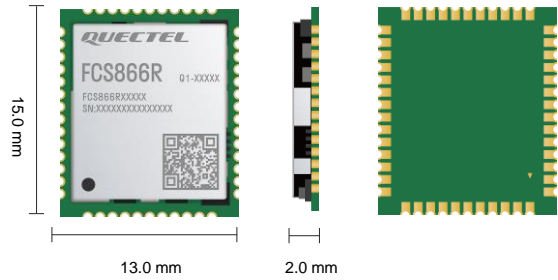


# Quectel FCS866R

## 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	
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/AP + STA	
Bluetooth Protocol	Bluetooth 5.2	
Dimensions	15.0 mm × 13.0 mm × 2.0 mm	
Weight	Approx. 0.79 g	
<b>Temperature Range</b>		
Operating Temperature	-20 °C to +70 °C	
<b>Data Rate (Max.)</b>		
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	
<b>Interfaces</b>		
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_BT) (Optional)	
<b>Electrical Features</b>		
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 802.11n/ac/ax MIMO Tx mode: 292.29 mA @ 3.3 V 62.74 uA @ 1.8 V	
<b>Certifications</b>		
Regulatory	<b>Europe:</b> CE <b>America:</b> FCC <b>China:</b> SRRC <b>Canada:</b> IC <b>Australia/New Zealand:</b> RCM <b>Japan:</b> JATE*/TELEC* <b>South Korea:</b> KC*	

**NOTE:**  
\*: Planning.

# Quectel FCS866R

## Wi-Fi 6 & Bluetooth 5.2

## FCS866R

### Wi-Fi Performance

	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)	
2.4 GHz	802.11b/1 Mbps	-100 dBm	19.4 dBm
	802.11b/11 Mbps	-91.5 dBm	19.6 dBm
	802.11g/6 Mbps	-96 dBm	19.6 dBm
	802.11g/54 Mbps	-79 dBm	17.7 dBm
	802.11n/HT20 MCS 0	-96 dBm	19.5 dBm
	802.11n/HT20 MCS 7	-75 dBm	16.7 dBm
	802.11n/HT40 MCS 0	-93 dBm	19.3 dBm
	802.11n/HT40 MCS 7	-74 dBm	16.4 dBm
	802.11ac/VHT20 MCS 0	-96 dBm	19.7 dBm
	802.11ac/VHT20 MCS 8	-73.5 dBm	16 dBm
	802.11ac/VHT40 MCS 0	-93 dBm	19.5 dBm
	802.11ac/VHT40 MCS 9	-68.5 dBm	15 dBm
	802.11ax/HE20 MCS 0	-96.5 dBm	19.6 dBm
	802.11ax/HE20 MCS 11	-68 dBm	12.8 dBm
	802.11ax/HE40 MCS 0	-93 dBm	19.4 dBm
	802.11ax/He40 MCS 11	-64 dBm	12.4 dBm
5 GHz	802.11a/6 Mbps	-94.5 dBm	19.4 dBm
	802.11a/54 Mbps	-77.5 dBm	16.6 dBm
	802.11n/HT20 MCS 0	-94.5 dBm	18.6 dBm
	802.11n/HT20 MCS 7	-76 dBm	15.6 dBm
	802.11n/HT40 MCS 0	-92.5 dBm	18.9 dBm
	802.11n/HT40 MCS 7	-73 dBm	15.7 dBm
	802.11ac/VHT20 MCS 0	-95 dBm	19.2 dBm
	802.11ac/VHT20 MCS 8	-72 dBm	14.6 dBm
	802.11ac/VHT40 MCS 0	-92.5 dBm	18.9 dBm
	802.11ac/VHT40 MCS 9	-68 dBm	13.6 dBm
	802.11ac/VHT80 MCS 0	-89.5 dBm	18.9 dBm
	802.11ac/VHT80 MCS 9	-64.5 dBm	13.6 dBm
	802.11ax/HE20 MCS 0	-95.5 dBm	18.7 dBm
	802.11ax/HE20 MCS 11	-66.5 dBm	11.6 dBm
	802.11ax/HE40 MCS 0	-93 dBm	19.4 dBm
	802.11ax/HE40 MCS 11	-63.5 dBm	11.5 dBm
802.11ax/HE80 MCS 0	-90 dBm	19 dBm	
802.11ax/VHT80 MCS 11	-61.5 dBm	11.6 dBm	

### Bluetooth Performance

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

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