Minutes of Plan meet of 14 Aug 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 31 July & earlier : conversion of older reports : FE has released 250-500 LNA report (ANR) & ITR for 250-500 CDF feed (HRB) & revised SFA (GP). Only Test Range is due now !
==> test range needs couple of weeks more. To check after 2 weeks.

1.2 Documentation : SoP for antenna base work -- from 31 July & 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 status of work on part (i) for
(a) feeds (HRB) -- waiting for final version to be released.
(b) FE boxes (ANR) -- final version was to be released few weeks ago !
(c) Common Box (SSK) -- to be done alongwith / shortly after FE box; update needed.
FE team to finalise & release the remaining items !!
==> (b) and (c) together has been released (alongwith SFA ver2) about 2 weeks ago. only (a) is remaining. To check status after 2 weeks.

1.3 Follow-up on level 3 (NTR) -- pending for long : from 10 Jul & before (SSK/DO): to check status of report on design of OF system -- SSK wanted one month more with target date in Aug.
==> will try to release first draft by end of this month. To check after 2 weeks.

2. FE & OF related :

2.1 Update on results from test range -- pending from 31 July & before (GSS/SSK) :
(i) phase centre tests for 250-500 CDF : to report on expt with 10 to 20 mm height change in 250-500 feed on one antenna to see how much change in sensitivity is seen. Need short note summarising the results : to check if last measurement with reduced height has been completed and results ready for release.
==> all material is ready; needs a free slot with CP to complete the tests and report. To check next week ?
(ii) update on calculation (based on reference paper) of the expected deflection at 450 or 500 MHz and comparison with measurements to see if we are losing significant sensitivity -- GSS to come back with refined version more relevant for GMRT, and to see if further expts with 250-500 or 500-1000 feed are useful : cross check of results from code (0.3 dB for 0.5 lambda) wrt curves from Kildall paper and our 250-500 feed was to be reported.
==> found a bug in the code, and may get new values to be 10x more, but need the student to come back and fix the code. Can check 2 weeks later.
(iii) status of phase centre checking for ver1 550-900 CDF and CSIRO feeds -- waitng for results with new VVM set-up : results from tests of ver2 550-900 CDF.
==> encoder on the range is not working -- needs company to come and fix it.
To update status after 2 weeks.

2.2 Update on RF dump tests for new feeds -- from 31 July & before (HRB/GSS/SSK)

(i) new data and results for 130-260, 250-500, 550-900 (HRB/SSK) : (a) follow-up on discussion of results from HRB and NK from 31 July -- understanding of bad antennas for 250-500 band (e.g. C6, S2, S4) (b) uunderstanding sample results from 130-260 band (c) getting some more data at night time, following request by NK.
==> went over test results from FE and NK once more and agreed that some antennas like C6, S2 may need special attention; regular monitoring for 250-500 to continue alongwith on-off plots; for 130-260 need to take some raw dumps (maybe once in 2 weeks or so) and produce on-off plots (and send to NK)
(ii) scheme for (re)calculation of expected values across the broad bands to be finalised (and added to measured curves) -- (SSK/GP/HRB) : to check if GP has generated a standard set of files for 4-5 main sources used for each wave band (right now 250-500 and Lband) which can be used by the code of HRB while plotting data results; and if sample results are available from this.
==> for 250-500 theoretical curve has been generated -- to cross check against Ankur's numbers and in plots by HRB; Lband calculations ongoing.
Follow-up on all items after 2 weeks.

2.3 Follow-up on 550-900 MHz band filters -- from 31 July & before (ANR/SSK) :
(i) status of delivery and in-house testing of prototype meeting full specs.
==> vendor is still struggling with getting the proper performance and tyring more PCBs.
(ii) status update on in-house development work : prototype PCBs for sub-band filters received ?
==> PCBs (for 1 sub-band) has been received; will get tested by next week.
Follow-up after 2 weeks.

2.4 Finalisation of design for total power detector for FE boxes -- from 31 July and earlier (ANR/SSK) : follow-up on plans for final scheme : 20 dB coupler for CB and 10 dB coupler for FE (at final output) with common 20 dB amplifier (maybe Sirenza, because of supply voltage requirement) :
(i) PCBs for sample units to be ready -- problem of linearity of response curve with Sirenza was to be resolved.
==> Sirenza option continues to have problems; so moving back to Galli-52; 2nd unit now getting ready; and will put in 2 chans of 1 CB and connect to control room online system in one month time scale.
(ii) Work for tapping the signals on RFCM mux input to be wired for 4 new signals (3 from FE and 1 from CB) -- GB was to check with VBB and telemetry team that is doing similar thing for temperature monitor (same for items (iii) & (iv) below)
==> all channels are identified, but some of free lines are gnd in MCM card; so alternate solutions are needed -- 3 spare signals found for CB (2 for power and one for temp). GP is coupling with JPK and VBB on tapping the signals.
(iii) Work for changes on MCM card for reading these channels (Tel. team to help)
==> see item (ii) above.
(iv) Work on online system for software changes to tap these values (JPK to help)
==> see item (ii) above.
(v) Plans for building X units.
==> tbd later on.
(vi) Plans for ITR on the work.
==> tbd later on.
Follow-up after 2 weeks.

2.5 FE power supplies at all antennas -- from 31 July (SSK/ANR) : Some antennas have FE supply (some are home made, some are the original supplies); others

antennas use the ABR power supply which can lead to problems of overloading etc, especially with upgrade systems being added.
==> current status as per ANR is now 7 antennas remain (after C8 and C10 were changed to home made power supplies) and 2 more S2 (today) and S4 (next 2 days) will get done shortly. Remaining 5 are without upgrade systems and will also get replaced slowly with supplies from FE group. BE team to cross-check these numbers and report back in case of mismatch.
(i) long-term : update on plans for in-house completion of more supplies -- to check current status of this.
==> no more components in stock for going beyond S4 -- fresh items being procured for at least 5 more (depending on cash purchase limit).
(ii) short-term : plans for purchase of off-the-shelf supplies & scheme for usage. check if purchase order is gone? -- to check about delays in this and what can be done about this.
==> Aplab still giving trouble in responding; to give last date today; then float with fresh set of 2-3 vendors.
Follow-up after 2 weeks.

2.6 Fixing the non-working L-band feeds (short-term problem) -- from 31 Jul (SSK/ANR) : we have 32 feeds, 3 not working (1 dismantled for making drawings of new feed); all are device failures, but not able to put new device and tune it.
(i) to check if there is any progress in getting the LNA circuit to work : getting toroids (from Ooty or Bangalore); procurement of gold plated wire; assembling of new PCB (MG) -- to check current status of work done and future possibilities.
==> one unit successfully assembled and tuned by MG ; enough gold coated wire for now; toroids only enough for 2 more LNAs. ==> 1.5 antenna ; meanwhile more toroids being tried via import from US.
(ii) check status of alternate LNA designs : PCB for OHMIC make MMIC based ckt.; desing with new device from Skyworks with NF of 0.25 (cf to 0.4 of present system).
==> OHMIC based MMIC : PCB has come, awaiting chassis, will give same performance as existing system; for Skyworks MMIC : indent has gone, PCB is being done by VBB.
Follow-up after 2 weeks.

2.7 Spares for L-band FE electronics -- from 31 Jul & before (ANR/SSK) :
(check which of these items are complete and can be closed)
(i) RFCM-type card status 3 nos of old RFCM cards are ready; check status of testing and release of new (compact) card.
==> debugging of new RFCM card is still going on (Sougata).
(ii) LNA related matters : (a) follow-up on toroids and gold-plated Cu wires for old LNAs (b) status of design of new LNA circuit. -- see 2.6 above.
==> covered in response to 2.6 above.
(iii) noise gen : status of new PCB layout work, chassis & completion of assembly.
==> PCB layout completed and sent to vendor for fabrication; 5 nos chassis in hand; assembly can start once PCB is available.
(iv) post-ampl & phase switch : to update about the wiring work.
==> cards are there, but no progress on wiring.
(v) timescale for integration? : when can it start? by end August?
==> not clear yet.
Follow-up on all items after 2 weeks.

aside : spare feed manufacutred by Akvira : many mechanical aspects now fixed; finally found that the probe also had a problem -- new unit has been made.

2.8 Walsh switching arrangement in FE -- pending from 31 & 17 Jul, 29 & 1 May,

3 Apr and before (SSK) :
matter is pending for a long time. 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); does new system need new RFCM card? -- to report about results from recent tests by Sougata.
==> some discussion about switching time and how to measure (later, visit to lab by YG and some interesting results obtained) -- to be taken up 2 weeks later.

2.9 Characterisation of new FE+OF systems -- from 7 Aug & before (PAR/SSK/DVL) :
(i) follow-up from the latest summary and trends for L-band results over the past few weeks : (a) ~ 3 antennas with ~ 5 dB lower deflection at Lband (b) similarly for antennas at 250-500.
==> C4 water problem identified -- change to be done later; E2 looks ok;
(ii) slope across 400 MHz : worst case antennas (~ 18 dB change) were to be checked -- any updates on this?
==> one antenna C4 looks like picking up more slope later on (maybe in fibre system); couple of others need to be checked at antenna base (C13, W1, S2, ...)
Follow-up next week.

2.10 Releasing existing 610 MHz system as part of the widebang upgrade -- new item (SSK/ANR) : Preliminary tests of existing 610 feed through the wideband path show that ~ 100 MHz usable bandwidth may be possible. To explore in detail if this is a feasible "bonus" that can be addeded to the phase-I uGMRT of 2 wave bands (Lband and 250-500) : are the existing polariser and LNA good enough? how much effort to change the main BPF for 8-10 antennas? To take up for discussion with FE team.
==> agreed that only the RF filter needs to be changed; to check if lumped element boards are available; to check after 2/4 weeks and see if manpower etc allows this to be done. Follow-up after 2/4 weeks.

3. RFI related matters :

3.1 Mobile phone RFI -- from 7 Aug and earlier (SSK/PAR) -- items pending for long :
(i) how to resolve the problem of having more than one phone unit working with the desired software?
==> not able to find a solution ! may need to close on this without resolving.
(ii) progress on identifying the operators at and around E06, and in Nagar, Junnar directions : follow-up of sending letter to BSNL -- pending for few months now !
Need URGENT response on above items.
==> to be done within the next day or so.
Follow-up next week.

3.2 RFI testing of Miltech PC -- from 31 July and earlier (PAR/SSK):
update on testing new Miltech PC alone (and later with peripherals using new shielded ports, connectors, cables + Rabbit card), as per discussions of 29 May.
To report results from testing of new i5 Miltech PC. Work has been done; waiting for first version of report, including comparison with older i3 PC from Miltech.
==> first unit i3 tested showed low-level RFI; newer i5 unit had very less RFI (after fixing the powerline filter?), but adding kbd and mouse showed some RFI -- to check with the kbd+mouse integrated unit that came with the i5 unit; report now circulated, has 3 main suggestions : more screws on panels; panel mount pwrline filters instead of chassis mount; use without kbd & mouse OK.

additionally, integrated tests done : some more details to be added in draft report (e.g. block diag) : miltech i5 PC + shielded media converter + Rabbit card (with Akvira make shielded box) test done -- looks like good performance; can order 2-4 shielded box for Rabbit with Akvira (with modified connector diagrams).

==> To couple item 3.3 from 7 Aug agenda and take forward as a single item 2 weeks from now.

3.3 Radiation from CAT5 cable -- from 31 July & earlier (SSK/PAR): Follow-up on action from 3 Apr discussions : to install shielded CAT5/CAT6 cable in conference room as trial and finalise the scheme for all other public places in the building: status of indent / order for shielded CAT5 cable -- to check if reprocssing of indent for correct type of shielded cable completed and order placed?
==> order has been placed for 600 m cable and 500 cable connectors and 150 panel moutn connectors -- can be used for both antenna need (with Rabbit etc) and regular use in the bldg ! Follow-up after 2 weeks.

3.4 Follow-up on UPS RFI -- from 31 July & earlier (SSK/PAR/RVS) :
(i) procurement of 3 kVA unit from Miltech (RVS) -- 2 of 3 units delivered were found faulty -- to check status of follow-up with Miltec, including any processing for new 3 kVA units from the party.
==> to check
(ii) follow-up from RFI testing of Consul unit -- status of ordering 2 new units with Consul : to check if 2nd unit has come.
==> no update.
Emerson UPS 3 kVA also now tested for RFI -- gives significant RFI, not suitable.
Get inputs from RVS; follow-up after 2 weeks

3.5 Discussion relating to Industrial RFI survey -- from 31 July (PAR/SSK) :
revised docs (from 2009 and 2012 discussions) had been circulated by RFI group and were discussed in 5 June meeting (is the document too exhaustive?) : immediate follow-up action identified : to try and see if DIC can be involved (as done in 2000); else, may cut down on scope of the survey. PAR to report if contact made with DIC.
==> PAR has contacted new DIC and he has agreed to discuss the matter after seeing a map of region of interest of GMRT zones. can follow-up after 2 weeks.

3.6 RFI testing of LED lights for GMRT labs & building -- new item (PAR/SSK/RVS) :
Electrical group has procured LED tube lights (samples had been tested to be RFI free by the RFI team) that are being installed -- a plan for systematic RFI testing of these installations needs to be worked out. RFI teams recommendation was to install in recreation hall for initial tests -- to follow-up on status.
==> this has not happened yet;

meanwile, some other brand (Lumiere) has come for test (7 W to 100 W LED lamps and tubelights) -- not found suitable.

==> To check status after 2 weeks.

4. Operations :

4.1 New Miltec PCs -- from 31 July & earlier (CPK/JPK/SN) : update on giving one PC for RFI testing; installing software on second PC and then testing by conecting various peripherals like rabbit card, eth output to optical transceiver to short patch of fibre to optical back to copper and connect a laptop or 2nd Miltech PC etc. To check if new s/w installed and eth communication test completed.
==> this is tested and working fine; matter can be closed.

4.2 Development of M&C software -- from 7 Aug, 31 July & before (JPK/RU/SN/NGK) :
(i) new things related to old software : mostly new requirements from FE monitoring of temp and power : FE monitoring of all 64 channels from RFCM card to MCM card to Laptop via serial to USB converter; available as a file on the PC -- done by RU for FE group; also monitoring of all the channels at control room -- JPK looking into identifying the appropriate channel(s) -- completed for Comm Box, waiting for completion for FE box to close this topic.
==> no updates on this matter; to follow-up 2 weeks later.
(ii) update on HRS & SRS work with TCS (JPK/SN) -- update on closure of SRS phase (final ver from TCS, consideration of MeerKAT and Astrosat systems); plans for identification of next phase of the work.
==> email update from JPK : updated version of document from TCS has been sent to all stakeholders for last round of checking and comments; a few points found by JPK that need correction; matter likely to be closed by next week.
(iii) plans to organise larger discussions regarding major decision items (all)
(a) follow-up from last meeting of FE related issues (b) follow-up from group discussion of last week regarding hardware interface and protocol related issues.
==> summary of last week's meeting to be circulated (by this week), and specific follow-up actions, including session with TCS persons, to be initiated by next week. Follow-up on all items 2 weeks later.

aside : some feedback from in-house meeting : to complete the work for deciding how many total MCM cards are needed -- Ops group to draft an emal and send to all GCs. Fold this in for discussion in item on MCM cards

4.3 Monitoring of 3-phase power at each antenna -- from 31 Jul & before (SN/RVS) : Ops group has successfully tested the scheme, including online monitoring, on one antenna (C8); to come up with detailed plan for expansion to 30 antennas.
==> no updates; to check after 2 weeks.

4.4 Planning for proper space utilisation for new equipment at antenna base -- from 31 Jul & before (SN/CPK) : longer-term plans for proper utilisation of the space at antenna base. Ops group have made a preliminary proposal (after talks with concerned group heads) -- this was to have been circulated and taken up for discussion, but has not happened yet.
==> see JPK email : work under progress, will take some more time to produce first version for circulation; to check after 2 weeks.

5. Back-ends :

5.1 Analog back-end for 8 antennas and beyond -- from 7 Aug & before (BAK) :
(i) bandshape problem (seen in Lband data) now resolved for all 8 antennas?
==> all bandshapes are fine in new system ;
(ii) status of release of new 8 antenna system with new MCM and online control and web-based facility (was due end of July) -- now slated to be done by 13 Aug.

==> new system released with inputs connected and 7 antennas are looking ok; only S2 was not working; that too has been fixed now; different attenuator values are needed range is from 2 dB to 21 dB -- this needs to be sorted out in the long run. Status check after 2 weeks.

5.2 Power equalisation schemes for new back-ends -- from 7 Aug and before (SSK/NSR/BAK): Need updates on both of the following :
(i) option 1 : using detectors in GAB and local feedback loop -- status update on completion of monitoring set-up, code for getting the values and applying the feedback etc -- waiting for look-up table from Jitendra.
==> no progress.
(ii) option 2 : using correlator self outputs and computing gain corrections : 1st version was to be ready for release ; NSR and SKA to provide status update if problem solved or not.
==> no update.
==> These need urgent follow-up, maybe next week.

5.3 GPU corr status -- from 7 Aug & before (SHR/GSJ/SSK/BAK/DVL) : updates on following items, pending from last discussion :
(i) release of 4 node, 8 input, 200/250 MHz version -- to confirm status and test results for 32 & 110 MHz data sets : (a) 1.7 s time offset problem to be resolved & diffstop to be released (SHR/SSK) (b) updated delay table to be checked (SSK) (c) plans for 110 MHz imaging (DVL) (d) code for providing basic IA beam mode (SSK/SHR/YG)
==> (a) additional problem of not having exactly matching int and frac delay updates ! 1.7s problem not solved; diffstop not yet released.
(ii) update on testing K20 card (SHR/SSK) : report on latest discussions with nvidia (12th Aug) & plans for follow-up action -- XGPU code & reshuffle algorithm etc.
==> follow-up discussion with nvidia next week.
(iii) plans for work on 4 new DELL machines (GSJ/SHR) : what is the next step planned? Also, can Fedora17 also be installed on these (addition to Centos6.4)?
==> one R720 and one T720 to be used for stand alone 2 x 10 Gbe I/O tests + corr.
(iv) status of i/o performance tests using the two R720 nodes available at GMRT.
==> being returned to computer group.
(v) status and plans about configuration of 8 node cluster (SHR/BAK) : to clarify present status of configuration and usage of the other 4 machines : can we plan integrated 8 node, 16-input correlator tests?
==> can be done a bit later on after item (iii) is completed.
(vi) any fresh update on delivery status of bigger IB switch ? (GSJ/BAK).
==> item has been shipped and may reach by next week.
==> Appropriate follow-up next week on items, as required.

5.4 8 antenna back-end plans for further astronomical tests -- from 7 Aug (DVL/YG) : (i) report on results from Lband test data with 110 MHz BW settings.
==> tests and analysis ongoing; more consolidated response expected by next week.
and (ii) plans/strategy for further tests, including 250-500 and maybe 610.
==> some plans have been discussed and will be folded into the test sessions.
==> Follow-up next week.

6. Other items :

None for this week.

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Minutes of Plan meet of 22 Aug 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Detailed design doc -- pending for long : from 7 Aug & before (SSK/BAK) : follow-up on subsystems to be converted : (i) OF Rx system to be completed (Satish Lokhande) -- hardcopies had been collected; doc to be made ready (ii) OF Tx to be started (iii) analog BE system to be completed.
==> no updates on (i0) & (ii) ;
(iii) has gone into the background, but will be picked up now.
Follow-up after 2 weeks.

1.2 Documentation : SoP for antenna base work -- from 7 Aug & before (SSK/ANR/HRB) -- to check if all pending SoPs (only FE system is remaining?) are done and matter can be closed?
==> all are released and matter can be closed !

2. FE & OF related :

2.1 New LNA for 130-260 system -- from 7 Aug & before (VBB/SSK) : (i) Variation of gain and Tsys with temperature : to report on follow-up tests, as discussed last week and earlier (with YG and Sirothia).
==> test done with 1.5 and 3 m long cables inside the chamber and result shows change in loss with frequency (as would have been expected) & also with temperature; to cross-check against data sheet for this cable, summarize the results and send an email to concerned persons, within a week or so.
Follow-up after 2 weeks.

(ii) update on scheme for fitting two temp monitors (one for LNA, one for box) in 130-260 MHz FE box for tests on bench followed by antenna tests : update on work with Ops group to get readings from online for one antenna installation and on getting two temp monitors installed on one unit in the lab.
==> expt with one temp sensor on LNA, one if FE box (open), with env champer temp and result shows ~ 15 deg differnence in temp between the two (manual readings). Now to translate to (i) reading via USB MCM program (of RU) in the lab -- if facility not available, to add it (ii) to identify the FE temp monitoring channel in online, so that data can go to online later on.
To check next week for any loose ends and 2 weeks later for final closure.

2.2 Mass production of 250-500 FE system -- from 7 Aug & before (ANR/SSK) : (i) testing of 15 new feeds : (a) FE group is sending weekly plots & results -- need to add deflection plots to these. (b) to discuss latest plots from FE group and results from these and follow-up action items on problematic antennas.
==> prelim work on S2 with one acq shows ok but needs sustained tests; then to look at C6.

(ii) status of testing and installaton of FE boxes : ten antennas fitted + plans for 2 spare units : (a) to check status of completion of spare units (b) update

on procurement of new connector -- when is it expected?
==> one spare ready and under testing; 2nd unit assembled but not tested; one sample from Amphenol (and also Radiall) expected in next few days -- tbc and if fond suitable then bulk order to be placed.

(iii) status of testing and installation of modified Common Boxes : 8 antennas fitted with mixture of 2 combinations : newer Hitite + Hitite scheme and older Sirenza + ECG scheme + 2 spare units : check status of readiness of 2 spare units.
==> one spare is ready and tested; 2nd one not ready -- may require 2-3 weeks.

(iv) plans for sub-band filters for 250-500 MHz system -- update on PCB fabrication
==> PCBs (2 units each) for remaining 3 sub-bands have come -- will be tested soon.

(v) status of other auxiliary items :
notch filter at 540 (lumped vs microstrip) -- are samples of both ready (for comparison)?
dir coupler (2 units ready) -- one was to be installed on antenna : done?
power splitter for noise (waiting for chassis) -- status to be reported.
noise src : when can we test noise on/off for 250-500 system on an antenna?
status of new post ampl to be updated
temp monitor, power monitor : status updated needed
RFCM card : new card working ?
phase switch + opamp : status update on lab tests to be reported.
==> Lumped version is ready and tested (Ankur) and he is still working on design of microstrip version ; dir coupler can be put in 3rd spare FE box to be made ready (lot of changes in connectors are required) and then do some lab tests to check the performance of integrated FE box (after power splitter).
Power splitter : to confirm if chassis have come -- to be integrated with item above and tested in the lab.
Post amplifier in FE box is Hitite 740; existing stock exhausted; order placed more than one month ago and may be coming soon (will affect making 3rd FE box ready?)
Power monitor : redesign for FE box is still going on -- prototype should be ready soon; no specific activity for temp monitor for 250-500 right now -- to wait for 130-260 work to complete.
RFCM card debugging : no progress.
Phase switch + OpAmp : test done and report to be sent shortly.
Follow-up on all items after 2 weeks.

2.3 Status of improved 500-1000 MHz CDF -- from 7 Aug & earlier (HRB/GSS/SSK) :
(i) there is a 10% larger beam width for C10 (antenna + solid cone ver2b feed) -- need to check simulation results for ver1 and ver2 to check beam width of just the feed.
==> this needs to be checked from the simulation results.
(ii) follow-up on action items (#s 1 to 3) from 20 Mar discussions :

1. repeat deflection tests for ver2 with a rigid stool design -- is it done?
2. to share results of deflections wrt other antennas with old 610 system 30-to-1 results -- internal summary report was to be released by 21 Aug.
3. finer adjustment of focus distance for ver2 -- tbd after item 1 above.

==> some inputs from GSS; need detailed follow-up.
(iii) slightly longer term follow-up items from 20 Mar discussion :

4. need repeat of tests with ver2b solid cone to confirm performance -- tbd asap
5. try ver2 dipole in ver1 cavity and verify the RL BW -- tbd asap
6. try new polariser + LNA in old feed : what will we learn? (are there

enough components?) -- update on getting new face plate etc ready.
==> some inputs from GSS; need detailed follow-up.
(iv) comparison of measured parameters with simulations :

7. to discuss results from more complicated dipole geometries in ver1 or ver2 cavity
8. possibilities for further simulations, including with denser mesh (higher order of basis functions)

==> some inputs from GSS; need detailed follow-up.
Follow-up on all items after 2 weeks.

2.4 Signal flow analysis (SFA) related items -- from 7 Aug & before (GP/ANR/SSK)
(i) discussion of new version of L-band SFA report : to release the report for wider circulation.
==> This has been done and can be closed ?
(ii) corresponding SFA for OF system to be discussed, including addition of the scheme of 10 dB attn + 20 dB ampl -- SSK was to complete review of doc by Ankur and release the same after internal discussions; this is significantly overdue now.
==> no update -- to check and report.
(iii) plans for SFA of 250-500 system : to check if analysis has started and how things are going.
==> work has started, but not much progress due to other pre-occupation.
Follow-up after 2 weeks.

2.5 Directional coupler for 250-500 FE system -- from 7 Aug & before (ANR/SSK) :
(i) report giving detailed comparison of old and new designs to be circulated
==> ANR to add appropriate statements to earlier circulated report on new design and recirculate.
(ii) update on plans for mass production : PCB fabrication, chassis design and manufacturing etc.
==> PCBs and chassis for 35 antennas ordered -- items may come within 2 weeks. New SMA connectors are needed -- being indented.
Follow-up after 2 weeks.

2.6 Finalisation of temperature detectors for FE system -- from 7 Aug and before (SSK/VBB/SN) : All new FE boxes to go up with the agreed design for monitoring of box temp; scheme for monitoring in control room to be implmented with help of telemetry and ops group. To check (a) if values for unit installed on C10 can now be measured in control room (b) plans for installation of 2 units in one box, after solving MCM related issue.
==> see item 2.1 above ; both channels need to be identified for 2 temp monitors.
Follow-up after 2 weeks.

2.7 Calibration scheme with radiator at apex of antenna -- from 7 Aug & before (SSK/PAR/SRoy/DO/YG): to follow-up on detailed discussion meeting of last week : to schedule follow-up action appropriately, breaking the issue into smaller, more tractable parts : (i) testing of dynamic range of old vs new electronics (ii) finer aspects of variation of ampl and phase with various external parameters (iii) other longer ranging goals.
==> brief discussion : item (i) can be initiated (SR to help with this); item (ii) needs some more detailed understanding and digestion of the data (DO will be helping with this) ; meanwhile feasibility of connecting noise source and radiating to be looked at by PAR.
Follow-up after 2 weeks.

2.8 Filters at different stages of receiver chain -- from 7 Aug & before (SSK) :
(i) scheme for filters at antenna base : check if prototype has been assembled (and tested) after wiring of 2nd switch.
==> problem of static while assembling the switches; one 4-1 switch assembled at telemetry lab; now need to do one more 4-1 and one 8-1 switch and then test the first prototype (with or without chassis which is under order).
(ii) to follow-up on refinements of the scheme for each FE box :
(a) SSK was to (re)send the draft document (b) update on 250-500 system (first to be done).
==> no update on this.
Follow-up after 2 weeks.

2.9 Characterisation of new FE+OF systems -- from 14 Aug & before (PAR/SSK/DVL) :
(i) follow-up from the latest summary and trends for L-band results over the past few weeks : (a) ~ 3 antennas with ~ 5 dB lower deflection at Lband (b) similarly for antennas at 250-500.
==> no update this week.
(ii) slope across 400 MHz : worst case antennas (~ 18 dB change) were to be checked at antenna base (C13, W1, S2...) -- any updates on this?
==> no update this week.
Follow-up next week.

2.10 M&C for new FE systems with new MCM cards -- from 7 Aug (SSK/PAR/CPK/SN) :
Follow-up on action items from the joint meeting -- SSK & SN to provide latest update on matters, and problems if any.
==> to check after 2 weeks.

3. RFI related matters :

3.1 Mobile phone RFI -- from 14 Aug and earlier (SSK/PAR) :
(i) no progress on having more phone units with software loaded -- matter closed..
(ii) progress on identifying the operators at and around E06, and in Nagar, Junnar directions (follow-up with sending letters to BSNL etc). -- URGENT (pending for several weeks now) ! -- was promised again in last week's meeting - to check if action has happened or not !
==> draft letter has been circulated this morning. Follow-up after 2 weeks.

3.2 Effect of military satellite RFI in 243 band -- from 7 Aug, 5 June & before (PAR/SSK/SN) : follow-up action on testing for saturation effects, decision about appropriate location of switchable filter, possibility about control room (ops group) being able to come up with predictions for user's observations. Report had been circulated to control room (has it been discussed with S. Nayak ?) -- to check about follow-up on this.
==> 2 action items : one is for Ops Group to investigate and come up with an algorithm (TBD) and second is for prototype filter to be designed -- work started by Ankur for this.
Follow-up after 2 weeks.

4. Operations :

4.1 Mass production of Rabbit MCM cards -- from 17 Jul & before (CPK/SN) :
(i) status of testing of cards to be updated (it was going a bit slower than

expected -- 47 nos had been completed by 17 Jul).
==> 53 have been completed -- pace is still slow, but may be ok. -- one month later.
(ii) to complete the work for deciding how many more MCM cards are needed -- Ops group to draft an email and send to all GCs (from 14 Aug meeting)
==> SN will initiate this and can be taken up 2 weeks later.

4.2 Mass production of shielded box for MCM cards -- from 7 Aug & before (CPK/PAR/SN/HSK): CPK was to check with PAR and report on the following :
(i) RFI test report of Akvira vs Physimech units is not yet released -- can we have the final version released asap !
==> PAR reminded about it; will send soon.
(ii) status of problem of adapting to different size / pin count of RFI shielded connectors to be reported : update on plans for moving from feed-throughs to D-type connectors with embedded RFI filters.
==> this aspect is still pending as waiting for D-type conn to come.
One more test to be done : active control of some of the lines going out through the D-type I/O connected -- this will decide whether the filtered connection is needed or not.
(iii) How to plan for the mass production?
==> to start the discussion with mechanical by Ops group.
Follow-up after 2 weeks.

4.3 Development of M&C software -- from 14 & 7 Aug & before (JPK/RU/SN/NGK) :
(i) update on work with TCS (JPK/SN) : (a) plans for closure on SRS (b) plans for next phase of work.
==> SN to update by today; to try and fix a meeting for next week with TCS + TRDDC.
informal discussion : to extract 70% of the requirements etc...
Follow-up after 1 or 2 weeks.
(ii) status update on in-house development
==> background monitoring for 2 antennas with 4 sub-systems each tested; initiated an exchange with servo for communication with PC104 using own protocol; reducing the time interval for the background monitoring below 2 seconds; interfacing with prototype GUI developed by Naresh with v2 of new online.
Follow-up after 4 weeks.

4.4 Identification of appropriate ethernet switches for antenna base -- from 7 Aug & before (SN/PAR) : Ops group to work with Comp team and RFI group to plan for trying some of the 16/24 port switches for antenna base use :
(i) updated on process of short-listing and comparison of specs, followed by indenting for suitable samples : budgetary quotes had been received for CISCO, HP, DELL and D-link -- check status on this.
==> waiting for formal enquiry process to converge.
(ii) to look into appropriate RFI cabinet for the switch.
==> sample drawing has been made and will be sent to workshop.
Follow-up after 2 weeks.

5. Back-ends :

5.1 Identification of appropriate ethernet switches for reciever room usage -- from 7 Aug and earlier (SN/PAR/BAK) : Update on plans for network wiring and switch choice -- still pending : is the current choice of 8-port switches for GAB ok for final system? Can BE group benefit from the exercise being carried out by Ops Group (see item 4.4 above)?

==> currently using 8 port 100 Mbps switches (4 nos) -- will meet the needs for 16 ant dual pol system; would like to go for slightly bigger (16 port), 1Gbps, level-2 switch. can coordinate with Ops group in 4.4 above.
Follow-up after 2 weeks and couple with item 4.4 as needed.

5.2 Analog back-end for 8 antennas and beyond -- from 7 Aug & before (BAK) :
(i) release of new 8 antenna (dual pol) system of final GAB units, with full online control now complete? Are there any unresolved issues?
==> this looks like done; only small update in SOP for 250-550 LO settings tbd.
(ii) bandshape and power level problems resolved for all 16 channels of new GAB? Have tests been done for other bands (250-500 and 610)? Is range of attenuator values ok?
==> most bandshapes for Lband (with LO > RF), yet to try for 610 and 250-500 settings; range of attenuators is 2 dB to 21 dB (expected is around 15 dB)
(iii) filter bank choices in the new GAB system :
(a) Update on work for releasing 100/200/400 MHz o/p filter options.
(b) status of work on having input side RF filters in place for new system
==> output side filters being put today; testing will go till tomorrow;
input side : switches, PIUs, connectors available; actual filter : already agreed that main BPF used by FE to be used; to check if FE is willing to double the mass production quantities.
Follow-up on relevant items next week; others 2 week later.

5.3 Support for 250-500 MHz in new 8 antenna GAB -- from 7 Aug & before (NDS/BAK) :
requires LO scheme going below the current 600 MHz
(i) to confirm if short-term option (using sig gen connection) is workng and tested for new 8-antenna GAB.
==> this is working; can switch to sig gen by remote command from online; can be left at default setting for 250-500 and use FSW system for other bands.
(ii) to update plans for long-term solution.
==> one option is to make the sig gen option as the final choice with eth control connected; new device (AD chip) has been identified that can do the full range -- will get sample units and test it and then decide for mass production. To explore both options.
Follow-up after 2 weeks.

5.4 Power equalisation schemes for new back-ends -- from 14 Aug and before (SSK/NSR/BAK): Need updates on both of the following :
(i) option 1 : using detectors in GAB and local feedback loop -- status update on completion of monitoring set-up, code for getting the values and applying the feedback etc -- waiting for look-up table from Jitendra.
==> some confusion about who is doing what; to try manual version first that does the counts to attn correction and then use the existing setting program to set these and then refine the method later on.
(ii) option 2 : using correlator self outputs and computing gain corrections :
1st version was to be ready for release ; NSR and SKA to provide status update if problem solved or not.
==> set-up is ready for testing -- will happen by the end of this week.
To recheck status next week.

5.5 GPU corr status -- from 14 Aug & before (SHR/GSJ/SSK/BAK/DVL) :
updates on following items, pending from last discussion :
(i) release of 4 node, 8 input, 200/250 MHz version -- to confirm status and test results for 32 & 110 MHz data sets : (a) 1.7 s time offset problem to be

resolved (SHR/SSK) (b) diffstop to be released for users (SHR/SSK) (c) mismatch of int and frac delay updates to be resolved (SHR) (d) delay table and phase wraps to be checked (SSK) (e) plans for 110 MHz imaging (DVL) (f) code for providing basic beam modes (SSK/SHR/YG)
==> (a) still waiting for some test time to try it all (b) has been updated and can be released (c) cause has been found; sample code with fix is ready and needs to be tested (d) SKS has given a response -- needs to be checked (e) DVL is planning to run some tests (f) full polar mode is getting tested; to check if basic beam mode option can be explored simultaneously.
(ii) update on testing K20 card (SHR/SSK) : report on latest discussions with nvidia and plans for follow-up action -- XGPU code and reshuffle algorithm. GMRT and nvidia teams were to meet and follow-up : any progress on that?
==> installing cuda 5.5 on some of the machines having some problem; YG to check for updates from notes of last week. no improvement between using 4.1 and 5.0.
(iii) plans for work on 4 new DELL machines (GSJ/SHR) : stand alone 2 x 10 Gbe I/O + corr tests on the R720 and T620 machines to be done. Fedora17 to be tried?
==> 2 machine (one of each kind) are fully configured and need to go into corr room -- space needs to be created.
(iv) status and plans about configuration of 8 node cluster (SHR/BAK) : can we plan integrated 8 node, 16-input correlator tests -- waiting for item (iii) to complete.
==> can be tried now -- maybe sometime next week.
(v) any fresh update on delivery status of bigger IB switch ? (GSJ/BAK).
==> has reached customs; and will be coming soon.

5.6 Final online control for GPU corr -- from 7 Aug & before (SSK/JPK/NR/DVL) :
(i) status of full GUI compatibility : update on sideband flag support and issue of net_sign[] to be resolved.
==> work under progress -- problem in ltafile tracked; needs change in GPU code.
(ii) to check if max no of chans increased to 16K (as reported on 7th Aug) and if this mode has been tested.
==> not working in released version -- needs to be checked.
(iii) follow-up on long-term items like provision for control of FPGA and other peripherals (like sig generator) for different modes -- details of existing provisions to be discussed and plans for final configuration to be finalised.
==> no discussion.
Follow-up after 2 weeks.

5.7 8 antenna back-end plans for further astronomical tests -- from 14 Aug and earlier (DVL/YG) : (i) report on results of tests at Lband (110 MHz subbands)
==> some tests have been done; need a comprehensive summary.
(ii) possible options with 610 MHz band
==> waiting for test results to be analysed more carefully.
(iii) first test results with 250-500 MHz band ?
==> TBD
Follow-up next week.

5.8 Next-gen time & frequency standards -- from 7 Aug & 19 Jun (NDS/BAK) :
(i) completion of tests at GMRT and summary of the same by NDS & plans to visit NPL -- to check about response from NPL.
==> YG to follow-up with NPL.
(ii) follow-up from the visit of Symmetricom -- a summary note about learnings and minutes from the visit was to be circulated, including comparison table etc, before circulating kinds of specs are required for our system.
==> internal circulation right now.

Follow-up after 2 weeks.

5.9 SFP testing of final unit -- from 7 Aug & 24 July or so (KDB/BAK) : SFP+ side working fine for both Cu and Opt; XAUI CX4 side is still flaky -- may still be marginal in timing. Update required from new tests after fresh inputs from vendor.
==> status quo; needs further follow-up. To check after 2 weeks?

5.10 Power and cooling requirements for projected back-end systems -- pending from 24 July and much earlier (BAK/RVS/YG) : to confirm plan of action for next set of tests : what is planned and when?
==> not discussed; YG to set-up a separate discussion with BAK and RVS. To bring up for discussion after 2 weeks.

6. Other items :

6.1 Jobs at TIFR -- from 7 Aug (HSK/SKG) : to follow-up on the following :
(i) update on status of our jobs at TIFR -- check status of 180 pending jobs and status of drilling, tapping of 120 jobs collected.
==> no updates.

6.2 Coexistence of 50-90 MHz RRI feed with 250-500 CDF on same face of turret -- from 7 Aug and before (HSK) : Mech group to check for possible solutions and report back, after looking at the drawings (awaited from RRI).
==> no updates.

6.3 Problem of access to FE boxes with 500-1000 CDF feed -- from 7 Aug & before (HSK) : Update on new solution being designed by Mech group -- test was to be done at antenna.
==> no updates.

6.4 Work orders for CSIRO feed with 2 parties -- from 7 Aug & before (HSK/JNC/ANR) :
(i) whether filling operation is over and new lab tests have been done on feed.
==> no updates.

6.5 Fabrication of 5 spare L-band feeds -- from 7 Aug & before (SSK/HSK) : to check about
(i) faulty unit from Akvira Engg has come back and tested in FE lab?
==> no updates.
(ii) latest status of orders on other 2 parties (Physimech, Fabromech).
==> no updates.

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Minutes of Plan meet of 28 Aug 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 14 Aug & earlier : conversion of older reports : FE has released 250-500 LNA report (ANR) & ITR for 250-500 CDF feed (HRB) & revised SFA (GP). Check if test range is done. Check for other pending items across groups. Also, to check what items of work are read to be converted to NTR.
==> FE group to come back with suggestions for which of these can be converted to NTRs and move towards publications. Follow-up after 2 weeks.

1.2 Documentation : SoP for antenna base work -- from 14 Aug & 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 status of work on part (i) for feeds (HRB) -- waiting for final version to be released. Then to check for any relevant activity required for (ii).
==> HRB will release by next week. Follow-up after 2 weeks.

1.3 Follow-up on level 3 (NTR) -- pending for long : from 10 Jul & before (SSK/DO): to check status of report on design of OF system -- SSK wanted one month more with target date in Aug.
==> one more week needed by SSK. Follow-up after 2 weeks.

2. FE & OF related :

2.1 Update on results from test range -- pending from 14 Aug & before (GSS/SSK) :
(i) phase centre tests for 250-500 CDF : to report on expt with 10 to 20 mm height change in 250-500 feed on one antenna to see how much change in sensitivity is seen. Need short note summarising the results : to check if last measurement with reduced height has been completed and results ready for release.
==> not done yet, due to other constraints of using HLP. HRB to look into doing this asap.
(ii) update on calculation (based on reference paper) of the expected deflection at 450 or 500 MHz and comparison with measurements to see if we are losing significant sensitivity -- GSS to come back with refined version more relevant for GMRT, and to see if further expts with 250-500 or 500-1000 feed are useful : cross check of results from code (0.3 dB for 0.5 lambda) wrt curves from Kildall paper and our 250-500 feed was to be reported -- to check if bug has been fixed.
==> no update.
(iii) status of phase centre checking for ver1 550-900 CDF and CSIRO feeds -- waitng for results with new VVM set-up : results from tests of ver2 550-900 CDF. To check if test range is functional now (encoder problem).
==> encoder has been taken for servicing by vendor (work on the coupling); not clear how long it will be down.
Follow-up on all items after 2 weeks.

2.2 Update on RF dump tests for new feeds -- from 14 Aug & before (HRB/GSS/SSK)

(i) new data and results for 130-260, 250-500, 550-900 (HRB/SSK) : (a) follow-up on discussion of results from HRB and NK from 31 July : understanding of bad antennas for 250-500 band (e.g. C6, S2, S4) -- need latest updates from tests
(b) getting some more data at night time (for both 250-500 and 130-260), following request by NK.
==> multiple plots with latest results shown; some antennas are behaving ok; others are showing fluctuations (as noted earlier also); agreed to to a control expt with 3-4 antennas (one good one) with tracking off-source from calibrator for ~4 hrs with 30-60 sec integration and see what the data shows. also, to schedule the RF dump for 130-260 system (night time).
(ii) scheme for (re)calculation of expected values across the broad bands to be finalised (and added to measured curves) -- (SSK/GP/HRB) : to check if GP has generated a standard set of files for 4-5 main sources used for each wave band (right now 250-500 and Lband) which can be used by the code of HRB while plotting data results; and if sample results are available from this -- discussion of first results circulated by HRB.
==> plots showing data + theoretical curves presented : looks like there is some strange effect in the theoretical curves due to the way the instertion loss of teh QH is being handled : GP to look into that and for now, use a single constant value for the loss.
Followup on item (i) next week; item (ii) 2 weeks later.

2.3 Follow-up on 550-900 MHz band filters -- from 14 Aug & before (ANR/SSK) :
(i) status of delivery by vendor & in-house testing of prototype meeting full specs.
==> vendor has got the new PCBs and is testing; aims to deliver by 1st week of Sep.
(ii) status update on in-house development work : prototype PCBs for sub-band filters received and tested ?
==> first results from prototypes shown : full band-pass looks ok (only to check for funny looking steps with higher resolution plots); one sub-band PCB made -- shows ok result, except for 15 MHz shift (may be due to tolerance in dielectric value?) : has been redesigned to compensate for this & has gone for PCB, alongwith 2nd sub-band design -- will come in about 2 weeks or so.
To follow-up after 2 weeks.

aside : Lband full-band BPF also redesigned -- has no slope with freq and better insertion loss. Q : should we develop prototypes for the Lband sub-band filters using this approach. This needs to be taken up for discussion at a later point.
To follow-up after one month or so.

2.4 Finalisation of design for total power detector for FE boxes -- from 14 Aug and earlier (ANR/SSK) : follow-up on plans for final scheme : 20 dB coupler for CB and 10 dB coupler for FE (at final output) with common 20 dB amplifier (maybe Galli-52 instead of Sirenza) :
(i) PCBs for sample units to be ready -- to check if 2nd unit is now ready to give 2 chans for 1 Common Box.
==> done and ready for integration.
(ii) Work for tapping the signals on RFCM mux input to be wired for 4 new signals (3 from FE and 1 from CB) -- to check if 3 spare signals identified 2 weeks ago are now tapped & available for use (along with VBB and telmetry group)
==> working ok for lab monitoring.
(iii) Work for changes on MCM card for reading these channels (Tel. team to help)
==> working for lab set-up.
(iv) Work on online system for software changes to tap these values (JPK to help)
==> channels have been identified.

(v) Plans for building X units.
==> to be deferred till lab test of power monitoring is completed.
(vi) Plans for ITR on the work.
==> TBD after installation on one antenna !
Follow-up on all items after 2 weeks.

2.5 FE power supplies at all antennas -- from 14 Aug & before (SSK/ANR) : Some antennas have FE supply (some are home made, some are the original supplies); other antennas use the ABR power supply which can lead to problems of overloading etc;
(i) to confirm current status that S2 & S4 are done and ONLY 5 antennas remain with shared supply.
==> confirmed; this item can be closed.
(ii) solution 1 : update on plans for in-house completion of more supplies -- to check current status of ordering components for these.
==> material and items for 5 supplies have been ordered.
(iii) short-term : plans for purchase of off-the-shelf supplies & scheme for usage. check if quotes have come from Aplab or new enquiry has been floated?
==> Aplab file has been closed; to float new, general enquiry with appropriate steps.
Follow-up after 2 weeks.

2.6 Fixing the non-working L-band feeds (short-term problem) -- from 14 Aug (SSK/ANR) : we have 32 feeds, 3 not working (1 dismantled for making drawings of new feed); all are device failures, but not able to put new device and tune it.
(i) one LNA successfully done by MG; to check if 2 more are done, and we can have one spare feed assembled for GMRT (E5 needs a feed); status of order for toroids.
==> quotation being opened today, and should be possible to order by end of the week; in addition to 1st LNA (new PCB), 2 of old ones very tried for retuning; one is OK, one is 5 deg extra Tsys. To make 30th antenna ready, and to try for 2 more LNAs from old PCBs for 31st antenna.
(ii) check status of alternate LNA designs : for OHMIC make MMIC ckt : first unit ready & tested? For Skyworks MMIC (expected to give better performance) : status of PCB and of indent for device to be checked.
==> OHMIC ready to assemble and test -- should have results by next week. Skyworks device order gone; PCB and chassis design to start.
Follow-up next week, as needed; remaining items 2 weeks later.

2.7 Spares for L-band FE electronics -- from 14 Aug & before (ANR/SSK) :
(check which of these items are complete and can be closed)
(i) RFCM-type card status 3 nos of old RFCM cards are ready; check status of testing and release of new (compact) card.
==> debugging still going on; some corrections are needed : either on existing PCB or on new one.
(ii) noise gen : status of delivery and assembly of new PCB.
==> PCB not arrived -- will come by end of this month.
(iii) post-ampl & phase switch : to update about the wiring work.
==> no progress.
(iv) timescale for integration? : when can it start? by end August?
==> may need to wait for some itme.
Follow-up after 2 weeks.

2.8 Walsh switching arrangement in FE -- from 14 Aug and before (SSK) :
Some tests have been done on the bench by FE group; results to be reported; also to go back to action items from 19 Dec 2012 discussions; does new system

need new RFCM card?
==> basic test done; to generate a draft note summarising the results and then take for discussion. Follow-up after 2 weeks.

2.9 Characterisation of new FE+OF systems -- from 14 Aug & before (PAR/SSK/DVL) :
(i) follow-up from the latest summary and trends for L-band results over the past few weeks : (a) ~ 3 antennas with ~ 5 dB lower deflection at Lband (b) similarly for antennas at 250-500.
==> some uncertainty about "repeatibility" of bad results; also some changes in cables etc have been made which may have improved the situation (similar argument for item (ii) below)
(ii) slope across 400 MHz : worst case antennas (~ 18 dB change) were to be checked at antenna base (C13, W1, S2...) -- any updates on this?
==> no updates.
To follow-up next week, as appropriate.

2.10 Releasing existing 610 MHz system as part of the widebang upgrade -- from 14 Aug (SSK/ANR) : Preliminary tests of existing 610 feed through the wideband path show that ~ 100 MHz usable bandwidth may be possible. To explore in detail if this is a feasible "bonus" that can be addeded to the phase-I uGMRT of 2 wave bands (Lband and 250-500) : agreed that only RF filter needs to be changed; to confirm if lumped element boards are available for making new RF filter.
==> to explore combination of new 550-900 BPF + mobile band notch filter on one antenna, before taking a final decision.
Follow-up after 2 weeks.

2.11 OF systems -- from 31 July & before (SSK/PAR) : Plans for further systems : component ordering for remaining items : all except thermo-electric cooler are in full quantity : update on ordering of balance units of thermo-electric cooler.
==> OF group to cross-check and get back.
To check after 2 weeks, and close the matter accordingly.

3. RFI related matters :

3.1 RFI testing of Miltech PC + ethernet switches for antenna base -- from 14 7 Aug and earlier (PAR/SSK/SN):
(i) update on testing new i5 Miltech PC alone (and later with peripherals using new shielded ports, connectors, cables + Rabbit card). First report circulated, has 3 main suggestions : more screws on panels; panel mount pwrline filters instead of chassis mount; use without kbd & mouse OK. Action items : to check results from tests using integrated kbd+mouse unit that came with the PC; can we give feedback to Miltech about first two suggestions.
==> TBD
(ii) integrated testing of PC + peripherals done : miltech i5 PC + shielded media converter + Rabbit card (with Akvira make shielded box) tests showed good performance (full details, alongwith block diagram, to be added to the report); can order 2-4 shielded box for Rabbit with Akvira (with modified connector diagrams).
==> TBD
Follow-up after 2 weeks.

3.2 RFI tests of ethernet switches for antenna base -- from 7 Aug & earlier (SN/BAK/SSK): update on testing the available switches for RFI (as per 29 May

discussion); plans for design of RFI box for ethernet switches : some tests have been done and reports are awaited; some follow-up action needs to be taken up. Status of ongoing efforts for (i) procurement and testing of switches and (ii) design of RFI enclosure to be summarised.
==> main box is designed and sample panel is being done in workshop. To check status after 2 weeks.

3.3 Radiation from CAT5 cable -- from 14 Aug & earlier (SSK/PAR): Follow-up on action from 3 Apr discussions : to install shielded CAT5/CAT6 cable in conference room as trial and finalise the scheme for all other public places in the building: confirm if order has been placed for cable & connectors and expected data of delivery.
==> to check if order is gone and confirm. Follow-up after 2 weeks.

3.4 Follow-up on UPS RFI -- from 14 Aug & earlier (SSK/PAR/RVS) :
(i) procurement of 3 kVA unit from Miltech (RVS) -- 2 of 3 units delivered were found faulty -- to check status of follow-up with Miltec, including any processing for new 3 kVA units from the party.
==> email update from RVS : these were 1 kVA units (4 nos) ordered by servo that did not work on arrival; one unit was sent back to vendor on 8th Aug -- no update after that. Order for one 3 kVA unit has been placed with Miltech.
(ii) follow-up from RFI testing of Consul unit -- status of ordering 2 new units with Consul : first unit is installed in C09; to check if 2nd unit has come.
==> 2nd unit has come; being tested by RFI team.
Follow-up after 2 weeks.

3.5 Discussion relating to Industrial RFI survey -- from 14 Aug (PAR/SSK) :
revised docs (from 2009 and 2012 discussions) had been circulated by RFI group and were discussed in 5 June meeting (is the document too exhaustive?) : immediate follow-up action identified : DIC has been contacted and meeting has to be fixed; what are the inputs required for this?
==> PAR not present : SSK to check with him about it. later email confirmation: meeting postponed to 11 Sep; PAR to update about documents required for the same.
Follow-up next week?

3.6 RFI testing of LED lights for GMRT labs & building -- from 14 Aug (PAR/SSK/RVS) :
Electrical group has procured LED tube lights (samples had been tested to be RFI free by the RFI team) that are being installed -- a plan for systematic RFI testing of these installations needs to be worked out. RFI teams recommendation was to install in recreation hall for initial tests -- to follow-up on status.
==> items have been indented, but not yet purchased ! To check status after one month.

4. Operations :

4.1 Development of M&C software -- from 14 & 7 Aug & before (JPK/RU/SN/NGK) :
(i) new things related to old software : mostly new requirements from FE monitoring of temp and power : FE monitoring of all 64 channels from RFCM card to MCM card to Laptop via serial to USB converter; available as a file on the PC -- done by RU for FE group; also monitoring of all the channels at control room -- JPK looking into identifying the appropriate channel(s) -- completed for Comm Box, waiting for completion for FE box to close this topic.
==> mostly done; except that 6 signals appear to have been mapped, rather than

7 signals -- to check this and see if matter can be closed.
(ii) update work with TCS (JPK/SN) -- discussion on plans for identification of next phase of the work.
==> a set of basic requirements have been identified and told to TCS : there is some confusion about how this flows down for the job to be done. Also, the follow-up on communication protocol needs to be done -- both of these could happen by Monday. Can check status next week.
(iii) plans to organise larger discussions regarding major decision items (all)
(a) follow-up from last meeting of FE related issues (b) follow-up from discussion regarding hardware interface and protocol related issues (c) plans for next session.
==> for (a) : reminder to SN (b) action being planned (c) may be able to schedule one meeting week after next. Follow-up next week ?

4.2 Monitoring of 3-phase power at each antenna -- from 31 Jul & before (SN/RVS) : Ops group has successfully tested the scheme, including online monitoring, on one antenna (C8); to come up with detailed plan for expansion to 30 antennas.
==> team is now planning to do a full set-up on W3 with both MSEB & genset included; and then expand to all antennas; to follow-up after one month.

4.3 Planning for proper space utilisation for new equipment at antenna base -- from 31 Jul & before (SN/CPK) : longer-term plans for proper utilisation of the space at antenna base. Ops group have made a preliminary proposal (after talks with concerned group heads) -- this was to have been circulated and taken up for discussion, but has not happened yet.
==> first draft report discussed; right now, total new space desired is more than available : need to make the MCM cards horizontal, will need to move the isolation transformer somewhere else in the room -- to check with electrical group about this. Also, electrical consumption comes to be ~ 2.6 kVA for the new systems and 3.5 to 4 kVA for old + new ! This needs a discussion with RVS and others. Follow-up after 2 weeks.

5. Back-ends :

5.1 Analog back-end for 8 antennas and beyond -- from 22 Aug & before (BAK) :
(i) release of new 8 antenna (dual pol) system of final GAB units, with full online control and final set of LPFs at output : SOP for 250-500 LO settings was tbd; confirm if LPF filters (100/200/400) performance found OK.
==> this seems to be working ok; there was some report of spikes in non-filtered o/p when filter o/p path is used -- this needs to be investigated and closed.
(ii) bandshape and power level problems resolved for all 16 channels of new GAB? Have tests been completed for other bands (250-500 and 610)?
==> SOP for filter banks setting is there, but needs to be circulated after feature for external LO is added. Agreed to put such information on a web-page for this sub-system.
Follow-up after 1 or 2 weeks.

5.2 Power equalisation schemes for new back-ends -- from 22 Aug and before (SSK/NSR/BAK): Need updates on both of the following :
(i) option 1 : using detectors in GAB and local feedback loop -- status update on completion of monitoring set-up, code for getting the values and applying the feedback etc -- update from last week's discussion about manual mode.
==> data coming in response to monitor command is not quite what is needed; this needs some follow-up.

(ii) option 2 : using correlator self outputs and computing gain corrections : 1st version was to be ready for release ; NSR and SKA to provide status update if problem solved or not and system tested and ready for release?
==> there is a problem here and appears that the code needs to be looked into. Urgent follow-up needed next week on both these items.

5.3 GPU corr status -- from 22 Aug & before (SHR/GSJ/SSK/BAK/DVL) : updates on following items, pending from last discussion :
(i) release of 4 node, 8 input, 200/250 MHz version -- to confirm status and test results for 32 & 110 MHz data sets : (a) 1.7 s time offset problem to be resolved (SHR/SSK) (b) note regarding diffstop release [need a status update page for GPU corr] (SHR/SSK) (c) mismatch of int and frac delay updates : new code tested and released? (SHR) (d) delay table and phase wraps to be checked -- are there any major wraps for any antenna (SSK) (e) plans for 110 MHz imaging (DVL) (f) update on code for providing basic beam modes (SSK/SHR/YG)
==> (a) test not done yet (b) to check if information can be put up regularly on a web-page (c) updates now happening at matching time stamps; to be put into the release version and left for now (d) to check for repeatable ones with several wraps across the band to see if these can / need to be corrected (e) DVL to work out the details (f) basic mode has been coded -- struggling with getting full o/p recorded faithfully (and then test the mode!)
(ii) update on testing K20 card (SHR/SSK) : report on latest discussions with nvidia and plans for follow-up action -- XGPU code and reshuffle algorithm. GMRT and nvidia teams were to meet and follow-up : any further progress on that?
==> a few things have been tried : no change between cuda 5 and 5.5 ; Pradeep's optimised code gives ~ 8% speedup; reshuffling of FFT o/p befor MAC actually slows down the performance. SHR to circulate a summary note and then have a meeting with nvidia for further plans.
(iii) plans for work on 4 new DELL machines (GSJ/SHR) : stand alone 2 x 10 Gbe I/O + corr tests on the R720 and T620 machines to be done. Fedora17 to be tried? Are the machines ready in corr room now ?
==> space is now created, but need a rack or table for accommodating the m/c; to start thinking about racks for long-term.
(iv) status and plans about configuration of 8 node cluster (SHR/BAK) : can we plan integrated 8 node, 16-input correlator tests -- has first test been tried?
==> not tried yet, due to lack of time. can be scheduled sooon.
(v) any fresh update on delivery status of bigger IB switch : has it arrived? other related network materials to be ordered?
==> switch has arrived; agreed to put it in at the centre of new cluster; to add one host m/c which can be one of the new m/cs till a replacement is found. Appropriate items to be followed up next week.

5.4 8 antenna back-end plans for further astronomical tests -- from 22 Aug (DVL/YG) : (i) report on results from Lband test data with 110 MHz BW settings. and (ii) plans/strategy for further tests, including 250-500 and maybe 610.
==>
(i) some of the results from the 110 MHz settings were discussed : level of cross-correlation coefficients; variation of power levels of antennas and the ability to do the equalisation; variation of power level within the band such as ripples etc and their possible cause and some options to look into these were discussed.
(ii) agreed to look into the possibility of having the GPU corr running by default all the time alongwith the GSB, so that basic band shapes, power levels, fringes etc can be monitored and the system can be exercised more, with lta

files being recorded only for special occasions; this requires the default choice of LOs to be specified for all the normal observing bands of GMRT. Follow-up next week.

6. Other items : (all are pending as there were no updates last week !)

6.1 Jobs at TIFR -- from 7 Aug (HSK/SKG) : to follow-up on the following :
(i) update on status of our jobs at TIFR -- check status of 180 pending jobs and status of drilling, tapping of 120 jobs collected.
==> 180 jobs have been completed; waiting for note from TIFR for collecting; 120 jobs tapping etc completed (?). Check status after 2 weeks.

6.2 Coexistence of 50-90 MHz RRI feed with 250-500 CDF on same face of turret -- from 7 Aug and before (HSK) : Mech group to check for possible solutions and report back, after looking at the drawings (awaited from RRI).
==> no response from RRI about drawings; alternate arrangement done to make drawing from available feeds; to resolve the matter by end of September. Can follow-up after 2 weeks.

6.3 Problem of access to FE boxes with 500-1000 CDF feed -- from 7 Aug & before (HSK) : Update on new solution being designed by Mech group -- test was to be done at antenna.
==> not done yet. Can check 2 weeks later.

6.4 Work orders for CSIRO feed with 2 parties -- from 7 Aug & before (HSK/JNC/ANR) :
(i) whether filling operation is over and new lab tests have been done on feed.
==> old filling operation not successful and all silver epoxy used up; new material arrived 27th and filling will be done in 1st week of Sep; 2nd unit (by M/s Quality Engg) is tested by FE team.

6.5 Fabrication of 5 spare L-band feeds -- from 7 Aug & before (SSK/HSK) : to check about
(i) faulty unit from Akvira Engg has come back and tested in FE lab?
==> work almost complete; item will be shifted to Khodad after inspection.
(ii) latest status of orders on other 2 parties (Physimech, Fabromech).
==> for Physimech unit : cleared for despatch, will arrive by 10th Sep; for Fabromech unit, some rectifications suggested after inspection -- delivery expected around 15th Sep.

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