

SPECTRUM REPORT

(GSM)

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 301 511 V12.5.1 (2017-03)

Date of sample receipt: 31 May, 2021

Date of Test: 31 May, to 08 Jul., 2021

Date of report issue: 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.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

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

Draft

Tested by:

Date:

09 Jul., 2021

Test Engineer

Reviewed by:

Date:

09 Jul., 2021

Project Engineer

3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION	2
3 CONTENTS	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION.....	6
5.1 CLIENT INFORMATION	6
5.2 GENERAL DESCRIPTION OF E.U.T.....	6
1.1 TEST ENVIRONMENT AND MODE, AND TEST SAMPLES PLANS	7
5.3 DESCRIPTION OF SUPPORT UNITS	7
5.4 MEASUREMENT UNCERTAINTY.....	7
5.5 LABORATORY FACILITY	7
5.6 LABORATORY LOCATION	8
5.7 TEST INSTRUMENTS LIST.....	8
6 RADIO REQUIREMENTS SPECIFICATION IN ETSI EN 301 511	9
6.1 JUSTIFICATION	9
6.2 TEST CONFIGURATION OF EUT	9
6.3 TEST SETUP BLOCK	10
6.4 TEST RESULTS.....	11
6.4.1 TEST RESULT SUMMARY	11
6.4.2 RADIATED SPURIOUS EMISSIONS - MS ALLOCATED A CHANNEL.....	13
6.4.3 RADIATED SPURIOUS EMISSIONS - MS IN IDLE MODE.....	15
7 TEST SETUP PHOTO	17
8 EUT CONSTRUCTIONAL DETAILS	18

4 Test Summary

Clauses	Description of Test	Result
Clause 4.2.1	Transmitter – Frequency error and phase error	PASS*
Clause 4.2.2	Transmitter – Frequency error under multi path and interference conditions	PASS*
Clause 4.2.3	Transmitter – Frequency error and Phase Error in HSCSD Multi slot Configuration	N/A
Clause 4.2.4	Frequency error and phase error in GPRS multi slot configuration	PASS*
Clause 4.2.5	Transmitter output power and burst timing	PASS*
Clause 4.2.6	Transmitter – Output RF spectrum	PASS*
Clause 4.2.7	Transmitter output power and burst timing in HSCSD multi slot configuration	N/A
Clause 4.2.8	Transmitter – Output RF spectrum in HSCSD multi slot configuration	N/A
Clause 4.2.9	Transmitter – Output RF spectrum for MS supporting the R-GSM or ER-GSM frequency band	N/A
Clause 4.2.10	Transmitter output power in GPRS multi slot configuration	PASS*
Clause 4.2.11	Output RF spectrum in GPRS multi slot configuration	PASS*
Clause 4.2.12	Conducted spurious emissions – MS allocated a channel	PASS*
Clause 4.2.13	Conducted spurious emission – MS in idle mode	PASS*
Clause 4.2.14	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band – MS allocated a channel	N/A
Clause 4.2.15	Conducted spurious emissions for MS supporting the R-GSM or ER-GSM frequency band – MS in idle mode	N/A
Clause 4.2.16	Radiated spurious emissions – MS allocated a channel	PASS
Clause 4.2.17	Radiated spurious emissions – MS in idle mode	PASS
Clause 4.2.18	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band – MS allocated a channel	N/A
Clause 4.2.19	Radiated spurious emissions for MS supporting the R-GSM or ER-GSM frequency band – MS in idle mode	N/A
Clause 4.2.20	Receiver blocking and spurious responses – speech channels	PASS*
Clause 4.2.21	Receiver blocking and spurious response – speech channels for MS supporting the R-GSM or ER-GSM frequency band	N/A
Clause 4.2.22	Improved Receiver Blocking and spurious response - speech channels for 8W MS supporting the R-GSM or ER-GSM frequency band	N/A
Clause 4.2.23	Improved Receiver Blocking and spurious response – speech channels for 2W MS supporting the R-GSM or ER-GSM frequency band	N/A
Clause 4.2.24	Improved Receiver Blocking and spurious response – control channels for 8W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	N/A
Clause 4.2.25	Improved Receiver Blocking and spurious response – control channels for 2W MS supporting the R-GSM or ER-GSM frequency band not supporting speech	N/A
Clause 4.2.26	Frequency error and Modulation accuracy in EGPRS Configuration	PASS*
Clause 4.2.27	Frequency error under multipath and interference conditions in EGPRS Configuration	PASS*
Clause 4.2.28	EGPRS Transmitter output power	PASS*

Clause 4.2.29	Output RF spectrum in EGPRS configuration	PASS*
Clause 4.2.30	Blocking and spurious response in EGPRS configuration	PASS*
Clause 4.2.31	Blocking and spurious response in DLMT configuration	N/A
Clause 4.2.32	Intermodulation rejection - speech channels	PASS
Clause 4.2.33	Intermodulation rejection - control channels	N/A
Clause 4.2.34	Intermodulation rejection - EGPRS	PASS*
Clause 4.2.35	AM suppression - speech channels	PASS*
Clause 4.2.36	AM suppression - control channels	N/A
Clause 4.2.37	AM suppression - packet channels	N/A
Clause 4.2.38	Adjacent channel rejection - speech channels (TCH/FS)	PASS*
Clause 4.2.39	Adjacent channel rejection - control channels	N/A
Clause 4.2.40	Adjacent channel rejection - EGPRS	PASS*
Clause 4.2.41	Adjacent channel rejection in DLMT configuration	N/A
Clause 4.2.42	Reference sensitivity - TCH/FS	PASS*
Clause 4.2.43	Reference sensitivity - FACCH/F	PASS*
Clause 4.2.44	Minimum Input level for Reference Performance - GPRS	PASS*
Clause 4.2.45	Minimum Input level for Reference Performance - EGPRS	PASS*
Clause 4.2.46	Reference sensitivity - TCH/FS for MS supporting the R-GSM or ER-GSM band	N/A
<p>Remark:</p> <p>Pass: Meet the requirement.</p> <p>PASS*: Refer to the Report No.: HR/2019/1001401</p> <p>N/A: Not Applicable.</p>		

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			
Hardware version:	V01-16-2021-1820			
Software version:	4dc8745			
GPRS class	12			
EGPRS class	12			
Modulation technology	<input type="checkbox"/> GSM	<input type="checkbox"/> GMSK		
	<input checked="" type="checkbox"/> GPRS:	<input checked="" type="checkbox"/> GMSK (CS1 ~ CS4)	<input checked="" type="checkbox"/> Uplink	<input checked="" type="checkbox"/> Downlink
	<input checked="" type="checkbox"/> EGPRS	<input type="checkbox"/> GMSK (MCS1 ~ MCS5)	<input type="checkbox"/> Uplink	<input type="checkbox"/> Downlink
		<input checked="" type="checkbox"/> 8PSK (MCS6 ~ MCS9)	<input checked="" type="checkbox"/> Uplink	<input checked="" type="checkbox"/> Downlink
Operating frequency bands	E-GSM900	Tx: 880---915MHz	Rx: 925---960 MHz	
	DCS1800	Tx: 1710---1785 MHz	Rx: 1805---1880 MHz	
Antenna Type:	External antenna			
Antenna Gain:	E-GSM900:	1.99 dBi (declare by Applicant)		
	DCS1800:	2.31 dBi (declare 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.			

1.1 Test environment and mode, and test samples plans

Operating Environment:	
Temperature:	Normal: 15°C ~ 35°C, Extreme: -20°C ~ +55°C
Humidity:	20 % ~ 75 % RH
Atmospheric Pressure:	1008 mbar
Voltage:	POE: Nominal: 48Vdc, Extreme: Low 44Vdc, High 53Vdc
Test mode:	
GPRS mode	Keep the EUT communication with simulated station in GPRS mode
EGPRS mode	Keep the EUT communication with simulated station in EGPRS mode
Note:	
1. All the test environments and test modes required following ETSI TS 151 010-1 and 3GPP TS 05.05.	

5.3 Description of Support Units

Test Equipment	Manufacturer	Model No.	Serial No.
Simulated Station	Anritsu	MT8820C	6201026545
Simulated Station	Rohde & Schwarz	CMU200	122477

5.4 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Radio Frequency	$\pm 1.2 \times 10^{-9}$
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

5.5 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>

5.6 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

5.7 Test Instruments list

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	MWRFTST	MW200	N/A	N/A	N/A
Test Software	MWRFTST	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
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

6 Radio Requirements Specification in ETSI EN 301 511

6.1 Justification

The EUT and test equipment were configured for testing according to ETSI EN 301 511 V12.5.1 (2017-03) and ETSI TS 151 010-1.

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.

6.2 Test Configuration of EUT

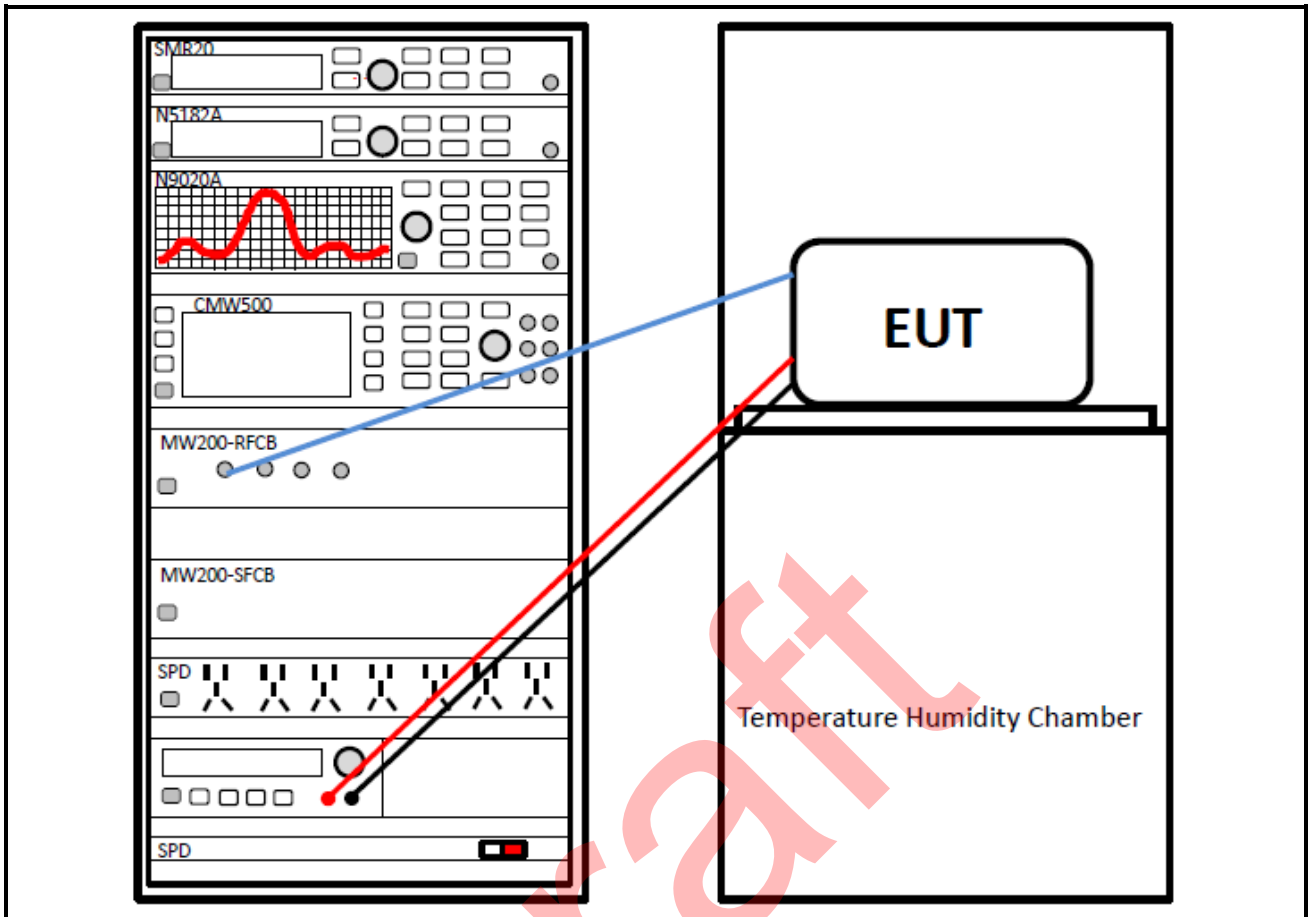
EGSM 900			DCS 1800		
Channel Number		Frequency (MHz)	Channel Number		Frequency (MHz)
Low channel	975	880.2	Low channel	512	1710.2
Middle channel	60	902.0	Middle channel	700	1747.8
High channel	124	914.8	High channel	885	1784.8

Clause No.	Test Conditions						Test Channel			Modulation		Uplink Slot Allocation	
	NTNV	LTLV	LTHV	HTLV	HTHV	Vib.	Low	Middle	High	GMSK	8PSK	1 slot	4 slots
4.2.1	√	√	√	√	√	√	√	√	√	√		√	
4.2.2	√	√	√	√	√		√	√	√	√		√	
4.2.4	√	√	√	√	√	√	√	√	√	√			√
4.2.5	√	√	√	√	√		√	√	√	√		√	
4.2.6	√	√	√	√	√		√	√	√	√		√	
4.2.10	√	√	√	√	√		√	√	√	√			√
4.2.11	√	√	√	√	√		√	√	√	√			√
4.2.12	√	√	√					√		√		√	
4.2.13	√	√	√					√		√		√	
4.2.16	√	√	√					√		√		√	
4.2.17	√	√	√					√		√		√	
4.2.20	√							√		√		√	
4.2.26	√	√	√	√	√		√	√	√		√		√
4.2.27	√	√	√	√	√		√	√	√		√		√
4.2.28	√	√	√	√	√		√	√	√		√		√
4.2.29	√	√	√	√	√		√	√	√		√		√
4.2.30	√							√			√		√
4.2.32	√							√		√		√	
4.2.34	√							√			√		√
4.2.35	√							√		√		√	
4.2.38	√							√		√		√	
4.2.40	√							√			√		√
4.2.42	√							√		√		√	
4.2.43	√							√		√		√	
4.2.44	√							√		√		√	
4.2.45	√							√			√		√

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. "Vib." means Vibration.

6.3 Test Setup Block



6.4 Test Results

6.4.1 Test Result Summary

Clause No.	Test Mode	Test Condition	Test Band	
			GSM900, DCS1800	
			Test Data	Verdict
4.2.1	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.2	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.4	GPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.5	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.6	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.10	GPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.11	GPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
		Vib.		Pass
4.2.12	GSM	NV	Refer to the Report No.: HR/2019/1001401	Pass
		LV		Pass
		HV		Pass
4.2.13	GSM	NV	Refer to the Report No.: HR/2019/1001401	Pass
		LV		Pass
		HV		Pass
4.2.16	GSM	NV	See Section 6.4.2	Pass
		LV	See Section 6.4.2	Pass
		HV	See Section 6.4.2	Pass
4.2.17	GSM	NV	See Section 6.4.3	Pass
		LV	See Section 6.4.3	Pass
		HV	See Section 6.4.3	Pass

Continued

Clause No.	Test Mode	Test Condition	Test Band	
			GSM900, DCS1800	
			Test Data	Verdict
4.2.20	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.26	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.27	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.28	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.29	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
		LTLV		Pass
		LTHV		Pass
		HTLV		Pass
		HTHV		Pass
4.2.30	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.32	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.34	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.35	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.38	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.40	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.42	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.43	GSM	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.44	GPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass
4.2.45	EGPRS	NTNV	Refer to the Report No.: HR/2019/1001401	Pass

6.4.2 Radiated spurious emissions - MS allocated a channel

GSM 900 band: Middle Channel, Normal Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.33	-36.00	Pass
720.16	V	-59.11		
1804.00	V	-48.66	-30.00	
2706.00	V	-46.92		
3608.00	V	-58.70		
320.03	Horizontal	-58.33	-36.00	
660.99	H	-58.14		
1804.00	H	-42.97	-30.00	
2706.00	H	-45.70		
3608.00	H	-61.31		
GSM 900 band: Middle Channel, Low Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-57.95	-36.00	Pass
720.16	V	-58.63		
1804.00	V	-48.57	-30.00	
2706.00	V	-46.75		
3608.00	V	-58.53		
320.03	Horizontal	-58.64	-36.00	
660.99	H	-58.22		
1804.00	H	-43.17	-30.00	
2706.00	H	-46.05		
3608.00	H	-61.44		
GSM 900 band: Middle Channel, High Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.81	-36.00	Pass
720.16	V	-58.68		
1804.00	V	-49.02	-30.00	
2706.00	V	-47.16		
3608.00	V	-58.99		
320.03	Horizontal	-57.89	-36.00	
660.99	H	-58.38		
1804.00	H	-43.19	-30.00	
2706.00	H	-45.23		
3608.00	H	-61.42		

DCS 1800 band: Middle Channel, Normal Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.45	-36.00	Pass
720.16	V	-59.16		
3495.60	V	-36.89	-30.00	
320.03	Horizontal	-58.93	-36.00	
660.99	H	-58.76		
3495.60	H	-38.98	-30.00	
DCS 1800 band: Middle Channel, Low Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.25	-36.00	Pass
720.16	V	-59.35		
3495.60	V	-36.62	-30.00	
320.03	Horizontal	-59.31	-36.00	
660.99	H	-59.13		
3495.60	H	-38.57	-30.00	
DCS 1800 band: Middle Channel, High Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.32	-36.00	Pass
720.16	V	-58.86		
3495.60	V	-36.73	-30.00	
320.03	Horizontal	-59.10	-36.00	
660.99	H	-58.49		
3495.60	H	-38.63	-30.00	

6.4.3 Radiated spurious emissions - MS in idle mode

GSM 900 band: Middle Channel, Normal Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.52	-57.00	Pass
720.16	V	-58.86		
1804.00	V	-61.79	-47.00	
320.03	Horizontal	-58.51	-57.00	
660.99	H	-58.99		
1804.00	H	-63.60	-47.00	
GSM 900 band: Middle Channel, Low Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.58	-57.00	Pass
720.16	V	-58.98		
1804.00	V	-62.21	-47.00	
320.03	Horizontal	-58.98	-57.00	
660.99	H	-58.86		
1804.00	H	-63.45	-47.00	
GSM 900 band: Middle Channel, High Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.97	-57.00	Pass
720.16	V	-58.39		
1804.00	V	-61.36	-47.00	
320.03	Horizontal	-58.35	-57.00	
660.99	H	-59.47		
1804.00	H	-63.24	-47.00	

DCS 1800 band: Middle Channel, Normal Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.17	-57.00	Pass
720.16	V	-58.38		
3495.60	V	-61.23	-47.00	
320.03	Horizontal	-58.20	-57.00	
660.99	H	-58.67		
3495.60	H	-63.12	-47.00	
DCS 1800 band: Middle Channel, Low Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.16	-57.00	Pass
720.16	V	-58.89		
3495.60	V	-61.34	-47.00	
320.03	Horizontal	-58.21	-57.00	
660.99	H	-59.19		
3495.60	H	-63.29	-47.00	
DCS 1800 band: Middle Channel, High Voltage				
Frequency (MHz)	Spurious Emission		Limit (dBm)	Test Result
	polarization	Level(dBm)		
623.93	Vertical	-58.13	-57.00	Pass
720.16	V	-58.58		
3495.60	V	-61.64	-47.00	
320.03	Horizontal	-58.41	-57.00	
660.99	H	-59.46		
3495.60	H	-63.64	-47.00	

7 Test Setup Photo

Radiated Spurious Emission
Below 1GHz



Above 1GHz



8 EUT Constructional Details

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

-----End of report-----

Draft