

## RF Exposure Report

**Report No.:** SA150420E01A

**FCC ID:** VW3FAST3486

**Test Model:** F@ST 3486

**S/N:** Test sample only

**P/N:** 253641590

**Received Date:** Aug. 03, 2016

**Test Date:** Aug. 08, 2016

**Issued Date:** Sep.01, 2016

**Applicant:** SAGEMCOM BROADBAND SAS

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

**Manufacturer:** SAGEMCOM BROADBAND SAS

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

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan R.O.C.

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### Release Control Record

Issue No.	Description	Date Issued
SA150420E01A	Original release.	Sep.01, 2016

## 1 Certificate of Conformity

**Product:** Cable Gateway

**Brand:** SAGEMCOM

**Test Model:** F@ST 3486

**S/N:** Test sample only

**P/N:** 253641590

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** SAGEMCOM BROADBAND SAS

**Test Date:** Aug. 08, 2016

**Standards:** FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :**  , **Date:** Sep.01, 2016  
Wendy Wu / Specialist

**Approved by :**  , **Date:** Sep.01, 2016  
May Chen / Manager

## 2 RF Exposure

### 2.1 Limits For Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

### 2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 27cm away from the body of the user.

So, this device is classified as **Mobile Device**.

### 2.4 Antenna Gain

2.4GHz Band								
Antenna No.	PCB Chain No.	Brand	Model	Ant. Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connector Type	Cable Length (mm)
E	0	wanshih	NA	2.0979	2.4~2.4835	PIFA	None (like solder)	NA
B	1	wanshih	NA	2.9762	2.4~2.4835	PCB	i-pex(MHF)	160
F	2	wanshih	NA	2.51	2.4~2.4835	PIFA	None (like solder)	NA
5GHz Band								
Antenna No.	PCB Chain No.	Brand	Model	Ant. Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connector Type	Cable Length (mm)
C	0	wanshih	NA	3.81	5.15~5.85	PIFA	None (like solder)	NA
D	1	wanshih	NA	3.92	5.15~5.85	PIFA	None (like solder)	NA
A	2	wanshih	NA	3.8509	5.15~5.85	PCB	i-pex(MHF)	75

## 2.5 Calculation Result of Maximum Conducted Power

For 2.4GHz and 5GHz (U-NII-1 band) data was copied from the original test report (Report No.: SA150420E01)

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	387.091	7.31	27	0.22744	1
5180-5240	528.52	8.63	27	0.42085	1
5745-5825	509.491	8.63	27	0.40569	1

NOTE:

2.4GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 7.31 \text{dBi}$ .

5GHz: Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 3] = 8.63 \text{dBi}$ .

### Conclusion:

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + .....etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.22744 / 1 + 0.42085 / 1 = 0.64829

**Therefore the maximum calculations of above situations are less than the “1” limit.**

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