

# User Manual

**PRODUCT NAME : RF Module**

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**MODEL NAME : LGSBW51**

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**User Manual**

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MODEL NAME: **TWCM-B201D(LGIT)****LGSBW51(LGE)**

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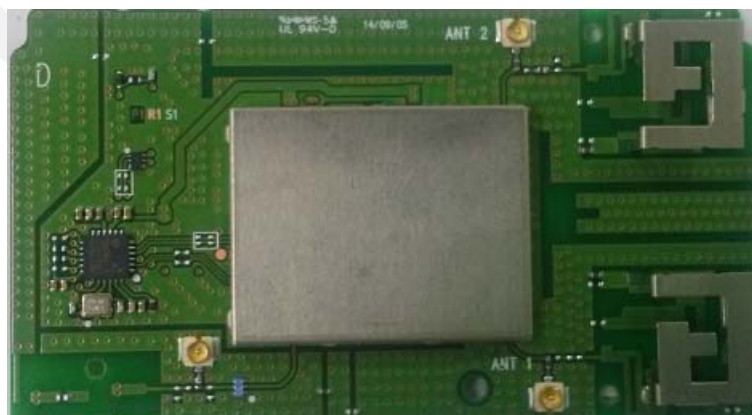
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## 1. Features

TWCM-B201D is the small size and low power module for IEEE 802.11ac wireless LAN & BT4.0 + HS. TWCM-B201D is based on Broadcom BCM43569 solution.

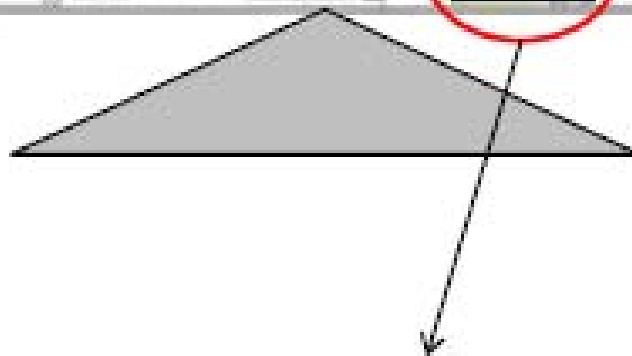
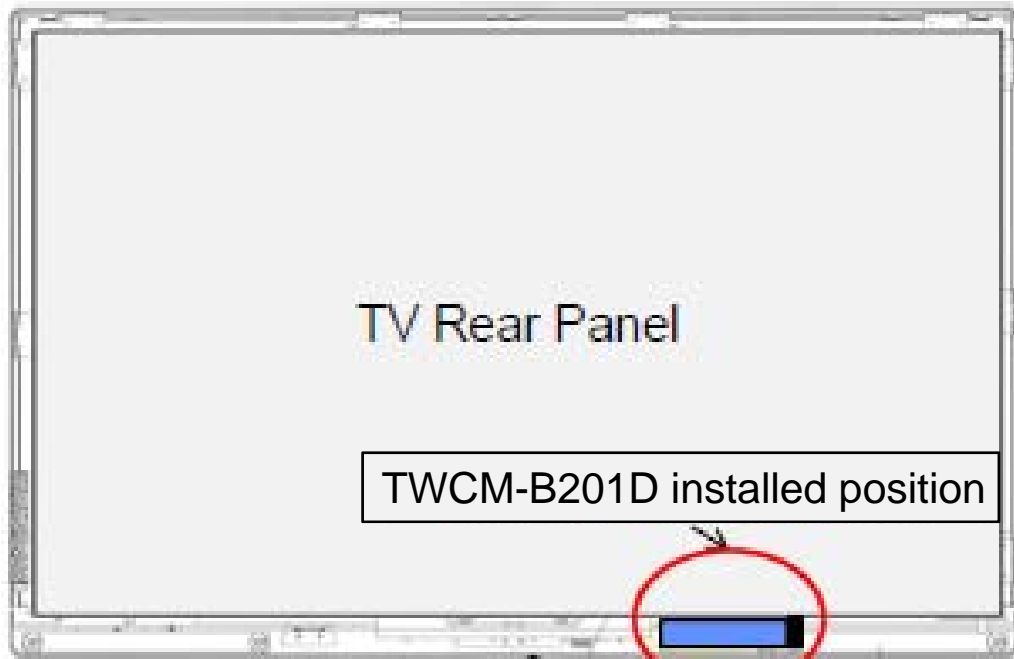
- IEEE 802.11 a/b/g/n/ac Dual Band WLAN infrastructure
- Bluetooth 4.0 + HS
- Size : 68.0mm x 38.0mm
- Two stream spatial multiplexing up to 300Mbps(802.11n)/ 867Mbps(802.11ac)
- WLAN Metal Press antenna, BT Printed antenna on
- Use on-chip OTP (One-Time Programmable)
- Host Interface : USB2.0 (WLAN & BT)
  - This model is using the common USB2.0 to control WLAN and BT
- Security : WAPI, WEP, WPA, WPA2, WMM, AES, WEP, TKIP, CKP
- Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB

## 2. Picture of Product

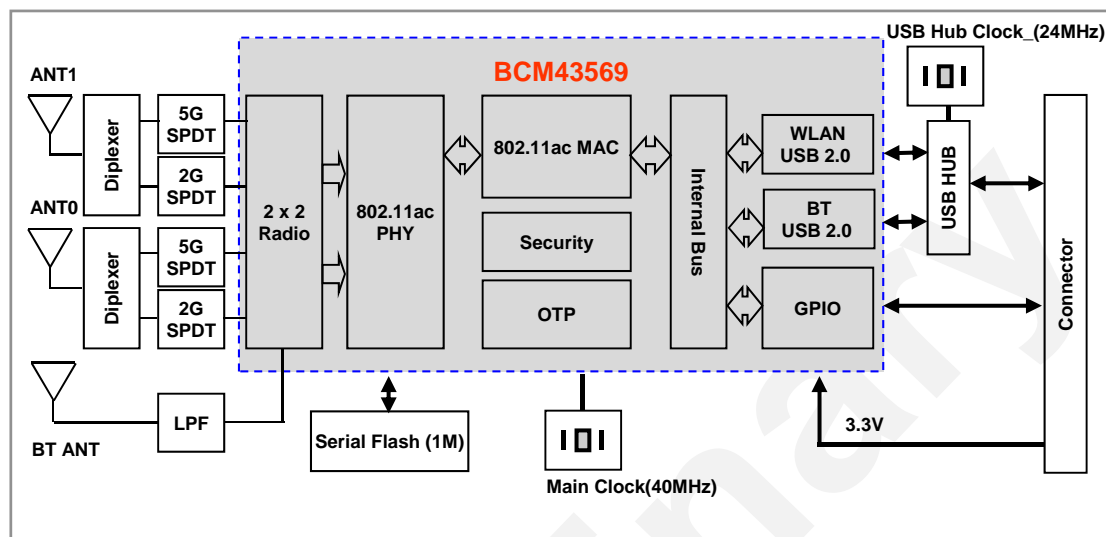


### 3. Installation Manual

Install the module like below in the back of the TV



## 4. Block Diagram



## 5. Absolute Maximum Ratings

**Caution :** The specifications in Table 1 define levels at which permanent damage to the device can occur. Function operation is not guaranteed under these conditions. Operating at absolute maximum conditions for extend periods can adversely affect the long-term reliability of the device.

Parameter	Min	Max	Unit
Storage Temperature	-20	+80	°C
Storage Humidity (40°C)	-	90	%

. Other conditions

- 1) Do not use or store modules in the corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are contained.  
Also, avoid exposure to moisture.
- 2) Store the modules where the temperature and relative humidity do not exceed 5 to 40°C and 20 to 60%.
- 3) Assemble the modules within 6 months.  
Check the soldering ability in case of 6 months over.

## 6. Operating Conditions

Parameter	Min	Typ	Max	Unit
Ambient Temperature	0	-	60	°C
Ambient Humidity (40°C)	-	-	85	%
Supply Voltage	4.75	5.0	5.25	Vdc

## 7. Standard Test Conditions

The Test for electrical specification shall be performed under the following condition  
 Otherwise this following conditions, not guaranteed this performance.

### 7-1. Ambient condition

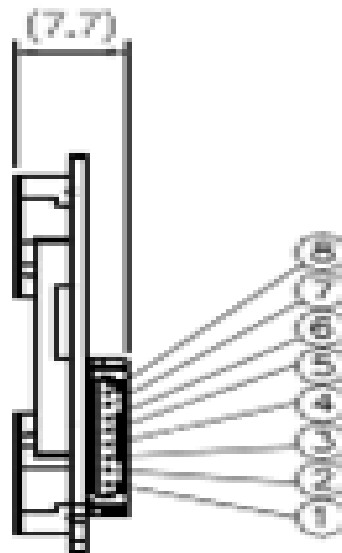
Temperature	25 ± 5°C
Humidity	65 ± 5%

### 7-2. Power supply voltages

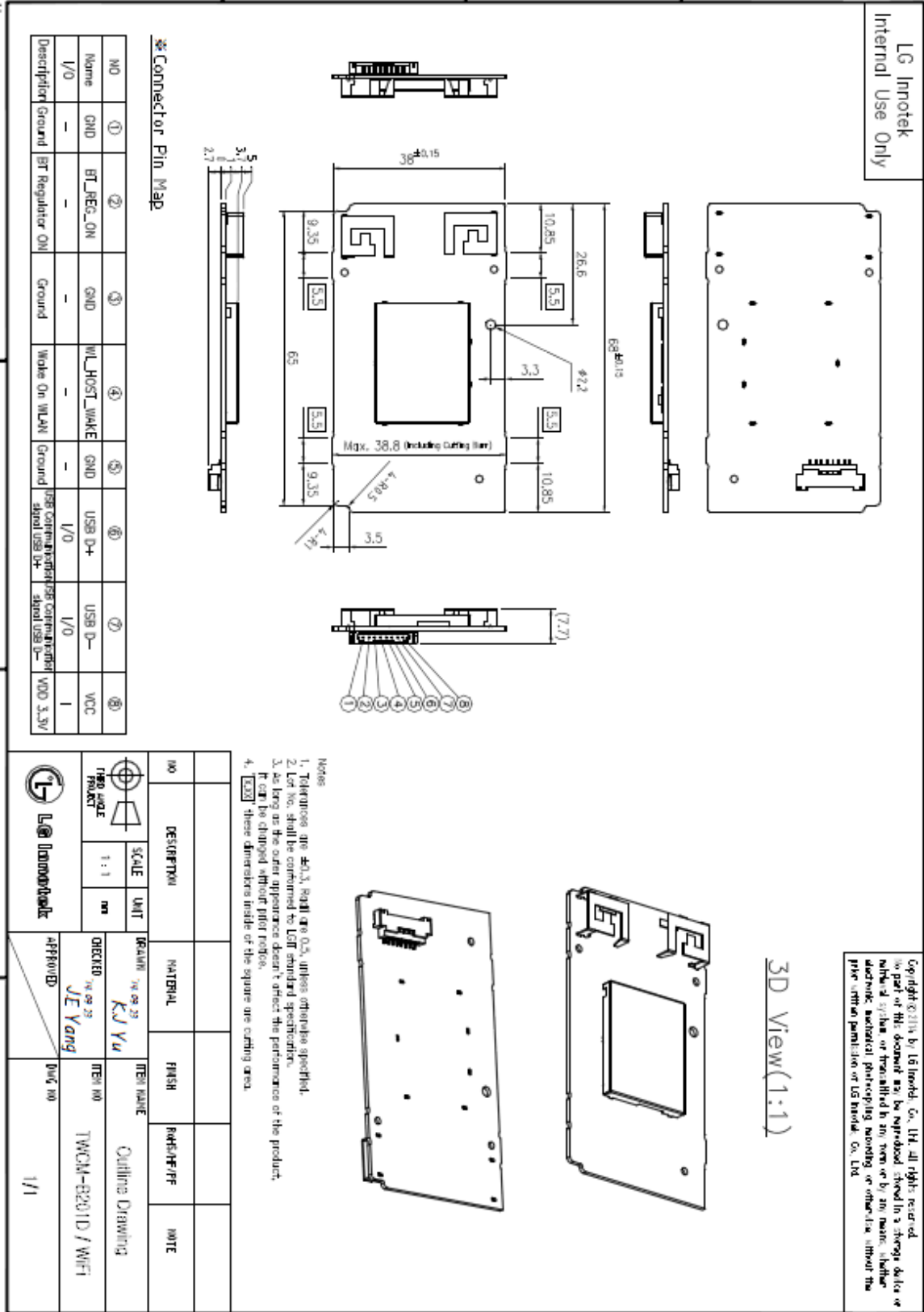
Input Voltage	Supply Voltage
VDD_3.3V	+3.3V ± 0.165V

## 8. Pin Description

Pin No.	Pin Name	I/O	Pin Description
1	VCC	I	+3.3V
2	WLAN USB D-	I/O	USB Communication signal USB_DN
3	WLAN USB D+	I/O	USB Communication signal USB_DP
4	GND	-	Ground
5	WLAN_WAKE_HOST	O	WLAN wake-up signal
6	GND	-	Ground
7	BT_WAKE_HOST	O	Bluetooth wake-up signal
8	GND	-	Ground



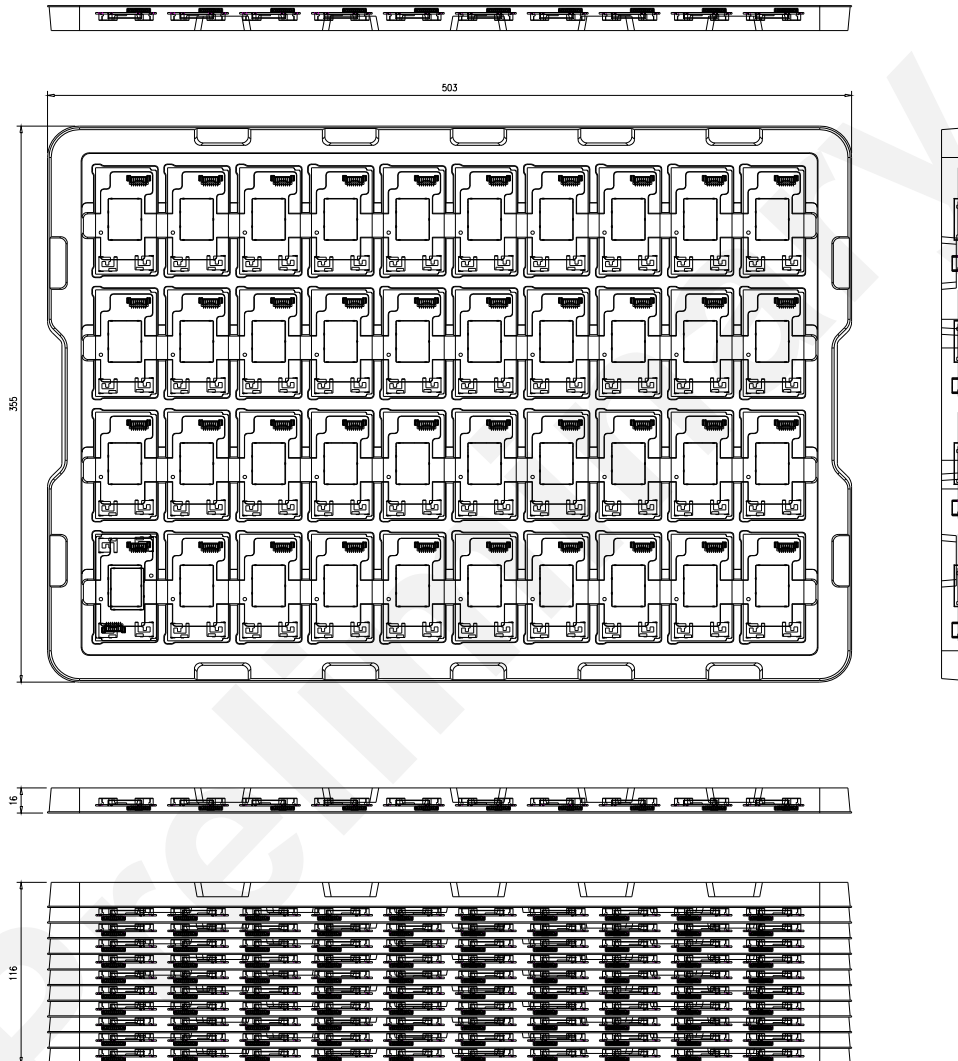
## 9. Outline Drawing





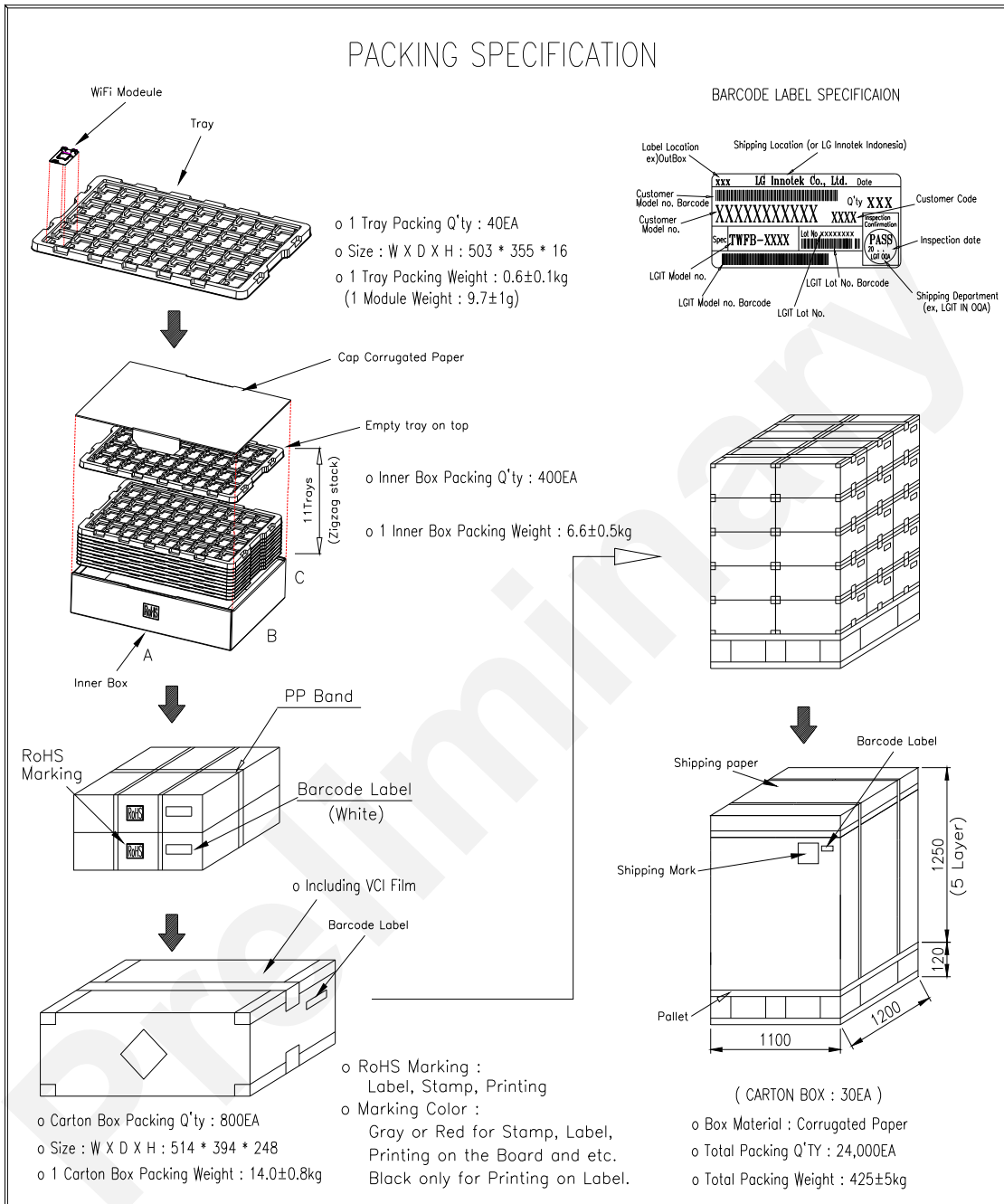
## 10. Packing Information

### PACKING SPECIFICATION



PART NO.		NAME		MATERIAL		SPEC.		FINISH		A4 SIZE
						UNIT mm	SCALE N/A	5PKQ00618A		
						DSGD.	DRAW.	TITLE Packing Tray		
								DOCUMENT NO. 1/2		
ZONE	SYMB	DATE OR NO.	APPD	CHKD	DSGD	APPD.	CHKD.			

## PACKING SPECIFICATION



PART NO.		NAME		MATERIAL		SPEC.		FINISH		A4
						UNIT mm	SCALE N/A	TWFM-B201D		SIZE
						APPD.	CHKD.	DSGD.	DRAW.	TITLE
							'14.09.01 Yang J. E.	'14.09.01 Yu K. J.		EXP. Packing Specification
ZONE	SYMB	DATE OR NO.	APPD	CHKD	DSGD					DOCUMENT NO.
										2/2

## **Regulatory Notices**

### **1. FCC**

#### **FCC Statements:**

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.

#### **End Product Labeling**

The module is labeled with its own FCC ID and IC Certification Number. If the FCC ID and IC Certification Number 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: 69@ G6K )%"

"Contains IC: &+!' <!@ G6K )%"

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.

#### **OEM Responsibilities to comply with FCC and Industry Canada Regulations**

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 20 cm 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.

As long as the two condition above is met, further transmitter testing 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.).

**IMPORTANT NOTE:** In the event that these conditions can't be met (for certain configurations or co-location with another transmitter), then the FCC and Industry Canada authorizations are no longer considered valid and the FCC ID and IC Certification Number can't 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 and Industry Canada authorization.

**FCC Part 15.105 statement**

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.

## 2. IC

### Étiquetage du produit final (IC)

Le module BT111 est étiqueté avec sa propre identification FCC et son propre numéro de certification IC. Si l'identification FCC et le numéro de certification IC ne sont pas visibles lorsque le module est installé à l'intérieur d'un autre dispositif, la partie externe du dispositif dans lequel le module est installé devra également présenter une étiquette faisant référence au module inclus. Dans ce cas, le produit final devra être étiqueté sur une zone visible avec les informations suivantes :

« Contient module émetteur identification FCC ID: 69@ G6K ) %

« Contient module émetteur IC : &+\$' <!@ G6K ) %

Dans le guide d'utilisation du produit final, l'intégrateur OEM doit s'abstenir de fournir des informations à l'utilisateur final portant sur les procédures à suivre pour installer ou retirer ce module RF ou pour changer les paramètres RF.

### Responsabilités des OEM quant à la conformité avec les réglementations de FCC et d'Industrie Canada

Les modules ont été certifiés pour entrer dans la fabrication de produits exclusivement réalisés par des intégrateurs dans les conditions suivantes :

- L'antenne (ou les antennes) doit être installée de façon à maintenir à tout instant une distance minimum de au moins 20 cm entre la source de radiation (l'antenne) et toute personne physique.
- Le module transmetteur ne doit pas être installé ou utilisé en concomitance avec une autre antenne ou un autre transmetteur.

Tant que ces deux conditions sont réunies, il n'est pas nécessaire de procéder à des tests supplémentaires sur le transmetteur. Cependant, l'intégrateur est responsable des tests effectués sur le produit final afin de se mettre en conformité avec d'éventuelles exigences complémentaires lorsque le module est installé (exemple : émissions provenant d'appareils numériques, exigences vis-à-vis de périphériques informatiques, etc.)

**REMARQUE IMPORTANTE** : En cas d'inobservance de ces conditions (en ce qui concerne certaines configurations ou l'emplacement du dispositif à proximité d'un autre émetteur), les autorisations de FCC et d'Industrie Canada ne seront plus considérées valables et l'identification de FCC et le numéro de certification d'IC ne pourront pas être utilisés sur le produit final. Dans ces cas, l'intégrateur OEM sera chargé d'évaluer à nouveau le produit final (y compris l'émetteur) et d'obtenir une autorisation indépendante de FCC et d'Industrie Canada.

**IC warning**

This device complies with Industry Canada licence-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.

Le présent appareil est conforme aux CNR d'Industrie 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, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment. Attention:

Les changements ou modifications de cet appareil non expressément approuvés par le fabricant peuvent annuler votre droit à utiliser cet équipement.