

# **User Manual**

## **(JLR VCM NAD, TM15FNEUJL1)**

## Product Introduction

TM15FNEUJL1 is a telematics module that LGE is developing for the vehicles. It's a small box installed deep inside passenger cars, and the TM15FNEUJL1 is designed for the automotive industry. TM15FNEUJL1 support 5G NR, LTE, WCDMA, and GSM air Interface standards. The TM15FNEUJL1 is based on the Qualcomm SA515M wireless chipsets and support the following RF bands.

It provides data call functions and various online services requested by OEM.

Here is a general information on telematics module.

Table 1. Specification

|                       |                                                                                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supporting Bands      | GSM850/1900<br>WCDMA B2//B4/B5<br>*3GPP Rel.15<br>LTE FDD B2/4/5/7/12/13/14/17/25/26/29/66<br>LTE TDD 38/41/42<br>NR FDD n2/5/7/12/13/14/25/26/66/71<br>NR TDD n38/41/77/78/79<br>(* n79 S/W disable) |
| Modem Chip            | Qualcomm SA515M                                                                                                                                                                                       |
| Operating Voltage     | DC 12V(Min : 6.5V, Max : 16V), 2A                                                                                                                                                                     |
| Operating Temperature | -40℃ to 86℃                                                                                                                                                                                           |

- This Module is authorized for installation in only LGE's devices and will not be marketed to the general public.

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## 1. Notice

### - Telematics NAD Module installation guide and information

NAD Module as TM15FNEUJL1 Module is mounted with solder ball on the main VCM board.

The strength of the RF field produced by the wireless module or modules embedded in the VCM is well within all international RF exposure limits known at this time. Because the wireless modules embedded in the VCM emit less than the maximum amount of energy permitted in radio frequency safety standards and recommendations, the manufacturer believes these modules are safe for use.

### - Statement

#### FCC Part 15.19 labeling requirements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### FCC Part 15.21 Information to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### FCC Part 15.105(b) Information to the user.

The OEM integrator is responsible for ensuring that the host product which is installed and operating with the module is in compliant with Part 15B unintentional Radiator requirements, please note that For a Class B digital device or peripheral, the instructions furnished the user manual of the end-user product shall include the following or similar statement, placed in a prominent location in the text of the host product manual:

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### RF Exposure

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance 35mm between the radiating element of this device and the user.

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## **Regulatory notice to host manufacturer according to KDB 996369 D03 OEM Manual**

### **Modular Approval Statement**

Regulatory notice to host manufacturer according to KDB 996369 D03 OEM Manual.

This module has been granted modular approval as below listed FCC rule parts.

- FCC : Part 22, 24, 27, 90

### **Summarize the specific operational use conditions**

-The OEM integrator should use equivalent antennas which is the same type and equal or less gain than an antenna listed below this instruction manual.

### **Limited module Procedures (N/A)**

This module is single modular approval.

### **Trace antenna designs**

This module utilizes the trace antenna. Therefore the host manufacturer must follow the installation guidance which is provided in operational description document.

### **Antennas list**

The antenna certified with this module is listed following.

- 1) (External Antenna) TEVA-18D862-DB (LTE/Sub-6)

A host manufacturer must not use the other types of antenna and an antenna with a gain that exceeds the values listed in this document.

### **RF exposure considerations**

-The module has been certified for integration into products only by OEM integrators under the following condition:

-The antenna(s) must be installed such that a minimum separation distance of at least **35mm** is maintained between the radiator (antenna) and all persons at all times.

-The transmitter module must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with FCC multi-transmitter product procedures.

-Portable use

As long as the three conditions above are met, further transmitter testing will not be required.

OEM integrators should provide the minimum separation distance to end users in their end-product manuals.

### **End Product Labeling**

The module is labeled with its own FCC ID. If the FCC ID are not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. In that case, the final end product must be labeled in a visible area with the following:

Contains FCC ID: BEJTM15FNEUJL1

Contains IC: 2703H-TM15FNEUJL1

## Information on test modes and additional testing requirements

OEM integrator should evaluate the final product with this module installed in a host to ensure FCC compliance. If the final product has any additional transmitters and those transmitter can be operating simultaneously, the simultaneous transmission mode should be evaluated to make sure there is no any additional emission generated during the operation of all transmitters.

## Additional testing, Part 15 Subpart B disclaimer

The final host product also requires Part 15 subpart B compliance testing with the modular transmitter installed to be properly authorized for operation as a Part 15 digital device.

## Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module or change RF related parameters in the user manual of the end product.

## Note EMI Considerations

Note that a host manufacture is recommended to use D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional noncompliant limits due to module placement to host components or properties. For standalone mode, reference the guidance in D04 Module Integration Guide and for simultaneous mode; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.

Contains IC: 2703H-TM15FNEUJL1 L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) L'appareil ne doit pas produire de brouillage; (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

L'étiquette d'homologation d'un module d'Innovation, Sciences et Développement économique Canada devra être posée sur le produit hôte à un endroit bien en vue, en tout temps. En l'absence d'étiquette, le produit hôte doit porter une étiquette sur laquelle figure le numéro d'homologation du module d'Innovation, Sciences et Développement économique Canada, précédé du mot « contient », ou d'une formulation similaire allant dans le même sens et qui va comme suit : Contient IC : 2703H-TM15FNEUJL1 est le numéro d'homologation du module.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 35 mm entre le radiateur et votre corps.