

Minutes of Plan meet of 06 Mar 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 13 Feb & earlier :
conversion of older reports : to check if FE has released 250-500 LNA report;
to check if 250-500 feed has been taken up.
==> no updates about ITR for LNA; HRB to look into the ITR for 250-550 CDF;
follow-up after 2 weeks.

1.2 Documentation : SoP for antenna base work -- from 13 Feb & 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) (b) FE boxes (ANR) (c) Common Box (SSK) and
(d) OF system (PAR)
==> HRB has circulated first version for (i)(a) -- some comments and feedback
have been received; to incorporate these and refine. For (i)(d) also work has
been done for 1st draft -- will be circulated next week and can be taken up
for discussion; follow-up 2 weeks later for all.

2. FE & OF related :

2.1 Polarisation performance of 250-500 feed -- from 23 Jan (SK/DVL/YG) : update
on polarisation calibration comparison of narrow-band vs broad-band feeds.
==> no concrete update, though DVL has been pursuing some activity with NSR;
YG/DVL to come back with more details about status & plans; follow-up after 1 month.

2.2 Mass production of 250-500 feeds -- from 13 Feb (HSK/HRB/SSK) :
(i) to update on production and delivery status (for in-house and out-sourced) --
four new feeds should be available now.
==> Dipole from M/s Somwanshi not yet repaired; meanwhile 3rd vendor (M/s Quality
Engg) has sent their first unit -- quality looks very good; to be given to feed
group for testing; in-house fabrication : 6 dipoles are ready and skeleton for
cavities is ready -- will be delivered by 15th Mar; agreed to get dipoles Ni-coated
and then delivered along with the cavity; follow-up after 2 weeks.
(ii) to update on plans for checking quality of the units, including better
scheme for transportation of the feeds.
==> matter resolved adequately, and can be closed.
(iii) to see if we are ready to take final decision about mass production with
outsourced parties.
==> agreed to wait for some more time, as PhysiMech has also been approached
to make one unit. To follow-up after 2 weeks.

2.3 Directional coupler for 250-500 FE system -- from 13 Feb and before (ANR/SSK) :
report on results from prototype unit & repeatability with 6 new units; matter
of insertion loss of different connectors to be resolved; ITR to be produced.
==> no firm updates available -- need to check with ANR.

2.4 Status of improved 500-1000 MHz cone-dipole -- from 13 Feb & before (HRB/GSS/SSK) :

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

==> tests have been done, with varying distance/height; spot frequency result at 610 appears similar to ver1 ; freq response may be a bit flatter than that of ver1 -- to wait for more quantitative results to be sent out by HRB

(ii) discussion on results from tests done by HRB with different trial focus distances for ver 1 sytem.

==> need to be put out alongwith the results for the ver2 system.

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

==> matter discussed; some problems due to WiPLD machine corrupted by virus -- to try and see if work can progress on client m/c even as server is fixed by comp group.

email update required from Hanumanth; follow-up in meeting after 2 weeks.

2.5 Follow-up on delivery of 550-900 MHz filters -- from 13 Feb & before (ANR/SSK) : delivery of prototype meeting full specs -- update from vendor.

==> vendor coming on 11th for demo at GMRT. Follow-up after 2 weeks.

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

==> dipole is ready; problem of appropriate vehicle for shipment -- should happen by end of this week; to check status after 2 weeks.

2.7 Work orders for CSIRO feed with 2 parties -- from 2 Jan (HSK/JNC) : status update about delivery from both vendors.

==> both parties are almost ready -- only last stage of removal of excess material and fixing of support ribs is pending; can expecte delivery by 15th or so; to check status after 2 weeks.

2.8 Fabrication of spare L-band feed -- from 13 Feb & before (SSK/HSK) : to check status of indent / order on 2-3 parties.

==> close to sending off the orders; to check 2 weeks later.

2.9 Finalisation of design for total power detector for FE boxes -- from 13 Feb (ANR/SSK) : results from tests of prototype unit to be reported.

==> PCB still not ready ! To be collected this week; meanwhile chassis also getting ready; to check after 2 weeks.

2.10 Finalisation of design for temperature detectors for FE system -- from 13 Feb and before (SSK) : final design using TC1047 + amplification scheme : prototype to be ready.

==> no update; can check later in the day.

2.11 Calibration scheme with radiator at apex of antenna -- from 13 Feb, 23 Dec & before (SSK/PAR/SRoy/DO/YG): follow-up on action items from previous discussions.

==> no updates as Raybole is on leave; to check next week or week after.

2.12 Characterisation of new OF systems -- from 13 Feb & before (PAR/SSK) : status of follow-up on action items -- 2 worst case antennas at L-band to be taken up for testing and debugging.

==> 3 worst antennas given low power level (more than 10 dB below expected) are

C4, S2, W6 ; follow-up to understand and debug is yet to be taken up. (need to see how to tackle the problem of 4-5 bad OF systems -- see 13 feb); follow-up after 2 weeks.

2.13 OF systems -- from 23 Jan (SSK/PAR)

(i) Plans for further systems : component ordering for remaining items (WDM, pig-tails etc); completion of chassis.

==> quotes have come; some mismatch in part numbers etc -- being resolved with purchase.

(ii) Final results from testing of new lasers etc : generation of brief report.

==> no update on this.

Follow-up on both after 2 weeks.

3. RFI related matters :

3.1 Effect of military satellite RFI in 243 band -- from 13 Feb & before (PAR/SSK) :

follow-up action on 2 items, including beam shape measurements, has been taken

-- results to be circulated and discussed : waiting for document from PAR.

==> no update on this one; still waiting for update from PAR.

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

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

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

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

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

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

==> No discussions on these matters; still awaiting some clarity !

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

tests with peripherals using new shielded prods, connectors, cables + Rabbit card

etc as termination loads : new results to be reported and plans for finalisation

of comprehensive report (with comparison with older tests) to be discussed.

==> No discussions on these matters; still awaiting some clarity !

3.4 RFI tests of ethernet switches for antenna base -- from 30 Jan & earlier

(SN/BAK/SSK): RFI tests on integrated system with OF transceiver + switch + Miltech

PC + MCM cards using shielded RJ45 connectors and CAT6 cables to be done and

results reported.

==> No discussions on these matters.

3.5 New Item : Mass production of shielded box for MCM cards : 120 nos asked for

by PAR; HSK to fold into the overall requirements -- right now, outsourced to couple

of parties on trial basis and then to decide.

==> to follow-up after 2 weeks.

4. Operations :

4.1 Mass production of Rabbit MCM cards -- from 13 Feb (CPK/SN) :

(i) check about plans for ordering ~80 more cards : to see if a bigger discussion can be organised for this.

==> if FE & FPS requirement is not included, then 120 nos is within 10% of

requirement -- maybe 10 nos short. FPS may be going for PC104 version;
Ops group to produce a short note about their estimates and shortfall / excess;
YG to organise a meeting with Ops and FE group about card for FE system and also
to check with servo about their requirements.

(ii) release of SoP for testing procedure (to be shared with other groups) -- 1st
version was to be released (by Satish).

==> no progress; to check one month later.

(iii) software changes required (GUI etc) for analog back-end system (from 13 Feb)
to check if CPK has discussed with Naresh about the plans for this.

==> this will be like MCM PRN and will be useful in the long run, but not needed
urgently right now; hence, can put on low priority; can check 1 month later.

4.2 Using new MCM card on ethernet of PC for upgraded analog backend -- from
13 Feb and before (JPK/CPK/BAK) : (i) completion of s'ware for all commands and
tests in receiver room -- check if lab tests are over and tests in rx room are
done or not (ii) schedule for implementing in 8 antenna system.

==> offline tests show bit pattern ok; tests on jig board are still pending;
after that is done, will shift to rx room testing; waiting for JPK and Naresh
to coordinate; can follow-up after 2 weeks.

4.3 Identification of appropriate ethernet switches for antenna base -- from
30 Jan (SN/PAR/BAK) : Ops and Computer group to report on their discussions about
possible options and models to be tried out (both existing units and new units
in the market). -- YG to see if a meeting of a bigger group can be arranged on
this.

==> agreed that BAK can try to set up a meeting week after next; to follow-up
after 3 weeks.

4.4 Development of M&C software -- from 23 Jan (JPK/RU/SN/NGK/YW) :

(i) update on in-house development efforts (RU/SN)

==> postponed to 1st week of April as SN and NGK not present.

(ii) update on SACE related effort with TCS (JPK/SN)

==> ver1.2 of URS doc has been submitted on 5th March; NCRA has till 11th to
review and give feedback; YG has requested all those who helped with the review
last time to take a look at the new parts of this doc and give comments; JPK has
had a quick look and feels feedback will be needed on the new items.

Kick-off for 2nd phase of work (SRS) is scheduled for 7th March.

follow-up after 2 weeks.

(iii) plans to organise larger discussions regarding major decision items (all)

==> likely to happen in last week of Mar / first week of April.

5. Back-ends :

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

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

==> pending matter of crimp type vs solder type is sorted out and solder type has
to be resorted out; all individual chassis etc will be ready by end of this
month; next month onwards PIU wiring and integration will start; few auxiliary
PCBs is remaining : filterbank, monitor system PCBs are TBD; follow-up after one
month.

5.2 Final online control for GPU corr -- from 27 Feb, but pending for a long
time, now VERY URGENT (SSK/JPK/NR/DVL) :

(i) release of first version -- to check if system works as per new version SOP.
==> SOP tested by IMH and cleared; needs clarifications about initial settings, and needs some more comments; also to confirm conversion to LTA and FITS & then detailed tests can be planned; follow-up next week to see if matter can be closed.

5.3 GPU corr status -- from 27 Feb & before (SHR/GSJ/BAK/DVL) : updates on following items :

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

==> mode tested by online SOP is as above; to check next week if working OK.

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

==> optimisation on C2050/C0275 is giving 2x improvement (for MAC dominated case like 32 ants); porting to K20 (with change in chunk size) gives 36% faster performance (with ECC ON); FLOP nos are now possible for different tasks on C2075 and K20. Need detailed study. To follow-up next week.

(iii) plans for purchase of couple of host machines : follow-up on current status of testing of eval units from DELL.

==> no OS on machine hence not booting yet due to disk and OS problems; to check next week.

5.4 Power equalisation schemes for new back-ends -- from 13 Feb (SSK/NSR/BAK):

(i) option 1 : using detectors in GAB and local feedback loop -- status update on completion of monitoring set-up etc.

==> monitoring set-up requires PCBs to be ready; can start the work on the software package; follow-up after 2 weeks.

(ii) option 2 : using correlator self outputs and computing gain corrections : status update on scheme being implemented by SSK and NSR.

==> no updates on this; BAK to check with NSR and SSK -- follow-up after 2 weeks.

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

==> to find a slot for the discussion !

5.6 Next-gen time & frequency standards -- from 13 Feb (NDS/BAK) :

(i) completion of tests at GMRT and summary of the same by NDS -- have the results been shared with all concerned (including NPL)?

==> summary is almost ready for circulation.

(ii) plans for visit to NPL -- has the dialogue been initiated?

==> can initiate the dialogue with NPL now about plans for visit to NPL.

(iii) look into OCXOs from Oscilloquartz -- to be taken up during visit to NPL

==> no action at present.

Meanwhile, there was a visit by T4Science as an alternative vendor for Maser -- have installations in ISTRAC, MIT Haystack -- can initiate steps for getting feedback on their performance.

To follow-up after 2 weeks.

6. Other items :

6.1 Jobs at TIFR -- from 13 Feb (HSK/SKG) :

(i) to check if SKG has some informal feedback on plans at TIFR and discuss follow-up action accordingly.

==> HSK has checked with TIFR and they have not got their raw material delivery; agreed that we can send raw material from our side; SKG to confirm that there is no other problem at TIFR end. Meanwhile, HSK to ask for the requirements and draw up a plan for distribution of jobs : inhouse, outsource and TIFR; follow-up after 2 weeks.

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Minutes of Plan meet of 20 Mar 2013 (follow-up of some pending topics from different areas) :

1. Documentation related :

1.1 Documentation : follow-up on level 2 (ITR) -- from 6 Mar & earlier :
conversion of older reports : to check if FE has released 250-500 LNA report (ANR);
to check status for 250-500 CDF feed report (HRB).
==> ANR needs 2 weeks for ITR on LNA; to check with HRB -- material ready, needs to be put in the format. Follow-up on both 2 weeks later.

1.2 Documentation : SoP for antenna base work -- from 6 Mar & 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) -- updated version to be done (b) FE boxes (ANR)
(c) Common Box (SSK) and (d) OF system (PAR) -- 1st draft is due for this.
==> item (b) ongoing between ANR and Vishal Temkar -- one more week to complete;
for (d) PAR presented first draft : 2 page version of this looks quite good and
almost final -- will work out scheme for retroactively doing already installed
antennas. HRB to complete update in 2 weeks. Follow-up on all items in 2 weeks.

New item : Discussion about possibility of central data base for storing such
information and records, in addition to hard copies kept by respective groups;
to be taken up for discussion at a future date.

2. FE & OF related :

2.1 Update on results from test range -- from 27 Feb & before (GSS/SSK) :
(i) phase centre tests for 250-500 CDF : to discuss implications for difference
in inferred results of GSS wrt Yogesh Karandikar.
==> not clear what may be causing the differences : sharp change in values
(0.5 lambda or more) and also off by similar amount from Yogesh's value; to try
with different VVM and check; also to try one expt with adding 10 to 20 mm to the
existing feed to see how much change in sensitivity is seen.
(ii) to do a calculation of the expected deflection at 450 or 500 MHz and compare
with measurements to see if we are losing significant sensitivity (including
reference to paper that gives the loss calculations).

==> not much discussion on this.

(iii) status of phase centre checking for ver1 550-900 CDF and CSIRO feeds.

==> no stable results yet.

Follow-up on all items after 3 weeks

2.2 Status of improved 500-1000 MHz cone-dipole -- from 6 & 13 Mar (HRB/GSS/SSK) :

==> updates from discussions on 20 Mar 2013 afternoon between HRB,SS,APK & YG:

(i) detailed follow-up on summary of results of ver1 & ver2 systems (from last week)

==>

ver 1 dipole : has different spacing (narrower) and uses SMA connectors;
final RL plot is still reasonable; however, sensitivity plot shows (i) dip in
response at higher freqs and (ii) best response is ~ 2 dB or more less than the

expected (which is 11.1 dB for CasA).

ver 2 dipole : has same spacing of vert pipes as 250-500 system (spacing depends on transmission line impedance only) --> type N connectors OK !; only one single sleeve (top plate) compared to triple sleeve design of 250-500; optimal length of dipole and location of shorting plate.

height of dipole inside cavity :
suggested is 0.2λ -- varying the height changes the RL performance
but in real life, it doesn't quite work that way : final location for 250-500 is more like 24 cm instead of expected value of 18 cm !
However, for ver2, simulation optimised location is close to 0.2λ !

Major problem at present (for ver2) :
loss of sensitivity : getting around 9.7 vs 11.1 expected for Cas A; however, the response is significantly more flat with frequency, compared to the ver1 feed !

Action items :

1. repeat the deflection tests for ver2 and see
2. compare the deflections wrt other antennas with old 610 system
3. finer adjustment of focus distance for ver2
4. try a solid cone ?
5. try ver2 dipole in ver1 cavity and verify that results don't degrade?
6. try new polariser + LNA in old feed : what will we learn? (are there enough components?)
7. try more complicated / different dipole geometry in the standard cavity to see if another solution gives same or better RL performance?
8. try simulation with denser mesh (higher order of basis functions)?

Agreed : to complete action items 1,2 & 3 within the next few days.

Can give order for item 4.

Can try items 5 & 6 when CP etc are conveniently available within next 2 weeks.

Can try 7 & 8 in simulations, when PC problem is fixed.

Follow-up after 2 weeks.

(ii) to check if WiPLD server is back in virus-free working condition.

==> work is ongoing; should have a solution with next few days.

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

==> to be taken up under action item 8 above.

Follow-up on all matters in item 2.2 after 2 weeks to check status.

2.3 Follow-up on delivery of 550-900 MHz filters -- from 6 Mar & before (ANR/SSK) :
delivery of prototype meeting full specs -- update from visit of the vendor and plans for follow-up.

==> tests done last Friday during visit by vendor : performance generally OK, except for 4 MHz shift in all the filters; also one dip in response due to self-resonance of coupling capacitors -- need to change the value; vendor to make these two changes and send the new responses for approval; may take one month.
Follow-up after one month.

2.4 Mass production of 250-500 feeds -- from 6 Mar (HSK/HRB/SSK) :

(i) to update on production and delivery status (for in-house and out-sourced) -- check if Ni-coated dipoles are ready and delivered, alongwith the cavities; to check what is the result from unit provided by M/s Quality Engg); to check how many complete feeds are available now.

==> 10 dipoles arrived after coating and ready for shipment; 1 cavity fully ready and 2nd waiting for some more mesh; Quality Engg product looks good though some small corrections required (and Brass has to be changed to Cu); in-house production : 3 done, 2 more by end of month ==> total of 8 feeds by end of this month.

(ii) to see if we are ready to take final decision about mass production with outsourced parties.

==> HSK favours Quality Engg for order of 10 (should come by June) and then wait for Fizzy mech. To initiate this action.

Follow-up after 2 weeks.

2.5 Work orders for CSIRO feed with 2 parties -- from 6 Mar (HSK/JNC) : status update about delivery from both vendors.

==> first unit (from Fabromech) will come by next week (to reduce 92 kg to 85 kg or so); second unit (from Quality Engg) will take till end of March. Follow-up after 2 weeks.

2.6 Fabrication of spare L-band feed -- from 6 Mar & before (SSK/HSK) : to check status of indent / order on 2-3 parties.

==> 3 orders placed (one each from Fizzy Mech, Fabromech, Akivra Engg); expect delivery around mid-May. To follow-up the status after 4 weeks.

2.7 Finalisation of design for total power detector for FE boxes -- from 6 Mar (ANR/SSK) : to check if PCB and chassis for prototype are ready.

==> PCBs received, under assembly and testing, can check after 2 weeks.

2.8 Calibration scheme with radiator at apex of antenna -- from 6 Mar and before (pending for some time) (SSK/PAR/SRoy/DO/YG): follow-up on action items from previous discussions.

==> update from PAR on repeat tests done : one round of repeat tests done on C01; one more set of data on C00; evidence for cyclic behaviour with elevation seen as a pattern : ~ 0.4 to 0.9 dB and 3-6 degrees in phase; can it be due to stress in cable? Agreed to try a control expt with two RF cables used in a loop-back fashion (at o/p of common box). For varn with azimuth (prelim trends are as follows) : similar range of varn in ampl and phase, but pattern needs to be checked; to try azimuth expt with back and forth movement and also with the loop; temp performance of 40 m length of cable in env temp to be completed; to try and summarise in a couple of weeks.

2.9 OF systems -- from 6 Mar and 23 Jan (SSK/PAR)

(i) Plans for further systems : component ordering for remaining items (WDM, pig-tails etc); completion of chassis.

==> order for pig-tails almost ready to go; not clear about WDM; 300 chassis etc are under fabrication (as per other items).

(ii) Final results from testing of new lasers etc : generation of brief report.

==> varn of laser power with temp seen from env chamber test; report still pending -- to look into it.

Follow-up after 2 weeks.

2.10 Modification for attenuation control in new OF systems for ALL antennas -- from 13 Feb & before (SSK/CPK) : To confirm if systems now complete on remaining 3 antennas (C9, C11, E6).

==> C9 and C11 will get the modified RF ampl ; remaining will go in new systems. To confirm final status after 2 weeks, and see if this matter can be closed.

2.11 Characterisation of new OF systems -- from 6 Mar & before (PAR/SSK) : status of follow-up on action items :

(i) 2 worst case antennas at L-band to be taken up for testing and debugging

==> C4 and S2 are bad antennas, W4 is used as a (good) reference antenna; of this, C4 problem is likely due to HPF giving 10 dB loss -- to replace with spare unit (also, to check all the antennas for this problem); S2 looks like genuine RF problem -- to be investigated in detail.

(ii) 4-5 bad OF systems to be taken for corrections.

==> to circulate updated version of the measurement report presented in 13 Feb meeting. Follow-up after 2 weeks.

3. RFI related matters :

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

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

==> not discussed due to shortage of time.

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

==> not discussed due to shortage of time.

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

==> not discussed due to shortage of time.

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

==> not discussed due to shortage of time.

3.2 RFI testing of Miltech PC -- from 6 Mar & earlier (pending for long!) (PAR/SSK):

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

==> not discussed due to shortage of time.

3.3 RFI tests of ethernet switches for antenna base -- from 6 Mar & earlier

(SN/BAK/SSK): RFI tests on integrated system with OF transceiver + switch + Miltech PC + MCM cards using shielded RJ45 connectors and CAT6 cables to be done and results reported.

==> not discussed due to shortage of time.

4. Operations :

4.1 Mass production of shielded box for MCM cards -- new item from 6 Mar (PAR/SN/HSK):

120 nos asked for by PAR; HSK to fold into the overall requirements -- right now, outsourced to couple of parties on trial basis and then to decide.

==> sample piece made by Akivra Engg has been given to RFI team for testing; RFI team is working on it and will give update shortly; to check 2 weeks later;

2nd sample from Fizzimech to come in 10 days or so (may not be as accurate as Akivra).

4.2 Mass production of Rabbit MCM cards -- from 13 Feb (CPK/SN) :

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

==> going smoothly, except for leave etc of staff; ~ 23 cards are done. Can check again after one month.

(ii) check about decision for procuring 80 more cards.

==> reviewing the requirements : 45 for analog BE, 3 or 4 per antenna depending on whether servo needs for FPS ; further, if OF and sentinel can be on one Rabbit card, then only 2 per antenna ! Action items : CPK to send rough estimate email to YG; YG to contact all 4 groups to firm up requirements -- check with servo and see if OF + sentinel can be together. Follow-up after 2 weeks.

4.3 Miltec PC purchase related -- from 27 Feb (CPK/JPK/SN) : follow-up on delivery status of 2 nos of i7 model with improved RFI properties (due on 11th March).

==> no updates about firm delivery date; CPK to follow-up with Miltech head.

Check status next week.

4.4 Using new MCM card on ethernet of PC for upgraded analog backend -- from 6 Mar and before (JPK/NS/CPK/BAK) : (i) completion of s'ware for all commands and tests in receiver room -- check if jig board tests are over and tests in rx room

are done or not (ii) schedule for implementing in 8 antenna system.

==> NMS to make the required s'ware changes to allow tests in rx room with online commands -- may happen by this week; to check 2 weeks later.

5. Back-ends :

5.1 Power equalisation schemes for new back-ends -- from 6 Mar (SKS/NSR/BAK):

(i) option 1 : using detectors in GAB and local feedback loop -- status update on completion of monitoring set-up, start of work on the code etc.

==> i/f card prototype being wired-up which will allow monitoring (for one ant); work on code (with DKN) not yet started.

(ii) option 2 : using correlator self outputs and computing gain corrections : status update on scheme being implemented by SSK and NSR.

==> some initial prototype s'ware is getting ready; SSK to talk to NSR about getting it going further.

To check after two weeks.

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

(i) release of first version -- to check if system works as per new version SOP. ==> last phase of testing going on; latest updated version of SOP to be on the correlator webpage.

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

==> (a) is over; (b) is still pending ; for (c) : agreed to keep one of the main compute nodes as host, for upto 8 m/c, 16 input correlator (may not work for 16 input beamformer!); in parallel, to look for next bigger size of IB switch. next update 2 weeks later.

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

(i) release of 4 node, 8 input, 200/250 MHz version and 8 node, 16 input, 150 MHz version -- to report if the 1st mode is working with online control

(see item 5.2 above), and to state plans for the 2nd mode.

==> once SOP is cleared, first mode can be taken as finished; 2nd mode should work with the same code, with only changes in the config files -- this can be taken up a bit later (say one month from now).

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

==> SHR had tested one K20 on one of the DELL machines and run the code; to follow-up after 2 weeks.

(iii) plans for purchase of couple of host machines : follow-up on current status of testing of eval units from DELL.

==> basic features of eval m/c are OK; it has C2090 GPU and code can be tested on it, including I/O on 10 Gbe links. To set-up up a sequence for tests; to follow-up after 2 weeks.

5.4 8 antenna back-end plans for further astronomical tests -- from 27 Feb (DVL/YG) : implementation plan of tests proposed by DVL to be drawn up with BE team.

==> YG to talk to DVL for starting the tests; follow-up next week.

5.5 Packetised corr pipeline -- from 27 Feb & earlier (SCC/SSK/BAK) : to confirm a stable working pipeline for analysis of data, along with a SoP for the same -- SCC+SSK to produce the SOP; DVL to test the same : follow-up on detailed action items from 27 Feb discussion.

==> first version of SOP has been released; to be tested by Irappa et al; follow-up after 2 weeks.

5.6 Power and cooling requirements for projected back-end systems -- pending from 6 Mar, 9 Jan & earlier (BAK/RVS/YG) : to take up follow-up matters from the first round of tests; also check if report has been converted to ITR format. To check for a meeting between BAK/RVS/YG.

==> Electrical group has released report in ITR format; however, meeting for follow-up has not yet happened; follow-up after 2 weeks.

5.7 Next-gen time & frequency standards -- from 6 Mar (NDS/BAK) :

(i) completion of tests at GMRT and summary of the same by NDS -- to discuss the prelim report from NDS, and see if it has been shared with NPL.

==> report has been shared with Sengupta -- freq stability results achieved are a factor of 10 worse than specs in data sheet; to initiate further plans based on his response.

(ii) plans for visit to NPL -- has the dialogue been initiated?

==> see above.

(iii) look into OCXOs from Oscilloquartz -- to be taken up during visit to NPL

==> see above.

(iv) follow-up on T4Science

==> to follow-up about comparison plots; reminder has been sent to Divya.

Follow-up on all items after 2 weeks.

6. Other items :

6.1 Jobs at TIFR -- from 6 Mar (HSK/SKG) : to follow-up on

(i) raw material delivery

==> TIFR has got their raw material delivery hence we need not send; work has started on 300 nos of chassis for OF group.

(ii) SKG to check if any problems on TIFR side

==> TBC

(iii) HSK to ask for requirements from various groups and draw up a plan for execution of the jobs (in-house, out-source, TIFR).

==> BAK's group has given requirements (~500 units); and SSK has asked for 200 more (being done in-house).

Follow-up after 2 weeks.

6.2 Updates on 15-m related activities and presently pending matters -- from 27 Feb (JNC)

==> no updates on this item.

Follow-up next meeting.

6.3 Follow-up on FPA related activities -- from 27 Feb (JNC/YG) :

(i) LAN connection to the FPA and further testing of the unit.

==> no updates on this item.

(ii) details about connectivity and signal flow for digital part to be looked into.

==> no updates on this item.

Follow-up next meeting.

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