PERFECT WIRELESS EXPERIENCE

FIBOCOM FN 189-GL-CW Series

Hardware Specification

V1.0.0

Copyright

Notice

The document is subject to update from time to time owing to the product version upgrade or other reasons. Unless otherwise specified, the document only serves as the user guide. All the statements, information and suggestions contained in the document do not constitute any explicit or implicit guarantee.

Trademark

Fibocom The trademark is registered and owned by Fibocom Wireless Inc.

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Foreword

1.1 Introduction

FN189-GL-CW is to demonstrate the high-level feature set of the Qualcomm SC7280 core chipset when assembled into a representative form factor using standard techniques and commonly available components. Integrated baseband, PMIC, memory, Wi-Fi/BT can be applied to most cellular networks of mobile carrier in the world. This module is available to customers as a fabricate yourself design.

The document describes the FN189-GL-CW electrical characteristics and basic function.

1.2 Specification

1.2.1 RF Characteristic

FN189-GL-CW RF characteristic is shown in Table 2.

Table 1. RF characteristic

Operating Band	
WLAN	WLAN 2 × 2 802.11a/b/g/n/ac/ax MU-MIMO
Bluetooth	BT 5.2

1.2.2 Key Feature

Table 2. Key features

Specification	
CPU	Qualcomm Kryo CPU built on Arm V8 Cortex 6nm process
Memory	8GB LPDDR4X +128GB eMMC

OS	Chrome/Linux
Power Supply	DC 3.3V to 4.4V, typical 3.7V
Temperature	Normal operating temperature: –10°C to +55°C
	Extended operating temperature:
	Storage temperature: –40°C to +85°C
Physical Characteristics	Dimension: 129 mm x 40 mm x 3.14 mm
Antenna Connector	WLAN/BT x 2
Function Interface	One 4-lane DSI DSC1.2, D-PHY 1.2 or C-PHY 1.0.
	Two 4-lane CSIs, D-PHY 1.2 or C-PHY 1.2.
	eDP is the primary display; eDP and DSI are mutually exclusive.
	Support for SD 3.0
	Support QSPI NOR flash
	Support PCIe for NVMe
	Support for USB 3.1 Type-C with DisplayPort 1.4 and USB 2.0.
Firmware Update	USB

2. 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 cause undesired 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 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.

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 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 emissions are complaint 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 to Fibocom Wireless Inc. that they wish to change the antenna trace design. In this case, a Class II 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 re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: “Contains FCC ID:ZMOFN189GLCW”

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 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 gains as 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 re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Antenna information

Band	Gain(dBi)	Type
Bluetooth	3.53	PIFA
2.4GHz WLAN	3.53	
5.2GHz WLAN	3.06	
5.3GHz WLAN	3.07	
5.6GHz WLAN	4.81	
5.8GHz WLAN	4.2	
5.9GHz WLAN	5.09	
6.2GHz WLAN	5.14	
6.5GHz WLAN	5.09	
6.7GHz WLAN	5.16	
7.0GHz WLAN	5.12	
Bluetooth	3.22	Monopole
2.4GHz WLAN	3.35	
5.2GHz WLAN	3.35	
5.3GHz WLAN	3.42	
5.6GHz WLAN	4.77	
5.8GHz WLAN	4.72	
5.9GHz WLAN	4.71	
6.2GHz WLAN	4.75	
6.5GHz WLAN	4.29	
6.7GHz WLAN	4.81	
7.0GHz WLAN	4.74	

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 which integrates this module. The end user manual shall include all required regulatory information/warning as show 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 minimum distance 20 cm between the radiator & your body.

WIFI 6E Warning

Operation of transmitters in the 5.925-7.125 GHz band is prohibited for control of or communications with unmanned aircraft systems.

3. CE Conformance information

Max power

Mode	Max EIRP
Bluetooth/BLE	20 dBm
Wi-Fi 2.4GHz	20 dBm
Wi-Fi 5.15-5.725GHz	23 dBm
Wi-Fi 5.725-5.85GHz	13.979 dBm
Wi-Fi 5.945-6.425GHz	23 dBm (LPI)
	13.979 dBm (VLP)

RF Exposure

The device could be used with a separation distance of 20cm to the human body.

Declaration of conformity

Hereby, [Fibocom Wireless Inc.] declares that the radio equipment type [FN189-GL-CW] is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:

https://www.fibocom.com/en/downloadcenter

Class 2 device declaration

The device is restricted to indoor use only when operating in the 5150 to 5350 MHz and 5945 to 6425 MHz frequency range.

AT	BE	BG	HR	CY	CZ	DK
EE	FI	FR	DE	EL	HU	IE
IT	LV	LT	LU	MT	NL	PL
PT	RO	SK	SI	ES	SE	UK(NI)
IS	LI	NO	CH	TR		

WEEE mark

Waste Electrical and Electronic Equipment (WEEE)

This symbol means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Proper recycling of your product will protect human health and the environment.