



TEST REPORT

No. I20D00005-EMC01

For

Client : Micronet

Production : Micronet SmartCam (ENH)

Model Name : Micronet SmartCam

Brand Name: TREQ

FCC ID: U8O-A9

IC ID: 12186A-A9

Hardware Version: 1.01

Software Version: OS SW: ver_9.10.x

Issued date: 2020-07-29

NOTE

1. The test results in this test report relate only to the devices specified in this report.
2. This report shall not be reproduced except in full without the written approval of East China Institute of Telecommunications
3. The measurement uncertainty is not taken into account when deciding conformity, and the results of measurement (or the average of measurement results) are directly used as the criterion for the stating conformity.

Test Laboratory:

East China Institute of Telecommunications

Add: Building 4, No. 766, Jingang Road, Pudong New District, Shanghai

Tel: +862163843300

E-Mail: welcome@ecit.org.cn

Revision Version

Report Number	Revision	Date	Memo
I20D00005-EMC01	00	2020-07-29	Initial creation of test report

CONTENTS

1. TEST LABORATORY	6
1.1. TESTING LOCATION	6
1.2. TESTING ENVIRONMENT	6
1.3. PROJECT DATA	6
1.4. SIGNATURE	6
2. CLIENT INFORMATION	7
2.1. APPLICANT INFORMATION	7
2.2. MANUFACTURER INFORMATION	7
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	8
3.1. ABOUT EUT	8
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	8
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST	8
4. REFERENCE DOCUMENTS.....	9
4.1 REFERENCE DOCUMENTS FOR TESTING	9
5. TEST RESULTS.....	10
5.1 SUMMARY OF TEST RESULTS	10
5.2 STATEMENTS.....	10
6. TEST EQUIPMENT UTILIZED	11
6.1 RADIATED EMISSION EQUIPMENT LIST	11
7. SYSTEM CONFIGURATION DURING TEST	12
7.1 TEST MODE.....	12
7.2 CONNECTION DIAGRAM OF TEST SYSTEM.....	13
8. MEASUREMENT RESULTS	14
8.1 RADIATED EMISSION 30MHZ-18GHZ.....	14

ANNEX A	ACCREDITATION CERTIFICATE.....	18
---------	--------------------------------	----

1. Test Laboratory

1.1. Testing Location

Company Name:	ECIT Shanghai, East China Institute of Telecommunications
Address:	Building 4, No. 766, Jingang Road, Pudong New District, Shanghai
Postal Code:	201206
Telephone:	(+86)-021-63843300
FCC registration No:	958356

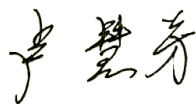
1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	30-60% RH
Supply Voltage	DC12V&24V

1.3. Project data

Project Leader:	Zhou Yan
Testing Start Date:	2020-03-07
Testing End Date:	2020-04-24

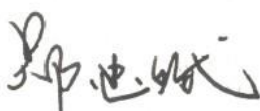
1.4. Signature



Lu Huifang
(Prepared this test report)



You Jinjun
(Reviewed this test report)



Zheng Zhongbin
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name	Micronet
Address	1865 West 2100 South, Suite 2 Salt Lake City, Utah 84119 United States
Telephone	+1-801-990-8700
Postcode	84119

2.2. Manufacturer Information

Company Name	Micronet
Address	1865 West 2100 South, Suite 2 Salt Lake City, Utah 84119 United States
Telephone	+1-801-990-8700
Postcode	84119

3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

ProductName	Micronet SmartCam (ENH)
Model name	Micronet SmartCam
GSM Frequency Band	GSM850/GSM900/GSM1800/GSM1900
WCDMA Frequency Band	Band I / II / IV / V / VIII
LTE Frequency Band	Band 1/2/3/4/5/7/8/12/13/17/20/28
Additional Communication Function	BT 4.2;WIFI 802.11 a ,b,g,n,ac; GPS;GLONASS;

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N01	/	1.01	OS SW: ver_9.10.x	2020-01-14

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN
AE1	DC Cable	/	Line Length is about 2.8m
AE2	Storage battery	6-QW-36(280)-LT1	/
AE3	Software (Vysor)	/	/
AE4	Notebook PC	DELL E5250	/
AE5	USB Cable	/	/
AE6	Software (AndroiTSGPSTestPro_148)	/	GPS/GLONASS

*The AE1/AE3 was provided by the customer.

*The AE2/AE4/AE5/AE6 was provided by the lab.

4. Reference Documents

4.1 Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 15, Subpart B	Radio frequency devices	2020/3/31
ANSI C63.4	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014
ICES-003	Information Technology Equipment (Including Digital Apparatus) — Limits and Methods of Measurement	January 19, 2016

5. Test Results

5.1 Summary of Test Results

Items	Test List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	Pass

5.2 Statements

The Micronet SmartCam, supporting GSM/WCDMA/LTE.etc, manufactured by Micronet is a new product for testing. ECIT only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

ECIT has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Test Equipment Utilized

6.1 Radiated Emission Equipment list

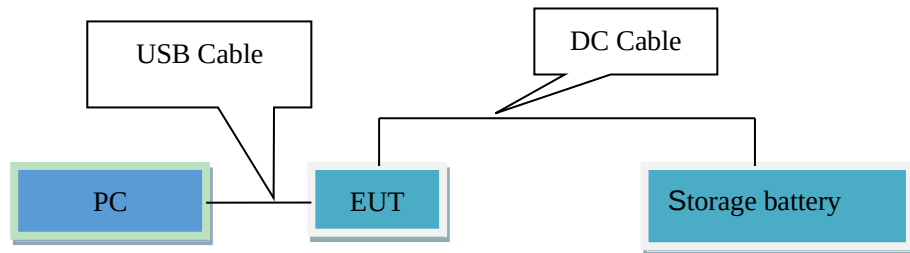
Item	Instrument Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Universal Radio Communication	CMU200	123126	R&S	2019-05-10	1 year
2	Universal Radio Communication	CMW500	104178	R&S	2019-05-10	1 year
3	Test Receiver	ESU40	100307	R&S	2019-05-10	1 year
4	Trilog Antenna	VULB9163	VULB9163-5 15	Schwarzbeck	2020-02-28	2 years
5	Double Ridged Guide	ETS-3117	00135885	ETS	2020-02-28	2 years
6	EMI Test Software	EMC32 V9.15	NA	R&S	NA	NA
7	Vector Signal Generator	SMBV100 A	257904	R&S	2020-03-05	1 year

7. System Configuration during Test

7.1 Test Mode

Test Item	Function Type
Radiated Emission	Mode 1: G850 receiver mode+ Camera+ DC12V <Figure 1> Mode 2: GPS mode+ DC12V <Figure 1> Mode 3: GLONASS mode+ DC12V <Figure 1> Mode 4: G850 receiver mode+ Camera+ DC24V <Figure 1> Mode 5: Camera mode+ DC12V <Figure 1>
Remark: 1. All test modes are performed, only the worst cases test data are recorded in this report. 2. After laboratory verification, GSM850 is the worst mode among all receiving modes of 2G/3G/4G and is recorded in the report. 3. EUT and Vector signal generator (SMBV100A) connection is established. 4. The worst case of radiated emission for 30MHz-1GHz is mode 5&1GHz-18GHz is mode 1.	

7.2 Connection Diagram of Test System



<Figure 1> Mode 1-5

8. Measurement Results

Only the worst test result was shown in this report.

8.1 Radiated Emission 30MHz-18GHz

Method of Measurement

For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement. Tested in accordance with the procedures of ANSI C63.4-2014, section 8.3.

For 1000MHz-18000MHz, The maximal emission value was acquired by adjusting the antenna height, The table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

Limits for Radiated Emission at a measuring distance of 3m

Frequency Range (MHz)	Quasi-Peak (dBuV/m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Frequency Range (MHz)	Peak (dBuV/m)	Average (dBuV/m)
Above 1000	74	54

Test conditions

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	Auto
1000-18000	1MHz/3MHz	Auto

Uncertainty Measurement

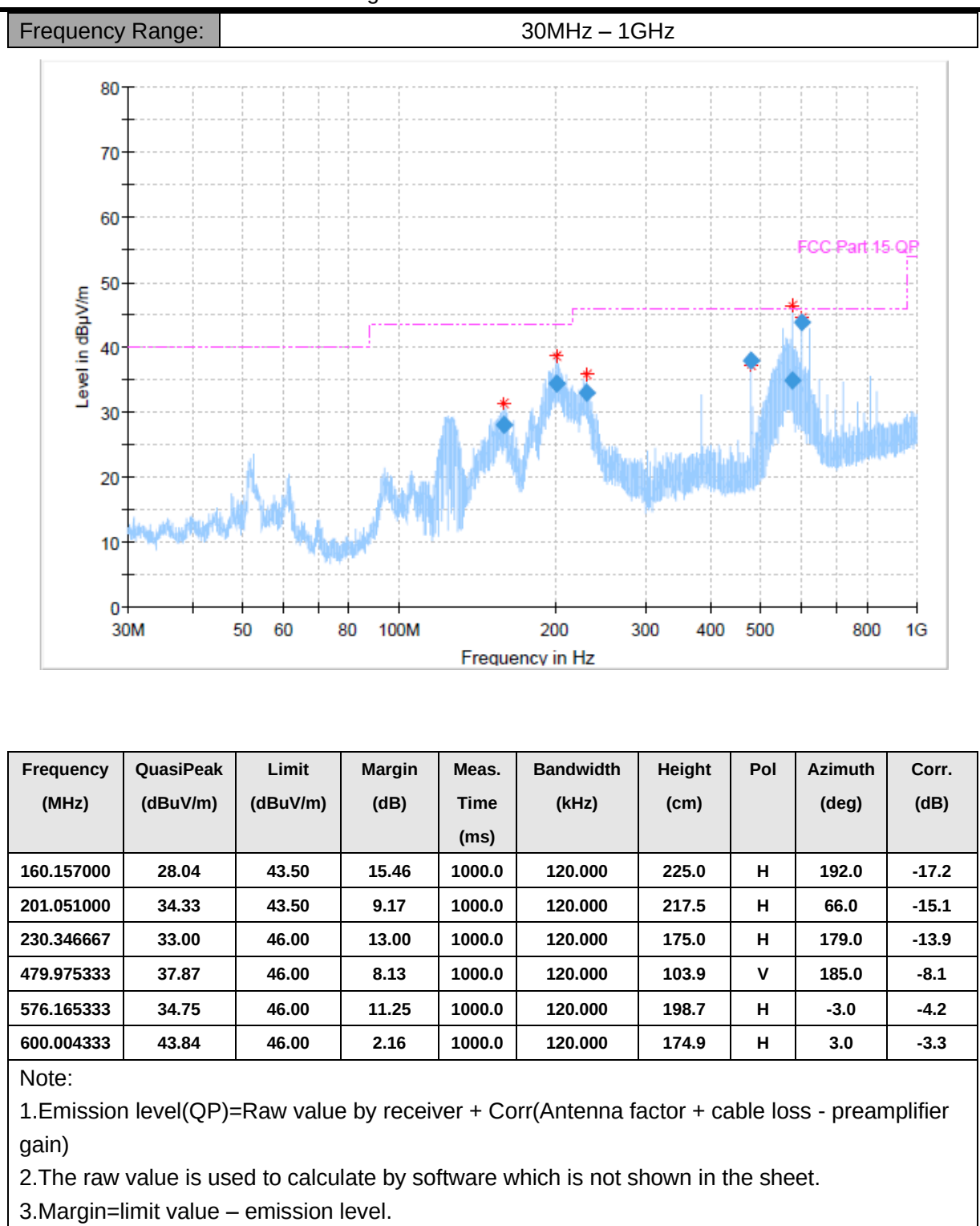
The measurement uncertainty (30MHz-1000MHz) is 4.82 dB (k=2).

The measurement uncertainty (1000MHz-18000MHz) is 5.08 dB (k=2).

Test Results

Sweep the whole frequency band through the range from 30MHz to the 5th harmonic of the carrier, the Emissions in the frequency band 18GHz-40GHz is more than 20dB below the limit are not report.

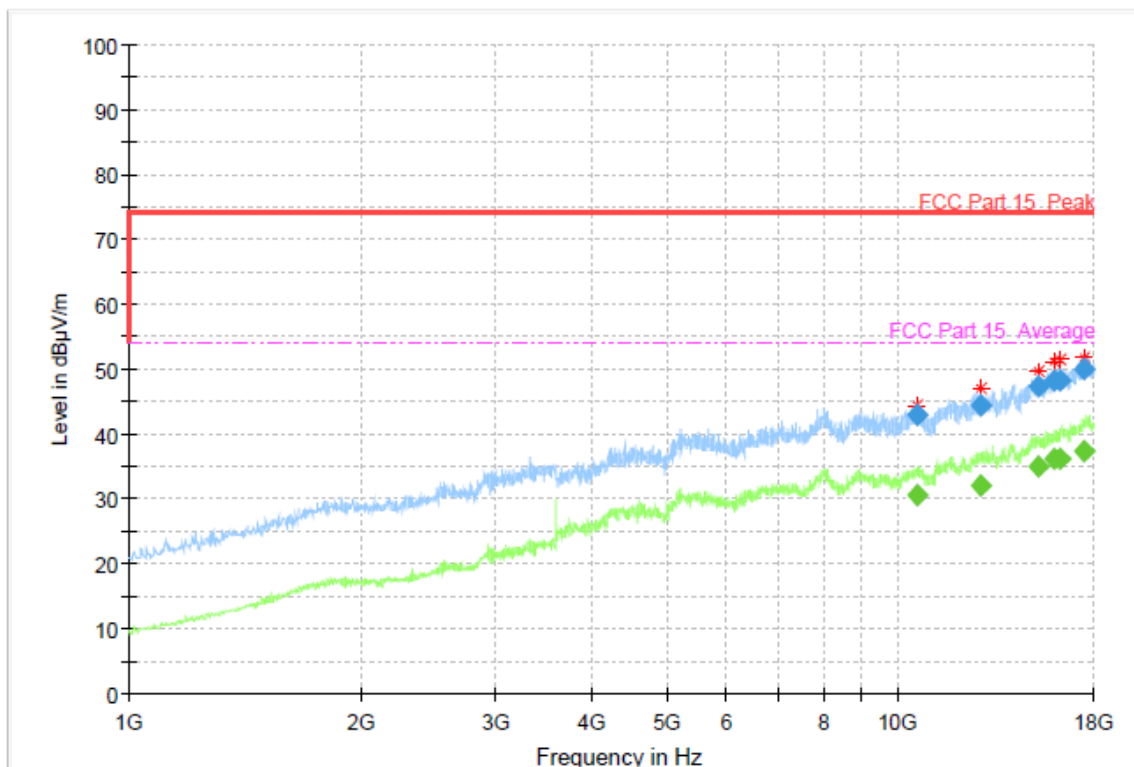
Mode 5: Camera mode+ DC12V <Figure 1>



Mode 1: G850 receiver mode+ Camera+ DC12V <Figure 1>

Frequency Range:

1GHz –18GHz

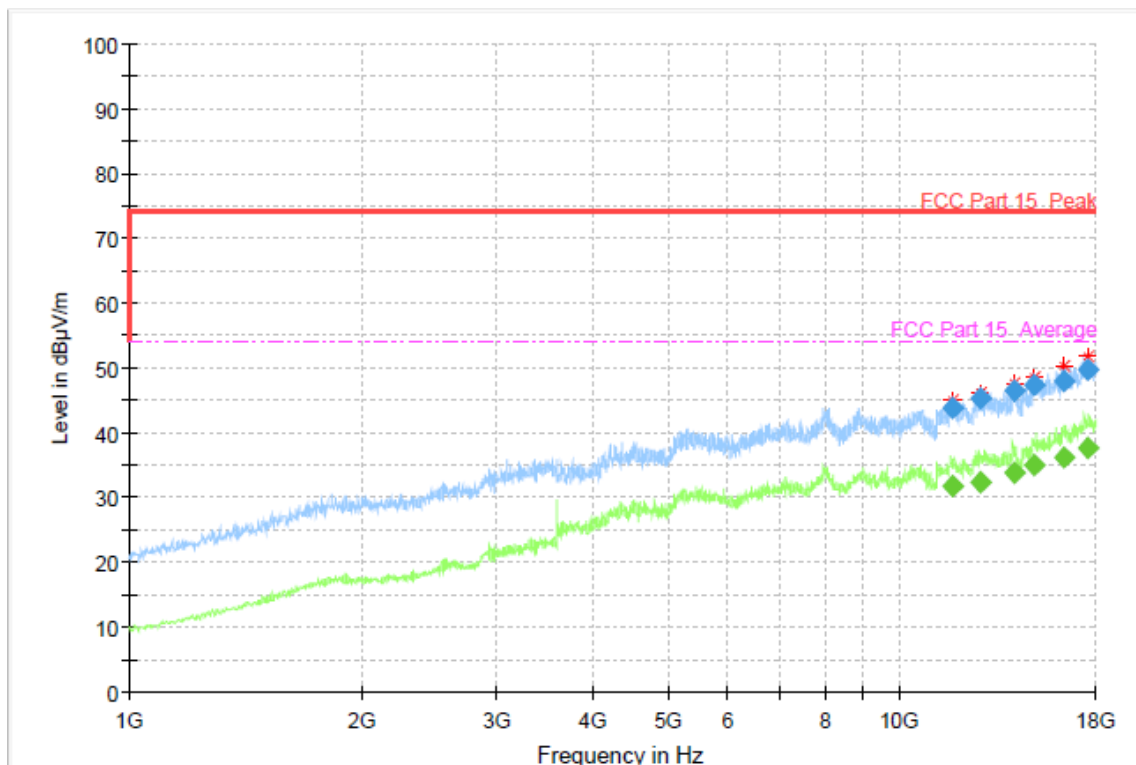


Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time	Band width	Height	P ol	Azim uth	Corr. (dB)
10572.000000	---	30.67	54.00	23.33	100.0	1000.	100.1	H	0.0	7.0
10572.000000	42.91	---	74.00	31.09	100.0	1000.	100.1	H	0.0	7.0
12801.400000	---	32.19	54.00	21.81	100.0	1000.	199.9	H	70.0	10.3
12801.400000	44.38	---	74.00	29.62	100.0	1000.	199.9	H	70.0	10.3
15216.200000	---	35.00	54.00	19.00	100.0	1000.	199.9	H	91.0	13.8
15216.200000	47.27	---	74.00	26.73	100.0	1000.	199.9	H	91.0	13.8
15974.600000	48.22	---	74.00	25.78	100.0	1000.	100.1	H	181.0	15.4
15974.600000	---	36.09	54.00	17.91	100.0	1000.	100.1	H	181.0	15.4
16306.600000	48.24	---	74.00	25.76	100.0	1000.	100.1	H	359.0	15.9
16306.600000	---	36.04	54.00	17.96	100.0	1000.	100.1	H	359.0	15.9
17502.800000	---	37.34	54.00	16.66	100.0	1000.	199.9	H	156.0	17.7
17502.800000	50.04	---	74.00	23.96	100.0	1000.	199.9	H	156.0	17.7

Note:

- 1.Emission level(peak or average)=Raw value by receiver + Corr(Antenna factor+ cable loss - preamplifier gain)
- 2.The raw value is used to calculate by software which is not shown in the sheet.
- 3.Margin=limit value – emission level.



Final Result

Frequency (MHz)	MaxPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Meas. Time	Bandwidth (Hz)	Height (m)	Polarization	Azimuth (°)	Corr. (dB)
11730.000000	43.86	---	74.00	30.14	100.0	1000.00	199.9	V	159.0	8.7
11730.000000	---	31.72	54.00	22.28	100.0	1000.00	199.9	V	159.0	8.7
12771.600000	45.15	---	74.00	28.85	100.0	1000.00	100.1	V	310.0	10.3
12771.600000	---	32.38	54.00	21.62	100.0	1000.00	100.1	V	310.0	10.3
14121.000000	46.40	---	74.00	27.60	100.0	1000.00	199.9	V	117.0	12.1
14121.000000	---	33.75	54.00	20.25	100.0	1000.00	199.9	V	117.0	12.1
14959.400000	---	34.92	54.00	19.08	100.0	1000.00	100.1	V	59.0	13.6
14959.400000	47.27	---	74.00	26.73	100.0	1000.00	100.1	V	59.0	13.6
16405.000000	---	36.15	54.00	17.85	100.0	1000.00	199.9	V	189.0	16.4
16405.000000	48.01	---	74.00	25.99	100.0	1000.00	199.9	V	189.0	16.4
17604.800000	49.66	---	74.00	24.34	100.0	1000.00	100.1	V	268.0	17.8
17604.800000	---	37.58	54.00	16.42	100.0	1000.00	100.1	V	268.0	17.8

Note:

- 1.Emission level(peak or average)=Raw value by receiver + Corr(Antenna factor+ cable loss - preamplifier gain)
- 2.The raw value is used to calculate by software which is not shown in the sheet.
- 3.Margin=limit value – emission level.

Annex A Accreditation Certificate**Accredited Laboratory**

A2LA has accredited

EAST CHINA INSTITUTE OF TELECOMMUNICATIONS*Shanghai, People's Republic of China*

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 6th day of May 2019.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2021

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

*******END OF REPORT*******