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Report Template Version: V04
Report Template Revision Date: 2018-07-06

RF Exposure Evaluation Report

Report No. :	CQASZ20190800719E-02
Applicant:	ZAGG Inc.
Address of Applicant:	910 West Legacy Center Way, Midvale, UT, United States, 84047, USA
Equipment Under Test (EUT):	
EUT Name:	BRAVEN BRV-XL
Model No.:	BBRVLBS47
Brand Name:	BRAVEN
FCC ID:	QTG-BAALBXL
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-08-16
Date of Test:	2019-08-16 to 2019-08-22
Date of Issue:	2019-08-22
Test Result :	**PASS***

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

Tested By: Tom Chen.

(Tom chen)

Reviewed By: Sheek Luo

(Sheek Luo)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190800719E-02	Rev.01	Initial report	2019-08-23

2 Contents

3 General Information

3.1 Client Information

Applicant:	ZAGG Inc.
Address of Applicant:	910 West Legacy Center Way, Midvale, UT, United States, 84047, USA
Manufacturer:	ZAGG Inc.
Address of Manufacturer:	910 West Legacy Center Way, Midvale, UT, United States, 84047, USA

3.2 General Description of EUT

Product Name:	BRAVEN BRV-XL
Model No.:	BBRVLBS47
Trade Mark:	BRAVEN
Ratings(EUT):	Input:15V⎓2.4A; Output(USB-A):5V⎓1A
Hardware Version:	V1.2
Software Version:	V6.3
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V4.2
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Transfer Rate:	1Mbps/2Mbps/3Mbps
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Product Type:	☐ Mobile ☒ Portable ☐ Fix Location
Test Software of EUT:	Blue test3 (manufacturer declare)
Antenna Type:	PCB antenna
Antenna Gain:	2.0dBi
Ratings:	lithium battery:DC11.1V, Charge by DC15.0V AC ADAPTOR MODEL: LY036SPS-150240U INPUT:100-240V~50-60Hz 1A OUTPUT:DC15V⎓2.4A

Note: Only one model number: BBRVLBS47, but it comes in tow colors (black, gray), only the black EUT was tested.

Battery and power supply information:

Object / part No.	Factory	Model	Technical data
Li-ion Polymer Battery	SHENZHEN XMG BATTERY CO., LTD	18650	4000mAh/11.1V/3S2P/44.4wh
Cell of battery	SHENZHEN XMG BATTERY CO., LTD	INR18650	2000mAh/3.7V/7.4wh
AC ADAPTOR	DONGGUAN LIYANG ELECTRICAL TECHNOLOGY CO., LTD	LY036SPS-150240U	Input:100~240V AC 50- 60Hz Output: DC15V⎓2.4A

Note: The battery consists of three cells in series.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.740	-5.5±1	-4.5	0.355
Middle(2441MHz)	-2.520	-4.0±1	-3.0	0.501
Highest(2480MHz)	-1.320	-2.0±1	-1.0	0.794
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.500	-4.0±1	-3.0	0.501
Middle(2441MHz)	-1.440	-2.0±1	-1.0	0.794
Highest(2480MHz)	-0.370	-1.0±1	0	1.000
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.150	-4.0±1	-3.0	0.501
Middle(2441MHz)	-1.200	-2.0±1	-1.0	0.794
Highest(2480MHz)	-0.020	-1.0±1	0	1.000

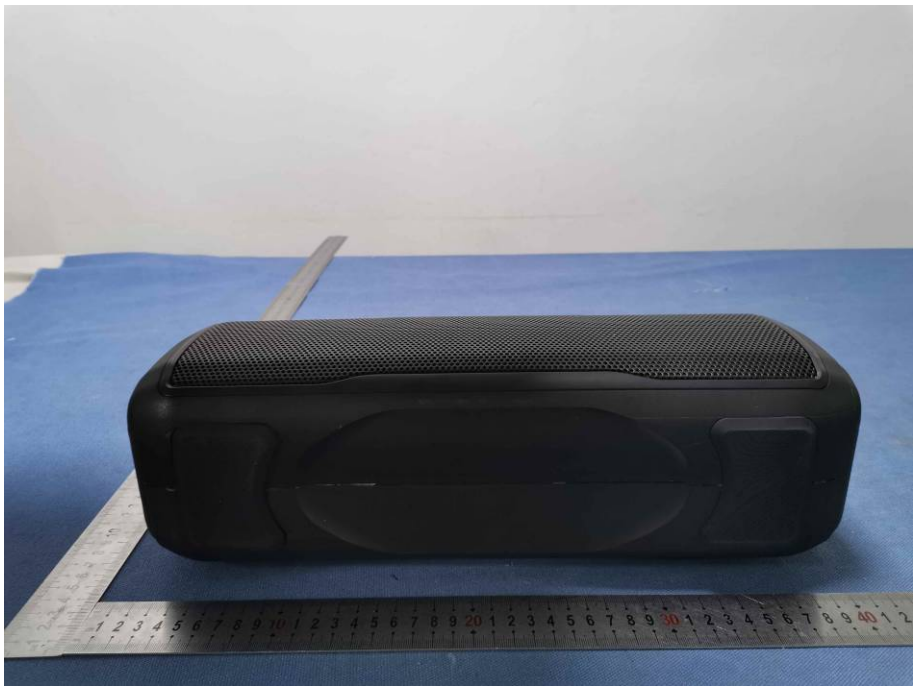
Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power		Calculated value	Exclusion threshold
			(dBm)	(mW)		
Lowest (2402MHz)	-3.150	-4.0±1	-3.0	0.501	0.155	3.0
Middle (2441MHz)	-1.200	-2.0±1	-1.0	0.794	0.248	
Highest (2480MHz)	-0.020	-1.0±1	0	1.000	0.315	
Conclusion: the calculated value ≤3.0, SAR is exempted.						

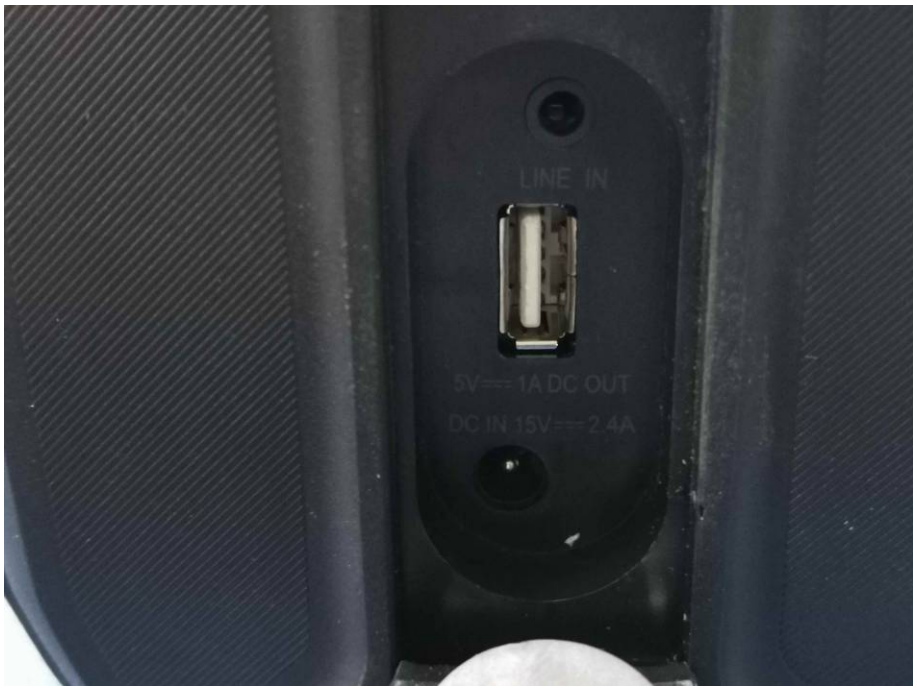
Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20190800719E-01

5 Photographs - EUT Constructional Details

Note: Only one model number: BBRVLBS47, but it comes in tow colors (black, gray)


BRAVEN

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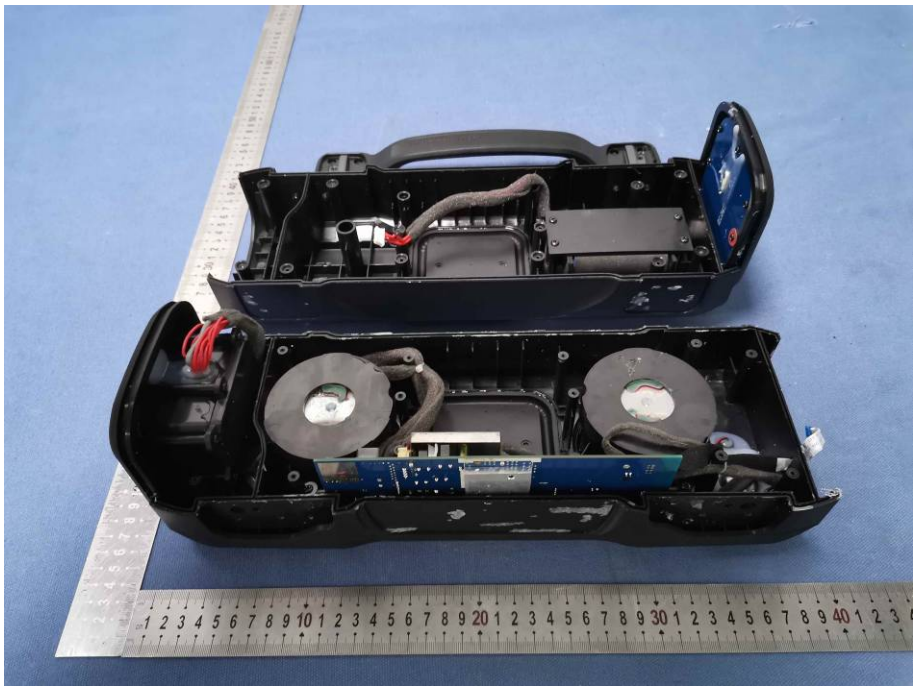

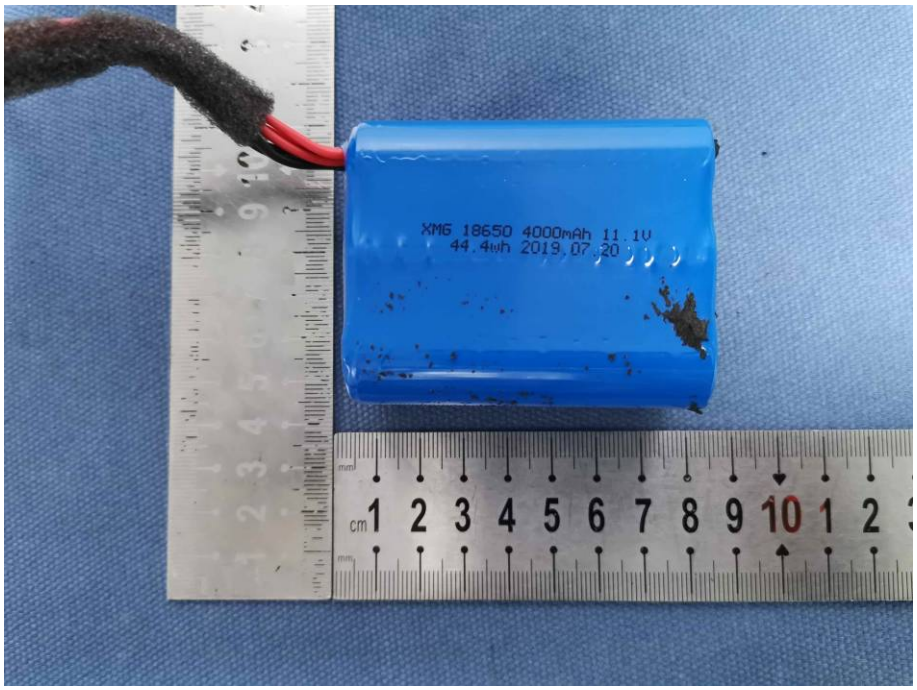
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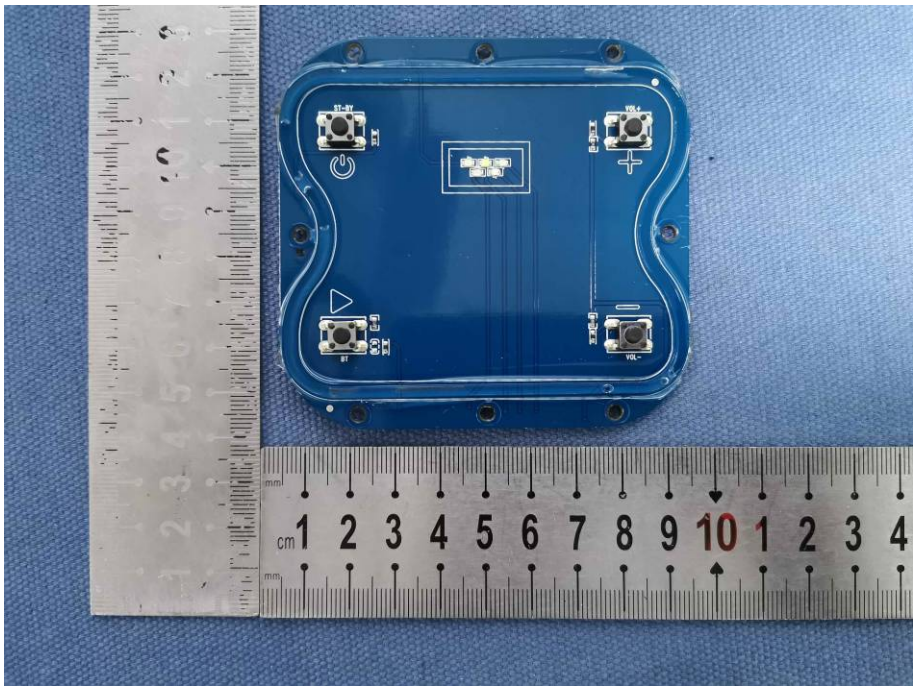

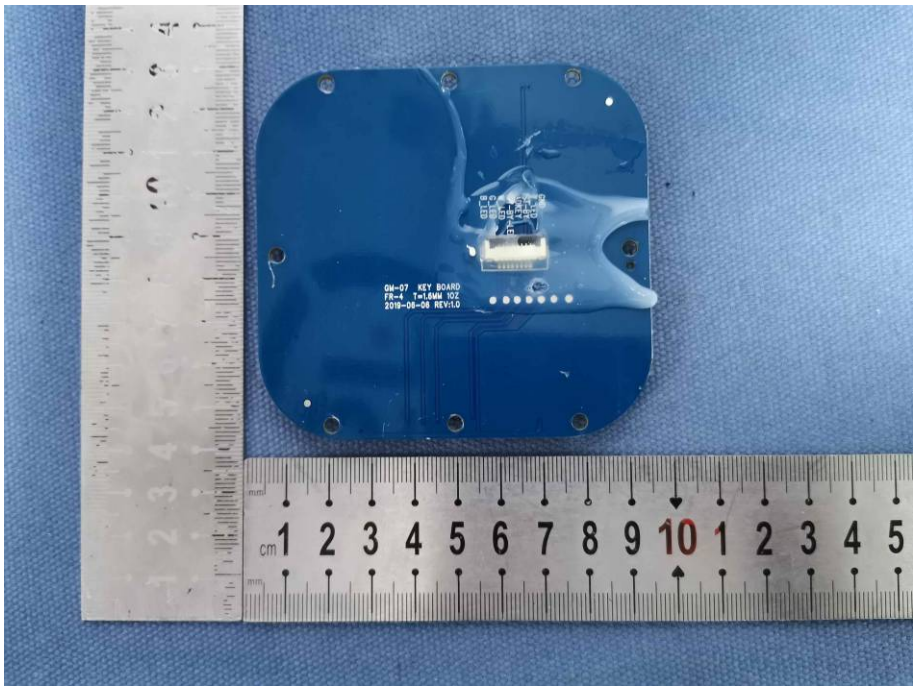
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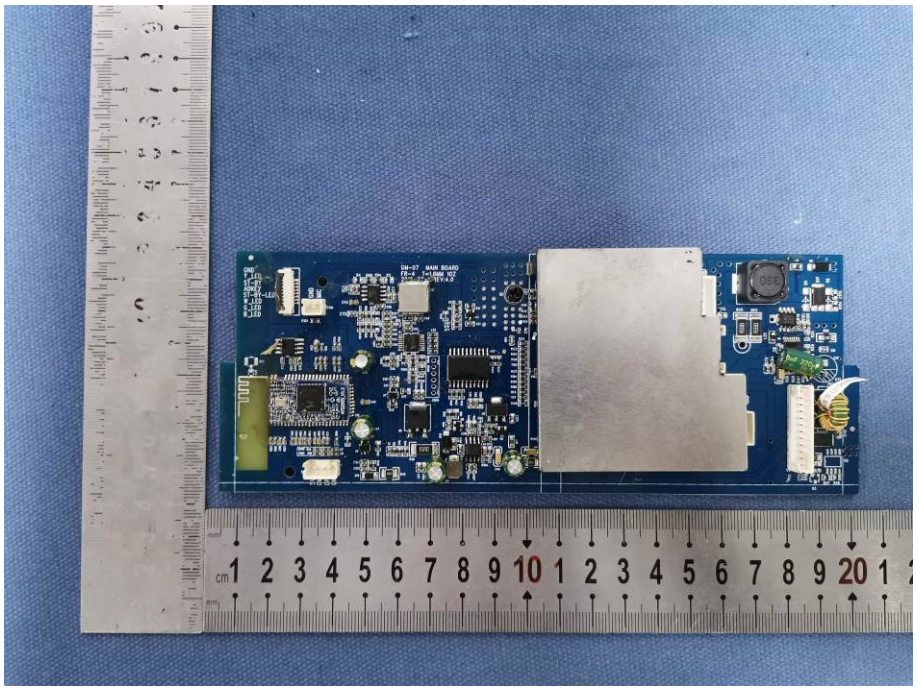
FR-4 T=1.6MM 1OZ
2019-08-08 REV1.0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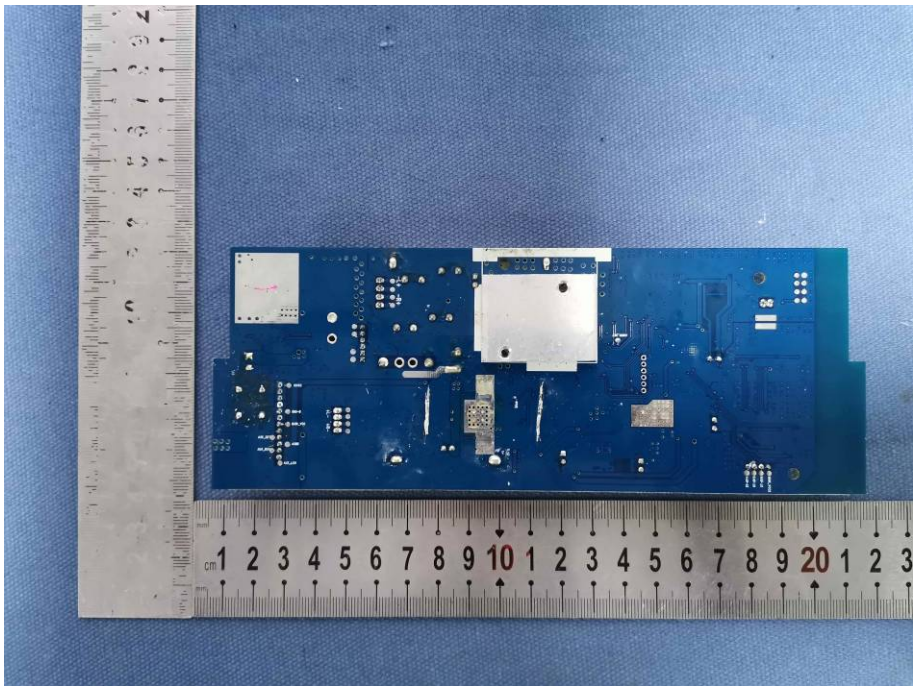
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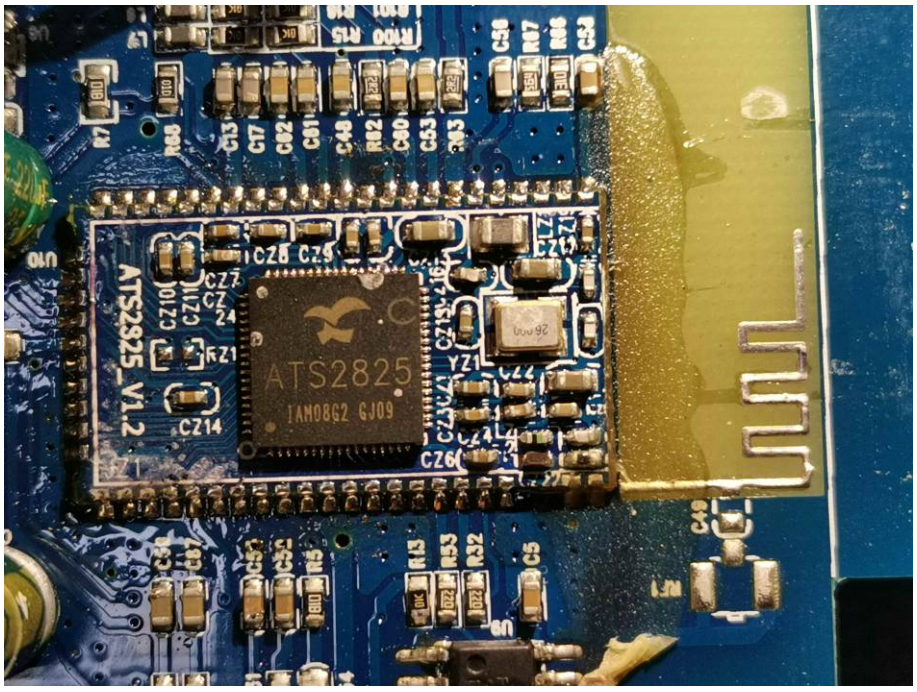
ATS2825_V1.2
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IAM08G2 GJ09

The End