



# TEST REPORT

Report Reference No.....	TRE18100221	R/C.....: 79846
FCC ID .....	2AAR8RETEKESST116A	
Applicant's name .....	<b>HENAN ESHOW ELECTRONIC COMMERCE CO., LTD</b>	
Address.....	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China	
Manufacturer.....	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD	
Address.....	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China	
Test item description .....	Queue Wireless Calling System Receiver	
Trade Mark .....	Retekess	
Model/Type reference.....	T116A	
Listed Model(s) .....	T111A,T112A,T113A,T115A,T118A,T119A	
Standard .....	<b>47 CFR FCC Part 15 Subpart B</b>	
Date of receipt of test sample.....	Oct.25,2018	
Date of testing.....	Oct.25,2018 ~ Nov.13,2018	
Date of issue.....	Nov.13,2018	
Result.....	<b>Pass</b>	
Compiled by		
( position+printed name+signature)...	File administrators Yueming Li	
Supervised by		
( position+printed name+signature)...	Project Engineer Tom Ouyang	
Approved by		
( position+printed name+signature)...	RF Manager Hans Hu	
Testing Laboratory Name .....	<b>Shenzhen Huatongwei International Inspection Co., Ltd.</b>	
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	2018-11-13	Original

## **2. TEST DESCRIPTION**

Test Item	Section in CFR 47	Result	Test Engineer
Conducted Emissions	15.107(a)	Pass	Tony Duan
Radiated Emissions	15.109(a)	Pass	Michael Jie

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

### 3. **SUMMARY**

#### 3.1. Client Information

Applicant:	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Address:	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China
Manufacturer:	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
Address:	Room 722, Sanjiang Building, No.170 Nanyang Road, Huiji District, Zhengzhou, Henan, China

#### 3.2. Product Description

Name of EUT:	Queue Wireless Calling System Receiver
Trade Mark:	Retekess
Model No.:	T116A
Listed Model(s)	T111A, T112A, T113A, T115A, T118A, T119A
Power supply:	DC 3.7 V From battery

#### 3.3. EUT operation mode

Test mode	Describe
Receive test mode	Keep the EUT in work at receive mode status

#### 3.4. Configuration of Tested System

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

● <b>Adapter</b>	Manufacturer :	Shenzhen Juyuanhai Electronic.,co.ltd
	Model No. :	JYH32-0506000
● <b>Transmitter</b>	Manufacturer :	HENAN ESHOW ELECTRONIC COMMERCE CO., LTD
	Model No. :	T116

## **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.: 5377B-1**

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. 5377B-1.

#### **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	4.28 dB	(1)
Radiated Emissions	1~18GHz	5.16 dB	(1)
Conducted Disturbance	0.15~30MHz	3.35 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 Emissions						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Shielded Room	Albatross projects	N/A	N/A	09/28/2018	09/27/2023
2	EMI Test Receiver	R&S	ESCI	101247	10/27/2018	10/26/2019
3	Artificial Mains	SCHWARZBECK	NNLK 8121	573	10/27/2018	10/26/2019
3	2-Line V-Network	R&S	ESH3-Z5	100049	11/11/2018	11/10/2019
4	Pulse Limiter	R&S	ESH3-Z2	100449	10/27/2018	10/26/2019
5	RF Connection Cable	HUBER+SUHNER	EF400	N/A	10/27/2018	10/26/2019
6	Test Software	R&S	ES-K1	N/A	N/A	N/A

Radiated Emissions						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. (mm-dd-yy)	Next Cal. (mm-dd-yy)
1	Semi-Anechoic Chamber	Albatross projects	SAC-3m-01	C11121	10/16/2016	10/15/2019
2	EMI Test Receiver	R&S	ESCI	100900	11/11/2018	11/10/2019
3	Loop Antenna	R&S	HFH2-Z2	100020	11/20/2017	11/19/2020
4	Ultra-Broadband Antenna	SCHWARZBECK	VULB9163	538	4/5/2017	4/4/2020
5	Horn Antenna	SCHWARZBECK	9120D	1011	3/27/2017	3/26/2020
6	Broadband Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170 472	3/27/2017	3/26/2020
7	Pre-amplifier	SCHWARZBECK	BBV 9743	9743-0022	10/18/2018	10/17/2019
8	Broadband Pre-amplifier	SCHWARZBECK	BBV 9718	9718-248	10/18/2018	10/17/2019
9	Spectrum Analyzer	R&S	FSP40	100597	11/11/2018	11/10/2019
10	RF Connection Cable	HUBER+SUHNER	RE-7-FL	N/A	11/21/2017	11/20/2018
11	RF Connection Cable	HUBER+SUHNER	RE-7-FH	N/A	11/21/2017	11/20/2018
12	Test Software	Audix	E3	N/A	N/A	N/A
13	Test Software	R&S	ES-K1	N/A	N/A	N/A
14	Turntable	Maturo Germany	TT2.0-1T	N/A	N/A	N/A
15	Antenna Mast	Maturo Germany	CAM-4.0-P-12	N/A	N/A	N/A

## 5. TEST CONDITIONS AND RESULTS

### 5.1. Conducted Emissions Test

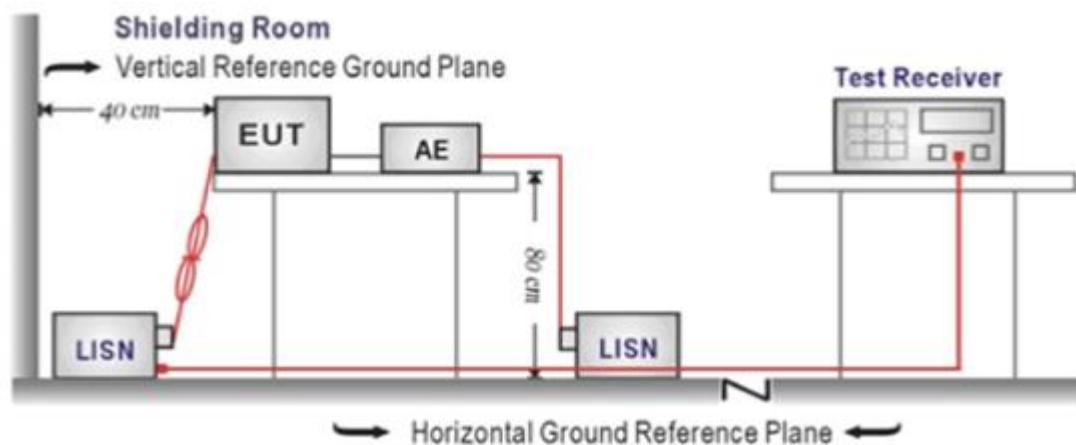
#### LIMIT

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

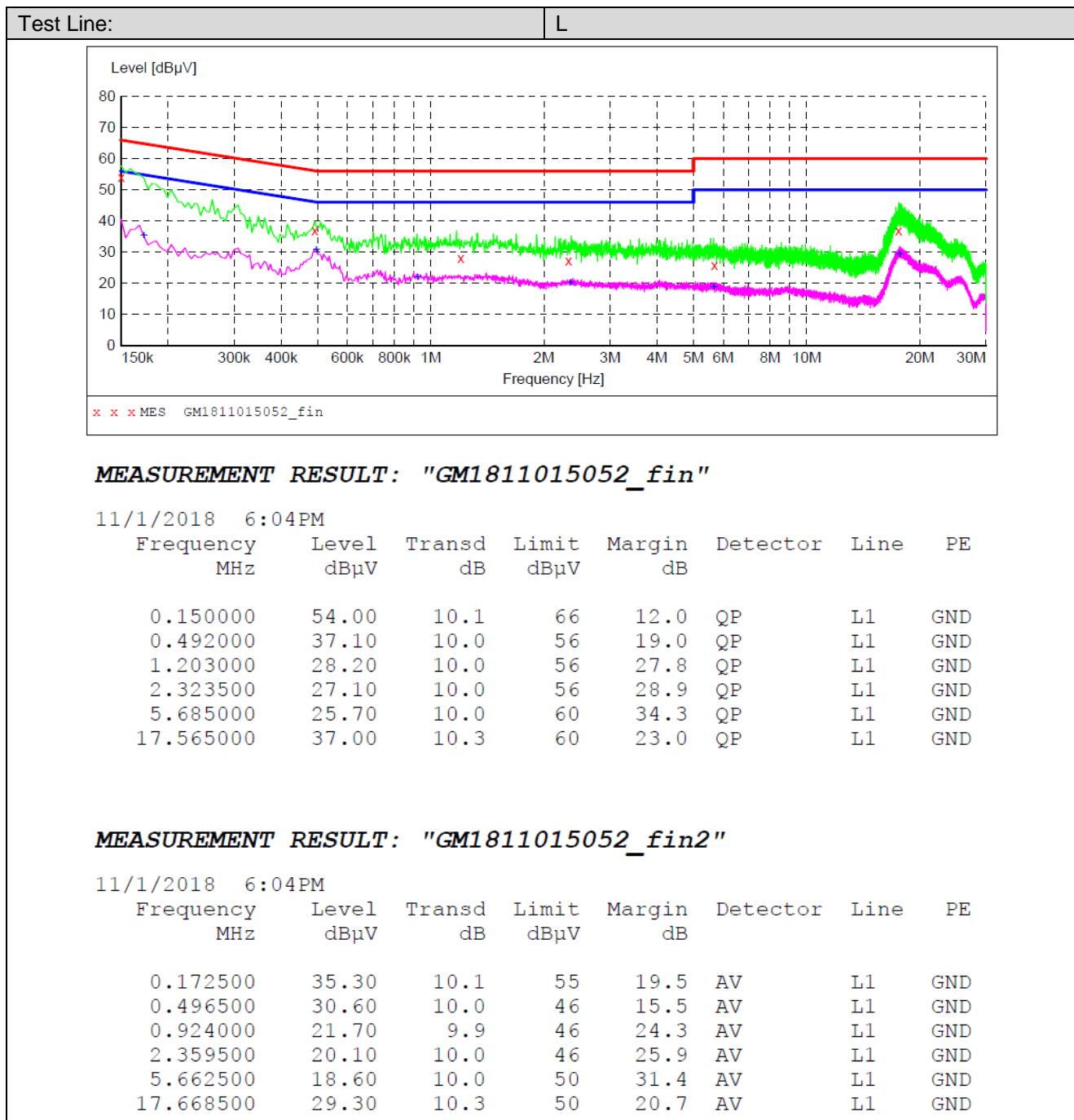
1. The EUT was setup according to ANSI C63.4:2014
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded 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.

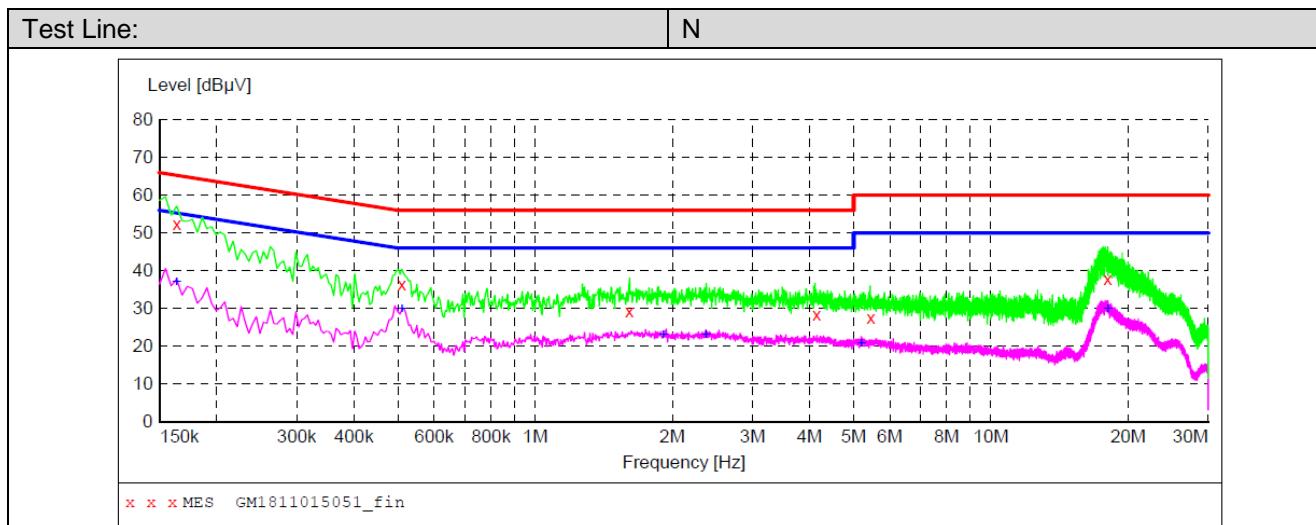
#### TEST MODE:

Please refer to the clause 3.3

#### TEST RESULTS

Passed       Not Applicable





**MEASUREMENT RESULT: "GM1811015051\_fin"**

11/1/2018 6:02PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.163500	52.30	10.1	65	13.0	QP	N	GND
0.510000	36.40	10.0	56	19.6	QP	N	GND
1.608000	29.10	10.0	56	26.9	QP	N	GND
4.146000	28.30	10.0	56	27.7	QP	N	GND
5.451000	27.60	10.0	60	32.4	QP	N	GND
18.055500	37.90	10.3	60	22.1	QP	N	GND

**MEASUREMENT RESULT: "GM1811015051\_fin2"**

11/1/2018 6:02PM

Frequency MHz	Level dB $\mu$ V	Transd dB	Limit dB $\mu$ V	Margin dB	Detector	Line	PE
0.163500	36.90	10.1	55	18.4	AV	N	GND
0.510000	29.80	10.0	46	16.2	AV	N	GND
1.909500	22.80	10.0	46	23.2	AV	N	GND
2.368500	22.90	10.0	46	23.1	AV	N	GND
5.194500	20.70	10.0	50	29.3	AV	N	GND
18.073500	29.70	10.3	50	20.3	AV	N	GND

## 5.2. Radiated Emissions Test

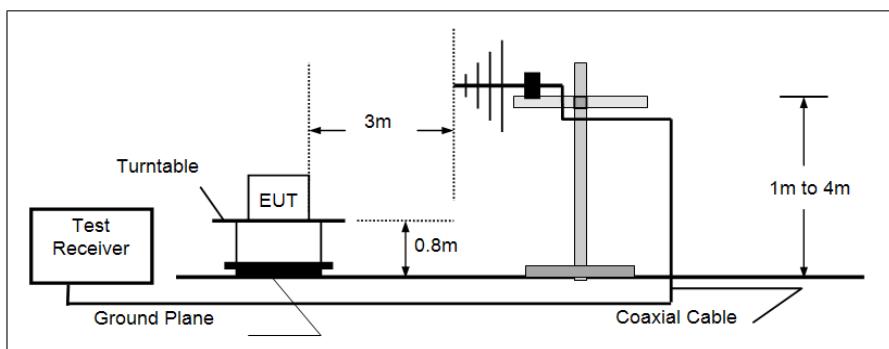
### LIMIT

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

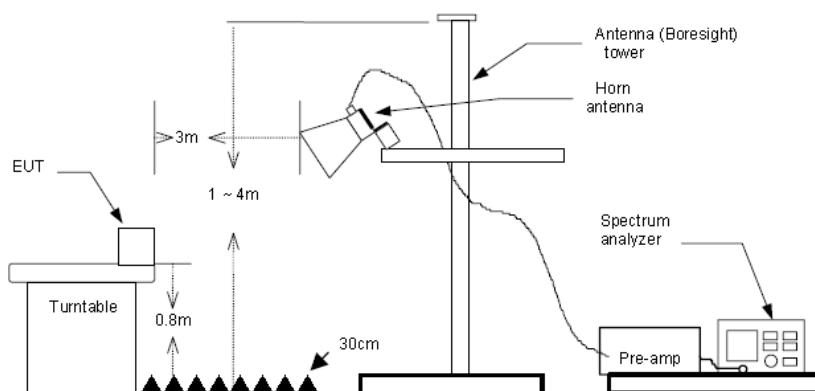
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

### 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

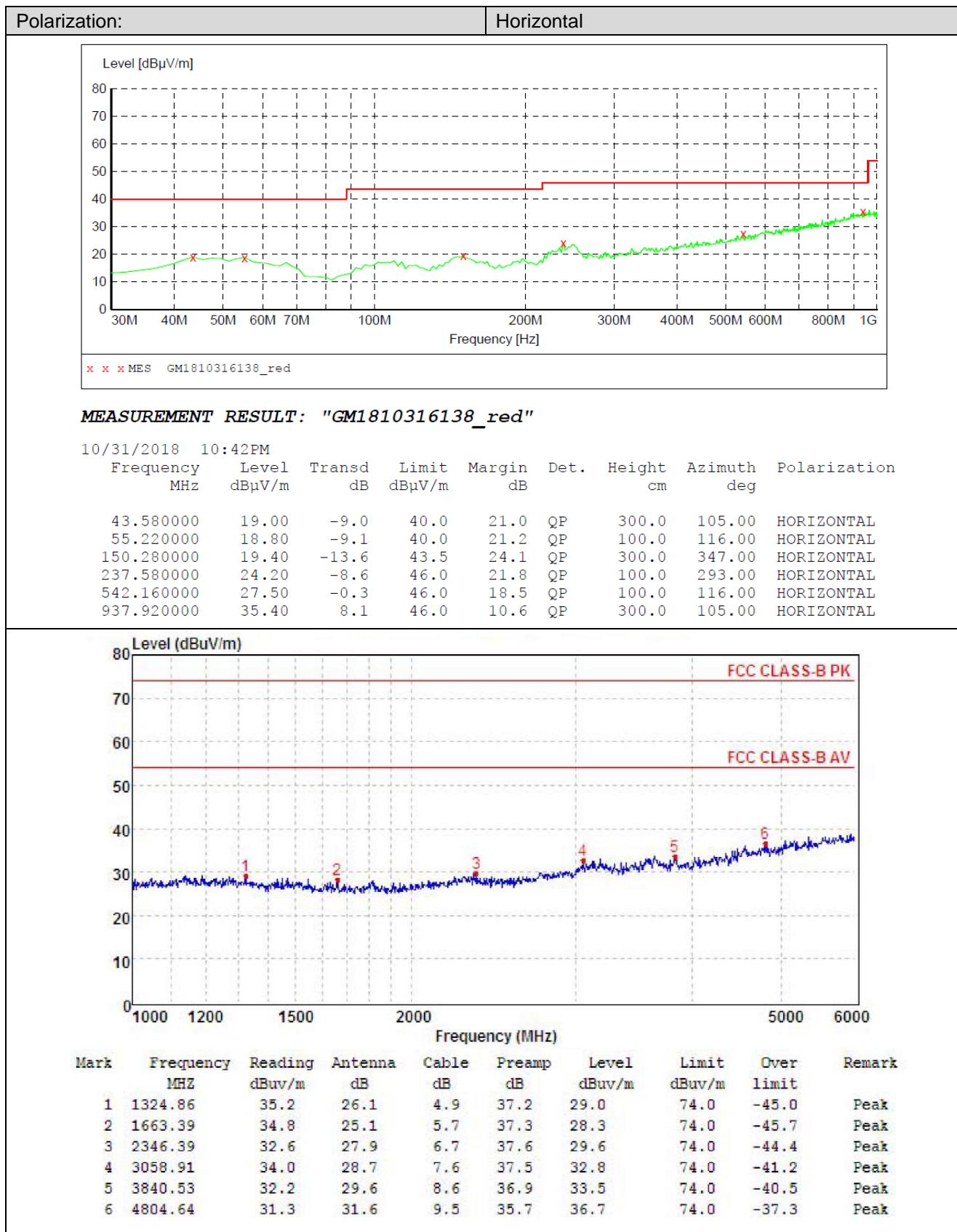
**TEST MODE:**

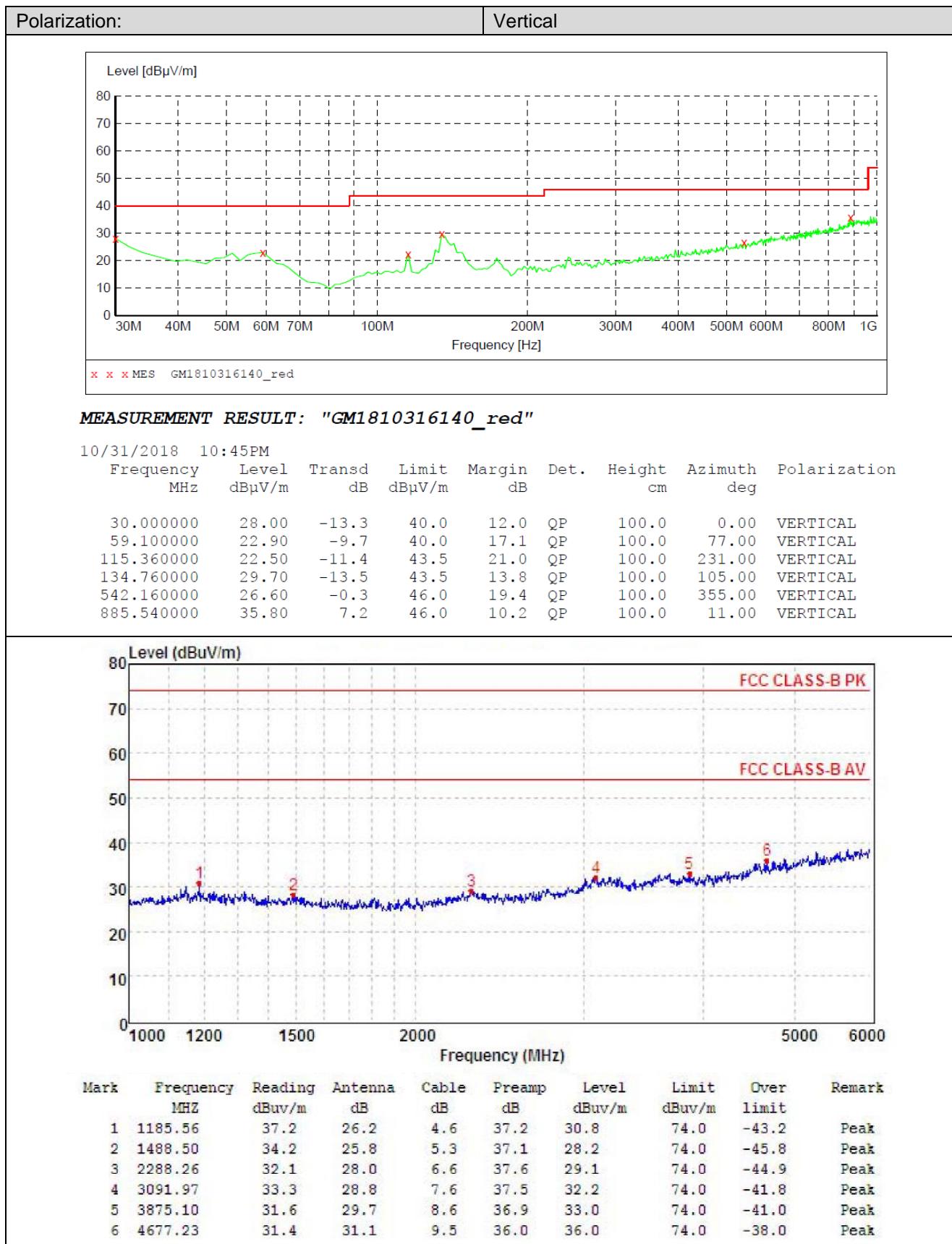
Please refer to the clause 3.3

**TEST RESULTS**

**Passed**       **Not Applicable**

Note: Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor





## 6. TEST SETUP PHOTOS OF THE EUT

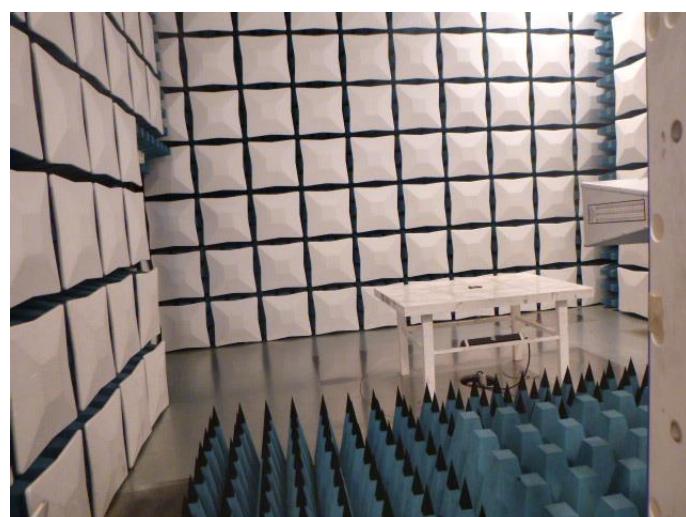
Conducted Emissions (AC Mains)



Radiated Emissions (30MHz-1GHz)

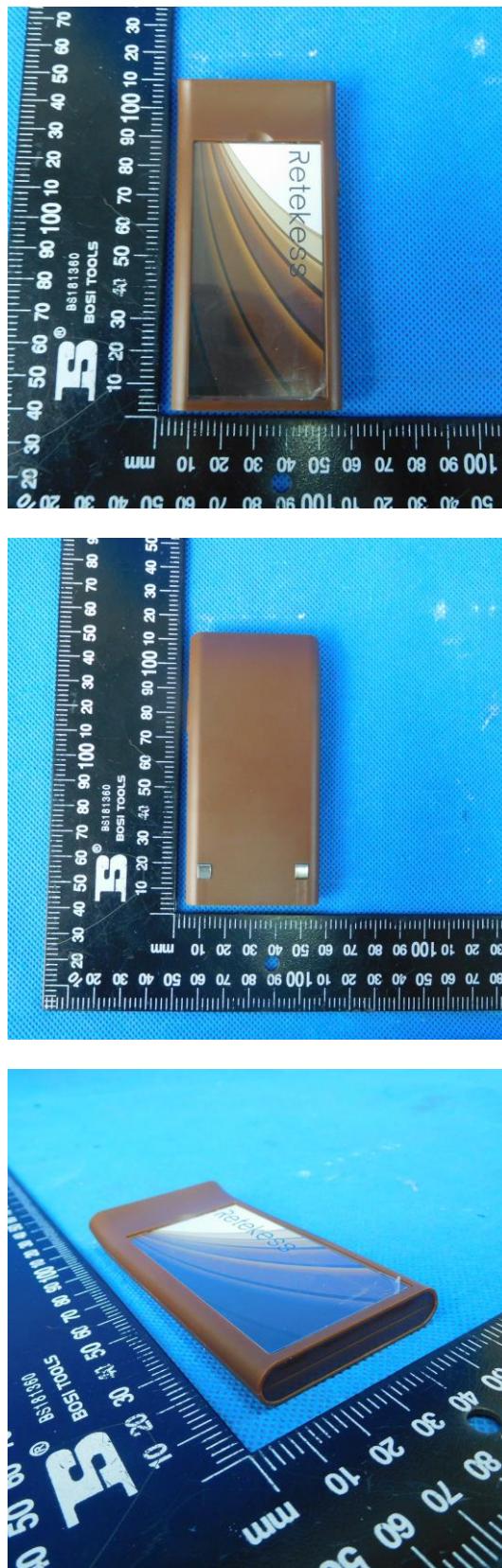


Radiated Emissions (Above 1GHz)

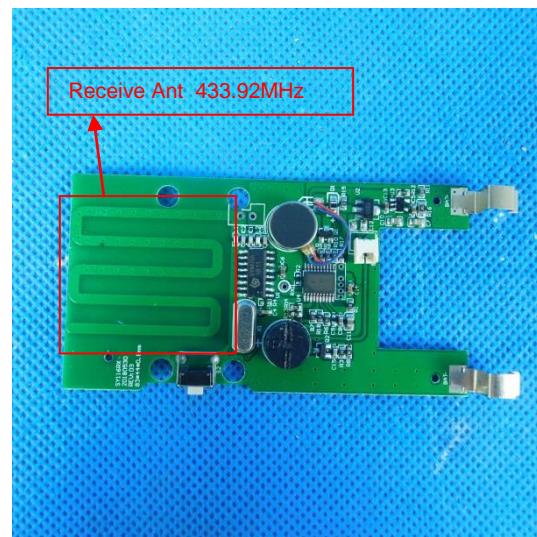
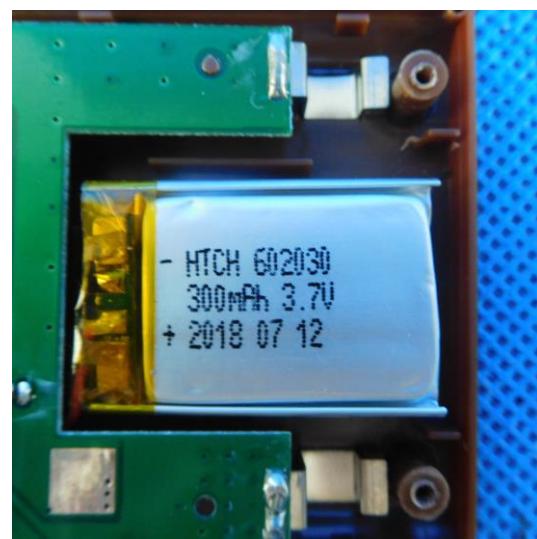


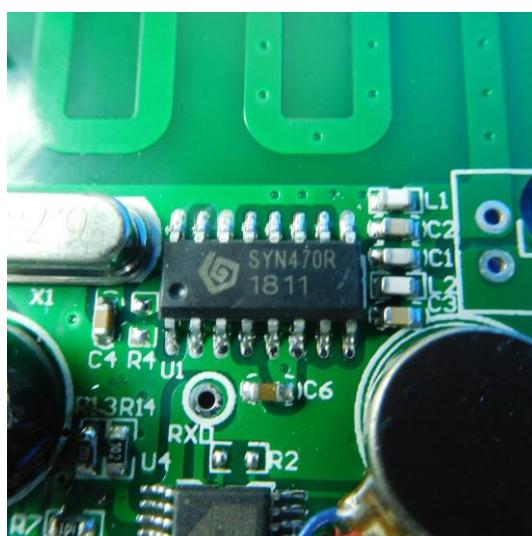
## 7. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

### External Photo





**Internal Photo**



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