

FCC RF EXPOSURE REPORT

FCC ID: QISAP8130DN

Project No. : 1407C034V
Equipment : Outdoor Wireless LAN Access Point
Model : AP8130DN
Applicant : Huawei Technologies Co.,Ltd.
**Address : Administration Building, Huawei Base,
Bantian, Longgang District ,Shenzhen 518129,
P.R.China**
**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

2.4G:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
A	pctel	FP2327-18DP-HW	External Antenna	N-type	5.6	2.4GHz
B	pctel	FP2327-18DP-HW	External Antenna	N-type	5.6	2.4GHz

5G:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Shenglu	SL12845A	External Antenna	N-type	8	5GHz
2	Shenglu	SL12845A	External Antenna	N-type	8	5GHz

Note:

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

2. ANT B for 1TX was found to be the worst case and recorded.

For 2TX with beamforming

The EUT with beamforming function for 2.4GHz, then, Direction gain = $G_{ANT} + 10\log(N_{ANT}/N_{SS})$, where N_{SS} = the number of independent spatial streams of data.

Directional gain = $5.6 + 10\log(2/2) = 5.6 + 0 = 5.6$ dBi.

Operating Mode	1TX	2TX
	TX Mode	
802.11a	V (ANT B)	V (ANT A+ANT B)
802.11b	V (ANT B)	V (ANT A+ANT B)
802.11g	V (ANT B)	V (ANT A+ANT B)
802.11n(20MHz)	V (ANT B)	V (ANT A+ANT B)
802.11n(40MHz)	V (ANT B)	V (ANT A+ANT B)
802.11ac (20MHz)	V (ANT B)	V (ANT A+ANT B)
802.11ac (40MHz)	V (ANT B)	V (ANT A+ANT B)
802.11ac (80MHz)	V (ANT B)	V (ANT A+ANT B)

TEST RESULTS

2.4G

EUT :	Outdoor Wireless LAN Access Point	Model Name :	AP8130DN
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX G MODE /CH01, CH06, CH11_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
5.6	3.6308	21.40	138.0384	0.09976	1	Complies
5.6	3.6308	29.83	961.6123	0.69494	1	Complies
5.6	3.6308	21.26	133.6596	0.09659	1	Complies

UNII-1

EUT :	Outdoor Wireless LAN Access Point	Model Name :	AP8130DN
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH36, CH40, CH48		

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
8	6.3096	20.89	122.7439	0.15415	1	Complies
8	6.3096	20.85	121.6186	0.15274	1	Complies
8	6.3096	21.04	127.0574	0.15957	1	Complies

UNII-2A

EUT :	Outdoor Wireless LAN Access Point	Model Name :	AP8130DN
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH52, CH60, CH64		

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
8	6.3096	20.99	125.6030	0.15774	1	Complies
8	6.3096	20.94	124.1652	0.15594	1	Complies
8	6.3096	21.00	125.8925	0.15811	1	Complies

UNII-2C

EUT :	Outdoor Wireless LAN Access Point	Model Name :	AP8130DN
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH100, CH116, CH140		

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
8	6.3096	21.05	127.3503	0.15994	1	Complies
8	6.3096	20.86	121.8990	0.15309	1	Complies
8	6.3096	20.87	122.1800	0.15344	1	Complies

UNII-3

EUT :	Outdoor Wireless LAN Access Point	Model Name :	AP8130DN
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX A MODE_Total / CH149, CH157, CH165		

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
8	6.3096	20.85	121.6186	0.15274	1	Complies
8	6.3096	20.90	123.0269	0.15451	1	Complies
8	6.3096	21.11	129.1219	0.16216	1	Complies

For 2.4G+5G simultaneous transmission MPE:

$$0.6949/1+0.1622/1=0.8571$$

Note: the calculated distance is 20 cm.