

Section 4 Trends in radio wave usage in Japan

1. Major use by frequency band

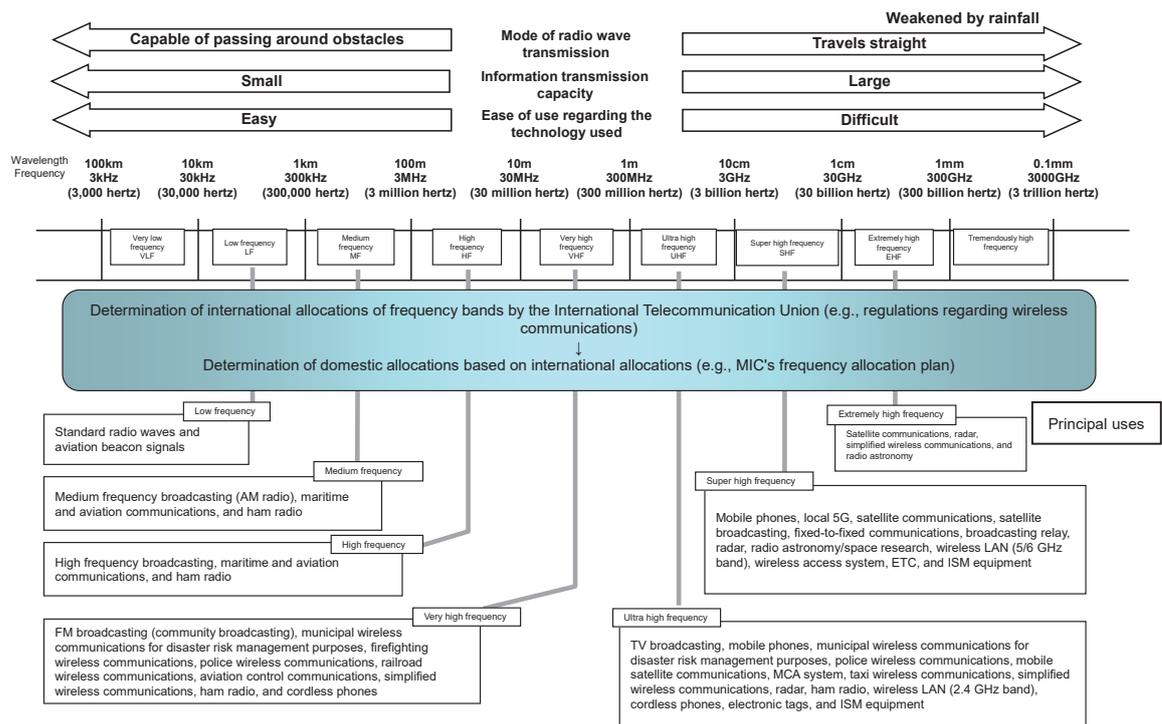
Regarding frequency, the International Telecommunication Union (ITU) divides the world into three regions and specifies international allocations for each frequency band and type of operation based on the Radio Regulations established in the ITU Constitution.

Based on these international allocations, the “Frequency Allocation Plan”¹ specifies the frequencies, types

of operations, purposes, and conditions that can be allocated to assist in the application for licenses for radio stations under the Radio Act. When establishing or amending this plan, the Radio Regulatory Council is consulted.

The main uses and characteristics of frequency bands in our country are as shown in (Figure 2-1-4-1).

Figure 2-1-4-1 Main uses and characteristics of each frequency band in Japan



Spectrum	Wavelength	Characteristics
Very low frequency	10 to 100km	Propagating along ground surface, waves of this spectrum can go over low hills. Being capable of propagating in water, the spectrum can be used for seabed exploration.
Low frequency	1 to 10km	Being capable of propagating to very distant places, the spectrum is used by standard frequency stations to inform radio clock, etc. of time and frequency standard.
Medium frequency	100 to 1000m	Capable of propagating through reflection off the E-layer of the ionosphere that is formed at the height of about 100km, the spectrum is used mainly for radio broadcasting.
High frequency	10 to 100m	Capable of reaching the other side of the globe by being reflected off the F-layer of the ionosphere that is formed at the height of about 200 to 400km and by repeating reflection between F-layer and the ground surface. Widely used for ocean ship and international flight plane communication, international broadcasting and amateur radio.
Very high frequency	1 to 10m	Waves of this spectrum propagate rather straight and are not easily reflected off the ionosphere, but are capable of reaching the other side of mountains and buildings to a certain extent. The spectrum is widely used for a variety of mobile communications including emergency and fire emergency radio.
Ultra high frequency	10cm to 1m	Waves of this spectrum have stronger tendency to propagate straight compared with very high frequency, but are capable of reaching the other side of mountains and buildings to a certain extent. The spectrum is widely used mostly for a variety of mobile communication systems including mobile phones, and digital television broadcasting and microwave ovens.
Super high frequency	1 to 10cm	Due to the strong tendency to propagate straight, this spectrum is suitable for emission to a specific direction. It is mainly used for fixed trunk circuits, satellite communication, satellite broadcasting and wireless LAN.
Extremely high frequency	1mm to 10mm	With strong tendency to propagate straight, waves of the spectrum can transmit very large information quantity, but not very far in bad weather due to rain or fog. For this reason, the spectrum is used for relatively short-distance radio access communication and image transmission systems, simplicity radio, car collision prevention radar and radio telescopes for astronomical observation.
Tremendously high frequency	0.1mm to 1mm	The spectrum has nature similar to light. It is rarely used for communication but used for radio telescopes for astronomical observation as is the case of Extremely high frequency.

¹ Frequency Allocation Plan: <https://www.tele.soumu.go.jp/j/adm/freq/search/share/index.htm>

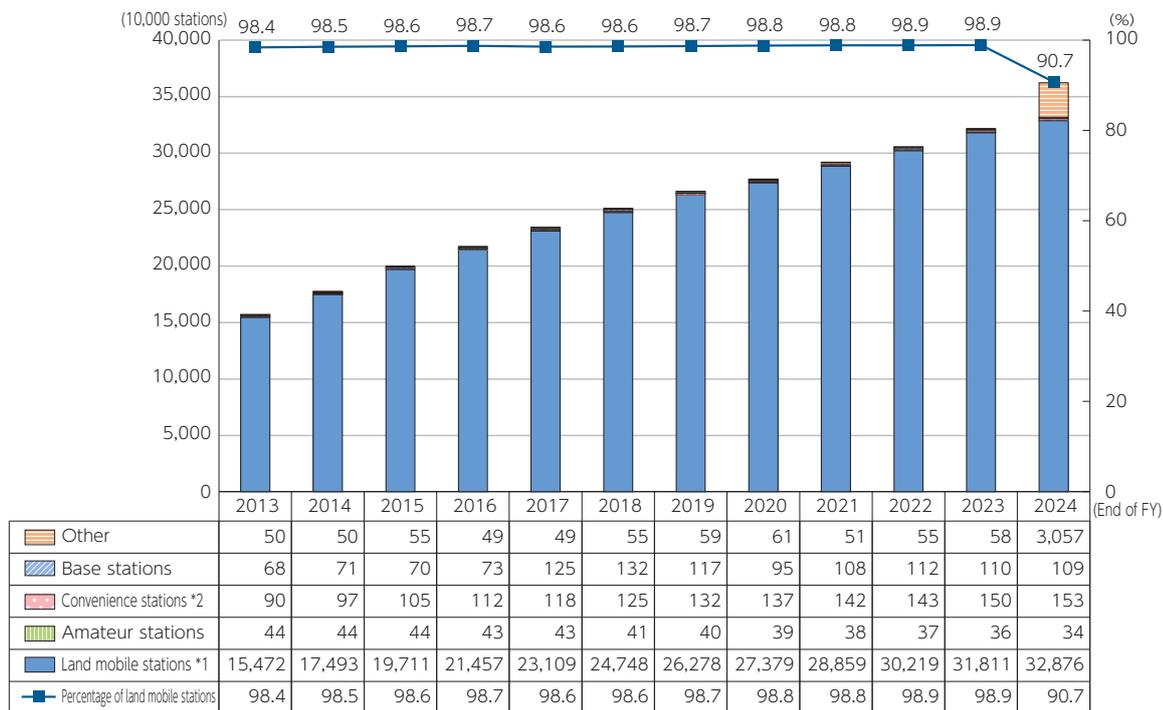
2. Trends in the number of radio stations

As of the end of the FY2024, the number of radio stations (excluding radio stations that do not require licenses, such as wireless LAN terminals) was 362.3 million (an increase of 12.6% from the previous fiscal year). Among these, the number of land mobile stations such as mobile phone terminals was 328.76 million (an increase of 3.3% from the previous fiscal year), accounting for 90.7% of the total number of radio stations, which is a decrease from the previous year but is still at a high level. The reason for this decrease is the significant increase in the number of other radio stations (from 0.58

million at the end of FY2023 to 30.57 million at the end of FY2024). In particular, the impact of the increase in portable mobile earth stations following the launch of satellite direct communication services was significant. The number of portable mobile earth stations has increased by 30.03 million from the end of FY2023 (from 0.14 million at the end of FY2023 to 30.17 million at the end of FY2024).

Additionally, the number of simple radio stations also increased to 1.53 million (an increase of 2.2% from the previous fiscal year) (Figure 2-1-4-2).

Figure 2-1-4-2 Changes in the number of radio stations



*1 Land mobile station: A radio station (such as mobile phone devices) operated while moving on land or stationary at an unspecified point.

*2 Convenience radio station: A radio station that performs simple radio communication.

3. Radio wave monitoring to eliminate obstruction of important radio communication etc.

The MIC has established “DEURAS (DEtect Unlicensed RADio Stations)” facilities to detect radio sources that interfere with important radio communications, such as fire and emergency radio, aviation and maritime radio, and mobile phones, and to crack down on unauthorized radio stations that disrupt the radio usage environment using sensor station facilities installed on the rooftops of major cities’ towers and buildings and unauthorized radio station search vehicles².

In FY2024, the number of interference and obstruction reports was 1,847, a decrease of 484 cases (20.8% decrease) from the previous fiscal year. Among these,

the number of cases of interference with important radio communications decreased by 36 cases (9.2% decrease) to 355 cases compared with the previous fiscal year. The total number of measures for such interference and obstruction in FY2024, including previously unaddressed cases, was 2,057 (Figure 2-1-4-3).

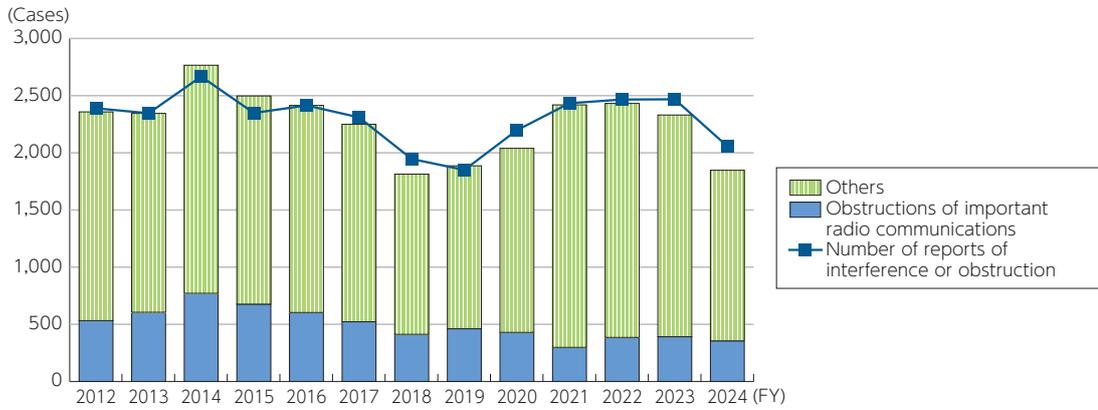
Furthermore, the number of appearances of unauthorized radio stations in FY2024 increased by 94 cases (2.5% increase) to 3,926 cases compared with the previous year. The total number of measures in FY2024, including previously unaddressed cases, increased by 433 cases (49.1% increase) to 1,315 cases compared with the

² Regarding obstructions to important radio communications, in FY2010, DEURAS established a 24-hour system for receiving obstruction reports and has been working to promptly eliminate them. As an international radio wave monitoring facility registered with the International Telecommunication Union (ITU), DEURAS plays a role in HF and cosmic radio wave monitoring.

previous year. The breakdown of these measures includes 41 prosecutions (3.1%) and 1,274 directives

(96.9%) (Figure 2-1-4-4).

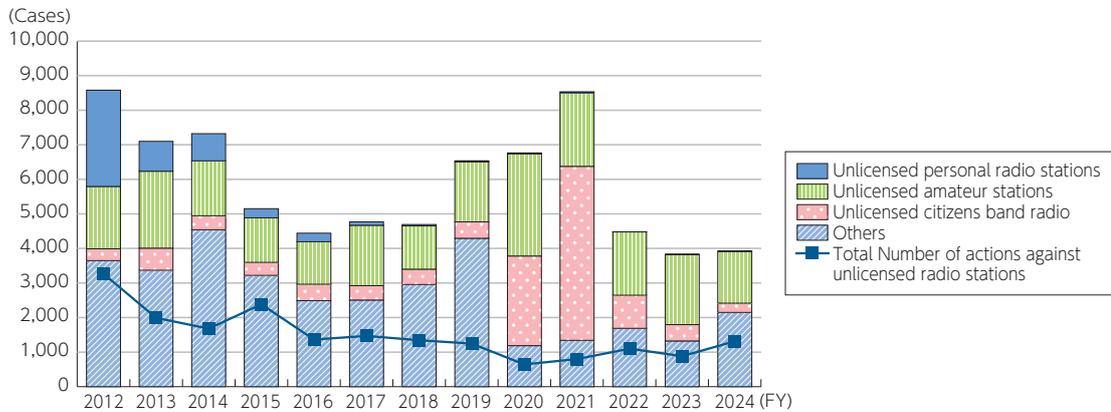
Figure 2-1-4-3 Changes in the number of reports of interference and obstruction of radio stations and the number of actions taken



Number of reports of interference or obstruction	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Obstructions of important radio communications	532	605	771	676	603	522	412	461	429	298	385	391	355
Others	1,826	1,740	1,995	1,821	1,811	1,727	1,401	1,425	1,610	2,121	2,047	1,940	1,492
Total	2,358	2,345	2,766	2,497	2,414	2,249	1,813	1,886	2,039	2,419	2,432	2,331	1,847

Number of actions in response to reports of interference or obstructions	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of actions in response to reports of interference	2,389	2,346	2,667	2,348	2,414	2,310	1,946	1,850	2,198	2,434	2,466	2,468	2,057

Figure 2-1-4-4 Changes in the number of reports of unlicensed radio stations and the number of actions taken



Number of actions		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of actions	Unlicensed personal radio stations	2,788	865	784	265	245	99	40	28	25	32	3	7	9
	Unlicensed amateur stations	1,803	2,225	1,592	1,291	1,229	1,749	1,253	1,739	2,959	2,126	1,831	2,028	1,500
	Unlicensed citizens band radio	342	642	404	375	478	414	443	477	2,594	5,035	958	472	269
	Others	3,648	3,369	4,541	3,221	2,489	2,508	2,958	4,293	1,187	1,341	1,689	1,325	2,148
	Total	8,581	7,101	7,321	5,152	4,441	4,770	4,694	6,537	6,765	8,534	4,481	3,832	3,926

Number of actions		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of actions	Prosecution	231	228	215	230	168	168	208	189	62	49	94	63	41
	Guidance	3,038	1,764	1,465	2,156	1,196	1,300	1,136	1,058	581	752	1,004	819	1,274
	Total	3,269	1,992	1,680	2,386	1,364	1,468	1,344	1,247	643	801	1,098	882	1,315