

A cityscape at sunset with a network of glowing blue lines and nodes overlaid, representing wireless connectivity. The Tokyo Skytree is prominent in the center.

# 2023 Antenna Catalog

CELLULAR | LPWA | POSITIONING | SHORT RANGE | OTHERS

5G/4G/3G/2G | NB-IoT/LoRA/Sigfox | GNSS/Multi-GNSS | WiFi/Bluetooth | Combination

## Who we are?

At MIOT we put service-minded sales teams near our customers' facilities worldwide and highly skilled engineering teams in their labs. Due to the global shortage circumstance, we truly understand the needs of our customers and work as partners to get products to consumers as quickly as possible.

**Antennas are our Main business and primary expertise**, covering WIFI, GSM, GPS, UTMS, LTE, ISM, Sigfox, 5G, etc., or Omni antenna, Panel antenna, Sector antenna, Grid parabolic antenna, Dish parabolic antenna, communication terminal antenna, etc. We offer a TRP/TIS test service for the device RF performance evaluation. Our engineering team can participate in the customer's design in the first phase, customize the antenna, and go through all the prototype verification and certification approvals.

Miot also works with long-term trusted partner and provide comprehensive Engineering Services, including:

- Electronic circuit (PCB) design;
- Mechanical and industrial design;
- System prototype verification;
- EMS/SMT production/Manufacture;
- Agency of IOT devices made by valued customers.

We maintain a talented team of professional Antenna engineers, hardware engineers, and software developers that take your product from a requirements stage to prototyping, certification, and manufacturing, offering you a competitive product within a stable lead time in the market. We are thrilled to be your partner.

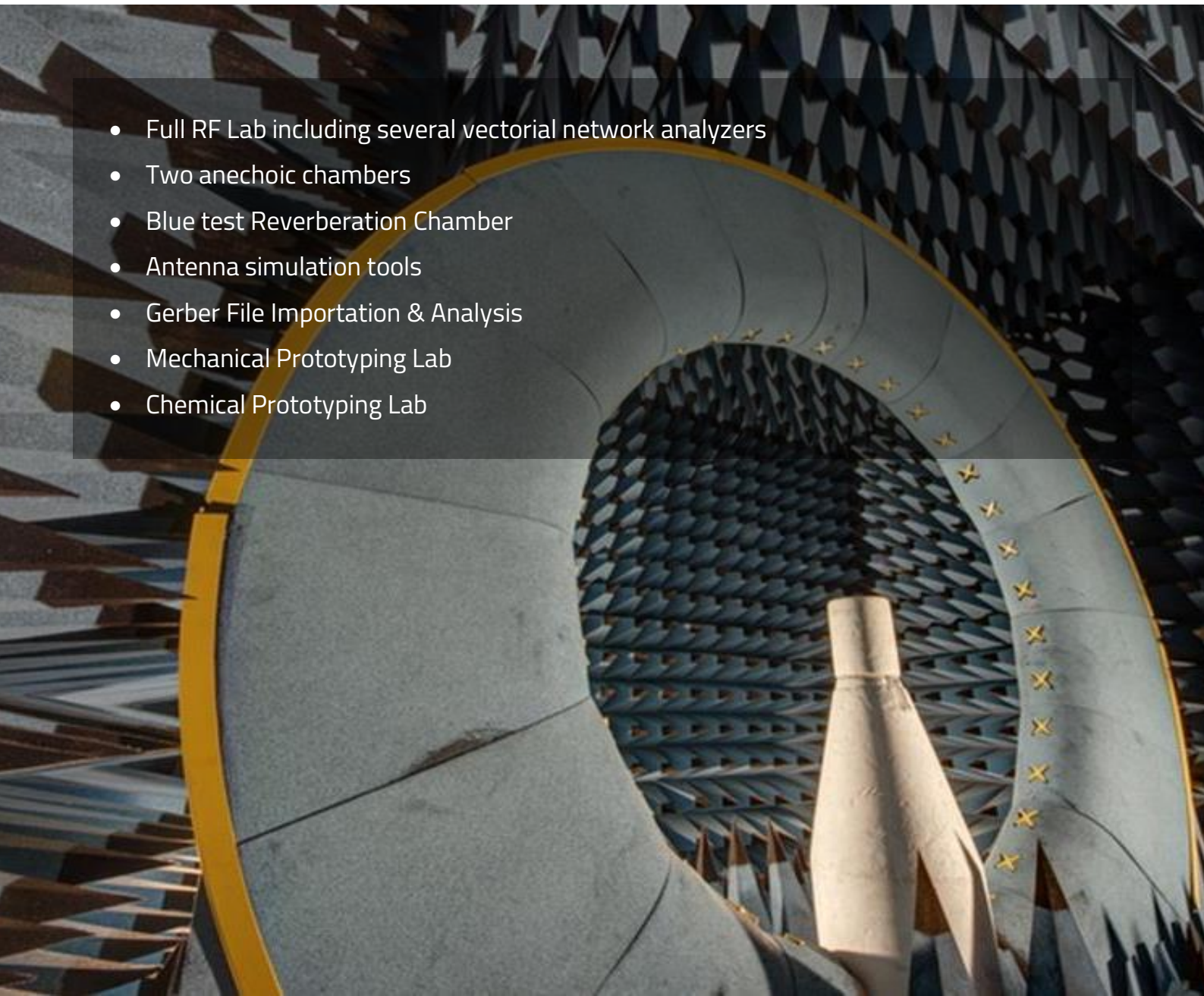
# Antenna Optimization Service

## Multiband 5G / LTE / WiFi

### Obtain Optimal Power, Gain, and Range





MIOT offers in-system tuning services for main and diversity antennas. By characterizing the antenna performance in the end system or product, this service takes the guesswork out of RF verification while offering corrective measures that re-tune the system for center frequency and impedance mismatch. This provides maximum system efficiency, delivering many benefits, including extended RF range, improved sensitivity, and can reduce the required power consumption for a given level of transmit range.

- Full RF Lab including several vectorial network analyzers
- Two anechoic chambers
- Blue test Reverberation Chamber
- Antenna simulation tools
- Gerber File Importation & Analysis
- Mechanical Prototyping Lab
- Chemical Prototyping Lab



# MIOT Antennas

## 5G External / Internal Antennas







Product	L-5RA3	L-5RA4	L-5RA6	L-5RS5	L-5MA1	L-5MA2
						
Frequency Bands (MHz)	698~960, 1710~5000	698~960, 1710~5000	699~960, 1710~5850	690~960, 1710~2700	700~960, 1710~2700, 3400~3800	700~960, 1710~2700
Technology	5G, LTE, 2.4G WIFI	5G, LTE, 2.4G WIFI	5G, LTE	5G, LTE, 2.4G WIFI	5G, LTE, WCDMA & WIFI	5G, LTE, 2.4G WIFI
Peak Gain	<6 dBi	<9 dBi	7.7 DBi	3 DBi	4.0 DBi	4.0 DBi
VSWR	1.8	2	2.0	2.0	4.0	4.0
Connector Type	SMA Male (center pin)	-	SMA	SMA Male (center pin)	SMA	SMD
Dimensions (mm)	195*25	297*210*65	158x13	190x16	25 x 7 x 3	36 x 7 x 3
Cable Length (mm)	-	-	-	-	-	-
IP Rate	-	-	-	-	-	-

## LTE / 4G External Antennas


Product	L-1RA2	L-1RA3	L-1RA4	L-1RA6	L-1RA8	L-1RA9
						
Frequency Bands (MHz)	698-960,1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700
Technology	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)
Peak Gain	<3 dBi	<3 dBi	<5 dBi	<3 dBi	<5 dBi	<2 dBi
VSWR	1.6	1.5	1.5	1.5	1.5	1.5
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Dimensions (mm)	184*10	194*13	184*13	168*13	154*13	175*30
Cable Length (mm)	-	-	-	-	-	1500
IP Rate	55	55	55	55	55	-

# MIOT Antennas

## LTE / 4G External Antennas







Product	L-1RA10	L-1RB1	L-1RB3	L-1RB4	L-1RB5	L-1RB6
						
Frequency Bands (MHz)	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2400-2700	698-960, 1710-2170, 2400-2700	698-960, 1710-2170, 2400-2700
Technology	LTE(4G)	LTE(4G)	LTE(4G)+2.4G	LTE(4G)+2.4G	LTE(4G)+2.4G	LTE(4G)+2.4G
Peak Gain	<6 dBi	<6 dBi	<6 dBi	<6 dBi	<2 dBi	<4 dBi
VSWR	2.1	2.1	1.7	1.4	1.6	1.2
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA Female (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Dimensions (mm)	115*11	115*11	115*11	80*12	116*22	318*30
Cable Length (mm)	-	-	-	NA	3000	1500
IP Rate	-	-	-	66	55	55

## LTE / 4G External Antennas





Product	L-1RB7	L-1RS5	L-1RT5	L-1RT5A	D-1RC3	D-1RS5
						
Frequency Bands (MHz)	698-960, 1710-2170, 2500-2700, 2400-2500	698-960, 1710-2170	824-960, 1710-2170, 2400-2700	824-960, 1710-2170, 2400-2700	1574-1577, 698-960, 1710-2170, 2500-2700	700-5000, 1561-1575, 2.4G-5.8G
Technology	LTE (4G) + 2.4G	LTE(4G)	LTE, 2.4G	LTE, 2.4G	LTE(4G)+GPS	LTE,GPS + BT/WIFI
Peak Gain	<8 dBi	<3 dBi	2 DBi	2 DBi	<4 dBi	<5 dBi
VSWR	1.7	1.2	1.6	1.6	2.1	2
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA 90° Male	SMA 90° Male	SMA Male (center pin)	SMA-RP Male (center pin)
Dimensions (mm)	175*20	190*10	116x22	116x22	48*50	85*25
Cable Length (mm)	-	-	2000	2000	1500	600
IP Rate	-	55	55	55	66	66

# MIOT Antennas

## LTE / 4G Internal Antennas




Product	L-2FA1	L-2FA2	L-2FA3	L-2FA4	L-2FA5	L-2FA6
						
Frequency Bands (MHz)	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700
Technology	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)
Peak Gain	< 5 dBi	< 2 dBi	< 4 dBi	< 2 dBi	< 4 dBi	< 5 dBi
VSWR	1.5	1.4	1.6	1.4	1.4	1.4
Connector Type	Weld	IPEX I	IPEX I	IPEX I	IPEX I	IPEX I
Dimensions (mm)	59*50	68*59	105*15	51*14	90*19	99*22
Cable Length (mm)	120	130	150	120	120	180
IP Rate	-	-	-	-	-	-

## LTE / 4G Internal Antennas

Product	L-2FA7	L-2FA8	L-2FA9	L-2FB1	L-2FB2	L-2FB3
						
Frequency Bands (MHz)	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170	698-960, 1710-2170
Technology	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)	LTE(4G)
Peak Gain	< 4 dBi	< 4 dBi	< 5 dBi	< 4 dBi	< 4 dBi	< 1 dBi
VSWR	1.7	1.5	1.8	1.8	1.5	3.9
Connector Type	IPEX I	IPEX I	IPEX I	IPEX I	Weld	Weld
Dimensions (mm)	139*19	40*15	60*8	35*5	54*22	79*20
Cable Length (mm)	125	120	130	100	-	-
IP Rate	-	-	-	-	-	-

# MIOT Antennas

## LTE / 4G Internal Antennas

Product	L-2FB4	L-2FB5	L-2FB6			
						
Frequency Bands (MHz)	698-960, 1710-2170	698-960, 1710-2170	698-960, 1710-2170			
Technology	LTE(4G)	LTE(4G)	LTE(4G)			
Peak Gain	< 2 dBi	< 3 dBi	< 2 dBi			
VSWR	1.4	1.4	1.1			
Connector Type	IPEX I	Contact	IPEX I			
Dimensions (mm)	70*20	-	61*13			
Cable Length (mm)	115	-	100			
IP Rate	-	-	-			

## GSM, ISM External Antennas





Product	M-1RA1	M-1RA2	M-1RA3	M-1RA4	M-1RA8	
						
Frequency Bands (MHz)	900-930	824-960, 1710-1990	915	915	850-930	
Technology	ISM	GSM, ISM	Sigfox 915	Sigfox 915	Sigfox 868/915	
Peak Gain	< 3 dBi	< 3 dBi	< 8 dBi	< 6 dBi	< 3 dBi	
VSWR	1.7	3.7	1.5	1.5	3.7	
Connector Type	SMA Male (center pin)	SMA Male (center pin)	SMA	SMA	SMA Female (center pin)	
Dimensions (mm)	208*12	50*8	20	49	52*10	
Cable Length (mm)	-	-	-	-	-	
IP Rate	55	55	67	67	-	

# MIOT Antennas

## GSM, ISM External Antennas

Product	S-1RA1	S-1RA2	S-2RA1	S-2RA2	S-2RA4	
						
Frequency Bands (MHz)	433	433	433	433	868	
Technology	Lora 433	Lora 433	ISM	Lora 433	ISM	
Peak Gain	< 3 dBi	< 3.5 dBi	< 2 dBi	< 2 dBi	< 2 dBi	
VSWR	1.7	1.8	2	1.8	2	
Connector Type	SMA	SMA	DIP	DIP	DIP	
Dimensions (mm)	100*30	110*30	41*3	18*5	18*5	
Cable Length (mm)	1500	1500	-	-	-	
IP Rate	66	66	-	-	-	

## GSM, ISM Internal Antennas

Product	M-2FA4	M-2FA5	M-2FA6	M-2FA7		
						
Frequency Bands (MHz)	746-798 (B13)	900-930	699-746 (B12)	900-930		
Technology	GSM	ISM	GSM	ISM		
Peak Gain	< 2 dBi	< 2 dBi	< 3 dBi	< 3 dBi		
VSWR	2	1.8	2.3	1.4		
Connector Type	IPEX I	IPEX I	IPEX 4	IPEX I		
Dimensions (mm)	49*15	45*10	40*15	32*8		
Cable Length (mm)	50	85	50	150		
IP Rate	-	-	-	-		






# MIOT Antennas

## Bluetooth / Wi-Fi External Antennas

Product	W-1RA1	W-1RA3	W-1RA5	W-1RA6	W-1RB1	
						
Frequency Bands (MHz)	2410-2490, 4920-5925	2400-2500, 5150-5850	2400-2500	2410-2490, 4920-5925	2400-2500	
Technology	(2.4G + 5.8G) x 2	2.4G + 5.8G	2.4G	2.4G + 5.8G	2.4G	
Peak Gain	< 6 dBi	< 6 dBi		< 2 dBi	< 3 dBi	
VSWR	1.1	1.2		1.2	3.7	
Connector Type	IPEX I	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)	
Dimensions (mm)	172*13	18*47	88*10	168*13	52*10	
Cable Length (mm)	2100	1000	-	-	-	
IP Rate	55	66	55	55	-	

## Bluetooth / Wi-Fi Internal Antennas

Product	W-2FA1	W-2FA2	W-2FA3			
						
Frequency Bands (MHz)	2410-2490, 5749-5900	2410-2490, 4900-5900	2410-2490, 4900-5900			
Technology	2.4G + 5.8G	2.4G + 5.8G	2.4G + 5.8G			
Peak Gain	< 2 dBi	< 6 dBi	< 6 dBi			
VSWR	1.5	1.7	2.1			
Connector Type	IPEX I	IPEX I	IPEX I			
Dimensions (mm)	51*13	42*8	40*18			
Cable Length (mm)	-	120	120			
IP Rate	55	-	-			

# MIOT Antennas

## GNSS External & Internal Antennas




Product	G-1RE1	G-1RE2	G-1RE8	G-2RE1	G-2RE2	G-2RE3
Frequency Bands (MHz)	1575.42	1575.42	1616-1627 / 1575.42	1616-1627, 1575.42	1616-1627, 1575.42	1616-1627, 1575.42
Technology	GPS	GPS + GLONASS	GPS + GLONASS	GPS + GLONASS	GPS + GLONASS	GPS + GLONASS
Peak Gain	28±2	< 5 dBi	28±2	< 3 dBi	< 3 dBi	< 5 dBi
VSWR	1.5	1.5	1.5	1.3	1.3	1.3
Connector Type	SMA Male (center pin)	SMA (others)	SMA Male (center pin)	DIP	DIP	DIP
Dimensions (mm)	45*35*15	38*34*14	45*35*15	13*13*4	18*18*4	25*25*4
Cable Length (mm)	1000	1000	300	-	-	-
IP Rate	66	IP67	66	-	-	-

## GNSS External & Internal Antennas

Product	G-2RE4	G-2RE5	G-2RE6	G-2RE7	G-2RE8	G-2RE9
Frequency Bands (MHz)	1616-1627, 1575.42	1616-1627 / 1575.42	1575.42	1575.42	1616-1627 / 1575.42	1575.42
Technology	GPS + GLONASS	GPS + GLONASS	GPS	GPS	GPS + GLONASS	GPS
Peak Gain	< 4 dBi	< 5 dBi	22±2	22±2	28±2	28±2
VSWR	1.3	1.3	1.5	1.5	1.5	2
Connector Type	SMD	SMD	IPEX I	IPEX I	IPEX I	IPEX I
Dimensions (mm)	18*18*4	25*25*4	15*15*7	13*13*7	25*25*9	18*18*7
Cable Length (mm)	-	-	-	-	-	-
IP Rate	-	-	-	-	-	-

# MIOT Antennas

## Combo External & Internal Antennas

Product	L-5RA3	L-5RA4	L-5MA1	L-5MA2	L-5RS5	D-1RS6
						
Frequency Bands (MHz)	698~960, 1710~5000	698~960, 1710~5000	700~960, 1710~2700, 3400~3800	700~960, 1710~2700	690~960, 1710~2700	700-5000, 1561-1575, 2.4G-5.8G
Technology	5G, LTE, 2.4G WIFI	5G, LTE, 2.4G WIFI	5G, LTE, WCDMA & WIFI	5G, LTE, 2.4G WIFI	5G, LTE, 2.4G WIFI	5G*4, GPS + BT/WIFI
Peak Gain	<6 dBi	<9 dBi	4.0 DBi	4.0 DBi	3 DBi	< 5 dBi
VSWR	1.8	2	4.0	4.0	2.0	2
Connector Type	SMA Male (center pin)	-	SMA	SMD	SMA Male (center pin)	SMA Male (center pin)
Dimensions (mm)	195*25	297*210*65	25 x 7 x 3	36 x 7 x 3	190x16	135*38
Cable Length (mm)	-	-	-	-	-	1000
IP Rate	-	-	-	-	-	66

## Combo External & Internal Antennas

Product	D-1RS5	D-1RC3	L-1RB3	L-1RB4	L-1RB5	L-1RB7
						
Frequency Bands (MHz)	700-5000, 1561-1575, 2.4G-5.8G	1574-1577, 698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2500-2700	698-960, 1710-2170, 2400-2700	698-960, 1710-2170, 2400-2700	698-960, 1710-2170, 2500-2700, 2400-2500
Technology	LTE,GPS + BT/WIFI	LTE (4G) + GPS	LTE(4G)+2.4G	LTE(4G)+2.4G	LTE(4G)+2.4G	LTE (4G) + 2.4G
Peak Gain	< 5 dBi	< 4 dBi	< 6 dBi	< 6 dBi	< 2 dBi	< 8 dBi
VSWR	2	2.1	1.7	1.4	1.6	1.7
Connector Type	SMA-RP Male (center pin)	SMA Male (center pin)	SMA Female (center pin)	SMA Male (center pin)	SMA Male (center pin)	SMA Male (center pin)
Dimensions (mm)	85*25	48*50	115*11	80*12	116*22	175*20
Cable Length (mm)	600	1500	-	-	3000	-
IP Rate	66	66	-	66	55	-

# Applications

MIOT Wireless Solutions can be your gateway to a world of possibilities powered by our IoT antennas. Myriad applications come to life through seamless connectivity. From enhancing urban living to optimizing industrial processes, from enabling efficient logistics to transforming healthcare, our IoT antennas are designed to pave the way for a smarter, interconnected future.



## Smart City & Infrastructure

IoT antennas enable smart city solutions like smart lighting, waste management, and traffic control. They connect devices to central systems for efficient management.

*e.g. Smart streetlights, waste bins, parking meters, pedestrian safety, traffic control*



## Industrial Automation

Antennas are essential in industrial environments for real-time monitoring, asset tracking, and predictive maintenance, enhancing productivity and safety.

*e.g. Manufacturing robots, remote machinery, sensor-equipped machinery.*



## Agriculture & Precision Farming

IoT antennas enable precision agriculture, facilitating remote monitoring of crops, soil conditions, and irrigation systems, leading to optimized yield.

*e.g. Soil moisture sensors, crop health monitoring devices.*



## Healthcare & Remote Monitoring

Antennas enable remote patient monitoring, wearable health devices, and telemedicine applications, enhancing healthcare accessibility and patient care.

*e.g. Wearable fitness trackers, medical monitoring devices, remote patient care*



## Transportation & Fleet Management

IoT antennas facilitate real-time tracking and communication in transportation, managing vehicle fleets, optimizing routes, and enhancing logistics.

*e.g. GPS trackers, vehicle telematics devices, Smart toll,*



## Environmental Monitoring

Antennas are crucial for monitoring environmental parameters such as air quality, pollution levels, and weather conditions for research and public safety.

*e.g. Air quality sensors, weather stations, pet trackers*



## Retail & Inventory Management

IoT antennas facilitate inventory tracking, enabling retailers to manage stock levels, reduce wastage, and enhance customer experiences.

*e.g. Smart tags, POS devices, smart shelves, contactless payment.*



## Energy Management

IoT antennas enable energy monitoring and management, optimizing consumption patterns, and reducing costs for both residential and commercial users.

*e.g. Smart thermostats, smart appliances, energy consumption meters.*



## Asset Tracking & Logistics

IoT antennas enable real-time tracking of assets throughout the supply chain, ensuring transparency, security, and efficient logistics.

*e.g. Shipping containers, package tracking devices, inventory management*

**miot** wireless solutions

Design. Connect. Thrive



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