Unictron
Technologies Corp.

Antenna Catalog

Connect with Sense

Dear valued partners and customers,

Unictron, a major antenna solutions provider in Taiwan, is staffed with a strong antenna engineering team having passion and solid technology background. We are here to support all your needs in product development and antenna implementation. We aim to increase the performance of your products and help you deliver the value of your company to your customers.

Unictron is the best chip antennas provider in the industry. Our proprietary design of tuning elements can compensate up to 250MHz of frequency shift when you are implementing TELA chip antennas. When you re-design circuit board or change the housing of your devices, the original antennas you have ordered can still be used in your new products. No obsolete inventory will occur when you are using our TELA chip antennas. We also provide full spectra of antenna products including patch antennas and modules, PCB/FPC antennas, metal-stamping antennas, LDS antennas and varieties of external antenna modules. In the past years, we have been awarded or applied over 50 international patents which demonstrates our intensity in building up cutting edge technologies. With our well-trained and experienced engineering team, Unictron is more than happy to cooperate with your engineering team to attack any challenge in antenna development of your new wireless devices.

We sincerely appreciate your comment and feedback about our services, antenna performances and where we need to make improvements. Let's work together to achieve our mutual benefits and future prosperity.

Warmest regards,

Andy Su,
Chairman
Unique Electronics You Need!

Chip antennas

Unictron's proprietary TELA technology enable fast frequency tuning feature on all TELA chip antennas. Adjusting the antenna frequency is as easy as changing a RLC component. Designers can now fully optimize the frequency and impedance tuning without a compromise.

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PCB/FPC antennas

PCB and FPC antennas are assembled with cable and connector according to customers' specification. It is a great internal solution when layout space is limited.

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Antenna module

Generally speaking, the trend of electronic products has become compact and multifunctional. Thus, Unictron has announced the release of our GNSS active antenna module that integrates a patch antenna and a low-noise-amplifier (LNA). Don't miss out our newly released High Precision GNSS antenna module.

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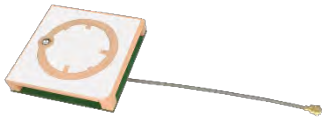

External / Customized antennas

Unictron is manufacturing also other antenna types (like NFC, metal stamping, LDS) and customizing antennas to fit the specific environment of customers' devices. Check out our most advanced 5in1 (MIMO LTE + MIMO WiFi + GNSS) and high precision GPS L1/L2/L5 solution!

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About us

Unictron's story

Unictron was founded in 1988. Since then we had expanded our office areas and production sites, currently employing over 500 staff.

With the engineering team and own manufacturing, we control whole production process, starting from preparing the ceramic material till the final quality control.

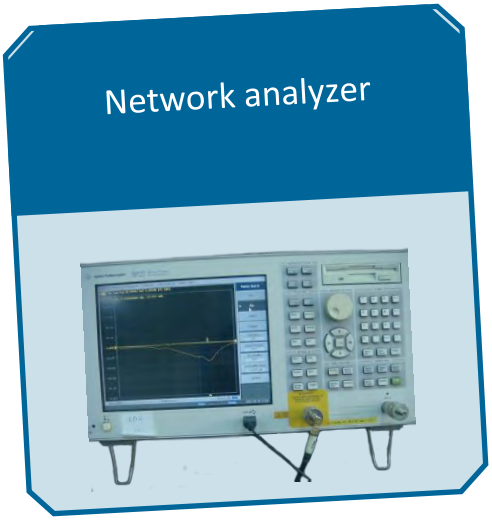
Dry press for patch antenna manufacturing

Every antenna piece leaving our factory is tested so that 100% quality of our products is guaranteed. Our high quality is confirmed also by everyday usage in automotive industry.

Unictron is truly the leader in high performance miniature chip antennas. Many portable devices like wireless earphones, trackers, smart home controllers using only 3.2 × 1.6 × 0.5 mm chip antennas for Wi-Fi, Bluetooth (BLE), ZigBee, GPS and Glonass, and 5.0 × 3.0 × 0.5 mm chip antenna for 868MHz and 915MHz frequencies.

Our services include tuning of the antennas (chip, patch) inside the customer's devices using our 2D and 3D anechoic chambers for the optimal performance. We also help our customers with non-standard products to implement customized PCB / FPC / LDS antennas.

Network analyzer



About us

Over the years, Unictron perfected its manufacturing capabilities which resulted in customers in automotive industry and certificates proving the automotive standards.

ISO 9001:2015

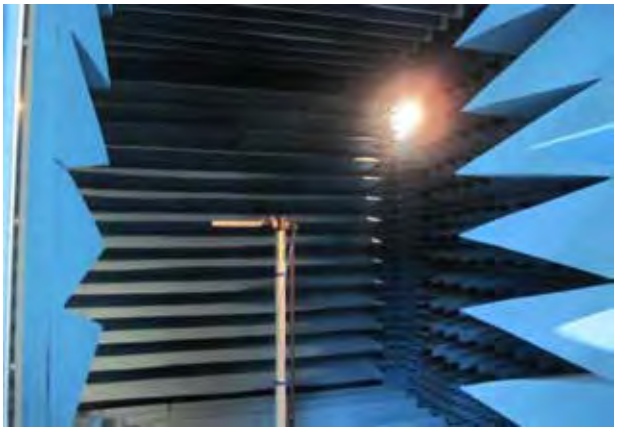
ISO 14001:2015

IAFT 16949:2016

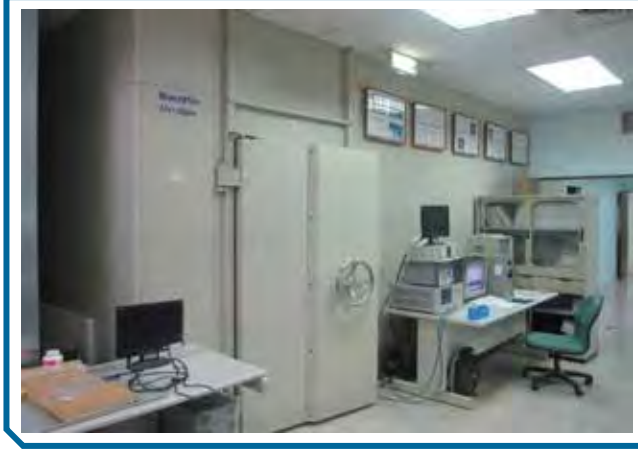
About us

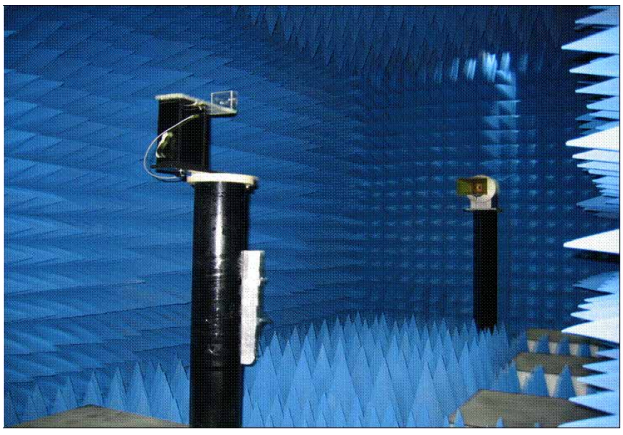
Together with production capabilities, Unictron has strong engineering team and various state-of-art equipment.

3D anechoic chamber



2D anechoic chamber





Artificial Head & Artificial Hand for testing wearables and IoT devices

Unictron
Technologies Corp.

Chip antennas

Chip antennas

Chip antennas: miniature in size, friendly to use

Traditional chip antennas are so called monopole, where one end of chip antenna is connected to the feed line and the other end is free. Unictron's chip antenna are designed as loop antennas, meaning that one end of chip antenna is connected to the feed line and the other end is grounded. Besides the loop design, our chip antennas consider frequency tuning element in the layout. This unique feature resulted in trademark of TELA antenna. **TELA** stands for Tuning Element Loop Antenna.

All chip antennas from Unictron are fairly omni-directional and developed to be mounted with SMD technology.

Please visit our website to get the latest datasheet and the layout overview.

On www.unictron.com search for the Model name shown in the tables below.

Wi-Fi/ZigBee/Bluetooth

Model name	AA055U	AA080	CW201
			
Size [mm]	3.2 × 1.6 × 0.5	1.6 × 0.8 × 0.3	2.0 × 1.2 × 0.6
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	1.8 (typical)	-0.3 (typical)	2.0 (typical)
VSWR	2 max. (typical)	2.5 max. (typical)	2 max. (typical)
Type	**TELA**	**TELA**	**TELA**
Polarization	Linear	Linear	Linear
Part Number	H2U34W1H1Z0700	H2UB4K1H1B0100	H2U34C1H1B0100

Did you know?

The bigger the mother board, the better the gain of chip antenna.

Chip antennas

Model name	CW325	CW324	CW324S
			
Size [mm]	3.2 × 1.6 × 1.6	3.2 × 1.6 × 1.3	3.2 × 1.6 × 1.3
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	1.9 (typical)	1.2 (typical)	1.5 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	Monopole	Monopole
Polarization	Linear	Linear	Linear
Part Number	H2U36D1K1B0300	H2U36D1K1B0100	H2U38D1E1B0100

Model name	CW321	CW503	AA029
			
Size [mm]	3.2 × 1.6 × 0.5	5.0 × 2.2 × 1.0	5.0 × 2.2 × 1.6
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	0.6 (typical)	1.9 (typical)	2.2 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	Monopole	Monopole
Polarization	Linear	Linear	Linear
Part Number	H2U34D1L1B0200	H2U36F1K1B0300	H2U262GKBA0100

Chip antennas

Model name	AA070	CW804	CW706
			
Size [mm]	3.2 × 1.6 × 0.5	8.0 × 1.0 × 1.3	7.0 × 2.0 × 2.0
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	2.6 (typical)	0.9 (typical)	2.0 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	Monopole	Monopole
Polarization	Linear	Linear	Linear
Part Number	H2U34W1H1B1200	H2U36G2K1B0100	H2U36G4K1B0100

Model name	CW504	CW337	CW10D7
			
Size [mm]	5.0 × 1.0 × 1.3	3.0 x 3.0 × 3.3	3.0 x 3.0 × 10.0
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	1.9 (typical)	-0.4 (typical)	3.4 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	**Pillar**	**Pillar**
Polarization	Linear	**Vertical**	**Vertical**
Part Number	H2U36F1K1B0100	H2UB6D1K1B0100	H2U36D2K1B0100

Distinctive features of pillar antennas

CW337 was specially developed for True Wireless Earphones (TWS).
It doesn't require clearance area to provide a Bluetooth connectivity.
CW10D7 has a better throughput of Wi-Fi signal than 3dBi rubber duck antennas on home routers.

Chip antennas

Model name	CW501S	CW801S	CW323S
			
Size [mm]	5.0 × 1.0 × 0.5	8.0 x 1.0 × 0.5	3.2 x 1.6 × 1.0
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	0.7 (typical)	0.5 (typical)	0.6(typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	Monopole	**TELA**
Polarization	Linear	Linear	Linear
Part Number	H2U36F1L1B0100	H2U36G1L1B0100	H2U34D1L1B0500

Wi-Fi 5GHz (HDMI)

Model name	AA106	AA076	CH10D7
			
Size [mm]	3.2 × 1.6 × 0.5	3.2 × 1.6 × 0.5	3.0 × 3.0 × 10.0
Frequency [MHz]	5150 – 5850	5150 – 5850	5150 – 5850
Peak Gain [dBi]	3.4 (typical)	1.7 (typical)	3.4 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	Monopole	**TELA**	**Pillar**
Polarization	Linear	Linear	**Vertical**
Part Number	H2U34W1H1Q0500	H2U34W1H1Q0600	H2UH6D2K1Q0100

Chip antennas

Wi-Fi Dual Band

Upgrade your 2.4GHz Wi-Fi device by adding 5GHz band. The dual band Wi-Fi chip antenna AA077 is of the same size as AA055A, only 3.2 × 1.6 × 0.5 mm.

Model name	AA077U (Best Seller)	CU325	CU323
			
Size [mm]	3.2 × 1.6 × 0.5	3.2 × 1.6 × 1.6	3.2 × 1.6 × 1.0
Frequency [MHz]	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5850
Peak Gain [dBi]	① 1.4 (typical) ② 2.3 (typical)	① 2.4 (typical) ② 1.8 (typical)	① 2.4 (typical) ② 1.6 (typical)
VSWR	① 2 max. (typical) ② 2 max. (typical)	① 2 max. (typical) ② 2.5 max. (typical)	① 2 max. (typical) ② 2.5 max. (typical)
Type	**TELA**	Monopole	Monopole
Polarization	Linear	Linear	Linear
Part Number	H2U84W1H1S0800	H2U86D1K1P0100	H2U86D1K1P0200

Model name	CU10D7	CU10D7S	CU10D7W
			
Size [mm]	3.0 × 6.0 × 10.0	3.0 × 6.0 × 10.0	3.0 × 6.0 × 10.0
Frequency [MHz]	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5850
Peak Gain [dBi]	① 1.2 (typical) ② 2.6 (typical)	① 1.2 (typical) ② 2.6 (typical)	① 1.2 (typical) ② 3.1 (typical)
VSWR	① 2 max. (typical) ② 2 max. (typical)	① 2 max. (typical) ② 2 max. (typical)	① 2.5 max. (typical) ② 2.5 max. (typical)
Type	**Pillar**	**Pillar**	**Pillar**
Polarization	**Vertical**	**Vertical**	**Vertical**
Part Number	H2U86D2K1S0100	H2U86D2K1S0300	H2U86D2K1S0400

Wi-Fi 6E

To speed up the traditional Wi-Fi and allow more devices to be connected at the same time, new frequency band has been added (6GHz). We can support you either on adding new antenna to your current Wi-Fi device, or change for a combo antenna enabling all 3 frequency bands (2.5GHz, 5GHz, 6GHz).

Model name	CE807	CK10D7	CT321S
			
Size [mm]	3.0 × 3.0 × 8.0	3.0 × 6.0 × 10.0	3.2 × 1.6 × 0.5
Frequency [MHz]	5925 – 7125	① 5150 – 5850 ② 5925 – 7125	① 2400 – 2500 ② 5150 – 5850 ③ 5925 – 7125
Peak Gain [dBi]	3.5 (typical)	① 3.3 (typical) ② 3.8 (typical)	① 2.3 (typical) ② 1.5 (typical) ③ 2.5 (typical)
VSWR	2 max. (typical)	① 2 max. (typical) ② 2 max. (typical)	① 2 max. (typical) ② 3 max. (typical) ③ 3 max. (typical)
Type	**Pillar**	**Pillar**	Monopole
Polarization	**Vertical**	**Vertical**	Linear
Part Number	H2UM6D1K2T0100	H2U86D2K2X0100	H2UM4W1L1B0100

Not familiar with Unictron's chip antenna?

Request the evaluation board and try it yourself.

Navigation antennas

Chip antennas break the traditional approach of implementing navigation functionality of the wireless device. Even though the size is very small compared to patch antennas, the navigation is still precise enough and fast for many tracking applications like wildlife animals tracking, car tracking and other outdoor navigation. Furthermore, omnidirectional radiation pattern helps to ensure that GPS signal is received no matter the orientation of the device in regards to the sky.

GNSS (GPS, GLONASS, BEIDOU, GALILEO)

Model name	AA088U	AA064B
		
Size [mm]	3.2 × 1.6 × 0.5	10.0 × 3.2 × 3.9
Frequency [MHz]	1560 – 1606	1560 – 1606
Peak Gain [dBi]	3.3 (typical)	3.0 (typical)
VSWR	2 max. (typical)	2 max. (typical)
Type	**TELA**	**TELA**
Polarization	Linear	Linear
Part Number	H2UJ4W1H1A0200	H2U1631S1A0200

Model name	AA065A	CG508
		
Size [mm]	10.0 x 3.2 x 2.0	5.0 x 3.0 x 4.0
Frequency [MHz]	1560 – 1606	1560 – 1606
Peak Gain [dBi]	2.7 (typical)	1.5 (typical)
VSWR	2 max. (typical)	2 max. (typical)
Type	**TELA**	**Pillar**
Polarization	Linear	Linear
Part Number	H2UJ6V1A2A0100	H2UJ6F1K2A0100

Chip antennas

GNSS (GPS / GLONASS / BDS) & Wi-Fi (2.4GHz)/ Bluetooth

Model name	AA089U

Size [mm]		3.2 × 1.6 × 0.5
Frequency [MHz]	①	1560 – 1606
	②	2400 – 2500
Peak Gain [dBi]	①	1.3 (typical)
	②	1.8 (typical)
VSWR	①	2 max. (typical)
	②	2 max. (typical)
Type		**TELA**
Polarization		Linear
Part Number		H2U94W1H1G0600

Logo

Unictron's antennas are marked with logo. The small chip antennas show at least letter "U" as the marking.

GNSS & Wi-Fi Dual Band (2.4GHz & 5GHz)

Model name	AA099U

Most Advanced

Size [mm]		3.2 × 1.6 × 0.5
Frequency [MHz]	①	1560 – 1606
	②	2400 – 2500
	③	5150 – 5850
Peak Gain [dBi]	①	1.5 (typical)
	②	0.4 (typical)
	③	2.3 (typical)
VSWR	①	2 max. (typical)
	②	2 max. (typical)
	③	3 max. (typical)
Type		**TELA**
Polarization		Linear
Part Number		H2UC4W1H2D0600

The most advanced chip antenna on the market

AA099U offers navigation and WiFi/Bluetooth functionality in one chip antenna. The implementation includes one feed line for all frequencies, or one feed line for navigation and second feed for WiFi/Bluetooth.

Multi-bands GNSS (L1 & L2 & L5 & L6)

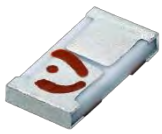
Model name	CB501F

Size [mm]		5.0 × 3.0 × 0.5
Frequency [MHz]	①	1560 – 1606
	②	1176.45
	③	1227.6
	④	1278.75
Peak Gain [dBi]	①	2.3 (typical)
	②	1.7 (typical)
	③	2.0 (typical)
	④	1.7 (typical)
VSWR	①	2 max. (typical)
	②	2.5 max. (typical)
	③	3.0 max. (typical)
	④	4.0 max. (typical)
Type		**TELA**
Polarization		Linear
Part Number		H2UJ4U1H2Q0100

Precise navigation

CB501F uses dual frequencies: GPS L1+L2 or GPS L1+L5/L6, which provides better position accuracy for asset tracking or navigation.

Model name	CB321F



Size [mm]		3.2 × 1.6 × 0.5
Frequency [MHz]	①	1560 – 1606
	②	1176.45
Peak Gain [dBi]	①	1.7 (typical)
	②	0.3(typical)
VSWR	①	2 max. (typical)
	②	2 max. (typical)
Type		**TELA**
Polarization		Linear
Part Number		H2UJ4W1H2Q0100

Chip antennas for ISM frequencies

ISM stands for Industrial, Scientific and Medical radio bands. Usually these frequencies doesn't require license and are great for sending small packets of data through long distance. These frequencies are also a popular choice when one would like to avoid having GSM subscription when sending data over several kilometers distance.

ISM 433MHz

Model name	C4501	AA187
		
Size [mm]	5.0 × 3.0 × 0.5	16.0 × 5.1 × 0.8
Frequency [MHz]	433.05 – 434.79	433.05 – 434.79
Peak Gain [dBi]	-7.3 (typical)	-4.7 (typical)
VSWR	2 max. (typical)	2 max. (typical)
Type	**TELA**	Monopole
Polarization	Linear	Linear
Part Number	H2U64U1H2J0100	H2U66K1K1V0100

Model name	C420D5	C412D5
		
Size [mm]	20.0 × 5.0 × 1.6	12.0 × 5.0 × 1.6
Frequency [MHz]	① 433.05 – 434.79 ② 450.00 – 510.00	① 433.05 – 434.79 ② 450.00 – 510.00
Peak Gain [dBi]	① -0.2 (typical) ② -0.2 (typical)	① -4.9 (typical) ② -2.2 (typical)
VSWR	① 2 max. (typical) ② 2.5 max. (typical)	① 2 max. (typical) ② 2.5 max. (typical)
Type	Monopole	Monopole
Polarization	Linear	Linear
Part Number	H2U66K1K2J0100	H2U66J1K2J0100

Same antenna for various frequencies

Antennas from this page can be tuned to any from the supported frequencies. If your product is promoted in areas preferring 868MHz or in areas with preferred 915MHz, device need to have only one design, one chip antenna. Difference will be the tuning element (capacitor) to achieve the desired frequency.

Chip antennas

ISM 868MHz

Model name	AA701	C812D5	AA067
			
Size [mm]	5.0 × 3.0 × 0.5	12.0 × 4.0 × 1.6	10 x 3.2 x 0.5
Frequency [MHz]	863 – 870	863 – 870	863 – 870
Gain [dBi]	-0.9 (typical)	-0.6 (typical)	0.5 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	**TELA**	Monopole	**TELA**
Polarization	Linear	Linear	Linear
Part Number	H2U64U1H2B0200	H26U66J1K2B0100	H2U646MTNW0100

ISM 915MHz

Model name	AA702	C912D5	AA066
			
Size [mm]	5.0 × 3.0 × 0.5	12.0 × 4.0 × 1.6	10 x 3.2 x 0.5
Frequency [MHz]	902 – 928	902 – 928	902 – 928
Gain [dBi]	0.8 (typical)	-1.0 (typical)	0.9 (typical)
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Type	**TELA**	Monopole	**TELA**
Polarization	Linear	Linear	Linear
Part Number	H2U64U1H2C0200	H2U66J1K2C0100	H2U646MHLQ0200

Chip antennas

ISM 868/915MHz

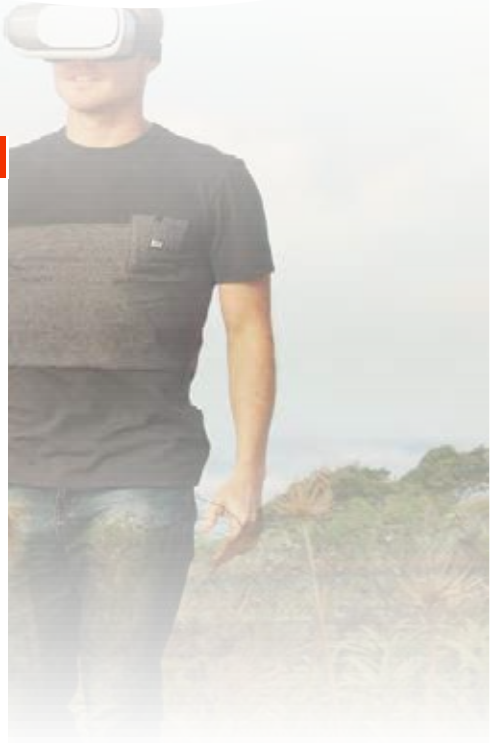
Model name		C8B706
		
Size [mm]		7.0 × 2.0 × 2.0
Frequency [MHz]	①	863 – 870
	②	902 – 928
Gain [dBi]	①	-5.6 (typical)
	②	-4.9 (typical)
VSWR	①	2 max. (typical)
	②	2 max. (typical)
Type		Monopole
Polarization		Linear
Part Number		H2U66G1K2L0100

NB-IoT

Model name	CB501
	
Size [mm]	5.0 x 3.0 x 0.5
Frequency [MHz]	1920-1980/2110-2170 1710-1785/1805-1880
Gain [dBi]	2.0 / 1.0 (typical) 1.4 / 1.6 (typical)
VSWR	3.5 max. (typical)
Type	TELA
Polarization	Linear
Part Number	H2UK4U1H2P0100

ISM 433/868/915MHz

Model name		C4T906	C4T11D5
			
Size [mm]		9.0 × 4.0 × 2.0	10.5 × 3.0 × 1.6
Frequency [MHz]	①	433.05 – 434.79	433.05 – 434.79
	②	863 – 870	863 – 870
	③	902 – 928	902 – 928
Gain [dBi]	①	N/A	N/A
	②	-5.6 (typical)	-2.1 (typical)
	③	-2.9 (typical)	-1.9 (typical)
VSWR		2 max. (typical)	2 max. (typical)
Type		Monopole	Monopole
Polarization		Linear	Linear
Part Number		H2U66H1K2L0100	H2U66H1K2M0100



Chip antennas

3G/GSM

Model name	CC26DV	CC26DH	CC26DH2
			
Size [mm]	26.2× 7.85 × 3.2	26.0 × 7.65 × 3.2	26.0 × 7.65 × 0.9
Frequency [MHz]	① 824 – 960 ② 1710 – 2170	① 824 – 960 ② 1710 – 2170	① 824 – 960 ② 1710 – 2170
Gain [dBi]	① 1.0 (typical) ② 2.2 (typical)	① 1.1 (typical) ② 2.4 (typical)	① 1.4 (typical) ② 2.9 (typical)
VSWR	3 max. (typical)	3 max. (typical)	3 max. (typical)
Type	Monopole	Monopole	Monopole
Polarization	Linear	Linear	Linear
Orientation	Vertical	Horizontal	Horizontal
Part Number	H2UA6K2K1N0100	H2UA6K2K1N0200	H2UA6K2K1N0500

Model name	CC40D7	CC40D2
		
Size [mm]	40.4 × 10.8 × 3.2	40.8 × 10.8 × 0.8
Frequency [MHz]	① 824 – 960 ② 1710 – 2170	① 824 – 960 ② 1710 – 2170
Gain [dBi]	① 1.7 (typical) ② 2.9 (typical)	① 1.5 (typical) ② 2.5 (typical)
VSWR	3 max. (typical)	3 max. (typical)
Type	Monopole	Monopole
Polarization	Linear	Linear
Orientation	Horizontal	Horizontal
Part Number	H2UE6P1K2G0100	H2UE6P1K1N0100

Unictron Technologies Corp.

Chip antennas

LTE Full-Band

Model name	CC40D9	CC35D8
		
Size [mm]	40.0 × 5.0 × 6.0	35.0 × 5.0 × 4.0
Frequency [MHz]	① 698 – 798 ② 824 – 960 ③ 1710 – 2170 ④ 2300 – 2400 ⑤ 2490 – 2690	① 698 – 798 ② 824 – 960 ③ 1710 – 2170 ④ 2300 – 2400 ⑤ 2490 – 2690
Gain [dBi]	① 1.4 (typical) ② 0.7 (typical) ③ 3.2 (typical) ④ 3.8 (typical) ⑤ 4.2 (typical)	① 1.3 (typical) ② 1.0 (typical) ③ 2.6 (typical) ④ 4.4 (typical) ⑤ 4.2 (typical)
VSWR	① 3.5 max. (typical) ② 3.5 max. (typical) ③ 3.5 max. (typical) ④ 3.5 max. (typical) ⑤ 3.5 max. (typical)	① 3.5 max. (typical) ② 3.5 max. (typical) ③ 3.5 max. (typical) ④ 3.5 max. (typical) ⑤ 3.5 max. (typical)
Type	Monopole	Monopole
Polarization	Linear	Linear
Orientation	Horizontal	Horizontal
Part Number	H2UE3P1D2G0100	H2UE3P2D2G0100

Best Seller

Smallest LTE chip antenna

Smallest LTE chip antenna on the market

The CC35D8 is currently the smallest Full-LTE chip antenna available on the market. It is suitable for devices with PCB size around 120 x 40 mm. To achieve optimal performance, please contact Unictron's team for simulation reports and further design assistance.

Chip antennas

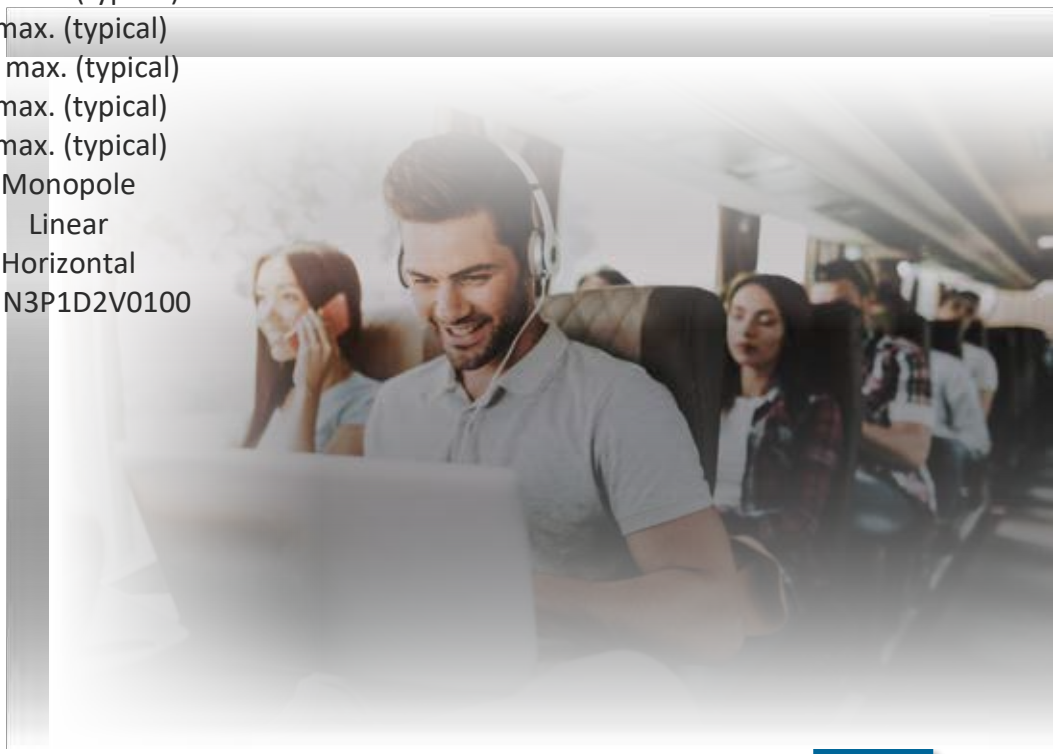
LTE Full-Band

Model name	CC40D7F	CC40D7J
		
Size [mm]	40.4 × 10.8 × 3.2	40.0 × 7.0 × 3.0
Frequency [MHz]	① 698 – 798 ② 824 – 960 ③ 1710 – 2170 ④ 2300 – 2400 ⑤ 2490 – 2690	① 698 – 798 ② 824 – 960 ③ 1710 – 2170 ④ 2300 – 2400 ⑤ 2490 – 2690
Gain [dBi]	① 1.0 (typical) ② 0.4 (typical) ③ 4.0 (typical) ④ 4.4 (typical) ⑤ 4.5 (typical)	① 2.3 (typical) ② 2.1 (typical) ③ 6.4 (typical) ④ 6.8 (typical) ⑤ 5.8 (typical)
VSWR	① 3.5 max. (typical) ② 3.5 max. (typical) ③ 3.5 max. (typical) ④ 3.5 max. (typical) ⑤ 3.5 max. (typical)	① 5 max. (typical) ② 5 max. (typical) ③ 3.5 max. (typical) ④ 3.5 max. (typical) ⑤ 3.5 max. (typical)
Type	Monopole	Monopole
Polarization	Linear	Linear
Orientation	Horizontal	Horizontal
Part Number	H2UE6P1K2G0300	H2UE6Q1K2G0100

5G FR1/4G/LTE Full-Band

Model name	CX40D9

Size [mm]		40.0 × 5.0 × 6.0
Frequency [MHz]	①	617 – 960
	②	1710 – 2170
	③	2300 – 2690
	④	3300 – 4200
	⑤	4400 – 5000
	⑥	5150 – 5925
Gain [dBi]	①	0.5 (typical)
	②	2.9 (typical)
	③	3.0 (typical)
	④	2.5 (typical)
	⑤	0.7 (typical)
	⑥	-1.3 (typical)
VSWR	①	4 max. (typical)
	②	2.5 max. (typical)
	③	3 max. (typical)
	④	3.5 max. (typical)
	⑤	3 max. (typical)
	⑥	5 max. (typical)
Type		Monopole
Polarization		Linear
Orientation		Horizontal
Part Number		H2UN3P1D2V0100



Chip antennas

UWB

Model name	CR601	CR702	CR801
			
Size [mm]	6.0 × 5.0 × 0.5	7.0 × 3.0 × 1.0	8.0 × 6.0 × 0.5
Frequency [MHz]	6000 – 8000	3300 – 5000	3500 – 8500
Gain [dBi]	6.3 (typical)	4.5 (typical)	3.1 (typical)
VSWR	3 max. (typical)	3 max. (typical)	4 max. (typical)
Type	Monopole	Monopole	Monopole
Polarization	Linear	Linear	Linear
Orientation	Horizontal	Horizontal	Horizontal
Part Number	H2UL4F1T2W0100	H2UL6G1K2U0100	H2UL6G1T2W0100

Each chip antenna can be provided on a demo board for convenience of initial testing. Demo boards are of standardized sizes with SMA connector, however, upon request we can modify the size of the board or connector type. Our team will gladly help you with the implementation of antenna design in your particular device.

Demo board with GSM chip antenna

Demo board with GPS chip antenna

Chip antennas

V2X/DSRC

Model name	CH16G

Size [mm]	1.6 × 0.8 × 0.3
Frequency [MHz]	① 5150 – 5850 ② 5850 – 5925
Gain [dBi]	① 0.6 (typical) ② 1.8 (typical)
VSWR	① 2.5 max. (typical) ② 2 max. (typical)
Type	**TELA**
Polarization	Linear
Part Number	H2UH4B1H2N0100

DECT

Model name	AA081

Size [mm]	3.2 × 1.6 × 0.5
Frequency [MHz]	1880 – 1930
Gain [dBi]	1.5 (typical)
VSWR	2 max. (typical)
Type	**TELA**
Polarization	Linear
Part Number	H2U74W1H1M0100

FM

Model name	AA047

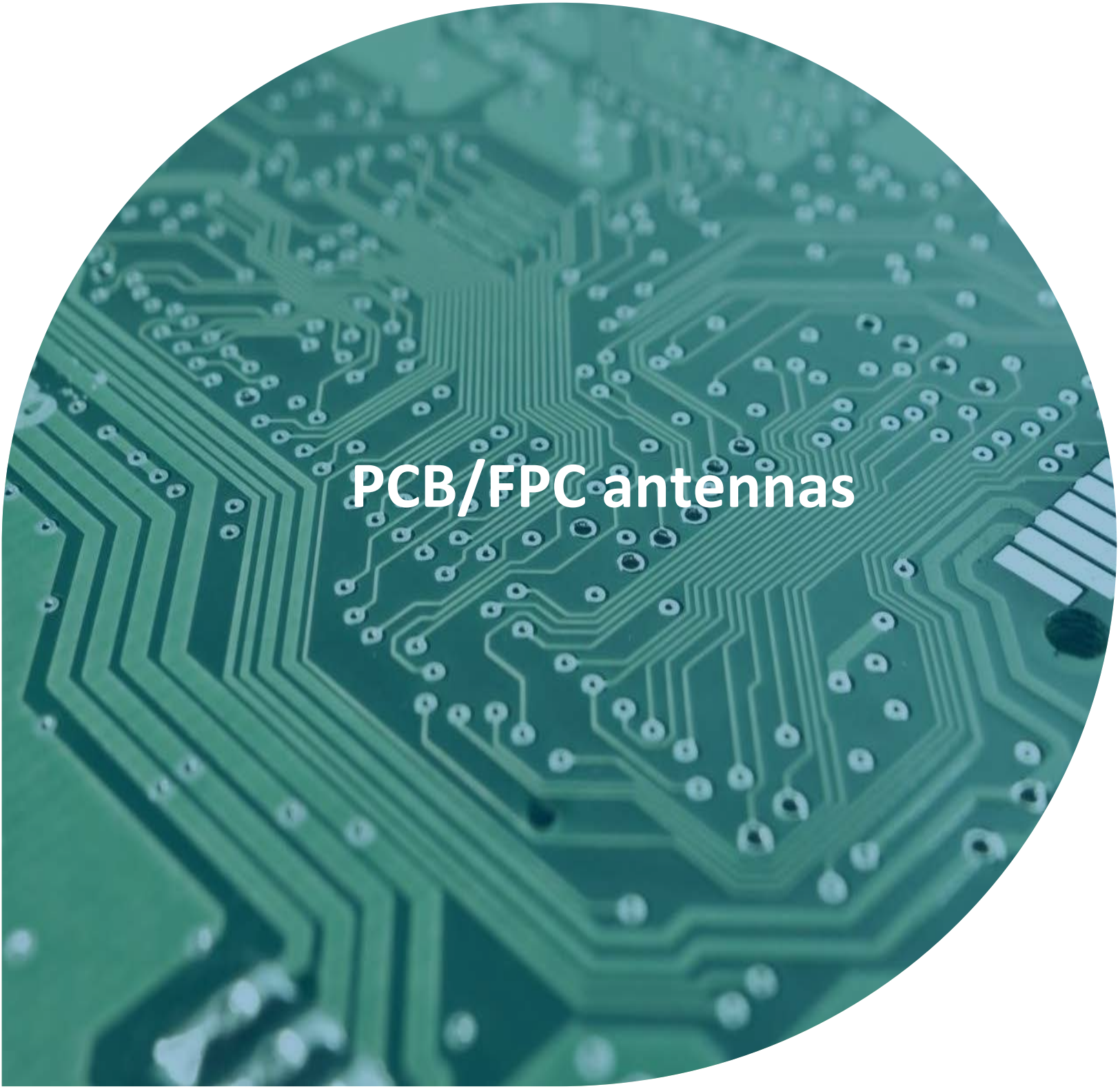
Size [mm]	25.2 × 5.1 × 0.8
Frequency [MHz]	87.5 – 108
Gain [dBi]	N/A
VSWR	2 max. (typical)
Type	Monopole
Polarization	Linear
Part Number	H2U566KKJA0100

TELA
(Tuning Element Loop Antenna)

TELA antennas are unique chip antenna series developed by Unictron Technologies. These high performance patented design of TELA antennas are widely used in various applications by internationally renowned companies.

With proprietary design of tuning element, the resonant frequencies of antennas can be fine-tuned easily to accommodate the changes of circuit board or housing. The same standard ground plane layout can be used in various devices. With this user-friendly design methodology, the antenna design-in process can be easily done by users themselves. Quick-turn-around product design can be easily achieved.

Unictron Technologies Corp.



PCB/FPC antennas

PCB/FPC antennas

PCB and FPC antennas are a great choice when there is not enough space on the mother PCB for chip antenna. PCB and FPC are assembled with cable and connector according to customers' specification. The body includes double-sided tape, so the antenna can be easily stuck on the surface inside or outside the housing.

Wi-Fi / ZigBee / Bluetooth

Model name	AA107	AA273	FP-W07
			
Size [mm]	50.0 × 5.0 × 0.5	30.0 × 5.0 × 0.5	5.6 x 3.9 x 0.25
Frequency [MHz]	2400 – 2500	2400 – 2500	2400 – 2500
Peak Gain [dBi]	3.3 dBi	3.2 dBi	5.16 dBi
VSWR	2 max. (typical)	2 max. (typical)	< 3
Polarization	Linear	Linear	Linear
Cable [mm]	100	100	70
Connector	IPEX MHFI	IPEX MHFI	IPEX MHFI
Material	PCB	PCB	FPC

Model name	WW20D1	WW20D0
		
Size [mm]	20.0 × 7.0 × 0.5	20.0 × 7.0 × 0.15
Frequency [MHz]	2400 – 2500	2400 – 2500
Peak Gain [dBi]	4.0 dBi	4.3 dBi
VSWR	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear
Cable [mm]	100	100
Connector	IPEX MHFI	IPEX MHFI
Material	PCB	PCB

Did you know?

- IPEX MHFI connector is fully compatible with U.FL connector.
- Thickness of the double-sided tape can be chosen from 0.2 mm to several mm.

Unictron Technologies Corp.

PCB/FPC antennas

Wi-Fi 6.5 GHz

Model name	PC-U601
	
Size [mm]	16.0 × 18.6 × 1.0
Frequency [MHz]	6250 – 6750
Peak Gain [dBi]	4.2 dBi
VSWR	< 3
Polarization	Linear
Impedance (Ω)	50
Material	PCB

Wi-Fi 5 GHz

Model name	AA272
	
Size [mm]	17.0 × 4.5 × 0.9
Frequency [MHz]	5150 – 5900
Peak Gain [dBi]	2.8 dBi
VSWR	2 max. (typical)
Polarization	Linear
Cable [mm]	100
Connector	IPEX MHFI
Material	PCB

Wi-Fi Dual Band

Model name	AA258	AA222	WU34D1
			
Size [mm]	25.0 × 7.0 × 0.5	40.0 × 6.0 × 0.5	34.0 × 13.0 × 0.5
Frequency [MHz]	① 2400 – 2500 ② 4900 – 5900	① 2400 – 2500 ② 4900 – 5900	① 2400 – 2500 ② 4900 – 5900
Gain [dBi]	① 0.9 dBi ② 3.8 dBi	① 2.6 dBi ② 3.3 dBi	① 2.8 dBi ② 2.5 dBi
VSWR	2 max. (typical)	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear	Linear
Cable [mm]	100	100	100
Connector	IPEX MHFI	IPEX MHFI	IPEX MHFI
Material	PCB	PCB	PCB

Best Seller

Wi-Fi Dual Band

Model name	GEPH-013	GEPH-021	GEPH-023
			
Size [mm]	26.5 × 11.0 × 1.8	30.0 × 15.6× 2.0	44.5 x 7.8 x 1.9
Frequency [MHz]	2400 – 2500 5150 – 5850	2400 – 2500 5150 – 5850	2400 – 2500 5150 – 5850
Gain [dBi]	8 dBi	5.5 dBi	7.5 dBi
VSWR	3 max. (typical)	3 max. (typical)	3 max. (typical)
Polarization	Linear	Linear	Linear
Cable [mm]	50	253	320
Connector	IPEX MHFI	IPEX MHFI	IPEX MHFI
Material	PCB	PCB	PCB

Model name	FP-WE04	FP-W18	WT32D1
			
Size [mm]	45.0 × 7.0 × 0.25	30.2 × 15.3× 0.25	32.0 × 13.0 × 0.5
Frequency [MHz]	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5850	① 2400 – 2500 ② 5150 – 5900 ③ 5925 – 7125
Peak Gain [dBi]	① 5.0 dBi ② 6.5 dBi	① 3.5 dBi ② 2.5 dBi	① 2.7 dBi ② 3.6 dBi ③ 4.9 dBi
VSWR	< 3	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear	Linear
Cable [mm]	150	60	100
Connector	IPEX MHF4L	IPEX MHF4L	IPEX MHFI
Material	FPC	FPC	PCB

PCB/FPC antennas

ISM 433MHz

Model name	W462D1	W462D0
		
Size [mm]	62.0 × 7.0 × 0.5	62.0 × 7.0 × 0.15
Frequency [MHz]	433	433
Peak Gain [dBi]	-0.9 dBi	-0.8 dBi
VSWR	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear
Standard cable [mm]	100	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC
Part Number	H2B1SF1A2H0100	H2B4SF1F2H0100

ISM 868MHz

Model name	W835D1	W835D0
		
Size [mm]	35.0 × 7.0 × 0.5	35.0 × 7.0 × 0.15
Frequency [MHz]	863 – 870	863 – 870
Peak Gain [dBi]	1.7 dBi	1.9 dBi
VSWR	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear
Standard cable [mm]	100	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC
Part Number	H2B1SD1A1S0100	H2B4SD1F1S0100

PCB/FPC antennas

ISM 915MHz

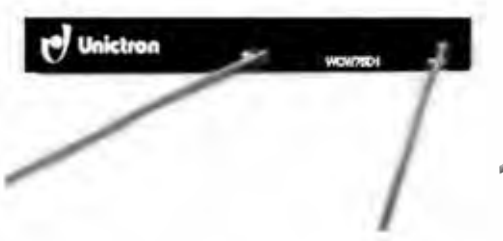
Model name	W935D1	W935D0
		
Size [mm]	35.0 × 7.0 × 0.5	35.0 × 7.0 × 0.15
Frequency [MHz]	902 – 928	902 – 928
Peak Gain [dBi]	2.0 dBi	2.3 dBi
VSWR	2 max. (typical)	2 max. (typical)
Polarization	Linear	Linear
Standard cable [mm]	100	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC

ISM 868 / 915MHz

Model name	GEPH-030	FP-C08
		
Size [mm]	34.3 × 7.3 × 1.9	60.0 × 20.0 × 0.25
Frequency [MHz]	868 / 915	868 / 915
Gain [dBi]	2 dBi	1.56 / 1.26 dBi
VSWR	< 2.5	< 3
Polarization	Linear	Linear
Standard cable [mm]	60	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC

PCB/FPC antennas

3G / GSM & Wi-Fi (2.4GHz)

Model name	WCW75D1	WCW75D0
		
Size [mm]	75.0 × 8.5 × 0.5	75.0 × 8.5 × 0.15
Frequency [MHz]	① 824 – 960	① 824 – 960
	② 1710 – 2170	② 1710 – 2170
	③ 2400 – 2500	③ 2400 – 2500
Peak Gain [dBi]	① 2.2 dBi	① 2.2 dBi
	② 2.0 dBi	② 2.0 dBi
	③ 1.5 dBi	③ 1.5 dBi
VSWR	3 max. (typical)	3 max. (typical)
Polarization	Linear	Linear
cable [mm]	100	100
connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC

3G / GSM / LTE Band 7

Model name		WC10H0
		
Size [mm]		106.0 × 13.0 × 0.15
Frequency [MHz]	①	824 – 960
	②	1710 – 2170
	③	2490 – 2690
Peak Gain [dBi]	①	2.1 dBi
	②	3.0 dBi
	③	2.7 dBi
VSWR		3 max. (typical)
Polarization		Linear
cable [mm]		100
connector		IPEX MHFI
Material		FPC

PCB/FPC antennas

3G / GSM

Model name	WC35D1	WC35D0
		
Size [mm]	35.0 × 7.0 × 0.5	35.0 × 7.0 × 0.15
Frequency [MHz]	① 824 – 960	① 824 – 960
	② 1710 – 2170	② 1710 – 2170
Peak Gain [dBi]	① 0.4 dBi	① 0.3 dBi
	② 1.5 dBi	② 0.6 dBi
VSWR	① 6 max. (typical)	① 6 max. (typical)
	② 3 max (typical)	② 3 max (typical)
Polarization	Linear	Linear
Standard cable [mm]	100	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC

3G / GSM

Model name	WC75D1	WC75D0
		
Size [mm]	75.0 × 8.5 × 0.5	75.0 × 8.5 × 0.15
Frequency [MHz]	① 824 – 960	① 824 – 960
	② 1710 – 2170	② 1710 – 2170
Peak Gain [dBi]	① 0.6 dBi	① 0.8 dBi
	② 3.9 dBi	② 2.7 dBi
VSWR	① 3 max. (typical)	① 3 max. (typical)
	② 3 max (typical)	② 3 max (typical)
Polarization	Linear	Linear
Standard cable [mm]	100	100
Standard connector	IPEX MHFI	IPEX MHFI
Material	PCB	FPC

PCB/FPC antennas

3G / GSM / LTE Full-Band

Model name		WC75D1L		WC75D0L
				
Size [mm]		75.0 × 8.5 × 0.5		75.0 × 8.5 × 0.15
Frequency [MHz]	①	698 – 960	①	698 – 960
	②	1710 – 2170	②	1710 – 2170
	③	2300 – 2400	③	2300 – 2400
	④	2490 – 2690	④	2490 – 2690
Peak Gain [dBi]	①	0.2 dBi	①	0.2 dBi
	②	3.6 dBi	②	3.7 dBi
	③	2.2 dBi	③	2.1 dBi
	④	3.1 dBi	④	3.0 dBi
VSWR	①	6.5 max. (typical)	①	9 max. (typical)
	②	3.5 max. (typical)	②	4 max. (typical)
	③	3.5 max. (typical)	③	4 max. (typical)
	④	3.5 max. (typical)	④	3.5 max. (typical)
Polarization		Linear		Linear
Standard cable [mm]		100		100
Standard connector		IPEX MHFI		IPEX MHFI
Material		PCB		FPC

3G / GSM / LTE Full-Band

Model name	WC12H1	WC12H0

Size [mm]		120.0 × 13.0 × 0.5		120.0 × 13.0 × 0.15
Frequency [MHz]	①	698 – 960	①	698 – 960
	②	1710 – 2170	②	1710 – 2170
	③	2300 – 2400	③	2300 – 2400
	④	2490 – 2690	④	2490 – 2690
Peak Gain [dBi]	①	2.8 dBi	①	2.8 dBi
	②	2.7 dBi	②	3.0 dBi
	③	3.2 dBi	③	2.6 dBi
	④	1.1 dBi	④	1.2 dBi
VSWR	①	2.5 max. (typical)	①	2.5 max. (typical)
	②	2.5 max. (typical)	②	2.5 max. (typical)
	③	2.5 max. (typical)	③	2.5 max. (typical)
	④	2.5 max. (typical)	④	2.5 max. (typical)
Polarization		Linear		Linear
Standard cable [mm]		100		100
Standard connector		IPEX MHFI		IPEX MHFI
Material		PCB		FPC

Looking for more?

As the antenna manufacturer we can help you to design PCB/FPC antenna according to your needs. Let us know the frequency and the size available for antenna in your device.

PCB/FPC antennas

BeiDou/GPS/GLONASS

Model name	FP-B02

Size [mm]	30 × 30 × 0.25
Frequency [MHz]	1561/1575.42/1602
Impedance (Ω)	50
VSWR	2 max. (typical)
Polarization	Linear
Cable [mm]	100
Connector	IPEX MHFI
Material	FPC

GPS/4G LTE/5G NR

Model name	FP-GL01

Size [mm]	66.5 × 20 × 0.25
Frequency [MHz]	698 – 3800
Impedance (Ω)	50
VSWR	< 3.5
Polarization	Linear
Cable [mm]	100
Connector	IPEX MHFI
Material	FPC

GPS

Model name	WG25D1

Size [mm]	25 × 7 × 0.5
Frequency [MHz]	1560– 1606
Impedance (Ω)	50
VSWR	2 max. (typical)
Polarization	Linear
Cable [mm]	100
Connector	IPEX MHFI
Material	PCB

4G LTE

Model name	FP-L08

Size [mm]	60 × 20 × 0.25
Frequency [MHz]	698 – 960 1710 – 2690
Impedance (Ω)	50
VSWR	< 3
Polarization	Linear
Cable [mm]	200
Connector	IPEX MHFI
Material	FPC

5G FR1 / LTE Full-Band

Model name	WX12H1

Size [mm]		12.0 × 18.0 × 0.5
Frequency [MHz]	①	617 – 960
	②	1710 – 2170
	③	2300 – 2400
	④	2500 – 2700
	⑤	3400 – 5000
	⑥	5150 – 5925
Peak Gain [dBi]	①	2.0 dBi
	②	2.9 dBi
	③	3.0 dBi
	④	2.6 dBi
	⑤	2.7 dBi
	⑥	2.9 dBi
VSWR	①	4.0 max. (typical)
	②	2.0 max. (typical)
	③	2.5 max. (typical)
	④	2.5 max. (typical)
	⑤	4.0 max. (typical)
	⑥	3.5 max. (typical)
Polarization		Linear
Standard cable [mm]		150
Standard connector		IPEX MHFI
Material		PCB

4G LTE/5G NR

Model name	FP-LK10

Size [mm]	65 × 56 × 0.25
Frequency [MHz]	698 – 2690
	3500 – 3800
Impedance (Ω) VSWR	50
Polarization	< 3.5
Cable [mm]	Linear
Connector	100
Material	IPEX MHFI
	FPC

Note

Unictron supplies standard PCB antenna with cable length of 100mm and IPEX I connector.
Custom-made PCB antennas are available upon request.
Specifications are subject to change without notice.

Unictron
Technologies Corp.

NFC antennas

NFC antennas

NFC is an abbreviation of Near Field Communication. The communication distance is usually only few millimeters. For example, NFC antenna with size 50 × 40 mm on a smartphone works to about 40mm distance. NFC is usually on a flexible substrate (FPC) with double sided tape, so the installation inside the device is very easy.

NFC without IC

Model name	BN50D

Size [mm]	50 × 40 × 0.28
Frequency [MHz]	13.56
Impedance [Ω]	50
Q factor	60 (typical)
IC	No
Absorber	Yes
Part Number	H2B4QE1F1D01HF

Absorber

Absorber (or ferrite sheet) is needed if NFC is placed on the metal surface or battery. Please let us know in advance if you need it.

NFC with AMS IC

AMS IC is includes SPI interface.

Model name	Size [mm]	Frequency [MHz]	Impedance [Ω]	Q factor	Part Number
AA500	25.0 × 20.0 × 1.45	14.2	50	60 (typical)	H2B4QC1A1D01HF
AA501	35.0 × 25.0 × 1.45	14.2	50	60 (typical)	H2B4QD1A1D01HF
AA504	45.0 × 40.0 × 1.45	14.17	50	60 (typical)	H2B4QE1A1D01HF

NFC antennas

NFC with Infineon IC

Model name	Size [mm]	Frequency [MHz]	Impedance [Ω]	Q factor	Part Number
AA508	9.5 × 9.5 × 0.7	14.23	50	60 (typical)	H2B4QA1J1D01HF
AA510	25.0 × 20.0 × 0.75	14.11	50	60 (typical)	H2B4QC1A1D04HF
AA511	35.0 × 25.0 × 0.75	14.11	50	60 (typical)	H2B4QD1A1D03HF
AA512	45.0 × 40.0 × 0.75	14.15	50	60 (typical)	H2B4QE1A1D03HF

NFC with AMS IC

NFC with Infineon IC

NFC with NXP IC

NFC with NXP IC (311N)

NXP 311N IC includes I2C interface

Model name	Size [mm]	Frequency [MHz]	Impedance [Ω]	Q factor	Part Number
NN35NA	35.0 × 25.0 × 1.3	13.56	50	30 (typical)	H2B4QD1J1D0100
NN25N	25.0 × 16.0 × 1.3	13.56	50	30 (typical)	H2B4QD2J1D0100

NFC with NXP IC (213F)

Model name	Size [mm]	Frequency [MHz]	Impedance [Ω]	Q factor	Part Number
NN35NB	35.0 × 25.0 × 0.6	13.56	50	30 (typical)	H2B4QD1J1D0200
NN18N	18.0 × 11.0 × 0.65	13.56	50	20 (typical)	H2B4QB1J1D0500

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Patch antennas

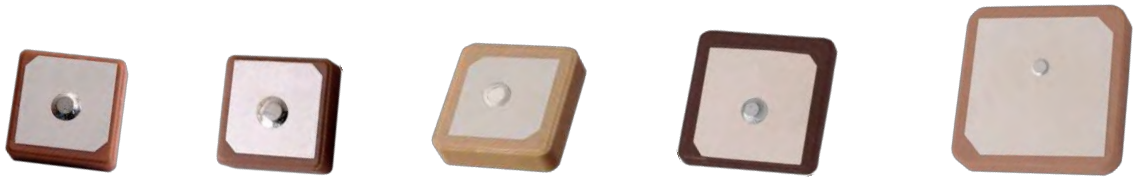
Patch antennas

Specialty of patch antennas is that they can be circularly polarized. Typical application is the navigation system, where the signal coming from the satellites is of circular polarization. Using patch antenna is very easy. Patch antenna has a pin going through the ceramic body and through the mother PCB. This pin is soldered on the opposite side of the PCB to the feed line. Patch antenna can be placed right over the metal elements and doesn't require any ground clear area.

Performance of the patch antenna will vary depends on the size of the PCB (ground). When placed on different size of the PCB, or different position on the PCB (center vs. corner), a shift of the central frequency may occur. The adjusting of the central frequency is called tuning. Tuning requires modification of the top silver surface of the patch antenna. This is usually done manually.

At Unictron we will gladly help you to tune the patch antenna on your device. Contact us for more details.

GPS/GLONASS Ceramic Patch Antenna



Model	Size [mm]	Frequency [MHz]	Peak Gain [dBi]	Return Loss[dB]	VSWR
CP-122A-H-N	12.0 × 12.0 × 2.0	1575.42 / 1602	-1.35/-1.23	< -10	< 2
CP-124A-H-N	12.0 × 12.0 × 4.0	1575.42 / 1602	3.27/3.63	< -10	< 2
CP-154A-H-N	15.0 ×15.0 × 4.0	1575.42 / 1602	3.95/4.25	< -10	< 2
CP-182A-H-N	18.0 ×18.0 × 2.0	1575.42 / 1602	2.11/2.50	< -10	< 2
CP-254A-H-B	25.0 ×25.0 ×4.0	1575.42 / 1602	5.06/5.37	< -10	< 2

Square Patch Antennas (through-hole type)

Size [mm]	Frequency [MHz]	Polarization	Peak gain [dBic]	Bandwidth [MHz]	VSWR
40.0 × 40.0 × 4.0	915	Circular	1.0 (typical)	26 (min.)	2.5 (max.)
36.0 × 36.0 × 6.0	1227.6 – 1575.42	Circular	4.0 (typical)	9.0 (min.)	2.0 (max.)
36.0 × 36.0 × 6.0	1227.6	Circular	5.0 (typical)	9.0 (min.)	2.0 (max.)
25.0 × 25.0 × 6.0	1575.42	Circular	3.7 (typical)	14.0 (min.)	2.0 (max.)
25.0 × 25.0 × 6.0	1598 ~ 1606	Circular	4.0 (typical)	16.0 (min.)	2.0 (max.)
25.0 × 25.0 × 4.0	1227.6	Circular	2.0 (typical)	6.0 (min.)	2.0 (max.)
25.0 × 25.0 × 4.0	1575.42	Circular	5.0 (typical)	21.0 (min.)	1.5 (max.)
25.0 × 25.0 × 4.0	1575.42 1598 ~ 1606	Circular Circular	4.0 (typical) 4.2 (typical)	13.0 (min.) 15.0 (min.)	2.0 (max.) 2.0 (max.)
25.0 × 25.0 × 4.0	1616 ~ 1626.5	Circular	4.6 (typical)	15.0 (min.)	2.0 (max.)
25.0 × 25.0 × 2.0	1575.42	Circular	4.5 (typical)	10.0 (min.)	1.5 (max.)
25.0 × 25.0 × 3.0	2400 – 2484	Circular (R.H.C.P)	6.4(typical)	87.0 (min.)	2.0 (max.)
20.0 × 20.0 × 4.0	1575.42 1598 – 1606	Circular Circular	1.4 (typical) 1.5 (typical)	4.0 (min.) 4.0 (min.)	2.0 (max.) 2.0 (max.)
20.0 × 20.0 × 4.0	1575.42	Circular	3.0 (typical)	4.0 (min.)	2.0 (max.)
20.0 × 20.0 × 4.0	2320 – 2345	Circular (L.H.C.P)	4.0 (typical)	60.0 (min.)	2.0 (max.)
18.5 × 18.5 × 4.0	1575.42	Circular	2.5 (typical)	9.0 (min.)	2.0 (max.)
18.5 × 18.5 × 4.0	1575.42 & 1598 – 1606	Circular Circular	0.9 (typical) 0.6 (typical)	4.0 (min.) 4.0 (min.)	2.0 (max.) 2.0 (max.)
18.5 × 18.5 × 4.0	1575.42 & 1598 – 1606	Circular (L.H.C.P) Circular	2.6 (typical) 2.2 (typical)	7.0 (min.) 8.0 (min.)	2.0 (max.) 2.0 (max.)
18.5 × 18.5 × 4.0	1575.42	Circular	2.5 (typical)	9.0 (min.)	1.5 (max.)
18.5 × 18.5 × 4.0	1616 ~ 1626.5	Circular	2.8 (typical)	10.0 (min.)	2.0 (max.)
18.5 × 18.5 × 2.0	1575.42	Circular	1.0 (typical)	7.0 (min.)	1.5 (max.)
18.0 × 18.0 × 4.0	2320~2345	Circular (L.H.C.P)	3.5 (typical)	56 (min.)	2.0 (max.)

Patch antennas

Size [mm]	Frequency [MHz]	Polarization	Peak gain [dBic]	Bandwidth [MHz]	VSWR
15.0 × 15.0 × 4.0	1575.42	Circular	-2.3 (typical)	2.0 (min.)	2.0 (max.)
	1598 – 1606	Circular	-1.7 (typical)	2.0 (min.)	2.0 (max.)
15.0 × 15.0 × 2.0	1575.42	Circular	0.8 (typical)	5.0 (min.)	2.0 (max.)
13.0 × 13.0 × 4.0	1575.42	Circular	-1.2 (typical)	4.0 (min.)	1.5 (max.)
12.0 × 12.0 × 6.0	1575.42	Circular	-2.1 (typical)	6.5 (min.)	2.0 (max.)
12.0 × 12.0 × 4.0	1575.42	Circular	-2.9 (typical)	5.0 (min.)	2.0 (max.)
12.0 × 12.0 × 3.0	1575.42	Circular	-3.5 (typical)	4.8 (min.)	2.0 (max.)
12.0 × 12.0 × 3.5	1575.42	Circular	-3.5 (typical)	5.0 (min.)	2.0 (max.)
10.0 × 10.0 × 4.0	1575.42	Circular	-4.45 (typical)	7.9 (min.)	1.5 (max.)

Patch 25.0 × 25.0 × 4.0 mm
with pin

Patch 40.0 x 40.0 × 4.0
with pin

Polarization

Patch antenna can be tuned to have linear polarization or circular. Circular polarization can be Right Hand Circular Polarization (R.H.C.P) or Left Hand Circular Polarization (L.H.C.P).

Patch antennas

The best way of testing patch antennas is to test them tuned to the certain ground plane. Feel free to request samples of SMD patch antennas on the ground plane (PCB). Keep in mind that when the size of the PCB or position on the PCB will be changed, patch antenna needs to be tuned again.

SMD patch antenna 20 × 20 mm on the demo board.

SMD patch antenna 18 × 18 mm on the demo board.

Low profile (flat) SMD patch antenna

Size [mm]	Frequency [MHz]	Polarization	Peak gain [dBic]	Bandwidth [MHz]	VSWR
27.0 × 32.5 × 0.8	1575.42	Circular (R.H.C.P)	-5.2 (typical)	16.0 (min.)	2.0 (max.)

Flat patch antenna

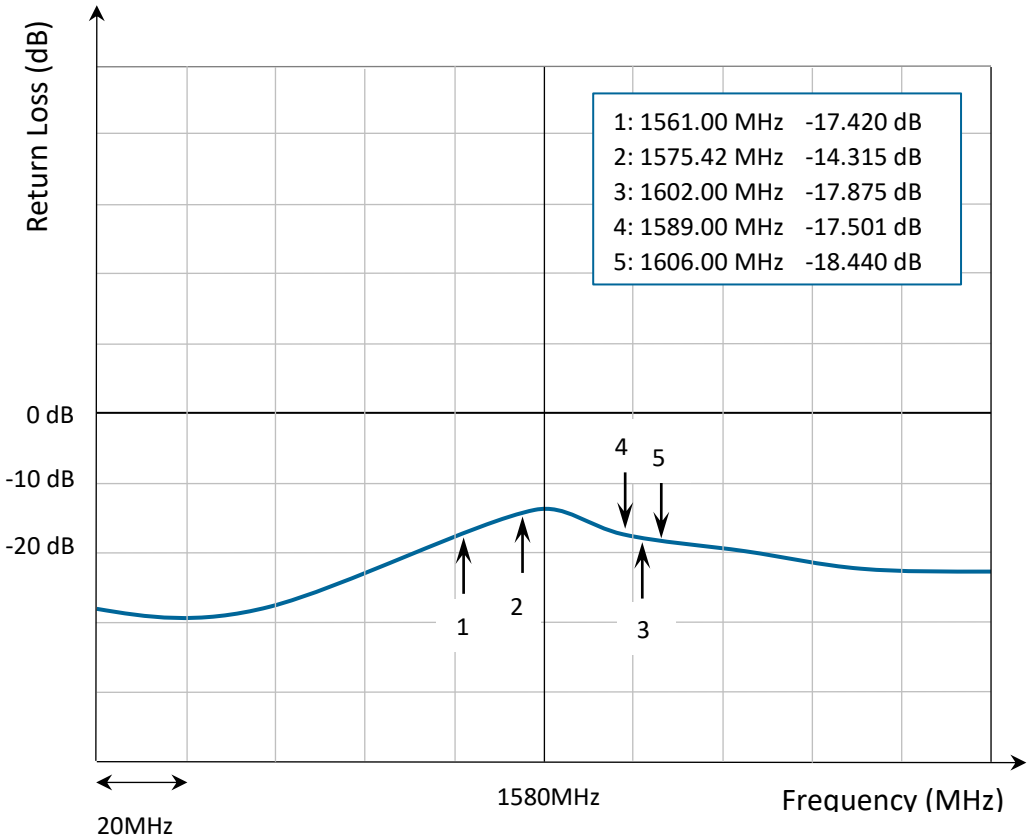
This patch antenna can be placed right over the metal parts. It also receives the signal if the metal part is over surface of the patch of the same size. Suitable for wearable devices.

Dual Pin Patch Antenna

Size [mm]	Frequency [MHz]	Polarization	Peak gain [dBic]	VSWR
25.0 × 25.0 × 4.0	1575.42 & 1598 – 1606 & 1561	Circular (R.H.C.P) Circular (R.H.C.P) Circular (R.H.C.P)	4.2 (typical) 1.6 (typical) 1.9 (typical)	2.0 (max.) 2.0 (max.) 2.0 (max.)

Dual pin patch antenna – Model : **AA650**

Dual pin patch antenna shows a wide bandwidth of usable frequencies (frequencies where return loss is below -10dB).



Castle patch antenna

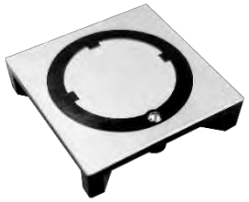
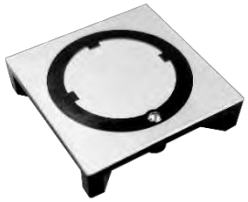
Patented castle patch antennas handle two navigation frequencies like GPS L1+L2 or GPS L1+L5. With two simultaneous frequencies, the position localization is with higher accuracy in centimeter range, rather than a few meters toleration given by the standard consumer's GPS.

Traditionally for dual band frequencies two patch antennas have been used, a.k.a. stacked patch antennas. Castle patch provides two frequencies with the body size as a single patch antenna but with less body mass. Such solution resulted in a lighter weight, suitable for drones as well as autonomous cars.

Dual Pin Castle Antenna

Model name	Size [mm]	Frequency [MHz]	Peak gain [dBic]	Polarization	VSWR
PB50DMS	50 x 50 x 8	1164 – 1189 1561 – 1606	6.1 (typical) 4.5 (typical)	Circular (R.H.C.P)	2.0(max.)
PB50DMX	50 x 50 x 8	1215 – 1239 1561 – 1606	6.2 (typical) 4.5 (typical)	Circular (R.H.C.P)	2.0(max.)
PB50DMJ	50 x 50 x 8	1164 – 1189 1215 – 1239 1561 – 1606	2.7 (typical) 2.3 (typical) 4.5 (typical)	Circular (R.H.C.P)	2.0(max.)

Patch antennas


Single Pin Castle Antenna

Model name	Size [mm]	Frequency [MHz]	Peak gain [dBic]	Bandwidth [MHz]	Polarization	VSWR
PB40D9NS	40 x 40 x 6	1164 – 1189 1561 – 1606	4.8 (typical) 6.5 (typical)	15 (L5) 37 (L1)	Circular (R.H.C.P)	2.0(max.)
PB40D9NX	40 x 40 x 6	1215 – 1239 1561 – 1606	5.1 (typical) 5.8 (typical)	14 (L2) 37 (L1)	Circular (R.H.C.P)	2.0(max.)
PB25D8	25 x 25 x 4.5	1164 – 1189 1561 – 1606	3.0 (typical) 5.0 (typical)	14 (L5) 17 (L1)	Circular (R.H.C.P)	2.0(max.)
PB25D8X	25 x 25 x 4.5	1215 – 1239 1561 – 1606	3.2 (typical) 5.0 (typical)	9 (L2) 15 (L1)	Circular (R.H.C.P)	2.0(max.)
PB18DQS	18 x 18 x 7	1164 – 1189 1561 – 1606	1.3 (typical) 4.3 (typical)	N/A	Circular (R.H.C.P)	2.0(max.)

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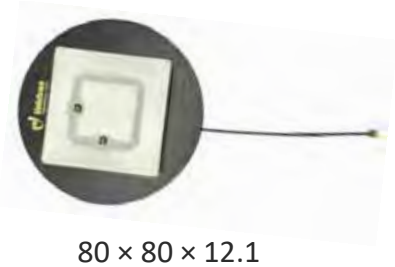
Antenna module

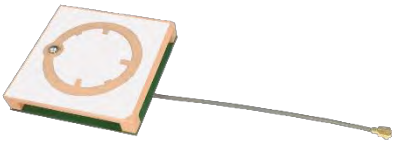
Antenna module

Wireless communication products are ubiquitous nowadays with many different radio waves around us. And the increase in the number of skyscrapers has also had a significant but negative impact on the transmission and reception of radio waves. Therefore, we have developed a lineup of active antenna modules for miniaturization and integration (transistors, ICs, bandpass filters and LCR passive elements, etc.). These amazing low-noise amplifiers are equipped with low-interference, energy-saving, high-gain and high-efficiency noise filter to ensure that frequencies pass through the required range and attenuate other frequencies. Such a small size and integrated module can reduce the development time of RF engineers by effectively maintaining good radio waves. Last but not least, we highly recommend our High Precision GNSS antenna module, which is ideal for autonomous vehicle.

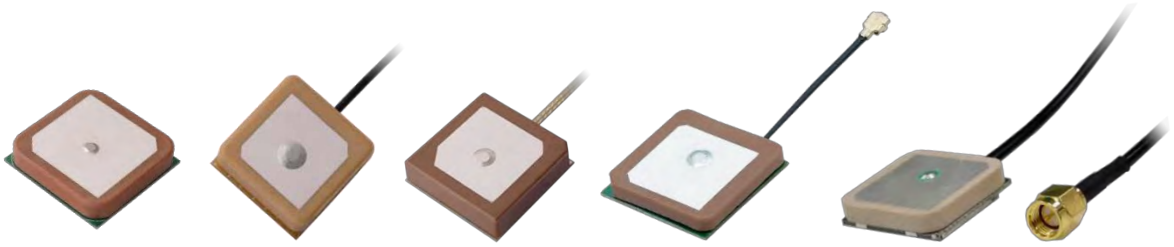
Castle Module

Model name	NB80DG	NB80DJ
		
Size [mm]	80 × 80 × 12.1	80 × 80 × 12.1
Frequency [MHz]	① L5 : 1176.45 ② L1 : 1575.42	① L5 : 1176.45 ② L2 : 1227.6 ③ L1 : 1561 ④ L1 : 1575.42 ⑤ L1 : 1602
Peak Gain [dBi]	① 2.6 dBi ② 4.6 dBi	① -0.81 dBi ② -1.4 dBi ③ 2.2 dBi ④ 3.7 dBi ⑤ 3.4 dBi
Polarization	R.H.C.P	R.H.C.P
Input Voltage [V]	3.3 V	3 V
LNA Gain [dB]	23 (typical)	28 (typical)
Noise Figure [dB]	2.8 (typical)	① 3 (typical) ② 3 (typical) ③ 2.8 (typical) ④ 2.8 (typical) ⑤ 2.8 (typical)

Antenna module

Model name	NB40DG	NB26DG
		
Size [mm]	40 × 40 × 10.25	26 × 26 × 8.75
Frequency [MHz]	① L5 : 1176.45	① L5 : 1176.45
	② L1 : 1575.42	② L1 : 1575.42
	③ L1 : 1602	③ L1 : 1602
Peak Gain [dBi]	① 2.7 dBi	① -0.8 dBi
	② 4.8 dBi	② 0.6 dBi
	③ 3.9 dBi	③ 1.3 dBi
Polarization	R.H.C.P	R.H.C.P
Input Voltage [V]	3 V	3 V
LNA Gain [dB]	28 (typical)	28 (typical)
Noise Figure [dB]	3.0 (typical)	3.0 (typical)

Active GNSS Antenna Module



Model	Size [mm]	Frequency [MHz]	Peak Gain [dBi]	Gain [dB]	VSWR
AM-1-A-B	25.0 × 25.0 × 7.8	1561 / 1575.42 / 1602	1.21/1.21/1.44	27	< 3
AM-1-E-N	25.0 × 25.0 × 4.0	1575.42 / 1602	2	16/15	< 1.5
AM-3-A-G	12.0 ×12.0 × 6.4	1575.42	-0.92	21	< 2
AM-4-A-B	18.0 ×18.0 × 7.9	1575.42 / 1602	0.29/1.95	29	< 2
AM-8-A-G	18.0 ×18.0 ×2.0	1575.42	0.17	27	< 3
AM-9-A-N	15.0 ×15.0 ×4.0	1575.42 / 1602	0.09/0.08	27/26	< 2
AM-11-C-A	100 ×100 ×16.5	1176 / 1227 / 1561 1575.42 / 1602	-6.14/ -11.69/ 3.24 2.48 / 0.69	44/44/41 42/40	< 2
AM-25	25.0 ×25.0×8.0	1575.42	2	28	< 2

Unictron Technologies Corp.

Antenna module

Active GNSS Antenna Module

Size [mm]	Navigation	Frequency [MHz]	Peak Gain [dBi]	Polarization	Input Voltage [V]	LNA Gain [dB]	Noise Figure [dB]
25 x 25 x 8.75	L1	1575.42 1602	2.5 dBi 1.9 dBi	R.H.C.P	3 V	27 (typical)	3.0 (max.)
18.5 × 18.5 × 7.25	L1	1575.42 1602	0.2 dBi 0.4 dBi	R.H.C.P	3 V	15 (typical)	2.0 (max.)
15 × 15 × 7.25	L1	1575.42 1602	-2.3 dBi -2.5 dBi	R.H.C.P	3 V	16 (typical)	2.0 (max.)
13 × 13 × 7.25	L1	1575.42 1602	-3 dBi	R.H.C.P	3 V	16 (typical)	2.0 (max.)
12 × 12 × 7.25	L1	1575.42 1602	2 dBi 2.2 dBi	R.H.C.P	3 V	16 (typical)	2.0 (max.)
10 × 10 × 7.25	L1	1575.42 1602	-2 dBi -3 dBi	R.H.C.P	3 V	16 (typical)	2.0 (max.)
16 × 6 × 7.25	L1	1575.42	-4 dBi	Linear	3 V	16 (typical)	2.0 (max.)
20 × 6 × 7.25	L1	1575.42	-4 dBi	Linear	3 V	16 (typical)	2.0 (max.)
45 × 10.1 × 2.2	L1	1575.42	2.6 dBi	Linear	3 V	16 (typical)	2.0 (max.)

Size [mm] 10 x 10 × 4

Size [mm] 15 x 15 × 4

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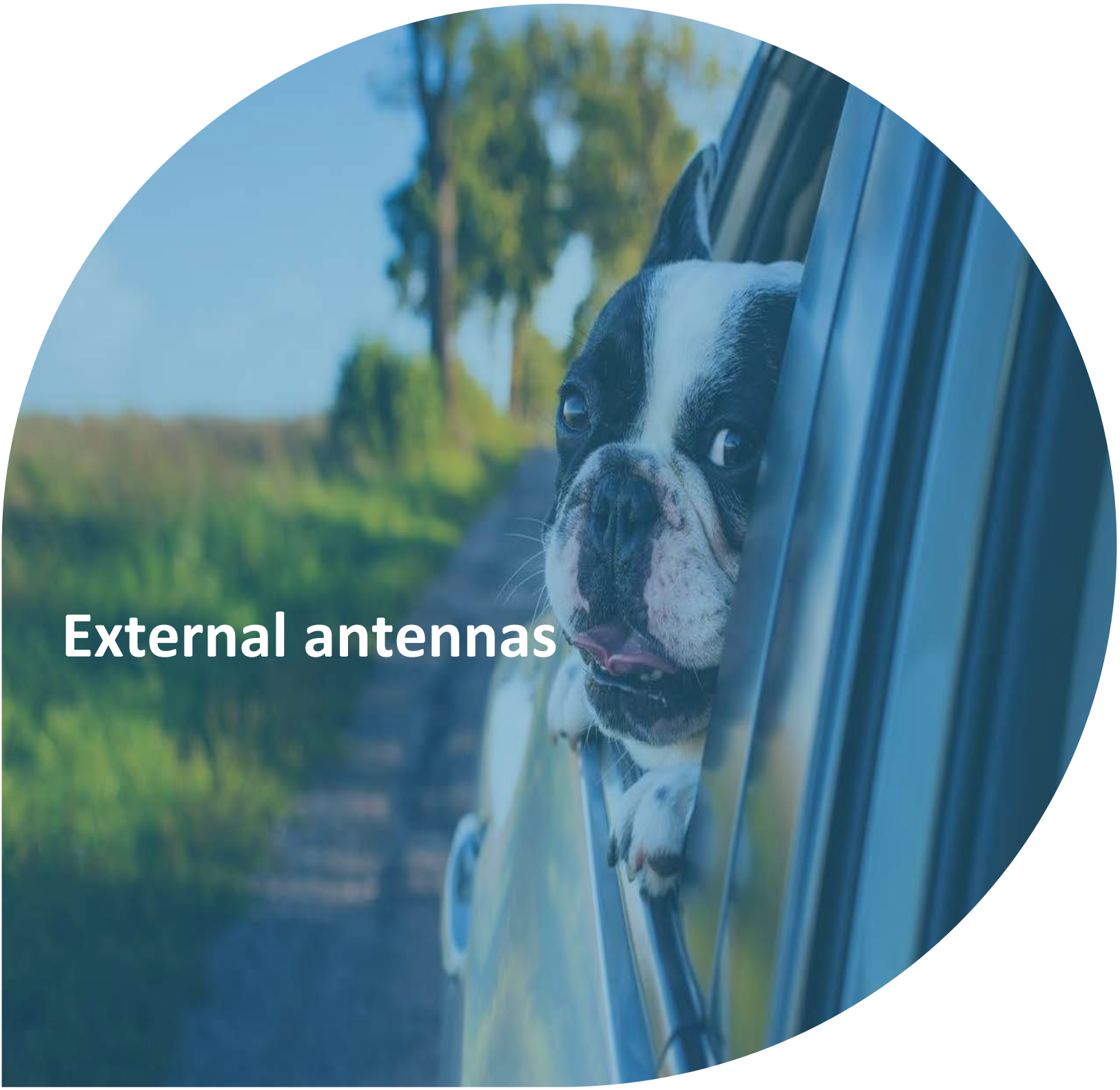


External antennas

External antennas

External antennas are very convenient plug & play solutions. The cable length varies from 1 to 40 meters and variety of connectors are available upon request. The mounting of the housing to the surface can be done through screws, double sided tape, or a magnet.

Please let us know the combination of parameters you are looking for.

Customized GNSS External Antenna:

Frequency: GNSS (GPS / GLONASS / BEIDOU / GALILEO)

Input Voltage: 2.5 V – 5.5 V

Cable type: RG174 / CFD200 (LMR200) / others

Cable length: 0.1m to 40m

Radome/housing: Optional

Mouting Option: Screws / Double sided Tape / Magnet / others

Connector: SMA / SMB / MCX / MMCX / SMC / Fakra / others

Connector type: Male / Female

LNA: Two stage / Three stage

LTE MIMO

SPECFICATION					
Model Name	HB15H				
Antenna Dimensions	150 * 50 * 15 mm				
Cable type	KSR200 low loss cable				
Cable Length	2M (default)				
Connector	SMA(M) ST				
ENVIRONMENTAL					
Operation Temperature	-40 ~ 85 °C				
Storage Temperature	-40 ~ 85 °C				
CELLULAR/4G LTE BAND					
Impedance(Ω)	50				
Polarization	Linear				
V.S.W.R.	< 3				
MIMO 1					
Frequency(MHz)	698~960	1710~2170	2300~2400	2500~2700	3400~3800
Efficiency(%)	48.2	49.7	40.2	48.6	44.1
Average Gain(dB)	-3.2	-3	-4	-3.1	-3.6
Peak Gain(dBi)	1.5	2.7	1.5	1.7	3.2
MIMO 2					
Frequency(MHz)	698~960	1710~2170	2300~2400	2500~2700	3400~3800
Efficiency(%)	47.3	47.8	43.2	45.5	41.4
Average Gain(dB)	-3.3	-3.2	-3.6	-3.4	-3.8
Peak Gain(dBi)	1.9	2.8	1.8	2.1	3.2

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

5 in 1 (GNSS+LTE MIMO+Wi-Fi MIMO)

SPECIFCATION			
Model Name	MT-25B-AC-B2L2W		
Antenna Dimensions	135.95 * 135.95 * 29.89 mm		
Waterproof	IP67 / X9K		
Cable type	GPS : H-100 Cable ; LTE/Wi-Fi : SNC-200 Cable		
Cable Length	3.1M		
Connector	FAKRA II (C)		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GNSS BAND			
Application	BeiDou	GPS L1/GPS L2/GPS L5	GLONASS
Center Frequency(MHz)	1561	1575.42/1227.60/1176.45	1602
V.S.W.R.	< 2.0		
Impedance(Ω)	50		
Polarization	R.H.C.P		
LNA ELECTRICAL PROPERTIES			
Gain(dB)	35 Typ.		
Noise Figure(dB)	2.0 Typ.		
Output VSWR	< 2.0		
DC Input Voltage(V)	3~5.5V		
Current consumption	27 mA Typ. @ 5V		

External antennas

CELLULAR/4G LTE BAND					
Impedance(Ω)	50				
Polarization	Linear				
V.S.W.R.	< 4.5				
Cable	3.1m SNC-200 Cable				
Connector	LTE Main: FAKRA II (D) / LTE Aux : FAKRA II (L)				
MIMO 1 (Main)					
Frequency(MHz)	617~698	698~960	1710~2170	2300~2690	3300~3800
Efficiency(%)	36.46	45.10	39.31	39.34	41.54
Average Gain(dB)	-4.38	-3.46	-4.05	-4.05	-3.82
Peak Gain(dBi)	2.14	5.79	3.71	4.36	5.42
MIMO 2 (Aux)					
Frequency(MHz)	617~698	698~960	1710~2170	2300~2690	3300~3800
Efficiency(%)	33.75	56.18	38.55	35.19	37.66
Average Gain(dB)	-4.72	-2.50	-4.14	-4.54	-4.24
Peak Gain(dBi)	2.00	5.87	3.23	2.94	4.25

2.4 / 5 GHz Wi-Fi BAND				
Impedance(Ω)	50			
Polarization	Linear			
V.S.W.R.	< 2			
Cable	3.1m SNC-200 Cable			
Connector	Wi-Fi Main: FAKRA II (I) / Wi-Fi Aux : FAKRA II (E)			
	Wi-Fi 1(Main)		Wi-Fi 2(Aux)	
Frequency(MHz)	2400~2500	5150~5850	2400~2500	5150~5850
Efficiency(%)	49.66	33.11	48.42	31.62
Average Gain(dB)	-3.04	-4.80	-3.15	-5.00
Peak Gain(dBi)	5.31	2.93	4.20	2.82

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

5 in 1 (GNSS+LTE MIMO)

SPECIFCATION			
Model Name	MT-25B-AS-B4L		
Antenna Dimensions	136.47 * 135.95 * 29.89 mm		
Waterproof	IP67		
Cable type	GPS : H-100 Cable		
Cable Length	1M		
Connector	SMA(M)		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GNSS BAND			
Application	BeiDou	GPS L1	GLONASS
Center Frequency(MHz)	1561	1575.42	1602
V.S.W.R.	< 3.0		
Impedance(Ω)	50		
Polarization	R.H.C.P		
LNA ELECTRICAL PROPERTIES			
Gain(dB)	30 Typ.		
Noise Figure(dB)	2.5 Typ.		
Output VSWR	< 3.0		
DC Input Voltage(V)	3.3~5V		
Current consumption	9mA Typ. @ 5V		

External antennas

CELLULAR/4G LTE BAND					
Impedance(Ω)	50				
Polarization	Linear				
V.S.W.R.	6 Typ.				
Cable	1m SNC-200 Cable				
Connector	SMA(M)				
LTE 1					
Frequency(MHz)	617~698	698~960	1710~2170	2300~2690	3300~3800
Efficiency(%)	45.50	43.79	66.26	50.13	48.53
Average Gain(dB)	-3.42	-3.59	-1.79	-3.00	-3.14
Peak Gain(dBi)	2.42	2.32	5.87	4.61	3.44
LTE 2					
Efficiency(%)	45.9	43.62	58.73	57.38	38.49
Average Gain(dB)	-3.38	-3.60	-2.31	-2.41	-4.15
Peak Gain(dBi)	3.70	3.10	4.89	3.29	1.97
LTE 3					
Efficiency(%)	46.47	44.83	58.51	58.01	42.48
Average Gain(dB)	-3.33	-3.48	-1.75	-2.37	-3.72
Peak Gain(dBi)	3.43	3.21	4.19	3.35	2.27
LTE 4					
Efficiency(%)	36.81	43.34	55.41	41.73	50.74
Average Gain(dB)	-4.34	3.64	-2.56	-3.80	-2.95
Peak Gain(dBi)	1.48	2.54	6.12	3.24	3.60

5 GHz Wi-Fi BAND				
Impedance(Ω)	50			
Polarization	Linear			
V.S.W.R.	3 Typ.			
Cable	1m SNC-200 Cable			
Connector	SMA(M)			
	Wi-Fi 1	Wi-Fi 2	Wi-Fi 3	Wi-Fi 4
Frequency(MHz)	5150~5850	5150~5850	5150~5850	5150~5850
Efficiency(%)	35.72	40.91	42.68	43.41
Average Gain(dB)	-4.47	-3.88	-3.70	-3.62
Peak Gain(dBi)	3.46	2.86	3.12	3.88

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

5 in 1 (GNSS+LTE MIMO+Wi-Fi MIMO)

SPECIFCATION			
Model Name		HM15H	
Antenna Dimensions		150 * 50 * 15 mm	
Cable type		GNSS: RG-174 Wi-Fi & LTE : KSR200	
Cable Length		2M (default)	
Connector		SMA(M) ST	
ENVIRONMENTAL			
Operation Temperature		-40 ~ 85 °C	
Storage Temperature		-40 ~ 85 °C	
GNSS BAND			
Application	BeiDou	GPS/QZSS/GALILEO	GLONASS
Center Frequency(MHz)	1561	1575.42	1602
V.S.W.R.		< 2.0	
Impedance(Ω)		50	
Polarization		R.H.C.P	
LNA ELECTRICAL PROPERTIES			
Gain(dB)		30 Typ.	
Noise Figure(dB)		1.8 Typ.	
Output VSWR		< 2.0	
DC Input Voltage(V)		3~24	
Current consumption		9 mA Typ. @ 3V	

External antennas

CELLULAR/4G LTE BAND					
Impedance(Ω)	50				
Polarization	Linear				
V.S.W.R.	< 3				
Cable	2m KSR200 low loss cable				
Connector	SMA(M) ST				
MIMO 1					
Frequency(MHz)	698~960	1710~2170	2300~2400	2500~2700	3400~3800
Efficiency(%)	48.2	49.7	40.2	48.6	44.1
Average Gain(dB)	-3.2	-3	-4	-3.1	-3.6
Peak Gain(dBi)	1.5	2.7	1.5	1.7	3.2
MIMO 2					
Frequency(MHz)	698~960	1710~2170	2300~2400	2500~2700	3400~3800
Efficiency(%)	47.3	47.8	43.2	45.5	41.4
Average Gain(dB)	-3.3	-3.2	-3.6	-3.4	-3.8
Peak Gain(dBi)	1.9	2.8	1.8	2.1	3.2

2.4 / 5 GHz Wi-Fi BAND				
Impedance(Ω)	50			
Polarization	Linear			
V.S.W.R.	< 3			
Cable	2m KSR200 low loss cable			
Connector	SMA(M) ST			
	MIMO1		MIMO2	
Frequency(MHz)	2400~2500	5150~5850	2400~2500	5150~5850
Efficiency(%)	51.5	47.2	49.1	43.5
Average Gain(dB)	-2.9	-3.3	-3.1	-3.6
Peak Gain(dBi)	1.8	3.2	2.1	3.7

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

2 in 1 (GNSS + 4G LTE)

SPECIFICATION	
Model Name	HB70D
Antenna Dimensions	70 * 70 * 17 mm
Cable type	GNSS: RG-174 LTE : LMR-200
Cable Length	2M (default)
Connector	SMA(M) ST
ENVIRONMENTAL	
Operation Temperature	-40 ~ 105 °C
Storage Temperature	-40 ~ 105 °C

External antennas

GNSS BAND			
Application	BeiDou	GPS/QZSS/GALILEO	GLONASS
Center Frequency(MHz)	1561	1575.42	1602
V.S.W.R.		< 2.0	
Impedance(Ω)		50	
Polarization		R.H.C.P	
LNA ELECTRICAL PROPERTIES			
Gain(dB)	19 Typ.	19 Typ.	16 Typ.
Noise Figure(dB)		2.5 Typ.	
Output VSWR		< 2.5	
DC Input Voltage(V)		3.3	
Current consumption		10 mA Typ. @ 3.3V	

CELLULAR/4G LTE BAND				
Frequency(MHz)	698~960	1710~2170	2300~2400	2500~2700
Efficiency(%)	53	59	65	56
Average Gain(dB)	-2.8	-2.2	-1.8	-2.5
Peak Gain(dBi)	2.7	2.7	2.6	2.5
V.S.W.R.		< 3.5		
Impedance(Ω)		50		
Polarization		Linear		
Cable		2M LMR-200 low loss cable		
Connector		SMA(M) ST		

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1 + L2 + L5

SPECFICATION					
Model Name	EG-17BW-AS-A				
Antenna Dimensions	140 * 140 * 49 mm				
Waterproof	IP67				
Cable type	RG-58				
Cable Length	3M				
Connector	TNC Straight Bulkhead-Mounted Jack				
ENVIRONMENTAL					
Operation Temperature	-40 ~ 85 °C				
Storage Temperature	-40 ~ 85 °C				
GPS ANTENNA					
Application	Beidou	Glonass	GPS(L1)	GPS(L2)	GPS(L5)
Center Frequency(MHz)	1561	1602	1575.42	1227	1176.45
Peak Gain (dBi)	5.41	3.77	5.14	4.49	-3.39
V.S.W.R.	< 2				
Impedance(Ω)	50				
Polarization	R.H.C.P				
LNA ELECTRICAL PROPERTIES					
Gain(dB)	43 Typ.				
Noise Figure(dB)	4.5Typ.				
Output V.S.W.R	2.0 max.				
DC Input Voltage(V)	3.3~15.0 DC				
Current consumption	30 mA Typ. @ 5V				

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1 + L2 + L5

SPECFICATION					
Model Name	EG-88W-AC-A				
Antenna Dimensions	80 * 80 * 71.2 mm				
Waterproof	IP67				
Cable type	RG-58				
Cable Length	2M				
Connector	TNC(M) or N(M)				
ENVIRONMENTAL					
Operation Temperature	-40 ~ 85 °C				
Storage Temperature	-40 ~ 85 °C				
GPS ANTENNA					
Application	Beidou	Glonass	GPS(L1)	GPS(L2)	GPS(L5)
Center Frequency(MHz)	1561	1602	1575.42	1227	1176.45
Peak Gain (dBiC)	3.24	0.69	2.48	-11.69	-6.14
V.S.W.R.	<2				
Impedance(Ω)	50				
Polarization	R.H.C.P				
LNA ELECTRICAL PROPERTIES					
Gain(dB)	35 Typ.				
Noise Figure(dB)	2.0 Typ.				
Output VSWR	< 2.0				
DC Input Voltage(V)	3.3~5				
Current consumption	27 mA Typ. @ 5V				

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GNSS L1 + L2 + L5 / L6

Light Weight Design

SPECFICATION		
Model Name	EG-45B-AC-A	EG-45B-BC-A
Application Band Bands	GNSS L1 / L2 / L5	GNSS L1 / L2 / L6
Peak Gain (dBi)	0.16 @ 1176MHz (GPS L5) -2.90 @ 1227MHz (GPS L2) 1.24 @ 1561MHz (Beidou) 1.14 @ 1575.42MHz (GPS L1) -0.57 @ 1602MHz (Glonass)	-1.81 @ 1227MHz (GPS L2) -1.33 @ 1278.75MHz (GPS L6) 1.63 @ 1561MHz (Beidou) 1.34 @ 1575.42MHz (GPS L1) -0.07 @ 1602MHz (Glonass)
Antenna Dimensions	29.77 * 29.77 * 57.68 mm	
Waterproof	IP67	
Connector	SMA(M)	
ENVIRONMENTAL		
Operation Temperature	-40 ~ 85 °C	
Storage Temperature	-40 ~ 85 °C	
Relative Humidity	95% non non-condensing	
PERFORMANCE SPECIFICATION		
V.S.W.R.	< 2	
Impedance(Ω)	50	
Polarization	Linear	
LNA ELECTRICAL PROPERTIES		
Output VSWR	< 2.0	
DC Input Voltage(V)	3.3~5	

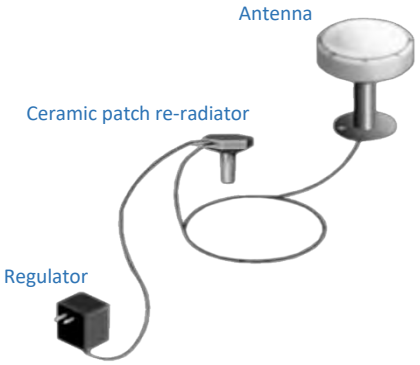
*Note: the connector, cable length, and cable type can be tailor made upon request

PROFESSIONAL GPS/GLONASS/BEIDOU/GALILEO AND QZSS RE-RADIATING SYSTEM

SPECFICATION	
Model Name	RK-20W Series
Application	GPS L1 / GLONASS / BEIDOU / GPS L2 / GPS L5
Center Frequency(MHz)	1575.42/1602/1561/1227/1176
Re-radiating Range	40m
Antenna Dimensions	140 * 140 * 49.0 mm
Re-radiator	115 * 115 * 68.5 mm
Waterproof	IP67
Cable type	RG-58 A/U
Cable Length	Standard: 40m / Option:100m
Connector	Antenna: TNC (SBJ), re-radiator: SMA90 (RAJ)
ENVIRONMENTAL	
Operation Temperature	-40 ~ 85 °C
Storage Temperature	-40 ~ 85 °C
PERFORMANCE SPECIFICATION	
Peak Gain (dBi)	2.48/0.69/3.24/-11.69/-11.26
V.S.W.R.	< 2
Impedance(Ω)	50
LNA ELECTRICAL PROPERTIES	
Gain(dB)	39 / 36/ 37 / 38 / 37
Noise Figure	1.5 / 1.6 / 1.5 / 1.3 / 1.4
Power Supply	100 ~ 240V AC to 3.3V ~ 15V DC Regulator
Current consumption	23 ±5 mA

External antennas

PROFESSIONAL GPS / GLONASS RE-RADIATING SYSTEM



SPECFICATION			
Model Name	RK-104	RK-106	RK-306
Application	GPS	GPS / GLONASS	GPS / GLONASS
Center Frequency(MHz)	1575.42	1575/1602 MHz	1575/1602 MHz
Re-radiating Range	10m	10m	30m
Antenna Dimensions	80* 80 * 71.24 mm		
Re-radiator	79 * 85 * 113 mm		
Waterproof	IP67		
Cable type	RG-58 A/U		
Cable Length	Standard: 40m / Option:100m		
Connector	Antenna: TNC Jack, re-radiator: SMA Jack		
ENVIRONMENTAL			
Operation Temperature	-30 ~ 80 °C		
Storage Temperature	-40 ~ 85 °C		
PERFORMANCE SPECIFICATION			
Peak Gain (dBic)	+5 Typ.	+4 Typ.	+4 Typ.
V.S.W.R.	2.0 max.		
Impedance(Ω)	50		
Polarization	R.H.C.P		
LNA ELECTRICAL PROPERTIES			
Gain(dB)	27 dB typically		
Noise Figure	1.5 max.		
Power Supply	100 ~ 240V AC to 7.5V ~ 12V DC Regulator		
Current consumption	48mA (+/- 5%) @ 7.5V DC		

GPS L1 + L5

SPECFICATION				
Model Name	HB80DF			
Antenna Dimensions	90 * 80 * 25.4 mm			
Cable type	RG-174			
Cable Length	3M (default)			
Connector	SMA(M) ST			
ENVIRONMENTAL				
Operation Temperature	-40 ~ 85 ºC			
Storage Temperature	-40 ~ 85 ºC			
GPS ANTENNA				
Application	GPS L5	BDS B1	GPS L1	GLONASS G1
Center Frequency(MHz)	1176.45	1561	1575.42	1602
Peak Gain (dBi)	3.1	5.0	5.1	4.2
Efficiency (%)	53	72	73	54
V.S.W.R.	< 2.0			
Impedance(Ω)	50			
Polarization	R.H.C.P			
LNA ELECTRICAL PROPERTIES				
Gain(dB)	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.
Noise Figure(dB)	3.0 Typ.	3.0 Typ.	2.7 Typ.	3.0 Typ.
Output VSWR	< 2.0			
DC Input Voltage(V)	3.0 ± 0.3			
Current consumption	12.5 mA Typ. (at DC 3V)			

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1 + L5

SPECFICATION		
Model Name	HB70DF	
Antenna Dimensions	70 * 70 * 17 mm	
Cable type	RG-174	
Cable Length	2M (default)	
Connector	SMA(M) ST	
ENVIRONMENTAL		
Operation Temperature	-40 ~ 85 ºC	
Storage Temperature	-40 ~ 85 ºC	
GPS ANTENNA		
Application	GPS L5	GPS L1
Center Frequency(MHz)	1176.45	1575.42
Peak Gain (dBi)	3.0	4.7
Efficiency (%)	51.7	75.2
V.S.W.R.	< 2.0	
Impedance(Ω)	50	
Polarization	R.H.C.P	
LNA ELECTRICAL PROPERTIES		
Gain(dB)	28 ±3 Typ.	
Noise Figure(dB)	3.0 Typ.	
Output VSWR	< 2.0	
DC Input Voltage(V)	3.0 ± 0.3	
Current consumption	12.5 mA Typ. (at DC 3V)	

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1 + L5

SPECFICATION			
Model Name	HB50DF		
Antenna Dimensions	65 * 49 * 24.5 mm		
Cable type	RG-174		
Cable Length	3M (default)		
Connector	SMA(M) ST		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GPS ANTENNA			
Application	GPS L5	GPS L1	GLONASS G1
Center Frequency(MHz)	1176.45	1575.42	1602
Peak Gain (dBi)	4.2	3.3	3.6
Efficiency (%)	56	55	53
V.S.W.R.		< 2.0	
Impedance(Ω)		50	
Polarization		R.H.C.P	
LNA ELECTRICAL PROPERTIES			
Gain(dB)		28 ±3 Typ.	
Noise Figure(dB)		3.0 Typ.	
Output VSWR		< 2.0	
DC Input Voltage(V)		DC = 3. 0 ~5.0	
Current consumption		12.0 mA Typ.	

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1 + L5

SPECFICATION			
Model Name	HB45DF		
Antenna Dimensions	47.0 * 45.3 * 15.6 mm		
Cable type	RG-174		
Cable Length	3M (default)		
Connector	SMA(M) ST		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GPS ANTENNA			
Application	GPS L5	GPS L1	GLONASS G1
Center Frequency(MHz)	1176.45	1575.42	1602
Peak Gain (dBi)	0.2	2.2	2.0
Efficiency (%)	31	45	46
V.S.W.R.		< 2.0	
Impedance(Ω)		50	
Polarization		R.H.C.P	
LNA ELECTRICAL PROPERTIES			
Gain(dB)		28 ±3 Typ.	
Noise Figure(dB)		3.0 Typ.	
Output VSWR		< 2.0	
DC Input Voltage(V)		DC = 3.0 ± 0.3	
Current consumption		12.5 mA Typ. (at DC 3V)	

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1 + L2

SPECFICATION				
Model Name	HB80DG			
Antenna Dimensions	90 * 80 * 25.4 mm			
Cable type	RG-174			
Cable Length	5M (default)			
Connector	SMA(M) ST			
ENVIRONMENTAL				
Operation Temperature	-40 ~ 85 °C			
Storage Temperature	-40 ~ 85 °C			
GPS ANTENNA				
Application	GPS L2	BDS B1	GPS L1	GLONASS G1
Center Frequency(MHz)	1227.6	1561	1575.42	1602
Peak Gain (dBi)	3.2	4.5	5.0	3.9
Efficiency (%)	52	64	70	52
V.S.W.R.	< 2.0			
Impedance(Ω)	50			
Polarization	R.H.C.P			
LNA ELECTRICAL PROPERTIES				
Gain(dB)	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.
Noise Figure(dB)	3.0 Typ.	2.7 Typ.	3.0 Typ.	3.0 Typ.
Output VSWR	< 2.0			
DC Input Voltage(V)	DC = 3.0 ± 0.3			
Current consumption	12.5 mA Typ. (at DC 3V)			

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1 + L2

SPECFICATION			
Model Name	HB50DG		
Antenna Dimensions	65 * 49 * 24.5 mm		
Cable type	RG-174		
Cable Length	3M (default)		
Connector	SMA(M) ST		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GPS ANTENNA			
Application	GPS L2	GPS L1	GLONASS G1
Center Frequency(MHz)	1227.6	1575.42	1602
Peak Gain (dBi)	4.2	2.0	1.9
Efficiency (%)	56	40	38
V.S.W.R.		< 2.0	
Impedance(Ω)		50	
Polarization		R.H.C.P	
LNA ELECTRICAL PROPERTIES			
Gain(dB)		28 ±3 Typ.	
Noise Figure(dB)		3.0 Typ.	
Output VSWR		< 2.0	
DC Input Voltage(V)		DC = 3. 0 ~5.0	
Current consumption		12.0 mA Typ.	

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1 + L2 + L5

SPECFICATION					
Model Name	HB80DJ				
Antenna Dimensions	90 * 80 * 25.4 mm				
Cable type	RG-174				
Cable Length	3M (default)				
Connector	SMA(M) ST				
ENVIRONMENTAL					
Operation Temperature	-40 ~ 85 °C				
Storage Temperature	-40 ~ 85 °C				
GPS ANTENNA					
Application	GPS L5	GPS L2	BDS B1	GPS L1	GLONASS G1
Center Frequency(MHz)	1176.45	1227.6	1561	1575.42	1602
Peak Gain (dBi)	-0.81	-1.4	2.2	3.7	3.4
Efficiency (%)					
V.S.W.R.	< 2.0				
Impedance(Ω)	50				
Polarization	R.H.C.P				
LNA ELECTRICAL PROPERTIES					
Gain(dB)	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.	28 ±3 Typ.
Noise Figure(dB)	3.0 Typ.	3.0 Typ.	3.0 Typ.	2.7 Typ.	3.0 Typ.
Output VSWR	< 2.0				
DC Input Voltage(V)	DC = 3.0 ± 0.3				
Current consumption	12.5 mA Typ. (at DC 3V)				

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1 + L2

SPECFICATION		
Model Name	HB70DJ	
Antenna Dimensions	70 * 70 * 17 mm	
Cable type	RG-174	
Cable Length	3M (default)	
Connector	SMA(M) ST	
ENVIRONMENTAL		
Operation Temperature	-40 ~ 85 °C	
Storage Temperature	-40 ~ 85 °C	
GPS ANTENNA		
Application	GPS L2	GPS L1
Center Frequency(MHz)	1227.6	1575.42
Peak Gain (dBiC)	4.1	3.0
Efficiency (%)	61.1	45.2
V.S.W.R.	< 2.0	
Impedance(Ω)	50	
Polarization	R.H.C.P	
LNA ELECTRICAL PROPERTIES		
Gain(dB)	30 Typ.	
Noise Figure(dB)	1.8 Typ.	
Output VSWR	< 2.0	
DC Input Voltage(V)	3~24	
Current consumption	9 mA Typ. @ 3V	

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1 + L2

SPECFICATION			
Model Name	HB45DG		
Antenna Dimensions	47.0 * 45.3 * 15.6 mm		
Cable type	RG-174		
Cable Length	3M (default)		
Connector	SMA(M) ST		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 °C		
Storage Temperature	-40 ~ 85 °C		
GPS ANTENNA			
Application	GPS L2	GPS L1	GLONASS G1
Center Frequency(MHz)	1227.6	1575.42	1602
Peak Gain (dBi)	2.3	2.2	2.0
Efficiency (%)			
V.S.W.R.	< 2.0		
Impedance(Ω)	50		
Polarization	R.H.C.P		
LNA ELECTRICAL PROPERTIES			
Gain(dB)	28 ±3 Typ.		
Noise Figure(dB)	3.0 Typ.		
Output VSWR	< 2.0		
DC Input Voltage(V)	DC = 3.0 ± 0.3		
Current consumption	12.5 mA Typ. (at DC 3V)		

*Note: the connector, cable length, and cable type can be tailor made upon request

External antennas

GPS L1/ Glonass L1/ Beidou B1/ GALILEO E1/ QZSS L1

Lightning Protection Type

SPECFICATION			
Model Name	EG-16W-AC-B		
Antenna Dimensions	60.5 * 60.5 * 78 mm		
Waterproof	IP67		
Cable type	RG-174/U		
Cable Length	5M		
Connector	BNC, TNC, GT5, MCX(OSX), SMA, SMB or SMC.		
ENVIRONMENTAL			
Operation Temperature	-40 ~ 85 ºC		
Storage Temperature	-40 ~ 85 ºC		
GPS ANTENNA			
Application	Beidou	GPS	Glonass
Center Frequency(MHz)	1561	1575.42	1598-1606
Peak Gain (dBiC)	-0.5	2.0	0.6
V.S.W.R.	2.0 max.		
Impedance(Ω)	50		
Polarization	R.H.C.P		
LNA ELECTRICAL PROPERTIES			
Gain(dB)	35dB		
Noise Figure(typical)	< 1.5 dB		
Output VSWR	2.0 max.		
DC Input Voltage(V)	3~5.5V DC		
Current consumption	12 mA Typ. @ 3V		

*Note: the connector, cable length, and cable type can be tailor made upon request

GPS L1/ Glonass L1/ Beidou L1/ GPS L2/ GPS L5

SPECFICATION					
Model Name	EG-42W-AC-A				
Antenna Dimensions	138.4(D) * 50(H) mm				
Waterproof	IP67				
Connector	TNC (SBJ)				
Weight (g)	331				
ENVIRONMENTAL					
Operation Temperature	-40 ~ 85 °C				
Storage Temperature	-40 ~ 85 °C				
GPS ANTENNA					
Application	GPS L5	GPS L2	BeiDou L1	GPS L1	GLONASS
Center Frequency(MHz)	1176	1227	1561	1575.42	1602
Peak Gain (dBi)	-6.14	-11.69	3.24	2.48	0.69
V.S.W.R.	< 2.0				
Impedance(Ω)	50				
Polarization	R.H.C.P				
LNA ELECTRICAL PROPERTIES					
Gain(dB)	42dB	43dB	40dB	39dB	39dB
Noise Figure(typical)	2.7 dB	2.9 dB	3.2 dB	3.0 dB	3.2 dB
Output VSWR	2.0 max.				
DC Input Voltage(V)	3.3 ~ 5.0 V DC				
Current consumption	26 ± 3 mA				

External antennas

GPS

Model name	XG50D	G023	XGM003
			
Application	GPS	GPS	GPS
Size [mm]	49.5 × 38.5 × 17	47 × 45 × 14.5	46 x 38 x 12.5
GPS	1575.42 MHz	1575.42 MHz	1575.42 MHz
Gain at Zenith [dBic]	5 (typical)	5 (typical)	4.87 (typical)
Gain at 10° [dBic]		-1.0 (typical)	
LNA			
Gain [dB]	29 (typical)	19~36 (typical) (30dB at 3V)	28 (typical)

GPS+GLONASS

Model name	EG-6AB-ES-A	EG-24W-AC-N	EG-2B-CS-B
			
Application	GPS L2/L1+ Glonass	GPS+Glonass	GPS+Glonass
Size [mm]	80(D)x 90(L)x 25.4(H)	60.5(D) x 49(H)	80(D) x 71.2(H)
GPS	L2:1227 / L1:1575.42	1575.42 MHz	1575.42 MHz
Peak Gain (dBi)	-11.69/2.48 (L2/ L1)	0.94	1.63
Axial Ratio	1.29/ 2.16 (L2/ L1)		
Glonass	1602.00 MHz	1602.00 MHz	1602.00 MHz
Peak Gain (dBi)	0.69	0.33	1.96
Axial Ratio	2.38		
LNA for GNSS			
Gain (dB)	32~35 (typical)	27(typical)	30~31 (typical)
Noise Figure (dB)	3.0	0.98~0.92	1.23~1.26

GPS/GLONASS/BDS

Model name	A01	EG-20W-AS-A	EG-2B-CS-B
			
Application	GPS & GLONASS	GPS L1/L5+GLONASS+BDS	GPS+GLONASS+BDS
Size [mm]	45(L)x45(W)x14.5(H)	115(L) x115(W) x 75.2(H)	46.24x38.14 x12.37
GPS	1575.42 MHz	L5:1176.46 / L1:1575.42	1575.42 MHz
Peak Gain (dBi)	-0.1(dBic)	1.76 / 3.5 (GPS L5 / L1))	1.21
Axial Ratio (dB)	-6.1(dBic)	2.70 (GPS L5) 1.51 (GPS L1)	
GLONASS	1602.00 MHz	1602.00 MHz	1602.00 MHz
Peak Gain (dBi)	-1.1(dBic)	3.76	1.44
Axial Ratio (dB)	-19.4(dBic)		
BDS	1561.00 MHz	1561.00 MHz	1561.00 MHz
Peak Gain (dBi)	-0.5 (typical)	3.69	1.21
Axial Ratio (dB)			
LNA for GNSS			
Gain (dB)	28 (typical)	43 (typical)	41~42 (typical)
Noise Figure (dB)		2.41	2.2
Output V.S.W.R		< 2	< 2
Current Consumption		26.8 ± 2 mA	8.0 ± 3 mA
Operation Voltage (V)	3	3.3~ 5	2.5 ~5.5
Output Impedance (Ω)	50	50	50

External antennas

GPS/GLONASS/BDS

Model name	EG-37B-AS-B	EG-23G-AS-B
		
Application	GPS+GLONASS+BDS	GPS+GLONASS+BDS
Size [mm]	50(L) x 38(W) x 17(H)	33.95(L) x 25.2(W) x 10.6(H)
GPS	1575.42 MHz	1575.42 MHz
Peak Gain (dBi)	≧ 3	0.79
Return loss (dB)	≦ -10	< -5
GLONASS	1602.00 MHz	1602.00 MHz
Peak Gain (dBi)	≧ 3	0.94
Return loss (dB)	≦ -10	< -6
BDS	1561.00 MHz	1561.00 MHz
Peak Gain (dBi)	≧ 3	0.71
Return loss (dB)	≦ -10	< -5
LNA for GNSS		
Gain (dB)	28 ± 2 (Typical)	28 ± 2 (Typical)
Noise Figure (dB)	< 1.5	< 1.5
Output V.S.W.R	< 2	< 2
Current Consumption	≦ 20 mA	10.56 ± 2 mA
Operation Voltage (V)	3 ~ 5	3.3 ~ 5.0
Output Impedance (Ω)	50	50

GNSS Receiver

Model name	GM-48W	GM-5G
		
Application	GPS/Glonass/QZSS/SBAS	GPS/Glonass/QZSS/SBAS
Size [mm]	56.0(D) x 21.5(H)	58.3(L) x 48(W) x 14.5(H)
GPS		
Frequency(MHz)	1575.42	1575.42
Efficiency(%)	39.99	73.62
Average Gain(dBi)	-3.98	-1.33
Peak Gain(dBi)	1.81	4.83
GLONASS		
Frequency(MHz)	1602.00	1602.00
Efficiency(%)	30.83	71.45
Average Gain(dBi)	-5.11	-1.46
Peak Gain(dBi)	1.08	4.41
Specifications		
V.S.W.R	< 2	< 2
Return loss	< -10	< -10
Impedance	50Ω	50Ω
Polarization	R.H.C.P	R.H.C.P
Protocol	NMEA 0183 V4.0	NMEA 0183 V4.0
Interface	USB or RS232	USB or RS232

External antennas

GPS+BDS

Model name	H01
	
Application	GPS & BDS
Size [mm]	47 × 45 × 14.5
GPS	
Gain at Zenith [dBic]	0.9 (typical)
Gain at 10° [dBic]	-6.3 (typical)
BDS	
Gain at Zenith [dBic]	1.5 (typical)
Gain at 10° [dBic]	-4.8 (typical)
LNA	
Gain [dB]	28~36 (typical) (30dB at 3V) (35dB at 5V)

GNSS/5G NR/4G LTE/Wi-Fi

Model name	MT-15B-AS-B2L3W	MT-10B-AC-B2L2W	MT-10W-AC-B2L2W
			
Application	(6-in-1) GNSS 5G NR/LTE/Wi-Fi	(5-in-1) GNSS 5G NR/LTE/Wi-Fi	(5-in-1) GNSS 5G NR/4G LTE/Wi-Fi
Size [mm]	170.3 x 70.3 x 15.4	108.9(D) x 48.5(H)	102.9(D) x 43.5(H)
GNSS			
Peak Gain (BDS/GPS/GLONASS)	1.21/1.21/1.44	1.21/1.21/1.44	1.21/1.21/1.44
Efficiency (%)	49%/42%/58%	49%/42%/58%	49%/42%/58%
LNA for (BDS/GPS/GLONASS)			
BDS/GPS/GLONASS Gain [dB]	27/27/27	27/27/27	27/27/27
5G NR			
Peak Gain(dBi)	4.78	1.83	1.83
Average Gain(dBi)	-2.04	-3.91	-3.91
Efficiency	62.52% Typ.	40.69% Typ.	40.69% Typ.
LTE 1			
Peak Gain(dBi)	4.53	3.24	3.24
Average Gain(dBi)	-1.33	-2.81	-2.81
Efficiency	73.55% Typ.	52.37% Typ.	52.37%Typ.
LTE 2			
Peak Gain(dBi)	6.81	4.98	4.98
Average Gain(dBi)	-1.42	-2.56	-2.56
Efficiency	72.06% Typ.	55.46% Typ.	55.46% Typ.
Wi-Fi 1			
Peak Gain(dBi)	5.31	4.59	4.59
Average Gain(dBi)	-1.76	-2.09	-2.09
Efficiency	66.68% Typ.	61.80% Typ.	61.80% Typ.
Wi-Fi 2 & Wi-Fi 3			
Peak Gain(dBi)	6.65 & 5.76	3.40	3.40
Average Gain(dBi)	-1.93 & -1.94	-2.52	-2.52
Efficiency	64.12% & 63.97% Typ.	55.98% Typ.	55.98% Typ.

External antennas

GNSS/5G NR/4G LTE/Wi-Fi

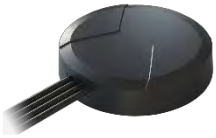
Model name	MT-9B-AC-BLW	MT-6B-AC-BLW	MT-6W-AC-BLW
			
Application	(3-in-1) GNSS 5G NR/4G LTE/Wi-Fi	(3-in-1) GNSS 4G LTE / Wi-Fi	(3-in-1) GNSS 4G LTE / Wi-Fi
Size [mm]	80(D) x 37.9(H)	80(D) x 25.4(H)	80(D) x 25.4(H)
GNSS			
Peak Gain (BDS/GPS/GLONASS)	1.21/1.21/1.44	1.63/1.96	1.63/1.96
Efficiency (%)	49%/42%/58%	50% / 63%	50% / 63%
LNA for (BDS/GPS/GLONASS)			
BDS/GPS/GLONASS Gain [dB]	27/27/27	30 /29	30 /29
5G NR			
Peak Gain(dBi)	3.88		
Average Gain(dBi)	-4.23		
Efficiency	37.80% Typ.		
LTE 1			
Peak Gain(dBi)	5.96	8.15	8.15
Average Gain(dBi)	-2.16	-2.13	-2.13
Efficiency	60.76% Typ.	61.18% Typ.	61.18% Typ.
Wi-Fi 1			
Peak Gain(dBi)	4.28	6.04	6.04
Average Gain(dBi)	-2.11	-1.51	-1.51
Efficiency	61.52% Typ.	70.63% Typ.	70.63% Typ.

GNSS/5G NR/4G LTE/Wi-Fi

Model name	MT-4B-AC-BLW	MT-4B-AS-BLW
		
Application	(3-in-1) GNSS 5G NR/4G LTE/Wi-Fi	(3-in-1) GNSS 5G NR/4G LTE/Wi-Fi
Size [mm]	65(D) x 20.35(H)	65(D) x 15.8(H)
GNSS		
Peak Gain (BDS/GPS/GLONASS)	1.21/1.21/1.44	1.21/1.21/1.44
Efficiency (%)	49%/42%/58%	49%/42%/58%
LNA for (BDS/GPS/GLONASS)		
BDS/GPS/GLONASS Gain [dB]	27/27/27	27/27/27
5G NR		
Peak Gain(dBi)	2.81	3.27
Average Gain(dBi)	-4.27	-3.34
Efficiency	37.39% Typ.	46.34% Typ.
LTE 1		
Peak Gain(dBi)	4.08	5.48
Average Gain(dBi)	-2.84	-1.56
Efficiency	52.00% Typ.	69.86% Typ.
Wi-Fi 1		
Peak Gain(dBi)	4.07	7.18
Average Gain(dBi)	-2.14	-2.01
Efficiency	61.09% Typ.	62.95% Typ.

External antennas

GNSS/5G NR/4G LTE

Model name	MT-38B-AS-B2LW	MT-9W-AC-BL	E01
			
Application	(4-in-1) GNSS 4G LTE/ Wi-Fi	(2-in-1) GNSS 5G NR/4G LTE/Wi-Fi	(2-in-1) GNSS 5G NR/4G LTE/Wi-Fi
Size [mm]	71.9(D) x 15.9(H)	80(D) x 37.90(H)	71.2 (outer diameter)
GNSS			
Peak Gain (BDS/GPS/GLONASS)	1.21/1.29/1.44	1.21/1.21/1.44	1.21/1.21/1.44
Efficiency (%)	49%/42%/58%	49%/42%/58%	49%/42%/58%
LNA for (BDS/GPS/GLONASS)			
BDS/GPS/GLONASS Gain [dB]	31/30/28	27/27/27	27/27/27
5G NR			
Peak Gain(dBi)		2.98	
Average Gain(dBi)		-3.00	
Efficiency		50.16% Typ.	
LTE 1			
Peak Gain(dBi)	4.34	5.84	
Average Gain(dBi)	-3.19	-2.32	
Efficiency	48.01% Typ.	58.55% Typ.	

5G NR/4G LTE/Wi-Fi

Model name	MT-6B-AS-LLW	MT-14B-AS-LKWE
		
Application	(3-in-1) 5G/4G LTE/Wi-Fi	(3-in-1) 5G/4G LTE/Wi-F
Size [mm]	80(D) x 25.4(H)	226.8x 26.5x 7.55
5G NR		
Peak Gain(dBi)		3.44
Average Gain(dBi)		-3.80
Efficiency		41.66%
LTE 1		
Peak Gain(dBi)	3.86	4.15
Average Gain(dBi)	-2.71	-2.64
Efficiency	53.59% Typ.	54.51% Typ.
LTE 2		
Peak Gain(dBi)	5.64	4.40
Average Gain(dBi)	-2.58	-2.63
Efficiency	55.22% Typ.	54.60% Typ.
Wi-Fi 1		
Peak Gain(dBi)	4.05	3.91
Average Gain(dBi)	-2.79	-3.36
Efficiency	52.60% Typ.	46.13% Typ.

External antennas

GSM: 3G, 4G LTE

Model name	XC76D	XC76D	EPH-405AL
			
Application	GSM/3G	GSM/4G/LTE	GSM/4G/LTE
Size [mm]	75.5 (length)	150(L)×25(W)×4.8(T)	173(L)×26.5(W)×2.9(T)
Peak Gain [dBi]	-1.4 @ 890 MHz 0.2 @ 1950 MHz	1.75 @ 870 MHz 3.15 @ 1800 MHz	2.98 @ 698 - 824 MHz 2.63 @ 824 - 960 MHz 2.14 @ 1710 -1880 MHz 2.62@ 1850 -2170 MHz 6.0 @ 2300 -2690 MHz

Model name	EHN-602	EHN-603L / LJ
		
Application	4G LTE outdoor	4G LTE outdoor
Size [mm]	250(L) x 30(D)	208.1(L) x 23.5(D)
Peak Gain [dBi]		
698-824 MHz	2.09	5.97
824-960 MHz	0.87	2.3 @ 1500 MHz
1710-1880 MHz	2.54	4.92
1850-1990 MHz	2.62	4.92
1920-2170MHz	3.58	4.53
2300-2690MHz	3.26	3.62
3300-3800MHz		4.36

GSM:3G, 4G LTE

Model name	TA-24B-A-L	TA-5B-A-L	MW-1B-A-C	MW-2B-A-C
				
Application	4G / LTE	4G / LTE	4G / LTE	4G / LTE
Size [mm]	48(L)x 17(W) x 7(T)	65.7(L) x 7.8(D)	116(L) x 29.5(D)	288(L) x 29.5(D)
Peak Gain [dBi]				
698-824 MHz	3.85	2.95	1.81	0.04
824-960 MHz	2.59	2.78	3.93	1.54
1710-1880 MHz	4.17	3.11	2.06	-0.16
1850-1990 MHz	4.31	4.84	2.79	2.90
1920-2170 MHz	4.31	4.84	2.79	2.90
2300-2690 MHz	3.28	4.32	2.02	0.24
3300-3800 MHz			5.40	1.69

Model name	TA-S7B-A-L	TA-S8B-A-L	TA-S10B-A-L	TA-C12B-A-L
				
Application	4G / LTE	4G / LTE	4G / LTE	4G / LTE
Size [mm]	157.5(L) x 17.6(D)	193(L) x 13(D)	108(L) x 10(D)	170(L) x 10(D)
Peak Gain [dBi]				
617-698 MHz	3.02			
698-824 MHz	0.70	2.87	1.98	2.76
824-960 MHz	0.63	2.39	1.05	2.87
1420-1561 MHz	2.50			
1710-1880 MHz	2.83	3.79	3.26	3.16
1850-1990 MHz	2.91	5.90	2.99	5.46
1920-2170 MHz	3.65	5.90	3.12	5.46
2300-2690 MHz	3.67	4.35	1.31	5.38

External antennas

Cellular: 3G, 4G LTE, 5G

Model name	EC-18B-AC-L	EC-29B-AS-L	EPH-401(F)
			
Application	5G / 4G / LTE	5G NR / 4G / LTE	5G NR / 4G / LTE
Size [mm]	80.8(L) x 42.0(D)	116(L)x 21.8(W) x 4.7(T)	104(L)x 10.8(W) x 6.7(T)
Peak Gain [dBi]			
698-824 MHz	3.96	4.57	0.43
824-960 MHz	4.82	4.30	2.95
1710-1880 MHz	4.29	2.18	4.98
1850-1990 MHz	4.89	3.25	4.54
1920-2170 MHz	4.89	3.00	3.11
2300-2690 MHz	4.89	1.66	3.95
3300-3800 MHz	4.97	3.60	3.71

Cellular: 3G, 4G LTE, 5G

Model name	TA-C12B-A-Z	TA-1B-A-L	TA-S10B-A-X
			
Application	5G / 4G / LTE	5G NR / 4G / LTE	5G NR / 4G / LTE
Size [mm]	196(L) x 26.9(W) x 14.4(T)	169(L)x 18(W) x 13.7(T)	108(L) x 10(D)
Peak Gain [dBi]			
617-698 MHz	1.29	3.85	5.53 @ 4400 MHz
698-824 MHz	2.00	3.98	4.62 @ 4600 MHz
824-960 MHz	1.29	3.61	4.46 @ 4800 MHz
1710-1880 MHz	3.77	-0.16	
1850-1990 MHz	4.55	0.67	
1920-2170 MHz	5.49	0.85	
2300-2690 MHz	5.21	2.41	
3300-3800 MHz	5.14	5.67	
3600-4600 MHz	6.57	1.91	
5150-5850 MHz	7.72	2.70	

Cellular: 4G LTE, 5G

Model name	TA-18W-A-L	TA-38B-A-L
		
Application	5G / 4G / LTE / 5G outdoor	5G NR / 4G / LTE Indoor
Size [mm]	208.1(L) x 23.5(D)	133.5(L)x 19(W) x 10(T)
Peak Gain [dBi]		
617-698 MHz	2.06	1.95
698-824 MHz	2.94	1.70
824-960 MHz	5.02	1.70
1420-1561 MHz	4.60	- -
1710-1880 MHz	3.07	1.99
1850-1990 MHz	1.67	2.17
1920-2170MHz	1.53	2.02
2300-2690MHz	2.88	2.54
3300-4000 MHz	3.06	2.75
5150-5850MHz	2.43	2.46

UHF

Model name	TA-T22B-A-X	TA-T23B-A-X
		
Application	340-355MHz	340-355MHz
Size [mm]	83(L) x 10(D)	49.5(L) x 8(D)
Return Loss (dB)	< -6	< -6
V.S.W.R	< 3	< 3
Impedance (Ω)	50	50
Polarization	Linear	Linear
Connector	SMA (Male)	SMA (Male)

External antennas

Wi-Fi Dual Band (2.4GHz + 5GHz)

Model name	TA-4B-A-WE	TA-6B-A-WE	TA-S7B-A-WE	TA-S8B-A-WE
				
Application	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band
Size [mm]	394(L) x 13(D)	89.5(L) x 7.5(D)	157.5(L) x 17.6(D)	193(L) x 13(D)
Peak Gain [dBi]	9.0 @ 2450Mhz 5.0 @ 5500Mhz	2.17 @ 2450Mhz 2.90 @ 5850Mhz	5.35 @ 2450Mhz 5.45 @ 5850Mhz	6.42 @ 2450Mhz 3.65 @ 5850Mhz

Model name	TA-S9B-A-WE	TA-S10B-A-WE	TA-S10W-A-WE	TA-S13B-B-WE
				
Application	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band
Size [mm]	157(L) x 12.5(D)	108(L) x 10(D)	108(L) x 10(D)	170(L) x 10(D)
Peak Gain [dBi]	5.01 @ 2450Mhz 3.74 @ 5850Mhz	2.52 @ 2450Mhz 4.05 @ 5850Mhz	2.52 @ 2450Mhz 4.05 @ 5850Mhz	4.74 @ 2450Mhz 3.91 @ 5850Mhz

Wi-Fi Dual Band (2.4GHz + 5GHz)

Model name	XU20H	EW-00B-BS-W	EW-29B-AS-W	EW-18B-AC-W
				
Application	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band	Wi-Fi Dual Band
Size [mm]	194(L) x 12.5(D)	50(L)x8.8(W)x2.8(T)	116(L)x21.8(W)x4.7(T)	80.8(L) x 42(D)
Peak Gain [dBi]	2.2 @ 2442Mhz 2.0 @ 5550Mhz	1.22 @ 2450Mhz 6.81 @ 5850Mhz	3.40 @ 2450Mhz 5.33 @ 5850Mhz	2.39 @ 2450Mhz -0.87 @ 5850Mhz

Wi-Fi 6E

Model name	TA-38B-A-W
	
Application	2.4 / 5.8 / 6.0 GHz
Size [mm]	133.5(L) x 10(D) x 19(W)
Peak Gain [dBi]	2.02 @ 2450MHz 2.92 @ 5850MHz 3.58 @ 7125MHz

External antennas

Wi-Fi (2.4GHz)

Model name	AA900	XW51D	XW76D
			
Application	Wi-Fi (2.4GHz)	Wi-Fi (2.4GHz)	Wi-Fi (2.4GHz)
Size [mm]	51(L)× 9.45(D)	51(L) × 9.45(D)	75.5 (length)
Peak Gain [dBi]	1.3 @ 2442 MHz	0 @ 2442 MHz	0.4 @ 2442 MHz

Wi-Fi (2.4GHz)

Model name	TA-2B-A-W	TA-28B-A-W
		
Application	Wi-Fi (2.4GHz)	Wi-Fi (2.4GHz)
Size [mm]	30(L) x 8(D)	105(L) x 9.35(D)
Peak Gain [dBi]	4.35 @ 2450MHz	3.33 @ 2450Mhz

ISM

Model name	TA-26B-A-S	TA-R17B-A-S9	TA-S10B-A-S9	TA-4B-B-S
				
Application	ISM 915MHz	ISM 915MHz	ISM 915MHz	ISM 915MHz
Size [mm]	160(L) x 10(D)	196(L) x 12.5(D)	108(L) x 10(D)	389(L) x 13(D)
Peak Gain [dBi]				
902 MHz	3.24	2.3	3.13	3.74
915 MHz	3.75	3.34	4.02	4.49
928 MHz	3.44	3.7	4.36	3.92

Model name	TA-30G-A-S	TA-S10B-A-S8	TA-27B-A-GS
			
Application	ISM 868&915MHz	ISM 868MHz	ISM 868MHz & GPS
Size [mm]	188.25(L) x 21.8(D)	108(L) x 10(D)	84.4(L) x 7.8(D)
Peak Gain [dBi]			
863 MHz	2.19	3.10	ISM 868 : 1.29
868 MHz	2.52	2.55	GPS 1575.42 : 1.66
873 MHz	2.80	2.35	
902 MHz	2.87		
915 MHz	3.15		
928 MHz	3.12		

External antennas

DTV

Model name	C03
	
Application	DTV
Size [mm]	150 × 25 × 4.8
Peak Gain [dBi]	1.87 (typical)

SDAR

Model name	D014
	
Application	SDAR
Size [mm]	47 × 45 × 14.5
Gain at Zenith [dBic]	5 (typical)
Gain at 10° [dBic]	-1.0 (typical)
LNA gain [dB]	38 (typical)

Notes

Unictron website

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