

RF EXPOSURE REPORT

REPORT NO.: SA131024C22

MODEL NO.: PA-MR03LN

FCC ID: 2AA5WPAMR03LN

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TESTED: Dec. 14 ~ Dec. 29, 2013

ISSUED: Jan. 14, 2014

APPLICANT: NEC Access Technica, Ltd.

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ISSUED BY: Bureau Veritas Consumer Products Services
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA131024C22	Original release.	Jan. 14, 2014

1. CERTIFICATION

PRODUCT: PA MR03LN
MODEL: PA-MR03LN
BRAND: NEC
APPLICANT: NEC Access Technica, Ltd.
TESTED: Dec. 14 ~ Dec. 29, 2013
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: FCC Part 2 (Section 2.1091)
FCC OET Bulletin 65, Supplement C (01-01)
IEEE C95.1

The above equipment (Model: PA-MR03LN) 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.

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, DATE : Jan. 14, 2014

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, DATE : Jan. 14, 2014

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

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

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

FREQUENCY BAND (MHz)	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412-2462	24.78	-3.06	20	0.03	1

NOTE: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -3.06$

FREQUENCY BAND (MHz)	ERP (dBm)	EIRP (dBm)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
GPRS 824.2 ~ 848.8MHz	28.55	30.70	20	0.234	0.549
WCDMA 826.4 ~ 846.6MHz	20.27	22.42	20	0.035	0.551

NOTE: ERP=EIRP-2.15

FREQUENCY BAND (MHz)	EIRP (dBm)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
GPRS 1851.25~1908.75 MHz	28.46	20	0.140	1

CONCLUSION:

Both of the WLAN 2.4G & LTE 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

WLAN 2.4G + GPRS 850 = $0.03/1 + 0.234/0.549 = 0.456$

Therefore, the maximum calculation of this situation is 0.456, which is less than the "1" limit.

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