RF EXPOSURE EVALUATION REPORT

FCC ID	:	**2AP65-7225**
Equipment	:	**Digital Media Receiver**
Model Name	:	**P5B83L**
Applicant	:	**Lindland LLC** **9121 Anson Way, Ste. 200, Raleigh, NC 27615**
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
FA842408-07	Rev. 01	Initial issue of report	Jul. 30, 2020
FA842408-07	Rev. 02	Update section 4	Aug. 05, 2020

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Digital Media Receiver
Model Name	P5B83L
FCC ID	2AP65-7225
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.6GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8GHz Band: 5725 MHz ~ 5825 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
Mode	WLAN: 802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80 Bluetooth 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

2. Maximum RF average output power among production units

Bluetooth	Average Power (dBm)
	V4.0 BLE
	1M
ANT 1	4.00
ANT 2	4.00

	Mode	Channel	Frequency (MHz)	Data Rate	ANT 1 Tune-up Limit	ANT 2 Tune-up Limit
2.4GHz WLAN	802.11b	CH 1	2412	1Mbps	20.5	19
		CH 6	2437		20.5	20.5
		CH 11	2462		20.5	21
		CH 12	2467		16.5	16.5
		CH 13	2472		13.5	14.5
	802.11g	CH 1	2412	6Mbps	17.5	17
		CH 6	2437		18.5	18.5
		CH 11	2462		16.5	16.5
		CH 12	2467		11	12.5
		CH 13	2472		9.5	10.5
	802.11n-HT20	CH 1	2412	MCS0	14	16
		CH 6	2437		17.5	17.5
		CH 11	2462		13	14.5
		CH 12	2467		10.5	12
		CH 13	2472		9	10

	Mode	Channel	Frequency (MHz)	ANT 1 Tune-Up Limit	ANT 2 Tune-Up Limit
5.2GHz WLAN	802.11a 6Mbps	CH 36	5180	18	18
		CH 40	5200	18	18.5
		CH 44	5220	18.5	18.5
		CH 48	5240	18.5	18.5
	802.11n-HT20 MCS0	CH 36	5180	17.5	16.5
		CH 40	5200	17.5	17.5
		CH 44	5220	17.5	17.5
		CH 48	5240	17.5	17.5
	802.11n-HT40 MCS0	CH 38	5190	14	12.5
		CH 46	5230	17.5	17.5
	802.11ac-VHT20 MCS0	CH 36	5180	17.5	16.5
		CH 40	5200	17.5	17.5
		CH 44	5220	17.5	17.5
		CH 48	5240	17.5	17.5
	802.11ac-VHT40 MCS0	CH 38	5190	14	12.5
		CH 46	5230	17.5	17
	802.11ac-VHT80 MCS0	CH 42	5210	9.5	11

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit	Ant 2 Tune-up Limit
5.3GHz WLAN	802.11a 6Mbps	CH 52	5260	19.00	18.50
		CH 60	5300	19.00	18.50
		CH 64	5320	18.50	18.00
	802.11n-HT20 MCS0	CH 52	5260	18.00	17.50
		CH 60	5300	18.00	17.50
		CH 64	5320	17.50	17.00
	802.11n-HT40 MCS0	CH 54	5270	17.50	17.50
		CH 62	5310	15.50	14.00
	802.11ac-VHT20 MCS0	CH 52	5260	17.50	17.50
		CH 60	5300	18.00	17.50
		CH 64	5320	17.50	17.00
	802.11ac-VHT40 MCS0	CH 54	5270	17.50	17.00
		CH 62	5310	15.00	14.00
	802.11ac-VHT80 MCS0	CH 58	5290	12.50	11.50

	Mode	Channel	Frequency (MHz)	Ant 1 Tune-up Limit	Ant 2 Tune-up Limit
5.5GHz WLAN	802.11a 6Mbps	CH 100	5500	19.50	19.00
		CH 116	5580	19.00	19.00
		CH 140	5700	17.50	16.50
		CH 144	5720	18.50	18.50
	802.11n-HT20 MCS0	CH 100	5500	18.50	18.50
		CH 116	5580	18.00	18.00
		CH 140	5700	16.00	15.00
		CH 144	5720	17.50	17.50
	802.11n-HT40 MCS0	CH 102	5510	14.00	13.50
		CH 110	5550	18.00	17.50
		CH 134	5670	17.50	17.50
		CH 142	5710	17.50	17.50
	802.11ac-VHT20 MCS0	CH 100	5500	18.00	18.00
		CH 116	5580	17.50	17.50
		CH 140	5700	16.00	15.00
		CH 144	5720	17.50	17.50
	802.11ac-VHT40 MCS0	CH 102	5510	14.00	13.50
		CH 110	5550	18.00	17.50
		CH 134	5670	17.50	17.50
		CH 142	5710	17.50	17.50
	802.11ac-VHT80 MCS0	CH 106	5530	12.00	10.50
		CH 122	5610	18.00	18.00
		CH 138	5690	18.00	18.00

	Mode	Channel	Frequency (MHz)	ANT 1 Tune-Up Limit	ANT 2 Tune-Up Limit
5.8GHz WLAN	802.11a MCS0	CH 149	5745	18.5	18.5
		CH 157	5785	18.5	18.5
		CH 165	5825	19	19
	802.11n-HT20 MCS0	CH 149	5745	17.5	17.5
		CH 157	5785	17.5	17.5
		CH 165	5825	18	18
	802.11n-HT40 MCS0	CH 151	5755	17.5	17.5
		CH 159	5795	17.5	17.5
	802.11ac-VHT20 MCS0	CH 149	5745	17.5	17.5
		CH 157	5785	17.5	17.5
		CH 165	5825	18	18
	802.11ac-VHT40 MCS0	CH 151	5755	17.5	17.5
		CH 159	5795	17.5	17.5
	802.11ac-VHT80 MCS0	CH 155	5775	16.5	18

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/f2)	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/f2)	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)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN ANT 1	2.97	20.50	23.470	0.222	0.044	1.000
2.4GHz WLAN ANT 2	1.36	21.00	22.360	0.172	0.034	1.000
5.2GHz WLAN ANT 1	0.88	18.50	19.380	0.087	0.017	1.000
5.2GHz WLAN ANT 2	4.00	18.50	22.500	0.178	0.035	1.000
5.3GHz WLAN ANT 1	1.12	19.00	20.120	0.103	0.020	1.000
5.3GHz WLAN ANT 2	4.31	18.50	22.810	0.191	0.038	1.000
5.5GHz WLAN ANT 1	0.96	19.50	20.460	0.111	0.022	1.000
5.5GHz WLAN ANT 2	4.25	19.00	23.250	0.211	0.042	1.000
5.8GHz WLAN ANT 1	0.96	19.00	19.960	0.099	0.020	1.000
5.8GHz WLAN ANT 2	3.98	19.00	22.980	0.199	0.040	1.000
Bluetooth ANT 1	2.97	4.00	6.970	0.005	0.001	1.000
Bluetooth ANT 2	1.36	4.00	5.360	0.003	0.001	1.000

Conclusion:

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