1995 Pioneer Award
William C. Brown

The Pioneer Award recognizes contributions which have had major impact on our field and have stood the test of time. The basis for the nomination is an archival paper in the field of interest of MTT-S, published at least 20 years prior to the year of the award, i.e., it recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering, for a period exceeding two decades.

The award consists of a plaque and a check for $1,000. The 1995 recipient is **W.C. Brown.** His citation reads *"FOR PIONEERING WORK ON CROSSED FIELD AMPLIFIERS OR PLATINOTRONS."*

William C. Brown received the BSEE from Iowa State University in 1937 and the MSEE from M.I.T in 1941. He is a Life Fellow of the IEEE.

He joined the Raytheon Co. in 1940, and became involved in making improvements on the design of magnetrons that were used in all World War II microwave radar. However, magnetrons are oscillators and were not suitable for the next generation of radars that needed an efficient, high powered and broadband amplifier. In 1952 he made a major contribution in fulfilling that need by converting the magnetron oscillator into a broadband amplifier. This device, variously referred to as the "platinotron", "Amplitron" or simply as the "CFA" (for crossed field amplifier) found immediate military and civil applications that include the Navy Aegis radar, the Hawk and Patriot Missile Systems, commercial air route surveillance radar, and the high data rate communications system in the Apollo lander that sent televised images from the moon to Earth.

Mr. Brown then proposed that the CFA be developed into a super power amplifier and the resulting DODcontract produced a CFA that generated 425 kW of continuous power with an efficiency of 76 percent at the frequency of 3 GHz. One of the proposed applications of this much power was the efficient wireless transmission of large amounts of power from one point to another. The public was first alerted to this application by the nationally televised demonstration in 1964 of a tethered microwave powered helicopter at Raytheon's Spencer Laboratory.

Mr. Brown retired from Raytheon in 1984 and has since been active as a consultant and as a spokesperson for wireless power transmission. Under the sponsorship of IBM and Northeastern University he made a series of four videotaped lectures on its technology and applications. He has published more than 70 papers and has 50 issued patents in the areas of microwave tube technology and wireless power transmission.