4. FCC Section 2.1049 – Occupied Bandwidth/Edge of Band Emissions

4.1 Occupied Bandwidth

In 47CFR 2.1049 the FCC requires:

> "The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable."

This required measurement is the 99% Occupied Bandwidth, also called the designated signal bandwidth and needs to be within the parameters of the products specified emissions designator. During these measurements it is customary to evaluate the Edge of Band emissions at block/band edges.

The transmitted signal occupied bandwidth was measured using a Keysight MXA Signal Analyzer. All emissions were within the parameters as required.

Tabular Data – Occupied Bandwidth (LTE)

TX Port	Channel Frequency MHz	Signal BW MHz	Modulation	Occupied BW MHz
3	2685	10	64QAM	8.8567
3	2593	10	256QAM	8.8850
3	2501	10	QPSK/16QAM	8.8381

Tabular Data – Occupied Bandwidth (5G-NR)

TX Port	Channel Frequency MHz	Signal BW MHz	Modulation	Occupied BW MHz
4	2506	20	QPSK	18.180
4	2680	20	QPSK	18.175
4	2593	20	QPSK/16QAM	18.217
4	2593	80	QPSK	76.821
4	2650	80	64QAM	77.211
4	2536	80	QPSK/16QAM	77.185

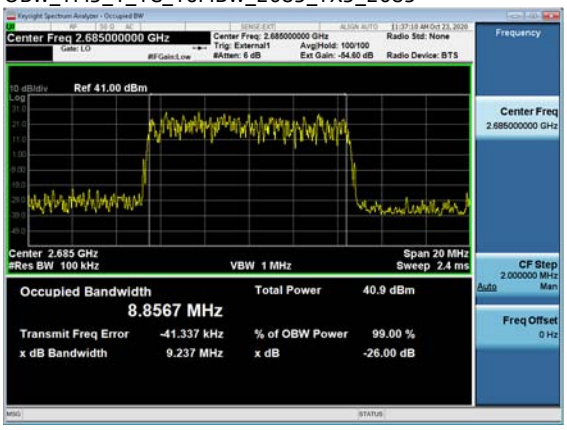
Tabular Data – Occupied Bandwidth - 3xLTE (QPSK + 16QAM + 256QAM)

TX Port	Channel Frequency MHz	Signal BW MHz	Occupied BW MHz
4	2501 + 2511 + 2521	10 + 10 + 10	28.774
4	2583 + 2593 + 2603		28.774
4	2665 + 2675 + 2685		28.774
4	2501 + 2511 + 2526	10 + 10 + 20	38.349
4	2583 + 2593 + 2608		38.352
1	2655 + 2665 + 2680		38.347
4	2501 + 2516 + 2536	10 + 20 + 20	47.998
4	2578 + 2593 + 2613		48.002
4	2645 + 2660 + 2680		47.985

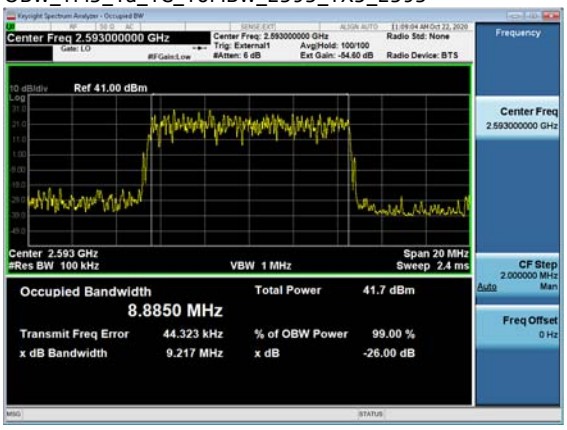
4.1.1 Occupied Bandwidth – Plots

4.1.1.1 LTE 10 MHz BW OBW Plots

OBW_TM3_1_1C_10MBW_2685_TX3_2685



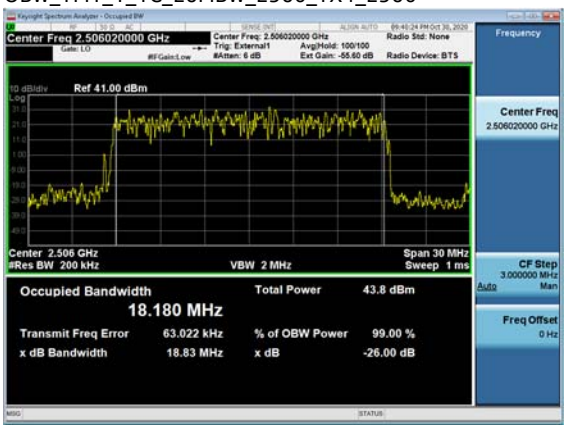
OBW_TM3_1a_1C_10MBW_2593_TX3_2593



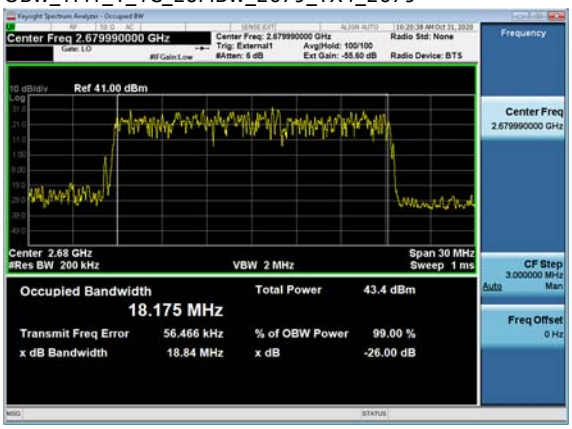
OBW_TM3_2_1C_10MBW_2501_TX3_2501

4.1.1.2 5G-NR 20MHz BW OBW Plots

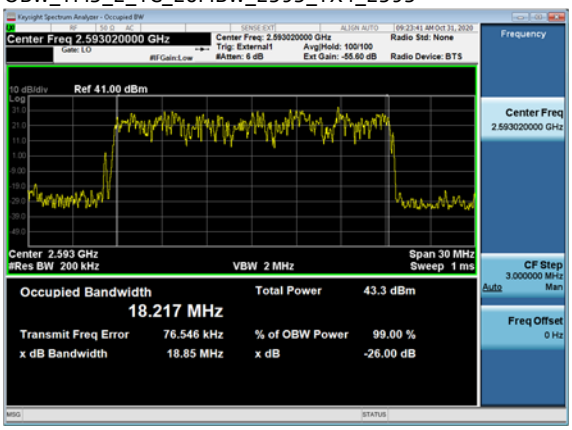
OBW_TM1_1_1C_20MBW_2506_TX4_2506



OBW_TM1_1_1C_20MBW_2679_TX4_2679

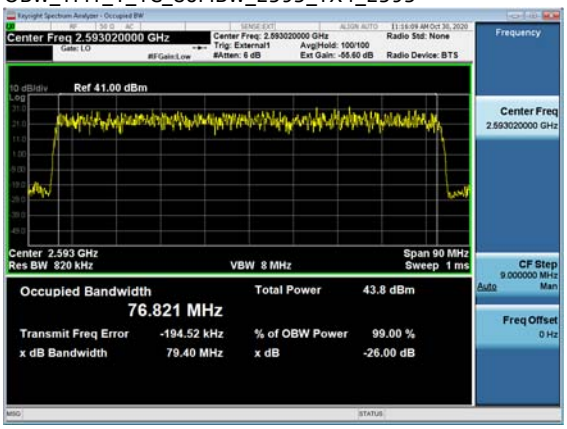


OBW_TM3_2_1C_20MBW_2593_TX4_2593

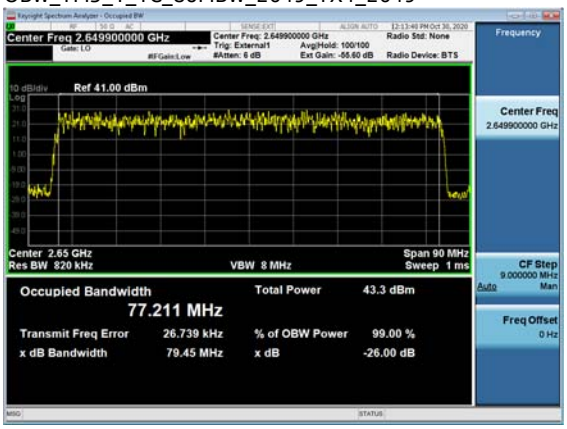


4.1.1.3 5G-NR 80MHz BW OBW Plots

OBW_TM1_1_1C_80MBW_2593_TX4_2593



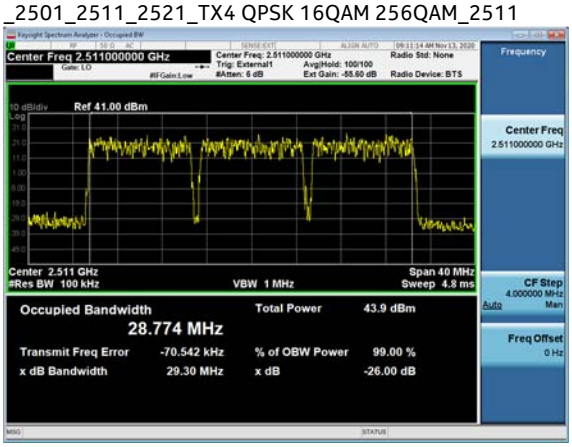
OBW_TM3_1_1C_80MBW_2649_TX4_2649



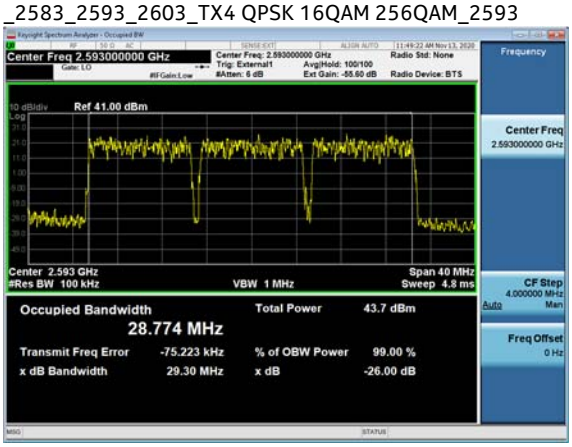
OBW_TM3_2_1C_80MBW_2536_TX4_2536

4.1.1.4 3xLTE (10MHz + 10MHz + 10MHz) BW OBW Plots

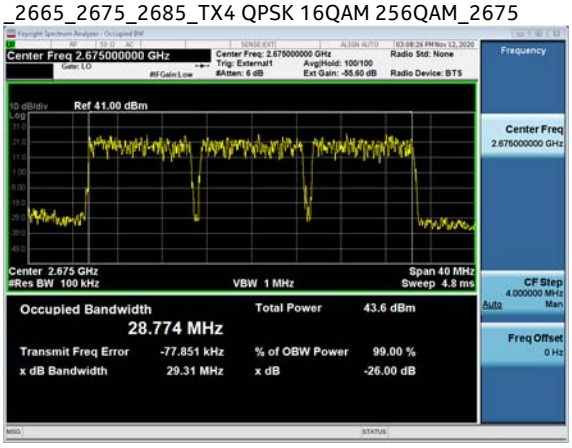
OBW_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_2511



OBW_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_2593

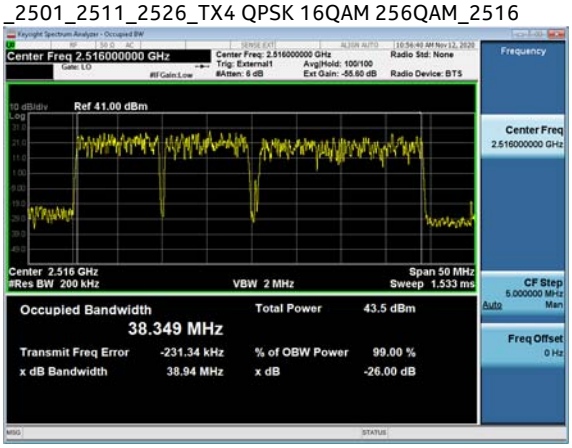


OBW_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_2675

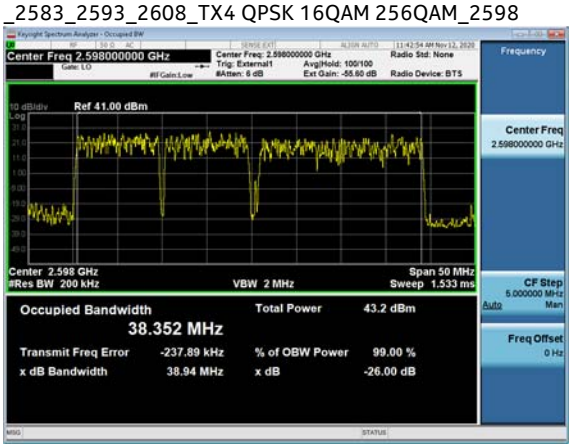


4.1.1.5 3xLTE (10MHz + 10MHz + 20MHz) BW OBW Plots

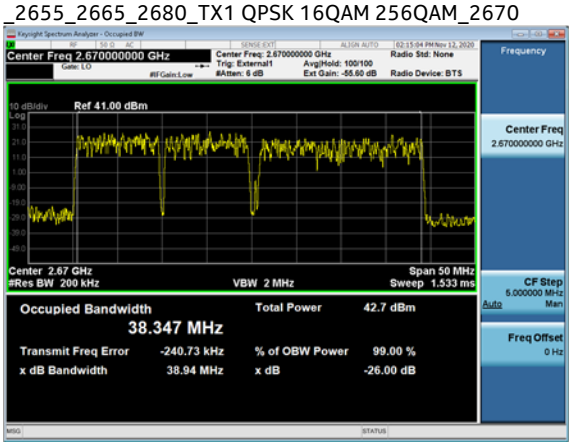
OBW_TM1_1_3C_10+10+20MBW
_2501_2511_2526_TX4 QPSK 16QAM 256QAM_2516



OBW_TM1_1_3C_10+10+20MBW
_2583_2593_2608_TX4 QPSK 16QAM 256QAM_2598

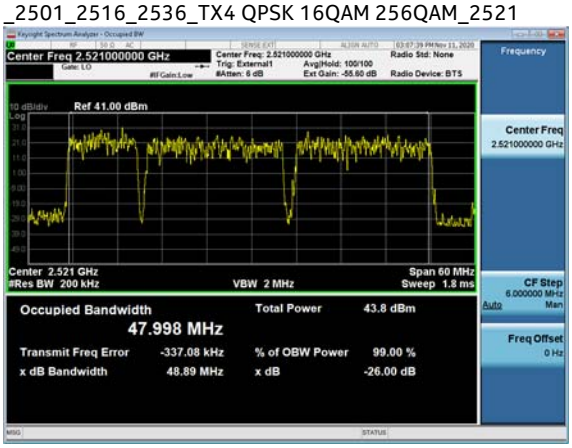


OBW_TM1_1_3C_10+10+20MBW
_2655_2665_2680_TX1 QPSK 16QAM 256QAM_2670

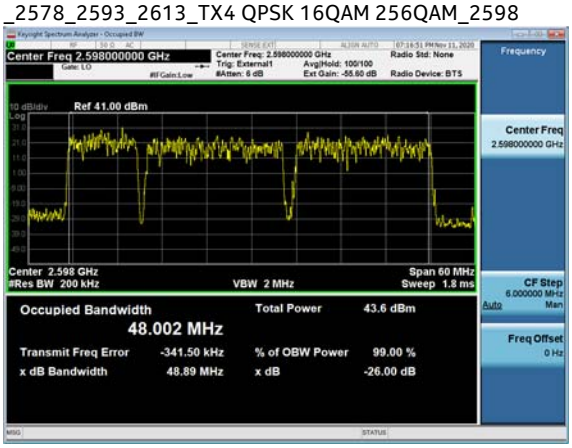


4.1.1.6 3xLTE (10MHz + 20MHz + 20MHz) BW OBW Plots

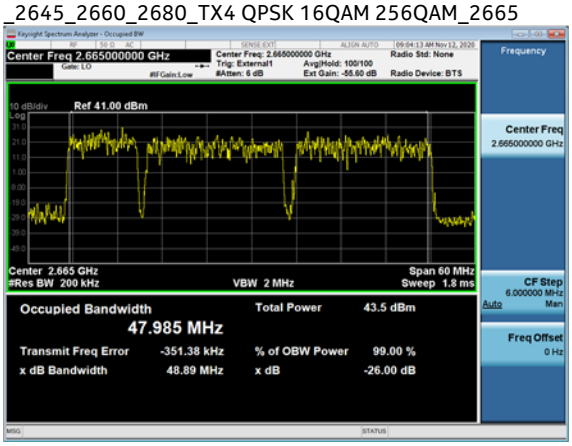
OBW_TM1_1_3C_10+20+20MBW
_2501_2516_2536_TX4 QPSK 16QAM 256QAM_2521



OBW_TM1_1_3C_10+20+20MBW
_2578_2593_2613_TX4 QPSK 16QAM 256QAM_2598



OBW_TM1_1_3C_10+20+20MBW
_2645_2660_2680_TX4 QPSK 16QAM 256QAM_2665



4.2 Edge of band Emissions

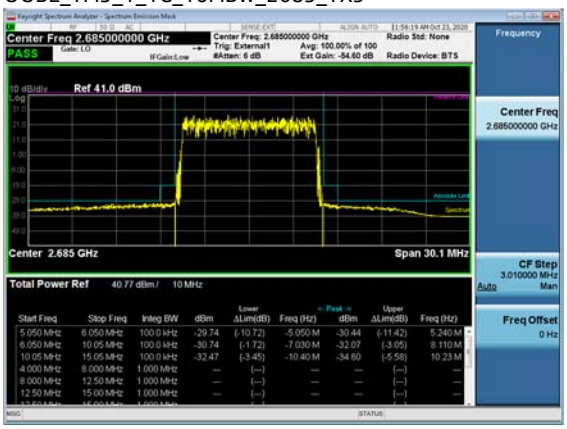
The Edge of Band emissions of the EUT at the external antenna connector (EAC) were measured using a Keysight MXA Signal Analyzer. The RF power level was continuously measured using a RF broadband power meter. The RF output from the EAC port to signal analyzer was reduced (to an amplitude usable by the signal analyzer) by using a calibrated attenuator and test coupler. The path attenuation was offset on the display and the signal for the carrier was adjusted to the corrected RF power level for the resolution bandwidth used for the transmit signal. All mask values were adjusted based upon the designated signal bandwidth and measurement bandwidths. The Top of Mask corresponds to the set rated power level as confirmed by the RF power meter.

4.2.1 Edge of Band Emissions - Plots.

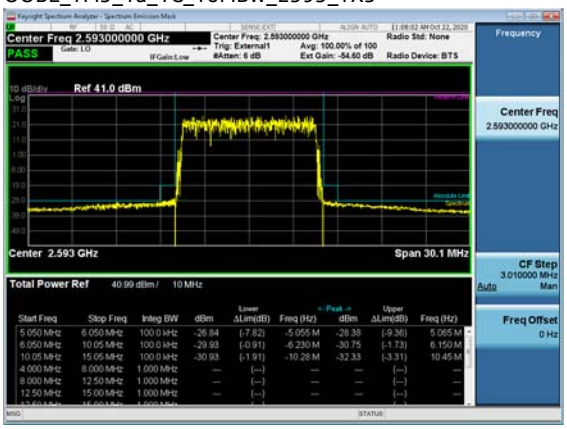
All of the measurements met the requirements of Part 27.53 when measured per Part 2.1049.

4.2.1.1 LTE 10 MHz BW OOBE Plots

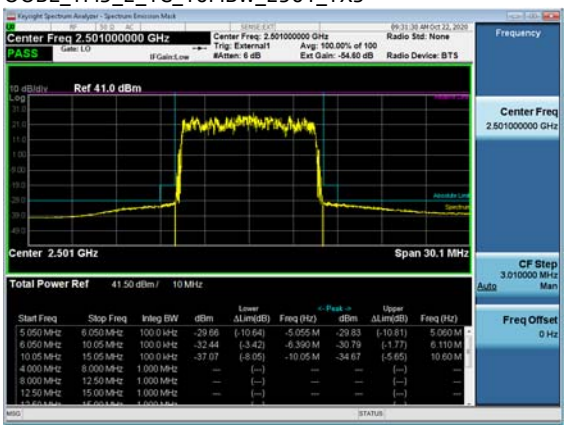
OOBE_TM3_1_1C_10MBW_2685_TX3



OOBE_TM3_1a_1C_10MBW_2593_TX3

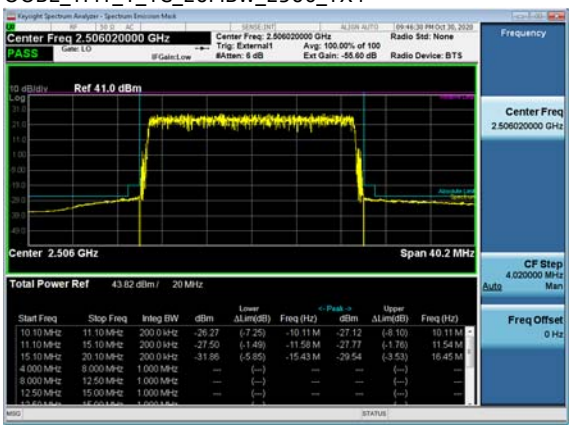


OOBE_TM3_2_1C_10MBW_2501_TX3

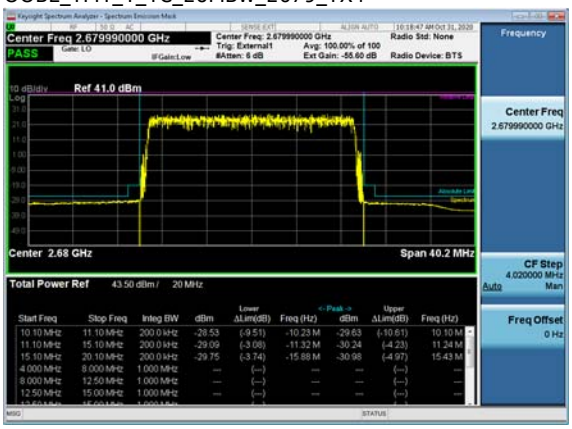


4.2.1.2 5G-NR 20MHz BW OOBE Plots

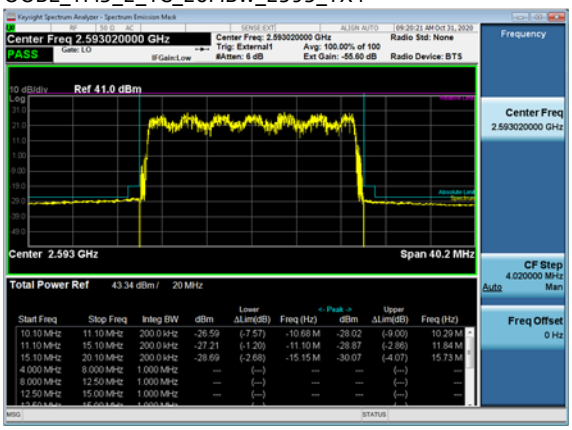
OOBE_TM1_1_1C_20MBW_2506_TX4



OOBE_TM1_1_1C_20MBW_2679_TX4

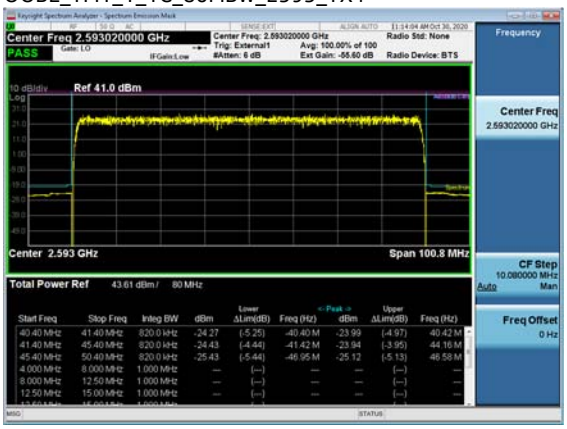


OOBE_TM3_2_1C_20MBW_2593_TX4

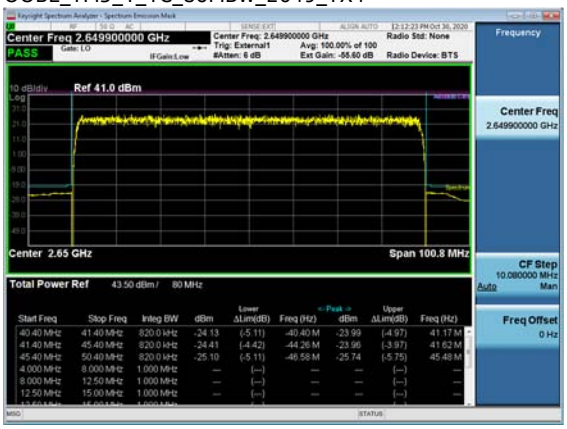


4.2.1.3 5G-NR 80MHz BW OOBE Plots

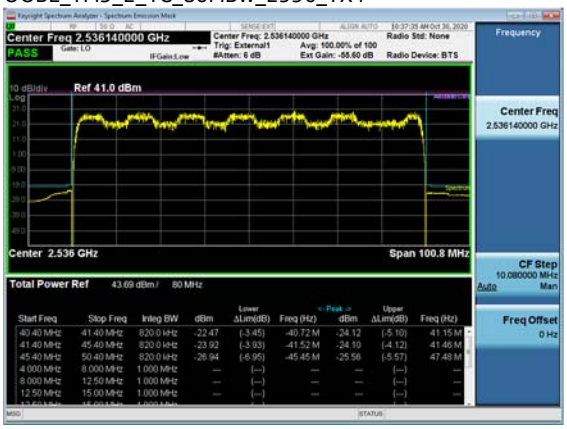
OOBE_TM1_1_1C_80MBW_2593_TX4



OOBE_TM3_1_1C_80MBW_2649_TX4

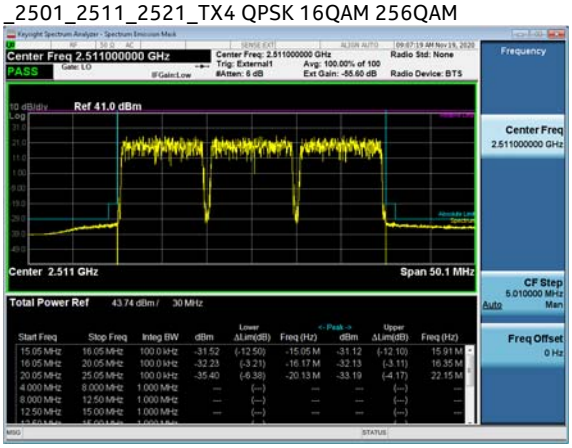


OOBE_TM3_2_1C_80MBW_2536_TX4

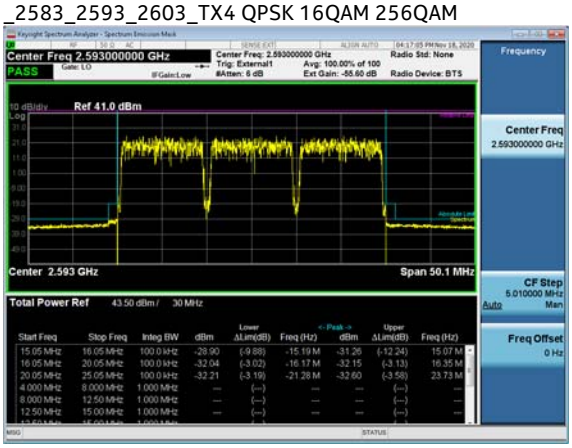


4.2.1.4 3xLTE (10MHz + 10MHz + 10MHz) BW OOBE Plots

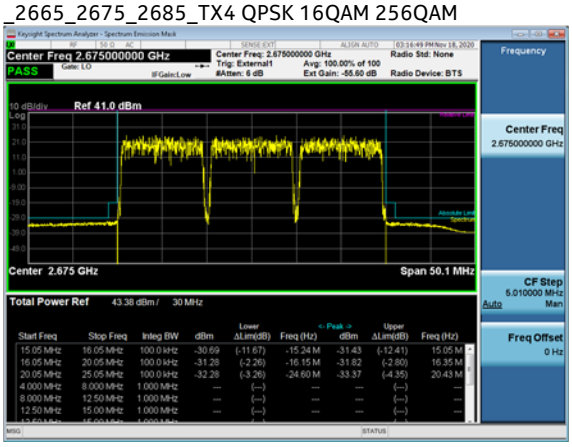
OOBE_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM



OOBE_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM

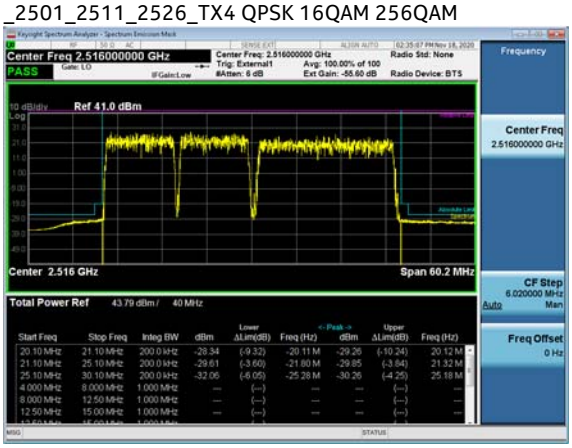


OOBE_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM

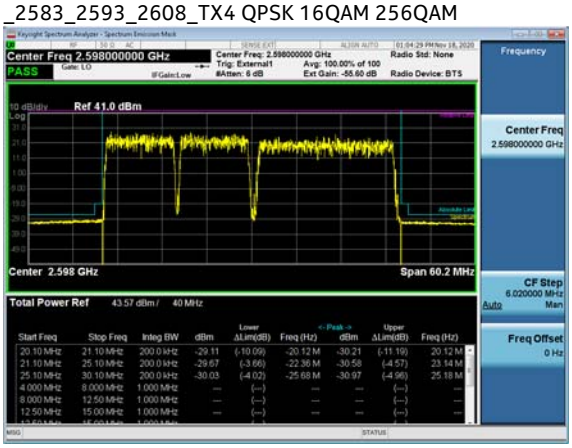


4.2.1.5 3xLTE (10MHz + 10MHz + 20MHz) BW OOBE Plots

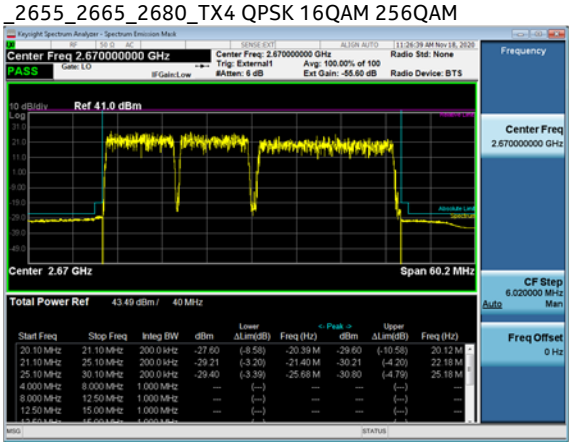
OOBE_TM1_1_3C_10+10+20MBW
_2501_2511_2526_TX4 QPSK 16QAM 256QAM



OOBE_TM1_1_3C_10+10+20MBW
_2583_2593_2608_TX4 QPSK 16QAM 256QAM

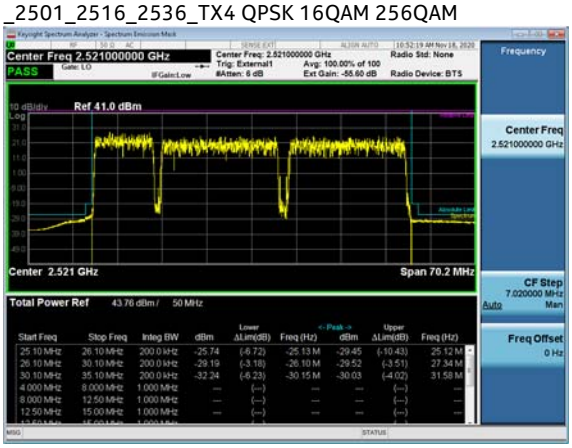


OOBE_TM1_1_3C_10+10+20MBW
_2655_2665_2680_TX4 QPSK 16QAM 256QAM

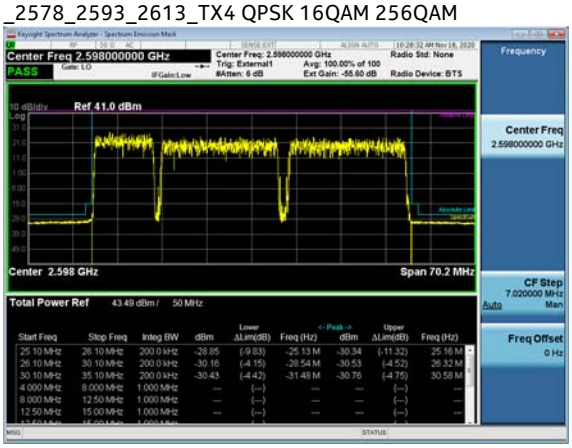


4.2.1.6 3xLTE (10MHz + 20MHz + 20MHz) BW OOBE Plots

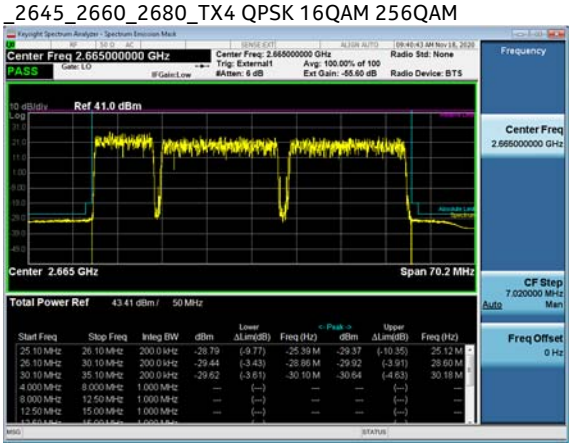
OOBE_TM1_1_3C_10+20+20MBW
_2501_2516_2536_TX4 QPSK 16QAM 256QAM



OOBE_TM1_1_3C_10+20+20MBW
_2578_2593_2613_TX4 QPSK 16QAM 256QAM



OOBE_TM1_1_3C_10+20+20MBW
_2645_2660_2680_TX4 QPSK 16QAM 256QAM



5. FCC Section 2.1051 - Spurious Emissions at Transmit Antenna Port

5.1 Measurement of Spurious Emissions at Transmit Antenna Port

Spurious Emissions at the transmit-antenna terminals were investigated over the frequency range of 10 MHz to beyond the 10th harmonic of the specific transmit band. Carrier Bandwidth is exempt. For this band of operation, the measurements were performed up to 10 GHz. Measurements were made using a Keysight MXA Signal Analyzer. The RF output from the transmitter was reduced (to an amplitude usable by the receivers) using calibrated attenuators. The RF power level was continuously monitored via a coupled RF Power Meter.

The required emission limitation is specified as appropriate in 27.53. The measured spurious emission levels were plotted for the frequency range as specified in 2.1057. There were no reportable emissions. Data below documents performance up to 27 GHz.

5.1.1 Spurious Emissions at Tx Port - Plots

5.1.1.1 LTE 10MHz BW (64QAM, 2685MHz) Plots

Spurious_TM3_1_1C_10MBW_2685_TX3_0_to_0

Spurious_TM3_1_1C_10MBW_2685_TX3_0_to_30

Spurious_TM3_1_1C_10MBW_2685_TX3_30_to_1000

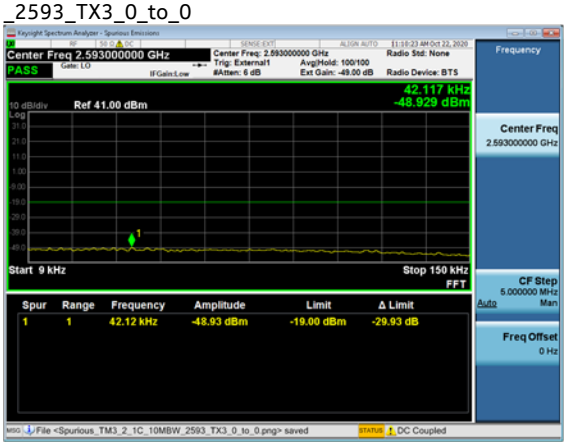
Spurious_TM3_1_1C_10MBW_2685_TX3_1000_to_2496

_2685_TX3_2690_to_10000

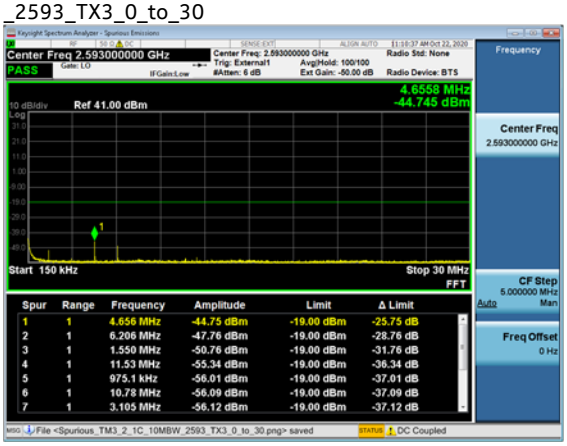
_2685_TX3_10000_to_27000

5.1.1.2 LTE 10MHz BW (256QAM, 2593MHz) Plots

Spurious_TM3_1a_1C_10MBW
_2593_TX3_0_to_0



Spurious_TM3_1a_1C_10MBW
_2593_TX3_0_to_30



Spurious_TM3_1a_1C_10MBW
_2593_TX3_30_to_1000

Spurious_TM3_1a_1C_10MBW
_2593_TX3_1000_to_2496

Spurious_TM3_1a_1C_10MBW

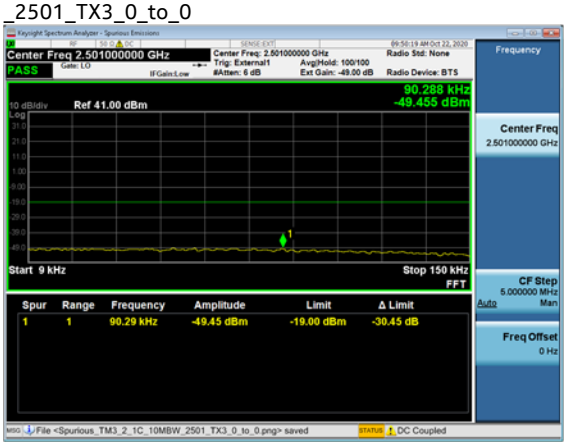
Spurious_TM3_1a_1C_10MBW

_2593_TX3_2690_to_10000

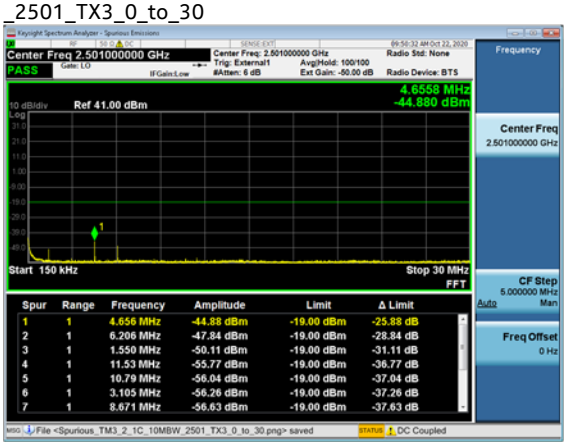
_2593_TX3_10000_to_27000

5.1.1.3 LTE 10MHz BW (QPSK/16QAM, 2501MHz) Plots

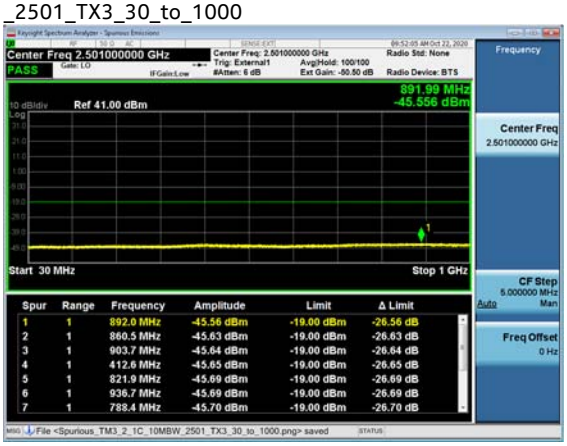
Spurious_TM3_2_1C_10MBW
_2501_TX3_0_to_0



Spurious_TM3_2_1C_10MBW
_2501_TX3_0_to_30



Spurious_TM3_2_1C_10MBW
_2501_TX3_30_to_1000



Spurious_TM3_2_1C_10MBW
_2501_TX3_1000_to_2496

Spurious_TM3_2_1C_10MBW
_2501_TX3_2690_to_10000

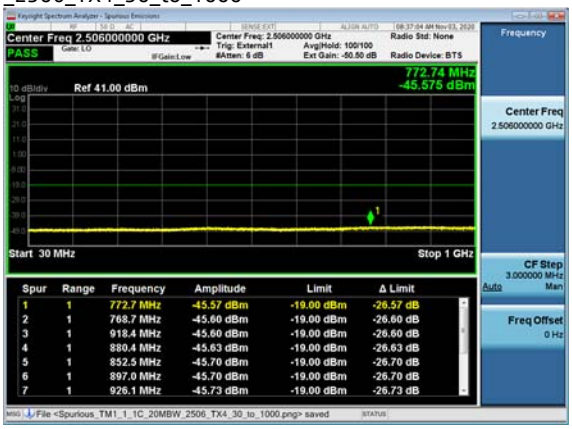
Spurious_TM3_2_1C_10MBW
_2501_TX3_10000_to_27000

5.1.1.4 5G-NR 20MHz BW (QPSK, 2506MHz) Plots

Spurious_TM1_1_1C_20MBW
_2506_TX4_0_to_0

Spurious_TM1_1_1C_20MBW
_2506_TX4_0_to_30

Spurious_TM1_1_1C_20MBW
_2506_TX4_30_to_1000



Spurious_TM1_1_1C_20MBW
_2506_TX4_1000_to_2496

Spurious_TM1_1_1C_20MBW
_2506_TX4_2690_to_10000

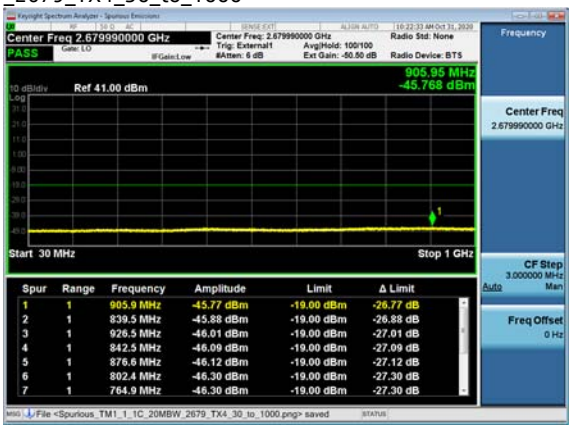
Spurious_TM1_1_1C_20MBW
_2506_TX4_10000_to_27000

5.1.1.5 5G-NR 20MHz BW (QPSK, 2680MHz) Plots

Spurious_TM1_1_1C_20MBW
_2679_TX4_0_to_0

Spurious_TM1_1_1C_20MBW
_2679_TX4_0_to_30

Spurious_TM1_1_1C_20MBW
_2679_TX4_30_to_1000



Spurious_TM1_1_1C_20MBW
_2679_TX4_1000_to_2496

Spurious_TM1_1_1C_20MBW
_2679_TX4_2690_to_10000

Spurious_TM1_1_1C_20MBW
_2679_TX4_10000_to_27000

5.1.1.6 5G-NR 20MHz BW (256QAM, 2506MHz) Plots

Spurious_TM3_1a_1C_20MBW _2506_TX4_0_to_0

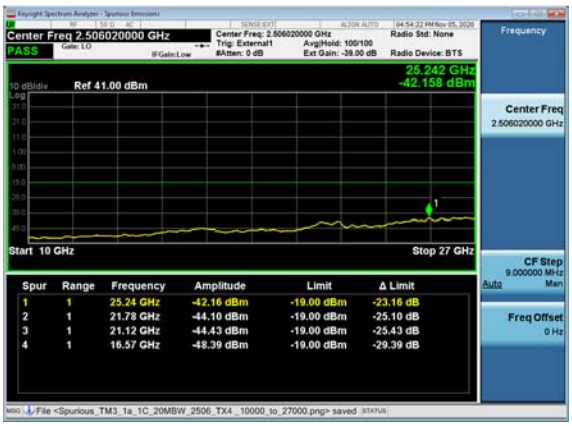
Spurious_TM3_1a_1C_20MBW _2506_TX4_0_to_30

Spurious_TM3_1a_1C_20MBW _2506_TX4_30_to_1000

Spurious_TM3_1a_1C_20MBW _2506_TX4_1000_to_2496

Spurious_TM3_1a_1C_20MBW _2506_TX4_2690_to_10000

Spurious_TM3_1a_1C_20MBW _2506_TX4_10000_to_27000

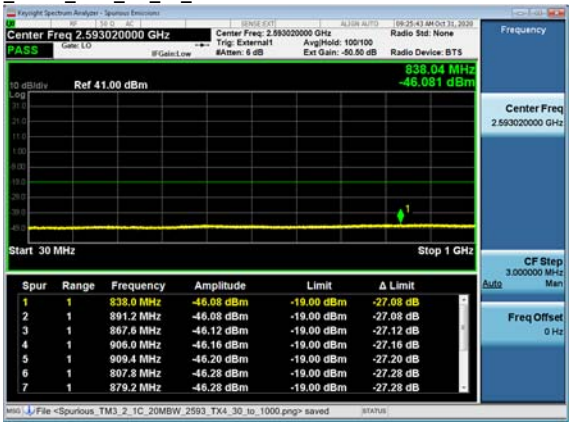


5.1.1.7 5G-NR 20MHz BW (QPSK/16QAM, 2593MHz) Plots

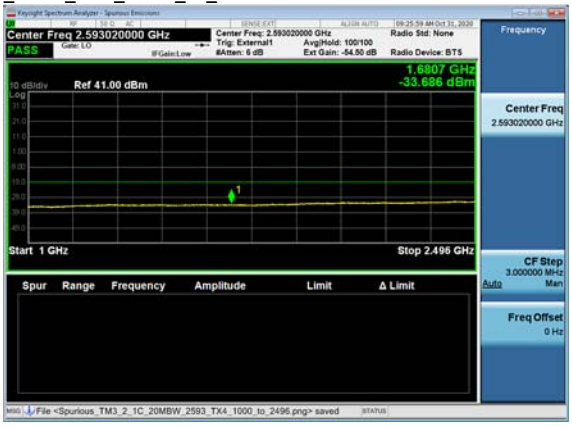
Spurious_TM3_2_1C_20MBW _2593_TX4_0_to_0

Spurious_TM3_2_1C_20MBW _2593_TX4_0_to_30

Spurious_TM3_2_1C_20MBW _2593_TX4_30_to_1000

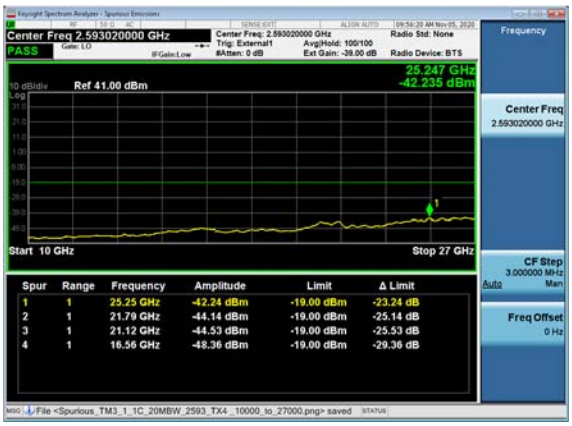


Spurious_TM3_2_1C_20MBW _2593_TX4_1000_to_2496



Spurious_TM3_2_1C_20MBW _2593_TX4_2690_to_10000

Spurious_TM3_2_1C_20MBW _2593_TX4_10000_to_27000

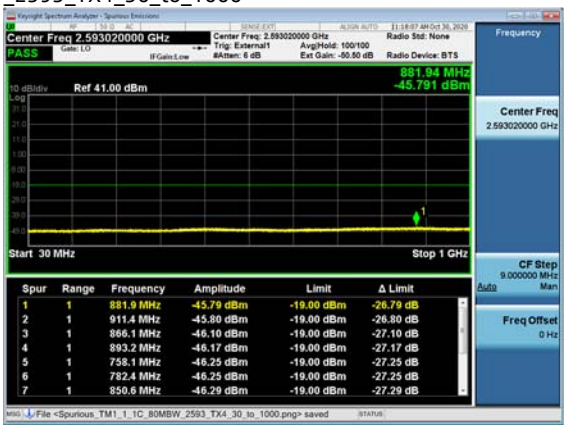


5.1.1.8 5G-NR 80MHz BW (QPSK, 2593MHz) Plots

Spurious_TM1_1_1C_80MBW
_2593_TX4_0_to_0

Spurious_TM1_1_1C_80MBW
_2593_TX4_0_to_30

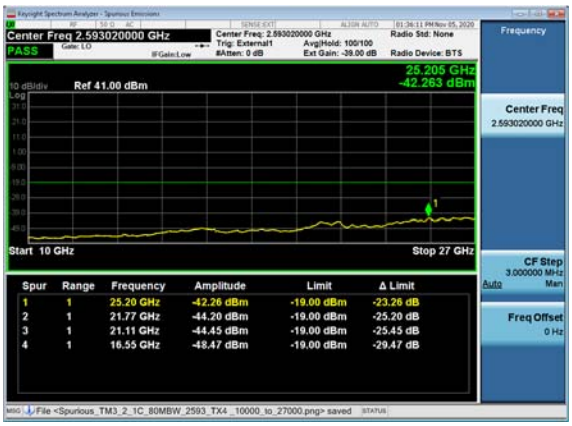
Spurious_TM1_1_1C_80MBW
_2593_TX4_30_to_1000



Spurious_TM1_1_1C_80MBW
_2593_TX4_1000_to_2496

Spurious_TM1_1_1C_80MBW
_2593_TX4_2690_to_10000

Spurious_TM1_1_1C_80MBW
_2593_TX4_10000_to_27000



5.1.1.9 5G-NR 80MHz BW (64QAM, 2650MHz) Plots

Spurious_TM3_1_1C_80MBW _2649_TX4_0_to_0

Spurious_TM3_1_1C_80MBW _2649_TX4_0_to_30

Spurious_TM3_1_1C_80MBW _2649_TX4_30_to_1000

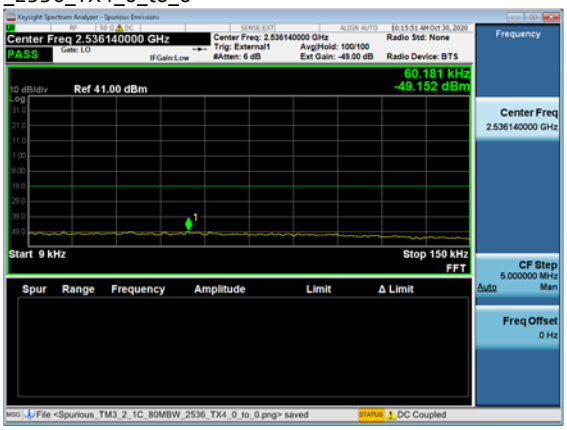
Spurious_TM3_1_1C_80MBW _2649_TX4_1000_to_2496

Spurious_TM3_1_1C_80MBW _2649_TX4_2690_to_10000

Spurious_TM3_1_1C_80MBW _2649_TX4_10000_to_27000

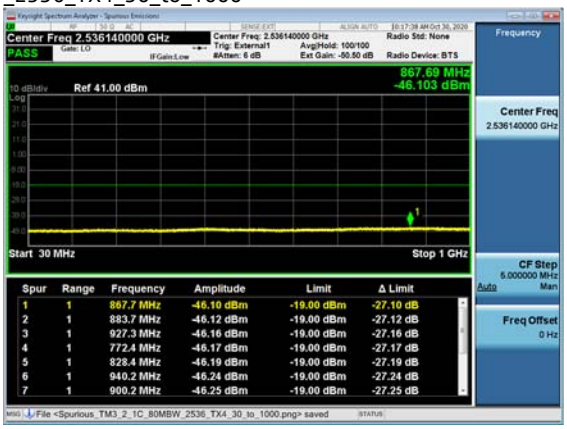
5.1.1.10 5G-NR 80MHz BW (QPSK/16QAM, 2536MHz) Plots

Spurious_TM3_2_1C_80MBW _2536_TX4_0_to_0

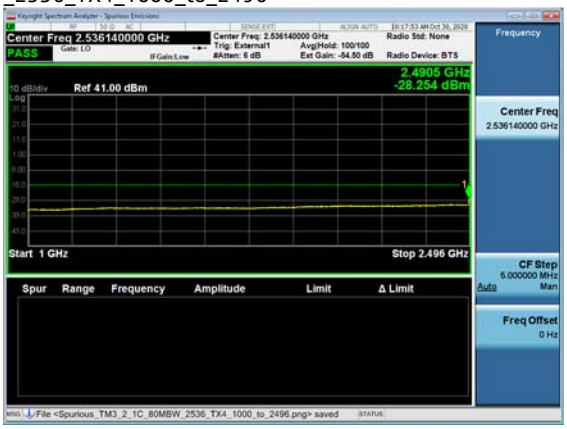


Spurious_TM3_2_1C_80MBW _2536_TX4_0_to_30

Spurious_TM3_2_1C_80MBW _2536_TX4_30_to_1000

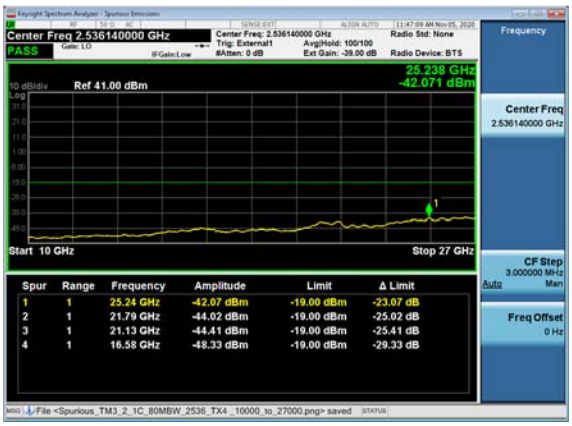


Spurious_TM3_2_1C_80MBW _2536_TX4_1000_to_2496



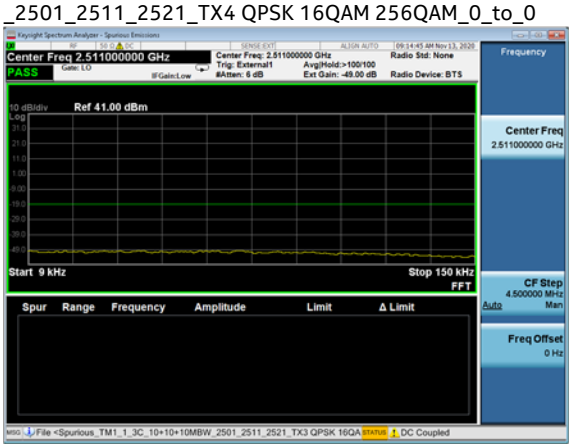
Spurious_TM3_2_1C_80MBW _2536_TX4_2690_to_10000

Spurious_TM3_2_1C_80MBW _2536_TX4_10000_to_27000

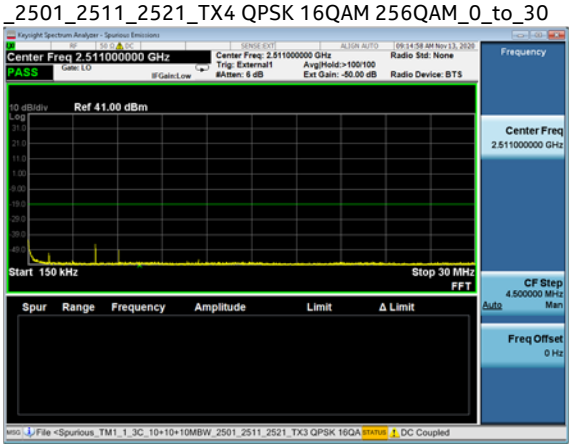


5.1.1.11 3xLTE (10MHz + 10MHz + 10MHz) BW, (2501 + 2511 + 2521 MHz) Plots

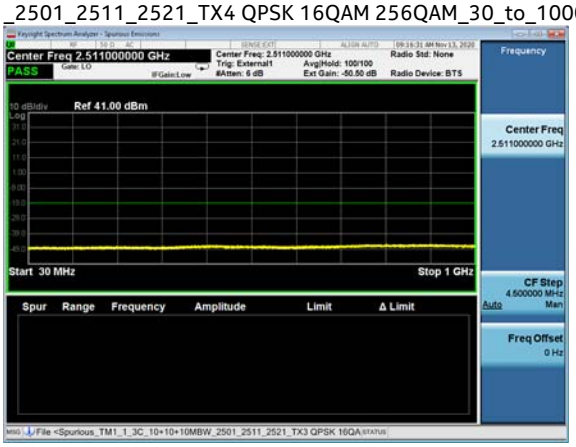
Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_0_to_0



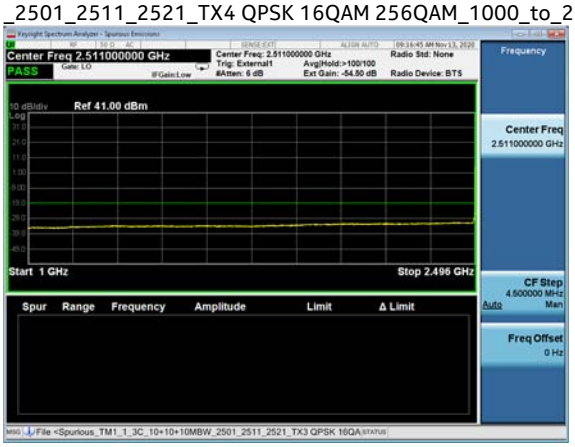
Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_0_to_30



Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_30_to_1000



Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_1000_to_2496

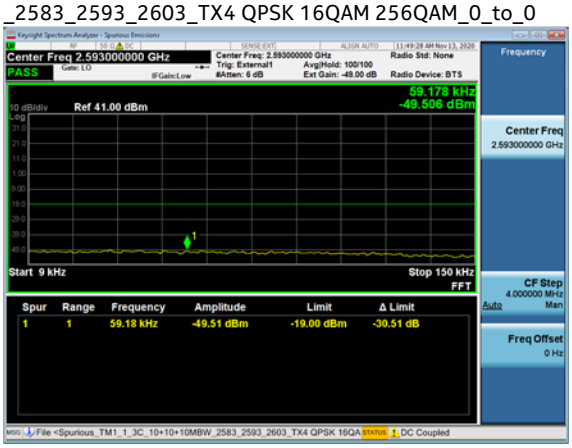


Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_2690_to_10000

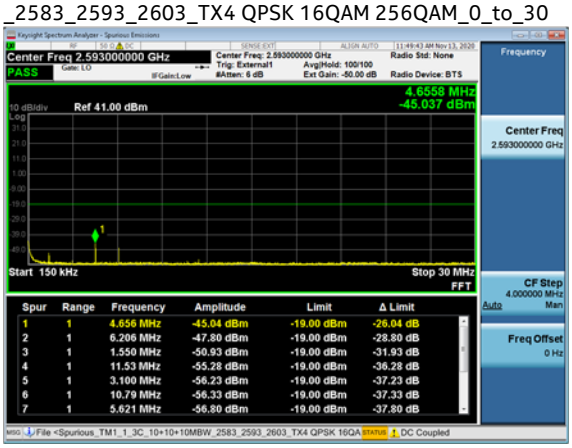
Spurious_TM1_1_3C_10+10+10MBW
_2501_2511_2521_TX4 QPSK 16QAM 256QAM_10000_to_27000

5.1.1.12 3xLTE (10MHz + 10MHz + 10MHz) BW, (2583 + 2593 + 2603 MHz) Plots

Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_0_to_0



Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_0_to_30



Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_30_to_1000

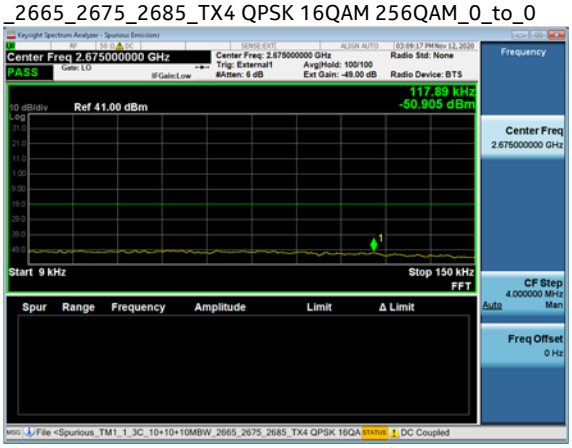
Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_1000_to_2496

Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_2690_to_10000

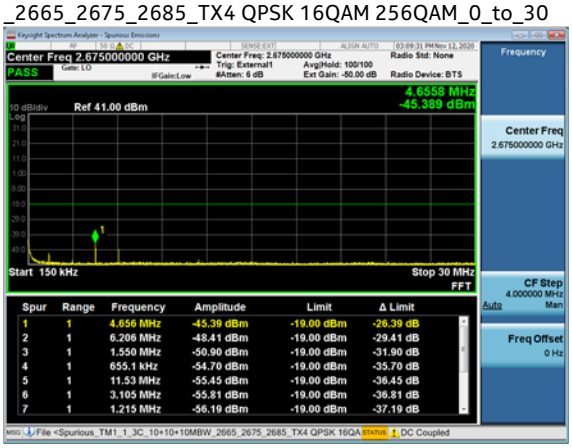
Spurious_TM1_1_3C_10+10+10MBW
_2583_2593_2603_TX4 QPSK 16QAM 256QAM_10000_to_27000

5.1.1.13 3xLTE (10MHz + 10MHz + 10MHz) BW, (2665 + 2675 + 2685 MHz) Plots

Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_0_to_0

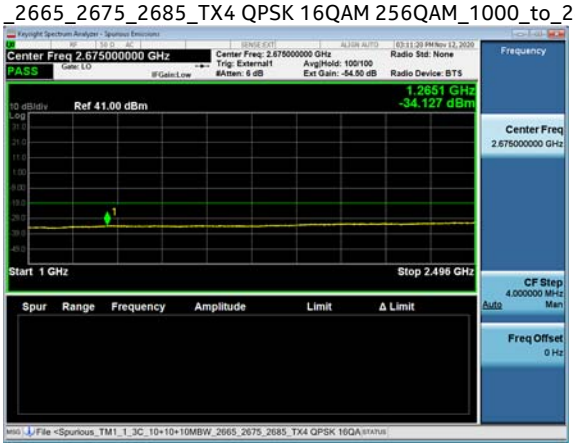


Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_0_to_30



Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_30_to_1000

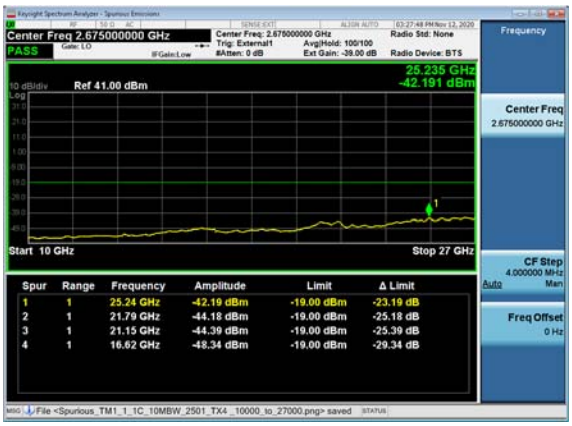
Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_1000_to_2496



Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_2690_to_10000

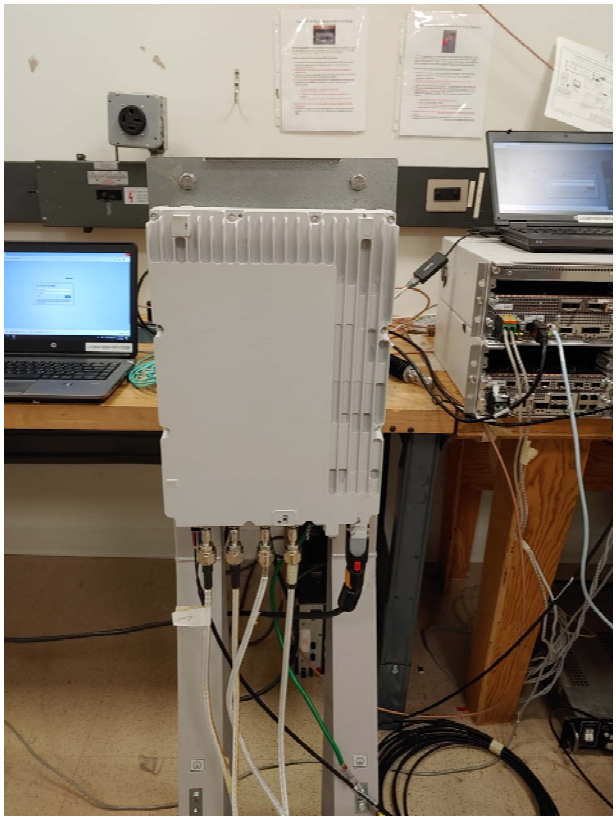
Spurious_TM1_1_3C_10+10+10MBW
_2665_2675_2685_TX4 QPSK 16QAM 256QAM_10000_to_27000


Center Freq 2.675000000 GHz
PASS
Center Freq: 2.675000000 GHz
Trig: External1
#Atten: 6 dB
Avg|Hold: 100/100
Ext Gain: -42.50 dB
Radio Std: None
Radio Device: BTS
Frequency
6.0587 GHz
-22.457 dBm
10 dB/div
Ref 41.00 dBm
Center Freq
2.675000000 GHz
Start 2.69 GHz
Stop 10 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
Spur Range Frequency Amplitude Limit Δ Limit
1 1 6.059 GHz -22.46 dBm -19.00 dBm -3.457 dB
2 1 6.630 GHz -22.76 dBm -19.00 dBm -3.763 dB
File <Spurious_TM1_1_3C_10+10+10MBW_2665_2675_2685_TX4 QPSK 16QA

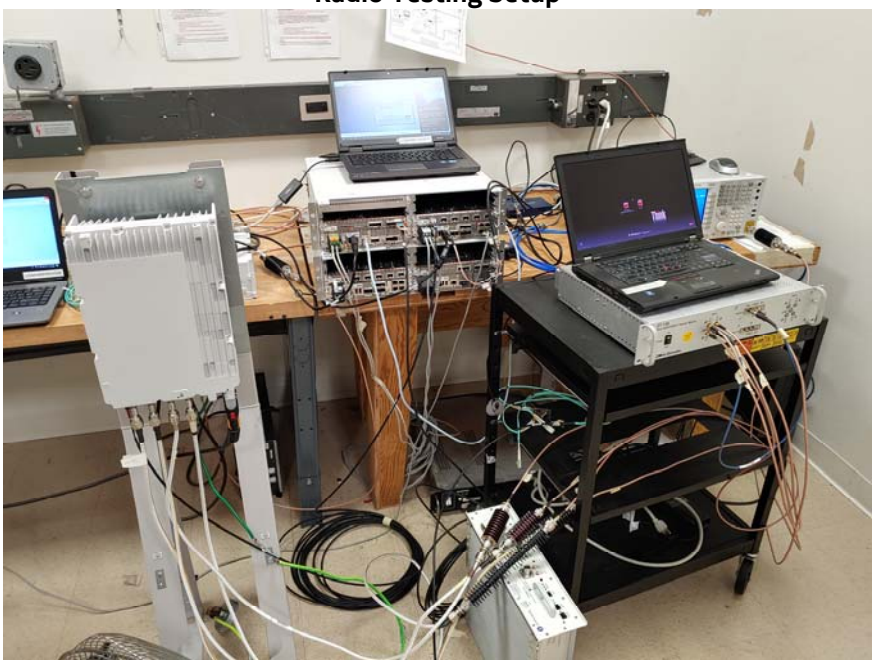

Center Freq 2.675000000 GHz
PASS
Center Freq: 2.675000000 GHz
Trig: External1
#Atten: 0 dB
Avg|Hold: 100/100
Ext Gain: -38.00 dB
Radio Std: None
Radio Device: BTS
Frequency
25.235 GHz
-42.191 dBm
10 dB/div
Ref 41.00 dBm
Center Freq
2.675000000 GHz
Start 10 GHz
Stop 27 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
Spur Range Frequency Amplitude Limit Δ Limit
1 1 25.24 GHz -42.19 dBm -19.00 dBm -23.19 dB
2 1 21.79 GHz -44.18 dBm -19.00 dBm -25.18 dB
3 1 21.15 GHz -44.39 dBm -19.00 dBm -25.39 dB
4 1 16.62 GHz -48.34 dBm -19.00 dBm -29.34 dB
File <Spurious_TM1_1_1C_10MBW_2501_TX4 _10000_to_27000.png> saved

Photographs

AWHHF Unit



Radio Testing Setup



Test Equipment

Asset ID	Manufacturer	Type	Description	Model	Serial	Calibration Date	Calibration Due
E831	Agilent Technologies	MXA Signal Analyzer	20Hz-26.5GHz	N9020A	MY48011791	2020-06-16	2022-06-16
E896	Agilent Technologies	Network Analyzer	10 MHz - 40 GHz	N5230C	MY49000897	2019-01-31	2021-01-31
E1152	Agilent Technologies	MXA Signal Analyzer	20Hz-26.5GHz Analyzer	N9020A	MY53420147	2019-04-24	2021-04-24
E1022	Weinschel	Attenuator	10dB DC-18GHz 25W	46-10-34-LIM	BN3118	CNR-V	CNR-V
E1043	Weinschel	Attenuator	30dB 50W DC-8.5GHz	24-30-43		CNR-V	CNR-V
E1344	Macom	Attenuator	3 dB, DC - 4 GHz, 2W	2082-6171-03	N/A	CNR-V	CNR-V
E1155	Weinschel	Attenuator	10dB 25W 0.05- 26GHz	74-10-12	1068	CNR-V	CNR-V
E1154	Weinschel	Attenuator	30dB 25W 0.05GHz-26GHz	74-30-12	1065	CNR-V	CNR-V
E1250	Weinschel	Attenuator	3dB Attenuator 100W	24-3-43	BB9072	CNR-V	CNR-V
E1251	Weinschel	Attenuator	0dB 150W DC-18GHz	66-30-33	BV1667	CNR-V	CNR-V
E1263	Hewlett Packard	Filter, High Pass	8.2 - 18 GHz	84300-80039	001	CNR-V	CNR-V
E1443	Weinschel	Attenuator	DC - 8GHz, 30 dB, 50W	24-30-43	BA2583	CNR-V	CNR-V

CNR-V: Calibration Not Required, Must Be Verified

Tests were performed between 10/22/2020 – 11/18/2020.

Environmental Conditions
Temperature: 22.9°C to 23.2°C
Relative Humidity: 24.2% to 26.4%
Pressure: 30.08 mmHg to 30.24 mmHg

6. FCC Section 2.1053 - Field strength of spurious radiation

6.1 Section 2.1053 Field Strength of Spurious Emissions

Field strength measurements of radiated spurious emissions were made in an FCC registered 3m Semi-Anechoic Chamber which is maintained by Nokia Bell Labs in Murray Hill, New Jersey. A complete description and full measurement data for the site is on file with the Commission (Site Registration Number: 515091).

The spectrum from 30 MHz to beyond the tenth harmonic of the carrier, 27 GHz, was searched for spurious radiation. Measurements were made using both horizontally and vertically polarized broadband antennas. Per FCC regulations, the comparison of out of band spurious emissions directly to the limit is appropriately made using the substitution method. However, when the emissions are more than 20 dB below the specification limit, the use of field strength measurements for compliance determination is acceptable and those emissions are considered not reportable (Section 2.1053 and the FCC Interpretive database for 2.1053). For this case the evaluation of acceptable radiated field strength is as follows.

6.2 Field Strength of Spurious Emissions - Limits

Sections 2.1053 and 27.53 contain the requirements for the levels of spurious radiation as a function of the level of the unmodulated carrier. The reference level for the unmodulated carrier is calculated as the field produced by an ideal dipole excited by the transmitter output power according to the following relation taken from Reference Data for Radio Engineers, page 676, 4th edition, IT&T Corp.

$$E = [(30*P)^{1/2}]/R$$

$$20 \log (E*10^{6}) - (43 + 10 \log P) = 82.23 \text{ dB}\mu\text{V/meter}$$

Where:
E = Field Intensity in Volts/meter P = Transmitted Power in Watts
R = Measurement distance in meters = 3 m

The Part 27 Limit is 82.23 dBµV/m at 3m and 91.77 dBuV/m at 1m
The Part 27 non-report level is 62.23 dBµV/m at 3m.

The calculated emission levels were found by:

Measured level (dBµV) + Cable Loss(dB)+Antenna Factor(dB) = Field Strength (dBµV/m)

RESULTS:

For compliance with 47CFR Parts 2 and 27, the field strength of any spurious radiation, measured at 3m, is required to be less than 82.23 dBµV/meter (82.23 @ 3m). Emissions equal to or less than 62.23 dBµV/meter at 3m are not reportable and may be verified using field strength measurements and broadband antennas. Over the out of band spectrum investigated from 30 MHz to beyond the tenth harmonic of the carrier (up to 27 GHz), no reportable spurious emissions were detected.

7. NVLAP Certificate of Accreditation

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 100275-0

Nokia, Global Product Compliance Lab
Murray Hill, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2020-09-25 through 2021-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program