

Minutes of Plan meet of 4th Jan 2012 (follow-up of some pending topics from different areas) :

1. Documentation on Plan website : to follow-up with groups who have not yet put up the documents. YG has sent a reminder to electrical, mechanical etc. : waiting for a response from them...

2. FE & OF related :

2.0 Problems with repair of existing 610 feeds -- update by GSS : to make a fresh 610 part and integrate with existing 235 part for one unit; FE go give work order to mech for the same.

2.1 Cone-dipole feed : (i) discussion of latest results sent by HRB (results from NK will be taken up next week) -- beam shape values look reasonable, but further fine tuning of the procedure will be required ; RFI (seen more at 275) needs to be understood (ii) follow-up on checks for dip in 460-470 MHz range (from 23 Nov meeting) -- to check S02 carefully for this, check radn pattern in the test range, check simulation results, check if noise source on-off can be tried for these antennas (review after 2 weeks) (iii) discussion on (a) final algorithm for fitting -- needs some refinement, in consultation with control room and Ishwar Chandra (follow-up next week) (b) finalising release of ported software for use at antenna base -- to produce a report and SOP on this (2-3 weeks later).

2.2 follow-up on first version of note re LO setting for modified wide-band antennas (APK/RBS/YG) -- looks OK to first order, RBS to adapt for control room release (with cautionary statements etc) and review next week.

2.3 Scaled cone-dipole feed for 500-1000 MHz : latest update on fabrication of cone and design of dipole (GSS/APK) -- scaled dipole work is still going on, should be ready by end of this week; can try a simulation of the final design as a cross-check.

2.4 WiPLD discussions with vendor : updates and final status (GSS) -- AMC for old system agreed by vendor (at old rates), to check if 2 yrs at a stretch can be done and then close this matter.

2.5 Discussion on new common box : (i) understanding why Sirenza based unit had to be taken down from W04 (FE to come with summary) and (ii) plans with new ECG008 units (ANR/APK) -- no updates.

2.6 Order for lasers : update on current status of purchase folder (SSK/SKG) -- no updates.

2.7 Environmental chamber : status update (ANR/SSK) -- no updates.

2.8 Loop connection related works for Pune-GMRT OF link : will the new set-up be able to support 8 GBe capacity or not? (SSK) -- no updates.

2.9 Reminder : 150 MHz status update is due by next week (FE group to prepare): agreed to do this 3 weeks from now.

3. RFI related matters :

3.1 Update on testing RFI effectiveness of box of mesh on ground (PAR/SSK) -- no updates.

3.2 Coordination with servo group on plans for inspection of BLDC racks in Bangalore (SSK+SS) -- no direct update, but joint team has gone to B'lore.

4. Operations :

4.1 Palm size units : update on problem with Windows & future plans (PAR/SSK) -- one unit is with Ops Group for test loading of some software.

4.2 Miltec indent and order : follow up required ! (RBS + SSK) -- still waiting for clarification.

4.3 Update on MCM card PCB design : was to be ready by end of 2011... (CPK/RBS) -- SPI interface tested for new MCM card (with latch enable, but 30 bits instead of 32 bits), on board jumper configuration will ensure same card design will work for all users; final modified PCB to be made ready by one month from now.

4.4 Serial port for antenna testing : released to users? 5 hardware units were to be ordered. (Uprade/RBS) -- pending for user tests (one unit given to ABR group), pending test with FE group; laptops need to have linux boot; batch mode operation to be added; 3 units cash purchased, 3 more to be done; Brief report to be made; SoP to be vetted by the users.

4.5 First draft of template for high order command requirements -- from 14 Dec meeting (RBS) -- Ops group working on it; 2 weeks to release first draft to users.

## 5. Back-ends :

5.1 Updates from further tests with PoCo & GPU corr : new results (SCC/SHR/BAK) -- fresh test with GPU shows performance comparable to GSB (may be time setting problem?); to repeat for a few more runs and report back.

5.2 Updates on testing of packetised design (SCC/BAK) -- time sync problem now corrected; phase jump prob remains...

5.3 EoR switch : final SoP (BAK); plans for testing (NK) -- no updates

5.4 Technical note on ADC characterisation (reminder from 7 Dec 2011 meeting) by SCC/KDB/SHR -- not done yet; to check 2 weeks later

5.5 Update on SFP+ adapter board work (BAK/KDB) -- 2 boards, both working, all 4 ports exercised simultaneously; xau mode still not working; also need better chip placement (for heating) and board mounting arrangement + reposition one fan in the chassis; to have a discussion with MTE for revised version of the board; to invest some effort to debug 10 Gbe block to see if xau mode will work; to look into possibilities for stand-alone box unit also (with MTE); poll CASPER community to see what may work best.

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Minutes of Plan meet of 11th Jan 2012 (follow-up of some pending topics from different areas) :

1. Documentation on Plan website : to follow-up with groups who have not yet put up the documents. YG has sent a reminder to electrical, mechanical etc. : waiting for a response from them...

2. FE & OF related :

2.0 Problems with repair of existing 610 feeds : confirm if work order has been given to workshop (GSS) -- FE to provide email feedback.

2.1 Cone-dipole feed :

(i) update from NK about results from back-end tests and comparison with results from HRB --

(a) beam shapes: C6 & S2 give good agreement with expected values, C8 (Kildal) shows slightly narrow widths; can we extend to measurements to the very edge of the band (250 and 510 MHz)?;

(b) self sensitivity: lots of scatter due to RFI (C8 more affected), but basic results are reasonable;

(c) sensitivity results from cross method : shows a upward slope from 250 to 500 MHz -- could be due to over estimate of Tsys ?

(d) spectral line observation (at 467 MHz) shows line as expected, in strength, centre freq and shape and maps to a gain consistent with expected value of 3 (in appropriate units)

(e) issue of aliasing may be important for getting the full 33 MHz BW for current configuration of feed + front-end.

(ii) discuss RFI related aspects -- agreed that RFI group to take data from roof top system on request when broadband tests are going on (by HRB or NK); HRB to monitor BB output when NK tests going on

(iii) to follow-up on discussion regarding finalisation of beam shape fitting algorithm (in consultation with Ishwar & Ops Group)

(iv) discussion on choice of RF filters for this feed : can default to L-band scheme of 4 choices + one full-band bypass. 4 filters to be as follows : 100 MHz wide (6 dB BW), going from about 240 to 520 MHz with about 40 MHz overlap.

2.2 follow-up on first version of note re LO setting : to look at modified version from RBS adapted for control room usage (with help from Ishwar) -- this is ongoing; precautionary note needs to be added. Revisit next week.

2.3 Scaled cone-dipole feed for 500-1000 MHz : update on fabrication of cone and completion of design of dipole & progress on simulation (GSS/APK) -- cavity work is ongoing; dipole design as been finalised and given to w'shop (only gap between dipole arms needs to be finalised after some simulations); first round of simulations done (without sleeves). To revisit after 2 weeks.

2.4 Status update on CSIRO feed new units : enquiry / quotations for casting job underway; to check again after 3-4 weeks.

2.5 Antenna test range : status update (GSS) : to check next week (SSK remarked about some possible bug in data acq for amplitude signal).

2.6 WiPLD discussions with vendor : can this matter be closed? waiting for email update from GSS. -- no update.

2.7 Discussion on new common box : (i) understanding why Sirenza based unit had to be taken down from W04 (FE to come with summary) -- another CB with same amps assembled and being put up today on W04 and (ii) plans with new ECG008 units (ANR/APK) : pending from last week -- new PCB with 3-stage amplification getting ready (prototype), final version to have directional coupler for power mon. To

revisit after 2 weeks.

2.8 Order for lasers : update on current status of purchase folder (SSK) -- order (for full quantity for 30 ants) is gone; expected delivery is mid-Feb; for MUX : JDSU has stopped and transferred tech to another company -- to look at alternative strategy and also increase the quantity to complete all requirements (incl spares).

2.9 Environmental chamber : status update (ANR/SSK) -- inspection visit planned next week.

2.10 Loop connection related works for Pune-GMRT OF link : will the new set-up be able to support 8 GBe capacity or not? (SSK) -- confirmed that the scheme tested will NOT support all 4 channels (2 GBps will be permanently lost @ 1510 nm); alternate solution with another 1590 nm ampl + mux + demux can be done, but will cost 10 lakhs; action item for present : to go ahead with improving the gain for 3 channels after getting the clearance from BSNL.

2.11 Mass production possibilities at TIFR : update available (SKG) -- 2 samples from TIFR Mumbai w'shop, very good quality; BAK also needs about 300 pieces; ANR needs about 150 pieces; SSK needs about 250 pieces. Action item : to follow-up with H'bad campus also; to streamline the requirements and jobs -- SKG to discuss with HSK about it.

2.12 Reminders : 150 MHz status update is due 2 weeks from now (FE group to prepare); first draft of SoP for antenna base RF dump facility is due 2 weeks from now (HRB).

3. RFI related matters : (could not be taken up due to lack of time)

3.1 Update on testing RFI effectiveness of box of mesh on ground (PAR/SSK) -- pending from last week.

3.2 Brief update on inspection of BLDC racks in Bangalore (PAR/SSK)

3.3 Status update on mobile towers (PAR/SSK)

3.4 Update on current status and plans for RFI tests with EoR system (NK) -- no immediate updates from NK, will get back after couple of weeks.

4. Operations : (could not be taken up due to lack of time)

4.1 Palm size units : clarifications on Windows vs Linux (PAR/SSK)

4.2 Miltec indent and order : follow up required ! (RBS + SSK)

5. Back-ends : (could not be taken up due to lack of time)

5.1 Status of analog BE section (BAK)

5.1 Fresh updates on PoCo & GPU corr testing (SCC/SHR/BAK)

5.2 Updates on testing of packetised desing (SCC/BAK)

5.3 EoR switch : plans for testing (NK) --

5.4 Reminders : Technical note on ADC is due next week ; Updated report on LO System (and discussion on the same) is due in 2 weeks.

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Minutes of Plan meet of 18th Jan 2012 (follow-up of some pending topics from different areas) :

1. Documentation on Plan website : to follow-up with groups who have not yet put up the documents. YG has sent a reminder to electrical, mechanical etc. : waiting for a response from them... Also, minutes of all past Plan meetings will soon be on the website...

2. FE & OF related :

2.1 Problems with repair of existing 610 feeds : confirm if work order has been given to workshop (GSS) -- request for new feed not given, as one of the modified units (610 only) is suitable for testing notch problem in the lab (will come from w'shop by end of the week); can revisit the matter after two weeks.

2.2 Cone-dipole feed : to take up only if there are any new updates (e.g. new results, fitting algorithm etc.) -- no update.

2.3 follow-up on first version of note re LO setting : (i) to check how severe are the constraints for LO settings for 325 MHz band, in the absence of filters -- two different kinds of arguments were posed : first by APK about what kind of image band will come through : this is to be tested in the lab (APK); second point by BAK about 2nd stage of mixing, without 32 MHz BPF : this is to be tested with controlled expt (Ishwar) later this week; as conservative option : how quickly one switch can be made with 2 filters (full band and regular 325 MHz filter) in 2-3 boxes (FE group to investigate and get back); NOTE : GTAC observation from 3rd Feb onwards require 325 band.

(ii) to finalise the note -- postponed to 2nd Feb.

2.4 Discussion on choice of filters for 550-900 band (APK to lead) : summary of present proposition (vendor is ready to go ahead with the design work!); new propositions : (a) keep same width for all sub-band filters (agreed) (b) 100 MHz BW (6 dB) is preferred choice of BW (agreed) (c) overlap of 15 MHz is OK (agreed); other issues : setting range : from 550 onwards OK (as TV is at 540); 800 to 900 MHz sub-band is OK (useful to initiate detailed characterisation of CDMA RFI); bypass mode to be provided along with 4 sub-bands (with additional 2 way switch);

2.5 Scaled cone-dipole feed for 500-1000 MHz : any new updates? (GSS/APK) -- cone is ready for shipping; finalised drawing of dipole given : can check status after 2 weeks.

2.6 Antenna test range : status update (GSS) : pending from last week -- 327 feed radn pattern measured and found to match with old/original results; labview acq program has a bug that needs to be fixed and then regular measurements can be resumed. To check one month from now.

2.7 WiPLD discussions with vendor : can this matter be closed? waiting for email from GSS -- 2 yrs AMC for old version at same rate agreed upon ! matter can indeed be closed, and satisfactorily at that.

2.8 Discussion on new common box : latest update on modified CB put up on W04 -- second unit also gave same problem of loss of settings when MCM is switched off (should not happen); to be checked thoroughly by FE group in the lab; ECG version : one unit ready and tested, response is quite good; to check after 2 weeks for one working solution of new CB from FE group.

2.9 Mass production possibilities at TIFR : to finalise follow-up plan of action (HSK/SKG) -- SKG to check with Sangam Sinha and get HSK in touch with him; issues to be resolved : kind of raw material, to supply raw material or not,

money transfer issues. Can revisit 2 weeks from now.

2.10 Reminders : 150 MHz status update is due NEXT WEEK (FE group to prepare); first draft of SoP for antenna base RF dump facility is also due NEXT WEEK from now (HRB).

3. RFI related matters :

3.1 Update on testing RFI effectiveness of box of mesh on ground (PAR/SSK) pending from last week : need a first draft report from RFI group -- no update, report pending.

3.2 Brief update on inspection of BLDC racks in Bangalore (PAR/SSK) -- no update

3.3 Status update on mobile towers (PAR/SSK) -- no update

4. Operations :

4.1 Palm size units : clarifications on Windows vs Linux (PAR/SSK) -- no update

4.2 Miltec indent and order : follow up required ! (RBS + SSK) -- request to extend the validity of quotes sent; no news about test unit arrival. Check next week.

4.3 First draft of user requirements template from Ops Group should be ready (RBS) -- Naresh has made first version; xls sheet will be emailed to all GCs in next few days; check next week for update.

5. Back-ends :

5.1 Status of analog BE section (BAK) -- ripple problem is now solved by changing thickness of PCB and keeping same layout. To make 4 sets of prototypes with final specs and final components and integrate with 4 ant digital system. Check status after about 1 month.

5.2 Quick update on LO system planning, following meeting of 14 Dec 2011. -- conflict between extending freq range and having multiple choices; BE group to try for some more time and discuss after 2-3 weeks.

5.3 Fresh updates on PoCo & GPU corr testing (SCC/SHR/BAK) -- not discussed

5.4 Updates on testing of packetised desing (SCC/BAK) -- not discussed

5.5 Update on plans for SFP+ adapter (KDB/BAK) -- not discussed

5.6 Technical note on ADC characterisation is due NOW ! -- extend to next week.

5.7 Reminder : Updated report on LO System is due in 2 weeks, and discussion on the same is due in 3 weeks.

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Minutes of Plan meet of 25th Jan 2012 (follow-up of some pending topics from different areas) :

1. Documentation on Plan website : to follow-up with groups who have not yet put up the documents (electrical, mechanical etc). Also, minutes of all past Plan meetings to be put on the website (YG to S. Dongare)

2. FE & OF related :

2.1 Cone-dipole feed : to take up only if there are any new updates (e.g. new results, fitting algorithm etc.) -- new beam shape measurements by HRB : C6 shows clearly effect of military satellites and TV; S2 shows more noise resulting in poorer deflection; RFI group to study effect of satellites and specific RFI at S2 in more detail; C8 shows somewhat truncated response in freq and amplitude compared to cone dipole feed; HRB to discuss with ICH about improvements in fitting algorithm and report back.

2.2 First draft of SoP for antenna base RF dump facility (due this week) (HRB) -- needs two more weeks (HRB to discuss with GSS about present draft).

2.3 follow-up on LO settings for wideband feeds : (i) feedback from lab tests (APK) -- single stage mixing shows only the expected products; 2 stage mixing shows some evidence for some higher frequency signals, but down by 20 dB or more; general consensus is that there is no major problem, but wait till tests are completed (APK); (ii) feedback from antenna test (ICH) -- tests with 255 and 275 MHz LO settings: no visible difference seen; ICH to confirm both self and cross products (iii) update on plans for putting two filter system in modified FE box -- agreed to do for 2 antennas C06 and S02, using L-band switches; also to replace post amp with hi dynamic range units (iv) to resurrect the note for control room and produce updated draft (ICH+RBS) by next week.

2.4 Scaled cone-dipole feed for 500-1000 MHz -- single pol dipole + cavity will be tested in lab by next week; then construction of final cross dipole to be done; should take about 2 weeks to have it ready.

2.5 Discussion on new common box problem : (i) latest update from lab tests (APK) -- there is a hunch that the current drawn thru the regulators may be causing the problem, but no clear causal connection; to try with the actual (home made) power supply and dummy load to try and simulate the failure in the lab; to discuss two weeks later. (ii) plan of action for Sirenza and ECG units -- 2 units of ECG are ready for one CB; will go to W4 once above problem is solved; follow-up 2 weeks later.

2.6 150 MHz system status update from FE group (due this week) (APK/GSS) -- first simulations of BB dipole 120 to 285 MHz (triple sleeve design) done; to be put with ring and reduced gnd plane for next round of simulation -- to follow-up two weeks later; polariser : 0.1 dB unit (TEMLine by SAGE) is \$1000 per antenna vs 0.2 dB wirepack is \$70; 0.3-0.4 dB for wireline (similar to present system) -- decision needs to be taken on this; LNA choice : 60 K (vs 180 K existing) LNA is ready (can be given for mass production); BPF can be modified to 130 to 260 MHz.

2.7 OF component ordering : issues related to MUX-DEMUX availability (SSK) -- JDSU units not available; other 2 options have less power handling capability (300 and 500 vs 1000 mW), need to be pursued vigorously to get samples for tests; can follow-up 2 weeks from now.

2.8 Environmental Chamber : update and plans to handle the matter (ANR/SSK) -- serious mismatch between us and vendor ! he has now agreed to modify product as per our original specs, in 2-3 weeks time; to give him one last chance and then move on to new effort.

3. RFI related matters :

- 3.1 Testing RFI effectiveness of box of mesh on ground (PAR/SSK) : discussison of the report circulated last week (PAR/SSK) -- could not be done due to lack of time.
- 3.2 Update on inspection of BLDC racks in Bangalore (PAR/SSK) -- not covered
- 3.3 Status update on mobile towers (PAR/SSK) -- new round of towers being looked at.

4. Operations :

- 4.1 Palm size units : clarifications on Windows vs Linux (PAR/SSK)
- 4.2 Miltec indent and order : follow up required ! (RBS + SSK) -- still waiting for test unit to come to Pune.
- 4.3 First draft of user requirements template from Ops Group : brief discussion on circulated template (RBS) -- not covered; can take up user's reactions next week.

5. Back-ends :

- 5.1 Fresh updates on PoCo & GPU corr testing (SCC/SHR/BAK) -- both are now running stably for long durations; PFB is also available in GPU; few more longer tests and then release two antenna version for use; online interface to be speeded up.
- 5.2 Updates on testing of packetised desing (SCC/BAK) : time offset problem is solved, but phase jump problem is still not resolved. To review 2 weeks from now.
- 5.3 Update on plans for SFP+ adapter (KDB/BAK) : adaptor board has been shown to meet the basic requirements; new system will be an independent box unit; specs getting ready for indent stage.
- 5.4 Technical note on ADC characterisation : due this week (SCC/KDB/BAK) : to check again next week.

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