RF Exposure Report

Report No.:	SA181108C27B
FCC ID:	VW7-SE80AC
Test Model:	SE80ac
Received Date:	Nov. 06, 2018
Test Date:	Nov. 06, 2018 ~ Mar. 12, 2019
Issued Date:	Mar. 25, 2019
Applicant:	SmartRG, Inc.
Address:	501 SE Columbia Shores Blvd Suite 500 , Vancouver WA 98661 US
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
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
SA181108C27B	Original release.	Mar. 25, 2019

1 Certificate of Conformity

Product:	Intellifi Wall Plug Satellite
Brand:	SmartRG
Model:	SE80ac
Sample Status:	Engineering sample
Applicant:	SmartRG, Inc.
Test Date:	Nov. 06, 2018 ~ Mar. 12, 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 : Polly Chien , **Date:** Mar. 25, 2019

Polly Chien /Specialist

Approved by : Bruce Chen , **Date:** Mar. 25, 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

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

where

Pd = power density in mW/cm^2

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 20cm 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)
CDD Mode:					
2412-2462	25.03	4.96	20	0.198	1
5180-5240	24.07	7.30	20	0.273	1
5745-5825	25.85	7.30	20	0.411	1
Beamforming Mode:					
2412-2462	21.94	4.96	20	0.097	1
5180-5240	21.01	7.30	20	0.135	1
5745-5825	22.84	7.30	20	0.205	1

Note:
2.4GHz Band: Directional gain = $G_{ANT\ MAX}$ + 10 log(N_{ANT}/N_{SS}) = 1.95 dBi +10 log(2/1)=4.96dBi
5GHz Band: Directional gain = $G_{ANT\ MAX}$ + 10 log(N_{ANT}/N_{SS}) = 4.29dBi +10 log(2/1)=7.3dBi

Conclusion:

2.4GHz & 5GHz can transmit at same time.

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 = 0.198 + 0.411 = 0.609

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

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