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## Making Disaster Management Radio Broadcasts Easier to Hear and Understand! Fire and Disaster Management Agency confirms the effectiveness of audio improvements

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Fujitsu General was commissioned by the Fire and Disaster Management Agency (Ministry of Internal Affairs and Communications) to conduct a field trial for the “Study Group for Improving the Reach of Audio from Outdoor Loudspeakers for the Administrative Radio System for Disaster Use.” It proposed and implemented a variety of measures to improve the audibility and intelligibility of voice announcements. These measures make use of “SIAFOLS”<sup>(\*)1</sup>, a proprietary technology developed by Fujitsu General in 2022. This initiative was based on Fujitsu General’s early recognition of the need to improve the coverage (reach) of audio for emergency radio broadcasts. The technology automatically processes broadcast audio to optimize audibility and intelligibility according to seasonal factors and weather conditions. At meetings of the above-mentioned study group from September 2024 to March 2025, experts discussed the results of the field trial. They recognized the effectiveness of all the measures in improving the prompt and reliable communication of information in the event of a disaster.

The Administrative Radio System for Disaster Use is a system that enables local governments to broadcast disaster information and administrative information to local residents directly and simultaneously from municipal offices through outdoor loudspeakers and indoor receivers in individual homes. The Fire and Disaster Management Agency is currently focused on developing and improving the system. There are various challenges in trying to improve a nationwide system of broadcasts from outdoor loudspeakers like the Administrative Radio System for Disaster Use. For example, such systems require a large quantity of equipment to cover a wide area, and broadcast audio can be difficult to hear under certain weather conditions. The Fire and Disaster Management Agency formed a study group of experts to find solutions to these problems.

Based on the results of an outdoor field trial conducted in cooperation with the town of Matsuda (Ashigarakami-gun) in Kanagawa Prefecture, the study group demonstrated that the following measures were effective in improving the audible range of outdoor speakers<sup>(\*)2</sup>.

- (1) Adoption of high-performance speakers
- (2) Speech synthesis technology with intelligibility enhancement function (sound enhancement)
- (3) Adoption of slave stations with intelligibility enhancement function (slave station enhancement)



Scene of field trial

The effectiveness of these measures was also mentioned in the “Guidelines to Ensure Means of Broadcasting Disaster Information”<sup>(\*)3</sup> issued by the Disaster Management Communications Office of the Fire and Disaster Management Agency (Ministry of Internal Affairs and Communications) in March 2025. On March 27, the fire and disaster management departments of all prefectures across Japan were notified of the development<sup>(\*)4</sup>. Through the improvement measures (1) to (3) above and SIAFOLS, which can automatically

adjust audio quality according to changes in speaker characteristics, seasonal variations, weather conditions, and other factors, it is now possible to provide disaster-related administrative radio broadcasts that are easy to hear and understand.

With the increasing frequency and severity of weather-related disasters such as typhoons, torrential rains, and earthquakes in recent years, due to climate change effects, the Ministry of Internal Affairs and Communications is currently promoting various improvements to communications systems. It is aiming to achieve 100% penetration of the Administrative Radio System for Disaster Use, a vital means of communicator disaster management information, based on the “Five-Year Acceleration Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience.” Fujitsu General has been working to develop various advanced technologies to help ensure the safety and security of local communities, in disaster prevention and other fields. Through continued advances in our SIAFOLS technology, we will continue to contribute to infrastructure development by supporting the rapid sharing of information in the event of a disaster.

- \*1: SIAFOLS = [Sound Improvement Algorithm For Outdoor Loudspeaker Stations, Fujitsu General's proprietary technology announced in May 2022](#) (patent pending)
- \*2: [“Study Report for Improving the Reach of Audio from Outdoor Loudspeakers for the Administrative Radio System for Disaster Use,”](#) published by the Study Group for Improving the Reach of Audio from Outdoor Loudspeakers for the Administrative Radio System for Disaster Use in March 2025
- \*3: [“Guidelines to Ensure Means of Broadcasting Disaster Information,”](#) issued by the Fire and Disaster and Management Agency (Ministry of Internal Affairs and Communications) in March 2025
- \*4: [“Improvement of the Sound Range of Outdoor Speakers for the Administrative Radio System for Disaster Use \(Notice\),”](#) March 27, 2025. Fire Dept. Notice No. 100, issued by the Disaster Management Communications Office, People Protection, Disaster Prevention Division, Disaster Management Agency

## Contact Us

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Media contact: Corporate Communications Office [www.fujitsu-general.com/jp/contact/news.html](http://www.fujitsu-general.com/jp/contact/news.html)

## Reference

### [Outline of Study Group]

Name	:	Study Group for Improving the Reach of Audio from Outdoor Loudspeakers for the Administrative Radio System for Disaster Use
Duration	:	September 2024 to March 2025
Subjects of study	:	(1) Sound coverage (reach) and optimal positioning of outdoor loudspeakers (2) Improvement of sound sources
Website	:	Ministry of Internal Affairs and Communications website <a href="#">Study Group for Improving the Reach of Audio from Outdoor Loudspeakers for the Administrative Radio System for Disaster Use</a>

### [Outline of field trials]

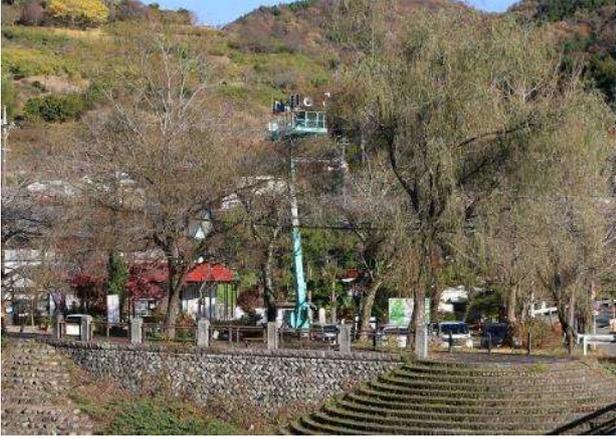
No. 1	Aim	:	Comparison of audibility/intelligibility with different improvement measures and speaker types with background noise
	Date	:	October 24 & 25, 2024
	Place	:	Anechoic chamber (UNI-PEX Co., Ltd.)
No. 2	Aim	:	Measurement of sound field at site of field trial No. 3 and preliminary verification of audibility/intelligibility evaluation
	Date	:	November 7, 2024
	Place	:	Matsuda-cho, Ashigarakami-gun, Kanagawa Prefecture
No. 3	Aim	:	Verification of the effectiveness of various improvement measures and different speaker types, etc. based on human audibility/intelligibility evaluations
	Date	:	December 5 & 6, 2024
	Place	:	Matsuda-cho, Ashigarakami-gun, Kanagawa Prefecture



Listening test point (1)



Listening test point (2)



Broadcast point (long shot)



Broadcast point (speaker position)

## Related links

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[Press Release May 19, 2022](#)

[SIAFOLS press release, “New Technology for the Administrative Radio System for Disaster Use Makes Announcements Easy to Understand, Even in Heavy Rain and Noise”](#)

[Press Release April 9, 2024](#)

[“Disaster Management Radio Announcements that are Clearly Audible Throughout the City: Asahi City in Chiba Prefecture Switches to New GRANCAST Radio System”](#)

[Trademarks]

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