I got the opportunity to compare my own 11 elements LFA yagi build by G0KSC against an 10 elements “low noise” yagi from YU1CF

Please note this test was only made to see if any difference showed up in tropospheric usage.

First the data:

11 el LFA yagi		10 el Low Noise yagi	
Physical Boom Length:	6.25 meter	Physical Boom Length:	5.72 meter
Gain:	15.25 dBi	Gain:	14.8 dBi
F/B:	31.86 dB	F/B:	35 dB
Weight:	4.02 kg	Weight:	8.0 kg
Safe wind speed:	201 kph	Safe wind speed:	297 kph
Vertical stack:	3.40 meter	Vertical stack:	3.10 meter
Maximal power:	5 kw	Maximal power:	5 kw

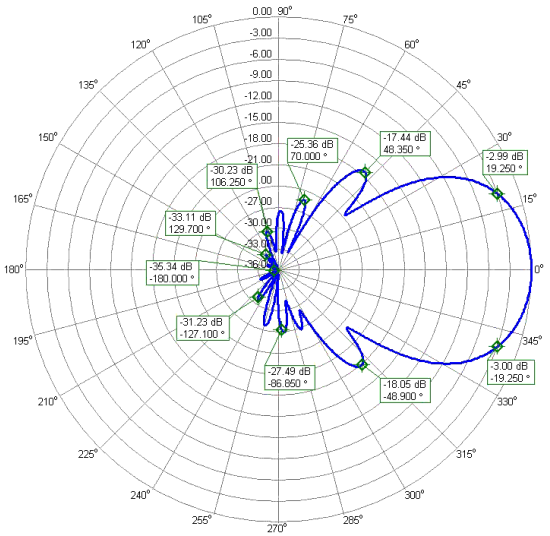
To the 11 el. LFA yagi I first renewed the director and elements with new aluminium; all within 0.5 mm to the original dimension as required. The element diameter is 6 mm, the loop is 12mm/10mm.

Then I start to assemble the 10 elements yagi, all parts are pre-drilled, the elements are 8 mm, while the dipole is hard copper tube 8 mm. The assembled antenna is heavy; therefor will be “”save”” to survive the Dutch coast winds. The 11el LFA has already survived over 9 years with PA1TK…..

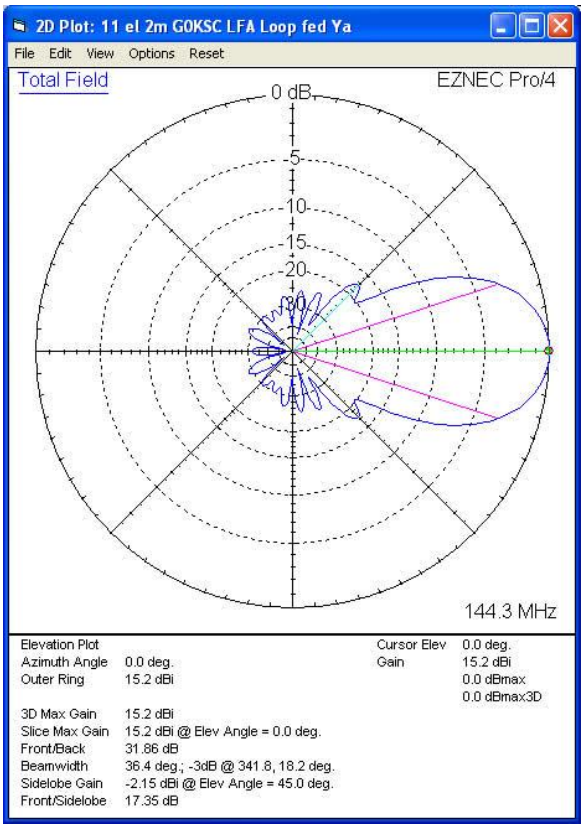
The 10 el yagi has a tapered boom 40x40mm, 30x30mm and 20x20mm while the LFA yagi has a 35 mm straight boom.

The LFA yagi is fitted with an “home made “ sleeve balun made of 200mm LCF12/50 with 15.7 mm ferrite cores.
The 10 el yagi comes with a standard current air balun with RG Teflon cable; a 5kw balun is available.

Elevation radiation Pattern 10 elements yagi



Elevation radiation Pattern 11 elements LFA yagi



The "practise"

Both antennas were put in the "air", the LFA yagi on my Versatower 9 meters high, while the 10 elements was mounted on a Geroh tower 9 meters high. The antennas were at least 6 meters apart.

The set was an Icom 9700, preamplifier with adjustable gain and also a Funcube Pro dongle with SpectraVue software was used.

First test was signal reports from beacons: PI7CIS at 144.415 MHz, ON0VHF at 144.417 MHz And F5ZAM at 144.425 MHz. Unfortunately F1ZXK (JN18) at 445km has changed antennas to directional and is not audible anymore at my qth.

Extensive listening and measurements periods showed no audible difference in antenna gain, so the difference between antennas must be less than 0.5 dB (measurements).

The following step was to find out if I could detect lower antenna noise. The 10 element PA144-10-6agp was measured in the VE7BQH 2020 results as the best low noise antenna. In city surrounding the measured noise was 557,8 Ta(K) or -6,90 dB G/T, the 11 el LFA *2010* is not available for the TA(K) values, but shows -5,16 dB G/T
Both antennas were turned to the area with the lowest manmade noise in tropo around my house, which is 125 degrees (south east).

Audible I could not notice any difference, measurements showed also no difference.

Transmitting:
First the swr was measured from both antennas.
11 LFA: at 144.300 MHz 400 watt output showed 7 watts returned.
10 el: at 144.300 MHz 400 watt output showed 13 watt returned.

The Front/Back test showed a better F/B for the 11 el LFA, possible due to the modification made to the sleeve balun: having the balun come away from the feedpoint at an angle of 45 degrees. The original specs giving 31.86 dB: I measured 39 dB.

DL stations at minimum 500 km with switching during the qso between both antennas did not show any favourite.

Both antennas behave in practice as excellent and are one of the finest antennas currently available.

Price:
(note: please check the manufacturer always for current pricing and shipment cost and also that Serbia is not yet member of the ECC)

Listed price on websites:
11 el LFA euro 287 incl VAT ex shipping
10 el LN euro 189 **does not include VAT,** handlingcost and shipping

73,
Theo G. Köhler PA1TK
Please visit: https://www.qrz.com/lookup/pa1tk
VERON HF-VHF AfdelingsContest Manager
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https://www.g0ksc.co.uk/

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