TSG-RAN Working Group 3 meeting #3
Kawasaki, Japan, 26th – 30th April 1999

TSGR3#3(99)252

Agenda Item: 3

Source: Secretary

Title: Draft Minutes of Meeting #2

Document for: Approval

3GPP TSG RAN WG3 Meeting #2 – Nynäshamn, Sweden

0. OPENING OF THE MEETING

The convenor, Per Willars (Ericsson), opened the meeting at 9:20.

1. APPROVAL OF THE AGENDA

TSGW3#2(99)114 'Draft Agenda' was presented by the convenor, and documents were allocated to agenda items. Due to there being two agenda items numbered as "5", items 1-5 were renumbered 0-4. The minutes are structured around the re-numbered agenda.

The Tdocs were allocated to agenda items. It was noted that the paper copy of several documents had the wrong number, as some numbers had been allocated twice by ETSI. **It should be noted that the document numbers were of the format TSGW3#2(99)xxx, when these should read TSGR3#2(99)xxx. This report uses the TSGW3… format.**

It had been proposed on the reflector that Iub and Iur should be treated before Iu. The convenor planned to cover all agenda items in the meeting, but changed the order to reflect this. The minutes follow the agenda **not** the order of discussion.

One day of the meeting was to be held jointly with TSG S WG2, with a focus on user plane protocols and signalling bearers. The joint meeting is not covered in this report.

The agenda was approved.

The joint meeting with TSG-SA WG2 will focus on 23.10 and 23.30. We will not cover RANAP signalling. But we will cover Iu signalling transport and Iu General Aspects and Principles.

2. APPOINTMENT OF SECRETARY FOR THIS MEETING

Richard Townend (BT) was appointed as interim secretary for this meeting.

3. APPROVAL OF MINUTES OF LAST MEETING

TSGW3#2(99)169 The draft minutes of the last meeting were presented by the previous interim secretary, Atte Länsisalmi from Nokia. The comments made by email have been incorporated, except those in contradiction to Atte's notes. The two comments not included were:

- (Nicolas Drevon, Alcatel) on section 7.3 re. Tdoc84 (12.5.1) – should state that ARIB/TTC agreed to CCH on Iur if not mandatory for implementation. {comment not agreed – the draft minutes are not changed}

- (Nicolas Drevon, Alcatel) on section 5.2 re. Tdocs10&75 (5th would be decided at the next meeting. {*a note was added to state that the establishment of the SWGs was contested after the meeting, and the issue was settled at the subsequent meeting*
- groups { *nd two bullets)*

With these changes, the minutes were approved.

4.1 Report from O&M Ad Hoc Group

TSGW3#2(99)153 'Proposal for Iub Interface O&M Work Item and amendment of TSG-RAN terms of reference' was presented by Andrew De La Torre (Vodafone). Proposes a Iub O&M work item, and a change to the TSG-R Terms of Reference. It was clarified that the "logical model" is better termed a functional model for Node B. There are 2 sorts of O&M defined – logical O&M and implementation specific O&M. This document had been agreed by the ad hoc, although some of the details of the discussions will need to be addressed during the workitem.

It was clarified that other than terminology, there is nothing that contradicts the existing UTRAN Architecture description. It was clarified that the logical model would be very different from our existing logical model, as it would really be a functional description. The convenor stated that our logical model of Node B is for designing the NBAP protocol. Alcatel suggested that it would be better to start from the objects within the logical model and then to define methods for those.

After much discussion on the benefits of other approaches, *it was agreed to follow the four phases as shown in the document, with the change of O&M logical model to "list of O&M functions"*. It was noted that Phase 4 was dependent on S5 providing requirements, although Vodafone said that we could produce some requirements and provide them to S5. The convenor emphasised that it is Phases 3&4 that are our deliverable, and that Phases 1&2 were an intermediate step with no external deliverable. Andrew De La Torre will incorporate the phases into the workplan (tdoc 110).

Note: The proposed architecture will be discussed in Tdoc155 (see 7.1 below), and so was not approved/rejected at this stage.

4.2 Report from TSG RAN

TSGW3#2(99)152 'Report from TSG-RAN' was presented by Goran Rune (Ericsson) who had represented WG3 at the meeting.

- concern over document structure (combined Iub/r specs) – WG3 to discuss (see 6.1 below).
- specification numbering – whether numbering should be unambiguous across all TSGs and independent of TSG-R internal structure. This was being discussed at PCG, but we don't know the output. In the mean time, it was noted that our documents should be called RAN Sx.yy.
- April specification status & version numbering – it's not at all clear what the expected status of the April specs will be. We will leave it to RAN to set the correct version number at the April meeting.
- Specification naming of Iu related docs is ambiguous, as Iu reference point/interface is not clear. UTRAN Iu Interface was agreed as a replacement.
- Phasing of functionality – what should be in and out for Ph1. Guidelines were produced based around the milestones in the workplan. The guidelines will only be in the meeting report, rather than in a separate document. WG3 will need to create an internal report for future releases (as a repository for agreed text that is taken out of R99). It will be I3.04. Editor TBA.
- There is a new template for part of the workplan – the editor will need to modify I3.03 to match.
- Meeting schedule – see 5.3 below.

4.3 Others

TSGW3#2(99)210 LS from WG2 was presented by Håkan Palm (Ericsson). It concerned Handover between UTRAN and GSM/GPRS when using IP domain services. The technical details of the LS was allocated to Agenda Item 8.

TSGW3#2(99)216 'LS from RAN WG2 on RNTI' was presented by Jean-Marie Calmel (Nortel). The LS comments on the WG3 assumptions regarding RNTI. It also asks for input on the lengths of the identifiers for RNC-ID, s-RNTI and c-RNTI; this is an urgent requirement. Kalle Ahmavaara (Nokia) will draft a response after discussing with interested companies (see Tdoc219 in section 15 below). *The proposed changes to the WG3 documentation were agreed for S3.01, without references to specific RRC messages, and with the sentence referring to initial access being made into a note.*

TSGW3#2(99)217 'LS from RAN WG2 on transmission delays on Iub and Iur' was presented by Jean-Marie Calmel (Nortel). It was clarified that FACH-ACK is used to acknowledge RACH access (in addition to the L1 acknowledgement). WG3 (SMG2-ARC) had assumed that the ACK would be sent from Node B. A response will be drafted by Siemens/Italtel based on the discussion of Tdoc168 (see 7.1 below and Tdocs 220 & 224 in section 15). Lucent asked why the MAC in Node B had been removed from figures 22/23 in S3.01 if the issue was still open in WG2. It was responded that as the FACH-ACK was used only for RACH acknowledgement, it was the MAC-lc shown in figures 20/21.

5. ORGANISATION OF WORK

5.1 Workplan and organisation (including SWG structure) [I3.03]

TSGW3#2(99)110 'Workplan' was presented by the editor, Björn Ehrstedt (Ericsson). The document is based on the Ericsson contribution to the last meeting, with the inclusion of the Ad Hoc groups and the study items. *The document was approved with the amendments agreed below.*

TSGW3#2(99)164 'Amendments to WG3 Work Plan and Study Items' was presented by Jean-Marie Calmel (Nortel). It proposes a number of changes to the definition of SWGs in the workplan; the new definition was based on the Ad Hoc group definition. It was noted that "ad hoc rapporteur" should read "SWG rapporteur".

Nokia asked about the difference between SWG and ad hoc group – Nortel don't believe that fixed SWGs are necessary; SWGs would have broader scope (and longer life) than an ad hoc, but basically very similar to ad hoc. Motorola supported Nortel's view. Ericsson commented that the scope of the SWGs were defined in the Ericsson contribution to the last meeting.

The convenor commented that the main issue was if and how to organise parallel working. Kevan Hobbis (Motorola) commented that there was a danger that the plenary could end up revisiting all the issues raised in the SWGs. Alcatel was unhappy with SWGs being "responsible" for particular specifications.

Decision – *Agreed to the proposal in 2.1 of tdoc164 (and removal of 5.3 in I3.03), with the inclusion of "a proposed draft specification" as an output of a SWG. Also, the words "for example" are included before the bullet points and a fourth bullet is added stating "A SWG lasts until the task of the SWG is finished". Also "ad hoc group" should be replaced with "SWG" wherever it occurs in Tdoc164.*

T-Mobil expressed a wish to limit the number of parallel sessions to two.

3 working groups had been proposed to the last meeting (Iu, Iub/r U-plane, Iub/r C-plane)– Nortel's position is that it is too early to decide which sub working groups will be needed. Nokia are concerned about the progress, and suggest that *we can at least set up the Iu interface SWG*. There were no objections. Scope is as in I3.03, except that the group is responsible for "drafting" specifications S3.13 & S3.15. Nortel object to the creation of the Iub/r sub-working groups, especially as TSG RAN has queried our specification split. Motorola would prefer a single Iub/r group to prevent U-plane and C-plane being run in parallel. *It is agreed to establish a single Iub/r SWG with the scope as "responsible for drafting specifications…", with the list of specs as in the two bullets in I3.03*

BT pointed out that there would need to be very well structured agendas for the SWGs well in advance, to help companies with only one delegate.

For the next meeting, it is planned that Monday will be plenary, Tue-Wed parallel Iu and Iub/r SWGs, and Thursday/Friday as plenary. This will be flexible to allow the plenary to run into Tuesday if necessary.

TSGW3#2(99)203 'Proposal for work plan of UTRAN O&M specification' was presented by Zhongrong Liu (T-Mobil). Proposal 1 was already resolved at the TSG level. Motorola questioned the circumstances under which the transport for the implementation specific O&M is standardised. Nortel asked about whether there would be two models of Node B (one as in S3.01, and one in UML)? T-Mobil proposed having a separate model, and only using UML for the O&M side. However, NBAP uses some logical O&M concepts, so it was questioned how the model could be different. Proposal 2 (O&M SWG) was put as FFS, as there is not sufficient scope defined. Proposal 3 (UML for object model) is an issue for SA WG5 as the model is as seen from the management platform.

5.2 Elections/appointments of officials

The following candidates had been proposed:

Chairman WG3 – Per Willars (Ericsson)

Vice Chairman WG3 – Jean Marie Calmel (Nortel)

Secretary – Richard Townend (BT) for 6 months

Iu SWG Rapporteur – Atte Länsisalmi (Nokia)

Iur/b SWG Rapporteur – no candidate yet.

All were approved unopposed. The convenor encouraged candidates from non-ETSI companies. It was noted that there could be several vice chairmen.

5.3 Future meeting dates and hosting

The April meeting was discussed, and it was decided to leave it in the week commencing 26th April. A schedule between the meeting would need to be set (see section 16).

Hosts were requested for future meetings, in particular 31 May – 4 June. Motorola and Lucent offered to jointly host this meeting in the UK.

Hosts are still needed from August onwards.

The following additional meetings were planned:

27 September-1 October

8-12 November

13 –17 December

6. MERGING OF DOCUMENTS (ETSI & ARIB/TTC)

6.1 Presentation of merged and splitted documents. Agree scope and structure.

NOTE – all interface documents should be re-titled "UTRAN Iu[b/r] Interface: xxx"

TSGW3#2(99)108 'RAN Overall Description' was presented by the editor, Jean-Marie Calmel (Nortel). *Title changed to UTRAN Overall Description for consistency.*

TSGW3#2(99)118 'Manifestations of Handover and SRNS Relocation' was presented by the editor, Richard Townend (BT).

TSGW3#2(99)117 'Iu Interface: General Aspects and Principles' was presented by Richard Townend (BT). It was noted that an editor's proposal was required for movement of material from UTRAN Overall Description.

TSGW3#2(99)133 'Iur Interface: General Aspects and Principles' was presented by Kevin Hegerty (Lucent).

TSGW3#2(99)115 'Iub Interface: General Aspects and Principles' was presented by Mick Wilson (Fujitsu).

TSGW3#2(99)128 'Iu Interface: Signalling Transport' was presented by Kiran Thakare (Telecom Modus). The need for section 6 (Example Sequences) was questioned, but it was decided to leave it for now, to be removed if it was not populated.

TSGW3#2(99)129 'Iur Interface: Signalling Transport' was presented by Kiran Thakare (Telecom Modus).

TSGW3#2(99)116 'Iu Interface: Signalling Transport' was presented by Mick Wilson (Fujitsu). *It was commented that it would be good to have the same structure as the other Signalling Transport documents. The editor agreed to do this.*

TSGW3#2(99)113 'RNSAP Specification' was presented by Björn Ehrstedt (Ericsson). Document approved.

TSGW3#2(99)188 'Iu Interface Data Transport and Transport Signalling' was presented by David Comstock (Ericsson).

TSGW3#2(99)120 'Iur Interface Data Transport and Transport Signalling for CCH' was presented by Nicolas Drevon (Alcatel). It was clarified that DSCH is a common channel (and so is included in CCH).

TSGW3#2(99)119 'Iub User Plane Protocols for CCH' was presented by Jean-Marie Calmel (Nortel).

TSGW3#2(99)144 'Iub Interface Data Transport and Transport Signalling' was presented by Per Willars (in the absence of the editor). The purpose of chapter 7 was discussed – it was not clear where this information really is, especially as it is not really part of Iub. *It was agreed to remove chapter 7.*

It was commented that CCH is used in RAN WG2 to mean control channel (maybe as well as common channels). This should be brought up at WG2. *WG3 editors should change CCH to Common Transport Channel in the specification titles.* Håkan Palm (Ericsson) will write a LS to WG2 to ask about this (see Tdoc 213 in section15).

TSGW3#2(99)121 'Iur Data Transport for CCH data streams' was presented by Nicolas Drevon (Alcatel). Ericsson commented that *this document should be chapter aligned with tdoc119. The two editors were tasked with agreeing a common structure.*

TSGW3#2(99)112 'Iu Interface RAN-CN User Plane Protocols' was presented by Alain Maupin (Ericsson). *RAN should be changed to UTRAN.*

TSGW3#2(99)126 'Iur/b User Plane Protocol for DCH data stream' was presented by Fabio Longoni (Nokia). The document includes an editor's proposal to remove the list of parameters. Motorola objected to the removal of the text, especially as the connection ID is not included elsewhere. The convenor reminded the editors that it is better to make editor's proposals separately from reporting decisions from previous meetings. *The editor was instructed to include the connection ID into the tables, and to restore the list of parameters.*

TSGW3#2(99)122 'NBAP Specification' was presented by Nobutaka Ishikawa (NTT DoCoMo). Vodafone asked whether there was a need for an O&M chapter; it is covered in the NBAP common procedures section.

TSGW3#2(99)211 'Iub/r Interface Data Transport and Transport Signalling for DCH Data Streams' was presented by Sami Kekki (Nokia).

TSGW3#2(99)131 'RAN Functions, Examples on Signalling Procedures' was presented by Enrico Scarrone (CSELT). Ericsson commented that in chapter 7.1.1, it should read CRNC not SRNC. *The sentence referring to RNC Idle mode is removed.* Alcatel asked why Inter RNS HHO using Iur had been deleted. It was noted that we had agreed to remove the case of HHO using a single CN node, but this had not been done. *The editor was tasked with removing the single CN node case, and re-instating the HHO using Iur. Also to add a note to 7.2.9.4 and 7.2.7.3 stating that "this example shows the case where the SRNC decides to perform SRNC relocation directly at channel switching". The title was modified to "UTRAN Functions…".*

TSGW3#2(99)124 'RANAP Specification' was presented by Jyrki Jussila (Nokia). The editor made a note regarding the structure, as he wished to rename the sections:

Section 8 should be RANAP procedures, rather than RANAP Elementary Procedures as this fits better with the contents. The definition of elementary procedures was discussed, and *it was decided to accept the editor's proposal.* It was also proposed by Alcatel to make I3.01 an external document. The convenor commented that the S3.13 must be unambiguous and complete, as it is a normative specification; also that documenting error cases is simpler when the normative procedures are as elementary as possible – the level is to be decided.

Section 9.2 – if we use ASN.1, this should be split into two sub-sections "Message and IE Abstract Syntax' and 9.3 'Transfer Syntax'. This can be decided later.

All output documents were approved, subject to the changes that were described above.

Documentation Structure

The concerns at TSG RAN related to S3.27, S3.25 and S3.35. Nortel considers that there should be one document for Iur User Plane and one for Iub User Plane, with references across where the two are the same (e.g. for DCH). Ericsson asked why this would be better, as our ambition is to have one protocol. Motorola want to see one specification for Iub/r user plane, but Nortel disagree as the common channel scheduling is done in the CRNC. Motorola, Nokia, Lucent and Ericsson object to the proposal, so it is not accepted.

6.2 Reporting and decisions on study items

TSGW3#2(99)170 'sig/1 – Synchronisation at DCH Establishment' was presented by Fabio Longoni (Nokia). The decision was to keep the arrows indicating u-plane synchronisation at DCH establishment. It must be checked that the I3.01 reflects this. *Study Item resolved.*

TSGW3#2(99)148 'Iu/1 – SS7 as a signalling bearer on Iu and Iur' was presented by Kevan Hobbis (Motorola). No decision had been reached, but the discussions in SA WG2 joint meeting have moved the discussion forward. *It was noted that the study item should be kept open for the Iur aspects. Kevan will summarise any mail discussion to the next meeting.*

TSGW3#2(99)185 'Iu/3 – SRNS Relocation' was presented by Richard Townend (BT). It has been agreed to use the procedure with Proceeding 1 and Proceeding 2 messages. *Study Item resolved.*

TSGW3#2(99)146 'Iu/4 – Triggering of SRNS Relocation from Target RNS' was presented by Nobutaka Ishikawa (NTT DoCoMo). It has been agreed that there is no requirement for SRNS relocation to be triggered by the Target SRNS. *Study Item resolved.*

TSGW3#2(99)157 – 'Iu/5 – Separate or combined setup, modify and release of RAB' was presented by Jean-Marie Calmel (Nortel). *No agreement had been reached.* Ericsson commented that there was an additional issue of complexity with relation to priority and pre-emption handling. Jean-Marie will continue as responsible person.

TSGW3#2(99)149 'Iu/6 – Ciphering Algorithm' was presented by Cheng Hock Ng (NEC). It had been agreed to that the UTRAN would select the algorithm from a CN provided list, using the UE capability information. Chapter 4 of the report was withdrawn as it is incorrect. *Study Item resolved.*

TSGW3#2(99)183 'Iu/7 – Abstract syntax versus explicit coding' was presented by Atte Länsisalmi (Nokia). He clarified that where his report referred to YY.02 it should read YY.40. There had been no discussion on the reflector. Nokia recommended that the joint document (R2.01) Guidelines for Protocol Description and Error Handling should be used in this group as a basis for protocol description. We will return to this discussion under agenda item 11 (Tdoc184). *The study item was left open;* Atte Länsisalmi will continue as responsible person, and will contribute R2.01 to this group. It was clarified that the primary handling of R2.01 is done in RAN WG2, although WG3 can send input on this to WG2.

TSGW3#2(99)189 'Iur/1 – Out-band or In-band power control (UL and DL)' was presented by Björn Ehrstedt (Ericsson). The scope had been limited to the UL power control. An error was noted in S3.27 (section 7), which should refer to UL Outer Loop Power control. *The study item was left open, for both UL and DL.* It was noted that the UL and DL are different functions, DL power balancing within an RRC connection and UL is Outer Loop Power Control.

TSGW3#2(99)171 'Iur/2 – Separate or combined DL code reconfiguration trigger and procedure' was presented by Kalle Ahmavaara (Nokia). *The combined procedure was accepted, with modifications*

according to the report to be added to 8.6 of S3.23. Also section 8.7 should be removed, and 8.6 should be renamed to remove "ETSI version" from the title; I3.01 should be checked as well. Study Item resolved.

TSGW3#2(99)198 'Iur/3 – Cell and URA Update' was presented by Nicolas Drevon (Alcatel). This was discussed under Agenda Item 8, with other contributions on the same topic. *The study item was later resolved (see section 8 below).*

TSGW3#2(99)200 'Iub/1 – ID for NBAP Paging Message' was presented by Takaaki Satoh (NTT DoCoMo). No conclusion had been reached, but the pros and cons of the two methods have been identified. Per Willars commented that the RNC must anyway have a mapping between cells and Nodes B because of cell level paging. Nokia point out that while the RNC mapping tables must be larger in method B, it will be simpler to redefine (for example) location areas, as the information is only in one place. Nortel were not convinced that it is much simpler to duplicate messages than to send Node B specific messages as without a transport level multicast function the duplication must be performed at the application layer. *The study item was left open* - Takaaki Satoh will continue as responsible person.

TSGW3#2(99)199 'arc/1 – CCH (FACH, RACH, DSCH) on Iur' was presented by Nicolas Drevon (Alcatel). It had been agreed to keep the support of common channels on the Iur, as long is it remained an option. Section 2 was regarded as out of scope for the study item, except the first two sentences. Nortel disagreed that the support of CCH on Iur was optional. Nokia restated their objection to CCH on Iur as they don't like having two procedures to do the same thing. NTT DoCoMo emphasised that they had only accepted CCH on Iur on the condition that it were optional. Nokia supported this position. The study item remains open, and the discussion will be continued under agenda item 7.6. *At the end of the discussions (see section 7.6 below), the study item was left open to discuss solutions.*

TSGW3#2(99)130 'arc/2 dl channelisation code allocation' was presented by Kiran Thakare (Telecom Modus). It has been agreed that DL Code Allocation would be located it the CRNC. *Study Item resolved.*

In the workplan, resolved study items can be removed.

7. GENERAL UTRAN ARCHITECTURE

7.1 UTRAN Architecture [S3.01]

TSGW3#2(99)147 'Merged UTRAN Architecture Description' was not presented, but is provided as a reference.

TSGW3#2(99)168 'UTRAN Delay Estimation' was presented by Massimo Dell'Acqua (Italtel). The paper examines sources of delay in macrodiversity branches. It was noted that the proposal section was actually a concluded result rather than a proposal. An estimation of minimum delay has not yet been calculated. Nokia asked what transport network was assumed below the ATM – it is assumed that it will be a 155Mbit/s over 150km (crossing 5 switches). Alcatel commented that ATM queuing delay had not been considered. Ericsson asked whether there were any external performance requirements on UTRAN. Andrew De La Torre asked whether R4 might have an interest in this, as they are responsible for BS performance parameters. BT suggested that all working groups in RAN would need to be involved and that the distribution of the delay budget should be discussed at the TSG-RAN meeting. Alcatel stated that the figure 6 does not show packetisation delay, but rather packet transfer delay. Steve Terry (Interdigital) commented that WG3 needed to consider the worst case delay budgets in hard handover scenarios.

It was proposed to create a separate Access Stratum delay budget technical report; the requirements would be extracted, and put into the UTRAN Overall Architecture section 13.1. The report would be used to agree the delay budget and requirements throughout TSG RAN. *A study item [ARC/3 Overall Delay Budget within Access Stratum] will be created to produce a draft of this report (a title, number and editor would be assigned at the next meeting).* Massimo Del'Acqua from Italtel will be responsible. It was noted that there was a GSM equivalent, which would be a good reference.

In the response to WG2 on this issue (ref tdoc 217 [LS] and 220 [draft response]), we should state that we are studying the item, but that there are no figures available. Also, there will be different delays for

different streams, and that we were assuming that acknowledgements to RACH would be done from Node B).

TSGW3#2(99)155 'Proposed changes to S3.01 Overall Description relating to Node B O&M' was presented by Andrew De La Torre (Vodafone). The paper proposed a number of changes to S3.01, in particular a new diagram and a some notes. There was some discussion about exactly what would need to be specified to allow the transport of implementation specific O&M; *the fourth note is modified to read "the standardisation of the Implementation Specific O&M is outside the scope of WG3. WG3 shall only address the bearer for Implementation Specific O&M".* Ericsson commented that the figure is not a true logical figure, but an example of an implementation. *The figure is modified to show Implementation Specific O&M goes directly between Node B and the management platform(s). The third note is modified to state that "the implementation specific O&M can be routed via the RNC or via another interface"*

The co-located equipment is shown as it would be treated the same as Implementation Specific O&M. *It is also modified to show the line straight, rather than via RNC.* The link between RNC and Management Platform was queried – it is included for completeness but is out of scope for this group. Motorola proposed that *"logical resources Node B contains" in 10.1 should be changed to "traffic carrying resources in Node B controlled from the RNC". This is also agreed.*

TSGW3#2(99)167 'Ciphering and ARQ dependencies in UTRAN' was presented by Massimo Del'Acqua (Italtel). It was commented that the proposal was more relevant to R2 and to the security group. It was not discussed further.

TSGW3#2(99)174 'Identifiers for dedicated resources within UTRAN' was presented by Kalle Ahmavaara (Nokia). It was noted that in the second table, "signalling association ID (SAID) should be replaced with "VPI, VCI, CID". The paper suggests some guidelines for allocation of resource identifiers within UTRAN. DoCoMo asked why a RAB-ID is used on Iu, when there is a NAS-ID (defined in TSG CN to identify bearers), which would have a one-one mapping onto RABs. Also, is the RAB-ID the same as that used in the RRC messages – Nokia responded that this is not part of this contribution. Nortel asked why there is not a CCH identifier within UTRAN – Nokia responded that the contribution referred only to dedicated resources. Nortel commented that they expected the identifiers to relate to the logical model – the convenor noted that we have no logical model of UTRAN. Nokia agreed that the contribution should be harmonised with the logical model. Nortel and Nokia agreed that the identifiers should be an attribute of an object in the logical model. Nortel asked about why it is not always the requesting (or responding) entity which allocated binding IDs. It was decided in Chicago that UTRAN was responsible for Iu transport resources, and the binding ID is first signalled in the Radio Network Control Plane and then in the Transport Network Control Plane in the opposite direction. DoCoMo asked how the RAB-ID and the "call ID" are bound together – the SAP between AS and NAS will support some NAS information, and we must ensure that we can carry this information in the RANAP Assignment message. DoCoMo asked whether we could use the "call ID" as the RAB-ID – Ericsson stated that this is a violation of the AS/NAS division. Ericsson stated that the ALCAP identifier should be AAL2 Path ID (equal to VPI/VCI value, but trustworthy in the case of cross-connect) and CID; also that they cannot see why the binding ID should be memorised for the duration of the link, as it is implementation when the binding ID is released. *The following changes were approved:*

- *AAL2 ALCAP ID is AAL2 Path ID and CID*
- *The binding ID is signalled first on the Radio Network Control Plane and then on the Transport Network Control Plane in the opposite direction*
- *The words "and it shall be reserved during the lifetime of the link" is deleted*

Nortel is unhappy about the relationship between the DCH-ID and the logical model of Node B. They think that the logical model must be defined before moving forward. The convenor stated that we cannot be held up by deficiencies on the logical model.

The convenor proposed that we should add an object called DCH (details are ffs), to the logical model of Node B and Drift RNS. Nokia pointed out that many NBAP and RNSAP messages contain the DCH-ID. Alcatel commented that all IDs that we use should reference objects in our logical models. Nortel believes that the models are necessary to understand the implications of the various parameters of the messages.

BT noted that “a list of DCHs” is already in the model as an attribute of the communication context, and so the discussion had been wasted!

It is added to the Node B model that the DCHs are identified by DCH IDs.

The editor of the NBAP specification should check that the binding ID is only included in the messages referred to in Tdoc174. In other cases, Binding ID should be replaced with RL-ID.

DoCoMo commented that RANAP includes a Bearer Release message that should be RAB release – this will be discussed later.

TSGW3#2(99)190 ‘Relationship between Radio Network Layer and the Transport Layer’ was presented by Mikael Agnevik (Ericsson). Proposes some general principles and some more detail for I3.01. It was questioned whether it was necessary to show all of the Q.aal2 interactions in I3.01 – it was answered that it would be good to have it in one example, but not necessarily in all examples. Nortel do not want to make the binding IDs transport layer specific. NEC asked about the mapping from RAB QoS parameters to AAL2 QoS – Ericsson responded that it would be a difficult mapping, but would be an implementation issue. Nortel asked that the proposal 1 should be modified to replace AAL2 with transport layer to make it more general. *The example is modified to state that it shows the case for PSTN/ISDN domain CN.* It was noted that there are several ways to do the addressing, and it is not intended to be covered by this proposal. *Contribution accepted.*

TSGW3#2(99)176 ‘Signalling for UL outer loop power control’ was presented by Fabio Longoni (Nokia). The paper proposed some parameters for the UL DCH FP frame. Ericsson asked about the relationship between this contribution and study item Iur/1 – it is a proposed solution. DoCoMo asked about big changes to Eb/No setpoint – not a binary up/down indicator, and could use L3 signalling. Steve Terry stated that there was a benefit of both changing the step size dynamically and being able to set an absolute value – Nokia stated that these were both included in the proposal. Ericsson commented that as the outer loop mechanism was slow, there was little reason for saving bits by moving from absolute value to delta commands. Nortel agreed as Iub is wireline. Three alternatives, absolute values inband or outband or combination of the two, or outband only. It was clarified that the Nokia proposal was to give flexibility at the SRNC. There were generally some concerns about using relative commands – Nokia commented that some implementations might not want the SRNC to keep track of Eb/No target, but Ericsson commented that RL Addition becomes rather difficult otherwise. Nokia agreed that Eb/No target setting could be done using absolute values. Ericsson and Nokia both agreed that using In and Out band signalling could be used. BT and Alcatel commented that implementing two solutions in Node B unnecessarily was undesirable. Nortel commented that there was no need to signal max and min Eb/No if absolute values were used. This was confirmed. Nortel then asked whether there was any need for any parameters other than the absolute values – Nokia commented that max and min were needed for admission control in a drift RNC, but the convenor replied that this was a for different function. Ericsson asked whether it was necessary that any DCH should be able to carry the OL power control, perhaps it should always be carried on a single DCH. Ericsson said that perhaps the DCH carrying the DCCH could be used always – Nortel asked whether the Node B would recognise this DCH. In the current model Nortel is correct; it would have to be signalled that DCH-ID=X is used for OL power control. Nokia comment that the DCCH is low activity, and so this approach leads to a lot of control frames, which increases processing in Node B.

The related study item is left open, as there is no conclusion. DoCoMo state that they need to use out of band L3 signalling when DCHs are added. Nokia proposed that all options are left open, as there is no written counter-proposal. The convenor asked that the study item produce a written solution so that this can be resolved quickly at the next meeting.

TSGW3#2(99)156 ‘Proposed Document Structure for Node B O&M Logical Model’ was presented by Andrew De La Torre (Vodafone). He proposed that “logical model” should be replaced with “functional description” throughout. He also noted that it would be a temporary document. Motorola commented that the text had not been agreed by S5 – Andrew replied that this was a Vodafone contribution. The convenor questioned whether we needed such a document if this was not deliverable – Vodafone replied that the document was intended to encourage contributions. T-Mobil supported *the creation of the document as a technical report.* Telia supported this view. Andrew De La Torre volunteered as editor. He stated that it would be a placeholder for phase 1 and phase 2, so that they could be moved into the NBAP work. *It was agreed that the document will be numbered I3.05, titled “Node B O&M Functional Description”*. The scope corresponds to phase 1 and phase 2 which is

background information. Motorola wanted the introductory text agreed by the O&M ad hoc. The document will be treated in Iub/r SWG.

7.2 Terminology [S3.01]

No contributions.

7.3 Synchronisation [S3.01]

No contributions.

7.4 Manifestations of Handover and SRNS Relocation [I3.02]

No contributions.

7.5 General Aspects and Principles of Iu interface [S3.10]

TSGW3#2(99)215 'Iu Interface Protocol Structure: Independence of radio network and transport network protocols' was presented by Duc Pham-Minh (Nortel). The contribution that this was based on had already been presented to the joint meeting, so only the updates were presented. The paper was discussed briefly with Tdoc221.

TSGW3#2(99)221 'General Protocol Model for UTRAN Interfaces Iu, Iur and Iub' was presented by Atte Länsisalmi (Nokia). Proposes unification, modifications & clarifications to the protocol model in the UTRAN Overall Description. It was noted that the models in S3.x0 should show a high level "working assumption" model. The convenor proposed to keep the model in the S3.x0 very general. Both Nokia and Ericsson proposed to move the general model into the S3.01, and then to put technology assumptions into S3.x0. Nortel don't think that S3.x0 should be technology specific. No conclusion was reached.

TSGW3#2(99)223 'General Protocol Model for UTRAN Interfaces Iu, Iur and Iub, Revised' was presented by Atte Länsisalmi (Nokia). This paper proposed a solution to the discussions, and *the general model was agreed.* The editors of S3.01, S3.10, S3.20 and S3.30 will discuss how to incorporate the model into their documents, and will make an editorial proposal by email.

7.6 General Aspects and Principles of Iur interface [S3.20]

TSGW3#2(99)165 'Drawbacks of Common Channels on Iur' was presented by Achim Brandt (Siemens). Proposes that the optionality of CCH on Iur should be clearly stated in S3.20.

TSGW3#2(99)166 'Iur for RNSAP Signalling only' was presented by Achim Brandt (Siemens). The paper proposes three classes of Iur, Light, Full and Heavy. Alcatel were unsure why Iur was optional (i.e. why Light was possible) – it was answered that for TDD it was not needed. Nortel asked why it was more difficult to dimension the links for common channels – it was answered that CCH is used for bursty data, and that the procedures are as yet undefined.

TSGW3#2(99)186 'Common Channels on Iur' was presented by Nicolas Drevon (Alcatel). This paper identifies a number of reasons for not dropping the working assumption on CCH on Iur. Nicolas commented in the presentation that the optionality of CCH on Iur was a difficult issue, and wanted it to be mandatory in the long term, but with optionality as a short term measure. Siemens asked about multimedia, and the basis for the assumption using DCH and CCH – it was answered that maybe multimedia was the wrong terminology, but that for example voice and email might be wanted together. Nokia commented that there are other possible scenarios that could be included in the figures 3&4. Nokia also commented that the drastic increase in SRNS relocation was not so drastic; also that it should be a radio network design goal to restrict SRNS relocations.

The convenor commented that there were two issues, whether it should be standardised and whether it should be optional.

TSGW3#2(99)175 'RNSAP Modularity' was presented by Kalle Ahmavaara (Nokia). Proposes a modular structure for RNSAP, and a division of existing procedures between the modules. Ericsson asked about whether the non-CCH procedures are optional or mandatory. Nokia responded that they

were trying to establish a terminology, as a framework for later discussions on what is or is not mandatory. Basic Procedures were renamed Basic Mobility Procedures.

TSGW3#2(99)141 'Common Channels on Iur' was presented by Kevan Hobbis (Motorola). The contribution focuses on the DSCH, and highlights a problem with IS95 that is leading to the introduction of SHO for common channels. However Kevan highlighted that this example has a small extent.

T-Mobil asked about whether the IS95 problem was for shared channels. Also, asked whether 3GPP allowed SHO for DSCH. Motorola answered that DSCH did not currently support SHO.

The convenor summarised the Nokia and Siemens contributions. He labelled them as follows:
A) = No Iur
B) = RNSAP Basic Mobility Procedures
C) = B + RNSAP DCH Procedures
D) = C + RNSAP CCH Procedures
The convenor stated that we should minimise the number of options. Nokia agreed. We *agreed that RNSAP Basic Mobility Procedures are mandatory*. Nortel commented that we still need to agree what the procedures are. The convenor stated that they should be whichever procedures were needed for Inter RNS mobility without establishing DCH or CCH data streams on Iur. This is mandatory. Nortel commented that DCH and CCH should not be treated separately as they both are needed for system efficiency. Nokia disagrees that CCH over Iur is needed for efficiency, as there are other alternatives. Nokia's view is that the optionality of CCH on Iur is a good compromise. When asked about whether option C is mandatory Siemens and Lucent objected.

Vodafone commented that it was important for operators to be able to sell the services provided by UMTS equipment.

BT proposed that *we should accept CCH on Iur is in the standard, but with a note that it is FFS whether it is mandatory or optional.* This was accepted.

Siemens indicated that for FDD mode they now accept that DCH on Iur can be mandatory for FDD mode. Lucent commented that they cannot see why DCH and CCH should be treated differently. *It is agreed that DCH on Iur is included in the standard with a note that it is FFS whether it is mandatory or optional.*

Summary

Tdoc175 – *it is agreed to split the RNSAP procedures based on this contribution, except that (1) is renamed Basic Mobility Procedures.* Nortel objected to the inclusion of Cell/URA Update Indication in Basic Mobility Procedures.

Tdoc141 – *it is agreed to specify CCH on Iur (including DSCH)*

Tdoc165,166 – optionality is left for further study, so doc not approved for now.

Tdoc186 – Proposal 1 (see above). Proposal 2 will be discussed under Agenda item 8.

7.7 General Aspects and Principles of Iub interface [S3.30]

TSGW3#2(99)160 'Enhancement of Node B logical model' was presented by Jean-Marie Calmel (Nortel). The paper proposes a number of changes of the Node B logical model to include the support of common channels. It was clarified that there would be a DSCH port for each user connection on the DSCH, this is because the multiplexing is done at the code level, rather than at the MAC level. Nokia asked why the same treatment was not given to RACH/FACH – Nortel replied that it was to respect the Nokia concept of traffic termination point. Ericsson commented that the usage of CCH ports and DSCH ports was a violation of our current terminology. *The CCH ports are replaced by RACH and FACH ports*. Nokia and Ericsson propose that there is one port for each DSCH in the Node B, but Nortel disagree. If the multiplexing of users is done on the physical level, then it does occur in Node B; if it is done at the MAC level, MAC-sh is located in the CRNC. Nortel ask how, when the multiplexing is done at the code level, this can be done as MAC multiplexing. Ericsson asked whether there were still two proposals for DSCH in the WG2 – the difference was in the signalling, not the multiplexing. France Telecom stated that the control of the multiplexing is done in MAC, but the multiplexing is done at L1. Goran Rune (Ericsson) read an extract from the WG2 documents that suggested that there was both

code and MAC multiplexing. Nokia asked how the RACH/FACH data ports are set up – Nortel replied that it would be a management function, but that is not included in this model. Ericsson asked why the CCH and DSCH data ports are grouped in the figure – this is due to lack of space. Nokia want to keep it FFS to have RACH/FACH data ports outside the termination point. No one objects, so *RACH and FACH data ports are included outside the traffic termination point*. It is clarified that the bearers for DSCH are set up and released on a per-UE basis using Q.AAL2. They are released when the DSCH is no longer to be used. Ericsson and Nokia objected to the Nortel proposal for Iub DSCH data port. *It was agreed that the DSCH data port was included with a note stating that it is FFS whether it corresponds for one UE or multiple UEs; also whether it belongs to a traffic termination point or not is FFS.*

TSGW3#2(99)197 'Proposal on revised Iub protocol stack' was presented by Mick Wilson (Fujitsu). It was clarified that the references to AAL5 in the user plane came from the merging process between TTC/ARIB and ETSI, where AAL5 is FFS. Nokia commented that there is no reference to any ALCAP other than q.aal2. It was further clarified that this is a refinement of the TTC/ARIB originated protocol stack in S3.30. Lucent commented that the options for ALCAP for AAL5 were very limited. DoCoMo stated that they were prepared to see AAL5 removed from the Iub User Plane. *The proposal was modified to remove the FFS ALCAP stack, the reference to AAL5 in the user plane, and all references to this being a proposal from TTC/ARIB. This was agreed.*

TSGW3#2(99)218 'Iub & Iur Interface Protocol Structure: Independence of Radio Network and Transport Network protocols' (from Nortel Networks) was left for an offline discussion between the relevant editors.

7.8 Layer 1 aspects of Iu, Iur and Iub

8. UTRAN FUNCTIONS, SIGNALLING PROCEDURES [I3.01]

Cell/URA Update

TSGW3#2(99)201 'RRC Message Transfer on Iur' was presented by Takaaki Satoh (NTT DoCoMo). Proposes a new message for Iur. Nokia asked whether the new message applied in both directions, and whether it was the same in both directions. NTT DoCoMo stated that they did not object to having different message names (Uplink Transfer Message and Downlink Transfer Message [from Tdoc186]). Jean-Marie Calmel (Nortel) noted that this would really depend on the study item in WG2 – it was clarified that it is for this group to decide how information is carried on the Iur interface. Alcatel clarified that their contribution [186] was more interested in the overall procedure than how the message was carried on the Iur. The proposal is that the cell/ura update indication message in RNSAP is renamed Uplink Transfer message, and that a new message is added called Downlink Transfer message. Siemens commented that it would be sensible to decouple the cell/ura update procedure from the CCH on the Iur discussion. There was a discussion about whether the decision should be taken in this group or in WG2 and the respective responsibilities of the two groups.

TSGW3#2(99)186 'Common channels on the Iur' was discussed, having been presented earlier. Figures 3&4 – Nokia can't see a need for messages 2 and 4 (in fig3), as two layer 3 messages are needed.

The first editor's note in 8.8 of RNSAP spec is removed. The name is not changed.

DoCoMo state that procedure in 8.8 can also be used for RRC connection re-establishment procedure. This can also apply to various other procedures depending on which channels WG2 send the related radio protocol messages. Nokia propose (with DoCoMo support) that *a note is added to section 8.8 stating that "this procedure is also used to carry all radio interface messages containing s-RNTI and SRNC-ID to the SRNC". This is agreed.* It is commented that this only applies to the CRNC-SRNC direction. Nortel object to adding a message in the opposite direction.

Decisions on the Tdoc186: *Figure 3 is adopted for cell update and URA update procedure with the following changes –*

- *Message 1 is replaced with boxes (as in section 7.2.15.1 in I3.01, with the change of CCCH to DCCH/CCCH)*

- *A box "decision not to perform SRNS Relocation" is added on SRNC before message 2*
- *Messages 2,3,4 are replaced with a box around CRNC/SRNC stating "common channels are established in Iur (FFS)"*
- *Message 5 is noted that "FFS whether this is RNSAP or not"*
- *Message 6 is marked FFS*

NTT DoCoMo expressed a wish to harmonise the case of support of CCH on Iur with the case of no support. It was commented that the two procedures would always be different after the first message. DoCoMo also restated their concern about RRC re-establishment and the need for an RNSAP message for DL transfer.

RNSAP editor mandated to add RNSAP Release as a heading in RNSAP specification.

Reference to CCCH in figure for 7.2.15.1 and 7.2.14.1 is removed.

After it was clarified that DSCH/DCH should use hard handover, *Figure 4 was adopted as an example for inter RNS Hard Handover via Iur with the following changes:*

- *Messages 1,2,3 are replaced with a box around CRNC/SRNC stating "common channels are established in Iur (FFS)"*
- *Message 4 – "DSCH" is deleted*
- *Message 4 is noted that "FFS whether this is RNSAP or not"*
- *Message 7 is marked FFS*

The study item on cell and ura update [Iur/3] is resolved.

GSM Handover

TSGW3#2(99)210 'LS from R2 on handover between UMTS and GPRS' was discussed briefly – there were no comments.

9. IU SIGNALLING (RANAP) [S3.13]

Not covered, due to time limitations.

10. IUR SIGNALLING (RNSAP) [S3.23]

TSGW3#2(99)178 'Message contents for RL setup/addition/deletion procedures' was presented by Fabio Longoni (Nokia). This proposes a notation and contents for several RNSAP messages. Nokia clarified that these parameters are intended to replace the FFS parameters that were included during the merging process; however, it is intended to remove the "FFS". The names and definitions of parameters have to be aligned with the RRC procedures. Nortel asked why the UL channelisation code is not signalled – Nokia responded that the UL code was implicit given the length. Ericsson asked about the DCH type – Nokia responded that it was to help with congestion control in UTRAN and that they were intended to be priorities. Motorola ask why the UARFCN is included if the cell can only be mapped onto one carrier – however, it is not clear whether it is agreed that one cell can only have one carrier. Nortel ask whether the frame offset parameter is the same as the OFF parameter in the synchronisation chapter of S3.01. It is agreed to replace the parameter with "OFF" with a reference to S3.01. Italtel asked about the channelisation codes in the multi-code case – it was responded that as there is a list of codes in the messages. T-Mobil noted that the UARFCNS should be redefined to remove "of the cell". NEC asked whether the notation could be extended to the other protocols. T-Mobil asked whether "perch channel" name was used by WG1 – it is noted that the name is FFS. NEC asked to include the length and direction in the tables, as the decision whether to use abstract syntax is still open. Ericsson asked how many transactions can be outstanding – Nokia have no idea; they state that it is needed in a lot of error case handling. The convenor expressed a view that the protocol would be simpler without this feature. Nokia explained that RL Reconfiguration with timers for the response would make this necessary. DoCoMo, Motorola and NEC all object to the inclusion of the feature, so it is left FFS.

Nortel say that they want to keep independence between RNSAP and transport layer ("AESA" is changed to "Transport Layer Address [FFS]"), as the transport layer addressing is still FFS, and they are unsure that the address is needed at this level. Nortel also request that parameters relating to Eb/No were FFS subject to the study item on this issue. This was agreed. Ericsson ask why 2.8 refers to deleting "one branch" – Nokia confirmed that this was a typo, and should read "radio links". Ericsson asked for the inclusion of CRNC address in all neighbour cell information groups as an optional parameter. A new section in chapter 3 should be included for this, to be left empty until more information is available. Motorola want to remove the references to SCCP connection – it is replaced with RNSAP signalling bearer connection throughout. Nortel ask whether it would be better to send a failure message if any of the links fail, but listing the ones that are successful. DL channelisation codes in 2.3 and 2.6 should be marked as "M" not "C3".

The document was approved with the following changes:

- *SCCP → RNSAP signalling bearer throughout*
- *Uplink Eb/No Setpoint is marked as FFS throughout*
- *Uplink Eb/No Adjustment parameters are deleted throughout*
- *RL Setup Response – "at least one" is changed to "all"; the table of parameters is changed to reflect this*
- *RL Setup Response – DL Channelisation codes are marked as "M" not "C3"*
- *CRNC Address is added as an optional parameter in the Neighbour cell info group throughout*
- *RL Setup Failure – "if the RL SETUP can not be fulfilled" is changed to "if any RL is not set up". The table of parameters is changed to reflect this.*
- *RL Addition Response – DL Channelisation codes are marked as "M" not "C2"*
- *RL Deletion – "one branch" is replaced with "a radio link"*
- *Transaction ID is marked as FFS*
- *Frame offset is renamed OFF throughout; a reference is made in section 3 to S3.01 chapter 10*
- *DCH Type – "Emergency Call…..Signalling Radio Bearer and" deleted.*
- *UARFCN – change "the frequency of the cell" to "the carrier frequency"*
- *Perch Channel Ec/Io – note added that the name is FFS*
- *AESA is replaced with "Transport Layer Address [FFS]"*
- *CRNC Address is added – text to be contributed.*
- *Proposal 2 changed to read "…if all RLs are successfully setup. If any of the RLs are unsuccessfully setup, the DRNC responds…"*

TSGW3#2(99)179 'Message contents for the RNSAP RL Reconfiguration and DL Code Reconfiguration messages' was presented by Fabio Longoni (Nokia). *The document was agreed with the following changes:*

- *SCCP → RNSAP signalling bearer*
- *Uplink Eb/No Setpoint is FFS, other Eb/No parameters are deleted*
- *Radio Link Reconfiguration Request → Radio Link Reconfiguration Prepare*

TSGW3#2(99)159 'CCH and DSCH procedures on Iur' was presented by Jean-Marie Calmel (Nortel). Siemens commented that a timeslot parameter might be needed for TDD – Nortel said that the proposal was meant as a starting point, with the parameters needing further study. Nokia commented that there were elements of the split between the MAC entities was still unclear, especially with regard to QoS. Nortel responded that the QoS details will have to come from R2. Nokia is not sure that MAC-c is going to guarantee the QoS, and if this is not the case, then many of the procedures would either not be needed or would need redefinition. Nortel believe that there will be some QoS management on RACH/FACH, however, the procedures would still be needed for DSCH. Nortel cannot see the

difference on Iur between FACH and DSCH. Nokia suggested that you could re-use the existing DCH procedures if the DSCH is always used with a DCH. It was confirmed that this was still under discussion in R2. However, RACH/FACH are more well defined in R2.

Ericsson ask whether the transport channels are on a per-UE basis, or multiplexed in some way, and whether they can be preconfigured or not. Nortel stated that this was for further study. Ericsson asked whether time to live was relative or absolute – Nortel replied that they did not intend to give the exact detail for the parameters as they need discussion, but that this could be a CFN after which there is no point in delivering over the air interface. Ericsson stated that this was an absolute time measure, and that the synchronisation method would need to cater for this. Ericsson suggest that the downlink flow control should be removed, as there is no flow control on Iu. Nortel accept this, although Nokia disagree with the argumentation. Nortel explain that as the UTRAN has no way to reach the source of the traffic, it should use discard and rely on higher layers (e.g. TCP). Nokia comment that they think that the MAC-c entity does not perform any QoS guarantee, and so do not understand what the admission control does.

The main issue is 'what sort of bearer does the MAC-c provide?' - does it have any sort of parameterised QoS, or is it only best effort. It was commented that it is not our decision, although we may have a view based on the complexity of the UTRAN protocols. The convenor proposed that we should send an LS to R2 on this issue – not agreed.

DRNS Logical Model – Ericsson want to split the CCH data ports into DSCH and RACH/FACH; Nortel disagree, as they see no difference between them in this case. Ericsson propose putting the Iur CCH data port is FFS. Nokia want to decide whether it will be for one UE or shared between some multiplexed users. Nokia believe that there should be shared transport, assuming that there is no QoS guaranteed by MAC-c.

It was clarified that where the UE performs an intra-RNS cell update, there are still CCHT assignment requests on Iur to enable the QoS mechanisms, and to ensure that MAC-d has sufficient knowledge to move to some DCH state. Nokia ask whether this is effectively a reconfiguration, or is there a change of port. Nortel replied that it was intended to release the old port, but that methods of piggy-backing could be investigated. Nortel commented that the L3 signalling should be as similar as possible for DCH and RACH/FACH states within the UTRAN. Nokia express concern about the number of messages involved in a cell update. Nortel ask Ericsson and Nokia to provide equivalent contributions to progress the discussions.

The study item is left open – the convenor asked that the fundamental key issues are identified with proposals for the next meeting; these include QoS in MAC-c, multiplexing or not the users on transport bearers. He also encouraged Nokia and Ericsson to bring contributions to the next meeting. Nokia stated that they had a concrete proposal, but that it was not written down:

Vodafone commented that they look forward for the Nokia contribution on this at the next meeting.

Ericsson proposed that *we should accept the model, without the text for the CCH data port, with a note stating that the definition is for further study depending on the use of transport bearers for common channel data streams. Agreed.*

Nokia commented that it should be made clear that the procedures are used for all cell updates. Nortel stated that there could be a technical debate on this issue. Nokia asked to see the revised proposal.

It is intended to include this in study item arc/1. There are at least two key issues (QoS and multiplexing). The discussion will continue in Iub/r SWG.

TSGW3#2(99)182 'Clarification on RNSAP Radio Link Dropped Procedure' was presented by Fabio Longoni (Nokia). Proposes a change to make RL dropped procedure RL Failure procedure, changes to the accompanying text and a set of parameters. It was clarified that explicit signalling is required to remove the UE context in the case that it is the last RL within DRNS. *The proposal was agreed, with the change from "air interface" to "radio interface".*

11. IUB SIGNALLING (NBAP) [S3.33]

TSGW3#2(99)184 'Change Request for R2.01…' was presented by Atte Länsisalmi (Nokia). It was noted that this document is to present R2.01 – the proposal is in Tdoc183 (already treated) which

proposed that we adopt this methodology. It was commented that extensibility was more important for UTRAN internal interfaces than compactness. Nokia's proposal is to use ASN.1 and octet aligned PER NBAP, RNSAP and RANAP. Per Willars asked whether PER was always more compact than BER. Nortel asked whether we would keep tables for understanding – Nokia said that this was what they had proposed for the RRC protocol in WG2. CSELT stated that if we do this, the ASN.1 should be normative, with any tables as informative. It was proposed to use ASN.1, and to return to the transfer syntax issue at a later date. Alcatel and Siemens object to take a decision at this meeting – it will be made at the next meeting. NEC asked what would happen if we decided to use tabular format for the encoding, after using ASN.1.

TSGW3#2(99)192 'NBAP System Information Broadcast' was presented by Hong Wang (Ericsson). DoCoMo asked whether the procedure was used to change the system info broadcast from Node B – Ericsson replied that it was, and at restart. A change of name was proposed to System Information Update – *The document was approved with that change.*

TSGW3#2(99)193 'Modification/Correction of some contents in S3.33' was presented by Hong Wang (Ericsson). *It was agreed.*

TSGW3#2(99)202 'Admission Control' was presented by Takaaki Satoh (NTT DoCoMo). The discussion was taken after Tdoc212.

TSGW3#2(99)191 'Node B Measurement Concept' was presented by Mattias Wahlquist (Ericsson). It was clarified that for new measurements, these could be fitted within the proposed messages. It was further clarified that this is a common procedure - it would not be used to measure radio link specific parameters. Nokia asked that this be clarified in the text. Nortel asked about the measurement ID – this is used to differentiate between the reports; it is assigned by the RNC. The discussion was taken after Tdoc212.

TSGW3#2(99)212 'Admission control location and functional split over Iub' was presented by Fabio Longoni (Nokia). It is clarified that the admission control refers to power and interference management (Cases B&C from tdoc202). Nortel asked for confirmation that in the multi-vendor case, it would at least be possible for the RNC to perform this operation. Nokia, Ericsson and DoCoMo all confirmed this. Nortel asked what benefit could be gained by any other split. Nokia stated that Node B could take a local decision that would override the RNC. It was confirmed that not having a single split would impact the O&M. BT asked what the benefits of the split approach is – Nokia stated that they were trying to reach a compromise between TTC/ARIB and ETSI approaches. Ericsson stated that they had proposed having a mandatory reporting procedure from Node B.

Nortel want to know how the configuration of the algorithm at the Node B would happen – would it be logical O&M or implementation specific O&M; in particular, how the RNC knows what the Node B is doing. Nokia want to have the same (or almost the same) cause values in NBAP and RNSAP. Nortel are concerned about the RNC not knowing the parameters of the algorithm or what the Node B will do with the parameters. BT expressed concern about the Node B overriding RNC. Vodafone stated that they would like the Node B to be able to notify the RNC that it was no longer capable of sending measurements. Ericsson accept this, so a fourth Node B initiated measurement is added – text to be contributed. The sending of several measurements in one message is FFS. Similarly for requests.

The general principles of 191 were accepted with the addition of the other message.

It was stated that DoCoMo were proposing that Node B must implement the power and interference management admission control. Several companies objected. Tdoc 202 proposal was not accepted. NTT DoCoMo withdrew their support for the previous agreement that CRNC has the functions, and the Node B can report measurements, unless there is room for the Node B to do this.

The following working assumption was taken:

The CRNC should have a function for DL Power and UL Interference management, and that the Node B must have functions for measurement reporting for downlink power and uplink interference, controlled from the RNC.

Iub/2 study item initiated on the need for power and interference management in the Node B – Takaaki Satoh is responsible person.

12. SIGNALLING TRANSPORT BEARER

12.1 Iu [S3.12]

12.2 Iur [S3.22]

12.3 Iub [S3.32]

13. IU USER PLANE & TRANSPORT NETWORK CONTROL PLANE

13.1 ISDN/PSTN domain radio network layer

13.2 ISDN/PSTN domain transport layer

13.3 IP domain radio network layer

13.4 IP domain transport layer

14. IUR/IUB USER PLANE AND TRANSPORT NETWORK CONTROL PLANE

14.1 Iur/Iub DCH, radio network layer

14.2 Iur/Iub DCH, transport layer

14.3 Iub CCH, radio network layer

14.4 Iub CCH, transport layer

14.5 Iur CCH, radio network layer

14.6 Iur CCH, transport layer

15. OUTGOING DOCUMENTS & LIAISONS

TSGW3#2(99)213 'Proposal LS on Abbreviation of Common Channel' was presented by Håkan Palm (Ericsson). Document approved. Håkan agreed to put this on the server and send to WG2.

TSGW3#2(99)219 'Liaison from WG3 regarding the length requirements for s-RNTI, c-RNTI and RNC-ID' was presented by Kalle Ahmavaara (Nokia). It was clarified that RNC-ID is unique within one operator. Ericsson commented that 50 000 UEs within an RNTI was too small – TMSI in GSM is 4 octets; it was changed to ask for 3 octets for RNTI (and the 50 000). DoCoMo proposed that it should be stated that RNC-ID should be unique within one operator. With these changes, the document was approved - Kalle will put on the server and send to WG2.

TSGW3#2(99)220 'reply to liaison from WG2 concerning transmission delay over Iur and Iub' was presented by Massimo Del'Acqua (Italtel). Section 3 should be amended to reflect our understanding that MAC-lc is dependent on there being no L1 ACK. The amended paper would be approved later (Tdoc224).

TSGW3#2(99)224 was read out, and approved. Massimo will send to the server and WG2.

16. NEXT MEETING

The convenor proposed the following schedule:

29th March – Minutes of #2, and S3.xx and I3.xx to be distributed by email.

6th April – Deadline for comments.

9th April – Deadline for Approval of documents.

15th April – Submit S3.xx and I3.xx (versioned at 0.1.0). Submitted to R3 #3.

16th April – Deadline for study item comments.

20th April – Deadline for contributions to next meeting. Delegates were urged to ensure that paper copies were available in cases where late contributions were unavoidable. Late contributions would only be treated if there is time or they are directly related to the topic under discussion.

There will be a decision(may be a vote) on Iur signalling bearer (and Iu bearer if it is not sorted out elsewhere).

17. ANY OTHER BUSINESS

None.

ANNEX A: Documents at WG3 #2

Docu	Elect	Title	Source	Agenda
107	yes	WITHDRAWN	convenor	2
108	yes	S3.01 V0.0.2 RAN Overall Description	Nortel Networks	
109	yes	WITHDRAWN	Secretary	
110	yes	I3.03: Work Plan and Study Items	Editor	5.1
111	yes	WITHDRAWN		
112	yes	S3.15: Iu Interface CN-RAN User Plane Protocols	Editor	
113	yes	S3.23: RNSAP Specification	Editor	
114	yes	draft agenda rev1	Convenor	2
115	yes	S3.30: Iub Interface: General Aspects and Principles V 0.0.2	Editor (Fujitsu)	6.1
116	yes	S3.32: Iub Interface: Signalling Transport V 0.0.2	Editor (Fujitsu)	6.1
117	yes	S3.10 Iu Interface, General Aspects and Principles v 0.0.2	Editor	
118	yes	I3.02 Manifestations of Handover and SRNS Relocation v 0.0.2	Editor	
119	no	S3.35 V0.0.1 Iub Interface User Plane Protocols for CCH Data Streams		
120	no	TS S3.24 (Iur interface data transport and transport signalling for CCH data streams)		
121	no	TS S3.25 (Iur interface user plane protocols for CCH data streams)		
122	yes	2nd version (V0.0.2) of S3.33 NBAP Specification	NTT DoCoMo	6.1
123	yes	Merged Description of Iu Interface	Editor (Nokia)	
124	yes	S3.13, RANAP Specification	Editor (Nokia)	
125	yes	Iub/Iur Interface User Plane Protocol for DCH Data Streams	Editor (Nokia)	
126	yes	Iur/Iub Interface Data Transport / Transport Signalling for DCH Data Streams	Editor (Nokia)	
127	NO	SSDT impacts on Iub and Iur	Telecom Modus	
128	yes	S3.12: Iu Interface Signalling Transport	Editor (Telecom Modus)	
129	yes	S3.22: Iur Interface Signalling Transport	Editor (Telecom Modus)	
130	NO	DL Channelisation Code Allocation	Telecom Modus	
131	no	I3.01 RAN Examples of Signalling Procedures.	Editor (CSELT)	
132	no	Proposed RRC Connection Re-establishment Procedure	Fujitsu	
133	no	S3.20: Iur Interface: General Aspects and Principles	Editor (Lucent)	7.6
134	yes	Signalling Bearer for the IP Domain: A comparison of alternatives	Motorola	12.1
135	yes	Iu Control Plane for the IP Domain	Motorola	12.1
136	yes	Iur Control Plane	Motorola	12.2
137	yes	RANAP Adaptation Layer	Motorola	12.1
138	yes	RNSAP Adaptation Layer	Motorola	12.2
139	yes	Iu and Iur control Plane	Motorola	12.1, 12.2
140	yes	Iu Reference point (User Plane for the IP Domain)	Motorola	13.3

Docu	Elect	Title	Source	Agenda
141	yes	Common Channels on Iur Interface	Motorola	14.5
142	no	No document	Motorola	
143	no	No document	Motorola	
144	no	S3.34: Iub Interface Data Transport and Transport Signalling for CCH data streams	Editor	
145	yes	Iu transport for the packet domain	Telia	7.5, 12.1, 13.4
146	yes	Study Item Iu/4 The Triggering of SRNS relocation from the target RNS"(DRAFT)	NTT DoCoMo	6.2
147	yes	Merged UTRAN Architecture Description V0.0.2	Nortel Networks	
148	yes	Study Item [Iu/1] "Use of SS7 as a signalling bearer for Iu and Iur	NEC, Motorola	
149	yes	Study Item [Iu/6] "Ciphering Algorithm	NEC, Siemens	6.2
150	yes	WITHDRAWN	NEC	6.2
151	yes	Merged Description of Iub Interface; Version 0.0.2	Global Wireless Systems Research - Network Technology Group	
152	yes	Feedback from TSG RAN Meeting #2 in Florida	Ericsson	5.2
153	yes	Proposal for Iub Interface O&M Work Item and amendment of TSG-RAN Terms of reference	3GPP-TSG-RAN-WG3 Iub O&M Ad Hoc	5.1
154	yes	New Proposal for amendment of TSG-RAN terms of reference	Rapporteur, 3GPP-TSG-RAN-WG3 Iub O&M Ad Hoc	17
155	yes	Proposed Changes to S3.01 RAN Overall Description relating to Node B O&M	Vodafone	7.1
156	yes	Proposed Document Structure for Node B O&M Logical Model	Vodafone	8
157	yes	Report Status : Study Item [Iu/5] Separate or combined setup, modify and Release of RAB	Nortel Networks	6.2
158	yes	Suspend/Resume mechanism for RAB during SRNS relocation and Inter RNS Hard Handover	Nortel Networks	8 & 9
159	yes	CCH and DSCH Procedures over Iur	Nortel Networks	7.1, 10 14.5, 8
160	yes	Enhancement of the Node B Logical Model	Nortel Networks	7.1
161	yes	Iub & Iur interface Capability : splitting of Radio Network functionality and Transport Network functionality	Nortel Networks	7.7
162	yes	WITHDRAWN	Nortel Networks	7.7
163	yes	WITHDRAWN	Nortel Networks	7.5
164	yes	Amendments to WG3 Work Plan and Study Items	Nortel Networks	5.1
165	yes	Drawback of Common Channels on Iur	Siemens, Italtel	7.6
166	yes	Iur for RNSAP signalling only (C-Plane Iur)	Siemens, Italtel	7.6
167	yes	Ciphering and ARQ dependencies in UTRAN	Siemens, Italtel	7.1
168	yes	UTRAN Delay Estimation	Siemens, Italtel	7.1
169	no	Draft minutes of RAN WG3 meeting #1	Interim secretary	
170	yes	Report on the study item SIG/1 (Synchronisation at DCH Establishment)	Nokia	6.2
171	yes	Report on the study item Iur/2 (Separate reconfiguration trigger and reconfiguration procedure, or combined DRNC initiated DL reconfiguration procedure.)	Nokia	6.2
172	yes	Updated proposed new presentation for Iu	Nokia	

Docu	Elect	Title	Source	Agenda
		RANAP procedure Serving RNS relocation		
173	yes	Updated proposed new presentation for Iu RANAP procedure Inter RNS hard handover	Nokia	
174	yes	Identifiers for dedicated resources within UTRAN	Nokia	7.1
175	yes	RNSAP modularity	Nokia	7.6
176	yes	Signaling for Uplink Outer Loop Power Control	Nokia	7.1
177	yes	CCCH Indication RNSAP Procedure	Nokia	10
178	yes	Message contents for the RNSAP RL Setup/addition/deletion procedures	Nokia	10
179	yes	Message contents for the RNSAP RL Reconfiguration and DL Code Reconfiguration procedures	Nokia	10
180	yes	Signalling Systems in RAN	Nokia	12
181	yes	DCH Control Frames Structure	Nokia	14.1
182	yes	Clarification on RNSAP Radio Link Dropped Notification Procedure	Rapporteur	10
183	yes	Report on the study item Iu/7 (usage of abstract syntax with encoding rules, versus explicitly coding the transfer syntax	Rapporteur	6.2
184	no	Change request for R2.01 : Use of ASN.1 for definition of abstract syntaxes of protocol messages. Specification of default and special encoding.	Nokia	12
185	yes	Study Item Report - SRNS Relocation	BT	
186	no	Common Channels on the Iur (edition 3)	Alcatel	8
187	yes	Merged Description of I_{ur} Interface, V0.0.2 1999-02	Björn Ehrstedt Ericsson	6.1
188	yes	S3.14: Iu Interface Data Transport and Transport Signalling	David Comstock, Ericsson	6.1
189	yes	Study Item [Iur/1] "Out-band or in-band Power Control (both UL and DL)" (DRAFT)	Björn Ehrstedt, Ericsson	6.2
190	yes	Relationship between Radio network layer and the transport layer	Björn Ehrstedt, Ericsson	7.1
191	yes	Node B Measurement Concept	Ericsson	11
192	yes	NBAP Procedure: System Information Broadcast	Ericsson	11
193	yes	Modification/correction of some contents in S3.33	Ericsson	11
194	yes	Iu User Plane protocol towards the PSTN/ISDN Domain	Ericsson	13.1
195	yes	Congestion control for the Iu User Plane towards the IP domain	Ericsson	13.3
196	yes	Dedicated Channel Frame Protocol	Ericsson	14.1
197	no	Proposal for revised Iub protocol stack	Fujitsu	
198	yes	Study item Iur/3, Cell/URA update, Status Report	Alcatel	6.2
199	no	Study item Arc/1, CCH on Iur, Status Report	Alcatel	
200	no	Status report of Study Item Iub/1 (Paging)	NTT DoCoMo	
201	no	RRC Message Transfer on Iur	NTT DoCoMo	
202	no	Admission Control	NTT DoCoMo	
203	no	Proposal Work Plan of Operation and Maintenance specification	T-Mobil	5.1
204	yes	Chairman candidate	Ericsson	
205		Unused		
206		Unused		
207		Unused		
208		Unused		
209		Unused		
210		LS from WG2 on UMTS-GPRS Handover	TSG-R WG2	
211		S3.26	Nokia	
212		Admission Control and functional split over Iub	Nokia	
213		Draft LS to WG2 on abbreviation for common	Ericsson	

Docu	Elect	Title	Source	Agenda
		channel		
214		A solution for the efficient support by UMTS of speech services	Nortel Networks	
215		Iu Interface Protocol structure – independence of radio network and transport network functionality	Nortel Networks	
216		LS from WG2 on RNTI	TSG-R WG2	
217		LS from WG2 on Iub/r delays	TSG-R WG2	
218		Iub & Iur interface protocol structure – independence of radio network and transport network functionality	Nortel Networks	
219		Draft LS to WG2 on RNTI lengths	Nokia	
220		Draft LS to WG2 on Iub/r delays	Italtel	
221		General protocol model for UTRAN interfaces, Iu, Iub and Iur	Nokia	
222		Draft response from TSG-SA WG2 on UMTS - GPRS Handover	BT	
223		Revised General protocol model for UTRAN interfaces, Iu, Iub and Iur	Nokia	
224		Draft LS to WG2 on Iub/r delays	Italtel	
225		Approved version of 213	Ericsson	

ANNEX B: Attendance at WG3 #2

	First name: **Surname:** **(Initials)**	**Company:**	**e-mail:** **phone:** **fax:**
1.	Juliane	Alcatel	Juliane.boccali@alcatel.fr
	Boccali		+33 130773018
2.	Nicolas	Alcatel	Nicolas.drevon@alcatel.fr
	Drevon		+33 1 3077 3077
			+33 1 3077 9430
3.	Richard	BT	Richard.townend@bt.com
	Townend		+44 1473 605 429
			+44 1473 623 683
4.	Enrico	CSELT	enrico.scarrone@cselt.it
	Scarrone		+39 011 228 7084
			+39 011 228 5520
5.	Björn	Ericsson	bjorn.ehrstedt@wcs.eraj.ericsson.se
	Ehrstedt		+46 8 404 8303
			+46 8 404 3597
6.	Maria	Ericsson	maria.hultstrom@era.ericsson.se
	Hultström		+46 8 585 319 52
			+46 8 404 3597
7.	Göran	Ericsson	goran.rune@ericsson.co.jp
	Rune		+81 3 5216 9082
			+81 3 5216 9047
8.	Håkan	Ericsson	Hakan.palm@era.ericsson.se
	Palm		+46 13 287443
			+46 13 287373
9.	Michael	Ericsson	Mikael.Agnevik@era.ericsson.sc
	Agnevik		+46 8 422 0867
			+46 8 422 0540
10.	Peter	Ericsson	Peter.B.Andersson@era.ericsson.sc
	Andersson		+46 8 757 3945
11.	Erik	Ericsson	Erik.Jonsson@era.ericsson.se
	Jonsson		+46 8 585 30741
12.	Magnus	Ericsson	Magnus.s.persson@era.ericsson.sc
	Persson		+46 8 757 0808
13.	Mattias	Ericsson	Mattias.Wahlgvist@era.ericsson.sc
	Wahlgvist		+46 8 404 7119
			+46 8 757 5720
14.	Hong	Ericsson	Hong.Wang@era.ericsson.sc
	Wang		+46 8 404 7244

	First name: **Surname:** **(Initials)**	**Company:**	**e-mail:** **phone:** **fax:**
15.	Per	Ericsson	per.willars@era.ericsson.se
	Willars		+46 87573448
			+46 706521192
16.	Alain G	Ericsson	Alain.maupin@era.ericsson.se
	Maupin	Radio Systems	+46 70 524 8964
17.	Guillaume	France Telecom	guillaume.duroscoat@cnet.francetelecom.fr
	Du Roscoat	CNET	+33 1 45 29 68 02
			+33 1 45 29 43 99
18.	Katsumasa	Fujitsu	sugiyama@msd.ts.fujitsu.co.jp
	Sugiyama		+81 44 740 8112
			+81 44 740 8182
19.	Mick	Fujitsu Europe	m.wilson@fujitsu.co.uk
	Wilson	Telecom R&D	+44 181 606 4801
			+44 181 573 3602
20.	Stephen E	Interdigital	stephen.terry@interdigital.com
	Terry		+1 516 622 4000
			+1 516 622 4078
21.	Babak	Interdigital	Babak.Beheshti@interdigital.com
	Beheshti		+1 516 622 4137
			+1 516 622 4000
22.	Massimo	Italtel	massimo.dellacqua@italtel.it
	Dell'Acqua		+39 02 4388 6584
			+39 02 4388 6550
23.	Takayuki	Japan Telecom	yosi@japan-telecom.co.jp
	Yoshimura		+81 3 5540 8420
			+81 3 5540 8485
24.	Mauro	Lucent	Mcosta1@lucent.com
	Costa		+44 1793 883397
			+44 1793 883815
25.	Kevin	Lucent	Khegerty@lucent.com
	Hegerty		+44 1793 883163
26.	Stephan	Mannesmann	
	Recker		
27.	Erwan	Mitsubishi	david@tcl.ite.mee.com
	David	Electric	+33 2 99 84 2110
			+33 2 99 84 2115
28.	Sophie	Mitsubishi ITE	Pautonnier@tcp.ite.mee.com
	Pautonnier		+33 2 99 84 26 36
			+33 2 99 84 21 15

	First name: **Surname:** **(Initials)**	**Company:**	**e-mail:** **phone:** **fax:**
29.	Beena	Motorola	connorsb@cig.mot.com
	Connors		+1 847 632 7866
			+1 847 435 5120
30.	Kevan	Motorola	hobbisk@ecid.cig.mot.com
	Hobbis		+44 1793 565163
			+44 1793 541228
31.	Kethees	Motorola	Ketheesan@mot.com
	Ketheesan		+1 847 632 3585
32.	Cheng Hock	NEC	ngcheng@mcs.abk.nec.co.jp
	Ng		+81 471 85 7171
			+81 471 85 6863
33.	Kalle	Nokia – Japan	kalle.ahmavaara@nmp.nokia.com
	Ahmavaara		+81 3 5510 0803
			+81 3 5510 0801
34.	Jyrki	Nokia	jyrki.jussila@ntc.nokia.com
	Jussila		+358 9 51138436
			+358 9 51138452
35.	Sami	Nokia	sami.kekki@ntc.nokia.com
	Kekki		+358 40 570 2350
			+358 9 5112 3600
36.	Fabio	Nokia	fabio.longoni@ntc.nokia.com
	Longoni		+358 40 568 9884
			+358 9 5113 8452
37.	Atte	Nokia	atte.lansisalmi@research.nokia.com
	Länsisalmi		+358 9 4376 6587
			+358 9 4376 6850
38.	Jean-Marie	Nortel Networks	calmel@nortel.com
	Calmel		+33 1 39 44 52 82
			+33 1 39 44 50 54
39.	Duc	Nortel	dphammin@nortel.com
	Pham-Minh		+33 1 39 44 45 97
			+33 1 39 44 50 02
			+33 1 39 44 50 02
40.	Nobutaka	NTT DoCoMo	nobu@wsp.yrp.nttdocomo.co.jp
	Ishikawa		+81 468 40 3220
			+81 468 40 3840
41.	Takaaki	NTT-DoCoMo	tsatoh@mlab.yrp.nttdocomo.co.jp
	Satoh		+81 468 40 3190
			+81 468 40 3762
42.	Achim V.	Siemens	Achim.brandt@icn.siemens.de
	Brandt		+49 89 722 41981
			+49 89 722 24450

	First name: **Surname:** **(Initials)**	**Company:**	**e-mail:** **phone:** **fax:**
43.	Wolfgang	Siemens	wolfgang.hultsch@icn.siemens.de
	Hultsch		+49 89 722 43717
			+49 89 722 21882
44.	Zhongrong	T-Mobil	zhongrong.liu@t-mobil.de
	Liu		+49 228 936 1406
			+49 228 936 1245
45.	Kiran	Telecom Modus	+44 1372 804 826
	Thakare		+44 1372 804 804
46.	Magnus	Telia	magnus.x.alden@telia.se
	Aldén		+46 8 713 8108
			+46 8 713 8199
47.	Monica	TIM	mavattaneo@tim.it
	Avattaneo		+39 06 3900 9095
			+39 06 3900 9315
48.	Marco	TIM	mamoretti@tim.it
	Moretti		+39 06 39 00 44 94
			+39 06 39 00 4617
49.	Andrew	Vodafone	andrew.delatorre@vf.vodafone.co.uk
	De La Torre		+44 1635 503128
			+44 1635 503969
50.	Brendan	Vodafone	brendan.mcwilliams@vf.vodafone.co.uk
	Mc Williams		+44 1635 506264
			+44 1635 523615