TECHNICAL CONDITIONS FOR RADIO EQUIPMENT AT RADIO STATIONS OF AN ACCESS SYSTEM IN THE 5 GHZ BAND

(Article 7 paragraph 26 and Article 49.21 paragraph 1 item 12) of the Ordinance Regulating Radio Equipment)

September 19, 2002

Ministry of Public Management, Home Affairs, Posts and Telecommunications Notification No. 539

The technical conditions for the radio equipment at radio stations of a 5 GHz band wireless access system shall be stipulated pursuant to the provisions of Article 7 paragraph 26 and Article 49.21 paragraph 1 item 12) of the Ordinance Regulating Radio Equipment (Radio Regulatory Commission Regulations No. 18 of 1950), as follows.

1 The permissible values for the intensity of spurious emissions shall be as prescribed in the table below.

1) 20 MHz system (which refers to the 20 MHz system prescribed in Article 49.21 paragraph 1 item 9) a of the Ordinance Regulating Radio Equipment; the same applies hereafter)

(1) When emissions of a frequency in a range of higher than 4,900 MHz to 5,000 MHz are used

Frequency	Equivalent isotropically radiated power within a bandwidth of 1 MHz
Lower than 4,870 MHz	2 μW or less
4,870 MHz or higher to lower than 4,880 MHz, and higher than 5,020 MHz to 5,270 MHz	2.5 μW or less
Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

(2) When emissions of a frequency in a range of higher than 5,030 MHz to 5,090 MHz are used

Frequency	Equivalent isotropically radiated power within a bandwidth of 1 MHz
Lower than 4,990 MHz	2 μW or less
4,990 MHz or higher to lower than 5,000 MHz, and higher than 5,120 MHz to 5,270 MHz	2.5 μW or less

Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

2) 10 MHz system (which refers to the 10 MHz system prescribed in Article 49.21 paragraph 1 item 9) b of the Ordinance Regulating Radio Equipment; the same applies hereafter)

(1) When emissions of a frequency in a range of higher than 4,900 MHz to 4,950 MHz are used

Frequency	Equivalent isotropically radiated power within a bandwidth of 1 MHz
Lower than 4,870 MHz	2 μW or less
4,870 MHz or higher to lower than 4,895 MHz, and higher than 4,965 MHz to 5,270 MHz	2.5 μW or less
Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

(2) When emissions of a frequency in a range of higher than 5,030 MHz to 5,060 MHz are used

Frequency	Equivalent isotropically radiated power within a bandwidth of 1 MHz
Lower than 4,990 MHz	2 μW or less
4,990 MHz or higher to lower than 5,015 MHz, and higher than 5,075 MHz to 5,270 MHz	2.5 μW or less
Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

3) 5 MHz system (which refers to the 5 MHz system prescribed in Article 49.21 paragraph 1 item 9) c of the Ordinance Regulating Radio Equipment; the same applies hereafter)

(1) When emissions of a frequency in a range of higher than 4,900 MHz to 4,950 MHz are used

Frequency	Equivalent isotropically radiated power within a

	bandwidth of 1 MHz
Lower than 4,870 MHz	2 μW or less
4,870 MHz or higher to lower than 4,902.5 MHz, and higher than 4,957.5 MHz to 5,270 MHz	2.5 μW or less
Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

(2) When emissions of a frequency in a range of higher than 5,030 MHz to 5,060 MHz are used

Frequency	Equivalent isotropically radiated power within a bandwidth of 1 MHz
Lower than 4,990 MHz	2 μW or less
4,990 MHz or higher to lower than 5,022.5 MHz, and higher than 5,067.5 MHz to 5,270 MHz	2.5 μW or less
Higher than 5,270 MHz to 5,342 MHz	0.2 μW or less
Higher than 5,342 MHz	1 μW or less

2 The signal transmission rate shall be as follows.

1) 20 MHz system

(1) The signal transmission rate of the radio equipment at radio stations that use emissions of a frequency of 4,920 MHz, 4,940 MHz, and 5,040 MHz shall be 5 Mbps or more. However, the radio equipment shall be capable of transmitting signals at the transmission rate of 10 megabits/s or more.

(2) The signal transmission rate of the radio equipment at radio stations that use emissions of a frequency of 4,960 MHz, 4,980 MHz, 5,060 MHz, and 5,080 MHz shall be 10 megabits/s or more. However, the radio equipment shall be capable of transmitting signals at the transmission rate of 20 megabits/s or more.

2) 10 MHz system

The signal transmission rate shall be 5 megabits/s or more. However, the radio equipment shall be capable of transmitting signals at the transmission rate of 10 megabits/s or more.

3) 5 MHz system

The signal transmission rate shall be 2.5 megabits/s or more. However, the radio equipment shall be capable of transmitting signals at the transmission rate of 5 megabits/s or more.

3 The transmitting equipment shall be capable of transmitting the antenna power within a bandwidth of

±10 MHz of the frequencies of 4,920 MHz, 4,940 MHz, 4,960 MHz, 4,980 MHz, 5,040 MHz, 5,060 MHz, and 5,080 MHz as 250 mW or less in total.

4 Carrier sensing shall be as follows.

1) When the electric field strength E of the emissions radiated by radio stations other than the radio station on the other end of communication is higher than the value obtained by the following expression in the emissions to be transmitted, the radio equipment shall not transmit the said emissions.

$$E = 100\sqrt{\frac{1}{G}} \times \sqrt{\frac{0.16}{\left(Pt \times \frac{20}{n}\right)}} \text{ (mV/m)}$$

G represents the real value of the antenna gain, and Pt represents antenna power (W). n shall be such that n = 20 in the case of a 20 MHz system, n = 10 in the case of a 10 MHz system, and n = 5 in the case of a 5 MHz system.

2) The radio equipment shall start transmission after carrier sensing has been conducted. However, this shall not apply when transmission and reception are controlled by other radio equipment, and when the radio equipment that has carried out transmission re-starts transmission within 4 ms of having conducted carrier sensing.