TECHNICAL CONDITIONS CONCERNING RADIO EQUIPMENT FOR A RADIO STATION THAT PROVIDES A LAND MOBILE SERVICE USING AN 18-GHZ BAND FREQUENCY, WHICH THE MINISTER OF PUBLIC MANAGEMENT, HOME AFFAIRS, POSTS AND TELECOMMUNICATIONS ANNOUNCES

(Article 49-25-2, paragraph (1), item viii); Article 58-2-6, paragraph (1), item viii); Article 58-2-9-2, paragraph (1), item (viii); and Table 2-48 of the Ordinance Regulating Radio Equipment)

November 14, 2003

Ministry of Public Management, Home Affairs, Posts and Telecommunications Announcement No. 684

Subject to provisions in the Ordinance Regulating Radio Equipment (Radio Regulatory Commission Regulations No. 18 of 1950), Article 49-25-2, paragraph (1), item viii); Article 58-2-6, paragraph (1), item viii); Article 58-2-9-2, paragraph (1), item (viii); and Table 2-48, the MPHPT announces that it has defined, as follows, technical conditions concerning radio equipment for a radio station that provides a land mobile service using an 18-GHz band frequency, which the Minister of Public Management, Home Affairs, Posts and Telecommunications announces.

1. Amount of attenuation of carrier spectra relative to antenna power

The Asm attenuation amount of a frequency at distances 50% or more and 250% or less of a one-channel bandwidth from a center frequency relative to an antenna power per given 1-MHz bandwidth shall be greater than the value calculated by using the following formula:

$$Asm = a + b \times (pd - 50) + 10\log(BWch) \quad \text{dBc}$$

However, the maximum Asm shall be 59.8+10log(BWch/60)dBc in the following a) and 56dBc in b).

As used herein, pd shall be a detuning frequency relative to a one-channel bandwidth ratio $[\%]$, and BWch shall be a bandwidth per channel $[\text{MHz}]$.

Values for a and b shall be as follows:

p.2

a) When the bandwidth per channel is 20 MHz or less:
If pd is 50% or more and less than 100%, a=11dBc and b=0.3
If pd is 100% or more and 250% or less, a=10dBc and b=0.32
b) When the bandwidth per channel exceeds 20 MHz,
a=11dBc and b=0.4

2. Amount of attenuation of adjacent channel bandwidths relative to antenna power

The amount of attenuation at an input terminal of an antenna radiated within a bandwidth of ± 0.45×one-channel bandwidth, centering on a frequency at a distance of a one-channel bandwidth or a distance that is twice as wide as a one-channel bandwidth from the center frequency, relative to antenna power shall be greater than the value calculated using the following formula:

a) Within a bandwidth of ±0.45×one-channel bandwidth centering on a frequency at a distance of a one-channel bandwidth from the center frequency:

27+8log(BWch/60)dBc

BWch shall be a one-channel bandwidth [MHz].

b) Within a bandwidth of ±0.45×one-channel bandwidth centering on a frequency at a distance that is twice as wide as a one-channel bandwidth from the center frequency:

43dBc

p. 3

3. Allowable values for occupied bandwidths

Each of the allowable values for occupied bandwidths for radio equipment that use modulation methods listed in the left column of the following table shall be calculated using the corresponding formula listed in the right column of the same table. However, if the product is a fraction lower than 500 KHz, the final result shall be calculated by rounding up the fraction to 500 KHz, and if it has a fraction higher than 500 KHz and lower than 1 MHz, the final result shall be calculated by rounding up the fraction to 1 MHz.

Modulation Method	Formula
Quadrature phase shift keying modulation or other method with an equivalent or higher performance	$f_{CL} \times (1+\alpha)$ α : Roll-off ratio (Roll-off ratio $\leqq$ 0.5)
4-frequency shift keying modulation or other method with an equivalent or higher performance	$f_{CL} \times 1.6$ (Modulation index: 0.4 rad) $f_{CL} \times 2.0$ (Modulation index: 0.7 rad)
16 quadrature amplitude modulation or other method with an equivalent or higher performance	$f_{CL} \times 1.3$ (Roll-off ratio $\leqq$ 0.5)
Quadrature frequency division multiplexing	$f_{CL} \times$ No. of subcarriers $\times 1.1$

f_{CL}: Clock frequency [MHz]

4. Transmitting antenna

The aperture diameter of a transmitting antenna shall be 1.2 meters or less.