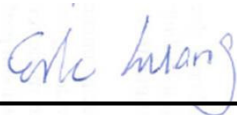


# RF Exposure Evaluation Report

**APPLICANT** : Bandrich Inc.  
**EQUIPMENT** : R558C Series LTE/HSPA+ Wi-Fi Router  
**BRAND NAME** : BandLuxe  
**MODEL NAME** : R558C  
**FCC ID** : UZI-R558C889  
**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



## **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
FA6O0520	Rev. 01	Initial issue of report	Oct. 28, 2016



## 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	Bandrich Inc.
Address	6F-2., No.71, Zhouzi St., Neihu Dist., Taipei City 11493, Taiwan(R.O.C)

Manufacturer	
Company Name	FAIR GOAL ELECTRONIC CO.
Address	1F., No.97-1, Haihu, Luzhu Township, Taoyuan County 338, Taiwan (R.O.C.)

## 2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	R558C Series LTE/HSPA+ Wi-Fi Router
Brand Name	BandLuxe
Model Name	R558C
FCC ID	UZI-R558C889
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Mode	<ul style="list-style-type: none"><li>· RMC 12.2Kbps</li><li>· HSDPA</li><li>· HSUPA</li><li>· DC-HSDPA</li><li>· LTE: QPSK, 16QAM</li><li>· 802.11b/g/nHT20/HT40</li></ul>
HW Version	1
SW Version	AR_0_00000000_0_001_0202
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



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

Band	Average Power (dBm)
WCDMA Band II	22.5
WCDMA Band V	22.5
LTE Band 2	23.5
LTE Band 4	23.5

Mode	IEEE 802.11 Average Power (dBm)		
	Ant 1	Ant 2	Ant 1+2
802.11b	18	18	21
802.11g	18	18	21
802.11 HT20	16	16	19
802.11 HT40	15	15	18



### 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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Power Density / Limit
WCDMA Band V	826.4	0.00	22.50	22.500	0.178	177.828	0.035	0.551	0.064
WCDMA Band II	1852.4	3.00	22.50	25.500	0.355	354.813	0.071	1.000	0.071
LTE Band 4	1710.7	3.00	23.50	26.500	0.447	446.684	0.089	1.000	0.089
LTE Band 2	1850.7	3.00	23.50	26.500	0.447	446.684	0.089	1.000	0.089
2.4GHz WLAN	2412.0	3.50	21.00	24.500	0.282	281.838	0.056	1.000	0.056

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

#### 5.2. Collocated Power Density Calculation

WLAN Power Density / Limit	WWAN Power Density / Limit	Σ(Power Density / Limit) of WWAN+WLAN
0.056	0.089	0.145

Note:

- Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN.
- Considering the WWAN module collocation with the WLAN 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.