

## MAX Wideband Antenna Family

Models: RA150-CX1, RA150-IPX

*Patent-pending omnidirectional antenna, based on a hybrid-design for market leading performance.*

*Excellent efficiency over a very wide frequency range, covering 700 to 3000 MHz.*

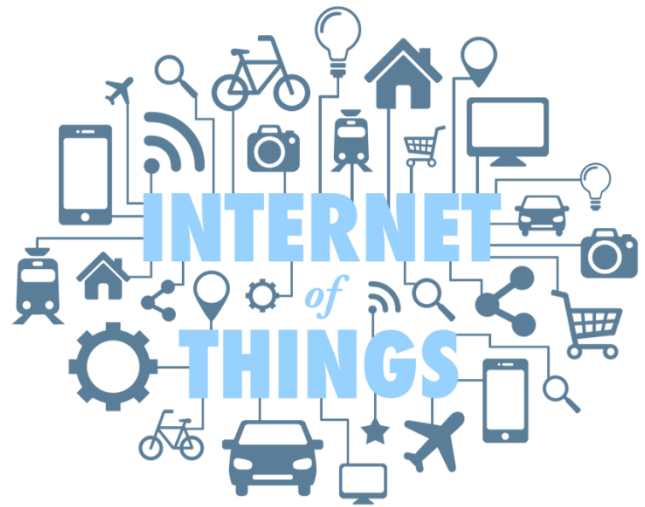
*Very suitable for Bluetooth, Wi-Fi, 2G, 3G, 4G/LTE, LPWAN, ZigBee, GPS, IoT applications and more.*

## Overview

### Full IoT Frequency Range

The MAX antennas from RangeAnt are the first omnidirectional true wideband antennas on the market, specially designed for the entire range from 700 to 3000 MHz. This makes it easier to launch a product for the global market because the same antenna supports all frequency bands in this range.

That is, no matter which communication protocols you intend to use in your product, such as Bluetooth, ZigBee, LPWAN (LoRa, Sigfox, Weightless etc), Wi-Fi, 2G, 3G, 4G/LTE, NB-IoT and more, the MAX antenna will work very well.

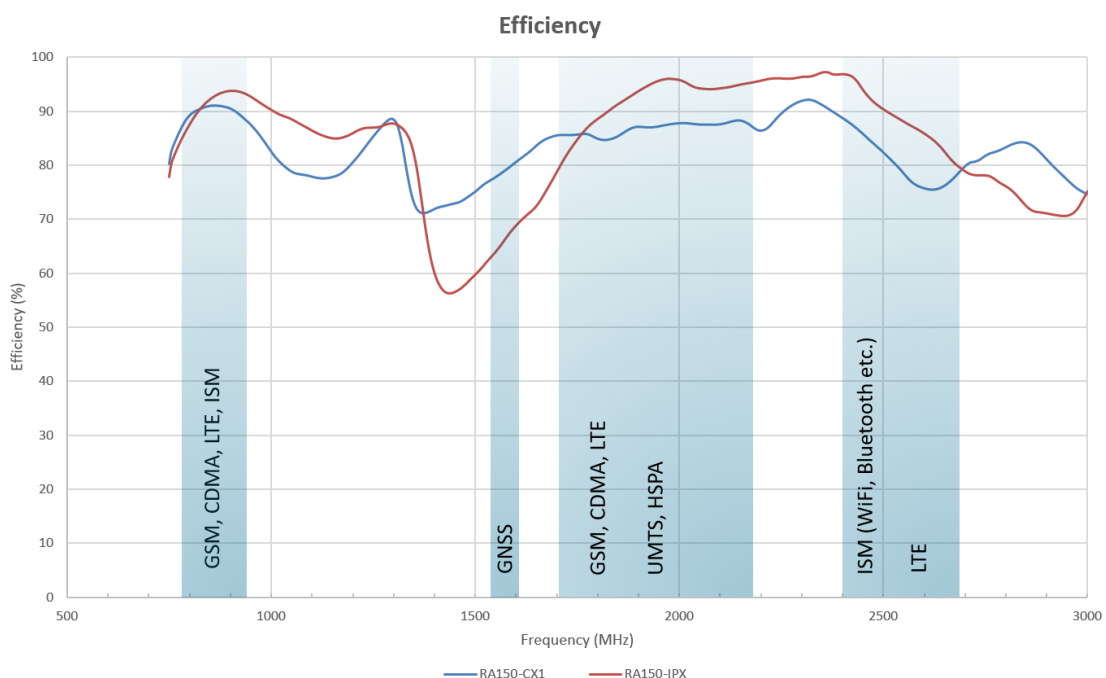


### High Efficiency

The high efficiency of the RangeAnt MAX wideband antenna family is based on a unique and patent-pending technology, providing market leading performance. This in terms of longer range, or lower power consumption, depending on what is most important in the current application.

Furthermore, the enhanced signal strength offered by these antennas also enables higher data rates and unrivaled coverage in harsh environments. These antennas are therefore ideal for most applications, especially within IoT.

The unique design of the patent-pending antenna enables it to operate independent of a separate ground-plane to achieve full performance. This can reduce both the size and number of other components in the system, thus simplifying system design of the final product.



## Specification MAX antennas

### Antenna Characteristics

Model	RA150-CX1 (150mm RG178 coax cable with male SMA contact)	RA150-IPX (IPX contact on PCB)
Frequency Range*	700MHz to 3000MHz	700MHz to 3000MHz
Peak Gain at 2.4GHz	+3 dBi	+3 dBi
Impedance	50 ohms	50 ohms
Design	Omnidirectional	Omnidirectional
Type	Patent Pending Monopole / Dipole Hybrid	Patent Pending Monopole / Dipole Hybrid
Size	150x37 mm ( $\pm 0,2$ mm)	150x37 mm ( $\pm 0,2$ mm)
Thickness PCB	0,8 mm	0,8 mm
Antenna Colour **	Black	Black
Connector	150mm RG178 coax cable with male SMA contact	IPX connector on PCB
Operating Temperature	-40 to +85°C	-40 to +85°C
Certifications	CE, RoHS	CE, RoHS

\* Detailed frequency response specified later in this document

\*\* Custom colours available on request

### Free Space Frequency Response RA150-IPX (IPX contact on PCB)

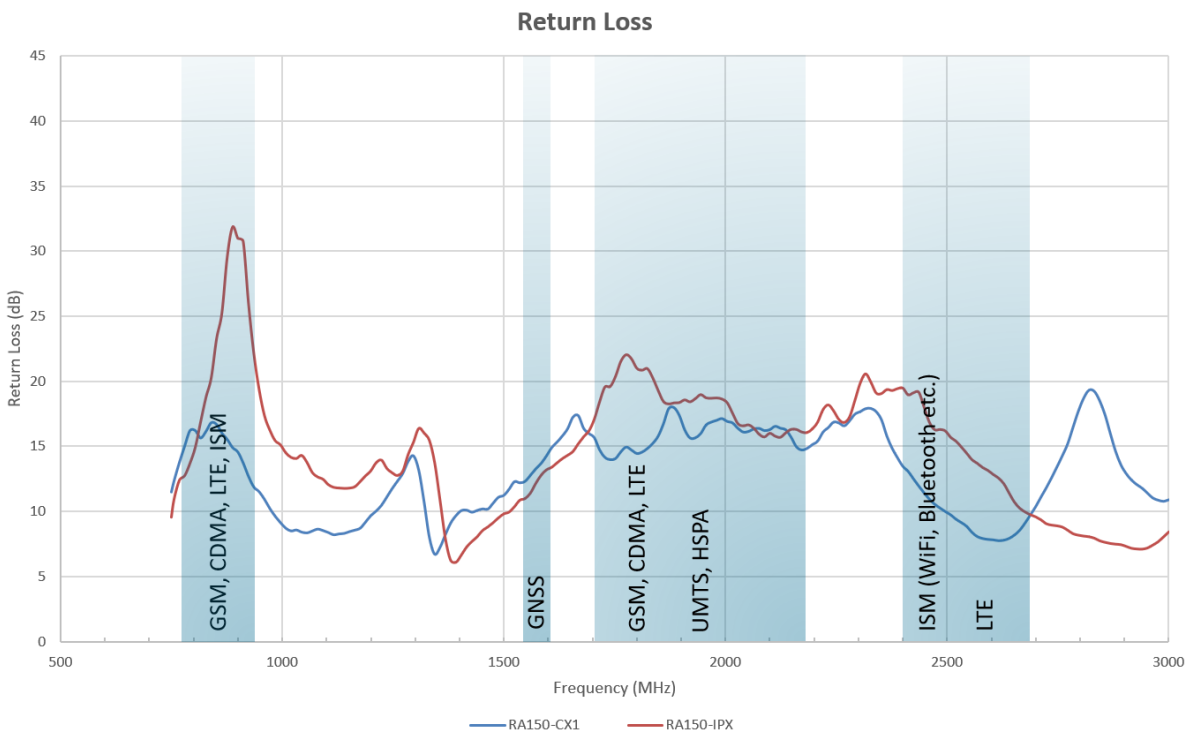
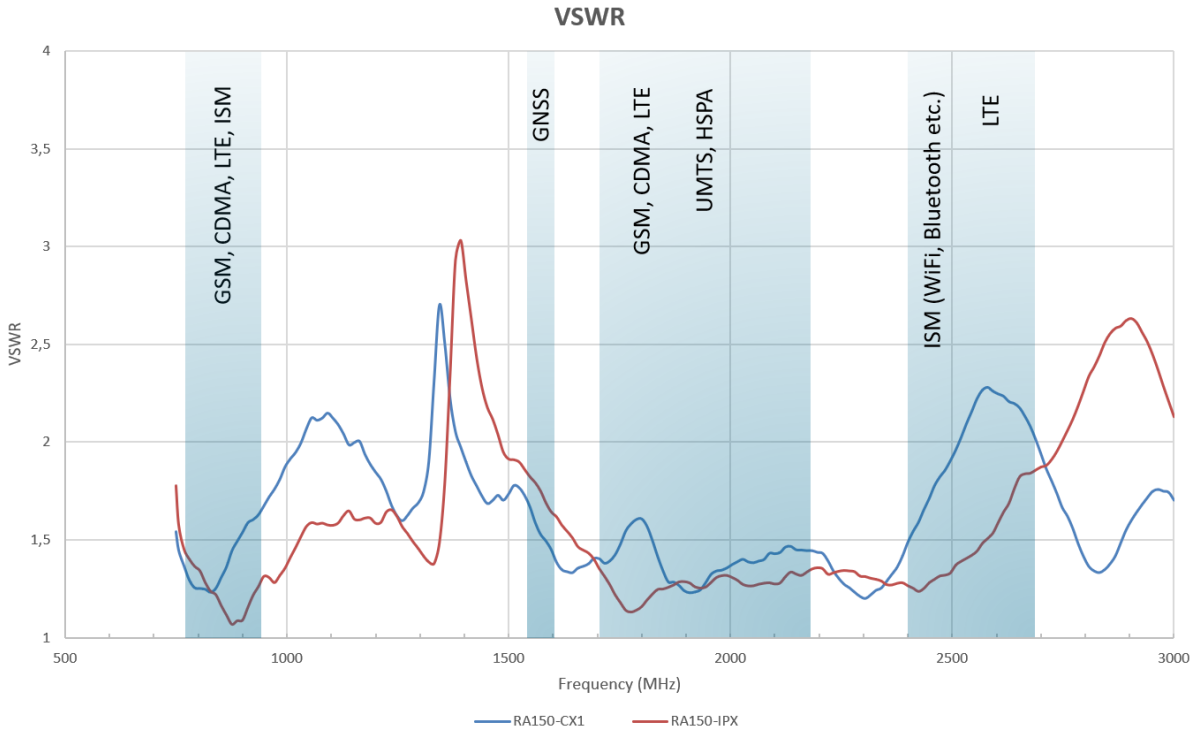
Band (MHz)	800-900	1500-1600	1700-1900	2100	2400	2600-2700
Standard	GSM, CDMA, LTE	GNSS	GSM, CDMA, LTE	UMTS, HSPA	ISM	LTE
Frequency (MHz)	791-960	1559-1610	1710-1990	1755-2170	2400-2500	2500-2690
Avg Efficiency (%)	92.3	92.2	92.0	91.7	91.3	90.8
Avg VSWR	1.3	1.3	1.4	1.4	1.5	1.5
Avg Return Loss (dB)	21.2	11.6	26.1	25.6	10.6	9.7

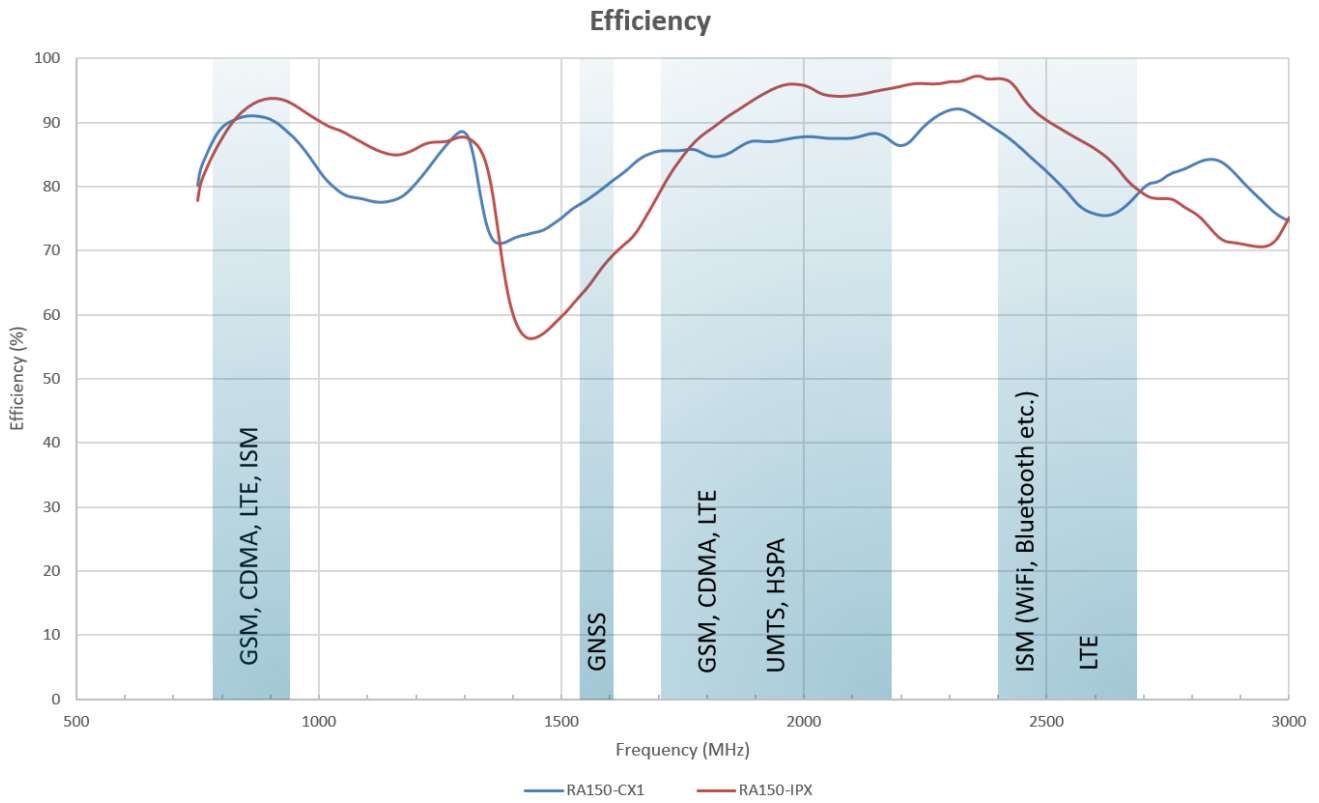
### Free Space Frequency Response RA150-CX1 (150mm Coax & SMA)

Band (MHz)	800-900	1500-1600	1700-1900	2100	2400	2600-2700
Standard	GSM, CDMA, LTE	GNSS	GSM, CDMA, LTE	UMTS, HSPA	ISM	LTE
Frequency (MHz)	791-960	1559-1610	1710-1990	1755-2170	2400-2500	2500-2690
Avg Efficiency (%)	85.9	86.8	87.4	87.6	87.6	87.4
Avg VSWR	1.5	1.5	1.5	1.6	1.6	1.7
Avg Return Loss (dB)	15.6	17.0	14.7	28.9	11.2	10.1

## MAX Antenna Characteristics

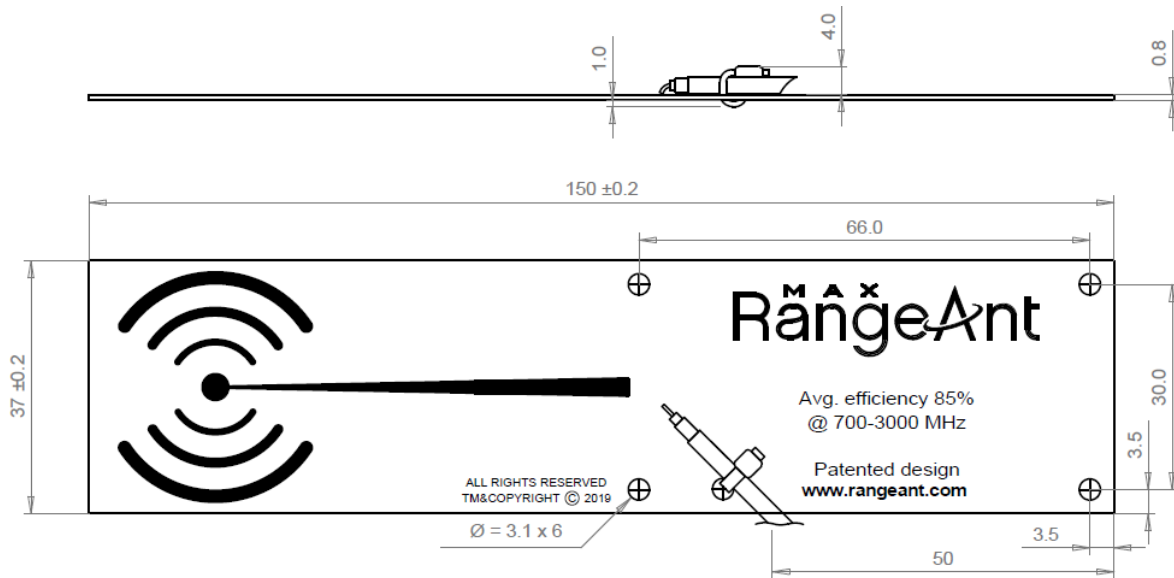
The antenna characteristics below are based on a standard matching network in free space. For optimum performance in a specific user case, it is possible to customize the antennas matching network. Please contact ShortLink for more information.



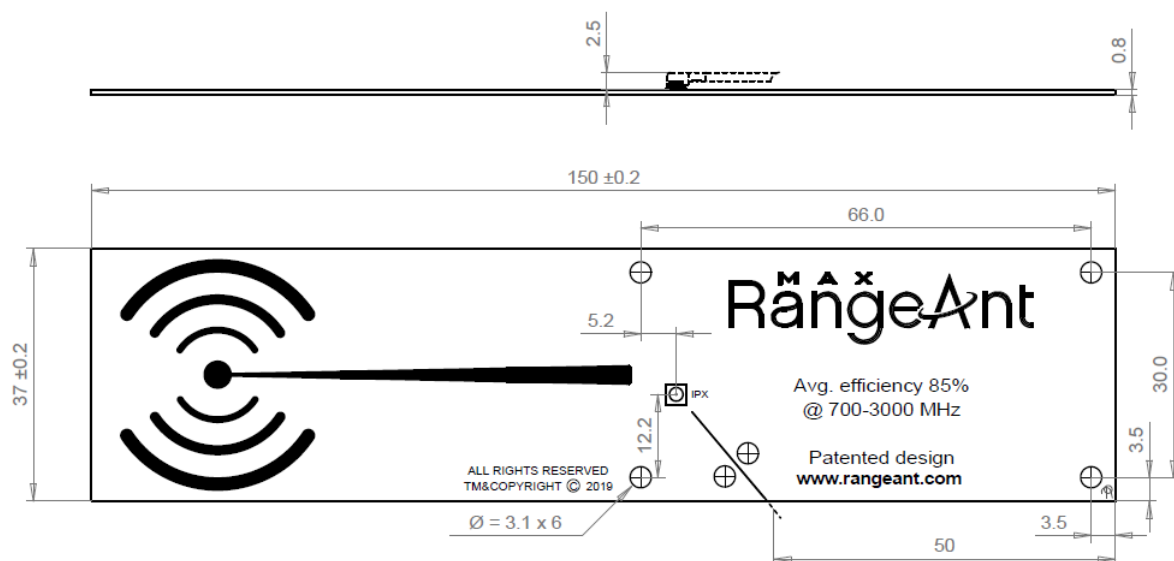


## Mechanical Drawings

Mechanical Drawing, MAX RA150-CX1 (150mm coax cable with male SMA contact)



Mechanical Drawing, MAX RA150-IPX (UFL/IPX connector on PCB)



## Model and Ordering Codes

**RA150 - XXX - XX - 01**

(1) (2) (3) (4)

**(1) Family**

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RA150 = RangeAnt MAX 150mm Omnidirectional IoT Antenna family

**(2) Connection**

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IPX = IPX Connector on PCB

CX1 = 150mm coax cable with male SMA contact

**(3) Matching Network**

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NM = No matching network on PCB

M = Matching network on PCB

**(4) Version Number**

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01 = Version Number

## Contact

**Sales Contact** [sales@rangeant.com](mailto:sales@rangeant.com)  
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