

**MITSUBISHI ELECTRIC CORPORATION**  
**PUBLIC RELATIONS DIVISION**  
 7-3, Marunouchi 2-chome, Chiyoda-ku, Tokyo, 100-8310 Japan

**FOR IMMEDIATE RELEASE**

**No. 2734**

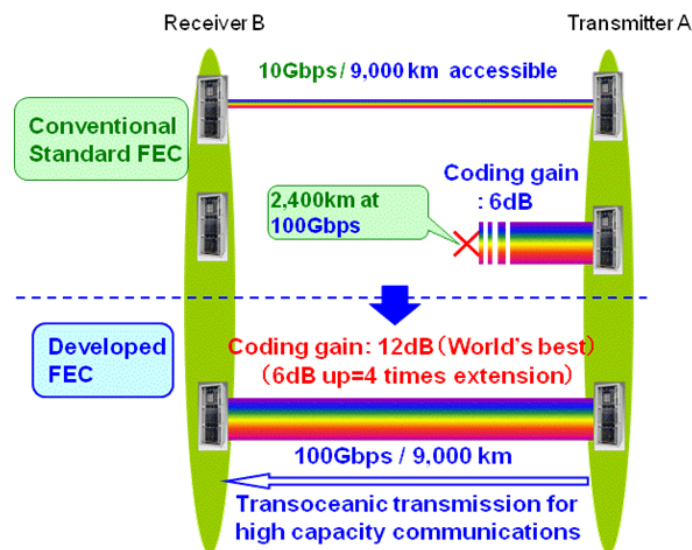
*Inquiries*  
 Information Technology R&D Center  
 Mitsubishi Electric Corporation  
<https://www.MitsubishiElectric.com/ssl/contact/company/rd/form.html>

*Media Inquiries*  
 Public Relations Division  
 Mitsubishi Electric Corporation  
 Tel: +81-3-3218-2346  
[prd.gnews@nk.MitsubishiElectric.co.jp](mailto:prd.gnews@nk.MitsubishiElectric.co.jp)  
<http://www.MitsubishiElectric.com/news/>

## Mitsubishi Electric Develops World's Best Error-correction Technology for High-capacity Optical Communication

**TOKYO, February 14, 2013** - Mitsubishi Electric Corporation (TOKYO: 6503) announced today it has developed an error-correction technology that achieves a coding gain of 12.0dB, the world's highest level as of February 14, 2013 according to internal research, for high-speed and high-capacity optical communication systems over long distances. The technology will be launched in the fiscal year starting in April 2014.

Error-correction technology allows a sender to encode a message with redundancy by using error-correction codes. Coding gain is the difference in the signal-to-noise ratio (SNR) levels between uncoded and coded systems required to reach the same bit error rate (BER) levels when used with the error-correction code. Mitsubishi Electric's new error-correction technology enables transmissions four times longer than conventional codes, such as Reed-Solomon codes standardized by ITU-T G.709. As a result, the technology enables long-haul transoceanic transmissions, such as those between Japan and the United States (about 9,000km), at 100Gbps per wavelength for high-capacity communication systems.



**Key Features**

***World's best error-correction technology***

- Newly developed low-density parity-check (LDPC) code, an error-correction code defined by sparse parity check matrices, for high-level error correction
- New LDPC code with a Bose-Chaudhuri-Hocquenghem (BCH) code, an error-correction code designed via an algebraic method, and soft decision decoding technology, which decides information bits based on the reliability of decoded bits, combine to achieve the unprecedented 12.0 dB coding gain.

**Specifications**

	Error-correction code	Coding gain	Transmission distance/ Transmission speed
New code	LDPC code + BCH code	12.0dB	9,000km/100Gbps
Standard code (ITU-T G.709)	Reed-Solomon code	6.0dB	2,400km/100Gbps

Data communication traffic has expanded rapidly due to the proliferation of smartphones and the expansion of video-on-demand services, resulting in the need for optical submarine communication systems that can achieve high-speed, high-capacity communications at 40Gbps/100Gbps throughput rather than the conventional 10Gbps. However, faster transmission speeds in optical communications result in greater noise on optical channels, and conventional error-correction codes have difficulties with 100Gbps per wavelengths for long-distance transoceanic transmissions. Mitsubishi Electric's high-performance error-correction technology responds to this demand for high-performance error correction.

Pending patents for the technology number three in Japan and one overseas.

This research was in part supported by the "Lambda Reach Project" of the National Institute of Information and Communication Technology (NICT) of Japan.

###

**About Mitsubishi Electric**

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 3,639.4 billion yen (US\$ 44.4 billion\*) in the fiscal year ended March 31, 2012. For more information visit <http://www.MitsubishiElectric.com>

\*At an exchange rate of 82 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2012