

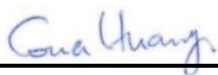
RF EXPOSURE EVALUATION REPORT

FCC ID : 2AUQI-7436
Equipment : HDMI Digital Media Receiver
Model Name : S3L46N
Applicant : PROJECT 710 L.L.C.
101 Merritt 7 Corporate Park, 3rd floor
Norwalk, CT 06851
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.

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.

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.



Approved by: Cona Huang / Deputy Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA020402-01	Rev. 01	Initial issue of report	Jun. 26, 2020

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	HDMI Digital Media Receiver
Model Name	S3L46N
FCC ID	2AUQI-7436
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2472 MHz WLAN 5GHz Band: 5180 MHz ~ 5320 MHz, 5550 MHz ~ 5720MHz, 5745 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: Ching Chen

WLAN Antenna Information									
1	Ant. Type	PCB Inv F type	connector		2	Ant. Type	PCB Inv F type	connector	
	Model No.					Model No.	S3L46N		
	Peak Gain (dBi)					Peak Gain (dBi)			
	2400~2483.5MHz	3.85	5470~5725MHz	5.12		2400~2483.5MHz	4.53	5470~5725MHz	4.72
	5150~5250MHz	5.12	5725~5850MHz	5.01		5150~5250MHz	5.52	5725~5850MHz	5.46
	5250~5350MHz	5.06				5250~5350MHz	4.97		

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

Band / Mode	Average Power (dBm)			
	BR / EDR			GFSK
	1M	2M	3M	LE/BLE
Bluetooth	5.5	5.5	5.5	6



2.4GHz WLAN ANT 1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11b	CH 1	2412	1Mbps	17.50
		CH 6	2437		17.50
		CH 11	2462		18.00
		CH 12	2467		18.00
		CH 13	2472		15.50
	802.11g	CH 1	2412	6Mbps	18.00
		CH 6	2437		17.50
		CH 11	2462		18.00
		CH 12	2467		14.50
		CH 13	2472		12.50
	802.11n-HT20	CH 1	2412	MCS0	18.00
		CH 6	2437		17.50
		CH 11	2462		17.50
		CH 12	2467		14.00
		CH 13	2472		11.50

2.4GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11b	CH 1	2412	1Mbps	21.00
		CH 6	2437		19.50
		CH 11	2462		20.00
		CH 12	2467		17.00
		CH 13	2472		14.00
	802.11g	CH 1	2412	6Mbps	19.50
		CH 6	2437		21.00
		CH 11	2462		18.50
		CH 12	2467		16.00
		CH 13	2472		12.50
	802.11n-HT20	CH 1	2412	MCS0	19.50
		CH 6	2437		21.00
		CH 11	2462		18.50
		CH 12	2467		15.50
		CH 13	2472		11.50

5.2GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 36	5180	6Mbps	18.50
		CH 44	5220		19.50
		CH 48	5240		19.50
	802.11n-HT20	CH 36	5180	MCS0	18.50
		CH 44	5220		19.50
		CH 48	5240		19.00
	802.11n-HT40	CH 38	5190	MCS0	17.50
		CH 46	5230		20.00
	802.11ac-VHT20	CH 36	5180	MCS0	18.00
		CH 44	5220		19.00
		CH 48	5240		19.00
	802.11ac-VHT40	CH 38	5190	MCS0	17.00
		CH 46	5230		20.00
	802.11ac-VHT80	CH 42	5210	MCS0	14.00

5.3GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 52	5260	6Mbps	19.50
		CH 60	5300		19.50
		CH 64	5320		19.50
	802.11n-HT20	CH 52	5260	MCS0	19.50
		CH 60	5300		19.50
		CH 64	5320		19.00
	802.11n-HT40	CH 54	5270	MCS0	20.50
		CH 62	5310		16.50
	802.11ac-VHT20	CH 52	5260	MCS0	19.00
		CH 60	5300		19.50
		CH 64	5320		18.50
	802.11ac-VHT40	CH 54	5270	MCS0	20.50
		CH 62	5310		16.50
	802.11ac-VHT80	CH 58	5290	MCS0	13.50



5.5GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 100	5500	6Mbps	20.00
		CH 116	5580		19.50
		CH 140	2700		18.00
		CH 144	5720		19.50
	802.11n-HT20	CH 100	5500	MCS0	20.00
		CH 116	5580		19.50
		CH 140	2700		17.50
		CH 144	5720		19.50
	802.11n-HT40	CH 102	5510	MCS0	17.50
		CH 110	5550		20.50
		CH 134	5670		19.50
		CH 142	5710		20.50
	802.11ac-VHT20	CH 100	5500	MCS0	20.00
		CH 116	5580		19.50
		CH 140	5700		17.50
		CH 144	5720		19.00
	802.11ac-VHT40	CH 102	5510	MCS0	17.50
		CH 110	5550		20.50
		CH 134	5670		19.50
		CH 142	5710		20.50
	802.11ac-VHT80	CH 106	5530	MCS0	15.00
		CH 122	5610		20.00
		CH 138	5690		20.50

5.8GHz WLAN ANT 0+1	Mode	Channel	Frequency (MHz)	Data Rate	Tune-Up Limit
	802.11a	CH 149	5745	MCS0	20.50
		CH 157	5785		20.50
		CH 165	5825		20.50
	802.11n-HT20	CH 149	5745	MCS0	20.50
		CH 157	5785		20.50
		CH 165	5825		20.50
	802.11n-HT40	CH 151	5755	MCS0	20.50
		CH 159	5795		20.50
	802.11ac-VHT20	CH 149	5745	MCS0	20.00
		CH 157	5785		20.50
		CH 165	5825		20.50
	802.11ac-VHT40	CH 151	5755	MCS0	20.50
		CH 159	5795		20.50
	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

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
2.4GHz WLAN	4.53	21.00	25.530	0.357	357.273	0.071	1.000	0.071
5GHz WLAN	5.52	20.50	26.020	0.400	399.945	0.080	1.000	0.080
Bluetooth	3.85	6.00	9.850	0.010	9.661	0.002	1.000	0.002

4.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN+WLAN+Bluetooth
0.080	0.002	0.082

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 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.