

Prüfbericht-Nr.: Test report no.:	60356613 013	Auftrags-Nr.: Order no.:	168319276	Seite 1 von 23 Page 1 of 23
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2021-05-10	
Auftraggeber: Client:	Telit Communications S.p.A., Viale Stazione di Prosecco 5/b, 34010, Trieste, Italy			
Prüfgegenstand: Test item:	Data Terminal Module			
Bezeichnung / Typ-Nr.: Identification / Type no.:	ME310G1-WW			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	47 CFR FCC Part 27 47 CFR FCC Part 2			
Wareneingangsdatum: Date of sample receipt:	2021-05-15	Refer to Photo Documentation		
Prüfmuster-Nr.: Test sample no.:	A003064635-001, A003064635-002			
Prüfzeitraum: Testing period:	2021-05-25 – 2021-07-16			
Ort der Prüfung: Place of testing:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: Testing laboratory:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: Test result*:	Pass			
geprüft von: tested by:			genehmigt von: authorized by:	
Datum: Date:	2021-08-05		Ausstellungsdatum: Issue date:	2021-08-05
Stellung / Position:	Sachverständige(r)/Expert		Stellung / Position:	Sachverständige(r)/Expert
Sonstiges / Other:	FCC ID: R17ME310G1WW 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: Condition of the test item at delivery:	Prüfmuster vollständig und unbeschädigt Test item complete and undamaged			
* 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. 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.				

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

CONTENTS

1.	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS.....	4
1.2	TEST STANDARD(S)	4
1.3	LIST OF DOCUMENT CHANGE.....	4
2.	TEST SITES.....	5
2.1	TEST FACILITIES	5
2.2	TEST DATE	5
2.3	LIST OF TEST AND MEASUREMENT INSTRUMENTS	5
2.4	TRACEABILITY	7
2.5	CALIBRATION.....	7
2.6	LOCATION OF ORIGINAL DATA	7
2.7	STATUS OF FACILITY USED FOR TESTING	7
3.	GENERAL PRODUCT INFORMATION.....	8
3.1	GENERAL DESCRIPTION	8
3.2	RATING AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES.....	9
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	9
3.5	SUBMITTED DOCUMENTS.....	9
4.	TEST SET-UP AND OPERATION MODES.....	10
4.1	PRINCIPLE OF CONFIGURATION SELECTION.....	10
4.2	TEST OPERATION AND TEST SOFTWARE	10
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	11
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	11
4.5	TEST SETUP DIAGRAM	12
5.	TEST RESULTS	13
5.1	ESSENTIAL REQUIREMENTS OF STANDARD.....	13
5.1.1	RF POWER OUTPUT.....	13
5.1.2	MODULATION CHARACTERISTICS	15
5.1.3	OCCUPIED BANDWIDTH AND 26dB BANDWIDTH	16
5.1.4	SPURIOUS EMISSIONS AT ANTENNA TERMINALS	17
5.1.5	SPURIOUS EMISSIONS AT ANTENNA TERMINALS – BAND EDGE.....	18
5.1.6	FIELD STRENGTH OF SPURIOUS RADIATION	19
5.1.7	FREQUENCY STABILITY	20
5.1.8	PEAK TO AVERAGE RATIO	21
6.	SYSTEM MEASUREMENT UNCERTAINTY.....	22
7.	LIST OF TABLES.....	23

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	60356613 013	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 60356613 011 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				
EMI Test Receiver	Rohde & Schwarz	ESR 7	102021	11.08.2021
Signal Analyzer	Rohde & Schwarz	FSV 40	101439	10.08.2021
System Controller Interface	Rohde & Schwarz	SCI-100	S10010038	N/A
OSP	Rohde & Schwarz	OSP 120	102040	N/A
Pre-amplifier	Rohde & Schwarz	SCU08F1	08320031	10.08.2021
Amplifier	Rohde & Schwarz	SCU-18F	180070	10.08.2021
Amplifier	Rohde & Schwarz	SCU40A	100475	10.09.2021
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	08.08.2022

Prüfbericht - Nr.: 60356613 013

Test Report No.:

Seite 6 von 23

Page 6 of 23

Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	08.08.2022
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	08.08.2022
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	13.09.2022
Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18313	02.09.2021
Test software	Rohde & Schwarz	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A

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:	ME310G1-WW
FCC ID:	RI7ME310G1WW
Hardware Version:	1.0
Software Version:	M0C.200003 and AT#BNDOPTIONS includes B86 in the response
IMEI:	359205100813098
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

- | | |
|---|--|
| ☒ User Manual | ☒ Rating Label |
| ☒ Circuit Diagram | ☒ PCB Layout |
| ☒ Block Diagram | ☒ Photo Document |
| ☒ Schematics | ☒ Parts List |
| ☐ 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

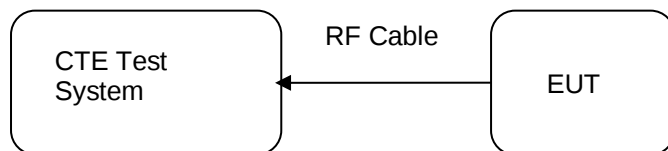
Name	Model	Manufacturer	S/N
Evaluation Kit	EVK2	Telit	N/A
LTE Magnetic Antenna	T-AT305 Frequency Range: 700-960 MHz / 1710-2700 MHz Omnidirectional antenna Gain: 2.14 dBi (Max.) Cable: RG 174mm 2500	ATEL-CAB	N/A

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	:	☒ Normal test conditions ☐ Extreme test conditions
Operation mode	:	A.1
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Prüfbericht - Nr.: 60356613 013
Test Report No.:

Seite 14 von 23
Page 14 of 23

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

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.

Prüfbericht - Nr.: **60356613 013**
Test Report No.:Seite 15 von 23
Page 15 of 23

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.

Prüfbericht - Nr.: **60356613 013**
Test Report No.:Seite 16 von 23
Page 16 of 23**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 ☒ Conducted measurements ☐ 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	:	☒ Normal test conditions ☐ 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.

Prüfbericht - Nr.: 60356613 013
Test Report No.:

Seite 17 von 23
Page 17 of 23

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	:	☒ Normal test conditions ☐ 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.

Prüfbericht - Nr.: 60356613 013
Test Report No.:

Seite 18 von 23
Page 18 of 23

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	:	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
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	:	☒ Normal test conditions ☐ 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.

Prüfbericht - Nr.: 60356613 013

Test Report No.:

Seite 19 von 23

Page 19 of 23

5.1.6 FIELD STRENGTH OF SPURIOUS RADIATION

RESULT:

Pass

Test standard	:	47 CFR FCC Part 27 47 CFR FCC Part 2																																						
Limits	:	<table><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></td><td>< - 13 dBm /100kHz</td></tr><tr><td>Band 5</td><td>@ < 1GHz</td></tr><tr><td></td><td>< - 13 dBm /1MHz</td></tr><tr><td></td><td>@ > 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>Band 26 Lower Band</td><td>< - 13 dBm /100kHz</td></tr><tr><td></td><td>< - 13 dBm /100kHz</td></tr><tr><td>Band 26 Upper Band</td><td>@ < 1GHz</td></tr><tr><td></td><td>< - 13 dBm /1MHz</td></tr><tr><td></td><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		< - 13 dBm /100kHz	Band 5	@ < 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	Band 26 Upper Band	@ < 1GHz		< - 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
Operating band	FCC Limit																																							
Band 2	< - 13 dBm /1MHz																																							
Band 4	< - 13 dBm /1MHz																																							
	< - 13 dBm /100kHz																																							
Band 5	@ < 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																																							
Band 26 Upper Band	@ < 1GHz																																							
	< - 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 5.5 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	:	☒ Normal test conditions ☐ 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.

Prüfbericht - Nr.: 60356613 013

Test Report No.:

Seite 20 von 23

Page 20 of 23

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	:	☒ Normal test conditions ☒ 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.

Prüfbericht - Nr.: 60356613 013

Test Report No.:

Seite 21 von 23

Page 21 of 23

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	:	☒ Normal test conditions ☐ 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.		

7. LIST OF TABLES

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Rating of EUT	8
Table 3: Technical Specification of EUT.....	8
Table 4: Operating Frequency Range of EUT	9
Table 5: List of Frequencies under Test	10
Table 6: Test Environments	10
Table 7: Test Configurations	11
Table 8: Cables used during test.....	11
Table 9: Auxiliary Equipment used during test.....	11
Table 10: System Measurement Uncertainty.....	22

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