

Prüfbericht-Nr.: <i>Test report no.:</i>	CN21OFUO 007	Auftrags-Nr.: <i>Order no.:</i>	168319276	Seite 1 von 23 <i>Page 1 of 23</i>
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2021-05-10	
Auftraggeber: <i>Client:</i>	Telit Communications S.p.A., Viale Stazione di Prosecco 5/b, 34010, Trieste, Italy			
Prüfgegenstand: <i>Test item:</i>	Data Terminal Module			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	ME910G1-WW			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	47 CFR FCC Part 27 47 CFR FCC Part 2			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2021-05-15	Refer to Photo Documentation		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003052320-001, A003052320-002			
Prüfzeitraum: <i>Testing period:</i>	2021-05-25 – 2021-07-16			
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von: <i>tested by:</i>	<input checked="" type="checkbox"/> <u>Hardy Suo</u>	genehmigt von: <i>authorized by:</i>	<input checked="" type="checkbox"/> <u>Sam Lin</u>	
Datum: <i>Date:</i>	2021-08-03	Ausstellungsdatum: <i>Issue date:</i>	2021-08-03	
Stellung / Position:	Sachverständige(r)/Expert	Stellung / Position:	Sachverständige(r)/Expert	
Sonstiges / Other:	FCC ID: RI7ME910G1WW Class II permissive change for adding a new frequency range. These changes are performed by software upgrade and do not require any hardware change. This report is for NB-IoT operation in new frequency range. These changes do not degrade the characteristics of EMC/Radio of other operation bands reported by the manufacturer.			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V05

TEST SUMMARY

5.1.1 RF POWER OUTPUT

RESULT: Pass

5.1.2 MODULATION CHARACTERISTICS

RESULT: Pass

5.1.3 OCCUPIED BANDWIDTH AND 26DB BANDWIDTH

RESULT: Pass

5.1.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

RESULT: Pass

5.1.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – BAND EDGE

RESULT: Pass

5.1.6 FIELD STRENGTH OF SPURIOUS RADIATION

RESULT: Pass

5.1.7 FREQUENCY STABILITY

RESULT: Pass

5.1.8 PEAK TO AVERAGE RATIO

RESULT: Pass

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1. GENERAL REMARKS

1.1 COMPLEMENTARY MATERIALS

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Band 787-788 MHz for NB-IoT operation

Appendix B: Test Results of Field Strength of Spurious Radiation for NB-IoT operation

Appendix C: PHOTOGRAPHS OF THE TEST SET-UP

1.2 TEST STANDARD(S)

Applied Rules: 47 CFR FCC Part 27
47 CFR FCC Part 2

Test Method: KDB 971168 D01
ANSI C63.26

1.3 List of Document Change

No.	Report No.	Description
1	CN21OFUO 007	C2PC for add private network (787-788/757-758 MHz) via software change, no changes on other operation bands. This report is only for range 787-788 MHz. Refer to the previous reports CN21OFUO 005 for details of the original data.

2. TEST SITES

2.1 TEST FACILITIES

TÜV Rheinland (Shenzhen) Co., Ltd.

(FCC Registration No.: 694916 & IC Registration Number: 25069)

Address: No. 362, Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China

2.2 TEST DATE

Date of test: 2021-05-25 to 2021-07-16

2.3 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Table 1: List of Test and Measurement Equipment

Description	Manufacturer	Model	Serial No.	Calibrated until (DD.MM.YYYY)
Radio Spectrum Testing				
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	166305	20.09.2021
Signal Analyzer	Rohde & Schwarz	FSV 40	101475	20.09.2021
Vector Signal Generator	Rohde & Schwarz	SMBV100A	263466	20.09.2021
Signal Generator	Rohde & Schwarz	SMB100A	181041	17.12.2021
High Speed Power Supply	KEITHLEY	2303	4080052	17.12.2021
RF Control Unit	Tonscend	JS0806-1	19H8060192	N/A
Field Strength of Spurious Radiation				
Signal Generator	Rohde & Schwarz	SMB100A	180840	20.08.2021
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	165339	20.08.2021
Signal Analyzer	Rohde & Schwarz	FSV 40	101440	21.08.2021
System Controller Interface	Rohde & Schwarz	SCI-100	S10010036	N/A
Filterbank	Rohde & Schwarz	GSM	100811	21.08.2021
OSP	Rohde & Schwarz	OSP 120	102041	N/A
OSP	Rohde & Schwarz	OSP 150	101385	17.12.2021
Pre-amplifier	Rohde & Schwarz	SCU08F1	08320030	20.08.2021
Amplifier	Rohde & Schwarz	SCU-18F	180079	20.08.2021

Amplifier	Rohde & Schwarz	SCU40A	100450	20.09.2021
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	192	02.09.2021
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218719	02.09.2021
Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18312	02.09.2021
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19066	02.09.2021
Biconical Broadband Antenna (30 MHz - 1 GHz)	Schwarzbeck	VUBA 9117	357	02.09.2021
Double Ridged Broadband Horn Antenna (1 – 18 GHz)	Schwarzbeck	BBHA 9120 D	01760	02.09.2021
Broadband Horn Antenna (15 – 40 GHz)	Schwarzbeck	BBHA 9170	00862	02.09.2021
Test software	Rohde & Schwarz	EMC32 (V10.40.00)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NW9P2	N/A
3m Fully Anechoic Chamber	Albatross	FAC-3m	APC17151-FAC	06.07.2022

2.4 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.5 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. facility located at No. 362, Huanguan Road Middle, Longhua District, Shenzhen 518110, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. GENERAL PRODUCT INFORMATION

3.1 GENERAL DESCRIPTION

The EUT is wireless module which supports GPRS/EGPRS, NB-IoT and eMTC wireless technology. For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 RATING AND SYSTEM DETAILS

Table 2: Rating of EUT

General Information of EUT	Description
Kind of Equipment:	Data Terminal Module
Type Designation:	ME910G1-WW
FCC ID:	RI7ME910G1WW
Hardware Version:	1.0
Software Version:	M0C.400003 and AT#BNDOPTIONS includes B86 in the response
IMEI:	359206105206254
Type of Equipment:	Single Module
Antenna Type:	External Antenna
Operating Voltage:	DC 3.8V
Operating Temperature Range:	-40°C ~ +85°C

Table 3: Technical Specification of EUT

Characteristic	Description
Operated Modes:	NB-IoT
Operational Frequency Band(s):	Band 2, Band 4, Band 5, Band 12, Band 13, Band 25, Band 26, Band 66, Band 71, Band 85, Private network (787-788/757-758 MHz)
Nominal RF Output Power:	23 dBm ± 2dB; 20 dBm ± 2dB (Band 71 only)
Modulation Type:	BPSK, QPSK
Antenna Type:	External Antenna The EUT doesn't have antenna, The adapter and antenna used for testing in this report is the after-market accessory
Antenna Gain:	2.14 dBi
Device Category:	Category NB1 and NB2
Operation mode:	Stand-alone
Subcarrier spacing:	3.75kHz, 15kHz
Tones Configuration:	Single tone, Multi-tone
Extreme Voltage:	DC 3.2 ~ 4.5V

Table 4: Operating Frequency Range of EUT

Frequency Band(s)	Frequency Range		Channel Bandwidth (MHz)	Subcarrier Spacing (kHz)
	Transmitting f_{UL} (MHz)	Receiving f_{DL} (MHz)		
Band 2	1850 ~ 1910	1930 ~ 1990	1.4, 3, 5, 10, 15, 20	3.75, 15
Band 4	1710 ~ 1755	2110 ~ 2155	1.4, 3, 5, 10, 15, 20	3.75, 15
Band 5	824 ~ 849	869 ~ 894	1.4, 3, 5, 10	3.75, 15
Band 12	699 ~ 716	729 ~ 746	1.4, 3, 5, 10	3.75, 15
Band 13	777 ~ 787	746 ~ 756	5, 10	3.75, 15
Band 25	1850 ~ 1915	1930 ~ 1995	1.4, 3, 5, 10, 15, 20	3.75, 15
Band 26	814 ~ 849	859 ~ 894	1.4, 3, 5, 10, 15	3.75, 15
Band 66	1710 ~ 1780	2110 ~ 2200	1.4, 3, 5, 10, 15, 20	3.75, 15
Band 71	663 ~ 698	617 ~ 652	5, 10, 15, 20	3.75, 15
Band 85	698 ~ 716	728 ~ 746	5, 10	3.75, 15
Private network (787-788/757-758 MHz)	787 ~ 788	757 ~ 758	--	3.75, 15

3.3 INDEPENDENT OPERATION MODES

The basic operation modes are:

- A. On, communication link established, Transmitting
 - 1) NB-IoT operating
 - i. Low channel
 - ii. Middle channel
 - iii. High channel
- B. On, communication link established, Receiving
 - 1) NB-IoT operating
- C. Idle
- D. Off

3.4 NOISE GENERATING AND NOISE SUPPRESSING PARTS

Refer to the Circuit Diagram.

3.5 SUBMITTED DOCUMENTS

- | | |
|---|--|
| <input checked="" type="checkbox"/> User Manual | <input checked="" type="checkbox"/> Rating Label |
| <input checked="" type="checkbox"/> Circuit Diagram | <input checked="" type="checkbox"/> PCB Layout |
| <input checked="" type="checkbox"/> Block Diagram | <input checked="" type="checkbox"/> Photo Document |
| <input checked="" type="checkbox"/> Schematics | <input checked="" type="checkbox"/> Parts List |
| <input type="checkbox"/> Model Difference Letter | |

4. TEST SET-UP AND OPERATION MODES

4.1 PRINCIPLE OF CONFIGURATION SELECTION

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 TEST OPERATION AND TEST SOFTWARE

Test operation refers to test setup in chapter 5. All testing were performed according to the procedure in KDB 971168 D01 and ANSI C63.26.

Table 5: List of Frequencies under Test

Operation bands	Mode	Frequencies under Test					
		Uplink			Downlink		
		Range	EARFCN	Frequencies (MHz)	Range	EARFCN	Frequencies (MHz)
Private network (787-788/757-758 MHz)	Standalone	Low	134183	787.1	Low	70547	757.1
		Low+1	134184	787.2	Low+1	70548	757.2
		High-1	134190	787.8	High-1	70554	757.8
		High	134191	787.9	High	70555	757.9

Table 6: Test Environments

Environment Parameter	Selected Values During Tests		
	Temperature (°C)	Voltage (V) DC	Relative Humidity
Normal (NTNV)	24	3.8	50%
HTHV	85 °C	4.5	---
LTHV	-40 °C	4.5	---
HTLV	85 °C	3.2	---
LTLV	-40 °C	3.2	---

Table 7: Test Configurations

Frequency Bands	Bandwidths (MHz)						Modulation		Subcarrier Spacing (kHz)	
	1.4	3	5	10	15	20	BPSK	QPSK	3.75	15
2	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
4	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
5	Δ	Δ	Δ	Δ	-	-	Δ	Δ	Δ	Δ
12	Δ	Δ	Δ	Δ	-	-	Δ	Δ	Δ	Δ
13	-	-	Δ	Δ	-	-	Δ	Δ	Δ	Δ
25	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
26	Δ	Δ	Δ	Δ	Δ	-	Δ	Δ	Δ	Δ
66	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
71	-	-	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
85	-	-	Δ	Δ	-	-	Δ	Δ	Δ	Δ
Private network (787-788/757-758 MHz)	-	-	-	-	-	-	Δ	Δ	Δ	Δ

4.3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT

Table 8: Cables used during test

Port	Quantity	Length (m)	Connector	Type of Cable
USB	1	1.2	USB	USB cable, shielding

Table 9: Auxiliary Equipment used during test

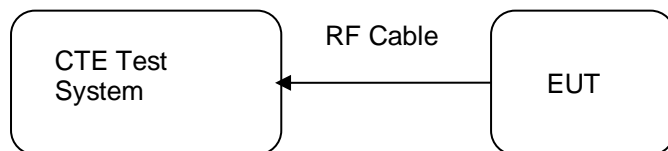
Name	Model	Manufacturer	S/N
Evaluation Kit	EVK2	Telit	N/A
LTE Magnetic Antenna	T-AT305 Frequency Range: 700-960 MHz / 1710-2700 MHz Omnidirectional antenna Gain: 2.14 dBi (Max.) Cable: RG 174mm 2500	A TEL-CAB	N/A

4.4 COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Equipment Configuration for Transmitter Measurement



5. TEST RESULTS

5.1 ESSENTIAL REQUIREMENTS OF STANDARD

5.1.1 RF POWER OUTPUT

RESULT:**Pass**

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	:	Operating band FCC Limit Band 2 EIRP 2 watts Band 4 EIRP 1 watts Band 5 ERP 7 watts Band 12 ERP 3 watts Band 13 ERP 3 watts Band 25 EIRP 2 watts Band 26 Lower Band < 100 watts Band 26 Upper Band ERP 7 watts Band 66 EIRP 1 watts Band 71 ERP 3 watts Band 85 ERP 3 watts Private network (787- 788/757-758 MHz) ERP 3 watts
Test procedure	:	Clause 5.2.4.2 of ANSI C63.26
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}}$$

where

ERP or EIRP: effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas} , e.g. dBm)

P_{Meas} : measured transmitter output power, in dBm

G_{T} : gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

Refer to attached Appendix A for details of test results.

5.1.2 MODULATION CHARACTERISTICS

RESULT:**Pass**

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	:	"Other types of equipment", the use of higher order modulations such as OFDM or LTE or other modulation are acceptable for use
Test procedure	:	Clause 5.2.3 of ANSI C63.26
Kind of test site	:	Shielding Room

Note:

The device implement digital modulation such as BPSK and QPSK, hence the EUT is deemed to comply with this requirement without additional testing.

5.1.3 OCCUPIED BANDWIDTH AND 26dB BANDWIDTH

RESULT:**Pass**

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Test requirement	:	Section 2.1049 of 47 CFR FCC Part 2
Limits	:	No limit
Test procedure	:	Section 5.4.3 of ANSI C63.26 <input checked="" type="checkbox"/> Conducted measurements <input type="checkbox"/> Radiated measurements
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A for details of test results.

5.1.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

RESULT:
Pass

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	:	Operating band FCC Limit
		Band 2 < - 13 dBm /1MHz
		Band 4 < - 13 dBm /1MHz
		< - 13 dBm /100kHz
		@ < 1GHz
		Band 5 < - 13 dBm /1MHz
		@ > 1GHz
		Band 12 < - 13 dBm /100kHz
		Band 13 < - 13 dBm /100kHz
		Band 25 < - 13 dBm /1MHz
		Band 26 Lower Band < - 13 dBm /100kHz
		< - 13 dBm /100kHz
		@ < 1GHz
		Band 26 Upper Band < - 13 dBm /1MHz
		@ > 1GHz
		Band 66 < - 13 dBm /1MHz
		Band 71 < - 13 dBm /100kHz
		Band 85 < - 13 dBm /100kHz
		Private network (787- 788/757-758 MHz) < - 13 dBm /100kHz
Test procedure	:	Clause 5.7.4 of ANSI C63.26
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

The limit calculation:

$$\text{Limit} = P_{\text{Meas}} \text{ (dBm)} - [43 + 10 \log(P_{\text{Meas}})] = -13 \text{ dBm}$$

Refer to attached Appendix A for details of test results.

5.1.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – BAND EDGE

RESULT:
Pass

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2																										
Limits	:	<table> <thead> <tr> <th>Operating band</th> <th>FCC Limit</th> </tr> </thead> <tbody> <tr> <td>Band 2</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 4</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 5</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 12</td> <td>< - 13 dBm /30kHz</td> </tr> <tr> <td>Band 13</td> <td>< - 13 dBm /30kHz</td> </tr> <tr> <td>Band 25</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 26 Lower Band</td> <td>< - 20 dBm /1%EBW</td> </tr> <tr> <td>Band 26 Upper Band</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 66</td> <td>< - 13 dBm /1%EBW</td> </tr> <tr> <td>Band 71</td> <td>< - 13 dBm /30kHz</td> </tr> <tr> <td>Band 85</td> <td>< - 13 dBm /30kHz</td> </tr> <tr> <td>Private network (787-788/757-758 MHz)</td> <td>< - 13 dBm /30kHz</td> </tr> </tbody> </table>	Operating band	FCC Limit	Band 2	< - 13 dBm /1%EBW	Band 4	< - 13 dBm /1%EBW	Band 5	< - 13 dBm /1%EBW	Band 12	< - 13 dBm /30kHz	Band 13	< - 13 dBm /30kHz	Band 25	< - 13 dBm /1%EBW	Band 26 Lower Band	< - 20 dBm /1%EBW	Band 26 Upper Band	< - 13 dBm /1%EBW	Band 66	< - 13 dBm /1%EBW	Band 71	< - 13 dBm /30kHz	Band 85	< - 13 dBm /30kHz	Private network (787-788/757-758 MHz)	< - 13 dBm /30kHz
Operating band	FCC Limit																											
Band 2	< - 13 dBm /1%EBW																											
Band 4	< - 13 dBm /1%EBW																											
Band 5	< - 13 dBm /1%EBW																											
Band 12	< - 13 dBm /30kHz																											
Band 13	< - 13 dBm /30kHz																											
Band 25	< - 13 dBm /1%EBW																											
Band 26 Lower Band	< - 20 dBm /1%EBW																											
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Band 71	< - 13 dBm /30kHz																											
Band 85	< - 13 dBm /30kHz																											
Private network (787-788/757-758 MHz)	< - 13 dBm /30kHz																											
Test procedure	:	Clause 5.7.3 of ANSI C63.26																										
Kind of test site	:	Shielding Room																										

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

The limit calculation:

$$\text{Limit} = P_{\text{Meas}} \text{ (dBm)} - [43 + 10 \log(P_{\text{Meas}})] = -13 \text{ dBm}$$

Refer to attached Appendix A for details of test results.

5.1.6 FIELD STRENGTH OF SPURIOUS RADIATION

RESULT:
Pass

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2																													
Limits	:	<table border="0"> <tr> <td>Operating band</td> <td>FCC Limit</td> </tr> <tr> <td>Band 2</td> <td>< - 13 dBm /1MHz</td> </tr> <tr> <td>Band 4</td> <td>< - 13 dBm /1MHz</td> </tr> <tr> <td rowspan="2">Band 5</td> <td>< - 13 dBm /100kHz @ < 1GHz</td> </tr> <tr> <td>< - 13 dBm /1MHz @ > 1GHz</td> </tr> <tr> <td>Band 12</td> <td>< - 13 dBm /100kHz</td> </tr> <tr> <td>Band 13</td> <td>< - 13 dBm /100kHz</td> </tr> <tr> <td>Band 25</td> <td>< - 13 dBm /1MHz</td> </tr> <tr> <td rowspan="2">Band 26 Lower Band</td> <td>< - 13 dBm /100kHz < - 13 dBm /100kHz</td> </tr> <tr> <td>@ < 1GHz</td> </tr> <tr> <td rowspan="2">Band 26 Upper Band</td> <td>< - 13 dBm /1MHz @ > 1GHz</td> </tr> <tr> <td>@ > 1GHz</td> </tr> <tr> <td>Band 66</td> <td>< - 13 dBm /1MHz</td> </tr> <tr> <td>Band 71</td> <td>< - 13 dBm /100kHz</td> </tr> <tr> <td>Band 85</td> <td>< - 13 dBm /100kHz</td> </tr> <tr> <td>Private network (787-788/757-758 MHz)</td> <td>< - 13 dBm /100kHz</td> </tr> </table>	Operating band	FCC Limit	Band 2	< - 13 dBm /1MHz	Band 4	< - 13 dBm /1MHz	Band 5	< - 13 dBm /100kHz @ < 1GHz	< - 13 dBm /1MHz @ > 1GHz	Band 12	< - 13 dBm /100kHz	Band 13	< - 13 dBm /100kHz	Band 25	< - 13 dBm /1MHz	Band 26 Lower Band	< - 13 dBm /100kHz < - 13 dBm /100kHz	@ < 1GHz	Band 26 Upper Band	< - 13 dBm /1MHz @ > 1GHz	@ > 1GHz	Band 66	< - 13 dBm /1MHz	Band 71	< - 13 dBm /100kHz	Band 85	< - 13 dBm /100kHz	Private network (787-788/757-758 MHz)	< - 13 dBm /100kHz
Operating band	FCC Limit																														
Band 2	< - 13 dBm /1MHz																														
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Band 5	< - 13 dBm /100kHz @ < 1GHz																														
	< - 13 dBm /1MHz @ > 1GHz																														
Band 12	< - 13 dBm /100kHz																														
Band 13	< - 13 dBm /100kHz																														
Band 25	< - 13 dBm /1MHz																														
Band 26 Lower Band	< - 13 dBm /100kHz < - 13 dBm /100kHz																														
	@ < 1GHz																														
Band 26 Upper Band	< - 13 dBm /1MHz @ > 1GHz																														
	@ > 1GHz																														
Band 66	< - 13 dBm /1MHz																														
Band 71	< - 13 dBm /100kHz																														
Band 85	< - 13 dBm /100kHz																														
Private network (787-788/757-758 MHz)	< - 13 dBm /100kHz																														
Test procedure	:	Clause 5.5 of ANSI C63.26																													
Kind of test site	:	3m Semi Anechoic Room																													

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

The limit calculation:

$$\text{Limit} = P_{\text{Meas}} \text{ (dBm)} - [43 + 10 \log(P_{\text{Meas}})] = -13 \text{ dBm}$$

Refer to attached Appendix B for details of test results.

5.1.7 FREQUENCY STABILITY

RESULT:**Pass**

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	:	Operating band FCC Limit
		Band 2 Within authorized bands
		Band 4 Within authorized bands
		Band 5 2.5 ppm
		Band 12 Within authorized bands
		Band 13 Within authorized bands
		Band 25 Within authorized bands
		Band 26 Lower Band 2.5 ppm
		Band 26 Upper Band 2.5 ppm
		Band 66 Within authorized bands
		Band 71 Within authorized bands
		Band 85 Within authorized bands
		Private network (787-788/757-758 MHz) Within authorized bands
Test procedure	:	Clause 5.6.3 of ANSI C63.26
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input checked="" type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A for details of test results.

5.1.8 PEAK TO AVERAGE RATIO

RESULT:**Pass**

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	:	Operating band FCC Limit Band 2 PAR ≤ 13 dB Band 4 PAR ≤ 13 dB Band 5 PAR ≤ 13 dB Band 12 PAR ≤ 13 dB Band 13 PAR ≤ 13 dB Band 25 PAR ≤ 13 dB Band 26 Lower Band N/A Band 26 Upper Band PAR ≤ 13 dB Band 66 PAR ≤ 13 dB Band 71 PAR ≤ 13 dB Band 85 PAR ≤ 13 dB Private network (787- 788/757-758 MHz) PAR ≤ 13 dB
Test procedure	:	Clause 5.2.6 of ANSI C63.26
Kind of test site	:	Shielding Room

Test Setup

Date of testing	:	2021-05-25 to 2021-07-16
Input voltage	:	DC 3.8V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A for details of test results.

6. SYSTEM MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

Table 10: System Measurement Uncertainty

	Items	Extended Uncertainty
RE	Radiated emission 9 kHz - 30 MHz	±3.97 dB
	Radiated emission 30 MHz - 1 GHz	±4.30 dB
Remark: 95% Confidence Levels, K=2.		

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===== END OF REPORT =====