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Report Template Version: V03 Report Template Revision Date: Mar.1st, 2017

# **FCC Test Report**

Report No. :	CQASZ20180500005E-02
Applicant:	SUNVALLEYTEK INTERNATIONAL, INC.
Address of Applicant:	46724 Lakeview Blvd, Fremont, California, United States, 94538-6529
Manufacturer:	Shenzhen NearbyExpress Technology Development Company Limited
Address of Manufacturer:	333 Bulong Road, Jialianda Industrial Park, Building 1, Bantian, Longgang District, Shenzhen, China
Factory:	GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Factory:	No. 5,6,7,8,9 Build, Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jianxi Province, China
Equipment Under Test (E	UT):
Product:	Sound Bar
Model No.:	TT-SK020
Brand Name:	TaoTronics
FCC ID:	2AFDGTT-SK020
Standards:	47 CFR Part 15, Subpart C
Date of Test:	2018-05-15 to 2018-06-13
Date of Issue:	2018-06-13
Test Result :	PASS*

(Aaron Ma)

Tested By:

**Reviewed By:** 

Quer 2hor

(Owen Zhou)

Jack Ai



Approved By:

\* In the configuration tested, the EUT complied with the standards specified above.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.



### 2 Version

### **Revision History Of Report**

Report No.	Version	Description	Issue Date
CQASZ20180500005E-02	Rev.01	Initial report	2018-06-13



## 3 Test Summary

Test Item	Test Item Test Requirement		Result
Antonno Doguiromont	47 CFR Part 15, Subpart C Section	ANEL CC2 10 (2012)	5400
Antenna Requirement	15.203	ANSI C63.10 (2013)	PASS
AC Power Line	47 CFR Part 15, Subpart C Section	ANEL CC2 10 (2012)	DASS
Conducted Emission	15.207	ANSI C63.10 (2013)	PASS
Field Strength of the	47 CFR Part 15, Subpart C Section	ANEL CE2 10 (2012)	DASS
Fundamental Signal	15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section	ANEL CC2 10 (2012)	PASS
Spurious Emissions	15.249 (a)/15.209	ANSI C63.10 (2013)	
Restricted bands	47 CFR Part 15, Subpart C Section		
around fundamental frequency (Radiated	•	ANSI C63.10 (2013)	PASS
Emission)	15.249(a)/15.205		
20dB Occupied	47 CFR Part 15, Subpart C Section	ANEL CC2 10 (2012)	
Bandwidth	15.215 (c)	ANSI C63.10 (2013)	PASS



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## **5** General Information

### 5.1 Client Information

Applicant:	SUNVALLEYTEK INTERNATIONAL, INC.
Address of Applicant:	46724 Lakeview Blvd, Fremont, California, United States, 94538-6529
Manufacturer:	Shenzhen NearbyExpress Technology Development Company Limited
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Factory:	GANZHOU DEHUIDA TECHNOLOGY CO., LTD.
Address of Factory:	No. 5,6,7,8,9 Build, Dehuida Science and Technology Park, Huoyanshan Road, Anyuan District, Ganzhou City, Jianxi Province, China

## 5.2 General Description of EUT

Name:	Sound Bar
Model No.:	TT-SK020
Trade Mark :	TaoTronics
Hardware Version:	V1.0
Software Version:	V1.2
Frequency Range:	912MHz
Modulation Type:	FSK
Number of Channels:	1 (declared by the client)
Sample Type:	Mobile production
Test Software of EUT:	RF test (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	0dBi
Power Supply:	Adaptor : VSL1800220HU
	Input:100-240V~50/60Hz 1.2A
	Output: DC18V 2.2A



Operation Frequency each of channel							
Channel Frequency Channel Frequency Channel Frequency Channel Frequency							
1	912MHz	/	/	/	/	/	/

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
1	912MHz
/	/
/	/



### 5.3 Test Environment and Mode

Operating Environment:			
Temperature:	24.0 °C		
Humidity:	52 % RH		
Atmospheric Pressure:	1008 mbar		
Test Mode:	Use test software (RF test) to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT.		

### 5.4 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.	Remark	FCC certification
PC	Lenovo	ThinkPad E450c	Provide by lab	FCC ID

### 5.5 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 Huaxia Testing Technology 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.

Test	Range	Uncertainty	Notes
Radiated Emission	Below 1GHz	±5.12dB	(1)
Radiated Emission	Above 1GHz	±4.60dB	(1)
Conducted Disturbance	0.15~30MHz	±3.34dB	(1)

Hereafter the best measurement capability for **CQA** laboratory is reported:

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



### 5.6 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

### 5.7 Test Facility

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

#### CNAS (No. CNAS L5785)

CNAS has accredited Shenzhen Huaxia Testing Technology Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

#### • ISED Registration No.: 22984-1

The 3m Semi-anechoic chamber of Shenzhen Huaxia Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

#### A2LA (Certificate No. 4742.01)

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

#### • FCC Registration No.: 522263

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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.:522263

### 5.8 Deviation from Standards

None.

### **5.9 Abnormalities from Standard Conditions**

None.

### 5.10 Other Information Requested by the Customer

None.



## 5.11 Equipment List

Item	Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration
		D*0	F0D7	004.005	Due Date
1	EMI Test Receiver	R&S	ESR7	CQA-005	2018/9/24
2	Spectrum analyzer	R&S	FSU26	CQA-038	2018/9/24
3	Preamplifier	MITEQ	AFS4-00010300- 18-10P-4	CQA-035	2018/9/24
4	Preamplifier	MITEQ	AMF-6D-02001800- 29-20P	CQA-036	2018/9/24
5	Loop antenna	ZHINAN	ZN30900A	CQA-087	2019/3/21
6	Bilog Antenna	R&S	HL562	CQA-011	2018/9/24
7	Horn Antenna	R&S	HF906	CQA-012	2018/9/24
8	Horn Antenna	R&S	BBHA 9170	CQA-088	2018/9/24
9	Coax cable (9KHz~40GHz)	CQA	RE-low-01	CQA-077	2018/9/24
10	Coax cable (9KHz~40GHz)	CQA	RE-high-02	CQA-078	2018/9/24
11	Antenna Connector	CQA	RFC-01	CQA-080	2018/9/24
12	RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2018/9/24
13	EMI Test Receiver	R&S	ESPI3	CQA-005	2018/9/24
14	LISN	R&S	ENV216	CQA-003	2018/9/24
15	Coaxial cable (9KHz~300MHz)	CQA	N/A	CQA-C009	2018/10/17
16	Power divider	CQA	PWD-2533-02- SMA-79	CQA-067	2018/9/29

Note:

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.



## 6 Test results and Measurement Data

### 6.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203					
15.203 requirement:						
An intentional radiator shall	be designed to ensure that no antenna other than that furnished by the					
responsible party shall be us	sed with the device. The use of a permanently attached antenna or of an					
antenna that uses a unique	coupling to the intentional radiator, the manufacturer may design the unit					
so that a broken antenna ca	n be replaced by the user, but the use of a standard antenna jack or					
electrical connector is prohit	pited.					
EUT Antenna:						
The antenna is integrated on	The antenna is integrated on the main PCB and no consideration of replacement. The best case gain					
of the antenna is 0dBi.						



Test Requirement:	47 CFR Part 15C Section 15.207			
Test Method:	ANSI C63.10: 2013			
Test Frequency Range:	150kHz to 30MHz			
Limit:		Limit (dBuV)		
	Frequency range (MHz)	Quasi-peak	Average	1
	0.15-0.5	66 to 56*	56 to 46*	
	0.5-5	56	46	1
	5-30	60	50	
	* Decreases with the logarithm	n of the frequency.		1
Test Procedure:	<ol> <li>The mains terminal disturt room.</li> <li>The EUT was connected to</li> </ol>	-		lded
	<ol> <li>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.</li> <li>3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,</li> <li>4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.</li> <li>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to</li> </ol>			

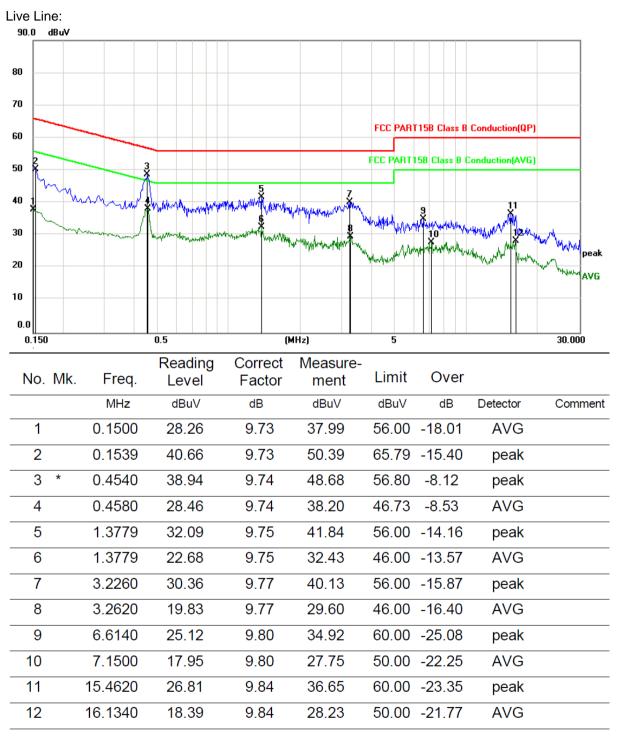
### 6.2 Conducted Emissions



Test Setup:	Shielding Room Test Receiver Test		
Exploratory Test Mode:	Transmitting with FSK .		
Test Voltage:	AC120V/60Hz		
Test Results:	Pass		



#### **Measurement Data**



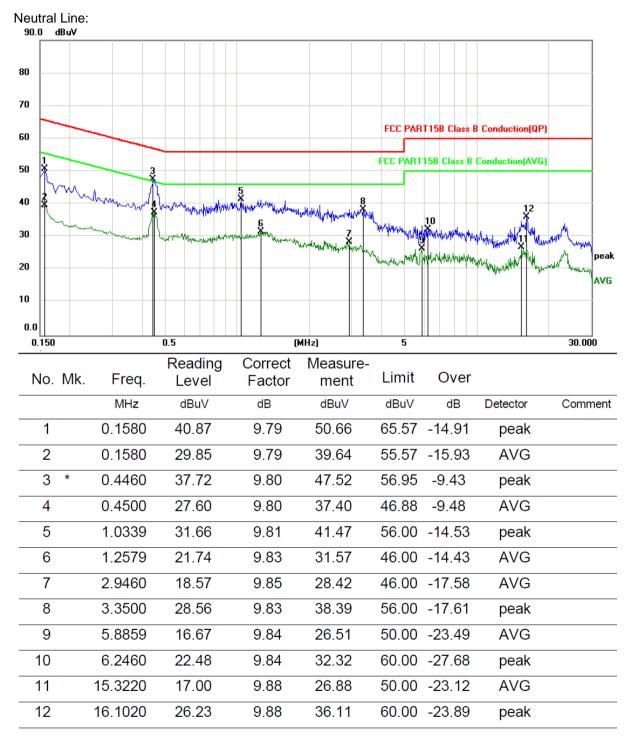
#### Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.





#### Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

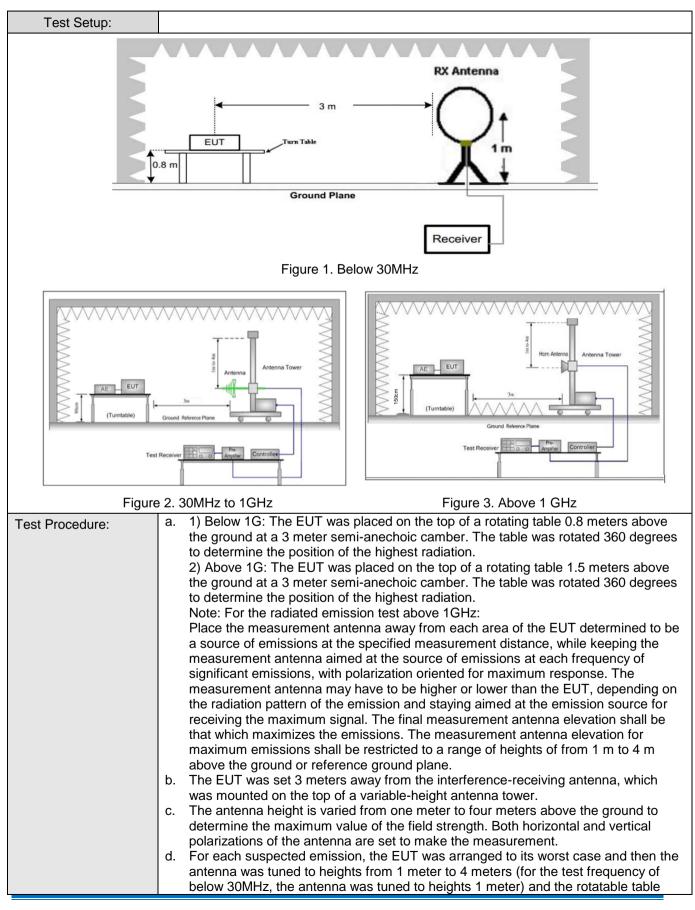
3. If the Peak value under Average limit, the Average value is not recorded in the report.



## 6.3 Radiated Emission

Test Requirement:	47 CFR Part 15C Section 15.249 and 15.209 and 15.205					
Test Method:	ANSI C63.10: 2013					
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)					
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark	1
	0.009MHz-0.090MHz	Peak	10kHz	30KHz	Peak	1
	0.009MHz-0.090MHz	Average	10kHz	30KHz	Average	1
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30KHz	Quasi-peak	
	0.110MHz-0.490MHz	Peak	10kHz	30KHz	Peak	
	0.110MHz-0.490MHz	Average	10kHz	30KHz	Average	
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak	
	30MHz-1GHz	Quasi-peak	100 kHz	300KHz	Quasi-peak	
	Above 1GHz	Peak	1MHz	3MHz	Peak	
		Peak	1MHz	10Hz	Average	
	Note: For fundamental f value, RMS detect	frequency, RBW=8 tor is for Average v		5MHz, Peak	detector is for	· PK
Limit: (Spurious Emissions and band edge)	Frequency	Field strength (microvolt/meter )	Limit (dBuV/m )	Remark	Measurem distance (	
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300	
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30	
	1.705MHz-30MHz	30	-	-	30	
	30MHz-88MHz	100	40.0	Quasi-peal	k 3	
	88MHz-216MHz	150	43.5	Quasi-peal	k 3	
	216MHz-960MHz	200	46.0	Quasi-peal	k 3	
	960MHz-1GHz	500	54.0	Quasi-peal	k 3	
	Above 1GHz	500	54.0	Average	3	
	Note: 1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.					limit
	2) Emissions radiated outside of the specified frequency bands, except for					
	harmonics, shall be attenuated by at least 50 dB below the level of the					
	fundamental or to the general radiated emission limits in Section				on 15.209,	
	whichever is the lesser attenuation.					
Limit:	Frequency	Limit (dBuV/	/m @3m)	Remark		
(Field strength of the	902MHz-928MHz	94.0	)	Average Value		
fundamental signal)		114.	0	Peak Value	9	



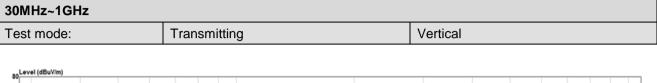


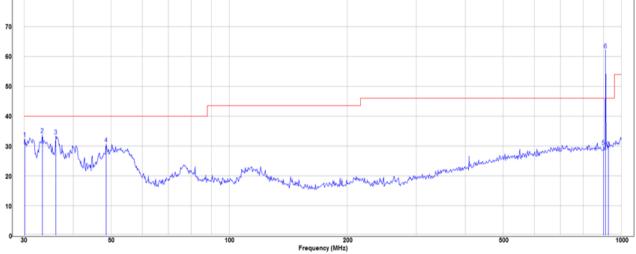


	was turned from 0 degrees to 360 degrees to find the maximum reading.
	e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth
	with Maximum Hold Mode.
	f. If the emission level of the EUT in peak mode was 10dB lower than the limit
	specified, then testing could be stopped and the peak values of the EUT would be
	reported. Otherwise the emissions that did not have 10dB margin would be re-tested
	one by one using peak, quasi-peak or average method as specified and then
	reported in a data sheet.
	g. Test the EUT in the lowest channel, the middle channel, the Highest channel
	h. The radiation measurements are performed in X, Y, Z axis positioning for
	Transmitting mode, And found the X axis positioning which it is worse case.
	i. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.11 for details
Exploratory Test Mode:	Transmitting with FSK modulation
Test Voltage:	120V/50Hz
Test Results:	Pass



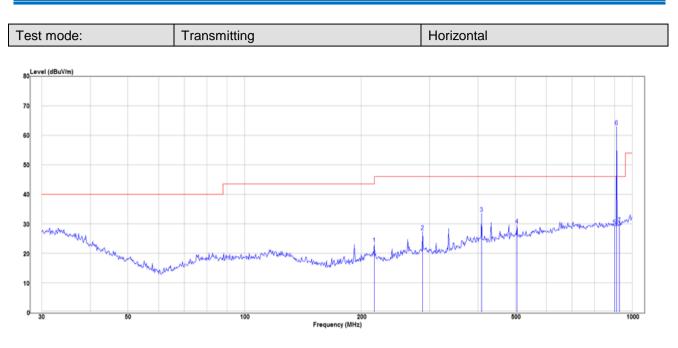
#### **Measurement Data**





Freq (MHz)	Read_Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
30.105	13.6	18.9	32.5	40	-7.5	Peak
33.328	15.19	18.64	33.83	40	-6.17	Peak
36.127	15.7	17.71	33.41	40	-6.59	Peak
48.502	20.6	10.14	30.74	40	-9.26	Peak
902	9.34	20.57	29.91	46	-16.09	Peak
912	41.46	20.76	62.22	114	-51.78	Peak
928	8.23	21.02	29.25	46	-16.75	Peak





Freq (MHz)	Read_Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit_Line (dBuV/m)	Over_Limit (dB)	Remark
216.024	13.32	9.98	23.3	46	-22.7	Peak
287.99	17.11	10.21	27.32	46	-18.68	Peak
408.946	19.21	14.34	33.55	46	-12.45	Peak
504.706	12.4	17.21	29.61	46	-16.39	Peak
902	8.67	20.57	29.24	46	-16.76	Peak
912	42.14	20.76	62.9	114	-51.1	Peak
928	9.04	21.02	30.06	46	-15.94	Peak



Above 1GHz							
Test mode:		Transmitti	ng				
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector	Ant. Pol.
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	H/V
1824	61.25	-10.1	51.15	74	-22.85	Peak	н
2736	56.49	-7.26	49.23	74	-24.77	Peak	Н
3648	57.16	-5.24	51.92	74	-22.08	Peak	н
1824	60.59	-10.1	50.49	74	-23.51	Peak	V
2736	56.54	-7.26	49.28	74	-24.72	Peak	V
3648	56.13	-5.24	50.89	74	-23.11	Peak	V

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

2) Scan from 9kHz to 10GHz, the disturbance above 5GHz and below 30MHz was very low. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



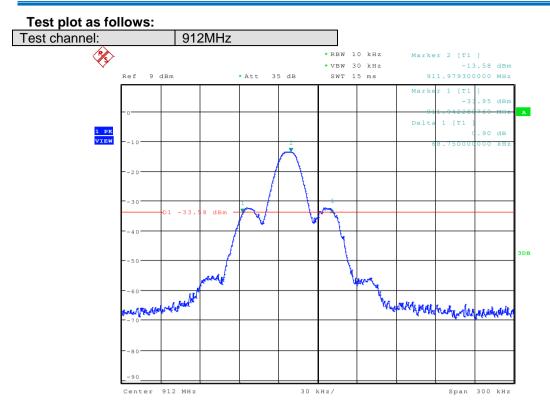
### 6.4 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215			
Test Method:	ANSI C63.10:2013			
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Instruments Used:	Refer to section 5.11 for details			
Test Mode:	Transmitting with FSK modulation.			
Limit:	N/A			
Test Results:	Pass			

#### **Measurement Data**

Test channel	20dB bandwidth (MHz)	Results
912MHz	0.6875	Pass







## 7 Photographs

## 7.1 Radiated Emission Test Setup

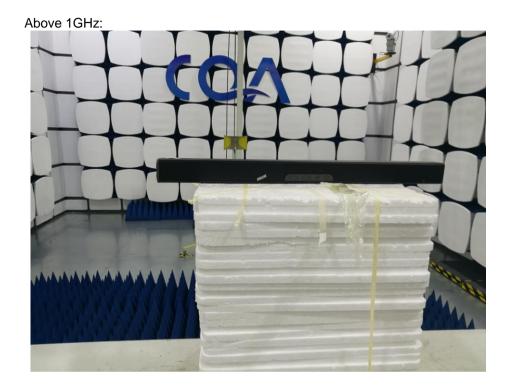
9KHz~30MHz



30MHz~1GHz:







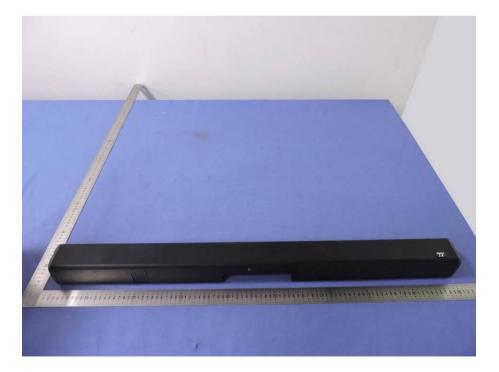
### 7.2 Conducted Emission





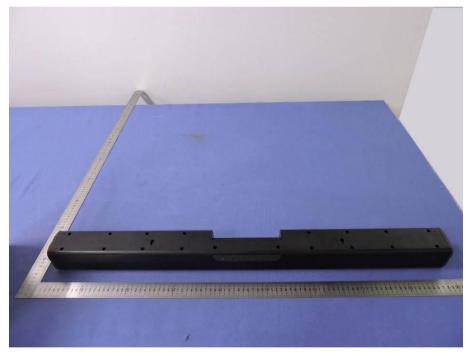
### 7.3 EUT Constructional Details





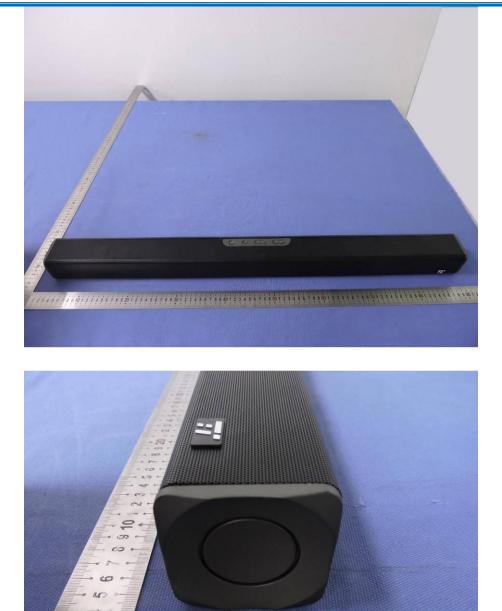








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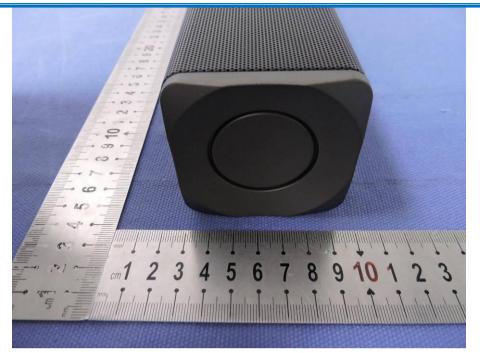
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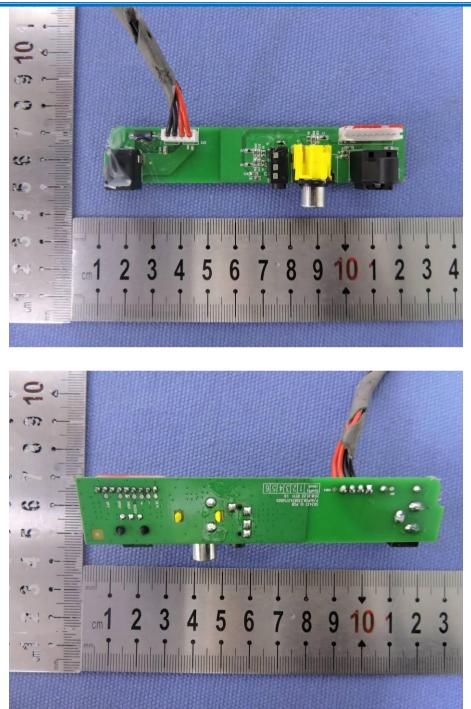
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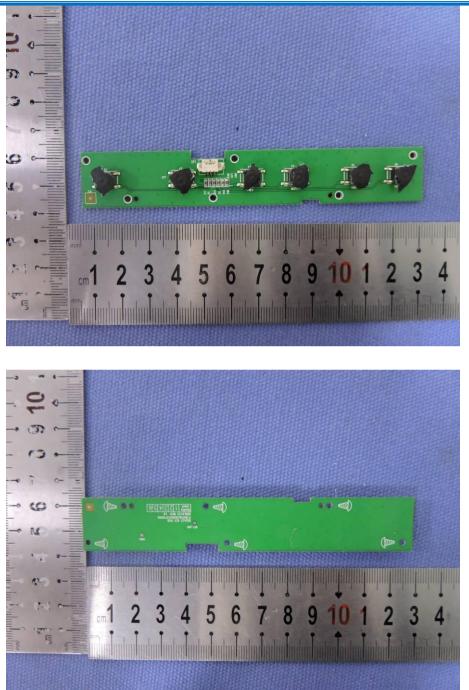




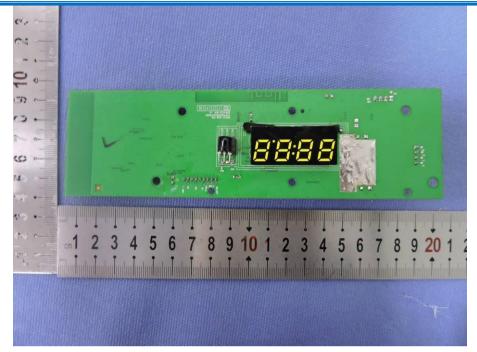


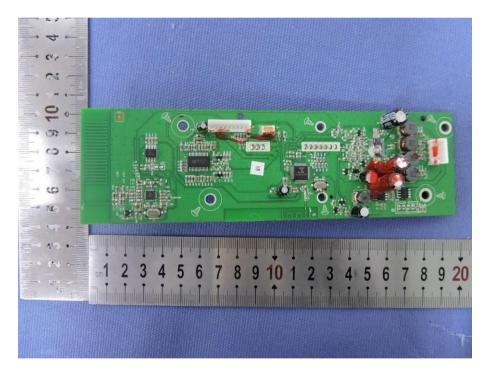






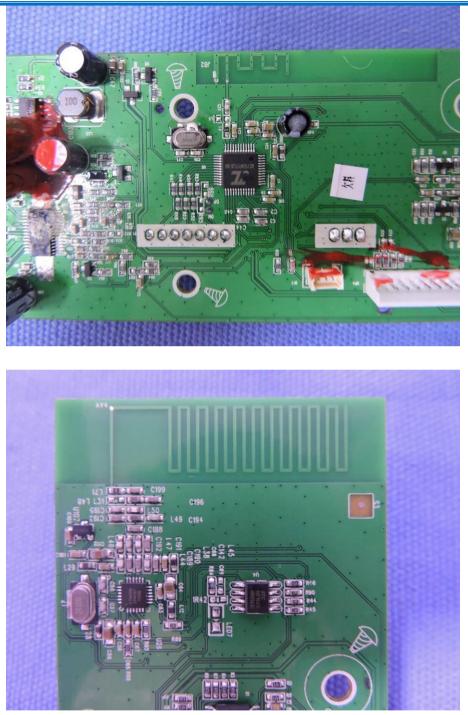








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### END OF THE REPORT