

7.5.2 LTE Band 13

LTE Band 13, Channel Bandwidth: 5 MHz



Note: The signal at 9 kHz is IF signal from spectrum analyzer.



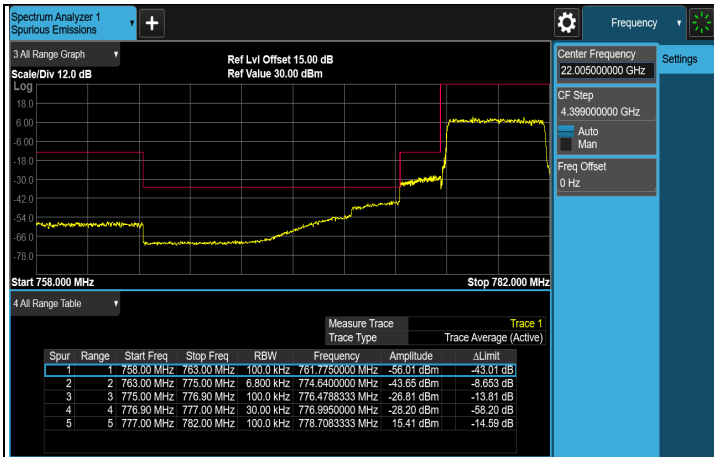
CH 23230 (782 MHz)

Note: The signal at 9 kHz is IF signal from spectrum analyzer.

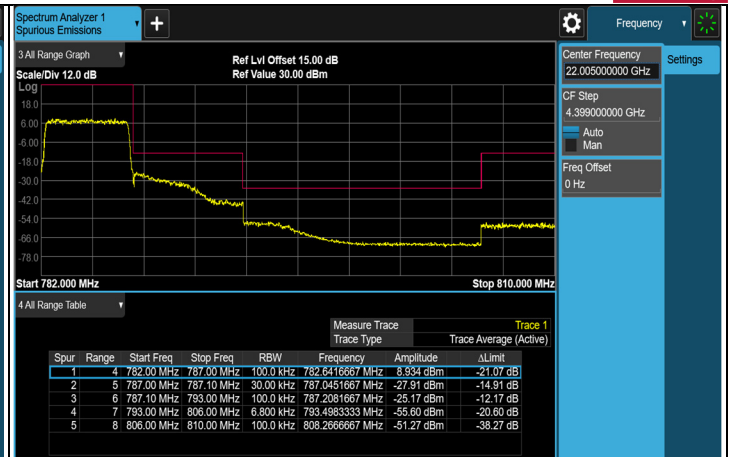


CH 23255 (784.5 MHz)

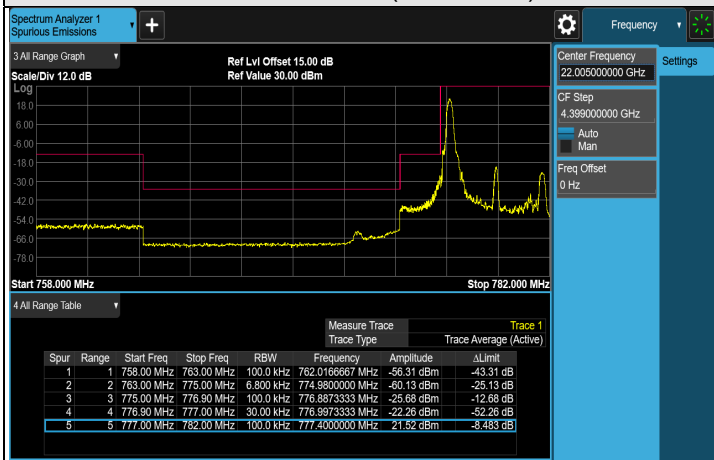
Note: The signal at 9 kHz is IF signal from spectrum analyzer.



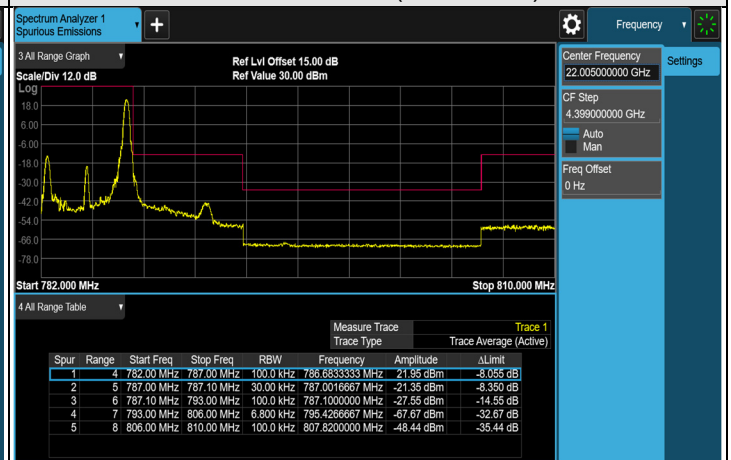
FULL CH 23205 (779.5 MHz)



FULL CH 23255 (784.5 MHz)

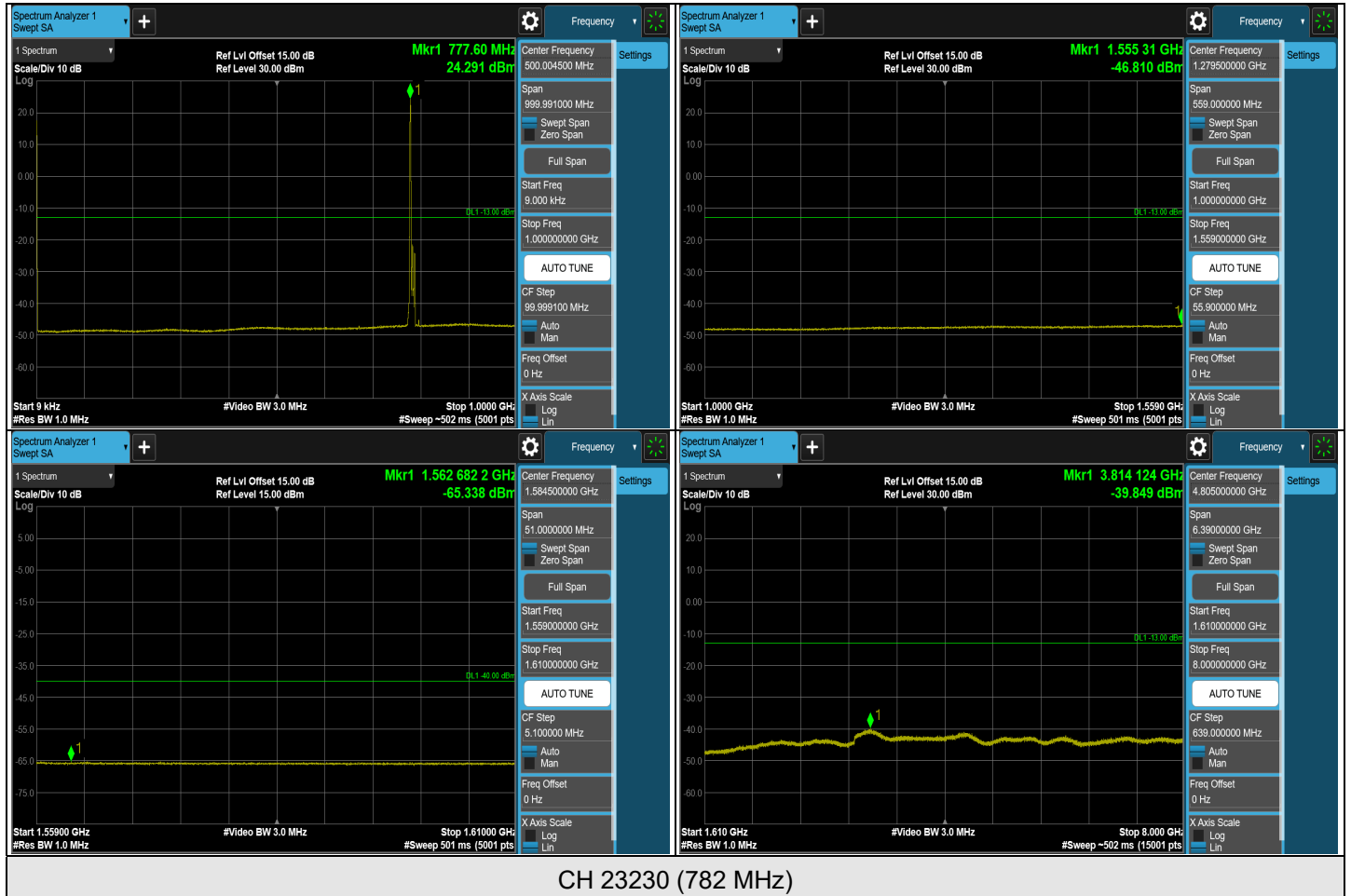


1RB CH 23205 (779.5 MHz)

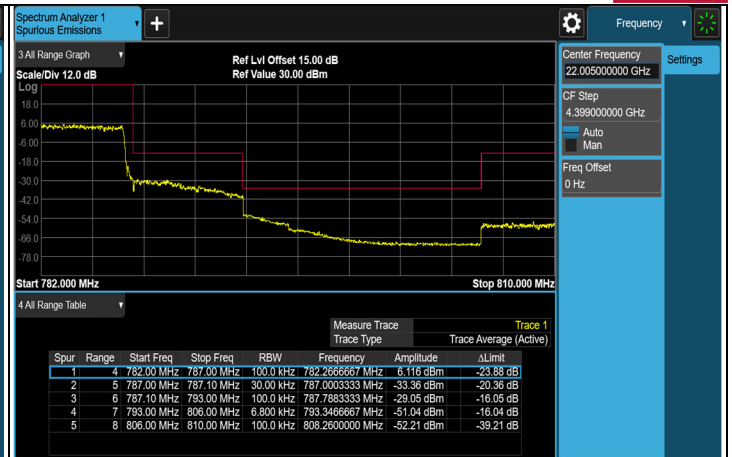
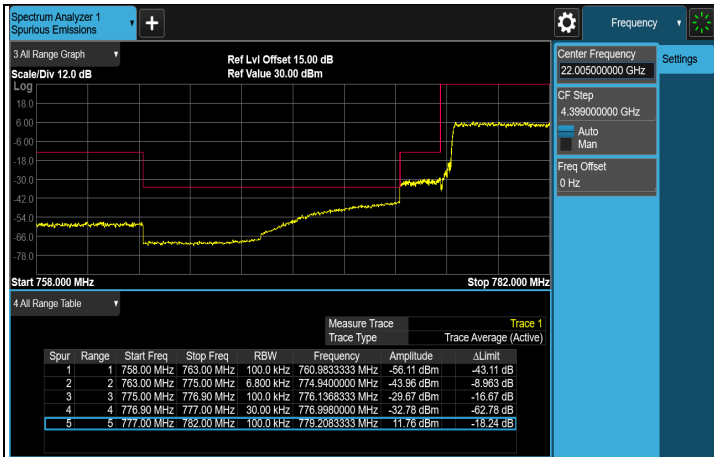


1RB CH 23255 (784.5 MHz)

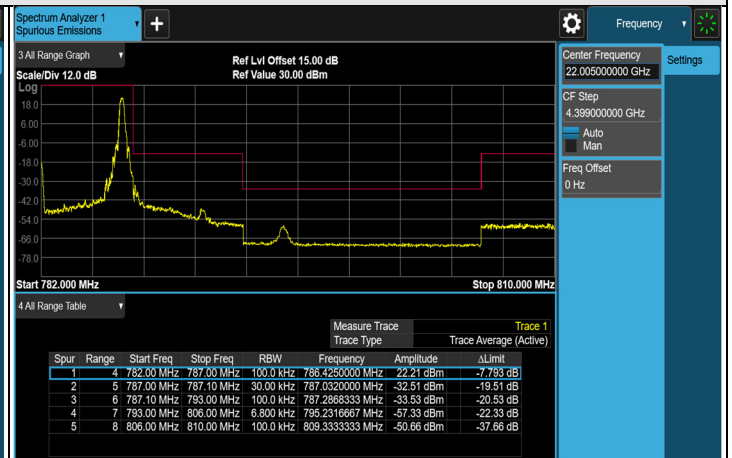
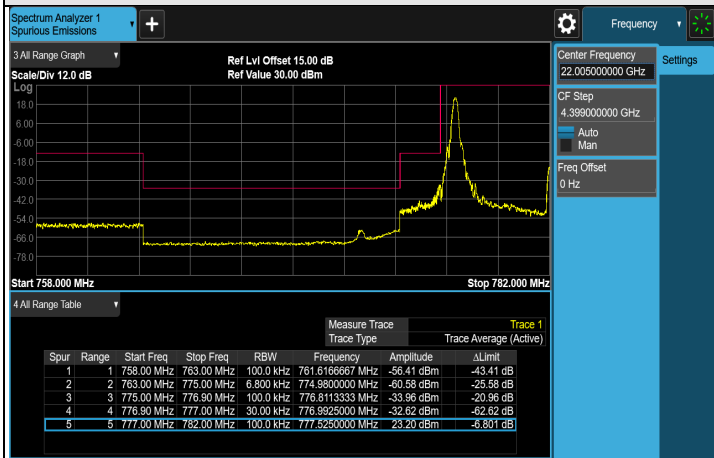
LTE Band 13, Channel Bandwidth: 10 MHz



Note: The signal at 9 kHz is IF signal from spectrum analyzer.



FULL CH 23230 (782 MHz)



1RB CH 23230 (782 MHz)

7.6 Radiated Spurious Emissions below 1GHz

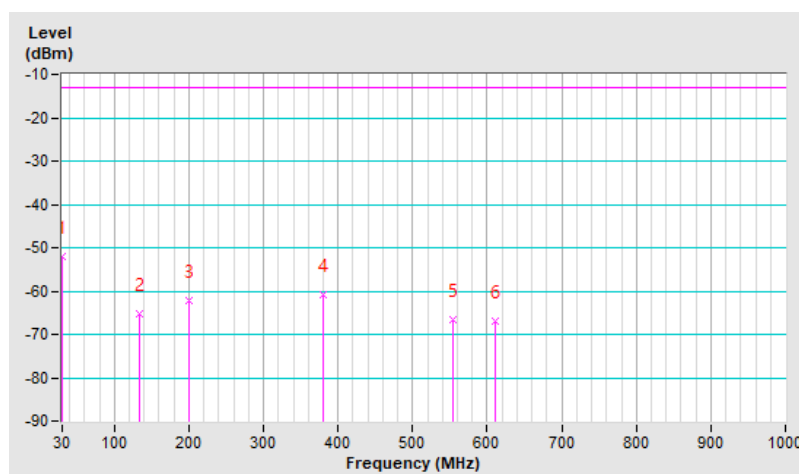
7.6.1 LTE Band 4

RF Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	CH 20375 : 1752.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	30.63	-52.16	-13.00	-39.16	1.09 H	335	62.93	-115.09
2	133.69	-65.34	-13.00	-52.34	1.10 H	182	48.45	-113.79
3	200.49	-62.23	-13.00	-49.23	1.56 H	116	54.02	-116.25
4	380.88	-61.00	-13.00	-48.00	1.42 H	301	49.40	-110.40
5	554.48	-66.56	-13.00	-53.56	1.83 H	201	40.44	-107.00
6	610.19	-66.82	-13.00	-53.82	1.46 H	173	38.60	-105.42

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 of frequency range 30 MHz ~ 1 GHz.
5. The EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

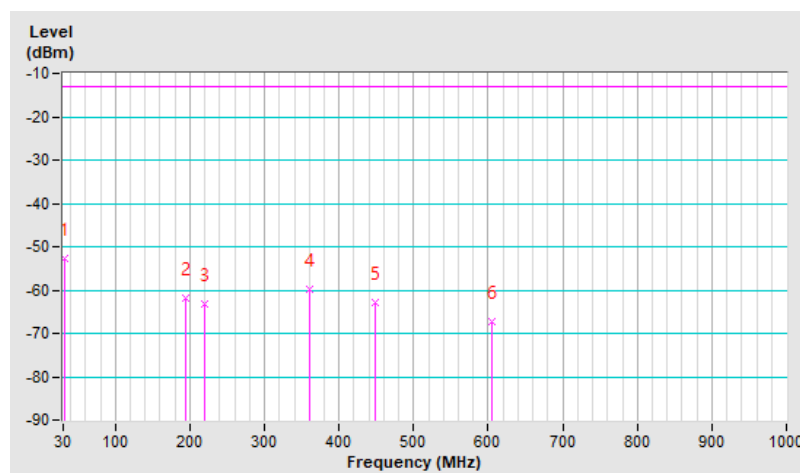


RF Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	CH 20375 : 1752.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

Antenna Polarity & Test Distance : Vertical 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	31.11	-52.63	-13.00	-39.63	1.15 V	230	62.57	-115.20
2	194.48	-62.03	-13.00	-49.03	1.05 V	284	54.02	-116.05
3	220.40	-63.30	-13.00	-50.30	1.22 V	224	52.70	-116.00
4	359.92	-59.93	-13.00	-46.93	1.63 V	318	51.17	-111.10
5	448.87	-63.03	-13.00	-50.03	1.59 V	174	45.72	-108.75
6	604.48	-67.40	-13.00	-54.40	1.45 V	188	38.18	-105.58

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 of frequency range 30 MHz ~ 1 GHz.
5. The EIRP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



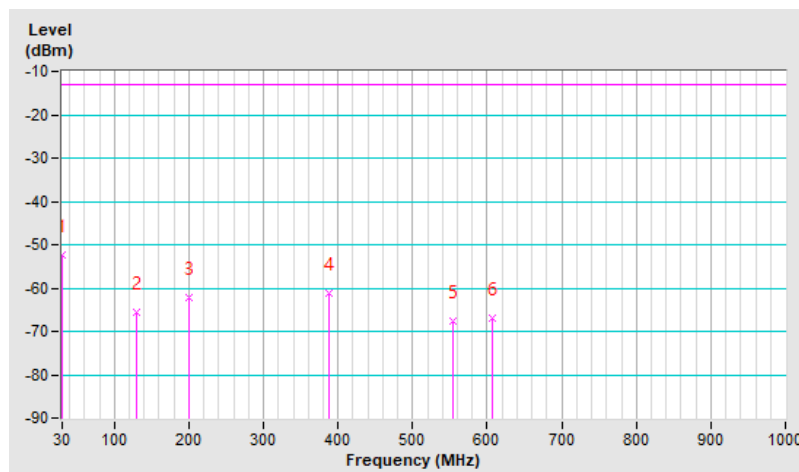
7.6.2 LTE Band 13

RF Mode	LTE Band 13 Channel Bandwidth: 10MHz	Channel	CH 23230 : 782 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	30.55	-52.25	-13.00	-39.25	1.99 H	263	64.97	-117.22
2	130.69	-65.43	-13.00	-52.43	1.14 H	212	50.84	-116.27
3	200.49	-62.20	-13.00	-49.20	1.48 H	293	56.20	-118.40
4	387.48	-61.19	-13.00	-48.19	1.05 H	142	51.21	-112.40
5	555.00	-67.60	-13.00	-54.60	1.46 H	198	41.55	-109.15
6	606.64	-67.07	-13.00	-54.07	1.02 H	274	40.61	-107.68

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 of frequency range 30 MHz ~ 1 GHz.
5. The ERP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

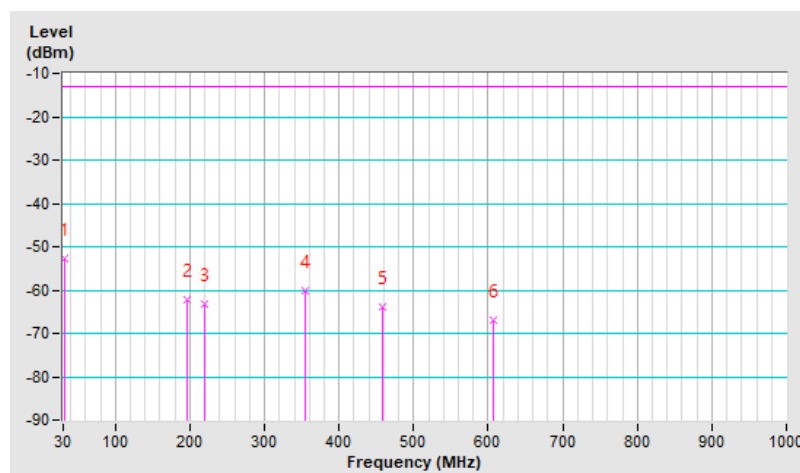


RF Mode	LTE Band 13 Channel Bandwidth: 10MHz	Channel	CH 23230 : 782 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

Antenna Polarity & Test Distance : Vertical 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	31.15	-52.74	-13.00	-39.74	1.15 V	27	64.60	-117.34
2	196.45	-62.10	-13.00	-49.10	1.19 V	318	56.23	-118.33
3	219.84	-63.37	-13.00	-50.37	1.06 V	309	54.77	-118.14
4	354.47	-60.05	-13.00	-47.05	1.15 V	287	53.26	-113.31
5	457.81	-63.99	-13.00	-50.99	1.00 V	100	46.65	-110.64
6	606.00	-66.89	-13.00	-53.89	1.67 V	349	40.80	-107.69

Remarks:

- ERP(dBm) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB) + $20\log(D) - 104.8 - 2.15$
- Margin value = ERP – Limit value
- The other ERP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
- The ERP levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.7 Radiated Spurious Emissions above 1GHz

7.7.1 LTE Band 4

RF Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 19957 : 1710.7 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3421.40	-51.65	-13.00	-38.65	1.83 H	337	35.18	-86.83
Antenna Polarity & Test Distance : Vertical 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	3421.40	-51.75	-13.00	-38.75	1.29 V	101	35.08	-86.83

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.

RF Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3465.00	-51.64	-13.00	-38.64	1.37 H	90	35.24	-86.88
Antenna Polarity & Test Distance : Vertical 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	3465.00	-51.93	-13.00	-38.93	1.44 V	137	34.95	-86.88

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.

RF Mode	LTE Band 4 Channel Bandwidth: 1.4MHz	Channel	CH 20393 : 1754.3 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3508.60	-51.77	-13.00	-38.77	1.43 H	209	35.04	-86.81
Antenna Polarity & Test Distance : Vertical 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	3508.60	-52.46	-13.00	-39.46	1.30 V	290	34.35	-86.81

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.

RF Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	CH 19975 : 1712.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3425.00	-52.43	-13.00	-39.43	1.39 H	97	34.42	-86.85
Antenna Polarity & Test Distance : Vertical 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	3425.00	-51.74	-13.00	-38.74	1.50 V	159	35.11	-86.85

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.

RF Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3465.00	-52.39	-13.00	-39.39	1.40 H	173	34.49	-86.88
Antenna Polarity & Test Distance : Vertical 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	3465.00	-52.27	-13.00	-39.27	1.88 V	360	34.61	-86.88

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.

RF Mode	LTE Band 4 Channel Bandwidth: 5MHz	Channel	CH 20375 : 1752.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3505.00	-52.61	-13.00	-39.61	1.64 H	288	34.20	-86.81
Antenna Polarity & Test Distance : Vertical 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	3505.00	-51.45	-13.00	-38.45	1.81 V	179	35.36	-86.81

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.

RF Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	CH 20050 : 1720 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3440.00	-52.19	-13.00	-39.19	1.57 H	77	34.68	-86.87
Antenna Polarity & Test Distance : Vertical 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	3440.00	-52.05	-13.00	-39.05	1.05 V	252	34.82	-86.87

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.

RF Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	CH 20175 : 1732.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3465.00	-52.72	-13.00	-39.72	1.64 H	334	34.16	-86.88
Antenna Polarity & Test Distance : Vertical 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	3465.00	-52.15	-13.00	-39.15	1.55 V	273	34.73	-86.88

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.

RF Mode	LTE Band 4 Channel Bandwidth: 20MHz	Channel	CH 20300 : 1745 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	3490.00	-53.12	-13.00	-40.12	1.55 H	275	33.71	-86.83
Antenna Polarity & Test Distance : Vertical 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	3490.00	-52.48	-13.00	-39.48	1.69 V	349	34.35	-86.83

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.

7.7.2 LTE Band 13

RF Mode	LTE Band 13 Channel Bandwidth: 5MHz	Channel	CH 23205 : 779.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	1559.00	-46.73	-40.00	-6.73	1.64 H	160	48.69	-95.42
Antenna Polarity & Test Distance : Vertical 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	1559.00	-45.34	-40.00	-5.34	1.42 V	220	50.08	-95.42

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.

RF Mode	LTE Band 13 Channel Bandwidth: 5MHz	Channel	CH 23230 : 782 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	1564.00	-57.43	-40.00	-17.43	1.42 H	150	37.95	-95.38
Antenna Polarity & Test Distance : Vertical 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	1564.00	-56.64	-40.00	-16.64	1.39 V	337	38.74	-95.38

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.

RF Mode	LTE Band 13 Channel Bandwidth: 5MHz	Channel	CH 23255 : 784.5 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	1569.00	-53.67	-40.00	-13.67	1.34 H	112	41.67	-95.34
Antenna Polarity & Test Distance : Vertical 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	1569.00	-52.31	-40.00	-12.31	1.64 V	193	43.03	-95.34

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.

RF Mode	LTE Band 13 Channel Bandwidth: 10MHz	Channel	CH 23230 : 782 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	25°C, 59% RH
Tested By	Charles Hsiao		

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	1564.00	-47.03	-40.00	-7.03	1.59 H	99	48.35	-95.38
Antenna Polarity & Test Distance : Vertical 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	1564.00	-44.41	-40.00	-4.41	1.38 V	116	50.97	-95.38

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.

7.8 Frequency Stability

Environmental Conditions:	25°C, 60% RH	Tested By:	Willy Chng
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7.8.1 LTE Band 4

LTE Band 4, Channel Bandwidth: 1.4 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 19957 (1710.7 MHz)		CH 20393 (1754.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1710.700003	0.002	1754.300002	0.001
3.87	1710.700001	0.001	1754.299999	-0.001
4.45	1710.699996	-0.002	1754.300004	0.002

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 19957 (1710.7 MHz)		CH 20393 (1754.3 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1710.699999	-0.001	1754.300002	0.001
-20	1710.699998	-0.001	1754.299998	-0.001
-10	1710.700004	0.002	1754.300004	0.002
0	1710.699999	-0.001	1754.299996	-0.002
10	1710.699997	-0.002	1754.300004	0.002
20	1710.699996	-0.002	1754.300003	0.002
30	1710.700004	0.002	1754.300003	0.002
40	1710.699998	-0.001	1754.299998	-0.001
50	1710.700004	0.002	1754.299999	-0.001

LTE Band 4, Channel Bandwidth: 3 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 19965 (1711.5 MHz)		CH 20385 (1753.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1711.499999	-0.001	1753.499996	-0.002
3.87	1711.500004	0.002	1753.499997	-0.002
4.45	1711.499996	-0.002	1753.499999	-0.001

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 19965 (1711.5 MHz)		CH 20385 (1753.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1711.499996	-0.002	1753.499998	-0.001
-20	1711.500002	0.001	1753.499996	-0.002
-10	1711.500002	0.001	1753.499999	-0.001
0	1711.499998	-0.001	1753.499996	-0.002
10	1711.500002	0.001	1753.499998	-0.001
20	1711.499996	-0.002	1753.499996	-0.002
30	1711.500003	0.002	1753.499996	-0.002
40	1711.499998	-0.001	1753.500004	0.002
50	1711.500004	0.002	1753.500003	0.002

LTE Band 4, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 19975 (1712.5 MHz)		CH 20375 (1752.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1712.500004	0.002	1752.500001	0.001
3.87	1712.500004	0.002	1752.500004	0.002
4.45	1712.499996	-0.002	1752.500001	0.001

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 19975 (1712.5 MHz)		CH 20375 (1752.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1712.500002	0.001	1752.500001	0.001
-20	1712.499997	-0.002	1752.499999	-0.001
-10	1712.499996	-0.002	1752.499998	-0.001
0	1712.499998	-0.001	1752.499997	-0.002
10	1712.500002	0.001	1752.500003	0.002
20	1712.500002	0.001	1752.499998	-0.001
30	1712.500002	0.001	1752.500004	0.002
40	1712.500003	0.002	1752.500004	0.002
50	1712.500001	0.001	1752.499996	-0.002

LTE Band 4, Channel Bandwidth: 10 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 20000 (1715 MHz)		CH 20350 (1750 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1715.000001	0.001	1750.000001	0.001
3.87	1714.999997	-0.002	1749.999999	-0.001
4.45	1715.000004	0.002	1750.000002	0.001

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 20000 (1715 MHz)		CH 20350 (1750 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1715.000002	0.001	1750.000004	0.002
-20	1715.000003	0.002	1749.999998	-0.001
-10	1715.000003	0.002	1750.000002	0.001
0	1715.000001	0.001	1749.999997	-0.002
10	1715.000001	0.001	1749.999997	-0.002
20	1714.999998	-0.001	1749.999996	-0.002
30	1715.000003	0.002	1749.999996	-0.002
40	1714.999997	-0.002	1749.999999	-0.001
50	1714.999998	-0.001	1749.999999	-0.001

LTE Band 4, Channel Bandwidth: 15 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 20025 (1717.5 MHz)		CH 20325 (1747.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1717.499997	-0.002	1747.499996	-0.002
3.87	1717.499998	-0.001	1747.500004	0.002
4.45	1717.499997	-0.002	1747.499998	-0.001

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 20025 (1717.5 MHz)		CH 20325 (1747.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1717.500002	0.001	1747.499999	-0.001
-20	1717.499999	-0.001	1747.500003	0.002
-10	1717.499996	-0.002	1747.499997	-0.002
0	1717.500004	0.002	1747.499996	-0.002
10	1717.500002	0.001	1747.500001	0.001
20	1717.500004	0.002	1747.500002	0.001
30	1717.500002	0.001	1747.499996	-0.002
40	1717.499997	-0.002	1747.499997	-0.002
50	1717.499996	-0.002	1747.500004	0.002

LTE Band 4, Channel Bandwidth: 20 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 20050 (1720 MHz)		CH 20300 (1745 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	1719.999998	-0.001	1744.999998	-0.001
3.87	1720.000002	0.001	1744.999999	-0.001
4.45	1720.000003	0.002	1745.000003	0.002

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 20050 (1720 MHz)		CH 20300 (1745 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	1719.999996	-0.002	1744.999999	-0.001
-20	1720.000003	0.002	1744.999998	-0.001
-10	1720.000003	0.002	1744.999996	-0.002
0	1719.999999	-0.001	1744.999998	-0.001
10	1720.000001	0.001	1744.999998	-0.001
20	1720.000001	0.001	1744.999997	-0.002
30	1720.000002	0.001	1745.000002	0.001
40	1720.000003	0.002	1744.999996	-0.002
50	1719.999997	-0.002	1744.999996	-0.002

7.8.2 LTE Band 13

LTE Band 13, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 23205 (779.5 MHz)		CH 23255 (784.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.50	779.499997	-0.004	784.500001	0.001
3.87	779.500004	0.005	784.499997	-0.004
4.45	779.500004	0.005	784.500002	0.003

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 23205 (779.5 MHz)		CH 23255 (784.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	779.500003	0.004	784.500004	0.005
-20	779.499998	-0.003	784.499999	-0.001
-10	779.500002	0.003	784.500002	0.003
0	779.500002	0.003	784.500001	0.001
10	779.500001	0.001	784.499999	-0.001
20	779.500001	0.001	784.499999	-0.001
30	779.499998	-0.003	784.499999	-0.001
40	779.499999	-0.001	784.499996	-0.005
50	779.500004	0.005	784.500002	0.003

LTE Band 13, Channel Bandwidth: 10 MHz

Frequency Stability Versus Voltage		
Voltage (Vdc)	CH 23230 (782 MHz)	
	Frequency (MHz)	Frequency Error (ppm)
3.50	782.000002	0.003
3.87	782.000001	0.001
4.45	781.999999	-0.001

Note: The applicant defined the normal working voltage is from 3.50 to 4.45 Vdc.

Frequency Stability Versus Temperature		
Temperature (°C)	CH 23230 (782 MHz)	
	Frequency (MHz)	Frequency Error (ppm)
-30	781.999996	-0.005
-20	782.000002	0.003
-10	781.999997	-0.004
0	782.000002	0.003
10	782.000004	0.005
20	782.000002	0.003
30	782.000003	0.004
40	781.999998	-0.003
50	781.999998	-0.003

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 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 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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