



## RF Exposure Evaluation Declaration

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**FCC ID:** 2AKCE-S83GESNB

**APPLICANT:** Suzhou SmartChip Semiconductor Co.,Ltd

**Application Type:** Certification

**Product:** WIFI Module

**Model No.:** S-83-GESNB

**FCC Classification:** Digital Transmission System (DTS)

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( Robin Wu )

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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.

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## Revision History

Report No.	Version	Description	Issue Date	Note
1609RSU01002	Rev. 01	Initial report	10-10-2016	Invalid
1609RSU01002	Rev. 02	Add the antenna spec	11-23-2016	Valid

## 1. PRODUCT INFORMATION

### 1.1. Equipment Description

Product Name	WIFI Module
Model No.	S-83-GESNB
<b>Wi-Fi Specification</b>	
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz 802.11n-HT40: 2422 ~ 2452 MHz
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Max Average Output Power	19.13dBm

### 1.2. Antenna Description

Antenna Type	Manufacturer	M/N	Max Peak Gain
Dipole Antenna	Cortec Technology Inc.	AN2400-1761BRS	3dBi

## 2. RF Exposure Evaluation

### 2.1. 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 <sup>2</sup> )	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:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1mW/cm<sup>2</sup>. 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. Test Result of RF Exposure Evaluation

Product	WIFI Module
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.0dBi for Wi-Fi in logarithm scale.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
Wi-Fi	2412 ~ 2462	19.13	0.0325	1

### CONCLUSION:

The Max Power Density at R (20 cm) = 0.0325mW/cm<sup>2</sup> < 1mW/cm<sup>2</sup>. So the EUT complies with the requirement.

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