

FCC RF EXPOSURE REPORT

FCC ID: TVE-24100045

Project No. : 1611C131
Equipment : Wireless Access Point
Model Name : FAP-C24JE
Series Model : FORTIAP-C24JExxxxxx, FortiAP C24JEXXXXXX,
FAP-C24JExxxxxx(where "x" can be used as "A-Z", or
"0-9", or "-", or blank for software changes or marketing
purposes only)
Applicant : Fortinet, Inc.
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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/5G:

Ant.	Brand / Mfr	Model Name	Antenna Type	Connector	Gain (dBi)
1	ACX	AT3216-T2R4PAAT/LF	Chip	N/A	2
2	ACX	AT3216-T2R4PAAT/LF	Chip	N/A	2

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

2.4G:

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

5G:

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

TEST RESULTS

2.4G:

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX B 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
2	1.5849	18.59	72.2770	0.02280	1	Complies
2	1.5849	18.96	78.7046	0.02483	1	Complies
2	1.5849	18.66	73.4514	0.02317	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature :	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX G 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
2	1.5849	25.5	354.8134	0.11193	1	Complies
2	1.5849	25.92	390.8409	0.12330	1	Complies
2	1.5849	25.4	346.7369	0.10938	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
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
2	1.5849	24.08	255.8586	0.08071	1	Complies
2	1.5849	24.03	252.9298	0.07979	1	Complies
2	1.5849	23.94	247.7422	0.07815	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
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
2	1.5849	23.48	222.8435	0.07030	1	Complies
2	1.5849	23.68	233.3458	0.07361	1	Complies
2	1.5849	23.51	224.3882	0.07079	1	Complies

UNII-1

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX A Mode _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
2	1.5849	13.67	23.2809	0.00734	1	Complies
2	1.5849	13.82	24.0991	0.00760	1	Complies
2	1.5849	13.82	24.0991	0.00760	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N20 Mode _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
2	1.5849	14.81	30.2691	0.00955	1	Complies
2	1.5849	14.74	29.7852	0.00940	1	Complies
2	1.5849	14.92	31.0456	0.00979	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N40 Mode _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
2	1.5849	14.72	29.6483	0.00935	1	Complies
2	1.5849	14.77	29.9916	0.00946	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC20 Mode _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
2	1.5849	14.73	29.7167	0.00937	1	Complies
2	1.5849	14.89	30.8319	0.00973	1	Complies
2	1.5849	14.65	29.1743	0.00920	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC40 Mode _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
2	1.5849	14.67	29.3089	0.00925	1	Complies
2	1.5849	14.68	29.3765	0.00927	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC80 Mode _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
2	1.5849	14.74	29.7852	0.00940	1	Complies

UNII-3

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/ TX A Mode_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
2	1.5849	13.78	23.8781	0.00753	1	Complies
2	1.5849	13.71	23.4963	0.00741	1	Complies
2	1.5849	13.8	23.9883	0.00757	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N20 Mode_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
2	1.5849	14.78	30.0608	0.00948	1	Complies
2	1.5849	14.58	28.7078	0.00906	1	Complies
2	1.5849	14.84	30.4789	0.00962	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/ TX N40 Mode_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
2	1.5849	14.78	30.0608	0.00948	1	Complies
2	1.5849	14.58	28.7078	0.00906	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC20 Mode_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
2	1.5849	14.73	29.7167	0.00937	1	Complies
2	1.5849	14.56	28.5759	0.00901	1	Complies
2	1.5849	14.86	30.6196	0.00966	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC40 Mode_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
2	1.5849	14.72	29.6483	0.00935	1	Complies
2	1.5849	14.8	30.1995	0.00953	1	Complies

EUT :	Wireless Access Point	Model Name :	FAP-C24JE
Temperature:	25 °C	Relative Humidity:	55 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC80 Mode_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
2	1.5849	14.74	29.7852	0.00940	1	Complies

For 2.4G+5G simultaneous transmission MPE:

$$0.1233/1+0.00979/1=0.13309<1$$

Note: the calculated distance is 20 cm.