



# **EMC TEST REPORT**

Applicant:	Shenzhen Jimi IoT Co., Ltd.
Address:	3-4/F, Block A, Building #7, Shenzhen International Innovation Valley, Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China

Manufacturer or Supplier:	Shenzhen Jimi IoT Co., Ltd.
Address:	3-4/F, Block A, Building #7, Shenzhen International Innovation Valley, Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China
Product:	Global container monitoring terminal
Brand Name:	JimiloT
Model Name:	LL306R LL306Pro
FCC ID:	2AMLF-LL306R
Date of tests:	Mar. 10, 2025 ~ Apr. 03, 2025

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☑ FCC Part 15, Subpart B, Class A
 ☑ FCC Part 15, Subpart B, Class B
 ☑ ANSI C63.4:2014

CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Prepared by Hanwen Xu Engineer / Mobile Department Approved by Peibo Sun Manager / Mobile Department

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Simpe: bo

Date: Apr. 03, 2025

Date: Apr. 03, 2025

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at http://www.bureauveritas.com/home/aboutus/our-business/cps/about-us/lerms-conditions/ and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty in o account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the reput to raise such issue within the prescribed time shall constitute your unqualified acceptance.

Huarui 7layers High Technology (Suzhou) Co., Ltd.

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province



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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
PSU-QSZ2503050113EM01	Original release	Apr. 03, 2025



# 1 GENERAL INFORMATION

# **1.1 GENERAL DESCRIPTION OF EUT**

PRODUCT*	Global container monitoring terminal		
BRAND NAME*	JimiloT		
MODEL NAME*	LL306R LL306Pro		
NOMINAL VOLTAGE*	3.7Vdc		
	Bluetooth	GFSK	
MODULATION TYPE*	GSM/GPRS/ED GE	GMSK	
	LTE	QPSK/16QAM	
	Bluetooth/BT_L E	2402MHz ~ 2480MHz	
	GSM	824.2MHz ~ 848.8MHz (FOR GSM 850) 1850.2MHz ~ 1909.8MHz (FOR GSM 1900)	
OPERATING FREQUENCY*	LTE	1850.7MHz ~ 1909.3MHz       (FOR LTE Band2)         1710.7MHz ~ 1754.3MHz       (FOR LTE Band4)         824.7MHz ~ 848.3MHz       (FOR LTE Band5)         2502.5MHz ~ 2567.5MHz       (FOR LTE Band7)         699.7MHz ~ 715.3MHz       (FOR LTE Band12)         706.5MHz ~ 713.5MHz       (FOR LTE Band17)         817.5MHz ~ 827.5MHz       (FOR LTE Band18)         823.5MHz ~ 842.5MHz       (FOR LTE Band19)         1850.7MHz ~ 1914.3MHz       (FOR LTE Band25)         814.7MHz ~ 848.3MHz       (FOR LTE Band26)         2572.5MHz ~ 2617.5MHz       (FOR LTE Band38)         2498.5MHz ~2687.5MHz       (FOR LTE Band41)         1710.7MHz ~ 1779.3MHz       (FOR LTE Band66)	
HW VERSION*	CT10R_MB_V1.0		
SW VERSION*	LL306_LL306_WAA	NP_XQGL_V1.0_240517.1101	
I/O PORTS*	Refer to user's ma	anual	
CABLE SUPPLIED*	N/A		
ACCESSORY DEVICES*	Refer to note as below		

### NOTE:

1. \*Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

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- 3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the test report.
- 4. To meet different market demands, LL306R and LL306Pro differ only in model names, with all other aspects being identical.

### 5. List of Accessory:

ACCESSORIES	Brand	MODEL / SPECIFICATION
Internal batters (	N1/A	Modle Name : 122960L
Internal battery	N/A	Power Rating: 5Vdc, 2Ah
External bettern	N/A	KR301_S_GO01_F010
External battery		Power Rating: 5Vdc, 2Ah

APPLIED STANDARD: FCC Part 15, Subpart B			
Standard Section	Test Item	Result	Test lab*
	Conducted Test	Compliance	A
FCC Part 15, Subpart B, Class B ANSI C63.4:2014	Radiated Emission Test (30MHz ~ 1GHz)	Compliance	А
	Radiated Emission Test (Above 1GHz)	Compliance	А

The EUT has been tested according to the following specifications:

### \*Test Lab Information Reference

Lab A:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

Lab Address:

Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province, China Accredited Test Lab Cert 6613.01

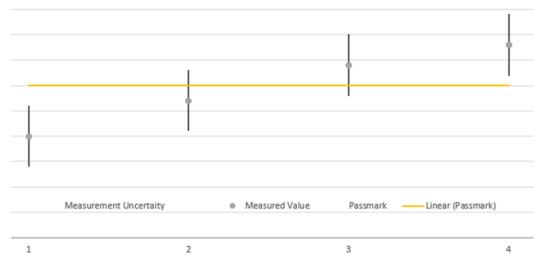
The FCC Site Registration No. is 434559; The Designation No. is CN1325.



Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz ~ 30MHz	±2.70dB
	30MHz~1GHz	±4.98dB
Dedicted enviseigne	1GHz ~6GHz	±4.70dB
Radiated emissions	6GHz ~18GHz	±4.60dB
	18GHz ~40GHz	±4.12dB



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed
That mean	s the laboratory applies as decision	rule (see ISO/IEC 17025.2017)	the so-called shared

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

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# 1.4 DESCRIPTION OF TEST MODES

Test Mode	Test Condition		
	Radiated emission test		
1	GSM850 Idle+Adaptor+ USB cable+Internal battery+External battery		
2	LTE B12 Idle+Adaptor+USB cable		
3	LTE B17 Idle+Powered By Internal battery		
4	LTE B18 Idle+External battery charging		
5	LTE B19 Idle+Adaptor+USB cable		
6	LTE B26 Idle+Powered By Internal battery		

Test Mode	Test Condition	
Conducted emission test		
1	GSM850 Idle +Adaptor+USB cable+External battery+Internal battery	
2	LTE B12 Idle+Adaptor+USB cable+External battery+Internal battery	
3	LTE B17 Idle+Adaptor+USB cable+External battery+Internal battery	
4	LTE B18 Idle+Adaptor+USB cable+External battery+Internal battery	
5	LTE B19 Idle+Adaptor+USB cable+External battery+Internal battery	
6	LTE B26 Idle+Adaptor+USB cable+External battery+Internal battery	

### NOTE:

- 1. For radiated emission test, test mode 4 was the verification case and only this mode was presented in this report
- 2. For conducted emission test, test mode 1 was the verification case and only this mode was presented in this report



#### **BUREAU** VERITAS **1.5** DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

FOR All TESTS

NO.	PRODUCT BRAND MODEL N		MODEL NO.	SERIAL NO.	FCC ID
1	Universal radio communication tester	Rohde&Schwarz	CMW500	169399	N/A
2	Adapter	N/A	N/A	N/A	N/A
3	USB Cable	N/A	N/A	N/A	N/A

N	0.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
-	1	USB Line: Shielded, Detachable 1m;

# 2.1.1 CONDUCTED EMISSION MEASUREMENT

# 2.1.2 IMITS OF CONDUCTED EMISSION MEASUREMENT TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 a CLASS B)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)			
	Quasi-peak	Average		
0.15 ~ 0.5	66 to 56	56 to 46		
0.5 ~ 5	56	46		
5 ~ 30	60	50		

## TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 b CLASS A)

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBµV)			
	Quasi-peak	Average		
0.15 ~ 0.5	79	66		
0.5 ~ 30	73	60		

**NOTE**: 1. The lower limit shall apply at the transition frequencies.

- 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
- 3. All emanations from a class A/B digital device or system, including any network of conductors
- and apparatus connected thereto, shall not exceed the level of field strengths specified above.

# 2.1.3 TEST INSTRUMENTS

Instrument	Manufacturer	Model No.	Serial No	Calibration Date	Due Date
EMI Test Receiver	Rohde&Schwarz	ESR3	102749	Feb.24,24	Feb.23,26
ELEKTRA test software	Rohde&Schwarz	ELEKTRA	NA	N/A	N/A
LISN network	Rohde&Schwarz	ENV216	102640	Feb.16,24	Feb.15,26
CABLE	Rohde&Schwarz	W61.01	N/A	Oct.25,24	Apr.24,25
CABLE	Rohde&Schwarz	W601	N/A	Oct.25,24	Apr.24,25

**NOTE:** 1. The test was performed in CE shielded room.



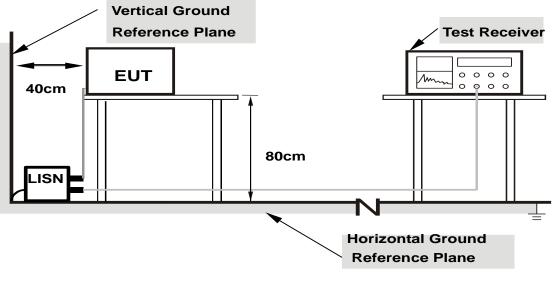
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

# 2.1.4 DEVIATION FROM TEST STANDARD

No deviation.





Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

# 2.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the use type described in the manufacturer's specifications or the user's manual.

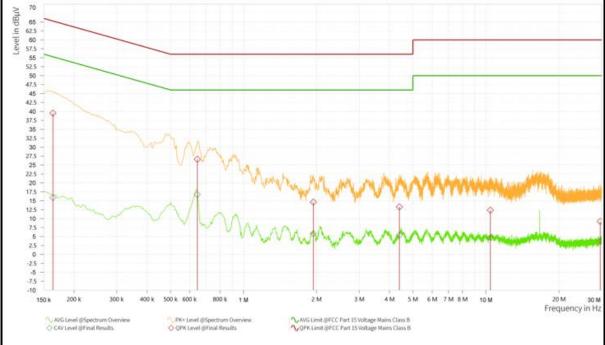


# 2.1.7 TEST RESULTS

TEST VOLTAGE			Input 120 Vac, 60 Hz				or Funct ution Bar	Quasi-Peak (QP) / Average (AV), 9 kHz			
ENVIRONMENTAL CONDITIONS			26deg. C, 51%RH			TESTE	ED BY	Hanwen Xu			
Rg	Frequency [MHz]	Le	PK evel 3μV]	QPK Limit [dBµV]	QPK Margin [dB]	CAV Level [dBµV]	CAV: AVG Limit [dBµV]	CAV Margin [dB]	Correction [dB]	Line	Meas. BW [kHz]
1	0.164	39	9.51	65.28	25.77	15.90	55.28	39.38	12.41	L1	9.000
1	0.645	26	5.60	56.00	29.40	16.76	46.00	29.24	11.74	L1	9.000
1	1.941	14	1.62	56.00	41.38	5.83	46.00	40.17	11.76	L1	9.000
1	4.394	13	3.29	56.00	42.71	5.38	46.00	40.62	11.79	L1	9.000
1	10.428	12	2.36	60.00	47.64	4.66	50.00	45.34	11.83	L1	9.000
1	29.612	9.	.23	60.00	50.77	3.68	50.00	46.32	11.90	L1	9.000
REM	ARKS:								-		

### EMARKS:

- 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
- 2. The emission levels of other frequencies were very low against the limit.
- Margin value = Limit value- Emission level 3.
- 4. Correction factor = Insertion loss + Cable loss + Attenuate
- 5. Emission Level = Correction Factor + Reading Value.



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ENVIRONMENTAL CONDITIONS         26DEG. C, 51%RH         TESTED BY         HANWEN XU           Rg         Frequency [MH2]         QPK Level [dBµV]         QPK Limit [dBµV]         QPK [dBµV]         QPK Level [dBµV]         CAV: AVG Limit [dBµV]         CAV: AVG Margin [dB]         Correction [dB]         Line BW [kH2]           1         0.164         38.89         65.28         26.39         15.14         55.28         40.14         12.18         N         9.000           1         0.641         30.53         56.00         25.47         13.09         46.00         32.91         12.75         N         9.000           1         1.536         19.32         56.00         33.68         5.47         46.00         41.59         12.75         N         9.000           1         15.617         20.54         60.00         39.46         5.48         50.00         44.52         12.83         N         9.000           1         29.045         10.23         60.00         49.77         4.59         50.00         45.41         12.89         N         9.000           1         29.045         10.23         60.00         49.77         4.59         50.00         45.41         12.89         N	TEST VOLTAGE			INPUT 120 VAC, 60 HZ			DETECTOR FUNCTION & RESOLUTION BANDWIDTH				QUASI-PEAK (QP) / AVERAGE (AV), 9 KHZ		
Rg         Frequency [MHz]         QPK Level [dbµV]         QPK [dBµV]         QPK			L	26DI	EG. C, 51	%RH		TEST	ED BY		HANWEN	ΚU	
1       0.164       38.89       65.28       26.39       15.14       55.28       40.14       12.18       N       9.000         1       0.641       30.53       56.00       25.47       13.09       46.00       32.91       12.75       N       9.000         1       1.536       19.32       56.00       36.68       5.47       46.00       40.53       12.74       N       9.000         1       4.034       12.05       56.00       43.95       4.41       46.00       41.59       12.75       N       9.000         1       15.617       20.54       60.00       39.46       5.48       50.00       44.52       12.83       N       9.000         1       29.045       10.23       60.00       49.77       4.59       50.00       45.41       12.89       N       9.000         REMARKS:         1       0.91       and AV are abbreviations of quasi-peak and average individually.       2       The emission levels of other frequencies were very low against the limit.         3       Margin value = Limit value- Emission level       3       Correction factor = Insertion loss + Cable loss + Attenuate       5       Emission Level = Correction Factor + Reading Value.       4	Rg		Le	evel	Limit	Margin	L	.evel	AVG Limit	Margin		Line	BW
1         1.536         19.32         56.00         36.68         5.47         46.00         40.53         12.74         N         9.000           1         4.034         12.05         56.00         43.95         4.41         46.00         41.59         12.75         N         9.000           1         15.617         20.54         60.00         39.46         5.48         50.00         44.52         12.83         N         9.000           1         29.045         10.23         60.00         49.77         4.59         50.00         45.41         12.89         N         9.000 <b>REMARKS:</b> 1         0.P. and AV. are abbreviations of quasi-peak and average individually.         2. The emission levels of other frequencies were very low against the limit.         3. Margin value = Limit value- Emission level         4. Correction factor = Insertion loss + Cable loss + Attenuate         5. Emission Level = Correction Factor + Reading Value.           7	1	0.164	38	3.89	65.28	26.39	1	5.14		40.14	12.18	N	9.000
1       4.034       12.05       56.00       43.95       4.41       46.00       41.59       12.75       N       9.000         1       15.617       20.54       60.00       39.46       5.48       50.00       44.52       12.83       N       9.000         1       29.045       10.23       60.00       49.77       4.59       50.00       45.41       12.89       N       9.000 <b>REMARKS:</b> 1       Q.P. and AV. are abbreviations of quasi-peak and average individually.         2. The emission levels of other frequencies were very low against the limit.         3. Margin value = Limit value- Emission level         4. Correction factor = Insertion loss + Cable loss + Attenuate         5. Emission Level = Correction Factor + Reading Value. <b>Automation of present state sta</b>	1	0.641	30	0.53	56.00	25.47	1	3.09	46.00	32.91	12.75	N	9.000
1         15.617         20.54         60.00         39.46         5.48         50.00         44.52         12.83         N         9.000           1         29.045         10.23         60.00         49.77         4.59         50.00         45.41         12.89         N         9.000 <b>REMARKS:</b> 1.         Q.P. and AV. are abbreviations of quasi-peak and average individually.         2. The emission levels of other frequencies were very low against the limit.           3.         Margin value = Limit value- Emission level         4. Correction factor = Insertion loss + Cable loss + Attenuate         5. Emission Level = Correction Factor + Reading Value. <b>August 10.00</b>	1	1.536	19	<del>)</del> .32	56.00	36.68	5	5.47	46.00	40.53	12.74	N	9.000
1     29.045     10.23     60.00     49.77     4.59     50.00     45.41     12.89     N     9.000       REMARKS:       1.     Q.P. and AV. are abbreviations of quasi-peak and average individually.       2.     The emission levels of other frequencies were very low against the limit.       3.     Margin value = Limit value- Emission level       4.     Correction factor = Insertion loss + Cable loss + Attenuate       5.     Emission Level = Correction Factor + Reading Value.	1	4.034	12	2.05	56.00	43.95	4	4.41	46.00	41.59	12.75	N	9.000
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually. 2. The emission levels of other frequencies were very low against the limit. 3. Margin value = Limit value- Emission level 4. Correction factor = Insertion loss + Cable loss + Attenuate 5. Emission Level = Correction Factor + Reading Value. 9. Output the second s	1	15.617	20	0.54	60.00	39.46	!	5.48	50.00	44.52	12.83	N	9.000
<ol> <li>Q.P. and AV. are abbreviations of quasi-peak and average individually.</li> <li>The emission levels of other frequencies were very low against the limit.</li> <li>Margin value = Limit value- Emission level</li> <li>Correction factor = Insertion loss + Cable loss + Attenuate</li> <li>Emission Level = Correction Factor + Reading Value.</li> </ol>	1	29.045	10	0.23	60.00	49.77	4	4.59	50.00	45.41	12.89	N	9.000
25-	1180 ui java 1 529 500 479 529 500 479 500 470 500 479 500 479 5000 4700 50000000000000000000000000000000000		- h		Mh	Mm	12	v~~				¢	

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# 2.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

## **TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)**

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 3 meters (dBµV/m)							
Frequencies (MHz)	FCC 15B Class A	FCC 15B Class B					
30-88	49	40					
88-216	53.5	43.5					
216-960	56	46					
960-1000	59.5	54					
Above 1000	Avg: 59.5 Peak: 79.5	Avg: 54 Peak: 74					

## Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40GHz, whichever is lower

- **NOTE:** 1. The lower limit shall apply at the transition frequencies.
  - 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
  - 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
  - 4. QP detector shall be applied if not specified.



VERITAS Test Report No.: PSU-QSZ2503050113EM01 2.2.2 TEST INSTRUMENTS

#### Frequency range below 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date
3m Semi- anechoic Chamber	ток	9m*6m*6m	HRSW-SZ-EMC -02Chamber	Nov.24,22	Nov.23,25
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.27,24	Feb.26,26
EMI Test Receiver	R&S	ESW44	101973	Feb.24,24	Feb.23,26
Measurement Software	R&S	ELEKTRA	N/A	N/A	N/A
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
CABLE	R&S	W13.01	N/A	Oct.25,24	Apr.24,25
CABLE	R&S	W13.02	N/A	Oct.25,24	Apr.24,25
CABLE	R&S	W12.14	N/A	Oct.25,24	Apr.24,25
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	N/A	N/A

### Frequency range above 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date
3m Fully- anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC -01Chamber	Nov.24,22	Nov.23,25
Horn Antenna	ETS- LINDGREN	3117	227836	Aug.21,24	Aug.20,26
EMI Test Receiver	R&S	ESW44	101973	Feb.24,24	Feb.23,26
Pre-Amplifier	R&S	SCU08F1	101028	Sep.15,24	Sep.14,26
Measurement Software	R&S	ELEKTRA	N/A	N/A	N/A
CABLE	R&S	W13.01	N/A	Oct.25,24	Apr.24,25
CABLE	R&S	W13.02	N/A	Oct.25,24	Apr.24,25
CABLE	R&S	W12.14	N/A	Oct.25,24	Apr.24,25

**NOTE:** 1. The calibration interval of the above test instruments is 6 months or 24 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA. 2. The test was performed in 3m Chamber.



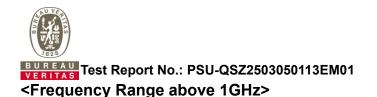
## <Frequency Range below 1GHz>

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

### NOTE:

- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- 3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
- Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) Amplifier Gain(dB) (if the raw value contains the amplifier).
- 5. Margin value = Limit value -Emission level.



- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

#### NOTE:

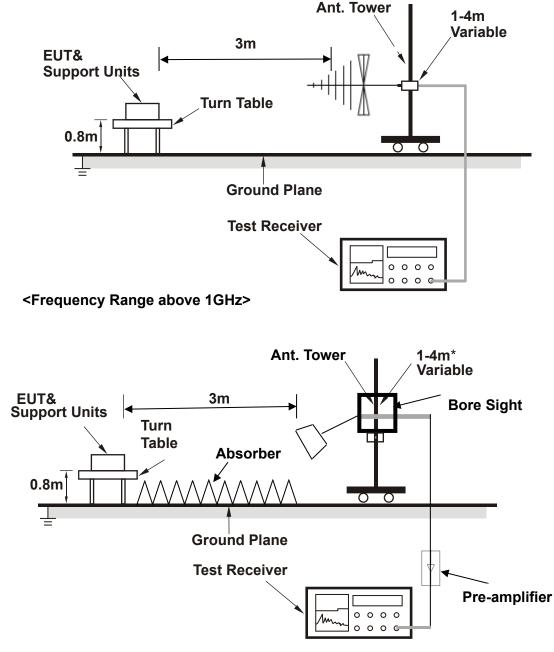
- 1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth of test receiver/spectrum analyzer is 1Hz for Average detection (AV) at frequency above 1GHz.
- 3. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
- 4. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
- 6. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) Amplifier Gain(dB) (if the raw value contains the amplifier)
- 7. Margin value = Limit value- Emission level.

# 2.2.4 DEVIATION FROM TEST STANDARD

No deviation.



## <Frequency Range below 1GHz>



**Note**: Above 1G is a directional antenna depends on the EUT height and the antenna 3dB bandwidth both, refer to section 7.3 of CISPR 16-2-3.

# 2.2.6 EUT OPERATING CONDITIONS

Same as item 2.1.6.

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#### BUREAU VERITAS 2.2.7 TEST RESULTS

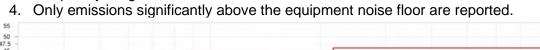
TEST VOLTAGE	Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz
TESTED BY	Hanwen Xu		

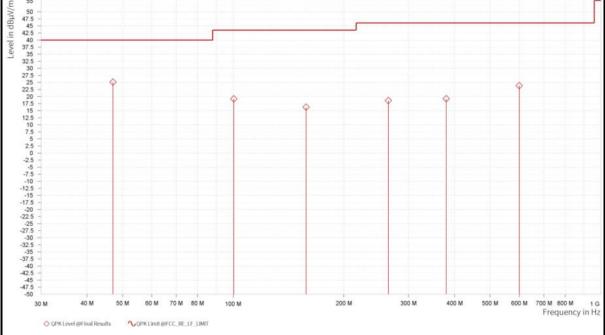
	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
Rg	Frequency [MHz]	QPK Level [dBµV/m]	QPK Limit [dBµV/m]	QPK Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]	Meas. BW [kHz]	
1	47.083	25.07	40.00	14.93	-8.73	Н	57.1	2.00	120.000	
1	100.379	19.17	43.50	24.33	-11.05	Н	302.9	1.00	120.000	
1	157.932	16.20	43.50	27.30	-13.66	Н	285.4	2.00	120.000	
1	264.147	18.57	46.00	27.43	-7.61	Н	226.4	1.00	120.000	
1	379.685	19.20	46.00	26.80	-3.36	Н	285.4	2.00	120.000	
1	599.929	23.83	46.00	22.17	-1.37	Н	2.6	2.00	120.000	

### **REMARKS**:

1. Peak detector quick scan is shown on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.

- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 30MHz to 1000MHz.





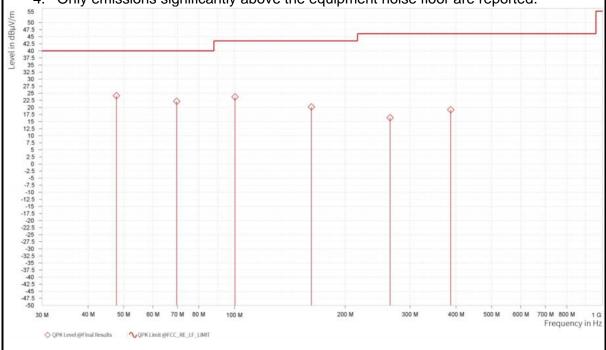
Huarui 7layers High Technology (Suzhou) Co., Ltd. Tower N, Innovation Center, 88 Zuyi Road, High-tech District, Suzhou City, Anhui Province



TEST VOLTAGE	Input 120 Vac, 60 Hz	FREQUENCY RANGE	30-1000 MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Quasi-Peak, 120 kHz		
TESTED BY	Hanwen Xu				

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M											
Rg	RgFrequency [MHz]QPK Level [dBμV/m]QPK [dBμV/m]QPK [dBμV/m]OPF [dB]Correction [dB]PolarizationAzimuth [deg]Antenna Height [deg]Meas. BW [kHz]											
1	47.783	24.15	40.00	15.85	-9.60	V	285.4	2.00	120.000			
1	69.662	22.14	40.00	17.86	-15.48	V	355.1	2.00	120.000			
1	100.379	23.65	43.50	19.85	-11.15	V	359	2.00	120.000			
1	161.866	20.14	43.50	23.36	-13.18	V	151.1	1.00	120.000			
1	264.794	16.36	46.00	29.64	-7.89	V	151.1	1.00	120.000			
1	1 387.068 19.16 46.00 26.84 -3.49 V 55.9 2.00 120.000											
REN	<b>REMARKS:</b> 1. Peak detector quick scan is shown on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.											

- 2. Negative sign (-) in the margin column signify levels below the limit.
- 3. Frequency range scanned: 30MHz to 1000MHz.
- 4. Only emissions significantly above the equipment noise floor are reported.



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TEST VOLTAGE	Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Hanwen Xu		

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
Rg	Frequency [MHz]	PK+ Level [dBµV/m]	PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	3,574.500	44.30	74.00	29.70	33.23	54.00	20.77	8.74	Н	359	2.00
1	5,275.000	44.45	74.00	29.55	34.79	54.00	19.21	12.00	Н	177.8	2.00
1	7,475.000	51.31	74.00	22.69	39.20	54.00	14.80	15.81	Н	1	2.00
	<ol> <li>Neg</li> <li>Frec</li> <li>40G</li> <li>20di</li> </ol>	ative sig juency ra Hz, whic b below f	n (-) in th ange sca chever is the limit	ne mai anned: lower so the	rgin colu 1GHz to For freo data not	mn signi 5 5th har quency a t recorde	fy leve monic above ed in th	ls below of the hig 18GHz, the sheet.	n the data the limit. ghest frequ ne emissio or are repo	uency o on was t	
U/MI 72 1 67 62 57	75 - 1.5										
47 42 37 32 32 27	50 - 55 - 25 -				(	p p	0	Φ			
17 17 12 7	2.5 - 2.5 - 5.5 - 5.5 - 10 - 5.5 - 5.5 - 5.5 - 0.0										

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TEST VOLTAGE	Input 120 Vac, 60 Hz	FREQUENCY RANGE	1-18 GHz
ENVIRONMENTAL CONDITIONS	23dea C 70 %RH	DETECTOR FUNCTION & RESOLUTION BANDWIDTH	Peak/Average, 1 MHz
TESTED BY	Hanwen Xu		

### ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

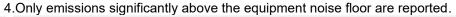
Rg	Frequency [MHz]		PK+ Limit [dBµV/m]	PK+ Margin [dB]	AVG Level [dBµV/m]	AVG Limit [dBµV/m]	AVG Margin [dB]	Correction [dB]	Polarization	Azimuth [deg]	Antenna Height [m]
1	3,255.000	44.20	74.00	29.80	32.36	54.00	21.64	8.13	V	359	2.00
1	5,078.500	46.19	74.00	27.81	34.52	54.00	19.48	11.64	V	359	1.00
1	7,488.500	51.84	74.00	22.16	39.39	54.00	14.61	15.82	V	356.3	2.00

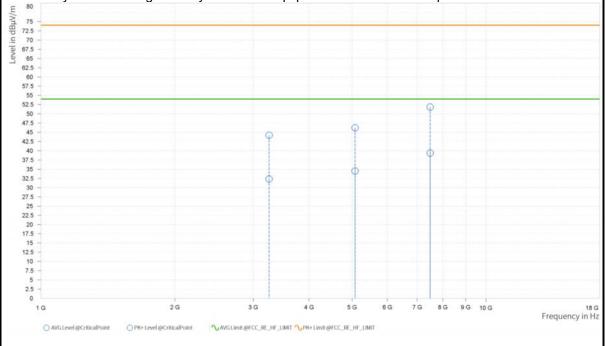
### **REMARKS**:

1.Peak detector quick scan is shown on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.

2.Negative sign (-) in the margin column signify levels below the limit.

3.Frequency range scanned: 1GHz to 5th harmonic of the highest frequency or 40GHz, whichever is lower. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.





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# 3 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

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