Shenzhen Huatongwei International Inspection Co., Ltd.
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FCC REPORT

Report Reference No. ..... :	**CHTEW20010105**	Report verification:
Project No. ..... :	**SHT1911060702EW**	
FCC ID ..... :	**2ANY6-TE300**	
Applicant's name ..... :	**Telo Systems Ltd**	
Address.....:	6/F, No.42 Liuxian 1st Road, Bao'an District, Shenzhen, China	
Manufacturer.....:	Telo Systems Ltd	
Address.....:	6/F, No.42 Liuxian 1st Road, Bao'an District, Shenzhen, China	
Test item description ..... :	**Smart Phone**	
Trade Mark .....:	Telo Systems	
Model/Type reference.....:	TE300	
Listed Model(s) .....:	-	
Standard ..... :	**FCC CFR Title 47 Part 2** **FCC CFR Title 47 Part 90**	
Date of receipt of test sample…….:	Dec 19, 2019	
Date of testing……...:	Dec 20, 2019- Jan 11, 2020	
Date of issue…….:	Jan 12, 2020	
Result..... ……...:	**Pass**	

Compiled by (position+printedname+signature)...:	File administrators Silvia Li	Silvia Li
Supervised by (position+printedname+signature)....:	Project Engineer Aaron Fang	Aaron.Fang
Approved by (position+printedname+signature)....:	Manager Hans Hu	Hans Hu

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Contents

1. TEST STANDARDS AND REPORT VERSION

1.1. Applicable Standards

The tests were performed according to following standards:

FCC Rules Part 2: FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS
FCC Rules Part 90: PRIVATE LAND MOBILE RADIO SERVICES.
ANSI C63.26: 2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
KDB 971168 D01 Power Meas License Digital Systems v03: MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

1.2. Report version information

Revision No.	Date of issue	Description
N/A	2020-01-12	Original

2. Test Description

Test Item	Section in CFR 47	Result	Test Engineer
Conducted Output Power	Part 2.1046 Part 90.635(b)	Pass	Jiongsheng Feng
Peak-to-Average Ratio	-	Pass	Jiongsheng Feng
99% Occupied Bandwidth & 26 dB Bandwidth	Part 2.1049	Pass	Jiongsheng Feng
Band Edge	Part 2.1051 Part 90.691	Pass	Jiongsheng Feng
Conducted Spurious Emissions	Part 2.1051 Part 90.691	Pass	Jiongsheng Feng
Frequency stability VS Temperature	Part 2.1055(a)(1)(b) Part 90.213	Pass	Jiongsheng Feng
Frequency stability VS Voltage	Part 2.1055(d)(1)(2) Part 90.213	Pass	Jiongsheng Feng
ERP	Part 22.913(a) Part 90.635(b)	Pass	Pan Xie
Radiated Spurious Emissions	Part 2.1053 Part 90.691	Pass	Pan Xie

Note: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	Telo Systems Ltd
Address:	6/F, No.42 Liuxian 1st Road, Bao'an District, Shenzhen, China
Manufacturer:	Telo Systems Ltd
Address:	6/F, No.42 Liuxian 1st Road, Bao'an District, Shenzhen, China

3.2. Product Description

Name of EUT:	Smart Phone
Trade Mark:	Telo Systems
Model No.:	TE300
Listed Model(s):	-
SIM Information:	Support One SIM Card
Power supply:	DC 3.7V
Adapter information:	Model:MR-0502000US Input:100-240Va.c., 50/60Hz, 0.3A Output:5.0Vd.c., 2.0A
Hardware version:	ET031_V1.2
Software version:	TE300_US_V2P_20191207
4G	
Operation Band:	☒ FDD Band 26
Transmit frequency:	814.7 MHz – 823.3 MHz
Receive frequency:	859.7 MHz – 868.3 MHz
Channel bandwidth:	1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz
Power Class:	Class 3
Modulation type:	QPSK, 16QAM
Antenna type	FPC Antenna
Antenna Gain	-1.0dBi

3.3. Operation state

➢ **Test frequency list**

TDD Band 26

Test Frequency ID	Banwidth[MHz]	N_{UL}	Frequency of Uplink [MHz]	N_{DL}	Frequency of Downlink [MHz]
Low Range	1.4	26997	814.7	8697	859.7
	3	26705	815.5	8705	860.5
	5	26715	816.5	8715	861.5
	10	-	-	-	-
	15	26765	821.5	8765	866.5
Mid Range	1.4/3/5/10	26740	819	8740	864
High Range	1.4	26783	823.3	8783	868.3
	3	26775	822.5	8775	867.5
	5	26765	821.5	8765	866.5
	10	-	-	-	-

3.4. EUT operation mode

For RF test items
The EUT has been tested under typical operating condition. Testing was performed by configuring EUT to maximum output power status.

Test Items	Band	Bandwidth (MHz)					Modulation		RB #		
		1.4	3	5	10	15	QPSK	16QAM	1	Half	Full
Conducted Output Power	26	○	○	○	○	○	○	○	○	○	○
Peak-to-Average Ratio	26	○	○	○	○	○	○	○	○	-	○
99% Occupied Bandwidth & 26 dB Bandwidth	26	○	○	○	○	○	○	○	-	-	○
Band Edge	26	○	○	○	○	○	○	○	○	-	○
Conducted Spurious Emission	26	○	○	○	○	○	○	○	○	-	-
Frequency Stability	26	○	○	○	○	○	○	○	-	-	○
ERP and EIRP	26	○	○	○	○	○	○	○	○	-	-
Radiated Spurious Emission	26	○	○	○	○	○	○	○	○	-	-
Remark	1. The mark " ○"means that this configuration is chosenfor testing 2. The mark "-"means that this bandwidth is not test. 3. The device is investigatedfrom 30MHz to10 times offundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.										

3.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- ● - supplied by the manufacturer
- ○ - supplied by the lab

○	/	Manufacturer:	/
		Model No.:	/
○	/	Manufacturer:	/
		Model No.:	/

3.6. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.
Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

4.2. Test Facility

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files.

IC-Registration No.:5377A

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No.: 5377A.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Equipments Used during the Test

Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Signal and spectrum Analyzer	R&S	HTWE0242	FSV40	100048	2019/10/26	2020/10/25
●	Spectrum Analyzer	Agilent	HTWE0286	N9020A	MY50510187	2019/10/26	2020/10/25
●	Radio communication tester	R&S	HTWE0287	CMW500	137688-Lv	2019/10/26	2020/10/25
●	Test software	Tonscend	N/A	JS1120	N/A	N/A	N/A

●	Radiated Spurious Emission						
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0122	SAC-3m-01	N/A	2018/09/27	2021/09/26
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2019/10/26	2020/10/25
●	Loop Antenna	R&S	HTWE0170	HFH2-Z2	100020	2018/04/02	2021/04/01
●	Broadband Horn Antenna	SCHWARZBECK	HTWE0103	BBHA9170	BBHA9170472	2018/10/11	2021/10/11
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0123	VULB9163	538	2018/04/04	2021/04/03
●	Horn Antenna	SCHWARZBECK	HTWE0126	9120D	1011	2017/04/01	2020/03/31
●	Pre-amplifier	CD	HTWE0071	PAP-0102	12004	2019/11/14	2020/11/13
●	Broadband Preamplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2019/05/23	2020/05/22
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-01	6m 18GHz S Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-02	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-03	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0120-04	6m 3GHz RG Serisa	N/A	2019/05/10	2020/05/09
●	RF Connection Cable	HUBER+SUHNER	HTWE0121-01	6m 18GHz S Serisa	N/A	2019/05/10	2020/05/09
●	EMI Test Software	Audix	N/A	E3	N/A	N/A	N/A

●	Auxiliary Equipment						
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Climate chamber	ESPEC	HTWE0254	GPL-2	N/A	2019/10/23	2020/10/22
●	DC Power Supply	Gwinstek	HTWE0274	SPS-2415	GER835793	N/A	N/A

4.4. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Voltage	VN=Nominal Voltage	DC 3.70V
	VL=Lower Voltage	DC 3.60V
	VH=Higher Voltage	DC 4.20V
Temperature	TN=Normal Temperature	25 °C
	Extreme Temperature	From −30° to + 50° centigrade
Humidity	30~60 %	
Air Pressure	950-1050 hPa	

4.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01”Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 1”and TR-100028-02 “Electromagnetic compatibilityand Radio spectrum Matters (ERM);Uncertainties in the measurementof mobile radio equipment characteristics;Part 2 “ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongweilaboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.51 dB	(1)
Transmitter power Radiated	2.66dB for <1GHz 3.44dB for >1GHz	(1)
Conducted spurious emissions 9kHz~40GHz	0.51 dB	(1)
Radiated spurious emissions	2.66dB for <1GHz 3.44dB for >1GHz	(1)
Occupied Bandwidth	15Hz for <1GHz 70Hz for >1GHz	(1)
Frequency error	15Hz for <1GHz 70Hz for >1GHz	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

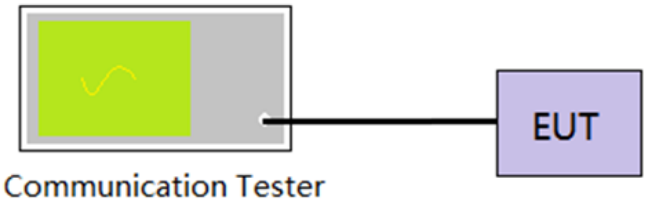
5. TEST CONDITIONS AND RESULTS

5.1. Conducted Output Power

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT output port was connected to communication tester.
2. Set EUT at maximum power through communication tester.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

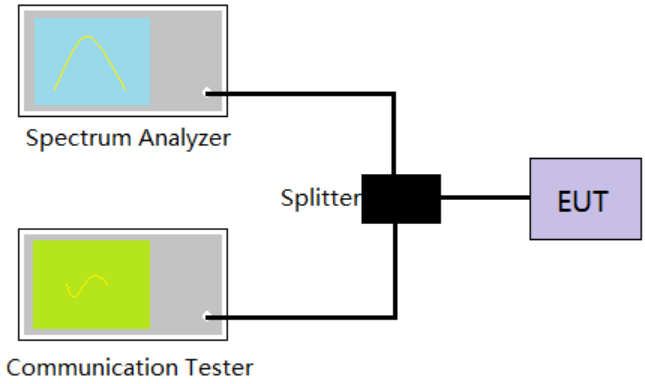
Refer to appendix A on the section 8 appendix report

5.2. Peak-to-Average Ratio

LIMIT

13dB

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter
2. Set EUT in maximum power output.
3. Center Frequency = Carrier frequency, RBW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed.
   i. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms.
   ii. For bursttransmissions, the spectrum analyzer is set to use an internal " RF Burst" trigger that issynced with an incoming pulse and the measurement interval is set to less than the durationof the " on time" of one burst to ensure that energy is only captured during a time in whichthetransmitter is operating at maximum power
6. Record the maximum PAPR level associated with a probability of 0.1%.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

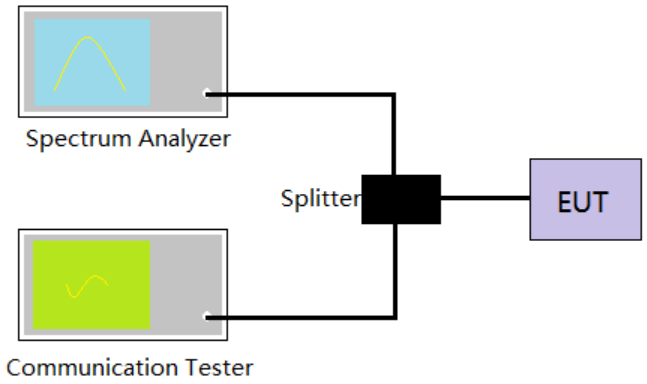
Refer to appendix B on the section 8 appendix report

5.3. 99% Occupied Bandwidth & 26 dB Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter
2. Set EUT in maximum power output.
3. Spectrum analyzer setting as follow:

   Center Frequency= Carrier frequency, RBW=1% to 5% of the anticipated OBW, VBW= 3 * RBW, Detector=Peak,

   Trace maximum hold.
4. Record the value of 99% Occupied bandwidth and 26dB bandwidth.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Refer to appendix C on the section 8 appendix report

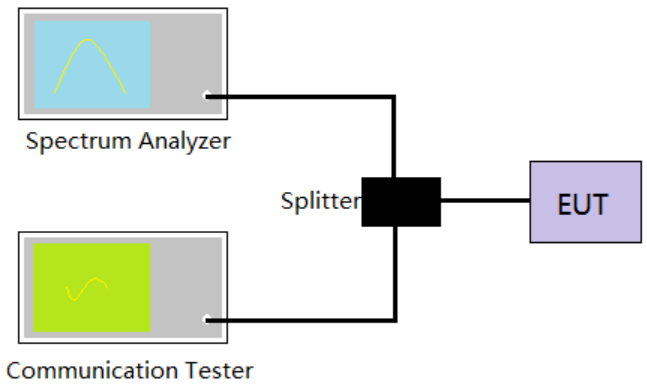
5.4. Band Edge

LIMIT

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter
2. Set EUT in maximum power output.
3. The band edges of low and high channels were measured.
4. Spectrum analyzer setting as follow:

   RBW= no less than 1% of the OBW, VBW =3 * RBW, Sweep time= Auto
5. Record the test plot.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Refer to appendix D on the section 8 appendix report

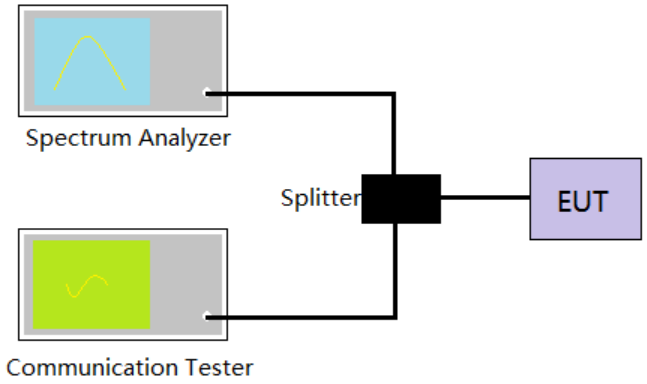
5.5. Conducted Spurious Emissions

LIMIT

(3) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(4) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was connected to the spectrum analyzer and communication tester via a power splitter
2. Set EUT in maximum power output.
3. Spectrum analyzer setting as follow:

   Below 1GHz, RBW=100KHz, VBW = 300KHz, Detector=Peak, Sweep time= Auto

   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peak, Sweep time= Auto

   Scan frequency range up to 10^{th} harmonic.
4. Record the test plot.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

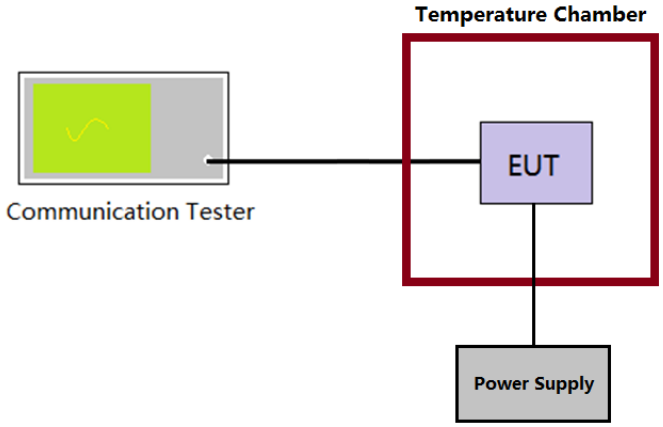
Refer to appendix E on the section 8 appendix report

5.6. Frequency stability VS Temperature measurement

LIMIT

2.5ppm

TEST CONFIGURATION



TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. The EUT output port was connected to communication tester.
3. The EUT was placed inside the temperature chamber.
4. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
5. Repeat step 4 measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

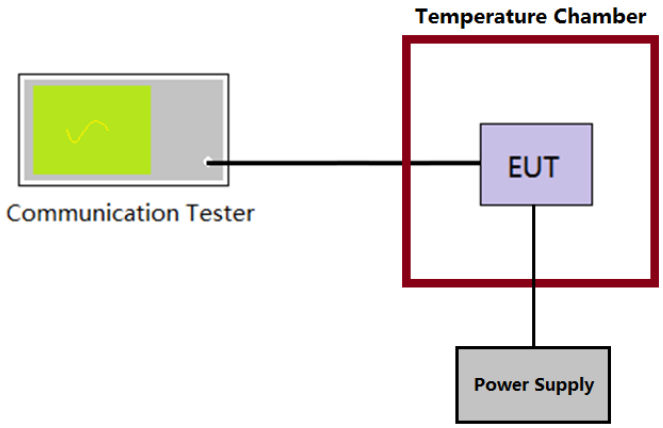
Refer to appendix F on the section 8 appendix report

5.7. Frequency stability VS Voltage measurement

LIMIT

2.5ppm

TEST CONFIGURATION



TEST PROCEDURE

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. The EUT output port was connected to communication tester.
3. The EUT was placed inside the temperature chamber at 25°C
4. The power supply voltage to the EUT was varied ±15% of the nominal value measured at the input to the EUT
5. Record the maximum frequency change.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

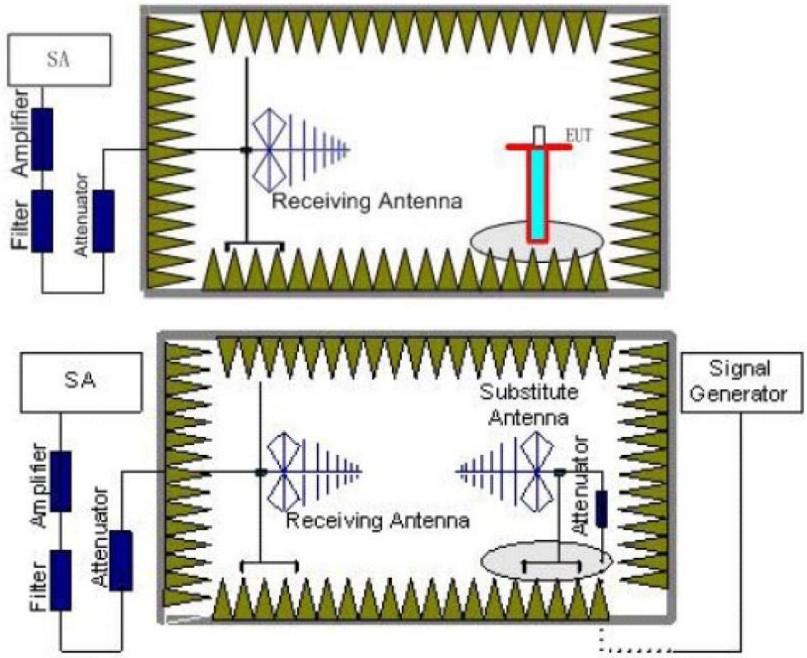
Refer to appendix F on the section 8 appendix report

5.8. ERP

LIMIT

LTE Band 26: 100W(50.00dBm) ERP

TEST CONFIGURATION



TEST PROCEDURE

1. Place the EUT in the center of the turntable.
   a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
   b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:

   Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto

   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
   a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.
   b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.
   c) Return the turntable to the azimuth where the highest emission amplitude level was observed.
   d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.
   e) Record the measured emission amplitude level and frequency
6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.

7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.
8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.
9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.
10. For each emission that was detected and measured in the initial test
    a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.
    b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.
    c) Record the output power level of the signal generator when equivalence is achieved in step b).
11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.
12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

    Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)

    where

    Pe = equivalent emission power in dBm

    Ps = source (signal generator) power in dBm

    NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.
13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:

    gain (dBd) = gain (dBi) − 2.15 dB.

    If necessary, the antenna gain can be calculated from calibrated antenna factor information
14. Provide the complete measurement results as a part of the test report.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

LTE Band 26-1.4MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.19	18.44	<50.00	PASS
	Mid	22.14	19.31		
	High	20.76	18.35		
16QAM	Low	21.11	18.39		PASS
	Mid	22.08	19.41		
	High	20.69	18.27		

LTE Band 26-3MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.19	18.46	<50.00	PASS
	Mid	22.20	19.26		
	High	20.84	18.42		
16QAM	Low	21.05	18.32		PASS
	Mid	21.96	19.29		
	High	20.60	18.26		

LTE Band 26-5MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.14	18.38	<50.00	PASS
	Mid	22.07	19.34		
	High	20.76	18.51		
16QAM	Low	21.18	18.57		PASS
	Mid	22.03	19.25		
	High	20.59	18.31		

LTE Band 26-10MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Mid	22.18	19.36	<50.00	PASS
16QAM	Mid	22.19	19.44		PASS

LTE Band 26-15MHz					
Modulation	Channel	ERP (dBm)		Limit (dBm)	Result
		Vertical	Horizontal		
QPSK	Low	21.09	18.26	<50.00	PASS
16QAM	Low	21.16	18.44		PASS

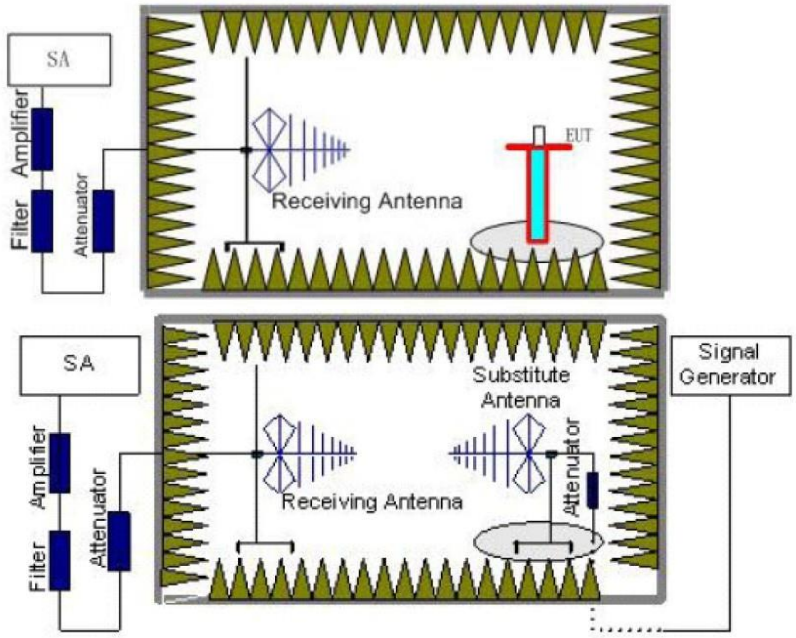
5.9. Radiated Spurious Emission

LIMIT

(5) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 $Log_{10}(f/6.1)$ decibels or 50 + 10 $Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(6) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + $10Log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

TEST CONFIGURATION



TEST PROCEDURE

1. Place the EUT in the center of the turntable.
   a) For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table at a nominal height of 80 cm above the reference ground plane
   b) For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table at a nominal height of 1.5 m above the ground plane.
2. Unless the EUT uses an integral antenna, the EUT shall be terminated with a non-radiating transmitter load. In cases where the EUT uses an adjustable antenna, the antenna shall be adjusted through typical positions and lengths to maximize emissions levels.
3. The EUT shall be tested while operating on the frequency per manufacturer specification. Set the transmitter to operate in continuous transmit mode.
4. Receiver or Spectrum set as follow:

   Below 1GHz, RBW=100kHz, VBW=300kHz, Detector=Peak, Sweep time=Auto

   Above 1GHz, RBW=1MHz, VBW=3MHz, Detector=Peck, Sweep time=Auto
5. Each emission under consideration shall be evaluated:
   a) Raise and lower the measurement antenna from 1 m to 4 m, as necessary to enable detection of the maximum emission amplitude relative to measurement antenna height.

b) Rotate the EUT through 360° to determine the maximum emission level relative to the axial position.

c) Return the turntable to the azimuth where the highest emission amplitude level was observed.

d) Vary the measurement antenna height again through 1 m to 4 m again to find the height associated with the maximum emission amplitude.

e) Record the measured emission amplitude level and frequency

6. Repeat step 5 for each emission frequency with the measurement antenna oriented in both the horizontal and vertical polarizations to determine the orientation that gives the maximum emissions amplitude.

7. Set-up the substitution measurement with the reference point of the substitution antenna located as near as possible to where the center of the EUT radiating element was located during the initial EUT measurement.

8. Maintain the previous measurement instrument settings and test set-up, with the exception that the EUT is removed and replaced by the substitution antenna.

9. Connect a signal generator to the substitution antenna; locate the signal generator so as to minimize any potential influences on the measurement results. Set the signal generator to the frequency where emissions are detected, and set an output power level such that the radiated signal can be detected by the measurement instrument, with sufficient dynamic range relative to the noise floor.

10. For each emission that was detected and measured in the initial test

a) Vary the measurement antenna height between 1 m to 4 m to maximize the received (measured) signal amplitude.

b) Adjust the signal generator output power level until the amplitude detected by the measurement instrument equals the amplitude level of the emission previously measured directly in step 5 and step 6.

c) Record the output power level of the signal generator when equivalence is achieved in step b).

11. Repeat step 8 through step 10 with the measurement antenna oriented in the opposite polarization.

12. Calculate the emission power in dBm referenced to a half-wave dipole using the following equation:

Pe = Ps(dBm) − cable loss (dB) + antenna gain (dBd)

where

Pe = equivalent emission power in dBm

Ps = source (signal generator) power in dBm

NOTE—dBd refers to the measured antenna gain in decibels relative to a half-wave dipole.

13. Correct the antenna gain of the substitution antenna if necessary to reference the emission power to a half-wave dipole. When using measurement antennas with the gain specified in dBi, the equivalent dipole-referenced gain can be determined from:

gain (dBd) = gain (dBi) − 2.15 dB.

If necessary, the antenna gain can be calculated from calibrated antenna factor information

14. Provide the complete measurement results as a part of the test report.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Note: only show the worse case for QPSK modulation.

LTE Band 26-1.4MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1629.4	Vertical	-30.14	<-13.00	Pass
	2444.1	V	-38.84		
	3258.8	V	-40.60		
	1629.4	Horizontal	-35.17	<-13.00	Pass
	2444.1	H	-42.35		
	3258.8	H	-42.10		
Mid	1638	Vertical	-30.03	<-13.00	Pass
	2457	V	-38.58		
	3276	V	-40.39		
	1638	Horizontal	-35.01	<-13.00	Pass
	2457	H	-42.01		
	3276	H	-41.74		
High	1646.6	Vertical	-29.86	<-13.00	Pass
	2469.9	V	-38.25		
	3293.2	V	-40.11		
	1646.6	Horizontal	-34.85	<-13.00	Pass
	2469.9	H	-41.44		
	3293.2	H	-41.18		

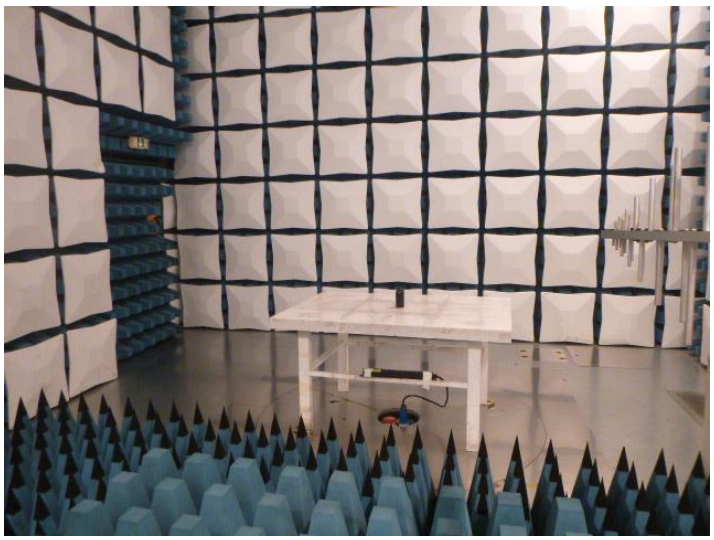
LTE Band 26-3MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1631	Vertical	-29.72	<-13.00	Pass
	2446.5	V	-38.06		
	3262	V	-39.98		
	1631	Horizontal	-34.77	<-13.00	Pass
	2446.5	H	-41.24		
	3262	H	-41.01		
Mid	1638	Vertical	-29.95	<-13.00	Pass
	2457	V	-38.40		
	3276	V	-40.24		
	1638	Horizontal	-34.90	<-13.00	Pass
	2457	H	-41.77		
	3276	H	-41.49		
High	1645	Vertical	-29.83	<-13.00	Pass
	2467.5	V	-38.17		
	3290	V	-40.05		
	1645	Horizontal	-34.79	<-13.00	Pass
	2467.5	H	-41.37		
	3290	H	-41.09		

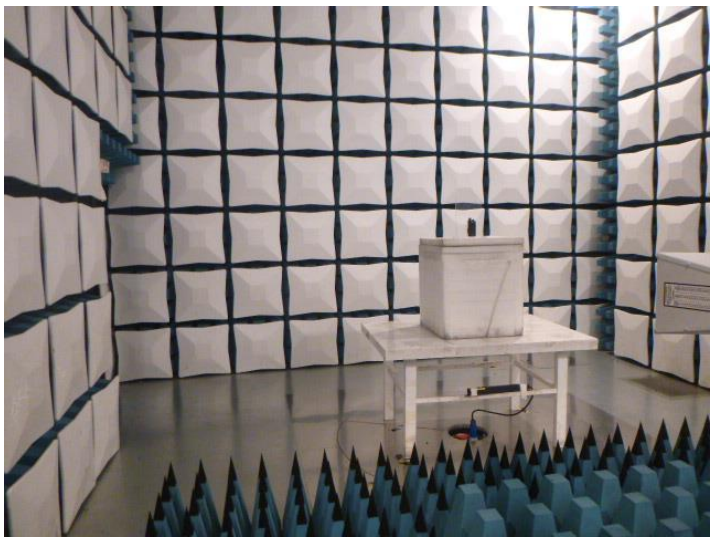
LTE Band 26-5MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1633	Vertical	-29.55	<-13.00	Pass
	2449.5	V	-37.79		
	3266	V	-39.79		
	1633	Horizontal	-34.62	<-13.00	Pass
	2449.5	H	-40.96		
	3302	H	-40.74		
Mid	1638	Vertical	-29.39	<-13.00	Pass
	2457	V	-37.42		
	3276	V	-39.50		
	1638	Horizontal	-34.39	<-13.00	Pass
	2457	H	-40.48		
	3276	H	-40.23		
High	1643	Vertical	-29.16	<-13.00	Pass
	2464.5	V	-36.95		
	3286	V	-39.11		
	1643	Horizontal	-34.17	<-13.00	Pass
	2464.5	H	-40.07		
	3286	H	-39.90		

LTE Band 26-10MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Mid	1638	Vertical	-28.82	<-13.00	Pass
	2457	V	-36.36		
	3276	V	-38.59		
	1638	Horizontal	-33.96	<-13.00	Pass
	2457	H	-39.58		
	3276	H	-39.51		

LTE Band 26-15MHz					
Channel	Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
		Polarization	Level (dBm)		
Low	1643	Vertical	-28.41	<-13.00	Pass
	2464.5	V	-35.90		
	3286	V	-38.11		
	1643	Horizontal	-33.61	<-13.00	Pass
	2464.5	H	-39.15		
	3286	H	-39.09		

6. TEST SETUP PHOTOS OF THE EUT





7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Refere to the test report No.: CHTEW20010105

8. APPENDIX REPORT