



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

#### LTE BAND 4

#### CHANNEL BANDWIDTH: 20MHZ

CHANNEL	FREQUENCY (MHZ)	PEAK TO AVERAGE RATIO (DB)	
		QPSK	16QAM
20050	1720	3.71	4.70
20175	1732.5	3.86	4.84
20300	1745	4.72	5.59

#### SPECTRUM PLOT OF WORST VALUE

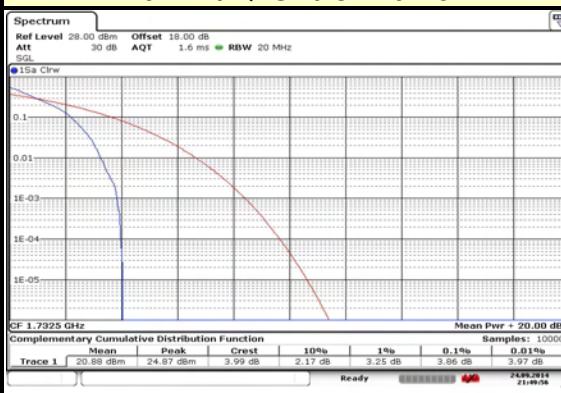
##### 20MHz / QPSK / CH 20050



##### 20MHz / 16QAM / CH 20050



##### 20MHz / QPSK / CH 20175



##### 20MHz / 16QAM / CH 20175



##### 20MHz / QPSK / CH 20300



##### 20MHz / 16QAM / CH 20300



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dq@cn.bureauveritas.com](mailto:customerservice.dq@cn.bureauveritas.com)



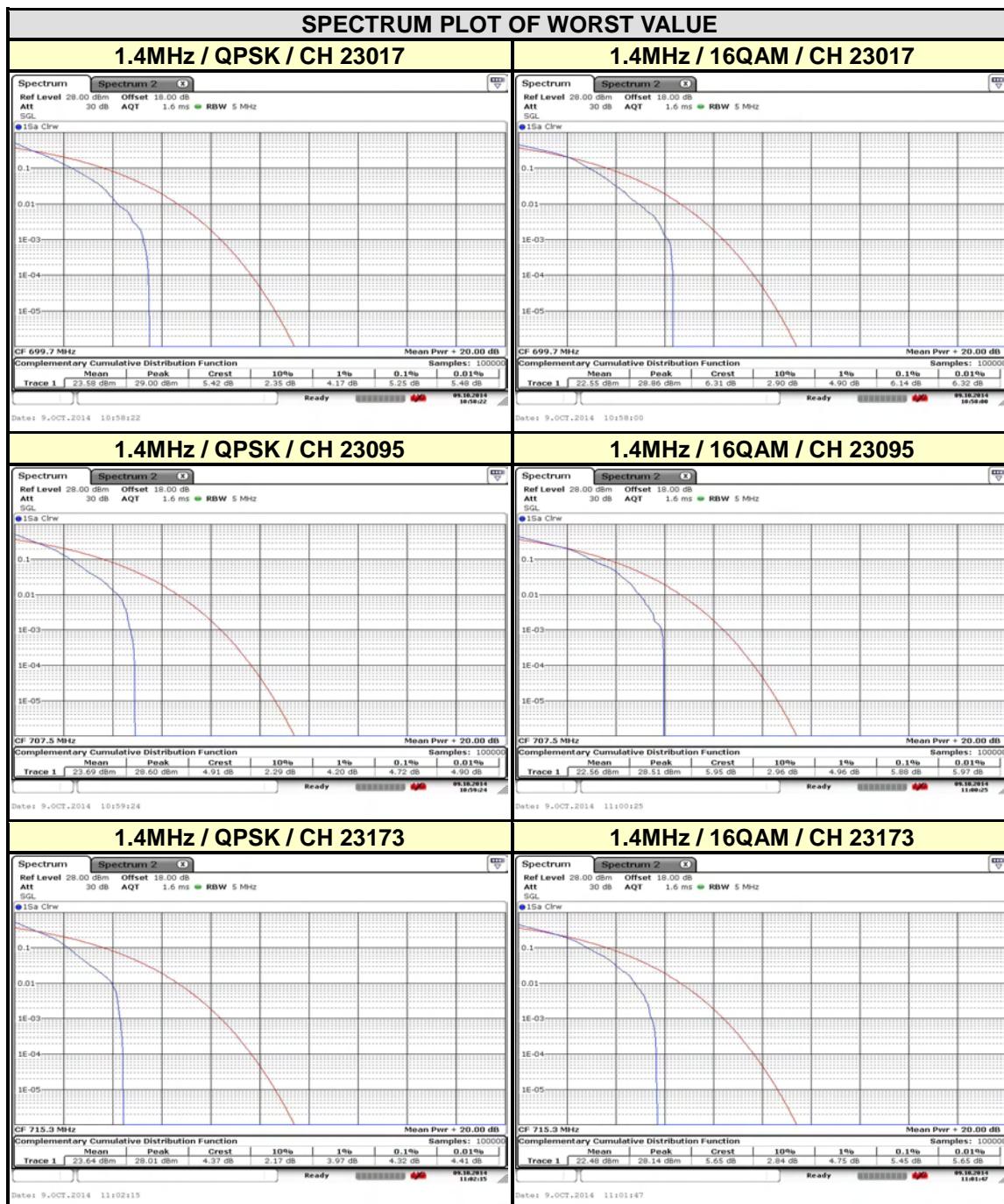
Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

## LTE BAND 12

### CHANNEL BANDWIDTH: 1.4MHz

CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23017	699.7	5.25	6.14
23095	707.5	4.72	5.88
23173	715.3	4.32	5.45



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

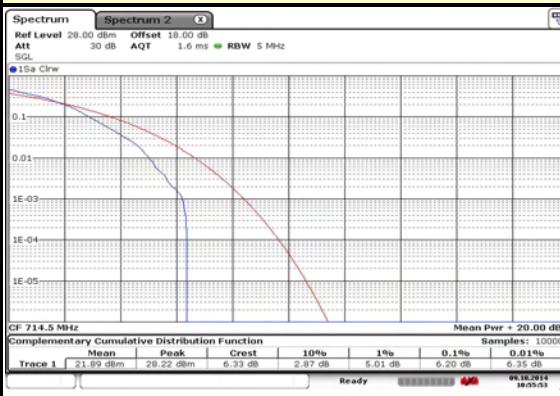
## LTE BAND 12

### CHANNEL BANDWIDTH: 3MHz

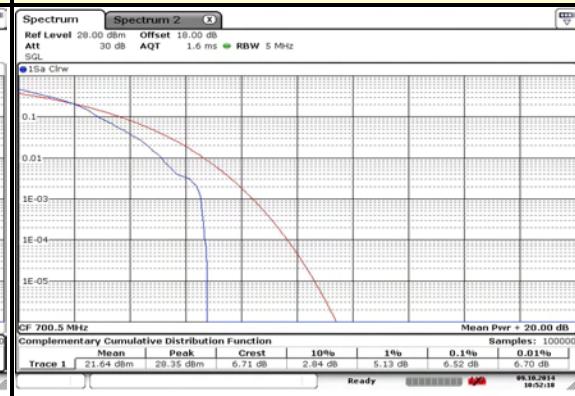
CHANNEL	Frequency (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23025	700.5	6.20	6.52
23095	707.5	4.61	5.91
23165	714.5	5.01	5.62

### SPECTRUM PLOT OF WORST VALUE

#### 3MHz / QPSK / CH 23025



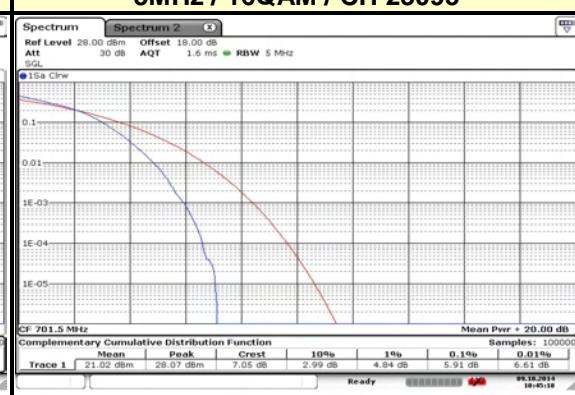
#### 3MHz / 16QAM / CH 23025



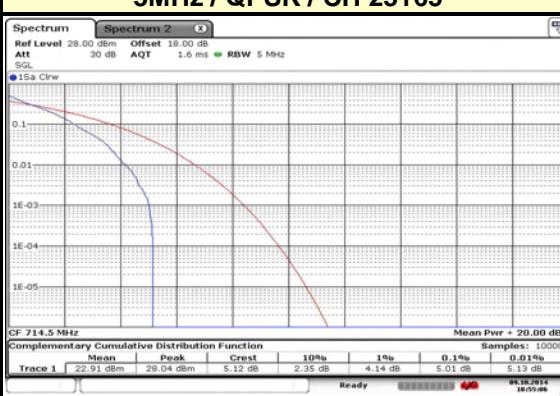
#### 3MHz / QPSK / CH 23095



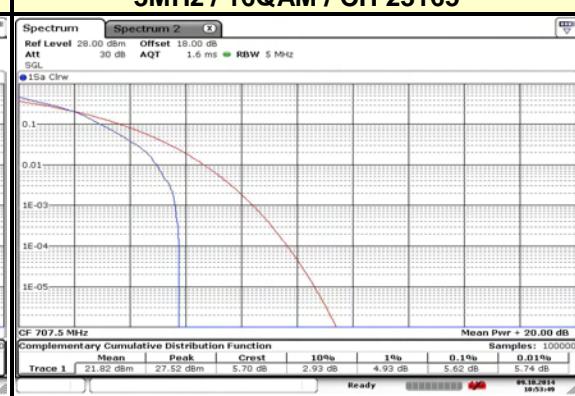
#### 3MHz / 16QAM / CH 23095



#### 3MHz / QPSK / CH 23165



#### 3MHz / 16QAM / CH 23165



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dq@cn.bureauveritas.com](mailto:customerservice.dq@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

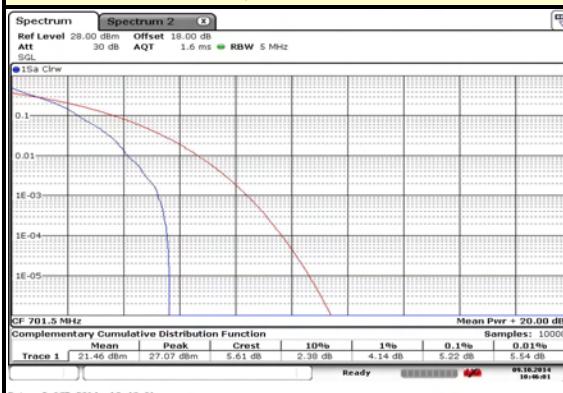
## LTE BAND 12

### CHANNEL BANDWIDTH: 5MHz

CHANNEL	Frequency (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23035	701.5	5.22	5.54
23095	707.5	4.41	6.52
23155	713.5	5.48	5.51

### SPECTRUM PLOT OF WORST VALUE

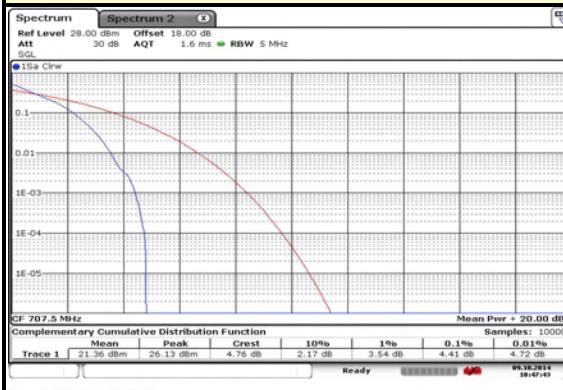
#### 5MHz / QPSK / CH 23035



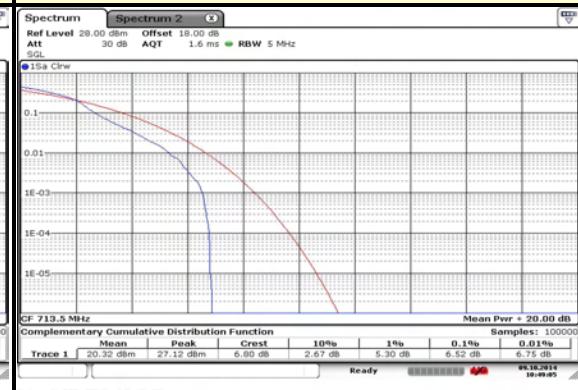
#### 5MHz / 16QAM / CH 23035



#### 5MHz / QPSK / CH 23095



#### 5MHz / 16QAM / CH 23095



#### 5MHz / QPSK / CH 23155



#### 5MHz / 16QAM / CH 23155



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



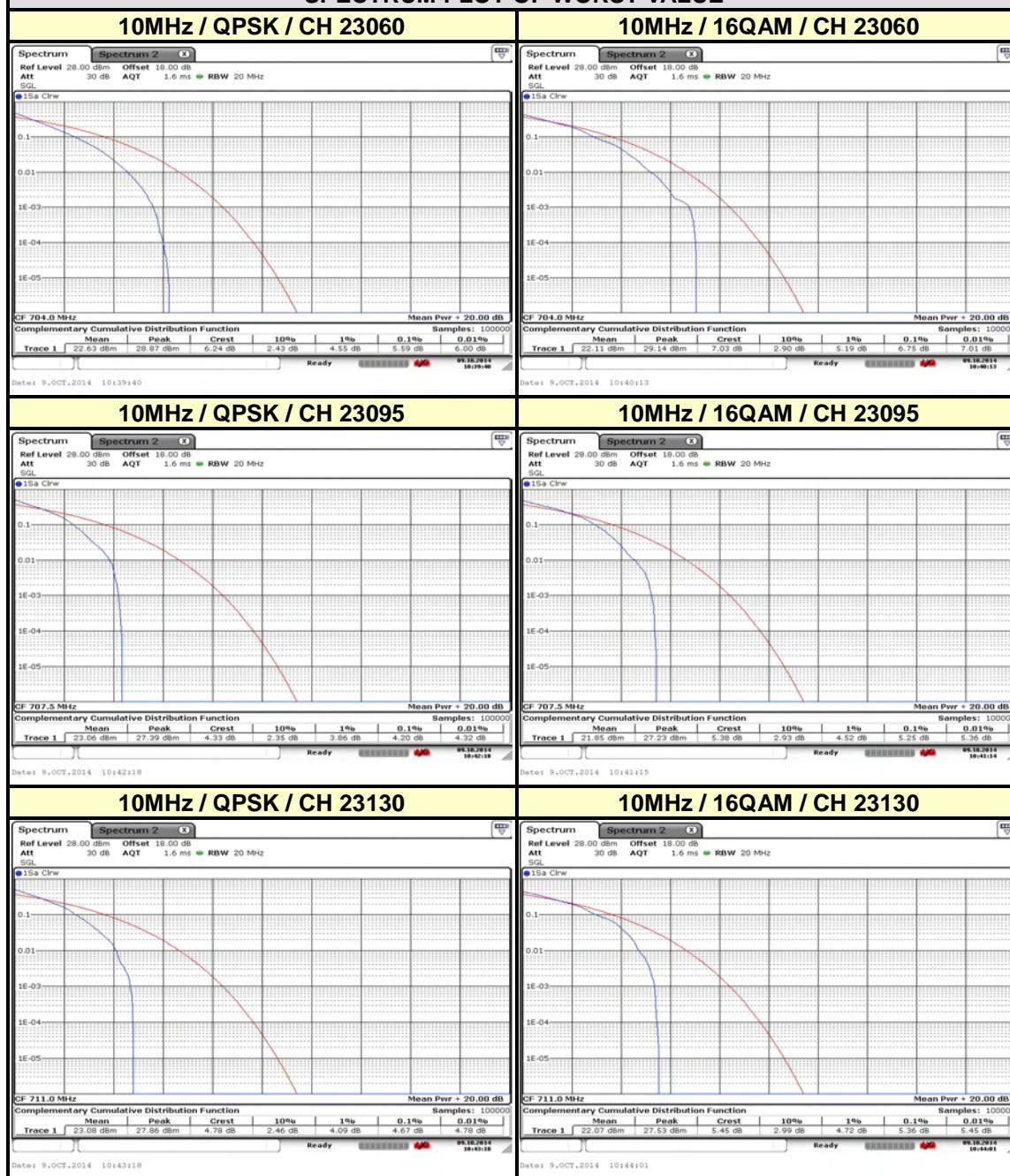
Test Report No.: RF141006N0105-5

## LTE BAND 12

### CHANNEL BANDWIDTH: 10MHz

CHANNEL	Frequency (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23060	704	5.59	6.75
23095	707.5	4.20	5.25
23130	711	4.67	5.36

### SPECTRUM PLOT OF WORST VALUE



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



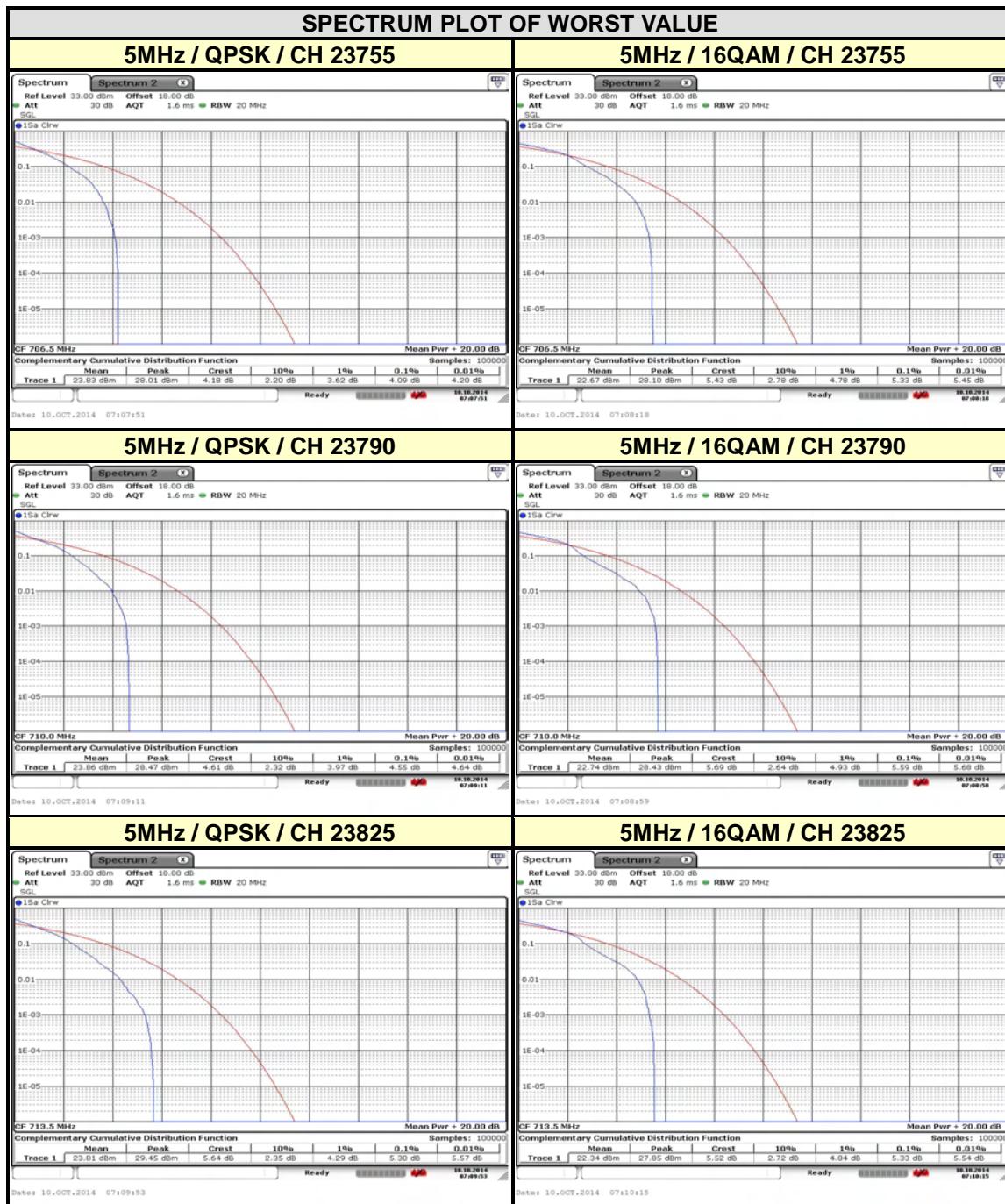
Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

### LTE BAND 17

#### CHANNEL BANDWIDTH: 5MHz

CHANNEL	Frequency (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23755	706.5	4.09	5.33
23790	710	4.55	5.59
23825	713.5	5.30	5.33



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dq@cn.bureauveritas.com](mailto:customerservice.dq@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

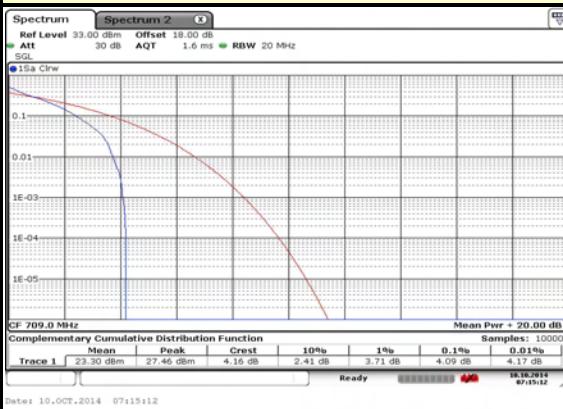
## LTE BAND 17

### CHANNEL BANDWIDTH: 10MHz

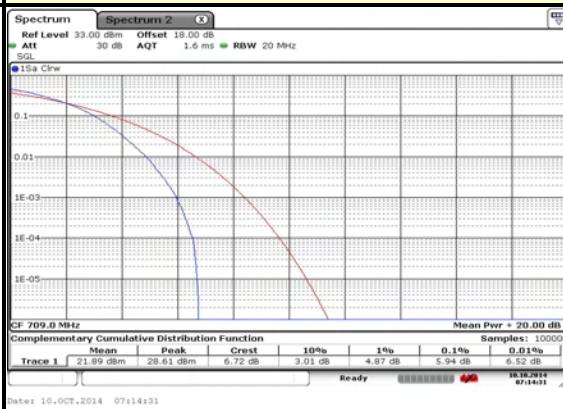
CHANNEL	Frequency (MHz)	PEAK TO AVERAGE RATIO (dB)	
		QPSK	16QAM
23780	709	4.09	5.94
23790	710	4.29	5.86
23800	711	4.38	5.97

### SPECTRUM PLOT OF WORST VALUE

#### 10MHz / QPSK / CH 23780



#### 10MHz / 16QAM / CH 23780



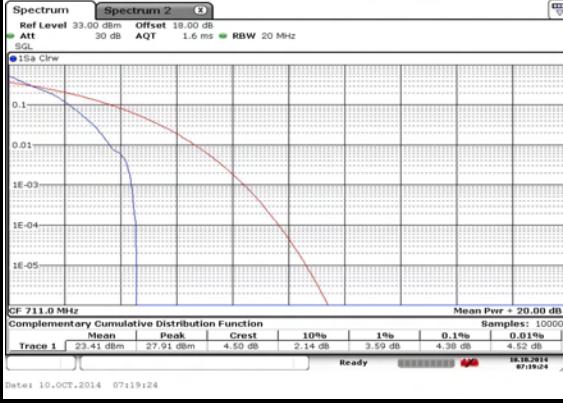
#### 10MHz / QPSK / CH 23790



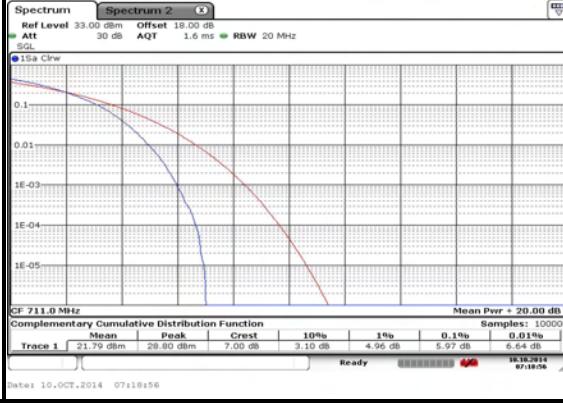
#### 10MHz / 16QAM / CH 23790



#### 10MHz / QPSK / CH 23800



#### 10MHz / 16QAM / CH 23800



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

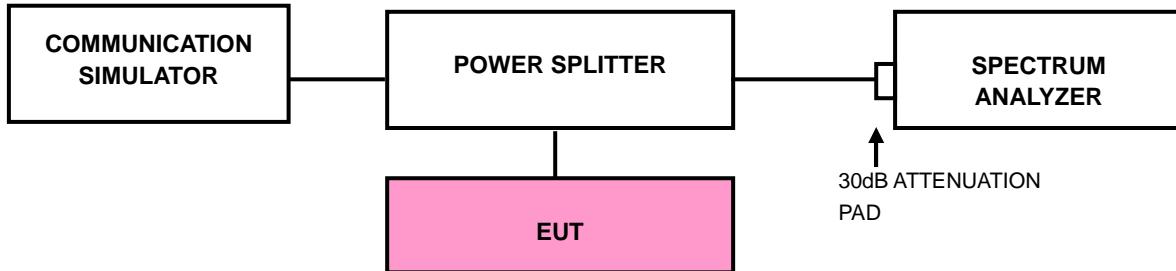
## 4.5 BAND EDGE MEASUREMENT

### 4.5.1 LIMITS OF BAND EDGE MEASUREMENT

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.

However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

### 4.5.2 TEST SETUP



### 4.5.3 TEST PROCEDURES

- a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
- c. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 20kHz and VB of the spectrum is 100 kHz. (LTE bandwidth 1.4MHz)
- d. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 30kHz and VB of the spectrum is 100kHz. (LTE bandwidth 3MHz)



Test Report No.: RF141006N0105-5

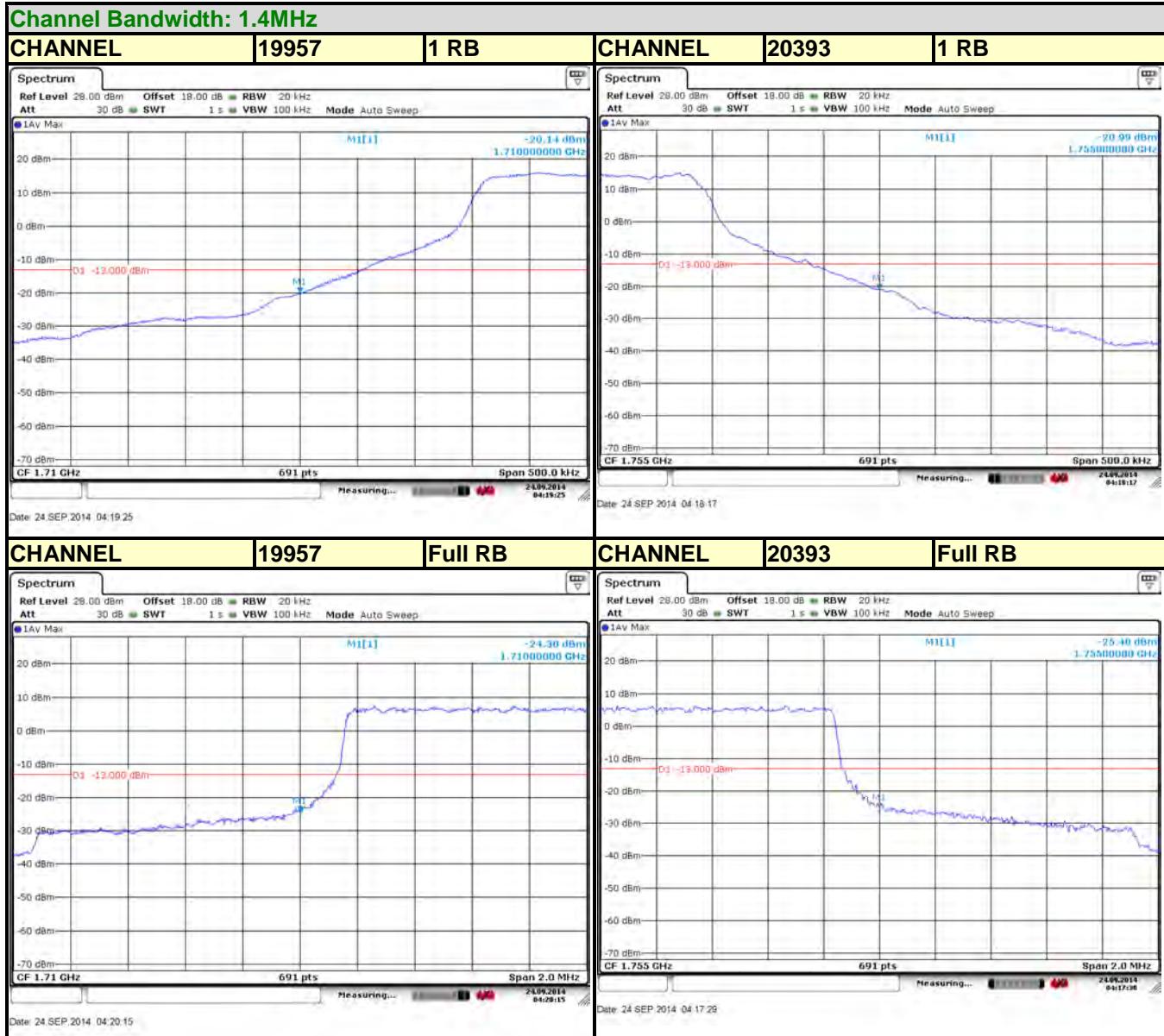
- e. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 50kHz and VB of the spectrum is 200kHz. (LTE bandwidth 5MHz)
- f. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz. (LTE bandwidth 10MHz)
- g. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz. (LTE bandwidth 15MHz)
- h. The center frequency of spectrum is the band edge frequency and span is 1~5 MHz. RB of the spectrum is 200kHz and VB of the spectrum is 1MHz. (LTE bandwidth 20MHz)
- i. Record the max trace plot into the test report.



Test Report No.: RF141006N0105-5

#### 4.5.4 TEST RESULTS

##### LTE BAND 4



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

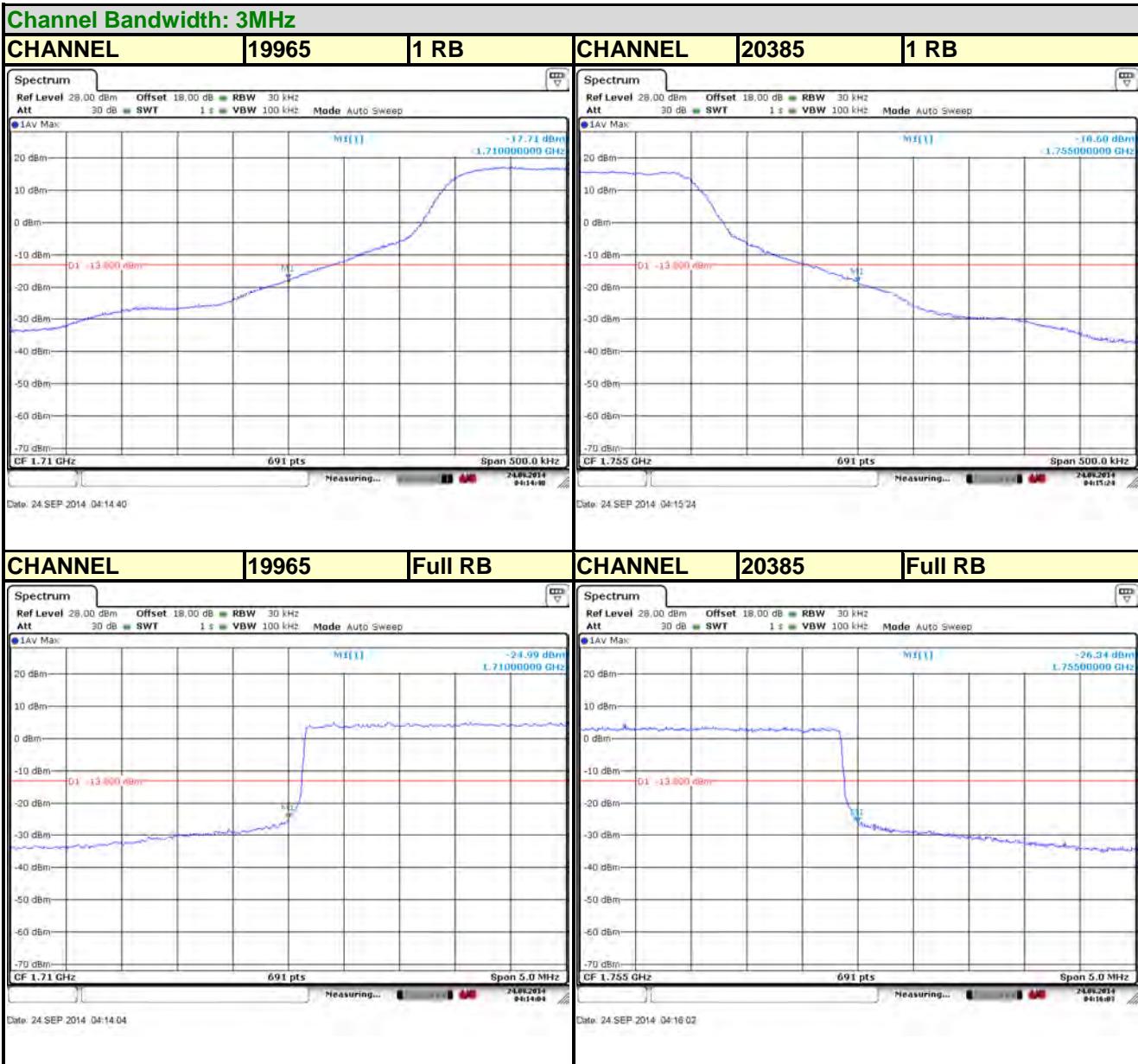
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 4



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

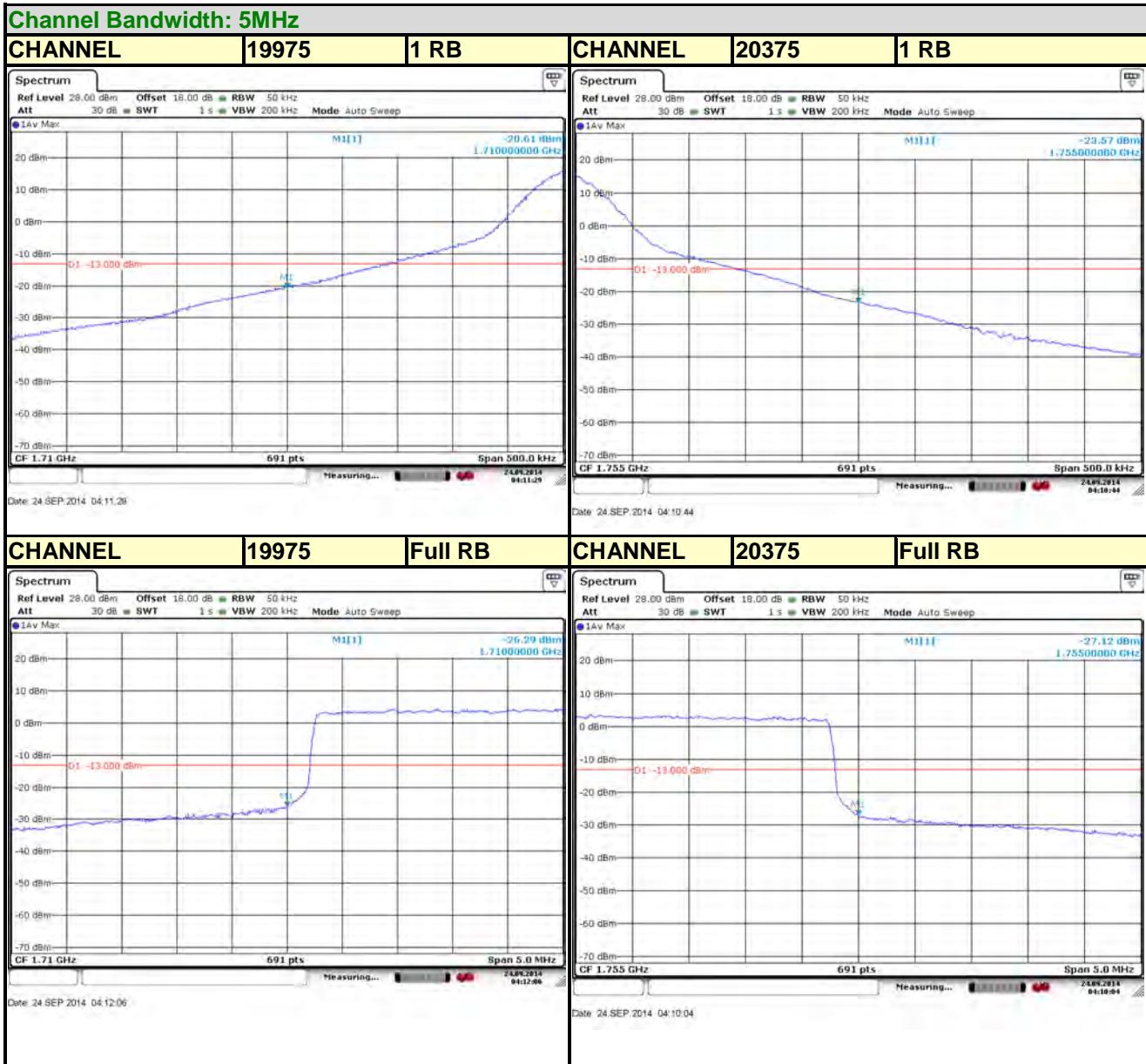
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 4



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

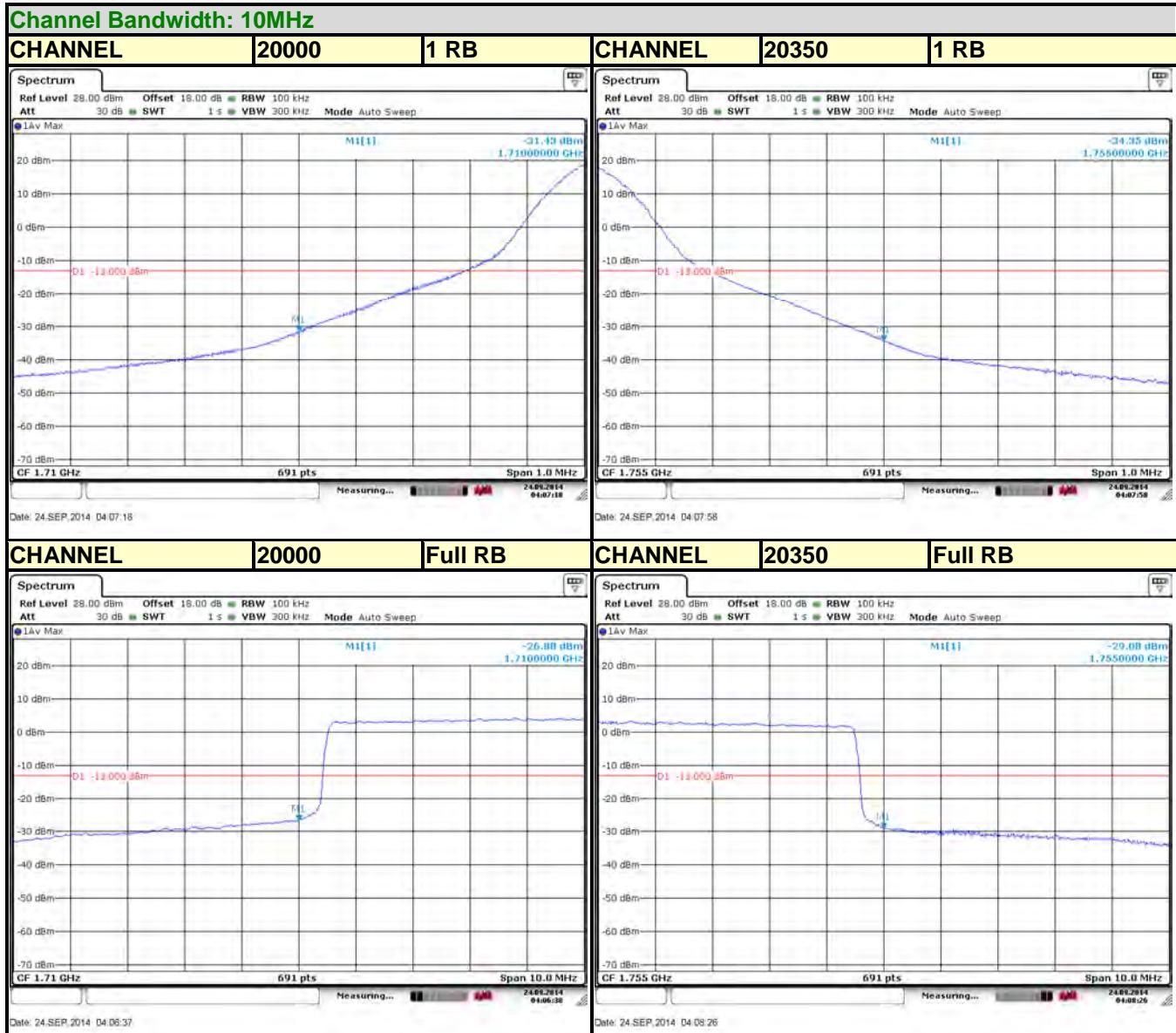
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 4



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

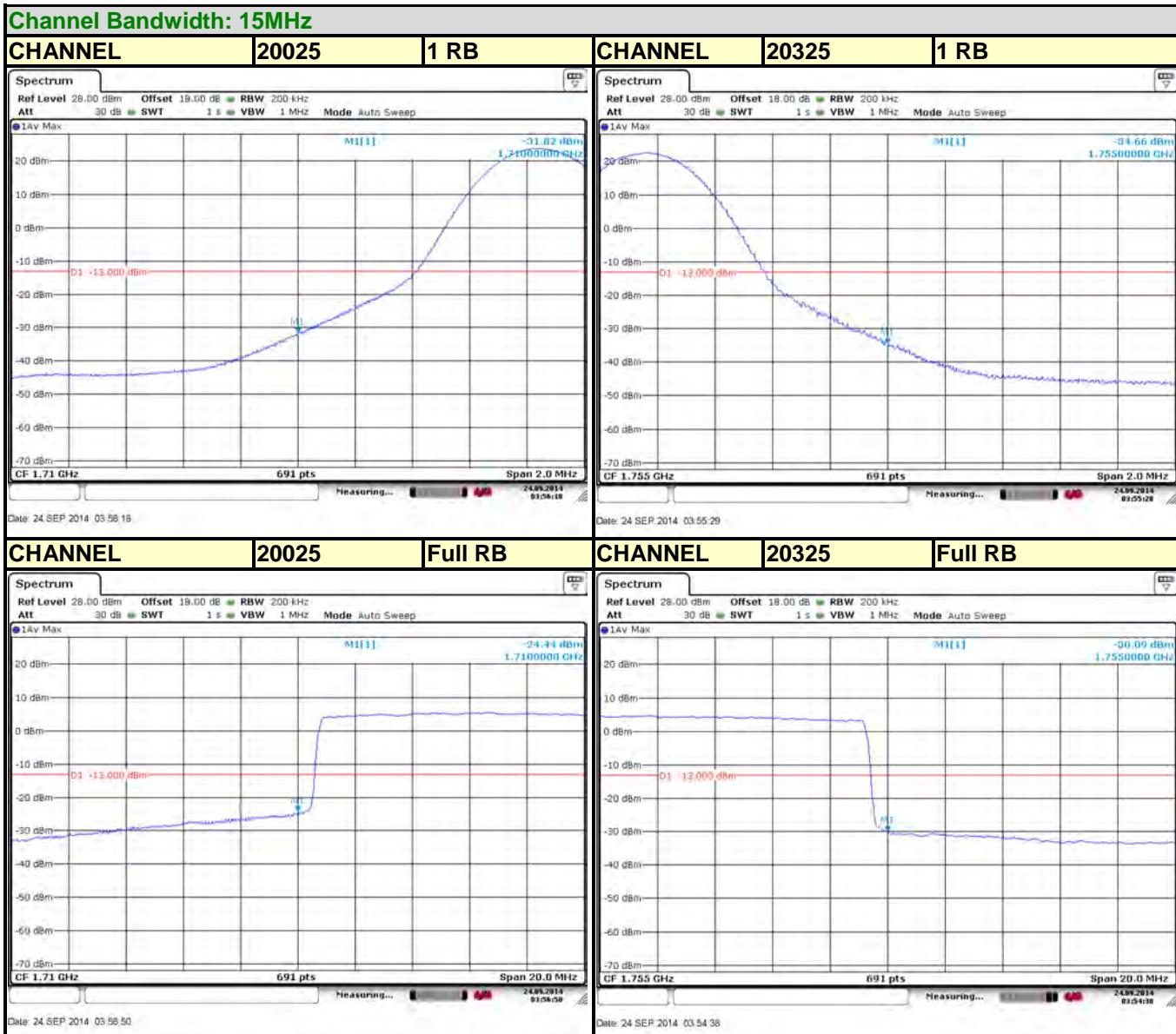
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



## Test Report No.: RF141006N0105-5

### LTE BAND 4



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

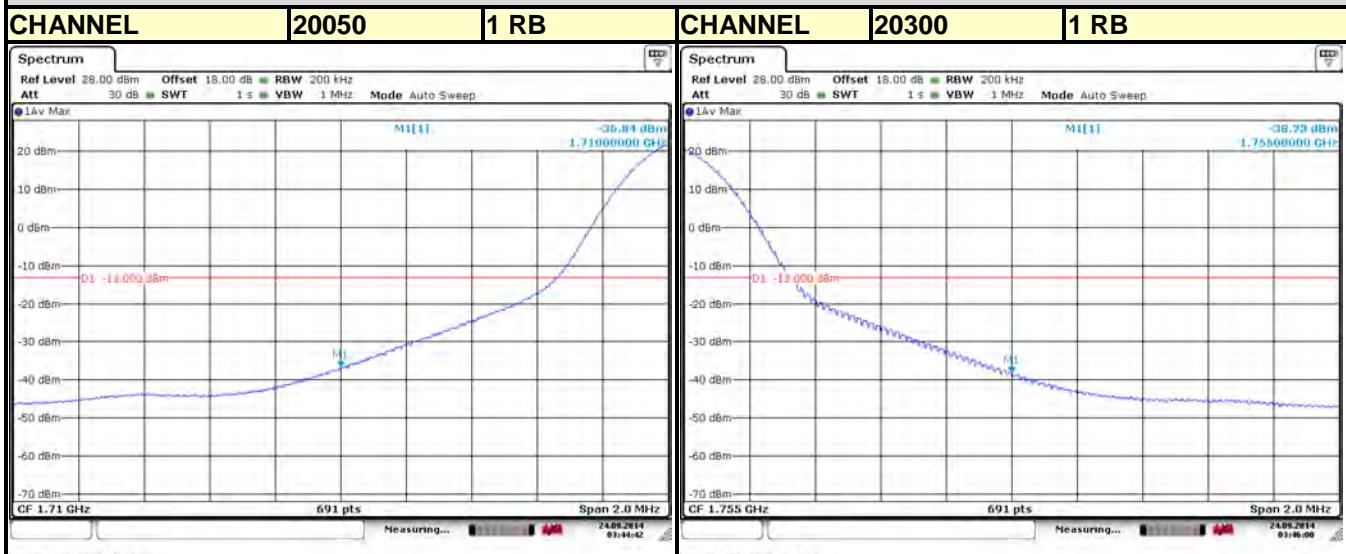
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



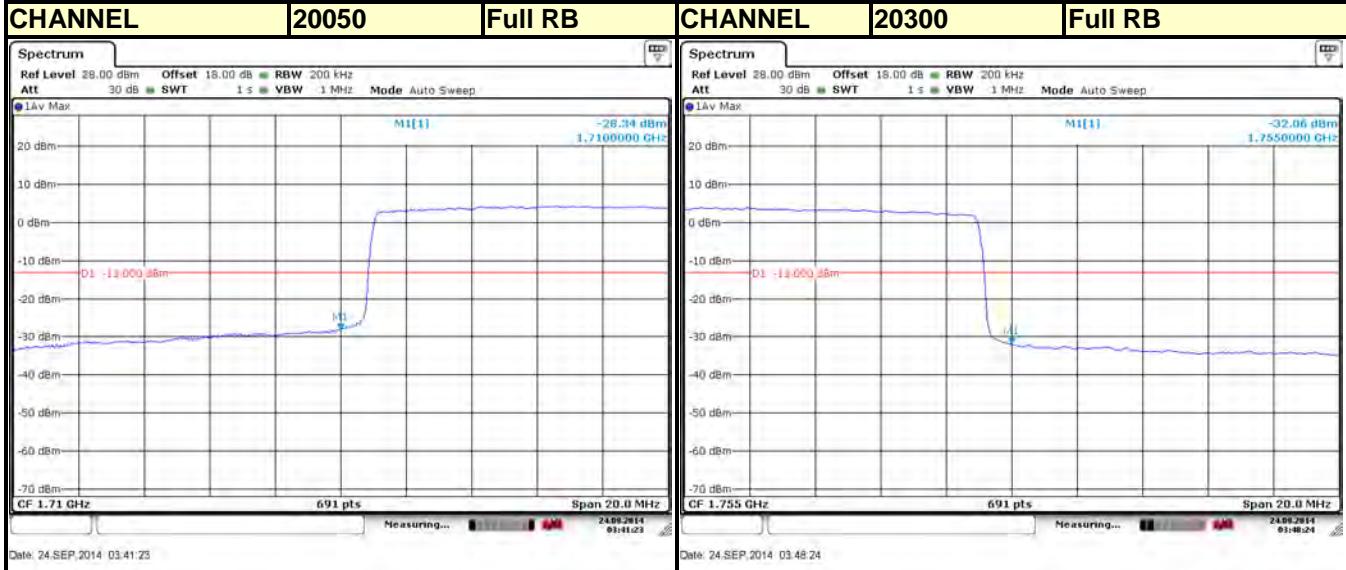
Test Report No.: RF141006N0105-5

## LTE BAND 4

### Channel Bandwidth: 20MHz



Date: 24.SEP.2014 03:44:42



Date: 24.SEP.2014 03:41:23

Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

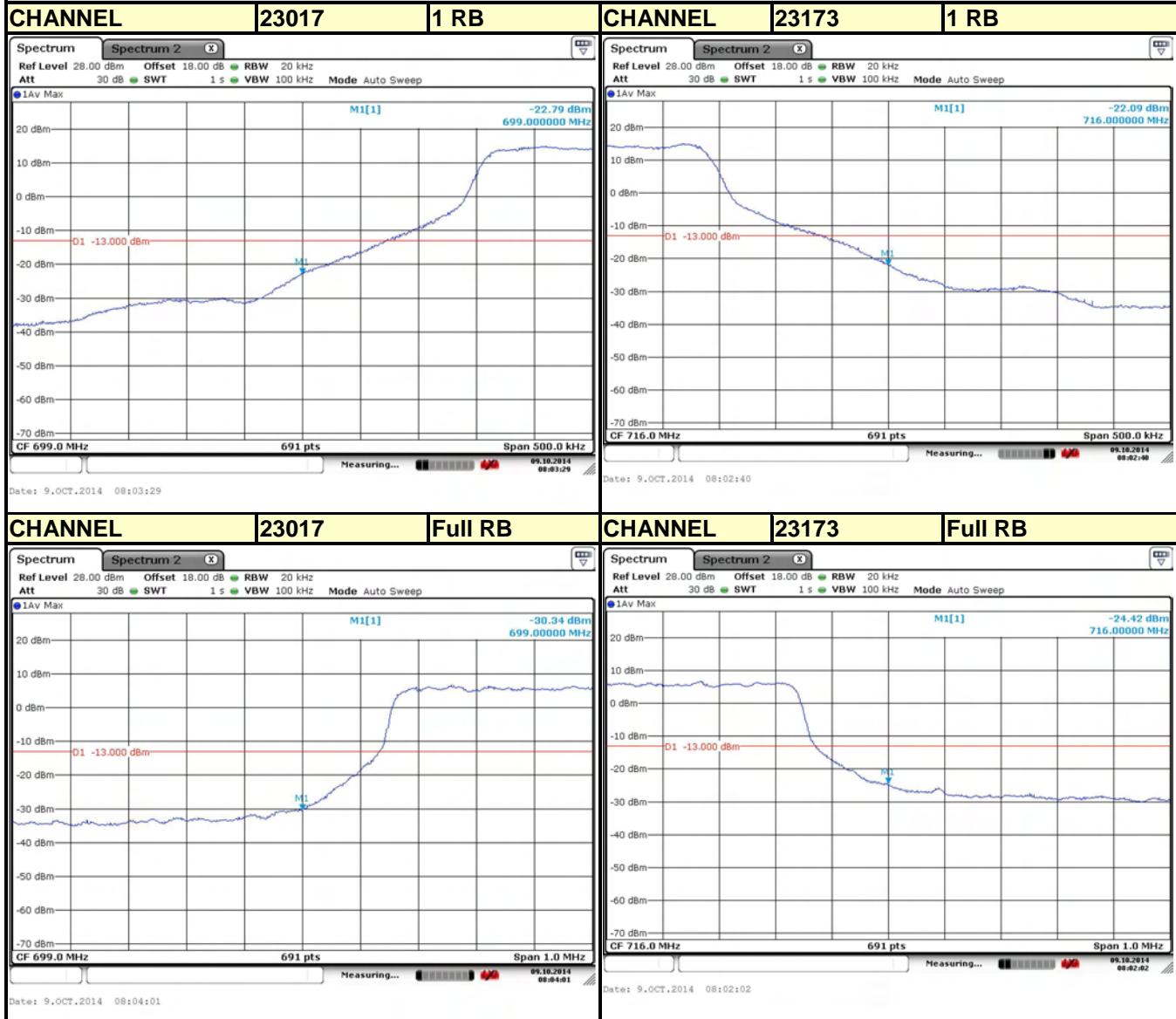
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 12

### Channel Bandwidth: 1.4MHz



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

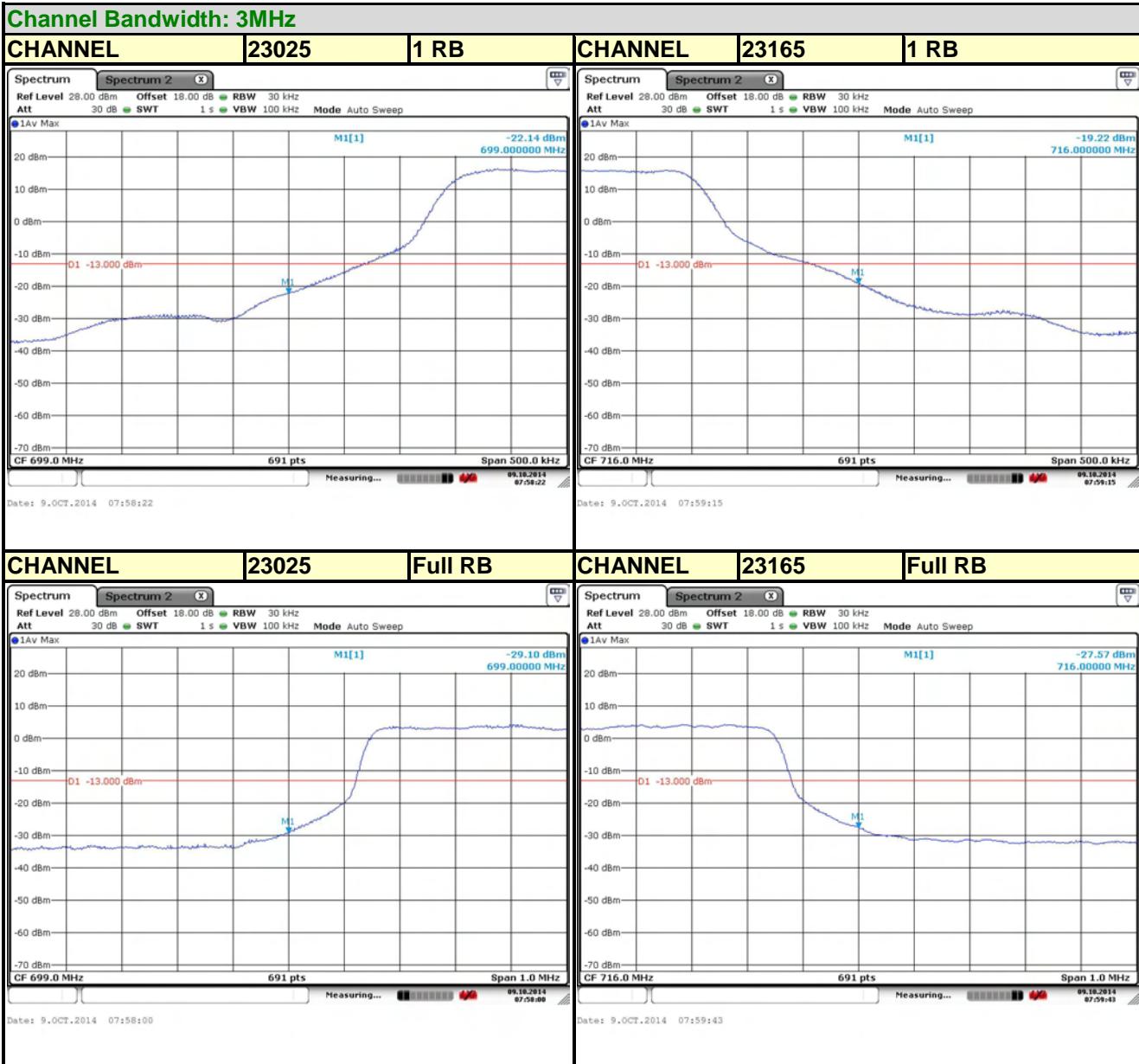
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 12



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

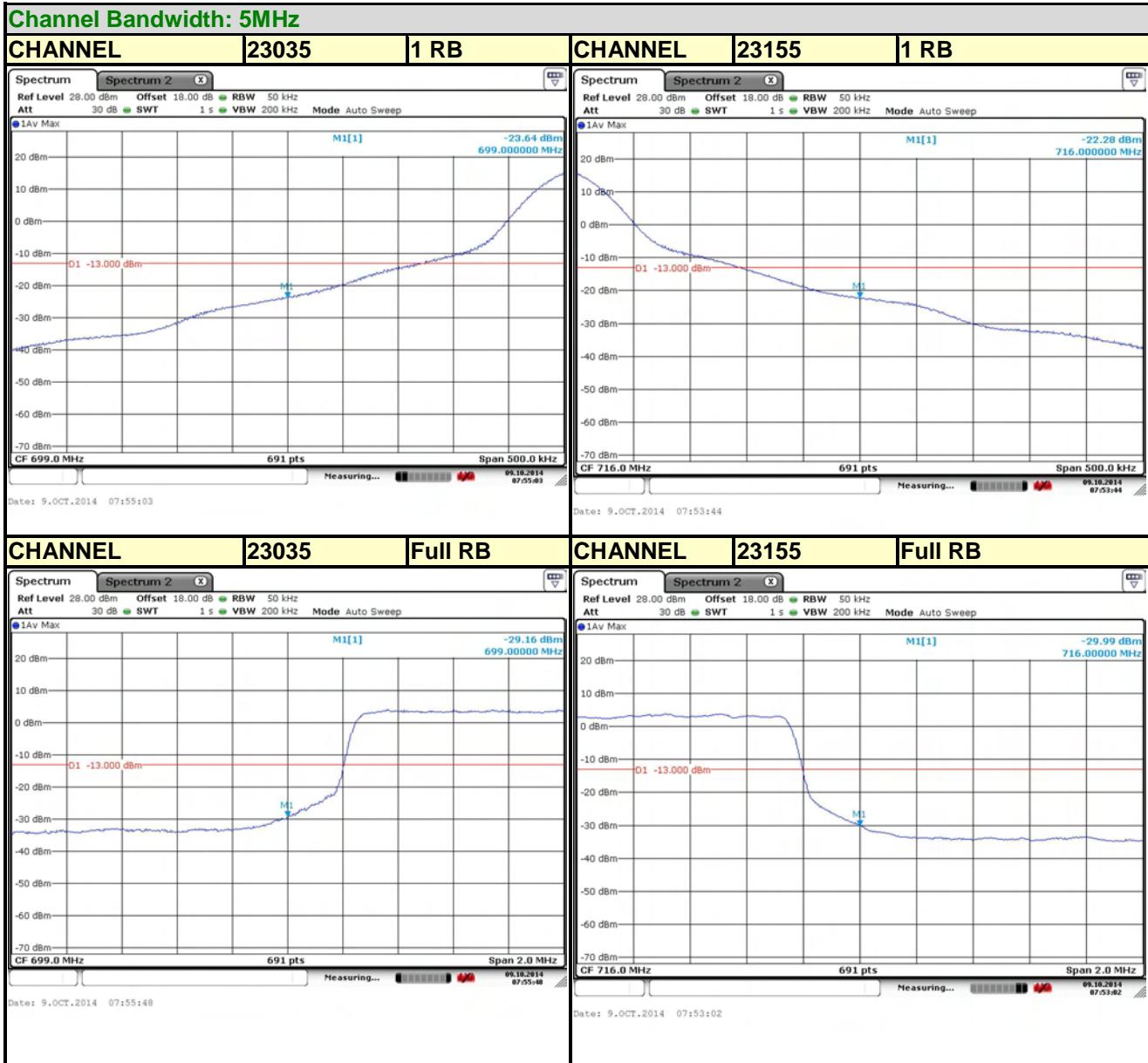
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 12



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

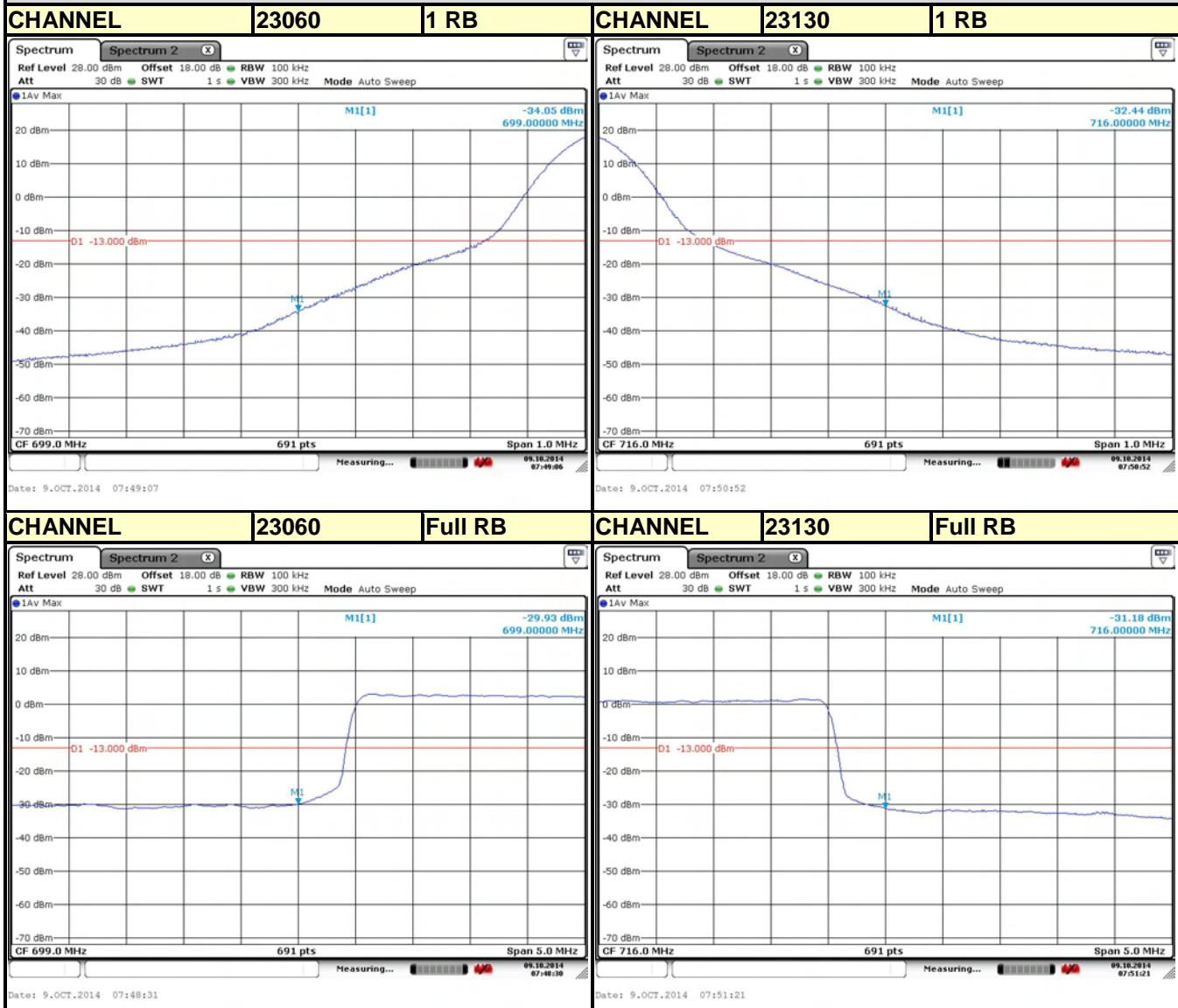
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 12

### Channel Bandwidth: 10MHz



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

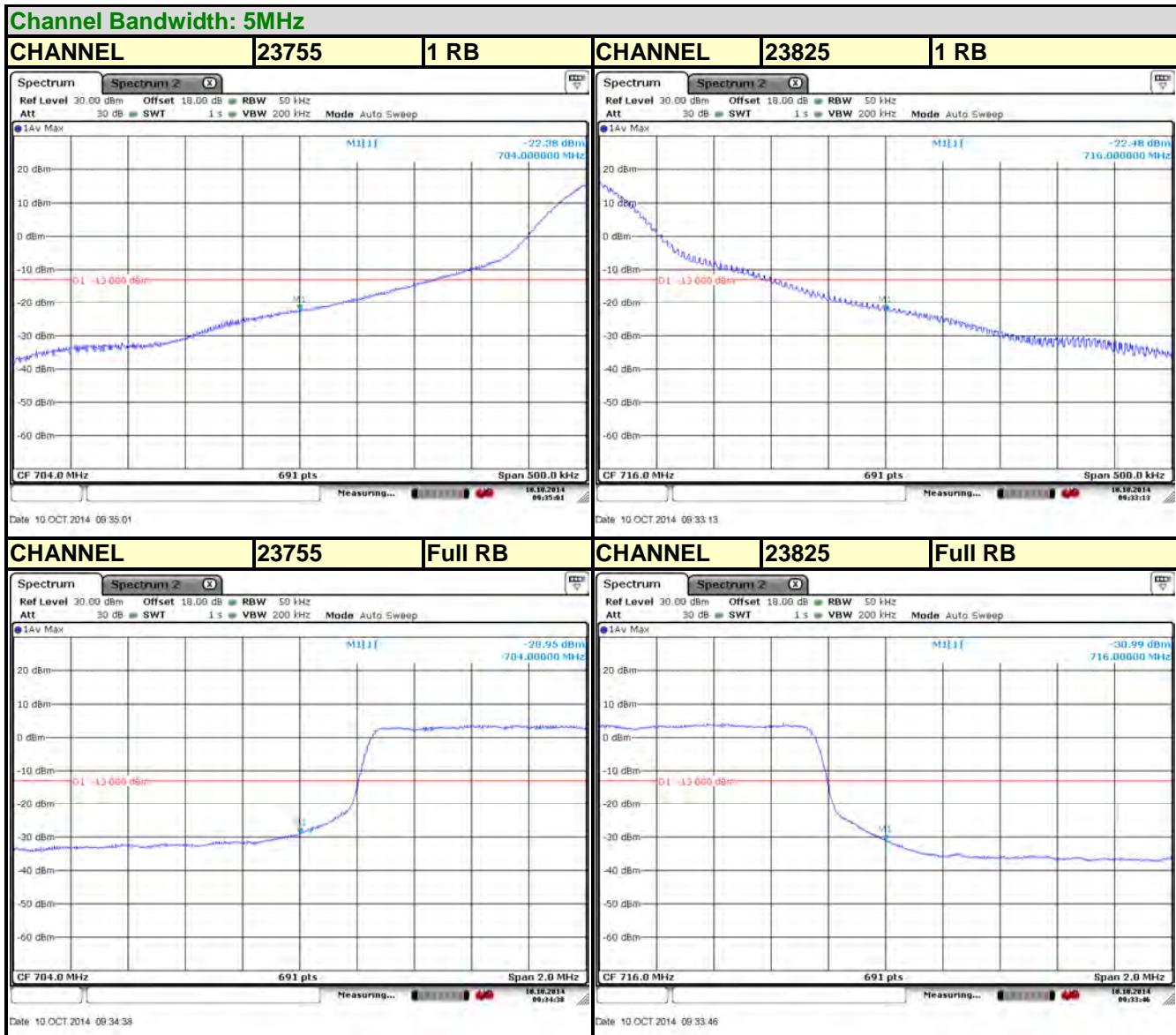
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 17



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

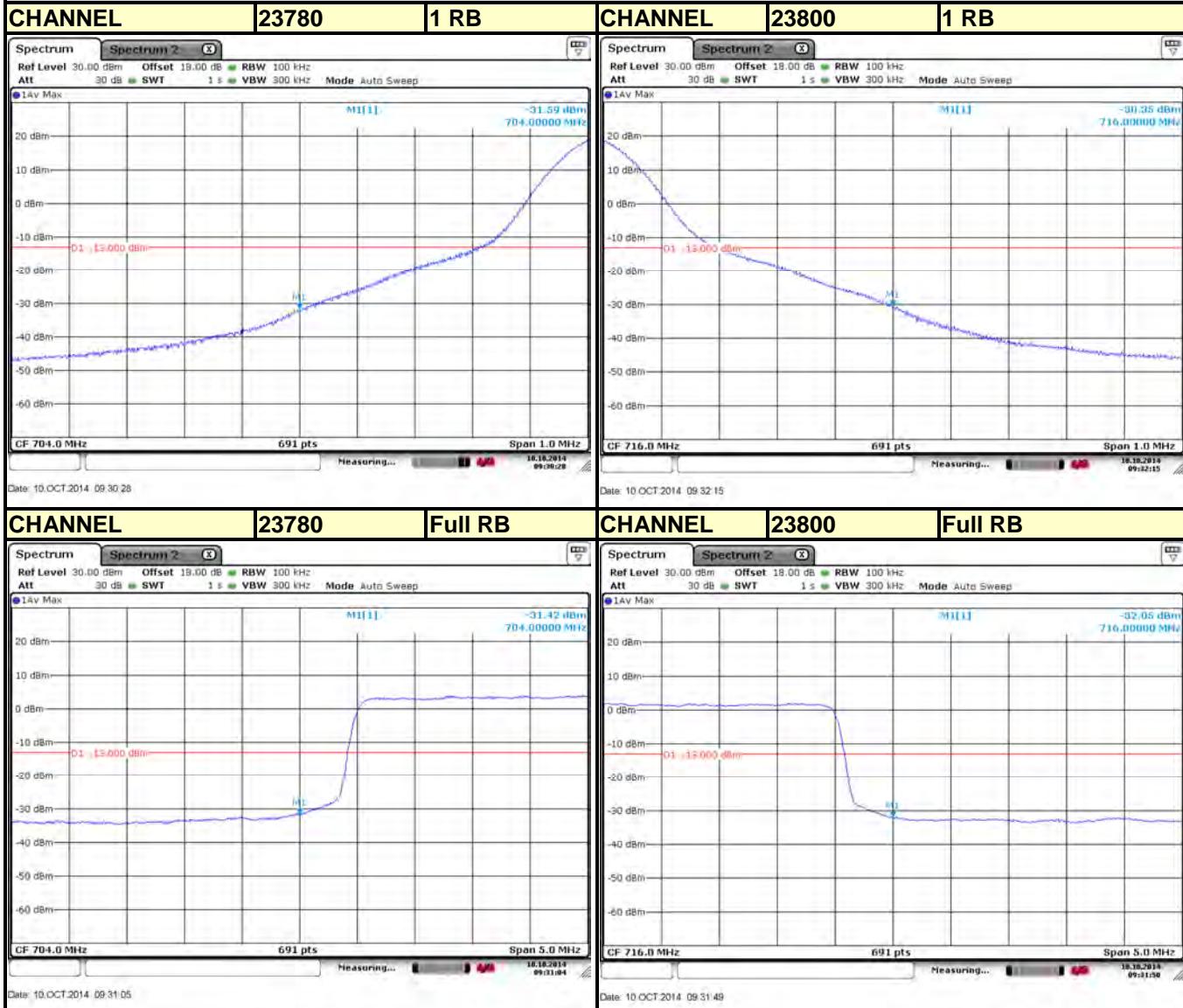
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## LTE BAND 17

### Channel Bandwidth: 10MHz



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

## 4.6 CONDUCTED SPURIOUS EMISSIONS

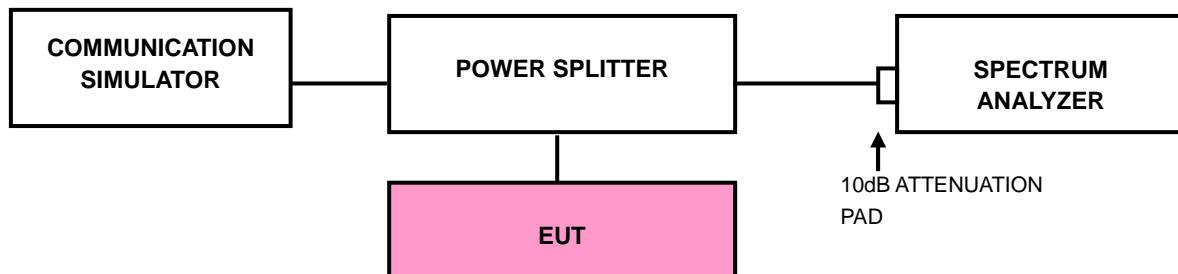
### 4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### 4.6.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at middle operational frequency range.
- b. Measuring frequency range is from 30 MHz to 19.1GHz for LTE Band 4 and 30 MHz to 9GHz for LTE Band 12&17. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

### 4.6.3 TEST SETUP

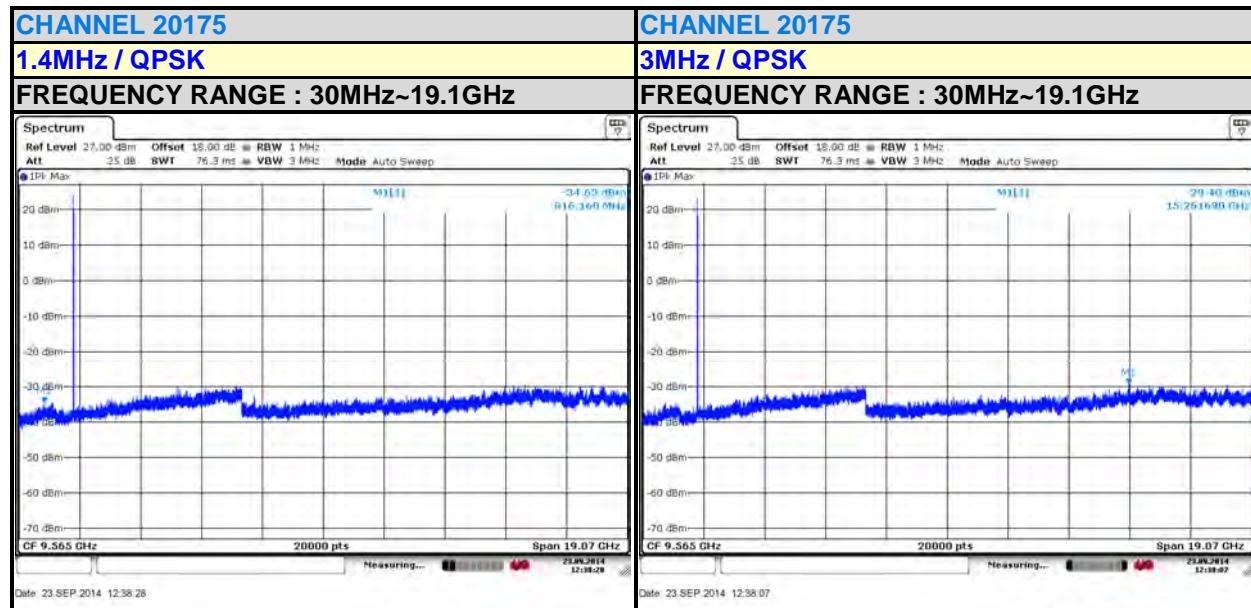




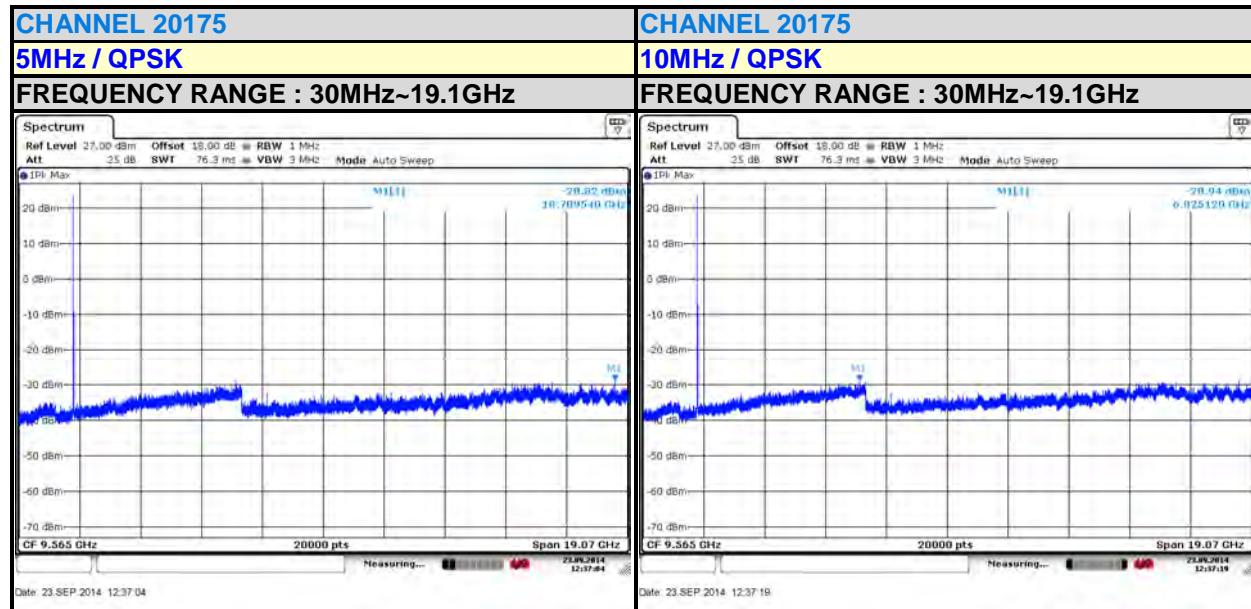
Test Report No.: RF141006N0105-5

#### 4.6.4 TEST RESULTS

##### LTE BAND 4



##### LTE BAND 4

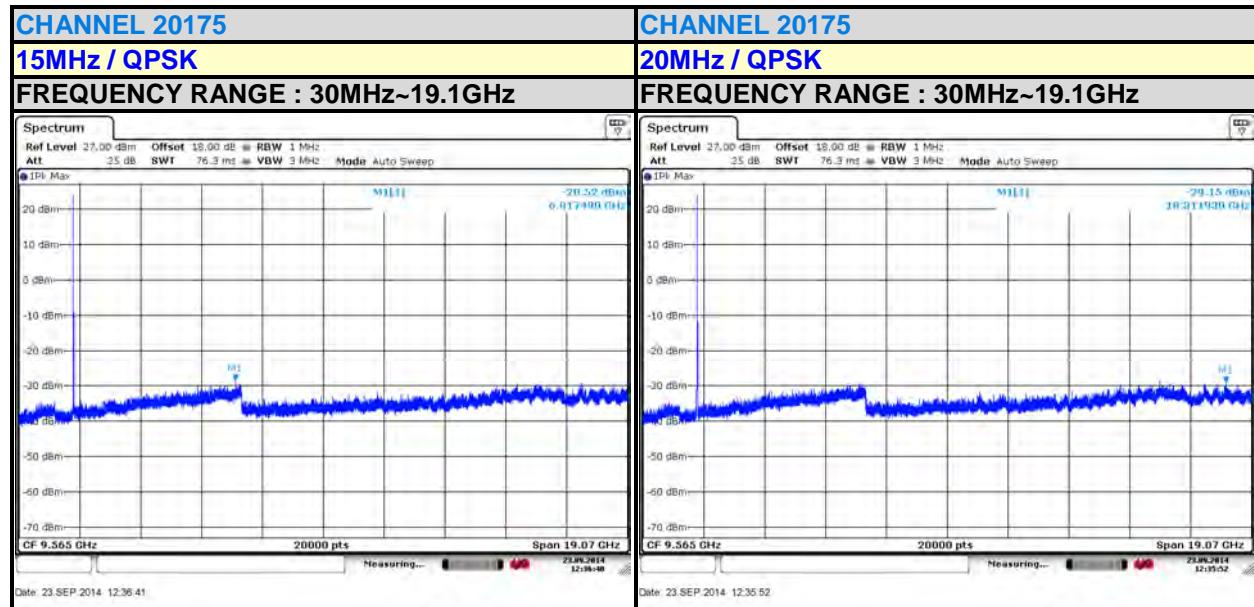




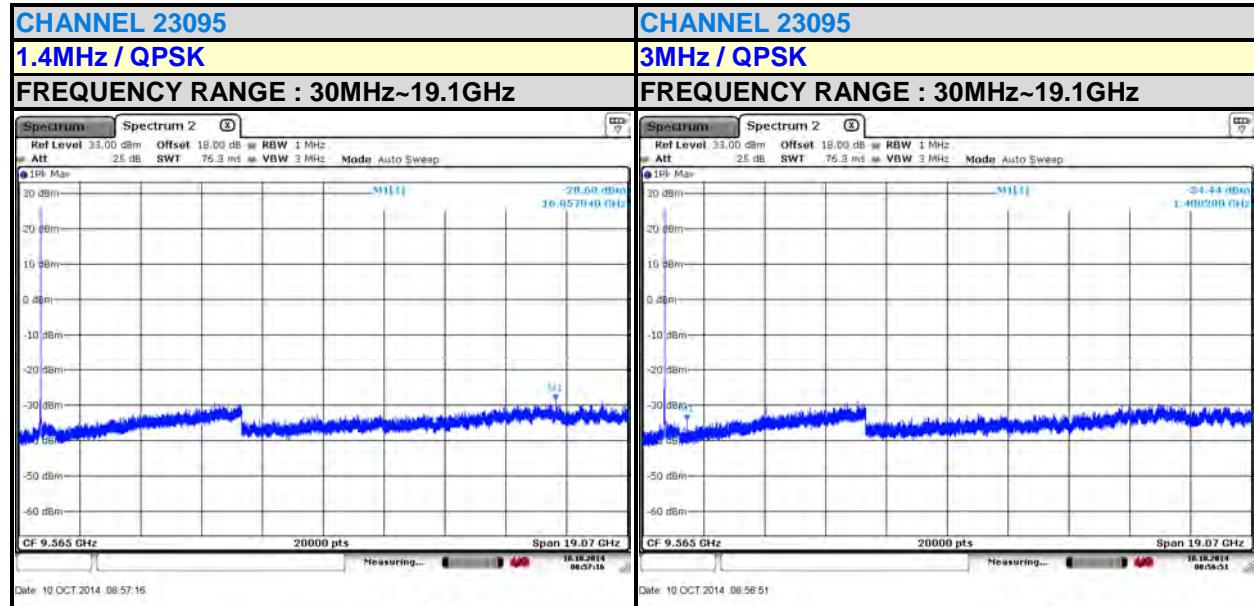
Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

#### LTE BAND 4



#### LTE BAND 12



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



Test Report No.: RF141006N0105-5

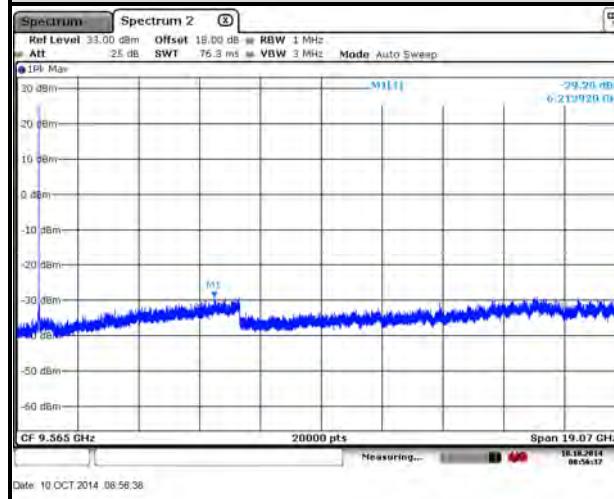
BUREAU  
VERITAS

### LTE BAND 12

#### CHANNEL 23095

5MHz / QPSK

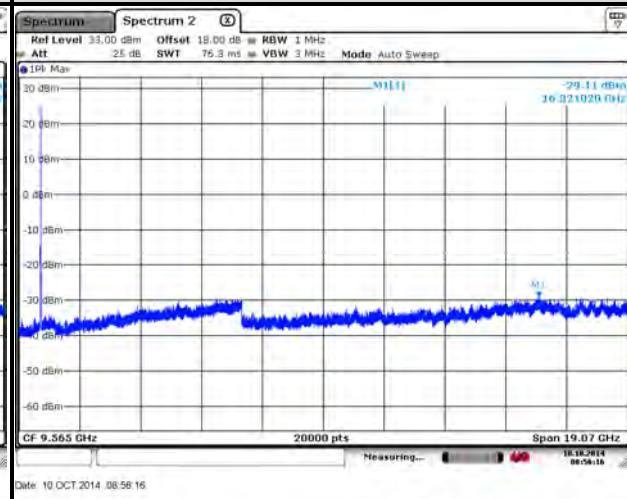
FREQUENCY RANGE : 30MHz~19.1GHz



#### CHANNEL 23095

10MHz / QPSK

FREQUENCY RANGE : 30MHz~19.1GHz

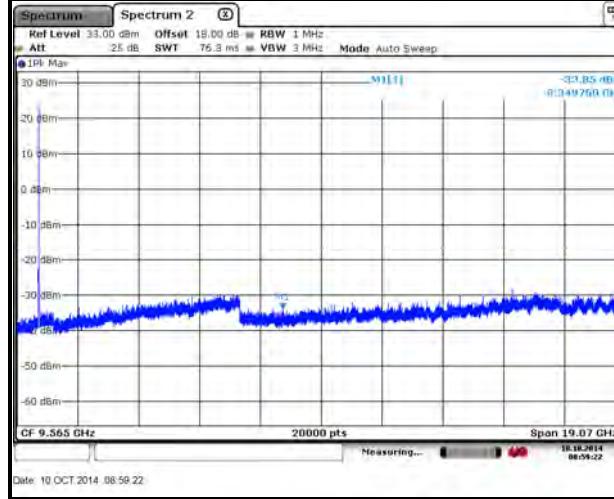


### LTE BAND 17

#### CHANNEL 23790

5MHz / QPSK

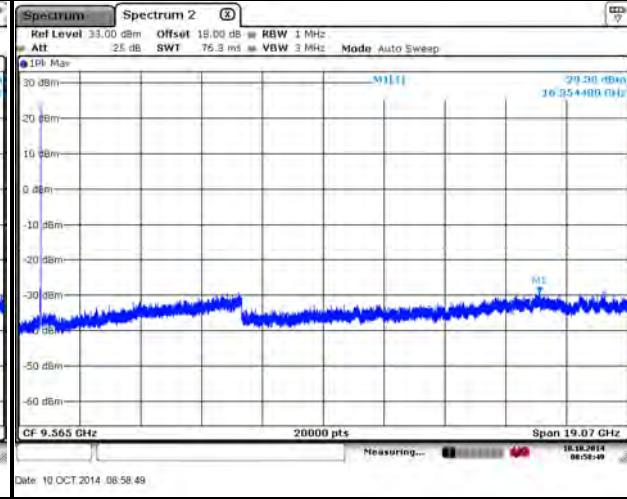
FREQUENCY RANGE : 30MHz~19.1GHz



#### CHANNEL 23790

10MHz / QPSK

FREQUENCY RANGE : 30MHz~19.1GHz



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

No. 34, Chenwulu Section, Guantai Rd.,  
Houjie Town, Dongguan City,  
Guangdong 523942, China

Tel: +86 769 8593 5656

Fax: +86 769 8593 1080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



## 4.7 RADIATED EMISSION MEASUREMENT

### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power ( $P$ ) by at least  $43 + 10 \log_{10}(P)$  dB. The limit of emission equal to  $-13\text{dBm}$

### 4.7.2 TEST PROCEDURES

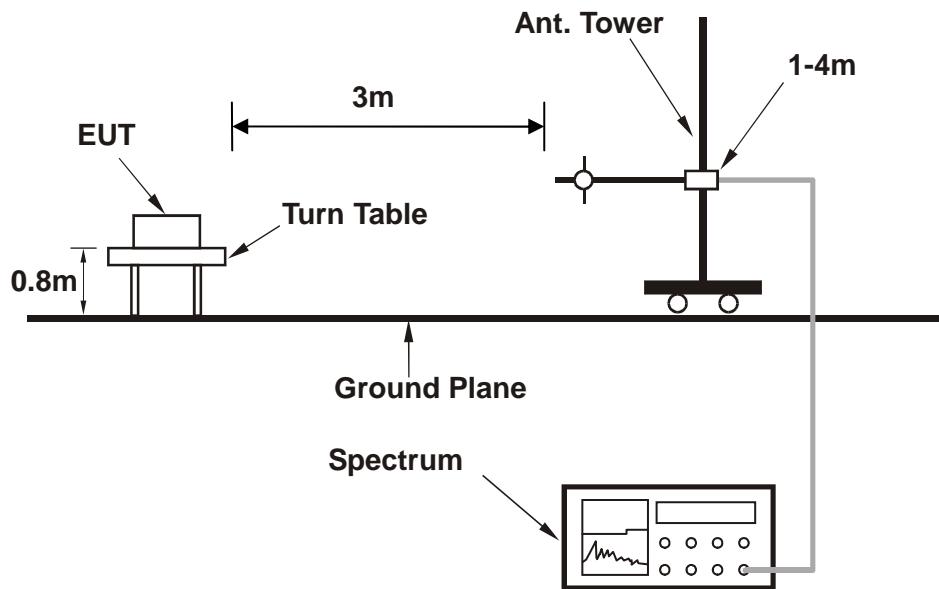
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn 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 a. Record the power level of S.G
- c. EIRP = Output power level of S.G - TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

### 4.7.3 DEVIATION FROM TEST STANDARD

No deviation

#### 4.7.4 TEST SETUP



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



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

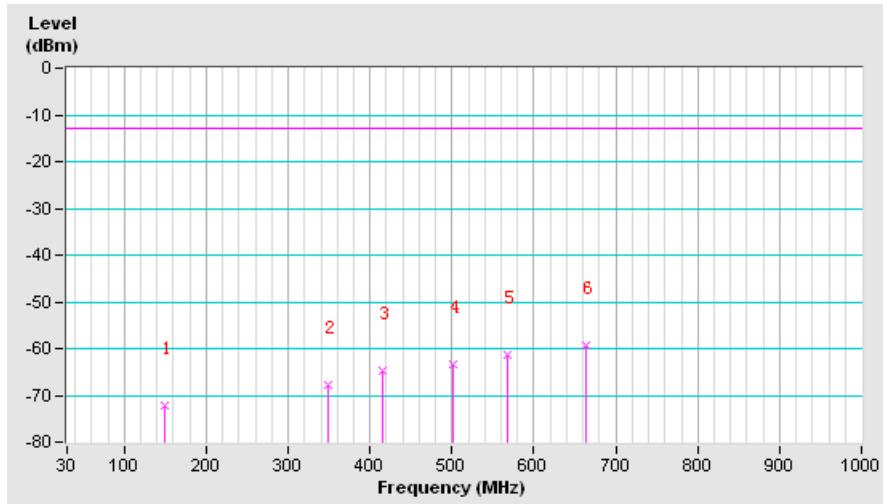
#### 4.7.5 TEST RESULTS

##### BELOW 1GHz WORST-CASE DATA : LTE BAND 4

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 20175
-----------------------------------	---------------	-------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
149.70	H	-72.18	-13.00	-59.18
348.67	H	-67.63	-13.00	-54.63
415.51	H	-64.62	-13.00	-51.62
501.01	H	-63.40	-13.00	-50.40
567.85	H	-61.40	-13.00	-48.40
662.68	H	-59.31	-13.00	-46.31

**NOTE:** The emission behavior belongs to narrowband spurious emission.





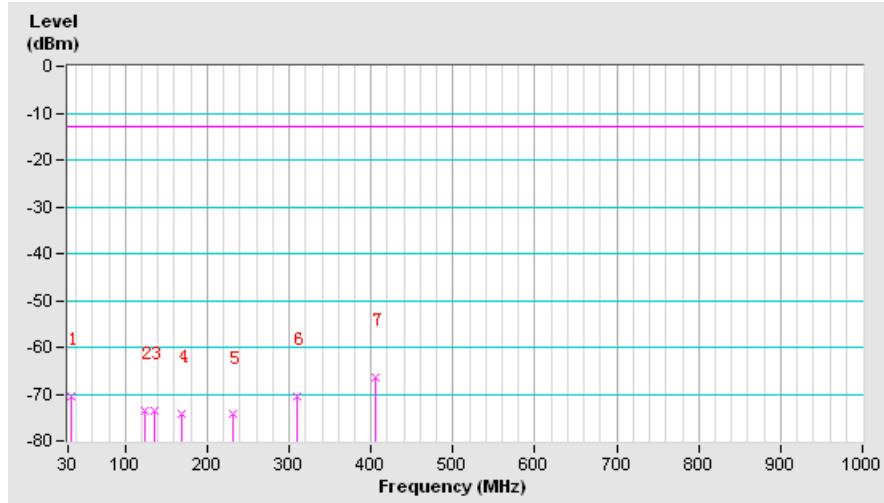
Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 20175
-----------------------------------	---------------	-------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
33.11	V	-70.34	-13.00	-57.34
123.27	V	-73.45	-13.00	-60.45
135.71	V	-73.51	-13.00	-60.51
168.35	V	-74.11	-13.00	-61.11
230.53	V	-74.38	-13.00	-61.38
309.81	V	-70.38	-13.00	-57.38
404.63	V	-66.39	-13.00	-53.39

**NOTE:** The emission behavior belongs to narrowband spurious emission.





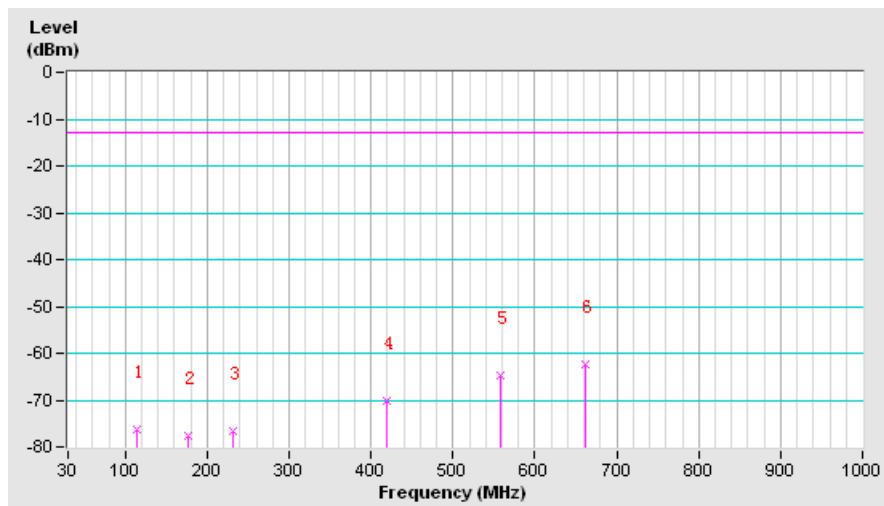
Test Report No.: RF141006N0105-5

**BELOW 1GHz WORST-CASE DATA : LTE BAND 12**

<b>SPURIOUS EMISSION FREQUENCY RANGE</b>	Below 1000MHz	<b>OPERATING CHANNEL</b>	Channel 23095
--	---------------	--------------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
113.94	H	-76.17	-13.00	-63.17
176.12	H	-77.54	-13.00	-64.54
230.53	H	-76.45	-13.00	-63.45
418.62	H	-70.14	-13.00	-57.14
558.53	H	-64.74	-13.00	-51.74
661.12	H	-62.22	-13.00	-49.22

**NOTE:** The emission behavior belongs to narrowband spurious emission.



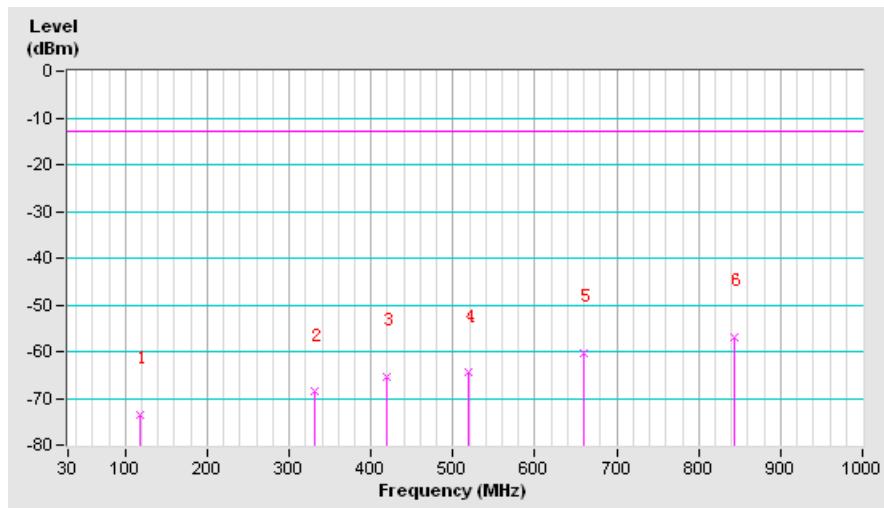


Test Report No.: RF141006N0105-5

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 23095
-----------------------------------	---------------	-------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
117.05	V	-73.54	-13.00	-60.54
331.57	V	-68.62	-13.00	-55.62
418.62	V	-65.44	-13.00	-52.44
519.66	V	-64.51	-13.00	-51.51
659.57	V	-60.23	-13.00	-47.23
843.00	V	-56.99	-13.00	-43.99

**NOTE:** The emission behavior belongs to narrowband spurious emission.





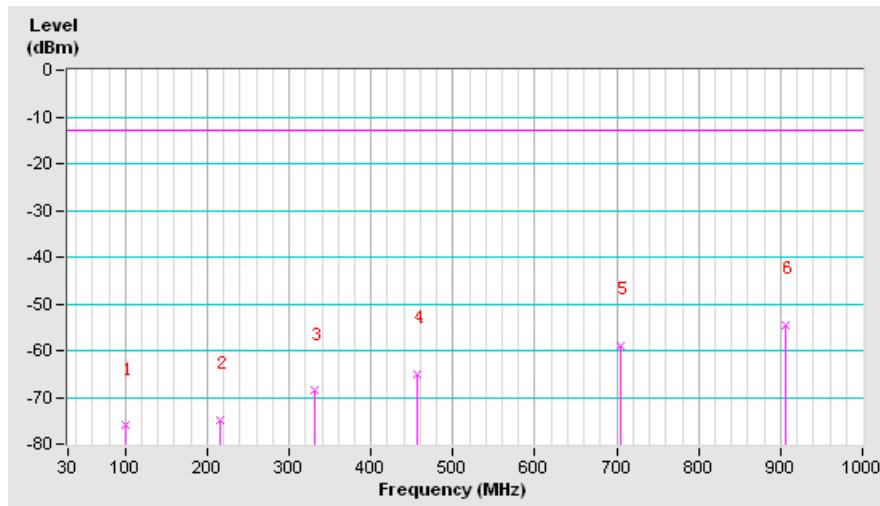
Test Report No.: RF141006N0105-5

**BELOW 1GHz WORST-CASE DATA : LTE BAND 17**

<b>SPURIOUS EMISSION FREQUENCY RANGE</b>	Below 1000MHz	<b>OPERATING CHANNEL</b>	Channel 23790
--	---------------	--------------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
99.95	H	-76.06	-13.00	-63.06
216.54	H	-74.94	-13.00	-61.94
331.57	H	-68.62	-13.00	-55.62
455.93	H	-65.05	-13.00	-52.05
704.65	H	-58.96	-13.00	-45.96
905.18	H	-54.49	-13.00	-41.49

**NOTE:** The emission behavior belongs to narrowband spurious emission.



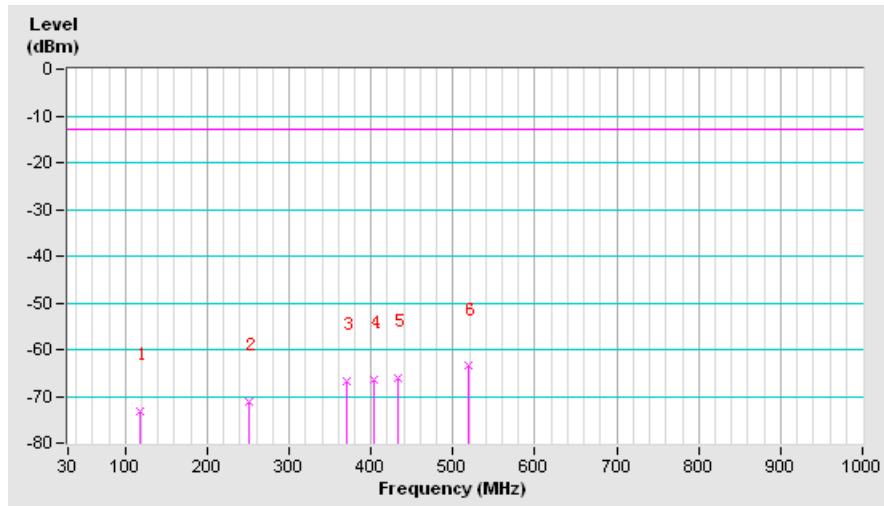


Test Report No.: RF141006N0105-5

SPURIOUS EMISSION FREQUENCY RANGE	Below 1000MHz	OPERATING CHANNEL	Channel 23790
-----------------------------------	---------------	-------------------	---------------

SPURIOUS EMISSION LEVEL				
Frequency (MHz)	Antenna Polarization	Level (dBm)	Limit (dBm)	Margin (dB)
118.61	V	-73.27	-13.00	-60.27
250.74	V	-71.04	-13.00	-58.04
370.43	V	-66.82	-13.00	-53.82
403.08	V	-66.33	-13.00	-53.33
432.61	V	-66.18	-13.00	-53.18
519.66	V	-63.54	-13.00	-50.54

**NOTE:** The emission behavior belongs to narrowband spurious emission.





Test Report No.: RF141006N0105-5

ABOVE 1GHz

LTE BAND 4

CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.23	-13	-59.32	2.79	-56.53	-43.53
2	5197.5	-68.29	-13	-53.62	2.92	-50.70	-37.70
3	6930	-68.54	-13	-51.38	3.17	-48.21	-35.21
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.55	-13	-58.77	2.79	-55.98	-42.98
2	5197.5	-69.15	-13	-54.26	2.92	-51.34	-38.34
3	6930	-69.74	-13	-52.17	3.17	-49.00	-36.00

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

**CHANNEL BANDWIDTH: 3MHz / QPSK**

<b>MODE</b>	TX channel 20175	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 60%RH	<b>INPUT POWER</b>	DC 5V from adapter
<b>TESTED BY</b>	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.14	-13	-59.23	2.79	-56.44	-43.44
2	5197.5	-68.25	-13	-53.58	2.92	-50.66	-37.66
3	6930	-68.47	-13	-51.31	3.17	-48.14	-35.14

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.55	-13	-58.77	2.79	-55.98	-42.98
2	5197.5	-69.33	-13	-54.44	2.92	-51.52	-38.52
3	6930	-69.14	-13	-51.57	3.17	-48.40	-35.40

**NOTE:** EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.24	-13	-59.33	2.79	-56.54	-43.54
2	5197.5	-68.75	-13	-54.08	2.92	-51.16	-38.16
3	6930	-68.23	-13	-51.07	3.17	-47.90	-34.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.78	-13	-59.00	2.79	-56.21	-43.21
2	5197.5	-69.58	-13	-54.69	2.92	-51.77	-38.77
3	6930	-69.96	-13	-52.39	3.17	-49.22	-36.22

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

CHANNEL BANDWIDTH: 10MHz / QPSK

MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.24	-13	-59.33	2.79	-56.54	-43.54
2	5197.5	-68.49	-13	-53.82	2.92	-50.90	-37.90
3	<b>6930</b>	<b>-68.14</b>	<b>-13</b>	<b>-50.98</b>	<b>3.17</b>	<b>-47.81</b>	<b>-34.81</b>

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.85	-13	-59.07	2.79	-56.28	-43.28
2	5197.5	-69.35	-13	-54.46	2.92	-51.54	-38.54
3	6930	-69.74	-13	-52.17	3.17	-49.00	-36.00

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

CHANNEL BANDWIDTH: 15MHz / QPSK

MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.25	-13	-59.34	2.79	-56.55	-43.55
2	5197.5	-68.45	-13	-53.78	2.92	-50.86	-37.86
3	6930	-68.22	-13	-51.06	3.17	-47.89	-34.89

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.47	-13	-58.69	2.79	-55.90	-42.90
2	5197.5	-69.25	-13	-54.36	2.92	-51.44	-38.44
3	6930	-69.27	-13	-51.70	3.17	-48.53	-35.53

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

CHANNEL BANDWIDTH: 20MHz / QPSK

MODE	TX channel 20175	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-68.85	-13	-59.94	2.79	-57.15	-44.15
2	5197.5	-68.47	-13	-53.80	2.92	-50.88	-37.88
3	6930	-68.54	-13	-51.38	3.17	-48.21	-35.21

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Margin (dB)
1	3465	-69.49	-13	-58.71	2.79	-55.92	-42.92
2	5197.5	-69.08	-13	-54.19	2.92	-51.27	-38.27
3	6930	-69.52	-13	-51.95	3.17	-48.78	-35.78

NOTE: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



Test Report No.: RF141006N0105-5

## LTE BAND 12

### CHANNEL BANDWIDTH: 1.4MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-68.74	-13	-66.23	2.63	-65.75	-52.75
2	2122.5	-68.68	-13	-62.74	1.31	-63.58	-50.58
3	2830	-68.56	-13	-60.87	2.45	-60.57	-47.57

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-69.86	-13	-65.28	2.63	-64.80	-51.80
2	2122.5	-69.76	-13	-61.36	1.31	-62.20	-49.20
3	2830	-69.65	-13	-60.69	2.45	-60.39	-47.39

### REMARKS:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB)



Test Report No.: RF141006N0105-5

**CHANNEL BANDWIDTH: 3MHz / QPSK**

<b>MODE</b>	TX channel 23095	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 60%RH	<b>INPUT POWER</b>	DC 5V from adapter
<b>TESTED BY</b>	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-68.44	-13	-65.93	2.63	-65.45	-52.45
2	2122.5	-68.89	-13	-62.95	1.31	-63.79	-50.79
3	2830	-68.49	-13	-60.80	2.45	-60.50	-47.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-69.75	-13	-65.17	2.63	-64.69	-51.69
2	2122.5	-69.62	-13	-61.22	1.31	-62.06	-49.06
3	2830	-69.39	-13	-60.43	2.45	-60.13	-47.13

**REMARKS:**

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB)



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-68.45	-13	-65.94	2.63	-65.46	-52.46
2	2122.5	-68.85	-13	-62.91	1.31	-63.75	-50.75
3	2830	-68.74	-13	-61.05	2.45	-60.75	-47.75

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-69.84	-13	-65.26	2.63	-64.78	-51.78
2	2122.5	-69.45	-13	-61.05	1.31	-61.89	-48.89
3	2830	-69.54	-13	-60.58	2.45	-60.28	-47.28

**REMARKS:**

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB)



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

**CHANNEL BANDWIDTH: 10MHz / QPSK**

MODE	TX channel 23095	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-68.56	-13	-66.05	2.63	-65.57	-52.57
2	2122.5	-68.46	-13	-62.52	1.31	-63.36	-50.36
3	2830	-68.66	-13	-60.97	2.45	-60.67	-47.67

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1415	-69.74	-13	-65.16	2.63	-64.68	-51.68
2	2122.5	-69.48	-13	-61.08	1.31	-61.92	-48.92
3	2830	-69.85	-13	-60.89	2.45	-60.59	-47.59

**REMARKS:**

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB)



Test Report No.: RF141006N0105-5

## LTE BAND 17

### CHANNEL BANDWIDTH: 5MHz / QPSK

MODE	TX channel 23790	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	24deg. C, 60%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Blue Zheng		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1420	-67.58	-13	-65.02	2.68	-64.49	-51.49
2	2130	-67.18	-13	-61.45	1.35	-62.25	-49.25
3	2840	-67.55	-13	-58.78	2.40	-58.53	-45.53

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M							
No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1420	-69.68	-13	-64.71	2.68	-64.18	-51.18
2	2130	-69.45	-13	-61.53	1.35	-62.33	-49.33
3	2840	-69.89	-13	-59.91	2.40	-59.66	-46.66

### REMARKS:

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB)



Test Report No.: RF141006N0105-5

BUREAU  
VERITAS

**CHANNEL BANDWIDTH: 10MHz / QPSK**

<b>MODE</b>	TX channel 23790	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	24deg. C, 60%RH	<b>INPUT POWER</b>	DC 5V from adapter
<b>TESTED BY</b>	Blue Zheng		

**ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M**

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1420	-67.55	-13	-64.99	2.68	-64.46	-51.46
2	2130	-67.69	-13	-61.96	1.35	-62.76	-49.76
3	2840	-67.48	-13	-58.71	2.40	-58.46	-45.46

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

No.	Freq. (MHz)	Reading (dBm)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	ERP (dBm)	Margin (dB)
1	1420	-69.41	-13	-64.44	2.68	-63.91	-50.91
2	2130	-69.86	-13	-61.94	1.35	-62.74	-49.74
3	2840	-69.77	-13	-59.79	2.40	-59.54	-46.54

**REMARKS:**

1. ERP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB) - 2.15 (dB).



Test Report No.: RF141006N0105-5

## 5 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch, were founded in 2002 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

### Dongguan EMC/RF Lab:

Tel: +86-769-85935656

Fax: +86-769-85931080

Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)

Web Site: [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



Test Report No.: RF141006N0105-5

## 6 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

---END---