ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

OF

FCC Applicant:	Compal Electronics, Inc No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan
Product Name:	5G M.2 Module
Brand Name:	Compal
Model No.:	RXM-G1
Model Difference:	N/A
Report Number:	E2/2019/A0033-01
FCC ID	GKRRXMG1
FCC Rule Part:	27 C
Issue Date:	Mar. 15, 2021
Date of Test:	Aug. 06, 2020 ~ Feb. 25, 2021
Date of EUT Received:	Aug. 06, 2020

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26-2015 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Approved By: Jim Chang

Jim Chang / Manager

Testing Laboratory
3702

Revision History				
Report Number	**Revision**	**Description**	**Issue Date**	**Remark**
E2/2019/A0033	Rev.00	Original.	Jun. 04, 2020	Revised By: Karen Huang
E2/2019/A0033-01	Rev.01	Add SA mode: n41; ENDC mode: L41 + n41	Mar. 15, 2021	Revised By: Elle Chang

Note:

1、Measurement results of n41 in the original test report E2/2020/80014 are partially leveraged in this test rerpot.

2、Disclaimer
Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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1 GENERAL PRODUCT INFORMATION

1.1 Product Description

General:

Product Name:	5G M.2 Module
Brand Name:	Compal
Model No.:	RXM-G1
Model Difference:	N/A
Hardware Version:	DVT-1
Software Version:	RXMG1.00.00.036
Power Supply:	DC 3.3V
IMEI:	359047100009060

1.2 Operation Frequency Range

Intra Band Test B41 + N41 Chnnal list For SCS 30KHz				
LTE Bandwidth	NR Bandwidth	Channel	LTE Freuquncy (MHZ)	NR Frequency (MHZ)
20	20	Low	2506	2506.02
		High	2680	2679.99
20	40	Low	2506	2516.01
		High	2680	2670
20	50	Low	2506	2521.02
		High	2680	2664.99
20	60	Low	2506	2526
		High	2680	2536.02
20	80	Low	2506	2540.01
		High	2680	2649.99
20	100	Low	2506	2546.1
		High	2680	2640

SA Mode: Band n41 For SCS 30kHz		
NR Bandwidth	Channel	NR Frequency (MHz)
20	Low	2506.02
	Mid	2592.99
	High	2679.99
30	Low	2511
	Mid	2592.99
	High	2674.98
40	Low	2516.01
	Mid	2592.99
	High	2670
50	Low	2521.02
	Mid	2592.99
	High	2664.99
60	Low	2526
	Mid	2592.99
	High	2659.98
80	Low	2536.02
	Mid	2592.99
	High	2649.99
90	Low	2541
	Mid	2592.99
	High	2644.89
100	Low	2546.1
	Mid	2592.99
	High	2640

1.3 Antenna Designation

Vendor	Type	Model Name	Band	Frequency (MHz)	Peak Antenna Gain (dBi)
Pulse	PIFA	ANT2	NR Band 41	2496 ~ 2690	3.2

1.4 Test Methodology of Applied Standards

FCC 47 CFR Part 27C
ANSI C63.26-2015
KDB971168 D01 Power Meas license Digital System v03r01
KDB412172 D01 Determining ERP and EIRP v01r01

1.5 Test Facility

SGS Taiwan Ltd. Central RF Lab (TAF code 3702)
No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333

FCC Designation number: TW0028

1.6 Special Accessories

No special accessories were used during testing.

1.7 Equipment Modifications

There was no modifications incorporated into the EUT.

1.8 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*9m*6m semi-anechoic chamber,
the measurements correspond to those obtained at an open-field test site.
There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the continuous transmission mode employed with the simulator of the Base Station that fixates at test default channels to fix the Tx frequency which was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 Conducted Measurement at Antenna Port

The EUT is placed on a table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

2.3.2 Radiated Emissions (ERP/EIRP)

The EUT is placed on a turn table, for emission measurements below 1 GHz is 0.8 m above ground plane, for emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13.

2.4 Measurement Results Explanation Example

For all conducted test items:
The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.
Note:
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Following shows an offset computation in physical test.

RF cable loss (dB)	Attenuation factor(dB)	offset(dB)
6	10	16
0.6	10	10.6

2.5 Final Amplifier Voltage and Current Information:

5G NR Band	DC voltage (V)	DC current (mA)
n41	3.3	470

2.6 Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel-Conducted)

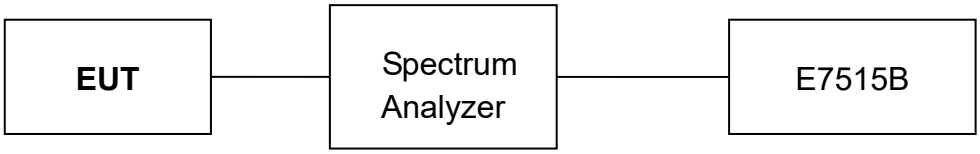
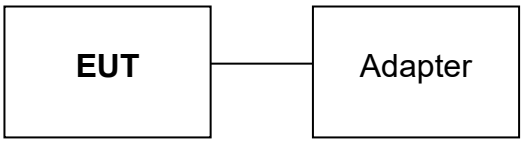


Fig. 2-2 Configuration of Tested System (Fixed Channel-Radiated)



Remote Side

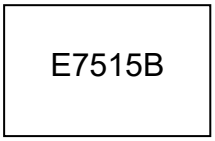


Table 2-1 Equipment Used in

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59321566	shielded	Un-shielded

3 SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1046(a)	RF Power Output	Compliant
§27.50(h)(2)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% & 26dB Occuupied Bandwidth	Compliant
§27.53(m)(4)	Out of Band Emissions at Antenna Terminals and Band Edge / Emission mask requirements	Compliant
§27.53(m)(4)	Field Strength of Spurious Radiation	Compliant
§27.54	Frequency Stability	Compliant

4 DESCRIPTION OF TEST MODES

4.1 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. The EUT only supports with below SCS and Bandwidth in each 5G NR Band.

For SA mode:

5G NR BAND	SCS (kHz)	Bandwidth (MHz)
n41	30	20, 30, 40, 50, 60, 80, 90, 100

For ENDC mode:

5G NR BAND	SCS (kHz)	Bandwidth (MHz)
n41	30	20, 40, 50, 60, 80, 100

3. Due to each single LTE Band transmission gernerates higher power than the LTE transmission in ENDC mode, the test results of each single LTE band transmission are demonstrated in the test report E2/2019/A0029 as the worst case senarios.
4. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X(E1)Y(E2)Z(H) axis and antenna ports. The worst case was found as listed below. Following channel(s) was (were) selected for the final test as listed below:

5G NR BAND	H PLAN	E1 PLAN	E2 PLAN
n41			V

5. The worst case scenarios are determined by the ENDC combinations that generate the highest output power, and unwanted emission test results are only be presented with the ENDC combinations of the worst case.

4.2 Measurement Configuration

4.2.1 SA Mode:

Test Items	Band	Test Channel			Band width										Modulation									RB #		
		L	M	H	5	10	15	20	30	40	50	60	80	90	100	DFT-S-OFDM Pi/2 BPSK	DFT-S-OFDM QPSK	DFT-S-OFDM 16QAM	DFT-S-OFDM 64QAM	DFT-S-OFDM 256QAM	CP-OFDM QPSK	CP-OFDM 16QAM	CP-OFDM 64QAM	CP-OFDM 256QAM	1RB Left	1RB Right	Full
Max. Output Power	n41A	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
DC current	n41A	-	v	-	-	-	-	v	v	-	-	-	-	-	-	v	-	-	-	-	-	-	-	-	-	-	v
26dB and 99%	n41A	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	-	-	v
Mask	n41A	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	-	-	-	-	-	-	-	-	v	v	v
Conducted Emission	n41A	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	-	-	-	-	-	-	-	-	v	v	-
Test Items	Band	Test Channel			Band width										Modulation									RB #		
		L	M	H	5	10	15	20	30	40	50	60	80	90	100	DFT-S-OFDM Pi/2 BPSK	DFT-S-OFDM QPSK	DFT-S-OFDM 16QAM	DFT-S-OFDM 64QAM	DFT-S-OFDM 256QAM	CP-OFDM QPSK	CP-OFDM 16QAM	CP-OFDM 64QAM	CP-OFDM 256QAM	1RB Left	1RB Right	Full
Radiated Emission	n41A	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	-	-	-	-	-	-	-	-	-	-	v

4.2.2 ENDC Mode:

Test Items	Band	Test			Band width										Modulation									RB #		
		L	M	H	5	10	15	20	40	50	60	80	100		DFT-S-OFDM Pi/2 BPSK	DFT-S-OFDM QPSK	DFT-S-OFDM 16QAM	DFT-S-OFDM 64QAM	DFT-S-OFDM 256QAM	CP-OFDM QPSK	CP-OFDM 16QAM	CP-OFDM 64QAM	CP-OFDM 256QAM	1RB Left	1RB Right	Full
Max. Output Power	L41 + n41A	v	v	v	-	-	-	v	v	v	v	v	v		v	v	v	v	v	v	v	v	v	v	v	v
Test Items	Band	Test			Band width										Modulation									RB #		
		L	M	H	5	10	15	20	40	50	60	80	100		DFT-S-OFDM Pi/2 BPSK	DFT-S-OFDM QPSK	DFT-S-OFDM 16QAM	DFT-S-OFDM 64QAM	DFT-S-OFDM 256QAM	CP-OFDM QPSK	CP-OFDM 16QAM	CP-OFDM 64QAM	CP-OFDM 256QAM	1RB Left	1RB Right	Full
Radiated Emission	L41 + n41A	v	v	v	-	-	-	-	-	-	-	-	v		v	-	-	-	-	-	-	-	-	-	-	v

Note: List of frequency bands mentioned in the measurement configuration, for comparison with 3GPP, please refer to the following table.

Band	3GPP inter-EN-DC configuration in FR1
L41+n41A	DC_41A_n41A

5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
RF Power Output	+/- 1 dB
ERP/ EIRP measurement	Vertical Polarization = +/- 3dB Horizontal Polarization =+/- 3dB
99% Occupied Bandwidth	+/- 1.54 Hz
Out of Band Emissions at Antenna Terminals and Band Edge	+/- 1.69 dB
Peak to Average Ratio	+/- 1 dB
Frequency Stability vs. Temperature	+/- 1.54 Hz
Frequency Stability vs. Voltage	+/- 1.54 Hz
Temperature	+/- 0.4 °C
Humidity	+/- 3.5 %
DC / AC Power Source	DC= +/- 1%, AC=+/- 1%

Radiated Spurious Emission Measurement Uncertainty		
Polarization: Vertical	+/- 2.64 dB	9kHz~30MHz: +-2.3dB
	+/- 4.93 dB	30MHz - 1000MHz: +/- 3.37dB
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.04dB
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.04dB
Polarization: Horizontal	+/- 2.64 dB	9kHz~30MHz: +-2.3dB
	+/- 4.45 dB	30MHz - 1000MHz: +/- 4.22dB
	+/- 4.81 dB	1GHz - 18GHz: +/- 4.08dB
	+/- 4.52 dB	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

6 MAXMUM OUTPUT POWER

6.1 Standard Applicable

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals.

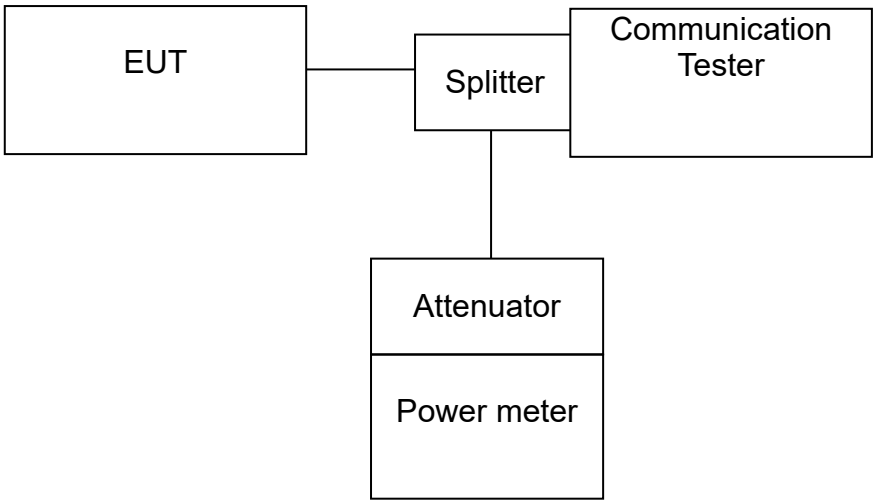
6.1.1 ERP/EIRP LIMIT

According to FCC §2.1046

FCC 27, 50(h)

(2) Mobile and other user stations transmitting in the BRS and EBS bands are limited to 2 W EIRP.

6.2 Test Set-up



Note: *Measurement setup for testing on Antenna connector*

6.3 Output Power Measurement Applicable Guideance

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, (WCD-MA/HSPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing, and KDB 971168 D01 Power Meas License Digital System as the supplemental test method-ology to adjust the proper setting obtaining the measurement results.
All LTE bands conducted average power is obtained from the simulator telecommunication test set.

6.4 Determining ERP and/or EIRP from conducted RF output power measurements

According to KDB 412172 D01 Power Approach,

EIRP = P_T+G_T-L_C,

ERP= EIRP-2.15,

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power (expressed in the same units as PT, typically dBW, dBm, or power spectral density (PSD)2), relative to either a dipole antenna (ERP) or an isotropic antenna (EIRP);

P_T = transmitter output power, expressed in dBW, dBm, or PSD;

G_T = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

6.5 Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59321566	12/17/2019	12/16/2020
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192629	12/09/2020	12/08/2021
Coaxial Cables	Woken	00100A1F1A185C	RF54	11/19/2020	11/18/2021
Coaxial Cables	Woken	00100A1F1A185C	RF76	11/19/2020	11/18/2021

6.6 Measurement Results:

Observation has been done on each modulation with the widest bandwidth and Full RB to determine the worst case modulation for further evaluations that conducted on each bandwidth and the Lowest and Highest 1 RB configurations.

6.6.1 SA Mode:

Antenna Gain : 3.2

SA n41A		RB	NR Channel	Freq. (MHz)	Power (dBm)	EIRP	EIRP Limit	Margin (dBm)
Modulation	Band width							
DFT-S-OFDM Pi/2 BPSK	NR 100	FULL	Mid(518598)	2592.99	23.45	26.65	33	-6.35
DFT-S-OFDM Pi/2 QPSK	NR 100	FULL	Mid(518598)	2592.99	23.24	26.44	33	-6.56
DFT-S-OFDM Pi/2 16QAM	NR 100	FULL	Mid(518598)	2592.99	22.14	25.34	33	-7.66
DFT-S-OFDM Pi/2 64QAM	NR 100	FULL	Mid(518598)	2592.99	21.68	24.88	33	-8.12
DFT-S-OFDM Pi/2 256QAM	NR 100	FULL	Mid(518598)	2592.99	20.12	23.32	33	-9.68
CP-OFDM QPSK	NR 100	FULL	Mid(518598)	2592.99	21.31	24.51	33	-8.49
CP-OFDM 16QAM	NR 100	FULL	Mid(518598)	2592.99	20.98	24.18	33	-8.82
CP-OFDM 64QAM	NR 100	FULL	Mid(518598)	2592.99	20.52	23.72	33	-9.28
CP-OFDM 256QAM	NR 100	FULL	Mid(518598)	2592.99	18.02	21.22	33	-11.78
DFT-S-OFDM Pi/2 BPSK	NR 100	1RB Left	Mid(518598)	2592.99	22.34	25.54	33	-7.46
DFT-S-OFDM Pi/2 BPSK	NR 100	1RB Rigth	Mid(518598)	2592.99	23.31	26.51	33	-6.49
DFT-S-OFDM Pi/2 BPSK	NR90	FULL	Mid(518598)	2592.99	23.44	26.64	33	-6.36
DFT-S-OFDM Pi/2 BPSK	NR80	FULL	Mid(518598)	2592.99	23.42	26.62	33	-6.38
DFT-S-OFDM Pi/2 BPSK	NR60	FULL	Mid(518598)	2592.99	23.41	26.61	33	-6.39
DFT-S-OFDM Pi/2 BPSK	NR 50	FULL	Mid(518598)	2592.99	23.41	26.61	33	-6.39
DFT-S-OFDM Pi/2 BPSK	NR 40	FULL	Mid(518598)	2592.99	23.32	26.52	33	-6.48
DFT-S-OFDM Pi/2 BPSK	NR 30	FULL	Mid(518598)	2592.99	23.37	26.57	33	-6.43
DFT-S-OFDM Pi/2 BPSK	NR 20	FULL	Mid(518598)	2592.99	23.39	26.59	33	-6.41
DFT-S-OFDM Pi/2 BPSK	NR 100	FULL	Low(509220)	2546.1	23.38	26.58	33	-6.42
DFT-S-OFDM Pi/2 BPSK	NR 100	FULL	High(528000)	2640	23.41	26.61	33	-6.39

6.6.2 ENDC Mode:

Antenna Gain : 3.2

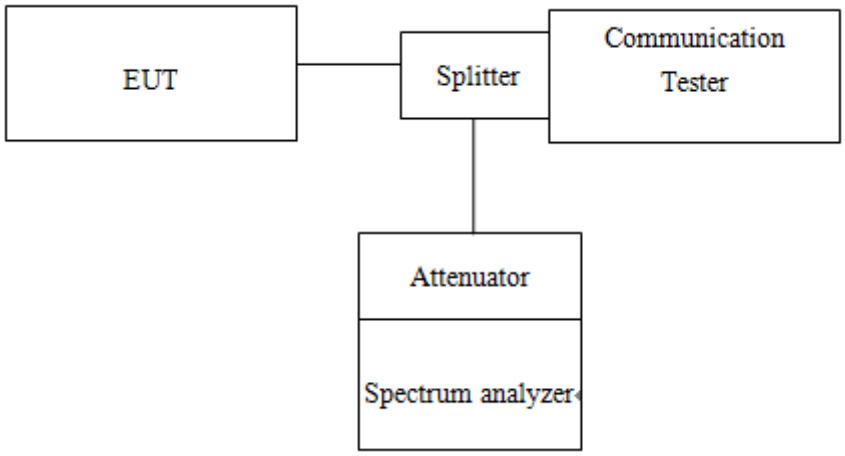
41A + n41A(intra-band contiguous)		RB	LTE	NR Channel	Freq. (MHz)	NR			EIRP Limit	Margin (dBm)
Modulation	Band width					Power (dBm)	Total	EIRP		
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.94	23.96	27.16	33	-5.84
DFT-S-OFDM QPSK	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.83	23.86	27.06	33	-5.94
DFT-S-OFDM 16QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.81	23.83	27.03	33	-5.97
DFT-S-OFDM 64QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.85	23.85	27.05	33	-5.95
DFT-S-OFDM 256QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.77	23.75	26.95	33	-6.05
CP-OFDM QPSK	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.78	23.77	26.97	33	-6.03
CP-OFDM 16QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.75	23.73	26.93	33	-6.07
CP-OFDM 64QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	20.85	23.83	27.03	33	-5.97
CP-OFDM 256QAM	LTE 20 + NR 100	FULL	High	Low (509220)	2546.1	19.95	22.93	26.13	33	-6.87
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 100	1RB Left	High	Low (509220)	2546.1	20.32	23.32	26.52	33	-6.48
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 100	1RB Right	High	Low (509220)	2546.1	19.14	22.14	25.34	33	-7.66
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 80	FULL	High	Low (508002)	2540.01	20.57	23.65	26.85	33	-6.15
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 60	FULL	High	Low (506004)	2530.02	20.68	23.56	26.76	33	-6.24
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 50	FULL	High	Low (505002)	2525.01	20.73	23.74	26.94	33	-6.06
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 40	FULL	High	Low (504000)	2520	20.67	23.65	26.85	33	-6.15
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 20	FULL	High	Low (502002)	2510.01	20.69	23.76	26.96	33	-6.04
DFT-S-OFDM Pi/2 BPSK	LTE 20 + NR 100	FULL	Low	HIGH (528000)	2592.99	20.54	23.44	26.64	33	-6.36

7 OCCUPIED BANDWIDTH MEASUREMENT

7.1 Standard Applicable

The occupied bandwidth 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.

7.2 Test Set-up



7.3 Measurement Procedure

99% &26dB Bandwidth with detector peak

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -26dBc display line was placed on the screen (or 26dB bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace. Then set RBW to 99% bandwidth, RBW= 1%, VBW= 3 RBW, with span > 2 * Signal BW, set % Power = 99%.

7.4 Measurement Equipment Used

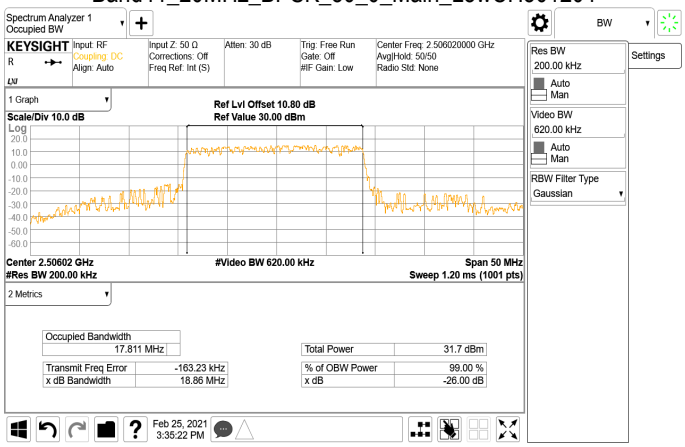
Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020
DC Block	PASTERNACK	PE8210	RF155	11/19/2020	11/18/2021
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/23/2020	07/22/2021
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/07/2020	07/06/2021
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	11/20/2019	11/19/2020
Splitter	Marvelous Micro-wave	MVE8586	RF259	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020
Attenuator	Marvelous	WATT-218FS-10	RF23	11/19/2020	11/18/2021
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59321566	12/17/2019	12/16/2020
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192629	12/09/2020	12/08/2021

7.5 Measurement Result

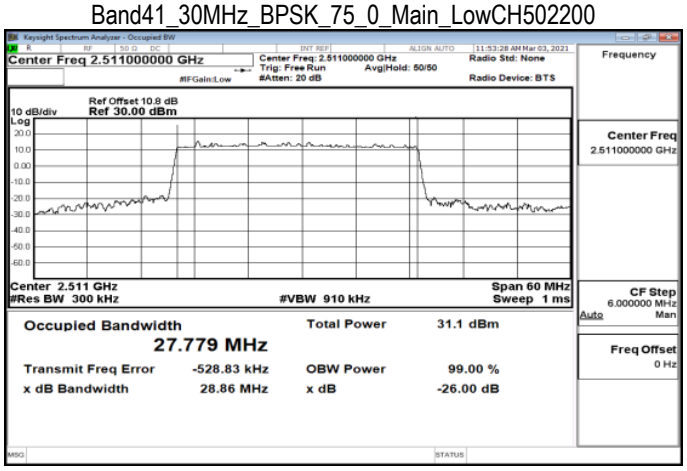
Each bandwidth has been evaluated with the modulation that generated highest output power.

n41A		Channel	Freq. (MHz)	OBW	
Modulation	Band width			26dB(MHz)	99%(MHz)
DFT-S-OFDM Pi/2 BPSK	NR 100	509220	2546.1	99.66	96.28
DFT-S-OFDM Pi/2 BPSK	NR 90	508220	2541	89.73	86.652
DFT-S-OFDM Pi/2 BPSK	NR 80	507204	2536.02	79.94	77.051
DFT-S-OFDM Pi/2 BPSK	NR 60	505200	2526	65.46	57.733
DFT-S-OFDM Pi/2 BPSK	NR 50	504204	2521.02	47.46	45.692
DFT-S-OFDM Pi/2 BPSK	NR 40	503202	2516.01	37.35	35.507
DFT-S-OFDM Pi/2 BPSK	NR 30	502200	2511	28.86	27.779
DFT-S-OFDM Pi/2 BPSK	NR 20	501204	2506.02	18.86	17.811
DFT-S-OFDM Pi/2 BPSK	NR 100	518598	2592.99	99.56	96.25
DFT-S-OFDM QPSK	NR 100	518598	2592.99	99.59	96.219
DFT-S-OFDM 16QAM	NR 100	518598	2592.99	99.48	96.305
DFT-S-OFDM 64QAM	NR 100	518598	2592.99	99.67	96.086
DFT-S-OFDM 256QAM	NR 100	518598	2592.99	99.69	95.932
CP-OFDM QPSK	NR 100	518598	2592.99	101.6	97.17
CP-OFDM 16QAM	NR 100	518598	2592.99	101.5	97.18
CP-OFDM 64QAM	NR 100	518598	2592.99	101.5	97.103
CP-OFDM 256QAM	NR 100	518598	2592.99	101.4	97.031
DFT-S-OFDM Pi/2 BPSK	NR 90	518598	2592.99	89.73	86.426
DFT-S-OFDM Pi/2 BPSK	NR 80	518598	2592.99	79.79	77.018
DFT-S-OFDM Pi/2 BPSK	NR 60	518598	2592.99	60.15	57.836
DFT-S-OFDM Pi/2 BPSK	NR 50	518598	2592.99	47.59	45.664
DFT-S-OFDM Pi/2 BPSK	NR 40	518598	2592.99	37.54	35.675
DFT-S-OFDM Pi/2 BPSK	NR 30	518598	2592.99	28.22	26.767
DFT-S-OFDM Pi/2 BPSK	NR 20	518598	2592.99	19.49	17.983
DFT-S-OFDM Pi/2 BPSK	NR 100	528000	2640	99.74	96.333
DFT-S-OFDM Pi/2 BPSK	NR 90	528996	2644.98	89.83	86.476
DFT-S-OFDM Pi/2 BPSK	NR 80	529998	2649.99	79.79	77.182
DFT-S-OFDM Pi/2 BPSK	NR 60	531996	2659.98	60.24	57.779
DFT-S-OFDM Pi/2 BPSK	NR 50	532998	2664.99	47.67	45.637
DFT-S-OFDM Pi/2 BPSK	NR 40	53400	2670	37.47	35.682
DFT-S-OFDM Pi/2 BPSK	NR 30	534996	2674.98	28.25	26.748
DFT-S-OFDM Pi/2 BPSK	NR 20	535998	2679.99	19.5	17.929

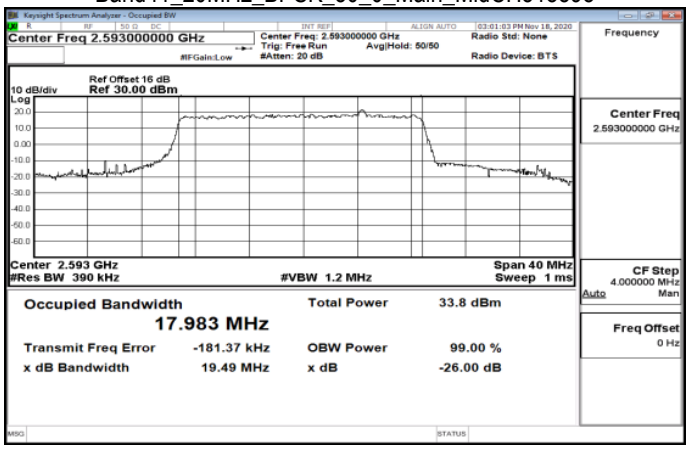
Band41_20MHz_BPSK_50_0_Main_LowCH501204



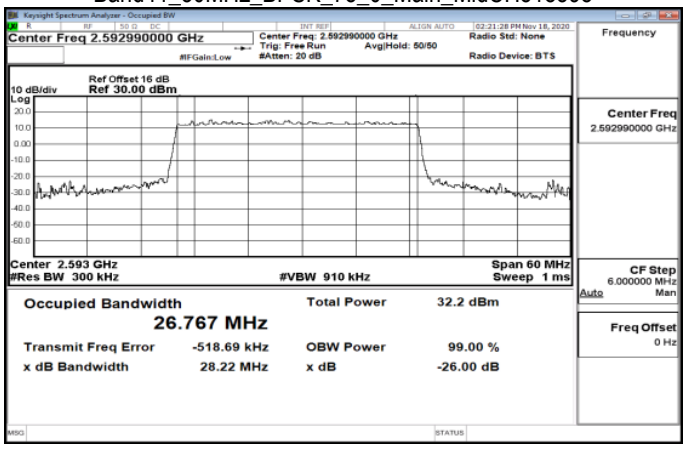
Band41_30MHz_BPSK_75_0_Main_LowCH502200



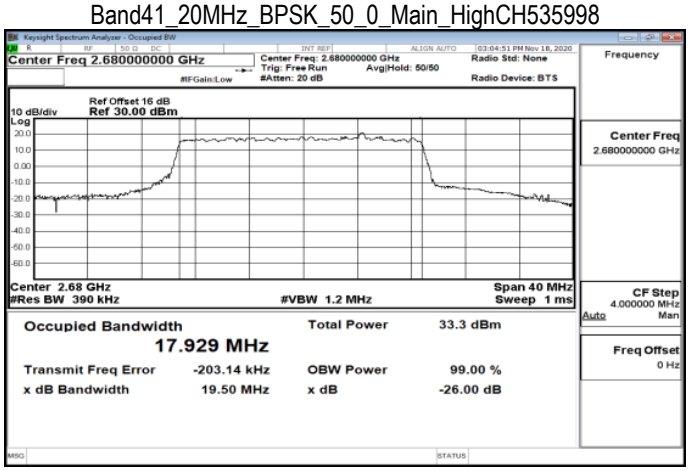
Band41_20MHz_BPSK_50_0_Main_MidCH518598



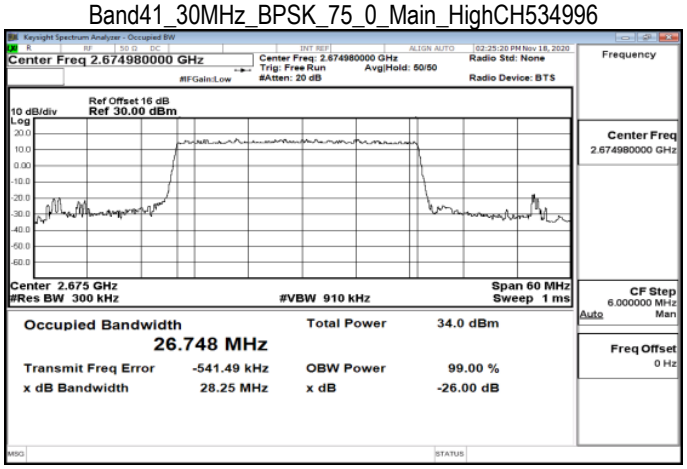
Band41_30MHz_BPSK_75_0_Main_MidCH518598



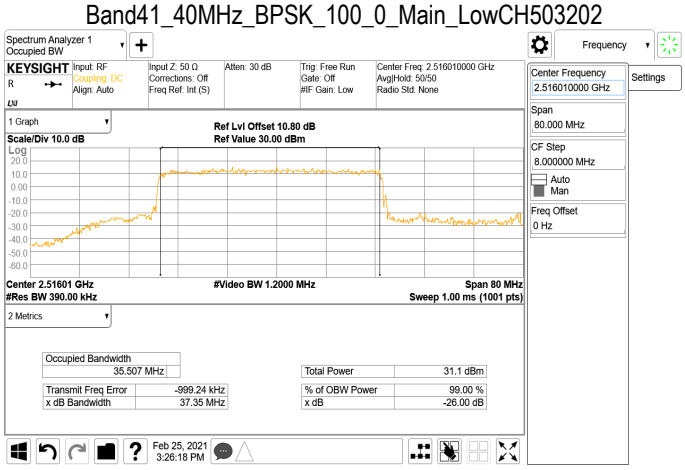
Band41_20MHz_BPSK_50_0_Main_HighCH535998



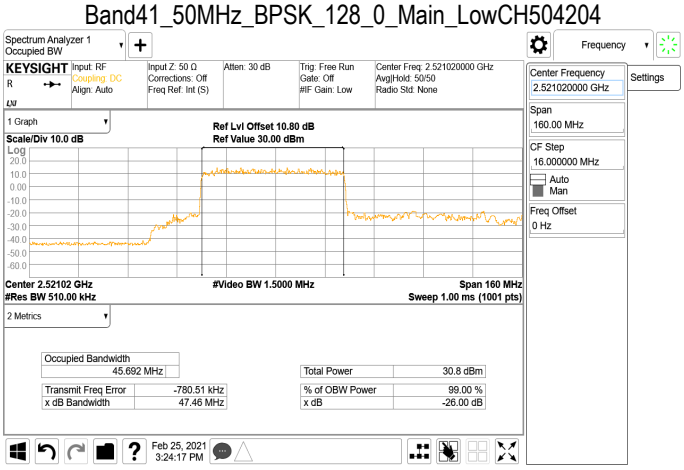
Band41_30MHz_BPSK_75_0_Main_HighCH534996



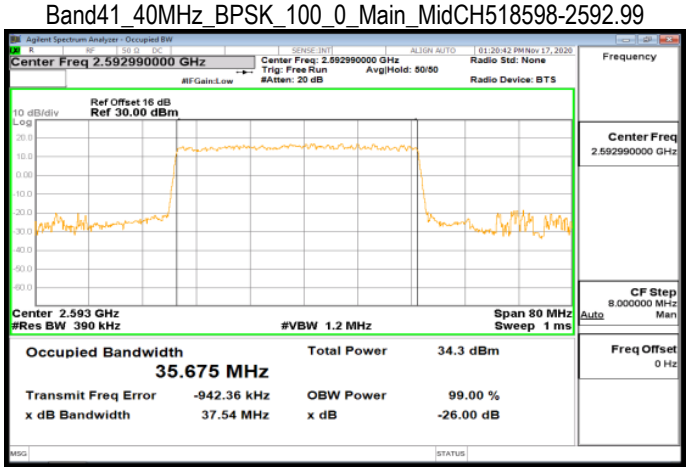
Band41_40MHz_BPSK_100_0_Main_LowCH503202



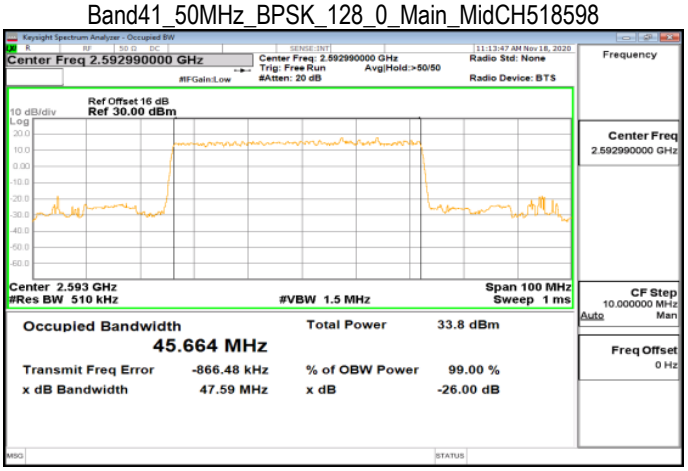
Band41_50MHz_BPSK_128_0_Main_LowCH504204



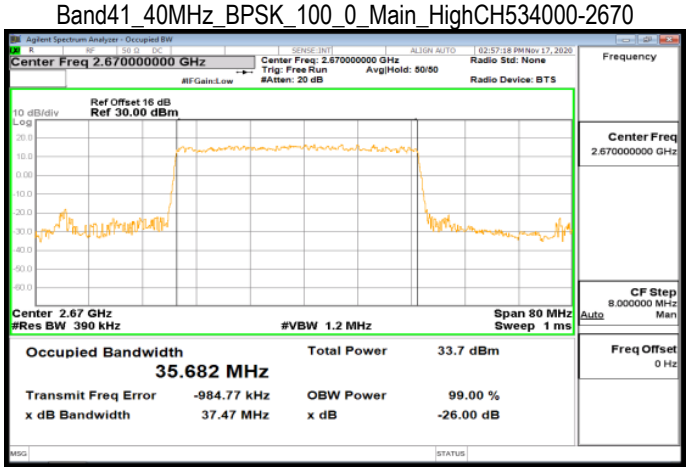
Band41_40MHz_BPSK_100_0_Main_MidCH518598-2592.99



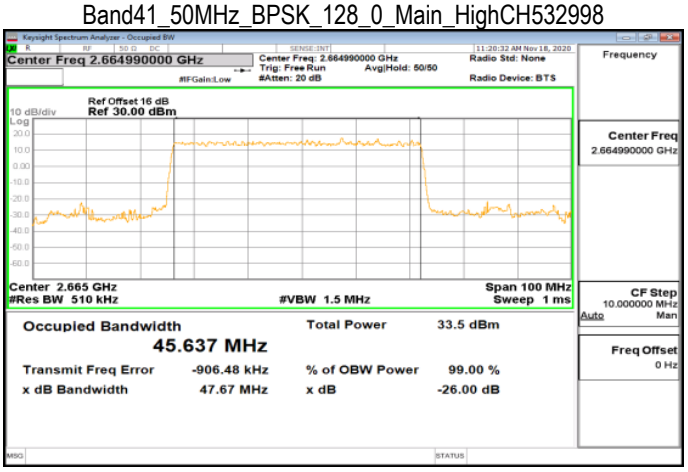
Band41_50MHz_BPSK_128_0_Main_MidCH518598



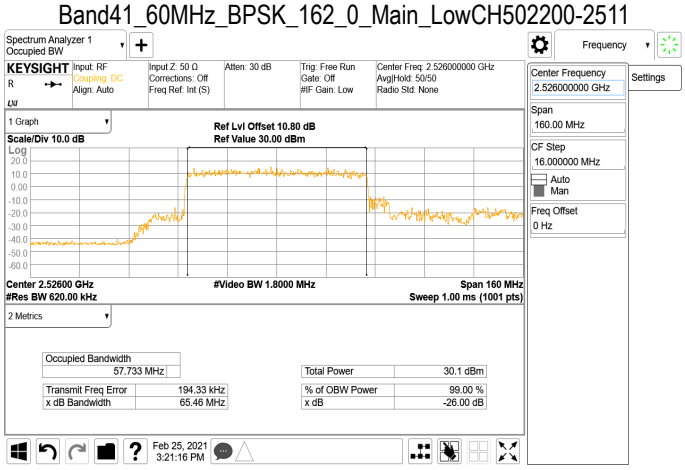
Band41_40MHz_BPSK_100_0_Main_HighCH534000-2670



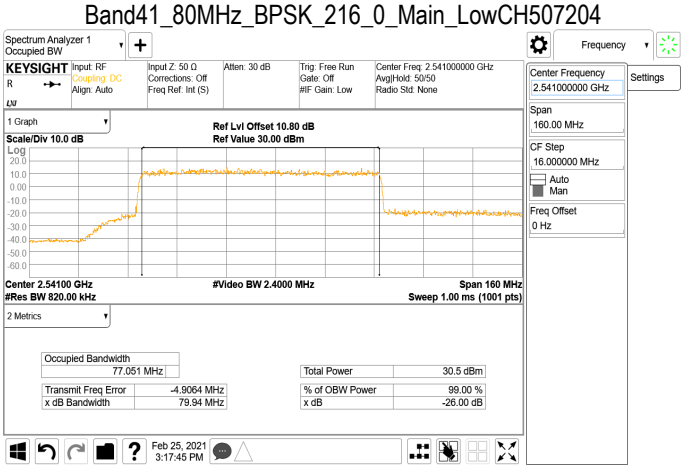
Band41_50MHz_BPSK_128_0_Main_HighCH532998



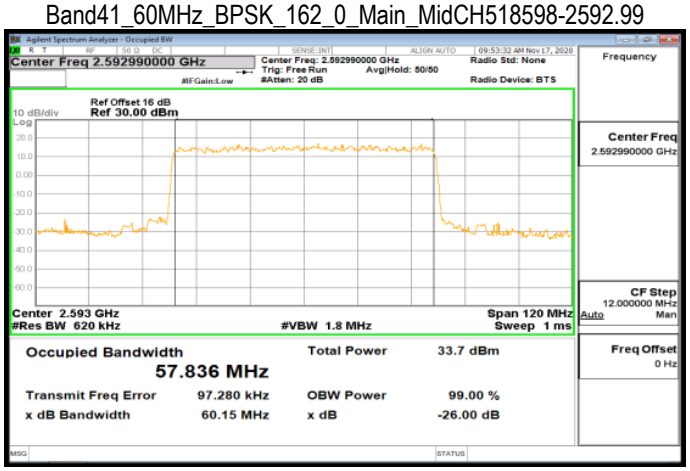
Band41_60MHz_BPSK_162_0_Main_LowCH502200-2511



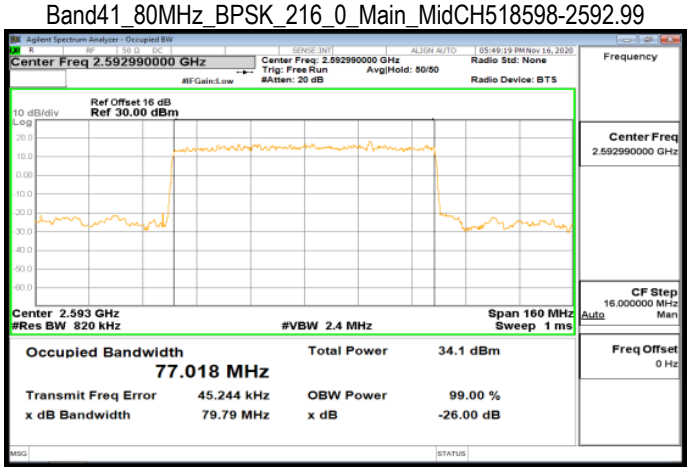
Band41_80MHz_BPSK_216_0_Main_LowCH507204



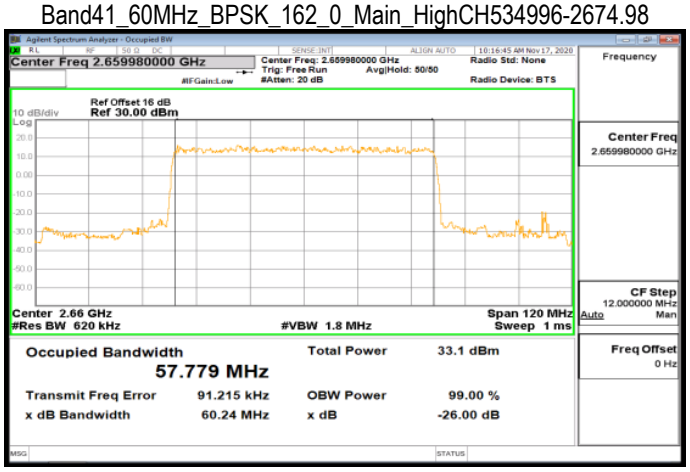
Band41_60MHz_BPSK_162_0_Main_MidCH518598-2592.99



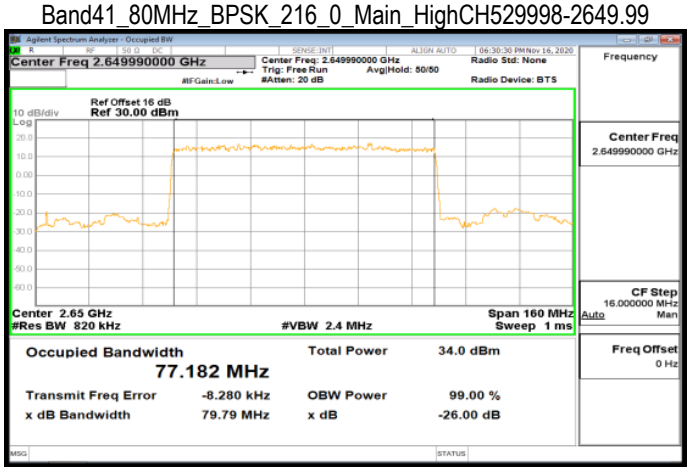
Band41_80MHz_BPSK_216_0_Main_MidCH518598-2592.99



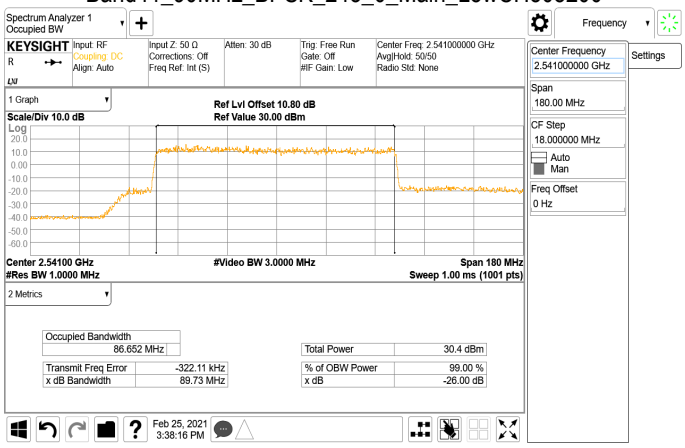
Band41_60MHz_BPSK_162_0_Main_HighCH534996-2674.98



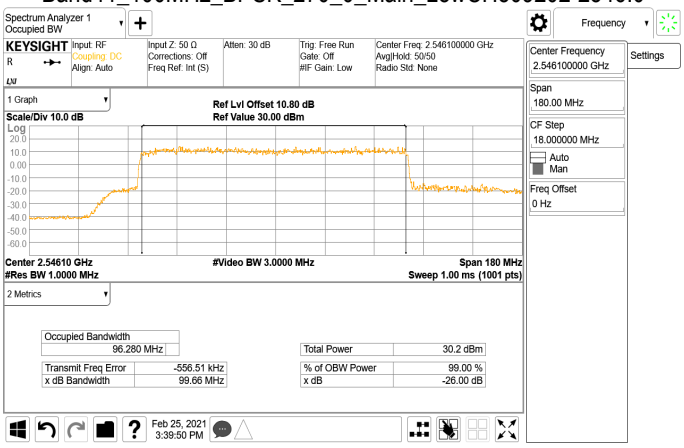
Band41_80MHz_BPSK_216_0_Main_HighCH529998-2649.99



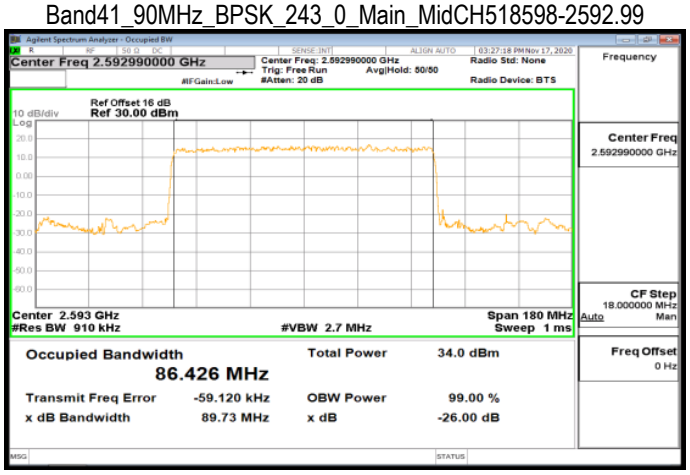
Band41_90MHz_BPSK_243_0_Main_LowCH508200



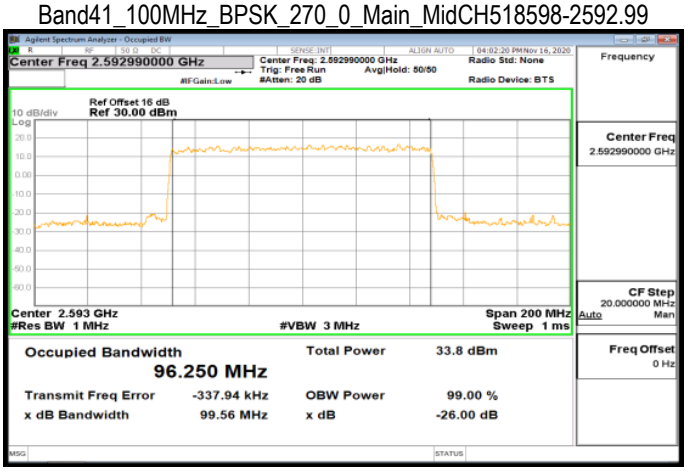
Band41_100MHz_BPSK_270_0_Main_LowCH509202-2546.0



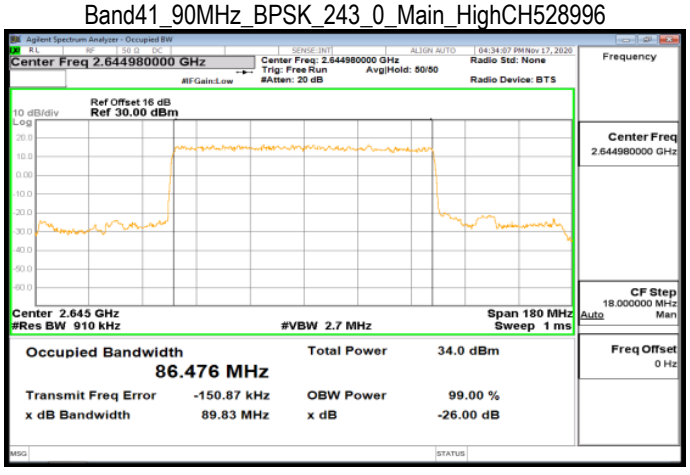
Band41_90MHz_BPSK_243_0_Main_MidCH518598-2592.99



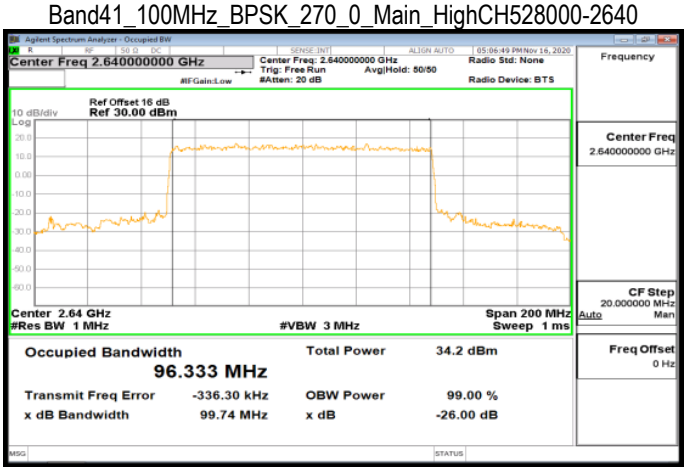
Band41_100MHz_BPSK_270_0_Main_MidCH518598-2592.99



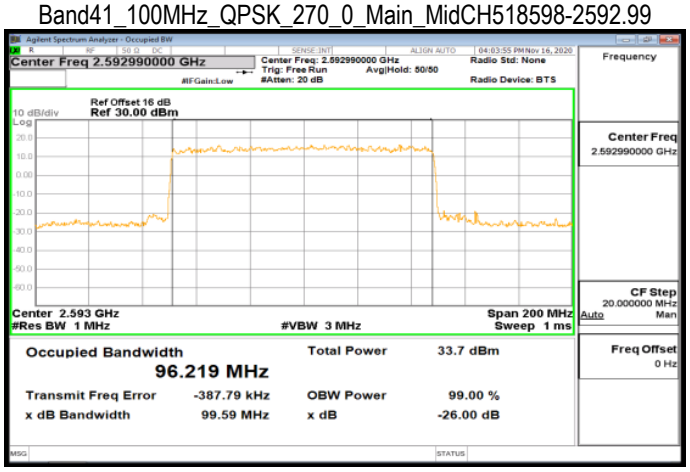
Band41_90MHz_BPSK_243_0_Main_HighCH528996



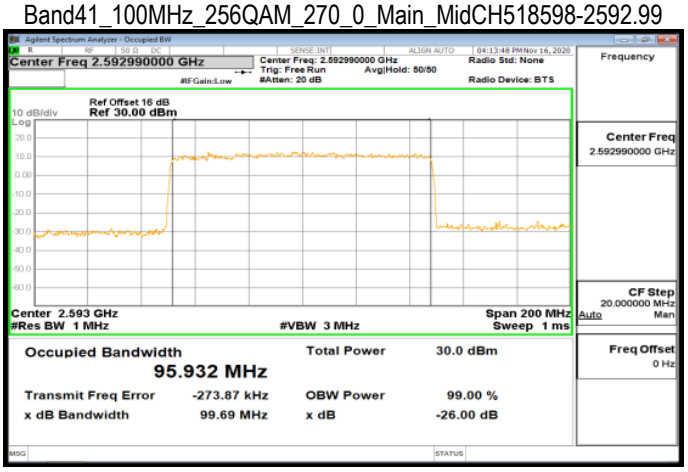
Band41_100MHz_BPSK_270_0_Main_HighCH528000-2640



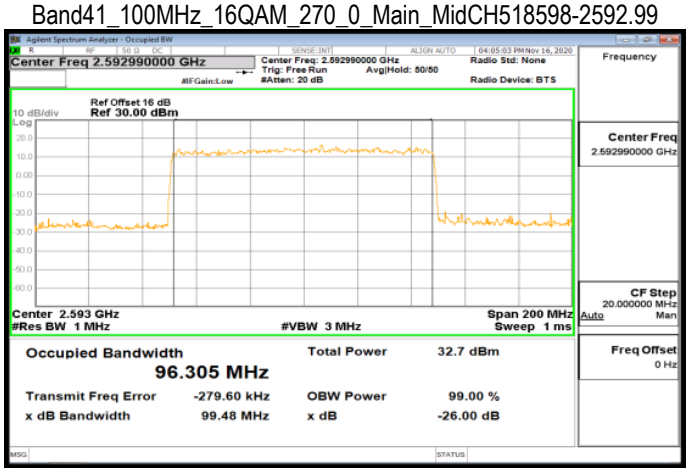
Band41_100MHz_QPSK_270_0_Main_MidCH518598-2592.99



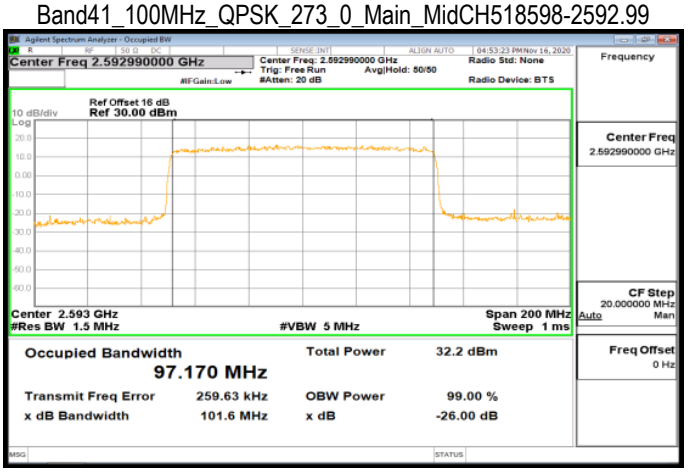
Band41_100MHz_256QAM_270_0_Main_MidCH518598-2592.99



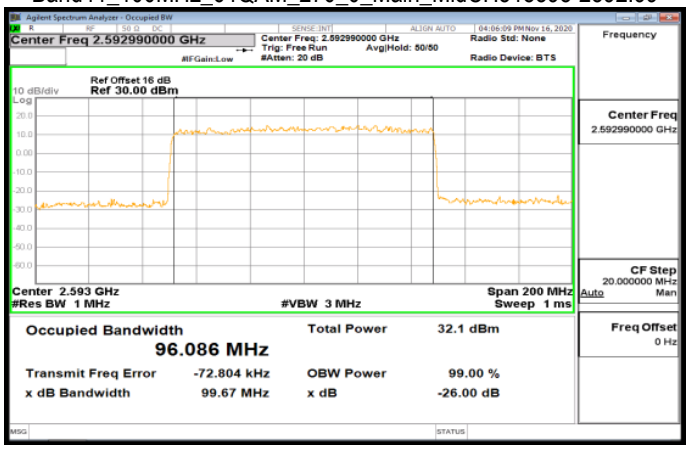
Band41_100MHz_16QAM_270_0_Main_MidCH518598-2592.99



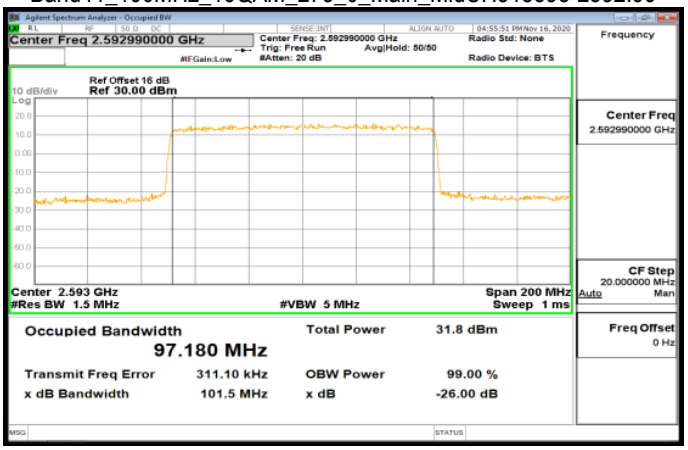
Band41_100MHz_QPSK_273_0_Main_MidCH518598-2592.99



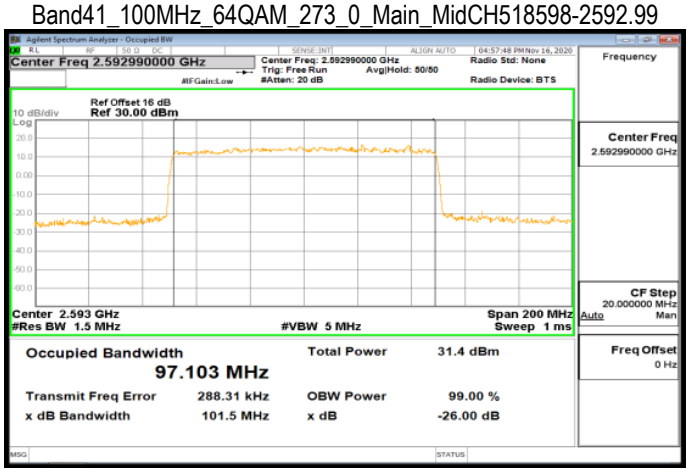
Band41_100MHz_64QAM_270_0_Main_MidCH518598-2592.99



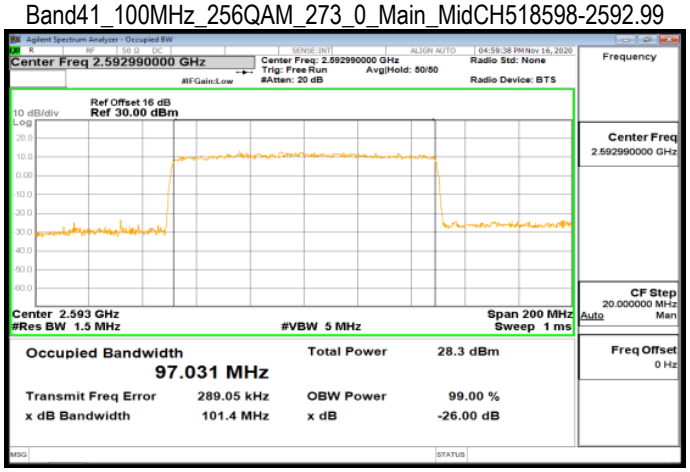
Band41_100MHz_16QAM_273_0_Main_MidCH518598-2592.99



Band41_100MHz_64QAM_273_0_Main_MidCH518598-2592.99



Band41_100MHz_256QAM_273_0_Main_MidCH518598-2592.99



8 OUT OF BAND EMISSION AT ANTENNA TERMINALS

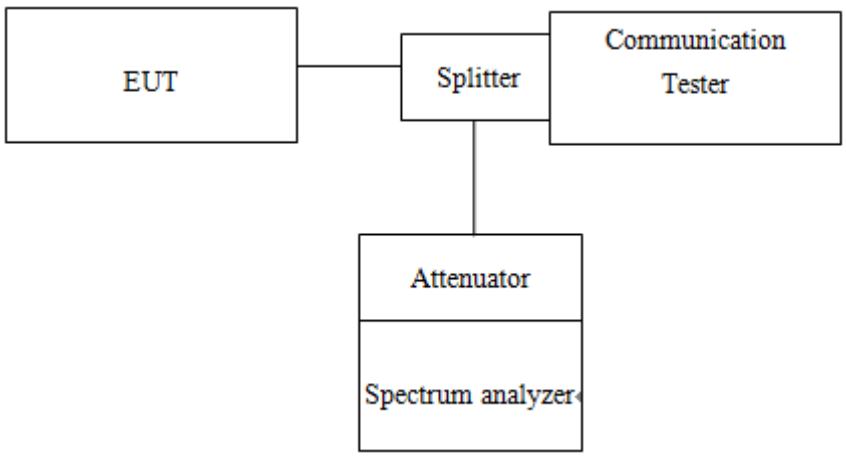
8.1 Standard Applicable

FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

8.2 Test SET-UP



8.3 Measurement Procedure

8.3.1 Conducted Emission

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

1. To connect Antenna Port of EUT to Spectrum.
2. Set RBW = 1MHz & VBW = 1MHz on Spectrum.
3. Allow trace to fully stabilize
4. Repeat above procedures until all default test channel measured were complete.

8.3.2 Band Edge

1. To connect Antenna Port of EUT to Spectrum.
2. The band edge of low and high channels for the highest RF powers was measured. Setting RBW ≥ 1% EBW.
3. The only N41 Band used RBW offset method and describe in C63.26 section 5.7.2 the corrertion factor is following:
   Corrcrtion factor = 10 log [(reference bandwidth 1MHz) / (measurement bandwidth 100KHz) =10dB
4. Allow trace to fully stabilize
5. Repeat above procedures until all default test channel measured were complete.

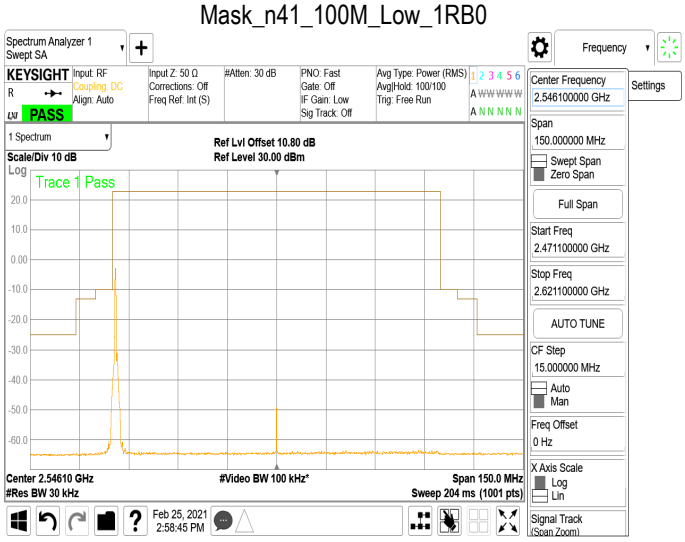
8.4 Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020
DC Block	PASTERNACK	PE8210	RF155	11/19/2020	11/18/2021
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/23/2020	07/22/2021
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/07/2020	07/06/2021
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	11/20/2019	11/19/2020
Splitter	Marvelous Microwave	MVE8586	RF259	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020
Attenuator	Marvelous	WATT-218FS-10	RF23	11/19/2020	11/18/2021
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59321566	12/17/2019	12/16/2020
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192629	12/09/2020	12/08/2021

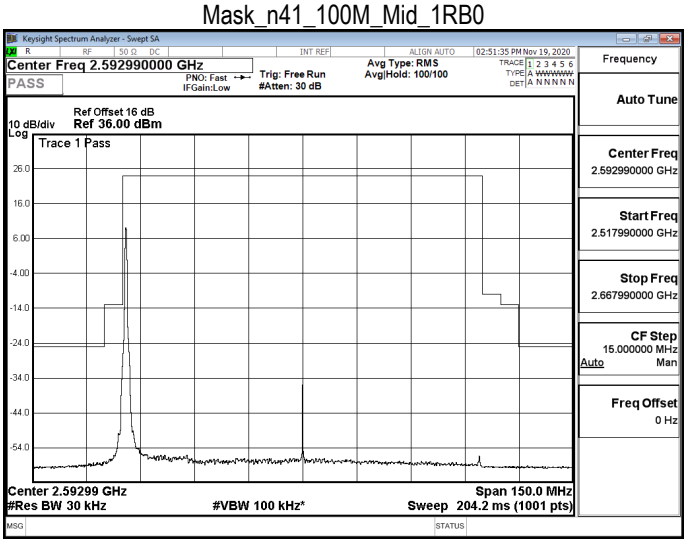
8.5 Measurement Result:

Refer to next page.

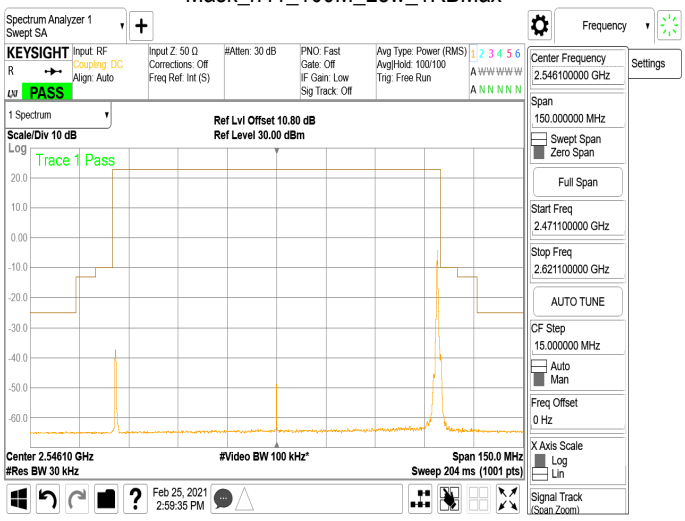
Mask_n41_100M_Low_1RB0



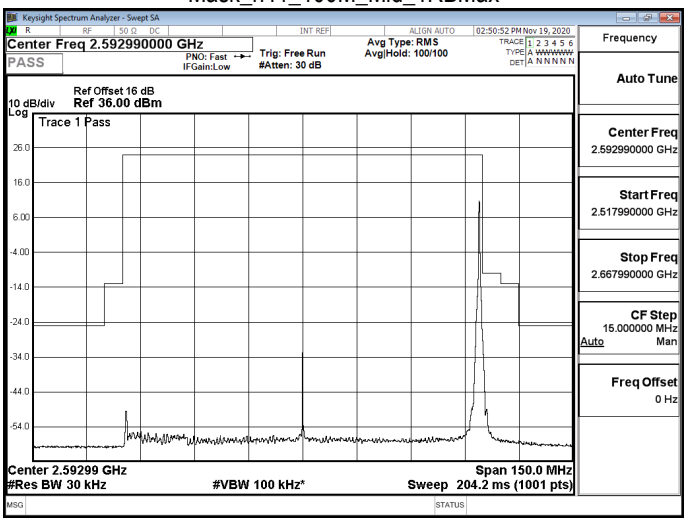
Mask_n41_100M_Mid_1RB0



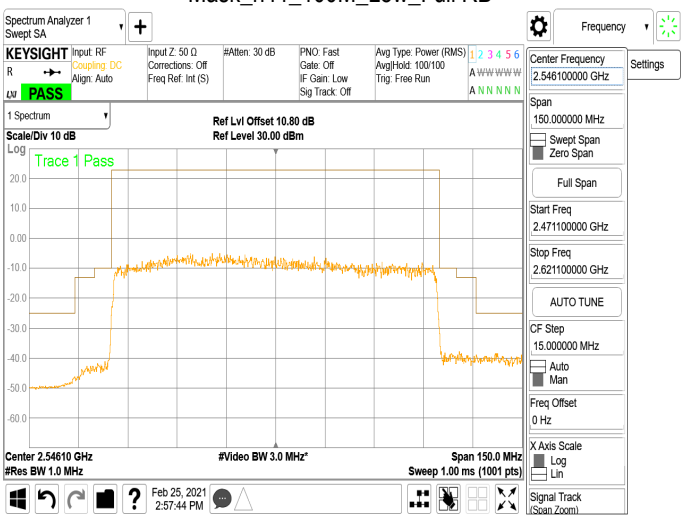
Mask_n41_100M_Low_1RBMax



Mask_n41_100M_Mid_1RBMax



Mask_n41_100M_Low_Full RB



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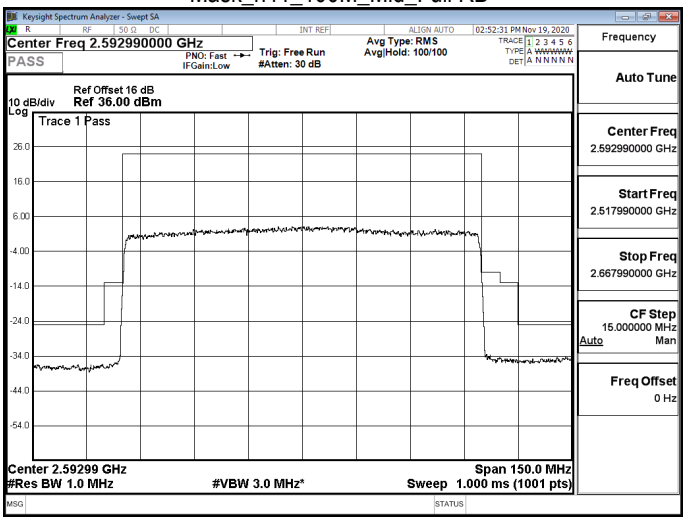
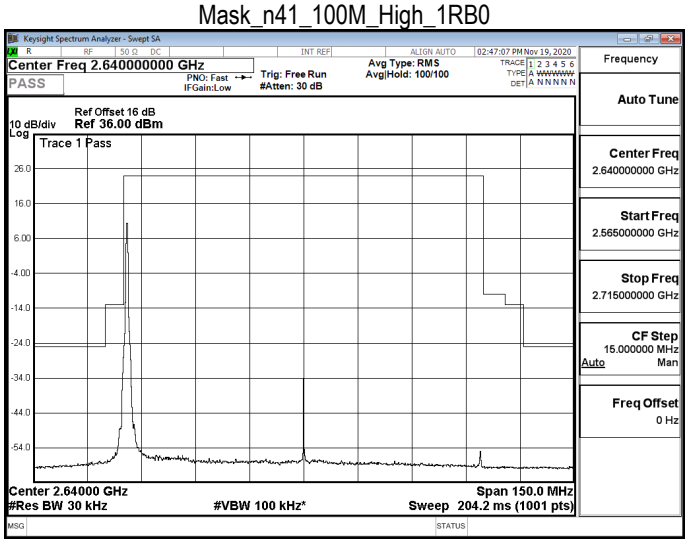
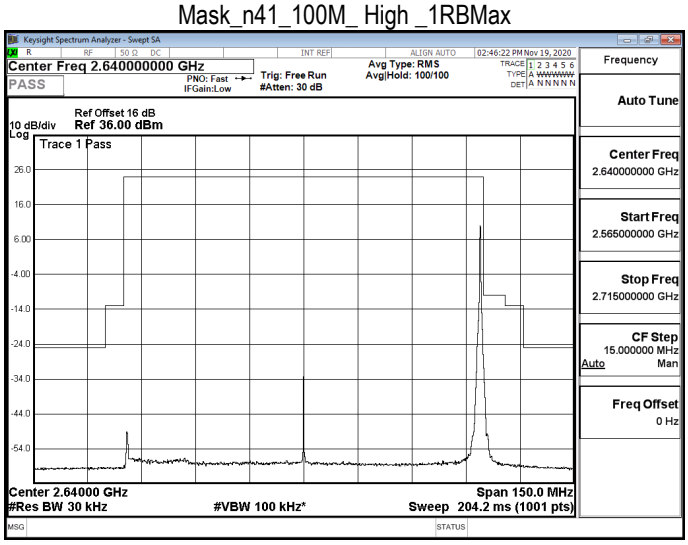


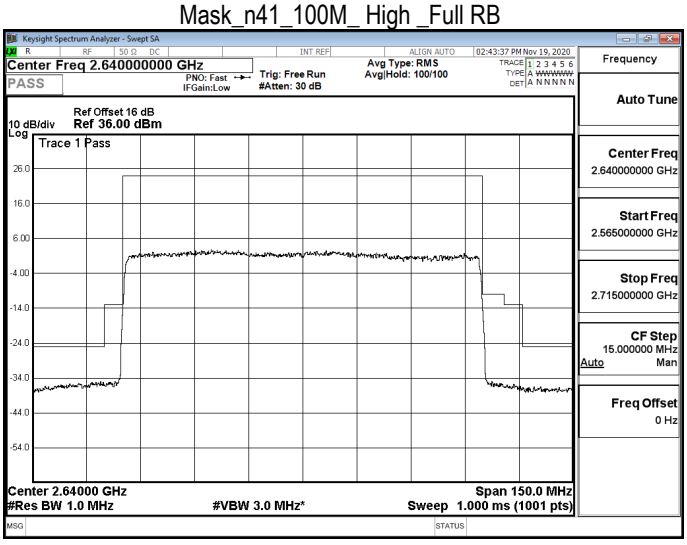
Mask_n41_100M_High_1RB0



Mask_n41_100M_ High _1RBMax



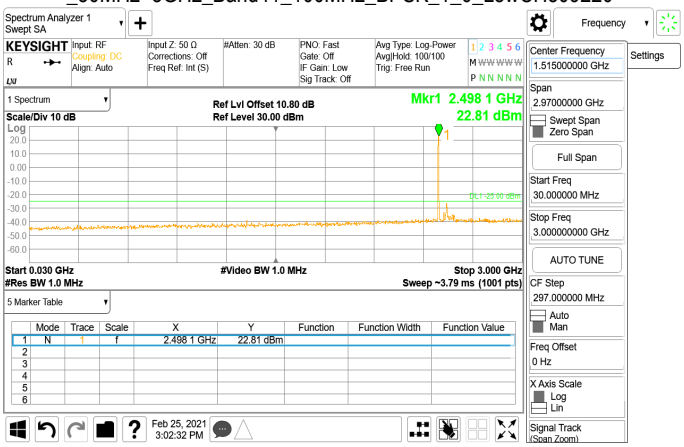
Mask_n41_100M_ High _Full RB



Spuriour Emission

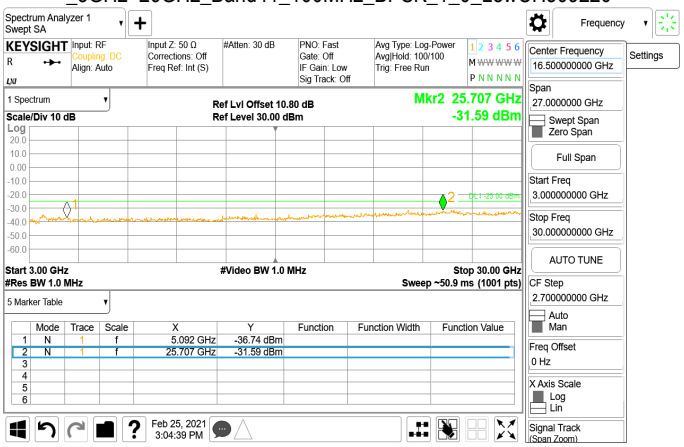
DFT-s-OFDM Pi/2

_30MHz~3GHz_Band41_100MHz_BPSK_1_0_LowCH509220



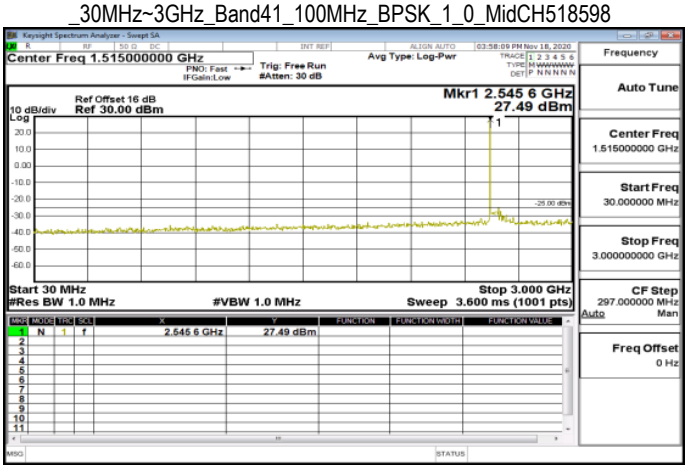
DFT-s-OFDM Pi/2

_3GHz~26GHz_Band41_100MHz_BPSK_1_0_LowCH509220



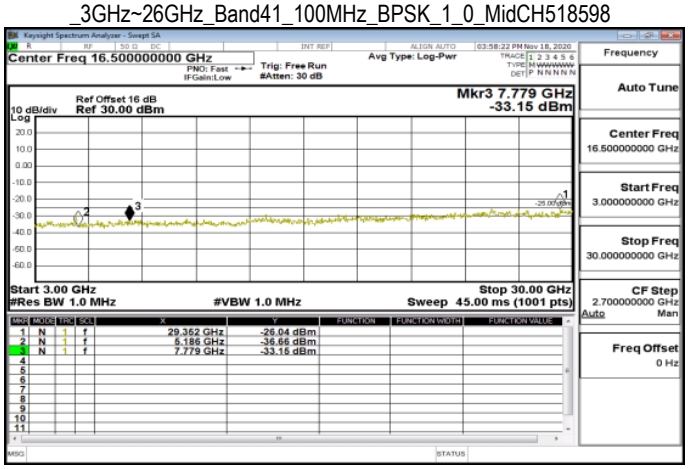
DFT-s-OFDM Pi/2

_30MHz~3GHz_Band41_100MHz_BPSK_1_0_MidCH518598



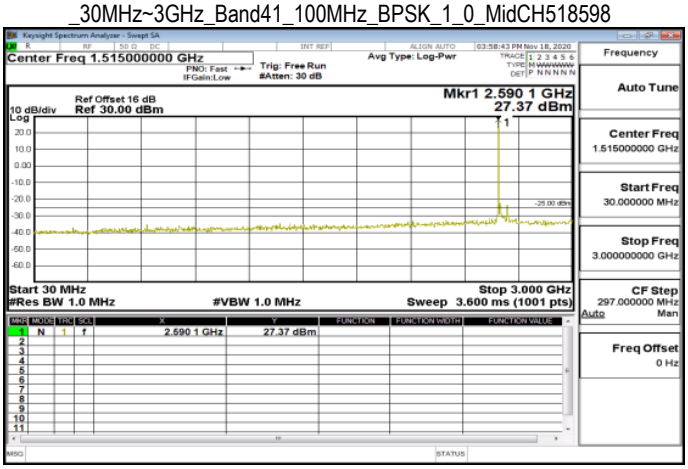
DFT-s-OFDM Pi/2

_3GHz~26GHz_Band41_100MHz_BPSK_1_0_MidCH518598



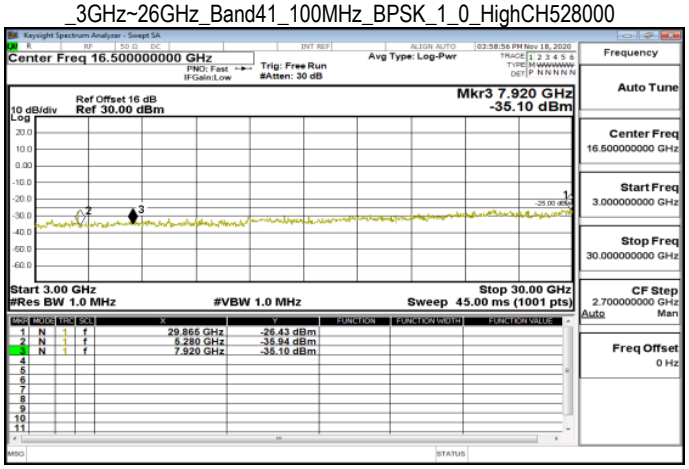
DFT-s-OFDM Pi/2

_30MHz~3GHz_Band41_100MHz_BPSK_1_0_MidCH518598



DFT-s-OFDM Pi/2

_3GHz~26GHz_Band41_100MHz_BPSK_1_0_HighCH528000



9 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

9.1 Standard Applicable

According to FCC §2.1053,

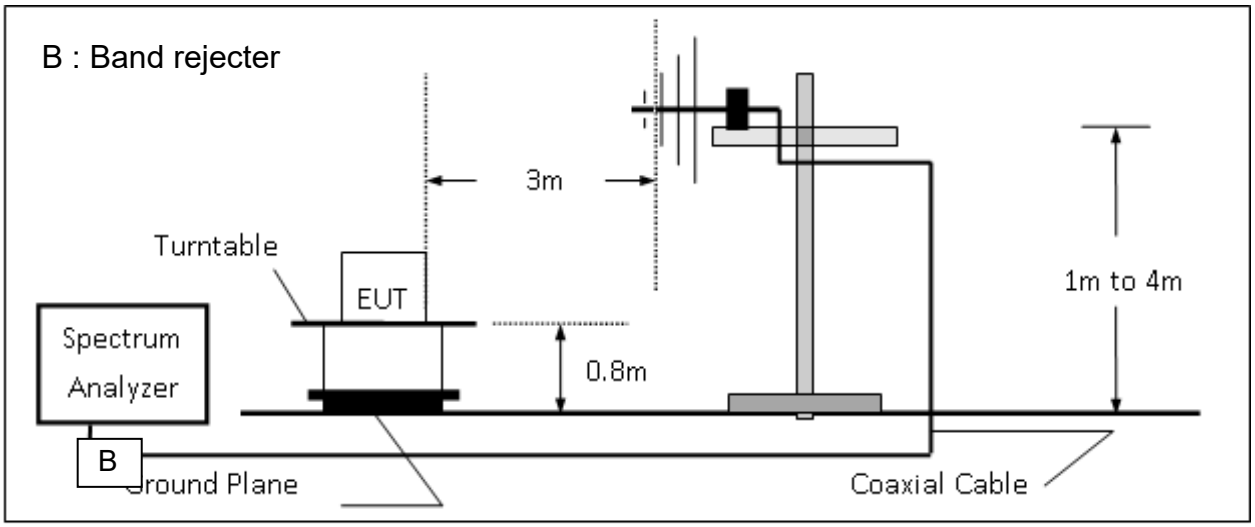
FCC §27.53(m) (4) (6)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

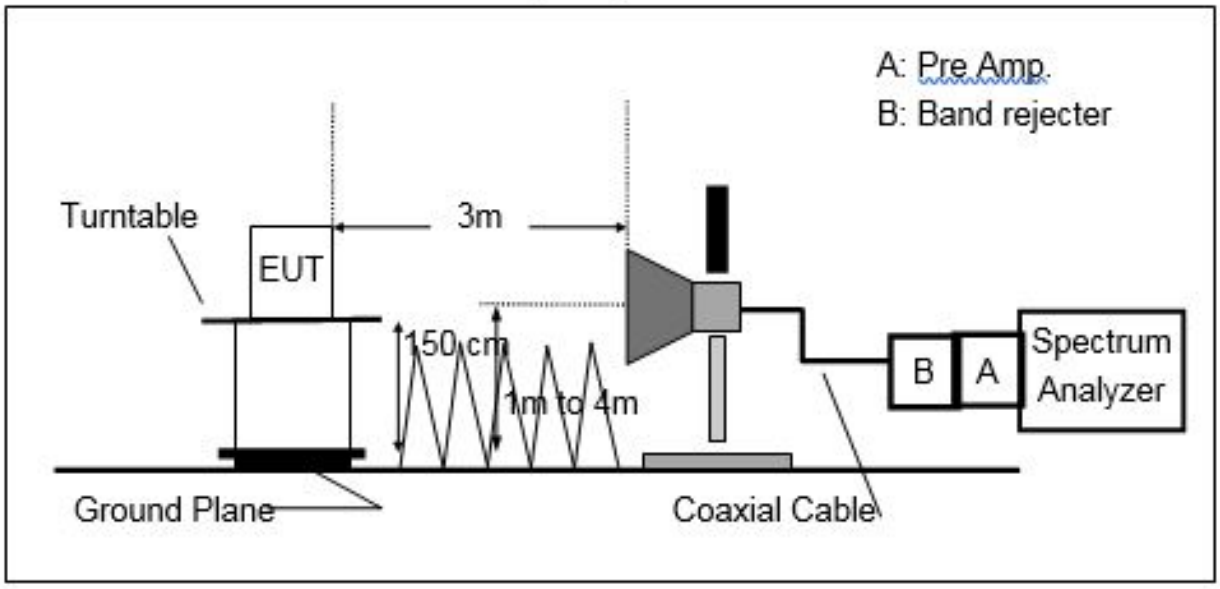
Measurement procedure. Compliance with these rules is based on the use of measurement nstrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



9.2 Measurement Procedure:

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

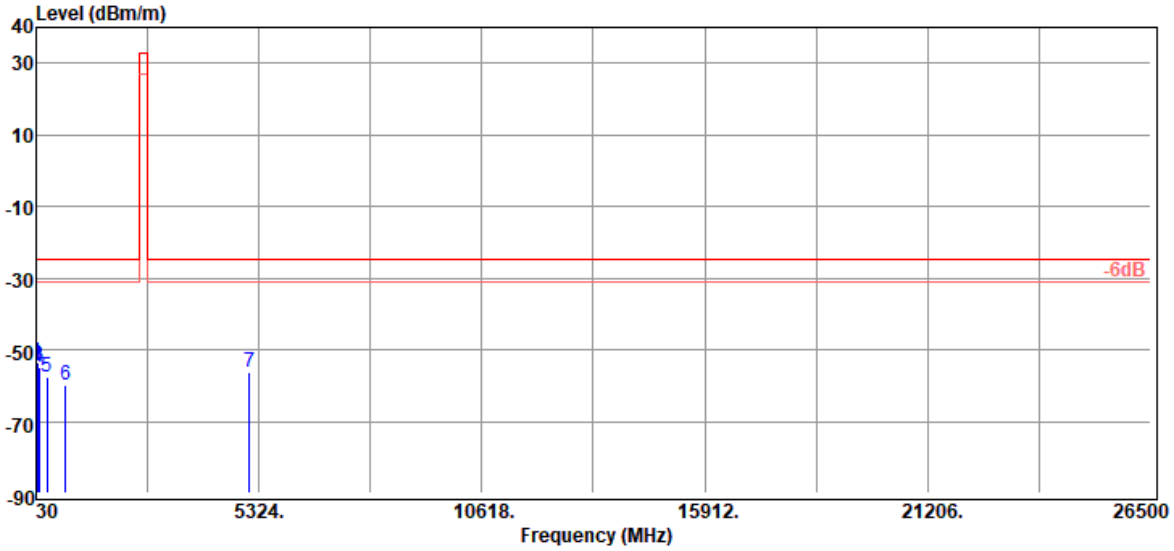
9.3 Measurement Equipment Used:

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
Broadband Antenna	TESEQ	CBL 6112D	35240	09/08/2020	09/07/2021
Horn Antenna	Schwarzbeck	BBHA9170	185	07/30/2020	07/29/2021
Horn Antenna	Schwarzbeck	BBHA9120D	1187	01/11/2021	01/10/2022
Loop Antenna	ETS.LINDGREN	6502	143303	04/28/2020	04/27/2021
EMI Test Receiver	R&S	ESU 40	100363	04/29/2020	04/28/2021
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192629	12/09/2020	12/08/2021
Pre-Amplifier	EMC Instruments	EMC330	980096	11/20/2019	11/19/2020
Pre-Amplifier	EMC Instruments	EMC330	980096	11/19/2020	11/18/2021
Pre-Amplifier	EMC Instruments	EMC0011830	980199	11/20/2019	11/19/2020
Pre-Amplifier	EMC Instruments	EMC0011830	980199	11/19/2020	11/18/2021
Pre-Amplifier	EMC Instruments	EMC184045B	980135	11/20/2019	11/19/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2020	10/26/2021
Notch Filter	Woken	EWT-54-0037	RF177	11/19/2020	11/18/2021
High Pass Filter	R&S	F13 HPF 3GHz	RF175	11/19/2020	11/18/2021
High Pass Filter	WI	WHKX2.2/18G	RF189	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	EMC106-SM-SM-9 100	150704	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17413/4	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/20/2019	11/19/2020
Coaxial Cable	Huber Suhner	SUCOFLEX 104	MY17388/4	11/19/2020	11/18/2021
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/20/2019	11/19/2020
Coaxial Cable	Huber Suhner	RG 214/U	W22.03	11/19/2020	11/18/2021

9.4 Measurement Result:

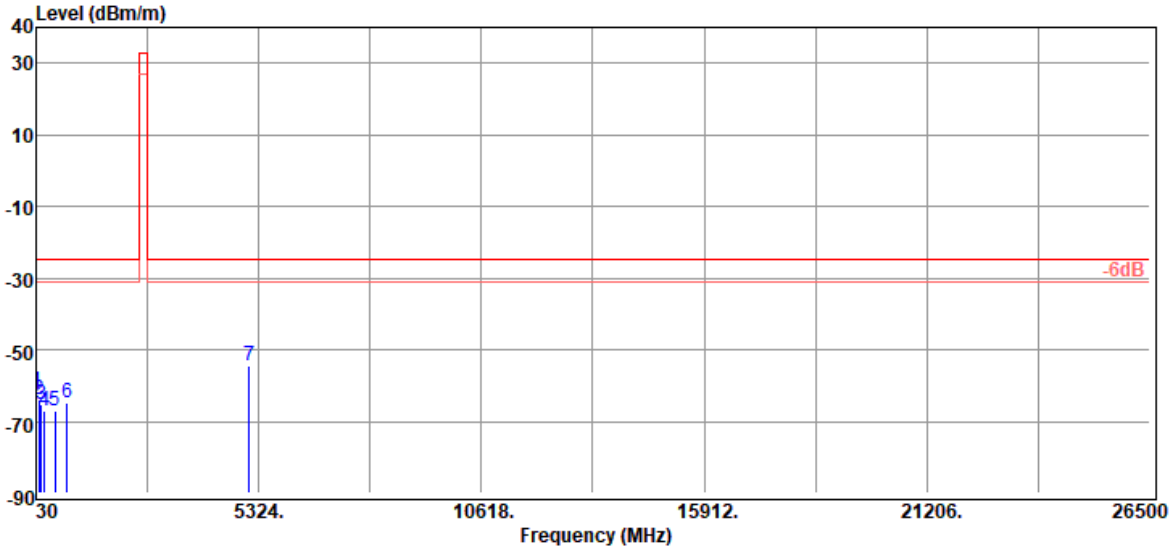
Radiated Spurious Emission Measurement Result: SA n41A

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH LOW	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:VERTICAL
Test Frequency	:2546.1 MHz	Engineer	:Ashton Chiu



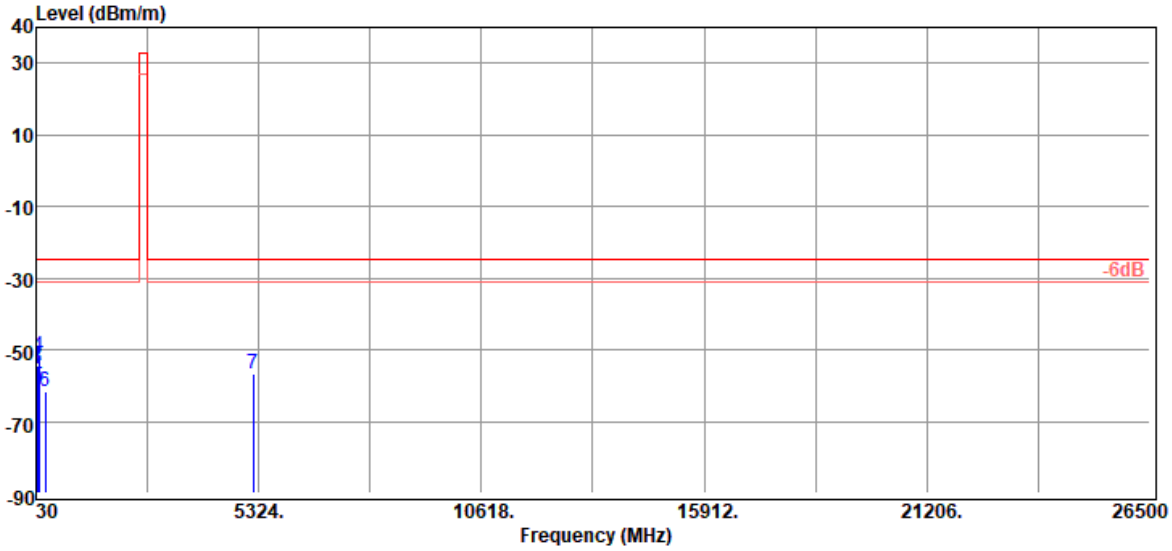
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
58.13	-53.46	-36.75	-15.74	-0.97	-25.00	-28.46
65.89	-54.59	-40.29	-13.30	-1.00	-25.00	-29.59
78.50	-54.64	-44.66	-8.84	-1.14	-25.00	-29.64
90.14	-55.03	-47.92	-5.95	-1.16	-25.00	-30.03
296.75	-57.80	-53.76	-1.53	-2.51	-25.00	-32.80
719.67	-60.00	-54.71	-1.39	-3.90	-25.00	-35.00
5092.20	-56.09	-56.83	12.40	-11.66	-25.00	-31.09

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH LOW	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:HORIZONTAL
Test Frequency	:2546.1 MHz	Engineer	:Ashton Chiu



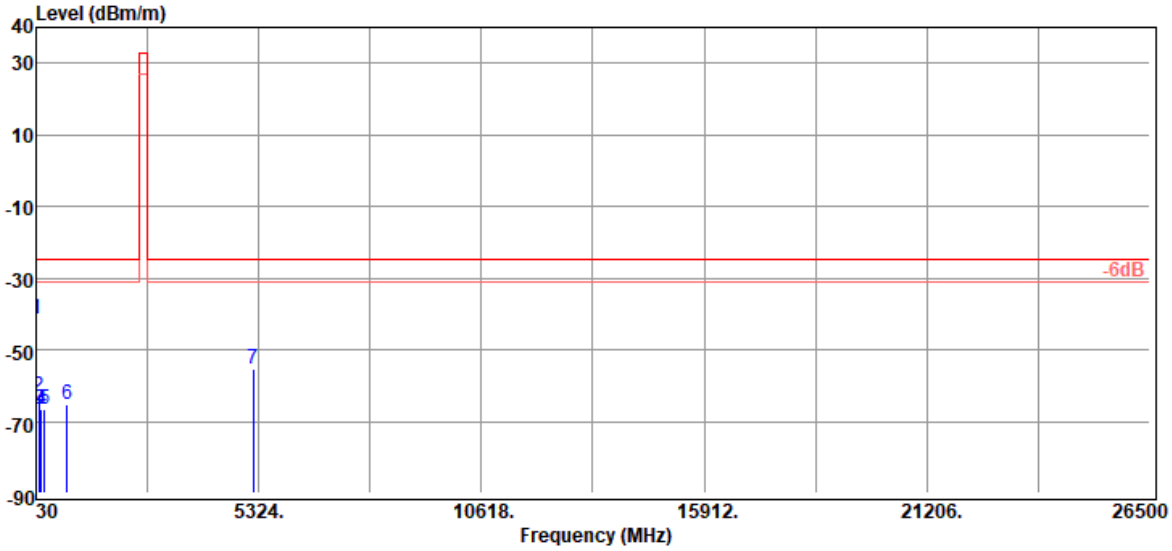
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-61.56	-41.01	-19.84	-0.71	-25.00	-36.56
93.05	-63.79	-56.81	-5.77	-1.21	-25.00	-38.79
155.13	-65.13	-56.24	-7.21	-1.68	-25.00	-40.13
240.49	-66.88	-62.82	-1.83	-2.23	-25.00	-41.88
479.11	-67.13	-62.78	-1.24	-3.11	-25.00	-42.13
772.05	-65.03	-59.09	-1.59	-4.35	-25.00	-40.03
5092.20	-54.36	-55.10	12.40	-11.66	-25.00	-29.36

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH MID	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:VERTICAL
Test Frequency	:2592.99 MHz	Engineer	:Ashton Chiu



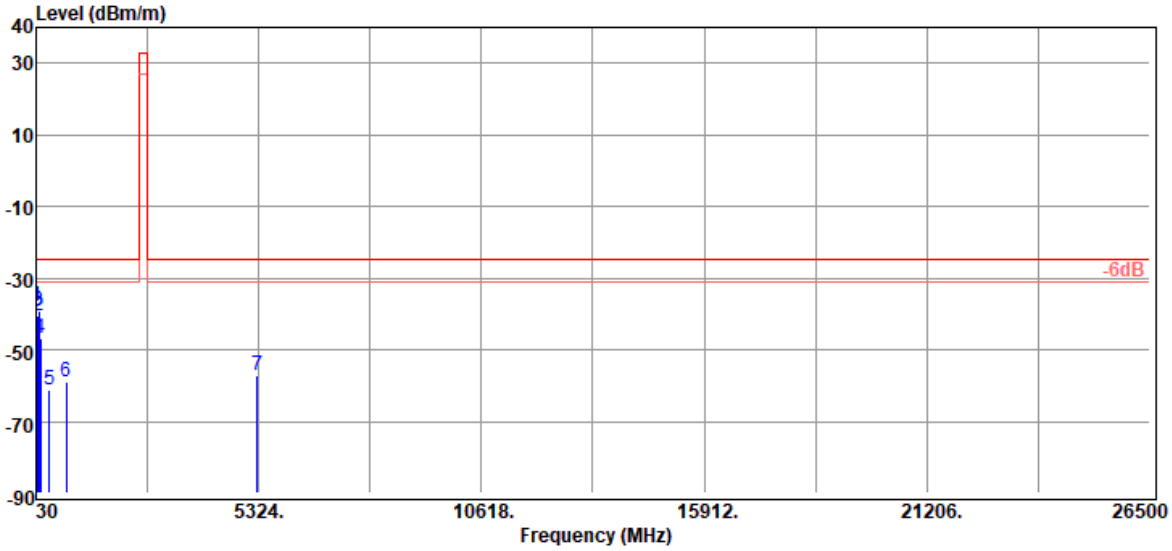
Freq.	EIRP/ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Margin
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
36.79	-55.55	-35.34	-19.43	-0.78	-25.00	-30.55
51.34	-54.61	-36.40	-17.33	-0.88	-25.00	-29.61
64.92	-54.81	-40.10	-13.71	-1.00	-25.00	-29.81
92.08	-51.91	-44.95	-5.76	-1.20	-25.00	-26.91
102.75	-60.50	-52.66	-6.48	-1.36	-25.00	-35.50
256.98	-61.68	-57.90	-1.52	-2.26	-25.00	-36.68
5185.98	-56.82	-57.50	12.64	-11.96	-25.00	-31.82

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH MID	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:HORIZONTAL
Test Frequency	:2592.99 MHz	Engineer	:Ashton Chiu



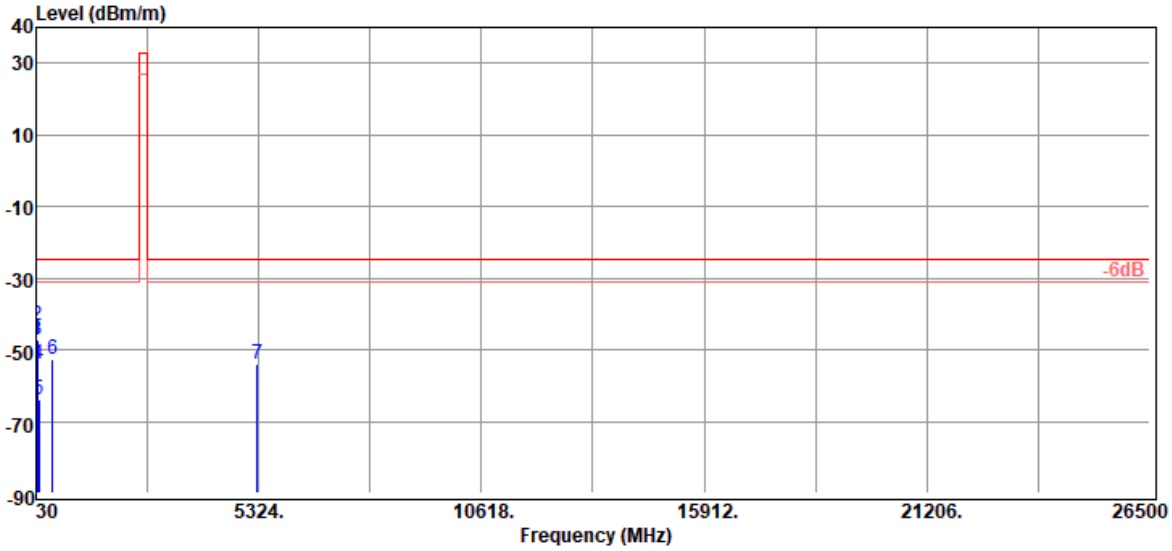
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-41.22	-21.07	-19.35	-0.80	-25.00	-16.22
88.20	-63.03	-55.56	-6.31	-1.16	-25.00	-38.03
119.24	-66.72	-58.23	-7.04	-1.45	-25.00	-41.72
155.13	-66.76	-57.87	-7.21	-1.68	-25.00	-41.76
239.52	-66.49	-62.43	-1.83	-2.23	-25.00	-41.49
772.05	-65.06	-59.12	-1.59	-4.35	-25.00	-40.06
5185.98	-55.29	-55.97	12.64	-11.96	-25.00	-30.29

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH HIGH	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:VERTICAL
Test Frequency	:2640 MHz	Engineer	:Ashton Chiu



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-37.85	-17.70	-19.35	-0.80	-25.00	-12.85
76.56	-40.67	-30.08	-9.49	-1.10	-25.00	-15.67
104.69	-39.26	-31.09	-6.78	-1.39	-25.00	-14.26
133.79	-47.02	-37.97	-7.39	-1.66	-25.00	-22.02
345.25	-61.16	-57.08	-1.47	-2.61	-25.00	-36.16
747.80	-58.89	-53.08	-1.62	-4.19	-25.00	-33.89
5280.00	-56.97	-58.41	13.22	-11.78	-25.00	-31.97

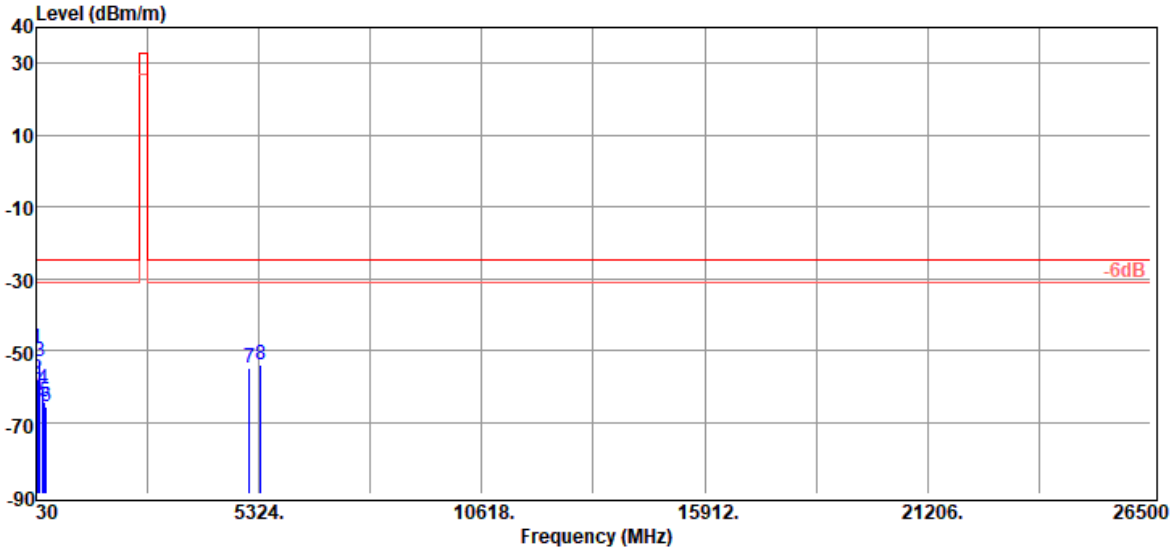
Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:n41a	Test Date	:2020-02-25
Test Mode	:TX CH HIGH	Temp./Humi.	:23.3/60
EUT Pol	:E2 Plan	Antenna Pol.	:HORIZONTAL
Test Frequency	:2640 MHz	Engineer	:Ashton Chiu



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
42.61	-46.92	-27.25	-18.81	-0.86	-25.00	-21.92
48.43	-43.16	-24.41	-17.89	-0.86	-25.00	-18.16
62.01	-47.30	-31.71	-14.59	-1.00	-25.00	-22.30
68.80	-53.85	-40.40	-12.45	-1.00	-25.00	-28.85
93.05	-63.71	-56.73	-5.77	-1.21	-25.00	-38.71
423.82	-52.54	-48.06	-1.35	-3.13	-25.00	-27.54
5280.00	-54.19	-55.63	13.22	-11.78	-25.00	-29.19

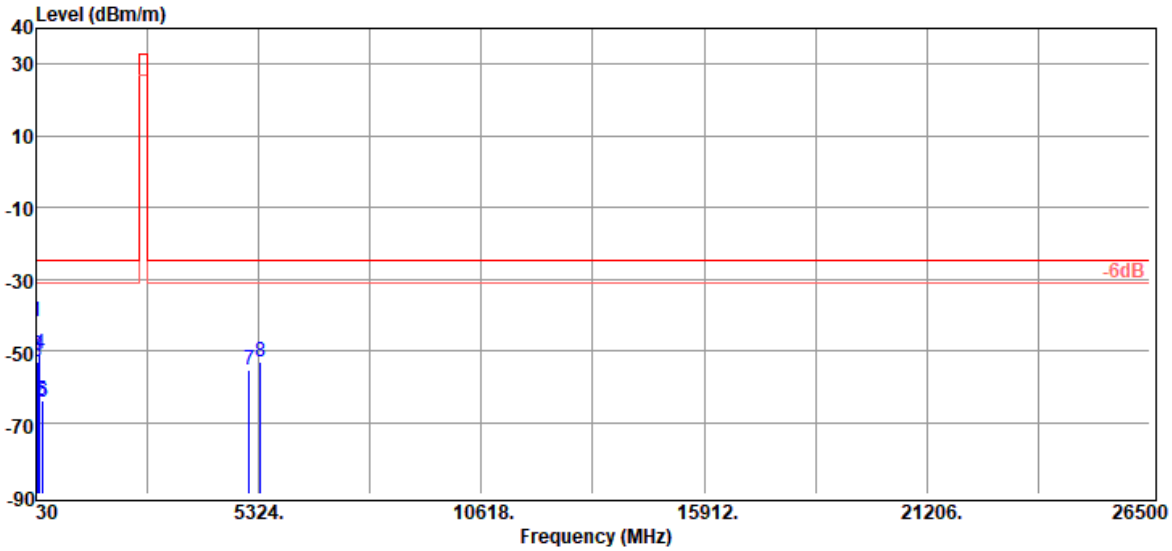
Radiated Spurious Emission Measurement Result: DC_41A_n41A

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:41A+n41	Test Date	:2021-02-25
Test Mode	:TX CH HIGH + TX CH LOW	Temp./Humi.	:23.3/59
EUT Pol	:E2 Plan	Antenna Pol.	:VERTICAL
Test Frequency	:2680 MHz + 2546.1 MHz	Engineer	:Ashton Chiu



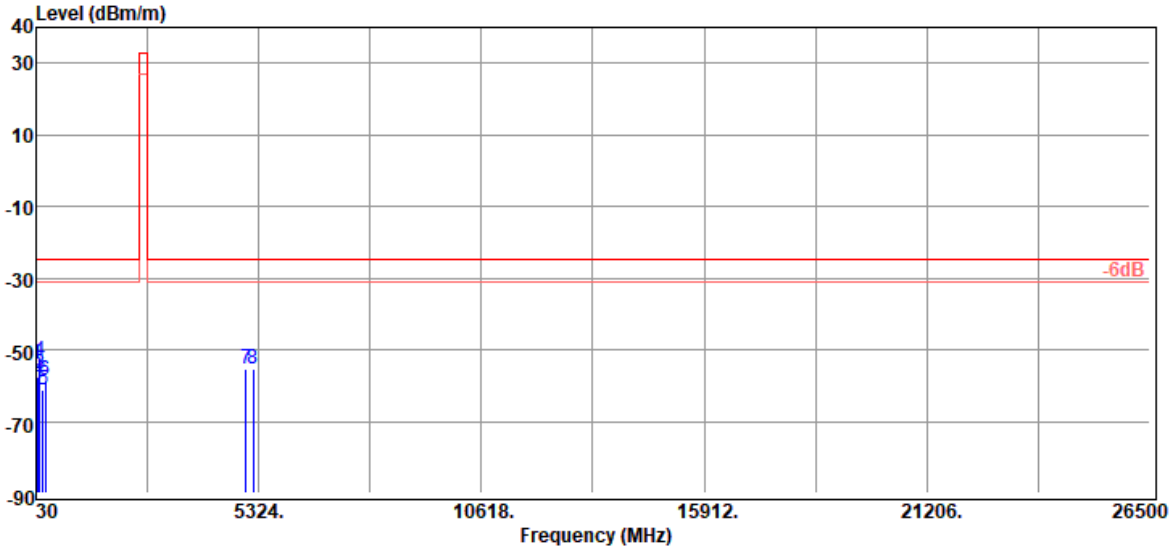
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-49.36	-28.96	-19.64	-0.76	-25.00	-24.36
61.04	-58.17	-42.25	-14.92	-1.00	-25.00	-33.17
118.27	-53.28	-44.75	-7.08	-1.45	-25.00	-28.28
197.81	-60.73	-56.46	-2.24	-2.03	-25.00	-35.73
239.52	-64.23	-60.17	-1.83	-2.23	-25.00	-39.23
272.50	-65.51	-61.57	-1.63	-2.31	-25.00	-40.51
5092.20	-54.87	-55.61	12.40	-11.66	-25.00	-29.87
5360.00	-54.00	-55.98	13.46	-11.48	-25.00	-29.00

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:41A+n41	Test Date	:2021-02-25
Test Mode	:TX CH HIGH + TX CH LOW	Temp./Humi.	:23.3/59
EUT Pol	:E2 Plan	Antenna Pol.	:HORIZONTAL
Test Frequency	:2680 MHz + 2546.1 MHz	Engineer	:Ashton Chiu



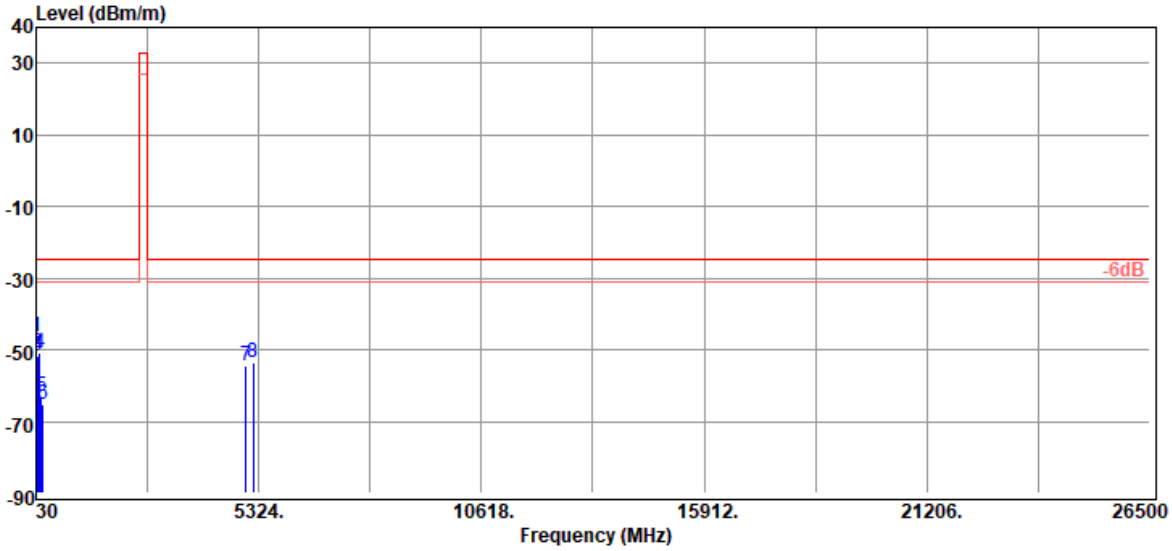
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-41.82	-21.27	-19.84	-0.71	-25.00	-16.82
47.46	-51.42	-32.49	-18.07	-0.86	-25.00	-26.42
61.04	-53.12	-37.20	-14.92	-1.00	-25.00	-28.12
117.30	-50.64	-42.10	-7.09	-1.45	-25.00	-25.64
167.74	-63.83	-55.65	-6.45	-1.73	-25.00	-38.83
201.69	-64.22	-60.09	-2.05	-2.08	-25.00	-39.22
5092.20	-55.19	-55.93	12.40	-11.66	-25.00	-30.19
5360.00	-53.12	-55.10	13.46	-11.48	-25.00	-28.12

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:41A+n41	Test Date	:2021-02-25
Test Mode	:TX CH LOW + TX CH HIGH	Temp./Humi.	:23.3/59
EUT Pol	:E2 Plan	Antenna Pol.	:VERTICAL
Test Frequency	:2506 MHz + 2592.99 MHz	Engineer	:Ashton Chiu



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
47.46	-54.17	-35.24	-18.07	-0.86	-25.00	-29.17
60.07	-57.47	-41.21	-15.26	-1.00	-25.00	-32.47
106.63	-56.55	-48.23	-6.91	-1.41	-25.00	-31.55
118.27	-53.17	-44.64	-7.08	-1.45	-25.00	-28.17
197.81	-61.01	-56.74	-2.24	-2.03	-25.00	-36.01
252.13	-58.74	-54.95	-1.55	-2.24	-25.00	-33.74
5012.00	-55.17	-56.22	12.48	-11.43	-25.00	-30.17
5185.98	-55.29	-55.97	12.64	-11.96	-25.00	-30.29

Report Number	:E2/2019/A0033-01	Test Site	:966 Chamber C
Operation Mode	:41A+n41	Test Date	:2021-02-25
Test Mode	:TX CH LOW + TX CH HIGH	Temp./Humi.	:23.3/59
EUT Pol	:E2 Plan	Antenna Pol.	:HORIZONTAL
Test Frequency	:2506 MHz + 2592.99 MHz	Engineer	:Ashton Chiu



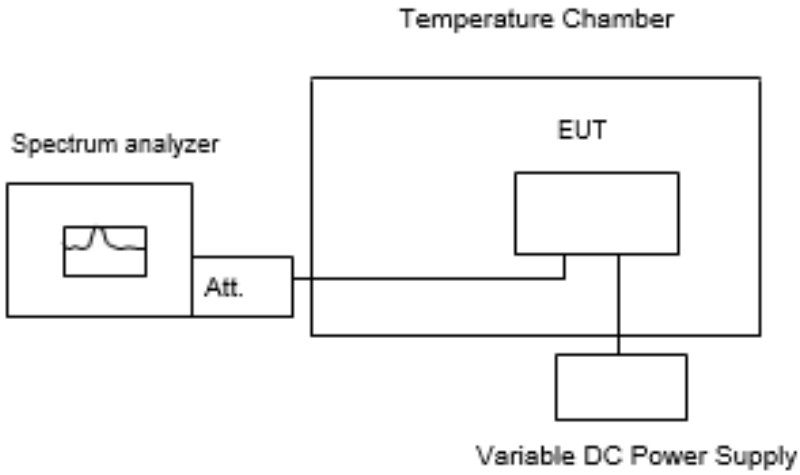
Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-46.39	-25.84	-19.84	-0.71	-25.00	-21.39
47.46	-50.78	-31.85	-18.07	-0.86	-25.00	-25.78
61.04	-51.63	-35.71	-14.92	-1.00	-25.00	-26.63
117.30	-50.80	-42.26	-7.09	-1.45	-25.00	-25.80
163.86	-63.07	-54.71	-6.66	-1.70	-25.00	-38.07
197.81	-65.04	-60.77	-2.24	-2.03	-25.00	-40.04
5012.00	-54.58	-55.63	12.48	-11.43	-25.00	-29.58
5185.98	-53.51	-54.19	12.64	-11.96	-25.00	-28.51

10 FREQUENCY STABILITY MEASUREMENT

10.1 Standard Applicabl

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

10.2 Test Set-up



Note: *Measurement setup for testing on Antenna connector*

10.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 25℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

10.4 Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
DC Block	PASTERNACK	PE8210	RF32	11/20/2019	11/19/2020
DC Block	PASTERNACK	PE8210	RF155	11/19/2020	11/18/2021
Spectrum Analyzer	KEYSIGHT	N9010A	MY51440113	07/23/2020	07/22/2021
Spectrum Analyzer	KEYSIGHT	N9010B	MY59071574	06/24/2020	06/23/2021
Temperature Chamber	TERCHY	MHK-120LK	1020582	07/07/2020	07/06/2021
Splitter	RF-LAMBAD	RFLT2W1G18G	RF35	11/20/2019	11/19/2020
Splitter	Marvelous Micro-wave	MVE8586	RF259	11/19/2020	11/18/2021
Attenuator	Marvelous	MVE2213-10	RF31	11/20/2019	11/19/2020
Attenuator	Marvelous	WATT-218FS-10	RF23	11/19/2020	11/18/2021
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59321566	12/17/2019	12/16/2020
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192629	12/09/2020	12/08/2021

10.5 Measurement Result

Reference Freq.:	n41A Mid 100M CH 518598 Channel		2592.99	100MHz DFT-S-OFDM
Power Supply Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
3.465	25	2592.990026	26	6338
3.3	25	2592.990014	14	6338
3.135	25	2592.990018	18	6338
2.9 (End Point)	25	2592.990015	15	6338
Freq. ERROR vs. Temp.				
3.3	-30	2592.990024	24	6338
3.3	-20	2592.989980	-20	6338
3.3	-10	2592.989985	-15	6338
3.3	0	2592.989983	-17	6338
3.3	10	2592.990019	19	6338
3.3	20	2592.989972	-28	6338
3.3	30	2592.989986	-14	6338
3.3	40	2592.989989	-11	6338
3.3	50	2592.989989	-11	6338

~ End of Report ~