

Minutes of Plan meet of 5th Sep 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Final release of RF beam shape analysis package doc -- from 22 Aug (DO/MS/HRB)
==> has been released; FE group to use and see how things shape up. Item can be closed.

2. FE & OF related :

2.1 SoP for antenna base work to be made : pending -- from 22 Aug and earlier (SSK/ANR/HRB)
==> No progress, FE group needs more time. To check after 2 weeks.

2.2 Update on 130-260 system : (i) feed testing & (ii) FE box work -- from last week (HRB/GSS/SSK)
==> new FE box has been tested; dipole has come; ready for integrated testing in the lab -- results should be available next week;
no update on sharing total power and temp detector -- to make a new item for this, for discussion next week.

2.3 Cone-dipole for 250-500 MHz -- from 22 Aug : series of RF dump tests were to be carried out for checking of repeatability of sensitivity measurements (HRB + NK)
==> not done so far; to be done this week. Follow-up next week.

2.4 Refurbishing of 235/610 feeds -- from 22 Aug & earlier (GSS/SSK) : results from second set of 2 feeds to be reported.
==> 2 earlier feeds now tuned to remove the kink (balun and probe position were adjusted); 2 newly repaired feeds will also be put through same treatment (only one chan needs to be fixed in each); to check after 2 weeks, and see if the topic can be closed.

2.5 Mass production of 250-500 cone dipole feed : status update -- from 22 Aug (HSK)
==> email update from HSK : enquiries sent to 3 parties, waiting for quotes; for in-house fabrication, enquiries for material purchase sent. Follow-up after 1 month.

2.6 Fabrication of 15 FE boxes -- from 8 Aug & earlier (HSK/SSK)
==> email updates from HSK and SSK : one box delivered (fro 130-260 system); others nearing completion -- waiting for details of mouting holes etc from FE team; follow-up after 2 weeks.

2.7 Work orders for CSIRO feed with 2-3 parties -- from 16 Aug & earlier (HSK/JNC)
==> email update from HSK : work order given to one party; waiting for quotes from other party. Follow-up after 2 weeks.

2.8 Calibration scheme with radiator at apex of antenna -- from 22 Aug (SSK/PAR)
==> preliminary results/report discussed : 4 different kinds of tests have been done; some conclusions : -100 dBm 325 MHz CW at transmitting antenna is detectable

in 1 min integration; translates to -142 dBm at receiving feed (with all gain and loss estimates put in); 1 dB compression for some parts of the chain have been measured; sample test of round trip variation also done; needs more rigorous follow-up to test time stability and repeatability; more formal version of report to be made ready; meanwhile, to look for a slot where a walk-through of the prelim results with interested users can be arranged; Plan meet follow-up after 2 weeks.

2.9 Status of mass installation of new OF systems and characterisation of installed units -- quick follow-up on some matters from last week (SSK/PAR)
==> overlap between wideband 250-500 feeds and new RF PIUs to be determined. OF team to send an email update about this -- URGENT.

2.10 Status of environmental chamber testing -- from 22 Aug & earlier (ANR/SSK)
==> party coming to GMRT tomorrow to resolve pending issues : rate of change of temp, communication with new laptops; can check status next week.

3. RFI related matters :

3.1 Estimating effect of military satellite RFI at 243 band -- follow-up from last week's discussions : step-wise antenna pointing tests completed? Can first version of report be released? (PAR/SSK)
==> tests will happen this week; to check status next week.

3.2 Miltec PC RFI testing and improved report -- from last week (SSK/PAR)
==> preliminary results shown by PAR : comparison of tests in March (from older version of the m/c) and in August (with improved shielded version of the m/c), and also for different combinations of peripherals connected. The results are very good for the new m/c w/o any peripherals (except for a very small bump around 313 MHz); with kbd, mouse and serial port connected (but no load), there is some increase in noise floor, much more when monitor is connected; need to confirm these variations wrt March results; to do one more measurement with only serial and ethernet ports connected (and loaded/terminated); to check with vendor if any further improvements are possible. Follow-up after 2 weeks to see if a final conclusion can be reached.

3.3 Discussion on finalisation of UPS RFI report -- from 22 Aug (SSK/PAR)
==> final version not available; prelim results between Consul UPS and Miltech UPS shown -- need a more detailed comparison, including results from presently used UPS. Can check after 2-3 weeks.

4. Operations :

4.1 Status of Miltec PC testing -- can it be cleared as fully functional? plans for next step : follow-up on pending items from last week (CPK/SN)
==> all basic tests are working; to check if higher performance version of motherboard is required (can check with vendor if he has such options); and also get pricing estimates for 30 nos; to follow-up after 2-3 weeks.

5. Back-ends :

5.1 User SoPs for new back-end systems -- from 22 Aug (IMH/BAK)

==> new SoP for 2 ant GPU corr has now been done in addition to 4 & 8 ant pkt corr SoP (and older one for PoCo); to check the SoPs and have others run the system using it. Expand to 4 and 8 node GPU systems. Follow-up after 3 weeks.

5.2 Update on status of final online control for GPU corr -- from last week : to check if final version of LTA to FITS is done and released (SSK/DVL)

==> email feedback from SKS : this is being integrated in the full version that is under development (due for review next week).

5.3 Packetised corr : follow-up from recent tests & plans -- from 22 Aug (SCC/BAK)

==> no new results; except that format conversion of o/p files to LTA is now done to first order in a python code -- SKS and SCC are checking this and will then get it to FITS format; to try and get some test observations done to ensure that the pkt corr has no further bugs; also to continue to work to add some of the missing features like max number of channels, DDC, beamformer to make a final 8-ant, dual pol system. Test results can be followed up after 2 weeks; rest after one month.

5.4 GPU Corr : current status & future plans -- from 22 Aug (SHR/SSK/BAK)

==> 8 node, 16-ant version, 150 MHz can be released for regular use (SoP can be made); to also try to release a 4 node, 8-input version, with 200/250 MHz BW (8 or 4 bit); main directions : to try to see if time slicing can be done dynamically on FPGA or while transferring to PCs (2 different experiments); to look into feeding one PC with 4 inputs to check I/O sustainability; to look into one round of code optimisation; to look into adding peripheral features. Next follow-up after 2 weeks.

5.5 Plans for next-gen time & frequency standards -- from 29 Aug & before (NSD/BAK)

==> study of different kinds of masers has been done and a summary table has been made -- can be circulated to interested persons; can follow-up on some of the doubts and queries with NPL, and colleagues in Australia etc. Follow-up after 4 weeks.

6. Other items :

6.1 Jobs in TIFR workshop : follow-up on delivery of first set; plans for next round of work -- from 16 Aug (HSK et al.)

==> email update from HSK : Update from Mr. Arora of TIFR : 140 items completed and available for pick-up; 40 items stuck on the machine which has had a break-down; they are looking for other alternatives for our jobs, till m/c is repaired. Follow-up after 2 weeks.

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Minutes of Plan meet of 12th Sep 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Detailed design doc : follow-up on sub-systems to be converted -- from 29 Aug & earlier (SSK/BAK)

=> From FE side OF rx is ongoing (then tx) and analog BE to start; to follow up after one month.

2. FE & OF related :

2.1 Update on 130-260 system -- from last week (HRB/GSS/SSK) : to check if FE & feed have been integrated and tested

=> FE integrated box completed : 130-260 hybrid ready (need raw material for making more nos); LNA is good from 130 to 600 MHz and gives better noise temp at 235 MHz than the existing system; Filter : LPF + HPF + notch (single one for Pune TV) -- to check for both Pune and Junnar TV exact freqs and finalise choice of notch. Also to see if we can have notch for satellite RFI at 240 MHz included -- TBD in later round. To check about tests next week; other items to be followed up after 4 weeks.

2.2 Cone-dipole for 250-500 MHz -- from 22 Aug : series of RF dump tests were to be carried out for checking of repeatability of sensitivity measurements (HRB + NK)

=> no data taken yet; to try to speed it up; can check again next week.

2.3 Update on directional coupler design for 250-500 FE system -- from 8 Aug (ANR/SSK)

=> email update from ANR : PCB given for fabrication for 6 units; expected to take about 2 weeks for completion. Need to check about chassis. Can follow-up after 3 weeks.

2.4 Update on mass production of 250-500 FE system -- from 29 Aug (ANR/SSK)

=> email update from ANR : 12 nos LNAs (for 6 antennas) are ready; polarizers (SAGE make) are available for all 30 antennas -- what about mounting?; existing post amplifiers to be used -- what about power levels vis-a-vis signal flow analysis? => need to do the detailed signal flow analysis for this band with a few different choices of post amp, BPFs, notch filters etc; what about BPF? 20 PCBs and comps available (except caps) : work can start with new trainee. Follow-up after 3 weeks.

2.5 Finalisation of common design for total power and temperature detectors for receiver chain : FE and BE groups to discuss and check the design being used by BE group and finalise the plans and report next week (SSK/BAK)

=> email update from ANR : FE group has taken one unit of power detector from BE team and are checking performance. Will know by end of this week. What about temperature sensor ? BE group is doing last of debugging of temp sensor. Can take it up after wards. To check after 2 weeks for item 1.

2.6 Testing of modified Common Box on W04 & full signal flow -- from 29 Aug (SSK/ANR/BAK)

=> 5 dB difference taken care of in all antennas; attenuation control: antcomm

mod needs to be done on all these ants; control room command is ready -- to inform all operators (JPK); W1, E2, S2, C6 have the final PIUs and C6 is modified for attn control (need to do so for the remaining 3 antennas). BE to confirm operating point and allowed range of power to OF group; also to check about 6 dB margin to adjust for 100/200/400 MHz BW settings. Follow-up after 2 weeks.

2.7 Status of delivery of lasers -- from 16 Aug & earlier (SSK/PAR)

==> 29 first order, 10 have come; 11 more coming; 50 will be despatched by next month -- that will complete the full requirement. To check after one month and see if the matter can be closed !

2.8 Status of mass installation of new OF systems and characterisation of installed units -- quick follow-up on some matters from last week (SSK/PAR)

==> 5 units to be done from MTAC onwards : S6, W6, + either S4 or E4 + C4, C10. Can check status after one month.

2.9 Status of environmental chamber testing -- from last week (ANR/SSK)

==> email update from ANR : visit from vendor happened and the two pending problems were fixed by their engineer, for both the units. Looks like this matter can be closed now !

3. RFI related matters :

3.1 Estimating effect of military satellite RFI at 243 band -- pending from last week : step-wise antenna pointing tests completed? Can first version of report be released? (PAR/SSK)

==> not discussed due to shortage of time

3.2 Mobile phone RFI -- from 29 Aug (SSK/PAR)

==> not discussed due to shortage of time

4. Operations :

4.1 Status of mass production of Rabbit MCM cards -- from 16 Aug & earlier (CPK/SN)

==> not discussed due to shortage of time

4.2 Update on using new MCM card on ethernet of PC for upgraded analog backend -- from 29 Aug and earlier (JPK/CPK/BAK)

==> need for this reiterated : 2 aspects -- testing the design idea & making the facility available; can use the Miltech PC as a test-bed; to check after status one month.

4.3 Monitoring of 3-phase power at each antenna -- from 29 Aug (SN/RVS)

==> one existing device discussed -- may be having some jitter problems; new device suggested, but may have interface problems... Ops team is ready to make a home made design -- can look into it (also check with RVS); may take 2-3 mos for completion; matter to be taken for follow-up after 1 month.

5. Back-ends :

5.1 Status of analog FE mass production -- from 29 Aug (BAK) : completion of

8 antenna system

==> 2 weeks to complete second set 4 ants (single pol); then 2nd pol to be taken up. Follow-up after 3 weeks.

5.2 Update on status of final online control for GPU corr -- from 29 Aug (SSK/JPK/NR)

==> first part : additional feature addition completed; work on the main s'ware going on -- expected completion by end of this month. Check status after 3 weeks.

5.3 Update on SFP+ work & future plans -- from 29 Aug (KDB/BAK)

==> final adjustment work looks resolved; need to complete the jobs listed; to check after 2 weeks.

6. Other items :

6.1 Follow-up on work on FPA system -- from 1 Aug (JNC/YG)

==> To aim for a discussion next week.

6.2 Follow-up on 15m work -- from 29 Aug (JNC)

==> spare motor to Baldor has been sent to UK for repair (under warranty); identify spare : can use spare Kolmogon motor from GMRT, if and when needed. mech work for flange etc to be estimated, in case needed later on; back-end : Roach based version getting ready in the lab; interface with MCM being done at present. FE related : notch filter for 1800 simulated : 0.2-0.3 dB insertion loss, 1.67 to 1.94 GHz, to be sent for manufacturing (15 days required) ==> 3 weeks to testing; to check if some fine tuning can be done to get to 1720 MHz OH frequency; testing of 1-3 GHz feed : VSWR tests done, waiting for test range to be functional again. Can check status of works after 3 weeks.

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Summary of the Plan meeting held on 26-Sep-2012

List of topics for Plan meet of 26th Sep 2012 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) : conversion of older reports & general taking stock of the matter -- from 22 Aug & earlier (SSK/BAK/DO)

1.2 Documentation : follow-up on level 3 (NTR) : check if any material ready for NTR -- from 22 Aug (SSK/DO)

2. FE & OF related :

2.1 SoP for antenna base work to be made : pending from 5 Sep & earlier (SSK/ANR/HRB)
--> 1 SOP is already on the web; 2nd SOP to be ready in 3 weeks from now [17-Oct-12];

2.2 Update on 130-260 system -- from last week (HRB/GSS/SSK) : to check if FE & feed have been integrated and a sky test has been done.
--> Feed : one polarization detuned; FE box is ready; integration planned next week [03-Oct-12];
on antenna after 2 weeks [10-Oct-12] for defelction tests;

2.3 Fabrication of spare L-band feed -- from 22 Aug and earlier (SSK/HSK) : drawing was to have been completed using spare feed w/o electronics -- check if this is completed.
--> 50% of the drawing work done by the mechanical group;

2.4 Fabrication of 15 FE boxes -- from 5 Sep & earlier (HSK/SSK) : details of mounting holes etc should have been given to w'shop (ANR/SSK); progress on construction of 14 remaining boxes to be reported (HSK).
--> The 250-500 FE box's front plate re-modified; Workshop to make x5 units;
The 500-900 system drawing under preparation;
The 130-260 system box changes ar evolving - could be finalized in 1 month [26-Oct-12];

2.5 Work orders for CSIRO feed with 2-3 parties -- from 5 Sep & earlier (HSK/JNC)
Have quotes been received from the other 2 parties and order placed ? (HSK)
--> One order placed; 2nd party PO being readied;
Waiting for 1250 X 1000 X55 mm thick plate;

2.6 Follow-up on spares for L-band FE electronics -- from 22 Aug and earlier (ANR/SSK)
(i) PCB indent & ordering should have been done (ii) PCB for control card -- design should have been completed (iii) chassis drawings and request for manufacture should have been given to workshop (all items 1 month old)
--> (i) The PCB fabrication order has been released;
(ii) No progress;
(iii) Sample given to Pune workshop;

2.7 Finalisation of common design for total power detector for receiver chain :

FE group to report on tests done on existing unit & conclusions from the same (ANR/SSK)

--> Decided to put 1 power detector in FE box & another one in Common Box;

Suitability of components under study [it is unclear if another amplifier is needed or not];

2.8 Testing of full signal flow on modified Common Box on W04 -- from 12 Sep (SSK/ANR/BAK) : (i) FE team to report about possibility for 6 dB margin to adjust for 100/200/400 MHz settings and (ii) BE team to give range of input values for analog BE system.

--> FE/OF group can not accommodate, only BE team needs to explore arrangement for the 6 dB flexibility;

BE team has given 'operating point' [-24 dBm], but range value is still awaited;

2.9 Modification for attenuation control in new OF systems for 3 antennas (W1, E2 & S2) -- from 12 Sep (SSK/CPK) : status update on how many have been done.

--> W1 & S2 completed; E2 remains which will be completed during MTAC;

3. RFI related matters :

3.1 Radiation from CAT5 cable -- follow-up from 29 Aug (SSK/PAR) : to check if the shielded components on order have arrived and tested or not.

--> Not arrived;

3.2 Miltec PC RFI testing and improved report -- from 5 Sep (SSK/PAR) :

(i) results with ONLY serial & ethernet ports connected / terminated (ii) give comparison with results from March measurements (iii) response from vendor about whether any further improvements are possible in RFI performance.

--> (i) unshielded cables & connectors were used; so re-test needed after using proper components;

(iii) email communication re-started with vendor;

3.3 Discussion on finalisation of UPS RFI report -- from 5 & 19 Sep (SSK/PAR): Report detailed comparison of Miltech, Consul and presently used antenna UPS units.

4. Operations :

4.1 Status of mass production of Rabbit MCM cards -- from 16 Aug & earlier (CPK/SN): When are cards expected from Hyderabad and plans for completing the assembly & testing of the same.

--> Received total 120 cards; Tests planned post-MTAC (40 cards initially);

4.2 Miltec PC related -- from 5 Sep (CPK/SN) : (i) confirm if higher performance version of PC required or not (ii) to get pricing estimates for 30 numbers

--> Higher performance PC is required; need to finalize "configuration" of the single board computer - in 2 weeks [10-Oct-12];

4.3 Ethernet switches for antenna base -- from 29 Aug (SN/BAK/SSK) :

(i) one 16 port Procurve switch was to be given by Manges to RFI group for test of RFI (ii) telemetry group was to double check expected data rates from antenna base to CEB (for checking 1 Gbps limit).

5. Back-ends :

5.1 User SoPs for new back-end systems -- from 5 Sep (IMH/DVL/BAK) : (i) check if 2 ant GPU SoP has been tried (DVL/IMH) (ii) check plans for SoP for 4 & 8 node GPU system (IMH/SHR).

--> (i) SOP is ready but waiting for machine for online control; 2 weeks [10-Oct-12];

5.2 Packetised corr -- from 5 Sep (SCC/BAK) : updates from new tests

--> PoCo : 12Sep12 tests with x8 Ae (16 inputs) results shown; SOP ready for release to users soon; GSB - PoCo compared : similar phase slopes differences are like 200 deg. versus 120 deg.;

5.3 GPU corr -- from 5 Sep (SHR/BAK) : updates on (i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input, 150 MHz version (ii) test of time slicing dynamically on FPGA or while transferring to PCs (iii) feeding one PC with 4 inputs to check if I/O can be sustained (iv) one round of walk through the code for further optimisation and rationalisation, (v) any other updates.

--> (i) still under progress - needs 1 month [26-Oct-12];

(ii) Initial test -> switches need destination mac address (& not IP address);
How to give ? Need change of the set up;

(iii) system not available;

(v) GPU 400 MHz /4 bit 'first' results shown; cross phase has problem for 'C9';

C6-W1 baseline has lot of RFI;

SSK's suggestion #1 : turn on RFI online monitor during future tests [need prior coordination];

SSK's suggestion #2 : use the 'by-pass' mode in FE for L-band tests (to be able to use broader bandwidth);

5.4 Update on SFP+ work & future plans -- from 12 Sep (KDB/BAK)

6. Other items :

6.1 Jobs in TIFR workshop -- from 5 Sep (HSK) : follow-up on current status

--> On Monday 24th Sept 140 nos finish size chassis collected from Mumbai TIFR along with 5 nos Drilling Jig. Rest of operation of drilling and tapping will be carried shortly at NCRA workshop.

[SKG found from TIFR that their CNC is still down - needs > 1 month for fixing; however, smaller no. of units can be machined on alternate machines at TIFR;]

OTHER POINTS :

During MTAC, there is a severe shortage of Spectrum Analysers;

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