

OCT 16 HF campaign

31 Oct 16

- START 5.125 MHz
- Mesh at 5.125 MHz Position

17:40 423 KW START Autotoggle
 300 secs on 300 secs off.

18:40 - move to A348 [ch=4, gr=5]
 TX 1 has been tripping on turn off - on
 we reduced by .2 dB each time.

19:05 - TRY Bringing up TX1, 2 AND sect Reset
 TX at START.

19:10 had to Restart HfSynth prog. because
 it wasn't staying off during the off.

20:40 Increased TX6 by 0.1 dB (DEW)

21:20 TX4 ↑ 0.1, TX6 ↑ 0.1, TX2 ↓ 0.1 (DEW)

22:11 Start 2nd experiment ^{CCP, PWR}
 ⇒ 2 Powerdips 430 trips ^{5.8 - 22:15 - 22:20}

✓ 22:11 RCP on 45 min

✓ 22:56 - off

✗ 23:11 - LCP 45 min 1 dB low cone up.

✓ 23:56 - off

✓ 00:11 - RCP 45 min

✓ 00:56 - off

✗ 01:11 - LCP 45 min

✓ 01:56 - off

02:00 - done

RAIN

lightning in distance.

TX5 a/c Reset)
 1:18 - TX4 TRIPPER DRD A.C. Reset
 1:24 TX4 TRIPPER DRD A.C. Reset

WDB 16

0910076

2:00

SAMAN START

AZ=348, ch=φ, gr=f.6

± (2-7)

5.125 MHz CW.

echo Tek. The same

Just CLP

- switched to new logging file

16:45

- 5.095 MHz FRANK & Herb

- mesh 5 MHz STD

RCP File header

- START Bringing up TX

445 KW

AZ=348, gr=10.5, ch=φ

Applelog

off 10 minutes
on 90 secs.

✓ ~~17:26~~

off 10 min

✓ ~~17:34~~

on 90 secs

NO USRD

✓ 17:25:40 - off 10 minutes

✓ 17:35:40 - on 90 secs

+ 17:37:10 - off 10 minutes

+ 17:47:10 - on 90 secs

+ 17:48:40 - off 10 minutes

+ 17:58:40 - on 90 secs

+ 18:00:10 - off 10 min

+ 18:10:10 - on 90 sec

Tx 5 down for pulse

+ 18:11:40 > off 10 min

+ 18:21:40 > on 90 sec

+ 18:23:10 > off 10 min

+ 18:33:10 > on 90 sec

+ 18:34:40 > off 10 min

↓

01NOV16

~~18:36:10 ON 90sec~~

~~18:37:40 OFF 10min~~

- + 18:44:40 → ON 90sec
- + 18:46:10 → OFF 10min
- + 18:56:10 → ON 90sec
- 18:57:40 → OFF 10min
- 19:07:40 → ON 90sec
- 19:09:10 → OFF 10min
- 19:19:10 → ON 90sec
- 19:20:40 → OFF 10min
- 19:30:40 → ON 90sec
- 19:32:10 → OFF 10min
- 19:42:10 → ON ~~10min~~ 90sec
- ~~19:43:40 →~~
- 19:43:40 → OFF 10min
- 19:53:40 → ON 90sec
- 19:55:10 → OFF 10min
- 20:05:10 → ON 90sec
- 20:06:40 → OFF 10min
- 20:16:40 → ON 90sec
- 20:18:10 → OFF 10min
- 20:28:10 → ON 90sec
- 20:29:40 → OFF 10min
- 20:39:40 → ON 90sec
- 20:41:10 → OFF 10min
- 20:51:10 → ON 90sec
- 20:52:40 → OFF 10min

Rec'd call, shut down for evening.



02NOV16

④

02NOV16 - 14:27 telescope Pass Paul Bunkerolt
8.175 MHz, mesh - 15 Ft.
NO 430 TX.

TX 1 trips Reflected Power
Range 2nd Harmonic

14:29 - try switching monitor 1 \leftrightarrow 2
to see if 2nd harmonic is an RF port
switch Problem.

→ looks like RF port #1 is 3rd low
Put back to normal.

14:38 turn off TX 1 - kept tripping.
Run with TX 2-6

15:01 354 KW hour for Pass

15:18 Pass [sat

RADAR - pull out

15:26 turn off cables for DATA take
away too Bad.
continue with sat. Pass.

15:59 - HF off 430 off.

6:06 - move to 5.125 MHz, mesh @
5 MHz Ref.

switched to new RF Port switch Box
[left half]

15:54 TX 5 OFF (HV OFF).

15:55 TX 5 HV ON.

mike Phil 02 NOV 16

787 880 1901

-ALFACTO-

(787-464-6146)

5

17:00 MODE AZ 66F-3ES

~~17:00 Restart auto toggle SWIN ON~~

17:15 Restart auto toggle 5 min OFF, back ON at 17:20

17:13 lost #4 and recet it

18:10 Going ON on schedule but TX5 tripped (water flow)

TRIED turning on TX5

ONOR CATHOD 4AUG

PA CATHOD ~ 3.5 amps

line ~ 275 watts.

20:33 TX4 trip (Driver A 110) Tripped again soon after reset.

21:20 hf-synth taking a lot of CPU resources ~95% Memory, some times +90% CPU

12:00 AZ=7 258 oh=φ qv=15 [348 for Sunday AZ 2:00]
- 5.125 MHz - min chng.
- 22:05 [-4.5, 4.5]
20sec CCP 10sec PWR.

2:11:30 45 min RCP ON

2:56:30 off 15 min [save Rtcp. saved, hf synth]

2:58:30 BROW6 up ally to 20K6

3:11:30 ON 45 minutes RCP TX4 dropped 3dB

3:56:30 off 15 min was the BROW6

3:27 +.3dB TX2

3:28 +.2dB TX6

3:29 +.1dB TX3

3:30 +.1dB TX3

3:31 +.3dB TX2

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27:37 +1db TX2 27:43 -1db TX2

23:45 +1db TX4

+ 23:56:30 off save config keep - save. h/synth

03 NOV 16

+ 00:11:30 ON RCP 45 min. ~~catchd~~ Rcp-save-
START TX4 - 1db

00:56:30 off

01:11:30 ON LCP FROM Lcp.save
TX4 START - 1db then +1db

01:56:30 off - START moving A7 to new position
at 1:56:30

2:00 - sawa - [-4.5, 4.5] use 5.1 MHz.
A7 => 388 START at 5:58, RCP
TX5 still down.

Load Rcp FOR RCP_save.

RESTART RE monitor to get new DATE.
switch abraw c 02:13

adjusting leads till 2:17

Phil off duty.

? TX1 - Failed - (replaced w/d, PA tubes)

0003

13:50

PA TX1, PA TX5 Replaced
8mhz. 8.175 mesh -15 low
Paul Bernhardt satellite Doss
NO430 used.

14:30

START chirping
chirp 20kHz center 8.175
RepRate 200Hz

~~TX~~ TX5 Failed same as yesterday
- TX1 off because looks like dipole
has Bad Reflected Pow

4 TX 2,3,4,6 @ 290kw.

sweep generator setup state 5.090 } files
33600A state 8.165 }
Paul permit 33522A STATE 199.1
200Hz WRF

Paul's setup

15:10

switched back to cw with fixed
8.175 generator.

15:28

move cw to sweep using ^{or} generator.

15:29

sweep mode to cw mode

TX9 tipped DVAC FCT on switch.

15:30

TX off - Debuggin TX5
- move mesh to 5mhz.

Nov 3 afternoon
FRANK + Herb 5.095 MHz
Mach 5 MHz Pos.

17:01 BRING UP TX 1, 2, 3, 4, 6
[-5.5, +5.5] into echo tek FROM DOWN
CH. Planned lin => dt. down shift via CHR2
AZ=388, ch=0, gr=10.5 ext 10.

17:12 test RFO on off 1 min to see if trips.

17:26:00	→ off 10 min	
17:36:00	→ on 90 sec	
17:37:30	off 10 min	
17:47:30	on 90 sec	Put TXS Back on
17:49:00	off 10 min	TX stripped
17:59:00	on 90 sec	not ready till tomorrow
18:00:30	off 10 min	
18:10:30	on 90 sec	
18:12:00	→ OFF 10 min	
18:22:00	→ ON 90 sec	387 kW
18:23:30	→ OFF 10 min	
18:33:30	→ ON 90 sec	388 kW
18:35:00	→ OFF 10 min	
18:45:00	→ ON 90 sec	387 kW
18:46:30	→ OFF 10 min	
18:56:30	→ ON 90 sec	388 kW
18:58:00	→ OFF 10 min	
18:59:00	→ ON	
19:08:00	→ ON 90 sec	391 kW

Thurs 03 NOV 16

- + 19:09:30 > OFF 10 min
- + 19:19:30 > ON 90 sec 391 kW
- 19:21:00 ~~> OFF~~ stopped since no ionosphere.
more

3 NOV 2016 Cont'd

Fri AM's Experiment T2873 starting Early

21:30 Start 10 min ON / 10 min OFF, RHCP. (initial power ~340 kW, TXS missing)

- A7 = 348 ZA = 10.5 CH = 0
- ~~USRP~~ CH \Rightarrow USRP only.
- tried different ZIT's power levels before 21:30 not much difference.

22:30 ~~STA~~ LCP 10 min on / 10 min off
For 1 hour

(22:50) 5.095 \Rightarrow 5.1 MHz.

- RHCP, some was not the same as 1st setup
- DANH forgot to save the changes.
- I updated rhcp_sov, hfsym14 to have the original values. next ^{PCN} cycle will be same as 1st

(03:10) ~~update~~ TX3 -5db TX4 +9db

23:30 ~~RCP~~ 10 on 10 off 5.1 MHz

03:50 RCP TX3 -20db LCP -1.5db.

00:30 \rightarrow LCP 10 on 10 off 5.1 MHz "BIT ARCING EARLY W/PULSE"

00:50 Tx4 + 0.5 dB (not saved) to -4.8

04 NOV 16

0157-0157 5.1 MHz LCP for P.E. Sat. passage

0200 → RCP 10-on-10-off

03:00 → LCP 10-on → 10-off

03:30 LCP +4 +0.5 dB (-4.5 dBm)
start at 3:30, missed 3:20

4:10 → RCP 10 on 10 off

Massive arcing

4553 arcing near cont.

- Biocern reports, possible sighting of arcing!

5:10 → LCP

- seemingly no arcing,

- arcing
ARCING!

6:10 RCP 2 min on
2 min off

Arching!

6:20 RCP 10 on 10 off

7:00 RCP 5 on 5 off

7:10 → LCP 5 on 5 off

7:30 → LCP 5 on 3 off

0751 → OFF

hfzstep

(11)

04 20116

14:30

Bring up all 6 TX5 had bad
Breaker For Bias supply

GR = USRP ch = 7 echotek [-5.5, 5.5] A2 = 3E8, ch = 8
1830 → LCP 5 min on 3 off SOME TIME f → 5.12 MHz
check w size of PB

19:10 → RCP 5 min on 3 off

off-on of Tx 3 reduces arcing?

19:26 → LCP 5-on 3 off

19:42 2a 1.1° START 1.1 → 10.1 and then
Back Down. 5 min on 3 min off
move after 2nd minute of off

21:40

log in 18h and obs 4/105/hfzstep.log
5.12 → 5.1 MHz in preparation for Sat.

pass
2155 HF-off 1-2 s late

2203 - HF 2 min late

2214 → RCP out in 2e

Arching problems

2222 reduced power

2235 50 HF-off arching probs

2238 → LCP

FRI 04 NOV 16

(12)

Arcsource found tower descent to ant 34?

HF on at 22:46:08

HF-off at 4730

→ 200

HF-on at 4808

Paul & Mike's cab to find arc

HF Dipole 1 Radial opening at where Dipole connects to heliax to balun

23:20 stopped HF Ax. went to STAND BY

AZ = 348, CH = 70 GR = 75

Run CLP all night CILU 5 A.M.

Start 5 NOV

5:50 TUNE UP

5:40 - Remove Heliax cable Both sides of Dip (2A) 8m HZ [that was away the night before]

6:06

START modifying ch = 8 AZ = 348

GR 1.1 → 10.1 1deg steps

5 min HF on, 3 min HF off, more lost min of off.

5.10 MHz ch = 8 GR = 10.1

6:19 late off

0803 - off at 0804

0805 21 ON

0815 2e - stepping GR up to 1.1

08:40 stop & set up for Paul B's alternating sweep/cw at 3214

5, NOV cont'd

SAT 05 NOV 16 (13)

- + 0845 → CW 300 kW
- + 0850 → Sweep 280 kW
- + 0855 → CW 294 kW
- + 0900 → Sweep 303 kW after adjustment on LE4
- + 0905 → CW 305 kW
- + 0910 → Sweep 305 kW
- + 0915 → CW 302 kW ↓ 290 kW, TX1 to 0.2, PPA 29602
- + 0920 → Sweep
- + 0925 → CW
- + 0930 → Sweep stated bringing up 5, encountered frequent severe arcing at 28 kW
- + 0935 → CW 0938:30 TX1 up at 57 kW
- + 0940 → Sweep P_{tot} = 340 kW then TX1 ↓, then #5 ↑⁸³
- + 0945 → CW #5 back ↓, then #5 ↑³⁴
- + 0950 → Sweep 321 kW @ start
- + 0955 → CW ~~#5~~ 5 ↓ following very brief trial increase
- + 1000 → Sweep still at 292 kW with 5 off, end at 292 kW
- + 1005 → CW 292 kW
- + 1010 → Sweep
- + 1015 → CW
- 1020 → ~~Sweep~~ OFF
- ~~1025 → Back on 5X11 CW~~

- 10:25
- AS, CP, AB to Tower 2 to inspect burned connection of 8MVA Jipok.
 - All broadband amplifiers OFF
 - 430TX OFF, IPA OFF, confirmed with Control Room by phone.

SAT 5 NOV cont'd

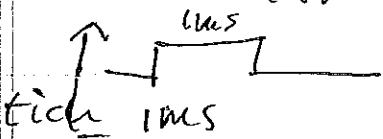
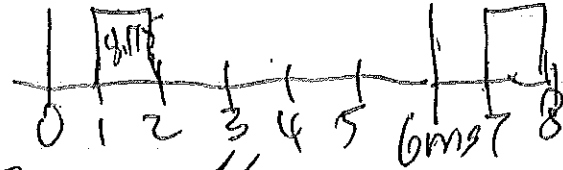
(14)

	FWD PWR	Drive	REFL PWR	TX-1
12:41				
12:41	74 kW	-5.3	900 Watts	8.175M
12:50	75.0 kW	-5.1	950	8.175

13:33 Begin bringing up pulse sans TX5

↓
15:30 went to dish to search for arcs no
430 -

16:01 Start Salih Pulse
~~Real pulse~~
1ms on 8.175 3ms off.
3400 PPS - 6ms Repeat
166.667 Hz
166 Pulse



using 2 ext sig generators.

16:36 switched to hep Pulse.
STARTING Echo tek, ~~5.5~~ [5.5, 9.5]
using 12us IPP to
IPP at 2 bus cycles of HF.

~ 18:25 Found HF synth was taking >90% memory, stopped
& restarted it. Spent next 10 min getting the levels
right again. Settled pretty well around 330-335 kW.

19:24 Disconnected RF so could adjust to 500 usec ^{1st pulse delay} ~~at~~ at
Salih's request. No signal connected

5 NOV 2016 Cont'd...

15

19:35 Connected CW signal at Phil's request for night-time arc search. ~290 kW

19:44 Connected ~~the~~ Salih's ^{new} ~~500 usec~~ pulse signal back to synth. Initial Power ~360 kW peak. Change to signal: First-pulse delay reduced to 500 usec, by changing P.W. setting of bottom generator to 500 usec.

20:16 Turned off RF once again at Phil's request.

20:55 Commenced regular pulsing ^{again} ~~again~~ for Salih.

sum ob

6:00 JPP = 7 10 us cal = 7 7000 RCP

ch = 7 0cho q1 = 7 us RP.

HF 5.125 MHz [Had see TUF at 5.1]

[Sweep ± 10 kHz 200 kHz Rep Rate when sweeping] W

stepping 1.1 \Rightarrow 10.1 5 mV on, 30 off
mod host wire off

6:22 modify ch due to Pres 430 off.

-sweeping-

SEE centered at 5.125 BW 450 kHz.

6:27 sweep off acc'y gone

6:30 sweep on

6:38:06 HF off

Sun 06:00V

(16)

06:33 HF on, start stepping.
using Paul's generator

06:45 Last min of on cycle ~~to~~ sw \rightarrow cw for 1 minute
then back to sweep
SEE continues with no change

06:57 went to auto toggle to control HF on/off.

07:45 auto-toggle \sim 1s early
I manual cycle to lower power.

07:57 - lower power a bit to ~~go to go~~ reduce a bit
- Back to auto toggle at 8:01

8:33 HF on with 5.125 MHz, 837 chirp

8:41 HF on \sim 1s early

9:13 HF on 2s early
HH \rightarrow chirp 0916 58

09:21 0925:08 10 chirp

09:37 HF on with chirp

10:05 - no chirp - on

11:35 HF-off \sim 3s early

11:37 re-synch

6 Nov 2016 Sun

(17)

HF on 114415 -
HF off 115130

1153 HF cycle back on autotoggle

1216 45s on 45s off autotoggle timing
RCP

1242:15 HF-off RCP cycle stop

1243-1244 HF-on for power

1245 LCP - 45s on 45s off

1258 45 - 1300:00 HF-on for power

1300 stopped for mesh change etc for 8.775

1323 Begin tuneup for 8.775 CW

~~stop~~ turn off RF430 so echotek
can see when tune changed mode
A7=388 gr<1.5 ch 8.

1338:42 Sweep turned ON

1339:57 Back to CW @ PB request

1341:15 Switch to RCP

1346:13 Sweep ON, had no impact on power levels

1415:25 RF OFF

②

SUNDAY 06 NOV

AZ still 348, $qf=1.5$ $ch=8$

⑬

14:35

5.1 MHz RCP mesh changed
using cw to START. Pauls generator
430 RF on - probably stayed on during
change

arcing ten off TX4 went away. probably
arcing 8 MHz tower.

14:48

30 sweep on [same as before]

14:53

100 to cw.

4:55

HF off, 430 RF off volt \Rightarrow 30kV.

15:41

- HF back on - RCP cw
430 up - [was tower 4 not tower 20]
disconnected tower 2 (8 MHz) links to
help get rid of arcing at 5 MHz.

5:50

START sweeping [Pauls still]
restored HF synth. RF was off during

5:52

120 the change
Back on

5:54

45 - moved to 1.)

SUN 06 NOV

gr=1.1 \Rightarrow 10.1 ch=8 AZ=3&8.

(19)

15:57

HF ZAS step 8 min cycle

5 on 3 //

[4 min SW 1 min CW]

16:01

CW for 1 min

17:05

adding on turn on
turning off TX 3,4 makes it go away.

17:53

START ZASIEP Pattern at Reduced
Power in TX 3,4 Reload to fix away
in Tower (2). earlier they disconnected
the links to the wing tower.

18:30

HF-off was early

19:39 30

sweep off

19:41:00

sweep on

19:43 20

$f_0 \rightarrow 5.125$ MHz 5.115 MHz C.F.R.

19:49

off, on to reload HF-synth Prog.

19:46:45

CW 5.115 MHz.

19:50

- working ch \Rightarrow 8 gr \Rightarrow 15
- then get ready for nightline Run.

19:57

LCP

20:05

gr \Rightarrow 1.1 ch \Rightarrow 8 AZ \Rightarrow 3&8
430 Back on

sun 6 Nov cont'd

(20)

2015 SEE OFF (PB'S SDR)

21:10 started 50/50 CW at 5.115 MHz
Power \approx 350 kW,

system very stable. Very little arcing!!

00:49 TX2 Running hot. Reduced
drive by 0.1 dB. \rightarrow Was 80 kW
at - 8.1 dB. TX2 is back at 70 kW.
P_{total} \approx 350 kW

Noticed a problem with realtime plots.
narrow band tone was recording
wrong antenna (live feed). Mestar fixed
this by swapping cables.

2:06. TX2 at 75 kW, reducing ~~to~~ by
0.1 dB

TX4 at 63 kW, adding 0.1 dB.
TX started when it shouldn't
have. manually stopped. launcher

got 2:10
 $f_{0,F2} = 4$ MHz

3:20 $f_{0,F2} = 4.1$ MHz

TX2 has problems starting up.
fixes itself. self-healing tx2!

MON 07 Nov 16

(21)

5:24
5:50

- trouble with #2 jump in 1db -

5.115 \Rightarrow 5.11 MHz. (SR5)

new sweep mode

80 kHz BW centered AT 5.11 MHz.

200 Hz sweep RATE. [STATE File 5.11b200]

06:00 -

06:12:15 to CW.

06:20:00 sweep RATE 400 Hz.

06:33:10 to CW

06:40:00 ~~666.667~~ sweep RATE
666.667 Hz. count 666

06:41:25 to CW.

06:42:35 ~~666.666~~ changed SYNC count.
665 counts

06:50:40 CW

06:51:00 200 Hz sweep RATE

06:52:45 CW screwing around thru 200 Hz.

07:00 200 Hz.

07:04:00 to CW for 1 minute.

07:04:30 back to 200 Hz.

07:06:00 done with toggle, on all the time.

+ sweeping 200 Hz. [END COP

start RCP.

07:08:00

07:14:30

sweeping 200 Hz REP is up.

07:19

CW

07:20:04	400 Hz sweep	} 5 minute cycle 1 min sweep, 1 min cw step chirp 200, 400, 667
07:24:00	cw	
07:25:00	667 sweep	
07:29:00	cw	
07:30:00	200 Hz.	
07:34:00	cw	
07:35:00	400 Hz.	
07:39:00	667 cw	
07:40:00	667 sweep	
07:44:00	cw	
07:45:00	200 Hz swp	
07:49:00	cw	
07:50:00	400 Hz	
07:54:00	cw	
07:55:00	667 swp	
07:59:00	cw	
08:00:00	200 Hz	
08:04:00	cw	
08:05:00	400 Hz	
08:09:00	cw	
08:10:00	667 swp	
08:14:00	<u>cw</u>	

SALIZ Pulse mode.

LcP

~~swp~~ Pulse 250use delay (cw) Pulsed.
1ms Pulse

08:15:30
08:19:39
08:21:00