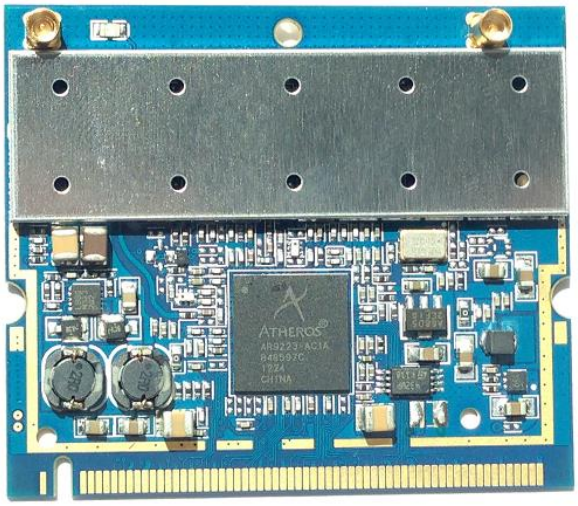
nM2-2400

2x2 IEEE 802.11 b/g/n High Power Mini PCI Radio Module

nM2-2400 is an IEEE 802.11b/g/n ISM Band 2.4 GHz Radio Module built over Vizmonet's innovative Built-to-Customize™ platform engineered for carrier class long range high data capacity applications.



With superior TX power efficient RF design, the product supports high TX Power offering best-in class EVM performance at higher modulation schemes. This facilitates to achieve long range without compromising data throughput.

With well-engineered RX Design, nM2-2400 offers ultra-low receive sensitivity to achieve long range.

Backed by military grade technology, the product is ideal for deployment in harsh outdoor environment and available with plenty of options for customization to enable easy integration into OEM systems.

FEATURES

- IEEE 802.11n standards compliant operating in the ISM Band 2400 MHz to 2483.5 MHz
- Backward compatible with legacy IEEE 802.11b/g systems
- 2x2 MIMO with 2xMMCX Antenna connector supports spatial multiplexing
- High TX Power of up to +29 dBm for lower data rates
- Atheros AR9223-AC1A Chipset
- Mini PCI Type IIIA form factor – 59.6mm(W)x51mm(L)
- Additional screw holes for ground lug & easy integration into OEM integration
- Support for Customization for OEM integration
- Operating Temperature range (-20 deg C to +70 deg C)

TECHNICAL SPECIFICATION

RADIO MODULE – GENERAL INFO	
Chipset Info	Atheros AR9223-AC1A
Operating Frequency Channels	2.412GHz to 2.462GHz (US & Canada) 2.412GHz to 2.472GHz (Europe) 2.412GHz to 2.484GHz (Japan)
Security	WPA,WPA2, 802.11i with AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP
Data Rates Legacy 11g up to 54 Mbps 11n HT20-1S up to 65Mbps @ 800GI, 72.2Mbps @ 400GI /11n HT40-1S up to135Mbps @ 800GI, 150Mbps @ 400GI 11n HT20-2S up to 130Mbps @ 800GI, 144.4Mbps @ 400GI/11nHT40-2S up to 270Mbps @ 800GI, 300Mbps @ 400GI	 6Mbps, 9Mbps, 12Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps MCS0,MCS1,MCS2,MCS3,MCS4,MCS5,MCS6,MCS7 IEEE 802.11n HT20/HT40 Single Stream MCS8,MCS9,MCS10,MCS11,MCS12,MCS13,MCS14,MCS15 IEEE 802.11n HT20/HT40 Dual Stream
Channel Bandwidth	5 MHz/10 MHz/20 MHz/40 MHz
RoHS Compliance	Compliant
Operating System Support	Linux Open WRT and Ath9K driver
INTERFACE SPECIFICATIONS	
Interface	PCI 32 bit,33 MHz, mini PCI Form Factor
Operating Voltage	3.3V
RF Antenna connector	Dual MMCX, VERTICAL
PHYSICAL SPECIFICATIONS	
Mechanical Dimension (Assembled condition)	(L) 59.6 mm x (W) 51 mm x (H) 8.8 mm
Weight of the Module without ESD Bag	21 g
Weight of the module with ESD Bag	23 g
CUSTOM FEATURES	
MAC ID	74-E2-77- 00 series
PCI SUB VENDOR ID	168C
PCI SUB DEVICE ID	1303
TX POWER OFFSET	6 dB
LABELS	MAC Label x1 pc on the Radio Module Model Label x pc with dual barcode on the ESD bag
REGULATORY INFORMATION	
FCC	TBD
IC,CE	TBD
PACKAGING INFORMATION	
100 UNITS PER CARTON	520 mm (L) x 240 mm (W) x 133 mm (H)

ORDERING INFORMATION	
nM2-2400	Mini PCI Radio Module, 2x2 IEEE 802.11 b/g/n ,2.4 GHz, 29 dBm

RADIO SPECIFICATION - RX

Receiver Maximum input level (10% PER)	> -10 dBm
Receive Chain Noise Figure	5.5 dB
Frequency Accuracy	Within ± 15 PPM
Receiver Adjacent Channel Rejection (ACR)	
10 to 20 MHz, 10% PER 6 Mbps	> 30 dB
HT20 MCS0,MCS8	> 30 dB
HT40 MCS0,MCS8	> 20 dB
Receiver Alternate Channel Rejection (ALCR)	
20 to 30 MHz, 10% PER 6 Mbps	> 40 dB
HT20 MCS0,MCS8	> 40 dB
HT40 MCS0,MCS8	> 35 dB

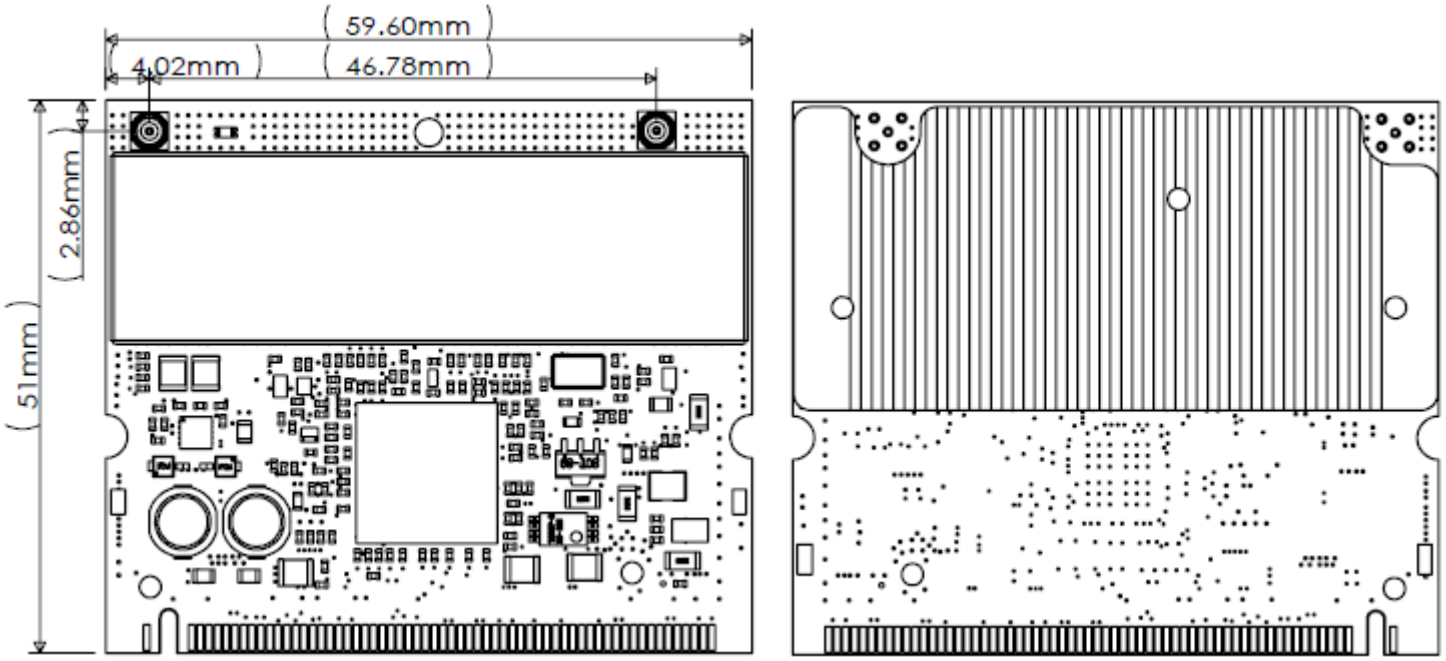
RADIO SPECIFICATION - TX

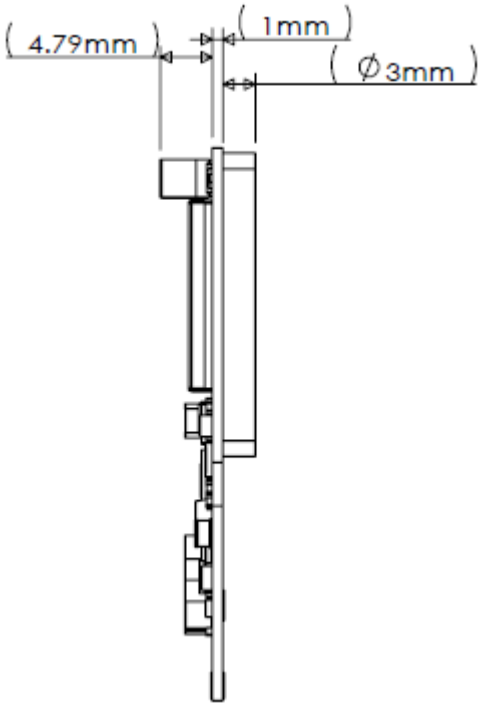
Transmit Spectral mask 11 MHz/20 MHz/30MHz Offset	> -20 dBr/> -28 dBr/> -40 dBr
RF Power control Step	0.5 dBm
Second Harmonic Spurious Emission	-45 dB
Third Harmonic Spurious Emission	-45 dB
Transmitter Spurious Emission	Complying FCC 47 CFR Part 15.247 Sub Part C Requirements

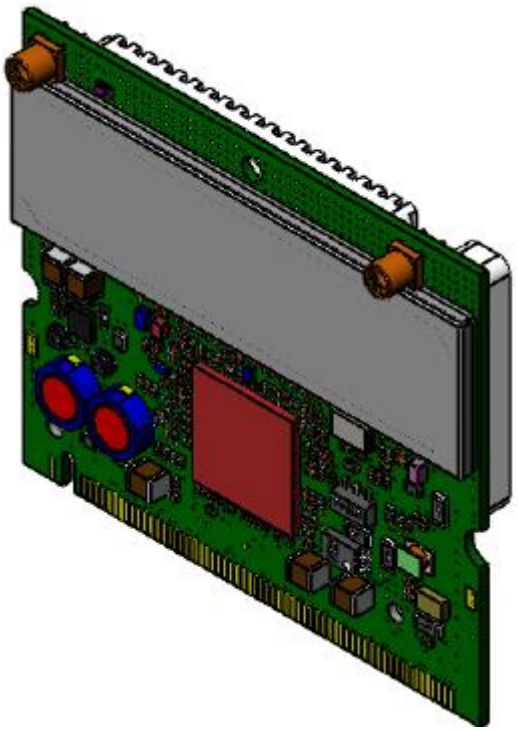
RADIO SPECIFICATION – TX/RX

RADIO TX/RX PERFORMANCE, 20 MHz BW,2 CHAINS						
	DATA RATE	MODULATION	TX POWER ± 1 dBm	TX CURRENT-2S (A) AT 3.3V ± 0.1A	RX SENSITIVITY ± 2 dBm	RX CURRENT-2S (A) AT 3.3V ± 0.1A
11g	6 Mbps	BPSK	29	1.2	-95	0.15
	9 Mbps	BPSK	29	1.2	-95	0.15
	12 Mbps	QPSK	29	1.2	-94	0.15
	18 Mbps	QPSK	29	1.2	-93	0.15
	24 Mbps	16QAM	29	1.2	-89	0.15
	36 Mbps	16QAM	27	1.1	-86	0.15
	48 Mbps	64QAM	25	0.8	-82	0.15
	54 Mbps	64QAM	24	0.7	-80	0.15
11 b	1 Mbps	BPSK	29	1.2	-97	0.15
	2 Mbps	QPSK	29	1.2	-94	0.15
	5.5 Mbps	CCK	29	1.2	-93	0.15
	11 Mbps	CCK	29	1.2	-92	0.15
11 n HT20	MCS0/8	BPSK	28	1.1	-94	0.15
	MCS1/9	QPSK	28	1.1	-93	0.15
	MCS2/10	QPSK	28	1.1	-91	0.15
	MCS3/11	16QAM	28	1.1	-88	0.15
	MCS4/12	16QAM	27	1.0	-85	0.15
	MCS5/13	64QAM	25	0.8	-81	0.15
	MCS6/14	64QAM	23	0.7	-79	0.15
	MCS7/15	64QAM	22	0.6	-77	0.15
11 n HT40	MCS0/8	BPSK	27	1.0	-91	0.15
	MCS1/9	QPSK	27	1.0	-90	0.15
	MCS2/10	QPSK	27	1.0	-88	0.15
	MCS3/11	16QAM	27	1.0	-85	0.15
	MCS4/12	16QAM	26	0.9	-82	0.15
	MCS5/13	64QAM	25	0.8	-78	0.15
	MCS6/14	64QAM	23	0.7	-77	0.15
	MCS7/15	64QAM	22	0.6	-74	0.15

MECHANICAL DIMENSIONS







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