



RF Exposure Evaluation Declaration

FCC ID: 2AN2O-RSW01
APPLICANT: Beijing Roborock Technology Co., Ltd.
Application Type: Certification
Product: WIFI Module
Model No.: F89ETSM13-W2
FCC Classification: Digital Transmission System (DTS)
Test Procedure(s): KDB 447498 D01v06
Test Date: January 13, 2020

Reviewed By:

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Approved By:

Robin Wu

(Robin Wu)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
1909WSU020-U2	Rev. 01	Initial report	01-13-2020	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	WIFI Module
Model No.:	F89ETSM13-W2
Wi-Fi Specification	802.11b/g/n
Power Type:	DC 3.3V

1.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2462 MHz
Channel Number:	802.11b/g/n-HT20: 11
Type of Modulation:	802.11b: DSSS 802.11g/n: OFDM
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps
Antenna Type:	Internal PCB antenna
Antenna Gain:	3.87dBi

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	WIFI Module
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Maximum EIRP (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
802.11b/g/n	2412 ~ 2462	21.89	0.0307	1

CONCULISON:

The max Power Density at R (20 cm) = $0.0307\text{mW/cm}^2 < 1\text{ mW/cm}^2$ for 2.4G WLAN.

Therefore, the Min Safety Distance is 20cm.

_____ The End _____

Appendix A – EUT Photograph

Refer to “1909WSU020-UE” file.