

Here's a clip-and-save chart that will save you lots of time while helping you to put up a variety of antennas.

An Antenna Length Chart

BY GEORGE I. WAGNER*, K5KG

In the past few years I have had several opportunities to operate from a number of DX locations. In doing so, I have learned the importance of taking along the proper collection of tools, connectors, gadgets, and reference information to be able to make a quick repair or string up a needed antenna in an unfamiliar shack. Conversely, I have also learned the agony of lugging too much along, only to find it completely unnecessary and unused at the end of the trip.

The antenna length chart, which is the subject of this article, arose out of the need to have a convenient and ready reference, other than a weighty handbook, for measuring antenna lengths. This results from a number of experiences in trying to find a calculator, or a paper and pencil (typically in the dark and late at night), inevitable debates over what constants to use in the calculations, and finally the need to convert from feet to meters when only a meter tape was available, or vice versa. On two separate occasions I have discovered 160 meter dipoles of totally wrong lengths, and on an expedition to OJØ in 1982, OHØRJ and I spent many hours calculating, cutting, and erecting 40 and 15 meter delta loops. This chart would have been a valuable asset in those circumstances.

This chart was developed after a brief reference to the various antenna handbooks in the shack, and a quick refresher on the current amateur frequencies, especially in the new 12, 15, and 30 meter WARC bands. The formulas used in the calculations, shown at the bottom of the chart, are based upon standard assumptions for wire antennas supported by end insulators.

The chart was developed using Visicalc (a registered trademark of VisiCorp), an electronic "spreadsheet" program on an Apple II+ computer. However, any spreadsheet program on a personal computer could have been used to do the job.

*P.O. Box 4312, Houston, TX 77001

***** * ANTENNA LENGTH CHART BY K5KG * *****								
* FREQUENCY * (MHZ)	* WAVELENGTH - FEET * -----				* WAVELENGTH - METERS * -----			
	1/4	1/2	1/2+5%	FULL	1/4	1/2	1/2+5%	FULL
* 1.8	129.87	259.75	272.73	519.49	39.58	79.17	83.12	158.33
* 1.825	128.09	256.19	269.00	512.38	39.04	78.08	81.99	156.16
* 1.85	126.36	252.73	265.36	505.45	38.51	77.03	80.88	154.05
* 1.9	123.04	246.08	258.38	492.15	37.50	75.00	78.75	150.00
* 3.5	66.79	133.58	140.26	267.17	20.36	40.71	42.75	81.43
* 3.6	64.94	129.87	136.37	259.75	19.79	39.58	41.56	79.17
* 3.7	63.18	126.36	132.68	252.73	19.26	38.51	40.44	77.03
* 3.8	61.52	123.04	129.19	246.08	18.75	37.50	39.38	75.00
* 3.9	59.94	119.88	125.88	239.77	18.27	36.54	38.37	73.08
* 4	58.44	116.89	122.73	233.77	17.81	35.63	37.41	71.25
* 7	33.40	66.79	70.13	133.58	10.18	20.36	21.37	40.71
* 7.05	33.16	66.32	69.63	132.64	10.11	20.21	21.22	40.43
* 7.1	32.93	65.85	69.14	131.70	10.04	20.07	21.07	40.14
* 7.2	32.47	64.94	68.18	129.87	9.90	19.79	20.78	39.58
* 7.3	32.02	64.05	67.25	128.09	9.76	19.52	20.50	39.04
* 10	23.38	46.75	49.09	93.51	7.13	14.25	14.96	28.50
* 10.5	22.26	44.53	46.75	89.06	6.79	13.57	14.25	27.14
* 14	16.70	33.40	35.07	66.79	5.09	10.18	10.69	20.36
* 14.1	16.58	33.16	34.82	66.32	5.05	10.11	10.61	20.21
* 14.2	16.46	32.93	34.57	65.85	5.02	10.04	10.54	20.07
* 14.35	16.29	32.58	34.21	65.16	4.97	9.93	10.43	19.86
* 18	12.99	25.97	27.27	51.95	3.96	7.92	8.31	15.83
* 18.5	12.64	25.27	26.54	50.55	3.85	7.70	8.09	15.41
* 21	11.13	22.26	23.38	44.53	3.39	6.79	7.12	13.57
* 21.1	11.00	22.16	23.27	44.32	3.38	6.75	7.09	13.51
* 21.25	11.00	22.00	23.10	44.00	3.35	6.71	7.04	13.41
* 21.45	10.90	21.80	22.89	43.59	3.32	6.64	6.98	13.29
* 24.89	9.39	18.78	19.72	37.57	2.86	5.73	6.01	11.45
* 24.93	9.38	18.75	19.69	37.51	2.86	5.72	6.00	11.43
* 24.99	9.35	18.71	19.64	37.42	2.85	5.70	5.99	11.40
* 28	8.35	16.70	17.53	33.40	2.54	5.09	5.34	10.18
* 28.5	8.20	16.41	17.23	32.81	2.50	5.00	5.25	10.00
* 29	8.06	16.12	16.93	32.24	2.46	4.91	5.16	9.83

* FORMULAS USED * * ----- *								
* 1 METER = 3.281 FEET * * ----- *								
* LENGTH OF 1/2 WAVELENGTH ANTENNA (METERS) = * * (300 * .95 * .5) / FREQ (MHZ) = 142.50 / FREQ (MHZ) * * ----- *								
* LENGTH OF 1/2 WAVELENGTH ANTENNA (FEET) = * * (300 * .95 * .5 * 3.281M/FT) / FREQ (MHZ) * * ----- *								
* = 467.54 / FREQ (MHZ) * * ----- *								
* NOTE: 1/2 WAVELENGTH + 5% IS USED FOR INVERTED VEE ANTENNAS * * ----- *								

Clip and save this chart for your records.