Nutzungsbedingungen und –einschränkungen für Frequenzkanäle

Nutzungsbedingungen für die E-GSM-Kanäle 975 – 1023 und 0

Für die Frequenznutzung gelten allgemein die Bestimmungen der Vollzugsordnung für den Funkdienst (VO Funk) in der von der Weltfunkkonferenz WRC-03 beschlossenen Fassung. Darüber hinaus gelten insbesondere die nachfolgenden Festlegungen:

a) Einsetzbar „innerösterreichisch" und in allen Grenzgebieten unter Einhaltung der in Punkt 1.2 der CEPT-Empfehlung T/R 20-08 (siehe Anlage F) angegebenen Bedingungen („Nicht-Vorzugsfrequenzen")

b) Einsetzbar in nachstehend angeführten Grenzgebieten unter Einhaltung der in Punkt 1.1 der CEPT-Empfehlung T/R 20-08 angegebenen Bedingungen („Vorzugsfrequenzen")

Grenzgebiete:	**Kanäle**
AUT/SUI	975 – 982, 996 – 999, 1008 – 1019
AUT/LIE/SUI	975 – 982, 1008 – 1015
AUT/SVK	975 – 986, 1000 – 1012
AUT/SVK/HNG	975 – 982, 1000 – 1007
AUT/HNG	975 – 982, 995 – 1007, 1020 – 1023
AUT/HNG/SVN	975 – 982, 1000 – 1007
AUT/SVN	975 – 986, 1000 – 1011

c) Der Kanal „0" ist nur einsetzbar unter der Voraussetzung, dass auf Kanal „1" und darüberliegende der selbe Betreiber, wie auf Kanal „1023" und darunterliegende, liegt. Bei verschiedenen Betreibern ist der Kanal „0" als Schutzkanal vorgesehen.

d) Grundlegende technische Merkmale:
Es gelten die in der Funk-Schnittstellenbeschreibung FSB-LM020 festgesetzten technischen Merkmale. Der Entwurf dieser Funk-Schnittstellenbeschreibung ist in Anlage H angeführt.
Mit dem In-Kraft-Treten ist nach der Durchführung des EU-Notifizierungsverfahrens im Herbst 2004 zu rechnen.

Nutzungseinschränkungen:

Fallweise Störungen durch Aussendungen von in Deutschland betriebenen nicht zivilen Richtfunkanlagen können nicht ausgeschlossen werden.

Mit Italien sind standortbezogen jeweils Einzelkoordinierungsverfahren durchzuführen.

Anmerkung:

- In den Grenzgebieten zu CZE, I und D können die E-GSM-Kanäle derzeit nur unter den Bedingungen von „Nicht-Vorzugsfrequenzen" eingesetzt werden.

Nutzungsbedingungen und Nutzungseinschränkungen für die GSM-Kanäle 574-585 (1722,600-1724,800/ 1817,600-1819,800 MHz)

Für die Frequenznutzung gelten allgemein die Bestimmungen der Vollzugsordnung für den Funkdienst (VO Funk) in der von der Weltfunkkonferenz WRC-03 beschlossenen Fassung. Darüber hinaus gelten insbesondere die nachfolgenden Festlegungen:

a) Einsetzbar „innerösterreichisch" und in allen Grenzgebieten unter Einhaltung der in Punkt 5.2 der Empfehlung der CEPT T/R 22-07 angegebenen Bedingungen (= Nicht-Vorzugsfrequenzen).

b) In nachstehend angeführten Grenzgebieten sind die folgenden GSM Kanäle unter Einhaltung der in Punkt 5.1 der Empfehlung der CEPT T/R 22-07 angegebenen Bedingungen (= Vorzugsfrequenzen) einsetzbar:

Grenzgebiete	**Bereich (Kanal 574-585)**
AUT/D	575-585
AUT/SVK	575-585
AUT/SVN	575-585

c) Die Kanäle 574 und 585 sind Schutzkanäle. Diese Schutzkanäle dienen der Vermeidung von funktechnischen Störungen zwischen Betreibern und werden in der Regel nicht zugeteilt. Für den Fall, dass einem Antragsteller im Spektrum nebeneinander angeordnete Frequenzpakete zugeteilt werden, wird diesem Antragsteller auch der dazwischen liegende Schutzkanal zugeteilt. Dies trifft auch dann zu, wenn dem Betreiber eines der beiden Frequenzpakete zu einem früheren Zeitpunkt zugeteilt wurde.

d) Grundlegende technische Merkmale:
Es gelten die in der Funk-Schnittstellenbeschreibung FSB-LM002 festgesetzten technischen Merkmale.

Nutzungseinschränkung:

- Mit Italien sind standortbezogen jeweils Einzelkoordinierungsverfahren erforderlich.
- Gegenüber D für die Kanäle 574 – 585:
  Es kann kein Schutz gegen Störungen durch nicht-zivile Aussendungen gewährt werden.

Schutz von Peilempfangsanlagen

Schutz von Peilempfangsanlagen

Zum Schutz der in der Beilage angeführten stationären Peilempfangsanlagen der Fernmeldebehörden darf an den angegebenen Standorten der durch die Sendeanlagen verursachte Spitzenwert der Feldstärke, gemessen mit der jeweiligen systemspezifischen Bandbreite, den Wert von 105 dBµV/m nicht überschreiten.

Wien			
16E20 08	48N15 45	1190	WIEN, Krapfenwaldgasse 17
16E22 39	48N14 24	1200	WIEN, Höchstädtplatz 3
16E15 43	48N13 04	1140	WIEN, Ulmenstraße 160
16E23 09	48N12 35	1030	WIEN, Hintere Zollamtstraße 2b
Niederösterreich			
16E28 43	48N19 40	2201	GERASDORF, Peilstelle Seyring (EZ 146/2)
14E48 24	48N00 12	3332	ROTTE, Nöchling Nr. 5
Oberösterreich			
14E16 02	48N17 52	4020	LINZ, Freinbergstraße 22
14E01 31	48N14 54	4611	SCHARTEN, Hochscharten 3
Salzburg			
13E02 44	47N49 14	5020	SALZBURG, Mittelstraße 17
13E02 20	47N48 05	5020	SALZBURG, Mönchsberg 35
13E26 02	47N46 35	5360	ST.GILGEN, Schafberg/Berghotel
Tirol			
11E26 23	47N15 56	6020	INNSBRUCK, Valiergasse 60
11E22 51	47N18 43	6020	INNSBRUCK, Hafelekar/Berghütte
11E33 19	47N15 12	6060	HALL, Tulferberg, Tulfes 59
Vorarlberg			
09E43 05	47N29 32	6900	BREGENZ, Holzackergasse 25
09E39 38	47N26 49	6890	LUSTENAU, Hagen-Silo
09E38 36	47N29 06	6972	FUSSACH, Peilstelle
Steiermark			
15E25 49	47N02 07	8055	GRAZ, Triester Straße 280
15E29 14	47N05 01	8010	GRAZ-RIES, Ledermoarweg 19
15E27 13	46N46 52	8442	KITZECK IM SAUSAL, Steinriegel 11
15E54 51	47N31 49	8253	WALDBACH, Hochwechsel-Aspangberg (Wetterkoglerhaus)
Kärnten			
14E18 21	46N37 24	9010	KLAGENFURT, Dr. Herrmann-Gasse 4
14E18 07	46N36 25	9020	KLAGENFURT, Südring 240
13E51 34	46N36 46	9500	VILLACH, Dr. Semmelweißstraße 18
14E29 43	46N38 07	9131	GRAFENSTEIN, Thon 21

(Koordinatenangaben nach WGS84)

CEPT-Rec. T/R 20-08E

Recommendation T/R 20-08 E (Lecce 1989 CR))

FREQUENCY PLANNING AND FREQUENCY COORDINATION FOR THE GSM SYSTEM

Recommendation proposed by Working Group T/WG 15 "Radio Administration, Regulation and Frequency Management" (RARF)

Text of the Recommendation adopted by the "Telecommunications" Commission:

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that the GSM system will use the frequency bands 890-915 MHz/935-960 MHz in accordance with relevant agreements, directives and CEPT Recommendations,

b) that in the implementation of the GSM system it is necessary to take account of national policies for the use of the frequency bands in question,

c) that national frequency planning for the GSM system is carried out by the operators and approved by the Radioregulatory Administrations or carried out by such Administrations in cooperation with the operators,

d) that frequency planning in border areas will be based on coordination between Radioregulatory Administrations.

noting

a) that in many CEPT member countries multiple operators for the GSM system are expected,

b) that frequency coordination procedure and interservice sharing is necessary both between countries operating the GSM system and between those countries and countries operating other services in accordance with the Radio Regulations,

recommends

1. That frequency coordination in border areas is based on the following concept:

1. 1. Preferential frequencies or preferential frequency bands shall be agreed between Administrations concerned. Preferential frequencies may be used without coordination with a neighbouring country if the fieldstrengili of each carrier produced by the base station does not exceed a value of 19 dBμV/m for digital systems and 19 dBμV/m for analogue systems at a height of 3 m above ground at a distance of 15 km inside the neighbouring country.
When blocks of preferential frequencies are allocated to different countries in border areas one Rf channel in each end of the blocks shall be treated as non-preferential frequencies, in order to take account of adjacent channel interference.

1.2. All other frequencies are subject to coordination between Administrations if the interfering fieldstrength produced by the base station exceeds 19 dBμV/m at a height of 3 m above ground at the border line between two countries.

1.3. Frequency planning in coastal areas is based on the concept of preferential frequencies and coordinated frequencies assuming a middleline between the countries involved. Other principles for frequency planning and frequency coordination in coastal areas may be agreed between the Administrations concerned.

1.4. Propagation criteria for calculating the interfering fieldstrength is described in Annex 1.

1.5. For adding multiple interferers the simplified algorithm described in Annex 2 can be used.

2. That the technical parameters described in Annex 3 is used in the frequency coordination for the GSM system.

3. That the technical parameters described in Annex 4 is used for frequency coordination between the GSM system and existing fixed services in the frequency bands 890-915 MHz/935-960 MHz.

4. That the following frequency coordination procedure is used:

4.1. When requesting coordination the relevant characteristics of the base station shall be forwarded using the coordination form indicated in Recommendation T/R 25-08 E. Administrations may diverge from the use of this form by common agreement but at least the following characteristics should be forwarded to the Administration affected:

a) frequency in MHz
b) name of transmitter station
c) country of location of transmitter station
d) geographical coordinates
e) effective antenna height
f) antenna polarisation
g) antenna azimuth
h) directivity in antenna systems
i) effective radiated power
j) expected coverage zone
k) date of entry into service.

4.2. The Administration affected shall evaluate the request for coordination and shall within 30 days notify the result of the evaluation to the Administration requesting coordination.

4.3. If in the course of the coordination procedure the Administration affected requires additional information, it may request such information.

4.4. If no reply is received by the Administration requesting coordination within 30 days it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communication of the reminder shall be deemed to have given its consent and the frequency may be put into use with the characteristics given in the request for coordination.

4.5. The periods mentioned above may be extended by common consent.

5. In general Administrations may diverge from the technical parameters and procedures described in this Recommendation subject to bilateral agreements."

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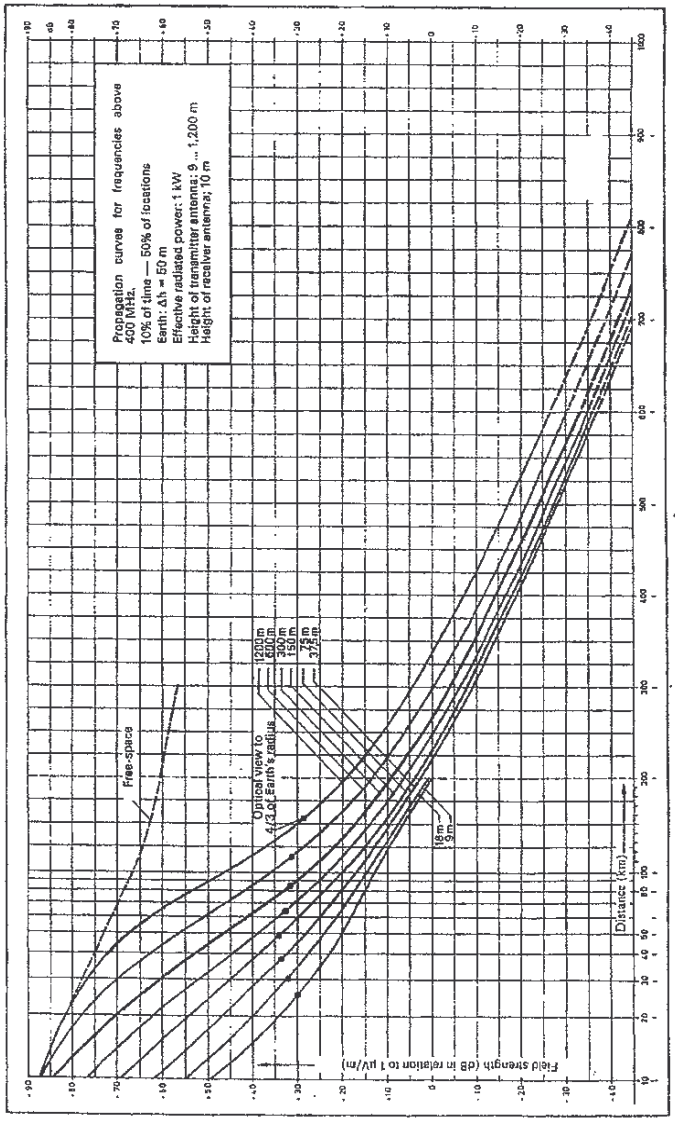
Annex 1

PROPAGATION CURVES FOR FREQUENCIES ABOVE 400 MHz (400-960 MHz)



Edition of January 15, 1990

Propagation curves

The curves attached to this Annex should be used to determine the interfering fieldstrength. Administrations may agree on other curves, e.g. the latest version of CCIR Report 567.

Correction factors

A general correction factor of -2 dB is used in the 900 MHz band.
Correction factor for receiving antenna from 10 m to 3 m:
Distance < 50 km: - 10 dB
Distance > 100 km: - 3 dB
Linear interpolation is used for intermediate distances.
For sea path propagation the correction factor for receiving antenna from 10 m to 3 in is 10 dB.

Effective antenna height

The effective antenna height used to determine interfering fieldstrength is the difference between the physical height of the antenna and the average height of the terrain. The evaluation of the average height of the terrain may be subject to agreement between Administrations.

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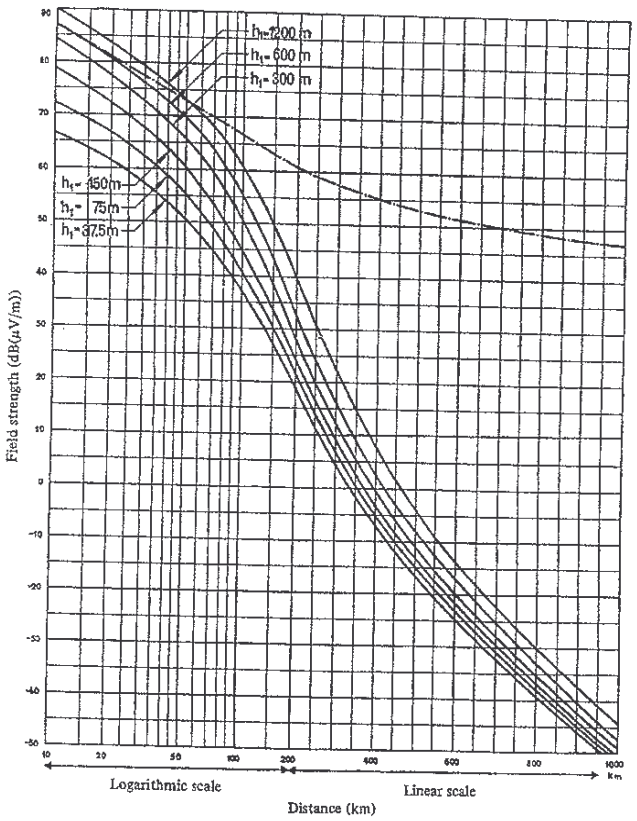
Page 5



Field strength (dB (μV/m)) for 1 kW e.r.p.

Frequency: 450 to 1000 MHz (Bands IV and V) – Cold sea – 10% of the time – 50% of the locations – h_2 = 10 m

— · — Free space

Edition of January 15, 1990

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Annex 2

1. SIMPLIFIED ALGORITHM FOR FREQUENCY COORDINATION

1. 1. Notation

P = e.i.r.p. of wanted transmitter in direction of receiver (dBm).
L = Isotropic path loss from wanted transmitter to receiver (dB).
P_i = c.i.r.p. of interfering transmitter i in directiou of receiver (dBm).
l_i = Isotropic path loss from interfering transmitter i to receiver (dB).
a = Receiver antenna gain towards wanted transmitter (dBi).
a_i = Receiver antenna gain towards interfering transmitter i (dBi).
β_i = Gain due to receiver filter selectivity on interference from transmitter i (dB).
γ = Estimated shadowing margin to be allowed on C/I value (dB).
C = Total wanted carrier power at receiver input (dBm).
I_i = Effective interfering power due to transmitter i at receiver input (allowing for the effect of receiver filtering) (dBm).
I = Total effective interfering power at receiver input (allowing for shadowing margin) (dBm).
λ =.C/1 threshold value.

1.2 Base-mobile Path Algorithm

(a) For each cell in question, take one or more "worst case" mobile station MS locations. These are locations at which the C/I is known, or believed to be, lowest.
(b) Calculate the wanted carrier power at the receiver input:
$C = P - L + a$
(c) Calculate the effective interfering power due to each potentially interfering transmitter (whether co-channel or adjacent channel) at the receiver input (allowing for the effect of receiver filtering): $I_i = P_i - L_i + a_i + \beta_i$
(d) Sum the interfering powers at the receiver and allow for the shadowing margin:
$I = 10 \log_{10} \Sigma\ 10^{(Ii/10)} + \gamma$
(e) Cheek the effective C/I ratio (C -I) against the threshold value λ.

1.3 Mobile-base Path Algorithm

(a) Take each cell that has a potentially interfering mobile station (MS). If N is the number of carrier frequencies allocated to that cell that can cause potential interference to the base station (BS), assume there are N MS's, one radiating each carrier, in that cell.
A proportion of the total number of MS's so identified (e.g. 20%) should be assumed to be the worst case locations of their cells and the rest at the mid-point of their cells.
Alternatively a "Monte Carlo" simulation can be undertaken in which a number of "snapshots" of the interference scenario are taken. In each snapshot, the interfering MS's are placed at random locations (uniformly distributed) within their cells. To find for example the 90% C/I value. 100 snapshots could be taken, and the C/I which is exceeded by 90 of the snapshots used.
(b) Perform steps (b) to (e) of the base-mobile path algorithm.

1.4 Notes on Calculation of Parameters

(a) P, P_i—These should be supplied by the public land mobile network (PLMN) operators. For GSM transmitters. each P, P_i is the power in the active part of the timeslot.
(b) L, L_i —These can either be calculated using appropriate terrain modelling, or some simplified power distance law, e.g. $d^{-3.3}$.
(c) a, a_i—These should be supplied by the PLMN operators.
(d) β_i—These can be read off Figure A2-1 (T/R 20-08).

(e) If shadowing effects have been allowed for in the calculation of L and L_i, Υ can be set to 0. Otherwise a value of 7 dB could be used (this assumes the wanted and unwanted signals each have a 5 dB shadowing margin (log normal distribution) and the composite shadowing margin is $\sqrt{2}$ x 5 dB, i.e. 7 d B).

(f) χ can be taken as follows:

GSM receiver	= 9 dB
TACS receiver:	= 18 dB
NMT —900 receiver:	= 20 dB

Note. The calculation must take into account all inteflering transmitters from the wanted PLMN as well as those from the neighbouring PLMN's.

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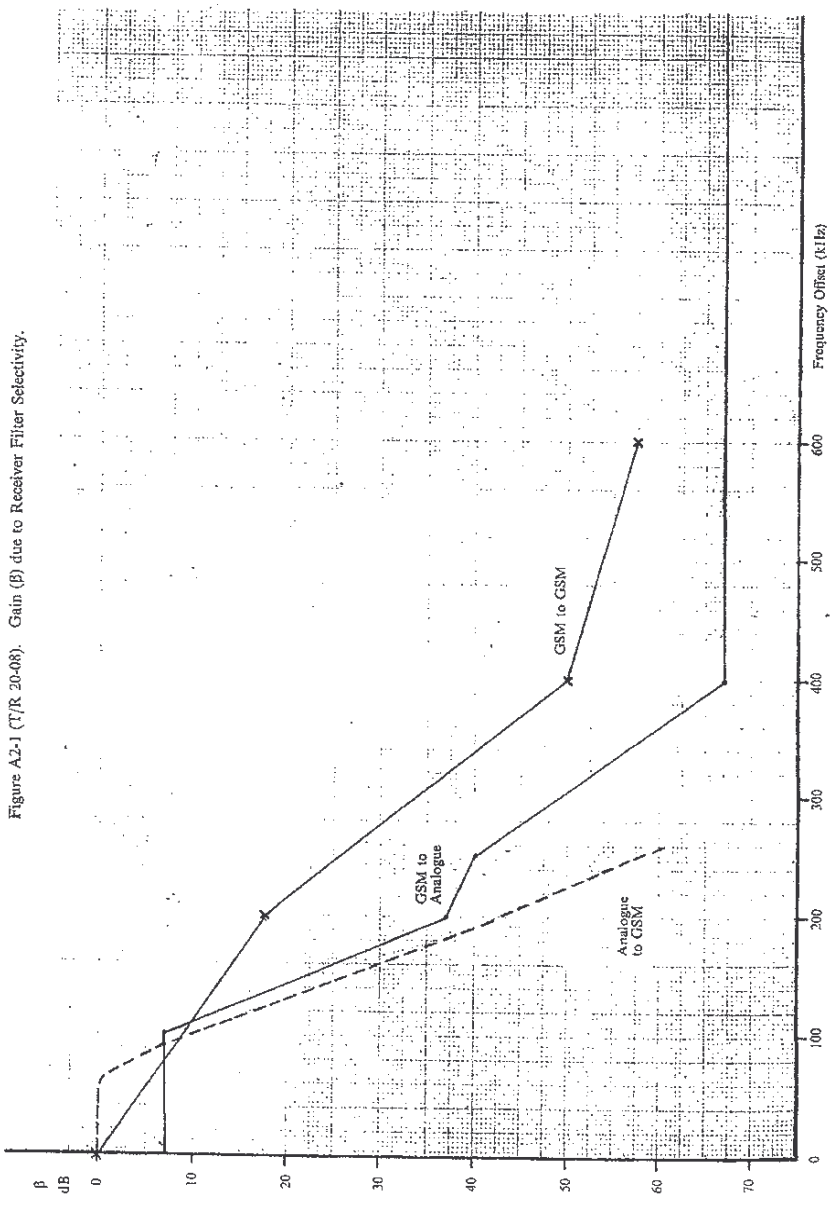

Figure A2-1 (T/R 20-08). Gain (β) due to Receiver Filter Selectivity.

Edition of January 15, 1990

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Annex 3

TECHNICAL PARAMETERS NECESSARY FOR COORDINATION OF THE GSM SERVICE AND ANALOGUE MOBILE SERVICES

C/I ratios

The C/I ratio is the ratio between wanted signal power to interfering signal power at the receiver input during the active part of the GSM timeslot including multiple interferes.

The following C/I ratios apply:

Wanted	Interferer	Co-channel	200 kHz,	400 kHz
GSM	GSM	9 (1)	—9 (1)	—41 (1)
TACS	GSM	11 (2)	—19(4)	—49 (5)
GSM	TACS	9 (6)	—33 (7)	—51 (9)
GSM	NMT	9 (6)	—33 (7)	—61 (8)
NMT	GSM	10 (3)	—20(4)	—50 (5)

Curves indicating C/I values for intermediate values of frequency offset are attached to this Annex.

Notes.
(1) Values from GSM Recommendation 05-05.
(2) TACS filter (25 kHz) attenuates energy from GSM transmission by 7 dB. C/I at detector requires therefore 11 dB at receiver input.
(3) NMT filter (12 kHz) attenuates energy from GSM transmission by 10 dB. C/I of 20 dB at detector requires therefore 10 dB at receiver input.
(4) 30 dB below co-channel figure, see GSM Recommendation 05-05.
(5) 60 dB below co-channel figure, see GSM Recommendation 05-05.
(6) All TACS energy falls in GSM filter. GSM requires 9 dB C/I.
(7) Assumed GMS filter gives 42 dB attenuation relative to co-channel at 200 kHz.
(8) NMT noise floor (beyond 25 kHz) is —70 dBc/16 kHz.
(9) TACS noise floor (beyond 50 kHz) is —60 dBc.

Minimum fieldstrength to be protected (Emin) for mobile stations:
(50% of location —50% of time in the mobile receive band)
GSM 32 dBμ/ m
NMT 32 dBμ /m
TACS 32 dBμ /m

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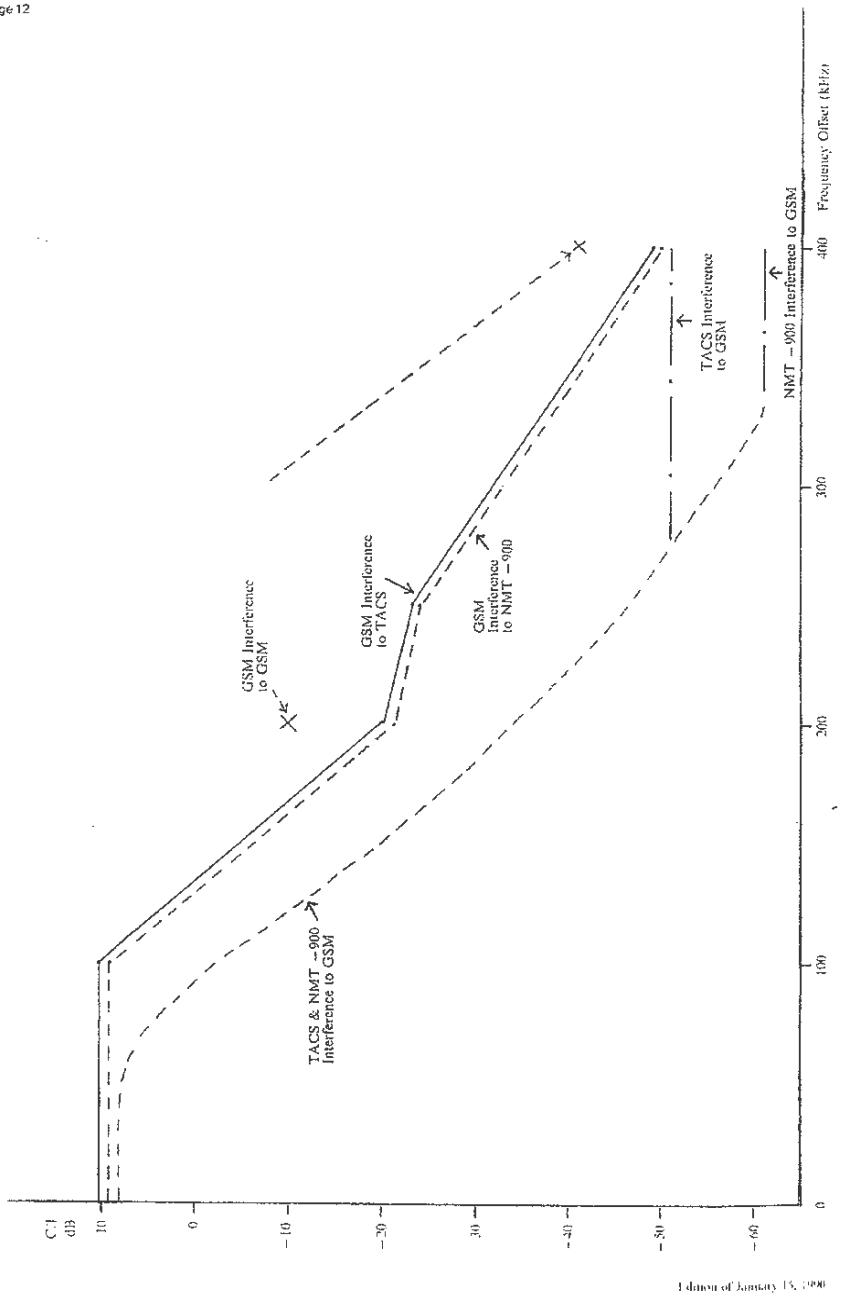


Figure A3-1 (T/R 20-08): Adjacent channel C/I curves.

Annex 4

TECHNICAL PARAMETERS FOR FREQUENCY COORDINATION BETWEEN THE GSM SYSTEM AND EXISTING FIXED SERVICES IN THE FREQUENCY BANDS 890-915 MHz/935-960 MHz

The following C/I ratios apply:

Wanted	Interferer	Co-channel	200 kHz	400 kHz
GSM	Fixed	9dB	—33 dB	—51 dB
Fixed	GSM	subject to bilateral agreement		

CEPT-Rec. T/R 22-07E

Recommendation T/R 22-07 E (Montreux 1993)

FREQUENCY BANDS, PLANNING AND CO-ORDINATION FOR SYSTEMS USING THE DCS 1800 STANDARDS

Recommendation proposed by the Working Group "Frequency Management" (FM)

Text of the Recommendation adopted by the "European Radiocommunications Committee" (ERC):

The European Conference of Postal and Telecommunications Administrations,

considering:

a) that the frequency bands 1710 - 1785 MHz/1805 - 1880 MHz are allocated to the Mobile Service and the Fixed Service on a co-primary basis

b) that the ETSI has developed standards for digital cellular mobile systems (DCS 1800) in the bands 1710 - 1785 MHz and 1805 - 1880 MHz

c) that there is a need for such systems in some countries in Europe

d) that in the implementation of DCS 1800 systems it is necessary to take account of national policies for the use of the frequency bands in question

e) that national frequency planning for the DCS 1800 systems is carried out by the operators and approved by the Radio-regulatory Administrations or carried out by such Administrations in co-operation with the operators

f) that frequency planning in border areas will be based on co-ordination between Radio-regulatory Administrations

noting:

a) that the DCS 1800 system is not intended to be a pan European System and therefore might be implemented only on a national basis

b) that in many CEPT member countries these frequency bands are used for fixed services both analogue and digital

c) that frequency co-ordination procedure and interservice sharing is necessary both between countries operating DCS 1800 systems and between those countries and countries operating other services in accordance with Radio Regulations

recommends:

1. that frequency co-ordination between DCS 1800 systems in border areas shall be based on the concept of preferential frequencies

2 that frequency co-ordination between DCS 1800 systems and other systems in neighbouring countries shall be based on bilateral agreements

3. that the national DCS 1800 systems should use all or parts of the frequency bands 1710 - 1785 MHz and 1805 - 1880 MHz in accordance with the relevant ETSI standards

4 that in order to ease frequency co-ordination introduction of DCS 1800 should start in the upper parts of the bands

5. that frequency co-ordination between DCS 1800 systems in border areas is based on the following concept:

5.1 Preferential frequencies or preferential frequency bands shall be agreed between Administrations concerned. Preferential frequencies may be used without co-ordination with a neighbouring country if the field strength of each carrier produced by the base station does not exceed a value of 25 dB μV/m at a height of 3 m above ground at a distance of 15 km inside the neighbouring country. When blocks of preferential frequencies are allocated to different countries in border areas one RF channel in each end of the blocks shall be treated as non preferential frequencies, in order to take account of adjacent channel interference.

5.2 All other frequencies are subject to co-ordination between Administrations if the interfering field strength produced by the base station exceeds 25 dB μV/m at a height of 3 m above ground at the border line between two countries.

5.3 Frequency planning in coastal areas is based on the concept of preferential frequencies and co-ordinated frequencies assuming a middleline between the countries involved. Other principles for frequency planning and frequency co ordination in coastal areas may be agreed between the Administrations concerned.

5.4 Propagation criteria for calculating the interfering field strength are described in Annex 1.

5.5 For adding multiple interferers the simplified algorithm described in Annex 2 can be used.

6. that the technical parameters described in Annex 3 are used in the frequency co-ordination for the DCS 1800 system

7. that the following frequency co-ordination procedure for co-ordination between DCS 1800 systems is used:

7.1 When requesting co-ordination the relevant characteristics of the base station shall be forwarded using the co-ordination form indicated in recommendation T/R 25-08 E. Administrations may diverge from the use of this form by common agreement but at least the following characteristics should be forwarded to the Administrations affected:

a) frequency in MHz
b) name of transmitter station
c) country of location of transmitter station
d) geographical co-ordinates
e) effective antenna height
f) antenna polarisation
g) antenna azimuth

h) directivity in antenna systems
i) effective radiated power
j) expected coverage zone
k) date of entry into service

7.2 The Administration affected shall evaluate the request for co-ordination and shall within 30 days notify the result of the evaluation to the Administration requesting co-ordination.

7.3 If in the course of the co-ordination procedure the Administration affected requires additional information, it may request such information.

7.4 If no reply is received by the Administration requesting co-ordination within 30 days it may send a reminder to the Administration affected. An Administration not having responded within 30 days following communications of the reminder shall be deemed to have given its consent and the frequency may be put into use with the characteristics given in the request for co-ordination.

7.5 The periods mentioned above may be extended by common consent.

8. In general Administrations may diverge from the technical parameters and procedures described in this Recommendation subject to bilateral agreements.

ANNEX 1

Propagation curves

The curves attached to this Annex should be used to determine the interfering Field strength. Administrations may agree on other curves, e.g. the latest version of CCIR Report 567.

Correction factors

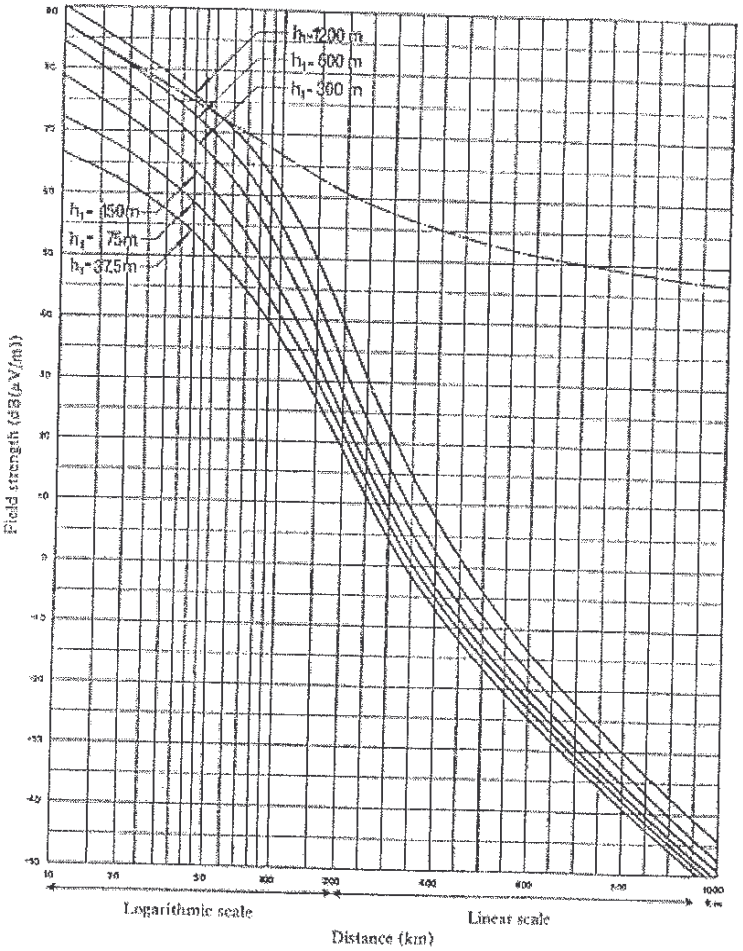
A general correction factor of - 9 dB is used in the 1800 MHz band.

Correction factor for receiving antenna from 10 m to 3 m: Distance
< 50 km: -10 dB
Distance > 100 km: -3 dB

Linear interpolation is used for intermediate distances.
For sea path propagation the correction factor for receiving antenna from 10 m to 3 m is -10 dB.

Effective antenna height

The effective antenna height used to determine interfering field strength is the difference between the physical height of the antenna and the average height of the terrain. The evaluation of the average height of the terrain may be subject to agreement between Administrations.

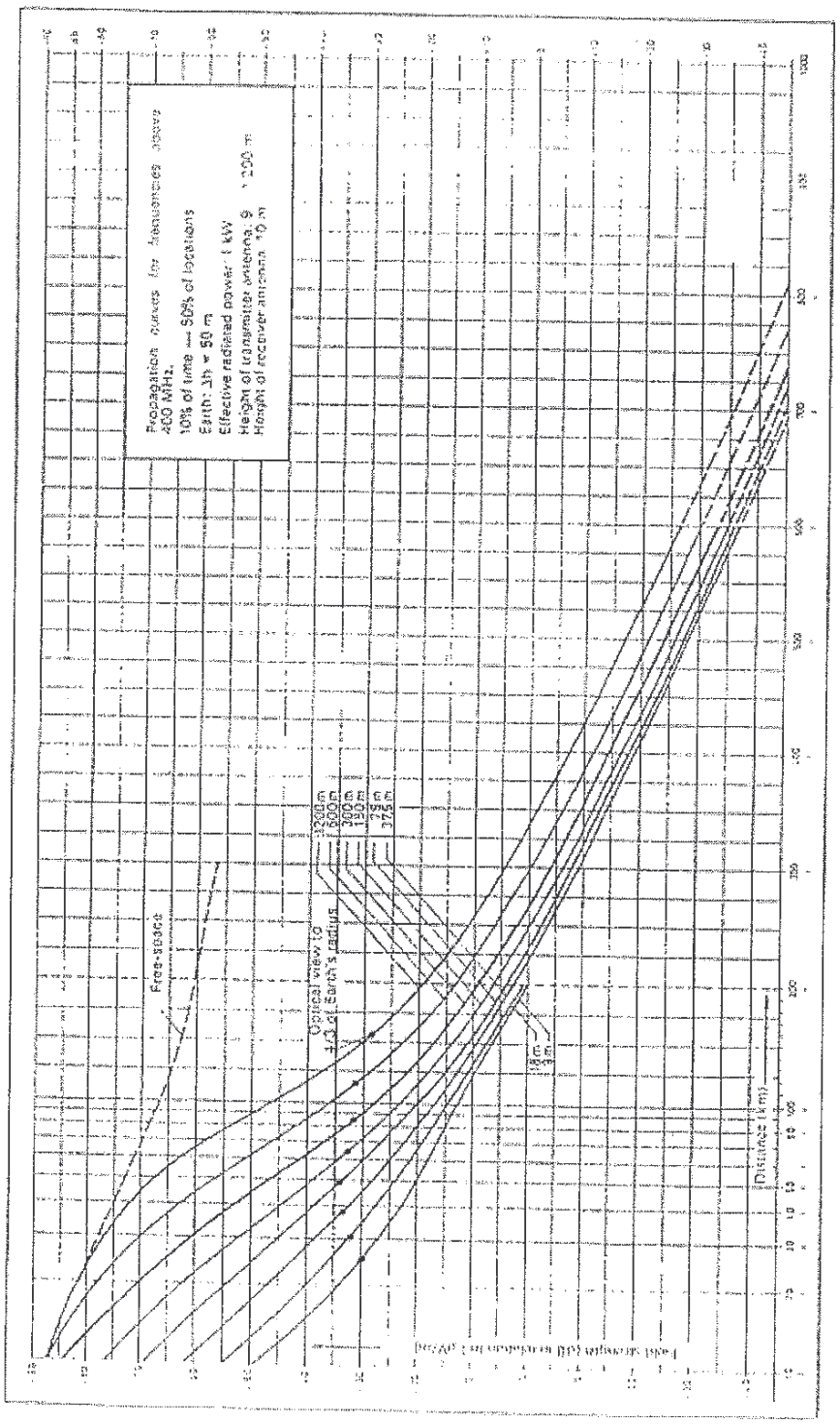


Field strength (dB (μV/m)) for 1 kW e.r.p.

Frequency: 450 to 1000 MHz (Bands IV and V) – Cold sea – 10% of the time – 50% of the locations – h_1 = 10 m

– – – – Free space

PROPAGATION CURVES FOR FREQUENCIES ABOVE 400 MHz



Annex 2

1. Simplified algorithm for frequency co-ordination

1.1 Notation

P = e.i.r.p of wanted transmitter in direction of receiver (dBm)
L = Isotropic path loss from wanted transmitter to receiver (dB)
P_i = e.i.r.p of interfering transmitter i in direction of receiver (dBm)
L_i = Isotropic path loss from interfering transmitter i to receiver (dB)
α = Receiver antenna gain towards wanted transmitter (dBi)
α_i = Receiver antenna gain towards interfering transmitter i (dBi)
β_i = Gain due to receiver filter selectivity on interference from transmitter i (dB)
γ = Estimated shadowing margin to be allowed on C/I value (dB)
C = Total wanted carrier power at receiver input (dBm)
I_i = Effective interfering power due to transmitter i at receiver input (allowing for the effect of receiver filtering) (dBm)
I = Total effective interfering power at receiver input (allowing for shadowing margin) (dBm)
λ = C/I threshold value

1.2. Base-mobile Path Algorithm

(a) For each cell in question, take one or more "worst case" mobile station MS locations. These are locations at which the C/I is known, or believed to be, lowest.

(b) Calculate the wanted carrier power at the receiver input:
$C = P - L + \alpha$

(c) Calculate the effective interfering power due to each potentially interfering transmitter (whether co-channel or adjacent channel) at the receiver input (allowing for the effect of receiver filtering):
$I_i = P_i - L_i + \alpha_i + \beta_i$

(d) Sum the interfering powers at the receiver and allow for the shadowing margin:
$I = 10 \log_{10} \Sigma 10^{(I_i/10)} + \gamma$

(e) Check the effective C/I ratio (C-I) against the threshold value λ.

1.3. Mobile-base Path Algorithm

(a) Take each cell that has a potentially interfering mobile station (MS). If N is the number of carrier frequencies allocated to that cell that can cause potential interference to the base station (BS), assume there are N MS's, one radiating each carrier, in that cell

A proportion of the total number of MS's so identified (e.g. 20%) should be assumed to be at the worst case locations of their cells and the rest at the mid-point of their cells

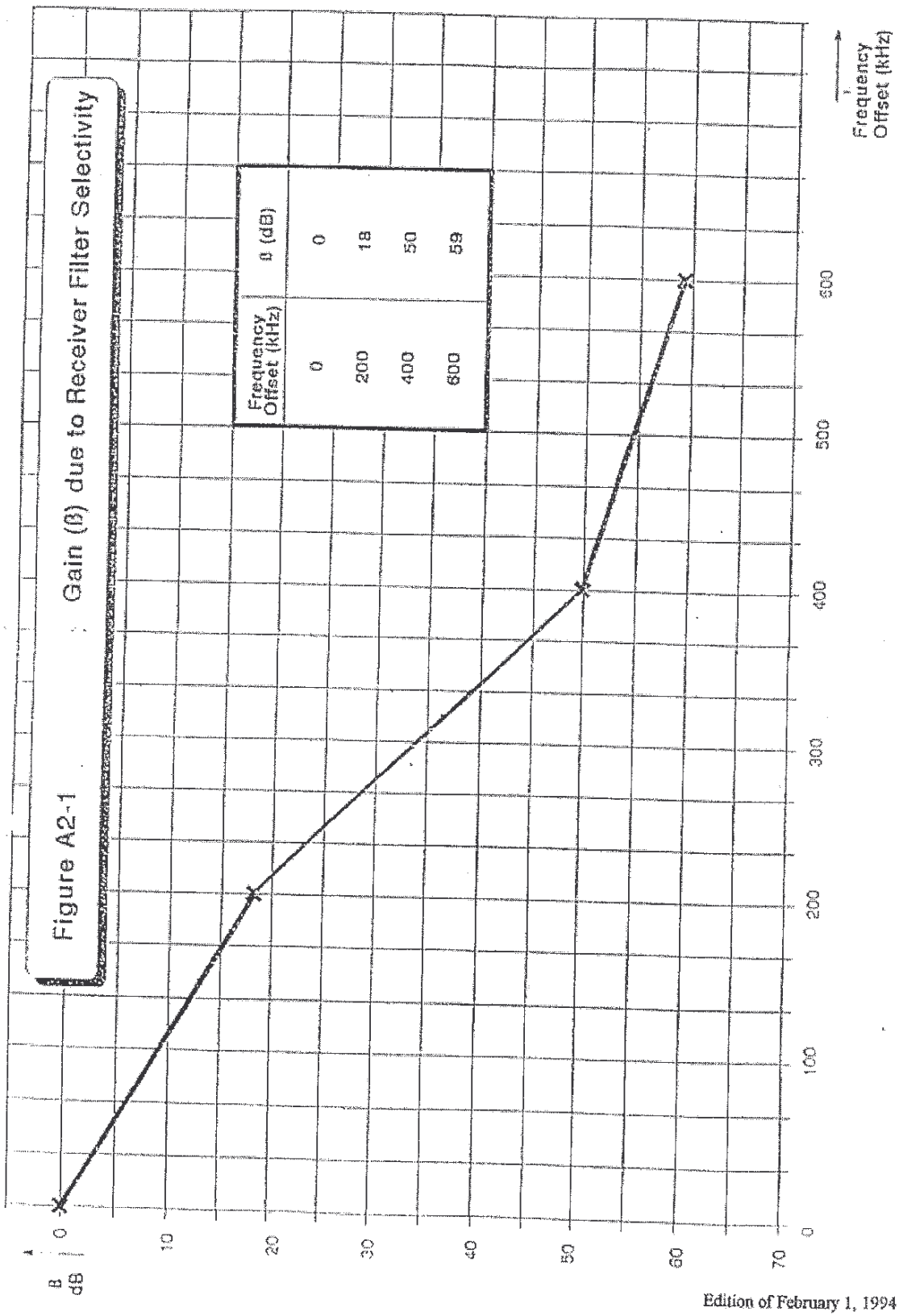


Figure A2-1 : Gain (B) due to Receiver Filter Selectivity
Frequency Offset (kHz)
B (dB)
0
18
50
59
Frequency Offset (kHz)
0
200
400
600
B dB
0
10
20
30
40
50
60
70
0
100
200
300
400
500
600

ANNEX 3

Technical parameters of the DCS-1800 system

C/I ratios

The C/I ratio is the ratio between signal power to interfering signal power at the receiver input during the active part of the DC S-1800 timeslot including multiple interferers.

The following C/I ratios apply

Wanted	Interferer	Co-channel	200 kHz	400 kHz	600 kHz
DCS-1800[1)]	DCS-1800	9 dB	- 9 dB	- 41 dB	- 49 dB

A curve indicating C/I values for intermediate values of frequency offset are attached to this Annex.

Notes :

Minimum field strength to be protected (E_{min}) :

(50 % of location - 50 % of time)

DCS-1800 MS	42 dB μV/m[1)]
DCS-1800 BS	38 dB μV/m[1)]

[1] Values from GSM recommendation 05-05 (Version 4.3.0)

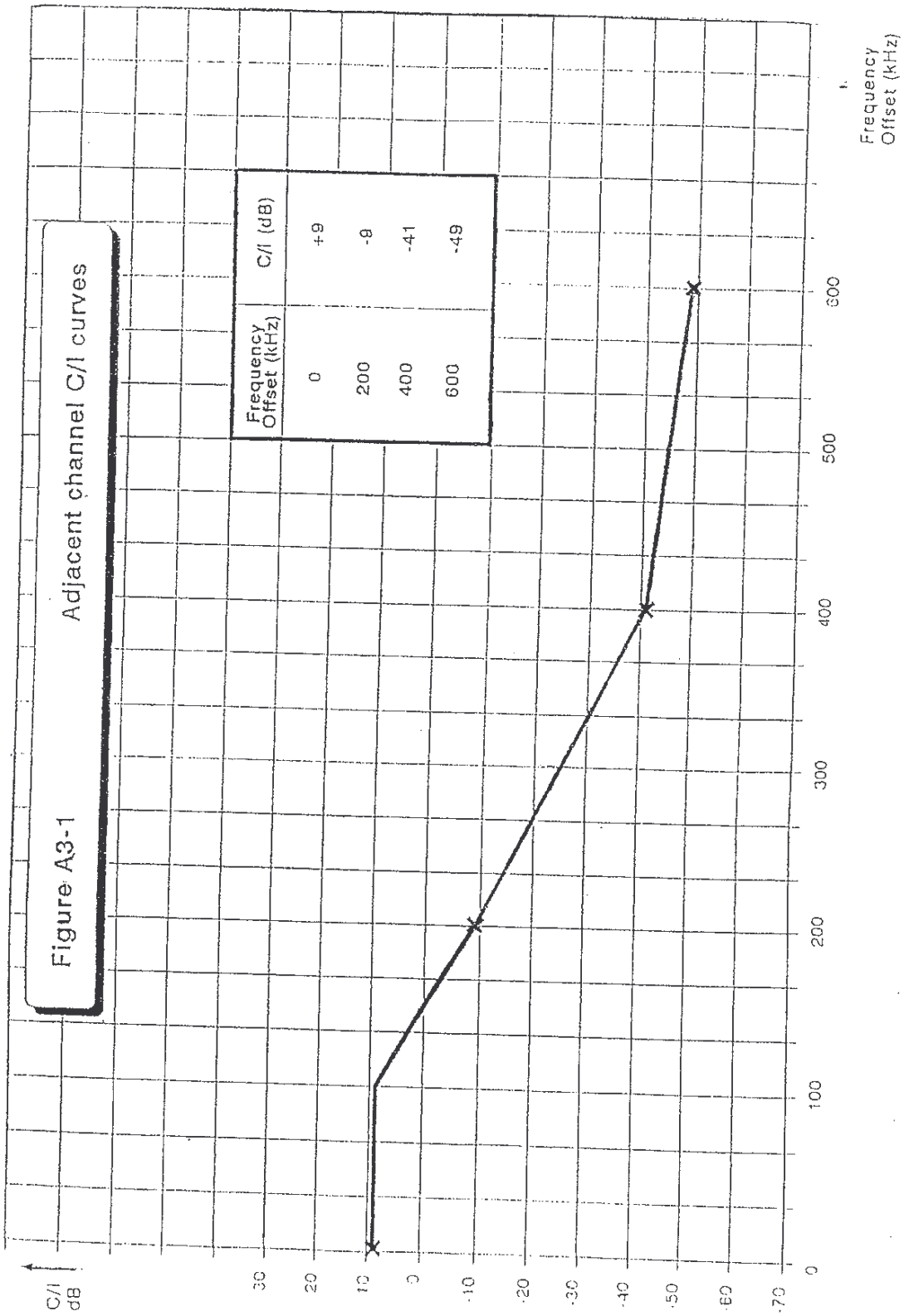


Figure A3-1
Adjacent channel C/I curves
Frequency Offset (kHz) | C/I (dB)
0 | +9
200 | -8
400 | -41
600 | -49
C/I dB
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
0
100
200
300
400
500
600
Frequency Offset (kHz)

Funkschnittstellenbeschreibung
FSB-LM020 (Entwurf vom 22.4.2004)

bmvit

Funk – Schnittstellenbeschreibungen „Funk - Systeme“ **FSB-LM**

Schnittstelle Nr.: **FSB-LM020** (Ausgabe 22.04.2004)

Schnittstellen – Parameter	Beschreibung	Zusatzbedingung
Frequenzband	880 MHz – 890 MHz 925 MHz – 935 MHz	
HF-Leistung	max. 40 Watt	
HF-Strahlungsleistung	nicht festgelegt	
Kanalabstand	200 kHz	
Paarfrequenzabstand	45 MHz	
Belegte Bandbreite	nicht festgelegt	
Zulässige Aussendung	200KG7WDT	Gaussion Minimum Shift Keying (GMSK)
Übertragungsgeschwindigkeit	nicht festgelegt	
Funkdienst laut VO-Funk	Beweglicher Landfunkdienst	
(Harmonisierte) Norm welche den Stand der Technik beschreibt	EN 301 502	
Sonstige Schnittstellenmerkmale	nicht festgelegt	
Geräteklasse entsprechend RL 99/5/EG	nicht festgelegt	
Bewilligungsart	Individuelle Bewilligung	Für den Betrieb von Basisstationen und Repeaterstationen des Funksystemes „GSM 900“;
Grundlegende Anforderungen entsprechend RL 99/5/EG, Art.3.3	nicht festgelegt	

Die vorliegende Funk-Schnittstellenbeschreibung wurde entsprechend Artikel 4 der Richtlinie 1999/5/EG auf Grundlage der Richtlinie 98/34/EG i.d.g.F notifiziert und berücksichtigt die Ergebnisse des Notifizierungsverfahrens 2003/481/A
Bundesministerium für Verkehr, Innovation und Technologie, Oberste Post- und Fernmeldebehörde, 1030 Wien, Ghegastraße 1, Tel.: 01 79731-0

Funkschnittstellenbeschreibung
FSB-LM002

Funk – Schnittstellenbeschreibungen „Funk - Systeme“ FSB-LM

Schnittstelle Nr.: **FSB-LM002** (Ausgabe 30.05.2001)

Schnittstellen – Parameter	Beschreibung	Zusatzbedingung
Frequenzband	1710 MHz – 1785 MHz 1805 MHz – 1880 MHz	
HF-Leistung	max. 40 Watt	
HF-Strahlungsleistung	nicht festgelegt	
Kanalabstand	200 kHz	
Paarfrequenzabstand	95 MHz	
Belegte Bandbreite	nicht festgelegt	
Zulässige Aussendung	200KG7WDT	
Übertragungsgeschwindigkeit	nicht festgelegt	
Funkdienst laut VO-Funk	Beweglicher Landfunkdienst	
(Harmonisierte) Norm welche den Stand der Technik beschreibt	ETSI EN 301 502 EN 300 609-4 TS 101 087	
Sonstige Schnittstellenmerkmale	CEPT-Entscheidung ERC/DEC/(95)03; CEPT-Empfehlung T/R 22-07;	
Geräteklasse entsprechend RL 99/5/EG	nicht festgelegt	
Bewilligungsart	Individuelle Bewilligung	Für den Betrieb von Basisstationen und Repeaterstationen des Funksystemes „GSM 1800“;
Grundlegende Anforderungen entsprechend RL 99/5/EG, Art.3.3	nicht festgelegt	

Die vorliegende Funk-Schnittstellenbeschreibung wurde entsprechend Artikel 4 der Richtlinie 1999/5/EG auf Grundlage der Richtlinie 98/34/EG i.d.g.F notifiziert und berücksichtigt die Ergebnisse des Notifizierungsverfahrens 2001/090/A