

2.9 Average Spurious Emission in the Frequency Range 30 - 25000 MHz (FCC Section 15.247(c))

The results of average radiated spurious emissions falling within restricted bands are given in Tables 5a – 5c.

Worst Case Transmit Duty Cycle for EM2420HP

The duty cycle de-rating factor used in the calculation of average radiated limits (per 15.209) is described below. This factor was calculated by first determining the worst case scenario for system operation. The worst case operating scenario is as follows:

Maximum transmit time/on equals 0.5ms over a 100 ms period.

The transmission duty cycle correction factor is then calculated as:

$$20 \log_{10} (0.5\text{ms}/100\text{ms}) = \mathbf{-46.02\text{dB}}$$

This value was subtracted from the peak data listed in Section 2.8 and compared to the average limits in the following tables.

Table 5a. AVERAGE RADIATED SPURIOUS EMISSIONS (Low)

Radiated Emissions									
Test By:	Test:	FCC Part 15 Low Channel Average Limits				Client:	Cirronet		
	Project:	06-0159	Class:		B	Model:	EM2420HP		
Frequency Range		Table	Model		S/N		Valid	Calibrated:	
		2HN3mH	Model : SAS-571		S/N 605		Yes	01 APR 05 (2 Year)	
Frequency	Test Data	AF	Test Data	AF+CA-AMP	Results	Limits	Distance /	Margin	AVG = n
(MHz)	(dBm)	Table	(dBuV)	(dB)	(uV/m)	(uV/m)	Polarity	(dB)	/ QP
2405.28	-79.2	2HN3mH	27.8	31.6	934.6		3m./HORZ		AVG
4810.64	-94.0	2HN3mH	13.0	5.5	8.4	5000.0	3m./HORZ	55.5	AVG
7215.94	-94.0	2HN3mH	13.0	10.7	15.3	93.5	3m./HORZ	15.7	AVG
9622.2	-95.5	2HN3mH	11.5	13.3	17.4	93.5	3m./HORZ	14.6	AVG
12025.85	-109.8	2HN3mH	-2.8	19.0	6.4	5000.0	3m./HORZ	57.8	AVG

Data corrected by 0.1 dB for loss of high pass filter, except to fundamental

** Conversion from 1 meter to 3 meters = -9.54 dB

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-94.0 + 5.5 + 107)/20) = 8.4$

CONVERSION FROM dBm TO dBuV = 107 dB

Tester

Signature: 

Name: Austin Thompson

Table 5b. AVERAGE RADIATED SPURIOUS EMISSIONS (Mid)

Radiated Emissions									
Test By:	Test:	FCC Part 15 Mid Channel Average				Client:	Cirronet		
	Project:	06-0159		Class:	B	Model:	EM2420HP		
Frequency Range		Table	Model		S/N		Valid	Calibrated:	
		2HN3mH	Model : SAS-571		S/N 605		Yes	01 APR 05 (2 Year)	
Frequency	Test Data	AF	Test Data	AF+CA-AMP	Results	Limits	Distance /	Margin	AVG = n
(MHz)	(dBm)	Table	(dBuV)	(dB)	(uV/m)	(uV/m)	Polarity	(dB)	/ QP
2445.23	-78.5	2HN3mH	28.5	31.7	1020.8		3m./HORZ		AVG
4890.66	-94.7	2HN3mH	12.3	5.8	8.0	5000.0	3m./HORZ	55.9	AVG
7336	-91.1	2HN3mH	15.9	10.9	21.8	5000.0	3m./HORZ	47.2	AVG
9781.45	-93.2	2HN3mH	13.8	13.5	23.2	102.1	3m./HORZ	12.9	AVG
12226.85	-108.7	2HN3mH	-1.7	19.4	7.6	5000.0	3m./HORZ	56.3	AVG

Data corrected by 0.1 dB for loss of high pass filter, except to fundamental

** Conversion from 1 meter to 3 meters = -9.54 dB

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog ((-94.7 + 5.8 + 107)/20) = 8.0

CONVERSION FROM dBm TO dBuV = 107 dB

Tester

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Table 5c. AVERAGE RADIATED SPURIOUS EMISSIONS (High)

Radiated Emissions									
Test By:	Test:	FCC Part 15 High Channel Average				Client:	Cirronet		
	Project:	06-0159	Class:	B	Model:	EM2420HP			
Frequency Range		Table	Model		S/N		Valid	Calibrated:	
		2HN3mH	Model : SAS-571		S/N 605		Yes	01 APR 05 (2 Year)	
Frequency	Test Data	AF	Test Data	AF+CA-AMP	Results	Limits	Distance /	Margin	AVG = n
(MHz)	(dBm)	Table	(dBuV)	(dB)	(uV/m)	(uV/m)	Polarity	(dB)	/ QP
2480.25	-77.0	2HN3mH	30.0	31.8	1221.4		3m./HORZ		AVG
4960.75	-92.6	2HN3mH	14.4	6.0	10.4	5000.0	3m./HORZ	53.6	AVG
7441.25	-94.0	2HN3mH	13.0	11.1	15.9	5000.0	3m./HORZ	49.9	AVG
9921.7	-96.0	2HN3mH	11.0	13.7	17.1	122.1	3m./HORZ	17.1	AVG
12401.85	-111.5	2HN3mH	-4.5	19.7	5.8	5000.0	3m./HORZ	58.8	AVG

Data corrected by 0.1 dB for loss of high pass filter, except to fundamental


** Conversion from 1 meter to 3 meters = -9.54 dB

SAMPLE CALCULATION:

RESULTS (uV/m @ 3m) = Antilog $((-92.6 + 6.0 + 107)/20)$ = 10.4

CONVERSION FROM dBm TO dBuV = 107 dB

Tester

Signature: 

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