

TEST REPORT

Product Name : Mobile Digital Video Recorder
Model Number : 4112-HVR
FCC ID : 2ANKU-4112-HVR

Prepared for : SAFETY VISION, LLC
Address : 6100 W SAM HOUSTON PKWY N HOUSTON, TX
77041-5113, UNITED STATES OF AMERICA

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ES201014008E
Date(s) of Tests : October 15, 2020 to October 22, 2020
Date of issue : October 23, 2020

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TEST REPORT DESCRIPTION

Applicant : SAFETY VISION, LLC
Manufacturer : SAFETY VISION, LLC
Trade Mark : SAFETY VISION
EUT : Mobile Digital Video Recorder
Model No. : 4112-HVR
Power Supply : DC 8-36V,

Measurement Procedure Used:

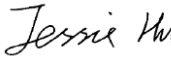
FCC CFR Title 47, Part 15, Subpart B
ANSI C63.4-2014


The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (SHENZHEN) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (SHENZHEN) CO., LTD.

Date of Test : October 15, 2020 to October 22, 2020

Prepared by : 
Tracy Hu/Editor

Reviewer : 
Jessie Hu /Supervisor

Approved & Authorized Signer : 
Lisa Wang/Manager



Modified Information

Version	Report No.	Revision Data	Summary
Ver.1.0	ES201014008E	/	Original Version



1. SUMMARY OF TEST RESULTS

EMISSION		
Description of Test Item	Standard & Limits	Results
Radiated emissions(Up to 1 GHz)	FCC CFR Title 47, Part 15, Subpart B, Class A ANSI C63.4-2014	Pass
Radiated emissions(Above 1 GHz)	FCC CFR Title 47, Part 15, Subpart B, Class A ANSI C63.4-2014	Pass
Note: N/A is an abbreviation for Not Applicable.		



2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Mobile Digital Video Recorder

Model Number : 4112-HVR

Applicant : SAFETY VISION, LLC

Address : 6100 W SAM HOUSTON PKWY N HOUSTON, TX 77041-5113,
UNITED STATES OF AMERICA

Manufacturer : SAFETY VISION, LLC

Address : 6100 W SAM HOUSTON PKWY N HOUSTON, TX 77041-5113,
UNITED STATES OF AMERICA

Date of Received : October 15, 2020

Date of Test : October 15, 2020 to October 22, 2020

2.2. Independent Operation Modes

A: ON

2.3. Test Manner

Test Items	Test Voltage	Operation Modes	Worst case
Radiated emissions(Up to 1 GHz)	DC 12V, DC 36V	Mode A	Mode A(DC 36V)
Radiated emissions(Above 1 GHz)	DC 12V, DC 36V	Mode A	Mode A(DC 36V)

2.4. Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, 2018.11.30
The certificate is valid until 2022.10.28
The Laboratory has been assessed and proved to be in compliance with
CNAS-CL01(identical to ISO/IEC 17025:2017)
The Certificate Registration Number is L2291.

Accredited by FCC,
Designation Number: CN1204
Test Firm Registration Number: 882943

Accredited by A2LA, August 25, 2020
The Certificate Number is 4321.01.

Accredited by Industry Canada,
The Conformity Assessment Body Identifier is CN0008

Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Building 69, Majialong Industry Zone, Nanshan District, Shenzhen,
Guangdong, China

2.5. Test Software

Item	Software
Conducted Emission	: EMTEK(Ver.CON-03A1)-Shenzhen
Radiated Emission	: EMTEK(Ver.RA-03A1)-Shenzhen

2.6. Description of Support Device

N/A

2.7. Measurement Uncertainty

Test Item	Uncertainty
Radiated Emission Uncertainty	: 4.40dB (30M~1GHz Polarize: H)
(3m 3# Chamber)	5.04dB (30M~1GHz Polarize: V)
	4.94dB (1~6GHz)

3. MEASURING DEVICE AND TEST EQUIPMENT

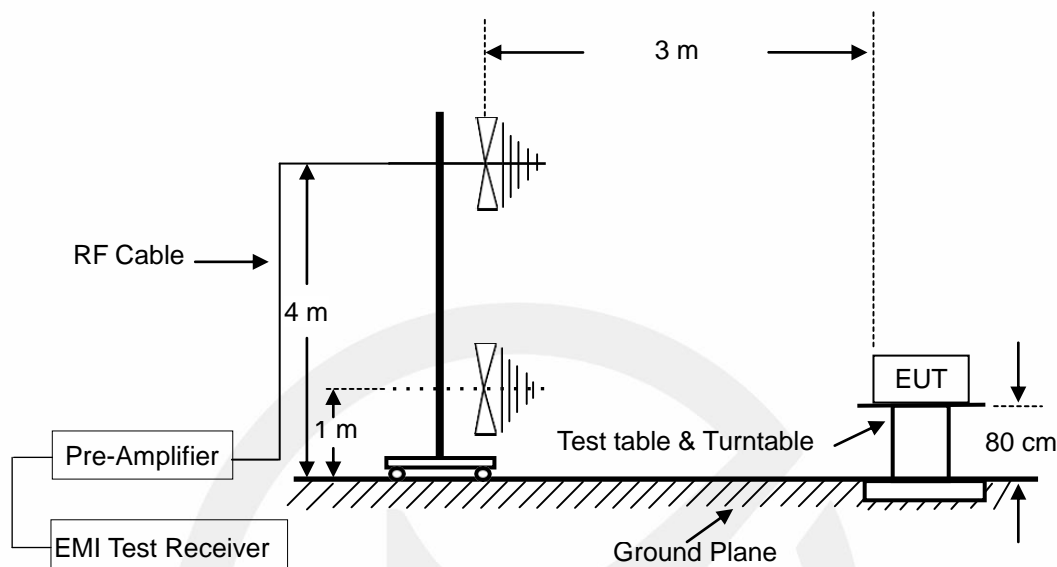
3.1. For Radiated Emission Measurement

Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
<input checked="" type="checkbox"/>	Pre-Amplifier	HP	8447F	2944A07999	May 17, 2020	1Year
<input checked="" type="checkbox"/>	EMI Test Receiver	Rohde & Schwarz	ESCI	101414	May 17, 2020	1Year
<input checked="" type="checkbox"/>	Bilog Antenna	Schwarzbeck	VULB9163	660	July 14, 2019	2 Year
<input checked="" type="checkbox"/>	Horn antenna	Schwarzbeck	BBHA9120D	9120D-1198	June 16, 2019	2 Year
<input checked="" type="checkbox"/>	Pre-Amplifie	Lunar EM	LNA1G18-48	J1011131010 001	May 16, 2020	1Year



4. RADIATED EMISSION MEASUREMENT (UP TO 1GHz)

4.1. Block Diagram of Test Setup



4.2. Radiated Limit

FCC Part 15, Subpart B, Class A

Frequency MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	49.5
88 ~ 216	3	150	54
216 ~ 960	3	200	56.9
960 ~ 1000	3	500	60

4.3. Test Procedure

The EUT was placed on a non-conductive plank whose total height equaled 80cm. All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

The EUT was set 3 meters (or 10 meters) away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

The turntable can rotate 360 degree to determine the position of the maximum emission level.

The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

The identification of the frequency of highest emission with respect to the limit was found by

investigating emissions at a number of significant frequencies. The probable frequency of maximum emission had been found and that the associated cable and EUT configuration and mode of operation had been identified.

The bandwidth of the Receiver is set at 120 kHz.

Test results were obtained from the following equation:

Emission level (dB μ V/m) = Antenna Factor - Amp Factor + Cable Loss + Reading

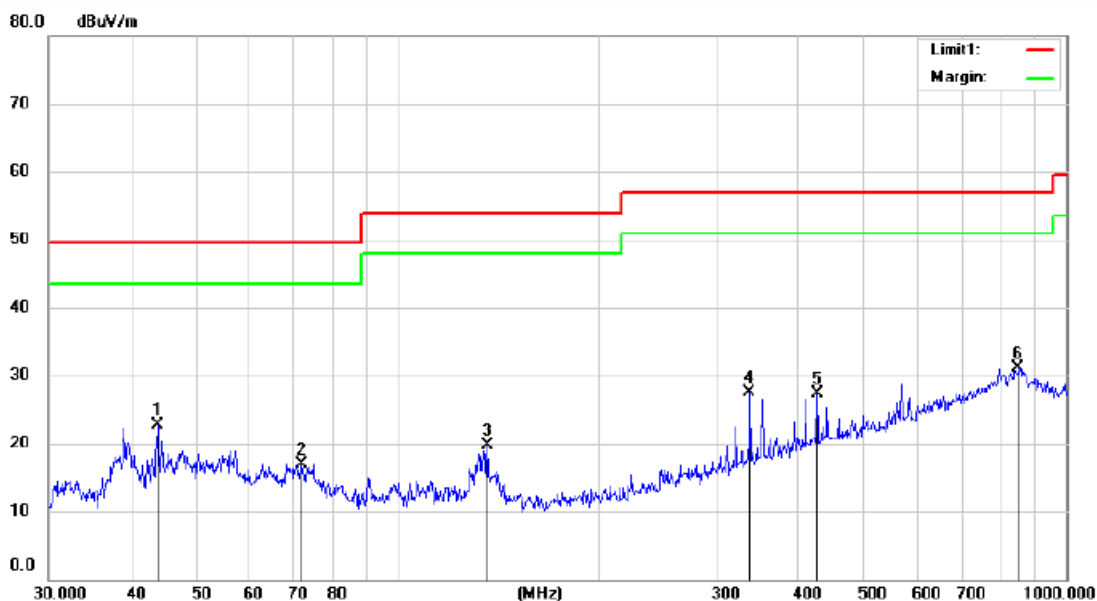
Margin (dB) = Emission Level (dB μ V/m) - Limit (dB μ V/m)

4.4. Measuring Results

PASS.

Please reference to the following pages.

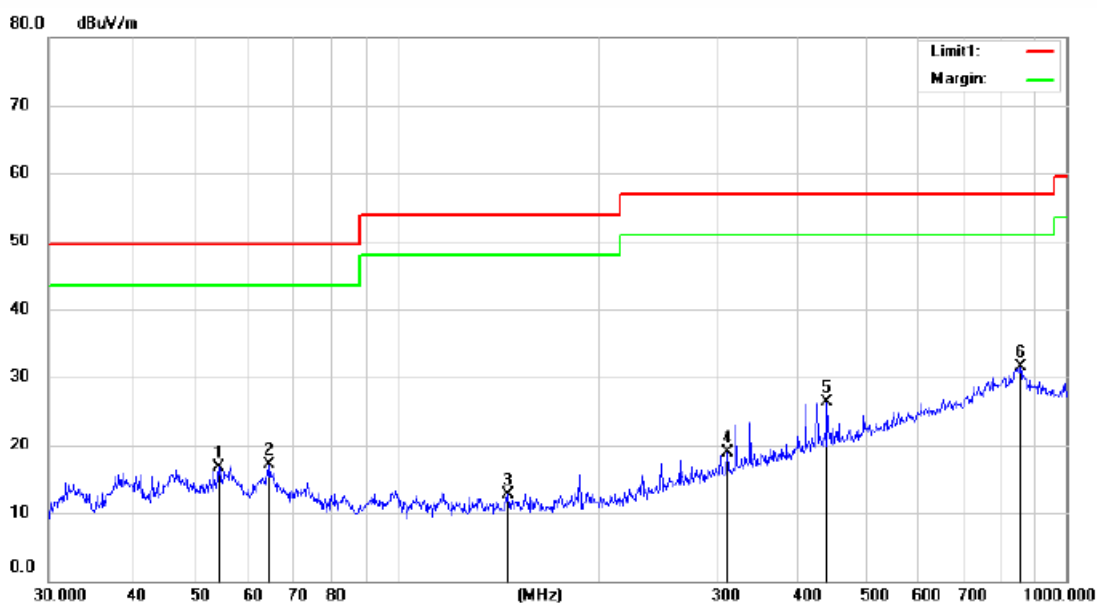




Site 3m Chamber #3
 Limit: (RE)FCC PART 15 CLASS A
 Note:

Polarization: **Vertical**
 Power: DC 36V
 Temperature: 22.5 C
 Humidity: 45 %

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
1		43.7926	37.43	-14.74	22.69	49.50	-26.81	QP		
2		71.7376	32.48	-15.48	17.00	49.50	-32.50	QP		
3		135.9821	36.44	-16.64	19.80	54.00	-34.20	QP		
4		336.0351	37.90	-10.37	27.53	56.90	-29.37	QP		
5		424.0975	34.75	-7.41	27.34	56.90	-29.56	QP		
6	*	850.2895	28.23	2.86	31.09	56.90	-25.81	QP		

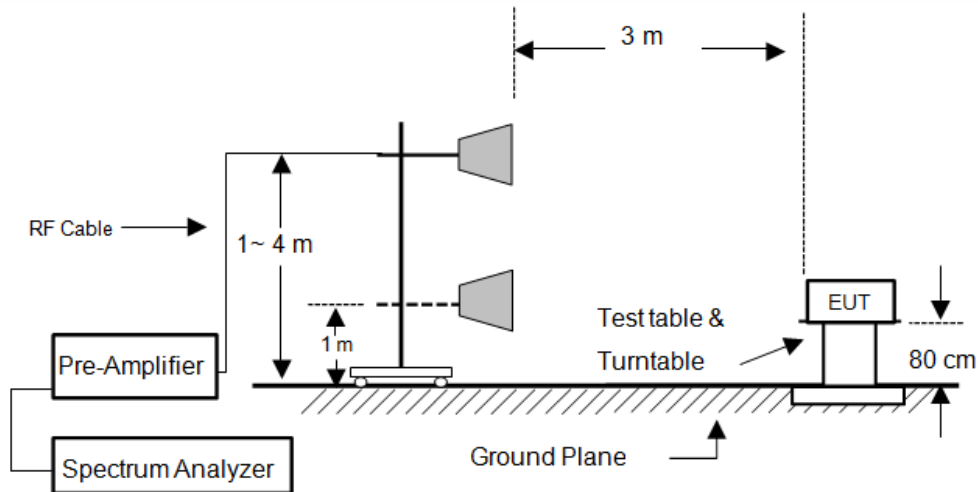


Site 3m Chamber #3 Polarization: **Horizontal** Temperature: 22.5 C
 Limit: (RE)FCC PART 15 CLASS A Power: DC 36V Humidity: 45 %
 Note:

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
1		53.9526	30.79	-14.01	16.78	49.50	-32.72	QP		
2		64.3483	31.19	-14.01	17.18	49.50	-32.32	QP		
3		146.2452	29.29	-16.53	12.76	54.00	-41.24	QP		
4		312.0426	30.68	-11.68	19.00	56.90	-37.90	QP		
5		440.0033	33.48	-7.22	26.26	56.90	-30.64	QP		
6	*	854.0247	28.93	2.57	31.50	56.90	-25.40	QP		

5. RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

5.1. Block Diagram of Test Setup



5.2. Radiated Limit

FCC Part 15, Subpart B, Class A

Frequency range GHz	Average limit dB(μ V/m)	Peak limit dB(μ V/m)
Above 1000	59.5	79.5

Note: The highest internal source of an EUT is defined as the highest frequency generated or used in the device or on which the EUT operates or tunes. If the highest frequency of the internal sources of the EUT is less than 1.705 MHz, the measurement shall only be made up to 30 MHz. If the highest frequency of the internal sources of the EUT is between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

5.3. Test Procedure

The EUT was placed on a non-conductive plank whose total height equaled 80cm. All units of equipment forming the system under test (includes the EUT as well as connected peripherals and associated equipment or devices) shall be arranged such that a nominal 0.1 m separation is achieved between the neighboring units.

The EUT was set 3 meters (or 10 meters) away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

The turntable can rotate 360 degree to determine the position of the maximum emission level.

The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

The identification of the frequency of highest emission with respect to the limit was found by investigating emissions at a number of significant frequencies. The probable frequency of maximum emission had been found and that the associated cable and EUT configuration and mode of operation had been identified.

The frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with peak detector for peak values, and use RBW=1 MHz and VBW=10 Hz with peak detector for Average Values.

Test results were obtained from the following equation:

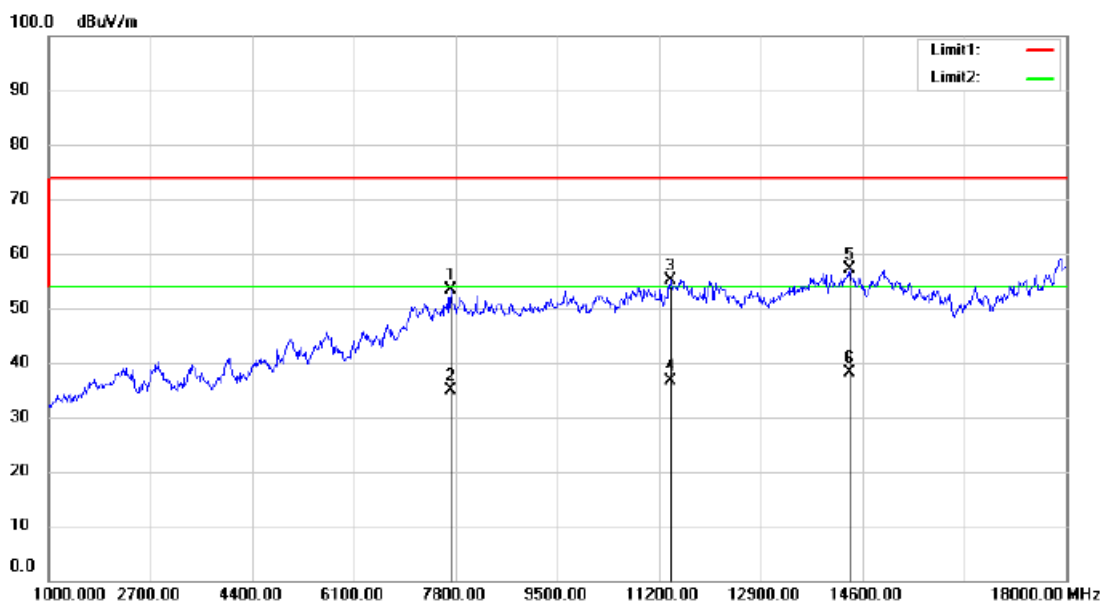
Emission level (dB μ V/m) = Antenna Factor - Amp Factor + Cable Loss + Reading

Margin (dB) = Emission Level (dB μ V/m) - Limit (dB μ V/m)

5.4. Measuring Results

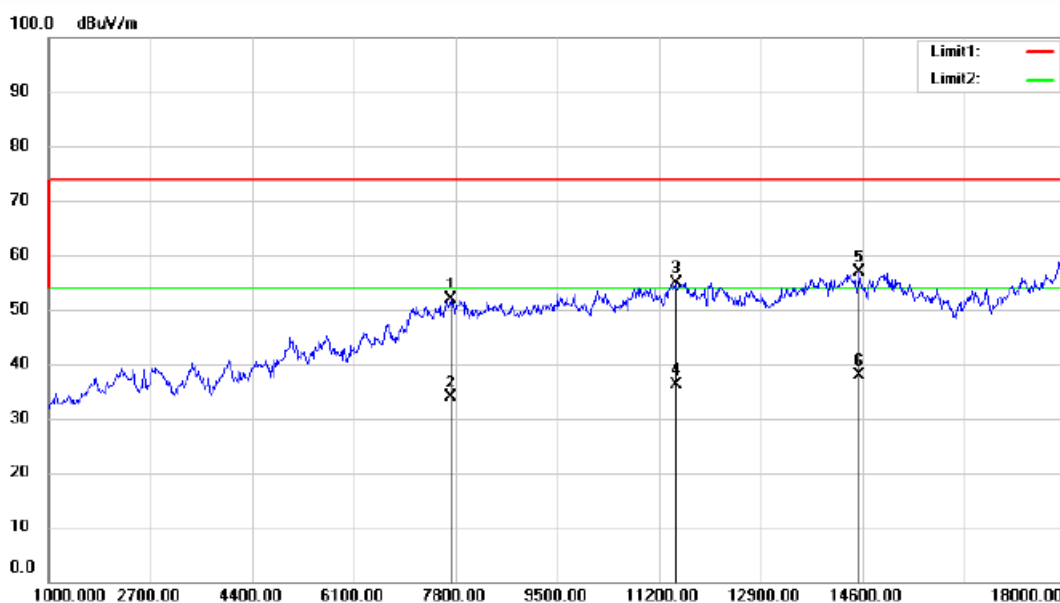
PASS.

Please reference to the following pages.



Site: 3m Chamber #3 Polarization: **Horizontal** Temperature: 22.5 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %
 Note:

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
1		7718.400	52.96	0.40	53.36	74.00	-20.64	peak		
2		7718.400	34.50	0.40	34.90	54.00	-19.10	AVG		
3		11398.90	52.52	2.60	55.12	74.00	-18.88	peak		
4		11398.90	34.10	2.60	36.70	54.00	-17.30	AVG		
5		14392.60	52.42	4.70	57.12	74.00	-16.88	peak		
6	*	14392.60	33.40	4.70	38.10	54.00	-15.90	AVG		



Site 3m Chamber #3 Polarization: **Vertical** Temperature: 22.5 C
 Limit: (RE)FCC PART 15 CLASS B Power: AC 120V/60Hz Humidity: 45 %
 Note:

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
1		7730.300	51.50	0.39	51.89	74.00	-22.11	peak		
2		7730.300	33.51	0.39	33.90	54.00	-20.10	AVG		
3		11480.50	52.27	2.61	54.88	74.00	-19.12	peak		
4		11480.50	33.49	2.61	36.10	54.00	-17.90	AVG		
5		14562.60	52.25	4.64	56.89	74.00	-17.11	peak		
6	*	14562.60	33.16	4.64	37.80	54.00	-16.20	AVG		

6. PHOTOGRAPHS

6.1. Photos of Radiation Emission Measurement



APPENDIX A: Label Requirements

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under part 73 of this chapter, land mobile operation under part 90 of this chapter, etc., shall bear the following statement in a conspicuous location on the device:

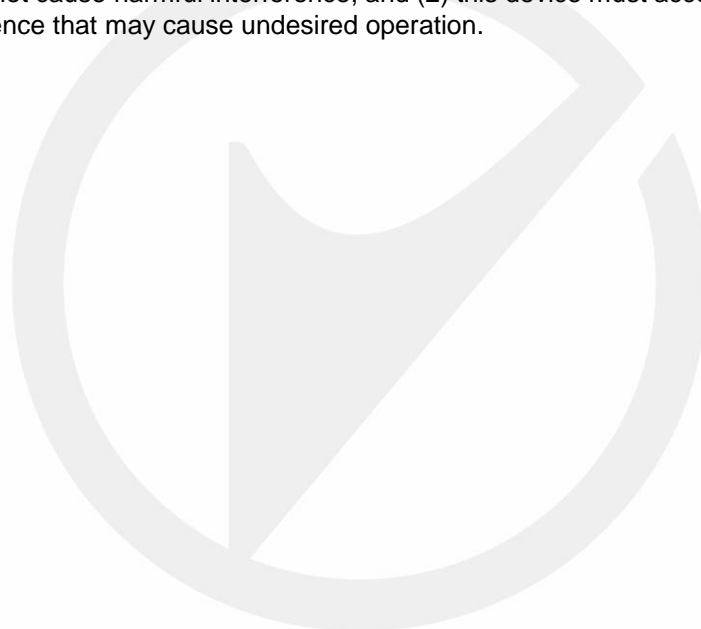
This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules for use with cable television service.

(3) All other devices shall bear the following statement in a conspicuous location on the device:

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.



APPENDIX B: Warning Statement

(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

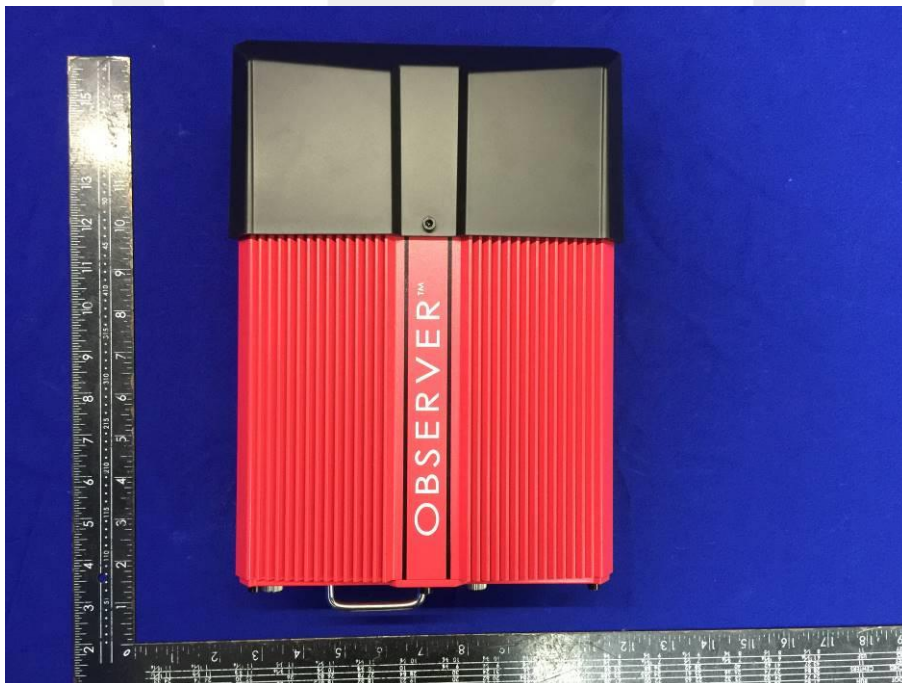
(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

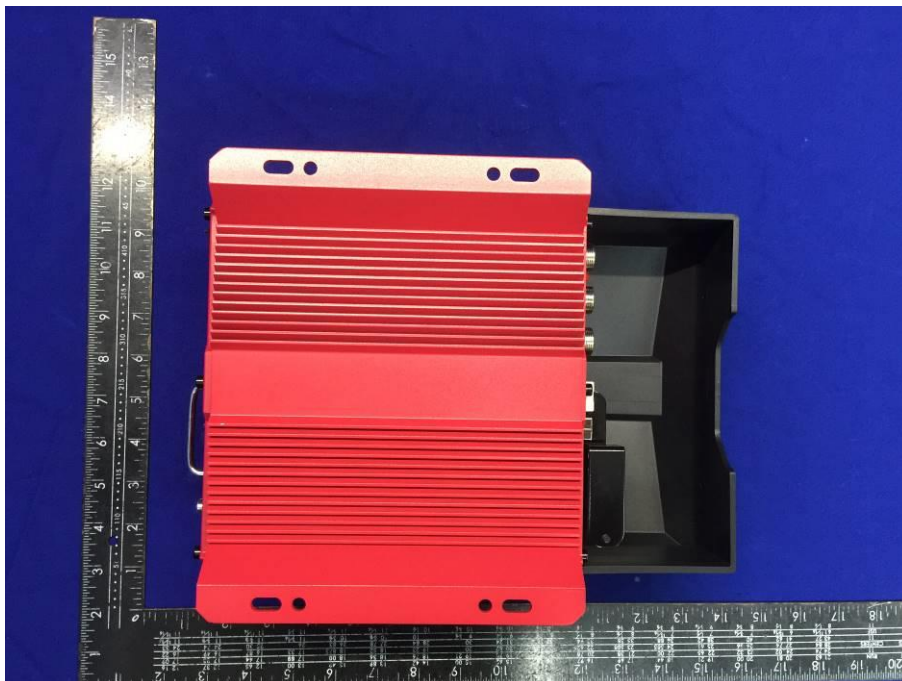
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

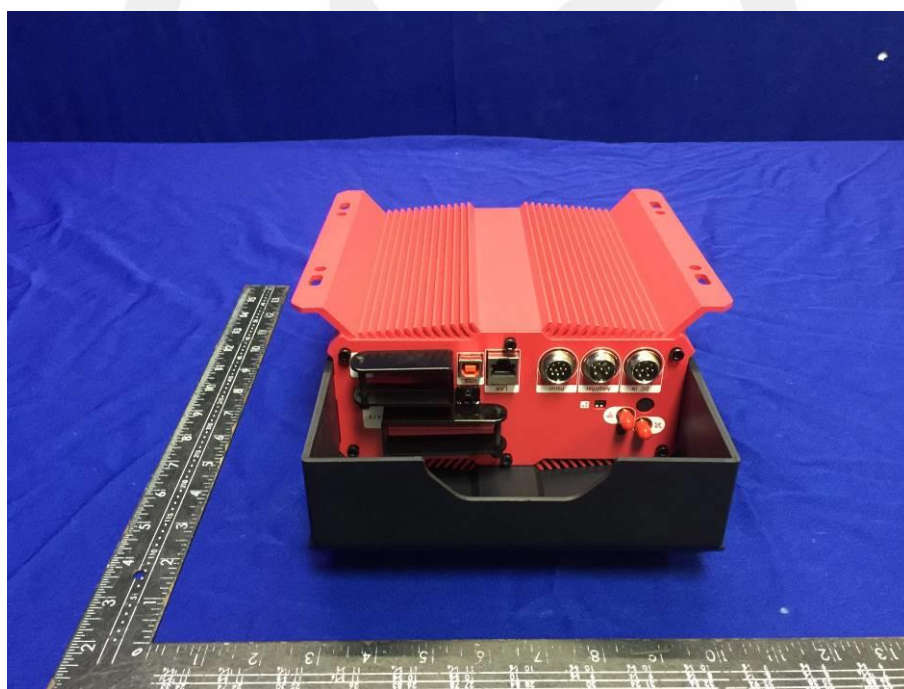
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

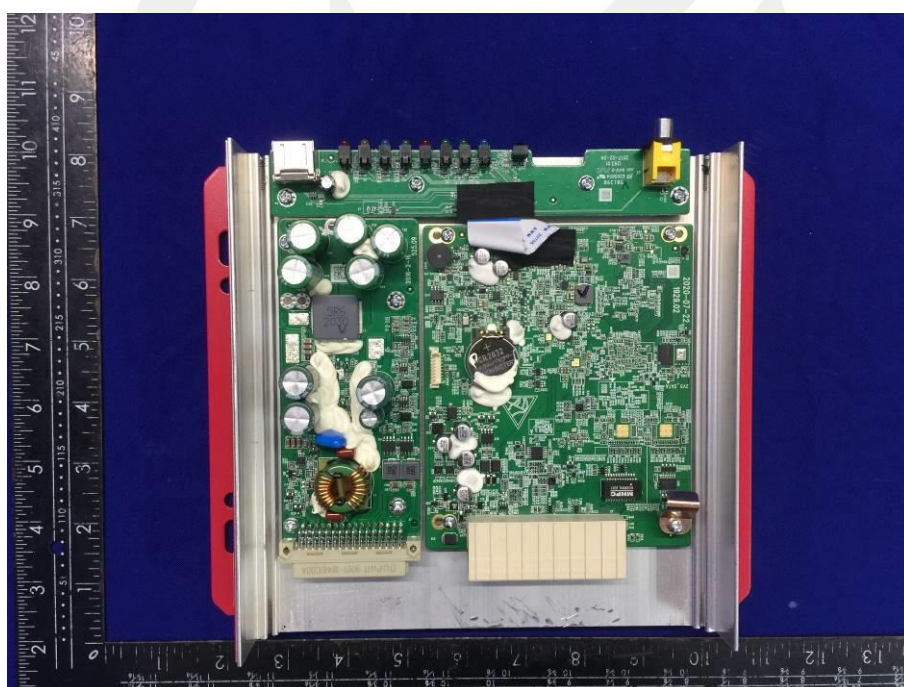
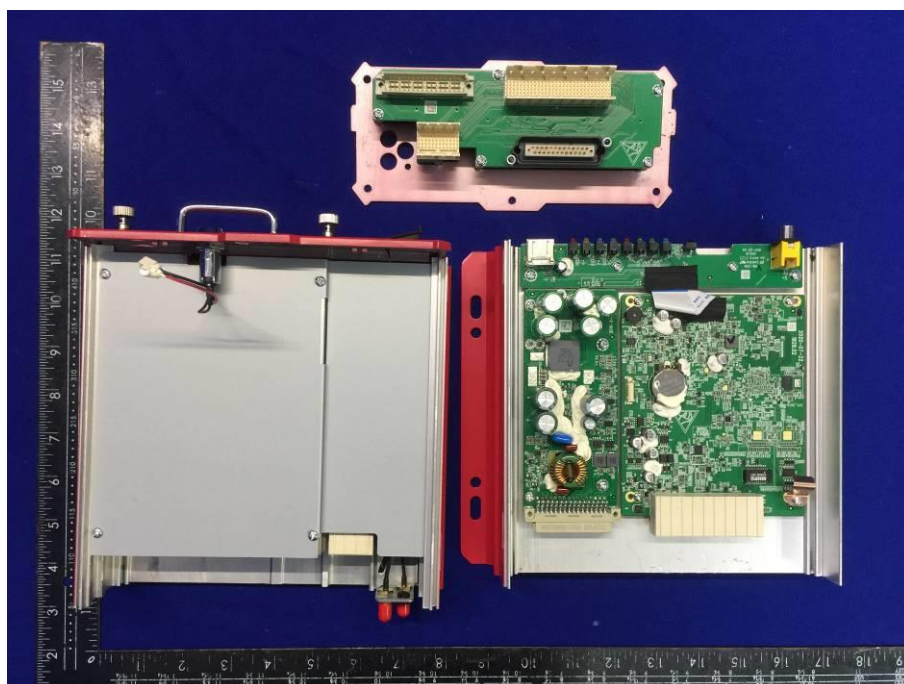
APPENDIX C: Photos of EUT

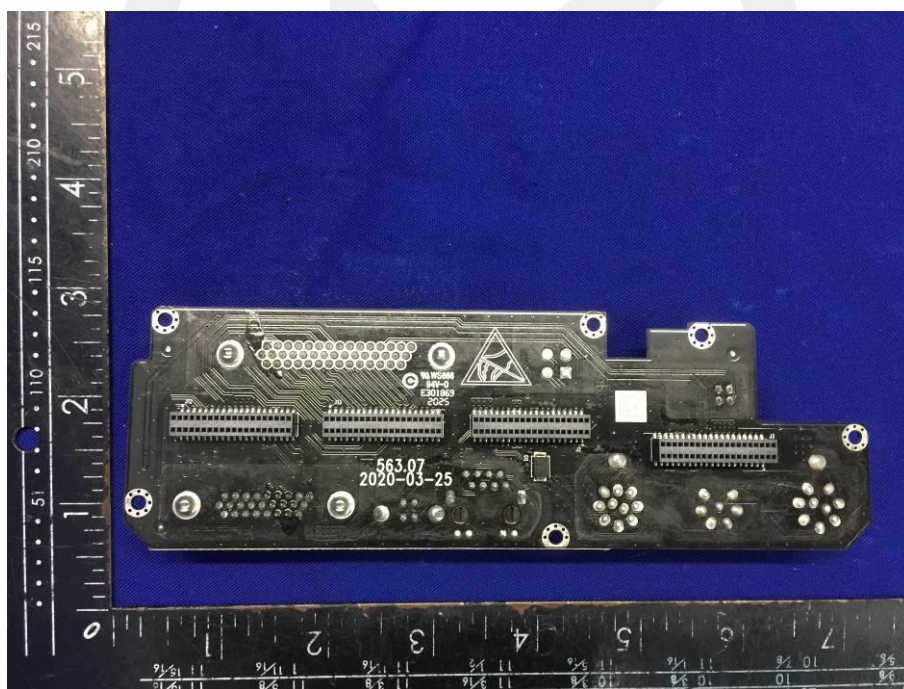
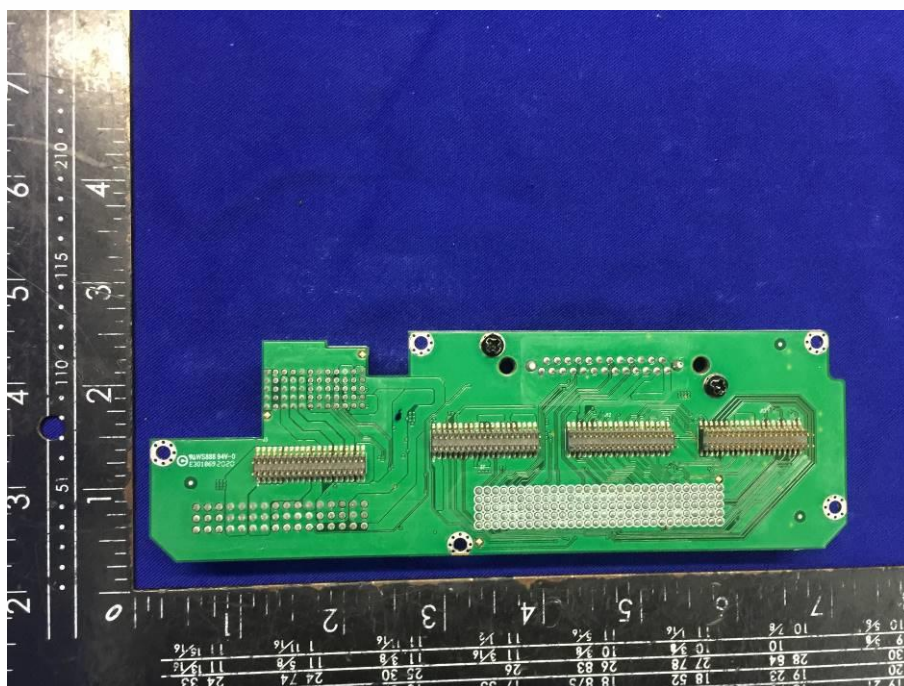


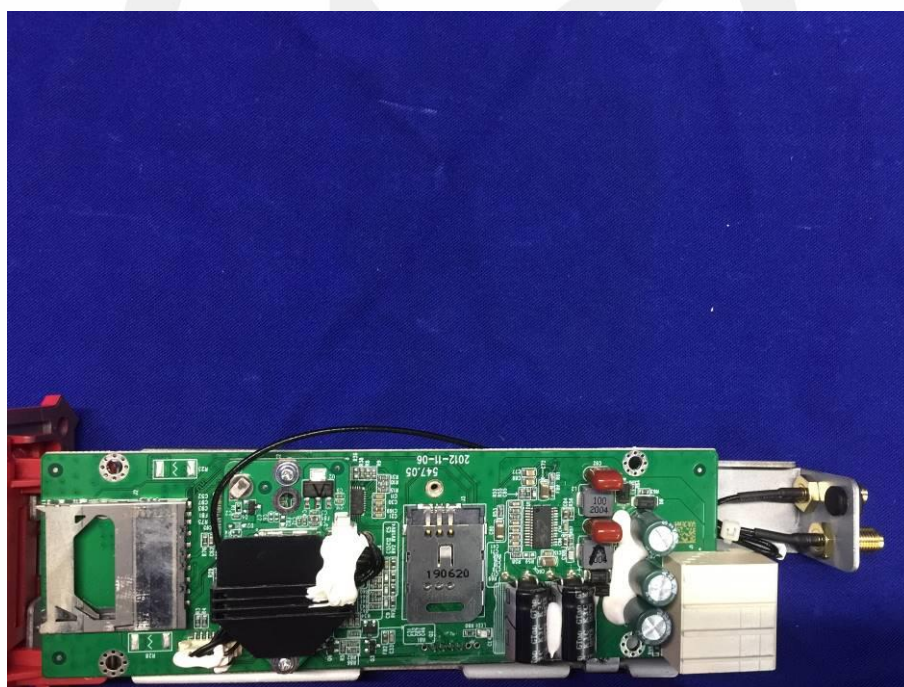
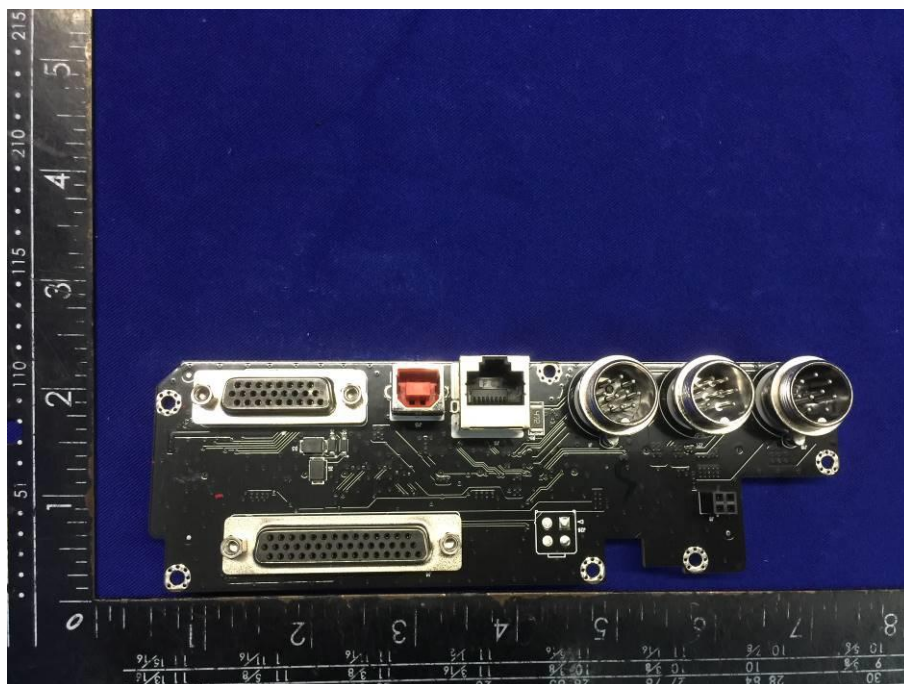


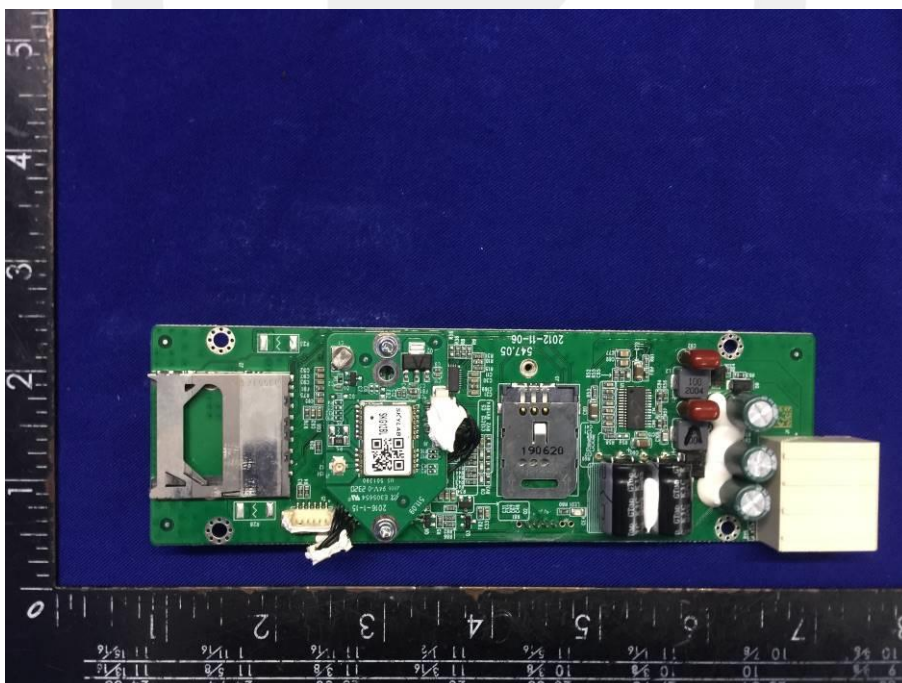
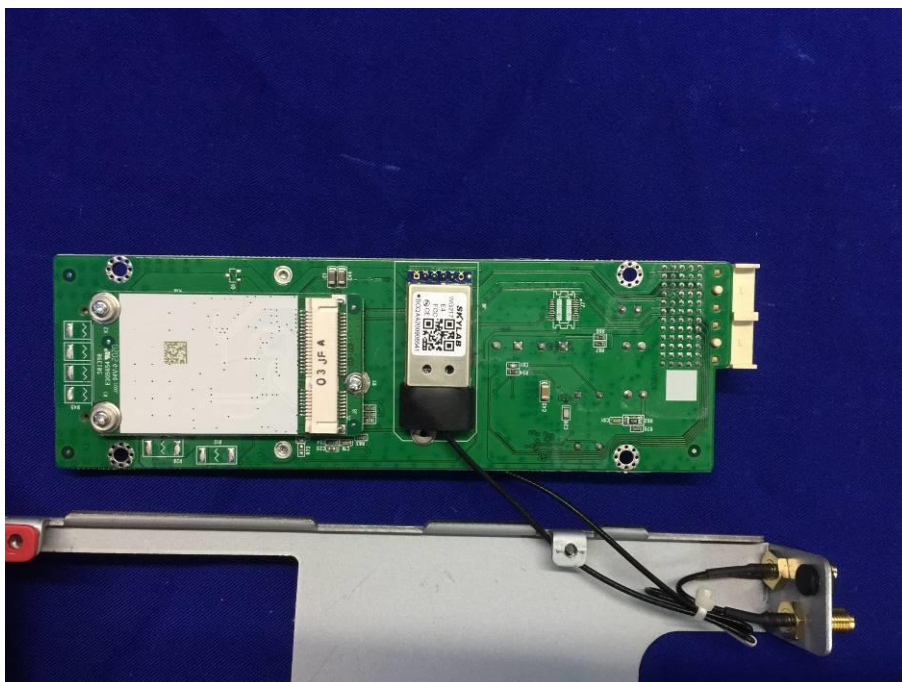


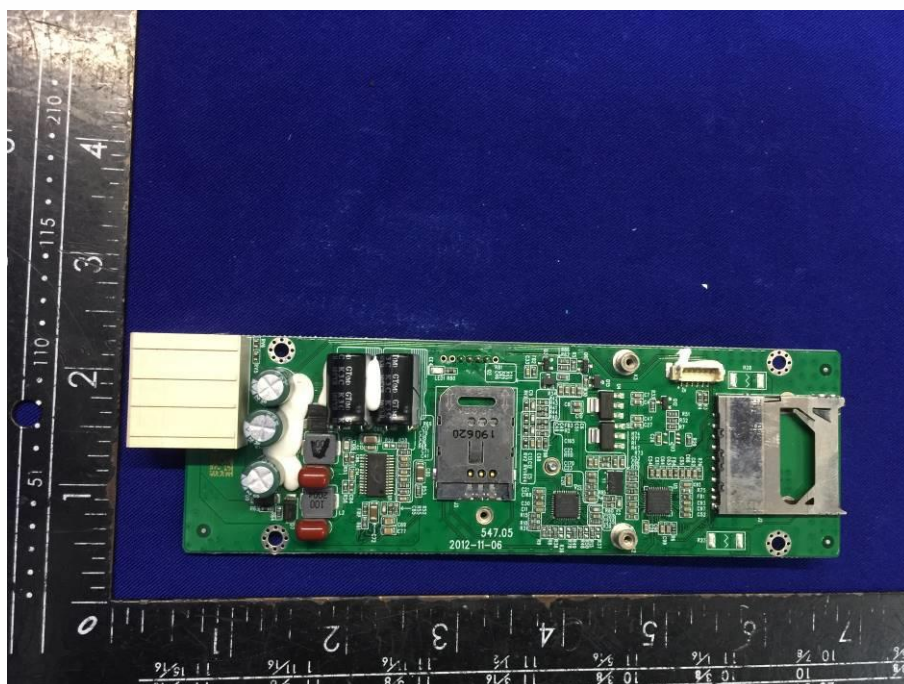


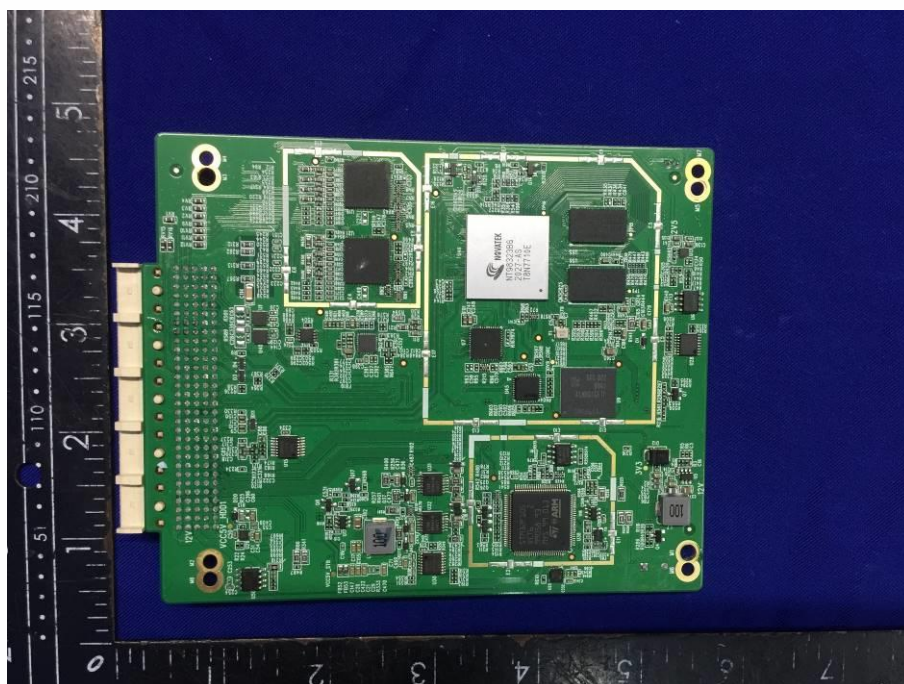


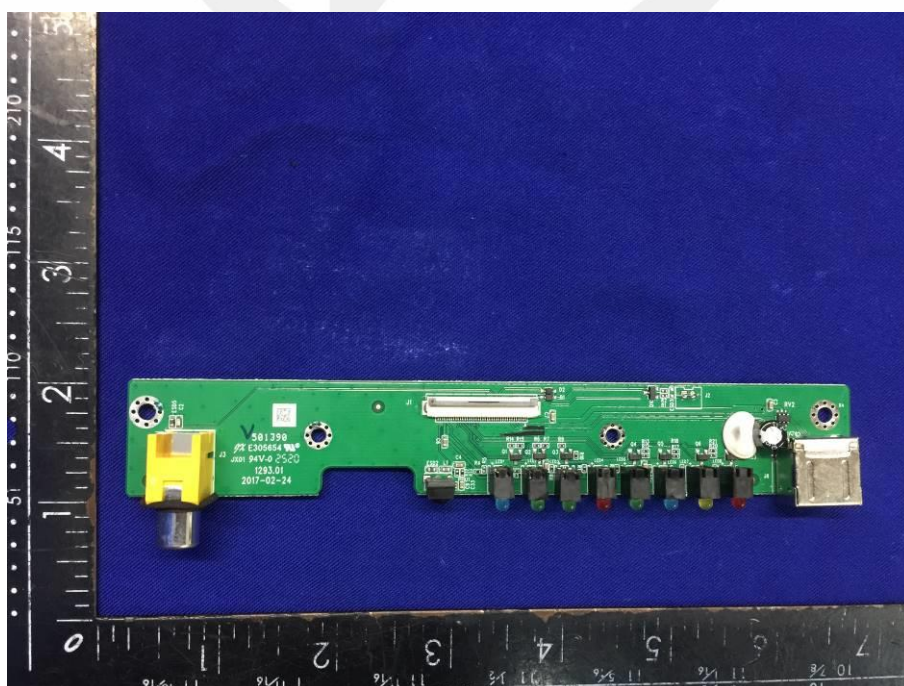
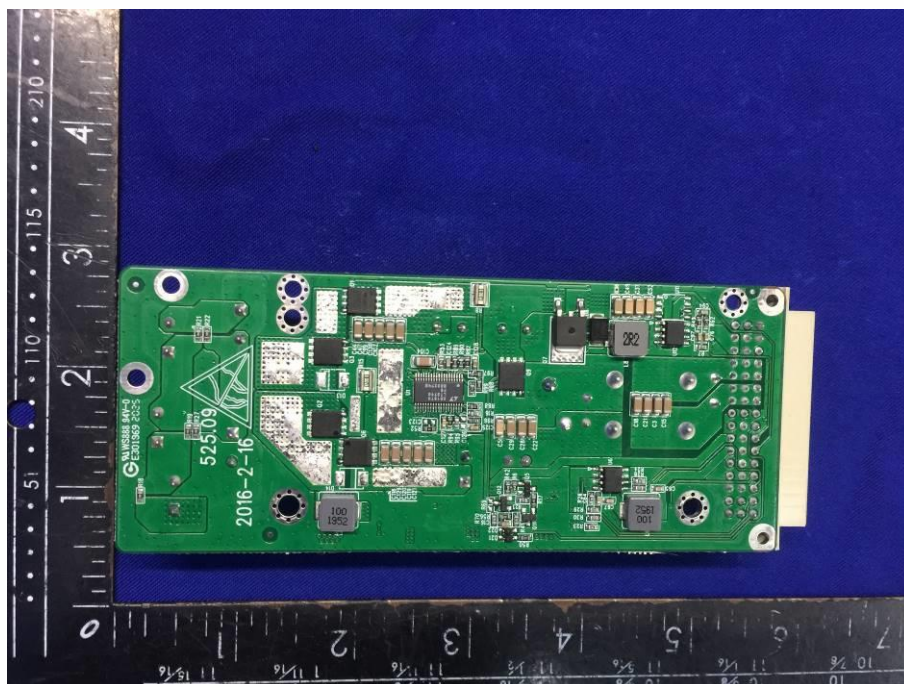


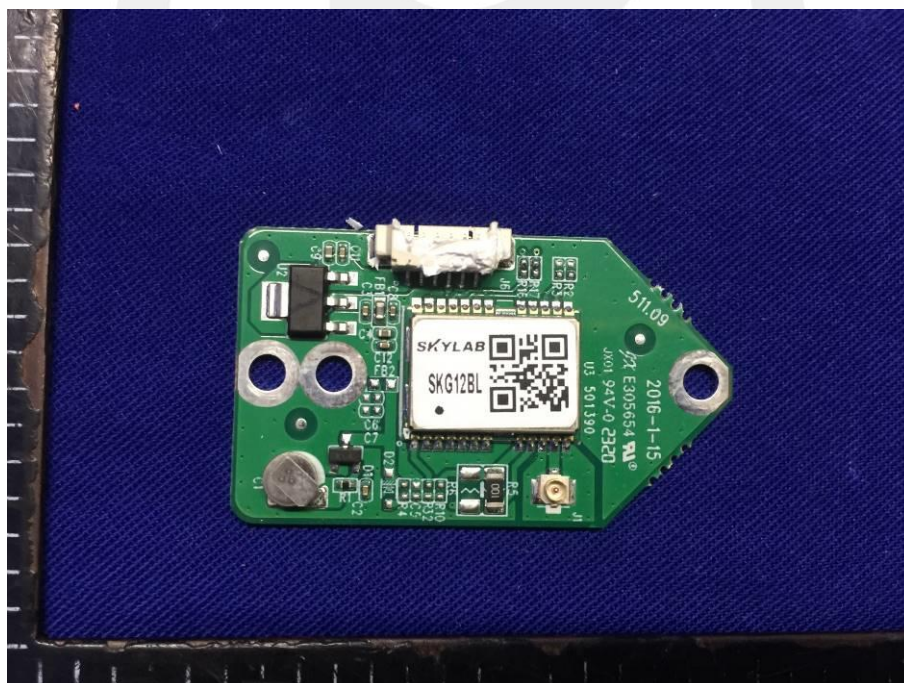
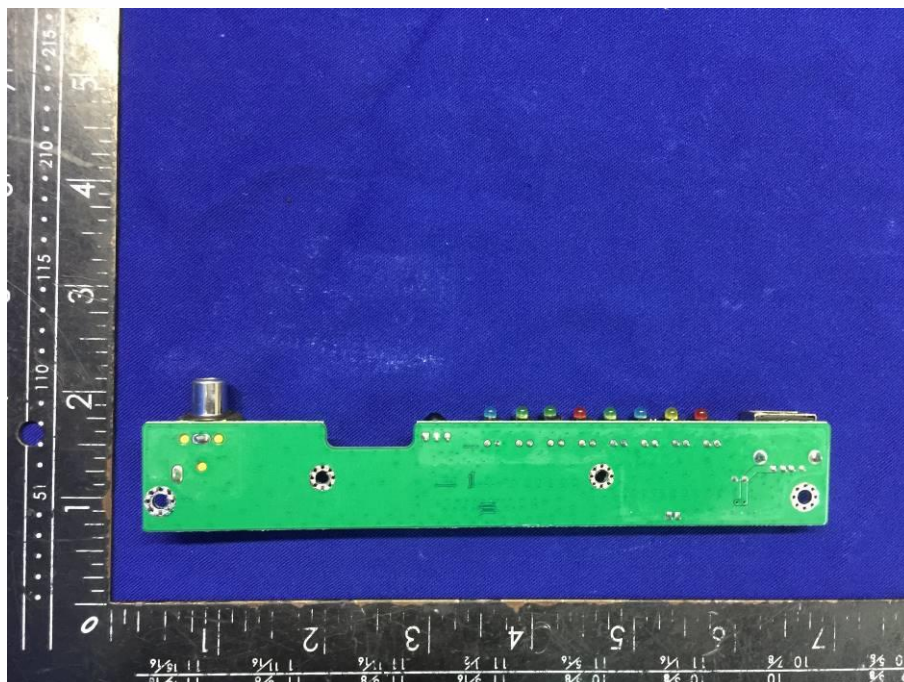


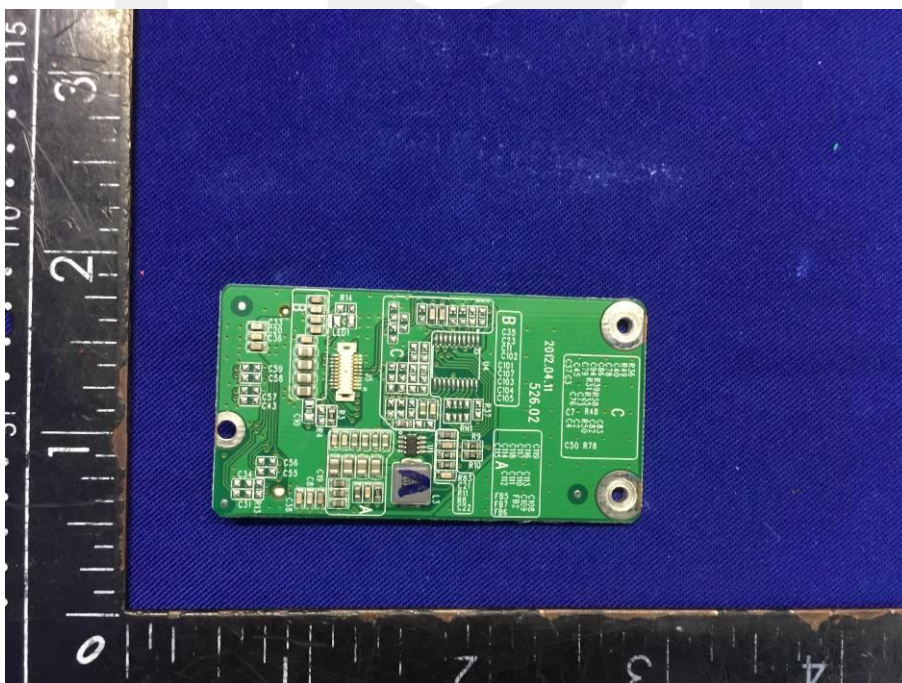
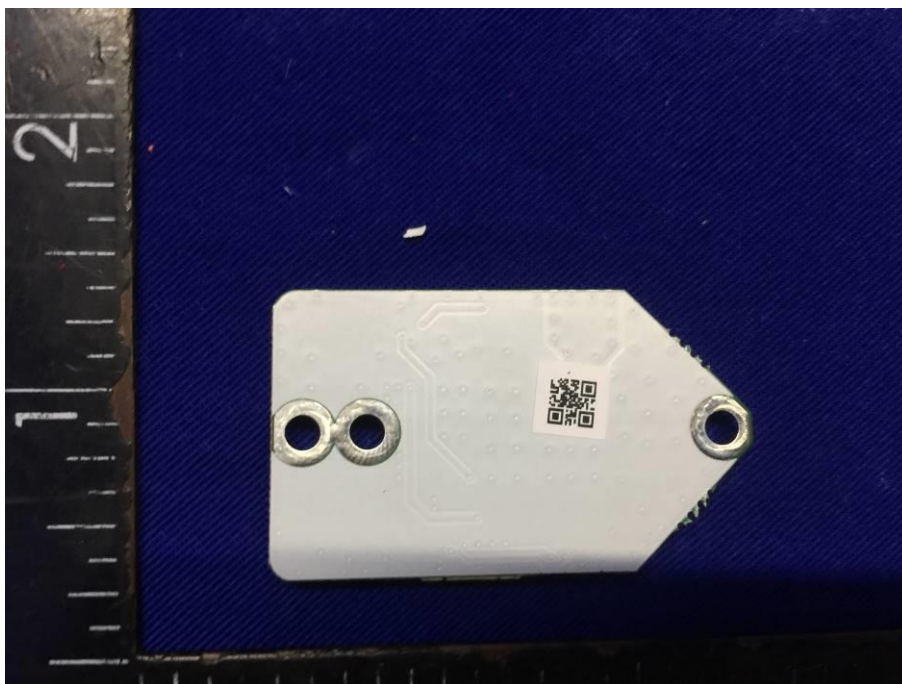


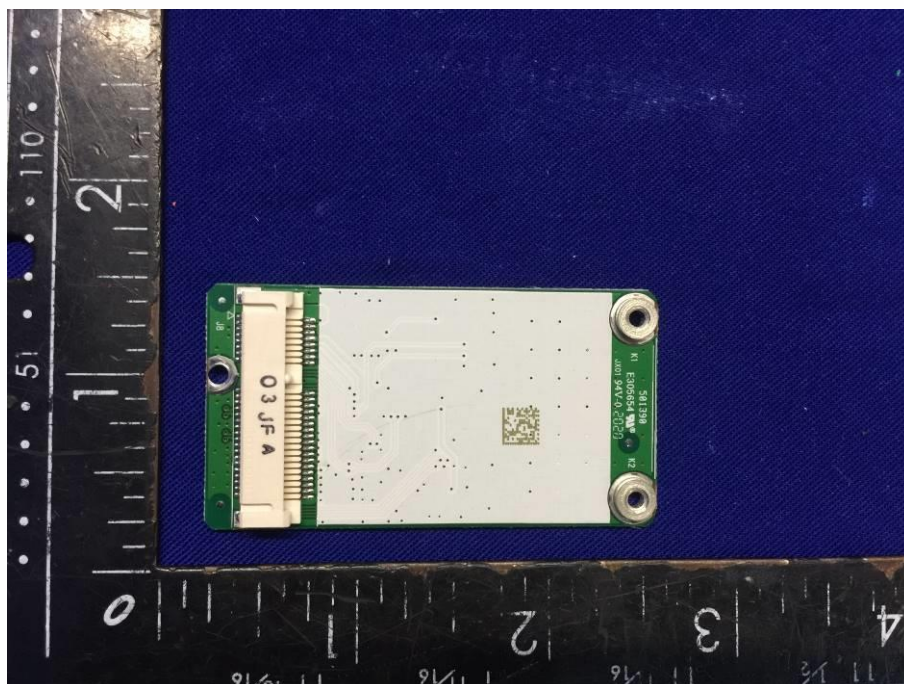












End of Report