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# RF EXPOSURE REPORT

**REPORT NO.:** SA120210E05 R1

**MODEL NO.:** E2F

**FCC ID:** RRK-E2F

**RECEIVED:** Feb. 10, 2012

**TESTED:** Feb. 16, 2012

**ISSUED:** Apr. 13, 2012

**APPLICANT:** Alpha Networks Inc.

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

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
SA120210E05	Original release	Apr. 10, 2012
SA120210E05 R1	Modified Antenna Connecter type of the EUT	Apr. 13, 2012



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## 1. CERTIFICATION

**PRODUCT:** MY NET N750

**BRAND NAME:** WD

**MODEL NO.:** E2F

**TEST SAMPLE:** MASS-PRODUCTION

**APPLICANT:** Alpha Networks Inc.

**TESTED:** Feb. 16, 2012

**STANDARDS:** FCC Part 2 (Section 2.1091)

FCC OET Bulletin 65, Supplement C (01-01)

IEEE C95.1

The above equipment (Model: E2F) 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** : Elsie Hsu , **DATE:** Apr. 13, 2012  
(Elsie Hsu, Specialist )

**APPROVED BY** : May Chen , **DATE:** Apr. 13, 2012  
(May Chen, Deputy Manager )



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## 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 <sup>2</sup> )	AVERAGE TIME (minutes)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

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**.



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## 5. ANTENNA GAIN

6. The antennas provided to the EUT, please refer to the following table:

For 2.4GHz					
Transmitter Circuit	Brand	Model	Peak Gain (dBi)	Antenna Type	Connector Type
Chain (0)	WHA YU GROUP	C037-511171-A (SSR-14424)	3	PCB	NA
Chain (1)	WHA YU GROUP	C037-511170-A (SSR-2011130)	3	PCB	NA
For 5GHz					
Transmitter Circuit	Brand	Model	Peak Gain (dBi)	Antenna Type	Connector Type
Chain (0)	WHA YU GROUP	C037-511158-A (SSR-14469)	5	PCB	MHF
Chain (1)	WHA YU GROUP	C037-511172-A (SSR-2011133)	5	PCB	MHF
Chain (2)	WHA YU GROUP	C037-511176-A (SSR-14470)	5	PCB	MHF



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## 7. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

For 15.247(2.4GHz):

802.11b:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	191.8	6.01	20	0.152	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi)=6.01

802.11g:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	564.3	6.01	20	0.448	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi)=6.01

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2412-2462	806.8	3.00	20	0.320	1.00

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
2422-2452	390.1	3.00	20	0.155	1.00



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**For 15.247(5GHz):**

**802.11a:**

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 ~ 5825	291.3	9.77	20	0.550	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi)=9.77

**802.11n(20MHz):**

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5745 ~ 5825	563.1	5.00	20	0.354	1.00

**802.11n(40MHz):**

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5755 ~ 5795	571.9	5.00	20	0.360	1.00



For 15.407(5GHz):

802.11a:

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 ~ 5240	20.6	9.77	20	0.039	1.00

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

Effective Legacy Gain (dBi)=9.77

802.11n(20MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5180 ~ 5240	45.1	5.00	20	0.028	1.00

802.11n(40MHz):

FREQUENCY BAND (MHz)	MAX POWER (mW)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/ cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
5190 ~ 5230	47.2	5.00	20	0.030	1.00

## CONCLUSION:

Both of the 2.4GHz and 5GHz can transmit simultaneously, the formula of calculated the MPE is:

$$CPD_1 / LPD_1 + CPD_2 / LPD_2 + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

Therefore, the worst-case situation is  $0.448 / 1 + 0.550 / 1 = 0.998$ , which is less than "1". This confirmed that the device comply with FCC 1.1310 MPE limit.

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