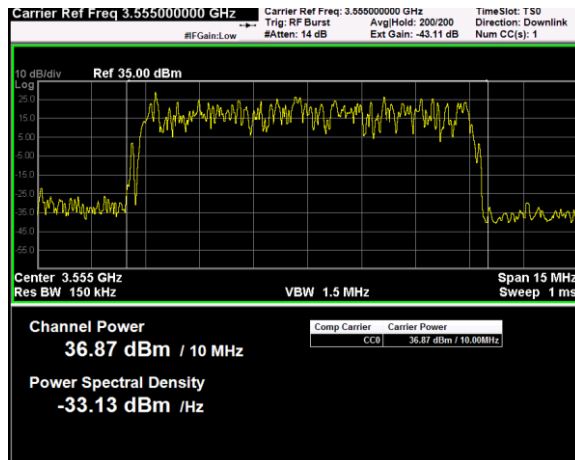
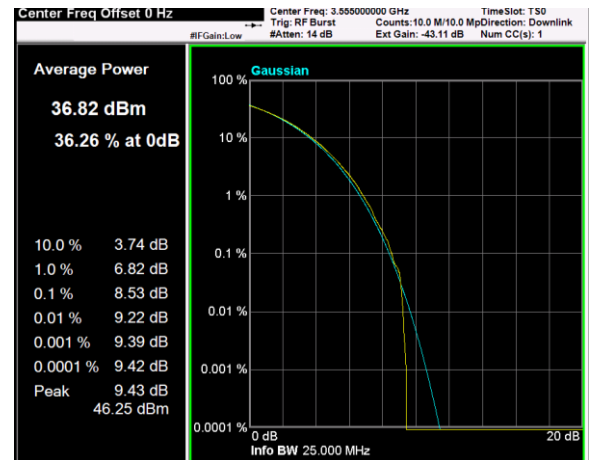
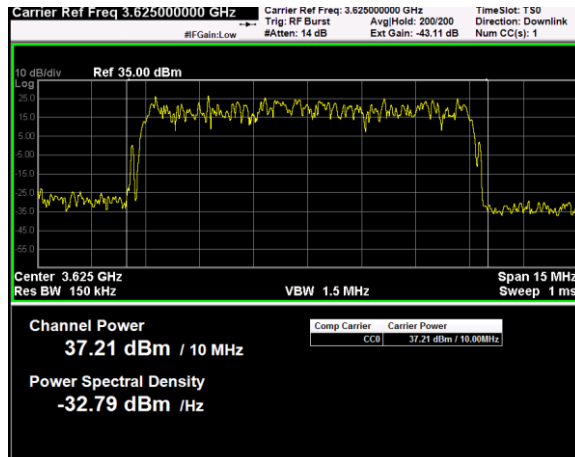
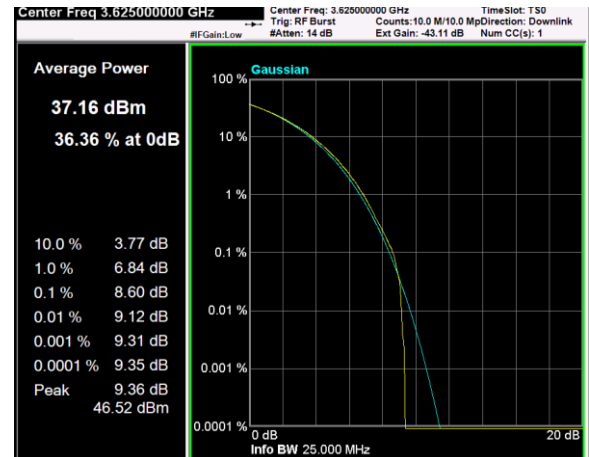
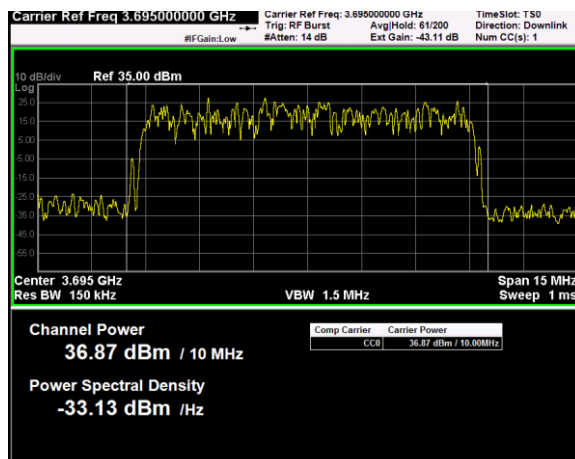
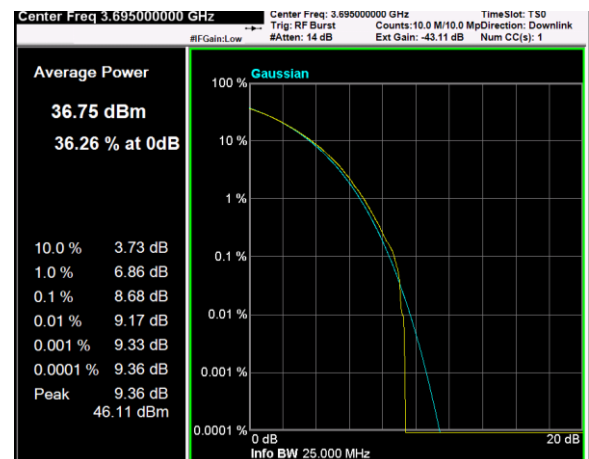
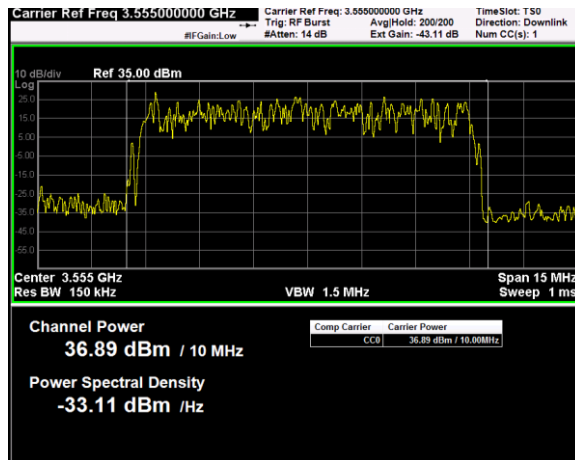
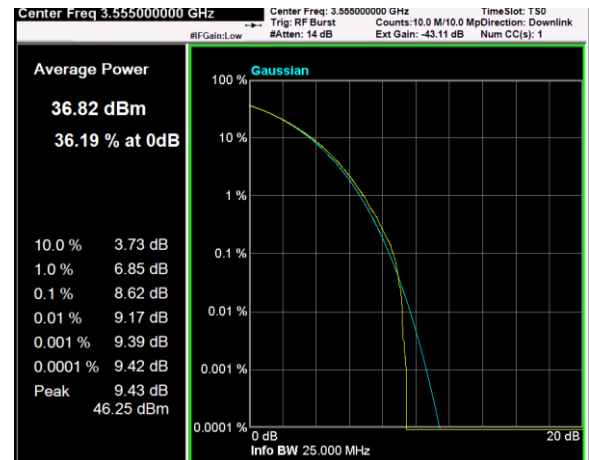


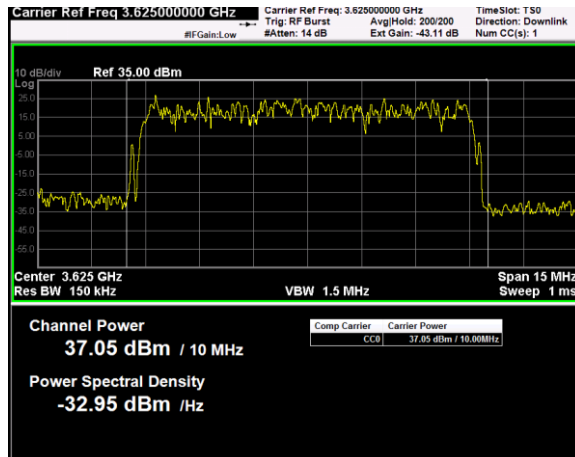

Channel: BOTTOM, Modulation: 16QAM,
BW=10MHz, Channel Power

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

Channel: MIDDLE, Modulation: 16QAM,
BW=10MHz, Channel Power

Channel: MIDDLE, Modulation: 16QAM,
BW=10MHz, CCDF

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

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



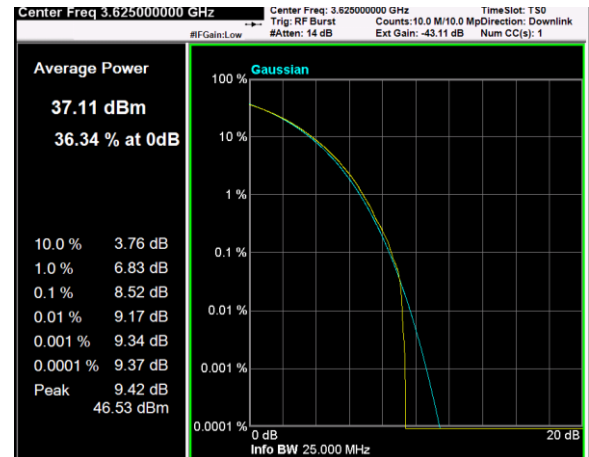
Channel: BOTTOM, Modulation: 64QAM,
BW=10MHz, Channel Power



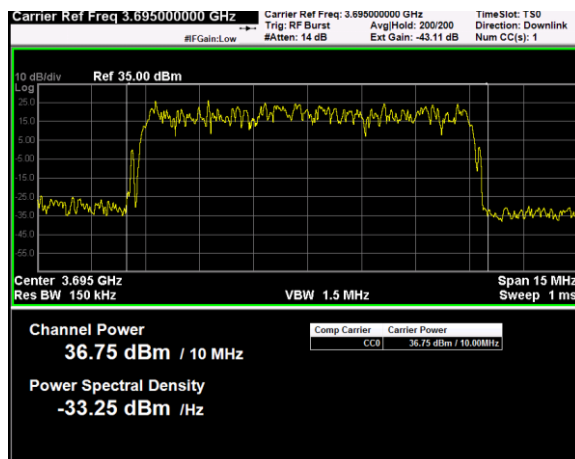
Channel: BOTTOM, Modulation: 64QAM,
BW=10MHz, CCDF



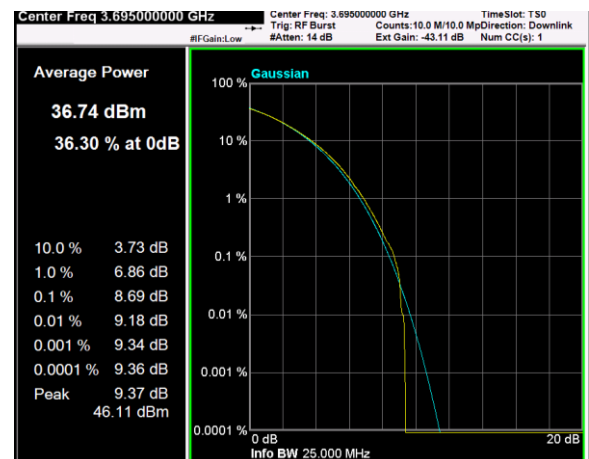
Channel: MIDDLE, Modulation: 64QAM,
BW=10MHz, Channel Power



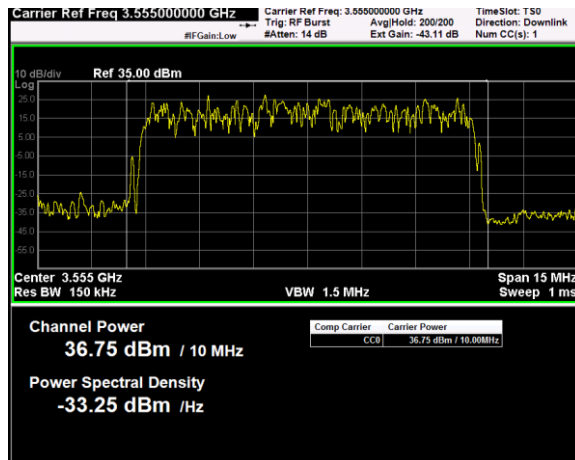
Channel: MIDDLE, Modulation: 64QAM,
BW=10MHz, CCDF



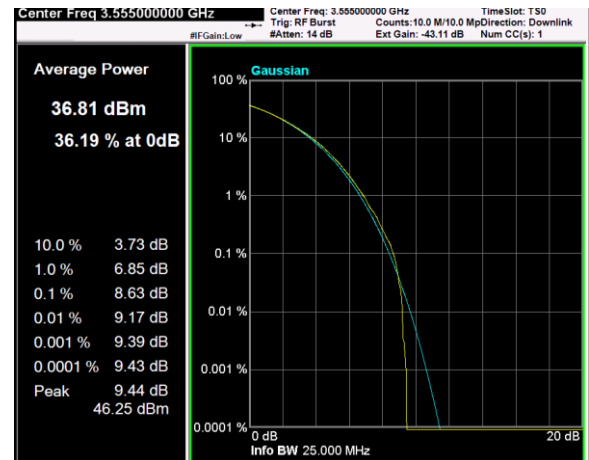
Channel: TOP, Modulation: 64QAM,
BW=10MHz, Channel Power



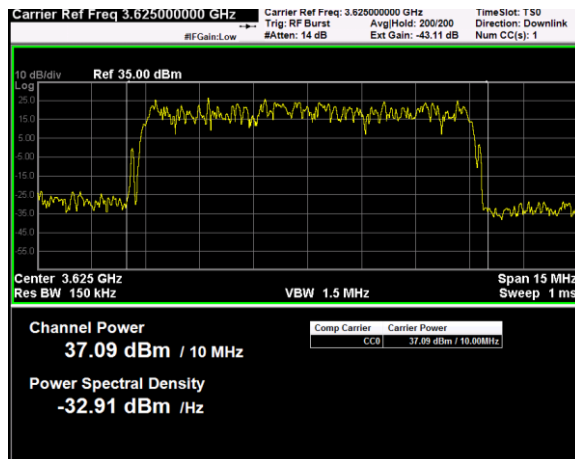
Channel: TOP, Modulation: 64QAM,
BW=10MHz, CCDF



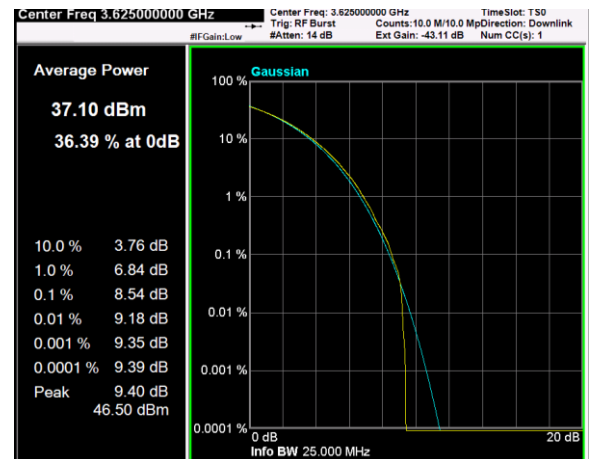
Channel: BOTTOM, Modulation: 256QAM, BW=10MHz, Channel Power



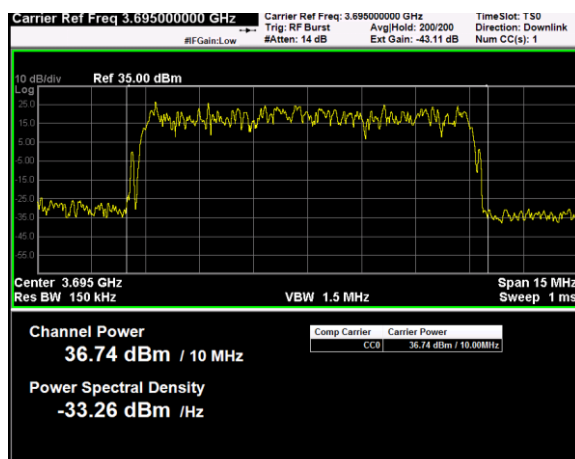
Channel: BOTTOM, Modulation: 256QAM, BW=10MHz, CCDF



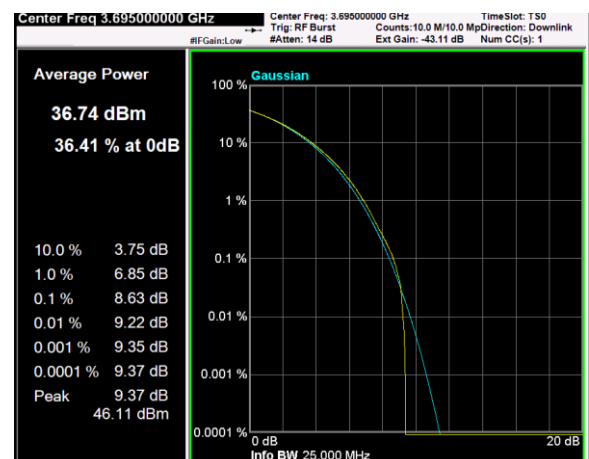
Channel: MIDDLE, Modulation: 256QAM, BW=10MHz, Channel Power



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

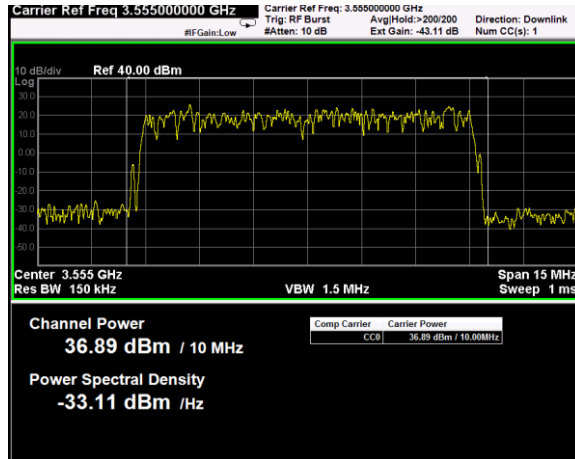


Channel: TOP, Modulation: 256QAM, BW=10MHz, Channel Power

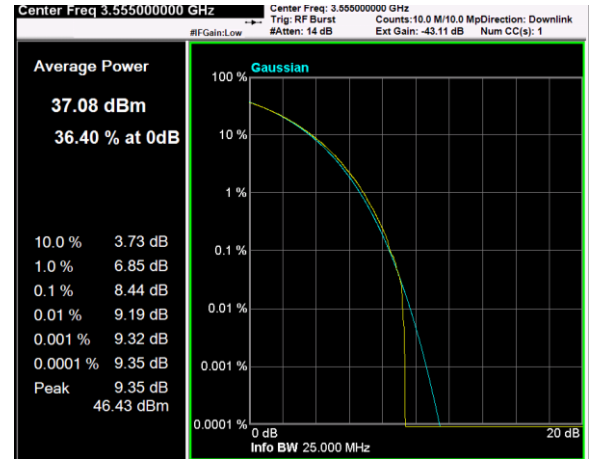


Channel: TOP, Modulation: 256QAM, BW=10MHz, CCDF

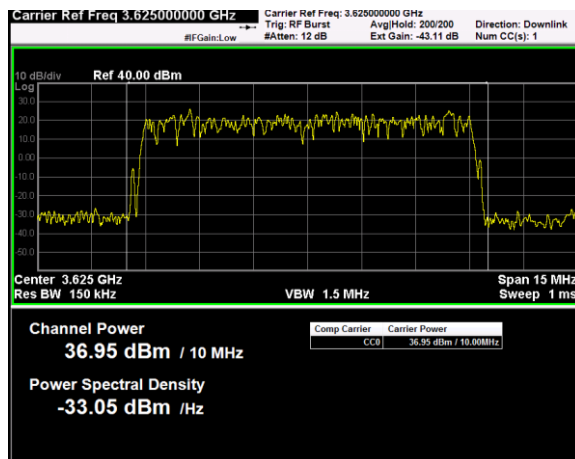
RF PORT 2 PLOT



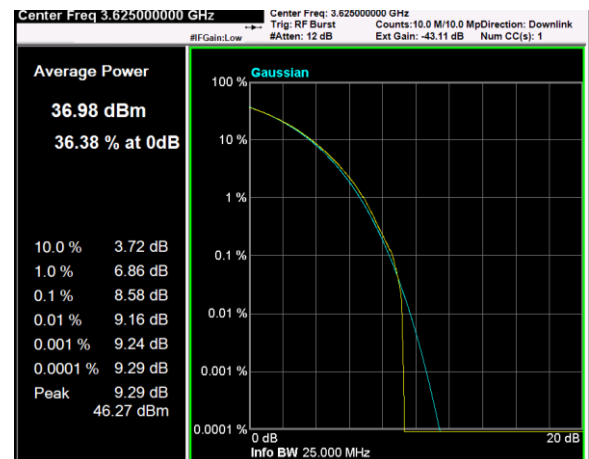
Channel: BOTTOM, Modulation: QPSK,
BW=10MHz, Channel Power



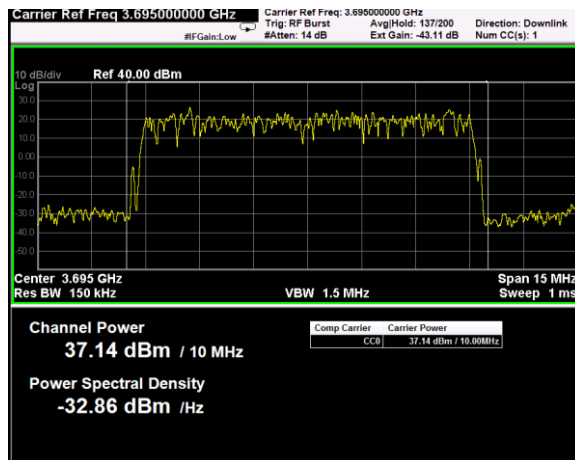
Channel: BOTTOM, Modulation: QPSK,
BW=10MHz, CCDF



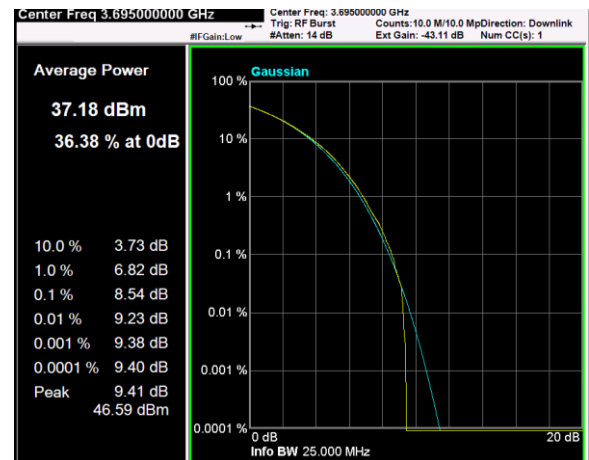
Channel: MIDDLE, Modulation: QPSK,
BW=10MHz, Channel Power



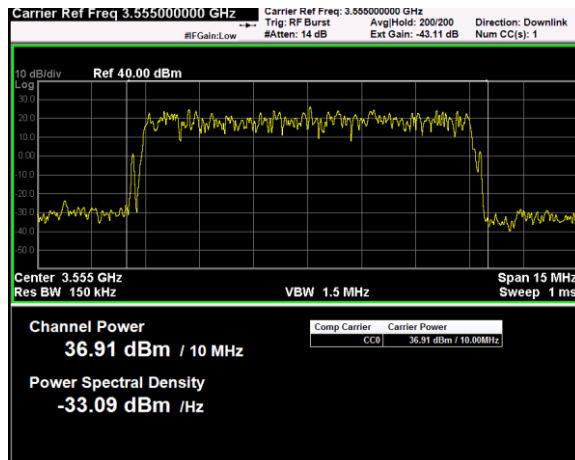
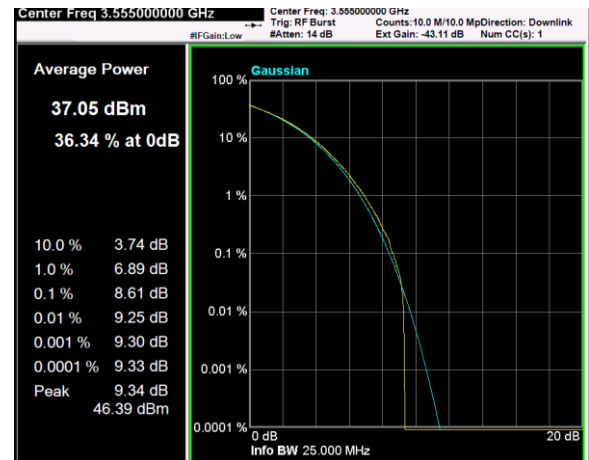
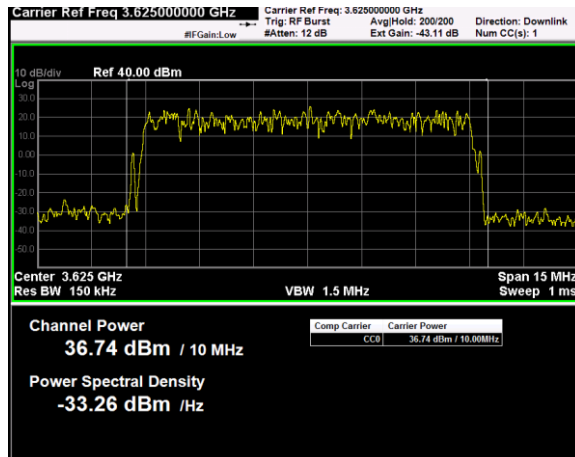
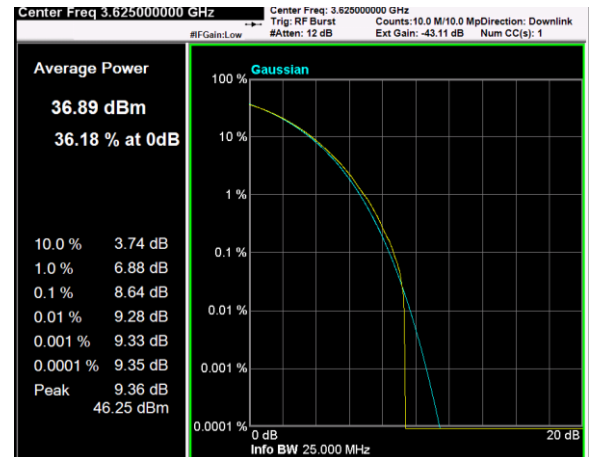
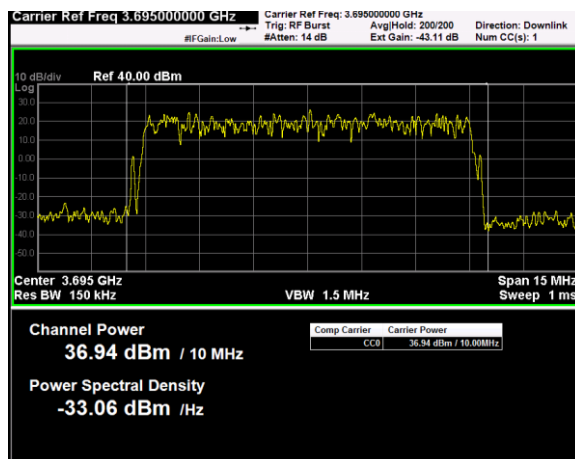
Channel: MIDDLE, Modulation: QPSK,
BW=10MHz, CCDF



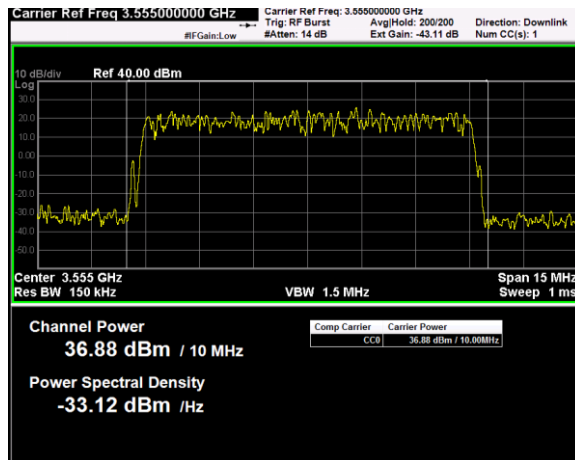
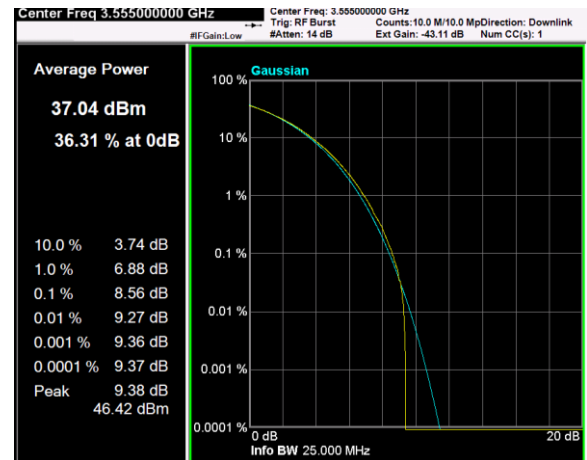
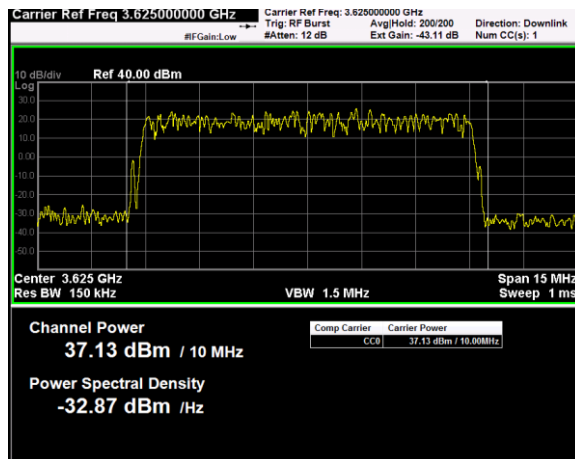
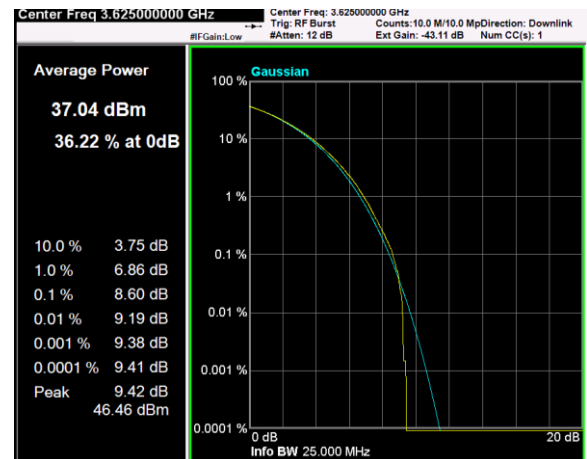
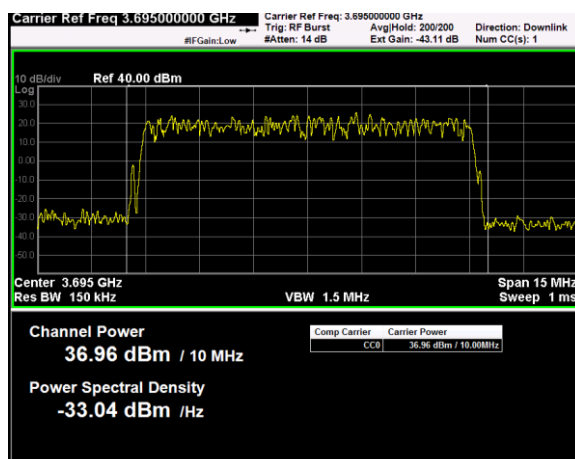
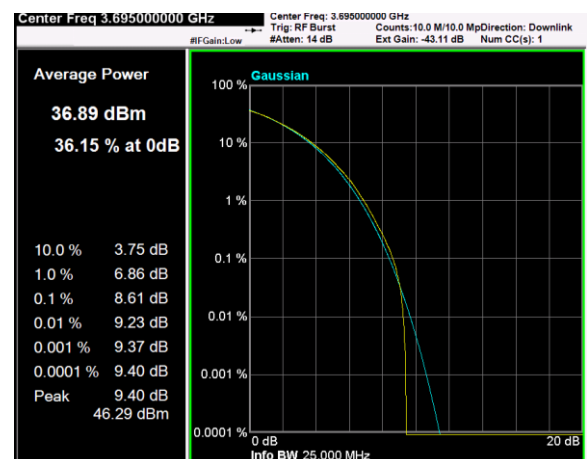
Channel: TOP, Modulation: QPSK,
BW=10MHz, Channel Power

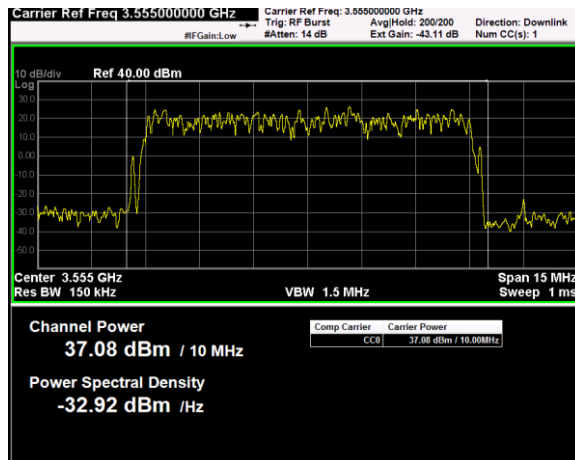
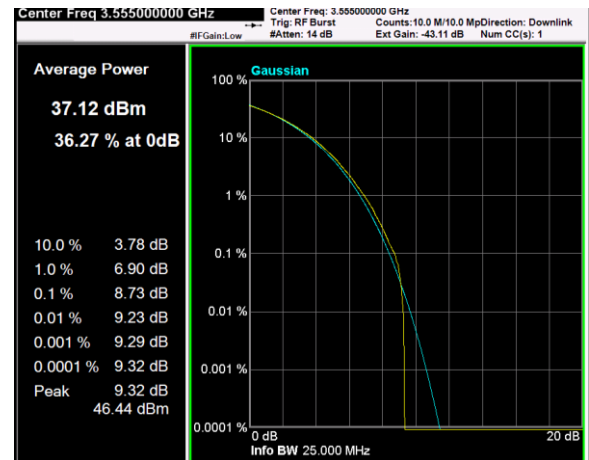
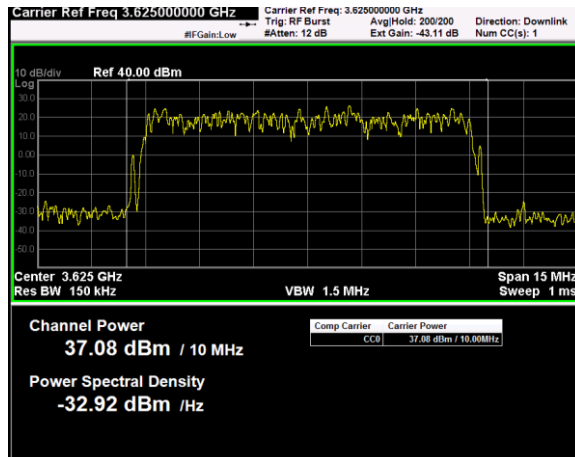
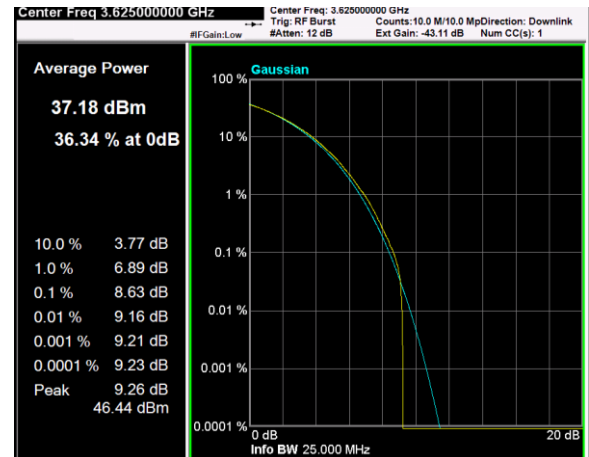
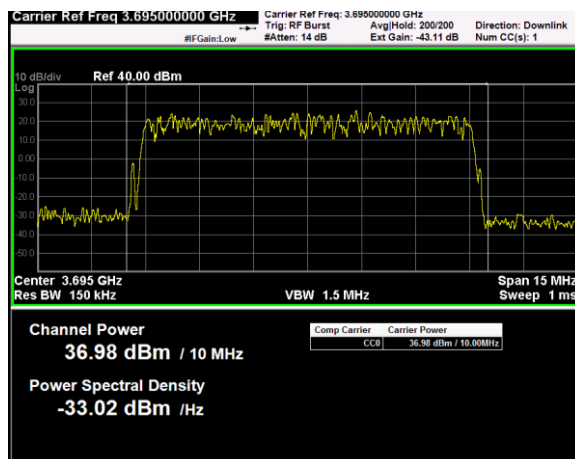


Channel: TOP, Modulation: QPSK,
BW=10MHz, CCDF


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

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

Channel: MIDDLE, Modulation: 16QAM,
BW=10MHz, Channel Power

Channel: MIDDLE, Modulation: 16QAM,
BW=10MHz, CCDF

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

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


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

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

Channel: MIDDLE, Modulation: 64QAM,
BW=10MHz, Channel Power

Channel: MIDDLE, Modulation: 64QAM,
BW=10MHz, CCDF

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

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


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

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

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

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

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

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

RF PORT 1 (BW = 15 MHz)

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 15MHz (QPSK)	3557.5	37.4	5.458	-34.4	25.6	9.8
Down-link	LTE 15MHz (QPSK)	3625	36.5	4.457	-35.3	24.7	9.9
Down-link	LTE 15MHz (QPSK)	3692.5	37.1	5.117	-34.7	25.3	10.0
Down-link	LTE 15MHz (16QAM)	3557.5	37.3	5.370	-34.5	25.5	9.7
Down-link	LTE 15MHz (16QAM)	3625	36.6	4.529	-35.2	24.8	9.8
Down-link	LTE 15MHz (16QAM)	3692.5	36.8	4.764	-35.0	25.0	10.2
Down-link	LTE 15MHz (64QAM)	3557.5	37.3	5.420	-34.4	25.6	9.7
Down-link	LTE 15MHz (64QAM)	3625	36.5	4.457	-35.3	24.7	10.2
Down-link	LTE 15MHz (64QAM)	3692.5	36.2	4.121	-35.6	24.4	10.0
Down-link	LTE 15MHz (256QAM)	3557.5	37.5	5.610	-34.3	25.7	9.8
Down-link	LTE 15MHz (256QAM)	3625	37.3	5.383	-34.5	25.6	9.8
Down-link	LTE 15MHz (256QAM)	3692.5	36.3	4.227	-35.5	24.5	9.9

RF PORT 2 (BW = 15 MHz)

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 15MHz (QPSK)	3557.5	37.1	5.093	-34.7	25.3	9.5
Down-link	LTE 15MHz (QPSK)	3625	37.0	4.966	-34.8	25.2	9.9
Down-link	LTE 15MHz (QPSK)	3692.5	37.1	5.129	-34.7	25.3	9.8
Down-link	LTE 15MHz (16QAM)	3557.5	37.1	5.152	-34.6	25.4	9.7
Down-link	LTE 15MHz (16QAM)	3625	36.7	4.656	-35.1	24.9	9.7
Down-link	LTE 15MHz (16QAM)	3692.5	37.0	5.035	-34.7	25.3	9.9
Down-link	LTE 15MHz (64QAM)	3557.5	37.1	5.093	-34.7	25.3	9.6
Down-link	LTE 15MHz (64QAM)	3625	36.6	4.613	-35.1	24.9	9.7
Down-link	LTE 15MHz (64QAM)	3692.5	36.5	4.457	-35.3	24.7	9.8
Down-link	LTE 15MHz (256QAM)	3557.5	37.2	5.188	-34.6	25.4	10.0
Down-link	LTE 15MHz (256QAM)	3625	36.8	4.831	-34.9	25.1	9.9
Down-link	LTE 15MHz (256QAM)	3692.5	37.1	5.117	-34.7	25.3	10.1

Special notes

Remark: MIMO application where only cross-polarized antennas are allowed (KDB "662911 D01 Multiple Transmitter Output v02r01", chapter F, paragraph 2), letter c), item (i)).

Please note that the case with cross-polarized antennas (the only allowed, as stated in the User Manual), with a pair of antennas ($N_{ANT} = 2$) and two outputs ports driving the antennas, has been considered as worst case; therefore the directional gain is the gain of an individual antenna.

Compliance to Category A limits (BW = 15 MHz):

Maximum EIRP ≤ 30 dBm/10MHz

Maximum PSD eirp ≤ 20 dBm/1MHz

PSD eirp (in 1 MHz) = $PSD_{max} - N + G_{max} = 25,24^* - N + G_{max} \leq 20$

The allowed max antenna gain is calculated as: $G_{max} \leq (20-25,24+N) = N - 5,24$ dBi

Compliance to Category B limits (BW = 15 MHz):

Maximum EIRP ≤ 47 dBm/10MHz

Maximum PSD eirp ≤ 37 dBm/1MHz

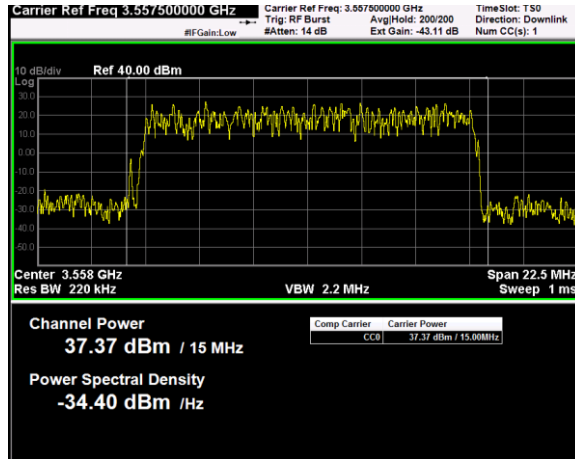
$$\text{PSD eirp (in 1 MHz)} = \text{PSD}_{\text{max}} - N + G_{\text{max}} = 25,24^* - N + G_{\text{max}} \leq 37$$

The allowed max antenna gain is calculated as: $G_{\text{max}} \leq (37 - 25,24 + N) = N + 11,76 \text{ dBi}$

Where:

- PSD_{max} is the maximum PSD value measured on the antenna connector of the equipment and it depends on the LTE bandwidth signal (*: 37 dBm, that is the measured value at antenna port, with a 15 MHz band matches up $37 + 10 \cdot \log(1/15) = 25,24 \text{ dBm/1MHz}$)
- N is system path loss (in dB) due to cable insertion, splitter, etc....
- G_{max} is the maximum antenna gain allowed (in dBi)

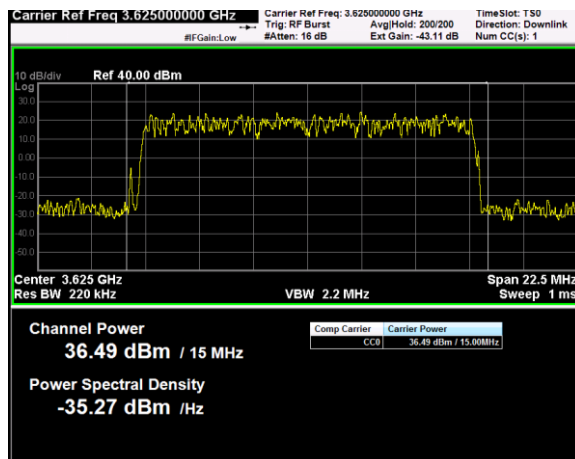
RF PORT 1 PLOT



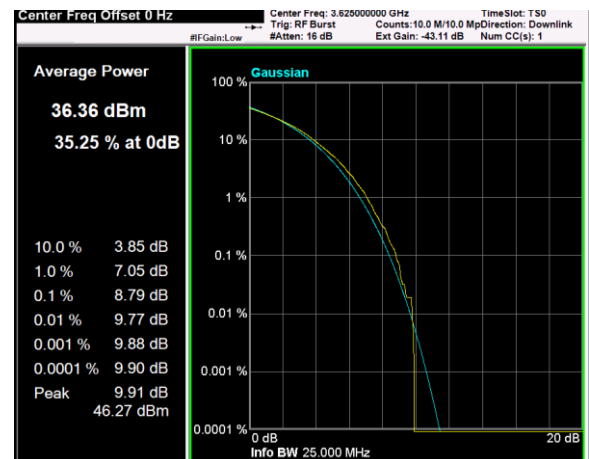
Channel: BOTTOM, Modulation: QPSK, BW=15MHz, Channel Power



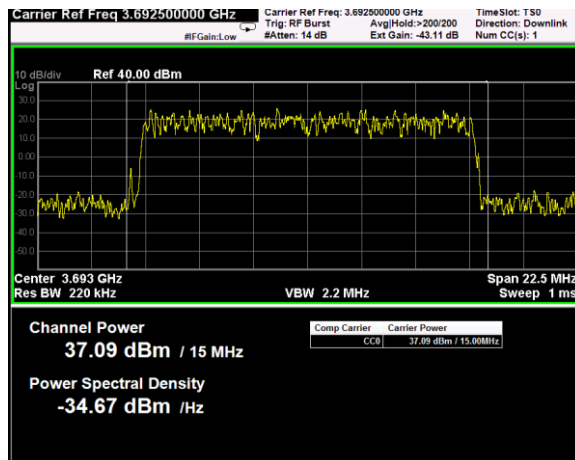
Channel: BOTTOM, Modulation: QPSK, BW=15MHz, CCDF



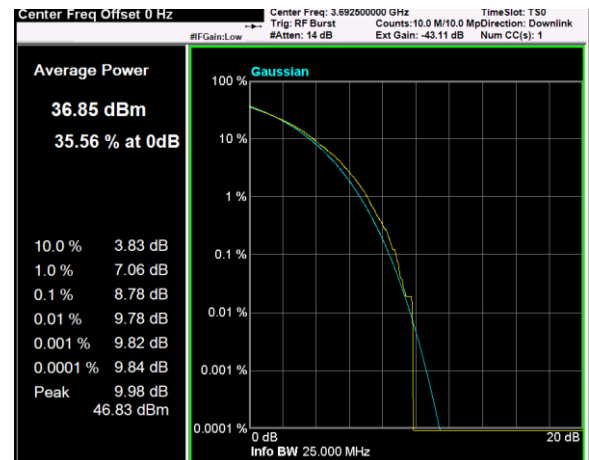
Channel: MIDDLE, Modulation: QPSK, BW=15MHz, Channel Power



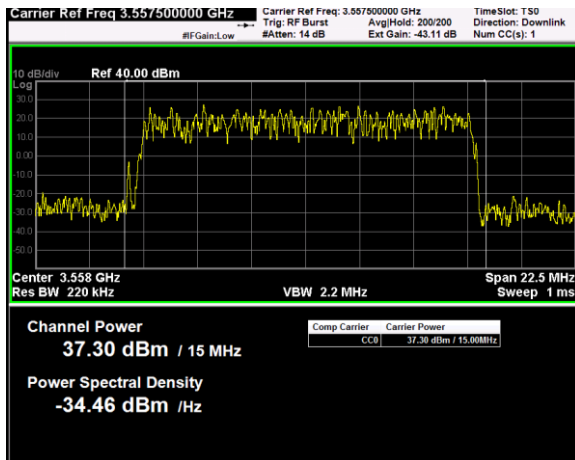
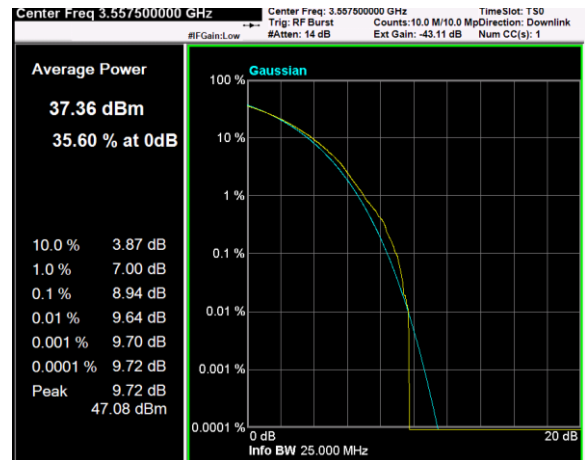
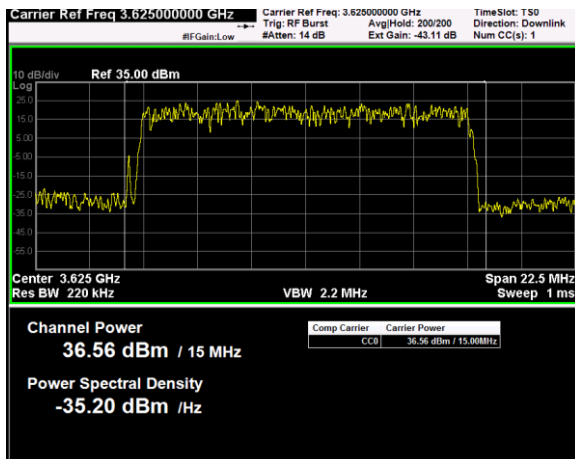
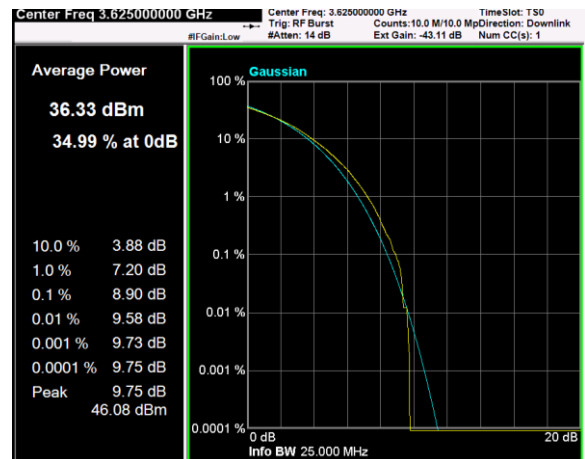
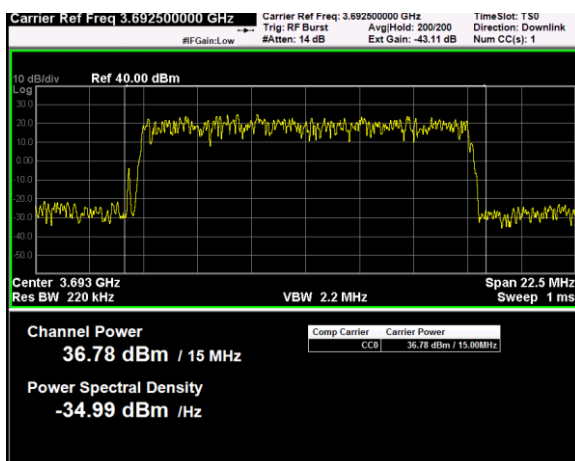
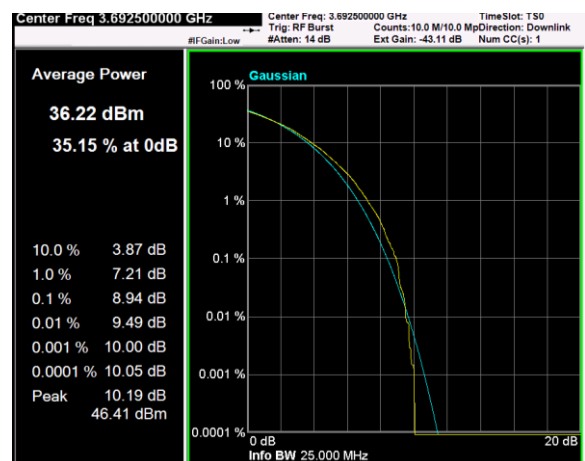
Channel: MIDDLE, Modulation: QPSK, BW=15MHz, CCDF

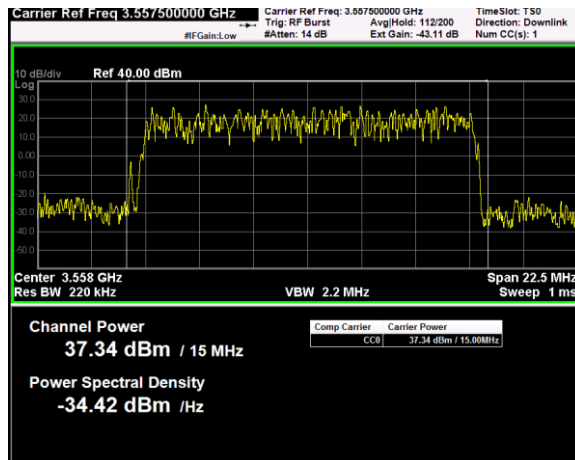
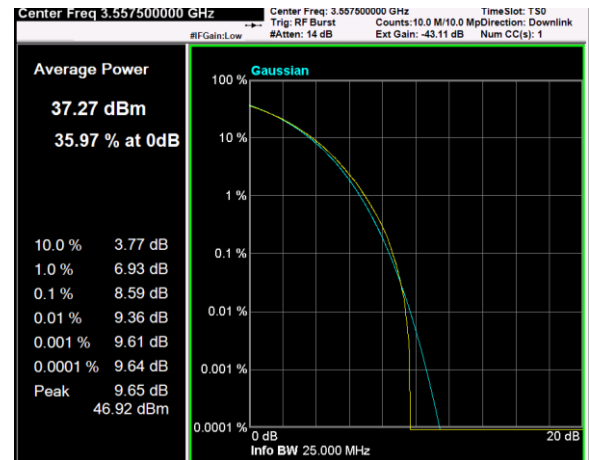
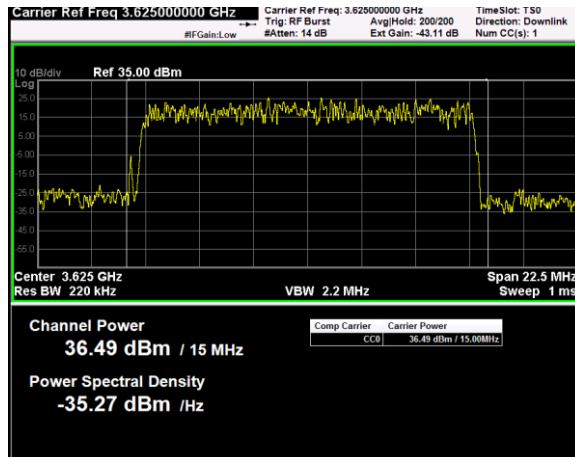
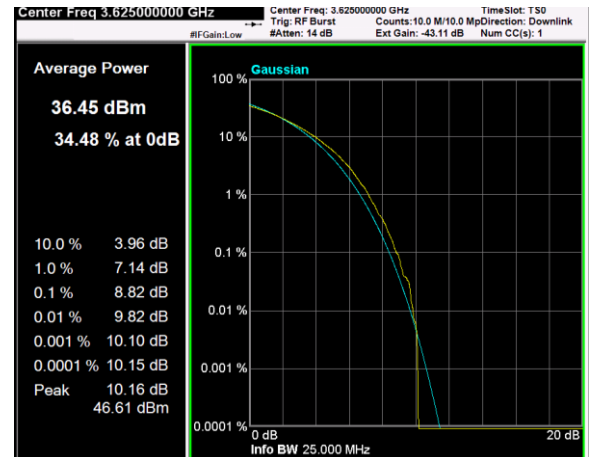
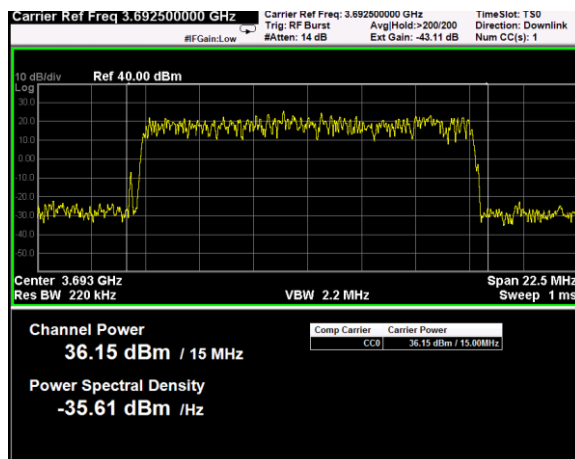
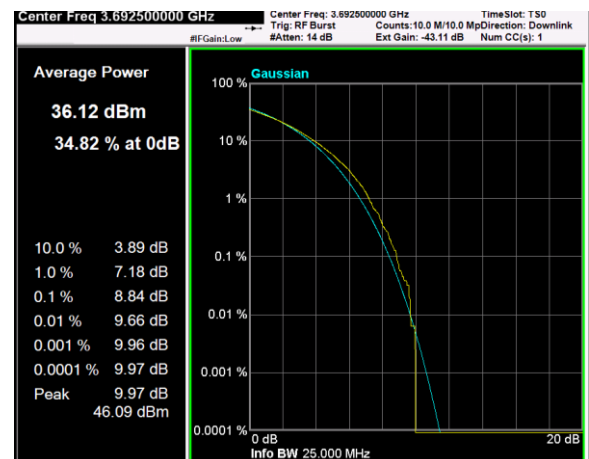


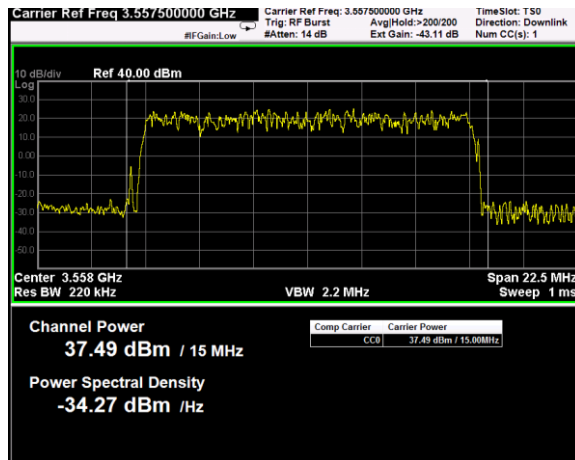
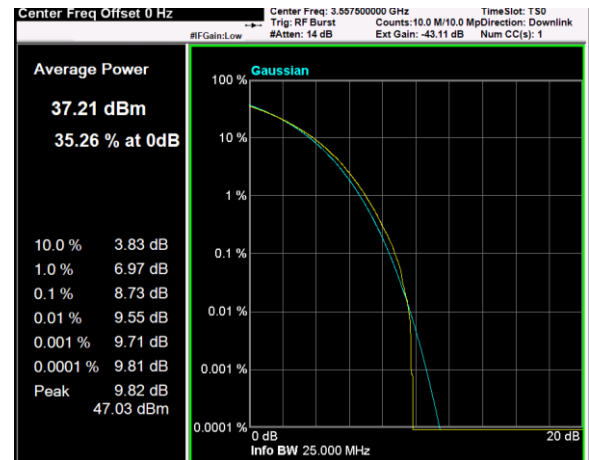
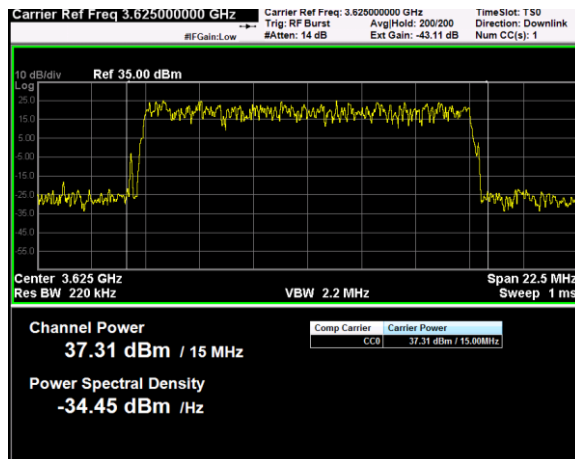
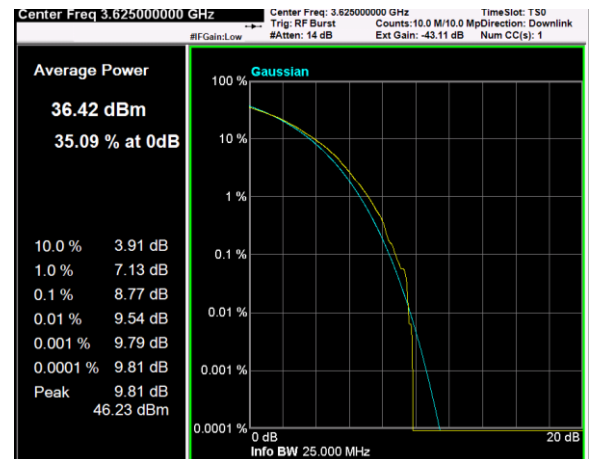
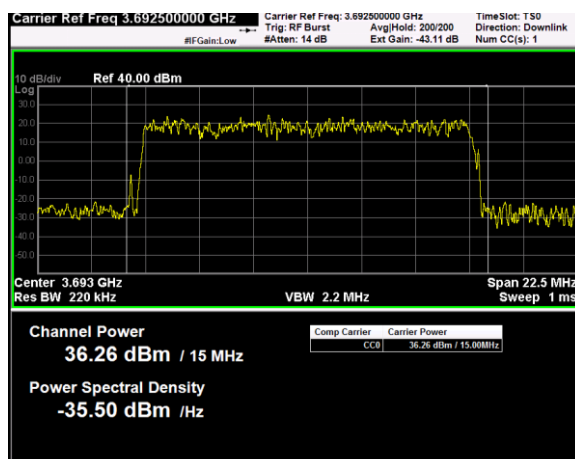
Channel: TOP, Modulation: QPSK, BW=15MHz, Channel Power



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

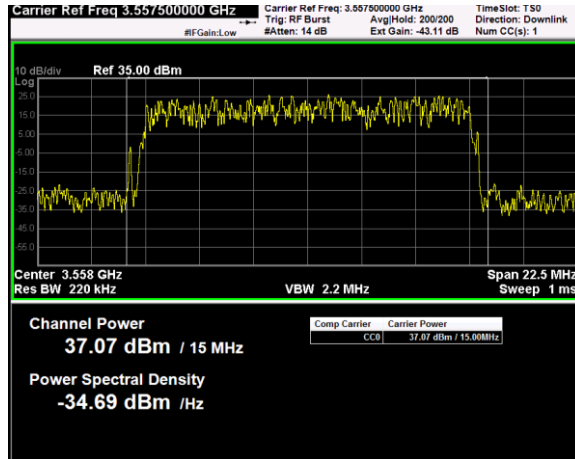

Channel: BOTTOM, Modulation: 16QAM,
BW=15MHz, Channel Power

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

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

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

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

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


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

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

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

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

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

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

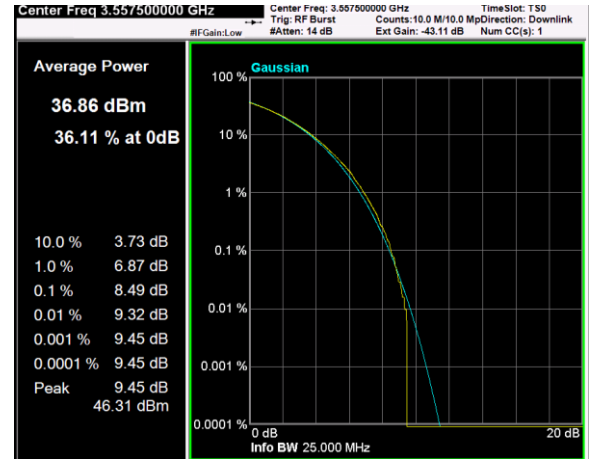

Channel: BOTTOM, Modulation: 256QAM,
BW=15MHz, Channel Power

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

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

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

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

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

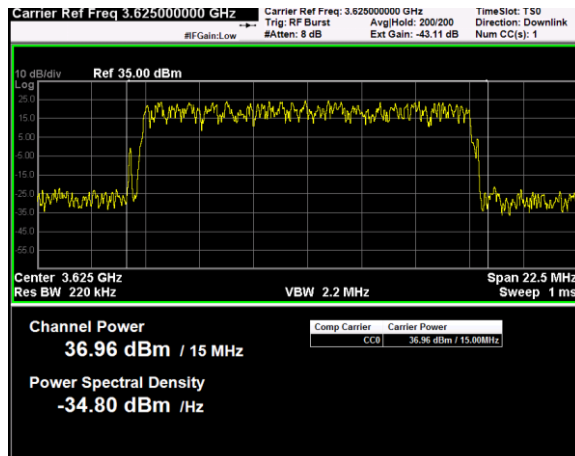
RF PORT 2 PLOT



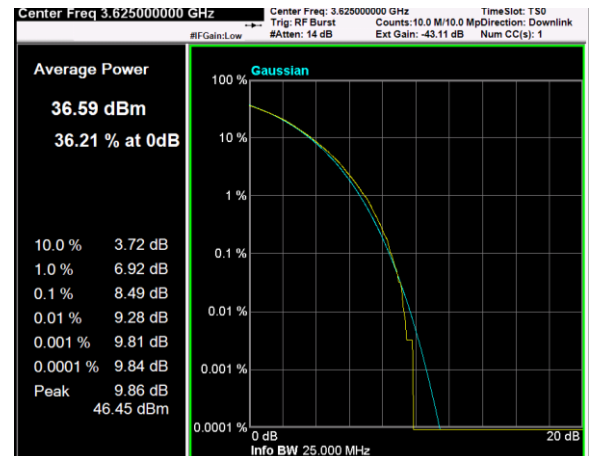
Channel: BOTTOM, Modulation: QPSK, BW=15MHz, Channel Power



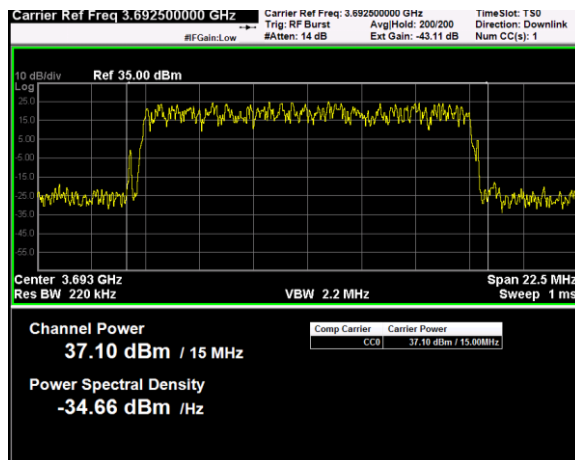
Channel: BOTTOM, Modulation: QPSK, BW=15MHz, CCDF



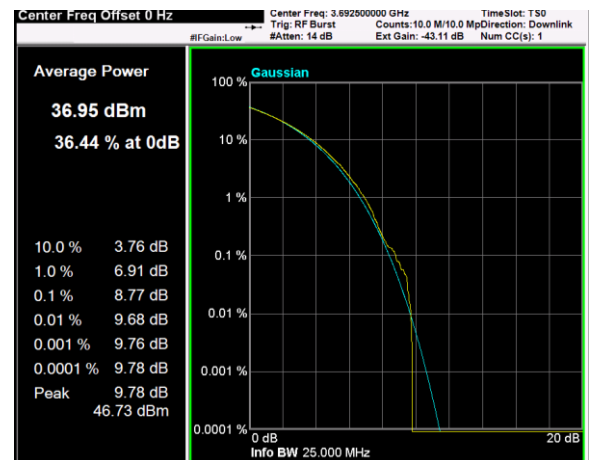
Channel: MIDDLE, Modulation: QPSK, BW=15MHz, Channel Power



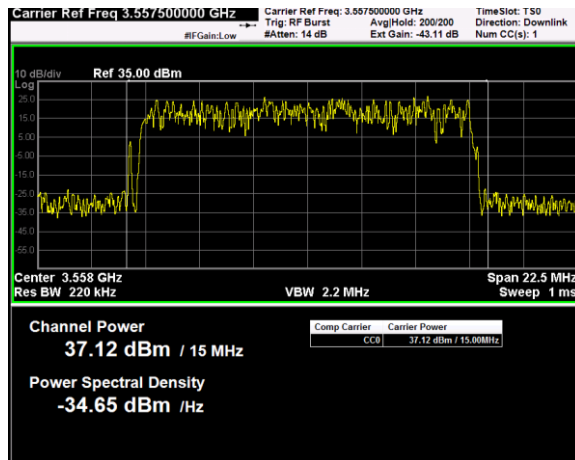
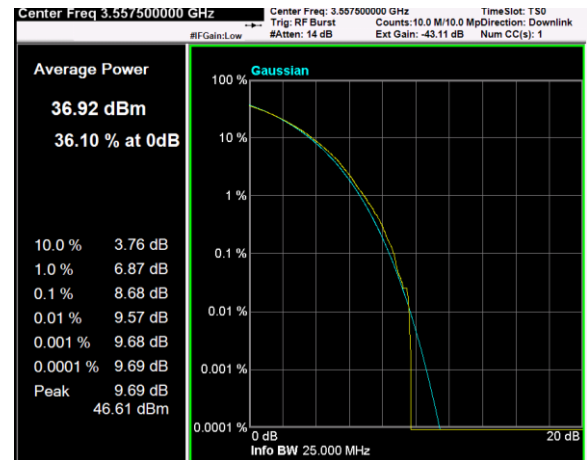
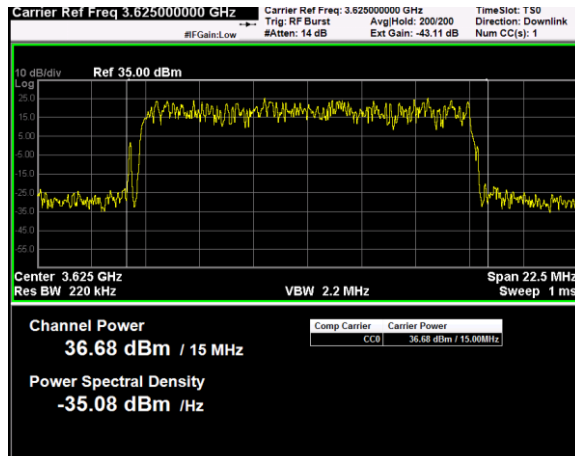
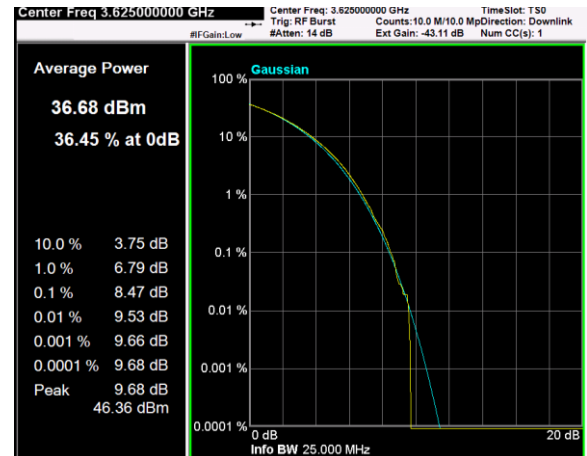
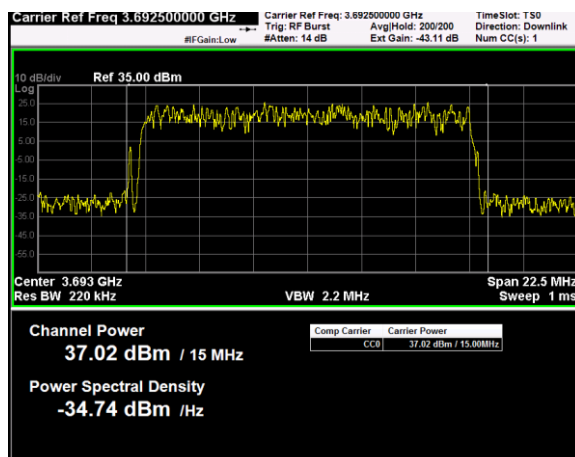
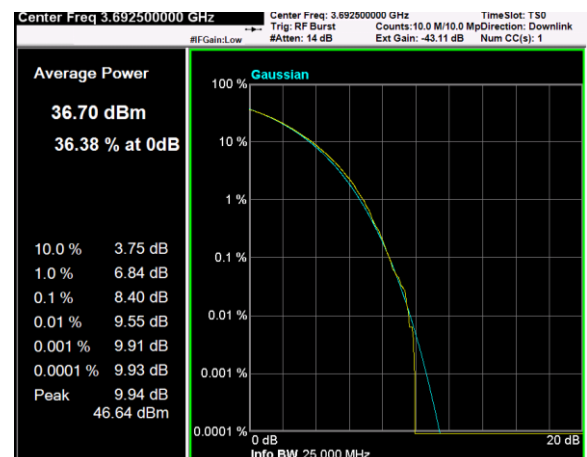
Channel: MIDDLE, Modulation: QPSK, BW=15MHz, CCDF



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



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


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

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

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

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

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

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