



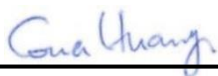
RF EXPOSURE EVALUATION REPORT

FCC ID : 2AG0Z-CM5X
Equipment : Media Receiver
Brand Name : facebook
Model Name : LW94NS
Applicant : Facebook Technologies LLC
1 Hacker Way Menlo Park
CA 94025
Manufacturer : Facebook Technologies LLC
1 Hacker Way Menlo Park
CA 94025
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has evaluated this product in accordance with 47 CFR Part 2.1091 and it complies with applicable 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

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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History of this test report

Report No.	Version	Description	Issued Date
FA932216-01	Rev. 01	Initial issue of report	Jul. 05, 2019
FA932216-01	Rev. 02	Update section 2.	Jul. 19, 2019
FA932216-01	Rev. 03	Update brand name	Jul. 31, 2019

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Media Receiver
Brand Name	facebook
Model Name	LW94NS
FCC ID	2AG0Z-CM5X
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 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/ax HT20 / HT40 / VHT20 / VHT40 / VHT80 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

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			LE	BLE5.0
	1M	2M	3M	GFSK	2M
Bluetooth	11	9	9	5.5	5.5

Band / Channel / Frequency (MHz)			IEEE 802.11 Average Power (dBm)		
			Ant 1 + 2		
			11b	11g	HT20
2.4GHz WLAN (DTS)	Ch 1	2412	22.5	19	18
	Ch 2	2417			21.5
	Ch 6	2437	22.5	22	21.5
	Ch 9	2452			
	Ch 11	2462	22.5	21.5	21.5

Band / Channel / Frequency (MHz)			IEEE 802.11 Average Power (dBm)					
			Ant 1 + 2					
			11a	HT20	HT40	VHT20	VHT40	VHT80
5.2GHz WLAN (U-NII-1)	Ch 36	5180	23	23		23		
	Ch 38	5190			19.5		19.5	
	Ch 42	5210						19
	Ch 44	5220	23	23		23		
	Ch 46	5230			23		23	
	Ch 48	5240	23	23		23		
5.3GHz WLAN (U-NII-2A)	Ch 52	5260	23	23		23		
	Ch 54	5270			23		23	
	Ch 58	5290						17
	Ch 60	5300	23	23		23		
	Ch 62	5310			18		18	
	Ch 64	5320	23	23		23		
5.5GHz WLAN (U-NII-2C)	Ch 100	5500	22.5	22.5		22.5		
	Ch 102	5510			22		22	
	Ch 106	5530						21.5
	Ch 110	5550			23.5		23.5	
	Ch 116	5580	22.5	22.5		22.5		
	Ch 122	5610						22.5
	Ch 134	5670			23		23	
	Ch 138	5690						22.5
	Ch 140	5700	23	22.5		22.5		
	Ch 142	5710			23		23	
5.8GHz WLAN (U-NII-3)	Ch 144	5720	22.5	22.5		22.5		
	Ch 149	5745	22.5	22.5		22.5		
	Ch 151	5755			22.5		22.5	
	Ch 155	5775						22
	Ch 157	5785	22.5	22.5		22.5		
	Ch 159	5795			22.5		22.5	
	Ch 165	5825	22.5	22.5		22.5		



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
2.4GHz WLAN	2412.0	1.36	22.50	23.860	0.243	243.220	0.048	1.000	0.048
5GHz WLAN	5180.0	2.50	23.50	26.000	0.398	398.107	0.079	1.000	0.079
Bluetooth	2402.0	1.36	11.00	12.360	0.017	17.219	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

4.2. Collocated Power Density Calculation

WLAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WLAN+Bluetooth
0.079	0.003	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 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.