3GPP TSG_CN / SMG3 **Tdoc NP-000128**
Plenary Meeting #7, Madrid, Spain
13th – 15th March 2000.

Source: **Ericsson**

Title: **Discussion Paper; Current state of 23.146**

Agenda item: **5.3.2 Questions for advice and decisions from N3**

Document for: **INFORMATION**

Ericsson has indicated to N3, by email, that it is Ericsson's opinion that TS 23.146 as presented to N3 in tdoc N3-000126, should not be presented to the N#7 plenary as v.2.0.0, but rather as v.1.1.0. Ericsson would like to provide the background for this opinion.

1) There is missing consensus in N3 on the model applied for the UE.

This issue was discussed during the last N3 meeting. In June 1999, as the technical work on the NT fax WI had just begun, Ericsson proposed a solution to NT fax based on ITU-T T.38 (ref. N3-99111). This proposal suggested a separation between the so-called Internet aware fax device, including the fax adaptor, and the MT including the data card (i.e. TAF). . NTT DoCoMo was asked to review this approach until the next CN3 meeting.

Our understanding was that DoCoMo was positive to the suggested approach, and the following revision of 23.146 presented by DoCoMo *seemed* to incorporate these ideas. If Ericsson misunderstood DoCoMo, then the reason is that the specification was not and still is not clear (see point 2) below).

To Ericsson, this issue is important, because if the FA (Fax adaptor) protocol is terminated in the TAF, considerable functionality and memory requirements are added to the TAF (1 Mbyte, according to DoCoMo). One may question how likely it will be that the FA protocol will be commonly supported on products containing TAFs (data cards, etc.). By terminating the FA protocol on the FA, as Ericsson suggests, a "standard TAF", i.e. TAF according to 3G TS 27.001 and 27.002, may be used in combination with, e.g., dedicated FA protocol software installed on a PC. Hence, the NT fax service becomes available to a larger set of users.

We do not really understand why a separation as we suggest is not feasible. As we understand, the main reason for terminating the FA protocol on the TAF is the need for a tight integration between the FA protocol and L2RCOP in order to communicate the "busy on signal", transmitted by L2RCOP in the status X bit (see Section 8.2.2 of 23.146). This status is normally forwarded over the R interface by V.24 circuits 106 (from DCE to DTE, to be applied here from TAF to FA and 133 (from DTE to DCE, here from FA to TAF). Hence, the "busy on signal" can be communicated between FAs. However, for some reason, 23.146 states that CT 106 shall be clamped to on.

2) The document is inconsistent with respect to the application of the UE model.

It is needless to look into previous versions of the specification in order to explain why Ericsson understood that the separation between Fax adaptor and TAF was taken care of the way Ericsson wished, since the latest version (tdoc N3-000126) still is inconsistent on this point. On the one hand, it refers to GSM 04.02 for the mobile station reference model (Section 5), states that "the particular terminal adaption functions used are those detailed in 3G TS 27.002 for non-transparent bearer capability" (which does not include any fax specific functionality) and states that (Section 6.1) "the protocol modules specific for this Teleservice are confined in the fax adaptor functions…". On the other hand, the specification states that the FA protocol is terminated in the TAF.

3) The document is unclear, imprecise and thus prone to misinterpretations.

In addition to the example pointed out under point 2) above there are a number of cases that are unclear in the text. Due to the short time we have had to review this document we believe that we have not been able to detect all. Here are a few examples though:

- Section 2.1. Usage of the term TAF. Usually this term refers to a function in the UE not in the IWF. However, 23.146 uses the term also to designate the counterpart of the UE TAF in the IWF. At the last N3 meeting DoCoMo was asked to clarify this by a sentence explaining the extended usage of the term. DoCoMo has ignored this request.
- Section 6, What does "end-to-end between the two TAFs" mean? This is a self-contradiction.
- Section 8.2, on error correction mode. The specification refers to the "optional error correction mode". Although ECM is optional according to T.4 and T.30, it is not clear whether it is also optional for the TAFs.
- Our understanding is that ECM is "local", i.e., between the TAF and the associated Fax terminal. What is meant by "the procedures of error correction mode are, in principle, run between … the T-TAF and R-TAF"? This contradicts our understanding that ECM is run locally.
- Section 8.2.2 "adjusting the time interval". Which time interval?
- Section 8.2.3.3. What is meant by "changing the CFR to FTT"? Our understanding is that the TAF either sends CFR or FTT. Is the TAF supposed to send CFR first and then send FTT?
- What is the length of time T? (We have requested an answer from DoCoMo to this before. DoCoMo has ignored our request.)
- Section 8.2.4.6.1 "The TAF has the plenty of buffer size withstand the usually considered delay." What does this mean? N3 has requested that "plenty" be quantified. DoCoMo has ignored this request.
- Section 8.2.4.6.2. "After inserting FILL information for 4.5s, when the value of the transmitted image signals to R-FAX is below the level of “the forced RTC transmission value”(=7byte or less), the R-TAF will send RTC to the reception side facsimile to force end of Phase C."
  What shall happen after inserting FILL information for 4.5s, when the value of the transmitted image signals to R-FAX is *not* below the level of “the forced RTC transmission value?
- Annex A: "The things except for the defined things in TS 23.146 conform to T.38." This is an unclear or incorrect statement. Actually, the use of T.38 in TS 23.146 is limitted to the encoding of certain T.4 and T.30 messages. Otherwise, we cannot see that the two protocols have anything in common.
- The encoding of the messages not in T.38 (DCN transmission confirmation and TCF error detection) is not specified, i.e., there is no ASN.1 syntax defined.

Note that we have not had time to check the SDL diagrams thoroughly yet, which is the reason we do not have any comments on this part yet.

4) The document is not aligned with other specifications, in particular 27.007 and 27.002.

The TAF shall not only signal BS20 NT in the BC-IE sent to the MSC. It also signals an ITC value indicating G3 fax. There are currently no AT commands to indicate this to the TAF in TS 27.007. Ericsson made DoCoMo aware of this before the previous T2 meeting. DoCoMo ignored us.

If the FA protocol is to be terminated in the TAF, it needs to be added to 27.002.

5) The language needs improvements.

We think that it is unnecessary to document this point. However, we wish to point out that correct language is not inessential, as it can easily lead to misunderstandings. In our opinion a stable version should not have too many mistakes and should also comply with the formal guidelines provided by ETSI.

Finally, we wish to point out that although we have never expressed any support for the work item (Ericsson is not one of the supporting companies), we have made a substantial effort to improve the specification by providing comments both during meetings and to DoCoMo directly. In no way have we tried to delay this work. On the contrary we have contributed to the progress. Already in January we foresaw that this specification would not be ready in time. In an email addressed to DoCoMo, and copied to the N3 chairman, we strongly urged DoCoMo to provide an updated version of the specification in the beginning of February in order to give us time to study it. DoCoMo agreed to this, but never did as suggested. We think that we have had a good collaboration with DoCoMo, but we cannot see how we possibly could get TS 23.146 ready for R99. We therefore ask TSG N not to include this specification in R99.