



RADIO EXPOSURE TEST REPORT

FCC ID : VW3FAST5380V2

Equipment : Copper Wireless Router

Brand Name : SAGEMCOM

Model Name : FAST 5380

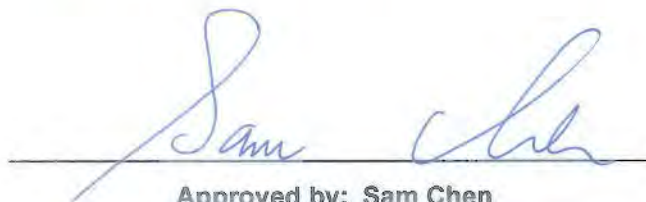
Applicant : SAGEMCOM BROADBAND SAS
250 Route de l'Empereur - 92848 RUEIL
MALMAISON CEDEX- FRANCE

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 Oct. 19, 2021, and testing was started from Feb. 11, 2022 and completed on Mar. 11, 2022. 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.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 EUT General Information	5
1.2 Antenna Information	5
1.3 Accessories	7
1.4 Testing Location	7
2 Maximum Permissible Exposure	8
2.1 Limit of Maximum Permissible Exposure	8
2.2 MPE Calculation Method.....	8
2.3 Calculated Result and Limit.....	9

Photographs of EUT v01



History of this test report

TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A1_1 Ver1.1

Page Number : 3 of 9
Issued Date : Mar. 15, 2022
Report Version : 01



Summary of Test Result

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

Declaration of Conformity:

1. The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to report "Measurement Uncertainty".

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: Viola Huang



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.	2.4GHz	5GHz	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	2	Galtronics	02102140-07252C1 DB1	PCB Antenna	I-PEX	Note 1
2	2	3	Galtronics	02102140-07252C2 DB2	PCB Antenna	I-PEX	
3	3	4	Galtronics	02102140-07252c3 DB3	PCB Antenna	I-PEX	
4	-	1	Galtronics	02102142-07252CX 5G	PCB Antenna	I-PEX	

Note 1:

Ant.	Gain (dBi)				
	2.GHz	5GHz UNII 1	5GHz UNII 2A	5GHz UNII 2C	5GHz UNII 3
1	4.72	3.53	3.91	2.86	2.92
2	4.89	3.61	3.75	2.69	2.74
3	3.98	4.08	4.34	2.7	3.34
4	-	4.84	4.88	4.09	4.68

Ant.	Directional Gain (dBi)													
	2.GHz		5GHz UNII 1			5GHz UNII 2A			5GHz UNII 2C			5GHz UNII 3		
	3T1S	3T3S	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S	4T1S	4T2S	4T4S
1	5.05	1.05	5.06	2.06	-0.33	5.88	2.88	0.21	4.5	1.5	-0.76	5.09	2.09	-0.11
2														
3														
4	-	-												

Note 2: The EUT has four antennas for 2.4GHz/5GHz.

Note 3: The above information was declared by manufacturer.

Note 4: Maximum Directional Gain following KDB662911 D03.

The antenna report is provided in the operational description for this application.

For 2.4GHz:

For IEEE 802.11b/g/n/VHT/ax mode (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 UNII 1~3:

For IEEE 802.11a/n/ac/ax mode (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 1	SAGEMCOM	ADS-42FKJ-12 12042EPCU-L	INPUT: 100-120V~50/60Hz, Max.1.2A OUTPUT: 12V, 3.5A
Adapter 2	SAGEMCOM	MSG-V3500AR120-042A0-US	Input: 100-120V~50/60Hz, 1.2A Max. Output: 12V, 3.5A
Adapter 3	SAGEMCOM	NBS42E120350VU	INPUT: 100-120V~50/60Hz, 1.0A OUTPUT: 12.0V, 3.5A
Others			
RJ-11 cable*1(two by one): Non-Shielded, 2m			
ADSL RJ-11 cable*1(two by one): Non-Shielded, 2m			
RJ-45 cable*1: Shielded, 1.8m			

1.4 Testing Location

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)
(TAF: 3787)	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 30 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;G1D	4.89	29.97	34.86	0.50	35.36	3.43558	30	0.30376	1.00000
5.2G;D1D	5.06	29.55	34.61	0.50	35.11	3.24340	30	0.28677	1.00000
5.8G;D1D	5.09	28.65	33.74	0.50	34.24	2.65461	30	0.23471	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;G1D	4.89	29.97	34.86	0.50	35.36	3.43558	30	0.30376	1.00000	0.30376
5.2G;D1D	5.06	29.55	34.61	0.50	35.11	3.24340	30	0.28677	1.00000	0.28677
									Sum Ratio	0.59053
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

—————THE END—————