RF Exposure Evaluation Report

APPLICANT	**:**	**Sling Net LLC**
EQUIPMENT	**:**	**Digital Media Receiver**
MODEL NAME	**:**	**VN94DQ**
FCC ID	**:**	**2ALBE-0301**
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 / 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
FA742716-01	Rev. 01	Initial issue of report	Aug. 18, 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	Sling Net LLC
Address	125 Half Mile Road Suite 200 Red Bank, New Jersey 07701-6749

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Digital Media Receiver
Model Name	VN94DQ
FCC ID	2ALBE-0301
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2472 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/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE

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 / Mode	Average Power (dBm)			
	BR / EDR			LE
	1M	2M	3M	GFSK
Bluetooth	8.5	5.0	5.0	5.0

Mode		Maximum Average Power (dBm)		
		Ant 1	Ant 2	Ant 1+2
2.4GHz WLAN	802.11b	20.5	20.5	
	802.11g	20.0	20.0	**23.0**
	802.11n-HT20	20.0	20.0	23.0
5.2GHz WLAN	802.11a	20.5	20.0	20.0
	802.11n-HT20	20.0	20.0	20.0
	802.11n-HT40	19.0	18.0	20.5
	802.11ac-VHT20	20.0	20.0	20.0
	802.11ac-VHT40	19.0	18.0	20.0
	802.11ac-VHT80	10.5	11.0	12.5
5.8GHz WLAN	802.11a	20.0	19.5	23.0
	802.11n-HT20	20.5	20.5	**23.5**
	802.11n-HT40	21.0	20.0	23.5
	802.11ac-VHT20	20.5	20.5	23.0
	802.11ac-VHT40	21.0	20.0	23.5
	802.11ac-VHT80	18.5	19.5	21.5

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)	Power Density / Limit
2.4GHz WLAN	2412.0	1.90	23.00	24.900	0.309	309.030	0.062	1.000	0.062
5GHz WLAN	5180.0	6.10	23.50	29.600	0.912	912.011	0.182	1.000	0.182
Bluetooth	2402.0	3.00	8.50	11.500	0.014	14.125	0.003	1.000	0.003

Note:

1. For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.
2. In the above table have assessed Bluetooth, 2.4GHz WLAN and 5GHz WLAN by referring to their maximum antenna gain and maximum power.

5.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ(Power Density / Limit) of WLAN+Bluetooth
0.182	0.003	0.185

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 module collocation with 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.