RF EXPOSURE REPORT

REPORT NO.:	SA140221E06
MODEL NO.:	UBW1J1-1AXY-ZZ (X= 0~9 or A~Z, Shell Colour ; Y= 0~9 or A~Z, Cosmetic Variant ; Z =0~9 or A~Z, Brand digit #1 ; Z= 0~9 or A~Z, Brand digit #2)
FCC ID:	Z3M-GUBW1J1
RECEIVED:	Feb. 21, 2014
TESTED:	Mar. 20, 2014
ISSUED:	Apr. 16, 2014
APPLICANT:	Greenwave Reality Pte Ltd
ADDRESS:	41 Science Park Road, #03-01, The Gemini, Science Park II, Singapore, 117610 Singapore
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.

TABLE OF CONTENTS

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA140221E06	Original release	Apr. 16, 2014

1. CERTIFICATION

PRODUCT:	Lighting Gateway
BRAND NAME:	GreenWave Reality
MODEL NO.:	UBW1J1-1AXY-ZZ (X= 0~9 or A~Z, Shell Colour ; Y= 0~9 or A~Z, Cosmetic Variant ; Z =0~9 or A~Z, Brand digit #1 ; Z= 0~9 or A~Z, Brand digit #2)
TEST SAMPLE:	ENGINEERING SAMPLE
APPLICANT:	Greenwave Reality Pte Ltd
TESTED DATE:	Mar. 20, 2014
STANDARDS:	FCC Part 2 (Section 2.1091)
	FCC OET Bulletin 65, Supplement C (01-01)
	IEEE C95.1

The above equipment (Model: UBW1J1-1A01-TP) 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:** *Apr. 16, 2014*
(Midoli Peng, Specialist)

APPROVED BY : _____ , **DATE:** *Apr. 16, 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:

WLAN Antenna Spec.			
Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
PCB	NA	0.07	2.4~2.4835
Zigbee Antenna Spec.			
Antenna Type	Antenna Connector	Gain(dBi)	Frequency range (GHz)
PCB	NA	1.14	2.4~2.4835

6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For WLAN

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2412-2462	161.808	0.07	20	0.03271	1.00

For Zigbee

FREQUENCY BAND (MHz)	CONDUCTED POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm^2)	LIMIT (mW/cm^2)
2405 - 2480	1.824	1.14	20	0.00047	1.00

CONCLUSION:

Both of the WLAN and Zigbee can transmit simultaneously, the formula of calculated the MPE is:

$CPD_1 / LPD_1 + CPD_2 / LPD_2$ + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Therefore, the worst-case situation is 0.03271 / 1 + 0.00047 / 1= 0.033, which is less than “1”. This confirmed that the device comply with FCC 1.1310 MPE limit.

--- END ---