

# **FCC RF EXPOSURE REPORT**

**FCC ID: KA2WR118A1**

**Project No. : 1411C008A**  
**Equipment : Dual Band Wi-Fi AC Multi-WAN Router**  
**Model : DWR-118**  
**Applicant : D-Link Corporation**  
**Address : No.289,Xinhu 3Rd.,Neihu District, Taipei City**  
**11494, Taiwan, ROC**  
**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:

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

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

### 2.4G

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	Dipole	N/A	5.00
2	N/A	N/A	Dipole	N/A	4.00

Note:

- (1) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R).
- (2) ANT 1 is the worst case for 1TX.

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)

### 5G

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	N/A	N/A	Dipole	N/A	5.00

# TEST RESULTS

2.4G

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °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 <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	18.02	63.3870	0.03989793	1	Complies
5	3.1623	17.83	60.6736	0.03819006	1	Complies
5	3.1623	17.78	59.9791	0.03775290	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °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 <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	21.92	155.5966	0.09793781	1	Complies
5	3.1623	21.5	141.2538	0.08890995	1	Complies
5	3.1623	21.14	130.0170	0.08183713	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature:	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M MODE_ Total /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	21.29	134.5860	0.08471306	1	Complies
5	3.1623	21	125.8925	0.07924108	1	Complies
5	3.1623	21.09	128.5287	0.08090034	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature:	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M MODE_ Total /CH03, CH06, CH09		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	22.46	176.1976	0.11090481	1	Complies
5	3.1623	21.51	141.5794	0.08911491	1	Complies
5	3.1623	23.13	205.5891	0.12940480	1	Complies

**5G  
UNII-1**

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX A Mode/CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	14.21	26.3633	0.01659397	1	Complies
5	3.1623	14.26	26.6686	0.01678612	1	Complies
5	3.1623	13.96	24.8886	0.01566572	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX N20 Mode/ CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	14.22	26.4241	0.01663223	1	Complies
5	3.1623	14.19	26.2422	0.01651773	1	Complies
5	3.1623	14.4	27.5423	0.01733606	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX N40 Mode/ CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	13.33	21.5278	0.01355035	1	Complies
5	3.1623	17.67	58.4790	0.03680869	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC20 Mode/ CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	14.20	26.3027	0.01655581	1	Complies
5	3.1623	14.28	26.7917	0.01686360	1	Complies
5	3.1623	14.2	26.3027	0.01655581	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC40 Mode/ CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	11.92	15.5597	0.00979378	1	Complies
5	3.1623	14.8	30.1995	0.01900861	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC80 Mode / CH42		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	9.12	8.1658	0.00513985	1	Complies

**UNII-3**

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX A Mode/ CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	11.70	14.7911	0.00931001	1	Complies
5	3.1623	14.15	26.0016	0.01636629	1	Complies
5	3.1623	11.86	15.3462	0.00965940	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX N20 Mode/ CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	10.12	10.2802	0.00647069	1	Complies
5	3.1623	14.27	26.7301	0.01682482	1	Complies
5	3.1623	11.57	14.3549	0.00903546	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX N40 Mode/ CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	13.68	23.3346	0.01468758	1	Complies
5	3.1623	17.71	59.0201	0.03714928	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC20 Mode/ CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	13.56	22.6986	0.01428731	1	Complies
5	3.1623	14.39	27.4789	0.01729619	1	Complies
5	3.1623	14.71	29.5801	0.01861874	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC40 Mode/ CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	8.84	7.6560	0.00481893	1	Complies
5	3.1623	13.61	22.9615	0.01445275	1	Complies

EUT	Dual Band Wi-Fi AC Multi-WAN Router	Model Name :	DWR-118
Temperature	27 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode	TX AC80 Mode / CH155		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5	3.1623	8.92	7.7983	0.00490852	1	Complies

Note: the calculated distance is 20 cm.