

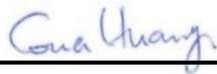
# RF EXPOSURE EVALUATION REPORT

**FCC ID** : TX2-RTL8735BDM  
**Equipment** : 11n RTL8735BDM combo module  
**Brand Name** : REALTEK  
**Model Name** : RTL8735BDM  
**Applicant** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu  
300, Taiwan  
**Manufacturer** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu  
300, Taiwan  
**Standard** : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full



Approved by: Cona Huang / Deputy Manager



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## **Table of Contents**

<b>1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) .....</b>	<b>4</b>
<b>2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS .....</b>	<b>5</b>
<b>3. RF EXPOSURE LIMIT INTRODUCTION .....</b>	<b>7</b>
<b>4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION .....</b>	<b>8</b>
4.1. Standalone Power Density Calculation .....	8
4.2. Collocated Power Density Calculation.....	8





1. Description of Equipment Under Test (EUT)

Table with 2 columns: EUT Feature & Specification. Rows include EUT Type (11n RTL8735BDM combo module), Brand Name (REALTEK), Model Name (RTL8735BDM), FCC ID (TX2-RTL8735BDM), Wireless Technology and Frequency Range (WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz, etc.), Mode (WLAN: 802.11a/b/g/n HT20, Bluetooth LE), HW Version (SM35B02\_2V2), SW Version (v38\_4b9e0eb2\_lab\_v1), and EUT Stage (Identical Prototype).

Reviewed by: Jason Wang

Report Producer: Daisy Peng

Table with 9 columns: Ant., Port (WLAN 2.4GHz, WLAN 5GHz, Bluetooth), Brand, Model Name, Antenna Type, Connector, Gain (dBi). Rows 1 and 2 show antenna specifications for LYNwave and RTANT models.

Note 1

Table with 7 columns: Ant., Port (WLAN 2.4GHz, WLAN 5GHz, Bluetooth), WLAN 2.4GHz, WLAN 5GHz, Bluetooth. Rows 1 and 2 show gain values for antennas 1 and 2.

Note 2: There are two antenna models provided by different manufacturers. All tests were conducted using the high-gain antenna.



**2. Maximum RF average output power among production units**

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit
2.4GHz WLAN	802.11b 1Mbps	1	2412	18.50
		6	2437	18.50
		11	2462	18.50
	802.11g 6Mbps	1	2412	17.50
		6	2437	17.50
		11	2462	17.50
	802.11n-HT20 MCS0	1	2412	17.00
		6	2437	17.50
		11	2462	16.00

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit
5.2GHz WLAN	802.11a 6Mbps	36	5180	18.50
		44	5220	18.50
		48	5240	18.50
	802.11n-HT20 MCS0	36	5180	18.50
		44	5220	18.50
		48	5240	18.50

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit
5.3GHz WLAN	802.11a 6Mbps	52	5260	18.50
		60	5300	18.50
		64	5320	18.50
	802.11n-HT20 MCS0	52	5260	18.50
		60	5300	18.50
		64	5320	18.50

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit
5.5GHz WLAN	802.11a 6Mbps	100	5500	18.50
		116	5580	18.50
		140	5700	17.00
		144	5720	18.50
	802.11n-HT20 MCS0	100	5500	18.50
		116	5580	18.50
		140	5700	17.00
		144	5720	18.50



5.8GHz WLAN	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit
	802.11a 6Mbps	149	5745	18.50
		157	5785	16.50
		165	5825	16.00
	802.11n-HT20 MCS0	149	5745	18.50
		157	5785	16.50
		165	5825	16.00

Bluetooth	Mode	Channel	Frequency (MHz)	Tune-Up Limit
	LE 1Mbps	0	2402	12.50
		19	2440	12.50
		39	2480	12.50
	LE 2Mbps	0	2402	12.50
		19	2440	12.50
		39	2480	12.50



3. 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.

Table with 5 columns: Frequency range (MHz), Electric field strength (V/m), Magnetic field strength (A/m), Power density (mW/cm²), Averaging time (minutes). It is divided into two sections: (A) Limits for Occupational/Controlled Exposures and (B) Limits for General Population/Uncontrolled Exposure.

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 = PG / (4πR²)

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



#### 4. Radio Frequency Radiation Exposure Evaluation

##### 4.1. Standalone Power Density Calculation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
WLAN2.4GHz Band	3.50	18.50	22.0	0.16	158.49	0.032	1.000	0.032
WLAN5GHz Band	5.00	18.50	23.5	0.22	223.87	0.045	1.000	0.045
Bluetooth	3.50	12.50	16.0	0.04	39.81	0.008	1.000	0.008

##### 4.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	$\Sigma$ (Power Density / Limit) of WLAN+Bluetooth
0.045	0.008	0.053

**Note:**

1.  $\Sigma$  (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WLAN + Bluetooth.
2. Considering the WLAN module collocation with the Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

#### Conclusion:

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