20th International EME conference Trenton 2024

# Final setup and operation of 8m offset dish

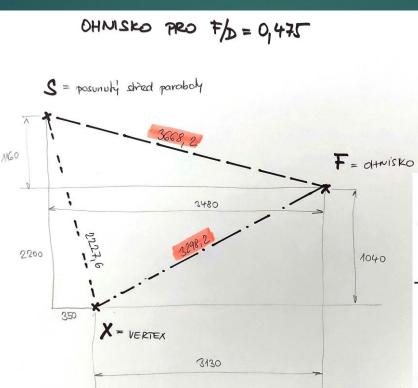


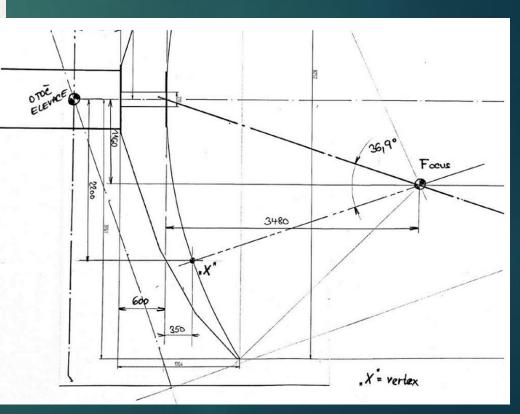
#### Setup procedure:

- Status of the dish after completion 10/2021
- Calculation of the exact position of the dish focus
- Production of setting jig
- Production of anchoring elements of the jig 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 feedhorn adjustment
- Production of feedhorn for 432 MHz
- ➤ Test of the dish for 432 MHz band

# Antenna and focus adjustment 03/2022 OHMISKO THE TABLE 9475

 Calculation of the exact position of the parabola focus





## 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°
- Measuring the Sun's noise
- 22.5dB 123 SFU
- Measuring Moon Noise
- 1,1dB clear sky



### After dish and focus adjustment 03/2022

• Self-echo test CW - 599, SSB - 57 and Q65 +02 DB, - 10W easily detectable CW signal

WSJT-X v2.5.4 by K1JT. G4WJS. K9AN. and IV3NWV

- 0

EME QSO realized with NC1I and N1V

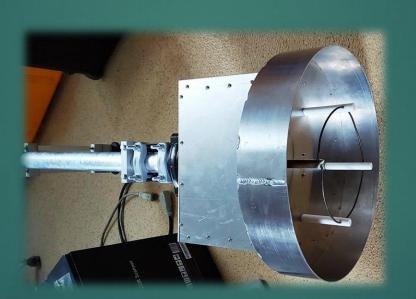
			File Configurations View Mode Decode Save Tools Help							
			Single-Period Decodes	Average Decodes						
	WSJT-X v2.5.4 by K1JT, G4WJS, K9AN, and IV3NWV File Configurations View Mode Decode Save Tools Help	X	UTC dB DT Freq Message 0106 -17 2.9 1496 : CQ N1V BL11 q3 0108 -18 2.9 1494 : OKIDFC N1V -24 q3	UTC         dB         DT         Freq         Message           ^         0043         Tx         1000 : CQ OKLDEC JN79         ^           0045         Tx         1000 : CQ OKLDEC JN79         ^						
Wristr⊀-Weld Graph	Single-Period Decodes UTC dB DT Freq Message	Average Decodes UTC dB DT Freq Message	0108         -18         2.9         1494         :         OKLDFC NIV         -24         q3           0110         -20         2.9         1496         :         OKLDFC NIV         RR73         q3           0112         -17         2.9         1494         :         CQ         NIV         BL11         q3	0045 1X 1000 : CQ OKIDEC JN79 0047 Tx 1000 : CQ OKIDEC JN79 0106 -17 2.9 1496 : CQ NIV BL11 0107 Tx 947 : NIV OKIDEC JN79						
	2155 3 2.7 1185 : CQ MCIT FN32 q0 ^ 2155 1 2.7 1184 : OMIDEC NCII -02 q3 2157 2 2.7 1187 : OMIDEC NCII FR73 q3	153     3     2.7     1189     : CQ MCLI FN32     ^       2154     Tx     1200     NCLI OKIDFC JN79       2155     1     2.7     1184     : OKIDFC MCLI -02     q3       2156     Tx     1200     : NCLI OKIDFC R+01     2       2157     2     2.7     1107     : OKIDFC MCLI FN73     q3       2156     Tx     1200     : NCLI OKIDFC 73		0108       -18       2.9       1494 :       OKIDEC NIV -24       q3         0109       Tx       1496 :       NIV OKIDEC R-18         0110       -2.9       1496 :       OKIDEC NIV RR73       q3         0111       Tx       1496 :       NIV OKIDEC 73         0112       -17       2.9       1494 :       CQ NIV BL11       q3						
	v		Log QSO Stop Monitor Erase Clear /							
T M R 73		Decode         Epable Tx         Halt Tx         Tune         Menus           -+         Generate Std Msgs         Next         Now         Pvr           Submode C €         (NC11 0K1DFC 3N79)         T X 1         ●           Max Drift 0 €         NC11 0K1DFC +011         0         T x 2	23cm         S         1         296,051         039         Tx         1496         Hz           80         DX Call         DX Grid         A         F Tol 100         C         C         N1V         BL11MM         Rx 1496         Hz         Az: 352         12045 km         Report -18	Image: Submode C         Generate Std Msgs         Next         Now         Pwr           Image: Submode C         I						
Anny Marine and Anny Marine	60 Az: 299 6429 km Report 1 € 40 Lookup Add T/R 60 s 5 20 2022 bře 13 0 d8 21:58:43	NC11 OK10FC R+01         Tx 3         -           NC11 OK10FC RR73         Tx 4         -	40 20 20 20 2022 bře 14 01:13:46 40 7/R 60 s 7/R 60 s Sh ☑ Auto Seq []	Image: Second state of the second state of						
Bins/Pixel         3         \$ Start 200 Hz         Pelette         Adjust         ✓ Flatten [. Ref Spec         Spec 30 % (2)           Spit 2500 Hz         *         N Avg 1         Umrad         Cumulative         Smooth 1 1	Tx: NC11 OK1DFC 73 Default - Copy Q65-60C Last Tx: NC11 OK1DFC R	R+01 1 0 43/60 WD:20m	Receiving Default - Copy Q65-60C Last Tx: N1V OK1DFC	73 0 6 46/60 WD:20m						

- CW smallest station 180cm offset and 50W RF 539
- Q65 3m dish and **3W** RF !!! -18DB **PAOTBR**

#### Dish and focus adjustment 03/2022

• Production of the 432 MHz feedhorn - Loop feed

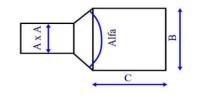


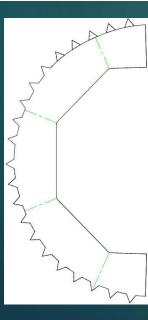




#### Feeds

		MHz	λm	λcm	
input	Frequency:	1296	0,231481	23,14815	
input	F/D	0,457			
	Dimension "B"	0,2486	m	248,6	mm
	Feed half angle:	41,52894	α/2°	83,05787	α°
	Dimension "C"	0,294388	m	294,4	mm
	Dimension "A x A"	0,143	m	143	mm
	TE11	0.424111			
	TM11	0,203852			





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





## Dish and focus adjustment 03/2022

- 432 MHz dish test
- Smallest station 10el. Single Yagi and 100W -27 DB
- Sun **20dB** at SFU 123, up to 18° angle of elevation

-		WJS, K9AN, and I										_		×
File Configur		Mode Decod		10015	нер									
Single-Period Decodes Average Decodes														
UTC dB	DT Freq	Message				UTC	dB	DT	Freq		Message			
1114 -13 1116 -13 1124 -13 1126 -15 1128 -16 1131 -23	2.9 1501 : 2.9 1499 : 2.7 1055 : 2.6 1055 : 2.6 1055 : 2.6 1080 :	OK1DFC HS	0ZOP -20 OK03 0ZOP -21 0ZOP RRR	q3 q3		1114           1114           1115           1116           1117           1119           1121           1123           1124           1125           1126           1127           1128           1124           1125           1126           1127	-13 Tx -13 Tx Tx Tx Tx Tx -13 -13 Tx	2.9 2.9 2.7 2.7	1501 1501 2184 1499 1501 1501 1501 1055 1055 1501 1055 1055		CQ HS02OP OK CQ HS02OP OK HS02OP OKLDF HS02OP OKLDF HS02OP OKLDF HS02OP OKLDF HS02OP OKLDF CQ HS02OP OK HS02OP OKLDF OKLDFC HS02OP OKLDF	03       C     JN79       P     -20       C     R-13       C     R-13       C     R-13       C     R-13       C     R-13       C     S-13       C     S-13       C     S-13       C     S-13       C     S-13       C     S-13       O3     S-13       C     JN79       P     -21	q3 q3 q3	
Log <u>Q</u> SO	Stop	Monitor	<u>E</u> rase		Clear Avg	1128 1129 1129 1129	-16 Tx Tx ecode	2.7	1055 1055 1055 E <u>n</u> able	:	OKIDFC HS020 HS02OP OKIDF HS02OP OKIDF	C 73	q3 	∨ ] Menus
70cm ~	<mark>s</mark> 432,0	080 635	Tx even	/1st 1055 H	z			(		Gen	erate Std Msgs	Next	Now	Pwr
-80 -60 -40 -20 61 dB	DX Call HS0ZOP Az: 84 Lookup 2022 c 11:3	ub 10	Rx Re T/	Tol 100 1055 H port -15 R 60 s ☑ Auto	z :		node B Drift 0	÷	H H H	50ZC 50ZC 50ZC 50ZC	DP OK1DFC JN79 DP OK1DFC -15 DP OK1DFC R-15 DP OK1DFC RR73 DP OK1DFC 73 ~ (1DFC JN79	] 0 [	Tx <u>1</u> Tx <u>2</u> Tx <u>3</u> Tx <u>4</u> Tx <u>5</u> Tx <u>6</u>	
Receiving	Default - Co	py Q65-60B	Last Tx:	HS0ZO	P OK1DFC	73 1 0						59	9/60 W	/D:20m 🔡

#### Conclusion

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