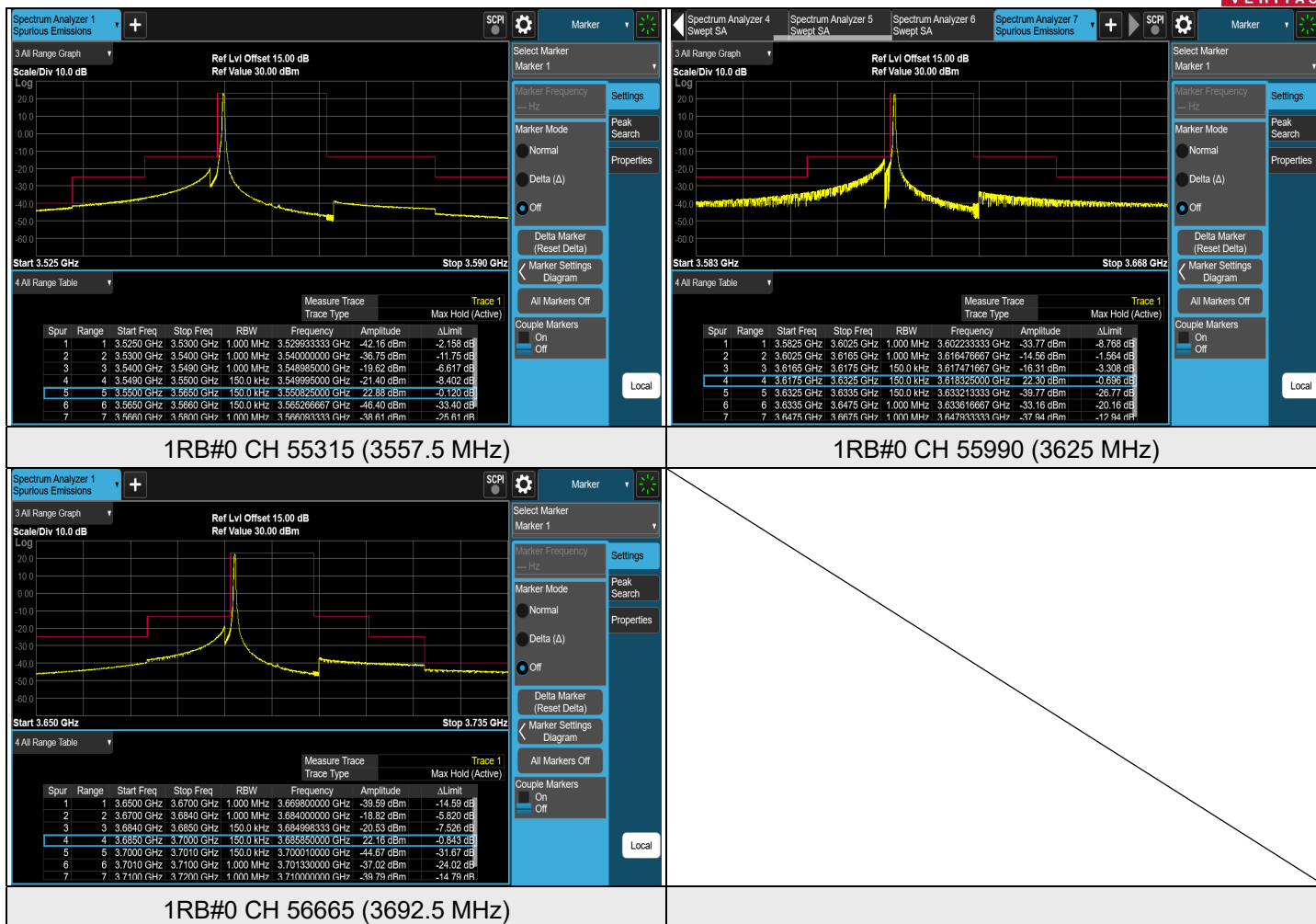
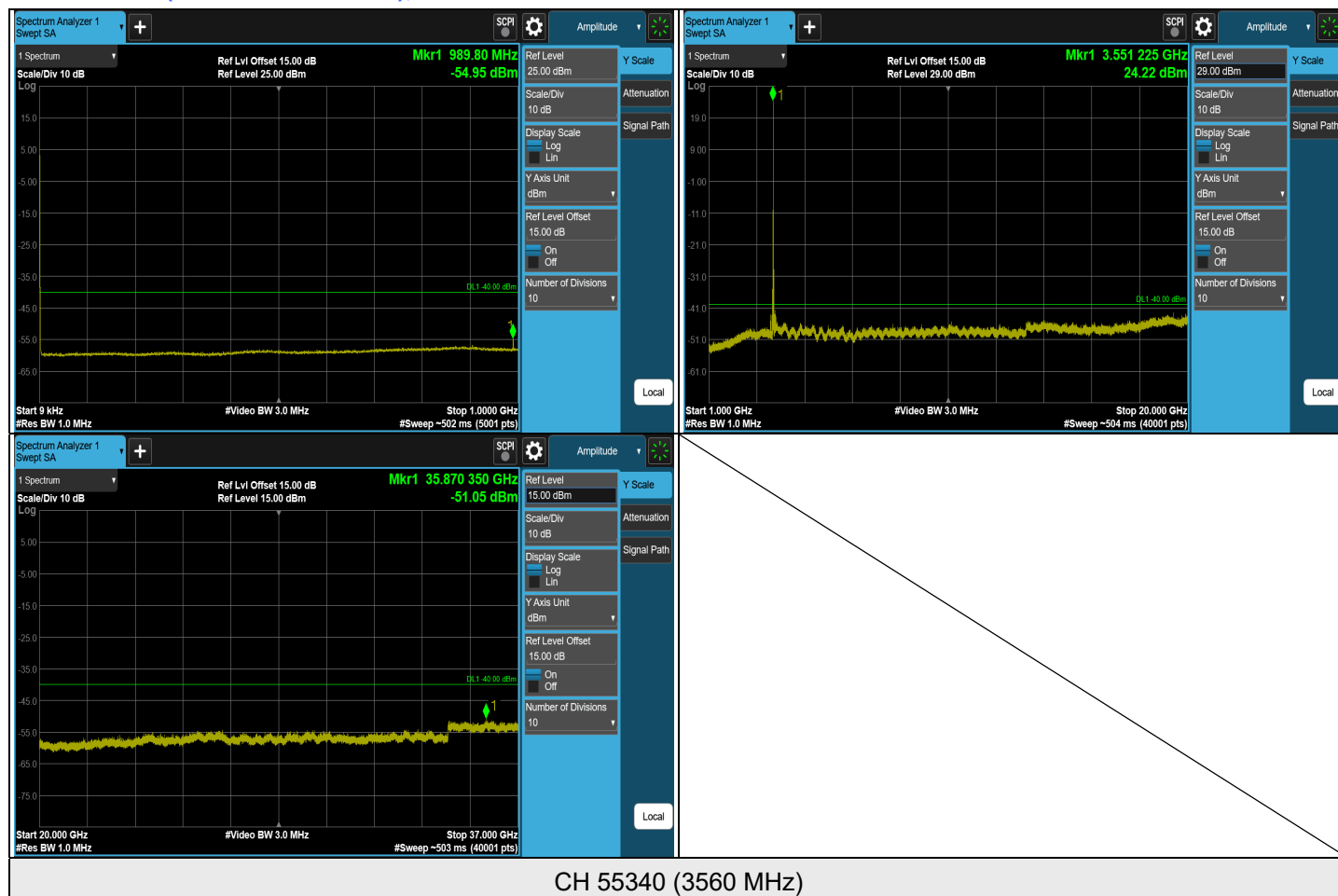
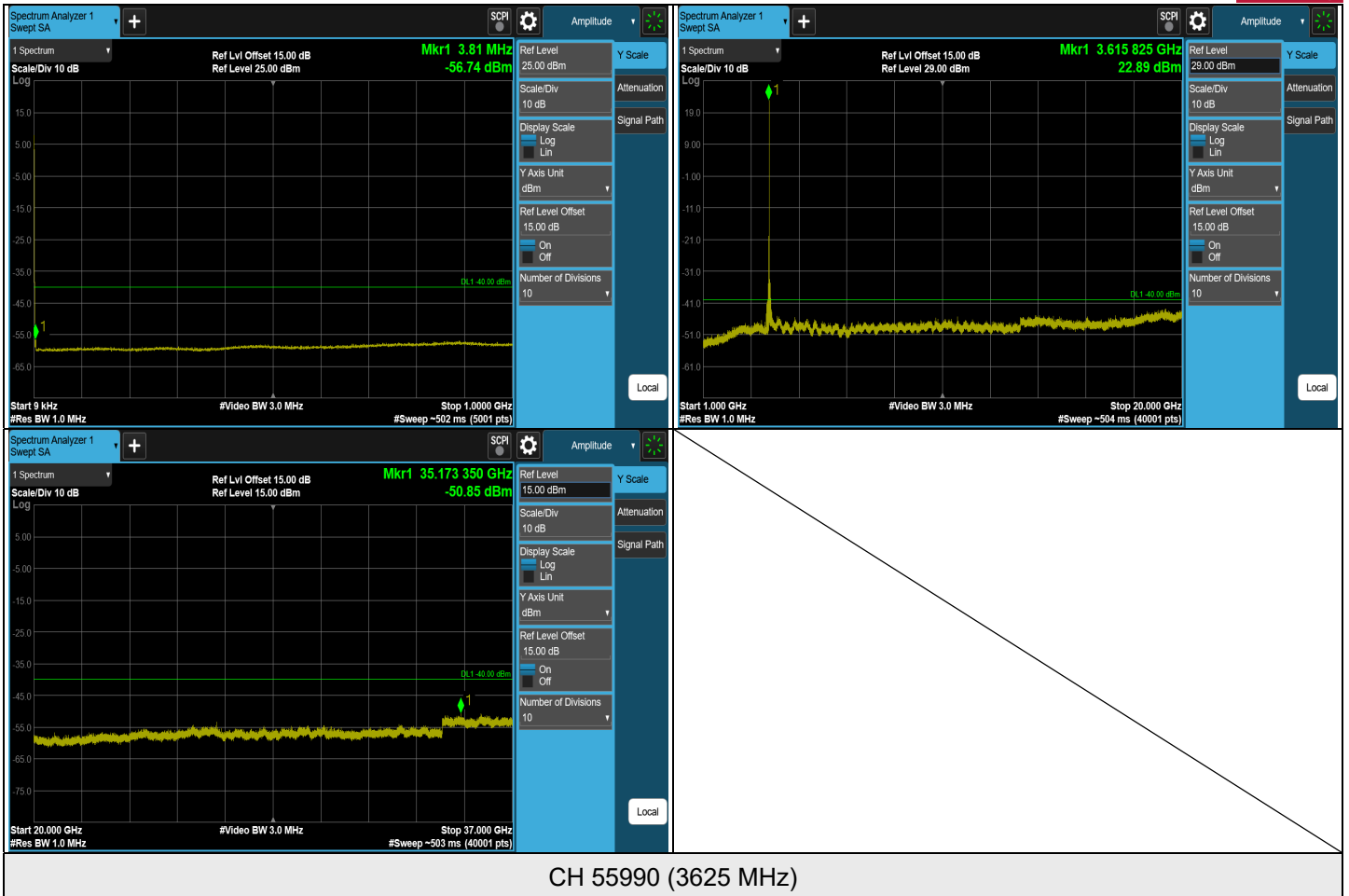
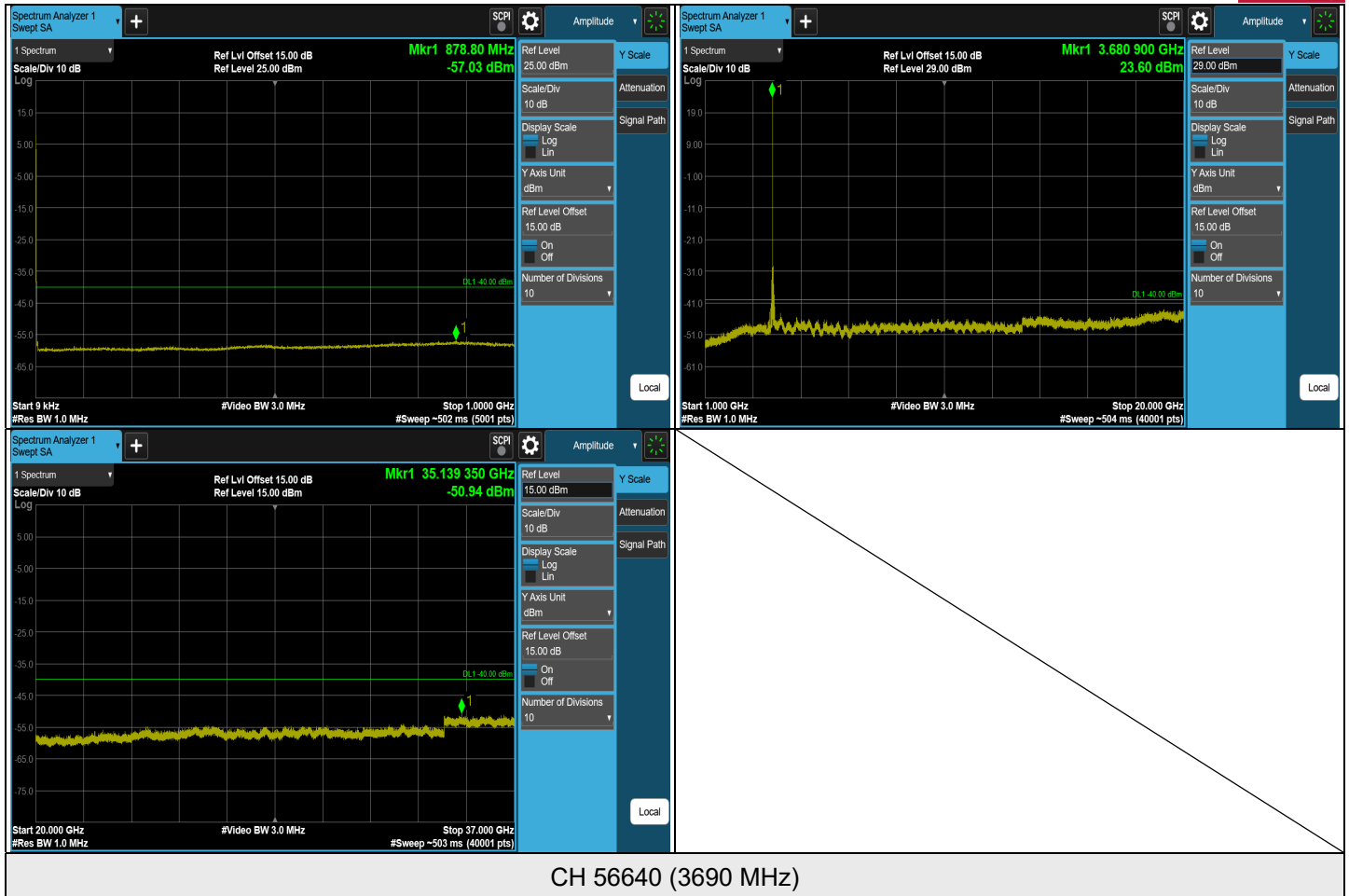




LTE Band 48 (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz

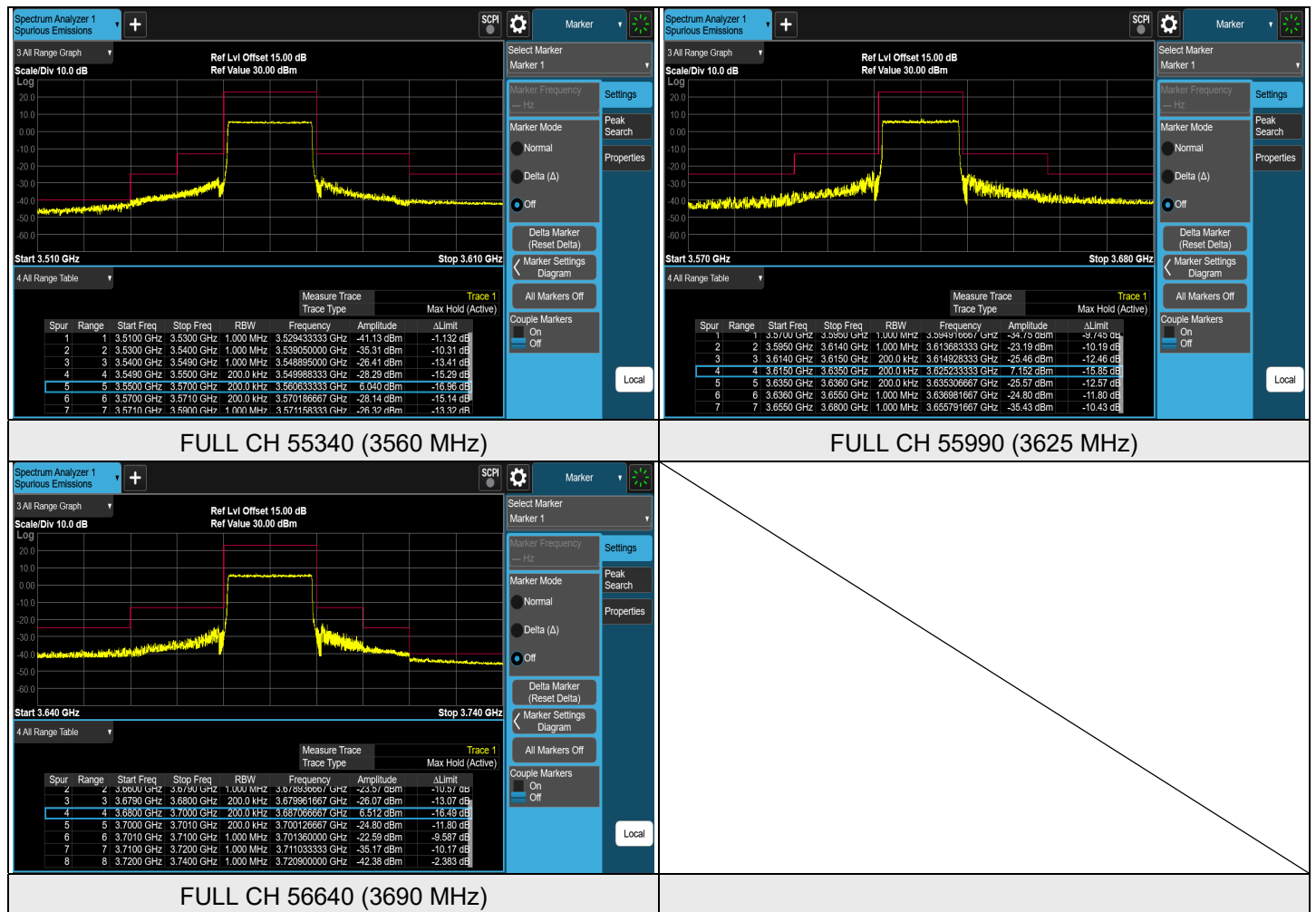


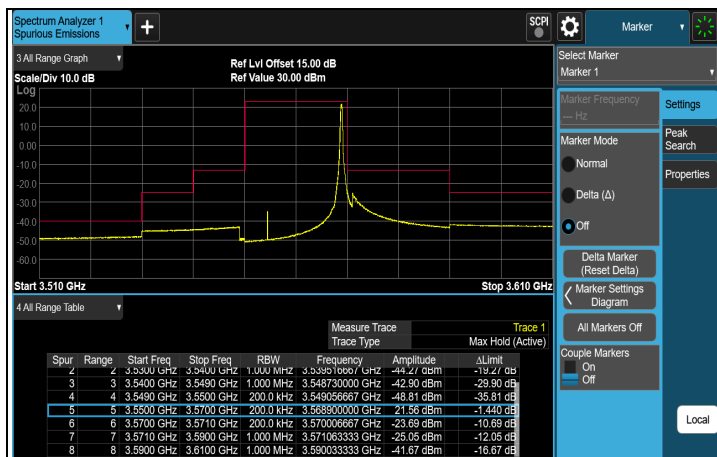




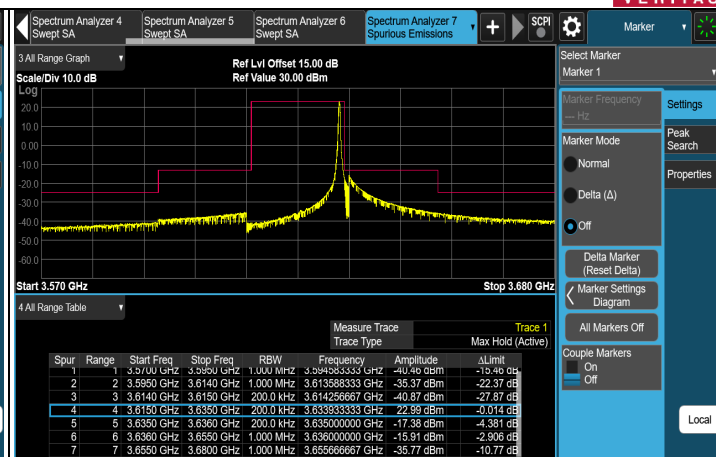
Note: The signal at 9 kHz is IF signal from spectrum analyzer.

LTE Band 48 (3.55 GHz ~ 3.7 GHz), Channel Bandwidth: 20 MHz

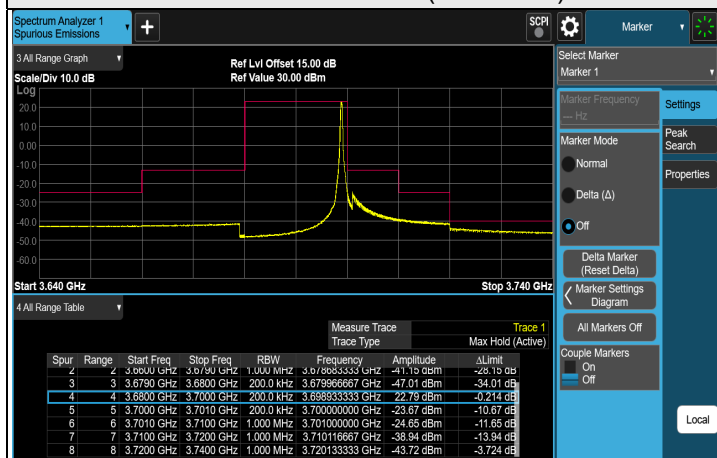




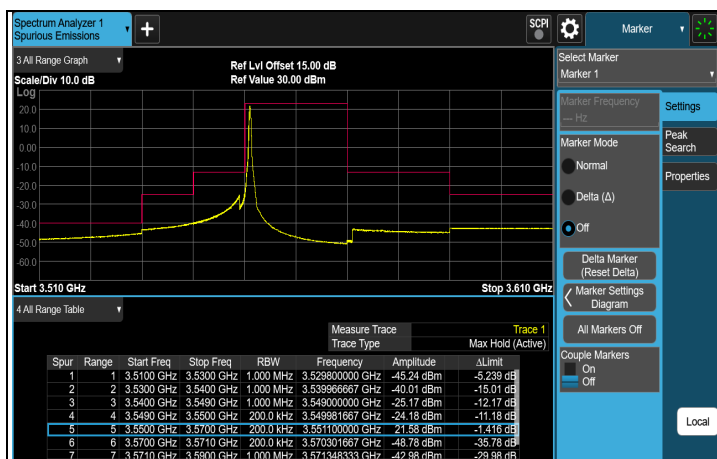
1RB#MAX CH 55340 (3560 MHz)



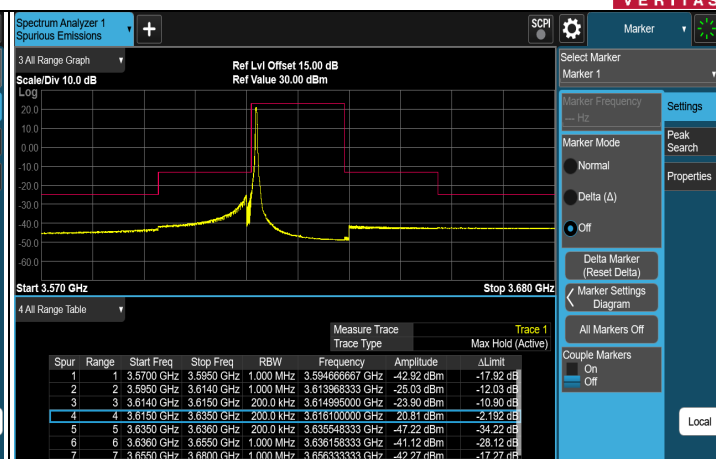
1RB#MAX CH 55990 (3625 MHz)



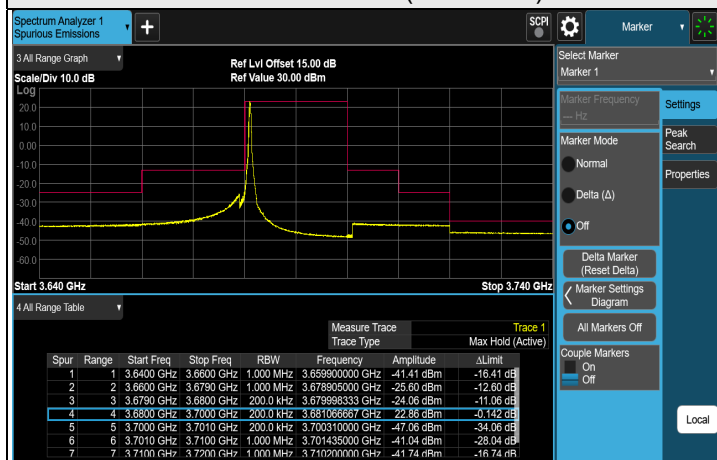
1RB#MAX CH 56640 (3690 MHz)



1RB#0 CH 55340 (3560 MHz)



1RB#0 CH 55990 (3625 MHz)



1RB#0 CH 56640 (3690 MHz)

7.6 Radiated Spurious Emissions below 1GHz

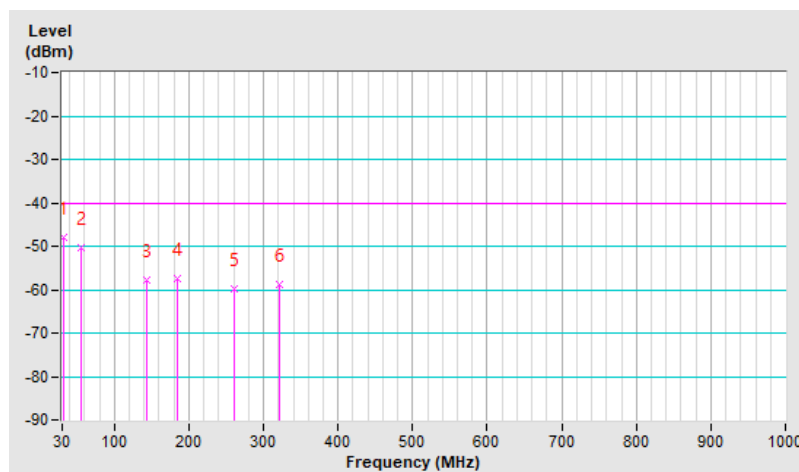
7.6.1 LTE Band 48 (3.55 GHz ~ 3.7 GHz)

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	22 °C, 77 % 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	31.94	-47.99	-40.00	-7.99	1.00 H	135	57.71	-105.70
2	55.22	-50.41	-40.00	-10.41	1.00 H	189	54.01	-104.42
3	142.52	-57.90	-40.00	-17.90	1.50 H	261	46.12	-104.02
4	184.23	-57.42	-40.00	-17.42	1.00 H	282	48.09	-105.51
5	259.89	-59.97	-40.00	-19.97	1.00 H	100	43.65	-103.62
6	321.00	-58.65	-40.00	-18.65	1.50 H	100	42.75	-101.40

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.

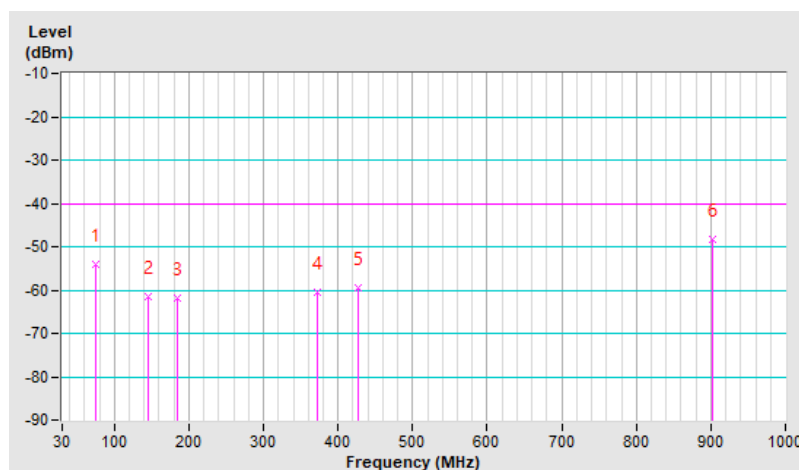


RF Mode	LTE Band 48 Channel Bandwidth: 5MHz	Channel	CH 56715 : 3697.5 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	22 °C, 77 % RH
Tested By	Rex Wang		

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	74.62	-53.95	-40.00	-13.95	1.00 V	168	53.34	-107.29
2	144.46	-61.65	-40.00	-21.65	1.50 V	251	42.29	-103.94
3	185.20	-61.99	-40.00	-21.99	1.00 V	56	43.62	-105.61
4	371.44	-60.39	-40.00	-20.39	2.00 V	14	40.40	-100.79
5	427.70	-59.54	-40.00	-19.54	2.00 V	198	40.07	-99.61
6	903.00	-48.16	-40.00	-8.16	1.00 V	23	42.48	-90.64

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 (3.55 GHz ~ 3.7 GHz)

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	-44.31	-40.00	-4.31	1.36 H	294	41.05	-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	-43.26	-40.00	-3.26	3.64 V	179	42.10	-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	-43.21	-40.00	-3.21	1.38 H	291	41.83	-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	-41.92	-40.00	-1.92	3.63 V	178	43.12	-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	-43.28	-40.00	-3.28	1.33 H	298	41.37	-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	-41.90	-40.00	-1.90	3.64 V	182	42.75	-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	-43.18	-40.00	-3.18	1.36 H	298	42.18	-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	-42.30	-40.00	-2.30	3.61 V	183	43.06	-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	-43.89	-40.00	-3.89	1.32 H	297	41.15	-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	-42.05	-40.00	-2.05	3.61 V	176	42.99	-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	-43.15	-40.00	-3.15	1.36 H	294	41.61	-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	-42.20	-40.00	-2.20	3.68 V	177	42.56	-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 (3.55 GHz ~ 3.7 GHz)

LTE Band 48, Channel Bandwidth: 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)
3.27	3560.000005	0.0014	3690.000005	0.0014
3.85	3559.999995	-0.0014	3689.999998	-0.0005
4.43	3559.999994	-0.0017	3689.999991	-0.0024

Note: The applicant defined the normal working voltage is from 3.27 to 4.43 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	3560.000005	0.0014	3690.000004	0.0011
-20	3560.000004	0.0011	3690.000003	0.0008
-10	3560	0	3689.999995	-0.0014
0	3560	0	3690.000002	0.0005
10	3560.000002	0.0006	3690.000007	0.0019
20	3560.000008	0.0022	3690.000007	0.0019
30	3560.000005	0.0014	3690.000002	0.0005
40	3559.999992	-0.0022	3689.999993	-0.0019
50	3559.999995	-0.0014	3689.99999	-0.0027

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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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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