

G3-PLC Alliance establishes the world's first PLC + RF hybrid dual-mode communication standard

Vertexcom is the only chip design company in Greater China that formulates the dual-mode spec

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The [G3-PLC](#)+RF hybrid dual-mode is the industry's first dual-mode communication standard. It can provide extension and expansion

functions for smart grid and IoT applications in a seamless management network through two kinds of media, which set an important milestone for the communications industry. In June 2020, the G3-PLC Alliance announced the success of the G3-PLC hybrid Plugfest test that demonstrated



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Dr. HH Li, the president of Vertexcom Technologies.



Vertexcom Technologies, is a company of communication chips and networking software designs for long range, large scale, auto networks of IoT and smart grids. It provides low-cost Wi-SUN, PLC and integrated dual-mode communication solutions.

the interoperability among chip vendors of multiple G3-PLC hybrid dual-mode solutions. This demonstration was carried out by Trialog in Paris and successfully showed the outstanding achievement - the implementation of the G3-PLC + RF hybrid dual-mode standard, and the realization of the interconnection of dual-mode seamless communication. [Vertexcom](#) Technologies is one of the five worldwide leading chip manufacturers.

Marc Delandre, Chairman of the G3-PLC Alliance, said several the alliance members have already developed their own, proprietary hybrid PLC & RF solutions based on the

G3-PLC technology. Some of these have already been implemented in the field and showed good results. Therefore, the concept has already been proven a success. Delandre added that, the demand from the markets has been clear, that is why the G3-PLC Alliance has developed the standard for the PLC & RF hybrid communication which its interoperability has been verified and hopefully the corresponding certification program can be announced soon in the near future.

In addition to the existing G3-PLC protocol ITU-T G.9903, the G3-PLC hybrid dual-mode protocol

stack is also jointly built with the open standard IEEE 802.15.4-2015. Each device in the mesh network can use PLC and RF to communicate; and according to the actual situation on site, the messages between the two devices will be sent through the "best" available channel. The channel selection of each link in the network is automatically completed and dynamically adjusted. In this way, the hybrid dual-mode mode can provide more efficient and cost-effective solutions for smart grids, smart cities, and industrial applications.



G3-PLC Alliance is a consortium created in 2011 to standardize and promote G3-PLC technology for smart metering, smart grids, smart appliances and industrial application, on a worldwide scale. Today, the G3-PLC Alliance counts more than 90 members. All me

Dr. HH Li, the president of Vertexcom Technologies. stated that Vertexcom is honored to be invited by G3-PLC Alliance to jointly participate in the specification formulation of the G3-PLC protocol PLC+RF hybrid dual-mode. Vertexcom has long been committed to the development of PLC power line communication technology and RF wireless communication technology. The hybrid dual-mode communication solution provides a flexible, high-speed, stable and reliable dual-channel communication network for smart grid transmission.

"Now that the specification for the hybrid profile has been finalized, the G3-PLC Alliance is working hard together with its members to extend the G3-PLC certification program to include the hybrid PLC & RF profile. We are confident that the certification for it will be activated in the fourth quarter of this year and the first certified hybrid devices will be available soon after," said Leon Vergeer, the G3-PLC Alliance General Secretary.

Vertexcom is an active member of the G3-PLC Alliance and a contributor member of the Wi-SUN Alliance. Therefore, Vertexcom is proficient in both of the PLC and RF wireless communication technologies. Vertexcom's hybrid dual-mode solution features that PLC and RF share the same network, and each node is a single IP. The network switching is performed through particular algorithms and the PLC and the RF solutions can complement each other, which facilitate cloud managements by network administrators. In addition, the advantages of the hybrid dual mode include improving network reliability, enhancing anti-interference, solving signal blockages and link interruptions, and reducing the classification in the topology, thereby reducing delays and networking time.

The features of G3-PLC+RF dual-mode: VC6312 + VC7000:

- Radio Frequency
- IEEE 802.15.4g
- Frequency band

- ISM: 315, 433, 490, 868, 915, 920 MHz
- License frequency band: 230, 600, 839-847 MHz
- Maximum data rate: 400 kbps
- Modulation method: OOK, (G)FSK, 4(G)FSK and GMSK
- Internal power amplifier: Max. Tx +20 dBm
- Internal receiver sensitivity: -109dBm at 50 Kbps
- RF channel hopping
- BLC Analog front End
- IEEE 1901.2
- Support frequency band: 0-500 KHz
- Modulation methods: BPSK, QPSK, 8PSK and 16QAM
- Patented integrated 4-Amp high current line driver
- MCU & Memory features
- ARM Cortex M4 32-bit MCU
- 2 MB Flash, 2 MB SDRAM
- AES-128/192/256 Crypto Accelerator
- Interface: SPI x 1, UART x 4, I2C x 1
- G3-PLC / IPv6

About Vertexcom Technologies

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www.vertexcom.com

About G3-PLC Alliance

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