RF Exposure Report

Report No.: SA150720E06

FCC ID: PPD-QCASP242

Test Model: QCASP242

Received Date: July 21, 2015

Test Date: Nov. 16, 2015

Issued Date: Jan. 08, 2016

Applicant: Qualcomm Atheros, Inc.

Address: 1700 Technology Drive, San Jose, CA 95110

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.

Test Location (1): E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

Test Location (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
SA150720E06	Original release.	Jan. 08, 2016

1 Certificate of Conformity

Product: Low-Energy WiFi Dual-Band 802.11a/b/g/n

Brand: Qualcomm Atheros

Test Model: QCASP242

Sample Status: R&D SAMPLE
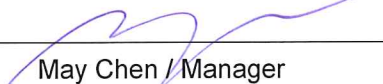
Applicant: Qualcomm Atheros, Inc.

Test Date: Nov. 16, 2015

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE Std C95.1-2005

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: _____Jan. 08, 2016_____
Elsie Hsu / Specialist

Approved by : _____ , Date: _____Jan. 08, 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

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	5GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Chain (0)	WNC	81.EBJ15.005	PIFA	3.00	5.15~5.35GHz: 2.56 5.47~5.725GHz: 4.76 5.725~5.85GHz: 4.76	1.15	5.15~5.35GHz: 1.70 5.47~5.725GHz: 1.74 5.725~5.85GHz: 1.79	IPEX	300
	Chain (1)	WNC	81.EBJ15.005	PIFA	3.62	5.15~5.35GHz: 3.08 5.47~5.725GHz: 3.31 5.725~5.85GHz: 2.42	1.15	5.15~5.35GHz: 1.70 5.47~5.725GHz: 1.74 5.725~5.85GHz: 1.79	IPEX	300

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain (dBi)	5GHz Gain (dBi)	Connector Type
2	Chain (0)	QCA	QCASP242-Ant	PCB	1.72	1.91	IPEX

Note: 1. Above antenna gains of antenna are Total (H+V).

Following antenna combination(s) was (were) selected as representative mode for test or evaluate in this report as listed.

Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	5GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
Chain (0)+(1)	WNC	81.EBJ15.005	PIFA	3.62	5.15~5.35GHz: 2.56 5.47~5.725GHz: 4.76 5.725~5.85GHz: 4.76	1.15	5.15~5.35GHz: 1.70 5.47~5.725GHz: 1.74 5.725~5.85GHz: 1.79	IPEX	300

2.5   Calculation Result

For WLAN: 15.247 (2.4GHz):

802.11b

Frequency Band (MHz)	Max Power Avg. (dBm)	Max Power Avg. (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (W/m^2)
2412 - 2472	17	50.119	3.62	20	0.02295	1

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

802.11g

Frequency Band (MHz)	Max Power Avg. (dBm)	Max Power Avg. (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (W/m^2)
2412 - 2472	17	50.119	3.62	20	0.02295	1

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

802.11n (HT20)

Frequency Band (MHz)	Max Power Avg. (dBm)	Max Power Avg. (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (W/m^2)
2412 - 2472	17	50.119	3.62	20	0.02295	1

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

802.11n (HT40)

Frequency Band (MHz)	Max Power Avg. (dBm)	Max Power Avg. (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (W/m^2)
2422 - 2462	15.50	35.481	3.62	20	0.01625	1

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

For WLAN: 15.407 (5GHz):

802.11a

Frequency Band (MHz)	Max power Avg. (dBm)	Max power Avg. (mW)	Antenna gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180 - 5240, 5260 - 5320	11	12.589	3.08	20	0.00509	1.00
5500 - 5720	11	12.589	4.76	20	0.00509	1.00
5745 - 5825	11	12.589	4.76	20	0.00509	1.00

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

802.11n (HT20)

Frequency Band (MHz)	Max power Avg. (dBm)	Max power Avg. (mW)	Antenna gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180 - 5240, 5260 - 5320	10	10	3.08	20	0.00404	1.00
5500 - 5720	10	10	4.76	20	0.00595	1.00
5745 - 5825	10	10	4.76	20	0.00595	1.00

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

802.11n (HT40)

Frequency Band (MHz)	Max power Avg. (dBm)	Max power Avg. (mW)	Antenna gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5190 - 5230 5270 - 5310	9	7.943	3.08	20	0.00404	1.00
5510 - 5710	9	7.943	4.76	20	0.00473	1.00
5755 - 5795	9	7.943	4.76	20	0.00473	1.00

NOTE: 1. This power include tune-up tolerance range that specified in QCASP242 Tune Up power table

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