RF EXPOSURE REPORT

REPORT NO.:	SA140123E01
MODEL NO.:	NFA-BAC-MR-02
FCC ID:	COFNFABACMR02
RECEIVED:	Jan. 23, 2014
TESTED:	Feb. 07 to 11, 2014
ISSUED:	Feb. 21, 2014

APPLICANT:	UNIVERSAL GLOBAL SCIENTIFIC INDUSTRIAL CO., LTD.
ADDRESS:	141, Lane 351, Sec. 1, Taiping Road., Tsaotuen, Nantou 54261, Taiwan
ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by any government agencies.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140123E01	Original release	Feb. 21, 2014

1. CERTIFICATION

PRODUCT:	802.11ac/a/b/g/n + BT Wireless Module
BRAND NAME:	UG
MODEL NO.:	NFA-BAC-MR-02
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	UNIVERSAL GLOBAL SCIENTIFIC INDUSTRIAL CO., LTD.
TESTED DATE:	Feb. 07 to 11, 2014
STANDARDS:	FCC Part 2 (Section 2.1091)
	FCC OET Bulletin 65, Supplement C (01-01)
	IEEE C95.1

The above equipment (Model: NFA-BAC-MR-02) 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: _Feb. 21, 2014_
(Midoli Peng, Specialist)

APPROVED BY : _____ , DATE: _Feb. 21, 2014_
(May Chen, Manager)

2. RF EXPOSURE LIMIT

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

3. 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

4. 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**.

5. ANTENNA GAIN

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

Transmitter Circuit	Brand	Model	Antenna Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connecter Type	Cable Loss (dB)	Cable Length (mm)
Chain (0) Ant. 1 (WLAN Ant)	High-Tek Electronics Co.,Ltd	DC33001JB20	1.5	2.4~2.4835	PIFA	i-pex(MHF)	0.65	260
			0.68 2.77 2.72	5.15~5.35 5.47~5.75 5.75~5.85	PIFA	i-pex(MHF)	1.02 1.07 1.09	260
Chain (1) Ant. 2 (WLAN+BT Ant)	High-Tek Electronics Co.,Ltd	DC33001JB30	-1.55	2.4~2.4835	PIFA	i-pex(MHF)	0.98	390
			1.57 2.77 1.70	5.15~5.35 5.47~5.7 5.75~5.85	PIFA	i-pex(MHF)	1.53 1.6 1.64	390

Note: For 802. 11a/b/g mode: Max. antenna gain was chosen for final test.

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For WLAN: 15.247(2.4GHz)

802.11b

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412 - 2462	98.401	1.5	20	0.02765	1.00

802.11g

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412 - 2462	470.977	1.5	20	0.13235	1.00

802.11n(HT20)

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412 - 2462	795.974	1.5	20	0.22368	1.00

802.11n(HT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2422 - 2452	531.246	1.5	20	0.14929	1.00

BT-LE(GFSK)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2402 - 2480	17.539	-1.55	20	0.00244	1.00

For WLAN: 15.247(5GHz)

802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5745 - 5825	146.555	2.72	20	0.05454	1.00

802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5745 - 5825	299.047	2.72	20	0.11129	1.00

802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5755 - 5795	261.060	2.72	20	0.09716	1.00

802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5775	148.175	2.72	20	0.05514	1.00

For WLAN: 15.407(5GHz, 5150MHz~5350MHz)

802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5180 -5240, 5260 - 5320	39.902	1.57	20	0.01140	1.00

802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5180 -5240, 5260 - 5320	67.900	1.57	20	0.01939	1.00

802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5190 -5230, 5270 - 5310	56.017	1.57	20	0.01600	1.00

802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5210, 5290	14.724	1.57	20	0.00420	1.00

For WLAN: 15.407(5GHz, 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz)

802.11a

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5500 -5580 & 5660 - 5700	40.832	2.77	20	0.01537	1.00

802.11ac (VHT20)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5500 - 5580 & 5660 - 5700	74.158	2.77	20	0.02792	1.00

802.11ac (VHT40)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5510 - 5550 & 5670	54.943	2.77	20	0.02068	1.00

802.11ac (VHT80)

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
5530	14.047	2.77	20	0.00529	1.00

For Bluetooth:

GFSK

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2402-2480	12.050	-1.55	20	0.00168	1.00

8DPSK

FREQUENCY (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2402-2480	11.455	-1.55	20	0.00159	1.00

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