



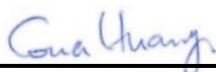
RF EXPOSURE EVALUATION REPORT

FCC ID : 2ASDU-7283
Equipment : Digital Media Streaming Device
Model Name : A78V3N
Applicant : Newly Invented LLC
16701 Melford Blvd, Suite 400 Bowie,
Maryland 20715
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this variant 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
FA8D0631-01	Rev. 01	Initial issue of report	Apr. 19, 2019

**1. Description of Equipment Under Test (EUT)**

Product Feature & Specification	
EUT Type	Digital Media Streaming Device
Model Name	A78V3N
FCC ID	2ASDU-7283
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5720 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.

Reviewed by: Jason Wang

Report Producer: Wan Liu

2. Maximum RF average output power among production units(dBm)

Band / Mode	Average Power (dBm)			
	BR / EDR			LE
	1M	2M	3M	GFSK
Bluetooth	11	9	9	11

2.4G <Non-Beamforming Mode>

2.4GHz WLAN	Mode	Channel	Frequency (MHz)	ANT1 Tune-Up Limit	ANT2 Tune-Up Limit	MIMO Tune-Up Limit
	802.11b	CH 1	2412	20.5	22	23
		CH 6	2437	20	22	23
		CH 11	2462	17	21	23
		CH 12	2467	15.5	20	23
		CH 13	2472	15.5	17	22
	802.11g	CH 1	2412	17	19	20
		CH 6	2437	20	21	23
		CH 11	2462	17	18	22
		CH 12	2467	13.5	14	18.5
		CH 13	2472	13.5	14	14.5
	802.11n-HT20	CH 1	2412	16	18.5	19
		CH 6	2437	19	20	23
		CH 11	2462	16	16.5	19
		CH 12	2467	12	14.5	17
		CH 13	2472	9	13	12

5G <Non-Beamforming Mode>

5.2GHz WLAN	Mode	Channel	Frequency (MHz)	ANT1 Tune-Up Limit	ANT2 Tune-Up Limit	MIMO Tune-Up Limit
	802.11a	36	5180	18	18	20.5
		44	5220	19.5	21	20.5
		48	5240	19.5	21.5	20
	802.11n-HT20	36	5180	17	18	20
		44	5220	19	20.5	20.5
		48	5240	19	21	20.5
	802.11n-HT40	38	5190	14.5	14	16.5
		46	5230	18.5	20	22.5
	802.11ac-VHT20	36	5180	17	18	20
		44	5220	18.5	20	20.5
		48	5240	18.5	20	20.5
	802.11ac-VHT40	38	5190	14.5	14	16.5
		46	5230	18.5	20	22.5
	802.11ac-VHT80	42	5210	14	14	13

5.3GHz WLAN	Mode	Channel	Frequency (MHz)	ANT1 Tune-Up Limit	ANT2 Tune-Up Limit	MIMO Tune-Up Limit
	802.11a	52	5260	19	21	21
		60	5300	21.5	20.5	21
		64	5320	21	20.5	21
	802.11n-HT20	52	5260	21	19	20.5
		60	5300	21	20	20
		64	5320	21	20	20
	802.11n-HT40	54	5270	18	18	23
		62	5310	16	16	18
	802.11ac-VHT20	52	5260	21	19.5	20.5
		60	5300	20.5	19.5	20
		64	5320	20.5	19.5	19.5
	802.11ac-VHT40	54	5270	18	18	23
		62	5310	14.5	15.5	17
	802.11ac-VHT80	58	5290	16	15.5	15.5

5.6GHz WLAN	Mode	Channel	Frequency (MHz)	ANT1 Tune-Up Limit	ANT2 Tune-Up Limit	MIMO Tune-Up Limit
	802.11a	100	5500	18.5	19.5	20
		116	5580	19	19.5	20
		140	5700	19	18.5	20.5
		144	5720	19.5	20	20.5
	802.11n-HT20	100	5500	18.5	19.5	19.5
		116	5580	18.5	18.5	19.5
		140	5700	16.5	17	18.5
		144	5720	19	19.5	19.5
	802.11n-HT40	102	5510	16	14.5	17
		110	5550	18.5	18	22.5
		134	5670	18	17	20
		142	5710	18.5	19	23
	802.11ac-VHT20	100	5500	18.5	19	19.5
		116	5580	18.5	18.5	19.5
		140	5700	17.5	16.5	18.5
		144	5720	19	19.5	19.5
	802.11ac-VHT40	102	5510	16	14	17
		110	5550	18.5	18	22.5
		134	5670	18	16.5	20
		142	5710	18.5	19	23
	802.11ac-VHT80	106	5530	15.5	13.5	15.5
		122	5610	18	18	21.5
		138	5690	19	18.5	23

5.8GHz WLAN	Mode	Channel	Frequency (MHz)	ANT1 Tune-Up Limit	ANT2 Tune-Up Limit	MIMO Tune-Up Limit
	802.11a	149	5745	20.5	20	23
		157	5785	20	20	22
		165	5825	19	19	23
	802.11n-HT20	149	5745	19.5	20	23
		157	5785	19.5	19	23
		165	5825	19.5	18	22.5
	802.11n-HT40	151	5755	19	19.5	23.5
		159	5795	19	19.5	22
	802.11ac-VHT20	149	5745	19	19	23
		157	5785	18.5	19	23
		165	5825	18.5	18.5	22.5
	802.11ac-VHT40	151	5755	18.5	19	23.5
		159	5795	18.5	19	22
	802.11ac-VHT80	155	5775	15.5	16	18.5

5G <Beamforming Mode>

	Mode	Channel	Frequency (MHz)	MIMO Tune-Up Limit
5.2GHz WLAN	802.11ac-VHT20	36	5180	20
		44	5220	20
		48	5240	20
	802.11ac-VHT40	38	5190	17
		46	5230	21
	802.11ac-VHT80	42	5210	16.5

	Mode	Channel	Frequency (MHz)	MIMO Tune-Up Limit
5.3GHz WLAN	802.11ac-VHT20	52	5260	20
		60	5300	20
		64	5320	20
	802.11ac-VHT40	54	5270	22.5
		62	5310	20
	802.11ac-VHT80	58	5290	17.5

	Mode	Channel	Frequency (MHz)	MIMO Tune-Up Limit
5.6GHz WLAN	802.11ac-VHT20	100	5500	20
		116	5580	20
		140	5700	20
		144	5720	20
	802.11ac-VHT40	102	5510	21
		110	5550	22.5
		134	5670	21
		142	5710	22.5
	802.11ac-VHT80	106	5530	20
		122	5610	23
		138	5690	23

	Mode	Channel	Frequency	MIMO Tune-Up Limit
5.8GHz WLAN	802.11ac-VHT20	149	5745	23.5
		157	5785	23
		165	5825	23
	802.11ac-VHT40	151	5755	23
		159	5795	23
	802.11ac-VHT80	155	5775	21

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

<Non-Beamforming Mode>

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	2.40	23.00	25.400	0.347	346.737	0.069	1.000	0.069
5GHz WLAN	5180.0	5.20	23.50	28.700	0.741	741.310	0.148	1.000	0.148
Bluetooth	2402.0	2.00	11.00	13.000	0.020	19.953	0.004	1.000	0.004

Note:

- In the above table have assessed Bluetooth, WLAN 2.4GHz and WLAN 5GHz by referring to their maximum power.

<Beamforming Mode>

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
5GHz WLAN	5180.0	3.51	23.50	27.010	0.502	502.343	0.100	1.000	0.100

Note:

- In the above table have assessed WLAN 5GHz by referring to their maximum power.

4.2. Collocated Power Density Calculation

2.4GHz WLAN Power Density / Limit	5GHz WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN+Bluetooth
0.069	0.148	0.004	0.221

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 WLAN + Bluetooth.
- 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 3 collocated transmitters is compliant

Conclusion:

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