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**Agenda Item: 9**

**Source: CDMA Development Group**

**Title: Correspondence on Convergence**

**Document for: Information**

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The CDMA Development Group (CDG) has been working to achieve a global CDMA standard for IMT-2000. The enclosed correspondence between the CDG and ETSI SMG on this topic is being provided to 3GPP with the intent to facilitate a dialogue on convergence of Radio Transmission Technologies (RTTs).

In addition, the CDG is forwarding Tdoc SMG2 550/98, titled *SMG2 Activities Related to Harmonization and Convergence of 3G Radio Transmission Technologies*, which was an output document from ETSI STC SMG2#28. The CDG appreciates SMG2's efforts to discuss convergence and invite contributions on this topic. The CDG encourages 3GPP to also begin a dialogue on convergence of CDMA 3G Radio Transmission Technologies.



May 27, 1998

Mr. Friedhelm Hillebrand  
ETSI SMG Chairman  
SMG Consortium, Combahnstrasse 23  
D-53225 Bonn, Germany

Dear Mr. Hillebrand:

The CDMA Development Group has been actively engaged in the development of air interface and network standards for IMT-2000. To that extent, we have been providing inputs to regional standards bodies with respect to air interface harmonization and would like to encourage a dialogue between ETSI SMG and the TTA's TR45.5 committee on this topic.

The CDG Executive Board discussed the status of IMT-2000 standards and the topic of harmonization during our February 23<sup>rd</sup> Board meeting. We firmly believe that the technical differences between Wideband CDMA and Wideband cdmaOne (Wideband ANSI-95) can be resolved without presenting IPR impacts or any degradation to system capability. A single, global air interface standard can be developed that benefits all operators and manufacturers equally. To that extent, the CDG Executive Board agreed to the objectives outlined below during the Feb 23<sup>rd</sup> meeting. These objectives have been communicated to our membership.

1. The CDG is eager for the consolidation of CDMA technologies which are being developed for IMT-2000, including Wideband cdmaOne, to establish one common, worldwide CDMA standard that meets the spectrum needs of existing systems.
2. The CDG recognizes the Family of Systems as a viable and important concept, and encourages the development of ANSI-41-based systems to be a member of IMT-2000 core networks. Through the Family concept, ANSI-41 systems and GSM MAP will work together to offer subscribers global roaming and transparency of services.
3. The CDG requests that harmonized next generation systems be available in order to commence commercial services in 2001 for worldwide markets.

We believe that, through the efforts of the ETSI and the other regional standards bodies, we are in a very good position to realize the ITU's goal of a global air interface standard. We encourage

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Mr. Friedhelm Hillebrand  
May 27, 1998  
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**ETSI SMG to begin an active dialogue with the TTA TR45.5 IMT-2000 Standards Coordinating Ad Hoc to harmonize the Wideband CDMA and Wideband cdmaOne air interface proposals.**

We have attached a contribution supporting this activity and request your assistance in directing this to the appropriate ETSI SMG working group or committee for discussion. We are available to meet with you and the ETSI SMG membership to review this further.

I look forward to speaking with you to discuss how we can work together on this extremely important matter.

Sincerely,

**CDMA Development Group**

**Perry M. LaForge**  
Executive Director

PML/jt  
Attachment

**ETSI****Source:** cdmaOne™ Operators**Date:** May 27, 1998**Title:** Worldwide Harmonization of CDMA RTT Proposals for IMT-2000**Introduction**

Recent progress in the development of air interface proposals for IMT-2000 has led to an enormous opportunity for the global wireless industry. Third generation (3G) CDMA radio interface proposals have received a great deal of support worldwide, and have been the focal point of discussions among regional standards bodies and the ITU.

It is the belief of cdmaOne operators that the technical standard specification for wideband CDMA represents a unique opportunity for the definition of a truly global standard, with enormous potential benefits for the wireless industry. In recognition of that, the Association of Radio Industries and Businesses (ARIB) in Japan has been involved in efforts to harmonize the emerging Radio Transmission Technology (RTT) proposals being developed in Europe, Korea, Japan, and North America. Efforts should continue to develop a harmonized RTT specification to meet the needs of all the regions and to set the stage for harmonization of the RTTs supported by the GSM MAP and ANSI-41 core network standards.

**Requirements**

cdmaOne operators believe that a global air interface standard can and should be achieved to meet the ITU IMT-2000 goals, enable better economies of scale, enable global service, and provide a greater variety of devices. A global standard also will pave the way to a wireless business environment where operators utilize open standards and service offering considerations, as opposed to primarily using radio technology considerations, as a means of differentiating themselves in the future.

Operators support the following principles in the development of a harmonized air interface standard for IMT-2000:

1. Ability to operate in as little as 2 x 5 MHz of allocated spectrum, especially in cases where higher power technologies are deployed in adjacent bands.
2. The establishment of a robust and equitable global standards coordination process.
3. Commitment to develop interoperation between evolved GSM and evolved ANSI-41 based networks.
4. Fair and equitable compromise on the harmonization of technical parameters that are critical toward development of a common air interface for IMT-2000.

### **Technical Parameters**

There is a large degree of commonality between the various 3G CDMA proposals contributed by ARIB, ETSI, TTA, and TTA in the harmonization process. Through the efforts in ARIB Ad Hoc S, significant progress has been made to resolve the technical differences between these proposals. It is important that this process continues, in an open and fair manner, to determine final solutions that are acceptable to all parties.

The harmonization of chip rate is very important in the development of a common standard that meets the principles stated previously. ARIB Ad Hoc CR's concluded that there is no technical reason preventing the 3.6864 Mcps chip rate from being incorporated in a harmonized IMT-2000 air interface standard. The selection of 3.6864 Mcps would best meet the objectives of the global community, providing universal benefits that can be derived from a standard using this parameter value. These benefits include:

1. Providing the most effective compromise for smooth spectrum migration in existing spectrum bands around the world, for both incumbent systems operators that need to evolve within IMT-2000 bands that are occupied today, as well as operators that will have clear spectrum.
2. Enabling a standard that meets the ITU performance and service requirements.
3. Allowing for more efficient operation in a 2 x 5 MHz spectrum allocation without increasing system complexity or compromising throughput.
4. Allowing for larger guard bands in 2 x 10 MHz, 2 x 15 MHz, and 2 x 20 MHz operations, particularly for the situation of hierarchical cell deployment. Alternatively for 2 x 20 MHz, an additional carrier can be deployed.
5. Reducing the industry's R&D investment risk by leveraging existing standards.
6. Reducing operators' deployment investment risk by creating a larger supplier base.

The TTA and ETSI should establish a formal dialogue on achieving harmonization of air interface technical parameters for the wideband spread spectrum CDMA standard for the next millennium.



Friedhelm HILFBRAND, TC SMG Chairman

**Mr. Perry M. La Forge**  
 Executive Director  
 CDMA Development Group  
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4 July 1998

**Further Harmonization of IMT 2000 Radio Transmission Technologies**

Dear Mr. LaForge,

Thank you very much for your letter of 27 May 1998 and the attached position paper of cdmaOne operators. I informed the SMG membership of your letter with the attached document and this answer as you requested.

I would like to inform you that the issue of further harmonization was discussed already in a multilateral meeting of ARIB/ TTC, ETSI, TTA, T1 and TTA on 9 - 10 February. It was agreed to use the existing contribution driven specification processes within the different standardisation organisations contribution driven Participants should be invited to elaborate technical contributions which enable convergence and improve or at least do not reduce the performance of existing agreed solutions. It was mentioned that the best opportunity would be before the submission to the ITU at the end of June 98. It is to be regretted that no technical contributions meeting the a.m. criteria were submitted up to mid June to ETSI SMG.

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The optimization and refinement of all proposals is an important task of the near future. If the statement made in the SMG#26 Plenary (22-26 June 98), that certain proposals can improve the performance and reach convergence, can be verified, then this would be a progress. Therefore the SMG#26 Plenary encouraged the proposing company to submit technical contributions to the appropriate technical groups in TTA, T1, ARIB and ETSI for evaluation.

We invite CDG to note, that many companies active in TTA TR45 are also active members and participants in ETSI SMG. They includes companies as Lucent, Motorola, Nortel, Qualcomm and Airtouch. All companies are invited to use the existing processes to contribute towards an optimization and further harmonization of the IMT 2000 radio transmission technologies.

ETSI SMG has re-confirmed their willingness to be an active participant in the ITU consensus building process. SMG 2 was re-confirmed as the group responsible to study the technical issues as they continue optimizing the UTRA concept. Therefore I would like to renew the invitation to submit technical contributions.

Kind regards,

*Fred Hillebrand*

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**Title:** SMG2 activities related to harmonization and convergence of 3G radio transmission technologies  
**Source:** SMG2  
**To:** ITU-R TG8/1

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## **1. Introduction**

SMG2 thanks ITU-R TG8/1 for their interest in our work related to the IMT2000 specifications, and especially the interest in SMG2's view on the harmonization and convergence activities.

This liaison from SMG2 to ITU-R TG8/1 describes our view on harmonization and convergence of CDMA based RTT proposals (UTRA from ETSI, WCDMA from ARIB, cdma2000 from TIA, WP-CDMA from TIA/T1P1, CDMA I from TTA, CDMA II from TTA, TD-SCDMA from CATT). It also describes the planned activities in SMG2 regarding harmonization and convergence.

The UTRA RTT proposal is a radio access concept comprising two modes of operation, i.e., an FDD mode and a TDD mode. The harmonization between these two modes of operation is a strong requirement in SMG2. This implies that all discussions regarding harmonization and convergence where UTRA is involved should consider both modes (FDD and TDD) of operation.

SMG2 recognizes the harmonization and convergence work that has been done in different fora throughout the world. SMG2 appreciates the information received during the present SMG2#28 meeting in Dresden about the harmonization and convergence activities within Region 2 and Region 3. SMG2 also agrees that the conclusions from the ARIB coordination group (CG), including the conclusions from the Ad Hoc S and Ad Hoc CR groups, can provide useful input to the continuing discussions on harmonization and convergence within SMG2.

SMG2's view on harmonization and convergence is that work activities can be split into two areas: RF parameters and baseband issues. SMG2 believes that a harmonization and convergence of the RF parameters is important, independent of the baseband issues.

SMG2's view is that before the discussion regarding the baseband harmonization and convergence can be concluded, it is very important to understand and discuss the requirements used in design of the different CDMA RTT proposals mentioned above. This discussion could give insight and understanding as to why the CDMA RTT proposals are different today. If a difference in the CDMA RTT proposals stems from different requirements, the harmonization and convergence discussion should study whether it is possible to align the particular requirements at issue within the relevant standardization bodies (ETSI SMG, ARIB, CATT, T1P1, TIA, TTA). Further, SMG2's opinion is that the harmonization and convergence discussions should use the ARIB Ad Hoc S and Ad Hoc CR conclusions as the basis for further discussions.

## **2. Planned activities within SMG2**

Based on the discussion above, SMG2 will contribute to work on harmonization and convergence through its work on RF parameters in SMG2. This includes a precise definition of the RF parameters and test methods of the RF parameters. The detailed work on the RF parameters will be done with high priority in SMG2's Layer 1 Expert Group\* which will consider all contributions equally. The intention is then to agree at the next

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- The next SMG2 meeting will be in Sophia Antipolis, France, Jan, 25-29, 1999
  - The next SMG2 Layer 1 Expert Group meeting will be in Espoo, Finland, Dec 14-18, 1998

SMG2 plenary meeting\* on the RF parameter specification. This is also in line with the already existing time plan in SMG2. SMG2 encourages companies and standardization bodies from other regions to take part in these SMG2 and SMG2 Layer 1 Expert Group discussions.

SMG2 will allocate sufficient time to discussions on baseband harmonization at the next SMG2 plenary meeting. The discussion about the baseband differences at the next SMG2 meeting will be split into two parts:

- A discussion related to differences in requirements
- A discussion related to baseband parameters.

SMG2 encourages companies and standardization bodies from other regions to input papers about the requirements on the different CDMA RTT proposals and also information on the harmonization and convergence progress.

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- To get information on how to contribute to SMG2 meetings, please contact:  
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email: **Error! Bookmark not defined.**
  - To get information on how to contribute to SMG2 Layer 1 Expert Group meetings, please contact:  
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