

Status: approved

Place: Funchal  
Date: 1987.02.16 - 20  
Participants: see annex 1  
Agenda: see annex 2  
Documents: see annex 3

#### **1 OPENING OF THE MEETING**

GSM was welcomed to Madeira by mr de Sousa, regional secretary of planning, and mr de Gouveia, head of the Madeira PTT, who wished GSM a successful meeting and a pleasant stay at Madeira. Information about the political status of Madeira was given as well as information on the economical and demographical development of the island, particularly concerning the ventures on tourism, the launch of Madeira as an industrial free-zone and the possibilities of a support from EEC. Being an island, efficient means of communications is of outmost importance to Madeira.

#### **2 APPROVAL OF THE AGENDA**

The approved agenda appears as Annex 2 to this report.

#### **3 LISTING OF DOCUMENTS**

(ref. annex 3)

The documents to be considered during the meeting were GSM Doc's 1/87 - 48/87.

#### **4 REPORT FROM GSM MEETING No 12**

The report was corrected and approved. The number of the document is 31/87.

## 5 REPORTS FROM SUBGROUPS AND OTHER BODIES

### a WP1

The report of WP1 (Doc 6/87) was introduced, and as a result of some questions the following clarifications were given:

- Point 3.2: The input papers to WP1 on the facsimile service have contained a lot of implementation information from which two main approaches could be distinguished. Since WP1 wished to have the comments of WP2 and WP3 on the matter before specifying the service, they decided to send the letter mentioned in the report.
- The "Barring Indicator" mentioned in section 3.2 is an indication to the MS user as to whether the MS is barred for certain types of outgoing calls.
- Mr Temple expressed some worries concerning the options for limited roaming capabilities and of differentiated tariffs, claiming that there was a risk that the options will become standard and that this could have an impact on the overall system dimensioning.

On the subject of charging it was reported that a rapporteur on charging in mobile systems - mr Wien, Norway - has been appointed in WG PGT.

### b WP2

Mr Maloberti presented Doc's 21/87 and 22/87. As Doc 21/87 had not been dealt with by WP2 prior to its presentation, it was agreed that it should be considered as a contribution from the WP2 chairman. In particular, GSM wished to modify the first sentence under Section 2: Narrowband Data (page 6) as follows:

".....frequency hopping as a mandatory feature for all mobiles and an optional feature for the base stations;"

Furthermore, GSM agreed to note in the GSM report that the WP2 opinion is that "Optimization will be made for the non-frequency hopping mode".

### c WP3

The report of WP3, Doc 30/87, was presented by Mr Mallinder. On a question concerning para 3.2 WP1, "Define the status of a MS...", he explained that the work referred to WP1 concerns the limited service offered to roaming subscribers in some cases, and is related to the problem of where the subscription parameters will be stored.

In order to speed up the work on the recommendations on the non-voice services, it was proposed to form a separate GSM WP to deal with this subject. The decisions on this matter are reported under agenda item 6e.

**d SEG**

Doc 15/87 was presented. The view was expressed that GSM needs to get a clear picture of the price of the various security features before the work in this area goes further. A presentation on this should take place at the next GSM meeting.

It was pointed out by the SEG chairman that all Administrations represented in the SEG have stressed the need for a strong authentication scheme.

The need to pay attention to the IPR aspects in connection with encryption algorithms was pointed out.

**e COST 207**

No report was available from the COST 207 since all reports are now sent directly to the relevant WP's.

Mr Failli mentioned that the Propagation WG is now concentrating on the task of defining appropriate prediction methods of propagation path loss which will help in the planning phase of the system.

It was mentioned that FRG and Switzerland are making measurements in hilly terrain. Results will be presented in April/May.

**f COST 207/TR3**

Mr Natvig introduced the reports of the group, Doc's 4/87, 5/87, 28/87 and 29/87. The following was noted:

- The basic elements of Doc 28/87 have been presented in CCITT SG XII.
- Although otherwise decided at the Madrid meeting, BT has participated in the Hague meeting of SCEG without giving any patent statement in advance. The reason for this is that the participation of BT was considered necessary in order to have a meaningful meeting. The participation of BT was approved by the GSM chairman. Some objections were raised against this action.
- The different codecs will require different error protection mechanisms.
- During the evaluation of the candidate codecs a MNRU was used to get a sufficiently large quality spread among the test samples.
- Hardware will be produced till August 1, 1987. This will enable SCEG to carry out conversation tests. The hardware solution will be used as a basis for the specification.

### **g Permanent Nucleus**

Mr Mallinder introduced Doc's 7/87, 8/87 and 9/87 giving the following clarifications:

- With the "Program development work" (Doc 7/87 para 3.1) is meant project management and not development of software.
- Recommendation 11.xx "System Description" is meant to be a more technically detailed document than Rec 01.02 which is supposed to be user oriented. Rec 11.xx is a fundamental linkage to the detailed equipment specifications.

It was mentioned that the new action "Examination of end-to-end transmission" (Doc 7/87 para 2.2) is also the subject of a forthcoming meeting of TR3, to which GSM was encouraged to send delegates.

The VLSI study (Doc 11/87) was mentioned but not discussed. A second part of the study will be produced later.

### **h Patent Meetings**

The report of the meeting of patent experts in London, Doc 1/87, was presented by mr Dupuis and the conclusions of a corresponding meeting in the Hague, Doc 33/87, was presented by mr Mallinder. GSM asked mr Mallinder to circulate the complete report of the Hague meeting as soon as this was finalized.

The Hague meeting had identified a problem in clarifying the legal relationship between large companies and their subsidiaries. This applies in particular to multi-national companies. Another potential problem which had been discussed was that different countries apply different rules for software copyright, some countries giving copyright on bit level and others on high language level.

A patent application from a US company named IMM on a digital mobile telephone system was mentioned, and the Administrations were asked to study the application in order to see if there is a need to challenge it.

Mr Silberhorn mentioned that FRG has been working on an "Umbrella Statement" on royalty free use. A proposal will be presented at the June meeting of GSM.

### **i Possible other documents**

Doc 20/87 was considered by the ad-hoc working party on non-voice services and Doc's 19/87, 25/87, 26/87, 27/87, 32/87, 36/87, 37/87 and 38/87 were considered by the ad-hoc working party on NB-TDMA Design Goal.

## 6 DISCUSSION AND DECISIONS

### a Services and Facilities

#### Emergency calls

Earlier decisions on the possibilities to place emergency calls were recapitulated and confirmed.

#### 9.6 kbit/s data services

Some doubts were expressed whether one single channel would be able to support the 9.6 kbit/s service with sufficient quality. It was suggested by some delegates that the maximum speed service should be reduced to 4.8 kbit/s. As a result of this discussion, GSM decided that the 9.6 kbit/s data services should be maintained in the absence of a basis for other decisions. Administrations questioning the service were asked to input documents on the subject to WP1.

#### Hand-over between BS's belonging to different PLMN's

GSM confirmed the earlier decision not to have an automatic hand-over between BS's belonging to different PLMN's. (Main reason: different charges and different numbering might apply in the two networks).

### b Analogue or digital system

On the basis of the outcome of the technical investigations carried out by WP2, as summarized in the table of Doc 22/87, GSM decided that the future Pan-European system should be based on digital transmission technique as opposed to analogue technique.

### c Speech coding

#### Transparency for DTMF and voice band data

The meeting discussed the requirements on the speech codec with respect to transparency for DTMF and voice band data. GSM was in agreement that the capability of the system to carry those signals was a strong service requirement, but not necessarily by using a transparent speech codec. Several speakers were in favour of using some type of terminal adapter instead, claiming that the transparent speech codec solution would not offer an acceptable quality anyway, and that it would not be a tenable solution for the future considering that a half rate speech codec might be introduced. Views were divided whether the possibility to send DTMF and voice band data must be introduced already on the first day of operation of the system and whether a DTMF capability in only one direction (MS to BS) would be acceptable.

In order to assess the possibilities and consequences of alternative solutions an ad-hoc group was established. The report of the group is contained in Doc 39/87. After discussing this report GSM decided to go for a solution using terminal adapters. The speech codec should be optimized exclusively for speech. The precise decision is contained in Doc 41/87.

As a consequence of this decision, GSM agreed on the necessity of putting extra resources on the task of defining solutions for the of terminal adaptors etc. The Administrations of FRG, UK, Italy and France offered to provide resources for this work. See Section 6 e below.

#### Future tasks for the SCEG

The future tasks of SCEG are:

- Provide a first draft specification on the speech codec scheme as soon as possible.
- Evaluate possible challenging candidate codecs.
- Provide a final draft specification when the hardware codec is available.

#### Hardware speech codecs

Administrations were asked to seek possibilities to provide hardware speech codecs for the purpose of validation by the end of the summer 1987.

#### **d Access technique**

A fairly long discussion took place on the question of frequency hopping, the value of this technique, alternative diversity techniques, the consequences with respect to MS cost and network synchronization, and to what extent frequency hopping should be taken into account during the optimization phase. The agreed outcome of this discussion is contained in Doc 41/87 drafted during the meeting.

#### Choice between FDMA and TDMA

On the basis of the outcome of the technical investigations carried out by WP2, as summarized in the table of Doc 22/87, GSM decided that the future Pan-European system should be based on TDMA transmission technique as opposed to FDMA technique.

#### Choice between NB-TDMA and WB-TDMA

The meeting was not able to reach a unanimous decision on the choice between NBDMA and WBDMA. 13 of the 15 Administrations (for this particular question the UK Administration had a mandate to represent the Administration of Ireland) were in favour of NBDMA, some of which stated that NBDMA was the only acceptable solution for them. The Administration of Switzerland preferred the NBDMA scheme on condition that the problems of long echoes in mountainous areas could be overcome. The remaining two Administrations, France and FRG, expressed preference for WBDMA - based on implementation considerations - although they did not question the conclusions of the WP2 technical evaluations, according to which all delegations agreed that the NBDMA concept would satisfy their requirements.

Since the decision procedure of CEPT assumes unanimous agreements, the Administrations of France and FRG were asked to reconsider their position for the sake of European unity and the future of the GSM project. However, no final decision on this matter could be reached during the meeting.

#### Narrowband Working Assumptions

An ad-hoc working party discussed the design goals for a NB-TDMA scheme. The report of the ad-hoc working party is contained in Doc 48/87.

Based on this work GSM agreed on a set of Working Assumptions for a NB-TDMA system. Those Working Assumptions are defined in Doc 41/87. The concept of "working assumption" is defined in Doc 45/87.

#### External output document

A document listing the main decisions on the speech coding and access technique decided by GSM during the Madeira meeting was produced. The document - Doc 46/87 - is mainly intended for use outside GSM.

#### Radio sub-system optimization criteria

WP2 was asked to work out a proposal for a set of criteria for the optimization of the radio subsystem as soon as possible. The new criteria should be based on the earlier used criteria for the evaluation of different access techniques specified in Doc 45/86. The aim should be to improve on those parameters which are now felt to be only marginally within the acceptable limits.

#### RF-experts

Administrations were asked to support the work of WP2 by providing experts in the field of RF-technology. A description of the qualifications of the experts for which WP2 is looking is outlined in Doc 40/87.

### **e Signalling and protocols**

As a result of the decisions on the transparency of the voice codec, GSM discussed the organisation of the work on data services (Doc 42/87), coming to the following decision:

#### Sub-working party on data services

In order to deal with the Recommendations on data services, GSM agreed to set up a sub working party under WP3. For this sub working party the following was agreed:

- 1 Mr Hillebrand was appointed interim chairman of the party.
- 2 Mr Hillebrand should convene a meeting as soon as possible, independently of the WP3 meeting schedule, but paying attention to the need for time to identify delegates.

- 3 The sub working party shall not make use of resources presently used by the rest of WP3.
- 4 An interim Terms of Reference shall be agreed between Mr Audestad and Mr Hillebrand. This Terms of Reference should identify for which Rec's the new sub working party shall be responsible. The interim Terms of Reference should be agreed before the first meeting of the new sub working party.
- 5 The Terms of Reference will be reviewed by GSM at its next meeting.

#### Forward error correction for the data services

GSM decided that a joint WP2/WP3 meeting should be entrusted with the task to define what information should be sent on the channel in the case of data services, and what quality requirements should apply. Mr van Eck was appointed chairman of the joint WP2/WP3 meeting.

WP2 (presumably the LIEG) should be in charge of designing the FEC scheme itself.

#### Activities of SPS-SIG

The chairman was asked to take necessary steps to ensure that the time targets for the definition of MAP will be met. It was assumed that the members of WP3 would inform the chairman of SPS-SIG about the necessity of meeting the time targets.

In addition the specification of lower layers (TC and SCCP) are to be provided in due time.

### **f Security**

#### Location confidentiality

GSM agreed that the Location Confidentiality Service should be a User Option provided on a subscription basis. The necessary functions shall be implemented in all networks. The service should apply to all communication to and from the subscribers having the service.

Switching the service on and off is not a desirable feature.

If some means to provide the service without significant penalties can be found, GSM will consider to offer the service to all users as a standard feature.

#### Authentication at hand-over

In connection with a discussion on the use of dedicated radio resources for authentication (Doc 30/87 item 3.2), GSM agreed that authentication should take place in connection with hand-over, but there is no requirement to carry out the authentication before the hand-over.

The leading requirement in this context is to ensure that the hand-over interruption is kept short.

## g Permanent Nucleus activities

### REC 02.30 on man-machine interface

Discussing a proposal from WP1 (Doc 6/87 para 3.2) that PN should start working on the Rec 02.30 on Man-Machine Interface, Mr Mallinder explained that the PN has not yet assessed the entire scope of the task, but in his opinion the PN has the necessary resources and competence to deal with at least certain aspects of this recommendation. A lot of input material exists, in a number of CCITT Recommendations which the PN is ready to analyse with respect to their applicability.

As a result of the discussion GSM asked PN to start this activity.

### Rec 02.40 on User Information

The scope of this Recommendation is not defined. It comprises issues such as the language of spoken announcements and similar things. A first draft will be produced for the next meeting of WP1. Information will be presented at the next meeting of GSM.

This particular Recommendation will remain the prime responsibility of WP1.

### Series 11 Recommendations

Doc 10/87 was discussed. Since the structure and the content of the Series 11 Recommendations is still undefined it was not possible to define to what extent the work on these Recommendations will be just compilation of existing information from GSM Recommendations and other recommendations produced elsewhere (eg rec's on matters of general nature, such as environmental requirements) or whether new substance will be required. In all case some editorial work will be needed in order to adapt the specifications to the NET format.

As a result of the discussion GSM agreed that PN should work out a structure for the Recommendations and indicate for each of the items whether it is the intention to use existing information or if new information from the WP's is needed.

GSM also decided that the PN should involve industry in the work on the Series 11 Recommendations. The guidelines agreed by GSM in Doc 47/87 should be followed.

### Nominations of new PN members

Nominations of new PN members shall be approved by GSM. The need for new members shall be announced to all Administrations together with a description of the necessary qualifications.

The Chairman was asked to contact the CCH Permanent Secretariat in order to negotiate additional office space for the PN.

New PN-member

GSM decided to accept the offer of the Administration of UK to send a new member to the PN, provided all practical problems can be solved. The new member - mr Simmons - is an expert of SS no7. The need for an expert in this field was recognized by GSM, but since this need has not been announced according to the appropriate procedure, the decision to accept the proposal of UK should be regarded as exceptional. The French Administration pointed out that this procedure could not be accepted in the future. Mr Mallinder was asked to draft a job description for mr Simmons.

Document Handling

Recognizing the need to avoid experiments which could delay the distribution of documents, GSM decided to support the procedures for document handling proposed in Doc 13/87. The PN urged the Administrations to submit lists of people who should have new issues of the Recommendations.

Other decisions concerning the PN

- \* The PN was asked to continue the studies on the use of the GSM system for the fixed links between BS's and MSC, based on Doc 75/86 from Portugal and the comments of the Portuguese Administration to Doc 12/87. (Written comments are expected).
- \* GSM decided to adopt the work rules for the PN described in Doc 18/87 Rev 1.

**h Other questions presented  
under agenda item 5**

Mr Dupuis informed GSM that a patent statement had been obtained from the CD900 consortium. This statement was slightly different from the one proposed by GSM. Mr Silberhorn informed of a patent statement from Philips.

Doc 43/87 from FRG will be discussed during the next meeting of GSM.

The following decisions were taken:

Remaining royalty statements

The Administrations of Sweden and Norway were asked to provide royalty statements on the radio subsystems, and the Administration of France was asked to take necessary steps to ensure that the royalty statement of LCT is also valid for its subsidiaries and subcontractors.

Patent club

Administrations were asked to consult their respective IP-experts regarding the possibility to form a "Patent Club".

### Final version of the royalty statement

All Administrations were asked to consider what should be the policy of GSM regarding the following issues (key-words):

- technical vs commercial feasibility
- payment of royalties to the licence holder vs a GSM originator club (royalty fund)
- fair and reasonable terms vs commercial terms
- limitation to a European club vs a possibility for a worldwide standard

### Short term action plan for patent searches

GSM agreed to proceed in the way described in Doc 24/87 Rev 1. The Administrations were asked to look for more patent experts to support the work in the various technical fields, such as:

- speech coding
- access technique
- encryption

The PN will support this activity by coordinating the patent searches mentioned in the document.

The intention of the decision is that a pool of patent experts should be established, of which groups of members should continuously follow the work of the GSM Working Parties and expert groups. It was stressed that it is not the intention to form a large group of people participating in all WP meetings and expert groups.

Doc 1/87 lists a number of patent experts ready to take on this task.

### Proposed new royalty statement

Administrations were asked to consider the proposed new patent statement presented in Doc 34/87 from the UK, by consulting their respective intellectual property experts.

The UK delegation was asked to provide a signed version of the royalty statement in Doc 34/87.

## **7 SYSTEM VERIFICATION**

Mr Maloberti reported that a number of countries had announced their willingness to build equipment for system tests and validation of the specifications. The need to validate critical items of the spec's in order to create confidence among the industries was stressed.

The meeting discussed to what extent such tests could be made complete, coming to the conclusion that a test during the autumn of 1987 would not be able to test the signalling protocols since these will not be finalized at that time. At the end a system simulator and several base stations will be needed in order to carry out complete tests.

GSM decided to entrust the PN with the task to elaborate (in close cooperation with the WP chairmen) a System Verification Program based on a step-by-step approach, allowing continuous validation of the GSM specifications. The first step in the verification should provide sufficient basis for the Administrations to issue an invitation to tender. This verification should be carried out during the autumn of 1987 and comprise a validation of the radio transmission facility (signalling not necessarily included). Preferably, the speech codec should be included.

## **8 NEW RULES FOR COOPERATION WITH INDUSTRY**

The Chairman informed of the new rules for cooperation with industry set by CCH (Doc 3/87). For GSM, the new rules will apply from the next meeting on. ECTEL will participate with 2 delegates. The ECTEL secretariat will themselves handle the distribution of papers among the industries.

It was stressed that the industry delegates should act under the responsibility of their respective Administration, that the new rules were not applicable for user organisations and that the number of industry delegates should be kept at reasonable level due to practical considerations.

In order to limit the number of documents which will be in circulation in the future, it will be necessary to change the present routines and introduce Permanent Documents.

GSM also identified the need to establish new rules for the classification of documents with respect to distribution outside GSM. The rules in Doc 23/85 Rev 1 are now obsolete. Due to lack of time, however, new rules could not be worked out during the meeting. This task would be referred to the June meeting of GSM.

The meeting considered Doc 2/87 on cooperation with industry during the optimization phase. Various methods used in earlier projects to ensure the support of industry for the specifications were discussed. Objections were raised against the idea of involving the industry directly in the "system specification teams" and to send the specifications to a Review Group instead of all industries. A new document (Doc 44/87) was drafted to be used as a basis for the discussion with TMS on the questions concerning the procedure for revision of specifications and the role of industry.

## **9 ACTION PLAN**

No separate discussion on the Action Plan took place. Decisions of relevance for the Action Plan are reported under the other agenda items of this report.

## **10 SUMMARY OF DECISIONS**

A summary of decisions was produced during the meeting, but since GSM did not have time to go through the text, this document has not been published outside the group of people attending the meeting.

## 11 FUTURE MEETINGS

The following meeting schedule was agreed:

Meeting no 14:	9/6 - 12/6 1987, Brussels
Meeting no 15:	12/10 - 16/10 1987, London
Meeting no 16:	14/12 - 18/12 1987

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

## 12 ANY OTHER BUSINESS

### Meeting with TMS

GSM decided to postpone the meeting with TMS.

### Liason with CCIR IWP 8/13

Mr Tompkins was appointed liason with CCIR IWP 8/13.

### Liason with CCTS/SET

Mrs Alverne was appointed liason with CCTS/SET.

### Establishment of Sub Working Parties

GSM decided to provisionally accept the present situation with regard to the proliferation of non-approved Sub Working Parties. However, a revision of the situation will be needed at the next GSM meeting.

### EEC directive on reservation of spectrum for the GSM system

Doc 35/87 contains a draft Directive on reservation of frequencies for GSM. The Directive is expected to be adopted by the end of the year.

### Memorandum of understanding

A draft "Memorandum of Understanding" on the introduction of the GSM system in Europe was shown. The view was expressed that such an agreement should be signed by the DG's of the European Administrations.

**Specifications in French**

Doc 23/87 will be dealt with at the next meeting of GSM.

**Operation and Maintenance**

Doc 14/87 will be dealt with at the next meeting of GSM.

**Participation of Working Party chairmen**

It was decided that if, exceptionally, a WP chairman for some reason is not able to participate in a GSM meeting, the program manager for that group should attend in the chairmans place.

**13 CLOSING OF THE MEETING**

The Chairman closed the meeting by thanking the representatives of the Portuguese Administration and asking them to convey the thanks of the group to everybody involved for their excellent assistance during this important meeting.

CEPT-CCH-GSM  
Meeting no 13  
Funchal, 1987.02.16 - 20

**List of participants**

Chairman:	T. Haug
Secretary:	T. Beijer
Belgium:	L. Taghon
Denmark:	M. Jacobsen A. Foxman J. L. Nielsen H. Olsen
Finland:	M. Pasanen H. Kauvosaari
France:	P. Dupuis B. Ghillebaert M. Alvernhe A. Maloberti
FRG:	A. Silberhorn F. Hillebrand F. Pernice
Greece:	Y. Mouroulis
Italy:	R. Failli G. Taglialegna
Netherlands:	B. Huenges Wajer D. Hoesloot W. van Eck
Norway:	P. Blikrud B. Löken J. Natvig
Portugal:	O. Reis Luis J. Lourido

Spain:	C. Lluch
Sweden:	G. Fremin Ö. Mäkitalo
Switzerland:	R. Klingler
United Kingdom:	S. Temple D. M. Barnes E. W. Beddoes T. Callaway R. Potter R. W. Tompkins
Permanent Nucleus	B. Mallinder E. Haase H. Ochsner R. Hagedoorn

CEPT-CCH-GSM  
Meeting no 13  
Funchal, 1987.02.16 - 20

**AGENDA**

- 1 Opening of the meeting
- 2 Approval of the agenda
- 3 Listing of documents
- 4 Report from GSM meeting no 12
- 5 Reports from subgroups and other bodies
  - a WP1
  - b WP2
  - c WP3
  - d SEG
  - e COST 207
  - f COST 207/TR3
  - g Permanent Nucleus
  - h Patent Meetings
  - i Possible other documents
- 6 Discussion and decisions
  - a Services and Facilities
  - b Analogue or digital system
  - c Speech coding
  - d Access technique
  - e Signalling and protocols
  - f Security
  - g Permanent Nucleus activities
  - h Other questions presented under agenda item 5
- 7 System verification
- 8 New rules for cooperation with industry
- 9 Action Plan
- 10 Summary of decisions
- 11 Future meetings
- 12 Any other business
- 13 Closing of the meeting

CEPT-CCH-GSM  
Meeting no 13  
Funchal, 1987.02.16 - 20

### EXTRACT FROM GSM DOCUMENT LIST

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
1/87	Report to GSM on the Ad-hoc meeting on intellectual property (London Dec 1986)	IP-meeting chairman
2/87	Letter from GSM chairman to TMS chairman	GSM Chairman
3/87	CCH guidelines for industry participation in technical harmonization work in working groups and sub-working groups	CCH
4/87	Report to GSM from SCEG (Funchal)	SCEG
5/87	Non voice signal requirements for speech codecs in phase II	SCEG
6/87	Status report of WP1 (Funchal)	GSM WP1
7/87	PN status report (Funchal)	GSM PN
8/87	Draft review of the GSM Action Plan	GSM PN
9/87	GSM Action Plan	GSM PN
10/87	Formulation of the Series 11 Recommendation and Recommendation Review	GSM PN
11/87	Report 06-04: VLSI study: Part A	GSM PN
12/87	Usage of the GSM band for fixed link operations between the base station and the mobile switching center: some issues for early consideration	GSM PN
13/87	The up-dating of CEPT Recommendations	GSM PN
14/87	Operation and Maintenance of the system	GSM PN
15/87	Report on SEG activities	SEG
16/87	Letter from TMS chairman concerning joint GSM-TMS meeting	TMS

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
17/87	TMS views on cooperation of industry with GSM	TMS
18/87 Rev 1	Allocation of tasks to the PN	FRG
19/87	Specification of the equalizer of a possible NBTDMA concept for the GSM radio subsystem	FRG
20/87	MFPB signalling	GSM PN
21/87	Second status report for WP2	GSM WP2
22/87	Report of WP2, the Hague 22-30 January 1978	GSM WP2
23/87	French version of the GSM Recommendations	France
24/87	Patent searches	France
25/87	Speech coding bit rate and frame length	France
26/87	Engineering sub-rate channels for the GSM system	UK
27/87	Considerations about the multiple access technique selection for the GSM system	Spain
28/87	Subjective test report, Phase I	SCEG
29/87	Report on the selection of speech codecs, Phase 1	SCEG
30/87	Status report of WP3	GSM WP3
31/87	Report of GSM meeting no 12 (Madrid)	GSM
32/87	Accommodation of future low bit rate speech codecs in the GSM system	WP2
33/87	Draft conclusions of the common meeting between patent experts and codec experts, Feb 4, 1987	GSM PN
34/87	IPR statement from the UK	UK
35/87	Extract from draft EEC Directive on reserving GSM frequency channels	EEC
36/87	Possible solutions	Norway
37/87	Provisional frame structure for a 16 kbit/s traffic channel	UK
38/87	Echo measurements in alpine terrain	Switzerland
39/87 Rev 1	Report of the ad-hoc group on technical aspects of provision of non-voice services in the GSM system	GSM

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
40/87	Job description: RF experts for WP2	GSM WP2
41/87	The package of NBDMA Working Assumptions unanimously approved by GSM at its Madeira meeting 16-20 Feb 1987	GSM
42/87	Work capacity for network aspects of non-voice services	France, FRG, U
43/87	Proposal for the text of the statement on industrial and intellectual property rights	FRG
44/87	Proposals for extended involvement of industry experts	GSM
45/87	Definition of Working Assumptions and guidance to its interpretation	GSM
46/87	Outcome of the CEPT/CCH/GSM meeting in Funchal 16-20 February 1987 concerning the technical standard for a Pan-European digital cellular radio system	GSM
47/87	Guidance to the PN on the establishment of the Series 11 Recommendations	GSM
48/87	Report of the meeting of WG on NBDMA design goals	GSM ad hoc