

RF Exposure Report

Report No.: SA181219C02C

FCC ID: Q5A-SMAC3

Regulatory Model: SMAC3

Marketing Model: API-18-5G-AC2x2-W2, APX-EX-5G-AC2x2-W2, SUI-23-5G-AC2x2-W2, SUI-18-5G-AC2x2-W2 (refer to item 3.1 for more details)

Received Date: Jun. 12, 2019

Test Date: Jun. 22 ~ Jun. 28, 2019

Issued Date: Jul. 10, 2019

Applicant: Sify Technologies Limited

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

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
SA181219C02C	Original release.	Jul. 10, 2019

1 Certificate of Conformity

Product: Outdoor Wireless Radios

Brand: Sify

Regulatory model: SMAC3

Marketing Model: API-18-5G-AC2x2-W2, APX-EX-5G-AC2x2-W2, SUI-23-5G-AC2x2-W2,
SUI-18-5G-AC2x2-W2

Sample Status: Engineering sample

Applicant: Sify Technologies Limited

Test Date: Jun. 22 ~ Jun. 28, 2019

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D01 General RF Exposure Guidance v06
IEEE C95.1

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 RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen, **Date:** Jul. 10, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen, **Date:** Jul. 10, 2019
Bruce Chen / Project Engineer

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 ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
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

f = Frequency in MHz; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

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

2.3 Classification

The antenna of this product, under normal use condition, is at least 165cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	22.80	6	165	0.002	1
EUT with Sector antenna					
5180-5240	17.44	21.01	165	0.020	1
5745-5825	17.72	21.01	165	0.022	1
EUT with Omni antenna					
5180-5240	24.62	13.01	165	0.017	1
5745-5825	25.74	13.01	165	0.022	1
EUT with Panel antenna					
5180-5240	15.06	26.01	165	0.037	1
5745-5825	28.81	26.01	165	0.887	1

Note:

5GHz Band:

EUT with Sector antenna: Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}) = 18\text{dBi} + 10\log(2) = 21.01\text{dBi}$

EUT with Omni antenna: Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}) = 10\text{dBi} + 10\log(2) = 13.01\text{dBi}$

EUT with Panel antenna: Directional gain = $G_{ANT\ MAX} + 10 \log(N_{ANT}) = 23\text{dBi} + 10\log(2) = 26.01\text{dBi}$

Conclusion:

2.4GHz & 5GHz can transmit at same time.

The formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.002/1 + 0.887/1 = 0.889$

Therefore the maximum calculations of above situations are less than the "1" limit.

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