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The Outline of Proposed Amendment to Ministerial Ordinance

1　Item

Partial amendment of the Ordinance for Enforcement of the Radio Law etc.

2　Amendment to ministerial ordinance

Ordinance for Enforcement of the Radio Law etc.

3　Reasons for amendment

Weather radar system contributes to the safety and security of people's lives by providing weather forecasts and disaster information based on its observation results, and its importance is further increasing due to the increase in localized heavy rainfall and large-scale flooding.

On the other hand, it has become difficult to meet specialized needs such as ensuring the safety of transportation and supporting hazard avoidance measures with only weather radar system, which is designed for wide-area monitoring. Therefore, the introduction of compact and inexpensive 9.7GHz band general-purpose weather radar system, which can be installed and operated quickly, will make it possible to meet the need for early detection of weather phenomena.

In order to meet these requirements, we establish new provisions for 9.7GHz band general-purpose weather radar system.

4　Outline of the amendment

Technical requirements of radio equipment

Item	Technical requirements
Name	9.7GHz band general-purpose weather radar system
Frequency band	9700MHz to 9800MHz
Aerial power indication	Q: peak power
Observation	The observation of precipitation of 1 mm/hr within a radius of 30 km.
Distance resolution	More than 150m
Allowable deviation of frequency	$\pm 20\times 10^{-6}$
Spurious emissions in the out-of-band region	40 dB lower than the average power of the fundamental frequency

Unwanted emissions in the spurious region		60 dB lower than the peak power of the fundamental frequency
Allowable occupied frequency bandwidth		P0N: 2.5MHz Q0N: 2.5MHz
Transmission facility requirements	Polarization	Horizontal or vertical and horizontal combined.
	Antenna Power	Single polarization weather radar system : less than 200W Dual polarization weather radar system : less than 400W (However, vertical and horizontal polarization shall be less than 200 watts each.)
	Max EIRP	Single polarization weather radar system : 89dBm Dual polarization weather radar system : 92dBm
	Max EIRP at a separation of more than 3 degrees from the main pointing direction	Single polarization weather radar system : 76dBm Dual polarization weather radar system : 79dBm
	Max EIRP at a separation of more than 15 degrees from the main pointing direction	Single polarization weather radar system : 62dBm Dual polarization weather radar system : 65dBm
	Amplifier	Use of solid-state elements for the end-stage amplifiers
	Beam width	Less than 4.5 degrees
	Cross-Polarization Discrimination	More than 25dB
	Type of radio waves	P0N, Q0N
	Pulse width	Using P0N radio waves : 1μs to 5μs Using Q0N radio waves : 20μs to 50μs
	Carrier wave frequency	The frequency of the carrier wave of those using P0N radio waves shall be 2.5 MHz away from the frequency of the carrier wave of those using Q0N radio waves.

	Modulation width of those using Q0N radio waves	1MHz to 2.5MHz	
	Occupied Frequency Bandwidth	Less than 2.5MHz	
	Pulse repetition frequency	Less than 5kHz	
	Impact coefficient	Less than 10%	
	The allowable modulated wave spectrum of the carrier wave shall be as follows attenuation from the carrier wave's aerial power	Attenuation at frequencies separated from the center frequency by more than ±3.75 MHz	More than 50dB
		Attenuation at frequencies separated from the center frequency by more than ±8.75 MHz	More than 60dB
	Allowable deviation of Antenna Power	-50% to +20%	
License	Licensed system		

5 Proposed date of entry into force

January, 2023