

Minutes of Plan meet of 6 Feb 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Follow-up on level 3 (NTR) -- pending for long : from 19 Dec & before (SSK/DO):
To check status of report on design of OF system.
==> No updates; to be taken up again after 2 weeks.

1.2 Detailed design doc -- pending for long : from 23 Jan & before (SSK/BAK) :
follow-up on subsystems to be converted : (i) OF Rx system to be completed
(Satish Lokhande) (ii) OF Tx to be started (iii) analog BE system to be completed.
==> no updates on (i) and (ii); for (iii) email update from BAK : work ongoing
(by Hande) to collect all the data and information, need some more time to complete
the report; need follow-up after 2 weeks on all the items.

2. FE & OF related :

2.1 Update on RF dump tests for new feeds -- from 23 Jan & before (HRB/GSS/SSK)
(i) new data and results for 130-260, 250-500, 550-900 (HRB/SSK)
==> no updates today.
(ii) matlab procedure for ON/OFF and (ON-OFF)/OFF calculations (HRB)
==> no updates today.
(iii) scheme for (re)calculation of expected values across the broad bands to be
finalised (and added to measured curves) -- (SSK and team).
==> no updates today.
All items to be taken up after 2 weeks.

2.2 Update on results from test range -- from 16 Jan & before (GSS/SSK) :
(i) phase centre tests for 250-500 CDF : new results to be discussed and compared
with results from Yogesh Karandikar.
==> no fresh updates on this today.
(ii) phase centre tests for CSIRO feed to compare with 550-900 CDF : plans for
extra mechanical support during hoisting to be finalised with mechanical.
==> no fresh updates on this today.
(iii) status of improvements : filters, Sirenza amplifier, compression effect etc
==> no fresh updates on this today.
All items to be taken up next week, if possible, else 2 weeks later.

2.3 Mass production of 250-500 FE system -- from 30, 19 & 2 Jan (ANR/SSK) :
to confirm current list of working systems, including status of C6 system !!
==> C8 modified Kildal, C6, W1, S2, C10 have CDF feed; of the 5 broadband FE boxes,
4 are identical (last 4 antennas in above list), and C08 is different (Hitite
ampl) -- TBC; C6 FE box has been brought down twice due to problems during usage
but nothing found wrong on the bench; similar for one instance for S2; right now
W1 is showing peculiar problem of strong line, but at night time only ! After
some discussion, following action items agreed : to check environment (power
supplies, cables etc) thoroughly at C6; check the C6 box in the lab with more
realistic values of power supply etc and by giving it more "shock treatment" --

latter can be reviewed next week; also to look carefully at W1 problem and try to identify the cause. Main follow-up after 2 weeks.

2.4 Directional coupler for 250-500 FE system -- from 23 Jan and before (ANR/SSK) : report on results from prototype unit & repeatability with 8 new units; ITR to be produced.

==> first prototype unit shows good response; 2nd prototype showed more insertion loss at 500 MHz -- looks like due to different brand of type-N male connector used; to assemble one or two more units and try with at least more kind of type-N conn and report back next week.

2.5 Status of improved 500-1000 MHz cone-dipole -- from 16 Jan & before (HRB/GSS/SSK) : (i) status of testing of ver2 system (with different cone angle and modified dipole design?) to be reported.

==> no clear update as to why the feed did not go up on the antenna last week; right now working with old 610 feed and FE box.

(ii) comparison of measured parameters with simulations : follow-up on interaction with Yogesh Karandikar : update on 3 action items discussed in 30 & 16 Jan meetings to be reported.

==> no update as HRB not available.

Need follow-up on these matters urgently ! To try next week (if possible), else 2 weeks later.

2.6 Signal flow analysis related items -- from 23 Jan and before (GP/ANR/SSK)

(i) new version of analysis to be released after lab tests on L-band system.

==> work has been done, but no formal updates available.

(ii) to try system with extra amplifier at antenna base & measure the performance for checking the 6 dB margin.

==> no update available.

(iii) plans for trying analysis of 250-500 system; also generating a first cut block diagram of the 250-500 MHz receiver.

==> no update available.

To follow-up next week, if possible.

2.7 Tests of 130-260 system -- from 30 Jan : updates from tests by Nissim Kanekar (NK)

==> work is going on, with some initial results from correlation studies which confirm (i) improved sensitivity at 150 MHz and (ii) slightly worse sensitivity at 235 MHz. NK to look at new test data, including getting on-off deflection results in the other parts of the band, and present a consolidated summary; can be taken up for discussion 2 weeks from now.

2.8 Walsh switching arrangement in FE -- from 23 Jan (SSK) : results from new discussions (19 Dec) and lab tests planned on new L-band system.

==> matter discussed, including looking at previous minutes, but no clarity on how to proceed; agreed that FE group will take it up for discussion and come back after 2 weeks with clear statements about (a) what is feasible and (b) how to go about doing the tests.

2.9 Spares for L-band FE electronics -- from 9 Jan (ANR/SSK) :

(i) RFCM-type card status : new design vs old schematic -- finalisation.

==> new PCB design has been done and waiting for clearance from VBB & SSK

(ii) LNA tuning results and generation of spares : update from Gopi's work.

==> no progress after 2 LNAs were successfully tuned; waiting for Gopi to be available.

- (iii) filters : need chassis and connectors : delivery from workshop.
==> drilling remaining in the chassis, will come by next week.
- (iv) noise gen : has to be assembled : assembly completed?
==> still waiting for populating the PCBs.
- (v) post-ampl and phase switch also need to be checked : assembled and tested?
==> waiting for chassis.
- (vi) timescale for integration? : individual modules testing and integration with spare feed should be underway by now.
==> no updates on this; can be taken up alongwith follow-up of above items.
Can schedule a follow-up discussion 2 weeks from now.

2.10 Characterisation of new OF systems -- from 16 Jan & before (PAR/SSK) :
to update if remaining 2 antennas have been done and summary of results has been circulated : if yes, then discussion of follow-up action to be taken up.
==> all antennas are done now; quick look at the results by PAR : check on optical levels - 1.5 dB spread from expected; lot of confusion about interpreting the numbers; agreed to come back next week with improved description, including a block diagram showing flow of signals and points at which values have been measured etc; to follow-up next week.

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 23 Jan (PAR/SSK) :
follow-up on two action items, including beam shape measurements, still pending.
==> expt has been done just today, data is available, will be ready for discussion next week.

3.2 Follow-up on UPS RFI -- from 30 Jan & earlier (SSK/PAR/RVS) :
(i) update on feedback to Miltech about improvements in 1 kVA unit tried at GMRT (SSK/PAR).
SSK to report on interactions with Miltech at H'bad.
==> no update.

(ii) follow-up on procurement of 3 kVA unit from Miltech (RVS) -- to confirm if indent has been placed.
==> RVS is following up on this; indent has to be raised including any special specifications regarding RFI properties -- RVS to check with SS and SSK about this.

(iii) follow-up on procurement of 1 unit from Consul and RFI tests of the same (RVS/PAR).
==> RVS is following up on this.

(iv) results from tests on Ador unit to be discussed (PAR).
==> summary of all UPS tested presented : can be circulated and taken up for a discussion in next week or so.
Follow-up next week on immediate items.

3.3 Radiation from CAT5 cable -- from 9 Jan, but matter dragging from 25 Jul onwards ! (SSK/PAR): RFI group to report results from tests with sample items obtained from RSN or other similar products.
==> tests have been done; RFI group is looking at the results and will report later on after 2 weeks.

4. Operations :

4.1 Monitoring of 3-phase power at each antenna -- from 9 Jan (SN/RVS) : Ops group to report on progress of home made design, including testing in main

building with suitable 3 phase point.

==> PCB has been wired; DC testing of control part has been done; some minor modifications to be done; temporary connection of 3 ph power to lab being done to test the unit; can check after 2 weeks.

4.2 Development of M&C software -- from 30 Jan (JPK/RU/SN/NGK/YW) :
update on URS work with TCS (JPK/SN)

==> TCS has submitted ver 1.0 to NCRA; use cases for ver 2.0 (6 nos) have been submitted to TCS; review is ongoing at NCRA with different members (engineers and astronomers contributing to it); reply to be sent by this week, after which TCS will incorporate the comments, corrections etc and produce the final version of the document. Follow-up next week to check the status.

5. Back-ends :

5.1 Analog back-end beyond 8 antennas -- from 23 Jan & 9 Jan (BAK) :

(i) plans for component ordering etc to be reviewed.

==> email update from BAK : all components, cables, connectors ordered / available for the full system + spares; final version PCB designs ready, PIU panel drilling & labelling prototypes done and mass production will start soon; analog rx PIU, LO synth PIU details finalised and chassis wiring in progress; MCM control PIU needs finalisation of D-type connectors (waiting for replies to enquiries), may look at solder type connector if crimp type is difficult to get -- will decide in a week or so. Can follow-up to check status after one month.

(ii) plans for space usage to be discussed.

==> email update from BAK : Hande is working on a drawing for the proposed new arrangement (will circulate within 2 weeks); minimum rack space needed will be 3 racks for present BB units; all common jobs which may disturb observations will be done during MTAC and during daytime white slots, one antenna at a time. Can review the matter after 2 weeks.

5.2 Final online control for GPU corr -- pending for a long time, now VERY URGENT (SSK/JPK/NR/DVL) :

(i) release of first version -- to check if system works as per new SOP.

[Other detailed follow-up items are due next week]

==> stuck at the point of CUDA version mismatch on the 4 tr pipeline nodes, causing CUFFT problems; aim to shift to CUDA 5.0 ; else fall back to 4.1; then check rest of the SOP and release the system for use.

5.3 GPU corr status -- from 30 Jan & before (SHR/GSJ/BAK/DVL) : updates on following items:

(i) release of 4 node, 8 input, 200/250 MHz, 4/8 bit version and 8 node, 16 input, 150 MHz version -- to report if working with online control (see item 5.2 above)

==> to take up 4 node, 8 input only right now; meanwhile, to add 8 node, 16 i/p ver to the SOP; final data file will be available on the host node.

(ii) update on testing of K10 / K20 system of nvidia -- (a) follow-up on single node optimisation and (b) tests on nvidia cluster.

==> no new update; to extend nvidia cluster request to 2 m/cs.

(iii) follow-up on testing of Supermicro machines -- any updates?

==> budgetary quote has been sent, but no action in terms of sending sample m/c; to check if we should follow-up with other Supermicro parties.

(iv) testing of IB system on actual correlator code -- results & current status.

==> for 2 node correlator, offline version has been tested and IB is giving 5.5 GBps for bidirectional data transfer; expansion to 4 nodes is happening; and

then tests with real-time version need to be carried out.

(v) plans for purchase of couple of host machines : follow-up on current status.

==> useful meeting with DELL with positive feedback; need quick follow-up to see if we can get an eval m/c at GMRT.

(vi) plans for walk through the code for further optimisation, improvements, rationalisation and documentation.

==> not discussed.

Some of the items require urgent follow-up next week.

5.4 8 antenna back-end plans for further astronomical tests -- from 12 Dec (DVL/YG) : implementation plan of tests proposed by DVL to be drawn up with BE team.

==> can take up next week, once SOP is confirmed to be working.

5.5 Packetised corr -- from 16 Jan & earlier (SCC/SSK/BAK) : to confirm a stable working pipeline for analysis of data, along with a SoP for the same -- SCC+SKS to produce the SOP; DVL to test the same -- current status required.

==> in the process of compiling all the code on one m/c and then will make and release SOP; can follow-up after 2 weeks.

5.6 Packetised corr -- from 16 Jan & earlier (SCC/BAK) :

(i) updates on antenna tests of 2K and 4K pt FFTs (with full delay) -- follow-up plans to be discussed.

==> clarification : 4K design will work for full GMRT delay at 400 MHz BW; to check if 8K will work with some sacrifice in delay; meanwhile DVL can check if image can be made using the data from these tests.

(ii) 10 Gbe link in pkt design (to allow integration with GPU design) -- report on tests done and follow-up action to be decided.

==> design tested successfully with GSB + pkt corr; 5 hr data file acquired and can be imaged by DVL; need to run with GPU corr in parallel.

Can follow-up both items after 2 weeks.

5.7 Finalisation of design for temperature detectors for BE system -- from 23 Jan (BAK) : report in ITR format to be released and see if matter can be closed.

==> email update from BAK : Atul Ganla has prepared a modified report with test results, which is being finalised and should be released by next week; to check status after 2 weeks and see if the matter can be closed.

5.8 Power and cooling requirements for projected back-end systems -- from 9 Jan & earlier (BAK/RVS/YG) : to take up follow-up matters from the first round of tests; also check if report has been converted to ITR format.

==> Electrical reminded about converting report to ITR format; YG to schedule discussion with RVS and BAK in the coming week about detailed follow-up.

5.9 Next-gen time & frequency standards -- from 21 Nov (NDS/BAK) :

(i) completion of tests at GMRT.

==> email update from BAK : N.D.Shinde is summarising the results of tests done so far and plan for further tests to be done.

(ii) plans for visit to NPL in Jan 2013 or so -- dialogue to be initiated.

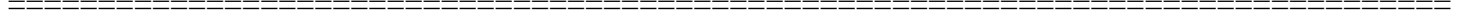
==> BAK plans to send test summary to Dr. Sengupta alongwith possible dates for a visit to NPL -- should happen within the next week; to check status next week.

(iii) looking into OCXOs from Oscilloquartz -- to be taken up at the time of visit to NPL.

==> will soon start dialogue with suppliers in India; further details to be taken up during visit to NPL.

6. Other items :

Nothing here this week !



Minutes of the weekly Plan meet of 13 Feb 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 30 Jan & earlier :
conversion of older reports : to check if FE has released 250-500 LNA report and status of 250-500 BPF report (ANR/Imran); to check if some more reports can be identified for conversion.

==> BPF report released; LNA to be taken up next; can encourage 250-550 feed as the next one for ITR; follow-up after 2 weeks.

1.2 Documentation : SoP for antenna base work -- from 30 Jan & before (SSK/ANR/HRB) :
updated version to be made ready for (i) installation of upgrade systems and (ii) ensure proper working of existing systems. To check if work ojn part (i) has started for (a) feeds (HRB) (b) FE boxes (ANR) (c) Common Box (SSK) and (d) OF system (PAR)

==> for (a) : 70% work done by HRB, work on (d) OF system has started; other 2 to start shortly; can follow-up the status after 2 weeks.

2. FE & OF related :

2.0 Tests of 130-260 system on C10 vs other antennas -- from 6 Feb (NK) :
results presented by NK and discussed in detail; confirms earlier suspicions of performance better than existing system at 150 MHz, but slightly worse than existing system at 235 MHz; agreed on 2 action items : to get RF dump data for processing; to report results from tests ongoing; to try with 2 feeds.
Follow-up after one month.

2.1 Mass production of 250-500 feeds -- from 16 Jan (HSK/HRB/SSK) :
(i) to update on production and delivery status (for in-house and out-sourced)
==> 1st out-sourced unit (from M/s Mabromech) intalled successfully at C10; 2nd out-sourced (from M/s Somwanshi) was damaged (twisted) and had to be repaired in-house (will come from workshop by end of this week); 3rd out-sourced party will delivery by next week; 2 more in-house cavities + 6 dipoles will be delivered by end of this month ==> 4 full feeds should be available by end of this month. To review the status after 2 weeks.

After repair of 2nd out-sourced unit, can test and decide if 10 + 10 feeds should be ordered with the first 2 parties (3rd party look like not able to meet the required timelines). To aim for final decision on this by early March -- to check one month later.

(ii) problems of quality / accuracy resolved or not ?

==> not clear : may need to ensure better inspection at vendor premises before sending; may need a better way of knocking down and transportation to minimise the damage -- improved packaging for transportation to be looked into by mech group. To update about plans 2 weeks from now.

2.2 Mass production of 250-500 FE system -- from 6 Feb, 30 Jan & before (ANR/SSK) :
(i) testing of new feeds delivered & status of FE boxes to go with them.

==> all FE units for 6 antennas are ready; 5 new boxes are available; ==> can start with these, as soon as the feeds are ready and tested -- to aim for 2 units this month; may need one more hand for helping with integration and testing -- FE group to investigate possible manpower options.

(ii) status update on production of main BPF system -- problem with capacitors. ==> have been ordered, will come by a month or so; till then no more units beyond 6 antennas can be made; follow-up after one month.

(iii) status of development of notch filters that may need to go with FE boxes. ==> to be done later; follow-up after one month.

(iv) to confirm status of C6 & W1 systems : are they understood or not !?!

==> C6 box tested in the lab with different power supply levels etc, to be tested for thermal cycling, input impedance and out of band inputs; W1 unit will come down today and will be put through thermal cycling and then see what to do; to follow-up next week.

2.3 Directional coupler for 250-500 FE system -- from 6 Feb and before (ANR/SSK) : report on results from prototype unit & repeatability with 6 new units; ITR to be produced -- follow-up from last week.

==> waiting for chassis to complete tests on 6 units (including issue of insertion loss of connectors to be resolved !), and then release the report; to follow-up after 2 weeks.

2.4 Status of improved 500-1000 MHz cone-dipole -- from 16 Jan & before (HRB/GSS/SSK) :

(i) status of testing of ver2 system (with different cone angle and modified dipole design?) to be reported.

==> FE box had gone bad; now repaired; can go ahead with sky test in the lab and then on C10 when HRB is back; to check after 2 weeks.

(ii) comparison of measured parameters with simulations : follow-up on interaction with Yogesh Karandikar : update on 3 action items discussed in 30 & 16 Jan meetings to be reported.

==> no progress on this from HRB; to follow-up 2 weeks later.

(iii) email update from HRB reported couple of trials with other locations of the ver1 feed, one of which showed 1 dB improvement in deflection at 610 MHz. Need to take up this matter for detailed discussion, 2 weeks from now.

2.5 Follow-up on delivery of 550-900 MHz filters -- from 30 Jan & before (ANR/SSK) : delivery of prototype meeting full specs -- update from vendor.

==> new set of PCBs being done by vendor; will have some results by 25th Feb; to check after 2 weeks.

2.6 Signal flow analysis related items -- from 6 Feb & 23 Jan and before (GP/ANR/SSK)

(i) new version of analysis to be released after lab tests on L-band system -- no formal update available on this last week.

==> item not discussed due to shortage of time.

(ii) to try system with extra amplifier at antenna base & measure the performance for checking the 6 dB margin. Need an update on the status of this.

==> item not discussed due to shortage of time.

(iii) plans for trying analysis of 250-500 system; also generating a first cut block diagram of the 250-500 MHz receiver. Need an update on status of this.

==> item not discussed due to shortage of time.

2.7 Developments for 130-260 feed -- from 30 Jan (HRB/GSS) : to confirm if modified feed delivered to FE group and tested.

==> not clear if all components (with dipole) have come -- HSK to check and take

appropriate action ! to update status asap.

2.8 New LNA for 130-260 system -- from 16 Jan & before (VBB/SSK) : FE team to report if new LNA on modified substrate integrated with chassis and tested ?

==> LNA is now working on the bench, need some more time for detailed study and characterisation -- can have a status update next week.

2.9 Fabrication of spare L-band feed -- from 16 Jan & before (SSK/HSK) : to check status of indent / order on 2-3 parties.

==> enquiries have been sent now; will take couple of weeks for quotes and then order can be done; may have the items by March (optimistic); follow-up on order status 2 weeks from now.

2.10 Finalisation of design for total power detector for FE boxes -- from 23 Jan (ANR/SSK) : results from tests of prototype unit to be reported.

==> PCB has gone; will come by 25th; can check the status 2 weeks later.

2.11 Finalisation of design for temperature detectors for FE system -- from 30 Jan and before (SSK) : final design using TC1047 + amplification scheme : prototype to be ready.

==> new layout to be done and finalised; can check status after 2 weeks.

2.12 Filters at different stages of receiver chain -- from 30 Jan & before (SSK) :

(i) to follow-up on improvements to basic design of scheme for antenna base.

==> item not discussed due to shortage of time, and lack of updates.

(ii) to check if first order skeletal versions are ready for FE boxes.

==> item not discussed due to shortage of time, and lack of updates.

2.13 Calibration scheme with radiator at apex of antenna -- from 23 Dec and before (SSK/PAR/SROy/DO/YG): follow-up action items from last round of discussions.

==> action items have been spelt out by DO in a recent email -- no updates on these items as yet; to check after 2 weeks.

2.14 Characterisation of new OF systems -- from 6 Feb Jan & before (PAR/SSK) : details of the test results to be circulated and follow-up discussion to take place (after last week's inconclusive discussion).

==> gain and SNR of OF system measured with calibrated CW signals for each RF band, for all 12 antennas; 4-5 antennas need attention for fixing problems in OF system -- some are due to old vs new versions of the OF PIUs etc, and for some the reason is not clear (e.g. S-arm low loss); action item agreed is : to check with L-band FE system for proper bandshapes and power levels -- take 2 worst case antennas and debug the L-band FE system as needed and report back. To check status after 2-3 weeks.

2.15 Modification for attenuation control in new OF systems for ALL antennas -- from 30 Jan (SSK/CPK) : To confirm if systems now complete on remaining 3 antennas (C9, C11, E6).

==> chassis have come, wiring is in process; to check status after 2-3 weeks.

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 6 Feb & 23 Jan (PAR/SSK) : follow-up action on 2 items, including beam shape measurements, has been taken

-- results to be circulated and discussed.

==> PAR to circulate the document (within the next week) and then take up for discussion 2 weeks later.

3.2 Follow-up on UPS RFI -- from 6 Feb, 30 Jan & earlier (SSK/PAR/RVS) :

(i) update on feedback to Miltech about improvements in 1 kVA unit tried at GMRT

-- SSK to report on interactions with Miltech at H'bad.

==> yet to follow-up with Miltech -- to try for it during next visit to H'bad.

(ii) follow-up on procurement of 3 kVA unit from Miltech (RVS) -- to confirm if indent has been placed, after clearing the doubts about RFI specifications.

==> RVS is looking into placing the indent; to follow-up 2 weeks from now.

(iii) follow-up on procurement of 1 unit from Consul and RFI tests of the same (RVS/PAR).

==> efforts ongoing to get the unit.

(iv) results from tests on Ador + other units to be circulated & discussed (PAR).

==> one note has been circulated; needs some additions (e.g. dates of the tests) and recirculate after that.

3.3 Mobile phone RFI -- from 16 Jan and earlier (pending for long!) (SSK/PAR) :

to check if identified nokia phone with new app now allows for matters to be resolved to identify operators on specific towers and can be used for follow-up on identifying mobile operators near and beyond E06.

==> using the above unit + app, survey done near Alephata and Ale and individual vendors can be identified; need more SIM cards (at least one of vendor) and more units of this phone model to facilitate the work; PAR to send email about the specific requirements and take admins help to procure the items. Follow-up after 3 weeks.

3.4 RFI testing of Miltech PC -- from 30 Jan & earlier (pending for long!) (PAR/SSK):

tests with peripherals using new shielded ports, connectors, cables + Rabbit card etc as termination loads : new results to be reported and plans for finalisation of comprehensive report (with comparison with older tests) to be discussed.

==> no updates and no clear way forward on this; may need a brainstorming discussion? to check after 2 weeks and decide what to do.

3.5 RFI tests of ethernet switches for antenna base -- from 30 Jan & earlier (SN/BAK/SSK):

RFI tests on integrated system with OF transceiver + switch + Miltech PC + MCM cards using shielded RJ45 connectors and CAT6 cables to be done and results reported.

==> similar situation as item 3.4 above...

4. Operations :

4.1 Mass production of Rabbit MCM cards -- from 16 Jan (CPK/SN) :

(i) status of testing of cards to be updated.

==> going on reasonably, at about 4 cards per week; Satish and Mahadev are the main persons working on it; not clear if it can be speeded up.

(ii) check about plans for ordering ~80 more cards.

==> needs a bigger discussion -- to be taken up later on; to check after 2 weeks.

(iii) release of SoP for testing procedure (to be shared with other groups) to be confirmed.

==> to try for 1st version in 2 weeks (by Satish).

(iv) software changes required (GUI etc) for analog back-end system (from 30 Jan)

==> no progress; CPK to check with Naresh about plans for this -- follow-up after 2 weeks.

4.2 Using new MCM card on ethernet of PC for upgraded analog backend -- from 30 Jan and before (JPK/CPK/BAK) : (i) completion of s'ware for all commands and tests in receiver room (ii) schedule for implementing in 8 antenna system.

==> lab test has been done; can try on jig board in the lab and then in rx room; Naresh to give one card with update to JPK -- to check after 2 weeks.

4.3 Miltec PC purchase related -- from 16 Jan (CPK/JPK/SN) : follow-up on delivery status of 2 nos of i7 model from vendor, with improved RFI characteristics.

==> no updates available; can check after 1 or 2 weeks.

4.4 Identification of appropriate ethernet switches for antenna base -- from 30 Jan (SN/PAR/BAK) : Ops and Computer group to report on their discussions about possible options and models to be tried out (both existing units and new units in the market).

==> some discussion L2 vs L3 (L2 maybe enough at antenna base?) : YG to arrange for a bigger group to meet; to look at reports generated by telemetry group; follow-up after 2-3 weeks.

4.5 Development of M&C software -- from 6 Feb (JPK/RU/SN/NGK/YW) : update on URS work with TCS (JPK/SN)

==> document review done (by 7 persons from NCRA) and comments submitted; being looked at and changes being incorporated by TCS into a modified document; it will be submitted early next week, with 2 days for review by NCRA and then this phase will be closed. To check status next week.

5. Back-ends :

5.1 Power equalisation schemes for new back-ends -- from 30 Jan (SKS/NSR/BAK):

(i) option 1 : using detectors in GAB and local feedback loop -- BAK to provide update on plans.

==> need 2 weeks to complete installation of the monitoring set-up in the 8-ant GAB; this will give the voltages on the computer, which will then be integrated into a software for controlling the attenuators with a feedback loop provision; to check status after 2 weeks.

(ii) option 2 : using correlator self outputs and computing gain corrections : SKS to work out scheme for NSR to implement -- SKS to provide update on plans.

==> SKS is working with NSR on this; to check after 2 weeks.

5.2 Final online control for GPU corr -- pending for a long time, now VERY URGENT (SSK/JPK/NR/DVL) :

(i) release of first version -- to check if system works as per new SOP.

==> some progress but still not running : gpu.hdr etc needs to be resolved; IT IS BECOMING A BOTTLENECK FOR FURTHER TESTING OF THE SYSTEMS.

(ii) status update on (a) adapting to main online (b) full GUI compatibility and (c) running with extra m/c as the host.

==> no updates on (a) & (b); (c) is done but needs some work for the actual usage;

(iii) follow-up on long-term items like stable performance, provision for control of FPGA and other peripherals for different modes.

==> no discussion on this; to be followed up 1-2 weeks later.

5.3 GPU corr status -- from 6 Feb & before (SHR/GSJ/BAK/DVL) : updates on following items:

- (i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input, 150 MHz version -- to report if the 1st mode is working with online control (see item 5.2 above), and to state plans for the 2nd mode.
==> status quo, waiting for online control to be released...
- (ii) update on testing of K10 / K20 system of nvidia -- (a) follow-up on single node optimisation and (b) tests on nvidia cluster.
==> some tests done by Sanjay but no updates available.
- (iii) follow-up on testing of Supermicro machines -- any updates?
==> no updates.
- (iv) testing of IB system on actual correlator code -- results & current status.
==> real-time correlator, 4 nodes with IB is now working; benchmark is 4x of 10 Gbe n/w performance. Can think of expanding to all 8 nodes after a bit more of testing; to be taken up for discussion within the group.
- (v) plans for purchase of couple of host machines : follow-up on current status.
==> no updates today, but follow-up is underway with DELL for getting eval units.
- (vi) plans for walk through the code for further optimisation, improvements, rationalisation and documentation.
==> no update on this topic.

5.4 8 antenna back-end plans for further astronomical tests -- from 12 Dec (DVL/YG) : implementation plan of tests proposed by DVL to be drawn up with BE team.
==> postponed yet again as systems not released for observations !

5.5 Power and cooling requirements for projected back-end systems -- from 9 Jan & earlier (BAK/RVS/YG) : to take up follow-up matters from the first round of tests; also check if report has been converted to ITR format.
==> no discussion possible; YG to look for a slot for a meeting with RVS & BAK; to check the status 2 weeks from now.

5.6 Next-gen time & frequency standards -- from 21 Nov (NDS/BAK) :
(i) completion of tests at GMRT and summary of the same by NDS.
==> tests are done; NDS is summarising the results which BAK will share with NPL by 18th/19th. Check status next week.
(ii) plans for visit to NPL in Jan 2013 or so -- dialogue initiated last week?
==> will fix up the slots after response from NPL on results (see item above); to check status after 2 weeks.
(iii) looking into OCXOs from Oscilloquartz -- to be taken up at the time of visit to NPL.
==> TBD later.

6. Other items :

6.1 Jobs at TIFR -- from 30 Jan (HSK/SKG) :
(i) to check if pending jobs have been taken up at TIFR
==> no firm date on completion of the jobs; SKG to check and see what may be the issues at TIFR and inform accordingly.
(ii) to discuss what further jobs can be given to TIFR
==> to be taken up after above item is sorted out.
To follow-up status of this after 2 weeks.

=====

Minutes of Plan meet of 27 Feb 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Follow-up on level 3 (NTR) -- pending for long : from 6 Feb Dec & before (SSK/DO): To check status of report on design of OF system.

==> outline has been made, and much of the material has been collected; need to decide about exact division of different aspects, sub-parts, between this and detailed design doc; can check with one of the astronomers, if needed.

Follow-up after one month.

1.2 Detailed design doc -- pending for long : from 23 Jan & before (SSK/BAK) :

follow-up on subsystems to be converted : (i) OF Rx system to be completed (Satish Lokhande) (ii) OF Tx to be started (iii) analog BE system to be completed.

==> last phase of testing the 2nd stage ampl with 10 dB attn + monitoring port is underway and once that is completed, everything will be put together in the doc; can check status after 2 weeks.

2. FE & OF related :

2.1 Update on RF dump tests for new feeds -- from 23 Jan & before (HRB/GSS/SSK)

(i) new data and results for 130-260, 250-500, 550-900 (HRB/SSK)

==> FE group to try to get some dumps for 130-260 and 250-500 range and give to Nissim for analysis, within the next 2 weeks.

(ii) matlab procedure for ON/OFF and (ON-OFF)/OFF calculations (HRB)

==> waiting for some results to be presented in the new format and then topic can be closed; to take again 2 weeks from now.

(iii) scheme for (re)calculation of expected values across the broad bands to be finalised (and added to measured curves) -- (SSK and team).

==> discussed about modalities and plans; Tgnd, antenna gain etc can be assumed or extrapolated from known values; Tsky values to be provided by DVL/YG (can use standard nearby values for now); FE group to discuss in detail with APK about implementation of the algorithm; follow-up after 2 weeks.

2.2 Update on results from test range -- from 16 Jan & before (GSS/SSK) :

(i) phase centre tests for 250-500 CDF : new results to be discussed and compared with results from Yogesh Karandikar.

==> initial test results at 325 MHz found to be stable & repeatable; action items :

(a) GSS to compare the quantitative numbers with results from Yogesh Karandikar

(b) to do a calculation of the expected deflection at 450 or 500 MHz and compare with measurements to see if we are losing significant sensitivity (including reference to paper that gives the loss calculations)

(ii) phase centre tests for CSIRO feed to compare with 550-900 CDF : plans for extra mechanical support during hoisting to be finalised with mechanical.

==> put on lower priority as more difficult to do !!

(iii) status of improvements : filters, Sirenza amplifier, compression effect etc

==> most of these are in place and sorted out; to make sure all filters required for testing 550-900; to test ver1 550-900 CDF next week.

Follow-up on all the matters in 2 weeks time.

2.3 Walsh switching arrangement in FE -- from 6 Feb (SSK) : FE group to come back with clear statement about (a) what is feasible and (b) how to go about doing the tests (vis-a-vis of action items minuted in meeting of 19 Dec 2012).

==> no action yet; can be put on lower priority; to check after one month.

2.4 Spares for L-band FE electronics -- from 6 Feb (ANR/SSK) :

(i) RFCM-type card status : new design / PCB -- finalisation.

==> PCB given for fabrication, including one version with power supply split into another PCB; also 2 nos of old cards have been resurrected -- others being tested, may get 1 or 2 more cards.

(ii) LNA tuning results and generation of spares : update from Gopi's work.

==> new spare cards need toroids and gold-plated Cu wire; to check possible vendors and online store options.

(iii) filters : need chassis and connectors : delivery from workshop.

==> still waiting for chassis -- to check with HSK; connectors to be ordered.

(iv) noise gen : has to be assembled : assembly completed?

==> no progress on this.

(v) post-ampl and phase switch also need to be checked : assembled and tested?

==> still waiting for population of PCB, and chassis from w'shop and then to be integrated and tested.

(vi) timescale for integration? : individual modules testing and integration with spare feed should be underway by now.

==> not in sight yet, as individual modules are not ready.

To check status after 2 weeks.

2.5 Signal flow analysis related items -- from 6 Feb & 23 Jan and before (GP/ANR/SSK)

(i) new version of analysis to be released after lab tests on L-band system -- no formal update available on this last week.

==> all tests are done; waiting to compile the results and produce a summary.

(ii) to try system with extra amplifier at receiver room & measure the performance for checking the 6 dB margin. Need an update on the status of this.

==> ampl made and waiting for final mounting arrangement before test can be done.

(iii) plans for trying analysis of 250-500 system; also generating a first cut block diagram of the 250-500 MHz receiver. Need an update on status of this.

==> ver1 of block diagram is ready; analysis work will start now (in parallel with winding up on L-band study); blk diagram discussed in detail : basic features OK; to add temp monitor; to make list of jobs, parts, items to be ordered etc to move to the next step; agreed that for present, FE boxes can keep going up with the basic features provided now; when full version of new FE box is ready, new boxes can be of final type and old ones will be retrofitted at the end.

Status check after 2 weeks.

2.6 Developments for 130-260 feed -- from 13 Feb (HRB/GSS) : to confirm if modified feed delivered to FE group and tested.

==> dipole expected to come by 4th March; all other components are there.

To check status next week.

2.7 New LNA for 130-260 system -- from 13 Feb & before (VBB/SSK) : FE team to report on detailed characterisation test results for the new LNA.

==> to add thermal characterisation to check if physical temperature near the LNA can be correlated to gain and Tnoise of LNA. Follow-up on this after 2 weeks.

2.8 Filters at different stages of receiver chain -- from 30 Jan & before (SSK) :

(i) to follow-up on improvements to basic design of scheme for antenna base.

==> not discussed in detail; to follow-up later on.

(ii) to check if first order skeletal versions are ready for FE boxes.

==> some discussion on this for each box; basically ok; to check a few things about choice of BPFs etc, and updated version to be circulated.

Follow-up after one month.

3. RFI related matters :

3.1 Radiation from CAT5 cable -- from 6 Feb & 9 Jan, but matter dragging from 25 Jul onwards ! (SSK/PAR): RFI group to report results from tests with sample items obtained from RSN or other similar products -- tests had been done, RFI group was to have circulated the results.

==> not discussed at all due to lack of time. To be taken up two weeks from now.

3.2 Follow-up on UPS RFI -- from 6 Feb, 30 Jan & earlier (SSK/PAR/RVS) :

(i) update on feedback to Miltech about improvements in 1 kVA unit tried at GMRT -- SSK to report on interactions with Miltech at H'bad.

(ii) follow-up on procurement of 3 kVA unit from Miltech (RVS) -- to confirm if indent has been placed, after clearing the doubts about RFI specifications.

(iii) follow-up on procurement of 1 unit from Consul and RFI tests of the same (RVS/PAR).

(iv) results from tests on Ador + other units to be circulated & discussed (PAR).

==> not discussed at all due to lack of time; to be followed up next week.

3.3 Discussion relating to Industrial RFI survey (pending for a long time) (PAR/SSK):

to discuss the various aspects related to this (including how it was conducted in the past), and see if a way forward can be chartered.

==> not discussed at all due to lack of time; to be taken up one month from now.

4. Operations :

4.1 Monitoring of 3-phase power at each antenna -- from 6 Feb (SN/RVS) : Ops group to report on progress of home made design, including testing in main building / lab with suitable 3 phase point.

==> still waiting for 3 phase power to come to lab; hence, agreed to go to the electrical section and try the test there ! To check after 2 weeks.

4.2 Miltec PC purchase related -- from 16 Jan (CPK/JPK/SN) : follow-up on delivery status of 2 nos of i7 model from vendor, with improved RFI characteristics.

==> at assembly stage with vendor; will ship / deliver by 11th March. Can check after 3 weeks.

4.3 Development of M&C software -- from 6 Feb (JPK/RU/SN/NGK/YW) : update on URS work with TCS (JPK/SN)

==> last round of discussion on URS phase feedback done and final deliverables from TCS found to be acceptable. From 1st of March next phase of work (SRS) will start. Can check status after 2 weeks.

5. Back-ends :

5.1 Analog back-end beyond 8 antennas -- from 6 Feb & before (BAK) :

(i) plans for space usage to be discussed.

==> 2 new racks may have to come in; rest will be rearranged; drawing from Hande is still awaited -- should come by next week. Can check 2 weeks later.

5.2 Final online control for GPU corr -- from 13 Feb, but pending for a long time, now VERY URGENT (SSK/JPK/NR/DVL) :

(i) release of first version -- to check if system works as per new version SOP.

==> Irappa is testing with junior operator; can then be tried by others to get data; to check status next week.

(ii) status update on (a) adapting to main online (b) full GUI compatibility and (c) running with extra m/c as the host.

==> main online and standby online OK; full GUI compatibility -- NSR is looking into it. (c) this may need some work to separate the software and see how much 1 Gbe link will support for return data flow; can take up this matter two weeks from now.

(iii) follow-up on long-term items like stable performance, provision for control of FPGA and other peripherals for different modes.

==> changing macro modes of correlator via GUI settings needs to be looked into; can take up the matter one month from now, on lower priority.

Q : about pkt design in semi-automated control?

5.3 GPU corr status -- from 13 Feb & before (SHR/GSJ/BAK/DVL) : updates on following items :

(i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input, 150 MHz version -- to report if the 1st mode is working with online control (see item 5.2 above), and to state plans for the 2nd mode.

==> status quo as online control has not yet been tested; check again next week.

(ii) update on testing of K10 / K20 system of nvidia -- (a) follow-up on single node optimisation and (b) tests on nvidia cluster

==> further optimisation on Fermi itself (!) : changing # of threads & threads per block is giving significant improvement in MAC, leading to a 2x speed-up overall; now trying to get things going on K20 also... check status next week.

(iii) follow-up on testing of Supermicro machines -- any updates?

==> no updates; check after 2 weeks.

(iv) current status of configuration of 8 node cluster : which m/cs have IB, which are on 10 Gbe n/w, what is the current plan for usage vs development.

==> discussed a bit; agreed to keep 4 nodes with 10 Gbe for the release system and keep 4 nodes with IB for development work for some more time. To review the configuration after one month.

(v) plans for purchase of couple of host machines : follow-up on current status

==> waiting for eval units from DELL to arrive this week. Can check status next week.

5.4 8 antenna back-end plans for further astronomical tests -- from 12 Dec (DVL/YG) : implementation plan of tests proposed by DVL to be drawn up with BE team.

==> item not discussed, as matter is not ripe enough ! to be taken up 2 weeks from now.

5.5 Packetised corr -- from 6 Feb & earlier (SCC/SSK/BAK) : to confirm a stable working pipeline for analysis of data, along with a SoP for the same -- SCC+SSK to produce the SOP; DVL to test the same -- to check if done and can be closed?

==> this is not ready yet; offline discussion on how to go about it : agreed that (a) corr-dvl should have facility for looking at raw visibility file with

tax-like tool (b) raw visibility file can be copied to another machine (astro4) where full set of utilities to convert to Ita and FITS formats will be installed, alongwith facility to cross mount data disk from corr-dvl on astro4. SSK to work on releasing this. Follow-up after 2 weeks.

5.6 Packetised corr -- from 6 Feb & earlier (SCC/BAK/DVL) :

(i) updates on antenna tests of 2K and 4K pt FFTs (with full delay) -- repeat testing to verify performance, and imaging of test data to be confirmed.

==> long stretch of test data has been taken (and it looks good), but imaging yet to be done to complete the loop.

(ii) 10 Gbe link in pkt design (to allow integration with GPU design) -- repeat tests (with GPU corr also running in parallel) to verify performance, and imaging of test data to be done.

==> long stretch of test data has been taken (and it looks good), but imaging yet to be done to complete the loop.

Both these items can be taken up 2 weeks from now.

5.7 Finalisation of design for temperature detectors for BE system -- from 6 Feb (BAK) : report in ITR format to be released and see if matter can be closed.

==> Report has been released; matter can be closed.

6. Other items :

6.1 Updates on 15-m related activities and presently pending matters (JNC)

==> email updates from JNC :

(a) The LNA in one channel has been tuned, and the MAR3 amplifier removed from the system path to improve the systems dynamic range. It now appears that the Mobile tower signals are not saturating the system in any of the subbands. The bypass mode however cannot be used. One side effect of this is that the power level at the receiver room is now low compared to what the back end requires. The FE and BE teams were at NCRA Pune on Monday 25/Feb/2013 to try and resolve this problem. Part of the problem is that the power levels between the different subbands varies by more than the available gain adjustment in the IF/BE system. For two subbands it has been possible to get the power levels to the correct level, and further tests with this are going on. The FE group will look into sorting out the power levels for the other two subbands.

(b) The servo system appears to be working fine, and the noise spikes that were being picked up by the azimuth encoder seem to have vanished after the cable-rerouting/condition done by the servo group. However this needs to be monitored for some more time.

To follow-up after 3 weeks.

6.2 Follow-up on FPA related activities -- from 30 Jan (JNC/YG) :

Follow-up on action items :

(i) possible options for test source for testing the unit : SSK to try with a source that can simulate L-band levels similar to that seen at 15m dish to check saturation effects.

==> email update from JNC : The data flow from the FPA and LOFAR beam station has been established, and auto-correlation data can be recorded and plotted. For further testing we need to run MATLAB scripts for which we need to get the FPA workstation attached to the GMRT LAN. Suresh Kumar has been requested to arrange for a connection to the FPA.

To follow-up after 3 weeks.

(ii) to start looking at the beamforming part in detail; JNC to check for detailed information about connectivity and signal flow through the existing processing boards and circulate the same; YG to then initiate discussion about possibility for using existing casper boards for processing.
==> email update from JNC : BE group would like more details on the LOFAR beam former so that one can look into building a better system. JNC to ask the Dutch for documentation.
To follow-up when this information is available and circulated.
