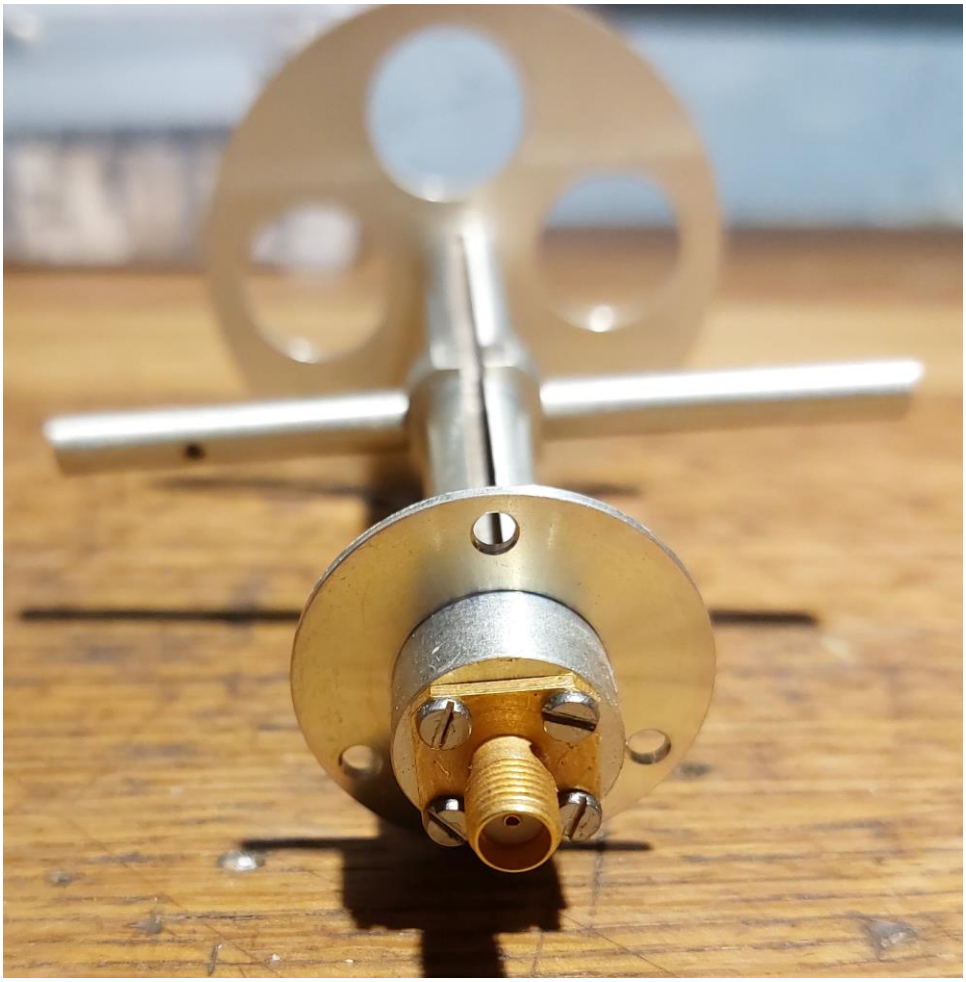
Unknow L-Band dipole feed

Updated January 4th 2026, Matthias, DD1US, Rev 1.1

Hi,

Recently a friend gave me some unknown antenna feeds. I am searching for data for those devices.

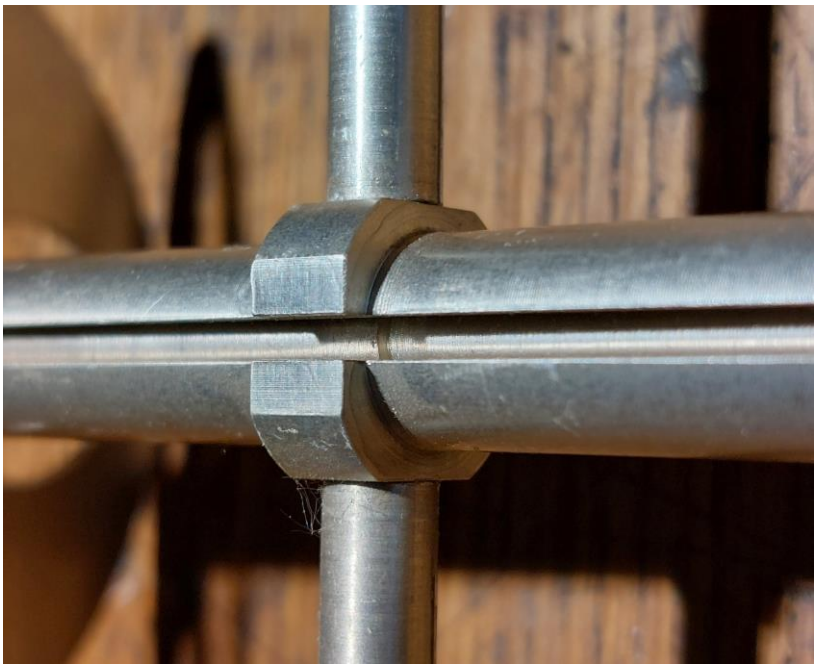
Here are some pictures of the antenna feeds:



The input connector is an SMA jack. The barrel to which the jack is attached is normally most likely mounted in a reflector plate and fixed with 3 screws though the holes in the round disk.

From the coaxial SMA jack to the dipole elements a slotted coaxial line is used which acts as a balun to convert the single ended signal from the coaxial jack to a symmetrical signal for the dipole feeds.

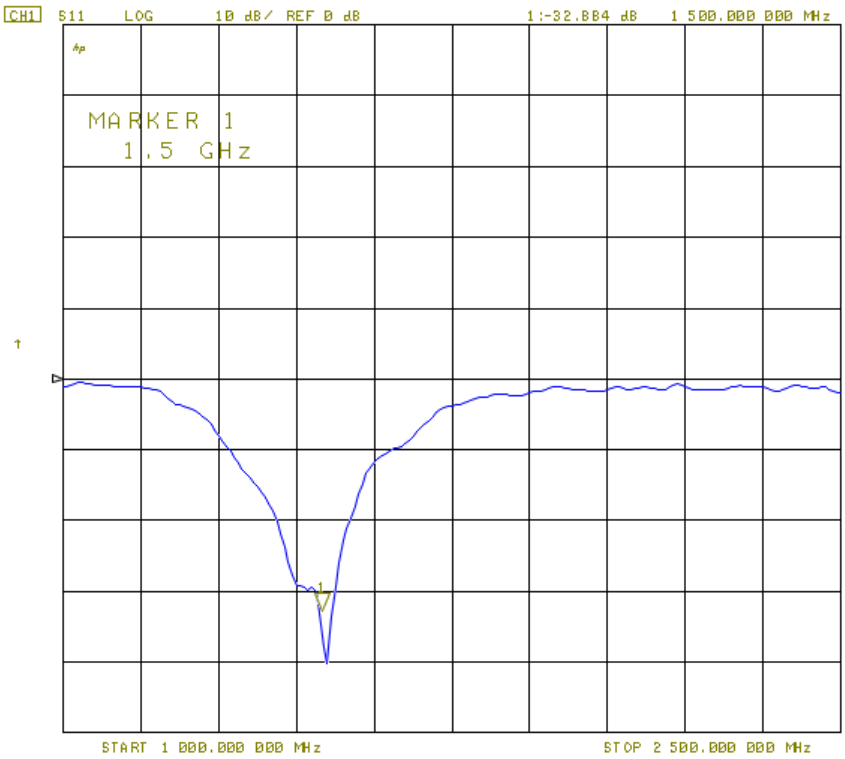
The slotted line is extended to the disc shaped reflector element which is providing also a short between the inner conductor and the outside slotted shield. This is also part of the balun and matching circuit.



The section of the slotted line between the location where the dipole elements are attached to the reflector disc has a slightly thicker inner conductor and thus lower impedance than the section between the coaxial SMA connector and the dipoles. The length of both slotted line sections is about 50mm which indicates a possible target frequency of 1.5GHz.

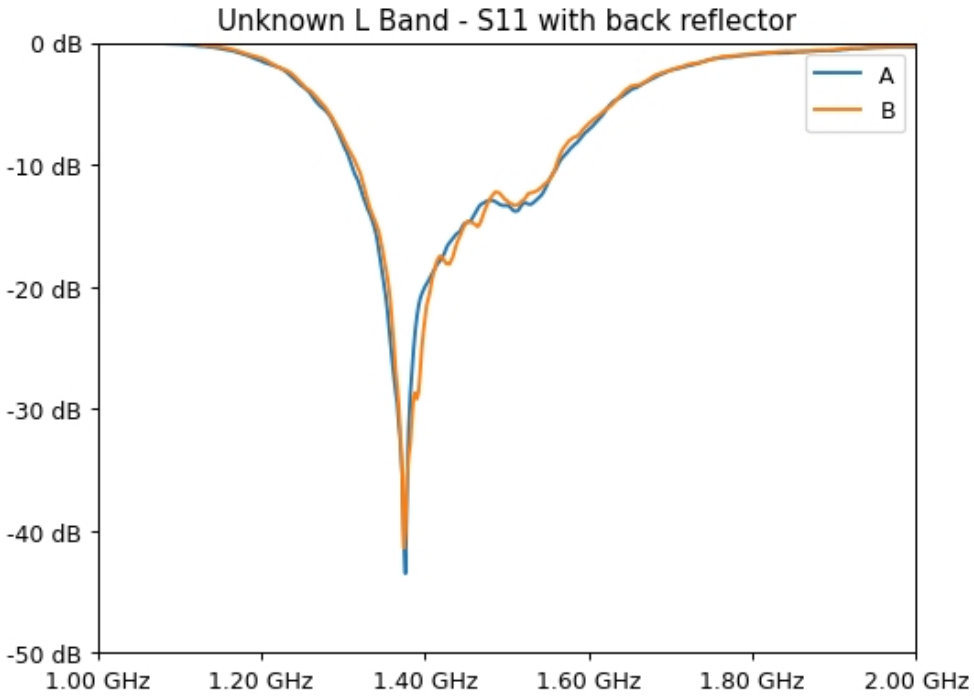
Interestingly the combined length of both dipole antenna elements is shorter than the diameter of the reflector disc. It is also unclear to me why a disc is used as the feed is linear polarized and simple aluminium bar for the reflector would be sufficient.

I measured the return loss of the antenna feed in the frequency range 1 – 2.5GHz.



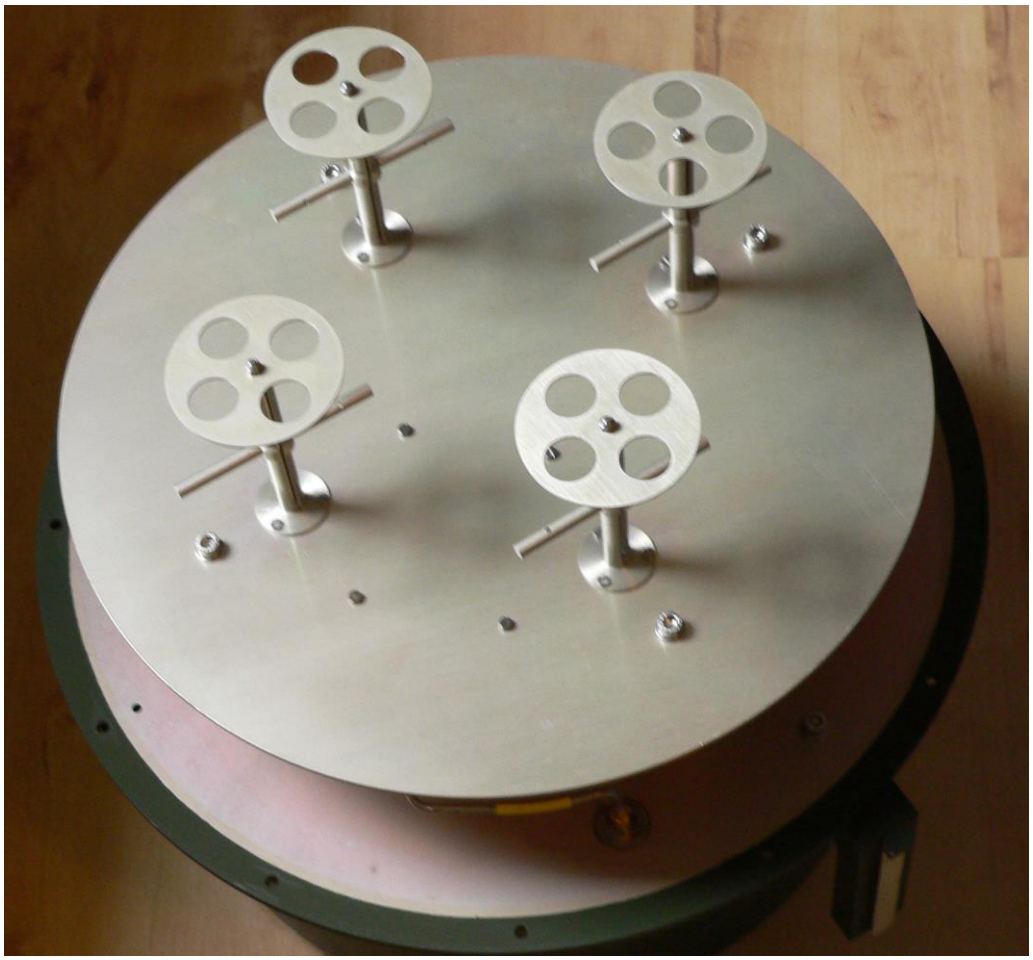
The return loss shows a very distinct optimum at about 1.5GHz. The VNA was not calibrated thus the exact return loss value is unknown but it is at least 30dB. Thus, the initial estimate of the target frequency of this antenna at 1.5GHz matches quite well.

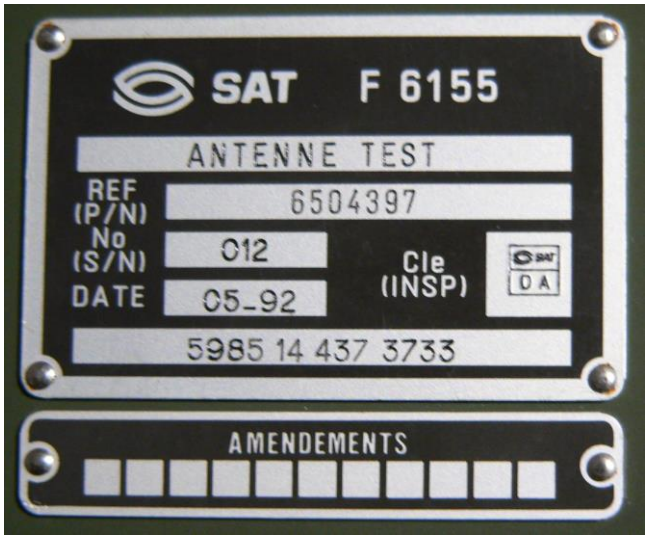
Meanwhile I received an Email from Andreas Gibhardt with his S11 measurement results, which were obtained when mounting the feed on a flat reflector plate:



Apparently, the resonance is shifted to below 1.4 GHz when the feed is mounted to a reflector plate.

Furthermore, I found this picture showing an array of four of such feeds mounted on a reflector plate. I suspect it was originally covered by a radome.





The label suggests that this “ANTENNE TEST” or “F 6155” was built in May 1992. The Logo stands for the SAGEM group, SAT stands for a division of SAGEM which was acquired by SAGEM in 1939. The part number P/N is 6504397. The code “5985 14 437 3773” seems to be a NATO NSN number with “5985” identifying “transmitter and receiver”.

I still do not know in which application this antenna was originally used.

If anyone has more information such as the target application or even specification of this antenna, I appreciate any help.

I will be also happy to answer any questions.

Please send it to my Email address below.

Kind regards

Matthias DD1US

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