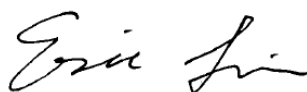


# TEST REPORT

**Application No.:** KSCR2211002328AT  
**FCC ID:** ZMOFG160NA  
**Applicant:** Fibocom Wireless Inc.  
**Address of Applicant:** 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China  
**Manufacturer:** Fibocom Wireless Inc.  
**Address of Manufacturer:** 1101, Tower A, Building 6, Shenzhen International Innovation Valley, Dashi 1st Rd, Nanshan, Shenzhen, China  
**Equipment Under Test (EUT):**  
**EUT Name:** 5G Module  
**Model No.:** FG160-NA  
**Trade Mark:** Fibocom  
**Standard(s) :** 47 CFR Part 2  
47 CFR Part 96 subpart E  
**Date of Receipt:** 2022-11-20  
**Date of Test:** 2022-11-21 to 2022-12-18  
**Date of Issue:** 2022-12-22

<b>Test Result:</b>	<b>Pass</b>
---------------------	-------------

\* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin  
Laboratory Manager



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## Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR221100232801

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Revision Record			
Version	Description	Date	Remark
00	Original	2022-12-22	/

Authorized for issue by:			
		Damon Zhou	
		Damon_Zhou/Project Engineer	
		Eric Lin	
		Eric Lin /Reviewer	



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## 2 Test Summary

Test Item	FCC Rule No.	Requirements	Verdict
Effective (Isotropic) Radiated Output Power Data	§2.1046 §96.41(b)	EIRP≤ 23dBm/10MHz	PASS
Peak-Average Ratio	§96.41(g)	≤13dB	PASS
Modulation Characteristics	§2.1047	Digital modulation	PASS
Bandwidth	§2.1049(h)	OBW: No limit EBW: No limit	PASS
Band Edge Compliance	§96.41(e)	Refer to clause 6.4	PASS
Spurious emissions at antenna terminals	§96.41(e)	Refer to clause 6.5	PASS
Field strength of spurious radiation	§2.1051 §96.41(e)	Refer to clause 6.6	PASS
Frequency stability	§2.1055	≤ ±2.5ppm.	PASS



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 3.8V
Hardware Version:	V1.1
Software Version:	89113.1000.00.02.04.07
	LTE: Band 48
Operation Frequency Band:	NR: n48
	EN-DC: DC_48A-n5; DC_48A-n66
Modulation Type:	LTE: QPSK, 16QAM, 64QAM
	NR: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256 QAM
LTE Power Class:	Level 3
Antenna Type:	External Antenna
Antenna Gain:	-0.58dBi(Provide by Manufacturer)
SCS Information:	30KHz

### 4.2 Test Frequency

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 48	5	3552.5	3625.0	3697.5
	10	3555.0	3625.0	3695.0
	15	3557.5	3625.0	3692.5
	20	3560.0	3625.0	3690.0

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
NR FDD n48	5	3552.51	3625.005	3697.50
	10	3555.00	3624.99	3694.98
	15	3557.52	3624.99	3692.49
	20	3560.01	3624.99	3690.00
	40	3570.00	3624.99	3679.98



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## Compliance Certification Services (Kunshan) Inc.

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### 4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	52%	
Atmospheric Pressure:	1015Pa	
Temperature:	TL	-30°C
	TN	+20°C
	TH	+85°C
Voltage:	VL	3.3 V
	VN	3.8 V
	VH	4.4 V

NOTE: VL= lower extreme test voltage  
 VN= nominal voltage  
 VH= upper extreme test voltage  
 TL= lower extreme test temperature  
 TN= normal temperature  
 TH= upper extreme test temperature

### 4.4 Measurement Uncertainty

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



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### 4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

### 4.6 Test Facility

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

#### • A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

#### • FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

#### • ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

#### • VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

### 4.7 Deviation from Standards

None

### 4.8 Abnormalities from Standard Conditions

None



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### 5 Equipment List

NO	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
<b>RF Conducted Test</b>						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/22/2022	08/21/2023
2	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/22/2022	08/21/2023
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/22/2022	01/21/2023
4	Signal Generator	R&S	SMW200A	KSEM020-1	08/22/2022	08/21/2023
5	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/22/2022	08/21/2023
6	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/22/2022	08/21/2023
7	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	08/22/2022	08/21/2023
8	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/22/2022	08/21/2023
9	Switcher	CCSRF	FY562	KUS2001M001-3	08/22/2022	08/21/2023
10	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
11	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/16/2022	01/15/2023
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	04/01/2021	03/31/2023
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	04/01/2021	03/31/2023
15	Software	BST	TST-PASS	/	N/A	N/A
<b>RF Radiated Test</b>						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/22/2022	08/21/2023
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	04/01/2022	03/31/2023
3	Signal Generator	Agilent	E8257C	KS301066	08/22/2022	08/21/2023
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	04/13/2021	04/12/2023
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2021	06/28/2023
6	Bilog Antenna	SCHWARZBEC K	VULB9160	CZ301016	04/13/2021	04/12/2024
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	04/02/2022	04/01/2024
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	02/22/2021	02/21/2023
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	03/22/2022	03/21/2023
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/22/2022	01/21/2023
11	Amplifier(18~40GHz)	COM-POWER	PAM-840A	KUS1710E001	01/22/2022	01/21/2023
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	11/14/2021	11/13/2022
13	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/22/2022	08/21/2023
14	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	08/22/2022	08/21/2023
15	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	01/04/2022	31/03/2023
16	Software	Faratronic	EZ EMC-v 3A1	/	N/A	N/A



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## 6 Radio Spectrum Matter Test Results

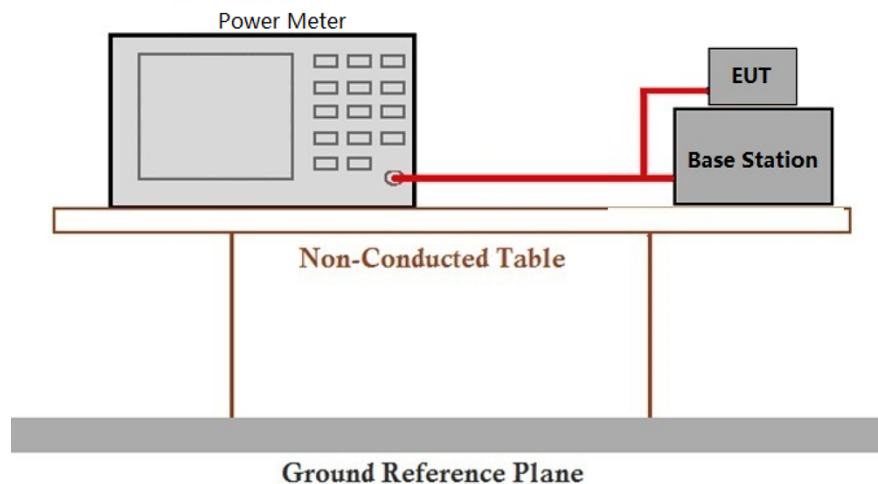
### 6.1 Effective (Isotropic) Radiated Output Power Data

Test Requirement: §2.1046; §96.41(b)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: EIRP ≤ 23dBm/10MHz

#### 6.1.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.1.2 Test Setup Diagram



#### 6.1.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
 Appendix B for KSCR221100232802



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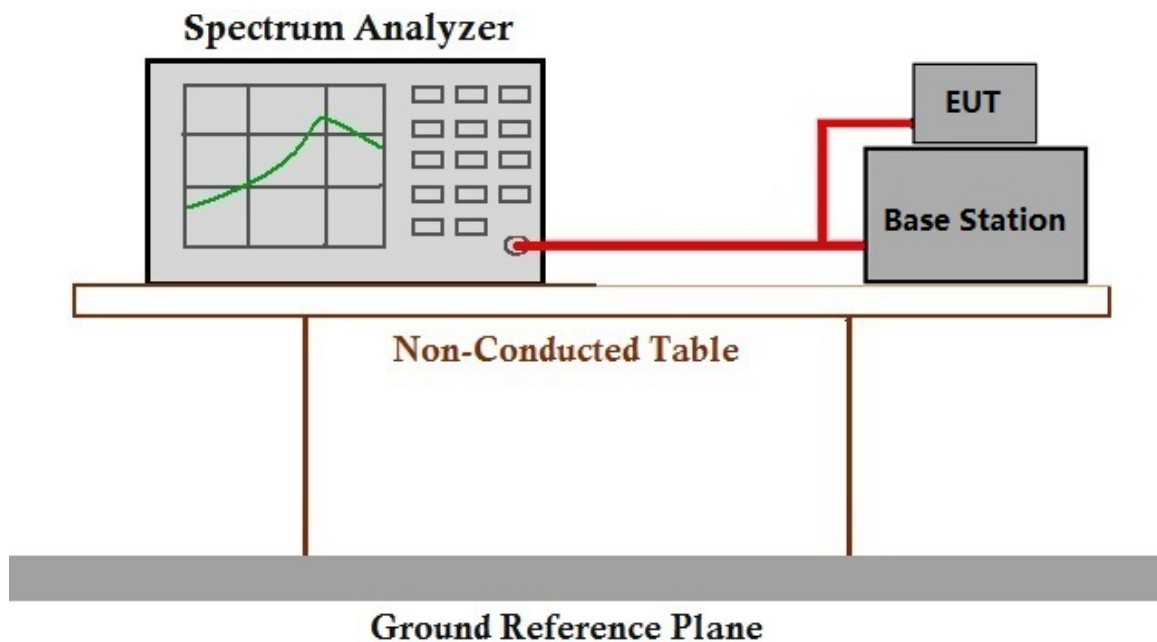
### 6.2 Peak-Average Ratio

Test Requirement: §96.41(g)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: ≤13dB

#### 6.2.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.2.2 Test Setup Diagram



#### 6.2.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
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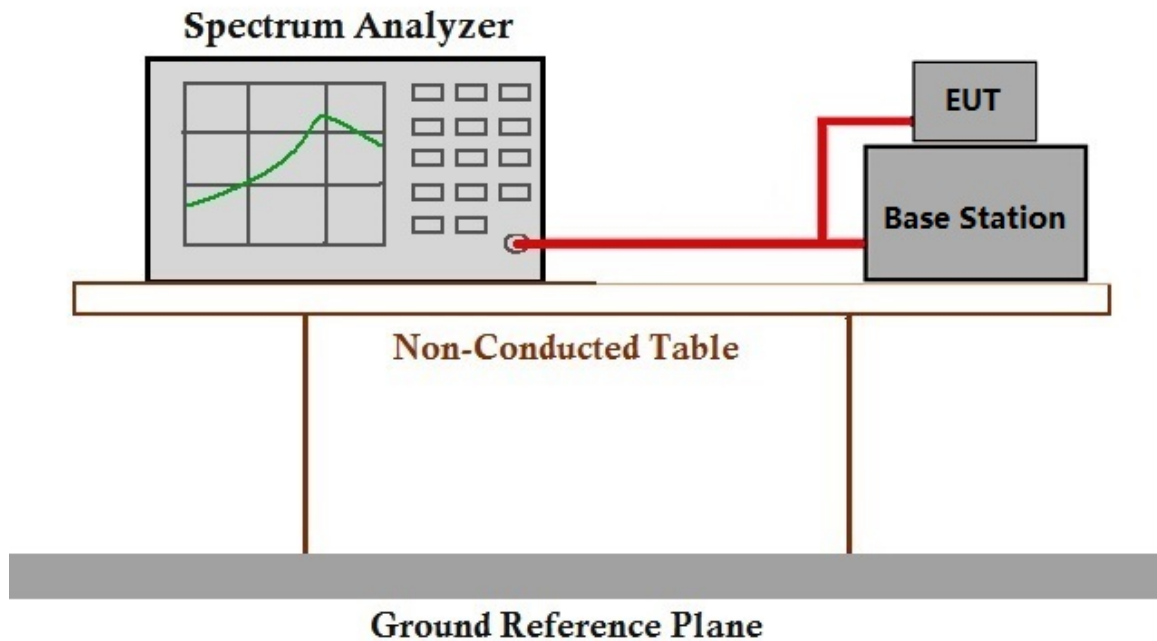
### 6.3 Bandwidth

Test Requirement: §2.1049(h)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: OBW: No limit  
 EBW: No limit

#### 6.3.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.3.2 Test Setup Diagram



#### 6.3.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
 Appendix B for KSCR221100232802



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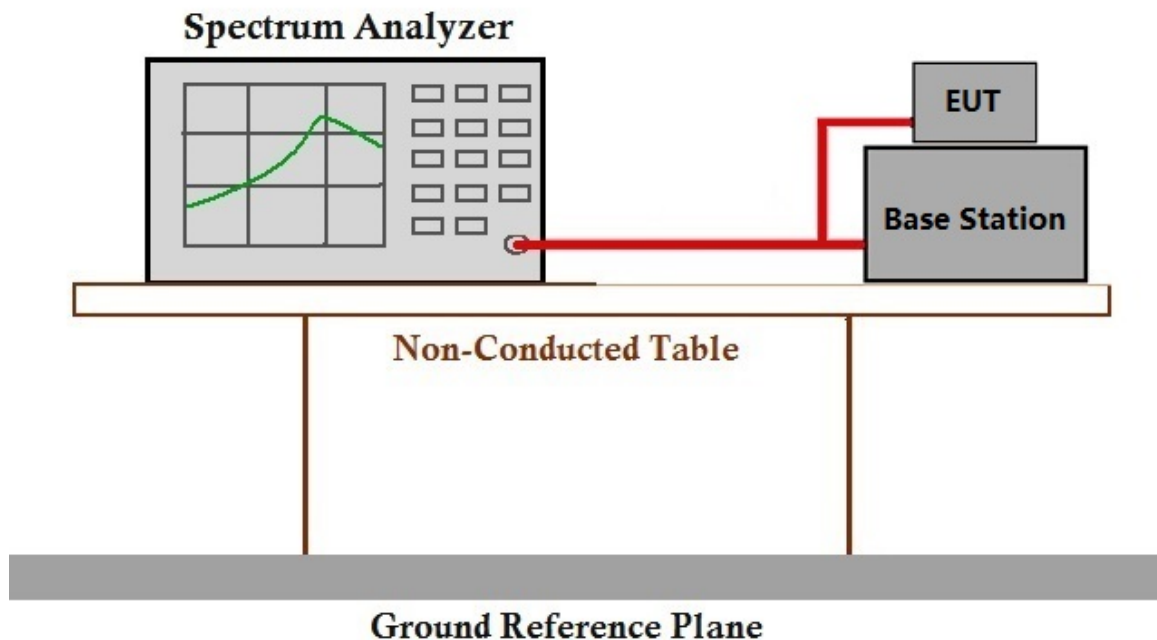
### 6.4 Band Edge Compliance

Test Requirement: §2.1051, §96.41(e)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: 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)  
 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  
 Emissions below 3530MHz or above 3720 MHz shall not exceed -40dBm/MHz

#### 6.4.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.4.2 Test Setup Diagram



#### 6.4.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
 Appendix B for KSCR221100232802



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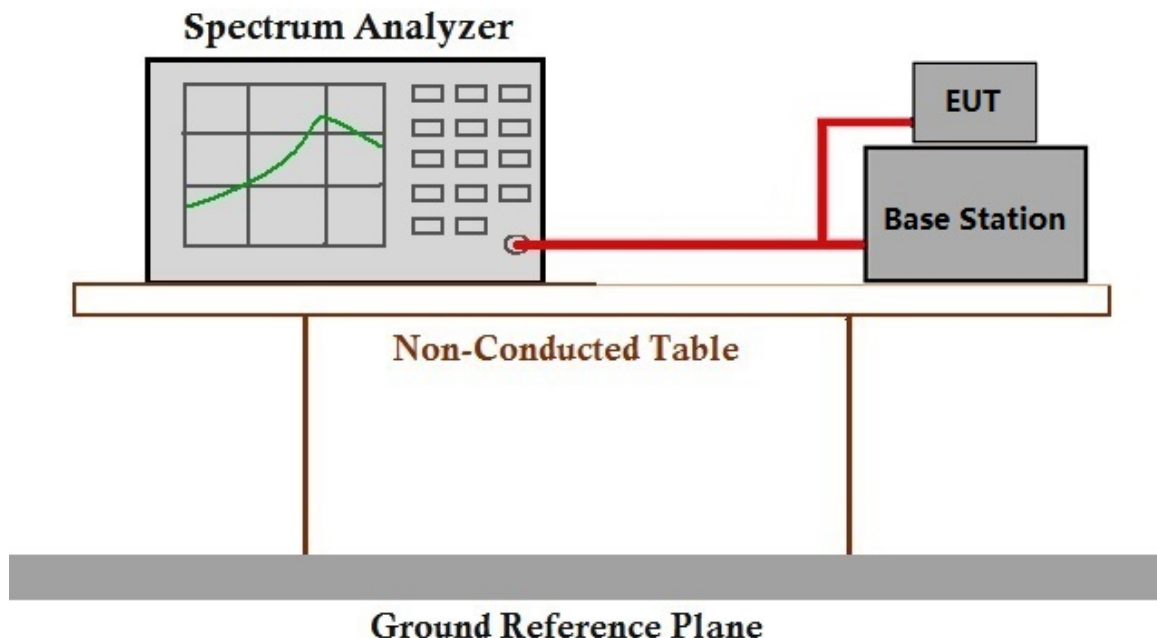
### 6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §96.41(e)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: 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)  
 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  
 Emissions below 3530MHz or above 3720 MHz shall not exceed -40dBm/MHz

#### 6.5.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.5.2 Test Setup Diagram



#### 6.5.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
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### 6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §96.41(e)

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: 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)  
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  
Emissions below 3530MHz or above 3720 MHz shall not exceed -40dBm/MHz

#### 6.6.1 E.U.T. Operation

Operating Environment:

Temperature: 18.5 °C Humidity: 39.5 % RH Atmospheric Pressure: 1020 mbar

Test mode Tx mode, Keep the EUT in transmitting mode.



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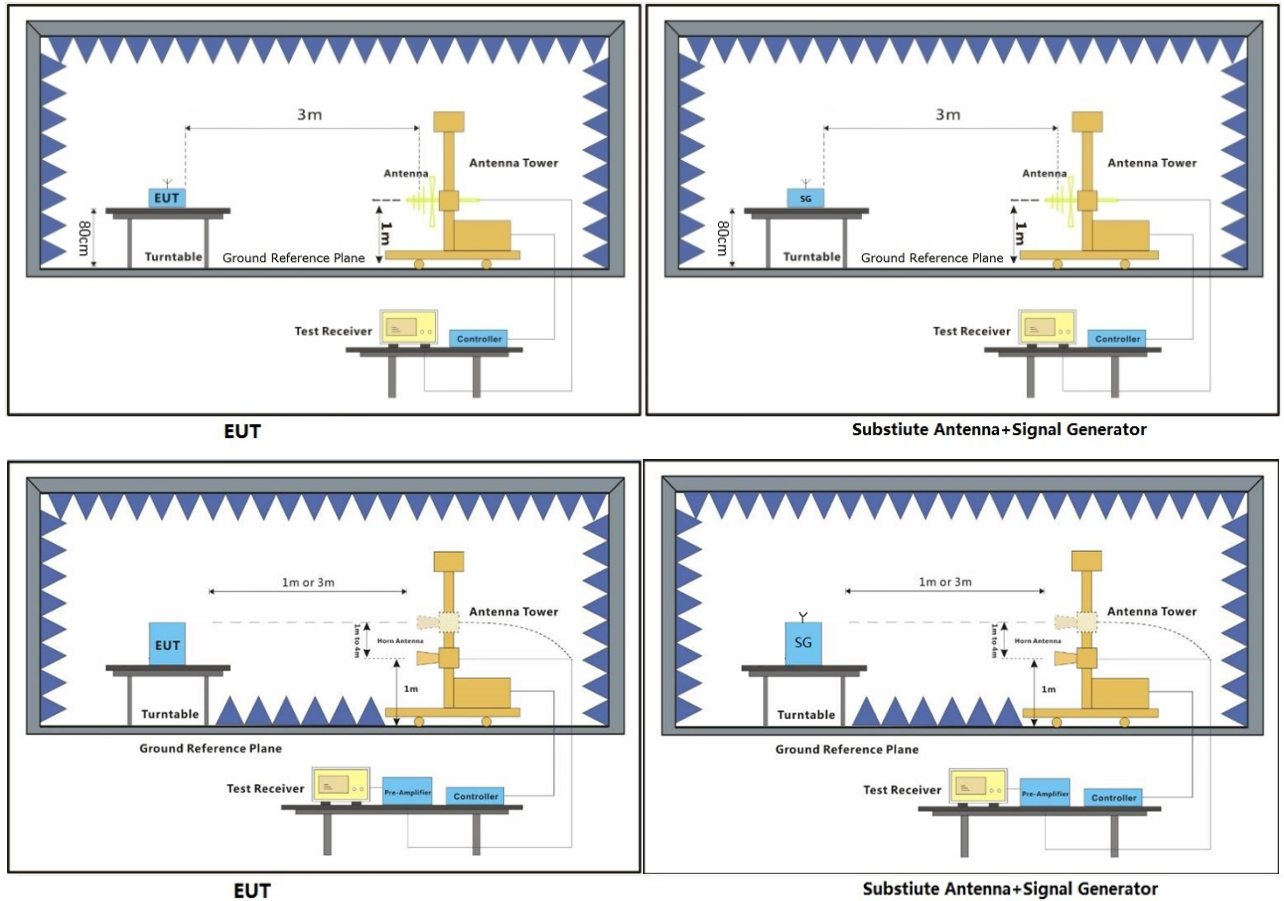
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### 6.6.2 Test Setup Diagram





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### 6.6.3 Measurement Procedure and Data

#### Test Procedure:

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.



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LTE Band 48_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
9301.2083	36.79	-38.38	38.57	-58.28	-40.00	18.28	263	202	Horizontal
12095.7083	34.71	-35.10	38.70	-56.96	-40.00	16.96	254	198	Horizontal
7102.18	43.70	-42.23	36.26	-57.53	-40.00	17.53	142	74	Horizontal
10653.27	35.58	-36.02	39.22	-56.48	-40.00	16.48	263	1	Horizontal
14204.36	34.69	-34.87	40.00	-55.45	-40.00	15.45	222	235	Horizontal
17755.45	29.59	-30.96	41.62	-55.00	-40.00	15.00	263	0	Horizontal

LTE Band 48_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
8525.9167	38.16	-39.66	38.08	-58.68	-40.00	18.68	142	325	Vertical
12709.0417	34.85	-35.34	39.31	-56.44	-40.00	16.44	285	0	Vertical
7102.18	48.84	-42.23	36.26	-52.39	-40.00	12.39	296	253	Vertical
10653.27	39.84	-36.02	39.22	-52.22	-40.00	12.22	263	89	Vertical
14204.36	43.85	-34.87	40.00	-46.29	-40.00	6.29	225	125	Vertical
17755.45	29.21	-30.96	41.62	-55.38	-40.00	15.38	142	271	Vertical

LTE Band 48_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7232.1667	46.45	-42.00	36.34	-54.47	-40.00	14.47	142	69	Horizontal
8795.2083	37.56	-38.96	38.37	-58.29	-40.00	18.29	285	1	Horizontal
12983.125	34.63	-34.89	39.58	-55.93	-40.00	15.93	263	160	Horizontal
17419.25	32.53	-31.80	40.28	-54.25	-40.00	14.25	265	6	Horizontal
10848.27	36.59	-35.61	39.43	-54.85	-40.00	14.85	241	0	Horizontal
14464.36	33.44	-35.01	39.74	-57.09	-40.00	17.09	224	124	Horizontal



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LTE Band 48_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7232.1667	51.11	-42.00	36.34	-49.81	-40.00	9.81	142	199	Vertical
8924.1042	38.29	-38.88	38.52	-57.33	-40.00	17.33	285	162	Vertical
13087.5833	34.08	-34.65	39.65	-56.18	-40.00	16.18	263	0	Vertical
17953.5208	32.50	-31.25	42.41	-51.60	-40.00	11.60	265	89	Vertical
10848.27	40.24	-35.61	39.43	-51.20	-40.00	11.20	241	271	Vertical
14464.36	37.63	-35.01	39.74	-52.90	-40.00	12.90	204	90	Vertical

LTE Band 48_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
9428.1875	37.18	-37.78	38.56	-57.30	-40.00	17.30	142	5	Horizontal
13460.8542	34.52	-34.36	39.88	-55.22	-40.00	15.22	263	268	Horizontal
17858.1667	32.40	-31.05	42.03	-51.88	-40.00	11.88	265	0	Horizontal
7362.18	46.00	-41.89	36.42	-54.74	-40.00	14.74	284	174	Horizontal
11043.27	31.30	-35.46	39.56	-59.86	-40.00	19.86	142	213	Horizontal
14724.36	31.13	-34.33	39.48	-58.99	-40.00	18.99	266	212	Horizontal

LTE Band 48_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7362.0208	49.89	-41.89	36.42	-50.84	-40.00	10.84	241	253	Vertical
8925.0625	38.55	-38.87	38.52	-57.07	-40.00	17.07	185	0	Vertical
12371.2292	34.03	-35.20	38.97	-57.45	-40.00	17.45	263	9	Vertical
17870.1458	32.33	-31.09	42.08	-51.94	-40.00	11.94	265	126	Vertical
11043.27	32.38	-35.46	39.56	-58.78	-40.00	18.78	295	56	Vertical
14724.36	35.67	-34.33	39.48	-54.45	-40.00	14.45	284	145	Vertical



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## Compliance Certification Services (Kunshan) Inc.

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NR SA n48_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
8420.0208	38.43	-39.69	37.96	-58.55	-40.00	18.55	142	215	Horizontal
12587.8125	33.23	-34.61	39.19	-57.45	-40.00	17.45	265	270	Horizontal
7104.18	39.62	-42.23	36.26	-61.60	-40.00	21.60	295	357	Horizontal
10656.27	32.07	-36.01	39.22	-59.98	-40.00	19.98	284	196	Horizontal
14208.36	33.06	-34.88	39.99	-57.09	-40.00	17.09	142	304	Horizontal
17760.45	29.89	-30.95	41.64	-54.67	-40.00	14.67	263	1	Horizontal

NR SA n48_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7162.2083	53.52	-42.17	36.30	-47.61	-40.00	7.61	296	215	Vertical
8696.0208	38.19	-39.27	38.27	-58.07	-40.00	18.07	265	1	Vertical
10743.5	40.29	-35.85	39.32	-51.51	-40.00	11.51	284	66	Vertical
12465.1458	34.71	-35.28	39.07	-56.77	-40.00	16.77	251	29	Vertical
14324.3125	37.59	-34.90	39.88	-52.70	-40.00	12.70	142	0	Vertical
17760.45	29.63	-30.95	41.64	-54.93	-40.00	14.93	263	5	Vertical

NR SA n48_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7212.0417	45.56	-42.08	36.33	-55.45	-40.00	15.45	296	306	Horizontal
8933.2083	38.23	-38.85	38.53	-57.35	-40.00	17.35	265	12	Horizontal
13093.8125	34.19	-34.64	39.66	-56.05	-40.00	16.05	255	198	Horizontal
17949.2083	32.86	-31.24	42.40	-51.25	-40.00	11.25	142	4	Horizontal
10848.27	33.58	-35.61	39.43	-57.86	-40.00	17.86	263	84	Horizontal
14464.36	33.26	-35.01	39.74	-57.27	-40.00	17.27	221	87	Horizontal



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NR SA n48_Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7212.0417	53.01	-42.08	36.33	-48.00	-40.00	8.00	296	105	Vertical
8924.1042	38.54	-38.88	38.52	-57.08	-40.00	17.08	265	288	Vertical
10818.25	39.71	-35.69	39.40	-51.84	-40.00	11.84	284	270	Vertical
12966.3542	34.29	-34.90	39.57	-56.31	-40.00	16.31	142	12	Vertical
14424.4583	36.28	-34.79	39.78	-54.00	-40.00	14.00	255	179	Vertical
17667.9375	32.53	-31.32	41.27	-52.78	-40.00	12.78	142	12	Vertical

NR SA n48_High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7322.25	42.45	-41.79	36.39	-58.20	-40.00	18.20	296	289	Horizontal
9429.625	37.45	-37.78	38.56	-57.04	-40.00	17.04	265	341	Horizontal
12717.6667	34.49	-35.31	39.32	-56.76	-40.00	16.76	241	176	Horizontal
17064.6667	33.53	-32.27	38.86	-55.14	-40.00	15.14	142	357	Horizontal
10986.27	31.89	-35.66	39.59	-59.45	-40.00	19.45	226	304	Horizontal
14648.36	30.66	-34.25	39.55	-59.30	-40.00	19.30	211	174	Horizontal

LTE Band n48A_High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
7322.25	51.40	-41.79	36.39	-49.25	-40.00	9.25	196	215	Vertical
8926.9792	38.15	-38.87	38.52	-57.46	-40.00	17.46	265	234	Vertical
13077.0417	34.05	-34.68	39.65	-56.24	-40.00	16.24	284	235	Vertical
17298.0208	32.67	-31.77	39.79	-54.57	-40.00	14.57	254	215	Vertical
10986.27	32.06	-35.66	39.59	-59.28	-40.00	19.28	142	235	Vertical
14648.36	30.25	-34.25	39.55	-59.71	-40.00	19.71	263	35	Vertical



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# Compliance Certification Services (Kunshan) Inc.

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NR ENDC 48A-n5_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1649	47.76	-48.38	25.58	-70.31	-13.00	57.31	219	246	Horizontal
2468.5	59.61	-47.01	27.84	-54.82	-13.00	41.82	154	333	Horizontal
3298	45.61	-46.11	29.48	-66.28	-13.00	53.28	287	11	Horizontal
4125.45	41.53	-45.33	30.80	-68.26	-13.00	55.26	327	65	Horizontal
4950.54	40.41	-45.08	32.48	-67.45	-13.00	54.45	224	0	Horizontal
5775.63	39.32	-43.52	33.48	-65.98	-13.00	52.98	169	4	Horizontal

NR ENDC 48A-n5_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1649	51.17	-48.38	25.58	-66.90	-13.00	53.90	134	249	Vertical
2473.5	56.29	-46.97	27.85	-58.09	-13.00	45.09	179	235	Vertical
3298.5	45.04	-46.11	29.48	-66.85	-13.00	53.85	216	175	Vertical
4125.45	41.21	-45.33	30.80	-68.58	-13.00	55.58	237	204	Vertical
4950.54	40.20	-45.08	32.48	-67.66	-13.00	54.66	198	145	Vertical
5775.63	39.29	-43.52	33.48	-66.01	-13.00	53.01	336	338	Vertical

NR ENDC 48A-n5_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1654	50.52	-48.37	25.57	-67.54	-13.00	54.54	274	241	Horizontal
2481	57.99	-46.90	27.86	-56.31	-13.00	43.31	213	33	Horizontal
3310.36	42.66	-46.13	29.48	-69.25	-13.00	56.25	186	167	Horizontal
4137.95	41.05	-45.30	30.82	-68.69	-13.00	55.69	351	257	Horizontal
4965.54	40.63	-45.06	32.52	-67.17	-13.00	54.17	209	316	Horizontal
5793.13	39.79	-43.51	33.54	-65.44	-13.00	52.44	152	316	Horizontal



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NR ENDC 48A-n5_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1654	52.35	-48.37	25.57	-65.71	-13.00	52.71	312	104	Vertical
2481	57.86	-46.90	27.86	-56.44	-13.00	43.44	211	58	Vertical
3310.36	42.41	-46.13	29.48	-69.50	-13.00	56.50	169	132	Vertical
4137.95	41.85	-45.30	30.82	-67.89	-13.00	54.89	286	313	Vertical
4965.54	40.00	-45.06	32.52	-67.80	-13.00	54.80	136	360	Vertical
5793.13	39.92	-43.51	33.54	-65.31	-13.00	52.31	264	163	Vertical

NR ENDC 48A-n5_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1659	51.94	-48.35	25.57	-66.10	-13.00	53.10	196	241	Horizontal
2488.5	57.92	-46.84	27.88	-56.30	-13.00	43.30	285	35	Horizontal
3318	47.37	-46.14	29.47	-64.56	-13.00	51.56	263	12	Horizontal
4150.45	41.37	-45.26	30.84	-68.31	-13.00	55.31	181	271	Horizontal
4980.54	39.69	-45.04	32.55	-68.05	-13.00	55.05	336	227	Horizontal
5810.63	39.79	-43.48	33.60	-65.35	-13.00	52.35	157	80	Horizontal

NR ENDC 48A-n5_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1659	55.85	-48.35	25.57	-62.19	-13.00	49.19	266	248	Vertical
2488.5	59.83	-46.84	27.88	-54.39	-13.00	41.39	287	56	Vertical
3318	46.05	-46.14	29.47	-65.88	-13.00	52.88	312	56	Vertical
4150.45	41.05	-45.26	30.84	-68.63	-13.00	55.63	352	359	Vertical
4980.54	40.14	-45.04	32.55	-67.60	-13.00	54.60	169	191	Vertical
5810.63	39.83	-43.48	33.60	-65.31	-13.00	52.31	213	262	Vertical



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NR ENDC 48A-n66_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3451.5	49.10	-45.81	29.42	-62.55	-13.00	49.55	296	32	Horizontal
5136.27	40.42	-44.24	32.60	-66.48	-13.00	53.48	265	282	Horizontal
6848.36	39.54	-42.50	35.90	-62.32	-13.00	49.32	284	116	Horizontal
8560.45	36.72	-39.70	38.12	-60.12	-13.00	47.12	142	116	Horizontal
10272.54	32.78	-36.75	38.80	-60.43	-13.00	47.43	255	82	Horizontal
11984.63	32.12	-35.34	38.62	-59.86	-13.00	46.86	286	360	Horizontal

NR ENDC 48A-n66_ Low Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3451.5	48.07	-45.81	29.42	-63.58	-13.00	50.58	196	246	Vertical
5136.27	40.96	-44.24	32.60	-65.94	-13.00	52.94	265	262	Vertical
6848.36	39.70	-42.50	35.90	-62.16	-13.00	49.16	287	145	Vertical
8560.45	37.50	-39.70	38.12	-59.34	-13.00	46.34	142	3	Vertical
10272.54	33.04	-36.75	38.80	-60.17	-13.00	47.17	263	29	Vertical
11984.63	31.52	-35.34	38.62	-60.46	-13.00	47.46	268	353	Vertical

NR ENDC 48A-n66_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3451.5	49.33	-45.81	29.42	-62.32	-13.00	49.32	296	33	Horizontal
5181.27	40.85	-44.18	32.60	-65.99	-13.00	52.99	265	360	Horizontal
6908.36	38.75	-42.44	36.02	-62.94	-13.00	49.94	284	298	Horizontal
8635.45	35.97	-39.66	38.20	-60.75	-13.00	47.75	144	332	Horizontal
10362.54	33.36	-36.60	38.90	-59.61	-13.00	46.61	366	198	Horizontal
12089.63	32.78	-35.20	38.69	-58.99	-13.00	45.99	256	82	Horizontal



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# Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR221100232801

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NR ENDC 48A-n66_ Mid Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3451.5	49.61	-45.81	29.42	-62.04	-13.00	49.04	196	46	Vertical
5181.27	41.13	-44.18	32.60	-65.71	-13.00	52.71	265	360	Vertical
6908.36	39.39	-42.44	36.02	-62.30	-13.00	49.30	241	343	Vertical
8635.45	35.54	-39.66	38.20	-61.18	-13.00	48.18	142	46	Vertical
10362.54	33.71	-36.60	38.90	-59.26	-13.00	46.26	254	294	Vertical
12089.63	32.56	-35.20	38.69	-59.21	-13.00	46.21	199	194	Vertical

NR ENDC 48A-n66_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3484.18	41.87	-45.73	29.41	-69.71	-13.00	56.71	296	359	Horizontal
5226.27	40.23	-44.11	32.60	-66.54	-13.00	53.54	255	332	Horizontal
6968.36	38.76	-42.54	36.14	-62.90	-13.00	49.90	142	182	Horizontal
8710.45	35.25	-39.34	38.28	-61.07	-13.00	48.07	263	3	Horizontal
10452.54	33.14	-36.43	39.00	-59.55	-13.00	46.55	225	48	Horizontal
12194.63	31.14	-35.26	38.80	-60.58	-13.00	47.58	214	359	Horizontal

NR ENDC 48A-n66_ High Channel									
Frequency [MHz]	Reading [dBμV]	Factor [dB]	AF[dB/m]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
3451.5	49.80	-45.81	29.42	-61.85	-13.00	48.85	196	46	Vertical
5226.27	40.88	-44.11	32.60	-65.89	-13.00	52.89	265	359	Vertical
6968.36	39.08	-42.54	36.14	-62.58	-13.00	49.58	241	263	Vertical
8710.45	36.35	-39.34	38.28	-59.97	-13.00	46.97	185	113	Vertical
10452.54	32.28	-36.43	39.00	-60.41	-13.00	47.41	255	96	Vertical
12194.63	31.03	-35.26	38.80	-60.69	-13.00	47.69	244	231	Vertical

## Remark:

1) Pretest was performed at the EUT in required band,channel,modulation,bandwidth, and only the data of the worst case showed in the test report.



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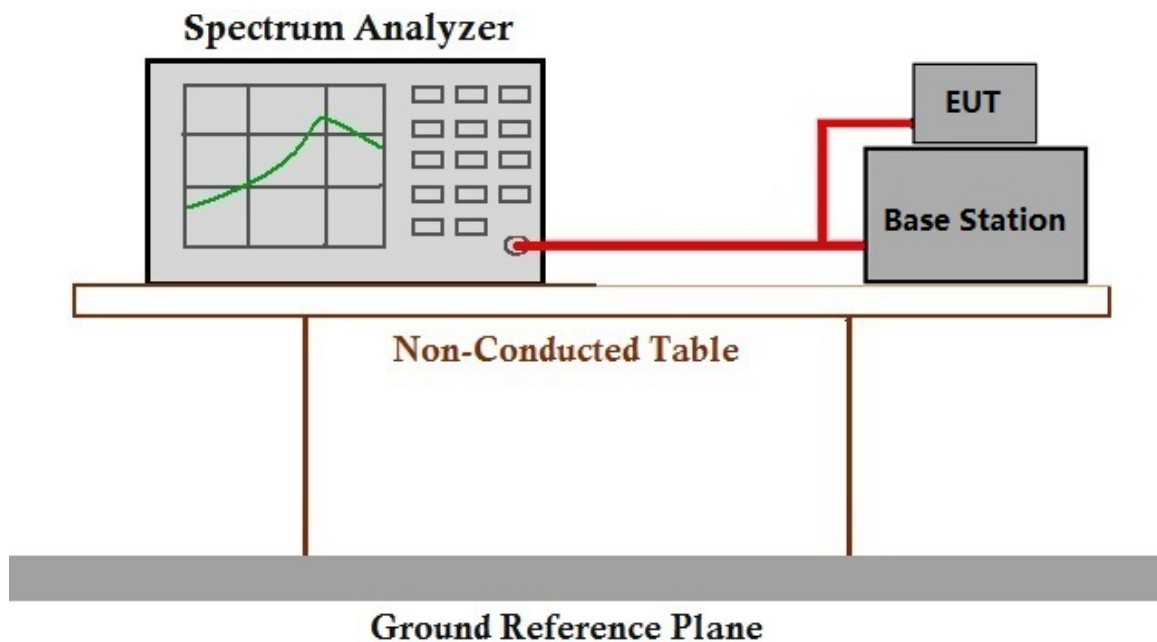
### 6.7 Frequency stability

Test Requirement: §2.1055  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit:  $\leq \pm 2.5\text{ppm}$ .

#### 6.7.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.7.2 Test Setup Diagram



#### 6.7.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
 Appendix B for KSCR221100232802



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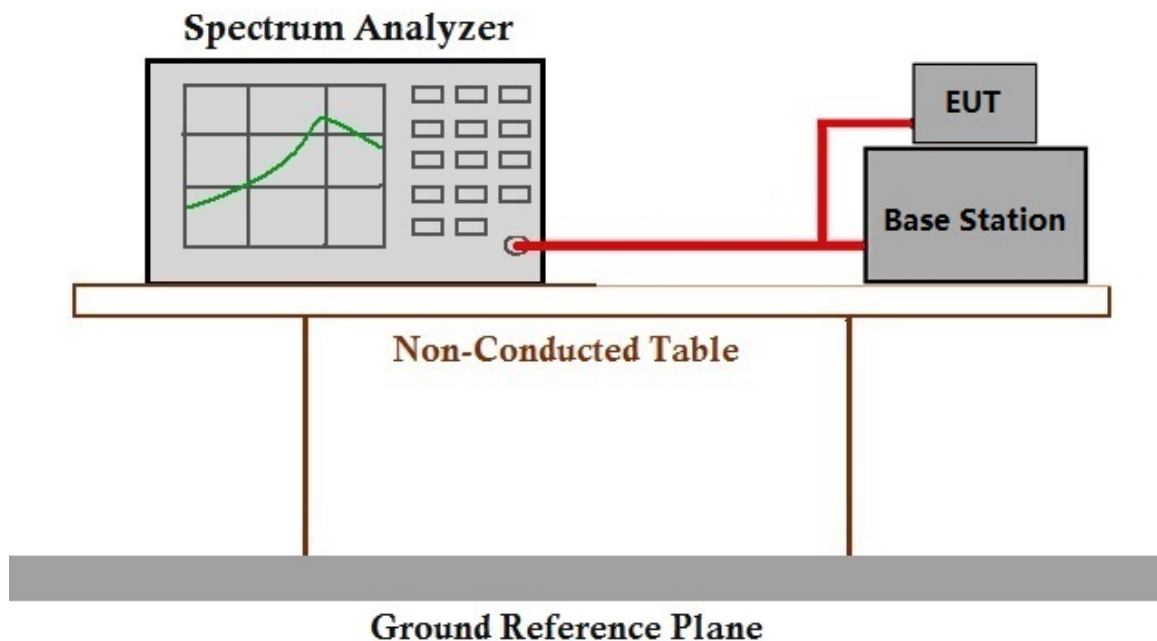
### 6.8 Modulation Characteristics

Test Requirement: §2.1047  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: Digital modulation

#### 6.8.1 E.U.T. Operation

Operating Environment:  
 Temperature: 21.5 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar  
 Test mode Tx mode, Keep the EUT in transmitting mode.

#### 6.8.2 Test Setup Diagram



#### 6.8.3 Measurement Data

Please refer to Appendix A for KSCR221100232801  
 Appendix B for KSCR221100232802



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## 7 Test Setup Photographs

Refer to Appendix - Test Setup Photo for KSCR2211002328AT

## 8 EUT Constructional Details

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2211002328AT

- End of the Report -



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