RF Exposure Report

Report No.:	SA160701E08A
FCC ID:	ACQ-MT76125G
Test Model:	MT7612 5G
Received Date:	Aug. 10, 2016
Test Date:	Aug. 22, 2016
Issued Date:	Aug. 26, 2016
Applicant:	ARRIS Group, Inc.
Address:	101 Tournament Drive Horsham, PA 19044 United States
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
SA160701E08A	Original release.	Aug. 26, 2016

1 Certificate of Conformity

Product:	WiFi Wireless Module
Brand:	ARRIS
Test Model:	MT7612 5G
Sample Status:	ENGINEERING SAMPLE
Applicant:	ARRIS Group, Inc.
Test Date:	Aug. 22, 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:** Aug. 26, 2016

Midoli Peng / Specialist

Approved by : _____ , **Date:** Aug. 26, 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^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**.

2.4 Antenna Gain

The antenna provided to the EUT, please refer to the following table:

Set 1							
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Antenna Type	Connecter Type	Frequency range (GHz to GHz)	Cable Length (mm)
Chain (0)	Amphenol	N5X20SC-G112U	3.57	PCB	i-pex(MHF)	5.15~5.25	112
			3.41			5.25~5.35	
			3.01			5.47~5.725	
			3.48			5.725~5.85	
Chain (1)	Amphenol	N5X20SC-G162U	3.57	PCB	i-pex(MHF)	5.15~5.25	162
			3.41			5.25~5.35	
			3.01			5.47~5.725	
			3.48			5.725~5.85	
Set 2							
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Antenna Type	Connecter Type	Frequency range (GHz to GHz)	Cable Length (mm)
Chain (0)	Airgain	AMSTD-112-00	2	PCB	i-pex(MHF)	5.15~5.25	112
			2			5.25~5.35	
			2			5.47~5.725	
			2			5.725~5.85	
Chain (1)	Airgain	AMSTD-162-00	2	PCB	i-pex(MHF)	5.15~5.25	162
			2			5.25~5.35	
			2			5.47~5.725	
			2			5.725~5.85	
Set 3							
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Antenna Type	Connecter Type	Frequency range (GHz to GHz)	Cable Length (mm)
Chain (0)	Airgain	N2420DCSSM-T6 L-PK1-G44U	3.4	PCB	i-pex(MHF)	5.15~5.25	44
			3.7			5.25~5.35	
			4.8			5.47~5.725	
			5			5.725~5.85	
Chain (1)	Airgain	N2420DCSSM-T6 L-PK1-G77U	3	PCB	i-pex(MHF)	5.15~5.25	77
			3.5			5.25~5.35	
			5.5			5.47~5.725	
			5.2			5.725~5.85	
Set 4							
Transmitter Circuit	Brand	Model	Gain (dBi) (Include cable loss)	Antenna Type	Connecter Type	Frequency range (GHz to GHz)	Cable Length (mm)
Chain (0)	Amphenol	RR7512-15-000-C	3.5	PCB	i-pex(MHF)	5.15~5.25	42
			3.3			5.25~5.35	
			3			5.47~5.725	
			3.4			5.725~5.85	
Chain (1)	Amphenol	RR7513-15-000-C	4.61	PCB	i-pex(MHF)	5.15~5.25	81
			4.45			5.25~5.35	
			4.58			5.47~5.725	
			4.51			5.725~5.85	

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180-5240	75.952	7.08	20	0.07714	1
5260-5320	74.823	6.9	20	0.07291	1
5500-5720	76.301	8.17	20	0.09960	1
5745-5825	76.919	8.11	20	0.09903	1

NOTE:

1. **For U-NII-1:** Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 7.08dBi
2. **For U-NII-2A:** Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 6.9dBi
3. **For U-NII-2C:** Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 8.17dBi
4. **For U-NII-3:** Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 8.11dBi

BT-EDR (IP SET TOP BOX, FCC ID: ACQ-VIP4402W)

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	3.304	4.38	20	0.00180	1

BT-LE (IP SET TOP BOX, FCC ID: ACQ-VIP4402W)

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402-2480	4.55	4.38	20	0.00248	1

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WLAN 5GHz + Bluetooth + = 0.09960 / 1 + 0.00248 / 1 = 0.10208

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

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