



# Antennas

Internal, External, and Surface Mount







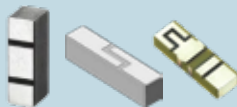

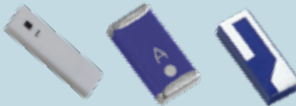
## TTI has the Reception and Transmission Options Your Design Requires

Antennas are the key to seamless wireless communications, and in today's connected world there can be a wide variety of frequencies, protocols, form factors, and applications that affect your design. TTI offers a broad selection of antenna solution from the industry's premier suppliers.











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# Chip Antennas – Surface Mount

Supplier	Component Images	Frequency (MHz)	Supported Technologies
<b>Abracon</b>		433, 698-960, 868, 824-894, 880-960, 915, 923, 1164-1610, 1606, 1710-1880, 1710-2655, 1850-1990, 920-2170, 1575, 2350, 2400-2500, 2450, 2470, 2510, 2640, 2660, 2710, 2780, 2800, 2860, 3010, 5150-5850	Bluetooth, WiFi, ISM(434), ISM(868), ISM(915) ZigBee, RFID, LORA, Sigfox, GSM-850, GSM-900, DCS-1800, PCS-1900, UMTS, 2G/3G, 4G/LTE, GPS, GNSS, GLONASS, WiMax
<b>API Technologies</b>		915, 1227, 1575, 1579, 1580, 1592, 1615, 1621, 2450	Globalstar, GPS, RFID, ISM, Iridium, Inmarsat
<b>AVX - Ethertronics</b>		850, 868, 900, 915, 1500, 1575, 1600, 1800, 1900, 2100, 2400, 5000	Bluetooth, WiFi, ISM(868), ISM(915), GSM-850, GSM-900, DCS-1800, PCS-1900, IMT-2100, GPS, GLONASS
<b>Molex</b>		698-2700, 1575, 2400-2500, 5150-5850	Bluetooth, WiFi, LTE Cellular, GPS
<b>Pulse - Larsen</b>		433, 698-960, 868, 824-894, 880-960, 915, 923, 1164-1610, 1606, 1710-1880, 1710-2655, 1850-1990, 920-2170, 1575, 2350, 2400-2500, 2450, 2470, 2510, 2640, 2660, 2710, 2780, 2800, 2860, 3010, 5150-5850	Bluetooth, WiFi, ISM(434), ISM(868), ISM(915) ZigBee, RFID, LORA, Sigfox, GSM-850, GSM-900, DCS-1800, PCS-1900, UMTS, 2G/3G, 4G/LTE, GPS, GNSS, GLONASS, WiMax
<b>TDK - EPCOS</b>		915, 1575, 2400, 2442, 2450, 3100-5200, 5500, 5550	Bluetooth, GNSS, WiFi, ZigBee
<b>Yageo</b>		169, 315, 433, 698-960, 824-960, 870, 880-960, 900, 915, 1570-1610, 1559-1610, 1575, 1602, 1710-2690, 1800, 1880, 2320-2345, 2400-2500, 4900-5950, 5150-5875	Bluetooth, WiFi, ISM(169), ISM(433), ISM(868), ISM(915) ZigBee, RFID, GSM-850, GSM-900, DCS-1800, PCS-1900, UMTS, 2G/3G, 4G/LTE, GPS, GNSS, GLONASS



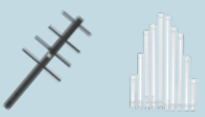

# Internal Antennas – FPC, PCB, and Patch

Supplier	Component Images	Frequency (MHz)	Supported Technologies
<b>Abracon</b>		13.56, 865-868, 915, 902-928, 1575.42	Passive Tag NFC, GPS, GLONASS
<b>API Technologies</b>		868, 915, 1575, 1615, 1621	Globalstar, GPS, Inmarsat, RFID, ISM
<b>AVX - Ethertronics</b>		700, 750, 850, 900, 1800, 1900, 2100, 2400, 2700, 5000	Bluetooth, WiFi, Octaband, Pentaband LTE Cellular
<b>Molex</b>		13.56, 433, 868, 915, 2400, 5000	Bluetooth, WiFi, ISM, NFC
<b>Murata</b>		13.56, 856-918	NFC, RFID Tag
<b>Pulse</b>		698-960, 824-960, 860-930, 863-928, 1428-2170, 1561, 1575, 1602, 1710-1990, 1710-2170, 2300-3600, 2400-2500, 2400-2483.5, 4900-5850, 4900-5875	Bluetooth, ZigBee, WiFi, ISM, 3G, 4G(LTE), MIMO, GPS, GLONASS, BeiDou, Galileo
<b>TE Connectivity</b>		698-821, 824-894, 880-960, 902-926, 1565-1585, 1710-1880, 1850-1990, 1920-2170, 2300-2700, 2400-2483.5, 3100-6000, 4900-5875, 5150-5875	Bluetooth, WiFi, WiMax, LTE-700, GSM-850, GSM-900, ZigBee, ISM (915), GPS-1575, GSM-1800, GSM/CDMA 1900, UMTS
<b>Yageo</b>		824-960, 1575, 1602, 1710-2170, 2400, 5000	Bluetooth, WiFi, Pentaband Cellular, GPS, GLONASS

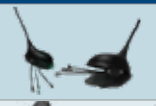


## External Antennas

Supplier	Component Images	Frequency (MHz)	Supported Technologies
<b>Abracon</b>		699-960, 868, 915, 1559-1606, 1710-2690, 4800-5825	Bluetooth, Cellular GSM-900, GSM-1800, GSM-1900, UMTS, GPS, GLONASS, WiFi
<b>API Technologies</b>		868, 915, 1227, 1575, 1580, 1592, 1615, 1621, 2450	Globalstar, GPS, Inmarsat, Iridium, RFID, ISM
<b>AVX - Ethertronics</b>		1575	GPS
<b>Phoenix Contact</b>		900, 2400, 5000+D42	Bluetooth, 900MHz/2400MHz Radioline
<b>Pulse - Larsen</b>		698-960, 824-894, 868-928, 1447-1510, 1710-2170, 2400-2500, 1500-2700, 4900-5900, 5150-5850	ISM, WiFi, Dual WiFi, 2G, 3G, 4G
<b>Pulse - Larsen</b>		136-140, 136-512, 142-149, 150-160, 154-166, 160-174, 162-174, 220-225, 370-409, 403-437, 406-420, 406-960, 432-468, 450-469, 470-512, 795-870, 872-964, 1710-1850, 1850-1990, 2400-2500	Portable Radio Antennas, VHF, UHF, 800
<b>TE Connectivity</b>		698-960, 1710-2700, 2300-2700, 3300-3800, 4900-5875	Bluetooth, ZigBee, WiFi, WLAN, WiMax

## Outdoor Antennas

Supplier	Component Images	Frequency (MHz)	Supported Technologies
<b>API Technologies</b>		868, 915, 1227, 1575, 1580, 1592, 1615, 1621, 2450	Globalstar, GPS, Inmarsat, Iridium, RFID, ISM
<b>Phoenix Contact</b>		900, 2400, 5000	Bluetooth, 900MHz/2400MHz Radioline
<b>Pulse - Larsen</b>		406-430, 450-470, 698-960, 740-806, 806-866, 824-896, 860-930, 890-960, 1710-2170, 2300-2700, 2400-2500, 2400-2700, 3280-3800, 5150-5875	ISM, WiFi, Dual WiFi, 2G, 3G, 4G, LTE
<b>Pulse - Larsen</b>		40-50, 118-121, 131-135, 136-230, 144-174, 200-225, 406-420, 440-460, 450-470, 740-806, 806-866, 824-896, 890-960, 2400-2485, 5350-5925	Base Station Antennas and Outdoor Infrastructure for all Cellular Frequencies, WLAN, MIMO and GPS

## Vehicular Antennas

Supplier	Component Images	Frequency (MHz)	Supported Technologies
<b>Abracon</b>		380-500, 824-894, 880-960, 1710-1880, 1850-1990, 1920-2170, 2400-2497, 1572-1610	Bluetooth, Cellular GSM-900, GSM-1800, GSM-1900, UMTS, GPS, GLONASS, WiFi
<b>Pulse - Larsen</b>		698-960, 740-806, 806-866, 824-896, 890-960, 1710-2170, 1850-1990, 2400-2700, 4900-5900	All Cellular Frequencies, WiFi, GPS, GLONASS, Beidou, Compass, Galileo
<b>TE Connectivity</b>		698-960, 1710-2700, 2300-2700, 3300-3800, 4900-5875	All Cellular Frequencies, GPS, GNSS



# Why Buy from the Specialist in Electronic Component Distribution?

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