

Prüfbericht-Nr.: <i>Test report no.:</i>	CN21VQW2 001	Auftrags-Nr.: <i>Order no.:</i>	168313547	Seite 1 von 22 Page 1 of 22
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2021-05-06	
Auftraggeber: <i>Client:</i>	Chengdu TD Tech Ltd. 3-5/F, C Area, Tianfu Software Park, 219# Tianhua 2nd Road, Gaoxin District, Chengdu 610041 Sichuan, P.R. China			
Prüfgegenstand: <i>Test item:</i>	Data Terminal			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	eCube-CP-AU, eCube-CG-AU			
Auftrags-Inhalt: <i>Order content:</i>	Test Report			
Prüfgrundlage: <i>Test specification:</i>	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2021-05-06	Refer to Photo Documentation		
Prüfmuster-Nr.: <i>Test sample no.:</i>	A003017285-001/002			
Prüfzeitraum: <i>Testing period:</i>	2021-05-06 – 2021-06-03			
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>	genehmigt von: <i>authorized by:</i>			
Datum: <i>Date:</i> 2021-06-05	Ausstellungsdatum: <i>Issue date:</i> 2021-06-05			
Stellung / Position: Senior Project Manager	Stellung / Position: Technical Certifier			
Sonstiges / Other:	FCC ID: 2AZ2H-ECUBE-AU			
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
<p>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></p>				

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 GSM

Appendix B: Test Results of WCDMA

Appendix C: Test Results of LTE Band 2

Appendix D: Test Results of LTE Band 4

Appendix E: Test Results of LTE Band 7

Appendix F: Test Results of GSM, WCDMA and LTE Radiated Spurious Emissions

Appendix G: Photographs of the Test Set-Up

1.2 TEST STANDARD(S)

Applied Rules:	47 CFR FCC Part 22
	47 CFR FCC Part 24
	47 CFR FCC Part 27
	47 CFR FCC Part 2
Test Method:	KDB 971168 D01 v03r01
	ANSI C63.26

2. TEST SITES

2.1 TEST FACILITIES

TÜV Rheinland (Shenzhen) Co., Ltd.

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

FCC Accreditation Designation No.: CN1260

ISED wireless device testing laboratory: 25069

2.2 TEST DATE

Date of test: 2021-05-06 to 2021-06-03

2.3 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Table 1: List of Test and Measurement Equipment

Unwanted Emission Testing (TS8996)					
Equip. No.	Description	Manufacturer	Model	Serial No.	Calibrated until (DD.MM.YYYY)
G1825844	Signal Generator	R&S	SMB100A	180840	10.08.2021
G1825845	Wideband Radio Communication Tester	R&S	CMW500	165339	10.08.2021
G1825846	Signal Analyzer	R&S	FSV 40	101440	10.08.2021
G1825847	System Controller Interface	R&S	SCI-100	S10010036	N/A
G1825849	Filterbank	R&S	GSM	100811	10.08.2021
G1825850	OSP	R&S	OSP 120	102041	N/A
G1825851	OSP	R&S	OSP 150	101385	10.12.2021
G1825852	Pre-amplifier	R&S	SCU08F1	08320030	10.08.2021
G1825853	Amplifier	R&S	SCU-18F	180079	10.08.2021
G1825854	Amplifier	R&S	SCU40A	100450	10.09.2021
G1825855	Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	192	08.08.2022
G1825856	Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218719	08.08.2022
G1825857	Wideband Ridged Horn Antenna (12-18 GHz)	Steatite	QMS-00208	18312	08.08.2022
G1825858	Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19066	08.08.2022
G1825859	Biconical Broadband Antenna (30 MHz - 1 GHz)	Schwarzbeck	VUBA 9117	357	02.09.2021
G1825860	Double Ridged Broadband Horn Antenna (1 – 18 GHz)	Schwarzbeck	BBHA 9120 D	01760	02.09.2021

G1825861	Broadband Horn Antenna (15 – 40 GHz)	Schwarzbeck	BBHA 9170	00862	02.09.2021
G1825862	Test software	R&S	EMC32 (V10.50.40)	N/A	N/A
G1825863	Control PC	Dell	OptiPlex 7050	36NW9P2	N/A
G1826432	3m Fully Anechoic Chamber	Albatross	FAC-3m	APC17151-FAC	06.07.2021

Radio Spectrum Testing (CTE6000)

Equip. No.	Description	Manufacturer	Model	Serial No.	Calibrated until (DD.MM.YYYY)
G1826430	Shielding Room 6#	Albatross	SR6	APC17151-SR6	23.07.2021
G1830613	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	166305	10.09.2021
G1830614	Signal Analyzer	Rohde & Schwarz	FSV 40	101475	10.09.2021
G1830615	Vector Signal Generator	Rohde & Schwarz	SMBV100A	263466	10.09.2021
G1830616	Signal Generator	Rohde & Schwarz	SMB100A	181041	10.12.2021
G1830617	High Speed Power Supply	KEITHLEY	2303	4080052	12.12.2021
G1830618	RF Control Unit	Tonscend	JS0806-1	19H8060192	N/A
G1830619	Band Reject Filter Group	Tonscend	JS0806-F	19I8060194	10.12.2021

2.4 System Measurement Uncertainty

Items	Extended Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF Power (conducted)	± 2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	± 6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	± 6 dB
Temperature	± 1 °C
Humidity	± 5 %
Voltage (DC)	± 1 %
Voltage (AC, <10kHz)	± 2 %
Remark: 95% Confidence Levels, K=2	

2.5 Traceability

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

2.6 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.

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2.7 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.

2.8 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 eCube-CP-AU, eCube-CG-AU are subscriber equipment in the GSM/WCDMA/LTE system. The GSM frequency bands include GSM850 and PCS1900. The UMTS frequency band includes band II and band V. The LTE frequency bands include band 2, band 4 and band 7.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 RATING AND SYSTEM DETAILS

Table 2: General Information of EUT

General Information of EUT	Description	
Kind of Equipment:	Data Terminal	
Type Designation:	eCube-CP-AU, eCube-CG-AU Note: the eCube-CP-AU is selected to test as master device.	
Difference between the eCube-CP-AU and eCube-CG-AU	Model	Ports
	eCube-CP-AU	2x RS232 (with RTS/CTS) 1x RS485 (WAGO) 4x Fast Ethernet 1x USB 2.0 host port 1x FXS port 1x Main 4G antenna port 1x Auxiliary 4G antenna port 1x SIM card slot
	eCube-CG-AU	1x RS232 (with RTS/CTS) 1x RS485 (WAGO) 2x Fast Ethernet 1x USB 2.0 host port 1x Main 4G antenna port 1x Auxiliary 4G antenna port 1x SIM card slot
	Note: the hardware design (including PCB layout, Circuit diagram, radio configuration, software and firmware) of the above two product are the same, only difference on the external ports.	
FCC ID:	2AZ2H-ECUBE-AU	
Hardware Version:	eCube-CP-AU: eCube-CP-V4.2 eCube-CG-AU: eCube-CG-V4.2	
Software Version:	V100R001C00	
Antenna Type:	External Antenna	
Operating Voltage:	12Vdc, Power by AC/DC Adapter	
Operating Temperature Range:	-10°C ~ +50°C	

Table 3: Technical Specification of EUT

Characteristic	Description	
Operated Modes:	GSM	
Operational Frequency Band(s):	Tx	GSM850: 824 to 849MHz PCS1900: 1850 to 1910MHz
	Rx	GSM850: 869 to 894MHz

		PCS1900: 1930 to 1990MHz
Modulation Type:	GMSK, 8PSK	
Antenna Type:	External Antenna	
TX and RX Antenna Ports	1 * TX, 1 * RX	
Antenna Gain:	GSM850: 4.29dBi PCS1900: 2.96dBi	
Device Category:	Class B	
DTM	Not Support	
Subcarrier spacing:	200KHz	
Power Class:	4, tested with power level 5(GSM850) 1, tested with power level 0(PCS1900)	
Operated Modes:	WCDMA	
Operational Frequency Band(s):	Tx	WCDMA850: 824 to 849MHz WCDMA1900: 1850 to 1910MHz
	Rx	WCDMA850: 869 to 894MHz WCDMA1900: 1930 to 1990MHz
Modulation Type:	QPSK, 16QAM	
Antenna Type:	External Antenna	
TX and RX Antenna Ports	1 * TX, 2 * RX	
Antenna Gain:	WCDMA850: 4.29dBi WCDMA1900: 2.96dBi	
Subcarrier spacing:	200KHz	
Power Class:	3, tested with power control "all 1"(UMTS Bands)	
Operated Modes:	LTE	
Operational Frequency Band(s):	Tx	LTE BAND2: 1850 to 1910MHz LTE BAND4: 1710 to 1755MHz LTE BAND7: 2500 to 2570MHz
	Rx	LTE BAND2: 1930 to 1990MHz LTE BAND4: 2110 to 2155MHz LTE BAND7: 2620 to 2690MHz
Modulation Type:	QPSK, 16QAM	
Antenna Type:	External Antenna	
TX and RX Antenna Ports	1 * TX, 2 * RX	
Antenna Gain:	LTE BAND2: 2.96dBi LTE BAND4: 2.79dBi LTE BAND7: 0.9dBi	
Subcarrier spacing:	LTE BAND2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE BAND4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE BAND7: 5MHz, 10MHz, 15MHz, 20MHz	
Power Class:	3, tested with power control all Max.(LTE Bands)	

Table 4: Operating Frequency Range of GSM

Support Band	Support Standard	Channel Frequency	Channel Number
GSM 850	GPRS/EDGE	824.2 MHz	128
		836.6 MHz	190
		848.8 MHz	251
PCS 1900	GPRS/EDGE	1850.2 MHz	512
		1880.0 MHz	661
		1909.8 MHz	810

Table 5: Operating Frequency Range of WCDMA

Support Band	Support Standard	Channel Frequency	Channel Number
WCDMA 850	WCDMA/HSDPA/HSUPA	826.4 MHz	4132
		836.4 MHz	4182
		846.6 MHz	4233
WCDMA 1900	WCDMA/HSDPA/HSUPA	1852.4 MHz	9262
		1880.0 MHz	9400
		1907.6 MHz	9538

Table 6: Operating Frequency Range of LTE

Support Band	Bandwidth (MHz)	Channel Frequency (L/M/H) (MHz)	Channel Number (L/M/H)
LTE Band 2	1.4	1850.7/1880/1909.3	18607/18900/19193
	3	1851.5/1880/1908.5	18615/18900/19185
	5	1852.5/1880/1907.5	18625/18900/19175
	10	1855/1880/1905	18650/18900/19150
	15	1857.5/1880/1902.5	18675/18900/19125
	20	1860/1880/1900	18700/18900/19100
LTE Band 4	1.4	1710.7/1732.5/1754.3	19957/20175/20393
	3	1711.5/1732.5/1753.5	19965/20175/20385
	5	1712.5/1732.5/1752.5	19975/20175/20375
	10	1715.0/1732.5/1750.0	20000/20175/20350
	15	1717.5/1732.5/1747.5	20025/20175/20325
	20	1720.0/1732.5/1745.0	20050/20175/20300
LTE Band 7	5	2502.5/2535.0/2567.5	20775/21100/21425
	10	2505.0/2535.0/2565.0	20800/21100/21400
	15	2507.5/2535.0/2562.5	20825/21100/21375
	20	2510.0/2535.0/2560.0	20850/21100/21350

3.3 INDEPENDENT OPERATION MODES

The basic operation modes are:

- A. TM1, GSM
- B. TM2, WCDMA
- C. TM3, LTE

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 checked="" 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 7: List of Frequencies under Test

Modes	L/M/H Test Channels (MHz)	Remark
GSM850	824.2 MHz	---
	836.6 MHz	
	848.8 MHz	
PCS1900	1850.2 MHz	
	1880.0 MHz	
	1909.8 MHz	
WCDMA Band V	826.4 MHz	---
	836.4 MHz	
	846.6 MHz	
WCDMA Band II	1852.4 MHz	
	1880.0 MHz	
	1907.6 MHz	

Modes	Bandwidth	L/M/H Test Channels (MHz)	Remark
LTE Band 2	1.4 MHz	1850.7/1880/1909.3	---
	3 MHz	1851.5/1880/1908.5	
	5 MHz	1852.5/1880/1907.5	
	10 MHz	1855/1880/1905	
	15 MHz	1857.5/1880/1902.5	
	20 MHz	1860/1880/1900	
LTE Band 4	1.4 MHz	1710.7/1732.5/1754.3	
	3 MHz	1711.5/1732.5/1753.5	
	5 MHz	1712.5/1732.5/1752.5	
	10 MHz	1715.0/1732.5/1750.0	
	15 MHz	1717.5/1732.5/1747.5	
	20 MHz	1720.0/1732.5/1745.0	
LTE Band 7	5 MHz	2502.5/2535.0/2567.5	
	10 MHz	2505.0/2535.0/2565.0	

	15 MHz	2507.5/2535.0/2562.5	
	20 MHz	2510.0/2535.0/2560.0	

Table 8: Test Environments

Environment Parameter	Selected Values During Tests		
	Temperature (°C)	Voltage (V) DC	Relative Humidity (%)
Normal (NTNV)	25	12	50%
HTHV	50 °C	36	---
LTHV	-10 °C	36	---
HTLV	50 °C	9	---
LTLV	-10 °C	9	---

4.3 SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT

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 Configuration for Radiation Test (Below 1GHz)

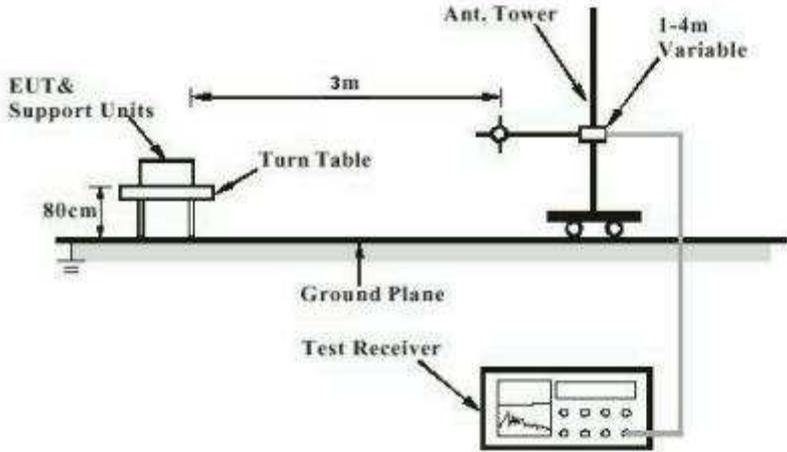


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

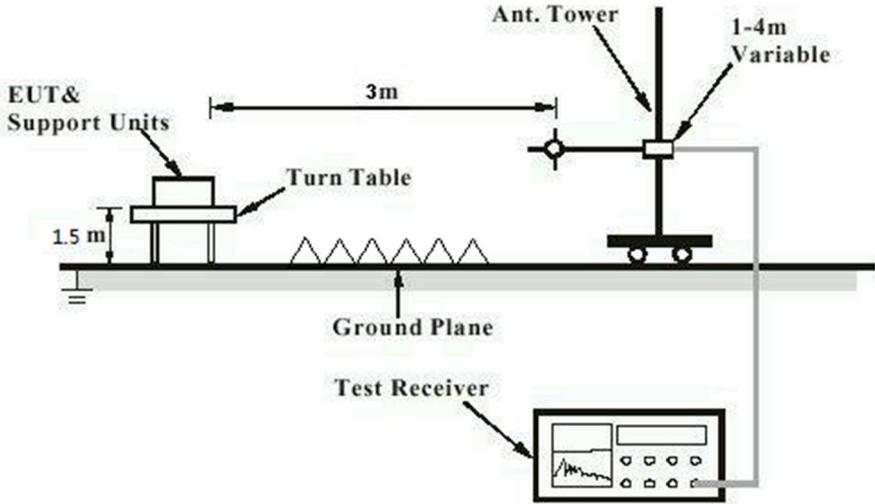
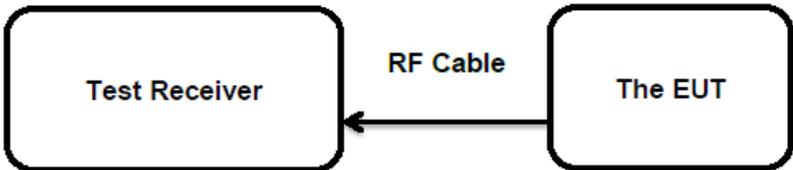


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5. TEST RESULTS

5.1 ESSENTIAL REQUIREMENTS OF STANDARD

5.1.1 RF POWER OUTPUT

RESULT:
Pass

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2	
Limits	:	Operating band GSM850 PCS1900 WCDMA Band II WCDMA Band V LTE Band 2 LTE Band 4 LTE Band 7	FCC Limit EIRP 7 watts EIRP 2 watts ERP 2 watts ERP 7 watts EIRP 2 watts EIRP 1 watts EIRP 2 watts
Test procedure	:	Clause 5.2 of ANSI C63.26	
Kind of test site	:	Shielding Room	

Test Setup

Date of testing	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	23 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A to Appendix E for details of test results.

5.1.2 MODULATION CHARACTERISTICS**RESULT:****Pass**

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 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 5.3 of ANSI C63.26
Kind of test site	:	Shielding Room

Note:

The device implement digital modulation such as GMSK, 8PSK, QPSK and 16QAM, 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 22 47 CFR FCC Part 24 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 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	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	24 °C
Relative humidity	:	50%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A to Appendix E for details of test results.

5.1.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
RESULT: **Pass**

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2	
Limits	:	Operating band GSM850 PCS1900 WCDMA Band II WCDMA Band V LTE Band 2 LTE Band 4 LTE Band 7	FCC Limit < - 13 dBm /100kHz@ < 1GHz < - 13 dBm /1MHz@ > 1GHz < - 13 dBm /1MHz < - 13 dBm /1MHz < - 13 dBm /100kHz@ < 1GHz < - 13 dBm /1MHz@ > 1GHz < - 13 dBm /1MHz < - 13 dBm /1MHz < - 25 dBm /1MHz
Test procedure	:	Clause 5.7 of ANSI C63.26	
Kind of test site	:	Shielding Room	

Test Setup

Date of testing	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	24 °C
Relative humidity	:	51%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A to Appendix E for details of test results.

5.1.6 FIELD STRENGTH OF SPURIOUS RADIATION
RESULT:
Pass

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2	
Limits	:	Operating band	FCC Limit
		GSM850	< - 13 dBm /100kHz@ < 1GHz < - 13 dBm /1MHz@ > 1GHz
		PCS1900	< - 13 dBm /1MHz
		WCDMA Band II	< - 13 dBm /1MHz
		WCDMA Band V	< - 13 dBm /100kHz@ < 1GHz < - 13 dBm /1MHz@ > 1GHz
		LTE Band 2	< - 13 dBm /1MHz
		LTE Band 4	< - 13 dBm /1MHz
		LTE Band 7	< - 25 dBm /1MHz
Test procedure	:	Clause 5.5 of ANSI C63.26	
Kind of test site	:	3m Semi Anechoic Room	

Test Setup

Date of testing	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	23 °C
Relative humidity	:	55%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix F for details of test results.

5.1.7 FREQUENCY STABILITY
RESULT:
Pass

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2	
Limits	:	Operating band GSM850 PCS1900 WCDMA Band II WCDMA Band V LTE Band 2 LTE Band 4 LTE Band 7	FCC Limit 2.5 ppm Within authorized bands Within authorized bands 2.5 ppm Within authorized bands Within authorized bands Within authorized bands
Test procedure	:	Clause 5.6 of ANSI C63.26	
Kind of test site	:	Shielding Room	

Test Setup

Date of testing	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input checked="" type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	24 °C
Relative humidity	:	51%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A to Appendix E for details of test results.

5.1.8 PEAK TO AVERAGE RATIO
RESULT:
Pass

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2	
Limits	:	Operating band	FCC Limit
		GSM850	PAR ≤ 13 dB
		PCS1900	PAR ≤ 13 dB
		WCDMA Band II	PAR ≤ 13 dB
		WCDMA Band V	PAR ≤ 13 dB
		LTE Band 2	PAR ≤ 13 dB
		LTE Band 4	PAR ≤ 13 dB
		LTE Band 7	PAR ≤ 13 dB
Test procedure	:	Clause 5.2.6 of ANSI C63.26	
Kind of test site	:	Shielding Room	

Test Setup

Date of testing	:	2021-05-06 to 2021-06-03
Input voltage	:	DC 12V
Test environment	:	<input checked="" type="checkbox"/> Normal test conditions <input type="checkbox"/> Extreme test conditions
Operation mode	:	A, B, C
Ambient temperature	:	24 °C
Relative humidity	:	51%
Atmospheric pressure	:	101.0 kPa

Refer to attached Appendix A to Appendix E for details of test results.

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