FCC Test Report

(PART 27)

Report No.: RF200605C24-13

FCC ID: V65E7110

Test Model: E7110

Received Date: Jun. 29, 2020

Test Date: Aug. 22 ~ Aug. 29, 2020

Issued Date: Nov. 05, 2020

Applicant: Kyocera Corporation ％ Kyocera International, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF200605C24-13	Original Release	Nov. 05, 2020

1 Certificate of Conformity

Product: Smart Phone

Brand: Kyocera

Test Model: E7110

Sample Status: Identical Prototype

Applicant: Kyocera Corporation ％ Kyocera International, Inc.

Test Date: Aug. 22 ~ Aug. 29, 2020

Standards: FCC Part 27, Subpart C, L

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Nov. 05, 2020

Gina Liu / Specialist

Approved by : _____ , **Date:** Nov. 05, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(d)(4)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
27.50(d)(5)	Peak to Average Ratio	Pass	Meet the requirement of limit.
27.53(h)	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(h)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -23.1 dB at 109.54 MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	3.63 dB
	200 MHz ~ 1000 MHz	3.64 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2019	Dec. 30, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 23, 2019	Sep. 22, 2020
Spectrum Analyzer KEYSIGHT	N9030B	MY57140953	Jul. 02, 2020	Jul. 01, 2021
Radio Communication Analyzer Anritsu	MT8000A	6262012865	Dec. 12, 2019	Dec. 11, 2020
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 14, 2020	Jan. 13, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-158	Nov. 08, 2019	Nov. 07, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Jun. 08, 2020	Jun. 07, 2021
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jun. 08, 2020	Jun. 07, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH4-01	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Jun. 08, 2020	Jun. 07, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Standard Temperature And Humidity Chamber	MHU-225AU	920842	May 28, 2020	May 27, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.

3 General Information

3.1 General Description of EUT

Product	Smart Phone	
Brand	Kyocera	
Test Model	E7110	
Status of EUT	Identical Prototype	
Power Supply Rating	3.85 Vdc (Battery) 5 Vdc / 9 Vdc / 12 Vdc (Adapter)	
Modulation Type	π/2 BPSK, QPSK, 16QAM, 64QAM	
Waveform Type	CP-OFDM, DFT-s-OFDM	
Frequency Range	n66 (Channel Bandwidth 5MHz)	1712.5MHz ~ 1777.5MHz
	n66 (Channel Bandwidth 10MHz)	1715.0MHz ~ 1775.0MHz
	n66 (Channel Bandwidth 15MHz)	1717.5MHz ~ 1772.5MHz
	n66 (Channel Bandwidth 20MHz)	1720.0MHz ~ 1770.0MHz
Emission Designator	n66 (Channel Bandwidth 5MHz)	4M50D7W
	n66 (Channel Bandwidth 10MHz)	9M25D7W
	n66 (Channel Bandwidth 15MHz)	14M1D7W
	n66 (Channel Bandwidth 20MHz)	18M8D7W
Max. EIRP Power	n66 (Channel Bandwidth 5MHz)	234.423 mW (23.7 dBm)
	n66 (Channel Bandwidth 10MHz)	229.087 mW (23.6 dBm)
	n66 (Channel Bandwidth 15MHz)	229.087 mW (23.6 dBm)
	n66 (Channel Bandwidth 20MHz)	234.423 mW (23.7 dBm)
Antenna Type	Monopole Antenna with 1.1 dBi gain	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

1. The EUT contains following accessory devices.

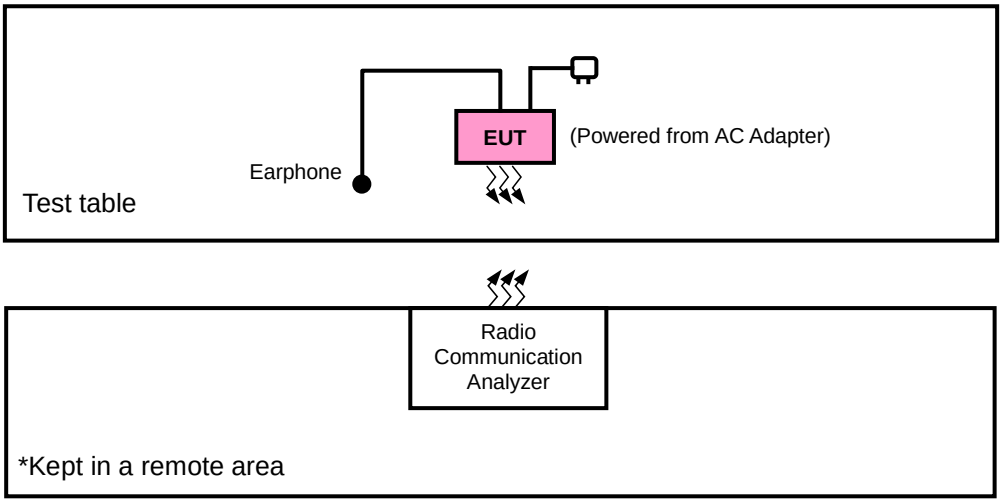
Product	Brand	Model	Description
Adapter	Kyocera	SCP-53ADT	I/P: 100-240 Vac, 50/60 Hz, 0.6 A O/P: 5 Vdc, 3 A; 9 Vdc, 3 A; 15 Vdc, 1.8 A; 20 Vdc, 1.35 A
USB Cable	Kyocera	SCP-27SDC	-

2. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
4. The EUT support the following ENDC Configuration.

FCC 5G FR1			ENDC
Band	SCS	Bandwidth(MHz)	
n5	15kHz	5/10/15/20	Band 2/66
n2	15kHz	5/10/15/20	Band 5/13
n66	15kHz	5/10/15/20	Band 5/13

5. The LTE Band of 5GNR ENDC mode is similar to digital modulation in LTE single frequency band, only check LTE power, other LTE test data please refer to BV CPS report no.: RF200605C24-6 & RF200605C24-8.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports
The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	EIRP	Radiated Emission
n66	X-plane	X-plane

n66

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	342500 to 355500	342500 (1712.5MHz), 349000 (1745.0MHz), 355500 (1777.5MHz)	5MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 349000 (1745.0MHz), 355000 (1775.0MHz)	10MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 349000 (1745.0MHz), 354500 (1772.5MHz)	15MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 349000 (1745.0MHz), 354000 (1770.0MHz)	20MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 50 RB Offset 1 RB / 99 RB Offset 50 RB / 0 RB Offset 50 RB / 25 RB Offset 50 RB / 50 RB Offset 100 RB / 0 RB Offset
-	Modulation Characteristics	344000 to 354000	349000 (1745.0MHz)	20 MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Frequency Stability	342500 to 355500	342500 (1712.5MHz), 355500 (1777.5MHz)	5MHz	$\pi/2$ BPSK	25 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 355000 (1775.0MHz)	10MHz	$\pi/2$ BPSK	52 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 354500 (1772.5MHz)	15MHz	$\pi/2$ BPSK	79 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 354000 (1770.0MHz)	20MHz	$\pi/2$ BPSK	106 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Emission Bandwidth	342500 to 355500	342500 (1712.5MHz), 349000 (1745.0MHz), 355500 (1777.5MHz)	5MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 349000 (1745.0MHz), 355000 (1775.0MHz)	10MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	52 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 349000 (1745.0MHz), 354500 (1772.5MHz)	15MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	79 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 349000 (1745.0MHz), 354000 (1770.0MHz)	20MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	106 RB / 0 RB Offset
-	Peak to Average Ratio	342500 to 355500	342500 (1712.5MHz), 349000 (1745.0MHz), 355500 (1777.5MHz)	5MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 349000 (1745.0MHz), 355000 (1775.0MHz)	10MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 349000 (1745.0MHz), 354500 (1772.5MHz)	15MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 349000 (1745.0MHz), 354000 (1770.0MHz)	20MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Band Edge	342500 to 355500	342500 (1712.5MHz), 355500 (1777.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 355000 (1775.0MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 51 RB Offset 52 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 354500 (1772.5MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 78 RB Offset 79 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 354000 (1770.0MHz)	20MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 105 RB Offset 106 RB / 0 RB Offset
-	Conducted Emission	342500 to 355500	342500 (1712.5MHz), 349000 (1745.0MHz), 355500 (1777.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 349000 (1745.0MHz), 355000 (1775.0MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 349000 (1745.0MHz), 354500 (1772.5MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 349000 (1745.0MHz), 354000 (1770.0MHz)	20MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
-	Radiated Emission	342500 to 355500	342500 (1712.5MHz), 349000 (1745.0MHz), 355500 (1777.5MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		343000 to 355000	343000 (1715.0MHz), 349000 (1745.0MHz), 355000 (1775.0MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		343500 to 354500	343500 (1717.5MHz), 349000 (1745.0MHz), 354500 (1772.5MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		344000 to 354000	344000 (1720.0MHz), 349000 (1745.0MHz), 354000 (1770.0MHz)	20MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in $\pi/2$ BPSK modulation. Therefore, only EIRP, modulation characteristics, occupied bandwidth and peak to average ratio items had been tested under $\pi/2$ BPSK, QPSK, 16QAM, 64QAM mode, the other items were performed under $\pi/2$ BPSK mode only.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	120 Vac, 60 Hz	Noah Chang
Modulation Characteristics	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Frequency Stability	25 deg. C, 65 % RH	3.85Vdc	Getaz Yang
Occupied Bandwidth	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Band Edge	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Peak to Average Ratio	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Conducted Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Noah Chang

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:
FCC 47 CFR Part 2
FCC 47 CFR Part 27
ANSI 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-E 2016

Note: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 1 watts e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

a. All measurements were done at low, middle and high operational frequency range. RBW is 1 MHz for 5 MHz、10 MHz、15 MHz、20 MHz for n66 mode, and VBW ≥ 3 x RBW.

b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

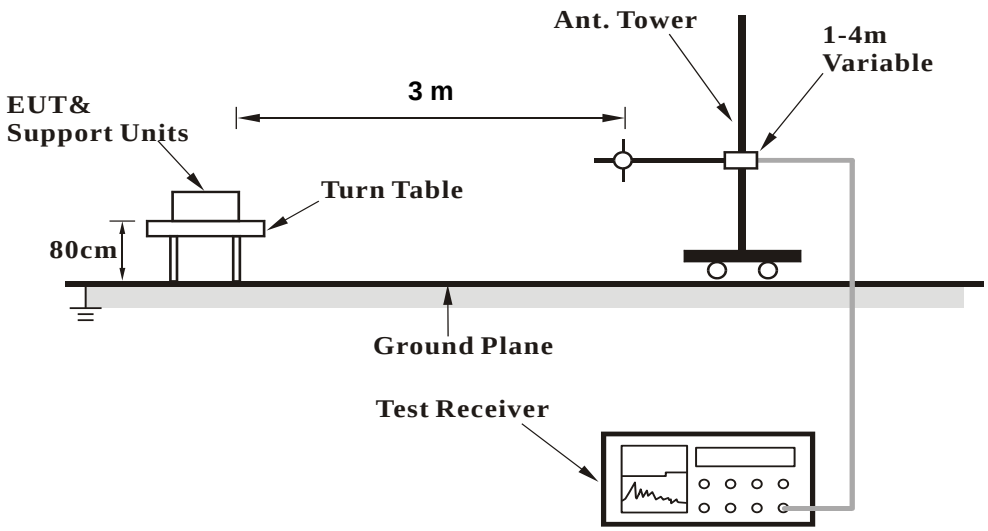
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Conducted Power Measurement:

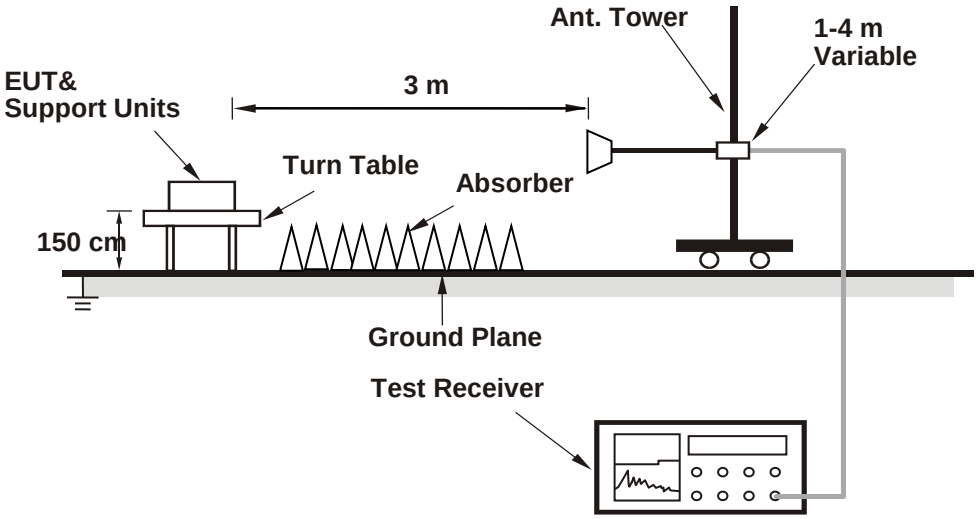
The EUT was set up for the maximum power with 5GNR link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP Measurement:
<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

n66						
BW	MCS Index	Channel		342500	349000	355500
		Frequency (MHz)		1712.5	1745	1777.5
5M	DFT-S $\pi/2$ BPSK	1	1	24.00	24.18	24.11
		1	13	23.92	24.08	24.04
		1	23	23.97	24.09	24.15
		12	0	23.53	23.72	23.73
		12	6	23.89	24.06	24.11
		12	13	23.73	23.88	23.84
		25	0	23.68	23.78	23.79
	DFT-S QPSK	1	1	23.89	24.26	24.12
		1	13	24.16	24.25	24.23
		1	23	24.08	24.13	24.19
		12	0	22.85	22.94	22.95
		12	6	23.97	24.06	24.10
		12	13	23.41	23.48	23.42
		25	0	23.42	23.43	23.42
	DFT-S 16QAM	1	1	22.23	22.37	22.42
	DFT-S 64QAM	1	1	21.33	21.43	21.50
	CP QPSK	1	1	21.84	21.92	21.97
	CP 16QAM	1	1	21.26	21.29	21.20
	CP 64QAM	1	1	19.72	19.85	19.86

n66						
BW	MCS Index	Channel		343000	349000	355000
		Frequency (MHz)		1715	1745	1775
10M	DFT-S $\pi/2$ BPSK	1	1	23.96	24.11	24.10
		1	26	23.96	24.09	24.05
		1	50	23.97	24.08	24.10
		25	0	23.54	23.73	23.72
		25	12	23.87	23.99	24.09
		25	26	23.72	23.88	23.90
		50	0	23.66	23.83	23.78
	DFT-S QPSK	1	1	23.86	24.23	24.23
		1	26	24.10	24.25	24.18
		1	50	24.10	24.12	24.16
		25	0	22.79	22.96	22.93
		25	12	23.96	24.11	24.13
		25	26	23.39	23.43	23.46
		50	0	23.41	23.44	23.45
	DFT-S 16QAM	1	1	22.30	22.42	22.34
	DFT-S 64QAM	1	1	21.38	21.48	21.52
	CP QPSK	1	1	21.78	21.89	21.87
	CP 16QAM	1	1	21.22	21.19	21.30
	CP 64QAM	1	1	19.78	19.84	19.88

n66						
BW	MCS Index	Channel		343500	349000	354500
		Frequency (MHz)		1717.5	1745	1772.5
15M	DFT-S $\pi/2$ BPSK	1	1	23.96	24.12	24.17
		1	40	23.94	24.07	24.06
		1	77	24.00	24.13	24.16
		36	0	23.61	23.73	23.66
		36	18	23.97	24.05	24.08
		36	40	23.74	23.86	23.90
		75	0	23.64	23.82	23.78
	DFT-S QPSK	1	1	23.81	24.19	24.24
		1	40	24.12	24.17	24.22
		1	77	24.11	24.13	24.21
		36	0	22.83	22.90	22.95
		36	18	24.00	24.09	24.08
		36	40	23.44	23.49	23.41
		75	0	23.46	23.43	23.48
	DFT-S 16QAM	1	1	22.32	22.34	22.40
	DFT-S 64QAM	1	1	21.40	21.49	21.53
	CP QPSK	1	1	21.85	21.91	21.96
	CP 16QAM	1	1	21.23	21.26	21.30
	CP 64QAM	1	1	19.76	19.82	19.86

n66						
BW	MCS Index	Channel		344000	349000	132575
		Frequency (MHz)		1720	1745	1770
20M	DFT-S $\pi/2$ BPSK	1	1	24.06	24.18	24.20
		1	53	24.00	24.12	24.14
		1	104	24.04	24.16	24.18
		50	0	23.61	23.73	23.75
		50	25	23.97	24.09	24.11
		50	53	23.76	23.88	23.90
		100	0	23.72	23.84	23.86
	DFT-S QPSK	1	1	23.91	24.28	**24.29**
		1	53	23.88	24.25	24.26
		1	104	23.84	24.21	24.22
		50	0	22.89	22.98	22.99
		50	25	24.03	24.12	24.13
		50	53	23.44	23.33	23.34
		100	0	23.32	23.41	23.32
	DFT-S 16QAM	1	1	22.33	22.42	22.43
	DFT-S 64QAM	1	1	21.43	21.52	21.53
	CP QPSK	1	1	21.87	21.96	21.97
	CP 16QAM	1	1	21.29	21.29	21.30
	CP 64QAM	1	1	19.80	19.89	19.90

LTE Band 5

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20450	20525	20600				Channel		20425	20525	20625	
		Frequency (MHz)		829.0	836.5	844.0				Frequency (MHz)		826.5	836.5	846.5	
10M	QPSK	1	0	21.62	21.76	21.89	0	5M	QPSK	1	0	21.63	21.74	21.84	0
		1	24	21.49	21.68	21.34	0			1	12	21.44	21.62	21.33	0
		1	49	21.64	21.67	21.45	0			1	24	21.48	21.68	21.47	0
		25	0	20.83	20.89	20.95	1			12	0	20.74	20.86	20.89	1
		25	12	20.76	20.90	20.71	1			12	6	20.77	20.77	20.64	1
		25	25	20.76	20.86	20.63	1			12	13	20.78	20.85	20.52	1
		50	0	20.81	20.79	20.86	1			25	0	20.77	20.74	20.79	1
	16QAM	1	0	20.96	21.01	21.00	1		16QAM	1	0	19.93	20.03	20.17	1
		1	24	20.98	20.98	20.60	1			1	12	19.98	20.15	19.53	1
		1	49	20.98	21.00	20.64	1			1	24	19.95	19.99	19.56	1
		25	0	19.79	19.89	19.98	2			12	0	18.71	18.82	18.93	2
		25	12	19.79	19.86	19.87	2			12	6	18.66	18.77	18.76	2
		25	25	19.80	19.89	19.80	2			12	13	18.84	18.83	18.74	2
		50	0	19.81	19.84	20.02	2			25	0	18.70	18.86	19.02	2
	64QAM	1	0	19.85	19.91	19.98	2		64QAM	1	0	19.81	19.88	20.13	2
		1	24	19.95	19.97	19.59	2			1	12	19.83	20.13	19.56	2
		1	49	19.97	20.01	19.58	2			1	24	20.02	19.95	19.46	2
		25	0	18.76	18.79	18.96	3			12	0	18.70	18.73	19.01	3
		25	12	18.66	18.84	18.86	3			12	6	18.65	18.78	18.85	3
		25	25	18.78	18.78	18.75	3			12	13	18.67	18.74	18.62	3
		50	0	18.70	18.80	18.88	3			25	0	18.68	18.71	18.93	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20415	20525	20635				Channel		20407	20525	20643	
		Frequency (MHz)		825.5	836.5	847.5				Frequency (MHz)		824.7	836.5	848.3	
3M	QPSK	1	0	21.55	21.47	21.76	0	1.4M	QPSK	1	0	21.54	21.70	21.76	0
		1	7	21.35	21.56	21.26	0			1	2	21.39	21.58	21.20	0
		1	14	21.42	21.64	21.30	0			1	5	21.45	21.77	21.28	0
		8	0	20.71	20.74	20.93	1			3	0	21.76	21.84	21.84	0
		8	3	20.55	20.70	20.62	1			3	1	21.62	21.73	21.52	0
		8	7	20.68	20.70	20.60	1			3	3	21.61	21.72	21.40	0
		15	0	20.73	20.59	20.80	1			6	0	20.69	20.60	20.69	1
	16QAM	1	0	20.84	20.85	20.99	1		16QAM	1	0	20.70	20.83	21.02	1
		1	7	20.93	20.99	20.57	1			1	2	20.99	20.99	20.33	1
		1	14	20.90	20.97	20.36	1			1	5	20.77	20.83	20.45	1
		8	0	19.62	19.67	19.79	2			3	0	20.59	20.68	20.84	1
		8	3	19.63	19.86	19.75	2			3	1	20.66	20.79	20.73	1
		8	7	19.72	19.83	19.66	2			3	3	20.65	20.73	20.64	1
		15	0	19.69	19.77	19.87	2			6	0	19.67	19.81	19.91	2
	64QAM	1	0	19.82	19.85	19.95	2		64QAM	1	0	19.81	19.79	19.79	2
		1	7	19.80	19.93	19.51	2			1	2	19.95	20.08	19.53	2
		1	14	19.84	19.91	19.39	2			1	5	19.91	19.79	19.42	2
		8	0	18.66	18.66	18.88	3			3	0	19.68	19.67	19.91	2
		8	3	18.49	18.65	18.69	3			3	1	19.54	19.69	19.65	2
		8	7	18.76	18.57	18.59	3			3	3	19.68	19.57	19.65	2
		15	0	18.64	18.61	18.73	3			6	0	18.56	18.63	18.77	3

LTE Band 13

BW	MCS Index	RB Size	RB Offset		Mid		3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel			23230					Channel		23205	23230	23225	
		Frequency (MHz)			782.0					Frequency (MHz)		779.5	782.0	784.5	
10M	QPSK	1	0		20.97		0	5M	QPSK	1	0	20.92	20.93	20.95	0
		1	24		20.83		0			1	12	20.92	20.96	20.92	0
		1	49		20.79		0			1	24	20.88	20.86	20.73	0
		25	0		20.01		1			12	0	20.00	20.02	20.03	1
		25	12		19.93		1			12	6	19.98	19.97	19.97	1
		25	25		19.76		1			12	13	20.02	19.97	20.05	1
		50	0		19.87		1			25	0	20.05	19.99	19.93	1
	16QAM	1	0		19.62		1		16QAM	1	0	19.99	20.04	20.06	1
		1	24		20.01		1			1	12	19.92	20.01	20.02	1
		1	49		20		1			1	24	19.92	19.98	19.95	1
		25	0		18.95		2			12	0	18.96	18.86	18.86	2
		25	12		18.96		2			12	6	18.97	18.83	18.94	2
		25	25		18.86		2			12	13	18.91	19.02	19.02	2
		50	0		18.81		2			25	0	18.99	19.08	19.00	2
	64QAM	1	0		18.98		2		64QAM	1	0	18.89	18.99	18.99	2
		1	24		18.88		2			1	12	19.02	18.96	19.00	2
		1	49		18.94		2			1	24	18.97	18.93	18.93	2
		25	0		17.88		3			12	0	17.88	17.94	17.98	3
		25	12		17.9		3			12	6	17.99	17.97	17.86	3
		25	25		17.79		3			12	13	18.02	17.94	17.91	3
		50	0		17.79		3			25	0	17.89	17.97	17.93	3

EIRP Power

Modulation Type: $\pi/2$ BPSK

n66, Channel Bandwidth: 5MHz

MODE	TX channel 342500, 349000, 355500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-15.8	22.7	1.0	23.7	30.0	-6.3
2	1745.0	-16.3	22.5	1.0	23.5	30.0	-6.5
3	1777.5	-16.7	22.3	1.1	23.4	30.0	-6.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-21.4	17.8	1.0	18.8	30.0	-11.2
2	1745.0	-21.6	17.6	1.0	18.6	30.0	-11.4
3	1777.5	-21.8	17.3	1.1	18.4	30.0	-11.6

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 10MHz

MODE	TX channel 343000, 349000, 355000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-15.9	22.6	1.0	23.6	30.0	-6.4
2	1745.0	-16.4	22.4	1.0	23.4	30.0	-6.6
3	1775.0	-16.8	22.2	1.1	23.3	30.0	-6.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-21.5	17.7	1.0	18.7	30.0	-11.3
2	1745.0	-21.8	17.4	1.0	18.4	30.0	-11.6
3	1775.0	-21.7	17.4	1.1	18.5	30.0	-11.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 15MHz

MODE	TX channel 343500, 349000, 354500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-15.9	22.6	1.0	23.6	30.0	-6.4
2	1745.0	-16.4	22.4	1.0	23.4	30.0	-6.6
3	1772.5	-16.8	22.1	1.1	23.2	30.0	-6.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-21.7	17.5	1.0	18.5	30.0	-11.5
2	1745.0	-21.8	17.4	1.0	18.4	30.0	-11.6
3	1772.5	-21.9	17.2	1.1	18.3	30.0	-11.7

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 20MHz

MODE	TX channel 344000, 349000, 354000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-15.8	22.7	1.0	23.7	30.0	-6.3
2	1745.0	-16.4	22.4	1.0	23.4	30.0	-6.6
3	1770.0	-16.8	22.1	1.1	23.2	30.0	-6.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-21.5	17.7	1.0	18.7	30.0	-11.3
2	1745.0	-21.6	17.6	1.0	18.6	30.0	-11.4
3	1770.0	-22.0	17.1	1.1	18.2	30.0	-11.8

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: QPSK

n66, Channel Bandwidth: 5MHz

MODE	TX channel 342500, 349000, 355500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-16.5	22.0	1.0	23.0	30.0	-7.0
2	1745.0	-17.1	21.7	1.0	22.7	30.0	-7.3
3	1777.5	-17.5	21.5	1.1	22.6	30.0	-7.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-22.3	16.9	1.0	17.9	30.0	-12.1
2	1745.0	-22.4	16.8	1.0	17.8	30.0	-12.2
3	1777.5	-22.6	16.5	1.1	17.6	30.0	-12.4

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 10MHz

MODE	TX channel 343000, 349000, 355000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-16.7	21.8	1.0	22.8	30.0	-7.2
2	1745.0	-17.3	21.5	1.0	22.5	30.0	-7.5
3	1775.0	-17.7	21.3	1.1	22.4	30.0	-7.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-22.4	16.8	1.0	17.8	30.0	-12.2
2	1745.0	-22.6	16.6	1.0	17.6	30.0	-12.4
3	1775.0	-22.7	16.4	1.1	17.5	30.0	-12.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 15MHz

MODE	TX channel 343500, 349000, 354500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-16.6	21.9	1.0	22.9	30.0	-7.1
2	1745.0	-17.2	21.6	1.0	22.6	30.0	-7.4
3	1772.5	-17.6	21.3	1.1	22.4	30.0	-7.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-22.4	16.8	1.0	17.8	30.0	-12.2
2	1745.0	-22.7	16.5	1.0	17.5	30.0	-12.5
3	1772.5	-22.8	16.3	1.1	17.4	30.0	-12.6

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 20MHz

MODE	TX channel 344000, 349000, 354000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-16.8	21.7	1.0	22.7	30.0	-7.3
2	1745.0	-17.4	21.4	1.0	22.4	30.0	-7.6
3	1770.0	-17.7	21.2	1.1	22.3	30.0	-7.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-22.5	16.7	1.0	17.7	30.0	-12.3
2	1745.0	-22.7	16.5	1.0	17.5	30.0	-12.5
3	1770.0	-22.7	16.4	1.1	17.5	30.0	-12.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 16QAM

n66, Channel Bandwidth: 5MHz

MODE	TX channel 342500, 349000, 355500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-17.3	21.2	1.0	22.2	30.0	-7.8
2	1745.0	-17.8	21.0	1.0	22.0	30.0	-8.0
3	1777.5	-18.3	20.7	1.1	21.8	30.0	-8.2
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-23.1	16.1	1.0	17.1	30.0	-12.9
2	1745.0	-23.3	15.9	1.0	16.9	30.0	-13.1
3	1777.5	-23.4	15.7	1.1	16.8	30.0	-13.2

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 10MHz

MODE	TX channel 343000, 349000, 355000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-17.6	20.9	1.0	21.9	30.0	-8.1
2	1745.0	-18.1	20.7	1.0	21.7	30.0	-8.3
3	1775.0	-18.5	20.5	1.1	21.6	30.0	-8.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-23.3	15.9	1.0	16.9	30.0	-13.1
2	1745.0	-23.5	15.7	1.0	16.7	30.0	-13.3
3	1775.0	-23.7	15.4	1.1	16.5	30.0	-13.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 15MHz

MODE	TX channel 343500, 349000, 354500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-17.5	21.0	1.0	22.0	30.0	-8.0
2	1745.0	-18.1	20.7	1.0	21.7	30.0	-8.3
3	1772.5	-18.6	20.3	1.1	21.4	30.0	-8.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-23.4	15.8	1.0	16.8	30.0	-13.2
2	1745.0	-23.6	15.6	1.0	16.6	30.0	-13.4
3	1772.5	-23.8	15.3	1.1	16.4	30.0	-13.6

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 20MHz

MODE	TX channel 344000, 349000, 354000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-17.6	20.9	1.0	21.9	30.0	-8.1
2	1745.0	-18.2	20.6	1.0	21.6	30.0	-8.4
3	1770.0	-18.7	20.2	1.1	21.3	30.0	-8.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-23.4	15.8	1.0	16.8	30.0	-13.2
2	1745.0	-23.6	15.6	1.0	16.6	30.0	-13.4
3	1770.0	-23.7	15.4	1.1	16.5	30.0	-13.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

Modulation Type: 64QAM

n66, Channel Bandwidth: 5MHz

MODE	TX channel 342500, 349000, 355500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-18.3	20.2	1.0	21.2	30.0	-8.8
2	1745.0	-18.8	20.0	1.0	21.0	30.0	-9.0
3	1777.5	-19.2	19.8	1.1	20.9	30.0	-9.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1712.5	-24.0	15.2	1.0	16.2	30.0	-13.8
2	1745.0	-24.3	14.9	1.0	15.9	30.0	-14.1
3	1777.5	-24.5	14.6	1.1	15.7	30.0	-14.3

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 10MHz

MODE	TX channel 343000, 349000, 355000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-18.6	19.9	1.0	20.9	30.0	-9.1
2	1745.0	-19.2	19.6	1.0	20.6	30.0	-9.4
3	1775.0	-19.5	19.5	1.1	20.6	30.0	-9.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1715.0	-24.2	15.0	1.0	16.0	30.0	-14.0
2	1745.0	-24.4	14.8	1.0	15.8	30.0	-14.2
3	1775.0	-24.6	14.5	1.1	15.6	30.0	-14.4

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 15MHz

MODE	TX channel 343500, 349000, 354500						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-18.5	20.0	1.0	21.0	30.0	-9.0
2	1745.0	-19.1	19.7	1.0	20.7	30.0	-9.3
3	1772.5	-19.6	19.3	1.1	20.4	30.0	-9.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1717.5	-24.3	14.9	1.0	15.9	30.0	-14.1
2	1745.0	-24.6	14.6	1.0	15.6	30.0	-14.4
3	1772.5	-24.7	14.4	1.1	15.5	30.0	-14.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

n66, Channel Bandwidth: 20MHz

MODE	TX channel 344000, 349000, 354000						
Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-18.5	20.0	1.0	21.0	30.0	-9.0
2	1745.0	-19.2	19.6	1.0	20.6	30.0	-9.4
3	1770.0	-19.5	19.4	1.1	20.5	30.0	-9.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	1720.0	-24.4	14.8	1.0	15.8	30.0	-14.2
2	1745.0	-24.6	14.6	1.0	15.6	30.0	-14.4
3	1770.0	-24.7	14.4	1.1	15.5	30.0	-14.5

Note: EIRP (dBm) = S.G Power Value (dBm) + Correction Factor (dB).

4.2 Modulation Characteristics Measurement

4.2.1 Limits of Modulation Characteristics

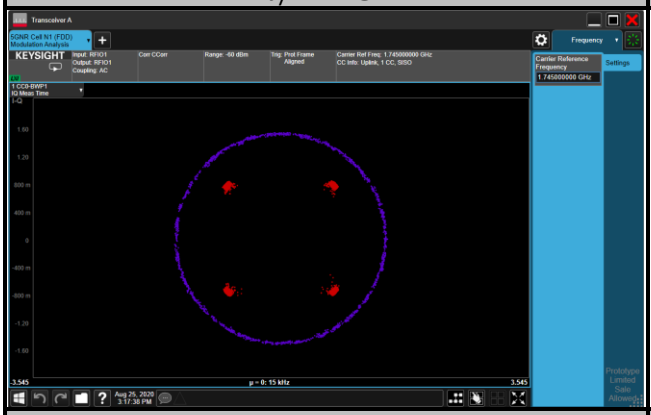
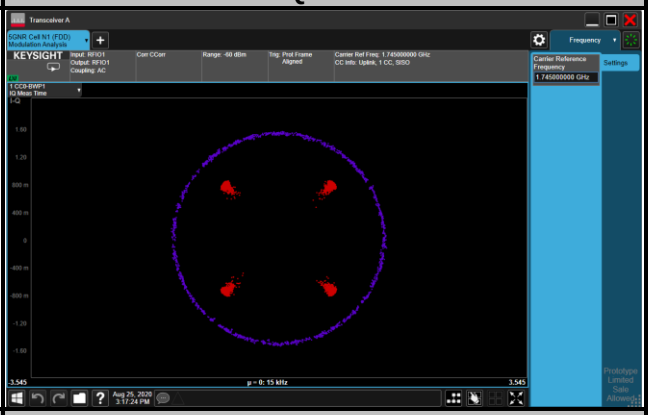
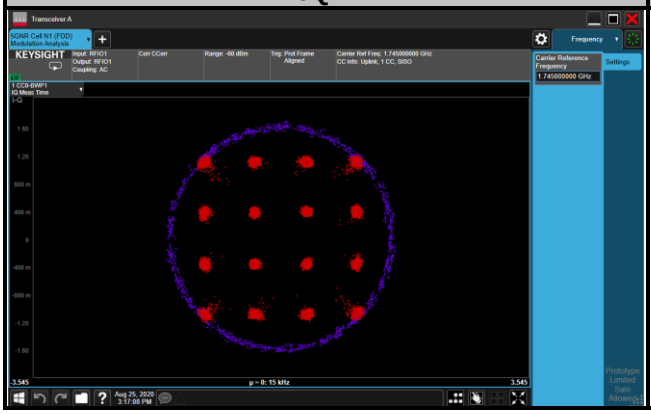
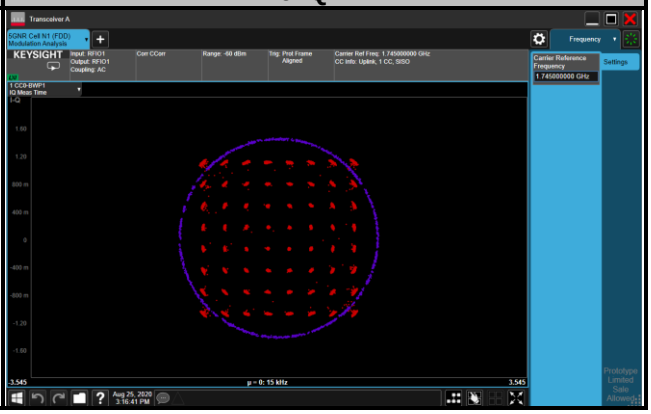
N/A

4.2.2 Test Setup

4.2.3 Test Procedure

Connect the EUT to Communication Simulator via the antenna connector. The frequency band is set as EUT supported Modulation and Channels, the EUT output is matched with 50 ohm load, the waveform quality and constellation of the EUT was tested.

4.2.4 Test Results

Spectrum Plot of Measurement	
n66	
Channel 349000	
$\pi/2$ BPSK	QPSK
	
16QAM	64QAM
	

4.3 Frequency Stability Measurement

4.3.1 Limits of Frequency Stability Measurement

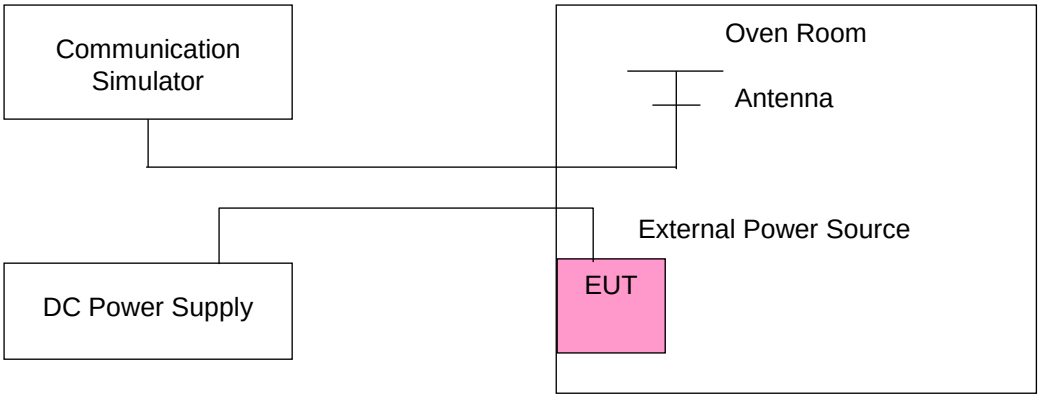
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.3.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

4.3.3 Test Setup



4.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	n66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1712.500001	0.001	1777.500000	-0.001
3.45	1712.500002	0.001	1777.500000	-0.001
4.23	1712.500001	0.001	1777.500000	-0.001

Note: The applicant defined the normal working voltage is from 3.45 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	n66			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1712.500003	0.002	1777.500000	0.002
-10	1712.500002	0.001	1777.500000	0.002
0	1712.500004	0.002	1777.500000	0.001
10	1712.499996	-0.002	1777.500000	0.001
20	1712.499999	-0.001	1777.500000	0.002
30	1712.499998	-0.001	1777.500000	0.002
40	1712.499997	-0.002	1777.500000	-0.001
50	1712.499997	-0.002	1777.500000	-0.002
60	1712.499997	-0.002	1777.500000	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1712.500001	0.001	1774.999999	-0.001
3.45	1712.500003	0.002	1774.999999	-0.001
4.23	1712.500001	0.001	1774.999998	-0.001

Note: The applicant defined the normal working voltage is from 3.45 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	n66			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1712.500001	0.001	1775.000003	0.001
-10	1712.500002	0.001	1775.000002	0.001
0	1712.500004	0.002	1775.000001	0.001
10	1712.499998	-0.001	1775.000002	0.001
20	1712.499997	-0.002	1775.000002	0.001
30	1712.499997	-0.002	1775.000003	0.002
40	1712.499997	-0.002	1774.999998	-0.001
50	1712.499999	-0.001	1774.999998	-0.001
60	1712.499998	-0.001	1774.999998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1717.500001	0.001	1772.499998	-0.001
3.45	1717.500001	0.001	1772.499998	-0.001
4.23	1717.500003	0.002	1772.499999	-0.001

Note: The applicant defined the normal working voltage is from 3.45 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	n66			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1717.500003	0.002	1772.500001	0.001
-10	1717.500002	0.001	1772.500002	0.001
0	1717.500004	0.002	1772.500002	0.001
10	1717.499997	-0.002	1772.500003	0.002
20	1717.499998	-0.001	1772.500002	0.001
30	1717.499996	-0.002	1772.500002	0.001
40	1717.499999	-0.001	1772.499999	-0.001
50	1717.499999	-0.001	1772.499997	-0.002
60	1717.499997	-0.002	1772.499998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1720.000002	0.001	1769.999998	-0.001
3.45	1720.000001	0.001	1769.999998	-0.001
4.23	1720.000004	0.002	1769.999998	-0.001

Note: The applicant defined the normal working voltage is from 3.45 Vdc to 4.23 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	n66			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1720.000002	0.001	1770.000002	0.001
-10	1720.000004	0.002	1770.000003	0.002
0	1720.000001	0.001	1770.000002	0.001
10	1719.999997	-0.002	1770.000002	0.001
20	1719.999998	-0.001	1770.000002	0.001
30	1719.999999	-0.001	1770.000002	0.001
40	1719.999998	-0.001	1769.999996	-0.002
50	1719.999997	-0.002	1769.999998	-0.001
60	1719.999997	-0.002	1769.999997	-0.002

4.4 Occupied Bandwidth Measurement

4.4.1 Limits of Occupied Bandwidth Measurement

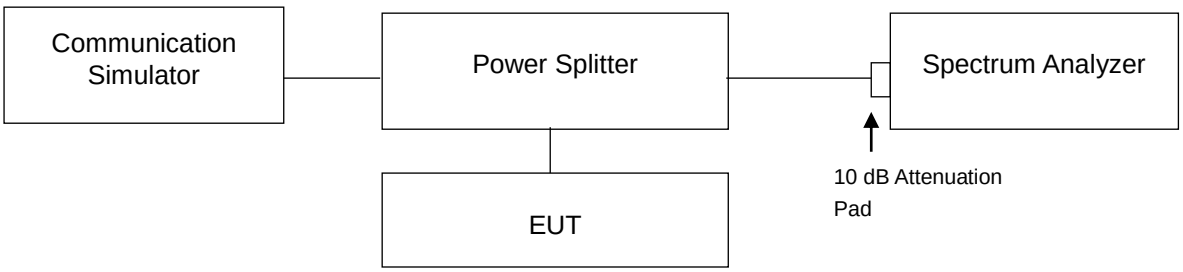
The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.2 Test Procedure

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

26dBc Bandwidth:
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with RBW =100 kHz (5 MHz bandwidth), 200 kHz (10 MHz bandwidth), 300 kHz (15 MHz bandwidth), 430 kHz (20 MHz bandwidth). 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.

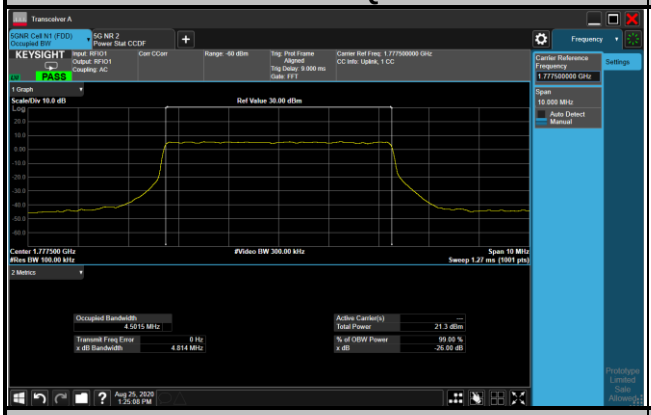
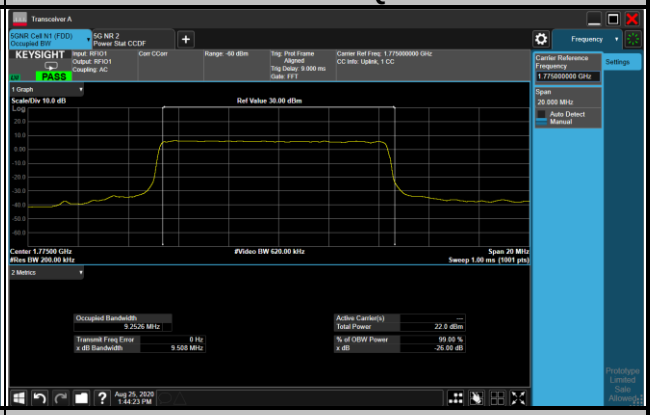
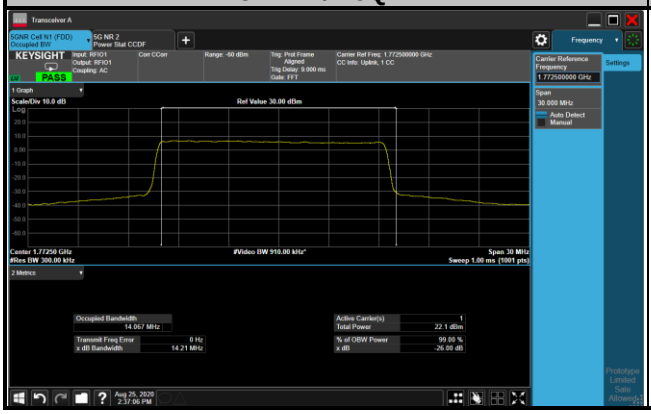
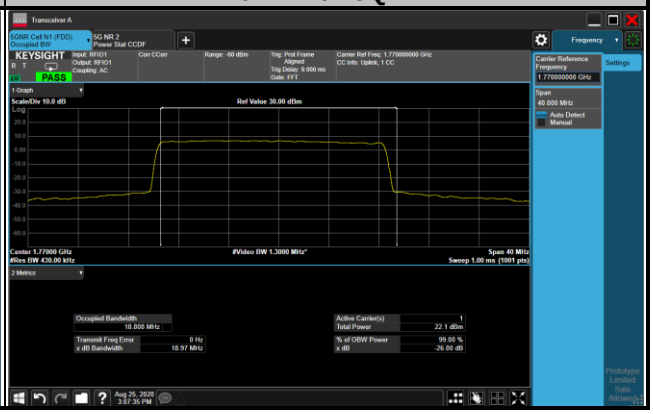
4.4.3 Test Setup



4.4.4 Test Result

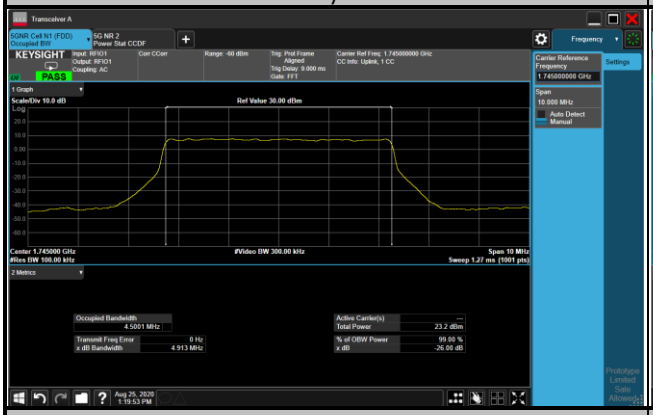
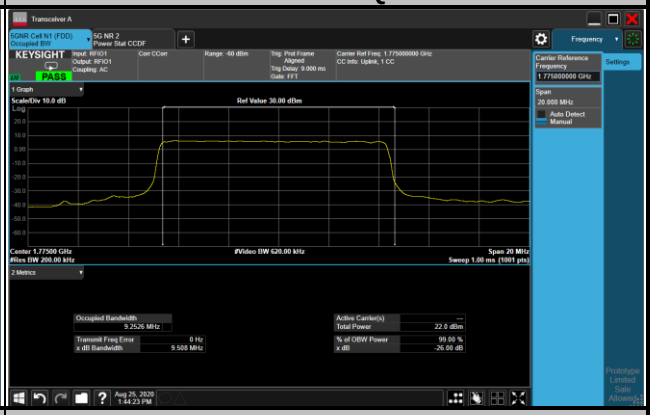
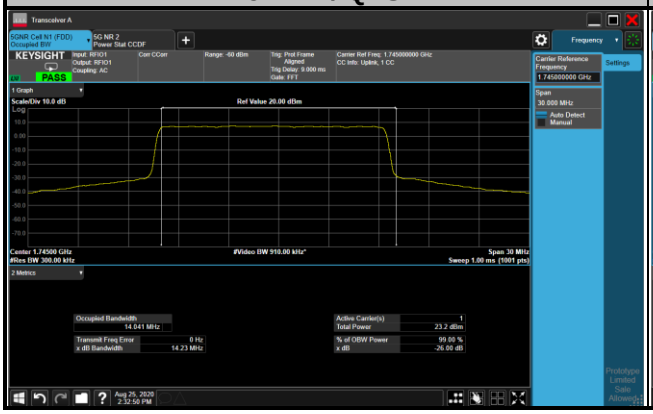
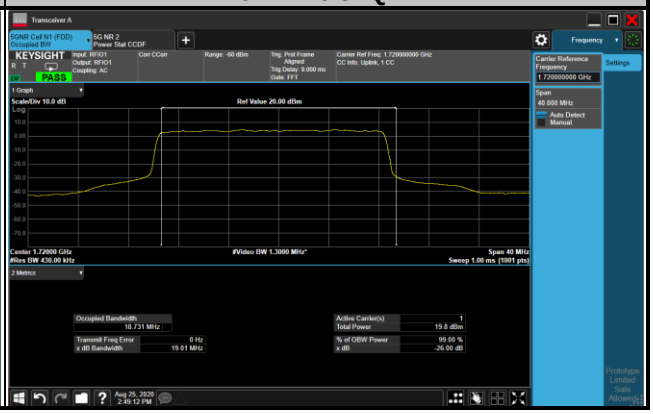
Occupied Bandwidth

n66					
Channel Bandwidth: 5 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
342500	1712.5	4.4857	4.4884	4.4872	4.5007
349000	1745.0	4.5001	4.4889	4.5006	4.5008
355500	1777.5	4.4858	4.4893	4.4883	4.5015
Channel Bandwidth: 10 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
343000	1715.0	9.2012	9.1767	9.2128	9.2038
349000	1745.0	9.1768	9.2040	9.2428	9.2160
355000	1775.0	9.2409	9.2166	9.2526	9.2423
Channel Bandwidth: 15 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
343500	1717.5	13.987	13.995	14.000	13.937
349000	1745.0	14.004	14.041	14.045	13.988
354500	1772.5	14.050	14.061	14.067	14.043
Channel Bandwidth: 20 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
344000	1720.0	18.729	18.724	18.733	18.731
349000	1745.0	18.743	18.731	18.751	18.736
354000	1770.0	18.760	18.804	18.808	18.757

Spectrum Plot of Worst Value	
99 % Occupied Bandwidth	
5 MHz / 64QAM	10 MHz / 16QAM
	
15 MHz / 16QAM	20 MHz / 16QAM
	

26dB Bandwidth

n66					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
342500	1712.5	4.895	4.854	4.816	4.803
349000	1745.0	4.913	4.813	4.818	4.797
355500	1777.5	4.895	4.860	4.830	4.814
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
343000	1715.0	9.470	9.481	9.494	9.479
349000	1745.0	9.468	9.479	9.504	9.483
355000	1775.0	9.495	9.489	9.508	9.487
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
343500	1717.5	14.20	14.22	14.21	14.20
349000	1745.0	14.20	14.23	14.21	14.20
354500	1772.5	14.22	14.23	14.21	14.18
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
344000	1720.0	18.96	18.98	18.98	19.01
349000	1745.0	18.97	18.97	18.98	18.97
354000	1770.0	18.96	18.97	18.97	18.96

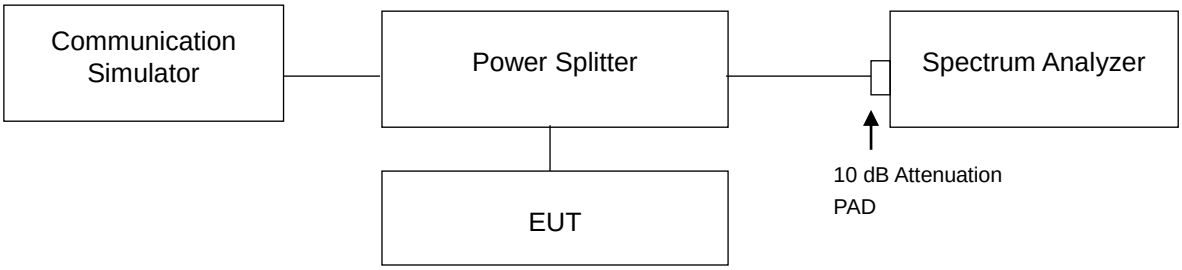
Spectrum Plot of Worst Value	
26 dB Bandwidth (MHz)	
5 MHz / $\pi/2$ BPSK	10 MHz / 16QAM
	
15 MHz / QPSK	20 MHz / 64QAM
	

4.5 Band Edge Measurement

4.5.1 Limits of Band Edge Measurement

According to FCC 27.53(h) for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log (P) dB.

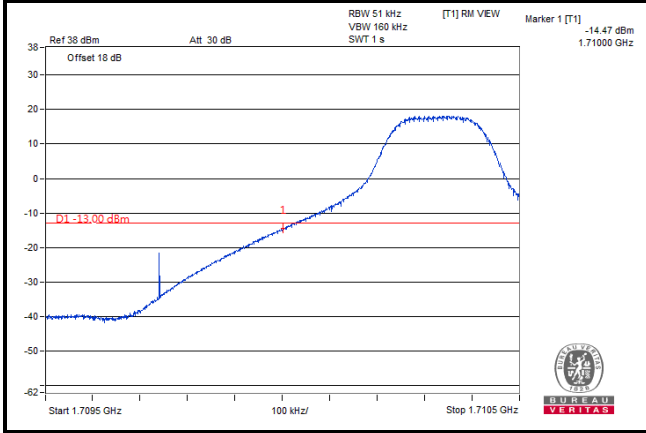
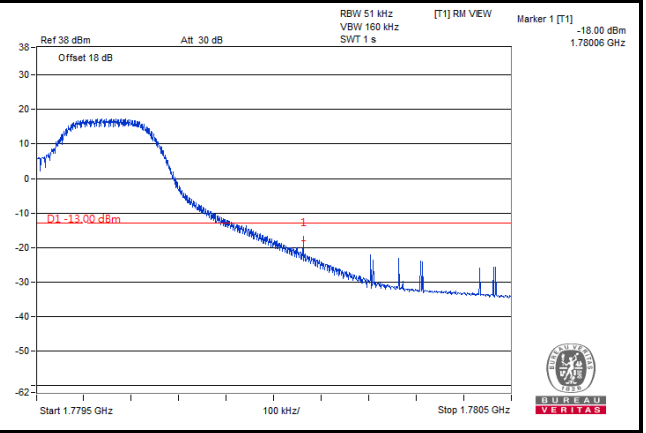
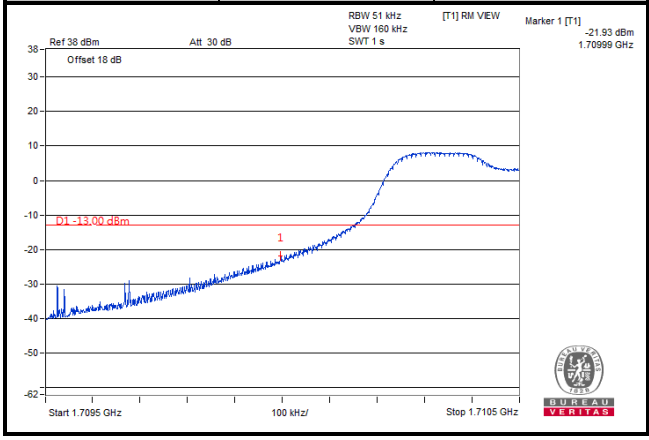
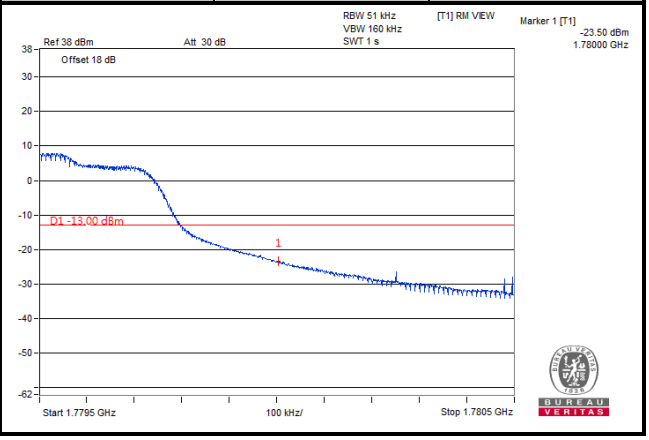
4.5.2 Test Setup

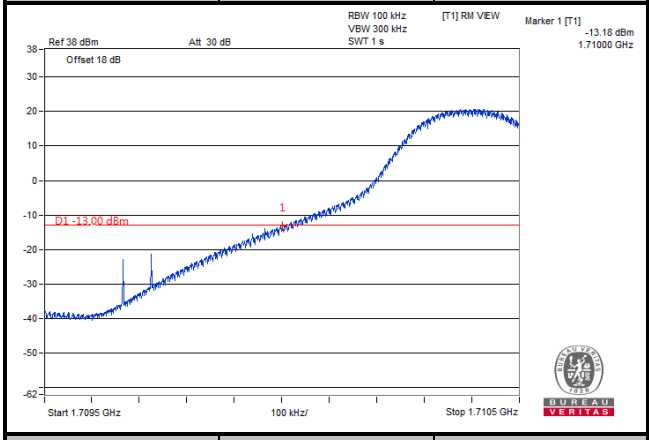
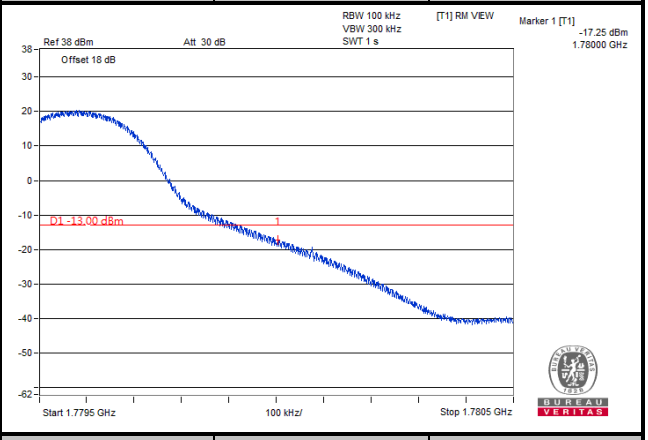
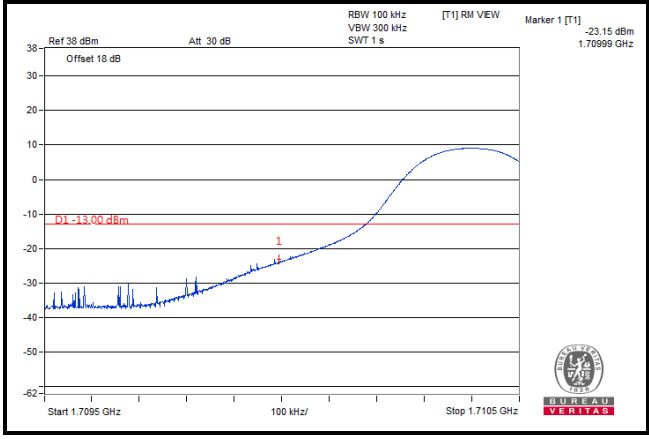
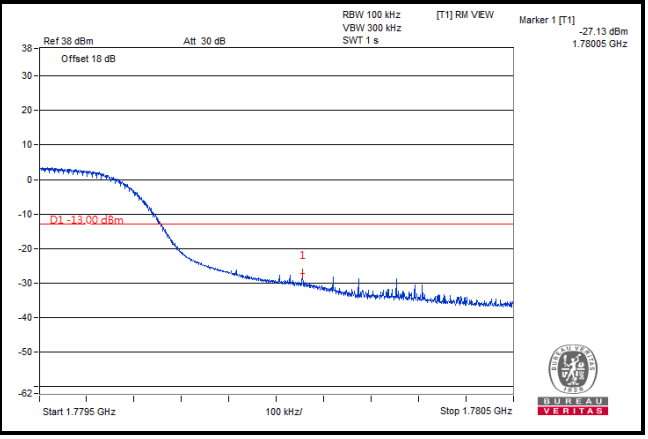


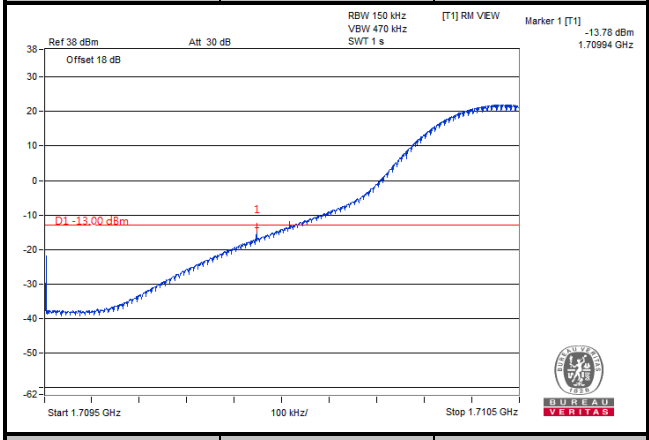
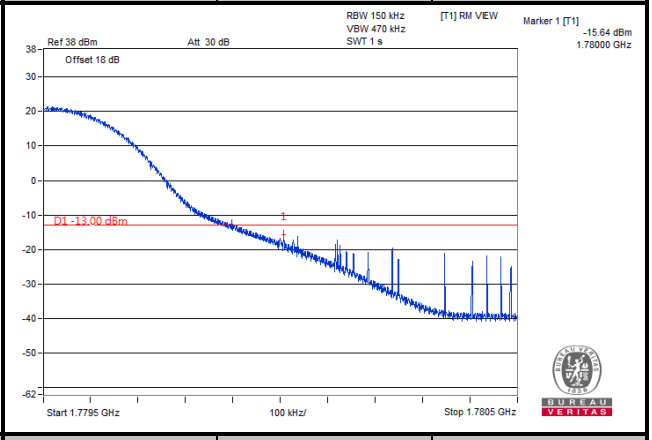
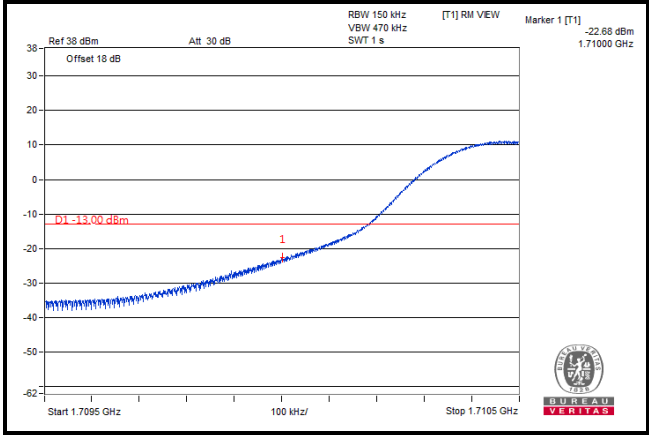
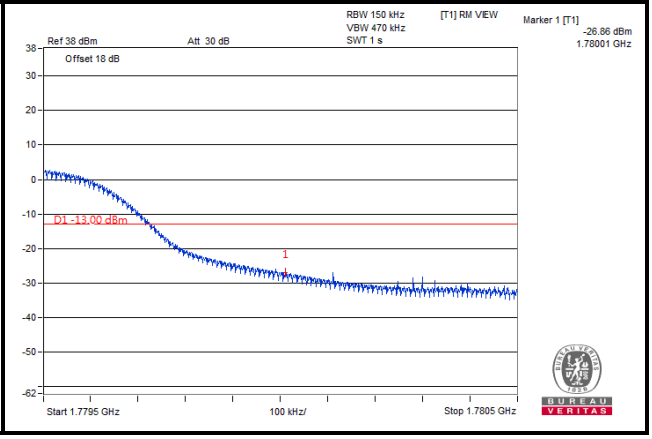
4.5.3 Test Procedures

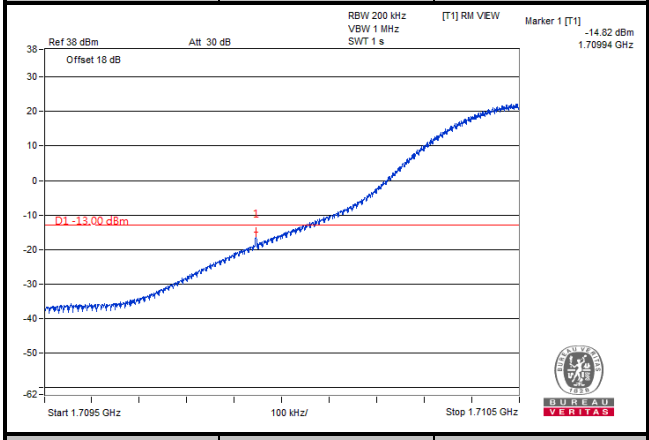
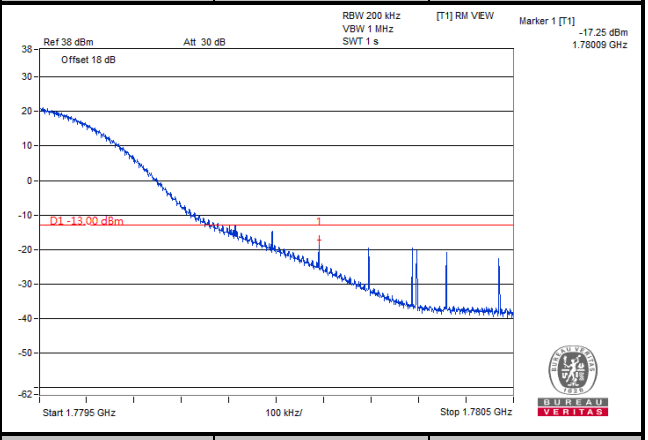
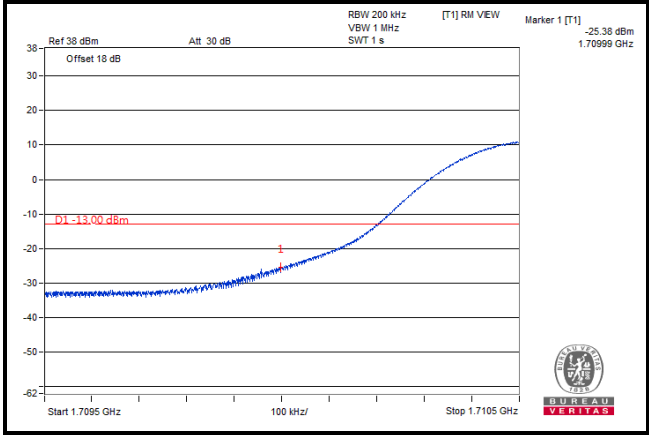
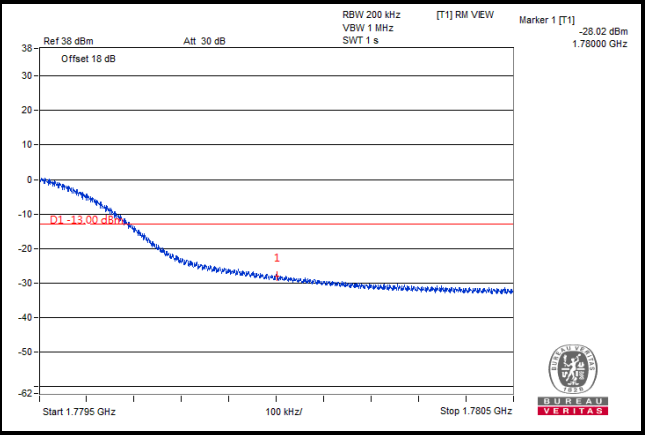
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (Bandwidth 5 MHz).
c. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 100 kHz and VB of the spectrum is 300 kHz (Bandwidth 10 MHz).
d. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 150 kHz and VB of the spectrum is 470 kHz (Bandwidth 15 MHz).
e. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 200 kHz and VB of the spectrum is 1 MHz (Bandwidth 20 MHz).
f. Record the max. trace plot into the test report.

4.5.4 Test Results

n66					
Channel Bandwidth: 5 MHz					
Channel	342500	1 RB	Channel	355500	1 RB
					
Channel	342500	25 RB	Channel	355500	25 RB
					

n66					
Channel Bandwidth: 10 MHz					
Channel	343000	1 RB	Channel	355000	1 RB
					
Channel	343000	50 RB	Channel	355000	50 RB
					

n66					
Channel Bandwidth: 15 MHz					
Channel	343500	1 RB	Channel	354500	1 RB
					
Channel	343500	75 RB	Channel	354500	75 RB
					

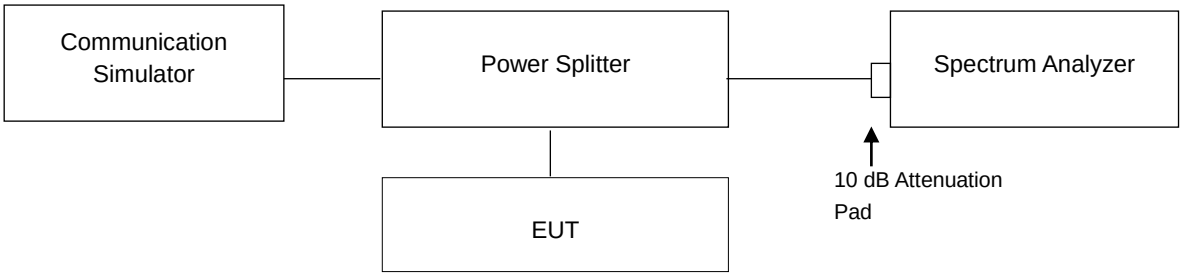
n66					
Channel Bandwidth: 20 MHz					
Channel	344000	1 RB	Channel	354000	1 RB
				
Channel	344000	100 RB	Channel	354000	100 RB
				

4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.6.2 Test Setup



4.6.3 Test Procedures

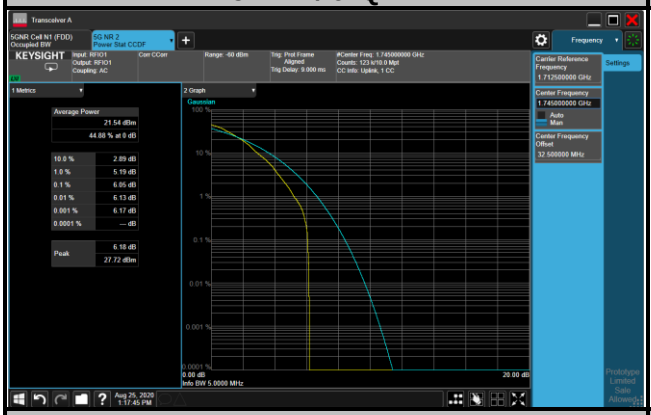
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

4.6.4 Test Results

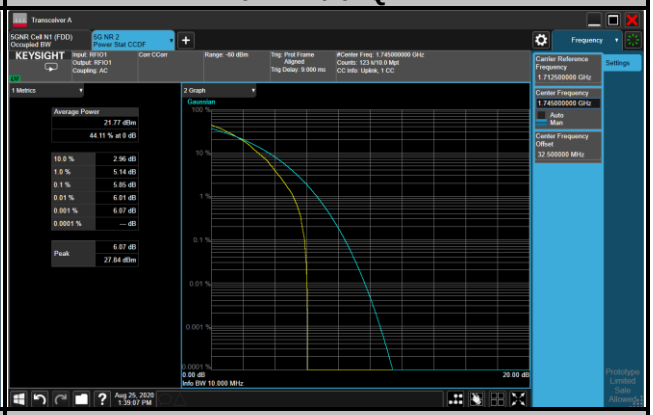
n66					
Channel Bandwidth: 5 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
342500	1712.5	3.80	4.33	5.43	5.88
349000	1745.0	3.92	4.35	5.48	6.05
355500	1777.5	3.81	4.35	5.45	5.95
Channel Bandwidth: 10 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
343000	1715.0	3.82	4.47	5.45	5.84
349000	1745.0	3.86	4.41	5.40	5.85
355000	1775.0	4.04	4.47	5.38	5.81
Channel Bandwidth: 15 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
343500	1717.5	3.97	4.59	5.52	6.11
349000	1745.0	3.96	4.54	5.49	6.00
354500	1772.5	4.08	4.58	5.45	5.95
Channel Bandwidth: 20 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
344000	1720.0	3.76	4.44	5.47	5.92
349000	1745.0	3.83	4.43	5.45	5.86
354000	1770.0	3.95	4.40	5.39	5.91

Spectrum Plot of Worst Value

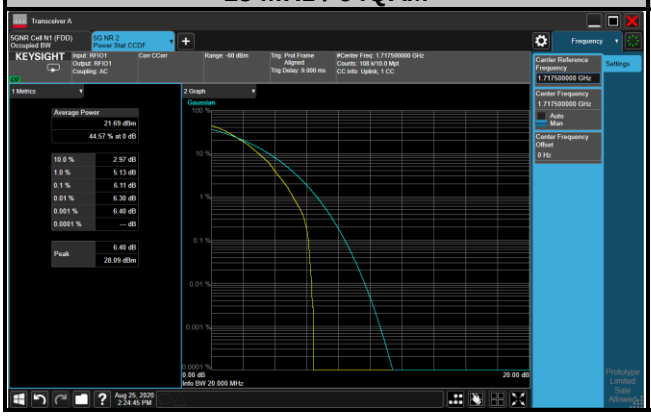
5 MHz / 64QAM



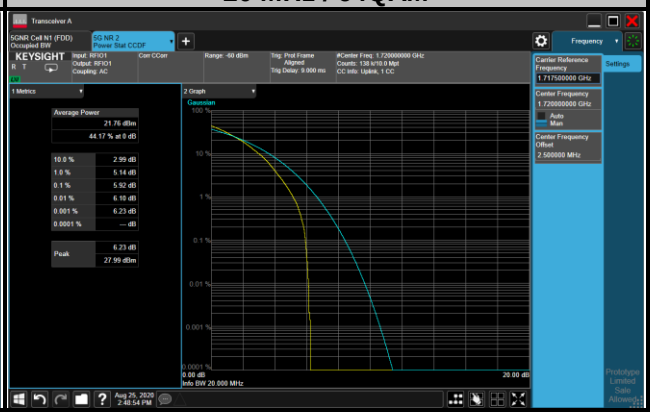
10 MHz / 64QAM



15 MHz / 64QAM



20 MHz / 64QAM

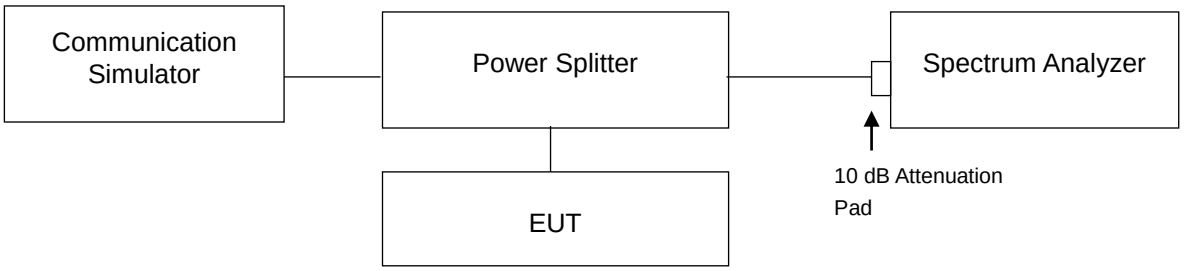


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.

4.7.2 Test Setup



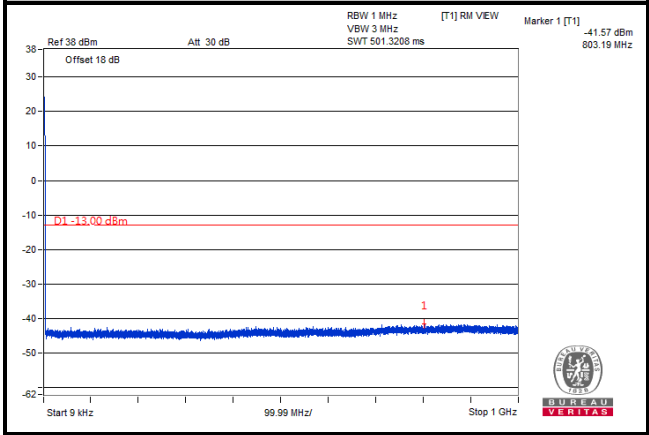
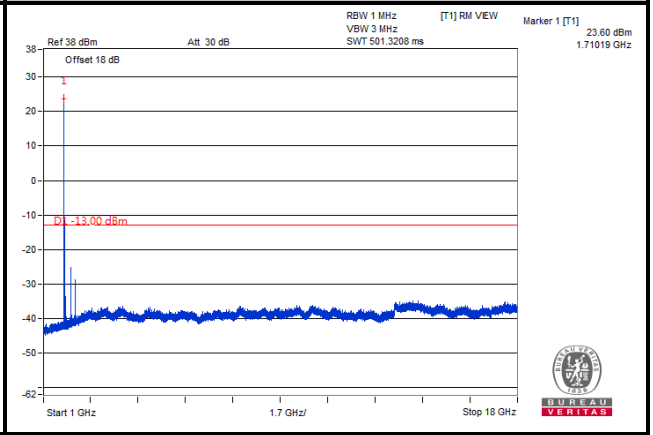
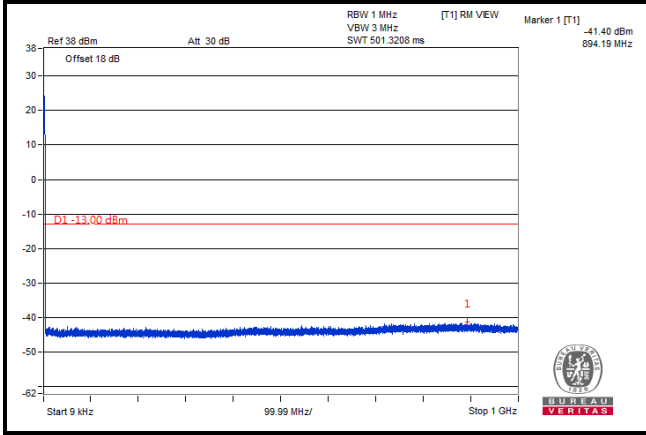
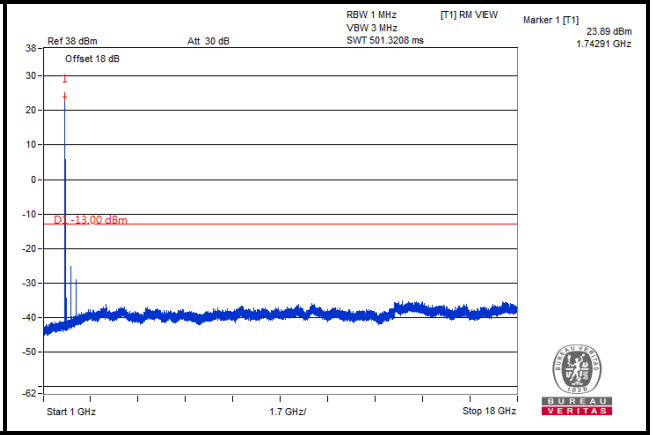
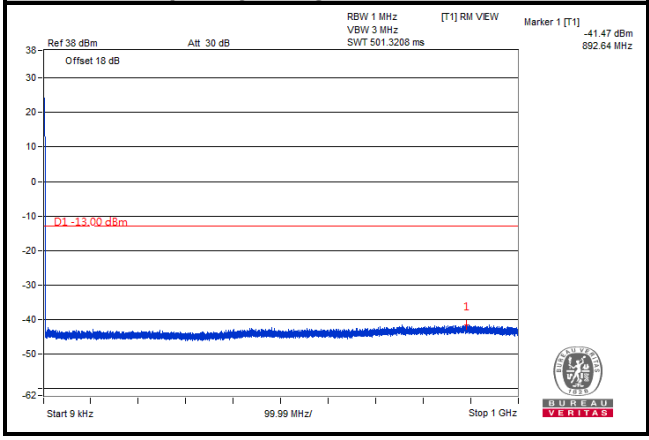
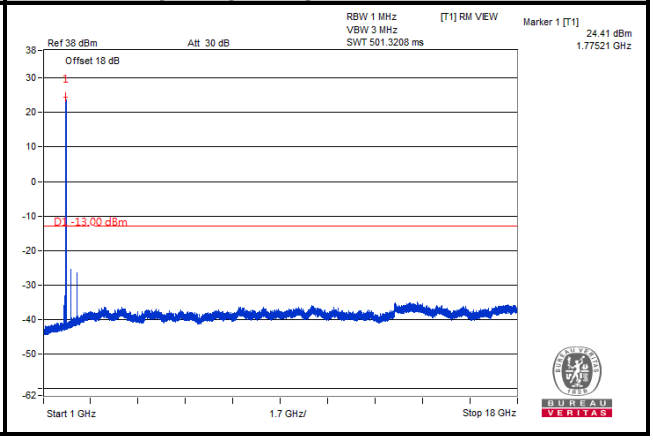
4.7.3 Test Procedure

a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.

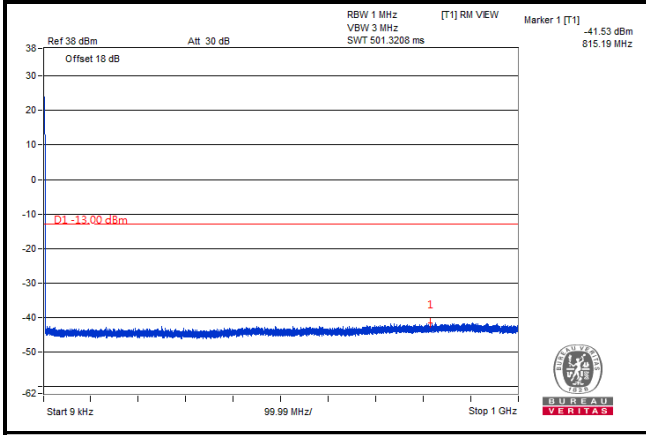
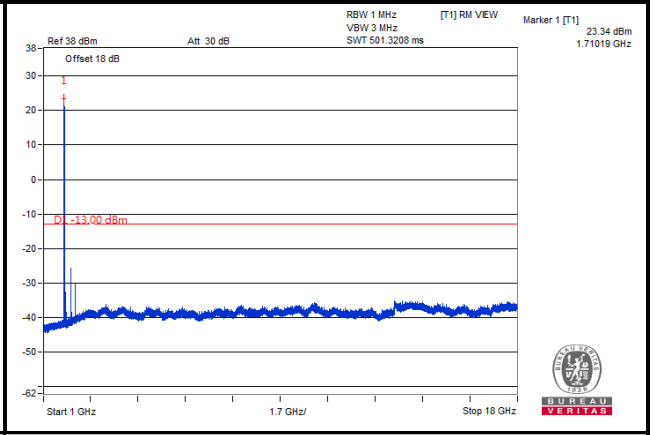
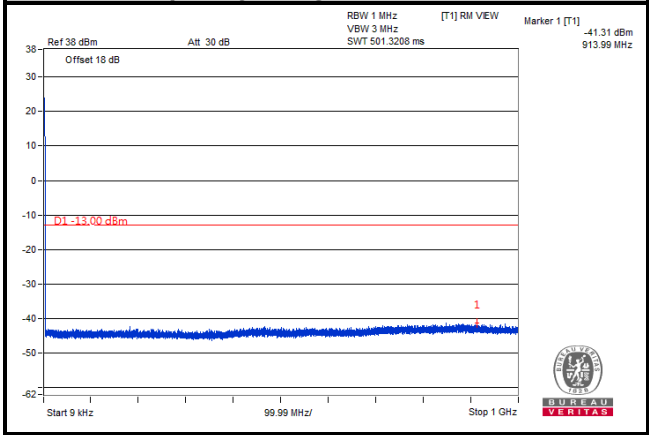
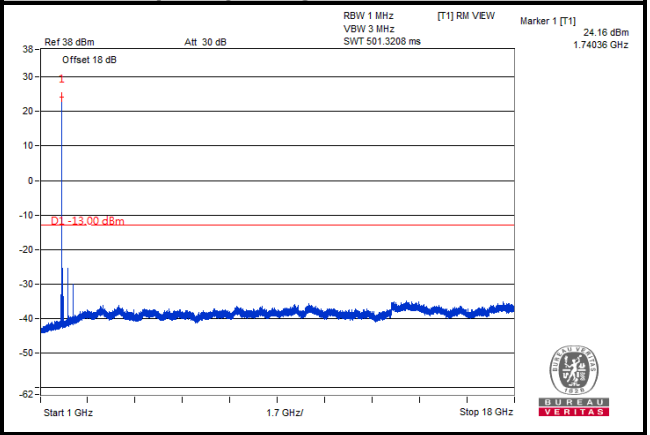
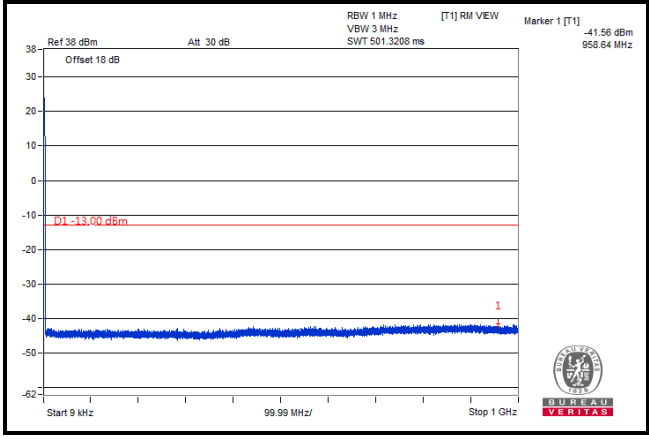
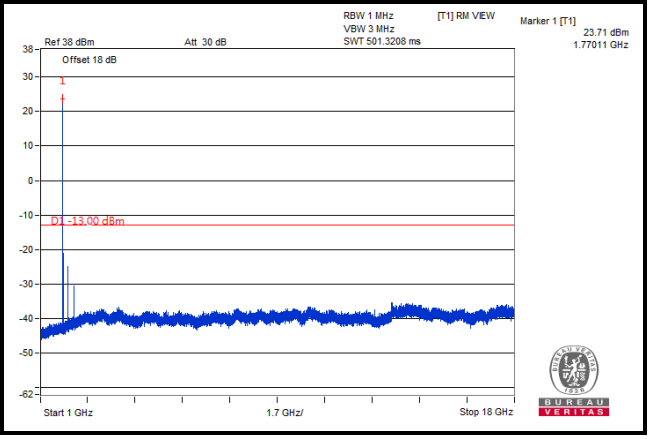
b. Measuring frequency range is from 9 kHz to 1 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

c. Measuring frequency range is from 1 GHz to 18 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

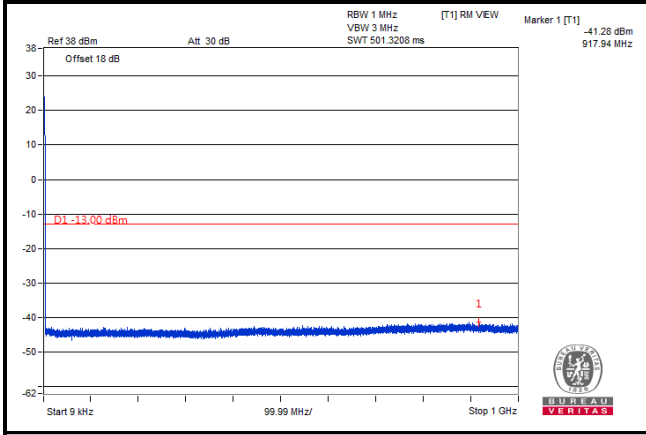
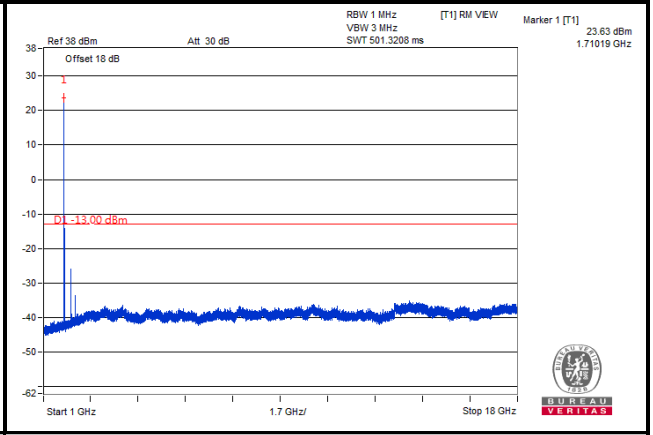
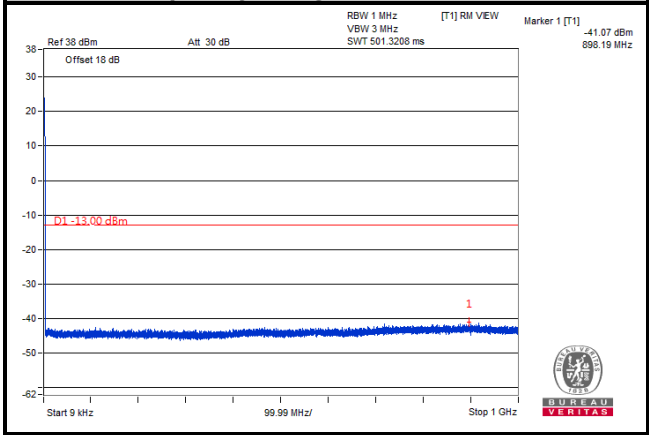
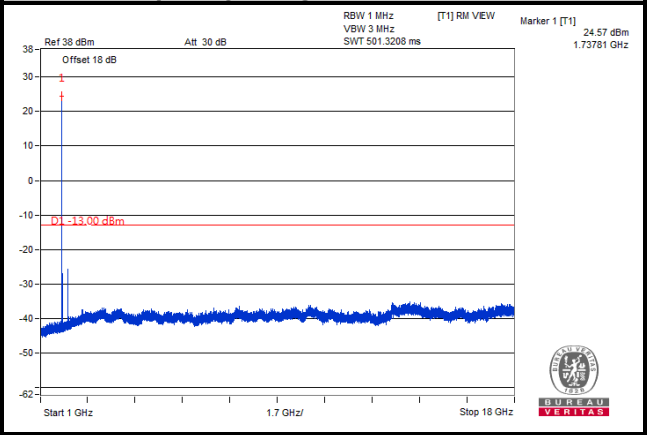
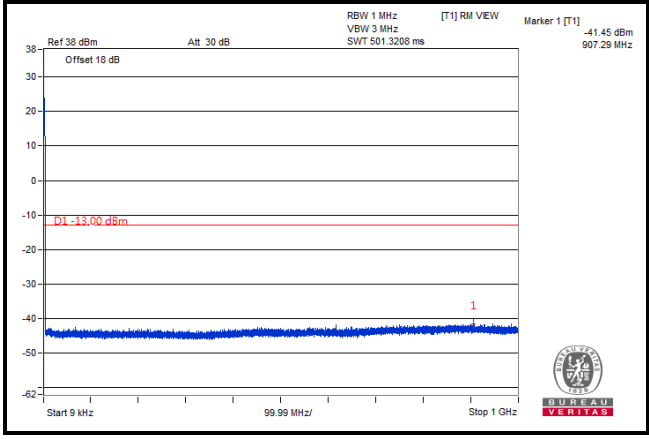
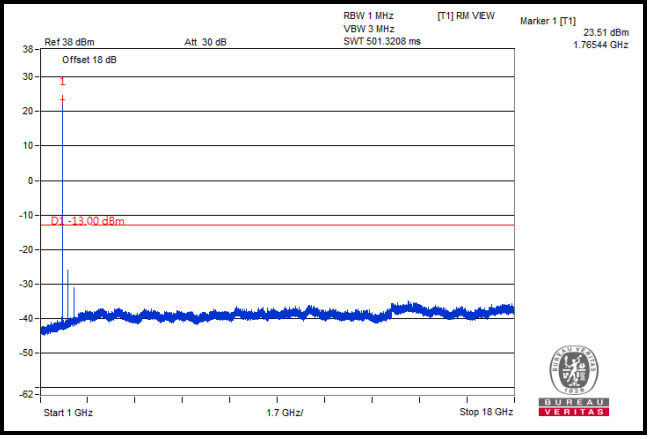
4.7.4 Test Results

n66	
Channel Bandwidth: 5 MHz	
Channel 342500	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 18 GHz**
	
Channel 349000	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 18 GHz**
	
Channel 355500	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 18 GHz**
	

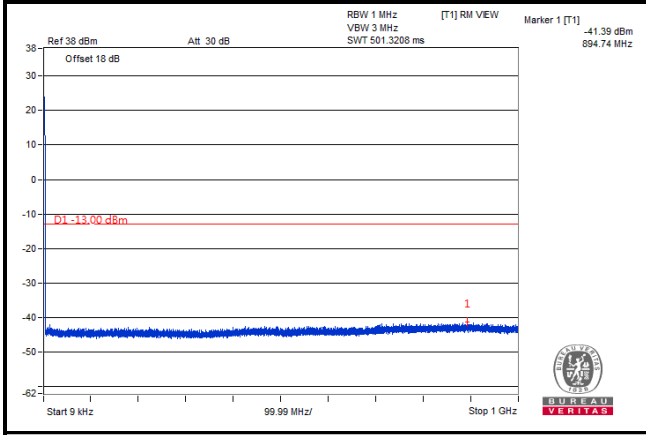
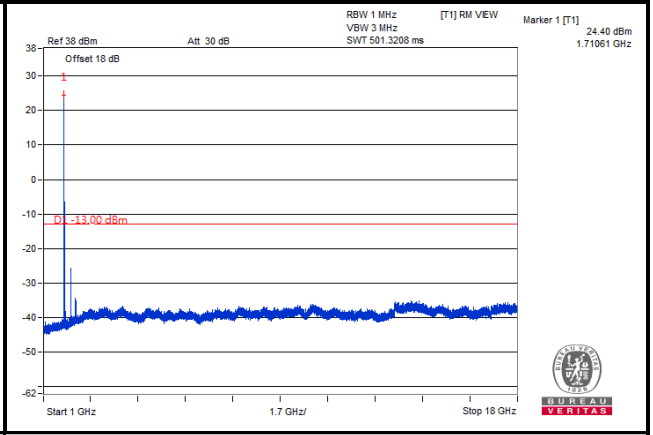
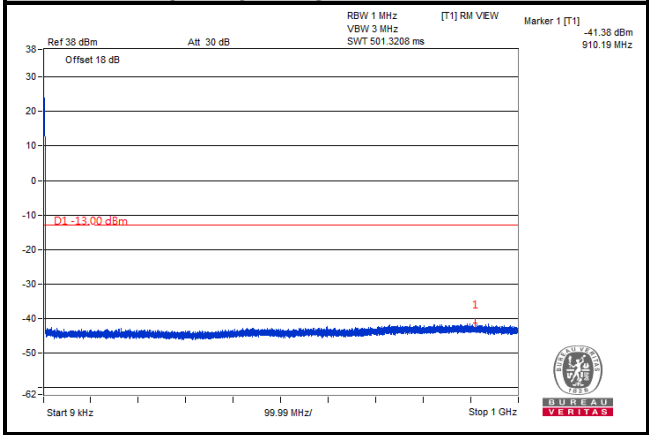
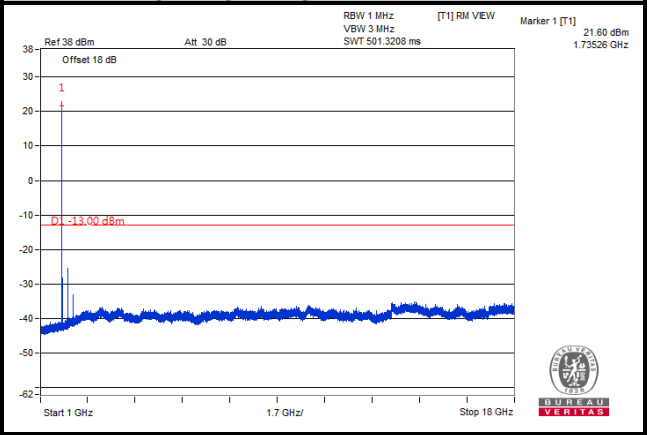
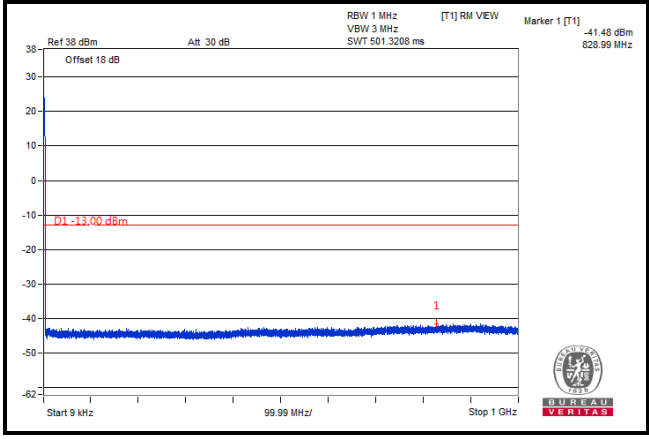
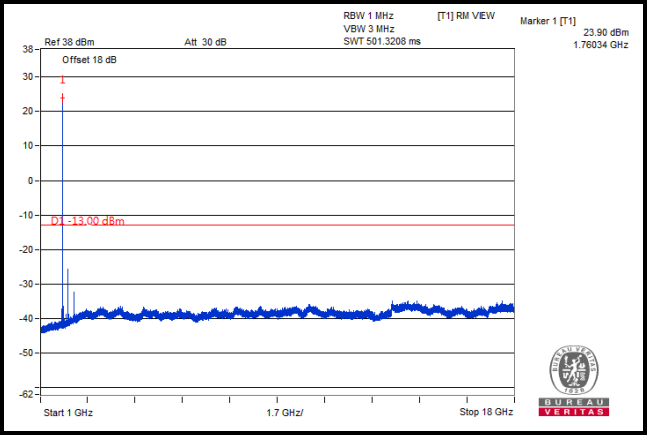
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

n66	
Channel Bandwidth: 10 MHz	
Channel 343000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 349000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 355000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

n66	
Channel Bandwidth: 15 MHz	
Channel 343500	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 349000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 354500	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

n66	
Channel Bandwidth: 20 MHz	
Channel 344000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 349000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	
Channel 354000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 18 GHz
	

Note: The signal over the limit in 9 kHz is from spectrum analyzer.

4.8 Radiated Emission Measurement

4.8.1 Limits of Radiated Emission Measurement

a. The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.

4.8.2 Test Procedure

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
b. ion horn.
c. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Note:

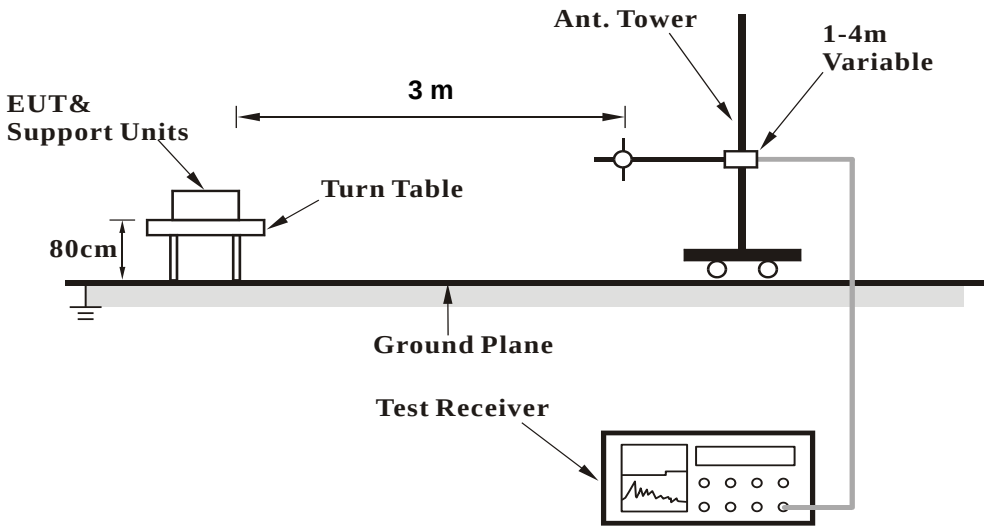
1. The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.8.3 Deviation from Test Standard

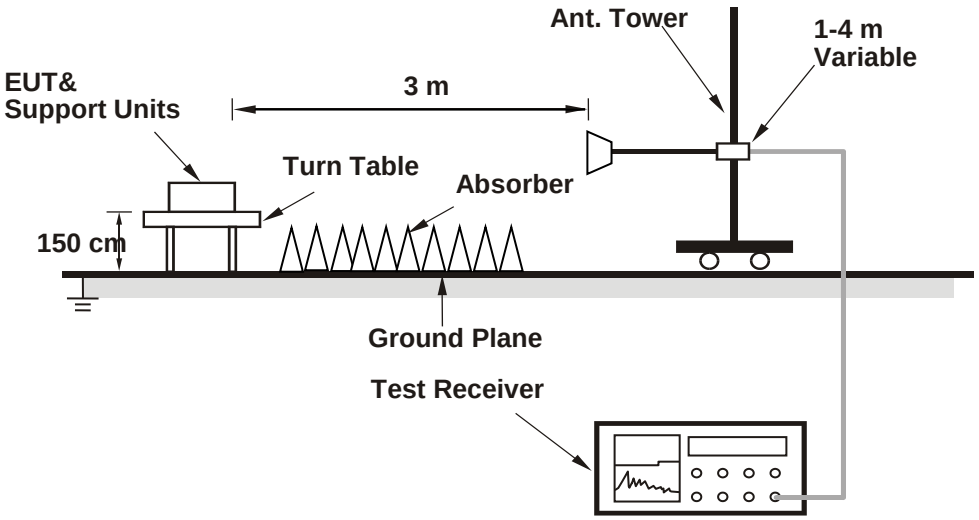
No deviation.

4.8.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.8.5 Test Results

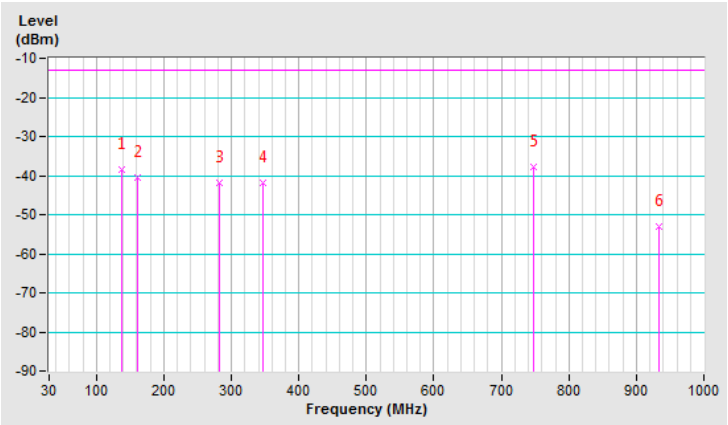
Below 1GHz

n66, Channel Bandwidth: 20MHz

Mode	TX channel 349000 (1745.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	136.70	-39.2	-38.3	-0.3	-38.6	-13.0	-25.6
2	161.92	-42.2	-41.3	0.7	-40.6	-13.0	-27.6
3	282.20	-48.4	-47.2	5.3	-41.9	-13.0	-28.9
4	346.22	-48.6	-47.2	5.2	-42.0	-13.0	-29.0
5	747.80	-44.4	-42.4	4.7	-37.7	-13.0	-24.7
6	934.04	-59.4	-57.1	3.9	-53.2	-13.0	-40.2

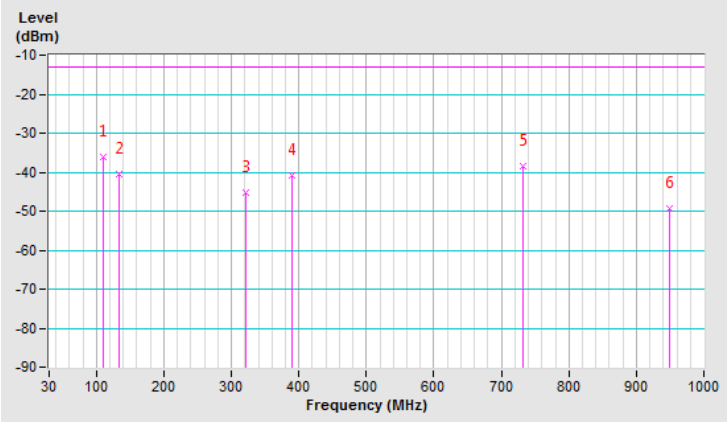
Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 349000 (1745.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	**109.54**	**-37.4**	**-36.6**	**0.5**	**-36.1**	**-13.0**	**-23.1**
2	132.82	-41.1	-40.3	-0.1	-40.4	-13.0	-27.4
3	321.00	-51.7	-50.4	5.2	-45.2	-13.0	-32.2
4	388.90	-47.6	-46.1	5.2	-40.9	-13.0	-27.9
5	732.28	-45.4	-43.4	4.9	-38.5	-13.0	-25.5
6	949.56	-55.6	-53.3	3.9	-49.4	-13.0	-36.4

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Above 1GHz
n66, Channel Bandwidth: 5MHz

Mode	TX channel 342500 (1712.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-68.8	-64.6	7.1	-57.5	-13.0	-44.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3425.00	-68.3	-61.8	7.1	-54.7	-13.0	-41.7

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 349000 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.1	-62.8	7.2	-55.6	-13.0	-42.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.6	-61.7	7.2	-54.5	-13.0	-41.5

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 355500 (1777.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3555.00	-68.3	-62.6	7.2	-55.4	-13.0	-42.4
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3555.00	-68.8	-62.0	7.2	-54.8	-13.0	-41.8

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

n66, Channel Bandwidth: 10MHz

Mode	TX channel 343000 (1715.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3430.00	-68.0	-63.7	7.1	-56.6	-13.0	-43.6
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3430.00	-68.2	-61.6	7.1	-54.5	-13.0	-41.5

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 349000 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.2	-62.9	7.2	-55.7	-13.0	-42.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.2	-61.3	7.2	-54.1	-13.0	-41.1

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 355000 (1775.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3550.00	-67.6	-61.9	7.2	-54.7	-13.0	-41.7
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3550.00	-68.7	-61.9	7.2	-54.7	-13.0	-41.7

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

n66, Channel Bandwidth: 15MHz

Mode	TX channel 343500 (1717.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3435.00 (PK)	-68.0	-63.6	7.1	-56.5	-13.0	-43.5
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3435.00 (PK)	-68.1	-61.5	7.1	-54.4	-13.0	-41.4

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 349000 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.3	-63.0	7.2	-55.8	-13.0	-42.8
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.3	-61.4	7.2	-54.2	-13.0	-41.2

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 354500 (1772.5MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3545.00	-68.1	-62.5	7.2	-55.3	-13.0	-42.3
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3545.00	-68.8	-62.0	7.2	-54.8	-13.0	-41.8

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

n66, Channel Bandwidth: 20MHz

Mode	TX channel 344000 (1720.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-68.7	-64.2	7.1	-57.1	-13.0	-44.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3440.00	-68.5	-61.9	7.1	-54.8	-13.0	-41.8

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 349000 (1745.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.6	-63.3	7.2	-56.1	-13.0	-43.1
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3490.00	-68.1	-61.2	7.2	-54.0	-13.0	-41.0

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

Mode	TX channel 354000 (1770.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	25deg. C, 70%RH	Input Power	120Vac, 60Hz
Tested By	Noah Chang		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3540.00	-68.7	-63.1	7.2	-55.9	-13.0	-42.9
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3540.00	-68.4	-61.6	7.2	-54.4	-13.0	-41.4

Remarks:
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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