

CEPT-CCH-GSM  
Report from meeting no 5.

Status: approved

Place: Berne  
Date: 1984.06.26 - 1984.06.29  
Participants: see annex 1  
Agenda: see annex 2  
Documents: see annex 3

## **1 OPENING OF THE MEETING**

Mr Kartaschoff welcomed the delegates to the Technical Centre PTT in Berne and informed about its activities.

## **2 APPROVAL OF THE AGENDA**

(ref. annex 2)

The proposed agenda and working schedule for the meeting were presented by the chairman and accepted.

## **3 LISTING OF RELEVANT DOCUMENTS**

(ref. annex 3)

The documents to be considered during the meeting were GSM Doc 29/84 - 55/84 (inclusive). Documents 29/84 - 50/84 were available at the beginning of the meeting. Remaining documents were produced during the meeting. In addition to this Doc's 7/84, 14/84 and 18/84 from the previous meeting were to be considered.

The relevance of the documents to the various agenda items - as listed on the agenda - was identified.

## **4 REPORT FROM THE GSM MEETING No 4**

After minor amendments the report from meeting no 4 was approved.

## 5 REPORT FROM THE CCH-MEETING

The Chairman reported from the CCH-meeting, which had expressed that:

- 1) A Work Plan for the period 1983-86 should be elaborated.
- 2) Permanent GSM subgroups (having regular meetings between the GSM-meetings) should be avoided as far as possible.

He also told that CCH has had a meeting with ECREEA, EUCATEL and ECMA which have expressed a wish for information on the proceedings of GSM. ECREEA and EUCATEL have established a Joint Task Force for studies on mobile communications. Those groups are now waiting for an answer from the GSM-group.

Several delegates claimed that it is too early to send any information to the industry since a unified opinion within GSM on fundamental system aspects is still missing. A plenary meeting with the industry should take place at a later stage.

Other delegates argued that it was preferable to start the dialogue with the industry by sending information on the status of the work and "the lines along which we are thinking". A written agreed report, even if rudimentary, is to prefer to national contacts.

The meeting finally agreed to send a report to the industry organisations, with a covering letter stating the preliminary nature of the information. Since the purpose of the contacts with the industry is to establish a bidirectional information flow, it was stressed that a response to the report should be requested. Also reports from the work of WP2 can be sent to the industry. These reports should also be sent directly to the Administrations with the view to contact the national industry. In addition to this the chairman should be prepared to participate at the meetings of the industry organisations.

## 6 WORK PLAN FOR GSM

Referring back to the information given earlier during the meeting (item 5 on the agenda) the chairman presented Doc 39/84 which proposes a study program for GSM. After some discussion and modification the proposal was accepted. The final version of the study program appears as Doc 39/84 Rev 1.

During the discussion the following comments were offered:

- The date for a commercial start of the system is a national matter, which does not require a common agreement. The present schedule allows for a system start around 1991/92 which was expressed as desirable by several Administrations.
- (Ref item c in the work plan). Only technical aspects are considered. User requirements, such as the need for encryption, could be strong enough to justify the choice of digital technique instead of analogue

- Mr Nilakantan stated that he was convinced that companded FM (mainly speech) gives the same performance with regard to quality and spectrum efficiency as digital modulation.
- The majority of the Administrations expressed support for a digital system assuming that the system concept chosen permits a high level of spectrum efficiency and state-of-the-art facilities at a reasonable cost.
- The meeting decided to aim for a digital system. The procedure should be to focus the study on a limited number of candidate multiple access schemes and compare them with an analogue technique.

The meeting decided to send Doc 39/84 Rev 1 to CCH, to the Joint Task Force of EUCATEL and ECREEA and that Administrations individually could send it to interested industries, universities etc.

## **7 REPORT ON THE COST ACTIVITIES CONCERNING LAND MOBILE COMMUNICATIONS**

Mr Failli reported that 9 countries have now announced their intention to participate in the COST 207 project. A first meeting has taken place, during which the rules of the committee has been established. The next meeting will take place in November.

## **8 REPLY FROM THE R-GROUP**

Mr Barnes introduced Doc 32/84 which is the answer of WG R to the GSM question regarding border-crossing and type approval. Since it seems that WG R has misunderstood the question, GSM decided to turn once again to WG R. The delegates to GSM should contact their national WG R representatives well in advance before the next WG R meeting about this problem.

The attention was drawn to the on-going discussion between CEPT and EEC on standards for type approval.

Mr Fisher explained that WG R is permanently working on harmonization of type approval procedures. The first stage of this is to agree on a technical specification. With GSM the situation will be different since a common specification will be presented to WGR.

SWG R21 and R22 has recently worked out a Recommendation on border-crossing for CB and amateur equipment. Also in this case the situation might be different with GSM, since the border-crossing also includes access to the service from another country.

A reply to WG R was worked out (Doc 54/84). In connection to this a lengthy discussion on the distinction between physical border-crossing and non-physical border-crossing (the use of a base station situated in another country than the one in which the mobile station is located at the moment) took place.

## 9 MARKET STUDIES

Mr Dupuis introduced Doc 18/84. The estimation of the market in this document is an extrapolation of the present development and does not take into account the effects of general changes in society, etc. Mr Dupuis drew special attention to the need for communications facilities on board trains and the related need for multichannel equipment.

Mr Hovi presented Doc 40/84 which did not give rise to any discussion.

Mr Jacobsen presented Doc 34/84 and explained that NMT 450 and NMT 900 will run in parallel in Denmark, both having nationwide coverage. From the subscriber point of view the only difference will be that the 900 MHz-system will offer handheld equipment. Going on introducing Doc 35/84 and 36/84 he announced that the Danish Administration does not expect the number of radiostations in private closed networks to decrease as a result of the availability of public mobile services.

Mr Jacobsen went on introducing Doc 31/84 which calls for information on the possible interest in Europe for a new type of low-cost mobile service proposed in the US by General Electric. The proposed system, named PRCS, could roughly be described as an improved cordless telephone service possibly using repeaters in order to extend coverage. An important aspect on this system is that it does not require a special infrastructure but is expected to use the existing PSTN like the Cordless Telephone, which means that the equipment might appear in Europe whether the Administrations like it or not.

Most Administrations were aware of the existence of the GE proposal and were following the development in the USA with great interest. Some Administrations (France, UK) had preliminary plans for similar services although with the important difference that a public infrastructure would be needed. Limitations with respect to roaming capability and call set-up capability from the fixed network were considered. No system details could be given at this early stage. Compare the notes in section 15, below.

The Administration of Denmark offered to contact FCC in order to find out about the actual position in the USA with particular emphasis on the aspects of frequency management.

Mr Fisher informed about the reallocation of Band III to the Land Mobile Service in the UK. It is envisaged that the band will be used for community repeater systems without PSTN-interconnection, and for private closed networks only.

## 10 ASPECTS ON PROTECTION AND SECURITY

The chairman introduced Doc 30/84 which is a condensed report from a meeting in the Hague on data security matters. The chairman concluded by calling for more contributions on the level of security for various kinds of communication. Contributions should be used as input to WG CD.

Mr Audestad mentioned 3 areas for which the security aspects must be considered:

- 1 Identification of mobile stations. This problem can be dealt with within the GSM-network itself.
- 2 Encryption of speech. It may be impossible to use end-to-end encryption. The problem must therefore be dealt with as an internal GSM problem.
- 3 Transparent data transmissions. In this case end-to-end encryption is possible, wherefore the fixed network security level has to be taken into account. The same level of protection as in the fixed network seems desirable.

Regarding item 1 above, Mr Ghillebaert drew the attention to the fact that similar problems exist for the access to packet switched networks via the PSTN and that WGCD has begun studies in the field of the security aspects in data communications.

The next meeting of WG CD will take place in October 1-5. GSM agreed that Mr Ghillebaert would act as a liaison between GSM and WG CD for matters regarding protection and security. To save time, contributions on the level of security should be sent directly to Mr Ghillebaert who will present the views in WG CD. The views can however not be presented as the official GSM opinion, since no discussion has taken place in the GSM group.

A small coordination meeting between experts of the Administrations was proposed.

An organisational problem was identified in so far that speech protection and data protection are handled within WG CS and WG CD respectively. Technically converging solutions must be obtained.

Doc 53/84 was worked out and presented by the chairman.

## **11 ACTIVITIES IN THE FIELD OF LOW BIT RATE SPEECH, ENCODING, MODULATION AND MULTIPLE ACCESS TECHNIQUES**

Mr Verhulst introduced Doc 46/84. Since the document will be dealt with in the working party no discussion took place at this stage. Mr Verhulst also drew the attention to the description of the SEL-system which could be used as an input to the WP discussion.

## **12 NETWORK AND SIGNALLING QUESTIONS**

Mr Cheeseman introduced Doc 29/84 which describes a transmission plan for TACS. The problems illustrated by this document will occur also in the GSM-system since the problem will remain as long as analogue links appear somewhere in the transmission chain. The interconnection between the TACS-system and the PSTN is described as being made on local exchange level. This is a worst case. In practice all varieties exist.

Mr Audestad introduced Documents 47/84 and 48/84. The documents contain a proposal to introduce a new network component, the "mobile concentrator", which is a switching device controlling the base stations. The proposal will be considered by WG CS.

## WORKING PARTIES

### Set-up of Working Parties

In addition to Working Parties 2 and 3 from the Rome meeting the need for a WP on the special requirements of hand-held equipment was identified. For this reason a new WP1 was established.

Chairmen of the WP's were appointed as follows:

WP1	Mr Nilakantan
WP2	Mr Verhulst
WP3	Mr Audestad

### Reports from Working Parties

#### WP 1

The Working Party started by identifying several parameters which differ between hand-held equipment and vehicle mounted equipment. The description of the parameters need further refining. A complete report will be elaborated to the next meeting.

#### WP 2

Mr Verhulst presented the report, Doc 51/84. He explained that due to the difficulty to realize a pure FFH CDMA-system within the given time frame this alternative had been excluded from further studies.

After some discussion during which i e:

- a second FDMA alternative was proposed to the list of examples (page 6)
- the path loss was added as a parameter for evaluation
- the possibilities with respect to adaptive speech coding was suggested as a subject to be studied

the meeting decided to amend the document in the light of the discussion and send it to SWG TR3. Also Doc 46/84 to which references are made will be submitted to SWG TR3.

Due to the complexity of the problem, the meeting found it necessary to have the questions concerning multiple access techniques dealt with by experts. To this end a Terms of Reference for a special coordinator was drafted (Doc 52/84). Mr Verhulst was appointed as this coordinator.

In Doc 51/84 a number of multiple access schemes have been identified. The meeting recommended the Administrations advocating the schemes to contribute with further refinement of the channel models and submit this information to the coordinators. An evaluation will take place at a later stage.

### WP 3

The report which was finalized after the meeting and sent to the delegates is contained in Doc 57/84.

The documents treated by the WP were Doc's 47/84 and 48/84 to which minor amendment were made before they will be sent to CS-SIG.

In addition to this, Doc 27/84 from the Rome-meeting had been treated. No questions had been answered, but three new questions had been identified. The questions concern:

- 1 The need for the Register Recall-function
- 2 Queuing and queuing time
- 3 Message Handling Systems

Mr Audestad finished his report by calling for contributions on the 13 questions now identified by the WP.

A document (the present annex 2 of Doc 57/84) based on the discussion on documents 47/84 and 48/84 will be sent to CS-SIG and presented as the opinion of the Working Party.

## 13 RADIO WAVE PROPAGATION

No discussion took place on this item of the agenda.

## 14 TRAFFIC MODELS

Mr Melis presented Doc 41/84 in which a new framework for collecting traffic data from existing systems is proposed. This framework replaces the earlier one in Doc 30/83 Rev 1.

Various details in the framework were discussed, after which Mr Melis offered to up-date the framework once again in the light of the views expressed. Administrations should then submit new information on the traffic data of their respective systems as soon as possible so that the work on the traffic model could be finalized by mid 1985.

The items to be improved in the next framework are i a:

- Parameters to be estimated should be clearly distinguished from the parameters to be measured.
- A section dealing with statistics on roaming should be added.
- An introduction giving some guidance on how to fill the form and clarification to the parameters should be added.

Several delegates expressed the view that the figures of the framework should be related to busy hour instead of total time.

Documents 42/84 and 44/84 contain traffic data from the systems of Netherlands and Sweden respectively and were not discussed. Mr Melis recommended that all contributions on traffic statistics from existing systems should be treated as GSM-documents.

## 15 COEXISTENCE OF VEHICLE-BORNE AND PORTABLE STATIONS

Mr Jacobsen introduced Doc 33/84 which did not cause any discussions.

Mr Dupuis presented Doc 45/84 in which the opinion is expressed that the use of hand-held equipment in the GSM system should not be allowed to have too much impact on the system design. If the requirements of vehicle-borne and hand-held equipment would conflict it could according to Mr Dupuis be better to design two separate systems as proposed by the EURODATA PACTEL study: the mobile communication system and the personal communication system. The latter could derive from cordless telephone techniques. In this case it would be necessary to apply to CCH for further guidance.

A long discussion on the French contribution took place in which the following views were expressed:

- If two separate networks were established an undesirable competition between the networks could occur. Nor is the splitting of the frequency band desirable.
- A discussion is already going on within SWG R22 on the need for new standards for cordless telephone. R22 has come to the conclusion that the present Recommendation on Cordless Telephones should only be considered as an interim solution.
- R22 has for the time being no mandate to continue the work on this matter.
- UK has some preliminary plans for cordless telephone equipment to operate in the 870 MHz-band.
- Personal communications is a strong market demand. Traditional systems limited to use of vehicle mounted equipment is the result of technical restrictions only.

The concept of "personal communications" which is already a well established term in the US was discussed. It was claimed that the concept may be linked to some operational limitations such as non-contiguous coverage and possibly no ability of being used in motion.

- The UK placed considerable importance on the need for hand-held equipment and it was stated that hand-held would form an integral part of the TACS system in the UK. Mr Barnes offered to produce a contribution for the next meeting on this subject.

- A possible solution to the problem could be to design a system capable to handle both vehicle-mounted equipment and hand-portables, but with the hand-portables operating in another frequency band. This would solve the purely technical side of the problem leaving the policy question to be considered later by a competent group.

Some delegates expressed the view that WG R should be asked to study the problems related to frequencies for a personal communication service. However no common GSM-opinion could be obtained. It was suggested that the Administration of France should submit Doc 45/84 to WG R- and SWG SF as national contributions for early information. The French Administration agreed to do this. The GSM-group should -following its terms of reference - continue to analyse the consequences of portable equipment and turn to CCH only if severe problems occur.

Mr Jacobsen drew the attention to the need for finding frequencies for the extension equipment discussed earlier during the GSM-work.

## 16 TARIFF STRUCTURES

Doc 43/84, which is the reply of the Administration of Netherlands to the questions on tariff structures was discussed together with Doc 49/84 which summarizes the answers received so far. The meeting decided to treat each reply of the individual countries as GSM-documents.

It was stressed that the total expenditure mentioned in paragraph 5 of the questionnaire (Doc 20/84 Rev 1) shall comprise all expenditures including depreciation of the mobile equipment.

## 17 RADIATION HAZARDS

Due to lack of time the meeting agreed that Doc 50/84 from the Administration of UK should be taken care of by the rapporteur.

## 18 THE OSI MODEL APPLIED TO MOBILE SYSTEMS

Mr Audestad presented Doc 7/84 which was circulated already at the previous meeting. For further clarification he mentioned that:

- The purpose of the OSI-model is to create means to interconnect virtually incompatible systems.
- The link layer comprises ARQ-functions and speed conversion facilities.
- The network layer represents the service normally provided to the user by Administrations.
- "Synchronization" in the Session layer refers to the synchronization of programs and not system clocks.

Regarding the use of the OSI-model in mobile applications Mr Audestad expressed the opinion that layers 4, 5, 6 and 7 were of less concern for the GSM-group. For layer 3 there is a potential interworking problem because of the need for short and constant frame lengths on the mobile channel (due to higher BER and the importance of detecting start/stop blocks). The possibility to transfer circuit switched data was discussed as well as the use of dynamic frame lengths. For speech communication, which can probably tolerate a higher BER than data communications, a longer frame-length is desirable in order to reduce the addressing overhead.

## 19 ANY OTHER BUSINESS

Mr Barnes informed about a seminar on Mobile Communications to be held in York. The seminar will treat several matters of interest for GSM.

A letter from SWG SF3 (Doc 37/84) was presented by the chairman together with a proposed reply (Doc 55/84) which was adopted after minor amendments.

A letter from WG ELT (Doc 38/84) was noted without comments.

To make it possible to work out adequate meeting agendas the chairman asked the delegates to inform himself or the secretary of late contributions and if possible bring copies to the meeting in order to ease the work of the host Administration secretariat during the first meeting day.

## 20 NEXT MEETING

The GSM-group was invited by the UK Department of Trade and Industry to hold its next meeting (no 6) in London. The meeting will take place in week 46 (12/11-16/11).

The date for meeting no 7 was set out to 25/2 - 1/3 1985.

## 21 CLOSING OF THE MEETING

The chairman closed the meeting by thanking the Swiss Administration, and in particular Mr Klingler, for their excellent meeting arrangements and for the opportunity to come to visit Berne.

**List of participants**

Chairman:	T. Haug
Secretary:	T. Beijer
Denmark:	M. Jacobsen G. Nilakantan
Finland:	M. Hovi
France:	P. Dupuis D. Verhulst M. Alvernhe A. Maloberti B. Gillebaert
FRG:	K. Spindler J. Hermanns H. W. Lawrenz
Italy:	R. Failli M. Farioli M. Sentinelli
Netherlands:	L. Melis M. van Beveren
Norway:	H. Myhre J. Audestad
Spain:	G. Lluch
Sweden:	G. Fremin
Switzerland:	R. Klingler
United Kingdom:	D. S. Cheeseman K. Fisher E. Philips D. M. Barnes

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## AGENDA

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21	Closing of the meeting	

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### EXTRACT FROM GSM DOCUMENT LIST

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
31/84	Private radio communication system	Denmark
32/84	Answers to GSM from the R-Working Group	Chairman WGR
33/84	Handportable Radiotelephones in the NMT-450	Denmark
34/84	Number of automatic mobile telephones in Denmark	Denmark
35/84	Distribution of NMT mobile subscribers on industrial groups	Denmark
36/84	Radio equipment in private landmobile radio services in Denmark	Denmark
37/84	Input to GSM from WG SF	Chairman WGSF
38/84	Outline of a study of the demand for the second generation cellular mobile radio system - respons to CCH/GSM	WG ELT
39/84 Rev 3	Study Program for GSM	Chairman
40/84	Industrial classification of NMT-subscribers in Finland	Finland
41/84	Interim report on traffic data from existing mobile telephone systems	Rapporteur Traffic model
42/84	Traffic data on the Netherlands mobile telephone system	Netherlands
43/84	Reply to the questionnaire for the evaluation and comparison of national tariff structures in mobile telephone systems	Netherlands

44/84	Traffic data on existing systems	Sweden
45/84	Coexistence des stations montées sur véhicule et des stations portatives	France
46/84	The transmission channel of a digital mobile system under different multiple access and channel coding strategy	France
47/84	Functional model for the GSM system	Norway
48/84	Procedure for restart of location registers	Norway
49/84	Tariff structures in existing national mobile telephone networks	Rapporteur Tariff structure
50/84	Radiation hazards, position in the United Kingdom	UK
51/84	Report of WP2 during meeting no5 (Berne)	GSM
52/84	Coordinator of urgent tasks in GSM	Chairman
53/84	Protection of communications	Chairman
54/84	Regulatory and administrative questions concerning GSM (letter to WG R)	Chairman
55/84	Reply to WG SF3	Chairman
56/84	Report from GSM meeting no 4 (Rome)	GSM