aM1-5850

1x1 IEEE 802.11 a High Power Mini PCI Radio Module

aM1-5850 is an IEEE 802.11a 5850 MHz to 5925 MHz Radio Module built over Vizmonet's innovative Built-to-Customize™ platform engineered for ITS Band V2V 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, aM1-5850 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 802.11a standards compliant operating in the Band 5850 MHz to 5925 MHz (Centre Frequency)
- 1xMMCX Antenna connector
- High TX Power of up to +29 dBm for lower data rates
- Atheros AR5414A-001 Chipset
- Mini PCI Type IIIA form factor – 59.6mm(W) x 50mm(L)
- 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 AR5414A-001
Operating Frequency Channels	5850 MHz ~ 5925 MHz - Intelligent Transport Systems (ITS) Band
Security	WPA,WPA2, 802.11i with AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP
Data Rates	6Mbps, 9Mbps, 12Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Channel Bandwidth	5 MHz/10 MHz/20 MHz/40 MHz
RoHS Compliance	Compliant
Operating System Support	Linux Open WRT and Ath5K driver

INTERFACE SPECIFICATIONS	
Interface	PCI 32 bit,33 MHz, mini PCI Form Factor
Operating Voltage	3.3V
RF Antenna connector	SINGLE MMCX, VERTICAL

PHYSICAL SPECIFICATIONS	
Mechanical Dimension (Assembled condition)	(L) 59.6 mm x (W) 50 mm x (H) 9.5 mm
Weight of the module without ESD Bag	30 g
Weight of the Module with ESD Bag	32 g

CUSTOM FEATURES	
MAC ID	74-E2-77-00 series
PCI Sub Vendor ID	168C
PCI Sub Device ID	1514
TX Power offset	10 dB
Labels	MAC Label x1 pc on the Radio Module Model Label x pc with dual barcode on the ESD bag

REGULATORY INFORMATION	
Regulatory Approvals	TBD

PACKAGING INFORMATION	
100 units per Carton Box	520 mm (L) x 240 mm (W) x 133 mm (H)

ORDERING INFORMATION	
aM1-5850	Mini PCI Radio Module, 1x1 IEEE 802.11 a, 5.85 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) At 6 Mbps Data rate, 10% PER	> 20 dB
Receiver Alternate Channel Rejection (ALCR) At 6 Mbps Data rate, 10% PER	> 35 dB
Receiver Blocking	20 dB at 5430 MHz and 30 dB at 6090 MHz

RADIO SPECIFICATION - TX

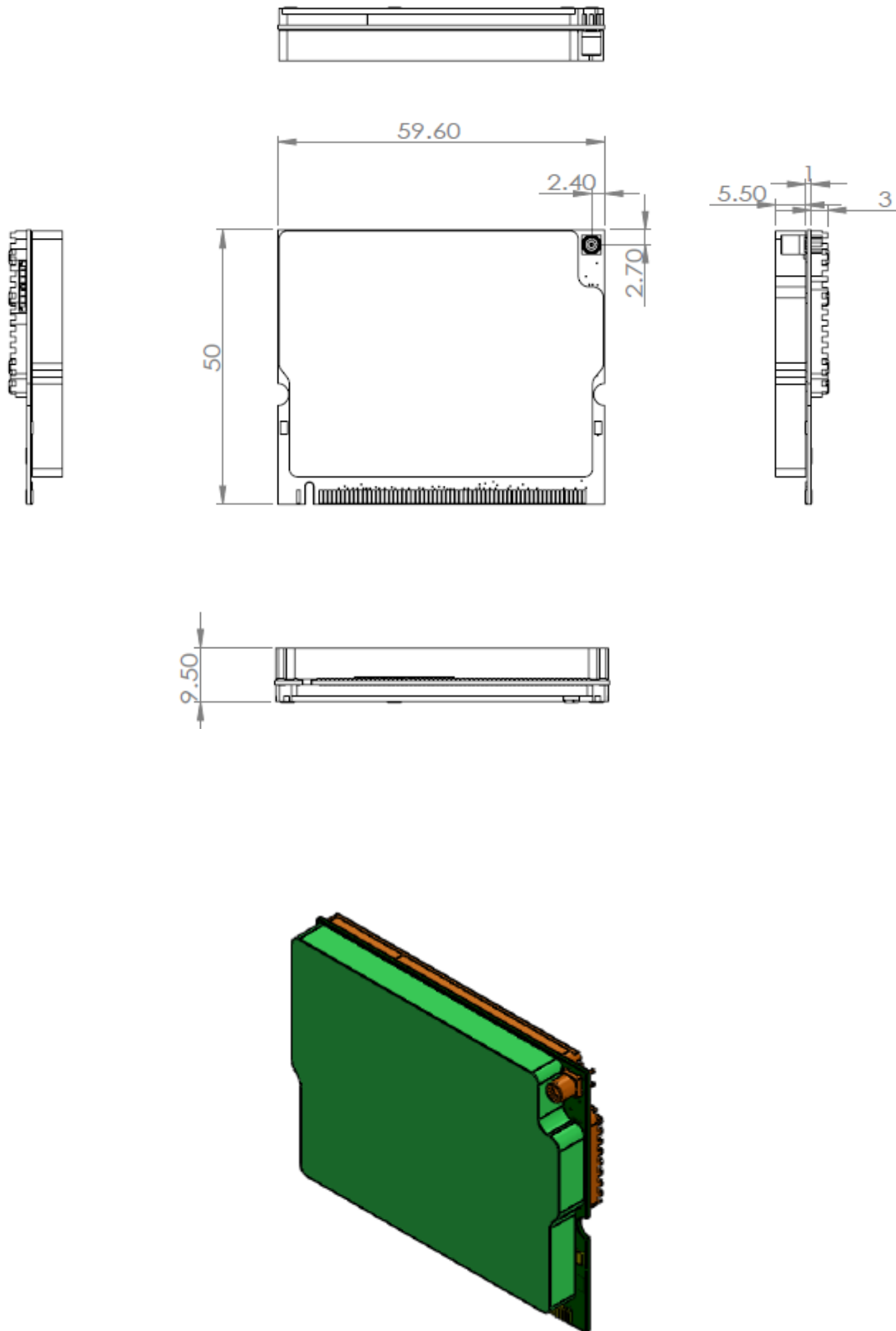|	
Transmit Spectral mask (20 MHz CH BW)	
At 11 MHz Offset	> -20 dBr
At 20 MHz Offset	> -28 dBr
At 30 MHz Offset	> -40 dBr
RF Power control Step	0.5 dBm
Second Harmonic Spurious Emission	-45 dB
Third Harmonic Spurious Emission	-45 dB

RADIO SPECIFICATION -TX/RX

RADIO TX/RX PERFORMANCE, 20 MHz BW						
	DATA RATE	MODULATION	TX POWER ± 1 dBm	TX CURRENT (A) AT 3.3V ± 0.1A	RX SENSITIVITY ± 2 dBm	RX CURRENT(A) AT 3.3V ± 0.1A
5850 MHz to 5925 MHz	6 Mbps	BPSK	29	1.3	-93	0.38
	9 Mbps	BPSK	29	1.3	-92	0.38
	12 Mbps	QPSK	29	1.3	-91	0.38
	18 Mbps	QPSK	29	1.3	-90	0.38
	24 Mbps	16QAM	29	1.3	-85	0.38
	36 Mbps	16QAM	26	1.1	-83	0.38
	48 Mbps	64QAM	24	0.9	-77	0.38
	54 Mbps	64QAM	23	0.8	-74	0.38

For RX Sensitivity for 40 MHz Channel BW, Add +3 dB to 20 MHz BW

For RX Sensitivity for 10 MHz Channel BW, Add -3 dB to 20 MHz BW

For RX Sensitivity for 5 MHz Channel BW, Add -6 dB to 20 MHz BW

MECHANICAL DIMENSIONS

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Contact Information

Web site: www.vizmonet.com

Email: enquiry@vizmonet.com

Address:

Vizmonet Pte Ltd

21, Woodlands Close

#08-37, Primz Biz Hub

Singapore 737 854