RN4020

Bluetooth® Low Energy Module

Features

- Fully qualified Bluetooth® version 4.1 module
- Onboard Bluetooth Low Energy 4.1 stack
- ASCII command interface API over UART
- Multiple IOs for control and status
- Secure AES128 encryption
- GAP, GATT, SM, L2CAP and integrated public profiles
- Create custom services using command API
- Microchip Low Energy Data Protocol (MLDP) for streaming data applications
- Software configurable role as peripheral or central, client or server
- Compact form factor 11.5 x 19.5 mm
- Low-power consumption
- UART interface, GPIO, ADC
- 64 KB internal serial flash
- Castellated SMT pads for easy and reliable PCB mounting
- Environmentally friendly, RoHS compliant
- Certifications: FCC, IC, CE, QDID
- Device Firmware Upgrade (DFU)

Description

Microchip's RN4020 Bluetooth Low Energy Module provides a highly integrated solution for delivering low power Bluetooth 4.1 solutions. The advanced command interface offers rapid time to market.

The RN-4020 module complies with Bluetooth specification version 4.1. It integrates RF, a baseband controller, command API processor, making it a complete Bluetooth Low Energy Solution.

The RN4020 can be used with either low cost microcontroller for intelligent Bluetooth Low Energy applications. For simple sensor applications, the RN4020 internal scripting capabilities enable basic functions to be implemented without the need for external host MCU or software development tools.

RN4020 Bluetooth 4.1 Low Energy Module (RN4020-V/RM)

Applications

- Health/Medical Devices
  - Glucose Meters
  - Heart rate
  - Scale
- Sports Activity and Fitness
  - Pedometer
  - Cycling computer
  - Heart rate
- Retail
  - POS
  - Asset tagging and tracking
  - Proximity Advertising
- Beacon applications
- Internet of Things Sensor tag
- Remote Control
  - Keyboard Mice
  - AV consoles, game controllers
- Wearable smart devices and accessories
- Industrial Control
  - Private (custom) services
  - Low bandwidth cable replacement
- Smart Energy/Smart Home

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1.0 DEVICE OVERVIEW

FIGURE 1-1: RN4020 TOP VIEW

RN4020 Bluetooth 4.1 Low Energy Module (RN4020-V/RM)

Figure 1-2 shows the module's pinout and Table 1-1 describes the pins.

FIGURE 1-2: RN4020 PIN DIAGRAM

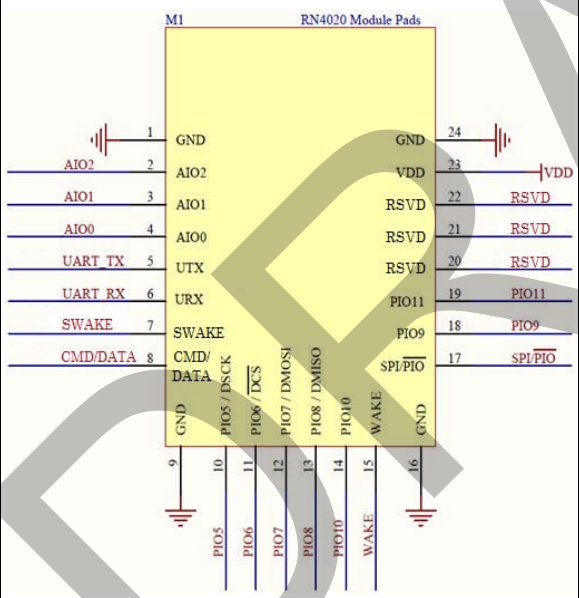

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TABLE 1-1: PIN DESCRIPTION

Pin	Symbol	Description	Function
1	GND	Ground	Ground
2	AIO2	Bi-directional with programmable analog IO	1.65V input, 1.35V out, and 30mA max out
3	AIO1	Bi-directional with programmable analog IO	1.65V input, 1.35V out, and 30mA max out
4	AIO0	Bi-directional with programmable analog IO	1.65V input, 1.35V out, and 30mA max out
5	UART TX	UART TX	Output from RN4020
6	UART RX	UART RX	Input to RN4020
7	WAKE-SW	Deep Sleep Wake; active high to wake module from deep sleep	Input; weak pull down
8	CMD/DATA	Command or Data – In Command , UART traffic is sent to command interpreter, other maybe routed to Microchip Serial Data service.	Input; Active High to enter Command
9	GND	Ground	Ground
10	SPI-CLK GPIO[1]	SPI-CLK for diagnostics and factory calibration if pin 17 asserted. Default state is output: Active Low indicates module is connected to remote device. High level indicates disconnected state. Configurable as GPIO[1] via software command.	• SPI-CLK • Connected Status (Green LED) • GPIO[1]
11	SPI-CS# GPIO[2]	SPI-CS# for diagnostics and factory calibration if pin 17 asserted. Default state is output. Active High indicates module has a pending event. Low level indicates no events. Event only triggered in DATA , pin 8 is high. Configurable as GPIO[2] via software command.	• SPI-CS# • Event Pending (Red LED) • GPIO[2]
12	SPI-MOSI GPIO[3]	SPI-MOSI for diagnostics and factory calibration if pin 17 asserted. Default state is output. Active High indicates module is awake and active. Low level indicates a sleep state. Configurable as GPIO[3] via software command.	• SPI-CLK • Wake Status (Blue LED) • GPIO[3]
13	SPI-MISO GPIO[4]	SPI-MISO for diagnostics and factory calibration if pin 17 asserted. Configurable as GPIO[4] via software command.	• SPI-CLK • GPIO[4]
14	CTS GPIO[6]	Reserved for CTS if hardware flow control is on UART. Configurable as GPIO[6] if hardware flow control is disabled.	• CTS (input) • GPIO[6]
15	WAKE-HW	Hardware wake from Hibernate or Dormant state	Active High; internal pull down
16	GND	Ground	Ground
17	SPI/$\overline{\text{PIO}}$	SPI/PIO for pins 10-13, Active High	Input with internal pull down; selects SPI on 10-13
18	RTS GPIO[5]	Reserved for RTS if hardware flow control on UART. Configurable as GPIO[5] if hardware flow control disable	• RTS (output) • GPIO[5]
19	ADVCONN GPIO[7]	Active Low; In Peripheral the input put module in advertising state (discoverable and open for connection). In Central , initiates connect to stored address.	Initiate Advertising state or connect to stored address
20	RSVD	Do not connect. Factory diagnostics	NC

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TABLE 1-1: PIN DESCRIPTION (CONTINUED)

Pin	Symbol	Description	Function
21	RSVD	Do not connect. Factory diagnostics	NC
22	RSVD	Do not connect. Factory diagnostics	NC
23	VDD	Supply voltage: 2.0 to 4.2V	Supply Voltage, 2.0 to 4.2
24	GND	Ground	Ground

2.0 GENERAL SPECIFICATIONS

Table 2-1 provides the general specifications for the module. Table 2-2, Table 2-3, and Table 2-4 provide the module's weight, dimensions, electrical characteristics, and current consumption.

TABLE 2-1: GENERAL SPECIFICATIONS

Specification	Description
Standard	Bluetooth 4.1
Frequency Band	2.4 ~ 2.48 GHz
Modulation Method	GMSK
Maximum Data Rate	1 Mbps
Antenna	PCB and chip (0dBi)
Interface	UART, PIO, AIO, SPI
Operation Range	100 meters
Sensitivity	-93 dBm at 0.1% BER
RF TX Power	+8.5 dBm (max)
Temperature (operating)	-30°C to +85°C
Temperature (storage)	-40°C to +85°C
ESD	JESD22-A224 class 0 product
Humidity	10% ~ 90% non-condensing

TABLE 2-2: WEIGHT AND DIMENSIONS

Specification	Description
Dimensions	RN4020: 19.5 x 11.5 x 2.5 mm
Weight	1.2 g

TABLE 2-3: ELECTRICAL CHARACTERISTICS

Specification	Description
Supply Voltage	3Vport: 2.0 - 4.2 V DC
Working current	Depends on profiles, 12 mA typical
Standby current (disconnected)	<0.5 mA)

TABLE 2-4: CURRENT CONSUMPTION

Mode	Typical Current at 3V
Dormant	<700nA
Hibernate	<2.0uA
Deep Sleep	<5.0uA
Idle	<1.5mA
Tx/Rx active	16 mA at 0 dBM

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3.0 MICROCONTROLLER TO RN4020 INTERFACE

FIGURE 3-1: INTERFACE DESCRIPTION

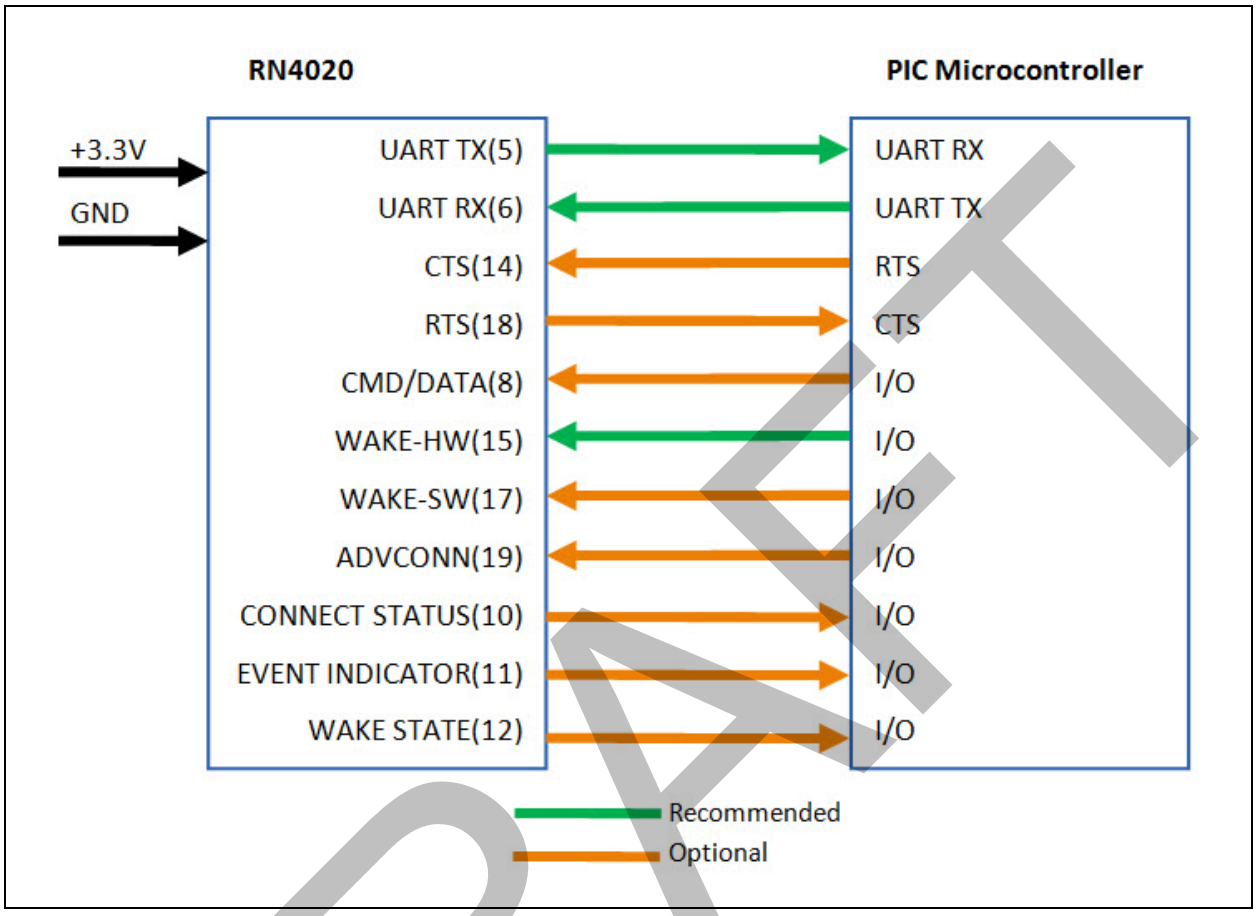

Figure 3-1 illustrates the interface between PIC microcontroller and RN4020 module. The minimum interface consists of UART and WAKE HW line. This enables the microcontroller to communicate with RN4020 module using ASCII command API. The command API is described in Sec XX.

3.1 CTS/RTS Hardware Flow Control

For customer applications using the Microchip Low Energy Data Protocol (MLEDP), Pin 8 (CMD/DATA) is required. CTS/RTS hardware control is also highly recommended for this service to avoid buffer overruns.

3.2 Microchip Low Energy Data Protocol (MLDP)

The Microchip Low Energy Data Protocol is a private BTLE service that provides a 20kbps serial data transport over Bluetooth Low Energy on the RN4020. Pin 8 (CMD/DATA) is required. CTS/RTS hardware control is also highly recommended for this service to avoid data loss.

Refer to "*RN4020 Command Reference*", for more information on how to configure the MLDP service mandatory for DFU over UART.

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4.0 PHYSICAL DIMENSIONS

Figure 4-1 shows the physical dimensions for RN4020 module. Figure 4-2 shows the recommended PCB layout.

FIGURE 4-1: PHYSICAL DIMENSIONS FOR RN4020

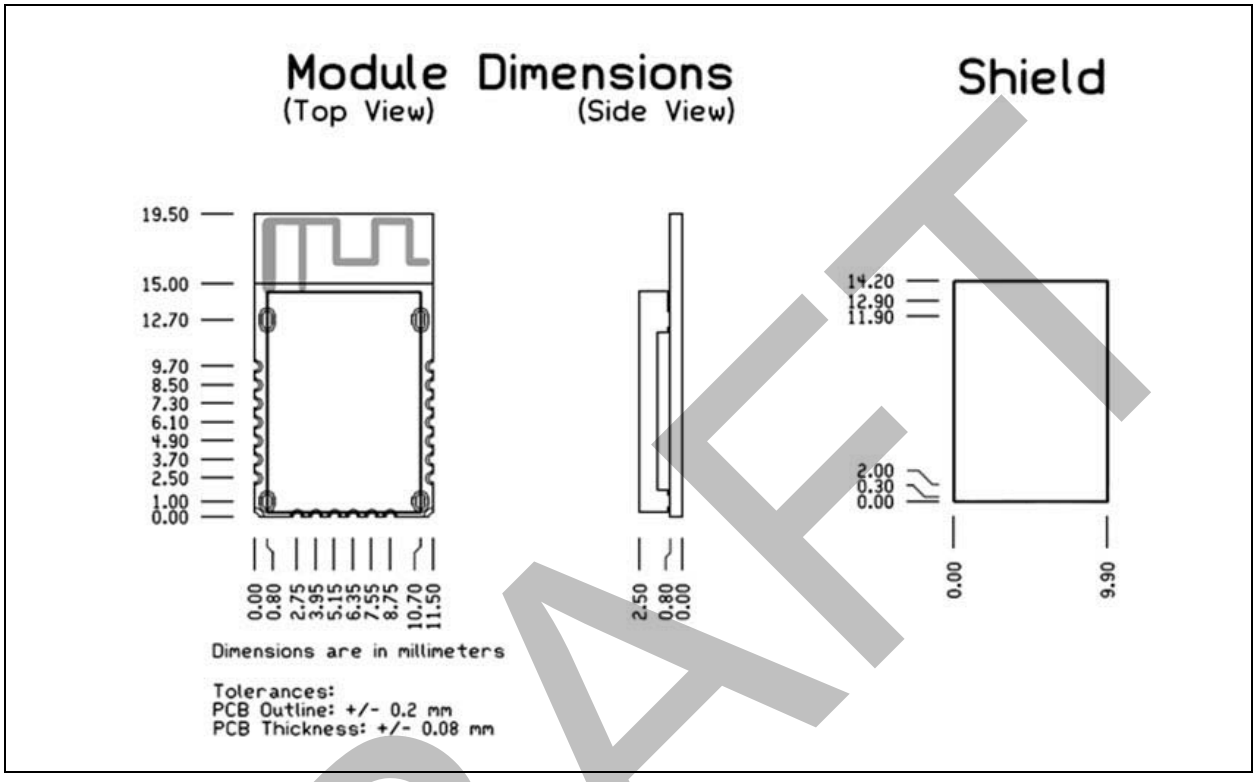
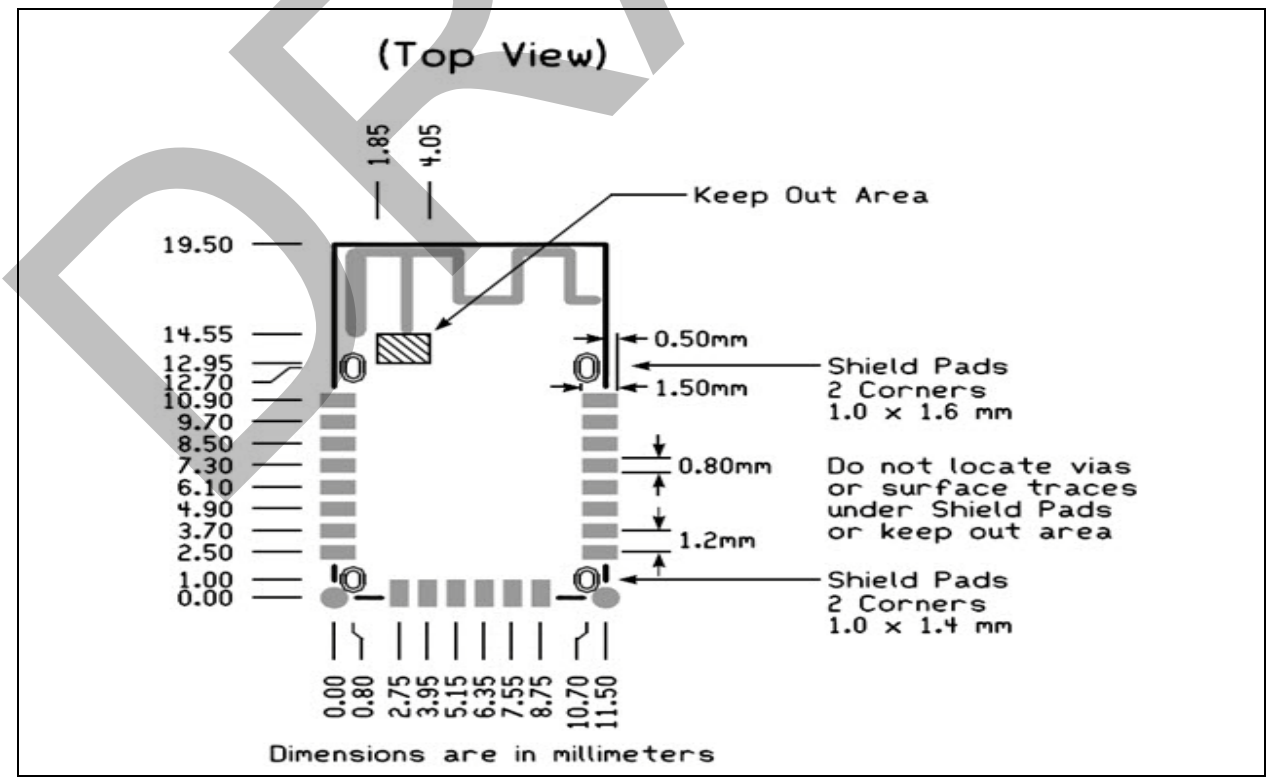


FIGURE 4-2: RECOMMENDED PCB FOOTPRINT



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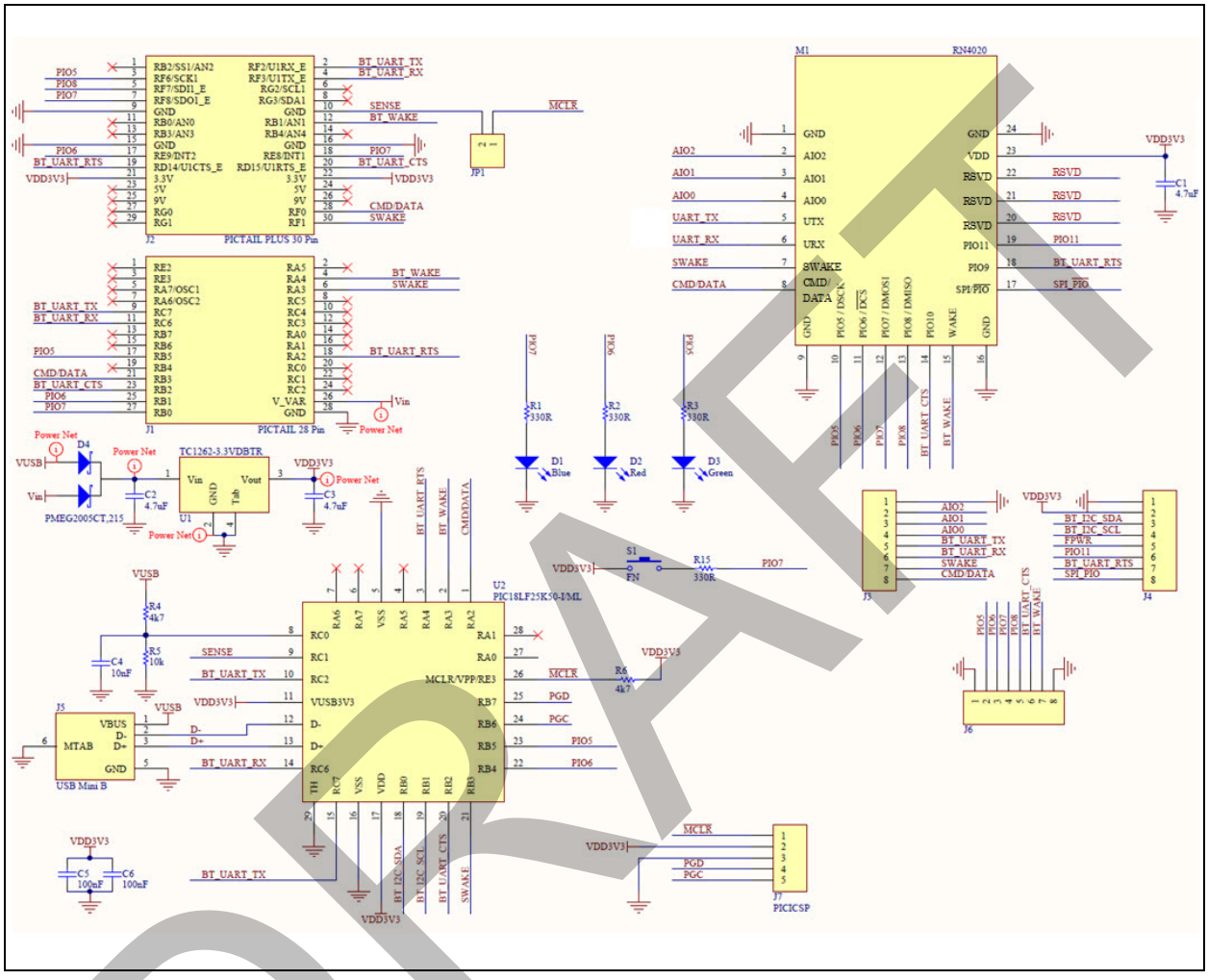
5.0 TYPICAL APPLICATION SCHEMATIC

Figure 5-1 shows schematic for the RN4 020 PICtail™/PICtail Plus Daughter Board development tool, PN-XXXXXXXXXX.

FIGURE 5-1: RN4020 TYPICAL APPLICATION SCHEMATIC



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6.0 ASCII COMMAND API

The RN4020 command API is documented in RN4020 Command Reference: doc-xxx-xxxxxx:

Commands are categorized into the following functions:

- Built-in public services
  - Enable/Disable service as Server or Client
  - Red value
  - Set value
- Max Tx Power
  - Set Power in DB
- Role
  - Peripheral or Central
- Advertising
  - Start/Stop
- Bonding
  - Bond/Unbond to Master
- Private Service
  - Set Private Service UUID
  - Set Characteristic UUID for Private Service
- Microchip Low Energy Data Protocol
  - Enable/Disable
  - Peripheral side configuration
  - Central side configuration
- Device Information Profile settings
- Connection
  - Status
  - Disconnect
  - Kill active connection
  - Establish connection (Central role only)
  - Start/Stop inquiry scan for other devices (Central role only)
- IO
  - Configure GPIO mask
  - Set/Get GPIO states
  - Ready raw ADC values
- System
  - Reboot
  - Enter deep sleep
  - Factory default
  - Test functions for type approval
  - Display configuration

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7.0 SUPPORTED SERVICES

The RN4020 firmware support the following built-in profiles listed in Table 7-1 below. The services are enabled via Command API and serviced in the same manner. Each service manages "Characteristics" which as data values are declared and defined by Bluetooth. The values for each characteristic are cached in modules memory and can be read by another Bluetooth device, such Smartphone acting in Central role. The values of every Characteristic are updated via Command API over UART.

TABLE 7-1: SUPPORTED PUBLIC SERVICES ON RN4020

Service Name	Bluetooth SIG UUID
Device Information	0x180A
Battery	0x180F
Heart Rate	0x180D
Health Thermometer	0x1809
Glucose	0x1808
Blood Pressure	0x1810
Running Speed Cadence	0x1814
Cycling Speed Cadence	0x1816
Current Time	0x1805
Next DST Change	0x1807
Reference Time Update	0x1806
Link Loss	0x1803
Immediate Alert	0x1802
TX Power	0x1804
Alert Notification	0x1811
Phone Alert Status	0x180E
Scan Parameters	0x1813

7.1 Public and Private Services

The RN4020 provided the ability to create customer services. If the services are supported on both end points of a Bluetooth Low Energy connection, such as Central and Peripheral devices, data can be exchanged. For example, two RN4020 modules can define a custom (private) service with its own unique characteristics. Data can be exchanged easily via Command API.

Private services are not registered with the Bluetooth SIG, and therefore not interoperable with other Bluetooth Low Energy devices, unless the device implements the private service. An example of a built-in private service is Microchip Streaming Data service.

Refer to "*RN4020 Command Reference*", docxxx-xxxxxx, and Application Note AN-xxxxxx for an example on how to create a custom service using the RN4020.

7.2 PCB Antenna

The PCB antenna is fabricated on the top copper layer and covered in solder mask. The layers below the antenna do not have copper trace. It is recommended that the module is mounted on the edge of the host PCB. It is permitted for PCB material to be below the antenna structure of the module as long as no copper traces or planes are on the host PCB in that area.

TABLE 7-2: ANTENNA CHARACTERISTICS

Specification	Description
Type	PCB
Frequency Range	2.402 to 2.485 MHz
Peak Gain	-0.23 dBi

FIGURE 7-1: EFFICIENCY

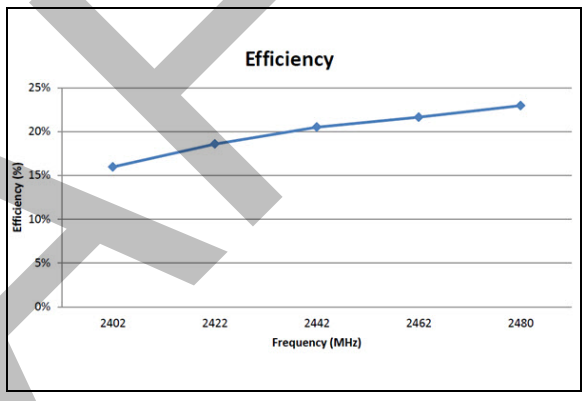

FIGURE 7-2: ANTENNA PLOT

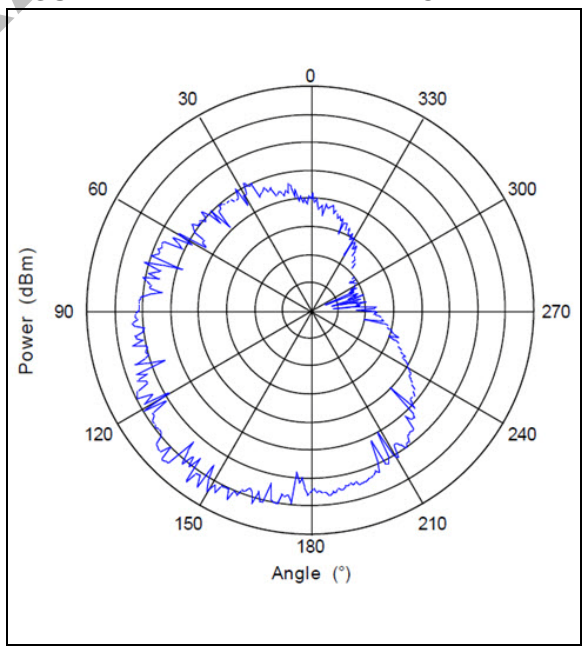

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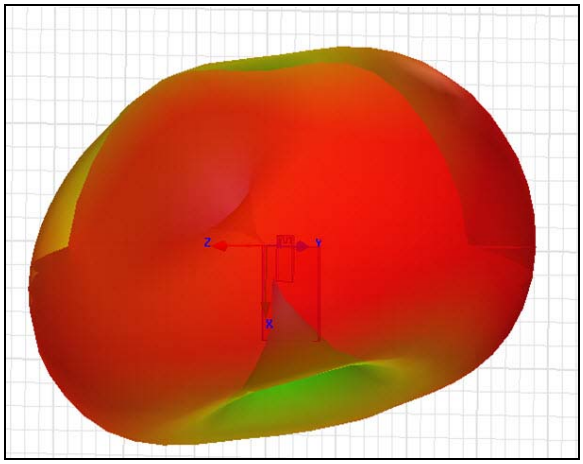
FIGURE 7-3: 3D RADIATION PATTERN AND ANTENNA ORIENTATION



The lead-free solder reflow temperature and times are:

- *Temperature* — 230°C, 60 seconds maximum, peak 245° C maximum
- *Preheat temperature* — 165° ± 15°C, 90 to 120 seconds
- *Time* — Single pass, one time

The solder reflow temperature must not exceed 220°C. To reflow solder the module onto a PCB, Roving Networks recommends a RoHS-compli ant solder paste equivalent to NIHON ALMIT paste or OMNIX OM-310 solder paste from Alpha metals. See Table 7-3

Note: Use no-clean flux and *do not* water wash.

TABLE 7-3: PASTE SOLDER RECOMMENDATIONS

Manufacturer	Alpha Metals http://www.alphametals.com	NIHON ALMIT Co. LTD http://almit.co.jp
Part Number	OMNIX OM-310	LFM-70W INP
Metal Composition	SAC305 (96.5% Sn, 3% Ag, 0.5% Cu)	88% Sn, 3.5% Ag, 0.5% Bi, 8% In
Liquidus Temperature	~220°C	~215°C

FIGURE 7-4: SOLDER REFLOW TEMPERATURE PROFILE

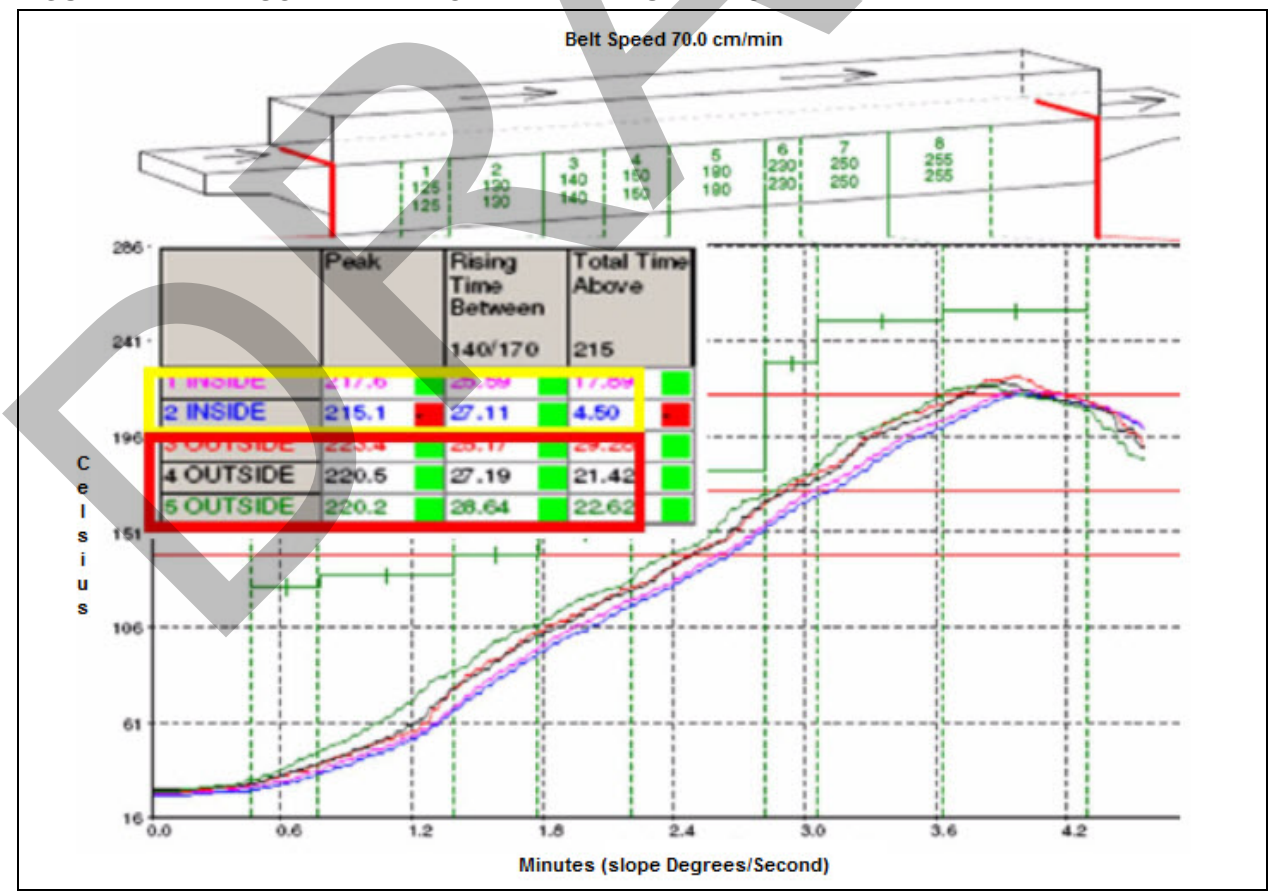


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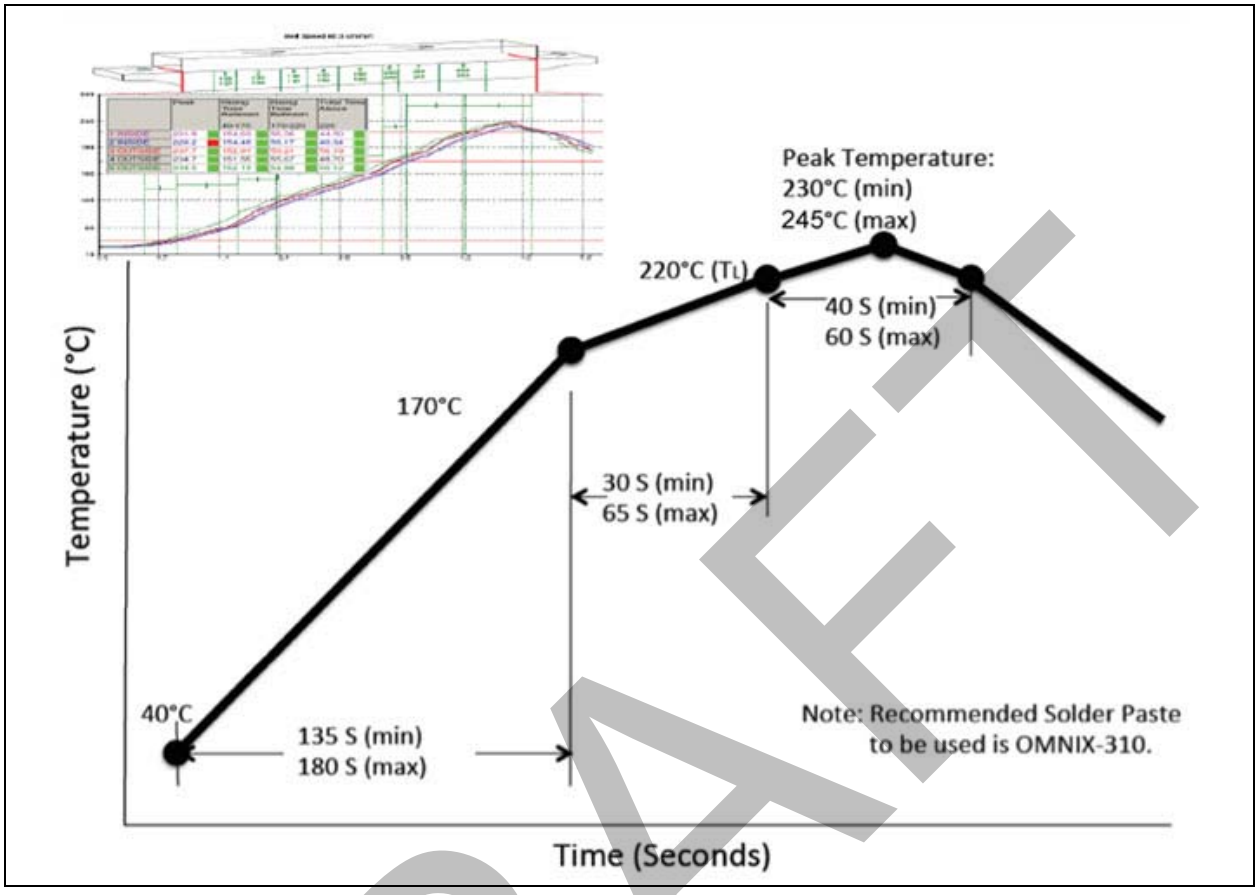
FIGURE 7-5: SOLDER REFLOW CURVE



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8.0 REGULATORY APPROVAL

This section outlines the regulatory information for the RN4020 module for the following countries:

- United States
- Canada
- Europe
- Australia
- New Zealand

8.1 United States

The RN4020 module has received Federal Communications Commission (FCC) CFR47 Telecommunications, Part 15 Sub part C "Inte ntional Radiators" modular approval in accordance with Part 15.212 Modular Transmitter approval. Modular approval allows the end user to integrate the R N4020 module into a finished product without obtaining subsequent and separate FCC approvals for i ntentional radiation, provided no changes or mo difications are made to the modul e circuitry. Changes or modi fications could void the user's authority to op erate the equipment. The end user must comply with all of the instructions provided by the Grantee, which indicate installation and/or operating conditions necessary for compliance.

The finished product is required to comply with all applicable FCC equipment authorizations regulations, requirements and equipment functions not associated with the transmitter module portion. For example, compliance must be demonstrated to regulations for other transmitter components within the host product; to requirements for unintentional radiators (Part 15 Subpart B "Un intentional Radiators"), such as digital devices, computer pe ripherals, radio receivers, etc.; and to additional authorization requirements for the non-transmitter functions on the transmitter modul e (i.e., Verification, or D eclaration of Co nformity) (e.g., transmitter modules may also contain digital logic functions) as appropriate.

8.1.1 LABELING AND USER INFORMATION REQUIREMENTS

The RN4020 module has bee n labeled 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 finished product into which the module is installed must al so display a label referring to the enclosed module. This exterior label can use wording as follows:

RN4020:
Contains Transmitter Module FCC ID: T9JRN4020
or

Contains FCC ID: T9JRN4020

This device complies with Part 15 of the 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

A user's manual for the product should include the following statement:

This 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 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 to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and 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.

Additional information on labeling and user information requirements for Part 15 devices can be found in KDB Publication 784748 available at the FCC Office of Engineering and T echnology (OET) Laboratory Division Knowledge Database (KDB) http://apps.fcc.gov/oetcf/kdb/index.cfm.

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8.1.2 RF EXPOSURE

The RN4020 module has been approved for mixed mobile and portable exposure hosts; co-location with other transmitters may need additional evaluation in accordance with FCC multi-transmitter guidelines.

All transmitters regulated by FCC must comply with RF exposure requirements. KDB 447498 General RF Exposure Guidance provides guidance in determining whether proposed or existing transmitting facilities, operations or devices comply with limits for human exposure to Radio Frequency (RF) fields adopted by the Federal Communications Commission (FCC).

8.1.4 HELPFUL WEB SITES

Federal Communications Commission (FCC): http://www.fcc.gov

FCC Office of Engineering and Technology (OET) Laboratory Division Knowledge Database (KDB): http://apps.fcc.gov/oetcf/kdb/index.cfm

8.2 Canada

The RN4020 module has been certified for use in Canada under Industry Canada (IC) Radio Standards Specification (RSS) RSS-210 and RSSGen. Modular approval permits the installation of a module in a host device without the need to recertify the device.

8.2.1 LABELING AND USER INFORMATION REQUIREMENTS

Labeling Requirements for the Host Device (from Section 3.2.1, RSS-Gen, Issue 3, December 2010): The host device shall be properly labeled to identify the module within the host device.

The Industry Canada certification label of a module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labeled to display the Industry Canada certification number of the module, preceded by the words “Contains transmitter module”, or the word “Contains”, or similar wording expressing the same meaning, as follows:

Contains transmitter module IC: 6514A-RN4020

User Manual Notice for License-Exempt Radio Apparatus (from Section 7.1.3 RSS-Gen, Issue 3, December 2010): User manuals for license-exempt radio apparatus shall contain the following or equivalent notice in a conspicuous location in the user manual or alternatively on the device or both:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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Transmitter Antenna (from Section 7.1.2 RSS-Gen, Issue 3, December 2010): User manuals for transmitters shall display the following notice in a conspicuous location:

> Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.
>
> Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The above notice may be affixed to the device instead of displayed in the user manual.

8.2.2 APPROVED EXTERNAL ANTENNA TYPES

Transmitter Antenna (from Section 7.1.2 RSS-Gen, Issue 3, December 2010):

The RN4020 module can only be sold or operated with antennas with which it was approved. Transmitter may be approved with multiple antenna types. An antenna type comprises antennas having similar in-band and out-of-band radiation patterns. Testing shall be performed using the highest gain antenna of each combination of transmitter and antenna type for which approval is being sought, with the transmitter output power set at the maximum level. Any antenna of the same type having equal or lesser gain as an antenna that had been successfully tested with the transmitter, will also be considered approved with the transmitter, and may be used and marketed with the transmitter.

When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on measurement or on data from the antenna manufacturer. For transmitters of output power greater than 10 milliwatts, the total antenna gain shall be added to the measured RF output power to demonstrate compliance to the specified radiated power limits.

8.2.3 HELPFUL WEB SITES

Industry Canada: http://www.ic.gc.ca/

8.3 Europe

The RN4020 module is an R&TTE Directive assessed radio module that is CE marked and has been manufactured and tested with the intention of being integrated into a final product.

The RN4020 module has been tested to R&TTE Directive 1999/5/EC Essential Requirements for Health and Safety (Article (3.1(a)), Electromagnetic Compatibility (EMC) (Article 3.1(b)), and Radio (Article 3.2) and are summarized in Table 3-1: European Compliance Testing. A Notified Body Opinion has also been issued. All test reports are available on the RN4020 product web page at http://www.microchip.com.

The R&TTE Compliance Association provides guidance on modular devices in document **Technical Guidance Note 01** available at http://www.rtteca.com/html/download_area.htm.

> **Note:** To maintain conformance to the testing listed in Table 8-1, the module shall be installed in accordance with the installation instructions in this data sheet and shall not be modified.
>
> When integrating a radio module into a completed product the integrator becomes the manufacturer of the final product and is therefore responsible for demonstrating compliance of the final product with the essential requirements of the R&TTE Directive.

8.3.1 LABELING AND USER INFORMATION REQUIREMENTS

The label on the final product which contains the RN4020 module must follow CE marking requirements. The "*R&TTE Compliance Association Technical Guidance Note 01*" provides guidance on final product CE marking.

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8.3.2 ANTENNA REQUIREMENTS

From R&TTE Compliance Association document **Technical Guidance Note 01**:

> Provided the integrator installing an assessed radio module with an integral or specific antenna and installed in conformance with the radio module manufacturer's installation instructions requires no further evaluation under Article 3.2 of the R&TTE Directive and does not require further involvement of an R&TTE Directive Notified Body for the final product. [Section 2.2.4]

8.3.3 HELPFUL WEB SITES

A document that can be used as a st arting point in understanding the use of Short Range Devices (SRD) in Europe is the European Radio Communications Committee (ERC) Recommendation 70-03 E, whi ch can be downloaded from the European Radio Communications Office (ERO) at: http://www.ero.dk/.

Additional helpful web sites are:

- Radio and Telecommunications Terminal Equipment (R&TTE): http://ec.europa.eu/enterprise/rtte/index_en.htm
- European Conference of Postal and Telecommunications Administrations (CEPT): http://www.cept.org/
- European Telecommunications Standards Institute (ETSI): http://www.etsi.org
- European Radio Communications Office (ERO): http://www.ero.dk/
- The Radio and Telecommunications Terminal Equipment Compliance Association (R&TTE CA): http://www.rtteca.com/

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TABLE 8-1: RN4020 EUROPEAN COMPLIANCE TESTING

Certification	Standards	Article	Laboratory	Report Number	Date
	CE0681				

8.4 Australia

The Australia radio regulations do not provide a modular approval policy similar to the United States (FCC) and Canada (IC). However, RN4020 module RF transmitter test reports can be used in part to demonstrate compliance in accordance with ACMA Radio communications "Short Range Devices" Standard 2004 (The Short Range Devices standard calls up the AS/NZS 4268:2008 industry standard). The RN4020 module test reports can be used as part of the product certification and compliance folder. For more information on the RF transmitter test reports, contact Microchip Technology Australia sales office.

To meet overall Australian final product compliance, the developer must construct a compliance folder containing all relevant compliance test reports e.g. RF, EMC, electrical safety and DoC (Declaration of Conformity) etc. It is the responsibility of the integrator to know what is required in the compliance folder for ACMA compliance. All test reports are available on the RN4020 product web page at http://www.microchip.com. For more information on Australia compliance, refer to the Australian Communications and Media Authority web site http://www.acma.gov.au/.

8.4.2 HELPFUL WEB SITES

The Australian Communications and Media Authority: www.acma.gov.au/.

8.5 New Zealand

The New Zealand radio regulations do not provide a modular approval policy similar to the United States (FCC) and Canada (IC). However, RN4020 module RF transmitter test reports can be used in part to demonstrate compliance against the New Zealand "General User Radio License for Short Range Devices". New Zealand Radio communications (Radio Standards) Notice 2010 calls up the AS / NZS 4268:2008 industry standard. The RN4020 module test reports can be used as part of the product certification and compliance folder. All test reports are available on the RN4020 product web page at http://www.microchip.com. For more information on the RF transmitter test reports, contact Microchip Technology sales office.

Information on the New Zealand short range devices license can be found in the following web links:

http://www.rsm.govt.nz/cms/licensees/types-oflicence/general-user-licences/short-range-devices

and

http://www.rsm.govt.nz/cms/policy-and-planning/spectrum-policy-overview/legislation/gazette-notices/product-compliance/radiocommunications-radiostandards-notice-2010.

To meet overall New Zealand final product compliance, the developer must construct a compliance folder containing all relevant compliance test reports e.g. RF, EMC, electrical safety and DoC (Declaration of Conformity) etc. It is the responsibility of the developer to know what is required in the compliance folder for New Zealand Radio communications. For more information on New Zealand compliance, refer to the website http://www.rsm.govt.nz/.

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9.0 ORDERING INFORMATION

Table 9-1 provides ordering information for the RN4020 module.

TABLE 9-1: ORDERING INFORMATION

Part Number	Description
RN4020RM	Standard firmware (GATT, GAP, L2CAP) peripheral and Central mode

Note: For custom applications, contact Microchip representative.

Go to http://www.microchip.com for current pricing and a list of distributors carrying Microchip products.

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APPENDIX A: REVISION HISTORY

Revision A (May 2014)

This is the initial released version of the document in the Microchip format.

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- Local Sales Office
- Field Application Engineer (FAE)
- Technical Support

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Technical support is available through the web site at: http://microchip.com/support

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PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

PART NO.	I	RM	XXX
Device	Temperature Range	Package	Firmware Revision Number

Device:	RN4020:		UART, PCB Antenna
Temperature Range:	I	=	-40°C to +85°C
Package:	RM	=	Radio Module

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