



RF Exposure Evaluation Declaration

FCC ID: VW3FAST5290V2
Applicant: SAGEMCOM BROADBAND SAS
Product: Fiber Wireless Router FWR226e
Model No.: FAST 5290
Brand Name: SAGEMCOM
FCC Rule Part(s) FCC Part 2.1091

Reviewed By:

Sunny Sun

Approved By:

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2202RSU047-U4	Rev. 01	Initial Report	04-22-2022	Valid

CONTENTS

Description	Page
1. General Information.....	4
1.1. Applicant.....	4
1.2. Manufacturer.....	4
1.3. Testing Facility	4
1.4. Product Information	5
1.5. Antenna Details.....	5
2. RF Exposure Evaluation.....	6
2.1. Test Limits.....	6
2.2. Test Result.....	7
Appendix - EUT Photograph.....	8

1. General Information

1.1. Applicant

SAGEMCOM BROADBAND SAS

250 Route de l'Empereur - 92848 RUEIL MALMAISON CEDEX- FRANCE

1.2. Manufacturer

SAGEMCOM BROADBAND SAS

250 Route de l'Empereur - 92848 RUEIL MALMAISON CEDEX- FRANCE

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory	
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
	Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
	Laboratory Accreditations	
	A2LA: 3628.01 FCC: CN1166 VCCI:	CNAS: L10551 ISED: CN0001 ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory	
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02 FCC: CN1284	CNAS: L10551 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory	
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
	Laboratory Accreditations	
	TAF: L3261-190725 FCC: 291082, TW3261	ISED: TW3261

1.4. Product Information

Product Name	Fiber Wireless Router FWR226e
Model No.	FAST 5290
Wi-Fi Specification	802.11b/g/n/ac/ax
Antenna Information	Refer to Section 1.5
Power Type	AC Adapter
Operating Environment	Indoor Use
Accessories	
Adapter 1#	MODEL: MS-V4100R120-050A0-US INPUT: 100-127V ~ 50/60Hz Max 1.3A OUTPUT: 12V=4.1A
Adapter 2#	MODEL: ADS-50FKI-12 12049EPCU-L INPUT: 100-127V ~ 50/60Hz Max 1.2A OUTPUT: 12V=4.1A
Adapter 3#	MODEL: NBS50A120410VU INPUT: 100-127V ~ 50/60Hz Max 1.5A OUTPUT: 12V=4.1A
Remark:	
1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Antenna Details

Antenna Type	Frequency Band (GHz)	Antenna Gain (dBi)				Directional Gain (dBi)	
		Ant 0	Ant 1	Ant 2	Ant 3	For Power	For PSD
Wi-Fi Antenna (2.4G 3*3 MIMO)							
PCB	2.4 ~ 2.4835	4.12	3.66	2.01	--	4.12	4.65
Wi-Fi Antenna (5G 4*4 MIMO)							
PCB	5.15 ~ 5.85	4.52	5.10	5.33	5.58	5.58	5.91

2. RF Exposure Evaluation

2.1. Test Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Device Classification

According to the user manual, the antenna of this device is at least 35cm away from the body of the user, this device is classified as a **Mobile Device**. So, the RF exposure evaluation requirements of § 2.1091 for mobile device exposure conditions subject to MPE limits.

2.3. Test Result

Product	Fiber Wireless Router FWR226e
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Conducted Power (dBm)	Max. Antenna Gain (dBi)	Max. EIRP (dBm)	Compliance Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
802.11b/g/n/ax	2412 ~ 2462	29.83	4.12	33.95	30	0.2196	1
802.11a/n/ac/ax	5180 ~ 5240	29.63	5.58	35.21	30	0.2935	1
802.11a/n/ac/ax	5725 ~ 5825	29.54	5.58	35.12	30	0.2874	1

CONCLUSION:

WLAN 2.4GHz Band, WLAN 5GHz can transmit simultaneously.

The Max. Power Density at R (30 cm) = 0.2196 + 0.2935 = 0.5131mW/cm² < 1mW/cm².

Appendix - EUT Photograph

Refer to “2202RSU047-UE” file.