

19.3.24

$$\text{cd} \begin{cases} \ln 0.25 & R_{16 \text{ Mar}} 1858 \\ \ln 0.8 & R_{16 \text{ Mar}} 2141 \end{cases}$$

$\ln 0.8$

$$\begin{aligned} &\text{if } PS1 - 3p - 45pt - \ln 0.8 - 16 \text{ Mar} 2142. \text{inf} \\ &\text{if } PS2 - 3p - 45pt - \ln 0.8 - 16 \text{ Mar} 2232. \text{inf} \rightarrow T = 1.71733^\circ \\ &\text{17.3.24} \quad \text{if } PS1 - 3p - 45pt - 17 \text{ Mar} 1718 @ X_0 = 0 \end{aligned}$$

$$\begin{aligned} &1808 @ X_0 = \frac{\pi}{2} \\ &1858 @ X_0 = \pi \\ &1948 @ X_0 = \frac{3\pi}{2} \end{aligned}$$

$$\begin{aligned} &\ln 1.0 \quad R_{17 \text{ Mar}} 2311 \\ &\ln 0.8 \quad \text{if } PS2 - 3p - 45pt - \ln 18 - 17 \text{ Mar} 2313. \text{inf} \rightarrow T = 1.70911^\circ \end{aligned}$$

18.3.24

$$\text{if } PS1 - 3p - 45pt - 18 \text{ Mar} 1055 @ X_0 = 0$$

$$\begin{aligned} &1145 @ X_0 = \frac{\pi}{2} \\ &1234 @ X_0 = \pi \\ &1324 @ X_0 = \frac{3\pi}{2} \end{aligned}$$

Einheit von Polarwinkel etc., Gridfield, Analysepage: die Winkel werden unpolariert

R_18 Mar 2157

$$\text{if } PS1 - 42pt - 18 \text{ Mar} 2141 @ X_0 = 0$$

$$\begin{aligned} &2228 @ X_0 = \frac{\pi}{2} \\ &2314 @ X_0 = \pi \\ &19 \text{ Mar} 0000 @ X_0 = \frac{3\pi}{2} \end{aligned}$$

19.3.24

$$\begin{cases} \ln 0.8 & R_{19 \text{ Mar}} 1118 \\ \text{if } PS1 - 42pt - \ln 0.8 - 19 \text{ Mar} 1120. \text{inf} \\ \text{if } PS2 - 3p - 45pt - 19 \text{ Mar} 1435 \rightarrow T = 1.71883^\circ \end{cases}$$

R_19 Mar 1529

20.3.24 mehrere Diffenzen der 3. Stufen (Bragg-Cupel für pol. anal.)

$$\text{ad } 19.3.24 \quad \text{if } PS1 - 42pt - \ln 0.8 - 19 \text{ Mar} 1548. \text{inf}$$

R_19 Mar 1724

$$\text{if } PS1 - 42pt - \ln 0.8 - 19 \text{ Mar} 1726. \text{inf}$$

R_19 Mar 1938

$$\text{if } PS1 - 42pt - \ln 0.8 - 19 \text{ Mar} 1940. \text{inf}$$

$$2054. \text{inf}$$

$$2208. \text{inf}$$

$$2322. \text{inf}$$

20.3.24

$$\begin{cases} \ln 1.0 & R_{20 \text{ Mar}} 0119 \\ \ln 0.8 & \text{if } PS1 - 42pt - 18 \text{ Mar} 0121. \text{inf} \end{cases}$$

$$0235. \text{inf}$$

$$0349. \text{inf}$$

$$0503. \text{inf}$$

$$0611. \text{inf}$$

$$0731. \text{inf}$$

R_21Mar0855
ifj PS1_42pt_holn_21Mar0857.inf
ifj PS1_42pt_holn_21Mar1011.inf

Linear filter $in = \cancel{400}$ 99.2
 $out = 0$

Temp sensor : BS1 : sprungfester Rücklauf

BS2 GTF oben

BS2 Gunker

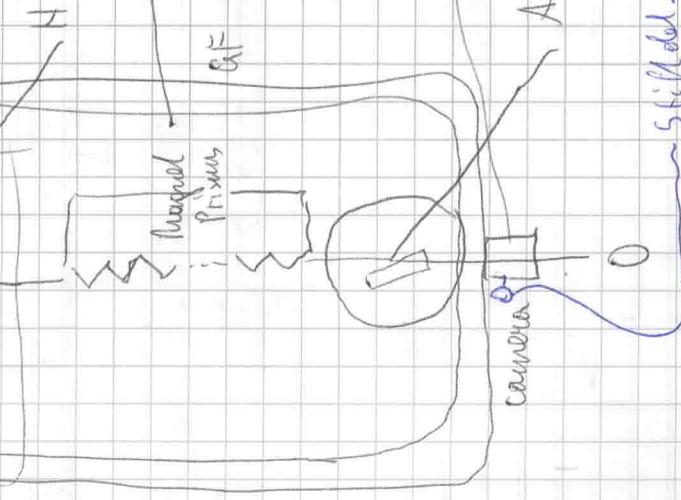
BS4 unter GFM

Sindelfeld in 14G

Box: $8_{in} \cdot 278000 = 278500$
 $2_{out} \cdot 250000$

~~in = 49.8~~

$out = 100$



ab 273:
 $in = 93$ $in = 83$
 $out = 25$ $out = 0$

$in = 16.9$

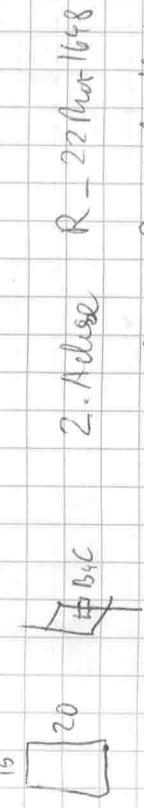
R_22Mar1229
ifj PS1_42pt_h18_BoxIn_22Mar1231.inf
ifj PS1_42pt_h18_BoxOut_22Mar1345.inf

$in = 273:$

Ant \rightarrow swapped 29.3,
Gfand dauernden

Stoffd. an Hauser-Elektrische
 $in = 16.9$

36 Justage Meßschaltern



2. Ablöse R - 22 Mar 1648
3. Ablöse R - 22 Mar 1651
Analyser auf 46

mit Camera:

Kamera - Bildschirm : alignment - beam 4x8, 6x
box : alignment - box 0,6x

Robot Y von 75500 auf 74500, Turn back results.

alignment - box 1,6x
Robot Z von 27800 auf 279000, Turn round
box 2,6x
auf 278500
Box 3,6x

Analysen: (Box 4x8)

Traum.Y=50
alignment - analy 0,6x
1 uncl ↑, 8 uncl Heberung
analy 1,6x
1 uncl ↑, 9 uncl Heberung - gleich (?)

35
analy 2,6x
1 uncl ↑, 10 uncl Unterlage
analy 3,6x

R_22 Mar 1815 wenig Abstand im Auk

37 Justage der 3. Ablöse

3
FluHaux un 2s
1678 0,000497 1177
1682 451 1367
1686 397 1372
1690 444 1107

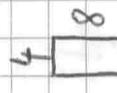
1682 471 682
1684 438 1082
1686 42 5773
1688 37 5219
1690 304 5039
1698 0378 5490

rohling 2A, Pl. St. opt.

Analysen TraumY=50 sep. 0,0012

Polarisator - Linse :

alignment - polar 0,6x
1 uncl uncl, 4 uncl spaces
38



if Temperatur Box_22 Mar 1951.inf → stopped due to error in rockin.sc

23.3.24

if Temperatur Box_23 Mar 1952.inf → The water pump didn't work!

24.3.24

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R_24Mar1623 121.375 153.027
0@600, H@600,

R_24Mar1645 96.086 257.932

R_24Mar1809 262.700 363.169
93.802 260.563

R_24Mar1809 124.156 150.035

R_24Mar2207 70.001 93.736

h.05 R_24Mar2224 59.192 149.095

h.05 if PS1-42pt-h.066-12_24Mar2318.inf

h.05 if PS1-42pt-h.066-2_Box/h_25Mar1247.inf

25.3.24

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S FWHM Aux v in 2s 0+4+4AUX
16,86 0,000435 1521 6635
16,90 520 1203 6633
16,82 459 1548 6702
16,78 547 1271 6653
16,84 355 1545 6698

vangPilzun2_pos...25Mar1541 → 49,8 Troubl.Y
wangPilzun1_pos...25Mar1726 → 99,2 hin.Silver

h.10 h.08 R1_25Mar2012
if PS1_42pt-h.10-12_Box/h_25Mar2039.inf

R1_25Mar2114

if PS1_42pt-h.10-12_Box/0ct_25Mar2116.inf
if Temperature Box_25Mar2158.inf → 23,58°C ~ 23,55°C

Newelle set temp: bestimmt could.

23,0	23,37
23,1	23,38
23,2	23,46
23,3	23,54
23,4	23,61
23,5	23,69
23,6	23,77 } max. 73%
23,7	23,85
23,8	23,93
23,9	24,01

Dc
and
more
49

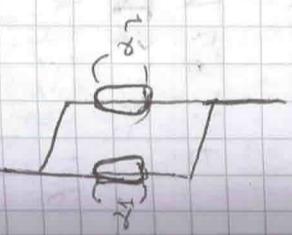
28.3.24

CALIBRATION OF ω_1 AND ω_2

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$$\lim_{T \rightarrow \infty} \frac{1}{T} \int_{t_1}^{t_1+T} I(x, t) dt = \frac{1}{2} + \frac{1}{2} J_0(\omega_1) J_0(\omega_2) \cos \chi \Rightarrow$$

\Rightarrow CONTRAST $\propto J_0(\omega_1) J_0(\omega_2)$



ifg-vs-alpha1 (ifg32) \rightarrow Interprograms for different values of V_{cc} (function generator voltage).
 Loss of contrast due to temperature rising is expected, so temperature control is attempted by lowering the water temperature of V_{cc} .

with Temperature

control

ifg-vs-alpha2 - 19pt - 28Mar1346.inf
 ifg-vs-alpha2 - 19pt - stabletemp - 28Mar1834.inf
 ifg-vs-alpha2 - 19pt - risingtemp - 28Mar2200.inf
 ifg-vs-alpha2 - 19pt - stabletemp - 29Mar0607.inf
 29-3-24

Temperature effects are noticeable after the second zero of the Bevel function. Temperature control is not working, we ~~try~~ try to improve it by studying DC scans.

ifg-vs-Dc1 \rightarrow Interprograms for different DC values.

ifg-vs-Dc1 - 29Mar1050.inf

There seem to be a quadratic dependence between contrast and temperature. ~~Temperature correction is not needed, we drop it.~~

~~ifg - vs - 31phase1 - 20pt - risingtemp - 29 Mar 2208.inf~~

~~ifg - vs - 31phase2 - 20pt - risingtemp - 30 Mar 0544.inf~~

Wrong range for α_1 scan, changed. Additionally, matching peaks are not needed. $w_1 = w_2 = 2\pi \cdot 3 \text{ kHz}$

~~ifg - vs - 31phase1 - 20pt - risingtemp - no-rock - 30 Mar 1331.inf~~
~~ifg - vs - 31phase2 - 20pt - risingtemp - no-rock - 30 Mar 1833.inf~~
~~ifg - vs - 31phase1 - 20pt - risingtemp - no-rock - 30 Mar 2149.inf~~

The last 2 measurements are good, they're used to obtain α_1 and α_2 .

$$\begin{aligned} \alpha_{1,2} &= \frac{\pi}{16} \quad \rightarrow \quad \Delta m_1 = 0.278 \text{ V} \quad \Delta m_2 = 0.172 \text{ V} \\ \alpha_{1,2} &= \frac{\pi}{8} \quad \rightarrow \quad \Delta m_1 = 0.556 \text{ V} \quad \Delta m_2 = 0.343 \text{ V} \\ \alpha_{1,2} &= \frac{\pi}{4} \quad \rightarrow \quad \Delta m_1 = 1.12 \text{ V} \quad \Delta m_2 = 0.686 \end{aligned}$$

$$\alpha_{1,2} = 2.4048 \rightarrow \Delta m_1 = 3.405 \text{ V} \quad \Delta m_2 = 2.102$$

$$J(\alpha) = 0$$

~~31.03.2024~~

Two ways estimate $C(\alpha_1, \alpha_2)$ (constant = C)

~~ifg - vs - 31phase1 + 31phase2 - 20pt - risingtemp - 31 Mar 0114.inf~~
~~(w_1 = w_2)~~
~~> 20pt~~
~~ifg - vs - 31phase1 + 31phase2 - 20pt - risingtemp - no-rock - 31 Mar 2137.inf~~
~~(w_1 ≠ w_2)~~

~~ifg - vs - 31phase1 - 20pt - risingtemp - no-rock - 31 May 2802.inf~~

~~ifg - vs - 31phase1 - 20pt - risingtemp - no-rock - 31 May 2804.inf~~

~~01.04.2024~~

~~ifg - PS1 - 2p - 22pt - 01 Apr 0418.inf~~

~~ifg - VS - chi - 31phase2 - 22pt - p16 - 1200s - 01 Apr 0439.inf~~

~~ifg - VS - 31phase1 - 20pt - risingtemp - no-rock - 01 Apr 1455.inf~~
~~We measure C(\alpha_1, \alpha_2), with $\alpha_2 = K \alpha_1$ ($K = \text{const}$)~~

~~ifg - VS - 31phase1X 31phase2 - 14pt - risingtemp - no-rock - 01 Apr 1912.inf~~
~~ifg PS1 - 2p - 22pt - 01 Apr 2138.inf~~
~~ifg PS1 - 2p - 22pt - 01 Apr 2148.inf~~
~~TOF - VS - chi - 31phase2 - 22pt - Bessel - 0 - 1200s - 01 Apr 2251.inf~~

~~02.04.2024~~

~~ifg PS1 - 2p - 22pt - 02 Apr 0615.inf~~
~~ifg PS1 - 2p - 22pt - 02 Apr 0625.inf~~
~~TOF - VS - chi - 31phase2 - 22pt - p14 - 1200s - 02 Apr 0634.inf~~
~~We try to work at 15 kHz to reduce current (wrong assumption)~~
~~ifg - VS - 31phase3... 15 kHz ... inf - unless~~

~~COUNT 600s / PS2 end~~
~~0 = 47577 / 49735~~
~~H = 127669 / 134233~~
~~AUX = 717 / 784~~
~~MON = 86 / 104~~

~~B4C Aux out R - 02 Apr 1536 Box out~~
~~PS2 end: R - 02 Apr 1654~~

~~COUNT 600s / PS2 end~~
~~0 = 59704 / 62955~~
~~H = 80590 / 84740~~
~~AUX = 810 / 763~~
~~MON = 108 / 112~~

~~B4C Aux out R - 02 Apr 1601 Box out~~
~~PS2 end, R - 02 Apr 1636~~

5] 20 camera in (linBlue = 83)

rehol 2 - 03 Apr - 1506

$$z = 277800$$

R1-02/19/17
unfamily - multi 2

R1-02Apr1717
inkerling-pall 2 - 02Apr1726.61f

R1-02 April 736

Conn. cult., Pencilled in, 16.9

The capacitor blocks have been changed and changed back, we tried to work at different frequencies (higher) and it didn't improve the setup. We run a quick lift vs_alpha31 to make sure everything is back to normal lift - 2 k Hz - no rock - 02 Apr 1938.inf Everything seems back to normal, starting weak value measurements

Measurements

~~ifg PS1 - 2P - 22pt - 02 Apr 2032.inf~~
~~ifg PS1 - 2P - 22pt - 02 Apr 2032.inf~~
TOF-vs-chi-3lpn31 - 22pt - Bessel_0_2 kHz

03. 4. 2024

ifg PS1-2P-22pt - 03 Apr 0405.inf

19 FS 2 - 2P - 03 APR 04 2014

Working at ZIK H2 might be better.

ifg - vs - 31 phz2 - 9 pt⁰ - 21 kHz - no - rock

We try to solve the medium problem

(counts 6005) ~~O = 58693~~
~~H = 84144~~
~~AuX = 736~~
~~N = 99~~

$$\begin{array}{r} 57470 \\ + 81925 \\ \hline 146695 \end{array}$$

ifg PS 1 - 22 pt - 03 Apr 2146; inf Tm 1 mm
TOF - vs - chi - 31 phs 1 - 22 pt - Bessell - 0.212 Hz - 0.3
CT

Apr 22 2017.inf

$$\begin{array}{r} 0 = 17683 \\ H = 21730 \\ \hline \text{AVX} = 673 \\ \hline \text{MON} = 76, \end{array}$$

$\oplus = 63018$	$H = 95281$	$AUX = 646$	$MOW = 90$
BOX OUT	COUNTS 600s		

10

Boxout

$4 = 21984$

100 X 100

~~30 X 1N~~ ~~32095~~

$$\boxed{0 = 50457 \quad 1t = 135146 \quad \text{AUX} = 415 \quad \text{MON} = 71}$$

$$\begin{array}{r} 0 = 14391 \\ 14 = 24278 \\ \hline AUV = 484 \\ \hline MOW = 85 \end{array}$$

~~BOX OUT~~ C = 0.74
BOX IN, INT 1.8 mm C = 0.41
BOX OUT C = 0.76 C = 0.41

1953 inf
19002 inf
2023 inf
1933 inf

(maybe) Box in Im 1.8 mm C = 0.44
Box in, No Tissue C = 0.62
nt (Im 1 mm)

e 1.0-212H7-03

04.4.2024

48 contrast and phase not stable over night (T_m 1mm)
 ifg PS1 - 2P - 22pt - 04 Apr 0531.inf (T_m 1mm)
 ifg PS1 - 2P - 22pt - 04 Apr 0622.inf (T_m 1mm)
 TOF-vs-chi-3lphg1 - 22pt - Bessel_0 - 2kHz - 800s - 05 Apr 0055.inf
 ifg PS1 - 2P - 22pt - 04 Apr 1412.inf (T_m 1mm)
 ifg PS1 - 2P - 22pt - 04 Apr 1426.inf (NO T_m)

The contrast ratio T_m /No T_m is still too high. (Running

a temperature check)

rocking - 04 Apr 1444.inf (T_m 1mm)

NEW TEMPERATURE \rightarrow 23.9°

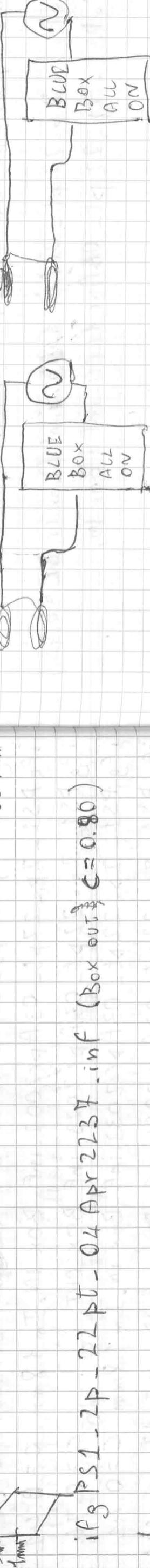
CONTRAST INDIUM 1mm = 0.714 (NO BOX). 04 Apr 1551.035
 CONTRAST NO INDIUM = 0.442 (NO BOX). 04 Apr 1559.035

$$\frac{C_1}{C} \approx 0.326 \quad \frac{C_2}{C} = 0.917$$

C expected

We use ~~the~~ only the O-detector for TOF, acquisition time reduced to 900 s. TFRs added during TOF ss chi.

TOF-vs-chi-ifg-3lphg2 - 22pt - Bessel_0 - 2kHz - 800s - 04 Apr 1634.inf



ifg PS1 - 2P - 22pt - 04 Apr 2306.inf (Box OUT, C = 0.67)

COAX 7 IS DEFECTIVE

ifg PS1 - 2P - 22pt - 05 Apr 1805.inf (Box OUT, C = 0.78)

ifg PS1 - 2P - 22pt - 05 Apr 1926.inf (Box IN, C = 0.64)

ifg - vs - 3lphg1 - 12pt - 05 Apr 1946.inf

change Indium to front

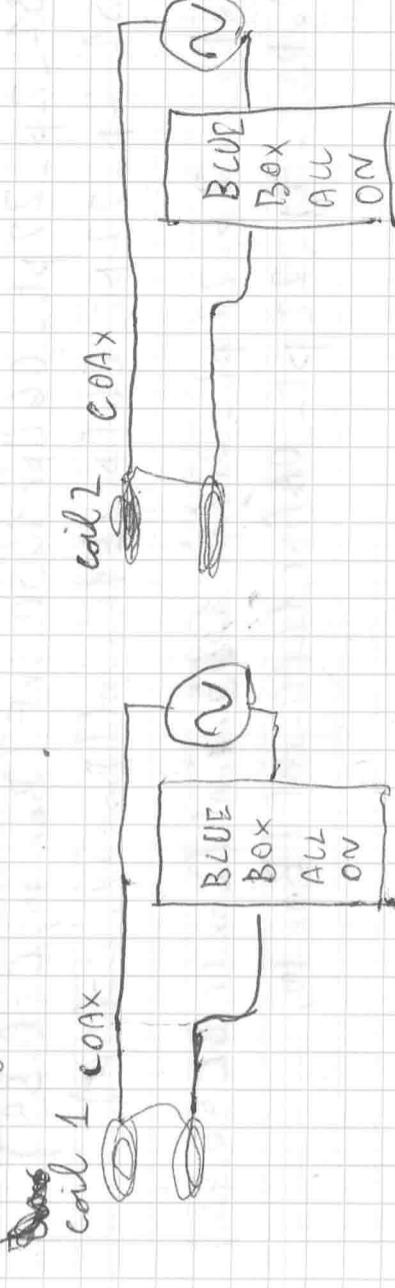
05.4.2024

ifg PS1 - 2P - 22pt - 05 Apr 0004. inf (Box IN, C = 0.65)
 ifg PS1 - 2P - 22pt - 05 Apr 0024.inf (Box IN, C = 0.66) 49

ifg - 2P - 22pt - 05 Apr 0045.inf (Box IN, C = 0.66)
 TOF-vs-chi-3lphg2 - 22pt - Bessel_0 - 2kHz - 800s - 05 Apr 0055.inf
 ifg - 2P - 22pt - 05 Apr 0628.inf (Box IN, C = 0.65)
 ifg - 2P - 22pt - 05 Apr 0638.inf (Box OUT, C = 0.77)
 TEMP BOX 23.8° \rightarrow 23.9°

ifg - 2P - 22pt - 05 Apr 0653.inf (Box IN, C = 0.65)
 TEMP BOX 23.8° \rightarrow 23.9°
 ifg - 2P - 22pt - 05 Apr 0720.inf (Box IN, C = 0.64)
 TOF-vs-chi-3lphg2 - 22pt - Bessel_0 - 2kHz - 800s - 05 Apr 0730.
 ifg PS1 - 2P - 22pt - 05 Apr 1303.inf (Box IN, C = 0.64)
 TEMP BOX 23.8° \rightarrow 23.9°

ifg - PS1 - 2P - 22pt - 05 Apr 1323.inf (IN), C = 0.53
 ifg - PS1 - 2P - 22pt - 05 Apr 1341.inf (IN), C = 0.60
 ifg - PS1 - 2P - 22pt - 05 Apr 1359.inf (Box OUT, C = 0.74)
 @ Coil 2 is heating too much, probably a bad connection.
 New configuration:



ifg PS1 - 2P - 22pt - 04 Apr 2306.inf (Box OUT, C = 0.80)

COAX 7 IS DEFECTIVE

ifg PS1 - 2P - 22pt - 05 Apr 1805.inf (Box OUT, C = 0.78)

ifg PS1 - 2P - 22pt - 04 Apr 2338.inf (Box IN, C = 0.67)

ifg - vs - 3lphg1 - 12pt - 05 Apr 1946.inf

In 1mm

$$(d) V_1 = 5.313)$$

$$\alpha_1 = 2.4048 \rightarrow V_1 = 5.155, 2 \text{ kHz}$$

~~iPg PS1 - 2P - 22pt - 05 Apr 2144.inf (Box IN C=0.45)~~
 Multitzer sets the wrong temperature, fixed at 23.2°.
~~iPg-vs-31ph32-12pt-2kHz-Mo-rocal.03Apr2204.inf~~

$$\alpha_2 = 2.4048 \rightarrow V_2 = 5.372, 2 \text{ kHz } 1 \text{ dB. } V_2 = 3.343)$$

New temp box $\rightarrow 24.0^\circ$

~~iPg PS1 - 2P - 22pt - 06 Apr 0044.inf (Box IN, C=0.64)~~
~~iPg PS1 - 2P - 22pt - 06 Apr 0105.inf (Box OUT, C=0.74)~~
~~iPg PS1 - 2P - 22pt - 06 Apr 0125.inf (Box , C=0.65)~~
~~TOF-vs-chi-31ph32-22pt-Bessel.0-2kHz-900s-06Apr0135~~
~~iPg PS1 - 2P - 22pt - 06 Apr 0709.inf (Box IN, C=0.64)~~
~~iPg PS1 - 2P - 22pt - 06 Apr 0730.inf (Box OUT, C=0.45)~~
~~iPg PS1 - 2P - 22pt - 06 Apr 0751.inf (Box IN, C=0.61)~~
~~TOF-vs-chi-31ph31-22pt-Bessel.0-2kHz-900s-06Apr0800.inf~~
 Interview crosshead, last point repeated
~~TOF-31ph31-Bessel.0-2kHz-900s-06Apr1433.inf~~
~~iPg PS1 - 2P - 22pt - 06 Apr 1450.inf (Box IN, C=0.53)~~
~~iPg PS1 - 2P - 22pt - 06 Apr 1514.inf (Box IN, C=0.64)~~
~~No Pg PS1 - 2P - 22pt - 06 Apr 1539.inf (Box IN, C=0.74)~~
~~No Pg PS1 - 2P - 22pt - 06 Apr 1600.inf (Box IN,~~