

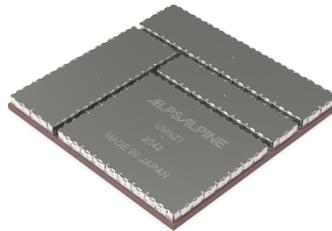
NEWS RELEASE

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Alps Alpine Develops, Starts Shipping Samples of 5G NR Module for Automotive Use

5G Communication Module with Essential C-V2X Features for Fully Autonomous Driving

Munich, Germany, March 30, 2021 – Alps Alpine Co., Ltd. has developed the UMNZ1 Series 5G NR¹ Module for Automotive Use, a first for a Japanese corporation. Sample shipments began in March with aims to accelerate social implementation of 5G solutions for automobiles.



Fifth generation (5G) mobile communications technology featuring ultra-fast speeds, ultra-low latency and mass connectivity has a vital role to play within communications infrastructure of future society. The automotive industry is well poised to benefit from the technology given the major transformation already underway characterized by the CASE trends of connected cars, autonomous driving, sharing and services, and electrification. Used in combination with vehicle-to-everything (V2X) systems giving vehicles the capability to communicate and interact with everything around them, such as road infrastructure, other vehicles and pedestrians, 5G is expected to contribute to greater sophistication of IVI (In Vehicle Infotainment); for example, real-time integration of traffic conditions into navigation applications and instant downloading of high-definition video to watch on a cabin display. It will also spur integration of Internet of Things (IoT) technology that will improve the efficiency of car maintenance and inspections by keeping an eye on the condition of a vehicle via a range of different sensors. One highly anticipated application is in enabling functions essential for fully autonomous driving that existing V2X systems have been unable to sufficiently support, such as adjusting speed in response to traffic signals and other vehicles on the road.

There are calls for automotive communication systems that make use of V2X systems and 5G technology to be quickly established. But first, obstacles need to be overcome. Communication functionality that is even more advanced than existing 4G LTE technology and higher functionality that comes from V2X capability demand complex processing that can lead to modules overheating, affecting their ability to perform to their full potential. Modules also tend to get bigger with increased functionality, creating a need to optimize module design for mounting to customer circuits. It is a complicated task necessitating considerable development resources and that is a major barrier to commercialization.

The newly developed UMNZ1 Series 5G NR Module for Automotive Use with C-V2X features, a first for a Japanese corporation, is compliant with 3GPP² Release 15. By suppressing heat generation and employing an original structure for greater dissipation of heat inside systems after mounting, module performance is maximized at all times. Stability of the customer's mounting process is also made possible with an original automotive-grade product design achieved by controlling the module's flatness. In addition, the module has compatibility with the varying frequencies used by specifications worldwide, helping to reduce the development workload for customers.

Shipments of module samples began in March and soon customers will be using the modules to advance social implementation of next-generation communication solutions based on V2X systems and 5G.

Alps Alpine is a leader in application of *Bluetooth*[®] and *Wi-Fi*[®] technology to automotive product development and is at the forefront of the industry in developing technology for the C-V2X domain, too, particularly in China, which leads the world in C-V2X deployment. Teaming up with a Chinese C-V2X chip supplier under a mutually complementary production and development partnership agreement, Alps Alpine developed an All In One communication module³ with a built-in V2X protocol stack and has been involved in interoperability testing in China, as well as ongoing

demonstration testing within Wuxi’s designated C-V2X zone. The UMNZ1 Series is intended for global use outside China. Compatible with frequency variations among countries, the module also has optional compatibility with DSDA⁴ devices, supporting a wide range of uses. Alps Alpine will continue to harness its strengths within the connectivity domain to advance efforts toward realization of safe, reassuring and comfortable automotive mobility.

1. 5G New Radio (5G NR): A radio access technology with specifications developed for 5G networks
2. 3rd Generation Partnership Project (3GPP): A standardization project for examining and developing specifications for next-generation mobile communication systems
3. Press release, September 28, 2020: “Alps Alpine Develops and Commences Mass Production of Cellular V2X All In One Communication Module”
https://www.alpsalpine.com/e/news_release/2020/0928_01.html
4. Dual SIM Dual Active (DSDA): Technology allowing connection to two cellular networks with one device at the same time.

Features

An automotive 5G NR module (Japanese company first) with excellent mountability

1. Original structure enhances heat dissipation for reliable performance
2. Flatness controlled in original design for stability in mounting
3. Compatibility reduces the customer’s development workload

Principal Applications

- Telematics control units (TCU)
- V2X onboard units (OBU)
- V2X road-side units (RSU)

Specifications

Model (no.)	UMNZ1 Series
Dimensions (W×D×H)	60 × 60 × 4.5mm
Supported modems	2G: GSM; 3G: WCDMA; 4G: LTE; 5G: NR
Supported destinations	Global band support
Operating temperature range	-40°C to +85°C
Supply voltage	+5.0/+3.7V
Supported features	Cellular, C-V2X, DSDA, GNSS, etc.

Alps Alpine Co., Ltd. On January 1, 2019, Alps Electric Co., Ltd. and Alpine Electronics, Inc. integrated their businesses and started out afresh as Alps Alpine Co., Ltd with 42,289 employees. Alps Alpine will steadily bring about synergies by drawing on the two companies' advantages in core devices, system design and software development. The new company will endeavour to create its own unique value for not only the automotive market, but also mobile devices and consumer electronics, as well as new sectors such as energy, healthcare and industry. For more information please visit www.alpsalpine.com

Alps Alpine Europe GmbH, a subsidiary of Alps Alpine Co., Ltd., was established in 1979. Since 2013 the European Head Office has been located in Munich and as such co-ordinates the Sales, Marketing and Product Engineering activities of our offices in Dusseldorf, Stuttgart, Wolfsburg, Paris, Milton Keynes, Coventry, Gothenburg, Frolunda and Milan, as well as the production activities of our manufacturing site in Dortmund. Alps Electric Europe GmbH changed its name on 01.04.2020 to Alps Alpine Europe GmbH.

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