TEST REPORT

Application No.:	SZCR2407002841AT
Applicant:	Baicells Technologies Co., Ltd.
Address of Applicant:	9-10F, 1stBldg., No.81BeiqingRoad, Haidian District, Beijing, China
Equipment Under Test (EUT):	
EUT Name:	5G NR Base Station
Model No.:	BSC7048A227
Trade Mark:	Baicells
FCC ID:	2AG32BSC7048A227
Standards:	47 CFR Part 2 47 CFR Part 96
Date of Receipt:	2024-07-22
Date of Test:	2024-07-23 to 2025-02-14
Date of Issue:	2025-04-22
Test Result :	**PASS ***

*In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2025-04-22*		*Original*

Authorized for issue by:				
		Calvin Weng		
		Calvin Weng /Project Engineer		
		Eric Fu		
		Eric Fu/Reviewer		

Contents

1 Test Summary

1.1 NR n48/n77/n78

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41	EIRP ≤ 30dBm/10MHz	Appendix n48/ Appendix n77/ Appendix n78	Pass
Peak-Average Ratio	§96.41	FCC: Limit≤13 dB	Appendix n48/ Appendix n77/ Appendix n78	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Appendix n48/ Appendix n77/ Appendix n78	Pass
Band Edges Compliance	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge.	Appendix n48/ Appendix n77/ Appendix n78	Pass
Spurious Emission at Antenna Terminals	§2.1051, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz. (2) Additional protection levels. Notwithstanding paragraph (e)(1) of this	Appendix n48/ Appendix n77/ Appendix n78	Pass

		section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.		
Field Strength of Spurious Radiation	§2.1053, §96.41	for channel and frequency assignments made by a CBSD to End User Devices, the conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed −25 dBm/MHz. (2) Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed −25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed −40dBm/MHz.	Section 3.7	Pass
Frequency Stability	§2.1055, §96.41	Within authorized bands of operation/ frequency block.	Appendix n48/ Appendix n77/ Appendix n78	Pass

2 General Information

2.1 Details of E.U.T.

Power supply:	12VDC 3A/POE++ POE POWER SUPPLY Model: G0566-480-100 Input Power: AC 100-240V 50-60Hz 1.5A Max DC Output: 48V 1A		
SA Frequency Band:	NR Band	Uplink (MHz)	Downlink (MHz)
	48	3550-3700	3550-3700
	77	3550-3700	3550-3700
	78	3550-3700	3550-3700
Type of Modulation:	n48, n77, n78: DFT-s-OFDM: QPSK\16QAM\64QAM\256QAM CP-OFDM: QPSK\16QAM\64QAM\256QAM		
EUT type:	Category A		
SCS Information:	30kHz		
MIMO Information:	2*2 UL 2*2 DL		
Antenna Type:	Internal antenna		
Antenna Gain:	n48/77/78: 3.5dBi (Provided by manufacturer)		

Note:

(1)The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.

2.2 Technical Specification

Characteristics	Description		
Radio System Type	☒ NR		
Supported Frequency Range	Band	TX	RX
	NR n48	3550 to 3700 MHz	3550 to 3700 MHz
	NR n77	3550 to 3700 MHz	3550 to 3700 MHz
	NR n78	3550 to 3700 MHz	3550 to 3700 MHz
	Note: only the worst case was tested and the data displayed in this report.		

2.3 Test Frequencies

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
n48	10	3555	3624.99	3694.98
n48	20	3560.01	3624.99	3690
n48	30	3565.02	3624.99	3684.99
n48	40	3570	3624.99	3679.98
n77/78	100	3600	3624.99	3649.98

2.4 Test Mode

Test Mode	Test Modes Description
NR/TM1.1	NR system, QPSK modulation
NR /TM3.1	NR system, 64QAM modulation
NR /TM3.1a	NR system, 256QAM modulation
Remark: The test mode(s) are selected according to relevant radio technology specifications.	

2.5 Test Environment

Environment Parameter	101 kPa Selected Values During Tests	
Relative Humidity	50-55 % RH Ambient	
Value	Temperature(℃)	Voltage(V)
NTNV	22~23	48
LTLV	-30	40.8
LTHV	-30	55.2
HTLV	+50	40.8
HTHV	+50	55.2
Remark:		
NV: Normal Voltage	LV: Low Extreme Test Voltage	HV: High Extreme Test Voltage
NT: Normal Temperature	LT: Low Extreme Test Temperature	HT: High Extreme Test Temperature

2.6 Description of Support Units

The EUT has been tested as an independent unit.

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2.7 Test Location

Company:	SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch
Address:	No. 1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China
Post code:	518057

2.8 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

3 Description of Tests

3.1 Conducted Output Power

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.2.1

The transmitter output was connected to a calibrated coaxial cable, attenuator and power meter. The EUT was set to transmit to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Remark: Reference test setup 1

3.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8.4

Calculate power in dBm by the following formula:

ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

3.3 Occupied Bandwidth

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 4.2 & 4.3

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser. The EUT was set to transmit to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel).The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

3.4 Band Edge at Antenna Terminals

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser. The EUT was set to transmit to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to rms.

Remark: Reference test setup 1

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

3.5 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyzer. The EUT was set to transmit to its maximum power setting. The tests were performed at three frequencies (low channel and high channel).The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Remark: Reference test setup 1

Test Settings

1. Start frequency was set to 9kHz and stop frequency was set to at least 10* the fundamental frequency(Separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissinos, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

3.6 Peak-Average Ratio

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.7.2

A peak to average ratio measurement is performed at the conducted port of the EUT. For WWAN signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

3.7 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8

Below 1GHz test procedure as below:

1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.

2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.

3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.

4). Test the EUT in the lowest channel, the middle channel ,the Highest channel.

5). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

6). Repeat above procedures until all frequencies measured was complete.

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

EIRP (dBm) = E (dBμV/m) + 20 log D − 104.8; where D is the measurement distance in meters

Above 1GHz test procedure as below:

1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber

2) Calculate power in dBm by the following formula:

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

EIRP (dBm) = E (dBμV/m) + 20 log D − 104.8; where D is the measurement distance in meters

3). Test the EUT in the lowest channel, the middle channel the Highest channel

4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

5). Repeat above procedures until all frequencies measured was complete

Remark1: Reference test setup 2

Remark2: The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance. At a measurement distance of 1 meter the limit line was increased by 20*LOG(3/1) = 9.54 dB.

Remark: Reference test setup 2

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

2) Scan from 9kHz to 40GHz, The disturbance between 9KHz to 1GHz and 18GHz to 40GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) All modes have been tested, but only the worst case data displayed in this report.

NR n48-Low channel, Modulation: QPSK, Bandwidth:10MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7110	-52.65	-40	-12.65	-59.71	4.2	11.26	Horizontal	Pass
10655	-49.47	-40	-9.47	-57.56	5.08	13.17	Horizontal	Pass
14220	-46.16	-40	-6.16	-55.63	4.98	14.45	Horizontal	Pass
7110	-52.65	-40	-12.65	-59.71	4.2	11.26	Vertical	Pass
10655	-49.47	-40	-9.47	-57.56	5.08	13.17	Vertical	Pass
14220	-46.16	-40	-6.16	-55.63	4.98	14.45	Vertical	Pass

NR n48-Middle channel, Modulation: QPSK, Bandwidth:10MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7159.98	-52.01	-40	-12.01	-59.14	4.2	11.33	Horizontal	Pass
10739.97	-49.56	-40	-9.56	-57.67	5.08	13.19	Horizontal	Pass
14319.96	-45.65	-40	-5.65	-55.03	5.06	14.44	Horizontal	Pass
7159.98	-52.01	-40	-12.01	-59.14	4.2	11.33	Vertical	Pass
10739.97	-49.56	-40	-9.56	-57.67	5.08	13.19	Vertical	Pass
14319.96	-45.65	-40	-5.65	-55.03	5.06	14.44	Vertical	Pass

NR n48-High channel, Modulation: QPSK, Bandwidth:10MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7209.96	-52.23	-40	-12.23	-59.42	4.2	11.39	Horizontal	Pass
10814.94	-49.11	-40	-9.11	-57.25	5.07	13.21	Horizontal	Pass
14419.92	-46.36	-40	-6.36	-55.66	5.13	14.43	Horizontal	Pass
7209.96	-52.23	-40	-12.23	-59.42	4.2	11.39	Vertical	Pass
10814.94	-49.11	-40	-9.11	-57.25	5.07	13.21	Vertical	Pass
14419.92	-46.36	-40	-6.36	-55.66	5.13	14.43	Vertical	Pass

n77-Low channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7202	-52.02	-40	-12.02	-58.96	4.19	11.13	Horizontal	Pass
10803	-49.67	-40	-9.67	-57.715	5.075	13.12	Horizontal	Pass
14404	-46.38	-40	-6.38	-56.04	4.82	14.48	Horizontal	Pass
7202	-52.02	-40	-12.02	-58.96	4.19	11.13	Vertical	Pass
10803	-49.67	-40	-9.67	-57.715	5.075	13.12	Vertical	Pass
14404	-46.38	-40	-6.38	-56.04	4.82	14.48	Vertical	Pass

n77-Middle channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7231.98	-51.25	-40	-11.25	-58.19	4.19	11.13	Horizontal	Pass
10847.97	-49.53	-40	-9.53	-57.575	5.075	13.12	Horizontal	Pass
14463.96	-46.34	-40	-6.34	-56	4.82	14.48	Horizontal	Pass
7231.98	-51.25	-40	-11.25	-58.19	4.19	11.13	Vertical	Pass
10847.97	-49.53	-40	-9.53	-57.575	5.075	13.12	Vertical	Pass
14463.96	-46.34	-40	-6.34	-56	4.82	14.48	Vertical	Pass

n77-High channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7261.96	-51.66	-40	-11.66	-58.6	4.19	11.13	Horizontal	Pass
10892.94	-49.24	-40	-9.24	-57.285	5.075	13.12	Horizontal	Pass
14523.92	-45.26	-40	-5.26	-54.49	5.19	14.42	Horizontal	Pass
7261.96	-51.94	-40	-11.94	-58.88	4.19	11.13	Vertical	Pass
10892.94	-49.4	-40	-9.4	-57.445	5.075	13.12	Vertical	Pass
14523.92	-46.46	-40	-6.46	-55.69	5.19	14.42	Vertical	Pass

n78-Low channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7202	-51.18	-40	-11.18	-58.12	4.19	11.13	Horizontal	Pass
10803	-49.42	-40	-9.42	-57.465	5.075	13.12	Horizontal	Pass
14404	-46.73	-40	-6.73	-56.39	4.82	14.48	Horizontal	Pass
7202	-51.37	-40	-11.37	-58.31	4.19	11.13	Vertical	Pass
10803	-49.65	-40	-9.65	-57.695	5.075	13.12	Vertical	Pass
14404	-46.95	-40	-6.95	-56.61	4.82	14.48	Vertical	Pass

n78-Middle channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7231.98	-51.67	-40	-11.67	-58.61	4.19	11.13	Horizontal	Pass
10847.97	-49.5	-40	-9.5	-57.545	5.075	13.12	Horizontal	Pass
14463.96	-47.03	-40	-7.03	-56.69	4.82	14.48	Horizontal	Pass
7231.98	-51.64	-40	-11.64	-58.58	4.19	11.13	Vertical	Pass
10847.97	-49.13	-40	-9.13	-57.175	5.075	13.12	Vertical	Pass
14463.96	-47.16	-40	-7.16	-56.82	4.82	14.48	Vertical	Pass

n78-High channel, Modulation: QPSK, Bandwidth:100MHz, Full RB								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable Loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
7261.96	-51.81	-40	-11.81	-58.75	4.19	11.13	Horizontal	Pass
10892.94	-49.45	-40	-9.45	-57.495	5.075	13.12	Horizontal	Pass
14523.92	-47.18	-40	-7.18	-56.41	5.19	14.42	Horizontal	Pass
7261.96	-51.86	-40	-11.86	-58.8	4.19	11.13	Vertical	Pass
10892.94	-49.08	-40	-9.08	-57.125	5.075	13.12	Vertical	Pass
14523.92	-47.3	-40	-7.3	-56.53	5.19	14.42	Vertical	Pass

Note: All modes have been tested and we found QPSK test mode has the worst test result. Only record the worst test result.

3.8 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of FCC KDB 971168 D01 V03r01; Section 9

. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **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.

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

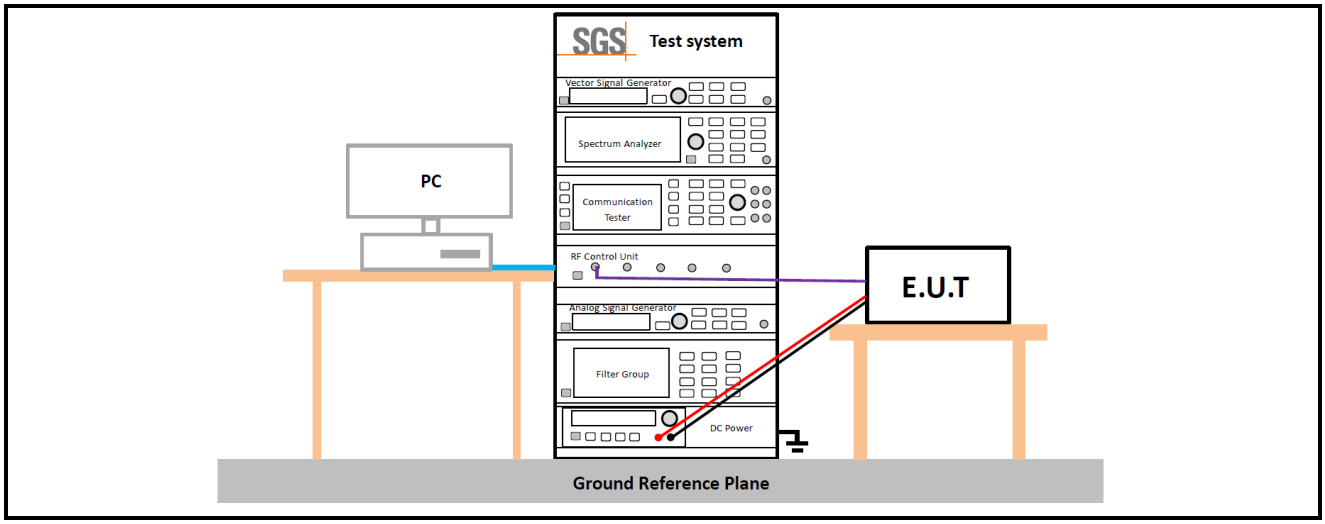
Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Remark: Reference test setup 3

3.9 Test Setups

3.9.1 Test Setup 1



3.9.2 Test Setup 2

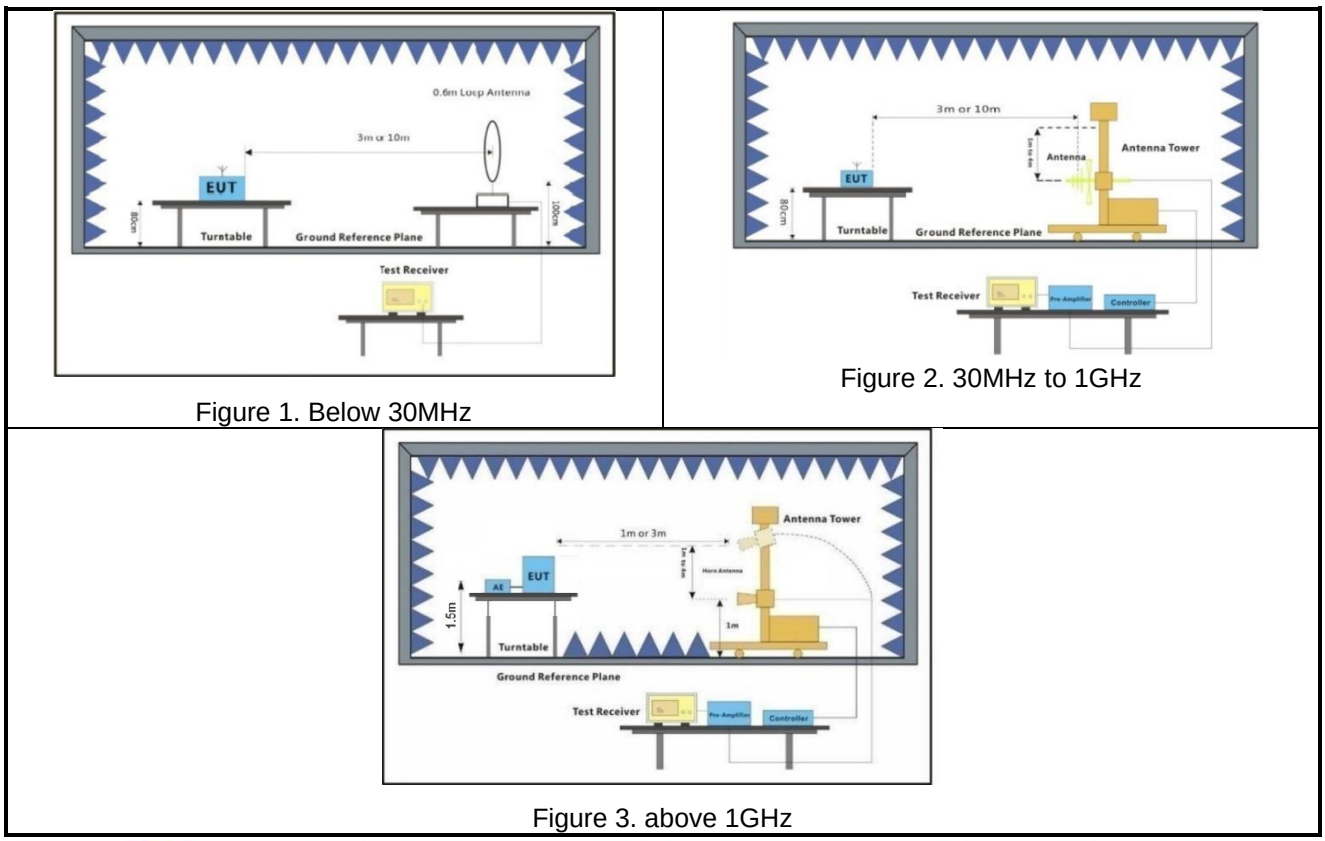
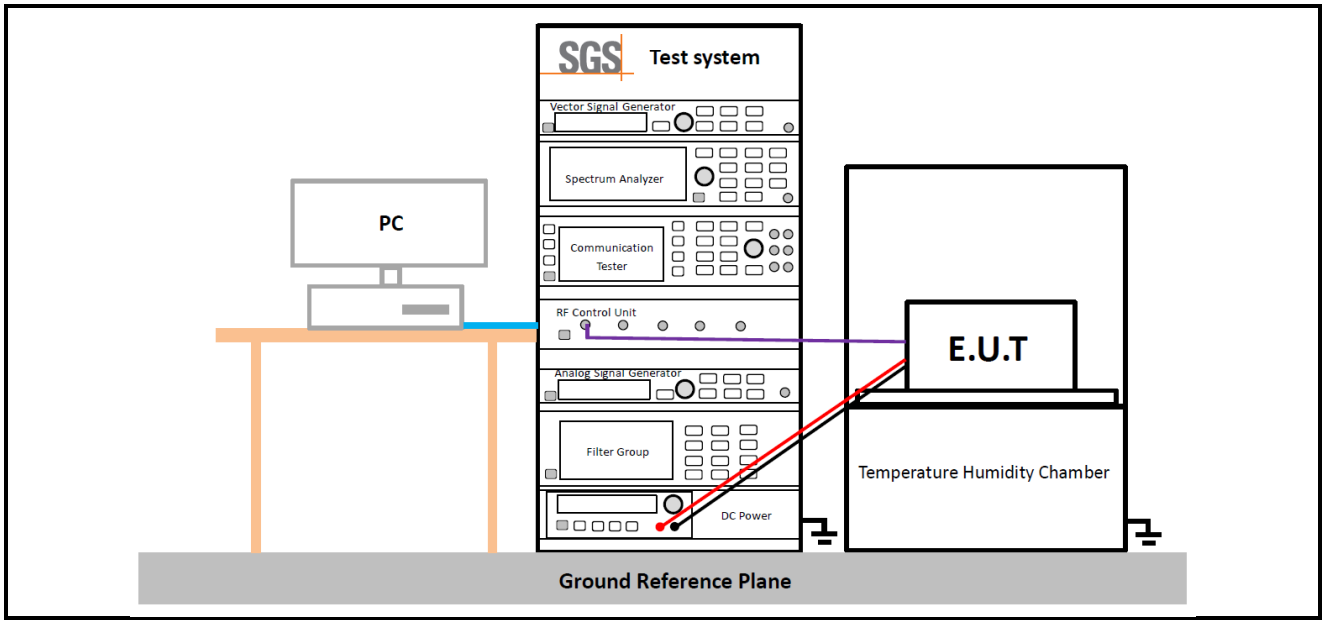


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

Figure 3. above 1GHz

3.9.3 Test Setup 3



3.10Test Conditions

Transmit Output Power Data - Average Power, Total	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Peak-to-Average Ratio	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Bandwidth - Occupied Bandwidth	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Bandwidth - Emission Bandwidth	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Band Edges Compliance	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, H (L= low channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Spurious Emission at Antenna Terminals	

Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Field Strength of Spurious Radiation	
Test Case	**Test Conditions**
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 2
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1;TM3.1;TM3.1a
Frequency Stability	
Test Case	**Test Conditions**
Test Environment	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage (2) VL, VN and VH of Rated Voltage at Ambient Climate.
Test Setup	Test Setup 3
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	TM1.1 The report only show the bandwidth with the worst case.

4 Main Test Instruments

RF conducted test					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date**	**Cal.Due date**
Shielding Room	SAEMC	MSR733	SEM001-09	2022-05-14	2025-05-13
MXA Signal Analyzer	KEYSIGHT	N9020B	SEM004-17	2024-03-20	2025-03-14
Mobile Communications DC Source	Agilent	66319D	SEM011-12	2024-05-06	2025-05-05
Manual Step Attenuator	KEYSIGHT	8494B	SEM021-05	2024-04-06	2025-04-05
Manual Step Attenuator	KEYSIGHT	8496B	SEM021-06	2024-04-06	2025-04-05
Power Sensor	KEYSIGHT	U2021XA	SEM009-15	2024-04-06	2025-04-05
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2024-04-06	2025-04-05
Coaxial Cable	SGS	N/A	SEM031-01	2024-07-07	2025-07-06

RE in Chamber					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date**	**Cal.Due date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
EXA Signal Analyzer (10Hz-44GHz)	Agilent Technologies Inc	N9010A	SEM004-12	2024-04-06	2025-04-05
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-01	2023-09-17	2025-09-16
Horn Antenna (800MHz-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2024-07-22	2026-07-21
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	SEM003-15	2022-08-09 2024-08-08	2024-08-08 2026-08-07
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	SEM003-32	2021-09-26 2024-09-25	2024-09-25 2027-09-24
Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2023-09-15 2024-09-14	2024-09-14 2025-09-13

Microwave System Amplifier(0.5-26.5GHz)	Agilent	83017A	SEM005-25	2024-09-20	2025-09-19
Pre-amplifier (26-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2024-03-21	2025-03-20
Substitution Antenna	Schwarzbeck	VULB9168	SEM003-18	2022-08-07	2025-08-06
Substitution Antenna	Rohde&Schwarz	HF907	SEM003-06	2024-08-05	2026-08-04
Signal Generator(9kHz-40GHz)	N5173B	MY53270267	Agilent	2024-07-09	2025-07-08
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-06	2024-07-05	2025-07-04

General used equipment					
Test Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date**	**Cal.Due date**
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2023-09-03 2024-09-02	2024-09-02 2025-09-01
Humidity/ Temperature Indicator	Anymetre	TH101B	SEM002-09	2023-09-03 2024-09-02	2024-09-02 2025-09-01
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2024-03-20	2025-03-19

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5 Measurement Uncertainty

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 5.4 x 10-8
2	Duty cycle	± 0.3%
3	Occupied Bandwidth	± 3%
4	RF conducted power	± 0.8dB
5	RF power density	± 0.4dB
6	Conducted Spurious emissions	± 2.7dB
7	Radiated Spurious emission test	± 3.1dB (Below 1GHz) ± 4.4dB (Above 1GHz)
8	Temperature test	± 1°C
9	Humidity test	± 3%
10	Supply voltages	± 1.5%
11	Time	± 3%

Remark:
The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

6 Appendixes

Appendix A.1	NR n48
Appendix A.2	NR n77
Appendix A.3	NR n78

- End of Report -

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