




# TEST REPORT

Report Reference No..... : CHTEW19110070 Report verification: 

Project No..... : SHT1910009401EW

FCC ID..... : 2AU7S-Q20

Applicant's name..... : Shenzhen Qinmi Smart Technology Co.,Ltd

Address..... : A408, Complex Bldg, Suojia S&T Park, Hangkong Road, Baoan, Shenzhen

Manufacturer..... : Shenzhen Qinmi Smart Technology Co.,Ltd

Address..... : A408, Complex Bldg, Suojia S&T Park, Hangkong Road, Baoan, Shenzhen

Test item description ..... : Smart Phone Watch

Trade Mark ..... : -

Model/Type reference..... : Q20

Listed Model(s) ..... : Q55, MT-KTW2022, EKL1F20

Standard ..... : 47 CFR FCC Part 15 Subpart B

Date of receipt of test sample..... : Oct 10, 2019

Date of testing..... : Oct 11, 2019- Nov 06, 2019

Date of issue..... : Nov 07, 2019

Result..... : Pass

Compiled by  
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Approved by  
( position+printed name+signature)... : RF Manager Hans Hu

Silvia Li

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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

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*The test report merely corresponds to the test sample.*

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## 1. TEST STANDARDS AND REPORT VERSION

### 1.1. Test Standards

The tests were performed according to following standards:

[47 CFR FCC Part 15 Subpart B](#) - Unintentional Radiators

[ANSI C63.4: 2014](#) – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40GHz

### 1.2. Report version information

Revision No.	Date of issue	Description
N/A	2019-11-07	Original

## 2. TEST DESCRIPTION

Test Item	Section in CFR 47	Result	Test Engineer
Conducted Emissions	15.107(a)	PASS	Kang Yang
Radiated Emissions	15.109(a)	PASS	Barry Chang

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

### 3. **SUMMARY**

#### 3.1. Client Information

Applicant:	Shenzhen Qinmi Smart Technology Co.,Ltd
Address:	A408, Complex Bldg, Suojia S&T Park, Hangkong Road, Baoan, Shenzhen
Manufacturer:	Shenzhen Qinmi Smart Technology Co.,Ltd
Address:	A408, Complex Bldg, Suojia S&T Park, Hangkong Road, Baoan, Shenzhen

#### 3.2. Product Description

Name of EUT:	Smart Phone Watch
Trade Mark:	-
Model No.:	Q20
Listed Model(s)	Q55, MT-KTW2022, EKL1F20
Power supply:	DC 3.8V

#### 3.3. EUT operation mode

Test mode	Describe
Camera recording mode	Keep the EUT in Camera recording status
Video Playing mode	Keep the EUT in Video Playing status

Pre-scan all of above modes. Only show Camera recording mode which is the worst case on the report.

## **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

Phone: 86-755-26748019 Fax: 86-755-26748089

### **4.2. Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

#### **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. Registration 762235.

#### **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. Environmental conditions

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

Temperature:	15~35°C
Relative Humidity:	30~60 %
Air Pressure:	950~1050mba

### 4.4. 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 CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ 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 Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emissions	30~1000MHz	4.90 dB	(1)
Radiated Emissions	1~18GHz	4.96 dB	(1)
Conducted Disturbance	0.15~30MHz	3.02 dB	(1)

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

#### 4.5. Equipments Used during the Test

● Conducted Emission							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Shielded Room	Albatross projects	HTWE0114	N/A	N/A	2018/09/28	2023/09/27
●	EMI Test Receiver	R&S	HTWE0111	ESCI	101247	2019/10/26	2020/10/25
●	Artificial Mains	SCHWARZBECK	HTWE0113	NNLK 8121	573	2019/10/23	2020/10/22
●	Pulse Limiter	R&S	HTWE0033	ESH3-Z2	100499	2019/10/23	2020/10/22
●	RF Connection Cable	HUBER+SUHNE R	HTWE0113-02	ENVIROFLEX_142	EF-NM-BNCM-2M	2019/10/23	2020/10/22
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

● Radiated Emission-6th test site							
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	HTWE0127	SAC-3m-02	C11121	2018/09/30	2021/09/29
●	EMI Test Receiver	R&S	HTWE0099	ESCI	100900	2019/10/26	2020/10/25
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0119	VULB9163	546	2017/04/05	2020/04/04
●	Pre-Amplifier	SCHWARZBECK	HTWE0295	BBV 9742	N/A	2018/11/14	2019/11/13
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-01	N/A	N/A	2019/8/21	2020/8/20
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-02	SUCOFLEX104	501184/4	2019/5/27	2020/5/26
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

● Radiated emission-7th test site							
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	2018/09/30	2021/09/29
●	Spectrum Analyzer	R&S	HTWE0098	FSP40	100597	2019/10/26	2020/10/25
●	Horn Antenna	SCHWARZBECK	HTWE0126	9120D	1011	2017/04/01	2020/03/31
●	Broadband Pre-amplifier	SCHWARZBECK	HTWE0201	BBV 9718	9718-248	2019/05/23	2020/05/22
●	RF Connection Cable	HUBER+SUHNER	HTWE0121-01	RE-7-FH	N/A	2019/05/10	2020/05/09
●	Test Software	Audix	N/A	E3	N/A	N/A	N/A



## 5. TEST CONDITIONS AND RESULTS

### 5.1. Conducted Emissions Test

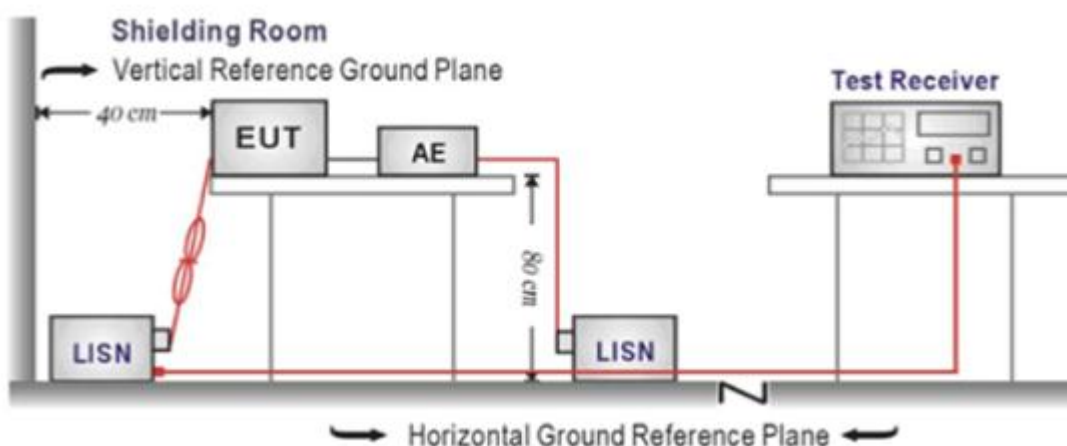
#### LIMIT

FCC CFR Title 47 Part 15 Subpart B Section 15.107:

Frequency range (MHz)	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 CONFIGURATION



#### TEST PROCEDURE

1. The EUT was setup according to ANSI C63.4:2014
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 10 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 10 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

#### TEST MODE:

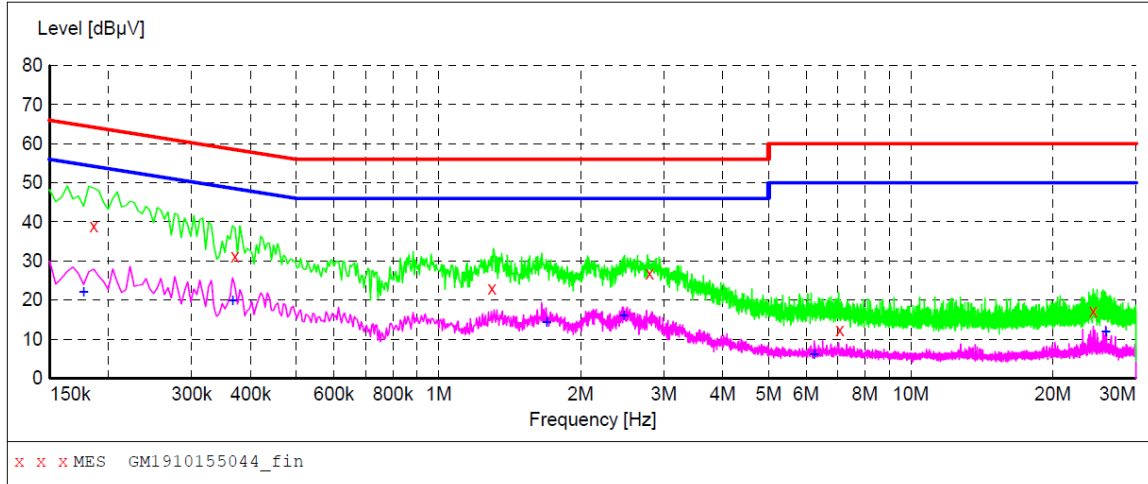
Please refer to the clause 3.3

#### TEST RESULTS

☒ Passed ☐ Not Applicable

Test Line:

L

**MEASUREMENT RESULT: "GM1910155044\_fin"**

10/15/2019 1:19PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.186000	39.00	10.3	64	25.2	QP	L1	GND
0.370500	31.30	10.2	59	27.2	QP	L1	GND
1.297500	23.10	10.3	56	32.9	QP	L1	GND
2.796000	26.90	10.3	56	29.1	QP	L1	GND
7.071000	12.50	10.5	60	47.5	QP	L1	GND
24.346500	17.30	11.0	60	42.7	QP	L1	GND

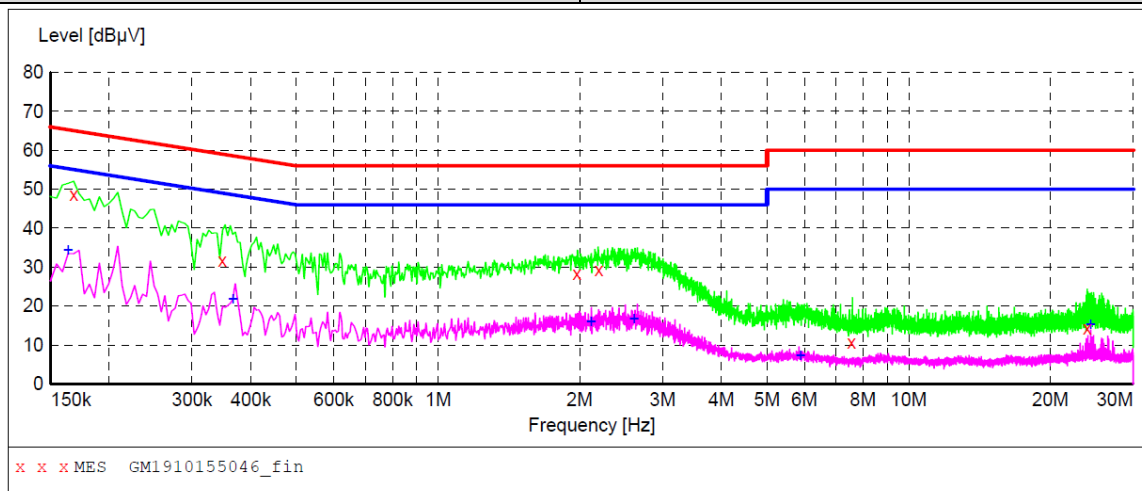
**MEASUREMENT RESULT: "GM1910155044\_fin2"**

10/15/2019 1:19PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.177000	22.10	10.3	55	32.5	AV	L1	GND
0.366000	19.80	10.2	49	28.8	AV	L1	GND
1.693500	14.40	10.3	46	31.6	AV	L1	GND
2.467500	16.00	10.3	46	30.0	AV	L1	GND
6.247500	6.20	10.5	50	43.8	AV	L1	GND
25.876500	11.90	11.1	50	38.1	AV	L1	GND

Test Line:

N

**MEASUREMENT RESULT: "GM1910155046\_fin"**

10/15/2019 1:27PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.168000	48.60	10.3	65	16.5	QP	N	GND
0.348000	31.60	10.2	59	27.4	QP	N	GND
1.972500	28.40	10.3	56	27.6	QP	N	GND
2.193000	29.40	10.3	56	26.6	QP	N	GND
7.552500	10.70	10.6	60	49.3	QP	N	GND
23.937000	14.30	11.0	60	45.7	QP	N	GND

**MEASUREMENT RESULT: "GM1910155046\_fin2"**

10/15/2019 1:27PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.163500	34.30	10.3	55	21.0	AV	N	GND
0.366000	21.70	10.2	49	26.9	AV	N	GND
2.112000	16.10	10.3	46	29.9	AV	N	GND
2.607000	16.60	10.3	46	29.4	AV	N	GND
5.887500	7.20	10.5	50	42.8	AV	N	GND
24.351000	15.30	11.0	50	34.7	AV	N	GND

## 5.2. Radiated Emissions Test

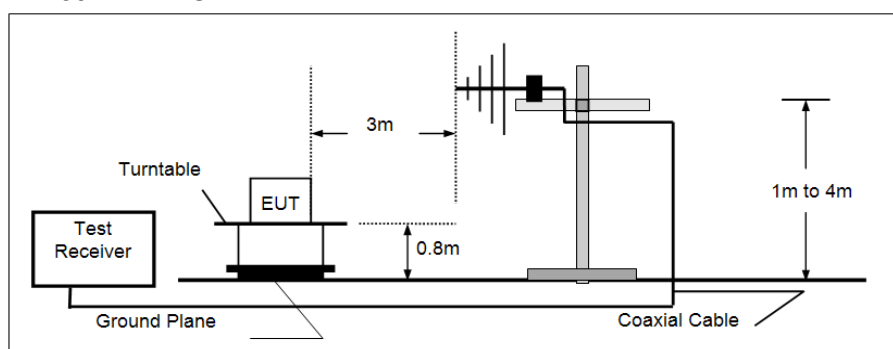
### LIMIT

#### FCC CFR Title 47 Part 15 Subpart B Section 15.109

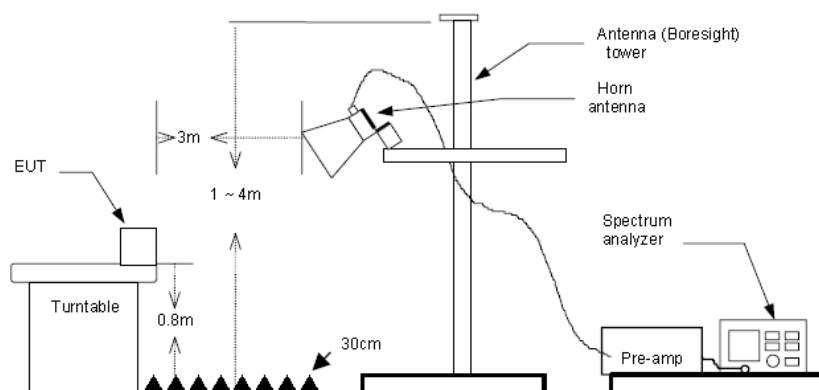
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

### TEST CONFIGURATION

#### ➤ 30MHz ~ 1GHz



#### ➤ Above 1GHz



### TEST PROCEDURE

1. The EUT was tested according to ANSI C63.4:2014.
2. The EUT is placed on a turn table which is 0.8 meter above ground.
3. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
4. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
5. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
6. Use the following spectrum analyzer settings
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Below 1GHz,  
RBW=120KHz, VBW=300KHz, Sweep=auto, Detector function=peak, Trace=max hold;  
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
  - (3) From 1GHz to 5th harmonic, RBW=1MHz, VBW=3MHz

**TEST MODE:**

Please refer to the clause 3.3

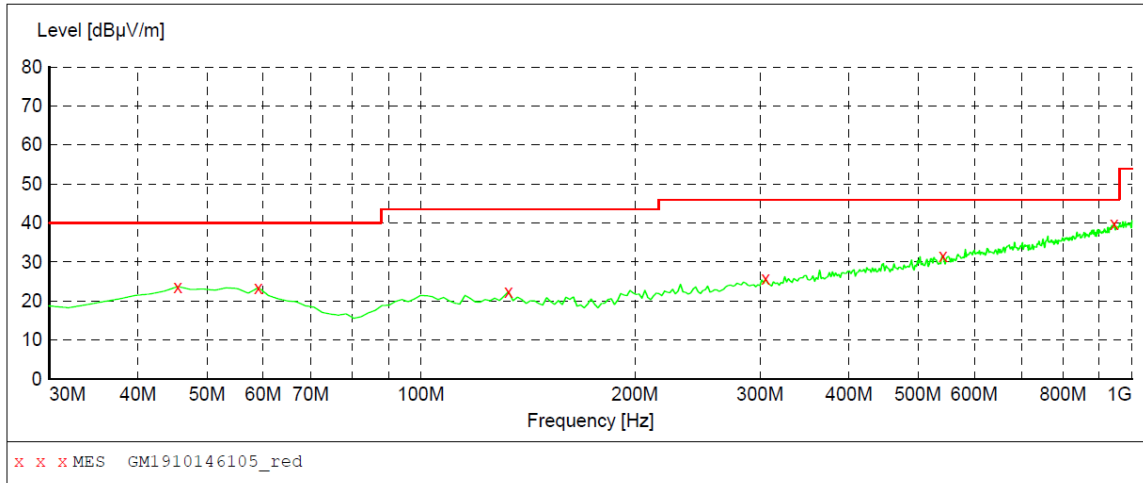
**TEST RESULTS**

☒ **Passed**      ☐ **Not Applicable**

Note: Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor  
The emission levels of frequency above 6GHz are very lower than limit and not show in test report.

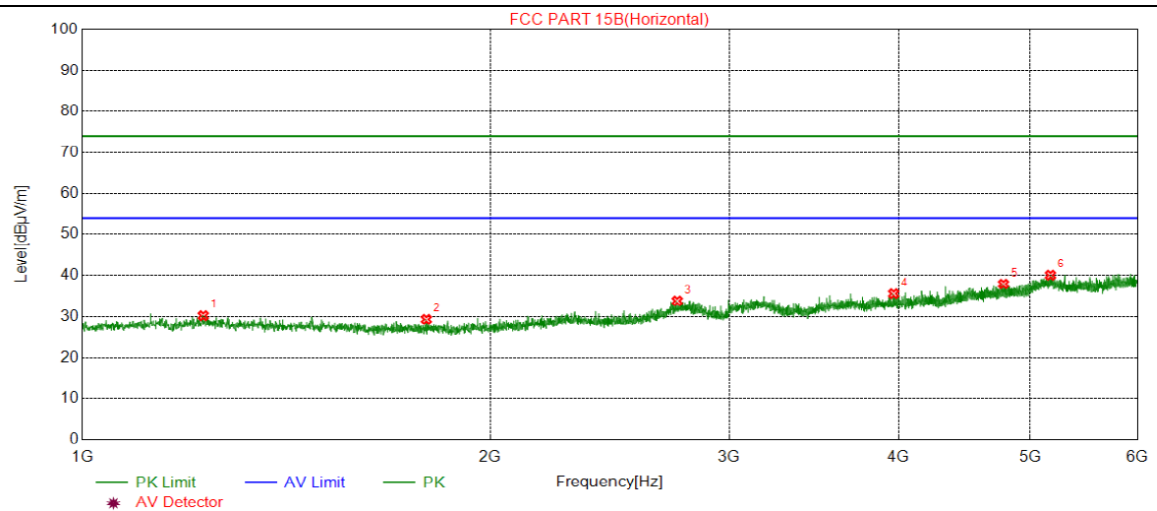
Polarization:

Horizontal

**MEASUREMENT RESULT: "GM1910146105\_red"**

10/14/2019 11:11PM

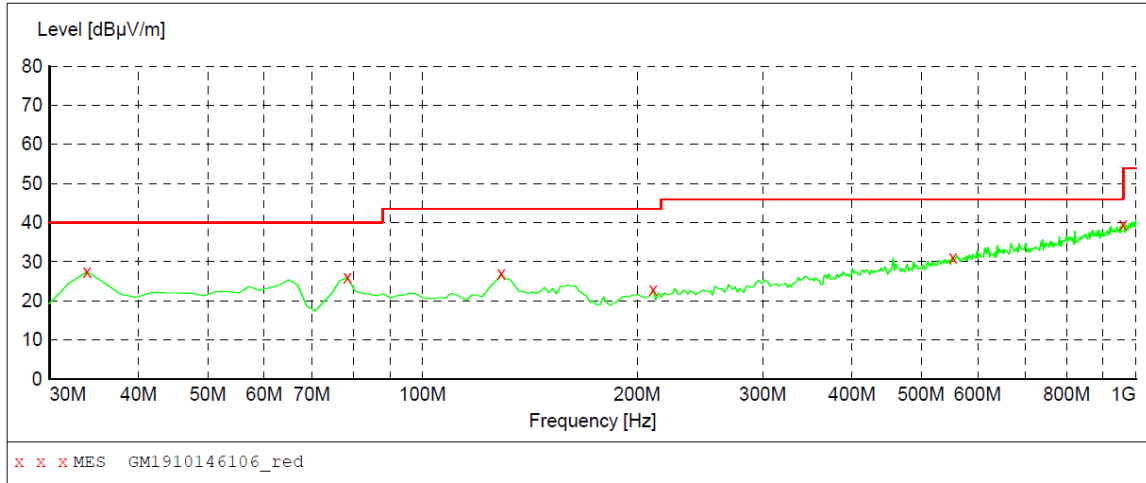
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.520000	23.70	-4.4	40.0	16.3	QP	100.0	27.00	HORIZONTAL
59.100000	23.40	-5.1	40.0	16.6	QP	100.0	312.00	HORIZONTAL
132.820000	22.40	-9.2	43.5	21.1	QP	300.0	360.00	HORIZONTAL
305.480000	25.70	-2.3	46.0	20.3	QP	300.0	0.00	HORIZONTAL
542.160000	31.70	3.9	46.0	14.3	QP	100.0	344.00	HORIZONTAL
943.740000	39.80	12.0	46.0	6.2	QP	300.0	145.00	HORIZONTAL

**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1228.125	35.97	-5.76	30.21	74.00	43.79	Horizontal	PK
2	1793.750	35.16	-5.82	29.34	74.00	44.66	Horizontal	PK
3	2746.875	32.52	1.29	33.81	74.00	40.19	Horizontal	PK
4	3966.875	32.66	2.90	35.56	74.00	38.44	Horizontal	PK
5	4780.000	31.01	6.92	37.93	74.00	36.07	Horizontal	PK
6	5176.875	31.12	8.94	40.06	74.00	33.94	Horizontal	PK

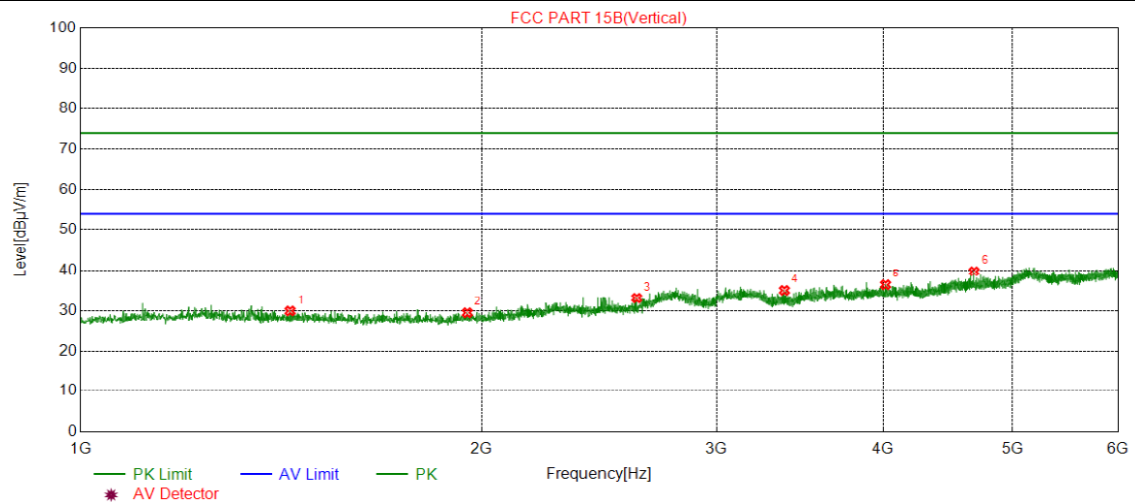
Polarization:

Vertical

**MEASUREMENT RESULT: "GM1910146106\_red"**

10/14/2019 11:14PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
33.880000	27.40	-8.1	40.0	12.6	QP	100.0	29.00	VERTICAL
78.500000	26.00	-11.1	40.0	14.0	QP	100.0	263.00	VERTICAL
128.940000	26.90	-8.7	43.5	16.6	QP	100.0	181.00	VERTICAL
210.420000	22.90	-5.9	43.5	20.6	QP	100.0	181.00	VERTICAL
553.800000	31.10	4.2	46.0	14.9	QP	100.0	263.00	VERTICAL
959.260000	39.50	12.4	46.0	6.5	QP	100.0	40.00	VERTICAL

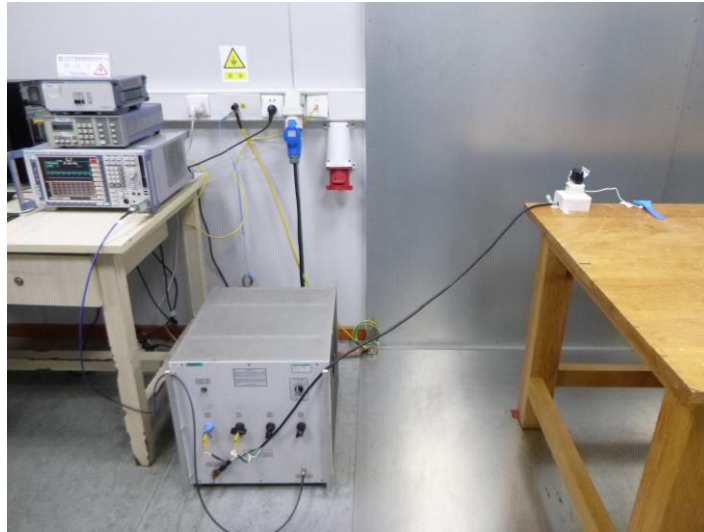
**Suspected Data List**

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity	Detector
1	1436.250	35.54	-5.60	29.94	74.00	44.06	Vertical	PK
2	1950.625	34.77	-5.26	29.51	74.00	44.49	Vertical	PK
3	2613.750	34.16	-1.07	33.09	74.00	40.91	Vertical	PK
4	3373.125	35.19	-0.20	34.99	74.00	39.01	Vertical	PK
5	4016.875	33.31	3.06	36.37	74.00	37.63	Vertical	PK
6	4680.625	33.54	6.26	39.80	74.00	34.20	Vertical	PK



## 6. TEST SETUP PHOTOS OF THE EUT

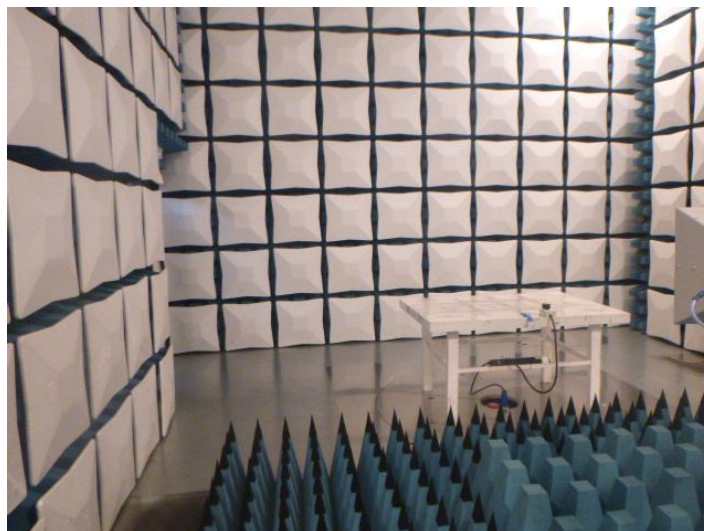
### Conducted Emissions (AC Mains)



### Radiated Emissions (30MHz-1GHz)



### Radiated Emissions (Above 1GHz)





## **7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT**

Reference to the test report No.: CHTEW19110064

-----End of Report-----