



**Neutron Engineering Inc.**

# **FCC RF EXPOSURE REPORT**

**FCC ID: T58WF2419R**

**Project No.** : May. 08, 2012  
**Equipment** : 1203C062  
**Model** : 300Mbps Wireless-N AP/ Repeater / Router client  
**Applicant** : WF2419  
**Address** : NETIS SYSTEMS CO., LTD.

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

***Neutron Engineering Inc.***

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### MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

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

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Cortec	AN2400-92F19BO	Dipole	N/A	5.71	TRX
2	Cortec	AN2400-92F19BO	Dipole	N/A	5.71	TRX

Note:

The antenna of EUT could be rotated, but the Antenna Polarity vertical is max.

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

This EUT supports MIMO, any transmit signals are correlated with each other, so

**Directional gain =  $G_{ANT} + 10 \log(N)$  dBi**, that is Directional

gain=5.71+10log(2)dBi=8.71; So, the out power limit is 30-8.71+6=27.29; and power

density limit is 8-8.71+6=5.29

Operating Mode	TX Mode	
	1TX	2TX
802.11b	V (ANT1 or ANT2)	-
802.11g	V (ANT1 or ANT2)	-
802.11n(20MHz)	-	V (ANT1 & ANT2)
802.11n(40MHz)	-	V (ANT1 & ANT2)



## TEST RESULTS

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity:	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX B MODE /CH01, CH06, CH11-ANT 1		

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
5.71	3.7239	16.48	44.4631	0.03295720	1	Complies
5.71	3.7239	16.67	46.4515	0.03443106	1	Complies
5.71	3.7239	16.46	44.2588	0.03280578	1	Complies

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX G MODE /CH01, CH06, CH11-ANT 1		

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
5.71	3.7239	23.05	201.8366	0.14960647	1	Complies
5.71	3.7239	23.14	206.0630	0.15273915	1	Complies
5.71	3.7239	23.15	206.5380	0.15309125	1	Complies



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EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11-ANT1		

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
5.71	3.7239	18.72	74.4732	0.05520144	1	Complies
5.71	3.7239	18.79	75.6833	0.05609839	1	Complies
5.71	3.7239	18.80	75.8578	0.05622771	1	Complies

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX N-20M MODE /CH01, CH06, CH11-ANT2		

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
5.71	3.7239	18.82	76.2079	0.05648724	1	Complies
5.71	3.7239	18.83	76.3836	0.05661746	1	Complies
5.71	3.7239	18.77	75.3356	0.05584064	1	Complies

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH01/CH06/CH11-802.11n 20MHz – ANT 1+ANT 2		

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
8.71	7.4302	21.78	150.6607	0.22281805	1	Complies
8.71	7.4302	21.82	152.0548	0.22487976	1	Complies
8.71	7.4302	21.80	151.3561	0.22384653	1	Complies



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EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH03/CH06/CH09-802.11n 40MHz – ANT 1		

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
5.71	3.7239	18.89	77.4462	0.05740509	1	Complies
5.71	3.7239	18.72	74.4732	0.05520144	1	Complies
5.71	3.7239	18.86	76.9130	0.05700991	1	Complies

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH03/CH06/CH09-802.11n 40MHz – ANT 2		

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
5.71	3.7239	18.92	77.9830	0.05780300	1	Complies
5.71	3.7239	18.88	77.2681	0.05727306	1	Complies
5.71	3.7239	18.73	74.6449	0.05532869	1	Complies

EUT:	300Mbps Wireless-N AP/ Repeater / Router client	Model Name :	WF2419
Temperature:	24 °C	Relative Humidity :	60 %
Pressure:	1016 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH03/CH06/CH09-802.11n 40MHz – ANT 1+ANT 2		

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
8.71	7.4302	21.92	155.5966	0.23011788	1	Complies
8.71	7.4302	21.81	151.7050	0.22436255	1	Complies
8.71	7.4302	21.81	151.7050	0.22436255	1	Complies