

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

For WCDMA Band 4, LTE Band 4, 66

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log (P)$ dB.

For LTE Band 12, 71

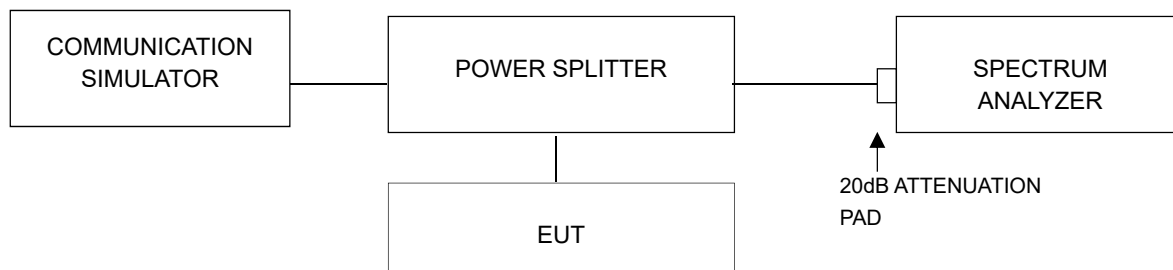
According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

For LTE Band 13

According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

According to 27.53(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations

4.5.2 Test Setup

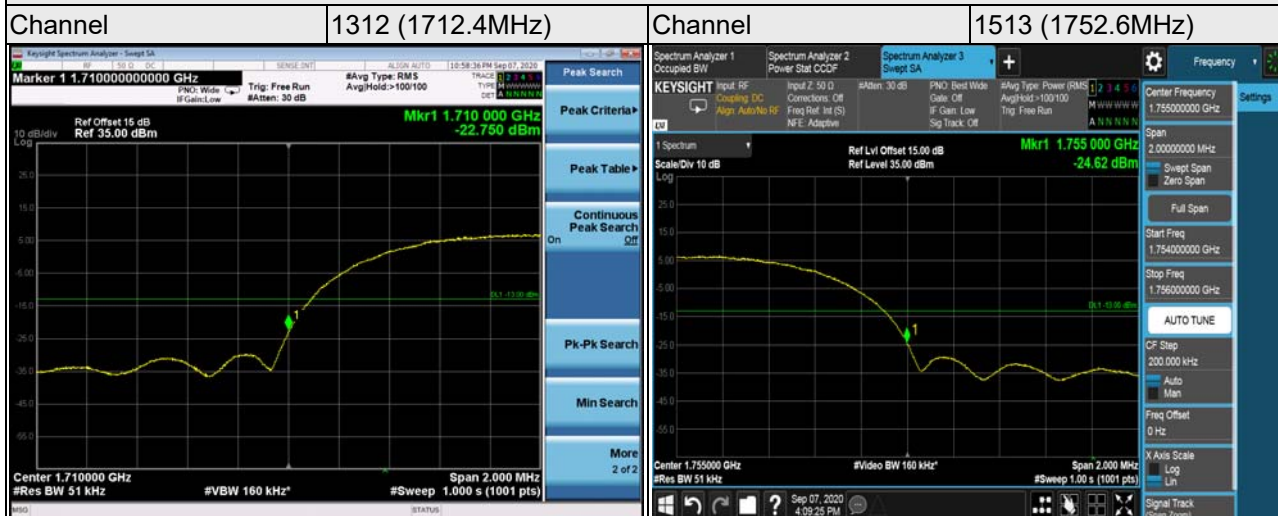


4.5.3 Test Procedures

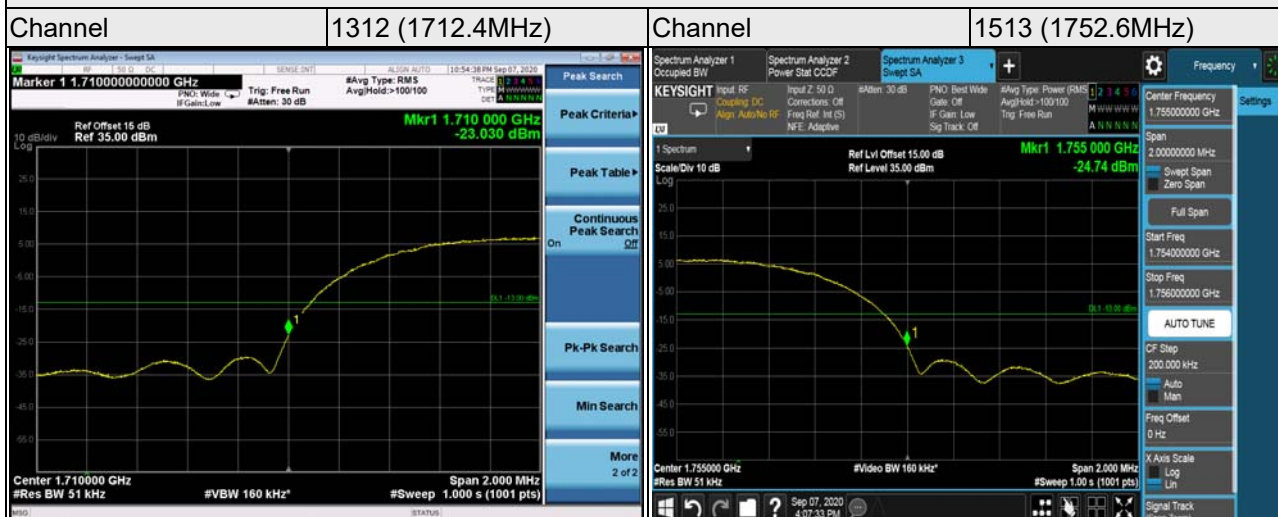
- a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. Band edge measurements were done at 2 channels: low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 2MHz. RB of the spectrum is 51kHz and VB of the spectrum is 160kHz (WCDMA / HSDPA / HSUPA).
- c. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 15kHz or 30kHz and VB of the spectrum is 51kHz or 100kHz (LTE Channel Bandwidth 1.4MHz).
- d. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz (LTE Channel Bandwidth 3MHz).
- e. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 62kHz and VB of the spectrum is 200kHz (LTE Channel Bandwidth 5MHz).
- f. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (LTE Channel Bandwidth 10MHz).
- g. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 150kHz and VB of the spectrum is 470kHz (LTE Channel Bandwidth 15MHz).
- h. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz (LTE Channel Bandwidth 20MHz).
- i. Record the max trace plot into the test report.

4.5.4 Test Results

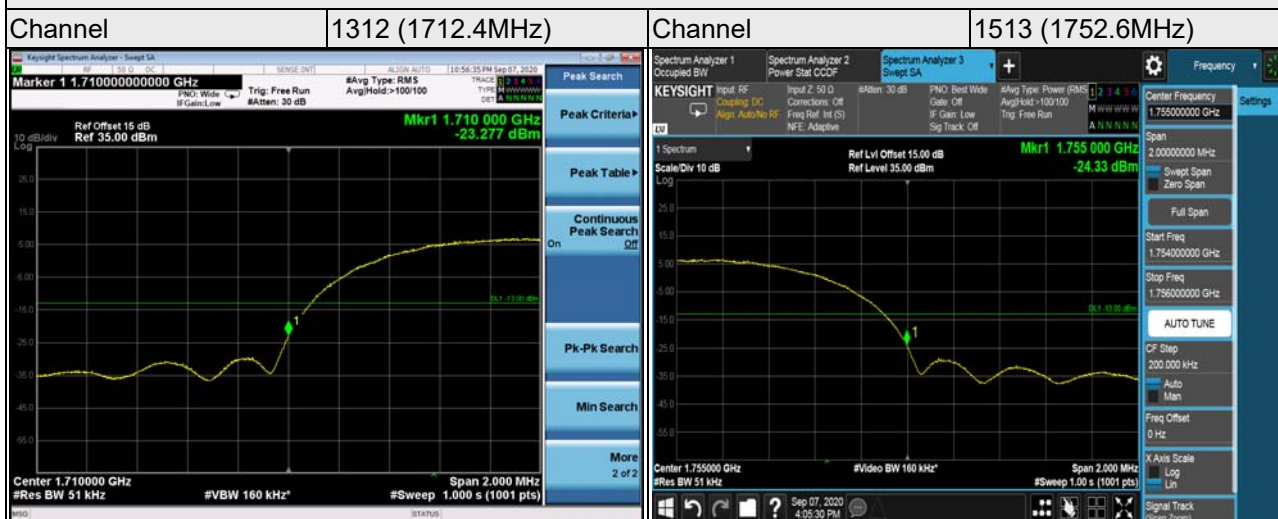
WCDMA Band 4



HSDPA

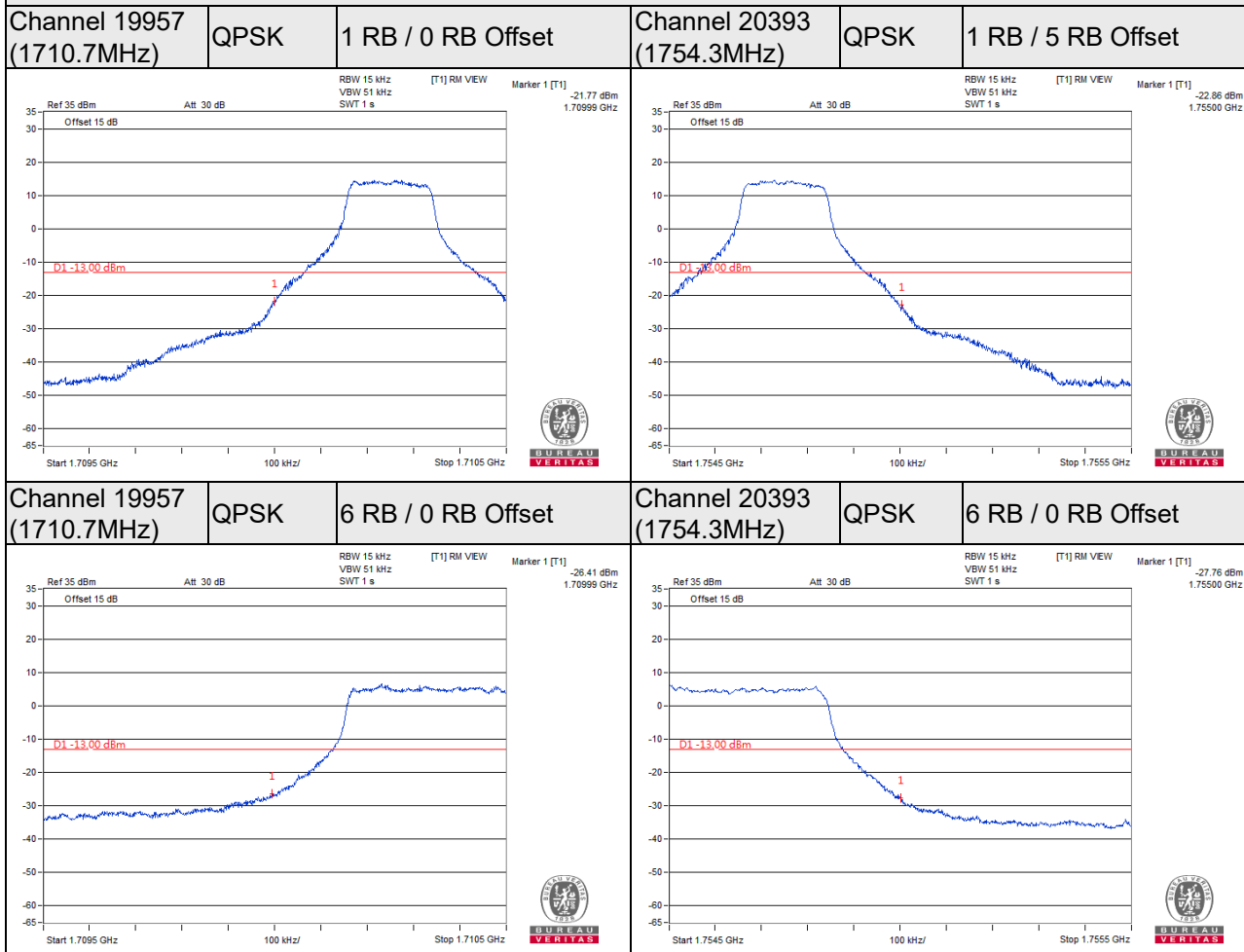


HSUPA



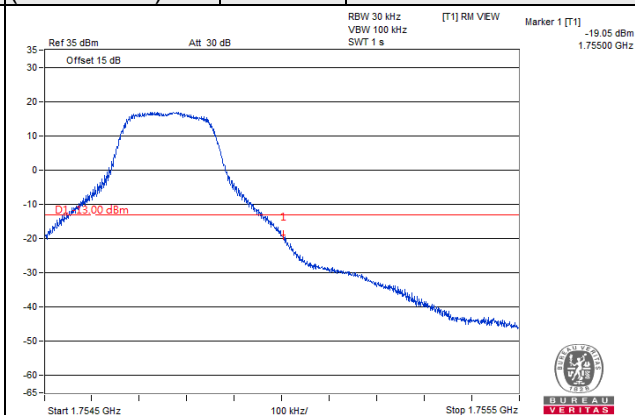
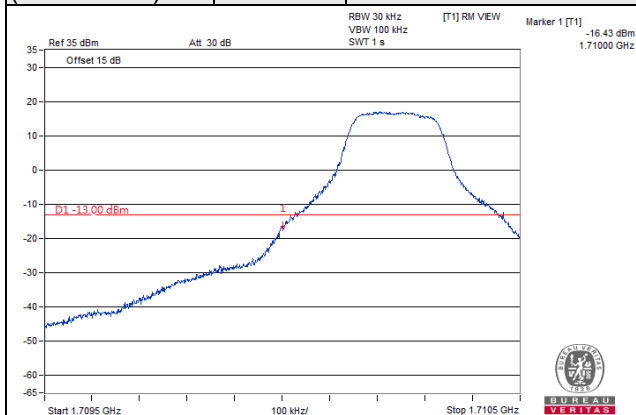
LTE Band 4

Channel Bandwidth: 1.4MHz

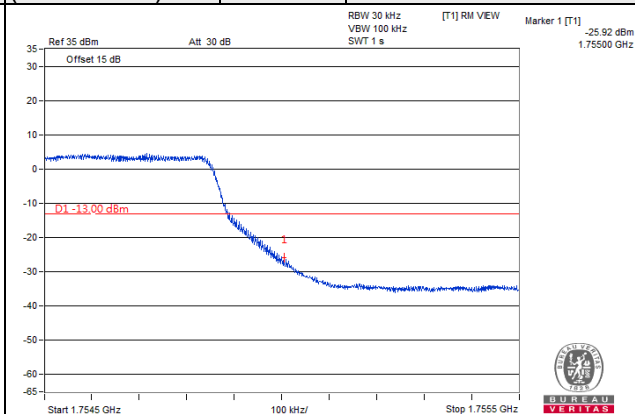
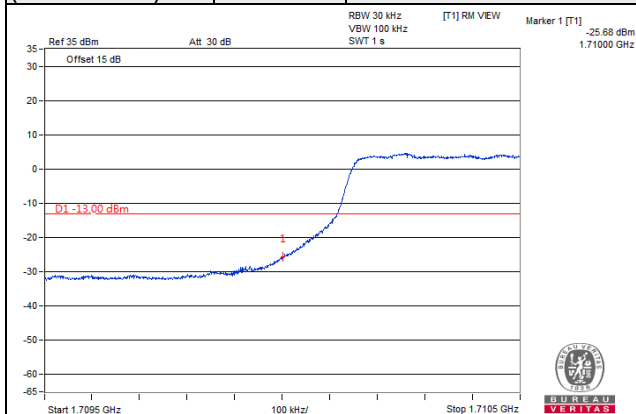


Channel Bandwidth: 3MHz

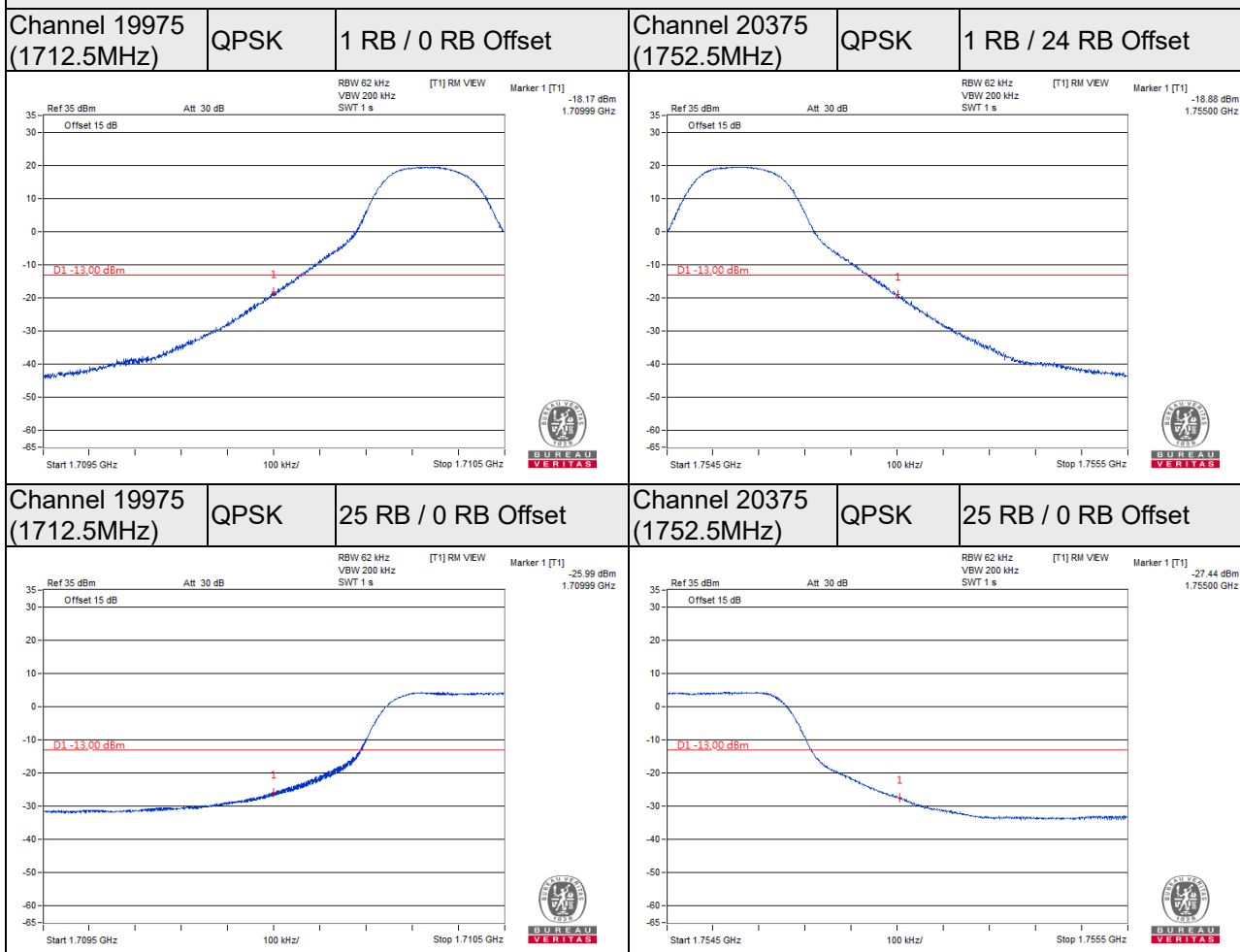
Channel 19965 (1711.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	QPSK	1 RB / 14 RB Offset
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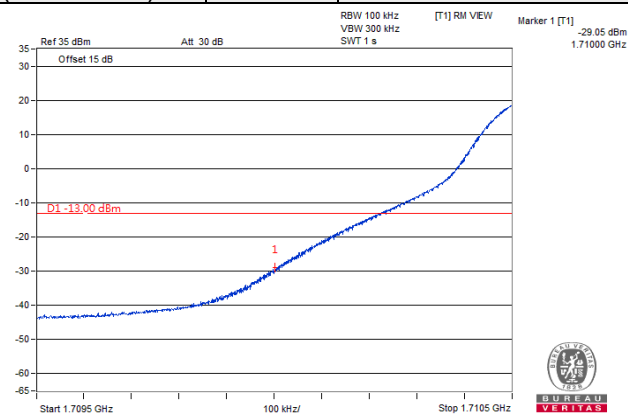
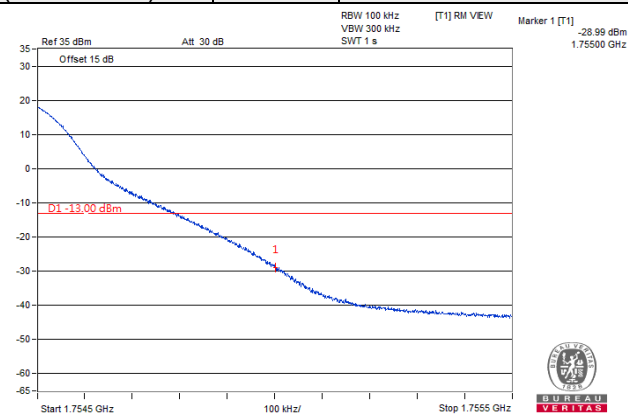
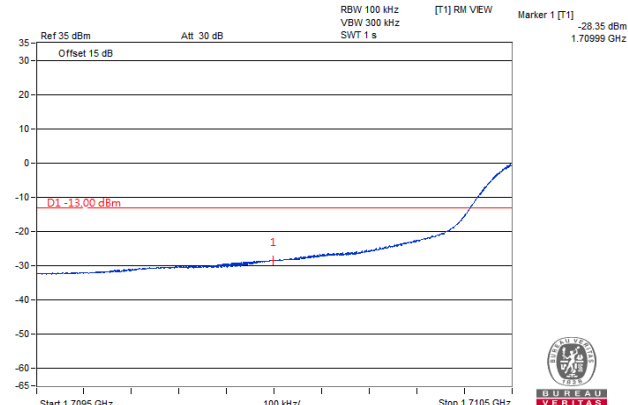
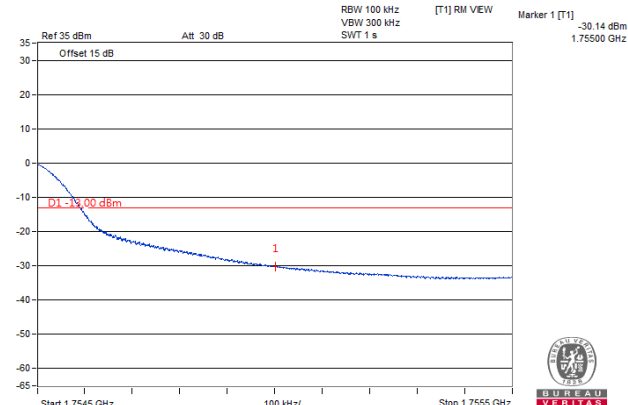
Channel 19965 (1711.5MHz)	QPSK	15 RB / 0 RB Offset	Channel 20385 (1753.5MHz)	QPSK	15 RB / 0 RB Offset
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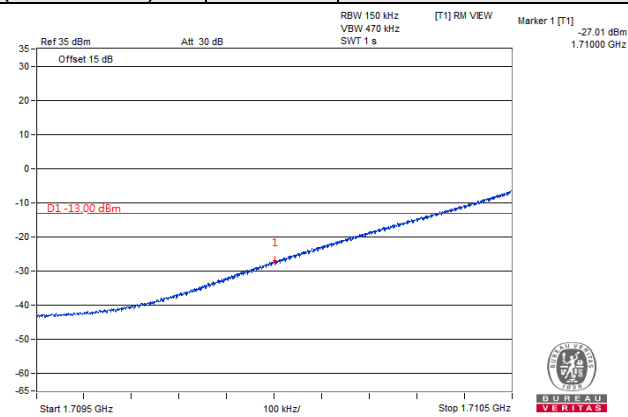
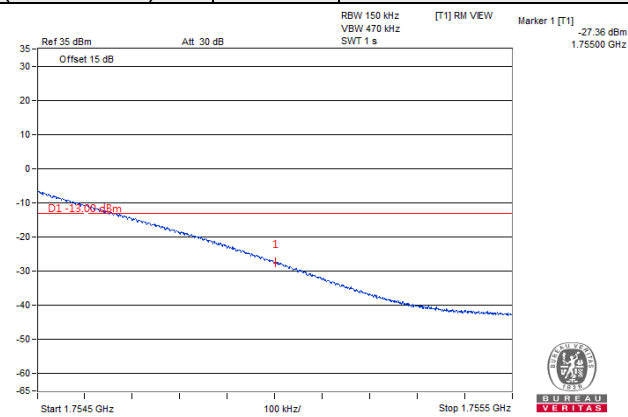
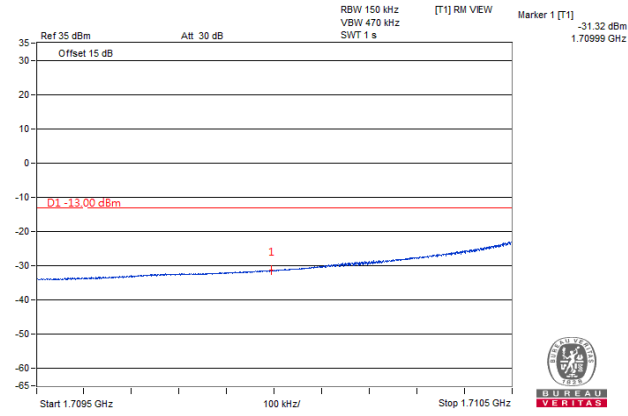
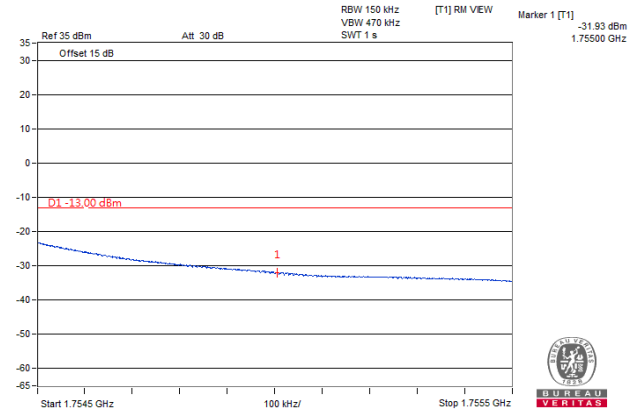
Channel Bandwidth: 5MHz



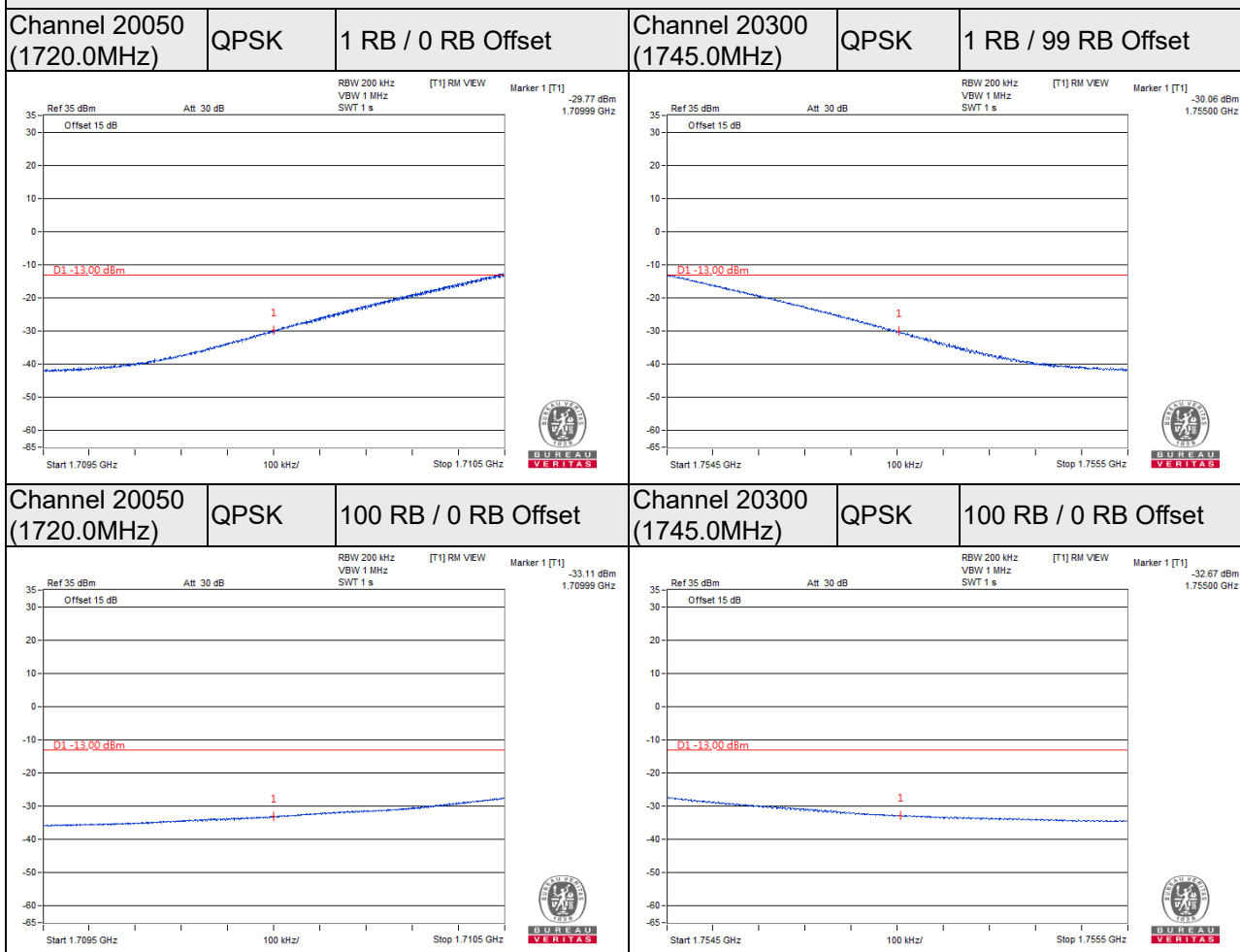
Channel Bandwidth: 10MHz

Channel 20000 (1715.0MHz)	QPSK	1 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	QPSK	1 RB / 49 RB Offset
					
Channel 20000 (1715.0MHz)	QPSK	50 RB / 0 RB Offset	Channel 20350 (1750.0MHz)	QPSK	50 RB / 0 RB Offset
					

Channel Bandwidth: 15MHz

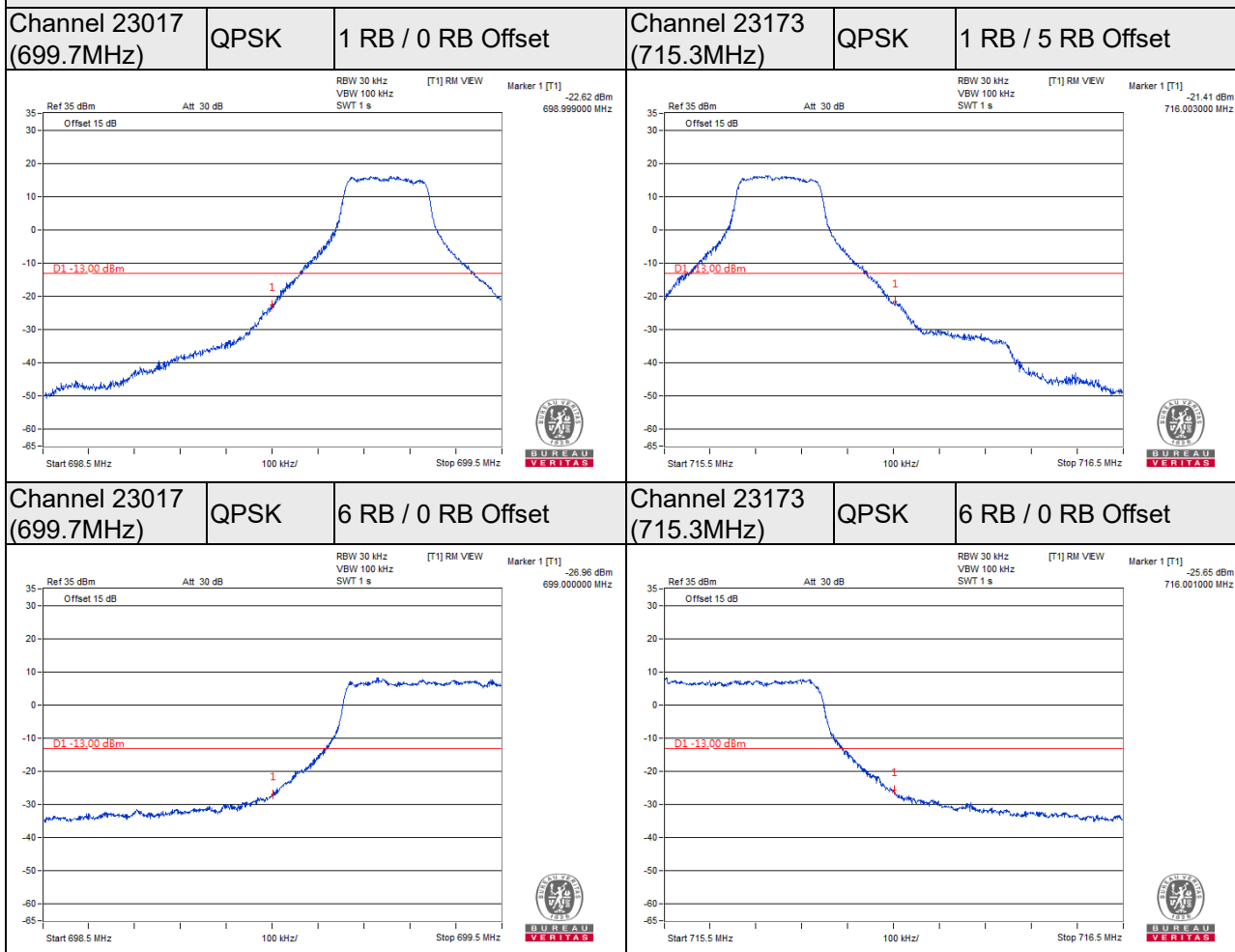
Channel 20025 (1717.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	1 RB / 74 RB Offset
					
Channel 20025 (1717.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 20325 (1747.5MHz)	QPSK	75 RB / 0 RB Offset
					

Channel Bandwidth: 20MHz

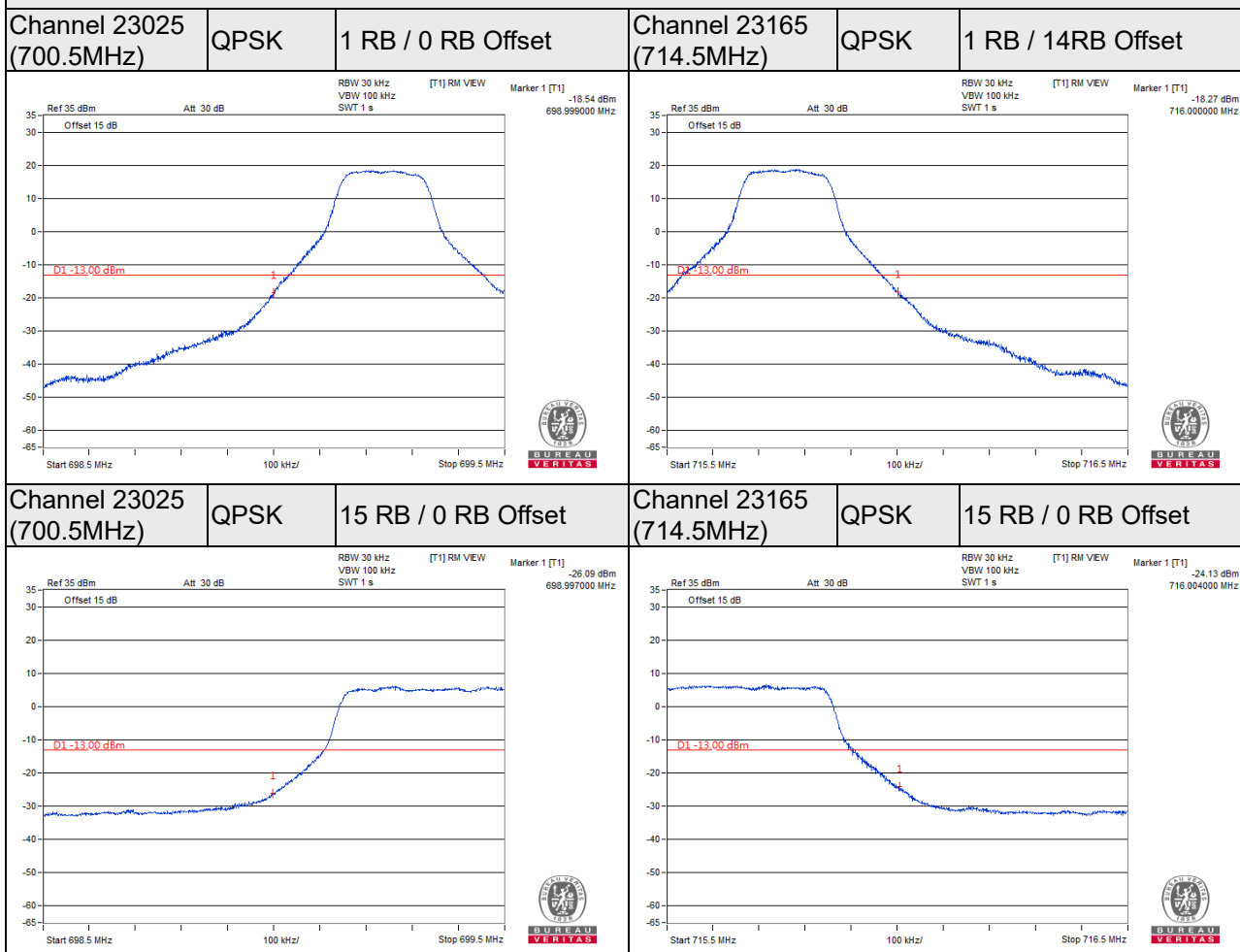


LTE Band 12

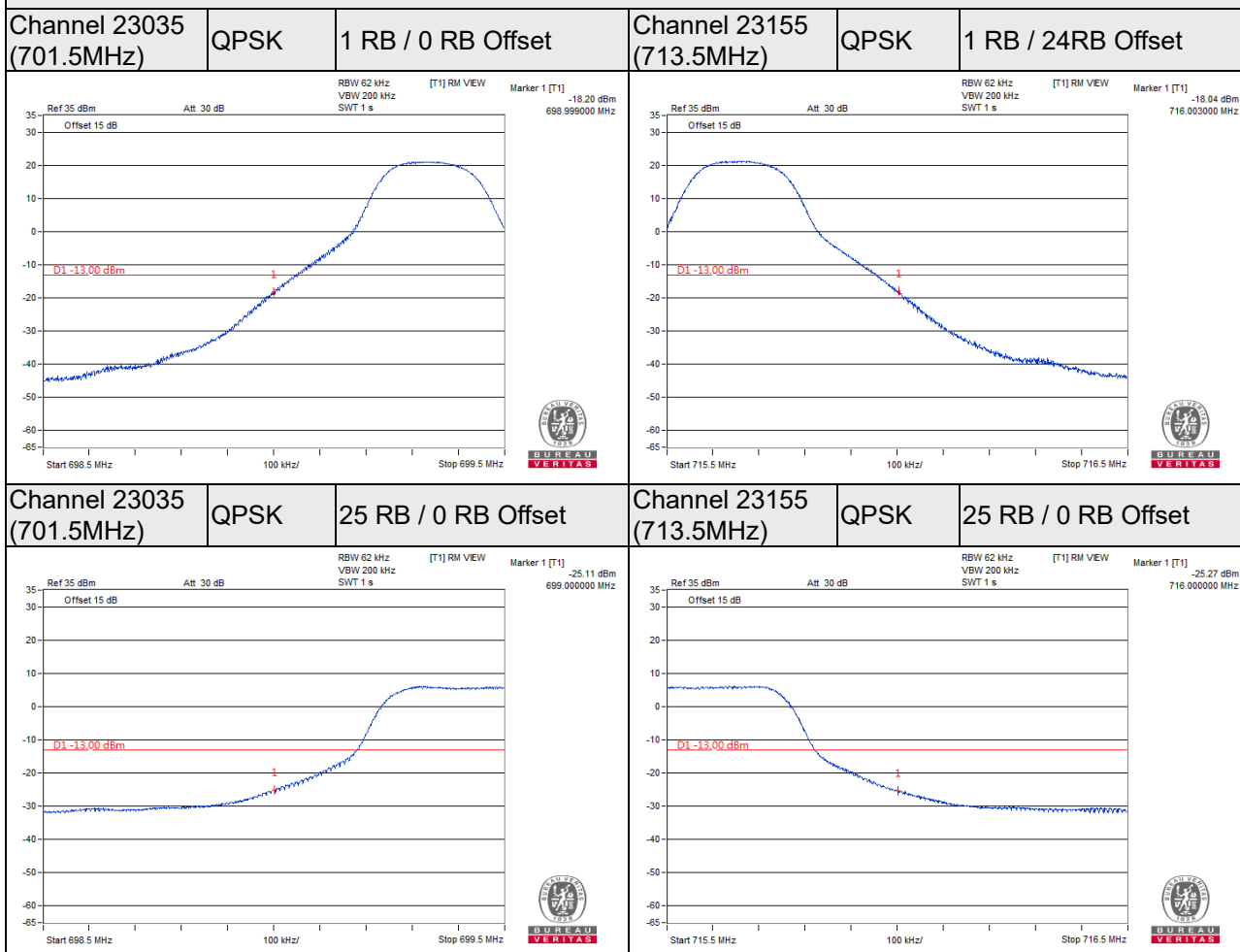
Channel Bandwidth: 1.4MHz



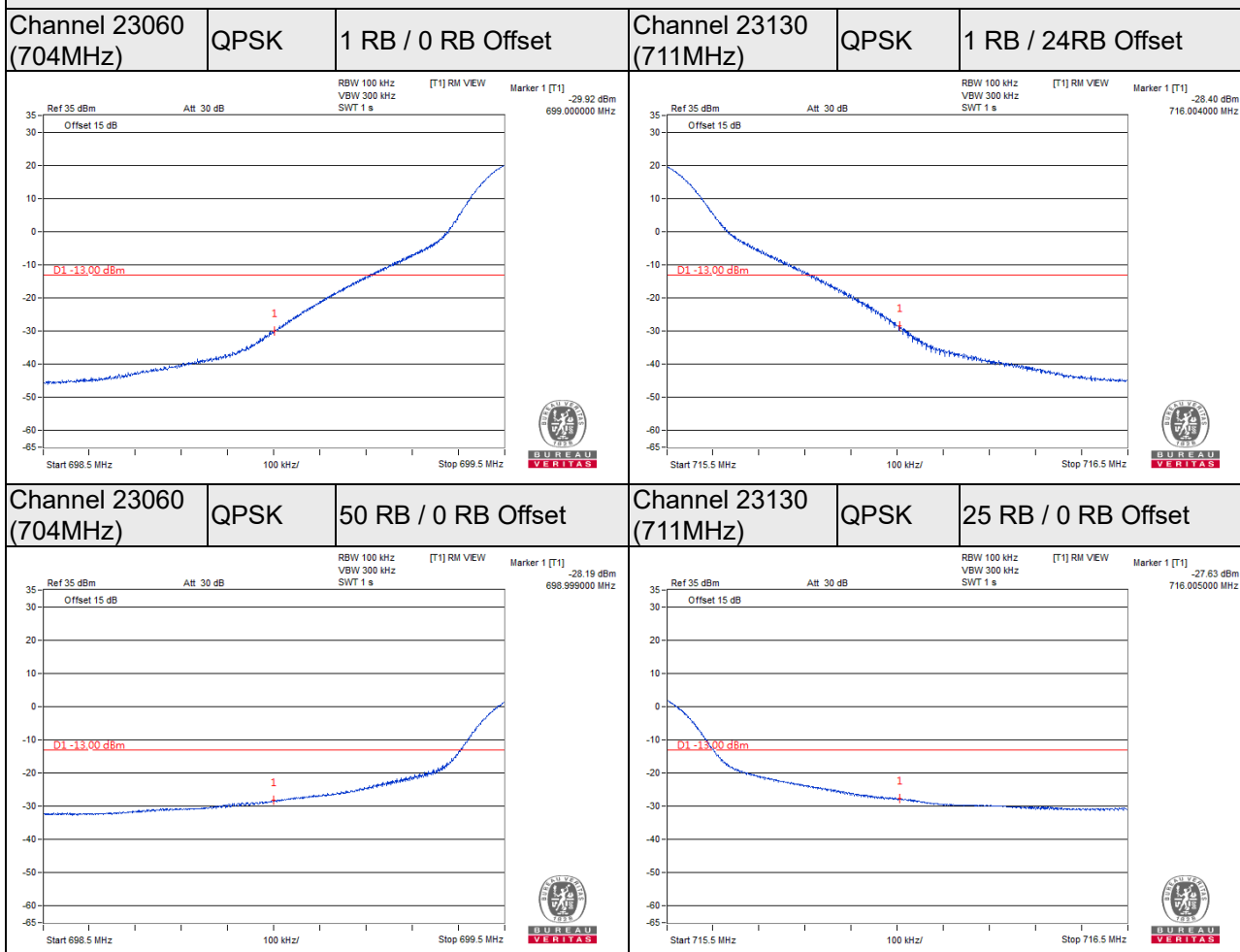
Channel Bandwidth: 3MHz



Channel Bandwidth: 5MHz

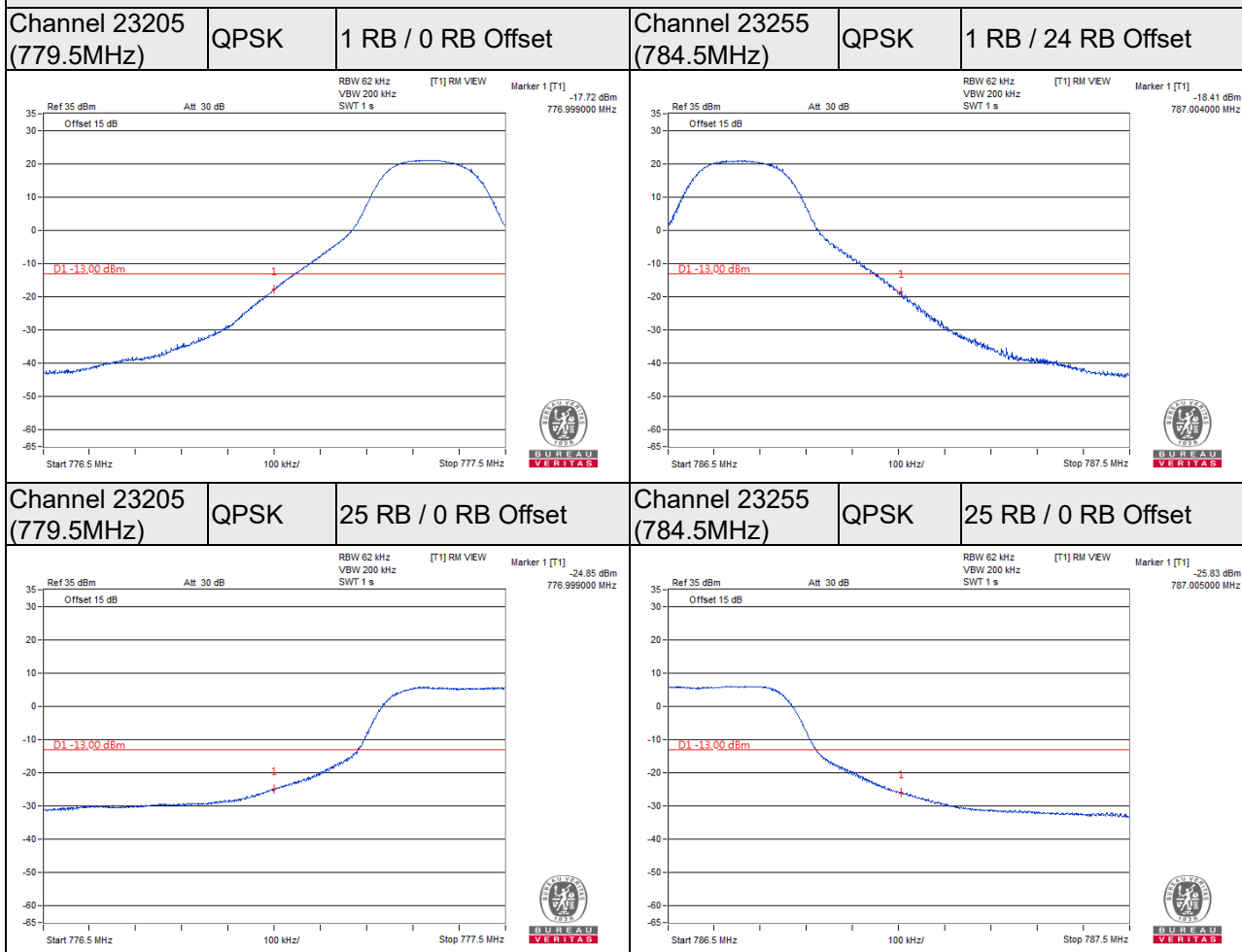


Channel Bandwidth: 10MHz

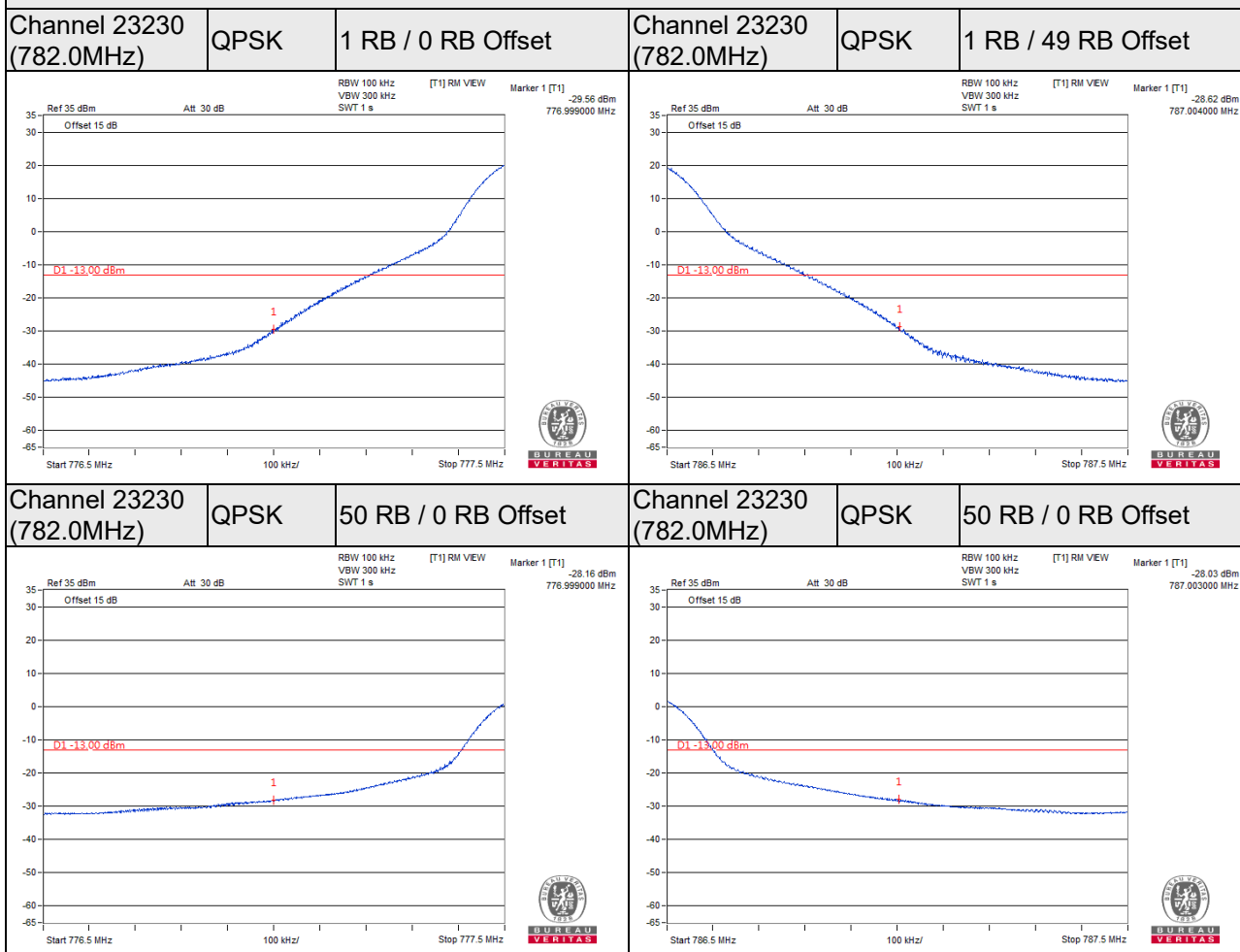


LTE Band 13

Channel Bandwidth: 5MHz

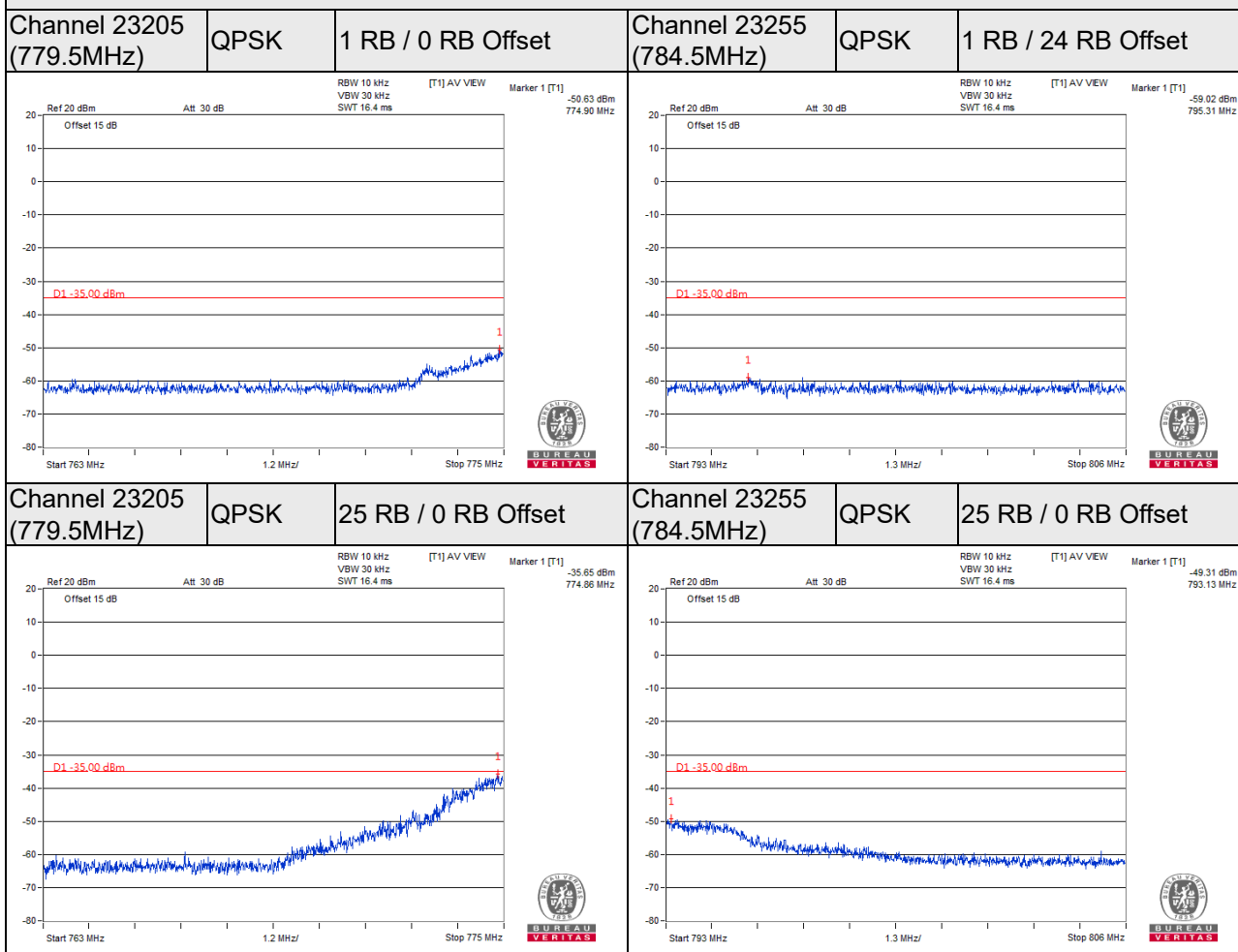


Channel Bandwidth: 10MHz

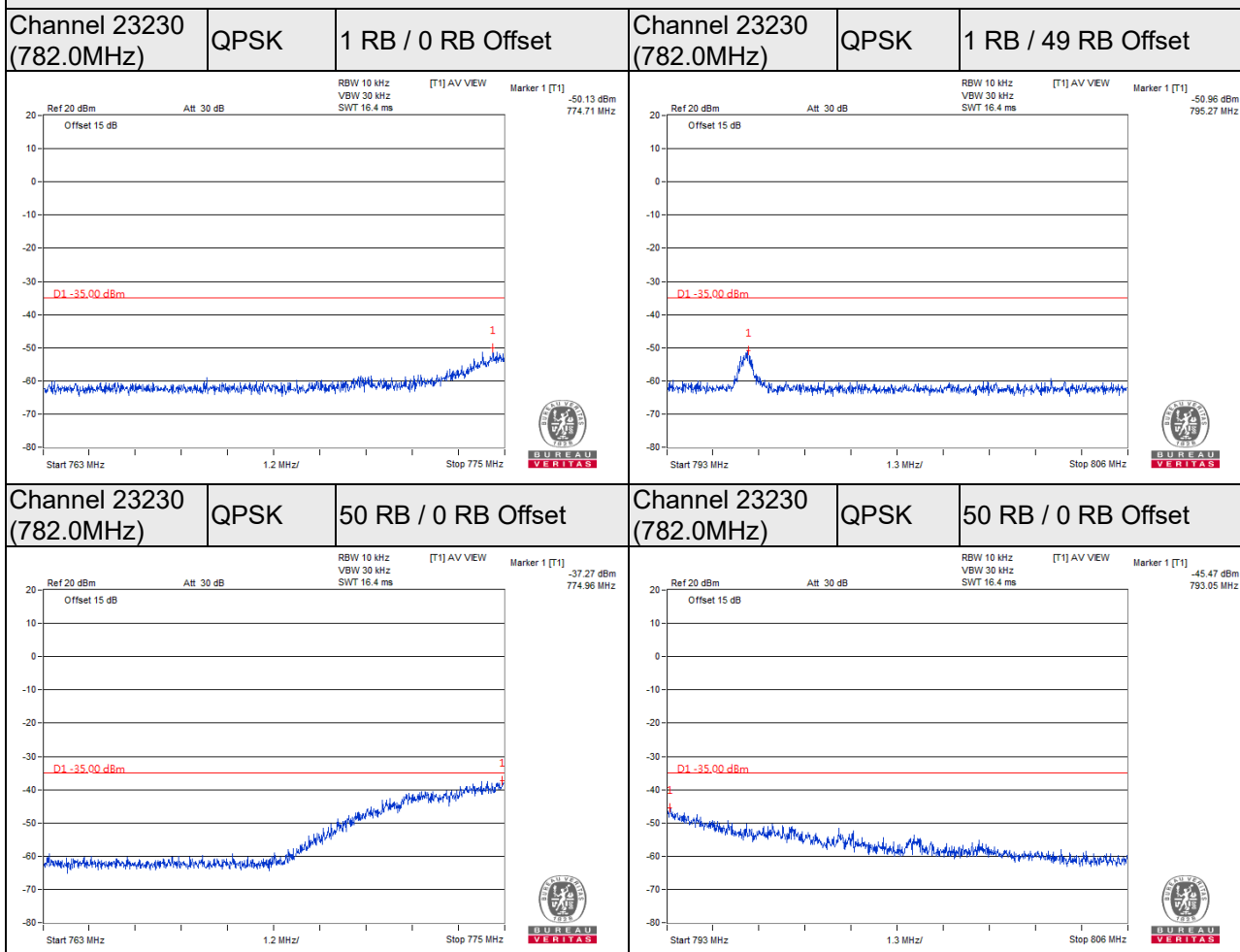


Emission Mask

Channel Bandwidth: 5MHz

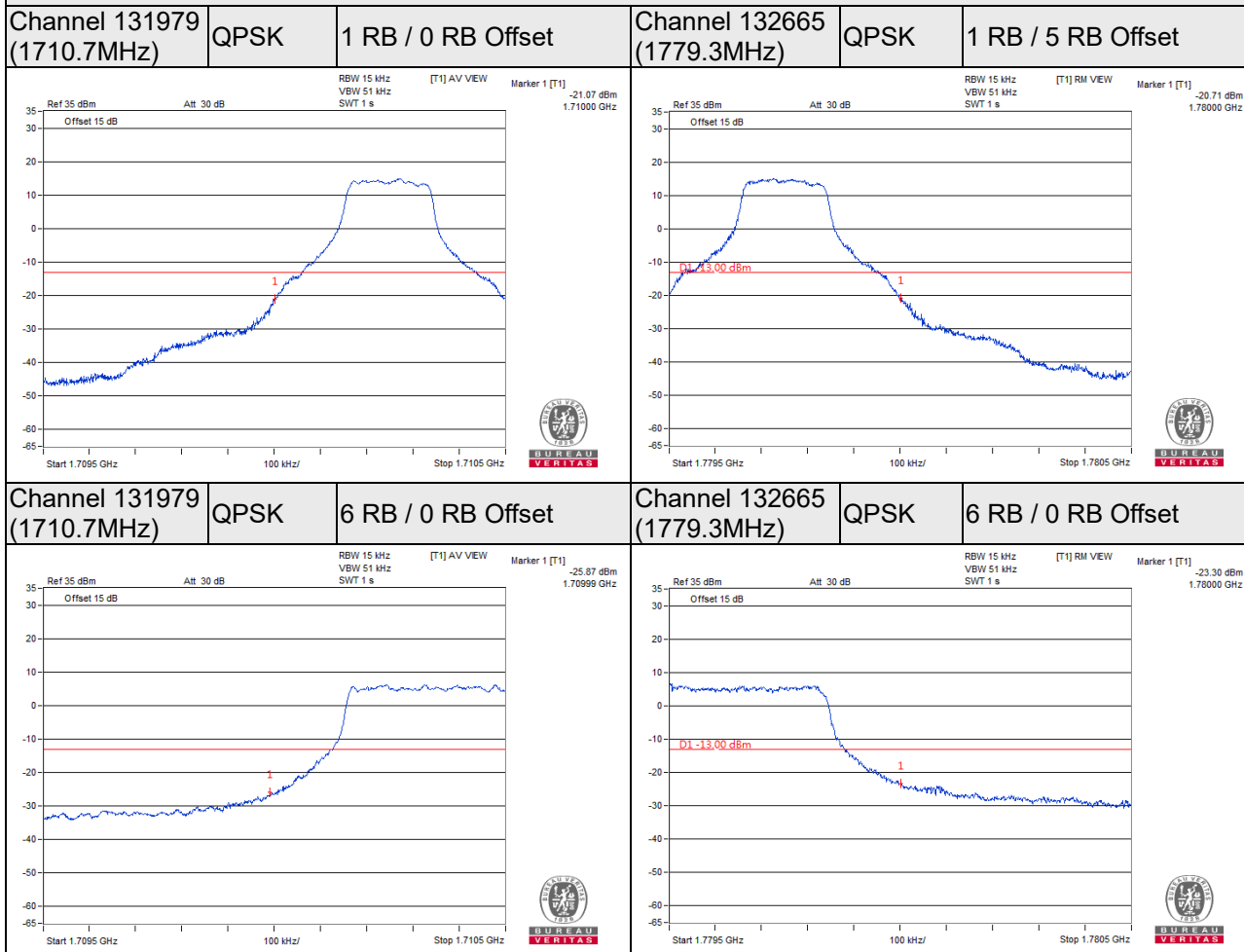


Channel Bandwidth: 10MHz

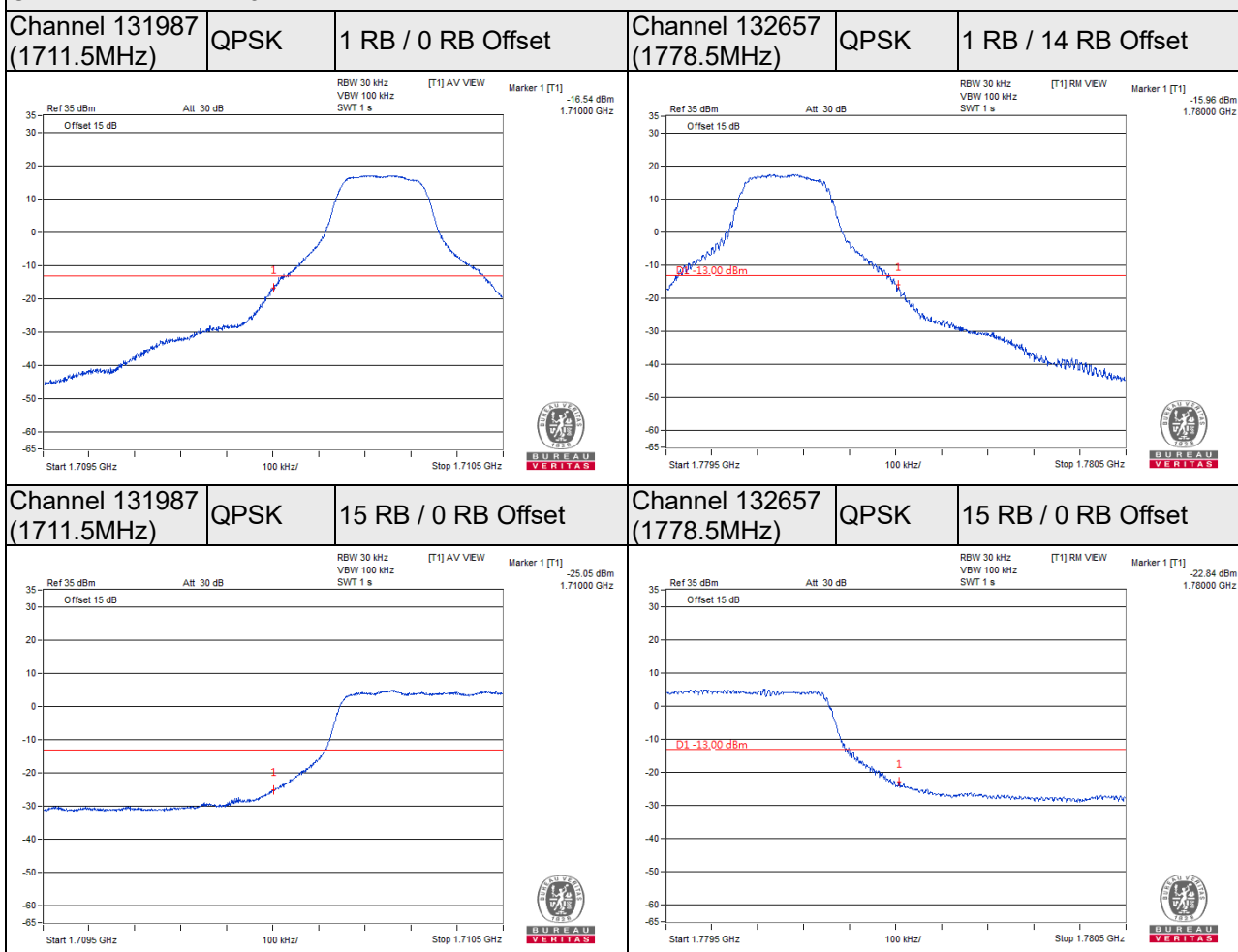


LTE Band 66

Channel Bandwidth: 1.4MHz



Channel Bandwidth: 3MHz



Channel Bandwidth: 5MHz

Channel 131997
(1712.5MHz)

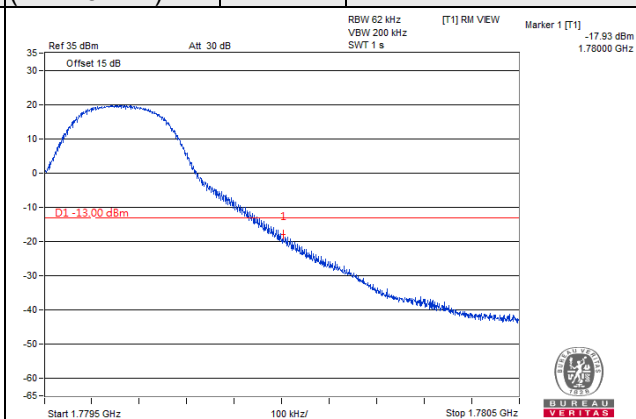
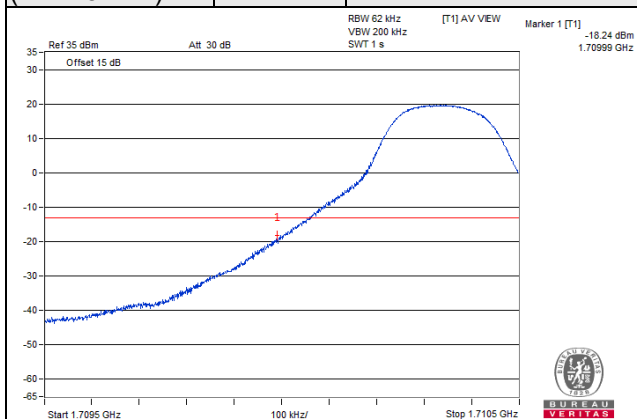
QPSK

1 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

1 RB / 24 RB Offset



Channel 131997
(1712.5MHz)

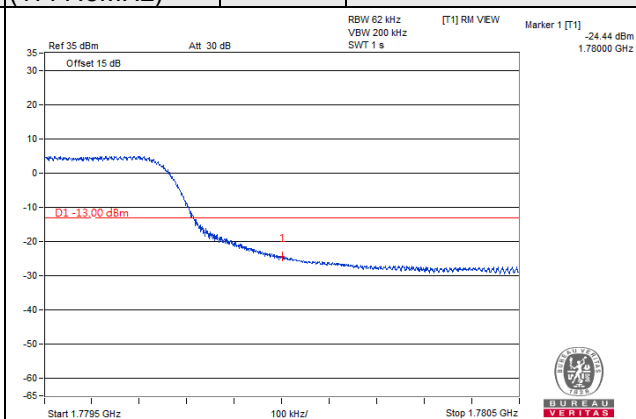
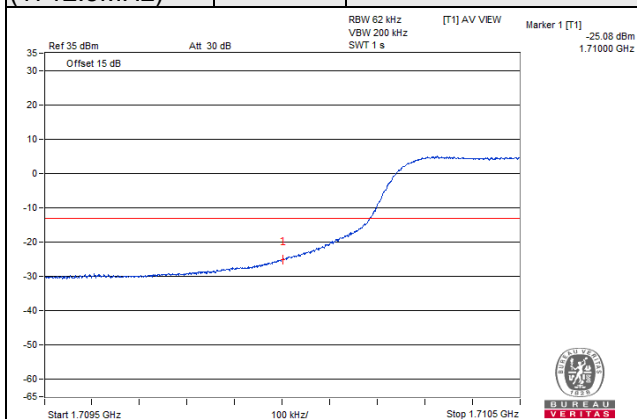
QPSK

25 RB / 0 RB Offset

Channel 132647
(1777.5MHz)

QPSK

25 RB / 0 RB Offset



Channel Bandwidth: 10MHz

Channel 132022
(1715.0MHz)

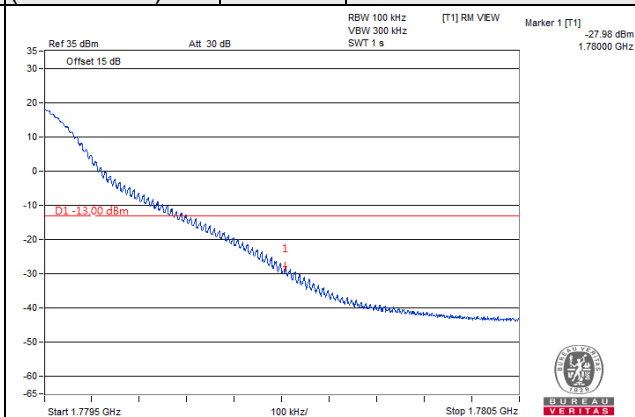
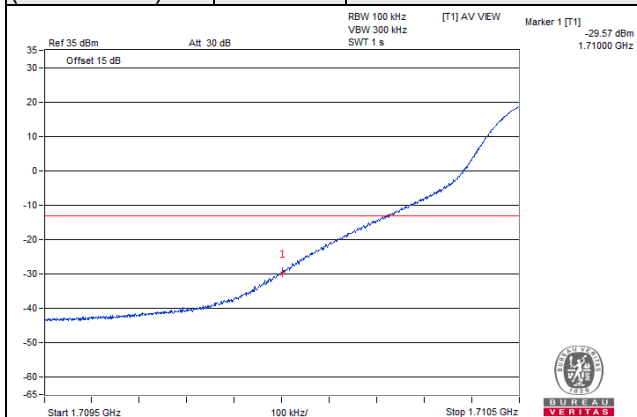
QPSK

1 RB / 0 RB Offset

Channel 132622
(1775.0MHz)

QPSK

1 RB / 49 RB Offset



Channel 132022
(1715.0MHz)

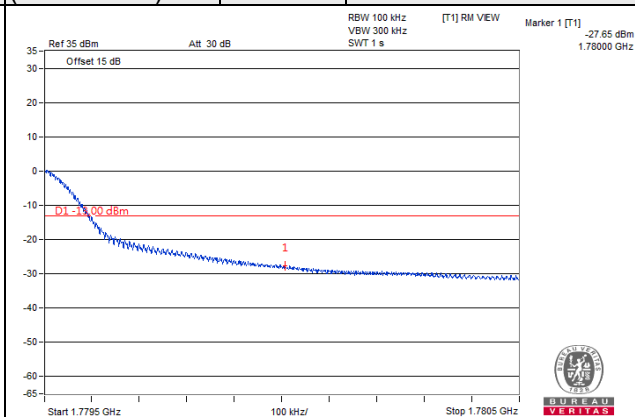
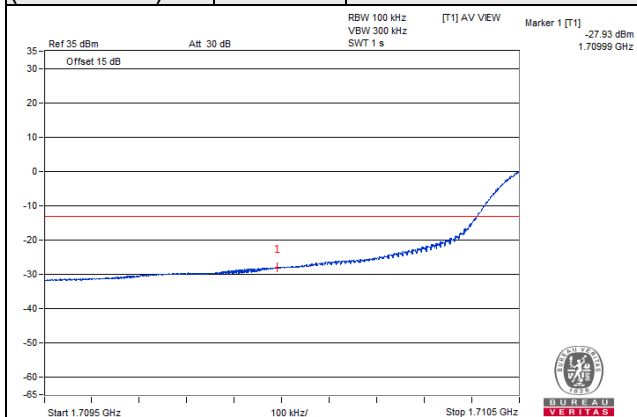
QPSK

50 RB / 0 RB Offset

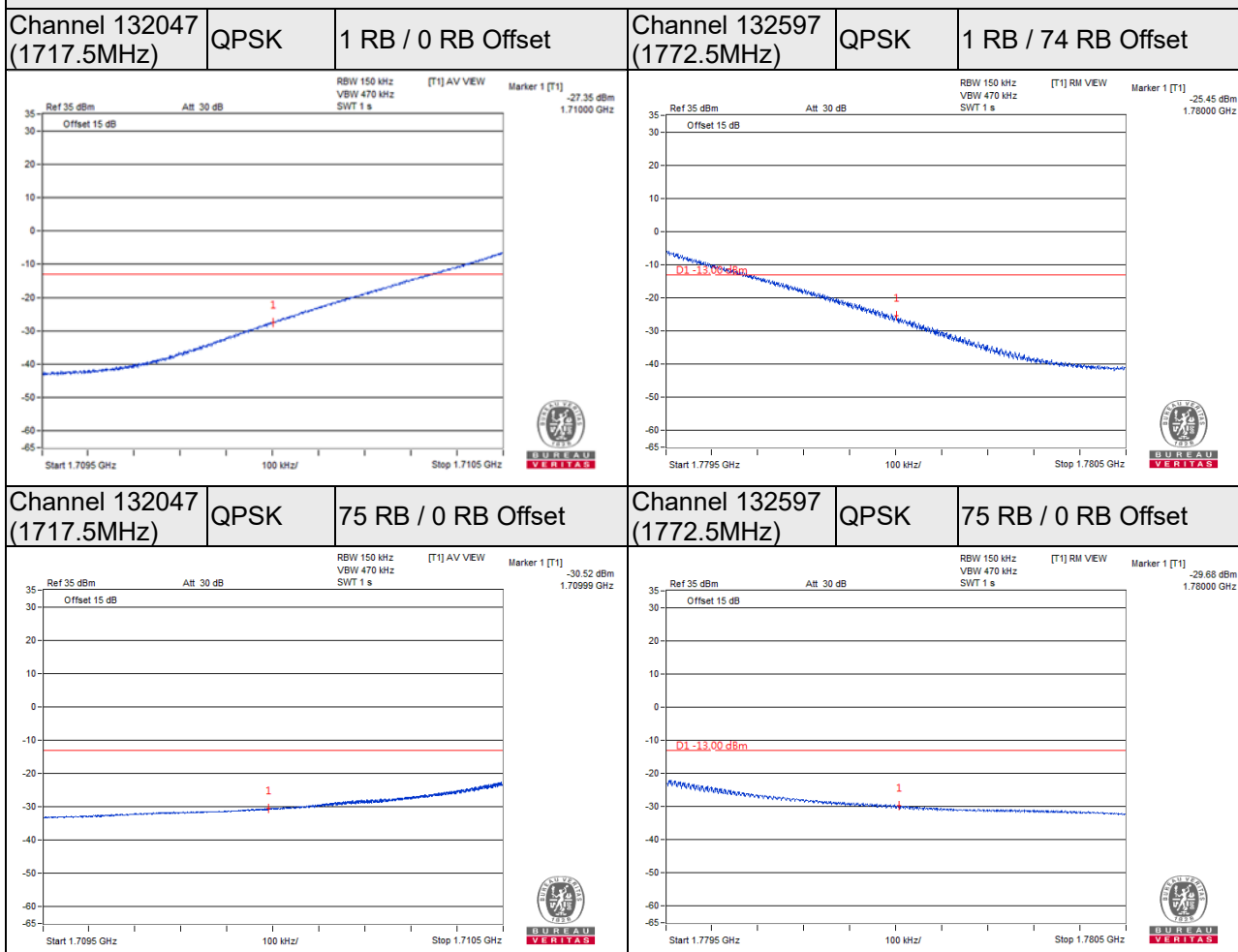
Channel 132622
(1775.0MHz)

QPSK

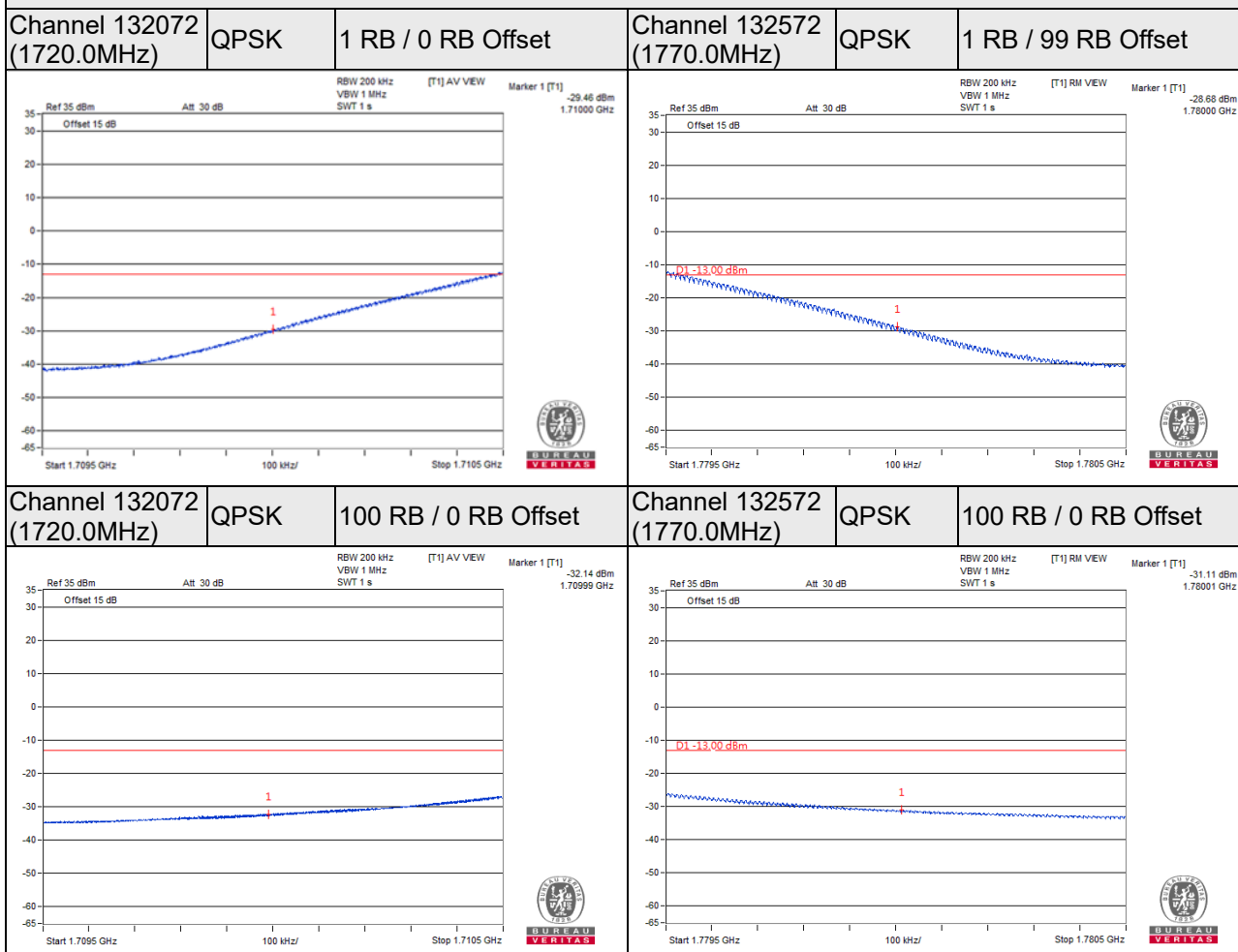
50 RB / 0 RB Offset



Channel Bandwidth: 15MHz

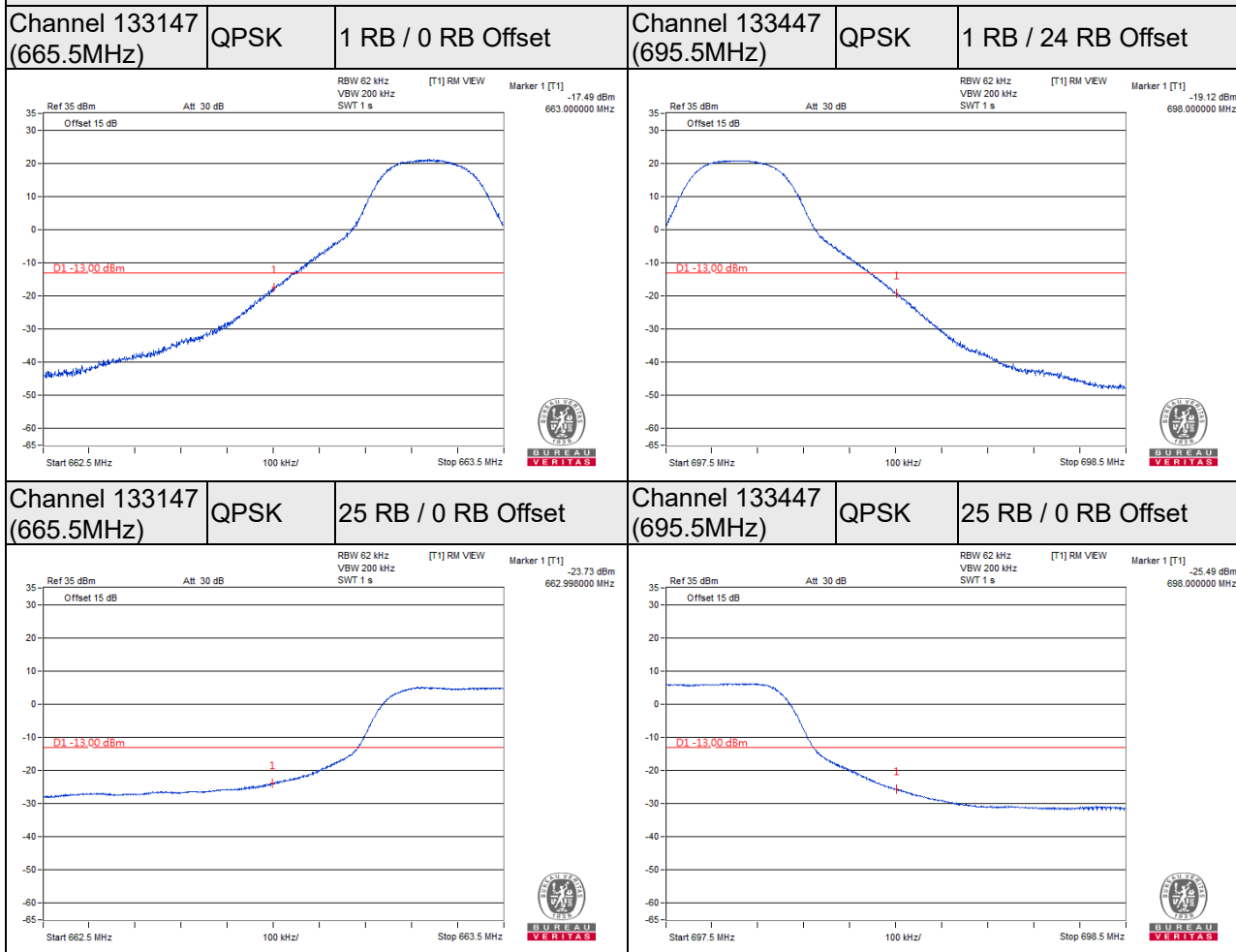


Channel Bandwidth: 20MHz

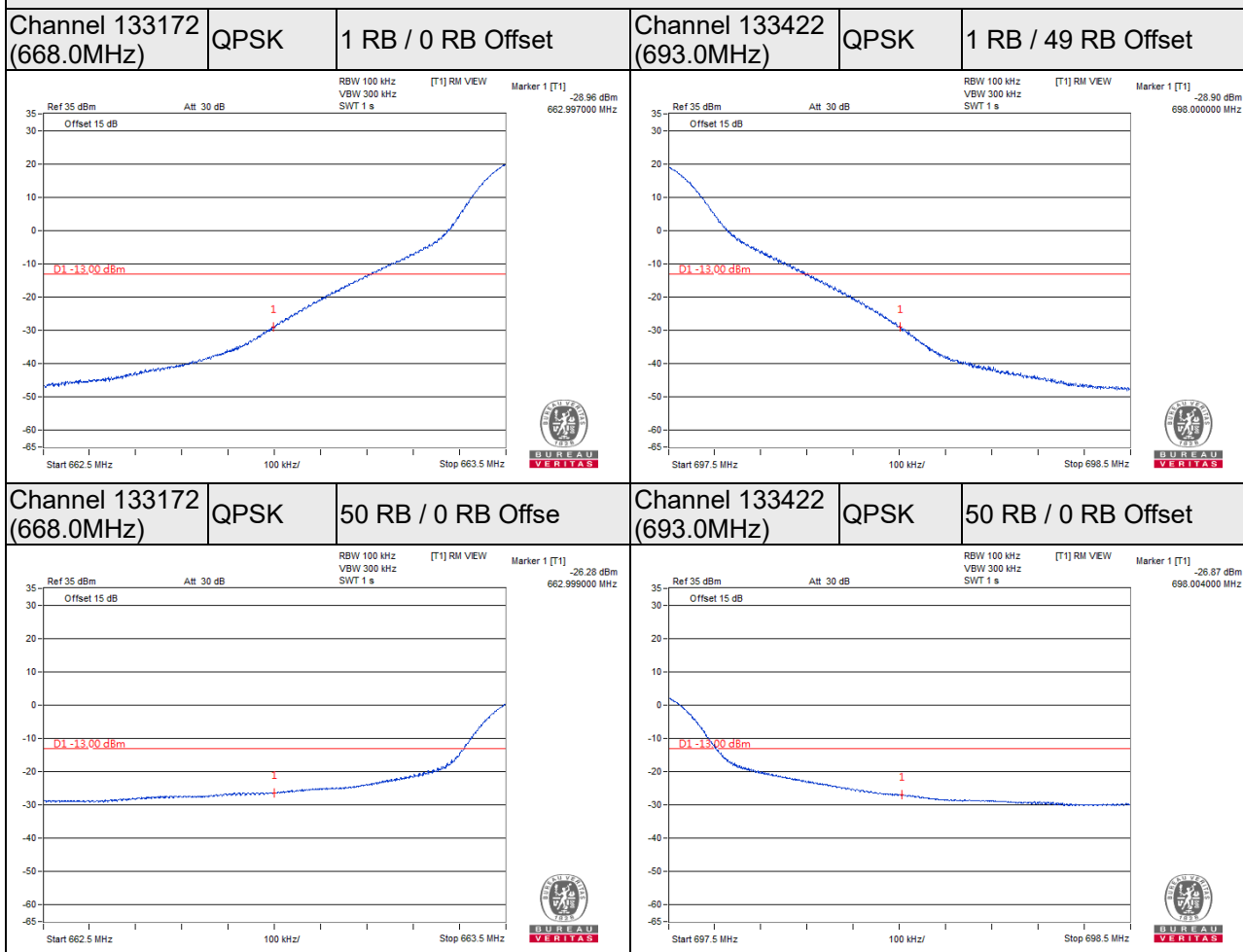


LTE Band 71

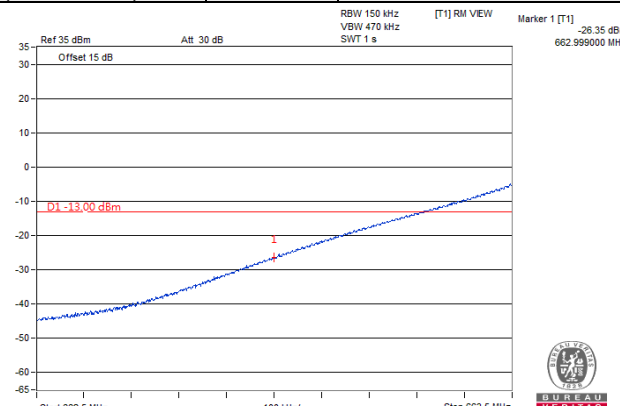
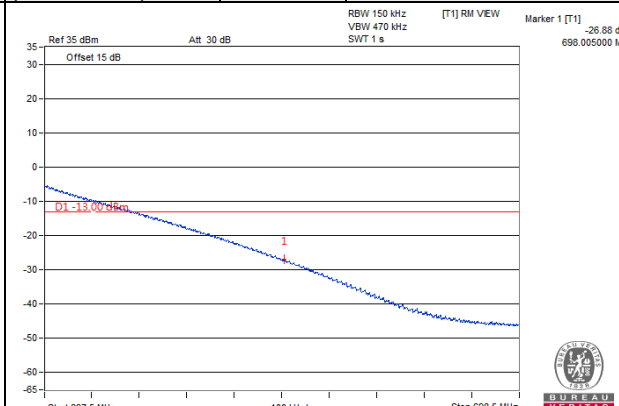
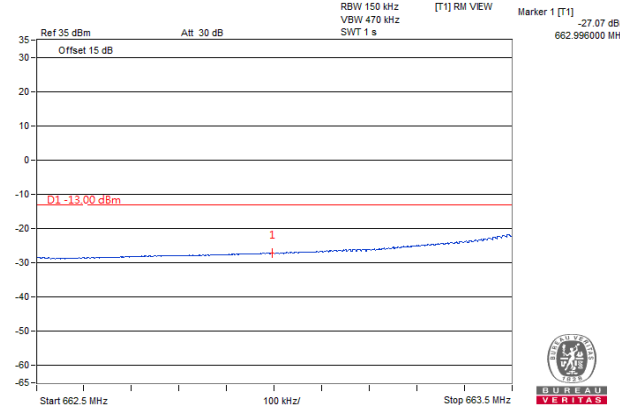
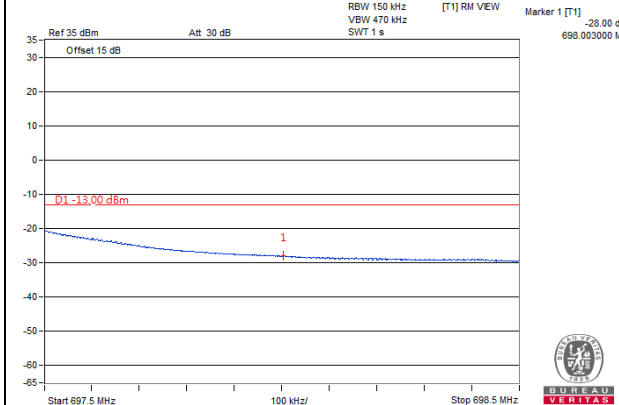
Channel Bandwidth: 5MHz



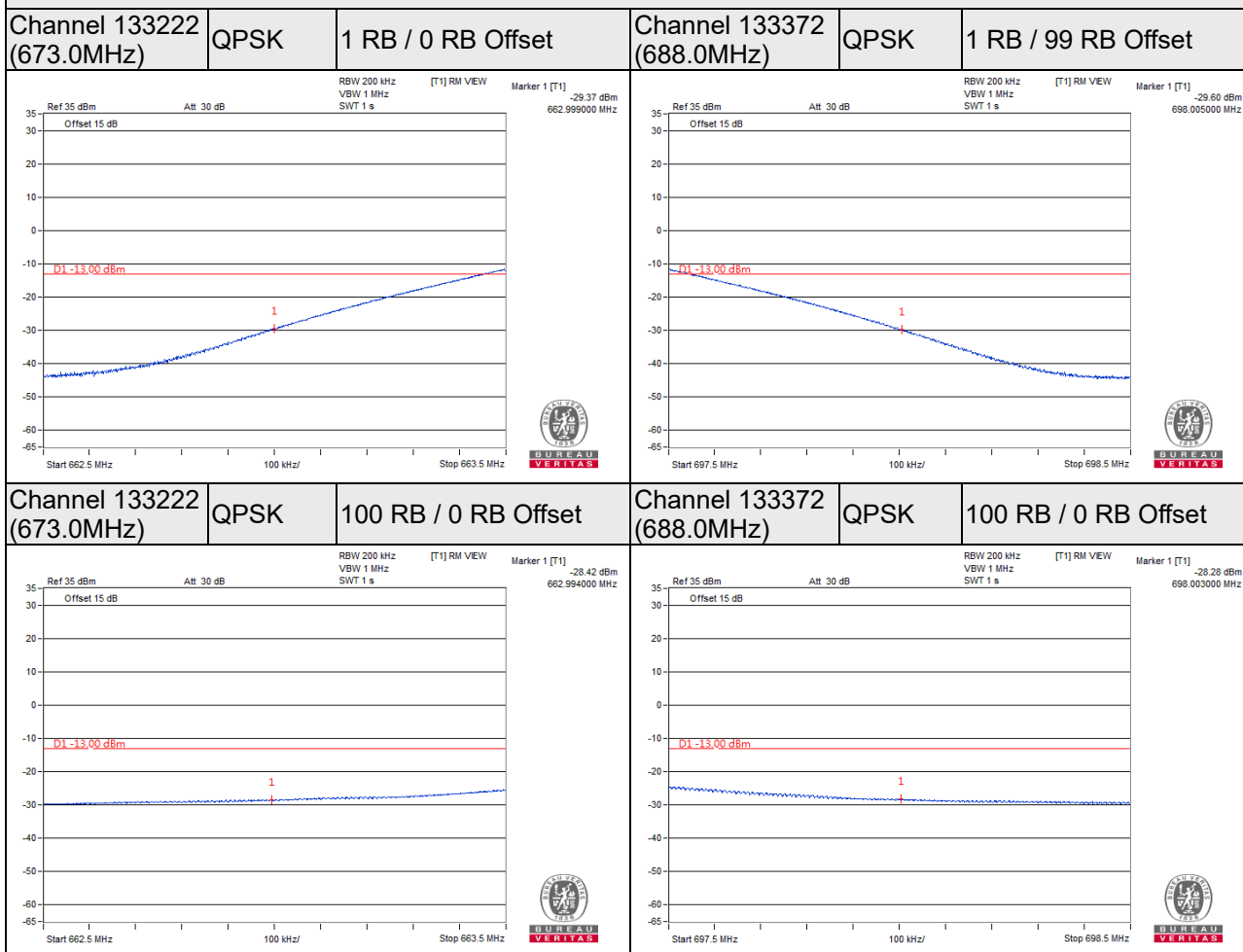
Channel Bandwidth: 10MHz



Channel Bandwidth: 15MHz

Channel 133197 (670.5MHz)	QPSK	1 RB / 0 RB Offset	Channel 133397 (690.5MHz)	QPSK	1 RB / 74 RB Offset
Ref 35 dBm Att 30 dB RBW 150 kHz [T1] RM VIEW Marker 1 [T1] Offset 15 dB -26.35 dBm D1 -13.00 dBm Start 662.5 MHz 100 kHz/ Stop 663.5 MHz 			Ref 35 dBm Att 30 dB RBW 150 kHz [T1] RM VIEW Marker 1 [T1] Offset 15 dB -26.88 dBm D1 -13.00 dBm Start 697.5 MHz 100 kHz/ Stop 698.5 MHz 		
Channel 133197 (670.5MHz)	QPSK	75 RB / 0 RB Offset	Channel 133397 (690.5MHz)	QPSK	75 RB / 0 RB Offset
Ref 35 dBm Att 30 dB RBW 150 kHz [T1] RM VIEW Marker 1 [T1] Offset 15 dB -27.07 dBm D1 -13.00 dBm Start 662.5 MHz 100 kHz/ Stop 663.5 MHz 			Ref 35 dBm Att 30 dB RBW 150 kHz [T1] RM VIEW Marker 1 [T1] Offset 15 dB -28.00 dBm D1 -13.00 dBm Start 697.5 MHz 100 kHz/ Stop 698.5 MHz 		

Channel Bandwidth: 20MHz

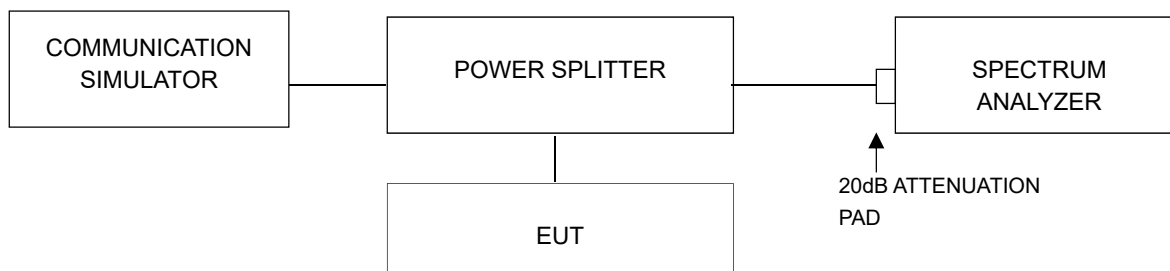


4.6 Peak to Average Ratio

4.6.1 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

4.6.2 Test Setup



4.6.3 Test Procedures

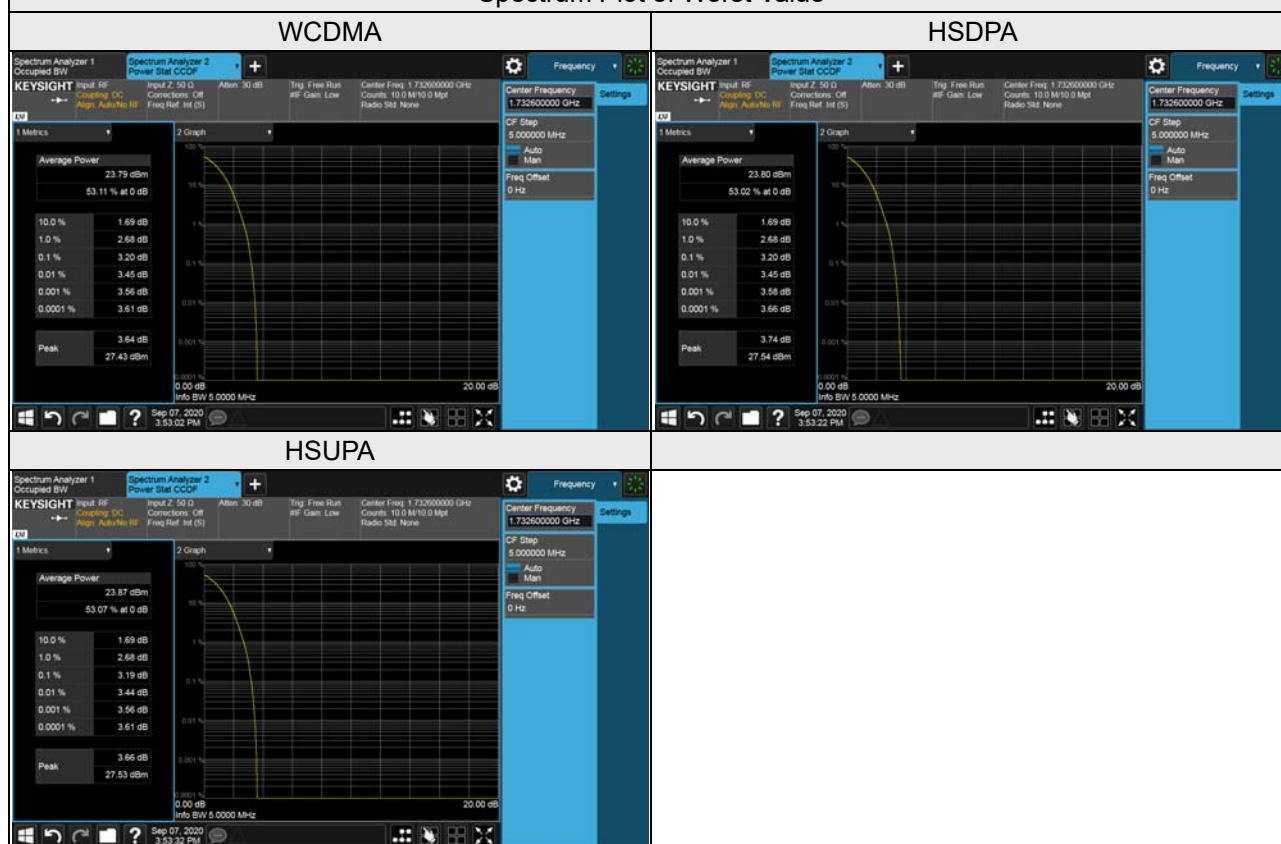
- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

WCDMA Band 4

Channel	Frequency (MHz)	Peak To Average Ratio (dB)		
		WCDMA	HSDPA	HSUPA
1312	1712.4	2.86	2.86	2.85
1413	1732.6	3.20	3.20	3.19
1513	1752.6	2.99	2.99	2.99

Spectrum Plot of Worst Value



LTE Band 4

LTE Band 4, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19957	1710.7	3.63	4.53
20175	1732.5	4.62	5.45
20393	1754.3	4.22	5.01
LTE Band 4, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19965	1711.5	3.59	4.51
20175	1732.5	4.61	5.42
20385	1753.5	4.21	5.11
LTE Band 4, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
19975	1712.5	3.64	4.41
20175	1732.5	4.63	5.41
20375	1752.5	4.22	5.06
LTE Band 4, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20000	1715.0	3.63	4.59
20175	1732.5	4.54	5.39
20350	1750.0	4.30	5.15
LTE Band 4, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20025	1717.5	3.70	4.55
20175	1732.5	4.45	5.32
20325	1747.5	4.48	5.23

LTE Band 4, Channel Bandwidth 20MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
20050	1720.0	3.69	4.57
20175	1732.5	4.41	5.23
20300	1745.0	4.59	5.37

Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 16QAM



5MHz / 16QAM



10MHz / 16QAM



15MHz / 16QAM



20MHz / 16QAM

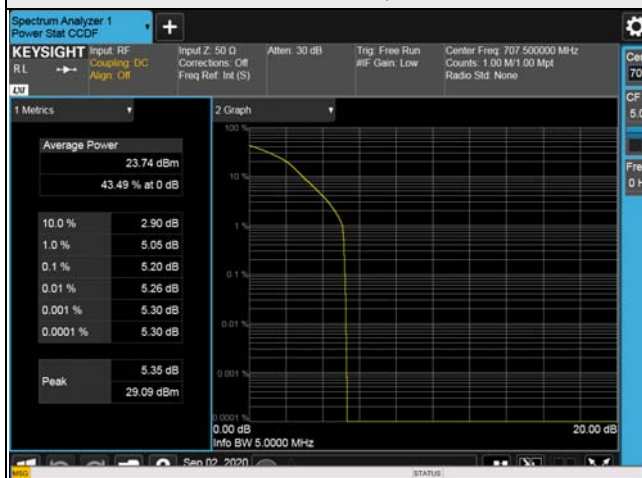


LTE Band 12

LTE Band 12, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23017	699.7	4.28	5.08
23095	707.5	4.39	5.20
23173	715.3	4.11	4.86
LTE Band 12, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23025	700.5	4.30	5.11
23095	707.5	4.40	5.18
23165	714.5	4.22	5.04
LTE Band 12, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23035	701.5	4.25	5.08
23095	707.5	4.34	5.12
23155	713.5	4.29	5.03
LTE Band 12, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23060	704.0	4.27	5.13
23095	707.5	4.35	5.11
23130	711.0	4.36	5.17

Spectrum Plot of Worst Value

1.4MHz / 16QAM



3MHz / 16QAM



5MHz / 16QAM

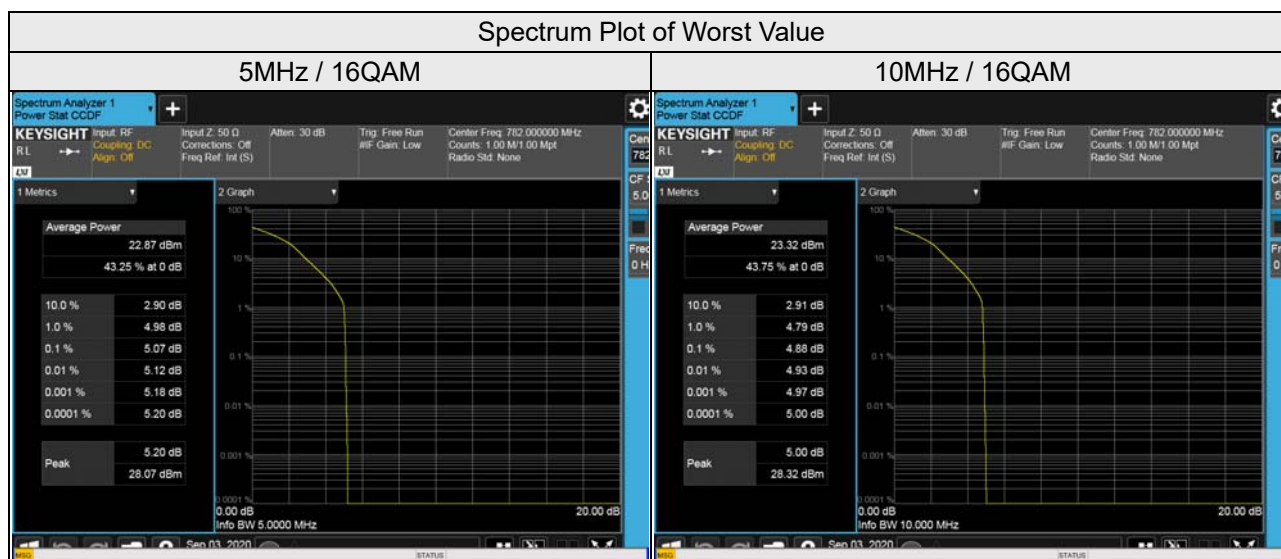


10MHz / 16QAM



LTE Band 13

LTE Band 13, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23205	779.5	4.02	4.96
23230	782.0	4.11	5.07
23255	784.5	4.12	5.02
LTE Band 13, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
23230	782.0	3.98	4.88



LTE Band 66

LTE Band 66, Channel Bandwidth 1.4MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
131979	1710.7	3.70	4.46
132322	1745.0	4.30	5.19
132665	1779.3	3.14	4.11
LTE Band 66, Channel Bandwidth 3MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
131987	1711.5	3.56	4.54
132322	1745.0	4.34	5.24
132657	1778.5	3.41	4.34
LTE Band 66, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
131997	1712.5	3.73	4.37
132322	1745.0	4.38	5.23
132647	1777.5	3.61	4.60
LTE Band 66, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
132022	1715.0	3.64	4.63
132322	1745.0	4.45	5.26
132622	1775.0	4.13	5.09
LTE Band 66, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
132047	1717.5	3.61	4.54
132322	1745.0	4.51	5.36
132597	1772.5	4.42	5.22

LTE Band 66, Channel Bandwidth 20MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
132072	1720.0	3.65	4.51
132322	1745.0	4.52	5.40
132572	1770.0	4.31	5.24

Spectrum Plot of Worst Value

1.4MHz / 16QAM



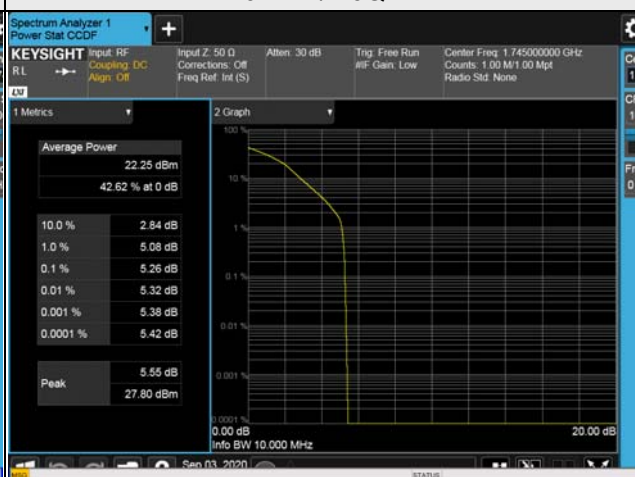
3MHz / 16QAM



5MHz / 16QAM



10MHz / 16QAM



15MHz / 16QAM



20MHz / 16QAM



LTE Band 71

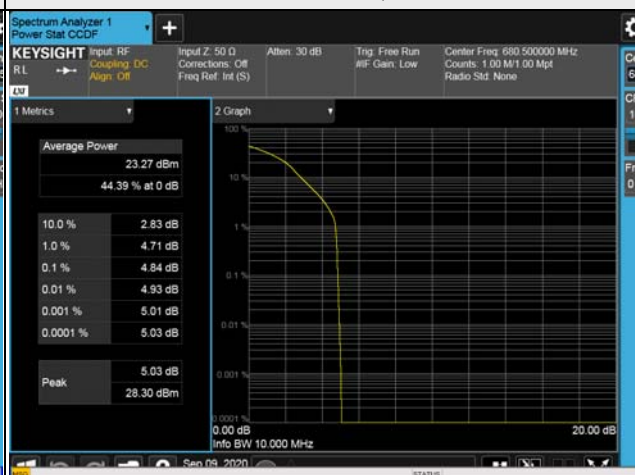
LTE Band 71, Channel Bandwidth 5MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
133147	665.5	3.50	4.49
133297	680.5	4.09	4.92
133447	695.5	4.20	5.06
LTE Band 71, Channel Bandwidth 10MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
133172	668	3.36	4.49
133297	680.5	3.95	4.84
133422	693	3.74	4.72
LTE Band 71, Channel Bandwidth 15MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
133197	670.5	3.43	4.40
133297	680.5	3.64	4.48
133397	690.5	3.55	4.55
LTE Band 71, Channel Bandwidth 20MHz			
Channel	Frequency (MHz)	Peak To Average Ratio (dB)	
		QPSK	16QAM
133222	673	3.60	4.47
133297	680.5	3.29	4.35
133372	688	3.37	4.93

Spectrum Plot of Worst Value

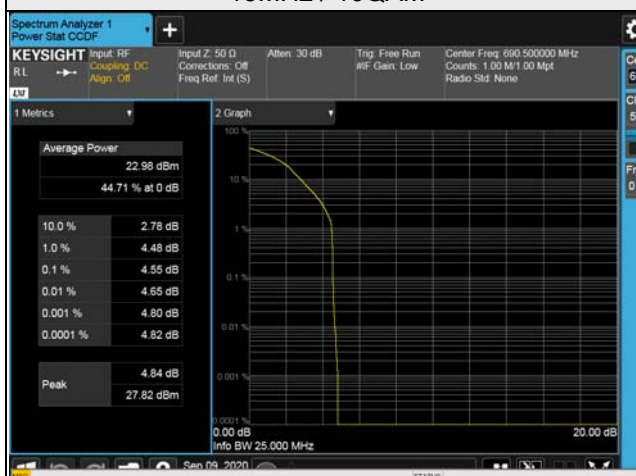
5MHz / 16QAM



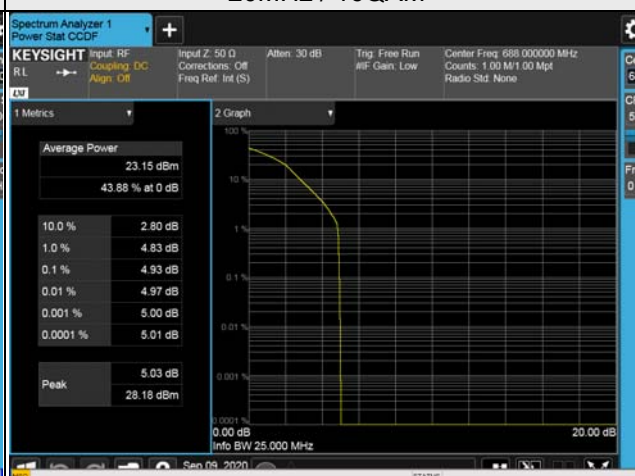
10MHz / 16QAM



15MHz / 16QAM



20MHz / 16QAM



4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

For WCDMA Band 4, LTE Band 4, 66

In the FCC 27.53(h), On any frequency outside a licensee's frequency block, The power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The emission limit equal to -13dBm .

For LTE Band 13

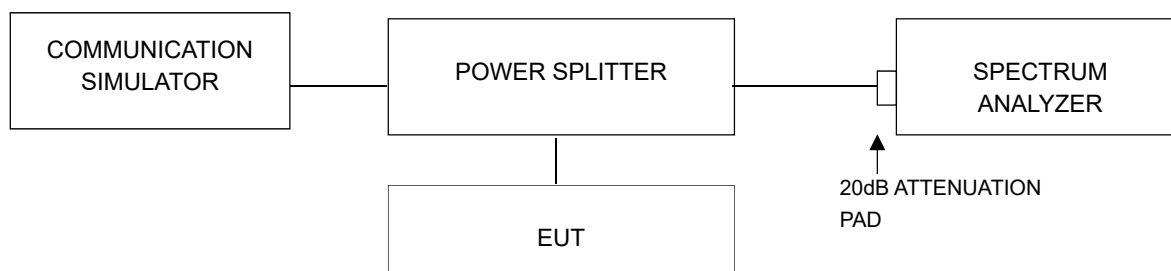
According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

According to FCC 27.53(f) for operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz . The limit of emissions is equal to -40 dBm

For LTE Band 12, 71

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

4.7.2 Test Setup



4.7.3 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- When the spectrum scanned from 9kHz to 1GHz/7GHz/8GHz/18GHz/20GHz, it shall be connected to the attenuator with the carried frequency. Conducted spurious emission measurement procedure refer 27.53

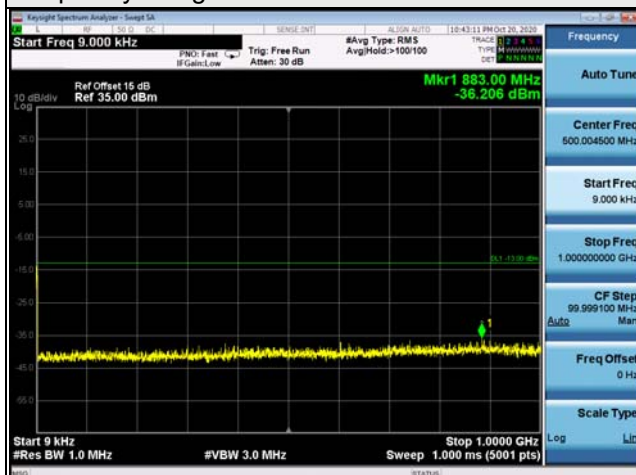
4.7.4 Test Results

WCDMA Band 4

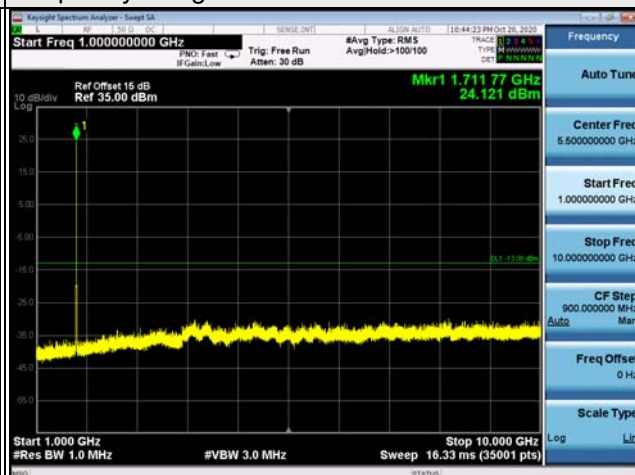
WCDMA

Channel 1312 (1712.4MHz)

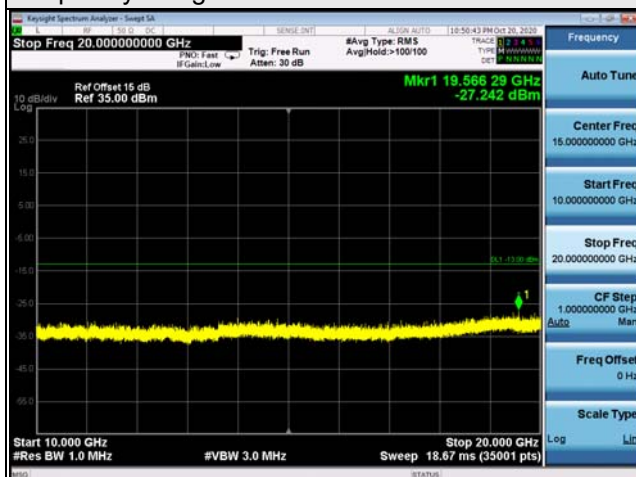
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

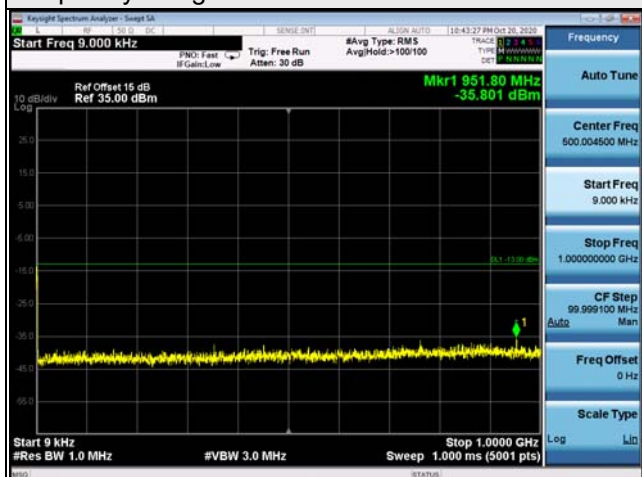


*The 9kHz signal over the limit is from Spectrum.

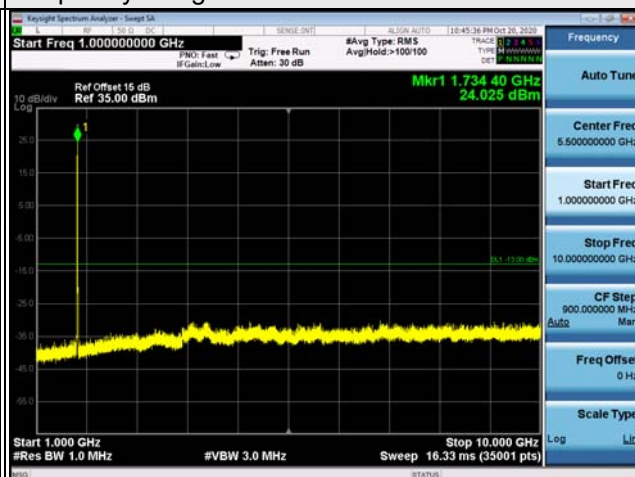
WCDMA

Channel 1413 (1732.6MHz)

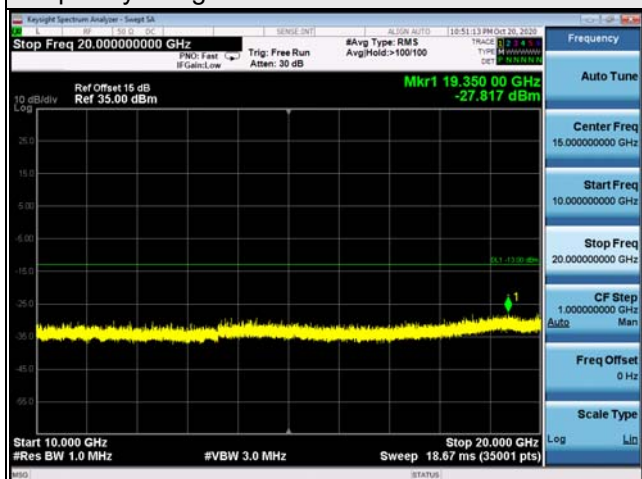
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

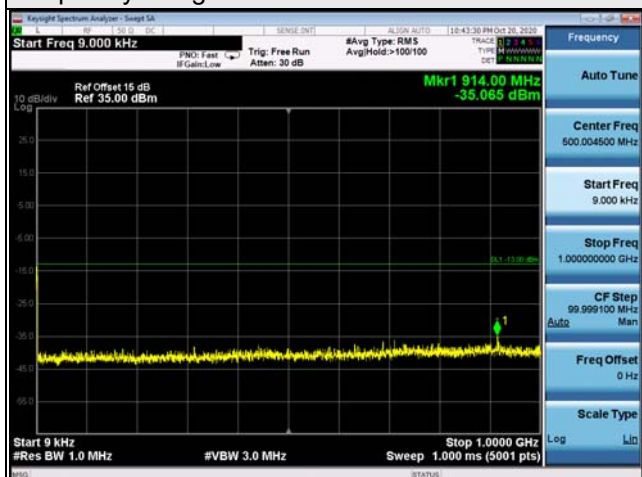


*The 9kHz signal over the limit is from Spectrum.

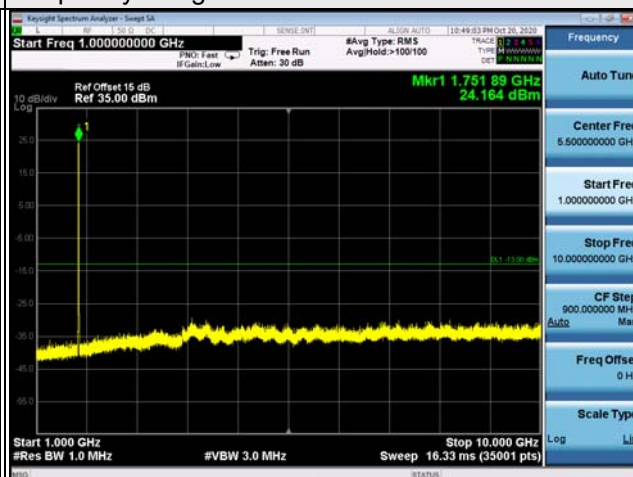
WCDMA

Channel 1513 (1752.6MHz)

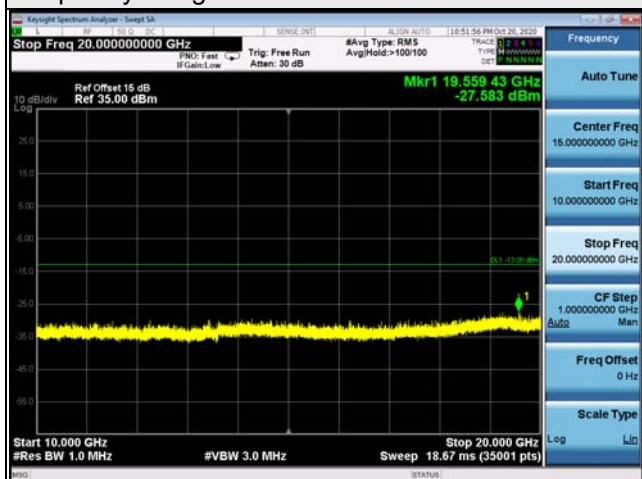
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

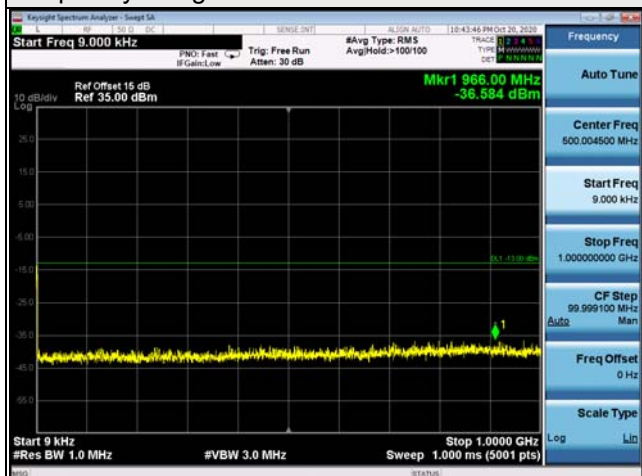


*The 9kHz signal over the limit is from Spectrum.

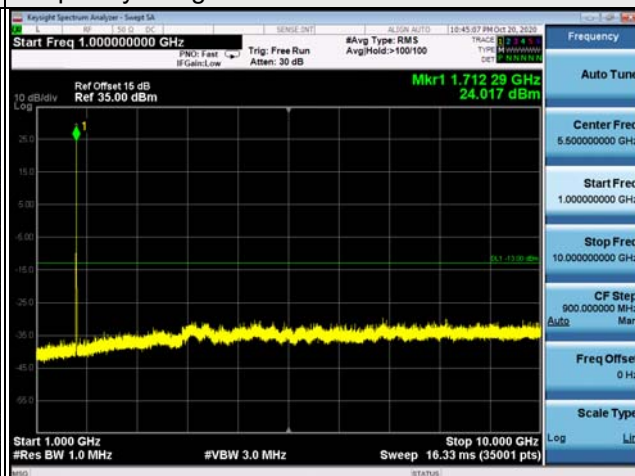
HSDPA

Channel 1312 (1712.4MHz)

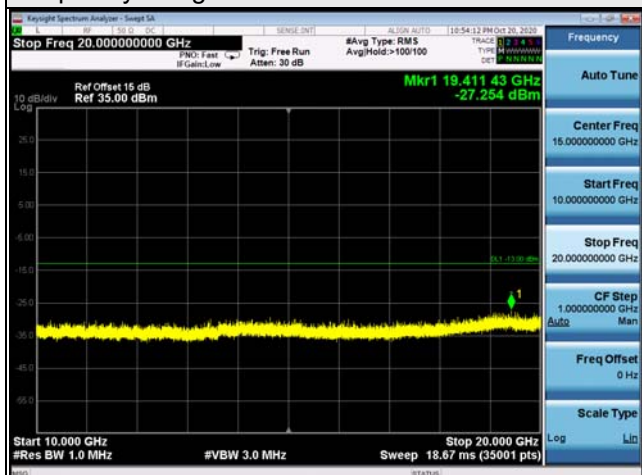
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

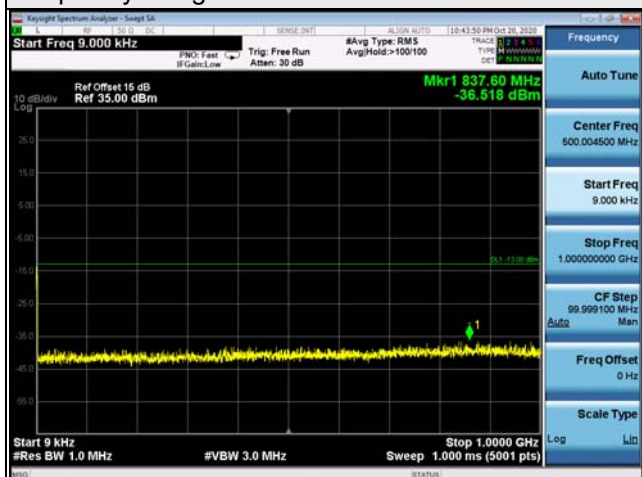


*The 9kHz signal over the limit is from Spectrum.

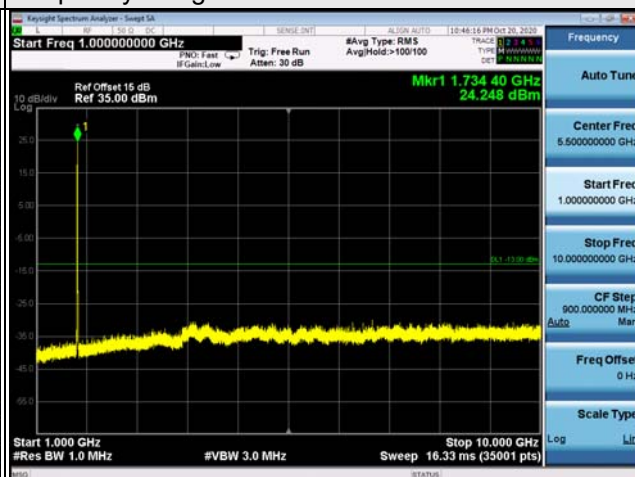
HSDPA

Channel 1413 (1732.6MHz)

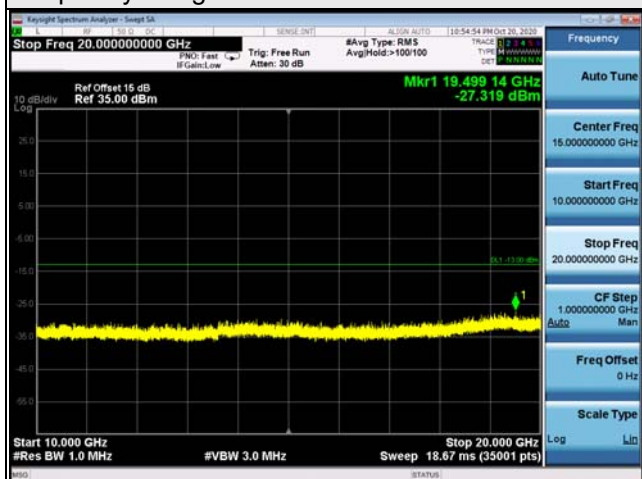
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

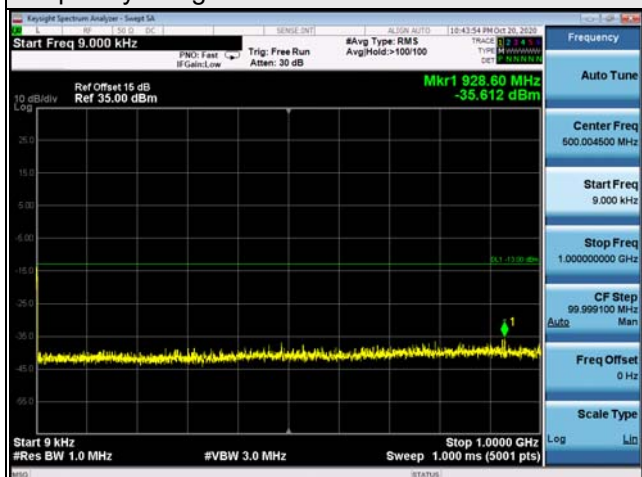


*The 9kHz signal over the limit is from Spectrum.

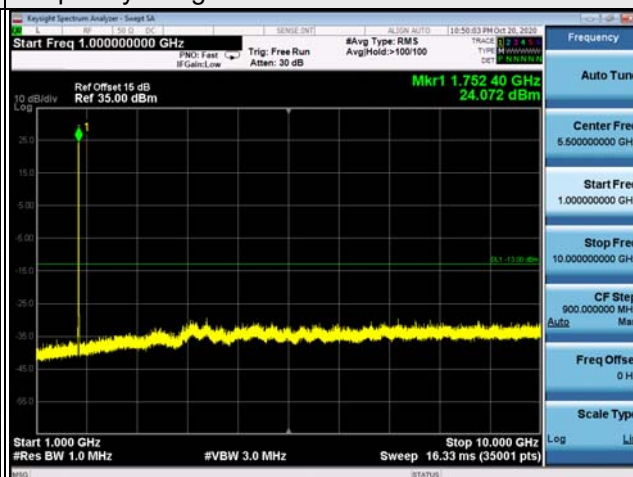
HSDPA

Channel 1513 (1752.6MHz)

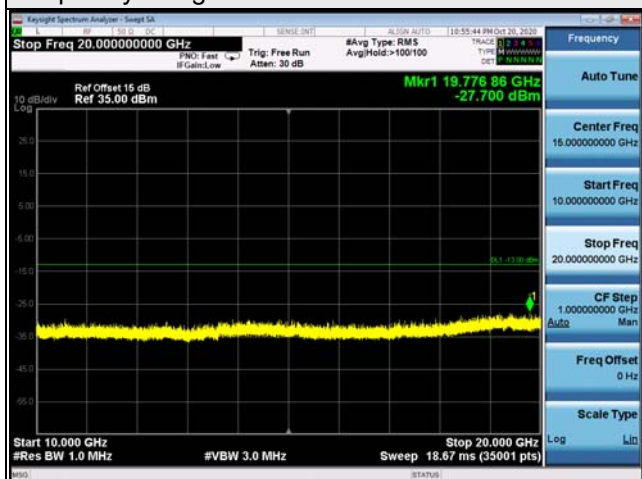
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

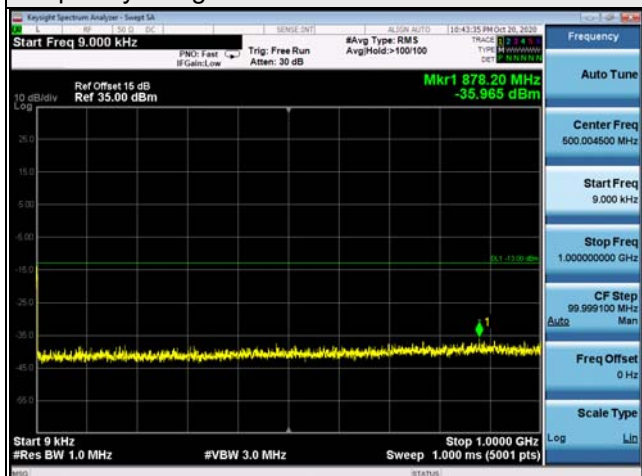


*The 9kHz signal over the limit is from Spectrum.

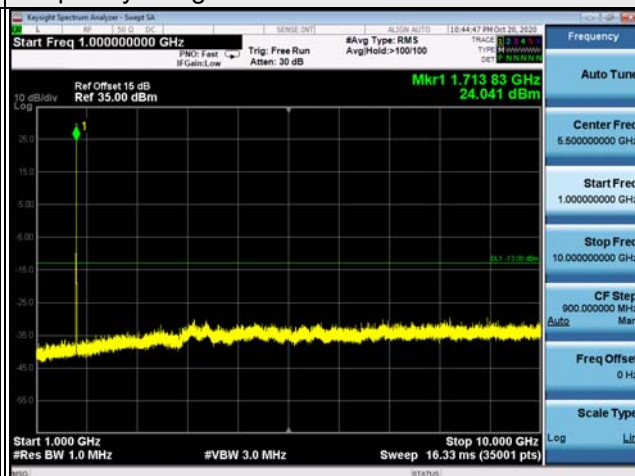
HSUPA

Channel 1312 (1712.4MHz)

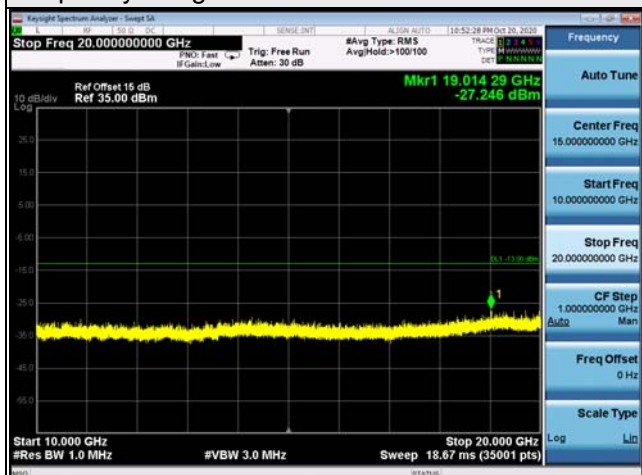
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

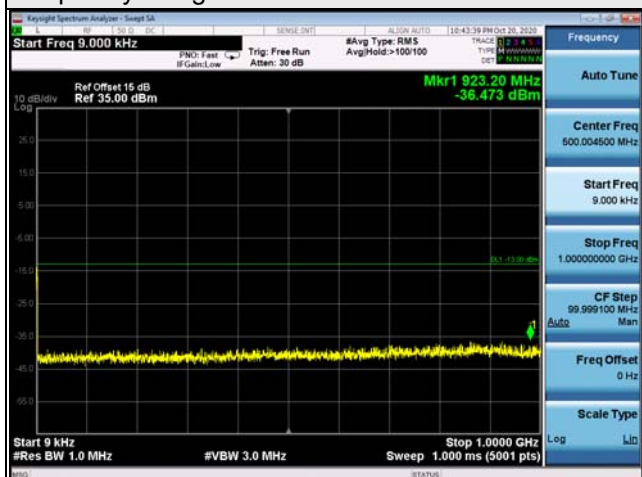


*The 9kHz signal over the limit is from Spectrum

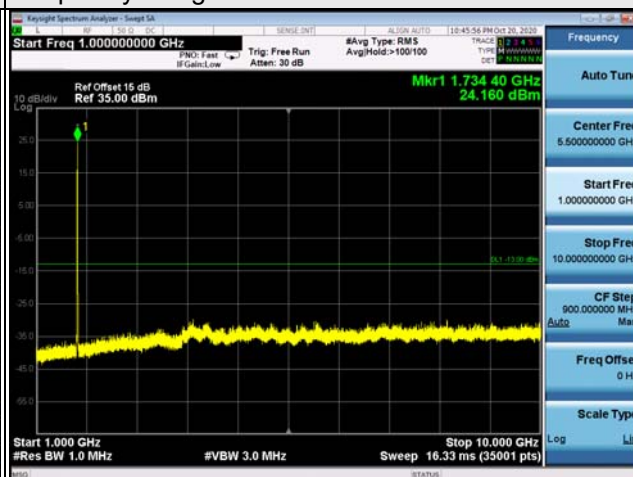
HSUPA

Channel 1413 (1732.6MHz)

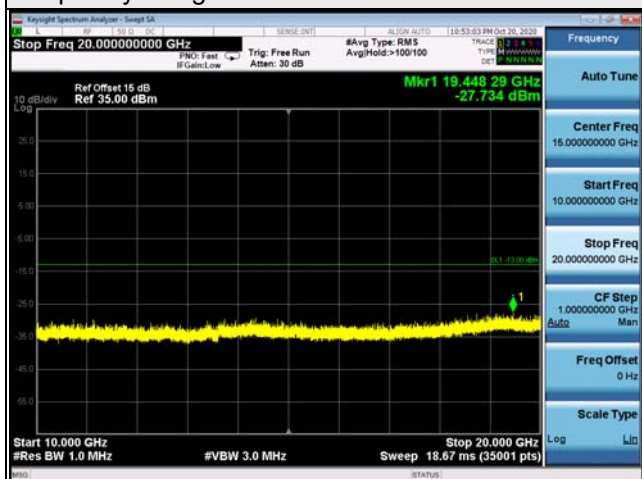
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz

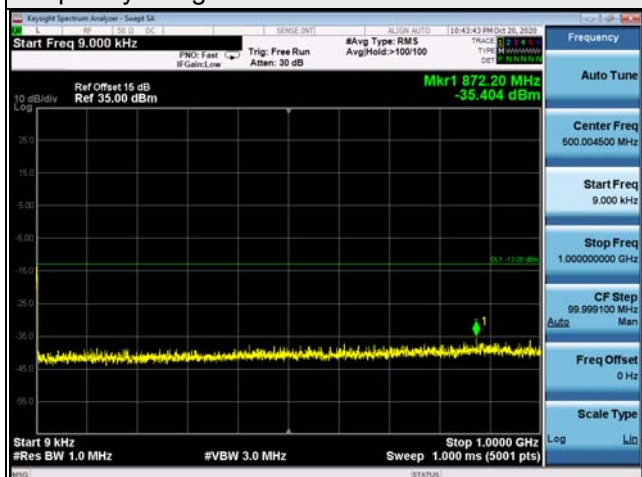


*The 9kHz signal over the limit is from Spectrum

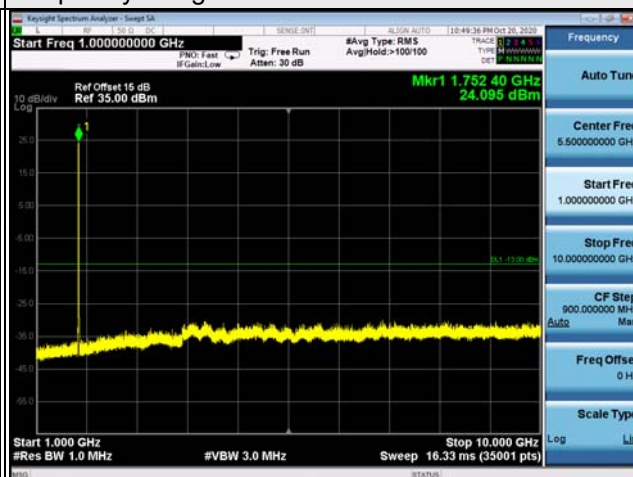
HSUPA

Channel 1513 (1752.6MHz)

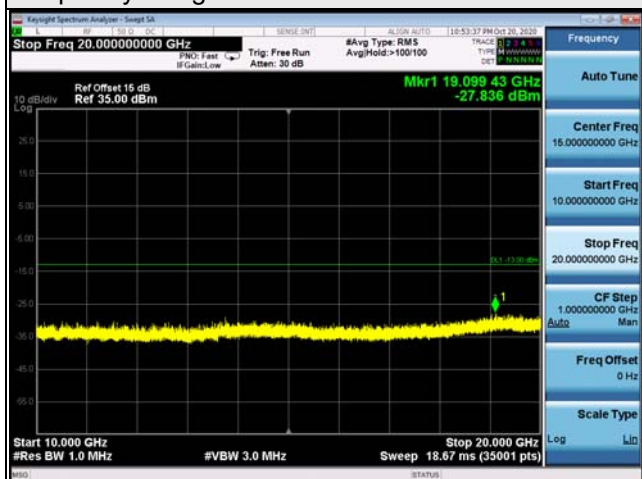
Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~10GHz



Frequency Range : 10GHz~20GHz



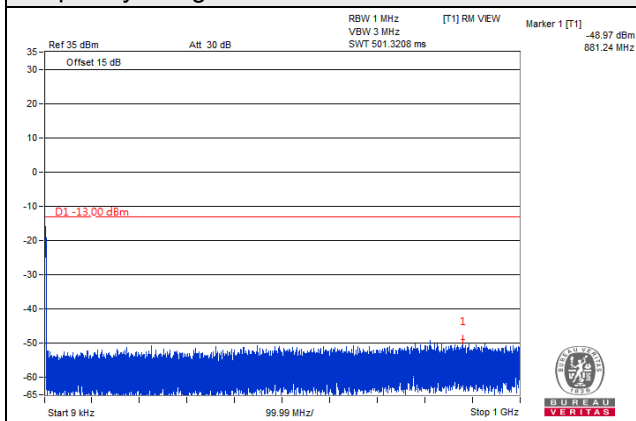
*The 9kHz signal over the limit is from Spectrum.

LTE Band 4

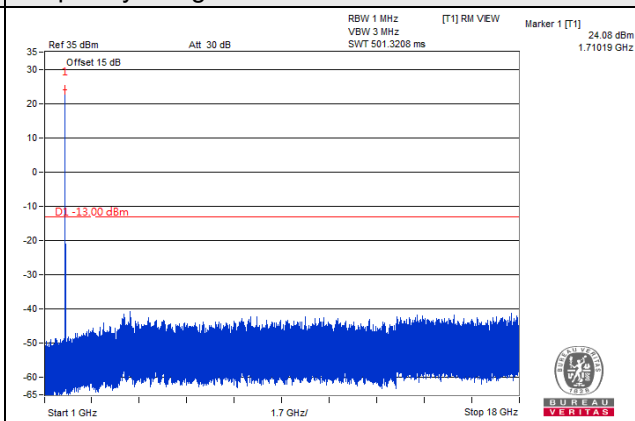
Channel Bandwidth: 1.4MHz

Channel 19957 (1710.7MHz)

Frequency Range : 9kHz~1GHz

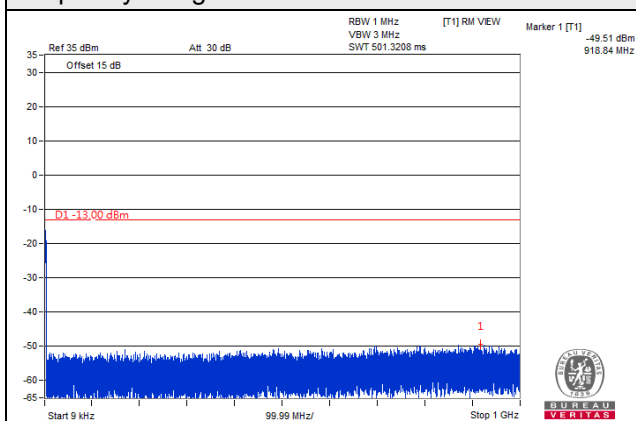


Frequency Range : 1GHz~18GHz

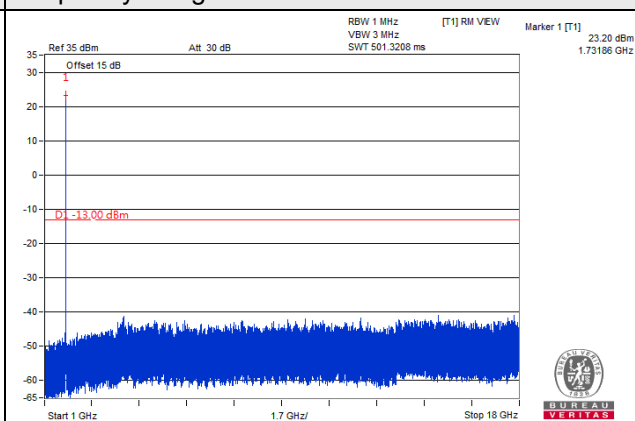


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

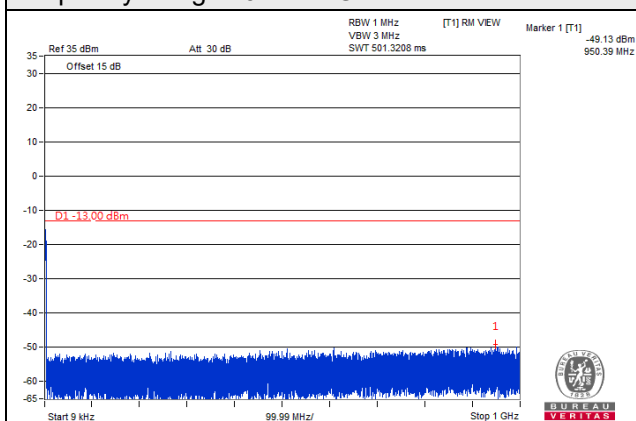


Frequency Range : 1GHz~18GHz

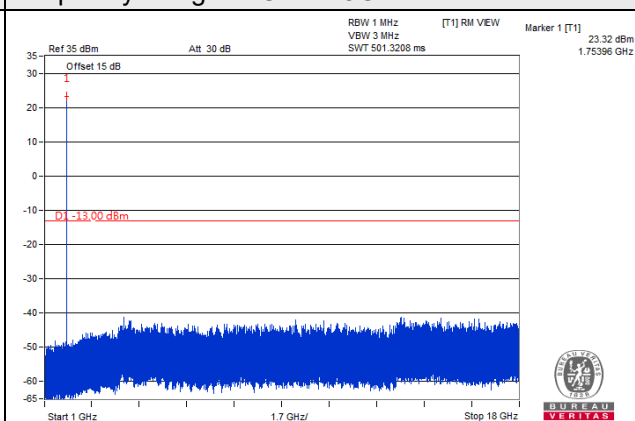


Channel 20393 (1754.3MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

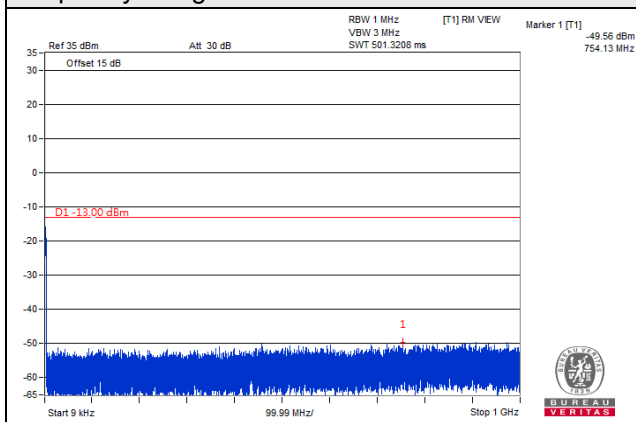


*The 9kHz signal over the limit is from Spectrum.

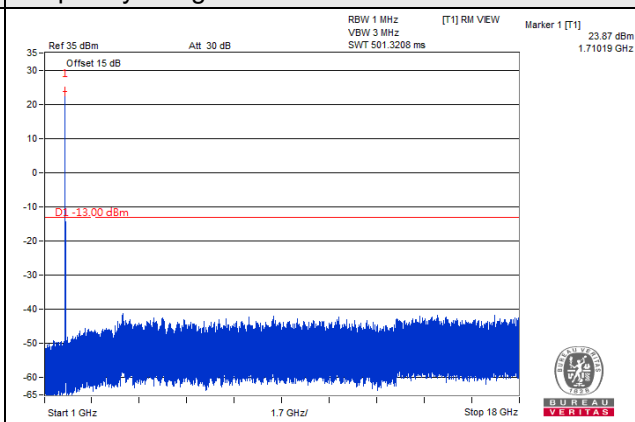
Channel Bandwidth: 3MHz

Channel 19965 (1711.5MHz)

Frequency Range : 9kHz~1GHz

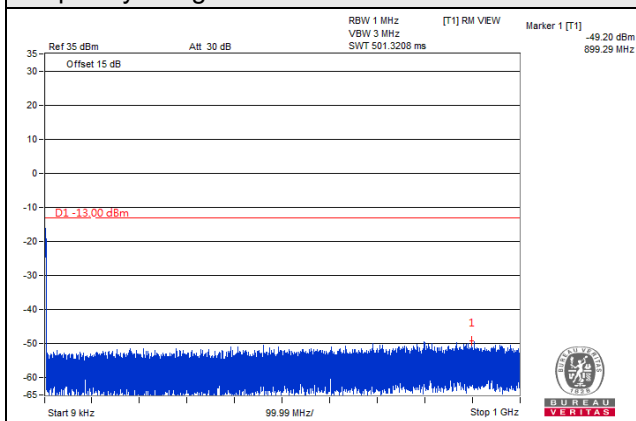


Frequency Range : 1GHz~18GHz

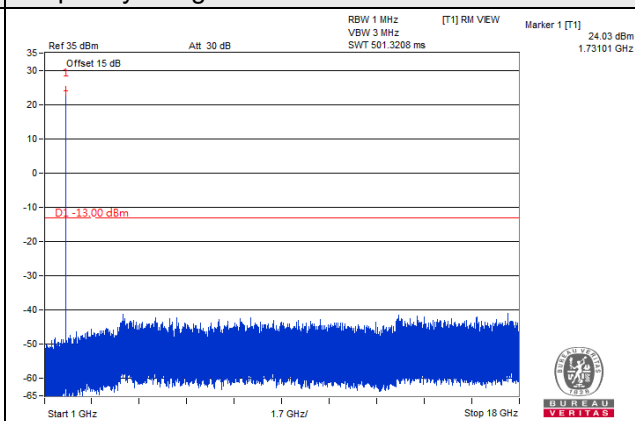


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

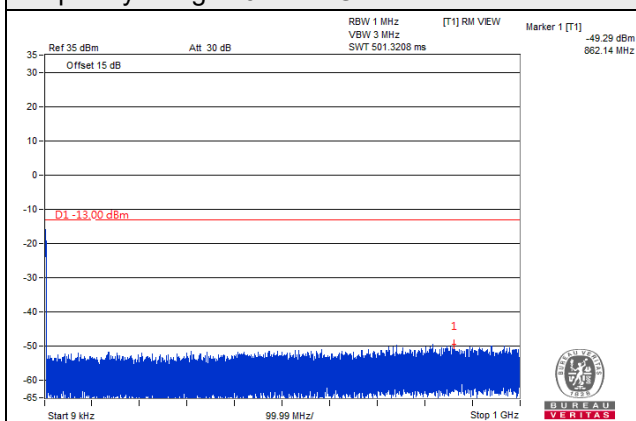


Frequency Range : 1GHz~18GHz

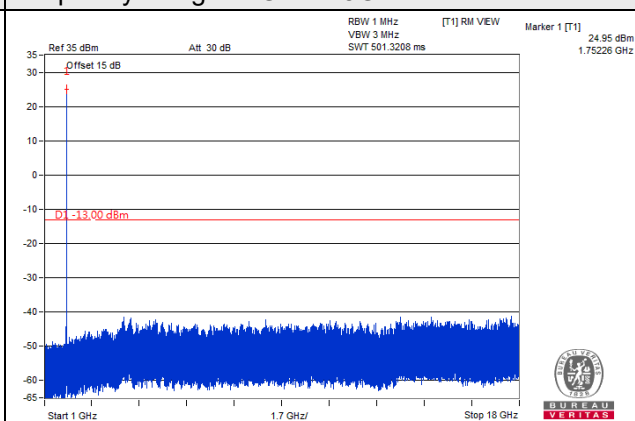


Channel 20385 (1753.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

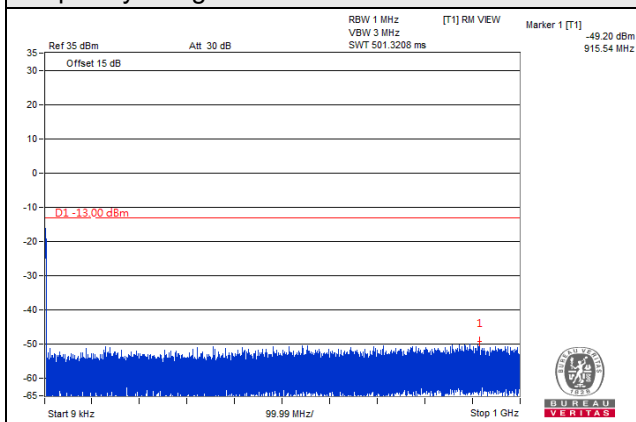


*The 9kHz signal over the limit is from Spectrum.

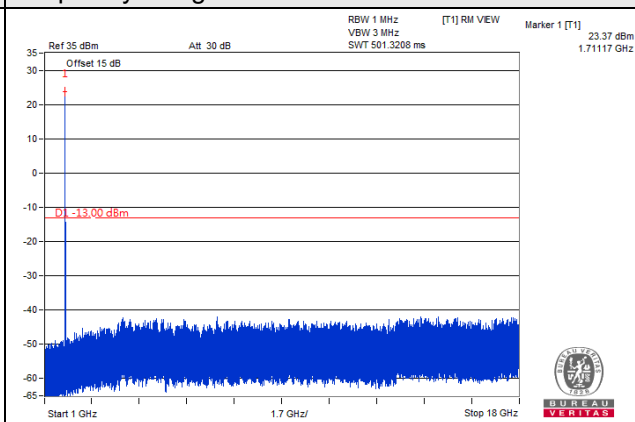
Channel Bandwidth: 5MHz

Channel 19975 (1712.5MHz)

Frequency Range : 9kHz~1GHz

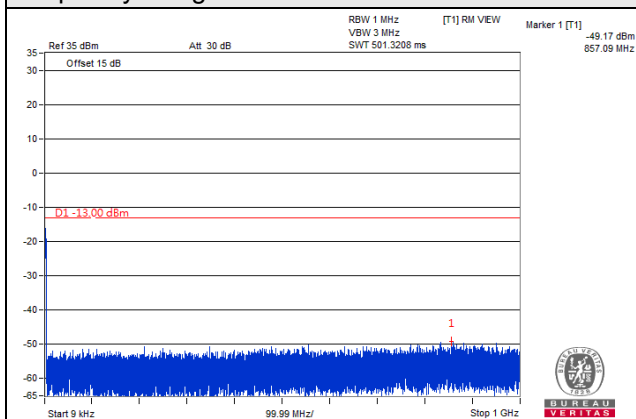


Frequency Range : 1GHz~18GHz

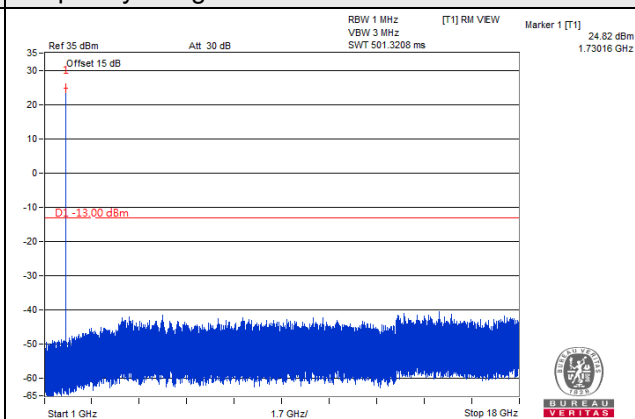


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

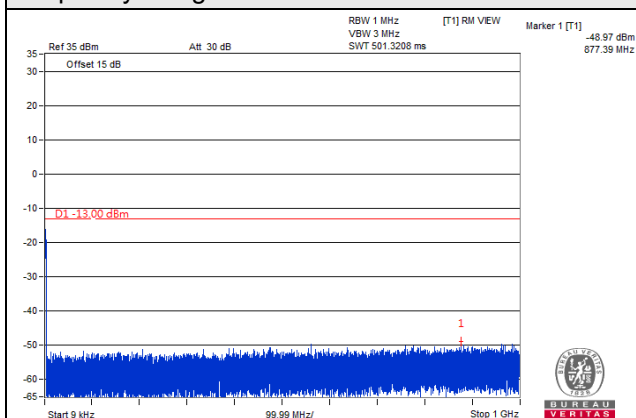


Frequency Range : 1GHz~18GHz

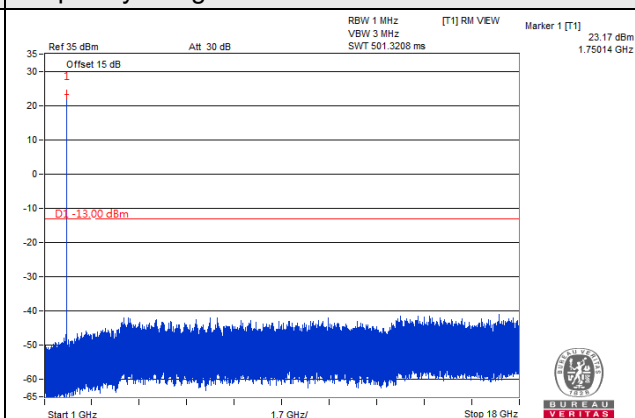


Channel 20375 (1752.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

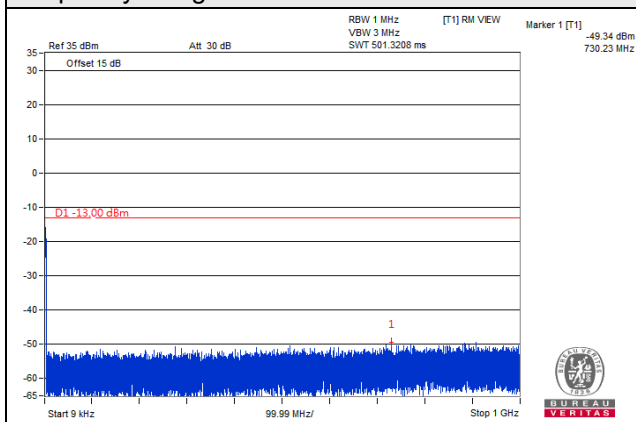


*The 9kHz signal over the limit is from Spectrum.

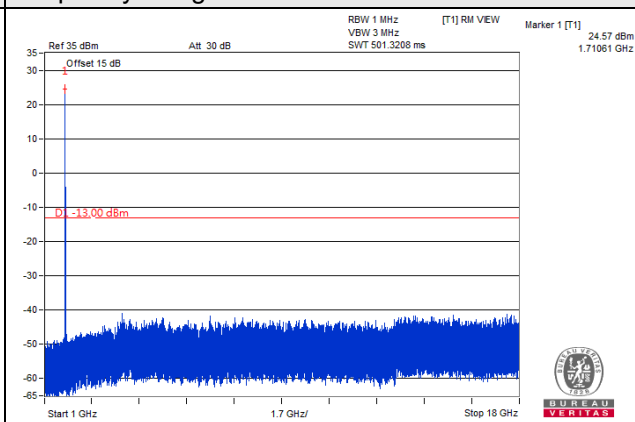
Channel Bandwidth: 10MHz

Channel 20000 (1715.0MHz)

Frequency Range : 9kHz~1GHz

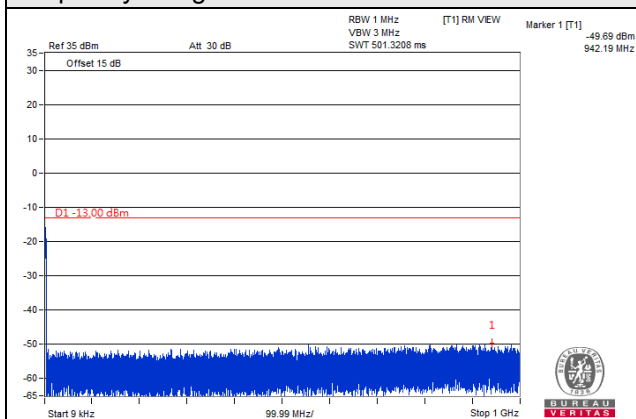


Frequency Range : 1GHz~18GHz

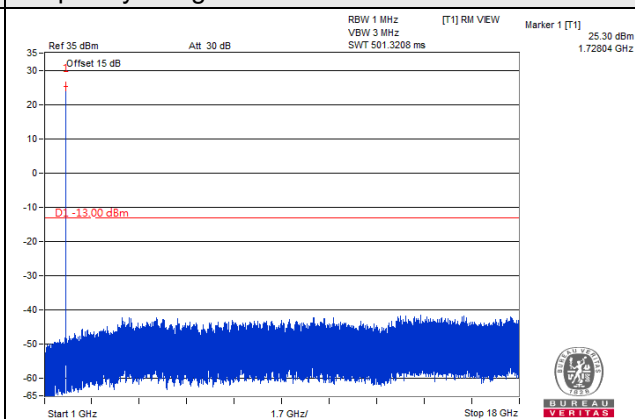


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

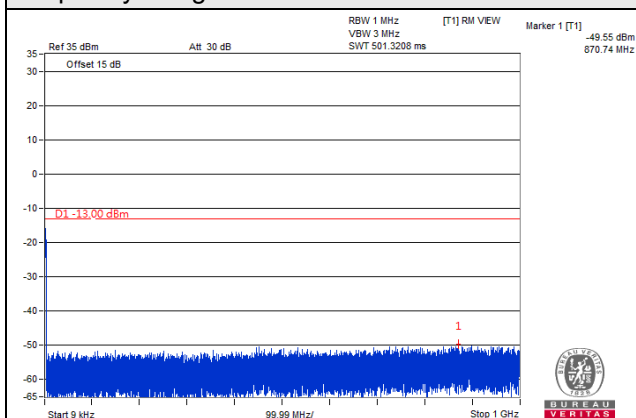


Frequency Range : 1GHz~18GHz

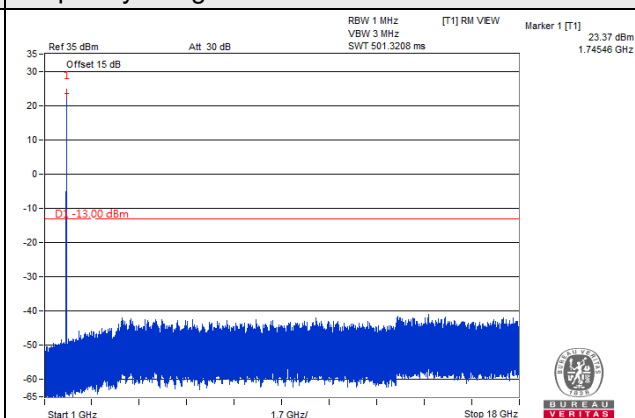


Channel 20350 (1750.0MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

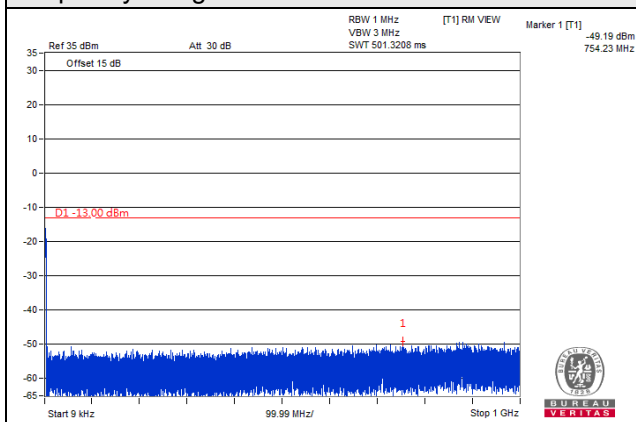


*The 9kHz signal over the limit is from Spectrum.

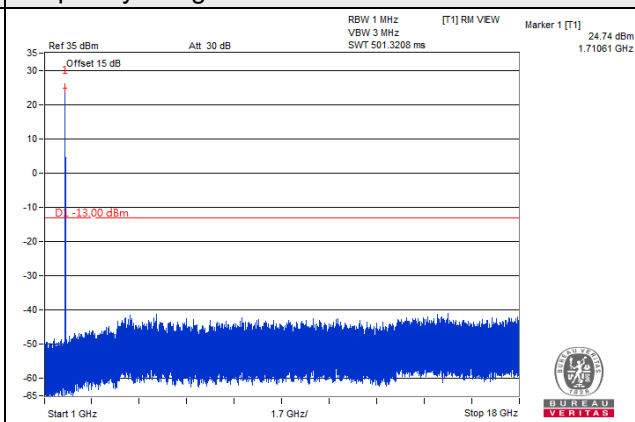
Channel Bandwidth: 15MHz

Channel 20025 (1717.5MHz)

Frequency Range : 9kHz~1GHz

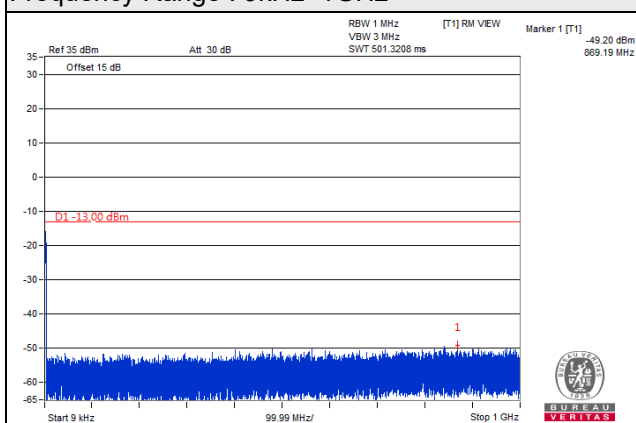


Frequency Range : 1GHz~18GHz

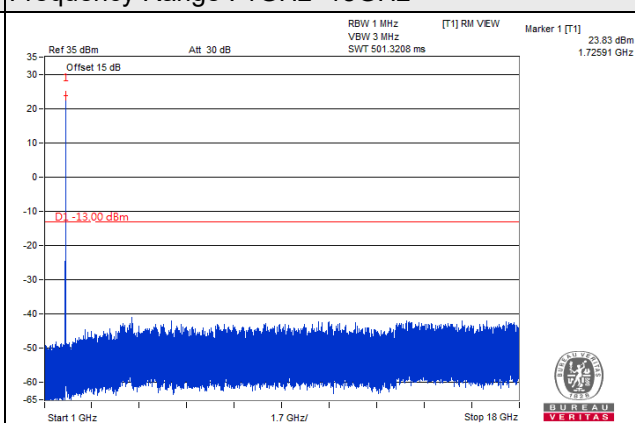


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

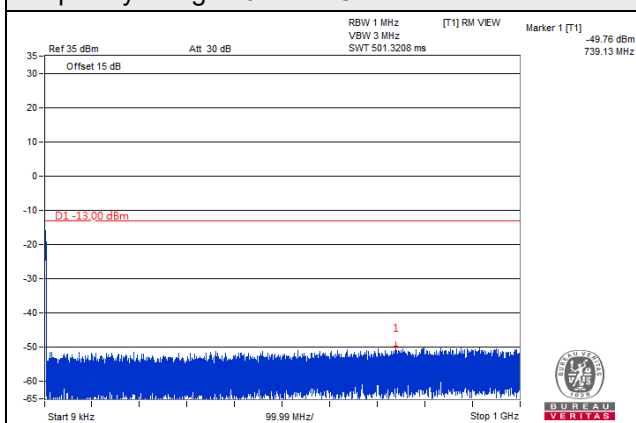


Frequency Range : 1GHz~18GHz

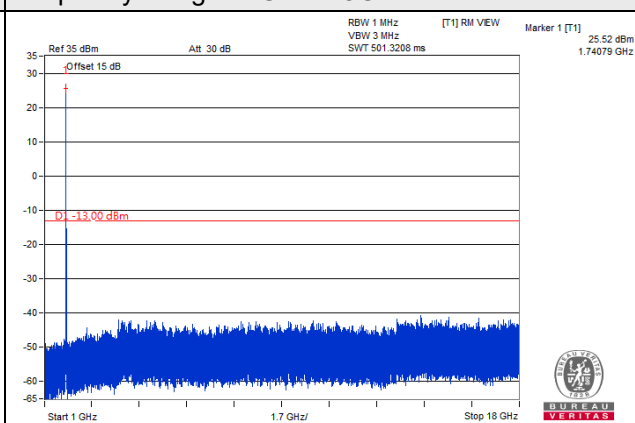


Channel 20325 (1747.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

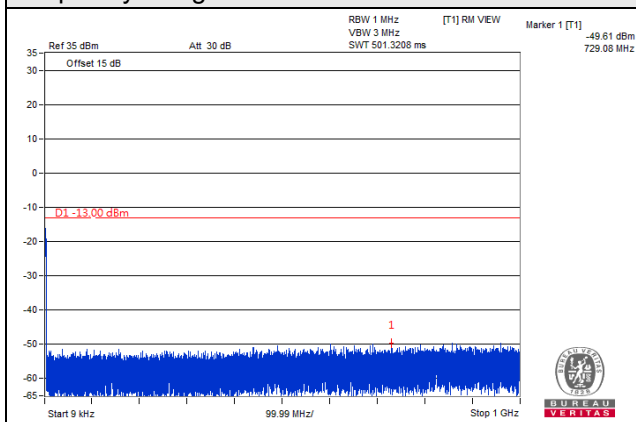


*The 9kHz signal over the limit is from Spectrum.

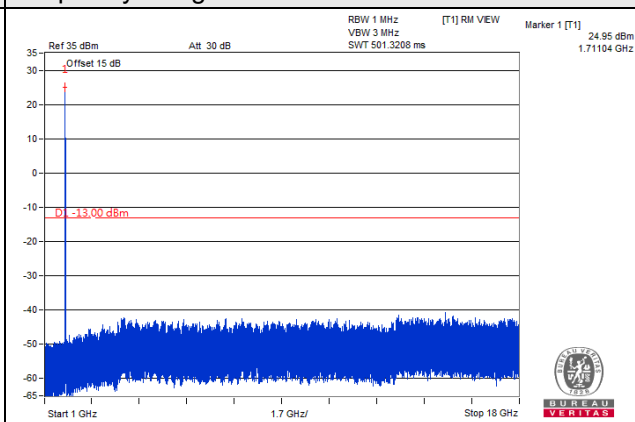
Channel Bandwidth: 20MHz

Channel 20050 (1720.0MHz)

Frequency Range : 9kHz~1GHz

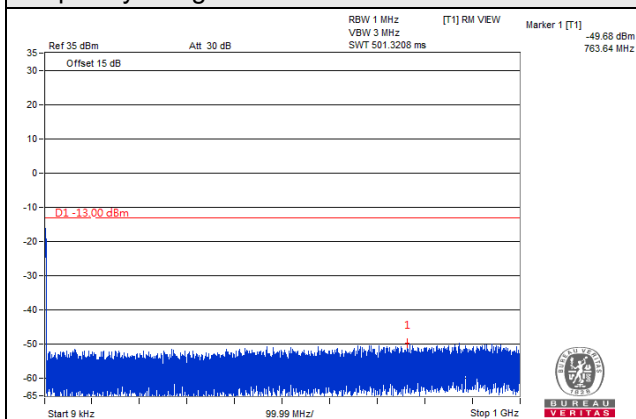


Frequency Range : 1GHz~18GHz

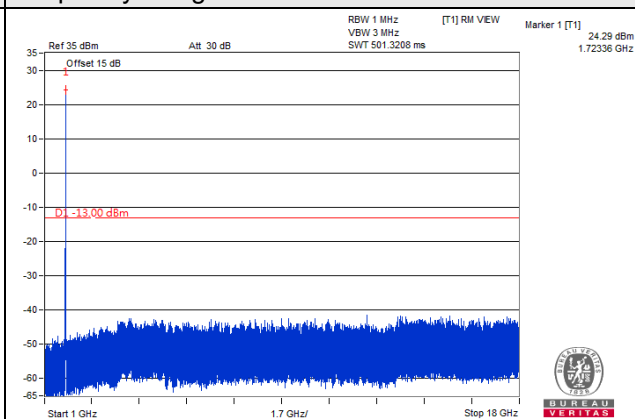


Channel 20175 (1732.5MHz)

Frequency Range : 9kHz~1GHz

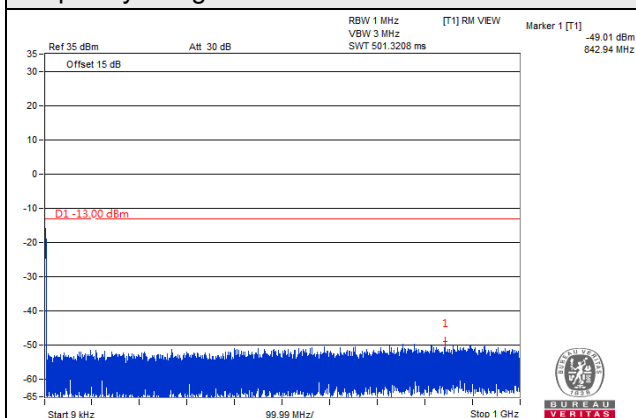


Frequency Range : 1GHz~18GHz

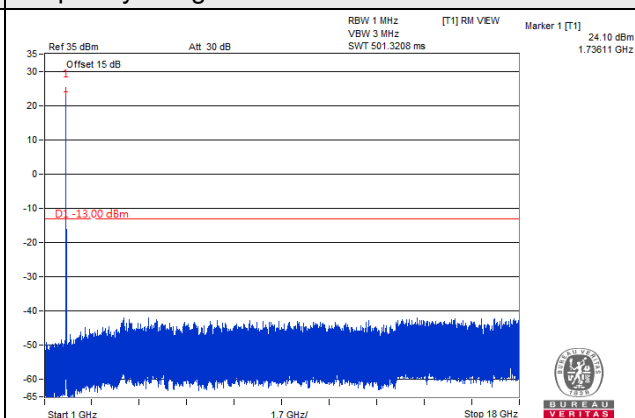


Channel 20300 (1745.0MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz



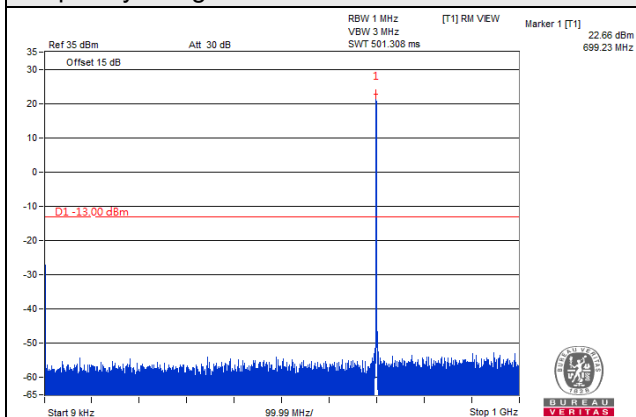
*The 9kHz signal over the limit is from Spectrum.

LTE Band 12

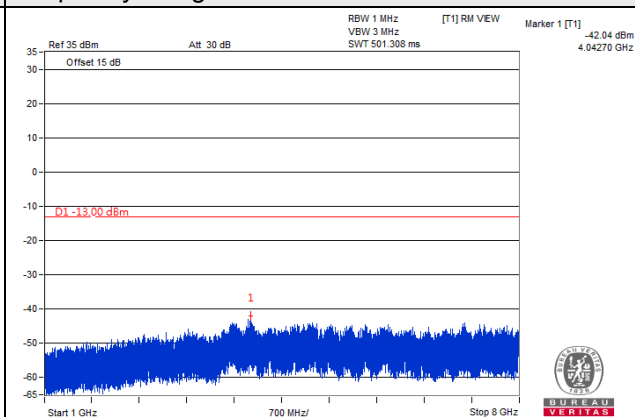
Channel Band width: 1.4MHz

Channel 23017 (699.7MHz)

Frequency Range : 9kHz~1GHz

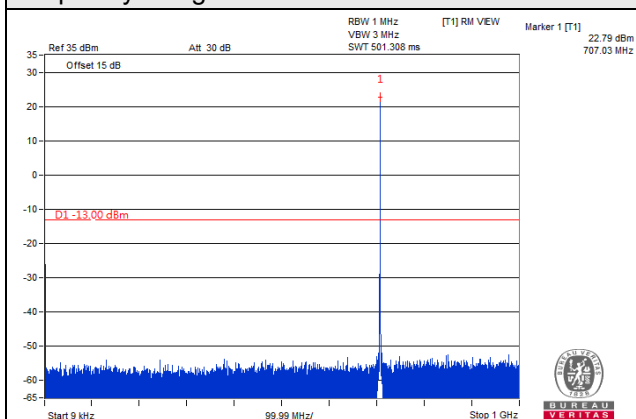


Frequency Range : 1GHz~8GHz

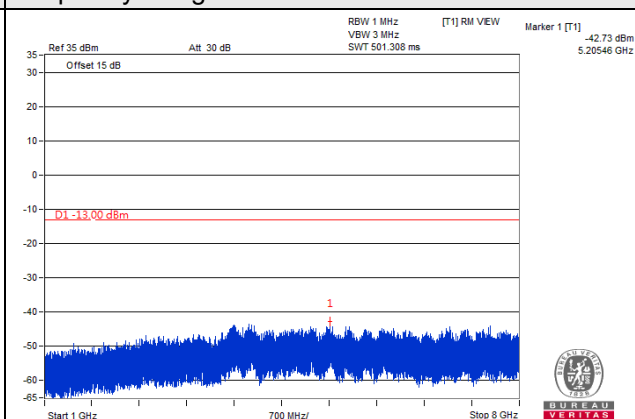


Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz

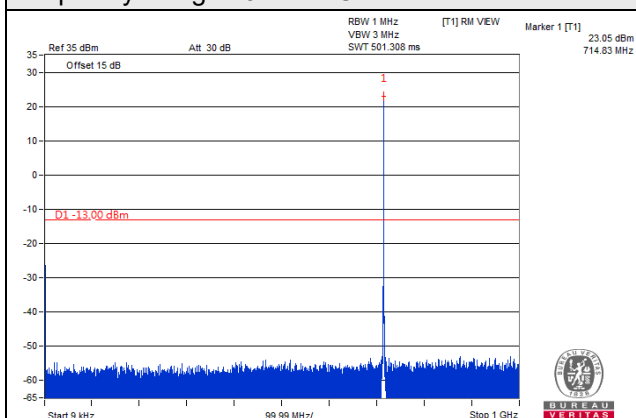


Frequency Range : 1GHz~8GHz

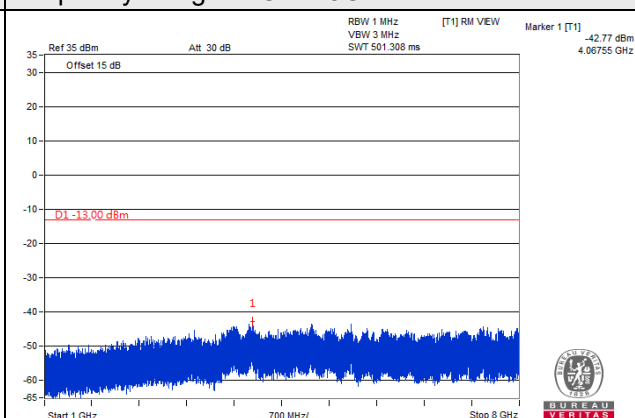


Channel 23173 (715.3MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~8GHz

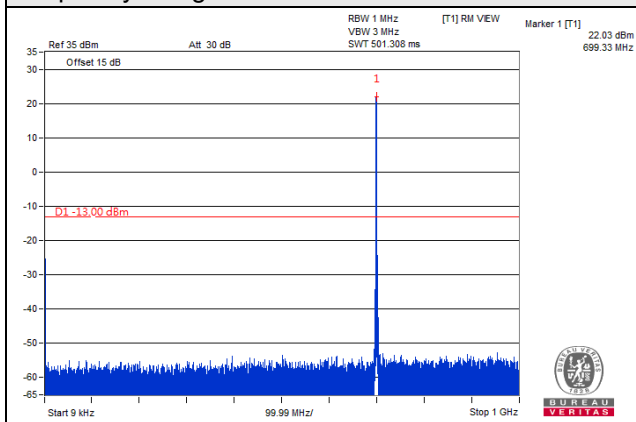


*The 9kHz signal over the limit is from Spectrum.

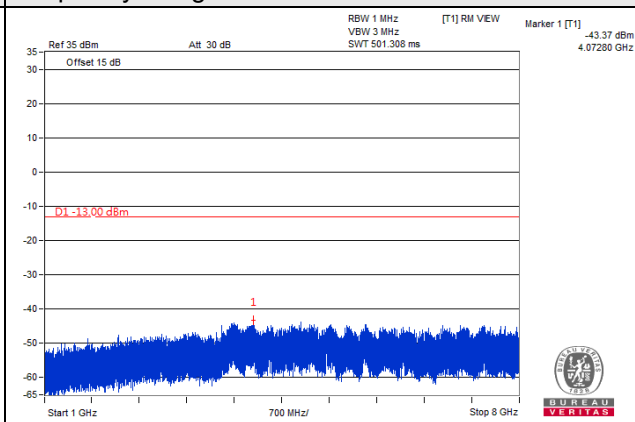
Channel Band width: 3MHz

Channel 23025 (700.5MHz)

Frequency Range : 9kHz~1GHz

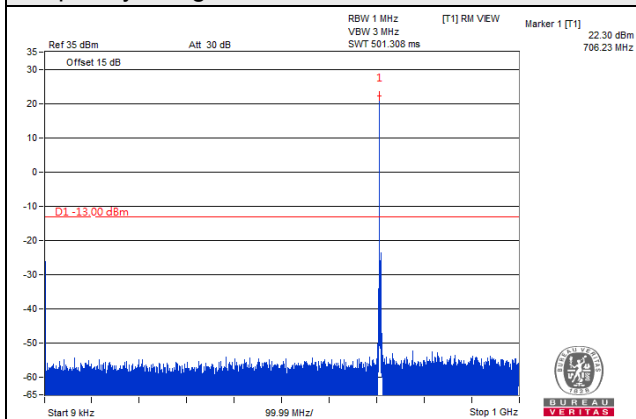


Frequency Range : 1GHz~8GHz

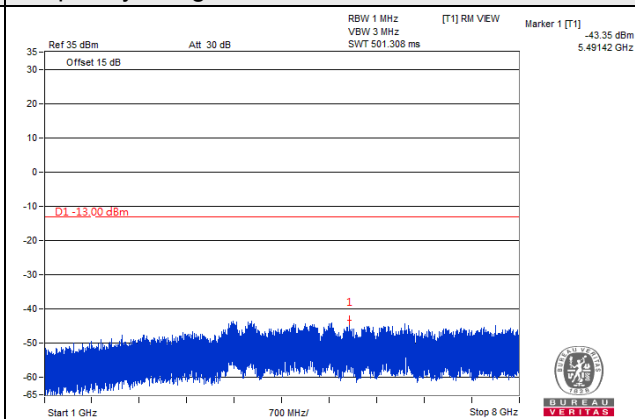


Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz

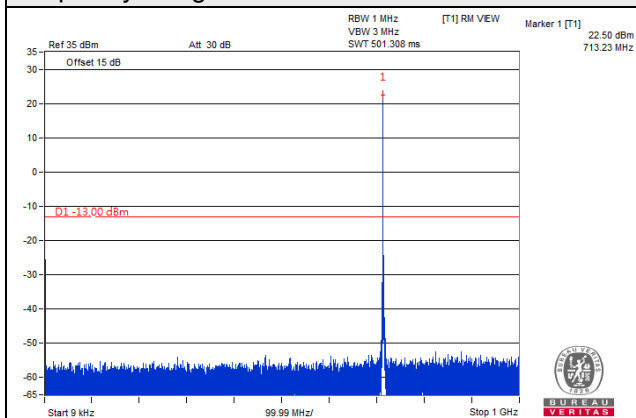


Frequency Range : 1GHz~8GHz

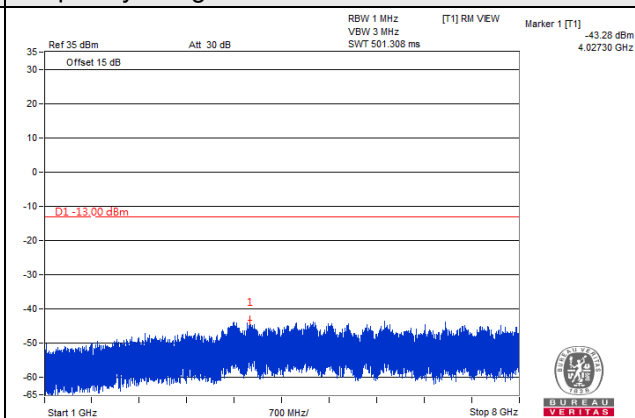


Channel 23165 (714.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~8GHz

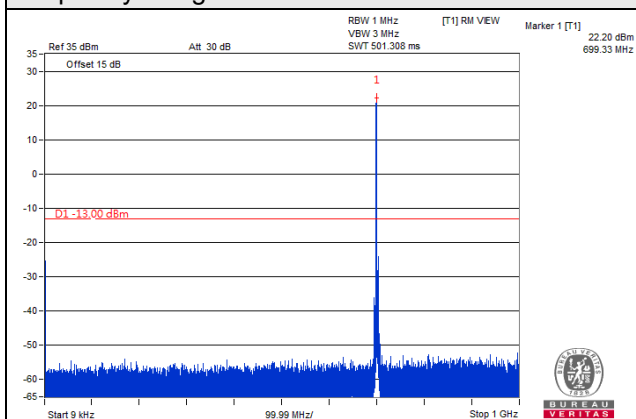


*The 9kHz signal over the limit is from Spectrum.

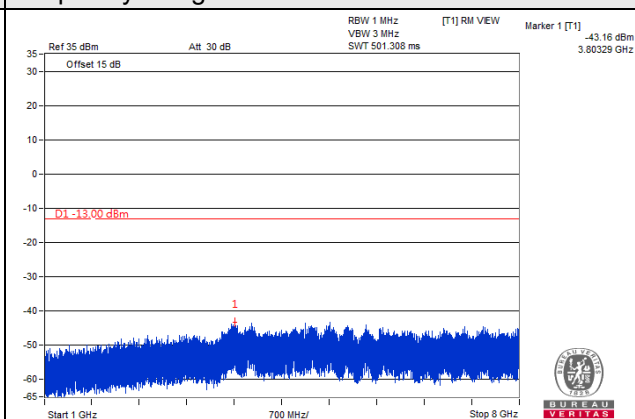
Channel Band width: 5MHz

Channel 23035 (701.5MHz)

Frequency Range : 9kHz~1GHz

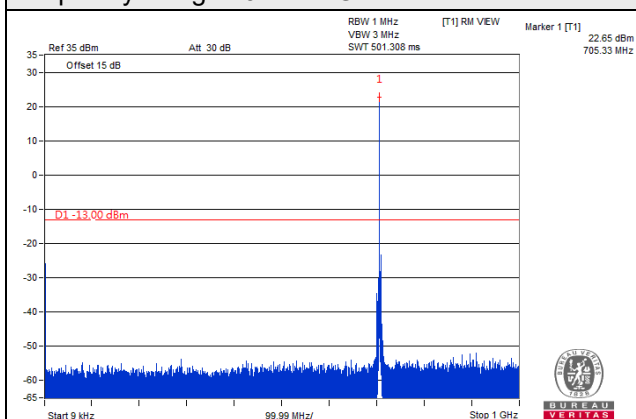


Frequency Range : 1GHz~8GHz

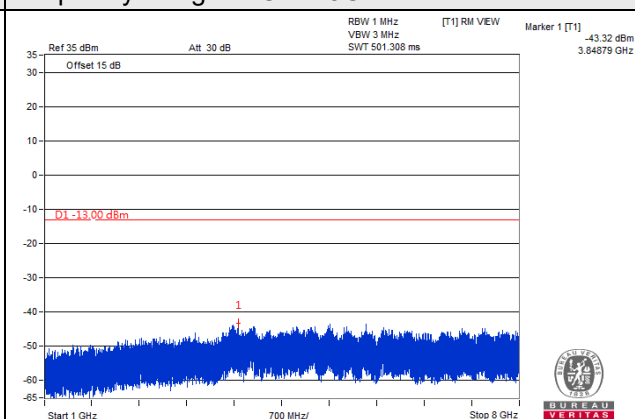


Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz

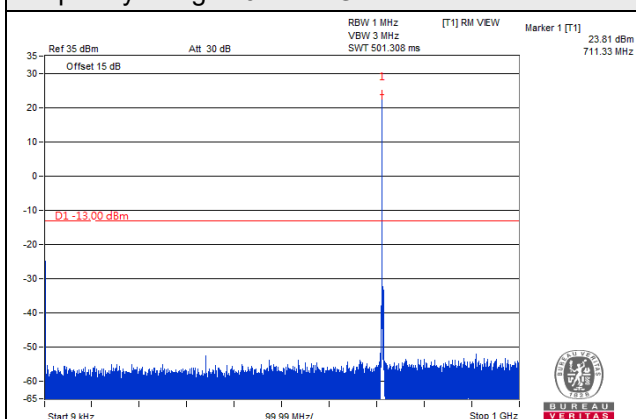


Frequency Range : 1GHz~8GHz

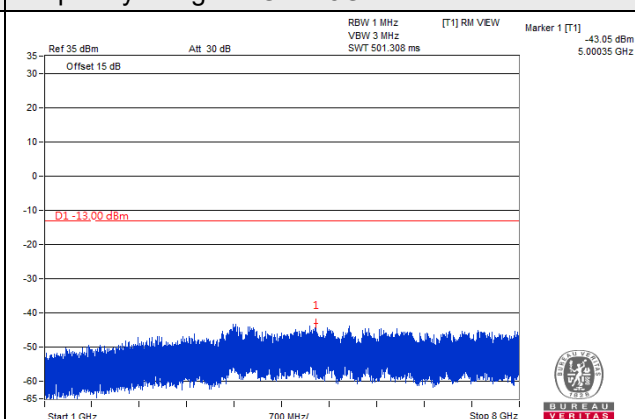


Channel 23155 (713.5MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~8GHz

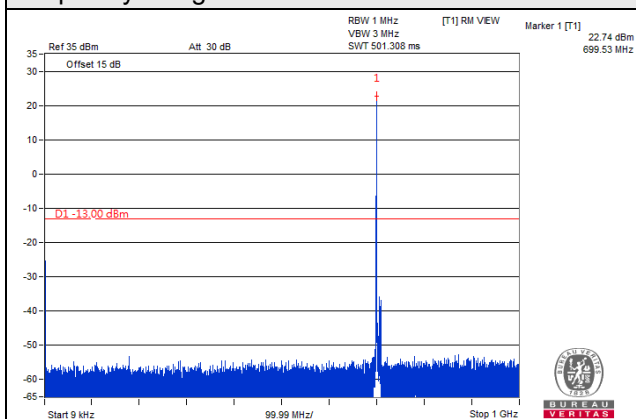


*The 9kHz signal over the limit is from Spectrum.

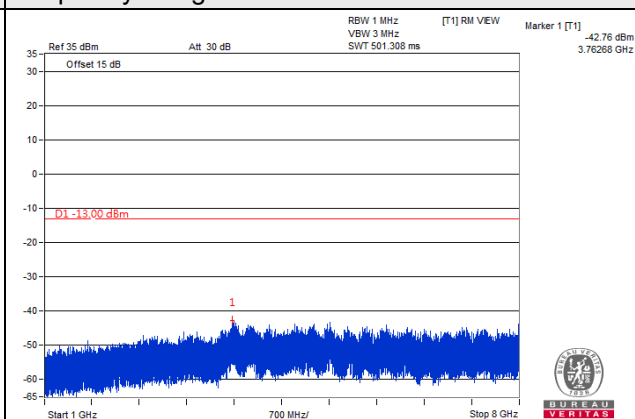
Channel Band width: 10MHz

Channel 23060 (704MHz)

Frequency Range : 9kHz~1GHz

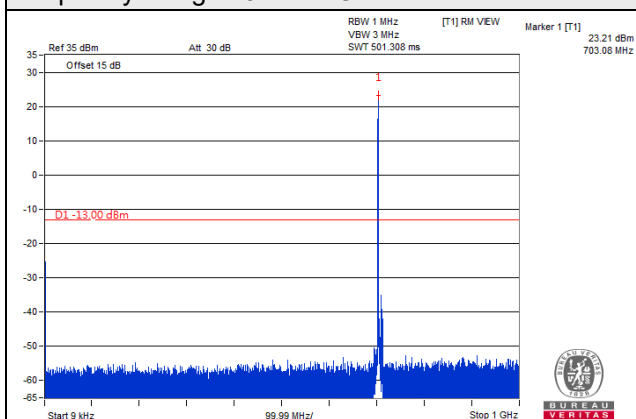


Frequency Range : 1GHz~8GHz

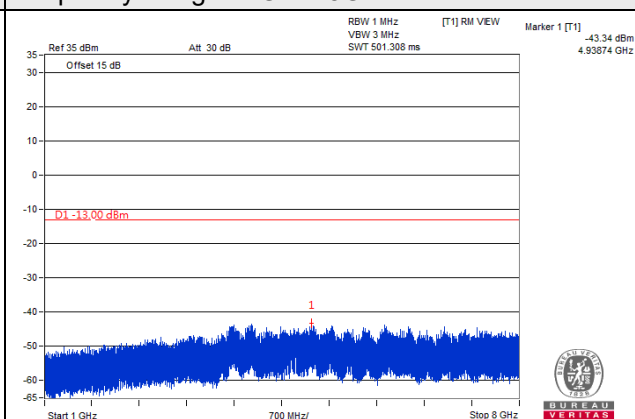


Channel 23095 (707.5MHz)

Frequency Range : 9kHz~1GHz

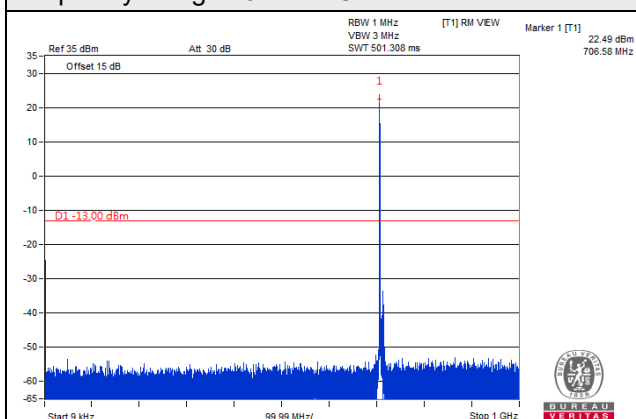


Frequency Range : 1GHz~8GHz

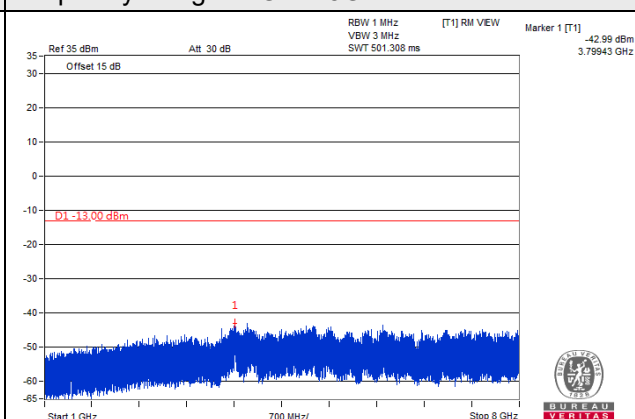


Channel 23130 (711MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~8GHz



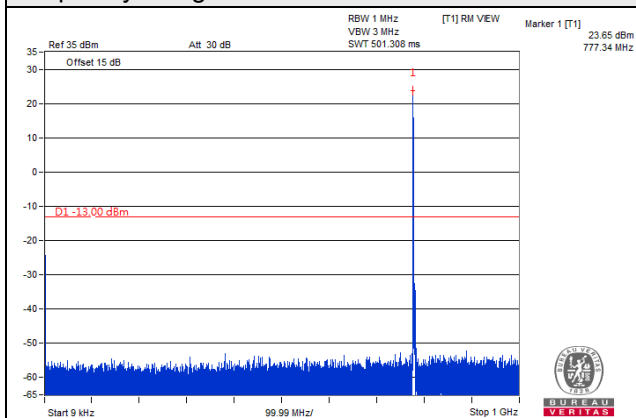
*The 9kHz signal over the limit is from Spectrum.

LTE Band 13

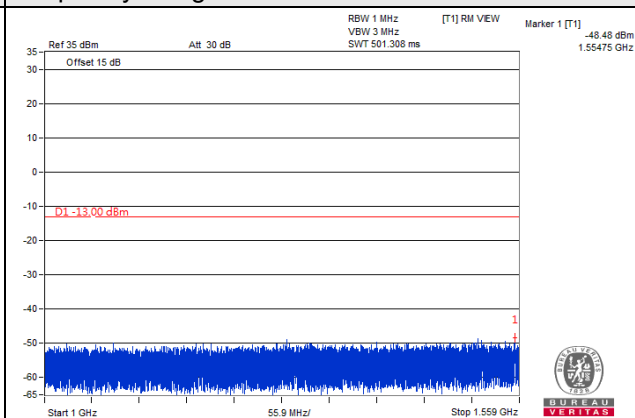
Channel Bandwidth: 5MHz

Channel 23205 (779.5MHz)

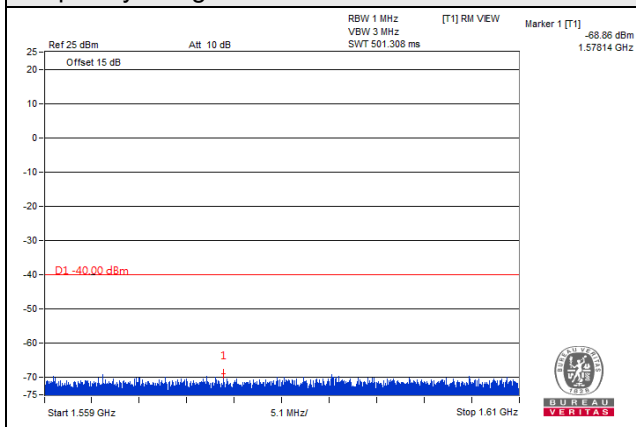
Frequency Range : 9kHz~1GHz



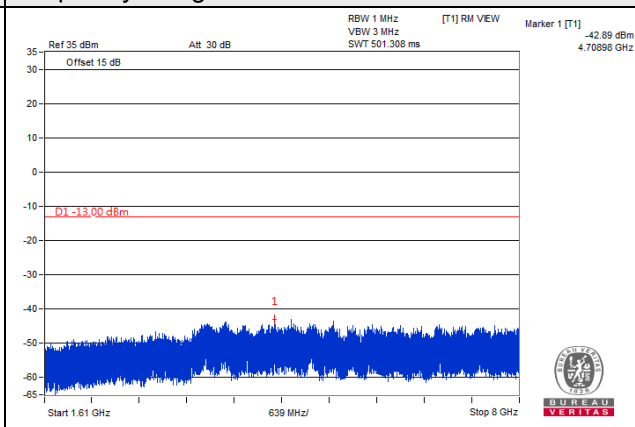
Frequency Range : 1GHz~1.559GHz



Frequency Range : 1.559GHz~1.61GHz

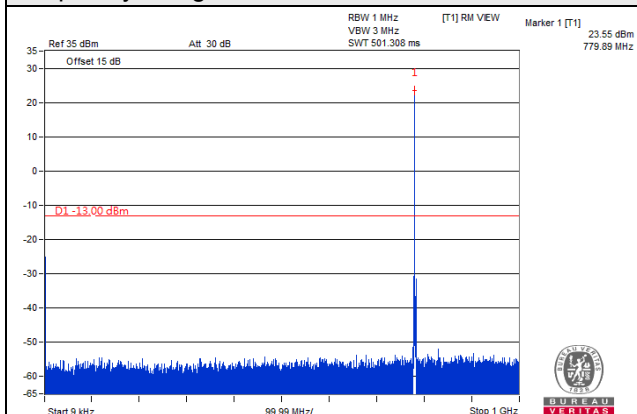


Frequency Range : 1.61GHz~8GHz

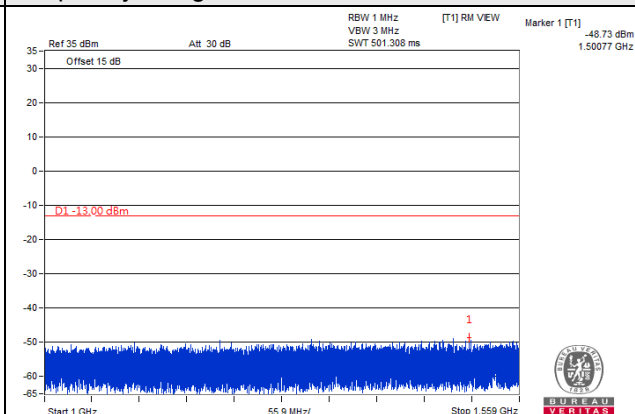


Channel 23230 (782.0MHz)

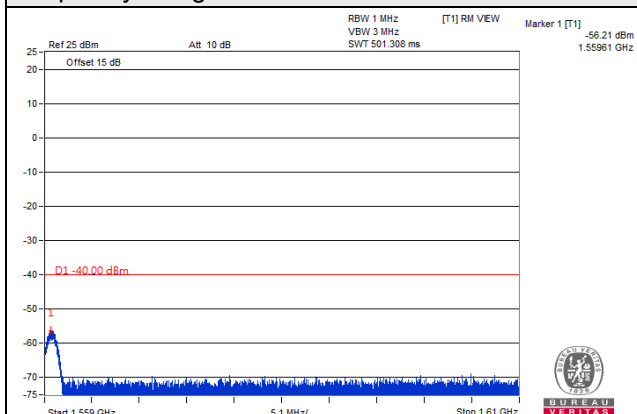
Frequency Range : 9kHz~1GHz



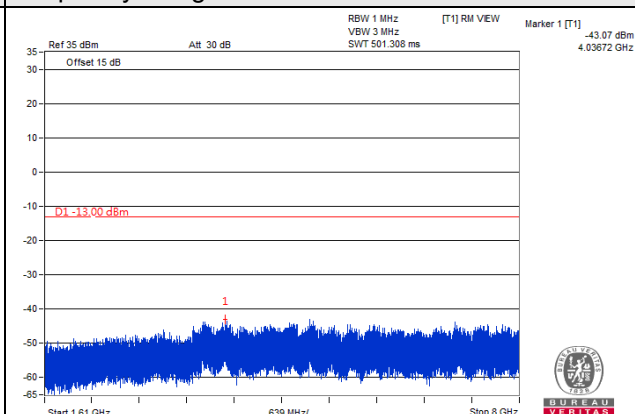
Frequency Range : 1GHz~1.559GHz



Frequency Range : 1.559GHz~1.61GHz

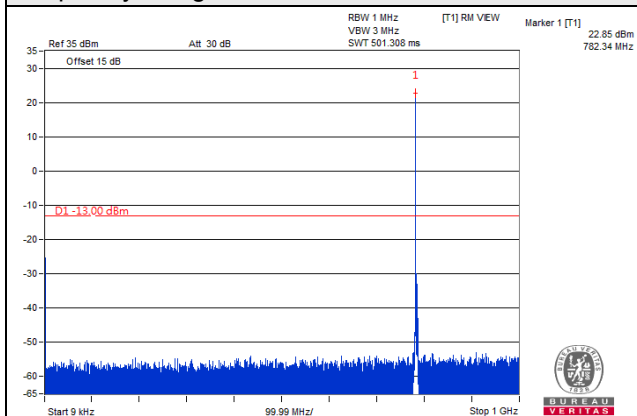


Frequency Range : 1.61GHz~8GHz

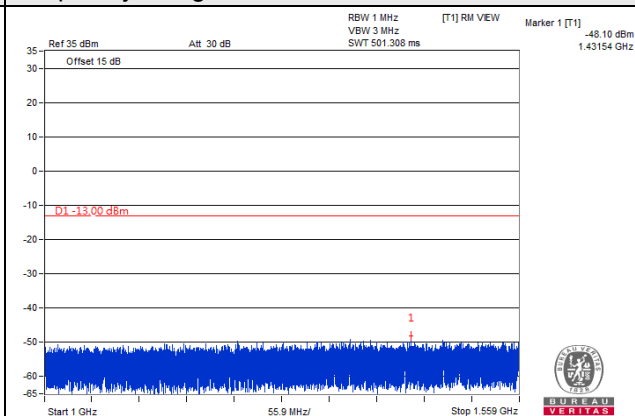


Channel 23255 (784.5MHz)

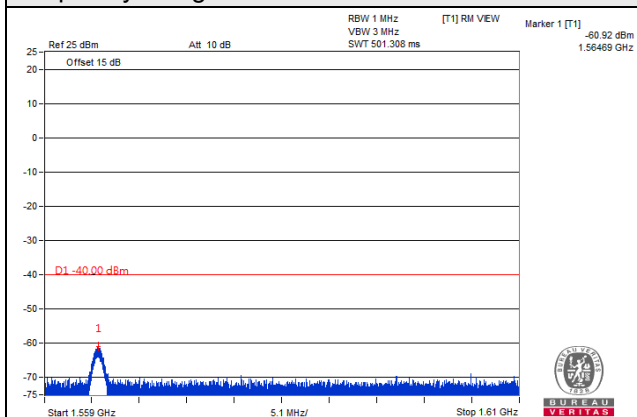
Frequency Range : 9kHz~1GHz



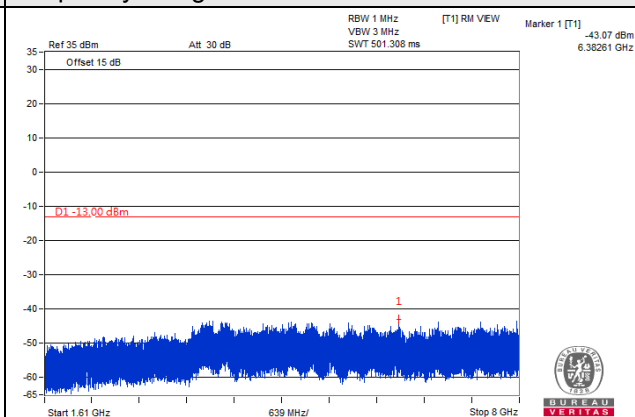
Frequency Range : 1GHz~1.559GHz



Frequency Range : 1.559GHz~1.61GHz



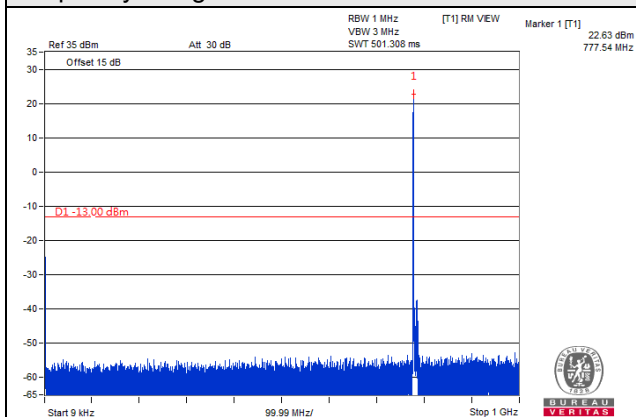
Frequency Range : 1.61GHz~8GHz



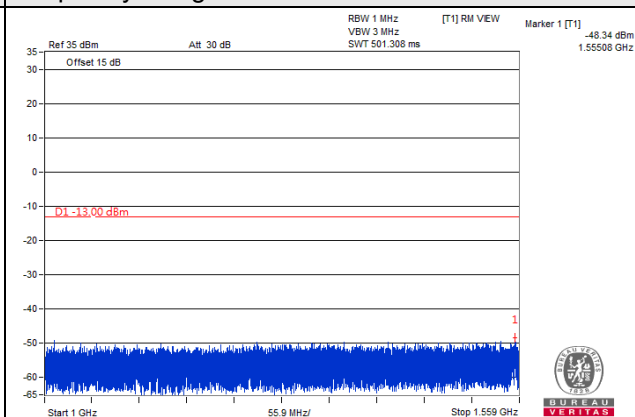
Channel Bandwidth: 10MHz

Channel 23230 (782.0MHz)

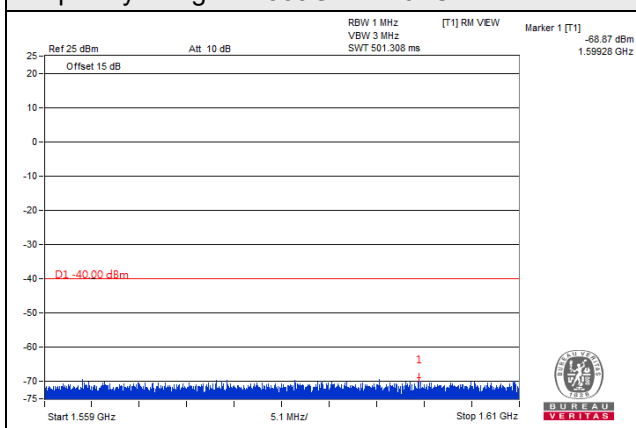
Frequency Range : 9kHz~1GHz



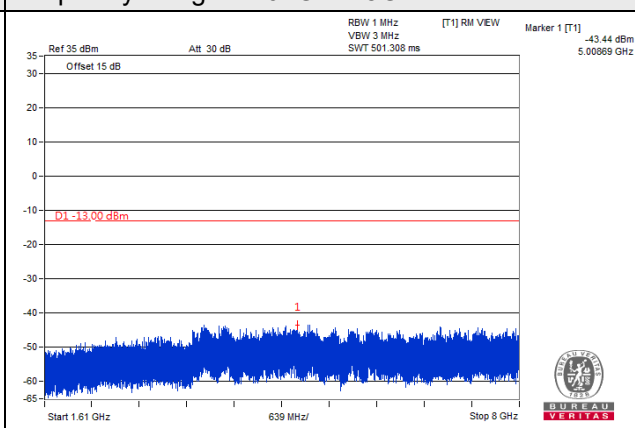
Frequency Range : 1GHz~1.559GHz



Frequency Range : 1.559GHz~1.61GHz



Frequency Range : 1.61GHz~8GHz

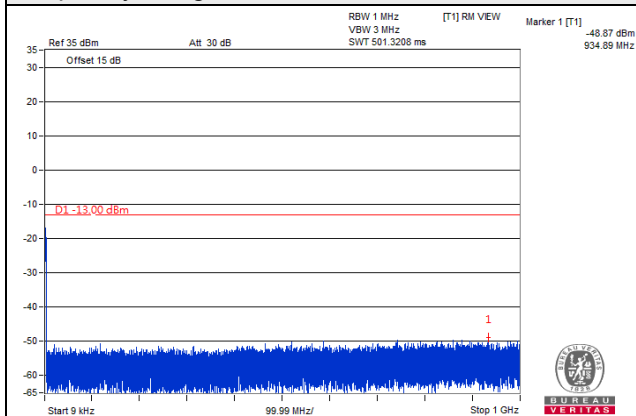


LTE Band 66

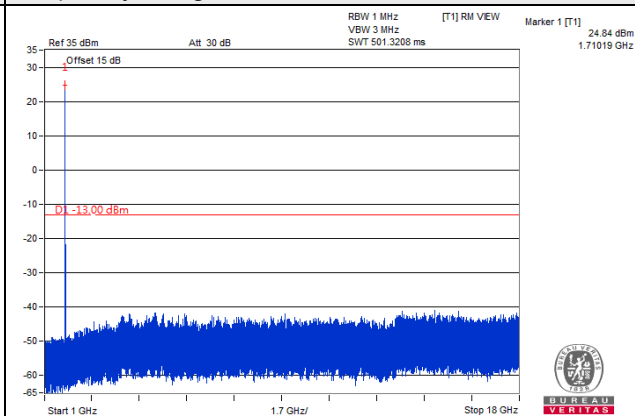
Channel Bandwidth: 1.4MHz

Channel 131979 (1710.7MHz)

Frequency Range : 9kHz~1GHz

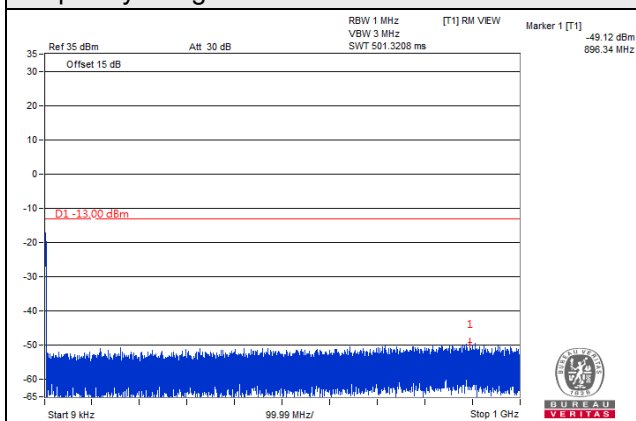


Frequency Range : 1GHz~18GHz

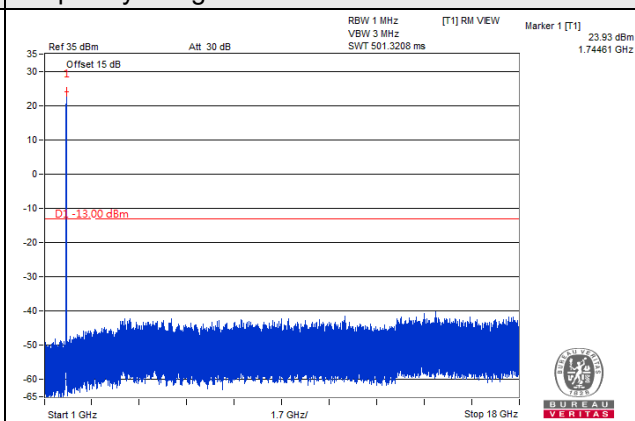


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

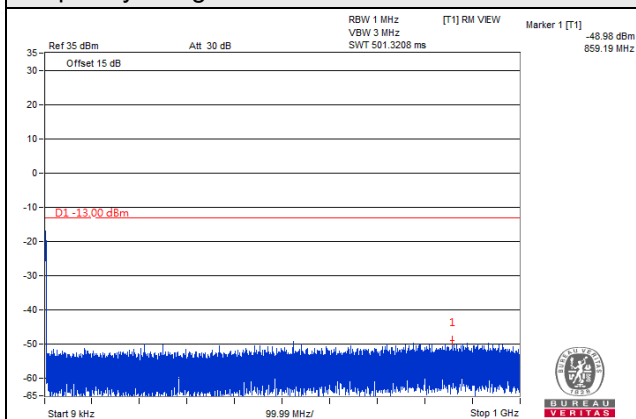


Frequency Range : 1GHz~18GHz

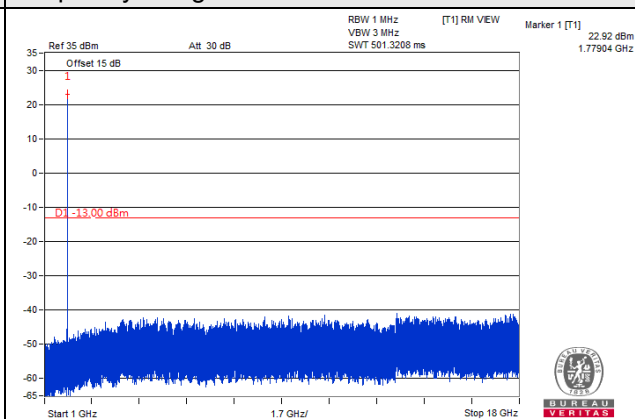


Channel 132665 (1779.3MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

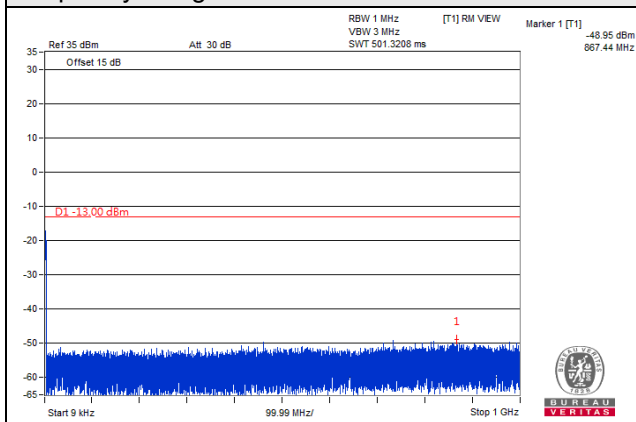


Note: The signal over the limit in 9 kHz is from spectrum analyzer.

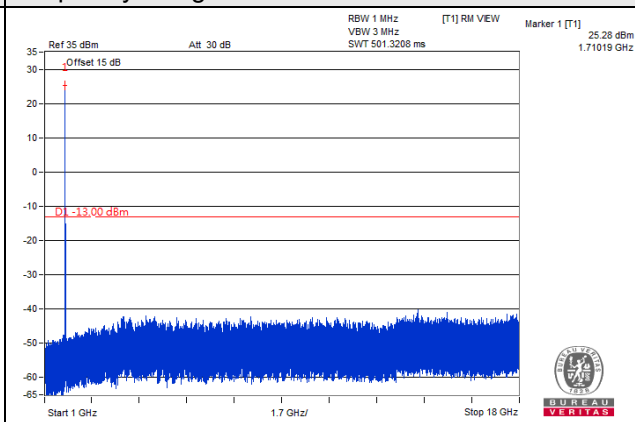
Channel Bandwidth: 3MHz

Channel 131987 (1711.5MHz)

Frequency Range : 9kHz~1GHz

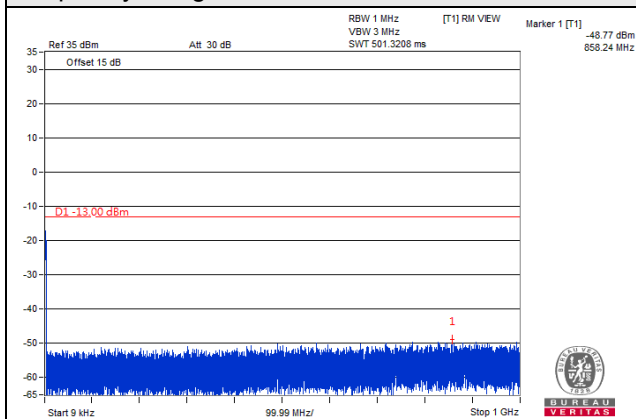


Frequency Range : 1GHz~18GHz

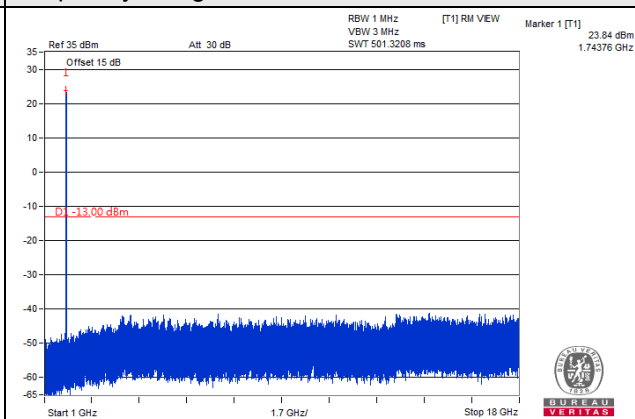


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

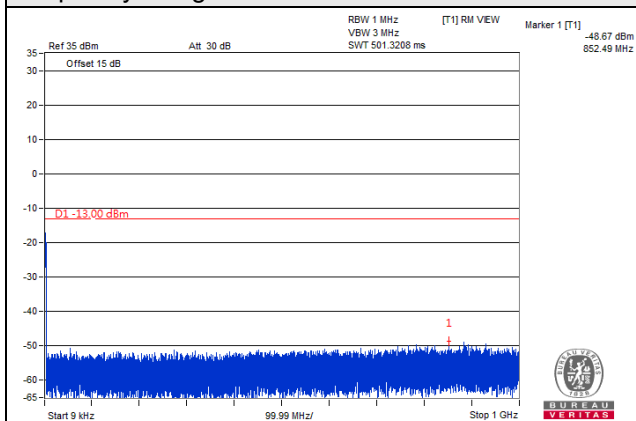


Frequency Range : 1GHz~18GHz

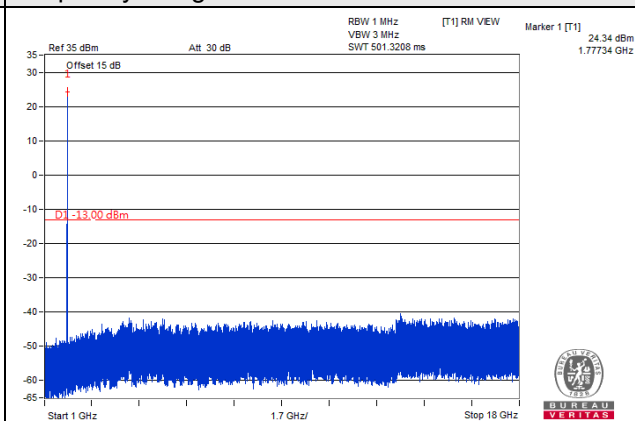


Channel 132657 (1778.5MHz)

Frequency Range : 9kHz~1GHz



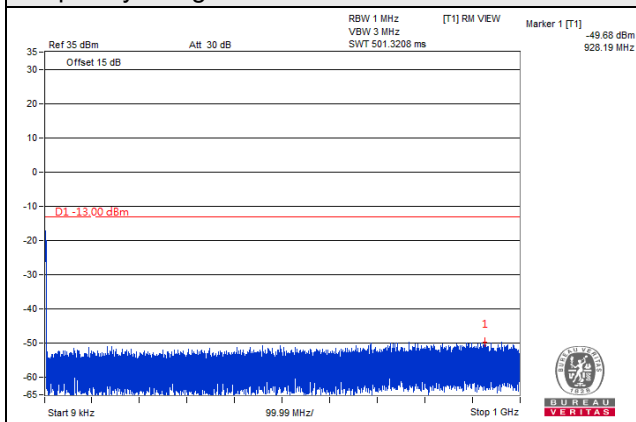
Frequency Range : 1GHz~18GHz



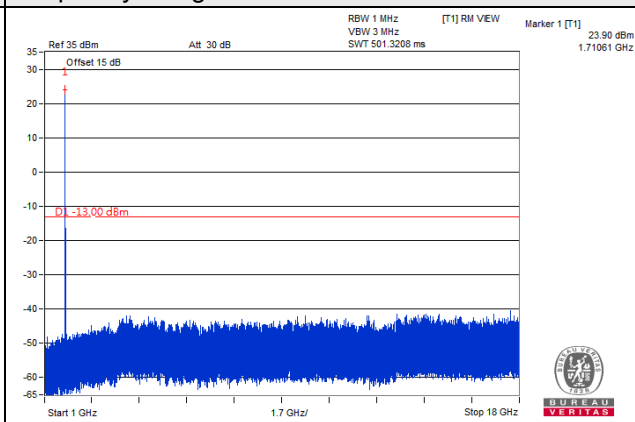
Channel Bandwidth: 5MHz

Channel 131997 (1712.5MHz)

Frequency Range : 9kHz~1GHz

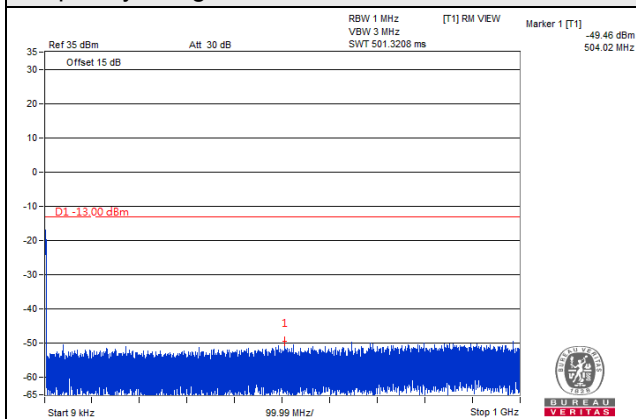


Frequency Range : 1GHz~18GHz

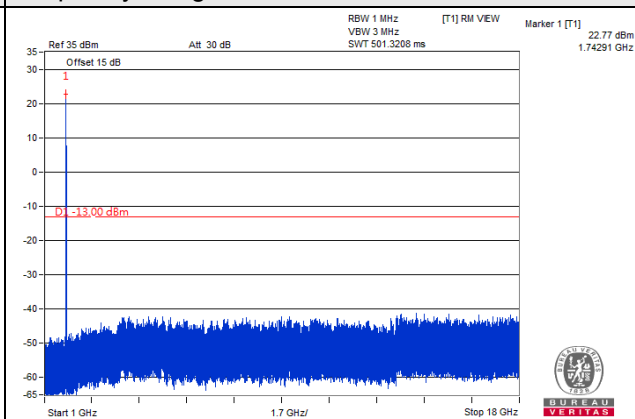


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

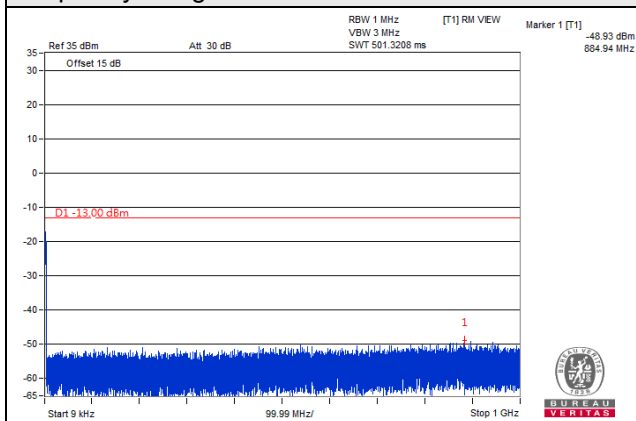


Frequency Range : 1GHz~18GHz

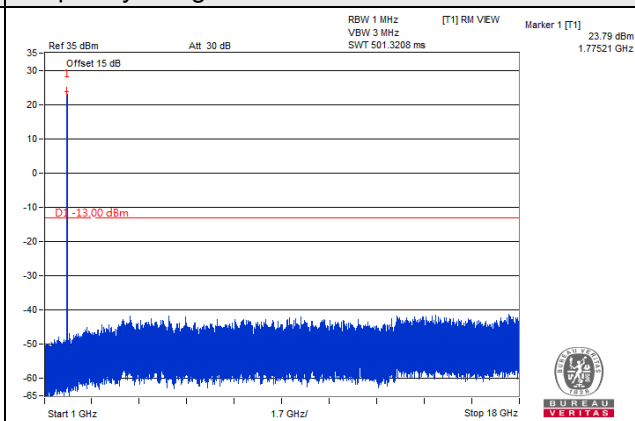


Channel 132647 (1777.5MHz)

Frequency Range : 9kHz~1GHz



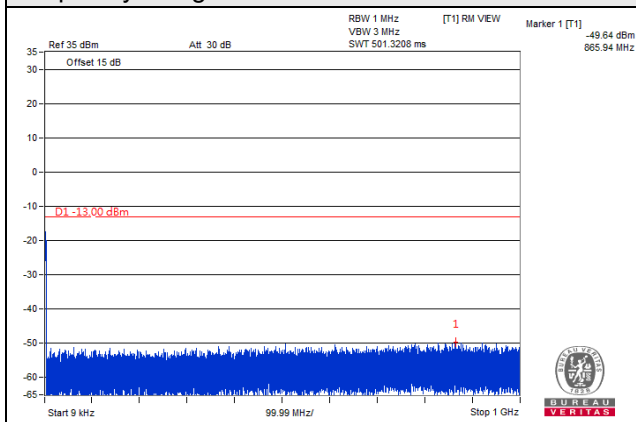
Frequency Range : 1GHz~18GHz



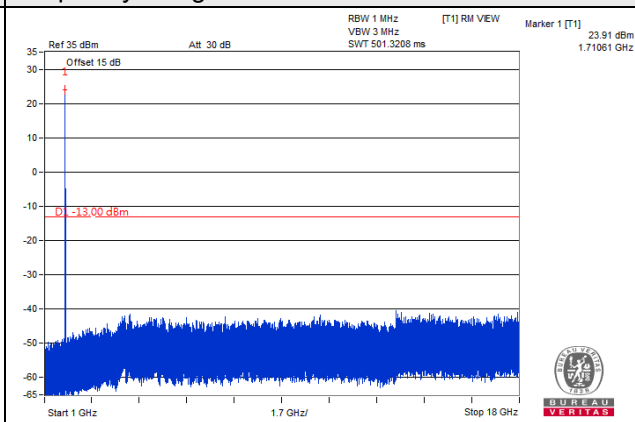
Channel Bandwidth: 10MHz

Channel 132022 (1715.0MHz)

Frequency Range : 9kHz~1GHz

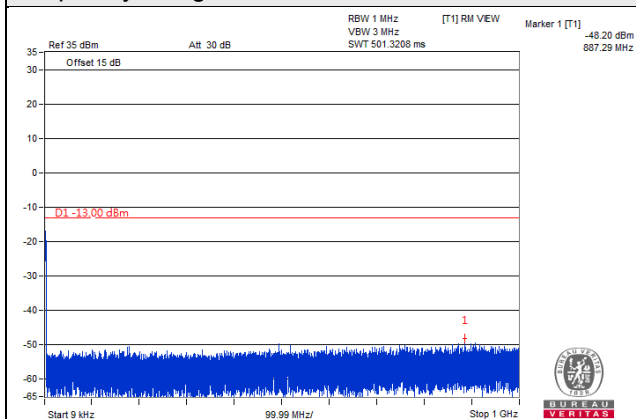


Frequency Range : 1GHz~18GHz

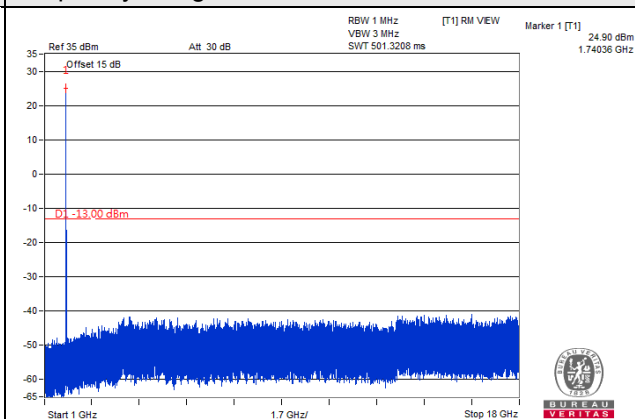


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

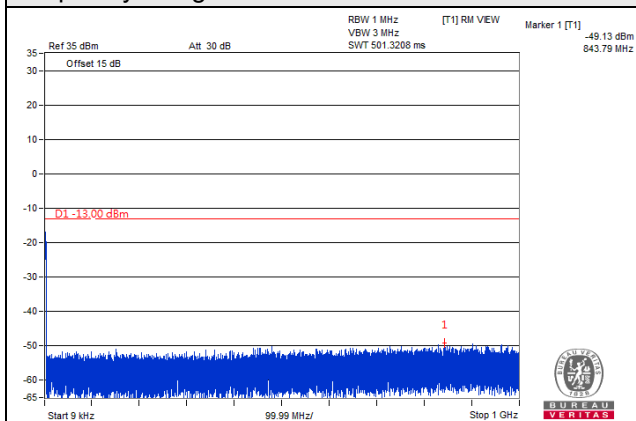


Frequency Range : 1GHz~18GHz

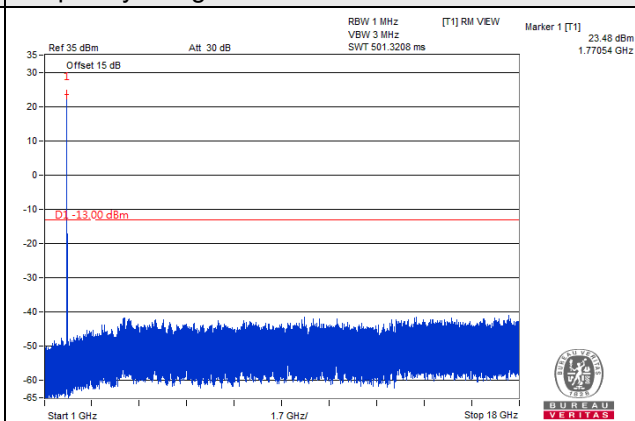


Channel 132622 (1775.0MHz)

Frequency Range : 9kHz~1GHz



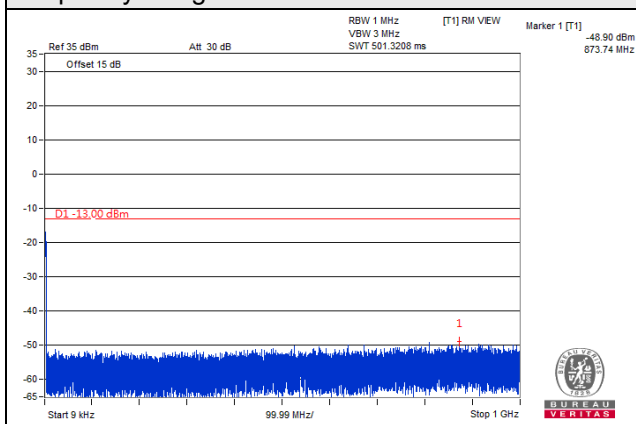
Frequency Range : 1GHz~18GHz



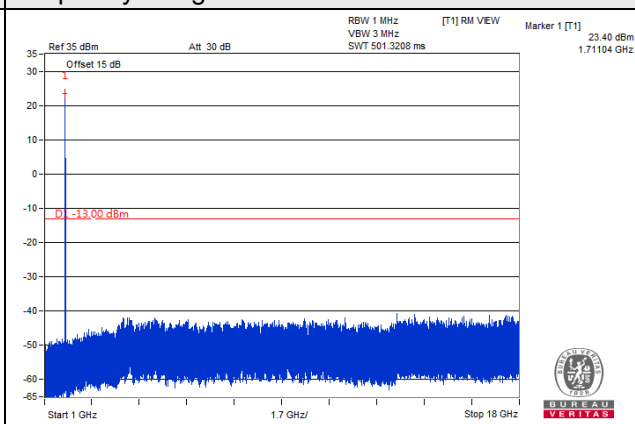
Channel Bandwidth: 15MHz

Channel 132047 (1717.5MHz)

Frequency Range : 9kHz~1GHz

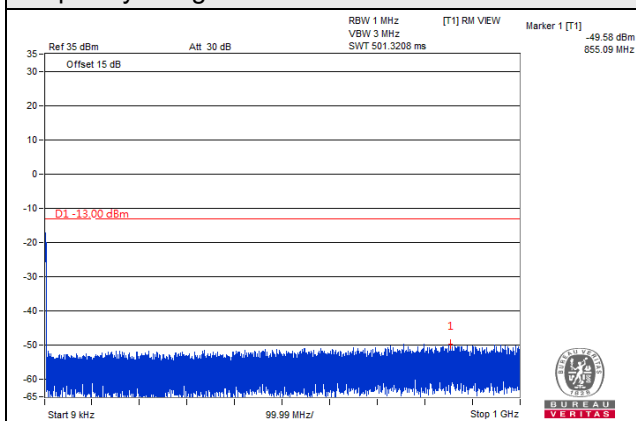


Frequency Range : 1GHz~18GHz

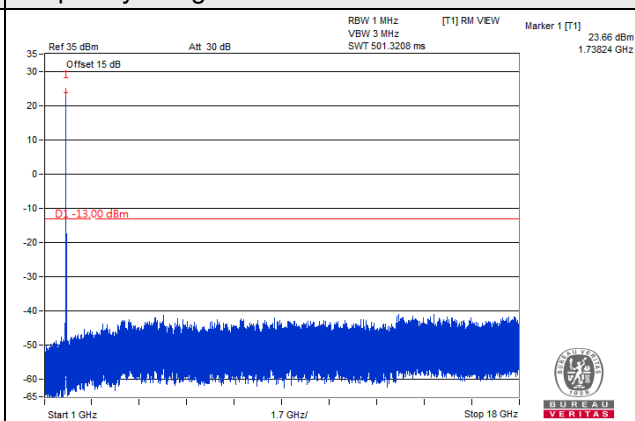


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

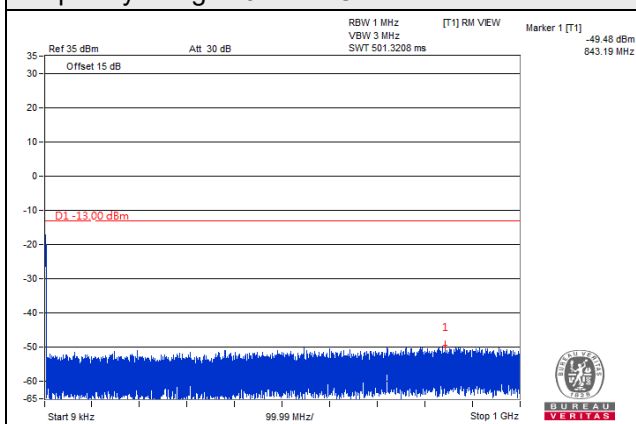


Frequency Range : 1GHz~18GHz

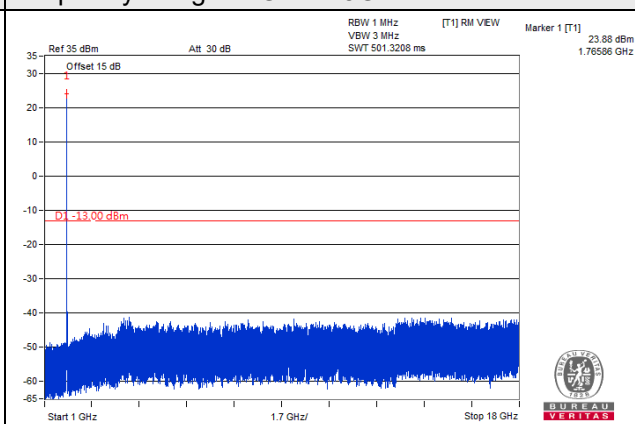


Channel 132597 (1772.5MHz)

Frequency Range : 9kHz~1GHz



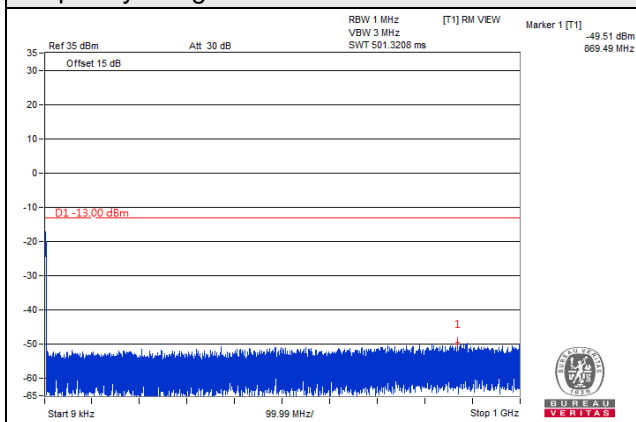
Frequency Range : 1GHz~18GHz



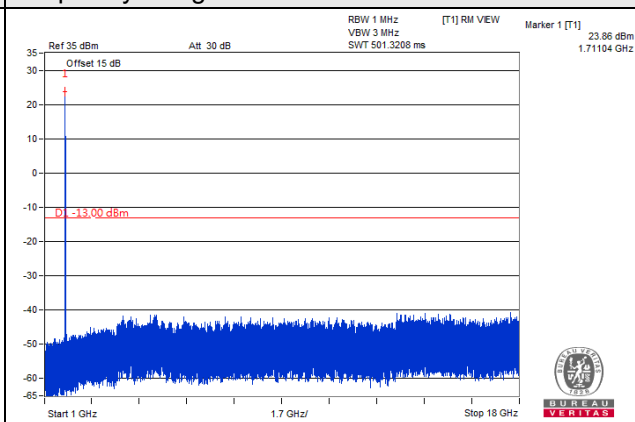
Channel Bandwidth: 20MHz

Channel 132072 (1720.0MHz)

Frequency Range : 9kHz~1GHz

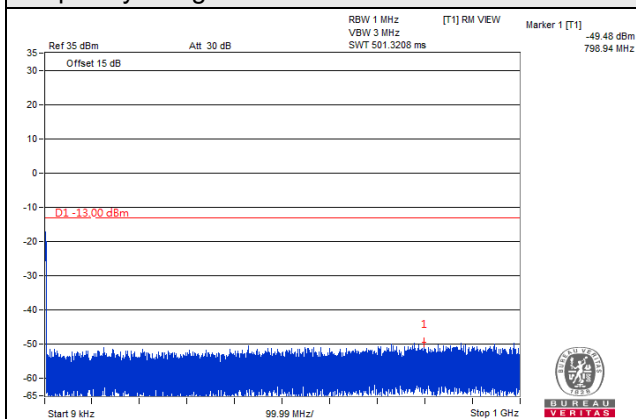


Frequency Range : 1GHz~18GHz

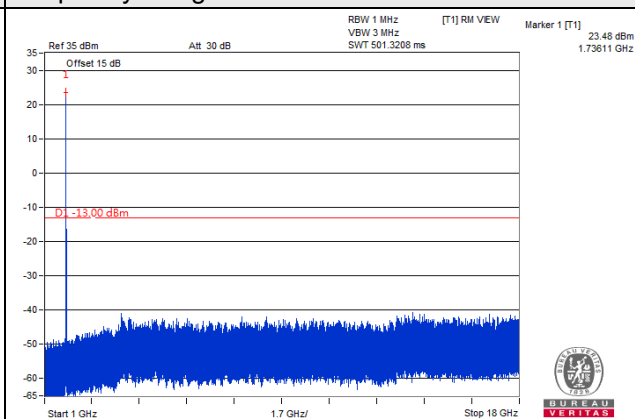


Channel 132322 (1745.0MHz)

Frequency Range : 9kHz~1GHz

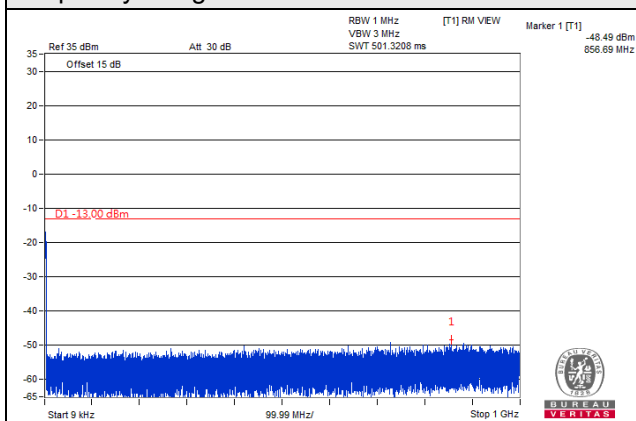


Frequency Range : 1GHz~18GHz

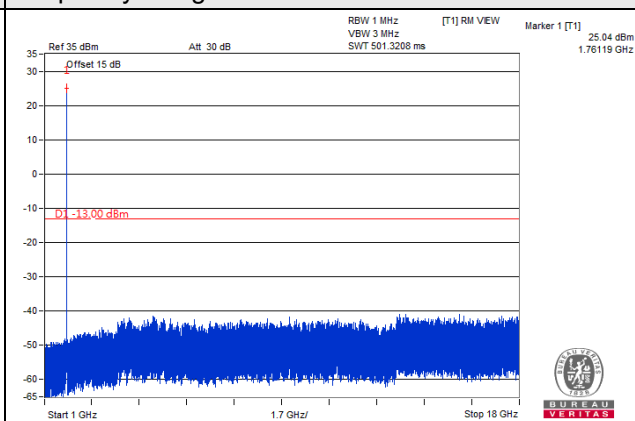


Channel 132572 (1770.0MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~18GHz

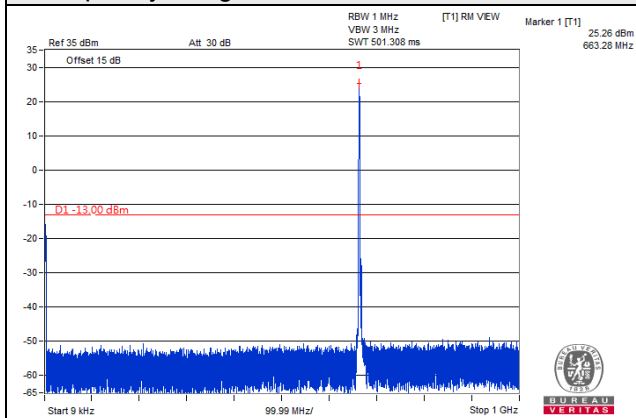


LTE Band 71

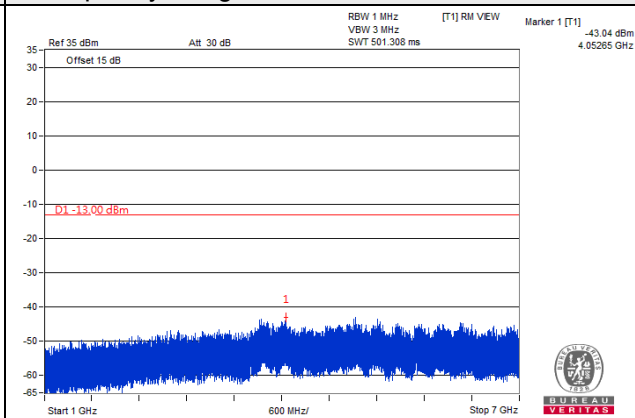
Channel Bandwidth: 5MHz

Channel 133147 (665.5MHz)

Frequency Range : 9kHz~1GHz

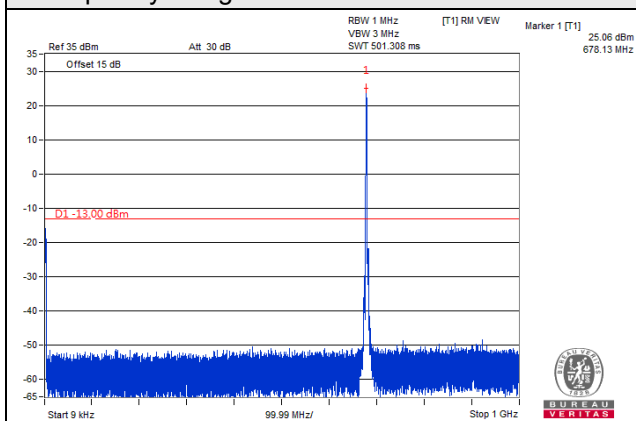


Frequency Range : 1GHz~7GHz

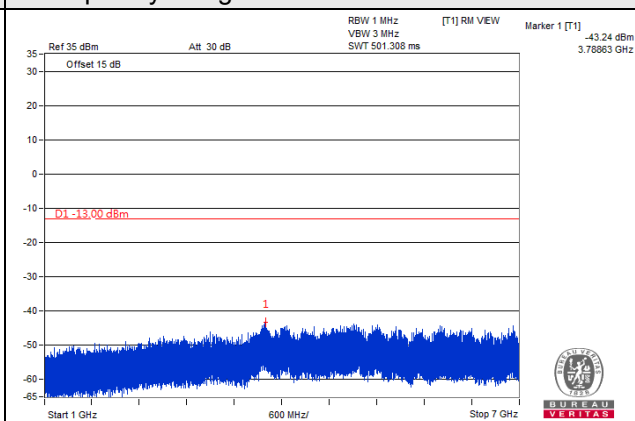


Channel 133297 (680.5MHz)

Frequency Range : 9kHz~1GHz

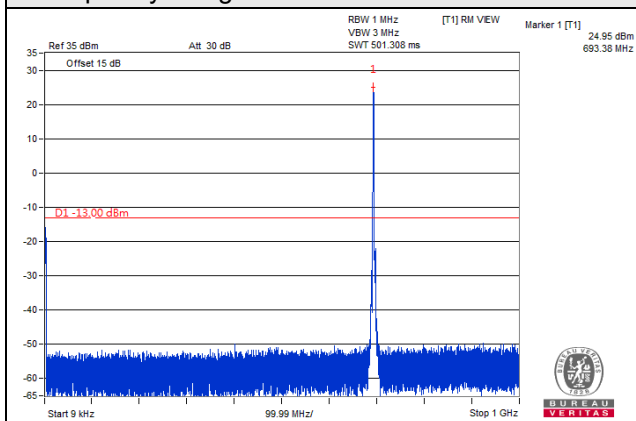


Frequency Range : 1GHz~7GHz

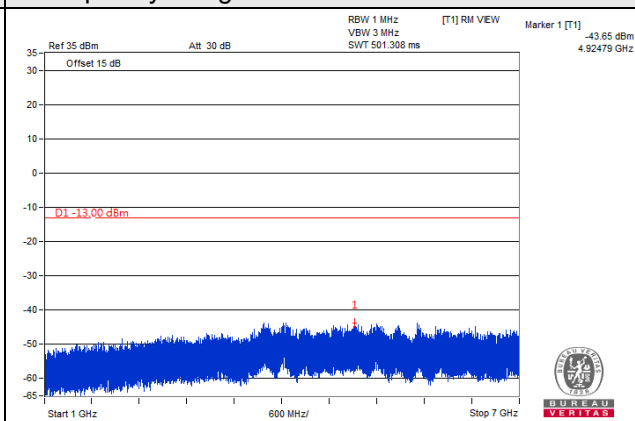


Channel 133447 (695.5MHz)

Frequency Range : 9kHz~1GHz



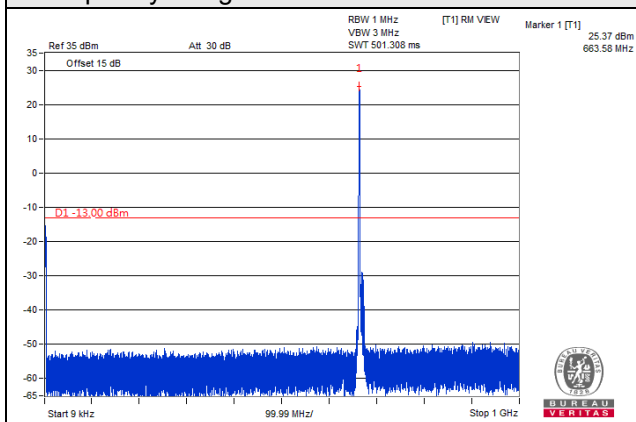
Frequency Range : 1GHz~7GHz



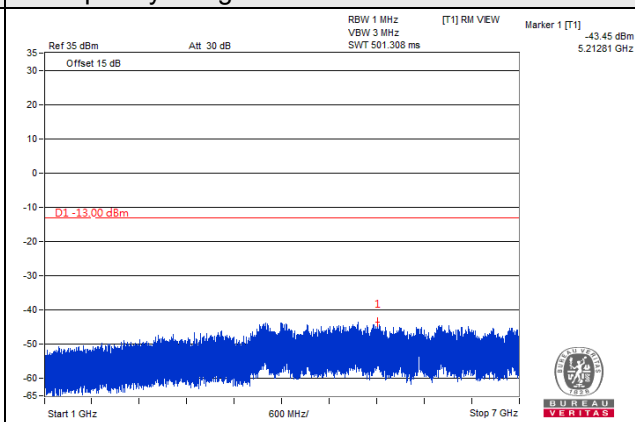
Channel Bandwidth: 10MHz

Channel 133172 (668.0MHz)

Frequency Range : 9kHz~1GHz

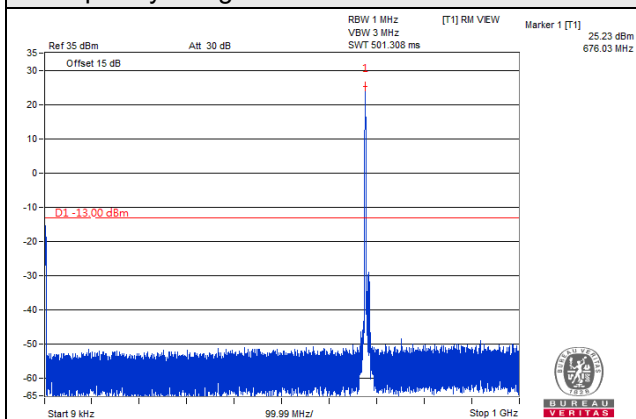


Frequency Range : 1GHz~7GHz

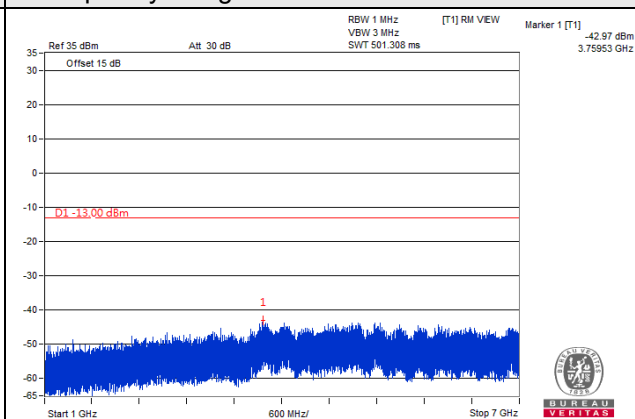


Channel 133297 (680.5MHz)

Frequency Range : 9kHz~1GHz

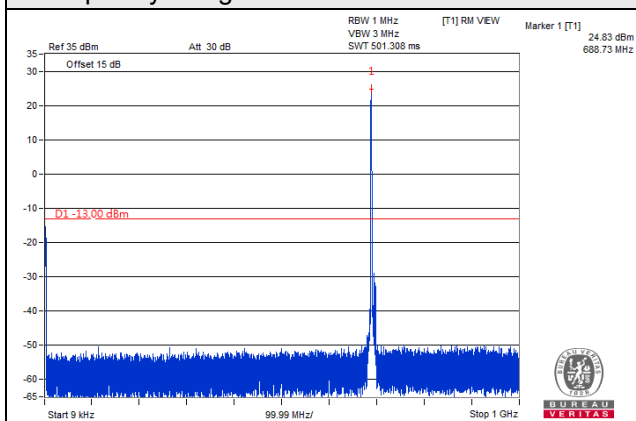


Frequency Range : 1GHz~7GHz

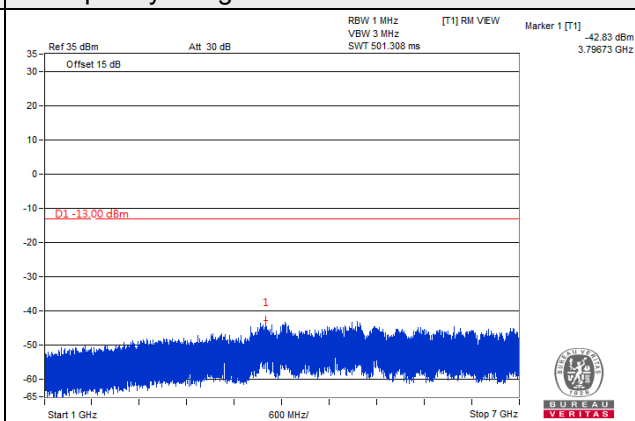


Channel 133422 (693.0MHz)

Frequency Range : 9kHz~1GHz



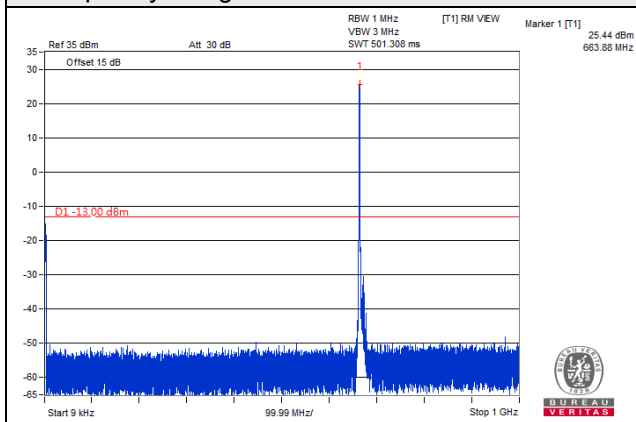
Frequency Range : 1GHz~7GHz



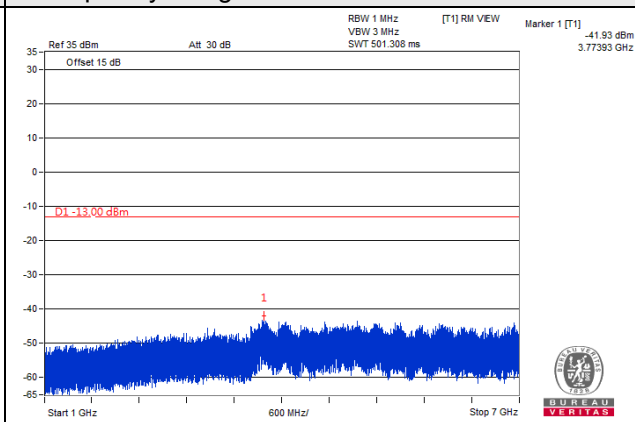
Channel Bandwidth: 15MHz

Channel 133197 (670.5MHz)

Frequency Range : 9kHz~1GHz

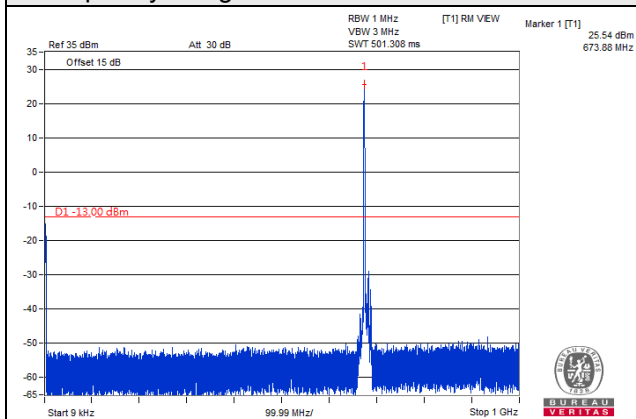


Frequency Range : 1GHz~7GHz

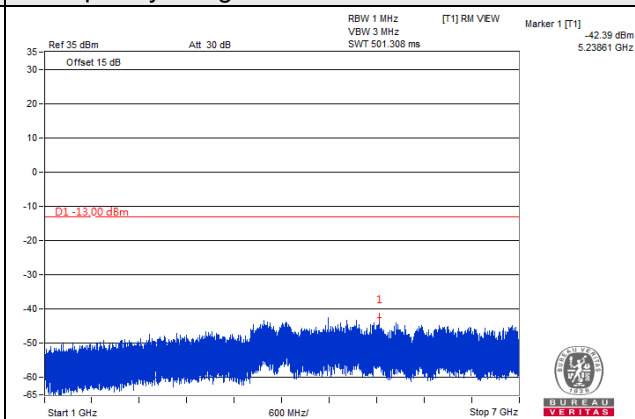


Channel 133297 (680.5MHz)

Frequency Range : 9kHz~1GHz

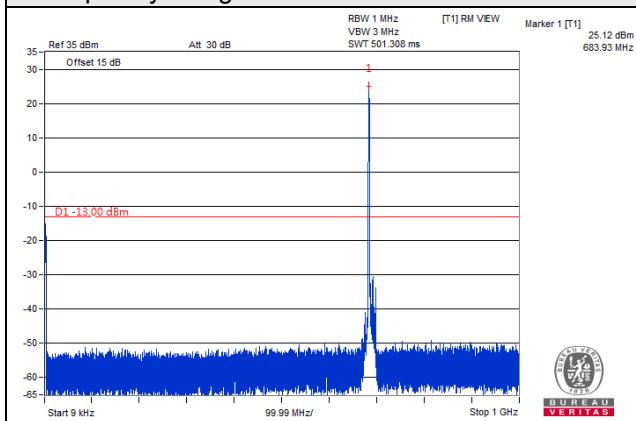


Frequency Range : 1GHz~7GHz

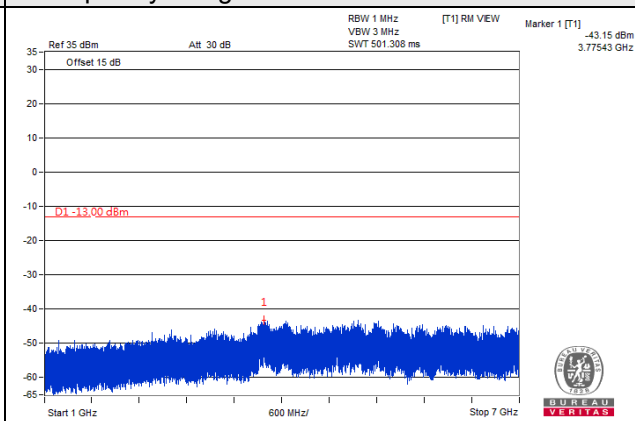


Channel 133397 (690.5MHz)

Frequency Range : 9kHz~1GHz



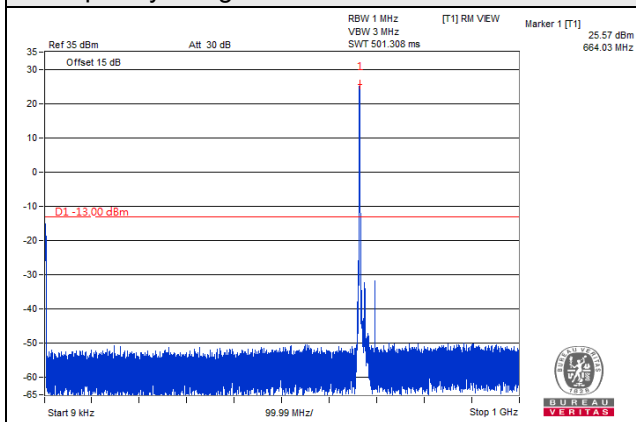
Frequency Range : 1GHz~7GHz



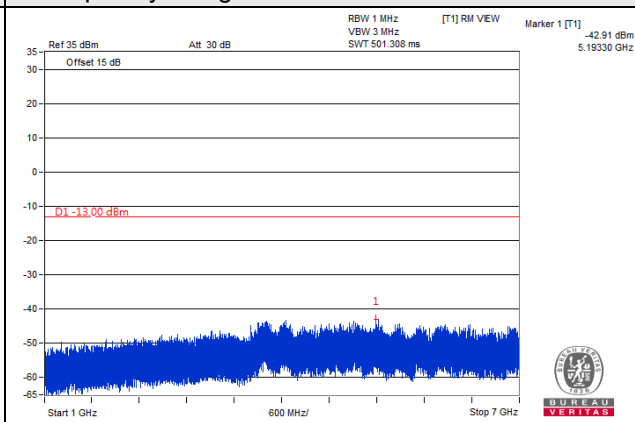
Channel Bandwidth: 20MHz

Channel 133222 (673.0MHz)

Frequency Range : 9kHz~1GHz

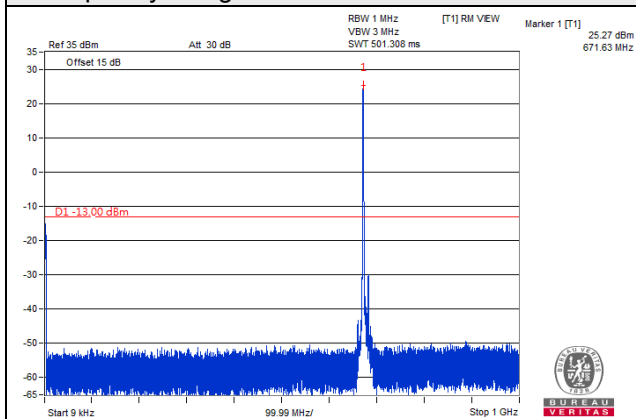


Frequency Range : 1GHz~7GHz

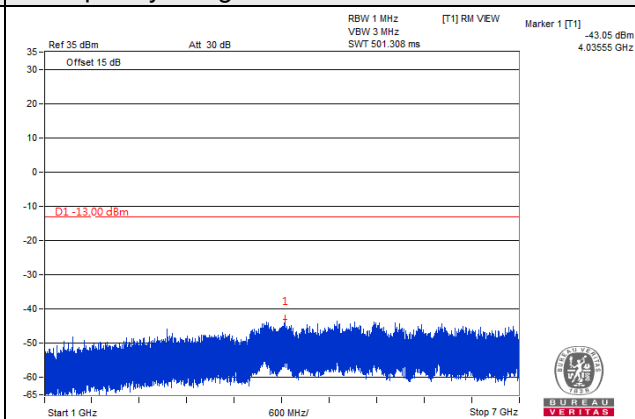


Channel 133297 (680.5MHz)

Frequency Range : 9kHz~1GHz

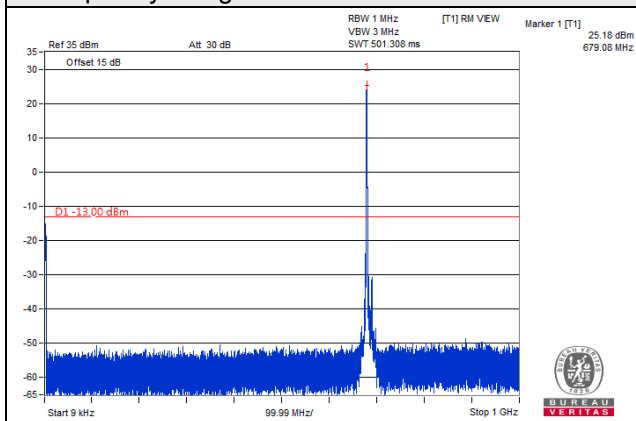


Frequency Range : 1GHz~7GHz

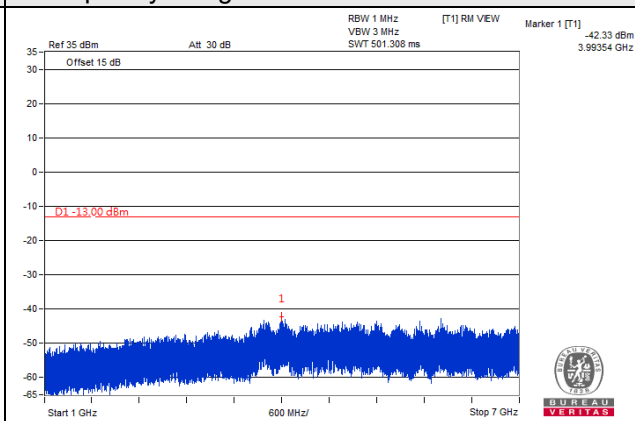


Channel 133372 (688.0MHz)

Frequency Range : 9kHz~1GHz



Frequency Range : 1GHz~7GHz



4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

For WCDMA Band 4, LTE Band 4, 66

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log (P)$ dB.

For LTE Band 12, 71

According to FCC 27.53(g) for operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater.

For LTE Band 13

According to FCC 27.53(c)(2) for on any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log (P)$ dB.

According to FCC 27.53(f) for operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz. The limit of emissions is equal to -40 dBm

4.8.2 Test Procedure

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
- b. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

Note:

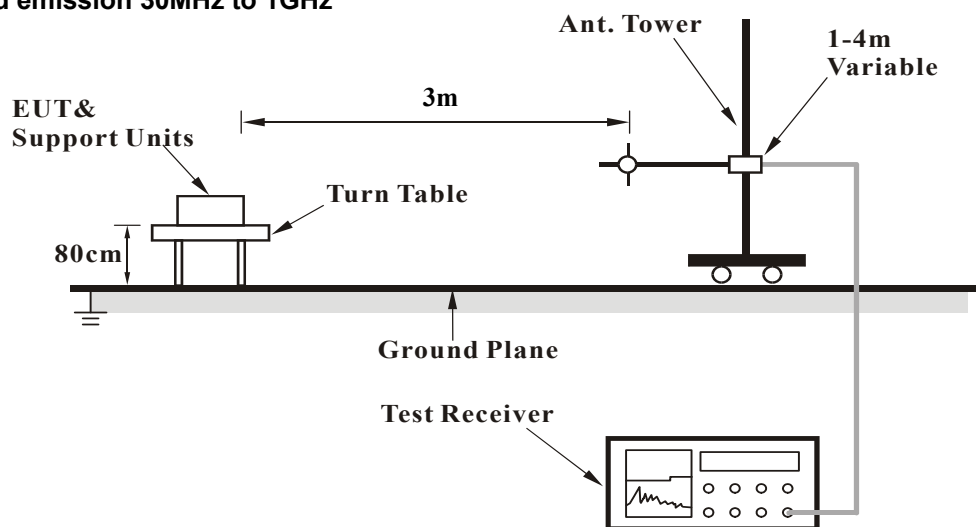
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

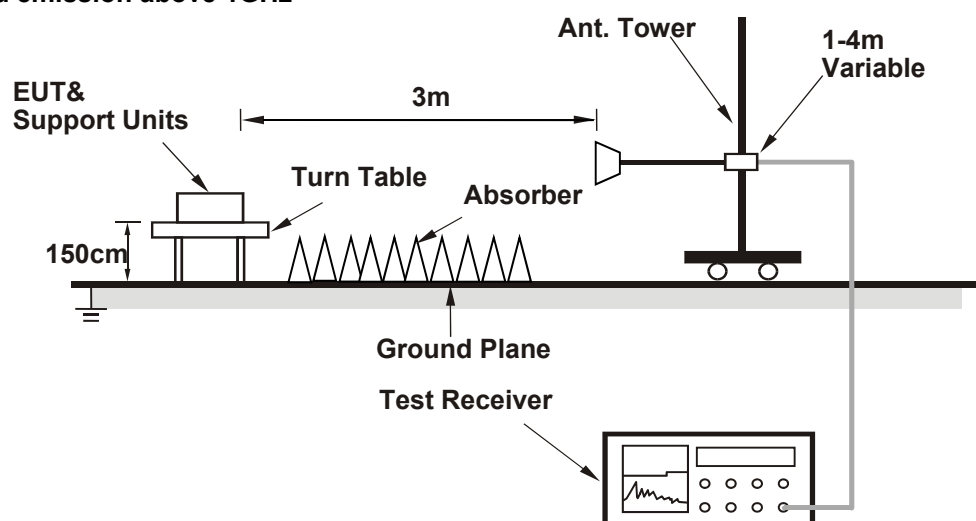
No deviation.

4.8.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.8.5 Test Results

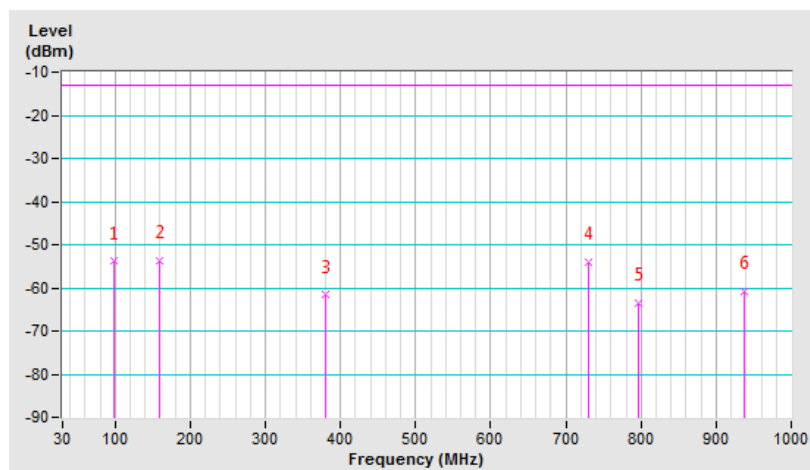
Below 1GHz

WCDMA Band 4

Mode	TX channel 1513 (1752.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

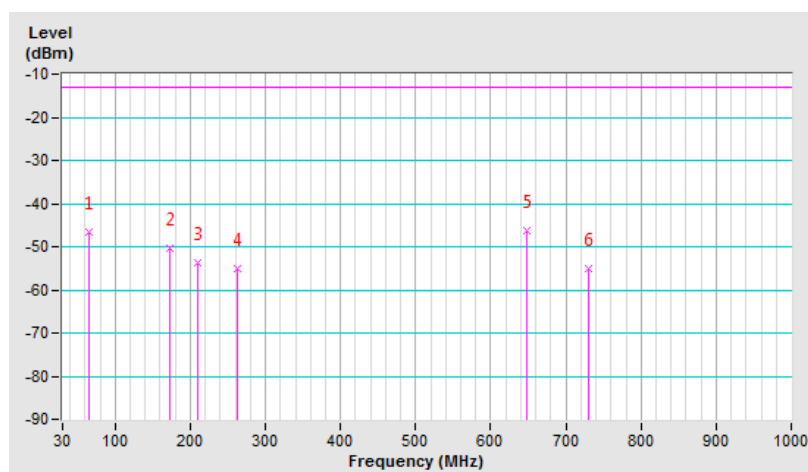
Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	97.90	-46.40	-54.90	1.00	-53.90	-13.00	-40.90
2	159.98	-48.50	-54.20	0.40	-53.80	-13.00	-40.80
3	379.20	-60.60	-67.00	5.30	-61.70	-13.00	-48.70
4	730.34	-57.40	-59.00	4.90	-54.10	-13.00	-41.10
5	796.30	-68.90	-67.60	4.10	-63.50	-13.00	-50.50
6	937.92	-67.80	-64.60	3.90	-60.70	-13.00	-47.70



Mode	TX channel 1513 (1752.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	64.92	-39.70	-40.40	-6.30	-46.70	-13.00	-33.70
2	173.56	-50.20	-52.40	2.10	-50.30	-13.00	-37.30
3	210.42	-52.50	-59.20	5.40	-53.80	-13.00	-40.80
4	262.80	-57.10	-60.30	5.30	-55.00	-13.00	-42.00
5	648.86	-50.80	-51.00	4.80	-46.20	-13.00	-33.20
6	730.34	-60.70	-59.90	4.90	-55.00	-13.00	-42.00

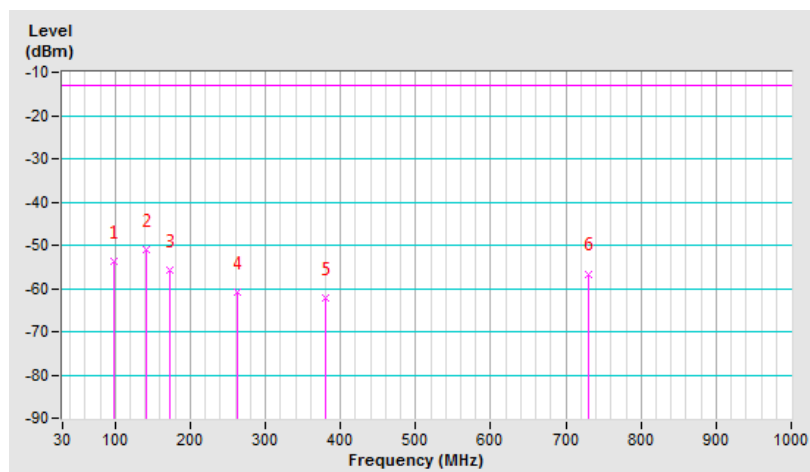


LTE Band 4, Channel Bandwidth: 1.4MHz

Mode	TX channel 19957 (1710.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

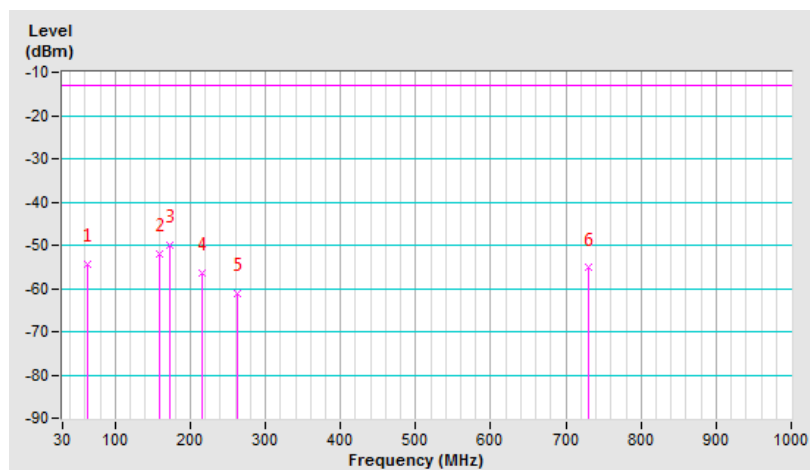
Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	97.90	-46.20	-54.70	1.00	-53.70	-13.00	-40.70
2	140.58	-45.30	-50.60	-0.30	-50.90	-13.00	-37.90
3	173.56	-48.40	-57.90	2.10	-55.80	-13.00	-42.80
4	262.80	-55.80	-66.20	5.30	-60.90	-13.00	-47.90
5	379.20	-61.10	-67.50	5.30	-62.20	-13.00	-49.20
6	730.34	-59.90	-61.50	4.90	-56.60	-13.00	-43.60



Mode	TX channel 19957 (1710.7MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	62.98	-47.10	-47.60	-6.80	-54.40	-13.00	-41.40
2	159.98	-51.50	-52.40	0.40	-52.00	-13.00	-39.00
3	173.56	-50.00	-52.20	2.10	-50.10	-13.00	-37.10
4	216.24	-55.20	-61.70	5.40	-56.30	-13.00	-43.30
5	262.80	-63.30	-66.50	5.30	-61.20	-13.00	-48.20
6	730.34	-61.00	-60.20	4.90	-55.30	-13.00	-42.30

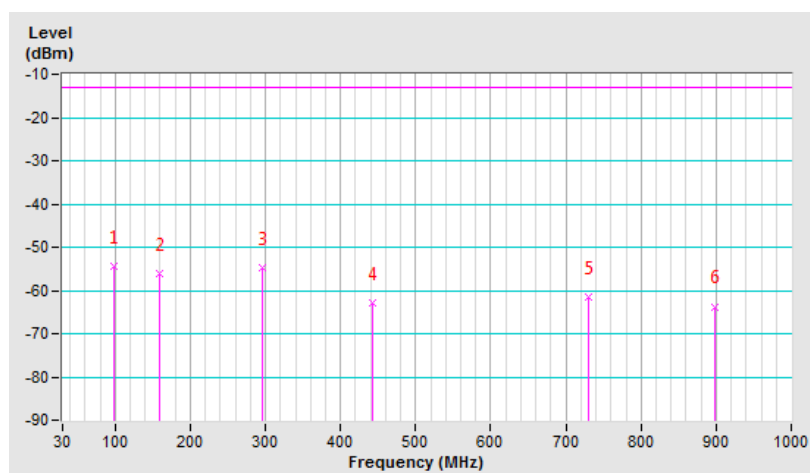


LTE Band 12, Channel Bandwidth: 5MHz

Mode	TX channel 23155 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

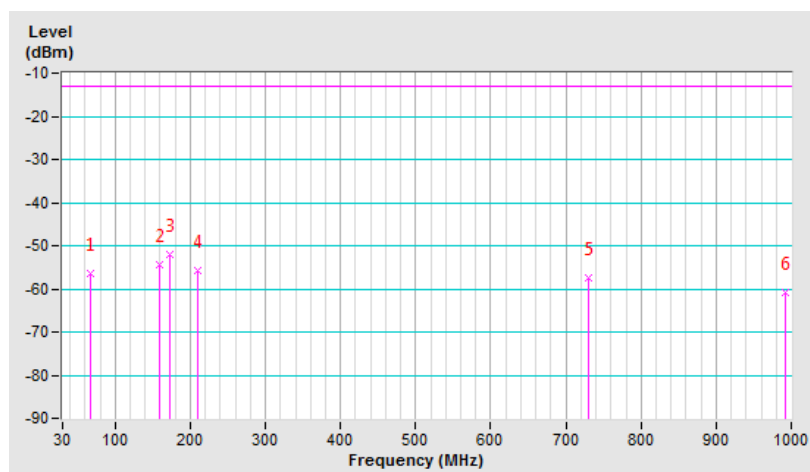
Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	97.90	-44.60	-55.30	1.00	-54.30	-13.00	-41.30
2	159.98	-48.50	-56.40	0.40	-56.00	-13.00	-43.00
3	295.78	-49.10	-60.00	5.10	-54.90	-13.00	-41.90
4	443.22	-59.80	-68.00	5.20	-62.80	-13.00	-49.80
5	730.34	-62.60	-66.40	4.90	-61.50	-13.00	-48.50
6	899.12	-68.20	-67.60	3.90	-63.70	-13.00	-50.70



Mode	TX channel 23155 (713.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	66.86	-47.90	-50.70	-5.80	-56.50	-13.00	-43.50
2	159.98	-51.80	-54.80	0.40	-54.40	-13.00	-41.40
3	173.56	-50.00	-54.30	2.10	-52.20	-13.00	-39.20
4	210.42	-52.30	-61.20	5.40	-55.80	-13.00	-42.80
5	730.34	-60.90	-62.30	4.90	-57.40	-13.00	-44.40
6	992.24	-69.20	-64.70	4.00	-60.70	-13.00	-47.70

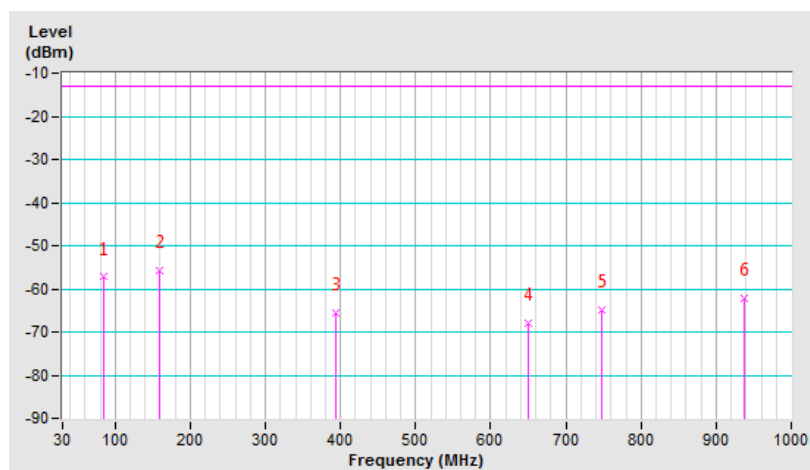


LTE Band 13, Channel Bandwidth: 5MHz

Mode	TX channel 23255 (784.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

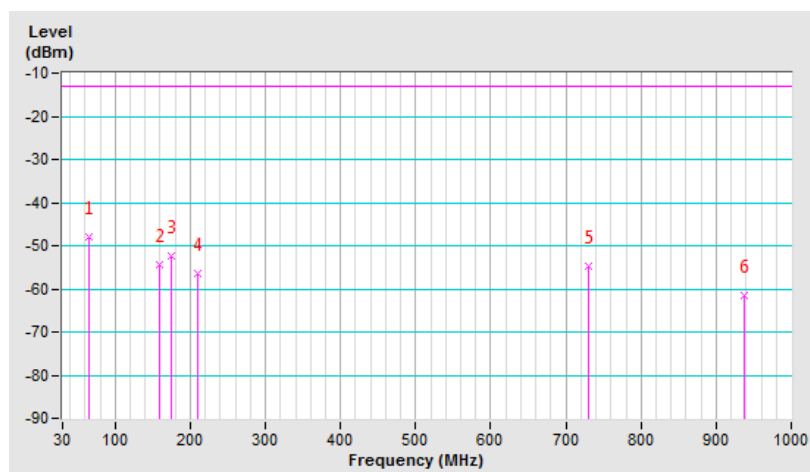
Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	84.32	-48.80	-56.80	-0.50	-57.30	-13.00	-44.30
2	159.98	-48.30	-56.20	0.40	-55.80	-13.00	-42.80
3	392.78	-62.40	-70.70	5.20	-65.50	-13.00	-52.50
4	650.80	-67.10	-72.70	4.80	-67.90	-13.00	-54.90
5	747.80	-66.50	-69.70	4.70	-65.00	-13.00	-52.00
6	937.92	-67.00	-66.00	3.90	-62.10	-13.00	-49.10



Mode	TX channel 23255 (784.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	64.92	-38.90	-41.70	-6.30	-48.00	-13.00	-35.00
2	159.98	-51.60	-54.70	0.40	-54.30	-13.00	-41.30
3	175.50	-49.60	-54.60	2.30	-52.30	-13.00	-39.30
4	210.42	-52.90	-61.80	5.40	-56.40	-13.00	-43.40
5	730.34	-58.20	-59.60	4.90	-54.70	-13.00	-41.70
6	937.92	-68.20	-65.50	3.90	-61.60	-13.00	-48.60

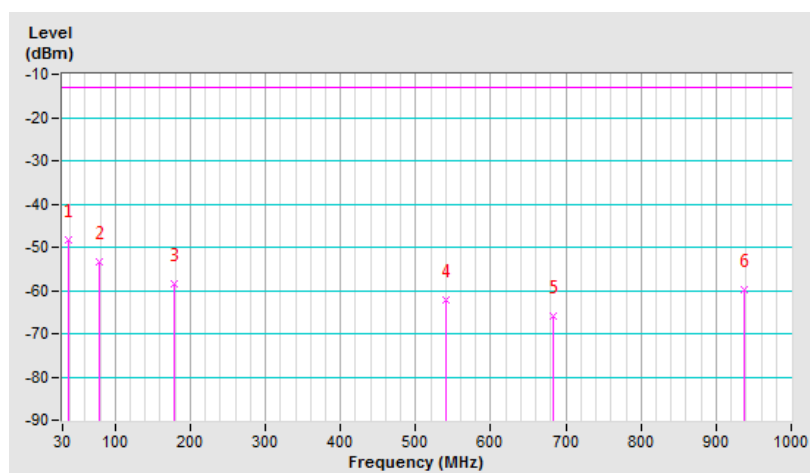


LTE Band 66, Channel Bandwidth: 1.4MHz

Mode	TX channel 132665 (1779.3MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

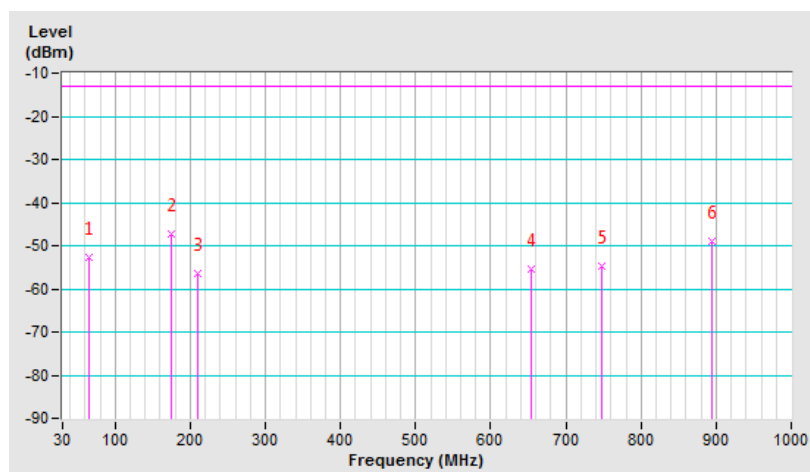
Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	37.76	-51.50	-37.20	-11.20	-48.40	-13.00	-35.40
2	78.50	-47.60	-51.10	-2.20	-53.30	-13.00	-40.30
3	179.38	-50.40	-61.40	2.80	-58.60	-13.00	-45.60
4	540.22	-61.60	-67.00	4.70	-62.30	-13.00	-49.30
5	683.78	-67.70	-71.10	5.10	-66.00	-13.00	-53.00
6	937.92	-67.00	-63.80	3.90	-59.90	-13.00	-46.90



Mode	TX channel 132665 (1779.3MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

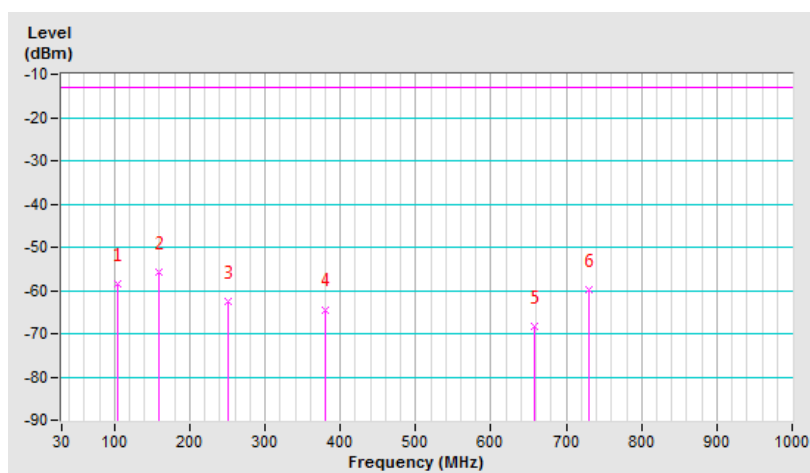
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	64.92	-45.60	-46.30	-6.30	-52.60	-13.00	-39.60
2	175.50	-46.90	-49.70	2.30	-47.40	-13.00	-34.40
3	210.42	-55.10	-61.80	5.40	-56.40	-13.00	-43.40
4	654.68	-60.20	-60.40	4.90	-55.50	-13.00	-42.50
5	747.80	-60.40	-59.50	4.70	-54.80	-13.00	-41.80
6	895.24	-56.00	-52.90	3.90	-49.00	-13.00	-36.00



LTE Band 71, Channel Bandwidth: 5MHz

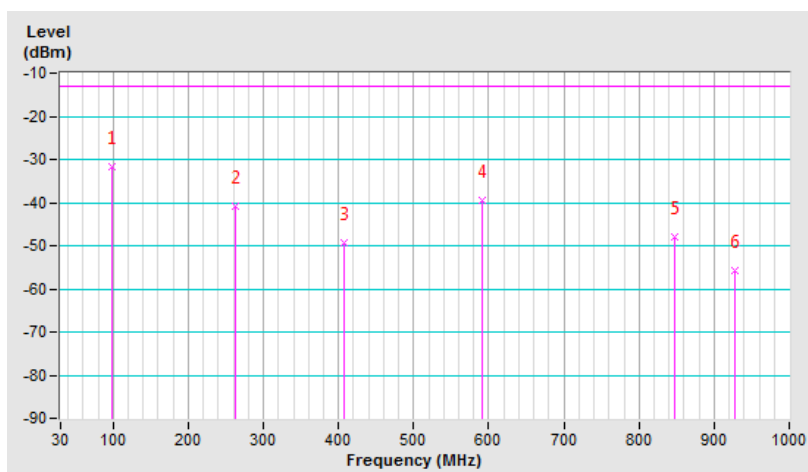
Mode	TX channel 133447 (695.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	103.72	-48.50	-59.20	0.70	-58.50	-13.00	-45.50
2	159.98	-48.30	-56.20	0.40	-55.80	-13.00	-42.80
3	251.16	-54.20	-68.00	5.40	-62.60	-13.00	-49.60
4	379.20	-61.20	-69.70	5.30	-64.40	-13.00	-51.40
5	658.56	-67.90	-73.30	4.90	-68.40	-13.00	-55.40
6	730.34	-60.90	-64.70	4.90	-59.80	-13.00	-46.80



Mode	TX channel 133447 (695.5MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	97.90	-23.90	-32.70	1.00	-31.70	-13.00	-18.70
2	262.80	-41.00	-46.30	5.30	-41.00	-13.00	-28.00
3	408.30	-45.90	-54.50	5.20	-49.30	-13.00	-36.30
4	590.66	-40.20	-43.90	4.50	-39.40	-13.00	-26.40
5	846.74	-52.20	-52.10	4.00	-48.10	-13.00	-35.10
6	928.22	-61.90	-59.60	3.90	-55.70	-13.00	-42.70



Above 1GHz
WCDMA Band 4

Mode	TX channel 1312 (1712.4MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3424.80	-61.80	-53.20	1.30	-51.90	-13.00	-38.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3424.80	-59.60	-51.50	1.30	-50.20	-13.00	-37.20

Mode	TX channel 1413 (1732.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.20	-61.50	-53.10	1.40	-51.70	-13.00	-38.70
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.20	-59.40	-51.60	1.40	-50.20	-13.00	-37.20

Mode	TX channel 1513 (1752.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.20	-61.30	-53.10	1.50	-51.60	-13.00	-38.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.20	-59.20	-51.60	1.50	-50.10	-13.00	-37.10

LTE Band 4, Channel Bandwidth: 1.4MHz

Mode	TX channel 19957 (1710.7MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-61.30	-57.20	7.10	-50.10	-13.00	-37.10

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-61.60	-57.60	7.10	-50.50	-13.00	-37.50

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-60.50	-55.00	0.40	-54.60	-13.00	-41.60

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-57.60	-53.20	0.40	-52.80	-13.00	-39.80

Mode	TX channel 20393 (1754.3MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3508.60	-60.00	-54.20	0.60	-53.60	-13.00	-40.60

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3508.60	-58.00	-53.20	0.60	-52.60	-13.00	-39.60

LTE Band 4, Channel Bandwidth: 5MHz

Mode	TX channel 19975 (1712.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-60.00	-53.80	0.80	-53.00	-13.00	-40.00
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-57.90	-52.80	0.80	-52.00	-13.00	-39.00

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-60.00	-54.40	0.50	-53.90	-13.00	-40.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-58.00	-53.40	0.50	-52.90	-13.00	-39.90

Mode	TX channel 20375 (1752.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.00	-60.50	-54.70	0.60	-54.10	-13.00	-41.10
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3505.00	-58.10	-53.40	0.60	-52.80	-13.00	-39.80

LTE Band 4, Channel Bandwidth: 20MHz

Mode	TX channel 20050 (1720.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-60.50	-54.60	0.70	-53.90	-13.00	-40.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-57.80	-52.80	0.70	-52.10	-13.00	-39.10

Mode	TX channel 20175 (1732.5MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-62.80	-54.20	1.30	-52.90	-13.00	-39.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3465.00	-61.00	-52.90	1.30	-51.60	-13.00	-38.60

Mode	TX channel 20300 (1745.0MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	23deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Titan Hsu		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-62.60	-54.40	1.50	-52.90	-13.00	-39.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-60.90	-53.30	1.50	-51.80	-13.00	-38.80

LTE Band 12, Channel Bandwidth: 1.4MHz

Mode	TX channel 23017 (699.7MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-59.90	-53.70	0.90	-52.80	-13.00	-39.80
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1399.40	-58.40	-53.30	0.90	-52.40	-13.00	-39.40

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-59.50	-53.00	0.90	-52.10	-13.00	-39.10
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-58.20	-52.90	0.90	-52.00	-13.00	-39.00

Mode	TX channel 23173 (715.3MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-59.80	-53.00	1.00	-52.00	-13.00	-39.00
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1430.60	-58.30	-52.80	1.00	-51.80	-13.00	-38.80

LTE Band 12, Channel Bandwidth: 5MHz

Mode	TX channel 23035 (701.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-60.10	-53.80	0.90	-52.90	-13.00	-39.90

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1403.00	-58.90	-53.80	0.90	-52.90	-13.00	-39.90

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-59.80	-53.30	0.90	-52.40	-13.00	-39.40

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-58.20	-52.90	0.90	-52.00	-13.00	-39.00

Mode	TX channel 23155 (713.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-59.50	-52.90	1.00	-51.90	-13.00	-38.90

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1427.00	-58.00	-52.50	1.00	-51.50	-13.00	-38.50

LTE Band 12, Channel Bandwidth: 10MHz

Mode	TX channel 23060 (704MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-59.60	-53.20	0.90	-52.30	-13.00	-39.30

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1408.00	-58.20	-53.00	0.90	-52.10	-13.00	-39.10

Mode	TX channel 23095 (707.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-59.80	-53.30	0.90	-52.40	-13.00	-39.40

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1415.00	-58.40	-53.00	0.90	-52.10	-13.00	-39.10

Mode	TX channel 23130 (711MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-59.80	-53.30	1.00	-52.30	-13.00	-39.30

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1422.00	-58.70	-53.20	1.00	-52.20	-13.00	-39.20

LTE Band 13, Channel Bandwidth: 5MHz

Mode	TX channel 23205 (779.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1559.00	-60.20	-50.30	1.30	-49.00	-40.00	-9.00

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1559.00	-58.10	-49.10	1.30	-47.80	-40.00	-7.80

Mode	TX channel 23230 (782.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564.00	-61.10	-51.10	1.20	-49.90	-40.00	-9.90

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564.00	-58.70	-49.60	1.20	-48.40	-40.00	-8.40

Mode	TX channel 23255 (784.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1569.00	-60.40	-50.40	1.20	-49.20	-40.00	-9.20

Antenna Polarity & Test Distance: Vertical at 3 M

No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1569.00	-57.80	-48.70	1.20	-47.50	-40.00	-7.50

LTE Band 13, Channel Bandwidth: 10MHz

Mode	TX channel 23230 (782.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564.00	-60.90	-50.90	1.20	-49.70	-40.00	-9.70
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1564.00	-58.20	-49.10	1.20	-47.90	-40.00	-7.90

LTE Band 66, Channel Bandwidth: 1.4MHz

Mode	TX channel 131979 (1710.7MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-62.80	-54.20	1.30	-52.90	-13.00	-39.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3421.40	-61.00	-52.90	1.30	-51.60	-13.00	-38.60

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-62.60	-54.40	1.50	-52.90	-13.00	-39.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-60.90	-53.30	1.50	-51.80	-13.00	-38.80

Mode	TX channel 132665 (1779.3MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3558.60	-62.40	-53.90	1.40	-52.50	-13.00	-39.50
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3558.60	-60.30	-52.50	1.40	-51.10	-13.00	-38.10

LTE Band 66, Channel Bandwidth: 5MHz

Mode	TX channel 131997 (1712.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-63.00	-54.40	1.30	-53.10	-13.00	-40.10
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-60.60	-52.50	1.30	-51.20	-13.00	-38.20

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-63.10	-54.90	1.50	-53.40	-13.00	-40.40
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-60.30	-52.70	1.50	-51.20	-13.00	-38.20

Mode	TX channel 132647 (1777.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3555.00	-62.30	-53.90	1.40	-52.50	-13.00	-39.50
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3555.00	-60.40	-52.60	1.40	-51.20	-13.00	-38.20

LTE Band 66, Channel Bandwidth: 20MHz

Mode	TX channel 132072 (1720.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-62.70	-54.20	1.30	-52.90	-13.00	-39.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-60.60	-52.60	1.30	-51.30	-13.00	-38.30

Mode	TX channel 132322 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-63.30	-55.10	1.50	-53.60	-13.00	-40.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-60.80	-53.20	1.50	-51.70	-13.00	-38.70

Mode	TX channel 132572 (1770.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3540.00	-62.40	-54.00	1.40	-52.60	-13.00	-39.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3540.00	-61.00	-53.20	1.40	-51.80	-13.00	-38.80

LTE Band 71, Channel Bandwidth: 5MHz

Mode	TX channel 133147 (665.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1331.00	-60.50	-55.00	0.40	-54.60	-13.00	-41.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1331.00	-57.60	-53.20	0.40	-52.80	-13.00	-39.80

Mode	TX channel 133297 (680.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1361.00	-60.00	-54.20	0.60	-53.60	-13.00	-40.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1361.00	-58.00	-53.20	0.60	-52.60	-13.00	-39.60

Mode	TX channel 133447 (695.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1391.00	-60.00	-53.80	0.80	-53.00	-13.00	-40.00
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1391.00	-57.90	-52.80	0.80	-52.00	-13.00	-39.00

LTE Band 71, Channel Bandwidth: 20MHz

Mode	TX channel 133222 (673.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1346.00	-60.00	-54.40	0.50	-53.90	-13.00	-40.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1346.00	-58.00	-53.40	0.50	-52.90	-13.00	-39.90

Mode	TX channel 133297 (680.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1361.00	-60.50	-54.70	0.60	-54.10	-13.00	-41.10
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1361.00	-58.10	-53.40	0.60	-52.80	-13.00	-39.80

Mode	TX channel 133372 (688.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	22deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1376.00	-60.50	-54.60	0.70	-53.90	-13.00	-40.90
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1	1376.00	-57.80	-52.80	0.70	-52.10	-13.00	-39.10

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – 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 and approved 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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