

Minutes of Plan meet of 7 Nov 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 3 (NTR) -- from 22 Aug / 26 Sep (SSK/DO): Report on design of OF system has been taken up -- to check status of the same. ==> outline has been prepared, some testing of new lasers also required; to follow-up after one month.

1.2 Detailed design doc -- from 17 Oct (SSK/BAK) : follow-up on subsystems to be converted : (i) OF Rx system completed? (ii) OF Tx to be started (iii) analog BE system to be completed. ==> (i) Rx circuit diagrams TBD + pictures of layout (ii) not started yet (iii) not yet put together -- check all after 3 weeks.

1.3 SoP for antenna base work -- from 17 Oct (SSK/ANR/HRB) : updated version to be made ready. ==> SSK will try for it this week. Can check 1-2 weeks later.

2. FE & OF related :

2.1 New signal flow analysis for L-band system (GP/ANR/SSK) : to review the new report.

==> new report put up for discussion; effect of new, 2 stage post amp has been considered and analysis has been done for 100, 200 and 400 MHz BW settings; it shows some improvements in 1 dB compression point (about 6-7 dB) and some of the other linearity parameters. Q: is the absolute power level OK or needs to be increased? Q: Should not the 1 dB compression point be decided based on full i/p BW, as LNA is the likely culprit? The following needs to be done in this area : (i) to cross-check new analysis against the previous one and show matching results (ii) add effect of couplers for power monitoring to complete the system description and redo analysis and (iii) then move on to analysis of the 250-500 MHz system. Follow-up on items (i) and (ii) two weeks from now and for item (iii) appropriately after that.

2.2 Fabrication of 15 FE boxes : status update -- from 23 Oct (HSK/SSK) : (i) 5 units for 250-500 fully ready? (ii) front plate for 550-900 done? (iii) Can long-term requirement be met by recycling present boxes (front-plate issue needs to be understood). To check how many of these items can be closed.

==>
(i) front plate problem still not fully resolved -- one version with modified holes has been made and the remaining 4 to be done as per the modified drawings and delivered to FE group by 20 Nov. Can follow-up after 2 weeks.
(ii) first drawing for 550-900 front plate is ready -- to be checked and given to mechanical group for making sample piece. Can follow-up next week.
(iii) old boxes can be used, only front plate related assemblies have to be redone; supporting strip to be added for preventing bulging and boxes to be cleaned and freshly coated. Issue of adding supporting strip can be rechecked after one month.

2.3 Mass production of 250-500 feeds -- from 10 Oct (HSK) : to report progress on in-house and outsourced units and expected delivery schedules.

==> in-house : material procurement done : 10 nos by March; 2 nos by Dec.
outsource : 1 no from each of 3 parties in next 20 days. To follow-up status after one month.

2.4 Mass production of 250-500 FE system -- from 3 Oct (ANR/SSK) : (i) BPF specs to be finalised (ii) signal flow analysis results to check post amp OK or not (deferred to a few weeks later) (iii) notch filter specs to be finalised (iv) to review how many systems can be made ready to match the new feeds being made ready
==>

(i) new BPF design is being tried out and 2 nos are done -- more to be made; can check the status and plans after 2 weeks.

(ii) has been discussed under item 2.1 above.

(iii) deferred for some more time.

(iv) 10 LNAs available for some time, but more need to be made -- requires some follow-up ; QH is available for all 30 antennas; phase switch will be borrowed from existing 325 system, except for new amplifier; and old RFCM card will be used (which means slower switching opamp); to target 3 antennas at the rate of one box per month ==> 3 new antennas by Jan end; Review the progress of these items one month from now.

2.5 Polarisation performance of 250-500 feed -- new item (SSK/YG) : to check poln isolation of 250-500 feed at 325 and compare with existing 325 system; also to follow-up on polarisation performance tests being done by SSK. Check status after 3 weeks.

2.6 Fabrication of spare L-band feed -- from 10 Oct (SSK/HSK) : drawing to be completed ==> autocad drawing almost ready; can initiate process of getting quotes from vendors for fabrication. Can check after one month.

2.7 Possibility of modified L-band feed for OH application : note to be circulated be FE group. Can check status after 3 weeks.

2.8 Calibration scheme with radiator at apex of antenna -- from 31 Oct (SSK/PAR): first ver of report has been circulated -- to be taken up for discussion.

==> draft reported discussed. 3 different aims tried for : results are interesting; need follow-up to test for (i) repeatability of results (ii) long duration stability (24 hr long recordings) and (iii) some improved characterisation of performance; meanwhile discussion to be opened up to other interested astronomers. Follow-up after one month.

2.9 Finalisation of common design for temperature detectors for receiver chain -- from 31 Oct (BAK/SSK) : update on testing new prototype unit to be reported; plans for FE unit to be discussed.

==> completed and tested; can circulate results and take up for discussion; FE group has another device which was purchased some time ago : to get the specs and see what can be done with it. Follow-up after 2 weeks for report from BE group, and specs of device FE group would like to use.

2.10 Equipment requirement for the FE & BE group -- from 23 Oct (SSK/BAK) : FE, BE and Ops Groups to meet and discuss specs of two Agilent units and come up with final recommendations.

==> not yet ready with feedback; to be taken up next week.

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 31 Oct (PAR/SSK) :
first version of report has been released -- to be taken up for discussion.

==> deferred due to lack of time; can be tried 2 weeks from now.

3.2 Radiation from CAT5 cable -- from 23 Oct (SSK/PAR) : have the new components arrived?

==> Final recommendation for order to be placed will happen in next week or so; check status after 3 weeks.

3.3 Follow-up on UPS RFI -- from 23 Oct (SSK/PAR) : (i) new unit from Consul asked for? (ii) updates from interactions with Miltec for possible improvements.

==> (i) no real update -- need a reminder (ii) Miltec is willing but needs the information -- to check next week.

3.4 Miltec PC RFI testing & improved report -- from 23 Oct (SSK/PAR) : 3 items to be followed-up and reported upon.

==> some tests have been done; to follow-up later -- after 2 weeks.

3.5 Mobile phone RFI -- from 17 Oct (SSK/PAR) : updates on one more round of data from E6; iPhone follow-up (Divya, Swarup) etc.

==> suitable HTC device may be available : needs clarification for frequency value availability (loc and power is available); can check again after 3 weeks.

4. Operations :

4.1 PCs in antennas for testing M&C softwares -- pending from last week (JPK/SN):
Ops group would like to have at least 3 antennas equipped with PCs (from recent purchases) for testing of various new CMS softwares: Ops group to discuss internally and come back with final recommendation.

==> internal discussion in Ops Group : agreed to try, need to resolve issues related to UPS power availability -- to check with Swami; to check again after 2 weeks.

4.2 Miltec PC related -- from 23 Oct (CPK/JPK/SN) : follow-up on ordering 2 nos of i7 model from vendor, with improved RFI characteristics.

==> order has been placed; expected delivery ? Follow-up after 4 weeks.

4.3 Monitoring of 3-phase power at each antenna -- from 12 Sep (SN/RVS) : Ops team was to look into (i) whether any other off-the-shelf option is available (in consultation with electrical) (ii) feasibility of home made design.

==> will be going for home made design initially wired on gen pur PCB for testing in lab; can check after one month.

4.4 Using new MCM card on ethernet of PC for upgraded analog backend -- from 10 Oct and earlier (JPK/CPK/BAK) : status update on tests and provision of required number of MCM cards to be given; also scheme for connecting MCM cards on ethernet (from last week's meeting).

==> cards are coming in slowly; for 8 antenna system switch is available and

PC with 2 eth cards will be used for creating separate subnet for the MCM cards and switch. can check after 2 weeks. IT IS IMPORTANT, given 5.1 !!!

5. Back-ends :

5.1 Status of analog FE mass production for 8 ants, dual pol -- from 31 Oct (BAK) : to confirm if 8 antenna system is ready and can be connected to digital systems.

==> analog system is ready, but since control system is not ready, it can't be used !!! Need urgent update on this in 2 weeks time !!

5.2 User SoPs for new back-end systems -- from 31 Oct (IMH/DVL/BAK) : updates on testing of 2-ant version and multi-node version (released last week).

==> multi-node system tested and some modifications in SoP done; 2-node system to be put through the paces. Follow-up after 3 weeks.

5.3 GPU corr -- from 23 Oct (SHR/BAK) : status updates on following items :

(i) feeding one PC with 4 inputs to check if I/O can be sustained -- conclusions from present round of tests.

(ii) test of time slicing dynamically on FPGA or while transferring to PCs.

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

(iv) any other updates

==> (i) same status as last time; follow-up after 2 weeks.

(ii) tests going on using the TGTAP command, now fixed problem of continuous updates of the tables; packet switching is now ok -- to check the performance sustainability and report results. Follow-up after 2 weeks.

(iii) no progress -- follow-up after 2 weeks.

(iv) to check the choice of m/c for next gen system -- follow-up after 2 weeks.

5.4 Packetised corr -- from 23 Oct (SCC/BAK) : current status and plans.

==> work to add DDC and beamformer in the packetised; trying to put the 10 GbE alongwith the packetized design -- has run into some resource problems. Follow-up after 3 weeks.

5.5 Final online control for GPU corr -- from 23 & 10 Oct (SSK/JPK/NR) : first ver of final system to be released; other follow-up items to be resolved.

==> first version tests have been done; delay setting not working properly; can follow-up next week.

6. Other items :

6.1 Plans for jobs at TIFR -- from 23 Oct (HSK) : (i) is the main m/c repaired?

(ii) are there any urgent jobs from any group that can be done on the other m/cs?

==> (i) m/c not repaired yet (ii) not showing much interest -- to check with SKG and see what should be done. Follow-up after 2 weeks.

=====

Responses to list of urgent topics requiring email updates, in lieu of Plan meet of 14 Nov 2012 (follow-up of some pending topics from different areas) :

1.1 To confirm if first drawing for 550-900 front plate is ready and given to mechanical for sample fabrication of FE box (ANR/SSK/HSK).

==> ANR states that drawing has been given and that sample unit is ready to be sent to FE group. To check status after 1-2 weeks.

1.2 To check if FE & BE groups have a consensus about equipment purchase -- common list to be sent that can be taken up for discussion next week (SSK/BAK).

==> The detail part numbers and accessories have been sent by SSK to BAK; latter to send consolidated version by end of this week. Follow-up next week.

1.3 Spares for L-band FE electronics : FE group to confirm if PCBs are ready and tested (ANR/SSK).

==> Some of the PCBs have arrived. Filter PCB yet to arrive. RFCM card is in PCB design state. Follow-up after one month.

1.4 New LNA for 130-260 system : FE team to report if new LNA on modified substrate is ready for testing (SSK).

==> PCB is given for fabrication, yet to arrive; follow-up after 2 weeks.

1.5 Status of improved 500-1000 MHz cone-dipole for C11 : FE team to report if new cavity with dipole has been tested (HRB/SSK).

==> It has been tested on antenna and shows uniform deflection over an improved BW performance (though RL performance appears to be somewhat less than ver 1 of this feed); further LNA slope appears to be significant across the band; finally, overall deflection is somewhat less than expected and this also needs to be understood.

1.6 Follow-up on UPS RFI : (i) update on Consul (by electrical) and (ii) inputs for improvements sent to Miltech or not (RVS/SSK).

==> (i) reminder to electrical (BSP) sent (ii) no updates -- to check next week.

1.7 GPU correlator status : BE team to report on any new developments in (i) ongoing tests of new features (ii) release of basic modes (SHR/BAK).

==>

(i) tests of new features :

(a) use one PC node for handling datarates from 2 10 GbE cards - not tested.

(b) Compiling F-engine with GPU design on single ROACH - 35 % overmapped - to look at possible optimisation of the design.

(c) Packetised design modified to double the FFT channels - seems to be working.

As per analysis we should be able to go upto 4K FFT without staggering of channels.

(d) Time slicing on Roach - slicing part implemented, sequencing to be done and check for packet loss.

(ii) release of basic modes : no updates

1.8 Final online control for GPU corr : to confirm if delay setting problem is resolved or not, and if first version of software can be released for trials (SSK).

==> Basic version is now fully working; needs on sky test to confirm; to check next week if sky test is done and if system can be released for users.

=====

Minutes of Plan meet of 21 Nov 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 10 Oct & earlier : conversion of older reports (one each by BAK and SSK) to be followed up.

==> BE group is doing pulsed noise source and FE group is doing 250-500 LNA. Can follow-up after 3 weeks.

1.2 SoP for antenna base work -- from 7 Nov (SSK/ANR/HRB) : updated version to be made ready.

==> some inputs are there but not yet ready; it was reiterated that the need is two-fold : (i) for checking that new upgrade systems are installed properly and all basic checks have been done and (ii) to ensure that the older, working system is not affected. To check status after 3 weeks.

2. FE & OF related :

2.1 Update on RF dump tests for new feeds :

(i) 250-500 MHz cone dipole on 3 antennas -- from 31 Oct (HRB/SSK) : results from last set of tests and new round of testing to be updated.

==> no new data taken.

(ii) results for 130-260 feed -- from 31 Oct (HRB/GSS/SSK)

==> no new data taken.

(iii) results for 550-900 feed -- from 31 Oct (HRB/GSS/SSK)

==> no new data taken.

To try to get data for all and review in 2 weeks time.

(iv) procedures (e.g. ON-OFF deflections etc) to be finalised and agreed upon

==> agreed to make matlab version for ON/OFF and (ON-OFF)/OFF; later to add theoretical expected curves to it. To check status after 2 weeks.

(v) scheme for recalculation of expected values across the broad bands to be finalised -- from 31 Oct (SSK)

==> to be taken up by FE group with APK's help. Status check after 2 weeks.

2.2 Directional coupler for 250-500 FE system -- from 31 Oct (ANR/SSK) : update on final performance (especially the insertion loss) and comparison with existing 325 system -- to be summarised in a note.

==> not done yet, though lot of the work has been completed; to check next week.

2.3 Status of improved 500-1000 MHz cone-dipole -- from 31 Oct (HRB/GSS) :

(i) comparison of ver 2 CDF system with ver 1 : mechanical differences, RL BW values, configuration of notch filters (540, 850-950 and 1800 mobile) etc

==> these two versions differ in design of dipole and angle of cavity; now, it is believed that dipole design controls freq & BW; cavity design controls E&H match; not clear why ver 2 gives slightly higher freq and somewhat smaller BW; this needs to be understood; can run a test with ver 1 dipole in ver 2 cavity to understand effects better.

(ii) comparison with simulations : how good are the agreements?

==> this needs to be checked carefully, and also a better, more quantitative comparison between different designs needs to be done; solid vs perforated cone -- can look into this to see if it acts as a leaky reflector -- to check these 2 weeks from and decide on follow-up action.

(iii) measured source deflections across the band vs expected values

==> to repeat deflection tests of ver 2 with mobile notch filters at antenna base and then in FE box if needed, and compare with expected values -- to check status of this next week.

(iv) difference in sensitivity of ver 1 / ver 2 with CSIRO feed :

==> could be filters, could be perforated cavity, could be focus offset ? not clear; initial indications from test range measurements is 10 cm offset (to be confirmed by Shankar) -- check 2 weeks from now.

2.4 Signal flow analysis related items -- from 7 Nov & 23 Oct (GP/ANR/SSK)

(i) cross-check of new analysis against previous one to match results (7 Nov)

(ii) add effect of couplers for power monitoring and redo analysis (7 Nov)

(iii) to try system with extra amplifier at receiver room & measure the performance for checking the 6 dB margin (from 23 Oct)

==> test to be done on one antenna and signal flow analysis can be looked at next week

(iv) plans for trying analysis of 250-500 system

==> all items can be taken up 2 weeks from now.

2.5 Finalisation of common design for temperature detectors for receiver chain -- from 7 Nov (BAK/SSK) :

(i) report from BE group pending

==> unit corrected and working; note with performance characteristics getting ready; will be circulated shortly -- check after 2 weeks. -- move to BE section.

(ii) plans of FE group & specs of the device being proposed for use.

==> FE group to give the specs (next week) and to build a prototype and test with FE or CB in lab and give results (3 weeks later).

2.6 Finalisation of common design for total power detector for receiver chain -- from 31 Oct (ANR/SSK) : status update on fixing values of amplifier gain and coupler properties for FE & CB units and finalising the design.

==> PCB has been designed with 20 dB RF gain and this should be enough for signals down to -60 dBm to +5 dBm which meets FE requirements at o/p of filter stage. To check 3 weeks later about results from the tests of this design.

2.7 Change of cabling (feed to FE box to Common box) as new systems are being installed -- from 31 Oct (SSK) : follow-up on tht 2 listed items.

==> (i) no estimate yet of the cost -- to be done first (ii) to see if we can arrange for a sample to be sent (with a person from the lab) or if the party can come for the same. Follow-up after 3 weeks.

2.8 Walsh switching arrangement in FE -- from 31 Oct (SSK) : results from lab tests on new L-band system.

==> no action yet; to check after 4 weeks.

2.9 Fabrication of 15 FE boxes : status update -- from 23 Oct (HSK/SSK) :

(i) front-plate for 130-260 to be made ready

==> not ready yet to finalise; can take up after one month.

(ii) sample unit for 550-900 with front-plate

==> front plate still had one missing hole -- being done now; will be sent this week; can check status after 2 weeks.

(iii) completion of 5 units for 250-500 system.

==> job completed in workshsop & will be sent to site this week. check 2 weeks later.

2.10 Work orders for CSIRO feed with 2 parties -- from 23 Oct (HSK/JNC) : status update about delivery.

==> 15 Dec for delivery. check after 4 weeks.

2.11 Characterisation of new OF systems -- from 31 Oct (SSK/PAR) : update on the work to complete full characterisation of all the broadband systems.

==> 2 rounds of characterisation tests done and adjustments made; can aim for producing plots for all antennas at L-band in 2 weeks time.

2.12 Modification for attenuation control in new OF systems for ALL antennas -- from 31 Oct (SSK/CPK) : both FE & Ops groups to report on the status of the works from their sides, and final list of antennas which have been modified & tested.

==> Telemetry group have done all the antennas; FE group confirmed that 3 out of 12 still have old systems (C9, C11, E6) and need to be done over next few weeks) -- to check after 6 weeks.

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 31 Oct (PAR/SSK) : first version of report has been released -- to be taken up for discussion.

==> Item not taken up due to shortage of time. To try again next week.

3.2 Follow-up on UPS RFI -- from 14 Nov (SSK/PAR) : to check if information on desired improvements in UPS design has been conveyed to Miltech.

==> info has been conveyed to Miltech about which sides are radiating ; need a follow-up and a visit to his facility at H'bad. Check after 1 or 2 weeks.

3.3 Ethernet switches for antenna base -- from 31 Oct (SN/BAK/SSK) : RFI tests on sample switches, with and without port termination (software disable) to be done.

==> RFI from 1Gbps OF transceiver unit : dc input connector was causing RFI below 500 MHz and other shielding fabric -- now working very quiet; next step is to go back to integrated testing with transceiver + switch + Miltech PC + MCM card(s) -- if possible with traffic from CEB to antenna. To check after 2 weeks.

3.4 Miltec PC RFI testing & improved report -- from 7 Nov & 23 Oct (SSK/PAR) :

(i) shielded serial port and ethernet tests need some more work : to try with Rabbit card as the terminating load and some other arrangement for serial port;

(ii) to give comparisons with March measurements -- TBD in new report;

(iii) follow-up with vendor on using shielded cables inside (can share with him present results).

==> follow-up on each of them still awaited ! To check again after 2 weeks.

4. Operations :

4.1 PCs in antennas for testing M&C softwares -- from 7 Nov (JPK/SN/RVS):

Ops group would like to have at least 3 antennas equipped with PCs (from recent purchases) for testing of various new CMS softwares: Ops group to discuss with electrical about UPS power availability issues and report back.

==> to check overlap of antennas with eth and UPS and report back with plans for installation of the PCs. Follow-up next week.

4.2 Mass production of Rabbit MCM cards -- from 23 Oct (CPK/SN) : status of testing of received cards to be reported.

==> minor glitches of tuning etc resolved; 8 cards given to BE; ~ 2-3 cards per week being done now ==> take 2-3 months to complete; to generate a SoP for test procedure for sharing with all interested parties. Can follow-up after one month.

4.3 Using new MCM card on ethernet of PC for upgraded analog backend -- from 7 Nov and earlier (JPK/CPK/BAK) : (i) if required number of cards available

==> yes, cards have been given; this aspect can be closed.

(ii) if basic set-up is ready and tested

==> basic set-up under progress; can check next week if tested OK.

(iii) plans for release for 8 antenna system

==> expected by end Nov / first week of Dec -- check after 2 weeks.

4.4 Plans for development of M&C software (JPK/RU/SN/NGK/YW)

(i) in-house development efforts

==> work is in progress; Raj is the main person with help from Naresh and Charu as needed (also SN Katore); basic aim is to add new and extra features to the existing ABCcom and Teleset software; Raj is trying PVSS software for the GUI; other tools developed by SNK et al will be incorporated into this version.

(ii) SACE related development with TCS

==> order for first phase of work (URS) has been placed -- 2 month time scale for completion; need some coordination and input from different groups which will be coordinated by JPK, with help from other group members, as needed. Follow-up on both developments after one month.

5. Back-ends :

5.1 Release of analog FE mass production for 8 ants, dual pol -- from 7 Nov (BAK) : completion of control set-up using new MCM cards and plans for release of final system to be reported upon.

==> all cards are now available; IP nos etc finalised; 4 units wired up and installed; commn and sending commands being tested; will test everything on 4 ant (8 input) system -- one more week; and then put in second set of 4 ant system to complete the 8 ant system (at that time, existing prototype system will be dismantled). Full online control to be done by end of November. To check immediate status next week, and longer term follow-up 2 weeks later.

5.2 Final online control for GPU corr -- from 14 Nov & before (SSK/JPK/NR) : first ver of final system to be released; other follow-up items to be resolved.

==> Sky test done today -- basic results look OK. Some aspects need fine tuning; some buffer loss is there and it needs to be understood; also, it appears that one node is misbehaving and this needs to be sorted out; finally, provision for switching FPGA code / control logic for different modes needs to be planned for; short-term follow-up next week; long-term follow-up after 1 month.

5.3 GPU corr -- from 14 Nov & before (SHR/BAK) : status updates on following items : (these need to be prioritised, and some of them can accordingly be deferred to later)

(i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input,

150 MHz version.

==> basic mode has been tested with noise source using the SoP (some mods to the SoP to be done); needs to be tested with sky source and online control... (need SoP for online version); problem with sub-par performance on one needs to be fixed. Follow-up next week.

(ii) choosing host m/c for next generation system.

==> follow-up with supermicro, dell and sgi : no reply from sgi, holding reply from dell, supermicro has a positive response from yesterday's conference in Pune; to follow-up aggressively on supermicro (with hinditron or boston). Follow-up after 2 weeks.

(iii) feeding one PC with 4 inputs to check if I/O can be sustained -- conclusions from present round of tests.

==> no new updates. Follow-up after 2 weeks.

(iv) test of time slicing dynamically on FPGA or while transferring to PCs.

==> no new updates. Follow-up after 2 weeks.

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

==> no new updates. Follow-up after 2 weeks.

(vi) testing on K10 system of nvidia / swinburne; any other updates.

==> access granted by nvidia -- can initiate some tests; Swinburne is also willing to give access. Follow-up next week.

5.4 Packetised corr -- from 14 Nov & earlier (SCC/BAK) :

(i) updates on recent improvements.

==> 2K pt FFT tested with noise source; 4K possible with full delay has been compiled (used 97% resources) -- needs to be tested. Check after 2 week.

(ii) putting 10 Gbe link in pkt design (to allow integration with GPU design).

==> not fitting on Roach I ==> to reduce delay to +/- 64K clk cycles (half of full delay required) -- to check if this work and make it an available option.

Check status after 2 weeks.

(iii) conversion of data format to FITS : completed, to check what kind of tests have been done. Check status next week.

5.5 Plans for further astronomical tests -- from 31 Oct (DVL/YG) : implementation plan of tests proposed by DVL to be drawn up with BE team.

==> to check if the basic mode with online control is ready and then schedule the tests. Check status again next week.

5.6 Power and cooling requirements for projected back-end systems -- from 23 Oct (BAK/RVS/YG) : RVS to circulate a note based on discussions between BAK, RVS & YG.

==> Note not ready yet, but item discussed in some detail :

(i) providing AC power : 50 kW for new back-ends; 20 kW max for Rx room (TBC); mains panel has enough capacity -- some switches will need change; wiring is of sufficient capacity; UPS : present 2x20 kVA is not enough -- to replace with modular type of 20 kVA units;

(ii) Air-conditioning load : 40 TR ==> 80 kW capacity; may be on the limit? also AHU and cooling tower will need to be changed? ducting?

to look at different options : enhanced AC plant; spearate cooling for rx room (AC plant only for digital system); also inlets into corr room to be increase? visit by Voltas engineer tomorrow to discuss details; note to be circulated after 2 weeks.

5.7 Next-gen time & frequency standards -- from 31 Oct (NDS/BAK) : plans with NPL to be reported upon.

==> (i) some more tests to be done based on suggestions from NPL -- may take about one month.

(ii) OCXOs from Oscilloquartz with 10^{-14} short term stability -- to be looked into more closely, maybe after NPL visit?

(iii) plan for a visit to NPL in Jan or so.

Follow-up one month later on all items.

6. Other items :

6.1 Equipment requirement for the FE & BE group -- from 14 Nov (SSK/BAK) : FE, BE and Ops Groups to meet and discuss specs of two Agilent units and come up with final recommendations.

==> Ajith to send update (to include inputs from telemetry group also).

6.2 Plans for jobs at TIFR -- from 7 Nov (HSK) : (i) is the main m/c repaired?

(ii) can we send urgent jobs to be done on other m/cs? (iii) possibilities for outsourcing urgent jobs to other vendors?

==> (i) m/c repaired : 40 jobs ready to send by Friday; remaining will need to be prioritised as per other jobs (ii) BE group wants other jobs removed from TIFR list and given to external party -- remaining other FE / OF jobs can be given to TIFR if they have spare capacity. SKG to check about the actual situation at TIFR and inform. Follow-up after 2 week.

6.3 Updates on 15m works -- from 23 Oct (JNC)

==> a. Backend - the roach board based backend has been installed and tested with the noise source. It appears to be by and large stable, but there are some occasional glitches. The cause of the glitches is not clear, the backend team is looking into it.
- the time frequency standard has arrived and is in the process of being installed.

b. FrontEnd - the front end is at GMRT for repairs. Suresh Kumar's earlier estimate was that it should be ready for sending back to Pune on 23/Nov/12. He can update.

c. 1-3 GHz - The mount for the feed (on the test range) is ready, as is the other required amplifiers etc. Shankar was scheduled to test the pattern over the last few days. I have not got an update from him on this, he may be able to give one at the meeting.

- The amplifier design being done by Abhay Kulkarni looks ok to zeroth order. He has also done an EM simulation, and to me the results look ok. Awaiting the nod from Anil Raut, so that one can then move on to realizing this design in a prototype.

6.4 Updates on FPA related matters -- from 23 Oct (JNC/YG)

==> Bhalerao wanted a switch, which has been provided. He was away during Diwali week, but should have been able to finish the connection this week. To check status after 2 weeks, including a meeting between different parties to discuss the way forward.

=====

List of topics for Plan meet of 27 Nov 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

Nothing to be discussed under this head, for a change !

2. FE & OF related :

2.1 Directional coupler for 250-500 FE system -- from 21 Nov (ANR/SSK) : update on final performance (especially the insertion loss) and comparison with existing 325 system -- to be summarised in a note from FE group; to discuss next step. ==> 6 + 24 dB loss in old system; new design has been done for 24 dB, insertion loss (simulated) is now 0.02-0.04; practical realisation has to be checked; for both cases, new chassis has to be made; footprint for the two designs is different at present etc; all of these points to be folded into the note (by ANR) -- to be done this week, and made available for next week for discussion.

2.2 Mass production of 250-500 FE system -- from 7 Nov (ANR/SSK) : (i) BPF specs to be finalised (ii) notch filter specs to be finalised.

==>

(i) new BPF : 12 units are now ready (6 antennas) : work done (including repeatability of the results) to be summarised in a short ITR by Imran with guidance from ANR etc. To follow-up status after one month.

(ii) notch filter at 243 for military satellite lines and at 540 for TV line : at PCB manufacture stage of prototype design; expected to be ready in 2 weeks. Also discussed the possibility to measure level of 540 MHz TV line wrt passband after BPF and then discuss.

2.3 Polarisation performance of 250-500 feed -- from 7 Nov (SSK/DVL/YG) : to update status of tests.

==> some fresh data has been taken by Sanjay Kudale, but not much progress on this in terms of analysis of the same; student from IIT-Madras has been taken for 2 month project for this work. To check status after 2 weeks.

2.4 Status of improved 500-1000 MHz cone-dipole -- from 21 Nov (HRB/GSS) : results from recheck of deflection tests of ver 2 feed with mobile filters -- put at antenna base, and then in FE box (if needed); compare with expected values.

==> email updates from SSK :

(a) HRB has tried fine tuning the focus with metal spacers and found no improvement in deflection (b) Installing filter at antenna base does not help since the deflection measurement is done at frontend output (c) including filter in frontend box many not help since the deflection is done using one of the 3 switched narrow band filter in the CSIRO frontend box (d) ver 1 installed on antenna -- results to be circulated (e) awaiting results from range measurements about focus position (f) FE group would like to try with a solid or fine perforation cone : to be discussed in next Plan meeting.

Follow-up on all items next week or the week after.

2.5 Follow-up on delivery of 550-900 MHz filters -- from 23 Oct (ANR/SSK) :
delivery of prototype meeting full specs.

==> email update from ANR and SSK : vendor has just got the chassis and will be testing his present PCB in that and report results by next week; vendor is also working on modified design of filter and PCB for improved performance; follow-up after 2 weeks.

2.6 Developments for 130-260 system -- from 31 Oct (HRB/GSS) : feed with improved mechanical design of dipole etc to be ready and tested.

==> no updates available. to follow-up after 2 weeks.

2.7 New LNA for 130-260 system -- from 23 Oct (VBB/SSK) : FE team to report if PCB for new LNA on modified substrate is ready for testing (SSK).

==> PCB design is ready, and gone for fabrication; to check status after 2 weeks.

2.8 Finalisation of design for temperature detectors for FE system -- from 21 Nov (SSK) : FE group to give specs of the device being used (reports from prototype 2 weeks later).

==> no update available; to check again next week.

2.9 Filters at different stages of receiver chain -- from 31 Oct (ANR/SSK/BAK) : waiting for SSK to circulate a draft for detailed discussion.

==> SSK wants 2 more weeks ! To check status on 12th Dec.

Meanwhile, from back-end group, the following inputs :

Plans are for two filter banks (1) a switchable (8 way) RF band BPF set (same as that used in FE) before frequency conversion and (2) baseband filter bank with 400, 200, 100 MHz options.

2.10 Status of delivery of lasers -- from 31 Oct (SSK/PAR) : to confirm if full order for 30 ant system has been received and if this item can be closed.

==> email update : all lasers received. Matter can be closed !

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 31 Oct (PAR/SSK) : first version of report has been released -- to be taken up for discussion.

==> matter not discussed due to absence of members.

3.2 Follow-up on UPS RFI -- from 21 Nov (SSK/PAR) : to check about feedback from Miltech about last round of improvements for 1 kVA unit (and if 3 kVA is available and can be tested).

==> 3 KVA UPS available with Miltech -- need to check RFI properties of this; SSK has collected shielded power cable to connect to 1 kVA UPS for improving RFI performance -- RFI group will take it up this week or following week; to check status after 2 weeks.

3.3 Radiation from CAT5 cable -- matter dragging from 25 Jul onward ! (SSK/PAR): have the new shielded components arrived?

==> RFI group is not able to get any quotations for shielded components !!

From Miltec, SSK has got 15 nos of shielded pin and shielded ethernet PCB mountable connectors for trials and one shielded ethernet adaptor with shielded pin has also obtained as sample costing Rs.4500; RFI group to assemble one unit and test and give report. To be followed up after 3 weeks.

3.4 Mobile phone RFI -- from 7 Nov (SSK/PAR) : updates on one more round of data from E6; follow-up on suitable device (HTC etc).

==> tests show that no mobile phone (incl Apple iPad) gives the frequency of operation (it only gives operator location and power level); need some more time to find a way around this matter; no update on results from characterising the effect at E6 from far away towers; to follow-up after 3 weeks.

4. Operations :

4.1 PCs in antennas for testing M&C softwares -- from 21 Nov (JPK/SN/RVS): Ops group to check overlap of antennas with eth and UPS and report back with plans for installation of the PCs.

==> waiting for response from electrical group; JPK & SN to follow-up. Check again next week.

4.2 Using new MCM card on ethernet of PC for upgraded analog backend -- from 21 Nov (JPK/CPK/BAK) : if basic set-up is ready and tested (ii) plans for release of 8 antenna system.

==> email update from BAK + input from JPK : 4 ant test system done; web based program control appears ok; web-browser testing going on and new features need to be added for full testing of baseband features; for online control, code has to developed both for rabbit and online for final interface. To check next week on progress on the same.

5. Back-ends :

5.1 Release of analog FE mass production for 8 ants, dual pol -- from 21 Nov (BAK) : check if control with new MCM cards is now tested on 4 ant system.

==> email update from BAK :

4 MCM PIUs with cabling installed and tested; remaining to be done this week; some wiring change needed for correct word setting; LO setting through SPI i/f still not working -- needs to be sorted out; see also item 4.2 above; follow-up next week with status update.

5.2 Final online control for GPU corr -- from 21 Nov & before (SSK/JPK/NR) : to check if released ver is stable and if all small issues are resolved.

==> is reduced BW option working?; where should DDC be available (FPGA or GPU); calling the program from GUI : TBD; moving from dummy online to real online ==> antenna mask related issues need to be resolved; setting for freq and LOs discussed in detail : agreed that GUI for new correlator can take care of (i) RF and LO settings for all the antennas being used (no dependence TPA of online); only src and proj related info is need; add RF and LO selection options in GUI; test and then move to real online; what about update of parameters between scans? This needs to be thought about a little bit and then finalised -- e.g. extending the TPA; till then, parallel testing with GSB is possible using main and dummy online !

Another pending problem : packet loss on nodes; to check if it is due to writing of visibilities or due to some other reason.

Follow-up in two weeks time to see if working version can be resolved.

5.3 GPU corr -- from 21 Nov & before (SHR/BAK) : status updates on following :

(i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input, 150 MHz version -- current status to be reported.

==> 4 node, 8 input is close to release -- needs final online and SoP;

Q: should it be released on tr pipeline nodes or on 4 new nodes ?

(ii) testing on K10 system of nvidia.

==> to start this week; windows PC requirement now OK; to consult nvidia if stuck.

Follow-up after 2 weeks.

5.4 Packetised corr -- from 21 Nov & earlier (SCC/BAK) :

update on conversion of data format to FITS etc and first images from data.

==> HDF to raw file format and then to LTA done; LTA to FITS is still giving some problem; to try with lta2fits of GPU correlator. Follow-up after 2 weeks.

5.5 Plans for further astronomical tests -- from 21 Nov (DVL/YG) : implementation

plan of tests proposed by DVL to be drawn up with BE team.

==> deferred for now, till working mode is released. Follow-up after 2 weeks.

5.6 User SoPs for new back-end systems -- from 7 Nov (IMH/DVL/BAK) : updates on

testing of 2-ant version and multi-node version -- can these be finalised now?

==> DVL and IMH to take up the multi-node version. Follow-up next week.

5.7 Update on SFP+ work & future plans -- from 31 Oct (KDB/BAK).

==> no updates. To follow-up in 1 - 2 weeks.

6. Other items :

6.1 Equipment requirement for the FE & BE group -- from 14 Nov (SSK/BAK) : FE, BE and Ops Groups to meet and discuss specs of two Agilent units and come up with final recommendations.

==> final list will be sent by BE by end of the week. Follow-up next week.

=====