Tektronix Newsroom

Sony Adopts Tektronix Real-Time Spectrum Analyzers to Test FeliCa Contactless IC Smart Card Systems

RFID Analysis Software Confirms Communication Status Between FeliCa Contactless IC Cards and Readers/Writers

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Tektronix, Inc. , a leading, worldwide provider of test, measurement and monitoring instrumentation announced that Sony Corporation has adopted Tektronix Real-Time Spectrum Analyzers (RTSA) and RFID analysis software developed for measuring and analyzing communication conditions between a reader/writer and a IC card equipped with Sony FeliCa contactless IC card technology. This combination of application specific software and Tektronix Real-Time Spectrum Analyzers has helped Sony to quickly measure and troubleshoot communication conditions, and create consistent and reproducible results.

FeliCa technology developed by Sony is significant since a single card will be able to perform multiple applications. The technology is used for "Edy" -- a form of e-money applying FeliCa technology -- which is a prepaid rechargeable contactless IC card, commuter passes on various national transportation systems, Osaifu-Keitai mobile phones, employee and student IDs, membership cards, and point incentive cards. As of March 2006, the total number of FeliCa IC chips shipped surpassed 120 million and their use has expanded to include public transportation systems in Japan, Hong Kong, Singapore, China, India, and Thailand.

According to Sony, "Analysis of communication conditions has been impossible with conventional spectrum analyzers where data is not viewable on a timeline, because the data that is transmitted between the reader/writer and card cannot be identified. This problem has been solved with the Tektronix RTSA since it enables us to view data on a timeline, similar to a digital oscilloscope while possessing the high dynamic range of a spectrum analyzer."

When a FeliCa IC contactless IC card receives an RF signal from a reader/writer, it not only generates electricity from the signal, it also receives, analyzes, and processes the card command sent from the reader/writer and then sends a response signal. Because of this interaction it is important to measure a FeliCa card communication process over time, not a single shot event. Until now, measurements have been conducted with a digital oscilloscope since swept spectrum analyzers cannot make these measurements over time. It has been difficult to make these measurements with an oscilloscope since the response signal level (212 kHz) from the card during communications is extremely small compared to the carrier signal (13.56 MHz).

Tektronix Real-Time Spectrum Analyzers

Tektronix Real-Time Spectrum Analyzers do not perform measurements in the manner of conventional spectrum analyzers. Rather, the RTSA is a real time measuring device that triggers on changes in the frequency domain, seamlessly captures RF signals into its internal memory and performs spectral, time and modulation analysis with time correlated multi-domain views.

About Tektronix

Tektronix, Inc. is a test, measurement, and monitoring company providing measurement solutions to the communications, computer, and semiconductor industries worldwide. With 60 years of experience, Tektronix enables its customers to design, build, deploy, and manage next-generation global communications networks

and advanced technologies. Headquartered in Beaverton, Oregon, Tektronix has operations in 19 countries worldwide. Tektronix' Web address is www.tektronix.com.

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