



RF EXPOSURE EVALUATION REPORT

FCC ID : 2AYZN-5272
Equipment : Digital Media Receiver
Model Name : K2R2TE
Applicant : Getchellite LLC
125 Cambridge Park Drive
Cambridge, MA 02140
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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1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Digital Media Receiver
Model Name	K2R2TE
FCC ID	2AYZN-5272
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/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 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	8.5	8.5	7.5

2.4GHz WLAN ANT 1					
2.4GHz WLAN ANT 1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
		802.11b	CH 01	2412 MHz	1Mbps
CH 06			2437 MHz	16	
CH 11			2462 MHz	16	
CH 12			2467 MHz	16	
CH 13			2472 MHz	15.5	
802.11g		CH 01	2412 MHz	6Mbps	15.5
		CH 06	2437 MHz		16.5
		CH 11	2462 MHz		16
		CH 12	2467 MHz		16.5
		CH 13	2472 MHz		14
802.11n-HT20		CH 01	2412 MHz	MCS0	15
		CH 06	2437 MHz		16
		CH 11	2462 MHz		16
		CH 12	2467 MHz		16.5
		CH 13	2472 MHz		13.5
802.11ax HE20		CH 01	2412 MHz	MCS0	14.5
		CH 06	2437 MHz		15.5
	CH 11	2462 MHz	15.5		
	CH 12	2467 MHz	13		
	CH 13	2472 MHz	9		



2.4GHz WLAN ANT 0+1 (CDD)					
	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	2.4GHz WLAN 0+1 (CDD)	802.11b	CH 01	2412 MHz	1Mbps
CH 06			2437 MHz	20	
CH 11			2462 MHz	20	
CH 12			2467 MHz	18	
CH 13			2472 MHz	14	
802.11g		CH 01	2412 MHz	6Mbps	18.5
		CH 06	2437 MHz		19.5
		CH 11	2462 MHz		19
		CH 12	2467 MHz		16.5
		CH 13	2472 MHz		12.5
802.11n-HT20		CH 01	2412 MHz	MCS0	18
		CH 06	2437 MHz		19.5
		CH 11	2462 MHz		18.5
		CH 12	2467 MHz		16
		CH 13	2472 MHz		11
802.11ax HE20		CH 01	2412 MHz	MCS0	17
		CH 06	2437 MHz		18.5
		CH 11	2462 MHz		17
		CH 12	2467 MHz		15.5
		CH 13	2472 MHz		12

5.2GHz WLAN ANT 0+1 (CDD)					
	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	5.2GHz WLAN ANT 0+1	802.11a	CH 36	5180 MHz	6Mbps
CH 44			5220 MHz	18.5	
CH 48			5240 MHz	18.5	
802.11n-HT20		CH 36	5180 MHz	MCS0	19
		CH 44	5220 MHz		18.5
		CH 48	5240 MHz		18.5
802.11n-HT40		CH 38	5190 MHz	MCS0	18
		CH 46	5230 MHz		19.5
802.11ac-VHT20		CH 36	5180 MHz	MCS0	19
		CH 44	5220 MHz		18.5
		CH 48	5240 MHz		18.5
802.11ac-VHT40		CH 38	5190 MHz	MCS0	18
		CH 46	5230 MHz		19.5
802.11ac-VHT80		CH 42	5210 MHz	MCS0	15.5
802.11ax HE20		CH 36	5180 MHz	MCS0	19
		CH 44	5220 MHz		18.5
		CH 48	5240 MHz		18.5
802.11ax HE40		CH 38	5190 MHz	MCS0	18
		CH 46	5230 MHz		19.5
802.11ax HE80		CH 42	5210 MHz	MCS0	16



5.3GHz WLAN ANT 0+1 (CDD)					
5.3GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH52	5260 MHz	6Mbps	18.5
		CH60	5300 MHz		18.5
		CH64	5320 MHz		18.5
	802.11n-HT20	CH52	5260 MHz	MCS0	18.5
		CH60	5300 MHz		18.5
		CH64	5320 MHz		18.5
	802.11n-HT40	CH54	5270 MHz	MCS0	19.5
		CH62	5310 MHz		19.5
	802.11ac-VHT20	CH52	5260 MHz	MCS0	18.5
		CH60	5300 MHz		18.5
		CH64	5320 MHz		18.5
	802.11ac-VHT40	CH54	5270 MHz	MCS0	19.5
		CH62	5310 MHz		19.5
	802.11ac-VHT80	CH58	5290 MHz	MCS0	16
	802.11ax HE20	CH 52	5260 MHz	MCS0	18.5
CH 60		5300 MHz	18.5		
CH 64		5320 MHz	19		
802.11ax HE40	CH 54	5270 MHz	MCS0	19.5	
	CH 62	5310 MHz		19.5	
802.11ax HE80	CH 58	5290 MHz	MCS0	16.5	



5.6GHz WLAN ANT 0+1						
5.6GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit	
	802.11a	CH100	CH100	5500 MHz	6Mbps	18.5
			CH116	5580 MHz		18.5
			CH140	5700 MHz		18
			CH144	5720 MHz		18
	802.11n HT20	CH100	CH100	5500 MHz	MCS0	18
			CH116	5580 MHz		18.5
			CH140	5700 MHz		18
			CH144	5720 MHz		18
	802.11n HT40	CH102	CH102	5510 MHz	MCS0	20
			CH110	5550 MHz		19.5
			CH134	5670 MHz		20
			CH142	5710 MHz		20
	802.11ac VHT20	CH100	CH100	5500 MHz	MCS0	18
			CH116	5580 MHz		18.5
			CH140	5700 MHz		18
			CH144	5720 MHz		18
	802.11ac VHT40	CH102	CH102	5510 MHz	MCS0	20
			CH110	5550 MHz		19.5
			CH134	5670 MHz		20
CH142			5710 MHz	20		
802.11ac VHT80	CH106	CH106	5530 MHz	MCS0	16.5	
		CH122	5610 MHz		19.5	
		CH138	5690 MHz		19.5	
802.11ax HE20	CH100	CH100	5500 MHz	MCS0	18.5	
		CH116	5580 MHz		18.5	
		CH140	5700 MHz		18.5	
		CH144	5720 MHz		18.5	
802.11ax HE40	CH102	CH102	5510 MHz	MCS0	20	
		CH110	5590 MHz		19.5	
		CH134	5670 MHz		20	
		CH142	5710 MHz		20.5	
802.11ax HE80	CH106	CH106	5530 MHz	MCS0	16.5	
		CH122	5610 MHz		19.5	
		CH138	5690 MHz		20	



5.8GHz WLAN ANT 0+1 (CDD)						
5.8GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit	
	802.11a		CH 149	5745 MHz	6Mbps	22
			CH 157	5785 MHz		22
			CH 165	5825 MHz		22
	802.11n-HT20		CH 149	5745 MHz	MCS0	20
			CH 157	5785 MHz		20
			CH 165	5825 MHz		20
	802.11n-HT40		CH 151	5755 MHz	MCS0	20
			CH 159	5795 MHz		20
	802.11ac-VHT20		CH 149	5745 MHz	MCS0	20
			CH 157	5785 MHz		20
			CH 165	5825 MHz		20
	802.11ac-VHT40		CH 151	5755 MHz	MCS0	20
			CH 159	5795 MHz		20
	802.11ac-VHT80		CH 155	5775 MHz	MCS0	19.5
802.11ax HE20		CH149	5745 MHz	MCS0	20.5	
		CH157	5785 MHz		20.5	
		CH165	5825 MHz		20	
802.11ax HE40		CH151	5755 MHz	MCS0	20	
		CH159	5795 MHz		20	
802.11ax HE80		CH155	5775 MHz	MCS0	20	



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	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
WLAN2.4GHz Band	2400	3.8	20.0	23.8	0.24	239.88	0.048	1.000	0.048
WLAN5GHz Band	5150	6.2	22.0	28.2	0.66	660.69	0.132	1.000	0.132
Bluetooth	2400	3.8	8.5	12.3	0.02	16.98	0.003	1.000	0.003

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN+Bluetooth
0.132	0.003	0.135

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.