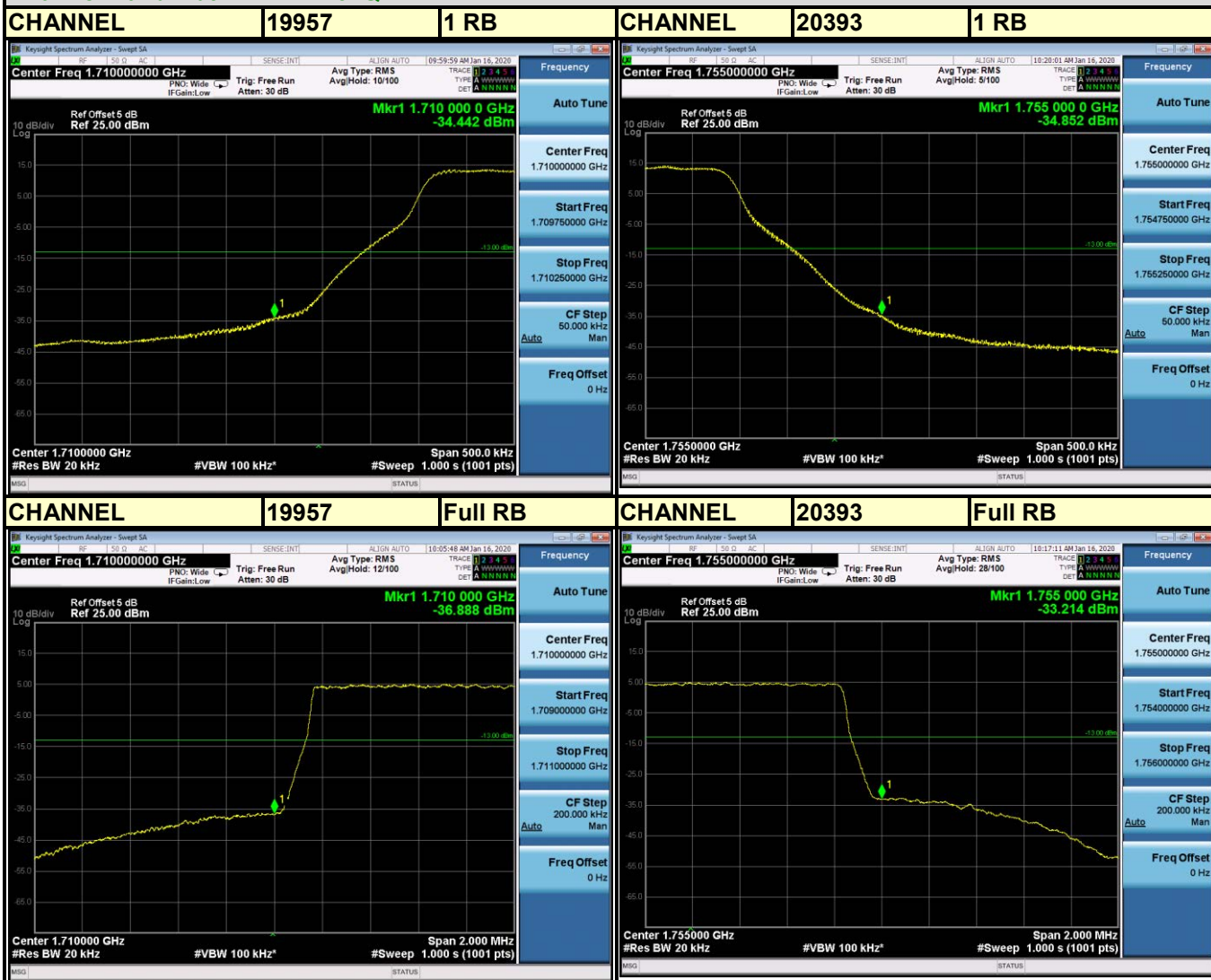


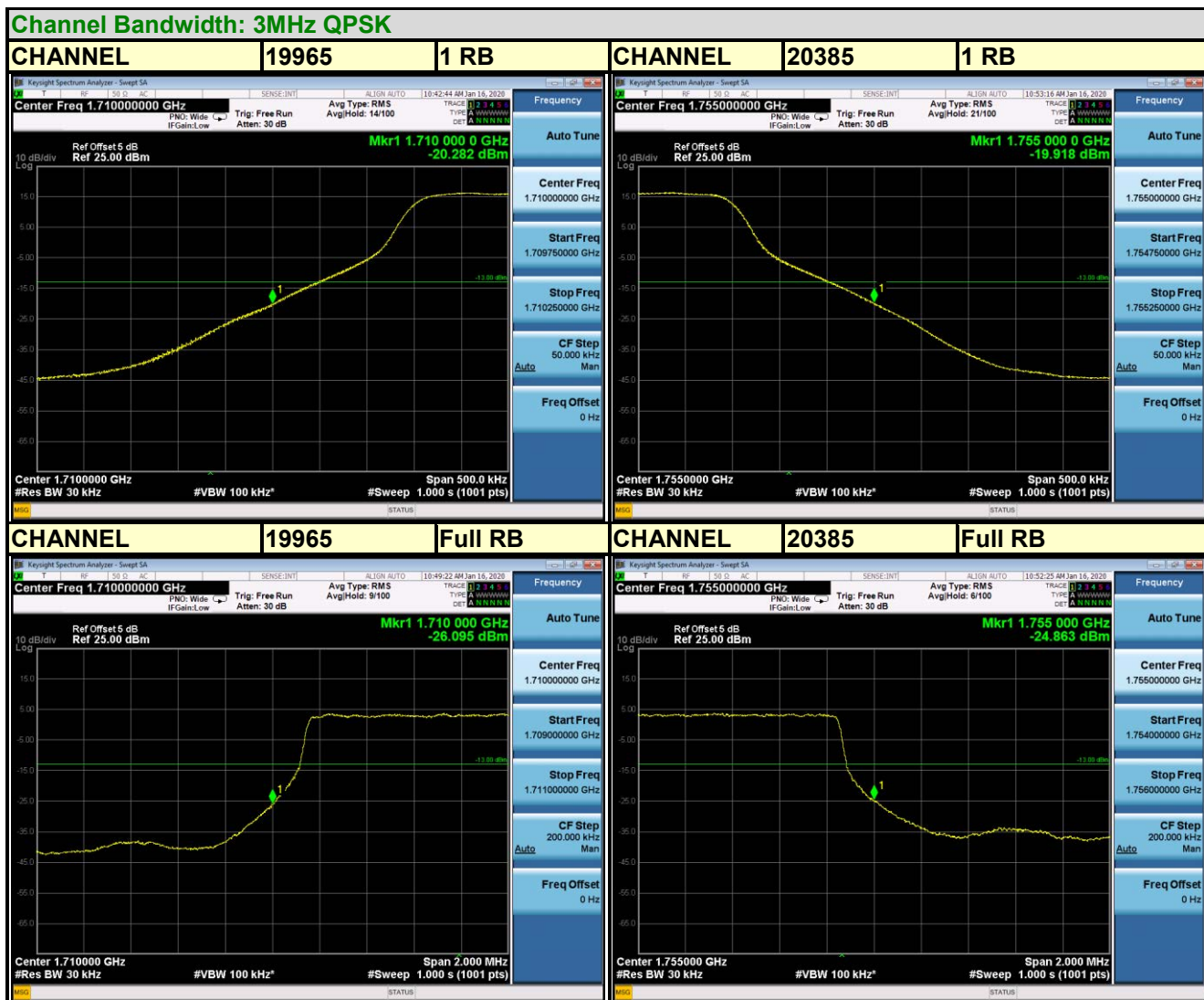
**Channel Bandwidth: 1.4MHz 64QAM**





Test Report No.: RF200106W008-6

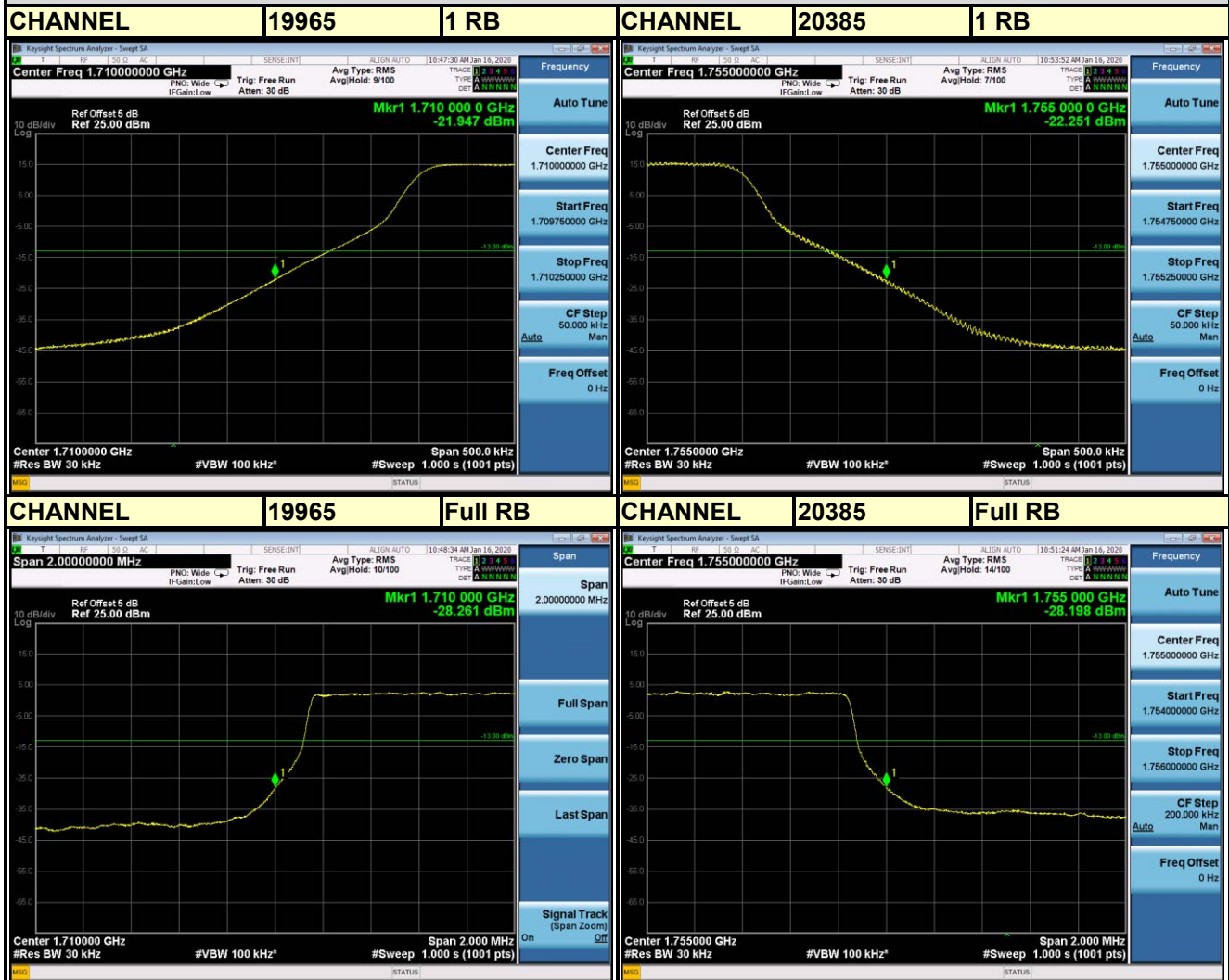
## LTE BAND 4





Test Report No.: RF200106W008-6

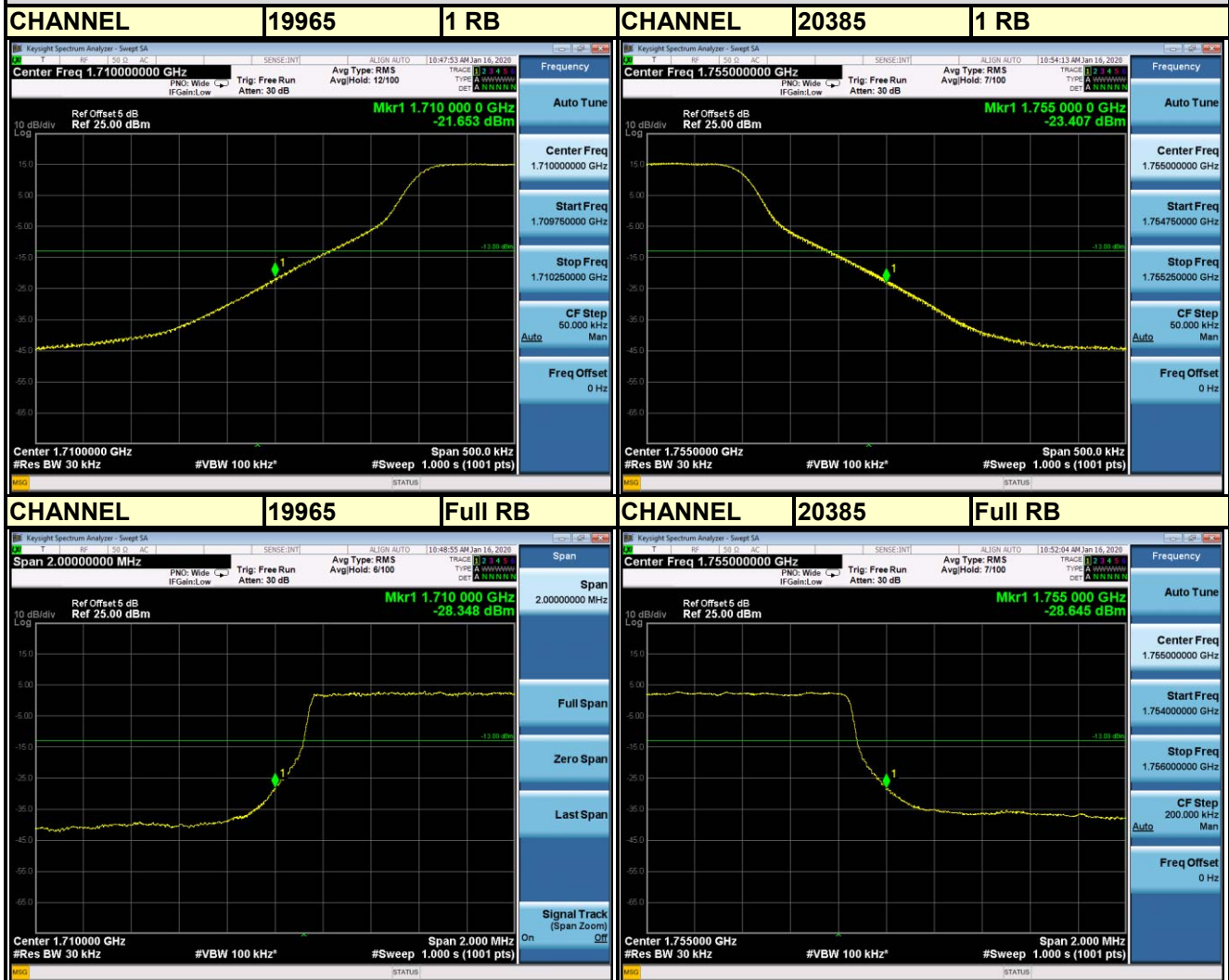
### Channel Bandwidth: 3MHz 16QAM



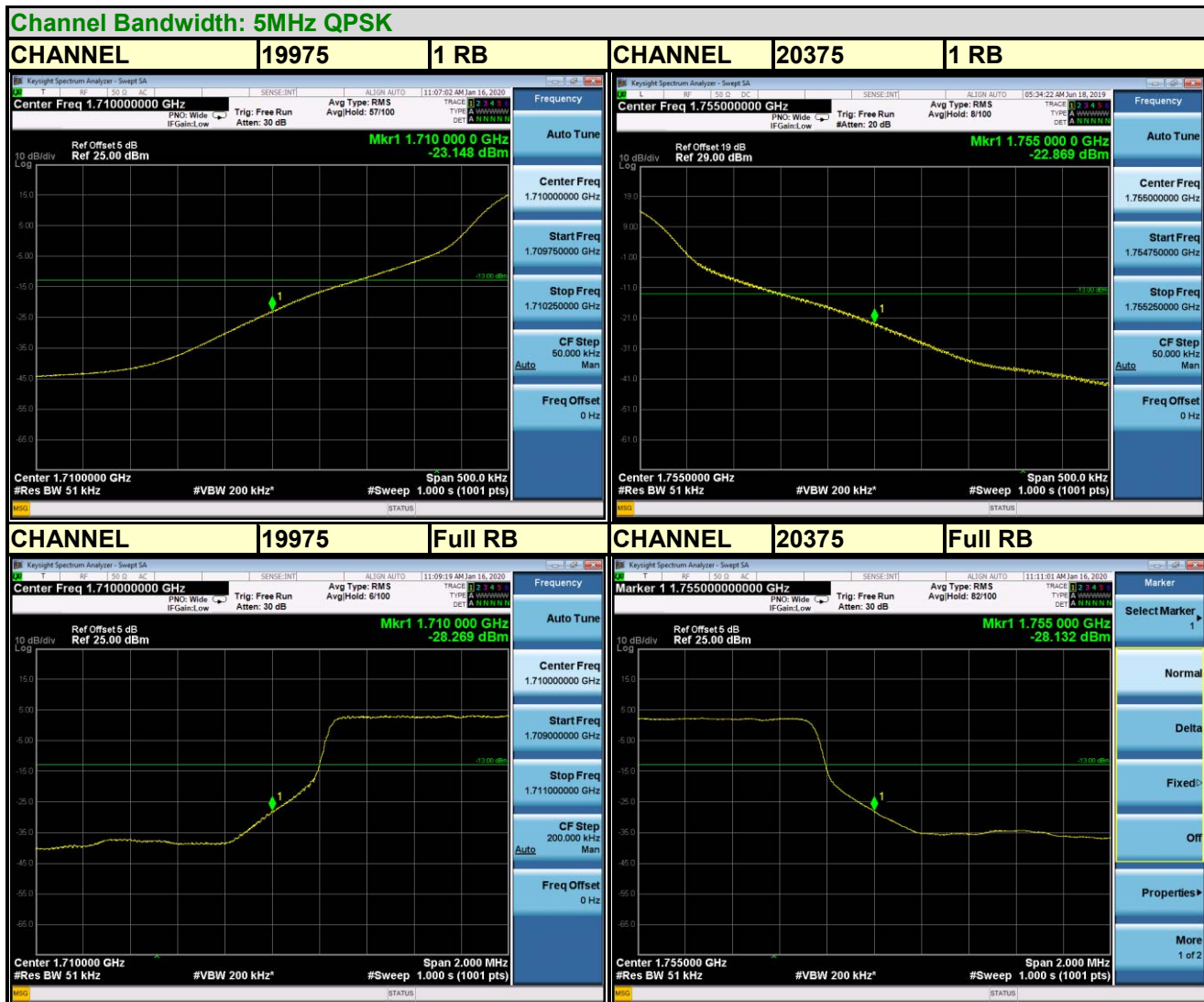


Test Report No.: RF200106W008-6

Channel Bandwidth: 3MHz 64QAM



LTE BAND 4

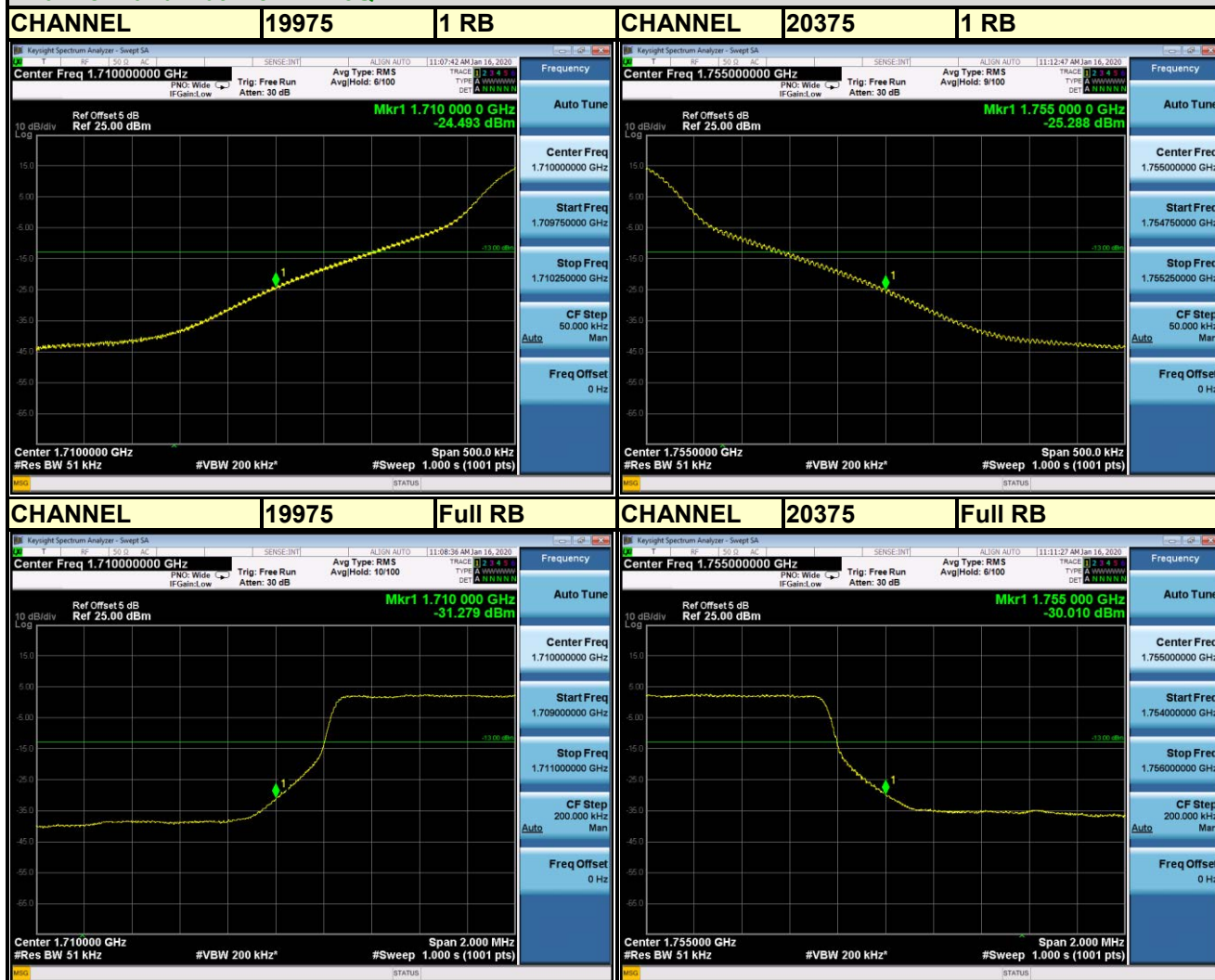






Test Report No.: RF200106W008-6

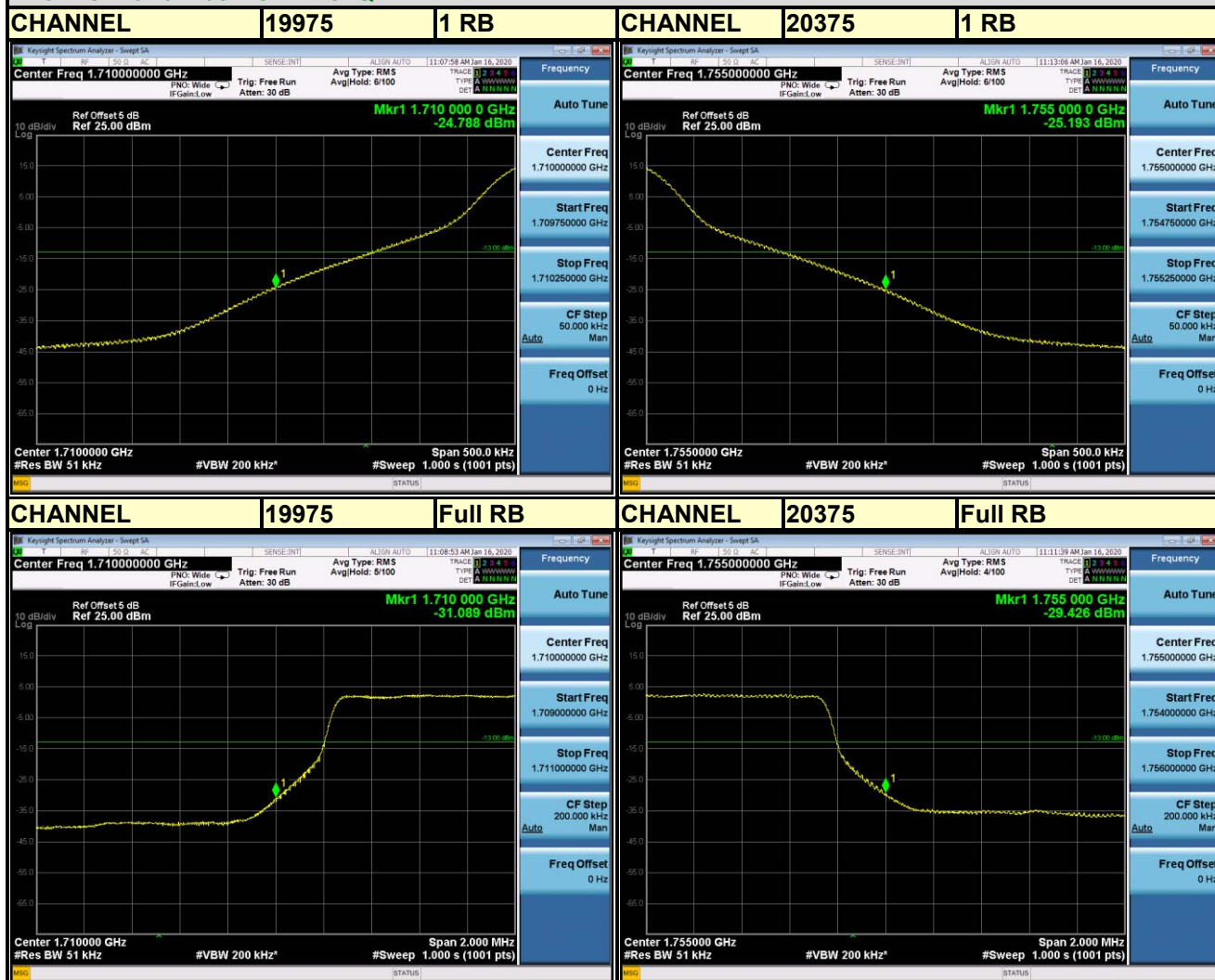
Channel Bandwidth: 5MHz 16QAM





Test Report No.: RF200106W008-6

### Channel Bandwidth: 5MHz 64QAM

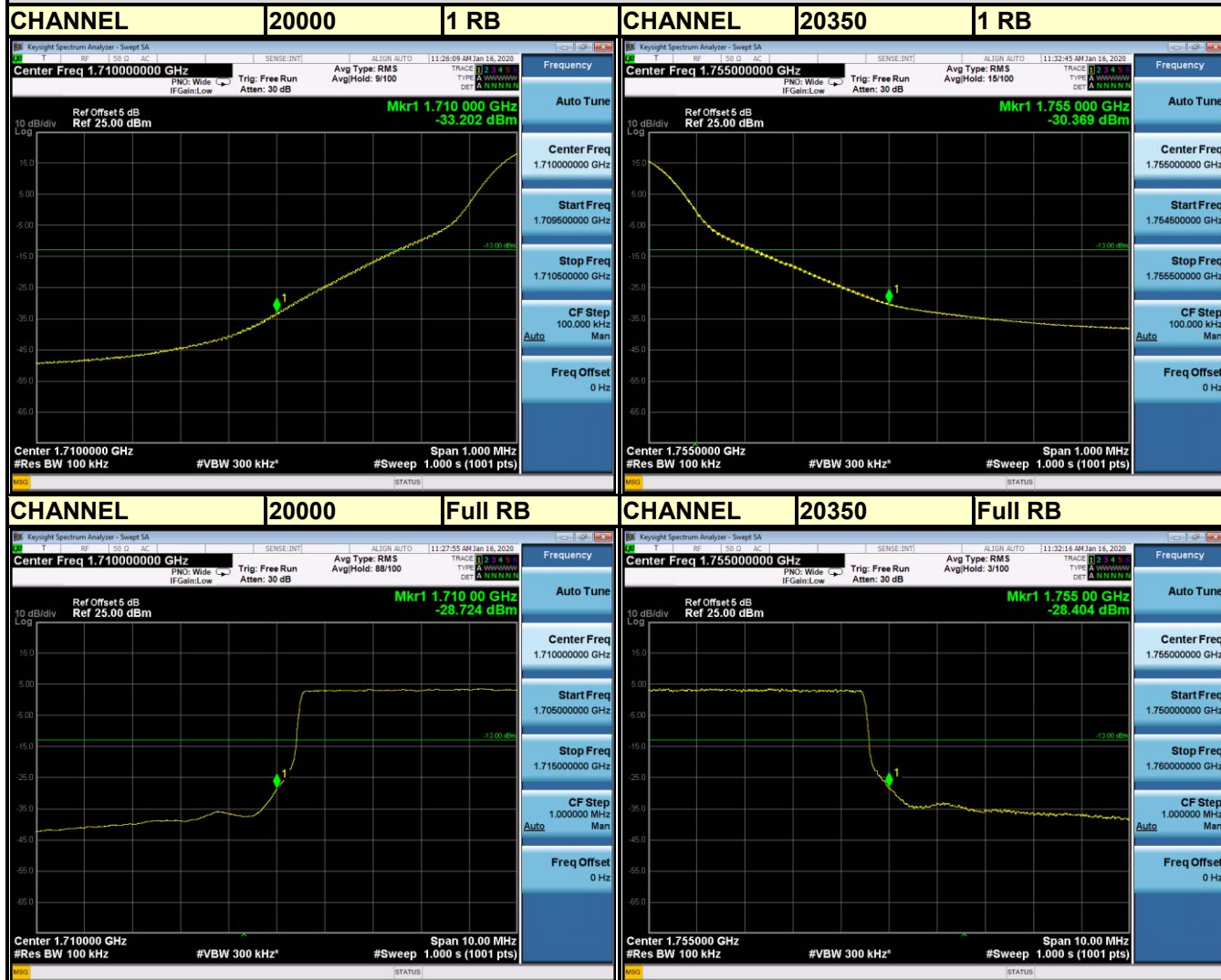




Test Report No.: RF200106W008-6

## LTE BAND 4

### Channel Bandwidth: 10MHz QPSK







BUREAU  
VERITAS

Test Report No.: RF200106W008-6

Channel Bandwidth: 10MHz 16QAM





BUREAU  
VERITAS

Test Report No.: RF200106W008-6

Channel Bandwidth: 10MHz 64QAM





Test Report No.: RF200106W008-6

## LTE BAND 4

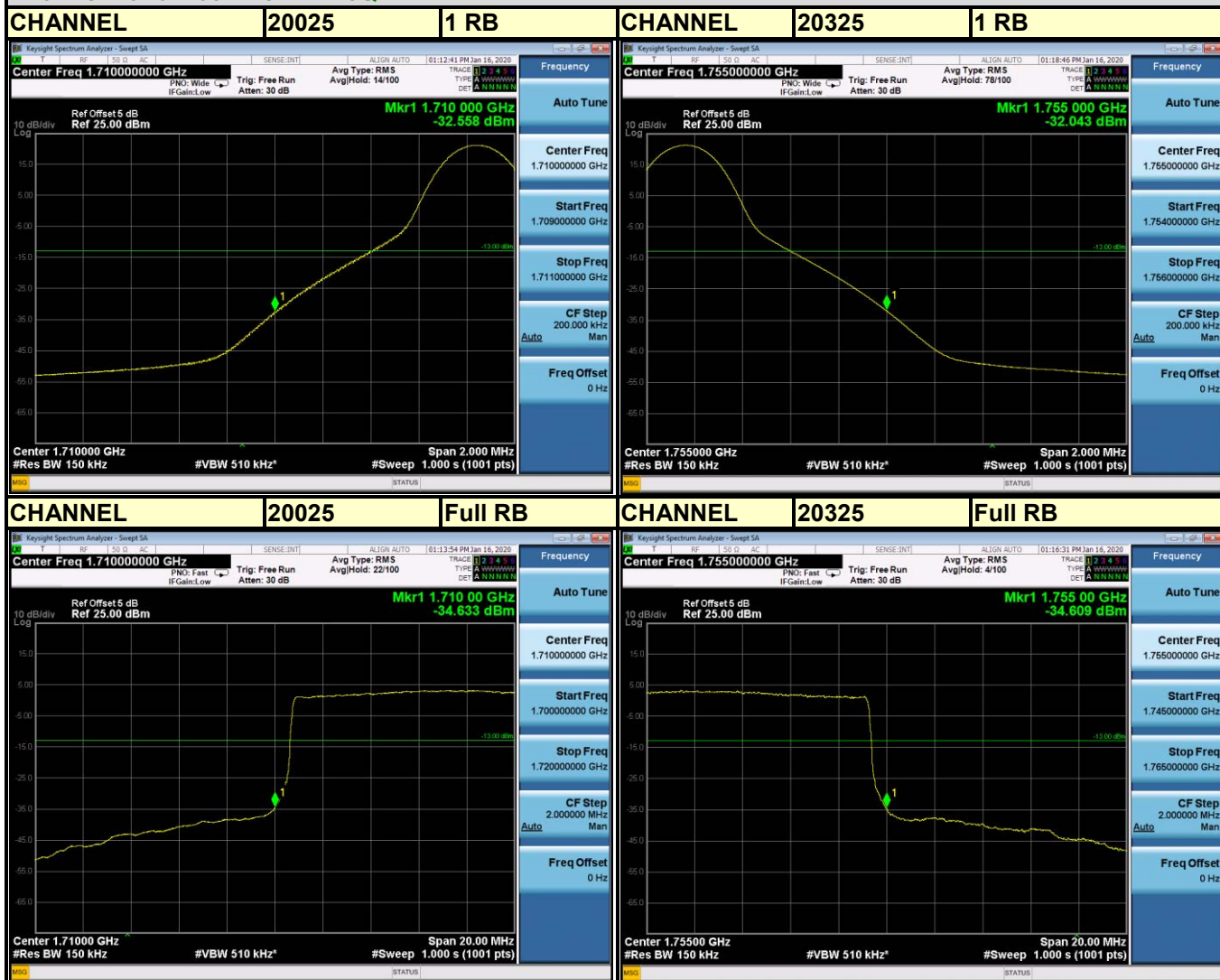
### Channel Bandwidth: 15MHz QPSK



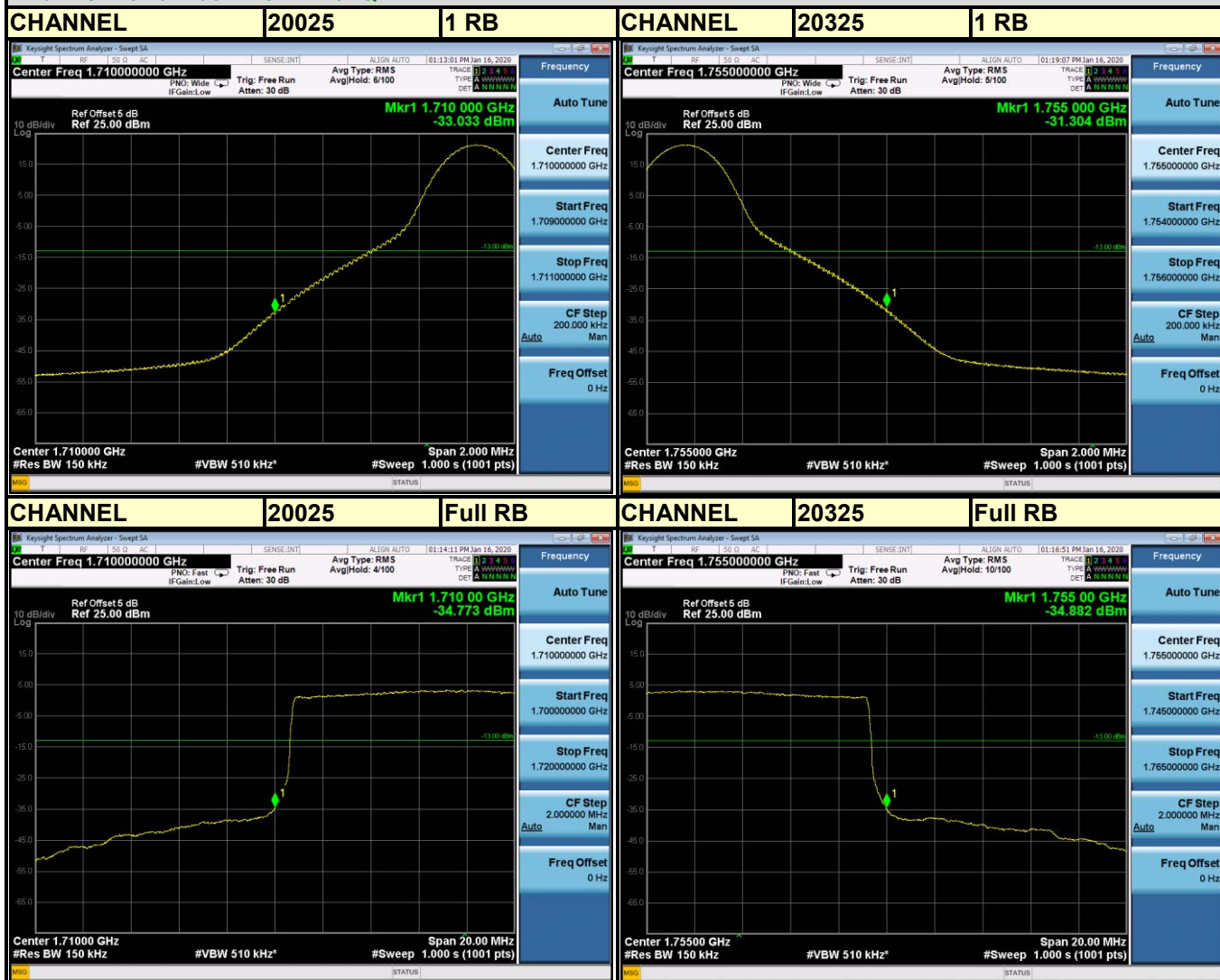


Test Report No.: RF200106W008-6

### Channel Bandwidth: 15MHz 16QAM



**Channel Bandwidth: 15MHz 64QAM**







Test Report No.: RF200106W008-6

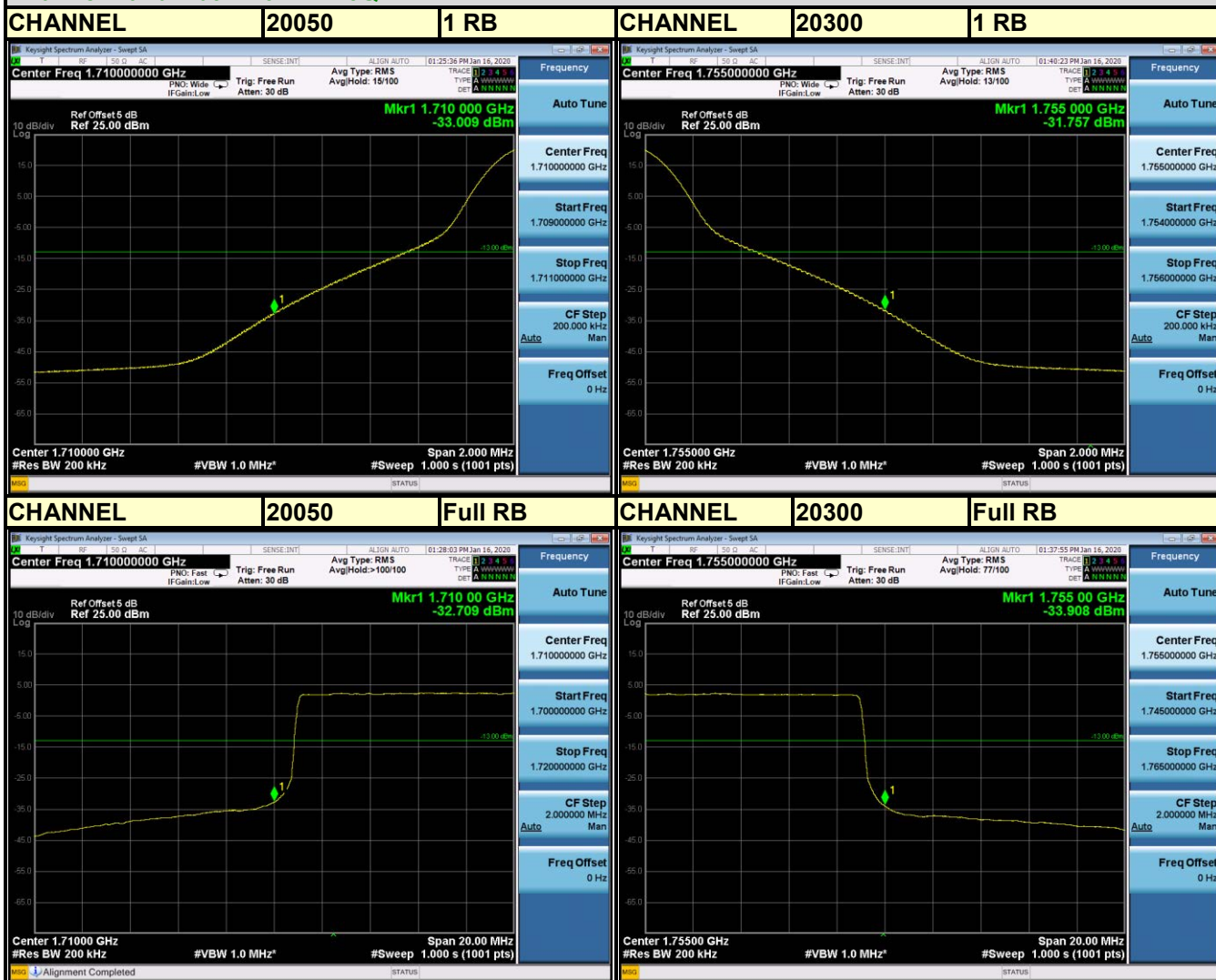
## LTE BAND 4

### Channel Bandwidth: 20MHz QPSK

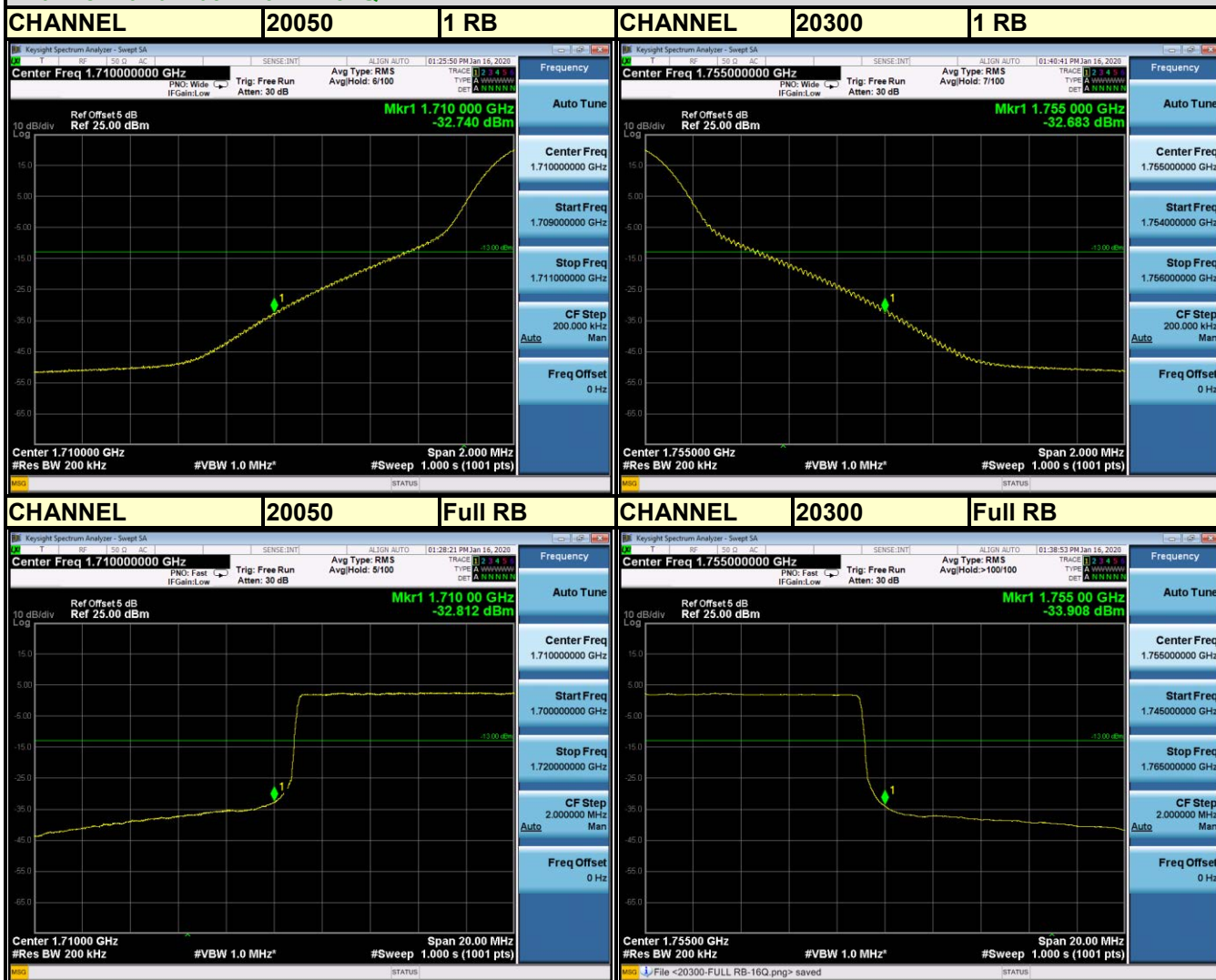




**Channel Bandwidth: 20MHz 16QAM**



**Channel Bandwidth: 20MHz 64QAM**



### 3.6 CONDUCTED SPURIOUS EMISSIONS

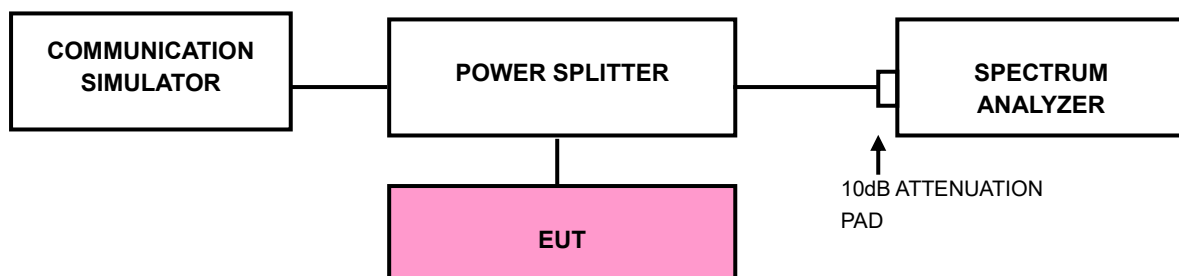
#### 3.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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  $-13\text{dBm}$

#### 3.6.2 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 WCDMA Band 4 & LTE Band 4. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz are used for conducted emission measurement.

#### 3.6.3 TEST SETUP



### 3.6.4 TEST RESULTS

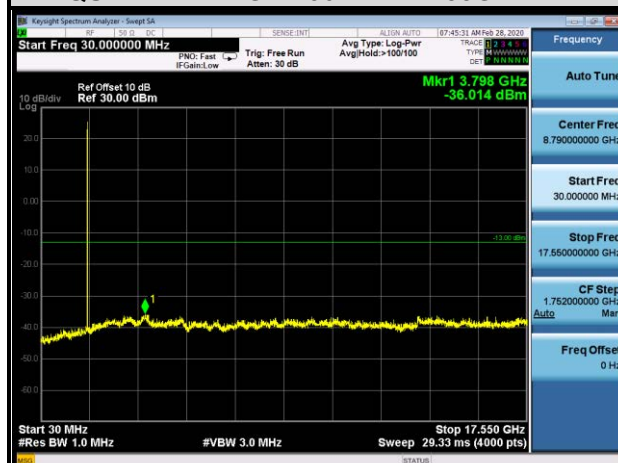


## LTE BAND 4

### 1.4MHz / QPSK

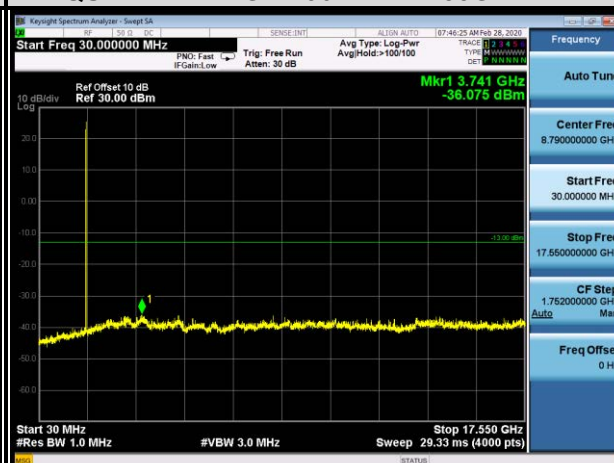
#### CHANNEL 19957

FREQUENCY RANGE : 30MHz~17.55GHz



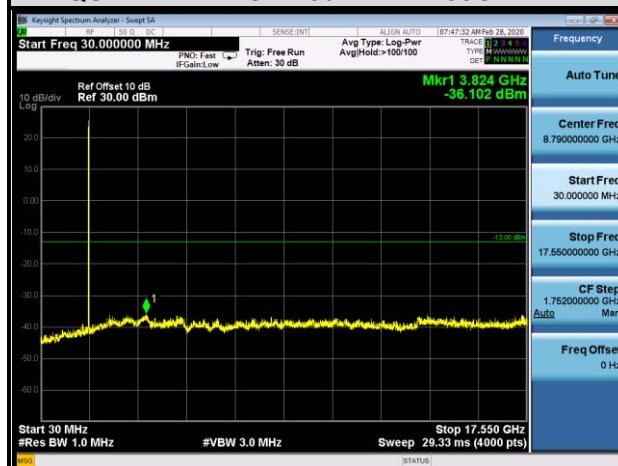
#### CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



#### CHANNEL 20393

FREQUENCY RANGE : 30MHz~17.55GHz

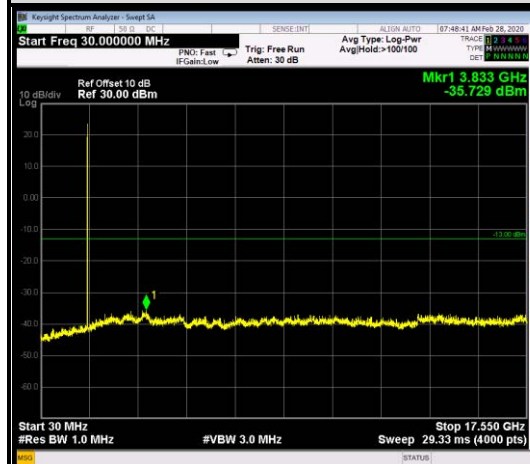




### 3MHz / QPSK

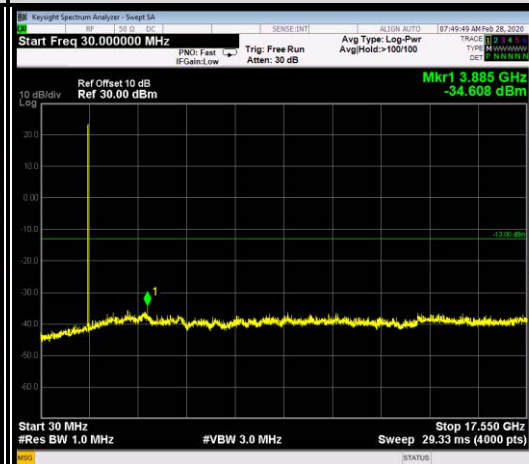
#### CHANNEL 19965

FREQUENCY RANGE : 30MHz~17.55GHz



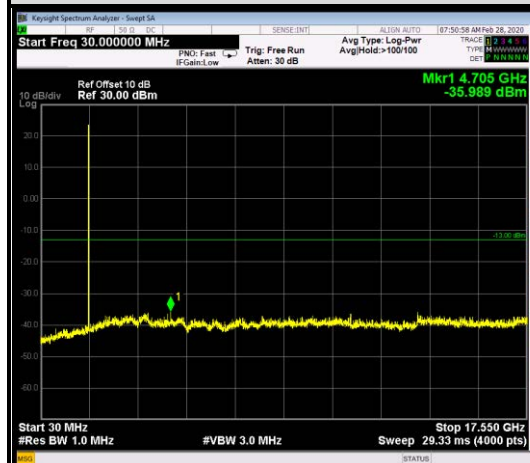
#### CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



#### CHANNEL 20385

FREQUENCY RANGE : 30MHz~17.55GHz

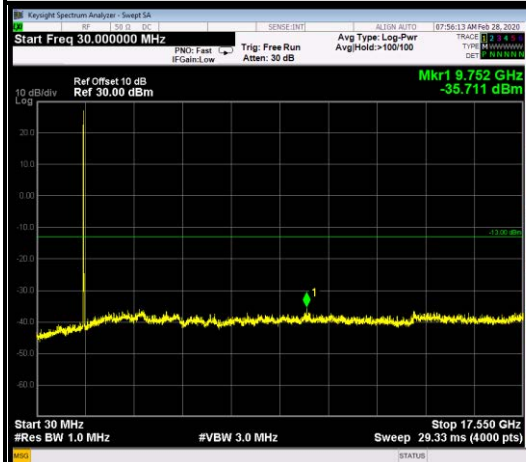




### 10MHz / QPSK

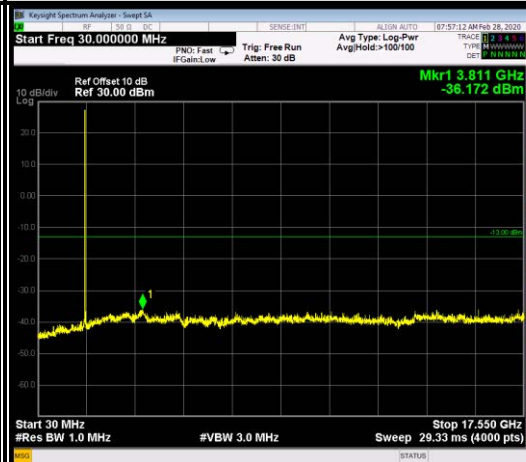
#### CHANNEL 20000

FREQUENCY RANGE : 30MHz~17.55GHz



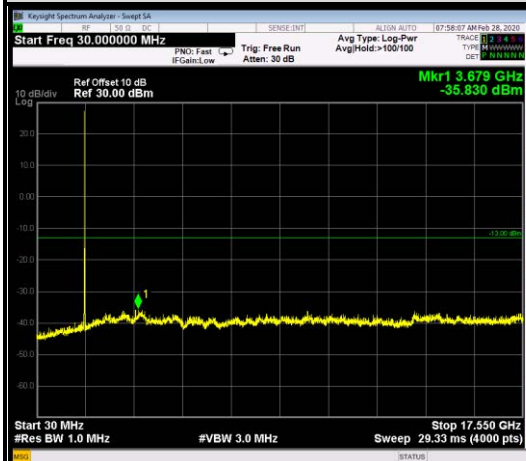
#### CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



#### CHANNEL 20350

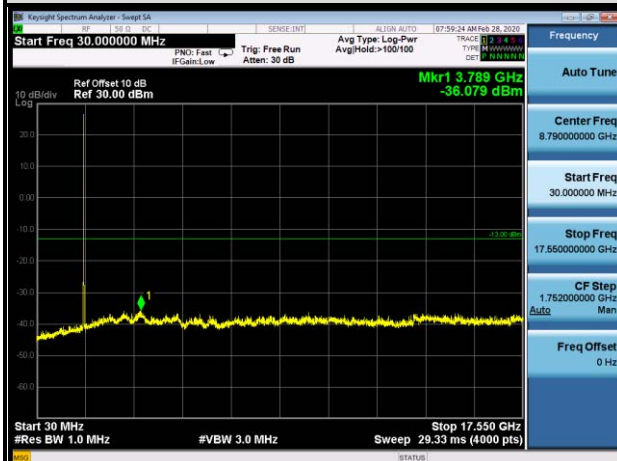
FREQUENCY RANGE : 30MHz~17.55GHz



### 15MHz / QPSK

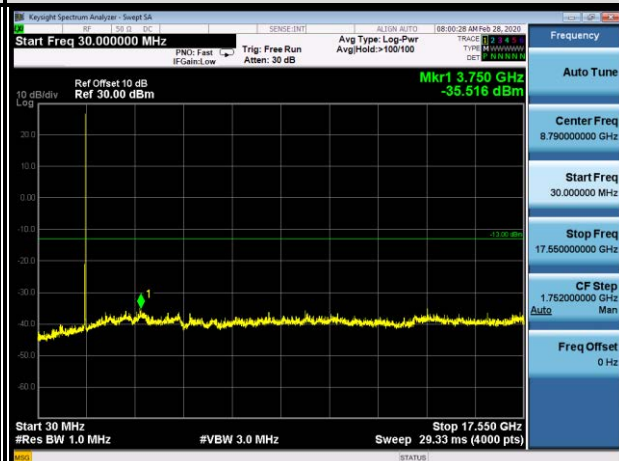
#### CHANNEL 20025

FREQUENCY RANGE : 30MHz~17.55GHz



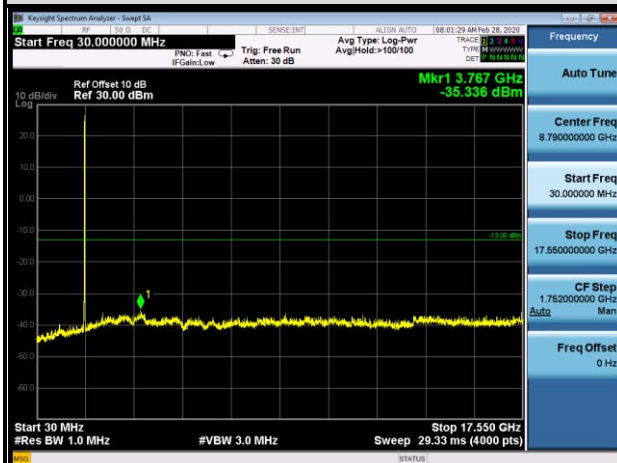
#### CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



#### CHANNEL 20325

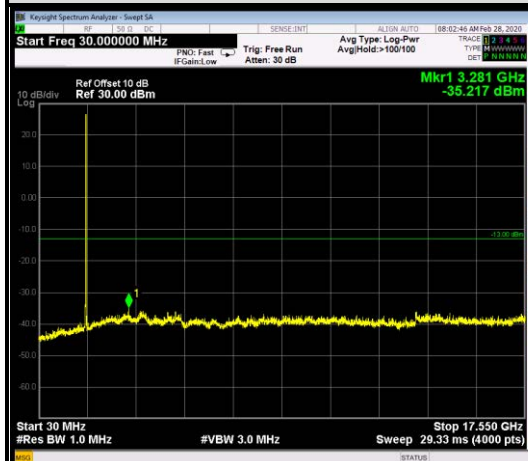
FREQUENCY RANGE : 30MHz~17.55GHz



## 20MHz / QPSK

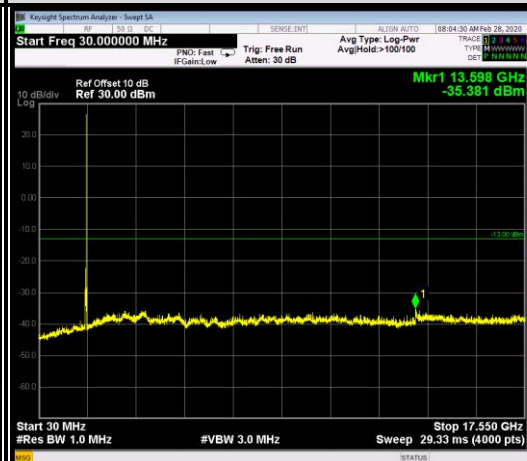
### CHANNEL 20050

FREQUENCY RANGE : 30MHz~17.55GHz



### CHANNEL 20175

FREQUENCY RANGE : 30MHz~17.55GHz



### CHANNEL 20300

FREQUENCY RANGE : 30MHz~17.55GHz



### 3.7 RADIATED EMISSION MEASUREMENT

#### 3.7.1 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  $-13\text{dBm}$

#### 3.7.2 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.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}.$
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$

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

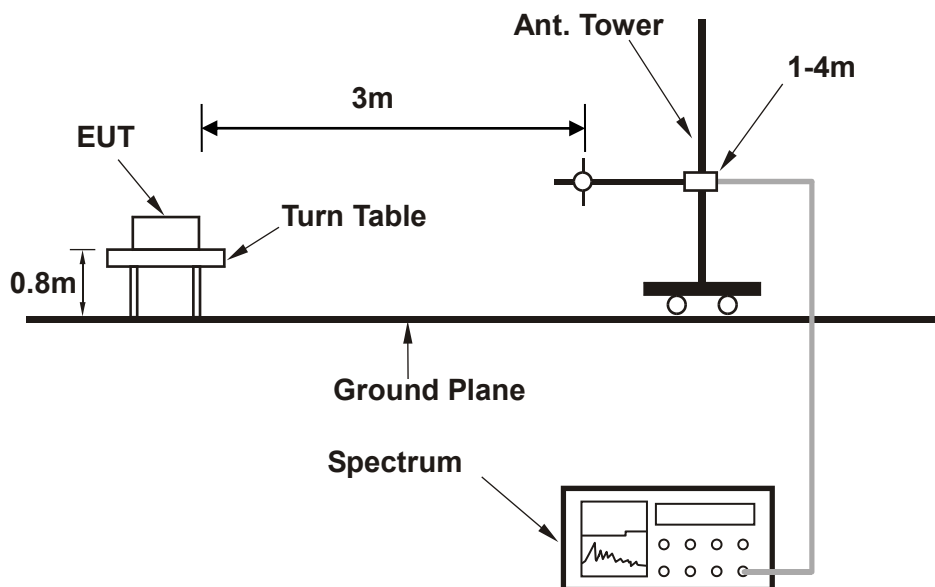
#### 3.7.3 DEVIATION FROM TEST STANDARD

No deviation

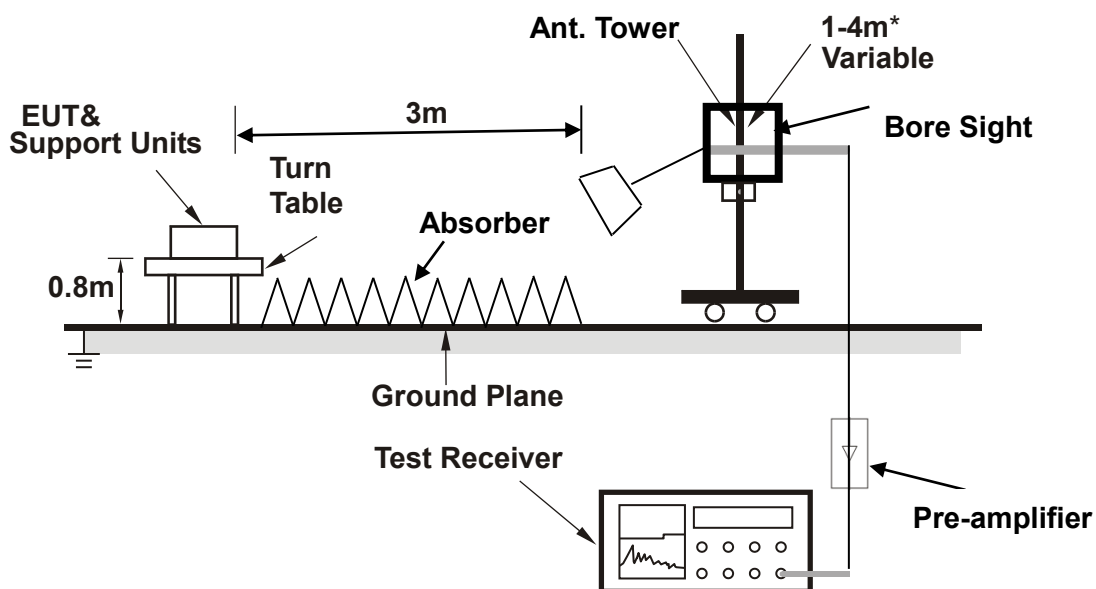


### 3.7.4 TEST SETUP

#### < Frequency Range 30MHz~1GHz >



#### <Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

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

### 3.7.5 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA

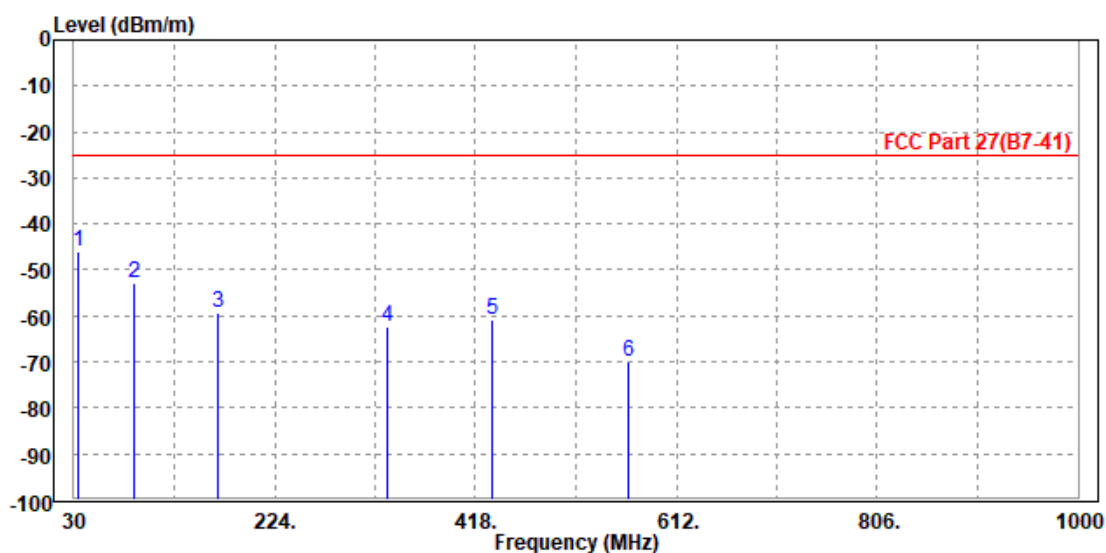
30 MHz – 1GHz data:

WCDMA IV

CHANNEL BANDWIDTH: 10MHz / QPSK

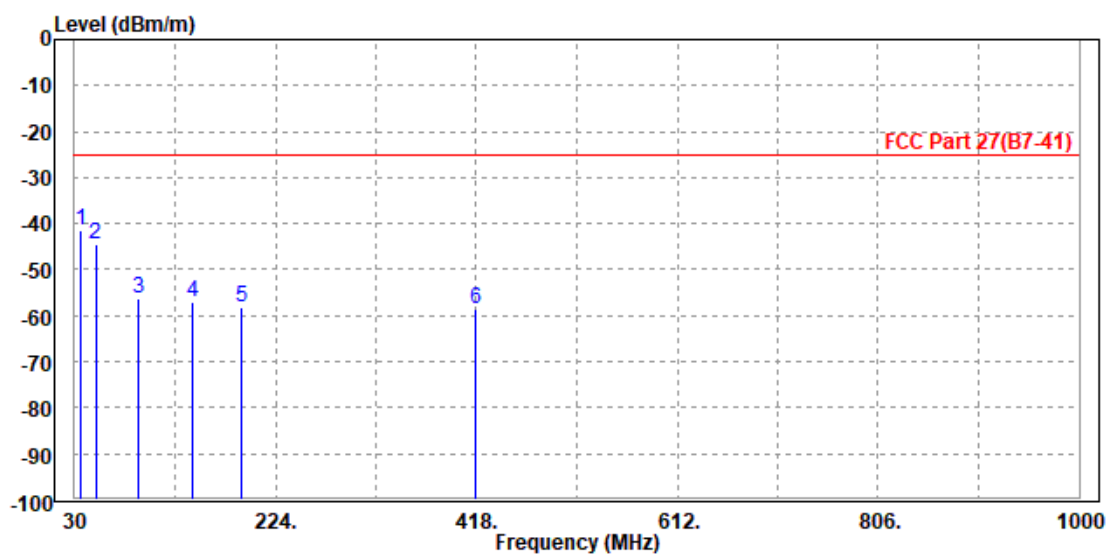
|                                                     |                 |                 |                              |
|-----------------------------------------------------|-----------------|-----------------|------------------------------|
| MODE                                                | TX channel 1413 | FREQUENCY RANGE | Below 1000MHz                |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | DC 5V/9V/10/12V from adapter |
| TESTED BY                                           | Star Le         |                 |                              |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                 |                 |                              |

|      | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|------|---------|--------|------------|------------|------------|--------|--------|------------|
|      | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 PP | 33.890  | -45.98 | -59.98     | -25.00     | -20.98     | 14.00  | Peak   | Horizontal |
| 2    | 88.120  | -52.76 | -43.98     | -25.00     | -27.76     | -8.78  | Peak   | Horizontal |
| 3    | 169.250 | -59.40 | -41.26     | -25.00     | -34.40     | -18.14 | Peak   | Horizontal |
| 4    | 332.870 | -62.27 | -49.56     | -25.00     | -37.27     | -12.71 | Peak   | Horizontal |
| 5    | 433.750 | -60.79 | -50.36     | -25.00     | -35.79     | -10.43 | Peak   | Horizontal |
| 6    | 565.840 | -70.12 | -60.85     | -25.00     | -45.12     | -9.27  | Peak   | Horizontal |



|                                                   |                 |                 |                              |
|---------------------------------------------------|-----------------|-----------------|------------------------------|
| MODE                                              | TX channel 1413 | FREQUENCY RANGE | Below 1000MHz                |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | DC 5V/9V/10/12V from adapter |
| TESTED BY                                         | Star Le         |                 |                              |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |                              |

|   |    | Freq    | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|---|----|---------|--------|------------|------------|------------|--------|--------|-----------|
|   |    | MHz     | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1 | PP | 35.960  | -41.42 | -40.11     | -25.00     | -16.42     | -1.31  | Peak   | Vertical  |
| 2 |    | 50.260  | -44.53 | -39.62     | -25.00     | -19.53     | -4.91  | Peak   | Vertical  |
| 3 |    | 91.220  | -56.43 | -45.88     | -25.00     | -31.43     | -10.55 | Peak   | Vertical  |
| 4 |    | 144.220 | -56.96 | -41.00     | -25.00     | -31.96     | -15.96 | Peak   | Vertical  |
| 5 |    | 191.220 | -58.08 | -46.33     | -25.00     | -33.08     | -11.75 | Peak   | Vertical  |
| 6 |    | 417.110 | -58.63 | -48.33     | -25.00     | -33.63     | -10.30 | Peak   | Vertical  |



## ABOVE 1GHz

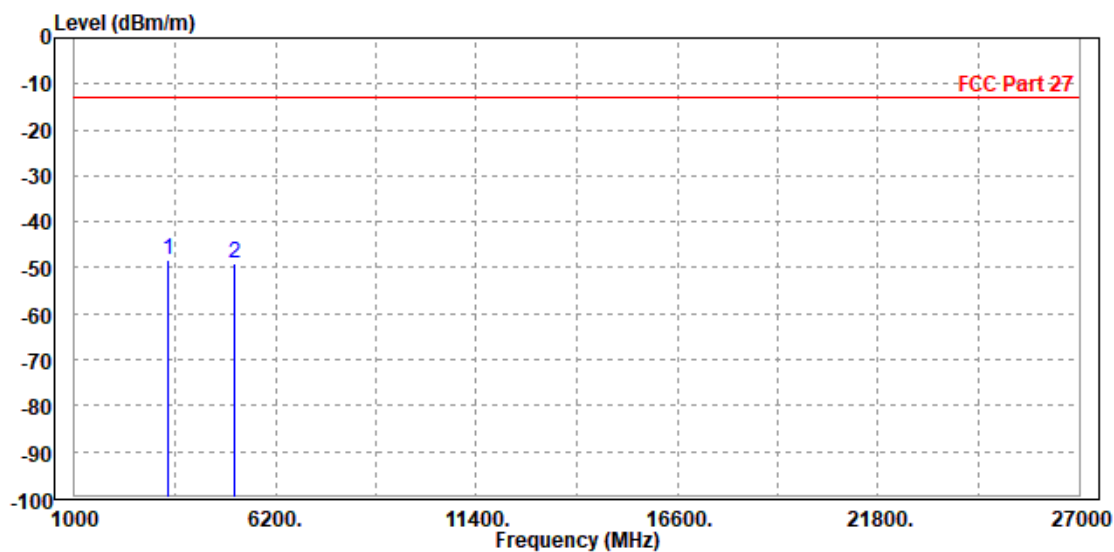
**Note:** For higher frequency, the emission is too low to be detected.

## WCDMA Band IV:

### CH 1312

|                                                     |                 |                 |                              |
|-----------------------------------------------------|-----------------|-----------------|------------------------------|
| MODE                                                | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz                |
| ENVIRONMENTAL CONDITIONS                            | 23deg. C, 70%RH | INPUT POWER     | DC 5V/9V/10/12V from adapter |
| TESTED BY                                           | Star Le         |                 |                              |
| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                 |                 |                              |

|   |    | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase  |
|---|----|----------|--------|------------|------------|------------|--------|--------|------------|
|   |    | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |            |
| 1 | PP | 3418.000 | -48.28 | -56.87     | -13.00     | -35.28     | 8.59   | Peak   | Horizontal |
| 2 |    | 5137.200 | -49.18 | -58.12     | -13.00     | -36.18     | 8.94   | Peak   | Horizontal |



|                                                   |                 |                 |                              |
|---------------------------------------------------|-----------------|-----------------|------------------------------|
| MODE                                              | TX channel 1312 | FREQUENCY RANGE | Above 1000MHz                |
| ENVIRONMENTAL CONDITIONS                          | 23deg. C, 70%RH | INPUT POWER     | DC 5V/9V/10/12V from adapter |
| TESTED BY                                         | Star Le         |                 |                              |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                 |                 |                              |

|      | Freq     | Level  | Read Level | Limit Line | Over Limit | Factor | Remark | Pol/Phase |
|------|----------|--------|------------|------------|------------|--------|--------|-----------|
|      | MHz      | dBm/m  | dBm        | dBm/m      | dB         | dB/m   |        |           |
| 1    | 3418.000 | -47.88 | -56.99     | -13.00     | -34.88     | 9.11   | Peak   | Vertical  |
| 2 PP | 5137.200 | -47.40 | -57.25     | -13.00     | -34.40     | 9.85   | Peak   | Vertical  |

