SPECTRUM REPORT

(E-UTRA)

Applicant:	Nebra LTD.
Address of Applicant:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ United Kingdom
Equipment Under Test (EUT)	
Product Name:	Nebra Smart Outdoor LoRa Gateway / Nebra HNT Outdoor Hotspot Miner
Model No.:	HNTOUT-868-G-LT+, HNTOUT-868-G-LT, HNTOUT-868-LT+, HNTOUT-868-G, HNTOUT-868-LT, HNTOUT-868
Trade mark:	Nebra
Applicable standards:	ETSI EN 301 908-1 V13.1.1 (2019-11) ETSI EN 301 908-13 V13.1.1 (2019-11)
Date of sample receipt:	31 May, 2021
Date of Test:	31 May, to 08 Jul., 2021
Date of report issued:	09 Jul., 2021
Test Result:	PASS*

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

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 2014/53/EU are considered.

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

2 Version

Version No.	Date	Description
00	*09 Jul., 2021*	*Original*

Remark:

The SGS-CSTC Standards Technical Services Co.,Ltd. Shenzhen Branch of the BLE module quoted in this report is: HR/2019/1001403. The difference between the two is as follows: It is now used inside the whole machine. Therefore, the AC Power Line Conducted Emission and the Radiated Spurious Emission are retested.

Tested by:  ***Date:*** *09 Jul., 2021*

Test Engineer

Reviewed by:  ***Date:*** *09 Jul., 2021*

Project Engineer

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4 Test Summary

Test Item	Test Requirement	Test method	Result
Transmitter maximum output power	ETSI EN 301 908-13 section 4.2.2	ETSI EN 301 908-13 section 5.3.1	Pass*
Transmitter spectrum emission mask	ETSI EN 301 908-13 section 4.2.3	ETSI EN 301 908-13 section 5.3.2	Pass*
Transmitter spurious emissions	ETSI EN 301 908-13 section 4.2.4	ETSI EN 301 908-13 section 5.3.3	Pass
Transmitter minimum output power	ETSI EN 301 908-13 section 4.2.5	ETSI EN 301 908-13 section 5.3.4	Pass*
Receiver adjacent channel selectivity (ACS)	ETSI EN 301 908-13 section 4.2.6	ETSI EN 301 908-13 section 5.3.5	Pass*
Receiver blocking characteristics	ETSI EN 301 908-13 section 4.2.7	ETSI EN 301 908-13 section 5.3.6	Pass*
Receiver spurious response	ETSI EN 301 908-13 section 4.2.8	ETSI EN 301 908-13 section 5.3.7	Pass*
Receiver intermodulation characteristics	ETSI EN 301 908-13 section 4.2.9	ETSI EN 301 908-13 section 5.3.8	Pass*
Receiver spurious emissions	ETSI EN 301 908-13 section 4.2.10	ETSI EN 301 908-13 section 5.3.9	Pass*
Transmitter adjacent channel leakage power ratio	ETSI EN 301 908-13 section 4.2.11	ETSI EN 301 908-13 section 5.3.10	Pass*
Receiver Reference Sensitivity Level	ETSI EN 301 908-13 section 4.2.12	ETSI EN 301 908-13 section 5.3.11	Pass*
Radiated emissions(UE)	ETSI EN 301 908-1 Section 4.2.2	ETSI EN 301 908-1 Section 5.3.1	Pass
Control and monitoring functions	ETSI EN 301 908-1 Section 4.2.4	ETSI EN 301 908-1 Section 5.3.3	Pass*
Remark: *Pass: The EUT complies with the essential requirements in the standard.* *PASS*: Refer to the Report No.: HR/2019/1001403*			

5 General Information

5.1 Client Information

Applicant:	Nebra LTD.
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ United Kingdom
Manufacturer:	Nebra LTD.
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells TN3 9BJ United Kingdom
Factory:	SUNSOAR TECH CO., LIMITED
Address:	4/F, Block E, Fengze Building, Huafeng No.2 Industrial Park, Hangkong Road, XiXiang Town, BaoAn District, Shenzhen, China

5.2 General Description of E.U.T.

Product Name:	Nebra Smart Outdoor LoRa Gateway / Nebra HNT Outdoor Hotspot Miner		
Model No.:	HNTOUT-868-G-LT+, HNTOUT-868-G-LT, HNTOUT-868-LT+, HNTOUT-868-G, HNTOUT-868-LT, HNTOUT-868		
Transmitter frequency range:	FDD:	Band 1: 1920MHz~1980MHz	Band 3: 1710MHz~1785MHz
		Band 5: 824MHz~849MHz	Band 7: 2500MHz~2570MHz
		Band 8: 880MHz~915MHz	Band 20: 832MHz~862MHz
		Band 28: 703MHz~748MHz	
	TDD:	Band 38: 2570MHz~2620MHz	Band 40: 2300MHz~2400MHz
Receiver frequency range:	FDD	Band 1: 2110MHz~2170MHz	Band 3: 1805MHz~1880MHz
		Band 5: 869MHz~894MHz	Band 7: 2620MHz~2690MHz
		Band 8: 925MHz~960MHz	Band 20: 791MHz~821MHz
		Band 28: 758MHz~803MHz	
	TDD	Band 38: 2570MHz~2620MHz	Band 40: 2300MHz~2400MHz
Hardware version:	V01-16-2021-1820		
Software version:	4dc8745		
Modulation type:	QPSK, 16-QAM		
Antenna Type:	External antenna		
Antenna Gain:	LTE Band 1: 2.39 dBi (Declared by applicant), LTE Band 3: 2.31 dBi (Declared by applicant), LTE Band 5 1.75 dBi (Declared by applicant), LTE Band 7: 2.78 dBi (Declared by applicant), LTE Band 8: 1.99 dBi (Declared by applicant), LTE Band 20: 1.75 dBi (Declared by applicant), LTE Band 28: 1.75 dBi (Declared by applicant), LTE Band 38: 2.78 dBi (Declared by applicant), LTE Band 40: 2.78 dBi (Declared by applicant),		
Power supply :	AC: AC 230V / 50Hz POE: DC48V		
AC adapter:	Model No.: HNTOUT-868-G-LT+, HNTOUT-868-G-LT, HNTOUT-868-LT+, HNTOUT-868-G, HNTOUT-868-LT, HNTOUT-868 The difference: we will offer the unit with or without a GPS module included. Models with the GPS Included are indicated with a -G on the end of the model		

	number. For example a unit with model no HNTOUT-868 is 868 Mhz, no GPS. A unit with Model No HNTOUT-868-G, is 915Mhz with GPS. We offer the unit using the Raspberry Pi Compute Module 3+ 32GB by standard (no suffix) but have an -LT variant which uses the Raspberry Pi Compute Module 3 Lite with a 32 GB eMMC to SD adapter card and a -LT+ variant which uses the Raspberry Pi Compute Module 3+ Lite with a 32 GB eMMC to SD adapter card. These suffixes can be applied to the models both with and without GPS as described above. We also provide customers the ability to, optionally, add both cellular connectivity and an additional 8 channel LoRa gateway to any of these models by using an mPCIe module however these come as optional extras.

5.3 Test environment and mode, and test samples plans

Operating Environment:	
Temperature:	Normal: 15℃ ~ 35℃, Extreme: -20℃ ~ +55℃
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	POE: Nominal: 48Vdc, Extreme: Low 44Vdc, High 53Vdc
Test mode:	
Single Carrier mode	Keep the EUT communication with simulated station in Single carrier mode
Note:	
1. All the test environments and test modes required following ETSI TS 136 521-1 and ETSI EN 301 908-13.	

5.4 Description of Support Units

Test Equipment	Manufacturer	Model No.	Serial No.
Simulated Station	Anritsu	MT8820C	6201026545

5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Radio Frequency	±1.2 *10^{-9}
RF Power, Conducted	±0.64 dB
Spurious emission, Conducted	±1.18 dB
Temperature	±0.3 °C
Voltage	±0.1 %
Humidity	±2 %
Time	±10 %
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB
Radiated Emission (1GHz ~ 18GHz)	±5.16 dB

5.6 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.7 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://www.ccis-cb.com

5.8 Test Instruments list

6 Radiated Emission:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
3m SAC	ETS	9m*6m*6m	966	01-19-2021	01-18-2024
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-03-2021	03-02-2022
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-18-2020	06-17-2021
				06-17-2021	06-16-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-03-2021	03-02-2022
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-18-2020	06-17-2021
				06-17-2021	06-16-2022
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-03-2021	03-02-2022
Pre-amplifier	CD	PAP-1G18	11804	03-03-2021	03-02-2022
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-03-2021	03-02-2022
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-03-2021	03-02-2022
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-03-2021	03-02-2022
Signal Generator	Rohde & Schwarz	SMR20	1008100050	03-03-2021	03-02-2022
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-03-2021	03-02-2022
Cable	MICRO-COAX	MFR64639	K10742-5	03-03-2021	03-02-2022
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-03-2021	03-02-2022
RF Switch Unit	MWRFTEST	MW200	N/A	N/A	N/A
Test Software	MWRFTEST	MTS8200	Version: 2.0.0.0		

Conducted method:					
Test Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
Spectrum Analyzer	Agilent	N9020A	MY50510123	11-16-2020	11-15-2021
Vector Signal Generator	Agilent	N5182A	MY49060014	11-16-2020	11-15-2021
Signal Generator	Rohde & Schwarz	SMR20	1008100050	03-03-2021	03-02-2022
Simulated Station	Rohde & Schwarz	CMW500	140493	06-18-2020	06-17-2021
				06-18-2021	06-17-2022
RF Control Box	MWRF-test	MW200-RFCB	MW201013JYT	N/A	N/A
Automatic Filter Box	MWRF-test	MW200-SFCB	MW201019JYT	N/A	N/A
Test Software	MWRF-test	MTS8200	Version: 2.0.0.0		
DC Power Supply	XinNuoEr	WYK-10020K	1409050110020	09-23-2020	09-22-2021
Temperature Humidity Chamber	Zhongzhi	CZ－C－150D	ZH16491	09-23-2020	09-22-2021

7 Radio Technical Requirements Specification in ETSI EN 301 908-1/-13

7.1 Justification

The EUT and test equipment were configured for testing according to ETSI EN 301 908-13 and ETSI TS 136 521-1.
The EUT was tested in the normal operating mode to represent worst-case results during the final qualification test.
The EUT was tested with a dummy battery.

7.2 Test Configuration of EUT

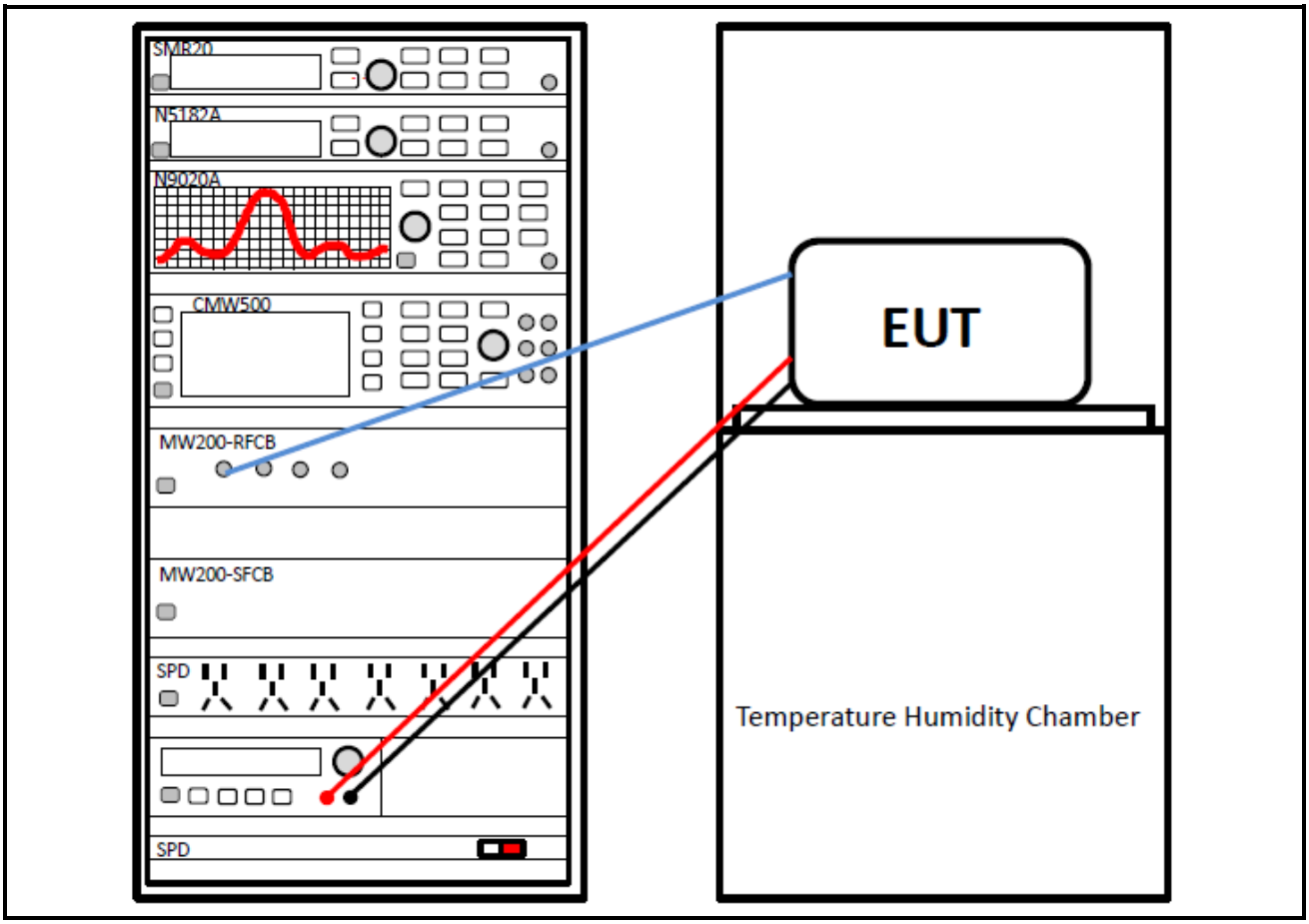
LTE Band	Bandwidth	Channel Number/ Frequency		
LTE Band 1	5 MHz	Low	18025	1922.5 MHz
		Middle	18300	1950.0 MHz
		High	18575	1977.5 MHz
	10 MHz	Low	18050	1925.0 MHz
		Middle	18300	1950.0 MHz
		High	18550	1975.0 MHz
	20 MHz	Low	18100	1930.0 MHz
		Middle	18300	1950.0 MHz
		High	18500	1970.0 MHz
LTE Band 3	1.4 MHz	Low	19207	1710.7 MHz
		Middle	19575	1747.5 MHz
		High	19943	1784.3 MHz
	5 MHz	Low	19225	1712.5 MHz
		Middle	19575	1747.5 MHz
		High	19925	1782.5 MHz
	10 MHz	Low	19250	1715.0 MHz
		Middle	19575	1747.5 MHz
		High	19900	1780.0 MHz
	20 MHz	Low	19300	1720.0 MHz
		Middle	19575	1747.5 MHz
		High	19850	1775.0 MHz
LTE Band 7	5 MHz	Low	20775	2502.5 MHz
		Middle	21100	2535.0 MHz
		High	21425	2567.5 MHz
	10 MHz	Low	20800	2505.0 MHz
		Middle	21100	2535.0 MHz
		High	21400	2565.0 MHz
	20 MHz	Low	20850	2510.0 MHz
		Middle	21100	2535.0 MHz
		High	21350	2560.0 MHz
LTE Band 8	1.4 MHz	Low	21457	880.7 MHz
		Middle	21625	897.5 MHz
		High	21793	914.3 MHz
	5 MHz	Low	21475	882.5 MHz
		Middle	21625	897.5 MHz
		High	21775	912.5 MHz
	10 MHz	Low	21500	885.0 MHz
		Middle	21625	897.5 MHz
		High	21750	910.0 MHz

LTE Band	Bandwidth	Channel Number/ Frequency		
LTE Band 20	5 MHz	Low	24175	834.5 MHz
		Middle	24300	847.0 MHz
		High	24425	859.5 MHz
	10 MHz	Low	24200	837.0 MHz
		Middle	24300	847.0 MHz
		High	24400	857.0 MHz
	20 MHz	Low	24250	842.0 MHz
		Middle	24300	847.0 MHz
		High	24350	852.0 MHz
LTE Band 28	5 MHz	Low	27225	704.5 MHz
		Middle	27375	719.5 MHz
		High	27645	746.5 MHz
	10 MHz	Low	27235	705.5 MHz
		Middle	27385	720.5 MHz
		High	27635	745.5 MHz
	20 MHz	Low	27310	713.0 MHz
		Middle	27460	728.0 MHz
		High	27560	738.0 MHz
LTE Band 38	5 MHz	Low	37775	2572.5 MHz
		Middle	38000	2595.0 MHz
		High	38225	2617.5 MHz
	10 MHz	Low	37800	2575.0 MHz
		Middle	38000	2595.0 MHz
		High	38200	2615.0 MHz
	20 MHz	Low	37850	2580.0 MHz
		Middle	38000	2595.0 MHz
		High	38150	2610.0 MHz
LTE Band 40	5 MHz	Low	38675	2302.5 MHz
		Middle	39150	2350.0 MHz
		High	39625	2397.5 MHz
	10 MHz	Low	38700	2305.0 MHz
		Middle	39150	2350.0 MHz
		High	39600	2395.0 MHz
	20 MHz	Low	38750	2310.0 MHz
		Middle	39150	2350.0 MHz
		High	39550	2390.0 MHz

Clause No.	Test Conditions					Test Channel			Modulation		RB Allocation		
	NTNV	LTLV	LTHV	HTLV	HTHV	Low	Middle	High	QPSK	16QAM	1	Partial	Full
4.2.2	√	√	√	√	√	√	√	√	√		√	√	
4.2.3	√					√	√	√	√	√		√	√
4.2.4	√					√	√	√	√		√		√
4.2.5	√	√	√	√	√	√	√	√	√				√
4.2.6	√						√		√				√
4.2.7	√						√		√				√
4.2.8	√						√		√				√
4.2.9	√						√		√				√
4.2.10	√						√		√		√		
4.2.11	√	√	√	√	√	√	√	√	√	√		√	√
4.2.12	√	√	√	√	√	√	√	√	√				√

Note:
1. *"√" means that this configuration is chosen for test.*
2. *"NTNV" means Normal Temperature Normal Voltage, "LTLV" means Low Temperature Low Voltage, "LTHV" means Low Temperature High Voltage, "HTLV" means High Temperature Low Voltage, "HTHV" means High Temperature High Voltage.*

7.3 Test Setup Block



7.4 Test Results

7.4.1 Test Result Summary

Clause No.	Test Mode	Test Condition	Test Band LTE Band 1, 3, 5, 7, 8, 20, 28, 38, 40 Test Data	Verdict
Requirements in EN 301 908-13				
4.2.2	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.3	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.4	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.5	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.6	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.7	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.8	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.9	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.10	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
4.2.11	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.12	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
Requirements in EN 301 908-1				
4.2.2	Single Carrier	NTNV	See Section 7.4.2	Pass
4.2.4	Single Carrier	NTNV	Refer to the Report No.: HR/2019/1001403	Pass

7.4.2 Radiated spurious emissions

LTE Band 1 - Middle channel - Traffic mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-58.14	-58.31	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-58.46	-58.74		
3900.00	V	-58.33	-58.44		
5850.00	V	-60.11	-60.14		
320.03	Horizontal	-58.26	-57.79		
660.99	H	-57.99	-58.01		
3900.00	H	-58.36	-58.10		
5850.00	H	-60.24	-60.09		
LTE Band 1 - Middle channel - Idle mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-58.30	-57.93	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-59.29	-59.61		
3900.00	V	-61.35	-61.21		
320.03	Horizontal	-58.88	-58.65		
660.99	H	-58.77	-59.26		
3900.00	H	-62.22	-62.20		

LTE Band 3 - Middle channel - Traffic mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	20MHz		
623.93	Vertical	-57.36	-57.25	-56.91	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-59.91	-60.21	-60.26		
3495.00	V	-62.36	-61.89	-61.92		
5242.50	V	-56.11	-55.63	-56.06		
320.03	Horizontal	-59.96	-59.51	-60.46		
660.99	H	-59.26	-59.54	-59.31		
3495.00	H	-63.33	-63.49	-63.03		
5242.50	H	-56.14	-56.59	-56.30		
LTE Band 3 - Middle channel - Idle mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	20MHz		
623.93	Vertical	-56.94	-56.89	-56.84	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-59.53	-59.45	-59.95		
3495.00	V	-60.83	-61.30	-60.70		
320.03	Horizontal	-59.51	-59.68	-59.92		
660.99	H	-59.13	-59.50	-58.85		
3495.00	H	-63.55	-63.49	-63.31		

LTE Band 5 - Middle channel - Traffic mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	10MHz		
623.93	Vertical	-58.26	-58.75	-57.81	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-60.52	-60.28	-60.76		
1673.00	V	-46.25	-45.90	-46.61		
2536.50	V	-66.27	-66.48	-66.08		
320.03	Horizontal	-59.64	-59.72	-59.83		
660.99	H	-59.15	-59.61	-59.60		
1673.00	H	-38.82	-38.90	-38.71		
2536.50	H	-66.44	-66.26	-66.14		
LTE Band 5 - Middle channel - Idle mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	10MHz		
623.93	Vertical	-57.84	-57.80	-58.10	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-60.17	-60.10	-60.48		
1673.00	V	-61.37	-61.32	-61.54		
320.03	Horizontal	-59.38	-59.23	-59.50		
660.99	H	-59.15	-58.93	-58.86		
1673.00	H	-62.38	-62.60	-62.28		

LTE Band 7 - Middle channel - Traffic mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.41	-57.20	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-59.15	-60.06		
5070.00	V	-62.02	-61.75		
7605.00	V	-55.88	-55.72		
320.03	Horizontal	-60.04	-59.87		
660.99	H	-60.31	-60.00		
5070.00	H	-63.27	-63.20		
7605.00	H	-56.19	-56.13		
LTE Band 7 - Middle channel - Idle mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.04	-57.16	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-59.27	-59.54		
5070.00	V	-60.60	-60.63		
320.03	Horizontal	-59.69	-59.88		
660.99	H	-59.04	-58.96		
5070.00	H	-61.33	-61.36		

LTE Band 8 - Middle channel - Traffic mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	20MHz		
623.93	Vertical	-57.86	-58.07	-58.26	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-60.09	-59.69	-60.02		
1795.00	V	-41.90	-42.02	-41.70		
2692.50	V	-59.08	-59.12	-58.73		
320.03	Horizontal	-58.59	-58.13	-58.66		
660.99	H	-58.98	-58.60	-59.04		
1795.00	H	-49.78	-50.15	-49.60		
2692.50	H	-48.52	-48.42	-48.03		
LTE Band 8 - Middle channel - Idle mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		1.4MHz	5MHz	20MHz		
623.93	Vertical	-58.19	-58.07	-57.79	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-59.75	-60.02	-59.46		
2692.50	V	-61.34	-61.14	-61.70		
320.03	Horizontal	-59.05	-59.02	-59.48		
660.99	H	-58.95	-58.92	-58.93		
2692.50	H	-61.88	-61.61	-61.71		

LTE Band 20 - Middle channel - Traffic mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.63	-58.03	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-59.73	-59.41		
1694.00	V	-46.23	-46.28		
2541.00	V	-66.41	-66.33		
320.03	Horizontal	-59.70	-60.05		
660.99	H	-59.09	-59.13		
1694.00	H	-42.33	-42.13		
2541.00	H	-63.50	-63.99		
LTE Band 20 - Middle channel - Idle mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-58.08	-58.21	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-60.18	-60.36		
1694.00	V	-60.99	-60.53		
320.03	Horizontal	-59.30	-59.79		
660.99	H	-58.94	-58.79		
1694.00	H	-62.52	-62.56		

LTE Band 28 - Middle channel - Traffic mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		3MHz	5MHz	20MHz		
623.93	Vertical	-57.96	-58.23	-58.09	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-60.79	-60.76	-61.27		
1439.00	V	-45.94	-45.82	-46.38		
2158.50	V	-66.25	-66.58	-65.80		
320.03	Horizontal	-59.21	-59.39	-59.68		
660.99	H	-59.58	-60.01	-59.91		
1439.00	H	-39.18	-39.56	-39.25		
2158.50	H	-66.29	-66.07	-66.66		
LTE Band 28 - Middle channel - Idle mode						
Frequency (MHz)	Spurious Emission	Level(dBm)			Limit (dBm)	Test Result
		3MHz	5MHz	20MHz		
623.93	Vertical	-57.51	-57.21	-57.15	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-60.34	-60.02	-60.39		
1439.00	V	-61.46	-61.15	-61.54		
320.03	Horizontal	-59.76	-59.87	-60.19		
660.99	H	-59.57	-59.62	-59.19		
1439.00	H	-62.66	-63.16	-62.90		

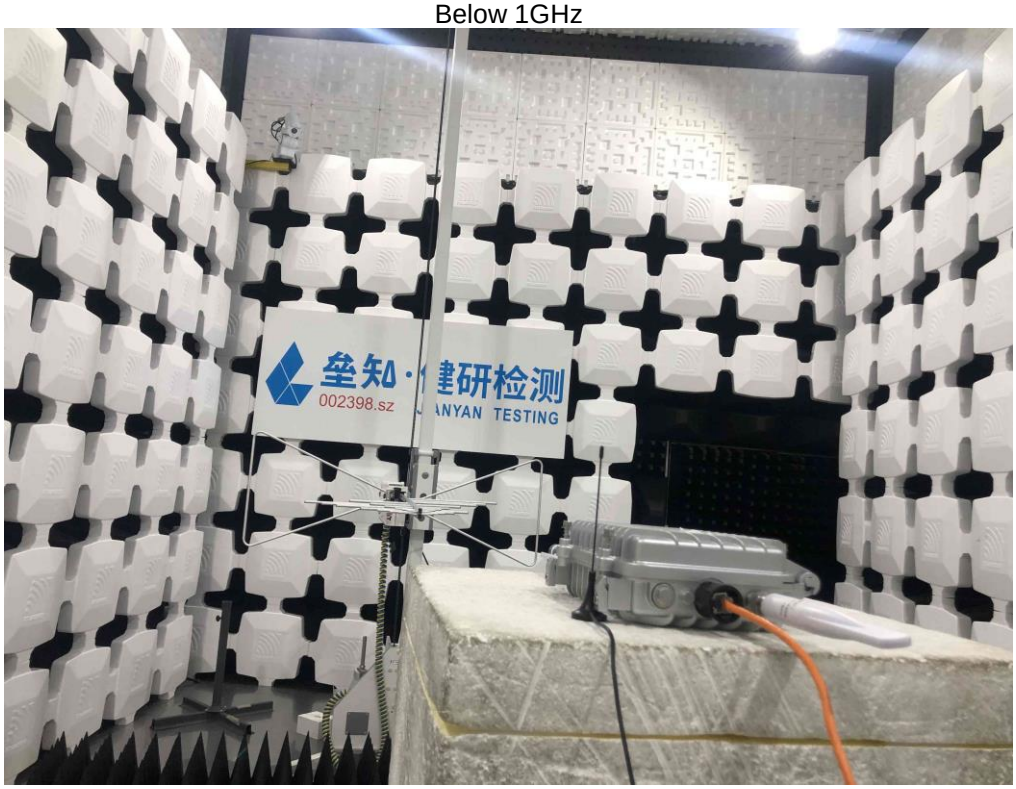
LTE Band 38 - Middle channel - Traffic mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.81	-58.31	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-59.05	-58.87		
5190.00	V	-61.95	-61.82		
7785.00	V	-56.22	-56.14		
320.03	Horizontal	-60.38	-60.59		
660.99	H	-60.11	-60.31		
5190.00	H	-63.61	-63.64		
7785.00	H	-56.40	-56.43		
LTE Band 38 - Middle channel - Idle mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-56.92	-57.02	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-58.90	-59.20		
5190.00	V	-60.74	-60.92		
320.03	Horizontal	-59.42	-59.41		
660.99	H	-59.02	-59.07		
5190.00	H	-61.03	-60.90		

LTE Band 40 - Middle channel - Traffic mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.33	-57.40	-36 dBm below 1GHz, -30 dBm above 1GHz.	Pass
720.16	V	-59.21	-59.71		
4700.00	V	-61.88	-61.40		
7050.00	V	-55.82	-55.42		
320.03	Horizontal	-60.71	-60.82		
660.99	H	-59.76	-59.37		
4700.00	H	-64.05	-64.22		
7050.00	H	-56.47	-56.84		
LTE Band 40 - Middle channel - Idle mode					
Frequency (MHz)	Spurious Emission	Level(dBm)		Limit (dBm)	Test Result
		5MHz	20MHz		
623.93	Vertical	-57.25	-57.56	-57 dBm below 1GHz, -47 dBm above 1GHz.	Pass
720.16	V	-58.87	-58.83		
4700.00	V	-60.73	-60.72		
320.03	Horizontal	-59.82	-59.49		
660.99	H	-59.15	-59.01		
4700.00	H	-60.91	-60.50		

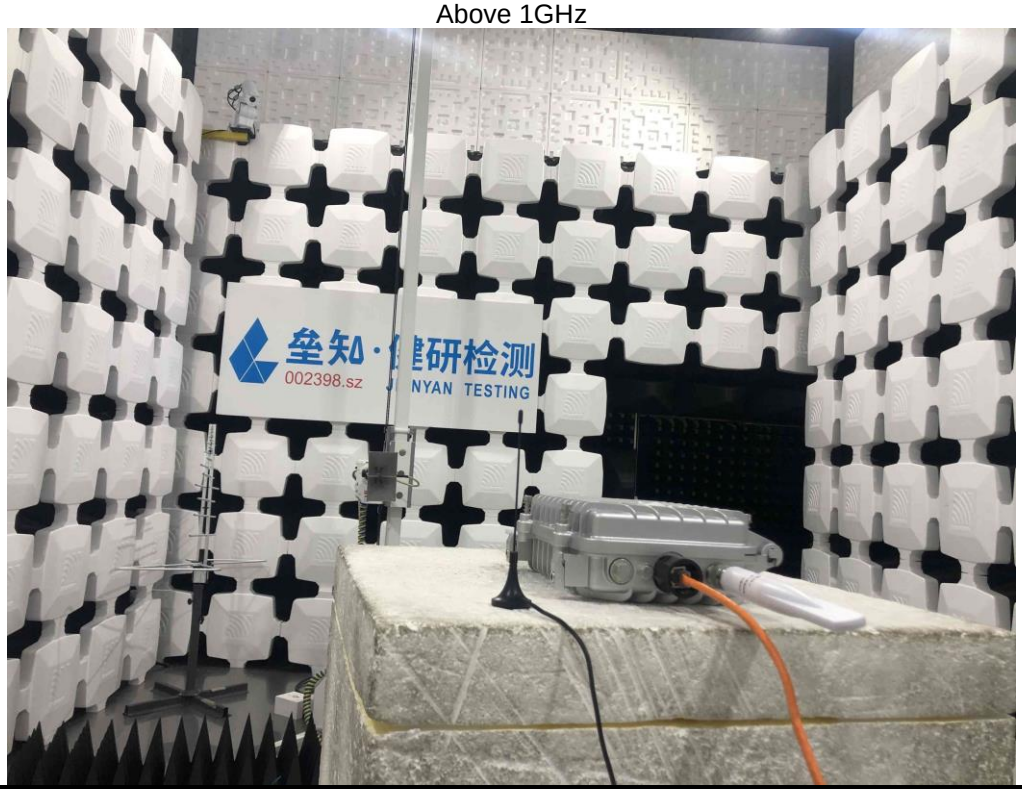
8 Test Setup Photo

Radiated Spurious Emission

Below 1GHz



Above 1GHz



9 EUT Constructional Details

Reference to the test report No. JYTSZB-R01-2100336

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