

Antenna Information

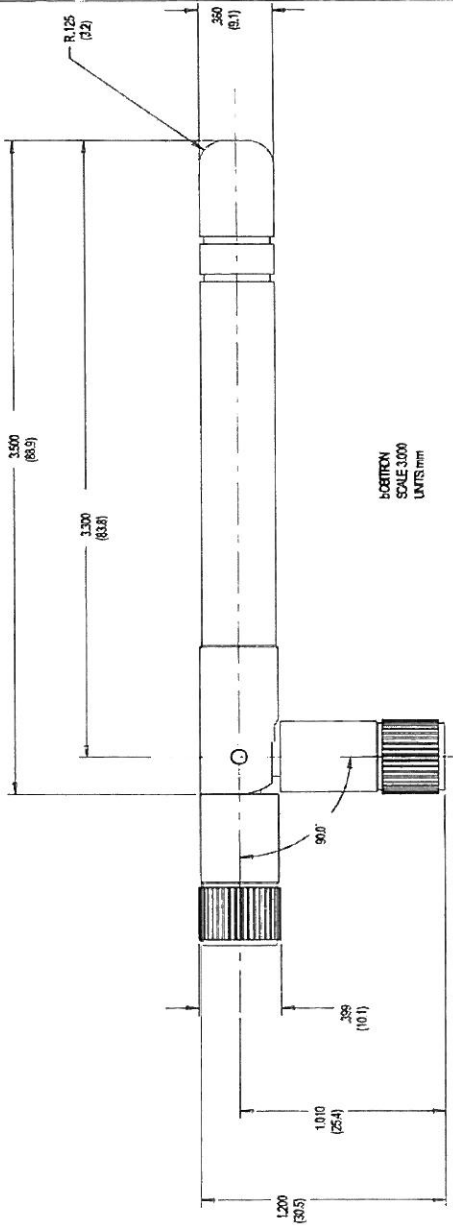
Antenna Specifications for North America

Antenna Description	Dipole	PCB Mount
Frequency	2.4~2.5GHz	2.4~2.5 GHz 4.9~5.9GHz
Power Output	2W	10W
DB Gain	2dBi	>2dBi
VSWR	< or = 2.0	< 2.5
Dimension	108.5 mm x 10.0 mm	24.13 x 10.67 mm
Weight	10.5g	< 1g
Connector	RP-SMA	U.FL
Part Number	DG-ANT-20DT-BG	DG-ANT-20CB-AG

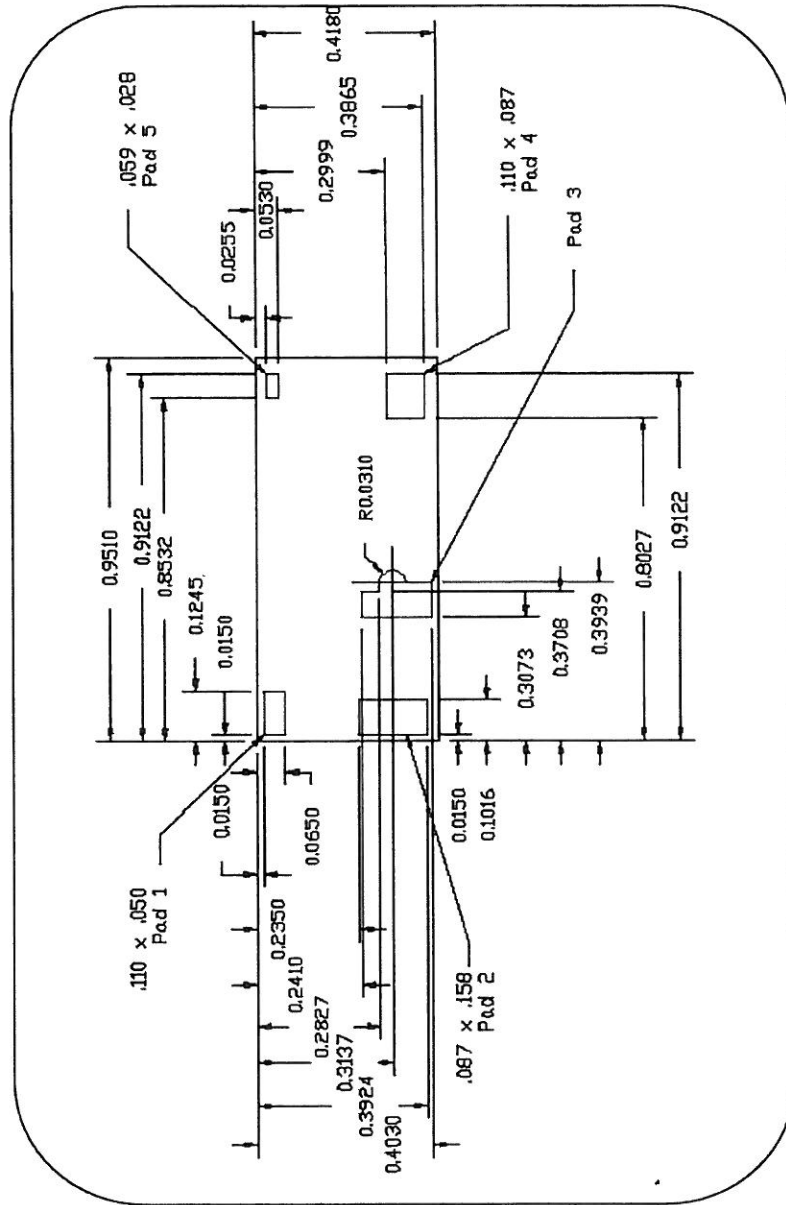
In the United States, any antenna matching the in-band and out-of-band signal patterns and strengths of the antenna, whose characteristics are given in the Antenna Description table and the Radiation pattern graphic, may be used with the Digi Connect Wi-EM 9210.

Antenna Description: Dipole  
 Frequency: 2.4~2.4835 GHz  
 Power output: 1W  
 DB Gain: 5dBi  
 VSWR: 2 max  
 Dimension: 156.55 x 17.6 mm  
 Weight: 20g  
 Connector: Female -Thread-RP-SMA  
 Part number: Digi p/n: 29000146

*Dipole Antenna Dimensions*



*PCB Mount Antenna Dimensions*



## RF Exposure Statement

The Digi Connect Wi-EM 9210 module complies with the RF exposure limits for humans as called out in RSS-102. It is exempt from RF evaluation based on its operating frequency of 2.4 GHz, and effective radiated power less than the 3 watt requirement for a mobile device (>20 cm separation) operating at 2.4 GHz.

## Safety Statements

### To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm.
- Use a screwdriver and other tools with insulated handles.
- You and those around you should wear safety glasses or goggles.
- Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. You must avoid contact with all such facilities.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.
- Do not touch or move the antenna(s) while the unit is transmitting or receiving.
- Do not hold any component containing a radio such that the antenna is very close to or touching any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not operate a portable transmitter near unshielded blasting caps or in an explosive environment unless it is a type especially qualified for such use

Any *external* communications wiring you may install needs to be constructed to all relevant electrical codes. In the United States this is the National Electrical Code Article 800. Contact a licensed electrician for details.

## Notes to original equipment manufacturer (OEM ) integrators

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This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users for all installations, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna, and
- 3) The Module is approved using the FCC 'unlicensed modular transmitter approval' method.

Therefore the module must only be used with the originally approved antennas. As long as the 3 conditions above are met, further transmitter testing will not be required.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

NOTE: In the event that any of these conditions can not be met (for example portable configurations, co-location with another transmitter, or use of a different antenna), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

### (7) User Manual

The user manual of local area network devices shall contain clear instructions on the restrictions mentioned above, namely that:

- (i) the device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co-channel mobile satellite systems;
- (ii) the maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit; and
- (iii) the maximum antenna gain permitted (for devices in the band 5725-5825 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate, as stated in section A9.2(3).

In addition, users should also be cautioned to take note that high-power radars are allocated as primary users (meaning they have priority) of the bands 5250-5350 MHz and 5650-5850 MHz and these radars could cause interference and/or damage to LE-LAN devices.

# *Certifications*

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A P P E N D I X B

These products comply with the following standards.

## **FCC Part 15 Class B**

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### **Radio Frequency Interference (RFI)(FCC 15.105)**

The Digi Connect Wi-EM 9210 embedded modules have been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this 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 and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada

**Labeling Requirements (FCC 15.19)**

This device complies with Part 15 of FCC rules. 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.

If the FCC ID / IC number is not visible when 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 FCC ID / IC number. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: MCQ-50M1558" / IC: 1846A-50M1558".

**Modifications (FCC 15.21)**


Changes or modifications to this equipment not expressly approved by Digi may void the user's authority to operate this equipment.

**Industry Canada**



This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

 The module is used by OEM/integrators only, and they are responsible for ensuring compliance with indoor/outdoor.

## Declaration of Conformity

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(In accordance with FCC Dockets 96-208 and 95-19)

**Manufacturer's Name:** Digi International

**Corporate Headquarters:** 11001 Bren Road East  
Minnetonka MN 55343

**Manufacturing Headquarters:** 10000 West 76th Street  
Eden Prairie MN 55344

Digi International declares, that the products:

**Product Name:** Digi Connect Wi-EM 9210

**Model Numbers:** 50001538-xx

to which this declaration relates, meet the requirements specified by the Federal Communications Commission as detailed in the following specifications:

- Part 15, Subpart B, for Class B Equipment
- FCC Docket 96-208 as it applies to Class B personal
- Computers and Peripherals

The products listed above have been tested at an External Test Laboratory certified per FCC rules and has been found to meet the FCC, Part 15, Class B, Emission Limits. Documentation is on file and available from the Digi International Homologation Department.



## International EMC Standards

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The Digi Connect Wi-EM 9210 meet the following standards:

<b>Standards</b>	<b>Digi Connect Wi-EM 9210</b>
<b>Emmissions</b>	FCC Part 15 Subpart C RSS-210 Issue 7 and RSS-GEN Issue 2 FCC ID: MCQ-50M1538 IC: 1846A-50M1538
<b>Safety</b>	UL 60950-1 CSA 22.2 No. 60950--1 EN 60950-1

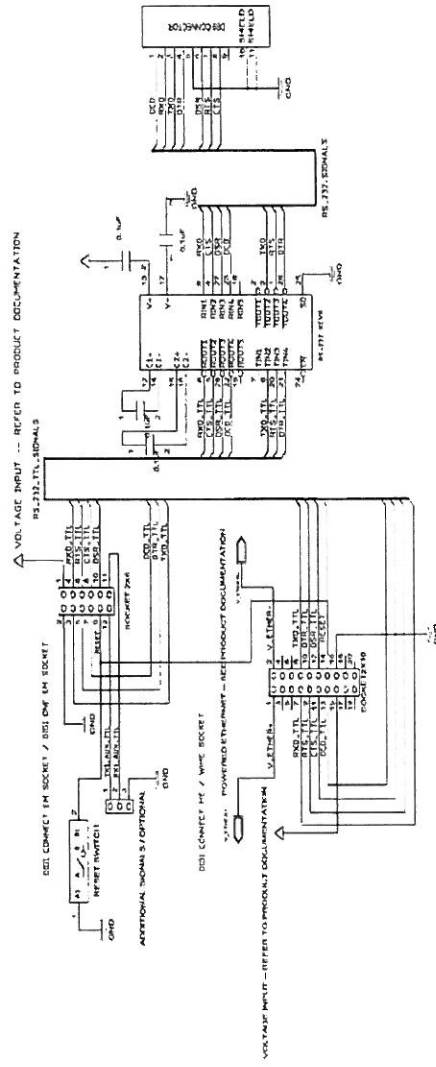
# *Sample Application: TTL Signals to EIA-232*

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## A P P E N D I X C

The following schematic is an example of how to convert the module's TTL signals to EIA-232.

### SAMPLE APPLICATION







PN (1P): 90000955 A