

FCC RF EXPOSURE REPORT

FCC ID: KA2IR814A1

Project No. : 1606C323
Equipment : AC750 Wi-Fi Router
Model : DIR-814, DIR-814A1
Applicant : D-Link Corporation
Address : NO.289, Xinhua 3rd Rd.,Neihu District,Taipei
City 114,Taiwan,R.O.C.

According: : FCC Guidelines for Human Exposure IEEE
C95.1

B T L I N C .

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MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

For 2.4G:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	D-Link	N/A	Dipole	N/A	4.2
2	D-Link	N/A	Dipole	N/A	4.2

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).
2. ANT 1 for 1TX was found to be the worst case and recorded.

Operating Mode TX Mode	1TX	2TX
802.11b	V (ANT 1)	-
802.11g	V (ANT 1)	-
802.11n(20MHz)	-	V (ANT 1+ANT 2)
802.11n(40MHz)	-	V (ANT 1+ANT 2)

For 5G:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	IPEX	5.1

TEST RESULTS

2.4G:

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX B MODE /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.2	2.6303	29.77	948.4185	0.49654	1	Complies
4.2	2.6303	26.59	456.0369	0.23875	1	Complies
4.2	2.6303	29.54	899.4976	0.47092	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX G MODE /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.2	2.6303	29.75	944.0609	0.49425	1	Complies
4.2	2.6303	29.97	993.1160	0.51994	1	Complies
4.2	2.6303	29.98	995.4054	0.52114	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N20 Mode_CH01/06/11_Total		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.2	2.6303	29.99	997.7001	0.52234	1	Complies
4.2	2.6303	29.7	933.2543	0.48860	1	Complies
4.2	2.6303	29.8	954.9926	0.49998	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N40 Mode_CH03/06/09_Total		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.2	2.6303	29.27	845.2788	0.44254	1	Complies
4.2	2.6303	29.42	874.9838	0.45809	1	Complies
4.2	2.6303	29.46	883.0799	0.46233	1	Complies

5G:

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX A Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.64	145.8814	0.09396	1	Complies
5.1	3.2359	20.94	124.1652	0.07997	1	Complies
5.1	3.2359	22.01	158.8547	0.10232	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N20 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	20.92	123.5947	0.07961	1	Complies
5.1	3.2359	21.38	137.4042	0.08850	1	Complies
5.1	3.2359	21.17	130.9182	0.08432	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N40 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.63	145.5459	0.09375	1	Complies
5.1	3.2359	22.09	161.8080	0.10422	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/ TX A Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	22.71	186.6380	0.12021	1	Complies
5.1	3.2359	20.58	114.2878	0.07361	1	Complies
5.1	3.2359	20.89	122.7439	0.07906	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N20 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	20.13	103.0386	0.06637	1	Complies
5.1	3.2359	19.98	99.5405	0.06411	1	Complies
5.1	3.2359	19.87	97.0510	0.06251	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/ TX N40 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	19.94	98.6279	0.06353	1	Complies
5.1	3.2359	20.22	105.1962	0.06776	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC20 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.32	135.5189	0.08729	1	Complies
5.1	3.2359	20.43	110.4079	0.07111	1	Complies
5.1	3.2359	21.08	128.2331	0.08259	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC40 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.23	132.7394	0.08550	1	Complies
5.1	3.2359	21.64	145.8814	0.09396	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC80 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	20.15	103.5142	0.06667	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC20 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	19.81	95.7194	0.06165	1	Complies
5.1	3.2359	17.68	58.6138	0.03775	1	Complies
5.1	3.2359	19.44	87.9023	0.05662	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC40 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.13	129.7179	0.08355	1	Complies
5.1	3.2359	20.83	121.0598	0.07797	1	Complies

EUT :	AC750 Wi-Fi Router	Model Name :	DIR-814
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC80 Mode		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
5.1	3.2359	21.85	153.1087	0.09862	1	Complies

2.4G and 5G can transmit simultaneously:

$$0.52234 + 0.12021 = 0.64255 < 1 \text{ mW/cm}^2$$

Note: the calculated distance is 20 cm.