



Neutron Engineering Inc.

FCC RF EXPOSURE REPORT

FCC ID: QISWS322

Project No. : 1212C061
Equipment : 1) 300Mbps Mini Wireless Router;
2) 300Mbps Wireless Rang Extender
Model Name : WS322
Applicant : Huawei Technologies Co., Ltd.
Address : Bantian, Longgang District, Shenzhen China
Manufacturer : Huawei Technologies Co., Ltd.
Address : Administration Building, Huawei Base, Bantian,
Longgang District ,Shenzhen 518129, P.R.China

According: : FCC Guidelines for Human Exposure IEEE C92.76

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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

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
0	HUAWEI	101003WS322A	Integral Antenna	N/A	0.94	TX/RX
1	HUAWEI	111003WS322A	Integral Antenna	N/A	1.0	TX/RX

Note:

The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers (2T2R).

Operating Mode	1TX	2TX
	TX Mode	
802.11b	V (ANT0 or ANT1)	-
802.11g	V (ANT0 or ANT1)	-
802.11n(20MHz)	-	V (ANT0 & ANT1)
802.11n(40MHz)	-	V (ANT0 & ANT1)



TEST RESULTS

EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE /CH01, CH06, CH11		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
19.20	83.1764	0.03380262	1	Complies
19.12	81.6582	0.03318565	1	Complies
20.17	103.9920	0.04226203	1	Complies

EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE /CH01, CH06, CH11		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
20.18	104.2317	0.04235946	1	Complies
23.58	228.0342	0.09267239	1	Complies
20.69	117.2195	0.04763765	1	Complies

EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11 - ANT 0		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
19.66	92.4698	0.03757945	1	Complies
24.10	257.0396	0.10446008	1	Complies
20.10	102.3293	0.04158631	1	Complies



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Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11 - ANT 1		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
18.11	64.7143	0.02629967	1	Complies
21.88	154.1700	0.06265423	1	Complies
18.97	78.8860	0.03205903	1	Complies

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Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11 – ANT0+ ANT 1		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
21.96	157.0363	0.06381906	1	Complies
26.14	411.1497	0.16708997	1	Complies
22.58	181.1340	0.07361230	1	Complies

EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 0		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
17.34	54.2001	0.02202675	1	Complies
24.26	266.6859	0.10838031	1	Complies
17.44	55.4626	0.02253982	1	Complies



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EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 1		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
14.92	31.0456	0.01261683	1	Complies
22.42	174.5822	0.07094967	1	Complies
15.43	34.9140	0.01418895	1	Complies

EUT:	300Mbps Mini Wireless Router	Model Name :	WS322
Temperature:	25 °C	Relative Humidity:	60 %
Pressure:	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-40M MODE /CH03, CH06, CH09 - ANT 1+ANT 2		

Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
19.31	85.3100	0.03466972	1	Complies
26.45	441.5704	0.17945285	1	Complies
19.45	88.1049	0.03580555	1	Complies