



AMH-3 Helical Antenna User Manual

Thank you for your purchase of The AMH-3 Helical Antenna from Sventenna! The AMH-3 Helical Antenna is a low profile 3 turn Axial mode helical antenna. It can be used for either transmit or receive applications. It has passive forward gain and utilizes circular polarization which has been proven to out-perform linear polarized antennas such as LPDAs (paddles, fins, batwings etc.)

Technical Specifications:

Impedance Bandwidth - 470 – 663 MHz

Average Gain - 9 dBi

Average Front to Back Ratio - 12 dB

Average Front to Side Ratio - 16 dB

Average Half Power Beamwidth - 76 Deg

Average Return Loss - > 16 dB

Characteristic Impedance - 50 Ohms

Physical Dimensions:

L – 15" (381 mm)

W – 15" (381 mm)

H – 8.5" (215.9 mm)

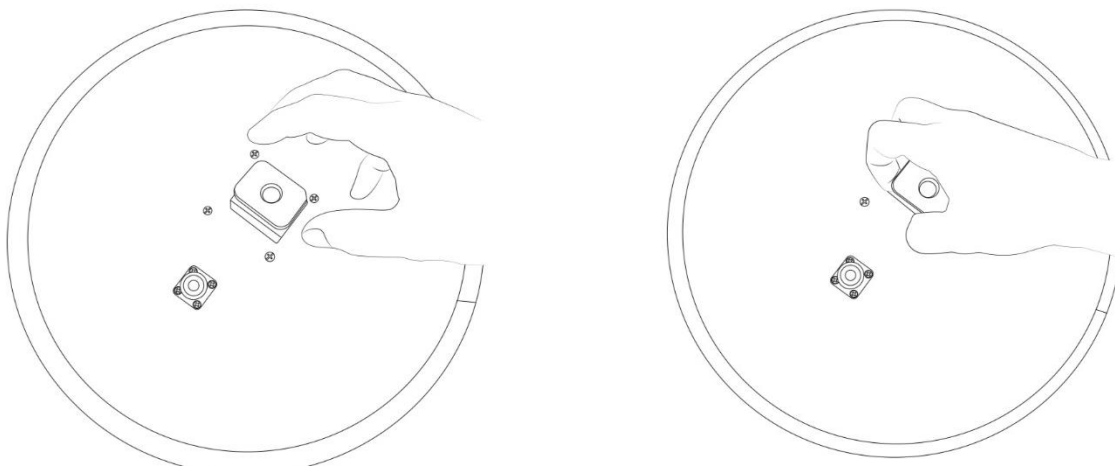
Approximate Weight – 3.26 lbs (1.48 Kg)

Additional Information:

Through many years of using antennas in the field we have added some additional features we think will make deployment and use of this antenna easier.

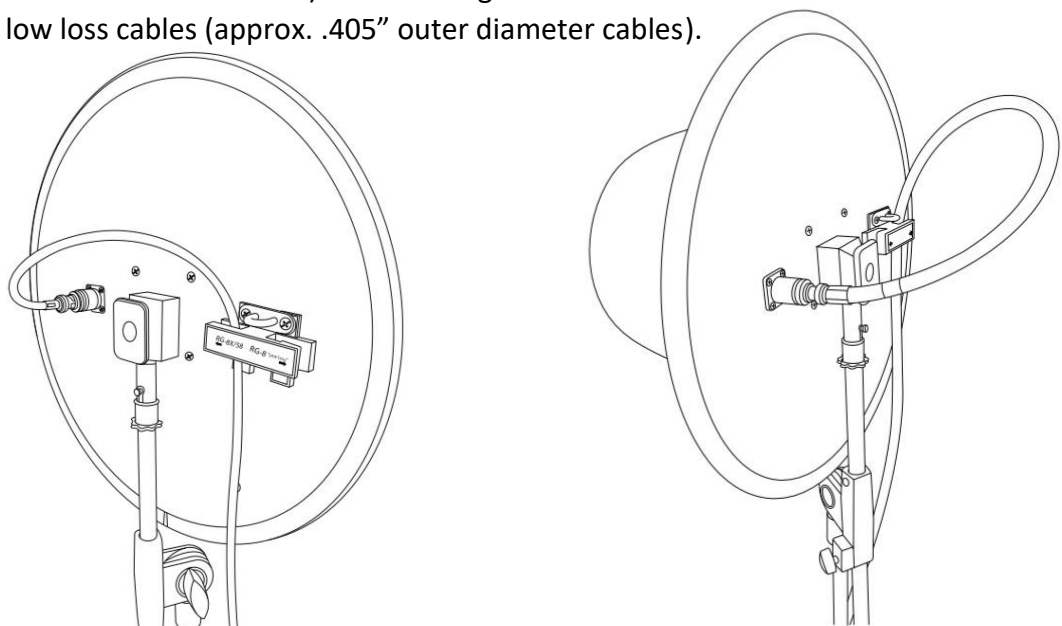
Mounting Block Handle:

Along with having two 5/8"-27 threaded slots for attachment to a mic stand located 90 degrees apart, the mounting block is shaped in such a way that it can easily be used as a handle making maneuvering and transportation of the AMH-3 a breeze.



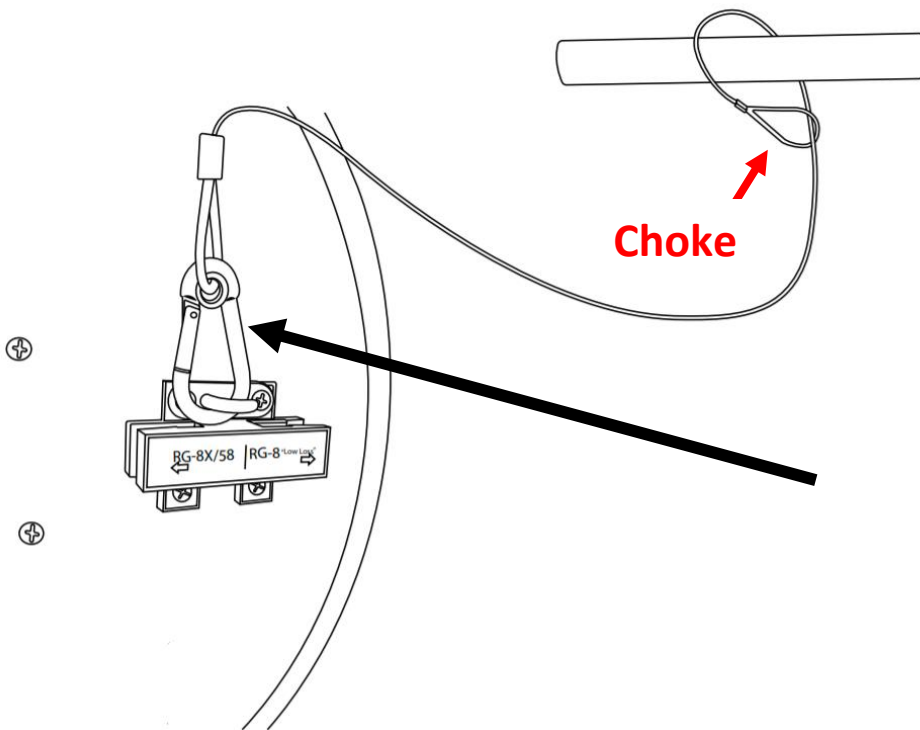
Cable Strain Relief:

Some AMH-3 Helical Antennas come with an optional strain relief/safety package. The strain relief offers a way to strain the coaxial cables leading to the AMH-3 without the minimum bend radius of the cable being exceeded. This is done using a permanent structure that will not degrade over time unlike using tie line or Velcro type strain reliefs. The left side of the strain relief can handle RG8X/RG58 style cables (approx. .240/.195" outer diameter cables) While the right side of the strain relief can handle RG8 style low loss cables (approx. .405" outer diameter cables).



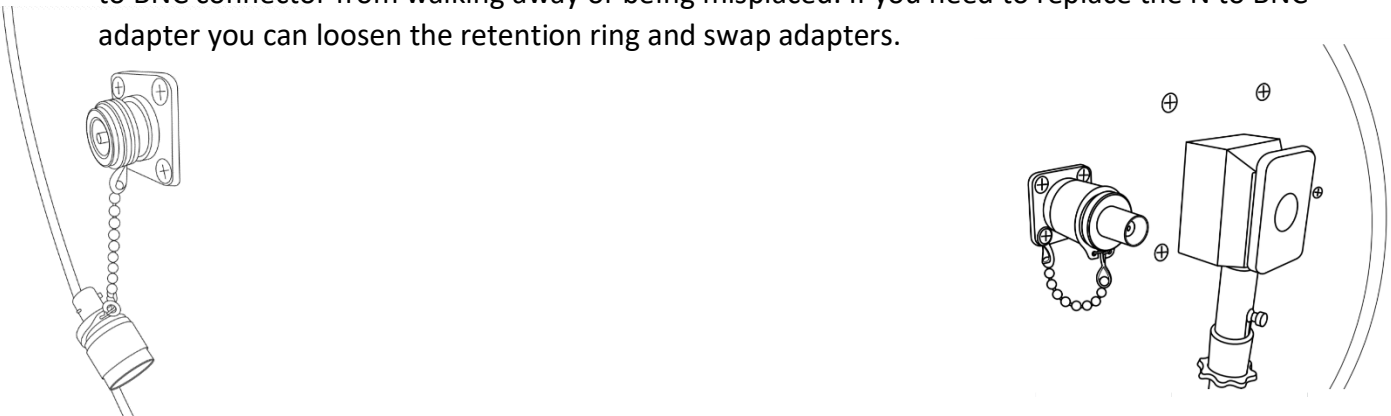
Steel Safety Contact Point:

Some AMH-3 Helical Antennas come with an optional strain relief/safety package. The safety package portion of this option provides a metal point of contact for steel safety cables. While the mounting blocks are extremely secure and can handle well over 150 lbs of pulling force, they are still plastic. If you are going to fly the AMH-3 or permanently install it, we strongly urge you to use the safety cable provided with the strain relief/safety package to secure the AMH-3. (think like a steel backup to a span set) The best way to do this is to choke the safety cable around the truss, baton or other secure structure and clip the carabiner of the safety cable to the attachment point on the AMH-3 strain relief/safety package.



Connector "Tie Down":

This is an option if you are only using cables with BNC connectors and have had issues with N to BNC adapters going missing. Hey, it happens! This option includes a metal chain to keep the N to BNC connector from walking away or being misplaced. If you need to replace the N to BNC adapter you can loosen the retention ring and swap adapters.



Raw Data:

If you noticed that all the information in the technical specifications is averaged this is because with any wideband antenna the performance characteristics of the antenna vary over its tuning bandwidth. For instance: the HPBW of the AMH-3 is listed as “AVG 76 DEG”. However, at the beginning of the AMH-3’s tuning range at 470 MHz the HPBW is 90 Degrees and at the end of the AMH-3’s tuning range at 664 MHz the HPBW is 64 degrees. This is normal as there is generally higher directivity as frequency increases.

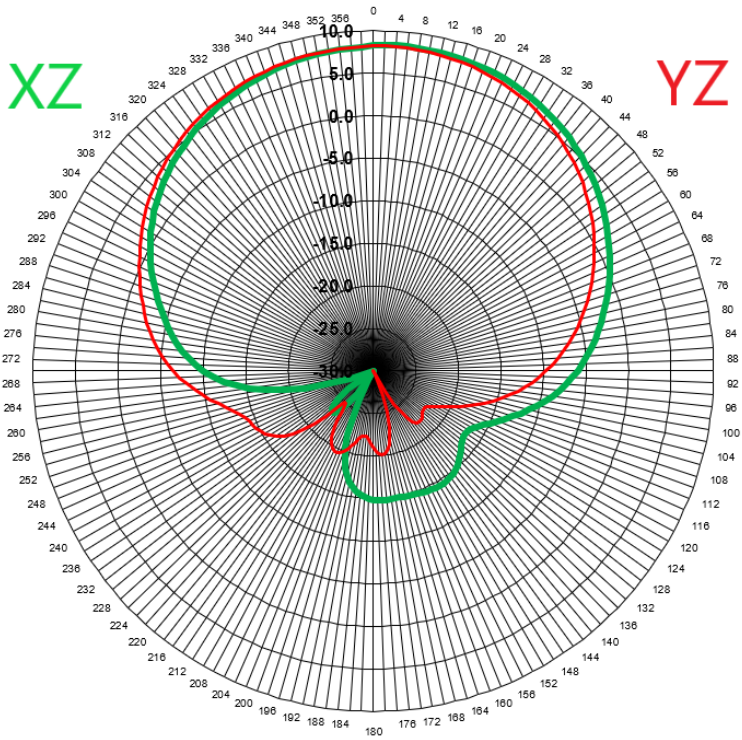
However, we love transparency, and data! So at the end of this manual is the vector network analysis of your specific antenna, and directly below is the raw data in 2 degree increments throughout the entire tuning range of the AMH-3. Whether you are curious about the performance in a specific area or are doing some critical link budgets, the information is at your disposal!

Frequency (MHz)	Gain (dBi)	HPBW (DEG)	F/B Ratio (dB)	F/S Ratio (dB)
470	7.3	90	9.7	14.4
472	7.3	88	9.7	14.6
474	7.5	88	9.7	14.8
476	7.6	88	9.6	15
478	7.7	86	9.6	15.1
480	7.7	86	9.6	15.2
482	7.7	86	9.5	15.3
484	7.8	84	9.5	15.4
486	8.0	84	9.5	15.5
488	8.0	84	9.5	15.6
490	8.0	84	9.4	15.7
492	8.0	84	9.3	15.7
494	8.1	84	9.3	15.7
496	8.1	84	9.2	15.7
498	8.1	82	9.3	15.7
500	8.2	82	9.3	15.7

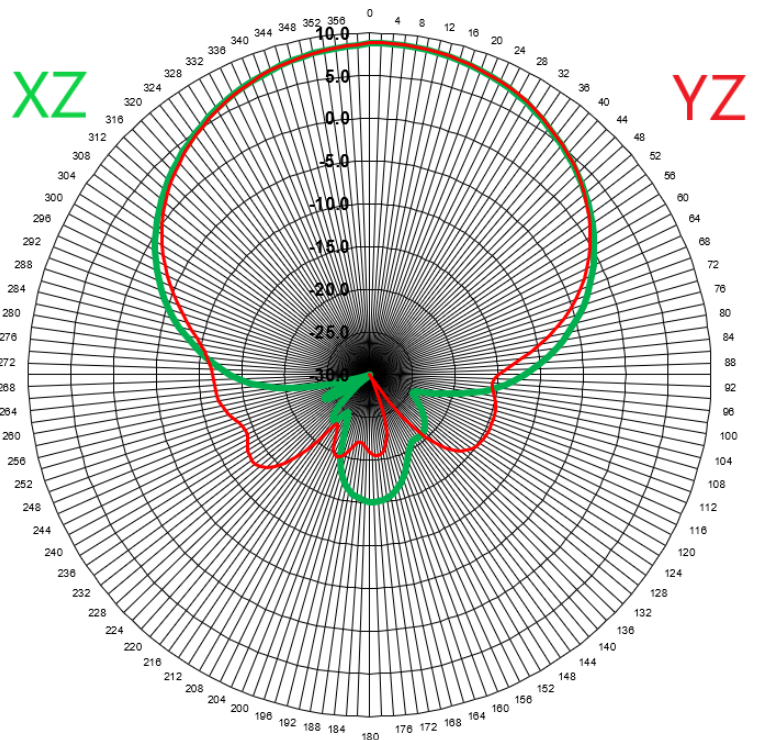
502	8.3	82	9.3	15.6
504	8.3	82	9.3	15.6
506	8.3	80	9.3	15.6
508	8.3	80	9.3	15.6
510	8.3	80	9.4	15.5
512	8.5	80	9.4	15.3
514	8.5	82	9.5	15.1
516	8.5	80	9.5	15.1
518	8.5	80	9.6	15.1
520	8.6	80	9.7	15
522	8.7	80	9.9	14.9
524	8.8	82	10	14.7
526	8.8	82	10	14.6
528	8.8	82	10.1	14.6
530	8.9	80	10.2	14.6
532	9.0	80	10.3	14.6
534	9.1	80	10.5	14.5
536	9.1	82	10.6	14.5
538	9.1	80	10.6	14.5
540	9.1	80	10.7	14.6
542	9.1	80	10.8	14.6
544	9.2	80	11	14.6
546	9.2	80	11.1	14.5
548	9.2	80	11.2	14.6
550	9.1	80	11.2	14.7
552	9.1	80	11.3	14.8
554	9.1	78	11.4	14.8
556	9.2	78	11.6	14.8
558	9.1	78	11.7	14.8
560	9.1	78	11.8	14.9
562	9.1	78	11.8	15

564	9.0	78	11.9	15.1
566	9.0	78	12.1	15.2
568	9.1	78	12.2	15.1
570	9.1	78	12.3	15.1
572	9.1	76	12.4	15.2
574	9.0	78	12.5	15.3
576	9.0	74	12.6	15.4
578	9.0	74	12.7	15.4
580	9.1	74	12.8	15.4
582	9.1	74	12.9	15.5
584	9.0	74	12.9	15.6
586	8.9	74	13	15.6
588	8.9	74	13.1	15.7
590	9.0	74	13.2	15.8
592	9.0	74	13.3	15.8
594	9.0	74	13.3	15.9
596	8.9	74	13.3	15.9
598	8.9	72	13.3	16
600	9.0	72	13.5	16.1
602	9.1	72	13.6	16.1
604	9.1	72	13.7	16.1
606	9.1	72	13.7	16.2
608	9.1	70	13.7	16.2
610	9.2	70	13.8	16.3
612	9.3	70	13.9	16.3
614	9.4	70	14.1	16.4
616	9.4	70	14.2	16.4
618	9.5	68	14.2	16.5
620	9.5	68	14.2	16.6
622	9.6	66	14.2	16.7
624	9.6	66	14.3	16.7

626	9.7	66	14.3	16.7
628	9.7	66	14.3	16.7
630	9.7	66	14.3	16.7
632	9.7	66	14.3	16.8
634	9.7	66	14.3	16.8
636	9.7	66	14.4	16.8
638	9.7	66	14.4	16.8
640	9.8	64	14.4	16.8
642	9.8	66	14.4	16.8
644	9.8	64	14.5	16.8
646	9.8	64	14.5	16.8
648	9.8	64	14.6	16.9
650	9.8	64	14.6	16.9
652	9.9	64	14.6	16.8
654	9.8	64	14.6	16.8
656	9.8	64	14.7	16.9
658	9.8	64	14.8	16.9
660	9.9	64	14.9	17
662	9.9	64	15	17
664	9.9	64	15	16.9



500 MHz



600 MHz

Thank you so much for your support and trust in purchasing the AMH-3 Helical antenna from Sventenna. If you have any issues with your antenna we are happy to send replacement parts or replace your antenna (parts and replacement cost may vary). Contact us at sventenna@gmail.com or visit us at www.sventenna.com

“Patent Pending”