



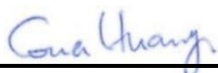
RF EXPOSURE EVALUATION REPORT

FCC ID : 2AR05-7879
Equipment : Digital Media Receiver
Model Name : C7H6N3
Applicant : Teachey-1625 LLC
8 Wright St., 1st Floor
Westport, CT 06880
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 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
FA940344-01	Rev. 01	Initial issue of report	Aug. 20, 2019
FA940344-01	Rev. 02	Update section 4.1 & 4.2	Sep. 02, 2019

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Digital Media Receiver
Model Name	C7H6N3
FCC ID	2ARO5-7879
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	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: Daisy Peng

2. Maximum RF average output power among production units

Band / Mode	Average Power (dBm)			
	BR / EDR			GFSK
	1M	2M	3M	BLE
Bluetooth	8.5	7	7	5.5

<CDD Mode>

2.4GHz WLAN ANT 1+2					
2.4GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11b	CH 01	2412 MHz	1Mbps	18.50
		CH 06	2437 MHz		18.00
		CH 11	2462 MHz		18.50
		CH 12	2467 MHz		18.50
		CH 13	2472 MHz		17.00
	802.11g	CH 01	2412 MHz	6Mbps	17.50
		CH 06	2437 MHz		17.00
		CH 11	2462 MHz		17.00
		CH 12	2467 MHz		14.00
		CH 13	2472 MHz		13.00
	802.11n-HT20	CH 01	2412 MHz	MCS0	18.50
		CH 06	2437 MHz		18.00
		CH 11	2462 MHz		17.00
		CH 12	2467 MHz		14.50
		CH 13	2472 MHz		13.00

5.2GHz WLAN ANT 1+2					
5.2GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 36	5180	6Mbps	19.00
		CH 44	5220		18.50
		CH 48	5240		18.50
	802.11n-HT20	CH 36	5180	MCS0	18.50
		CH 44	5220		19.00
		CH 48	5240		19.00
	802.11n-HT40	CH 38	5190	MCS0	18.00
		CH 46	5230		19.50
	802.11ac-VHT20	CH 36	5180	MCS0	18.50
		CH 44	5220		19.00
		CH 48	5240		19.00
	802.11ac-VHT40	CH 38	5190	MCS0	17.50
		CH 46	5230		19.00
	802.11ac-VHT80	CH 42	5210	MCS0	19.00

5.3GHz WLAN ANT 1+2					
5.3GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH52	5260 MHz	6Mbps	18.50
		CH60	5300 MHz		19.00
		CH64	5320 MHz		19.00
	802.11n-HT20	CH52	5260 MHz	MCS0	19.00
		CH60	5300 MHz		18.50
		CH64	5320 MHz		18.50
	802.11n-HT40	CH54	5270 MHz	MCS0	19.50
		CH62	5310 MHz		18.50
	802.11ac-VHT20	CH52	5260 MHz	MCS0	18.50
		CH60	5300 MHz		18.50
		CH64	5320 MHz		18.50
	802.11ac-VHT40	CH54	5270 MHz	MCS0	19.50
		CH62	5310 MHz		18.50
	802.11ac-VHT80	CH58	5290 MHz	MCS0	17.50

5.6GHz WLAN ANT 1+2					
5.6GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH100	5500 MHz	6Mbps	17.50
		CH116	5580 MHz		17.50
		CH140	5700 MHz		17.50
		CH144	5720 MHz		17.00
	802.11n HT20	CH100	5500 MHz	MCS0	17.50
		CH116	5580 MHz		17.00
		CH140	5700 MHz		17.50
		CH144	5720 MHz		17.50
	802.11n HT40	CH102	5510 MHz	MCS0	18.50
		CH110	5550 MHz		19.00
		CH134	5670 MHz		19.50
		CH142	5710 MHz		19.00
	802.11ac VHT20	CH100	5500 MHz	MCS0	17.50
		CH116	5580 MHz		17.00
		CH140	5700 MHz		17.50
		CH144	5720 MHz		17.50
	802.11ac VHT40	CH102	5510 MHz	MCS0	18.50
		CH118	5590 MHz		19.00
		CH134	5670 MHz		19.50
		CH142	5710 MHz		19.00
	802.11ac VHT80	CH106	5530 MHz	MCS0	14.00
		CH122	5610 MHz		19.00
		CH138	5690 MHz		19.50

5.8GHz WLAN ANT 1+2					
5.8GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 149	5745	6Mbps	19.50
		CH 157	5785		20.00
		CH 165	5825		20.00
	802.11n-HT20	CH 149	5745	MCS0	19.50
		CH 157	5785		20.00
		CH 165	5825		19.50
	802.11n-HT40	CH 151	5755	MCS0	18.50
		CH 159	5795		19.00
	802.11ac-VHT20	CH 149	5745	MCS0	19.50
		CH 157	5785		20.00
		CH 165	5825		19.50
	802.11ac-VHT40	CH 151	5755	MCS0	18.50
		CH 159	5795		18.50
	802.11ac-VHT80	CH 155	5775	MCS0	18.50

< Beamforming Mode >

5.2GHz WLAN ANT 1+2					
5.2GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11ac-VHT20	CH 36	5180	MCS0	19.00
		CH 44	5220		18.50
		CH 48	5240		19.50
	802.11ac-VHT40	CH 38	5190	MCS0	18.00
		CH 46	5230		21.00
	802.11ac-VHT80	CH 42	5210	MCS0	17.00

5.3GHz WLAN ANT 1+2					
5.3GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11ac-VHT20	CH52	5260 MHz	MCS0	18.50
		CH60	5300 MHz		19.00
		CH64	5320 MHz		19.00
	802.11ac-VHT40	CH54	5270 MHz	MCS0	18.50
		CH62	5310 MHz		18.00
	802.11ac-VHT80	CH58	5290 MHz	MCS0	17.50

5.6GHz WLAN ANT 1+2					
5.6GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11ac-VHT20	CH100	5500 MHz	MCS0	18.00
		CH116	5580 MHz		18.00
		CH140	5700 MHz		17.50
		CH144	5720 MHz		17.50
	802.11ac-VHT40	CH102	5510 MHz	MCS0	17.00
		CH118	5590 MHz		18.50
		CH134	5670 MHz		18.00
		CH142	5710 MHz		18.00
	802.11ac-VHT80	CH106	5530 MHz	MCS0	13.00
		CH122	5610 MHz		18.00
		CH138	5690 MHz		18.00

5.8GHz WLAN ANT 1+2					
5.8GHz WLAN ANT 1+2	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11ac-VHT20	CH 149	5745	MCS0	20.50
		CH 157	5785		20.50
		CH 165	5825		21.00
	802.11ac-VHT40	CH 151	5755	MCS0	20.00
		CH 159	5795		20.00
	802.11ac-VHT80	CH 155	5775	MCS0	20.00

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

<CDD>

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	3.33	18.50	21.830	0.152	152.405	0.030	1.000	0.030
5GHz WLAN	5180.0	6.14	20.00	26.140	0.411	411.150	0.082	1.000	0.082
Bluetooth	2402.0	2.82	8.50	11.320	0.014	13.552	0.003	1.000	0.003

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

<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	8.87	21.00	29.870	0.971	970.510	0.193	1.000	0.193

Note:

- For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.
- This device supports Beamforming for WLAN 5GHz VHT20/VHT40/VHT80 only; therefore, in the table above which consider maximum directional Gain 8.87dBi for WLAN 5GHz Beamforming mode.

4.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN+Bluetooth
0.193	0.003	0.196

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 2 collocated transmitters is compliant

Conclusion:

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