



TAOGLAS®



Colosseum Series

Product Features

- Low-profile Permanent Mount Enclosure
- Up to 5 Antennas in one enclosure
- Capability to cover 5G/4G MIMO 600-6000MHz
- Wi-Fi MIMO 2.4/5.8GHz
- GNSS
- IP69K Waterproof Enclosure
- Dimensions: Ø94.3mm * 57.4mm
- Fully Customizable Cable and Connectors
- RoHS & Reach Compliant

Specsheet

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1. Introduction



The Taoglas Colosseum Series is an up to 5-in-1 antenna, low profile, heavy-duty, fully IP69K waterproof external antenna for use in worldwide telematics applications which require best in class 5G/4G, Wi-Fi and GNSS performance. It is ideal for solutions that do not have space for mounting the larger dome antennas but still require good efficiency and gain.

This unique product, at only 57.4mm tall, delivers powerful worldwide 5G/4G MIMO antenna technology from 600-6000MHz and also dual-band Wi-Fi MIMO, plus GPS-GLONASS-Galileo-BeiDou for location tracking applications. The 5G/4G antennas also include legacy 3G and 2G bands to enable fallback using the correct modems in areas where there is no 5G/4G signal.

Up to 5 antennas inside support 5G/4G, Multi-Band GNSS, and Wi-Fi (2.4GHz/5.8GHz), the Colosseum Series can be customized with combination of up to 2 Cellular, 2 Wi-Fi and 1 GNSS antennas to better serve different customers' applications. The 5G/4G antennas are wideband 600MHz to 6GHz to cover the full spectrum of 5G frequencies.

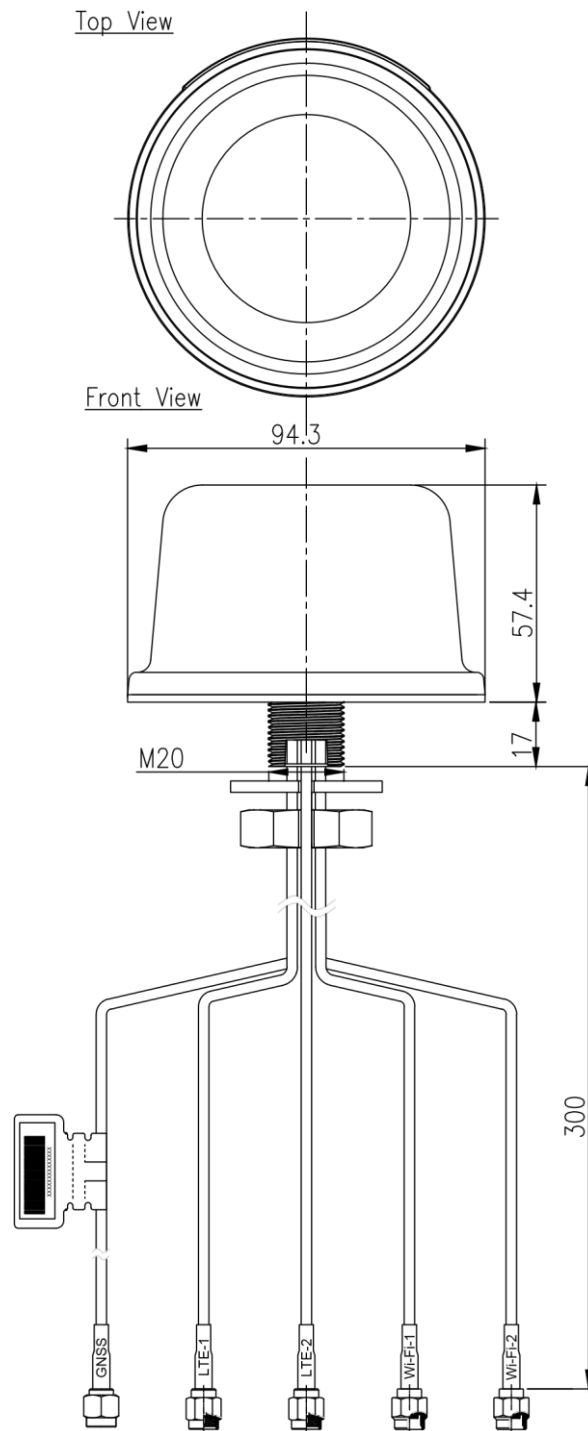
Combining GNSS, 5G/4G, Wi-Fi, and an incredibly compact PC enclosure with a fully IP69K rated waterproof, The Colosseum Series is the right powerful, compact combination antenna for your application.

Typical Applications Include:

- Bus Telematics
- Remote Asset and Pipeline Monitoring
- HD Video over LTE
- First Responder and Emergency Services
- Automotive Vehicle Tracking and Telematics

Cable and connectors are customizable. Please contact your regional Taoglas customer support team for further information.

2. Mechanical and Environmental Information



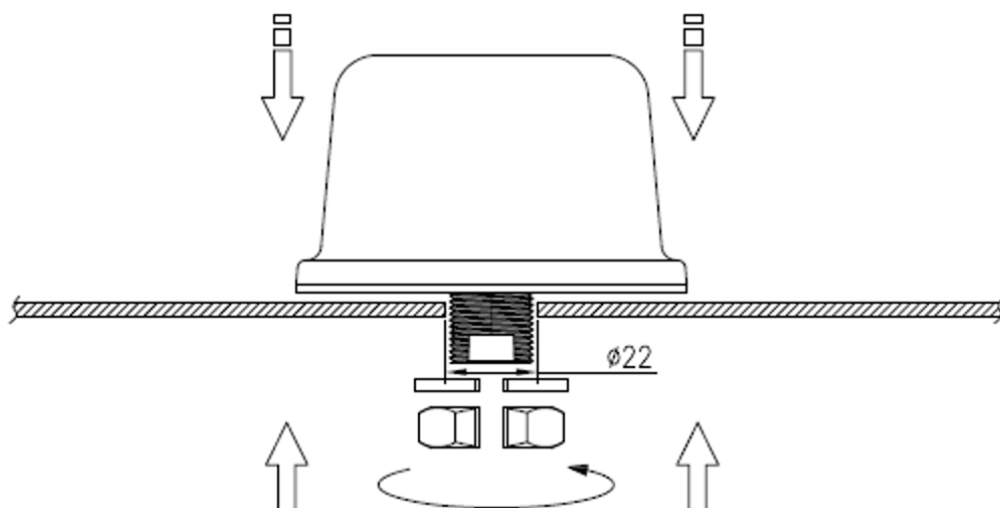
Information based on the [MA850.A.LBICG.001](#) product.

Mechanical	
Dimensions	Diameter: 94.3mm, Height: 57.4 mm
Casing	ASA
Base and thread	Zinc Alloy
Weight	250g
Ingress Protection Rating	IP69K
Recommended Troque for Mounting	5-7 N•m
Cable*	GNSS – 0.3 m RG174 Wi-Fi – 0.3 m RG174 Cellular - 0.3 m RG174
Connector*	GNSS – SMA(M) Wi-Fi – RP-SMA(M) Cellular - SMA(M)
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 90°C
Humidity	Non-condensing 65°C 95% RH

Information based on the [MA850.A.LBICG.001](#) product.

*Cable and connector are fully customizable

3. Installation Instructions



Recommended torque for mounting: 5-7Nm
(Torque value obtained with antenna mounted on 1mm thick SUS-316 bracket)

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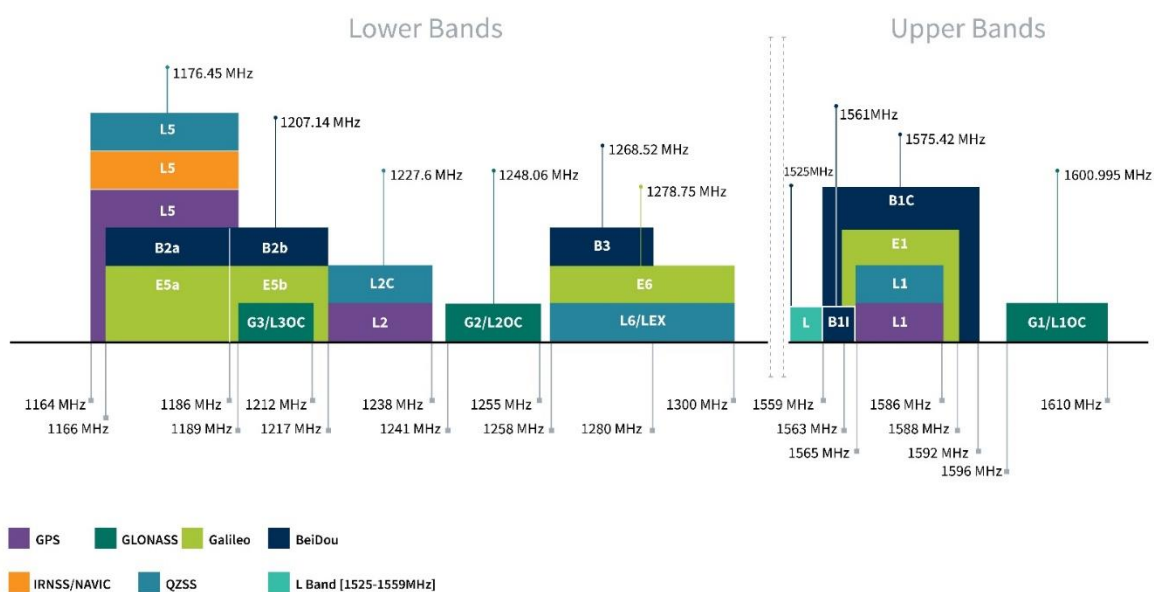
Antenna Part Numbers		Number of Antennas
MA841.A.BI.002	MA841 Colosseum 2-in-1 5G/4G MIMO Permanent Mount Antenna	2 x 5G/4G MIMO
MA850.A.LBICG.002	Colosseum MA850 5-in-1 Permanent Mount 2*5G/4G MIMO, 2*Wi-Fi MIMO, GNSS FAKRA Connectors	1 x GNSS 2 x 5G/4G MIMO 2 x Wi-Fi MIMO
MA850.A.LBICG.001	Colosseum MA850 5-in-1 Permanent Mount 2*5G/4G MIMO, 2*Wi-Fi MIMO, GNSS	1 x GNSS 2 x 5G/4G MIMO 2 x Wi-Fi MIMO

Accessories Part Numbers	
MMB.A.EXTMA.21	Torus MMB.A.EXTMA.21 Magnetic Mount Roof Top Bracket
PMB.L.SYN.22	Pole Mount Bracket
UMB.ALL.A	Multi Mount Bracket

4. Electrical Specification

GNSS Frequency Bands Covered							
GPS/QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz			
	■	□	□	□			
GLONASS	L5R 1176.45MHz	L3PT 1201.5MHz	L2PT 1246MHz	L1CR 1575.42MHz	L1PT 1602MHz		
	□	□	□	■	■		
Galileo	E5a 1176.45MHz	E5b 1201.5MHz	E4 1215MHz	E3 1256MHz	E6 1278.75MHz	E2 1561MHz	L1 1575.42MHz
	□	□	□	□	□	■	■
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz				
	■	□	□				
Compass	E5B(B2)/ E6(B3) 1268.56MHz	E2(B1) 1561MHz					
	□	■					
SBAS	Omnistar 1542.5MHz	WAAS/EGN OS 1575.42MHz					
	□	■					

Information based on the [MA850.A.LBICG.001](#) product.



GNSS Electrical			
Frequency (MHz)	1575.42MHz	1602MHz	1561MHz
Passive Antenna Efficiency (%) (Without cable loss)	44%	58%	49%
Passive Antenna Average Gain (dB) (Without cable loss)	-3.5dB	-2.4dB	-3.1dB
Passive Antenna Peak Gain (dBi) (Without cable loss)	2.3dBi	4.3dBi	3.3dBi
Axial Ratio (dB)	<6.2	<9.8	<16.5
VSWR (max.)	3:1 Max		
Polarization	RHCP		
Impedance	50Ω		

LNA and Filter Electrical Properties				
Frequency (MHz)	1575.42MHz	1602MHz		1561MHz
Pout 1dB Gain Compression Point	-6dBm Min. -2 dBm Typ. (1561MHz,1575.42MHz,1602MHz)			
Output Impedance	50Ω			
VSWR	< 2:1			
Return Loss	10 dB Min.			
LNA Gain, Current Draw, and Noise Figure @GPS	Voltage	LNA Gain (Typ.)	Current Draw (Typ.)	Noise Figure (Typ.)
	Min 1.8V	28dB	7.9mA	1.9dB
	Typ. 3.0V	28dB	8.3mA	2.7dB
	Max 5.5V	30dB	8.3mA	2.2dB

Total Specification (Through Antenna, SAW Filter and LNA)			
Frequency (MHz)	1561.068±2.046MHz	1575.42±1.023MHz	1602±5MHz
Gain@3V (dBi)	1575.42MHz:31±3dBi	1575.42MHz:31±3dBi	1602MHz:31±3dBi
Output Impedance	50 Ω		

Information based on the [MA850.A.LBICG.001](#) product.

5G/4G Electrical								
Band	Frequency (MHz)		Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	VSWR	Polarization
5G NR/4G Band 71	617~698	LTE 1	27	-5.8	0.59	50Ω	< 3	Linear
		LTE 2	20	-7.1	1.48			
4G/3G Band 12,13,14,17,28,29	698~806	LTE 1	37	-4.3	2.70			
		LTE 2	20	-7.1	2.57			
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	LTE 1	36	-4.4	2.13			
		LTE 2	31	-5.3	2.00			
5G NR/4G Band 21,32,74,75,76	1427~1518	LTE 1	30	-5.4	1.66			
		LTE 2	26	-5.9	2.02			
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	LTE 1	47	-3.6	4.88			
		LTE 2	39	-4.1	4.88			
4G/3G Band 7,30,38,40,41	2300~2690	LTE 1	46	-3.4	6.77			
		LTE 2	46	-3.3	6.74			
5G NR/4G Band 22,42,48,77,78,79	3300~4200	LTE 1	44	-3.6	5.33			
		LTE 2	40	-4.1	5.39			
LTE5200/ Wi-Fi 5800	5150~5925	LTE 1	36	-4.4	3.95			
		LTE 2	27	-5.7	3.71			

Wi-Fi									
Band	Frequency (MHz)		Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	ECC	VSWR	Impedance	Polarization
2.4GHz	2400~2500	Wi-Fi 1	50	-3.0	3.9	<0.3	<2	50Ω	Linear
		Wi-Fi 2	54	-2.7	3.9				
5.8GHz	4900~5850	Wi-Fi 1	49	-3.2	5.3	<0.3	<3.5		
		Wi-Fi 2	45	-3.5	5.7				

Information based on the [MA850.A.LBICG.001](#) product.

5G/4G Bands			
Band Number	5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA		
	Uplink	Downlink	Covered
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 849	DL: 869 to 894	✓
7	UL: 2500 to 2570	DL: 2620 to 2690	✓
8	UL: 880 to 915	DL: 925 to 960	✓
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✓
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✓
12	UL: 699 to 716	DL: 729 to 746	✓
13	UL: 777 to 787	DL: 746 to 756	✓
14	UL: 788 to 798	DL: 758 to 768	✓
17	UL: 704 to 716	DL: 734 to 746	✓
18	UL: 815 to 830	DL: 860 to 875	✓
19	UL: 830 to 845	DL: 875 to 890	✓
20	UL: 832 to 862	DL: 791 to 821	✓
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✓
22	UL: 3410 to 3490	DL: 3510 to 3590	✓
23	UL: 2000 to 2020	DL: 2180 to 2200	✓
24	UL: 1625.5 to 1660.5	DL: 1525 to 1559	✓
25	UL: 1850 to 1915	DL: 1930 to 1995	✓
26	UL: 814 to 849	DL: 859 to 894	✓
27	UL: 807 to 824	DL: 852 to 869	✓
28	UL: 703 to 748	DL: 758 to 803	✓
29	UL: -	DL: 717 to 728	✓
30	UL: 2305 to 2315	DL: 2350 to 2360	✓
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5	✗
32	UL: -	DL: 1452 - 1496	✓
35		1850 to 1910	✓
38		2570 to 2620	✓
39		1880 to 1920	✓
40		2300 to 2400	✓
41		2496 to 2690	✓
42		3400 to 3600	✓
43		3600 to 3800	✓
48		3550 to 3700	✓
66	UL: 1710-1780	DL: 2110-2200	✓
71		617 to 698	✓
74/75/76		1427 to 1518	✓
78		3300 to 3800	✓
79		4400 to 5000	✓
85	698-716	728-746	✓

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