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ROLLING WIRELESS RW520-GL Highly Integrated IOT Wireless Communication Module

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Contact Information

- **Website**: https://www.rollingwireless.com

Introduction

RW520-GL (hereinafter referred to as RW520) is a highly integrated IOT wireless communication module that uses M.2 form factor interface. That supports multi-mode such as LTE (LTE FDD Cat.M1), GSM (GSM, GPRS, EGPRS) and GNSS (GPS, GLONASS, Galileo, BEIDOU).

Specification

RF Characteristic

RW520 RF characteristic is shown in Table 1:

Table 1. RF characteristic

Operating Band	
FDD-LTE Cat.M1	B1/2/3/4/5/8/12/13/14/18/19/20/25/26/27/28/66/8 5
GSM	GSM850/GSM900/DCS1800/PCS1900
GNSS	GPS/GLONASS/Galileo/BDS
Data Throughput	
FDD-LTE Cat.M1	DL 375 Kbps/UL 1119 Kbps
	GPRS: DL 107 Kbps/UL 85.6 Kbps
GPRS/EGPRS (Multislot Class12)	
	EGPRS: DL 296 Kbps/UL 236.8kbps
Modulation Characteristi c	

LTE Modulation	3GPP Release 14 DL 16 QAM
	UL 16 QAM
GSM Modulation	3GPP Release 12

Key Features

Table 2 . Key features

Specification	
CPU	Qualcomm MDM-9205, 28nm process, ARM Cortex-A7, up to 800 MHz
Supported OS	Windows 11/Chrome /Linux
Power Supply	DC 3.135V to 3.63V, typical 3.3V
	Normal operating temperature: –30°C to +75°C
Temperature	Extended operating temperature: –35°C to +80°C1)
	Storage temperature: –40°C to +85°C
	Interface: M.2 Key-B
Physical Characteristics	Dimension 22.0 mm × 42.0 mm × 2.3 mm
	Weight: about 4.0 g
Interface	

Antenna Connector	WWAN Antenna × 1
	GNSS Antenna × 1
	I2C (Master Mode)
Function Interface	USB 2.0 (For debug)
	eSIM(Internal)
	Device Mode Detection

	W_DISABLE1# (Reserved)
	W_DISABLE2# (Reserved)
	WOWWAN# (Reserved)
	DPR
	LED
	Tunable Antenna
Software	
Protocol Stack	IPV4/IPV6
AT Commands	3GPP TS 27.007 and 27.005
Firmware Update	USB2.0
Other Feature	Multiple carrier

1. When temperature goes beyond normal operating temperature range of 30°C to +75°C C, RF performance of module may be slightly off 3GPP specifications.

RF Interface

RF Interface Functionality

The RW520 module supports two RF connectors used for external antenna connection. As Figure 12 shows, “M” is for the Main antenna, used to receive and transmit RF signals; “G” is for the GNSS antenna, used to receive the G NSS signals.

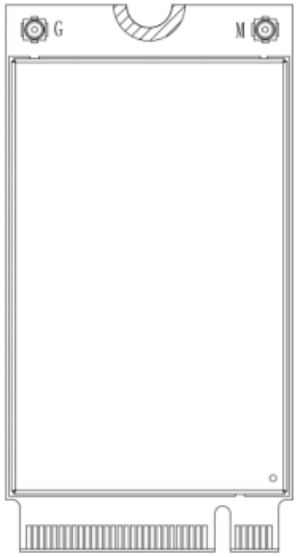

Figure 1. RF connectors

Operating Band

The operating bands of the RW520 module are shown in the following table:

Operating Band	Description	Mode	Tx (MHz)	Rx (MHz)
Band 1	2100MHz	LTE FDD	1920-1980	2110-2170
Band 2	1900MHz	LTE FDD/PCS1900	1850-1910	1930-1990

Operating Band	Description	Mode	Tx (MHz)	Rx (MHz)
Band 3	1800MHz	LTE FDD/DCS1800	1710-1785	1805-1880
Band 4	1700MHz	LTE FDD	1710-1755	2110-2155
Band 5	850MHz	LTE FDD/GSM850	824-849	869-894
Band 8	900MHz	LTE FDD/GSM900	880-915	925-960
Band 12	700MHz	LTE FDD	699-716	729-746
Band 13	700MHz	LTE FDD	777-787	746-756
Band 14	700MHz	LTE FDD	788-798	758-768
Band 18	800MHz	LTE FDD	815-830	860-875
Band 19	800MHz	LTE FDD	830-845	875-890
Band 20	800MHz	LTE FDD	832-862	791-821
Band 25	1900MHz	LTE FDD	1850-1915	1930-1995
Band 26	850MHz	LTE FDD	814-849	859-894
Band 27	800MHz	LTE FDD	807-824	852-869
Band 28	700MHz	LTE FDD	703-748	758-803
Band 66	1700MHz	LTE FDD	1710-1780	2110-2180
Band 85	700MHz	LTE FDD	698-716	728-746
GPS L1	–	–	–	1575.42±1.023

GLONASS L1	–	–	–	1602.5625±4
BDS	–	–	–	1561.098±2.046
Galileo	–	–	–	1575.42±1.023

FCC Conformance information

Federal Communication Commission Interference Statement

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 causeu desired operation.

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 of the following measures:

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

Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

module device use)

1. The antenna must be installed such that 20 cm is maintained between the antenna and the users, and
2. The transmitter module may not be co located with any other transmitter or antenna. As long as 2 conditions above are met, further transmitter test 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.

Important Notice to OEM integrators

1. This module is limited to OEM installation ONLY.
2. This module is limited to installation in mobile applications, according to Part 2.1091(b).
3. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations
4. For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part 15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module (s) are installed and operating. The modules should be transmitting, and the evaluation should confirm that the module's intentional emissions are compliant (i.e., fundamental and out-of-band emissions). The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B, or that emissions are compliant with the transmitter(s) rule(s). The Grantee will provide guidance to the host manufacturer for Part 15 B requirements if needed.

Important Note

Notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify Rolling Wireless S.a.r.l… that they wish to change the antenna trace design. In this case, a Class IIA permissive change application is required to be filed by the USI, or the host manufacturer can take responsibility through the change in FCC ID (new application)

procedure, followed by a Class II permissive change application.

End Product Labeling

When the module is installed in the host device, the FCC label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text: “Contains FCC ID: 2AX2URW 520GL.” The FCC ID can be used only when all FCC compliance requirements are met.

Antenna Installation

1. The antenna must be installed such that 20 cm is maintained between the antenna and the users.
2. The transmitter module may not be co-located with any other transmitter or antenna.
3. Only antennas of the same type and with equal or less gain than those shown below may be used with this module. Other types of antennas and/or higher gain antennas may require additional authorization for operation.

In the event that these conditions cannot be met (for example, certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid, and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for reevaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Antenna information

Band	Gain(dBi)	Type
GSM 850	3	
GSM 1900	3	
LTE Band 2	3	
LTE Band 4	3	

LTE Band 5	3	PIFA / Monopole
LTE Band 12	3	
LTE Band 13	3	
LTE Band 14	3	
LTE Band 25	3	
LTE Band 26	3	
LTE Band 66	3	
LTE Band 85	3	

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product that integrates this module. The end user manual shall include all required regulatory information/warnings as shown in this manual.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance 20 cm between the radiator & your body.47 CFR Part 22, 24, 27, 90 This module can be used in IOT devices; the input voltage to the module is nominally 3. 3V. This module is a single module. The antenna is not a trace antenna.

IC Conformance information

Industry Canada Statement

This device complies with Industry Canada's licence-exempt RSSs. 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.

Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions: (For module device use)

1. The antenna must be installed such that 20 cm is maintained between the antenna and the users, and
2. The transmitter module may not be co-located with any other transmitter or antenna. As long as 2 conditions above are met, further transmitter tests 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.

IMPORTANT NOTE

In the event that these conditions cannot be met (for example, certain laptop configurations or colocation with another transmitter), then the Canada authorization is no longer considered valid, and the IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including thetransmitter) and obtaining a separate Canada authorization.

End Product Labeling

This transmitter module is authorized only for use in devices where the antenna may be installed such that 20 cm may be maintained between the antenna and the users. The final end product must be labeled in a visible area with the following: “Contains IC: 26644 RW 520GL

Frequently Asked Questions

Q: What are the supported operating systems for RW520?

A: The RW520 module supports Windows 11, Chrome, and Linux operating systems.

Q: How can I update the firmware of RW520?

A: Firmware updates can be done via USB2.0 connection as mentioned in the manual.

Q: What is the power supply requirement for RW520?

A: The power supply should be DC 3.135V to 3.63V, with a typical voltage being 3.3V.

Documents / Resources

	ROLLING WIRELESS RW520-GL Highly Integrated IOT Wireless Communication Module [pdf] User Guide RW520-GL, RW520-GL Highly Integrated IOT Wireless Communication Module, Highly Integrated IOT Wireless Communication Module, Integrated IOT Wireless Communication Module, IOT Wireless Communication Module, Wireless Communication Module, Communication Module

References

- User Manual

ROLLING WIRELESS

Communication module, Highly Integrated IOT Wireless Communication Module, Integrated IOT Wireless Communication Module, IOT Wireless Communication Module, ROLLING WIRELESS, RW520-GL, RW520-GL Highly Integrated IOT Wireless Communication Module, Wireless Communication Module

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