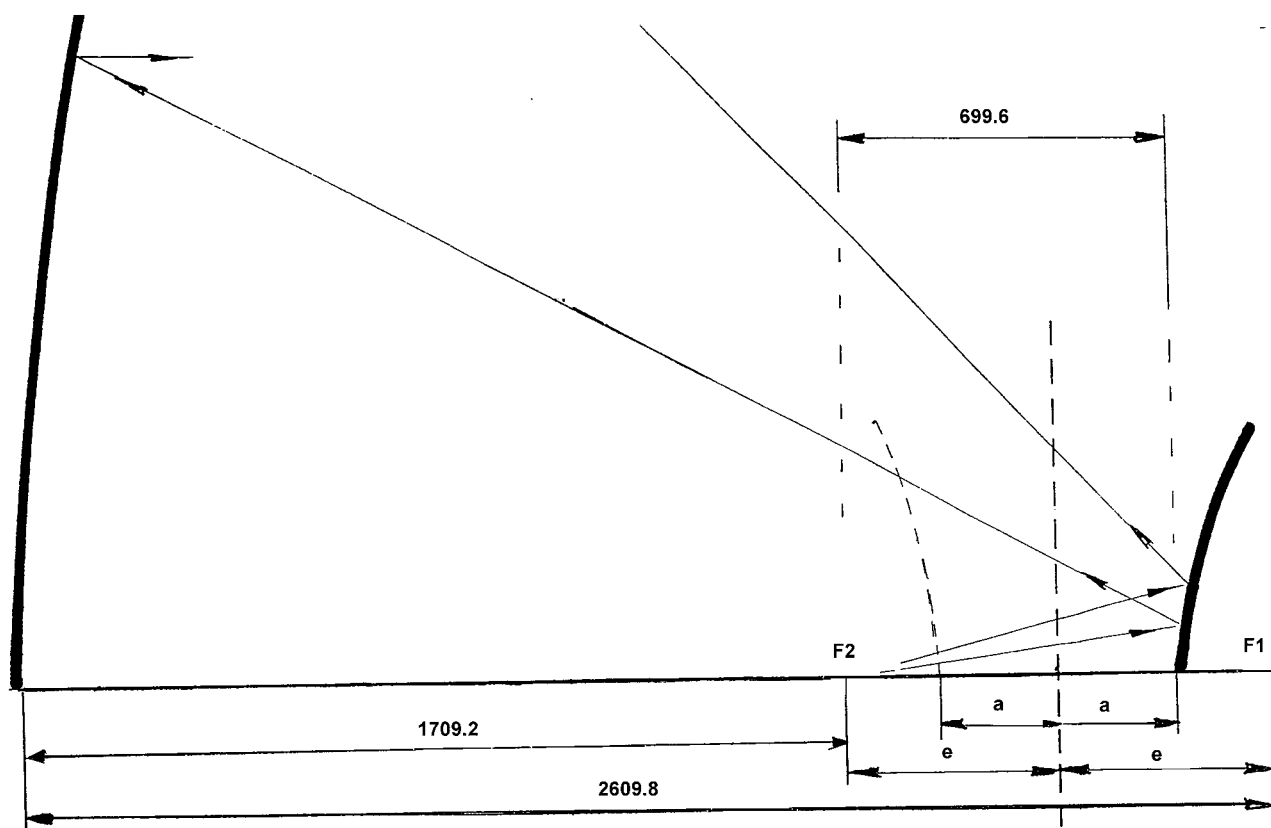


Septum polarize feed in Cassegrain system application by OK1CA

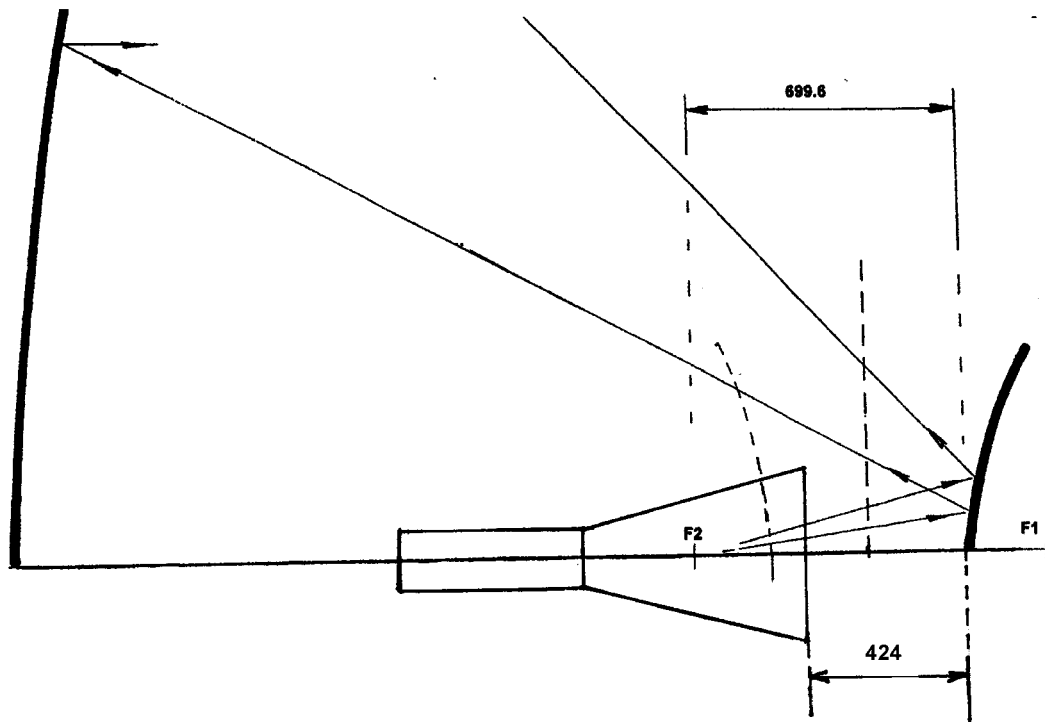
These pages were setup thanks to courtesy by Franta OK1CA, with use Septum feed for EME Ham-radio and professional radio-astronomy application. The feed for 1,5 GHz radio-astronomy application was set up by our "silent key" friend Jarda OK1AHH.



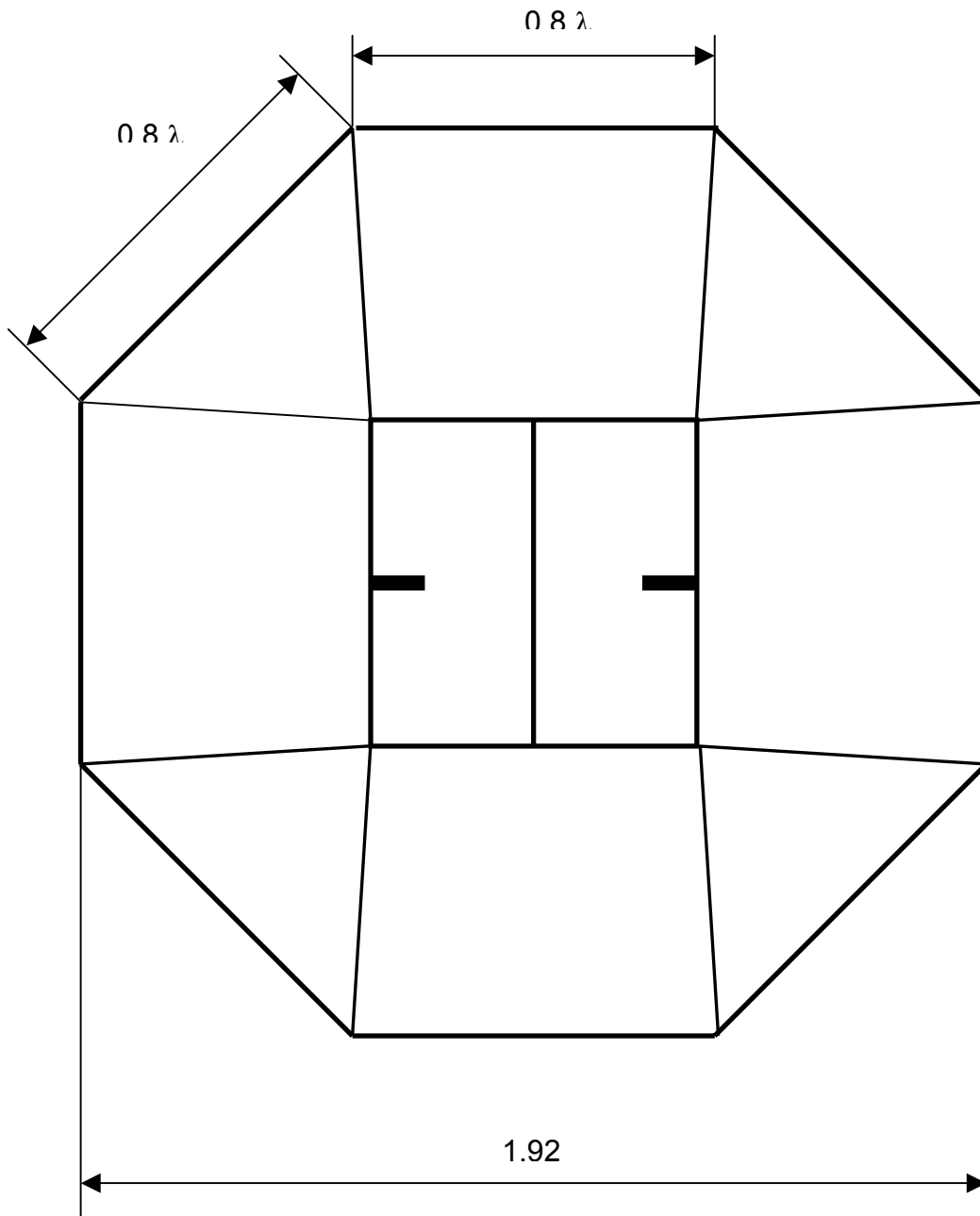
Comments:

$D_m = 9800$ mm	diameter of main parabola dish
$D_s = 1010$ mm	diameter of hyperbola sub-reflector
F1	focus of main dish
F2	real focus of Cassegrain system
$h = 2300$ mm	depth of main dish
$a = 249.3$ mm	real semi-axis
$b = 375$ mm	imaginary semi-axis
$e = 450.3$ mm	linear eccentricity

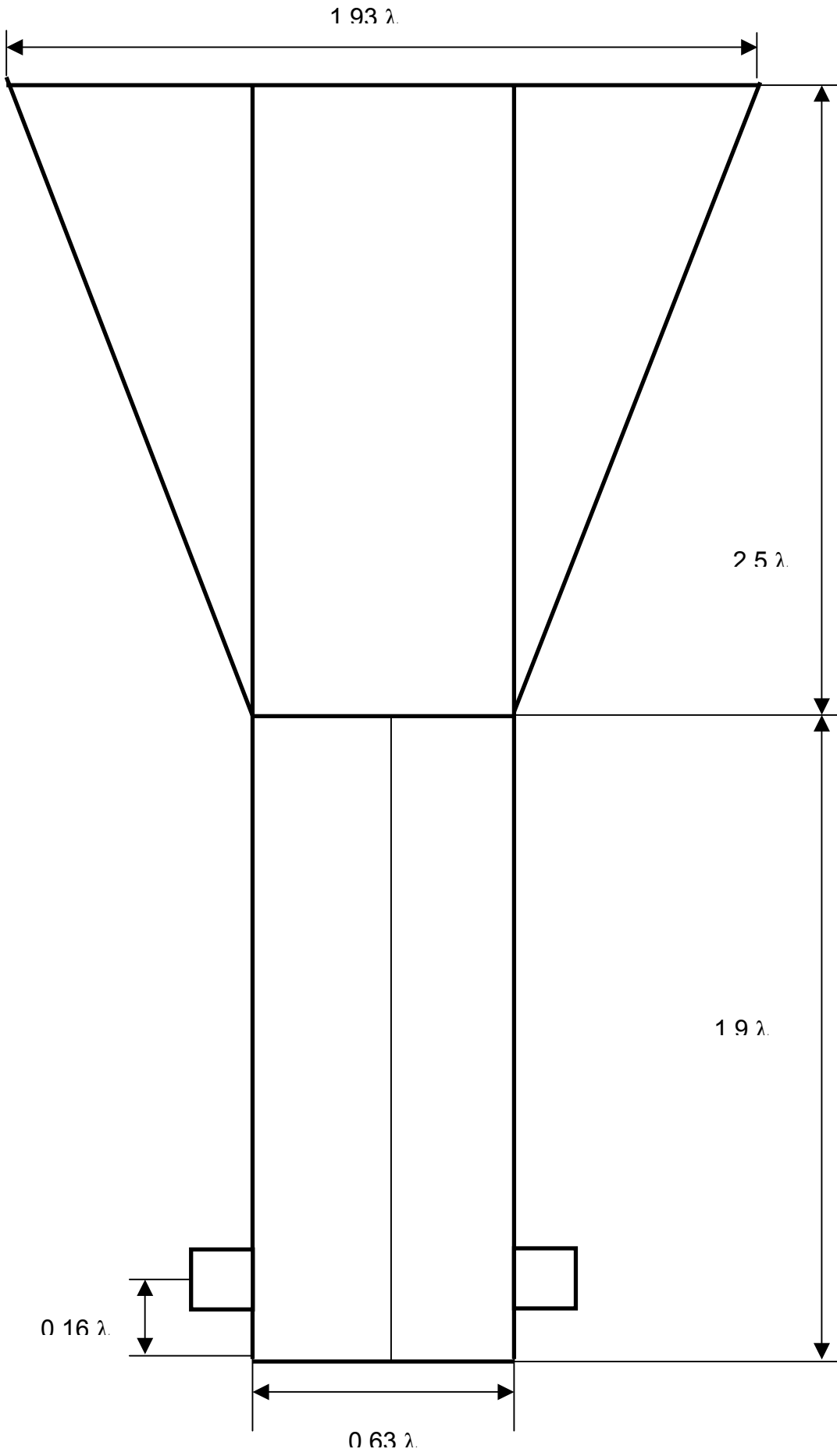
This picture show, how is working a Cassegrain system witch use Franta OK1CA in his using very deep 10m dish.



Feed horn install in Cassegrain system

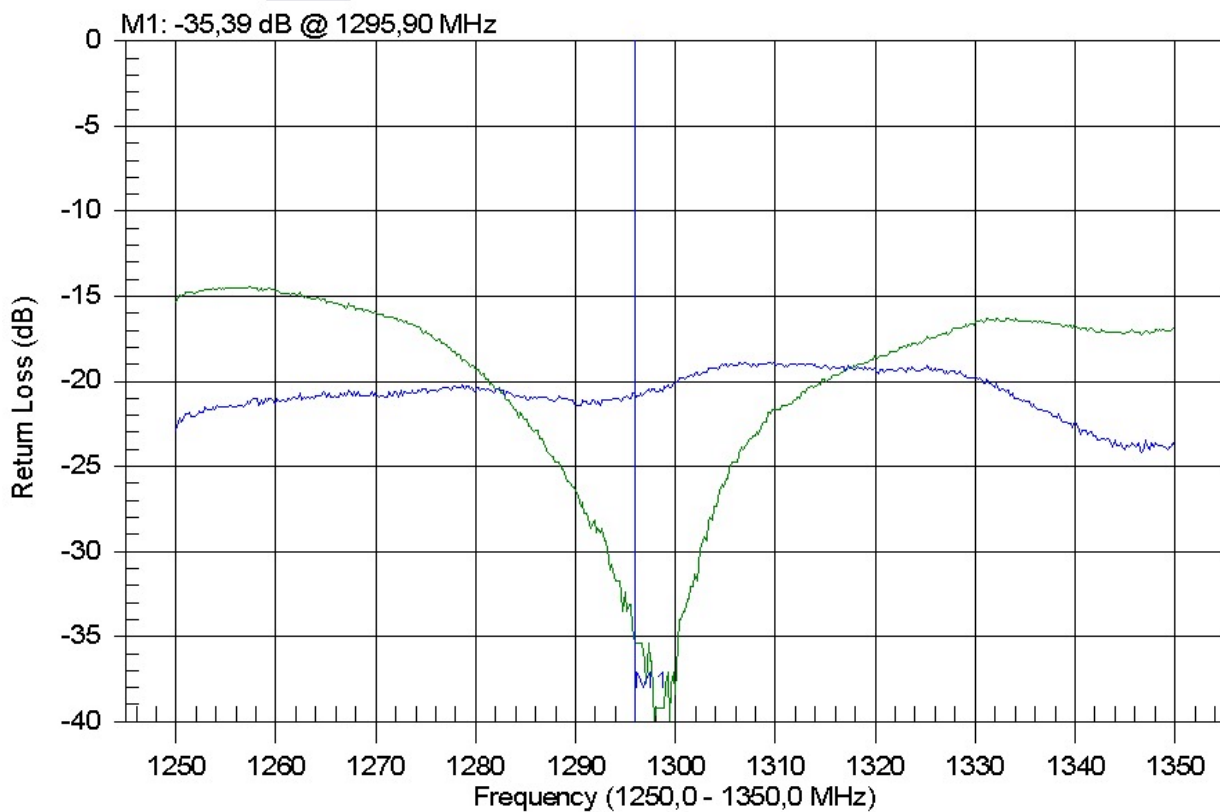


View to the feed from front



Feed 1296 MHz, horn septum, RX port

Comparison / green - work position, blue - feed in space

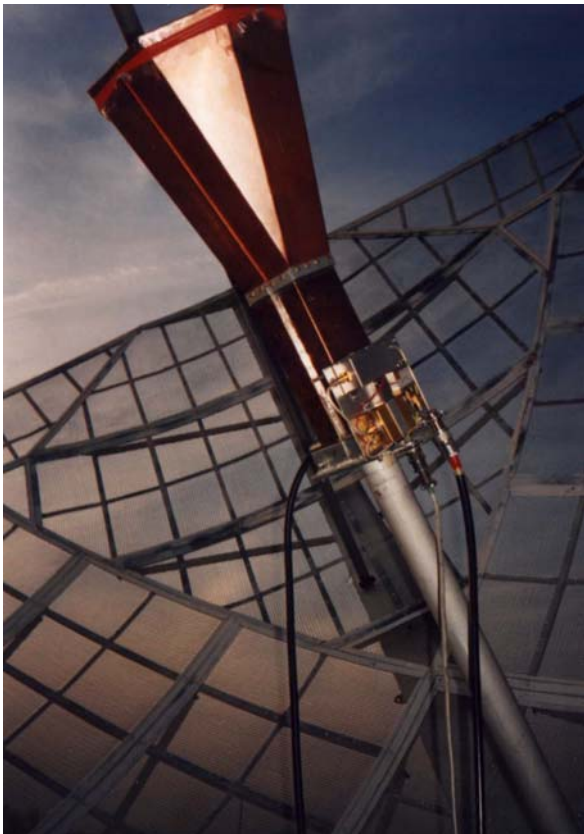


This diagram shows, how is looking the curve for SWR in the “free space” and inside the dish. Normally in the free space is SWR around -20 or -24 dB. Inside of the dish is -38 or -40 dB what present SWR 1:1. On the following pictures is possible watch, how is moving SWR with move feed in

focus of the dish.

Picture on **left** side show feed together with relay and preamplifier for **13** cm band.

On the **right** side you can see feeds for **23** and **13** cm before installation in the dish





This picture present Septum feed inside of the 10 m dish. System is ready for use on **23cm** band.

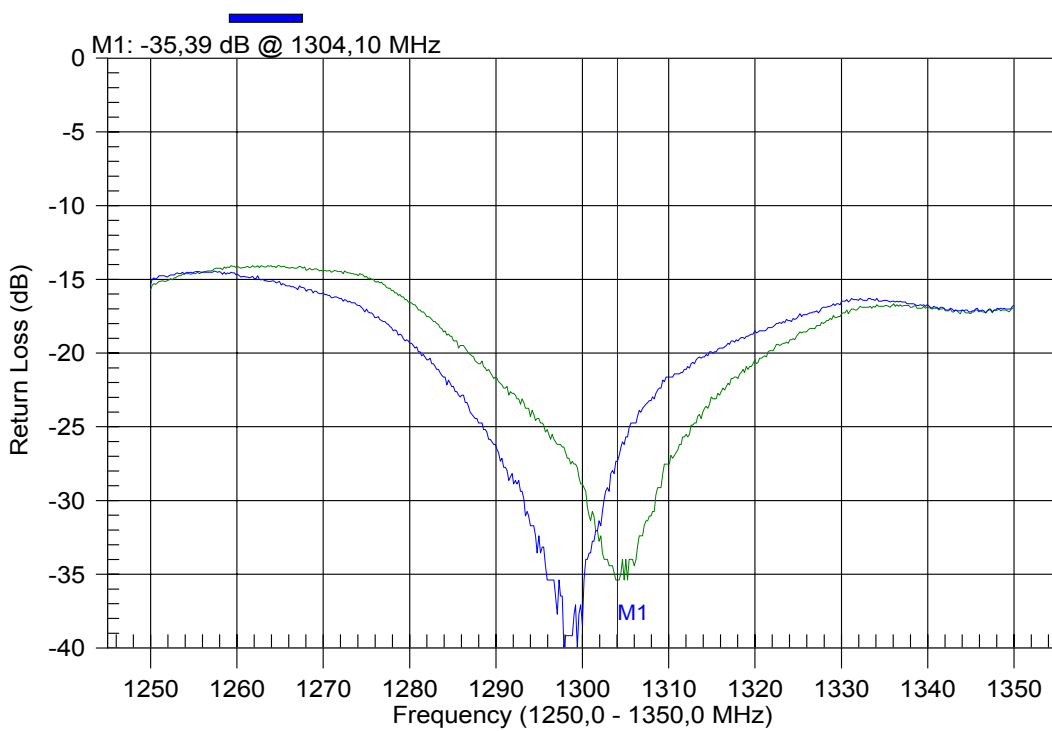


This is septumpolarizer feed 1296 MHz, included coaxial relay and preamplifier. This is the system witch is Franta using usually for EME traffic.

Following diagrams will show, how is changing SWR with moving of feed in focus of the dish.

Picture nr. 1

Feed 1296 MHz, horn septum, RX port
Modra - pracovni poloha, zelena - posun +1cm smer cassegrain



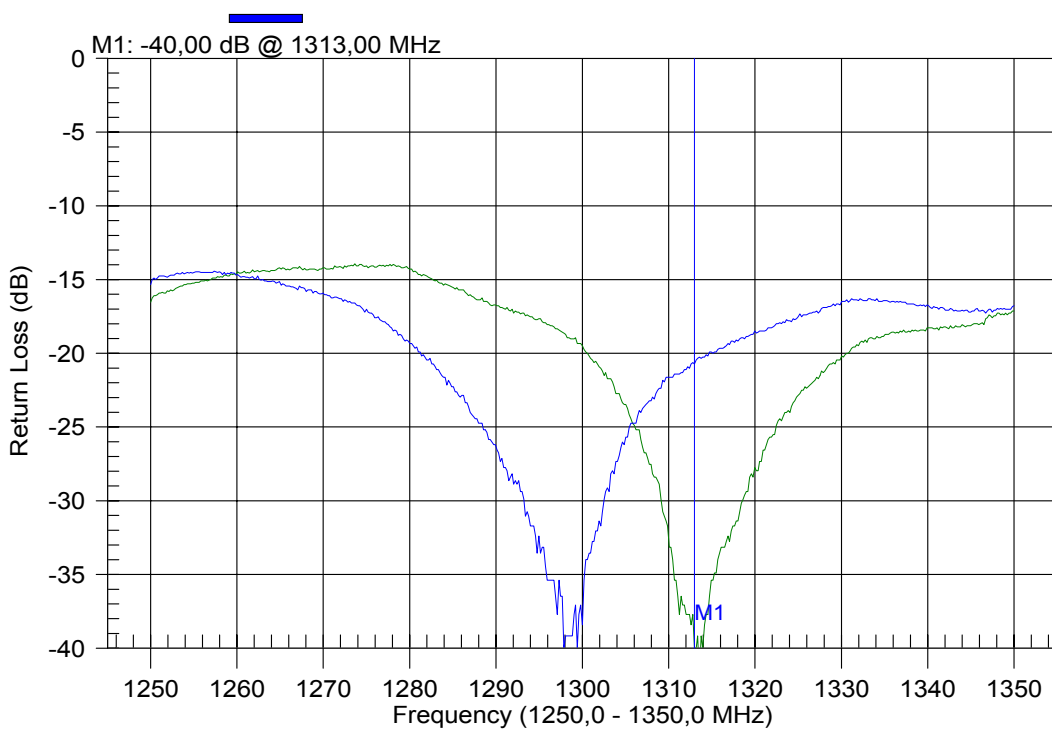
Resolution: 517

Blue line present justified feed in focus, for minimum SWR what present level -40dB.

Green line present SWR witch is changing thanks to move of feed 10mm to the Cassegrain mirror direction. SWR is +5dB worse like in focus. Total SWR level is -35 dB what is not so bad.

Picture nr.2

Feed 1296 MHz, horn septum, RX port
Modra - pracovni poloha, zelena - posun +2cm smer cassegrain



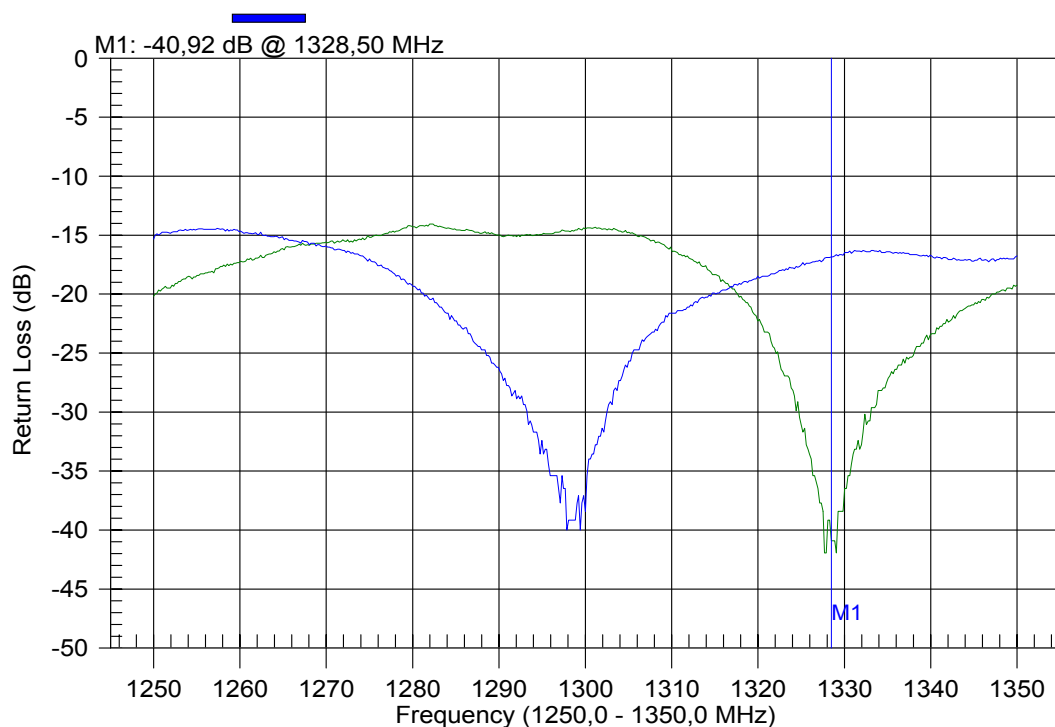
Resolution: 517

Blue line present again justified feed in focus, for minimum SWR what present level -40dB.

Green line present SWR witch is changing thanks to move of feed 20mm to the Cassegrain mirror direction. SWR is again on -40dB level.

Picture nr.3

Feed 1296 MHz, horn septum, RX port
Modra - pracovni poloha, zelena - posun +4cm smer cassegrain



Resolution: 517

We see, that thanks to moving with the feed in focus, will be possible adjust minimum SWR or minimum C/N depend what the station prefer. For weak signals are recommended adjust the system for minimum noise, and maxim gain.

Blue line present again justified feed in focus, for minimum SWR what present level -40dB.

Green line present SWR witch is changing thanks to move of feed 40mm to the Cassegrain mirror direction. SWR is better and level present -42 dB.....