



Fostering fifth-generation (5G) mobile communications with high-performance materials

Innovations for new high-performance materials with unique properties in the related hardware infrastructure is complementing development of 5G communication.

HYDERABAD, TELANGANA, INDIA, February 21, 2020 /EINPresswire.com/ -- 5G communication technology promises significant advancements such as faster speed, lower latency, improved connection density and wider coverage, thus enabling implementation of Internet of Things (IoT), augmented reality (AR) or virtual reality (VR), factory automation, vehicular communications and other applications where security, reliability, quality of service and efficiency are critical. While the lucrative 5G industry is preparing businesses to experience digital transformation, electronic manufacturers behind the scenes are at the forefront of developing high performance components to support reliable implementation. Major challenges to be addressed by electronic manufacturers include managing extreme thermal conditions within increasing smaller encapsulated components and delivering high performance at low power. These challenges can be overcome through the use of high-performance materials.

[SciTech Patent Art](#) (SPA) presents its insights in a [white paper](#) on advanced materials that are widely used in 5G components such as antennas, antenna radomes, microwave circuits, power amplifiers, circuit board substrates, cables, base-station bricks and others.

The paper discusses the challenges associated with each of the components above and the materials that will help them meet the 5G requirements. Be it advanced ceramic materials for the antennas or Silicon-germanium (SiGe) for power amplifiers, SciTech Patent Art's (SPA) white paper has identified key companies such as DSM, Sabic, Roger, LG Chemical, Shenzhen Xingshengdi New Materials Co, Nexan, Nokia Bell Labs, Tokuyama Corp, Furuya Metal Finnish Premix group, Murata, Soitec and others as manufacturers and suppliers for components in 5G communications. Most recent patents / applications and key collaborators in this area have also been presented.

Materials used for designing 5G systems mostly focus on preventing signal losses and safeguarding signal integrity to improve overall performance. Different material combinations are being studied by companies for various components. Different materials are being developed for preparing high frequency low dielectric materials required for communication technologies such as 5G and above. Microwave dielectric ceramic materials with High Quality Factor (Q-Value) are incorporated in electronic components such as 5G filters. Iron-based micro / nano magnetic powder material is used in microwave antennas. Gallium nitride is used in power amplifiers and RFID chips used in 5G communication. The research advancements in materials is enabling 5G communication systems.

SciTech Patent Art is a leading patent and technology analytics firm based out of Hyderabad, India. With 17 years of experience and over 90 analysts covering various scientific and engineering disciplines, SPA has been providing high quality and cost-effective services to large corporations in the US, Japan, Netherlands, Switzerland and Germany. SPA's scientists, assisted by proprietary Deep Web and AI/ML tools, extract in-depth technology insights from large patent and non-patent data-sets.

Harita S Achanta
SciTech Patent Art Services Pvt. Ltd.
+1 281-394-4985

[email us here](#)

Visit us on social media:

[Facebook](#)

[Twitter](#)

[LinkedIn](#)

This press release can be viewed online at: <http://www.einpresswire.com>

Disclaimer: If you have any questions regarding information in this press release please contact the company listed in the press release. Please do not contact EIN Presswire. We will be unable to assist you with your inquiry. EIN Presswire disclaims any content contained in these releases.
© 1995-2020 IPD Group, Inc. All Right Reserved.