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12JXX2 Yagi

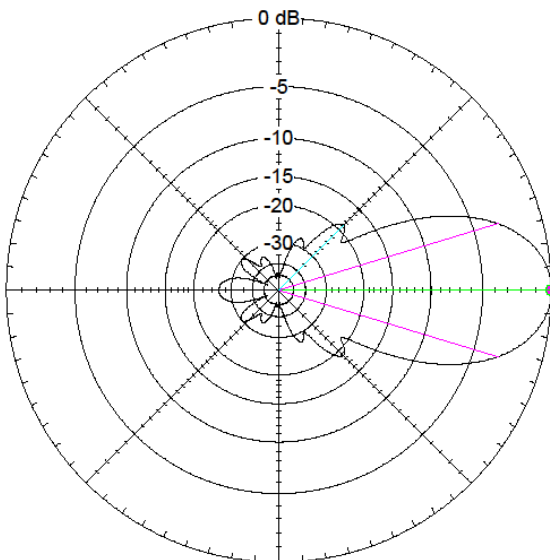
Item		Q.ty	Item		Q.ty
Stainless steel nut M5		5	Stainless steel bolt M4x35		1
Stainless steel nut M6		10	Stainless steel bolt M5x40		2
Nylon nut M8		11	Stainless steel Eyescrew M5		2
Clamp Bazooka		1	U_Bolt 50		3
Dipole with Bazooka		1	U_Bolt 35		2
Horizontal element 1÷12		11	Ergal Plate PIA35JXX		1
Lock washer 4 mm Ø		1	Section boom A 25 mm Ø	118 cm.	1
Lock washer 5 mm Ø		5	Section boom A - B 30 mm Ø	118 cm.	1
Lock washer 6 mm Ø		10	Section boom B - C 35 mm Ø	118 cm.	1
Flat washer 6 mm Ø		10	Section boom C - D 30 mm Ø	118 cm.	1
Inbuss key 3 mm.		1	Section boom D 25 mm Ø	118 cm.	1
Dacron rope front	240 cm.	1	Dacron rope back	150 cm.	1
		1	Stainless steel Turnbuckle		2

Total Field

EZNEC+

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EZNEC+



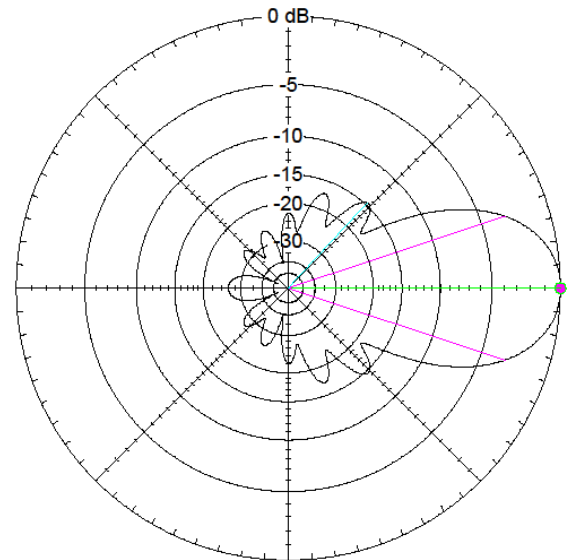
Dipole in free space

144,4 MHz

Azimuth Plot
Elevation Angle 0,0 deg.
Outer Ring 14,82 dBi

Cursor Az 0,0 deg.
Gain 14,82 dBi
0,0 dBmax
0,0 dBmax3D

3D Max Gain 14,82 dBi
Slice Max Gain 14,82 dBi @ Az Angle = 0,0 deg.
Front/Back 25,93 dB
Beamwidth 33,8 deg.; -3dB @ 343,1, 16,9 deg.
Sidelobe Gain -3,89 dBi @ Az Angle = 45,0 deg.
Front/Sidelobe 18,71 dB



Dipole in free space

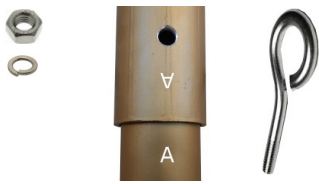
144,4 MHz

Elevation Plot
Azimuth Angle 0,0 deg.
Outer Ring 14,82 dBi

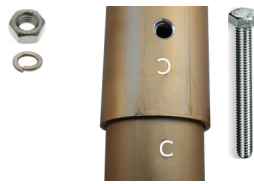
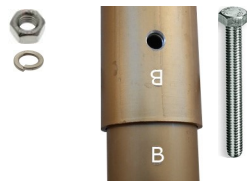
Cursor Elev 0,0 deg.
Gain 14,82 dBi
0,0 dBmax
0,0 dBmax3D

3D Max Gain 14,82 dBi
Slice Max Gain 14,82 dBi @ Elev Angle = 0,0 deg.
Front/Back 25,93 dB
Beamwidth 36,6 deg.; -3dB @ 341,7, 18,3 deg.
Sidelobe Gain 0,23 dBi @ Elev Angle = 47,0 deg.
Front/Sidelobe 14,59 dB

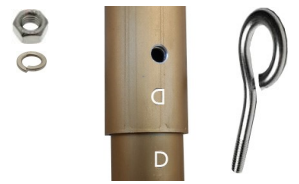
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Combine the boom respecting the letters placed at the ends of each section
Insert the Eyescrew M5 mm washer and nut into the junction points **A - A** and **D - D** then insert the screws M5x40 mm washer and nut, junction points **B - B** and **C - C**



Combinez le boom sur les lettres placées aux extrémités de chaque section
Insérez les vis M5 et un écrou dans les points de jonction **A - A** et **D - D** puis, insérez les vis M5x40 mm rondelle et un écrou, les points de jonction **B - B** et **C - C**



Kombinieren Sie den Boom und achten Sie dabei auf die Buchstaben am Ende jeder Sektion
Fügen Sie die Schrauben M5 Unterlegscheibe und Mutter in die Verbindungsstellen **A - A** und **D - D**, und die Schrauben M5x40 mm Unterlegscheibe und Mutter in den Knotenpunkte **B - B** und **C - C**



Unire il boom rispettando le lettere poste alle estremità di ogni singola sezione
Inserire le viti ad occhio da M5 mm rondella e dado, nei punti di giunzione **A - A** e **D - D**, inserire le viti M5x40 mm rondella e dado, nei punti di giunzione **B - B** e **C - C**



Attach the mounting plate between boom and mast **PIA35JXX** between elements **6 - 7**



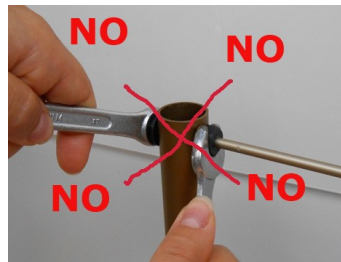
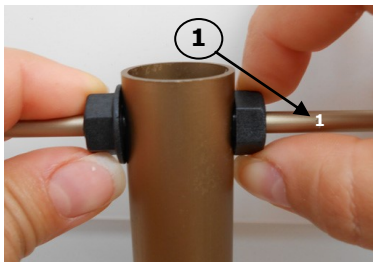
Fixez la plaque de montage entre la flèche et le mât **PIA35JXX** entre les éléments **6 - 7**



Montieren Sie die Montageplatte zwischen Ausleger und Mast **PIA35JXX** zwischen den Elementen **6 - 7**



Montare la piastra di fissaggio tra boom e mast **PIA35JXX** tra gli elementi **6 - 7**



Insert elements as shown in the figure, hand tighten the nut M8 Nylon (**do not use keys as the material used has a self - locking function**)



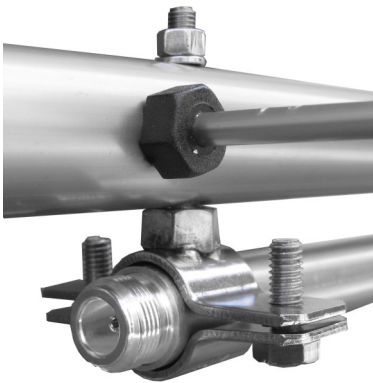
Fügen Sie die Elemente hinein wie in der Abbildung dargestellt, schrauben Sie die Mutter M8 Nylon mit den Händen zusammen (**benutzen Sie keine Schlüssel, da das verwendete Material eine Selbstverriegelung hat**)



Insertion d'éléments comme indiqué sur la figure, serrez à la main l'écrou M8 nylon (**ne pas utiliser les touches que le matériau utilisé a une auto - verrouillage**)



Inserire gli elementi come riportato in figura, stringere a mano il dado in Nylon da M8 (**non utilizzare chiavi in quanto il materiale impiegato ha effetto auto - bloccante**)



Match the dipoles with M4x35 mm and washer as shown in photo, secure the half dipoles of 12 mm Ø by using the Allen Key of 3mm and the collar for the fixing of the Bazooka.



Verbinden Sie die Dipole mit der M4x35 mm Schraube und der Unterlegscheibe wie das Foto zeigt; befestigen Sie den Halb-Dipol von 12 mm Ø mit der 3mm Innensechskantschraube und dem Band für die Verriegelung des Bazooka.



Installez les dipôles avec M4x35 mm et la rondelle comme indiqué sur la photo



Montare il dipolo con vite M4x35 mm e rondella come in foto, fissare i semi-dipoli da 12 mm Ø con chiave a brugola da 3 mm. ed il collare per il bloccaggio del Bazooka

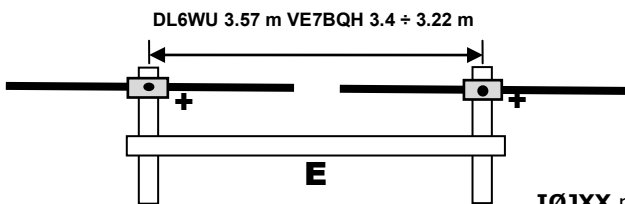
Stacking

In order to obtain the best results in coupling the antennas, we warmly recommend an adequate antenna stacking calculation which would allow the best forward gain together with low side lobes. The stacking distance may be calculated with the following formula from Günter Hoch DL6WU

On the basis of further studies conducted by Lionel VE7BQH over the antenna stacking argument, a reduction of 5÷10% may be introduced on stacking distances without noticing significant overall worsening of the characteristics. Do respect the driven element supplying symmetry to allow anti-phase coupling

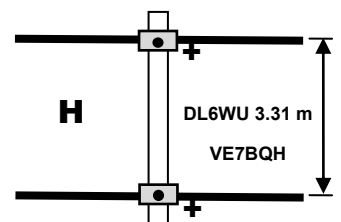
$$\text{Plane E} = 33.8^\circ = \frac{2079}{2 * \sin(33.8 / 2)} = \frac{2079}{0.5814} \cong 3.57 \text{ m (with VE7BQH from 3.4 m to 3.22 m)}$$

$$\text{Plane H} = 36.6^\circ = \frac{2079}{2 * \sin(36.6 / 2)} = \frac{2079}{0.6279} \cong 3.31 \text{ m (with VE7BQH from 3.14 m to 2.98 m)}$$

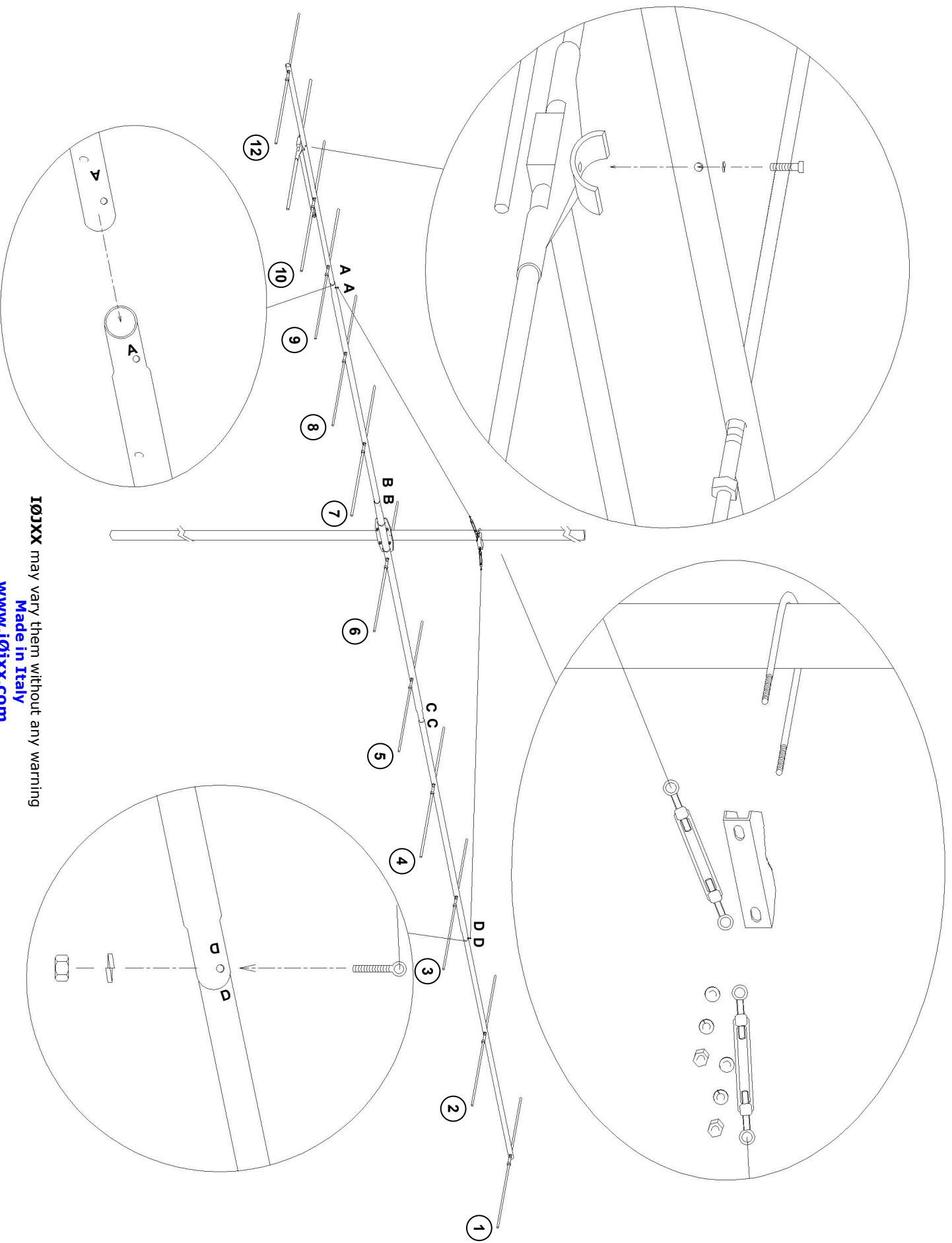


$$d = \frac{L}{2 * \sin(\Phi / 2)}$$

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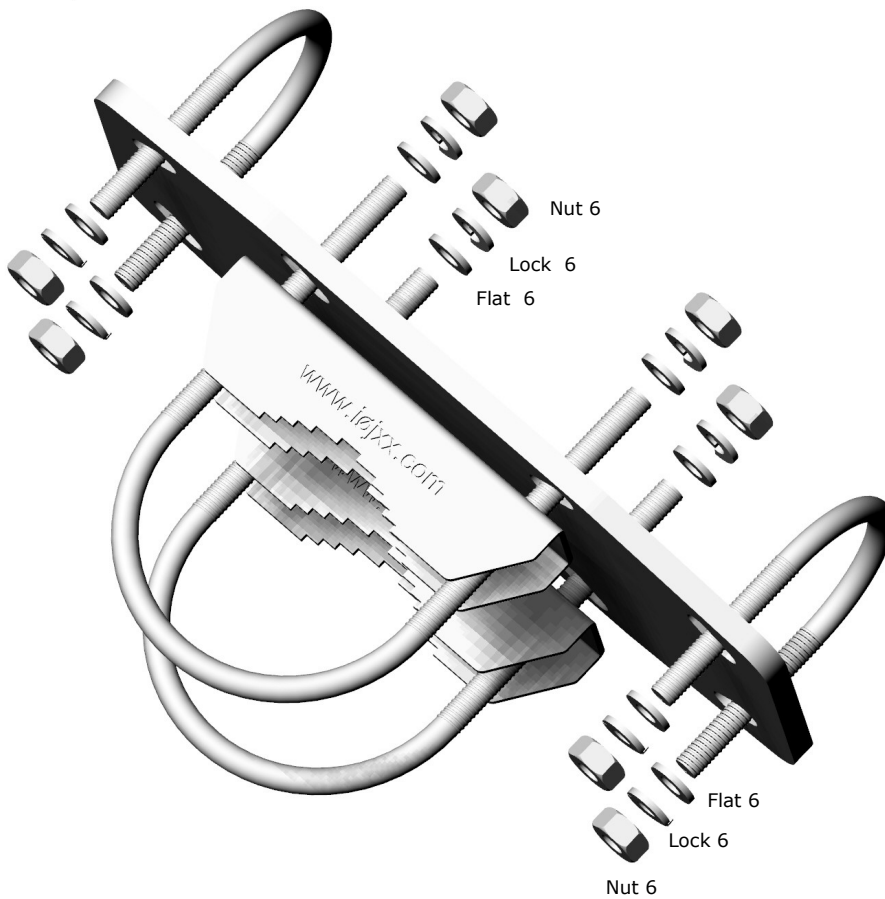
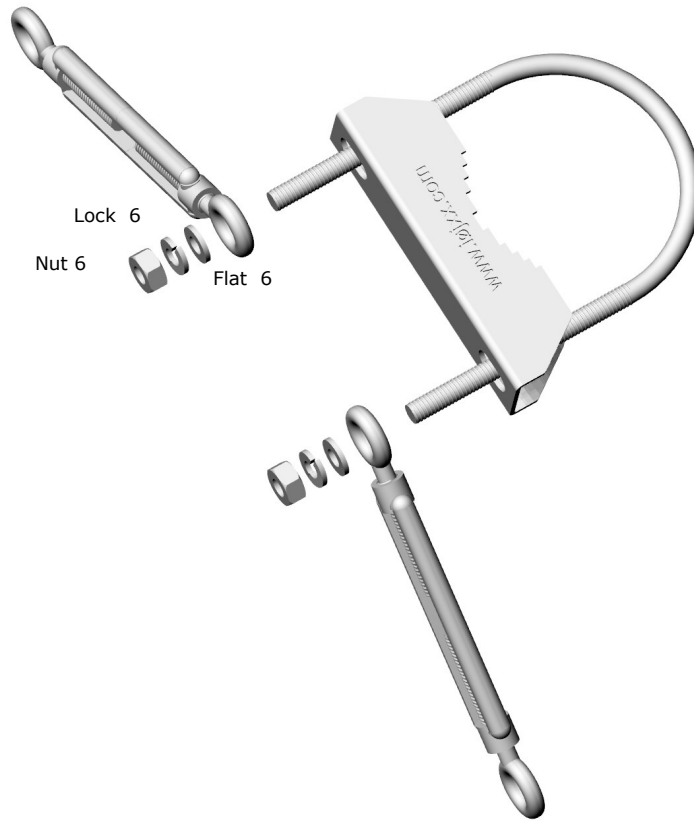
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