



RF EXPOSURE REPORT

REPORT NO.: SA130313C09
MODEL NO.: ESR600, ESR300, ESR350
FCC ID: A8JESR600
RECEIVED: Mar. 13, 2013
TESTED: Mar. 21 ~ Mar. 28, 2013
ISSUED: Apr. 10, 2013

APPLICANT: EnGenius Technologies

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA130313C09	Original release	Apr. 10, 2013



1. CERTIFICATION

PRODUCT: Wireless Device

MODEL: ESR600, ESR300, ESR350

BRAND: EnGenius

APPLICANT: EnGenius Technologies

TESTED: Mar. 21 ~ Mar. 28, 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: ESR600) 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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Wuy Lin / Specialist

APPROVED BY : Ken Liu , **DATE :** Apr. 10, 2013
Ken Liu / Senior 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

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

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)	MODULATION MODE	MAX POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm ²)	LIMIT (mW/cm ²)
2412-2462	802.11b	19.58	2.0	20	0.029	1
	802.11g	25.47	2.0	20	0.111	1
	802.11n (20MHz)	27.73	5.01	20	0.374	1
	802.11n (40MHz)	26.96	5.01	20	0.313	1
5180-5240	802.11a	14.15	2.0	20	0.008	1
	802.11n (20MHz)	14.63	5.01	20	0.018	1
	802.11n (40MHz)	16.82	5.01	20	0.030	1
5745-5825	802.11a	24.68	2.0	20	0.093	1
	802.11n (20MHz)	25.40	5.01	20	0.219	1
	802.11n (40MHz)	26.41	5.01	20	0.276	1

NOTE:

802.11n: Directional gain = 2dBi + 10log(2) = 5.01dBi

CONCLUSION:

Both of the WLAN 2.4G & 5.0G 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

$$1. \text{ WLAN 2.4G} + \text{WLAN 5.0G} = 0.374 + 0.276 = 0.650$$

Therefore, the maximum calculation of this situation is 0.650, which is less than the "1" limit.

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