



August 24, 2011

Xirrus Arrays Co-location Power Reduction

Gentlemen:

The Xirrus family of wireless LAN arrays has multiple 802.11abgn radios co-located in a single device. In order to not exceed the FCC power limits for any particular frequency band, the Xirrus Array software will reduce power per radio in any band when multiple radio are operating simultaneously and the aggregate output power would exceed FCC limits for that band. The tables below show each band where multiple radios would exceed the allowed limits and the power setting that will be used to ensure that the maximum level are not exceeded for the XI-N300 2x2 module.



5725-5850MHz

	5745	5755	5765	5785	5795	5805	5825
802.11a	19.8 (17.0)		20.6 (17.0)	20.6 (17.0)		20.2 (17.0)	20.2 (17.0)
802.11n20	17.8 (17.0)		18.6 (17.0)	18.6 (17.0)		18.3 (17.0)	18.3 (17.0)
802.11n40		26.7 (17.0)			26.9 (17.0)		

Average powers

Average powers

These are peak powers, average power is < 20dBm.

Number of radios operating in the band	Max Power per transceiver (MIMO)		Power Setting (0.5dB increments)		Total Power in Band		Total EIRP	Allocation of channels
	40MHz	20MHz	40MHz	20MHz	Pout (dBm)	EIRP (dBm)	mW	
1	26.9	20.6	17.0	17.0	26.9	33.9	2455	1 x 40 MHz
2	26.0	20.6	16.0	17.0	29.0	36.0	3981	2 x 40 MHz
3	24.2	20.6	14.0	17.0	29.0	36.0	3981	1 x 40MHz and 2 x 20MHz
4		20.6		17.0	26.6	33.6	2302	4 x 20MHz
5		20.6		17.0	27.6	34.6	2877	5 x 20 MHz

Host system firmware will reduce output power per radio to ensure that the total eirp and/or total output power do not exceed the limits of 30dBm and 36dBm respectively.



5150-5250 MHz

	5180	5190	5200	5220	5230	5240	
802.11a S	14.4 (16.5)		14.5 (16.5)	14.5 (16.5)		15.5 (16.5)	SISO Legacy Mode
802.11a M	15.1 (13.5)		15.6 (14.0)	15.6 (14.0)		15.0 (13.0)	MIMO Legacy Mode
802.11n20	14.7 (13.5)		15.4 (14.0)	15.4 (14.0)		15.5 (13.5)	
802.11n40		7.1 (6.0)			15.4 (14.0)		

Number of radios operating in the band	Max Power (MIMO)		Max Power (SISO)		Total Power in Band		Total EIRP (mW)
	dBm	Setting <i>a, HT</i>	dBm	Setting	Pout (dBm)	EIRP (dBm)	
1	15.6	14.0	15.5	16.5	15.6	22.6	182
2	13.0	11.0	14.0	15.0	17.0	23.0	200
3	11.2	9.5	12.2	13.0	17.0	23.0	200
4	10.0	8.0	11.0	12.0	17.0	23.0	200

MIMO gives highest eirp
MIMO gives highest eirp

Host system firmware will reduce output power per radio to ensure that the total eirp and/or total output power do not exceed the limits of 17dBm and 23dBm respectively



5250-5350 MHz

	5260	5270	5280	5300	5310	5320
802.11a S	19.1 (20.0)		19.1 (20.0)	19.1 (20.0)		12.2 (14.0)
802.11a M	19.5 (17.0)		19.5 (17.0)	19.0 (17.0)		16.7 (15.0)
802.11n20	19.3 (17.0)		19.3 (17.0)	18.9 (17.0)		15.1 (13.5)
802.11n40		18.7 (17.0)			9.3 (8.5)	

Number of radios operating in the band	Max Power per transceiver (MIMO)		Max Power per transceiver (SISO)		Total Power in Band		Total EIRP (mW)
	dBm	Setting <i>a, n</i>	dBm	Setting	Pout (dBm)	EIRP (dBm)	
1	19.5	17.0	19.1	20.0	19.5	26.5	447
2	19.5	17.0	19.1	20.0	22.5	29.5	893
3	18.2	15.5	19.1	20.0	23.9	30.0	1000
4	17.0	14.5	18.0	18.5	22.5	30.0	1000

SISO Legacy Mode
MIMO Legacy Mode

Host system firmware will reduce output power per radio to ensure that the total eirp and/or total output power do not exceed the limits of 23dBm and 30dBm respectively



5470-725 MHz

	5500	5510	5520	5540	5550	5560	5580	5660	5670	5680	5700	
802.11a S	15.9 (17.0)		15.9 (17.0)	15.9 (17.0)		15.9 (17.0)	15.8 (17.0)	15.8 (17.0)		15.4 (17.0)	15.4 (17.0)	SISO
802.11a M	19.7 (17.0)		19.7 (17.0)	19.7 (17.0)		19.7 (17.0)	19.7 (17.0)	19.1 (17.0)		18.4 (17.0)	18.4 (17.0)	MIMO
802.11n20	18.4 (16.5)		17.8 (17.0)	17.8 (17.0)		17.8 (17.0)	17.8 (17.0)	17.8 (17.0)		18.0 (17.0)	18.0 (16.5)	
802.11n40		12.3 (11.0)			16.6 (15.0)				16.2 (15.0)			

Number of radios operating in the band	Max Power per transceiver (MIMO)		Max Power per transceiver (SISO)		Total Power in Band		Total EIRP (mW)
	dBm	Setting a,n20,n40	dBm	Setting	Pout (dBm)	EIRP (dBm)	
1	19.7	17.0	15.9	17.0	19.7	26.7	468
2	19.7	17.0	15.9	17.0	22.7	29.7	935
3	18.2	15.5	15.9	17.0	23.0	30.0	1000
4	17.0	14.0	15.9	17.0	23.0	30.0	1000
5	16.0	13.0	15.9	17.0	23.0	30.0	1000
6	15.2	12.5	15.9	17.0	23.7	30.0	1000
7	14.5	11.5	15.5	16.5	24.0	30.0	1000
8	14.0	11.0	15.0	16.0	24.0	30.0	1000

Host system firmware will reduce output power per radio to ensure that the total eirp and/or total output power do not exceed the limits of 17dBm and 23dBm respectively



Sincerely

A handwritten signature in purple ink, appearing to be "S. Smith", with a long horizontal line extending to the right.

Steve Smith
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