

2012 IMRBPB Shanghai, China
IMRBPB Meeting, April 24-29, 2012

Policy Board Members Present:

Jeffrey Phipps	TCCA – IMRBPB Chairman
Raymond Hung	HKCAD – IMRBPB Co-Chairman
Rick Leeds	CASA – IMRBPB Secretary
Francis Jouvard	EASA
Olivier Robelin	EASA
Dominique Dumortier	OSAC
Jimmy Leung	HKCAD
Masao Yoshida	JCAB
Akira Nakajima	JCAB
Mun Cheok NG	CAAS
XUE Shijun	CAAC
Wang Jin	CAAC
Liang Gang	CAAC
BAO Jianbo	CAAC
FAN Jingzhu	CAAC
Liu Yunlei	CAAC
CAI Jinyu	CAAC

MPIG Members Present:

Peter Osborne	Bombardier - MPIG Chairman
Mr. Paul Conn	Airlines for America
Tony Harbottle	Airbus
Lorenz Wenk	Airbus
Gregory Sweers	Boeing
Thomas Helle	Boeing
José Gomez-Elegido	Boeing
Zoran Jovanovic	Bombardier
Joel Maisonnobe	Dassault Aviation
Bernhard Schuster	Dornier 328
Wang Zhiyu	Avicopter
Armando Chieffi Jr.	Embraer
Xun LI	HAIG
Yuan Jiang Zhang	HAIG
Shoji Kawakami	Mitsubishi Aircraft Corporation
Joakim Sandberg	SAAB
Avril Benson	American Airlines
Andrew Mcadam	BAE Systems
Hideyuki Kidani	All Nippon Airways
Wan Rong	COMAC
Wang Zhiyu	AVIC XAC
Brian Jenkins	Bell Helicopter
Jim Staggs	Bell Helicopter

Damien Sturtzer	Eurocopter
Christophe Chazot	Eurocopter
Xue June Rao	XAC
Yan Qiang	XAC
Manny Gdalevitch	Aeronovo

Tuesday April 24, 2012

1. Meeting Official Opening/Introductions

- Commence 08:30 hours with all IMRBPB and MPIG participants in attendance.
- Opening address and welcome from our host XUE Shijun - CAAC.
- Follow-up statements from the IMRBPB Chairman who;
 - Thanked our Chinese colleagues for their gracious decision to again host the annual IMRBPB meeting.
 - Highlighted the unusual situation whereby the FAA and ANAC could not attend this meeting.
 - Advised MPIG that CASA, Australia was expected to sign the Charter this year and so the Board had sufficient members to hold necessary elections to fill Board vacancies.
 - Highlighted also proposed changes to the IMRBPB Charter to, among other things, make the filling of board vacancies clearer.
- Moved on to group introductions, firstly from the regulators, followed by MPIG.
- The IMRBPB Chairman stated that it was encouraging to see the number of participants from MPIG. From an IMRBPB perspective, attendance such as this provides the best opportunity to achieve consistent and achievable outcomes.
- The agenda, including proposed time frames for the various presentations, was reviewed.
- MPIG Chairman indicated that MPIG had been requested to review IP97 and his desire was to report back following deliberation of the Structures Working Group.
- Overall we will look to finalise proceedings by mid-afternoon on Friday.
- No other questions or clarification members moved to individual breakouts at 08:55.

Refer to the respective Regulatory or MPIG meeting minutes for details of April 24, 2012.

Wednesday 25 April 2012

2. Administrative Items

- Meeting opened 08:45.
- Opening statement by the IMRBPB Chairperson.
- Individual group introductions
- IMRBPB Chairperson announced the election of and introduced the new IMRBPB Co-Chair and Secretary.
- Agenda for the remainder of the week confirmed.

- Reviewed the amended IMRBPB Charter document with an explanation of changes to the Terms of Reference (TORs), and agreed election methodology.
- Discussion relating to non-attendance of the FAA and ANAC due to funding issues and acknowledgment and thanks again to the CAAC for hosting the meeting at such short notice.
- MPIG Chair acknowledged that the publishing of minutes is mention in the Charter. Enquired whether it would be appropriate to also mention revised and/or updated IPs?
- IMRBPB Chair indicated that clearly it was the IMRBPBs intention to improve the publishing of board minutes and related documents.
- MPIG Chair highlighted that the Charter states that 75% of member authorities are needed to hold an election. Does this mean only those authorities present at a meeting can be elected?
- IMRBPB Chair confirmed this was the intention.

No other questions – discussion moved to General Discussion.

- In relation to the Management Teleconference and the time zone challenges, the IMRBPB confirmed that the MPIG Chair, IMRBPB Chair and Co-Chair, IMRBPB Secretary and A4A were all required to participate. North America residents will accommodate the Hong Kong and Australia time zone.
- Acknowledged difficulty of the IMRBPB to address some CIP and IPs with lack of input from MPIG. The IMRBPB has agreed to continue to invite MPIG representatives to the RWG.
- MPIG Chair confirmed that the RWG was a good opportunity to address the IMRBPB in order to provide pertinent information relating issue being discussed/worked on by the industry group.
- Further he went on to say that MPIG also had some difficulty when not receiving any input or feedback from the IMRBPB in terms of issues they were working on.
- IMRBPB Chair agreed to take this on notice and to perhaps, were papers were available, allow discussion on regulatory papers.
- MPIG asked whether it was possible to agree on a better time frame for the release of regulatory papers.
- IMRBPB Chair confirmed it was his intention to put the final documentation package together 60 days prior to the meeting and to release the package to everyone as early as possible, this year it appeared to have worked well.
- MPIG stated they still had a concern that industry was not getting a full 60 days to review regulatory papers and asked whether there was an opportunity for the regulator to provide an explanation of proposed IPs?
- IMRBPB Chair acknowledged MPIGs concern stating there was still some difficulty with the process, although he again expressed a view that we were getting better.
- MPIG expressed their appreciation for the improvements but ideally still needed better visibility of the issues being worked on by the regulators.
- MPIG Chair suggested that perhaps on the first day of the yearly IMRBPB meeting each person who has submitted a paper be given the opportunity to explain the IP in order to enable MPIG to fully consider the issue knowing the intent behind the IP.

- MPIG acknowledged the difficulty regulators sometimes experience getting consensus on some papers and asked whether the regulators could perhaps get agreement on what papers will go forward for determination, such that MPIG does not waste time debating papers that have effectively been withdrawn.
- IMRBPB Chair acknowledged the point made, accepting that it is a difficult issue and it was suggested that perhaps the meeting agenda could be amended to commence with a joint meeting on the Monday morning in order to allow participants the opportunity to review all CIPs and IPs, before proceeding to the normal breakout on Tuesday.
- MPIG Chair appreciated the opportunity this change will provide and also highlighted that the MPIG presentation to the RWG was not as professional as he would have liked and he undertook to improve this situation.
- EASA provided an overview of changes to the IMRBPB web site due to recent adjustments within the EASA structure. In concert IMRBPB and MPIG members were confirmed and the list updated to reflect current Authority and Industry participants – with the exception of the FAA, as we're still awaiting confirmation of their representative/s.

Break: 1005 – 1030

- MPIG – Paul Conn, gave the meeting a brief explanation of the recent name change of ATA to A4A.
- IMRBPB Chair asked for confirmation of the status of the title for ATA technical documentation, will it change?
- Paul confirmed there was no intention to change the documents. Technical docs will still refer to ATA.

3. Review of Open Action Items

AI 08/01

- IMRBPB Chair advised that it had been decided back in 2009 that the regulators would incorporate changes relating to IPs and track those changes. JCAB has responded to this initiative but still awaiting FAA and ANAC input.
- EASA (Francis) highlighted the IP index as of February 2012.
- MPIG (Tony Harbottle) advised that he had offered to work through the index and update the list in relation to industry references. He also suggested an addition to the index that highlights decisions taken.
- IMRBPB Chair suggested an amendment to the IP procedures to include retroactivity provisions.
- IMRBPB Chair also highlighted the IP procedure relating to the submission of CIPs – being sent directly to the IMRBPB Chairperson within 60 days of a scheduled meeting. Suggested that we also amend the IP procedures to require CIPs to also be sent to the MPIG Chairperson.

AI 12/01 – Amend the IP procedure to;

(a) include applicability provisions and co-ordinate with MPIG before publication. Due date for this action is 3 months (with the meeting minutes). Co-Chair (Raymond) to action (by August 12), and

(b) include distribution of CIPs to the MPIG Chairperson.

AI 08/03

- ref IP 44.....include MPIG comments from the 2010 meeting and produce a new Rev (3) to the IP. Final version to be published on the IMRBPB web site. Refer to IP 44 V3 highlights for changes incorporated.

AI 08/03 to be closed with the publication of IP44 V3.

AI 10/01

- Following on from the last meeting in Singapore, the IMRBPB Chair was to draft guidance on LUP/HUP. To date he has not had the opportunity to commence the work necessary to address this issue. This was discussed at our RWG meeting in Ottawa and as a consequence, it was proposed to transfer the item to MPIG.
- MPIG Chair acknowledged the intent but stated that neither he nor the group had actually agreed to take it on?
- MPIG (Boeing) advised that they have produced some guidance for the B747-800 which could be used as a starting point.
- MPIG (Tony Harbottle) asked for clarification on whether LUP is intended to be included in the 1529 ICA requirements and the MRB process?
- IMRBPB Chair stated was not sure how to address the matter as there was not IP associated with the issue. He had simply been asked to provide guidance for the development of a LUP/HUP process.
- MPIG stated they did not want to go through this exercise without some form of regulatory guidance and a full understanding of the regulatory requirements.
- IMRBPB Chair asked whether it was realistic to expect the PB to reach a position that achieves a standardised approach to this matter.
- EASA (Dominique) stated that it was important to reach an understanding of what is acceptable in terms of instructions in the MRBR and the affectivity of the MRBR for aircraft that are operated outside expected utilisation parameters.
- Airbus, Boeing and Bombardier indicated that they had already addressed this matter to a large extent with LUP already developed for their various products.
- IMRBPB Chair stated that this raises a question in relation to who would actually benefit from this work. Quite apparent there are already different approaches being taken and what can we expect a standardised process? Would industry benefit from such guidance?
- MPIG (Tony Harbottle) stated that the issue comes down to the fact that there is a standard 1529/MRB process that addresses normal, (expected) utilisation. What's missing is guidance on how to extend this process where aircraft utilisation is outside the normal or expected utilisation envelope. Is this an MRB or MSG-3 issue?

MPIG to consider this matter and report back on Friday.

4. Issue Paper Review

IP 83 - Letter of Confirmation (approved in 2009).

- Now proposing a new letter designed to improve/formalize the circumstance where more regulators are wishing to participate in the MRB/ISC process in an advisory capacity but not necessarily wanting to approve the MRBR/PPH etc.
- MPIG would like to give some feedback on the templates which they feel will further improve the process. One issue is the time taken to have the MRBR approved by all signatories.
- IMRBPB Chair would welcome comments from MPIG on the two (2) templates.

AI 12/02. Re-open IP83 – MPIG to provide comments on the revised IP83 letter of confirmation (x 2). Need to track this AI in the IP index - July 12 MPIG. EASA (Francis) to amend IP 83 in consideration of MPIG comments then post the revised IP to the Web.

Note: IMRBPB Chair will take on the need to provide additional information on the Action Item list, for the next meeting.

IP93 - Scheduled Maintenance Data Standards (SMDS).

- Open issue paper. Refer to AI from the Beijing meeting.
- MPIG provided an update on the IP and status of work done by IATA since the Beijing meeting. This update is proposed to include a slide presentation that:
 - Provides a closure statement by highlighting the move by IATA to take over management of this issue. Guidance for the IATA working group has been provided, and
 - Conclusions – MPIG propose this IP be closed.
 - Future SMDS activity lead by IATA, and
 - IATA's representative on MPIG will keep MPIG and the IMRBPB advised/updated.
- IMRBPB Chair would like to review the discussion paper before seeing the IATA presentation.
- Having reviewed the paper recommend we now move to publish the revised IP and close the item with a closing statement; Rev 2 of IP 93 dated 13 July 2011.
- MPIG (Tony Harbottle) delivered a presentation from Tom Fodor, of IATA, to the Board. One important message is that of having regulatory input into this proposal. Feedback has been requested, especially if the regulators have any concerns in relation to this proposal.
- IMRBPB Chair requested MPIG to forward the presentation to the IMRBPB and highlighted that at this early stage there were some apparent issues relating to ICAs and how will operators get this information?
- MPIG recognizes this is not an IMRBPB issue; however, MPIG/industry is looking for regulatory support to move this issue forward.
- IMRBPB Chair acknowledged the work done to date, stating that the IMRBPB will welcome further input and/or updates in the future.

Break – 1250 to 1350

IP 105 - SHM and SAE Aerospace Recommendations.

- IMRBPB Chair introduced a letter from SAE Aerospace raising two (2) questions.

- MPIG (Lorenz Wenk) acknowledged that SAE has given presentations on what they are trying to achieve and are simply asking whether the IMRBPB would agree to SAE using IP 105 in their material.
- IMRBPB Chair asked whether, in relation to the first question, MPIG has given any thought to this matter.
- MPIG Chair indicated that some discussion had occurred and that it had resulted in minor concerns being raised.
- MPIG (Tony Harbottle) stated it may be possible that other organizations are doing SMH work following on from the Beijing meeting, these orgs should write to the IMRBPB Chairperson.
- MPIG (Boeing) stated there were broader issues involved.
- IMRBPB Chair confirmed the Board's decision in relation to IP 105.
- MPIG (Tony Harbottle) felt it important to get the draft process out so people can use it and simply looking for the IMRBPB to agree. MPIG have no problem allowing it to be released.
- EASA (Dominique) asked if this is a question for A4A?
- MPIG (Paul Conn) stated not at this stage as the intellectual property is not in MSG-3. If and when it does, become a part of MSG-3, then the information would become intellectual property, which would become a question for A4As legal folk.

Policy Board to caucus on this matter and report back on Friday with regards SAE and SHM.

5. Working Group presentations

L/HIRF – Update on the A4A L/HIRF Working Group - Greg Sweers

- Highlighted the working groups desire to have TCCA involvement.
- IMRBPB Chair acknowledged the request and clarified the reasons why no TCCA involvement so far. Committed to review this situation.
- MPIG Chair stated the time line may be tight given the amount of work to be done. Proposed that the time lines are reviewed in the Nov 12 meeting and only want to put up a single paper.
- IMRBPB Chair confirmed that as long as the IMRBPB receives the IP 60 days prior to the next IMRBPB meeting there would be no difficulty reviewing the document prior to the next meeting in April 2013. Further, the FAA has given TCCA feedback on the issue. This will be distributed to the Board shortly.
- EASA (Francis) is the working group going to develop new flow charts etc? Will any retrospective actions be considered?
- MPIG (Greg) industry may need to go back and review previous L/HIRF methodology as many aircraft were analyzed in different ways.
- IMRBPB Chair recognized retroactivity may be an issue as is the whole subject. However we have more experience today and because of this there should be considerable benefits with the new methodology once developed, as the earlier L/HIRF programs were very conservative. As such there should be considerable benefits that will result from this working group. Suspect industry will want to re-look at previous analysis. Notwithstanding, he will endeavor to ensure better TCCA participation in the next working group and thanked MPIG for the update.

Structures Working Group – W/G Update & Presentation – Joel Maisonnabe

- Update on the work of the SWG including a review of IP 97 and CIP 2008-03 Rev 3.
- Review proposed changes to IP 97.
- IMRBPB Chair advised the group that the IMRBPB reviewed IP 97 at our RWG in Ottawa. In principal we are in agreement, however, the Board will need to talk briefly about the issue and respond more formally on Friday.
- MPIG advised that the SWG had updated CIP 2008-03 and were proposing or recommending a way forward.
- IMRBPB Chair thanked MPIG for the update and confirmed the IMRBPB will await the revised CIP.
- MPIG Chair asked if they could get an in-principal agreement with their proposed direction.
- IMRBPB Chair advised MPIG that the Board will need to discuss the issue and revert back to them on Friday.

Break – 1515 to 1530. Followed by Official photos, MPIG – Regulators and combined groups.

- IMRBPB Chair advised MPIG that the IMRBPB had had an opportunity to consider the matter relating to IP 97 and agrees with the changes. IMRBPB considers the IP closed.

Francis to update the IP task index accordingly.

Rotorcraft MSG-3 proposal – Update – Brian Jenkins

- Brian updated the group on work being performed by the rotorcraft industry alerting the PB to certain difficulties being experienced. In order to overcome these difficulties the OEM's have enlisted the help of Helicopter Association International (HAI).
- General overview of the work done to date includes;
 - Proposal for a separate Vol 2 to the MSG-3 document,
 - Proposal for IMRBPB CIP-R arrangements,
 - Document management , and
 - Process identification.
- IMRBPB Chair explained how he would expect the review of CIP-R to occur from a TCCA perspective, which does not necessarily mirror the Rotorcraft proposal, although he acknowledged the rationale being used.
- Further, the IMRBPB Chair stated there may be some issues as well in terms of the potential size of the combined groups and the effect this may have on future meetings; i.e. finding suitable venues and critically budget ramifications.
- Finally the IMRBPB Chair stated that the IMRBPB did not see any major differences from a technical perspective. In this regard to IMRBPB is quite prepared to address the RC CIPs.
- MPIG (Brian Jenkins) advised that the major Rotorcraft OEMs are looking to implement the draft document, as soon as possible, recognizing new models are soon expected.
- IMRBPB Chair stated that it would be impractical to expect the document to be reviewed and returned to the HAI in 60 days. 90 days would be more realistic.
- EASA (Francis) stated that given the work done and discussion to date EASA will from today's presentation allow the use of the draft document.

- MPIG stated that the FAA has been a participant in the development of the document but have not given any indication of the appropriateness, or otherwise, of using the draft.
- IMRBPB Chair asked that the IMRBPB be able to caucus on the issue and come back to the group on Friday.

AI 12/03 – IMRBPB to review the draft ATA MSG-3 (R) document, original issue, and provide regulatory comment, coordinating with the FAA as necessary. Incorporation of comments will lead to a CIP for submission to the December RWG meeting.

- MPIG Chair highlighted the fact that coordination between MPIG & MPIG(R) will be critical to prevent unnecessarily complicating the process.
- MPIG (Paul Conn) asked whether it was too early to consider coordination activity.
- IMRBPB Chair believed it was and needed to allow the IMRBPB to caucus first on the discussions and consider the next step/s.
- EASA (Francis) asked what was proposed in terms of document acceptance – one acceptance for both volumes?
- MPIG (Paul Conn) stated that ATA would prefer an acceptance letter for each volume, despite the fact there was no intention to put each volume on a different revision cycle.
- IMRBPB Chair thanked MPIG and Brian Jenkins for the robust discussion and confirmed that the IMRBPB will come back to the group with initial comments on Friday.

Meeting closed 16:50.

Thursday April 26, 2012

Meeting Opened 08:30.

- Opening statement from the IMRBPB Chairperson, essentially we're on track with the agenda and will start today with the 5 MPIG papers.

6. Review of Candidate Issue Papers

CIP IND 2011-03, MRBR Approval Schedule

- MPIG Chair advised that Embraer will speak to CIP IND 2011-03 after a short presentation highlighting problems with the MRBR approval schedule.
- IMRBPB Chair advised the IMRBPB had had a short discussion on the CIP on Monday. The FAA had provided comment in relation to proposed changes to AC 121.22C which will see 90 calendar days changed to 90 working days. This should have the effect of reducing the time to approve revisions to the MRBR.
- Further the IMRBPB Chair indicated that the OEM should have the ability to negotiate an acceptable time frame for the approval of temporary revisions (TR). It may be useful to amend the relevant procedures to enable the ability to negotiate this outcome.
- CAAC (Xue) stated that just because the policy says 90 days doesn't mean the regulator needs to take 90 days.

- MPIG (Tony Harbottle) suggested we were getting into another issue regarding the timely release of TRs where OEMs were under considerable pressure to ensure ICA's for modifications that are available at entry into service.
- IMRBPB Chair suggested this was a different issue and one that perhaps in the absence of the FAA we should not be broaching. The best way forward is to put some guidance in the MSG-3 document that clearly states it is a matter for the OEM to negotiate a reduced time frame for approval TRs with the ISC.
- EASA (Francis) confirmed that the 90 days is a maximum and that EASA approves relevant reports in less than 90 days. He also highlighted the fact that many OEMs use different methodology for the promulgation of TRs.
- MPIG (Armando Chieffi Jr.) stated that he understands the regulators position, however, in Embraer's case; they have been informed by a regulator that they had 90 days to approve a TR. This makes it very difficult for the OEM.
- PB Chair stated the IMRMPB position which is: the FAA has confirmed that AC 121-22C will be amended to change the current 90 calendar days to 90 working days. Revisions will be processed in the same way as initial approvals, although the PB recognized the need to identify the MRBR TR process within applicable MRB guidance documents, such as the PPH. This guidance should provide for the MRBR TR approval time frame to be negotiated with the MRB/ISC members as appropriate.

Implement as IP 118 dated 8 February 2012. MRBR approval schedule. Revise IP index list and CIP closed.

FAA does not accept IP 118 as it is contrary to FAA policy. FAA rejects IP 118. This IP will be represented to the RWG in December for review.

CIP IND 2011-04, MSG-3 Analysis of emergency/backup equipment having evident functional failure/s.

- MPIG (Wan Rong) spoke to this CIP stating that COMAC was a new user of the MSG-3 document and they were having some difficulty negotiating their way through certain aspects of the required analysis.
- IMRBPB Chair advised that the Board discussed this matter at their meeting in Ottawa. This resulted in there being some confusion, with the FAA not being sure of what the problem was.
- MPIG (Tony Harbottle) stated that COMAC has just come into the system using MSG-3 and it appears they spent considerable time on this issue that may not have been necessary had there been a note on the evidence side, i.e. there is no forcing FEC 8 on the hidden failure. MPIG supports the inclusion of the note, to assist new users of the document.
- EASA (Dominique) believed wording in the new version of MSG-3 may negate the need for this proposal.
- IMRBPB Chair stated that the IMRBPB has a better understanding of the issue.

Will put this on the list of subjects to be caucused and the IMRBPB will respond to MPIG tomorrow. See the minutes under Friday April 27 for the results.

CIP IND 2011-05, CPCP Corrosion Level definition.

- MPIG - Joel Maisonnobe – Dassault spoke to this CIP.
- 2 action items/recommendations,

- Add a 3rd paragraph to the MSG-3 definition, and
- Remove ‘mercury’ spill which has been deleted from IP 97.
- IMRBPB Chair asked, from a TCCA perspective, whether the proposed change was in effect raising the definition of Level 1 corrosion for the CPCP.
- MPIG (Tony Harbottle) stated that MPIG clearly believe the intention is only to align the definition with EASA/FAA guidance which is being used today.
- IMRBPB Chair highlighted the fact that there is no consistent definition between regulators today and this has generated a lot of confusion especially with Level 2 & 3 corrosion where again there is no harmonized definition. Does this suggest the need to include a definition of Level 2 & 3 corrosion in the glossary?
- MPIG (Joel) maybe a problem in the field with the different definitions but that is not a problem for MSG-3. By adopting the change, it simply makes it clear in MSG-3 that a CPCP analysis needs to be conducted.
- PB Chair understands and agrees with the MPIG position and further concurs that MSG-3 is not the place to define Level 2 & 3 corrosion for the CPCP.
- IMRBPB Chair went on to ask whether Airbus was aware of similar issues/concerns.
- MPIG (Tony Harbottle) confirmed that discussions on the A350 are taking place but not at Level 2 & 3.
- IMRBPB Chair confirmed the FAA position which was to agree with the CIP.
- EASA (Dominique) asked MPIG to clarify why it did not adopt the EASA wording.
- MPIG (Tony Harbottle) stated that they had worded the text as a criteria simply because they did not agree with the use of “operations usage”.
- IMRBPB Chair – IMRBPB position – TCCA had concerns that the proposed Level 1 definition was possibly mixing Level 2 & 3 requirements. It has been determined that Level 2 & 3 definitions should not be identified in the MSG-3 glossary, as the MSG-3 CPCP requirement is for Level 1 corrosion only.

CIP IND 2011-05 – Accepted and closed as IP 119, Revision 1 dated 26 April 2012. Note: also remove ‘Mercury spill’.

FAA has no additional comments and accepts IP 119.

Break – 1005 to 1035

CIP IND 2011-06, Updating the List of MRB and ISC personnel in MRBR revisions.

- MPIG – Andy McAdam spoke to this CIP.
- IMRBPB Chair confirmed the FAA disagrees with this CIP.
- MPIG (Tony Harbottle) stated that in moving into the digital world it is becoming increasingly difficult for the OEM to keep the MRB member list up to date at each revision.
- IMRBPB Chair advised that the board could not find where we discussed this issue at the Ottawa RWG meeting. Notwithstanding, the IMRBPB understands the issue and considers it important to keep the initial MRB/ISC personnel list but that updating the list when revising the MRBR potentially adds no value. A compromise might be that revisions to the MRBR only need to include the MRB and ISC Chairpersons and TC holder program manager i.e. Key Personnel.
- MPIG Chair stated that from an OEM perspective, some may still elect to update the report with the full list.

- IMRBPB Chair – IMRBPB position on 26 April 2012 - The IMRBPB confirms that the initial MRBR personnel listing needs to be completed IAW current guidance material. Revisions to the MRBR also need to identify relevant personnel, but to identify all MRB/ISC participants could be an unnecessary burden on the OEM. Accordingly, it was agreed that additional guidance was needed to highlight that the personnel listing, for MRB revisions, only need to include the;
 - MRB Chairperson of the approving authority and the lead MRB Representative from each approving authority,
 - ISC Chair and Co-Chairperson, and
 - TC holder Program Manager/s when applicable.
- This listing to be included in the next revision of MRB guidance material with reference to MRBR revisions and personnel listing.
- MPIG asked why would the OEM need to include the project managers?
- IMRBPB (EASA) stated there seems to be some confusion regarding roles (focal points) on the regulatory side. Could you have a Co-Chair of the ISC who is not representing the OEM?
- IMRBPB Chair suggested a slight amendment to the IMRBPB position wording by removing reference to Program Managers and to define MRB Chairperson of the approving authority.

CIP IND 2011-06 closed as IP 120, dated 26 April 2012.

FAA has identified that IP 120 is contrary to FAA guidance. FAA rejects IP 120. This IP will be represented to the RWG in December.

CIP IND 2011-07, Acceptance of FEC 8 without tasks.

- MPIG – Tony Harbottle spoke to this CIP; Ref PP presentation.
- IMRBPB Chair confirmed the FAA disagrees with the CIP recommendation. Notwithstanding the IMRBPB acknowledges that technology could now be influencing this matter and this (technology) could be a driver to amend the analysis requirements to cater for circumstances where, for example, a self-test would allow detection of a failure.
- HKCAD (Raymond) wondered whether this is a function of the MSI and would it include say the 40FC auto-test function.
- MPIG (Boeing) cited examples relating to the recent B787 analysis which resulted in constant monitoring (sometimes pointless) in order to prevent a re-design.
- MPIG (Tony Harbottle) stated that in respect to continuing airworthiness, we should not be requiring the use of logic that drives the OEM ‘backward’.
- IMRBPB Chair acknowledged MPIG’s concern but stated that we don’t want a 1309 definition in MSG-3 and clearly this position is not acceptable to the FAA.
- MPIG (Lorenz) highlighted an aircraft that run an auto-test every 40 days and that test identifies a fault or evident failure. This should be enough to satisfy the safety concern.
- IMRBPB Chair confirmed that the IMRBPB agrees that we don’t want to drive the OEM down the re-design path where an auto-test, or any other means that identifies hidden failures, can be defined as a task. Perhaps there is another way to word (massage) the recommendation to provide the desired outcome?

- HKCAD (Jimmy) stated that the problem appears to be the wording which is confusing.
- MPIG (Joel) Agree MPIG should, in order to avoid re-design, reword the recommendation to include a statement that re-design may be considered as a last step.
- IMRBPB Chair stated that clearly the wording of the recommendation was not acceptable as it is. MPIG should look to rework the words, based on today's discussion, and come back to the IMRBPB on Friday with something that the IMRBPB can take forward (to the FAA). These words should include the provision for avoiding re-design where credit can be taken as a consequence of system architecture.

AI taken as per the decision and minutes taken on Friday April 27.

MPIG submissions concluded at 12:10.

CIP EASA 2011-01, Zonal Transfer – Wording Improvement.

- EASA (Francis) spoke to this CIP suggesting it should be a simple matter. No desire to change the MSG-3 requirement only to clarify the intention by adding a 'Note' and to also refer to L/HIRF in the "Zonal procedure" ref 2.5.1.
- MPIG Chair stated that MPIG had reviewed this item during a more recent teleconference and at the industry breakout earlier this week. MPIG support the concept and agree with the proposal on visual checks. In relation to L/HIRF, however, recommend this matter be referred to the L/HIRF working group.
- MPIG (Boeing) – going over the matter of transferring L/HIRF again, believes it should resolve the issue.
- EASA (Francis) recommends amending the CIP to remove L/HIRF and to retain the 'Note'.
- IMRBPB Chair proposed we close the CIP so amendment of MSG-3 can occur. Take an action item to transfer L/HIRF to the respective WG.

CIP closed as IP 121 – Revision 1 dated 26 April 2012 – Update the IP task index.

AI 12/04 – L/HIRF WG to consider transfer of relevant tasks to MSG-3. Expected completion - January 2013.

No FAA comments received and they have agreed with IP 121.

Break 12:40 to 1340

CIP EASA 2011-02, Clarification of Definitions for GVI, DET and SDI.

- EASA (Francis) spoke to this CIP which follows on from IP 117. Again no intention to change current definitions. Only wish to introduce more detailed information for (a) GVI; Basic cleaning may be required to ensure appropriate visibility, (b) DET to include tactile assessment and (c) SDI, to correct the misconception that SDI was NDT with specific qualifications needed, which is clearly not correct. Need to include NDI that does not require specific tools or qualification.
- MPIG Chair stated that only changes to revision 2 are those areas highlighted. MPIG have debated this CIP and have some suggestions based on agreement with the GVI and DET proposals. In relation to SDI, however, MPIG propose that the distinction between NDI and NDT be based on a level of training.

- IMRBPB Chair stated that MSG-3 is not the appropriate mechanism with which to determine training requirements, as each regulatory authority establishes/determines their own training requirements.
- EASA (Francis) agrees that technology has changed the nature of tooling available; however, there is still a requirement to perform the SDI.
- IMRBPB Chair confirmed the intent of the SDI has always been to classify the use of specialized techniques and equipment. The IMRBPB certainly considers a boroscope as specialized equipment.
- MPIG (Joel) raised the difficulty being experienced by operators/organizations with the different regulations impacting on NDI/NDT.
- IMRBPB Chair, again the PB is not responsible for determining qualifications. MSG-3 only defines the specification for tasks nothing else.
- MPIG (Boeing) wondered if special qualifications be included in industry guidance?
- IMRBPB Chair, yes quite possibly. 2 issues arise;
 - (a) may need to remove NDI/NDT from the SDI and only refer to inspection aids & techniques, and
 - (b) may need to include guidance that clearly states that established tasks in no way require or mandate particular qualifications.
- MPIG (Boeing) stated that as soon as you identify an aid the FAA requires an SDI. SDI to industry means you look to the NDT group.
- IMRBPB Chair again clarified that the intent of MSG-3 and the requirements for GVI and SDI. Looking back, he asked whether the headings for NDI/NDT were helping or hindering.
- MPIG Chair stated it was already agreed that the wording is causing concern.
- PB Chair indicated that the PB had reworked the SDI statement to make it clear that qualification is a matter for the respective regulator to determine.
- This was followed by quite a bit of debate over the term intensive and how relevant the term was in the SDI sphere, whereupon a final proposed amendment to SDI was put to MPIG. This amendment included removal of intensive and to include a statement to the effect that classification of a task, as an SDI, does not define the required qualifications for the person performing the task.
- MPIG agrees, although they suggested a slight reformatting of the provision and wished to caucus on particular aspects over the afternoon break.

Break 15:05 to 15:30

- MPIG asked for clarification regarding retroactivity to which the IMRBPB confirmed it was not the intention to push or make the revised provisions retroactive.
- The IMRBPB has accepted the proposed CIP and recommends incorporation into MSG-3 at the next revision. Further, the IMRBPB does not require retroactive application of this provision.

CIP Closed as IP 122 – dated 26 April 2012 at Revision 1

FAA comment that the DET change did not include a sense of touch within the definition. SDI definition does not meet the FAA intent in that it does not address that specialized equipment may require specialized training. IP 122 not accepted by FAA and IP 122 will be represented to the RWG in December for review.

CIP EASA 2011-03, Adaptation of the Fatigue Damage Analysis Logic.

- EASA (Francis) introduced this issue.
- MPIG Chair, conscious of the time taken to address Issue Papers when changes to flow charts are made. MPIG recommends this CIP be sent back to the Structures Working Group.
- IMRBPB Chair agreed with this direction and wished to include TCCA comments with the CIP in order for the SWG to determine a disposition paper and comment on the TCCA concerns.
- MPIG Chair stated that he though this CIP may have cancelled out an MPIG CIP.
- EASA (Francis) would like to give a 5 minute presentation on the rational for this CIP.
- MPIG (Paul Conn) raised a point of order, what is the process for introducing this paper and was there regulatory consensus?
- IMRBPB Chair confirmed that the IMRBPB had not necessarily followed the correct process.
- EASA (Olivier) explained the intent behind the revised flow chart.
- IMRBPB Chair stated that the IMRBPB does not wish to go through the issue at this time because the TCCA does not agree with some of the outcomes.
- **EASA (Francis) to forward a copy of the proposed CIP and TCCA comments to the SWG. See also – CIP IND 2008-03.**
- FAA position is that they will await SWG development.

CIP EASA 2011-04, Aircraft Utilization considered in the MRBR.

- EASA (Francis) introduced this CIP and highlighted a previous CIP that was rejected. Despite its rejection, however, certain parts of that CIP are still applicable today. Accordingly, EASA are of the view that addressing aircraft utilization is still required hence this latest CIP.
- Further, Francis stated that where an aircraft that does not operate for 6 months, additional TC holder instructions (ICA) may be required where the MRBR defines specific aircraft utilization. It was highlighted that the initial recommendation to address this matter was rejected during the IMRBPB caucus. Accordingly revised recommendations have been established, which are now tabled.
- MPIG Chair confirmed MPIG had briefly discussed the matter.
- IMRBPB Chair confirmed the IMRBPB has not received the amended recommendations.
- MPIG Chair stated that most OEMs tend to establish utilization parameters for commercial products, not necessarily for the corporate world, but not in the MRBR.
- MPIG (Joel) concerned that in so far as business (corporate) aircraft are concerned some regulators may push the transport category world, which would be a concern to both OEMs and operators.
- EASA (Dominique) – not the intent to put standard wording in the MRBR but there is a need to clarify the wording perhaps?
- MPIG (Tony Harbottle) suggested a simple change relating to the initial recommendation.

- MPIG (Avril) have to base the initial maintenance program on the MRBR – forcing a requirement to follow the TC holders instructions would remove considerable flexibility for the P121 operators who now have the ability to develop their own extended parking procedures (checks) that in many circumstances are more rigid than the MRBR.
- Group discussion with MPIG expressing some concern regarding the propensity for this provision to cause confusion in the industry, especially using the term ‘non-operational’.
- IMRBPB Chair not sure we are going to arrive at a solution today but clearly there is an issue that needs to be addressed.
- EASA (Francis) important for the regulator to ensure when approving the initial maintenance program that there is a link between the MRBR and any additional maintenance required where “normal” utilization is suspended.
- MPIG (Chieffe Jr.) asked – Is this an MRBR issue?
- IMRBPB Chair proposed an alternative provision that addresses EASA’s concern. This entails a statement being placed in the introduction section of the MRBR along the lines;
 - “Additional procedures may be required for periods of non-operation of the aircraft, e.g. extended parking or storage etc”.
- More debate with MPIG stating they are generally OK with the statement, although they question whether it actually addresses the regulators concern.
- CIP wording was reviewed with consensus the wording is appropriate.

CIP closed as IP 123, dated 26 April 2012. Incorporate recommendation at next revision of applicable MRB guidance material and applicable MRBR’s.

FAA determined that the statement developed is beyond the scope of the MRB/MSG-3 analysis and should not be included in the MRBR. FAA also states that IP123 appears to be in violation of the IMRBPB Charter in that the IMRBPB was created to only discuss issues related to the MRB/MSG-3 process. FAA rejects IP 122. This IP will be reviewed as part of the RWG in December.

Meeting closed 17:30.

Friday April 27, 2012

Meeting opened 08:30.

Opening statement by the IMRBPB Chairperson. Some people will need to leave early and asked if there are any other time constraints? We may need to condense some issues, in order to finish at a reasonable time. We will reduce today’s breaks to 15 minutes.

6. Review of Candidate Issue Papers (continued)

CIP TCCA 2012-03 (Version 2), Continued Safe Flight & Landing.

- The IMRBPB Chair spoke to this CIP highlighting the fact that the original CIP on this topic was withdrawn and had subsequently been re-written.
- MPIG Chair stated that they reviewed the CIP on Tuesday with quite a lot of discussion on the basic approach and the need to clarify the issue but don’t necessarily

like the wording. Both EASA and the FAA have a definition of safe flight and landing, EASA in CS25 and FAA in AC 25-1309.

- IMRBPB Chair acknowledged the concern about the wording but maintained it would help if we defined the term. FAA comments on this issue were tabled and clearly the FAA believes the definition should be expanded to include other issues.
- EASA (Francis) proposed that from a working group level we could rely on statements from the OEM during relevant analysis to highlight required pilot training associated with a particular failure otherwise no further definition is needed.
- IMRBPB Chair asked how the relevant WG would determine exceptional skill in relation to pilot training for particular failures.
- MPIG (Chieffi Jr.) we are talking about exceptional circumstances so it would depend on design and the ability of the aircraft to cope with the failure.
- MPIG (Tony Harbottle) potential in terms of the 1309 analysis but why are we differentiating.
- MPIG (Zoran) stated he was not comfortable with a WG opening up the pilot training issue.
- IMRBPB Chair asked whether there was any problem opening up the 1309 analysis.
- MPIG (Tony Harbottle) asked if we are confusing the two terms, failure effect/consequences etc.
- IMRBPB Chair stated that he had no difficulty adopting the MPIG position. May need a second opinion in terms of whether a failure results in a requirement for exceptional pilot skill or strength or workload.
- CAAC (Xue) thinks the proposed statement is OK. Makes it clear.
- MPIG (Boeing) does the WG have the ability to make these safety determinations?
- IMRBPB Chair gave examples where non safety tasks that were likely to end up as a candidate CMR and the OEM had to re-do the MSG-3 analysis in order to accommodate the related safety effect in order to develop an MSG-3 safety maintenance task. At other times retained the CMR. The WG should only be looking at the maintenance issues involved in MSG-3 not 1309; although it's acknowledged that a WG may miss something if 1309 is not considered.
- MPIG (Manny) expressed some concern and suggested to use the term failure to act.
- IMRBPB Chair identified that the FAA suggested the inclusion of safe flight & landing and would prefer not to link the training aspect. MPIG statement makes it clear and so leaning toward amending the CIP to adopt the MPIG statement. If the group agrees to propose to amend the CIP and rework with TCCA, ANAC & FAA. If they concur create an IP.
- MPIG Chair, if there is agreement on the wording OK but if it is changed, however, clearly it will need to come back to MPIG.
- IMRBPB Chair, if no one has any issues he will revise the CIP and coordinate with TCCA, ANAC and FAA. If they agree a definition is required in MSG-3, which is based on the AC 25-1309 definition, then the CIP will remain open. The IMRBPB agrees with the revision as drafted and if no further comments are received, the CIP will be converted into an IP for incorporation into MSG-3. (No formal AI taken as the paper is still in a CIP format)
- The statement for discussion has been amended to cater for rotorcraft and reads;

- The capability for continued controlled flight and safe landing at a suitable landing site possibly using emergency procedures but without requiring exceptional pilot skill or strength. Some aircraft damage may be associated with a failure condition, during flight or upon landing.

FAA position will be determined upon the representation of this CIP at the RWG in December.

CIP TCCA 2012-01, Clarification of Policy Permitting Consolidation of Tasks.

- IMRBPB Chair spoke to this joint TCCA/FAA CIP.
- MPIG Chair advised that MPIG had reviewed the CIP on Monday which had generated considerable discussion and resulted in the following position;
 - MPIG does not agree with the CIP as it conflicts with the MSG-3 process. MPIG believes the working groups and ISC should determine where consolidation of tasks is justified. Accordingly, MPIG recommends withdrawing the CIP and re-opening IP 77 for clarification, looking specifically at whether it refers to task consolidation during MSG-3 development or within the MRBR, after a task has been defined.
- EASA (Francis) believes there is benefit in the CIP recognizing the relationship with IP 77, although there is some concern with recommendation 3 “consolidation of tasks”.
- IMRBPB Chair recognized IP 77 was an issue and propose to reject the CIP with the following comments;
 - Comments received from the FAA and IMRBPB concerning IP 77. IP 77 remains a valid IP and the example provided in the CIP circumvents IP 77, which is not accepted by the IMRBPB. In addition, MSG-3 does allow consolidation/combination of tasks. If there is evidence that IP 77 and/or MSG-3 is not being followed for consolidation/combination of tasks then these examples need to be provided, including proposed guidance to better define the MSG-3 requirement.
- EASA (Dominique) spoke about traceability issues.
- MPIG Chair advised that they had previously raised concerns with IP 77 regarding the requirements for a traceability document to be published in the MRBR as this has not been consistently applied on new programs vs. legacy programs.
- MPIG (Tony Harbottle) reinforced that concern stating that the traceability requirement is not clear where new and legacy aircraft is concerned.
- CIP is not accepted as drafted. CIP is to be re-drafted to address examples not covered in IP 77 or MSG-3 procedures and include clarification on the traceability requirements.

AI 12/05 – IMRBPB Chair to notify MPIG whether this CIP will be re-drafted or closed. Update the CIP index linked to IP 77. Note: If the CIP is closed, MPIG to draft a CIP to deal with clarification of traceability in IP 77.

FAA position is to review the revised CIP to ensure that it’s harmonized or supersedes IP 77. Agree pending review of the revised CIP.

CIP TCCA 2012-02, Mitigation of CCMRs using the MRBR and AC25-19A.

- IMRBPB Chair advised that in relation to this CIP, the IMRBPB does not believe the wording is accurate enough and is looking for MPIG input.
- MPIG Chair agrees with the need for consistent policy among regulatory authorities that can be applied to all OEMs, however, not convinced this CIP is the correct way to achieve it. MPIG asks for clarification of the statement that Design Engineering has no downstream claim on tasks once the CCMR is relinquished to the ISC. In MPIG's view, this is not the case with MSG-3 and IP 44.
- Further, MPIG is addressing the impact of AC 25-19A on the MSG-3 process as requested by the IMRBPB through a new CIP (IND 2012-01) that will be submitted later this year. MPIG requests that CIP TCCA 2012-02 be withdrawn in lieu of the MPIG CIP.

Break – 10:10 to 10:30.

- IMRBPB Chair, further to CIP 2012-02 he stated that from a regulatory point of view the CIP is supported, however, there needs to be agreement on the CMCC process to cater for the variables where escalation is concerned. Essentially, there is no desire to see certification managing the maintenance program. It should be made clearer in the CIP that in terms of MSG-3/FAA guidance, CCMRs are not submitted to the ISC, they become the ISC's responsibility to manage and are not subject to additional management or control by certification activity.
- MPIG (Tony Harbottle) in the MRB world, the OEM is having input to the MRBR through IP 44. If IP 44 data indicates escalation is appropriate, it can only be done if the CMCC considerations remain valid. In this regard the OEMs need a solution. Is there a possibility of a tripartite approach to ensure information is available such that CCMR values are not exceeded?
- MPIG Chair proposed a one off meeting involving the Regulator/MRB/OEM to review the MPIG position.
- IMRBPB Chair stated that he thought that AC 25-19 A may be amended to 19B but could not confirm.
- MPIG (Tony Harbottle) can EASA confirm they will be reviewing and/or amending their guidance to align with AC 25-19A or B?
- EASA (Francis) will need to confirm the intent in this regard and advise further.
- IMRBPB Chair, as a result of the discussion on this CIP, it has not been accepted. It has been agreed by the IMRBPB that MPIG and the regulators will work together in developing CIP IND 2012-01, which will validate AC 25-19A and address the concern raised in CIP TCCA 2012-02.

AI 12/06 – MPIG to coordinate with the relevant parties to address the individual CIPs. WebEx in June (27 or 28) will confirm an expected completion date.

FAA will await the outcome of AI 12/06 and maintains that it should be made clearer in the guidance that when CCMR's are submitted to the ISC they become the ISC's responsibility to manage and are not subject to additional management or control by the certification activity.

CIP review completed at 11:00. Move to individual breakout – reconvene at 1330. IMRBPB Chair to update MPIG on ICA meeting.

7. Policy Board Breakout/Caucus

Please refer to the applicable Regulatory or MPIG meeting minutes for details.

Lunch break 13:00 – 13:30.

8. IMRBPB Meeting Resumed

IMRBPB Chair briefed MPIG on the results of the PB Caucus.

1. Decision of the Board to accept and approve the use of MSG-3 and IP 105 data as requested by SAE. In this regard, MPIG (Paul Conn) raised an issue relating to intellectual property. Accordingly the AI (12/07) for the IMRBPB chair was amended. It now reads;
AI 12/07 – IMRBPB Chair to co-ordinate with A4A to ascertain their position including the use of MSG-3 and IP 105, in the AIP, before responding to SAE.
2. IP 97 – Revision to IP 97 is accepted. Implement at next revision to MSG-3.
3. R-MPIG presentation:
 - * IMRBPB recognizes there will be a logistics issue to deal with but that is principally a matter for MPIG. We will need to adjust the meeting agenda in order to cater for the additional workload.
 - * IMRBPB is satisfied with the Volume 1 & 2 format.
 - * Each member authority will send comments directly to the R-MPIG Chair, ref AI 12/08.
 - * AI 12/09 relates to MPIG and requires a list of comments and their disposition with the development of a revised MSG-3, Vol. 2, to be issued by 1 November 2012.
4. **CIP IND 2011-04**, Explanation of changes which were agreed by the IMRBPB.
CIP closed as IP 124 and will be added at the next revision of MSG-3.
FAA has determined that this IP is unnecessary and could create more confusion. FAA rejects IP 124. This IP will be presented at the RWG in December for review.
5. Revision of IP procedures.
The IMRBPB has not touched on the workload issue which they feel will become an issue in future years. This suggests we may need to consider more robust IP development procedures to ensure, as far as is practicable, that when an IP is submitted it does not require rewording or other changes during the meeting.
6. Proposed change to IP 120 dated 26 April 2012, with the JCAB recommending clarification with a change from signatory of each approving authority to signature of the MRB representative of each approving authority.

End of regulatory feedback.

For MPIG the Chair reported that;

1. In relation to CIP IND 2011-07, it is proposed to reword the recommendation;

In paragraph 2.3.6.4....Replace,

- (a) “If there are no tasks found effective – then re-design is mandatory’, with
- (b) “if there are no tasks found effective then justify this is acceptable based on;
 - (i) the design philosophy (e.g. availability of auto-test),
 - (ii) frequent initiation of function by operating crew within the interval of a potential scheduled task that provides an acceptable exposure of the hidden failure (e.g. selection of anti-ice), or
 - (iii) re-design is necessary.

AI 12/11 – MPIG to distribute a revised CIP IND 2011-07 to all members’ authorities for comment.

2. IP 83 – letter of confirmation.
MPIG will provide response/comments which Tony will collate - by July 12.
3. LUP/HUP – AI 10/01
One of the issues discussed was the utilization window. In terms of developing relevant guidance, MPIG thinks it will be considerable work involved, which in many respects will be of little benefit.

AI 10/01 – Closed, based on the 2012 IMRBPB position that the utilization question is satisfactorily addressed by IP 102.

4. Discussion on logistics – deferred.

End of MPIG feedback.

The IMRBPB chair went on to give the group an update on the MDM .056 ICA Rule Making Working Group. Highlights were;

- Since the Beijing meeting there have been 6 meetings conducted,
- The task group management report has been drafted,
- EASA are now considering the results of the report and developing a presentation to be delivered at the forthcoming Aviation Safety Conference in Cleveland, USA, June 12, 2012.

IMRBPB Chair confirmed next IMRBPB meeting locations and dates;

- 2012 RWG meeting to be hosted by the FAA in Seattle, fall back Ottawa,
- 2013 IMRBPB meeting to remain in Cologne,
- 2013 RWG meeting to be hosted by Hong Kong in lieu of CASA in Australia.
- 2014 PB meeting to be hosted by TCCA, Ottawa.

General discussion then into closing remarks;

MPIG Chair again thanked the CAAC and in particular Xue. Clearly this has been a good meeting, with at times spirited discussion given the nature of some of the subjects covered by the CIPs that had been tabled. In saying that MPIG recognize the difficulties experienced by the Regulators. Agree with the need to re-organize the agenda with a view to commencing earlier on the Monday. The IMRBPB Chair acknowledged this point. Thanks also to the IMRBPB and look forward to continuing the effort.

The IMRBPB Chair also thanked CAAC and Xue who put in a huge effort in such a short time frame. Thanks also to COMAC who generously organized our travel arrangements each day. To each and every one in the room thank you for the collaborative way in which the discussions were conducted over the past week and to my regulatory colleague's special thanks for your efforts, which are very much appreciated. Clearly everyone worked very professionally together to get through the agenda and it is a credit to each of you. To all those leaving China today...have a safe trip and I look forward to seeing you at our next meeting.

Meeting adjourned 15:01.