



TEST REPORT

No. I20D00025-EMC01

For

Client : ClearCellular, Limited.

Production : Smart Phone

Model Name : ClearPHONE 420

Brand Name: ClearCellular

FCC ID: 2AVSK-420

Hardware Version: K6307Q-01

Software Version: K6307QACL.FHDJ.P0.ANASAPA9DATJD

FTL.0225_1140.V2.02

Issued date: 2020-04-24

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
I20D00025-EMC01	00	2020-03-19	Initial creation of test report
I20D00025-EMC01	01	2020-04-24	Second creation of test report

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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

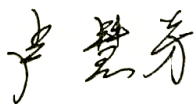
1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	30-60% RH
Supply Voltage	120V/60Hz

1.3. Project data

Project Leader:	Zhang Heng
Testing Start Date:	2020-03-09
Testing End Date:	2020-03-18

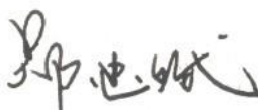
1.4. Signature



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	ClearCellular, Limited.
Address	4764/24B Moorefield Rd Johnsonville Wellington 6037-227 New Zealand
Telephone	+1.801.361.6453
Postcode	NA

2.2. Manufacturer Information

Company Name	COOSEA GROUP (HK) COMPANY LIMITED
Address	UNIT 5-6 16F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIM SHA TSUI KL HONGKONG
Telephone	86-0755-3397 1000
Postcode	NA

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

3.1. About EUT

Product Name	Smart Phone
Model name	ClearPHONE 420
GSM Frequency Band	GSM850/GSM1900
UMTS Frequency Band	Band II /BandIV/Band V
LTE Frequency Band	LTE 2/4/5/7/12/13/17
Additional Communication Function	BT4.2;WLAN 802.11b,g,n;NFC;GPS;GLONASS;BDS;FM;

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N08	869899033450854/ 869899033450862	K6307Q-01	K6307QACL.FHDJ.P0. ANASAPA9DATJDFTL. 0225_1140.V2.02	2020-03-09

*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
CA04	Adapter	HJ-FC017K7-US	NA
UA06	USB Cable	9V 2A Type-C	NA
UB01	USB Cable	9V 2A Type-C	NA
AA01	Earphone	STM-AD302	NA
AE1	Notebook PC	DELL Latitude E6510	/
AE2	Desktop PC	OptiPlex 790 DT	X8RP1 A01 APCC
AE3	LAN Cable	/	/
AE4	VGA Cable	/	/
AE5	RS232 Cable	/	/
AE6	Keyboard	KB212-B	CN-0Y88XT-65890-12I-005Q-A00
AE7	Mouse	MS111-P	CN-011D3V-71581-19J-1A64
AE8	SanDiskUltra32 GB	microSDHC UHS-I	/
AE9	Monitor	Dell E1709Wc	/

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

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	2020/02/25
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

5. Test Results

5.1 Summary of Test Results

Items	Test List	Clause in FCC rules	Verdict
1	Radiated Emission	15.109(a)	Pass
2	AC Conducted Emission	15.107(a)	Pass

5.2 Statements

The ClearPHONE 420, supporting GSM/WCDMA/LTE.etc, manufactured by COOSEA GROUP (HK) COMPANY LIMITED 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	Test Receiver	ESU40	100307	R&S	2019-05-10	1 year
3	Trilog Antenna	VULB9163	VULB9163-5 15	Schwarzbeck	2020-02-28	2 years
4	Double Ridged Guide	ETS-3117	00135890	ETS	2020-02-28	2 years
5	EMI Test Software	EMC32 V9.15	NA	R&S	NA	NA
6	Signal Generator	SMF 100A	102314	R&S	2019-05-10	1 year
7	GPS Simulator	GSS 4200	1182	SPIRENT	2019-12-11	1 year
8	Signal Generator	SMBV100 A	257984	R&S	2020-03-05	1 year

6.1 AC Conducted Emission Equipment list

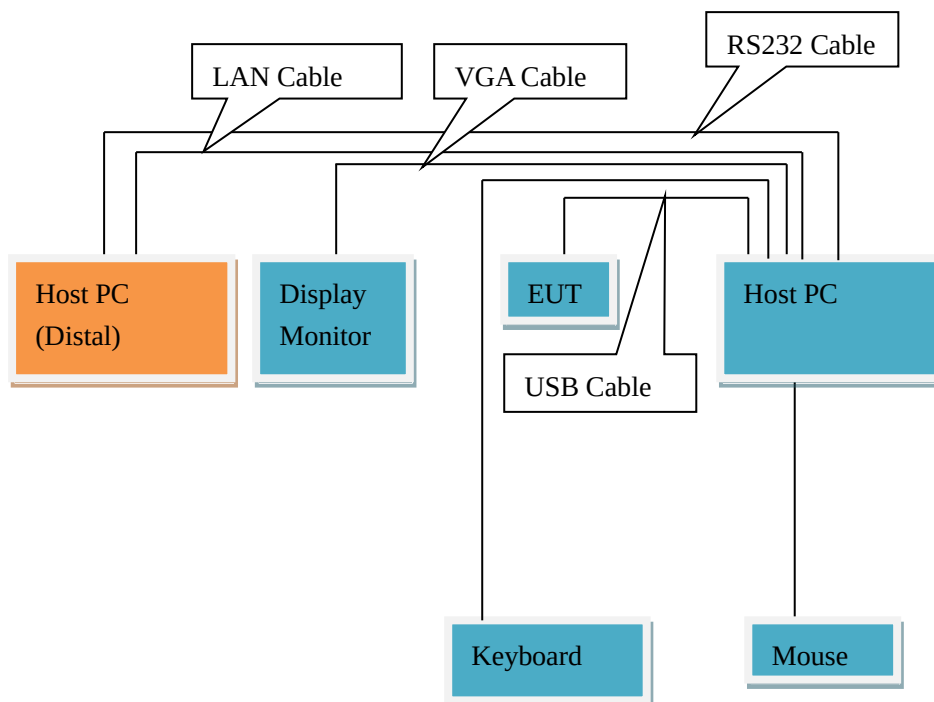
Item	Instrument Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Universal Radio Communication	CMU200	123123	R&S	2019-05-10	1 year
2	Test Receiver	ESCI	101235	R&S	2019-05-10	1 year
3	2-Line V-Network	ENV216	101380	R&S	2019-05-10	1 year
4	EMI Test Software	EMC32 V10.35.02	NA	R&S	NA	NA
5	Signal Generator	SMF 100A	102314	R&S	2019-05-10	1 year
6	GPS Simulator	GSS 4200	1182	SPIRENT	2019-12-11	1 year
7	Signal Generator	SMBV100 A	257984	R&S	2020-03-05	1 year

7. System Configuration during Test

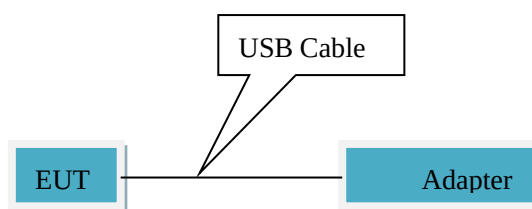
7.1 Test Mode

Test Item	Function Type
AC Conducted Emission	Mode 1: Adapter charging+UA06 <Figure 2> Mode 2: USB cable (Data Link with PC) +UB01 <Figure 1> Mode 3: FM mode(98MHz) +UA06 <Figure 3> Mode 4: GPS mode+UA06 <Figure 2> Mode 5: GLONASS mode+UA06 <Figure 2> Mode 6: BDS mode+UA06 <Figure 2> Mode 7: NFC mode+UA06 <Figure 2> Mode 8: GSM 850 receiver <Figure 2>
Radiated Emission	Mode 1: Adapter charging+UA06 <Figure 2> Mode 2: USB cable (Data Link with PC) +UB01 <Figure 1> Mode 3: FM mode(98MHz) +UA06 <Figure 3> Mode 4: GPS mode+UA06 <Figure 2> Mode 5: GLONASS mode+UA06 <Figure 2> Mode 6: BDS mode+UA06 <Figure 2> Mode 7: NFC mode+UA06 <Figure 2> Mode 8: GSM 850 receiver <Figure 2>
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. Data Link with PC means data application transferred mode between EUT and PC. 4. The EUT is synchronized to a FM signal generator. The EUT is keeping on demodulating the FM signal and outputting the audio signal through the headset. 5. Connect the EUT with GSS 4200 Communication. 6. EUT and GLONASS&BDS simulator (SMBV100A) connection is established. 7. Enter working mode according to NFC transmission command. The EUT will transmit the NFC command continuously during the test, and will read the information from the Type A Card continuously.	

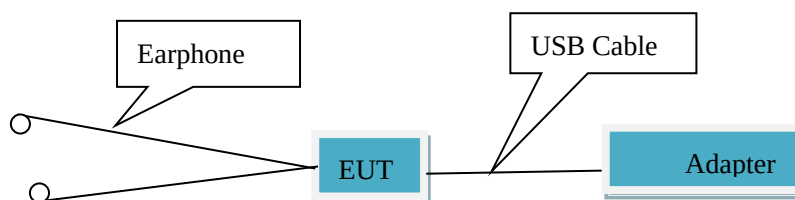
7.2 Connection Diagram of Test System



<Figure 1>



<Figure 2>



<Figure 3>

2. 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

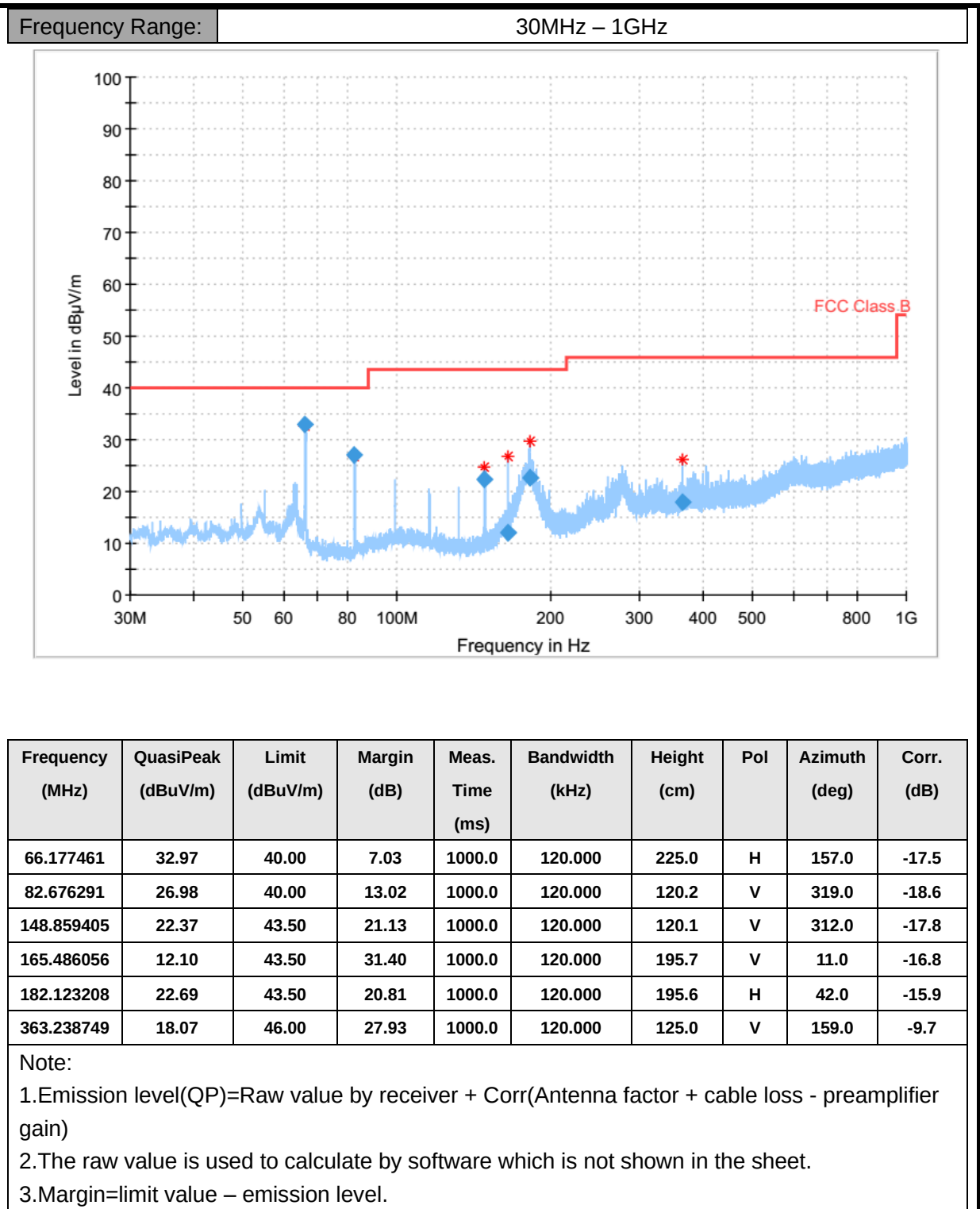
The measurement uncertainty (30MHz-1000MHz) is 4.98 dB (k=2).

The measurement uncertainty (1000MHz-18000MHz) is 5.06 dB (k=2).

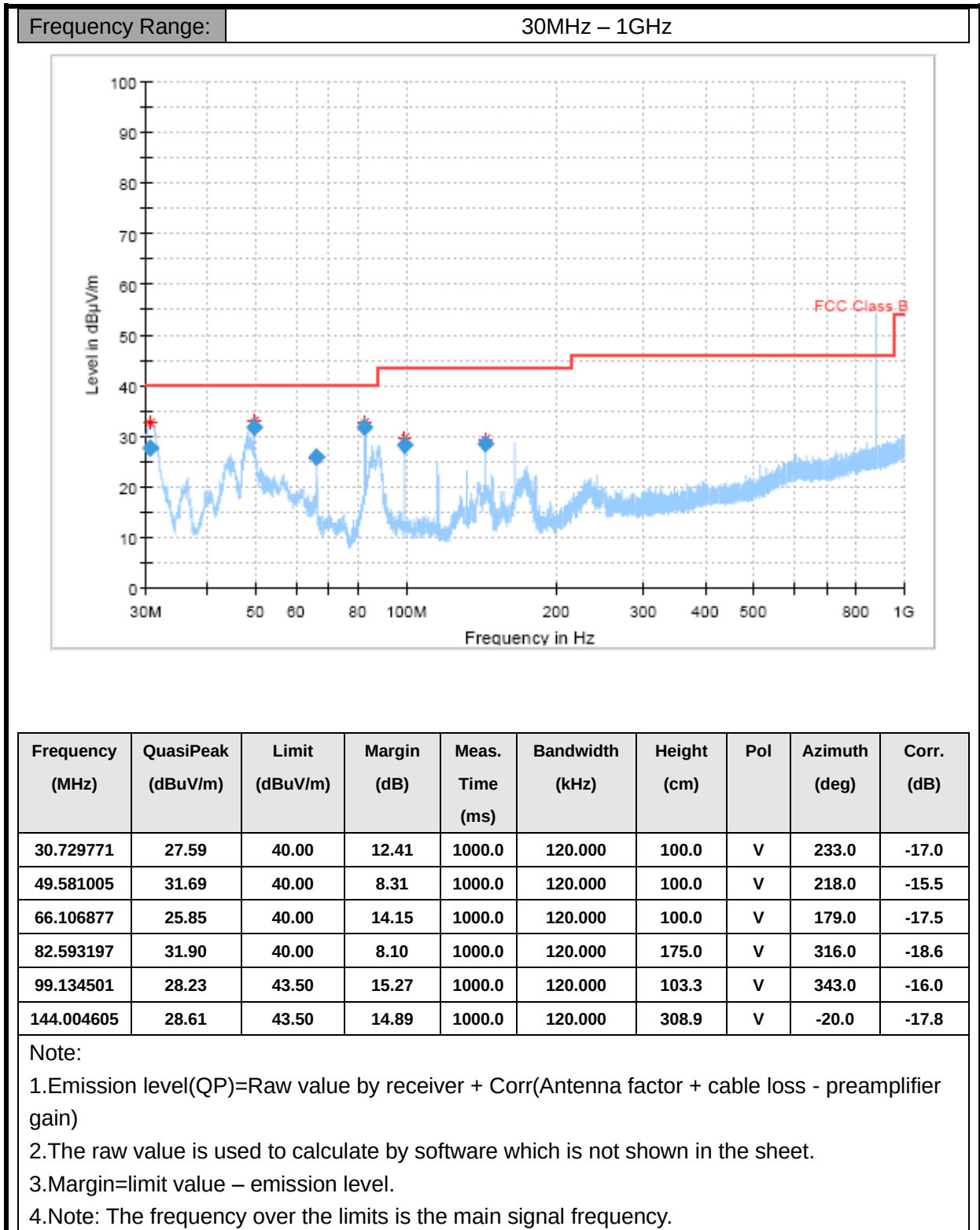
Test Results

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 2: USB cable (Data Link with PC) +UB01 <Figure 1>



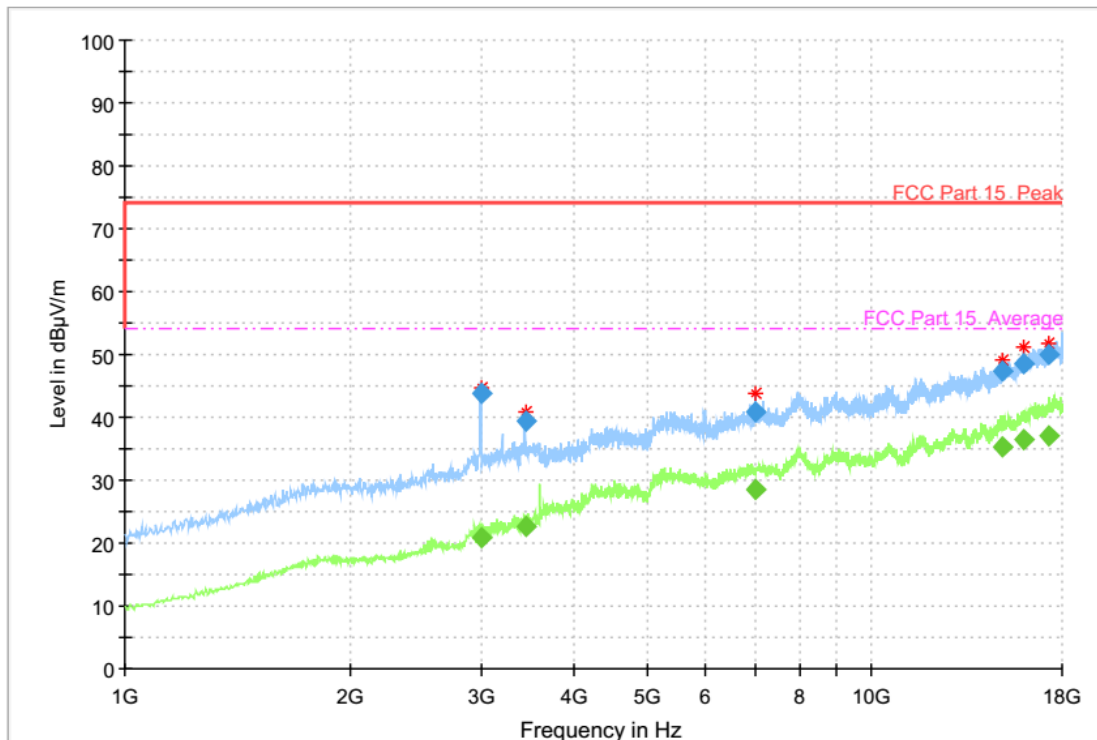
Mode 8: GSM 850 receiver <Figure 2>



Mode 2: USB cable (Data Link with PC) +UB01 <Figure 1>

Frequency Range:

1GHz –18GHz

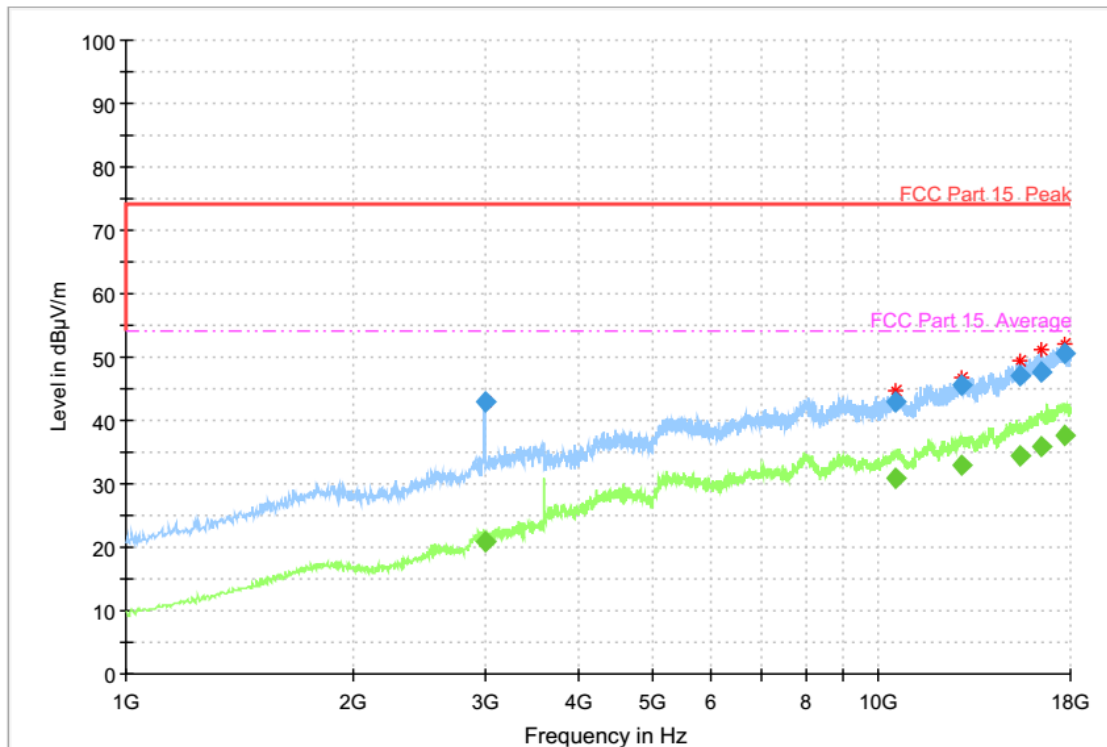


Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time	Band width	Height	Po l	Azimu th	Corr. (dB)
2996.000000	43.95	---	74.00	30.05	100.0	1000.	200.0	V	129.0	-4.4
2996.000000	---	20.87	54.00	33.13	100.0	1000.	200.0	V	129.0	-4.4
3435.200000	39.31	---	74.00	34.69	100.0	1000.	100.0	V	262.0	-3.4
3435.200000	---	22.67	54.00	31.33	100.0	1000.	100.0	V	262.0	-3.4
6985.000000	40.96	---	74.00	33.04	100.0	1000.	100.0	V	129.0	2.9
6985.000000	---	28.61	54.00	25.39	100.0	1000.	100.0	V	129.0	2.9
14926.200000	47.49	---	74.00	26.51	100.0	1000.	100.0	V	203.0	13.6
14926.200000	---	35.18	54.00	18.82	100.0	1000.	100.0	V	203.0	13.6
15962.400000	---	36.40	54.00	17.60	100.0	1000.	100.0	V	102.0	15.4
15962.400000	48.65	---	74.00	25.35	100.0	1000.	100.0	V	102.0	15.4
17299.800000	---	37.09	54.00	16.91	100.0	1000.	100.0	V	0.0	17.4
17299.800000	49.88	---	74.00	24.12	100.0	1000.	100.0	V	0.0	17.4

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	Height	Polarization	Azimuth	Corr. (dB)
3000.000000	42.83	---	74.00	31.17	100.0	1000.00	199.9	H	90.0	-4.4
3000.000000	---	20.81	54.00	33.19	100.0	1000.00	199.9	H	90.0	-4.4
10530.600000	---	30.80	54.00	23.20	100.0	1000.00	199.9	H	294.0	6.9
10530.600000	42.95	---	74.00	31.05	100.0	1000.00	199.9	H	294.0	6.9
12870.400000	45.45	---	74.00	28.55	100.0	1000.00	100.1	H	0.0	10.2
12870.400000	---	32.82	54.00	21.18	100.0	1000.00	100.1	H	0.0	10.2
15393.200000	47.09	---	74.00	26.91	100.0	1000.00	100.1	H	90.0	14.1
15393.200000	---	34.55	54.00	19.45	100.0	1000.00	100.1	H	90.0	14.1
16456.200000	47.69	---	74.00	26.31	100.0	1000.00	199.9	H	0.0	16.4
16456.200000	---	35.83	54.00	18.17	100.0	1000.00	199.9	H	0.0	16.4
17662.800000	---	37.69	54.00	16.31	100.0	1000.00	199.9	H	356.0	17.8
17662.800000	50.60	---	74.00	23.40	100.0	1000.00	199.9	H	356.0	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.

8.2 AC Conducted Emission

Method of Measurement

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies with the band 150 kHz to 30MHz shall not exceed the limits. Both lines of the power mains connected to the EUT were checked for maximum conducted interference. Tested in accordance with the procedures of ANSI C63.4-2014, section 7.3

Limit of Conducted Emission

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

Test Condition in Charging Mode

Voltage (V)	Frequency (Hz)	RBW	Sweep Time (s)
120	60	9 kHz	Auto

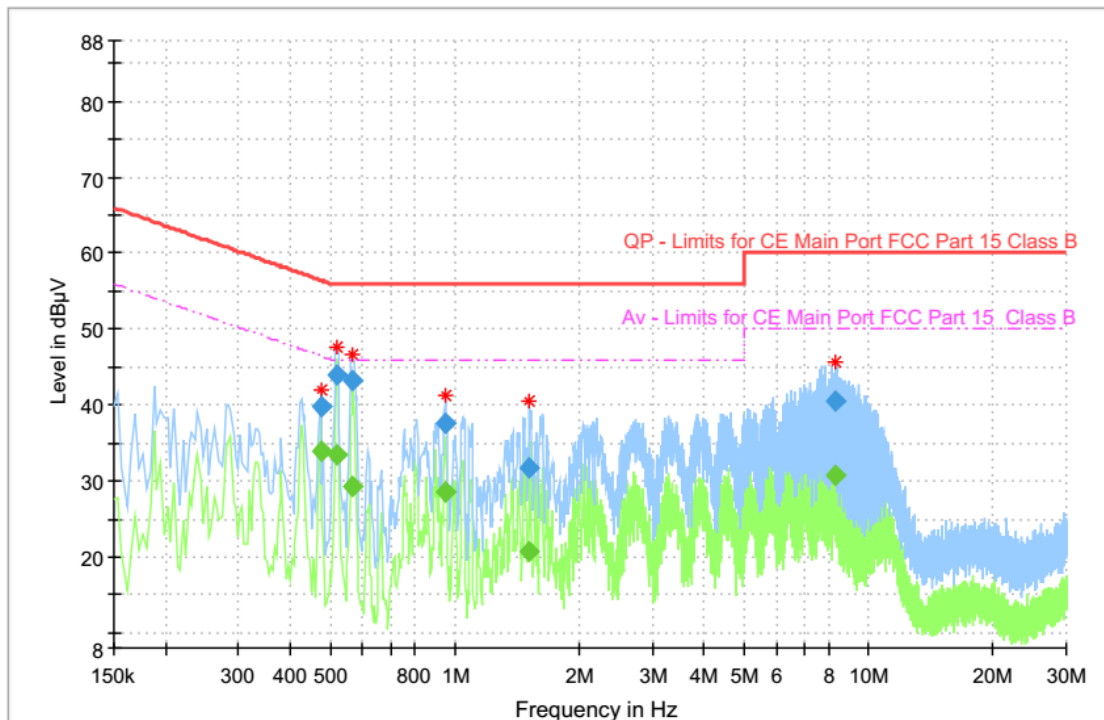
Uncertainty Measurement

The measurement uncertainty is 3.66dB (k=2).

Test Results

Mode 1: Adapter charging+UA06 <Figure 2>

Frequency Range: 150kHz – 30MHz



Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.474619	---	33.97	46.43	12.46	15000.	9.000	N	ON	9.8
0.474619	39.90	---	56.43	16.53	15000.	9.000	N	ON	9.8
0.519394	---	33.46	46.00	12.54	15000.	9.000	N	ON	9.8
0.519394	43.88	---	56.00	12.12	15000.	9.000	N	ON	9.8
0.564169	---	29.39	46.00	16.61	15000.	9.000	N	ON	9.8
0.564169	43.14	---	56.00	12.86	15000.	9.000	N	ON	9.8
0.948488	---	28.59	46.00	17.41	15000.	9.000	N	ON	9.8
0.948488	37.55	---	56.00	18.45	15000.	9.000	N	ON	9.8
1.511906	---	20.62	46.00	25.38	15000.	9.000	N	ON	9.8
1.511906	31.79	---	56.00	24.21	15000.	9.000	N	ON	9.8
8.287856	---	30.76	50.00	19.24	15000.	9.000	N	ON	9.9
8.287856	40.47	---	60.00	19.53	15000.	9.000	N	ON	9.9

Note:

- 1.Emission level(quasi-peak or Average peak)=Raw value by receiver + Corr(Insertion loss+ cable loss)
- 2.The raw value is used to calculate by software which is not shown in the sheet.
- 3.Margin=limit value – emission level.
- 4.L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

Annex A Accreditation Certificate



Accredited Laboratory

A2LA has accredited

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

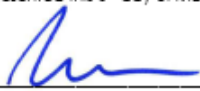
for technical competence in the field of

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*****