CEPT-CCH-GSM
Report from meeting no 4.

GSM Doc 56/84

Status: approved

Place:	Rome
Date:	1984.02.28 - 1984.03.02
Participants:	see annex 1
Agenda:	see annex 2
Documents:	see annex 3

1 OPENING OF THE MEETING

The chairman welcomed the delegates to the fourth GSM-meeting. A special welcome was directed to the new delegates from the Administrations of Austria and Greece, who are now joining the GSM-work.

Mr Petti wished the attendees welcome to Rome and expressed his hope for a successful meeting.

2 APPROVAL OF THE AGENDA

(ref. annex 2)

A new proposal for agenda and a working schedule for the meeting were presented by the chairman. The reason for modifying the agenda was that recent contacts with WG's CD, TR3 and CS-SIG, indicated a need to set up ad-hoc working parties in order to draft replies to these groups.

The proposed new agenda was accepted.

3 LISTING OF RELEVANT DOCUMENTS

(ref. annex 3)

The documents to be considered during the meeting were GSM Doc 54/83 - 27/84 (inclusive). Documents 54/83 - 22/84 were available at the beginning of the meeting. Remaining documents were produced during the meeting.

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

4 REPORT FROM THE GSM MEETING No 3

After minor amendments of the wording under items 10 and 11, the report from meeting no 3 was approved.

5 REPORT ON THE COST ACTIVITIES CONCERNING LAND MOBILE COMMUNICATIONS

The chairman informed about the present status of the COST project:

To establish a COST-project it is necessary that at least 4 countries announce their intention to participate. Up till now three countries (UK, Belgium and Sweden) have done so. Positive answers are expected also from Finland, France, FRG and Switzerland. The deadline for the answers is by the end of March. The first COST-meeting will probably be held during the second half of April after signing the Memorandum of Understanding.

The main problem areas to be studied by the COST organisation are 1) Radio Wave Propagation, 2) Digital modulation techniques, and 3) Speech processing. No order of priority between those study areas has been set.

The chairman draw the attention to the problem of coordinating the time schedules of COST and GSM. If the outcome of the COST work shall be useful for GSM, we will need the results very early, preferably before end of 1985.

6 REPORT ON CS-SIG MEETING

Documents 3/84 and 11/84 were introduced by the chairman. The documents announce that WG CS is now ready to carry out studies for GSM, but some guidance from the GSM-group is necessary.

In Doc 11/84 (CS-SIG TD 27) a working schedule for SWG CG-SIG in three steps is presented. The first two steps need input information from GSM.

TD 29 of CS-SIG (also part of Doc 11/84) caused some discussion, during which the following clarifications were given:

2.h The wording here is due to a confusion of two statements, the one that the present work is aiming towards a European system, the second that no other signalling system than CCITT No 7 will be used.

2.b "Operational characteristics" should be "Services and facilities". Also paragraphs 2e and 2f contain aspects on services and facilities.

2.i The extent to which GSM takes the requirements of the maritime use into account was made clear during the CS-SIG-meeting although the wording under 2i does not describe our position in the best way.

2.j The wording "In the case of portable stations..." might give the impression that portable stations are expected to appear only in small numbers in the GSM system. It should be explained to CS-SIG that several people believe that the majority of the mobile stations will be hand-held portables.

2.2.a "..will not provide B+D channel links.." should be understood as "... will not provide the full capacity of the B+D channels in the ISDN". The functions of both channels will be provided.

2.2.c The requirement of not imposing any modification to the fixed network is limited to the PSTN, and does not comprise the ISDN.

2.2.f Mr Wallingford reminded the meeting of the fact that WG SF has been asked to consider the need for the hand-over function in certain cases e g in connection with border crossing between adjacent MSC-areas and when travelling along national borders. Keeping this in mind, the hand-over problem is still primarily a matter for WG SF. Further on, the statement that the mechanisms of hand-over are well known is only true in a very broad sense.

Some discussion arose whether or not it was suitable to ask CS-SIG to study also the above mentioned complicated forms of hand-over at this early stage when it is not known if they are required by the customers, and thereby cause unnecessary costs to be built into the system.

Considering the fact that the network structure is still not defined and that certain very plausible network structures (small and frequently appearing MSC's) will necessarily require hand-over at least between MSC'S, the meeting agreed that CS-SIG should also be asked to study the signalling aspects of the sophisticated cases of hand-over.

This should not be interpreted as a decision to implement hand-over in those cases but rather as an attempt to assess the costs of that facility, to be used when taking a final decision.

The opinion of GSM in this matter must be clearly explained to CS-SIG.

Coming back to the request for guidance made by CS-SIG, a decision was taken to set up a Working Party during this meeting with the task to draft a report that should as far as possible present our present idea of the structure of the mobile system. CS-SIG will meet again in September 1984. Considering the summer holidays they will thus need our report well in advance of the summer.

The delegation of France regretted not having their switching experts participating in the discussion. However the chairman considered it absolutely necessary to produce at least some model during this meeting, even if it must be very preliminary. A revised version could be issued later when the Administrations have had the opportunity to consult their respective experts.

The work of CCITT in this area should be taken into consideration by the WP.

7 ASPECTS ON PROTECTION AND SECURITY

Mr Wallingford introduced Doc 10/84, which reports the discussion of a joint CD/CS/SF experts meeting on protection of communications systems.

Since Mr Wallingford did not attend that part of the meeting dealing particularly with land mobile systems, no further information than already contained in Doc 10/84 could be given.

8 ACTIVITIES IN THE FIELD OF LOW BIT RATE SPEECH, ENCODING AND MODULATION

The chairman introduced Doc's 5/84 and 9/84. Doc 5/84 is a letter from WG CD where the CD chairman calls for information on the characteristics of the mobile radio channel of the GSM-system. Doc 9/84 informs of a seminar on data security which will be held in the Hague. The documents did not cause any discussion.

Introducing Doc 13/84 Mr Makkonen informed about a seminar in Espoo (near Helsinki) on digital mobile radio arranged by the Administrations of the nordic countries. The delegates were invited to take part in the seminar and also to help distributing the call for papers within their respective Administrations.

The chairman introduced Doc 12/84, which is a contribution from SWG TR3. Like WG CD, the TR3-group needs more information about the mobile channel in order to proceed.

Although it is not possible at present to define the channel characteristics since the modulation and channel coding techniques are still undefined, the meeting agreed to set up a Working Party with the task to present at least a "fair estimate" of the characteristics of one of the plausible channel arrangements. In the first place a conventional narrowband FDMA-channel should be considered. This would allow WG's CD and TR3 to start investigating for instance whether the LAP-D protocoll has sufficient protection to be used on a Rayleigh-fading channel and to consider the possibility of avoiding excessive signalling overhead by sending common headings for a number of frames instead of sending one heading for each frame as presently specified for the D-channel (and also for the B-channel when this carries packetized information). This is particularly important when messages become shorter.

Mr Fremin introduced Doc 15/84 which compares the spectrum efficiency of different modulation schemes. The results presented in the document are based on computer simulations. All modulation schemes are related to a single channel per carrier access technique. The adjacent channel protection is 30 dB in all cases. For comparison it was mentioned that a speech coder rate of 9.6 kbits/s and 3/5 channel coding at an adjacent channel protection of 70 dB corresponds to the spectrum efficiency of a 16 kbit/s and 3/5 channel coding at 30 dB adjacent channel protection.

Mr Nilakantan informed that NMT 900 will use FM with compandor and channel interleaving which should give the same improvement of the spectrum efficiency.

Doc 23/83 was submitted by the French delegation for information. The document was not discussed. A final report from the INMARSAT trials will be available in April this year.

For the next meeting the French delegation will submit a contribution on modulation and coding which has been published earlier in IEEE.

WORKING PARTIES

Set-up of Working Parties

Following the earlier decisions Working Parties 2 and 3 were set up. In addition to this, Working Party 1 was established with the task to draft a condensed report on the services and facilities of the future GSM-network to be used primarily as part of the report to CCH.

The chairman stressed that the present Working Parties are set-up for this meeting only. It might be found convenient to establish permanent working parties in the future, but this question will be dealt with later and requires a proposal for Terms of References to be elaborated well in advance.

Again it was stressed that the reports to be produced by the Working Parties - especially WP2 and 3 - should be considered as very preliminary. The delegates were fully aware of the difficulty to deal with some of the problems, particularly since no earlier contributions were available on certain items. However, the meeting agreed that starting now would give an opportunity to come back and improve the reports during the next GSM-meeting. It would also serve the purpose of identifying problems and initiate studies.

Chairmen of the WP's were appointed as follows:

WP1	Mr Wallingford
WP2	Mr Verhulst
WP3	Mr Audestad

Reports from Working Parties

The Terms of Reference, the list of participants and the report from the respective WP's are contained in the following documents:

WP1	GSM Doc 25/84
WP2	GSM Doc 26/84
WP3	GSM Doc 27/84

9 RADIO WAVE PROPAGATION

Mr Klingler introduced Doc 6/84 which presents the results of measurements of the penetration into buildnings of radio waves in the bands 80 MHz, 160 MHz and 460 MHz. The conclusion of those measurements is that the variation with the frequency is not dominating. The penetration in the 900 MHz-band can be expected to be in the same order of magnitude as for the lower bands.

Mr Dupuis informed about an article by E.H. Walker in Bell System Technical Journal, Vol 62, No 9, Nov. 1983 "Penetration of Radio Signals Into Buildings in the Cellular Radio Environment". This article treats the same subjects as the Swiss contribution and covers also the 900 MHz-band.

British Telecom has also performed some studies in this area. The results have been published earlier in R22. A contribution for GSM will be submitted at the next meeting. Further contributions from BT on this subject can be expected towards the end of the year.

Mr Nilakantan informed about some measurements carried out within the Danish Administration. During those measurements considerable variation due to different orientation of the antenna has been noted.

The chairman closed the discussion on this subject by encouraging the delegates to submit more contributions in this area which is very important particularly in connection with hand-held portable stations.

10 TRAFFIC MODELS

Mr Dupuis introduced Doc 8/84 describing the traffic parameters of the two French mobile systems. The document is quite self-explanatory and did not give rise to any questions.

Mr Audestad introduced Doc 16/84, telling that he had some difficulties finding the values of certain parameters. The Norwegian system is right now working at its capacity limit, and is therefore very sensitive to overload, which means that only a minor increase of the traffic during busy hour gives rise to considerable degradation of the grade of service. Norway now also experiences an increase in the traffic/subscriber both with respect to call intensity and call duration.

The figure 25.7 E for the busy hour traffic in one cell is probably somewhat small.

The figure 560 for the number of calls per subscriber refers to mobile generated calls only. It was stressed that a distinct wording should be used when describing those parameters in order to avoid misunderstanding.

Some doubts were expressed regarding the meaning of collecting exact figures for all the parameters of the questionnaire, when experience shows that forecasts based on existing systems are very unreliable. However it was made clear that collecting statistics - which is what we are doing now - does not mean that the same figures will be used for dimensioning purposes. The figures for a forecast will be agreed upon later.

For the task of summarizing the contributions on the traffic model a special rapporteur was appointed. Mr Melis offered to take that role. Further contributions on the traffic model should be sent directly to him. Mr Melis urged the Administrations to follow the structure of Doc 30/83.

Mr Wallingford called for information on the take-up of additional serviced and facilities. Mr Audestad replied that as far as the Norwegian system is concerned reliable statistics are not available. However 50% of the users claim that they use the call diversion service approximately once a day.

11 COEXISTENCE OF VEHICLE-BORNE AND PORTABLE STATIONS

No new contributions were available on this item.

The chairman reminded the delegates of our terms of reference, according to which we should assess the impact on the systen capacity caused by the inclusion of portable stations.

Since there is no experience in Europe from mobile telephone systems with hand-held portables, it is very important that Administrations examine this problem area and submit contributions. Possibly could some information be gathered from American systems.

12 ASPECTS ON FREQUENCY MANAGEMENT

No contribution was available on this item.

Mr Jacobsen informed the meeting that SWG R21 has agreed on a recommendation to allocate the bands 905-915 MHz and 950-960 MHz (with exception of 1 MHz, which will be allocated to the cordless telephone service on an interim basis) to the GSM system.

The recommendation will be formally decided upon by WG R in a few weeks time.

13 REPORT TO CCH

CCH will have its next meeting in April. For that meeting a report from the GSM-group is expected. The report will deal mainly with following subjects:

- Progress in the field of Services and Faclities
- On-going studies in other groups, of relevance for GSM
- Recently initiated studies in other groups
- Contacts with WG's CS-SIG, TR3 and CD

In addition to this it will also be mentioned in the report that the group is considering the possibilies of establishing permanent working parties.

14 TARIFF STRUCTURES

Mr Spindler introduced Doc 19/84, which did not cause any discussion.

Mr Klingler introduced Doc 20/84 with the purpose of having the approval of the questionnaire before sending it out to the Administrations. A few amendments were made:

- The assumed life-time of the mobile station should be reduced from 10 years to 8 years. This was considered to be a reasonable compromise between the depreciation of privately owned and leased equipment.

- The average annual conversation time was increased from 20 hours to 30 hours since several countries indicated that this figure was more commensurate with present experience.

- The wording in item 5 of the Questionnaire was modified.

- A new question will be added in which it is asked whether the mobile subscriber also has to pay for incoming calls.

- Item 8.3 "Call Charge" was further subdivided into "Mobile originating calls" and "Mobile terminating calls".

Mr Klingler accepted to retype the questionnaire and have it distributed to the Administrations. The answers should be sent directely back to Mr Klingler.

Doc 22/84 about price elasticity was introduced by Mr Melis, who especially stressed the fact that there are far too many factors which influence the choice of service in the Dutch systems to make a reliable conclusion on price elasticity possible. Note that the total monthly cost per subscriber is about the same for both services.

15 RADIATION HAZARDS

Mr de Brito introduced Doc 17/84. The standards in France with respect to limitation of radiation differ from those of the remaining EEC-countries. At present the regulations seem to be modified quite frequently in the various countries.

The figures in section 3 of the document are taken from the French Public Health Department. The reasons for the frequency dependence of the power density was not known by the French delegation.

The conclusion of this contribution is that the limitation with respect to radiation intensity might have an inpact on the choice of mechanical design of hand-held mobile units in the GSM-system.

Mr Klingler introduced Doc 21/84. The safety limits mentioned in the document are all based on calculations of the effects of thermal heating. The thermal heating caused by radiation is generally not dangerous. However it was noted that local spots in the human body such as the retina, might be more sensitive to even moderate heating.

The meeting agreed to add the limits from the French Doc 17/84 to the diagram on page 2 of Doc 21/84.

Certain groups of people, e g policemen, have a lot of experience of the use of hand-held units. However it is unlikely that these users are able to identify the relationship between their possible occupational diseases and the use of hand-held equipment. It was therefore found appropriate to limit the research on the aspects of radiation hazards to an analysis of existing regulations.

16 THE OSI MODEL APPLIED TO MOBILE SYSTEMS

Two documents from the Administration of Norway (7/84 and 14/84) were available. Since the meeting was running out of time it was agreed to postpone the discussion on this subject to the next meeting. The same goes for the French Doc 18/84 which deals with market surveys in the mobile communications field.

17 ANY OTHER BUSINESS

No other questions were discussed.

18 NEXT MEETING

The GSM-group was invited by the Administration of Switzerland to hold its next meeting (no 5) in Bern. The meeting time was set out to week 26 (25/6-29/6). The precise dates will be defined later.

The date for meeting no 6 was tentatively set out to week 46 (12/11-16/11). The delegation of UK announced that they expected to be able to host this meeting, which will probably be held in London.

The date for meeting no 7 was provisionally set out to week 9, 1985.

19 CLOSING OF THE MEETING

The Administrations were kindly requested to consider their participation at the Espoo Seminar on digital radio communications and to register as soon as possible.

The chairman closed the meeting by thanking the Italian hosts for their excellent meeting arrangements.

Annex 1

CEPT-CCH-GSM
Meeting no 4
Rome, 1984.02.28 - 1984.03.02

List of participants

Austria

Ernst Tallowitz
Generalpostdirektion für die
Post und Telegraphen Verwaltung
Postgasse 8 — tel +43 222 52661 601
A-1011 WIEN — fax
Austria — telex 112300

Belgium

L Taghon
Regie T.T.
Dep. TR
Paleizenstraat 42 — tel +31 2 2134270
B-1030 BRUXELLES — fax
Belgium — telex 29154

Denmark

Marius Jacobsen
Post- og Telegrafvaesenet
Radioteknisk Tjeneste
Islands Brygge 83 C — tel +45 1 544796/202
DK-2300 KÖBENHAVN S — fax +45 1 544796/270
Denmark — telex 31100 RACOM DK

G Nilakantan
Post- og Telegrafvaesenet
Radioteknisk Tjeneste
Nörrebrogade 10 — tel +45 1 393711/271
DK-2200 KÖBENHAVN N — fax +45 1 393711/215
Denmark — telex 22289 RACOM DK

Finland

Matti Makkonen
Post- och telestyrelsen
Radioavdelningen
Box 511
SF-00101 HELSINKI 10
Finland

tel +358 0 69661
fax +358 0 6966410
telex 124545 RADOS SF

France

Philippe Dupuis
DGT/DTM
246 rue de Bercy
F-75584 PARIS Cedex 12
France

tel +33 1 3461255
fax +33 1 3460757
telex 670372 INTELFRA X PA

J de Brito
CNET
PAA/RDS/RCM
F-92131 ISSY LES MOULINEAUX
France

tel +33 1 6384593
fax +33 1 6384003
telex CNETLEC 250317 F

M Alvernhe
PTT
DGT/DAII/SAI/R
Immeuble Périsuol
7, Boulevard R Rolland
F-92120 MONTROUGE
France

tel +33 1 6386872
fax
telex GENTEL PARIS 200773

Didier Verhulst
CNET
PAA/RDS
38-40 rue du Général Leclerc
F-92131 ISSY LES MOULINEAUX
France

tel +33 1 6386233
fax
telex CNETLEC 250317 F

Germany

Dr. K Spindler
Bundesministerium für das Post- und
Fernmeldewesen
Adenauerallee 81
D-5300 BONN 1
F. R. of Germany

tel +49 228 142260
fax
telex 8661110

Frieder Pernice
Fernmeldetechnisches Zentralamt
PO Box 5000
D-6100 DARMSTADT
F. R. of Germany

tel +49 6151 832403
fax +49 6151 834791
telex 419511 FTZ D

Greece

Theodore Thanopoulos
OTE Planning Department
3, Fokionos Negri
11257 Athens
Greece

tel +301 2012199
fax
telex 215432 PLAN GR

Italy

Marcello Farioli
Ministero Poste e Telecomunicazioni
Centr. Servizi Radioelettrici
Viale America 201
I-00144 ROMA
Italy

tel +39 6 54604878
fax +39 6 54604953
telex 610670 PTRAD I

R Failli
SIP DIREZIONE GENERALE
Via Flaminia 189
I-00196 ROMA
Italy

tel +39 6 3688/2569
fax
telex 610 467 I

Giorgio Masone
SIP DIREZIONE GENERALE
Via Flaminia 189
I-00196 ROMA
Italy

tel +39 6 3688/3387
fax
telex 610 467 SIPGEN I

Mauro Sentinelli
SIP DIREZIONE GENERALE
Via Flaminia 189
I-00196 ROMA
Italy

tel +39 6 3688/2428
fax
telex 610 467 SIPGEN I

Netherlands

L Melis
PTT CENTRALE DIRECTIE
Kon. Julianaplein 15
2595 AA DEN HAAG
Netherlands

tel +31 70 757863
fax
telex 33068 mbfcd nl

M van Beveren
PTT CENTRALE DIRECTIE
PO Box 30 000
2500 GA DEN HAAG
Netherlands

tel +31 70 754033
fax
telex 31111

Norway

Hans Myhre		
Teledirektoratet		
Postboks 6701	tel	+47 2 488281
N-OSLO 1	fax	+47 2 200075
Norway	telex	71203 GENTEL N
Jan Audestad		
Televerkets Forskningsinstitutt		
Boks 83	tel	+47 2 739246
N-2007 KJELLER	fax	+47 2 730076
Norway	telex	19672 RETEL N

Spain

C Lluch		
Compania Telefonica Nacional de Espana		
C.I.E.		
Seccion Radio y Satelites		
C/Lerida 43	tel	+34 1 4550000
MADRID 20	fax	+34 2 701044
Spain	telex	27320 CTN E

Sweden

Thomas Beijer		
Swedish Telecommunications Administration	tel	+46 8 7133102
Room I18:26	fax	+46 8 7134226
S-123 86 FARSTA	telex	14970 GENTEL S
Sweden		
Gunnar Fremin		
Swedish Telecommunications Administration	tel	+46 8 7132054
Room IB8:26	fax	+46 8 7131193
S-123 86 FARSTA	telex	14970 GENTEL S
Sweden		
Thomas Haug		
Swedish Telecommunications Administration	tel	+46 8 7131526
Room C541	fax	+46 8 7133318
S-123 86 FARSTA	telex	14970 GENTEL S
Sweden		

Switzerland

Rolf Bill		
Generaldirektion PTT		
Sektion Terrestrische Verbindungen RA 12		
Speichergasse 6	tel	+41 31 622048
CH-3030 BERN	fax	
Switzerland	telex	911025 RTV CH
M A Rothen		
Generaldirektion PTT		
Sektion Teilnehmeranlagen		
Viktoriastrasse 21	tel	+41 31 623032
CH-3030 BERN	fax	
Switzerland	telex	
R Klingler		
GD PTT, VD 21		
Technisches Zentrum	tel	+41 31 624859
CH-3030 BERN	fax	+41 31 624757
Switzerland	telex	32061 VPTT

United Kingdom

J F Griffiths		
British Telecom		
95, Ebury Bridge Road	tel	+44 1 7301181
LONDON SW1	fax	
United Kingdom	telex	8950453 BTOPFS G
D S Cheeseman		
British Telecom Research Labs		
Martlesham Heath	tel	+44 473 644730
IPSWICH IP5 7RE	fax	
United Kingdom	telex	98376 THQRD G
K Fisher		
Department of Trade and Industry		
Directorate of Radio Technology		
Waterloo Bridge House		
Waterloo Road	tel	+44 1 2753363
LONDON SE1 8UA	fax	
United Kingdom	telex	261969 HOWBHL
D M Barnes		
Department of Trade and Industry		
Room 537		
1-19, Victoria Street	tel	+44 1 2153182
LONDON SW1	fax	
United Kingdom	telex	8813148 DIHQ G
J F Wallingford		
British Telecoms. LNS1.4		
Williams National House 341	tel	+44 1 357 4653
11-13, Holborn Viaduct	fax	+44 1 2366433
LONDON EC1A 2AT	telex	883051
United Kingdom		

Annex 2

CEPT-CCH-GSM
Meeting no 4
Rome, 1984.02.28 - 1984.03.02

AGENDA

		Applicable documents
1	Opening of the meeting	
2	Approval of the agenda	
3	Listing of relevant documents	
4	Report from GSM meeting no 3	24/84
5	Report on the COST activities concerning land mobile communications	
6	Report on CS-SIG meeting	3/84 11/84
7	Aspects on protection and security	10/84
8	Activities in the field of low bit rate speech, encoding and modulation	5/84 9/84 12/84 13/83 15/84 23/84
9	Radio wave propagation	6/84
	WORKING PARTIES	
10	Traffic models	8/48 16/84 20/84 22/84
11	Coexistence of vehicle-borne and portable stations	
12	Aspects on frequency management	
13	Report to CCH	4/84
14	Tariff structures	19/84
15	Radiation hazards	17/84 21/84
16	The OSI Model applied to mobile systems	7/84 14/84
17	Any other business	18/84
18	Next meeting	
19	Closing of the meeting	

Annex 3

GSM DOCUMENT LIST

October 1983

Doc No	Title	Source
1/82	CEPT Doc Temp 23	
2/82	CEPT Doc T/CCH (82) 21 R	
3/82	CEPT Doc Temp 11	
4/82	CEPT Doc Temp 15	
5/82	CEPT Doc Temp 21 add 5	
6/82 Rev.1	Background to GSM specification of system characteristics	Chairman
7/82 Rev.1	Operational Requirements on a Common European Mobile Communications System	Sweden
8/82	Contribution francaise sur la libre circulation des utilisateurs et sur les homologations.	France
9/82	Studies on mobile communication systems in CEPT, CCITT and CCIR	Netherlands
10/82	Traffic parameters for system capacity calculations	Netherlands
11/82	Identification des domaines critiques dans lesquels des études devront etre entreprises	France
12/82	Extract from "Report on the anglo-french presentation of a 900 MHz small-cell automatic radio-telephonesystem based on the 'Nordic' standard". (London June 1982)	
13/82	Report of the 1st meeting of the COST group of experts on mobile radio communications	
14/82	Common land mobile system for Europe. Activities within CCITT of importance for such a system	Norway
15/82 Rev.1	GSM suggestion for the text of a new question to be referred to Working Group CD	GSM
16/82 Rev.1	Lettre to the Chairman of ELT	GSM
17/82 Rev.1	On-going studies of relevance to the GSM-group	GSM
18/82	Report of the meeting on an interim public land mobile system in the 900-MHz band	

Doc No	Title	Source
1/83	Portable radio telephones	Denmark
2/83	Nordic Mobile Telephone system in Denmark. Charges and call rates.	Denmark
3/83	Structure and level of tariffs in the Swedish networks	Sweden
4/83	Activities in CCITT SG II and XI on land mobile systems	Norway
5/83	Current research on demand for mobile communications	CEPT/T/ELT
6/83	CCIR and CCITT documents relevant to the work of GSM	Netherlands
7/83	Tariff structure in the Dutch car telephone system	Netherlands
8/83	Some facilities for system exploitation	Netherlands
9/83	The need for encryption of mobile station identification	Netherlands
10/83	Quality of service	UK
11/83	Compatibility between interim systems and the GSM-system	UK
12/83	Doc T/SGT SF2(81)8 on mobile services and two documents comenting on this document	CEPT/SF
13/83	Tariff structure of the mobile telephone services in Finland	Finland
14/83	Definitions concerning services and facilities	Sweden
15/83	Tarifs du téléphone de voiture en France	France
16/83	Rappel des activités en cours dans les organismes internationaux concernant la transmission de parole à bas debit à usage des mobiles	France
17/83	Remarques sur le rapport de la réunion du group GSM à Stockholm, 7 - 9 décembre 1982	France
18/83	Comments on Doc GSM 10/82 from the Netherlands: "Traffic parameters for system capacity calculations"	France

Doc No	Title	Source
19/83	Operational requirements, Mobile Rdio-telephone Service, Automatic, National	
20/83	Information on national tariff structures in the existing public automatic mobile telephone system in the 150 MHz band (B-system)	FRG
21/83	Traffic parameters in the existing public automatic mobile telephone system in the 150 MHz band (B-system)	FRG
22/83	Information on the national tariff structure	UK
23/83	Nordic mobile telephone expands into the 900 MHz band	Denmark Finlar Norway, Sweden
24/83	A simple propagation model for comparison of access techniques efficiency in a Cellular Mobile Radio Network	France
25/83	Headings listed for SF study	SF representativ (Mr Wallingford)
26/83	Tariffs in the Swiss automatic public mobile telephone system in the 160 MHz band	Switzerland
27/83	Recommendation T/R 75-02 (Vienne 1982) relative à l'utilisation de fréquences de la bande 862-960 MHz par les services mobiles terrestre et maritime	CEPT/T
28/83	Lettre to Chairman Working Group R	Chairman
29/83	The need for encryption in mobile systems	GSM
30/83 Rev. 1	A framework for traffic data presentation	GSM
31/83	Report to CCH regarding the progress of GSM	GSM
32/83	Report from GSM meeting no 1	GSM
33/83	Comparison of national tariffs applying for mobile radiotelephones connected to the public switched telephone network (PSTN)	Switzerland
34/83	A model for CEPT service definition work	CEPT/SF
35/83	Utilisation of frequencies in the 900 MHz band for land mobile service	CEPT/R
36/83	Tariffs in the Spain automatic public mobile telephone system in the 450 MHz band (NMT system)	Spain

Doc No	Title	Source
37/83	Current research on demand for mobile communications	CEPT/ELT
38/83	Interim report on services and facilities to be provided by international public mobile communications systems	CEPT/SF
39/83	Traffic parameters of the VHF Italian public land mobile system	Italy
40/83	Future pan-european public mobile radiosystem in the 900 MHz band (letter to Mr Gagliardi)	EUCATEL
41/83	Comments on "A framework for traffic data presentation" (GSM Doc 30/83)	Netherlands
42/83	An inventory of aspects related to the problem of coexistence of vehicle mounted and hand-held portable mobile stations in a cellular radio system	Netherlands
43/83	Traffic data on existing system	Spain
44/83 Rev. 1	Traffic data on NMT-network in Finland	Finland
45/83	Automatic landmobile services in Finland before a common European standard	Finland
46/83	Traffic model - statistics of speech activity	France
47/83	Draft Recommendation on the services and facilities aspects of cordless telephones	CEPT
48/83	Interconnection between "TSCR" (BT) and RACALL-Millicom	UK
49/83	Procedure for the exchange of technical documents between CEPT WGs and EUCATEL and vice-versa	
50/83	Proposed new draft Rec E.ma	CCITT
51/83	An interim description of "TACS"	UK
52/83	Report from GSM meeting no 2	GSM
53/83	Services and facilities in a future pan-european mobile communications network - GSM comments to SF report	GSM
54/83	Studies on demand for mobile communications (letter to WGELT)	GSM

Doc No	Title	Source
1/84	Letter to Chairman of T/GT3	GSM
2/84	Letter to Eucatel	GSM
3/84	Letter to GSM	CS-SIG
4/84	Definitions of quality of services requirements	SF3
5/84	Letter to chairman of GSM	Chairman CD
6/84	Building penetration of radio waves	Switzerland
7/84	Application of the OSI-model to land mobile systems	Norway
8/84	Données de trafic sur le téléphone de voiture en France	France
9/84	Expert meeting on security aspects of data communication networks and services	CD/CS/SF experts
10/84	Security aspects in land mobile and other systems	CD/CS/SF experts
11/84	Documents from the CS/SIG meeting, February 1984	Chairman
12/84	Information about low bit rate speech coding activities in TR3	TR3
13/84	Nordic seminar on digital land mobile radio communication 5 - 7, Feb. 1985	Denmark Finland Norway Sweden
14/84	Mobile Local Area Networks (Mobile LAN's)	Norway
15/84	Digital mobile telephony with improved spectrum efficiency	Sweden
16/84	Traffic data	Norway
17/84	Dangers présentés par les rayonnements électromagnétiques	France
18/84	Etudes de marché dans le domaine du service mobile terrestre	France
19/84	Questionnaire to evaluate tariff structures	FRG
20/84	Questionnaire for the evaluation and comparison of national tariff structures in mobile telephone systems	Switzerland

Doc No	Title	Source
21/85	Some safety considerations for 900 MHz hand-held portables	Switzerland
22/84	Subscriber categories and related traffic characteristics in the Netherlands car telephone system	Netherlands
23/84	Evaluation of INMARSAT test tapes on digital speech coding techniques	France
24/84	Report from GSM meeting no 3	GSM
25/84	Report from Working Party 1 (meeting no 4)	GSM
26/84	Report from Working Party 2 (meeting no 4)	GSM
27/84	Report from Working Party 3 (meeting no 4)	GSM
28/84	Report no 2 to CCH regarding the the progress of GSM (March 1984)	GSM