RF EXPOSURE REPORT

Applicant	Shenzhen Hopewin Electronic Material Co.,Ltd
Address	Room O-P, Floor 4, Block 9C, Baoneng Science Park, Qingxiang Road, QingHu Industrial Estate, Longhua Street, Longhua District, Shenzhen

Manufacturer or Supplier	Shenzhen Hopewin Electronic Material Co.,Ltd
Address	Room O-P,Floor 4,Block 9C,Baoneng Science Park,Qingxiang Road,QingHu Industrial Estate,Longhua Street ,Longhua District,Shenzhen
Product	Gateway
Brand Name	Cloudleaf
Model	GW-1.5-I
Additional Model & Model Difference	N/A
Date of tests	Nov. 12, 2019 ~ Dec. 09, 2019

☒ **FCC Part 2 (Section 2.1091)**

☒ **KDB 447498 D01**

☒ **IEEE C95.1**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Breeze Jiang Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	 Date: Dec. 16, 2019

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FM191119N021	Original release	Dec. 16, 2019

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1. CERTIFICATION

FCC ID:	2AM29-HBW04
PRODUCT:	Gateway
BRAND NAME:	Cloudleaf
MODEL NO.:	GW-1.5-I
ADDITIONAL NO.:	N/A
APPLICANT:	Shenzhen Hopewin Electronic Material Co.,Ltd
STANDARDS:	FCC Part 2 (Section 2.1091)
	KDB 447498 D01
	IEEE C95.1

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:

Function	Transmitter Circuit	Peak Gain (dBi)	Antenna Type
BT-LE(GFSK)	Chain 0	1.5	FPC Antenna
The UUT using 4 Antenna for use, But only one antenna can transmit at a time. In practical use, it will automatically switch to the single antenna with the best transceiver quality according to the transceiver quality.			
WLAN 2.4GHz	Chain 0	1.38	PCB Antenna
WLAN 5GHz	Chain 0	4.0	PCB Antenna
GPRS/WCDMA	Chain 0	1.5	Dipole Antenna

6. CALCULATION RESULT OF MAXIMUM CONDUCTED AV POWER

The tuned conducted Average Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT-LE(GFSK)	2402-2480	-2	+-2	-4	0
WLAN 2.4GHz	2412~2462	25	+-1	24	26
WLAN 5GHz	5180~5825	20	+-1	19	21
GPRS 850	824.2~648.2	33	+0/-1.5	31.5	33.0
GPRS 1900	1850.2~1909.8	30	+0/-1.5	28.5	30
WCDMA 850	826.4~846.6	23	+-1	22	24
WCDMA 1700	1712.4~1752.6	23	+-1	22	24
WCDMA 1900	1852.4~1907.6	23	+-1	22	24

The measured conducted Average Power

Moudel	FCC ID	Mode	Frequency (MHz)	Averaged Power (dBm)
BT-LE module	2AM29-HBW04	BT-LE(GFSK)	2402~2480	-2.35
Wi-Fi Dongle	KA2WA171C1	WLAN 2.4GHz	2412~2462	25.01
		WLAN 5GHz	5180~5825	20.14
HE910 Module	RI7HE910	GPRS 850	824.2~648.2	33.00
		GPRS 1900	1850.2~1909.8	30.00
		WCDMA 850	826.4~846.6	23.90
		WCDMA 1700	1712.4~1752.6	23.54
		WCDMA 1900	1852.4~1907.6	23.90

FREQUENCY BAND (MHz)	MAX AVERAGE POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm^2)	LIMIT (mW/cm^2)
BT-LE(GFSK) 2402-2480	0.0	1.5	20	0.000281	1.0
WLAN 2.4GHz	26.0	1.38	20	0.108825	1.0
WLAN 5GHz	21.0	4.0	20	0.062911	1.0
GPRS	33.0	1.5	20	0.560698	1.0
WCDMA	23.70	1.5	20	0.065876	1.0

Note:

When the product is in normal use.All the wireless functions can work at the same time.

Wifi can only transmit a single frequency band (2.4ghz or 5GHz)

Mobile communication function (GPRS/WCDMA) can only work in a single frequency band

FREQUENCY BAND (MHz)	POWER DENSITY (mW/cm^2)	TOTAL POWER DENSITY (mW/cm^2)	LIMIT (mW/cm^2)	CONCLUSION
BT-LE(GFSK) 2402-2480	0.000281	0.669804	1.0	Pass
WLAN 2.4GHz	0.108825			
GPRS	0.560698			

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