



TEST REPORT

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Report Number: RA230104-00558E-RF-00D
FCC ID: XHG-CG890

Test Standard (s)

FCC PART 27

Sample Description

Product Type: Home Router CG890
Model No.: CG890
Multiple Model(s) No.: N/A
Trade Mark: N/A
Date Received: 2023/01/04
Report Date: 2023/03/16

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Approved By:

Andy Yu
EMC Engineer

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230104-00558E-RF-00D	Original Report	2023-03-16

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	5G NR Band 66: 1710-1780MHz(TX); 2110-2180MHz(RX) 5G NR Band 71: 663-698MHz(TX); 617-652MHz(RX)		
EN-DC possible combinations	DC_5A_n66A, DC_12A_n66A		
Carrier aggregation	None Carrier aggregation		
Modulation Technique	DFT-s-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM		
Antenna Specification*	ANT 0: n66: 3.5dBi, n71: 1.8dBi ANT 2: n66: 3.6dBi (provided by the applicant)		
	ANT Location: SA mode: ANT 2(n66), ANT 0(n71)		
	NSA mode:	LTE	NR
	DC_5A_n66A	ANT 0	ANT 0
	DC_12A_n66A	ANT 0	ANT 0
Voltage Range	DC 12V from adapter or DC 3.8V from battery		
Sample serial number	1XJ7-2 for Radiated Emissions Test 1XJH-12 for RF Conducted Test (Assigned by ATC)		
Sample/EUT Status	Good condition		
Adapter information	Model: APS-M024120200W-G Input: AC 100-240V, 50/60Hz, 0.6A Max Output: DC 12V, 2.0A		
Extreme condition*	VL: Low Voltage 3.6V VN: Normal Voltage 3.8V VH: High Voltage 4.2V TN: Normal Temperature: 20°C T1~T8: -30°C, -20°C, -10°C, 0°C, 10°C, 30°C, 40°C, 50°C (provided by the applicant)		

Remark:

1. 5G NR bands supports SA Bands n66/71 and NSA DC_5A_n66A/DC_12A_n66A mode. For SA and NSA mode of all 5G NR, we only show the combination of the maximum power among all SA and NSA combinations in the report.
2. For modulation of CP-OFDM and DFT-s-OFDM, the maximum power of CP-OFDM is lower than DFT-s-OFDM modulation, therefore, we chose higher power (DFT-s-OFDM modulation) to perform all tests and show in the report.

Objective

This test report is in accordance with Part 2-Subpart J, and Part 27 of the Federal Communication Commission's rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 27 - Miscellaneous Wireless Communications Services

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Audio Frequency Response		0.1dB
Low Pass Filter Response		1.2dB
Modulation Limiting		1%
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz- 18GHz	4.98dB
	18GHz-26.5GHz	5.06dB
	26.5GHz-40GHz	4.72dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The final qualification test was performed with the EUT operating at normal mode.

The test items were performed with the EUT operating at testing mode. Test was performed with channels as below table:

Band	Channel Bandwidth	Frequency
NR Band 66	5.0 MHz	1712.5MHz, 1745MHz, 1777.5MHz
	10.0 MHz	1715MHz, 1745MHz, 1775MHz
	15.0 MHz	1717.5MHz, 1745MHz, 1772.5MHz
	20.0 MHz	1720MHz, 1745MHz, 1770MHz
	30.0 MHz	1725MHz, 1745MHz, 1765MHz
	40.0 MHz	1730MHz, 1745MHz, 1760MHz
NR Band 71	5.0 MHz	665.5MHz, 680.5MHz, 695.5MHz
	10.0 MHz	668MHz, 680.5MHz, 693MHz
	15.0 MHz	670.5MHz, 680.5MHz, 690.5MHz
	20.0 MHz	673MHz, 680.5MHz, 688MHz

Band	Band width(MHz)						Modulation					Test RB#		
	5	10	15	20	30	40	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	50%	Full
N66	√	√	√	√	√	√	√	√	√	√	√	√	√	√
N71	√	√	√	√			√	√	√	√	√	√	√	√
DC_5A_n66A	√	√	√	√	√	√	√	√	√	√	√	√	√	√
DC_12A_n66A	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Equipment Modifications

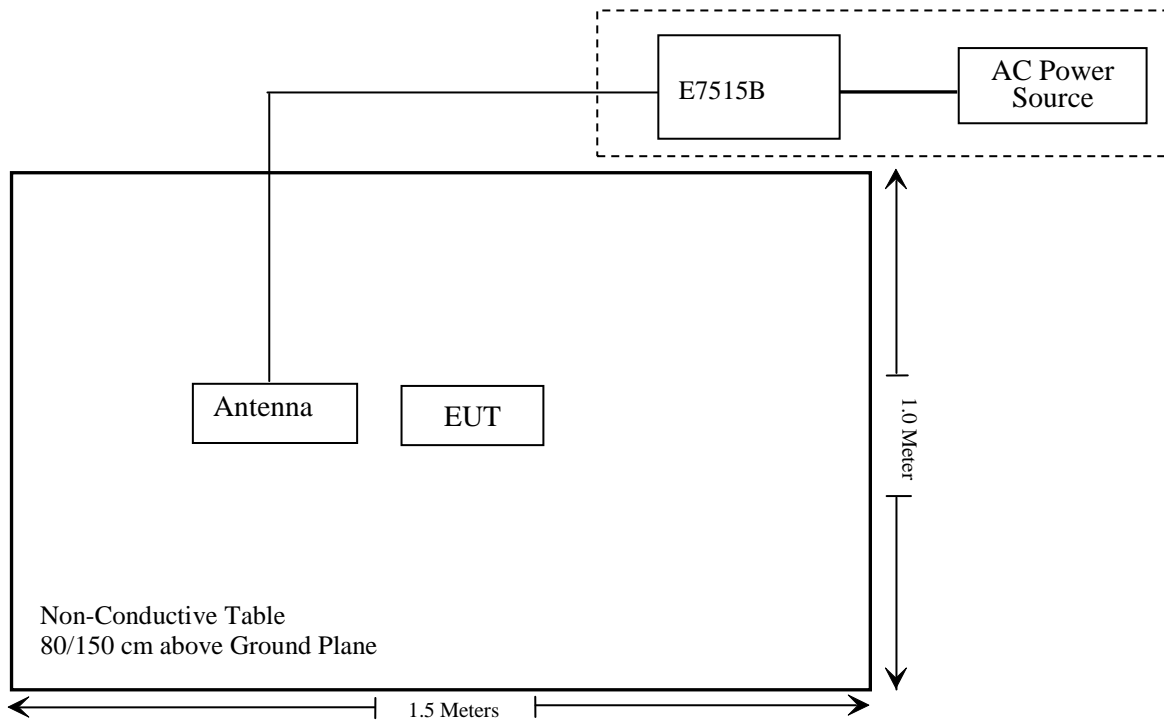
No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde&Schwarz	Wideband Radio Communication Tester	E7515B	154606

Support Cable Description

Cable Description	Length (m)	From / Port	To
Un-shielded Un-detachable AC cable	1.2	AC Power	E7515B

Block Diagram of Test Setup

SUMMARY OF TEST RESULTS

Rules	Description of Test	Result	Remark
FCC §1.1307 (b) (3) & §2.1091	MPE-Based Exemption	Compliant	/
§2.1046; §27.50 (c) (d)	RF Output Power	Compliant (EN-DC Mode)	See Note
§ 2.1047	Modulation Characteristics	Not Applicable	-
§ 2.1049; §27.53	Occupied Bandwidth	Compliant (EN-DC Mode)	See Note
§ 2.1051; §27.53;	Spurious Emissions at Antenna Terminal	Compliant (EN-DC Mode)	See Note
§ 2.1053; §27.53	Field Strength of Spurious Radiation	Compliant	-
§27.53(g) (h)	Band Edge	Compliant (EN-DC Mode)	See Note
§ 2.1055; §27.54;	Frequency stability	Compliant (EN-DC Mode)	See Note

Note:

1. According to manufacturer declared, the WWAN module installed in EUT has the following changes based on the certified module (FCC ID: XHG-M2500), which granted on 08/30/2022:

- (1) Adding the Frequency band of LTE Band 7 by software upgrade
- (2) Adding EN-DC mode: DC_12A_n66A/ DC_5A_n48A/ DC_5A_n66A by software upgrade

Based on the above differences, it will affect all test data for the new adding frequency bands; all the test items for those bands were performed.

- 2. The RF output power was spot checked and it's consistently with the module report.
- 3. The test data for other bands refer to the module report.
- 4. The ATC is responsible for all the information provided in this report, except when information is provided by the customer as identified in this report.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde & Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-184055 36-J0	15964001002	2022/11/08	2023/11/07
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2021/07/06	2024/07/05
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2022/12/26	2025/12/25
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-024-1)	2023/01/04	2026/01/03
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-025-1)	2023/01/04	2026/01/03
Unknown	RF Coaxial Cable	No.16	N200	2022/11/25	2023/11/24
Agilent	Signal Generator	N5183A	MY51040755	2022/11/25	2023/11/24
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2022/11/25	2023/11/24
CD	High Pass Filter	HPM-1.2/18G -60	110	2022/11/25	2023/11/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV-40	101948	2022/11/25	2023/11/24
WEINSCHL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24
REALE	Temp. & Humid. Chamber	RHP-800BT	R20170318310	2022/11/23	2023/11/22
Keysight	UXM 5G Wireless Test Platform	E7515B	MY58120284	2022/07/15	2023/07/14
Mini-Circuits	Power Splitter	DC-18000MHz	SF10944151S	2022/11/25	2023/11/24
Fluke	Multi Meter	45	7664009	2022/11/23	2023/11/22
Manson	DC Power Source	KPS-6604	ATCS-205	NCR	NCR
Unknown	RF Coaxial Cable	No.31	RF-01	Each time	

* Statement of Traceability: Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307 (b) (3) & §2.1091- MPE-Based Exemption

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Result

For worst case:

Mode	Frequency (MHz)	Tune up conducted power	Antenna Gain		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBm)	(dBi)	(dBd)	(dBm)	(W)		
2.4G Wi-Fi	2412-2462	21.5	3.1	0.95	22.45	0.176	0.3	1.728
5G Wi-Fi	5150-5250	20.5	2.2	0.05	20.55	0.114	0.3	1.728
	5725-5850	20.5	2.2	0.05	20.55	0.114	0.3	1.728
WCDMA B2	1850-1910	24.0	3.5	1.35	25.35	0.343	0.3	1.728
WCDMA B4	1710-1755	24.0	3.5	1.35	25.35	0.343	0.3	1.728
WCDMA B5	824-849	25.0	2.0	-0.15	24.85	0.305	0.3	0.949
LTE B2	1850-1910	23.0	3.5	1.35	24.35	0.272	0.3	1.728
LTE B4	1710-1755	23.5	3.5	1.35	24.85	0.305	0.3	1.728
LTE B5	824-849	23.5	2.0	-0.15	23.35	0.216	0.3	0.949
LTE B7	2500-2570	24.0	0.3	-1.85	22.15	0.164	0.3	1.728
LTE B12	699-716	24.0	2.1	-0.05	23.95	0.248	0.3	0.805
LTE B41	2496-2690	27.0	0.3	-1.85	25.15	0.327	0.3	1.728
LTE B48	3550-3700	23.0	-0.6	-2.75	20.25	0.106	0.3	1.728
LTE B66	1710-1780	23.5	3.5	1.35	24.85	0.305	0.3	1.728
LTE B71	663-698	24.0	1.8	-0.35	23.65	0.232	0.3	0.764
5G n48	3550-3700	23.5	-0.6	-2.75	20.75	0.119	0.3	1.728
5G n66	1710-1780	24.0	3.6	1.45	25.45	0.351	0.3	1.728
5G n71	663-698	24.5	1.8	-0.35	24.15	0.260	0.3	0.764

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.

2. The 2.4G Wi-Fi can transmit at the same time with the 5G Wi-Fi.

3. 0dBd=2.15dBi

Simultaneous transmitting consideration (worst case):

The ratio= $\frac{ERP_{2.4G\ Wi-Fi}}{ERP_{Limit}} + \frac{ERP_{5G\ Wi-Fi}}{ERP_{Limit}} + \frac{ERP_{WCDMA}}{ERP_{Limit}} + \frac{ERP_{5G\ NR}}{ERP_{Limit}}$
 $=0.176/1.728+0.114/1.728+0.305/0.949+0.260/0.764=0.830<1.0$

So simultaneous exposure is compliant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 30cm from nearby persons.

Result: Compliant.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC §2.1047(d) and Part 27, there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, §27.50(c)(d)- RF OUTPUT POWER

Applicable Standard

According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

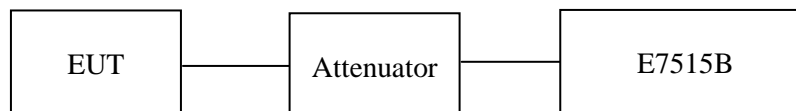
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the E7515B through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	20.1~23.1 °C
Relative Humidity:	55~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Vern Shen from 2023-02-20 to 2023-03-11.

EUT operation mode: Transmitting (Worst case record in the reports)

For DC_12A_n66A:

Please refer to the Appendix D1 for Conducted Power

Please refer to the Appendix E1 for Peak-to-average ratio (PAR)

ForDC_5A_n66A:

Please refer to the Appendix D3 for Conducted Power

Please refer to the Appendix E3 for Peak-to-average ratio (PAR)

For N66 & N71:

Please refer to the Appendix D4 for Conducted Power

FCC §2.1049, §27.53&- OCCUPIED BANDWIDTH

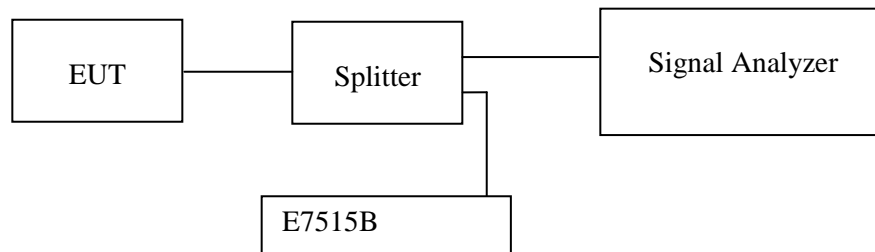
Applicable Standard

FCC 47 §2.1049, §27.53

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	20.1~23.1 °C
Relative Humidity:	55~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Vern Shen from 2023-02-22 to 2023-03-10.

EUT operation mode: Transmitting (Worst case record in the reports)

Test Result: Pass

For DC_12A_n66A:

Please refer to the Appendix F1

For DC_5A_n66A:

Please refer to the Appendix F3

FCC §2.1051, & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

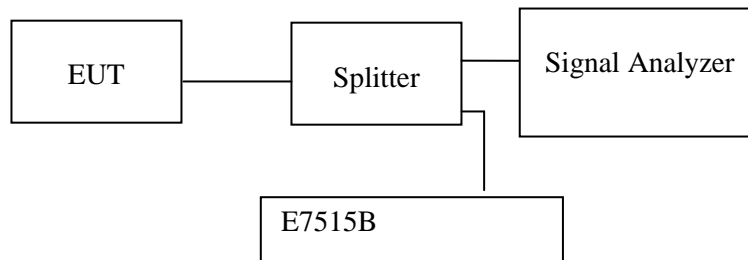
Applicable Standard

FCC §2.1051, & §27.53

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

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



Note: the worst case path loss(cable loss and splitter inset loss) among the test frequency range has included in plots.

Test Data

Environmental Conditions

Temperature:	20.1~23.1 °C
Relative Humidity:	55~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Vern Shen from 2023-02-23 to 2023-03-14.

EUT operation mode: Transmitting (Worst case record in the reports)

Test result: Pass

For DC_12A_n66A: Please refer to the Appendix G1

For DC_5A_n66A: Please refer to the Appendix G3

FCC § 2.1053; §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, & § 27.53

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Test Data

Environmental Conditions

Temperature:	24~26℃
Relative Humidity:	56-60%
ATM Pressure:	100.8~101.0kPa

The testing was performed by Jimi from 2023-02-10 to 2023-02-18.

EUT operation mode: Transmitting (Scan with X-AXIS, Y-AXIS, Z-AXIS, the worst case Y-AXIS was recorded)

The worst case is as below:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
Test frequency range: 30MHz-20GHz									
5G N66, Low Channel, 5MHz									
240.09	-56.73	PK	209	2.2	H	7.49	-49.24	-13	-36.24
625.08	-58.91	PK	66	2.1	V	6.5	-52.41	-13	-39.41
3425	-54.41	PK	98	1.7	H	6.4	-48.01	-13	-35.01
3425	-55.52	PK	268	1.5	V	5.75	-49.77	-13	-36.77
5G N66, Middle Channel, 5MHz									
240.09	-56.96	PK	179	2.0	H	7.49	-49.47	-13	-36.47
625.08	-57.99	PK	209	1.7	V	6.5	-51.49	-13	-38.49
3490	-53.07	PK	92	1.1	H	7.56	-45.51	-13	-32.51
3490	-52.59	PK	177	1.4	V	6.42	-46.17	-13	-33.17
5G N66, High Channel, 5MHz									
240.09	-56.94	PK	271	1.1	H	7.49	-49.45	-13	-36.45
625.08	-58.55	PK	185	1.1	V	6.5	-52.05	-13	-39.05
3555	-53.29	PK	210	1.2	H	7.75	-45.54	-13	-32.54
3555	-53.95	PK	255	1.9	V	6.94	-47.01	-13	-34.01
Test frequency range: 30MHz-10GHz									
5G N71, Low Channel, 5MHz									
240.09	-57.95	PK	179	2.0	H	7.49	-50.46	-13	-37.46
625.08	-60.05	PK	209	1.7	V	6.5	-53.55	-13	-40.55
1331	-61.68	PK	92	1.1	H	6.4	-55.28	-13	-42.28
1331	-62.15	PK	177	1.4	V	5.41	-56.74	-13	-43.74
5G N71, Middle Channel, 5MHz									
240.09	-56.90	PK	271	1.1	H	7.49	-49.41	-13	-36.41
625.08	-58.64	PK	185	1.1	V	6.5	-52.14	-13	-39.14
1361	-60.88	PK	210	1.2	H	6.29	-54.59	-13	-41.59
1361	-62.06	PK	255	1.9	V	5.67	-56.39	-13	-43.39
5G N71, High Channel, 5MHz									
240.09	-57.63	PK	268	1.5	H	7.49	-50.14	-13	-37.14
625.08	-59.33	PK	260	1.2	V	6.5	-52.83	-13	-39.83
1391	-61.86	PK	331	1.5	H	5.99	-55.87	-13	-42.87
1391	-62.10	PK	340	1.7	V	5.85	-56.25	-13	-43.25

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
	Reading (dBm)	PK/Ave		Height (m)	Polar (H/V)				
Test frequency range: 30MHz-20GHz									
DC_5A_n66A, Low Channel, 5MHz									
240.09	-57.44	PK	177	1.4	H	7.49	-49.95	-13	-36.95
625.08	-58.63	PK	91	1.9	V	6.5	-52.13	-13	-39.13
3425	-51.35	PK	148	1.0	H	6.4	-44.95	-13	-31.95
3425	-50.79	PK	256	2.1	V	5.75	-45.04	-13	-32.04
DC_5A_n66A, Middle Channel, 5MHz									
240.09	-57.94	PK	255	1.9	H	7.49	-50.45	-13	-37.45
625.08	-58.09	PK	283	1.7	V	6.5	-51.59	-13	-38.59
3490	-52.81	PK	169	1.9	H	7.57	-45.24	-13	-32.24
3490	-49.99	PK	245	1.1	V	6.42	-43.57	-13	-30.57
DC_5A_n66A, High Channel, 5MHz									
240.09	-57.52	PK	340	1.7	H	7.49	-50.03	-13	-37.03
625.08	-59.62	PK	268	1.0	V	6.5	-53.12	-13	-40.12
3555	-52.32	PK	103	1.8	H	7.75	-44.57	-13	-31.57
3555	-50.53	PK	199	1.3	V	6.94	-43.59	-13	-30.59
Test frequency range: 30MHz-20GHz									
DC_12A_n66A, Low Channel, 5MHz									
240.09	-58.04	PK	208	1.8	H	7.49	-50.55	-13	-37.55
625.08	-57.97	PK	264	1.3	V	6.5	-51.47	-13	-38.47
3425	-51.67	PK	148	1.5	H	6.4	-45.27	-13	-32.27
3425	-50.39	PK	87	1.7	V	5.75	-44.64	-13	-31.64
DC_12A_n66A,Middle Channel, 5MHz									
240.09	-58.50	PK	152	1.6	H	7.49	-51.01	-13	-38.01
625.08	-58.97	PK	174	1.2	V	6.5	-52.47	-13	-39.47
3490	-52.04	PK	257	1.2	H	7.57	-44.47	-13	-31.47
3490	-51.97	PK	303	1.1	V	6.42	-45.55	-13	-32.55
DC_12A_n66A, High Channel, 5MHz									
240.09	-56.44	PK	117	1.4	H	7.49	-48.95	-13	-35.95
625.08	-56.98	PK	49	1.8	V	6.5	-50.48	-13	-37.48
3555	-52.84	PK	209	2.0	H	7.75	-45.09	-13	-32.09
3555	-51.43	PK	237	2.1	V	6.94	-44.49	-13	-31.49

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

Margin = Absolute Level-Limit

FCC §27.53 (g) (h) - BAND EDGES

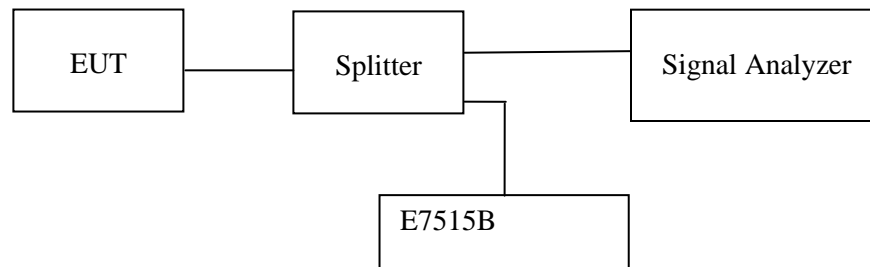
Applicable Standard

According to FCC §27.53 (g)(h), 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.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



Test Data

Environmental Conditions

Temperature:	20.1~23.1 °C
Relative Humidity:	55~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Vern Shen from 2023-02-23 to 2023-03-15.

EUT operation mode: Transmitting (Worst case record in the reports)

Test Result: Pass

ForDC_12A_n66A:

Test plots refer to the Appendix H1

ForDC_5A_n66A:

Test plots refer to the Appendix H3

FCC § 2.1055; §27.54 - FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §27.54

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

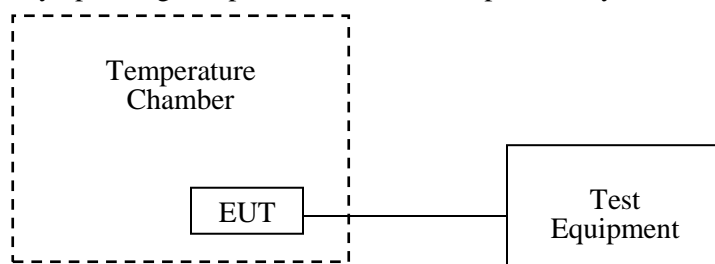
According to §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	20.1~23.1 °C
Relative Humidity:	55~60 %
ATM Pressure:	101.0 kPa

The testing was performed by Vern Shen from 2023-02-20 to 2023-02-25.

EUT operation mode: Transmitting (Worst case record in the reports)

Test Result: Pass

ForDC_12A_n66A: Test data please refer to the Appendix J1

ForDC_5A_n66A: Test data please refer to the Appendix J3

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