RF Exposure Evaluation Report

APPLICANT	:	D-Link Co.
EQUIPMENT	:	Wireless N300 Mini Router
BRAND NAME	:	D-Link
MODEL NAME	:	DIR-513A
FCC ID	:	KA2IR513AA1
STANDARD	:	47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091, and pass the limit. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA480567	Rev. 01	Initial issue of report	Oct. 13, 2014

1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

Applicant	
Company Name	D-Link Co.
Address	No. 289, Sinhu 3rd Rd, Neihu District Taipei City 114 Taiwan

Manufacturer	
Company Name	SHENZHEN MTN ELECTRONIC CO., LTD
Address	MTN Industrial Park, No. 9, Futai Road, Pingxi conmmunity, Pingdi Street, Longgang District, Shenzhen, China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Wireless N300 Mini Router
Brand Name	D-Link
Model Name	DIR-513A
FCC ID	KA2IR513AA1
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz
Mode	・802.11b/g/n HT20/HT40
Antenna Type	FPC antenna
HW Version	A1
SW Version	1.00
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

3. Maximum RF average output power among production units

Band / Frequency (MHz)		IEEE 802.11 Average Power (dBm)											
		Ant 0				Ant 1				Ant 0+1			
		11b	11g	HT20	HT40	11b	11g	HT20	HT40	11b	11g	HT20	HT40
2.4GHz Band	2412	12.5	15	13		12.5	14.5	13		15.5	18	16.5	
	2422				8				11.5				14.5
	2437	12.5	16.5	16.5	15	12.5	15.5	16.5	14.5	15.5	20	21	18
	2452				10.5				11.5				14.5
	2462	12.5	15	13		12.5	14.5	13		15.5	18	16.5	

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm^2)	Limit (mW/cm^2)
2.4GHz WLAN	2412.0	1.53	21.0	22.530	0.179	179.061	0.036	1.000

Note: For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.