

PUBLIC CONSULTATION No. 805

PUBLIC CONSULTATION No. 805, OF 18 JULY 2007.

NATIONAL TELECOMMUNICATIONS AGENCY

PUBLIC CONSULTATION No. 805, OF 18 JULY 2007.

Proposal to Alter the Standard for Certification and Authorization of Digital Transmitters and Transceivers for the Fixed Service in Point-Multipoint Applications in the Frequency Bands above 1 GHz.

THE COUNCIL OF DIRECTORS OF THE NATIONAL TELECOMMUNICATIONS AGENCY, in the exercise of the responsibilities assigned to it by art. 22 of Law 9472, of 16 July 1997, and art. 35 of the Regulation of the National Telecommunications Agency, approved by Decree 2338, of 07 October 1997, decided in its 442nd meeting, held on 12 July 2007, to seek public comments and suggestions, under the terms of art. 42, of Law 9472, of 1997, and of art. 67 of the National Telecommunications Agency Regulation, and of the records of case No. 53500.011473/2007, the Proposal to Alter the Standard for Certification and Authorization of Digital Transmitters and Transceivers for the Fixed Service in Point-multipoint Applications in the Frequency Bands above 1 GHz, as attached to the present Public Consultation.

Based on the result of this Public Consultation, Anatel intends to republish the Standard for Certification and Authorization of Digital Transmitters and Transceivers for the Fixed Service in Point-Multipoint Applications in the Frequency Bands above 1 GHz, with the pertinent amendments, and thus revoke Resolution No. 368, of 13 May 2004, published in the 17 May 2004 edition of the Official Newspaper.

The full text of the proposal will be available at Anatel's library, at the address below, and on Anatel's webpage, beginning at 14:00, as of the publication date of this Public Consultation in the Official Newspaper.

The contributions must be well-founded, duly identified and submitted, preferably using the electronic form in the "Sistema Interativo de Acompanhamento de Consulta Pública," available on Anatel's website on this Public Consultation at <http://www.anatel.gov.br>, until 24:00 on 20 August 2007, accompanied by alternative and substitution texts, when involving suggestions for inclusions or changes to be made, in whole or in part, to any provisions.

Contributions will also be accepted when submitted by letter, fax or electronic mail, received until 18:00 on 15 August 2007, to:

AGÊNCIA NACIONAL DE TELECOMUNICAÇÕES – ANATEL
SUPERINTENDÊNCIA DE RADIOFREQUÊNCIA E FISCALIZAÇÃO
CONSULTA PÚBLICA N.º805, DE 18 DE JULHO DE 2007

Proposta de Alteração da Norma para Certificação e Homologação de Transmissores e Transceiverses Digitais para o Serviço Fixo em Aplicações Ponto Multiponto nas Faixas de Frequências acima de 1 GHz.

Setor de Autarquias Sul – SAUS – Quadra 6, Bloco F, Térreo – Biblioteca
70070-940 - Brasília – DF - Fax. (061) 2312-2002

biblioteca@anatel.gov.br

The contributions received will be reviewed by Anatel, and will be available to the public at the agency's library.

RONALDO MOTA SARDENBERG
Council President

ANNEX TO PUBLIC CONSULTATION NO. 805, OF 18 JULY 2007

PROPOSAL TO ALTER THE STANDARD FOR CERTIFICATION AND AUTHORIZATION OF DIGITAL TRANSMITTERS AND TRANSCEIVERS FOR THE FIXED SERVICE IN POINT-MULTIPOINT APPLICATIONS IN FREQUENCY BANDS ABOVE 1 GHZ

Based on the result of this Public Consultation, Anatel intends to republish the amended Standard for Certification and Authorization of Digital Transmitters and Transceivers for the Fixed Service in Point-Multipoint Applications in Frequency Bands above 1 MHz, with the pertinent amendments, and thus revoke Resolution No. 368, of 13 May 2004, published in the 17 May 2004 edition of the Official Newspaper.

I – Include new indents in item 3 - Definitions, as follows:

XVI Mobility Feature: a feature of point-multipoint systems that allows the transfer of sections, calls or any other type of establishing continuous communication when the subscriber unit moves between cells, or between sectors of the same cell, in the communication between base stations and subscriber units.

XVII Restricted Mobility Feature: a feature of point-multipoint systems in the fixed service that allows the subscriber units to establish sections, calls or any other type of communications with cells or sectors other than those in which it was initially installed.

II – Include item 4.3, as follows:

4.3 Equipment must comply with the conditions established for digital radiocommunication systems in the fixed service, as defined in the Radiocommunication Regulation of the International Telecommunication Union (S1.20), in point-multipoint applications.

III - Revise item 5.1, as follows:

5.1. When not defined in the regulation on channeling and conditions of use for each specific frequency band, the maximum transmit power at the antenna input (point C' or equivalent in Figure 2), shall not exceed the following limits:

a) + 35 dBm for Time Division Multiple Access (TDMA), Frequency Division Multiple Access (FDMA) and Orthogonal Frequency Division Multiple Access (OFDMA) systems.

b) + 46 dBm for Direct Sequence Code Division Multiple Access (DS-CDMA) and Frequency Hopping Code Division Multiple Access (FH-CDMA) systems.

IV – Revise item 5.2, as follows:

5.2. The maximum frequency tolerance shall not exceed ± 20 ppm (parts per million). For systems that employ OFDM modulation, the maximum frequency tolerance shall not, as an additional requirement, exceed 2% of the spacing between carriers.

V - Revise item 5.3, as follows:

5.3 The spectrum of an RF channel transmitted by the base station or repeater station to the terminal stations, measured at the antenna input (point C' in Figure 2) must conform to the transmission spectral mask of Table 1a or 1b or 1c, depending on the access and modulation technique employed.

Table 1a – Emission spectrum mask for TDMA and CDMA systems

M	$f'/\Delta F$					
	0	0.5	0.8	1.5	2.0	2.5
2 and 4	0 dB	0 dB	-23 dB	-23 dB	-45 dB	-45 dB
16	0 dB	0 dB	-28 dB	-28 dB	-45 dB	-45 dB
64	0 dB	0 dB	-33 dB	-33 dB	-50 dB	-50 dB

Table 1b – Emission spectrum mask for TDMA-OFDM and OFDMA systems

M	$f'/\Delta F$						
	0	0.5	0.5	0.71	1.06	2.0	2.5
2 and 4	0 dB	0 dB	0 dB	-8 dB	-25 dB	-27 dB	-50 dB
16	0 dB	0 dB	0 dB	-8 dB	-27 dB	-32 dB	-50 dB
64	0 dB	0 dB	0 dB	-8 dB	-32 dB	-38 dB	-50 dB

Table 1c - Emission spectrum mask for multicarrier TDMA systems

M	$f'/\Delta F$							
	0	0.5	0.5	0.54	0.64	1	2	2.5
2 and 4	0 dB	0 dB	-8 dB	-18 dB	-23 dB	-23 dB	-45 dB	-45 dB
16	0 dB	0 dB	-10 dB	-23 dB	-32 dB	-37 dB	-45 dB	-45 dB
64	0 dB	0 dB	-13 dB	-26 dB	-37 dB	-42 dB	-45 dB	-45 dB

where:

f' is the frequency referenced to the RF channel center frequency (signal carrier frequency).

ΔF is the spacing between channels.

M is the number of modulation levels.

VI - Include item 6.1.6 and 6.1.6.1, as follows:

6.1.6 The minimum sensitivity required for OFDM receiver systems for a BER of 10^{-6} is given by:

$$R_{ss} = -101 + RSR + 10\log(F_s)$$

where,

R_{ss} is the receiver sensitivity in dBm.

SNR is the signal to noise ratio in dB, and

F_s is the sampling frequency in MHz.

6.1.6.1 The values of the signal to noise ratio depend on the modulation scheme and coding rate shown in Table 8. If the coding rate is not listed, the value immediately above should be used. If the modulation scheme is not specified, the modulation value with the same number of levels or the value immediately above should be used.

Table 8 – Signal to Noise Ratio to determine the $BER=10^{-6}$ threshold (OFDM Systems)

Modulation	Coding Rate	SNR (dB)
BPSK	1/2	6.4
QPSK	1/2	9.4
	3/4	11.2
16-QAM	1/2	16.4
	3/4	18.2
64-QAM	2/3	22.7
	3/4	24.4

VII - Include item 6.1.7, as follows:

6.1.7. The minimum sensitivity required for OFDMA systems receivers is a function of the channel bandwidth given in Table 9. If the nominal band or the coding rate is not specified, the value immediately above should be used. If the modulation scheme is not indicated, the modulation value with the same number of levels or the value immediately above should be used.

Table 9 – Minimum sensitivity (dBm) of OFDMA receivers

Bandwidth (MHz)	QPSK		16-QAM		64-QAM	
	1/2	3/4	1/2	3/4	2/3	3/4
1.5	-91	-89	-84	-82	-78	-76
1.75	-90	-87	-83	-81	-77	-75
3	-88	-86	-81	-79	-75	-73
3,5	-87	-85	-80	-78	-74	-72
5	-86	-84	-79	-77	-72	-71
6	-85	-83	-78	-76	-72	-70
7	-84	-82	-77	-75	-71	-69
10	-83	-81	-76	-74	-69	-68
12	-82	-80	-75	-73	-69	-67
14	-81	-79	-74	-72	-68	-66
20	-80	-78	-73	-71	-66	-65

VIII - Include item 10 and subitems, as follows:

10. TRANSIENT PROVISIONS

10.1 For base station transceivers of point-multipoint systems, subject to this standard, providing mobility features, the existence of software to disable the mobility features, including restricted mobility, must be verified and specified in the certificate of conformity issued by the designated certification body.

10.2 Manufacturers or their representatives, responsible for the certification process of equipment included in item 10.1, shall present to the designated certification body a signed declaration of commitment, indicating that the mobility features, including restricted mobility, will be permanently deactivated, and that users will not be furnished the means to activate them, and may answer sympathetically when the system fails to meet the specific regulations of the service.

10.3 For equipment included in item 10.1, descriptive technical documentation of the system that controls the RBS must be provided, indicating the equipment and software responsible for the mobility features, including restricted mobility, and how to block these features.