

FOR IMMEDIATE RELEASE

## **Prototype 920 MHz Band Radio Communication Equipment With A Large 250 mW Output Receives Japanese Technical Regulations Conformity Certification**

*-- Control and data acquisition implemented by radio over a range of several kilometers --*

**Tokyo, Japan, May 23, 2012** --- Hitachi, Ltd. (TSE: 6501, "Hitachi") and Hitachi Industrial Equipment Systems Co., Ltd. today announced that their prototype 920 MHz band<sup>(1)</sup> radio communication equipment with a large output of 250 mW has received Japanese Technical Regulations Conformity Certification.<sup>(2)</sup> This equipment allows control and data acquisition to be implemented by radio over a range of several kilometers.<sup>(3)</sup> It can also switch between three levels of output power — 250 mW, 20 mW and 1 mW, allowing it to facilitate low-power data communication with reduced power consumption when communicating over short ranges. In the future, the goal is to apply this radio communication equipment to a diverse range of fields, including smart grids and smart cities as well as industrial systems where there is a need for control and data acquisition using radio communication.

In the field of smart grids and smart communities including the creation of future city environments and industrial systems such as water treatment and green mobility systems, having long-range wireless communication techniques that are easy to install and compatible with moving objects like trains and automobiles is a necessity. As a result, the 920 MHz band is expected to be optimized as part of the frequency reorganization currently under way at the Ministry of Internal Affairs and Communications, thereby enabling the use of radio transmitters with outputs of up to 250 mW when needed for radio transmission over longer ranges. The 920 MHz band has been adopted by international standards such as IEEE802.15.4g, and reforms are under way to facilitate the widespread use of this band in countries around the world. As such, it is expected that this band will be used on a global scale in the future.

Hitachi and Hitachi Industrial Equipment Systems have introduced prototype radio communication equipment that operates in the 920 MHz band with a maximum output of 250 mW.

The features of this equipment are as follows.

### **1. Suppression of radio interference in 250 mW high-power output**

With the help of Hitachi Media Electronics Co., Ltd., we have developed a new SAW filter<sup>(4)</sup> that achieves sharp frequency technology that can suppress the

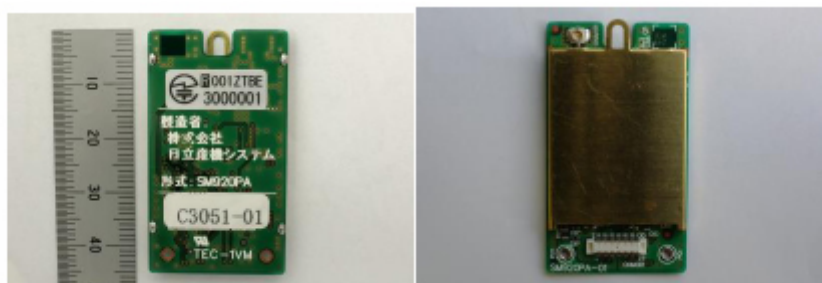
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output of neighboring frequencies while maintaining the output in the 920 MHz band. With this filter, we achieved Technical Regulations Conformity Certification by implementing radio communication equipment that can adequately suppress radio interference in neighboring frequency bands that are earmarked for mobile telephony, even when operating at an output power of 250 mW.

## 2. Output switching technology — 250 mW, 20 mW and 1 mW

In this prototype 920 MHz band radio communication equipment, the circuitry is configured to enable switching between three output power levels of 250 mW, 20 mW and 1 mW. This technological advancement makes it possible to switch the output power when communicating over short ranges so that power consumption can be decreased appropriately to suit each radio communication application.

### ■ The prototype 920 MHz band high-output radio equipment



- (1) **920 MHz band:** The band used for radio communication at frequencies between 915.9 and 929.7 MHz. Due to frequency reforms by the Ministry of Internal Affairs and Communications, it has recently become possible to use 250 mW transmission in this band. For more information, including relevant laws and regulations.
- (2) **Technical Regulations Conformity Certification:** This indicates that the registration authorities have certified the equipment conforms to applicable technical standards in Japan. Once certified, a communication terminal can display a technical conformity mark.
- (3) The radio communication range can vary greatly depending on the operating environment. It is expected that when operating in the 920MHz band, 250 mW radio communication equipment will be able to communicate over several km. Assuming an attenuation margin of at least 20 dB relative to the ideal theoretical value, the communication range is approximately 3.5 km.
- (4) **SAW filter:** A surface acoustic wave filter. This is made from a piezoelectric material that changes shape when an electric field is applied, and improves the quality of communication by allowing signals in a specific frequency band to pass through while suppressing signals in other frequency bands.

**About Hitachi, Ltd.**

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, is a leading global electronics company with approximately 320,000 employees worldwide. Fiscal 2011 (ended March 31, 2012) consolidated revenues totaled 9,665 billion yen (\$117.8 billion). Hitachi is focusing more than ever on the Social Innovation Business, which includes information and telecommunication systems, power systems, industrial, transportation and urban development systems, as well as the sophisticated materials and key devices that support them.

For more information on Hitachi, please visit the company's website at <http://www.hitachi.com>.

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