



ISO/IEC17025 Accredited Lab.

Report No:

FCC 1404020

File reference No:

2014-04-08

Applicant:

SGSG Science&Technology Co.,Ltd

Product:

Dynamic Password Lock

Model No:

HJ-L1110-10U

Trademark:

KAM

Test Standards:

FCC Part 15 Subpart C, Paragraph 15.247

Test result:

It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4 and FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of electromagnetic compatibility

Approved By

*Jack Chung*

Jack Chung  
Manager

Dated:

April 08, 2014

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD**

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### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

#### **CNAL-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 899988**

The 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 No.: 899988.

#### **IC- Registration No.: IC5205A-02**

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

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## 1.0 General Details

### 1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD  
Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 899988  
For 3m & 10 m OATS  
Site Listed with Industry Canada of Ottawa, Canada  
Registration Number: IC: 5205A-02  
For 3m & 10 m OATS

### 1.2 Applicant Details

Applicant: SGSG Science&Technology Co.,Ltd  
Address: 3rd floor, Block A3, No. 1 Software Park Road, State Hightech Zone, Zhuhai, Guangdong, China  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product: Dynamic Password Lock  
Manufacturer: SGSG Science&Technology Co.,Ltd  
Address: 3rd floor, Block A3, No. 1 Software Park Road, State Hightech Zone, Zhuhai, Guangdong, China  
Trade Mark: KAM  
Model Number: HJ-L1110-10U  
Software Version: V101R0001C5  
Hardware Version: V1.00  
  
Type of Modulation QPSK  
Frequency range 2480MHz  
Input Voltage: DC3.3V  
Channel Number 1 Channels  
Antenna: PCB Antenna with maximum gain 3.1 dBi (Both for Master and Slaver part)  
Data Rate: 252Kbps

### 1.4 Submitted Sample: 2 Samples

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1.5 Test Duration

2013-12-08 to 2014-01-15

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB

Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

*Terry Tang*

The sample tested by \_\_\_\_\_

Print Name: Terry Tang

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2.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2013-08-21	2014-08-20
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2013-08-21	2014-08-20
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2013-08-21	2014-08-20
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2013-08-21	2014-08-20
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2013-08-21	2014-08-20
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2013-08-21	2014-08-20
System Controller	CT	SC100	-	--	--
Printer	EPSON	PHOTO EX3	CFNH234850	--	--
Computer	IBM	8434	1S8434KCE99BLXL O*	-	-
Loop Antenna	EMCO	6502	00042960	2013-08-21	2014-08-20
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2013-08-21	2014-08-20
3m OATS	--	--	N/A	2013-08-21	2014-08-20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2013-08-21	2014-08-20
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2013-08-21	2014-08-20
Power meter	Anritsu	ML2487A	6K00003613	2013-08-21	2014-08-20
Power sensor	Anritsu	MA2491A	32263	2013-08-21	2014-08-20
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2013-08-21	2014-08-20
LISN	AFJ	LS16C	10010947251	2013-08-21	2014-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-21	2014-08-20
9*6*6 Anechoic	--	--	N/A	2013-08-21	2014-08-20
EMI Test Receiver	RS	ESCS30	100139	2013-08-21	2014-08-20
LISN	AFJ	LS16C	10010947251	2013-08-21	2014-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2013-08-21	2014-08-20

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

#### 3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

#### 4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

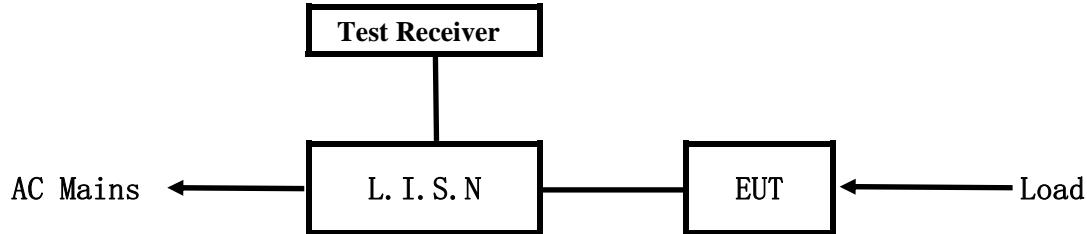
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## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test

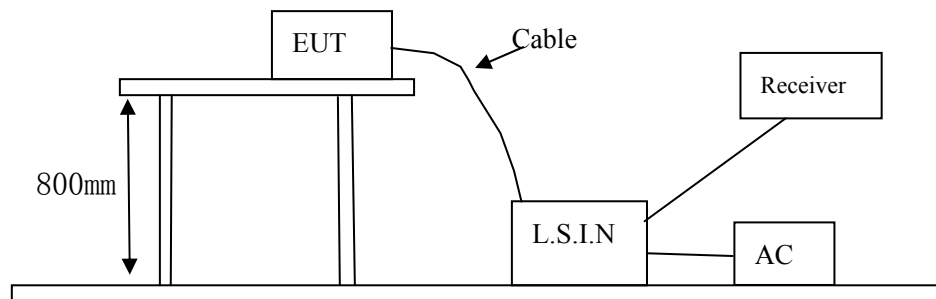


EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Block diagram of Test setup



### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### A. EUT

Device	Manufacturer	Model	FCC ID
Dynamic Password Lock	SGSG Science&Technology Co., Ltd	HJ-L1110-10U	2ABQMHI-L1110-10U

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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### C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

### 5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

### 5.5 Power line conducted Emission Limit according to Paragraph 15.207.

Frequency (MHz)	Class A Limits (dB $\mu$ V)		Class B Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

- Notes:
1. \*Decreasing linearly with logarithm of frequency.
  2. The tighter limit shall apply at the transition frequencies

### 5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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**A: Conducted Emission on Live Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

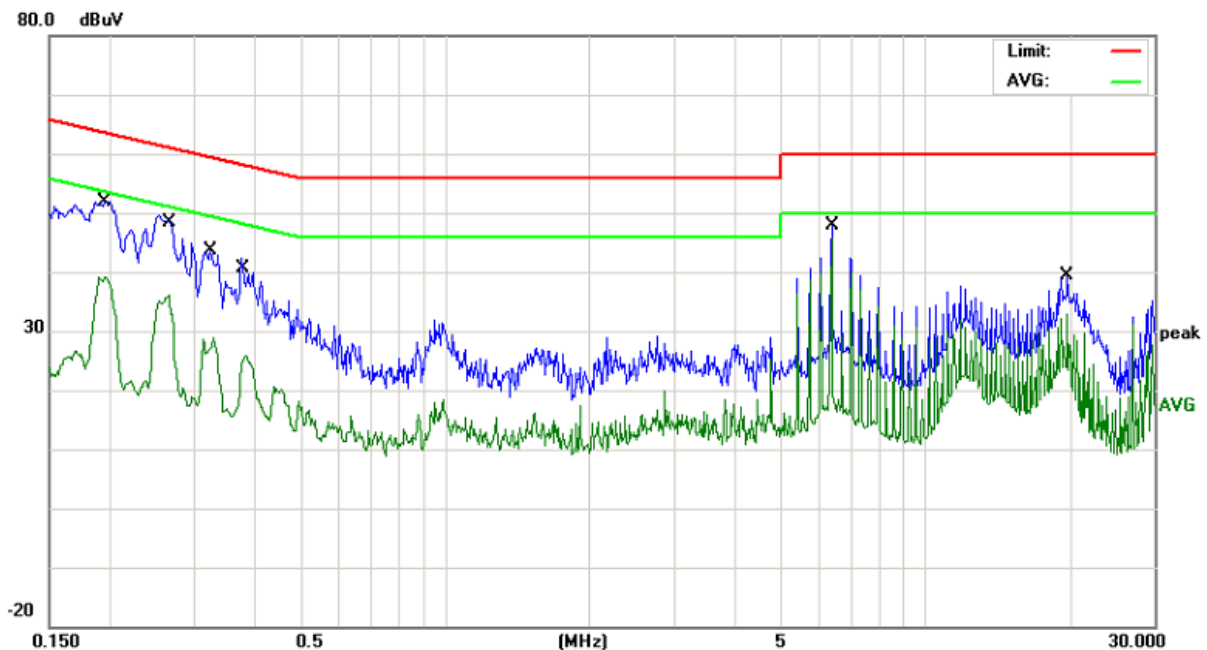
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keep Transmitting**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1945	40.71	10.32	51.03	63.84	-12.81	QP	
2		0.1945	27.93	10.32	38.25	53.84	-15.59	AVG	
3		0.2700	37.76	10.55	48.31	61.12	-12.81	QP	
4		0.2700	22.39	10.55	32.94	51.12	-18.18	AVG	
5		0.3266	32.01	10.61	42.62	59.54	-16.92	QP	
6		0.3266	16.80	10.61	27.41	49.54	-22.13	AVG	
7		0.3830	27.87	10.53	38.40	58.21	-19.81	QP	
8		0.3830	15.12	10.53	25.65	48.21	-22.56	AVG	
9		6.3897	37.24	10.54	47.78	60.00	-12.22	QP	
10	*	6.3897	35.01	10.54	45.55	50.00	-4.45	AVG	
11		19.8059	28.87	10.50	39.37	60.00	-20.63	QP	
12		19.8059	22.40	10.50	32.90	50.00	-17.10	AVG	

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**B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)**

**EUT Operating Environment**

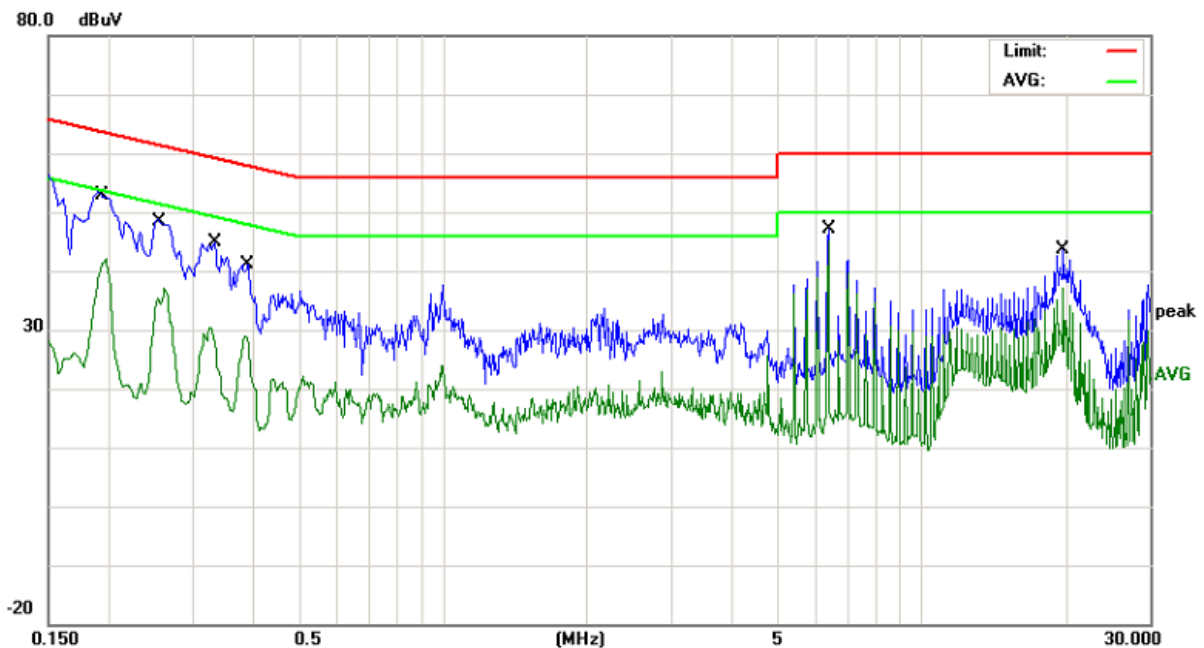
Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa

**EUT set Condition: Keep Transmitting**

**Equipment Level: Class B**

**Results: Pass**

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1	*	0.1955	42.40	10.31	52.71	63.80	-11.09	QP	
2		0.1955	31.19	10.31	41.50	53.80	-12.30	AVG	
3		0.2589	37.59	10.51	48.10	61.46	-13.36	QP	
4		0.2589	24.43	10.51	34.94	51.46	-16.52	AVG	
5		0.3301	33.44	10.60	44.04	59.45	-15.41	QP	
6		0.3301	19.35	10.60	29.95	49.45	-19.50	AVG	
7		0.3870	29.60	10.52	40.12	58.13	-18.01	QP	
8		0.3870	18.31	10.52	28.83	48.13	-19.30	AVG	
9		6.3818	34.51	10.54	45.05	60.00	-14.95	QP	
10		6.3818	25.99	10.54	36.53	50.00	-13.47	AVG	
11		19.8498	28.38	10.50	38.88	60.00	-21.12	QP	
12		19.8498	15.96	10.50	26.46	50.00	-23.54	AVG	

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

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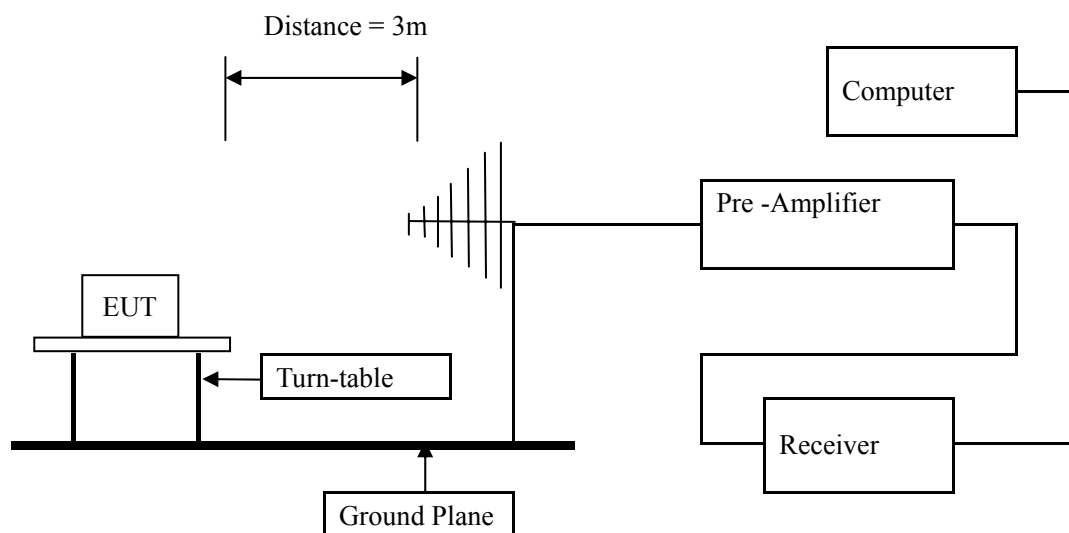
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## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

### Block diagram of Test setup



### 6.2 Configuration of The EUT

Same as section 5.3 of this report

### 6.3 EUT Operating Condition

Same as section 5.4 of this report.

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#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**Frequencies in restricted band are complied to limit on Paragraph 15.209**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
  4. For radiated emissions in the frequency of 9kHz-30MHz, the measurements data were greater than 20dB below the limit.

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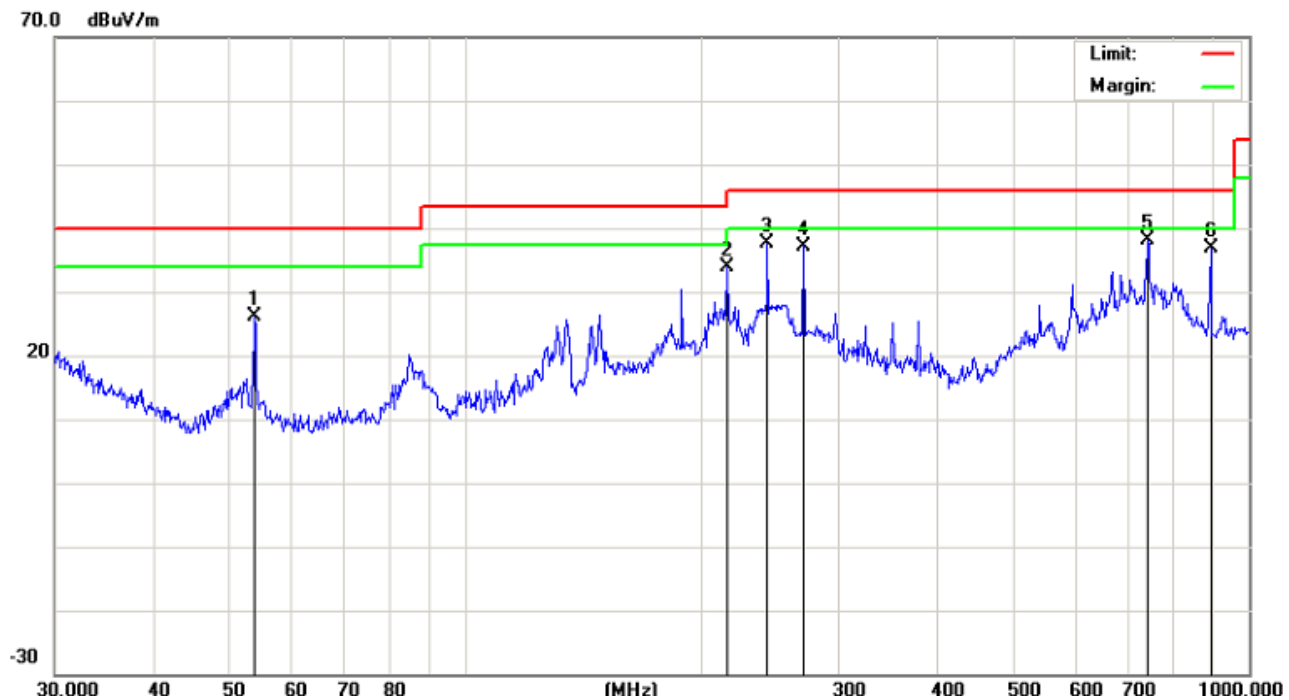
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Test result  
General Radiated Emission Data and Harmonics Radiated Emission Data  
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep transmitting  
Results: Pass  
Test Figure:  
Polarity: Horizontal



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Antenna	Table	
		MHz	Level	Factor	ment			Height	Degree	
			dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
6		893.8567	35.11	3.58	38.69	47.00	-8.31	peak		
1		53.8817	37.11	-11.08	26.03	40.00	-13.97	peak		
2		216.0240	40.28	-6.36	33.92	46.00	-12.08	peak		
3		243.3771	44.06	-6.45	37.61	46.00	-8.39	peak		
4		270.3747	41.58	-4.33	37.25	46.00	-8.75	peak		
5	*	742.2586	34.98	3.18	38.16	46.00	-7.84	peak		
6		893.8567	33.33	3.58	36.91	46.00	-9.09	peak		

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**Test result**

**General Radiated Emission Data and Harmonics Radiated Emission Data**

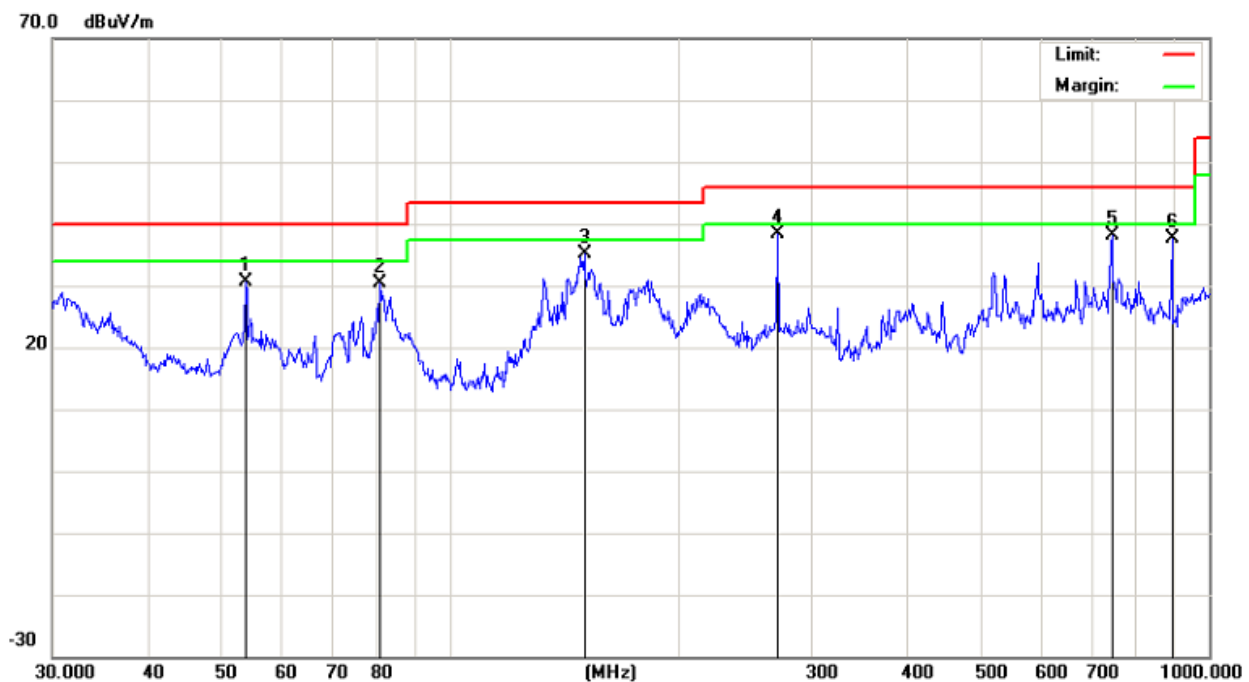
**Radiated Emission In Vertical (30MHz----1000MHz)**

**EUT set Condition:** Keep transmitting

**Results:** Pass

**Test Figure:**

**Polarity: Vertical**



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
6		893.8567	33.33	3.58	36.91	46.00	-9.09	peak		
1		53.8817	41.50	-10.85	30.65	40.00	-9.35	peak		
2		80.9274	42.77	-12.36	30.41	40.00	-9.59	peak		
3		150.5378	39.12	-4.00	35.12	43.50	-8.38	peak		
4	*	270.3747	41.67	-3.37	38.30	46.00	-7.70	peak		
5		744.8660	34.18	4.07	38.25	46.00	-7.75	peak		
6		893.8567	34.11	3.58	37.69	46.00	-8.31	peak		

Remark: All of the Tx modes have been investigated, and only worst mode is presented in this report.

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**For master part:**

Above 1GHz:

Operation Mode:	Keep Transmitting	Test Date :	Dec. 18, 2013
Frequency Range:	Above 1GHz	Temperature :	28°C
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	LHZ

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4960.35	V	56.17	39.63	74	54	-17.83	-14.37
7440.65	V	55.06	35.39	74	54	-18.94	-18.61
4960.71	H	58.58	48.30	74	54	-15.42	-5.70
7440.39	H	56.17	45.79	74	54	-17.83	-8.21

**All emissions not reported were more than 20dB below the specified limit or in the noise floor.**

**Note:** (1) All Readings are Peak Value and AV.

(2) Emission Level= Reading Level + Probe Factor +Cable Loss.

(3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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**For slave part:**

Above 1GHz:

Operation Mode:	Keep Transmitting	Test Date :	Dec. 18, 2013
Frequency Range:	Above 1GHz	Temperature :	28°C
Test Result:	PASS	Humidity :	65 %
Measured Distance:	3m	Test By:	LHZ

Freq. (MHz)	Ant.Pol. H/V	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
		PK	AV	PK	AV	PK	AV
4960.35	V	56.04	38.37	74	54	-17.96	-15.63
7440.65	V	56.32	36.38	74	54	-17.68	-17.62
4960.71	H	57.57	47.1	74	54	-16.43	-6.9
7440.39	H	57.05	44.98	74	54	-16.95	-9.02

**All emissions not reported were more than 20dB below the specified limit or in the noise floor.**

**Note:** (1) All Readings are Peak Value and AV.

(2) Emission Level= Reading Level + Probe Factor +Cable Loss.

(3) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

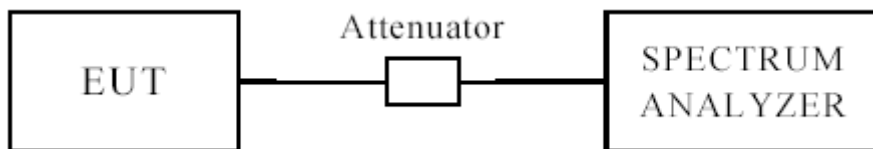
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## 7.0 6dB Bandwidth Measurement

### 7.1 Test Setup



### 7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

### 7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.4 Test Result

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### 6dB Occupied Bandwidth

EUT	Dynamic Password Lock		Model	HJ-L1110-10U	
Mode	Keep Transmitting		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Part	Channel Frequency (MHz)	Data Transfer Rate (kbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
Master	2480	252	1.530	0.5	Pass
Slave	2480	252	1.600	0.5	Pass

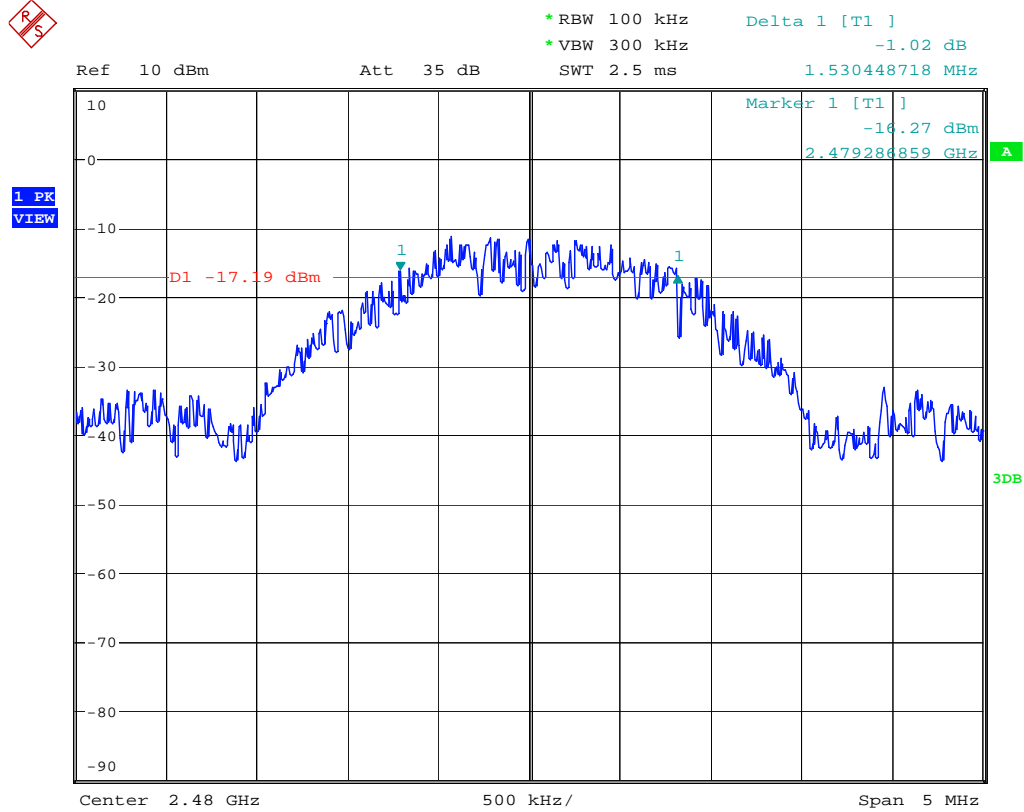
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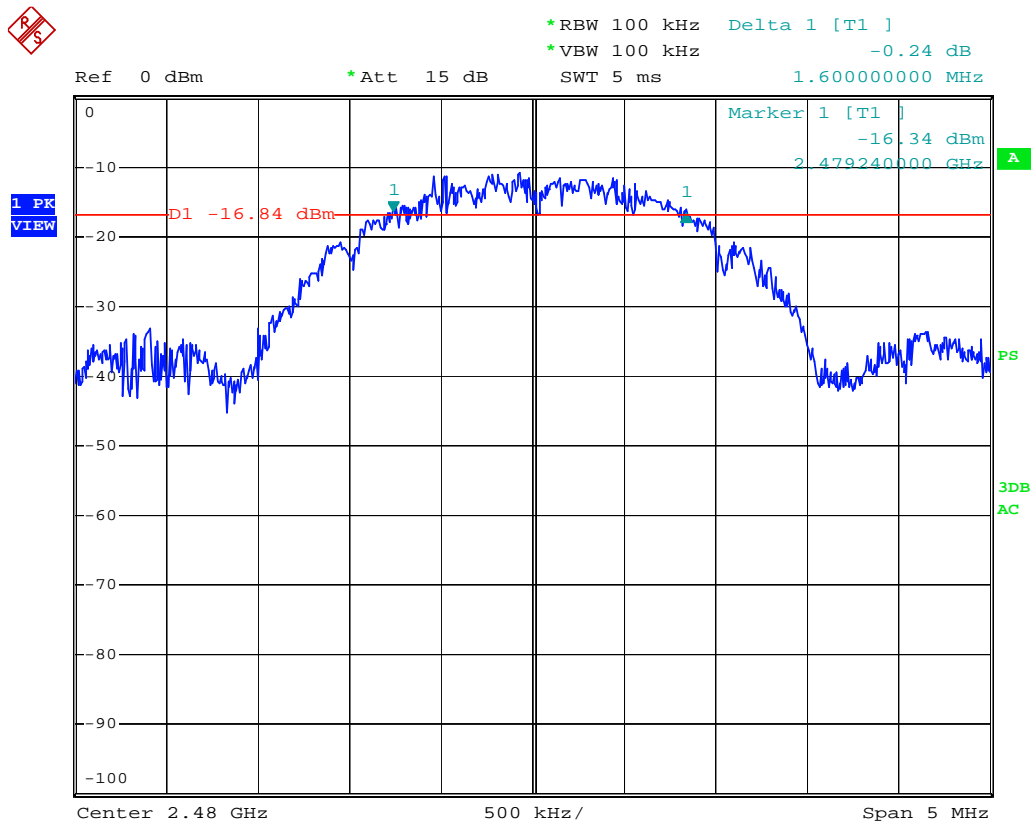
Test Figure:  
Master Part



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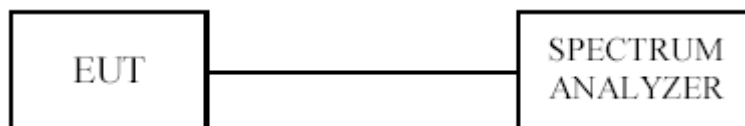
Slave Part



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## 8. Maximum Peak Output Power

### 8.1 Test Setup



### 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

### 8.3 Test Procedure

The RF power output was measured with a Spectrum connected to the RF Antenna connector ( conducted measurement ) while EUT was operating in transmit mode at the appropriate centre frequency.

**Note: the peak power was measured**

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#### 8.4 Test Results

EUT	Dynamic Password Lock		Model	HJ-L1110-10U	
Mode	Keep Transmitting		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Part	Channel Frequency (MHz)	Peak Power Output (dBm)		Peak Power Limit (dBm)	Pass/ Fail
Master	2480	-5.36		30	Pass
Slave	2480	-5.86		30	Pass

Note:

1. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

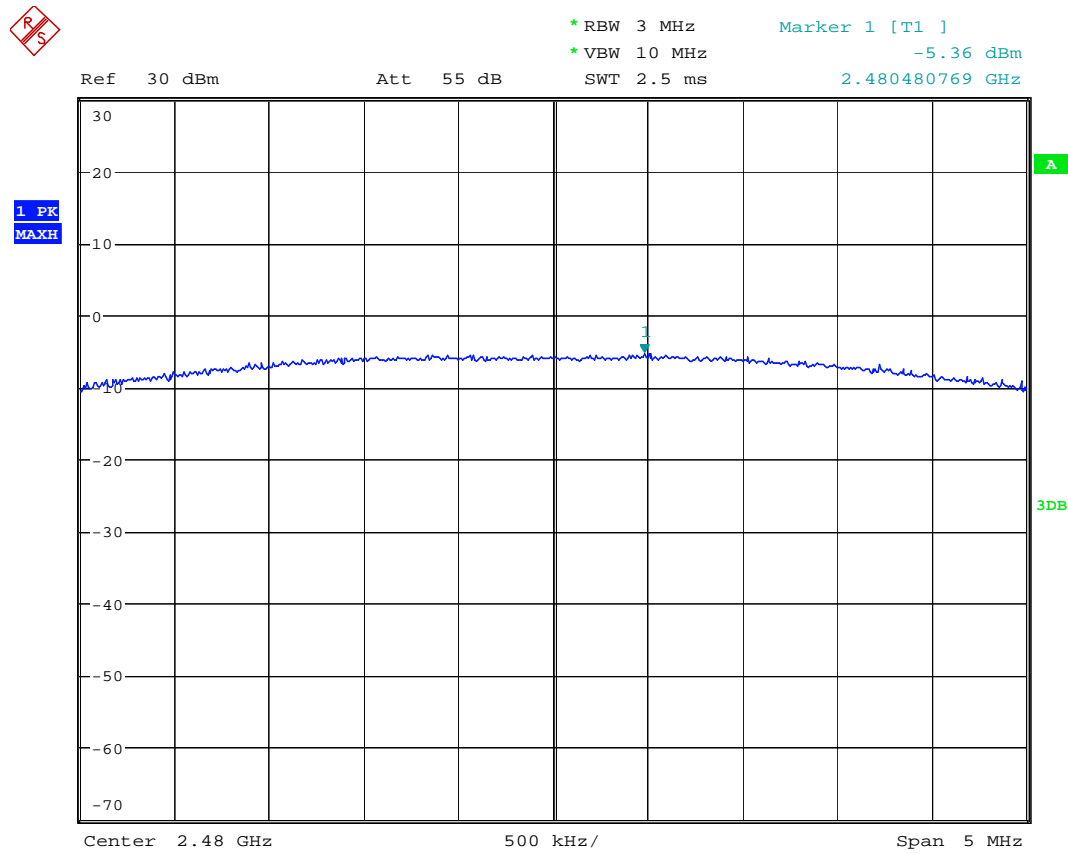
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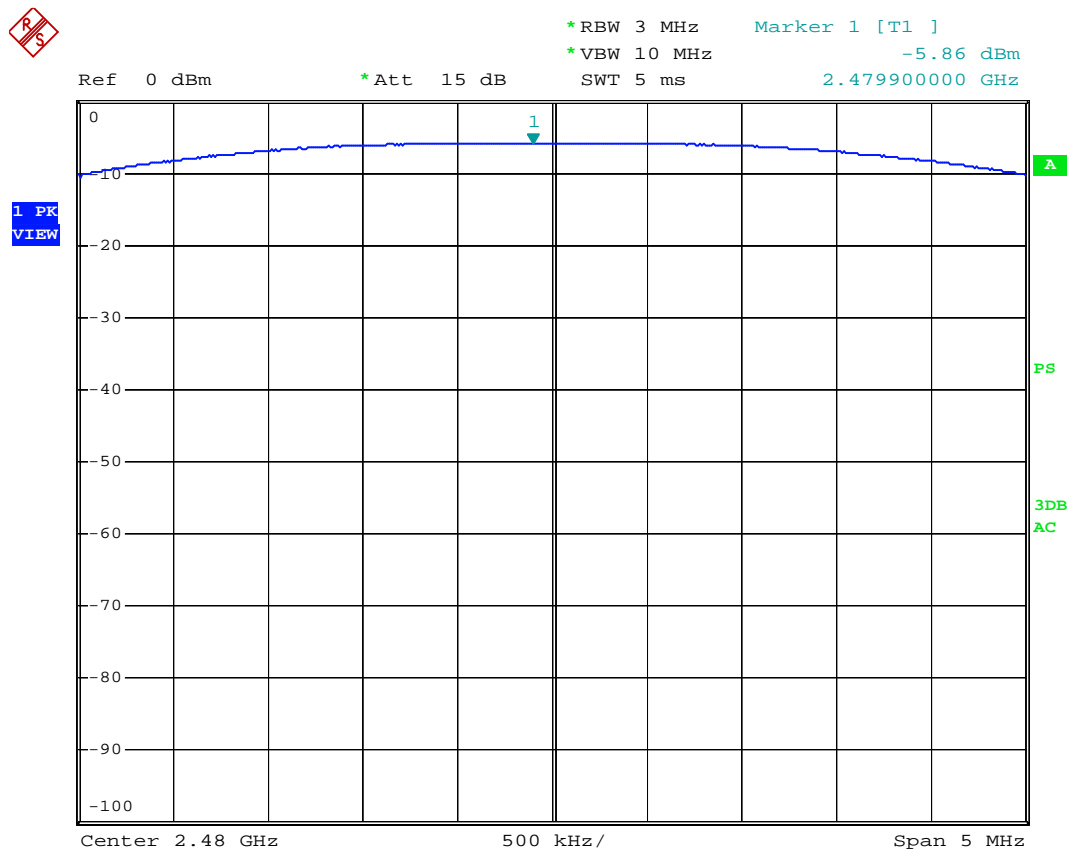


Test Figure  
For Master Part:



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**For Slave Part:**



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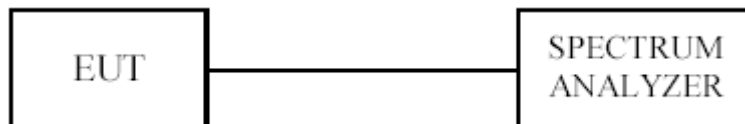
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## 9. Power Spectral Density Measurement

### 9.1 Test Setup



### 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

### 9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 10 kHz.
3. Set the VBW  $\geq$  30 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be  $\leq$  8 dBm.

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#### 9.4 Test Result

EUT	Dynamic Password Lock		Model	HJ-L1110-10U	
Mode	Keep Transmitting		Input Voltage	120V~	
Temperature	24 deg. C,		Humidity	56% RH	
Part	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail	
Master	2480	-19.33	8	Pass	
Slave	2480	-18.24	8	Pass	

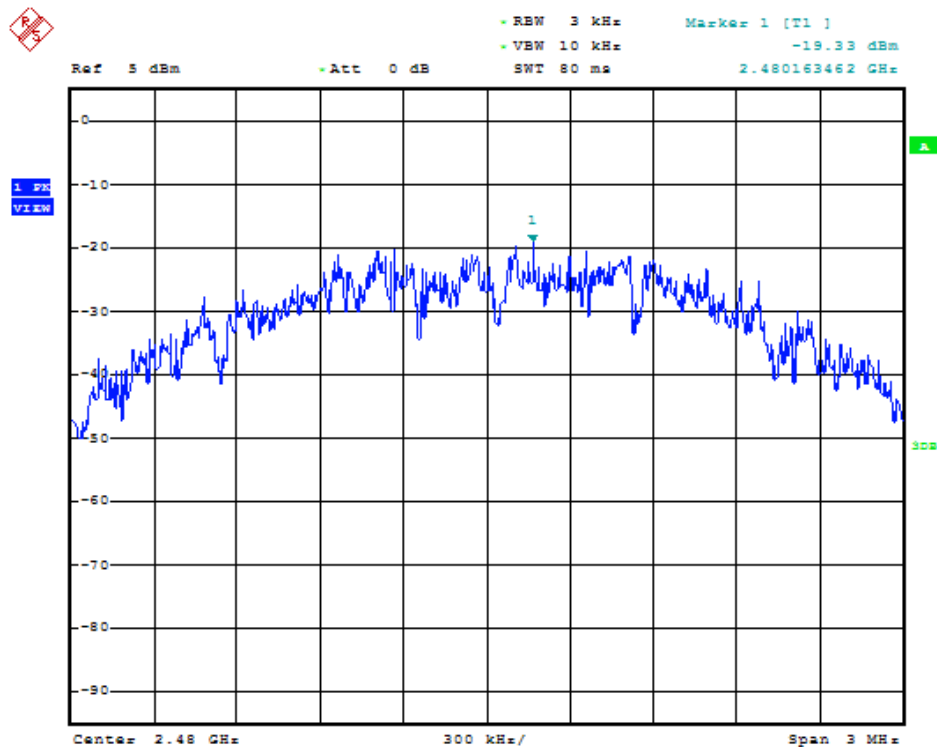
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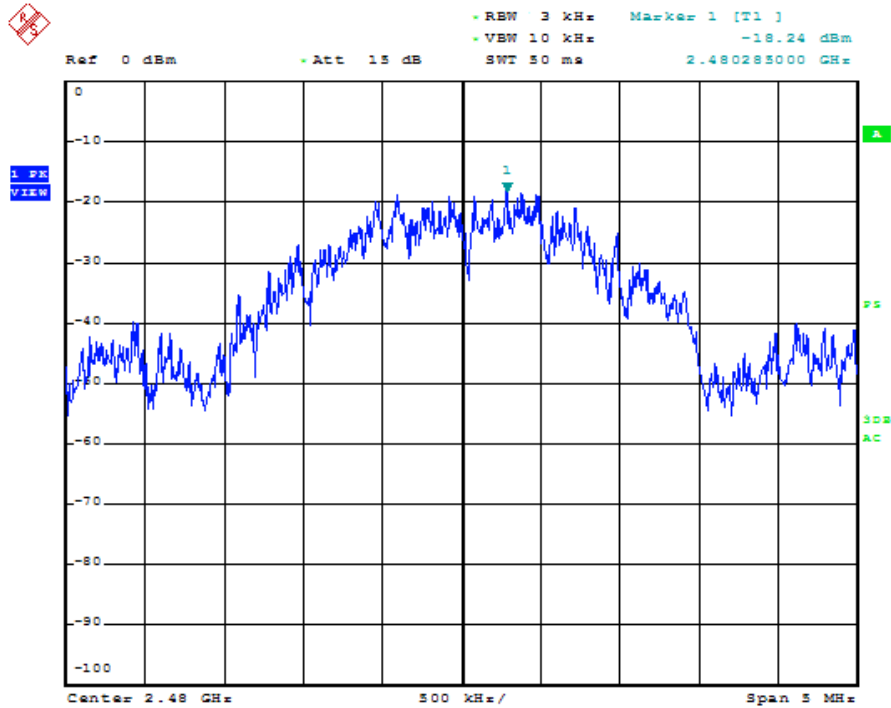
Test Plots:  
For master part:



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**For slave part:**

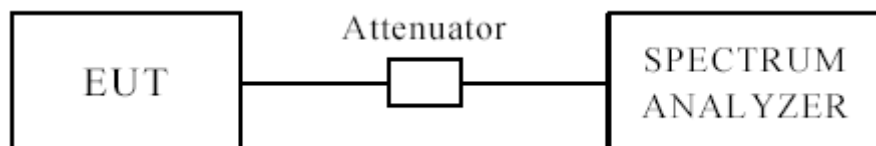


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## 10 Out of Band Measurement

### 10.1 Test Setup for band edge



**The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup**

### 10.2 Limits of Out of Band Emissions Measurement

1. Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### 10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.( Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW100kHz, VBW=300 kHz. A conducted measurement used

### 10.4 Test Result

Please see next pages

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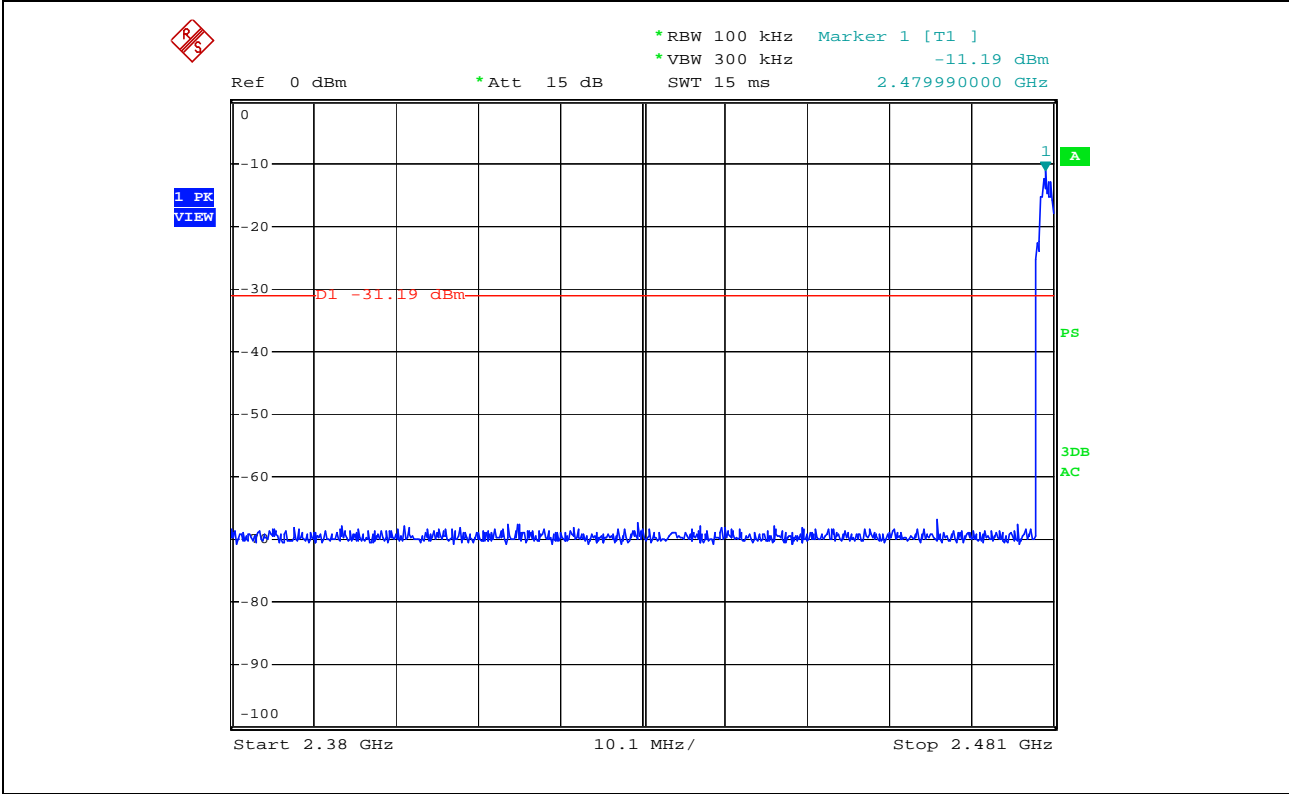


10.4 Band-edge and Antenna Conducted Spurious Emissions

EUT	Dynamic Password Lock	Model	HJ-L1110-10U
Mode	Keep Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure

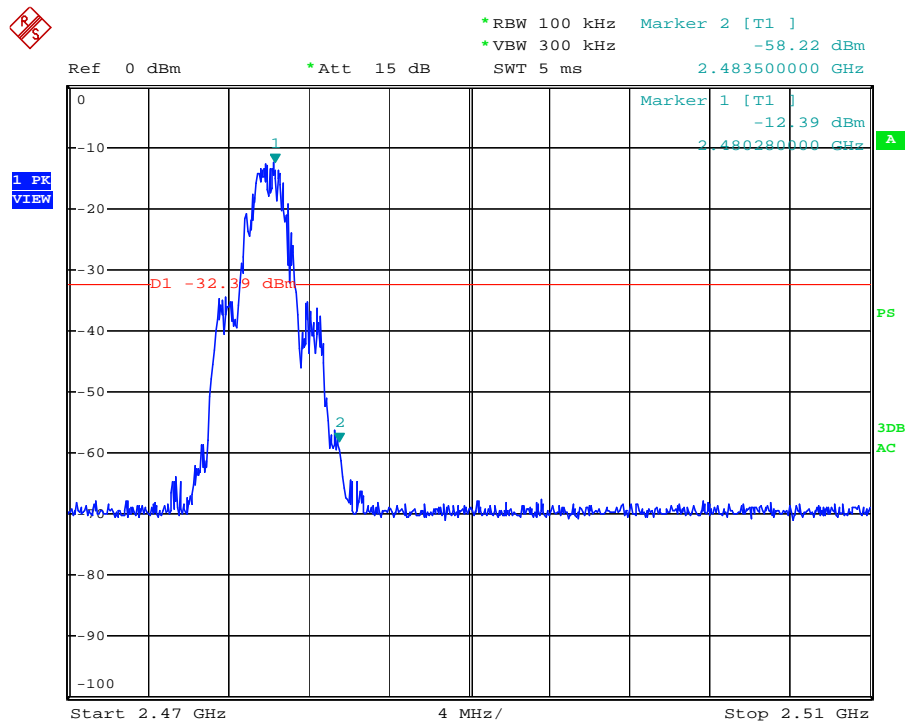
For Master Part: Left Band Edge



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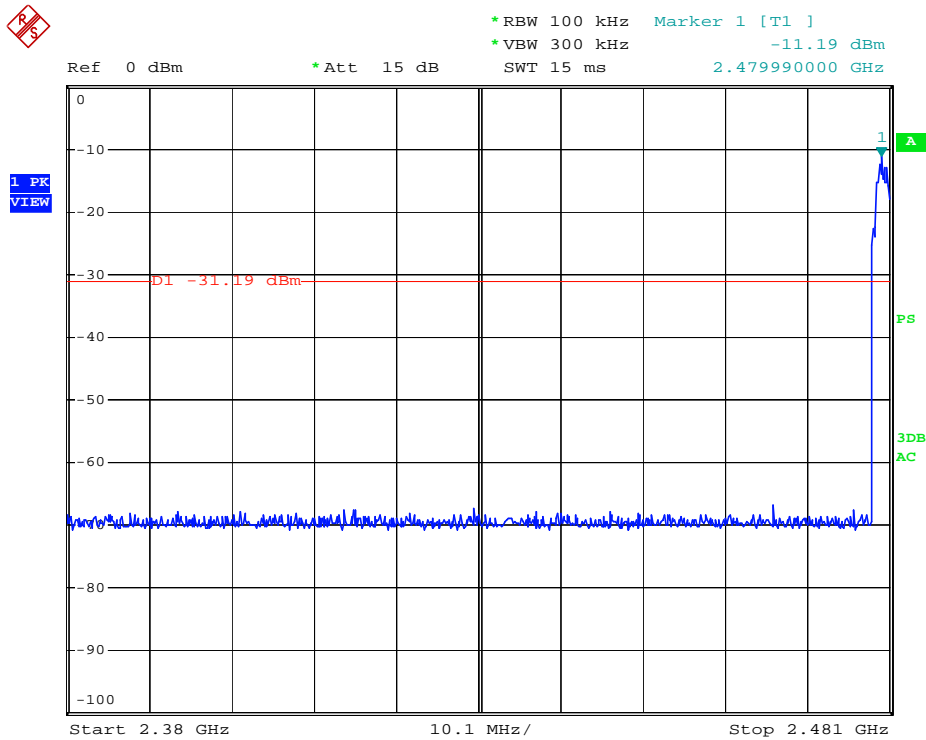
For Master Part: Right Band Edge



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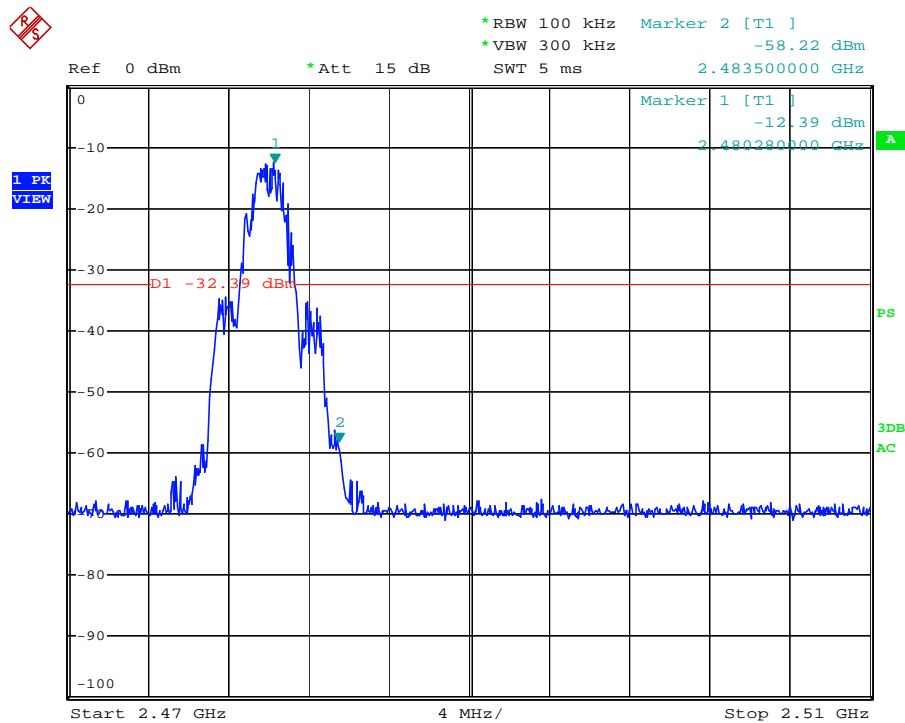
For Slave Part: Left Band Edge



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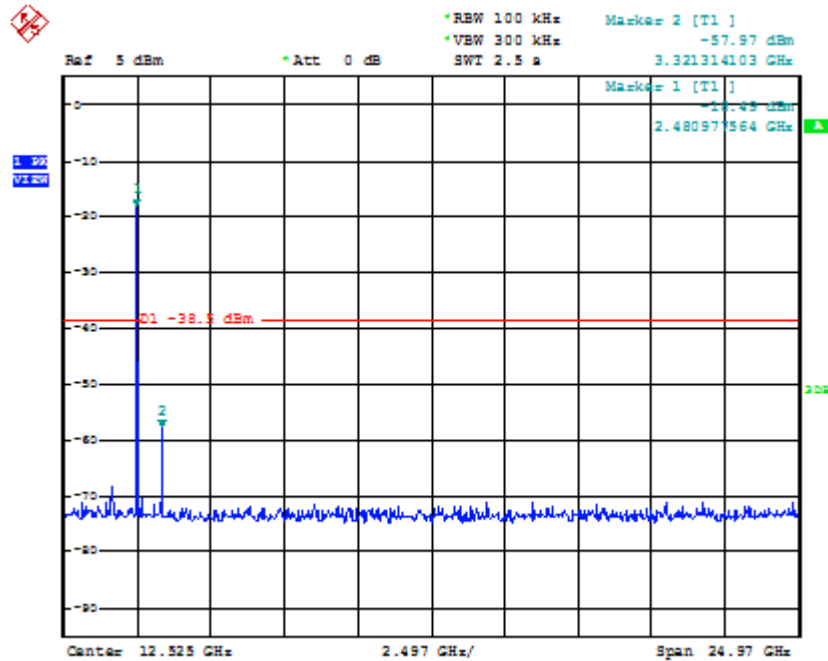
For Slave Part: Right Band Edge



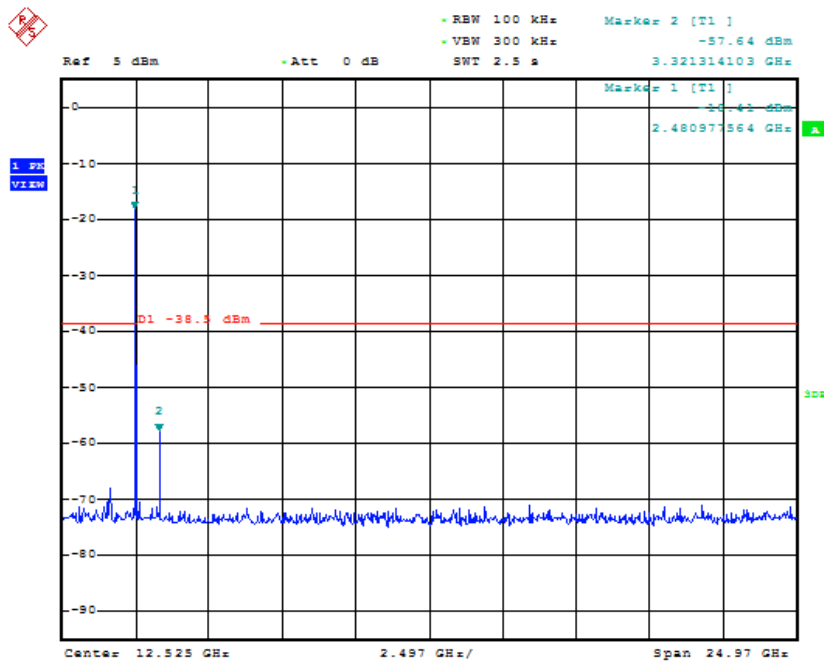
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## Antenna port conducted spurious emissions

For master part:



For Slave part:



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## 10.5 Restrict band Measurement

### For Master Part:

Indicated		result PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit dBμV/m)	Margin (dB)
Left Band edge											
2390	35.12	AV	225	1.5	V	30.3	4.1	33.1	36.42	54	17.58
2390	35.76	AV	270	2	H	30.3	4.1	33.1	37.06	54	16.94
2390	50.07	PK	180	1.5	V	30.3	4.1	33.1	51.37	74	22.63
2390	49.56	PK	360	2	H	30.3	4.1	33.1	50.86	74	23.14
Right Band edge											
2483.5	39.77	AV	270	1	V	31	4.4	32.7	42.47	54	11.53
2483.5	38.28	AV	225	2	H	31	4.4	32.7	40.98	54	13.02
2483.5	56.17	PK	270	1	V	31	4.4	32.7	58.87	74	15.13
2483.5	56.33	PK	90	2	H	31	4.4	32.7	59.03	74	14.97

### For Slave Part:

Indicated		result PK/AV)	Table Angle Degree	Antenna		Correction Factor			FCC Part 15.247		
Frequency (MHz)	Receiver Reading (dBμV/m)			Height (m)	Polar (H/V)	Ant. Factor (dB/m)	Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	Limit dBμV/m)	Margin (dB)
Left Band edge											
2390	34.58	AV	225	1.5	V	30.3	4.1	33.1	35.88	54	18.12
2390	35.47	AV	270	2	H	30.3	4.1	33.1	36.77	54	17.23
2390	49.55	PK	180	1.5	V	30.3	4.1	33.1	50.85	74	23.15
2390	50.57	PK	360	2	H	30.3	4.1	33.1	51.87	74	22.13
Right Band edge											
2483.5	39.16	AV	270	1	V	31	4.4	32.7	41.86	54	12.14
2483.5	41.17	AV	225	2	H	31	4.4	32.7	43.87	54	10.13
2483.5	55.18	PK	270	1	V	31	4.4	32.7	57.88	74	16.12
2483.5	56.16	PK	90	2	H	31	4.4	32.7	58.86	74	15.14

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## **11.0 Antenna Requirement**

### **11.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **11.2 Antenna Connected construction**

PCB Antenna used both for Master and Slave Part. The maximum Gain of the antennas is 3.1dBi for both parts.

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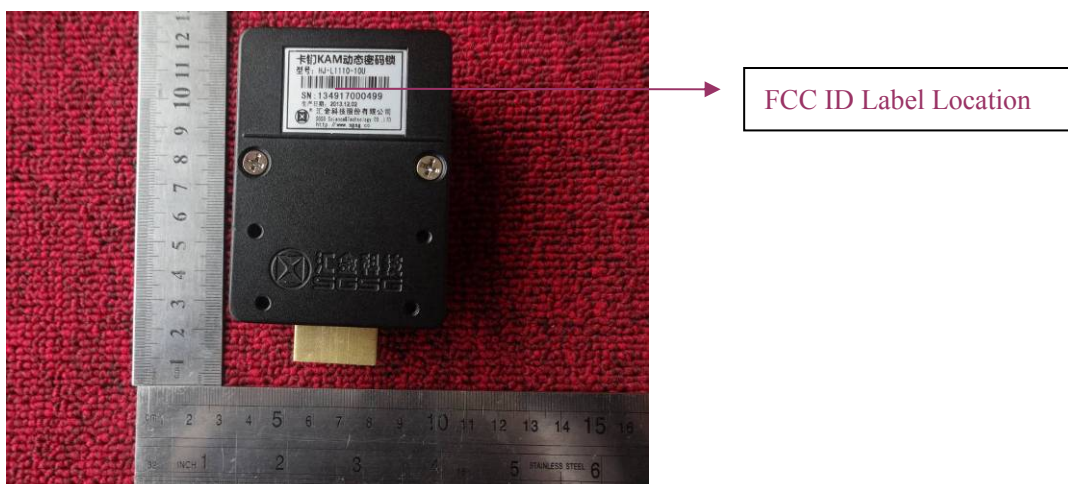
## 12.0 FCC ID Label

**FCC ID: 2ABQMHIJ-L1110-10U**

**This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

### Mark Location:



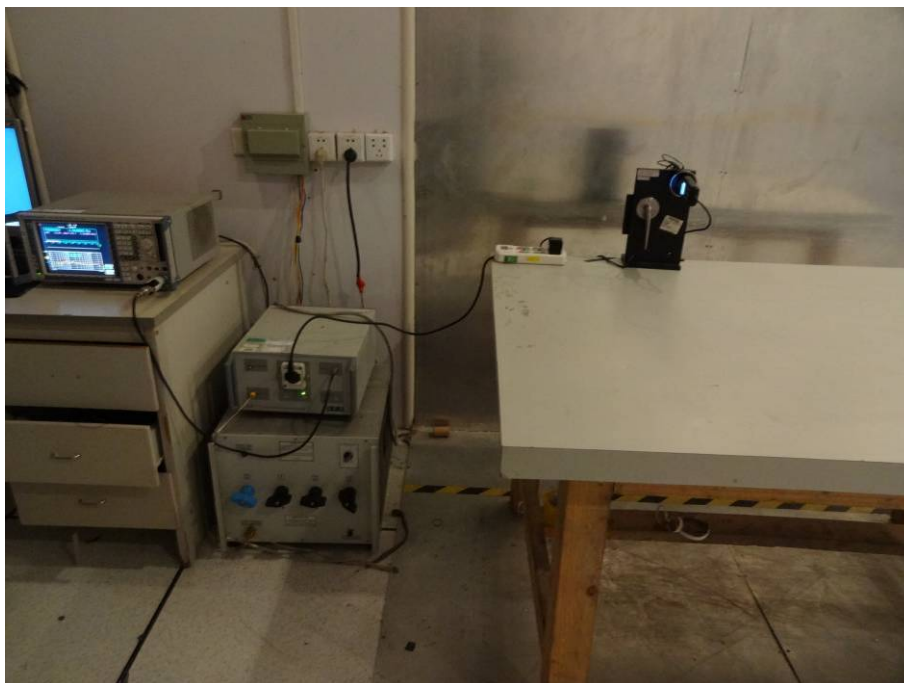
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### 13.0 Photo of testing

Conducted Emission Test Setup:

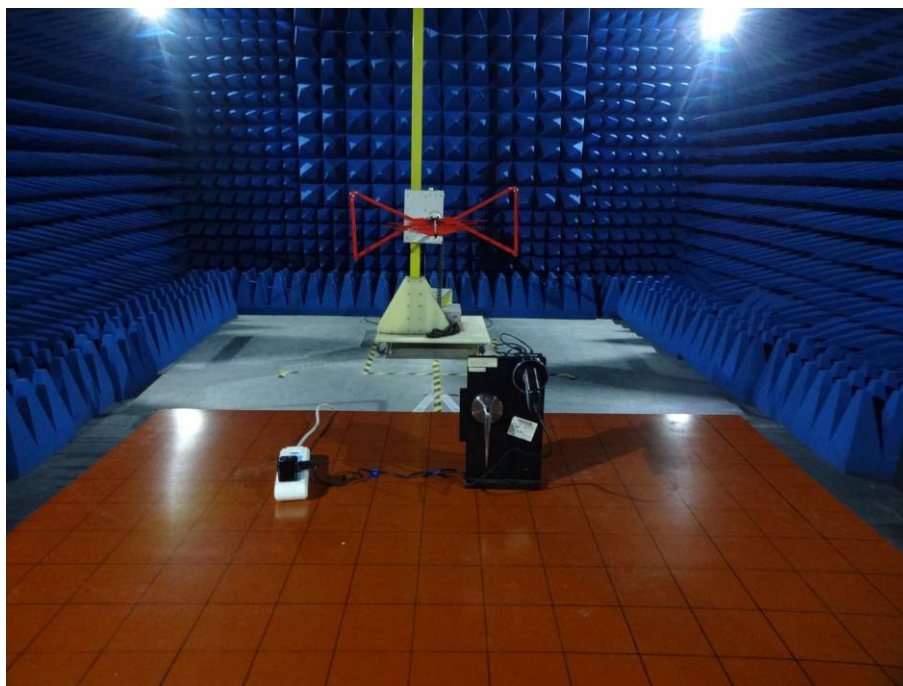


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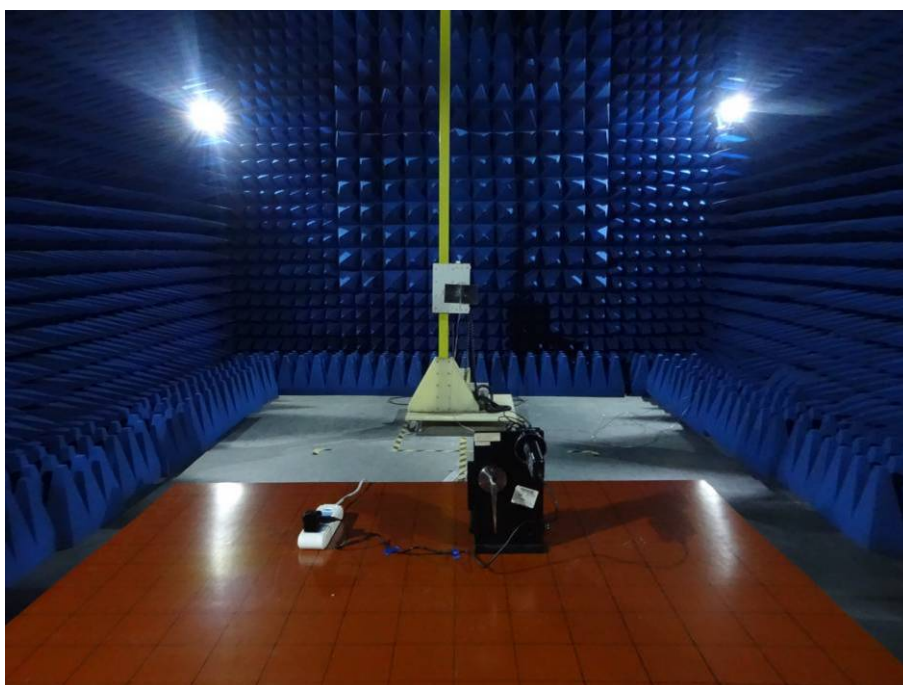
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Radiated Emission Test Setup:



Below 1GHz



Above 1GHz

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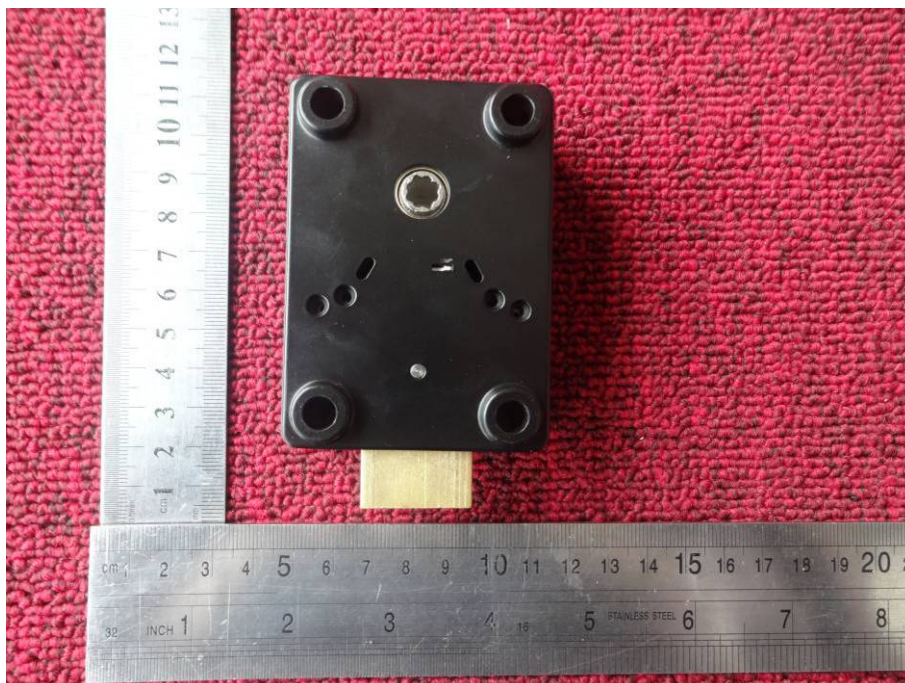
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Photo for the EUT



Appearance photograph of EUT



Bottom View of EUT

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Photo for the EUT



Top View of EUT



Side View of EUT

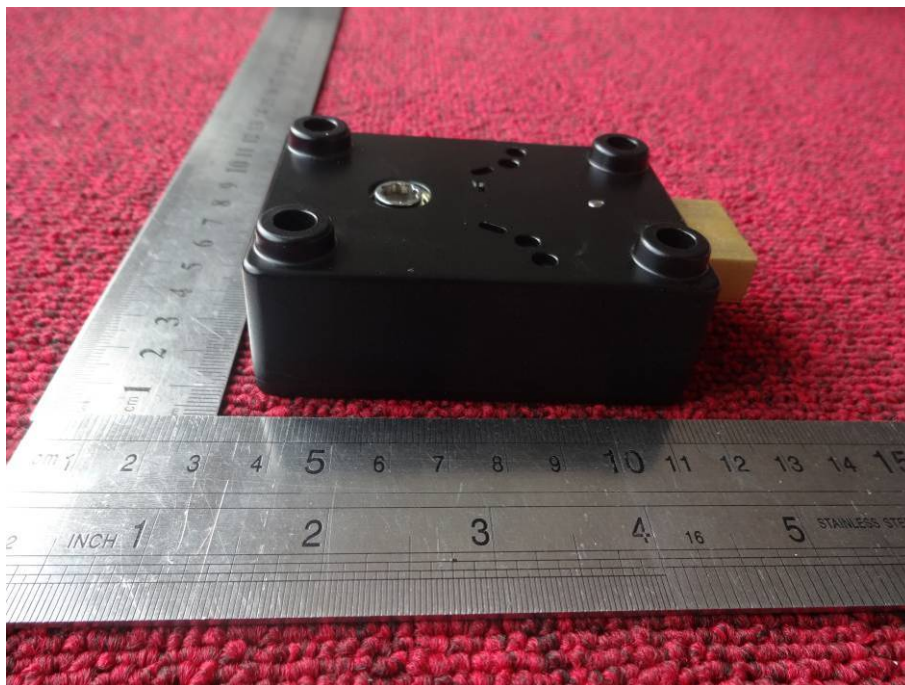
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Photo for the EUT



Side View of EUT



Side View of EUT

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Photo for the EUT



Side View of EUT



Inside View of EUT

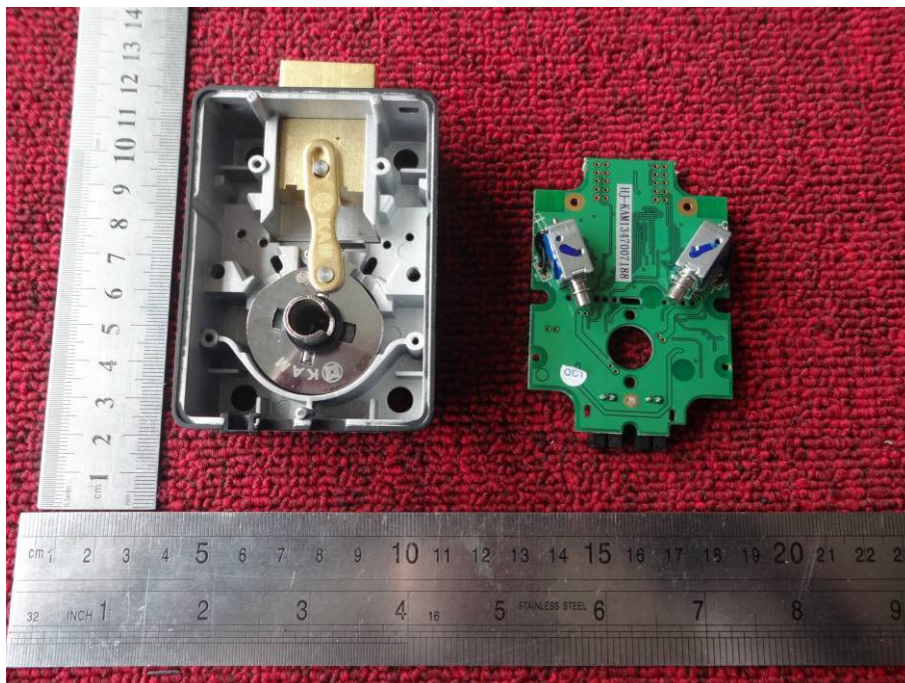
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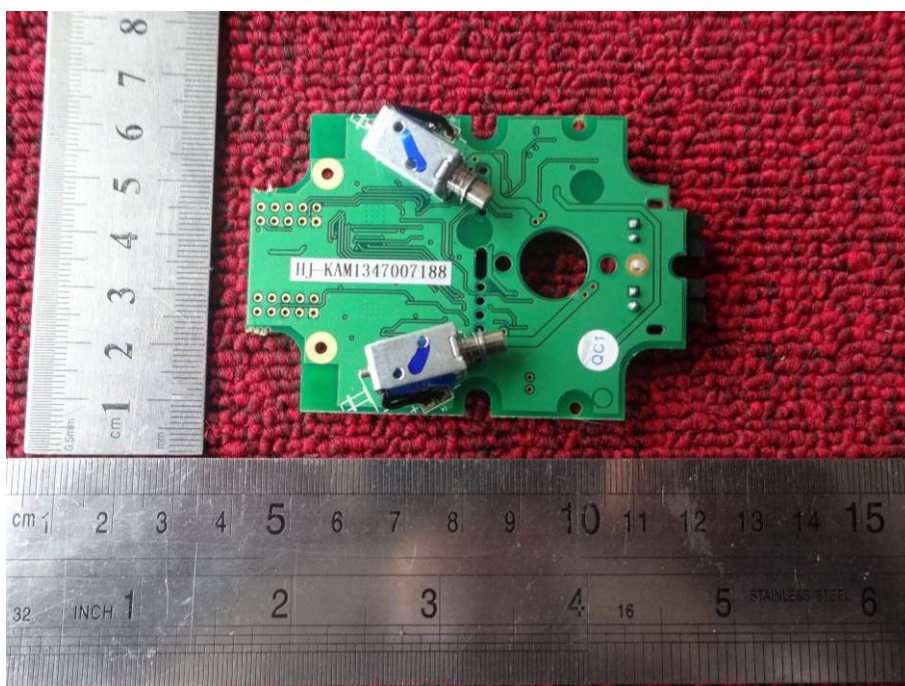
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Photo for the EUT



Inside View of EUT



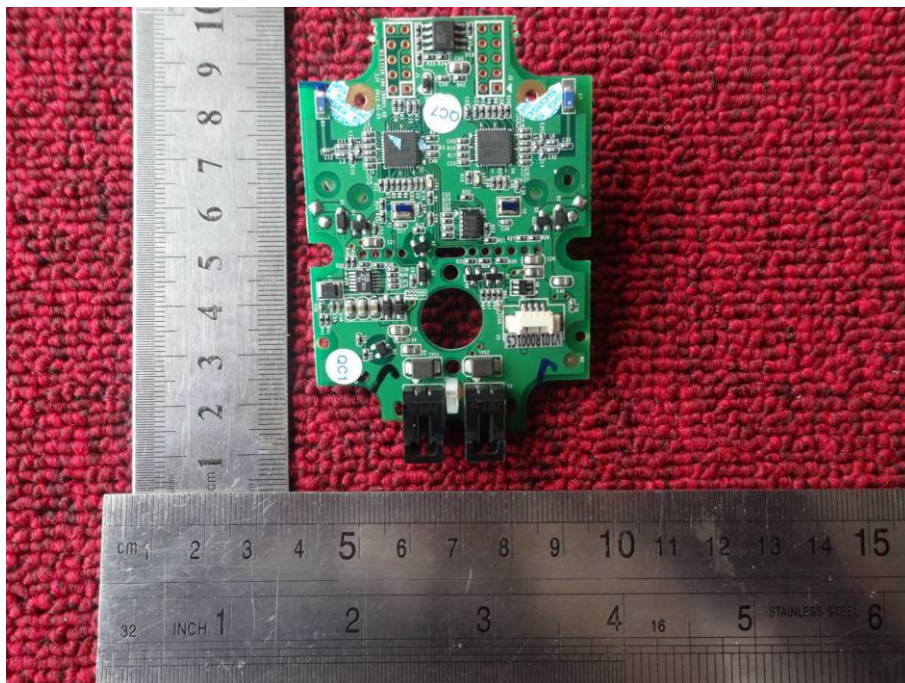
PCB View of EUT

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Photo for the EUT



PCB View of EUT

## End of the Report

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