



RADIO EXPOSURE TEST REPORT

FCC ID : VW3FAST287

Equipment : Wireless Home Router

Brand Name : SAGEMCOM

Model Name : FAST 287

Applicant : SAGEMCOM BROADBAND SAS
250 Route de l'Empereur - 92848 RUEIL
MALMAISON CEDEX- FRANCE

Manufacturer : SAGEMCOM BROADBAND SAS
250 Route de l'Empereur - 92848 RUEIL
MALMAISON CEDEX- FRANCE

Standard : 47 CFR Part 2.1091

The product was received on May 07, 2021, and testing was started from Jul. 17, 2021 and completed on Aug. 03, 2021. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



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History of this test report

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FAX : 886-3-656-9085
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Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Wendy Pan



1 General Description

1.1 EUT General Information

RF General Information			
Evaluation Mode	Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN	2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)
5GHz WLAN	5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)

1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Antenna Gain (dBi)
1	1	Galtronics	02102140-07500-1 DB1	PCB	I-PEX	Note 1
2	2	Galtronics	02102140-07500-2 DB2	PCB	I-PEX	
3	3	Galtronics	02102140-07500-3 DB3	PCB	I-PEX	
4	4	Galtronics	02102142-07500 5G	PCB	I-PEX	

Note1:

Ant.	Port	WLAN 2.4GHz	WLAN 5GHz UNII 1	WLAN 5GHz UNII 3
1	1	2.39	4.83	2.94
2	2	2.75	2.22	2.08
3	3	3.31	3.23	3.33
4	4	-	2.17	3.27

Directional Gain (dBi)		
WLAN 2.4GHz 3T1S	WLAN 5GHz UNII 1 4T1S	WLAN 5GHz UNII 3 4T1S
3.79	4.89	5.16

Note2: For 2.4GHz function:

**For IEEE 802.11b/g/n/VHT/ax (3TX/3RX):**

Port 1, Port 2 and Port 3 can be used as transmitting/receiving antenna.

Port 1, Port 2 and Port 3 could transmit/receive simultaneously.

For 5GHz function:**For IEEE 802.11a/n/ac/ax (4TX/4RX):**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting/receiving antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit/receive simultaneously.

1.3 Accessories

Accessories			
Equipment Name	Brand Name	Model Name	Rating
Adapter	SAGEMCOM	ADS-36FLJ-12 12030EPCU-L	INPUT: 100-127V~50/60Hz, Max. 0.9A OUTPUT: 12V, 2.5A

1.4 Testing Location

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065 FAX: 886-3-656-9085 Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISCED.



2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
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

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 23 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	3.79	29.98	33.77	0.50	34.27	2.67301	23	0.40210	1.00000
5.2G;D1D	4.89	29.95	34.84	0.50	35.34	3.41979	23	0.51444	1.00000
5.8G;D1D	5.16	29.96	35.12	0.50	35.62	3.64754	23	0.54870	1.00000

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz+WLAN 5GHz

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	3.79	29.98	33.77	0.50	34.27	2.67301	23	0.4021	1.00000	0.4021
5.8G;D1D	5.16	29.96	35.12	0.50	35.62	3.64754	23	0.5487	1.00000	0.5487
									Sum Ratio	0.9508
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

————THE END————