

## **MITSUBISHI ELECTRIC RESEARCHER NAMED IEEE FELLOW FOR DEVELOPMENT OF INVERSE CLASS-F AMPLIFIERS FOR MOBILE PHONES**

The Institute of Electrical and Electronics Engineers (IEEE, [www.ieee.org](http://www.ieee.org)), a leading global professional organization in the advancement of technology and humanity, has named Dr. Akira Inoue, a chief engineer at Mitsubishi Electric Corporation, as a 2020 IEEE Fellow for his development of inverse class-F amplifiers for mobile phones. The IEEE Board of Directors confers the grade of Fellow upon persons with an outstanding record of accomplishments in any of the IEEE fields of interest. The total number of Fellows selected in any one year cannot exceed one-tenth of one percent of the total voting membership. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and important career achievement.

From the historical perspective of high-frequency amplifier technology, Dr. Inoue is the pioneer of inverse class-F amplifier technology. In 1998, he applied it to invent the inverse class-F power amplifier for mobile phones. At that time, class-F operation, which utilizes harmonics to yield square voltage waveforms and half-wave sinusoidal current waveforms, was as widely known high-efficiency amplifier technology. Dr. Inoue found that inverse waveforms achieve even higher efficiency, and his discovery was named “inverse class-F” after the invention. His achievements led to the production of compact inverse class-F circuits utilized in small 0.1cc power amplifier modules, thereby realizing lightweight, compact mobile phones. Mitsubishi Electric produced more than 97 million inverse class-F amplifiers for Japan’s 2<sup>nd</sup>-generation mobile communication system, PDC, supporting the evolution of mobile phones.

Since that time, inverse class-F technology has been widely used to enhance the efficiency of many amplifiers. For example, some of the base stations of the 4<sup>th</sup>-generation mobile communication system, LTE, utilize inverse class-F amplifiers. Accordingly, the technology continues to contribute to today’s green IT through reducing power consumption. The IEEE thus approved Dr. Inoue’s contribution as suitable to appoint the grade of Fellow.

With nearly 100 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.

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