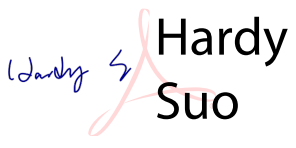


Prüfbericht-Nr.: Test report no.:	CN2387AY 005	Auftrags-Nr.: Order no.:	168405109	Seite 1 von 24 Page 1 of 24
Kunden-Referenz-Nr.: Client reference no.:	N/A	Auftragsdatum: Order date:	2023-01-04	
Auftraggeber: Client:	Hillsdale Technology LLC 3182 Campus Drive, Unit 266, San Mateo, United States			
Prüfgegenstand: Test item:	Jarvisen Translator 2			
Bezeichnung / Typ-Nr.: Identification / Type no.:	JT-2-BLACK			
Auftrags-Inhalt: Order content:	Test Report			
Prüfgrundlage: Test specification:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2 ANSI C63.26-2015			
Wareneingangsdatum: Date of sample receipt:	2023-01-06	Please refer to Photo Document		
Prüfmuster-Nr.: Test sample no:	A003399272-001~008 A003399272-017~026			
Prüfzeitraum: Testing period:	2023-01-07 - 2023-02-10			
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:	 Lin Lin		genehmigt von: authorized by:	 Hardy Suo
Datum: Date:	2023-02-16		Ausstellungsdatum: Issue date:	2023-02-16
Stellung / Position:	Senior Project Manager		Stellung / Position:	Reviewer
Sonstiges / Other:	FCC ID: 2A94T-JT-2-BLACK This report is for WCDMA and LTE wireless only.			
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 F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable
5 = mangelhaft N/T = nicht getestet				
5 = poor 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

5.1.9 CO-LOCATED RADIATED SPURIOUS EMISSIONS

RESULT: Pass

Contents

1	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
1.2	TEST STANDARD(S)	4
2	TEST SITES	5
2.1	TEST FACILITIES	5
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	TRACEABILITY	6
2.4	CALIBRATION	6
2.5	MEASUREMENT UNCERTAINTY.....	6
2.6	LOCATION OF ORIGINAL DATA.....	7
2.7	STATUS OF FACILITY USED FOR TESTING.....	7
3	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	11
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	11
3.5	SUBMITTED DOCUMENTS.....	11
4	TEST SET-UP AND OPERATION MODES	12
4.1	PRINCIPLE OF CONFIGURATION SELECTION	12
4.2	TEST OPERATION AND TEST SOFTWARE.....	12
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	12
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE	12
4.5	TEST SETUP DIAGRAM	13
5	TEST RESULTS	15
5.1	ESSENTIAL REQUIREMENTS OF STANDARD	15
5.1.1	<i>RF Power Output.....</i>	<i>15</i>
5.1.2	<i>Modulation Characteristics.....</i>	<i>16</i>
5.1.3	<i>Occupied Bandwidth and 26dB Bandwidth</i>	<i>17</i>
5.1.4	<i>Spurious Emissions at Antenna Terminals</i>	<i>18</i>
5.1.5	<i>Spurious Emissions at Antenna Terminals – Band Edge</i>	<i>19</i>
5.1.6	<i>Field Strength of Spurious Radiation</i>	<i>20</i>
5.1.7	<i>Frequency Stability.....</i>	<i>21</i>
5.1.8	<i>Peak to Average Ratio</i>	<i>22</i>
5.1.9	<i>Co-Located Radiated Spurious Emissions.....</i>	<i>23</i>
6	PHOTOGRAPHS OF THE TEST SET-UP	24
7	LIST OF TABLES.....	24

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 2 for WCDMA operation

Appendix B: Test Results of Band 4 for WCDMA operation

Appendix C: Test Results of Band 5 for WCDMA operation

Appendix D: Test Results of Band 2 for LTE operation

Appendix E: Test Results of Band 4 for LTE operation

Appendix F: Test Results of Band 5 for LTE operation

Appendix G: Test Results of Band 7 for LTE operation

Appendix H: Test Results of Band 12 for LTE operation

Appendix I: Test Results of Band 17 for LTE operation

Appendix J: Test Results of Band 25 for LTE operation

Appendix K: Test Results of Band 38 for LTE operation

Appendix L: Test Results of Band 41 for LTE operation

Appendix M: Test Results of Field Strength of Spurious Radiation

Appendix N: 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 C63.26-2015

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.

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

FCC Accreditation Designation No.: CN1260

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (CTE6000)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
Shielding Room 6#	Albatross	SR6	APC17151-SR6	2024-06-22
Wideband Radio Communication Tester	R&S	CMW500	166305	2023-07-31
Signal Analyzer	R&S	FSV 40	101475	2023-07-31
Vector Signal Generator	R&S	SMBV100A	263466	2023-07-31
Signal Generator	R&S	SMB100A	181041	2023-11-10
High Speed Power Supply	KEITHLEY	2303	4080052	2023-11-10
RF Control Unit	Tonscend	JS0806-1	19H8060192	N/A
Band Reject Filter Group	Tonscend	JS0806-F	19I8060194	2023-12-02
Temp.&Humidity Chamber	GIANT FORCE	ITH-150-40-CP-AR	IAA1406-004	2023-11-10
NB-IoT&Emtc Integration Filter Group	Tonscend	JS0806-F	21D8060410	2024-07-31
Test Software	Tonscend	JS1120	N/A	N/A
Control PC	Dell	Inspiron3670	5HVGWS2	N/A
Radio Spectrum Testing (LRD2)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
Shielding Room 6#	Albatross	SR6	APC17151-SR6	2024-06-22
Signal Analyzer	R&S	FSV 40	101475	2023-07-31
Signal and spectrum analyzer	Rohde & Schwarz	FSV3030	101576	2023-11-10
Vector signal generator	Rohde & Schwarz	SMBV100B	102642	2023-11-10
Vector signal generator	Rohde & Schwarz	SMB100A	182690	2023-11-10
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	170345	2023-11-10
1 channel power supply	Rohde & Schwarz	HMC8041	101712	2023-11-10
Band Reject Filter Group	Tonscend	JS0806-F	21I8060483	2023-11-16
RF Control Unit	Tonscend	JS0806-1	21H8060472	N/A
Test Software	Tonscend	JS1120	N/A	N/A
Control PC	Lenovo	TianYi510S-07IMB	2018AP3073	N/A
Unwanted Emission Testing (TS9975)				
Equipment	Manufacturer	Model	Serial No.	Cal. until
EMI Test Receiver	R&S	ESR 7	102021	2023-08-02

Signal Analyzer	R&S	FSV 40	101439	2023-08-01
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2023-08-01
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-08-02
Amplifier	R&S	SCU-18F	180070	2023-08-02
Amplifier	R&S	SCU40A	100475	2023-08-02
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2023-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 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.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	±4.17 dB

Prüfbericht - Nr.: CN2387AY 005*Test Report No.:*

Seite 7 von 24

Page 7 of 24

2.6 Location of Original Data

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

2.7 Status of Facility Used for Testing

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

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a Jarvisen Translator 2 which supports Bluetooth (dual mode), 2.4GHz Wi-Fi, 5GHz Wi-Fi, WCDMA and LTE functions.

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

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Product Name:	Jarvisen Translator 2
Model No.:	JT-2-BLACK
FCC ID:	2A94T-JT-2-BLACK
Operating Voltage:	Internal battery operated (3.85Vdc, 2000mAh) or USB operated (Adapter input voltage 120Vac, 60Hz)
Testing Voltage:	AC 120V, 60Hz or Fully charged battery
Operating Temperature Range:	-10 °C ~ 45 °C
AC/DC Adapter:	Model: ES019C-U120150XYC Input: 100-240V, 50/60Hz Output: 9V/3A or 9V/2A or 12V/1.5A
Battery:	Model: LD200A Rated Capacity: 3.85V, 2000mAh, 7.7Wh
HW Version:	HW_LD_MB_V01
SW Version:	1600
Technical Specification of WCDMA	
Operational Frequency:	WCDMA Band II Uplink: 1850-1910MHz, Downlink: 1930-1990MHz WCDMA Band IV Uplink: 1710-1755MHz, Downlink: 2110-2155MHz WCDMA Band V Uplink: 824-849MHz, Downlink: 869-894MHz
Type of Modulation:	QPSK, 16QAM
Power Class:	Class 3
Subcarrier spacing:	200 KHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Internal Antenna
Antenna Number:	1
Antenna Gain:	WCDMA Band 2: 1.95dBi WCDMA Band 4: 2.25dBi WCDMA Band 5: 1.05dBi
Technical Specification of LTE	
Operational Frequency:	LTE Band 2 Uplink: 1850-1910MHz, Downlink: 1930-1990MHz LTE Band 4

Prüfbericht - Nr.: CN2387AY 005
Test Report No.:

Seite 9 von 24

Page 9 of 24

	Uplink: 1710-1755MHz, Downlink: 2110-2155MHz LTE Band 5 Uplink: 824-849MHz, Downlink: 869-894MHz LTE Band 7 Uplink: 2500-2570MHz, Downlink: 2620-2690MHz LTE Band12 Uplink: 699-716MHz, Downlink: 729-746MHz LTE Band17 Uplink: 704-716MHz, Downlink: 734-746MHz LTE Band 25 Uplink: 1850-1915MHz, Downlink: 1930-1995MHz LTE Band 38 Uplink: 2570-2620MHz, Downlink: 2570-2620MHz LTE Band 41 Uplink: 2535-2655 MHz, Downlink: 2535-2655MHz
Type of Modulation:	QPSK, 16QAM
Power Class:	Class 3
Subcarrier spacing:	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 7: 5MHz, 10MHz, 15MHz, 20MHz LTE Band12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band17: 5MHz, 10MHz LTE Band 25: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Internal Antenna
Antenna Number:	1
Antenna Gain:	LTE Band 2: 2.05 dBi LTE Band 4: 2.18 dBi LTE Band 5: 1.05 dBi LTE Band 7: 1.80 dBi LTE Band 12: 0.50 dBi LTE Band 17: 0.50 dBi LTE Band 25: 2.05 dBi LTE Band 38: 1.87 dBi LTE Band 41: 1.87 dBi

Table 3: RF Channel and Frequency of WCDMA

Support Band	Support Standard	Channel Frequency (MHz)	Channel Number
WCDMA Band 2	WCDMA/HSDPA/HSUPA	1852.4	9262
		1880.0	9400
		1907.6	9538
WCDMA Band 4	WCDMA/HSDPA/HSUPA	1712.4	1312
		1732.6	1413
		1752.6	1513
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4	4132
		836.4	4182
		846.6	4233

Table 4: RF Channel and Frequency 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 5	1.4	824.7 / 836.5 / 848.3	20407 / 20525 / 20643
	3	825.5 / 836.5 / 847.5	20415 / 20525 / 20635
	5	826.5 / 836.5 / 846.5	20425 / 20525 / 20625
	10	829 / 836.5 / 844	20450 / 20525 / 20600
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
LTE Band 12	1.4	699.7 / 707.5 / 715.3	23017 / 23095 / 23173
	3	700.5 / 707.5 / 714.5	23025 / 23095 / 23165
	5	701.5 / 707.5 / 713.5	23035 / 23095 / 23155
	10	704 / 707.5 / 711	23060 / 23095 / 23130
LTE Band 17	5	706.5 / 710 / 713.5	23755 / 23790 / 23825
	10	709 / 710 / 711	23780 / 23790 / 23800
LTE Band 25	1.4	1850.7 / 1882.5 / 1914.3	26047 / 26365 / 26683
	3	1851.5 / 1882.5 / 1913.5	26055 / 26365 / 26675
	5	1852.5 / 1882.5 / 1912.5	26065 / 26365 / 26665
	10	1855 / 1882.5 / 1910	26090 / 26365 / 26640
	15	1857.5 / 1882.5 / 1907.5	26115 / 26365 / 26615
	20	1860 / 1882.5 / 1905	26140 / 26365 / 26590
LTE Band 38	5	2572.5 / 2595 / 2617.5	37775 / 38000 / 38225
	10	2575 / 2595 / 2615	37800 / 38000 / 38200
	15	2577.5 / 2595 / 2612.5	37825 / 38000 / 38175
	20	2580 / 2595 / 2610	37850 / 38000 / 38150
LTE Band 41	5	2537.5 / 2595 / 2652.5	40065 / 40640 / 41215
	10	2540 / 2595 / 2650	40090 / 40640 / 41190
	15	2542.5 / 2595 / 2647.5	40115 / 40640 / 41165
	20	2545 / 2595 / 2645	40140 / 40640 / 41140

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, WCDMA transmitting mode (Low /Middle / High channel)
- B. On, LTE transmitting mode (Low /Middle / High channel)
- C. On, Bluetooth+Wi-Fi and WCDMA / LTE Co-location mode
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|-------------------------|------------------------------|
| - Application Form | - User Manual |
| - Operation Description | - Block Diagram |
| - PCB Layout | - ID Label and Location Info |

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.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation 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 tests were performed according to the procedures in KDB 971168 D01 and ANSI C63.26.

According to clause 3.1, all tests were performed on model JT-2-BLACK in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Portable Laptop	Lenovo	ThinkPad L470	SPP0M92508
Mobile phone	HUAWEI	STK-AL00	7PRNW20721000279

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

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

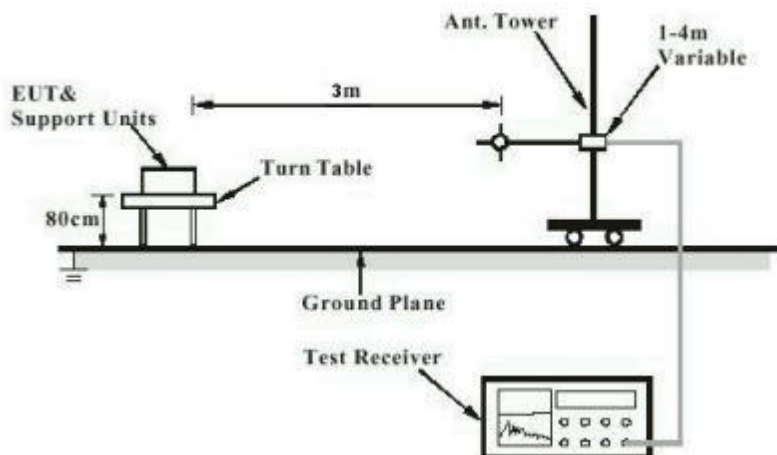


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

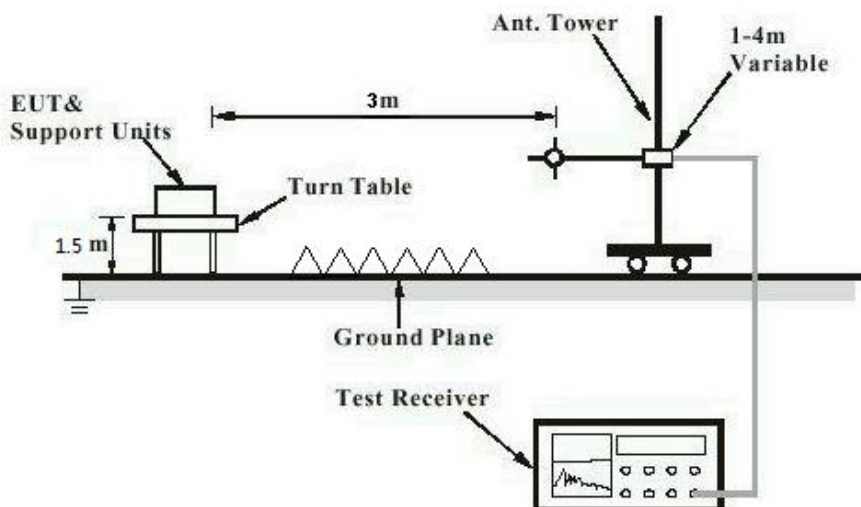
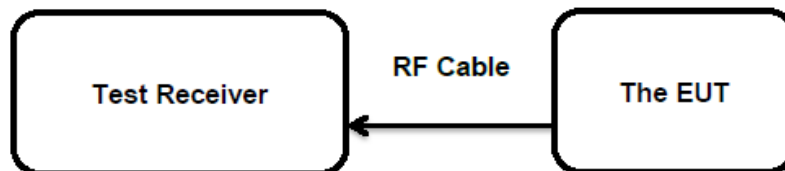


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Essential Requirements of Standard

5.1.1 RF Power Output

RESULT:

Pass

Test Specification

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
	WCDMA Band II	EIRP 2 watts
	WCDMA Band IV	EIRP 1 watts
	WCDMA Band V	ERP 7 watts
	LTE Band 2	EIRP 2 watts
	LTE Band 4	EIRP 1 watts
	LTE Band 5	ERP 7 watts
	LTE Band 7	EIRP 2 watts
	LTE Band 12	ERP 3 watts
	LTE Band 17	ERP 3 watts
	LTE Band 25	EIRP 2 watts
	LTE Band 38	EIRP 2 watts
	LTE Band 41	EIRP 2 watts
Test procedure	: Clause 5.2 of ANSI C63.26	
Kind of test site	: Shielded Room	

Test Setup

Date of testing	: 2023-01-07 to 2023-01-28
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 24.3 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Note:

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

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)

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 16 von 24

Page 16 of 24

5.1.2 Modulation Characteristics

RESULT:**Pass****Test Specification**

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	: Shielded Room

Test Setup

Date of testing	: 2023-01-07 to 2023-01-28
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 24.3 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

Note:

The device implement digital modulation such as QPSK and 16QAM, hence the EUT is deemed to comply with this requirement without additional testing.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 17 von 24

Page 17 of 24

5.1.3 Occupied Bandwidth and 26dB Bandwidth

RESULT:**Pass****Test Specification**

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	: N/A
Test procedure	: Section 5.4 of ANSI C63.26
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-01-07 to 2023-01-28
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 24.3 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 18 von 24

Page 18 of 24

5.1.4 Spurious Emissions at Antenna Terminals

RESULT:**Pass****Test Specification**

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
WCDMA Band II < - 13 dBm /1MHz
WCDMA Band IV < - 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 5 < - 13 dBm /100kHz@ < 1GHz
 < - 13 dBm /1MHz@ > 1GHz
LTE Band 7 < - 25 dBm /1MHz
LTE Band 12 < - 13 dBm /100kHz
LTE Band 17 < - 13 dBm /100kHz
LTE Band 25 < - 13 dBm /1MHz
LTE Band 38 < - 25 dBm /1MHz
LTE Band 41 < - 25 dBm /1MHz

Test procedure

: Section 5.7 of ANSI C63.26

Kind of test site

: Shielded Room

Test Setup

Date of testing

: 2023-01-07 to 2023-01-28

Input voltage

: Fully charged battery

Operation mode

: A, B

Test channel

: Low / Middle / High

Ambient temperature

: 24.3 °C

Relative humidity

: 45 %

Atmospheric pressure

: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Prüfbericht - Nr.: CN2387AY 005
Test Report No.:

Seite 19 von 24
 Page 19 of 24

5.1.5 Spurious Emissions at Antenna Terminals – Band Edge

RESULT:

Pass

Test Specification

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 WCDMA Band II WCDMA Band IV WCDMA Band V LTE Band 2 LTE Band 4 LTE Band 5 LTE Band 7 LTE Band 12 LTE Band 17 LTE Band 25 LTE Band 38 LTE Band 41	FCC Limit < - 13 dBm /1%EBW < - 13 dBm /1%EBW < - 13 dBm /1%EBW < - 13 dBm /1%EBW < - 13 dBm /1%EBW < - 13 dBm /1%EBW < - 10 dBm /1MHz within Frequency block ±1 to ±5MHz < - 13 dBm /1MHz Frequency block outside 5MHz < - 13 dBm /30kHz < - 13 dBm /30kHz < - 13 dBm /1%EBW < - 10 dBm /1MHz within Frequency block ±1 to ±5MHz < - 13 dBm /1MHz Frequency block outside 5MHz < - 10 dBm /1MHz within Frequency block ±1 to ±5MHz < - 13 dBm /1MHz Frequency block outside 5MHz
Test procedure	: Section 5.7 of ANSI C63.26	
Kind of test site	: Shielded Room	

Test Setup

Date of testing	: 2023-01-07 to 2023-01-28
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 24.3 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 20 von 24

Page 20 of 24

5.1.6 Field Strength of Spurious Radiation

RESULT:**Pass****Test Specification**

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
WCDMA Band II	< - 13 dBm /1MHz
WCDMA Band IV	< - 13 dBm /1MHz
WCDMA Band V	< - 13 dBm /100kHz @ < 1GHz < - 13 dBm /1MHz @ > 1GHz
Band 2	< - 13 dBm /1MHz
Band 4	< - 13 dBm /1MHz
Band 5	< - 13 dBm /100kHz @ < 1GHz < - 13 dBm /1MHz @ > 1GHz
Band 7	< - 25 dBm /1MHz
Band 12	< - 13 dBm /100kHz
Band 17	< - 13 dBm /100kHz
Band 25	< - 13 dBm /1MHz
Band 38	< - 25 dBm /1MHz
Band 41	< - 25 dBm /1MHz

Test procedure

: Section 5.5 of ANSI C63.26

Kind of test site

: 3m Semi-anechoic Chamber

Test Setup

Date of testing

: 2023-01-30 to 2023-02-10

Input voltage

: Fully charged battery

Operation mode

: A, B

Test channel

: Low / Middle / High

Ambient temperature

: Refer to test result

Relative humidity

: Refer to test result

Atmospheric pressure

: 101 kPa

For the measurement records, refer to the appendix M.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 21 von 24

Page 21 of 24

5.1.7 Frequency Stability

RESULT:**Pass****Test Specification**

Test standard

: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 2

Limits

: Section 22.355 of 47 CFR FCC Part 22
"2.5ppm for mobile < 3 watts"
Section 24.235 of 47 CFR FCC Part 24
"The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block."
Section 27.54 of 47 CFR FCC Part 27
"The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation."

Test procedure

: Section 5.6 of ANSI C63.26

Kind of test site

: Shielded Room

Test Setup

Date of testing

: 2023-01-07 to 2023-01-28

Input voltage

: Fully charged battery

Operation mode

: A, B

Test channel

: Low / Middle / High

Ambient temperature

: 24.3 °C

Relative humidity

: 45 %

Atmospheric pressure

: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 22 von 24

Page 22 of 24

5.1.8 Peak to Average Ratio

RESULT:**Pass****Test Specification**

Test standard	: 47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	: Section 22.913(d) of 47 CFR FCC Part 22 Section 24.232(d) of 47 CFR FCC Part 24 Section 27.50(a)(d)(c) of 47 CFR FCC Part 27 "The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB"
Test procedure	: Section 5.2.6 of ANSI C63.26
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 2023-01-07 to 2023-01-28
Input voltage	: Fully charged battery
Operation mode	: A, B
Test channel	: Low / Middle / High
Ambient temperature	: 24.3 °C
Relative humidity	: 45 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix A ~ appendix L.

Prüfbericht - Nr.: CN2387AY 005

Test Report No.:

Seite 23 von 24

Page 23 of 24

5.1.9 Co-Located Radiated Spurious Emissions

RESULT:**Pass****Test Specification**

Test standard	: CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart E Section 15.407 47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 2
Limits	: The emissions not exceed the highest limit.
Test procedure	: Section 5.7 of ANSI C63.26
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: 2023-01-30 to 2023-02-10
Input voltage	: Fully charged battery
Operation mode	: C
Test channel	: Low / Middle / High
Ambient temperature	: Refer to test result
Relative humidity	: Refer to test result
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix M.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix N.

7 List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Technical Specification of EUT	8
Table 3: RF Channel and Frequency of WCDMA	9
Table 4: RF Channel and Frequency of LTE.....	10
Table 5: List of Accessories and Auxiliary Equipment.....	12