RF Exposure Evaluation Report

APPLICANT	:	**Realtek Semiconductor Corp.**
EQUIPMENT	:	**802.11b/g/n RTL8723BS Combo module**
BRAND NAME	:	**REALTEK**
MODEL NAME	:	**RTL8723BS**
FCC ID	:	**TX2-RTL8723BS**
STANDARD	:	**47 CFR Part 2.1091**

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.)

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA6N2509	Rev. 01	Initial issue of report	Jan. 20, 2017

1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	Realtek Semiconductor Corp.
Address	No. 2,Innovation Road II, hsinchu Science Park, Hsinchu 300, Taiwan

Manufacturer	
Company Name	Realtek Semiconductor Corp.
Address	No. 2,Innovation Road II, hsinchu Science Park, Hsinchu 300, Taiwan

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	802.11b/g/n RTL8723BS Combo module
Brand Name	REALTEK
Model Name	RTL8723BS
FCC ID	TX2-RTL8723BS
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	・802.11b/g/n HT20/HT40 ・Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype
Remark: 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description. 2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.	

Host Information	
Brand Name	UNICOM
Model Name	U-BPCIB000, U-BPCIB001
Ant. type	Dipole
Ant. Gain (Peak)	2.26dBi

3. Maximum RF average output power among production units

Band / Mode	Average Power (dBm)			
	BR / EDR			LE
	1M	2M	3M	GFSK
Bluetooth	4.0	3.5	3.5	1.5

Band / Channel / Frequency (MHz)			IEEE 802.11 Average Power (dBm)			
			11b	11g	HT20	HT40
2.4GHz WLAN	Ch 1	2412	16.5	14.5	13.5	
	Ch 3	2422				13.5
	Ch 6	2437	16.5	16.5	16.5	15
	Ch 9	2452				13
	Ch 11	2462	16	14.5	13.5	

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN	2412.0	2.26	16.50	18.760	0.075	75.162	0.015	1.000
Bluetooth	2402.0	2.26	4.00	6.260	0.004	4.227	0.001	1.000

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.