

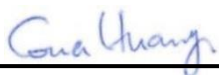
RF EXPOSURE EVALUATION REPORT

FCC ID : 2ALBE-0301
Equipment : Digital Media Receiver
Model Name : VN94DQ
Applicant : Amazon.com Services LLC
410 Terry Avenue N Seattle, WA 98109-5210 United States
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. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full



Approved by: Cona Huang / Deputy Manager



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History of this test report

Report No.	Version	Description	Issued Date
FA832715-06	Rev. 01	Initial issue of report	Jul. 02, 2021
FA832715-06	Rev. 02	Update section 4.1	Jan. 05, 2022

**1. 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: 2400 MHz ~ 2483.5 MHz WLAN U-NII 1: 5150 MHz ~ 5250 MHz WLAN U-NII 2-A: 5250 MHz ~ 5350 MHz WLAN U-NII 2-C: 5470 MHz ~ 5725 MHz WLAN U-NII 3: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 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.

Reviewed by: Jason Wang

Report Producer: Carlie Tsai

2. 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

WLAN 2.4GHz						
Mode	Data Rate	CH.	Freq.(MHz)	Average Power (dBm)		
				Ant 1	Ant 2	Ant 1+2
11b	1Mbps	1	2412	20.0	19.5	
		6	2437	20.5	20.5	
		11	2462	20.0	20.5	
		12	2467	16.5	17.0	
		13	2472	13.0	13.5	
11g	6Mbps	1	2412	18.5	18.0	19.5
		6	2437	20.0	20.0	23.0
		11	2462	18.5	19.0	20.5
		12	2467	18.0	18.5	19.0
		13	2472	16.5	17.0	17.0
HT20	MCS0	1	2412	17.5	16.5	17.5
		6	2437	20.0	20.0	23.0
		11	2462	18.5	18.0	20.0
		12	2467	18.0	17.5	18.5
		13	2472	15.0	16.0	17.0

WLAN 5.2GHz						
Mode	Data Rate	CH.	Freq. (MHz)	Average Power (dBm)		
				Ant 1	Ant 2	Ant 1+2
11a	6Mbps	36	5180	18.5	17.0	20.0
		44	5220	20.5	20.0	19.5
		48	5240	20.5	20.0	19.5
HT20	MCS0	36	5180	17.5	17.0	19.5
		44	5220	20.0	20.0	20.0
		48	5240	20.0	20.0	20.0
HT40	MCS0	38	5190	12.0	12.0	14.5
		46	5230	19.0	18.0	20.5
VHT20	MCS0	36	5180	17.5	17.0	19.5
		44	5220	20.0	20.0	20.0
		48	5240	20.0	20.0	20.0
VHT40	MCS0	38	5190	12.0	12.0	14.5
		46	5230	19.0	18.0	20.0
VHT80	MCS0	42	5210	10.5	11.0	12.5

WLAN 5.3GHz						
Mode	Data Rate	CH.	Freq. (MHz)	Average Power (dBm)		
				Ant 1	Ant 2	Ant 1+2
11a	6Mbps	52	5260	20.10	19.80	19.96
		60	5300	18.90	18.40	19.96
		64	5320	16.40	15.90	19.31
HT20	MCS0	52	5260	20.00	19.70	19.46
		60	5300	18.70	18.30	19.91
		64	5320	15.70	15.80	19.11
HT40	MCS0	54	5270	17.30	17.30	19.81
		62	5310	12.50	14.30	14.81
VHT20	MCS0	52	5260	19.90	19.60	19.36
		60	5300	18.60	18.20	19.81
		64	5320	15.60	15.70	19.01
VHT40	MCS0	54	5270	17.20	17.20	19.71
		62	5310	12.40	14.20	14.71
VHT80	MCS0	58	5290	12.30	13.80	16.26

WLAN 5.5GHz						
Mode	Data Rate	CH.	Freq. (MHz)	Average Power (dBm)		
				Ant 1	Ant 2	Ant 1+2
11a	6Mbps	100	5500	17.70	16.40	19.51
		116	5580	20.00	19.40	19.56
		140	5700	14.80	15.80	17.51
		144	5720	18.80	19.00	19.22
HT20	MCS0	100	5500	17.20	16.40	19.11
		116	5580	19.70	19.30	19.51
		140	5700	15.20	15.80	18.06
		144	5720	18.80	18.80	19.67
HT40	MCS0	102	5510	13.60	13.10	15.71
		110	5550	17.10	17.60	19.96
		134	5670	16.50	15.90	18.31
		142	5710	19.10	19.80	21.36
VHT20	MCS0	100	5500	17.10	16.30	19.01
		116	5580	19.60	19.20	19.41
		140	5700	15.10	15.70	17.96
		144	5720	18.70	18.70	19.57
VHT40	MCS0	102	5510	13.50	13.00	15.61
		118	5590	17.00	17.50	19.86
		134	5670	16.40	15.80	18.21
		142	5710	19.00	19.70	21.26
VHT80	MCS0	106	5530	10.60	10.80	12.16
		122	5610	16.10	16.10	17.91
		138	5690	18.90	19.40	21.01

WLAN 5.8GHz						
Mode	Data Rate	CH.	Freq. (MHz)	Average Power (dBm)		
				Ant 1	Ant 2	Ant 1+2
11a	6Mbps	149	5745	20.0	19.5	23.0
		157	5785	20.0	19.5	23.0
		165	5825	20.0	19.5	22.5
HT20	MCS0	149	5745	20.5	20.0	23.5
		157	5785	20.5	20.5	23.0
		165	5825	20.5	20.0	22.5
HT40	MCS0	151	5755	21.0	20.0	23.5
		159	5795	21.0	20.0	23.5
VHT20	MCS0	149	5745	20.5	20.0	23.0
		157	5785	20.5	20.5	23.0
		165	5825	20.5	20.0	22.5
VHT40	MCS0	151	5755	21.0	20.0	23.5
		159	5795	21.0	20.0	23.0
VHT80	MCS0	155	5775	18.5	19.5	21.5

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.

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



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 ²)	Limit (mW/cm ²)	Power Density / Limit
WLAN2.4GHz Band	1.90	23.00	24.9	0.31	309.03	0.062	1.000	0.062
WLAN5.2GHz Band	6.10	20.50	26.6	0.46	457.09	0.091	1.000	0.091
WLAN5.3GHz Band	5.31	20.50	25.8	0.38	381.07	0.076	1.000	0.076
WLAN5.5GHz Band	5.58	21.50	27.1	0.51	510.50	0.102	1.000	0.102
WLAN5.8GHz Band	5.09	23.50	28.6	0.72	722.77	0.144	1.000	0.144
Bluetooth	3.00	8.50	11.5	0.01	14.13	0.003	1.000	0.003

4.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN+Bluetooth
0.144	0.003	0.147

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.