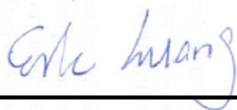


RF Exposure Evaluation Report

APPLICANT : Altocumulous LLC
EQUIPMENT : Digital Media Receiver
MODEL NAME : RS03QR
FCC ID : 2AHSE-2045
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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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	Altocumulous LLC
Address	300 E. Business Way, Suite 200, Summit Woods Corporate Center Cincinnati, Ohio 45241

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Digital Media Receiver
Model Name	RS03QR
FCC ID	2AHSE-2045
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	· 802.11a/b/g/n HT20/HT40 · Bluetooth EDR/LE
Antenna Type	WLAN: Fixed Internal Antenna Bluetooth: Fixed Internal Antenna



3. Maximum RF average output power among production units

Band / Mode	Average Power (dBm)		
	EDR		LE
	1Mbps	2Mbps / 3Mbps	
Bluetooth	7.5	5.0	7.5

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)					
		Ant 1			Ant 2		
		11b	11g	HT20	11b	11g	HT20
2.4GHz Band	2412	20.5	18.0	17.0	22.0	16.5	16.0
	2437	20.5	20.0	20.0	22.0	20.0	20.0
	2462	20.5	16.5	16.0	22.0	17.0	16.5

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)					
		Ant 1			Ant 2		
		11a	HT20	HT40	11a	HT20	HT40
5.2GHz Band	5180	18.5	18.5		19.0	17.5	
	5190			14.0			13.0
	5200	18.5	18.5		19.0	18.5	
	5220	18.5	18.5		19.0	18.5	
	5230			19.0			18.0
	5240	18.5	18.5		19.0	17.5	
5.8Hz Band	5745	18.5	18.5		19.5	19.5	
	5755			18.5			18.5
	5785	18.0	18.0		19.5	19.5	
	5795			18.5			18.5
	5825	18.0	18.0		19.5	19.5	



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/f ²)	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/f ²)	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)	Power Density / Limit
Bluetooth	2402.0	1.47	7.50	8.970	0.008	7.889	0.002	1.000	0.002
2.4GHz WLAN	2412.0	2.36	22.00	24.360	0.273	272.898	0.054	1.000	0.054
5GHz WLAN	5180.0	4.99	19.50	24.490	0.281	281.190	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

Max WLAN Power Density / Limit	Max Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN + Bluetooth
0.056	0.002	0.058

Note:

1. Σ (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 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.