06
2	211.39	-69.70	-13.00	-56.70	2.37 V	193	43.95	-113.65
3	346.22	-66.43	-13.00	-53.43	2.47 V	175	41.45	-107.88
4	616.85	-59.97	-13.00	-46.97	3.62 V	66	40.54	-100.51
5	862.26	-55.10	-13.00	-42.10	1.52 V	11	41.17	-96.27
6	961.20	-53.84	-13.00	-40.84	1.41 V	18	40.73	-94.57

Remarks:

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



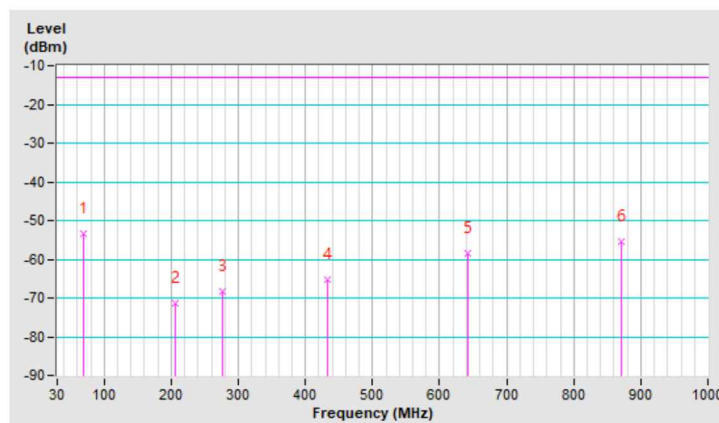
LTE Band 17 (Channel Bandwidth 10MHz)

Mode	TX channel 23800 (711.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

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	69.77	-53.34	-13.00	-40.34	2.68 H	73	59.02	-112.36
2	206.54	-71.34	-13.00	-58.34	1.74 H	78	42.28	-113.62
3	277.35	-68.34	-13.00	-55.34	1.85 H	296	42.26	-110.60
4	433.52	-65.39	-13.00	-52.39	1.36 H	323	39.88	-105.27
5	643.04	-58.38	-13.00	-45.38	2.08 H	49	41.61	-99.99
6	870.02	-55.38	-13.00	-42.38	1.41 H	182	40.75	-96.13

Remarks:

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

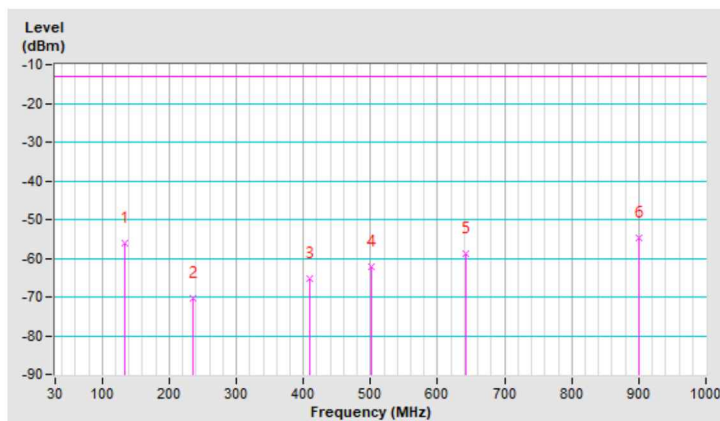


Mode	TX channel 23800 (711.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

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	133.79	-56.26	-13.00	-43.26	1.23 V	291	54.10	-110.36
2	235.64	-70.35	-13.00	-57.35	1.47 V	67	42.12	-112.47
3	409.27	-65.35	-13.00	-52.35	2.52 V	63	41.07	-106.42
4	500.45	-62.27	-13.00	-49.27	3.89 V	316	41.22	-103.49
5	643.04	-58.65	-13.00	-45.65	1.52 V	81	41.34	-99.99
6	900.09	-54.89	-13.00	-41.89	1.03 V	264	41.00	-95.89

Remarks:

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



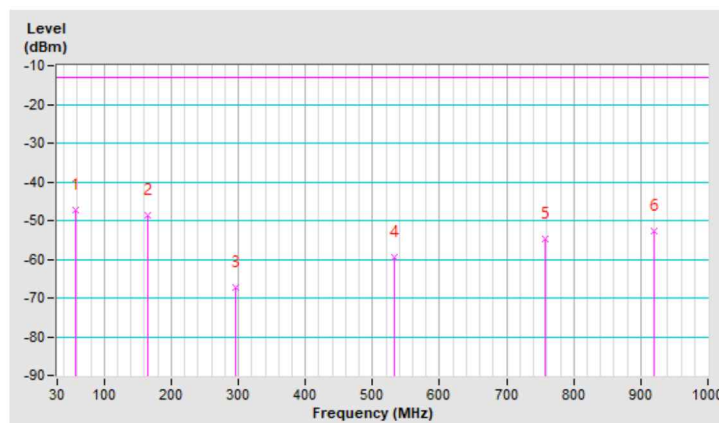
LTE Band 66 (Channel Bandwidth 20MHz)

Mode	TX channel 132572 (1770.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	58.13	-47.34	-13.00	-34.34	1.23 H	54	61.12	-108.46
2	164.83	-48.54	-13.00	-35.54	1.54 H	74	59.44	-107.98
3	295.78	-67.24	-13.00	-54.24	2.08 H	12	40.34	-107.58
4	532.46	-59.61	-13.00	-46.61	1.65 H	40	41.24	-100.85
5	756.53	-54.89	-13.00	-41.89	2.23 H	135	40.87	-95.76
6	920.46	-52.55	-13.00	-39.55	3.17 H	78	40.63	-93.18

Remarks:

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



Mode	TX channel 132572 (1770.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	22deg. C, 64%RH	Input Power	4.0Vdc
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	77.53	-41.62	-13.00	-28.62	1.76 V	337	70.60	-112.22
2	161.92	-53.00	-13.00	-40.00	2.01 V	53	54.79	-107.79
3	234.67	-67.44	-13.00	-54.44	3.35 V	31	42.97	-110.41
4	370.47	-64.23	-13.00	-51.23	1.97 V	83	40.86	-105.09
5	610.06	-58.03	-13.00	-45.03	3.63 V	168	40.45	-98.48
6	821.52	-53.92	-13.00	-40.92	1.04 V	199	40.50	-94.42

Remarks:

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

