

EME and MW seminar of OK VHF club 2022 - Medlov

# Final setup and operation of 8m offset dish

OK1DFC - ZDENEK SAMEK

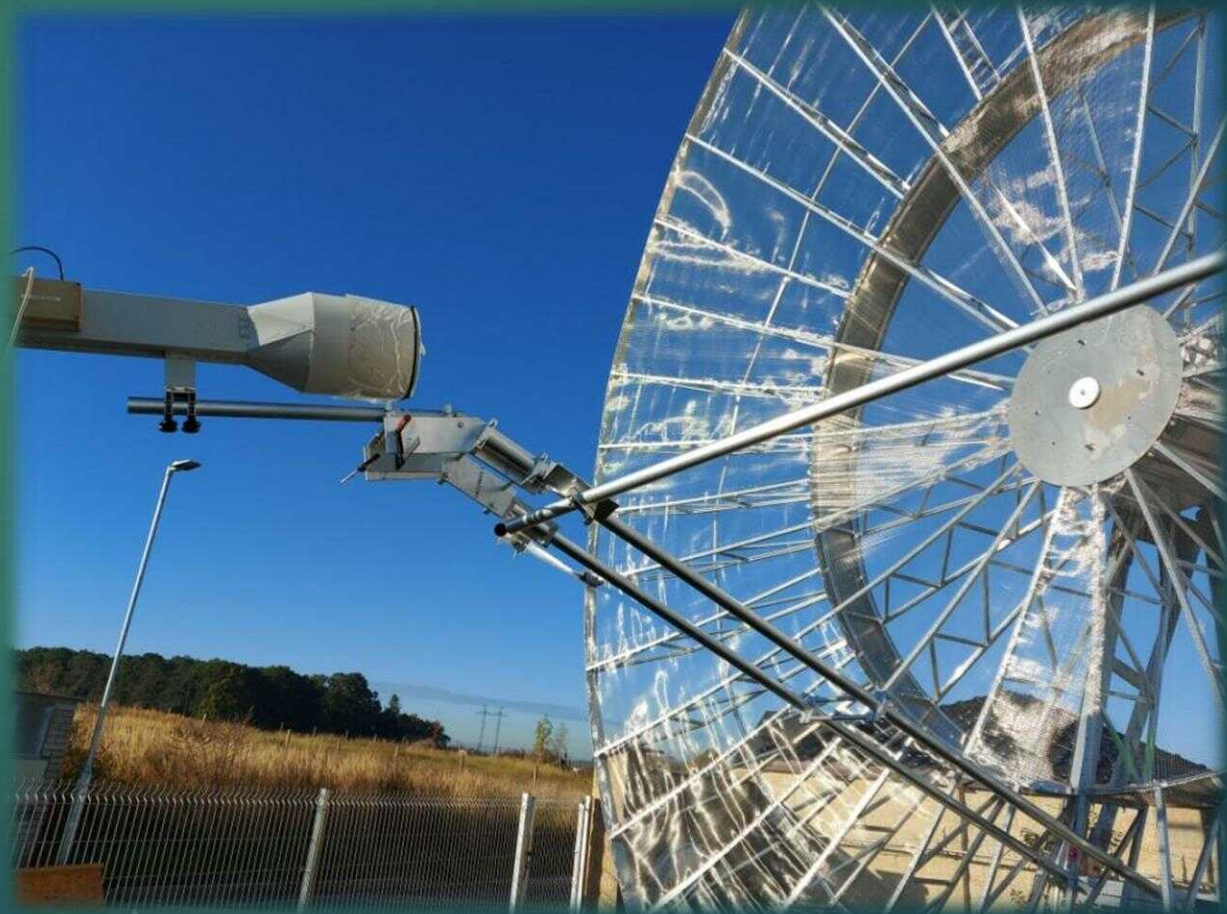


# Setup procedure:

- Status of the parabola after completion 10/2021
- Calculation of the exact position of the parabola focus
- Production of setting jig
- Production of anchoring elements of the fixture
- Adjusting the feed holder to the focal point
- Feed axis offset angle setting
- Measuring the Sun's noise
- Measuring Moon Noise
- CW, SSB and Q65 echo test
- EME connections realized after feed adjustment
- Production of feedhorn for 432 MHz
- Test of the dish for 432 MHz band
- 2320 MHz dish test with feed for  $F/D=0.6$  dish
- 3400 MHz dish test with feed for  $F/D=0.6$  dish

# Upon completion 10/2021

- Test with feed for F/D 0,6 260cm dish
- Feed production F/D 0,457
- Feed production for 432 MHz

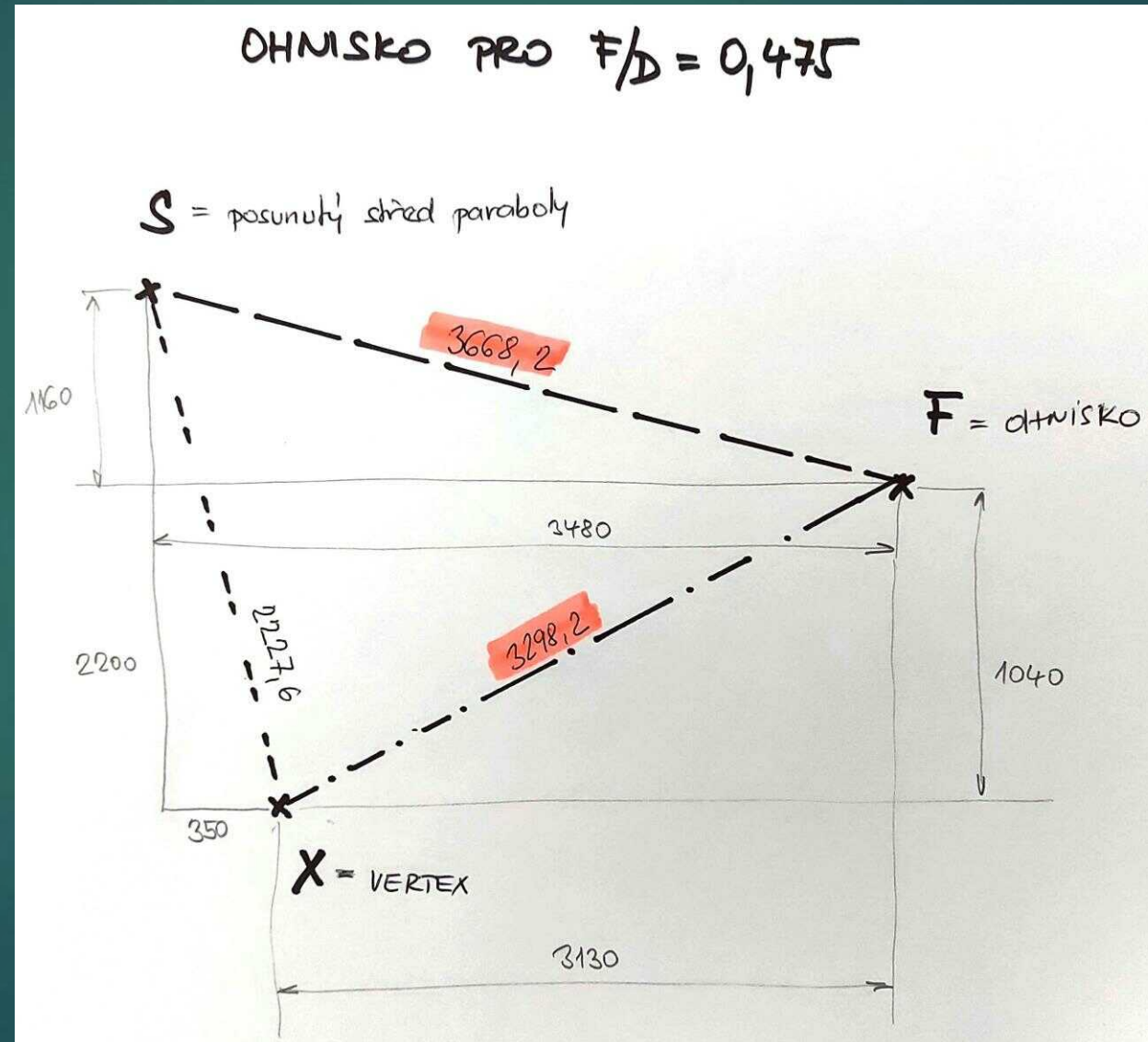


- Sun 14dB - Moon 0,6dB

# Antenna and focus adjustment

03/2022

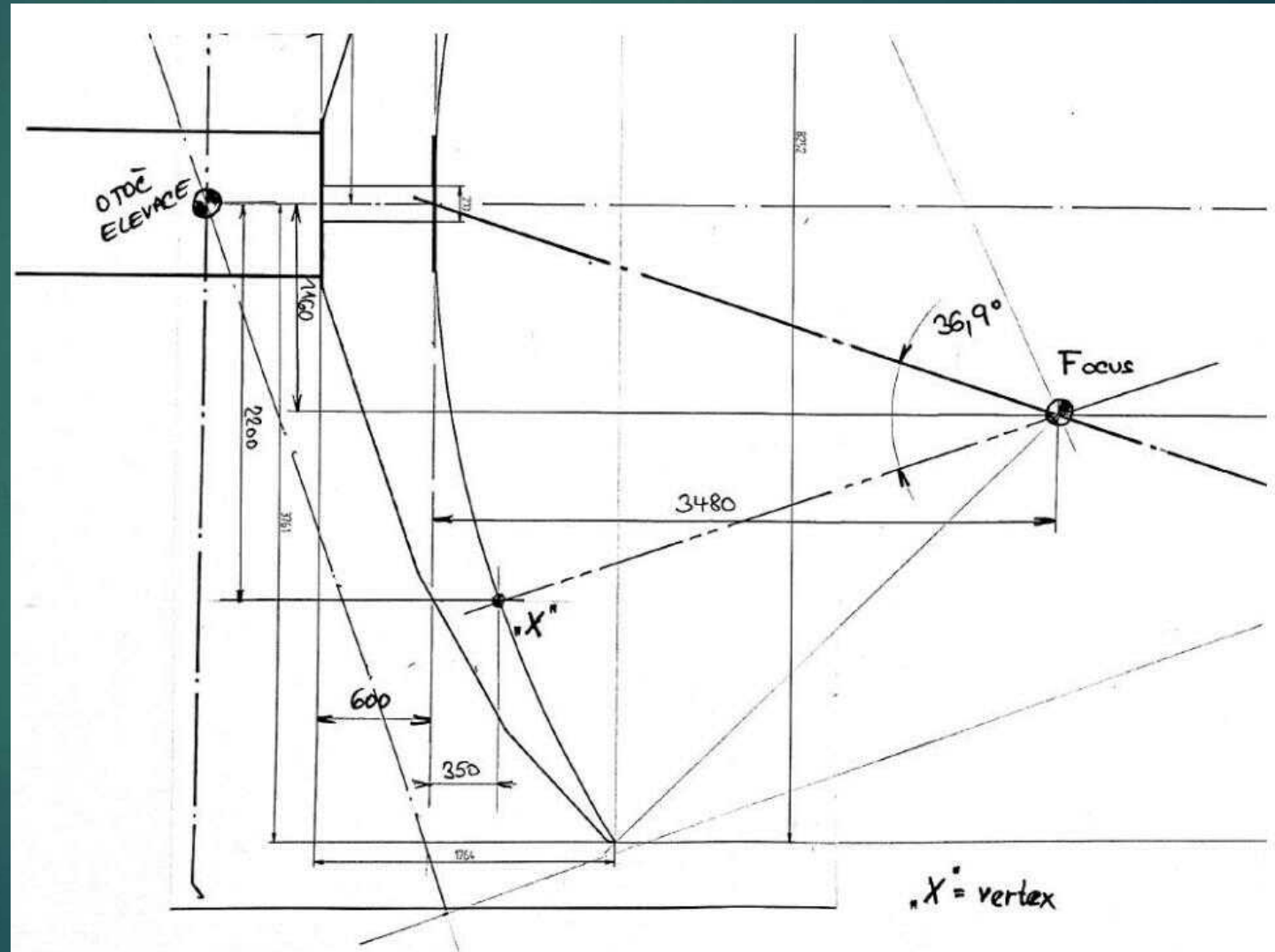
- Calculation of the exact position of the parabola focus



# Antenna and focus adjustment

## 03/2022

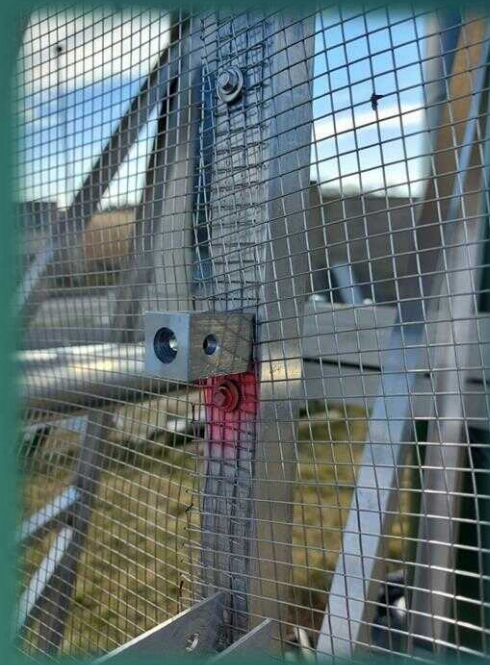
- Calculation of the exact position of the parabola focus
- Production of setting jig



# Antenna and focus adjustment

## 03/2022

- Production of setting jig
- Production of anchoring elements of the fixture
- Adjusting the feed holder to the focal point



# Antenna and focus adjustment

## 03/2022

- Feed axis offset angle adjustment  $36.9^\circ$
- Measuring the Sun's noise
- **21.5dB - 110 SFU**
- Measuring Moon Noise
- **0.9dB - clear**



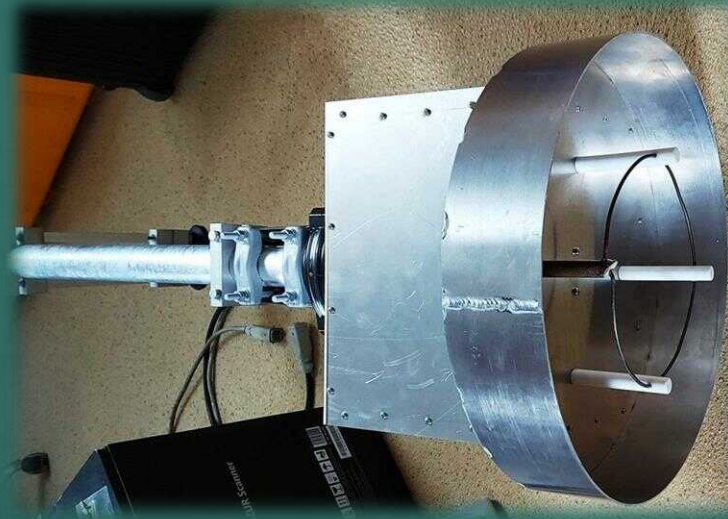




# Antenna and focus adjustment

03/2022

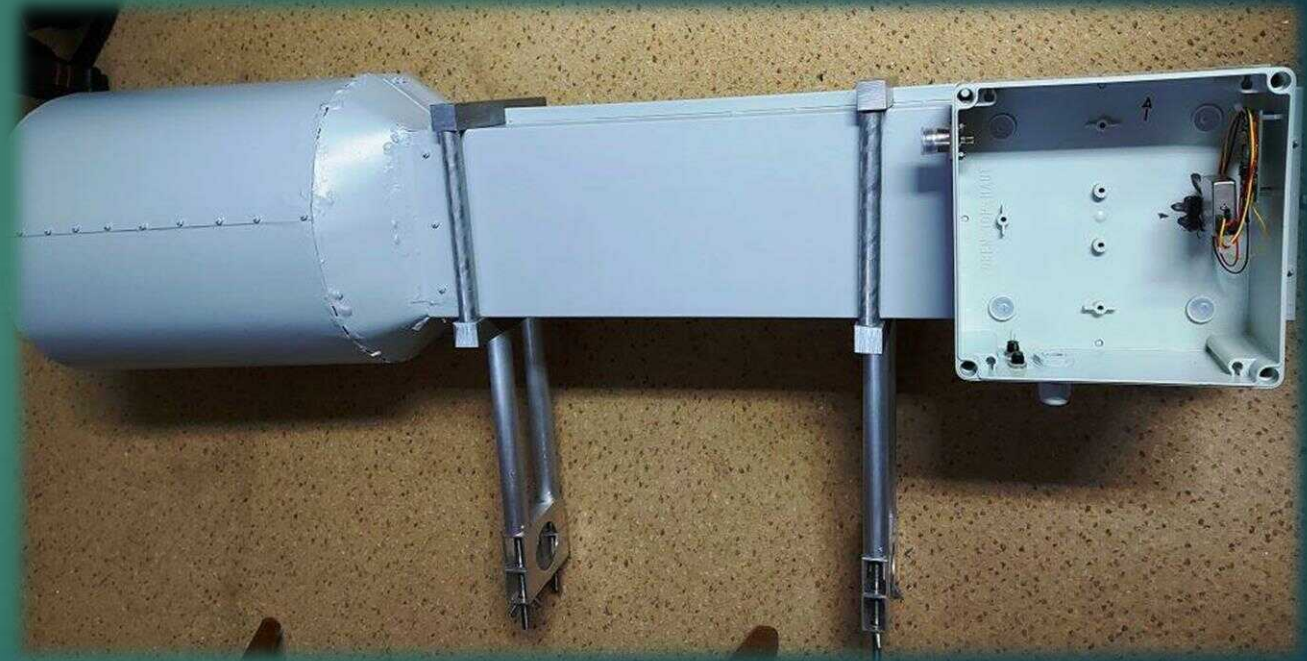
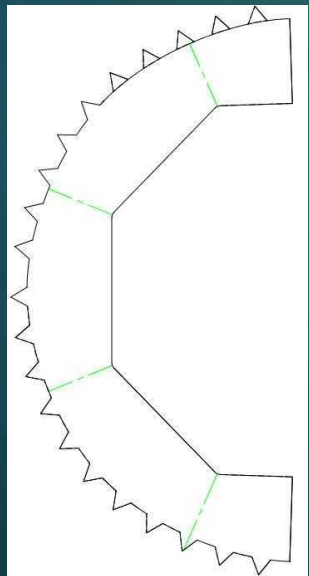
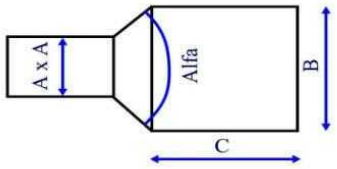
- Production of the 432 MHz feedhorn - Loop feed



# Feedy

- Construction of 1296 MHz feed - septum by OK1DFC
- Funnel W2IMU
- $F/D = 0.457$
- 1296 and 2320 MHz

|                   | MHz                       | $\lambda$ m             | $\lambda$ cm |
|-------------------|---------------------------|-------------------------|--------------|
| input             | 1296                      | 0,231481                | 23,14835     |
| input             | F/D                       | 0,457                   |              |
| Dimension "B"     | 0,2486 m                  | 248,6 mm                |              |
| Feed half angle:  | 41,52894 $\alpha/2^\circ$ | 83,05787 $\alpha^\circ$ |              |
| Dimension "C"     | 0,294388 m                | 294,4 mm                |              |
| Dimension "A x A" | 0,143 m                   | 143 mm                  |              |
| TE11              | 0,424111                  |                         |              |
| TM11              | 0,203852                  |                         |              |



# Antenna and focus adjustment

## 03/2022

- Test of the dish for 432 MHz band
- Smallest station 23el. Single Yagi and 300W -18 DB
- Sun 20dB at SFU 123, up to 18° angle of elevation
- The antenna is over-iluminated and sees the noise of the Earth. (+6dB)
- A new feed must be constructed.

The screenshot displays the WSJT-X v2.5.4 interface. At the top, the title bar reads "WSJT-X v2.5.4 by K1JT, G4WJS, K9AN, and IV3NWW". Below the title bar is a menu bar with options: File, Configurations, View, Mode, Decode, Save, Tools, Help.

The main window is divided into two columns of decode logs:

- Single-Period Decodes:**

| UTC  | dB  | DT  | Freq | Message              |
|------|-----|-----|------|----------------------|
| 1114 | -13 | 2.9 | 1501 | CQ HS0ZOP OK03 q3    |
| 1116 | -13 | 2.9 | 1499 | OK1DFC HS0ZOP -20 q3 |
| 1124 | -13 | 2.7 | 1055 | CQ HS0ZOP OK03 q3    |
| 1126 | -15 | 2.6 | 1055 | OK1DFC HS0ZOP -21 q3 |
| 1128 | -16 | 2.7 | 1055 | OK1DFC HS0ZOP RRR q3 |
| 1131 | -23 | 2.6 | 1080 | HS0ZOP PA2V JO22 q0  |
- Average Decodes:**

| UTC  | dB  | DT  | Freq | Message              |
|------|-----|-----|------|----------------------|
| 1114 | -13 | 2.9 | 1501 | CQ HS0ZOP OK03 q3    |
| 1114 | -13 | 2.9 | 1501 | CQ HS0ZOP OK03       |
| 1115 | Tx  |     | 2184 | HS0ZOP OK1DFC JN79   |
| 1116 | -13 | 2.9 | 1499 | OK1DFC HS0ZOP -20 q3 |
| 1117 | Tx  |     | 1501 | HS0ZOP OK1DFC R-13   |
| 1119 | Tx  |     | 1501 | HS0ZOP OK1DFC R-13   |
| 1121 | Tx  |     | 1501 | HS0ZOP OK1DFC R-13   |
| 1123 | Tx  |     | 1501 | HS0ZOP OK1DFC R-13   |
| 1124 | -13 | 2.7 | 1055 | CQ HS0ZOP OK03 q3    |
| 1124 | -13 | 2.7 | 1055 | CQ HS0ZOP OK03       |
| 1125 | Tx  |     | 1501 | HS0ZOP OK1DFC JN79   |
| 1126 | -15 | 2.6 | 1055 | OK1DFC HS0ZOP -21 q3 |
| 1127 | Tx  |     | 1055 | HS0ZOP OK1DFC R-15   |
| 1128 | -16 | 2.7 | 1055 | OK1DFC HS0ZOP RRR q3 |
| 1129 | Tx  |     | 1055 | HS0ZOP OK1DFC 73     |
| 1129 | Tx  |     | 1055 | HS0ZOP OK1DFC 73     |

Below the logs are control buttons: Log QSO, Stop, Monitor (highlighted), Erase, Clear Avg, Decode, Enable Tx, Halt Tx, Tune, and a checked Menus checkbox.

The center control panel shows a frequency of 432,080.635 MHz. It includes fields for TX and RX frequencies (both 1055 Hz), F Tolerance (100), Submode B, DX Call (HS0ZOP), DX Grid (OK03GR), Azimuth (84), and Range (8568 km). A digital display shows "2022 dub 10 11:31:59".

On the right, a "Generate Std Msgs" panel lists six message options for Tx 1 through Tx 6, with "CQ OK1DFC JN79" selected for Tx 6.

At the bottom, the status bar shows "Receiving", "Default - Copy", "Q65-60B", "Last Tx: HS0ZOP OK1DFC 73", "1 0", and "59/60 WD:20m".

# Feedy

- 432 MHz loop feed - 1st test
- Dual dipole G3LTF - complex to manufacture, 2x200 ohm, open phase line
- Dual dipole OK1DFC - 2x50 ohm  $\lambda/4$  dipoles with symmetrizing sleeve



# Conclusion

Thank you for your attention -  
Questions ?????