

Status: approved

Place: Madrid
Date: 1986.09.29 - 10.03
Participants: see annex 1
Agenda: see annex 2
Documents: see annex 3

1 OPENING OF THE MEETING

Mr Lineares Lopez opened the meeting by informing GSM about the latest developments in mobile telephony in Spain. The Spanish mobile telephone system is now expected to grow rapidly due to a liberalization of the MS market.

2 APPROVAL OF THE AGENDA

The approved agenda appears as Annex 2 to this report.

3 LISTING OF DOCUMENTS

(ref. annexes 2 and 3)

The documents to be considered during the meeting were GSM Doc 58/86 and Doc's 62/86 - 92/86. Annex 2 shows to which agenda item the documents belong.

Doc's 62/86, 63/86 and 66/86 were circulated for information only, and were not discussed during the meeting.

4 REPORT FROM GSM MEETING No 11

The report was corrected and approved. The number of the document is 64/86.

5 REPORT OF ESA WORKSHOP IN JUNE

Mr Dupuis reported. The workshop discussed two types of applications, namely low speed data and mobile telephony (mainly advocated by American enterprises). The LOCSTAR project was also mentioned. Everybody agreed that the MS antenna is the key problem to land mobile satellite systems. Also GSM was discussed. ESA claimed that GSM would not be operational in Europe until 1995.

The Chairman told that the PTC-SAT group, whose task is to interface the views of CEPT and ESA has now become a permanent group.

On the question whether GSM should officially react on any of the activities of ESA the meeting agreed that this was not necessary. However GSM found it necessary to take a more active part in conferences and such events in the future in order to spread more information about the GSM system.

6 REPORT OF CCIR IWP 8/13

Mr Stewart reported that IWP 8/13 welcomed contacts and exchange of information with GSM. Much of the work in the IWP on services and facilities was based on the outcome of the GSM WP1 work.

Regarding spectrum allocation matters the IWP was of the opinion that the GSM frequency band should be made available outside Europe for GSM type systems.

The next meeting of IWP 8/13 will be held in Melbourne, March 1987.

7 ANALYSIS BY CEPT/ELT

The Chairman will draft a response to WG ELT on Doc 58/86.

8 REPORT OF WP 1

Mrs Alvernhe introduced the report of WP1, Doc 67/86, and mr Hillebrand introduced Doc 89/86. The document gave rise to discussions on mainly two topics, namely DTMF-signalling (and the related question of voice band data) and charging. The following decisions were made:

DTMF

The meeting agreed that the transparency of the voice codec for DTMF signalling, according to Rec Q23, should be regarded as a desirable feature, thus not a requirement.

For the time being, the SCEG is only asked to assess the possibilities of the various candidate codecs in this respect. Later, GSM will take a decision on what priority should be allocated to this feature.

If the voice codec chosen turns out not to be transparent to DTMF signals, GSM will consider the possibility to offer the facility to the customers by introducing a terminal adaptor or a similar arrangement.

Charging

The chairman of GSM will send Doc 89/86 to PGT and TPH and ask for comments. The Administration of FRG will contact the chairmen of PGT and TPH in order to assess their ideas of how the activities in this field should be organized in the future.

9 REPORT OF WP 2

Starting from the presentation of Doc's 77/86 and 88/86 and a Swedish proposal presented in Doc 72/86 an exhaustive discussion took place on the possibility to take a decision on access scheme already during the on-going GSM-meeting. Various arguments of both political and technical nature were put forward defending the earlier agreed decision procedure. In particular, the importance of the experiments as a confidence factor was emphasized. The following conclusion was made:

Evaluation measurements

The meeting decided to stick to the earlier decisions concerning the measurements in Paris on the trial equipment.

It was also decided that if an equipment is not ready in time for the measurements, the measurement on that particular equipment will not be performed. This does however not exclude that features of the corresponding concept, and other available information, will be considered when the choice of access method is made and during the optimization process. The fact that an equipment has not been subject to the evaluation measurements does not mean an end of the concept.

The meeting agreed that the purpose of the evaluation tests is to select among three basic access techniques, namely:

- FDMA
- Narrowband TDMA (with or without frequency hopping)
- Wideband TDMA (with or without CDMA)

The following deadlines were agreed:

- GSM agreed to the WP2 time schedule as described in Doc 77/86 Annex 1. Contingent variations within the strict timing of the WP2 schedule will be coordinated by the PN. WP2 is directed by GSM to maintain the final dates of the schedule.
- WP2 evaluation: End January 1987
- GSM final decision on access method: End February 1987.

During this discussion it was also mentioned that due to lack of time, the fading simulator will not be available before the Paris measurements activity for testing of any equipment scheduled to be measured during that activity.

The requirement on minimum traffic capacity was questioned by several delegates claiming that present analogue systems perform considerably better and that the requirement is thus far too low. The conclusions of this discussion were:

Traffic density criteria

On the subject of capacity, considering the requirement that the GSM system must be at least equal to existent earlier systems, GSM decided that:

- The requirement should be of 25 E/km**2 (model 1) as stated in WP2 report, and a defined BS separation of 3.5 km. (A correspondance 1 channel to 1 E will be used). However it is clear that the GSM system aims at higher values, that would come out of the process of comparison and could be achieved during the optimization process.
- The value of this requirement is set with reference to what analogue systems accomplish today. To take into account the fact that the capacity depends also upon the BS separation, a fixed BS separation will be used by WP2 for this requirement.
- The possibility of having small BS separation is very important for the spectrum utilization. So, even if a fixed value is taken for the requirement, the possibilities of the different scenarios to have smaller BS separations will be inquired.

Theoretical analysis of traffic capacity

WP2 was asked to intensify the theoretical studies on traffic capacity of various system concepts and access schemes.

Regarding the above mentioned theoretical studies, mr Maloberti told that WP2 has developed computer models for this purpose, but input data - required C/I of the various access schemes - are still missing. These figures will come out of the measurements.

On documents 65/86 and 69/86 from TMS, the meeting decided that the Chairman and mr Maloberti should draft a reply.

Doc 80/86 on risk assessment was introduced by mr Temple. The document received strong support from a number of delegates. The meeting decided to:

Risk assessment

An assessment of the risks inherent in the various systems, in line with the suggestions put forward in Doc 92/86, must be part of the evaluation criteria.

Recommendation review

The PN shall undertake to organize regular Recommendation Review Meetings in the future, involving the WP chairmen, the PN and relevant expertise from Administrations and industries. As a first step the PN shall present a more detailed description of this activity.

After some amendments to paragraphs 2, 4 and 6, the meeting decided to re-issue the document as a class 2 document (GSM 92/86).

In connection with the presentation of Doc 86/86, mr Cheeseman informed of an offer from Plessey to support the GSM work by making test equipment available.

The Swedish experimental program MAX was presented by mr Mäkitalo (Doc 73/86).

Doc 75/86 from Portugal gave rise to some discussion as to the potential protocol problems due to the increased delay. Decision:

Use of GSM standard equipment for connection of BS's to MSC's

The PN shall undertake a study of the feasibility of the ideas presented in Doc 75/86 from Portugal.

10 REPORT OF WP 3

The report of WP3 (Doc 68/86) was introduced by mr Audestad. The degree of stability of the various WP3-Rec's was stated, and some problem areas were mentioned, ie the terminology problem and an on-going, very comprehensive restructuring of the ISDN Recommendations. The concept of "Satellite calls" (page 4) was clarified. This has nothing to do with satellite hops but refers to an indication of a long delay call for which satellite connections should be avoided.

The meeting discussed the potential problem of using LAP-D in an hand-over environment where the BER reaches critical values. In these cases a special version of LAP-D is used (continuous stream of commands) which should take care of the problem. It was claimed that higher layer protocols (3 and above) would work independently of whatever protocols are used on layers 2 and 1.

The main items for discussion concerned Location Register recovery, protocol validation, MSC/BS interface and location of functions (in particular the location of transcoders and the related question of transmission between MSC and BS). The need to enable the use of low-cost BS's and thin route transmission technology for sparsely populated areas was stressed. The discussion on these topics led to the following decisions:

REC 04.09 Mobile Management Entity

The meeting decided that WP3 should start working on this recommendation.

MCS/BS interface

GSM supported the offer of WP3 to start a study of the MSC/BS interface, starting with a definition of the functions (irrespective of their location). A small expert group within WP3 shall be charged with the task. Administrations are urged to allocate resources for this task.

The decisions where a particular function should be located will be taken by GSM at a later stage.

The Permanent Nucleus will look into the possibilities of supporting WP3 in this task.

Validation of protocols

Sweden, France and UK offered to contribute in the field of validation of signalling protocols.

Location register recovery

UK will look into the possibilities of a contribution in this area. Other Administrations are urged to do the same.

Signalling traffic dimensioning study

Parameters for the traffic model should be sent to Mr Cheeseman.

11 PERMANENT NUCLEUS REPORT

The report of the PN, Doc 83/86 was introduced by Mr Mallinder. Some discussion arose on the subject of how to proceed from the specific Recommendations to equipment specifications (item 1.2 Series 11 Recommendations). The PN offered to input a paper on this item.

Mr Dupuis asked Administrations that wish to send people to the PN to give him a previous notice in order to speed up the process of solving various practical problems.

Mr Klingler mentioned that Switzerland wishes to add a member to the PN. Mr Mallinder stated that additional resources in the PN were highly welcome, and GSM decided to accept the offer of Switzerland.

Some other discussions relevant to the work of the PN are reported under agenda item 16.

12 REPORT ON COST 207

Mr Failli reported that all efforts in the COST 207 WG on Propagation lately have been concentrated on the task of finalizing the fading simulators. It was also mentioned that a general purpose simulator will probably be developed. This simulator will be commercially available. Reports from COST 207 WG on Modulation Methods have been sent directly to WP2.

A discussion on the ability of the simulators to model the real life channel led to the following statement:

Channel model for the simulator

It was stated by the COST 207 chairman and the PN representative that the present wideband simulators do work and that the COST 207 subgroup on propagation have agreed on the parameter settings for the simulators. No more reservations are made on the fact that these parameters adequately model the reality.

It was stated that both types of simulators will be used in the experiments.

13 REPORT ON JOINT GROUP COST 207/TR3

The report of the group (Doc 74/86), which was introduced by mr Natvig caused discussion on four topics:

DTMF: The decisions reported under agenda item 8 were repeated.

VLSI-implementation: The PN has held a workshop on this topic together with the industry. This workshop dealt with the VLSI aspect of the entire MS, thus not only the speech codec. A preliminary report will be delivered in November and a final version at the GSM February meeting. Some conclusions were mentioned:

- The VLSI industry does not foresee any difficulty producing components in 1989 provided a final, stable specification is produced in 1988.
- All candidates (codecs and access techniques) are equal from a VLSI implementation point of view.
- A lower power consumption can be achieved with a digital system than with any of the present analogue systems.
- There is already one manufacturer who has developed a speech codec chip. This is a CMOS-chip of 40k gates, 1.5 Volt, no stand-by power consumption.
- Additional applications for the speech codec are desirable in order to achieve large scale production. CT II and Short Range Radio were mentioned as possible candidates.

It was also mentioned that some of the candidate speech codecs are implementable in just a few DSP's. These are however built in bipolar technique.

The matter of power consumption is still under study by WP1 and WP2. A response will be given directly to the SCEG at the December meeting of WP2 at the latest.

Delay: The UK delegation is still worried about the allocation of max 65 ms delay to the speech codec. Mr Natvig mentioned that TR3 has been asked to analyze what benefit could be obtained by reducing this time to 55 ms.

Patents: Mr Natvig reported that three of the statements on royalty-free use differ from the proposed standard statement. Those are PKI, IBM and BT. Mr Cheeseman explained that the BT legal experts, when scrutinizing the proposed statement, came to the conclusion that the statement as it stands now would give anyone the right to free use of any technical method patented by BT if this method - in his own judgement - is of importance for the implementation of the GSM standard. For this reason BT is unable to commit themselves to the proposed statement.

A fairly long discussion on the matter led to the following decisions:

Patent matters concerning Speech Coding

- It was agreed that the SCEG should proceed with the 6 codecs that have been forwarded.
- The need for a thorough patent search on the proposals was stressed. It is each Administrations responsibility to have this patent search made. The task should be finalized by the end of November at the latest.

In particular it was urged that the list of patents, owned by IBM and BT, that would be infringed by the proposal should be indicated as soon as possible. The position of these contributors concerning the conditions for licences for these patents should be clarified.

- It was agreed that until the patent situation has been clarified, the results of the evaluation in the SCEG should not be disclosed to those contributors that have not given a satisfactory patent declaration.

Due to the fact that the UK delegation declared that only BT Laboratories in the UK is able to perform subjective tests on the speech codecs, it was agreed that BT experts should not attend the meetings of SCEG unless BT will not sign a satisfactory patent statement.

14 PATENT QUESTIONS

Mr Dupuis introduced a proposal for a statement on licencing with respect to the radio subsystem (Doc 71/86), and mr Cheeseman presented Doc 90/86 which suggests a meeting of experts on patent matters. Some minor amendments to the annex of Doc 71/86 were made, whereafter the following decisions were taken:

Patent matters

- GSM agreed on the necessity of an exhaustive patent search relating to the techniques used in the radio subsystems. Each Administration is responsible for carrying out this search within its own country. In addition, the national industries involved in development work for the GSM standard should be asked what patents they know of and what patents they have themselves. The outcome of this activity should be given to WP2, which is asked to compile the information.
- All industries, research centers and Administrations presenting experimental radio subsystems for testing by GSM should be asked to sign the statement in Doc 71/86 Annex 1. This should be done before November 30 in order to allow the ad-hoc meeting on intellectual property questions mentioned below to consider the result. The outcome of this activity should be sent to WP2. TMS should be informed about the activity by the GSM chairman.
- GSM decided to organize an ad-hoc meeting to deal with questions concerning intellectual property in connection with the GSM system. The ad-hoc meeting is assumed to be attended by GSM members on senior level, assisted by experts in the field of intellectual property matters. The Terms of Reference for the ad-hoc meeting are contained in GSM Doc 91/86.

The ad-hoc meeting will take place on December 16 - 17 in the UK. The chairman of the meeting will be mr Dupuis.

15 REPORT ON JOINT EXPERT GROUP ON SECURITY

The Chairman gave a report on the activities of the Security Experts Group (Doc 70/86). The SEG wished to have the guidance of GSM on a few matters. The following decisions were made:

Identity confidentiality

The meeting decided that in the case of a location register recovery, when a TMSI has been lost, open identification could be used on the radio path.

Authentication

The meeting decided that if the authentication could not take place due to a malfunction in the network for which the subscriber is not responsible, the calls should still be set up.

The meeting urged the SEG to consider the need not to overload the signalling system.

Physical security matters

The meeting decided that the SEG should be responsible for matters concerning physical security. However, the SEG chairman pointed out the need for additional resources.

In connection with the discussion on authentication it was suggested that when the authentication could not take place, the procedure should be simulated in order to prevent the MS's to derive information on the situation.

16 ACTION PLAN

It was proposed by the Chairman to reduce the amount of paperwork by modifying the rules for distribution of certain documents, viz some very comprehensive and specialized Recommendations which are not believed to be scrutinized by everybody. Further on the need for a more sophisticated system for up-dating of Rec's was recognized. Mr Mallinder mentioned that the PN is now working on such a system based on computer registration, and offered to take care of that problem in the future.

The following decisions were taken:

Documentation handling

The meeting decided to modify the routines for distribution of documents. The new rules - which apply to the Recommendations in particular - are defined in an up-dated version of the Action Plan, Doc 23/86 Rev 2. The Action Plan will be up-dated by mr Hillebrand this time, and later on by the PN.

It was stressed that the rules in Doc 126/85 are still valid.

All Administrations were asked to send to the PN a list of addresses of national industries which should receive draft Rec's from now on.

The meeting also agreed that the purpose of sending the early draft Rec's to GSM is primarily for information, not for examination during the GSM meetings. This means that it is not necessary to have the Rec's sent out before the GSM meetings.

Concerning participation of industry at the WP meetings it was agreed that the rule to only allow participation of 2 industry delegates should not be taken too literally. The important thing is that the spirit of the rule - ie to accept a limited number of really working experts in order to further the work of the group, rather than accepting representatives of all industries in order to spread information about what is going on - is maintained.

Going through the revised Action Plan the following Action Point was decided:

Resources

GSM urged the WP chairmen as well as the PN chairman to investigate what additional resources are needed in order to meet the target dates specified in the GSM Action Plan.

The above mentioned chairmen are thus asked to indicate - well in advance of the February meeting of GSM:

- 1 what sort of experts are needed and for what item (Rec)
- 2 when are those experts needed
- 3 what amount of work is foreseen
- 4 what other type of resources are needed (laboratory equipment, simulations, etc)

Possible foreseeable problems due to other reasons than lack of resources should also be indicated.

17 TARIFF QUESTIONS

See agenda item 8 above.

18 OPERATION AND MAINTENANCE

Mr Mallinder introduced Doc 84/86. The figure 50 was mentioned as an early estimation of the number of messages needed for the BS for O&M purposes.

19 FUTURE MEETINGS

The following meeting schedule was agreed:

Meeting no 13:	16/2 - 20/2 1987, Funchal
Meeting no 14:	9/6 - 12/6 1987 (preliminary)
TMS meeting:	4/3 - 5/3 1987 should be reserved
Meeting no 15:	12/10 - 16/10 1987 (preliminary. Depending mainly on WARC schedule)

For the next GSM meeting the group decided that interpretation from English was not necessary.

20 ANY OTHER BUSINESS

Dr Spindler announced that he will now discontinue his involvement in the GSM project, leaving over to Mr Silberhorn. The GSM, said Dr Spindler, has been a positive personal experience due to the cooperative spirit of the group. The Chairman thanked Dr Spindler for his contribution to the project.

Mr Temple informed the GSM about a recent allocation of extra spectrum to the TACS systems. The allocated spectrum is below the band allocated to the present analogue first generation system.

Mr Temple went on informing about the co-operation between France, FRG, Italy and UK, giving the following statement:

"In June 1985 an agreement was signed in Nice between France, Germany and Italy to further by co-operation the early implementation of digital Pan European cellular radio systems. The United Kingdom has experienced significant growth in its cellular radio market and has seen the need for the early implementation of a more advanced technology cellular radio standard. Further that users, operators and industry would benefit if this new standard was implemented in concert with other European partners leading eventually to an international roaming service available throughout CEPT countries and beyond. The UK has therefore become a co-signatory to the French/German/Italian co-operation agreement as it stands. The UK views this agreement as complementary to the CEPT standardisation effort. Besides supporting the CEPT standardisation activity, the agreement aims to organize the co-ordination of telecommunication operators seeking an early implementation of a digital system featuring international roaming."

Mr Cox introduced Doc 85/86 about the Eurokom electronic mail system, inviting GSM to use that system for the distribution of documents, meeting agendas etc in the future. The GSM delegates were asked to study the proposal for the next meeting.

In addition to this the following decisions were taken:

Meeting reports, etc

The meeting decided that a list of decisions and action points should be produced and approved during the GSM meetings in the future.

Practical problems concerning travelling to France

The French Administration undertook to investigate the possibilities to overcome the difficulties for those not holding EEC passports and involved in GSM activities to visit France.

Terminology

All WP's were asked to appoint a contact person for matters concerning harmonization of terminology within GSM. The corresponding contact person within PN is mr Hagedoorn. The overall responsibility for terminology questions is with the PN (ref. Action Plan, Rec 01.04.)

21 CLOSING OF THE MEETING

The Chairman closed the meeting by - once again - urging the delegates to submit their contributions in sufficient time to enable the distribution of them, and to allow for an improved planning of the meetings. He also thanked the Spanish Administration for the excellent hosting of the meeting.

CEPT-CCH-GSM
Meeting no 12
Madrid, 1986.09.29 - 10.03

List of participants

Chairman:	T. Haug
Secretary:	T. Beijer
Belgium:	L. Taghon
Denmark:	M. Jacobsen A. Foxman H. K. Andersen H. Olsen
Finland:	M. Pasanen
France:	P. Dupuis B. Ghillebaert M. Alvernhe A. Maloberti
FRG:	K. Spindler A. Silberhorn F. Hillebrand F. Pernice
Greece:	T. Thanopoulos
Italy:	R. Failli M. Sentinelli
Netherlands:	B. Huenges Wajer J. Geus W. van Eck
Norway:	P. Bliksrud B. Löken J. Audestad J. Natvig
Portugal:	O. Reis Luis

Spain:	C. Lluch A. Benedi F. Arconada M. García de la Oliva
Sweden:	G. Fremin Ö Mäkitalo
Switzerland:	R. Klingler P. Gfeller
United Kingdom:	S. S. Temple R. Stewart D. M. Barnes D. S. Cheeseman E. W. Beddoes A. K. Cox T. Callaway
Permanent Nucleus	B. Mallinder E. Haase

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 Meeting no 12
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AGENDA

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EXTRACT FROM GSM DOCUMENT LIST

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
62/86	Reply to CEC on the GAP report	GSM
63/86	Report of joint meeting TMS/GSM, Copenhagen June 1986	TMS
64/86	Report from GSM meeting no 11 (Copenhagen)	GSM
65/86	Comments from TMS to the GSM criteria for selection of radio subsystem	TMS
66/86	Communication between the chairmen of CAC and GSM regarding an intermediary, analogue European system	
67/86	Report of WP1 (Rome)	GSM WP1
68/86	Status report of WP3, (Sept 1986)	GSM WP3
69/86	Letter from TMS to GSM	TMS
70/86	Report of the activities of SEG, (Sept 1986)	SEG
71/86	Industrial property conditions for the GSM tests of radio subsystems	France
72/86	Proposed amendment to the GSM Action Plan	Sweden
73/86	Swedish experimental program in digital mobile telephony	Sweden
74/86	Extracts of report on meeting of the speech coding expert group	TR3/COST 207
75/86	Use of GSM standard equipment for MSC/BS interconnection and possible implication in the radio interface definition	Portugal
76/86	Final draft 1.0 Rec 04.01 General aspects and principles relating to recommendations on GSM user-network interface	GSM WP3

77/86	Status report for WP2	GSM WP2
78/86	GSM Measurement Plan	GSM WP2
79/86	Comparison of mobile radio subsystems	GSM WP2
80/86	Risk assessment in the GSM system	UK
81/86	Diagram of VLSI consultative process	PN
82/86	Identification of areas requiring early attention	PN
83/86	Status report of the PN	PN
84/86	O&M experience of the NMT system	PN
85/86	Electronic mail for GSM Members	UK
86/86	Tests of radio subsystems in Paris oct-dec 1986	UK
87/86	Improvements of the terminology for GSM Recommendations	FRG
88/86	Supplement to the status report of WP2	PN
89/86	Charging and international accounting for telecommunication services of GSM PLMN's	GSM WP1
90/86	Correspondence regarding intellectual property matters	UK
91/86	Terms of Reference for a meeting of technical and legal experts on intellectual property conditions	GSM
92/86	Risk assessment in the GSM system	GSM