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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO
FCC CFR47 PART 15 Section 15.249
REQUIREMENT

OF

Product Name: Baby Audio Monitor

MODEL No.: CFH-BA10(Base) / CFH-BA12(Base)

Trademark: Kodak

FCC ID: A5JA09529

REPORT NO: ES151111023E

ISSUE DATE: December 05, 2015

Prepared for

Quadrant Technology(Shenzhen)Co., LTD
3rd floor,7TH building, Hongfa JiaTeLi Hi-Tech park of ShiXin Village,
Shiyan Town, Shenzhen City, Guangdong province, China

Prepared by

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VERIFICATION OF COMPLIANCE

Applicant:	Quadrant Technology（Shenzhen）Co., LTD 3rd floor,7TH building, Hongfa JiaTeLi Hi-Tech park of ShiXin Village, Shiyan Town, Shenzhen City, Guangdong province, China
Manufacturer:	Quadrant Technology（Shenzhen）Co., LTD 3rd floor,7TH building, Hongfa JiaTeLi Hi-Tech park of ShiXin Village, Shiyan Town, Shenzhen City, Guangdong province, China
Product Description:	Baby Audio Monitor
Model Number:	CFH-BA10(Base) / CFH-BA12(Base) These models are identical in circuitry and electrical, mechanical and physical construction; the only difference is the color. for trading purpose. We prepare CFH-BA10(Base) for test, and the worst result recorded in the report.
Date of Test:	November 12, 2015 to December 05, 2015

We hereby certify that:
The above equipment was tested by EMTEK (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.249.

The test results of this report relate only to the tested sample identified in this report.

Date of Test : November 12, 2015 to December 05, 2015

Prepared by : Yaping Shen

Yaping Shen/Editor

Reviewer : Joe Xia

Joe Xia/Supervisor

Approve & Authorized Signer :

Lisa Wang/Manager

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1. GENERAL INFORMATION

1.1. Product Description

Product information:	
Power supply:	DC 5V by Adapter
Adapter:	Model: S012BEU0500200 Input: AC 100-240V 500mA Output: DC 5V 2000mA
Operating Frequency Range:	906-924MHz
Channel Spacing	3MHz
Modulation:	FSK
Number of Channels:	7 channels
Antenna Type:	PCB Antenna
Antenna Gain:	3.1 dBi
Temperature Range:	-10°C ~ +55°C

1.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: A5JA09529 filing to comply with Section 15.249 of the FCC Part 15, Subpart C Rules.

1.3. Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

1.4. Special Accessories

Not available for this EUT intended for grant.

1.5. Equipment Modifications

Not available for this EUT intended for grant.

1.6. Measurement Uncertainty

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.00dB
Fundamental Fieldstrength	Not Applicable	95%	±2.94dB
Transmitter 20 dB Bandwidth	Not Applicable	95%	±0.92PPm
Radiated Spurious Emissions	30 MHz to 40 GHz	95%	±3.00dB

1.7. Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2013.10.29
The certificate is valid until 2016.10.28
The Laboratory has been assessed and proved to be in compliance with CNAS-CL01: 2006(identical to ISO/IEC17025: 2005)
The Certificate Registration Number is L2291

Accredited by TUV Rheinland Shenzhen, 2010.5.25
The Laboratory has been assessed according to the requirements ISO/IEC 17025.

Name of Firm : Accredited by FCC, July 24, 2013
The Certificate Registration Number is 406365.

Site Location : Accredited by FCC, April 17, 2013
The Certificate Registration Number is 709623.

2. SYSTEM TEST CONFIGURATION

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

2.3. Test Procedure

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. Emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013

2.4. Description of test modes

The EUT has been tested under normal operating condition.
Pre-scanned tests, X, Y, Z in the three orthogonal panels, were conducted to determine the final configuration from all possible combinations. Let EUT transmit with highest power, and the worst result was recorded with modulation FSK.

2.5. Support Equipment

SUPPORT EQUIPMENT						
No.	Equipment	Model	Serial No.	FCC ID	Trade name	Power Cord
1.	Baby Monitoring System	CFH-BA10(Parent)	N/A	A5JA10529	Kodak	N/A

3. SUMMARY OF TEST RESULTS

FCC Part15, Subpart C		
Standard Section	**Test Item**	**Result**
FCC		
15.207	Conducted Emission	Pass
15.209 15.205 15.249	Radiated Emission	Pass
15.35(c)	Periodic Operation	Pass
15.249 15.209 15.205	Band edge test	Pass
15.249	20dB Bandwidth	Pass
15.203	Antenna Requirement	Pass

4. RADIATED EMISSION TEST

4.1. Measurement Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013

Below 30MHz：

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

30GHz-1GHz：

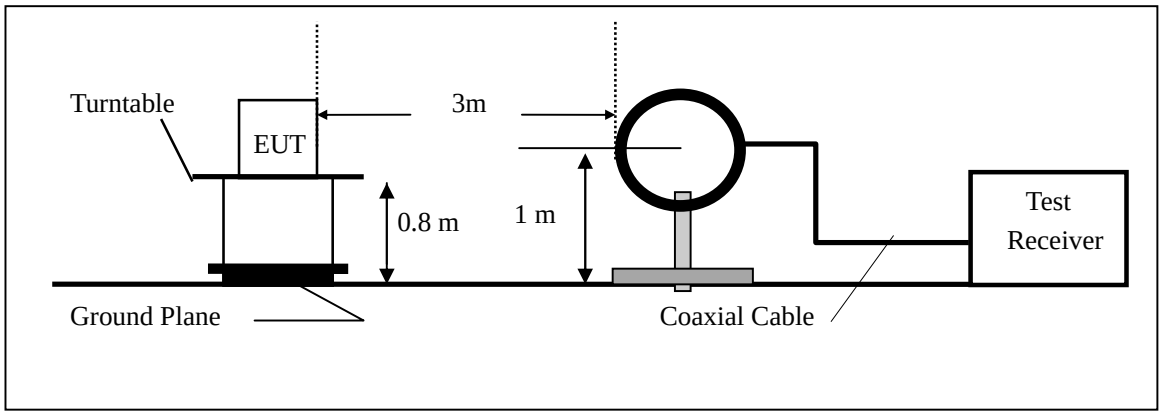
The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz：

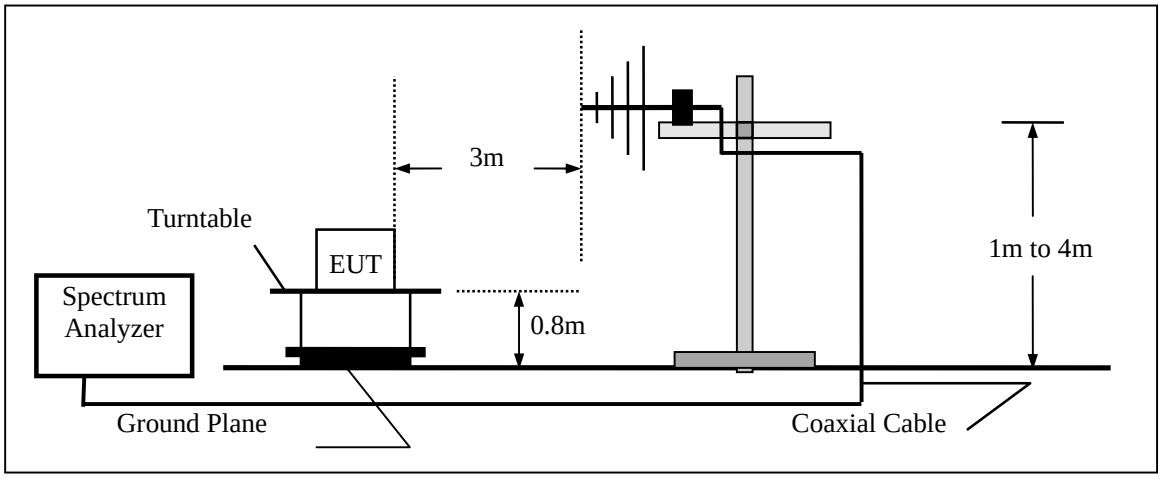
The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

4.2. Test SET-UP (Block Diagram of Configuration)

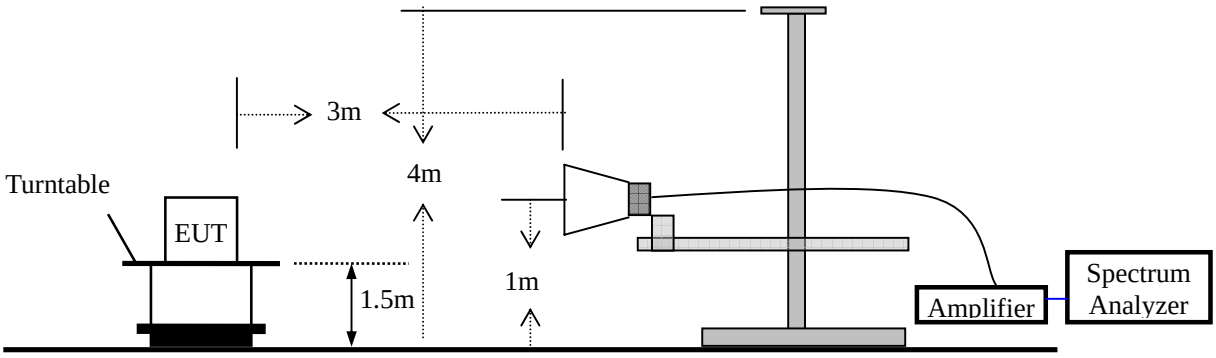
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1000MHz



5.3 Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Rohde & Schwarz	FSP7	839511/010	May 16, 2015	May 15, 2016
Spectrum Analyzer	HP	E4407B	839840481	May 16, 2015	May 15, 2016
EMI Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 16, 2015	May 15, 2016
Pre-Amplifier	HP	8447D	2944A07999	May 16, 2015	May 15, 2016
Bilog Antenna	Schwarzbeck	VULB9163	142	May 16, 2015	May 15, 2016
Loop Antenna	ARA	PLA-1030/B	1029	May 16, 2015	May 15, 2016
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 16, 2015	May 15, 2016
Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 16, 2015	May 15, 2016

5.4 Radiated Emission Limit

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

The fundamental limit comply with below 94dBuV/m at 3m, Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other 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 comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Note:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

Limits of radiated emission measurement (FCC 15.209)

FREQUENCY (MHz)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:
(1) The limit for radiated test was performed according to FCC PART 15C.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m) =20log Emission level (uV/m).

Limits of radiated emission measurement (FCC 15.249)

FCC Part15 (15.249) , Subpart C	
	Limit
Field strength of fundamental	50000uV/m (94 dBV/m) @ 3 m
Field strength of harmonics	500uV/m (54 dBV/m) @ 3 m

5.5 Measurement Result

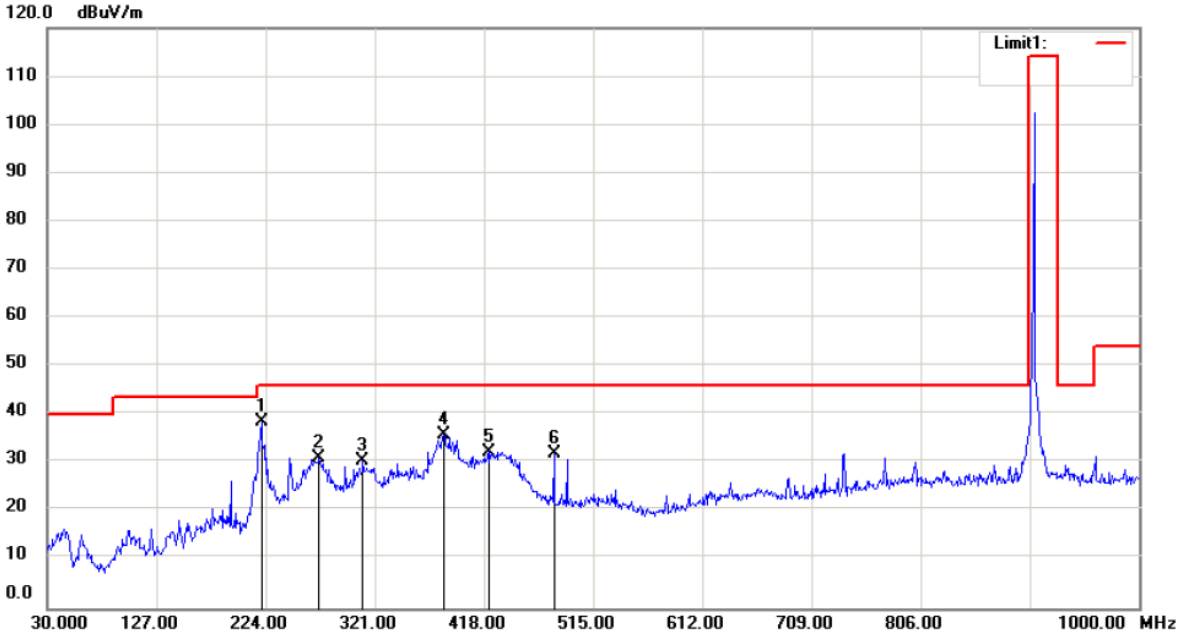
Spurious Emission below 30MHz (9KHz to 30MHz)

Temperature:	24℃	Test Date:	December 04, 2015
Humidity:	53 %	Test By:	KK
Test mode:	TX Mode		

Freq. (MHz)	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
	H/V	PK	AV	PK	AV	PK	AV
--	--	--	--	--	--	--	--

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor

Operation Mode:	906MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Horizontal		



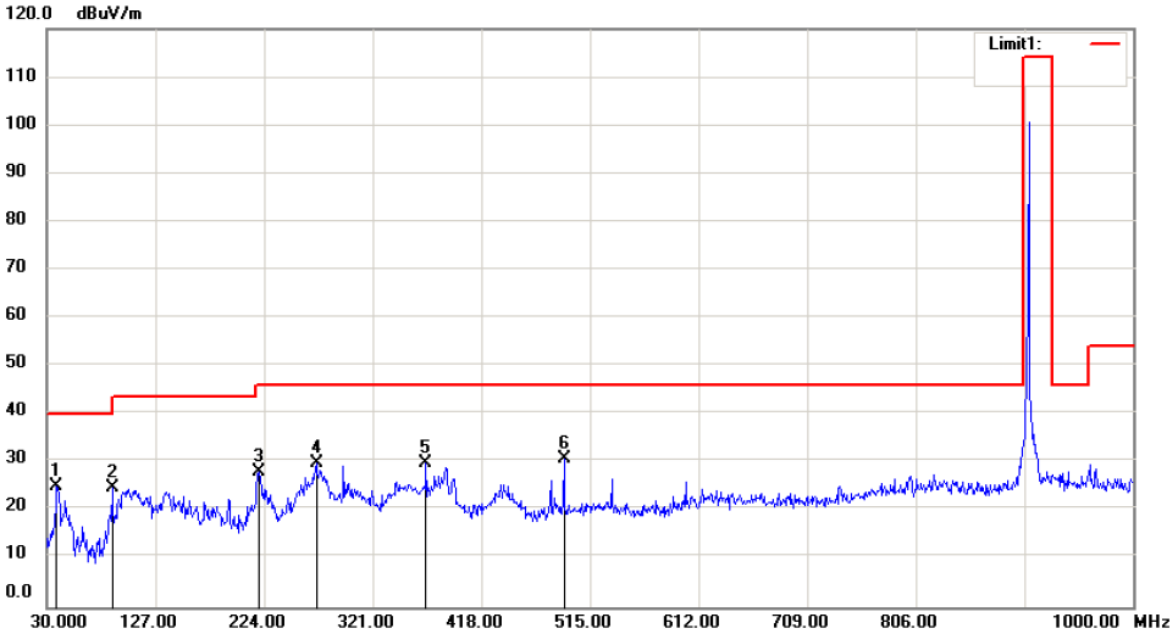
Mode:TX 906

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	220.1200	53.47	-15.03	38.44	46.00	-7.56	QP			
2		271.5300	41.95	-10.87	31.08	46.00	-14.92	QP			
3		310.3300	42.26	-11.73	30.53	46.00	-15.47	QP			
4		382.1100	44.65	-8.80	35.85	46.00	-10.15	QP			
5		421.8800	40.80	-8.40	32.40	46.00	-13.60	QP			
6		480.0800	40.86	-8.81	32.05	46.00	-13.95	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	906MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Vertical		



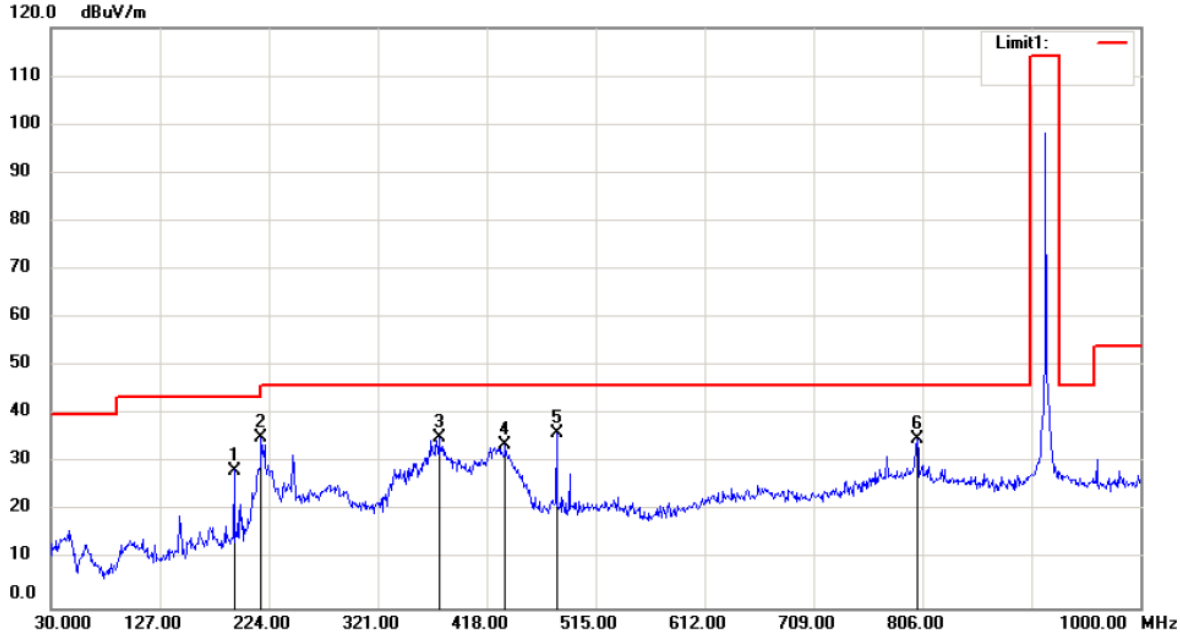
Mode:TX 906

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	38.7300	37.38	-12.45	24.93	40.00	-15.07	QP			
2		88.2000	41.24	-16.63	24.61	43.50	-18.89	QP			
3		219.1500	43.01	-15.06	27.95	46.00	-18.05	QP			
4		270.5600	40.66	-10.92	29.74	46.00	-16.26	QP			
5		368.5300	39.19	-9.38	29.81	46.00	-16.19	QP			
6		491.7200	38.85	-7.97	30.88	46.00	-15.12	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	915MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Horizontal		



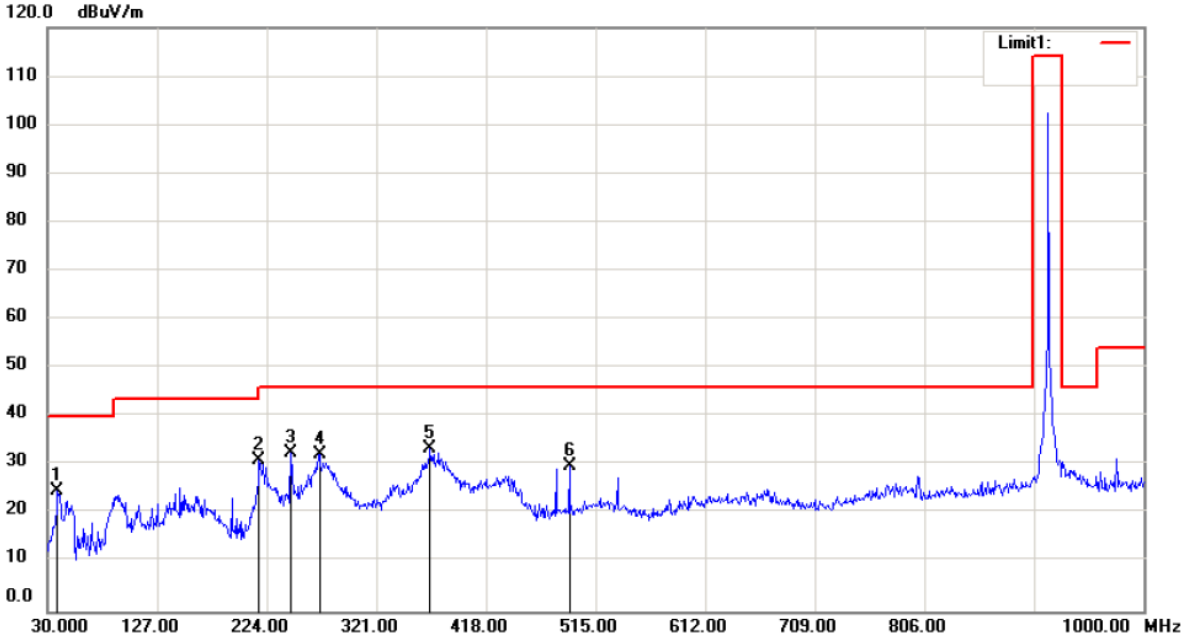
Mode:TX 915

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		192.9600	44.09	-15.59	28.50	43.50	-15.00	QP			
2		217.2100	50.45	-15.12	35.33	46.00	-10.67	QP			
3		375.3200	44.29	-9.13	35.16	46.00	-10.84	QP			
4		434.4900	42.97	-9.34	33.63	46.00	-12.37	QP			
5	*	480.0800	44.93	-8.81	36.12	46.00	-9.88	QP			
6		801.1500	38.43	-3.59	34.84	46.00	-11.16	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	915MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Vertical		



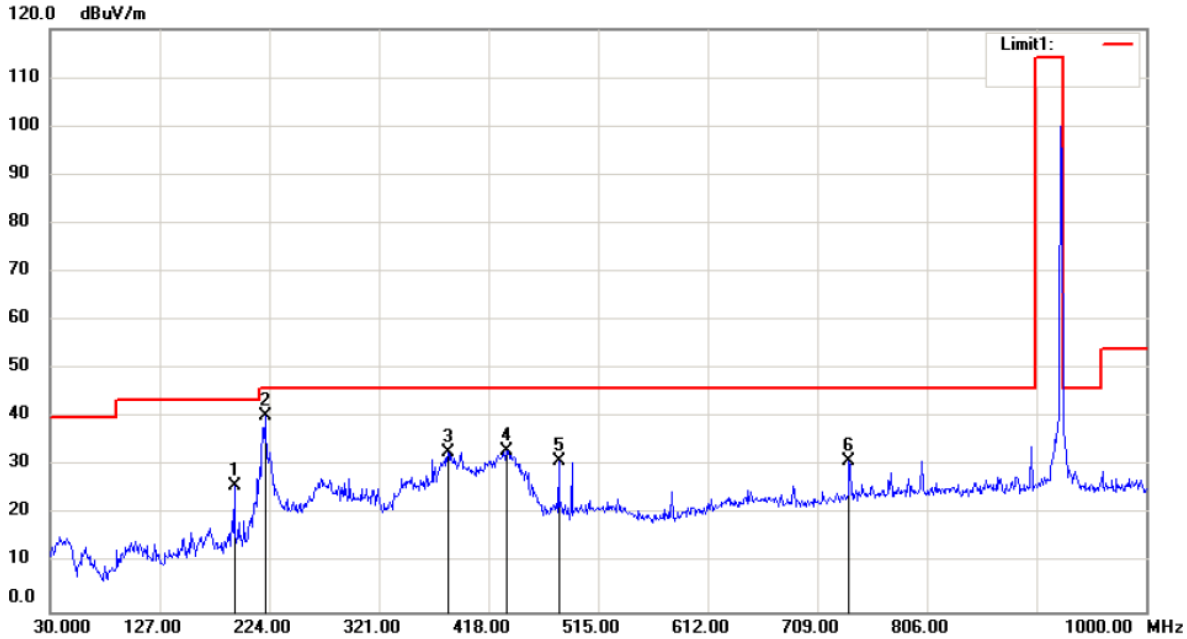
Mode:TX 915

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		38.7300	37.29	-12.45	24.84	40.00	-15.16	QP			
2		217.2100	46.27	-15.12	31.15	46.00	-14.85	QP			
3		245.3400	44.90	-12.31	32.59	46.00	-13.41	QP			
4		270.5600	43.15	-10.92	32.23	46.00	-13.77	QP			
5	*	368.5300	42.74	-9.38	33.36	46.00	-12.64	QP			
6		491.7200	37.91	-7.97	29.94	46.00	-16.06	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	924MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Horizontal		



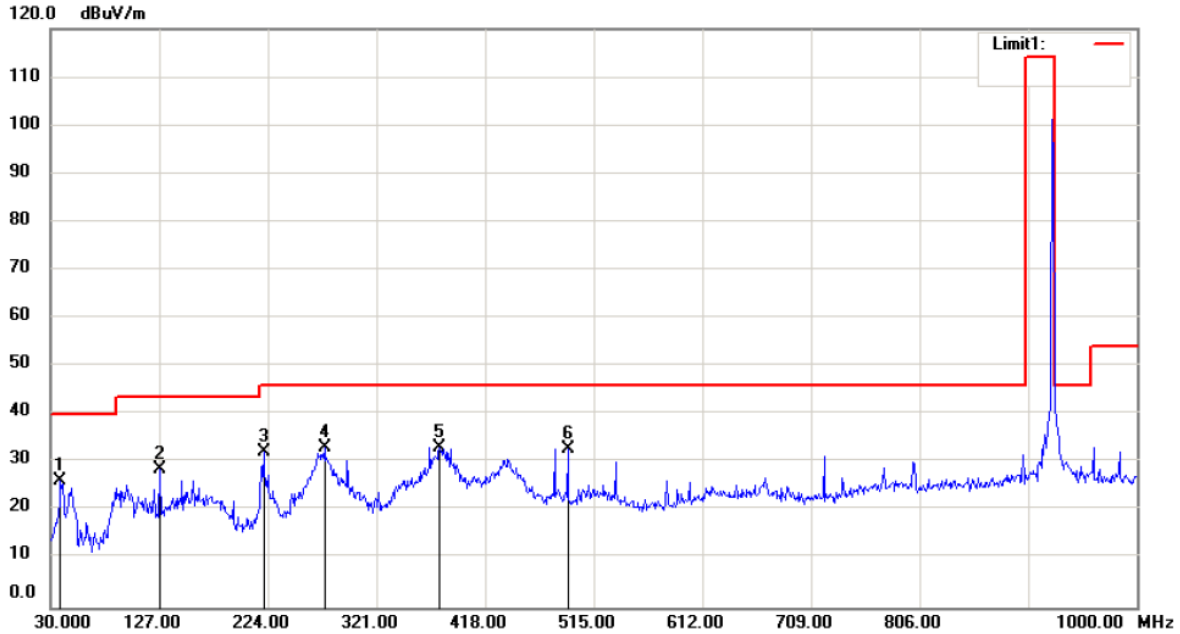
Mode:TX 924

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		192.9600	41.63	-15.59	26.04	43.50	-17.46	QP			
2	*	220.1200	55.38	-15.03	40.35	46.00	-5.65	QP			
3		382.1100	41.74	-8.80	32.94	46.00	-13.06	QP			
4		433.5200	42.40	-9.26	33.14	46.00	-12.86	QP			
5		480.0800	39.91	-8.81	31.10	46.00	-14.90	QP			
6		737.1300	35.90	-4.91	30.99	46.00	-15.01	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	924MHz	Test Date :	December 04, 2015
Frequency Range:	30~1000MHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP
Polarization:	Vertical		



Mode:TX 924

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		38.7300	38.76	-12.45	26.31	40.00	-13.69	QP			
2		127.0000	45.01	-16.33	28.68	43.50	-14.82	QP			
3		220.1200	47.35	-15.03	32.32	46.00	-13.68	QP			
4	*	274.4400	43.96	-10.73	33.23	46.00	-12.77	QP			
5		377.2600	42.25	-9.05	33.20	46.00	-12.80	QP			
6		491.7200	40.77	-7.97	32.80	46.00	-13.20	QP			

*:Maximum data x:Over limit !:over margin Operator: KK

Operation Mode:	906MHz	Test Date :	December 04, 2015
Frequency Range:	1-10GHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
2406	V	59.07	-15.12	43.95	74.00	54.00	-14.93	-10.05
3652	V	53.67	-15.12	38.55	74.00	54.00	-20.33	-15.45
4570	V	63.03	-15.12	47.91	74.00	54.00	-10.97	-6.09
5947	V	54.70	-15.12	39.58	74.00	54.00	-19.30	-14.42
8206	V	57.77	-15.12	42.65	74.00	54.00	-16.23	-11.35
9511	V	57.34	-15.12	42.22	74.00	54.00	-16.66	-11.78
1843	H	49.28	-15.12	34.16	74.00	54.00	-24.72	-19.84
2743	H	62.25	-15.12	47.13	74.00	54.00	-11.75	-6.87
3661	H	57.00	-15.12	41.88	74.00	54.00	-17.00	-12.12
4570	H	58.45	-15.12	43.33	74.00	54.00	-15.55	-10.67
6577	H	55.87	-15.12	40.75	74.00	54.00	-18.13	-13.25
8206	H	58.58	-15.12	43.46	74.00	54.00	-15.42	-10.54

Operation Mode:	915MHz	Test Date :	December 04, 2015
Frequency Range:	1-10GHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
1698	V	60.36	-15.12	45.24	74.00	54.00	-13.64	-8.76
2607	V	54.96	-15.12	39.84	74.00	54.00	-19.04	-14.16
3525	V	64.32	-15.12	49.20	74.00	54.00	-9.68	-4.80
4902	V	55.99	-15.12	40.87	74.00	54.00	-18.01	-13.13
7161	V	59.06	-15.12	43.94	74.00	54.00	-14.94	-10.06
8466	V	58.63	-15.12	43.51	74.00	54.00	-15.37	-10.49
1798	H	50.57	-15.12	35.45	74.00	54.00	-23.43	-18.55
1998	H	63.54	-15.12	48.42	74.00	54.00	-10.46	-5.58
2616	H	58.29	-15.12	43.17	74.00	54.00	-15.71	-10.83
3525	H	59.74	-15.12	44.62	74.00	54.00	-14.26	-9.38
5532	H	57.16	-15.12	42.04	74.00	54.00	-16.84	-11.96
7161	H	59.87	-15.12	44.75	74.00	54.00	-14.13	-9.25

Operation Mode:	924MHz	Test Date :	December 04, 2015
Frequency Range:	1-10GHz	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

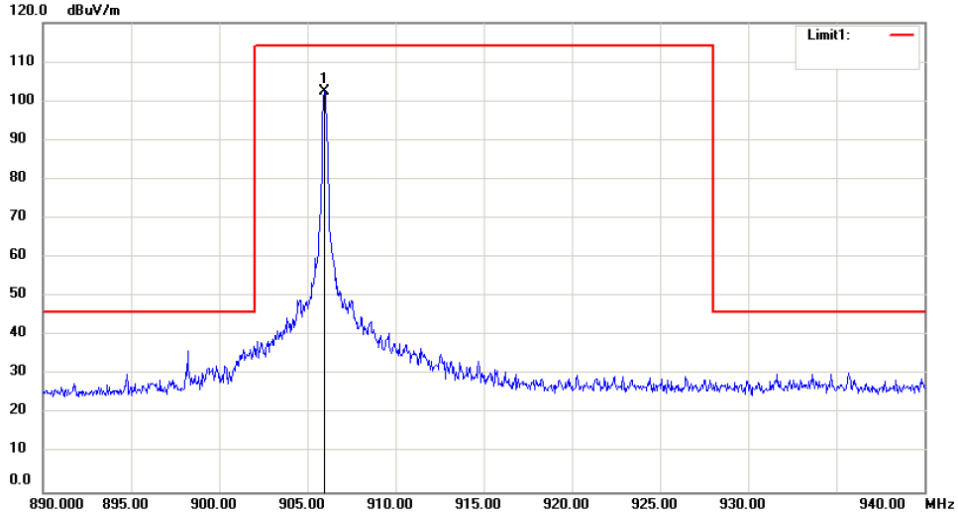
Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
2538.61	V	55.99	-15.12	40.87	74.00	54.00	-18.01	-13.13
3447.61	V	50.70	-15.12	35.58	74.00	54.00	-23.30	-18.42
4365.61	V	60.06	-15.12	44.94	74.00	54.00	-13.94	-9.06
5742.61	V	51.73	-15.12	36.61	74.00	54.00	-22.27	-17.39
8001.61	V	54.80	-15.12	39.68	74.00	54.00	-19.20	-14.32
9306.61	V	54.37	-15.12	39.25	74.00	54.00	-19.63	-14.75
1638.61	H	46.31	-15.12	31.19	74.00	54.00	-27.69	-22.81
2538.61	H	61.89	-15.12	46.77	74.00	54.00	-12.11	-7.23
3456.61	H	54.03	-15.12	38.91	74.00	54.00	-19.97	-15.09
4365.61	H	55.48	-15.12	40.36	74.00	54.00	-18.52	-13.64
6372.61	H	52.90	-15.12	37.78	74.00	54.00	-21.10	-16.22
8001.61	H	55.61	-15.12	40.49	74.00	54.00	-18.39	-13.51

Note: (1) All Readings are Peak Value.
(2) AV Value= Peak Value+AV factor(AV factor= -15.12 from section 5)
(3) Emission Level= Reading Level+Probe Factor +Cable Loss

Transmitter Fundamental Field Strength

Operation Mode:	906 MHz	Test Date :	December 04, 2015
FCC Part:	15.249(a)	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

V:



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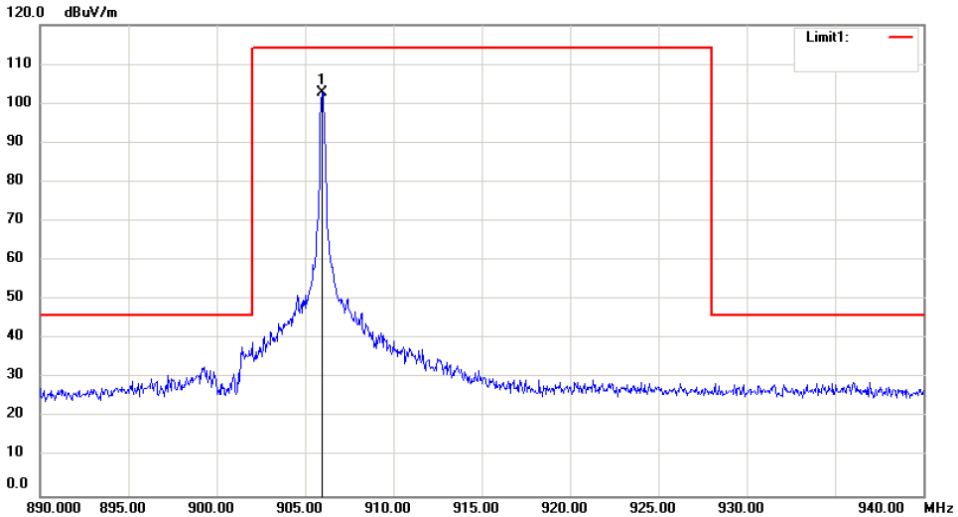
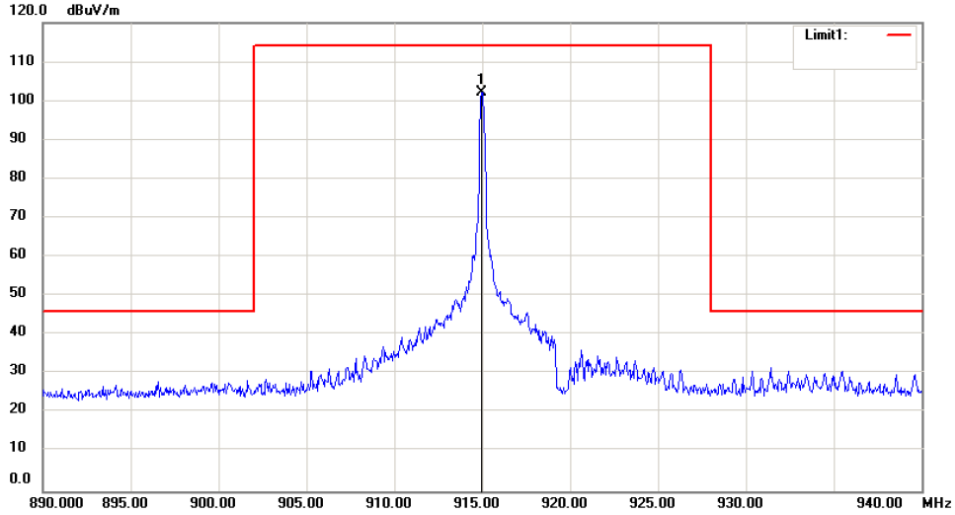


Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
906	V	102.70	-15.12	86.30	114	94	-11.30	-7.70
906	H	102.34	-15.12	85.94	114	94	-11.66	-8.06

Note: (1) All Readings are Peak Value.
(2) AV Value= Peak Value+AV factor(AV factor= -15.12 from section 5)
(3) Emission Level= Reading Level+Probe Factor +Cable Loss

Operation Mode:	915 MHz	Test Date :	December 04, 2015
FCC Part:	15.249(a)	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

V:



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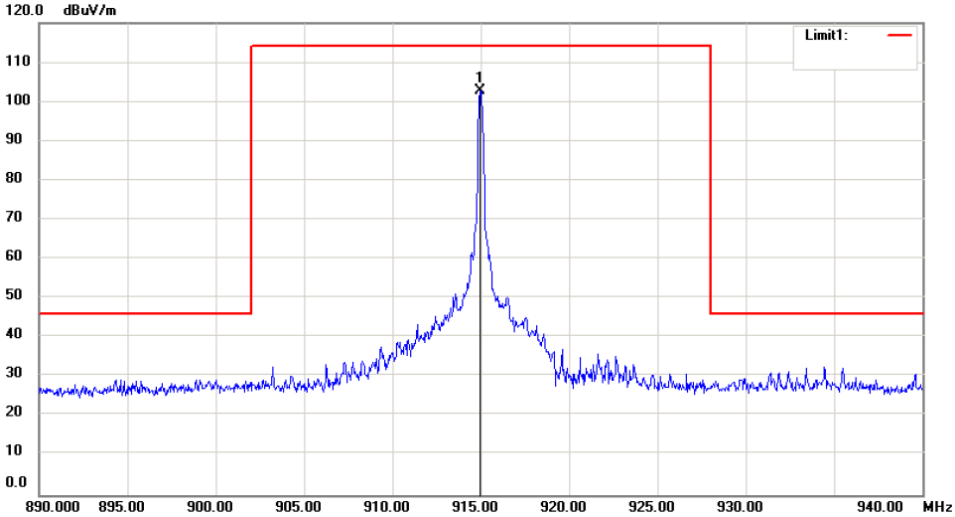
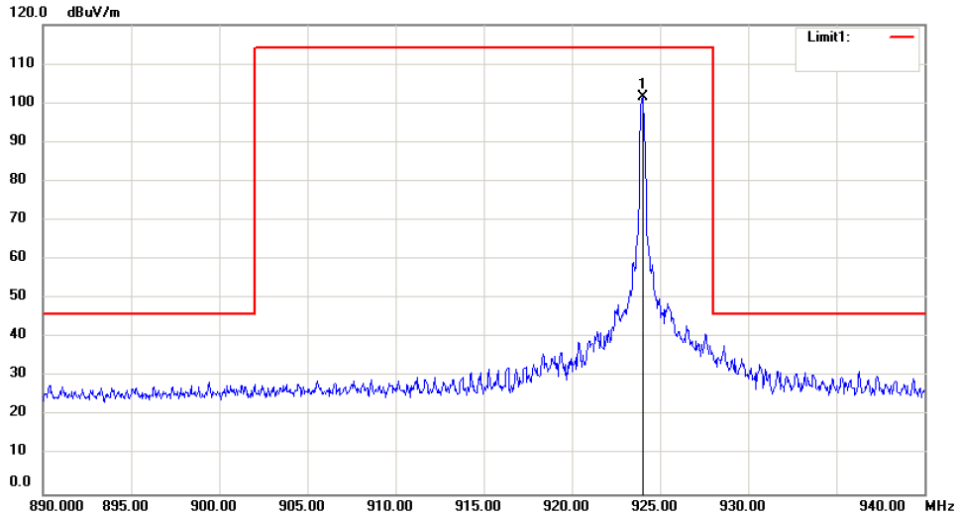


Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
915	V	102.20	-15.12	87.08	114	94	-11.8	-6.92
915	H	102.61	-15.12	87.49	114	94	-11.39	-6.51

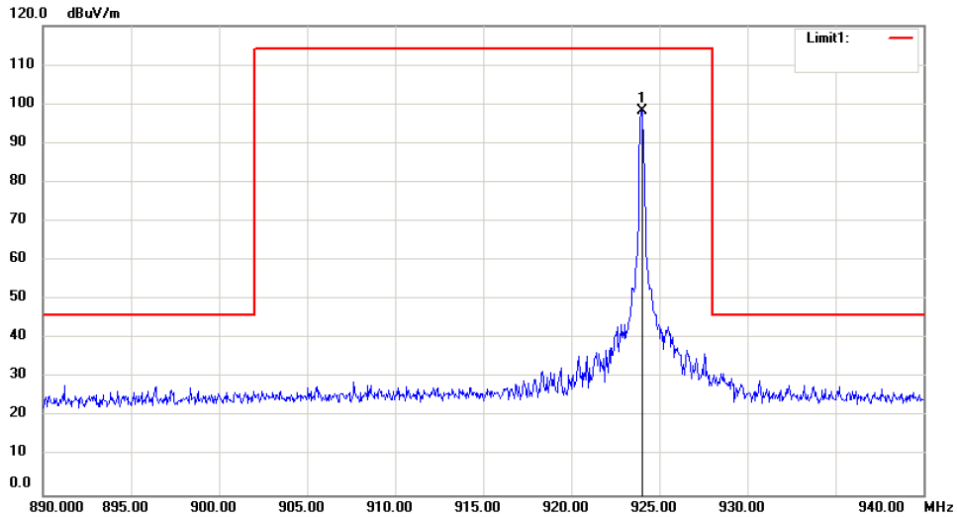
Note: (1) All Readings are Peak Value.
(2) AV Value= Peak Value+AV factor(AV factor= -15.12 from section 5)
(3) Emission Level= Reading Level+Probe Factor +Cable Loss

Operation Mode:	924 MHz	Test Date :	December 04, 2015
FCC Part:	15.249(a)	Temperature :	24℃
Test Result:	PASS	Humidity :	55 %
Measured Distance:	3m	Test By:	SYP

V:



H:



Freq. (MHz)	Ant.Pol. H/V	Emission Level			Limit at 3m		Margin	
		PK (dBuV/m)	AV Factor (dB)	AV (dBuV/m)	PK (dBuV/m)	AV (dBuV/m)	PK (dB)	AV (dB)
924	V	98.31	-15.12	83.19	114	94	-15.69	-10.81
924	H	101.42	-15.12	86.30	114	94	-12.58	-7.7

Note: (1) All Readings are Peak Value.
(2) AV Value= Peak Value+AV factor(AV factor= -15.12 from section 5)
(3) Emission Level= Reading Level+Probe Factor +Cable Loss

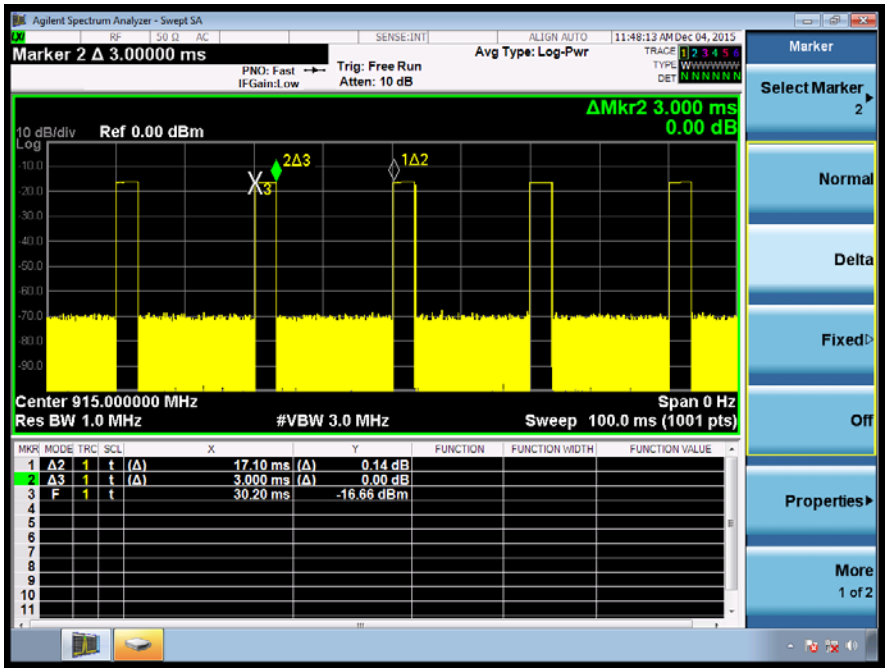
5. Periodic Operation

The duty cycle was determined by the following equation:
To calculate the actual field intensity, the duty cycle correction factor in decibel is needed for later use and can be obtained from following conversion

Duty Cycle(%)=Total On interval in a complete pulse train/ Length of a complete pulse train * %
Duty Cycle Correction Factor(dB)=20 * Log_{10}(Duty Cycle(%))

Total transmission time(ms)	17.1
Length of a complete transmission period(ms)	3.0
Duty Cycle(%)	17.54
Duty Cycle Correction Factor(dB)	-15.12

Refer to the duty cycle plot (as below), This device meets the FCC requirement.
Length of a complete pulse train:



6. BANDWIDTH TEST

6.1. Measurement Procedure

The EUT was operating in normal mode. Printed out the test result from the spectrum by hard copy function.

6.2. Test SET-UP (Block Diagram of Configuration)

EUT ——— Spectrum Analyzer

6.3. Measurement Equipment Used:

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4407B	88156318	05/16/2015	05/15/2016

6.4. Measurement Results:

Test By: SYP
Test Date: December 04, 2015
Temperature: 24℃
Humidity: 55 %
Modulation: FSK

Channel frequency (MHz)	20dB Down BW(kHz)
906	200.7
915	201.0
924	200.0

Agilent Spectrum Analyzer - Occupied BW
Center Freq 915.000000 MHz
Center Freq: 915.000000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
11:53:44 AM Dec 04, 2015
Frequency
10 dB/div
Ref -5.00 dBm
Center Freq
915.000000 MHz
Center 915 MHz
#Res BW 3 kHz
#VBW 10 kHz
Span 300 kHz
Sweep 40.87 ms
CF Step
30.000 kHz
Auto
Man
Occupied Bandwidth
150.86 kHz
Total Power
-5.70 dBm
Transmit Freq Error
-21.919 kHz
OBW Power
99.00 %
x dB Bandwidth
201.0 kHz
x dB
-20.00 dB
Freq Offset
0 Hz

Agilent Spectrum Analyzer - Occupied BW
Center Freq 924.000000 MHz
Center Freq: 924.000000 MHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
Radio Std: None
Radio Device: BTS
12:03:50 PM Dec 04, 2015
Trace/Detector
10 dB/div
Ref -5.00 dBm
Clear Write
Average
Max Hold
Min Hold
Center 924 MHz
#Res BW 3 kHz
#VBW 10 kHz
Span 300 kHz
Sweep 40.87 ms
Occupied Bandwidth
148.72 kHz
Total Power
-0.27 dBm
Transmit Freq Error
-18.406 kHz
OBW Power
99.00 %
x dB Bandwidth
200.0 kHz
x dB
-20.00 dB
Detector
Average
Auto
Man

7. BAND EDGE TEST

7.1. Measurement Procedure

1. The EUT was Operating in normal mode. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 1.5 m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

7.2. Test SET-UP (Block Diagram of Configuration)

As 5.2 Test set up (B) and (C)

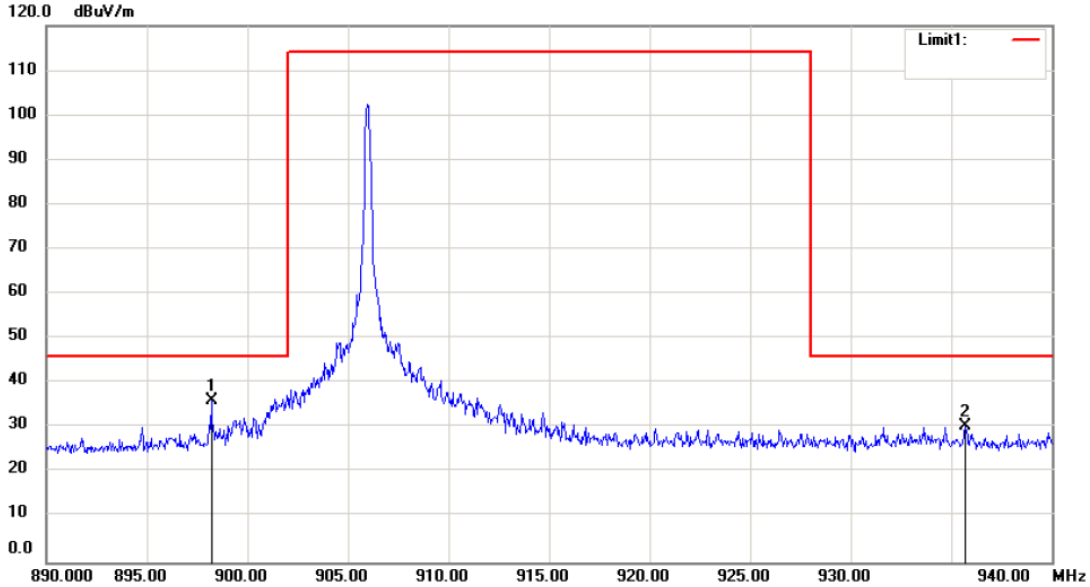
7.3. Measurement Equipment Used:

Same as 5.3 Radiated Emission Measurement.

7.4. Measurement Results:

TX 906MHz

V:



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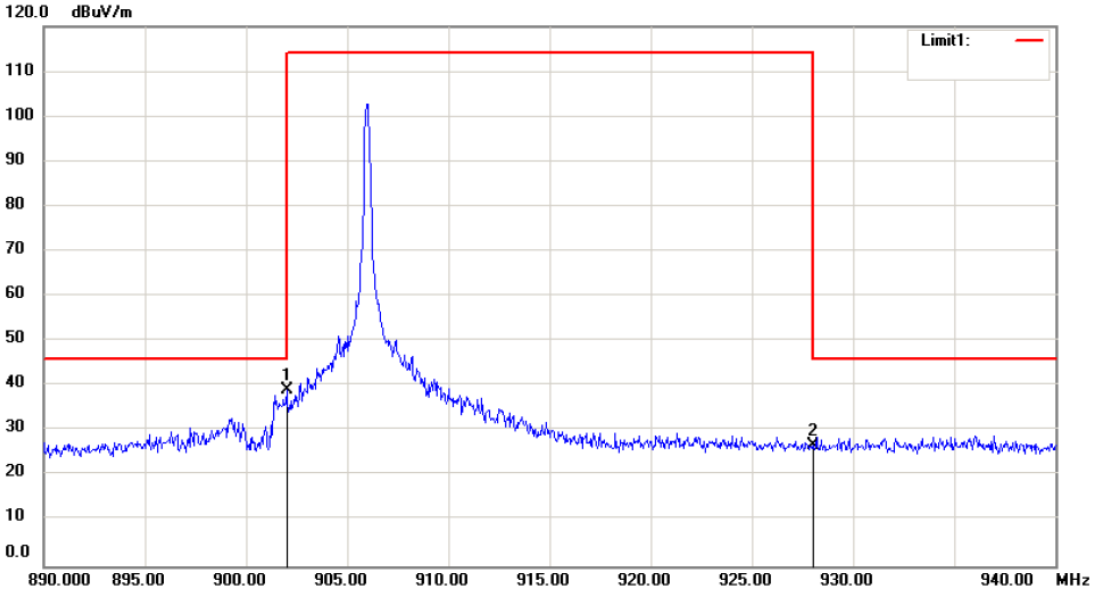
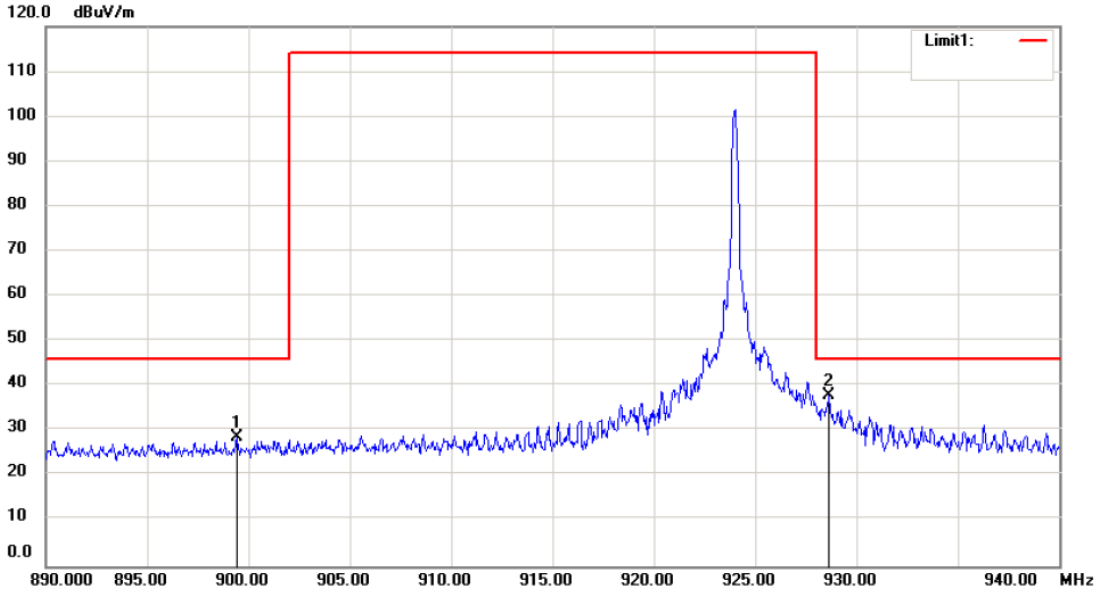


Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)	Result
902.00	V	39.27	46	-6.73	Pass
928.00	V	27.00	46	19.00	Pass
898.20	H	36.15	46	-9.85	Pass
935.70	H	30.33	46	-15.67	Pass

TX 924MHz

V:



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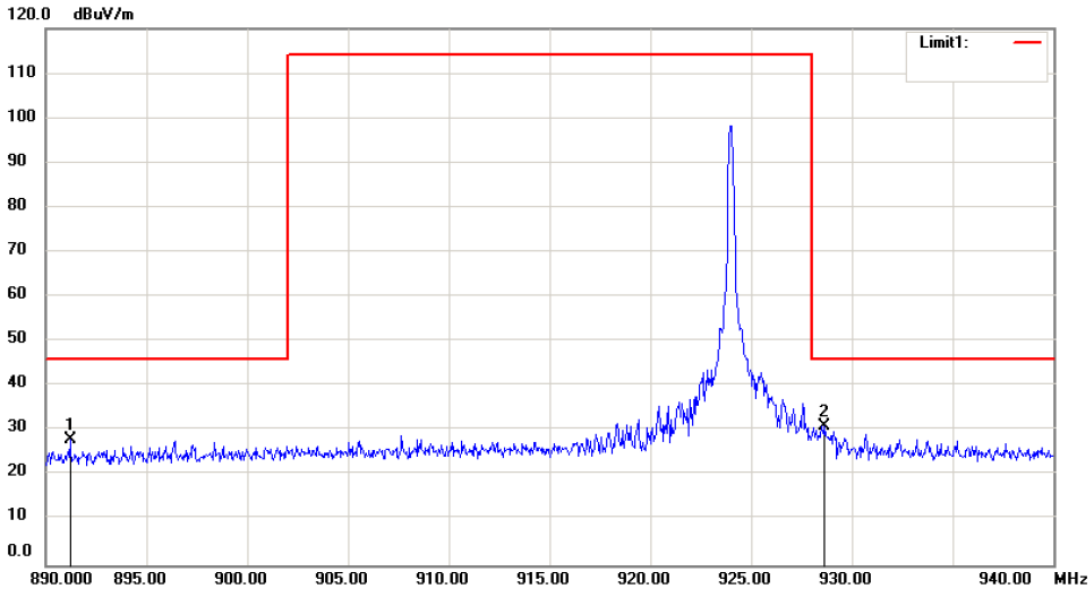


Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit at 3m (dBuV/m)	Margin (dB)	Result
899.40	V	28.56	46	-17.44	Pass
928.65	V	37.93	46	-8.07	Pass
891.20	H	28.08	46	-17.92	Pass
928.65	H	31.09	46	-14.91	Pass

8. CONDUCTED EMISSION TEST

8.1. Applicable Standard

According to FCC Part 15.207(a)

EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	DUE CAL.
Test Receiver	Rohde & Schwarz	ESCS30	828985/018	05/16/2015	05/15/2016
L.I.S.N.	Schwarzbeck	NNLK8129	8129203	05/16/2015	05/15/2016
50Ω Coaxial Switch	Anritsu	MP59B	M20531	N/A	05/15/2016
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	05/16/2015	05/15/2016

8.2. Conformance Limit

Conducted Emission Limit

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

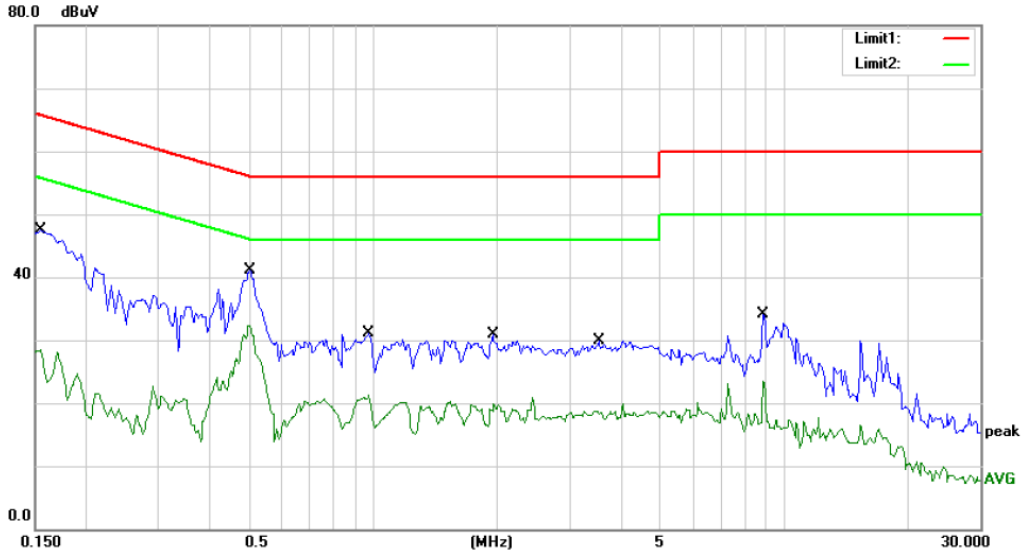
8.3. Test Configuration

Test according to clause 7.3 conducted emission test setup

8.4. Test Procedure

The EUT was placed on a table which is 0.8m above ground plane.
Maximum procedure was performed on the highest emissions to ensure EUT compliance.
Repeat above procedures until all frequency measured were complete.

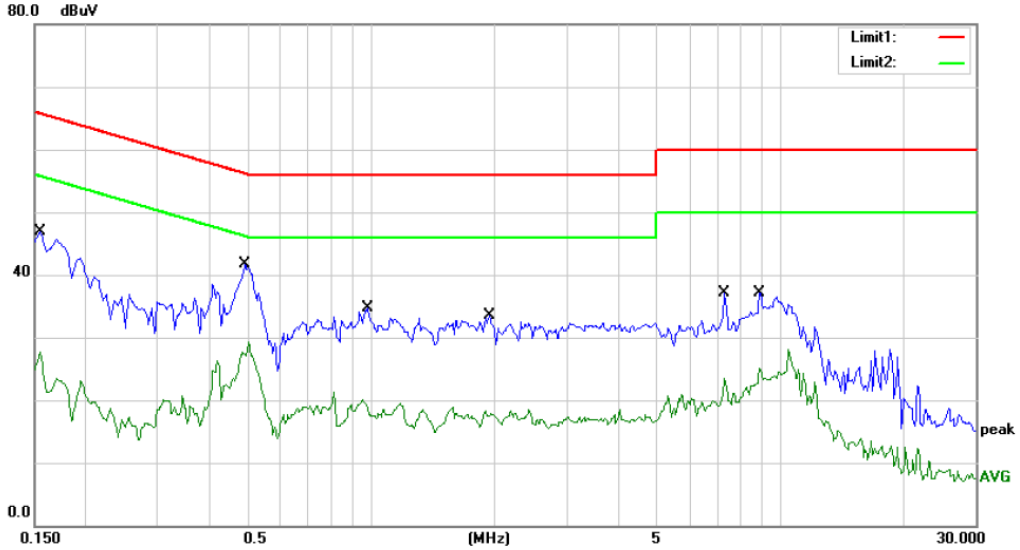
8.5. Test Results



Site Conduction #1 Phase: *L1* Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %
Mode: ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1550	47.41	0.00	47.41	65.73	-18.32	QP	
2		0.1550	28.45	0.00	28.45	55.73	-27.28	AVG	
3		0.5000	41.08	0.00	41.08	56.00	-14.92	QP	
4	*	0.5000	32.36	0.00	32.36	46.00	-13.64	AVG	
5		0.9750	31.01	0.00	31.01	56.00	-24.99	QP	
6		0.9750	21.26	0.00	21.26	46.00	-24.74	AVG	
7		1.9500	30.85	0.00	30.85	56.00	-25.15	QP	
8		1.9500	20.89	0.00	20.89	46.00	-25.11	AVG	
9		3.5350	29.81	0.00	29.81	56.00	-26.19	QP	
10		3.5350	19.89	0.00	19.89	46.00	-26.11	AVG	
11		8.9100	34.10	0.00	34.10	60.00	-25.90	QP	
12		8.9100	23.48	0.00	23.48	50.00	-26.52	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Vern



Site Conduction #1 Phase: N Temperature: 22
Limit: (CE)FCC PART 15 class B_QP Power: AC 120V/60Hz Humidity: 50 %
Mode: ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1550	47.00	0.00	47.00	65.73	-18.73	QP	
2		0.1550	27.65	0.00	27.65	55.73	-28.08	AVG	
3	*	0.4900	41.75	0.00	41.75	56.17	-14.42	QP	
4		0.4900	29.29	0.00	29.29	46.17	-16.88	AVG	
5		0.9800	34.61	0.00	34.61	56.00	-21.39	QP	
6		0.9800	21.39	0.00	21.39	46.00	-24.61	AVG	
7		1.9450	33.47	0.00	33.47	56.00	-22.53	QP	
8		1.9450	18.86	0.00	18.86	46.00	-27.14	AVG	
9		7.2900	37.01	0.00	37.01	60.00	-22.99	QP	
10		7.2900	23.57	0.00	23.57	50.00	-26.43	AVG	
11		8.9100	37.17	0.00	37.17	60.00	-22.83	QP	
12		8.9100	28.15	0.00	28.15	50.00	-21.85	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: Vern

9. Antenna Application

9.1. Antenna Requirement

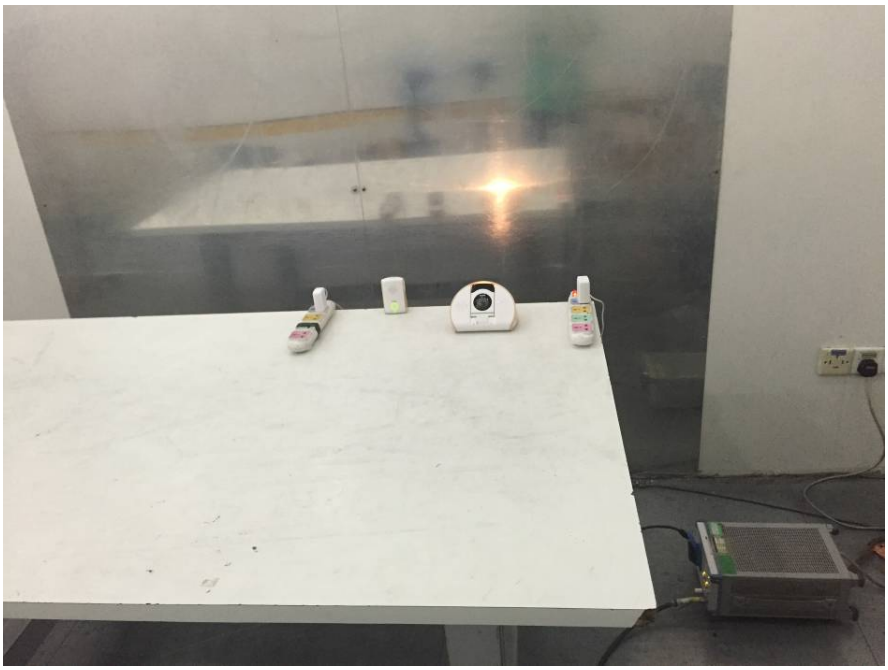
Standard	Requirement
FCC CRF Part 15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

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.

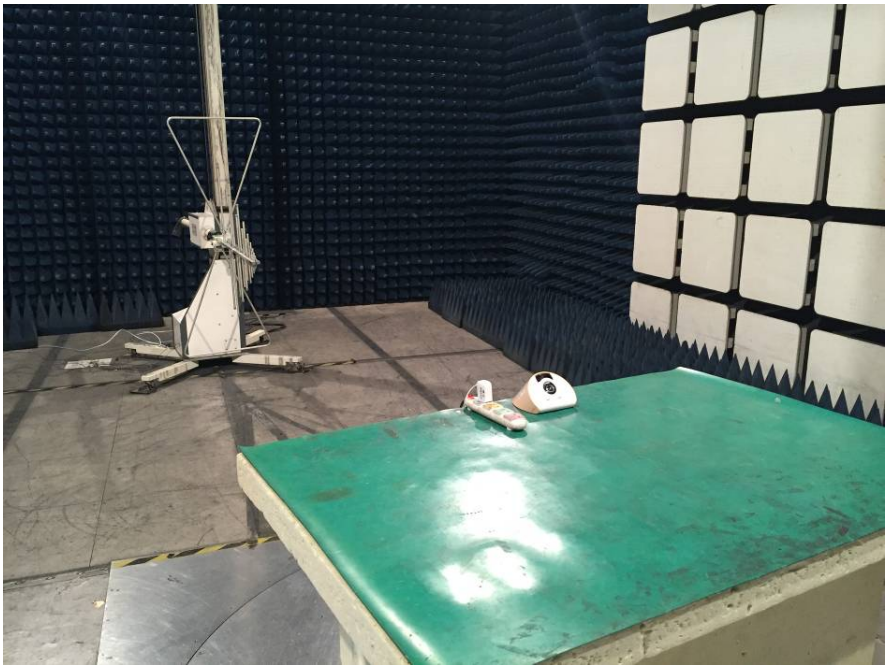
9.2. Result

The EUT has PCB Antenna, the gain is 3.1 dBi, which in accordance to section 15.203, please refer to the internal photos.

10. APPENDIX I (Photos of Setup)

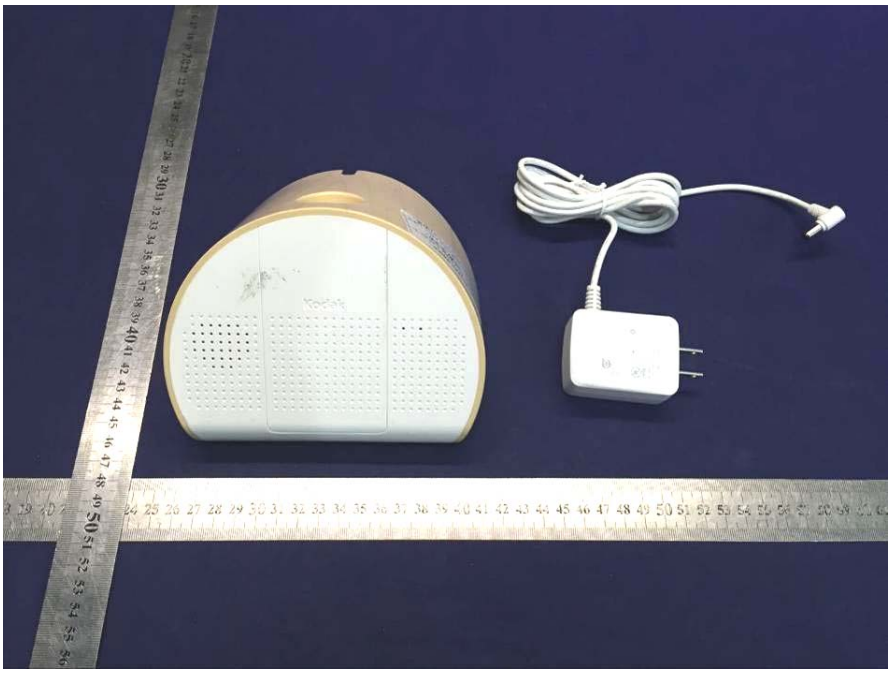


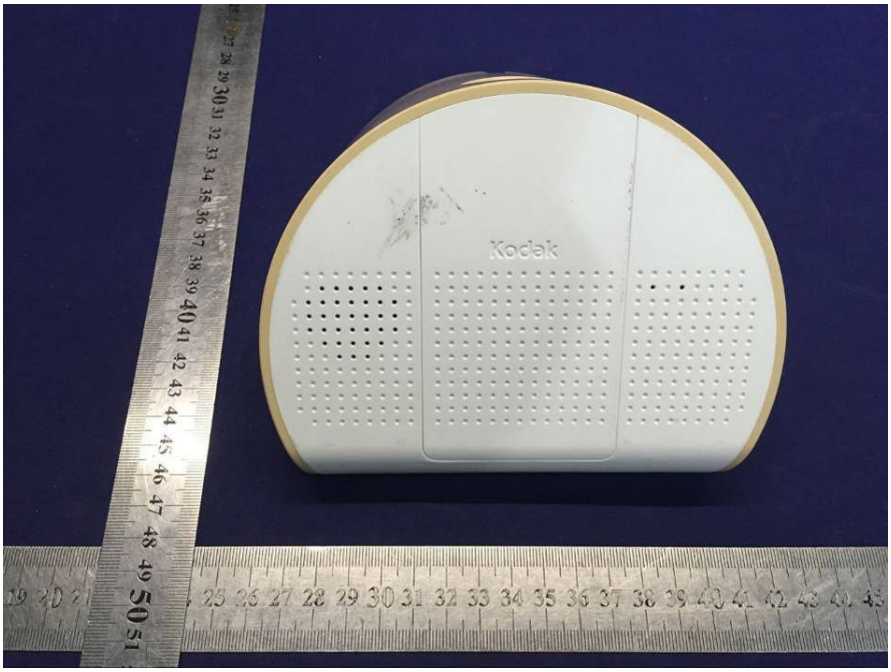
Conducted Emission

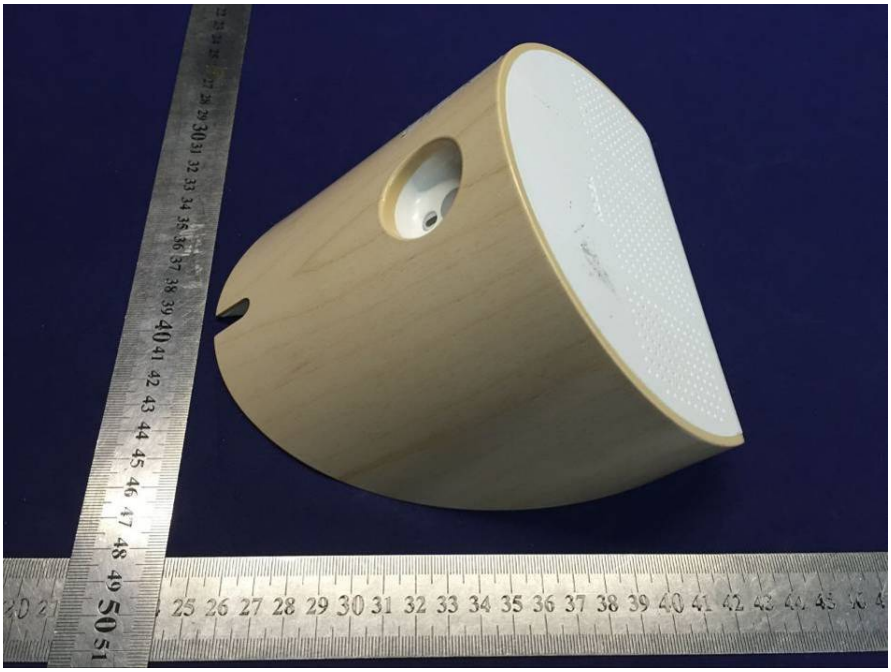


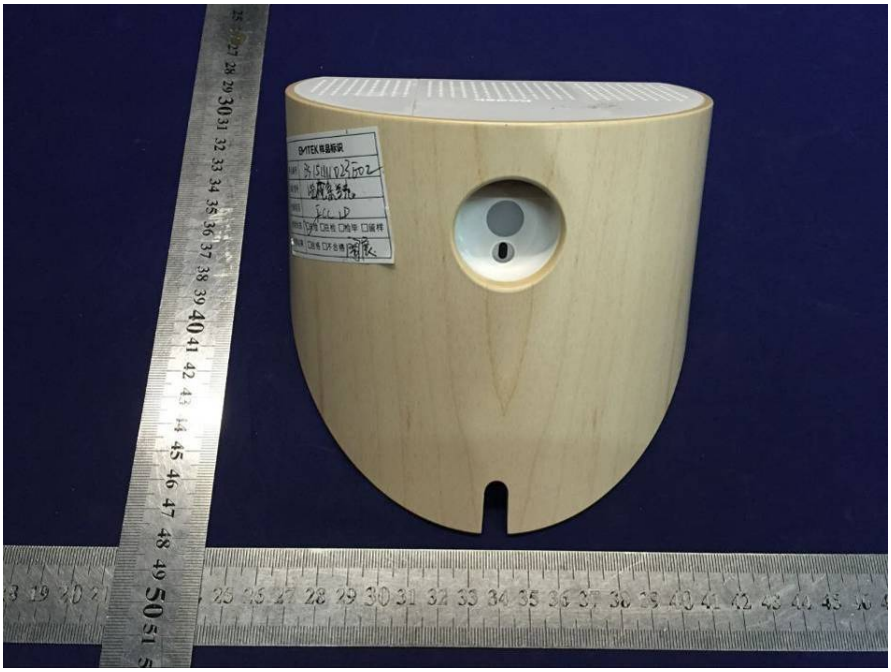
Radiated Emission

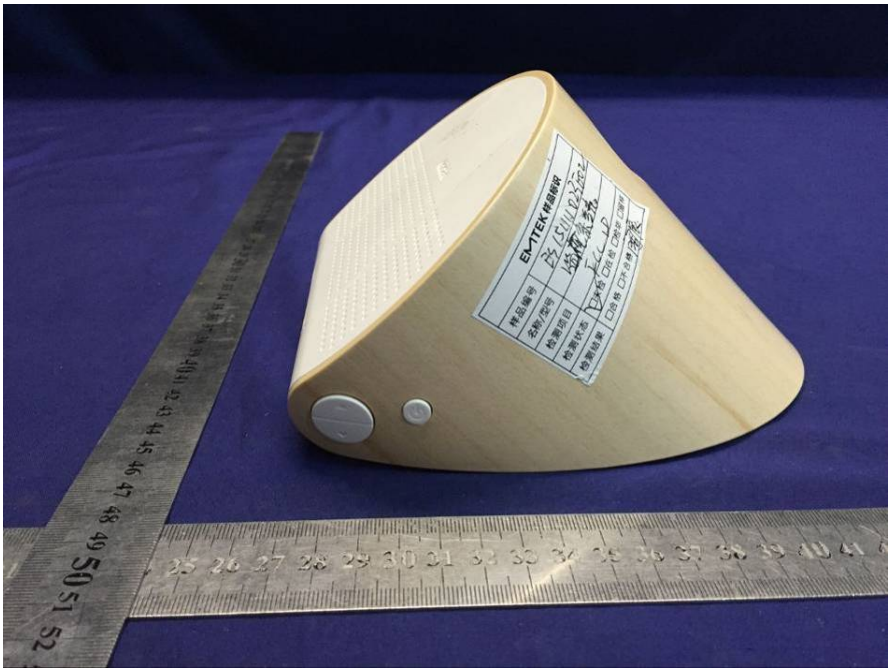
11. APPENDIX II (Photos of EUT)



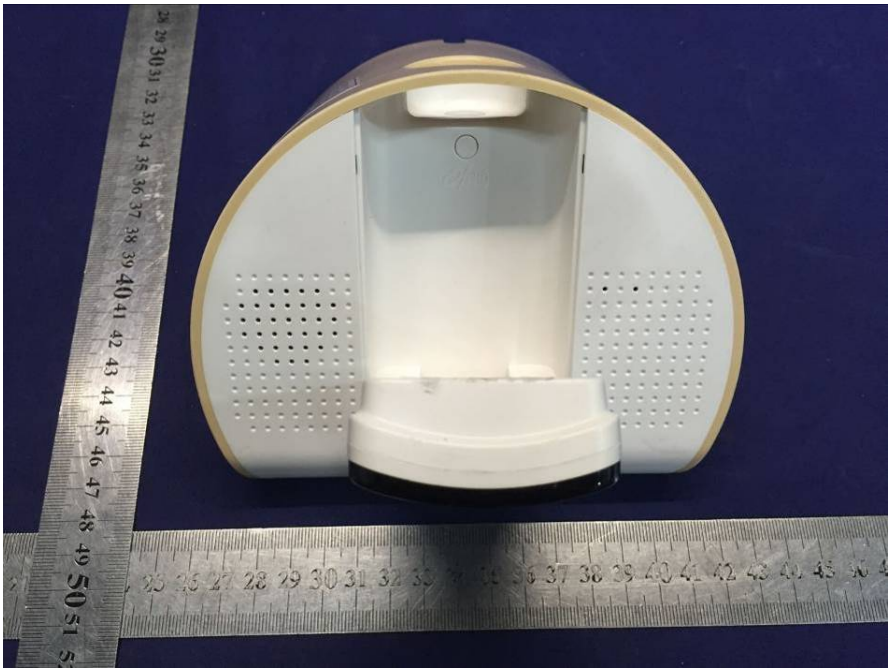

Kodak







Kodak



Kodak

Kodak
Video Monitor
Model: CFH-V20
FCC ID: A5JC50527
MAC ID:
S/N:
FC CE RoHS
www.connectedfamilyhome.com
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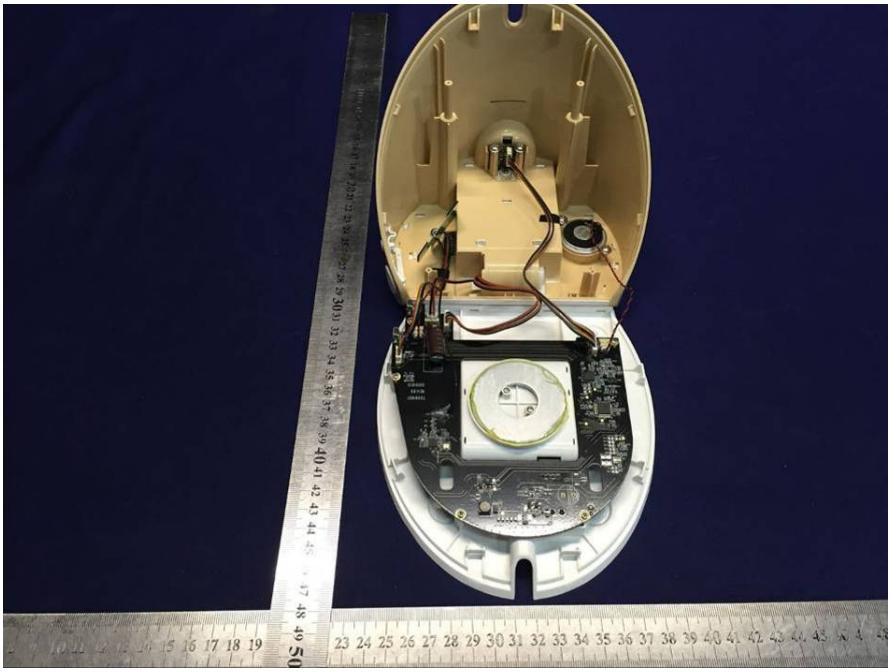

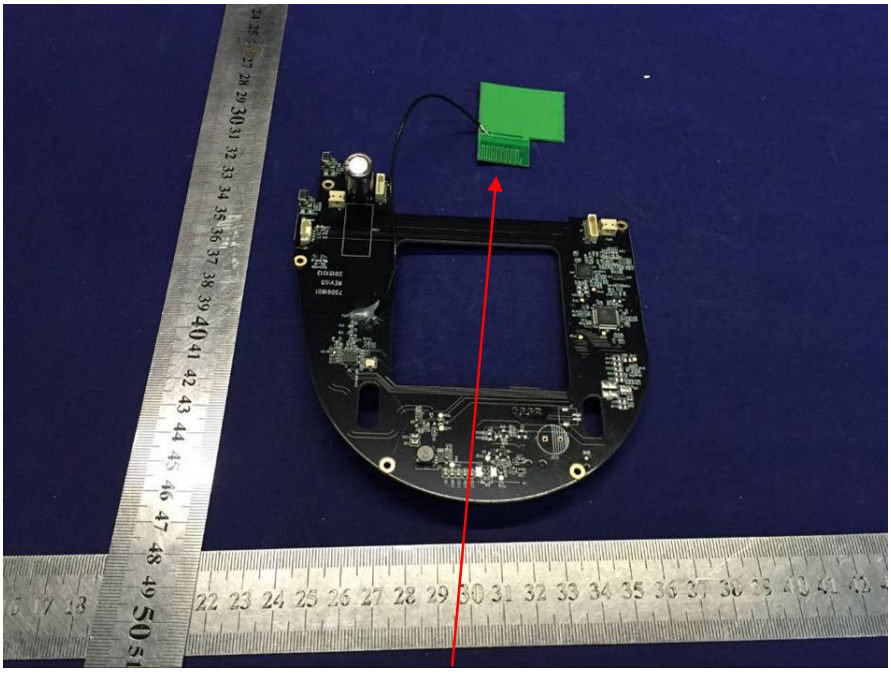

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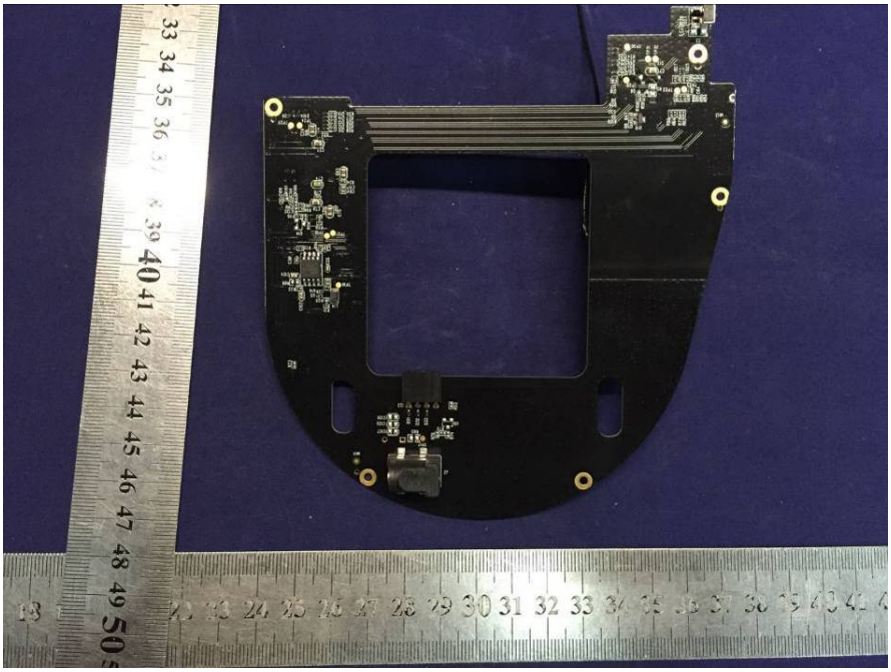

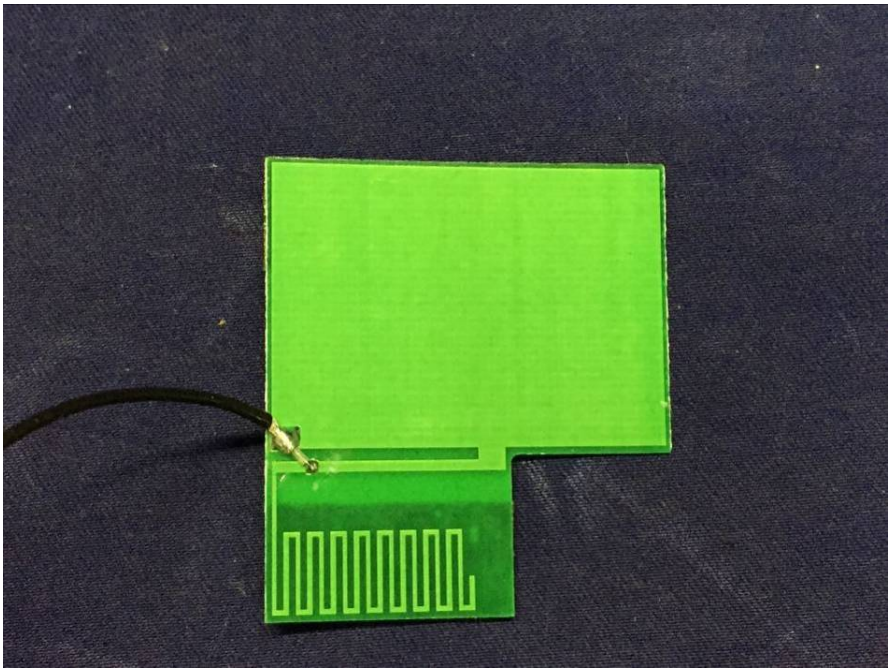

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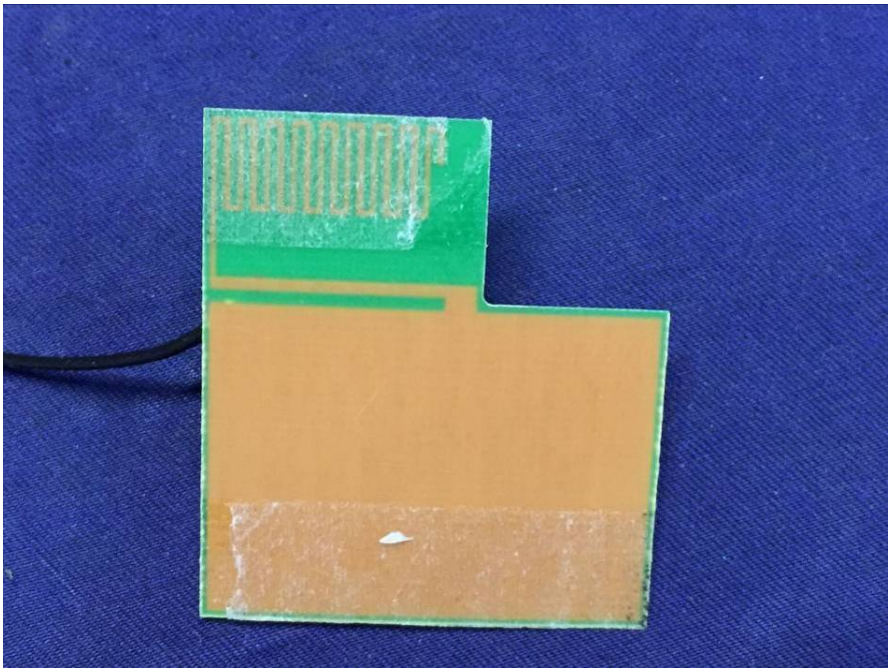

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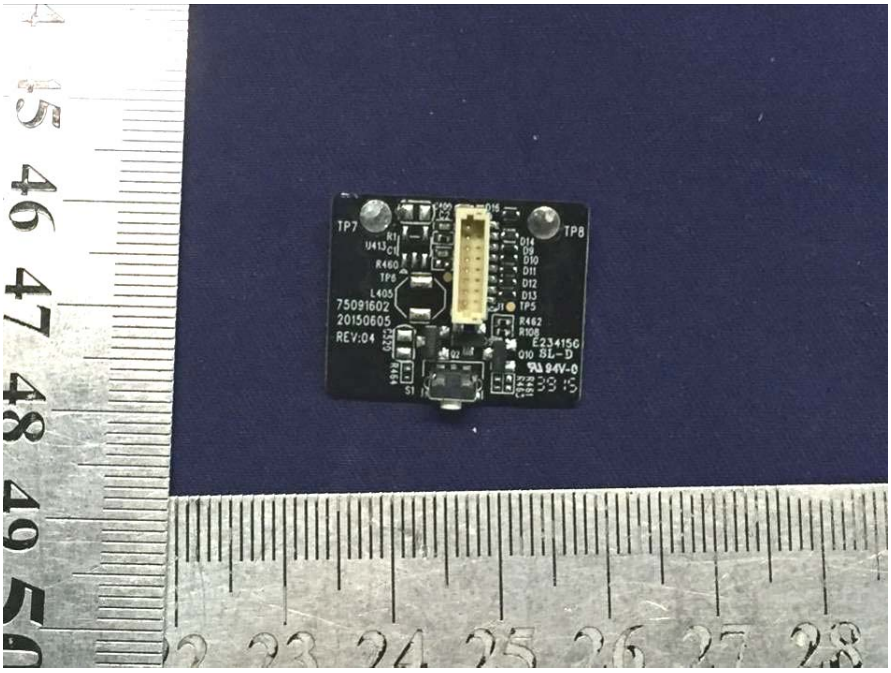

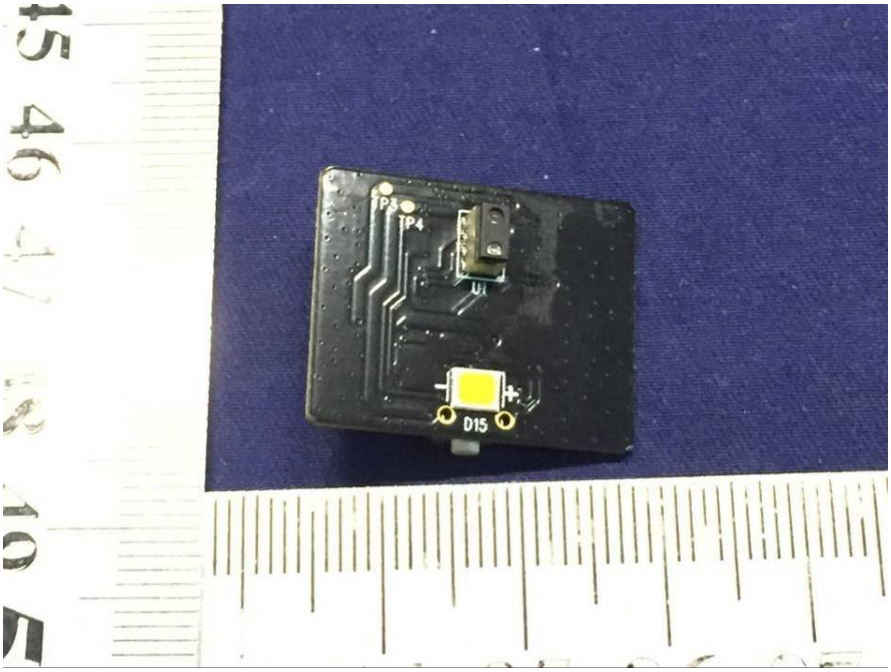
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