



RF TEST REPORT

Applicant ZTE Corporation
FCC ID SRQ-Z6750M
Product 5G NR Multi-Mode Mobile Phone
Model Z6750M
Report No. R2008A0534-R4V1
Issue Date October 29, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2019)/ FCC CFR 47 Part 22H (2019)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Prepared by: Peng Tao

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000



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Version	Revision description	Issue Date
Rev.0	/	October 26, 2020
Rev.1	Update description in Chapter 5.1.	October 29, 2020

Note This revised report (Report No.: R2008A0534-R4V1) supersedes and replaces the previously issued report (Report No.: R2008A0534-R4). Please discard or destroy the previously issued report and dispose of it accordingly.



Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	PASS
2	Occupied Bandwidth	2.1049	PASS
3	Band Edge Compliance	2.1051 / 22.917(a)	PASS
4	Peak-to-Average Power Ratio	22.913(d)/ KDB 971168 D01(5.7)	PASS
5	Frequency Stability	2.1055 / 22.355	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
7	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: August 14, 2020 ~ October 12, 2020			
Date of Sample Received: August 14, 2020			
Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			



1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.3. Applicant and Manufacturer Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.4. General Information

EUT Description			
Model	Z6750M		
IMEI	865633050021551		
Hardware Version	Z6750MHW1.0		
Software Version	Z6750MV1.0.0B01		
Power Supply	Battery/AC adapter		
Antenna Type	Internal Antenna		
Antenna Gain	-1.75dBi		
Test Mode(s)	EN-DC_2A_n5; EN-DC_66A_n5		
Test Modulation	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM; DFT-s OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM		
Maximum E.R.P.	EN-DC_2A_n5:	20.02 dBm	
	EN-DC_66A_n5:	19.89 dBm	
Rated Power Supply Voltage	4.0V		
Extreme Voltage	Minimum: 3.5V Maximum: 4.4V		
Extreme Temperature	Lowest: -30°C Highest: +50°C		
Operating Voltage	Minimum: 3.5V Maximum: 4.4V		
Operating Temperature	Lowest: -10°C Highest: +55°C		
Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	NR Band n5	824 ~ 849	869 ~ 894
EUT Accessory			
Battery	Manufacturer: COSMX Model: Li3939T44P8h756547		
Adapter 1	Manufacturer: SHENZHEN RUIJING INDUSTRIAL CO LTD Model: STC-A5930A1-Z		
Adapter 2	Manufacturer: Jiangsu Chenyang Electron Co., Ltd. Model: STC-A5930A1-Z		
USB Cable 1	Manufacturer: kingpower-tech Model: USB-TC30-W-100-M		



USB Cable 2

Manufacturer: Luxshare Precision industry Co., Ltd.
Model: USB-TC30-W-100-M

Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.

2. There is more than USB cable, each one should be applied throughout the compliance test respectively, and however, only the worst case (USB cable 1) will be recorded in this report.



3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR 47 Part 22H (2019)

ANSI C63.26 (2015)

Reference standard:

FCC CFR47 Part 2 (2019)

KDB 971168 D01 Power Meas License Digital Systems v03r01



4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (X axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions were investigated. Subsequently, only the worst case emissions are reported.

The following testing in NR is set based on the maximum RF Output Power.

Test modes are chosen as the worst case configuration below for NR n5.

Test items	Modes	Bandwidth (MHz)				Modulation				RB			Test Channel		
		5	10	15	20	QPSK	16 QAM	64 QAM	256 QAM	1	50%	100%	L	M	H
RF power output and Effective Radiated power	EN-DC_2A_n5	O	O	O	O	O	O	O	O	O	O	O	O	O	O
	EN-DC_66A_n5	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Occupied Bandwidth	EN-DC_2A_n5	-	O	-	-	O	O	O	O	-	-	O	O	O	O
	EN-DC_66A_n5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Band Edge Compliance	EN-DC_2A_n5	-	O	-	-	O	O	O	O	O	-	O	O	-	O
	EN-DC_66A_n5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peak-to-Average Power Ratio	EN-DC_2A_n5	-	O	-	-	O	O	O	O	-	-	O	O	O	O
	EN-DC_66A_n5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Frequency Stability	EN-DC_2A_n5	O	O	O	O	O	O	O	O	-	-	O	-	O	-
	EN-DC_66A_n5	O	O	O	O	O	O	O	O	-	-	O	-	O	-
Spurious Emissions at Antenna Terminals	EN-DC_2A_n5	O	O	O	O	O	-	-	-	-	-	O	O	O	O
	EN-DC_66A_n5	O	O	O	O	O	-	-	-	-	-	O	O	O	O
Radiates Spurious Emission	EN-DC_2A_n5	O	-	-	O	O	-	-	-	O	-	-	-	O	-
	EN-DC_66A_n5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing. 3. Sub 6GHz operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.														

5. Test Case Results

5.1. RF Power Output and Effective Radiated Power

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

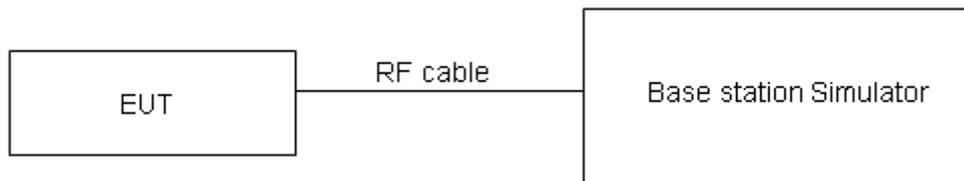
ERP can then be calculated as follows:

$$\text{EIRP (dBm)} = \text{Output Power (dBm)} - \text{Losses (dB)} + \text{Antenna Gain (dBi)}$$

where:dBd refers to gain relative to an ideal dipole.

$$\text{EIRP (dBm)} = \text{ERP (dBm)} + 2.15 \text{ (dB.)}$$

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 22.913(a)(5) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	≤ 7 W (38.45 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB for RF power output, $k = 2$, $U = 1.19$ dB for ERP .



Test Results

Test Freq Description	EN-DC_2A_n5							Results(dBm)	
	SCS (kHz)	NR BW (MHz)	Modulation	Modulation(LTE)	RB allocation	NR Test Freq (MHz)	NR Test CH	Conducted	ERP
High	15	5	QPSK	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	846.5	169300	23.51	19.61
Low	15	5	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	826.5	165300	23.75	19.85
Middle	15	5	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	23.56	19.66
High	15	5	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	846.5	169300	23.44	19.54
Low	15	5	QPSK	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	826.5	165300	23.41	19.51
High	15	10	QPSK	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	844	168800	23.53	19.63
Low	15	10	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	829	165800	23.92	20.02
Middle	15	10	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	23.70	19.80
High	15	10	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	844	168800	23.61	19.71
Low	15	10	QPSK	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	829	165800	23.35	19.45
High	15	15	QPSK	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	841.5	168300	23.48	19.58
Low	15	15	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	831.5	166300	23.75	19.85
Middle	15	15	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	23.65	19.75
High	15	15	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	841.5	168300	23.63	19.73
Low	15	15	QPSK	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	831.5	166300	23.73	19.83
High	15	20	QPSK	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	839	167800	23.71	19.81
Low	15	20	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	834	166800	23.92	20.02
Middle	15	20	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	23.83	19.93
High	15	20	QPSK	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	839	167800	23.80	19.90



Low	15	20	QPSK	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	834	166800	23.76	19.86
High	15	5	16QAM	Band2-10MHZ-18 80- QPSK -1#49	Edge_1RB_Right	846.5	169300	22.67	18.77
Low	15	5	16QAM	Band2-10MHZ-18 80- QPSK -50#0	Inner_Full	826.5	165300	22.75	18.85
Middle	15	5	16QAM	Band2-10MHZ-18 80- QPSK -50#0	Inner_Full	836.5	167300	22.58	18.68
High	15	5	16QAM	Band2-10MHZ-18 80- QPSK -50#0	Inner_Full	846.5	169300	22.57	18.67
Low	15	5	16QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	826.5	165300	22.67	18.77
High	15	10	16QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	844	168800	22.97	19.07
Low	15	10	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	829	165800	22.89	18.99
Middle	15	10	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.72	18.82
High	15	10	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	844	168800	22.56	18.66
Low	15	10	16QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	829	165800	21.85	17.95
High	15	15	16QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	841.5	168300	22.98	19.08
Low	15	15	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	831.5	166300	22.81	18.91
Middle	15	15	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.66	18.76
High	15	15	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	841.5	168300	22.63	18.73
Low	15	15	16QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	831.5	166300	22.74	18.84
High	15	20	16QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	839	167800	23.40	19.50
Low	15	20	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	834	166800	22.89	18.99
Middle	15	20	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.78	18.88
High	15	20	16QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	839	167800	22.74	18.84
Low	15	20	16QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	834	166800	22.91	19.01
High	15	5	64QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	846.5	169300	21.86	17.96



Low	15	5	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	826.5	165300	22.33	18.43
Middle	15	5	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.18	18.28
High	15	5	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	846.5	169300	22.03	18.13
Low	15	5	64QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	826.5	165300	21.76	17.86
High	15	10	64QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	844	168800	21.75	17.85
Low	15	10	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	829	165800	22.61	18.71
Middle	15	10	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.13	18.23
High	15	10	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	844	168800	22.09	18.19
Low	15	10	64QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	829	165800	21.74	17.84
High	15	15	64QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	841.5	168300	22.59	18.69
Low	15	15	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	831.5	166300	22.26	18.36
Middle	15	15	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.15	18.25
High	15	15	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	841.5	168300	22.10	18.20
Low	15	15	64QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	831.5	166300	22.19	18.29
High	15	20	64QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	839	167800	22.01	18.11
Low	15	20	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	834	166800	22.40	18.50
Middle	15	20	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	22.30	18.40
High	15	20	64QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	839	167800	22.29	18.39
Low	15	20	64QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	834	166800	21.84	17.94
High	15	5	256QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	846.5	169300	19.84	15.94
Low	15	5	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	826.5	165300	20.19	16.29
Middle	15	5	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	19.98	16.08



High	15	5	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	846.5	169300	19.94	16.04
Low	15	5	256QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	826.5	165300	20.20	16.30
High	15	10	256QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	844	168800	19.80	15.90
Low	15	10	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	829	165800	20.78	16.88
Middle	15	10	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	20.16	16.26
High	15	10	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	844	168800	20.01	16.11
Low	15	10	256QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	829	165800	19.73	15.83
High	15	15	256QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	841.5	168300	20.62	16.72
Low	15	15	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	831.5	166300	20.24	16.34
Middle	15	15	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	20.18	16.28
High	15	15	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	841.5	168300	20.14	16.24
Low	15	15	256QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	831.5	166300	19.97	16.07
High	15	20	256QAM	Band2-10MHZ-18 80-QPSK-1#49	Edge_1RB_Right	839	167800	20.05	16.15
Low	15	20	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	834	166800	20.33	16.43
Middle	15	20	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	836.5	167300	20.29	16.39
High	15	20	256QAM	Band2-10MHZ-18 80-QPSK-50#0	Inner_Full	839	167800	20.27	16.37
Low	15	20	256QAM	Band2-10MHZ-18 80-QPSK-1#0	Edge_1RB_Left	834	166800	20.18	16.28

Test Freq Description	EN-DC_66A_n5							Results(dBm)	
	SCS (kHz)	NR BW (MHz)	Modulation	Modulation(LTE)	RB allocation	NR Test Freq (MHz)	NR Test CH	Conducted	ERP
High	15	5	QPSK	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	846.5	169300	23.35	19.45
Low	15	5	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	826.5	165300	23.66	19.76
Middle	15	5	QPSK	Band66-10MHZ-17	Inner_Full	836.5	167300	23.68	19.78



				45-QPSK-50#0					
High	15	5	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	846.5	169300	23.55	19.65
Low	15	5	QPSK	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	826.5	165300	23.32	19.42
High	15	10	QPSK	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	844	168800	23.52	19.62
Low	15	10	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	829	165800	23.72	19.82
Middle	15	10	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	23.76	19.86
High	15	10	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	844	168800	23.60	19.70
Low	15	10	QPSK	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	829	165800	23.56	19.66
High	15	15	QPSK	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	841.5	168300	23.50	19.60
Low	15	15	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	831.5	166300	23.79	19.89
Middle	15	15	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	23.75	19.85
High	15	15	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	841.5	168300	23.60	19.70
Low	15	15	QPSK	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	831.5	166300	23.67	19.77
High	15	20	QPSK	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	839	167800	23.55	19.65
Low	15	20	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	834	166800	23.76	19.86
Middle	15	20	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	23.69	19.79
High	15	20	QPSK	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	839	167800	23.62	19.72
Low	15	20	QPSK	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	834	166800	23.61	19.71
High	15	5	16QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	846.5	169300	22.62	18.72
Low	15	5	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	826.5	165300	22.73	18.83
Middle	15	5	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.57	18.67
High	15	5	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	846.5	169300	22.51	18.61
Low	15	5	16QAM	Band66-10MHZ-17	Edge_1RB_Left	826.5	165300	22.63	18.73



				45-QPSK-1#0					
High	15	10	16QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	844	168800	22.89	18.99
Low	15	10	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	829	165800	22.77	18.87
Middle	15	10	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.69	18.79
High	15	10	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	844	168800	22.64	18.74
Low	15	10	16QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	829	165800	22.81	18.91
High	15	15	16QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	841.5	168300	22.99	19.09
Low	15	15	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	831.5	166300	22.81	18.91
Middle	15	15	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.73	18.83
High	15	15	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	841.5	168300	22.66	18.76
Low	15	15	16QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	831.5	166300	22.86	18.96
High	15	20	16QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	839	167800	22.84	18.94
Low	15	20	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	834	166800	22.78	18.88
Middle	15	20	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.68	18.78
High	15	20	16QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	839	167800	22.72	18.82
Low	15	20	16QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	834	166800	22.81	18.91
High	15	5	64QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	846.5	169300	21.82	17.92
Low	15	5	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	826.5	165300	22.29	18.39
Middle	15	5	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.16	18.26
High	15	5	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	846.5	169300	22.06	18.16
Low	15	5	64QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	826.5	165300	21.74	17.84
High	15	10	64QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	844	168800	21.95	18.05
Low	15	10	64QAM	Band66-10MHZ-17	Inner_Full	829	165800	22.25	18.35



				45-QPSK-50#0					
Middle	15	10	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.21	18.31
High	15	10	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	844	168800	22.07	18.17
Low	15	10	64QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	829	165800	22.10	18.20
High	15	15	64QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	841.5	168300	21.87	17.97
Low	15	15	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	831.5	166300	22.34	18.44
Middle	15	15	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.23	18.33
High	15	15	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	841.5	168300	22.12	18.22
Low	15	15	64QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	831.5	166300	22.09	18.19
High	15	20	64QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	839	167800	21.65	17.75
Low	15	20	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	834	166800	22.19	18.29
Middle	15	20	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	22.21	18.31
High	15	20	64QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	839	167800	22.15	18.25
Low	15	20	64QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	834	166800	22.07	18.17
High	15	5	256QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	846.5	169300	19.84	15.94
Low	15	5	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	826.5	165300	20.06	16.16
Middle	15	5	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	19.99	16.09
High	15	5	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	846.5	169300	19.90	16.00
Low	15	5	256QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	826.5	165300	20.17	16.27
High	15	10	256QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	844	168800	19.97	16.07
Low	15	10	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	829	165800	20.21	16.31
Middle	15	10	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	20.14	16.24
High	15	10	256QAM	Band66-10MHZ-17	Inner_Full	844	168800	20.03	16.13



				45-QPSK-50#0					
Low	15	10	256QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	829	165800	20.05	16.15
High	15	15	256QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	841.5	168300	19.99	16.09
Low	15	15	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	831.5	166300	20.27	16.37
Middle	15	15	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	20.17	16.27
High	15	15	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	841.5	168300	20.09	16.19
Low	15	15	256QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	831.5	166300	19.99	16.09
High	15	20	256QAM	Band66-10MHZ-17 45-QPSK-1#49	Edge_1RB_Right	839	167800	19.79	15.89
Low	15	20	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	834	166800	20.16	16.26
Middle	15	20	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	836.5	167300	20.14	16.24
High	15	20	256QAM	Band66-10MHZ-17 45-QPSK-50#0	Inner_Full	839	167800	20.11	16.21
Low	15	20	256QAM	Band66-10MHZ-17 45-QPSK-1#0	Edge_1RB_Left	834	166800	20.12	16.22

5.2. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

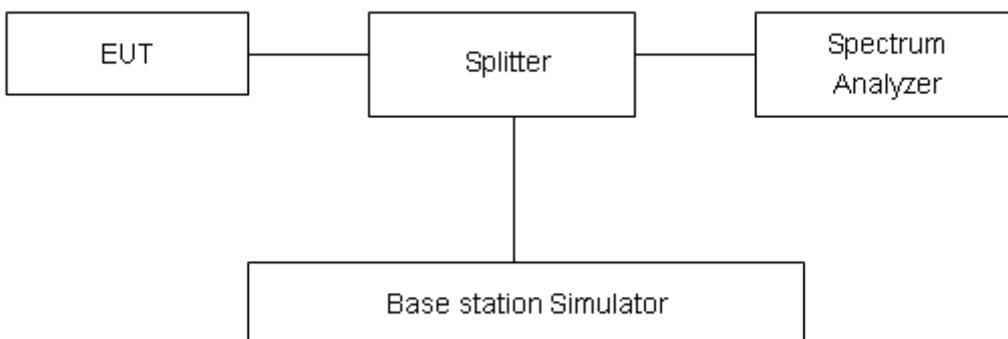
Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 240 kHz, VBW is set to 750kHz for EN-DC_2A_n5 (10MHz),

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

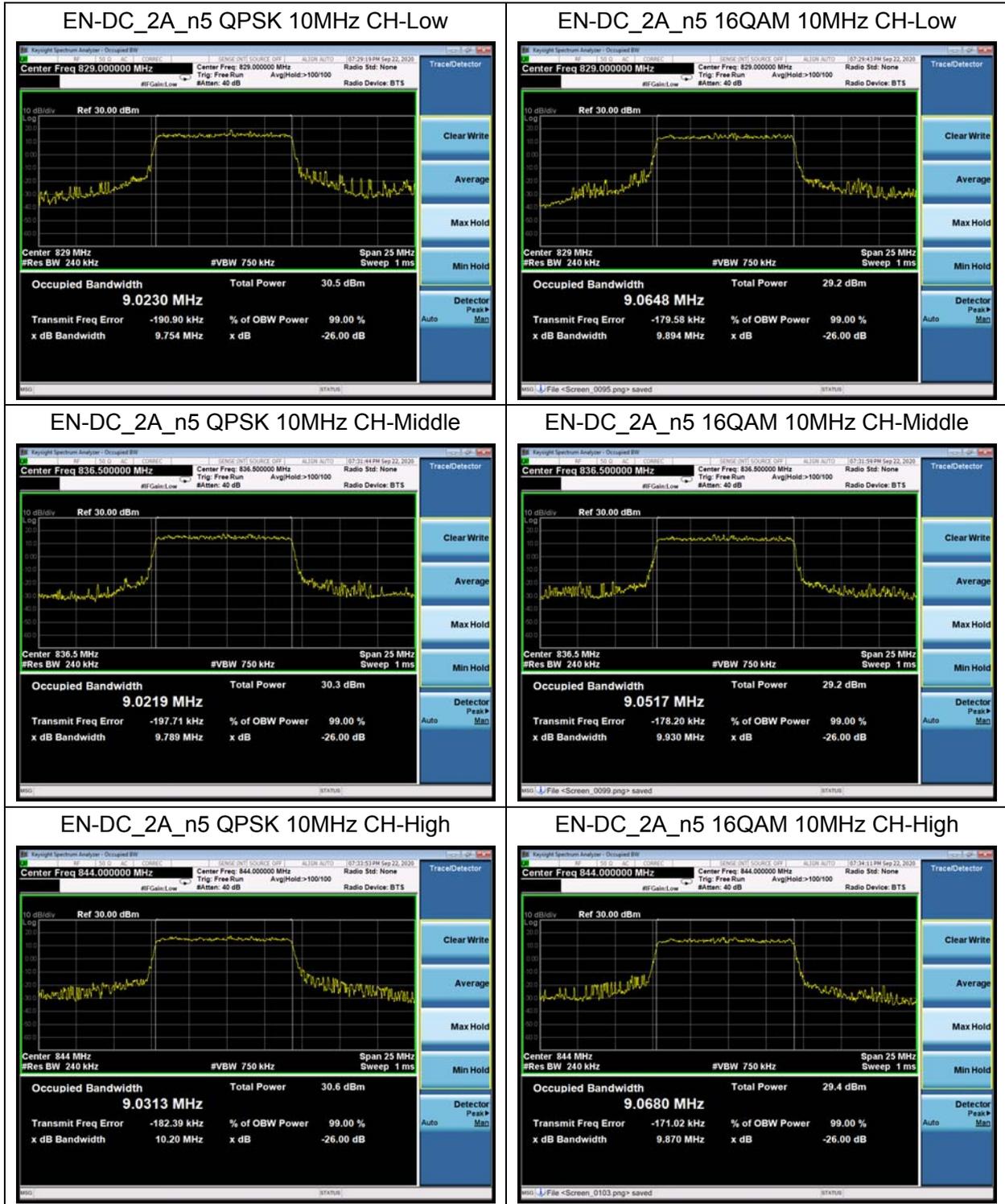
Measurement Uncertainty

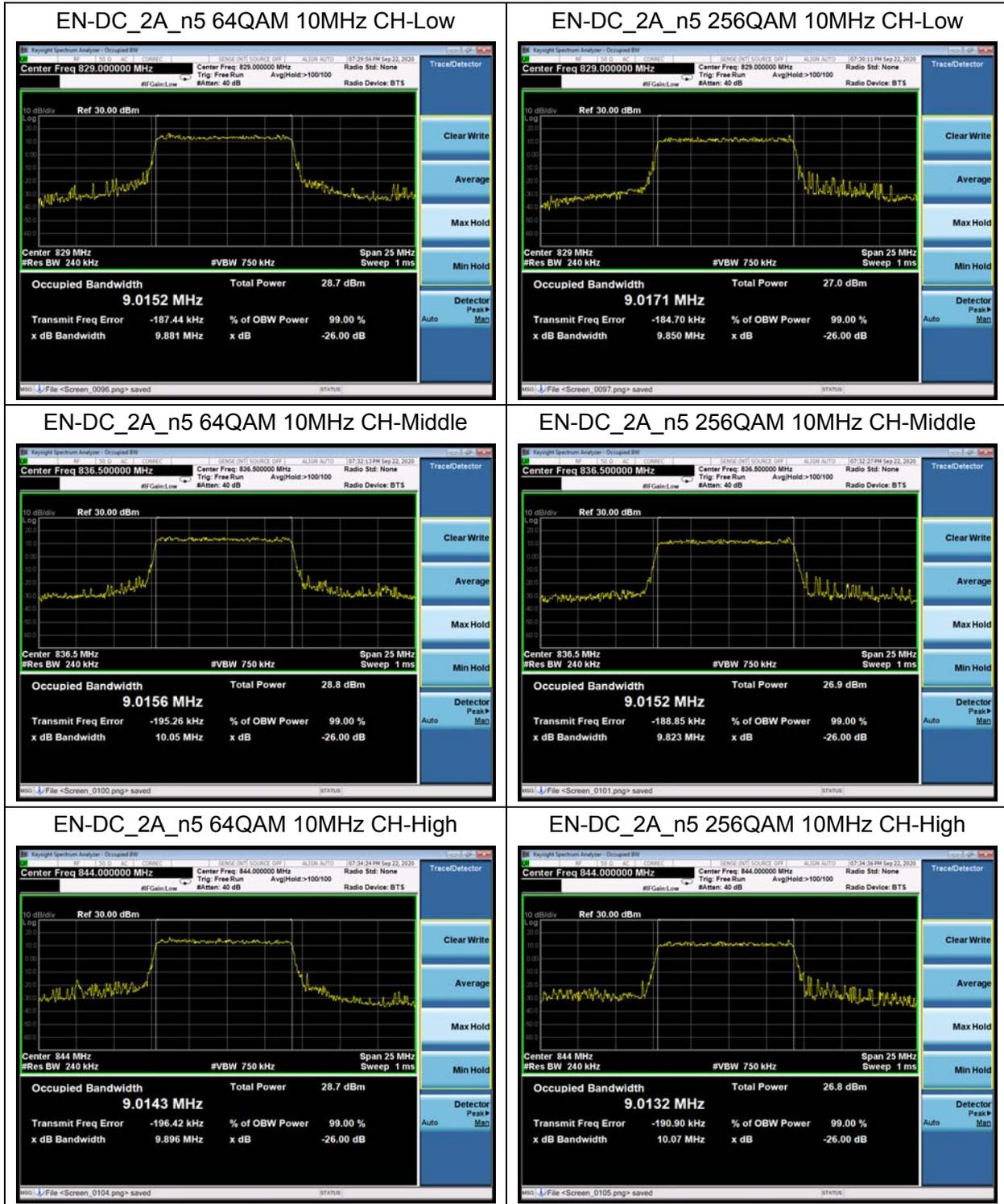
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.



Test Result

EN-DC_2A_n5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	10	165800	829	9.0230	9.754
			167300	836.5	9.0219	9.789
			168800	844	9.0313	10.200
	16QAM	10	165800	829	9.0648	9.894
			167300	836.5	9.0517	9.930
			168800	844	9.0680	9.870
	64QAM	10	165800	829	9.0152	9.881
			167300	836.5	9.0156	10.050
			168800	844	9.0143	9.896
	256QAM	10	165800	829	9.0171	9.850
			167300	836.5	9.0152	9.823
			168800	844	9.0132	10.070





5.3. Band Edge Compliance

Ambient condition

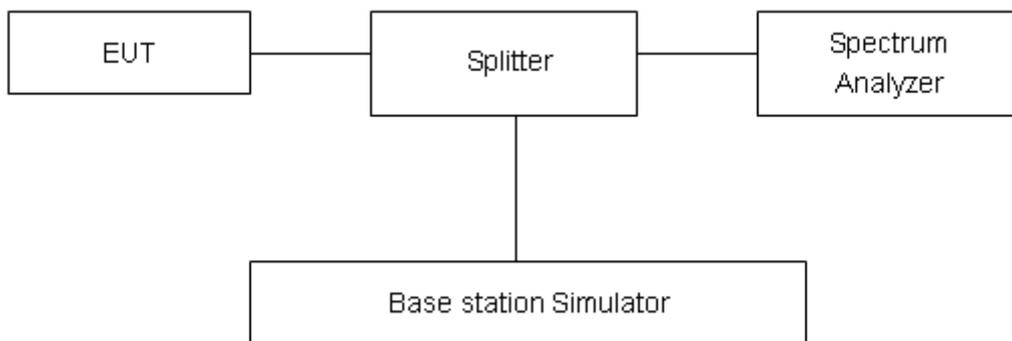
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The average detector is used. RBW is set to 120kHz, VBW is set to 430kHz for EN-DC_2A_n5 (10MHz),

Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “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.”

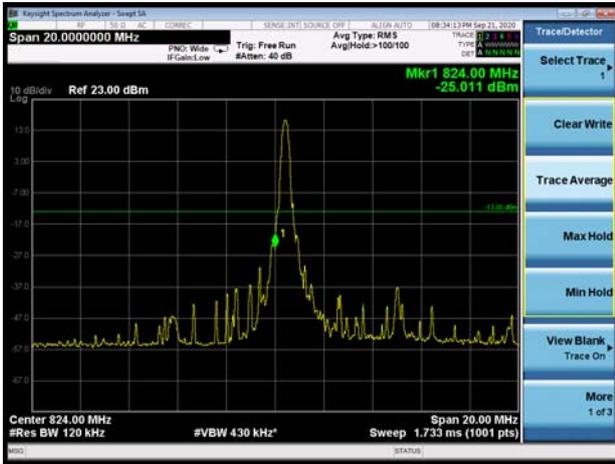
Limit	-13 dBm
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Measurement Uncertainty

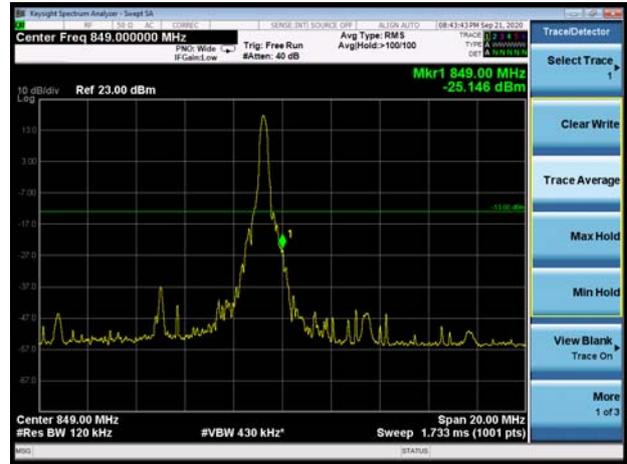
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

Test Result:

EN-DC_2A_n5 QPSK 10MHz CH-Low 1RB



EN-DC_2A_n5 QPSK 10MHz CH-High 1RB



EN-DC_2A_n5 QPSK 10MHz CH-Low 100%RB



EN-DC_2A_n5 QPSK 10MHz CH-High 100%RB



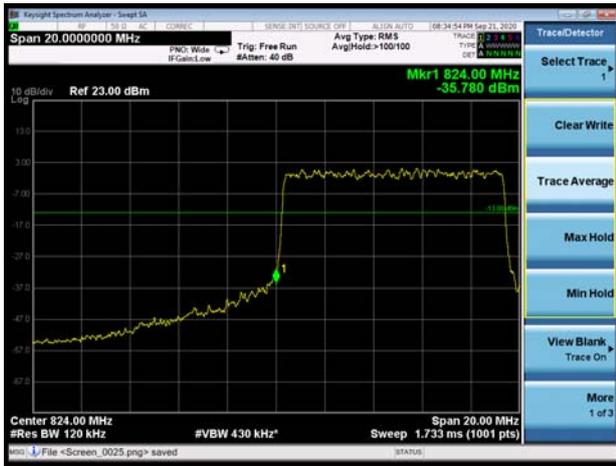
EN-DC_2A_n5 16QAM 10MHz CH-Low 1RB



EN-DC_2A_n5 16QAM 10MHz CH-High 1RB



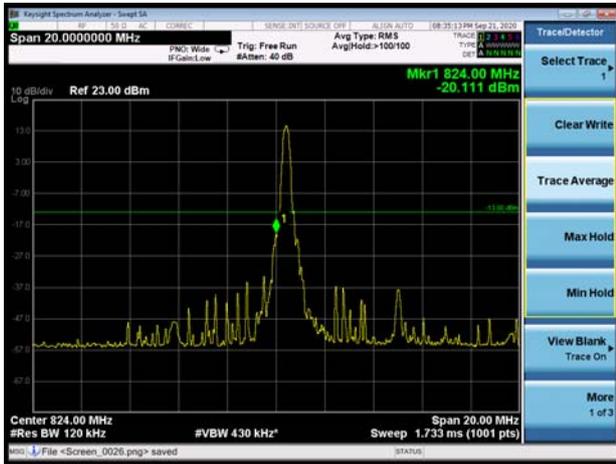
EN-DC_2A_n5 16QAM 10MHz CH-Low 100%RB



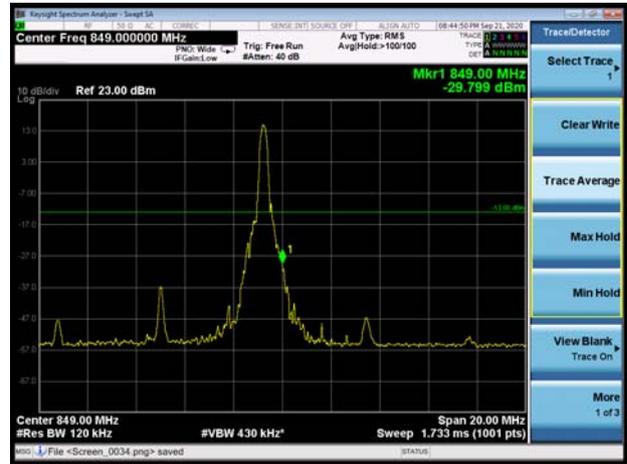
EN-DC_2A_n5 16QAM 10MHz CH-High 100%RB



EN-DC_2A_n5 64QAM 10MHz CH-Low 1RB



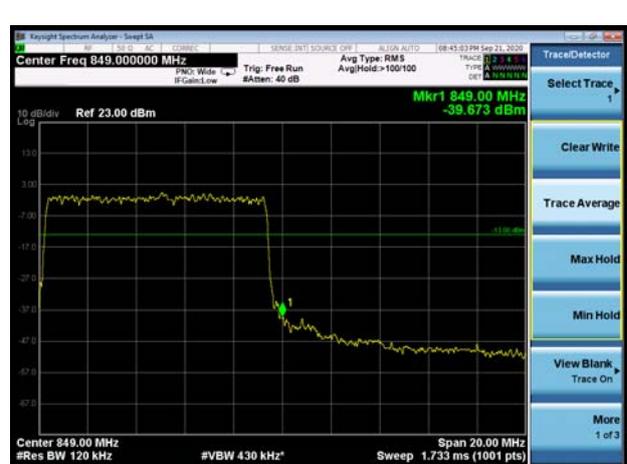
EN-DC_2A_n5 64QAM 10MHz CH-High 1RB



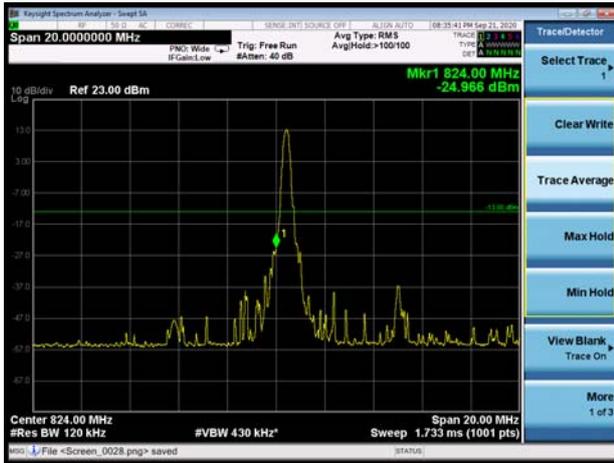
EN-DC_2A_n5 64QAM 10MHz CH-Low 100%RB



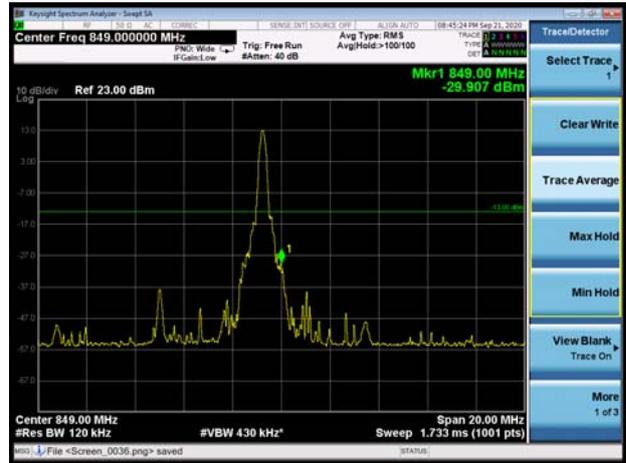
EN-DC_2A_n5 64QAM 10MHz CH-High 100%RB



EN-DC_2A_n5 256QAM 10MHz CH-Low 1RB



EN-DC_2A_n5 256QAM 10MHz CH-High 1RB



EN-DC_2A_n5 256QAM 10MHz CH-Low
100%RB



EN-DC_2A_n5 256QAM 10MHz CH-High
100%RB



5.4. Peak-to-Average Power Ratio (PAPR)

Ambient condition

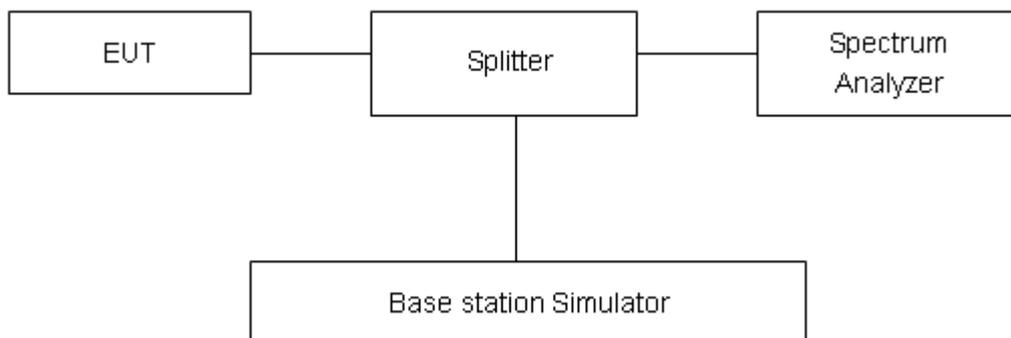
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Measure the total peak power and record as P_{Pk} . And measure the total average power and record as P_{Avg} . Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$$PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).$$

Test Setup



Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.



Test Results

EN-DC_2A_n5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	10M	165800	829	27.18	17.53	9.65	≤13	PASS
		167300	836.5	27.09	17.61	9.48	≤13	PASS
		168800	844	26.92	17.32	9.60	≤13	PASS
16QAM	10M	165800	829	26.95	16.42	10.53	≤13	PASS
		167300	836.5	27.08	16.94	10.14	≤13	PASS
		168800	844	26.74	16.66	10.08	≤13	PASS
64QAM	10M	165800	829	26.87	15.72	11.15	≤13	PASS
		167300	836.5	27.03	17.00	10.03	≤13	PASS
		168800	844	26.62	15.98	10.64	≤13	PASS
256QAM	10M	165800	829	25.25	14.04	11.21	≤13	PASS
		167300	836.5	25.28	13.49	11.79	≤13	PASS
		168800	844	24.92	13.31	11.61	≤13	PASS

5.5. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

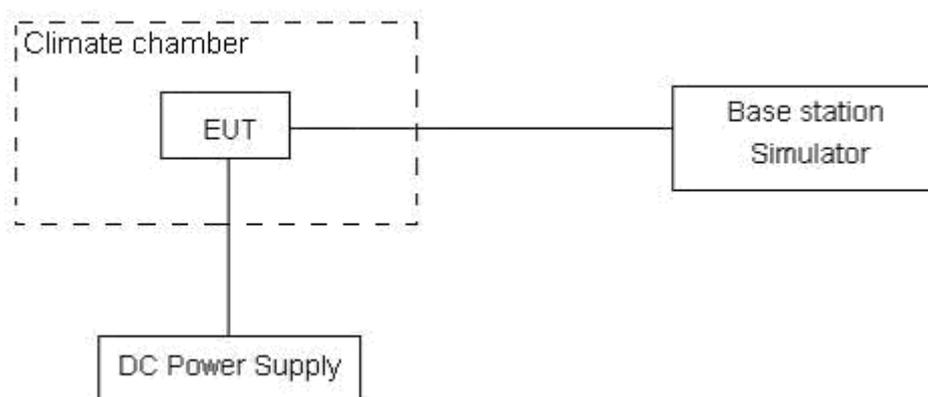
Frequency Stability (Voltage Variation)

The frequency stability shall be measured with variation of primary supply voltage as follows:

Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.5 V and 4.4 V, with a nominal voltage of 4.0V.

Test setup



**Limits**

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01$ ppm.



Test Result

EN-DC_2A_n5										
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	5MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.63	10.17	12.91	3.63	0.00140	0.00541	0.00687	0.00193	PASS
Extreme (50°C)		13.57	13.20	17.95	15.57	0.00722	0.00702	0.00955	0.00828	PASS
Extreme (40°C)		15.02	16.03	7.37	6.02	0.00799	0.00852	0.00392	0.00320	PASS
Extreme (30°C)		16.66	2.82	8.83	2.66	0.00886	0.00150	0.00470	0.00141	PASS
Extreme (20°C)		8.72	10.87	12.86	15.72	0.00464	0.00578	0.00684	0.00836	PASS
Extreme (10°C)		3.11	8.26	8.06	14.11	0.00165	0.00439	0.00429	0.00750	PASS
Extreme (0°C)		9.54	8.66	14.39	13.54	0.00507	0.00461	0.00765	0.00720	PASS
Extreme (-10°C)		8.28	8.49	10.56	15.28	0.00440	0.00452	0.00562	0.00813	PASS
Extreme (-20°C)		8.24	17.11	10.28	13.24	0.00438	0.00910	0.00547	0.00704	PASS
Extreme (-30°C)		7.00	13.11	7.11	10.00	0.00372	0.00697	0.00378	0.00532	PASS
25°C	LV	10.58	11.47	4.29	14.58	0.00563	0.00610	0.00228	0.00776	PASS
	HV	2.36	1.02	9.63	14.36	0.00125	0.00054	0.00512	0.00764	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	10MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	3.97	5.76	7.34	8.97	0.00211	0.00306	0.00390	0.00477	PASS
Extreme (50°C)		11.92	5.49	9.65	3.92	0.00634	0.00292	0.00514	0.00208	PASS
Extreme (40°C)		4.70	4.25	15.74	10.70	0.00250	0.00226	0.00837	0.00569	PASS
Extreme (30°C)		15.48	17.64	3.37	6.48	0.00823	0.00938	0.00179	0.00345	PASS
Extreme (20°C)		16.24	13.50	12.25	10.24	0.00864	0.00718	0.00652	0.00545	PASS
Extreme (10°C)		7.55	15.90	16.47	7.55	0.00402	0.00846	0.00876	0.00402	PASS
Extreme (0°C)		5.68	16.80	14.48	12.68	0.00302	0.00894	0.00770	0.00675	PASS
Extreme (-10°C)		16.36	13.36	1.13	3.36	0.00870	0.00711	0.00060	0.00179	PASS
Extreme (-20°C)		1.18	2.48	12.03	14.18	0.00063	0.00132	0.00640	0.00754	PASS
Extreme (-30°C)		11.24	7.16	13.67	3.24	0.00598	0.00381	0.00727	0.00172	PASS
25°C	LV	14.66	5.36	14.82	5.66	0.00780	0.00285	0.00789	0.00301	PASS
	HV	10.80	2.74	6.27	11.80	0.00575	0.00146	0.00333	0.00628	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	15MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	12.61	3.55	2.29	6.61	0.00670	0.00189	0.00122	0.00351	PASS
Extreme (50°C)		2.50	6.75	2.22	2.50	0.00133	0.00359	0.00118	0.00133	PASS



Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz									
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Extreme (40°C)		15.62	15.16	9.77	8.62	0.00831	0.00806	0.00520	0.00458	PASS
Extreme (30°C)		9.97	6.19	9.57	5.97	0.00530	0.00329	0.00509	0.00318	PASS
Extreme (20°C)		9.88	10.29	11.92	12.88	0.00526	0.00547	0.00634	0.00685	PASS
Extreme (10°C)		13.64	17.78	6.76	10.64	0.00726	0.00946	0.00360	0.00566	PASS
Extreme (0°C)		1.17	15.45	4.85	14.17	0.00062	0.00822	0.00258	0.00754	PASS
Extreme (-10°C)		2.35	5.27	16.78	16.35	0.00125	0.00280	0.00893	0.00870	PASS
Extreme (-20°C)		1.34	6.91	8.40	10.34	0.00071	0.00368	0.00447	0.00550	PASS
Extreme (-30°C)		16.82	5.83	8.73	7.82	0.00895	0.00310	0.00464	0.00416	PASS
25°C	LV	12.10	7.34	16.55	13.10	0.00644	0.00390	0.00881	0.00697	PASS
	HV	3.42	4.88	4.84	16.42	0.00182	0.00260	0.00258	0.00873	PASS
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	20MHz									
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	13.67	1.03	5.05	9.67	0.00727	0.00055	0.00269	0.00515	PASS
Extreme (50°C)		6.01	17.98	12.62	12.01	0.00320	0.00957	0.00671	0.00639	PASS
Extreme (40°C)		10.28	1.00	12.20	16.28	0.00547	0.00053	0.00649	0.00866	PASS
Extreme (30°C)		11.43	8.24	4.98	11.43	0.00608	0.00438	0.00265	0.00608	PASS
Extreme (20°C)		11.89	6.06	5.37	5.89	0.00633	0.00322	0.00286	0.00313	PASS
Extreme (10°C)		12.48	11.46	16.53	8.48	0.00664	0.00610	0.00879	0.00451	PASS
Extreme (0°C)		1.66	3.70	1.22	14.66	0.00088	0.00197	0.00065	0.00780	PASS
Extreme (-10°C)		17.71	13.43	8.64	16.71	0.00942	0.00715	0.00459	0.00889	PASS
Extreme (-20°C)		16.93	11.16	2.06	8.93	0.00900	0.00594	0.00110	0.00475	PASS
Extreme (-30°C)		12.52	8.36	6.24	7.52	0.00666	0.00445	0.00332	0.00400	PASS
25°C	LV	10.28	11.41	13.83	16.28	0.00547	0.00607	0.00735	0.00866	PASS
	HV	7.72	8.00	2.47	16.72	0.00411	0.00426	0.00131	0.00890	PASS

EN-DC_66A_n5										
Condition		Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Freq.Error (Hz)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Frequency Stability (ppm)	Verdict
BANDWIDTH	5MHz									
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.33	17.41	2.51	13.33	0.00124	0.00926	0.00134	0.00709	PASS
Extreme (50°C)		10.20	8.87	15.97	16.20	0.00542	0.00472	0.00849	0.00861	PASS
Extreme (40°C)		13.26	11.86	6.94	11.26	0.00705	0.00631	0.00369	0.00599	PASS
Extreme (30°C)		2.31	16.47	7.28	16.31	0.00123	0.00876	0.00387	0.00868	PASS
Extreme (20°C)		10.70	12.81	6.88	3.70	0.00569	0.00681	0.00366	0.00197	PASS
Extreme (10°C)		9.48	7.39	8.61	9.48	0.00504	0.00393	0.00458	0.00504	PASS
Extreme (0°C)		2.71	14.05	6.12	13.71	0.00144	0.00747	0.00326	0.00730	PASS
Extreme (-10°C)		8.81	9.21	5.91	6.81	0.00469	0.00490	0.00314	0.00362	PASS



Extreme (-20°C)		1.50	1.20	3.64	4.50	0.00080	0.00064	0.00194	0.00239	PASS
Extreme (-30°C)		9.96	17.70	10.41	16.96	0.00530	0.00941	0.00554	0.00902	PASS
25°C	LV	2.87	9.22	16.80	5.87	0.00153	0.00490	0.00893	0.00312	PASS
	HV	17.01	4.36	13.85	11.01	0.00905	0.00232	0.00737	0.00586	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	10MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	2.31	1.10	6.78	9.31	0.00123	0.00058	0.00361	0.00495	PASS
Extreme (50°C)		3.27	17.77	4.73	3.27	0.00174	0.00945	0.00251	0.00174	PASS
Extreme (40°C)		7.48	11.25	14.19	11.48	0.00398	0.00599	0.00755	0.00611	PASS
Extreme (30°C)		1.98	15.48	8.12	11.98	0.00105	0.00823	0.00432	0.00637	PASS
Extreme (20°C)		9.97	4.44	16.53	14.97	0.00530	0.00236	0.00879	0.00796	PASS
Extreme (10°C)		14.38	10.56	15.10	5.38	0.00765	0.00562	0.00803	0.00286	PASS
Extreme (0°C)		9.32	16.04	7.74	3.32	0.00496	0.00853	0.00412	0.00177	PASS
Extreme (-10°C)		8.43	6.35	2.22	15.43	0.00449	0.00338	0.00118	0.00821	PASS
Extreme (-20°C)		9.76	17.77	11.33	13.76	0.00519	0.00945	0.00603	0.00732	PASS
Extreme (-30°C)		11.59	15.80	8.87	2.59	0.00616	0.00841	0.00472	0.00138	PASS
25°C		LV	9.50	3.36	11.51	7.50	0.00505	0.00179	0.00612	0.00399
	HV	2.23	2.32	1.14	4.23	0.00119	0.00123	0.00061	0.00225	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	15MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	
Normal (25°C)	Normal	10.53	4.81	7.78	6.53	0.00560	0.00256	0.00414	0.00347	PASS
Extreme (50°C)		10.73	11.82	16.85	3.73	0.00571	0.00629	0.00896	0.00198	PASS
Extreme (40°C)		8.78	17.17	9.55	14.78	0.00467	0.00914	0.00508	0.00786	PASS
Extreme (30°C)		1.60	3.41	10.08	11.60	0.00085	0.00181	0.00536	0.00617	PASS
Extreme (20°C)		15.78	9.09	14.39	8.78	0.00840	0.00484	0.00765	0.00467	PASS
Extreme (10°C)		15.63	1.25	13.60	17.63	0.00832	0.00067	0.00724	0.00938	PASS
Extreme (0°C)		13.86	6.55	9.75	6.86	0.00737	0.00349	0.00519	0.00365	PASS
Extreme (-10°C)		15.35	5.21	14.02	9.35	0.00816	0.00277	0.00745	0.00497	PASS
Extreme (-20°C)		8.50	2.34	17.64	10.50	0.00452	0.00125	0.00939	0.00558	PASS
Extreme (-30°C)		13.36	9.81	13.66	11.36	0.00710	0.00522	0.00727	0.00604	PASS
25°C		LV	16.01	15.92	5.85	10.01	0.00852	0.00847	0.00311	0.00532
	HV	1.99	1.45	13.97	8.99	0.00106	0.00077	0.00743	0.00478	PASS
Condition		Freq.Error	Freq.Error	Freq.Error	Freq.Error	Frequency	Frequency	Frequency	Frequency	Verdict
BANDWIDTH	20MHz	(Hz)	(Hz)	(Hz)	(Hz)	Stability	Stability	Stability	Stability	
Temperature	Voltage	256QAM	64QAM	16QAM	QPSK	256QAM	64QAM	16QAM	QPSK	



Normal (25°C)	Normal	4.29	5.19	3.27	9.29	0.00228	0.00276	0.00174	0.00494	PASS
Extreme (50°C)		13.13	15.09	7.13	10.13	0.00698	0.00803	0.00379	0.00539	PASS
Extreme (40°C)		16.96	10.20	17.15	11.96	0.00902	0.00543	0.00912	0.00636	PASS
Extreme (30°C)		10.31	3.07	15.48	12.31	0.00549	0.00163	0.00824	0.00655	PASS
Extreme (20°C)		10.72	4.52	10.44	12.72	0.00570	0.00240	0.00555	0.00677	PASS
Extreme (10°C)		16.69	11.21	5.15	17.69	0.00888	0.00596	0.00274	0.00941	PASS
Extreme (0°C)		5.49	16.50	15.67	8.49	0.00292	0.00878	0.00834	0.00451	PASS
Extreme (-10°C)		15.42	9.28	13.10	9.42	0.00820	0.00494	0.00697	0.00501	PASS
Extreme (-20°C)		11.39	16.79	16.45	7.39	0.00606	0.00893	0.00875	0.00393	PASS
Extreme (-30°C)		8.24	16.45	17.65	17.24	0.00438	0.00875	0.00939	0.00917	PASS
25°C	LV	7.55	15.36	9.56	11.55	0.00402	0.00817	0.00509	0.00614	PASS
	HV	16.73	6.55	15.83	11.73	0.00890	0.00349	0.00842	0.00624	PASS

5.6. Spurious Emissions at Antenna Terminals

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier.

RBW is set to 1 kHz (0.009MHz~ 0.15 MHz),

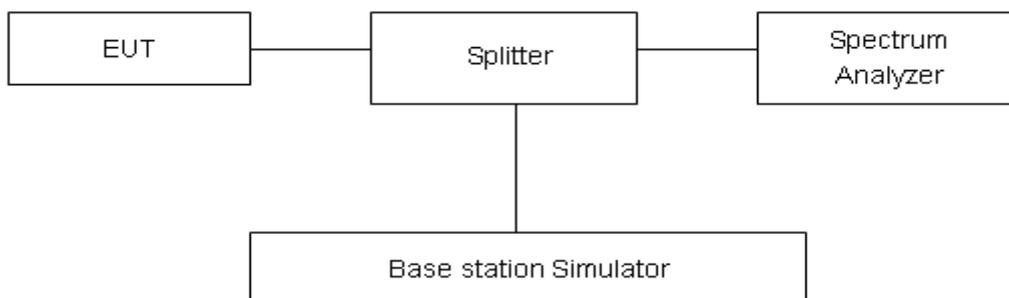
RBW is set to 10 kHz (0.15 MHz~ 30 MHz)

RBW is set to 100 kHz (30MHz~1000 MHz)

RBW is set to 1000 kHz (above 1000MHz)

The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 22.917(a) specifies that “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.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

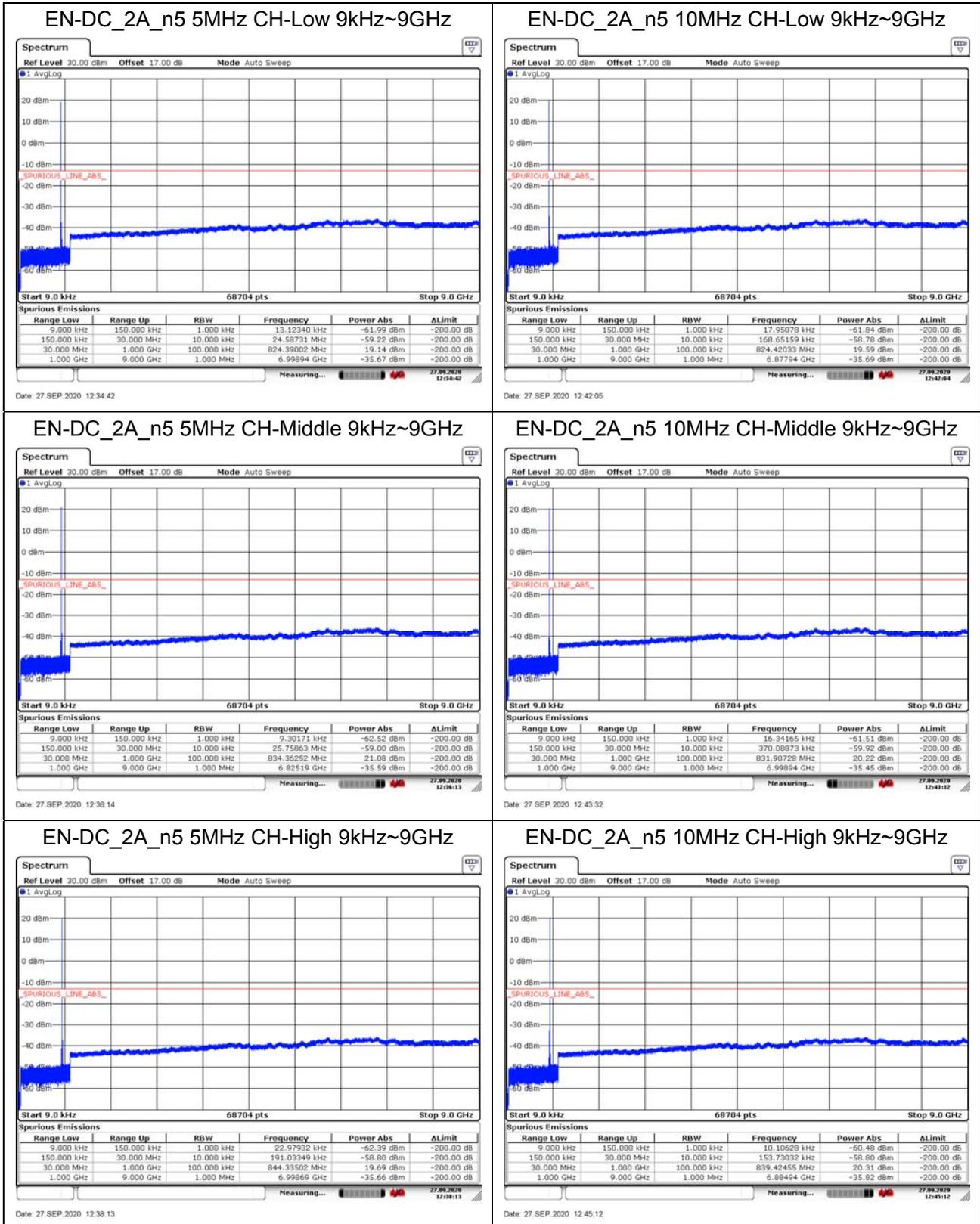
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-18GHz	1.407 dB



Test Result

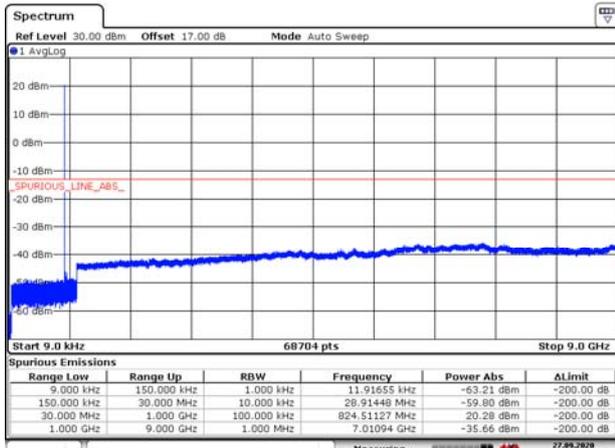
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.



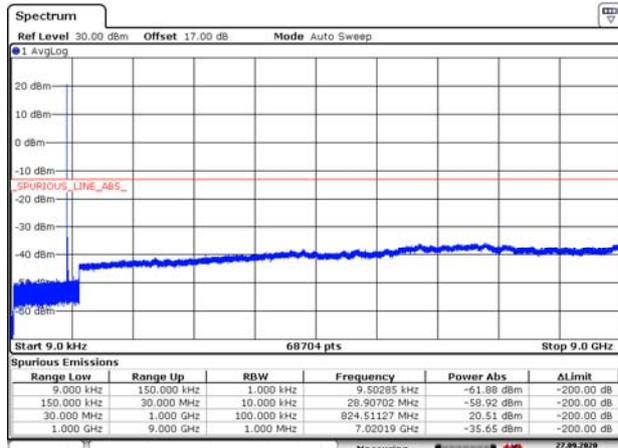


EN-DC_2A_n5 15MHz CH-Low 9kHz~9GHz



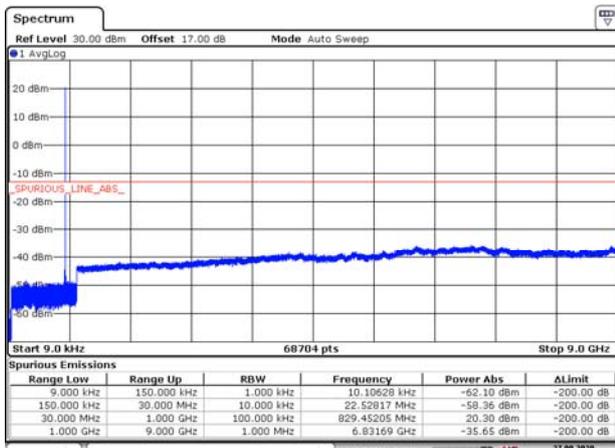
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EN-DC_2A_n5 20MHz CH-Low 9kHz~9GHz



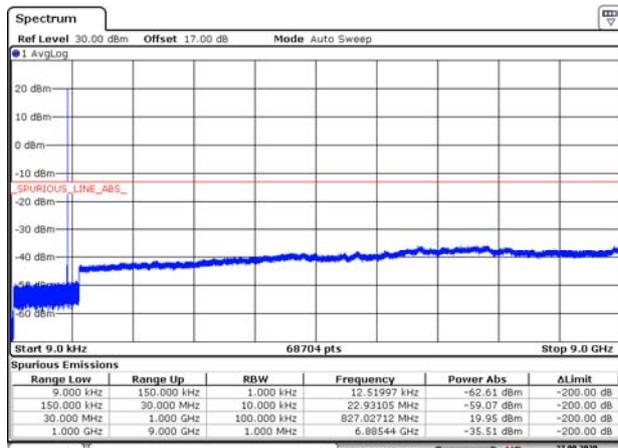
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EN-DC_2A_n5 15MHz CH-Middle 9kHz~9GHz



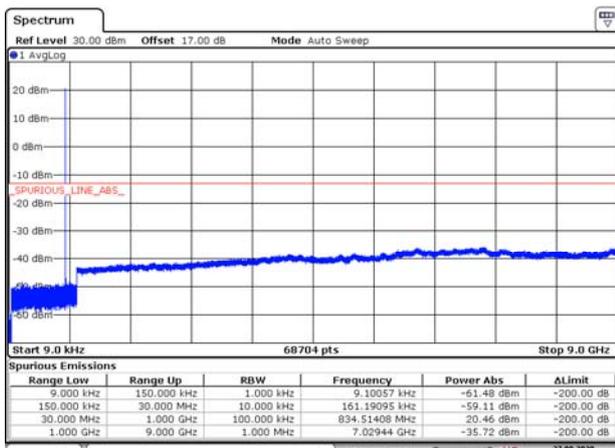
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EN-DC_2A_n5 20MHz CH-Middle 9kHz~9GHz



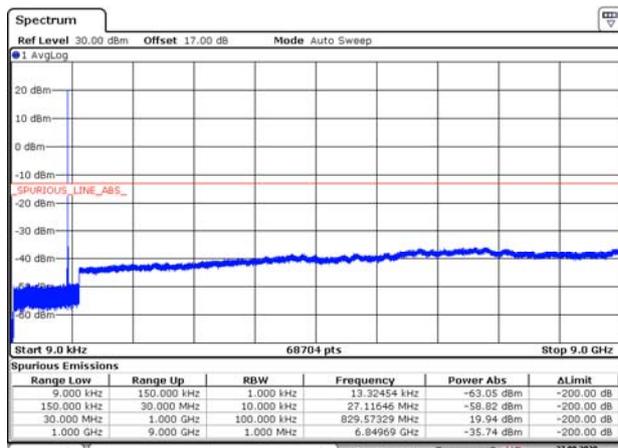
Date: 27 SEP 2020 12:53:51

EN-DC_2A_n5 15MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 12:48:49

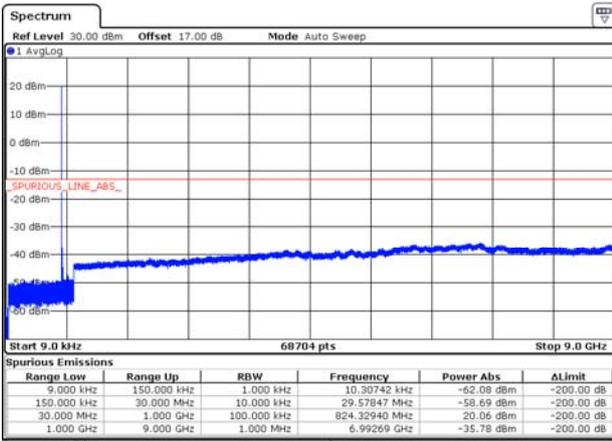
EN-DC_2A_n5 20MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 12:55:06

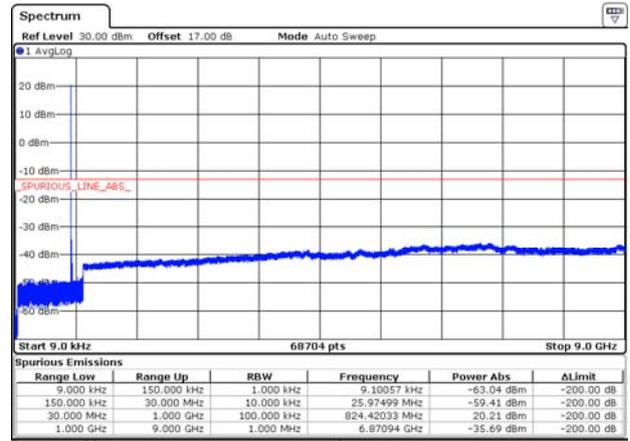


EN-DC_66A_n5 5MHz CH-Low 9kHz~9GHz



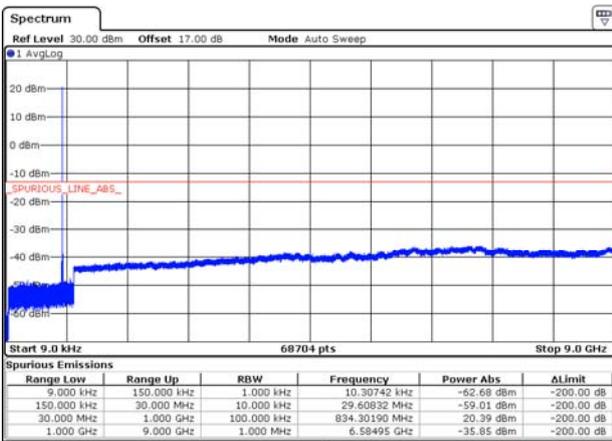
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EN-DC_66A_n5 10MHz CH-Low 9kHz~9GHz



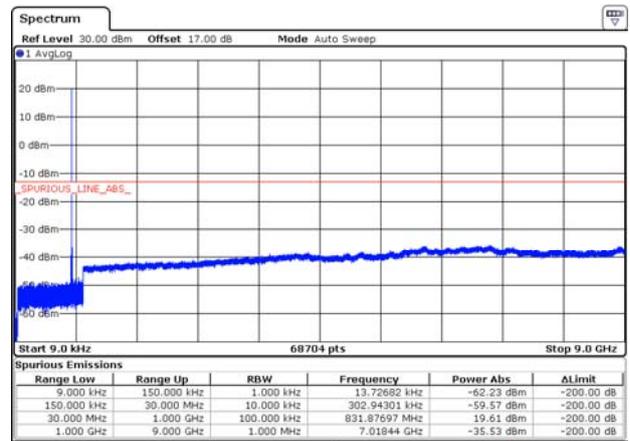
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EN-DC_66A_n5 5MHz CH-Middle 9kHz~9GHz



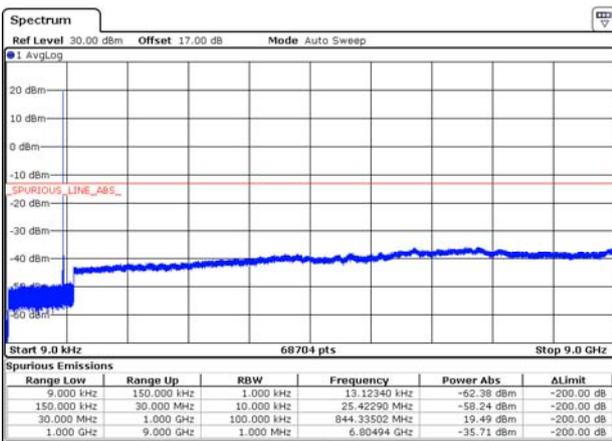
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EN-DC_66A_n5 10MHz CH-Middle 9kHz~9GHz



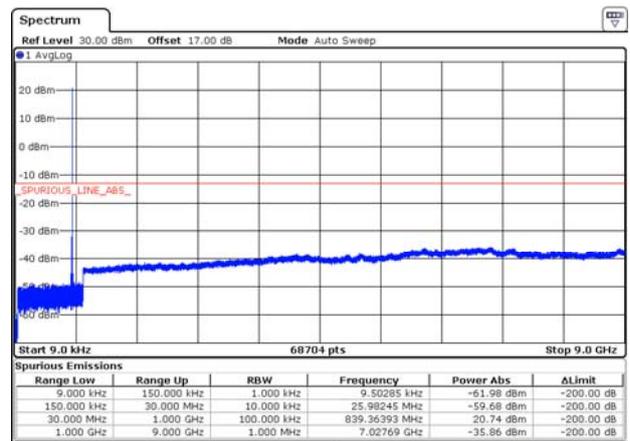
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EN-DC_66A_n5 5MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 12:59:58

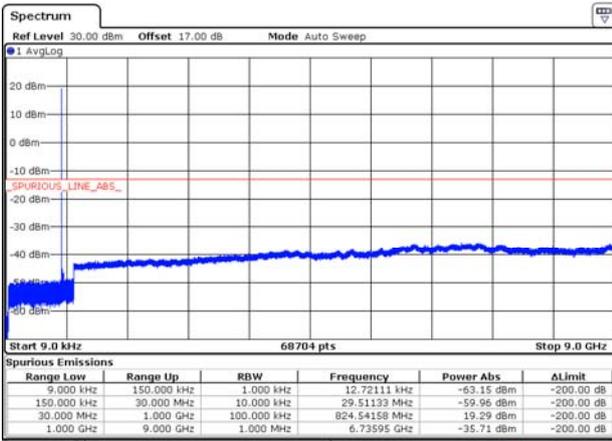
EN-DC_66A_n5 10MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 13:06:09

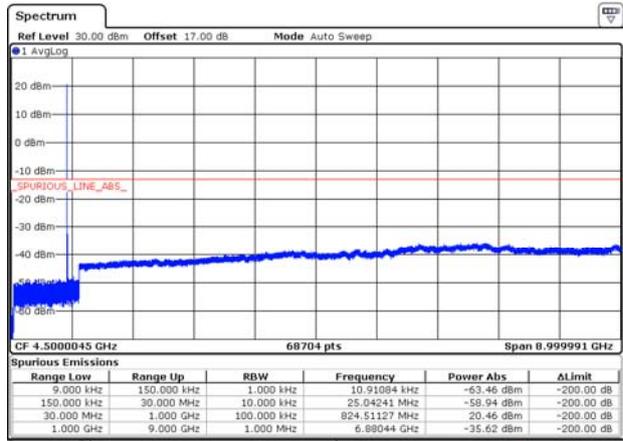


EN-DC_66A_n5 15MHz CH-Low 9kHz~9GHz



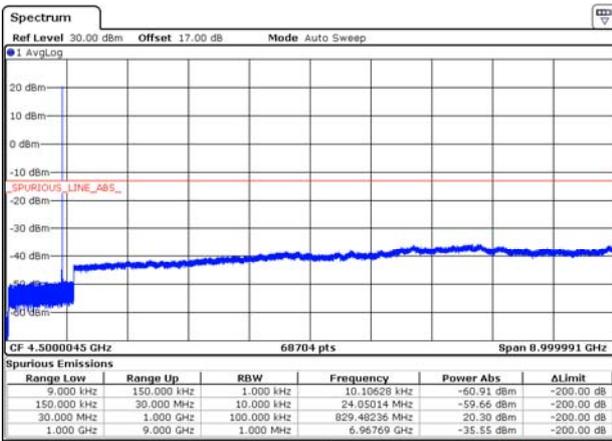
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EN-DC_66A_n5 20MHz CH-Low 9kHz~9GHz



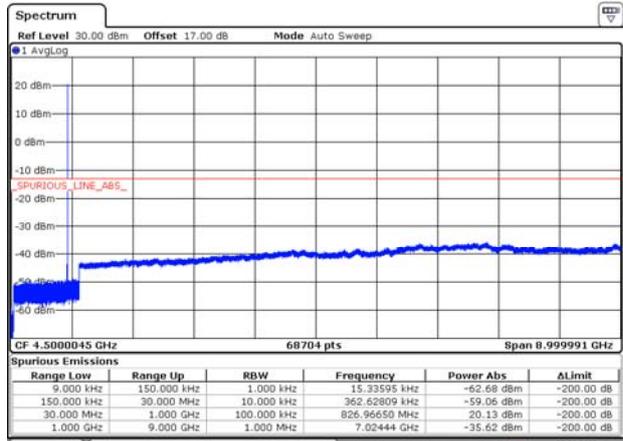
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EN-DC_66A_n5 15MHz CH-Middle 9kHz~9GHz



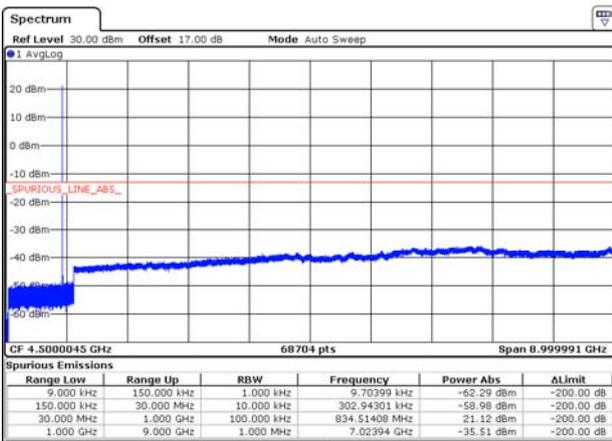
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EN-DC_66A_n5 20MHz CH-Middle 9kHz~10GHz



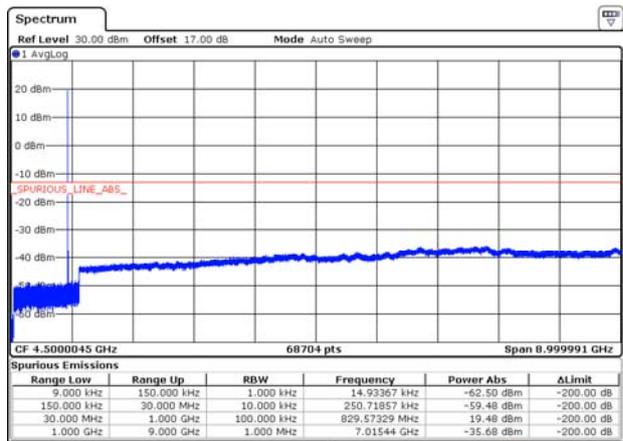
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EN-DC_66A_n5 15MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 13:11:42

EN-DC_66A_n5 20MHz CH-High 9kHz~9GHz



Date: 27 SEP 2020 13:18:48

5.7. Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

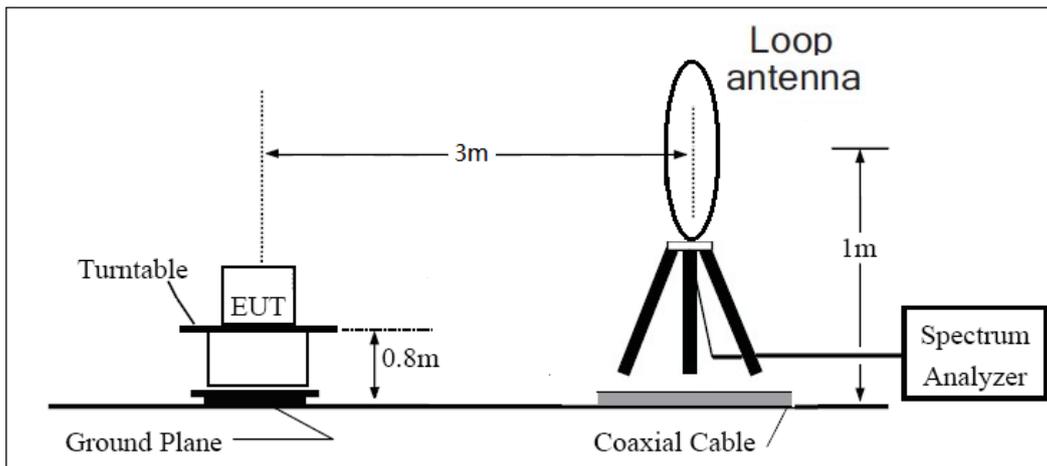
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26 (2015).
2. Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A loop antenna, A log-periodic antenna or horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=200Hz,VBW=600Hz for 9kHz-150kHz , RBW=10kHz, VBW=30kHz 150kHz-30MHz , RBW=100kHz,VBW=300kHz for 30MHz to 1GHz and RBW=1MHz, VBW=3MHz for above 1GHz, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
 $Power(EIRP)=PMea- PAg - Pcl + Ga$
 The measurement results are amend as described below:
 $Power(EIRP)=PMea- Pcl + Ga$
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi)

and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$.

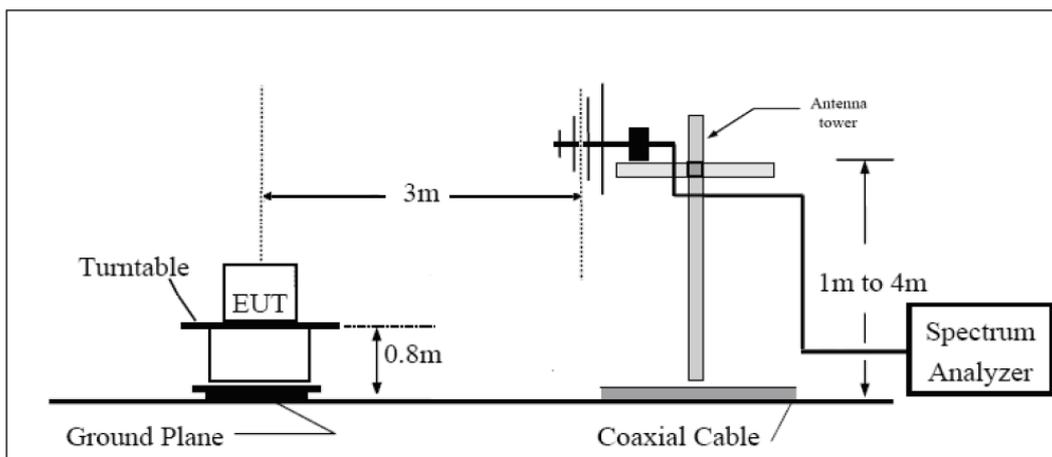
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

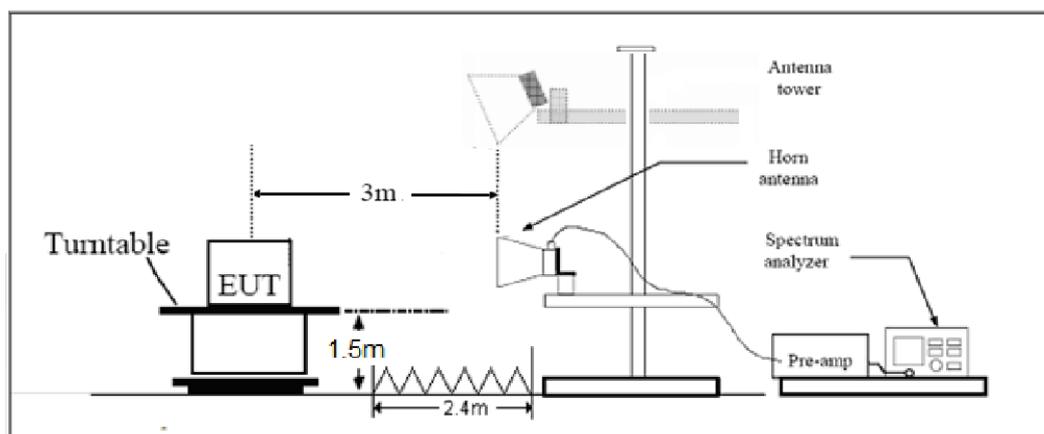
9KHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

**Limits**

Rule Part 22.917(a) specifies that “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.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

**Test Result**

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

EN-DC_2A_n5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1664.40	-56.65	2.00	10.75	Horizontal	-50.05	-13.00	37.05	45
3	2496.60	-53.94	2.51	11.05	Horizontal	-47.55	-13.00	34.55	315
4	3346.00	-59.19	4.20	11.15	Horizontal	-54.39	-13.00	41.39	0
5	4182.50	-51.56	5.20	11.15	Horizontal	-47.76	-13.00	34.76	0
6	5019.00	-56.12	5.50	11.95	Horizontal	-51.82	-13.00	38.82	45
7	5855.50	-59.29	5.70	13.55	Horizontal	-53.59	-13.00	40.59	315
8	6692.00	-56.58	6.30	13.75	Horizontal	-51.28	-13.00	38.28	90
9	7528.50	-53.86	6.80	13.85	Horizontal	-48.96	-13.00	35.96	45
10	8365.00	-55.27	6.90	14.25	Horizontal	-50.07	-13.00	37.07	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is Horizontal position.

EN-DC_2A_n5 20MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1670.06	-66.95	2.00	10.75	Horizontal	-58.20	-13.00	45.20	45
3	2509.31	-60.99	2.51	11.05	Horizontal	-52.45	-13.00	39.45	180
4	3466.20	-62.63	4.20	11.15	Horizontal	-55.68	-13.00	42.68	90
5	4215.90	-53.85	5.20	11.15	Horizontal	-47.90	-13.00	34.90	45
6	5165.60	-61.44	5.50	11.95	Horizontal	-54.99	-13.00	41.99	270
7	5815.30	-61.69	5.70	13.55	Horizontal	-53.84	-13.00	40.84	270
8	6765.00	-58.72	6.30	13.75	Horizontal	-51.27	-13.00	38.27	315
9	7614.70	-56.58	6.80	13.85	Horizontal	-49.53	-13.00	36.53	45
10	8464.40	-56.77	6.90	14.25	Horizontal	-49.42	-13.00	36.42	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is Horizontal position.



6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	ANRITSU	MT8000A	6261844783	2020-05-17	2021-05-16
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	/	/
Spectrum Analyzer	Key sight	N9010A	MY50210259	2020-05-18	2021-05-17
Universal Radio Communication Tester	Key sight	E5515C	MY48367192	2020-05-27	2021-05-26
Signal Analyzer	R&S	FSV30	100815	2019-12-15	2020-12-14
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2020-04-02	2023-04-01
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	102723	2018-08-11	2021-08-10
Horn Antenna	ETS-Lindgren	3160-09	00102643	2018-06-20	2021-06-19
Signal generator	R&S	SMB 100A	102594	2020-05-18	2021-05-17
Climatic Chamber	ESPEC	SU-242	93000506	2017-12-17	2020-12-16
Preamplifier	R&S	SCU18	102327	2020-05-18	2021-05-17
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2020-05-18	2021-05-17
RF Cable	Agilent	SMA 15cm	0001	2020-06-12	2020-12-11
Software	R&S	EMC32	9.26.0	/	/

*****END OF REPORT *****



ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.



ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.