AARCOMM RM2-900MRTR Transceiver Module User Manual

RM2-900MRTR
OEM Installation Manual

Contents

RM2-900MRTR Transceiver Module

This information should be referenced when designing the host interface PCB to the RM2-900 MRTR

The AARCOMM model RM2-900MRTR is a frequency hopping spread spectrum (FSS) transceiver module designed to be compatible with U.S. (FCC Part 15.247) and Canadian (RSS-210) regulations for license free use in the 902-928 MHz ISM band.

The RM2-900MRTR is a high quality system-on-chip (SOS), FHSS transceiver design. The major elements include a frequency agile SOC transceiver integrated circuit, LNA, PA, T/R switch, harmonic filter and an embedded processor for frequency hopping sequence generation and data generation. Packets of data are transmitted to, and receiving from, a mating receiver. The RM2-900MRTR is intended to be used with a host processor with an SPI, UART or USB interface. We have provided a software stack for the host processor, to make it easy to interface with the RM2-900MRTTR.

1	USB P	2	USB N
3	GND	4	VBUS
5	SPI_SOMI	6	SPI_CLK
7	SPI SIMO	8	Tx
9	SPI TE	10	Rx
11	+4V output	12	+4V output
13	TX2	14	Vrtc
15	Vin	16	Vin
17	RX2	18	GPIO1
19	GND	20	Link
21	GND	22	RSSI
23	GPIO2	24	DAC/GPIO3
25	GND	26	nPOR

Vin range	+7 to +40VDC
Power requirements	24 VDC @ 250mA
RF connector	micro-coaxial
Host Connector	.05" X .05" pitch, female,2X13, 26 position

United States (FCC)

This equipment complies with Part 15 of the FCC rules and regulations. To fulfill FCC Certification requirements, an OEM manufacturer must comply with the following regulations:

1. The modular transmitter must be labelled with its own FCC ID number, and , if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module.

2. The module may only be used with antennas that have been tested and approved for use.

WARNING:The Original Equipment Manufacturer (OEM) must ensure that the OEM modular transmitter must be labelled with its own FCC ID number. This includes a clearly visible label on the outside of the final product enclosure that displays the contents shown below. If the FCC ID is not visible when the equipment is installed inside another device, then the outside of the device into which the equipment is installed must also display a label referring to the enclosed equipment..

IMPORTANT: This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation (FCC 15.19).

IMPORTANT: The RM2-900MRTR Model has been certified by the FCC for use with other products without any further certification (as per FCC section 2.1091) Modifications not expressly approved by AARCOMM Systems Inc. Could void user's authority to operated the equipment.

Example of label required for OEM product containing RM2-900MRTR:

Contains FCC ID: 2AAXW900MRM2

The enclosed device complies with Part 15 of the FCCRules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii) this device must accept any interference received, including interference that may cause undesired operation.

OEM INSTRUCTIONS:

RM2-900 MRTR Module is limited to OEM Installations only.

OEM integrators must ensure that the end-use has no manual instructions to remove or install the module. OEM's must comply with FCC marking regulation part 15 declaration of conformity (Section.2.925(e)).

This module is to be installed only in mobile or fixed applications (Please refer to FCC CFR 47 Part 2.1090(b) for a definition of mobile and fixed devices).

Separate approval is required for all other operation configurations, including portable configurations with respect to FCC CFR 47 Part 2.1093, and different antenna configurations.

The antenna used with this module must be installed to provide a separation distance of at lease 20 cm from all persons, and must be co-located or transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi transmitter product procedures.

FCC Exposure Requirements:

To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operations at closer distances than this are not recommended.

Notice:

This transmitter module has been certified for FCC Part 15 operation; when installed in a host device, the host manufacturer is responsible for making sure that the host device with the transmitter installed continues to be compliant with Part 15B requirements. AARCOMM Systems Inc. will provide guidance to the host manufacturer for compliance with Part 15B requirements.

The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a

residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Re-orient or relocate the receiving antenna, increase the separation between the equipment and the receiver, connect the equipment and receiver to outlets on different circuits, or consult the dealer or an experienced radio/TV technician for help.

Canada (IC)

Equipment is subject to certification under the applicable RSSs, shall be permanently labelled on each item, or as an inseparable combination.

The label must contain the following information for dull compliance:

Certification Number:	IC:11295A-900MRM2
Manufacturer:	AARCOMM Systems Inc.
Model Name	RM2-900MRTR

IMPORTANT NOTE

IC Radiation Exposure Statement:
This equipment complies with RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment must be installed to provide a separation distance of at least 20 cm from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter.

Important: This equipment for which a certificate has been issued is not considered certified if it is not properly labelled. The information on the Canadian label can be combined with the manufacturer's other labelling requirements.

Important: Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Important: The installer of this radio equipment must ensure that the antenna is located or pointe such that it does not emit RF

field in excess of Health Canada limits for the general population. Consult Safety Code 6, obtainable from Health Canada website: **www.hc-sc-.gc.ca/rpd**

IMPORTANT: This radio transmitter has been approved to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Item	Part Number	Manufacturer	Type	Gain (dBi)
1	NMOSPECC900 NMOMMRDS	Pulse Electronics	5/8 over 1/4 whip	5.4
2	Q900 LMB	Pulse Electronics	1/4 whip	3.5

Applicable Products:
The above antennas are applicable for all AARCOMM products requiring an external antenna (identified by the provision of an external antenna connector) and containing a 900MRM2 radio module. This will be noted on a
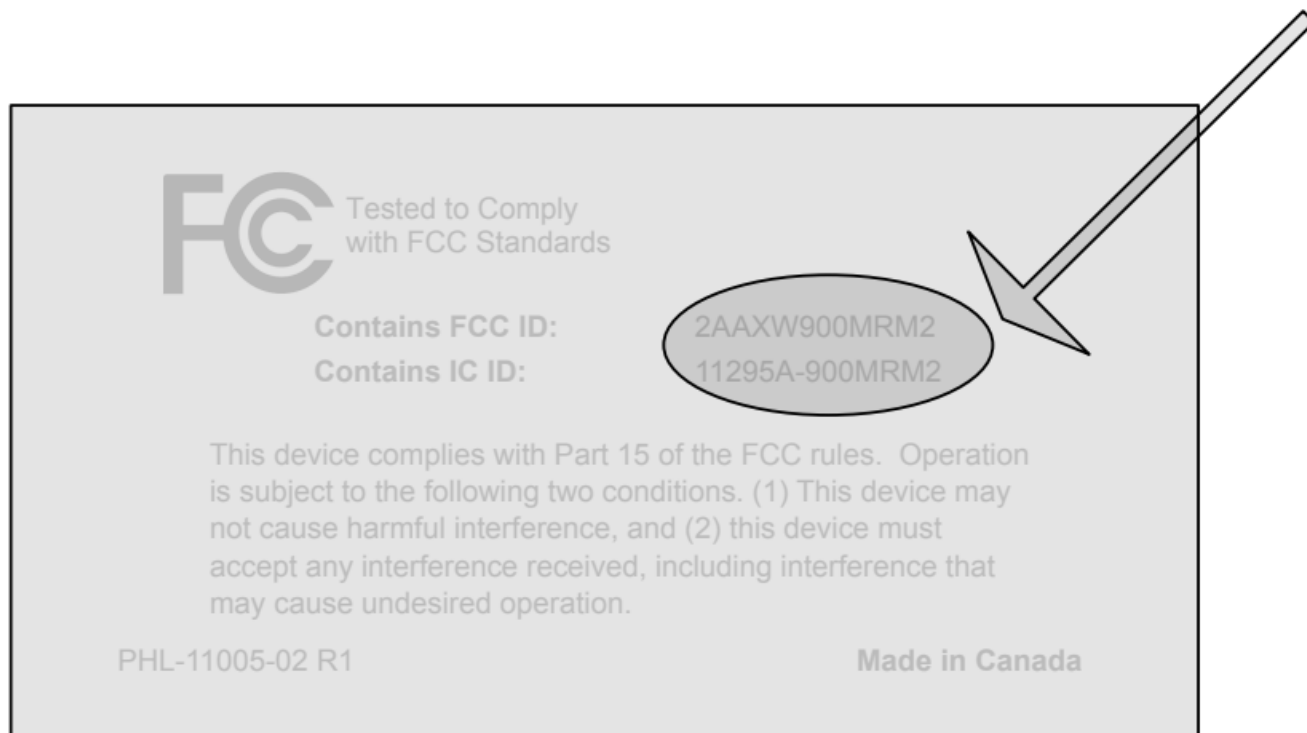
label on the exterior of the device similar to the attached example following.
Presently applicable AARCOMM models are the following:
C200-CanBus Receiver
C220-Receiver/Controller
This label indicates the 900MRM2 module is present.

If the unit has an external connector the antennas mentioned previously may be used.

Phone
(Canada) 1.604.265.8500 |
(USA) 1.805.980.1000 |
(Toll Free) 1.800.604.9218
Email
support@aarcomm.com
18 Fawcett Rd.
Coquitlam, BC
V3K 6X9 Canada

Documents / Resources

	AARCOMM RM2-900MRTR Transceiver Module [pdf] User Manual RM2-900MRTR Transceiver Module, RM2-900MRTR, Transceiver Module, Module

References

- **User Manual**