



Horn Array speaker system

Voice Evacuation PA system



Hazard

Earthquake Tsunami Land Slide Cyclone Storm Surge Flood Drought Volcano Wild Fire Tornado Heat
Wave Cold Wave Avalanche

Solution Purpose

Prevention & Mitigation Preparedness Response Recovery

Solution Theme

Infrastructure Technology Building Technology Information & Communication Technology Products & Goods Education & Training

Technology Subject

River & Basin Dam & Reservoir Coast Sabo Road Railways Airport Port Essential Utilities Urban Facility for Disaster Prevention Emergency Base & Back-up Facility Resilience Improvement on Existing Building Mitigation Measures for Interior & Facility Temporary Housing & Facility Information Communication Machinery & Equipment Training & Exercises

Advantages

Our unique technology “Voice directivity” is able to focus and deliver evacuation messages in where disasters like Tsunami, flood and landslide are foreseen. In addition, TOA provides the sound systems which deliver the effective information for the necessary place while avoiding the noise problems in the city area.

Solution Illustrated

Conventional Speaker

Reachable distance: 200m to 300m

Louder in near and unclear in far



Horn Array speaker

Reachable distance: 1km to 1.5km

Directivity

Horizontal: 90 degrees

Vertical: 20 degrees

Softer in near and clear in far



Background

In the Great East Japan Earthquake in 2011, hundreds of emergency radio systems equipped with loudspeakers on poles are flooded and collapsed due to Tsunami disaster. Then communication from government offices to residents were cut off.

In order to overcome such situation, the public announcement system which is able to reach further distance than conventional systems were required.

Exposition of the Solution

* Horn Array speaker system employed Line Array technology that multiple loudspeakers are set on a vertical line. Thanks to the technology, it is possible to deliver audio messages to longer distance in outdoor envelopment.

* Audio messages from Horn Array speaker system are reachable to 2 to 3 times farther than conventional speaker system.

* Sound intelligibility through the emergency radio system shall be improved with equalizer function.

Achievements of Examples

Installation profiles of Horn Array speaker system

Kutchan in Hokkaido

Ogata in Akita

Sendai in Miyagi

Asahi in Chiba

Koto in Tokyo

and other numbers of municipalities.

Other References

<https://youtu.be/MXEleIjK0M>

http://www.toa.co.jp/products/hornarrayspeaker/video/movie_03.htm

Corporate Profile

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