

For oral presentation

TITLE: Reliable Printed PV for Indoor Electronics

Wireless smart connected devices are a lot more than just mobile phones. They are a myriad of new devices such as sensors that are constantly getting both smarter and smaller. A significant issue for these devices is their energy supply. Though battery technology is improving, there is a continuing need in most cases of either recharging or battery replacements.

Most of these new wireless devices are exposed to indoor light and sometimes to shaded outdoor light. Usually not direct sunlight. For electronics companies that are manufacturing devices for a wireless world, 3GSolar DSC is a miniature cell that charges electronics from low light. The devices will have a constant supply of power with no need for changing or charging batteries. Unlike silicon cells that perform poorly indoors, 3GSolar printed dye solar cells show exceptional efficiency and power using fluorescent and LED lighting. The technology allows for a low-cost printing process in both glass and ultrathin formats with possibilities of color and transparency for aesthetic and optical integration into wireless products.

Using dyes for photovoltaic power is known for a long time, but in the past was often lacking reliability data. 3GSolar DSSC is tested in a broad range of qualification tests in accordance with IEC and MIL-STD electronics specs. Qualification tests include Dry heat, Thermal cycling, Humidity life, Temperature characteristics, Robustness of terminations and Vibration tests.

This efficient and robust energy solution can be applied in many electronics markets including Wireless Sensor Networks, Medical and Sports devices, Security sensors and cameras, Agriculture monitors, Beacons and electronic signs, Computer peripherals and Wearable electronics (bracelets, watches, armbands, etc.) and Internet of Things.



**Barry N. Breen, CEO, 3GSolar Photovoltaics Ltd**

Mr. Breen is CEO of 3GSolar, a leading developer of photovoltaic energy using printed DSSC (dye-sensitized solar cell) technology. Barry is a business leader and manufacturing process expert. He excelled during 16 years in senior positions at the AVX Corporation thin film plant, leading development to build a small R&D facility into a 600 person research and manufacturing company. Prior to AVX, Barry was an engineer at General Electric designing components for the USA nuclear navy. A native of St. Louis, Missouri USA, Barry earned his degree in Nuclear Engineering from the Massachusetts Institute of Technology. He authored numerous papers and patents. Barry won the coveted Kaplan Prize for industrial innovation and the Kyocera Corporation President's Award for outstanding achievement in product & business development.