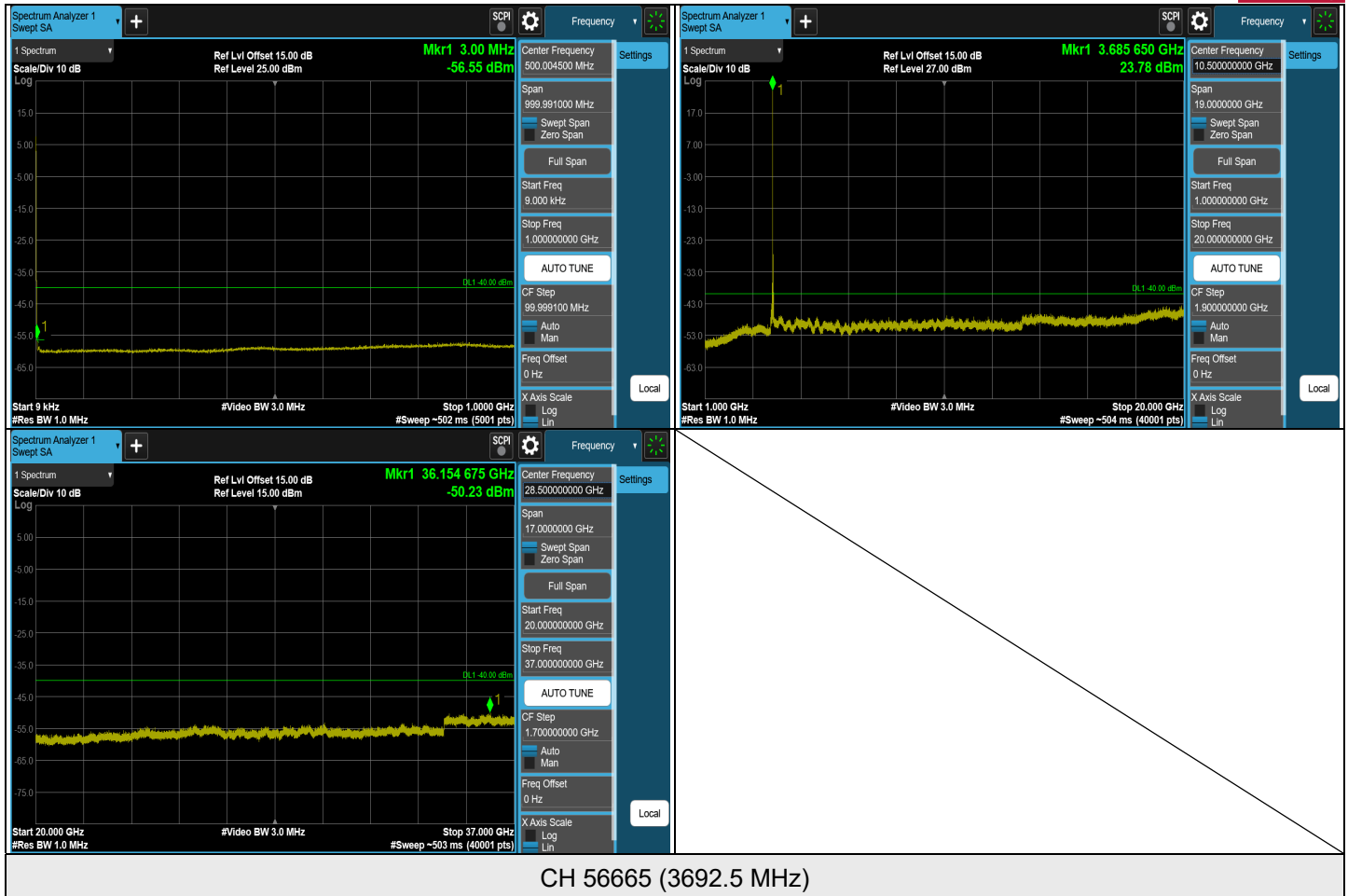
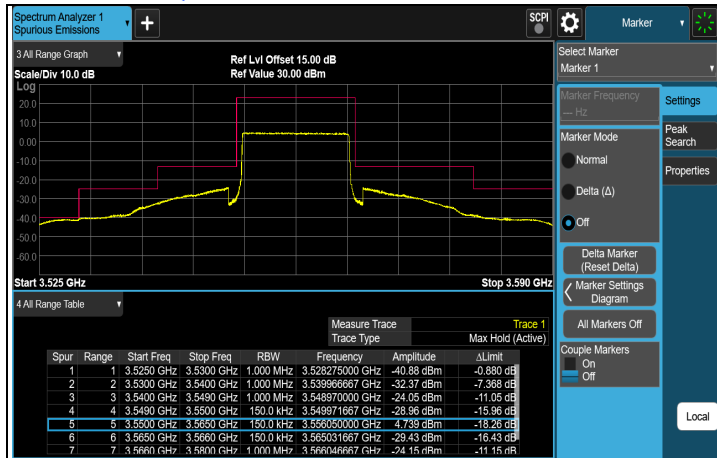


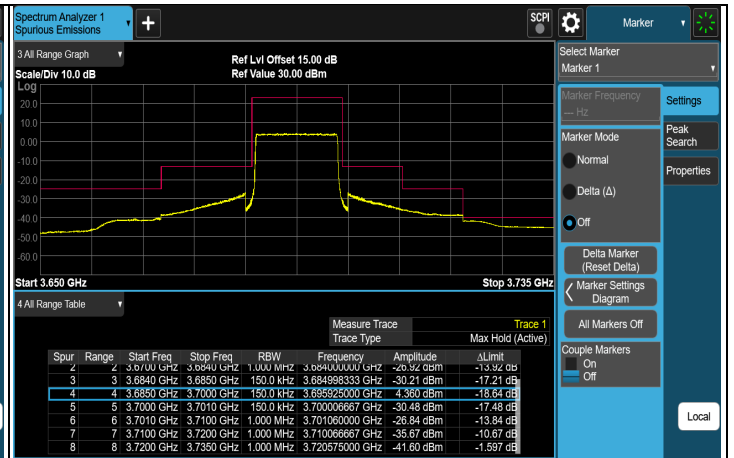


Note: The signal at 9 kHz is IF signal from spectrum analyzer.

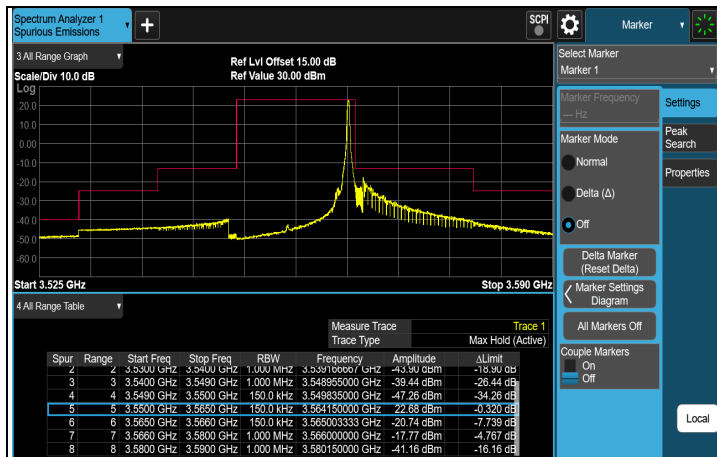
LTE Band 48, Channel Bandwidth: 15 MHz
Modulation: QPSK



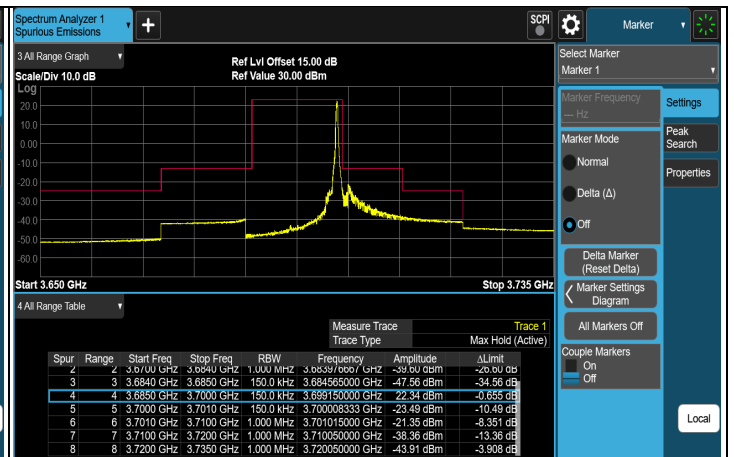
QPSK FULL CH 55315 (3557.5 MHz)



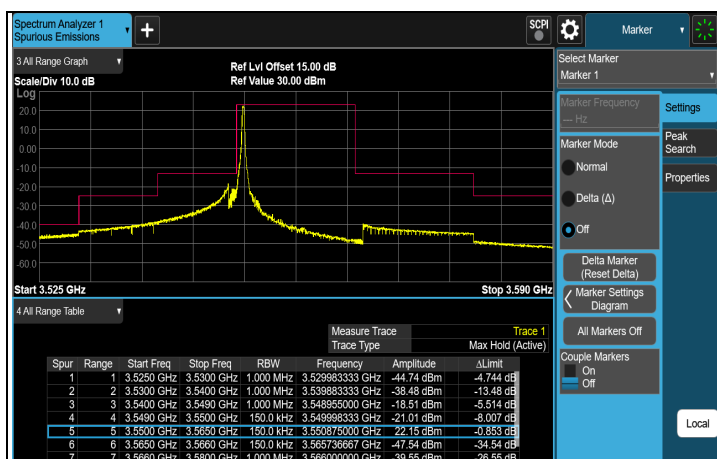
QPSK FULL CH 56665 (3692.5 MHz)



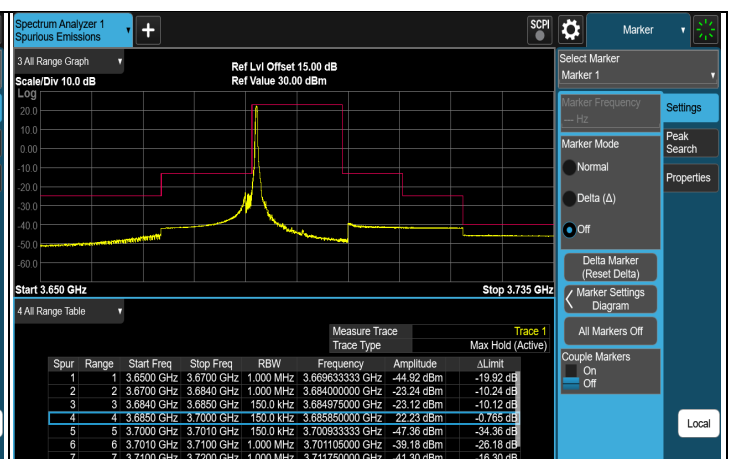
QPSK 1RB#MAX CH 55315 (3557.5 MHz)



QPSK 1RB#MAX CH 56665 (3692.5 MHz)

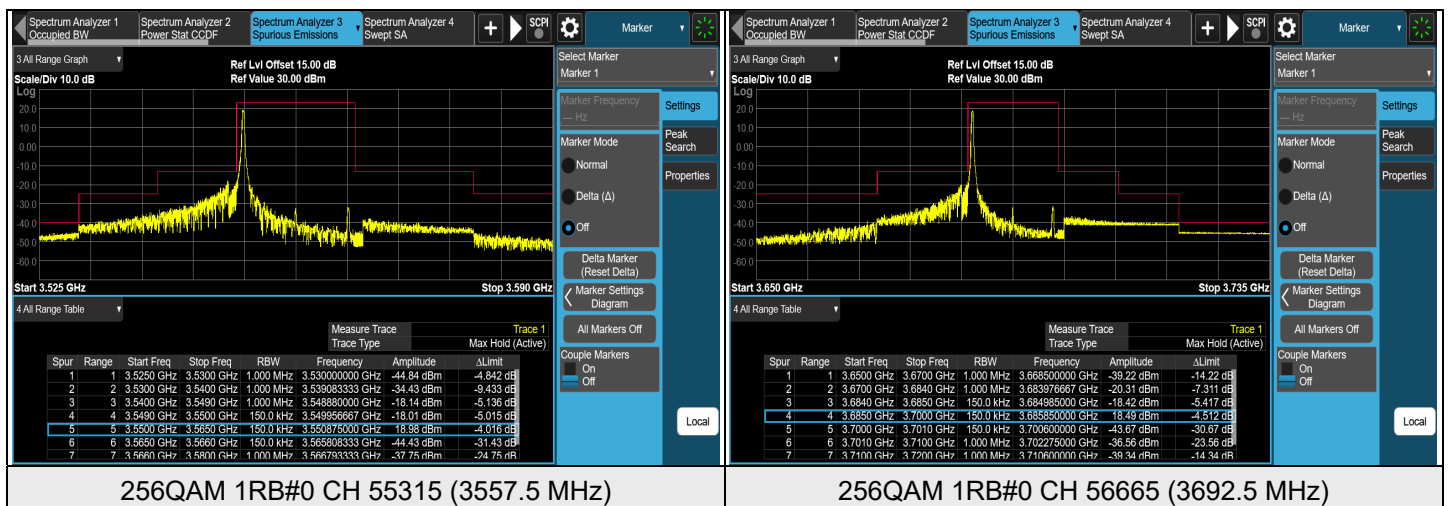
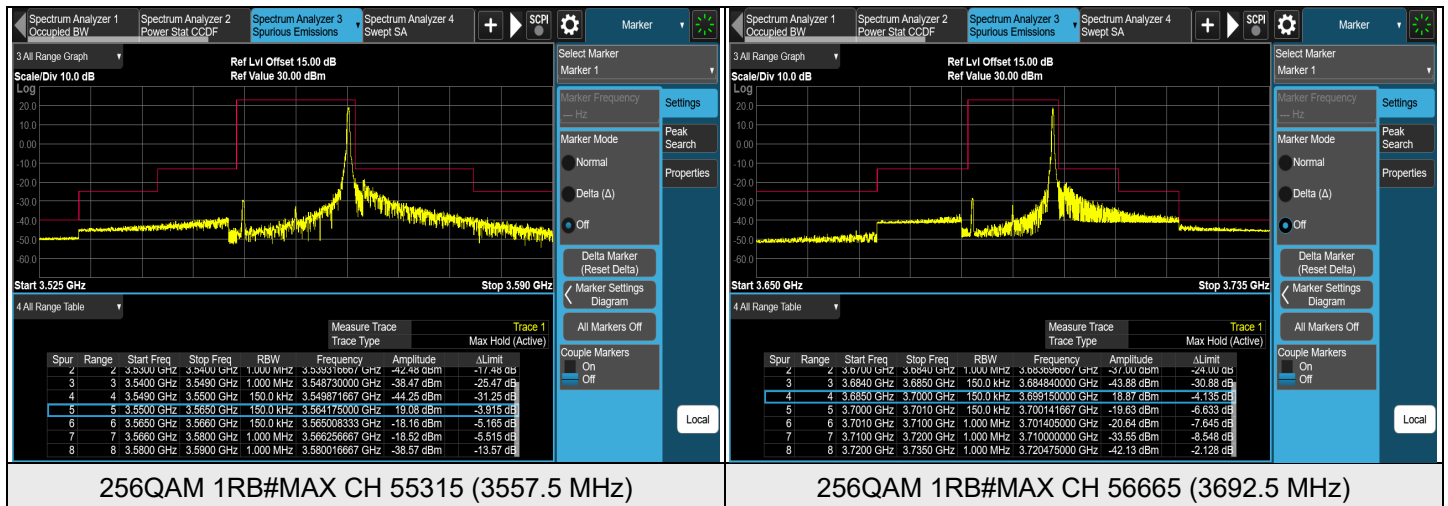
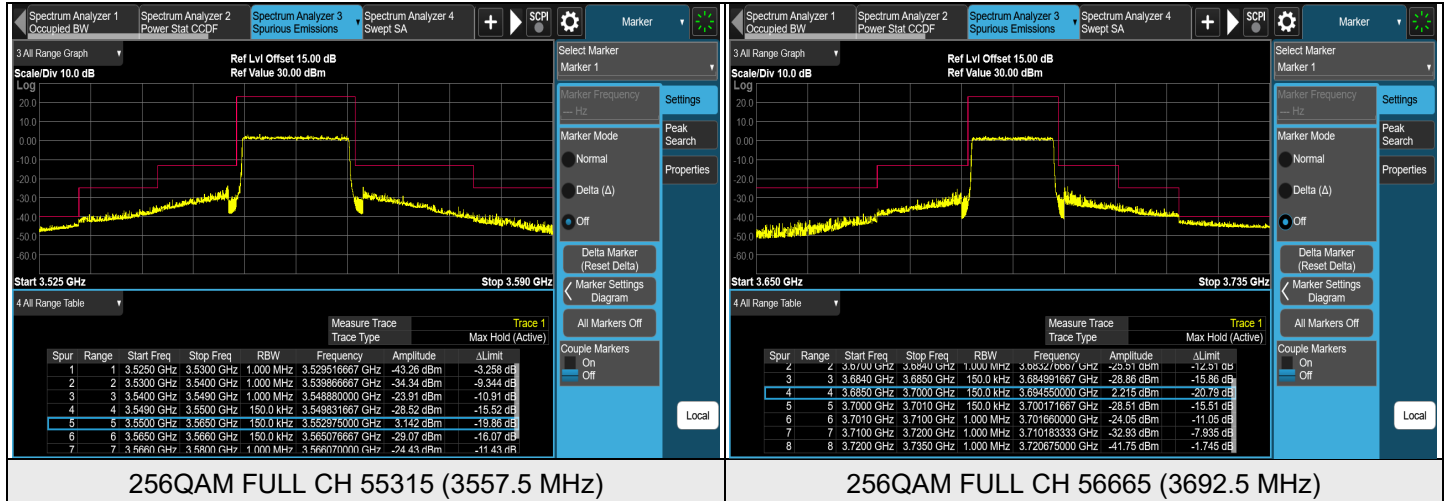


QPSK 1RB#0 CH 55315 (3557.5 MHz)

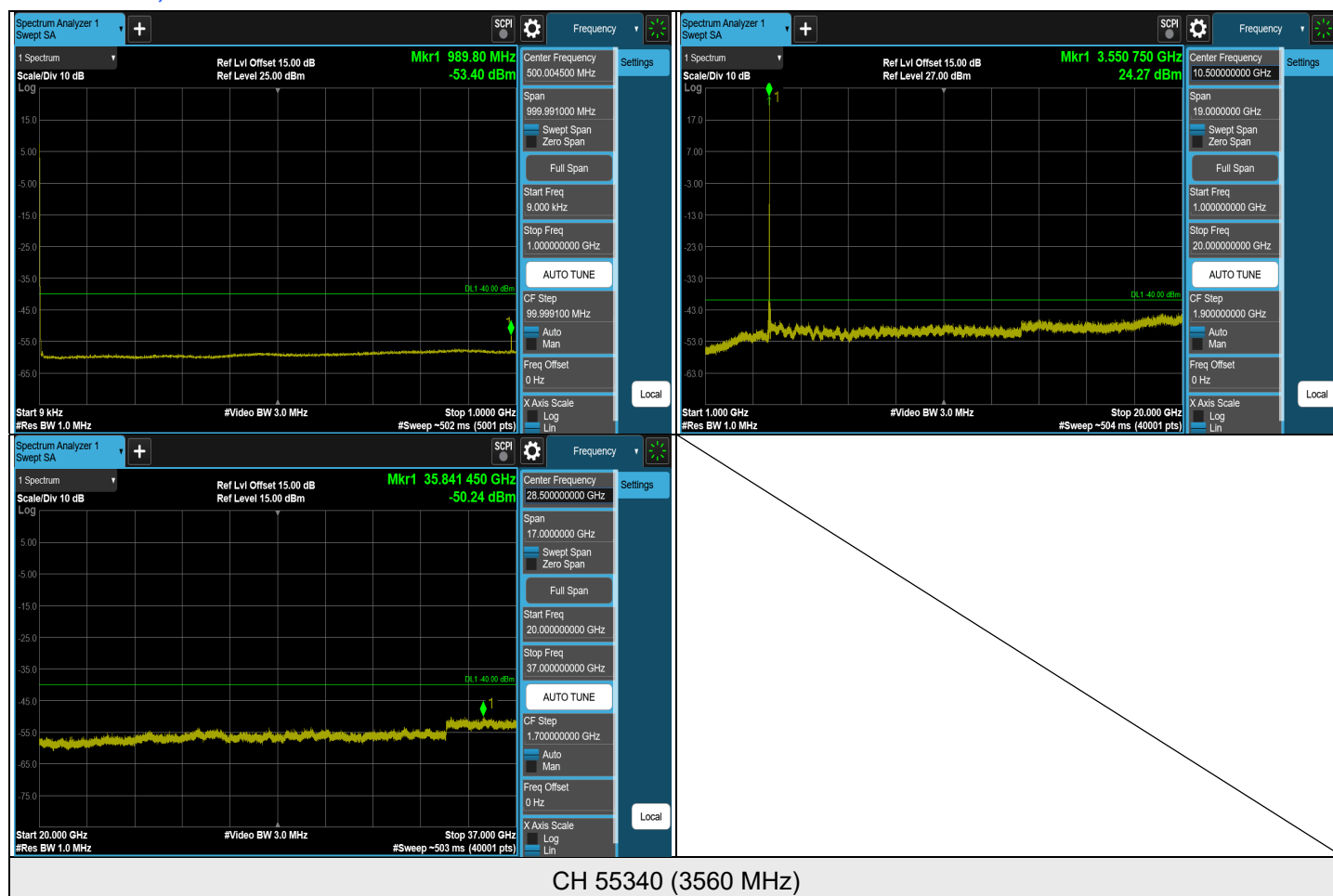


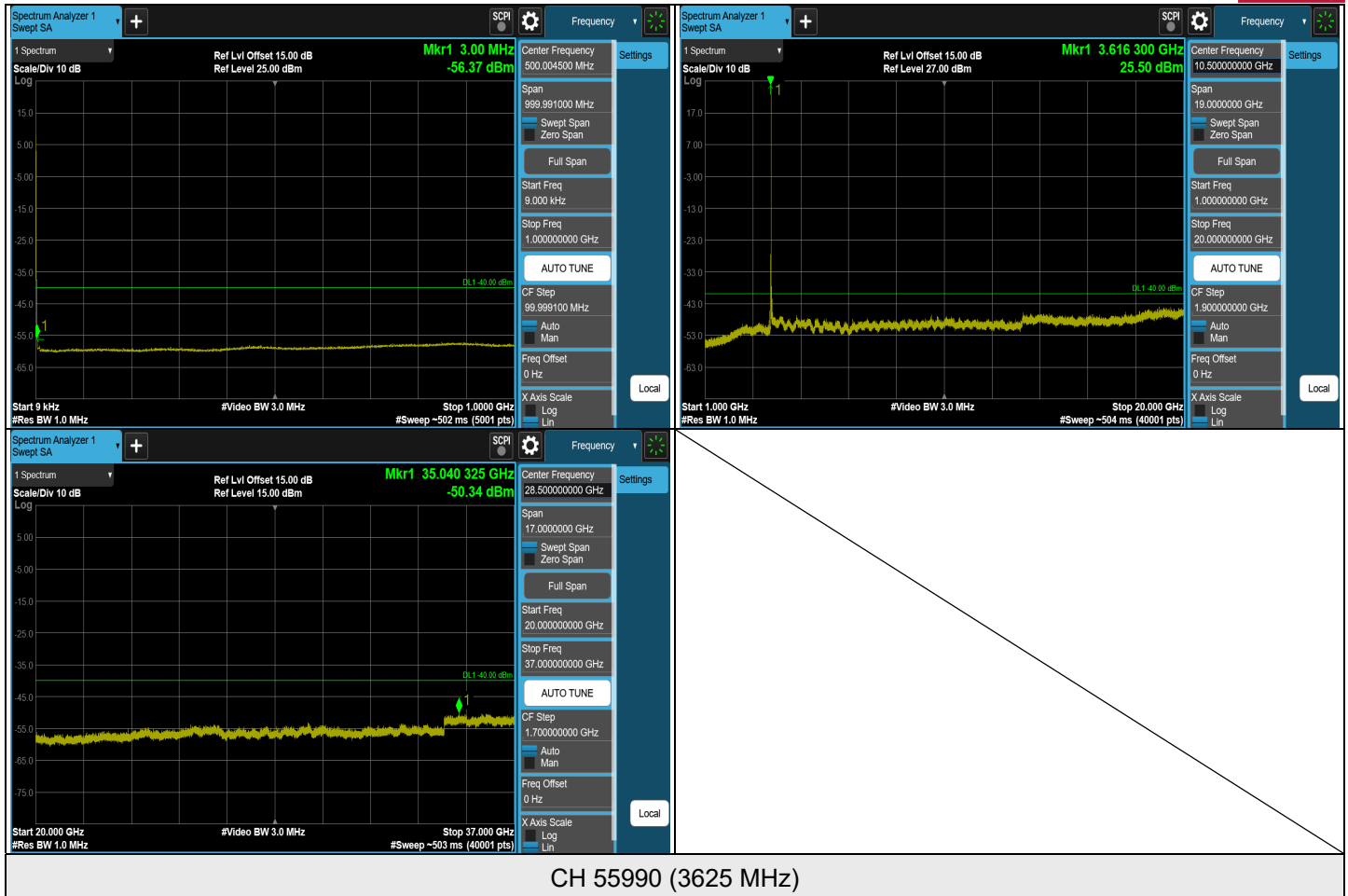
QPSK 1RB#0 CH 56665 (3692.5 MHz)

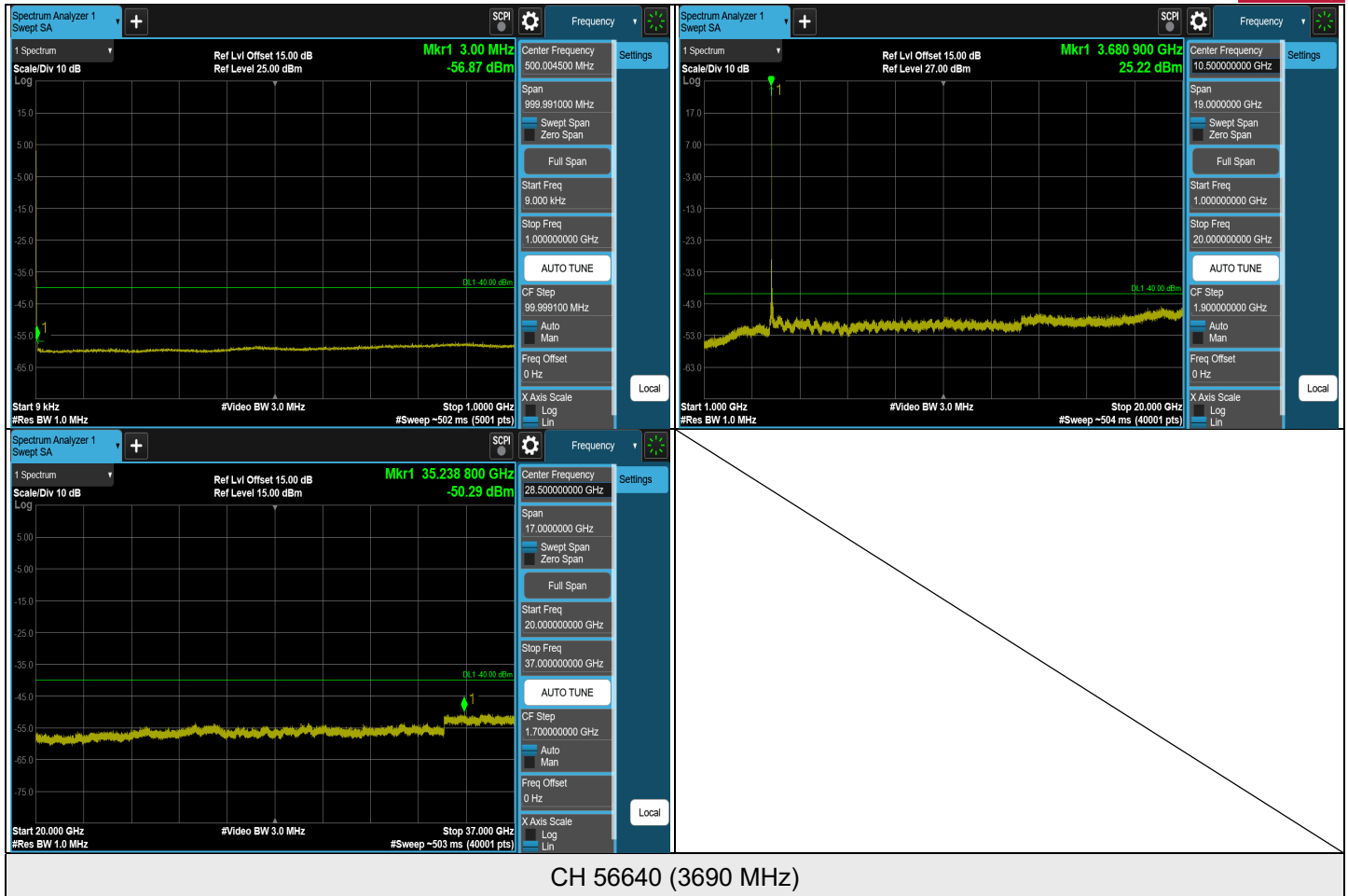
Modulation: 256QAM



LTE Band 48, Channel Bandwidth: 20 MHz

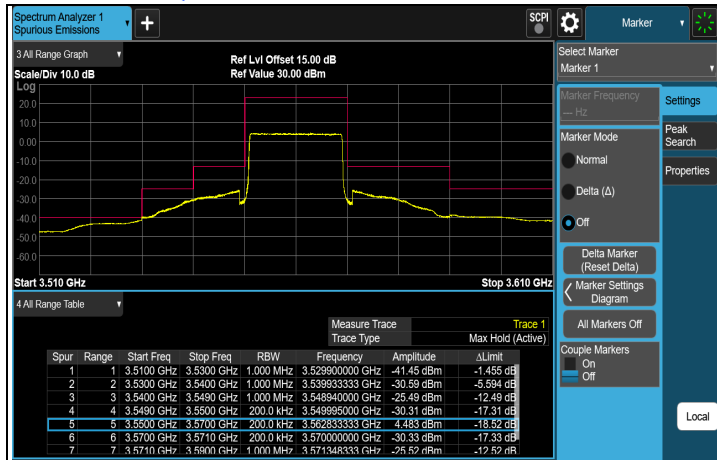




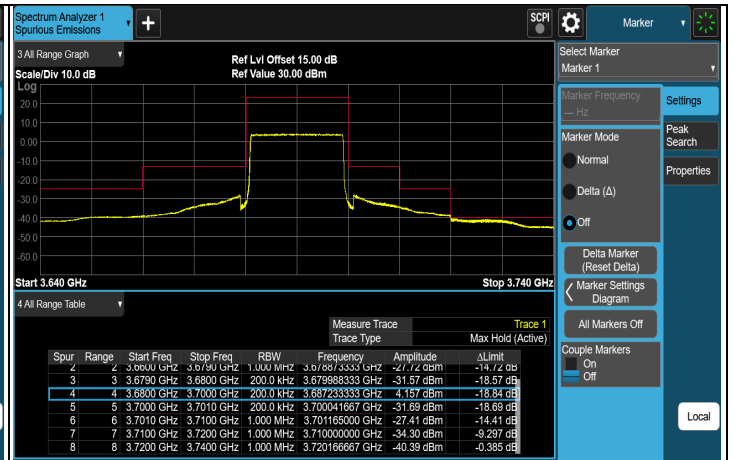


Note: The signal at 9 kHz is IF signal from spectrum analyzer.

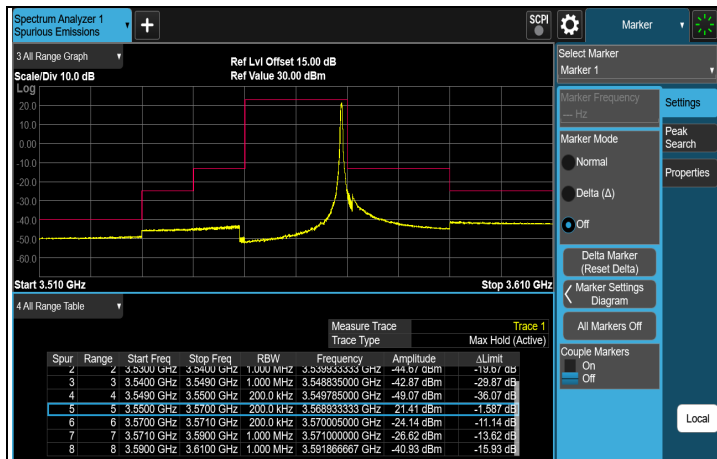
LTE Band 48, Channel Bandwidth: 20 MHz
Modulation: QPSK



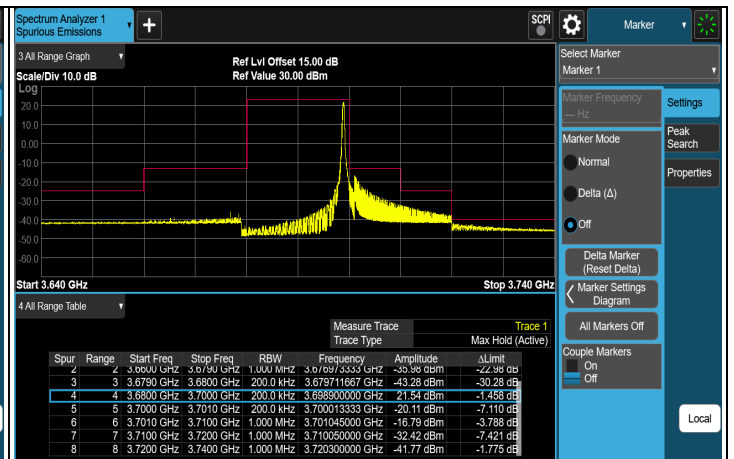
QPSK FULL CH 55340 (3560 MHz)



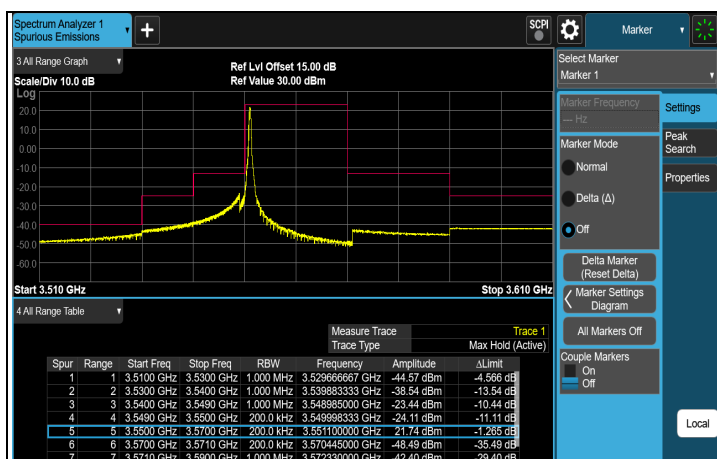
QPSK FULL CH 56640 (3690 MHz)



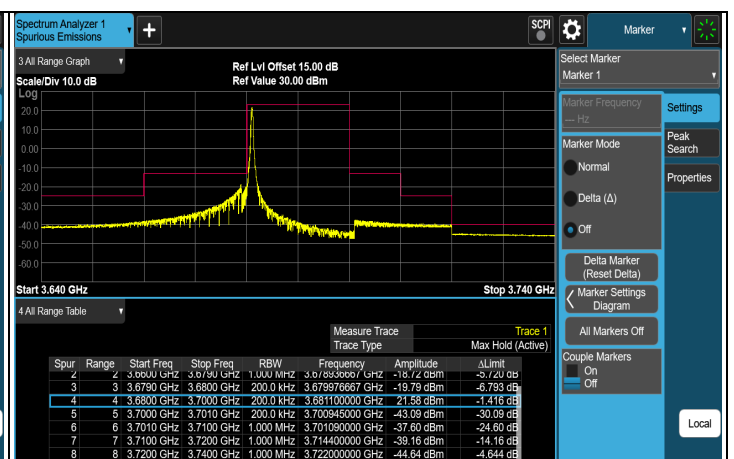
QPSK 1RB#MAX CH 55340 (3560 MHz)



QPSK 1RB#MAX CH 56640 (3690 MHz)

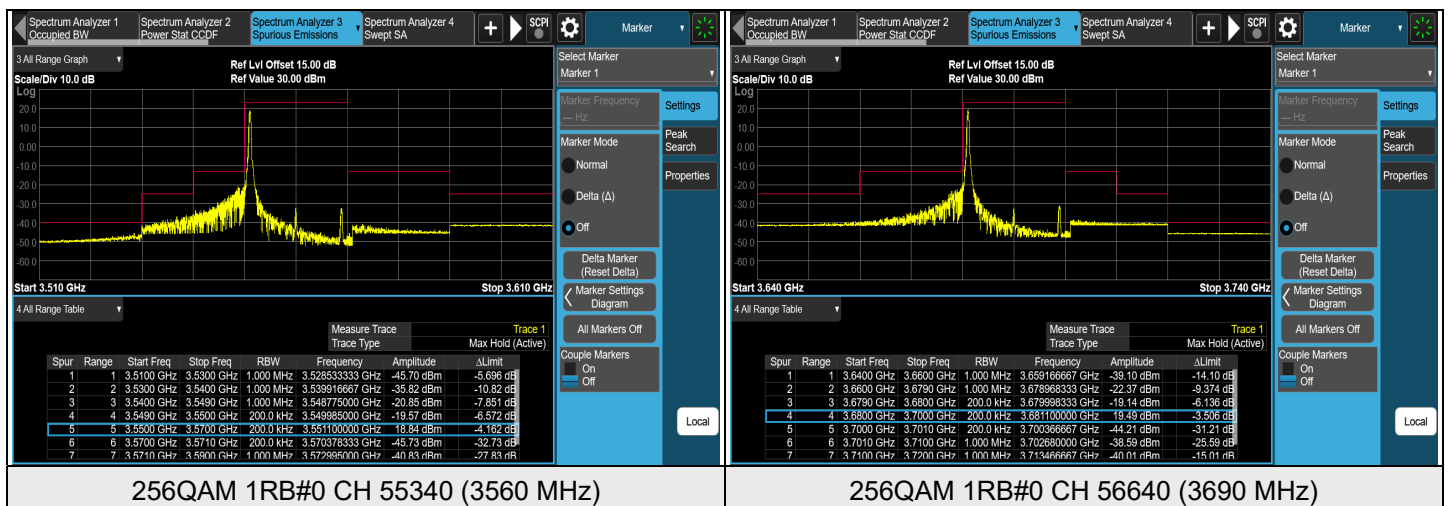
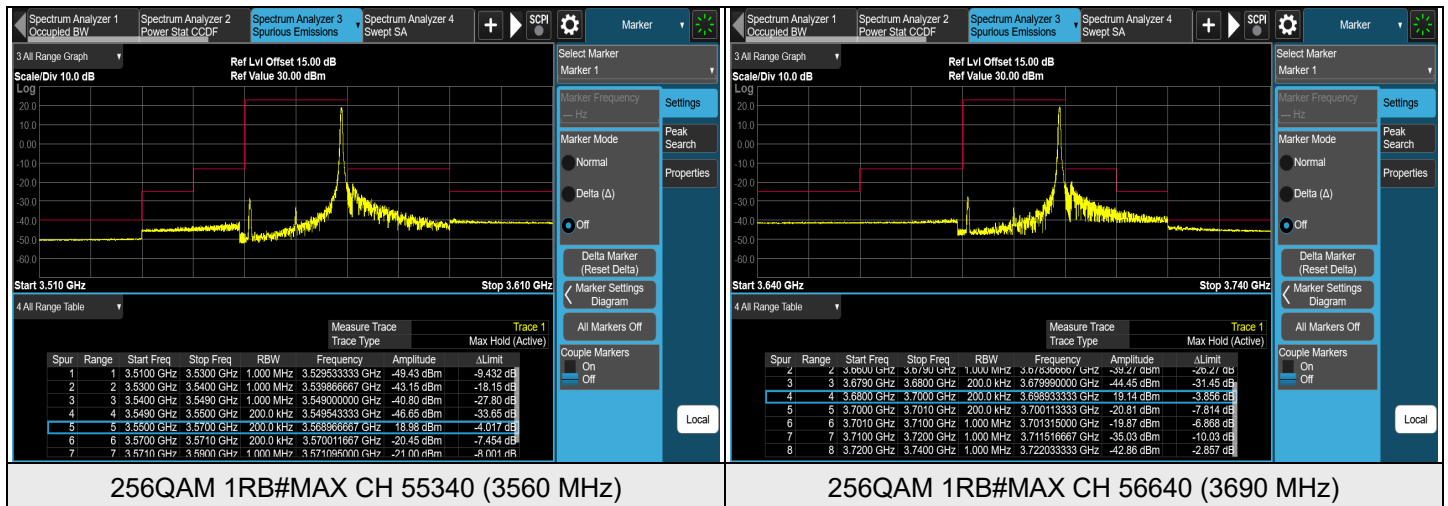
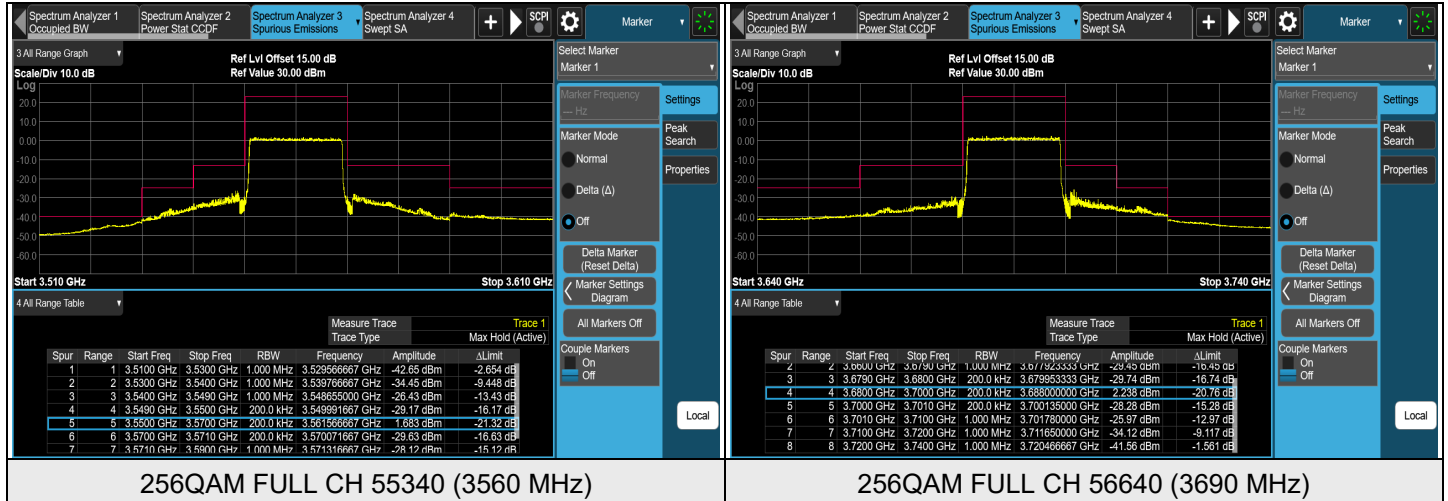


QPSK 1RB#0 CH 55340 (3560 MHz)



QPSK 1RB#0 CH 56640 (3690 MHz)

Modulation: 256QAM



7.6 Radiated Spurious Emissions below 1GHz

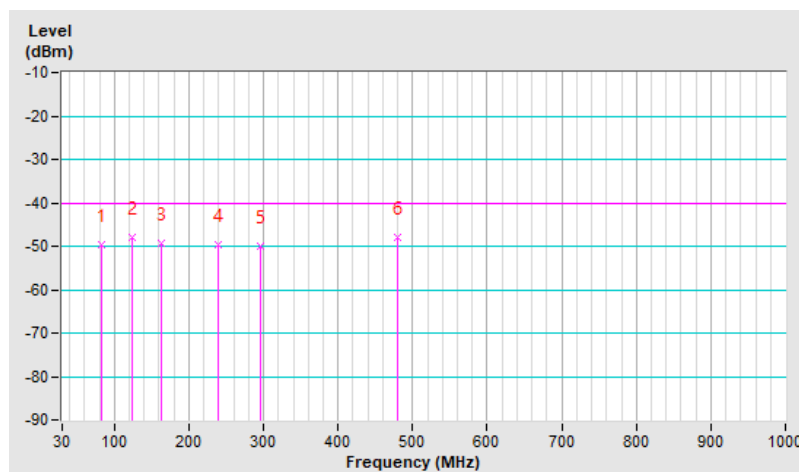
7.6.1 LTE Band 48

RF Mode	LTE Band 48 Channel Bandwidth: 5MHz	Channel	CH 56715 : 3697.5 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	Rex Wang		

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	83.35	-49.55	-40.00	-9.55	1.01 H	346	59.63	-109.18
2	124.09	-47.99	-40.00	-7.99	1.01 H	196	57.69	-105.68
3	163.86	-49.25	-40.00	-9.25	1.51 H	12	54.37	-103.62
4	238.55	-49.66	-40.00	-9.66	1.51 H	90	54.98	-104.64
5	296.75	-49.99	-40.00	-9.99	1.01 H	322	51.98	-101.97
6	479.11	-47.95	-40.00	-7.95	1.51 H	186	50.33	-98.28

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.

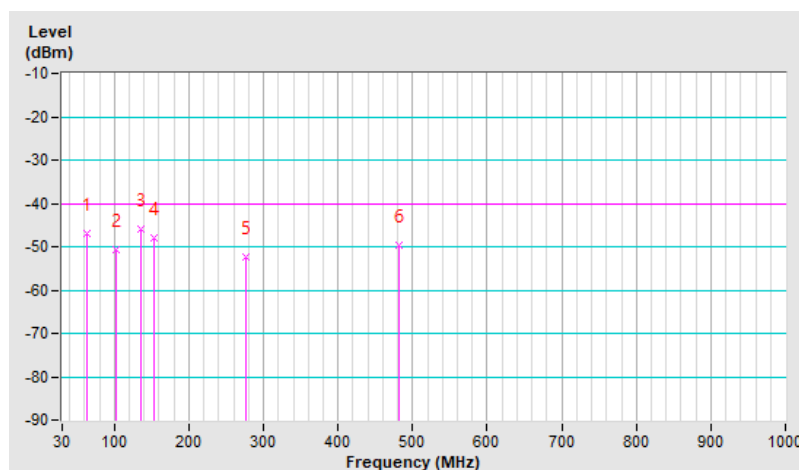


RF Mode	LTE Band 48 Channel Bandwidth: 5MHz	Channel	CH 56715 : 3697.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23 °C, 67% RH
Tested By	Rex Wang		

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	62.98	-47.04	-40.00	-7.04	1.49 V	108	58.04	-105.08
2	102.75	-50.78	-40.00	-10.78	1.00 V	100	57.20	-107.98
3	134.76	-45.95	-40.00	-5.95	1.00 V	1	58.58	-104.53
4	154.16	-47.96	-40.00	-7.96	1.00 V	1	55.50	-103.46
5	277.35	-52.32	-40.00	-12.32	1.00 V	33	50.18	-102.50
6	481.05	-49.52	-40.00	-9.52	1.49 V	256	48.76	-98.28

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.



7.7 Radiated Spurious Emissions above 1GHz

7.7.1 LTE Band 48

RF Mode	LTE Band 48 Channel Bandwidth: 5MHz	Channel	CH 55265 : 3552.5 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	7105.00	-41.55	-40.00	-1.55	2.25 H	283	43.81	-85.36
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	7105.00	-41.42	-40.00	-1.42	2.80 V	265	43.94	-85.36

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 48 Channel Bandwidth: 5MHz	Channel	CH 55990 : 3625 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	7250.00	-41.25	-40.00	-1.25	2.29 H	290	43.79	-85.04
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	7250.00	-41.11	-40.00	-1.11	2.84 V	261	43.93	-85.04

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 48 Channel Bandwidth: 5MHz	Channel	CH 56715 : 3697.5 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	7395.00	-41.10	-40.00	-1.10	2.34 H	291	43.55	-84.65
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	7395.00	-40.80	-40.00	-0.80	2.88 V	258	43.85	-84.65

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 48 Channel Bandwidth: 20MHz	Channel	CH 55340 : 3560 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	-41.87	-40.00	-1.87	2.27 H	287	43.49	-85.36
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	-41.57	-40.00	-1.57	2.91 V	271	43.79	-85.36

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 48 Channel Bandwidth: 20MHz	Channel	CH 55990 : 3625 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	7250.00	-41.55	-40.00	-1.55	2.22 H	290	43.49	-85.04
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	7250.00	-41.22	-40.00	-1.22	2.85 V	267	43.82	-85.04

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 48 Channel Bandwidth: 20MHz	Channel	CH 56640 : 3690 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	7380.00	-41.01	-40.00	-1.01	2.29 H	280	43.75	-84.76
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	7380.00	-40.88	-40.00	-0.88	2.82 V	266	43.88	-84.76

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:	Noah Chang
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7.8.1 LTE Band 48

LTE Band 48, Channel Bandwidth: 20 MHz

Frequency Stability Versus Voltage			
Voltage (Vdc)	CH 55990 (3625 MHz)		Test Result
	Frequency (MHz)	Frequency Error (ppm)	
3.23	3625.000002	0.0006	Pass
3.8	3625.000001	0.0003	Pass
4.37	3624.999996	-0.0011	Pass

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

Frequency Stability Versus Temperature			
Temperature (°C)	CH 55990 (3625 MHz)		Test Result
	Frequency (MHz)	Frequency Error (ppm)	
-30	3625.000004	0.0011	Pass
-20	3625.000006	0.0017	Pass
-10	3625.000002	0.0006	Pass
0	3625.000008	0.0022	Pass
10	3624.999992	-0.0022	Pass
20	3625.000005	0.0014	Pass
30	3625.000005	0.0014	Pass
40	3625	0	Pass
50	3624.999995	-0.0014	Pass
60	3625.000005	0.0014	Pass
70	3624.999994	-0.0017	Pass
75	3624.999999	-0.0003	Pass

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: 886-2-26051924

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Fax: 886-3-6668323

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Tel: 886-3-3183232

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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