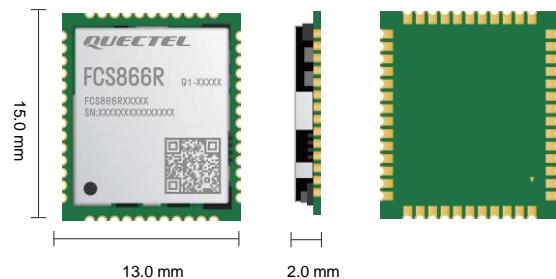


# Quectel FCS866R

## Wi-Fi 6 & Bluetooth 5.2 Module Ultra-compact LCC Package



FCS866R is a high-performance Wi-Fi 6 and Bluetooth 5.2 module featuring 2T2R in LCC package. It can be used for WLAN and Bluetooth connections, providing a maximum data rate up to 1201 Mbps.

With an ultra-compact size of 15.0 mm × 13.0 mm × 2.0 mm, the module optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount technology (SMT) makes the module an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that the module can be easily embedded into size-constrained applications and provide reliable connectivity with these applications.

Designed with a reliable SDIO 3.0 interface to provide WLAN capability, the module achieves low-power and high-speed data transmission. Coupled with its compact size, low power consumption, and high reliability, the FCS866R can meet the application needs in a variety of fields.



## Key Features

- ✓ Dual-band 2.4 GHz and 5 GHz Wi-Fi and Bluetooth 5.2
- ✓ SDIO 3.0 interface with higher data transmission rate and lower power consumption
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide temperature range: -20 °C to +70 °C



SDIO 3.0  
Interface



Bluetooth 5.2



IEEE 802.11  
a/b/g/n/ac/ax



Ultra-compact Size



LCC Package



Temperature Range:  
-20 °C to +70 °C

Wi-Fi 6 & Bluetooth 5.2	FCS866R
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/5 GHz
Wi-Fi Antenna	2 × 2
Wi-Fi Modulation Mode	DBPSK/DQPSK/CCK/BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM/OFDMA
2.4 GHz Channel Bandwidth	20 MHz/40 MHz
5 GHz Channel Bandwidth	20 MHz/40 MHz/80 MHz
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/STA
Bluetooth Protocol	Bluetooth 5.2
Dimensions	15.0 mm × 13.0 mm × 2.0 mm
Weight	Approx. 0.79 g
Temperature Range	
Operating Temperature	-20 °C to +70 °C
Physical Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	300 Mbps
802.11ac	866.7 Mbps
802.11ax	1201 Mbps
Interfaces	
SDIO 3.0	× 1 (For Wi-Fi)
PCM	× 1 (For Bluetooth)
UART	× 1 (For Bluetooth)
Wi-Fi Antenna	× 2 (ANT_WIFI0, ANT_WIFI1/BT)
Bluetooth Antenna	× 1 (ANT_WIFI1/BT or ANT_BT) (Optional)
Electrical Features	
Power Supply Voltage	VBAT: 3.0–3.6 V, Typ. 3.3 V
I/O Supply Voltage	VDD_IO: 1.62–3.6 V, Typ. 1.8/3.3 V
Power Consumption	Max. current at Tx mode: 292.29 mA @ 3.3 V 62.74 uA @ 1.8 V
Certifications	
Regulatory	Europe: CE America: FCC China: SRRC Canada: IC Australia/New Zealand: RCM Japan: JATE*/TELEC South Korea: KC

**NOTE:**

\*: Planning.

# Quectel FCS866R

Wi-Fi 6 & Bluetooth 5.2		FCS866R	
Wi-Fi Performance		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-100 dBm ±2 dB	19.5 dBm ±2 dB
	802.11b/11 Mbps	-91.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11g/6 Mbps	-96 dBm ±2 dB	19.5 dBm ±2 dB
	802.11g/54 Mbps	-79 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT20 MCS 0	-96 dBm ±2 dB	19.5 dBm ±2 dB
	802.11n/HT20 MCS 7	-75 dBm ±2 dB	17 dBm ±2 dB
	802.11n/HT40 MCS 0	-93 dBm ±2 dB	19.5 dBm ±2 dB
	802.11n/HT40 MCS 7	-74 dBm ±2 dB	17 dBm ±2 dB
	802.11ax/HE20 MCS 0	-96.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ax/HE20 MCS 11	-68 dBm ±2 dB	13 dBm ±2 dB
	802.11ax/HE40 MCS 0	-93 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ax/HE40 MCS 11	-64 dBm ±2 dB	13 dBm ±2 dB
	802.11a/6 Mbps	-94.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11a/54 Mbps	-77.5 dBm ±2 dB	18 dBm ±2 dB
5 GHz	802.11n/HT20 MCS 0	-94.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11n/HT20 MCS 7	-76 dBm ±2 dB	17 dBm ±2 dB
	802.11n/HT40 MCS 0	-92.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11n/HT40 MCS 7	-73 dBm ±2 dB	17 dBm ±2 dB
	802.11ac/VHT20 MCS 0	-95 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ac/VHT20 MCS 8	-72 dBm ±2 dB	16 dBm ±2 dB
	802.11ac/VHT40 MCS 0	-92.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ac/VHT40 MCS 9	-68 dBm ±2 dB	15 dBm ±2 dB
	802.11ac/VHT80 MCS 0	-89.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ac/VHT80 MCS 9	-64.5 dBm ±2 dB	15 dBm ±2 dB
	802.11ax/HE20 MCS 0	-95.5 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ax/HE20 MCS 11	-66.5 dBm ±2 dB	13 dBm ±2 dB
	802.11ax/HE40 MCS 0	-93 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ax/HE40 MCS 11	-63.5 dBm ±2 dB	13 dBm ±2 dB
	802.11ax/HE80 MCS 0	-90 dBm ±2 dB	19.5 dBm ±2 dB
	802.11ax/VHT80 MCS 11	-61.5 dBm ±2 dB	13 dBm ±2 dB

Bluetooth Performance		Receiver Sensitivity	Transmit Power
BR		-91 dBm ±4 dB	5 dBm ±4 dB
EDR ( $\pi/4$ -DQPSK)		-94 dBm ±4 dB	5 dBm ±4 dB
EDR (8-DPSK)		-88 dBm ±4 dB	5 dBm ±4 dB
BLE (1 Mbps)		-96 dBm ±4 dB	5 dBm ±4 dB
BLE (2 Mbps)		-93 dBm ±4 dB	5 dBm ±4 dB
BLE (S = 2)		-98 dBm ±4 dB	5 dBm ±4 dB
BLE (S = 8)		-106 dBm ±4 dB	5 dBm ±4 dB

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)	Board
FCS866R	FCS866RAAMD	Two antennas	-	-	FCS866RAAM2	
FCS866R	FCS866RBAAMD	Three antennas	-	-	FCS866RBAAM2	