Sales price £479.95

Sales price without tax £399.96
Tax amount £79.99

20el LFA Ultra - 144-145MHz for super low noise X-pol Yagi for weak signal operation

Description

A 22 element (11H/11V) LFA-Ultra (6.8m long) Super low noise, light weight Yagi 144-145MHz Optimised for weak signal (EME) operation - New 2020 Model!

X-pol available upon request & full EME system prices available upon request - This email address is being protected from spambots. You need JavaScript enabled to view it.

FINALISED USING ANSYS HFSS R2 2020 fully meshed 3D Solver

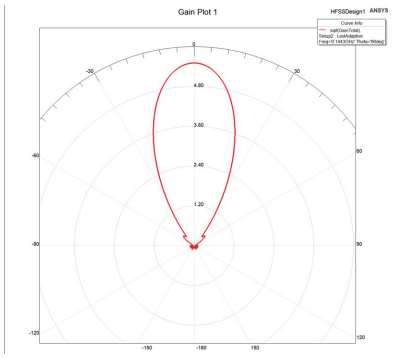
Modelled and finalised with Ansys HFSS 2020 R2 fully meshed antenna modelling software. All aspects of the antenna are measured and modelled including boom, insulators and coax cable ANSYS.

A pair of the perfoectly centred, 22el X-POL LFAs @ KG6NK

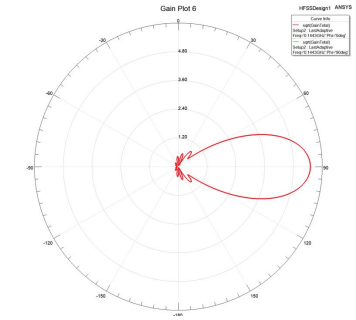
"Got the second yagi up today. Ran the VNA over the H and V parts of the first one.

Needed to extend the DEs 3mm at each end. Did the same to the second one.

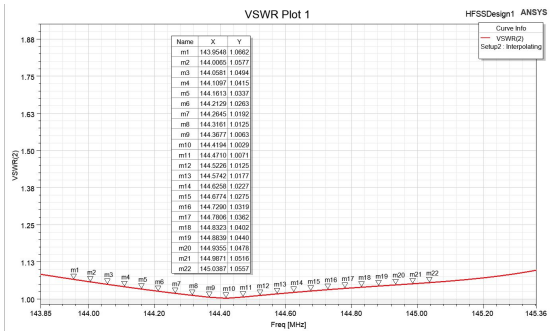
All are better than 1.1:1 at 144 MHz. Lovely !"



Super-clean Azimuth pattern of the LFA Ultra low noise X-pol Yagi



The exceptional elevation plot of the super clean LFA Ultra X-pol Yagi

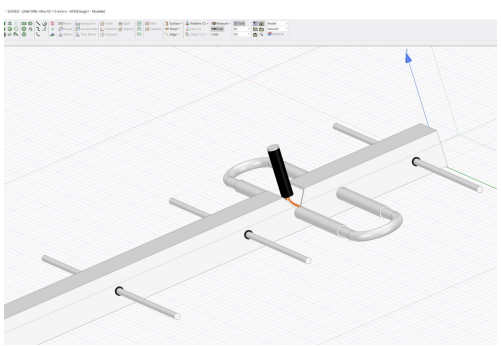


SWR being 1.1:1 from 143.85MHz to 145.36MHz both planes low as a result of modelling all aspects of both planes of the antenna

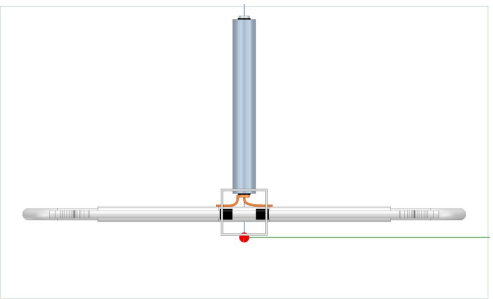
A note on accuracy

In order for a low noise VHF or UHF Yagi modelled in software to stay low noise when built, the whole antenna needs to be modelled, optimised and finalised as it will be built. Elements, boom, insulators, feedpoint and even coax cable being connected to the model. This way no 'correction' needs to be added, the exact element lengths are given within the software which in our case is the World's leader and most expensive simulation package available today Ansys HFSS.

a 'Fixed' length correction such as forumlas given by K1FO and DL6WU, will NOT replicate a wires only model to real world antenna when elements ar eplaced through a large boom. Any such 'correction' would be percentage based with a lower percentage being needed for first and last elements.



A 70cms LFA Yagi as presented within Ansys HFSS showing all aspects of the antenna being factored into the model



A 70cms Ultra Yagi from the front in Ansys HFSS with ferrite core balun attached. All aspects of the antenna are factored into the design

Fully customisable design - what you want, we will make

If you require a variation of this antenna, contact This email address is being protected from spambots. You need JavaScript enabled to view it. detailing your requirement for a custom quote.

The G0KSC LFA Ultra is another fantastic design by G0KSC. A low impedance Yagi provides excellent performance. However, traditionally, low impedance has meant narrow bandwidth.

G0KSC developed the OWL (**O**ptimised **W**ideband **L**ow impedance Yagi) with a folded dipole driven element which this has increased the feed point from 12.5? impedance to 50?. This along with careful, long duration computer optimisation hasresulted in a much wider bandwidth than previously seen in native low impedance Yagis.

THE Low Noise Yagi dubbed the 'Urban Yagi'

The super low noise characteristics of the OWL Ultra mean you can HEAR as well as be heard in today's modern and very noisy city environments. If you want the very best option for minimal nosie pick-up in Urban and city locations, the OWL Ultra is for you.

Best in Class performance in terms of G/T?

Antennas finalised in fully 3Dmeshed packages with thru-boom elements are not easily reverse engineered into EZNEC and the VE7BQH table required NEC based models in order to be listed.

Important Note:

Convergence correction calculator with bent elements and folded dipoles are in use. Additionally, convergence correction should also be applied when hairpin and T-matching systems are in place in the model. If this is note done, artificially high-performance results may occur. Additionally, if matching devices are not applied to the model, associated matching loss will not be considered in the model either and again, artificially high performance figures may result. Ansys HFSS corrects each model before calculations being, unlike wires only based analysis.

Excellent wet weather performance

The OWL Ultra is usable in all weathers. Unlike some antennas that shift frequency and become unusable when wet, the OWL Ultra remains perfectly usable.

Latest and best G0KSC designs only available through InnovAntennas

The OWL-Ultra is the latest, 3rd generation OWL and provides G/T performance not seen at this boom length previously (VE7BQH independant comparison list). The latest G0KSC designs are ONLY available through InnovAntennas.

Elevation lobe suppression is key

One of the reasons the OWL Ultra performance is better than other Yagis of the same size is the special attention paid to elevation lobes during the optimisation process. Whether you believe you live in a quiet location or not, elevation lobes will ensure your received noise floor is higher than it would otherwise be if they were greatly suppressed. Even if you have a shack in the middle of open countryside, if your shack is directly below the antenna or in view of the antenna in certain directions, noise from everything in the shack (from computers, modems, LED lamps, alarms WiFi adapters etc.) will increas your noise floor. The highly suppressed elevation lobes of the OWL Ultra will ensure your noise floor is as low as possible.

All elements and dipole perfectly in-line - Fully symmetrical pattern

All of the thru-boom OWL and LFA Yagis, all elements, including the feed point are perfectly in-line and as there are no 'lossy' matching devices standing off of the driven element to distort pattern pattern remians perfectly clean and this means the low noise properties of the antenna remain.

Grounded driven element

There are many associated benefits of having the driven element electrically connected to the boom and therefore grounded. This is much more difficult to achieve in a split dipole Yagi and in addition, not possible to model within NEC based simulation tools. The folded dipole or LFA loop is grounded to the boom opposite the feed point. This is a point of zero current (everything radiated by this point) and therefore, is not seen at the design frequency. However, the dipole will become very high impedance either side of the design frequency very quickly and this, a Band Pass Filter property is added to the antenna 'for free'. Another associated benefit is having the driven element grounded means static cannot build up in the folded dipole as it could with a non-grounded driven element system and potentially damage the receiver as with the grounded system, static can drain harmlessly away.

Mechanical design

The new OWL Ultra is designed in a light weight and very strong package with this particular model using a 1" square boom with through boom (insulated) 1/4" solid rod elements. The driven loop is adjustable in order to ensure absolute minimum return loss figures can be seen and is made from 1/2" tube with 3/8" diameter loop ends which trombone to provide the finalisation tuning ability. The folded dipole is through the boom as are the parasitic elements although the section of loop opposite the feed point is grounded to help reduce noise and to help protect the receiver front-end against static. Grounding the loop in this way also provides a band pass filter characteristic. The feed impedance goes very high quickly once moving away from the 2m ham band and this results in a filter property being added to the antenna for out-of-band signals, received or transmitted.

G0KSC variable element correction applied

SWR characteristics are unparalleled as a result of the applying of G0KSC variable, percentage based correction to all through boom elements which is then finalised and adjusted within Ansys HFSS. Fixed length element correction does not match software models precisely. The correct method is to apply a % to the elements which vary greatly between the first (reflector) and last (final director) elements. However, an added complication is that the first and last few elements at either end of the boom, require less correction than those centrally mounted on the boom. Don't woory, all these correction issues are taken care of by G0KSC during the design and testing process.

Other benefits include:

- **Marine grade stainless steel fittings**
- **Super-light but rigid construction**
- **Mill finished boom and elements for highest levels of accuracy**
- **Unparralleled after-sales support and assistance when needed**

For more information Email Here

Performance

Gain: 15.32dBi @ 144.3MHz (Ansys HFSS 2020 R2 verified)

F/B: 32.79dB @ 144.3MHz

Peak Gain: 15.34dBi

Gain 10m above ground: 23.99dBi

Peak F/B: 37.43dB

G/T figure: Unmeasured*

Power Rating: 10kw+

SWR: Below 1.1:1 from 143.85MHz to 145.3MHz

Boom Length: 5.876m

Boom Diameter: 1.5" / 38.1mm

Weight: 6.5kg/14.3lbs

Windload/Surface Area: 0.22SqM/2.41SqFt

Safe Wind Speed: 160Kph/100Mph

Turning Radius: 2.796m/9'3"ft

Vertical Stacking: 3.1m for minimum under-lobes

* G/T measurements are produced from antennas designed within EZNEC 'wires only' software. the LFA-Ultra is designed and finalsied withing a Ansys HFSS fully meshed software. Not correction is applied or needed, final results are calculated with all mechanical factors included within the model. This cannot be reverse-engineered into EZNEC.