

FCC TEST REPORT

For

Winner Wave Limited

EZCast Pro Dongle 2

Model No.: D10

Prepared For : Winner Wave Limited
Address : 4F-5, No.736, Jhongjheng Road, Jhonghe Dist., New Taipei City, Taiwan

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TEST REPORT

Applicant : Winner Wave Limited

Manufacturer : Winner Wave Limited

Product Name : EZCast Pro Dongle 2

Model No. : D10

Trade Mark : EZCast

Rating(s) : Input: DC 5V, 1.5A

Test Standard(s) : FCC Part15 Subpart E 2017, Paragraph 15.407

Test Method(s) : ANSI C63.10: 2013,
KDB 789033 D02 General UNII Test Procedures New Rules v02r01

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited 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 Shenzhen Anbotek Compliance Laboratory Limited 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 Part 15 Subpart E requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test

Aug. 21~Sept. 11, 2018

Prepared by

Oliay Yang

(Engineer / Oliay Yang)

Reviewer



Snowy Meng

(Supervisor / Snowy Meng)

Approved & Authorized Signer

Sally Zhang

(Manager / Sally Zhang)

1. General Information

1.1. Client Information

Applicant	:	Winner Wave Limited
Address	:	4F-5, No.736, Jhongjheng Road, Jhonghe Dist., New Taipei City, Taiwan
Manufacturer	:	Winner Wave Limited
Address	:	4F-5, No.736, Jhongjheng Road, Jhonghe Dist., New Taipei City, Taiwan
Factory	:	Winner Wave Limited
Address	:	4F-5, No.736, Jhongjheng Road, Jhonghe Dist., New Taipei City, Taiwan

1.2. Description of Device (EUT)

Product Name	:	EZCast Pro Dongle 2
Model No.	:	D10
Trade Mark	:	EZCast
Test Power Supply	:	DC 5V by USB Port
Test Sample No.	:	S1(Normal Sample), S2(Engineering Sample)
Product Description	Operation Frequency:	5180MHz~5240MHz
	Number of Channel:	4 Channels for 802.11n(HT20) 4 Channels for 802.11ac(HT20) 2 Channels for 802.11n(HT40) 2 Channels for 802.11ac(HT40) 1 Channels for 802.11ac(HT80)
	Modulation Type:	OFDM with BPSK/QPSK/16QAM/64QAM/ 256QAM for 802.11ac
	Antenna Type:	PIFA Antenna
	Antenna Gain(Peak):	1.5 dBi (two antennas are the same)
	Remark: 1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

1.3. Auxiliary Equipment Used During Test

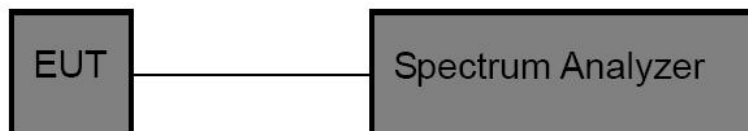
TV	:	Manufacturer: SONY
	:	M/N: KDL-26EX550
	:	S/N: 1012240
	:	CE , FCC: DOC
Adapter	:	Manufacturer: Samsung
	:	M/N: ETA-U90CBC
	:	S/N: RT6FB17ZS/B-E
	:	Input: 100-240V~ 50-60Hz, 0.35A Output: DC 5V, 2A

2. Power Spectral Density Test

2.1. Test Standard and Limit

Test Standard	FCC Part15 C Section 15.407 (a) (1) (2) (3)
Test Limit	10.99 dBm

2.2. Test Setup



2.3. Test Procedure

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz).

1. The EUT is directly connected to the spectrum analyzer;
2. Set RBW =1MHz;
3. Set VBW $\geq$ 3 RBW=3MHz;
3. Set the span to encompass the entire emissions bandwidth (EBW) of the signal;
5. Detector=RMS;
6. Sweep time= auto couple;
7. Trace mode=max. hold;

2.4. Test Data

Test Item : Power Spectral Density
Test Voltage : DC 5V by USB Port
Test Result : PASS

Test Mode : CH Low ~ CH High
Temperature : 24℃
Humidity : 55%RH

ANTA

Mode	Channel Frequency (MHz)	Final Power Spectral Density (dBm)	Limit	Results
802.11n(HT20)	5180	-5.388	11dBm	PASS
	5200	-5.582		PASS
	5240	-5.844		PASS
802.11ac(HT20)	5180	-5.700		PASS
	5200	-5.744		PASS
	5240	-6.082		PASS
802.11n(HT40)	5190	-8.438		PASS
	5230	-8.346		PASS
802.11ac(HT40)	5190	-8.424		PASS
	5230	-8.997		PASS
802.11ac(HT80)	5190	-10.914		PASS

ANT B

Mode	Channel Frequency (MHz)	Final Power Spectral Density (dBm)	Limit	Results
802.11n(HT20)	5180	-6.551	11dBm	PASS
	5200	-2.602		PASS
	5240	-2.593		PASS
802.11ac(HT20)	5180	-2.436		PASS
	5200	-1.948		PASS
	5240	-2.434		PASS
802.11n(HT40)	5190	-8.711		PASS
	5230	-4.486		PASS
802.11ac(HT40)	5190	-3.787		PASS
	5230	-8.554		PASS
802.11ac(HT80)	5190	-10.305		PASS

SUM

Mode	Channel Frequency (MHz)	Final Power Spectral Density (dBm)	Limit	Results
802.11n(HT20)	5180	-2.92	10.99dBm	PASS
	5200	-0.83		PASS
	5240	-0.91		PASS
802.11ac(HT20)	5180	-0.76		PASS
	5200	-0.43		PASS
	5240	-0.88		PASS
802.11n(HT40)	5190	-5.56		PASS
	5230	-2.99		PASS
802.11ac(HT40)	5190	-2.50		PASS
	5230	-5.76		PASS
802.11ac(HT80)	5190	-7.59		PASS

Directional Gain=Gant + 10log (Nant) =6.01dBi

Calculation Limit=Original Limit - (Directional Gain - 6) =11-0.01= 10.99 dBm

ANT A



Test Mode: 802.11n(HT20)---Low



Test Mode: 802.11n(HT20)---Middle



Test Mode: 802.11n(HT20)---High



Test Mode: 802.11ac(HT20)--Low



Test Mode: 802.11ac(HT20)---Middle



Test Mode: 802.11ac(HT20)---High



Test Mode: 802.11n(HT40)---Low



Test Mode: 802.11n(HT40)---High



Test Mode: 802.11ac(HT40)---Low



Test Mode: 802.11ac(HT40)---High



Test Mode: 802.11ac(HT80)

ANT B



Test Mode: 802.11n(HT20)---Low



Test Mode: 802.11n(HT20)---Middle



Test Mode: 802.11n(HT20)---High



Test Mode: 802.11ac(HT20)--Low



Test Mode: 802.11ac(HT20)---Middle



Test Mode: 802.11ac(HT20)---High



Test Mode: 802.11n(HT40)---Low



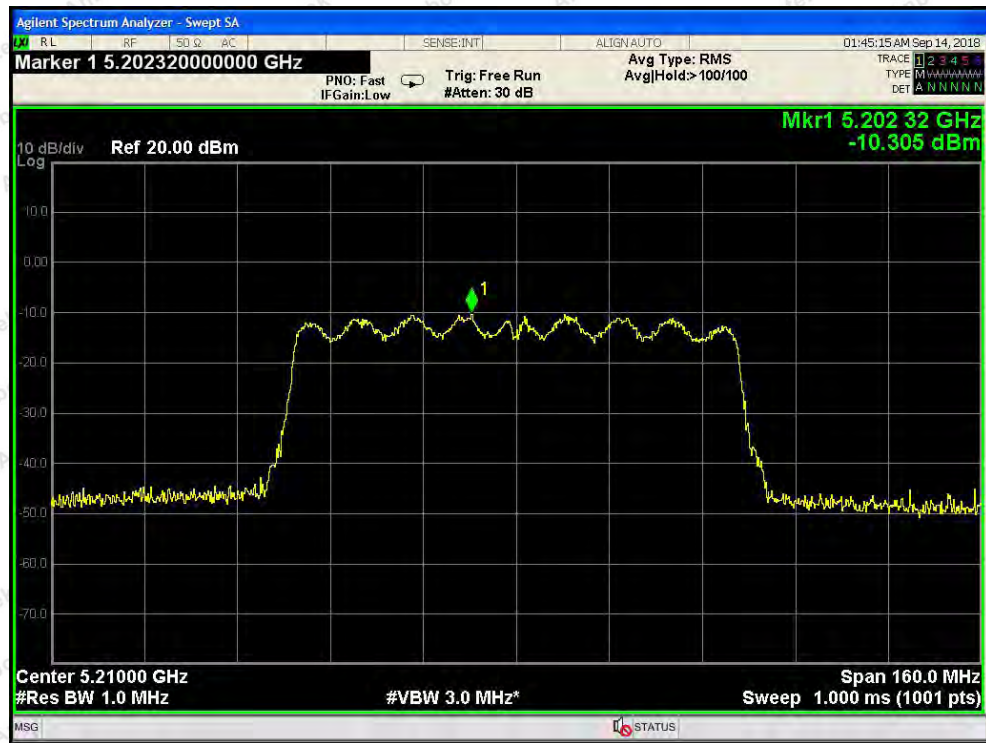
Test Mode: 802.11n(HT40)---High



Test Mode: 802.11ac(HT40)---Low



Test Mode: 802.11ac(HT40)---High



Test Mode: 802.11ac(HT80)

3. Antenna Requirement

3.1. Test Standard and Requirement

Test Standard	FCC Part15 Section 15.203 /15.407
Requirement	1) 15.203 requirement: 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, 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. 2) 15.407 requirement: 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.

3.2. Antenna Connected Construction

The WIFI antenna is a PCB Antenna which permanently attached, and the best case gain of the antenna is 1.5 dBi. It complies with the standard requirement.



APPENDIX I-- TEST SETUP PHOTOGRAPH

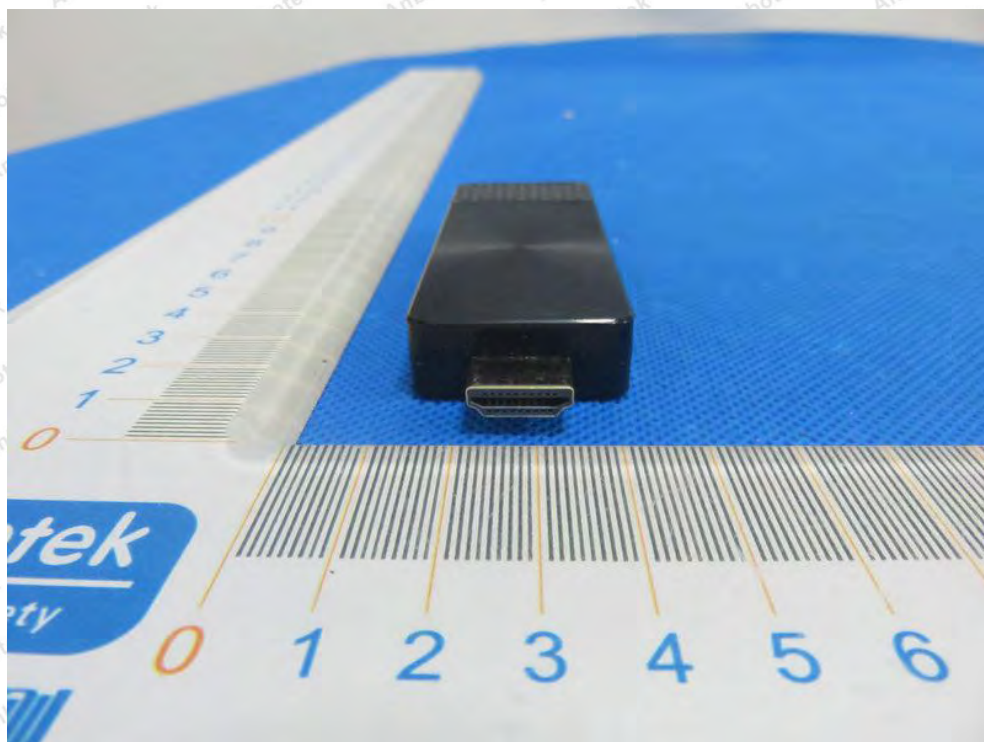
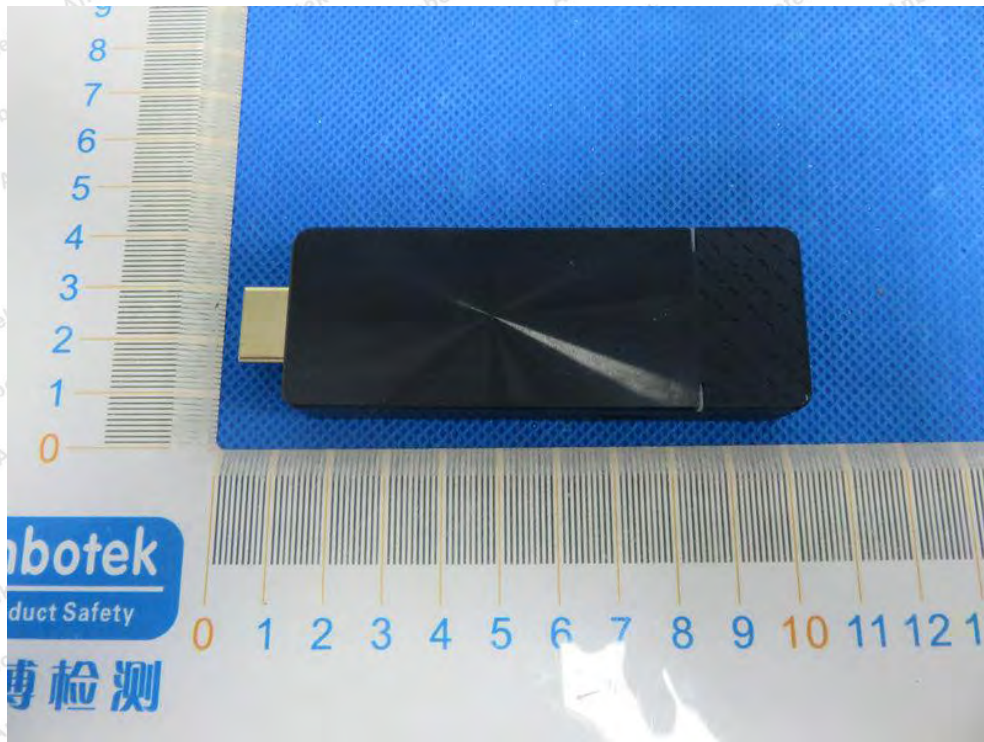
Photo of Conducted Emission Test

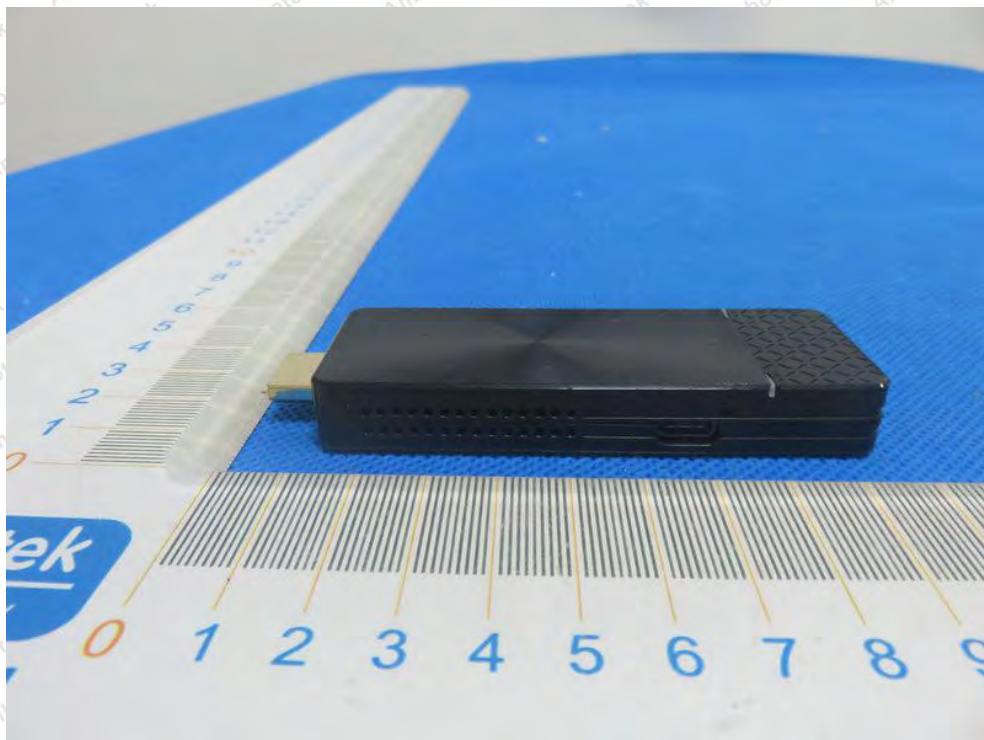
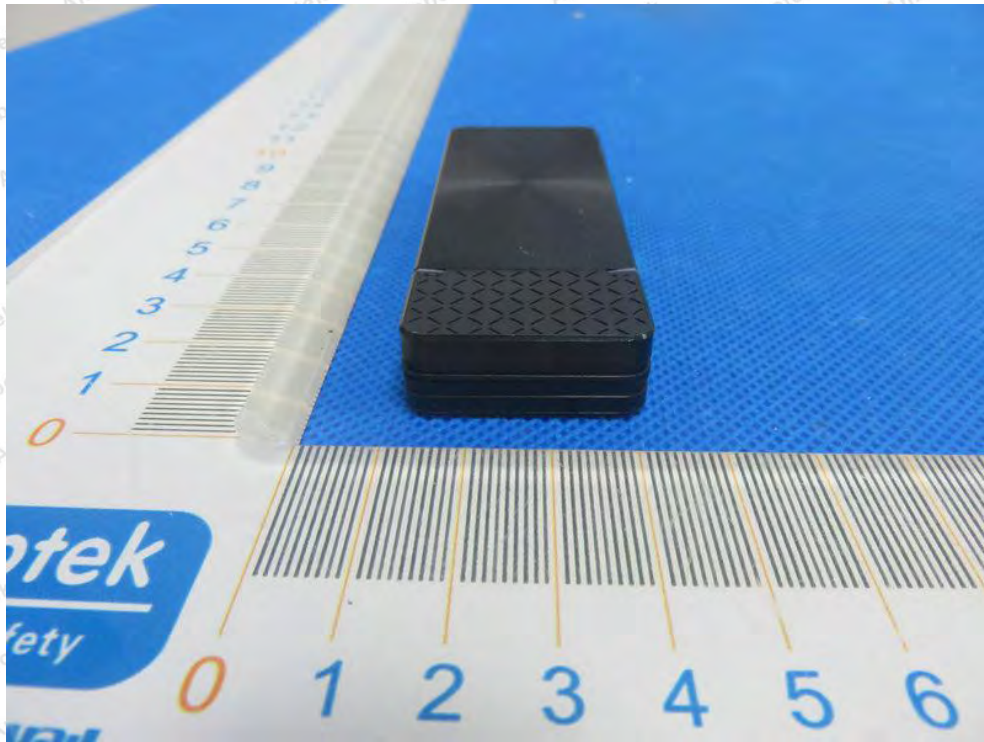


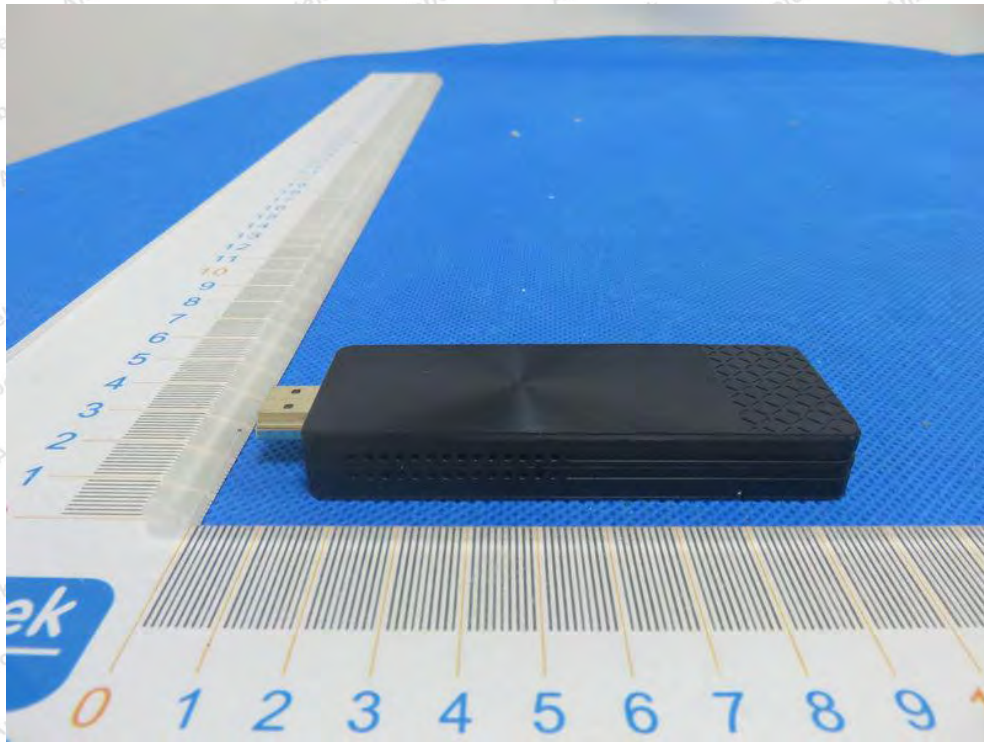


APPENDIX II -- EXTERNAL PHOTOGRAPH

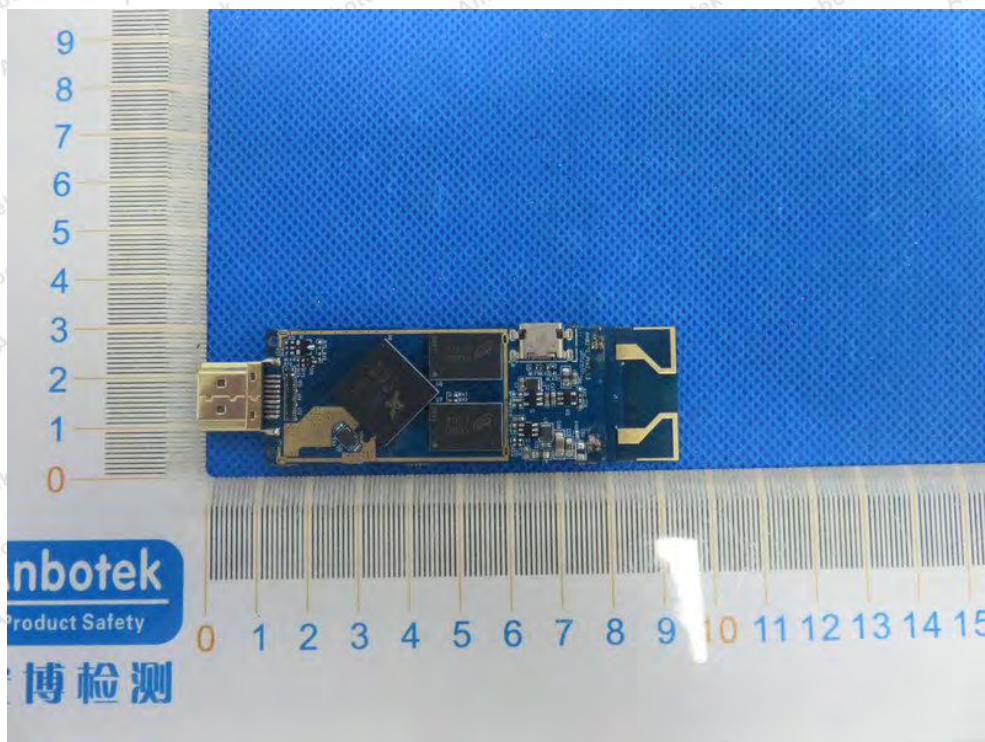


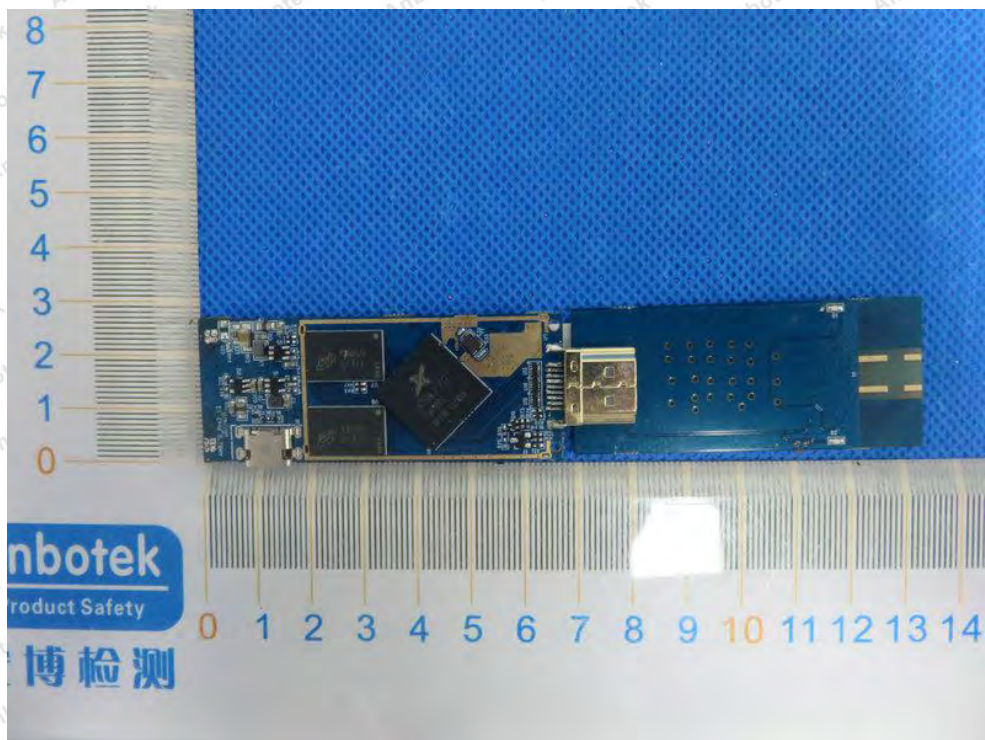




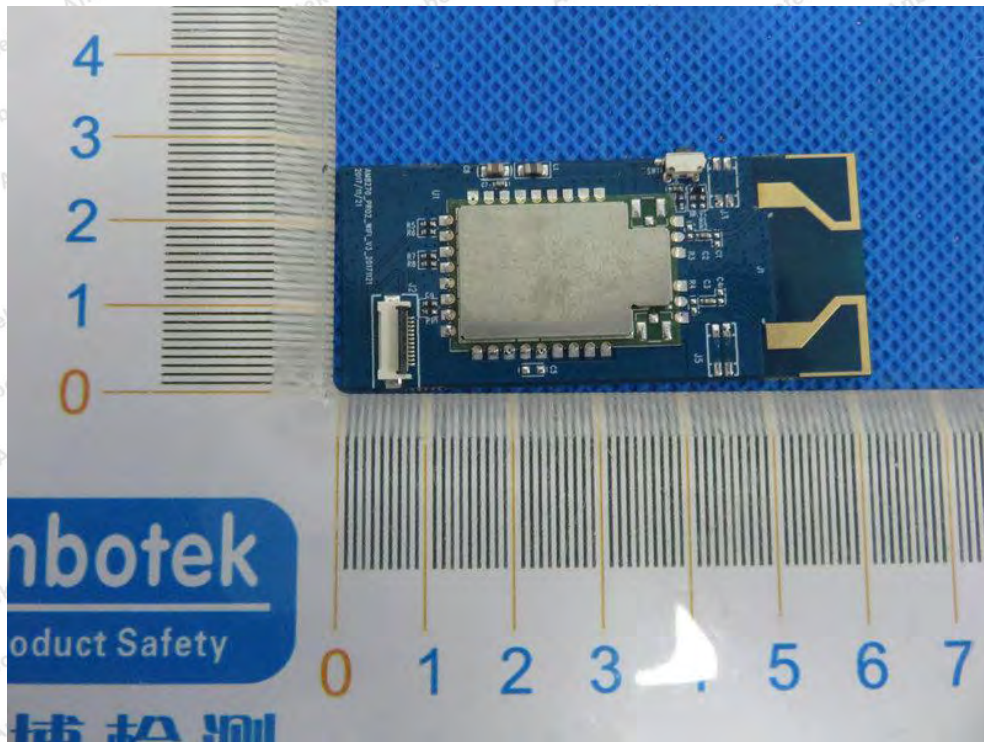


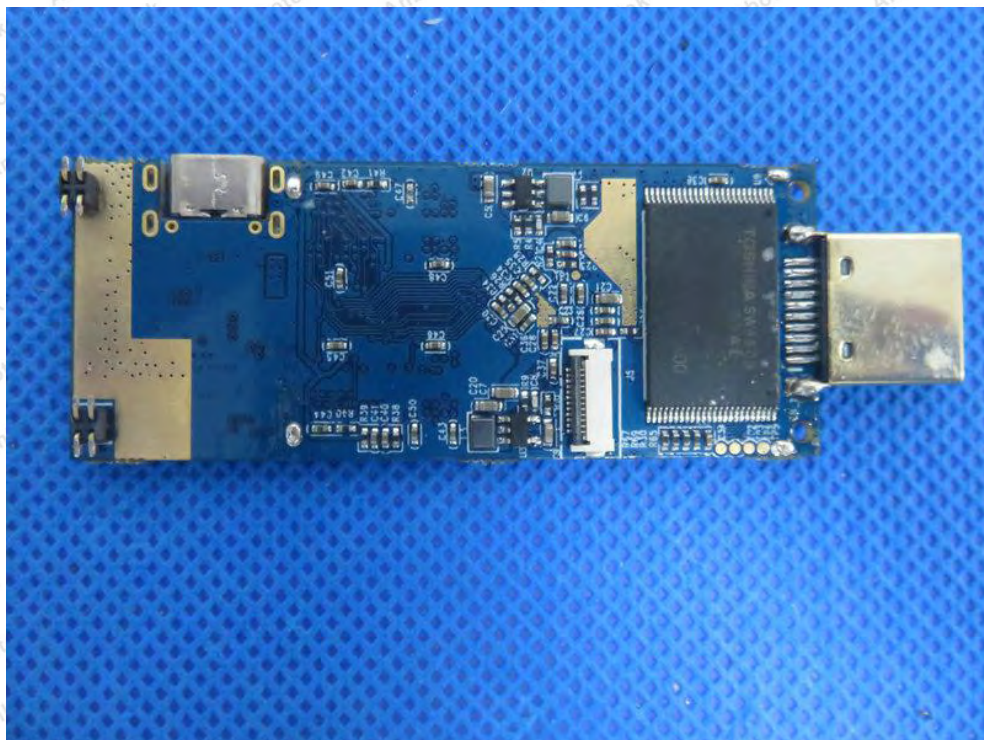
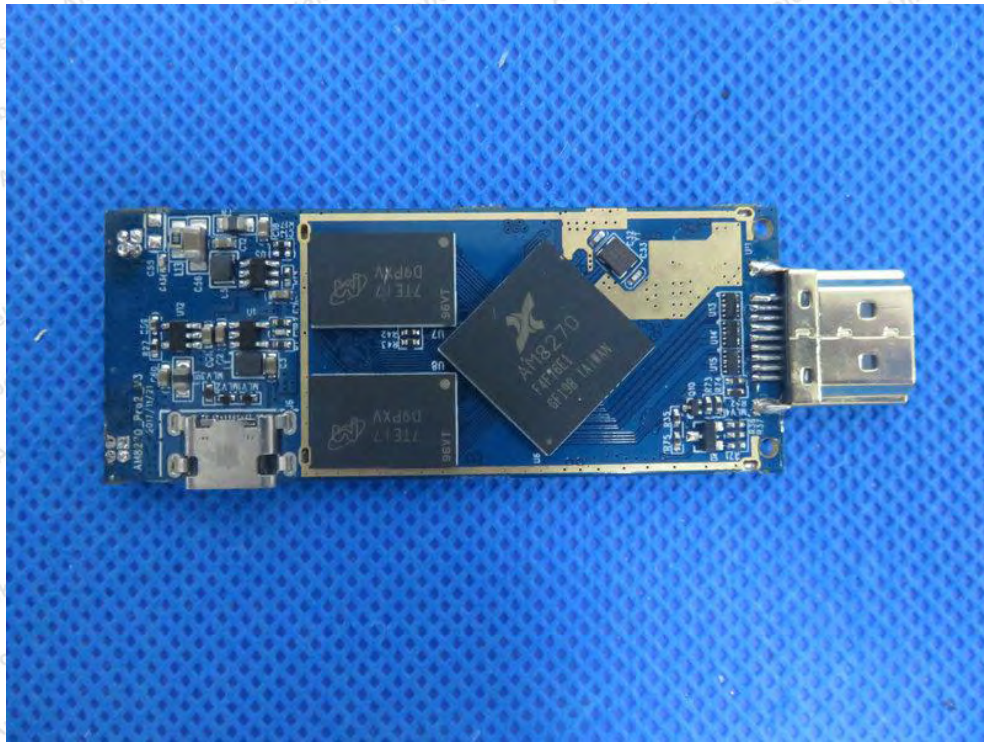
APPENDIX III -- INTERNAL PHOTOGRAPH

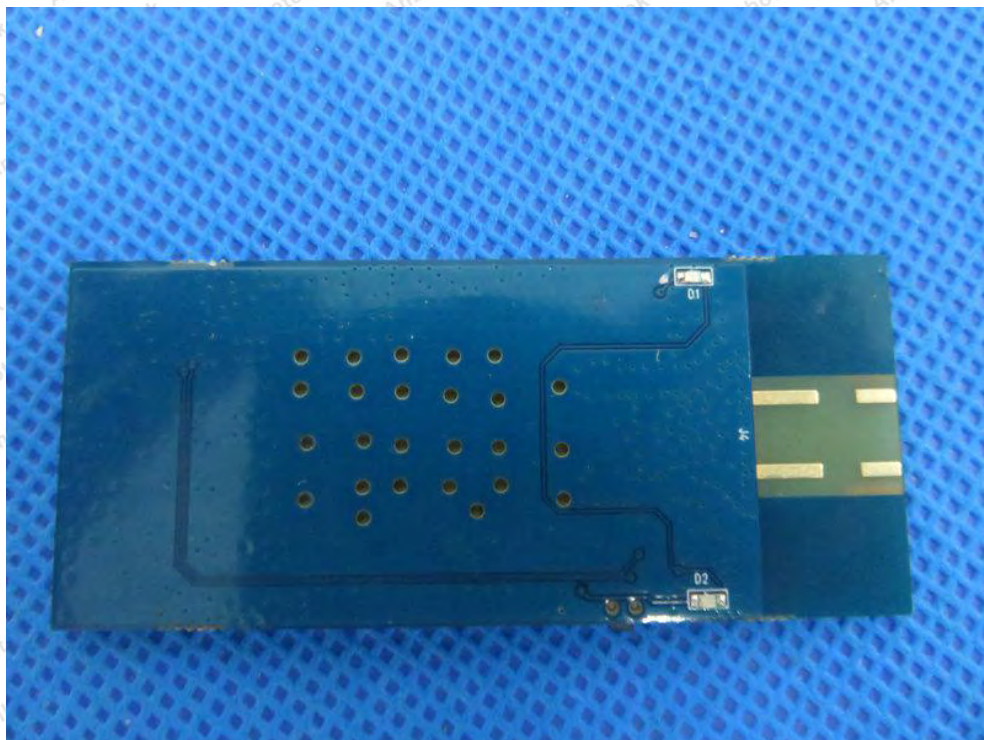
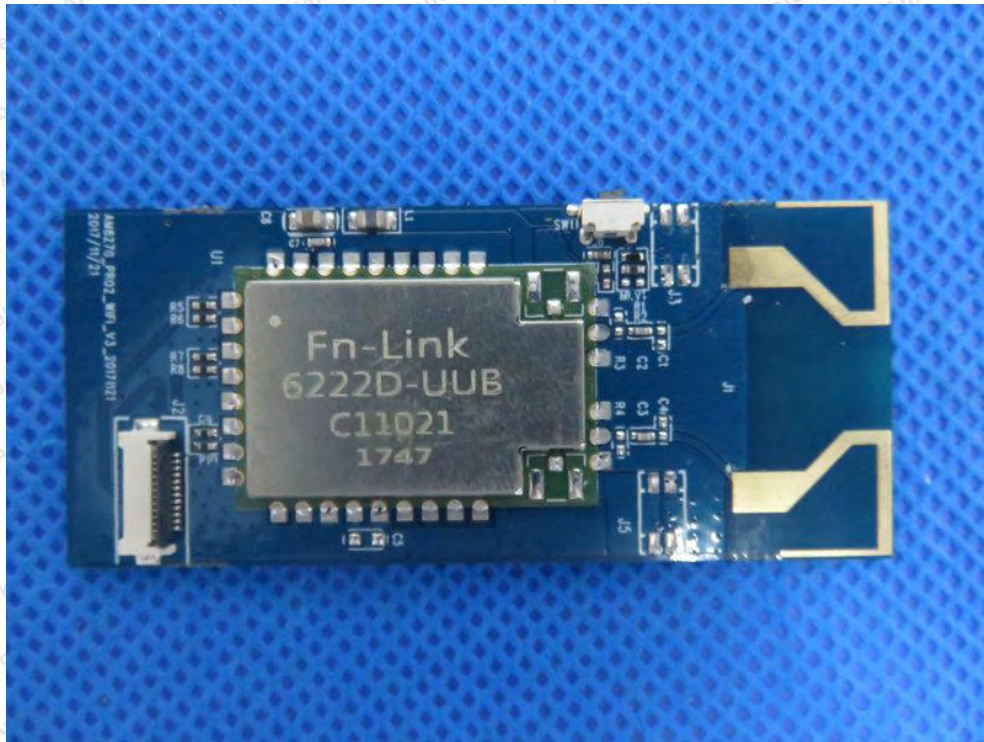


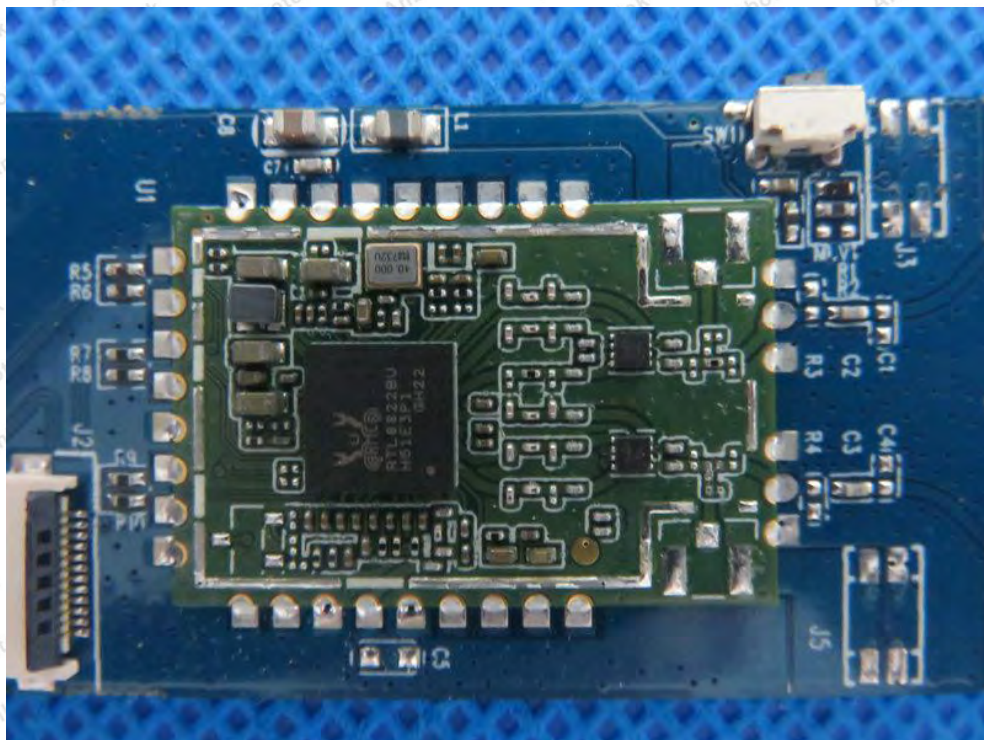
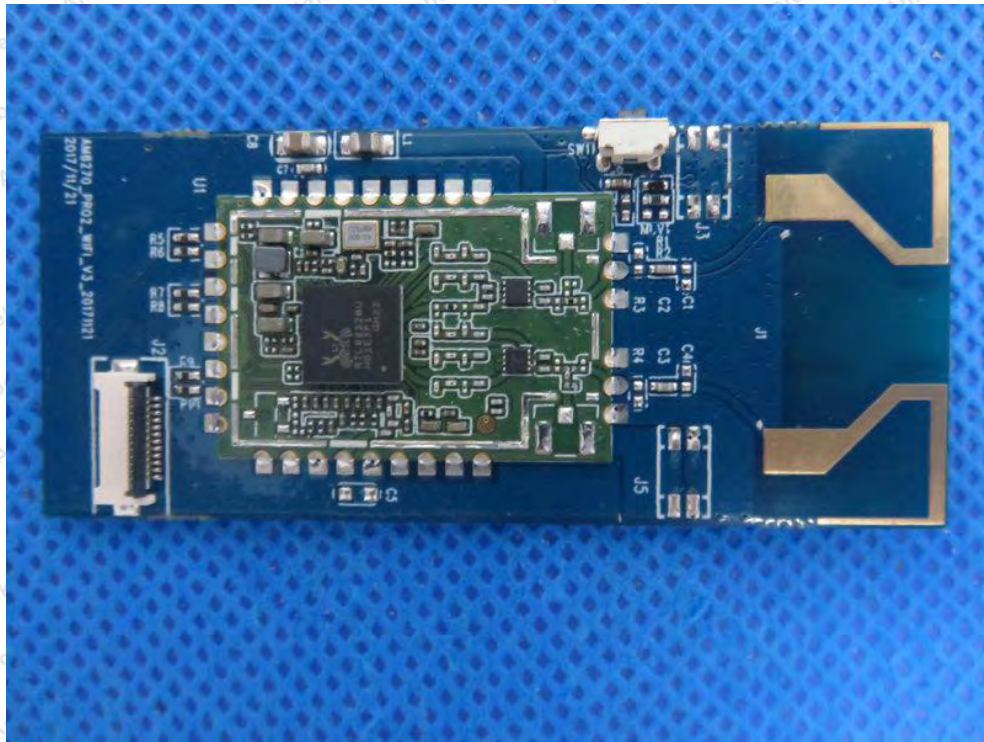












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