RF Exposure Report

Report No.:	SA191203C03
FCC ID:	ACQ-X5042
Test Model:	X5042
Received Date:	Dec. 03, 2019
Test Date:	Dec. 19, 2019 ~ Mar. 17, 2020
Issued Date:	Mar. 31, 2020
Applicant:	ARRIS
Address:	101 Tournament Drive, Horsham, Pennsylvania 19044, United States
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA191203C03	Original release	Mar. 31, 2020

1 Certificate of Conformity

Product:	WiFi extender
Brand:	Arris
Test Model:	X5042
Sample Status:	Engineering sample
Applicant:	ARRIS
Test Date:	Dec. 19, 2019 ~ Mar. 17, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.3 -2002

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 : _____ , **Date:** Mar. 31, 2020

Polly Chien / Specialist

Approved by : _____ , **Date:** Mar. 31, 2020

Bruce Chen / Senior 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				
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^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	25.78	5.95	20	0.296	1
5180-5240	27.73	7.16	20	0.613	1
5260-5320	23.80	7.39	20	0.262	1
5500-5720	23.68	7.11	20	0.239	1
5745-5825	27.84	6.71	20	0.567	1
Beamforming Mode					
5180-5240	27.54	7.16	20	0.587	1
5260-5320	22.60	7.39	20	0.198	1
5500-5720	22.88	7.11	20	0.198	1
5745-5825	27.37	6.71	20	0.509	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2412~2462MHz Directional Gain = 5.95dBi.
5180~5240MHz Directional Gain = 7.16dBi.
5260~5320MHz Directional Gain = 7.39dBi.
5500~5720MHz Directional Gain = 7.11dBi.
5745~5825MHz Directional Gain = 6.71dBi.

Conclusion:
The formula of calculated the MPE is:
CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1
CPD = Calculation power density
LPD = Limit of power density

Worst case: WLAN 2.4GHz + WLAN 5GHz = 0.296 / 1 + 0.613 / 1 = 0.909 < 1

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