

RF EXPOSURE REPORT

REPORT NO.: SA121114C13

MODEL NO.: CG2101

FCC ID: NCMOMOCG2101

RECEIVED: Nov. 14, 2012

TESTED: Dec. 12, 2012 ~ Jan. 07, 2013

ISSUED: Jan. 11, 2013

APPLICANT: Option nv

ADDRESS: Gaston Geenslaan 14, 3001 Leuven,
BELGIUM

ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist.,
New Taipei City, Taiwan, R.O.C.

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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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA121114C13	Original release	Jan. 11, 2013

1. CERTIFICATION

PRODUCT: CloudGate 802.11abgn Wireless LAN Card
MODEL NO.: CG2101
BRAND: Option
APPLICANT: Option nv
TESTED: Dec. 12, 2012 ~ Jan. 07, 2013
TEST SAMPLE: PRODUCTION UNIT
STANDARDS: **FCC Part 2 (Section 2.1091)**
FCC OET Bulletin 65, Supplement C (01-01)
IEEE C95.1

The above equipment (model: CG2101) 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 : Jemma Yang , **DATE :** Jan. 11, 2013
Jemma Yang / Specialist

APPROVED BY : Ken Liu , **DATE :** Jan. 11, 2013
Ken Liu / 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

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 Calculation result of maximum conducted power

For CG2101

FREQUENCY BAND (MHz)	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412~2462	22.45	6.01	20	0.1396	1
5180~5240	12.37	6.01	20	0.0137	1
5260~5320	12.43	6.01	20	0.0139	1
5500~5700	11.54	6.01	20	0.0113	1
5745~5825	18.25	6.01	20	0.0531	1

NOTE:

Maximum antenna gain to comply with MPE limits is 6.01dBi

For Gobi3000 (FCC ID: J9CGOBI3000)

MODE	FREQUENCY BAND (MHz)	MAXIMUM CONDUCTED POWER (dBm)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
GPRS 2 UL	824	33.0	20	0.252	0.549
CDMA2000	824	25.0	20	0.158	0.549
UMTS	824	25.0	20	0.158	0.549
GPRS 2 UL	1850	30.0	20	0.111	1.000
CDMA2000	1850	25.00	20	0.141	1.000
UMTS	1850	25.00	20	0.141	1.000
WLAN	2400	29.00	20	0.500	1.000
WLAN	5150	29.00	20	0.500	1.000
WLAN	5250	29.00	20	0.500	1.000
WLAN	5500	29.00	20	0.500	1.000
WLAN	5800	29.00	20	0.500	1.000
WIMAX	2600	29.00	20	0.500	1.000

CONCLUSION:

Both of the two modules can transmit simultaneously, the formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

CG2101 module: + Gobi3000 module:

$$\text{WLAN 2.4G} + \text{WLAN 2.4G} = 0.1396 + 0.500 = 0.6396$$

$$\text{WLAN 2.4G} + \text{WLAN 5G} = 0.1396 + 0.500 = 0.6396$$

$$\text{WLAN 2.4G} + \text{GPRS 2 UL} = 0.1396 + 0.252 = 0.3916$$

$$\text{WLAN 2.4G} + \text{CDMA2000} = 0.1396 + 0.158 = 0.2976$$

$$\text{WLAN 2.4G} + \text{WIMAX} = 0.1396 + 0.500 = 0.6396$$

$$\text{WLAN 5G} + \text{WLAN 2.4G} = 0.0531 + 0.361 = 0.4141$$

$$\text{WLAN 5G} + \text{WLAN 5G} = 0.0531 + 0.500 = 0.5531$$

$$\text{WLAN 5G} + \text{GPRS 2 UL} = 0.0531 + 0.500 = 0.5531$$

$$\text{WLAN 5G} + \text{CDMA2000} = 0.0531 + 0.252 = 0.3051$$

$$\text{WLAN 5G} + \text{WIMAX} = 0.0531 + 0.500 = 0.5531$$

Therefore, the maximum calculation of this situation is 0.801, which is less than the "1" limit.