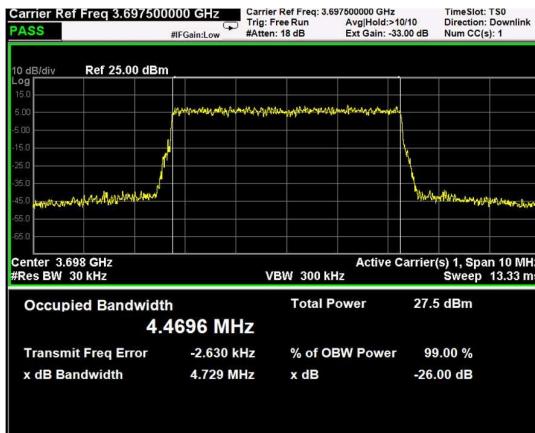
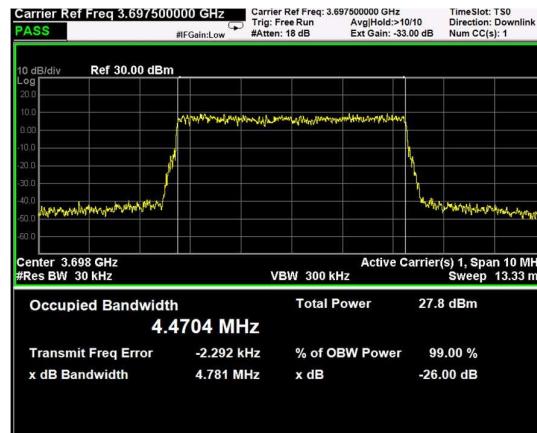
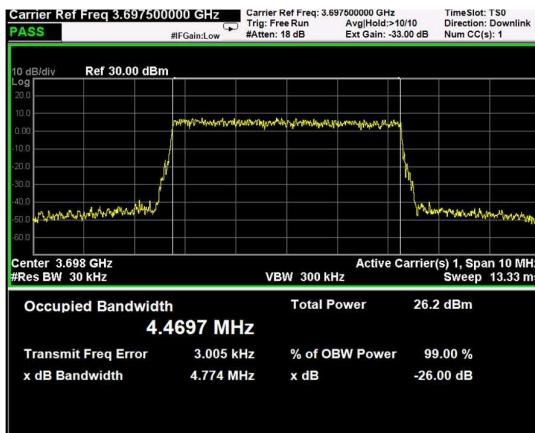
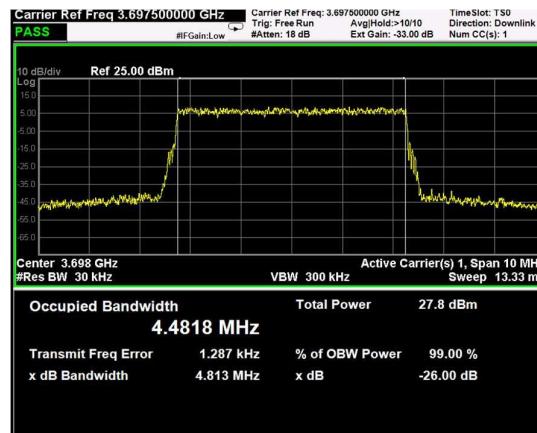
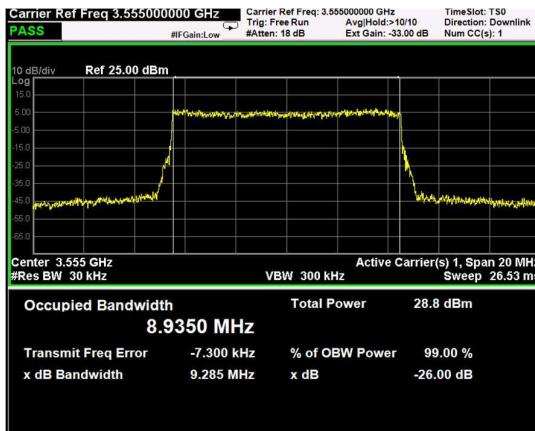


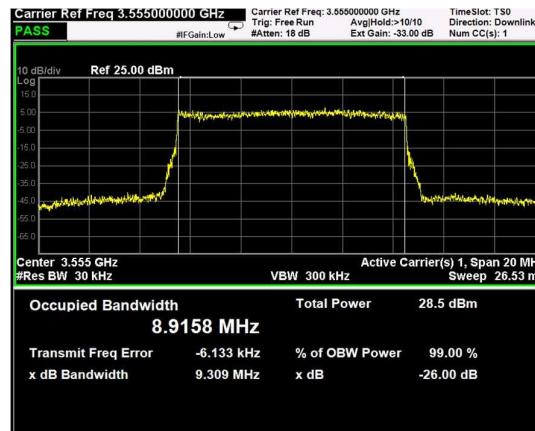


Specification: FCC 96

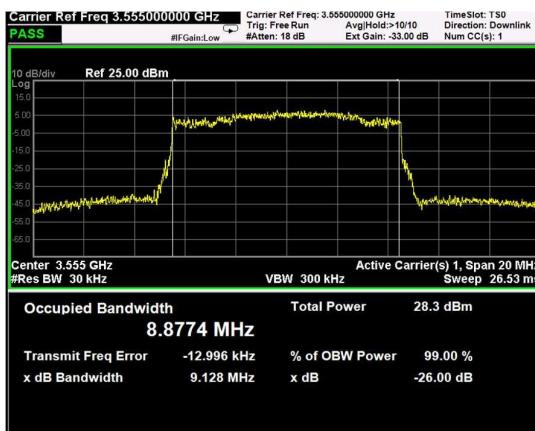
Channel: TOP, Modulation: QPSK,  
BW=5MHzChannel: TOP, Modulation: 16QAM,  
BW=5MHzChannel: TOP, Modulation: 64QAM,  
BW=5MHzChannel: TOP, Modulation: 256QAM,  
BW=5MHz



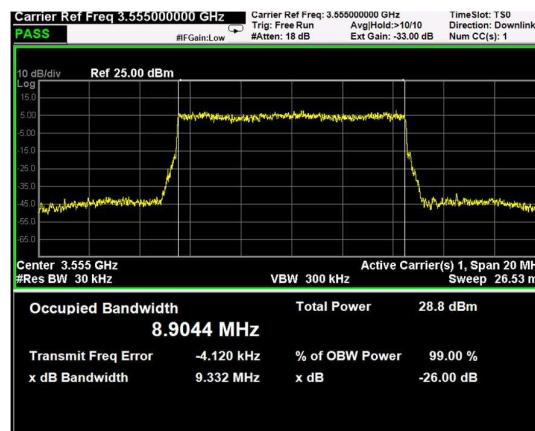
Channel: BOTTOM, Modulation: QPSK,  
BW=10MHz



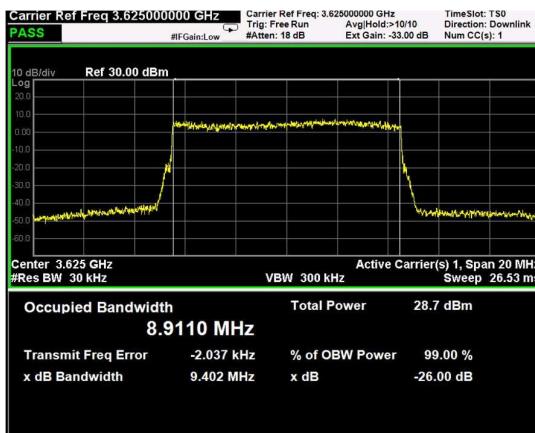
Channel: BOTTOM, Modulation: 16QAM,  
BW=10MHz



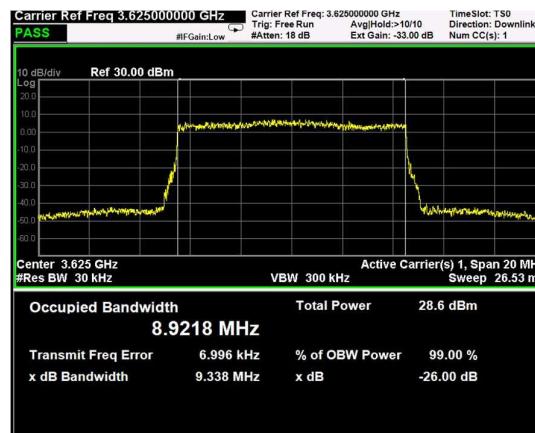
Channel: BOTTOM, Modulation: 64QAM,  
BW=10MHz



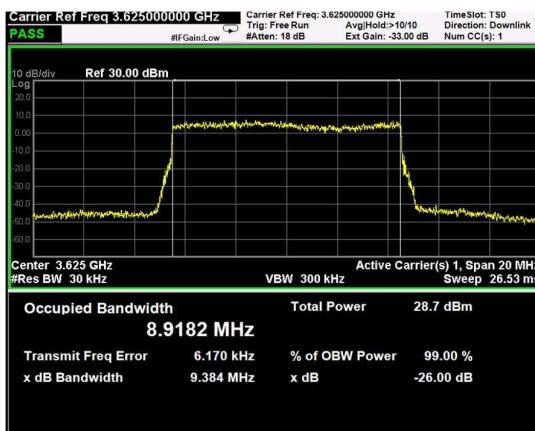
Channel: BOTTOM, Modulation: 256QAM,  
BW=10MHz



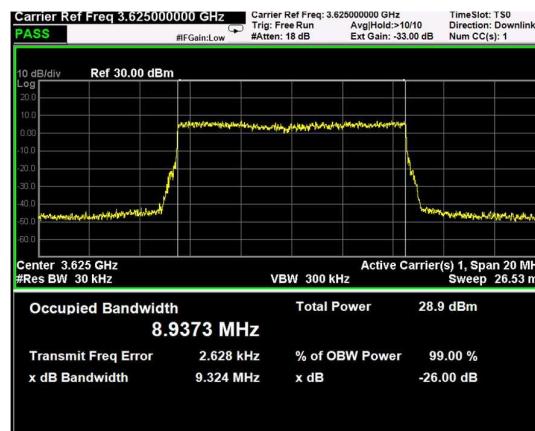
Channel: MIDDLE, Modulation: QPSK,  
BW=10MHz



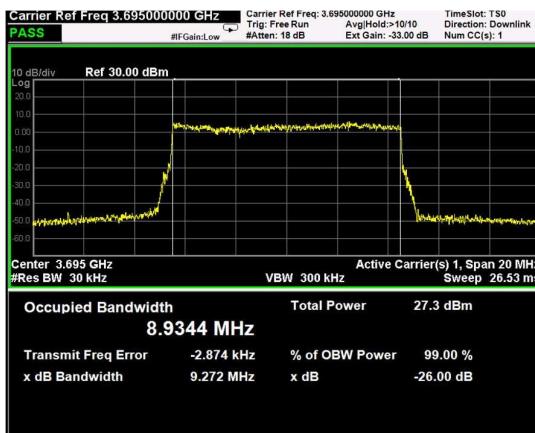
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BW=10MHz



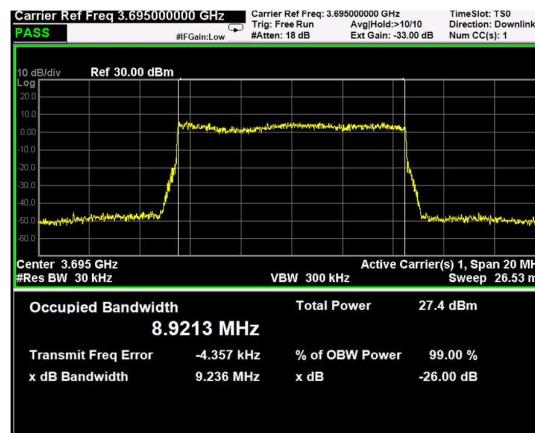
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BW=10MHz



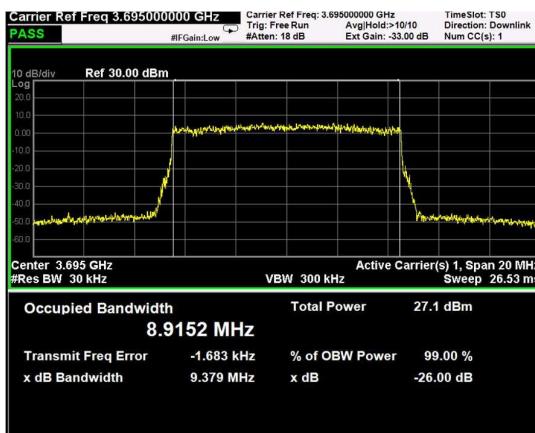
Channel: MIDDLE, Modulation: 256QAM,  
BW=10MHz



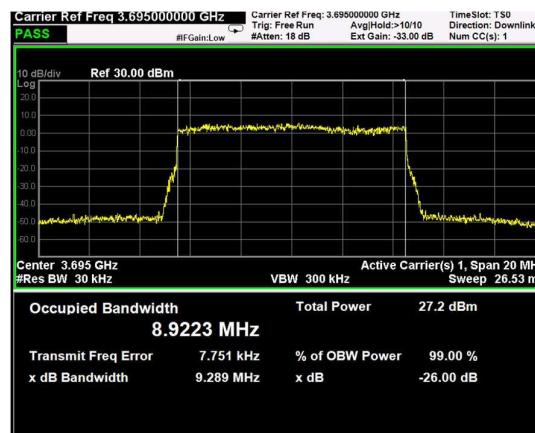
Channel: TOP, Modulation: QPSK,  
BW=10MHz



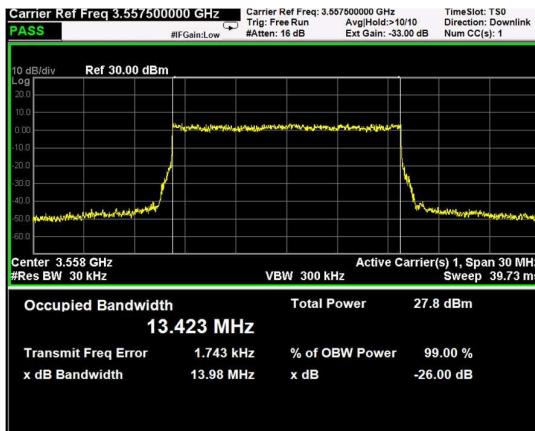
Channel: TOP, Modulation: 16QAM,  
BW=10MHz



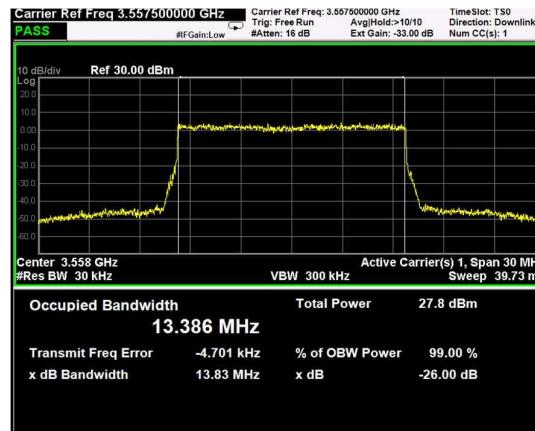
Channel: TOP, Modulation: 64QAM,  
BW=10MHz



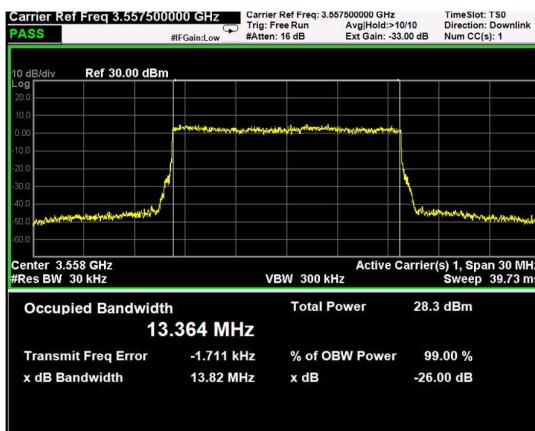
Channel: TOP, Modulation: 256QAM,  
BW=10MHz



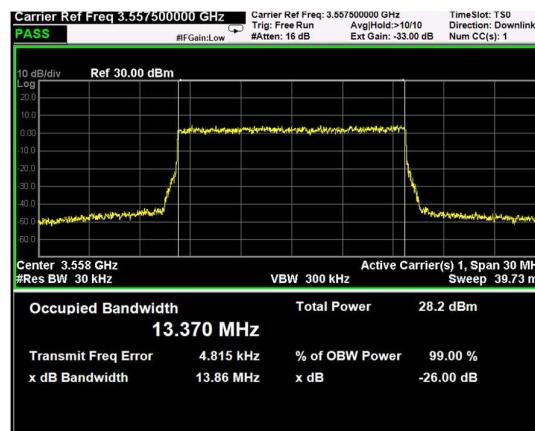
Channel: BOTTOM, Modulation: QPSK,  
BW=15MHz



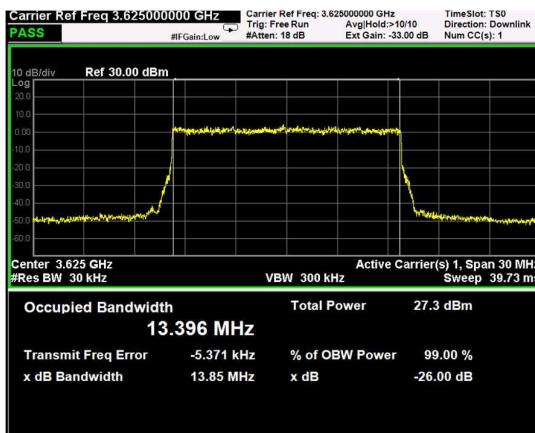
Channel: BOTTOM, Modulation: 16QAM,  
BW=15MHz



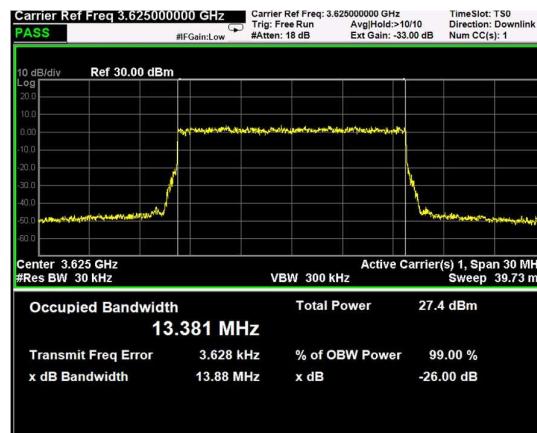
Channel: BOTTOM, Modulation: 64QAM,  
BW=15MHz



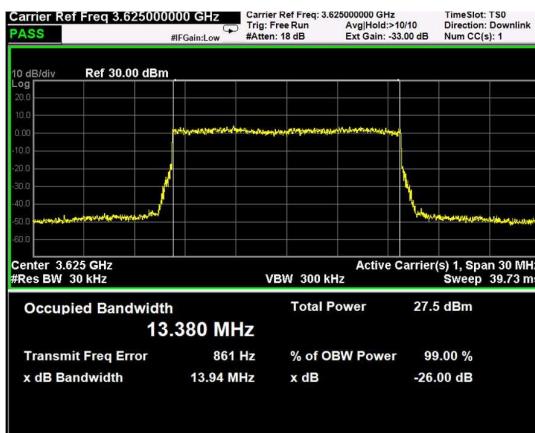
Channel: BOTTOM, Modulation: 256QAM,  
BW=15MHz



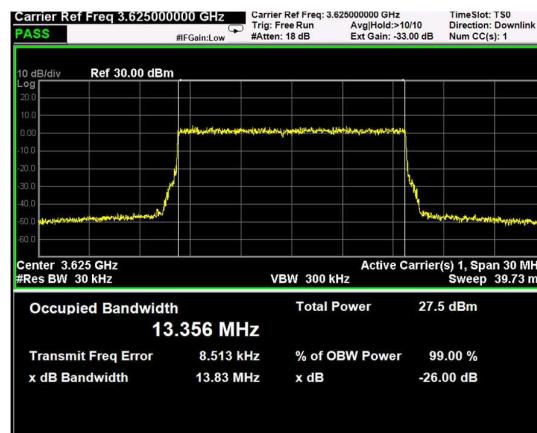
Channel: MIDDLE, Modulation: QPSK,  
BW=15MHz



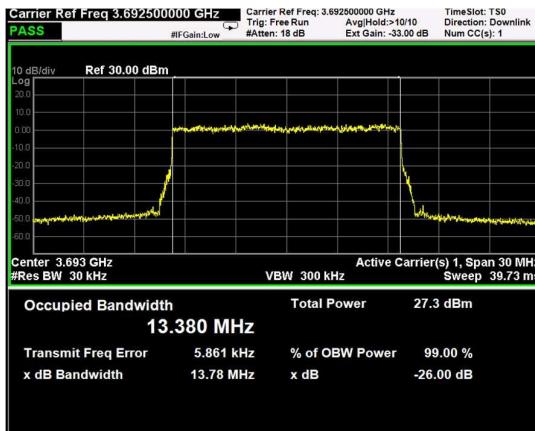
Channel: MIDDLE, Modulation: 16QAM,  
BW=15MHz



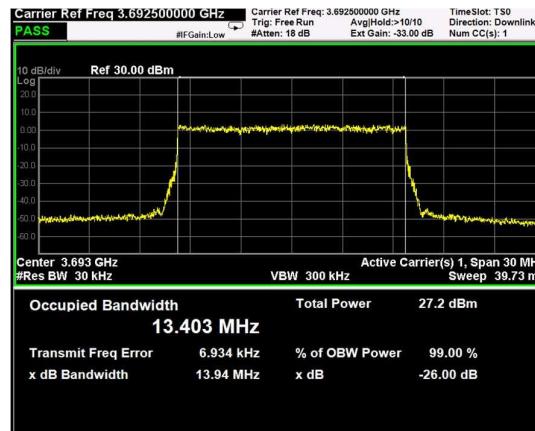
Channel: MIDDLE, Modulation: 64QAM,  
BW=15MHz



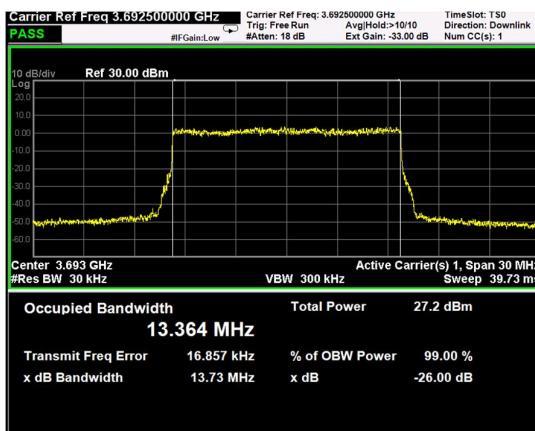
Channel: MIDDLE, Modulation: 256QAM,  
BW=15MHz



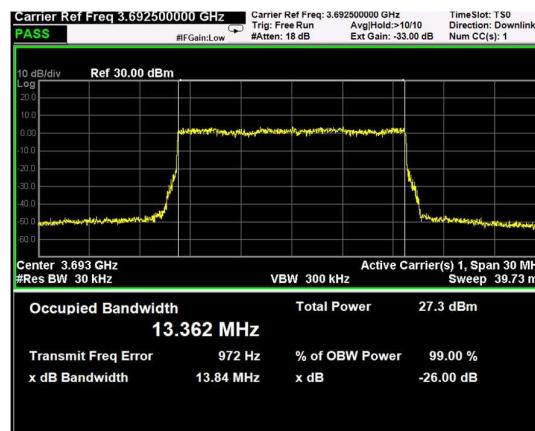
Channel: TOP, Modulation: QPSK,  
BW=15MHz



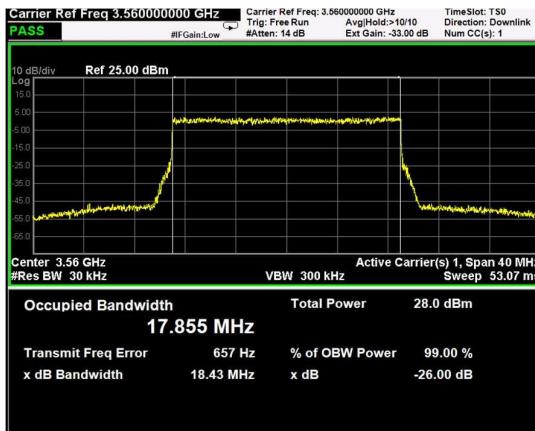
Channel: TOP, Modulation: 16QAM,  
BW=15MHz



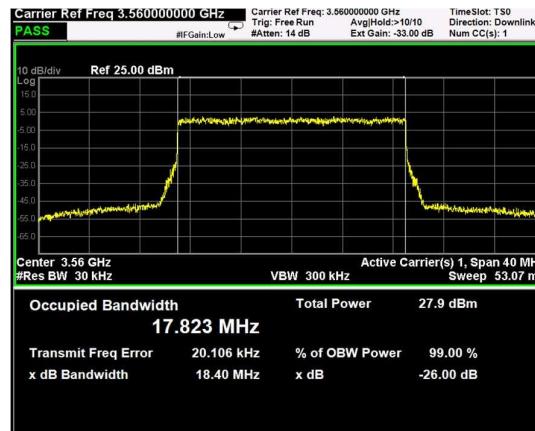
Channel: TOP, Modulation: 64QAM,  
BW=15MHz



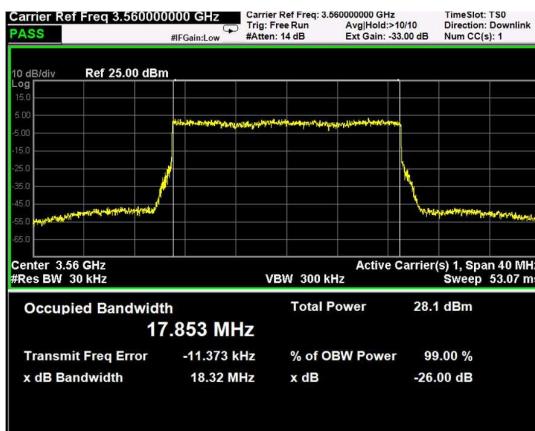
Channel: TOP, Modulation: 256QAM,  
BW=15MHz



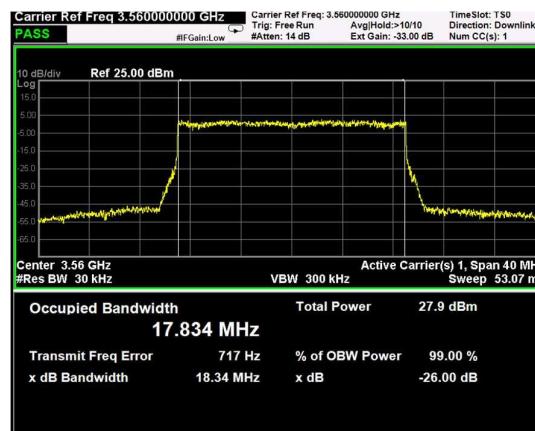
Channel: BOTTOM, Modulation: QPSK,  
BW=20MHz



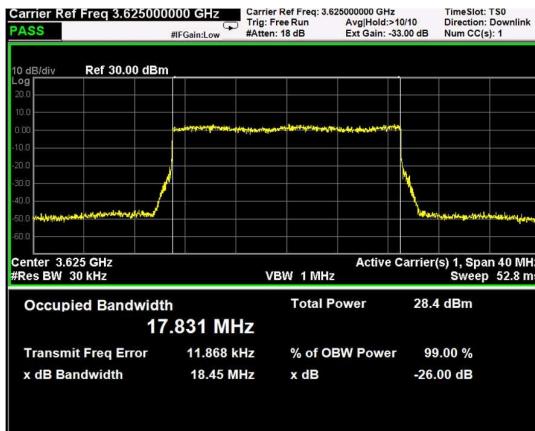
Channel: BOTTOM, Modulation: 16QAM,  
BW=20MHz



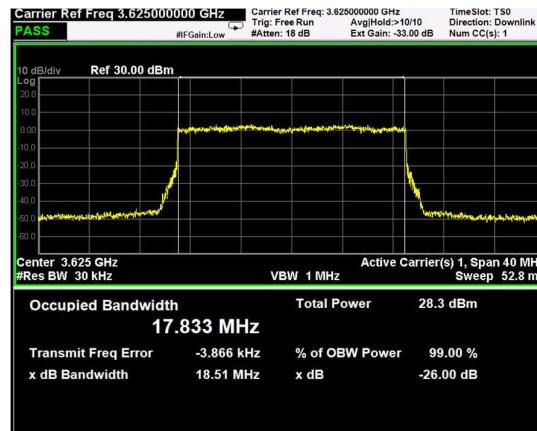
Channel: BOTTOM, Modulation: 64QAM,  
BW=20MHz



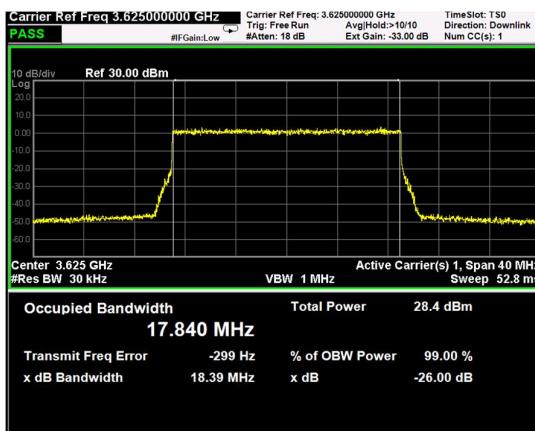
Channel: BOTTOM, Modulation: 256QAM,  
BW=20MHz



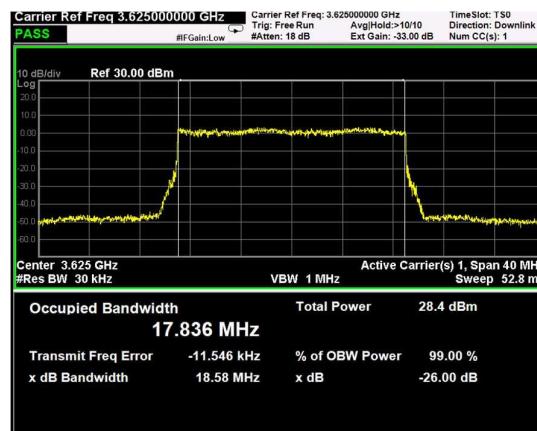
Channel: MIDDLE, Modulation: QPSK,  
BW=20MHz



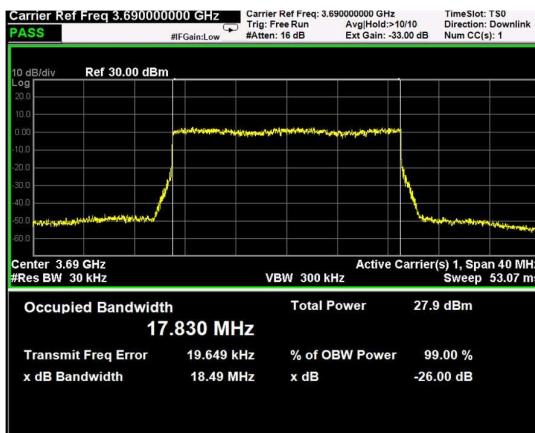
Channel: MIDDLE, Modulation: 16QAM,  
BW=20MHz



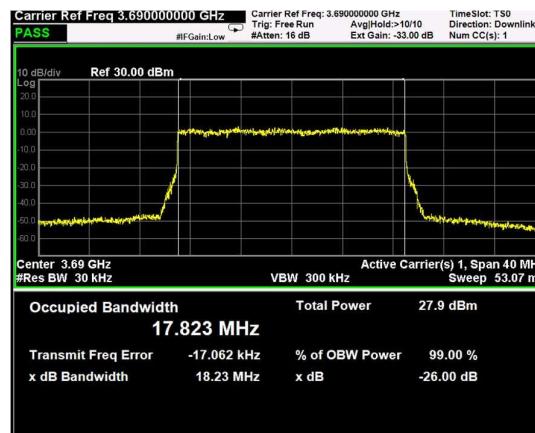
Channel: MIDDLE, Modulation: 64QAM,  
BW=20MHz



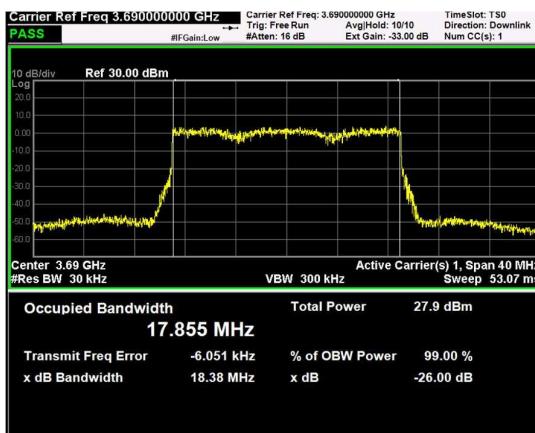
Channel: MIDDLE, Modulation: 256QAM,  
BW=20MHz



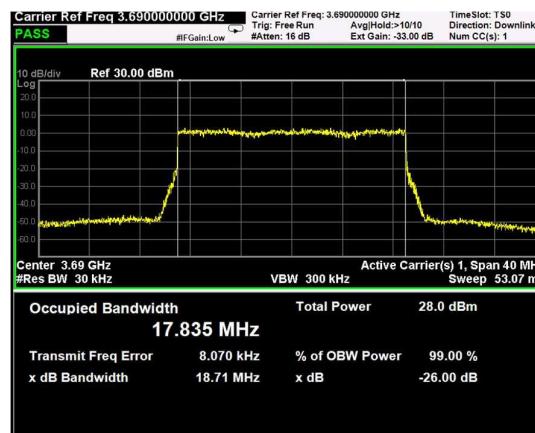
Channel: TOP, Modulation: QPSK,  
BW=20MHz



Channel: TOP, Modulation: 16QAM,  
BW=20MHz



Channel: TOP, Modulation: 64QAM,  
BW=20MHz



Channel: TOP, Modulation: 256QAM,  
BW=20MHz



## Clause 96.41(b)(g) Peak output power at RF antenna connector

(b) *Power limits.* Unless otherwise specified in this section, the maximum effective isotropic radiated power (EIRP) and maximum Power Spectral Density (PSD) of any CBSD and End User Device must comply with the limits shown in the table in this paragraph (b):

| Device                       | Maximum EIRP (dBm/10 megahertz) | Maximum PSD (dBm/MHz) |
|------------------------------|---------------------------------|-----------------------|
| End User Device              | 23                              | n/a                   |
| Category A CBSD              | 30                              | 20                    |
| Category B CBSD <sup>1</sup> | 47                              | 37                    |

(g) *Power measurement.* The peak-to-average power ratio (PAPR) of any CBSD transmitter output power must not exceed 13 dB. PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities or another Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

Test date: 10/21/2019 to 12/13/2019

Test results: Pass

Special notes



Clause 96.41(b)(d) Peak output power at RF antenna connector

Test data

**RF PORT 1**

| Test data |                   |                 |                       |                             |              |               |          |
|-----------|-------------------|-----------------|-----------------------|-----------------------------|--------------|---------------|----------|
| Direction | Modulation        | Frequency (MHz) | RF output Power (dBm) | RF output channel Power (W) | PSD (dBm/Hz) | PSD (dBm/MHz) | PAR (dB) |
| Down-link | LTE 5MHz (QPSK)   | 3552.5          | 30.1                  | 1.026                       | -36.9        | 23.1          | 10.7     |
| Down-link | LTE 5MHz (QPSK)   | 3625.0          | 30.0                  | 1.007                       | -37.0        | 23.0          | 10.0     |
| Down-link | LTE 5MHz (QPSK)   | 3697.5          | 29.5                  | 0.891                       | -37.5        | 22.5          | 10.4     |
| Down-link | LTE 5MHz (16QAM)  | 3552.5          | 30.0                  | 0.993                       | -37.0        | 23.0          | 10.5     |
| Down-link | LTE 5MHz (16QAM)  | 3625.0          | 29.9                  | 0.982                       | -37.1        | 22.9          | 10.3     |
| Down-link | LTE 5MHz (16QAM)  | 3697.5          | 29.5                  | 0.881                       | -37.5        | 22.5          | 10.3     |
| Down-link | LTE 5MHz (64QAM)  | 3552.5          | 30.1                  | 1.019                       | -36.9        | 23.1          | 10.3     |
| Down-link | LTE 5MHz (64QAM)  | 3625.0          | 29.8                  | 0.953                       | -37.2        | 22.8          | 9.8      |
| Down-link | LTE 5MHz (64QAM)  | 3697.5          | 29.4                  | 0.865                       | -37.6        | 22.4          | 10.4     |
| Down-link | LTE 5MHz (256QAM) | 3552.5          | 30.0                  | 1.005                       | -37.0        | 23.0          | 10.2     |
| Down-link | LTE 5MHz (256QAM) | 3625.0          | 30.0                  | 0.998                       | -37.0        | 23.0          | 10.3     |
| Down-link | LTE 5MHz (256QAM) | 3697.5          | 29.4                  | 0.875                       | -37.6        | 22.4          | 10.3     |



## RF PORT 2

| Test data |                   |                 |                       |                             |              |               |          |
|-----------|-------------------|-----------------|-----------------------|-----------------------------|--------------|---------------|----------|
| Direction | Modulation        | Frequency (MHz) | RF output Power (dBm) | RF output channel Power (W) | PSD (dBm/Hz) | PSD (dBm/MHz) | PAR (dB) |
| Down-link | LTE 5MHz (QPSK)   | 3552.5          | 29.0                  | 0.802                       | -38.0        | 22.1          | 10.4     |
| Down-link | LTE 5MHz (QPSK)   | 3625.0          | 29.2                  | 0.839                       | -37.8        | 22.3          | 10.7     |
| Down-link | LTE 5MHz (QPSK)   | 3697.5          | 29.5                  | 0.883                       | -37.5        | 22.5          | 11.1     |
| Down-link | LTE 5MHz (16QAM)  | 3552.5          | 29.5                  | 0.887                       | -37.5        | 22.5          | 9.3      |
| Down-link | LTE 5MHz (16QAM)  | 3625.0          | 29.2                  | 0.836                       | -37.8        | 22.2          | 10.6     |
| Down-link | LTE 5MHz (16QAM)  | 3697.5          | 29.6                  | 0.918                       | -37.4        | 22.6          | 10.3     |
| Down-link | LTE 5MHz (64QAM)  | 3552.5          | 29.0                  | 0.796                       | -38.0        | 22.0          | 10.3     |
| Down-link | LTE 5MHz (64QAM)  | 3625.0          | 29.5                  | 0.891                       | -37.5        | 22.5          | 10.1     |
| Down-link | LTE 5MHz (64QAM)  | 3697.5          | 29.0                  | 0.798                       | -38.0        | 22.0          | 9.1      |
| Down-link | LTE 5MHz (256QAM) | 3552.5          | 29.0                  | 0.798                       | -38.0        | 22.0          | 10.3     |
| Down-link | LTE 5MHz (256QAM) | 3625.0          | 29.6                  | 0.902                       | -37.4        | 22.6          | 10.4     |
| Down-link | LTE 5MHz (256QAM) | 3697.5          | 29.4                  | 0.861                       | -37.6        | 22.4          | 12.0     |

### Special notes

Maximum EIRP ≤ 47dBm/10MHz

Maximum PSD eirp ≤ 37dBm/1MHz

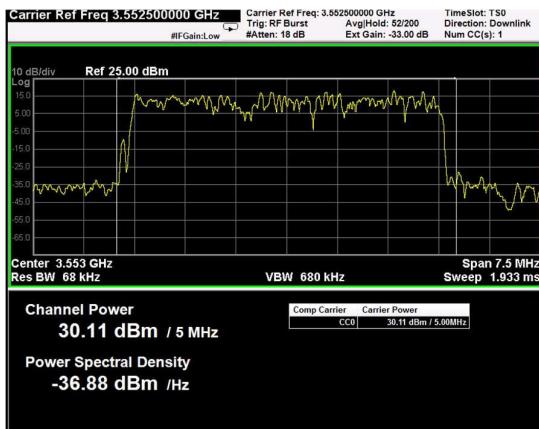
PSD eirp (in 1 MHz) = PSDmax – N + Gmax = 23 – N + Gmax ≤ 37

Gmax ≤ (37-23+N) = N +14

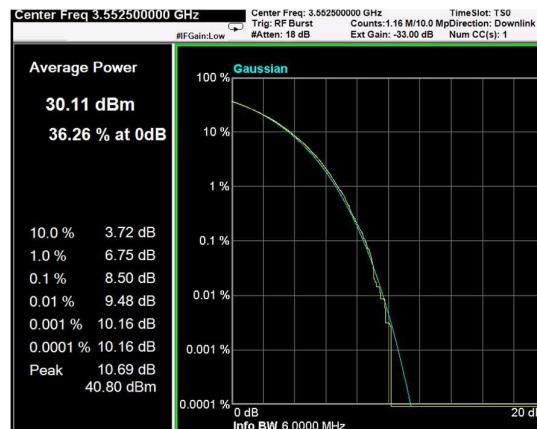
Where:

- PSDmax is the maximum PSD value measured on the antenna connector of the equipment and it depends on the LTE bandwidth signal
- N is system path loss (in dB) due to cable insertion, splitter, etc...
- Gmax is the maximum antenna gain (in dBi)

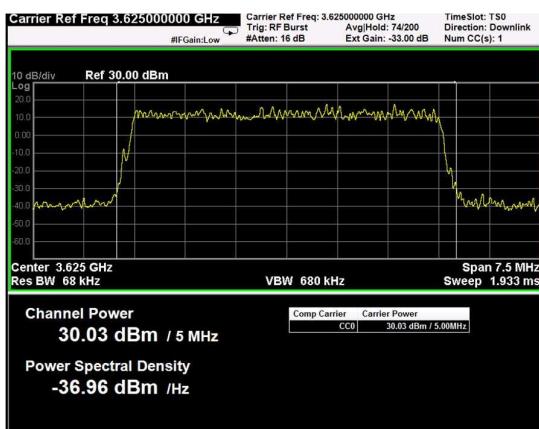
## RF PORT 1 PLOT



Channel: BOTTOM, Modulation: QPSK,  
BW=5MHz, Channel Power



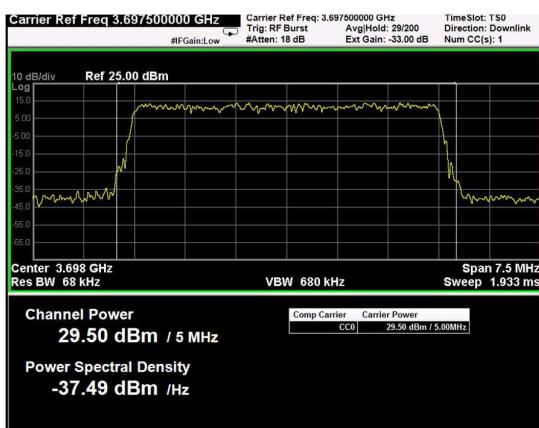
Channel: BOTTOM, Modulation: QPSK,  
BW=5MHz, CCDF



Channel: MIDDLE, Modulation: QPSK,  
BW=5MHz, Channel Power



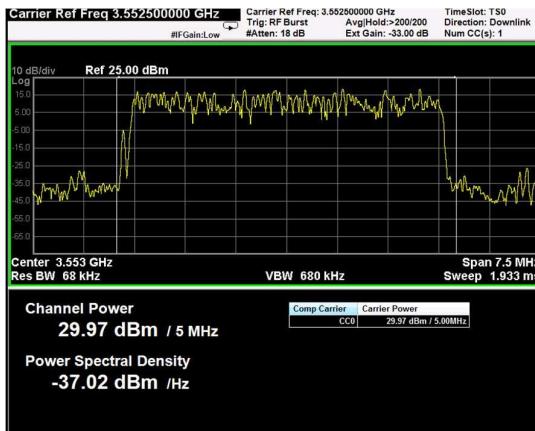
Channel: MIDDLE, Modulation: QPSK,  
BW=5MHz, CCDF



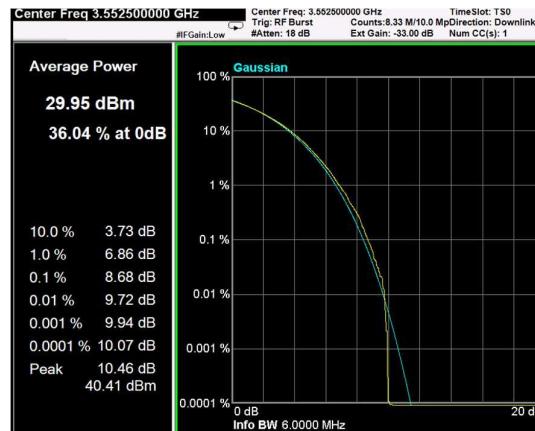
Channel: TOP, Modulation: QPSK,  
BW=5MHz, Channel Power



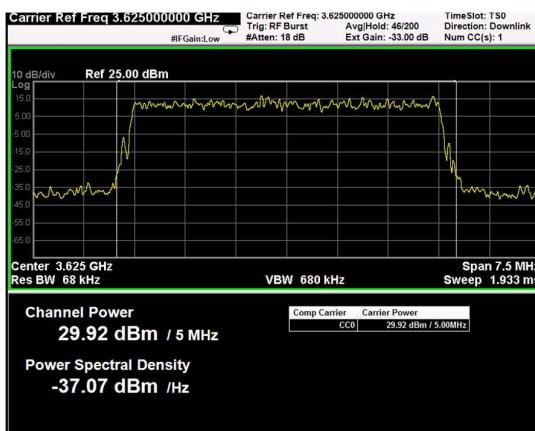
Channel: TOP, Modulation: QPSK,  
BW=5MHz, CCDF



Channel: BOTTOM, Modulation: 16QAM,  
BW=5MHz, Channel Power



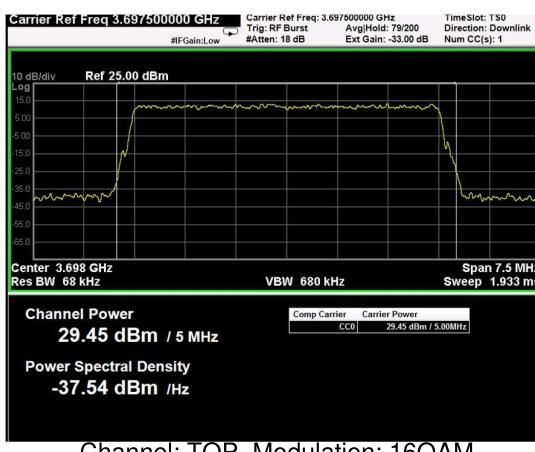
Channel: BOTTOM, Modulation: 16QAM,  
BW=5MHz, CCDF



Channel: MIDDLE, Modulation: 16QAM,  
BW=5MHz, Channel Power



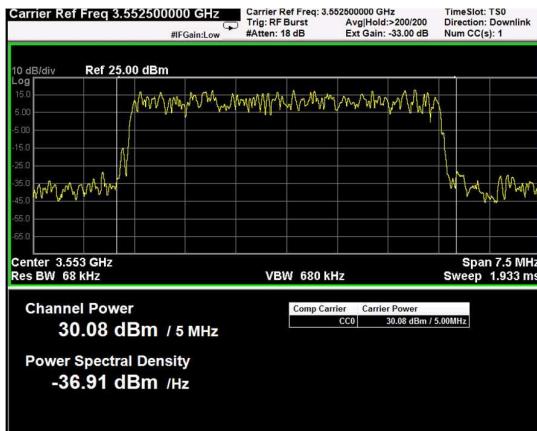
Channel: MIDDLE, Modulation: 16QAM,  
BW=5MHz, CCDF



Channel: TOP, Modulation: 16QAM,  
BW=5MHz, Channel Power



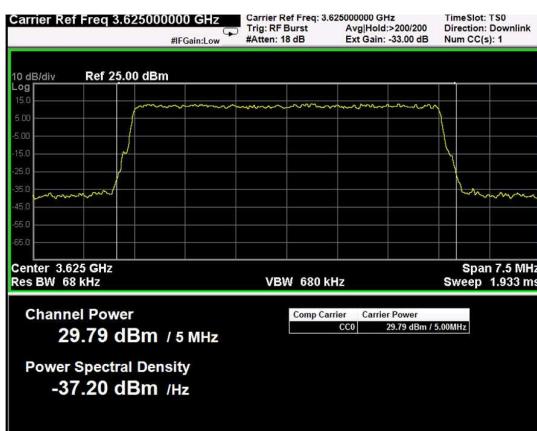
Channel: TOP, Modulation: 16QAM,  
BW=5MHz, CCDF



Channel: BOTTOM, Modulation: 64QAM,  
BW=5MHz, Channel Power



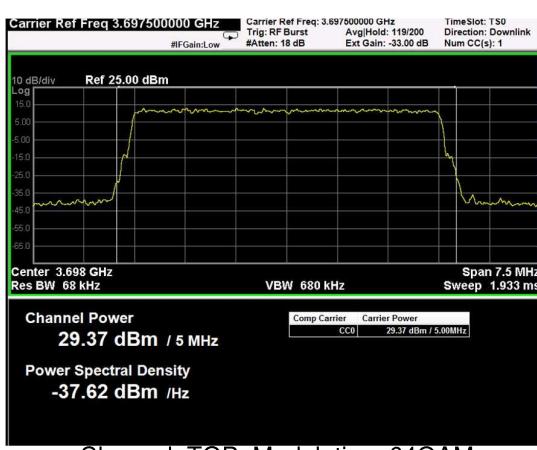
Channel: BOTTOM, Modulation: 64QAM,  
BW=5MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM,  
BW=5MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM,  
BW=5MHz, CCDF



Channel: TOP, Modulation: 64QAM,  
BW=5MHz, Channel Power



Channel: TOP, Modulation: 64QAM,  
BW=5MHz, CCDF