

CUSTOMER : Thunder

DATE : 2025.09.29

SPECIFICATIONS FOR APPROVAL

PRODUCT NAME : Bluetooth v5.4 / Wi-Fi 6E MIMO Module

MODEL NAME : ATC6NPL004

CUSTOMER P/N :

APPROVAL	REMARK

APPENDIX

Designed	Checked	Approved	LG Innotek Co., Ltd.	
			DOCUMENT No.	ATC6NPL004 (6-3)
SC Kim	KY Lee	KJ Park	PAGE	1 / 51

TITLE : Specifications for approval (ATC6NPL004)							REV 0.2(3 / 13)	
(CUSTOMER P/N :)								
Table of Contents 1. Application 2. Quality 3. Appearance and Characteristics 4. Application of Bluetooth Module 5. Operating Condition 6. Test 7. Marking Information 8. Mechanical Dimension 9. General Features 10. Electrical Specification 11. Pin Configuration 12. Reliability Test 13. Block Diagram 14. Reference Circuit 15. Reflow Profile 16. Recommended Land Pattern 17. Packing Information 18. Ordering Information								
R E V				LG Innotek Co., Ltd				
				DSGD	CHKD	APPD	ATC6NPL004	
							DOCUMENT NO.	
							ATC6NPL004(6-3)	

TITLE : Specifications for approval (ATC6NPL004)

REV 0.2(4 / 13)

(CUSTOMER P/N :)

1. Application

This specification is applied to LG Innotek Bluetooth v5.4 and Wi-Fi 6E Combo Module ATC6NPL004 which includes chipset NXP AW693.

2. Quality

Quality should meet each condition which mentioned on this specification. However, the items which are not mentioned on this specification follow the inspection agreements and standards which are agree with both companies.

3. Appearance and Characteristics**1) Appearance**

Appearance should not contaminated by harmful materials and should not have cracks etc. Mechanical dimensions should meet the contents of clause 8.

2) Characteristics

Electrical characteristics should meet the contents of clause 10.

4. Application of Bluetooth v5.4 and Wi-Fi 6E Module**1) Automotive****5. Operating Condition****1) Maximum Rating**

No.	ITEM	Min.	Typ.	Max.	UNIT
1	Operating Temperature Range	-40	-	+105	°C
2	Storage Temperature Range	-40	-	+125	°C
3	VDD_3V3 Voltage Range(3.3V)	-0.3	+3.3	3.96	V
4	VDVD_1V8 Voltage Range(1.8V)	-0.3	+1.8	2.16	V
5	VIO (1.8V)	-0.3	+1.8	2.16	V
6	Max. Current consumption (1.8V) - 25°C		-	880	mA
7	Max. Current consumption (3.3V) - 25°C		-	650	mA
8	Max. Current consumption (1.8V) - 105°C		-	1,320	mA
9	Max. Current consumption (3.3V) - 105°C		-	690	mA

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)	REV 0.2(5 / 13)
(CUSTOMER P/N :)	

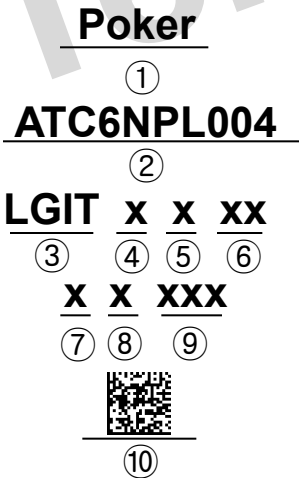
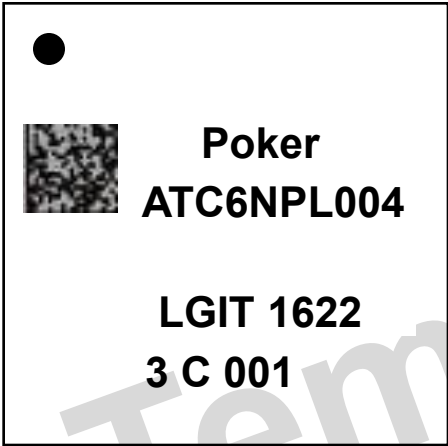
2) Recommended Operating Condition

No.	ITEM	Min.	Typ.	Max.	UNIT
1	Operating Temperature Range	-40	-	+105	°C
2	Storage Temperature Range	-40	-	+125	°C
3	VPA_3V3 Voltage Range(3.3V)	+3.14	+3.3	+3.46	V
4	VDD_1V8/VIO Voltage Range(1.8V)	+1.71	+1.8	+1.89	V

6. Test

Electrical characteristics are tested for every products. However, if there are any objection in judgments, it should be treated with agreements of companies.

7. Labeling Information



No.	Index
①	PRODUCT FAMILY
②	MODEL PART NO.
③	COMPANY
④	MANUFACTURED YEAR (0~9)
⑤	MANUFACTURED MONTH(1,2, ...9, A,B,C)
⑥	MANUFACTURED DATE (1~31)
⑦	Manufactured Serial Number : SMT Line no
⑧	Manufactured Serial Number : Shift no(A,B,C)
⑨	Manufactured Serial Number : (001~999)
⑩	B C6NPL004 0921 3C001 2001-0001 B: BT/WLAN Module C6NPL004: Model Part No. 0921: Manufactured Date 3C001: Manufactured Serial Number 2001 : LGIT Management Number 0001: Marking Serial Number

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

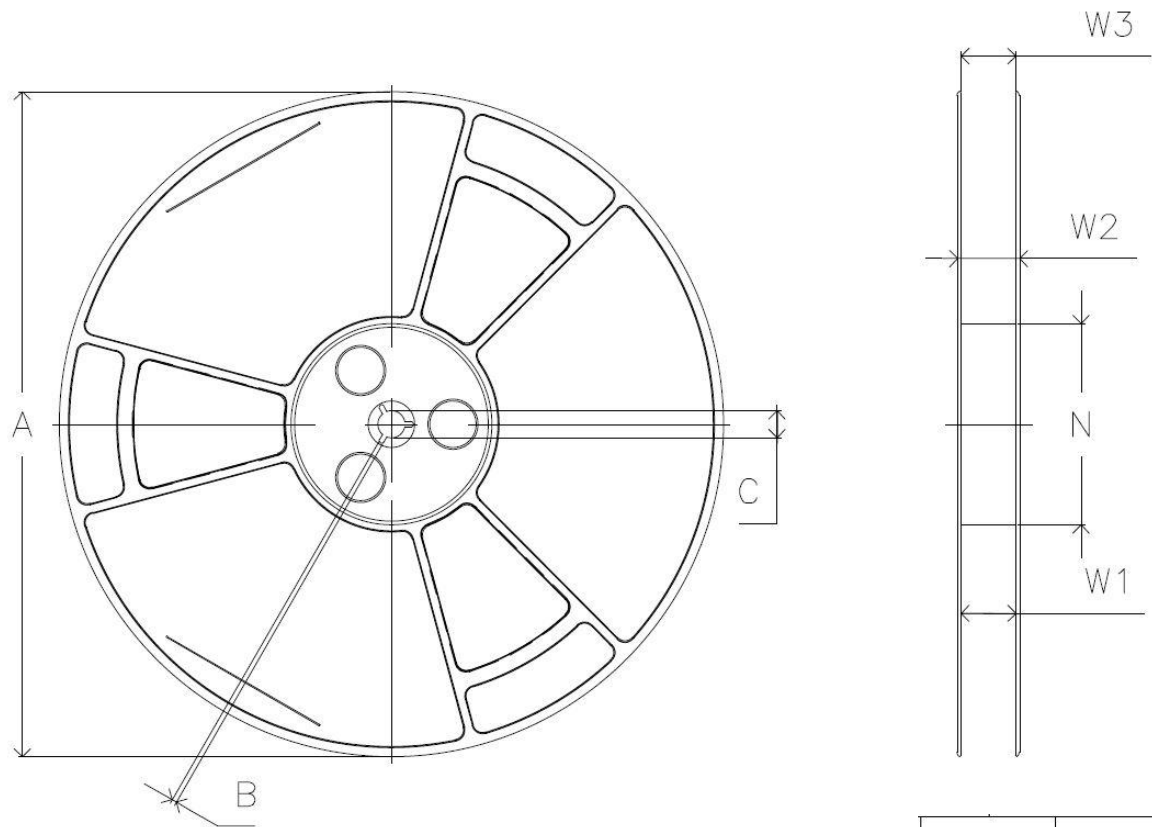
TITLE : Specifications for approval (ATC6NPL004)							REV 0.2(6 / 13)	
(CUSTOMER P/N :)								
9. General Features								
9.1 BT(v5.4) + WiFi 6E MIMO Module								
1) Features								
• Operation voltage is 3.3V and 1.8V • Automotive module (All components are qualified for AEC-Q100/200) • Support 3 Antenna port (WLAN 5G+2G, WLAN 5G +BT, BT Optional) • Supporting 2x2 Wi-Fi 5-7GHz + 1x1 Wi-Fi 2.4GHz Concurrent Dual Wi-Fi(CDW) • Use on-chip OTP(One-Time Programmable) • Compliant with Wi-Fi 6E • Supports 2x2 Multi-User Multiple-Input Multiple-Output (MU-MIMO) • Dual Band Simultaneous with dual MAC, 5 GHz PHY data rates up to 1.2 Gbps & 2.4 GHz PHY data rates up to 143 Mbps • 20/40/80 MHz channel bandwidth for 5 GHz and 20 MHz for 2.4 GHz • Dynamic Frequency Selection (DFS, radar detection). • Compliant with Bluetooth v5.4 • Supports 2 Mbps Bluetooth Low Energy (BLE) and BLE long range • Simultaneous active ACL connection support • Flexible interface PCM/I2S for BT audio. • Supports Bluetooth-WLAN coexistence and ISM-LTE coexistence. • RoHS Compliant • HOST Interface : PCIE(WLAN), UART(Bluetooth), PCM(I2S)								
R E V				LG Innotek Co., Ltd				
				DSGD	CHKD	APPD	ATC6NPL004	
							DOCUMENT NO.	
							ATC6NPL004(6-3)	

TITLE : Specifications for approval (ATC6NPL004)					REV 0.2(7 / 13)		
(CUSTOMER P/N :)							
10. Electrical Specification 10.10 Moisture Sensitivity Level MSL 3 Level (Floor Life Time : 168Hrs. / Condition : ≤30℃, 60% RH) Standard : IPC / JEDEC J-STD-020C Reflow Total MAX Three Times (LGIT : Used 1 Times / 2 times remaining) 10.11 ESD Precautions ATC6NPL004 is classified as a JESD22-A114(HBM) class 1C(1kV) product. Apply ESD static handling precautions during manufacturing.							
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)	REV 0.2(8 / 13)
(CUSTOMER P/N :)	

17. Packing Information

1) Carrier Dimension.



Size	44mm
A	330 ^{+2.0} _{-2.0}
B	2.0 ^{+1.0} _{-1.0}
C	13.0 ^{+0.5} _{-0.2}
N	100 ^{+2.0} _{-2.0}
W1	45.5 ^{+2.0} _{-0.0}
W2	49.5 ^{+2.0} _{-2.0}
W3	47.5 ^{+5.0} _{-2.0}
Surface Resistance	10 ⁴ ~10 ⁹

<Unit : mm>

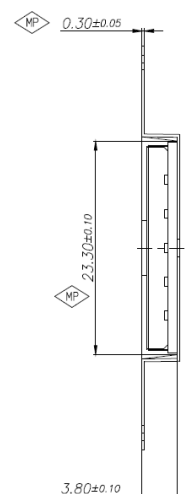
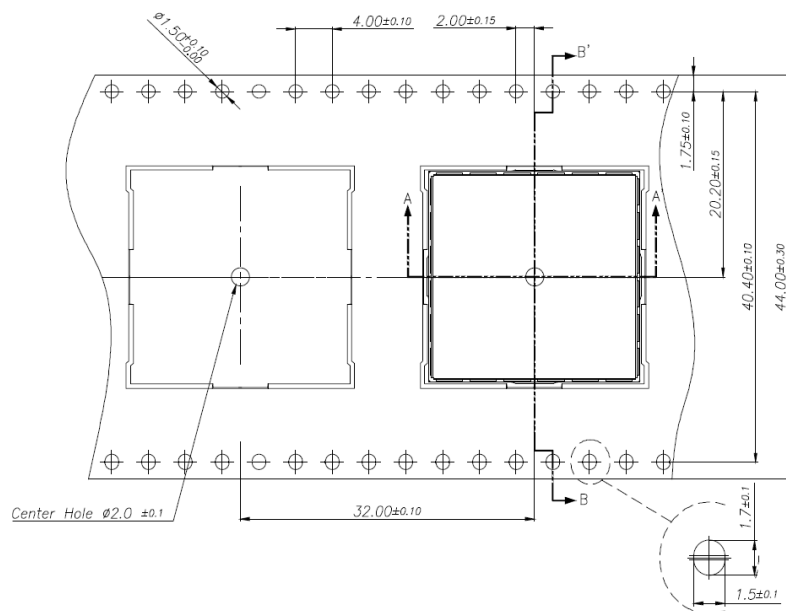
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)

REV 0.2(9 / 13)

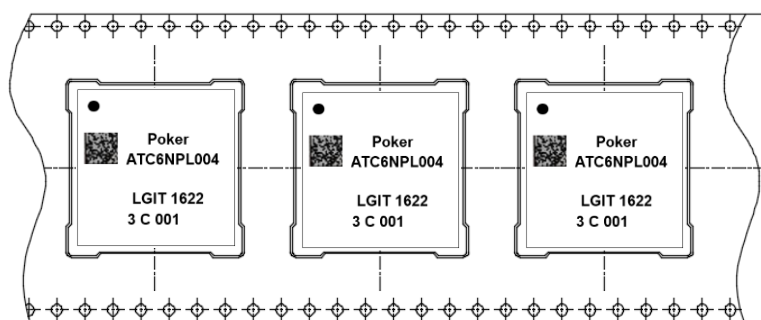
(CUSTOMER P/N :)

2) Taping Carrier Dimension.



SECTION B-B'

3) Parts Direction.



Pulling Direction

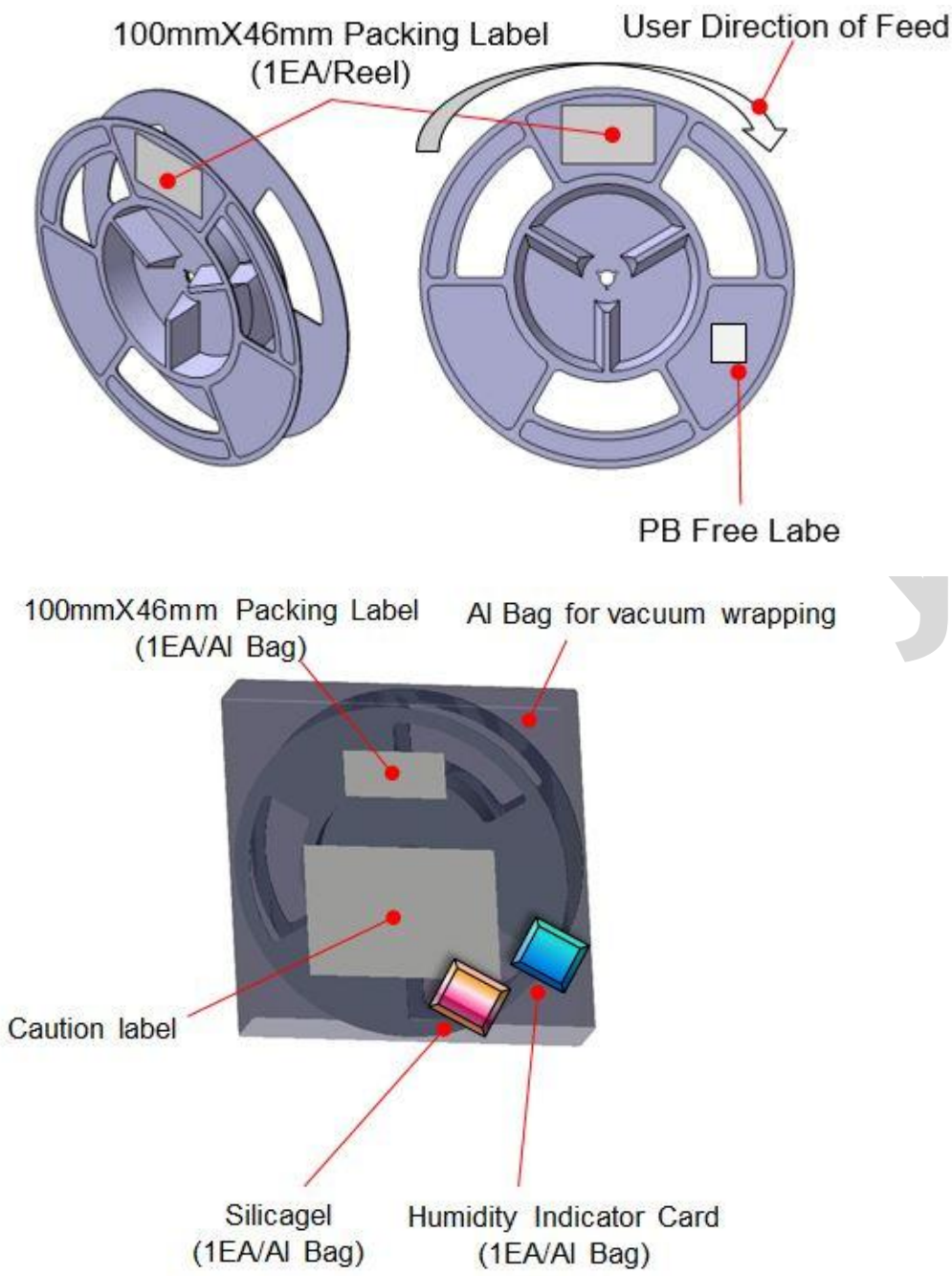
<Unit : mm>

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)				REV 0.2(10 / 13)	
(CUSTOMER P/N :)					

4) Reel

< 1 Reel Q'ty : 400 EA >

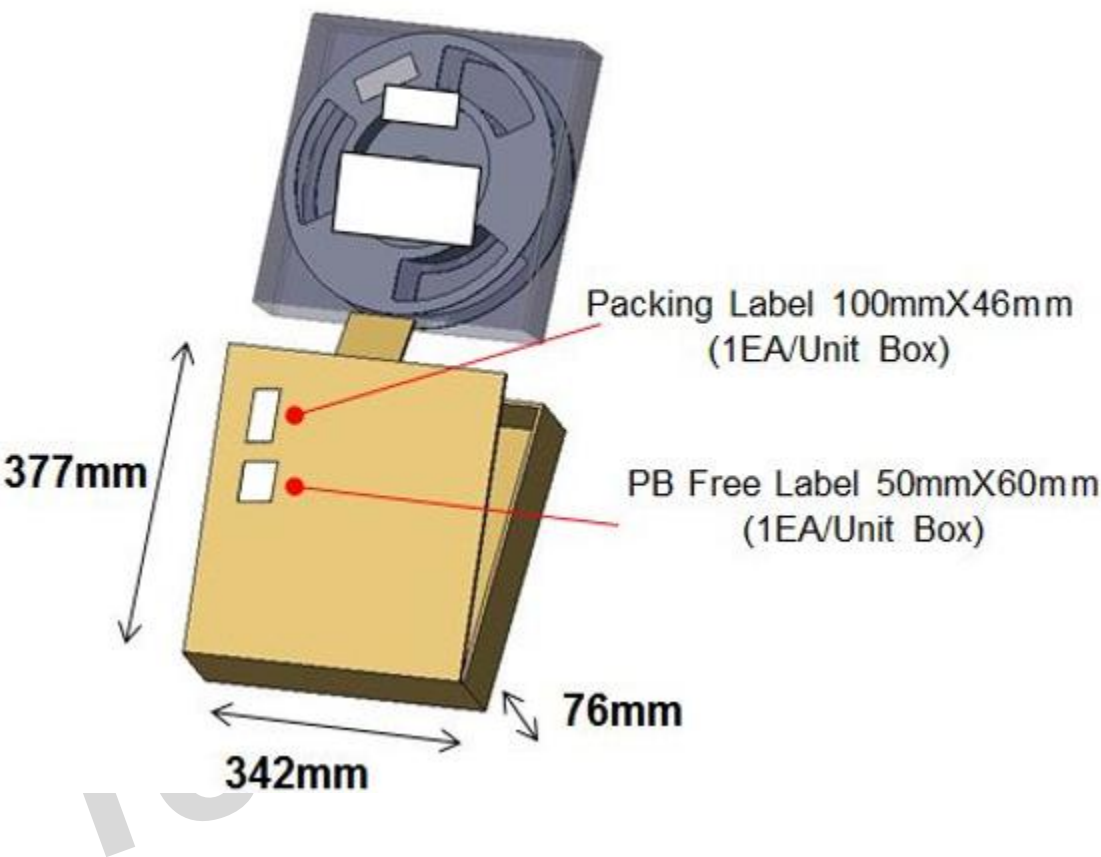


R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)	REV 0.2(11 / 13)
(CUSTOMER P/N :)	

5) Inner Box(TBD)

< Inner box : 1 Reel (Module Quantity – 400 EA)>



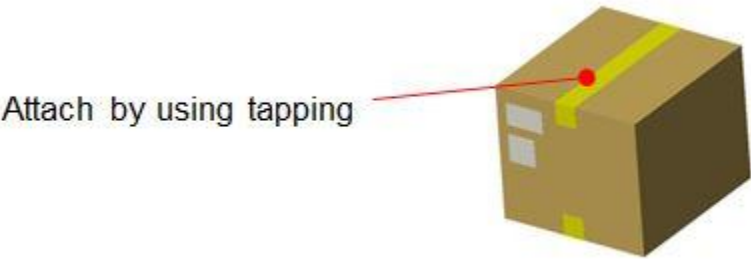
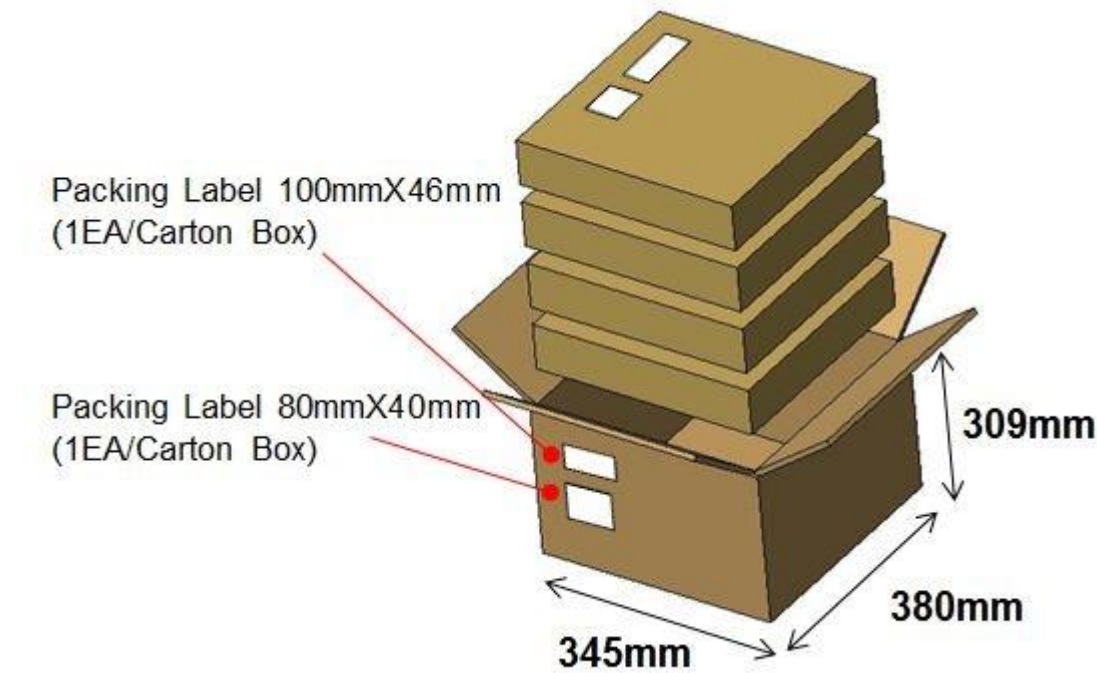
- Note1) Recommendation : 72 hours floor time (≤ 30°C / 60% RH)
- Note2) Recommendation: The time between opening and Chip Mount should be within 72 hours.

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)	REV 0.2(12 / 13)
(CUSTOMER P/N :)	

6) External Box(TBD)

< External box : 4 Inner Box (Module Quantity – 1,600 EA)>

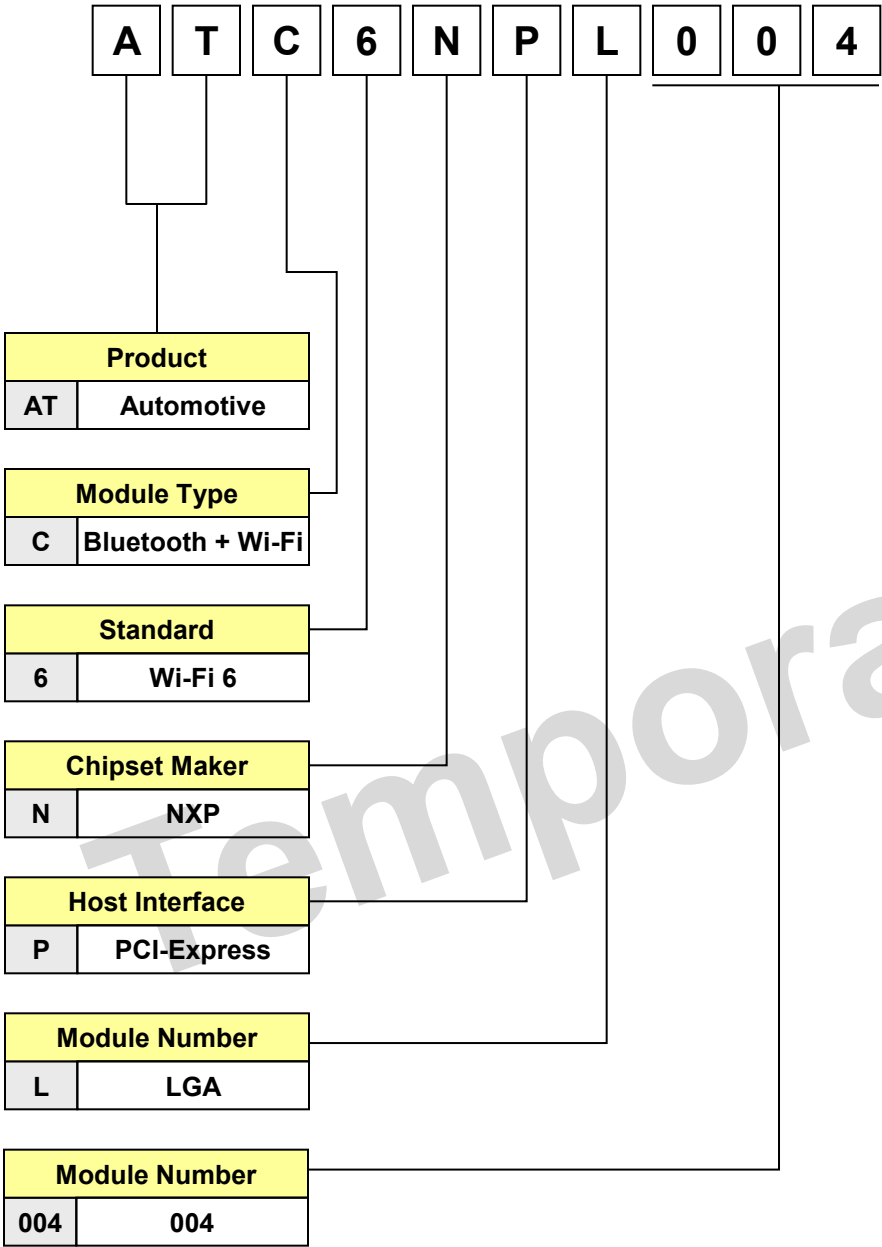


<Unit : mm>

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)	REV 0.2(13 / 13)
(CUSTOMER P/N :)	

18. Ordering Information



R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)							
(CUSTOMER P/N :)							
FCC MODULAR APPROVAL INFORMATION EXAMPLES for Manual 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. (2) This device must accept any interference received, including interference that may cause undesired operation. CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. 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. FCC Radiation Exposure Statement: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. OEM INTEGRATION INSTRUCTIONS: This device is intended only for OEM integrators under the following conditions: The module must be installed in the host equipment such that 20 cm is maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the internal on-board antenna that has been originally tested and certified with this module. External antennas are not supported. As long as these 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.). The end-product may need Verification testing, Declaration of Conformity testing, a Permissive Class II Change or new Certification. Please involve a FCC certification specialist in order to determine what will be exactly applicable for the end-product.							
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)

(CUSTOMER P/N :)

Validity of using the module certification:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization. In such cases, please involve a FCC certification specialist in order to determine if a Permissive Class II Change or new Certification is required.

Upgrade Firmware:

The software provided for firmware upgrade will not be capable to affect any RF parameters as certified for the FCC for this module, in order to prevent compliance issues.

End product labeling:

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: YZP-ATC6NPL004".

Information that must be placed in the end user manual:

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

"CAUTION : Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)							
(CUSTOMER P/N :)							
IC Information This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. <i>Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). L'opération est soumise aux deux conditions suivantes:</i> <i>(1) cet appareil ne peut causer d'interférences, et</i> <i>(2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.</i> The end product must be labeled to display the Industry Canada certification number of the module. Contains transmitter module IC: 7414C-ATC6NPL004 <i>Le dispositif d'accueil doivent être étiquetés pour afficher le numéro de certification d'Industrie Canada du module. Contient module émetteur IC : 7414C-ATC6NPL004</i> * For 5GHz and/or when co-located with 5 GHz transmitters, the following statements should be provided in the user information Caution : (i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems; (ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and (iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate. (iv) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices. <i>Avertissement:</i> <i>Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :</i> <i>(i) les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;</i> <i>(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;</i> <i>(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.</i> <i>(iv) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.</i>							
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)

(CUSTOMER P/N :)

FCC 6GHz statement

- a. The operation of this device is prohibited on oil platforms and aircraft, except that operation of this device in 5.925-6.425 GHz is permitted in large aircraft while flying above 10,000 feet.
- b. Installation on outdoor fixed infrastructure is prohibited.
- c. Controlling or communications with unmanned aircraft systems, including drones, is prohibited.

Appendix B attestation of KDB 987594

- Contention-Based Protocol, as demonstrated in the FCC test report, is permanently embedded in the module and is not host-dependent, can't change by anyone.
- Installation restrictions: Physical restrictions associated with the equipment classes for host products (wired power, integral antenna, non-weatherized enclosure) as conditions-of-use through the host manufacture's integration instructions.

ISED 6GHz statement

- a. Operation on oil platforms, cars, trains, boats and aircraft shall be prohibited except for on large aircraft flying above 10,000 ft.
- b. Except for very low-power devices, devices shall not be used on automobiles, trains and maritime vessels.
- a. Utilisation interdite à bord de plateformes de forage pétrolier, de voitures, de trains, de bateaux et d'aéronefs, sauf à bord d'un gros aéronef volant à plus de 10 000 pieds d'altitude.*
- b. À l'exception des appareils de très faible puissance, les appareils ne doivent pas être utilisés sur les automobiles, les trains et les navires.*

Information for OEM Integrator

This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

End product labelling The label for end product must include

"Contains FCC ID: YZP-ATC6NPL004, Contains IC: 7414C-ATC6NPL004".

"CAUTION: Exposure to Radio Frequency Radiation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body. This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users."

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)

(CUSTOMER P/N :)

Requirement per KDB996369 D03**2.2 List of applicable FCC rules**

List the FCC rules that are applicable to the modular transmitter. These are the rules that specifically establish the bands of operation, the power, spurious emissions, and operating fundamental frequencies. DO NOT list compliance to unintentional-radiator rules (Part 15 Subpart B) since that is not a condition of a module grant that is extended to a host manufacturer. See also Section 2.10 below concerning the need to notify host manufacturers that further testing is required.³

Explanation: This module meets the requirements of FCC part 15C(15.247).Part 15E(15.407)

2.3 Summarize the specific operational use conditions

Describe use conditions that are applicable to the modular transmitter, including for example any limits on antennas, etc. For example, if point-to-point antennas are used that require reduction in power or compensation for cable loss, then this information must be in the instructions. If the use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer's instruction manual. In addition, certain information may also be needed, such as peak gain per frequency band and minimum gain, specifically for master devices in 5 GHz DFS bands.

Explanation: The EUT has a PIFA Antenna, FPCB Antenna, and the antenna use a permanently attached antenna which is not replaceable.

2.4 Limited module procedures

If a modular transmitter is approved as a "limited module," then the module manufacturer is responsible for approving the host environment that the limited module is used with. The manufacturer of a limited module must describe, both in the filing and in the installation instructions, the alternative means that the limited module manufacturer uses to verify that the host meets the necessary requirements to satisfy the module limiting conditions.

A limited module manufacturer has the flexibility to define its alternative method to address the conditions that limit the initial approval, such as: shielding, minimum signaling amplitude, buffered modulation/data inputs, or power supply regulation. The alternative method could include that the limited module manufacturer reviews detailed test data or host designs prior to giving the host manufacturer approval. This limited module procedure is also applicable for RF exposure evaluation when it is necessary to demonstrate compliance in a specific host. The module manufacturer must state how control of the product into which the modular transmitter will be installed will be maintained such that full compliance of the product is always ensured. For additional hosts other than the specific host originally granted with a limited module, a Class II permissive change is required on the module grant to register the additional host as a specific host also approved with the module.

Explanation: The Module is not a limited module.

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)			
(CUSTOMER P/N :)			

2.5 Trace antenna designs

For a modular transmitter with trace antenna designs, see the guidance in Question 11 of KDB Publication 996369 D02 FAQ – Modules for Micro-Strip Antennas and traces. The integration information shall include for the TCB review the integration instructions for the following aspects:

layout of trace design, parts list (BOM), antenna, connectors, and isolation requirements.

a) Information that includes permitted variances (e.g., trace boundary limits, thickness, length, width, shape(s), dielectric constant, and impedance as applicable for each type of antenna);

b) Each design shall be considered a different type (e.g., antenna length in multiple(s) of frequency, the wavelength, and antenna shape (traces in phase) can affect antenna gain and must be considered);

c) The parameters shall be provided in a manner permitting host manufacturers to design the printed circuit (PC) board layout;

d) Appropriate parts by manufacturer and specifications;

e) Test procedures for design verification; and

f) Production test procedures for ensuring compliance.

The module grantee shall provide a notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the host product manufacturer must notify the module grantee that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the grantee, or the host manufacturer can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

Explanation: This module does not incorporate an integrated trace antenna.

The module is designed to interface with an approved external antenna through an RF connector. A controlled 50-ohm RF transmission line (microstrip or strip line) may be implemented on the host PCB between the module RF port and the antenna connector. This RF transmission line is used solely for signal routing between the module and the antenna connector and is not intended to function as an antenna element.

To maintain compliance with the certified configuration, the host integrator shall comply with the following requirements:

- The RF transmission line shall be designed with a characteristic impedance of 50 ohms.
- PCB materials shall be FR-4 or equivalent RF-compatible materials.
- Trace dimensions, including width and length, shall be properly designed to maintain the required impedance characteristics.
- A continuous ground reference shall be provided along the RF transmission line.
- No active RF components, such as amplifiers, shall be inserted in the RF feed path between the module and the antenna connector.
- The antenna connector and antenna type shall be installed in accordance with the module manufacturer's integration instructions.

Any deviation from the approved RF transmission line design or antenna implementation may affect RF performance and regulatory compliance and shall be evaluated by the responsible party prior to implementation.

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)							
(CUSTOMER P/N :)							
2.6 RF exposure considerations It is essential for module grantees to clearly and explicitly state the RF exposure conditions that permit a host product manufacturer to use the module. Two types of instructions are required for RF exposure information: (1) to the host product manufacturer, to define the application conditions (mobile, portable – xx cm from a person’s body); and (2) additional text needed for the host product manufacturer to provide to end users in their end-product manuals. If RF exposure statements and use conditions are not provided, then the host product manufacturer is required to take responsibility of the module through a change in FCC ID (new application). Explanation: This module complies with FCC RF radiation exposure limits set forth for an uncontrolled environment, This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body." This module is designed to comply with the FCC statement, FCC ID is: YZP-ATC6NPL004							
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)

(CUSTOMER P/N :)

2.7 Antennas

A list of antennas included in the application for certification must be provided in the instructions. For modular transmitters approved as limited modules, all applicable professional installer instructions must be included as part of the information to the host product manufacturer. The antenna list shall also identify the antenna types (monopole, PIFA, dipole, etc. (note that for example an “omni-directional antenna” is not considered to be a specific “antenna type”)).

For situations where the host product manufacturer is responsible for an external connector, for example with an RF pin and antenna trace design, the integration instructions shall inform the installer that unique antenna connector must be used on the Part 15 authorized transmitters used in the host product. The module manufacturers shall provide a list of acceptable unique connectors.

Explanation:

The module is certified for use only with certain types of antenna described in this chapter.

Allowed maximum gain (dBi)

Frequency range (MHz)	PIFA Type 0	PIFA Type 1	FPCB Type
	Model name : 1775363-00	Model name : 1703386-00	Model name : 2024826-01
	Manufacturer : Tesla Inc.	Manufacturer : Tesla Inc.	Manufacturer : Tesla Inc.
	Peak Gain (dBi)	Peak Gain (dBi)	Peak Gain (dBi)
2 402 ~ 2 480	-	2.9	1.8
2 412 ~ 2 462	3.0	2.9	-
5 150 ~ 5 250	4.4	3.2	-
5 250 ~ 5 350	4.4	3.5	-
5 470 ~ 5 725	5.3	4.5	-
5 725 ~ 5 850	4.7	3.5	-
5 925 ~ 6 425	3.7	2.9	-
6 425 ~ 6 525	2.2	2.2	-
6 525 ~ 6 875	2.8	2.8	-
6 875 ~ 7 125	3.2	3.2	-

NOTE: Allowed antenna type – PIFA and FPCB type antenna

NOTE: End host product must use an integrated antenna – the antenna is integrated in the host mechanical housing.

NOTE: Use of other antenna types or the same type of antenna with higher gain than listed above must performed additional testing and appropriate permissive change approval.

NOTE: In the 5.925-7.125GHz band, use of other similar type antennas and the antenna gain not higher/lower than listed above may only require a C1PC without any additional testing/submission.

NOTE: Contact LG Innotek Co., LTD for additional guidance, if choose to use different antenna types or higher/lower gain antennas in the end system.

R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)

TITLE : Specifications for approval (ATC6NPL004)							
(CUSTOMER P/N :)							
2.8 Label and compliance information Grantees are responsible for the continued compliance of their modules to the FCC rules. This includes advising host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID” with their finished product. See Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748. Explanation: The host system using this module, should have label in a visible area indicated the following texts: “Contains FCC ID: YZP-ATC6NPL004”. “Contains IC: 7414C-ATC6NPL004” 2.9 Information on test modes and additional testing requirements5 Additional guidance for testing host products is given in KDB Publication 996369 D04 Module Integration Guide. Test modes should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. The grantee should provide information on how to configure test modes for host product evaluation for different operational conditions for a stand-alone modular transmitter in a host, versus with multiple, simultaneously transmitting modules or other transmitters in a host. Grantees can increase the utility of their modular transmitters by providing special means, modes, or instructions that simulates or characterizes a connection by enabling a transmitter. This can greatly simplify a host manufacturer’s determination that a module as installed in a host complies with FCC requirements. Explanation: Top band can increase the utility of our modular transmitters by providing instructions that simulates or characterizes a connection by enabling a transmitter. 2.10 Additional testing, Part 15 Subpart B disclaimer The grantee should include a statement that the modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed. Explanation: The module without unintentional-radiator digital circuitry, so the module does not require an evaluation by FCC Part 15 Subpart B. The host should be evaluated by the FCC Subpart B.							
R E V				LG Innotek Co., Ltd			
				DSGD	CHKD	APPD	ATC6NPL004
							DOCUMENT NO.
							ATC6NPL004(6-3)