

RF EXPOSURE REPORT

REPORT NO.: SA140421C35

MODEL NO.: WAP351

FCC ID: PD5-WAP351

RECEIVED: Apr. 18, 2014

TESTED: May 23 ~ Jun. 18, 2014

ISSUED: Jun. 26, 2014

APPLICANT: Delta Networks, Inc.

ADDRESS: 252, Shang Ying Road, Kuei San Taoyuan Shien
333, Taiwan, R.O.C.

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
SA140421C35	Original release.	Jun. 26, 2014

1. CERTIFICATION

PRODUCT: Wireless-N Dual Radio Access Point with 5 Ports Switch
MODEL: WAP351
BRAND: CISCO
APPLICANT: Delta Networks, Inc.
TESTED: May 23 ~ Jun. 18, 2014
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: WAP351) 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 :  , **DATE :** Jun. 26, 2014

Pettie Chen / Senior Specialist

APPROVED BY :  , **DATE :** Jun. 26, 2014

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_Chain 1	19.72	3.4	20	0.041	1
	802.11b_Chain 2	18.14	5.3	20	0.044	1
	802.11g_Chain 0/1	24.66	6.26	20	0.246	1
	802.11g_Chain 0/2	23.91	7.28	20	0.262	1
	802.11n (20MHz)_Chain 0/1	25.39	6.26	20	0.291	1
	802.11n (20MHz)_Chain 0/2	24.18	7.28	20	0.278	1
	802.11n (40MHz)_Chain 0/1	24.19	6.26	20	0.221	1
	802.11n (40MHz)_Chain 0/2	23.31	7.28	20	0.228	1
5180-5240	802.11a	14.87	6.26	20	0.026	1
	802.11n (20MHz)	14.87	6.26	20	0.026	1
	802.11n (40MHz)	15.84	6.26	20	0.032	1
5745-5825	802.11a	15.99	6.26	20	0.033	1
	802.11n (20MHz)	16.00	6.26	20	0.033	1
	802.11n (40MHz)	15.94	6.26	20	0.033	1

NOTE:

2.4GHz Band:

802.11g, 802.11n (20MHz), 802.11n (40MHz)_Chain 0/1:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2] = 6.26\text{dBi}$$

802.11g, 802.11n (20MHz), 802.11n (40MHz)_Chain 0/2:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2] = 7.28\text{dBi}$$

5.0GHz Band: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2] = 6.26\text{dBi}$

CONCLUSION:

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

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

CPD = Calculation power density

LPD = Limit of power density

$$1. \text{ WLAN 2.4G} + \text{WLAN 5.0G} = 0.291 + 0.033 = 0.324$$

Therefore, the maximum calculation of this situation is 0.324, which is less than the "1" limit.