

Status: approved

Place: Oslo  
Date: 1985.02.25 - 1985.03.01  
Participants: see annex 1  
Agenda: see annex 2  
Documents: see annex 3

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

Mr Boe welcomed the delegates to Oslo and the seventh meeting of GSM on behalf of the Norwegian Administration. Drawing the attention to the fact that both EEC and EFTA desire a speeded-up time schedule, he wished the meeting the best luck when trying to meet this critical requirement.

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

(ref. annex 2)

The proposed agenda was modified and approved.

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

(ref. annexes 2 and 3)

The documents to be considered during the meeting were GSM Doc 1/85 - 33/85. In addition to this, documents 70/84 and 72/84 from the previous meeting were to be discussed.

Annex 2 shows to which agenda item the documents belong.

#### **4 REPORT FROM GSM MEETING No 6**

After minor modifications the report was approved. The report bears the document number GSM Doc 33/85.

## 5 COOPERATION WITH EEC

The chairman introduced Doc's 1/85, 2/85, 3/85 and 9/85 which all deal with the EEC involvement in the development of various telecommunications services. EEC wishes to see a new common European system in operation already 1988 which means that detailed procurement specifications need to be finalized already by the end of 1986.

The unanimous opinion of GSM was that such a goal could only be achieved by adopting an already existing system such as AMPS, TACS or NMT. Various contacts with representatives of EEC have already taken place in order to clarify the GSM view on the matter. From these meetings it appears that EEC has a rather diffuse understanding of what is the meaning of "second generation system" and the purpose of the work of GSM. The same problem seems to exist also within the Administrations themselves, among people which are not directly involved in mobile communications.

In order to speed up the schedule EEC has proposed setting up a Permanent Nucleus (PN). A longer discussion took place on the benefit, the task, the composition, the location and in particular the point of time at which such a PN should start working. No definite conclusions could be drawn. However some delegations claimed that a *certain benefit could be achieved by starting a PN rather soon* since the establishment itself takes some time and a lot of non-technical issues exist which could be studied independently of the future system choice.

The discussion was closed temporarily by deciding that a WP 4 should review the GSM Action Plan taking the proposals of EEC and the possibilities of a PN into account. Although it seems impossible to meet the EEC requirements it was emphasized that GSM should show a collaborative attitude.

## 6 SSA PARTICIPATION IN GSM WORK

Mr Elovsson from the Secretariat for Specifications and Approval (SSA) presented the activities of this new organisation. The task of SSA is to assist CCH in questions concerning harmonization. SSA is not responsible for the technical specifications themselves, but its task is rather to reduce the number of options given in them, to make priorities and to simplify mutual recognition of type approvals. Among other things SSA is now working on telefax and cordless telephone equipment. SSA is also willing to assist GSM with some work concerning mobile communication terminals. SSA will not have laboratory facilities of their own for testing equipment, but they expect to get involved in the coordination of development of special test equipment, such as system simulators.

Mr Elovsson went on introducing Doc 12/85. The document presents the background and an action plan of how to deal with the possible legal restrictions on border-crossing.

Some objections to the new approach were raised, for the reasons that, firstly, the problem has already been dealt with by WG R, and secondly, some delegates questioned that the problem even exists.

Reference was made to a new draft recommendation on border-crossing for amateur equipment which - if it is accepted - solves the problem according to those delegates. It was also argued that in the B-system, border-crossing between Germany and Netherlands has never caused any legal problems.

The chairman reminded that the treatment of the matter in WG R led to a proposal for bilateral agreements which was not found satisfactory by GSM. Instead GSM wished to see a common agreement which could be signed successively by the individual countries. WG R was asked to work on this but no results seemed to come out. Further on, the chairman reminded of the experience made by the NMT-group which showed that apparently quite small non-technical problems of this nature turned out to be very time-consuming. In the GSM case, if no problem exists this is of course the best thing we could wish, but this still needs to be rapidly verified.

The discussion on the matter was closed by deciding to await the next meeting of WG R by the end of March before deciding on how to proceed in the matter.

In any case some work needs to be done regarding the practical layout of the licence, languages to be used, etc.

## 7 COOPERATION WITH BCR

The chairman recapitulated the background of Doc 72/84 which proposes a collaboration between GSM and Bell Communications Research (BCR). GSM has been asked by CCH to express a view on the technical implications of such a cooperation. Later on CCH will consider the political aspect of the matter.

From the discussion the following views were noted:

- A GSM standard in Europe and an other standard in America would probably make a CCIR-standard impossible.
- An organised cooperation with American bodies would probably lead to an increasing work load which would not be proportional to the benefit of it.
- Considerable difficulties would emerge when identifying the bodies with which a collaboration could be established. This is due to the difference in structure between the American and the European societies as regards the roles of operating companies and manufacturers.
- Earlier experiences, e.g. the harmonization of the duplex distance in the 900 MHz band in regions 1 and 2, show that early collaborative contacts enables important improvements without too much effort.
- The attention was drawn to the WARC allocation of part of the "GSM-band" to a world-wide maritime mobile service.
- The possibility of identifying specific topics, such as source encoding, where collaborative discussions could be initiated, was mentioned.

- The interest of the American bodies for the CEPT-work is not limited to mobile communications but includes the entire CEPT area.
- It was proposed that GSM should also discuss what actions should be taken in CCIR in order to make our work known.

The meeting concluded that GSM was in favor of having an exchange of views with suitable American bodies, however not under too strictly organized forms and not necessarily restricted to mobile communications. The purpose of such a dialogue would not be to establish a world-wide standard.

A letter to CCH with the answer of GSM was drafted after the meeting (Doc 32/85).

## 8 STUDY PROGRAMS

Mr Elster reported from the studies carried out by WG ELT (Doc 5/85). Among other conclusions of the document was noted that the growth of the information society is believed to compensate for a possible lack of economical growth in other segments of society. The conclusions of Doc ELT (85) 2 were particularly emphasized.

A few questions were raised on the definitions of different kinds of price elasticity. Some clarification on this point is needed. Further on it is difficult to distinguish between development trends in private networks and public networks respectively. It was generally believed that the policy regarding connection of private networks to the PSTN will have a major influence on the overall development of the mobile services. The conclusions of Doc 5/85 are based on the present policy. GSM encouraged WG ELT to - if possible - highlight this aspect of the matter, and to go further on the study items identified in the document. Mr Elster offered to bring the comments of GSM to the attention of WG ELT.

Mr Ghillebaert introduced Doc 6/85 which provides information on the joint Franco-German study program on mobile communications. From the questions and answers following on the presentation it was noted that:

- It is not the purpose of the studies to lead directly to specifications that can be used for procurement of network equipment. Several aspects of a system are not covered by the present study, for instance protocols, formats, network interfaces etc. The study is limited to the radio subsystem which is considered to be the most critical part. In this context it was proposed that all study items not covered should be carefully identified and that parallel studies of these should be initiated.

The Services and Facilities aspects of the matter are covered by the overall requirements and objectives of the system described in the RFP.

- No options on system scenarios have been made up in advance. The choice of system scenario has been left to the industries involved.

- Studies on encryption facilities have not been included, since this has been considered to be too early. This is not believed to be a major technical difficulty.
- Manufacturers will not be asked to develop VLSI-circuits before a standard has been decided upon. However, the industry has been asked to comment on the possibilities for circuit integration.
- The time schedule for the program is adapted to the GSM Action Plan, taken the increasing pressure into account. In this context the delegations of France and Germany stressed several times their willingness to publish the results of their studies within GSM. They also encouraged other CEPT-administrations to publish their study results continuously.

Mr Temple reminded GSM of the question of using space technology for land mobile services which was raised during the previous meeting in London. Doc 70/84 will be presented at the next CCH-meeting. The Administrations were encouraged to prepare themselves for a discussion on that subject. According to Mr Temple there is a "10 % - problem" in all countries, i.e. a certain small part of the population can for various reasons not be offered service from a terrestrial network within reasonable economical frames. It could be that the sum of these residual markets is a sufficient market for a satellite land mobile service. The great problem in this context is the allocation of spectrum, which was briefly discussed. Dr Spindler reminded that the WARC-87 conference is only allowed to make reallocations within the mobile bands, not to do anything which affects the spectrum utilization of other services.

The meeting agreed that the use of satellites in land mobile systems would be something for the third generation system. However GSM should also keep the far horizon perspective in mind so that the transition problems from the second generation to the third can be minimized. To this end the meeting decided to follow the current studies of ESA.

## 9 SERVICES AND FACILITIES

Documents 8/85 and 19/85 were briefly introduced by Mr Löken and Mr Ghillebaert respectively. Both documents distinguish between services to be provided by the network and services to be provided by the mobile terminals. Since the two documents will be considered by a WP, no longer discussion took place in plenary.

Doc 19/85 classifies the services as "essential services" which should be provided by each Administration, and "additional services" which could be provided if the individual Administration wishes to. A similar classification is used by SSA, which classifies the requirements as

- a) safety requirements,
- b) requirements imposed by the network, and
- c) requirements imposed by the application.

The next SF3-meeting will take place in March 1985. Mrs Alverne offered to bring the results of the GSM discussions on services and facilities to the attention of this meeting.

## 10 PROTECTION AND SECURITY

The chairman reminded the delegates of a meeting of experts to be held in Stockholm on May, 21-23 and the need to produce an input document.

Mr Ghillebaert introduced Doc 20/85 in which 4 areas of special concern are identified, namely:

- Protection against unauthorized access to the mobile system
- Protection due to special use of the service such as payphones and MS's in rental cars
- Protection of the communication on the radio path, including signalling
- Security of the signalling between PLMN's

Mr Ghillebaert and other delegates stressed the fact that the implications of the encryption facility must be considered from the very start in order to avoid unnecessary costs. Doing so, it could be that the extra cost for this facility will turn out to be negligible, in which case the service could be offered as a basic service for all users. For the moment there is no need, nor any possibility, to decide upon this. However, he recommended a hard decision that an encryption facility should be incorporated in the system. Further on a decision that protection of signalling should be a mandatory function of the system was proposed.

The meeting decided to stick to the decision of the GSM Terms of Reference that any encryption facilities for voice communication should not have a significant influence on the costs of those parts of the system used by mobile subscribers who do not require such facilities.

The problems when using identical encryption algorithms for speech and data and the problems of key management was briefly discussed.

As a result of the discussion on Doc 20/85, a new document, 30/85 was worked out. This presents the common GSM view on the subject and will be further treated during the Stockholm meeting. The Administration of FRG announced their intention to produce a contribution for the expert meeting.

The attention was drawn to the fact that a majority of the security problems concern the network, which suggests that the expert meeting on network aspects should also consider this aspect.

The UK delegation informed of some experiences from digital encryption systems. In contrast to analogue encryption systems in which the quality of speech degrades while the range of the service remains unchanged, digital encryption systems tend to reduce the range due to early loss of synchronization.

The problem of meeting the Radio Regulations requirement of automatic identification of radio transmitters was addressed.

## 11 TRAFFIC MODELS

Doc 4/85 was discussed. Several Administrations had compared the geographical traffic distribution of their existing systems with the one proposed in the document, coming to the conclusion that the model is reasonably in accordance with reality but that the proposed value of the parameter  $X (=20)$  is too high.

Document 14/85, which identifies some weaknesses of the model and suggests some improvements, was presented by the UK delegation. The meeting agreed that a more sophisticated model is needed. However some delegates criticized the idea of using a model at all, since this approach does not take into account that in real life, base station sites will not be chosen from what is optimum from radio system point of view only. Various other aspects influence the choice and the system efficiency depends highly on the capability to work under non-ideal conditions. For this reason it was suggested that a practical reference area or a hypothetical case should be studied. It would however require a considerable effort to define such an area. No decision was taken.

Finally, in order to complete Doc 11/83, the countries which have not answered the questionnaire was urged to do so.

## 12 TARIFF STRUCTURES

Mr Klingler presented a revised version of Doc 84/84. The Administrations of Norway and Sweden have still not answered the questionnaire on tariffs.

## 13 LOW BIT RATE SPEECH, ENCODING, MODULATION AND MULTIPLE ACCESS TECHNIQUES

See the report of WP2 below.

## 14 COEXISTENCE OF VEHICLE-BORNE AND PORTABLE STATIONS

See the report of WP3 below.

## 15 SYSTEM CONSIDERATIONS

Documents 10/85 and 18/85 - both dealing with criteria for evaluation of system proposals - were introduced by Mr Temple and Mr Maloberti respectively. The two proposals were very much in accordance. However two differences could be identified:

- 1 The French contribution does not suggest speech quality as an evaluation criteria, since the French Administration considers the speech quality to be a fixed requirement rather than a "negotiable" parameter. Mr Temple expressed support for this point of view.

- 2 The UK contribution distinguishes between the total cost for basestations and the total cost for mobile stations, for the reason that the two costs are born by different parties, and therefore not directly comparable. The French Administration was still hesitating for this distinction with reference to the difficulty of grading the priority of the two cost criteria.

The German Administration suggested that analogue system should be excluded from the comparison since the GSM-group has now decided to aim for a digital system. The UK delegation objected to this proposal since the decision up till now is still only to aim for a digital system. Sufficient technical facts to back up a hard decision to go digital is still missing.

The Danish Administration suggested that also the possibility of combined analogue and digital systems should be considered. Such hybrid systems could - according to Mr Nilakantan - solve the problem of time dispersion in the countryside.

Doc 7/85 from the Administrations of the Nordic countries was introduced by Mr Löken. The document did not cause any discussion in plenary. WP1 was asked to consider it.

Mr Mäkitalo expressed his appreciation of the documents presented under this agenda item which he claimed to be an essential step forward. This work, he said, together with an operational requirements specification should be given highest priority since it serves the important purpose of giving guidance to the industry and makes it easy to chose between system proposals in the future.

Mr Cheeseman claimed that the present GSM-documentation now contains a considerable amount of useful information, but there is a need to summarize it all into a clear form.

## WORKING PARTIES

### Set-up of Working Parties

Due to overlapping areas of interest between some of the working parties there was some difficulties to find a suitable WP-arrangement. Nevertheless, after a lengthy discussion the following WP's were decided:

WP 1	Mrs Alvernhe	Services & Facilities
WP 2	Mr Maloberti	Low bit rate speech, encoding, modulation and multiple access techniques
WP 3	Mr Nilakantan	Coexistence of vehicle-borne and portable stations
WP 4	Mr Haug	GSM Action Plan



## Report of WP's

### WP 1

Mrs Alvernhe introduced the report of WP1, Doc 28/85. After some discussion the document was revised twice. The meeting decided to send Doc 28/85 Rev 2 to SF3 for comments together with Doc 8/85 which contains useful background information. The aim of SF3 is to work out a draft Recommendation by June 1985.

The items giving rise to discussion were mainly the note from the UK-delegation on page 8, and the inclusion of high speed data communication (above 1200 bit/s) over the PSTN.

### WP 2

Mr Maloberti introduced the report, Doc 26/85. Most of the discussion on the document concerned the decision on page 3 to give priority to studies of 16 kbit/s speech coders (including channel coding). This seems to be realizable already today. The concern is then how to benefit from a future enhanced technology permitting lower speeds. Improving the spectrum efficiency is a more desirable objective than improving speech quality, according to some delegates. This is however difficult to achieve once the channel gross bit rate is settled. It was suggested that an improved spectrum efficiency could be achieved by improving the channel coding thus improving the interference protection and reducing the reuse distance. The possibility to divide a 16 kbit/s channel into two 8 kbit/s channels is also an interesting alternative.

Some doubts regarding the time required for development of VLSI's was expressed. It could be that the times mentioned in the report from WP2 are a bit optimistic.

The report of WP2 was amended and approved as Doc 26/85 Rev 1.

### WP 3

Mr Nilakantan introduced the report of the group, Doc 27/85. Compared to previous documents on hand-held equipment, comments on the following items have been added:

- 1 Limited battery capacity
- 2 Power Control
- 3 Electro magnetic compatibility
- 4 Radiation hazards
- 5 Fraudulent use
- 6 Quasi-stationary radiation
- 7 Rural coverage

The original report of the WP contained some text and figures on the use of a relay arrangement including a small portable unit and an vehicle mounted station. This text gave raise to a very long discussion weather the small unit could be a special "extended arm", an ordinary GSM hand-held station or a second generation cordless telephone, and - depending on this - what the extra equipment in the vehicle would be. The conclusion of this discussion was that the

whole concept of relay transmissions requires a lot more studies and more clarification, and since this could not be done during the meeting the text was deleted. However the meeting decided to send a question (Doc 29/85) to the R-group on the possibilities to consider the use of CT II equipment together with mobile stations. (An answer to the question, Doc 36/85, has been received later).

After some more discussion regarding radiation hazards the report of WP3 was approved as Doc 27/83 Rev 3.

The question whether GSM had now assessed the impact of hand-held equipment in the GSM-system was raised. Since the network implications and the traffical aspects of the matter are not fully covered the meeting agreed that this is not the case.

The group decided the Doc 27/85 Rev 3 could be sent to the industry by each Administration as a preliminary view on the impact of hand-held stations. Since it is a bit difficult to know what documents are allowed to be submitted to the industry some Administrations called for a list of those documents.

#### WP 4

The chairman reported of the results of the work of WP 4. These results are contained in Doc 35/85 which was finalized after the meeting.

The main conclusion of WP 4 was that no matter what resources are added to GSM it is not possible to accelerate the work up to the Outline Specification scheduled for the end of 1986. The next phase, which will lead to the Detailed Specifications and which is originally scheduled for 2 years, could be speeded up by adding extra resources, having a tighter meeting schedule, having permanent Working Parties meeting between the GSM plenary meetings or by establishing a Permanent Nucleus. As regards the third phase, which is also two years and comprises the industry lead time, it is not believed that this time could be shortened down.

Methods to improve the cooperation with the industry had been examined but no good solution was found.

During the report of WP 4, GSM was visited by Mr Richter, representative of ECC, who explained the EEC view on the need for a second generation mobile system and offered the support of EEC in form of economical assistance, studies of non-technical aspects, improved logistics and political pressure if needed. Several GSM delegates got the opportunity to explain the view of the telecommunications administrations.

Mr Richter reminded of the recent high level agreements between EEC and CEPT and asked GSM to come up with a fast answer to the EEC offer to house a Permanent Nucleus which he thought should be established and active before 1987. The chairman replied that GSM is not authorized to decide on such matters, and that the question might even need to be handled by Com T. After the CCH-meeting in May he expected to be able to tell when a definite answer could be given.

**16 REPORT FROM DMR (ESPOO)**

Mr Maloberti informed about the Espoo Seminar on Digital Mobile Radio:

The seminar was visited by 270 persons and about 30 papers were presented. The main topics were:

- System concepts
- Modulation and channel coding
- Speech coding
- ISDN
- Propagation
- Switching
- Protocols

From the seminar it could be concluded that also the industry is aiming towards a digital system for the next generation of mobile system and that this goal is not very far away even with today's technology.

**17 REPORT ON THE COST ACTIVITIES CONCERNING LAND MOBILE COMMUNICATIONS**

Mr Failli informed about his contacts with the chairman of TR3. The problems of duplication of work will be solved by forming a joint, mixed group dealing with speech communication. He also told that COST 207 had been addressed by EEC through the chairman of GSM with an offer of economical assistance. Considering this offer, COST 207 came to the conclusion that in the short term perspective there is a problem of manpower rather than money. However, later on the development of VLSI's could require some economical support.

Since the remaining COST-matters had already been dealt with in the working parties no other discussion took place.

**18 REPORT TO CCH**

The meeting agreed that the GSM chairman should produce a draft report to be submitted to the GSM members for comments before it was sent to CCH.

The report to CCH will comprise the new action plan of GSM.

**19 ANY OTHER BUSINESS**

Mr Jacobsen introduced Doc 13/85 which reports of his contacts with FCC. The document tells that FCC has rejected the proposed PRCS-system. Further on, the allocation of 2 \* 2 MHz for an air-ground service (AIRPHONE) will not be made in the 900 MHz-band.

## 20 NEXT MEETING

The following meeting schedule was agreed:

Meeting no 8: 1985.06.10--14, in Paris

Meeting no 9: 1985.09.30--10.04, in Germany

Mr Thanopoulos kindly invited GSM to hold meeting no 10 or 11 in Athens. The decision on which of the meetings should be in Athens was postponed.

## 21 CLOSING OF THE MEETING

The chairman closed the meeting by summarizing the work which had been done. He also thanked the Norwegian Administration and in particular the secretariat for their excellent work.

CEPT-CCH-GSM  
Meeting no 7  
Oslo, 1985.02.25 - 1985.03.01

**List of participants**

Chairman:	T. Haug
Secretary:	T. Beijer
Denmark:	M. Jacobsen G. Nilakantan H. K. Andersen H. H. Olsen
Finland:	M. Hovi M. Pasanen
France:	P. Dupuis M. Alvernhe A. Maloberti B. Ghillebaert
FRG:	K. Spindler H. W. Lawrenz F. Pernice F. Hillebrand
Greece:	T. Thanopoulos
Italy:	R. Failli M. Sentinelli
Netherlands:	M. van Beveren L. Melis
Norway:	P. Bliksrud B. Loeken J. Natvig
Spain:	G. Lluch
Sweden:	Ö. Mäkitalo G. Fremin
Switzerland:	R. Klingler

United Kingdom:

S. S. Temple  
D. S. Cheeseman  
D. M. Barnes  
J. Pearce  
R. Stewart  
E. W. Beddoes

CEPT/SSA

S. Elovsson

CEPT/ELT

F. E. Elster

EEC

Mr Richter

CEPT-CCH-GSM  
 Meeting no 7  
 Oslo, 1985.02.25 - 1985.03.01

## AGENDA

	<b>Applicable documents ( /85)</b>	
1	Opening of the meeting	
2	Approval of the agenda	
3	Listing of relevant documents	
4	Report from GSM meeting no 6	33
5	Cooperation with EEC	1, 2, 3, 9, 21, 35
6	SSA participation in GSM work	12, 23
7	Cooperation with BCR	72/84, 32
8	Study programs	5, 6, 70/84
9	Services and facilities	8, 19, 28, 29
10	Protection and security	20, 30
11	Traffic models	4, 11, 14
12	Tariff structures	
13	Low bit rate speech, encoding, modulation and multiple access techniques	15, 16, 17, 22, 24, 25, 26
14	Coexistence of vehicle-borne and portable stations	27
15	System considerations	7, 18, 10
16	Report from DMR (Espoo)	
17	Report on the COST activities concerning land mobile communications	
18	Report to CCH	34
19	Any other business	13
20	Next meeting	
21	Closing of the meeting	

CEPT-CCH-GSM  
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## EXTRACT FROM GSM DOCUMENT LIST

<u>Doc No</u>	<u>Title</u>	<u>Source</u>
1/85	Cooperation with EEC	Chairman
2/85	Mobile communication studies initiated by the EEC	Netherlands
3/85	Letter to GSM delegates concerning Mobile communication standards within EEC	Chairman
4/85	Traffic distribution model	Netherlands
5/85	ELT assistance to CCH/GSM	ELT
6/85	Information about the Franco-German cooperation programme in the field of cellular mobile communication services	FRG
7/85	Proposed list of basic functions and capabilities of the GSM-system	Denmark, Finland Norway, Sweden
8/85	Proposed list of supplementary services in the GSM-system	Denmark, Finland Norway, Sweden
9/85	Cooperation with EEC	Chairman
10/85	Criteria for choosing between digital and analogue modulation systems	UK
11/85	Report on traffic data from existing mobile telephone systems	Rapporteur
12/85	Legal restrictions to an international radio mobile communication system	CEPT/SSA
13/85	Private Radio Communications Service	Denmark
14/85	Comments on GSM Doc 89/84 - GSM Traffic Model	UK
15/85	Draft Report of COST 207/WG3 Modulation methods and their performance	COST



<u>Doc No</u>	<u>Title</u>	<u>Source</u>
16/85	Draft report of COST 207/WG3 Definitions	COST
17/85	2nd Report of COST 207/WG3 Modulation Methods	COST
18/85	Criteria and methods of system comparison	France
19/85	Services to be provided in the GSM mobile communication system	FRG, France
20/85	Security aspects in the GSM mobile communication system	France
21/85	Proposal for a GSM action plan	France
22/85	Report of the second meeting of COST 207 WP2 (Base-band processes)	COST
23/85	Terms of reference for SSA	CEPT COM T
24/85	Expert meeting on low bit rate codecs	Norway
25/85	Digital Land Mobile Radio Communications. Third report of the working group on propagation	COST
26/85 Rev 1	Report of WP2 (Oslo-meeting)	GSM
27/85 Rev 3	Preliminary view concerning the impact of hand-held stations in the GSM-system (Report of WP3, Oslo)	GSM
28/85 Rev 2	Report of WP1 on Services and Facilities (Oslo-meeting)	GSM
29/85	Draft question to the R group	GSM
30/85	Security aspects in the GSM mobile communication system	GSM
31/85	Deleted	
32/85	Letter to CCH on cooperation with Bell Communications Research	GSM
33/85	Report from GSM meeting no 6 (London)	GSM
34/85	Report to CCH regarding the progress of GSM	GSM
35/85	Action Plan for GSM (Report of WP4, Oslo)	GSM