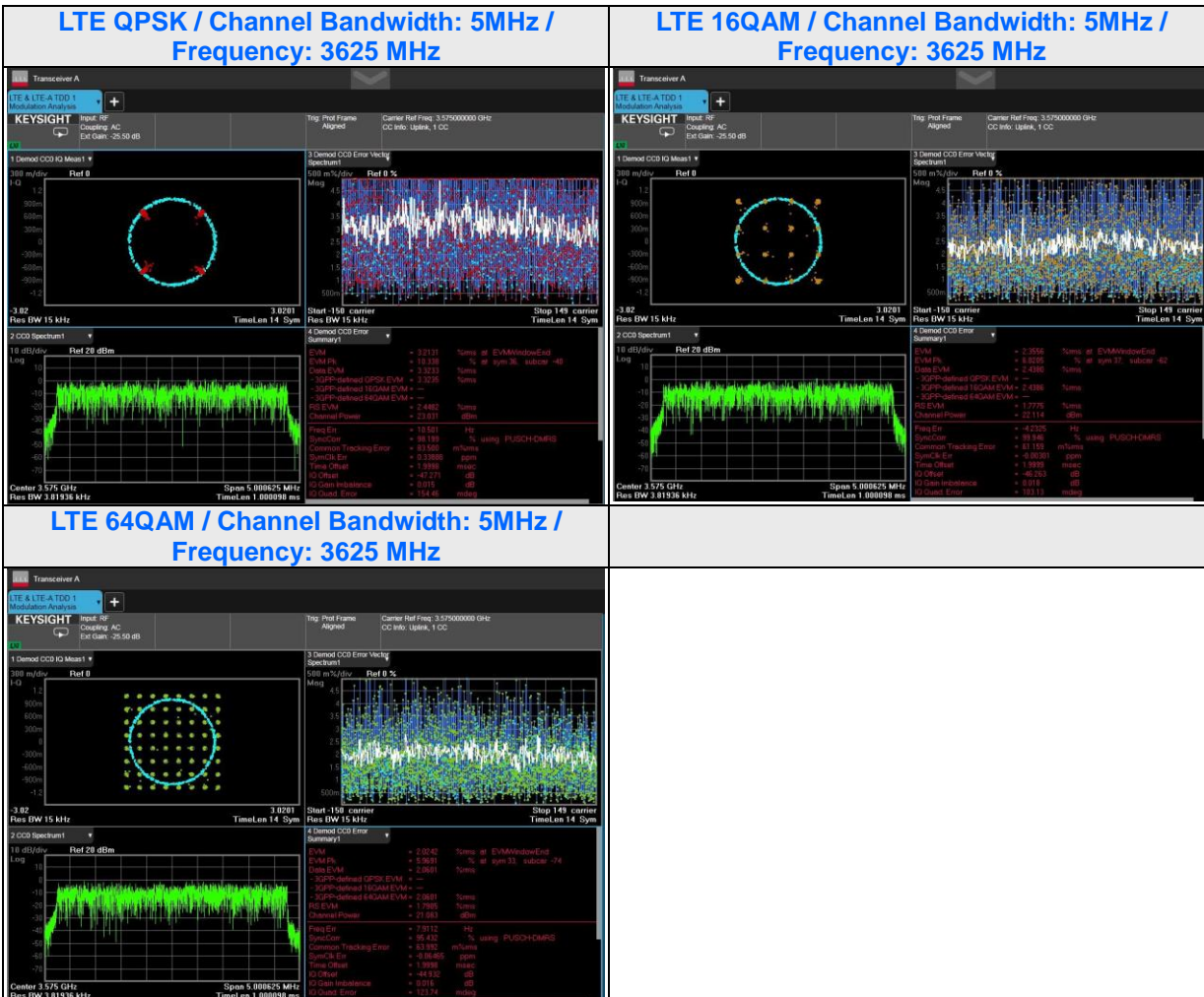


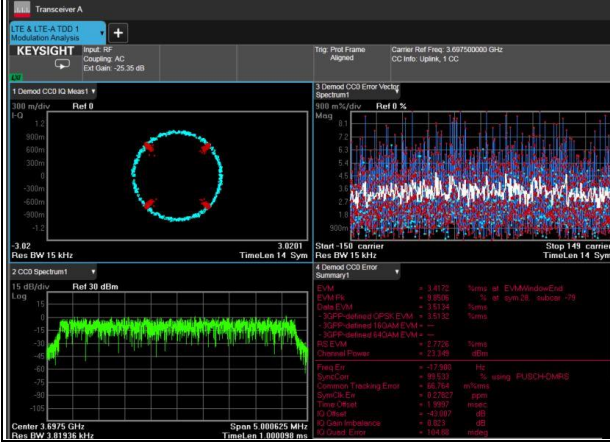
4.2.4 Test Results

Band 42



Band 48

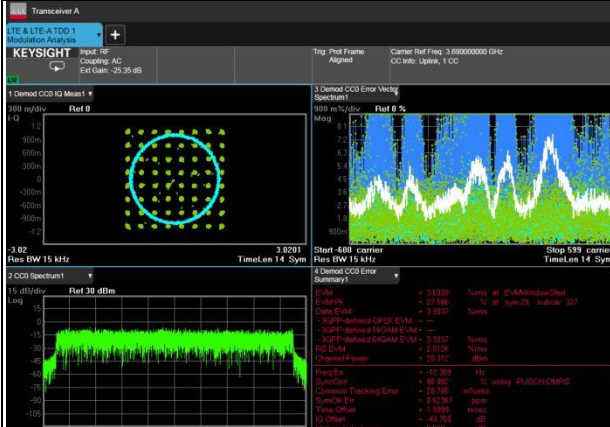
LTE QPSK / Channel Bandwidth: 5MHz / Frequency: 3625 MHz



LTE 16QAM / Channel Bandwidth: 5MHz / Frequency: 3625 MHz



LTE 64QAM / Channel Bandwidth: 5MHz / Frequency: 3625 MHz



4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency band.

4.3.2 Test Procedure

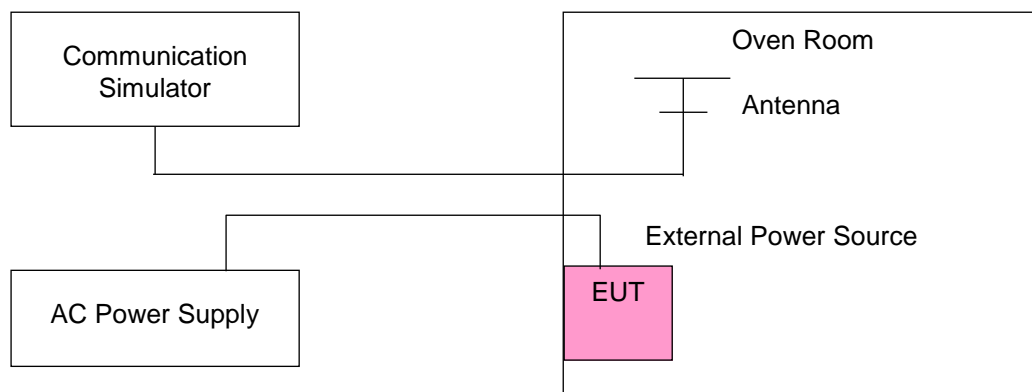
- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the AC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.3.4 Test Setup



4.3.5 Test Results

Band 42

Voltage (Volts)	Frequency Error vs. Voltage								PASS /FAIL
	Channel Bandwidth 5MHz		Channel Bandwidth 10MHz		Channel Bandwidth 15MHz		Channel Bandwidth 20MHz		
	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	
102	3575.000043	0.012	3575.000038	0.010	3575.000042	0.012	3575.000038	0.011	PASS
120	3575.000042	0.012	3575.000044	0.012	3575.000035	0.010	3575.000041	0.011	PASS
138	3575.000038	0.011	3575.000034	0.010	3575.000038	0.011	3575.000041	0.011	PASS

Voltage (Volts)	Frequency Error vs. Temperature								PASS /FAIL
	Channel Bandwidth 5MHz		Channel Bandwidth 10MHz		Channel Bandwidth 15MHz		Channel Bandwidth 20MHz		
	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	
75	3575.000035	0.010	3575.000041	0.011	3575.000040	0.011	3575.000044	0.012	PASS
70	3575.000041	0.011	3575.000037	0.010	3575.000039	0.011	3575.000042	0.012	PASS
60	3575.000044	0.012	3575.000035	0.010	3575.000038	0.011	3575.000043	0.012	PASS
50	3575.000042	0.012	3575.000035	0.010	3575.000043	0.012	3575.000034	0.010	PASS
40	3575.000042	0.012	3575.000040	0.011	3575.000043	0.012	3575.000040	0.011	PASS
30	3575.000041	0.011	3575.000039	0.011	3575.000042	0.012	3575.000040	0.011	PASS
20	3575.000037	0.010	3575.000041	0.012	3575.000043	0.012	3575.000041	0.011	PASS
10	3575.000036	0.010	3575.000037	0.010	3575.000037	0.010	3575.000035	0.010	PASS
0	3575.000037	0.010	3575.000041	0.011	3575.000044	0.012	3575.000034	0.010	PASS
-10	3575.000043	0.012	3575.000036	0.010	3575.000037	0.010	3575.000039	0.011	PASS
-20	3575.000041	0.011	3575.000043	0.012	3575.000039	0.011	3575.000042	0.012	PASS
-30	3575.000036	0.010	3575.000043	0.012	3575.000034	0.010	3575.000035	0.010	PASS

Band 48

Voltage (Volts)	Frequency Error vs. Voltage								PASS /FAIL
	Channel Bandwidth 5MHz		Channel Bandwidth 10MHz		Channel Bandwidth 15MHz		Channel Bandwidth 20MHz		
	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	
102	3625.000043	0.012	3625.000038	0.010	3625.000042	0.012	3625.000038	0.010	PASS
120	3625.000042	0.012	3625.000044	0.012	3625.000035	0.010	3625.000041	0.011	PASS
138	3625.000038	0.011	3625.000034	0.009	3625.000038	0.010	3625.000041	0.011	PASS

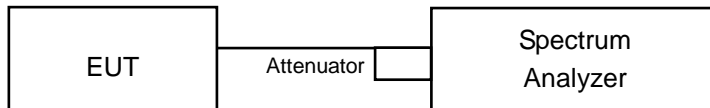
Voltage (Volts)	Frequency Error vs. Temperature								PASS /FAIL
	Channel Bandwidth 5MHz		Channel Bandwidth 10MHz		Channel Bandwidth 15MHz		Channel Bandwidth 20MHz		
	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	Frequency (MHz)	ppm	
75	3625.000035	0.010	3625.000041	0.011	3625.000040	0.011	3625.000044	0.012	PASS
70	3625.000041	0.011	3625.000037	0.010	3625.000039	0.011	3625.000042	0.012	PASS
60	3625.000044	0.012	3625.000035	0.010	3625.000038	0.011	3625.000043	0.012	PASS
50	3625.000042	0.012	3625.000035	0.010	3625.000043	0.012	3625.000034	0.009	PASS
40	3625.000042	0.012	3625.000040	0.011	3625.000043	0.012	3625.000040	0.011	PASS
30	3625.000041	0.011	3625.000039	0.011	3625.000042	0.012	3625.000040	0.011	PASS
20	3625.000037	0.010	3625.000041	0.011	3625.000043	0.012	3625.000041	0.011	PASS
10	3625.000036	0.010	3625.000037	0.010	3625.000037	0.010	3625.000035	0.010	PASS
0	3625.000037	0.010	3625.000041	0.011	3625.000044	0.012	3625.000034	0.009	PASS
-10	3625.000043	0.012	3625.000036	0.010	3625.000037	0.010	3625.000039	0.011	PASS
-20	3625.000041	0.011	3625.000043	0.012	3625.000039	0.011	3625.000042	0.011	PASS
-30	3625.000036	0.010	3625.000043	0.012	3625.000034	0.010	3625.000035	0.010	PASS

4.4 Emission Bandwidth Measurement

4.4.1 Limit of Emission Bandwidth Measurement

Reference only

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.4.4 Test Procedure

Occupied Bandwidth:

All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

26dBc Bandwidth:

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW = 1-5% of the OBW. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.7 Test Result (-26dB Bandwidth)

Band 42

Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		5MHz		
		QPSK	16QAM	64QAM
Low	3552.5	4.85	4.89	4.92
Middle	3575	4.90	4.92	4.96
High	3597.5	4.89	4.93	4.92

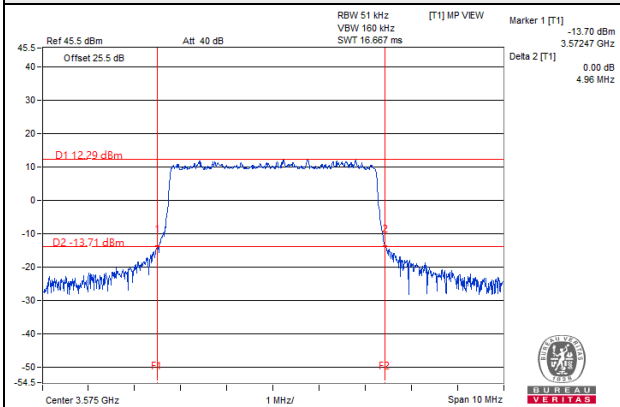
Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		10MHz		
		QPSK	16QAM	64QAM
Low	3555	9.70	9.73	9.61
Middle	3575	9.69	9.71	9.75
High	3595	9.56	9.60	9.48

Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		15MHz		
		QPSK	16QAM	64QAM
Low	3557.5	14.42	14.51	14.47
Middle	3575	14.47	14.46	14.43
High	3592.5	14.36	14.24	14.44

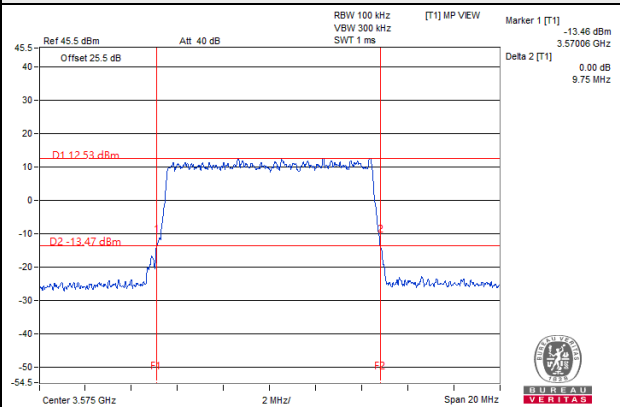
Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		20MHz		
		QPSK	16QAM	64QAM
Low	3560	19.24	19.14	19.25
Middle	3575	19.29	19.08	19.31
High	3590	18.80	18.60	18.95

Spectrum Plot of Value

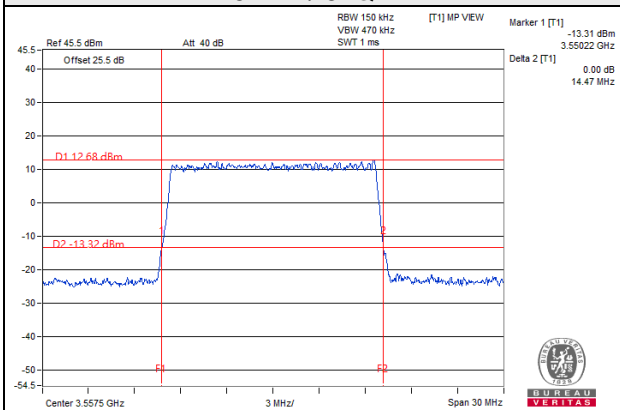
5MHz / 64QAM



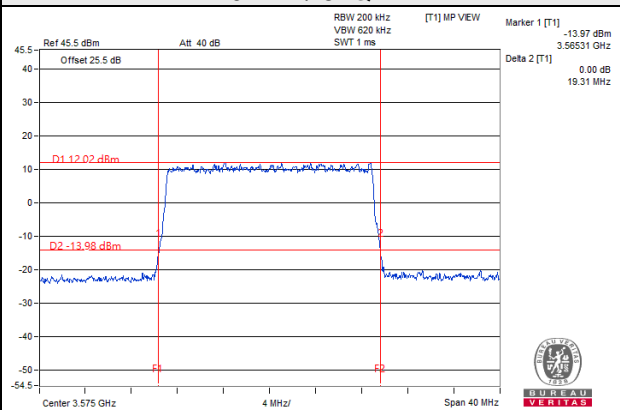
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



Band 48

Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		5MHz		
		QPSK	16QAM	64QAM
Low	3552.5	4.90	4.88	4.92
Middle	3625	4.84	4.84	4.88
High	3697.5	4.81	4.90	4.96

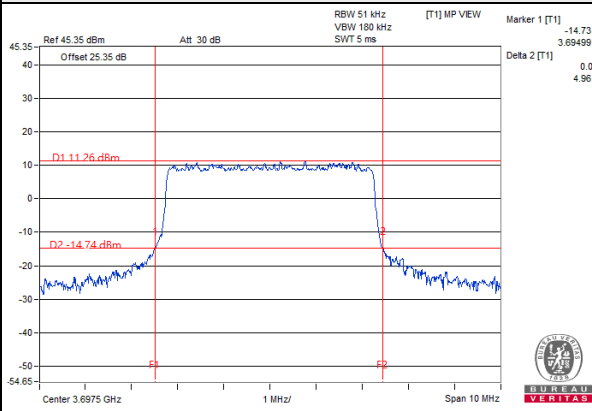
Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		10MHz		
		QPSK	16QAM	64QAM
Low	3555	9.66	9.65	9.66
Middle	3625	9.53	9.40	9.54
High	3695	9.57	9.53	9.49

Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		15MHz		
		QPSK	16QAM	64QAM
Low	3557.5	14.46	14.43	14.45
Middle	3625	14.18	14.21	14.44
High	3692.5	14.03	14.00	14.24

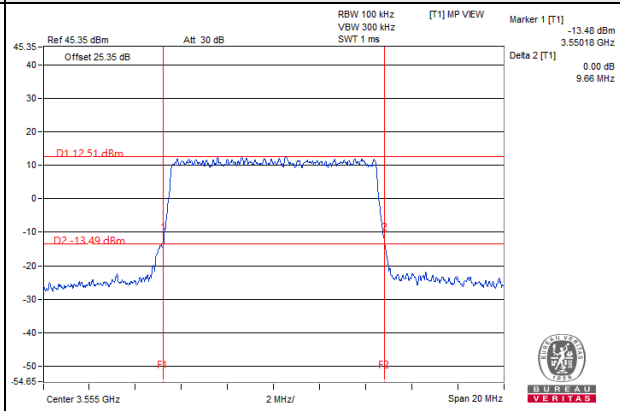
Channel	Freq. (MHz)	26dB Down Bandwidth (MHz)		
		20MHz		
		QPSK	16QAM	64QAM
Low	3560	19.09	19.05	19.14
Middle	3625	18.64	18.81	18.82
High	3690	18.89	18.61	18.71

Spectrum Plot of Value

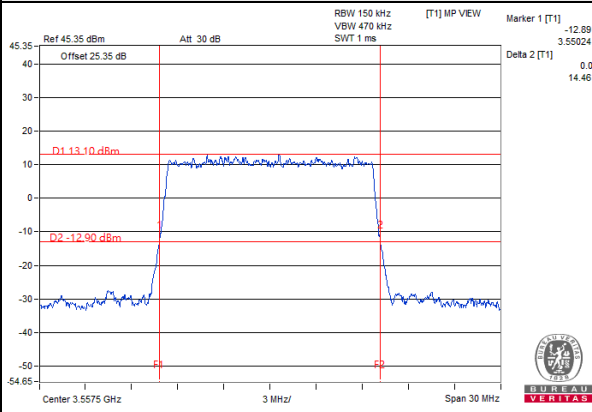
5MHz / 64QAM



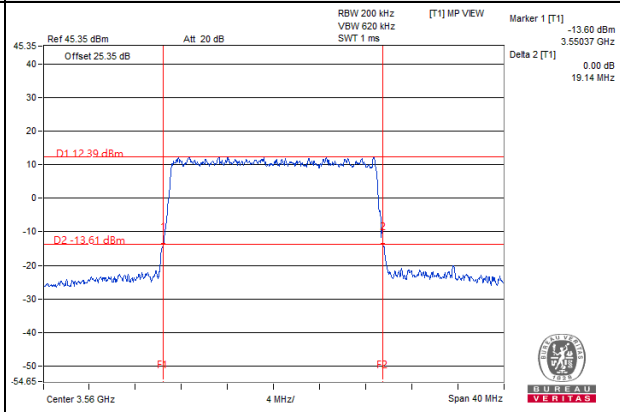
10MHz / 64QAM



15MHz / QPSK



20MHz / 64QAM



4.4.8 Test Result (Occupied Bandwidth)

Band 42

Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		5MHz		
		QPSK	16QAM	64QAM
Low	3552.5	4.48	4.48	4.48
Middle	3575	4.46	4.47	4.48
High	3597.5	4.46	4.47	4.47

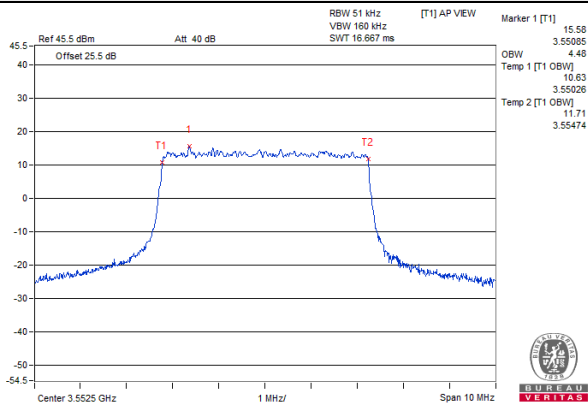
Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		10MHz		
		QPSK	16QAM	64QAM
Low	3555	8.92	8.96	8.94
Middle	3575	8.92	8.96	8.94
High	3595	8.96	8.96	8.94

Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		15MHz		
		QPSK	16QAM	64QAM
Low	3557.5	13.41	13.38	13.38
Middle	3575	13.41	13.38	13.41
High	3592.5	13.41	13.44	13.41

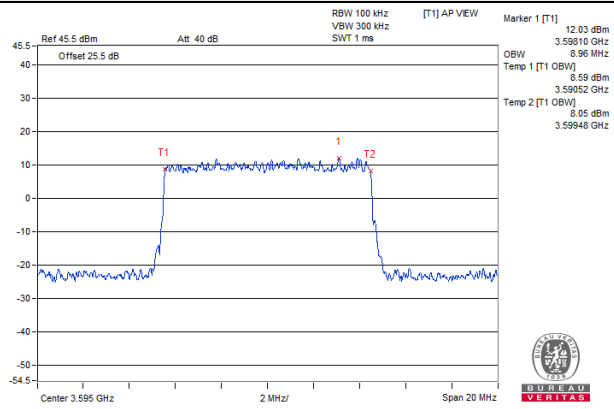
Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		20MHz		
		QPSK	16QAM	64QAM
Low	3560	17.92	17.84	17.84
Middle	3575	17.88	17.84	17.84
High	3590	17.88	17.84	17.84

Spectrum Plot of Value

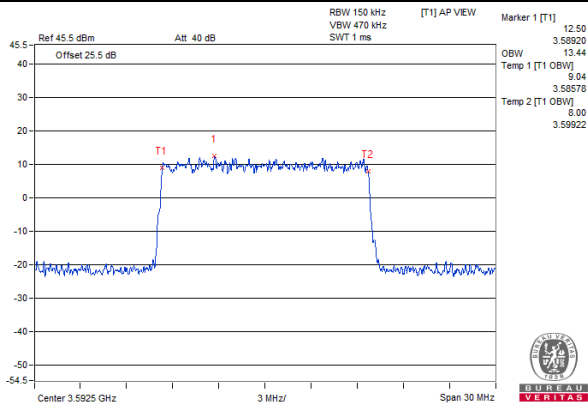
5MHz / QPSK



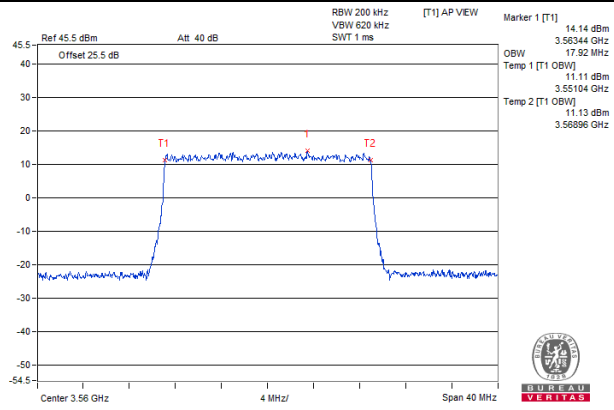
10MHz / QPSK



15MHz / 16QAM



20MHz / QPSK



Band 48

Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		5MHz		
		QPSK	16QAM	64QAM
Low	3552.5	4.47	4.47	4.47
Middle	3625	4.46	4.48	4.45
High	3697.5	4.46	4.48	4.47

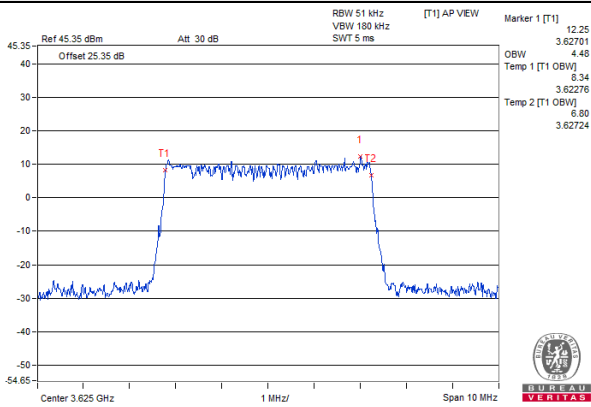
Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		10MHz		
		QPSK	16QAM	64QAM
Low	3555	8.92	8.96	8.94
Middle	3625	8.94	8.96	8.94
High	3695	8.92	8.94	8.94

Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		15MHz		
		QPSK	16QAM	64QAM
Low	3557.5	13.41	13.38	13.38
Middle	3625	13.41	13.41	13.38
High	3692.5	13.38	13.41	13.44

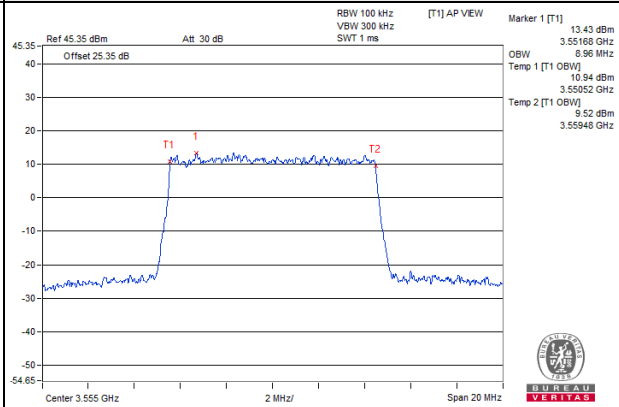
Channel	Freq. (MHz)	OCP 99 Bandwidth (MHz)		
		20MHz		
		QPSK	16QAM	64QAM
Low	3560	17.92	17.84	17.84
Middle	3625	17.84	17.84	17.84
High	3690	17.84	17.84	17.80

Spectrum Plot of Value

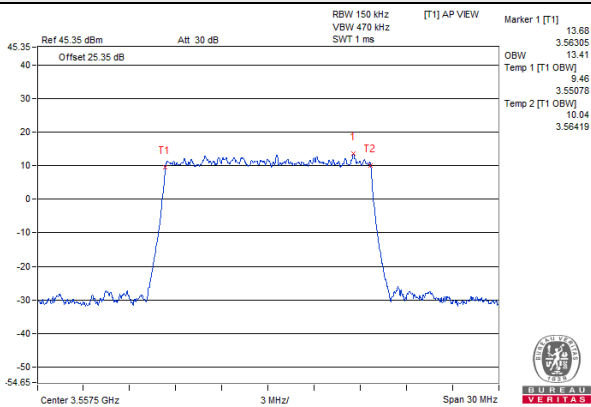
5MHz / 16QAM



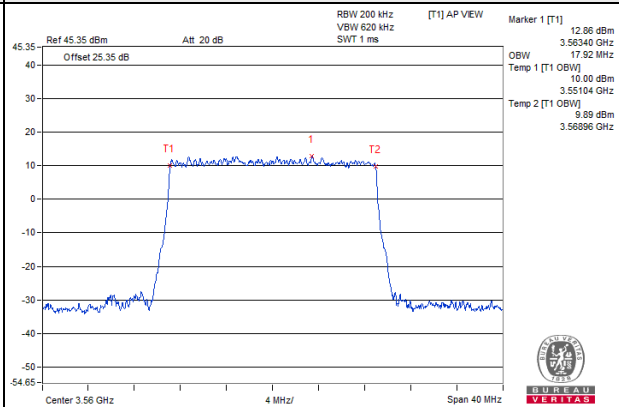
10MHz / 16QAM



15MHz / QPSK



20MHz / QPSK

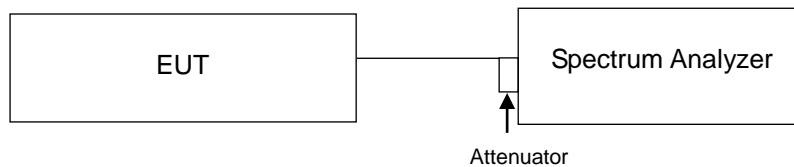


4.5 Peak to Average Ratio

4.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.5.2 Test Setup



4.5.3 Test Procedures

- a. Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- b. Set the number of counts to a value that stabilizes the measured CCDF curve;
- c. Record the maximum PAPR level associated with a probability of 0.1%.

4.5.4 Test Results

Band 42

Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		5MHz				
		QPSK	16QAM	64QAM		
Low	3552.5	4.94	6.04	6.76	13	Pass
Middle	3575	4.95	5.99	6.79	13	Pass
High	3597.5	4.94	6.04	6.79	13	Pass

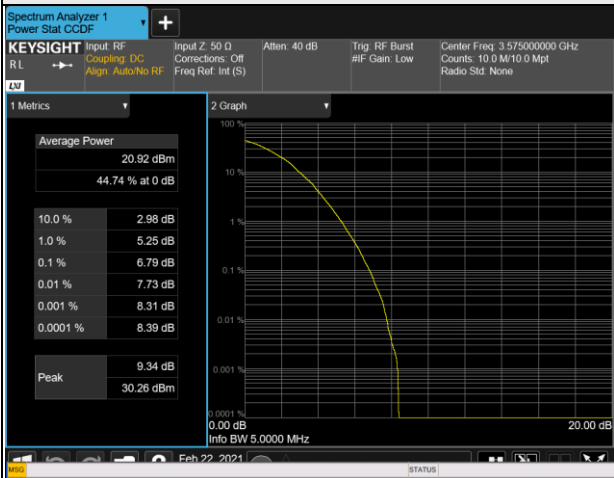
Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		10MHz				
		QPSK	16QAM	64QAM		
Low	3555	4.84	6.12	6.63	13	Pass
Middle	3575	4.85	6.10	6.65	13	Pass
High	3595	4.81	6.10	6.65	13	Pass

Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		15MHz				
		QPSK	16QAM	64QAM		
Low	3557.5	4.97	6.13	6.60	13	Pass
Middle	3575	4.96	6.11	6.61	13	Pass
High	3592.5	4.94	6.10	6.65	13	Pass

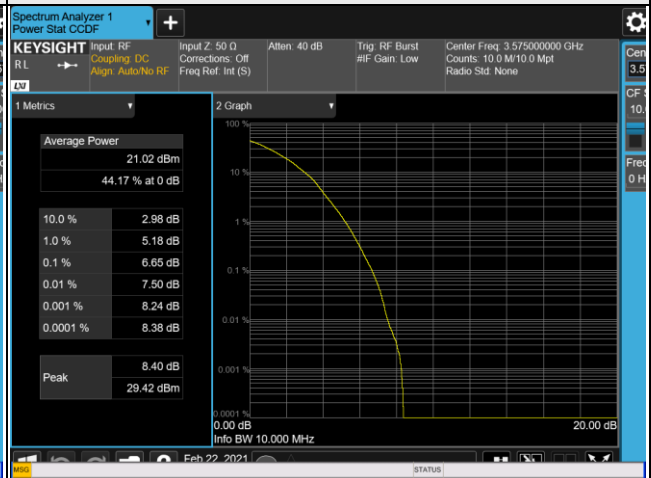
Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		20MHz				
		QPSK	16QAM	64QAM		
Low	3560	4.85	6.02	6.62	13	Pass
Middle	3575	4.84	6.02	6.61	13	Pass
High	3590	4.83	5.99	6.57	13	Pass

Spectrum Plot of Worst Value

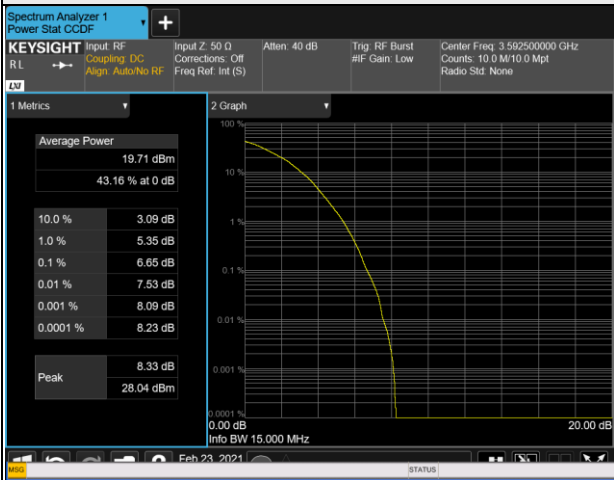
5MHz / 64QAM



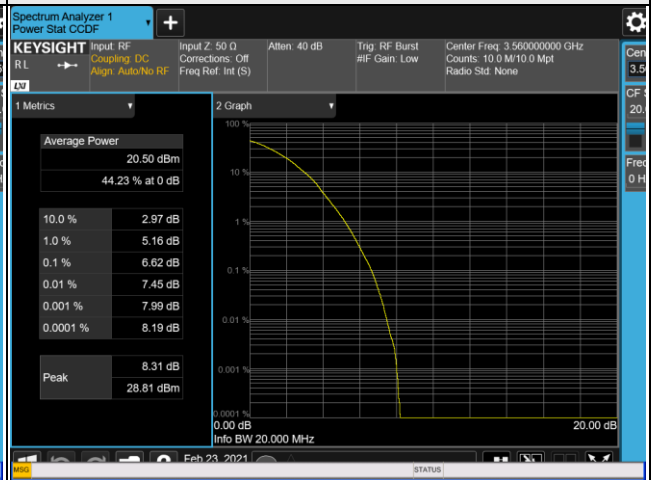
10MHz / 64QAM



15MHz / 64QAM



20MHz / 64QAM



Band 48

Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		5MHz				
		QPSK	16QAM	64QAM		
Low	3552.5	4.95	6.03	6.93	13	Pass
Middle	3625	4.81	5.98	6.66	13	Pass
High	3697.5	4.88	6.00	6.98	13	Pass

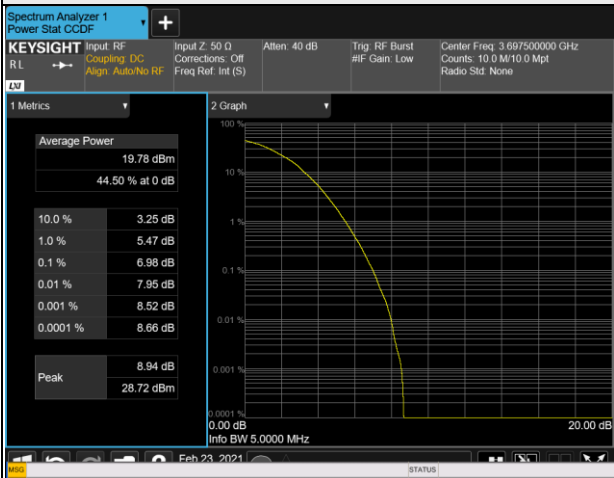
Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		10MHz				
		QPSK	16QAM	64QAM		
Low	3555	4.81	6.10	6.64	13	Pass
Middle	3625	4.80	6.00	6.53	13	Pass
High	3695	4.77	6.02	6.51	13	Pass

Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		15MHz				
		QPSK	16QAM	64QAM		
Low	3557.5	4.95	6.10	6.54	13	Pass
Middle	3625	4.77	5.99	6.43	13	Pass
High	3692.5	4.84	5.94	6.48	13	Pass

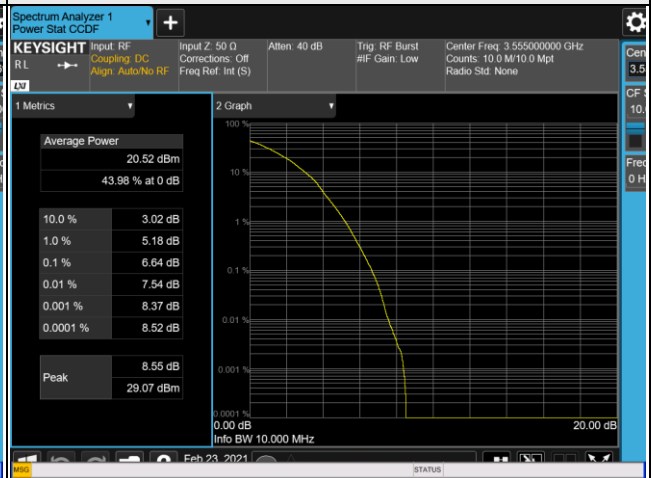
Channel	Freq. (MHz)	Peak to Average Ratio (dB)			Limit(dB)	Pass /Fail
		20MHz				
		QPSK	16QAM	64QAM		
Low	3560	4.82	5.97	6.54	13	Pass
Middle	3625	4.60	5.83	6.41	13	Pass
High	3690	4.65	5.88	6.45	13	Pass

Spectrum Plot of Worst Value

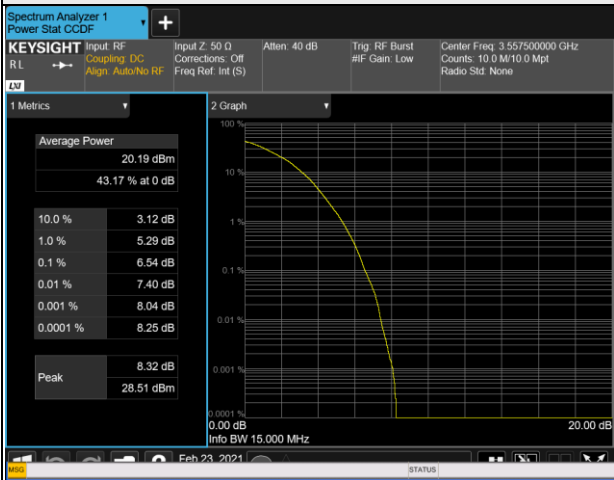
5MHz / 64QAM



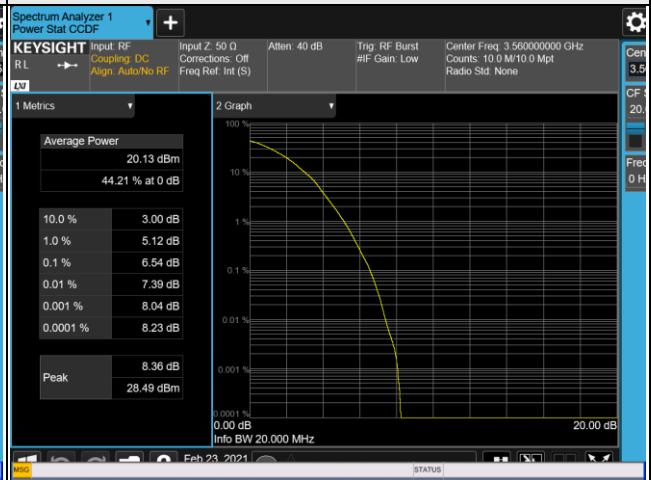
10MHz / 64QAM



15MHz / 64QAM



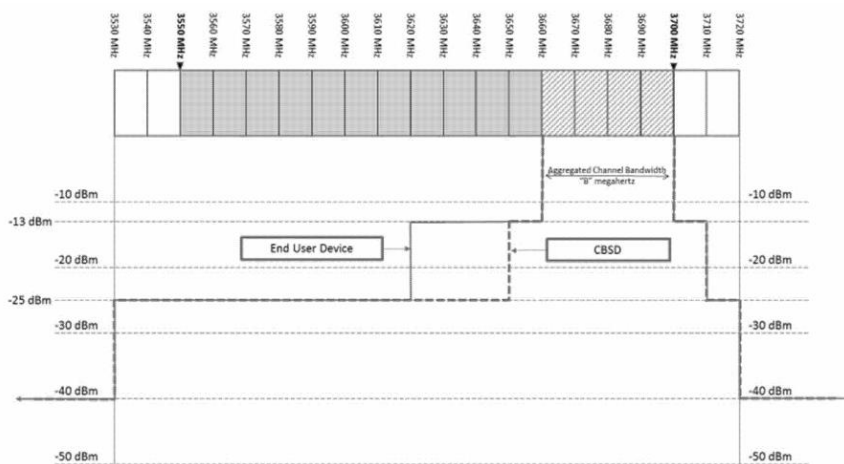
20MHz / 64QAM



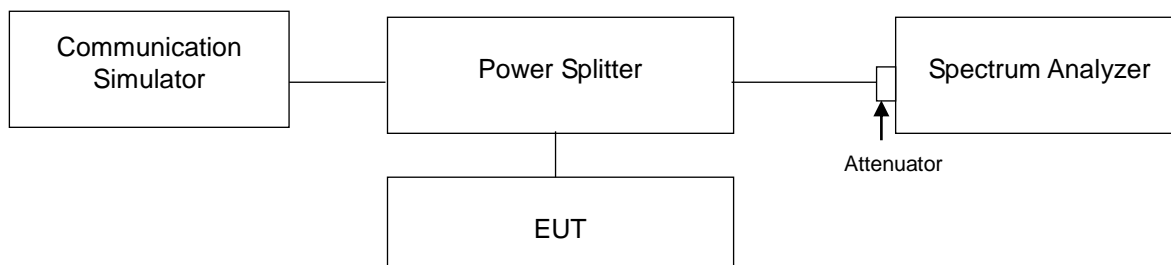
4.6 Conducted Spurious Emissions

4.6.1 Limits of Conducted Spurious Emissions Measurement

For CBSD power of any emissions outside the Fundamental	Limit
Within 0-10MHz above the Assigned Channel	-13 dBm/MHz
Within 0-10MHz below the Assigned Channel	
Greater than 10MHz above the Assigned Channel	-25 dBm/MHz
Greater than 10MHz below the Assigned Channel	
Power of any emission below 3530MHz	-40 dBm/MHz
Power of any emission above 3720MHz	



4.6.2 Test Setup



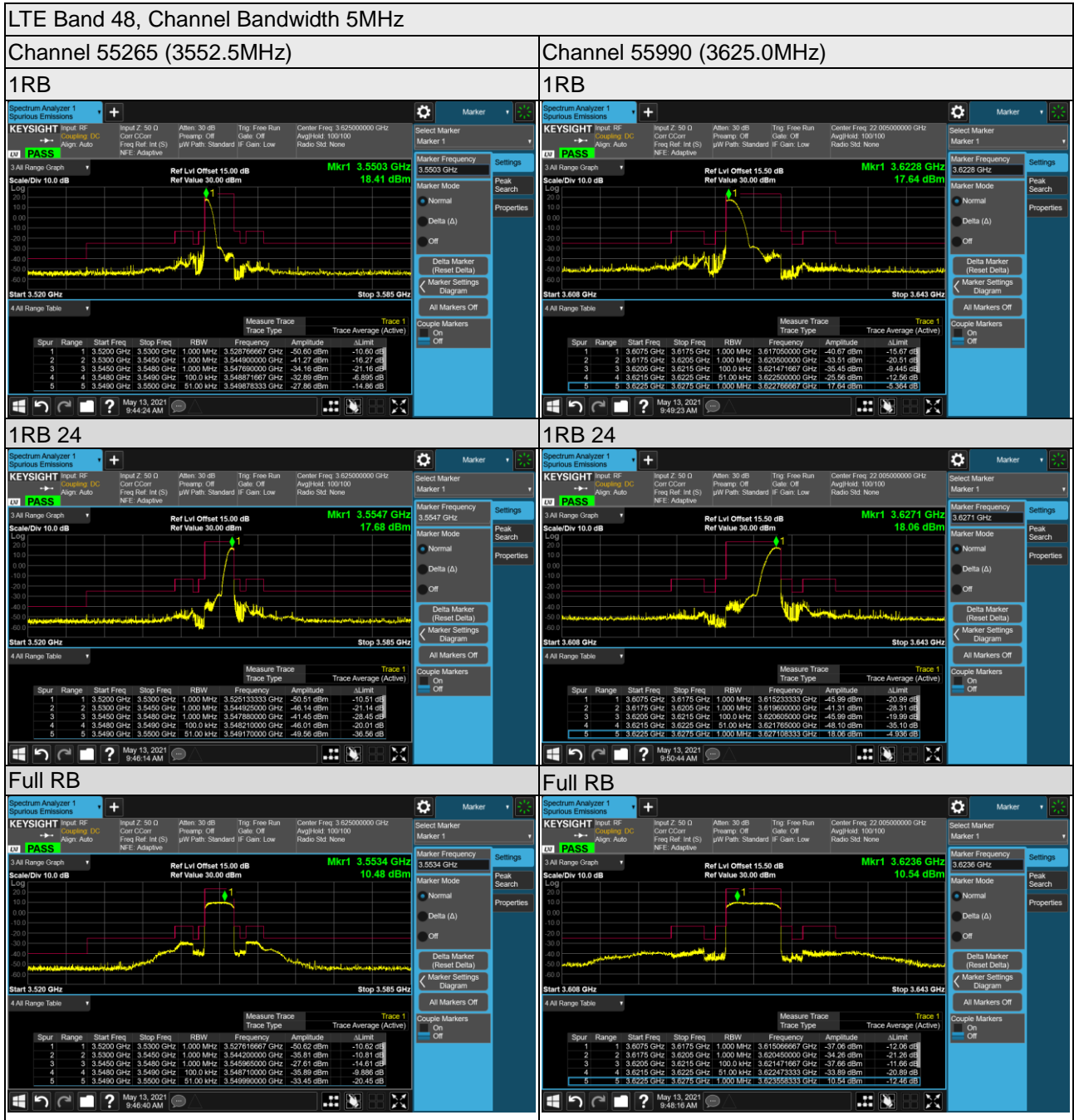
4.6.3 Test Instruments

Refer to section 4.1.3 to get information of above instrument.

4.6.4 Test Procedure

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 9 kHz to 37 GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.
- c. Measuring frequency band edge, 20dB attenuation pad is connected with spectrum. 1% of the fundamental emission bandwidth is used for conducted emission measurement.
- d. For 5MHz, 10MHz channel BW mode, extend the 1% range from 1M to 2M above and below the channel edge and then reduce the limit further by $10 \log (1000/51)=13\text{dB}$ (i.e. total $-13 + -13=-26\text{dB}$) to compensate for the integration from 51k to 1M.

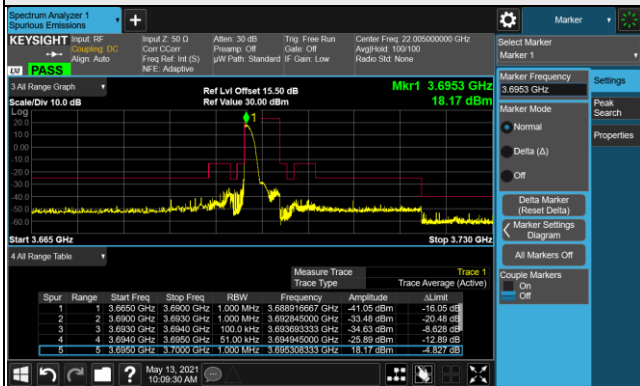
4.6.5 Test Results



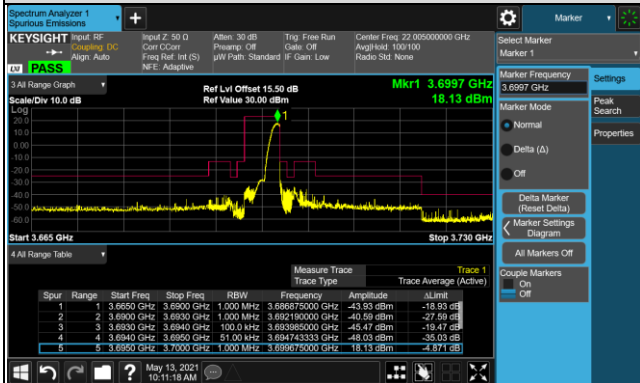
LTE Band 48, Channel Bandwidth 5MHz

Channel 56715 (3697.5MHz)

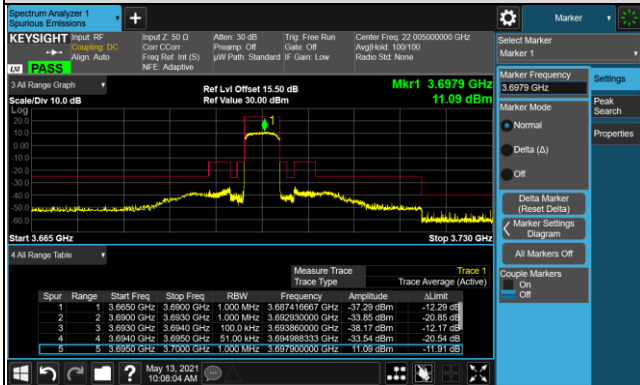
1RB



1RB 24



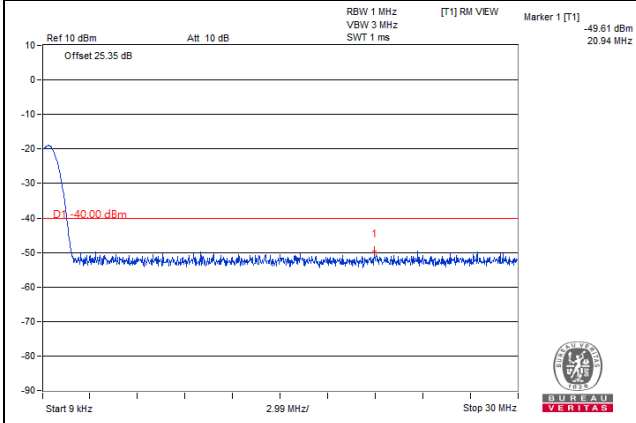
Full RB



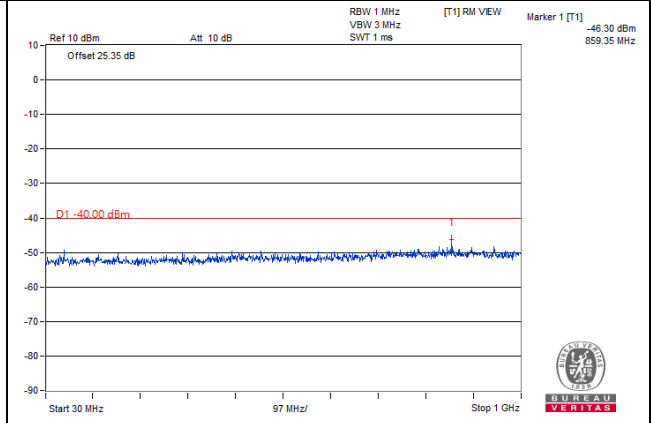
LTE Band 48, Channel Bandwidth 5MHz

Channel 55265 (3552.5MHz)

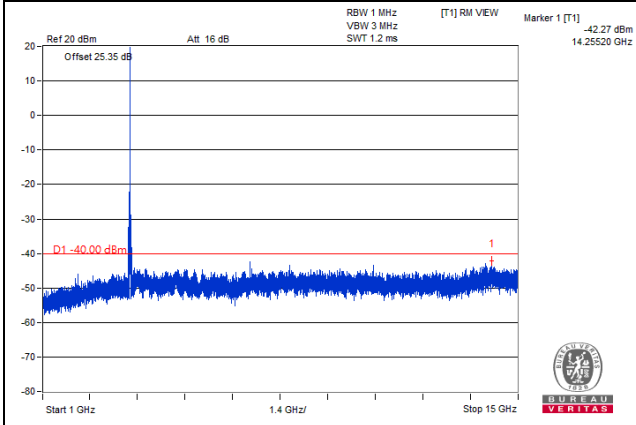
Frequency Range : 9kHz~30MHz



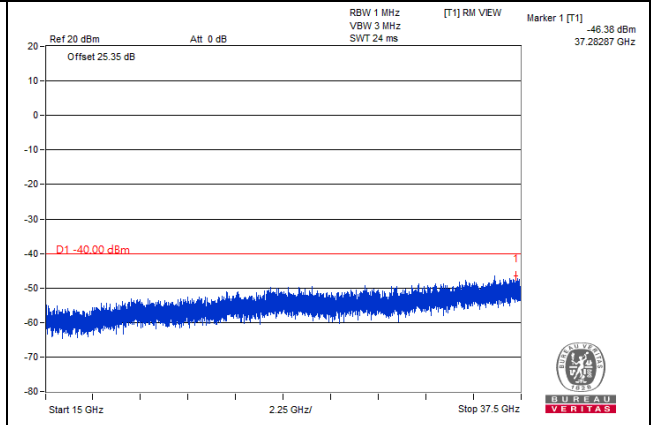
Frequency Range : 30MHz~1GHz



Frequency Range :1GHz~15GHz



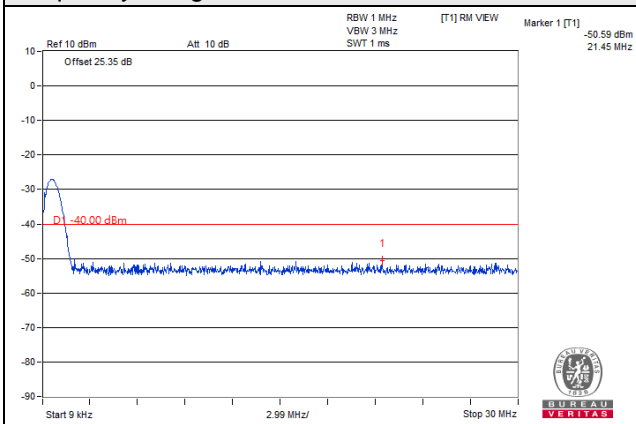
Frequency Range :15GHz~37.5GHz



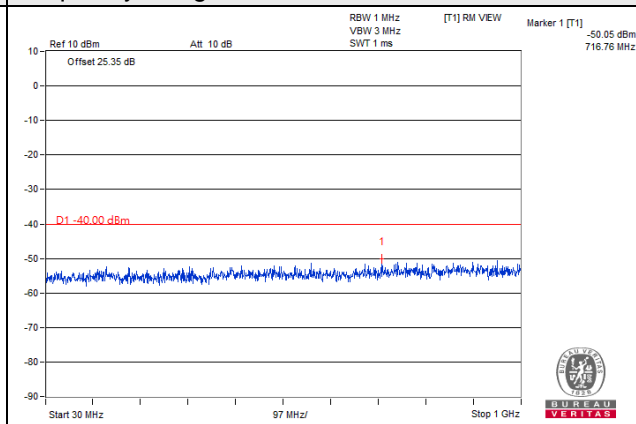
LTE Band 48, Channel Bandwidth 5MHz

Channel 5590 (3625.0MHz)

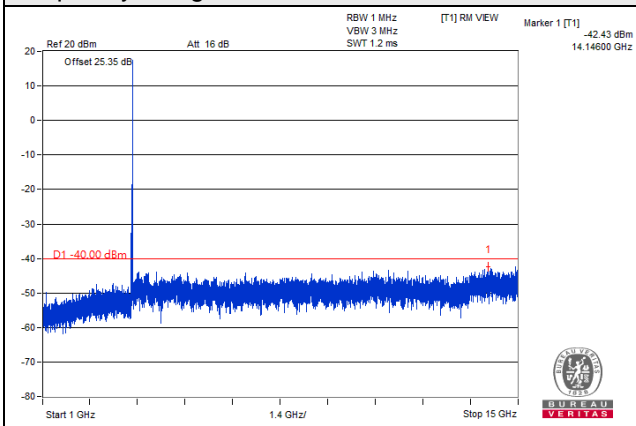
Frequency Range : 9kHz~30MHz



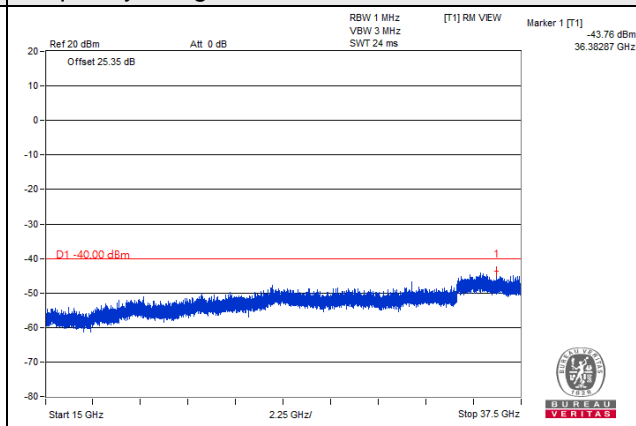
Frequency Range : 30MHz~1GHz



Frequency Range :1GHz~15GHz



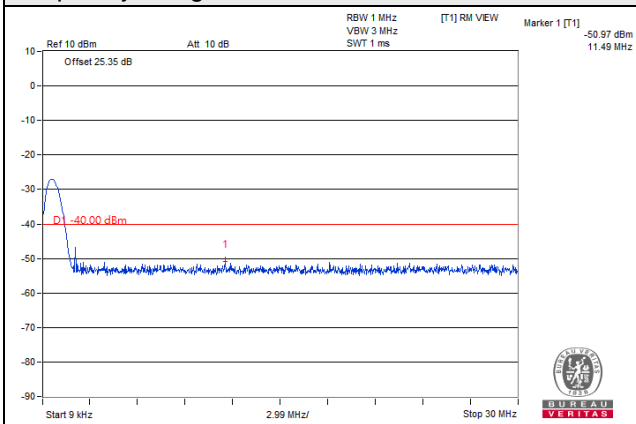
Frequency Range :15GHz~37.5GHz



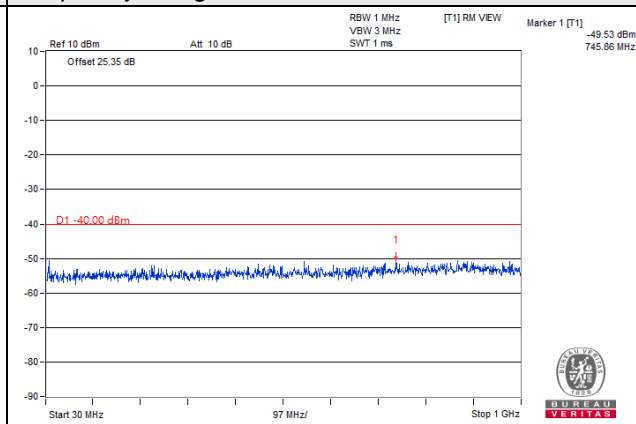
LTE Band 48, Channel Bandwidth 5MHz

Channel 56715 (3697.50MHz)

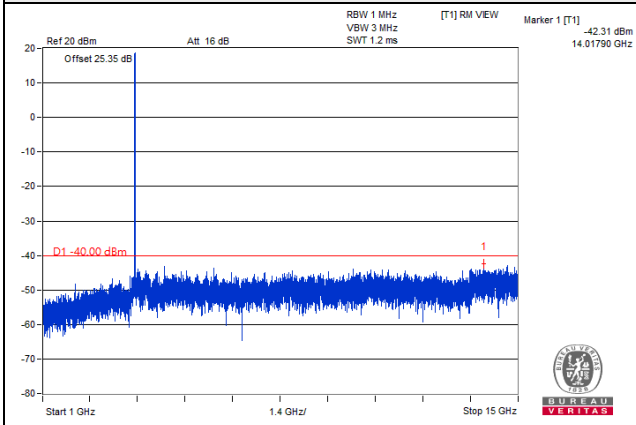
Frequency Range : 9kHz~30MHz



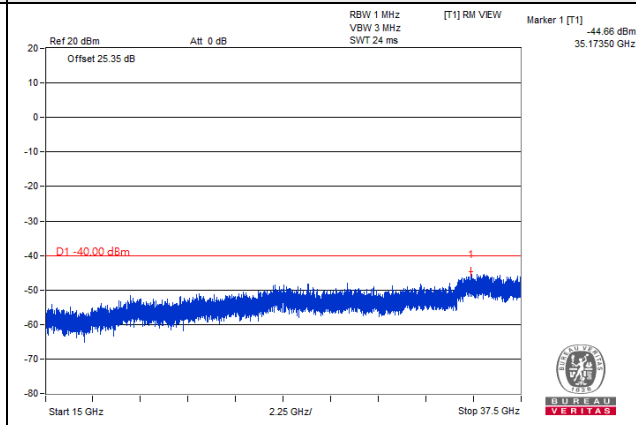
Frequency Range : 30MHz~1GHz



Frequency Range :1GHz~15GHz

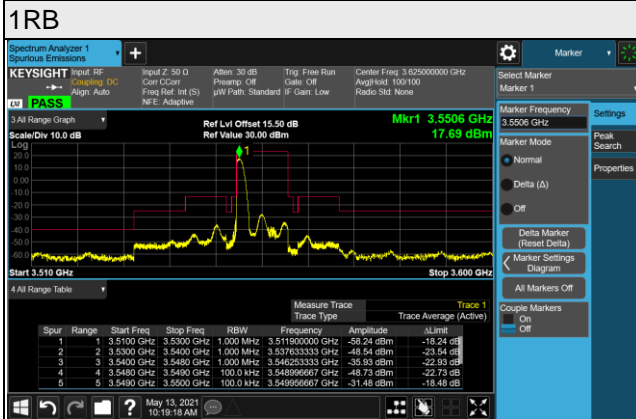


Frequency Range :15GHz~37.5GHz

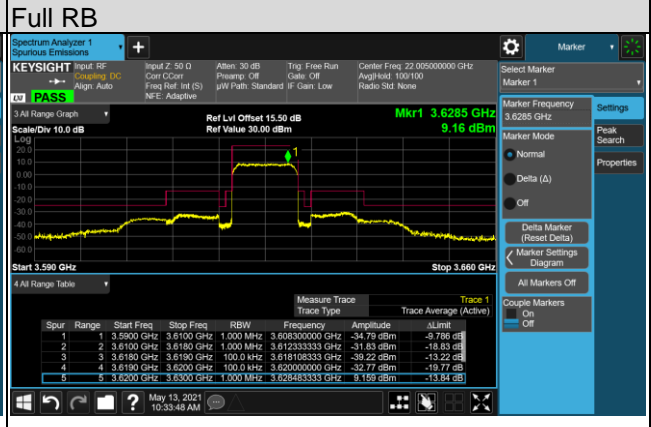
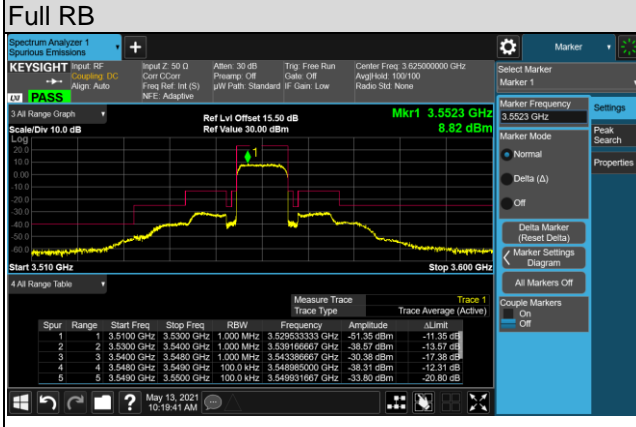
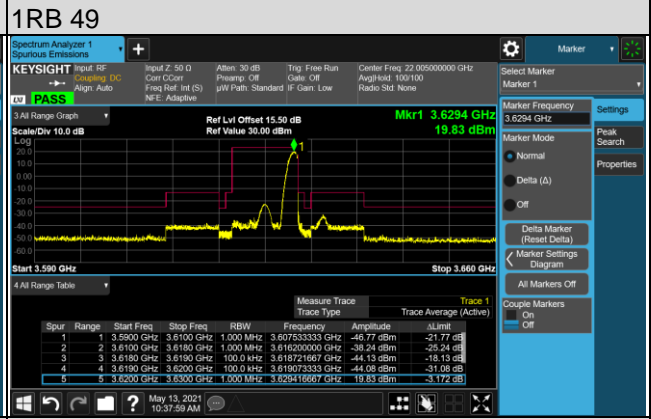
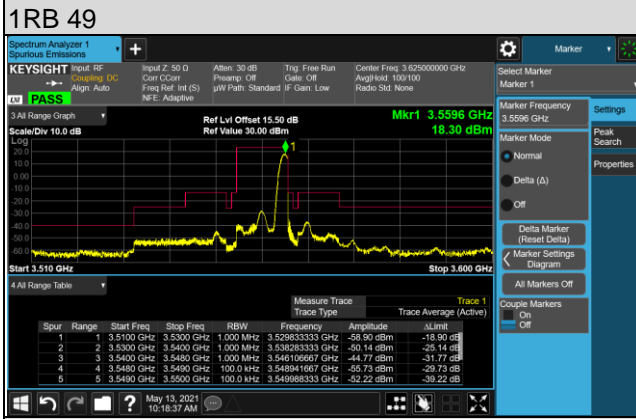
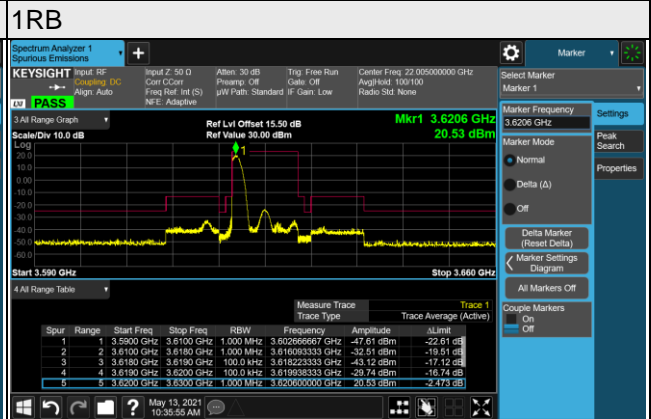


LTE Band 48, Channel Bandwidth 10MHz

Channel 55290 (3555.0MHz)



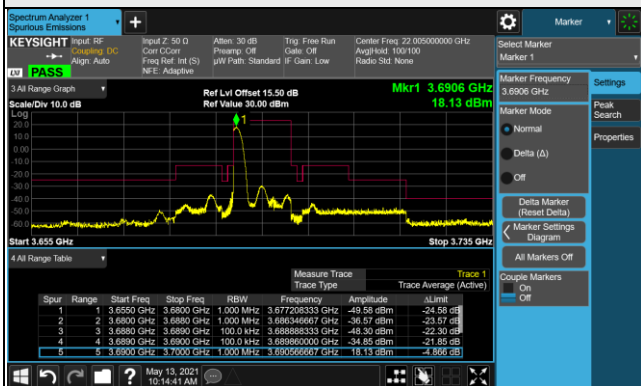
Channel 55990 (3625.0MHz)



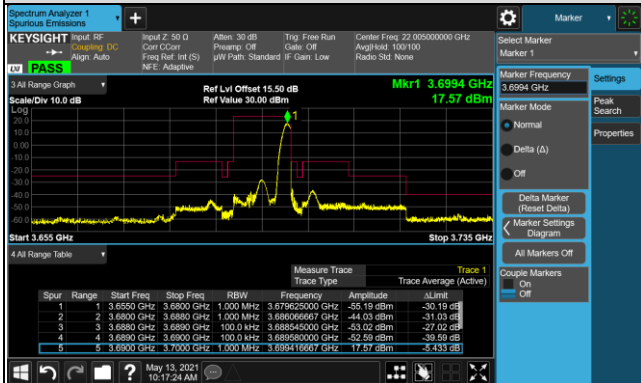
LTE Band 48, Channel Bandwidth 10MHz

Channel 56690 (3695.0MHz)

1RB



1RB 49



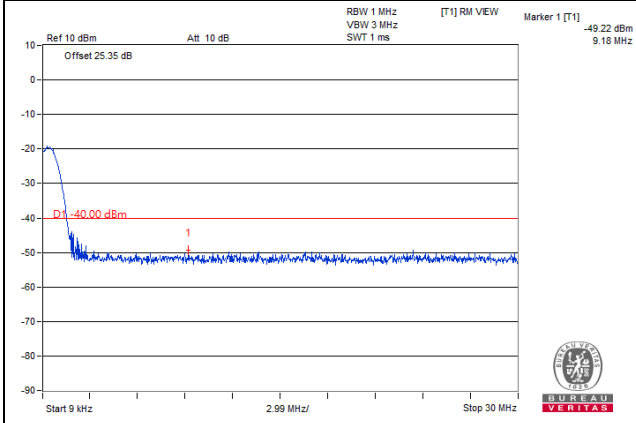
Full RB



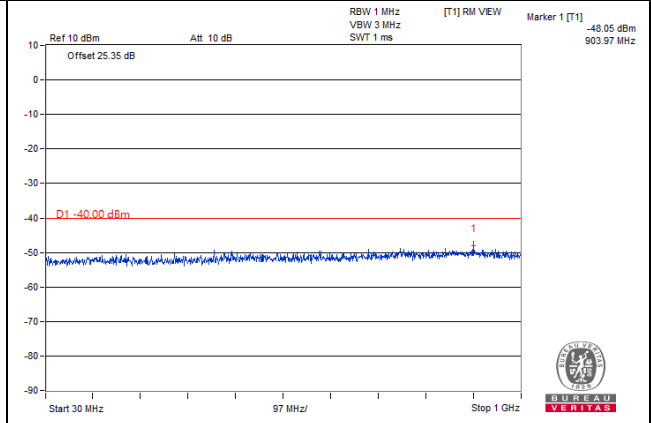
LTE Band 48, Channel Bandwidth 10MHz

Channel 55290 (3555.0MHz)

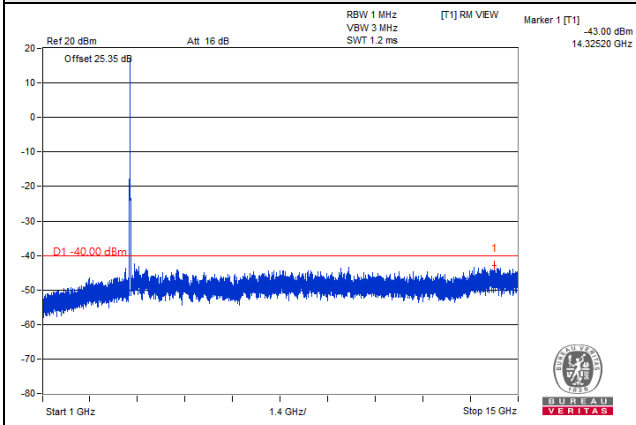
Frequency Range : 9kHz~30MHz



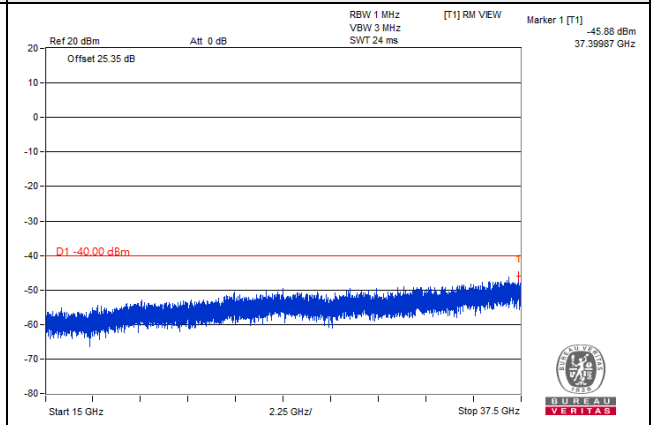
Frequency Range : 30MHz~1GHz



Frequency Range : 1GHz~15GHz



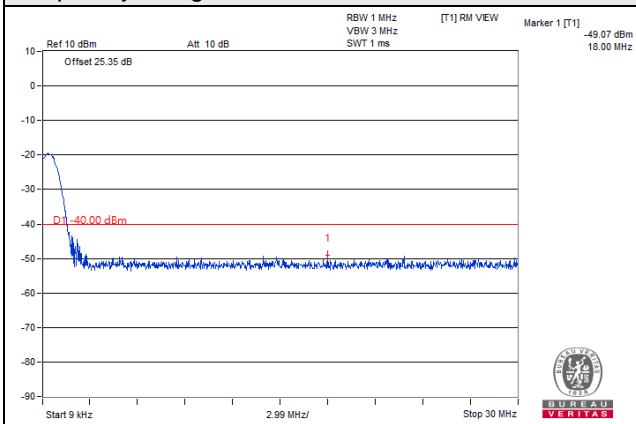
Frequency Range : 15GHz~37.5GHz



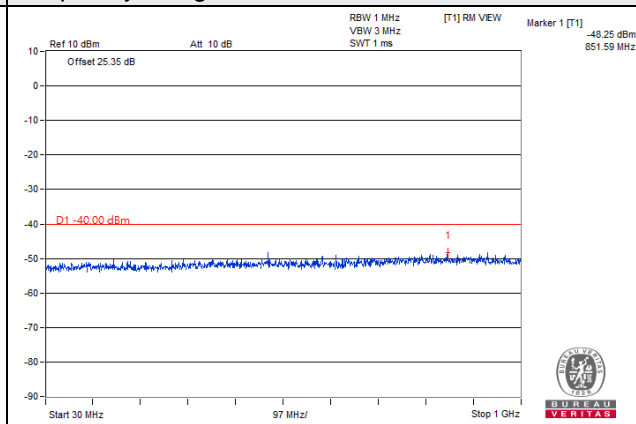
LTE Band 48, Channel Bandwidth 10MHz

Channel 55990 (3625.00MHz)

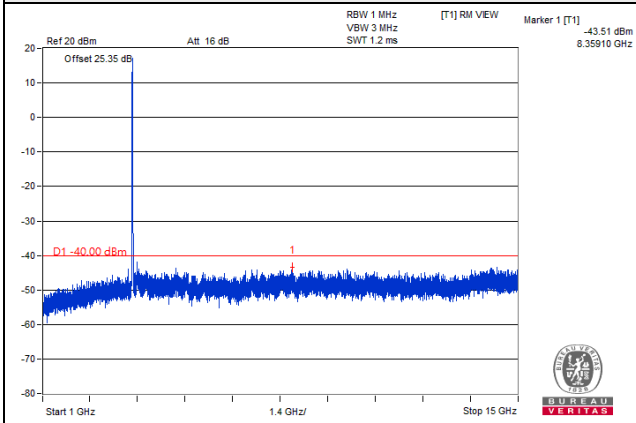
Frequency Range : 9kHz~30MHz



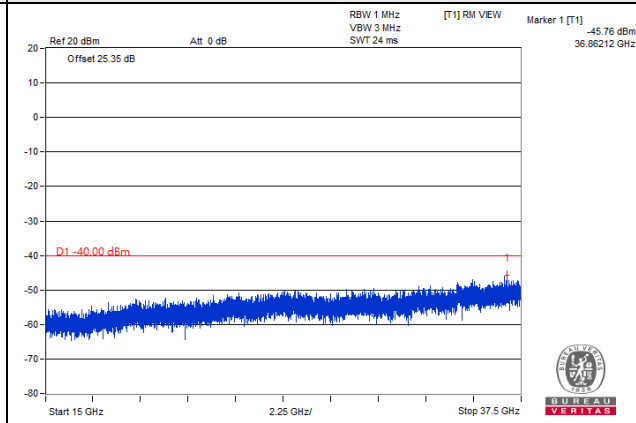
Frequency Range : 30MHz~1GHz



Frequency Range : 1GHz~15GHz



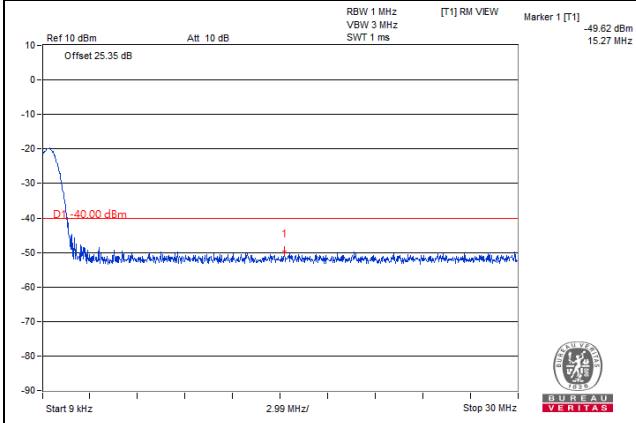
Frequency Range : 15GHz~37.5GHz



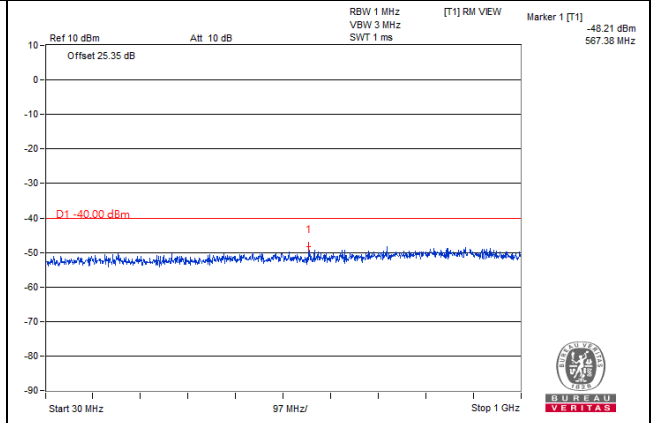
LTE Band 48, Channel Bandwidth 10MHz

Channel 56690 (3695.0MHz)

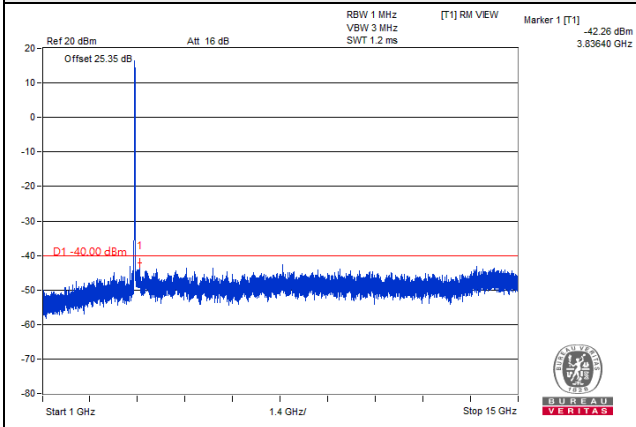
Frequency Range : 9kHz~30MHz



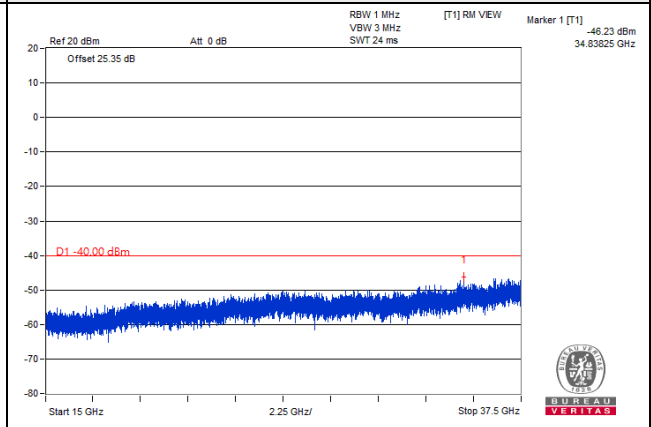
Frequency Range : 30MHz~1GHz



Frequency Range : 1GHz~15GHz



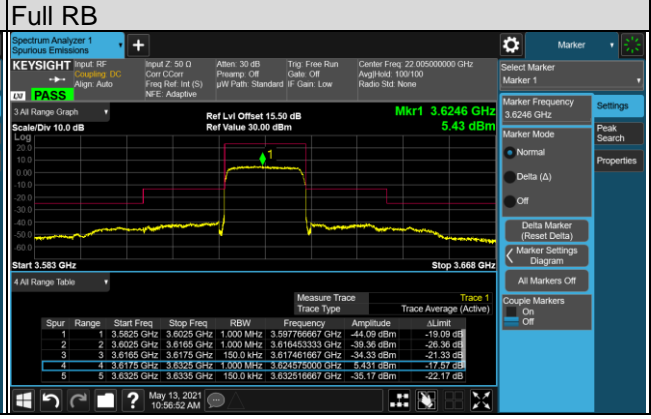
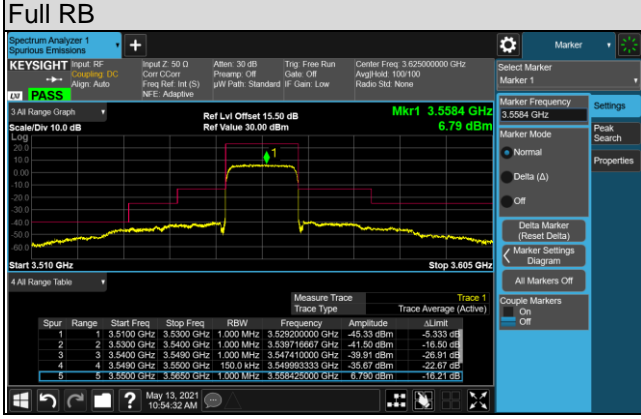
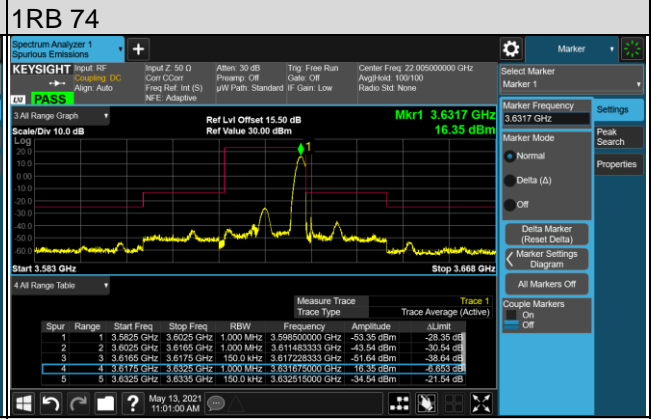
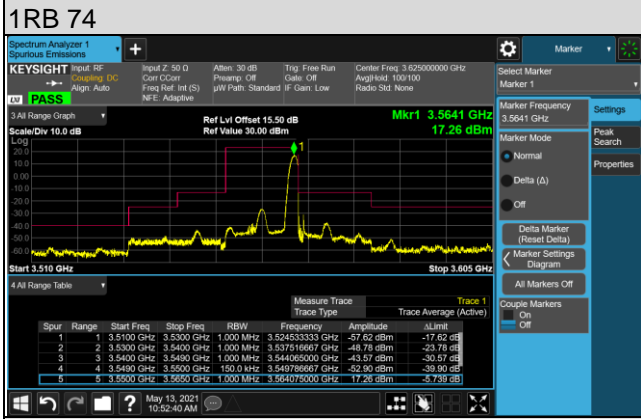
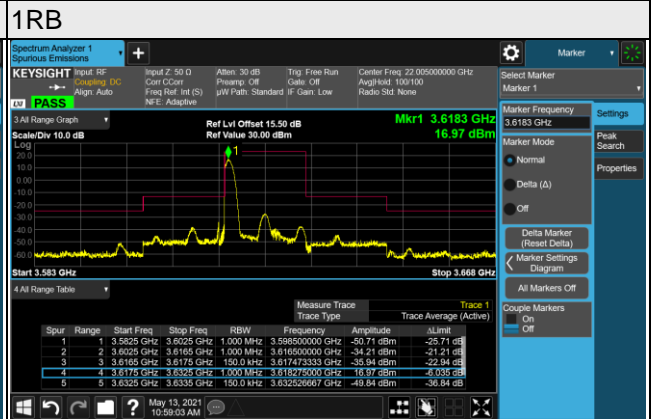
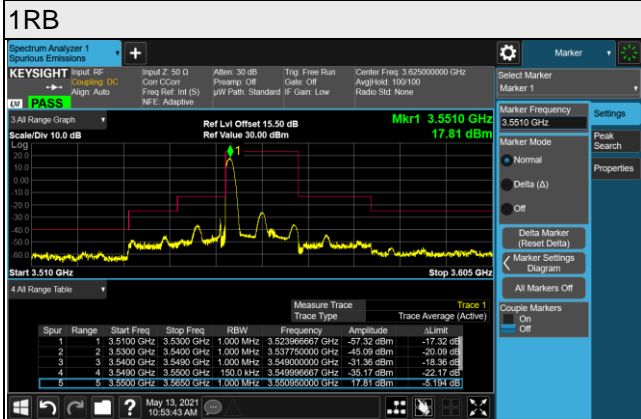
Frequency Range : 15GHz~37.5GHz



LTE Band 48, Channel Bandwidth 15MHz

Channel 55315 (3557.50MHz)

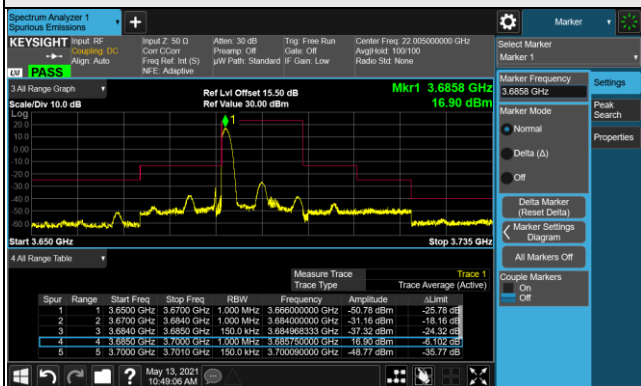
Channel 55990 (3625.0MHz)



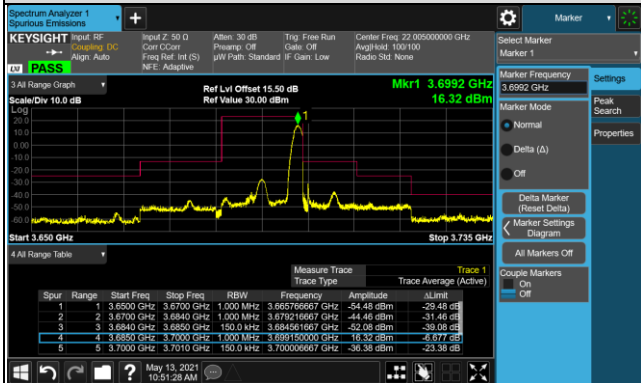
LTE Band 48, Channel Bandwidth 15MHz

Channel 56665 (3692.5MHz)

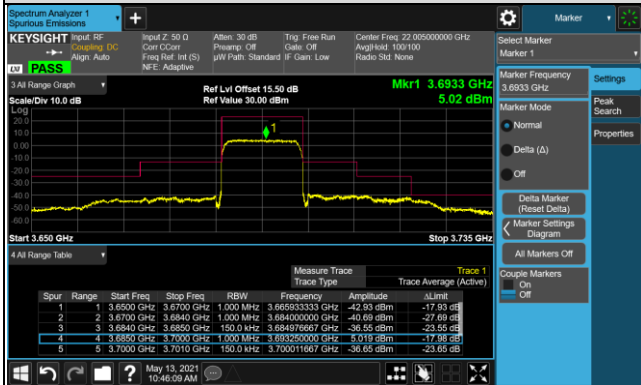
1RB



1RB 74



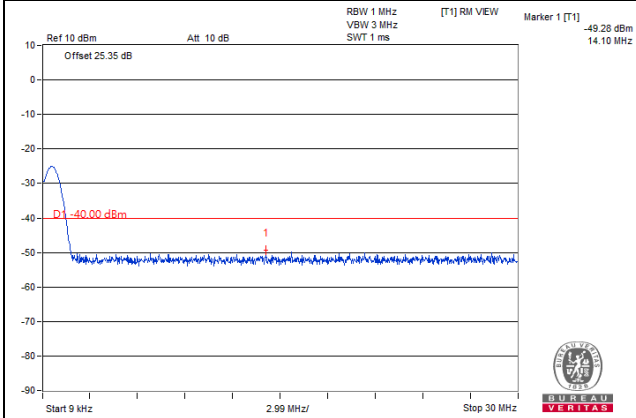
Full RB



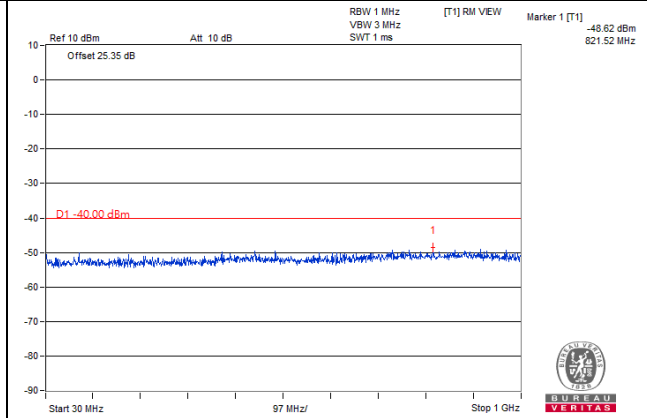
LTE Band 48, Channel Bandwidth 15MHz

Channel 55315 (3557.50MHz)

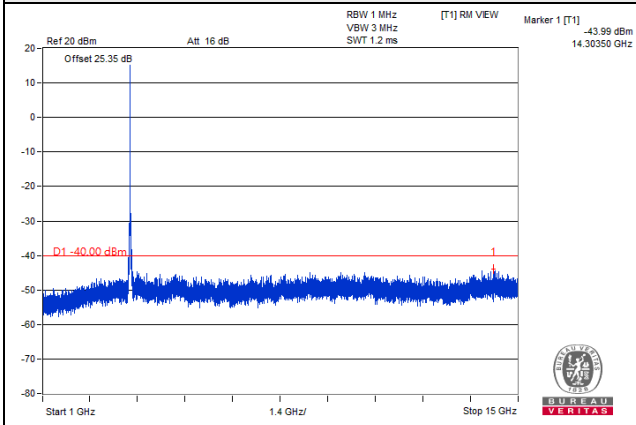
Frequency Range : 9kHz~30MHz



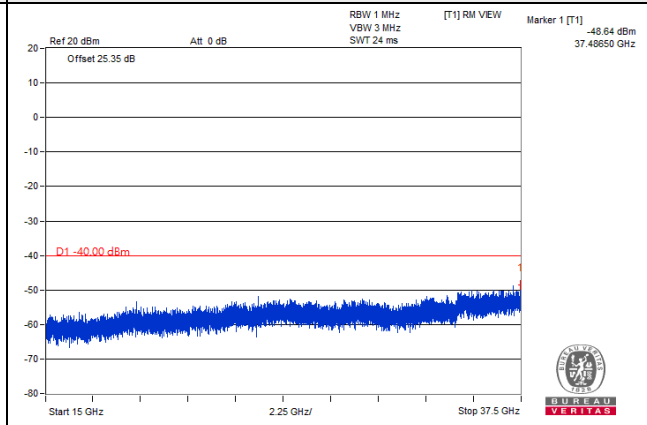
Frequency Range : 30MHz~1GHz



Frequency Range :1GHz~15GHz



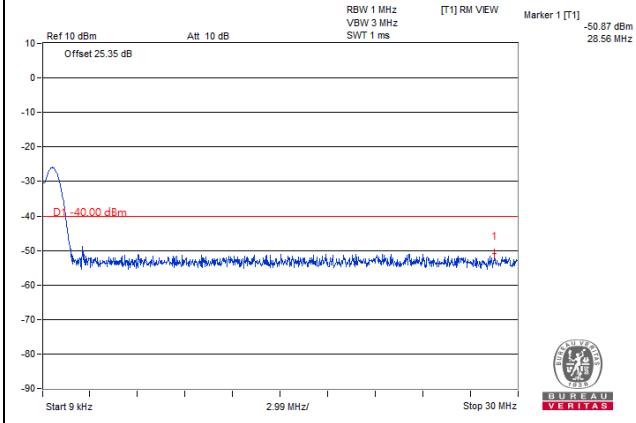
Frequency Range :15GHz~37.5GHz



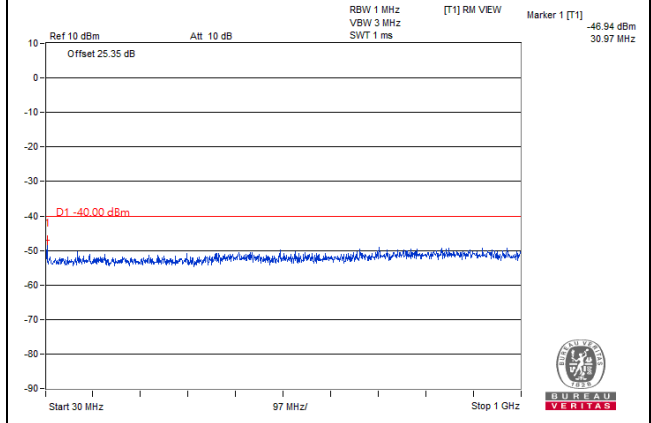
LTE Band 48, Channel Bandwidth 15MHz

Channel 5590 (3625.0MHz)

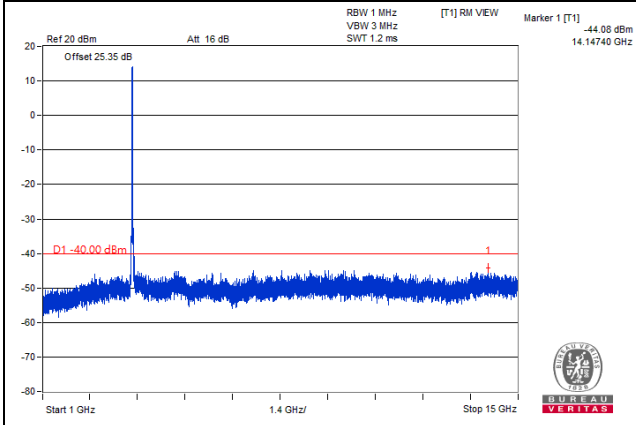
Frequency Range : 9kHz~30MHz



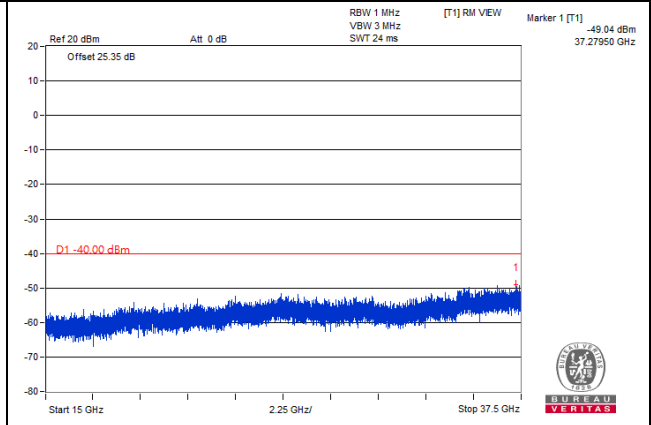
Frequency Range : 30MHz~1GHz



Frequency Range : 1GHz~15GHz



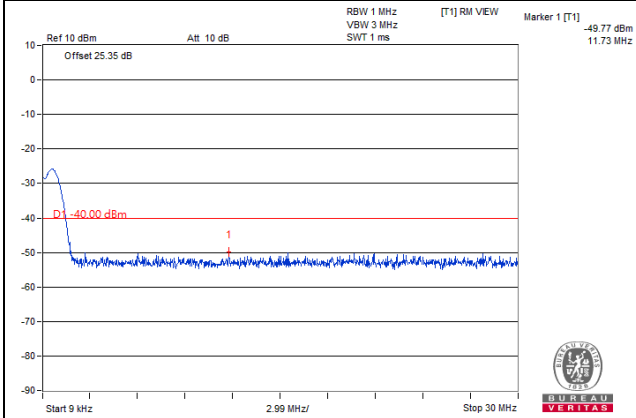
Frequency Range : 15GHz~37.5GHz



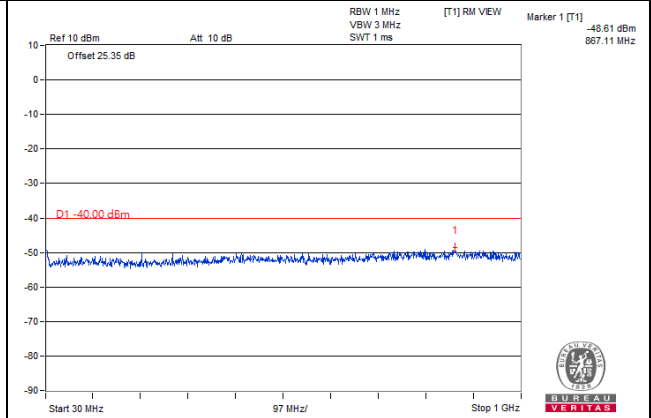
LTE Band 48, Channel Bandwidth 15MHz

Channel 56665 (3692.50MHz)

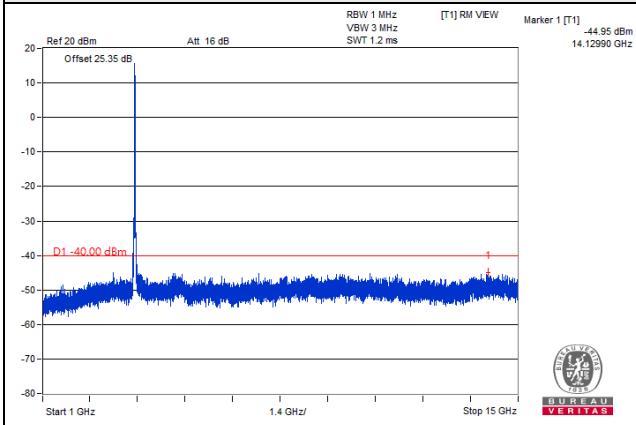
Frequency Range : 9kHz~30MHz



Frequency Range : 30MHz~1GHz



Frequency Range :1GHz~15GHz



Frequency Range :15GHz~37.5GHz

