FCC Test Report

(PART 24)

Report No.: RF200605C24-12

FCC ID: V65E7110

Test Model: E7110

Received Date: Jun. 29, 2020

Test Date: Aug. 11 ~ Aug. 29, 2020

Issued Date: Nov. 17, 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
RF200605C24-12	Original Release	Nov. 17, 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. 11 ~ Aug. 29, 2020

Standards: FCC Part 24, Subpart E

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. 17, 2020

Gina Liu / Specialist

Approved by : _____ , **Date:** Nov. 17, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 24.232	Effective Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	Pass	Meet the requirement.
24.232(d)	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1055 24.235	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
24.238	Band Edge Measurements	Pass	Meet the requirement of limit.
2.1051 24.238	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -22.7 dB at 256.98 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. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	150929	Aug. 20, 2019	Aug. 19, 2020
			Aug. 16, 2020	Aug. 15, 2021
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	Aug. 20, 2019	Aug. 19, 2020
			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.

2.3 General Information

2.4 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	n2 (Channel Bandwidth 5MHz)	1852.5~1907.5MHz
	n2 (Channel Bandwidth 10MHz)	1855.0~1905.0MHz
	n2 (Channel Bandwidth 15MHz)	1857.5~1902.5MHz
	n2 (Channel Bandwidth 20MHz)	1860.0~1900.0MHz
Max. EIRP Power	n2 (Channel Bandwidth 5MHz)	208.930 mW (23.2 dBm)
	n2 (Channel Bandwidth 10MHz)	213.796 mW (23.3 dBm)
	n2 (Channel Bandwidth 15MHz)	208.930 mW (23.2 dBm)
	n2 (Channel Bandwidth 20MHz)	213.796 mW (23.3 dBm)
Emission Designator	n2 (Channel Bandwidth 5MHz)	4M50D7W
	n2 (Channel Bandwidth 10MHz)	9M25D7W
	n2 (Channel Bandwidth 15MHz)	14M1D7W
	n2 (Channel Bandwidth 20MHz)	18M8D7W
Antenna Type	Monopole Antenna with -2.3 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.

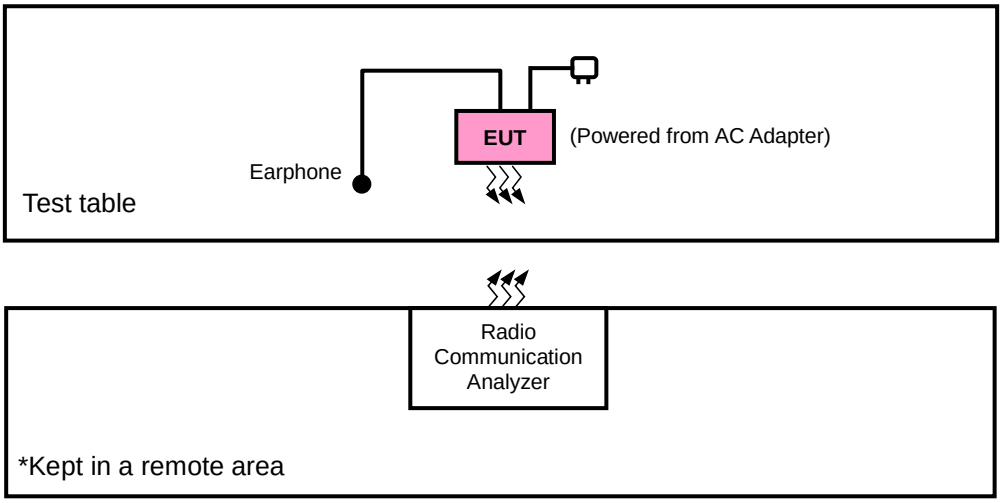
Product	Brand	Model	Description
Adapter	Kyocera	SCP-53ADT	I/P: 100-240 Vac, 50/60 Hz, 0.6 A O/P: 5 Vdc, 3 A; 9 Vdc, 3 A; 15 Vdc, 1.8 A; 20 Vdc, 1.35 A
USB Cable	Kyocera	SCP-27SDC	-

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.

2.5 Configuration of System under Test



2.5.1 Description of Support Units

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

2.6 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
n2	X-plane	X-plane

n2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	370500 to 381500	370500 (1852.50MHz), 376000 (1880.00MHz), 381500 (1907.50MHz)	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
		371000 to 381000	371000 (1855.00MHz), 376000 (1880.00MHz), 381000 (1905.00MHz)	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
		371500 to 380500	371500 (1857.50MHz), 376000 (1880.00MHz), 380500 (1902.50MHz)	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
		372000 to 380000	372000 (1860.00MHz), 376000 (1880.00MHz), 380000 (1900.00MHz)	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	372000 to 380000	376000 (1880.00MHz)	20 MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	106 RB / 0 RB Offset
-	Frequency Stability	370500 to 381500	370500 (1852.50MHz), 381500 (1907.50MHz)	5MHz	$\pi/2$ BPSK	12 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 381000 (1905.00MHz)	10MHz	$\pi/2$ BPSK	26 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 380500 (1902.50MHz)	15MHz	$\pi/2$ BPSK	39 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 380000 (1900.00MHz)	20MHz	$\pi/2$ BPSK	50 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Occupied Bandwidth	370500 to 381500	370500 (1852.50MHz), 376000 (1880.00MHz), 381500 (1907.50MHz)	5MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	12 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 376000 (1880.00MHz), 381000 (1905.00MHz)	10MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	26 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 376000 (1880.00MHz), 380500 (1902.50MHz)	15MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	39 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 376000 (1880.00MHz), 380000 (1900.00MHz)	20MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
-	Peak to Average Ratio	370500 to 381500	370500 (1852.50MHz), 376000 (1880.00MHz), 381500 (1907.50MHz)	5MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 376000 (1880.00MHz), 381000 (1905.00MHz)	10MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 376000 (1880.00MHz), 380500 (1902.50MHz)	15MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 376000 (1880.00MHz), 380000 (1900.00MHz)	20MHz	π/2 BPSK, QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Band Edge	370500 to 381500	370500 (1852.50MHz), 381500 (1907.50MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 24 RB Offset 25 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 381000 (1905.00MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 51 RB Offset 52 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 380500 (1902.50MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 78 RB Offset 79 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 380000 (1900.00MHz)	20MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset 1 RB / 105 RB Offset 106 RB / 0 RB Offset
-	Conducted Emission	370500 to 381500	370500 (1852.50MHz), 376000 (1880.00MHz), 381500 (1907.50MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 376000 (1880.00MHz), 381000 (1905.00MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 376000 (1880.00MHz), 380500 (1902.50MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 376000 (1880.00MHz), 380000 (1900.00MHz)	20MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	370500 to 381500	370500 (1852.50MHz), 376000 (1880.00MHz), 381500 (1907.50MHz)	5MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		371000 to 381000	371000 (1855.00MHz), 376000 (1880.00MHz), 381000 (1905.00MHz)	10MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		371500 to 380500	371500 (1857.50MHz), 376000 (1880.00MHz), 380500 (1902.50MHz)	15MHz	$\pi/2$ BPSK	1 RB / 0 RB Offset
		372000 to 380000	372000 (1860.00MHz), 376000 (1880.00MHz), 380000 (1900.00MHz)	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	26 deg. C, 58 % RH	120 Vac, 60 Hz	Noah Chang
Modulation Characteristics	26 deg. C, 58 % RH	120 Vac, 60 Hz	Getaz Yang
Frequency Stability	26 deg. C, 58 % RH	3.85Vdc	Getaz Yang
Occupied Bandwidth	26 deg. C, 58 % RH	120 Vac, 60 Hz	Getaz Yang
Band Edge	26 deg. C, 58 % RH	120 Vac, 60 Hz	Getaz Yang
Peak to Average Ratio	26 deg. C, 58 % RH	120 Vac, 60 Hz	Getaz Yang
Conducted Emission	26 deg. C, 58 % RH	120 Vac, 60 Hz	Getaz Yang
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Noah Chang

2.7 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

2.8 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 24
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.

3 Test Types and Results

3.1 Output Power Measurement

3.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

3.1.2 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 n2 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.

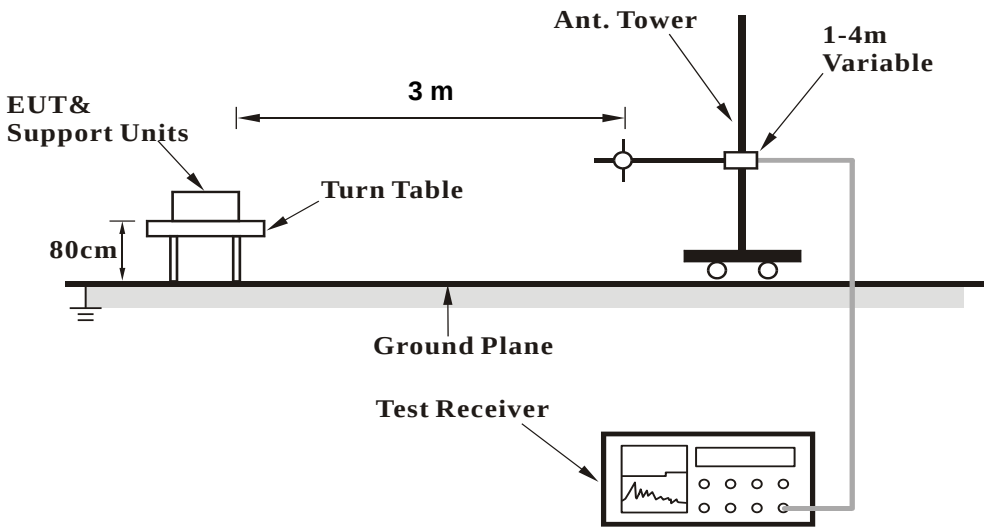
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Conducted Power Measurement:

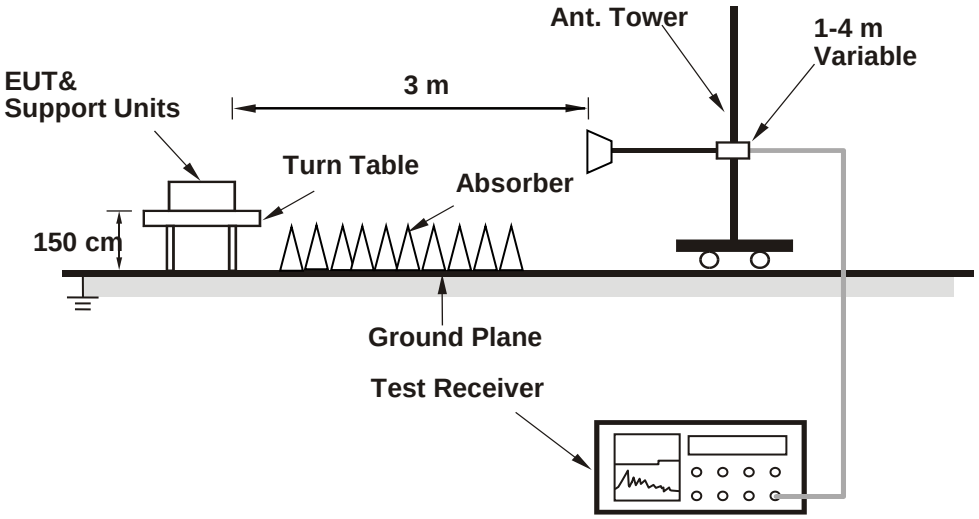
The EUT was set up for the maximum power with 5GNR link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.1.3 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:

3.1.4 Test Results

Conducted Output Power (dBm)

n2						
BW	MCS Index	Channel		370500	376000	381500
		Frequency (MHz)		1852.5	1880	1907.5
5M	DFT-S $\pi/2$ BPSK	1	1	24.20	24.69	24.03
		1	13	24.20	24.64	24.19
		1	23	24.06	24.43	23.99
		12	0	23.88	24.27	23.87
		12	6	24.28	24.55	24.16
		12	13	23.84	24.13	23.75
		25	0	23.72	24.08	23.73
	DFT-S QPSK	1	1	24.43	24.74	24.31
		1	13	24.37	24.69	24.26
		1	23	24.00	24.37	23.90
		12	0	23.44	23.78	23.36
		12	6	24.36	24.71	24.27
		12	13	23.41	23.69	23.31
		25	0	23.47	23.80	23.37
	DFT-S 16QAM	1	1	23.31	23.63	23.15
	DFT-S 64QAM	1	1	21.79	22.10	21.77
	CP QPSK	1	1	23.19	23.61	23.16
	CP 16QAM	1	1	22.54	22.98	22.54
	CP 64QAM	1	1	20.68	20.97	20.57

n2						
BW	MCS Index	Channel		371000	376000	381000
		Frequency (MHz)		1855	1880	1905
10M	DFT-S $\pi/2$ BPSK	1	1	24.22	24.69	24.06
		1	26	24.29	24.63	24.22
		1	50	24.00	24.41	23.93
		25	0	23.84	24.28	23.86
		25	12	24.24	24.55	24.14
		25	26	23.83	24.20	23.79
		50	0	23.75	24.13	23.72
	DFT-S QPSK	1	1	24.39	24.75	24.36
		1	26	24.27	24.63	24.24
		1	50	23.97	24.35	23.91
		25	0	23.36	23.77	23.32
		25	12	24.37	24.73	24.30
		25	26	23.37	23.70	23.39
		50	0	23.37	23.73	23.36
	DFT-S 16QAM	1	1	23.23	23.55	23.16
	DFT-S 64QAM	1	1	21.79	22.11	21.75
	CP QPSK	1	1	23.29	23.55	23.19
	CP 16QAM	1	1	22.54	22.98	22.50
	CP 64QAM	1	1	20.66	21.02	20.57

n2						
BW	MCS Index	Channel		371500	376000	380500
		Frequency (MHz)		1857.5	1880	1902.5
15M	DFT-S $\pi/2$ BPSK	1	1	24.16	24.66	24.11
		1	40	24.28	24.54	24.20
		1	77	24.08	24.40	24.02
		36	0	23.85	24.28	23.78
		36	18	24.22	24.54	24.14
		36	40	23.85	24.22	23.72
		75	0	23.72	24.12	23.73
	DFT-S QPSK	1	1	24.39	24.72	24.38
		1	40	24.27	24.65	24.30
		1	77	23.95	24.31	23.98
		36	0	23.35	23.76	23.32
		36	18	24.38	24.63	24.33
		36	40	23.45	23.77	23.29
		75	0	23.38	23.71	23.41
	DFT-S 16QAM	1	1	23.27	23.61	23.21
	DFT-S 64QAM	1	1	21.82	22.17	21.71
	CP QPSK	1	1	23.19	23.59	23.14
	CP 16QAM	1	1	22.57	22.88	22.51
	CP 64QAM	1	1	20.66	20.99	20.62

n2						
BW	MCS Index	Channel		372000	376000	380000
		Frequency (MHz)		1860	1880	1900
20M	DFT-S $\pi/2$ BPSK	1	1	24.26	24.71	24.12
		1	53	24.30	24.64	24.24
		1	104	24.09	24.43	24.03
		50	0	23.94	24.28	23.88
		50	25	24.30	24.64	24.24
		50	53	23.88	24.22	23.82
		100	0	23.82	24.16	23.76
	DFT-S QPSK	1	1	24.45	**24.79**	24.39
		1	53	24.37	24.71	24.31
		1	104	24.04	24.38	23.98
		50	0	23.45	23.79	23.39
		50	25	24.39	24.73	24.33
		50	53	23.45	23.79	23.39
		100	0	23.47	23.81	23.41
	DFT-S 16QAM	1	1	23.31	23.65	23.25
	DFT-S 64QAM	1	1	21.84	22.18	21.78
	CP QPSK	1	1	23.29	23.63	23.23
	CP 16QAM	1	1	22.64	22.98	22.58
	CP 64QAM	1	1	20.72	21.06	20.66

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 (dBm)

Modulation Type: $\pi/2$ BPSK

n2, Channel Bandwidth 5MHz

MODE	TX channel 370500, 376000, 381500						
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	1852.50	-18.1	21.8	1.0	22.8	33.0	-10.2
2	1880.00	-18.2	21.9	1.1	23.0	33.0	-10.0
3	1907.50	-18.3	22.1	1.1	23.2	33.0	-9.8
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	1852.50	-25.1	13.7	1.0	14.7	33.0	-18.3
2	1880.00	-25.1	13.4	1.1	14.5	33.0	-18.5
3	1907.50	-25.3	13.1	1.1	14.2	33.0	-18.8

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

n2, Channel Bandwidth 10MHz

MODE	TX channel 371000, 376000, 381000						
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	1855.00	-18.2	21.8	1.0	22.8	33.0	-10.2
2	1880.00	-17.9	22.2	1.1	23.3	33.0	-9.7
3	1905.00	-18.6	21.8	1.1	22.9	33.0	-10.1
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	1855.00	-25.3	13.5	1.0	14.5	33.0	-18.5
2	1880.00	-24.7	13.8	1.1	14.9	33.0	-18.1
3	1905.00	-24.8	13.6	1.1	14.7	33.0	-18.3

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

n2, Channel Bandwidth 15MHz

MODE	TX channel 371500, 376000, 380500						
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	1857.50	-17.8	22.1	1.1	23.2	33.0	-9.8
2	1880.00	-18.2	21.9	1.1	23.0	33.0	-10.0
3	1902.50	-18.8	21.6	1.1	22.7	33.0	-10.3
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	1857.50	-24.7	14.0	1.1	15.1	33.0	-17.9
2	1880.00	-24.8	13.7	1.1	14.8	33.0	-18.2
3	1902.50	-25.1	13.3	1.1	14.4	33.0	-18.6

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

n2, Channel Bandwidth 20MHz

MODE	TX channel 372000, 376000, 380000						
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	1860.00	-17.7	22.2	1.1	23.3	33.0	-9.7
2	1880.00	-18.3	21.8	1.1	22.9	33.0	-10.1
3	1900.00	-18.8	21.6	1.1	22.7	33.0	-10.3
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	1860.00	-24.8	13.8	1.1	14.9	33.0	-18.1
2	1880.00	-25.1	13.4	1.1	14.5	33.0	-18.5
3	1900.00	-25.0	13.3	1.1	14.4	33.0	-18.6

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

Modulation Type: QPSK

n2, Channel Bandwidth 5MHz

MODE		TX channel 370500, 376000, 381500					
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	1852.50	-18.6	21.3	1.0	22.3	33.0	-10.7
2	1880.00	-18.7	21.4	1.1	22.5	33.0	-10.5
3	1907.50	-18.8	21.6	1.1	22.7	33.0	-10.3
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	1852.50	-25.6	13.2	1.0	14.2	33.0	-18.8
2	1880.00	-25.7	12.8	1.1	13.9	33.0	-19.1
3	1907.50	-25.7	12.7	1.1	13.8	33.0	-19.2

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

n2, Channel Bandwidth 10MHz

MODE		TX channel 371000, 376000, 381000					
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	1855.00	-18.8	21.2	1.0	22.2	33.0	-10.8
2	1880.00	-18.5	21.6	1.1	22.7	33.0	-10.3
3	1905.00	-19.1	21.3	1.1	22.4	33.0	-10.6
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	1855.00	-25.8	13.0	1.0	14.0	33.0	-19.0
2	1880.00	-25.1	13.4	1.1	14.5	33.0	-18.5
3	1905.00	-25.4	13.0	1.1	14.1	33.0	-18.9

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

n2, Channel Bandwidth 15MHz

MODE	TX channel 371500, 376000, 380500						
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	1857.50	-18.4	21.5	1.1	22.6	33.0	-10.4
2	1880.00	-18.7	21.4	1.1	22.5	33.0	-10.5
3	1902.50	-19.3	21.1	1.1	22.2	33.0	-10.8
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	1857.50	-25.3	13.4	1.1	14.5	33.0	-18.5
2	1880.00	-25.4	13.1	1.1	14.2	33.0	-18.8
3	1902.50	-25.8	12.6	1.1	13.7	33.0	-19.3

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

n2, Channel Bandwidth 20MHz

MODE	TX channel 372000, 376000, 380000						
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	1860.00	-18.3	21.6	1.1	22.7	33.0	-10.3
2	1880.00	-18.9	21.2	1.1	22.3	33.0	-10.7
3	1900.00	-19.4	21.0	1.1	22.1	33.0	-10.9
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	1860.00	-25.3	13.3	1.1	14.4	33.0	-18.6
2	1880.00	-25.6	12.9	1.1	14.0	33.0	-19.0
3	1900.00	-25.5	12.8	1.1	13.9	33.0	-19.1

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

Modulation Type: 16QAM

n2, Channel Bandwidth 5MHz

MODE		TX channel 370500, 376000, 381500					
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	1852.50	-19.5	20.4	1.0	21.4	33.0	-11.6
2	1880.00	-20.0	20.1	1.1	21.2	33.0	-11.8
3	1907.50	-19.8	20.6	1.1	21.7	33.0	-11.3
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	1852.50	-26.6	12.2	1.0	13.2	33.0	-19.8
2	1880.00	-26.6	11.9	1.1	13.0	33.0	-20.0
3	1907.50	-26.7	11.7	1.1	12.8	33.0	-20.2

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

n2, Channel Bandwidth 10MHz

MODE		TX channel 371000, 376000, 381000					
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	1855.00	-19.8	20.2	1.0	21.2	33.0	-11.8
2	1880.00	-19.5	20.6	1.1	21.7	33.0	-11.3
3	1905.00	-20.0	20.4	1.1	21.5	33.0	-11.5
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	1855.00	-26.8	12.0	1.0	13.0	33.0	-20.0
2	1880.00	-26.1	12.4	1.1	13.5	33.0	-19.5
3	1905.00	-26.2	12.2	1.1	13.3	33.0	-19.7

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

n2, Channel Bandwidth 15MHz

MODE	TX channel 371500, 376000, 380500						
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	1857.50	-19.4	20.5	1.1	21.6	33.0	-11.4
2	1880.00	-19.8	20.3	1.1	21.4	33.0	-11.6
3	1902.50	-20.2	20.2	1.1	21.3	33.0	-11.7
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	1857.50	-26.3	12.4	1.1	13.5	33.0	-19.5
2	1880.00	-26.6	11.9	1.1	13.0	33.0	-20.0
3	1902.50	-26.7	11.7	1.1	12.8	33.0	-20.2

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

n2, Channel Bandwidth 20MHz

MODE	TX channel 372000, 376000, 380000						
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	1860.00	-19.5	20.4	1.1	21.5	33.0	-11.5
2	1880.00	-19.9	20.2	1.1	21.3	33.0	-11.7
3	1900.00	-20.4	20.0	1.1	21.1	33.0	-11.9
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	1860.00	-26.4	12.2	1.1	13.3	33.0	-19.7
2	1880.00	-26.5	12.0	1.1	13.1	33.0	-19.9
3	1900.00	-26.6	11.7	1.1	12.8	33.0	-20.2

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

Modulation Type: 64QAM

n2, Channel Bandwidth 5MHz

MODE		TX channel 370500, 376000, 381500					
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	1852.50	-20.4	19.5	1.0	20.5	33.0	-12.5
2	1880.00	-21.0	19.1	1.1	20.2	33.0	-12.8
3	1907.50	-20.9	19.5	1.1	20.6	33.0	-12.4
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	1852.50	-27.5	11.3	1.0	12.3	33.0	-20.7
2	1880.00	-27.5	11.0	1.1	12.1	33.0	-20.9
3	1907.50	-27.6	10.8	1.1	11.9	33.0	-21.1

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

n2, Channel Bandwidth 10MHz

MODE		TX channel 371000, 376000, 381000					
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	1855.00	-20.6	19.4	1.0	20.4	33.0	-12.6
2	1880.00	-20.6	19.5	1.1	20.6	33.0	-12.4
3	1905.00	-21.0	19.4	1.1	20.5	33.0	-12.5
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	1855.00	-27.7	11.1	1.0	12.1	33.0	-20.9
2	1880.00	-27.0	11.5	1.1	12.6	33.0	-20.4
3	1905.00	-27.3	11.1	1.1	12.2	33.0	-20.8

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

n2, Channel Bandwidth 15MHz

MODE	TX channel 371500, 376000, 380500						
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	1857.50	-20.7	19.2	1.1	20.3	33.0	-12.7
2	1880.00	-20.6	19.5	1.1	20.6	33.0	-12.4
3	1902.50	-21.2	19.2	1.1	20.3	33.0	-12.7
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	1857.50	-27.3	11.4	1.1	12.5	33.0	-20.5
2	1880.00	-27.5	11.0	1.1	12.1	33.0	-20.9
3	1902.50	-27.6	10.8	1.1	11.9	33.0	-21.1

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

n2, Channel Bandwidth 20MHz

MODE	TX channel 372000, 376000, 380000						
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	1860.00	-20.5	19.4	1.1	20.5	33.0	-12.5
2	1880.00	-21.0	19.1	1.1	20.2	33.0	-12.8
3	1900.00	-21.4	19.0	1.1	20.1	33.0	-12.9
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	1860.00	-27.5	11.1	1.1	12.2	33.0	-20.8
2	1880.00	-27.5	11.0	1.1	12.1	33.0	-20.9
3	1900.00	-27.5	10.8	1.1	11.9	33.0	-21.1

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

3.2 Modulation Characteristics Measurement

3.2.1 Limits of Modulation Characteristics

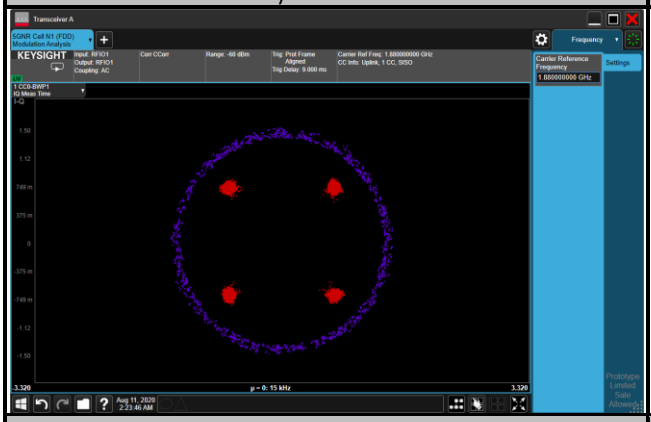
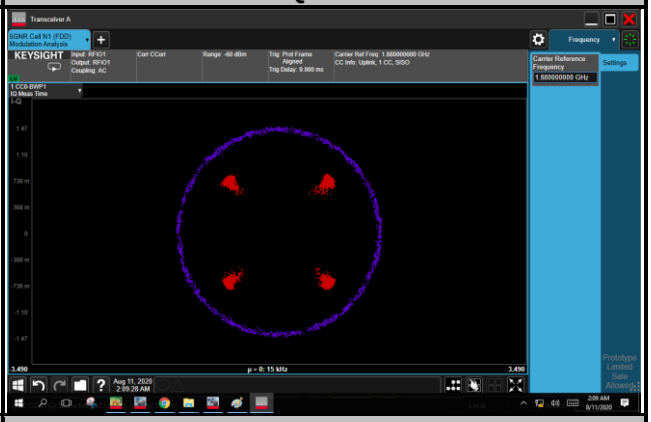
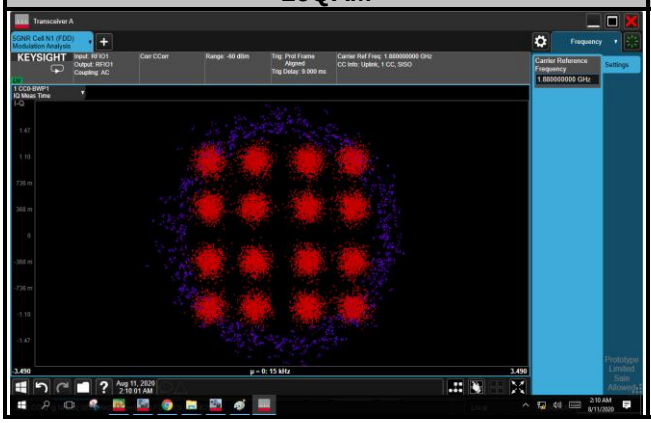
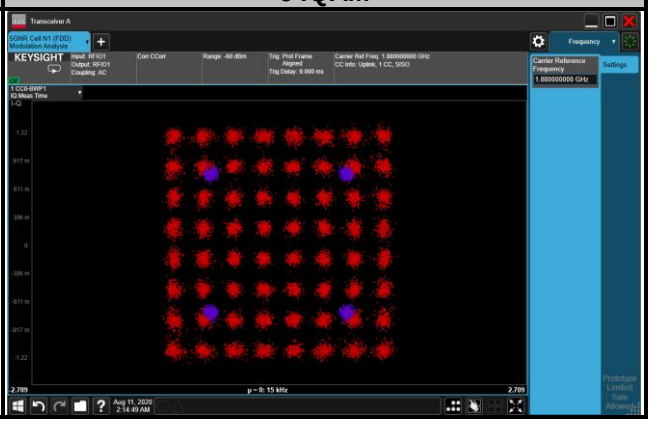
N/A

3.2.2 Test Setup

3.2.3 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.

3.2.4 Test Results

Spectrum Plot of Measurement	
n2	
Channel 376000	
$\pi/2$ BPSK	QPSK
	
16QAM	64QAM
	

3.3 Frequency Stability Measurement

3.3.1 Limits of Frequency Stability Measurement

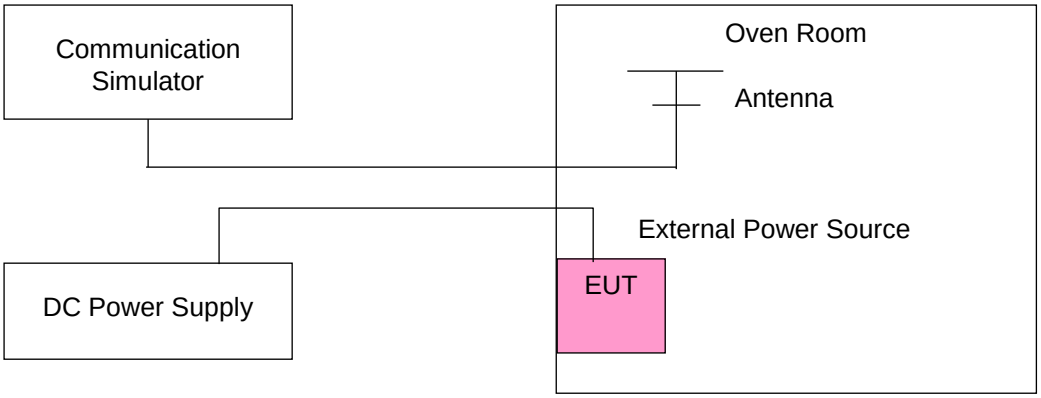
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.3.2 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.

3.3.3 Test Setup



3.3.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	n2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1852.500002	0.001	1907.499998	-0.001
3.45	1852.500003	0.002	1907.499998	-0.001
4.23	1852.500001	0.001	1907.499997	-0.001

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

Frequency Error vs. Temperature

Temp. (℃)	n2			
	Channel Bandwidth: 5 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1852.500003	0.001	1907.500001	0.001
-10	1852.500002	0.001	1907.500001	0.001
0	1852.500002	0.001	1907.500002	0.001
10	1852.499998	-0.001	1907.500003	0.002
20	1852.499999	-0.001	1907.500004	0.002
30	1852.499996	-0.002	1907.500001	0.001
40	1852.499997	-0.002	1907.499999	-0.001
50	1852.499997	-0.002	1907.499998	-0.001
60	1852.499999	-0.001	1907.499999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1855.000001	0.001	1904.999997	-0.002
3.45	1855.000002	0.001	1904.999998	-0.001
4.23	1855.000003	0.001	1904.999998	-0.001

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

Frequency Error vs. Temperature

Temp. (℃)	n2			
	Channel Bandwidth: 10 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1855.000002	0.001	1905.000003	0.002
-10	1855.000002	0.001	1905.000001	0.001
0	1855.000003	0.002	1905.000004	0.002
10	1854.999998	-0.001	1905.000003	0.001
20	1854.999997	-0.002	1905.000002	0.001
30	1854.999997	-0.002	1905.000003	0.001
40	1854.999997	-0.001	1904.999997	-0.002
50	1854.999997	-0.001	1904.999998	-0.001
60	1854.999998	-0.001	1904.999999	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1857.500002	0.001	1902.499998	-0.001
3.45	1857.500004	0.002	1902.499999	-0.001
4.23	1857.500001	0.001	1902.499998	-0.001

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

Frequency Error vs. Temperature

Temp. (℃)	n2			
	Channel Bandwidth: 15 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1857.500003	0.002	1902.500004	0.002
-10	1857.500001	0.001	1902.500001	0.001
0	1857.500003	0.002	1902.500001	0.001
10	1857.499997	-0.002	1902.500003	0.002
20	1857.499999	-0.001	1902.500004	0.002
30	1857.499997	-0.002	1902.500003	0.002
40	1857.499999	-0.001	1902.499998	-0.001
50	1857.499999	-0.001	1902.499997	-0.002
60	1857.499999	-0.001	1902.499998	-0.001

Frequency Error vs. Voltage

Voltage (Volts)	n2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
3.85	1860.000003	0.001	1899.999999	-0.001
3.45	1860.000001	0.001	1899.999999	-0.001
4.23	1860.000002	0.001	1899.999998	-0.001

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

Frequency Error vs. Temperature

Temp. (℃)	n2			
	Channel Bandwidth: 20 MHz			
	Low Channel		High Channel	
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)
-20	1860.000004	0.002	1900.000003	0.002
-10	1860.000004	0.002	1900.000002	0.001
0	1860.000003	0.002	1900.000004	0.002
10	1859.999998	-0.001	1900.000004	0.002
20	1859.999997	-0.002	1900.000001	0.001
30	1859.999997	-0.002	1900.000002	0.001
40	1859.999997	-0.002	1899.999997	-0.002
50	1859.999998	-0.001	1899.999997	-0.002
60	1859.999997	-0.001	1899.999998	-0.001

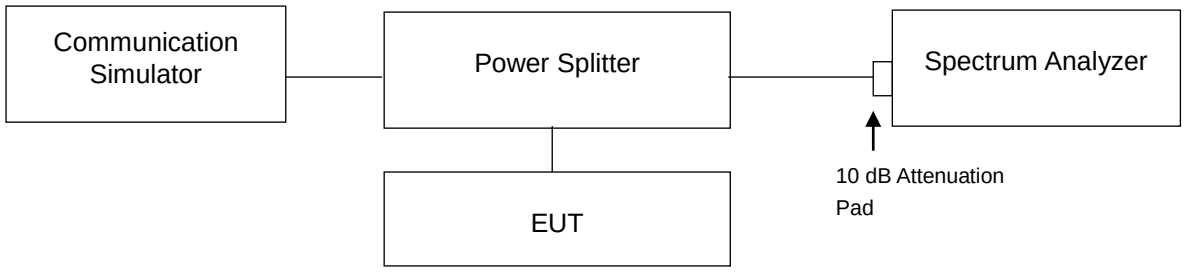
3.4 Occupied Bandwidth Measurement

3.4.1 Test Procedure

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. 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.

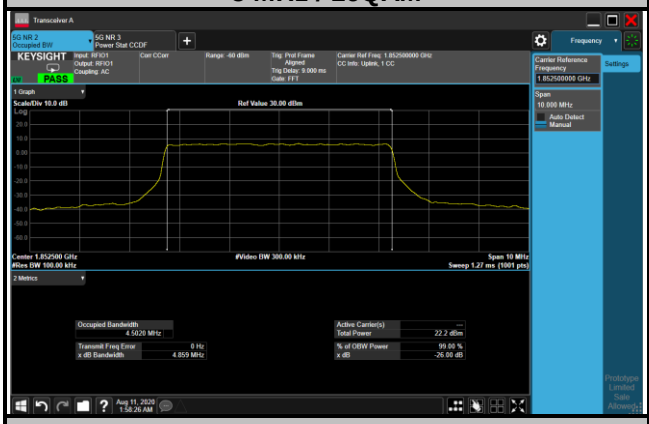
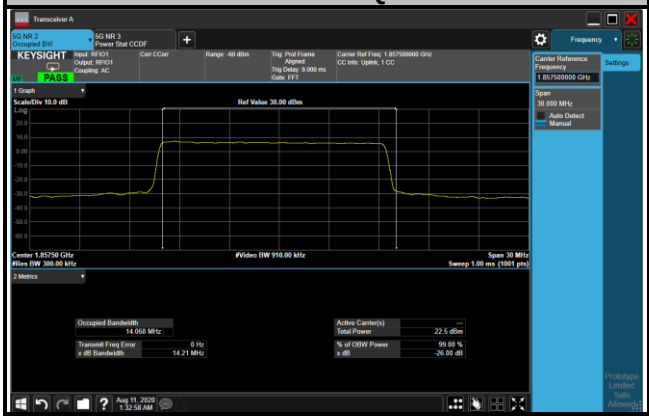
3.4.2 Test Setup



3.4.3 Test Result

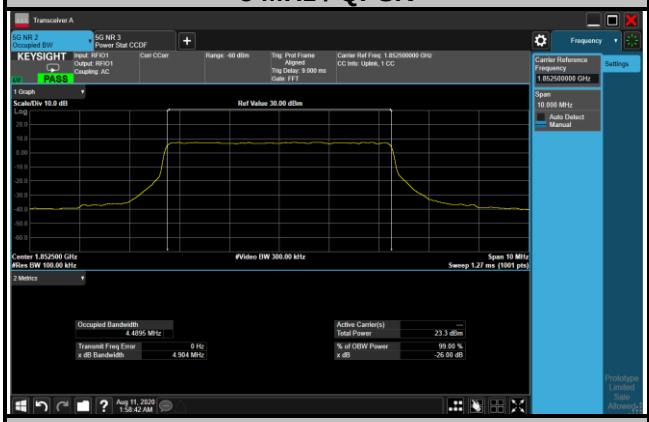
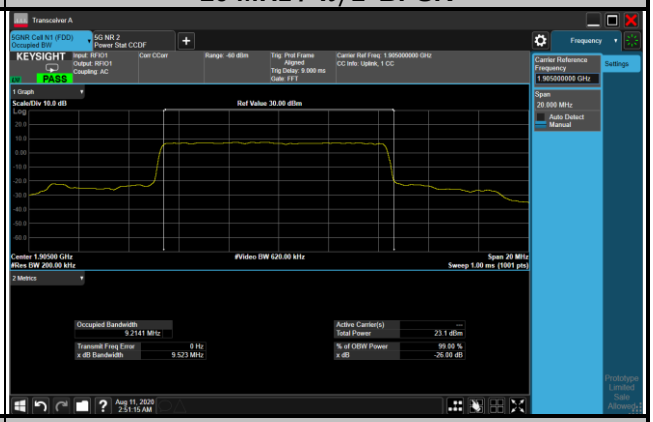
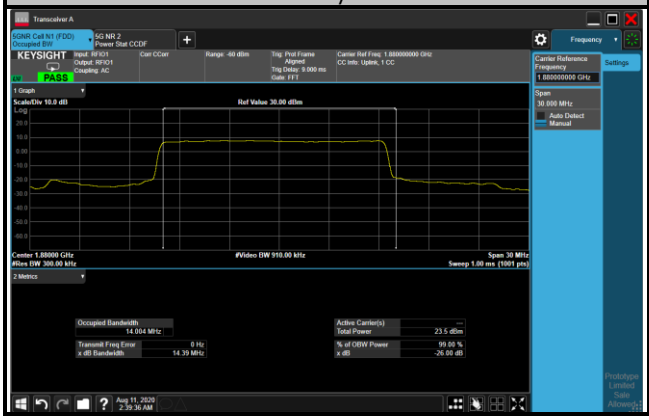
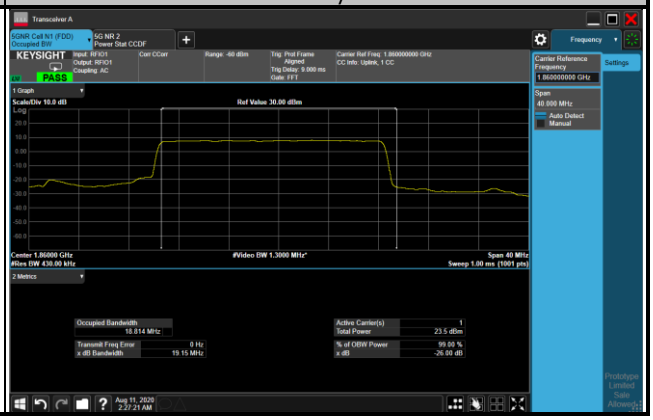
Occupied Bandwidth

n2					
Channel Bandwidth: 5 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
370500	1852.5	4.4869	4.4895	4.5020	4.5011
376000	1880.0	4.4860	4.4844	4.5005	4.5012
381500	1907.5	4.4877	4.4851	4.4899	4.5011
Channel Bandwidth: 10 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
371000	1855.0	9.2071	9.2160	9.2517	9.2124
376000	1880.0	9.1781	9.2000	9.2052	9.2001
381000	1905.0	9.2141	9.2130	9.2156	9.2107
Channel Bandwidth: 15 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
371500	1857.5	14.062	14.043	14.068	14.008
376000	1880.0	14.004	13.941	13.943	13.921
380500	1902.5	13.998	13.980	14.002	13.982
Channel Bandwidth: 20 MHz					
Channel	**Frequency (MHz)**	**99 % Occupied Bandwidth (MHz)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
372000	1860.0	18.814	18.811	18.832	18.824
376000	1880.0	18.668	18.668	18.659	18.667
380000	1900.0	18.815	18.741	18.807	18.806

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

26dB Bandwidth

n2					
Channel Bandwidth: 5 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
370500	1852.5	4.817	4.904	4.859	4.852
376000	1880.0	4.869	4.855	4.797	4.853
381500	1907.5	4.861	4.792	4.880	4.809
Channel Bandwidth: 10 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
371000	1855.0	9.479	9.506	9.500	9.490
376000	1880.0	9.507	9.490	9.500	9.512
381000	1905.0	9.523	9.491	9.506	9.497
Channel Bandwidth: 15 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
371500	1857.5	14.23	14.23	14.21	14.19
376000	1880.0	14.39	14.22	14.22	14.20
380500	1902.5	14.21	14.22	14.21	14.20
Channel Bandwidth: 20 MHz					
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		$\pi/2$ BPSK	QPSK	16QAM	64QAM
372000	1860.0	19.15	19.01	19.00	19.00
376000	1880.0	19.00	19.00	18.99	18.99
380000	1900.0	19.12	18.99	19.00	19.00

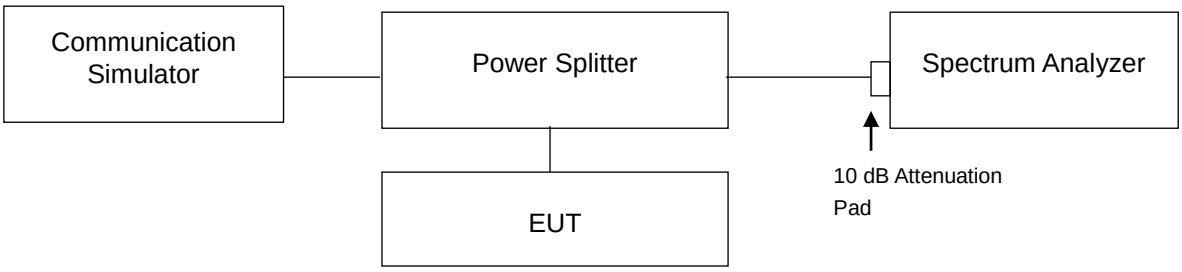
Spectrum Plot of Worst Value	
26 dB Bandwidth	
5 MHz / QPSK	10 MHz / $\pi/2$ BPSK
	
15 MHz / $\pi/2$ BPSK	20 MHz / $\pi/2$ BPSK
	

3.5 Band Edge Measurement

3.5.1 Limits of Band Edge Measurement

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. 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.

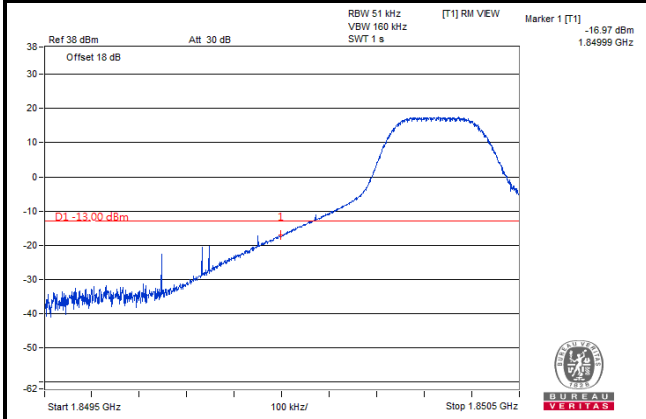
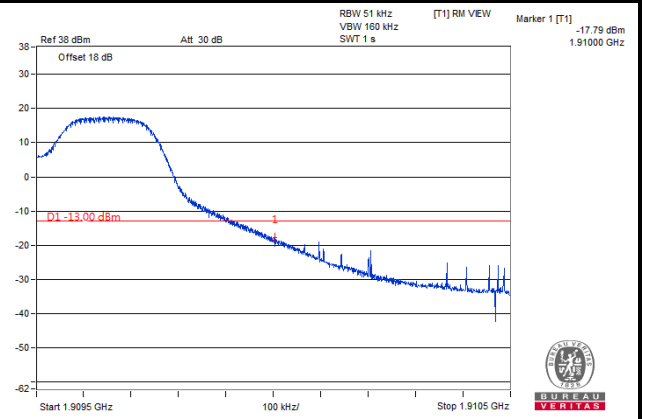
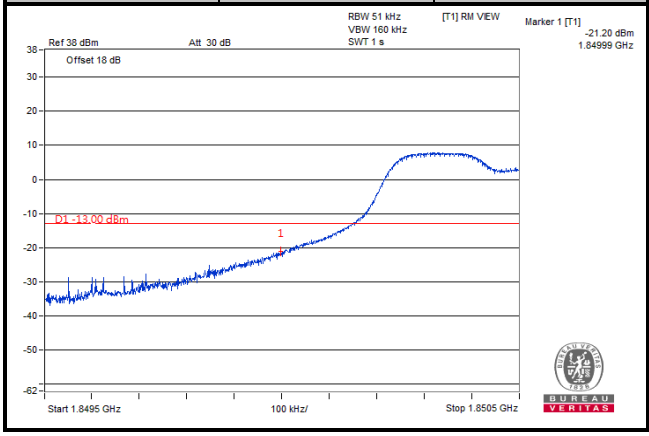
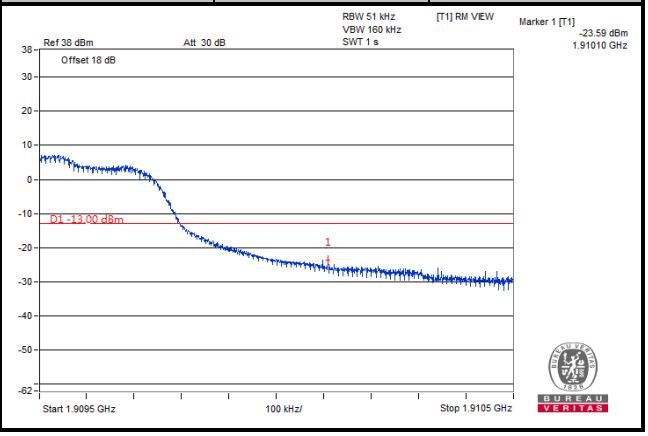
3.5.2 Test Setup

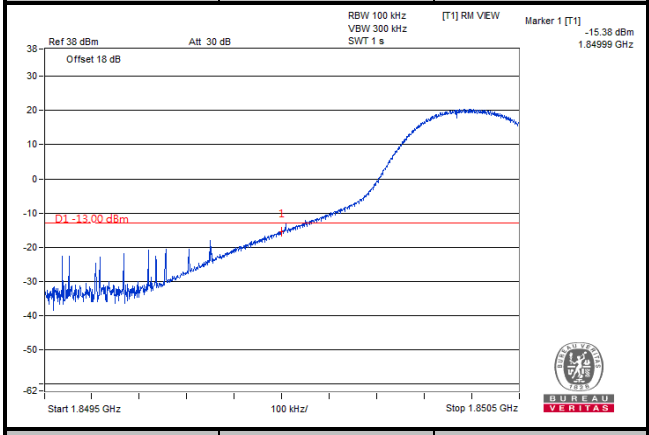
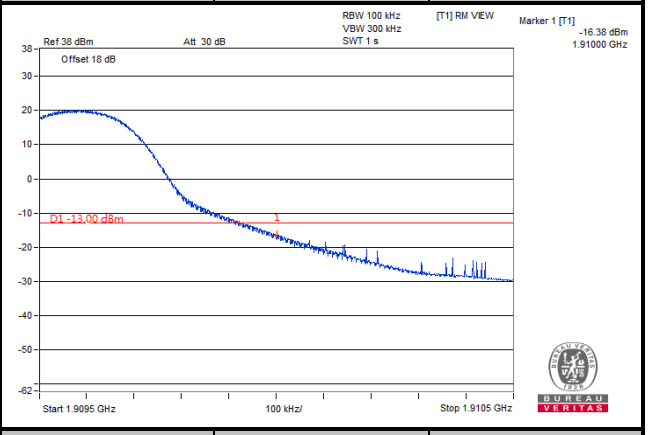
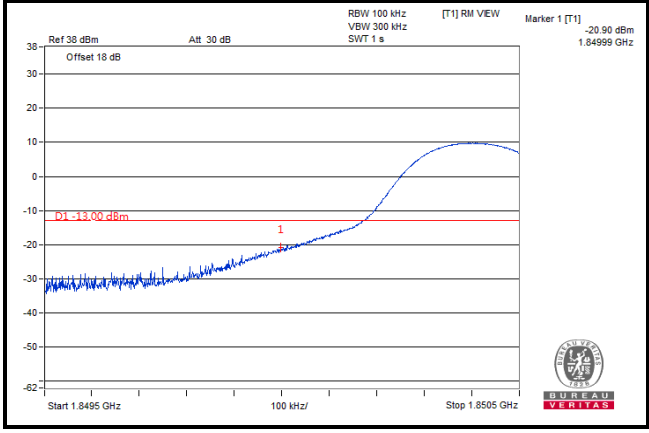
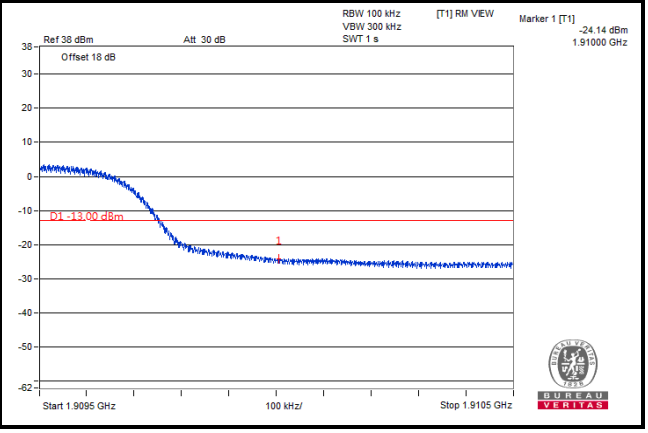


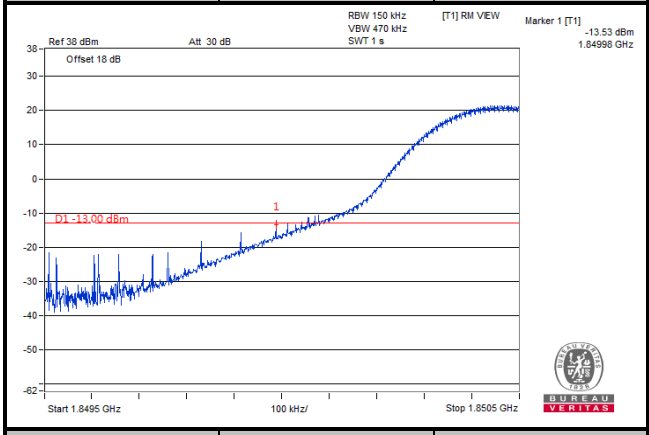
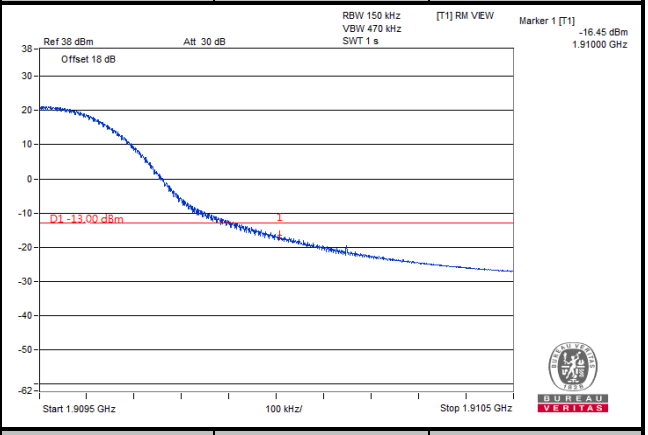
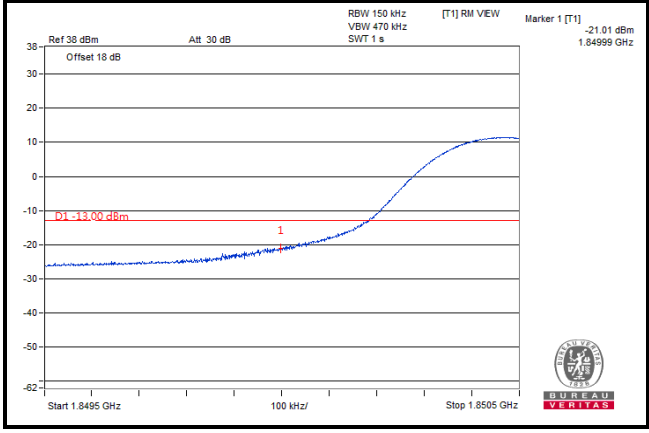
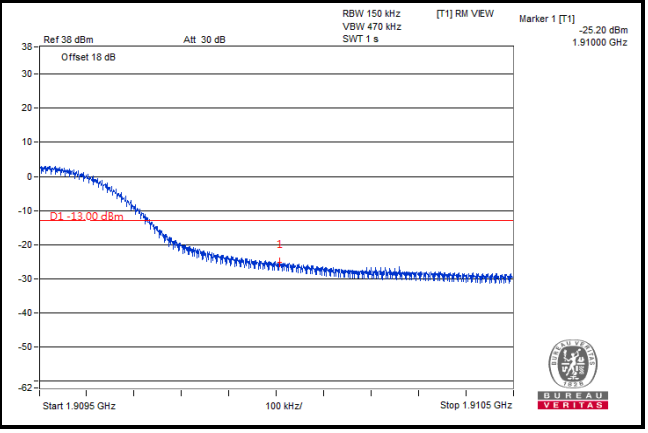
3.5.3 Test Procedures

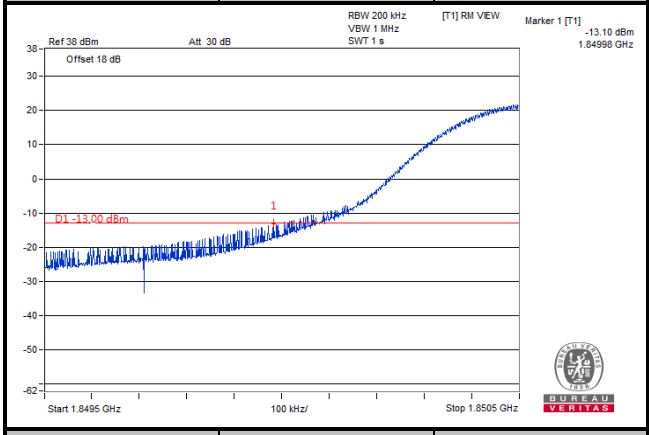
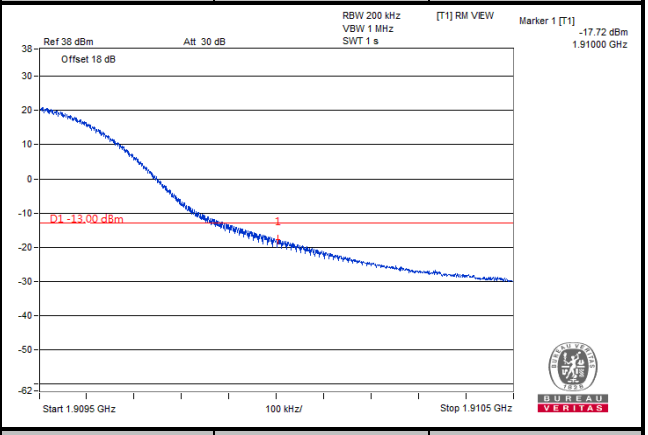
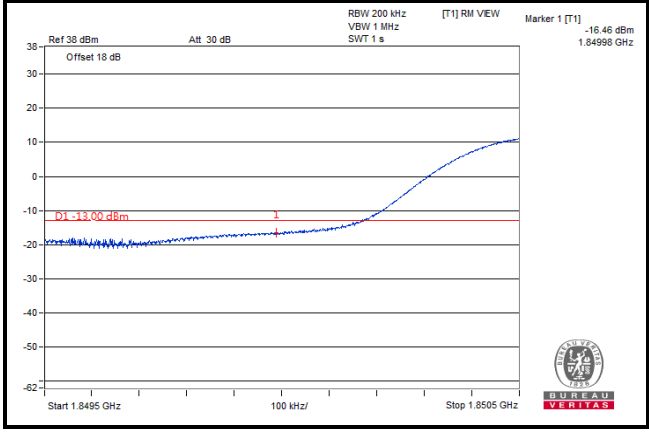
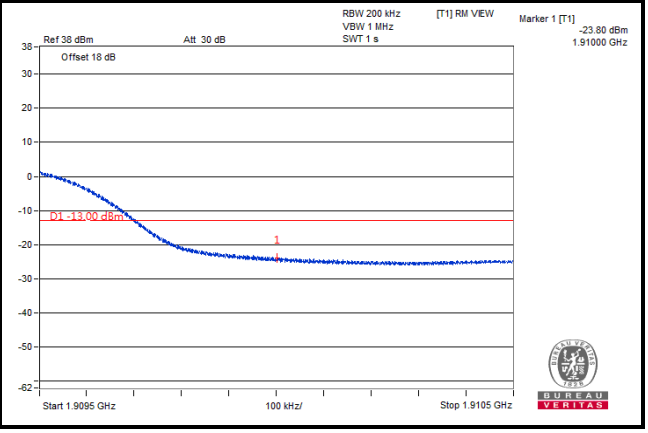
a. All measurements were done at low and high operational frequency range.
b. The center frequency of spectrum is the band edge frequency and span is 1 MHz. RB of the spectrum is 51 kHz and VB of the spectrum is 160 kHz (Channel Bandwidth 5 MHz).
c. The center frequency of spectrum is the band edge frequency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

3.5.4 Test Results

n2					
Channel Bandwidth: 5 MHz					
Channel	370500	1 RB	Channel	381500	1 RB
					
Channel	370500	25 RB	Channel	381500	25 RB
					

n2					
Channel Bandwidth: 10 MHz					
Channel	371000	1 RB	Channel	381000	1 RB
				
Channel	371000	52 RB	Channel	381000	52 RB
				

n2					
Channel Bandwidth: 15 MHz					
Channel	371500	1 RB	Channel	380500	1 RB
					
Channel	371500	79 RB	Channel	380500	79 RB
					

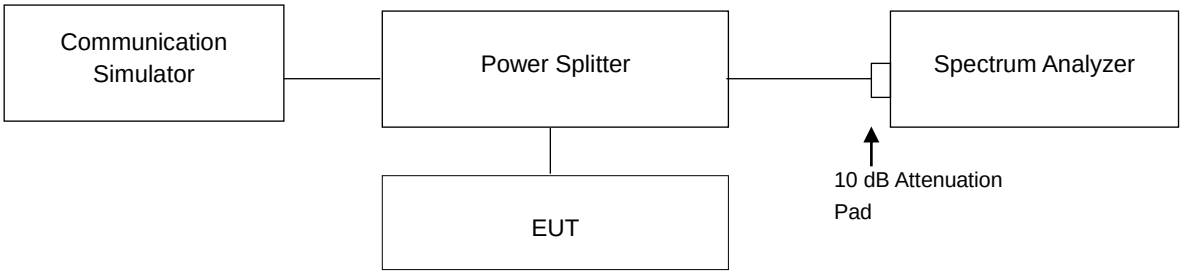
n2					
Channel Bandwidth: 20 MHz					
Channel	372000	1 RB	Channel	380000	1 RB
					
Channel	372000	106 RB	Channel	380000	106 RB
					

3.6 Peak to Average Ratio

3.6.1 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.

3.6.2 Test Setup



3.6.3 Test Procedures

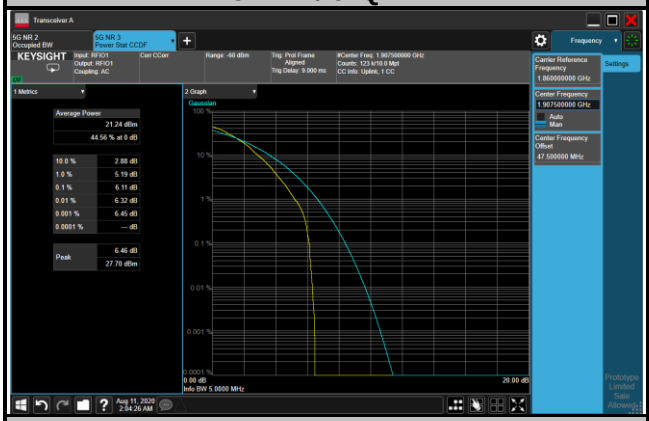
1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

3.6.4 Test Results

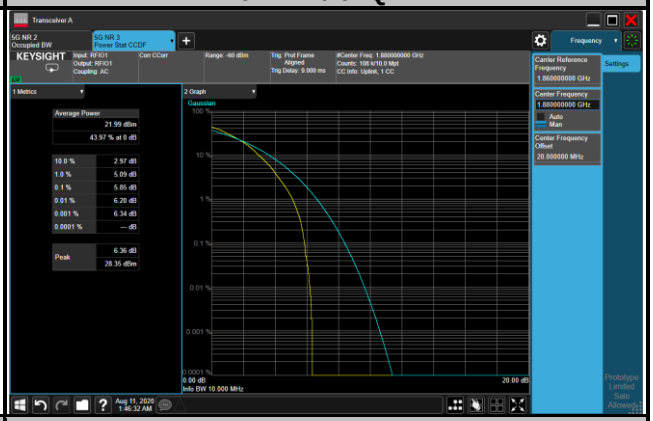
n2					
Channel Bandwidth: 5 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
370500	1852.5	3.70	4.41	5.53	5.92
376000	1880.0	4.03	4.49	5.68	6.04
381500	1907.5	3.72	4.47	5.64	6.11
Channel Bandwidth: 10 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
371000	1855.0	3.94	4.43	5.39	5.80
376000	1880.0	4.11	4.50	5.65	5.85
381000	1905.0	3.81	4.50	5.52	5.77
Channel Bandwidth: 15 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
371500	1857.5	4.09	4.64	5.42	5.89
376000	1880.0	4.14	4.59	5.66	6.03
380500	1902.5	4.18	4.67	5.61	6.10
Channel Bandwidth: 20 MHz					
Channel	**Frequency (MHz)**	**Peak to Average Ratio (dB)**			
		$\pi/2$ BPSK	**QPSK**	**16QAM**	**64QAM**
372000	1860.0	4.02	4.54	5.46	5.86
376000	1880.0	4.24	4.44	5.47	5.92
380000	1900.0	4.35	4.64	5.55	5.98

Spectrum Plot of Worst Value

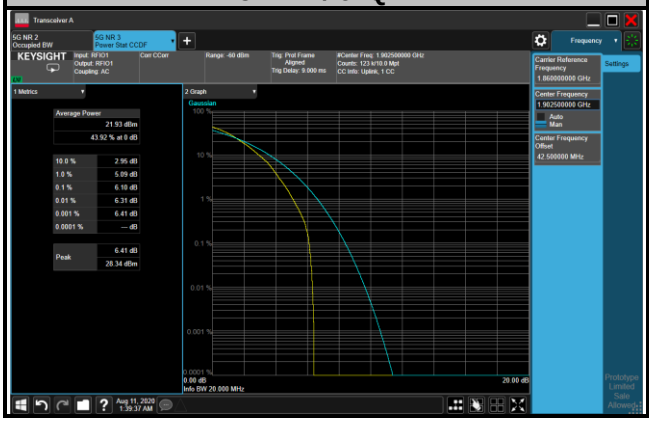
5 MHz / 64QAM



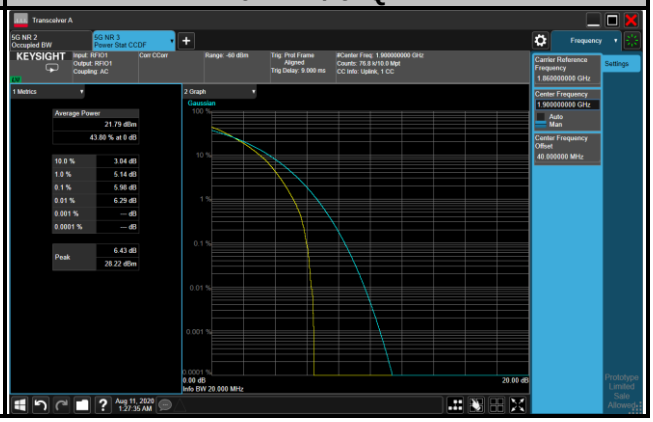
10 MHz / 64QAM



15 MHz / 64QAM



20 MHz / 64QAM

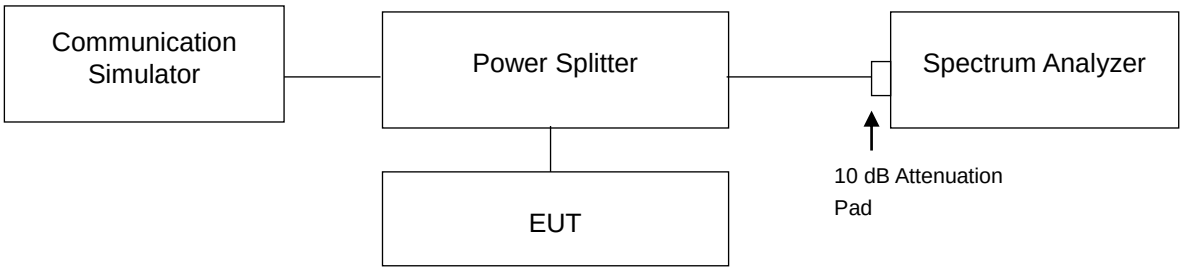


3.7 Conducted Spurious Emissions

3.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13 dBm.

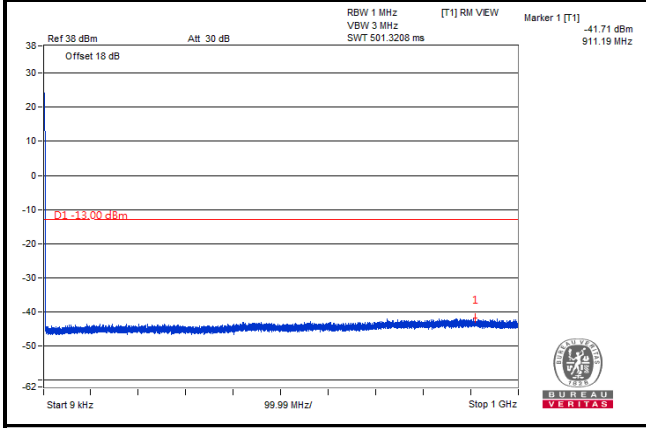
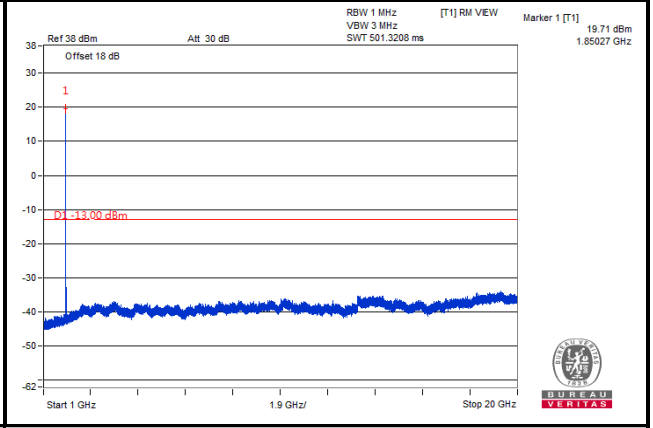
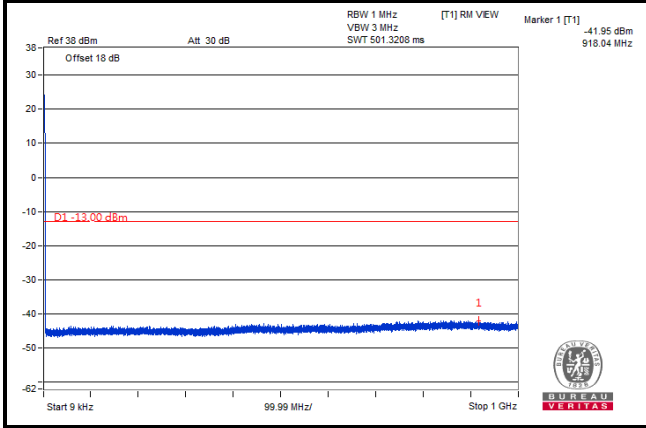
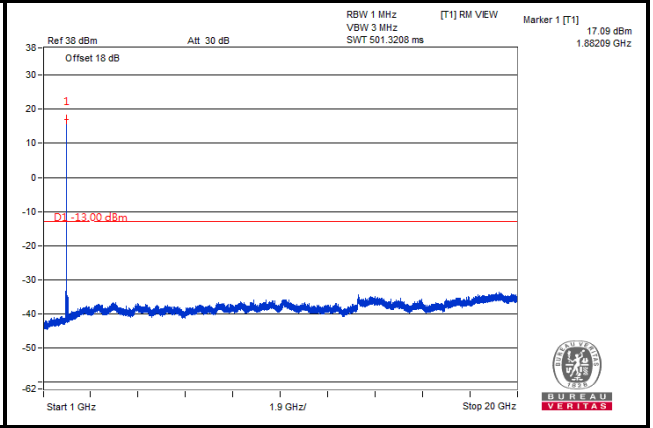
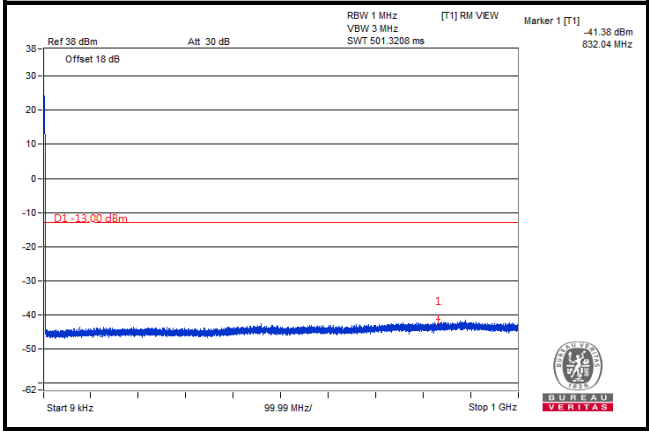
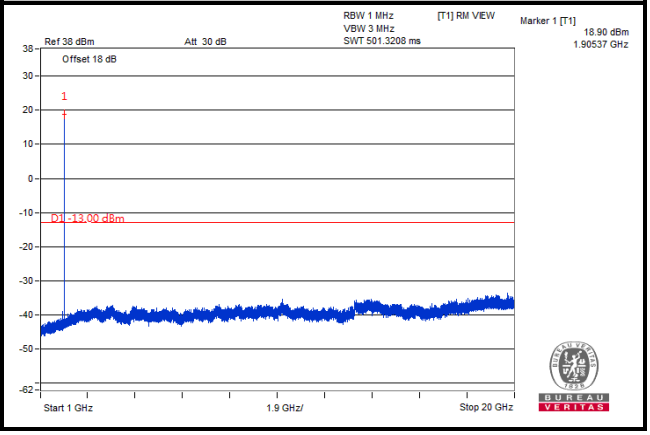
3.7.2 Test Setup



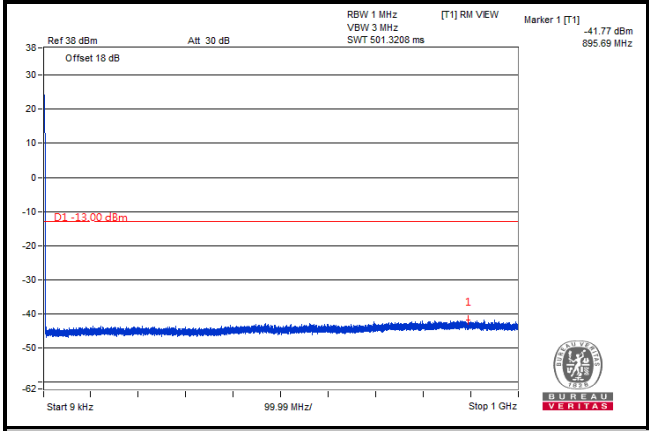
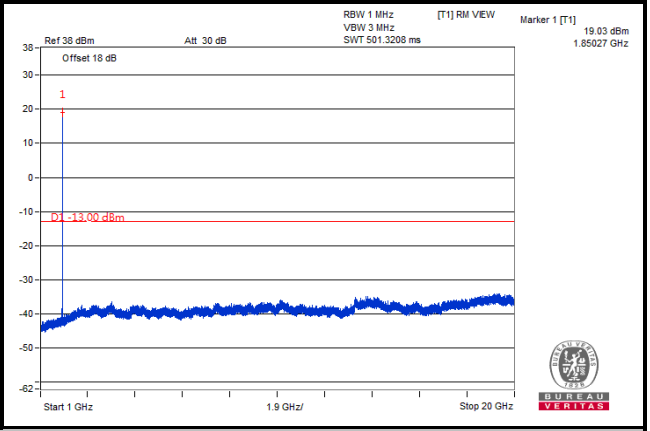
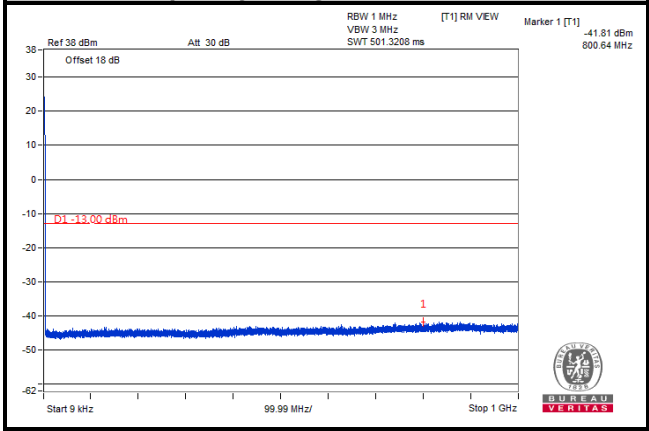
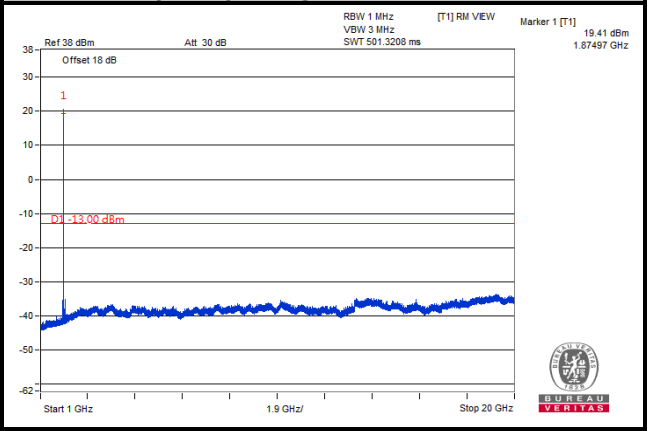
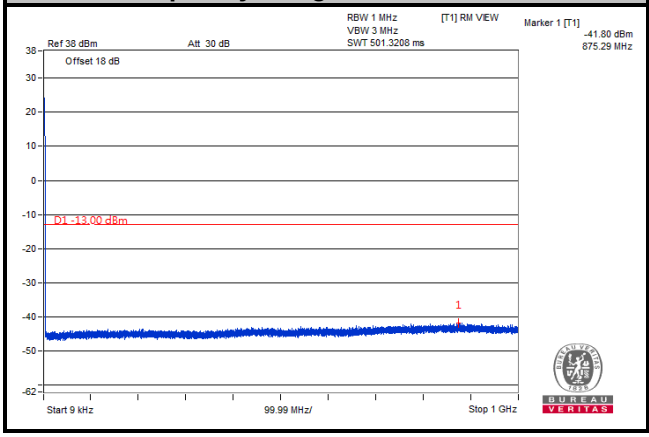
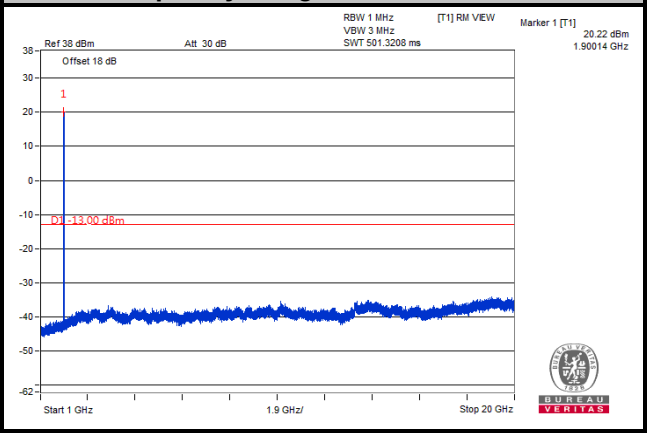
3.7.3 Test Procedure

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 20 GHz. 10 dB attenuation pad is connected with spectrum. RBW = 1 MHz and VBW = 3 MHz is used for conducted emission measurement.

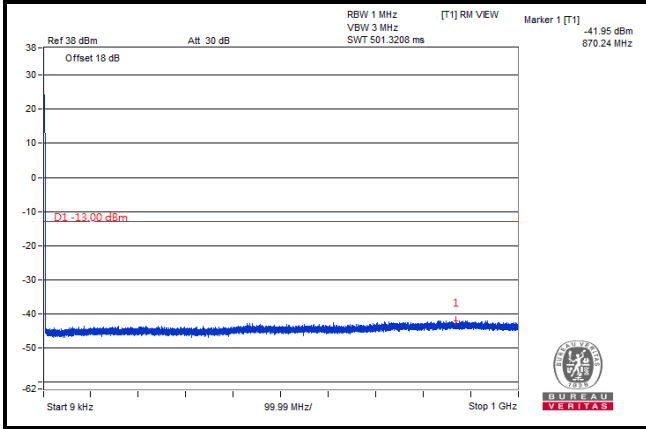
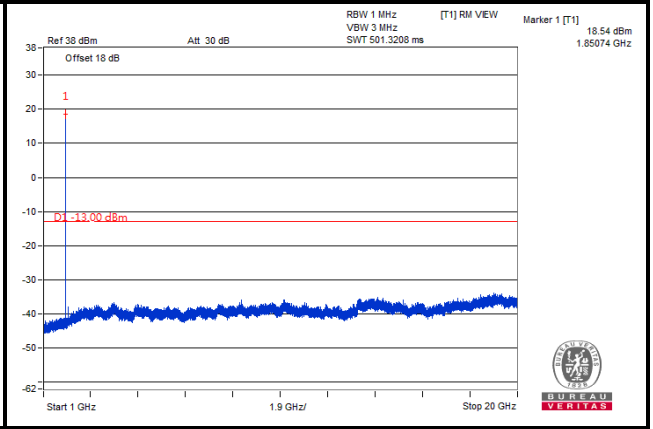
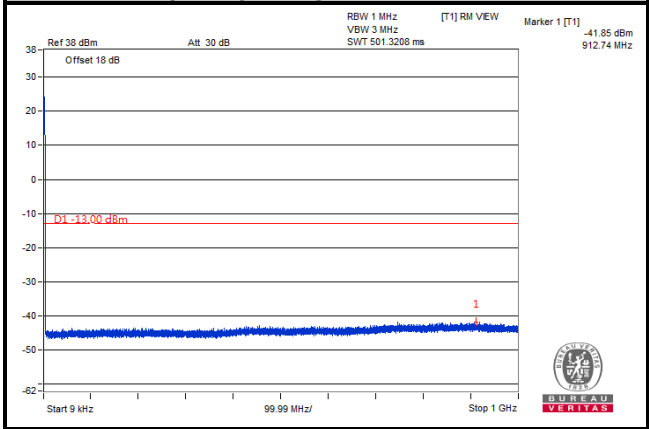
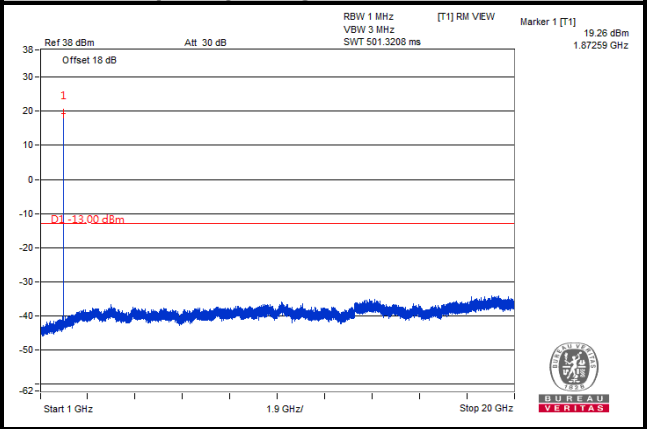
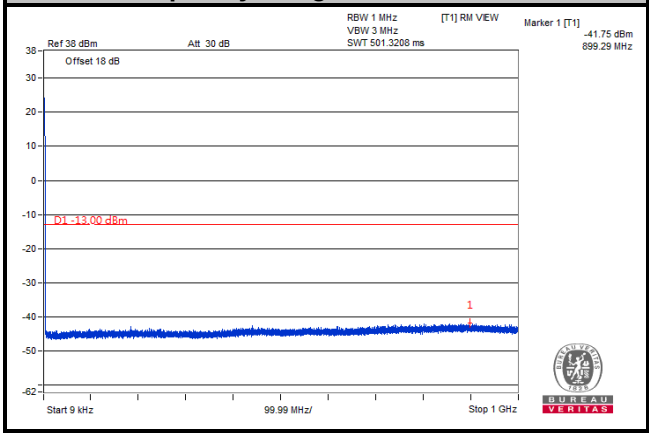
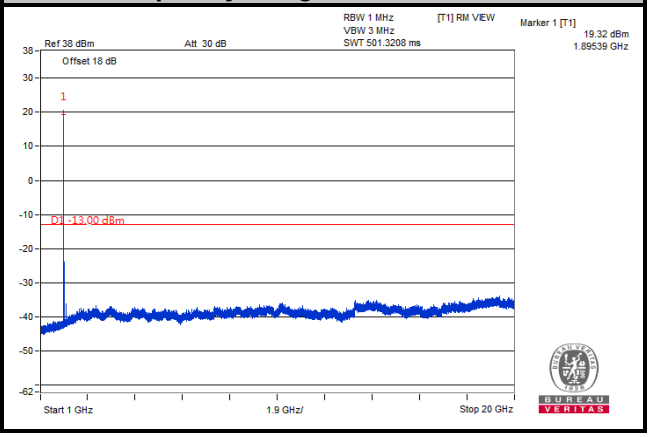
3.7.4 Test Results

n2	
Channel Bandwidth: 5 MHz	
Channel 370500	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	
Channel 376000	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	
Channel 381500	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	

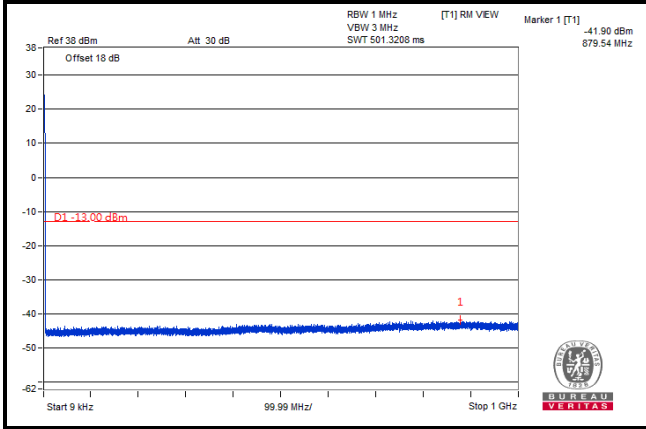
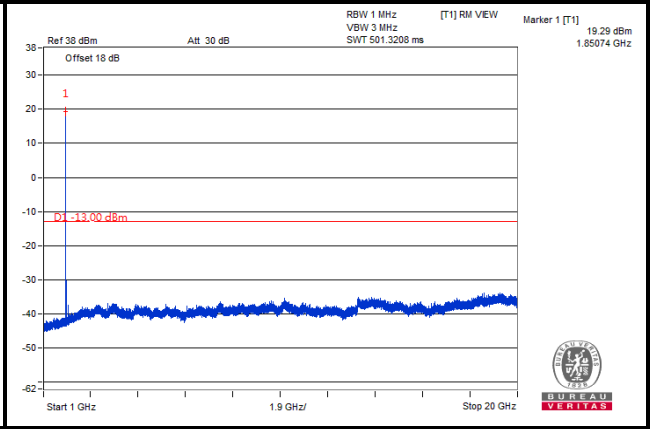
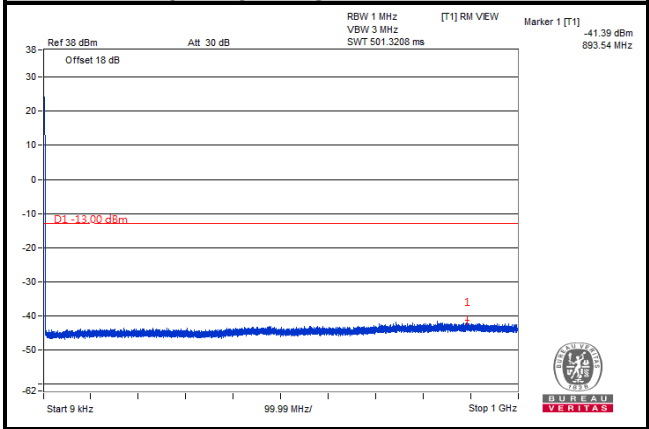
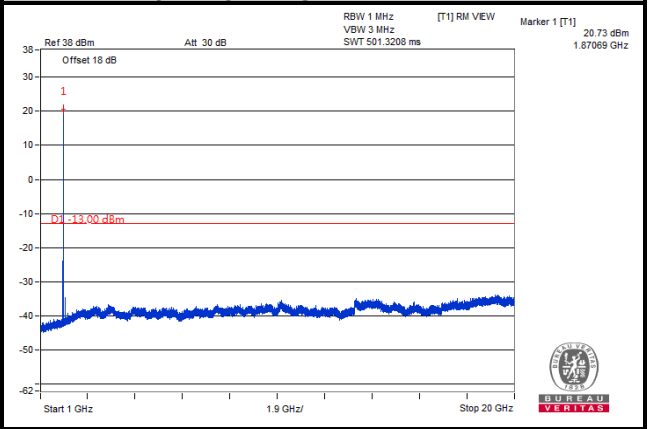
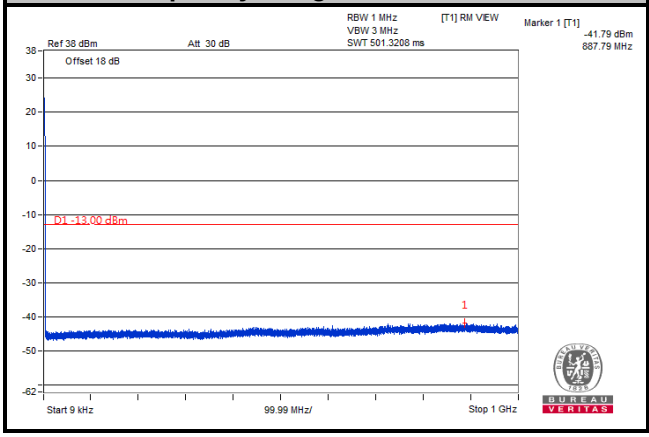
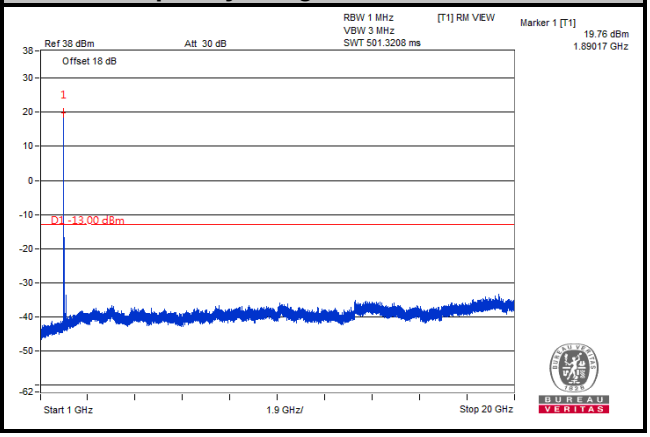
Note: The signal over the limit in 9 kHz is from spectrum analyzer.

n2	
Channel Bandwidth: 10 MHz	
Channel 371000	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	
Channel 376000	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	
Channel 381000	
Frequency Range: 9 kHz ~ 1 GHz	**Frequency Range: 1 GHz ~ 20 GHz**
	

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

n2	
Channel Bandwidth: 15 MHz	
Channel 371500	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 376000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 380500	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

n2	
Channel Bandwidth: 20 MHz	
Channel 372000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 376000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	
Channel 380000	
Frequency Range: 9 kHz ~ 1 GHz	Frequency Range: 1 GHz ~ 20 GHz
	

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

3.8 Radiated Emission Measurement

3.8.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit is equal to -13 dBm.

3.8.2 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. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution 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:

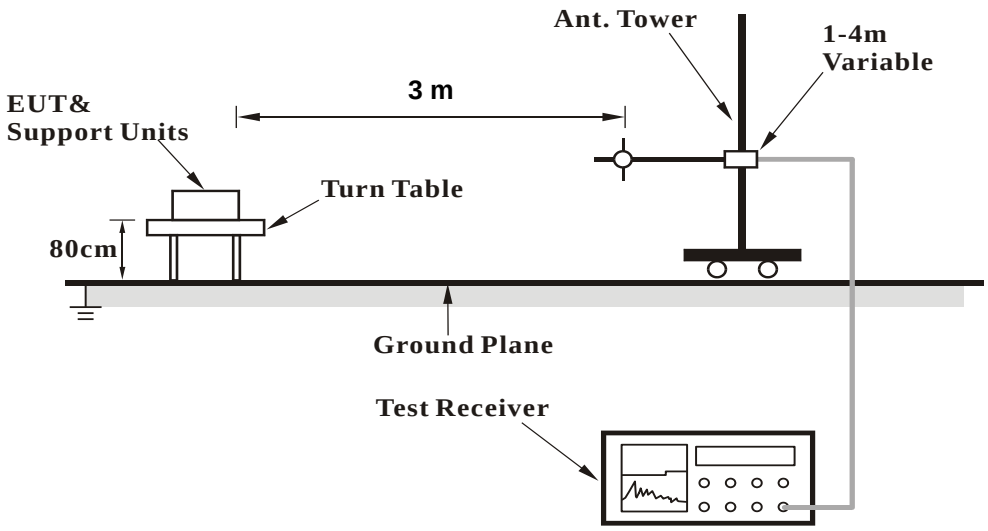
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

3.8.3 Deviation from Test Standard

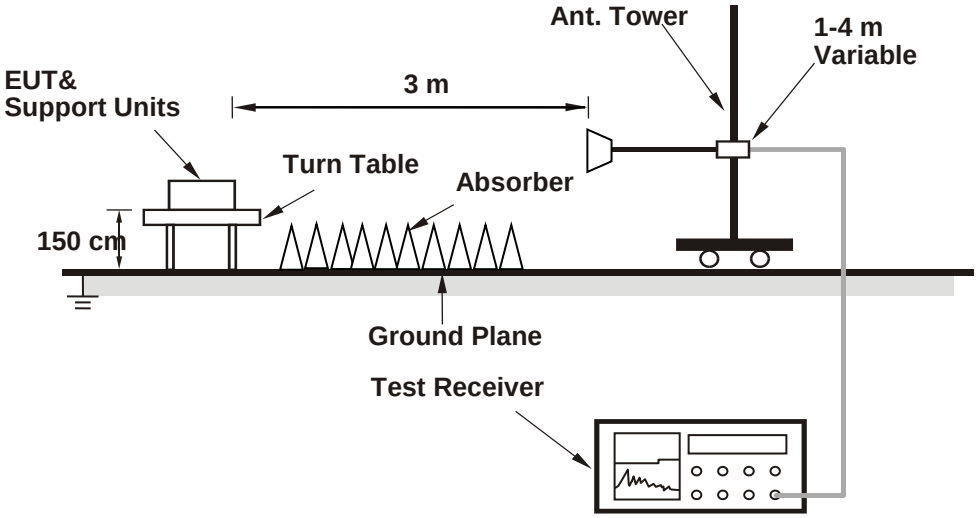
No deviation.

3.8.4 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).

3.8.5 Test Results

Below 1GHz

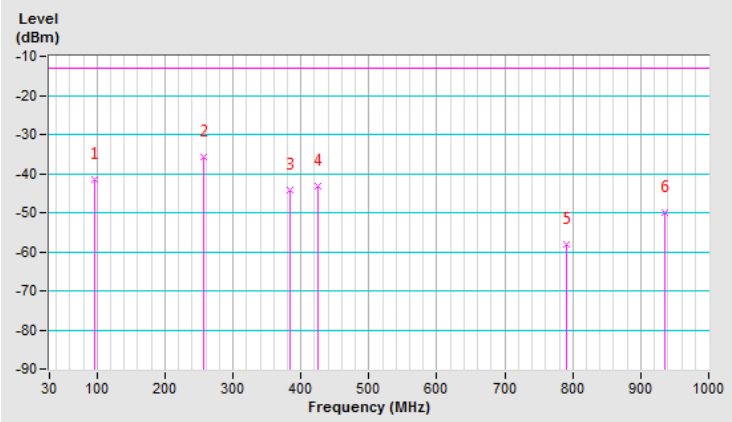
n2, Channel Bandwidth: 20MHz

Mode	TX channel 376000 (1880.00MHz)	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	95.96	-43.1	-42.4	1.0	-41.4	-13.0	-28.4
2	**256.98**	**-42.2**	**-41.0**	**5.3**	**-35.7**	**-13.0**	**-22.7**
3	383.08	-51.0	-49.6	5.3	-44.3	-13.0	-31.3
4	425.76	-49.9	-48.4	5.2	-43.2	-13.0	-30.2
5	790.48	-64.4	-62.3	4.1	-58.2	-13.0	-45.2
6	935.98	-56.3	-54.0	3.9	-50.1	-13.0	-37.1

Remarks:

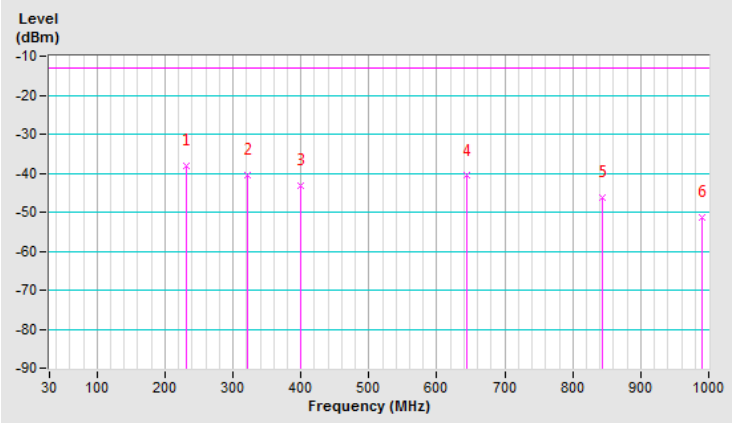
1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Mode	TX channel 376000 (1880.00MHz)	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	231.76	-44.8	-43.7	5.4	-38.3	-13.0	-25.3
2	321.00	-47.0	-45.7	5.2	-40.5	-13.0	-27.5
3	400.54	-50.0	-48.5	5.2	-43.3	-13.0	-30.3
4	644.98	-47.4	-45.5	4.8	-40.7	-13.0	-27.7
5	842.86	-52.5	-50.4	4.0	-46.4	-13.0	-33.4
6	990.30	-57.7	-55.4	3.9	-51.5	-13.0	-38.5

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



Above 1GHz
n2, Channel Bandwidth 5MHz

Mode	TX channel 370500 (1852.50MHz)	Frequency Range	1GHz ~ 20GHz
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	3705.00	-62.2	-56.2	7.1	-49.1	-13.0	-36.1
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	3705.00	-64.5	-57.4	7.1	-50.3	-13.0	-37.3

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 376000 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3760.00	-62.3	-55.8	7.1	-48.7	-13.0	-35.7
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	3760.00	-64.1	-56.7	7.1	-49.6	-13.0	-36.6

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 381500 (1907.50MHz)	Frequency Range	1GHz ~ 20GHz
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	3815.00	-62.6	-55.8	7.1	-48.7	-13.0	-35.7
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	3815.00	-64.9	-57.2	7.1	-50.1	-13.0	-37.1

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

n2, Channel Bandwidth 10MHz

Mode	TX channel 371000 (1855.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3710.00	-62.0	-55.9	7.1	-48.8	-13.0	-35.8
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	3710.00	-64.5	-57.4	7.1	-50.3	-13.0	-37.3

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 376000 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3760.00	-62.8	-56.3	7.1	-49.2	-13.0	-36.2
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	3760.00	-64.6	-57.2	7.1	-50.1	-13.0	-37.1

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 381000 (1905.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3810.00	-62.9	-56.1	7.1	-49.0	-13.0	-36.0
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	3810.00	-64.2	-56.5	7.1	-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).

n2, Channel Bandwidth 15MHz

Mode	TX channel 371500 (1857.50MHz)	Frequency Range	1GHz ~ 20GHz
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	3715.00	-62.1	-56.0	7.1	-48.9	-13.0	-35.9
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	3715.00	-64.4	-57.3	7.1	-50.2	-13.0	-37.2

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 376000 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3760.00	-62.0	-55.5	7.1	-48.4	-13.0	-35.4
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	3760.00	-64.3	-56.9	7.1	-49.8	-13.0	-36.8

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 380500 (1902.50MHz)	Frequency Range	1GHz ~ 20GHz
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	3805.00	-62.7	-55.8	7.1	-48.7	-13.0	-35.7
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	3805.00	-64.8	-57.1	7.1	-50.0	-13.0	-37.0

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

n2, Channel Bandwidth 20MHz

Mode	TX channel 372000 (1860.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3720.00	-62.4	-56.2	7.1	-49.1	-13.0	-36.1
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	3720.00	-64.4	-57.2	7.1	-50.1	-13.0	-37.1

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 376000 (1880.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3760.00	-62.1	-55.6	7.1	-48.5	-13.0	-35.5
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	3760.00	-64.3	-56.9	7.1	-49.8	-13.0	-36.8

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 380000 (1900.00MHz)	Frequency Range	1GHz ~ 20GHz
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	3800.00	-62.0	-55.1	7.1	-48.0	-13.0	-35.0
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	3800.00	-64.6	-56.9	7.1	-49.8	-13.0	-36.8

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

4 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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