

# AirPrime® EM9190 5G NR Sub-6 GHz and mmWave Module

## Deploy next-generation products with a global module that supports 5G NR, as well as low and high power mmWave antenna modules

The EM9190 module is part of the EM Series offering global 5G connectivity. Designed in an M.2 form factor, the EM9190 is compatible with Sierra Wireless's EM7690 4G LTE-A Pro module, to help facilitate the migration and differentiation between 4G LTE and 5G.

This 5G NR Sub-6 GHz and mmWave embedded module delivers up to 5.5Gbps downlink speed and 3Gbps uplink speed. With automatic 4G and 3G fallback networks, and integrated GNSS receiver (GPS, GLONASS, BeiDou, and Galileo satellite systems supported), the EM9190 is applicable to a wide range of IoT applications such as industrial routers, home gateways, industrial and consumer laptops, rugged tablet PCs, video surveillance and digital signage.

### Benefits



#### CBRS

Certified by the FCC for CBRS private networks to provide reliability, security, flexibility, and cost savings



#### Global

Worldwide coverage on a single module with industry and mobile network certifications to get you to market faster



#### Onboard SIM

Embedded SIM to simplify and add flexibility to IoT deployments. Carrier profile, M2M eUICC, and consumer eUICC are available based on customer use case



#### Location Services

GNSS receiver enables tracking and location-based services with dual L1 and L5 bands for increased accuracy



## Enhanced Coverage

Dual SIM single standby (DSSS) switches between networks quickly to stay connected



## FOTA Upgrades

Firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure



## Secure Boot

Prevent unauthorized code on the target to keep your connectivity secure



## Industrial-Grade

Tested for harsh environments and extreme temperatures

### Technical Specifications

#### 5G NR

##### Category

5G NR Sub-6 and mmWave

##### Frequency Bands

Sub-6: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79,  
mmWave: n257, n258, n260, n261

#### 4G LTE

##### Category

Cat-20

##### Frequency Bands

B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B21, B25, B26, B28, B29, B30,  
B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71

#### DATA SPEED

##### Peak Download Rate

5.5 Gbps

##### Peak Upload Rate

3Gbps

#### LOCATION SERVICES

##### Satellite Systems

Galileo, Glonass, GPS, Beidou (Bands: L1 and L5)

Windows® 10, Linux, Android RIL

USB 3.1

USB

PCIe generation 3 (or 2), 1 lane

PCIe

30x52x2.38mm

Dimensions

AT&amp;T (FirstNet), docomo, LGU+, Telstra, Verizon

Planned Carrier

FCC, GCF, KC, PTCRB, EU RED, JATE/Telec

Regulatory

## Related Products

## EM7690

### AirPrime® EM7690 Cat-20 LTE-Advanced Pro Module

#### Future-proof your devices with a 3GPP Rel-15 compliant global module with up to 2 Gbps download speed

The EM7690 module is part of the EM Series offering global deployments with approvals from multiple NAM, EMEA, and APAC carriers. Supporting USB 3.1 and PCIe gen 3 single lane interfaces, the EM7690 offers an easy upgrade path to next-generation cellular technologies and global access to LTE-Advanced Pro high speed cellular networks.

This Cat-20 embedded module delivers up to 2 Gbps downlink and 211 Mbps uplink high speed connectivity. With automatic 3G fallback network and integrated GNSS receiver (GPS, GLONASS, BeiDou, and Galileo satellite systems supported), the EM7690 is ideal for a wide range of industrial M2M and mobile computing solutions.

## Benefits



### CBRS

Certified by the FCC for CBRS private networks to provide reliability, security, flexibility, and

cost savings



## Global

Worldwide coverage on a single module with industry and mobile network certifications to get you to market faster



## Onboard SIM

Embedded SIM to simplify and add flexibility to IoT deployments. Carrier profile, M2M eUICC, and consumer eUICC are available based on customer use case



## Location Services

GNSS receiver enables tracking and location-based services with dual L1 and L5 bands for increased accuracy



## Enhanced Coverage

Dual SIM single standby (DSSS) switches between networks quickly to stay connected



## FOTA Upgrades

Firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure



## Secure Boot

Prevent unauthorized code on the target to keep your connectivity secure



## Industrial-Grade

Tested for harsh environments and extreme temperatures

## Technical Specifications

4G LTE

Category

Cat-20

Frequency Bands

B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B21, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71

3G

HSPA+

B1, B2, B3, B4, B5, B8, B9

DATA SPEED

Peak Download Rate

2Gbps

Peak Upload Rate

211Mbps

LOCATION SERVICES

Satellite Systems

Galileo, Glonass, GPS, Beidou (Bands: L1 and L5)

EMBEDDED SOFTWARE

Firmware

Secure boot, Pre-certified firmware

System Drivers

Windows® 10, Linux, Android RIL

INTERFACES

USB

USB 3.1

PCIe

PCIe generation 3 (or 2), 1 lane

HARDWARE

Dimensions

30x52x2.38mm

Temperature Range

-30°C / +70°C, -40°C / +85°C

APPROVALS

Planned Carrier

AT&T (FirstNet), docomo, LGU+, Telstra, Verizon

Regulatory

FCC, GCF, IC, JRF/JPA, PTCRB

EMBEDDED SIM

Onboard eUICC (Planned)

# AirPrime® EM9191 5G NR Sub-6 GHz Module

## Optimized 5G NR performance for broad coverage applications with a simple upgrade path to mmWave

The EM9191 module is part of the EM Series offering global 5G connectivity. Designed in an M.2 form factor, the EM9191 is compatible with Sierra Wireless's EM9190 module for a simple upgrade path to mmWave, as well as the EM7690 module to help facilitate the migration and differentiation between 4G LTE and 5G.

This 5G NR Sub-6 GHz embedded module delivers up to 4.5Gbps downlink speed and 660Mbps uplink speed. With automatic 4G and 3G fallback networks and integrated GNSS receiver (GPS, GLONASS, BeiDou, and Galileo satellite systems supported), the EM9191 is applicable to a wide range of IoT applications such as industrial routers, home gateways, industrial and consumer laptops, rugged tablet PCs, video surveillance and digital signage.

### Benefits



#### CBRS

Certified by the FCC for CBRS private networks to provide reliability, security, flexibility, and cost savings



#### Global

Worldwide coverage on a single module with industry and mobile network certifications to get you to market faster



#### Onboard SIM

Embedded SIM to simplify and add flexibility to IoT deployments. Carrier profile, M2M eUICC, and consumer eUICC are available based on customer use case



#### Location Services

GNSS receiver enables tracking and location-based services with dual L1 and L5 bands for

increased accuracy



## Enhanced Coverage

Dual SIM single standby (DSSS) switches between networks quickly to stay connected



## FOTA Upgrades

Firmware over-the-air (FOTA) upgrades future-proof deployments and keep them secure



## Secure Boot

Prevent unauthorized code on the target to keep your connectivity secure



## Industrial-Grade

Tested for harsh environments and extreme temperatures

### Technical Specifications

5G NR

Category

5G NR Sub-6

Frequency Bands

n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79

4G LTE

Category

Cat-20

Frequency Bands

B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B18, B19, B20, B21, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71

DATA SPEED

Peak Download Rate

4.5 Gbps

Peak Upload Rate

660Mbps

LOCATION SERVICES

Satellite Systems

Galileo, Glonass, GPS, Beidou (Bands: L1 and L5)

EMBEDDED SOFTWARE

Secure boot, Pre-certified firmware	Firmware
Windows® 10, Linux, Android RIL	System Drivers
	<b>INTERFACES</b>
USB 3.1	USB
PCIe generation 3 (or 2), 1 lane	PCIe
	<b>HARDWARE</b>
30x52x2.38mm	Dimensions
-30°C / +70°C, -40°C / +85°C	Temperature Range
	<b>APPROVALS</b>
AT&T (FirstNet), docomo, LGU+, Telstra	Planned Carrier
FCC, GCF, KC, PTCRB, EU RED, JATE/Telec	Regulatory
	<b>EMBEDDED SIM</b>
Onboard eUICC (Planned)	