

**Source:** Siemens AG  
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**Document for:** DISCUSSION

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## **Introduction**

At the last CN1 meeting #28 in Dublin, Nokia proposed the creation of new TR on "Recommended User Equipment measures to overcome specific network implementation faults". As a result of the discussion, CN1 sent a LS to TSG CN, asking the plenary to

1. *Study the problem and to decide whether documenting such problems is needed*
2. *If TSG CN see that such documenting of known problems is needed then it is requested to define the right forum and format for the documentation.*

In the following we will explain the point of view of our company (companies?) concerning these questions.

## **Is it necessary to document network errors in GSM phase 2 networks?**

To begin with, we should clarify the kind of errors we are talking about:

- We are talking only about network implementation errors. For all the errors described in the document proposed by Nokia, there is a common understanding in TSG GERAN2 and TSG CN1 that the standard specifies clearly what the correct network behaviour should be.  
(Note: In order to further clarify the standard and to avoid future wrong interpretations, TSG CN approved a set of CRs on "Clarification on revision level" at plenary #18, in Tdoc NP-020547.)
- For all the errors described in the document proposed by Nokia, there are corrections available from all major network manufacturers affected by these errors.

Furthermore, it may be useful to recall the paradigm that has been valid up to now:

- If an error is detected in a network implementation, then this error is corrected in the network.
- If an error is detected in an MS implementation when the MS has already been sold in large numbers, the responsible 3GPP working group tries to find a correction or workaround in the network.

The reason for this is that there is a direct relationship between an operator and his network vendors, and network implementations can be corrected at acceptable cost, whereas a recall of mobile stations already shipped is considered as too expensive and de-facto impossible so that this is avoided whenever possible.

This paradigm is generally accepted by the manufacturers taking part in 3GPP standardization and, consequently, there is usually no need for 3GPP to deal with network implementation errors or to document them. Once an error is detected, a correction has to be provided by the network manufacturer; and this correction will be provided to all the operators who have bought network equipment from this specific manufacturer.

If an MS implementation error is detected, and a suitable workaround is identified by TSG CN1 or a GERAN working group, then this work around is documented in the Technical Report TR 09.94/29.994, "Recommended infrastructure measures to overcome specific Mobile Station (MS) faults", because it is not possible to determine a point in time when the faulty mobile stations will disappear. For all practical purposes we have to assume that

they will be in use “forever”. – Note that the situation is quite different for the network implementation errors where, once the correction is available, it is in the hands of the operator to implement the correction in his network and thus to remove the error in a reasonable time frame.

The reason why in this case TSG CN1 or GERAN2 was dealing with network implementation errors at all is that they result in severe service limitations: depending on the respective error a subscriber using a R99 MS cannot get any services from a faulty pre-R99 network either in the CS or the PS domain. Because of these consequences, TSG GERAN and TSG CN1 informed GSM Association about the errors in two liaison statements in June and July 2002, and again in a liaison statement sent by TSG GERAN in February 2003.

In our opinion, the responsible 3GPP groups and working groups have taken all necessary measures to draw the attention of the operators to these errors and to the severity of the service limitations caused by them. Therefore, with regard to the issue of informing the operators, we cannot see any added value in creating an official 3GPP TR.

Furthermore, due to the discussions that took place at TSG GERAN #10, #13, and TSG CN1#28, and that were minuted in the MCC reports of these meetings, we think that the issues have been documented in sufficient detail for all manufacturers actively taking part or passively following the standardization process, especially if we take into account that the errors under consideration will disappear from the networks in the foreseeable future. For one of the errors the core specification was already updated to avoid any ambiguities.

## **Should network implementation errors be corrected by UE workarounds?**

As an essential part of the new TR, Nokia proposes to describe also UE workarounds for the documented network implementation errors. Before we turn to the question how (or whether) such UE workarounds should be documented, we should consider the question whether UE workarounds are desirable at all.

One of the main disadvantages of a UE workaround is that the implementation error is not corrected at the source. Instead of one network manufacturer correcting his error, we end up with all UE manufacturers implementing a workaround. Furthermore, the workaround may have impact on other network implementations or even other network entities.

For example recently we learnt about a smart MS implementation where the MS adds the AMR-FR codec at the end of the supported speech versions list. According to the standard this means that the MS wants to have the AMR codec assigned with the lowest(!) priority. We were told that the reason for this workaround was that some old MSC implementations could not cope with the codepoint for the AMR-FR codec at the beginning of the list, and apparently the MS manufacturer deemed it easier to implement a workaround than to ask for a correction of the network implementation. The result is that now the order of priority indicated by the MS is worthless, and the MSC always has to re-sort the supported speech version list.

One of the workarounds proposed in the TR by Nokia may also have unwanted side effects when upgrading the network equipment from R97/98 to R99 and may require changes in the R99 network implementation or changes to the upgrade procedure.

In summary, from our past experience we do not appreciate the use of UE workarounds, and there should be a high barrier to their use.

## **How should UE workarounds be documented?**

In practice, we have to put up with the fact that UE workarounds exist, because sometimes a UE manufacturer is of the opinion that it takes too long until a reasonable percentage of faulty network implementations has been corrected.

When it comes to the question how (or whether) to document such workarounds, however, we have to take care that we do not increase the damage already existing. In our view, the description of UE workarounds in an official TR maintained by MCC would be a wrong signal

- to those operators who do not update their networks: they will take this only as a confirmation of their attitude, with the consequence that the transition period until all networks are corrected will become even longer than without a TR;
- to the UE manufacturers: such a TR can be considered as an encouragement to invent and implement further UE workarounds;
- last but not least to the network manufacturers: this time, all of them provided corrections in short time, but if the UE manufacturers are so fast with implementing their workarounds, why should the network manufacturers be in a hurry next time?

Furthermore, it is foreseeable that some operators will make it a condition that the UE manufacturers implement exactly those workarounds that are described in the TR, no matter how careful we would be with the wording. In this way we undermine the integrity of the 3GPP standard by actually creating a second "standard" that is mandating UE behaviour partially in contradiction to what has been specified in the real standard.

## **Proposal**

As a compromise we suggest that the UE workarounds proposed in the document by Nokia are studied by CN1 and, if they are considered as technically feasible, this is minuted in the meeting report. A similar procedure has been used by CN1 in the past to document the outcome of discussions, when CN1 came to the conclusion that a certain interpretation or implementation of the standard was permitted, but not the only possible one.