Conclusion of MoC with Malaysia Airports (Sepang) in Field Trial Experiment and Technical Cooperation of FOD Detection System for Runway

Hitachi Kokusai Electric Inc. signed a memorandum of cooperation (MoC) “Memorandum of Collaboration in the Field of Linear-cell Radar Technology” with Malaysia Airports (Sepang) Sdn Bhd and Universiti Teknologi Malaysia (UTM) on January 10. We invited government officials of Japan and Malaysia, and held the signing ceremony of conclusion in Malaysia.

The MoC is a part of “Contract of survey on international corporation promotion of frequency utilization through overseas expansion with Linear Cell Radar System (FOD detection system for runway)” sponsored by Ministry of Internal Affairs and Communications, Japan.

It is to confirm the technical cooperation for the system construction for the experiment at Kuala Lumpur International Airport.
The framework of the technical cooperation is based on and developed the international academic cooperation between National Institute of Information and Communications Technology, Waseda University, and Universiti Teknologi Malaysia.

The cooperation on the advanced technology is an important part in this MoC. We are going to construct the structure of industry-academia-government collaboration and activate the exchange including personnel training for promotion of the technical cooperation and further innovation of the linear cell radar system in the future.

【Overview of MoC】
We agreed the following in the MoC:

■ Hitachi Kokusai Electric Inc.
  • integrates the overall project as a executing agency of the contracted business sponsored by Ministry of Internal Affairs and Communications, Japan;
  • constructs the system for the field trial experiment in cooperation with Malaysian organizations;
  • provides training about the system operation to the personnel of Malaysia Airports (Sepang) Sdn Bhd and accept them as trainees to the Hitachi Kokusai Electric Inc. in Japan;
  • promotes public relations and practical applications to the airport operation organizations in the world especially ASEAN with utilizing the field trial experiments in Malaysia and Narita International airport;
  • attends the international standards meetings such as ITU-R and promotes the study of the frequency sharing.

■ Malaysia Airports (Sepang) Sdn Bhd
  • provides the field to install the system;
  • provides necessary information for the field trial experiment;
  • cooperates the performance evaluation as a practical system and discusses the future possibility of installation;
  • sends airport personnel for the training about system operation.
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- performs the project management of the project as the representative of Malaysian organizations;
- obtains necessary permissions for the field trial experiment from the authorities concerned such as Malaysian Communications and Multimedia Commission (MCMC) and Department of Civil Aviation Malaysia;
- sends trainees to gain practical experience in company with Malaysia Airports (Sepang) Sdn Bhd to ensure the system repair and maintenance to Hitachi Kokusai Electric Inc.;
- curries out the system installation and implementation in cooperation with Hitachi Kokusai Electric Inc.

【Background】

Due to the growth of the aviation industry worldwide, it is expected to increase the demand for the flights. To protect “safety and security,” system to detect FOD such as a small metal piece dropped from an airplane during landing and take-off is demanded. The optical surveillance camera system and the Linear Cell Radar System, which is the detection system with radars better than ordinary optical cameras in coverage, resolution, and nighttime probability, are expected.

Now, we are starting the construction of the system for the field trial experiment to heading to the practical applications in Japan and overseas.

【Overview of Linear Cell Radar System】

The system is to detect FOD, which is the cause of the runway closure. Deploying millimeter wave radar with the 90-GHz band using RoF (Radio over Fiver) technology along the runway, it scans the whole runway with radio wave, detects FOD on the runway, and reports the accurate location information.

The system transmits the FOD location information detected by the radar and the FOD image taken by the high-sensitivity camera immediately. The system realizes the speed of about 10 seconds from detection of 3-cm metal piece away from 500 m to transmission the FOD image.
【Future developments】

We are strongly expanding the application overseas with introducing the field trial experiment facility in Kuala Lumpur International Airport as a model case in ASEAN where aviation demands are high and airport construction plans are a lot. We will also establish the radar performance and operation policy for heavy rain specific for the tropical regions with Malaysia Airports (Sepang) Sdn Bhd.

* This news release of “Linear Cell Radar System” is part of the outcome of "R&D of high-precision imaging technology using 90GHz-band linear cells” sponsored by Ministry of Internal Affairs and Communications, Japan, 2013-2015 under “R&D of Radio Resource Enhancement.”

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