TEST REPORT

Applicant:	JACS Solutions, Inc.
EUT Description:	5G DONGLE
Model:	TD0211
Brand:	JACS
FCC ID:	2AGCDJACSTD0211
Standards:	FCC CFR Title 47 Part 2
	FCC CFR Title 47 Part 22
	FCC CFR Title 47 Part 24
	FCC CFR Title 47 Part 27
	FCC CFR Title 47 Part 90
Date of Receipt:	2023/11/07
Date of Test:	2023/11/07 to 2023/12/19
Date of Issue:	2023/12/20

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

Approved By:

Reviewed By:

Revision History

Rev.	Issue Date	Description	Revised by
01	2023/12/20	Original	陈呈福

FCC Part	Test Item	Test Result	Verdict
§2.1046 §22.913(a)(5) §27.50(b)(10) §90.541(c)	Effective Radiated Power (NR Band n5/14/71)	Appendix	Pass
§2.1046 §24.232(c) §27.50(d)(4) §27.50(h)(2) §27.50(j)(3)	Effective Isotropic Radiated Power (NR Band n2/41/66/77)	Appendix	Pass
§22.913(d) §24.232(d) §27.50(d)(5) §96.41	Peak-Average Ratio	Refer to Remark	Pass
§2.1049	Occupied Bandwidth	Refer to Remark	Pass
§2.1051 §22.917(a) §24.238(a) §27.53(h) §90.543(e)(2)(3)	Band Edge (NR Band n2/5/14/66/71)	Refer to Remark	Pass
§2.1051 §27.53(m)	Band Edge (NR Band n41)	Refer to Remark	Pass
§2.1051 §27.53(n)(2) §27.53(i)(2)	Band Edge (NR Band n77)	Refer to Remark	Pass
§2.1051 §90.210(n) §90.691(a)	Emission Mask (NR Band n14)	Refer to Remark	Pass
§2.1051 §22.917(a) §24.238(a) §27.53(h) §90.543(c)&(f)	Spurious Emission at Antenna Terminals (NR Band n2/5/14/66/71)	Refer to Remark	Pass
§27.53(m)	Spurious Emission at Antenna Terminals (NR Band n41)	Refer to Remark	Pass
§2.1051 §27.53(n)(2) §27.53(i)(2)	Spurious Emission at Antenna Terminals (NR Band n77)	Refer to Remark	Pass
§2.1053 §22.917(a)	Field Strength of Spurious Radiation (NR Band n5)	Appendix	Pass
§2.1053 §24.238(a) §27.53(h) §27.53(g)	Field Strength of Spurious Radiation (NR Band n2/66/71)	Appendix	Pass
§2.1053 §90.543(c)&(f)	Field Strength of Spurious Radiation (NR Band 14)	Appendix	Pass
§2.1053 §27.53(m)	Field Strength of Spurious Radiation (NR Band n41)	Appendix	Pass
§2.1051 §27.53(n)(2)	Field Strength of Spurious Radiation (NR Band n77)	Appendix	Pass

§27.53(i)(2)			
§2.1055 §22.355	Frequency Stability (NR Band n5)	Refer to Remark	Pass
§2.1055 §24.235 §27.54 §90.213	Frequency Stability (Other Band)	Refer to Remark	Pass
Remark: Reference Module Report (FCC ID: ZMOFM160NA), provided by SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.			

Table of Contents

1 General Description

1.1 Lab Information

1.1.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

1.1.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC Designation No.: CN1353
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory. Designation Number: CN1353.

ISED CAB identifier: CN0152
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

1.2 Client Information

1.2.1 Applicant

Applicant:	JACS Solutions, Inc.
Address:	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

1.2.2 Manufacturer

Manufacturer:	JACS Solutions, Inc.
Address:	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

1.3 Product Information

EUT Description:	5G DONGLE													
Model No.:	TD0211													
Brand:	JACS													
Hardware Version:	V2.0													
Software Version:	89610.100.00.02.02.12													
IMEI:	862513050026243 862513050026599													
Technical specification:														
Operation Frequency Range:	Band		TX Frequency				RX Frequency							
	5G NR n2		1850 ~ 1910 MHz				1930 ~ 1990 MHz							
	5G NR n5		824 ~ 849 MHz				869 ~ 894 MHz							
	5G NR n14		788 ~798 MHz				758 ~ 768 MHz							
	5G NR n41		2496 ~ 2690MHz				2496 ~ 2690MHz							
	5G NR n66		1710 ~ 1780 MHz				2110 ~ 2200 MHz							
	5G NR n71		663 ~ 698 MHz				617 ~ 652 MHz							
	5G NR n77 (3450 ~ 3550 MHz)		3450 ~ 3550 MHz				3450 ~ 3550 MHz							
	5G NR n77 (3700 ~ 3980 MHz)		3700 ~ 3980 MHz				3700 ~ 3980 MHz							
Type of Modulation:	☒ DFT-s-OFDM:		Pi/2-BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM											
	☒ CP-OFDM:		QPSK, 16-QAM, 64-QAM, 256-QAM											
Operation Bandwidth:	NR Band	SCS (KHz)	Bandwidth (MHz)											
			5	10	15	20	25	30	40	50	60	70	80	90	100
	2	15	√	√	√	√									
	5	15	√	√	√	√									
	14	15	√	√											
	41	30				√		√	√	√	√		√	√	√
	66	15	√	√	√	√		√	√						
	71	15	√	√	√	√									
	77	30				√			√	√	√		√	√	√
NR Mode	NSA(EN-DC): 5A_n2A, 12A_n2A, 13A_n2A, 30A_n2A, 66A_n2A,14A_n2A, 2A_5A, 12A_5A, 13A_n5A, 30A_n5A, 48A_n5A,66A_n5A, 2A_n41A, 66A_n41A, 2A_n66A, 5A_n66A, 12A-n66A, 13A_n66A,30A_n66A, 48A_n66A,14A_n66A, 2A_n71A, 66A_n71A, 2A_n77A, 5A_n77A, 12A_n77A, 13A_n77A, 66A_n77A, 14A_n77A														
Feature:	UL-2x2 MIMO: n77(PC2), (PC1.5)													
Power Class:	HPUE: n41, n77													
Antenna Type:	☐ External, ☒ Integrated													
Antenna Gain:	5G NR n2	0.1dBi(Ant0)												
	5G NR n5	-3.62dBi(Ant0), -2.8dBi(Ant3)												
	5G NR n14	-2.57dBi(Ant3)												

	5G NR n41	2.41dBi(Ant0)
	5G NR n66	-0.02dBi(Ant0)
	5G NR n71	-0.07dBi(Ant3)
	5G NR n77	1.34dBi(Ant0), 3.91dBi(Ant3)
	Provided by Applicant	
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user's manual for more detailed description.		

2 Test Configuration

2.1 Test Channel

According to ANSI C63.26-2015 chapter 5.1.2.1 Table 2 requirement, the Lowest frequency, middle frequency, and highest frequency of channel were selected to perform the test, and the selected channel see below:

5G NR Band n2 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	370500	1852.5	Low	386500	1932.5
	Middle	376000	1880	Middle	392000	1960
	High	381500	1907.5	High	397500	1987.5
10MHz	Low	371000	1855	Low	387000	1935
	Middle	376000	1880	Middle	392000	1960
	High	381000	1905	High	397000	1985
15MHz	Low	371500	1857.5	Low	387500	1937.5
	Middle	376000	1880	Middle	392000	1960
	High	380500	1902.5	High	396500	1982.5
20MHz	Low	372000	1860	Low	388000	1940
	Middle	376000	1880	Middle	392000	1960
	High	380000	1900	High	396000	1980
5G NR Band n5 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	165300	826.5	Low	174300	871.5
	Middle	167300	836.5	Middle	176300	881.5
	High	169300	846.5	High	178300	891.5
10MHz	Low	165800	829	Low	174800	874
	Middle	167300	836.5	Middle	176300	881.5
	High	168800	844	High	177800	889
15MHz	Low	166300	831.5	Low	175300	876.5
	Middle	167300	836.5	Middle	176300	881.5
	High	168300	841.5	High	177300	886.5
20MHz	Low	166800	834	Low	175800	879
	Middle	167300	836.5	Middle	176300	881.5
	High	167800	839	High	176800	884
5G NR Band n14 and SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	158100	790.5	Low	152100	760.5
	Middle	158600	793	Middle	152600	763
	High	159100	795.5	High	153100	765.5
10MHz	Low	158600	793	Low	152600	763
	Middle			Middle		
	High			High		

5G NR Band n41, SCS 30 kHz and ΔF_{Raster} 30 KHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	501204	2506.005
	Middle	518598	2593.005
	High	535998	2679.99
30MHz	Low	502200	2511
	Middle	518598	2593.005
	High	534996	2674.993
40MHz	Low	503202	2516.01
	Middle	518598	2593.005
	High	534000	2670
50MHz	Low	504204	2521.005
	Middle	518598	2593.005
	High	532998	2664.99
60MHz	Low	505200	2506.005
	Middle	518598	2593.005
	High	531996	2679.99
80MHz	Low	507204	2511
	Middle	518598	2593.005
	High	529998	2674.993
90MHz	Low	508200	2516.01
	Middle	518598	2593.005
	High	528996	2670
100MHz	Low	509202	2521.005
	Middle	518598	2593.005
	High	528000	2664.99

5G NR Band n66, SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	435500	1712.5	Low	422500	2112.5
	Middle	342500	1745	Middle	429000	2145
	High	349000	1777.5	High	435500	2177.5
10MHz	Low	343000	1715	Low	423000	2115
	Middle	349000	1745	Middle	429000	2145
	High	355000	1775	High	435000	2175
15MHz	Low	343500	1717.5	Low	423500	2117.5
	Middle	349000	1745	Middle	429000	2145
	High	354500	1772.5	High	434500	2172.5
20MHz	Low	344000	1720	Low	424000	2120
	Middle	349000	1745	Middle	429000	2145
	High	354000	1770	High	434000	2170
30MHz	Low	345000	1725	Low	425000	2125
	Middle	349000	1745	Middle	429000	2145
	High	353000	1765	High	433000	2165
40MHz	Low	346000	1730	Low	426000	2130
	Middle	349000	1745	Middle	429000	2145
	High	352000	1760	High	432000	2160

5G NR Band n71, SCS 15 kHz						
Bandwidth	TX Frequency			RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
5MHz	Low	133100	665.5	Low	123900	619.5
	Middle	136100	680.5	Middle	126900	634.5
	High	139100	695.5	High	129900	649.5
10MHz	Low	133600	668	Low	124400	622
	Middle	136100	680.5	Middle	126900	634.5
	High	138600	693	High	129400	647
15MHz	Low	134100	670.5	Low	124900	624.5
	Middle	136100	680.5	Middle	126900	634.5
	High	138100	690.5	High	128900	644.5
20MHz	Low	134600	673	Low	125400	627
	Middle	136100	680.5	Middle	126900	634.5
	High	137600	688	High	128400	642

5G NR Band n77/(3450~3550MHz), SCS 30 kHz and ΔF_{Raster} 30 KHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	630668	3460.020
	Middle	633334	3500.010
	High	636000	3540.000
40MHz	Low	631334	3470.010
	Middle	633334	3500.010
	High	635332	3529.980
50MHz	Low	631668	3475.020
	Middle	633334	3500.010
	High	635000	3525.000
60MHz	Low	632000	3480.000
	Middle	633334	3500.010
	High	634666	3519.990
80MHz	Low	632668	3490.020
	Middle	633334	3500.010
	High	634000	3510.000
90MHz	Low	633000	3495.000
	Middle	633334	3500.010
	High	633666	3504.990
100MHz	Low	633334	3500.010
	Middle		
	High		

5G NR Band n77(3700~3980MHz), SCS 30 kHz and ΔF_{Raster} 30 KHz			
Bandwidth	TX & RX Frequency		
	Range	Carrier centre (ARFCN)	Carrier centre (MHz)
20MHz	Low	647334	3710.010
	Middle	656000	3840.000
	High	664666	3969.990
40MHz	Low	648000	3720.000
	Middle	656000	3840.000
	High	664000	3960.000
50MHz	Low	648334	3725.010
	Middle	656000	3840.000
	High	663666	3954.990
60MHz	Low	648668	3730.020
	Middle	656000	3840.000
	High	663332	3949.980
80MHz	Low	649334	3740.010
	Middle	656000	3840.000
	High	662666	3939.990
90MHz	Low	649668	3745.020
	Middle	656000	3840.000
	High	662332	3934.980
100MHz	Low	650000	3750.000
	Middle	656000	3840.000
	High	662000	3930.000

2.2 Worst-case configuration and Mode

Test Mode	Description
TM 1	EUT communication with simulated station in DFT-s-OFDM BPSK mode
TM 2	EUT communication with simulated station in DFT-s-OFDM QPSK mode
TM 3	EUT communication with simulated station in DFT-s-OFDM 16QAM mode
TM 4	EUT communication with simulated station in DFT-s-OFDM 64QAM mode
TM 5	EUT communication with simulated station in DFT-s-OFDM 256QAM mode
TM 6	EUT communication with simulated station in CP QPSK mode
TM 7	EUT communication with simulated station in CP 16QAM mode
TM 8	EUT communication with simulated station in CP 64QAM mode
TM 9	EUT communication with simulated station in CP 256QAM mode

2.3 Support Unit used in test

Description	Manufacturer	Model	Serial Number
Laptop	Apple	MacBook Pro	C02SPBESFVH3
Adapter	Apple	A1435	/
USB Cable	JACS	/	/

2.4 Test Environment

Temperature:	Normal: 15℃ ~ 35℃, Extreme: -30℃ ~ +50℃
Relative Humidity	30-75 % RH Ambient
Voltage:	Nominal: 5.0 Vdc

2.5 Test RF Cable

For all conducted test items: The offset level is set spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.

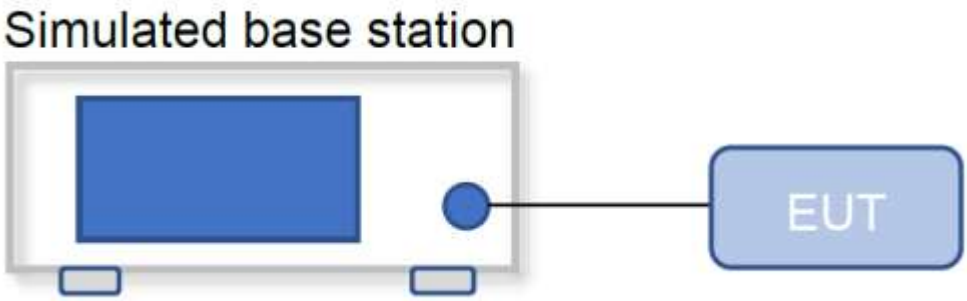
2.6 Modifications

No modifications were made during testing.

2.7 Test Setup Diagram

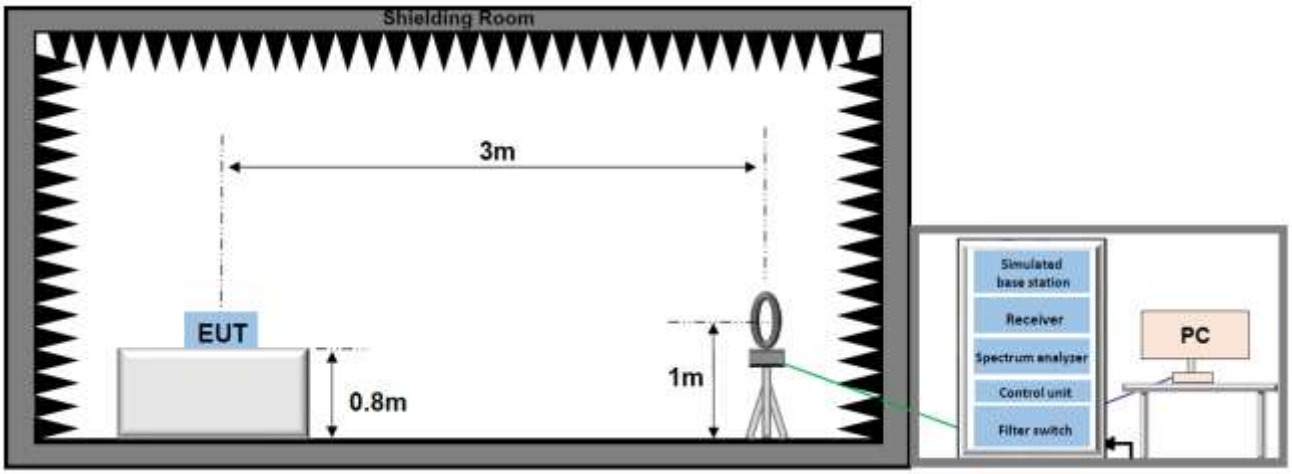
2.7.1 Conducted Configuration

Setup 1

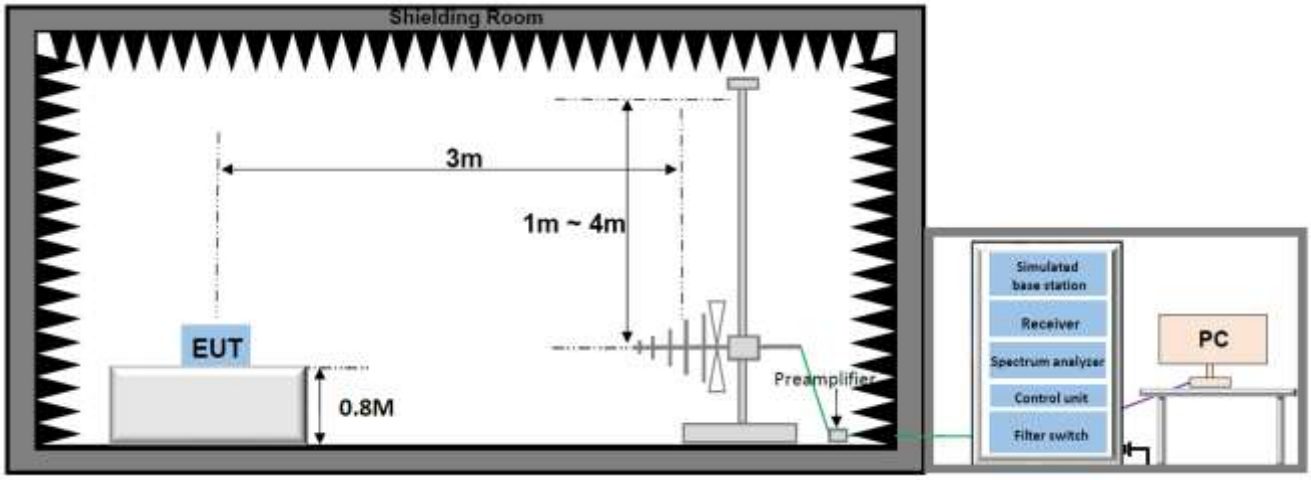


2.7.2 Radiated Configuration

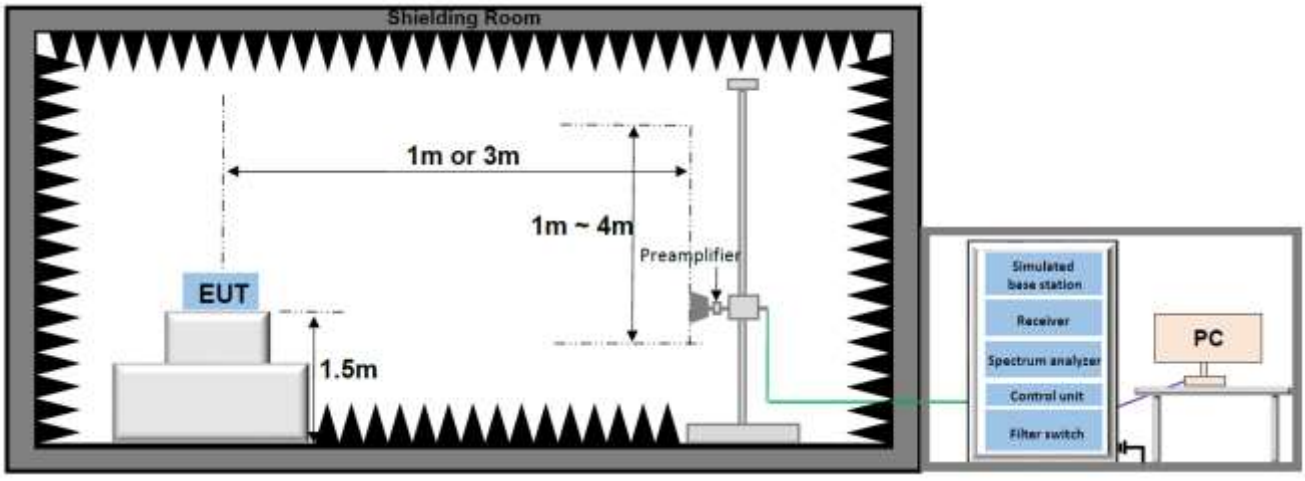
Setup 1



Setup 2



Setup 3



3 Equipment and Measurement Uncertainty

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, whichever is less, and where applicable is traceable recognized national standards.

3.1 Test Equipment List

Conducted Test					
Description	**Manufacturer**	**Model**	**SN**	**Last Due**	**Cal Due**
AVG Power Sensor	R&S	NRP-Z21	101651	04/08/2023	04/07/2024
AVG Power Sensor	R&S	NRP-Z21	104189	04/08/2023	04/07/2024

Radiated Emission					
Description	**Manufacturer**	**Model**	**S.N.**	**Last Due**	**Cal Due**
Biconic Logarithmic Periodic Antennas	Schwarzbeck	VULB9163	1643	06/25/2023	06/24/2025
Double-Ridged Horn Antennas	Schwarzbeck	BBHA 9120D	2809	06/25/2023	06/24/2025
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	1290	06/25/2023	06/24/2025
Signal Analyzer	Keysight	N9020A	MY49100252	04/08/2023	04/07/2024
EMI Tester Receiver	Rohde & Schwarz	ESR7	102719	08/17/2023	08/16/2024
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	150645	04/08/2023	04/07/2024
Low Noise Amplifier	Tonscend	TAP9K3G40	AP23A8060273	04/08/2023	04/07/2025
Low Noise Amplifier	Tonscend	TAP01018050	AP22G806258	04/08/2023	04/07/2025
Band Reject Filter Group	Townshend	JS0806-F	23A806F0652	N/A	N/A
Test Software	Tonscend	TS+	Version: 5.0.0	N/A	N/A

3.2 Measurement Uncertainty

Parameter	U_{lab}
Output power	0.76dB
Radiation 9kHz~30MHz	2.4dB
Radiation 30MHz~1000MHz	4.66dB
Radiation 1000MHz~18GHz	5.42dB
Radiated 18GHz~40GHHz	5.46dB

Uncertainty figures are valid to a confidence level of 95%

4 Test Results

4.1 Output Power(ERP / EIRP / Conducted Power)

Limits

FCC Part	Test Band	Limit
§22.913(a)(5)	5G NR n5	The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7watts.
§24.232(c)	5G NR n2	Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.
§90.541(c)	5G NR n14	The transmitting power of a mobile unit must not exceed 100 watts ERP.
§27.50(h)(2)	5G NR n41	Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power
§27.50(d)(4)	5G NR n66	Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780MHz bands are limited to 1watt EIRP. Fixed stations operating in the 1710-1755MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.
§27.50(c)(10)	5G NR n71	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 3watts ERP.
§27.50(j)(3) §27.50(k)(3)	5G NR n77	Mobile and portable stations are limited to 1 Watt EIRP. Mobile devices are limited to 1Watt (30 dBm) EIRP.

Test Procedure

FCC KDB 971168 D01 V03r01 Section 5.2.1, for Conducted Output Power;

FCC KDB 971168 D01 V03r01 Section 5.2, for 4.2 for Effective (Isotropic) Radiated Power

Test Settings

Conducted Output Power:

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the simulated base station. The simulated station was set to force the EUT to its maximum power setting, Transmitter output power was read off in dBm, Read values have added cable loss and attenuation.

Effective (Isotropic) Radiated Power:

The formula for calculating ERP/EIRP based on conduction power is as follows:
EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)
ERP=EIRP - 2.15dB

Test Setup

Refer to section 2.7.1 Setup 1

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

4.2 Field Strength of Spurious Radiation

Limits

FCC part	Test Band	Limit
§22.917(a) §24.238(a) §27.53(g) §27.53(h)	5G NR n2/4/5/66/71	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.
§27.53(m)	5G NR n41	For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 MHz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 MHz and X MHz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X MHz from the channel edge, where X is the greater of 6 MHz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.
§90.210(n) §90.691(a)	5G NR n14	On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations. On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB. in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz be employed.
§27.53(i)(2) §27.53(n)(2)	5G NR n77	In the 1 MHz bands immediately outside and adjacent to the licensee's frequency block: ≤-13 dB/(1% EBW, but no exceed 200KHz). In the bands between 1 and 5 MHz removed from the licensee's frequency block: ≤-13 dB/(500 KHz, or grater)

Test Procedure

FCC KDB 971168 D01 V03r01 Section 7

Test Settings

1. For radiated emissions measurements performed at frequencies less than or equal to 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the reference ground plane.
2. For radiated emissions measurements performed at frequencies above 1GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80cm above the ground plane.
3. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1m to 4m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e, field strength or received power), when orienting the measurement antenna in vertical polarization,

the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25cm.

4. For each suspected emission, the EUT was ranged its worst case and then tune the antenna tower(from 1~4m) and turntable(from 0~360°) find the maximum reading. Preamplifier and a high pass filter are used for the test in order get better signal level comply with the guidelines.
5. The simulated base station was set to force the EUT to its maximum transmitting power.
6. spectrum analyzer setting:

   Measurements 9KHz~150KHz: RBW = 300Hz; VBW ≥ 3 kHz; Detector = RMS

   Measurements 150KHz~30MHz: RBW = 10KHz; VBW ≥ 30 kHz; Detector = RMS

   Measurements 30MHz~1000MHz: RBW = 100KHz or 1MHz; VBW ≥ 1MHz or 3MHz; Detector = RMS

   Measurements Above 1000MHz: RBW = 1 MHz; VBW ≥ 3 MHz; Detector = RMS
7. The field strength is calculated by adding the Antenna Factor, Cable Factor. The basic equation with a sample calculation is as follows:

   E(dBμV/m) = Measured amplitude level (dBμV) + Cable Loss (dB) + Antenna Factor (dB/m).

   E(dBμV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).

   E(dBuV/m) = EIRP(dBm) - 20log(D) + 104.8; where D is the measurement distance(in the far field region) in m.

   EIRP(dBm) = E(dBμV/m) + 20log(D) - 104.8; where D is the measurement distance(in the far field region) in m.

   *So, from d: The measuring distance is usually at 3m, then 20*Log(3)=9.5424*

   Then, EIRP (dBm)= E (dBμV/m) +9.5424-104.8=E (dBμV/m)-95.2576
8. Repeat above procedures until all frequencies measured was complete.
9. Measure and record the results in the test report.

Test notes

1. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
2. Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1-meter test distance with the application of a distance correction factor.
3. Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. the disturbance between 9KHz to 30MHz and 18GHz to 40GHz was very low. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be recorded, so only the harmonics had been displayed.
4. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Test Setup

Refer to section 2.7.2 for details.

Measuring Instruments

The measuring equipment is listed in the section 3.1 of this test report.

Test Result

The detailed test data see: **Appendix.**

4.3 Test Setup Photos

The detailed test Setup Photos see: **Appendix.**

Appendix

Appendix List:

Appendix B-NR n2
Appendix B-NR n5
Appendix B-NR n14
Appendix B-NR n41
Appendix B-NR n66
Appendix B-NR n71
Appendix B-NR n77
Appendix B-RSE(EN_DC)
Appendix C-Test Setup Photos

~The End~