EMC VERIFICATION SUMMARY

Report No.: 161027009SZN-001

☒Data transfer ☒Scanning to SD Card ☒Charging Mode ☐DVD ☐Cassette ☐Radio ☐Others

Model: W4R IRIScan™ Book 5 WIFI, T4R, IRIScan™ Book 5 Product Description: Scanner Sample Receipt Date: 27 July 2016	Applicant: Kenxen Electronic (SZ) Limited building A13, Zone D, MinZhu, Western Industrial Area, ShaJing Town, Baoan District, ShenZhen, Guang Dong Province, China. Date of Tests: 27 July 2016 to 10 October 2016
☒ 1st TEST ☐ 2nd TEST	ALL TESTS WERE CONDUCTED IN ACCORDANCE WITH: *EN 55022: 2010 *EN 61000-3-2: 2014 *EN 55024: 2010 *EN61000-3-3:2013
Test Site and Location:	Intertek Testing Services Shenzhen Ltd. 6/F., Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, China. EST Technology Co., Ltd Santun Management Zone, Houjie District Dongguan, Guangdong, China

Test Result	OK	Not OK	See Remark
*EN 55022: 2010	☒	☐	☐
*EN 61000-3-2: 2014	☒	☐	☒
*EN 55024: 2010	☒	☐	☐
*EN61000-3-3:2013	☒	☐	☐
When determining the test conclusion, the Measurement Uncertainty of test has been considered.			

Prepared and Checked By:

Sign on File
Powell Bao
Engineer

Approved By:

Digitally signed by Hardy Suo
Location: Intertek Testing Services

Signature

Hardy Suo
Project Engineer

10 October 2016 ***Date***

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- The test report only allows to be revised only within the report defined retention period unless further standard or the requirement was noticed

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch
6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751

EMC Results Conclusion
(with Justification)

RE: EMC Radio Equipment and Telecommunications Terminal Equipment Directive (1999/5/EC) – R&TTE or Radio Equipment (2014/53/EU) or Radio Equipment Directive (2014/53/EU) – RED Directive Article 3.1(b) On the Scanner.

Model: W4R
IRIScan™ Book 5 WIFI, T4R, IRIScan™ Book 5

We tested the Scanner, Model: W4R, to determine if it was in compliance with the relevant EN standards as marked on the EMC Verification Summary. We found that the unit met the requirement of EN55022, EN61000-3-2, EN61000-3-3, EN55024 standards when tested after modification.

The Models: W4R, IRIScan™ Book 5 WIFI, T4R, IRIScan™ Book 5 are the same as the Model. W4R in hard ware aspect and electrical aspect except the model T4R, IRIScan™ Book 5 without WiFi module. The difference in model number, appearance, brand name serves as marketing strategy.

The production units are required to conform to the initial sample as received when the units are placed on the market.

Remark: Standards against which no testing of the captioned model has been conducted and the engineering judgement is stated as follows:

EN61000-3-2: This product has a power consumption 75W or less under normal operating conditions. It is therefore not likely to produce harmonics above the limits of the standard. The product is deemed to comply with the standard without any measurements.

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LABORATORY MEASUREMENTS

Configuration Information

Equipment Under Test (EUT):	Scanner
Model:	W4R
Serial No.:	N/A
Support Equipment:	Netbook(DELL E6420) iPad（Apple A1566） Adapter（Apple A1357） Provided by EST Technology Co., Ltd
Cables:	USB Cable(0.8m Shielde&ferrite)
Adaptor:	N/A
Rated Voltage:	Powered by DC 3.7V internal rechargerable battery and can be chargered via USB port

Performance Criteria for Immunity

The performance criteria are referred to the test standard: EN 55024

Performance criteria A
During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the EUT if used as intended.

Performance criteria B
The equipment shall continue to operate as intended after the test. No loss of function is allowed after the test when the apparatus is used as intended, but failures which are recovered automatically but which cause temporary delay in processing, are permissible. No change of actual operating state for example change of channel or stored data and settings is allowed as result of the application of the test. During the test, degradation of performance is allowed.

Performance criteria C
Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instruction. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

EN 55022
Radiated Scan

Used Test Equipment

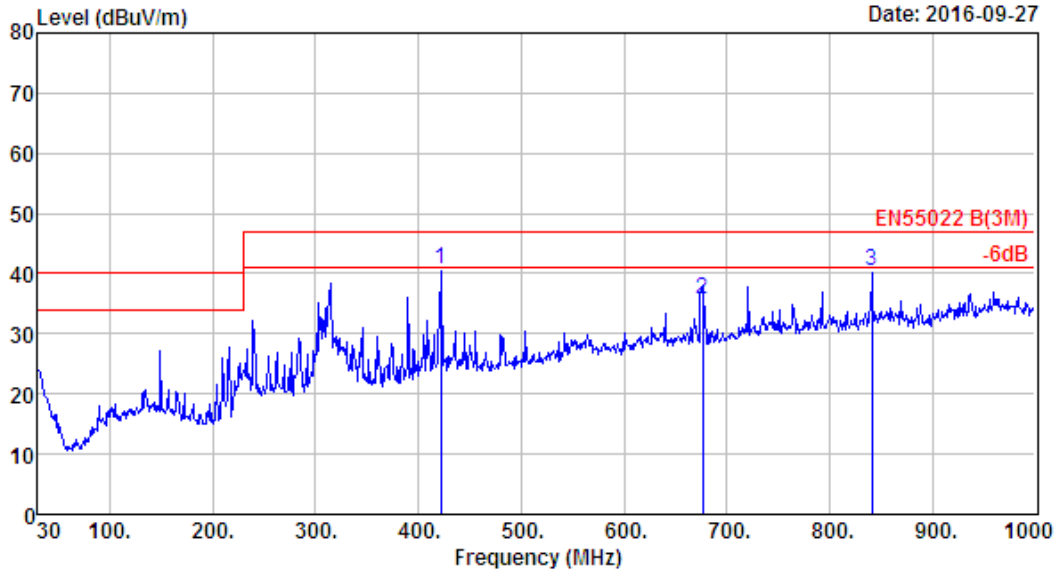
Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
100004	EMI Test Receiver	R & S	ESVS10	25 June 16	25 June 17
MY50140697	Spectrum Analyzer	Agilent	E4411B	25 June 16	25 June 17
25872	Bilog Antenna	Teseq	CBL 6111D	25 June 16	25 June 17
187037	Signal Amplifier	Agilent	310N	25 June 16	25 June 17
101985	EMI Test Receiver	R & S	ESPI3	25 June 16	25 June 17
MY44211139	Spectrum Analyzer	Agilent	E4408B	25 June 16	25 June 17
BBHA9120D1002	Horn Antenna	SCHWARZBECK	BBHA 9120D	25 June 16	25 June 17
9718-212	Signal Amplifier	SCHWARZBECK	9718-212	25 June 16	25 June 17

Notes:
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (–) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 6000MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty: ±4.8dB at a level of confidence of 95%.
6. This test was witnessed in Dongguan EST Technology Co.,Ltd

Graphic

Radiated Emissions
Pursuant to EN55022: Class B Emissions Requirement (30MHz to 1G)

Horizontal

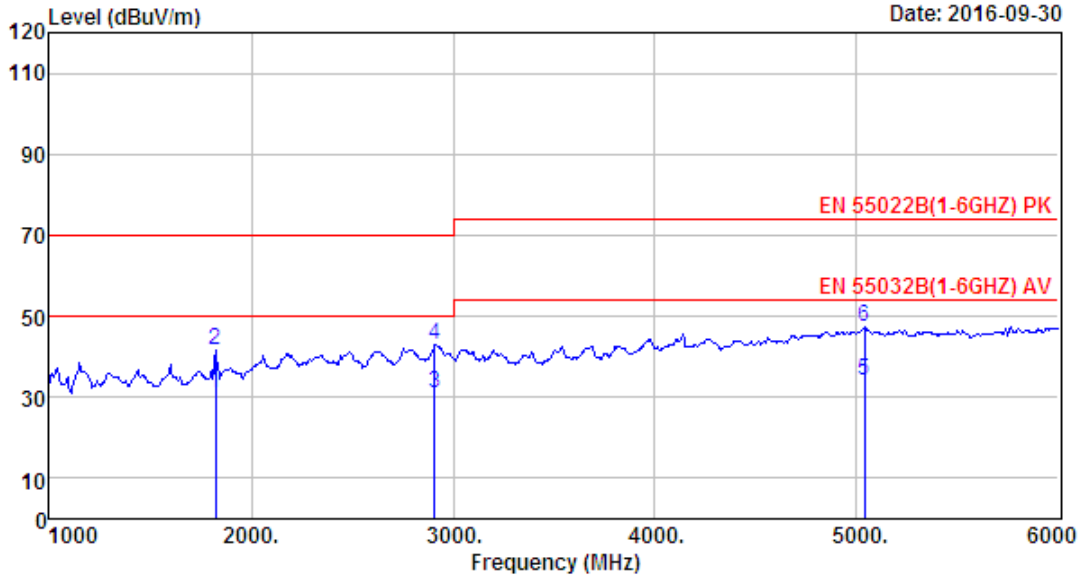


	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	421.88	16.50	3.01	21.14	40.65	47.00	6.35	QP
2	676.99	20.54	3.79	11.51	35.84	47.00	11.16	QP
3	840.92	23.08	4.47	12.87	40.42	47.00	6.58	QP

Test Data

Radiated Disturbance
Pursuant to EN55022: Class B Emissions Requirement (1G to 6G)

Vertical



	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1825.00	25.09	5.57	35.27	35.57	30.96	50.00	19.04	Average
2	1825.00	25.09	5.57	35.27	46.25	41.64	70.00	28.36	Peak
3	2910.00	28.05	8.59	37.24	31.58	30.98	50.00	19.02	Average
4	2910.00	28.05	8.59	37.24	43.55	42.95	70.00	27.05	Peak
5	5040.00	31.57	12.53	36.14	26.09	34.05	54.00	19.95	Average
6	5040.00	31.57	12.53	36.14	39.34	47.30	74.00	26.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

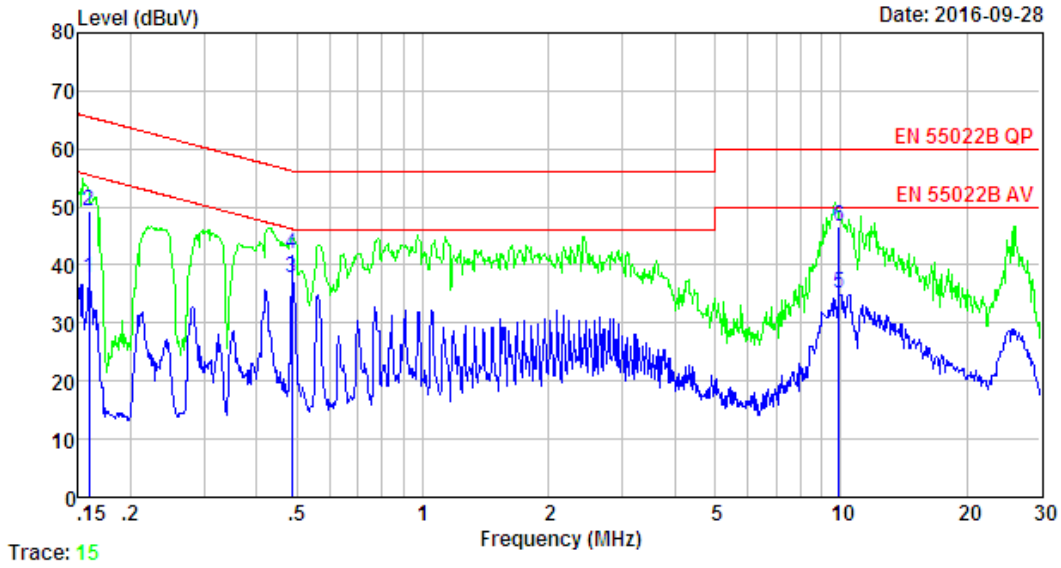
EN55022
RFI Voltage Test

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
832354	EMI Test Receiver	R & S	ESHS30	25 June 16	25 June 17
101260	Artificial Mains Network	R & S	ENV216	25 June 16	25 June 17
101100	Pulse Limiter	R & S	ESH3-Z2	25 June 16	25 June 17

Notes:
1. Peak and average detector quick scan are showed on the graph and final quasi-peak and average detector data are measured, the worst-case is recorded in the following graph and table.
2. Negative sign (–) in the margin column signify levels below the limit.
3. Frequency range scanned: 150kHz to 30MHz.
4. Only emissions significantly above equipment noise floor are reported.
5. Uncertainty: ±3.6dB at a level of confidence of 95%.
6. This test was witnessed in Dongguan EST Technology Co.,Ltd

Graphic
RFI Voltage Test
Pursuant to EN55022: Class B Emissions Requirement



Trace: 15

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.16	9.49	9.81	18.49	37.79	55.52	17.73	Average
2	0.16	9.49	9.81	30.02	49.32	65.52	16.20	QP
3	0.49	9.59	9.81	18.35	37.75	46.23	8.48	Average
4	0.49	9.59	9.81	22.41	41.81	56.23	14.42	QP
5	9.91	9.70	9.89	15.63	35.22	50.00	14.78	Average
6	9.91	9.70	9.89	27.15	46.74	60.00	13.26	QP

EN61000-3-3
Voltage Fluctuations

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
663000002099	Power Analyzer	Chroma	6630	25 June 16	25 June 17
653000007115	Voltage Source	Chroma	6530	N/A	N/A

Notes:
1. The test result consisting of worst-case was attached in the following pages.
2. Uncertainty: 0.25% at a level of confidence of 95%.
3. This test was witnessed in Dongguan EST Technology Co.,Ltd

Chroma ANALYZER 6630 2016.09.28 13:44:10

Extreme Flicker-I M1

Note: MN:W4R OP:CHARGING MODE
Numerical Reference Impedance
U: 230.4 V I: 26.4 mA f: 49.998 Hz PF: 0.431

EVALUATION:----------

Type of observation period		Short	Long	Limit
Observation time	Tp :	10	10 min	
Maximum relative voltage change	dmax:		0.00 %	4
Max rel steady state voltage change	dc :		0.00 %	3
Duration of d(t) > 3 %	t :		0.00 s	0.2
Short term flicker severity	Pst :		0.02	1.00
Long term flicker severity	Plt :	---	0.00	0.65

Based on 1 (1) short term cycles

PASSED

Measurement completed

Next measure
Extreme time graph
Change to histogram
Write to disk
Select module

Appl: DEFAULT (1311_00)

EN61000-4-2
Electrostatic Discharge

Test Summary (Pursuant to EN55024)

Port:	Enclosure
Basic Standard:	EN61000-4-2
Required Performance Criterion:	B
Limit:	±8.0kV (Air Discharge)
	±4.0kV (Contact Discharge)
	±4.0kV (Indirect Contact Discharge)
Temperature:	24.5°C
Relative Humidity:	51%
Test Mode:	Charging Mode, Scanning to SD Card, Data transfer
Test Setup:	Table-top

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
174153	ESD Generator	HAEFELY	ONYX16	25 June 16	25 June 17

Note: This test was witnessed in Dongguan EST Technology Co.,Ltd

Test Results

EN61000-4-2
Electrostatic Discharge

Discharge Type	No. of Discharge	Applied Voltage	Result (Pursuant to EN55024, Criterion B)
Contact Discharge	50	±4kV	OK
Air Discharge	20	±2KV, ±4KV, ±8KV.	OK
Indirect HCP Discharge	50	±4kV	OK
Indirect VCP Discharge	50	±4kV	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V, _____of ESD.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V, _____of ESD.

☐ _____

EN61000-4-3
Radiated Immunity

Test Summary (Pursuant to EN55024)

Basic Standard:	EN61000-4-3
Port:	Enclosure
Required Performance Criterion:	A
Limit:	3.0V/m (rms)
Test Modulation:	1kHz, 80% AM
Frequency:	80MHz to 1000MHz
Dwell Time:	1s
Frequency Step:	1%
Temperature:	24.2°C
Relative Humidity:	53%
Test Facility:	Full Anechoic Chamber
Antenna Polarization:	Horizontal and Vertical
Type of Antenna:	Log-periodic
Test Distance:	3 meters
Test Mode:	Charging Mode, Scanning to SD Card, Data transfer
Test Setup:	Table-top

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ188-02	Anechoic Chamber	ETS	RFD-F/A-100	08 Nov 2014	08 Nov 2016
SZ061-03	Biconilog Antenna	ETS	3142C	12 Oct 2016	12 Oct 2017
SZ180-01	Signal Generator	R&S	SML03	23 May 2016	23 May 2017
SZ181-01	Amplifier	PRANA	AP32 MT215	23 Jan 2016	23 Jan 2017

Test Results

EN61000-4-3
Radiated Immunity

Frequency (MHz)	Exposed Side	Field Strength V/m (rms)	Result (Pursuant to EN55024, Criterion A)
80 to 1000	Front	3	OK
80 to 1000	Left	3	OK
80 to 1000	Rear	3	OK
80 to 1000	Right	3	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at Freq. _____ of Radiated Immunity.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at Freq. _____ of Radiated Immunity.

☐ _____

_____

EN61000-4-4
Electrical Fast Transient / Burst

Test Summary (Pursuant to EN55024)

Basic Standard:	EN61000-4-4	
Port:	AC Power Lines	DC Power Lines, Signal Lines and Control Lines
Required Performance Criterion:	B	
Limit:	±1.0kV	±0.5kV
Test Duration:	1 minute	
Test Mode:	Charging Mode	
Test Setup:	Table-top	
Generator Drive:	Internal	

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
173659	EFT Generator	HAEFELY	ECOMPACT 4	25 June 16	25 June 17
181035	Capacitive Coupling Clamp	HAEFELY	IP4A	25 June 16	25 June 17

Note: This test was witnessed in Dongguan EST Technology Co.,Ltd

Test Results

EN61000-4-4
Electrical Fast Transient / Burst

Port	Level	Polarity	Result (Pursuant to EN55024, Criterion B)
AC Power Lines	1kV	+	OK
	1kV	–	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V of Fast Transient.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V of Fast Transient.

☐ _____

_____

EN61000-4-5
Surge Immunity

Test Summary (Pursuant to EN55024)

Basic Standard:	EN61000-4-5		
Port:	AC Power Lines		
	Phase and Neutral	Phase and Earth	Neutral and Earth
Limit:	5 Positive and 5 Negative Surges		
	±1kV	±2kV	±2kV
Generator Impedance:	2ohm	12ohm	12ohm
Required Performance Criterion:	B		
Repetition Rate:	1 minute		
Test Mode:	Charging Mode		
Test Setup:	Table-top		
Surge Generator Trigger:	Internal		
Installation Condition:	Class 3: Electrical environment where cables run in parallel.		
Phase Angle:	0°, 90°, 180°, 270°		

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
174034	Surge Controller	HAEFELY	PSURGE8000	25 June 16	25 June 17
174125	Surge Impulse Module	HAEFELY	PIM100	25 June 16	25 June 17
174134	Surge Coupling Network	HAEFELY	PCD100	25 June 16	25 June 17

Note: This test was witnessed in Dongguan EST Technology Co.,Ltd

Test Results

EN61000-4-5
Surge Immunity

Level		Result (Pursuant to EN55024, Criterion B)
Between Phase and Neutral:	±1kV	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V of Surge.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V of Surge.

☐ _____

_____

EN61000-4-6
Injected Current (0.15MHz to 80MHz)

Test Summary (Pursuant to EN55024)

Basic Standard:	IEC 61000-4-6
Port:	AC Power Lines, DC Power Lines, Signal Lines and Control Lines
Required Performance Criterion:	A
Limit:	3.0V (rms)
Test Modulation:	1kHz, 80% AM
Frequency:	0.15MHz to 80MHz
Dwell Time:	1s
Frequency Step:	1%
Temperature:	25.3°C
Relative Humidity:	49%
Coupling Factor of CDN:	–1.0dB ~ –1.7dB
Test Mode:	Charging Mode
Test Setup:	Table-top
Equipment Under Test (EUT):	Single Unit

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
126A1163	CS Test System	FRANKONIA	CIT-10	25 June 16	25 June 17
A2210150	CDN	FRANKONIA	CDN-M2+M3	25 June 16	25 June 17
132A1207	EM-Clamp	FRANKONIA	EMCL-20	25 June 16	25 June 17

Note: This test was witnessed in Dongguan EST Technology Co.,Ltd

Test Results

EN61000-4-6
Injected Current (0.15MHz to 80MHz)

Port	Frequency (MHz)	Level	Result (Pursuant to EN55024, Criterion A)
AC Power Lines	0.15 to 80	3V (rms)	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could / could not be reset by operator at _____V of Injected Current.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at _____V of Injected Current.

☐ _____

_____

EN61000-4-11
Voltage Dips and Interruptions

Test Summary (Pursuant to EN55024)

Basic Standard:	IEC 61000-4-11: 2004		
Port:	AC Power Lines		
Limit:	Test Level in %UT	Duration(s)	Required Performance Criterion
	0	0.01	B
	70	0.5	C
	0	5	C
No. of Dips / Interruptions:	3		
Test Mode:	Charging Mode		
Test Setup:	Table-top		

U_T is the rated voltage for the equipment.

Used Test Equipment

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
173659	DIPS Tester	HAEFELY	ECOMPACT 4	25 June 16	25 June 17

Note: This test was witnessed in Dongguan EST Technology Co.,Ltd

Test Results

EN61000-4-11
Voltage Dips and Interruptions

Test Condition		Result (Pursuant to EN55024, Criterion B)
Test Level in %U_T	Duration(s)	
0	0.01	OK

Test Condition		Result (Pursuant to EN55024, Criterion C)
Test Level in %U_T	Duration(s)	
70	0.5	OK
0	5	OK

☒ Additional Information

☒ No observable change

☐ EUT stopped operation and could be reset by itself at test level 0% U_T, 5 S of Interrupt.

☐ EUT was in abnormal operation:
- Operation mode was changed from _____ to _____ at test level _____ of Dip. / Interrupt.

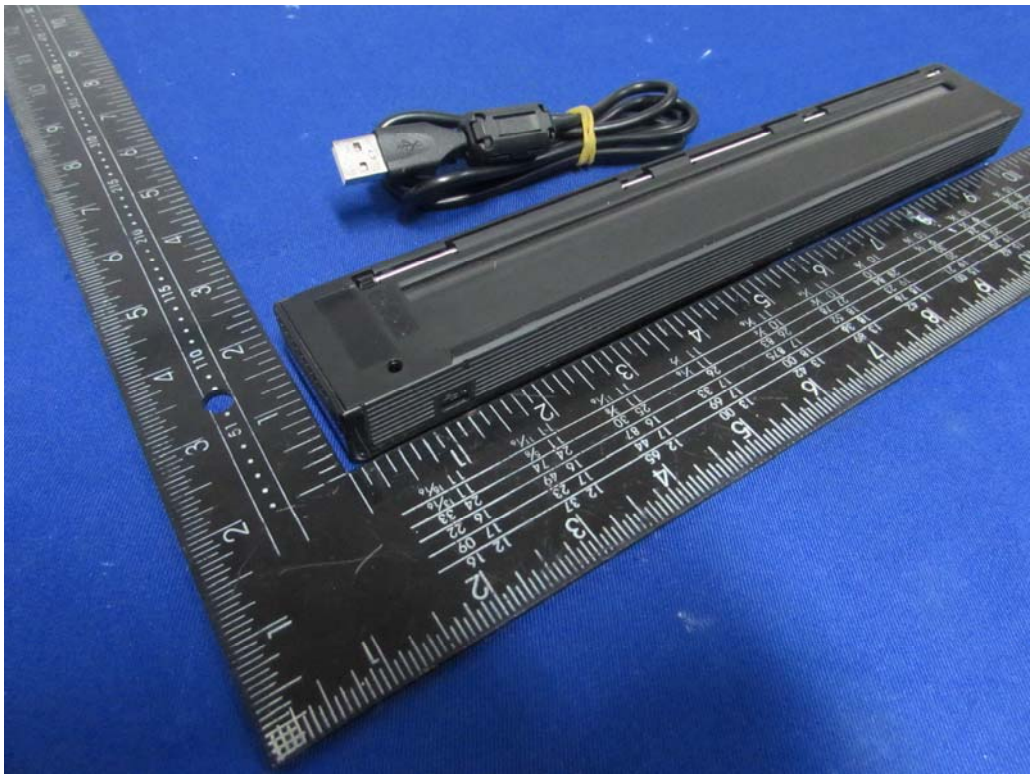
☐ _____

_____

Photos of EUT

External Photo ： W4R

External Photo ： W4R



External Photo ： W4R

External Photo ： W4R

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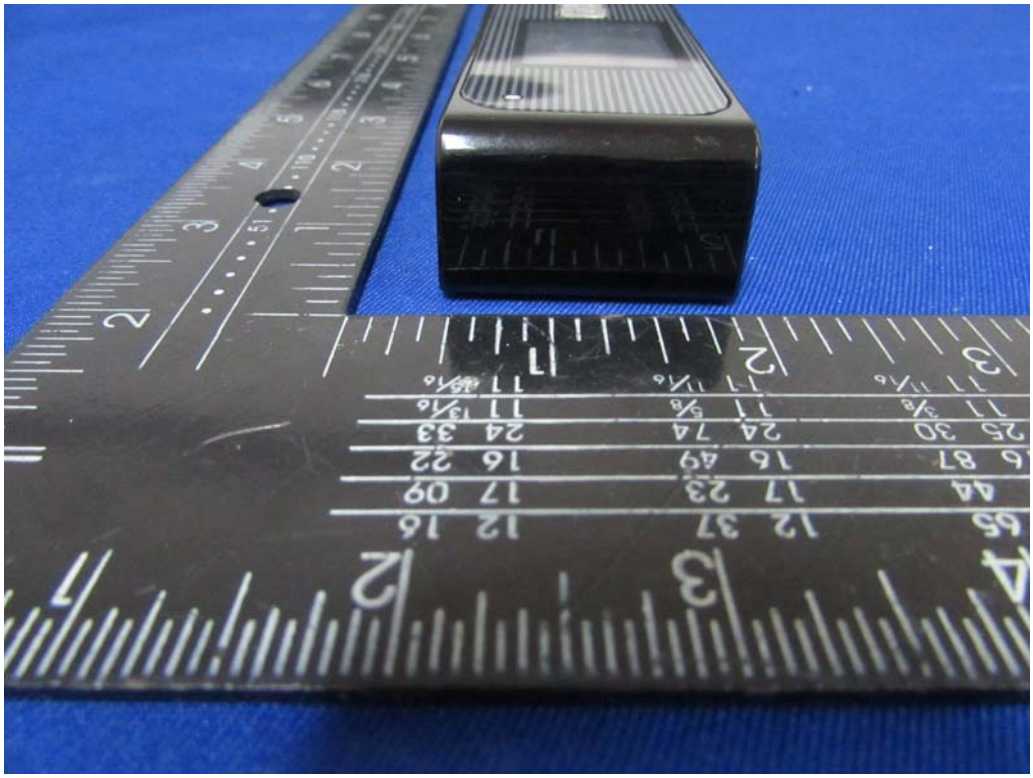
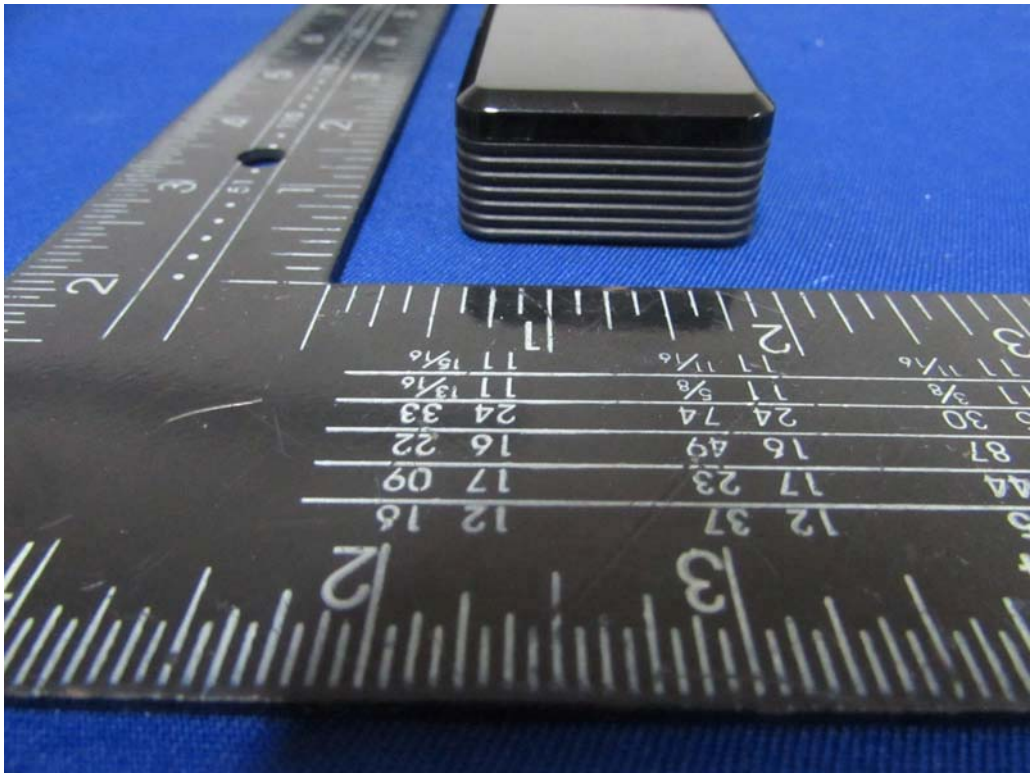
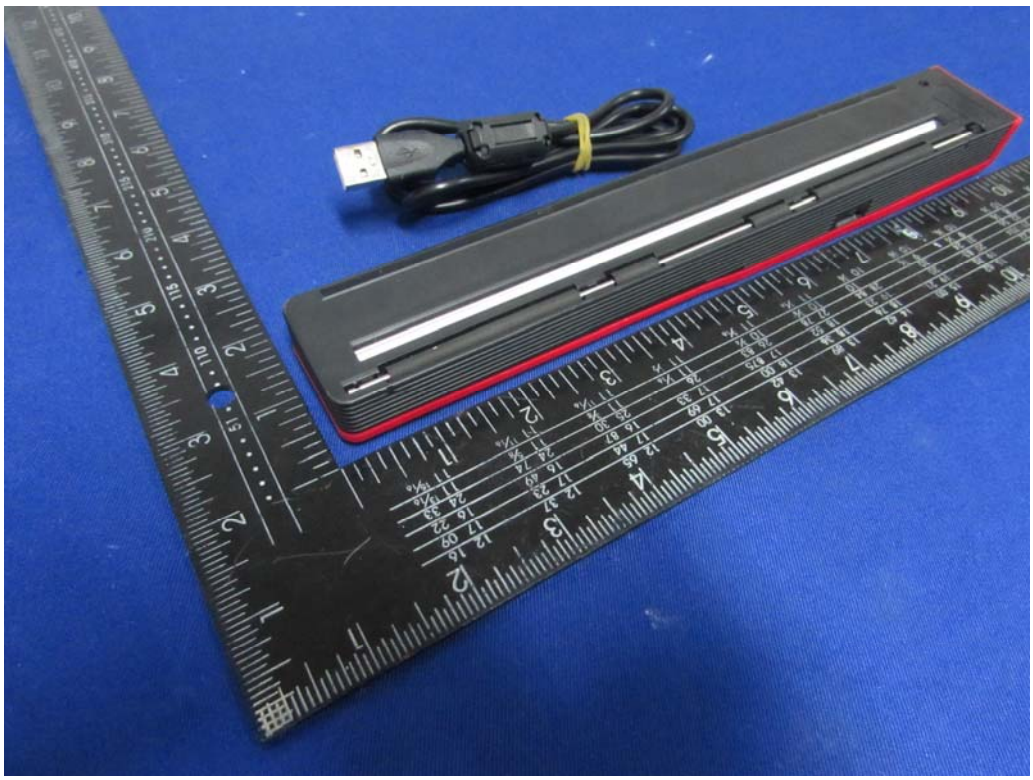


External Photo ： W4R

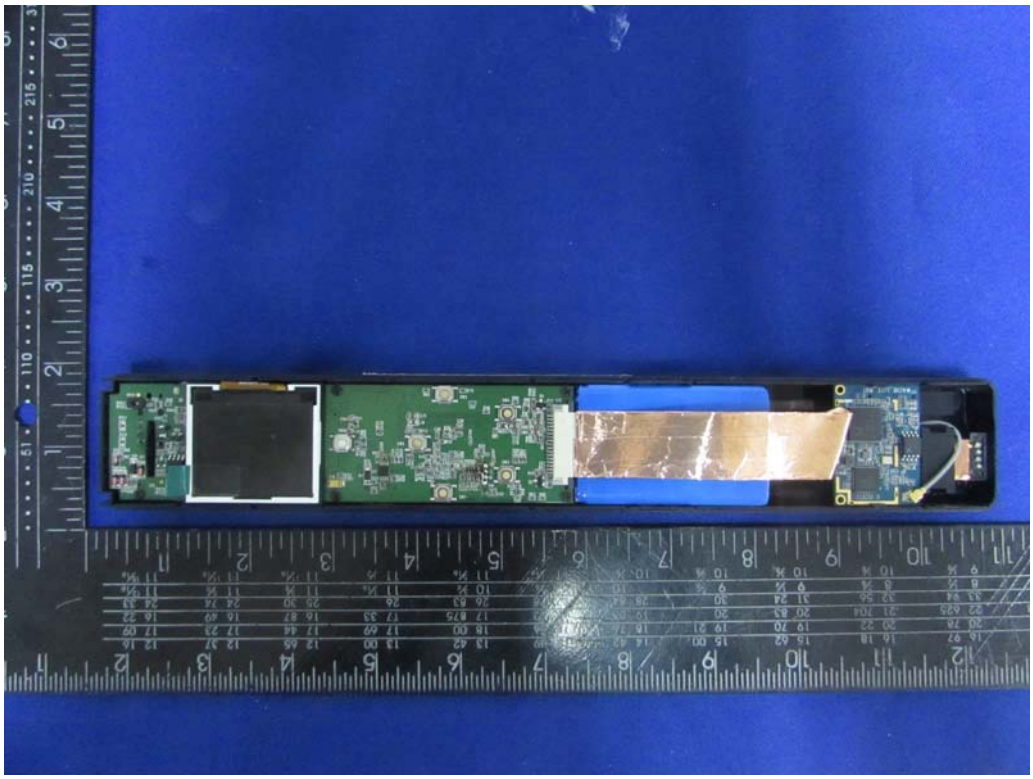


External Photo ： T4R

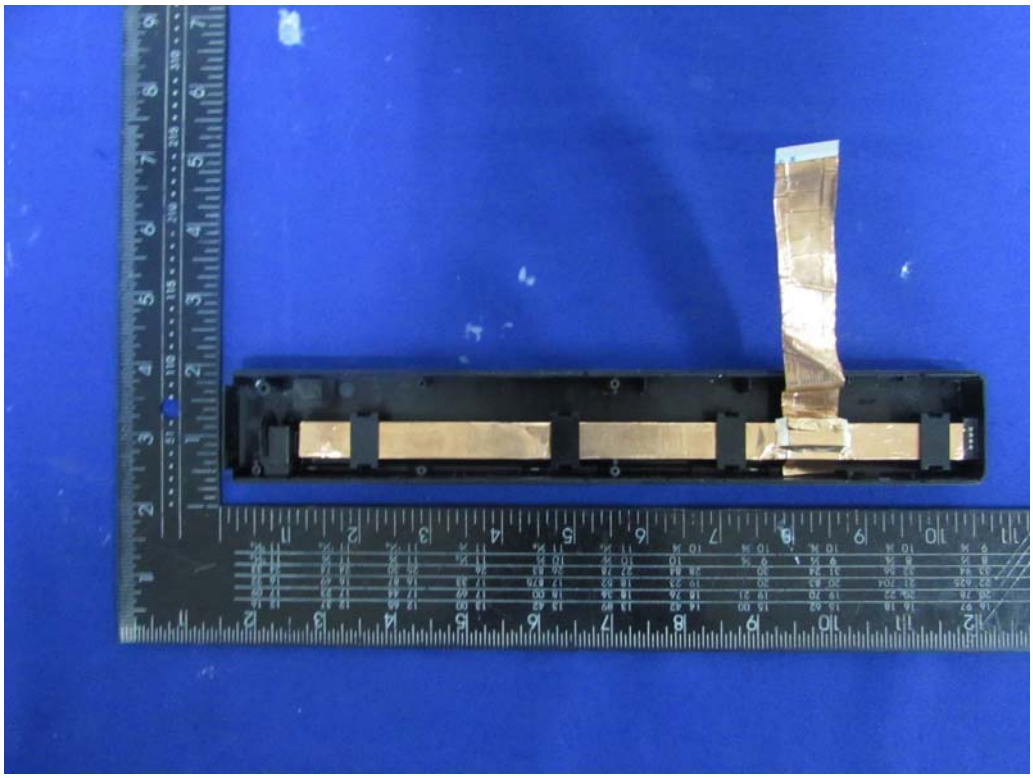
External Photo ： T4R



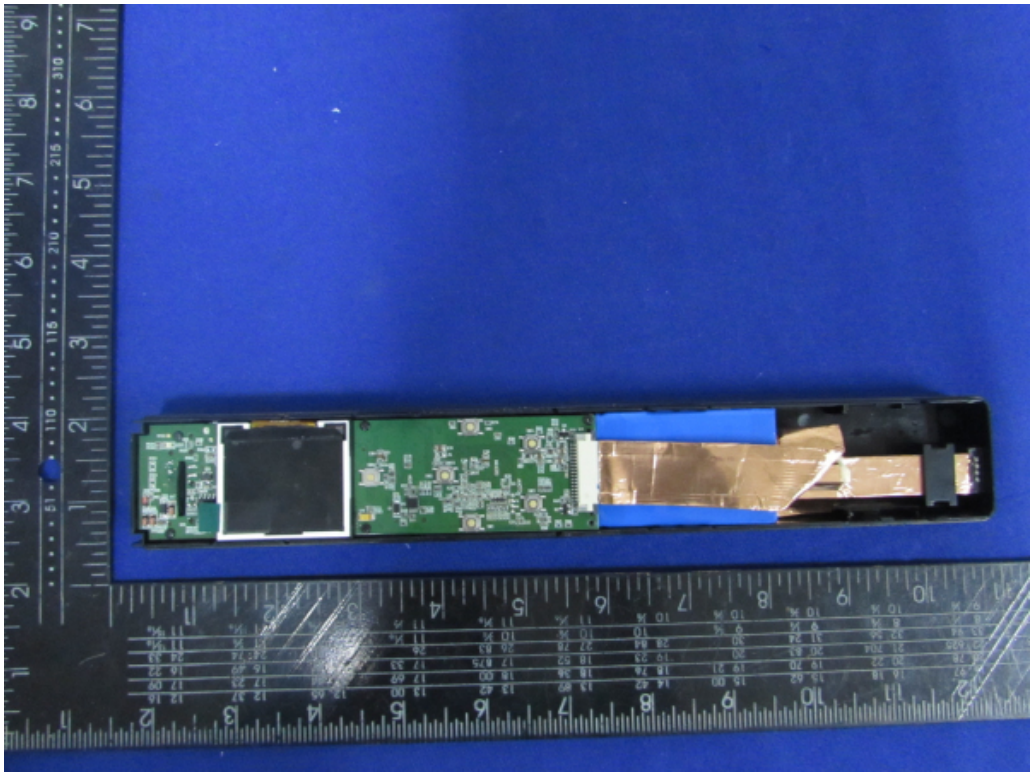
Internal Photo：W4R



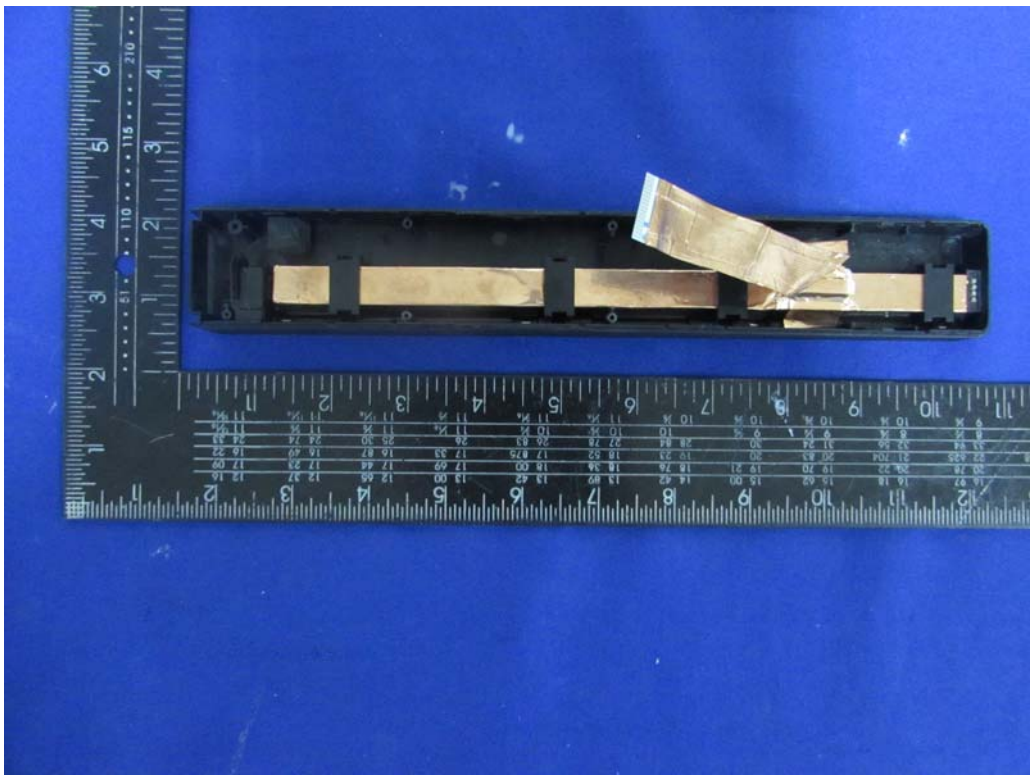
Internal Photo：W4R



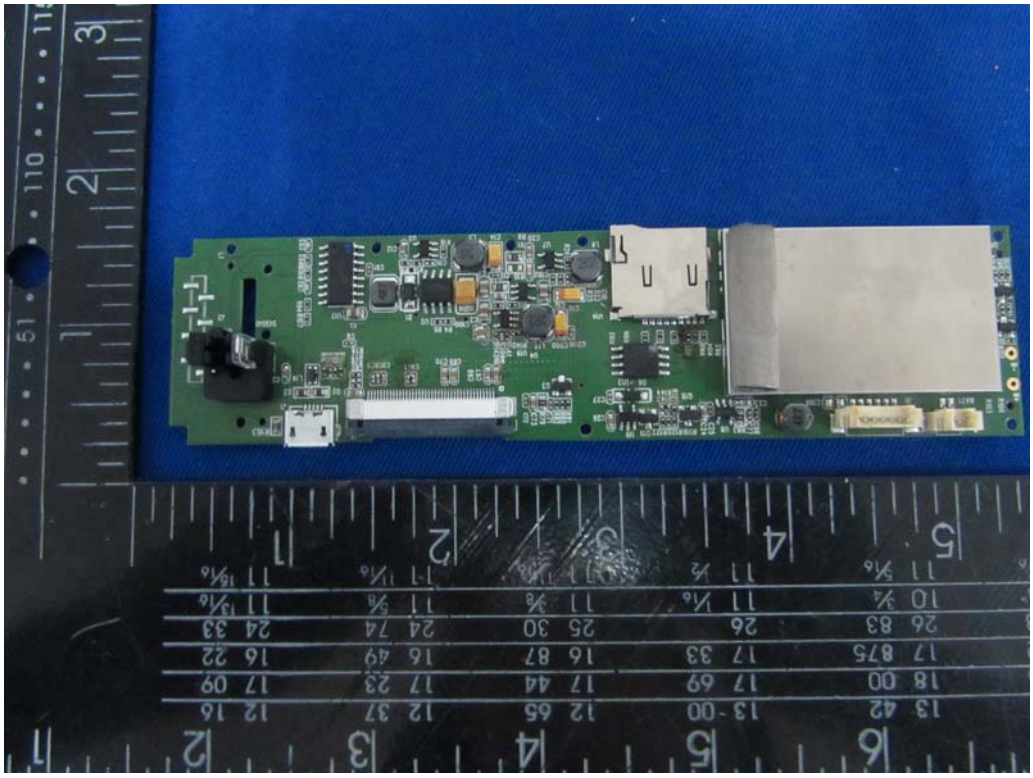
Internal Photo：T4R



Internal Photo：T4R



Internal Photo：W4R



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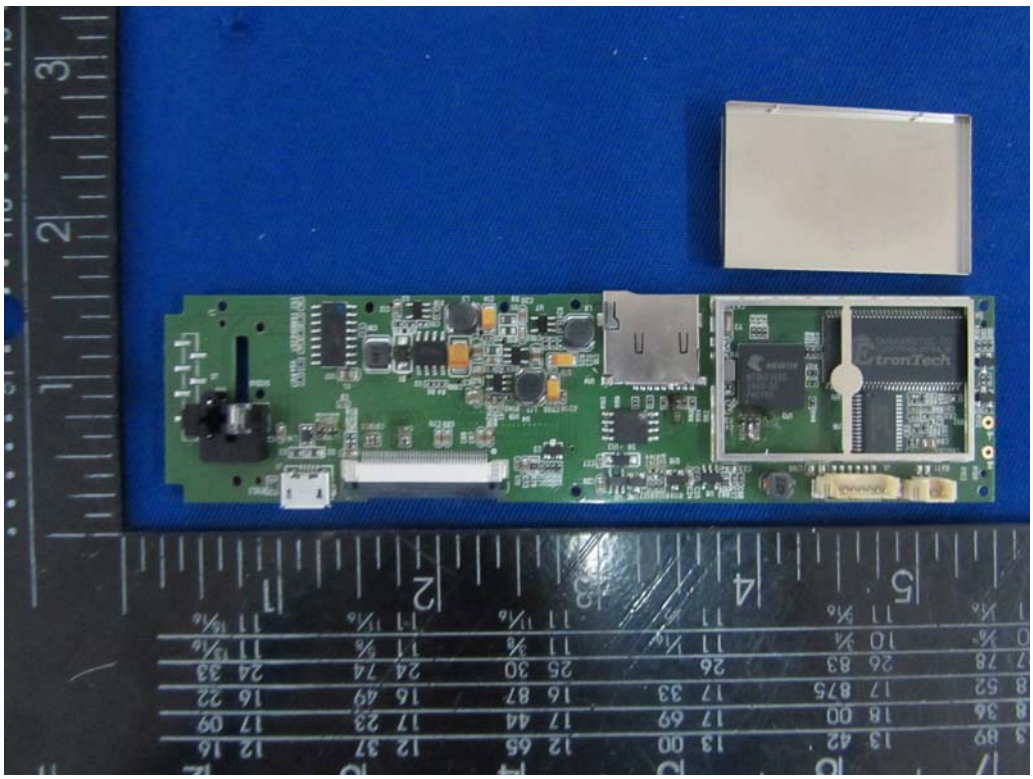
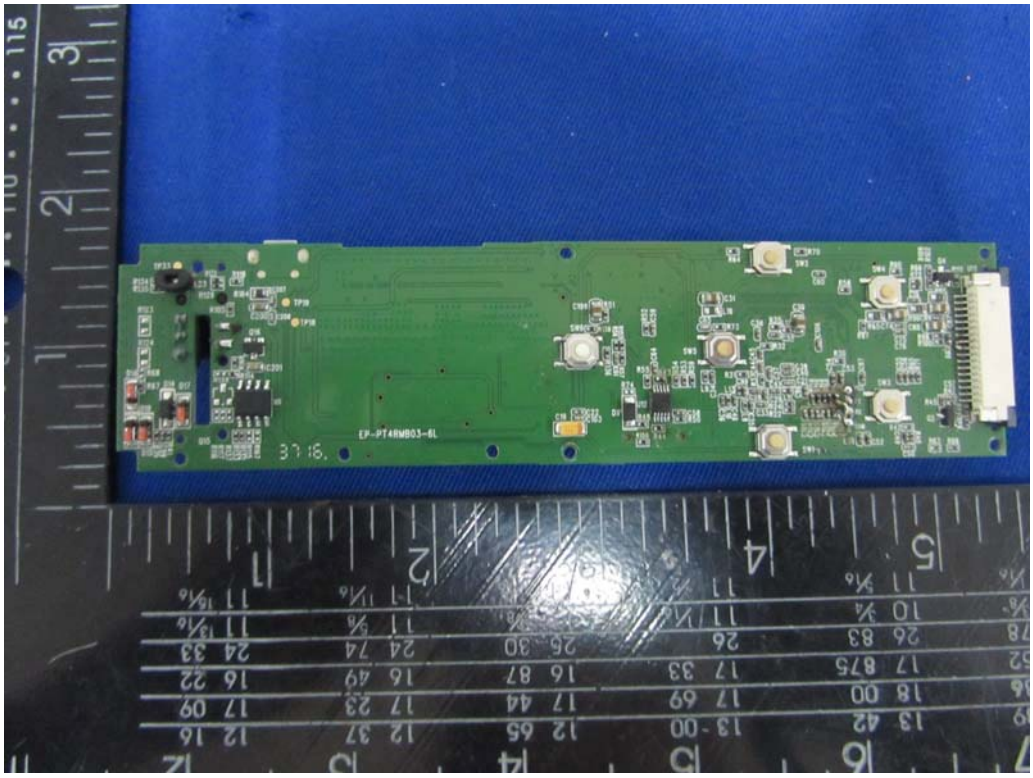
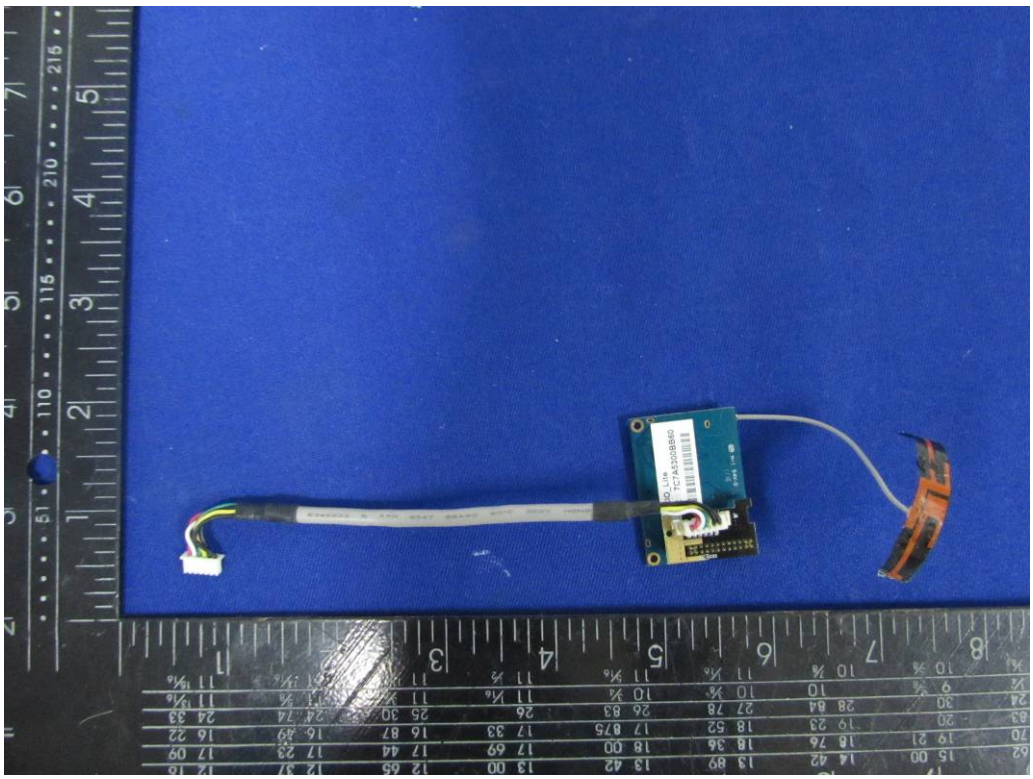


Internal Photo：W4R



Internal Photo：W4R



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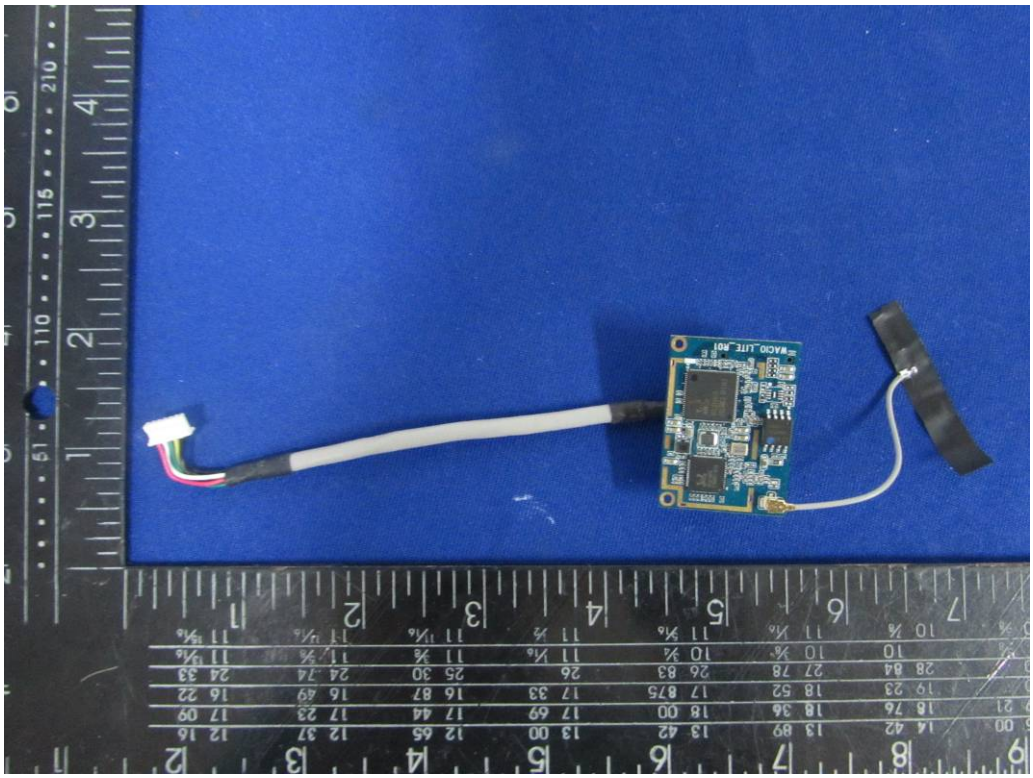

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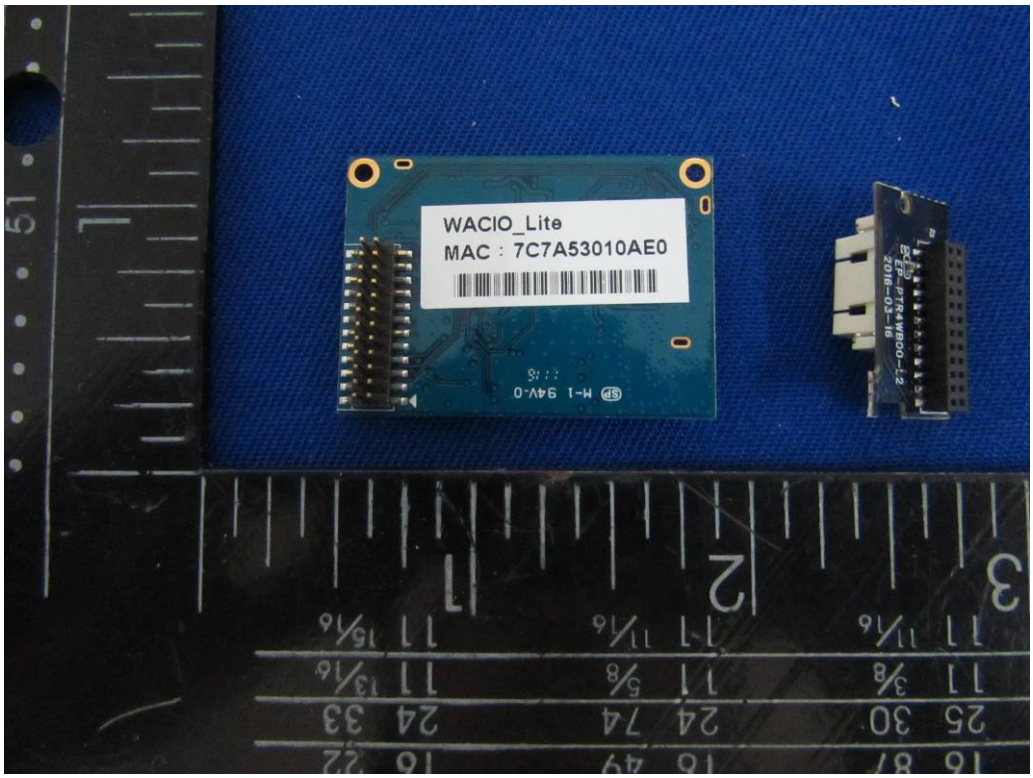

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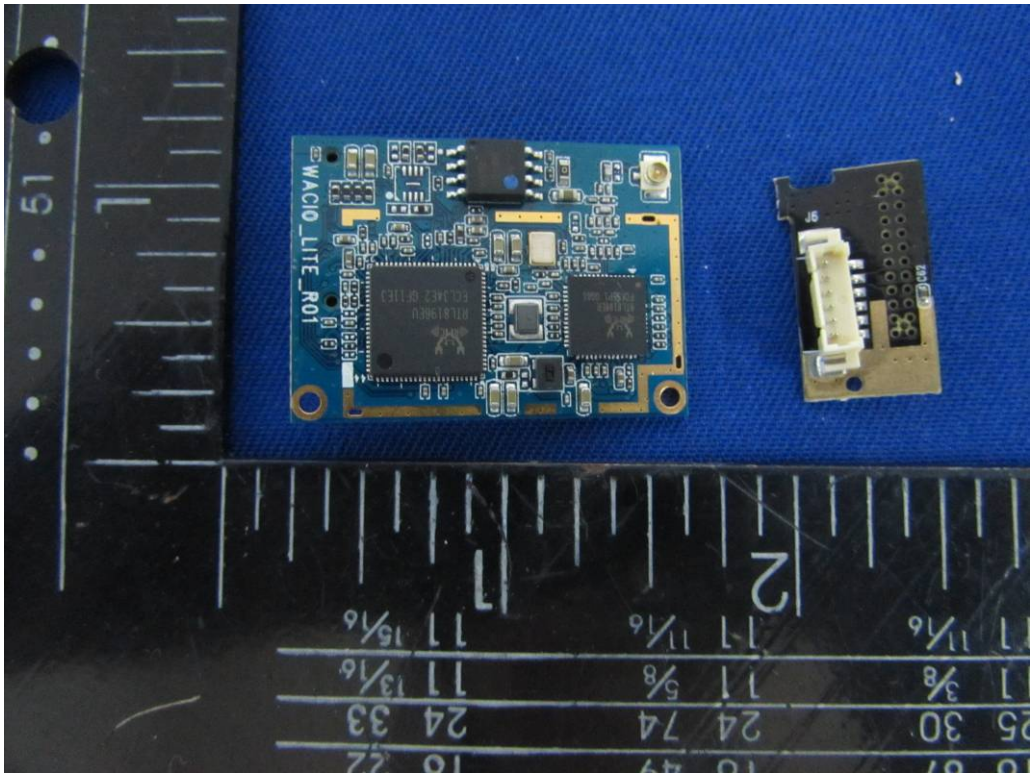

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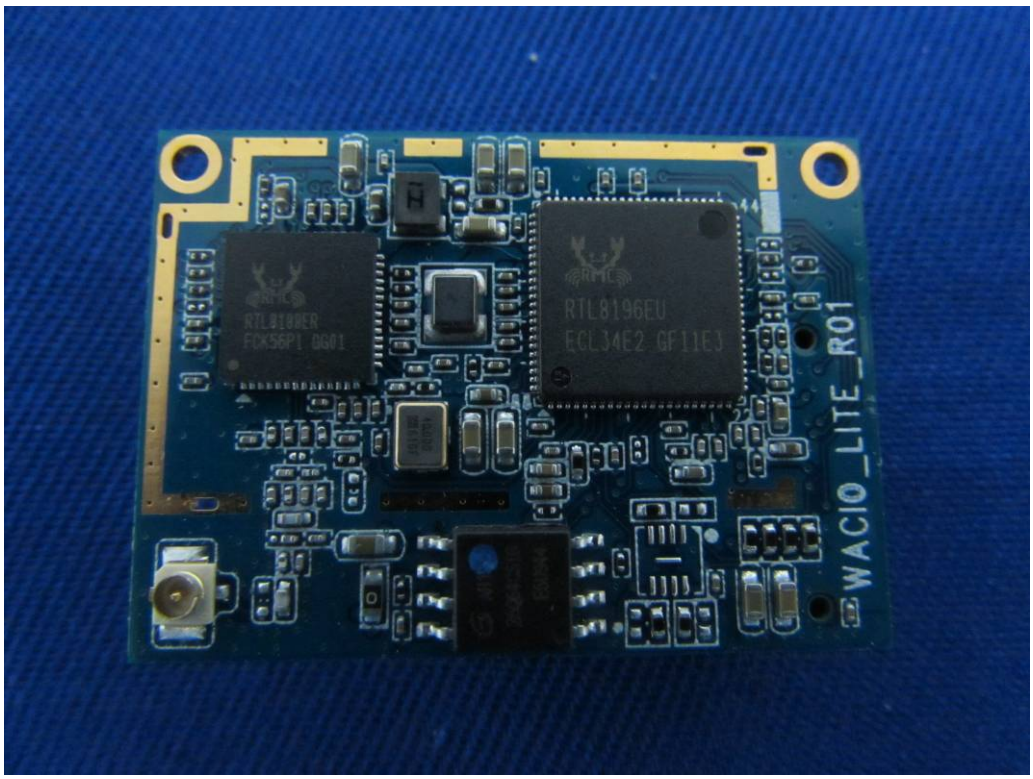

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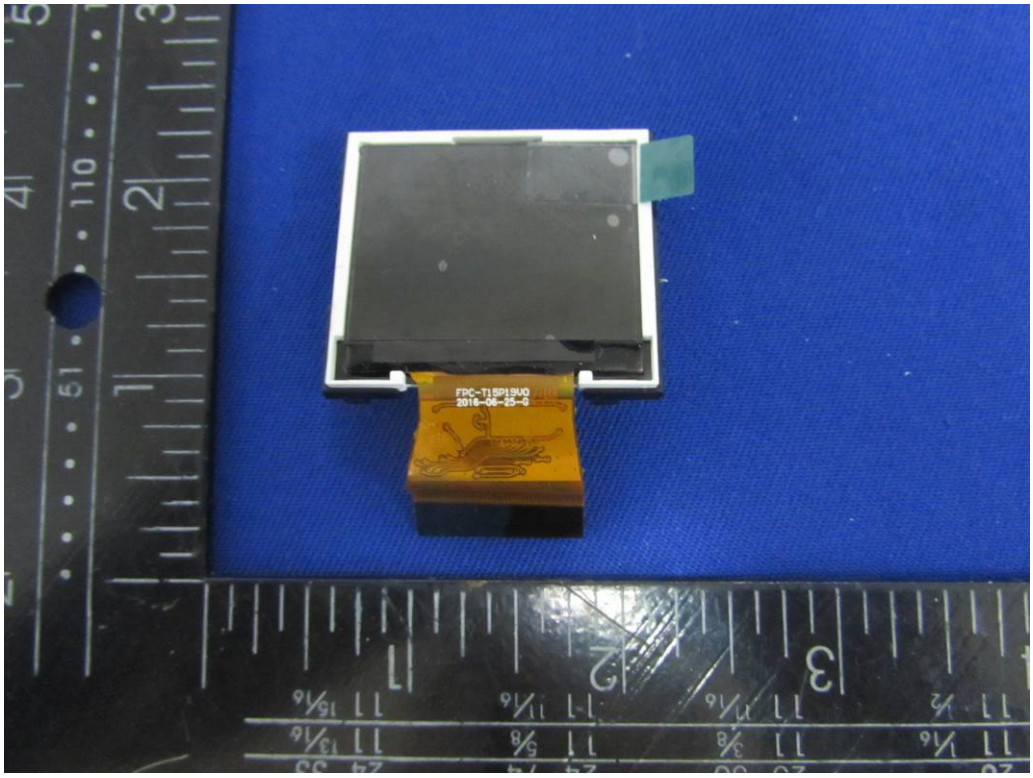

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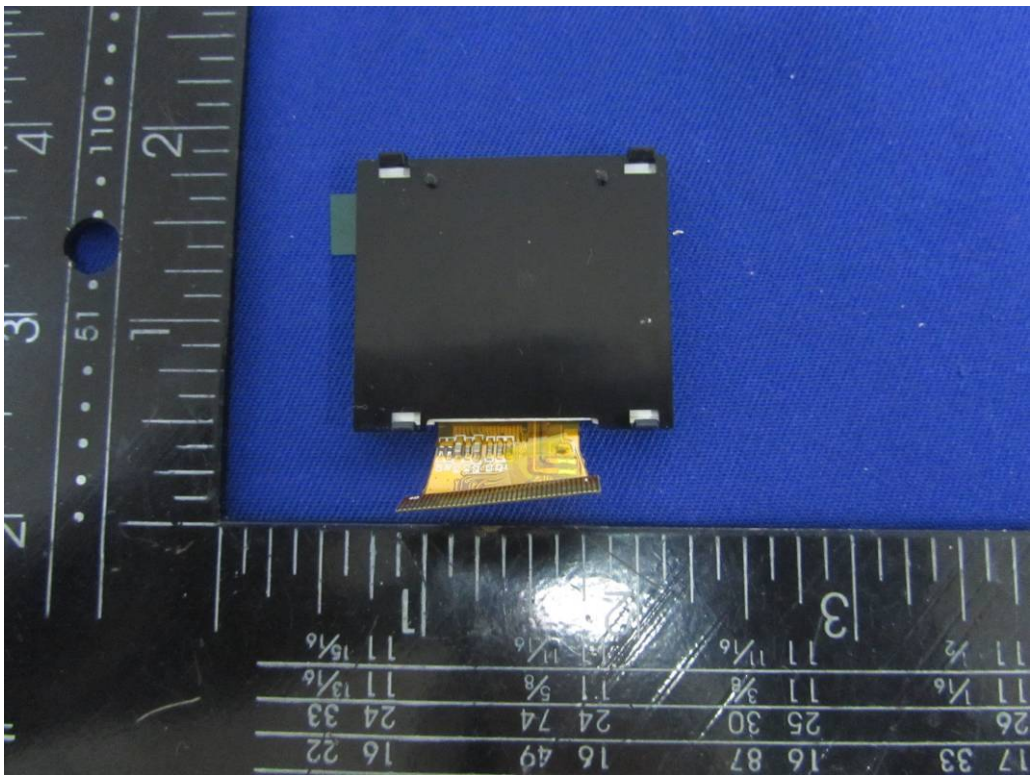

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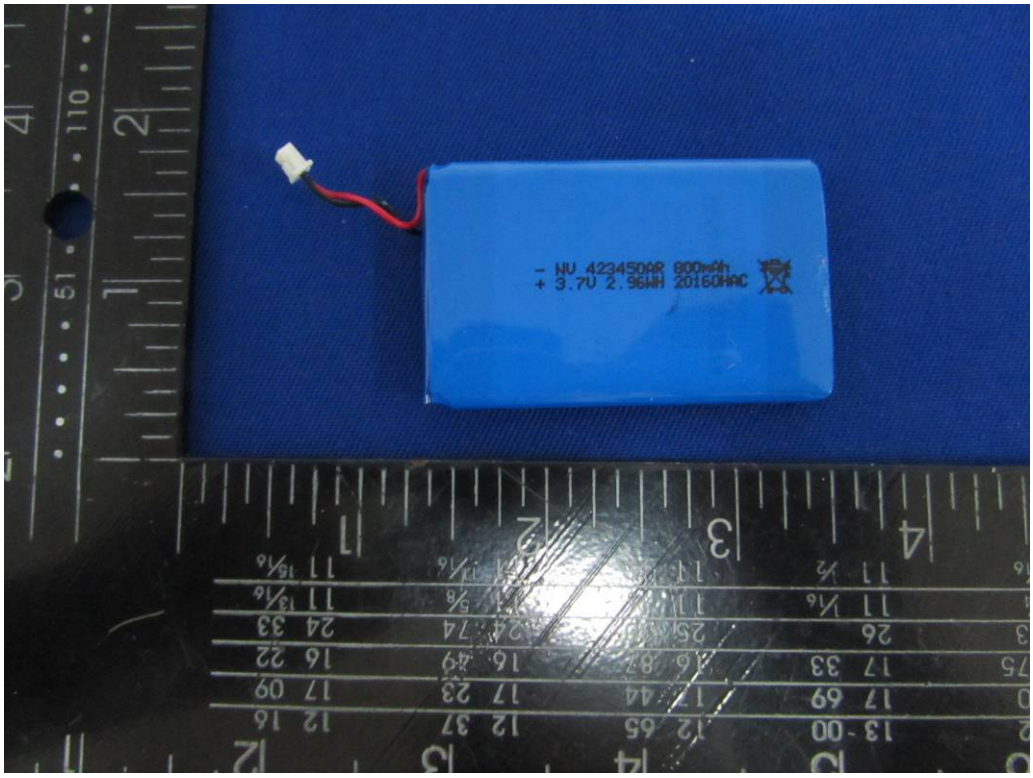

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