

Feature
1



Support for Diverse Workstyles with Yamaha's Proprietary Sound and Network Technologies

- Remote Communication -

The global COVID-19 pandemic has fundamentally transformed how people communicate with one another. Workplaces have undergone a similar transformation, with teleworking and home offices quickly becoming mainstream around the world. It can therefore be expected that, even after the conclusion of the pandemic, workstyles that are unbound by the constraints of time and place will continue to be commonplace.

The Yamaha Group supplies remote communication solutions that will be indispensable in this new normal by combining the sound technologies it has developed over the course of its history with its network technologies.

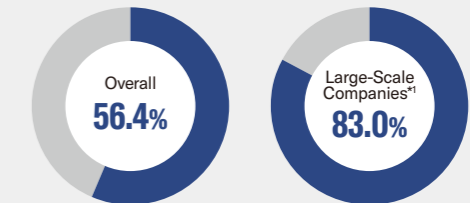


Potential for Remote Communication Brought to Light by the COVID-19 Pandemic

According to the Ministry of Internal Affairs and Communications, the ratio of domestic companies with teleworking systems has risen from 17.6% in March 2020, prior to the pandemic, to 56.4% in June 2020. In addition, surveys of individuals who had experienced teleworking revealed that the majority of these people have a desire to continue teleworking. Reasons cited for this desire included the lack of stressful commutes and the higher productivity achieved through increased ease of concentration.

Teleworking brings with it benefits that contribute to the achievement of the United Nations Sustainable Development Goals (SDGs), such as support for diverse workstyles, improved productivity, and reductions to CO2 emissions associated with commuting. Furthermore, decentralizing work locations helps address risks related to disasters and other emergency situations. Based on these benefits, it can be expected that teleworking will become even more popular and entrenched going forward.

Ratio of Domestic Companies with Teleworking Systems



Source : Teleworking Trends and Ministry Policies, Ministry of Internal Affairs and Communications

*1: Companies with capital of more than ¥100 million

Simple and Comfortable Remote Communication with All of the Features Necessary for Remote Meetings

ADECIA Complete and Customizable Communications Solutions

As people embrace new lifestyles, teleconferences, web conferences, and other forms of remote meetings are becoming an indispensable form of communication. At the same time, needs pertaining to office meeting rooms are growing increasingly more diverse as companies seek to allow for layouts to be flexibly rearranged in order to ensure appropriate distance is maintained between participants, to utilize meeting rooms more efficiently based on the number of participants and the goals of meetings, and to install more comfortable sound environments. Against this backdrop, Yamaha's remote meeting solutions, which combine its sound and network technologies, are garnering attention.

Yamaha Corporation has long been bolstering its lineup of sound environment products that increase teleconference and web conference comfort as solutions for promoting workstyle reforms. The latest in this line of solutions is the ADECIA remote meeting sound

solution that delivers all of the features necessary for remote meetings.

A key characteristic of ADECIA is its use of multibeam tracking, a technology that effectively captures the voice of speakers while limiting the transmission of unwanted noise from the surroundings, to deliver high-quality communication. This solution also utilizes a proprietary audio signal processing technology to accommodate simultaneous speech by multiple individuals and thereby transmit the on-site atmosphere of meetings to remote locations intact.

Moreover, ADECIA bundles all of the equipment and features necessary for remote meetings into a single package, covering all aspects of audio transmission while also providing the easy setup of equipment, including network equipment, that Yamaha Corporation is known for.

Information about ADECIA: https://jp.yamaha.com/products/contents/proaudio/unified_communications/adedcia_ceiling/index.html (in Japanese only)

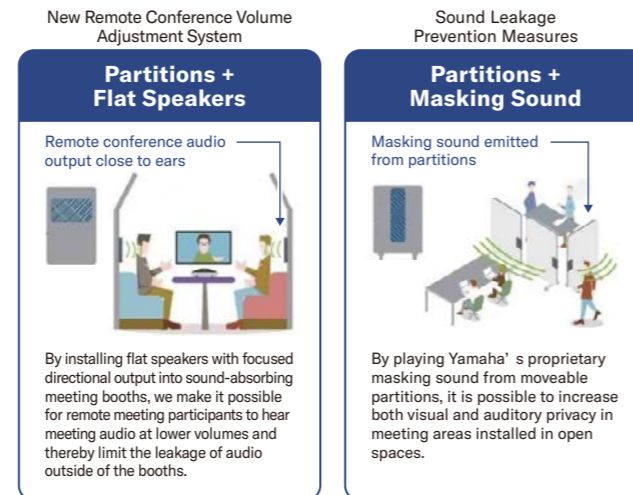


Verification Test with Customers for Addressing Office Sound Environment Issues

A study released by the Cabinet Office in June 2020 on the changes in lifestyle attitudes and behaviors amid the pandemic revealed a great deal of dissatisfaction pertaining to web conference sound quality and environments and the complexity of network configurations. Specific causes of dissatisfaction included concern for web conference audio leaking into the surroundings, poor sound quality of conference systems, and concern for the spread of COVID-19 due to being stuck in conference rooms. These issues have been stated to lead to irritation and an inability to focus while also creating concern for information leaks. At the moment, the only way to fully address these sound environment issues is to redesign office layouts, an undertaking that is costly and time consuming. For this reason, many customers are looking for more accessible options for addressing these issues.

Seeking to address these web conference sound environment issues, Yamaha Corporation partnered with NEC Networks & System Integration Corporation and Inaba International Co., Ltd. to conduct a verification test in December 2020, with customers asked to participate. This test was designed to allow for the swift supply of optimal web conference environments to customers and thereby contribute to increased ease of work and productivity for customers. We continue to advance cross-industry verification tests of solutions merging new office layouts that combine Inaba

International's high-sound-absorbing movable partitions with Yamaha's acoustic technologies and the technologies of NEC Networks & System Integration, which boasts a robust track record for proposing office environments and web conference systems using Zoom and other venues.



Merging of Sound and Network Technologies to Broaden Possibilities for Remote Communication

In addition to impacting business, the COVID-19 pandemic has affected the face-to-face communication that had seemed so normal before, resulting in restrictions on music activities and sporting events. Yamaha Corporation is proposing new solutions for addressing these restrictions by capitalizing on its remote communication technologies.

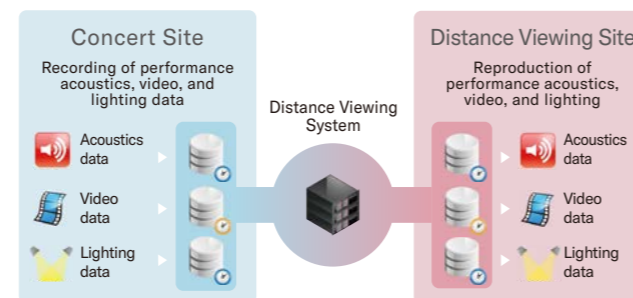
One example is seen in SYNCROOM, an app that allows musicians to enjoy real-time ensemble sessions with Yamaha's proprietary NETDUETTO™ remote ensemble technology. This technology limits audio latency, which is unavoidable with conventional IP telephony and web conference systems, to a level that is acceptable for musical performances. Moreover, it monitors audio latency levels during performances to ensure natural and enjoyable ensembles.

NETDUETTOM β, the predecessor to SYNCROOM, was used by a growing base of performers to arrange remote ensemble sessions even before the pandemic. This solution evolved to become the SYNCROOM of today, which is being used to allow for the remote enjoyment of a wide range of musical performances through means such as online streaming of on-stage performances at school cultural festivals and live broadcasts of remote sessions.

Another solution provided for this purpose is Remote Cheerer powered by SoundUD™. This system allows for vocal support and claps to be transmitted

through speakers at sports stadiums and other venues from remote locations with the touch of a smartphone or other device, thereby providing a virtual space in which fans can interact. Remote Cheerer powered by SoundUD™ has been used at a range of events, including soccer, baseball, basketball, rugby, American football, professional wrestling, and track and field events, to communicate expressions of support from spectators, such as fans who could not attend events due to them being held without audiences or for other reasons and people hospitalized due to illness or injury.

At the same time, Yamaha Corporation is promoting Distance Viewing, a next-generation approach toward live viewing that is garnering attention from everyone involved in musical events. The most significant characteristic of Distance Viewing is its ability to faithfully reproduce live performances by artists at remote locations by recording acoustics, video, and lighting data. Moreover, Distance Viewing can be linked with the aforementioned Remote Cheerer powered by SoundUD™ remote cheering system to generate the feeling of solidarity that is unique to live performances by transmitting the voices of fans to the performers. Distance Viewing is therefore anticipated to be a viable means of helping mobilize artists and recover their earnings while also preventing the spread of COVID-19 even as the pandemic restricts large events and long-distance traveling.



Remote communication technologies have the power to create new ways of enjoying music and sports together with friends and of taking part in events and to therefore forge new connections between a wider range of people. Demand for such technologies is thus expected to grow going forward. In response to this demand, the Yamaha Group will propose various solutions powered by its robust sound-related insight and network technologies to contribute to the realization of a society that is in step with the ideals of the SDGs.



COMMENTS

Proposal of New Office Standards through Co-Creation between Three Companies

The COVID-19 pandemic is giving rise to new office standards as companies reevaluate the functions that are truly necessary to their offices.

This trend has led to us receiving a number of consultations from customers regarding concerns for leakage of and interference with audio from their web conference systems. Installing walls for complete soundproofing is not an easy measure to undertake from the perspectives of workstyle reforms, costs, and even fire regulations.

Inaba International began working with Yamaha Corporation to address these issues in the summer of 2019. This collaborative venture led to the production of a prototype solution that combines Yamaha's under-development flat directional speakers with Inaba International's sound-absorbing low partitions (YURT) in 2021. Verification tests of this prototype solution have been conducted, finding that it was incredibly potent at preventing audio leakage and thus giving us very convincing results for moving forward with the commercialization of this solution.

We are currently moving forward with a collaborative venture incorporating NEC Networks & System Integration, who also helped out with the verification test, to develop and supply a solution for resolving the remote communication issues faced by office workers.

Office Creative Director, Open Innovation Division, Inaba International Co., Ltd.

Katsufumi Hira



Next-Generation Workplaces Stimulating Teamwork and Creativity

The rapid popularization of teleworking has resulted in remote communication through web conferences and other venues being used in a variety of office settings. Accordingly, offices are now seeking to develop open and creative spaces that allow employees to concentrate while collaborating with others.

To address this need, NEC Networks & System Integration partnered with Inaba International, an office furniture specialist, and Yamaha Corporation, which boasts superior acoustics technologies, in a co-creative venture for conducting verification tests on solutions for resolving office sound environment issues. The measured results exceeded our expectations, generating a strong response in-house and among customers.

The insight gained through this verification test will be utilized in our consulting operations to propose office spaces to customers that include intentionally designed sound environments. In addition, we will examine the possibility of creating hybrid events that merge face-to-face and virtual interactions through further co-creation in the pursuit of even greater heights in sound environments.

NEC Networks & System Integration will continue to engage in co-creation with Inaba International and Yamaha Corporation going forward in order to provide its clients with workplace environments that contribute to their ongoing growth.

Manager, Administration Division, NEC Networks & System Integration Corporation

Reika Takahashi

