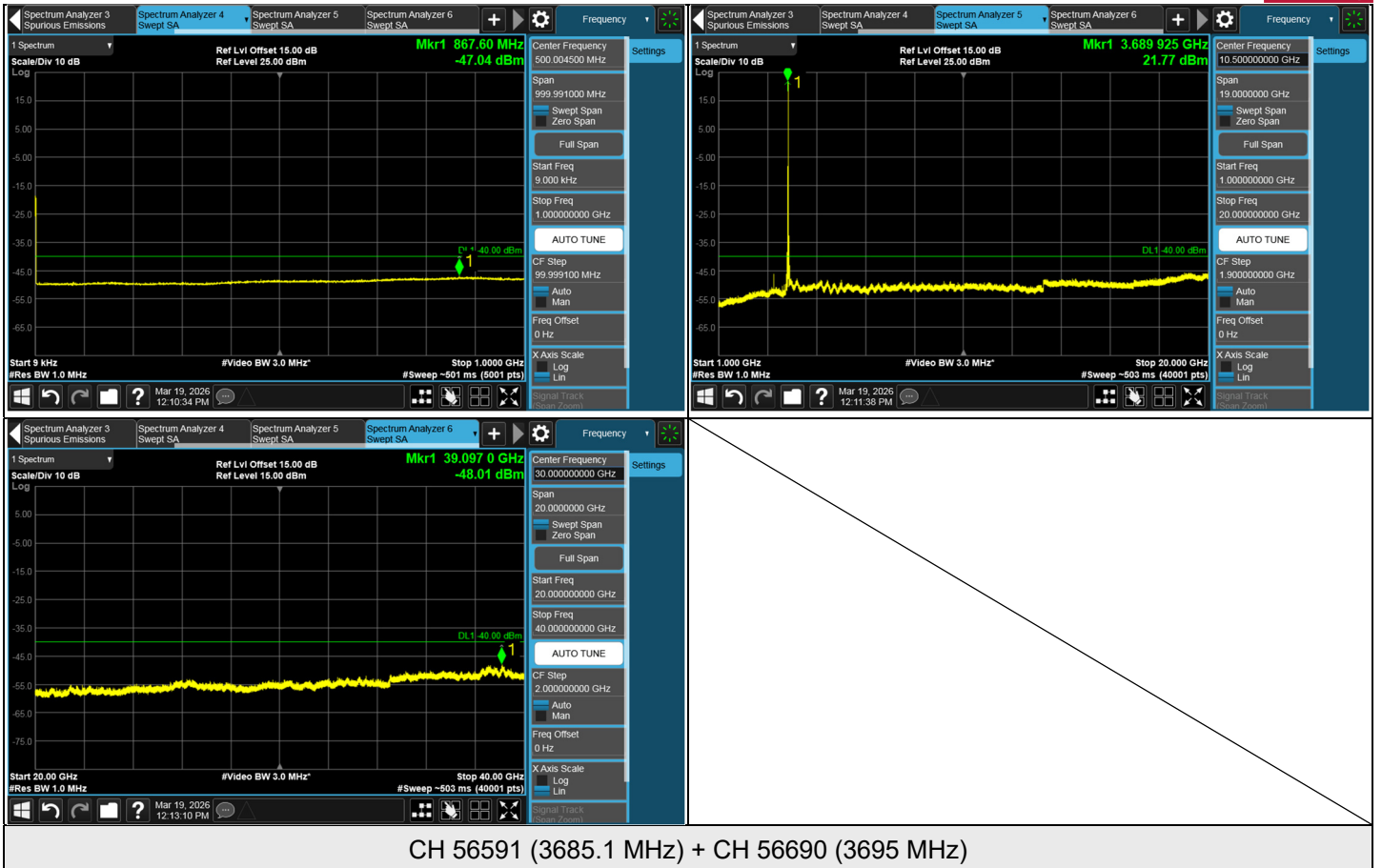
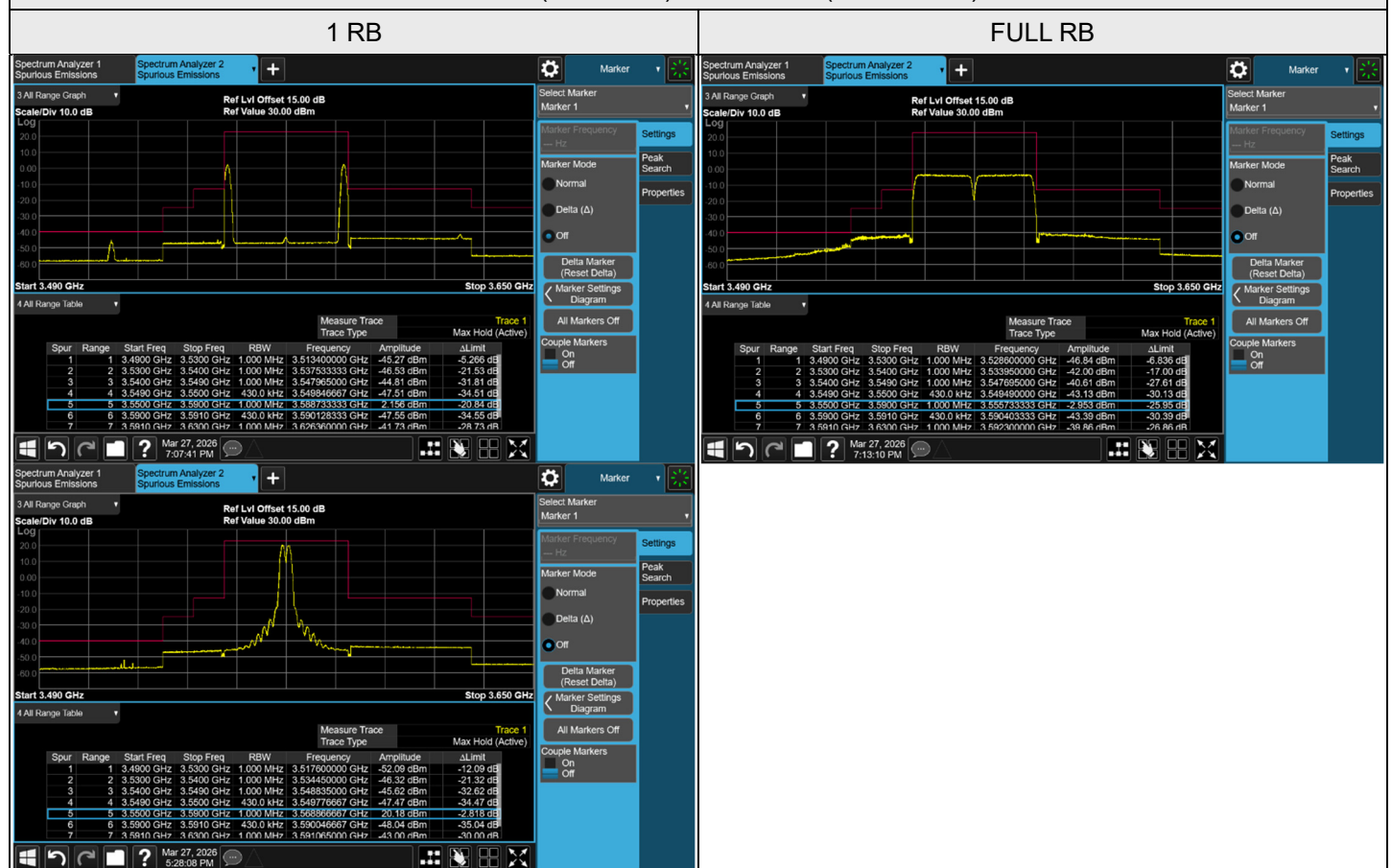




7.4.2 LTE Band 48C

Channel Bandwidth: 20 MHz + 20 MHz

CH 55340 (3560 MHz) + CH 55538 (3579.8 MHz)

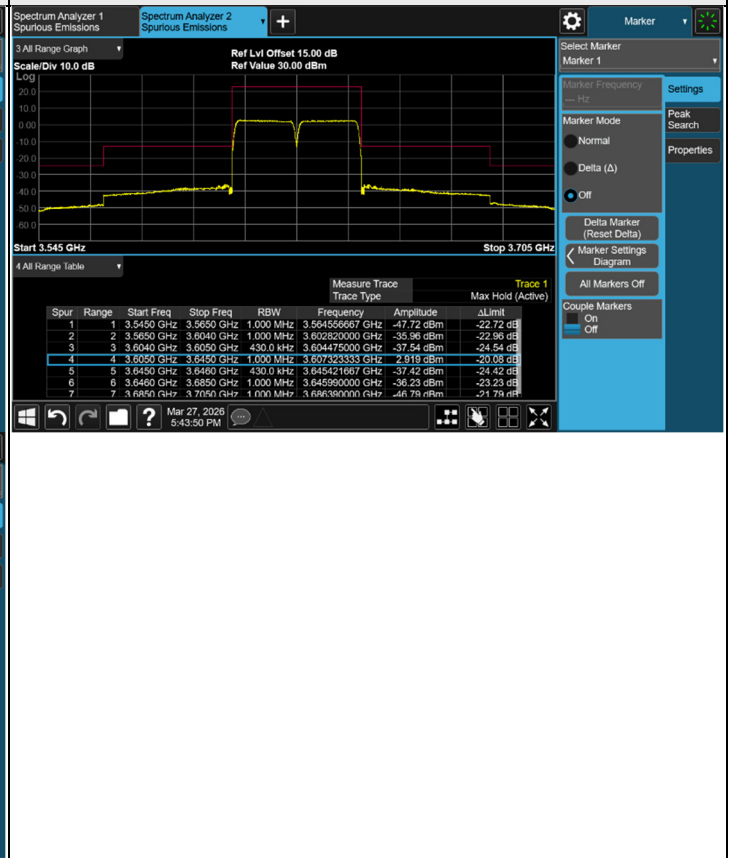


CH 55891 (3615.1 MHz) + CH 56089 (3634.9 MHz)

1 RB



FULL RB

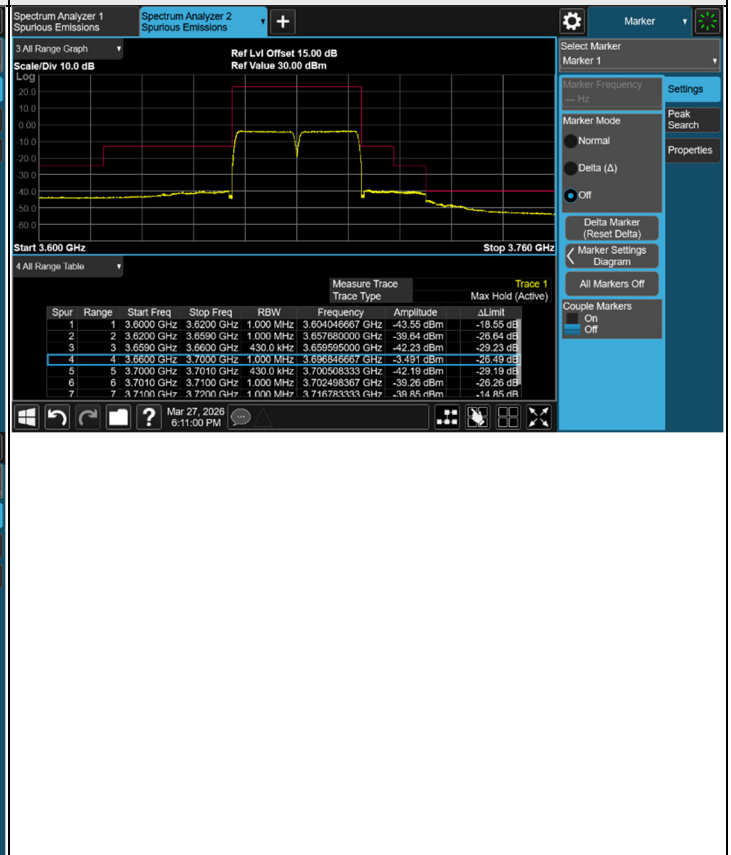


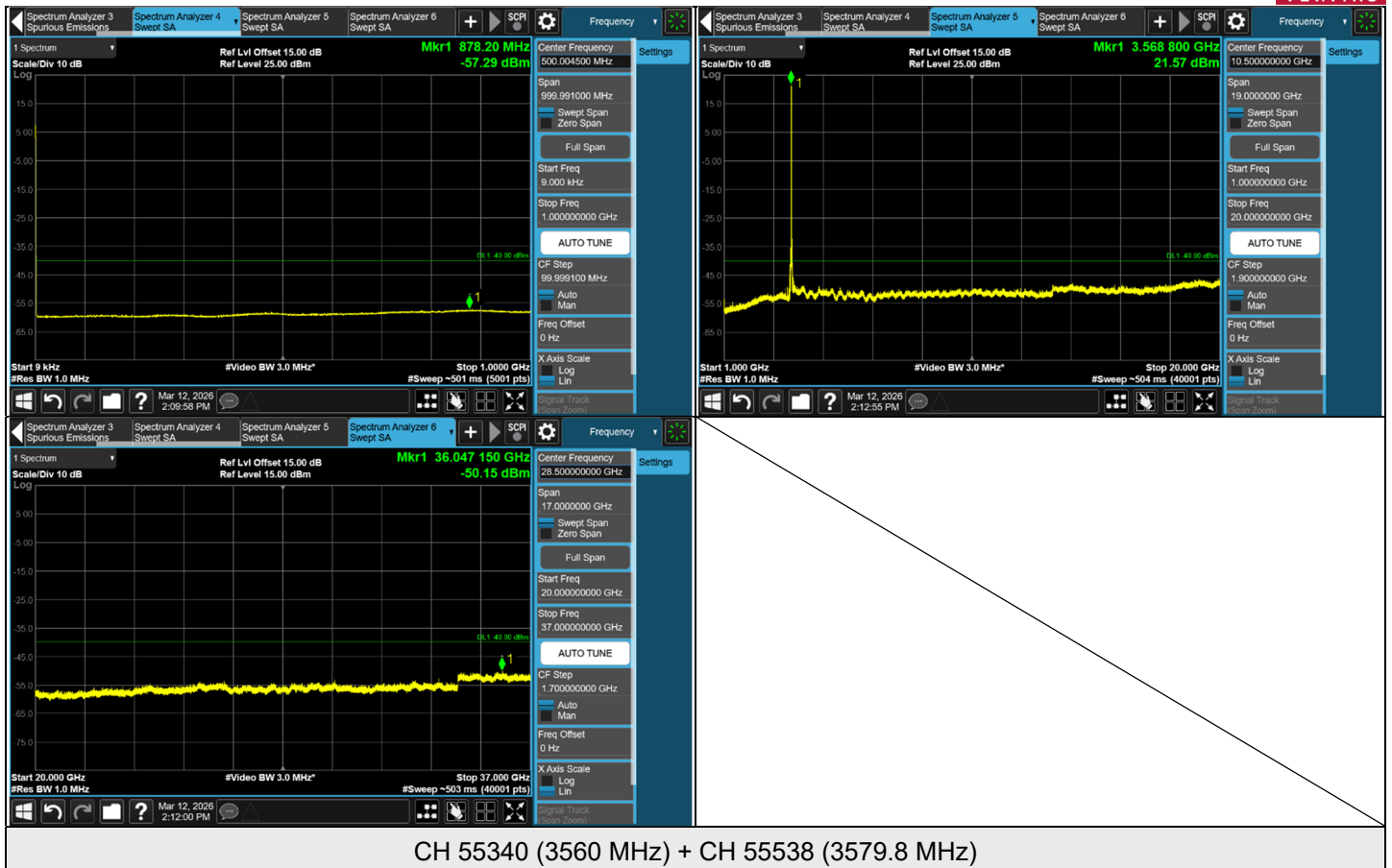
CH 56442 (3670.2 MHz) + CH 56640 (3690 MHz)

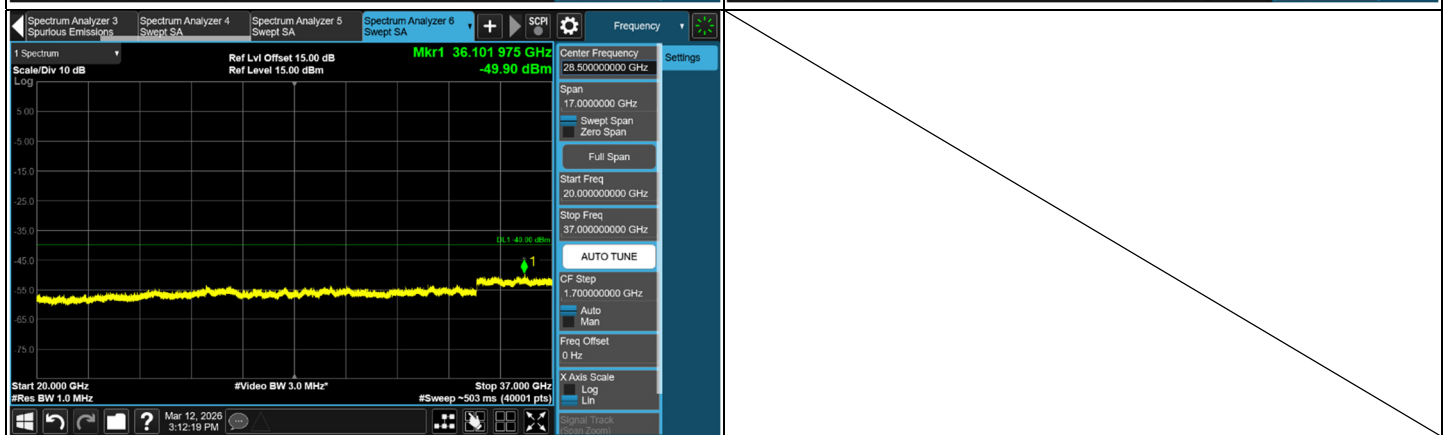
1 RB



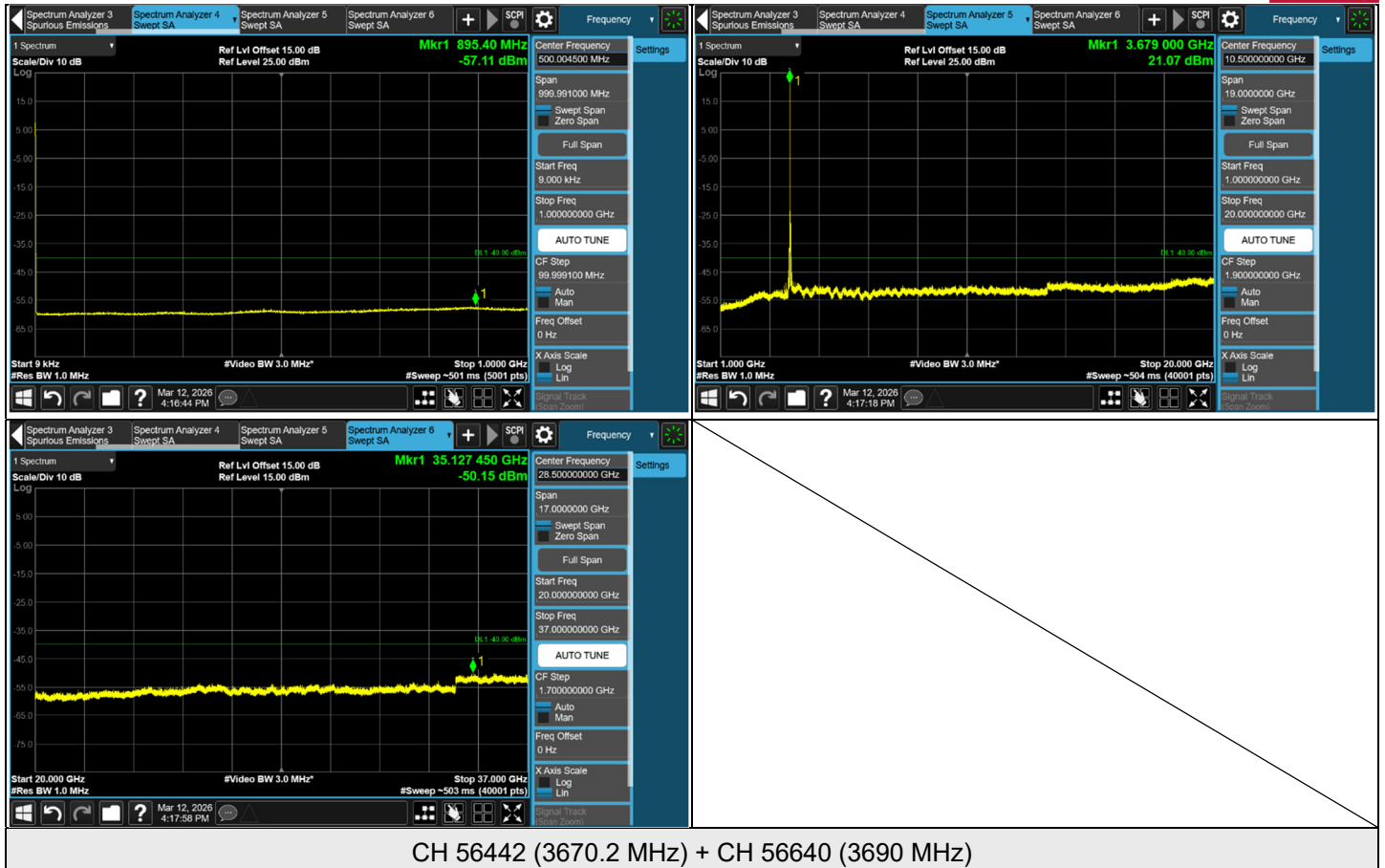
FULL RB







CH 55891 (3615.1 MHz) + CH 56089 (3634.9 MHz)



7.5 Radiated Spurious Emissions below 1GHz

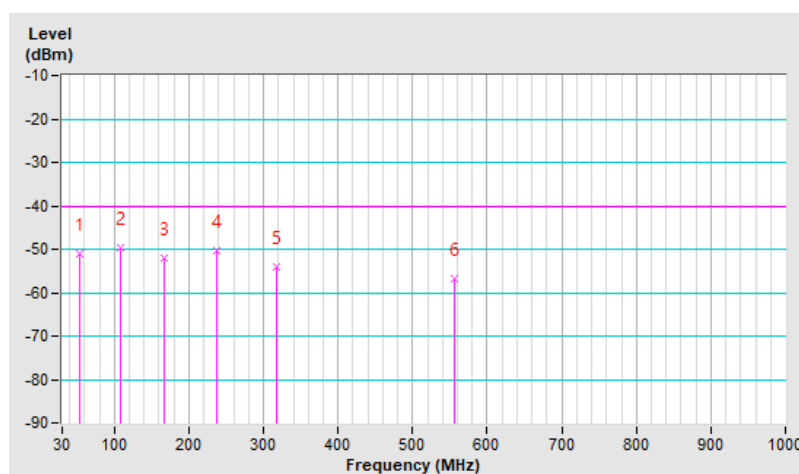
7.5.1 LTE Band 48B

RF Mode	LTE Band 48B Channel Bandwidth: 10 MHz + 10 MHz	Channel	CH 55290 : 3555 MHz + CH 55389 : 3564.9 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	54.25	-51.07	-40.00	-11.07	1.50 H	6	53.23	-104.30
2	107.60	-49.57	-40.00	-9.57	1.50 H	127	57.52	-107.09
3	167.74	-51.94	-40.00	-11.94	1.00 H	217	51.64	-103.58
4	237.58	-50.25	-40.00	-10.25	1.00 H	196	54.32	-104.57
5	317.12	-54.12	-40.00	-14.12	1.50 H	121	47.01	-101.13
6	556.71	-56.79	-40.00	-16.79	1.00 H	11	40.13	-96.92

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

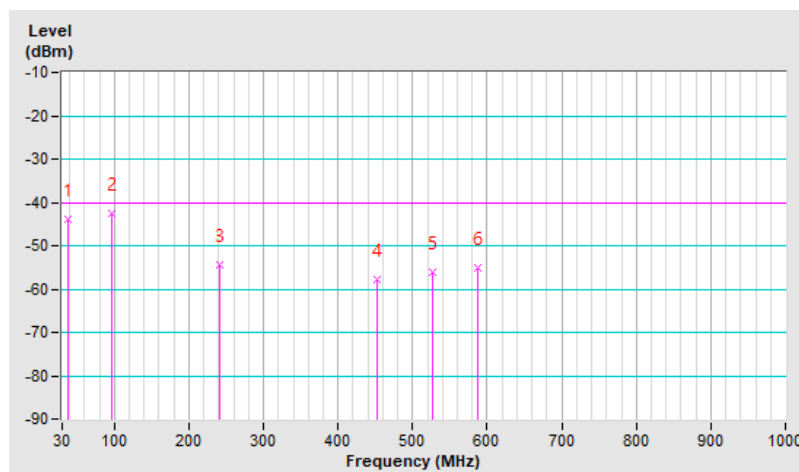


RF Mode	LTE Band 48B Channel Bandwidth: 10 MHz + 10 MHz	Channel	CH 55290 : 3555 MHz + CH 55389 : 3564.9 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	37.76	-44.06	-40.00	-4.06	1.49 V	22	60.84	-104.90
2	95.96	-42.60	-40.00	-2.60	1.00 V	241	66.48	-109.08
3	240.49	-54.44	-40.00	-14.44	1.00 V	159	49.84	-104.28
4	451.95	-57.88	-40.00	-17.88	1.00 V	254	40.51	-98.39
5	526.64	-56.26	-40.00	-16.26	1.00 V	305	41.19	-97.45
6	586.78	-55.15	-40.00	-15.15	1.99 V	14	40.90	-96.05

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 frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



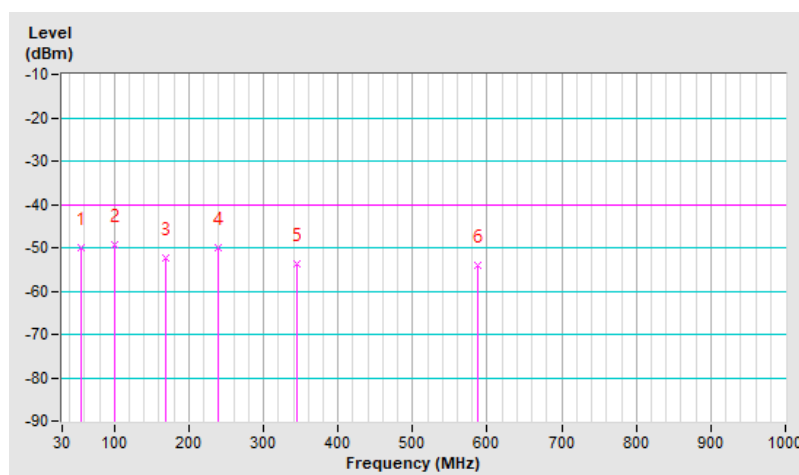
7.5.2 LTE Band 48C

RF Mode	LTE Band 48C Channel Bandwidth: 20 MHz + 20 MHz	Channel	CH 55340 : 3560 MHz + CH 55538 : 3579.80 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	55.22	-49.94	-40.00	-9.94	1.00 H	15	54.29	-104.23
2	100.81	-49.32	-40.00	-9.32	1.00 H	126	58.90	-108.22
3	168.71	-52.38	-40.00	-12.38	2.00 H	105	51.31	-103.69
4	239.52	-50.04	-40.00	-10.04	1.00 H	179	54.32	-104.36
5	345.25	-53.66	-40.00	-13.66	1.50 H	62	47.19	-100.85
6	587.75	-53.99	-40.00	-13.99	1.00 H	70	42.04	-96.03

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 frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

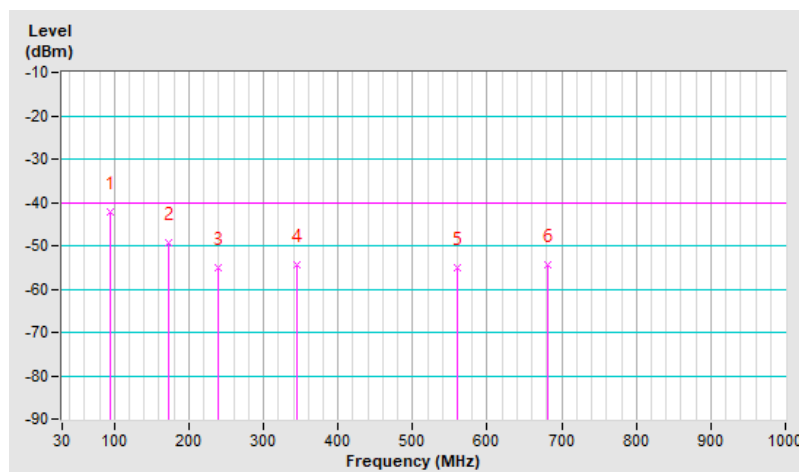


RF Mode	LTE Band 48C Channel Bandwidth: 20 MHz + 20 MHz	Channel	CH 55340 : 3560 MHz + CH 5538 : 3579.80 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	94.99	-42.06	-40.00	-2.06	1.01 V	234	67.10	-109.16
2	172.59	-49.46	-40.00	-9.46	1.01 V	231	54.46	-103.92
3	238.55	-54.97	-40.00	-14.97	1.01 V	175	49.48	-104.45
4	345.25	-54.54	-40.00	-14.54	1.01 V	138	46.31	-100.85
5	560.59	-55.05	-40.00	-15.05	1.99 V	189	41.80	-96.85
6	680.87	-54.40	-40.00	-14.40	1.99 V	104	40.05	-94.45

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 frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.6 Radiated Spurious Emissions above 1GHz

7.6.1 LTE Band 48B

RF Mode	LTE Band 48B Channel Bandwidth: 10 MHz + 10 MHz	Channel	CH 55290 : 3555 MHz + CH 55389 : 3564.9 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7110.00	-47.68	-40.00	-7.68	3.30 H	111	37.11	-84.79
2	7129.80	-47.86	-40.00	-7.86	3.31 H	109	36.91	-84.77
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	7110.00	-46.90	-40.00	-6.90	2.77 V	205	37.89	-84.79
2	7129.80	-47.06	-40.00	-7.06	2.90 V	215	37.71	-84.77

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 48B Channel Bandwidth: 10 MHz + 10 MHz	Channel	CH 55940 : 3620 MHz + CH 56039 : 3629.9 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7240.00	-47.00	-40.00	-7.00	3.34 H	115	37.44	-84.44
2	7259.80	-47.19	-40.00	-7.19	3.26 H	107	37.23	-84.42
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	7240.00	-46.52	-40.00	-6.52	2.78 V	209	37.92	-84.44
2	7259.80	-46.61	-40.00	-6.61	2.80 V	210	37.81	-84.42

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 48B Channel Bandwidth: 10 MHz + 10 MHz	Channel	CH 56591 : 3685.1 MHz + CH 56690 : 3695 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7370.20	-46.58	-40.00	-6.58	3.39 H	115	37.25	-83.83
2	7390.00	-46.60	-40.00	-6.60	2.81 H	220	37.15	-83.75
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	7370.20	-45.91	-40.00	-5.91	2.82 V	207	37.92	-83.83
2	7390.00	-46.00	-40.00	-6.00	2.77 V	215	37.75	-83.75

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.

7.6.2 LTE Band 48C

RF Mode	LTE Band 48C Channel Bandwidth: 20 MHz + 20 MHz	Channel	CH 55340 : 3560 MHz + CH 55538 : 3579.80 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7120.00	-47.36	-40.00	-7.36	3.23 H	114	37.42	-84.78
2	7159.60	-47.51	-40.00	-7.51	3.36 H	104	37.15	-84.66
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	7120.00	-46.90	-40.00	-6.90	2.71 V	217	37.88	-84.78
2	7159.60	-46.99	-40.00	-6.99	2.87 V	213	37.67	-84.66

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 48C Channel Bandwidth: 20 MHz + 20 MHz	Channel	CH 55891 : 3615.10 MHz + CH 56089 : 3634.90 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7230.20	-47.07	-40.00	-7.07	3.37 H	117	37.35	-84.42
2	7269.80	-47.27	-40.00	-7.27	3.30 H	113	37.12	-84.39
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	7230.20	-46.49	-40.00	-6.49	2.80 V	202	37.93	-84.42
2	7269.80	-46.71	-40.00	-6.71	2.74 V	213	37.68	-84.39

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 48C Channel Bandwidth: 20 MHz + 20 MHz	Channel	CH 56442 : 3670.20 MHz + CH 56640 : 3690.00 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Adair Peng		

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	7340.40	-46.77	-40.00	-6.77	3.38 H	116	37.22	-83.99
2	7380.00	-46.67	-40.00	-6.67	3.30 H	106	37.12	-83.79
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	7340.40	-46.35	-40.00	-6.35	2.79 V	205	37.64	-83.99
2	7380.00	-46.38	-40.00	-6.38	2.82 V	208	37.41	-83.79

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 Frequency Stability

Environmental Conditions:	25°C, 68% RH	Tested By:	Kevin Kuo
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7.7.1 LTE Band 48B

Channel Bandwidth: 10 MHz + 10 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 55290 (3555 MHz) + CH 56690 (3695 MHz)			
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.23	3555.000005	0.0014	3695.000005	0.0014
3.80	3555.000001	0.0003	3695.000001	0.0003
4.37	3554.999998	-0.0006	3694.999995	-0.0014

Note: The applicant defined the normal working voltage is from 3.23 to 4.37 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 55290 (3555 MHz) + CH 56690 (3695 MHz)			
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3554.999996	-0.0011	3694.999998	-0.0005
-20	3554.999997	-0.0008	3694.999997	-0.0008
-10	3555.000004	0.0011	3694.999996	-0.0011
0	3554.999997	-0.0008	3694.999996	-0.0011
10	3555.000002	0.0006	3695.000003	0.0008
20	3554.999995	-0.0014	3694.999999	-0.0003
30	3554.999997	-0.0008	3695.000002	0.0005
40	3555.000004	0.0011	3694.999998	-0.0005
50	3554.999996	-0.0011	3694.999996	-0.0011
60	3554.999996	-0.0011	3694.999999	-0.0003
70	3555.000004	0.0011	3695.000004	0.0011
75	3554.999997	-0.0008	3694.999999	-0.0003

7.7.2 LTE Band 48C

Channel Bandwidth: 20 MHz + 20 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 55340 (3560 MHz) + CH 56640 (3690 MHz)			
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.23	3560.000002	0.0006	3689.999999	-0.0003
3.80	3560.000004	0.0011	3689.999997	-0.0008
4.37	3560.000001	0.0003	3689.999995	-0.0014

Note: The applicant defined the normal working voltage is from 3.23 to 4.37 Vdc.

Frequency Stability Versus Temperature				
Temperature (°C)	CH 55340 (3560 MHz) + CH 56640 (3690 MHz)			
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3560.000003	0.0008	3690.000002	0.0005
-20	3559.999995	-0.0014	3689.999996	-0.0011
-10	3560.000001	0.0003	3689.999997	-0.0008
0	3559.999995	-0.0014	3689.999995	-0.0014
10	3560.000001	0.0003	3689.999998	-0.0005
20	3559.999995	-0.0014	3689.999996	-0.0011
30	3559.999999	-0.0003	3690.000003	0.0008
40	3559.999998	-0.0006	3689.999996	-0.0011
50	3560.000002	0.0006	3690.000002	0.0005
60	3560.000001	0.0003	3690.000003	0.0008
70	3560.000001	0.0003	3690.000002	0.0005
75	3559.999998	-0.0006	3690.000002	0.0005

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.

If you have any comments, please feel free to contact us at the following:

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Fax: 886-3-3270892

Email: service.adt@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

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