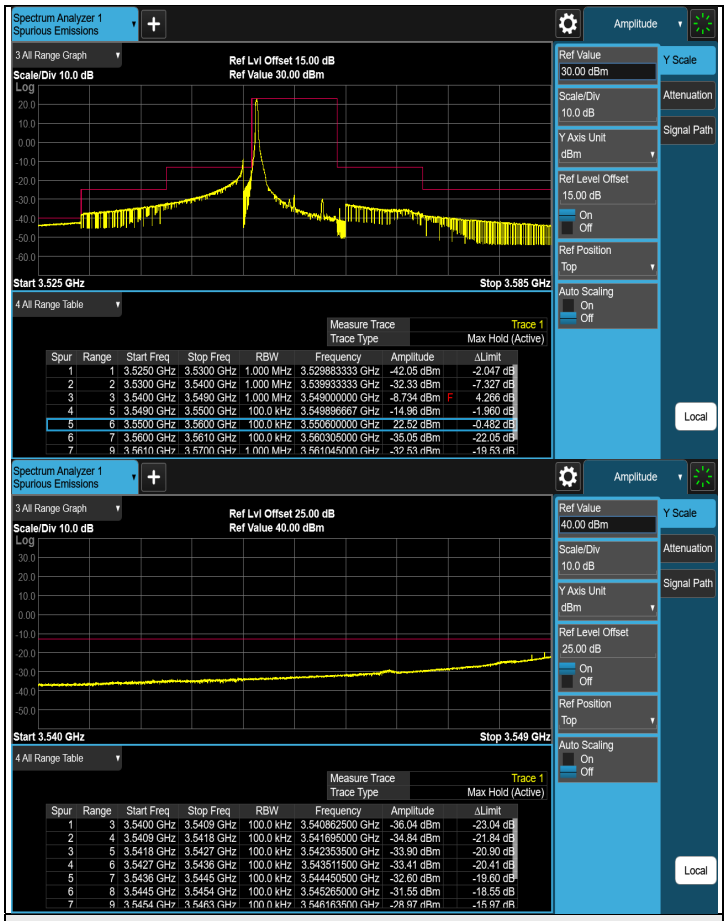
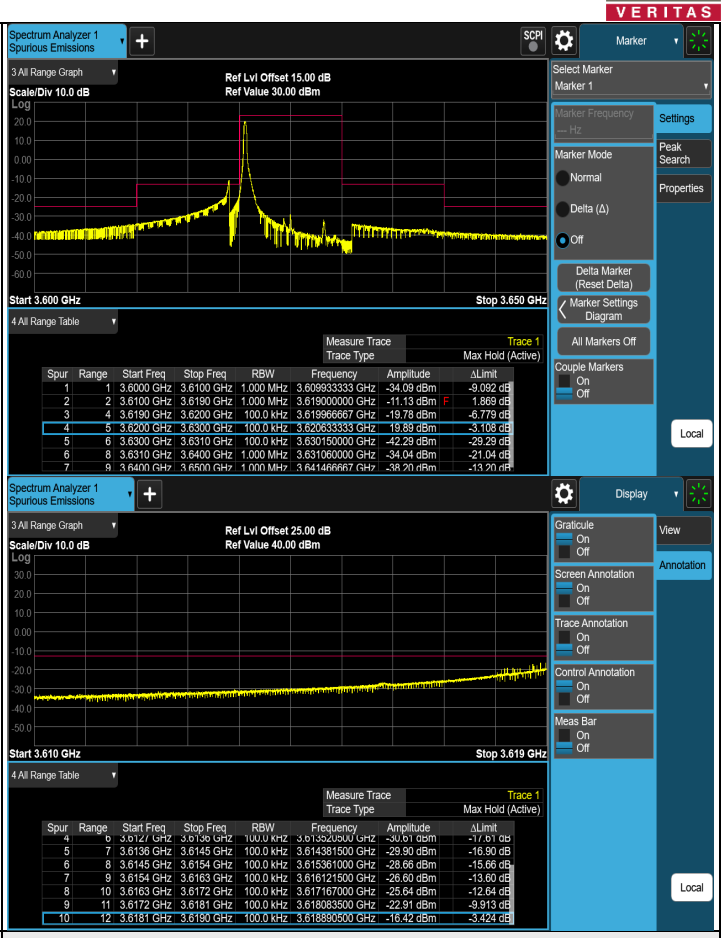
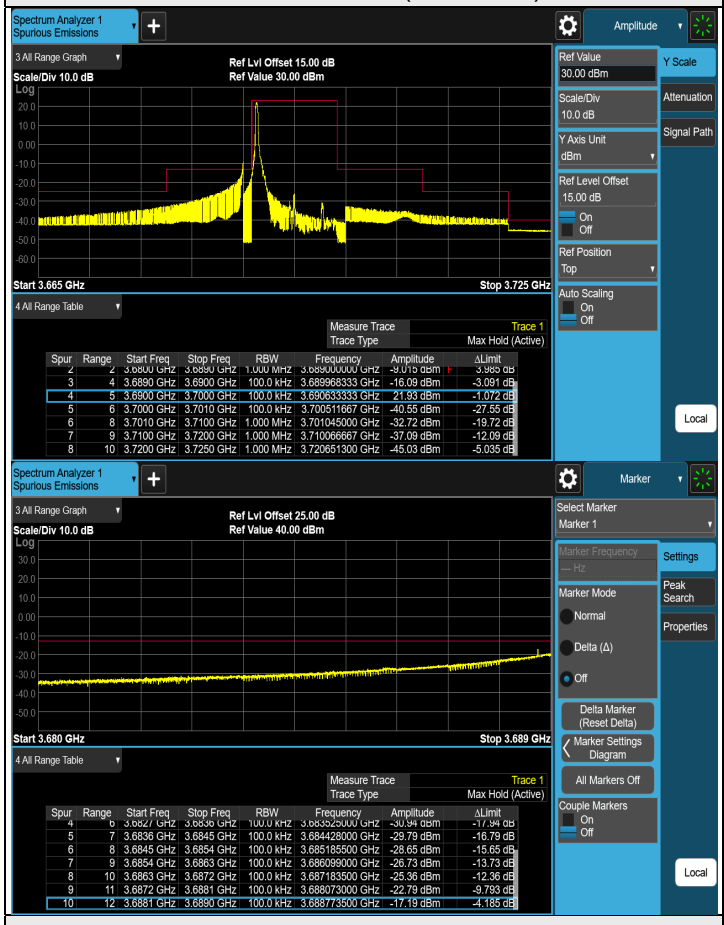


1RB#0 CH 55290 (3555 MHz)

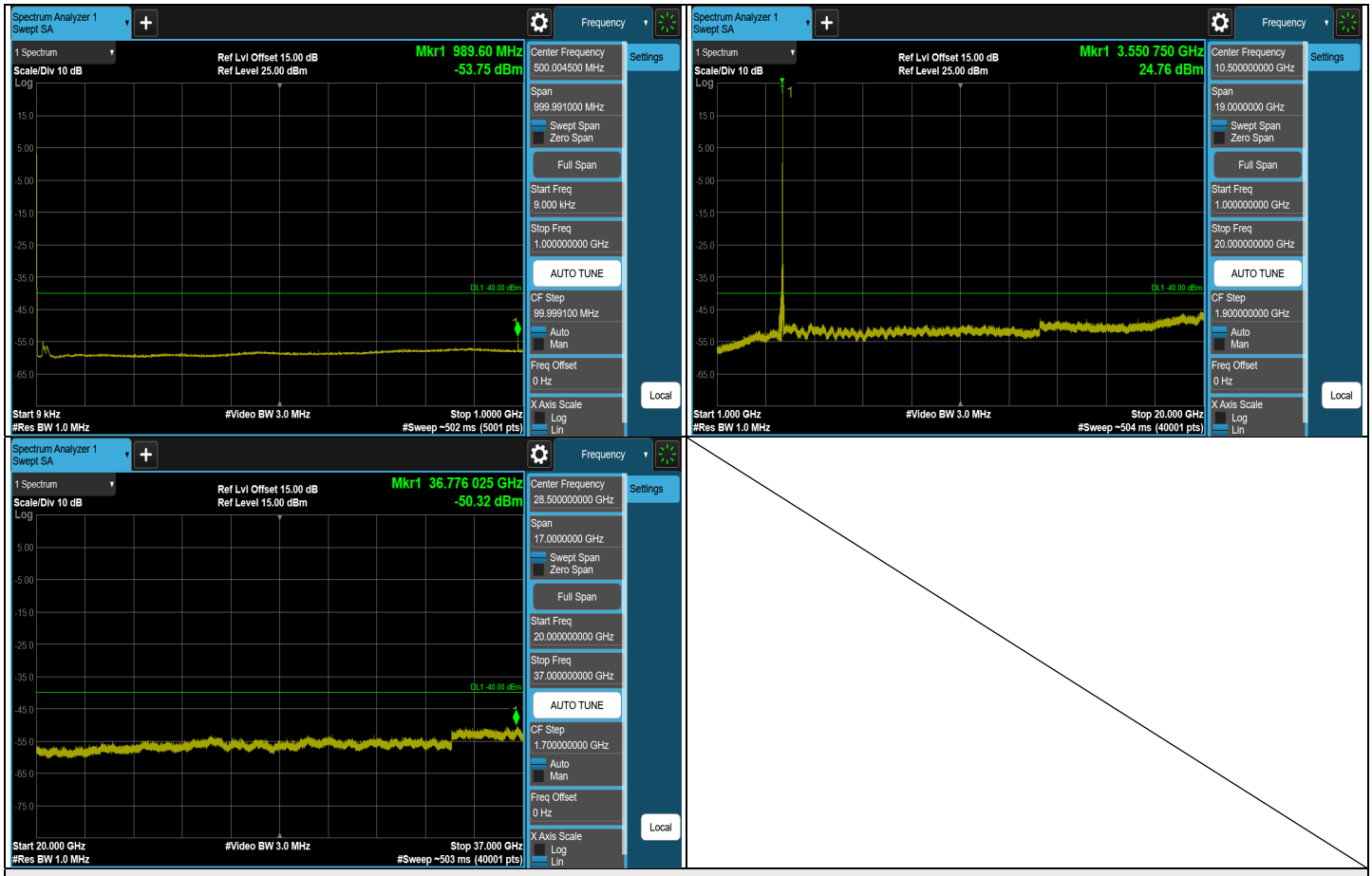


1RB#0 CH 55990 (3625 MHz)

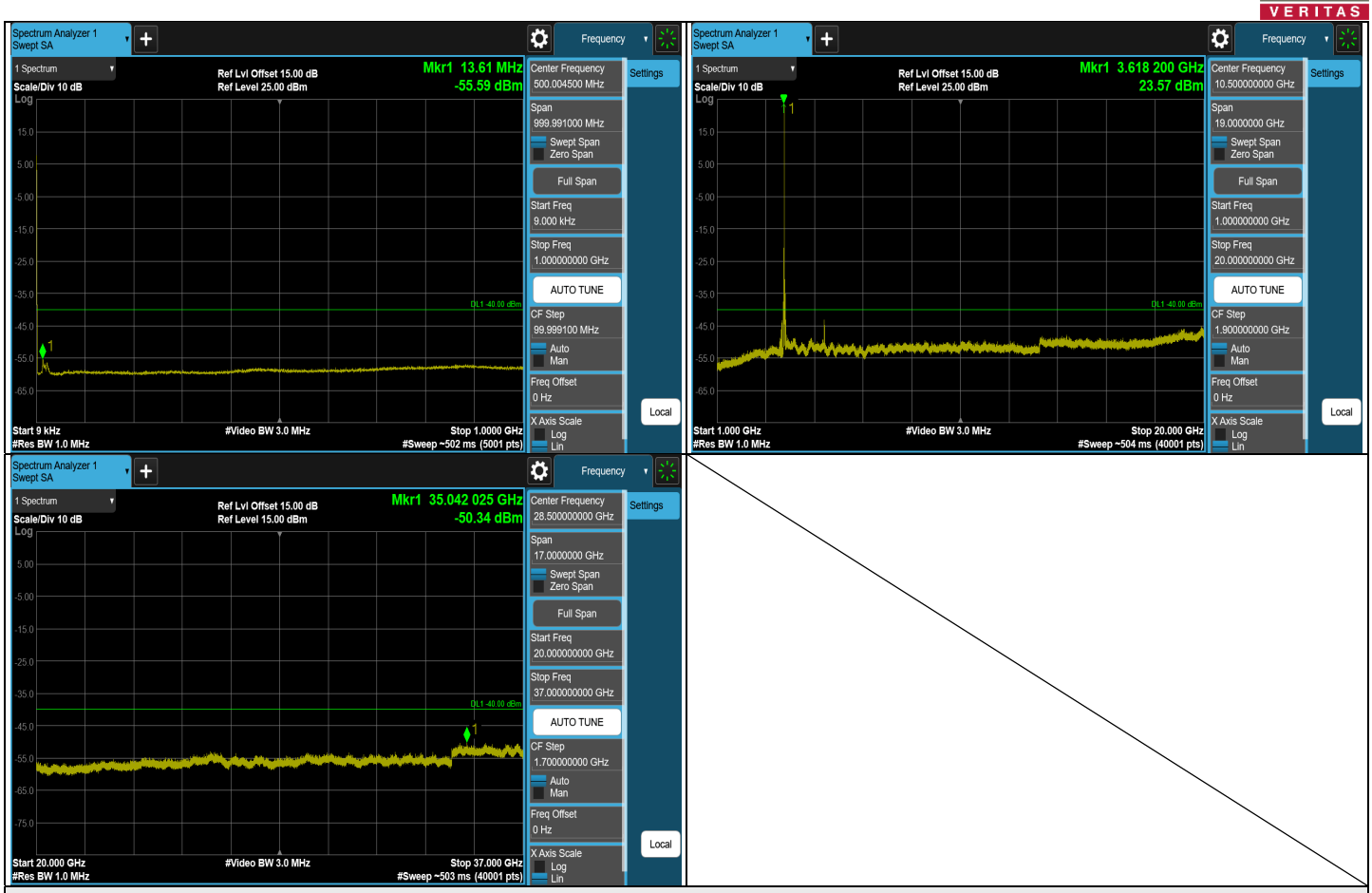


1RB#0 CH 56690 (3695 MHz)

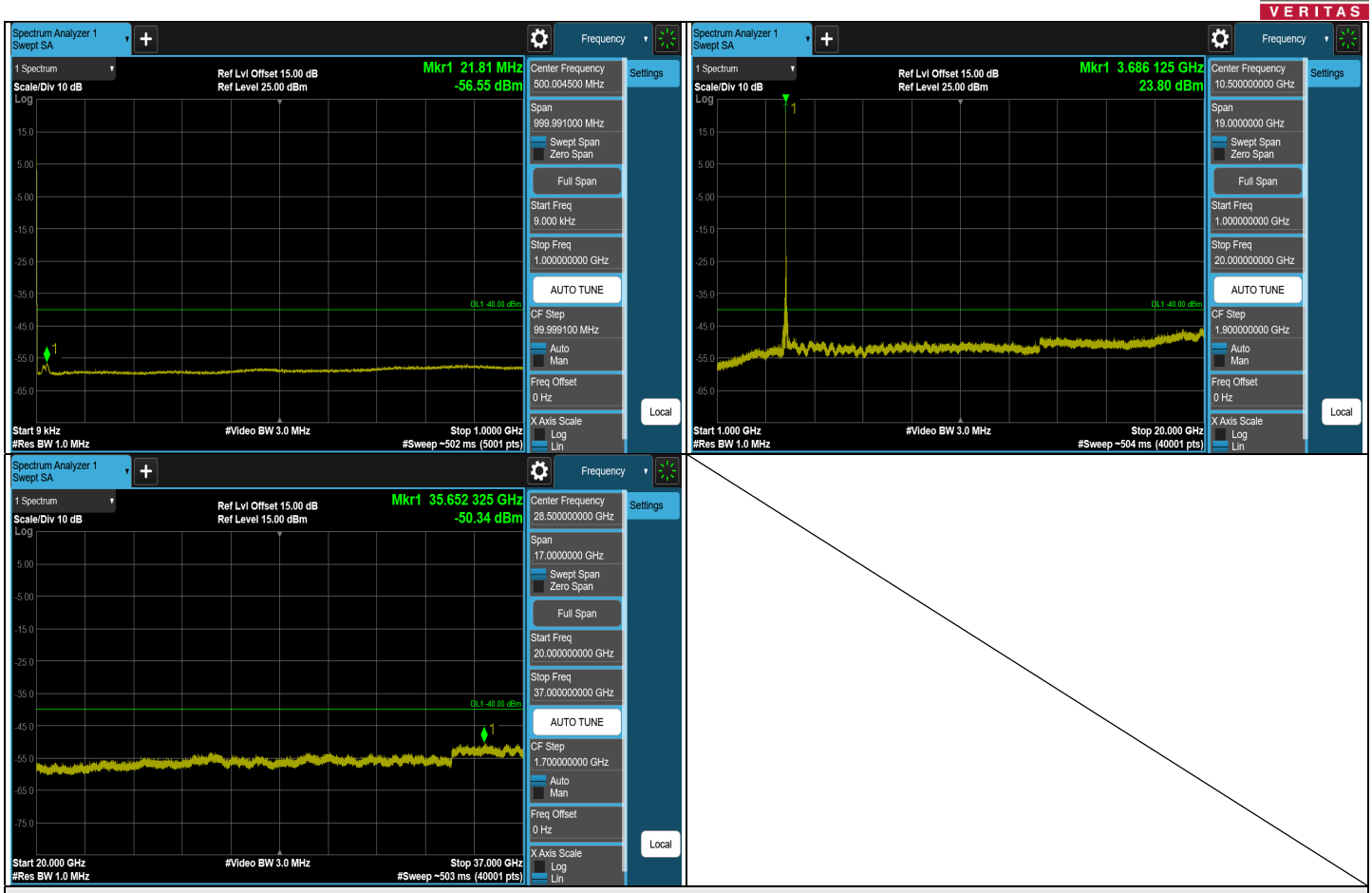
LTE Band 48, Channel Bandwidth: 15 MHz



CH 55315 (3557.5 MHz)



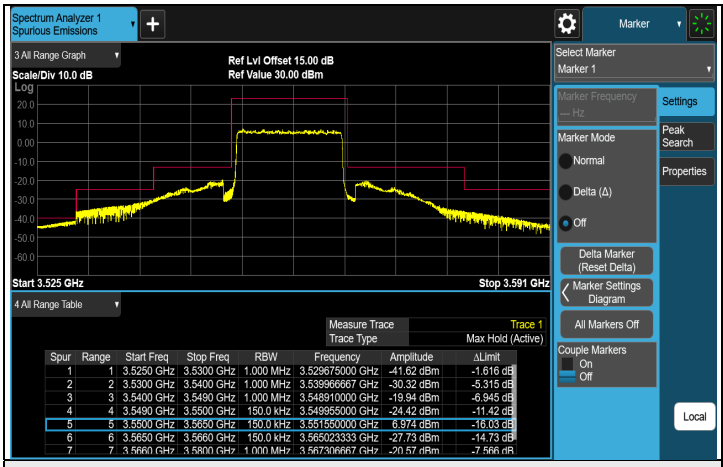
CH 55990 (3625 MHz)



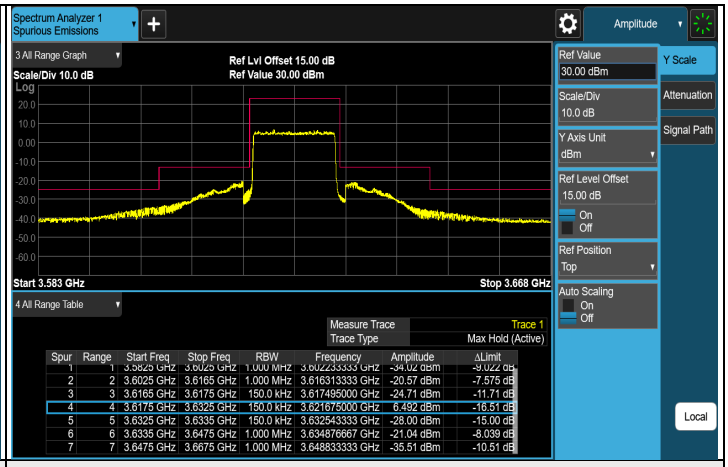
CH 56665 (3692.5 MHz)

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

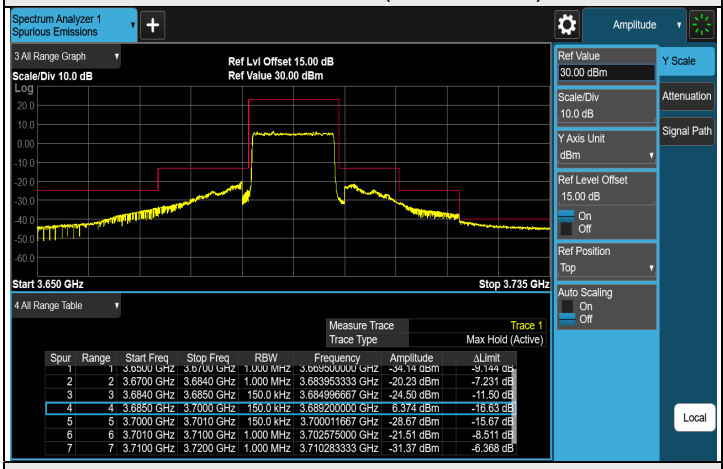
LTE Band 48, Channel Bandwidth: 15 MHz



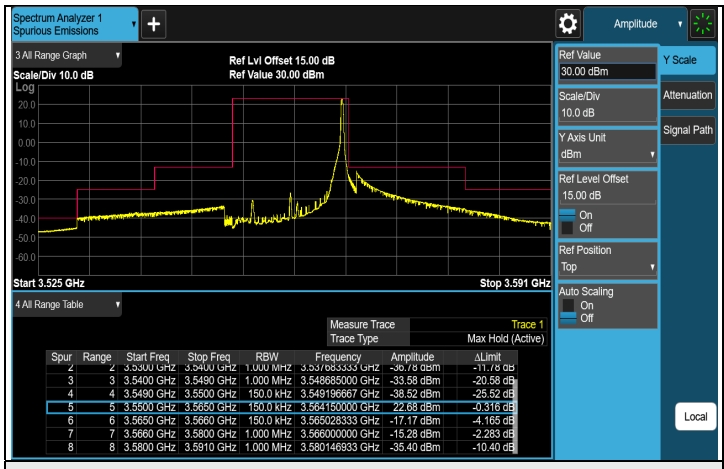
FULL CH 55315 (3557.5 MHz)



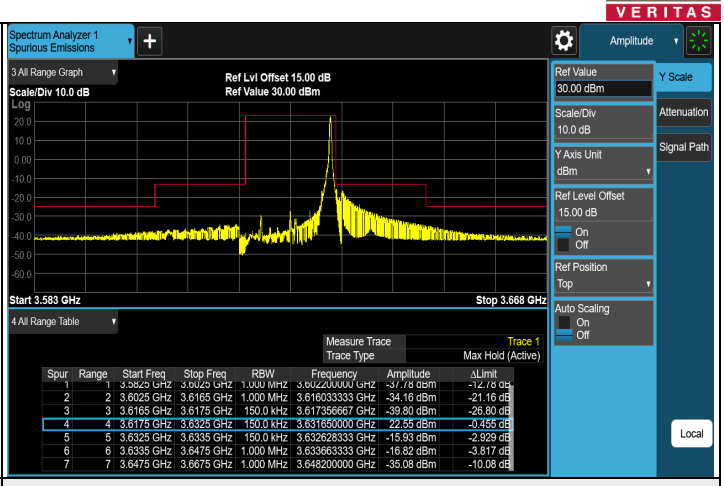
FULL CH 55990 (3625 MHz)



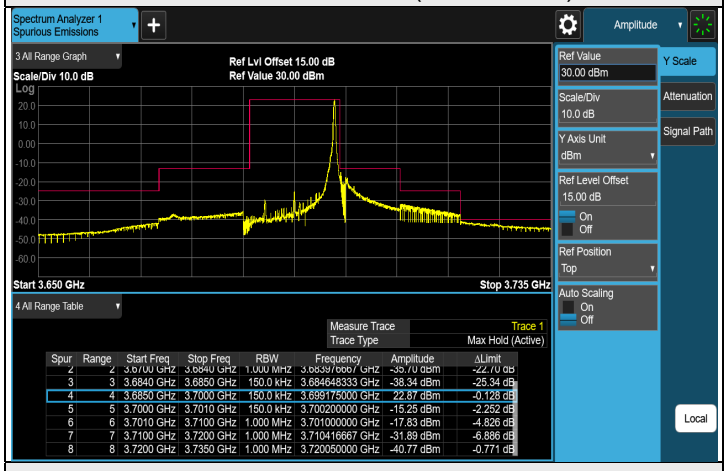
FULL CH 56665 (3692.5 MHz)



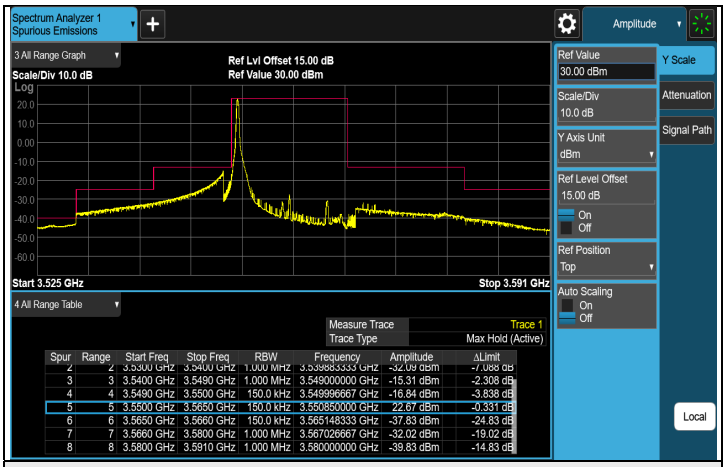
1RB#MAX CH 55315 (3557.5 MHz)



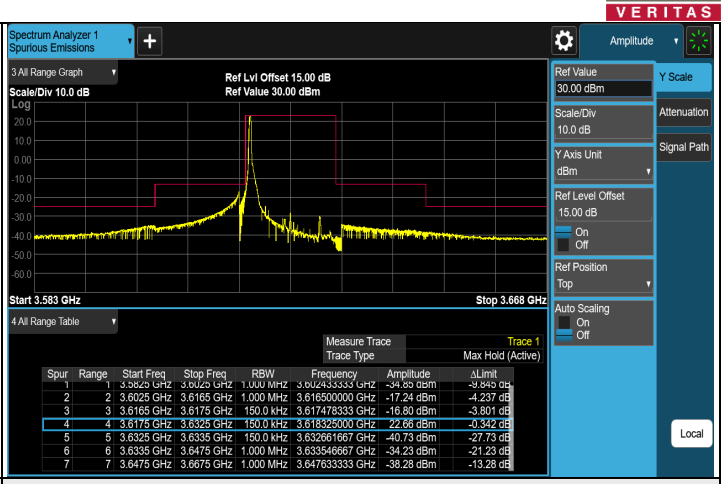
1RB#MAX CH 55990 (3625 MHz)



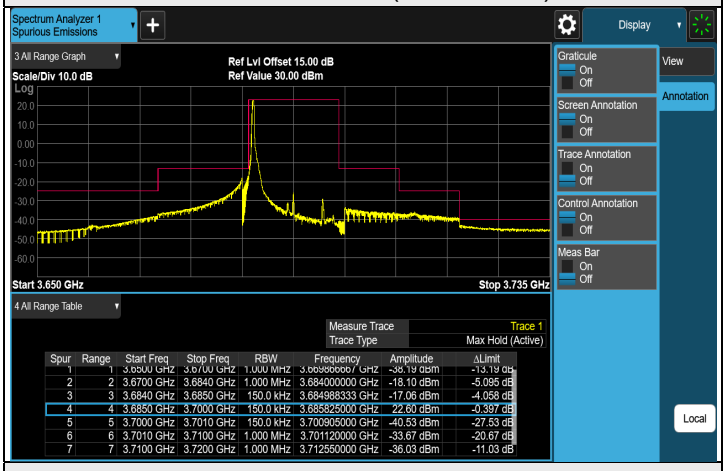
1RB#MAX CH 56665 (3692.5 MHz)



1RB#0 CH 55315 (3557.5 MHz)

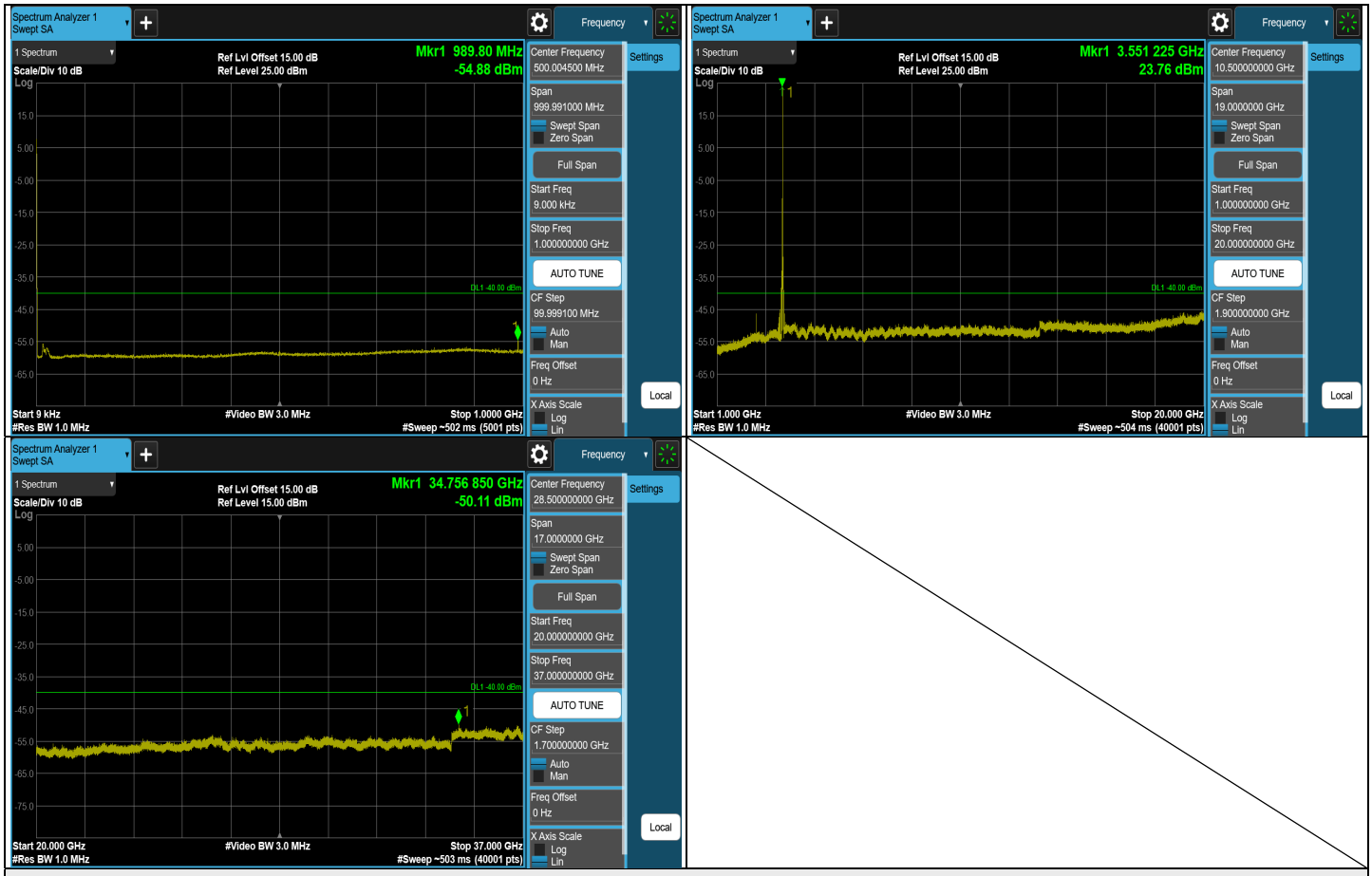


1RB#0 CH 55990 (3625 MHz)

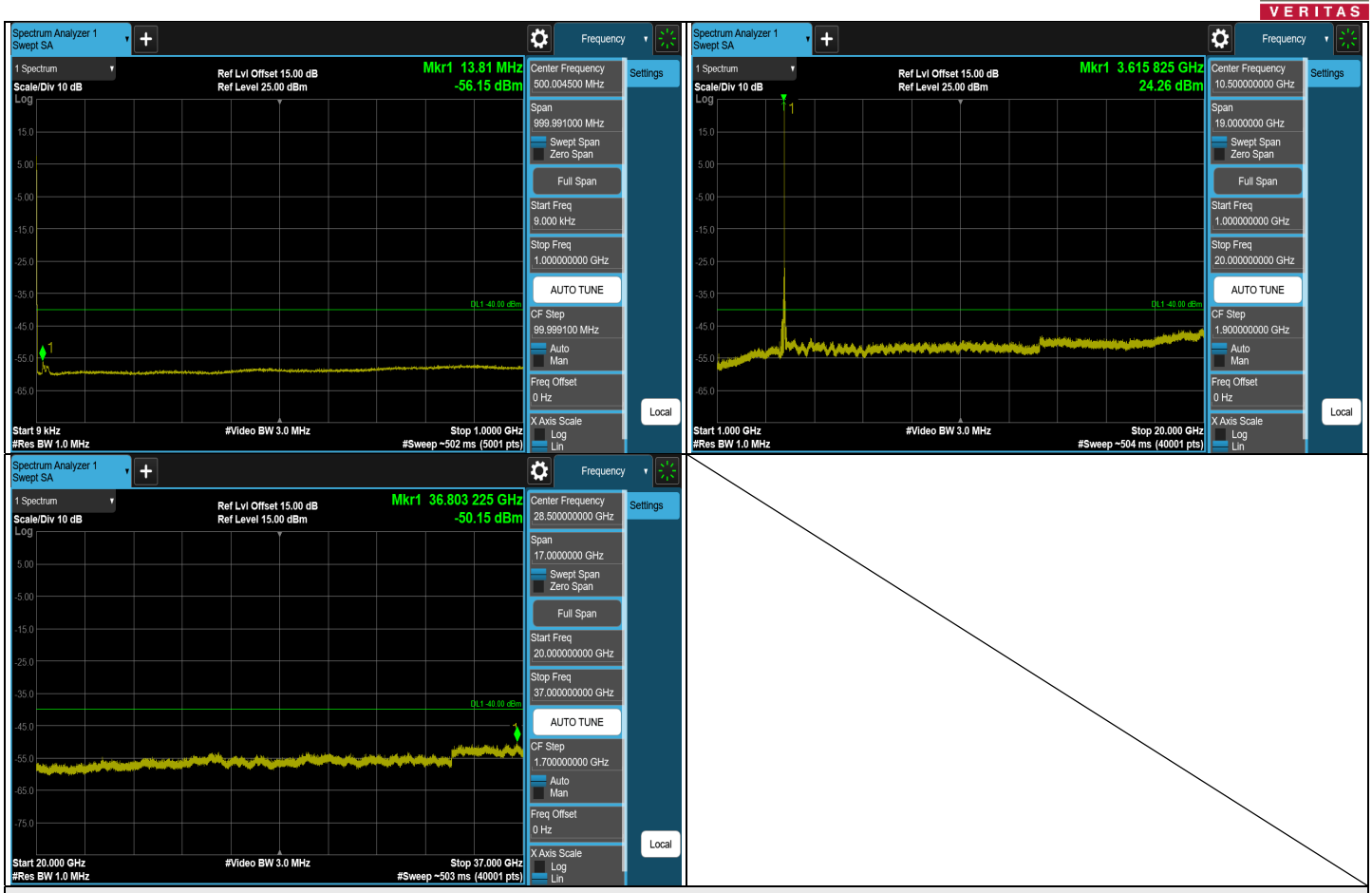


1RB#0 CH 56665 (3692.5 MHz)

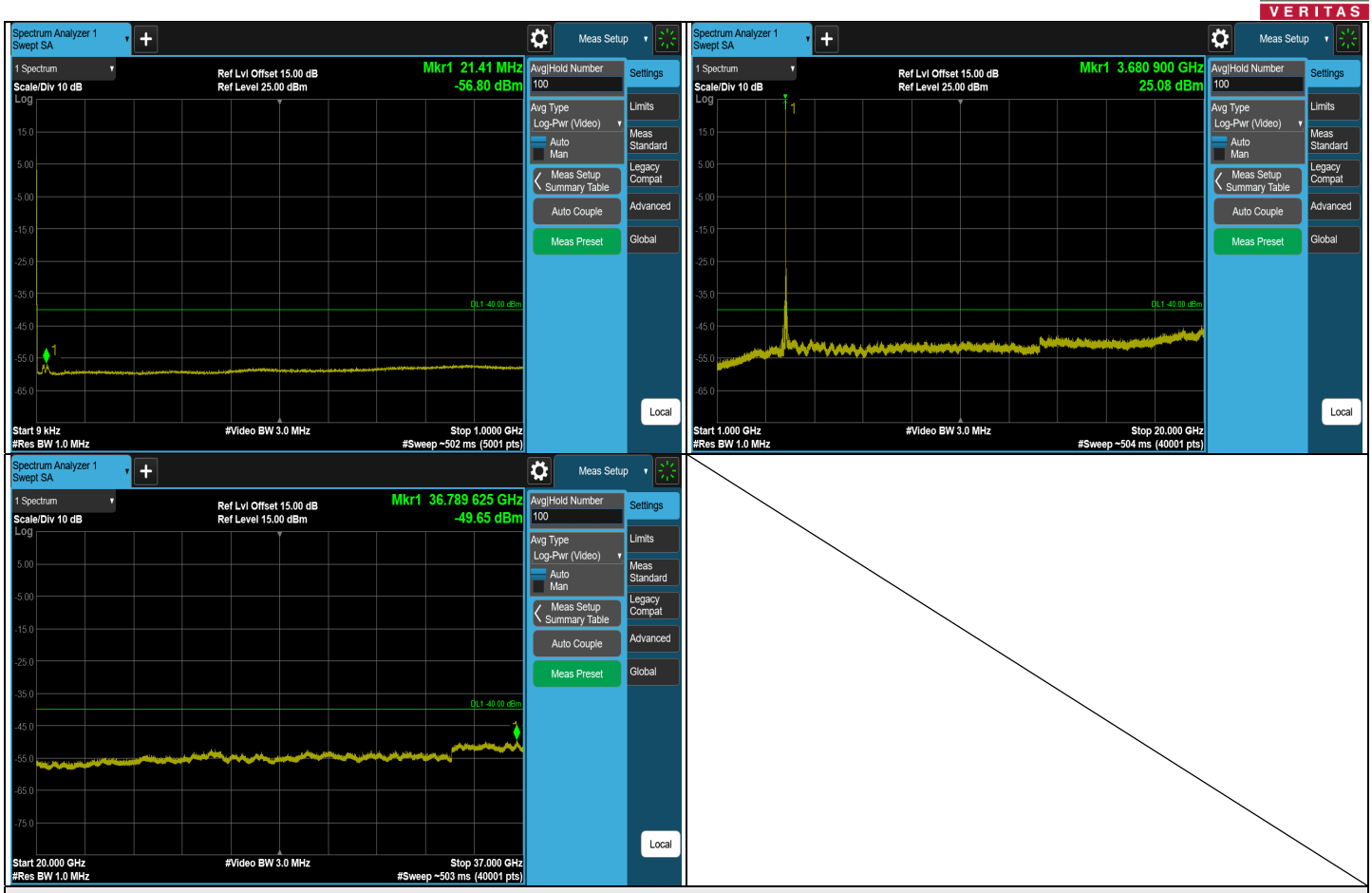
LTE Band 48, Channel Bandwidth: 20 MHz



CH 55340 (3560 MHz)



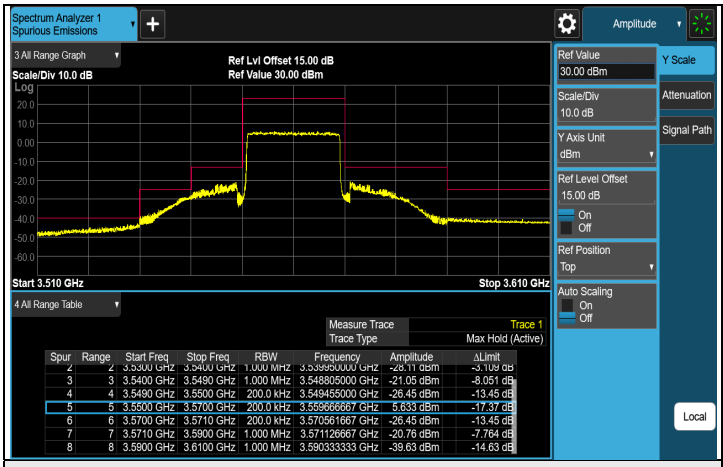
CH 55990 (3625 MHz)



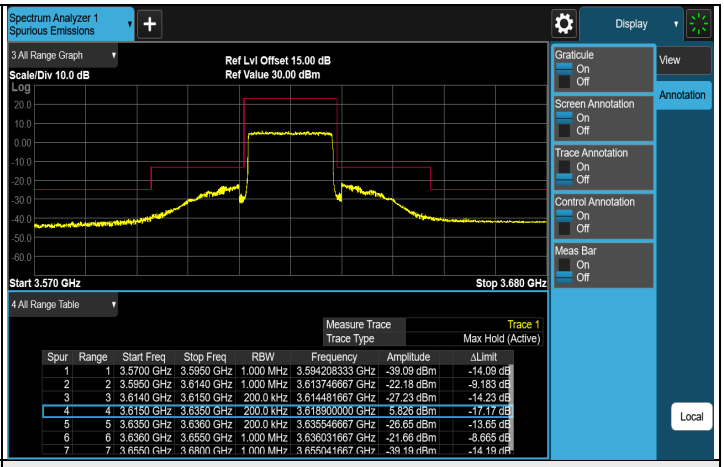
CH 56640 (3690 MHz)

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

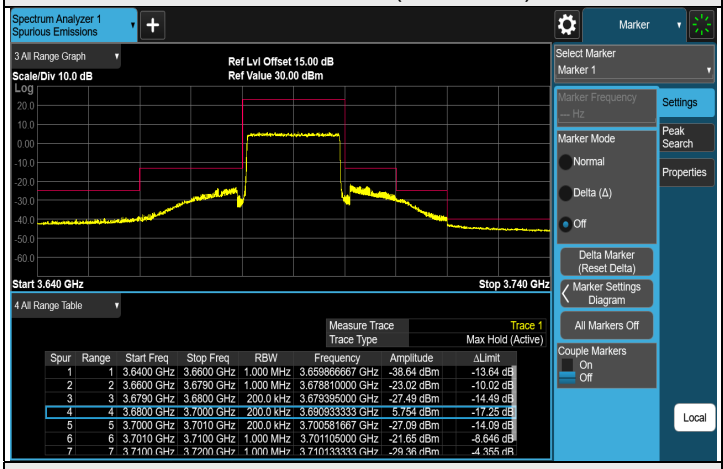
LTE Band 48, Channel Bandwidth: 20 MHz



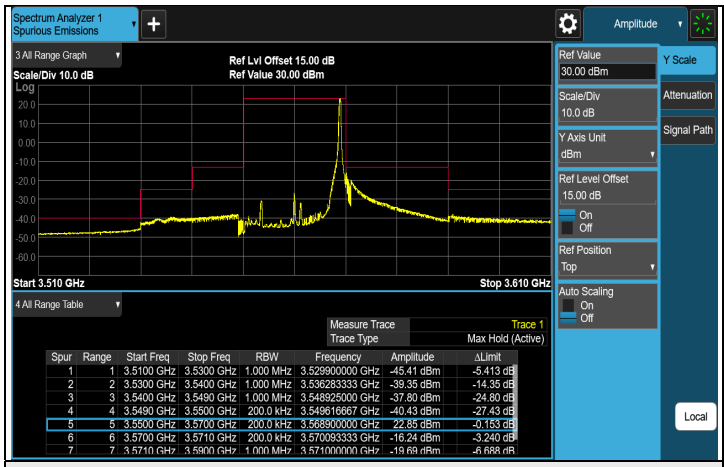
FULL CH 55340 (3560 MHz)



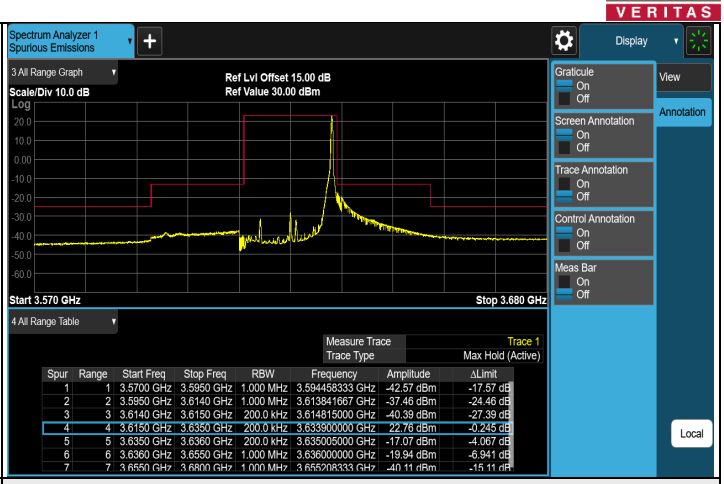
FULL CH 55990 (3625 MHz)



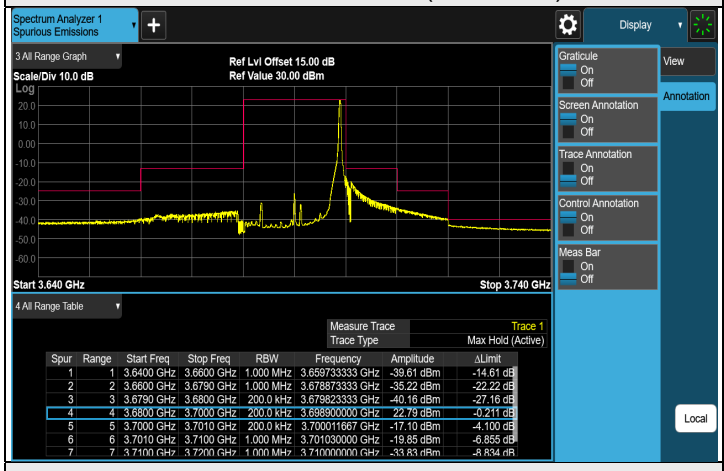
FULL CH 56640 (3690 MHz)



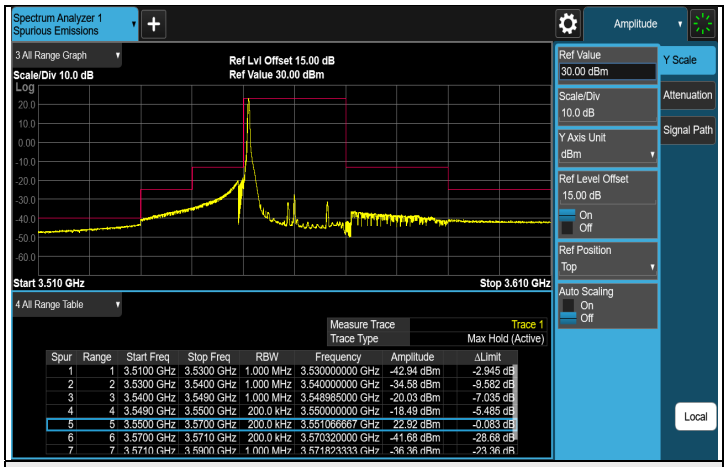
1RB#MAX CH 55340 (3560 MHz)



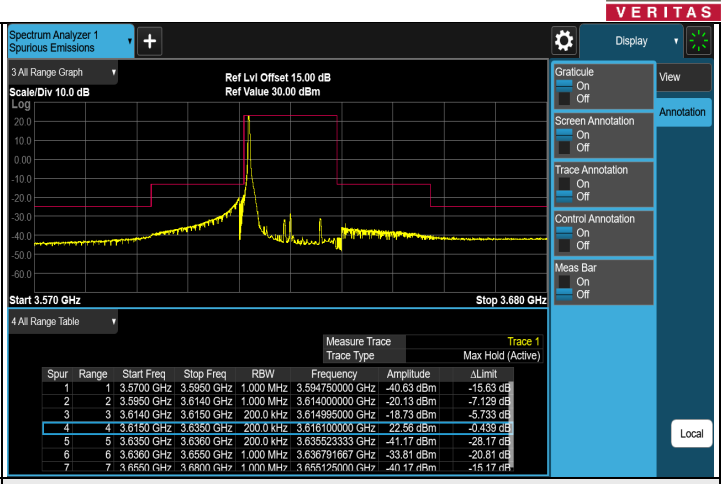
1RB#MAX CH 55990 (3625 MHz)



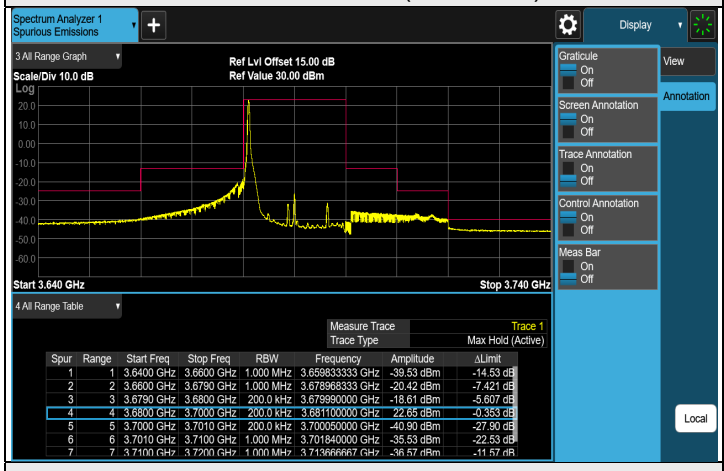
1RB#MAX CH 56640 (3690 MHz)



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

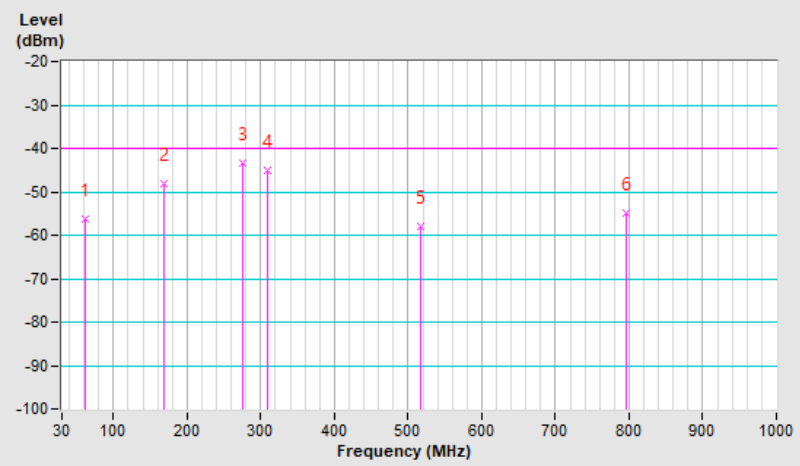
7.6.1 LTE Band 48

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**	25 °C, 66 % 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	62.01	-56.41	-40.00	-16.41	1.57 H	188	53.04	-109.45
2	168.71	-48.06	-40.00	-8.06	1.64 H	163	60.33	-108.39
3	275.41	-43.42	-40.00	-3.42	1.05 H	227	64.93	-108.35
4	308.39	-45.13	-40.00	-5.13	1.57 H	107	62.32	-107.45
5	516.94	-58.09	-40.00	-18.09	1.98 H	8	44.48	-102.57
6	796.30	-54.81	-40.00	-14.81	1.66 H	322	42.54	-97.35

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) + 20log(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.

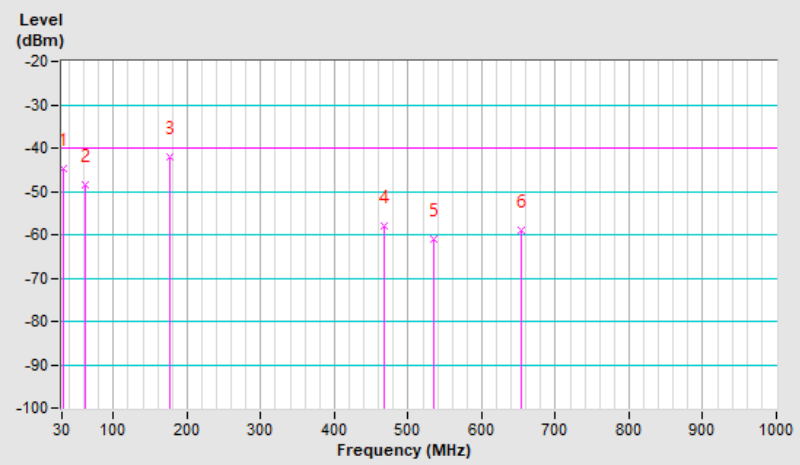


RF Mode	LTE Band 48 Channel Bandwidth: 5MHz	**Channel**	CH 56715：3697.5 MHz
Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Bandwidth**	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25 °C, 66 % RH
Tested By	Charles Hsiao		

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	32.91	-44.60	-40.00	-4.60	1.09 V	98	64.98	-109.58
2	61.04	-48.47	-40.00	-8.47	1.67 V	335	60.68	-109.15
3	**176.47**	**-42.13**	**-40.00**	**-2.13**	**1.57 V**	**7**	**67.01**	**-109.14**
4	468.44	-58.03	-40.00	-18.03	1.57 V	180	45.18	-103.21
5	534.40	-61.15	-40.00	-21.15	1.97 V	59	41.04	-102.19
6	652.74	-59.01	-40.00	-19.01	1.15 V	5	40.62	-99.63

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) + 20log(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	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	7105.00	-50.04	-40.00	-10.04	1.04 H	0	32.88	-82.92
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	-52.03	-40.00	-12.03	1.52 V	10	30.89	-82.92

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) + 20log(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	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	7250.00	-43.17	-40.00	-3.17	2.49 H	281	39.68	-82.85
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	7250.00	-44.11	-40.00	-4.11	1.63 V	350	38.74	-82.85

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) + 20log(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	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	**7395.00**	**-41.06**	**-40.00**	**-1.06**	**1.21 H**	**358**	**42.40**	**-83.46**
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	-45.92	-40.00	-5.92	1.51 V	75	37.54	-83.46

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) + 20log(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	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	7120.00	-49.35	-40.00	-9.35	1.00 H	358	33.64	-82.99
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	-52.32	-40.00	-12.32	1.51 V	9	30.67	-82.99

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) + 20log(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	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	7250.00	-44.56	-40.00	-4.56	2.64 H	271	38.29	-82.85
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	7250.00	-45.61	-40.00	-5.61	1.62 V	353	37.24	-82.85

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) + 20log(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	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	7380.00	-42.21	-40.00	-2.21	1.50 H	280	41.15	-83.36
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	7380.00	-46.30	-40.00	-6.30	1.17 V	8	37.06	-83.36

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) + 20log(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, 67% RH	Tested By:	Noah Chang

7.8.1 LTE Band 48

LTE Band 48, Channel Bandwidth: 5 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 55265 (3552.5 MHz)		CH 56715 (3697.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
6.12	3552.499996	-0.0011	3697.500001	0.0003
7.2	3552.500005	0.0014	3697.500002	0.0005
8.28	3552.50001	0.0028	3697.500009	0.0024

Note: The applicant defined the normal working voltage is from 6.12 to 8.28 Vdc.

Frequency Stability Versus Temperature				
Temperature (℃)	CH 55265 (3552.5 MHz)		CH 56715 (3697.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3552.499995	-0.0014	3697.499999	-0.0003
-20	3552.500009	0.0025	3697.500008	0.0022
-10	3552.500002	0.0006	3697.500006	0.0016
0	3552.500001	0.0003	3697.500005	0.0014
10	3552.500002	0.0006	3697.500004	0.0011
20	3552.499994	-0.0017	3697.499998	-0.0005
30	3552.500008	0.0023	3697.50001	0.0027
40	3552.499992	-0.0023	3697.499992	-0.0022
50	3552.500009	0.0025	3697.500009	0.0024

LTE Band 48, Channel Bandwidth: 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)
6.12	3555.000004	0.0011	3695.000008	0.0022
7.2	3555.00001	0.0028	3695.000008	0.0022
8.28	3555.000004	0.0011	3695.000006	0.0016

Note: The applicant defined the normal working voltage is from 6.12 to 8.28 Vdc.

Frequency Stability Versus Temperature				
Temperature (℃)	CH 55290 (3555 MHz)		CH 56690 (3695 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3555.000008	0.0023	3695.000004	0.0011
-20	3555.00001	0.0028	3695.000005	0.0014
-10	3554.999994	-0.0017	3694.999995	-0.0014
0	3555.00001	0.0028	3695.000008	0.0022
10	3554.999996	-0.0011	3694.999995	-0.0014
20	3554.999999	-0.0003	3694.999998	-0.0005
30	3555.000001	0.0003	3694.999997	-0.0008
40	3554.999992	-0.0023	3694.999995	-0.0014
50	3554.999991	-0.0025	3694.999996	-0.0011

LTE Band 48, Channel Bandwidth: 15 MHz

Frequency Stability Versus Voltage				
Voltage (Vdc)	CH 55315 (3557.5 MHz)		CH 56665 (3692.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
6.12	3557.500002	0.0006	3692.500001	0.0003
7.2	3557.499998	-0.0006	3692.500002	0.0005
8.28	3557.499994	-0.0017	3692.499995	-0.0014

Note: The applicant defined the normal working voltage is from 6.12 to 8.28 Vdc.

Frequency Stability Versus Temperature				
Temperature (℃)	CH 55315 (3557.5 MHz)		CH 56665 (3692.5 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3557.499998	-0.0006	3692.499997	-0.0008
-20	3557.500007	0.002	3692.500006	0.0016
-10	3557.499999	-0.0003	3692.500001	0.0003
0	3557.499994	-0.0017	3692.499995	-0.0014
10	3557.500007	0.002	3692.500008	0.0022
20	3557.499997	-0.0008	3692.500001	0.0003
30	3557.499996	-0.0011	3692.499994	-0.0016
40	3557.500006	0.0017	3692.500006	0.0016
50	3557.500006	0.0017	3692.500006	0.0016

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)
6.12	3560.000002	0.0006	3689.999998	-0.0005
7.2	3560.000002	0.0006	3690.000005	0.0014
8.28	3560.000004	0.0011	3690.000001	0.0003

Note: The applicant defined the normal working voltage is from 6.12 to 8.28 Vdc.

Frequency Stability Versus Temperature				
Temperature (℃)	CH 55340 (3560 MHz)		CH 56640 (3690 MHz)	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-30	3559.99999	-0.0028	3689.999993	-0.0019
-20	3559.999992	-0.0022	3689.99999	-0.0027
-10	3560.000003	0.0008	3690.000007	0.0019
0	3559.999997	-0.0008	3689.999993	-0.0019
10	3559.999996	-0.0011	3689.999999	-0.0003
20	3560.000003	0.0008	3690.000002	0.0005
30	3559.999995	-0.0014	3689.999999	-0.0003
40	3559.999995	-0.0014	3689.999994	-0.0016
50	3560.000001	0.0003	3689.999999	-0.0003

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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