

### 3. Antennas

#### 3.1 X-Quad 2 m and 70 cm Q-Quad

The X-Quad is an improved design of the well known multi element quads. They are especially designed for amateur radio, with the following characteristics:

- Switchable polarisation possible (hor, vert, circ. right, circ. left, diagonal)
- High gain compared to other antenna designs
- Short boom length and compact overall size
- Can be mounted in front of mast or centrally on mast

Technical data are presented in the following table:

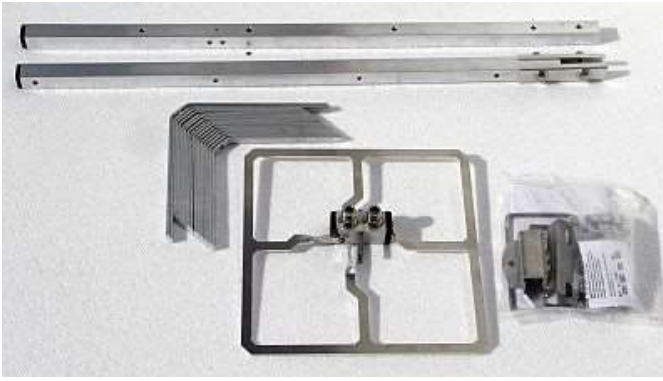
**Table 8.** Technical Data of X-Quad Antennas

	2 m X-Quad	70 cm X-Quad	
<i>Elements per plane</i>	12	18	
<i>Gain</i>	10,5	12,8	dBD
<i>3-dB bandwidth horiz. (E)</i>	47	36	Degrees
<i>3-dB bandwidth horiz. (H)</i>	47	36	Degrees
<i>F/B ratio</i>	19	21	dB
<i>Max. Power</i>	1500	1000	Watt
<i>Length</i>	1460	1270	Mm
<i>Height</i>	730	220	Mm
<i>Weight</i>	2,3	1,6	Kg
<i>Wind load 160 km/h (100 mph)</i>	74	48	N
<i>Connector</i>	2xN-jack	2xN-jack	
<i>Stacking distance</i>	2,82	1,1	m
<i>Phasing harness for RHCP or LHCP</i>	18047	18049	

The radiator is a stacked quad element. Compared to cross yagis all passive elements of a X-Quad (e.g. directors, reflectors) are active elements which leads to high gain at compact size. Changing the antenna's polarization (H/V) is easily accomplished by choosing the proper feedpoint.

Polarization switching is done with a coax relay or with one of our remote-control polarisation switches mounted near the antenna feed point, requiring a short feed line only.

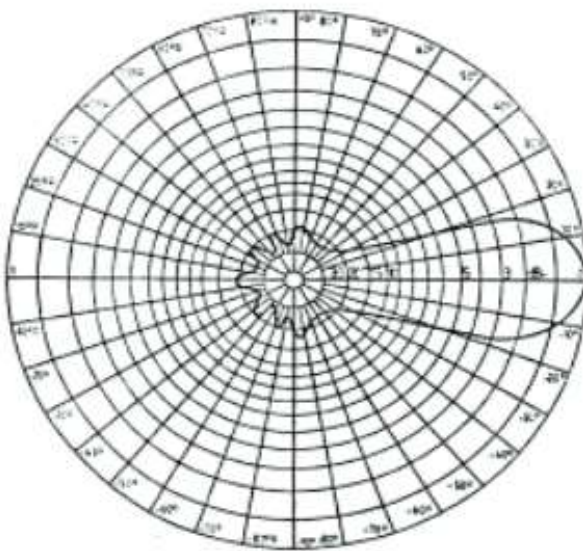
The antennas are shown below:



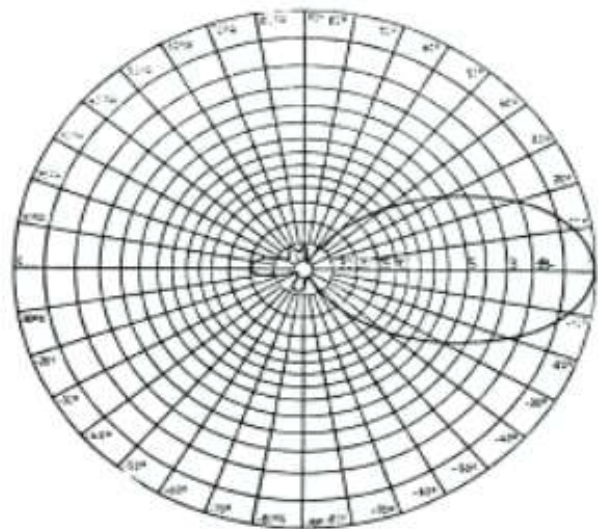
**Fig. 9 X-Quad Antennas (Left – for 2 m, Right – for 70 cm)**

Horizontal diagrams have the following form:

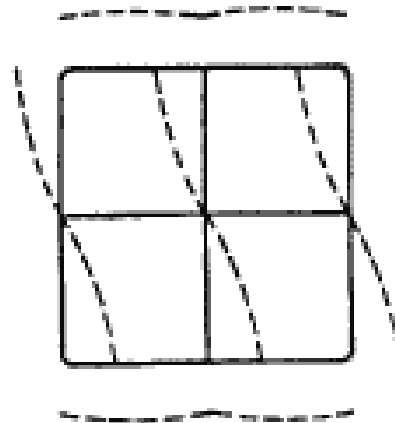
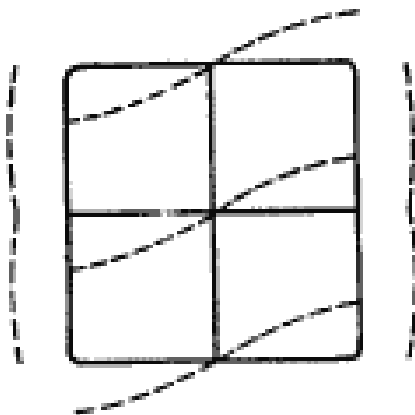
**70cm X-Quad**



**2m X-Quad**



**Fig. 10 Horizontal diagrams of X-Quad Antennas**



**Fig. 11 Voltage hor./vert.**