TEST REPORT

No. I20D00140-SRD02

For

Client: Datalogic S.r.l.

Production: Smartphone

Model Name: MEMOR 10

Brand Name: Datalogic

FCC ID : U4GDL35US

Hardware Version: V00 (US)

Software Version: 2.05.07.20190919

Issued date: 2020-11-12

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. For the test results, the uncertainty of measurement is not taken into account when judging the compliance with specification, and the results of measurement or the average value of measurement results are taken as the criterion of the compliance with specification directly.

Test Laboratory:
East China Institute of Telecommunications
Add: Block No.4, No.766, Jingang Road, Pudong District, Shanghai, P. R. China
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Revision Version

Report Number	Revision	Date	Memo
I20D00140-SRD02	00	2020-11-05	Initial creation of test report
I20D00140-SRD02	01	2020-11-12	First modification of test report

CONTENTS

1. TEST LABORATORY 5
1.1. TESTING LOCATION 5
1.2. TESTING ENVIRONMENT 5
1.3. PROJECT DATA 5
1.4. SIGNATURE 5
2. CLIENT INFORMATION 6
2.1. APPLICANT INFORMATION 6
2.2. MANUFACTURER INFORMATION 6
3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) 7
3.1. ABOUT EUT 7
3.2. INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST 7
3.3. INTERNAL IDENTIFICATION OF AE USED DURING THE TEST 7
4. REFERENCE DOCUMENTS 8
4.1. DOCUMENTS SUPPLIED BY APPLICANT 8
4.2. REFERENCE DOCUMENTS FOR TESTING 8
5. TEST RESULTS 9
5.1. SUMMARY OF TEST RESULTS 9
5.2. STATEMENTS 10
6. TEST EQUIPMENTS UTILIZED 11
6.1. RADIATED EMISSION TEST SYSTEM 11
7. MEASUREMENT UNCERTAINTY 12
8. TEST ENVIRONMENT 13
ANNEX A. DETAILED TEST RESULTS 14
ANNEX A.1. RADIATED EMISSION 14
ANNEX B. ACCREDITATION CERTIFICATE 26

1. Test Laboratory

1.1. Testing Location

Company Name	East China Institute of Telecommunications
Address	Block No.4, No.766, Jingang Road, Pudong District, Shanghai, P. R. China
Postal Code	201206
Telephone	+86 21 63843300
FCC registration No	CN1177

1.2. Testing Environment

Normal Temperature	15℃-35℃
Relative Humidity	20%-75%

1.3. Project Data

Project Leader	Chen Minfei
Testing Start Date	2020-09-16
Testing End Date	2020-10-20

1.4. Signature

Liu Yan
(Prepared this test report)

Fan Songyan
(Reviewed this test report)

Zheng Zhongbin
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name	Datalogic S.r.l.
Address	Via San Vitalino no. 13, Calderara di Reno – 40012 (BO) - Italy
Telephone	+39 051 314 72 16
Postcode	/

2.2. Manufacturer Information

Company Name	MOBIWIRE MOBILES (NINGBO) CO.,LTD
Address	No.999,Dacheng East Road,FenghuaCity,Zhejiang Province, China.
Telephone	+86 574 59555707
Postcode	/

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

3.1. About EUT

Production	Smartphone
Model name	MEMOR 10
BLE Frequency	2402MHz-2480MHz
BLE Channel	Channel0-Channel39
BLE Modulation	GFSK;
Extreme Temperature	-20/+50℃
Nominal Voltage	3.80V
Extreme High Voltage	4.35V
Extreme Low Voltage	3.60V

Note:

a. Photographs of EUT are shown in ANNEX A of this test report.

b. The value of the antenna gain is provided by the customer. For specific antenna information, please check the antenna specifications of the customer.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N01(HE)	358328100030199	V00 (US)	2.05.07.20190919	2020-09-22
N02(LE)	359737090161724	V00 (US)	2.05.07.20190919	2020-09-22

*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	Type	Manufacturer
AE1	RF cable	---	AE1

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

4. Reference Documents

4.1. Documents supplied by applicant

All technical documents are supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

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

Reference	Title	Version
FCC Part15	FCC CFR 47, Part 15,Subpart C: 15.205 Restricted bands of operation; 15.209 Radiated emission limits, general requirements; 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.	2018-10-01
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
KDB 558074	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247	v05r02

5. Test Results

5.1. Summary of Test Results

Measurement Items	Sub-clause of Part15	Verdict
Transmitter Spurious Emission-Radiated	15.247	P

Note: please refer to Annex A in this test report for the detailed test results.

The following terms are used in the above table.

P	Pass, the EUT complies with the essential requirements in the standard.
NP	Not Perform, the test was not performed by ECIT.
NA	Not Applicable, the test was not applicable.
F	Fail, the EUT does not comply with the essential requirements in the standard.

Test Conditions

Tnom	Normal Temperature
Tmin	Low Temperature
Tmax	High Temperature
Vnom	Normal Voltage
Vmin	Low Voltage
Vmax	High Voltage
Hnom	Norm Humidity
Anom	Norm Air Pressure

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

Temperature	Tnom	25℃
Voltage	Vnom	3.8V
Humidity	Hnom	48%
Air Pressure	Anom	1010hPa

5.2. Statements

The MEMOR 10 is a variant product for testing.

ECIT only performed test cases which identified with P/NP/NA/F results in Annex A.

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.

Note：This report only provides radiation data, and radiation data includes HE and LE scanning head, N01 corresponding to HE scanning head, N02 corresponding to LE scanning head, providing the worst mode data.The remaining data results please refer to report I18D00022-SRD02-BLE which was prepared by East China Institute of Telecommunications.

6. Test Equipments Utilized

6.1. Radiated Emission Test System

Item	Instrument Name	Type	SN	Manufacturer	Cal. Date	Cal. interval
1	Universal Radio Communication Tester	CMU200	123123	R&S	2020-05-10	1 year
2	EMI Test Receiver	ESU40	100307	R&S	2020-05-10	1 year
3	TRILOG Broadband Antenna	VULB9163	VULB9163-515	Schwarzbeck	2020-02-28	2 years
4	Double- ridged Waveguide Antenna	ETS-3117	00135890	ETS	2020-02-28	2 years
5	2-Line V-Network	ENV216	101380	R&S	2020-05-10	1 year

Anechoic chamber

Fully anechoic chamber by ETS.

7. Measurement Uncertainty

Measurement uncertainty for all the testing in this report are within the limit specified in ECIT documents. The detailed measurement uncertainty is defined in ECIT documents.

Measurement Items	Range	Confidence Level	Calculated Uncertainty
Peak Output Power-Conducted	2402MHz-2480MHz	95%	±0.544dB
Peak Power Spectral Density	2402MHz-2480MHz	95%	±0.544dB
6dB Bandwidth	2402MHz-2480MHz	95%	±62.04Hz
Frequency Band Edges-Conducted	2390MHz-2488.5MHz	95%	±0.544dB
Conducted Emission	30MHz-2GHz	95%	±0.90dB
Conducted Emission	2GHz-3.6GHz	95%	±0.88dB
Conducted Emission	3.6GHz-8GHz	95%	±0.96dB
Conducted Emission	8GHz-20GHz	95%	±0.94dB
Conducted Emission	20GHz-22GHz	95%	±0.88dB
Conducted Emission	22GHz-26GHz	95%	±0.86dB
Transmitter Spurious Emission-Radiated	9KHz-30MHz	95%	±5.66dB
Transmitter Spurious Emission-Radiated	30MHz-1000MHz	95%	±4.98dB
Transmitter Spurious Emission-Radiated	1000MHz -18000MHz	95%	±5.06dB
Transmitter Spurious Emission-Radiated	18000MHz -40000MHz	95%	±5.20dB
AC Power line Conducted Emission	0.15MHz-30MHz	95%	±3.66 db

8. Test Environment

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Ground system resistance	< 0.5 Ω

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber1 (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 25 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
VSWR	Between 0 and 6 dB, from 1GHz to 18GHz
Site Attenuation Deviation	Between -4 and 4 dB,30MHz to 1GHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

ANNEX A. Detailed Test Results

ANNEX A.1. Radiated Emission

A.1.1 Measurement Limit

Standard	Limit
FCC 47 CFR Part 15.247, 15.205, 15.209	20dB below peak output power

In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see 15.205(c)).

Limit in restricted band:

Frequency of emission (MHz)	Field strength (uV/m)	Field strength (dBuV/m)
30~88	100	40
88~216	150	43.5
216~960	200	46
Above 960	500	54

A.1.2 Test Method

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.10-2013 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level. The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

Frequency of emission (MHz)	RBW/VBW	Sweep Time (s)
30~1000	100KHz/300KHz	5
1000~4000	1MHz/3MHz	15
4000~18000	1MHz/3MHz	40
18000~26500	1MHz/3MHz	20

A.1.3 Measurement Results:

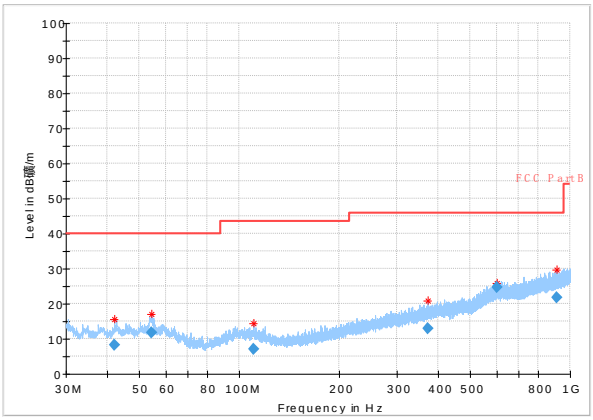
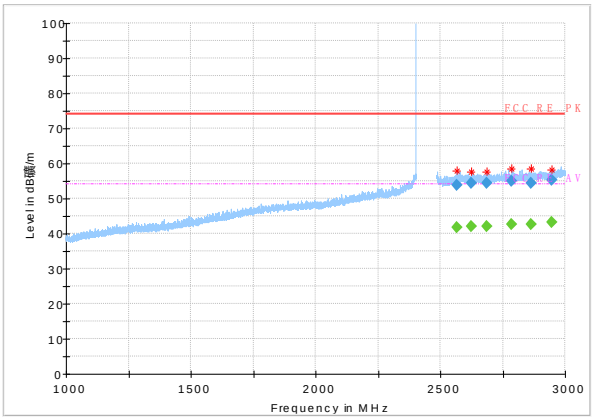
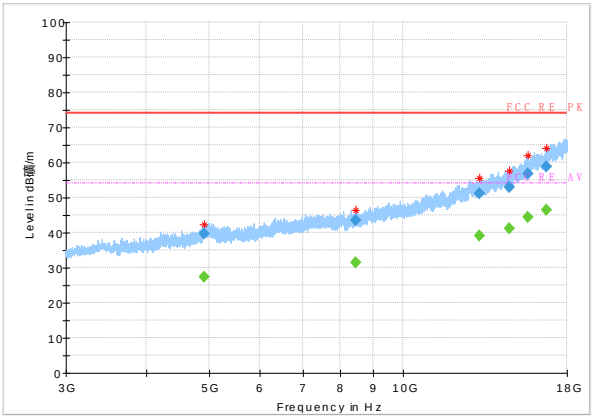
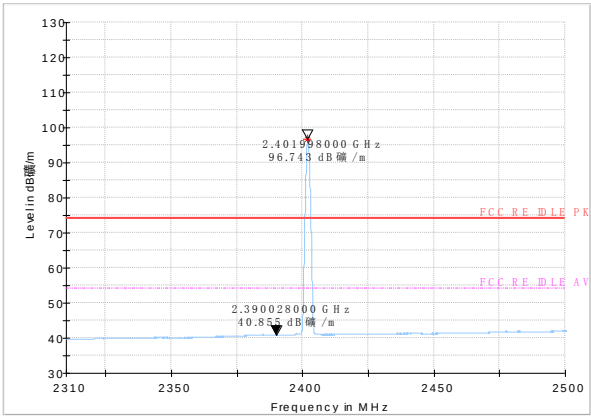
A “reference path loss” is established and A_{Rpi} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

A_{Rpi} = Cable loss + Antenna Gain-Preamplifier gain

Result=P_{Mea} + A_{Rpi}

HE test data

Radiated emission:Ch0, 30MHz~1GHz	Radiated emission: Ch0, 1GHz~3GHz
	
Radiated emission:Ch0, 3GHz~18GHz	**Bandedge:Ch0**
	
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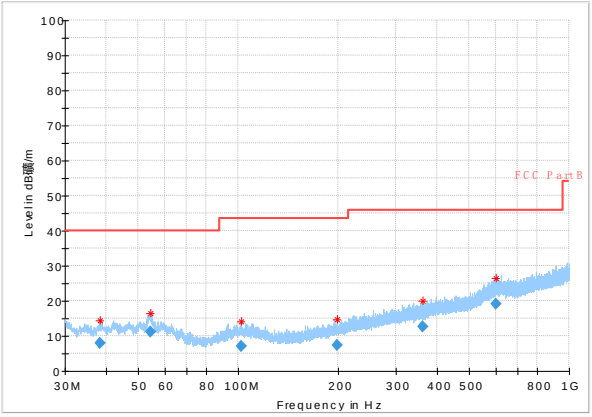
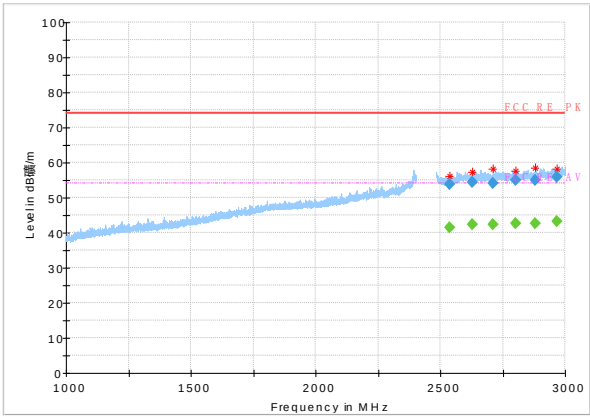
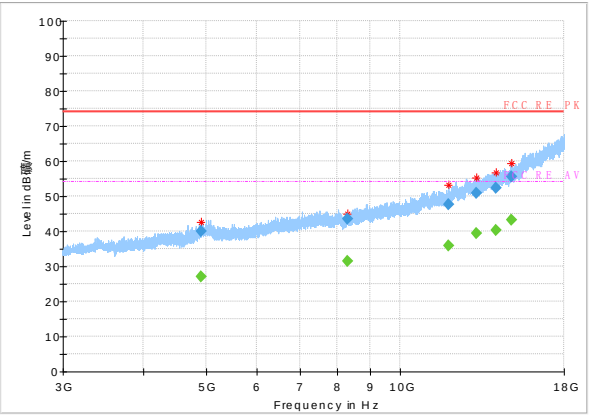
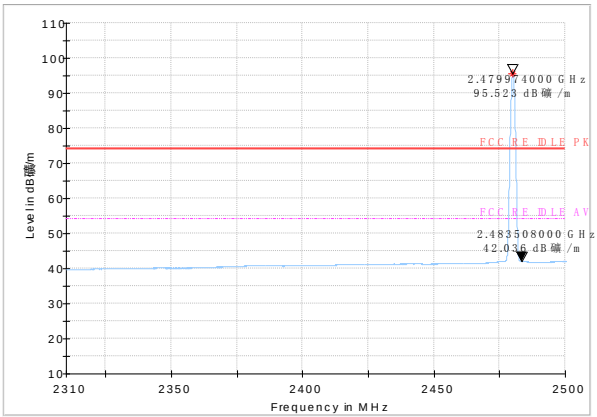
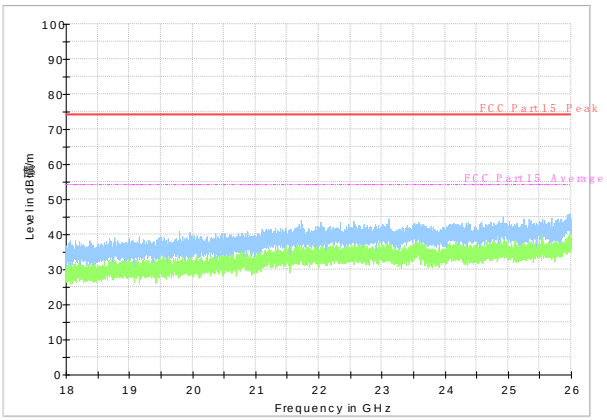
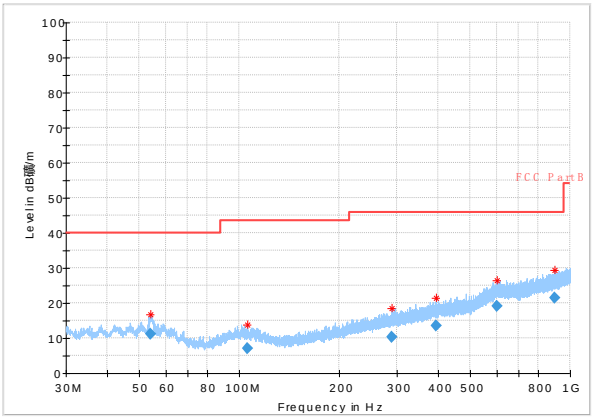
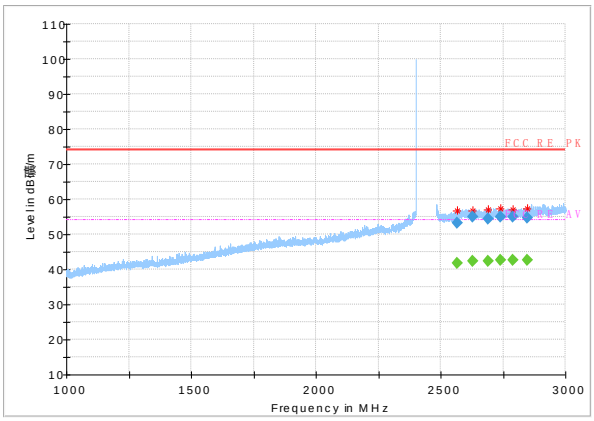
	

Radiated emission: Ch39, 3GHz~18GHz	Bandedge:Ch39
	
ALL Channel 18GHz~26GHz	/
	/

LE test data

Radiated emission:Ch0, 30MHz~1GHz	Radiated emission: Ch0, 1GHz~3GHz
	 4
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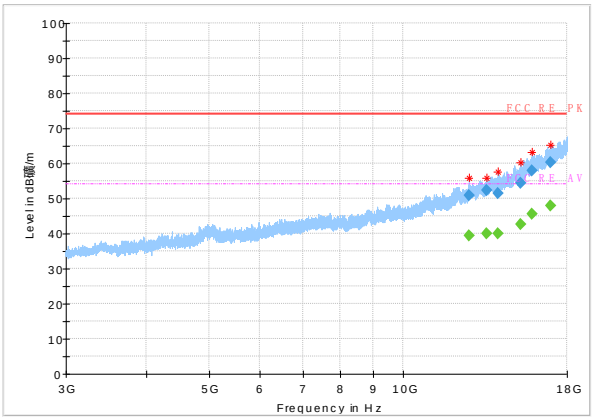
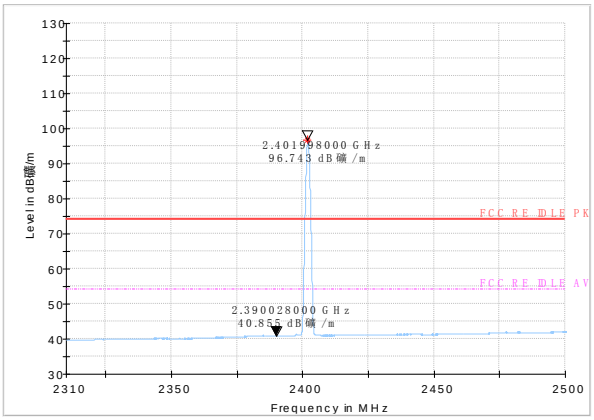
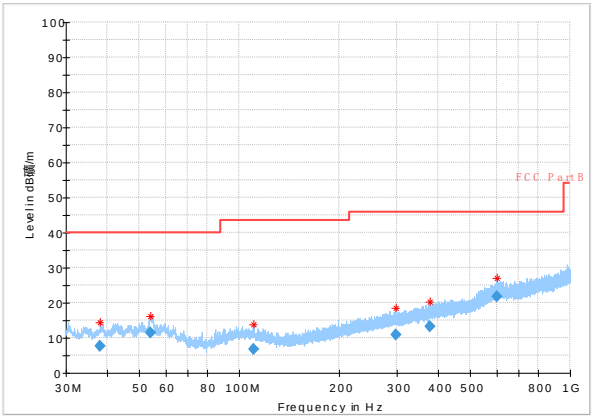
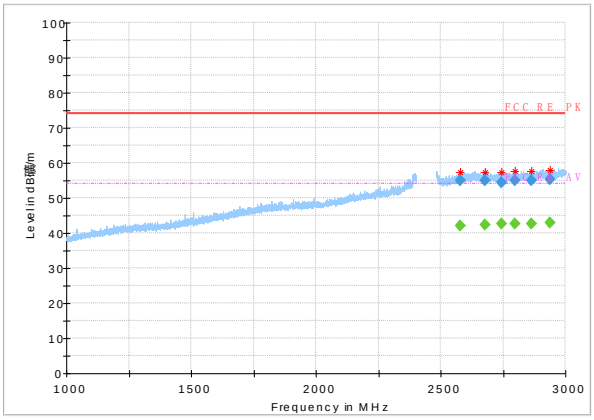
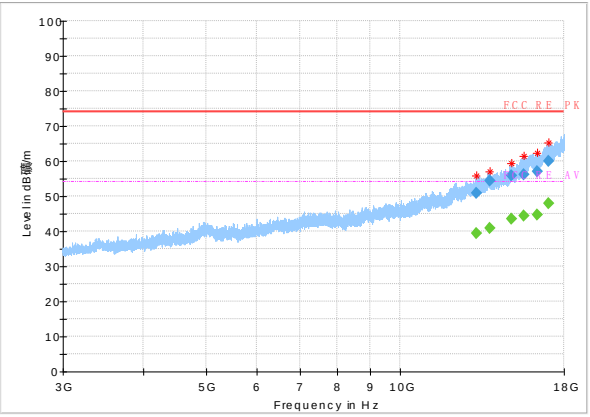
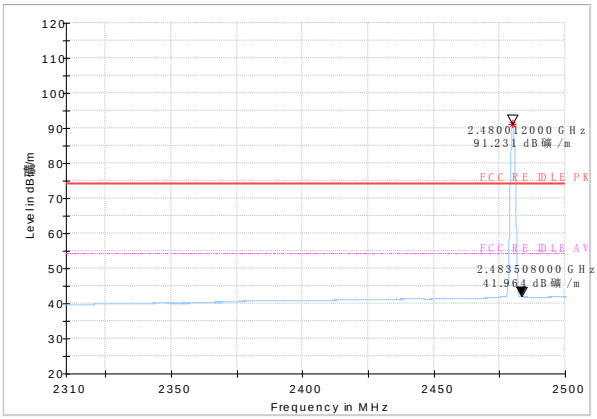
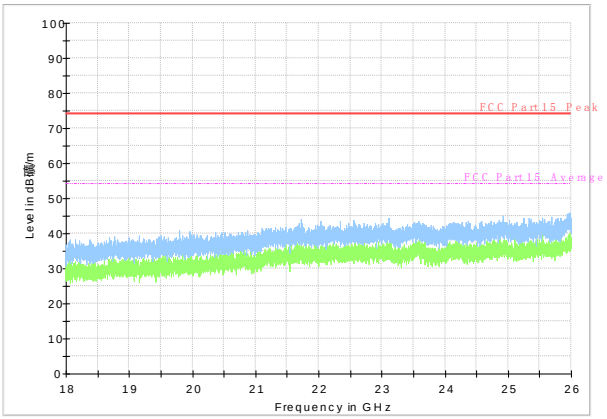
	
Radiated emission:Ch39, 30MHz~1GHz	**Radiated emission: Ch39, 1GHz~3GHz**
	 4

Radiated emission: Ch39, 3GHz~18GHz	Bandedge:Ch39
	
ALL Channel 18GHz~26GHz	/
	/

HE test data

Ch0 30MHz-1GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
42.2	8.3	-16	24.3	V
54.3	11.66	-15.4	27.06	V
110.3	7.14	-15.7	22.84	V
371.9	13.01	-9.3	22.31	V
600.0	24.69	-3	27.69	H
910.6	21.7	-0.3	22	V

Ch0 1GHz-3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2568.1	53.8	17.3	36.5	V
2622.6	54.35	17.8	36.55	H
2686.5	54.34	17.8	36.54	H
2785.3	54.9	18.1	36.8	V
2864.7	54.52	18.5	36.02	V
2946.6	55.27	18.8	36.47	H

Ch0 1GHz-3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2622.6	42.16	17.8	24.36	H
2686.5	42.2	17.8	24.4	H
2785.3	42.67	18.1	24.57	V
2864.7	42.58	18.5	24.08	V
2946.6	43.26	18.8	24.46	H

Ch0 3GHz-18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
4919.3	39.78	3	36.78	V
8453.3	43.67	7.4	36.27	H
13166.0	51.06	17.5	33.56	V
14640.2	53.08	20	33.08	H
15631.4	56.84	24.2	32.64	H
16712.2	58.83	26.8	32.03	H

Ch0 3GHz-18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
15631.4	44.51	24.2	20.31	H
16712.2	46.49	26.8	19.69	H

Ch39 30MHz-1GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
38.2	7.97	-16.3	24.27	V
54.2	11.31	-15.4	26.71	V
102.4	6.93	-15.8	22.73	V
199.7	7.35	-15.5	22.85	H
360.1	12.69	-9.6	22.29	H
602.7	19.02	-3	22.02	V

Ch39 1GHz-3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2536.1	53.97	16.7	37.27	V
2627.1	54.34	17.8	36.54	H
2710.2	54.19	17.8	36.39	H
2801.0	55.13	18.2	36.93	H
2879.8	55.03	18.6	36.43	V
2968.0	55.9	19.1	36.8	H

Ch39 1GHz-3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2627.1	42.26	17.8	24.46	H
2710.2	42.22	17.8	24.42	H
2801.0	42.73	18.2	24.53	H
2879.8	42.69	18.6	24.09	V
2968.0	43.2	19.1	24.1	H

Ch39 3GHz-18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
4920.6	39.9	3	36.9	H
8289.7	43.63	6.7	36.93	V
11930.5	47.7	14.3	33.4	V
13167.1	50.94	17.5	33.44	V
14130.8	52.32	19.1	33.22	H
14907.2	55.73	22.3	33.43	V

Ch39 3GHz-18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
14907.2	43.12	22.3	20.82	V

LE test data

Ch0 30MHz-1GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
53.9	11.29	-15.4	26.69	V
106.2	7.01	-15.7	22.71	V
289.9	10.38	-11.7	22.08	H
392.5	13.6	-8.8	22.4	V
600.3	19.25	-3	22.25	V
898.7	21.59	-0.7	22.29	V

Ch0 1GHz-3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2565.3	53.1	17.2	35.9	V
2629.9	55.01	17.8	37.21	H
2688.9	54.42	17.8	36.62	V
2739.0	55.06	18	37.06	V
2790.6	54.97	18.2	36.77	V
2848.0	54.72	18.4	36.32	H

Ch0 1GHz-3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2629.9	42.34	17.8	24.54	H
2688.9	42.21	17.8	24.41	V
2739.0	42.57	18	24.57	V
2790.6	42.76	18.2	24.56	V
2848.0	42.67	18.4	24.27	H

Ch0 3GHz-18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
12696.8	50.88	17.3	33.58	H
13499.6	52.33	18.3	34.03	H
14068.7	51.58	19	32.58	H
15275.6	54.36	21.6	32.76	V
15890.7	57.88	25.3	32.58	V
16989.8	60.26	28.3	31.96	V

Ch0 3GHz-18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
15275.6	42.56	21.6	20.96	V
15890.7	45.67	25.3	20.37	V
16989.8	48.08	28.3	19.78	V

Ch39 30MHz-1GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
38.0	7.7	-16.3	24	V
54.0	11.44	-15.4	26.84	V
110.6	6.73	-15.7	22.43	H
297.5	10.77	-11.5	22.27	V
377.1	13.24	-9	22.24	H
600.0	21.66	-3	24.66	V

Ch39 1GHz-3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2576.5	55.03	17.4	37.63	V
2676.6	55.06	17.8	37.26	V
2742.9	54.55	18	36.55	V
2796.2	55.06	18.2	36.86	V
2864.5	55.14	18.5	36.64	H
2938.0	55.24	18.8	36.44	V

Ch39 1GHz-3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
2576.5	42.17	17.4	24.77	V
2676.6	42.45	17.8	24.65	V
2742.9	42.53	18	24.53	V
2796.2	42.7	18.2	24.5	V
2864.5	42.56	18.5	24.06	H
2938.0	42.94	18.8	24.14	V

Ch39 3GHz-18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
13171.5	51.01	17.5	33.51	H
13782.3	54.46	18.3	36.16	V
14898.3	55.85	22.3	33.55	V
15565.0	56.13	24.3	31.83	H
16335.4	57.13	25.3	31.83	H
17014.5	60.01	28.2	31.81	H

Ch39 3GHz-18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl(dB)	PMea(dBuV/m)	Polarity
13782.3	40.76	18.3	22.46	V
14898.3	43.41	22.3	21.11	V
15565.0	44.29	24.3	19.99	H
16335.4	44.69	25.3	19.39	H
17014.5	48.03	28.2	19.83	H

Note: Only the worst case is written in the report.

ANNEX B. 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************