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RF EXPOSURE REPORT

REPORT NO.: SA130315C01A

MODEL NO.: AR5B22

FCC ID: PPD-AR5B22

RECEIVED: Mar. 15, 2013

TESTED: Apr. 17 ~ May 11, 2013

ISSUED: May 13, 2013

APPLICANT: Qualcomm Atheros, Inc.

ADDRESS: 1700 Technology Drive, San Jose, CA 95110

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 Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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A D T

TABLE OF CONTENTS

RELEASE CONTROL RECORD	3
1. CERTIFICATION	4
2. RF EXPOSURE	5
2.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)	5
2.2 MPE CALCULATION FORMULA	5
2.3 CLASSIFICATION	5
2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER	6



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA130315C01A	Original release	May 13, 2013



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1. CERTIFICATION

PRODUCT: PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card

MODEL: AR5B22

BRAND: Atheros

APPLICANT: Qualcomm Atheros, Inc.

TESTED: Apr. 17 ~ May 11, 2013

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (Model: AR5B22) 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 :** May 13, 2013
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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

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

where

Pd = power density in mW/cm²

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**.



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2.4 CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

FREQUENCY BAND (MHz)	MODULATION MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
WLAN						
2412-2462	802.11b: 1TX	21.01	1.58	20	0.036	1
	802.11b: 2TX	22.49	1.58	20	0.051	1
	802.11g: 1TX	26.64	1.58	20	0.132	1
	802.11g: 2TX	26.59	1.58	20	0.131	1
	802.11n (20MHz)	25.94	4.59	20	0.225	1
	802.11n (40MHz)	24.32	4.59	20	0.155	1
5180-5240	802.11a: 1TX	14.67	2.15	20	0.010	1
	802.11a: 2TX	14.56	2.15	20	0.009	1
	802.11n (20MHz)	13.74	5.16	20	0.015	1
	802.11n (40MHz)	16.44	5.16	20	0.029	1
5260-5320	802.11a: 1TX	19.81	1.38	20	0.026	1
	802.11a: 2TX	19.88	1.38	20	0.027	1
	802.11n (20MHz)	17.29	4.39	20	0.029	1
	802.11n (40MHz)	17.99	4.39	20	0.034	1
5500-5700	802.11a: 1TX	17.07	1.62	20	0.015	1
	802.11a: 2TX	17.55	1.62	20	0.016	1
	802.11n (20MHz)	18.45	4.63	20	0.040	1
	802.11n (40MHz)	17.38	4.63	20	0.032	1
5745-5825	802.11a: 1TX	21.81	1.56	20	0.043	1
	802.11a: 2TX	23.07	1.56	20	0.058	1
	802.11n (20MHz)	22.88	4.57	20	0.111	1
	802.11n (40MHz)	22.83	4.57	20	0.109	1
Bluetooth EDR		7.11	1.58	20	0.0015	1
Bluetooth LE		4.67	1.58	20	0.0008	1

NOTE:

2.4GHz:

802.11n(20MHz) & 802.11n(40MHz): Directional gain = 1.58dBi + 10log(2) = 4.59dBi

5.0GHz:

802.11n(20MHz) & 802.11n(40MHz):

For 5180~5240MHz: Directional gain = 2.15dBi + 10log(2) = 5.16dBi

For 5260~5320MHz: Directional gain = 1.38dBi + 10log(2) = 4.39dBi

For 5500~5700MHz: Directional gain = 1.62dBi + 10log(2) = 4.63dBi

For 5745~5825MHz: Directional gain = 1.56dBi + 10log(2) = 4.57dBi