

13 Mar 17 HF

①

16:32 46 START output Salih (db)

12:15 Salih  $\uparrow$  Delay  $\overline{11\text{ms}}$   $\uparrow$  ~~12ms~~ Pulse from  
Delay 2.952 ms [had 2 use Delay HF]  
RCP 8.175 MHz.  $2A=11\text{holes}$

usrp  $\Rightarrow$  gr = 1.1 deg, echotek = 7ch 424.5 435.5

16:48 - 50kW each 8.175 CW

- IPP 12048-19 then back to 2

- IPP - 10ms - Deleted usrp 12ms data

7:11:44 start getting.

17:18:34 disconnected output of SRI so we don't have 250R hoods.

17:19:36 2.452 ms delay, IPP 12ms 83 cycles  
SCOPE shows lots of pulses in scope trace.  
Probably HF Pulse.

18:07 - 8.175 SYNTH was not locked to 10 MHz.  
Lock at 18:07

18:13 went to CW using SRS.

18:19:25 - back to getting

18:23:11 1.952<sup>ms</sup> delay - P on Pulsing.

18:57 - set pulse len 12ms delay  $\phi$  to see power level

19:00 Done - disable RF.

18:07 Last Rst Log. Da computer Hury up.

13 Mar 17 19:00

(2)

H3156 Paul Bernhardt

- USRP ch stay the same.
- single Beam  $PR \Rightarrow$  USRP
- $qr$  2A 1.1 deg.,  $AZ = 348$
- all Power to  $qr$ .  $\Rightarrow$  USRP.

19:17 aborted usrp until Ready to go.

- chirp FM CW Rep Rate 200 Hz
    - trdy by 1 PPS 100 burst count,
    - 5.1 MHz 20 KHz chirp BANDWIDTH
- use toggle to do 5 min on, off
- SAT Pass must be on.

SAT 1 } 20:15 } AST need to be  
20:21 }  $\rightarrow$

SAT 2 } 21:56:30 } on for 7 min  
22:03:30 }

19:32 START Bringing up chirp.

19:37 USRP Restarted [TX 4,6 Had trouble measuring PE Power  
- trouble with aeron. Rebooting it. with chirp]

19:44 - sme wave

$\rightarrow$  dap 2 died. Replaced the Board

21:30 - da dead. No low line. Restarted Deera file b  
430 was off for awk. 1

-14 MAR AM

13 mar P.M

(3)

23:15 salih - 1ms pulse 619 usec delay.

23:15 cw on 12ms  $\mp$  PP.

23:30 cw off

23:31 start salih Pulsung

14 mar

00:21 disable RF

00:25 start Pulsung 5min on, 5min off 8.175 MHz

02:31 end salih

5

03:00 SUMON AZ=388 GRZA=61 chZA=11

cw 5.125 MHz Dual Bear

03:25 Raised Power to 402.6 kW ch  $\Rightarrow$  echotele  
gr  $\Rightarrow$  usrp

09:30 switch to Paul Ben

5.1 MHz, 20 kHz BW 200 Hz.

sync on 1 sec tick.

Restart hfun for new date

09:34 RF on SAT PASS 10:06

09:37 RF off

09:38 RF on

09:39 RF off

09:40 5.1 MHz CW

09:47:00 stop RF off

09:47:00 RF on chwp

09:50 off 14 Mar 17 morning

09:55 on chirp

TXS trip PA AC Fault 09:52  
with no RF.

lots of arcing with chirp.

10:00:15 to CW 5.1 MHz leave for sat Pass  
arcing with CW  
terrible arcing.

10:05:4 ~~.2db down Power~~ try to reduce arcing.

10:10:54 -.2db

10:11:54 -.2db now 412kW

10:15:42 RF off

10:20:00 RF on still CW

10:24:36 switch to chirp.

10:30 Paul Down, switch to 8.175 MHz.

11:30 430 TX Beck on ch. echoteb. [435.5 439.5]  
Salih 6ms IPP, delay 885 delay  
cycle count 83

12:51 - changed Burst count to 166 was 83 from  
12ms, so only transmit 1/2 the time  
IPP 430 always 10ms.

14 Mar 17

(5)

13:37:18 1.285 ms delay

430 off till 14:12 we went under  
the dish (after 14:12 started to get  
enhanced Phasmline I)

15:12:00 796 uses delay.

process usRP DATA breaking up into  
100 10ms IPPC's then integrate or  
SAT 100 secs.  $\Rightarrow$  use integration

15:20:54 - very strong outer Phasmline or usRP.  
oo 79819 file.

- 8.175 Paul Bernhardt

18:57 50KW each TX - wet outside.

SAT start at 23:52 UTC

19:07 36+KW

19:10 RF off

19:15 chirp 2004Z 20642B

189 Burst count.

19:20 RF off

19:25 CW on

19:30 RF off

19:35 chirp on

19:40 RF off

19:45 CW on sit for sat. pass

20:05 RF off

20:10 chirp on

20:15 CW

14 mar 17 night.

Paul Bornhardt count. ⑥

20:20 chirp

20:25 off cw

20:30 chirp

20:35 off

20:40 cw

20:50 chirp

20:52 1.5 sec on, 1.5 sec off with chirp  
lots of arcing

21:00 Back to cw

21:46:30 RF off

22:00 SALIH

delay 2.285 ms f.c 5.125 RCP

using Pulsin scheme 12ms 1ms RF, count=83

23:06  
~~21:06~~  
cw

23:10 7x5 tripped by oper. error did +5db step

3:49  
A:49 delay = 3.22 ms delay = 83

15 mar 17 A.M

6:08 delay 552 us

6:56 485 uscs

7:30:35 delay 2257 uscs

weds 15 mar A.M

(7)

7:59:30 salih END

8:00:00 Paul STARTS CW still 5 MHz

8:10:00 chirping 200Hz 20kHz BW  
5.1 MHz 199 cycles

8:16:00 chirping mode 100 cycles 1/2 on 1/2 off

8:30:30 sat press

↓  
WRP 1/2 sec on 1/2 sec off shows R blank LK  
on // strong ENHANCED CW

08:50:00 CW RF off

08:55:00 on CW

9:00 - Paul Done -

9:09

salih getting Back

CW to check Power - Pulse width =  
12, offset = 0

adjust to 60kHz & 6 - stored HFSINT4 60kHz\_xx.

9:24:45

salih Pulse still RCP

9:34:48

output 5.124 MHz  $\Rightarrow$  5.125 MHz for salih  
exp. paul was busy his exp.

Not sure whether Front Paul display @

5.124 MHz meant output of 5.124 & you has  
to push FREQ xx entry? someone had accidentally  
changed the knob.

15 Feb 17

(8)

9:44

430 off for a minute  
large arc in display went away.  
RCW was still on outerring

9:47:50 - .5 db all HF to see it

10:20

- HF off 430 off -  
was guide with Bonnet hole  
- replace section

11:55

- 2.5 sec on 2.5 sec off tied to 10 sec tick

2:03

- CW

R:06

- HF off

≈

15:10

- Start to bring up HF of 8.175 MHz  
CW

Adjustment CW Power to 318 kW.

15:27:00

RF off

15:28:00

RF on

2 sec on 2 sec off, CW tied to 1 sec  
NOT tied to 1 sec tick. 430 currently off

15:39

RF off 430 now on.

15:49

1 sec on 3 sec off <sup>using</sup> auto toggle Paul  
elvis

5:59

off

16:00

3 sec on 1 sec off



15 Mar 17 afternoon

⑨

16:00 off 1 minute.

16:11 C W ON

16:21 off C W off 5 min

16:26 + 2 sec on 2 sec off

16:31 + RF off

16:36 + 1 sec on 3 sec off

16:41 + RF off

16:46 + 3 sec on 1 sec off

16:51 + RF off

16:56 - C W

17:01 RF off

17:02 2 min on, 2 min off auto toggle  
leave running.

17:20 increase TX9 .3 db. 7 off for 4 minutes.

17:24 Restart auto toggle

17:30 Done

- change ret to 5.125 MHz.

17:45 - Bring up 5.125

18:10 - Lost Tower site. 430 down.

↓ 60 kW

19:09 -

19:11 } 50 sec on 50 sec off 5.1 MHz

19:50 }

15 MAY 17 NTP

10

(10)

19:54

100 sec on 100 sec off  
NOTIFIED to 1 sec tick.  
off 100, on 100

20:31

- to CW 5.125 MHz.  
Setup files for min chay Lee

20:34

- ~~MOVED~~ MOVED 5.1  $\Rightarrow$  5.125 MHz. power went  
down by ~~1.5~~ 1.5 db. Returned to  
5.1 so 1.5 db. probably Pauls filter

20:36

switched to SRS. 5.125 MHz - 2 dbm, no  
filter. SRS. 5.125 still lower than 5.1

21:00

START setting up LCP New Ampl.  
5.125 MHz.

21:19

switch LCP  $\Rightarrow$  RCP

22:00

min chay Lee, CW 5.125 MHz SRS

22:00

50 min RCP

10 min off

15 min LCP

+ 10 min off

-  $\in$  Repeat cycle

16 Mar 17

(11)

3:00 sera 15 min on, 5 min off 5.125 MHz  
avg

8:00 Paul 5.1 MHz cw  
using his sig generator  
cycle 5 on 5 off

8:25 RF off

8:30 start cycling 5 on 5 off

8:40 on start chirp during the 5 min on  
20 kHz BW 200 cycles/sec cont.

8:45 off

8:50 on cw

8:52 back to chirp

8:54 cw

8:56 chirp

8:58 chirp chirp - same chirp with

~~9:00~~ 1/2 sec on 1/2 sec off

~~9:00~~ cw to get power head

39:10 Fall chirp

9:00 cw - data taking stopped 9:00

9:02 off

chirp gives  
better capture  
Phosma hd

16 mar 17

(12)

13:24

8 MHz. FREQ 8.175

come up CW with SRS First

8.16 MHz CW

8.175  $\pm$  15 kHz chirp

13:44

switch to Paul's generator CW

14:00

- auto toggle 5 min on 5 min off  
- sitting at 8.16 MHz CW

14:17:14

<sup>Paul</sup> chirping 8.175  $\pm$  15 kHz CW  
testing the mode auto toggle off.

14:21:00

Obop chirp. saw chirp but .5 sec on  
.5 sec off CW at 8.16

14:23

off to change net to 5 MHz  
5.095 SRS RFOFF

14:57:15

off Setting UP ENAWK

15:07

Bring up ~~5 MHz~~ 5.095 CW, RFOFF  
- sb ch = Techotek } RFOFF moving telescope  
ch 2A = d deg.

15:18

up to 2 360 kW

14 Mar 17 FRANK

(13)

15:25 5 min on 5 min off autotoggle.

5.095 MHz FRANK

15:30 R<sub>off</sub>

15:35 on

15:40 off

15:45 on TX5 PA AC Fault. Reset -  
came back up.

15:50 off

15:55 on

16:00 off

16:05 on - TX4 IPA AC Fault, circuit BRK fault  
- host HV. had to reset, wait for timer.

16:10 off TX4 staged down.

16:15 on

16:20 off

16:25 on SBS @ ~~5.095~~ 5.095 MHz

16:30 off pow with SBS ext

mode to 8.16 MHz

echotek  $\{-7.5 \text{ } +7.5\}$

16:43 START to bring up Tx at 8.16

16:55 START 5 min on, off CW

17:00 off

17:05 chirp 20 kHz carrier 8.175 1001 Hz

(W RF) waveform Rep FREQ

17:10 stop auto 2 sec on with chirp

17:11 CW @ 8.16 MHz

16 mar 17

(14)

17:20 Lots of arcing thru of 1 TX at a time to see if one is BAW

17:24 all get ready for next exp.  
FRANK

- 8.16 cw on cont. linear pol  
-  $\text{etot echetek} \pm 5.5$

17:44 307 kW 5 TX linear pol.  $ck = 2A = \emptyset$  (sb)

18:03 START TO bring up TX Y

18:07 arcing STARTED thru of TX Y.

18:09 Bring up slowly TX Y

18:16 360 kW all 6 TX up linear mode

21:11 had RCP 70 kW min

515 kW 5.1 MHz. get 520 kW at 5.1 MHz when same file good 420 kW at 5.125 MHz

LCP TX1, 2 kept tripping back to 5.125 MHz  
SRS - stored new RHC\_P\_70 kW -

21:35 check - stored 2 RHC\_P\_60 kW -

21:47 ~~to RHC\_P\_70~~ - stored file RHC\_P\_60 kW

→ on RHC\_P

see back side this page

16 Mar '17

140

16 Mar 17 (cont)

mcl ch data = sb. echotek -5.5 +5.5

22:00 cw RHPD

22:50 off

23:00 on LCP

23:43 off

23:53 cw RCP on

~~00:00~~ 17 Mar 17

00:43 off

00:53 on LCP

1:03 off

1:13 RCP on

2:03 off

2:13 LCP on

2:23 off

2:35 RCP on

3:00 on

HF STOPS, 430 continues running

17 Mar 7

(15)

Paul sat. exp

07:30 5.1 MHz 360 kW CW echotek  
strong plasma lines ch ony  $\phi A = \phi$  to ~~the~~  
 $\pm 5.5 [-5.5, +5.5]$

7:55 chirp 5.1 cfr 20 kHz BW 199 cycles

8:00 off

8:05 chop chirp

1/2 sec chirp 1/2 sec off

atmosphere sitting very close to 5.1 MHz.

8:10 CW A/D RF approached 12 volts.

8:15 off

8:20 chirp on

8:25 chop chirp.

8:29 CW

8:30 off HF, 430 off

8:32 HF on to test short on Tower 1 Balun

8:42 HF off

echotek [2 to 11] = 7 ch

14:29 com up @ 5.16 MHz

14:42 260 kW

14:55 RF off

15:00 chirp

15:05 ~~chop chirp~~ off

only used 8 MHz

15:10 chop chirp - CW chop chirp [chirp .8 sec  
CW .5 sec]

15:15 off RF



17 Mar 17

(16)

- 15:15 off ~~power~~ PA AC Fault TX 5 on off
- 15:20 ~~8.16~~ 8.16 CW came back up
- 15:25 off RF
- 15:30 chop chirp TX 5 off
- 15:35 off RF TX 5 Back on  
TX 4 tripped then Back on
- 15:40 chop chirp (CW)
- 15:45 off RF
- 15:50 3 on 1 off for 10 min CW 8.16 MHz  
(Autogrp Below)
- 16:00 off end 3 on 1 off
- 16:01 2 sec on 2 sec off for 10 minutes.  
3 dB atten in RI signal Ton line
- 16:11 stop, off
- 16:12 1 sec on, 3 sec off for 10 minutes
- 16:22 stop for 1 min RF off
- 16:23 4 sec on 1 sec off  
turn on 4x TX samples overshoot of ASRP  
take a look at EUS.
- 16:33 stop RF off  
save setup => save 5 MHz to hfs 90th
- 16:33 CW RF on to get Power level 360 kW
- 16:39 3 on 1 off CW with 130 kW
- 16:42 ~~16:42~~ TX 4 tripped circuit B Reopen
- 16:45 TX 4 up

17 mar 17.

(17)

16:49 STOPPED RE off.

16:56 S on I off 130 kW 8.16 MHz

17:04 STOPPED RE off

17:10 Elizabeth Kendal  
360 kW 8.16 MHz 5 min on, 5 min off  
CW

17:15 RE off 5 min. 9.275 fofz  
TX 5 TA AC Fault on outo off transition

17:20 on

17:25 off ~~fofz 9.5~~

17:30 on arcing.

17:35 off 5 min

17:40 on 5 min

17:45 off

17:50 on

17:55 off Fofz 8 MHz

17:56:20 Back on to see it pass thru critical.

18:00 SEE gas gone thru critical

18:01 HF off switch to 5 MHz

18:15 START Bringing up 5.125 MHz.

lots of arcing  
went left turning about 200 kW

went under the dish. saw nothing

19:40 abup to 300 kW arcing gone

TX2 5 MHz above 42 kW trips with Reverse Power.

~20:00 CW (330 kW)

17 Nov 17 P.M

(18)

20:28 TX 2 TRIPPED again

20:45 Paul sat. done

-testing HF TX 5-

trip it with carlo + victor watching  
for arc

~~22:28~~

shutdown - left Phasid in Runic  
Dail Bm. New Discs 17 Nov 17 USRP

18 Mar 17 Sat. Aokh 5.125  
~~5.1 MHz~~

(19)

06:40 START Bringing up TX RCP ~~5.125 MHz~~

GR → USRP 1.1 by ch ⇒ ecchuteo [2-11]

06:51 to Paulo's generator. was always outputting  
-7dbm. Now outputting -2dbm (after filtered)

7:00 5.1 MHz

leave TX2 lower. cable from broken tensor  
was causing arcing.

7:30 move mesh to 8 MHz

7:53 - do phase adjustment 8.175 for  
FRANKS Linear

monitor cable TX5 shield loose Resoldered

ch 2A = 0 3-8 up and down  
- 5b

8:45 BRTWENT up with correct phases  
254kW

saved as linear - 8.175 - 18 Mar 17.

9:02 TX 2 tripped. everything down 1 db  
lots of arcing.

11:07 STOPPED know exp

Paul's, NATASHA - RACP 8.1? MHz.  
USRAP only GR 2A = 1.1 (5b)

18 Mar 17

(20)

- 12:21 8.175 chirp 30 kHz BW  
~~199.1 Hz~~ 2004 199 counts  
clock 199.1 Hz Pulse length 5  $\mu$ s  
syncs every second
- 12:34 CW sec
- 12:35 CW chop chirp .5 .5 sec
- 12:40:30 to CW 8.16
- 12:45 CW chop chirp 10 second 1999 cycles  
199.91 Hz
- 12:50 ~~CW~~ chirp chop 5 sec on 5 sec off
- 13:18:30 Back on CW ~~chop~~ chirp 10 sec
- 13:43 CW 8.16 MHz waiting for critical
- 14:30 CW chop chirp 5 sec on 5 sec off  
Reflected power when glitch, TX only  
going through critical
- 14:53
- 15:00 3 sec on 1 sec off autotoggle  
8.16 MHz. TX 5 tripped, back up!
- 15:10:03 RF off  
RAISE Power 365 kW
- 15:20:00 3 sec on 1 sec off

18 mar 17

(21)

- ~~15:30 off 10 min~~
- ~~15:35 2 on 2 off 5 min~~
- ~~15:40 TX 5 flipped back up 25:13~~
- PA AC Fault.
- 15:30 off 10 min
- +15:40 2 on 2 sec off 5 min
- +15:45 off 5 min
- +15:50 1 on 3 off 5 min
- +15:55 off 5
- +16:00 3 on 1 off ~~10 min~~ 5 min
- +16:05 5 min off
- +16:10 3 on 1 off 10 min
- +16:20 off 10 min
- +16:30 3 on 1 off 5 min
- 16:35 16: stopped. change mesh to 5 MHz
- 5.1 MHz
- 17:10 START TO bring up 5.1 MHz.
- 18:00 Bring up Power to 300KW.
- +18:05 3 sec on 1 sec off 5 min
- +18:10 off 5 min
- +18:15 CW 5 min
- +18:20 off 5 min
- +18:25 3 on 1 off cycle 5 min
- +18:30 off 5 min
- +18:35 CW 5 min on
- +18:40 5 min off

25:56 EPop  
down

(22)

18:45 3on 1 off 5 min  
 18:50 off 5 min  
 18:55 cw 5 min  
 19:00 off 5 min  
 19:05 3on 1 off 5 min  
 19:10 off 5 min  
 19:15 ~~3on 1 off 5 min~~ low increase power  
 19:20 off 5 min now 370 kW  
 19:20 off 5 min  
 19:25 3on 1 off  
 19:30 off 5 min  
 19:35 cw 5 min  
 19:40 off 5 min  
 19:45 3 sec on 1 sec off 5 min  
 19:50 5 min off  
 19:55 cw 5 min  
 20:00 off 2.5 min  
 20:02:30 3 sec on 1 sec off till stopped  
 20:27 going thru critical

21:06 HF off  
 21:35 ~~off for 5 minutes~~  
 21:40 ~~3 sec on 1 sec off~~  
 11:00 TXS trip PA AC Fault. Backup.  
 11:04 TXS trip PA AC Fault Backup  
 11:26 HF off ~~more to come~~

19 Mar 17

(23)

06:38 START to Bring up 8.175 MHz.  
FRANK'S linear mode

Down 1.1 (sb) to 0.520

6:45 20KW each sit for 7 minutes to warm up.

7:00 272 KW but  $TX2 = 81KW$

$TX1 = 38$ .  $TX2$  tripping Ruster

7:06  $TX2$  still down, trying to adjust trip level

7:15  $TX2$  comes up

7:20 390 KW

7:45 Raise power 425 KW

7:58 to 450 KW - just a little arcing after 5 minutes

8:02 change to 5 MHz

~~8:00 5 MHz~~

~~8:05 Rais~~

5.1 MHz

8:10 START Bringing up 5.1 MHz

8:23 300 KW

8:30 autotoggle 3 on 1 off, 5.1 MHz

10:00  $TX5$  tripped

still no power Lim, Backup

PA AC Fault

10:35 off for 5 minutes

10:40 3 on 1 off

11:00  $TX5$  trip PA AC, Backup

11:04  $TX5$  trip PA AC, Backup



19 Mar 17 A.M.

11:26 TX of move to 8.175 MHz  
linear 8 MHz 17 Mar 17 file. (28)  
FOF2 7-25

11:35 come up linear 8.175 MHz.

11:48 sitting at 300 kW

11:50 move to 360 kW

11:55 go to 400 kW

11:57 590 some arcing.

13:42 switch to RCP Flow line  
PA AC Fault TX5, bookeep.

13:45 come up FRANK Brillant exp

13:50 300 kW

14:00 360 kW

14:02:30 off

14:05:00 START SM TX5 tripped, Reset  
before START

enhanced plasma appears

14:15 switch to 8.16 MHz CW

14:20 off

14:25 ~~CW~~ 59 chirp 1/2 sec CW 1/2 sec on 5 min life  
chirp FREQ. 199.91, cycle count = 1000

chirp = 5m 30 kHz BW CFU 8.175

14:30 off

14:35 on chirp/cw

14:40 off

14:45 on chirp/cw

19 mar 17

P.M

(25)

14:50	off
14:55	on chirp/cw
15:00	off
15:05	on chirp/cw
15:10	off
15:15	on chirp/cw
15:20	off
15:25	on chirp/cw
15:30	off
15:35	on chirp/cw
15:40	off
15:45	on chirp/cw
16:00	off
16:05	on chirp/cw
16:10	off
16:15	on
16:20	off

19 min 17

8.175  
8.169

16:30 Elia's exp step Power  
16:33 Total <sup>Power</sup> 2.3 kW levels not equality

(26)

16:35 off  
16:37 +2db

16:40:45 20 kW adjust levels -

16:43:00 off 2 min

16:45:00 +2db

16:46:00 adjusted 37.9 kW

Below 8. about exp.

16:48 setup FRANK'S linear

16:50 START bringin up FRANK'S linear

16:54 300 kW

@ 8.175 MHz

16:57 360 kW

Left Running

Paul E Pop Pass 19:46

19:32 30 kW linear mode 8.175 MHz

19:26 ~~SAT~~ SAT Done

go back to FRANK'S linear experiment

20:02 360 kW

20:06 427 kW

20:12 # Campaign ENDS FOF 2 3, 85 MHz