SHGC300 Multiple Protocol Gateway Product Data Sheet (Preliminary)

Model Number: LBAC0ZZ1SU

Feb/27/2018

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1. Product Summary

This LBAC0ZZ1SU is the multiple protocol gateway. This product can be enable to receive data from some sensor units and transfer them to customer's system by suitable interfaces and protocols.
This LBAC0ZZ1SU is in compliance with NBTC requirements.

2. Product Specification

This specification is applied to LBAC0ZZ1SU gateway solution.

Product name	LBAC0ZZ1SU
CPU	ARM Coretex-A8 600MHz 32bit RISC processor
ROM	4Gbit NAND
RAM	2Gbit DDR3
Power supply	USB cable :BJA91003
WLAN	IEEE 802.11 b/g/n compliant
Specific low power radio	ARIB STD-T108 compliant Frequency: 902.5MHz - 927.5MHz Expected distance: 200m (Best effort: Indoor and No obstruction) (*1)
Ethernet	IEEE 802.3 10/100 Base-T
LED indicator	5 LED windows
Button	2 Buttons
System clock	RTC with coin cell battery
Product size	W:170mm x L:109mm x T:26.5mm typ (*2)
Product weight	250g typ (*3)
Environmental assessment	ROHS directive 2011/65/EU compliant
Safety standard	EN60950 (Plan)
EMC standard	EN301489 (Plan) FCC Part 15B (Plan)
Wireless RF standard	EN300328 (Plan) FCC Part 15C (Plan)
UV rating	N/A
IP rating	IP20
Working environment	0 - 60℃, 0 - 90%RH (without condensation)
Storage environment	0 - 60℃, 0 - 90%RH (without condensation)

(*1) There is a possibility to see the different value depending on the surrounding environmental condition, building structure, material and barriers.

(*2) External antenna and AC adopter are not included

3. Product Features and Functions

LBAC0ZZ1SU product basic feature is shown as below. Supported functions are described in Section2. Hardware detail specification is defined in Section 3.

3.1 Buttons

There are 2 buttons for LBAC0ZZ1SU.

One button is short and designed for reset purpose and the other button is long and designed for user configuration.

3.2 LED indicators

There are 5 LEDs for LBAC0ZZ1SU. The LED number is from right side of the product.

LED	LED Window	Color
1	WLAN ON	Green
2	System enable	Green
3/4	Blink red LED when SubGHz packet is received	Red / Green
5	N/A	Green
6	Blink LED while sensor data is written into SD card	Green

All LED light up when power on the product.

3.3 USB

One USB interface is used for data storage and connection to other peripherals.

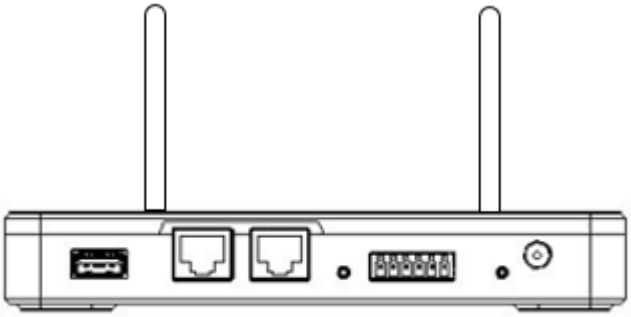
3.4 micro SD card slot

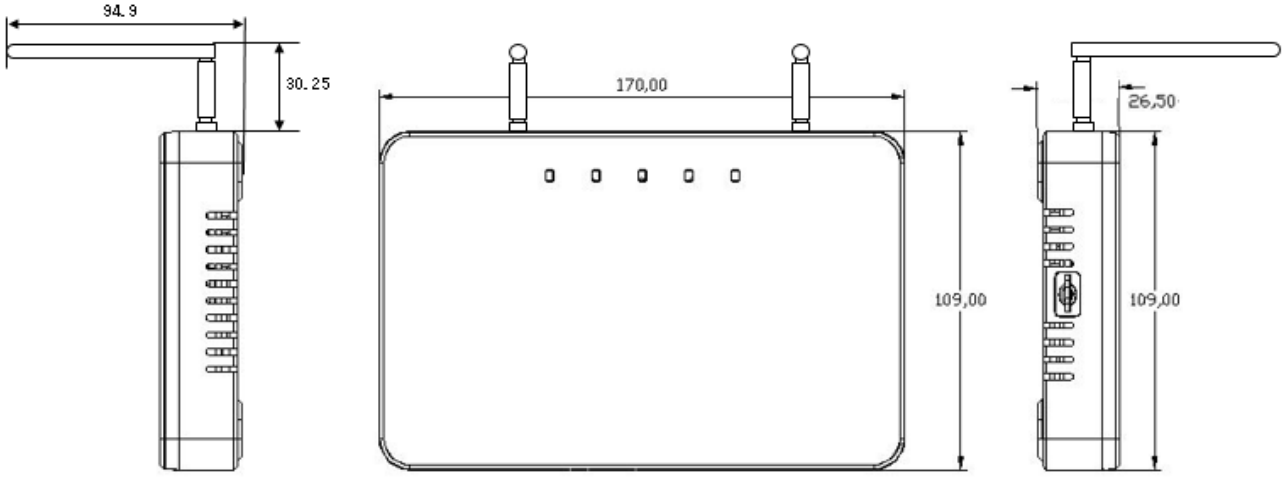
One micro USB card slot is used for data storage and firmware update.

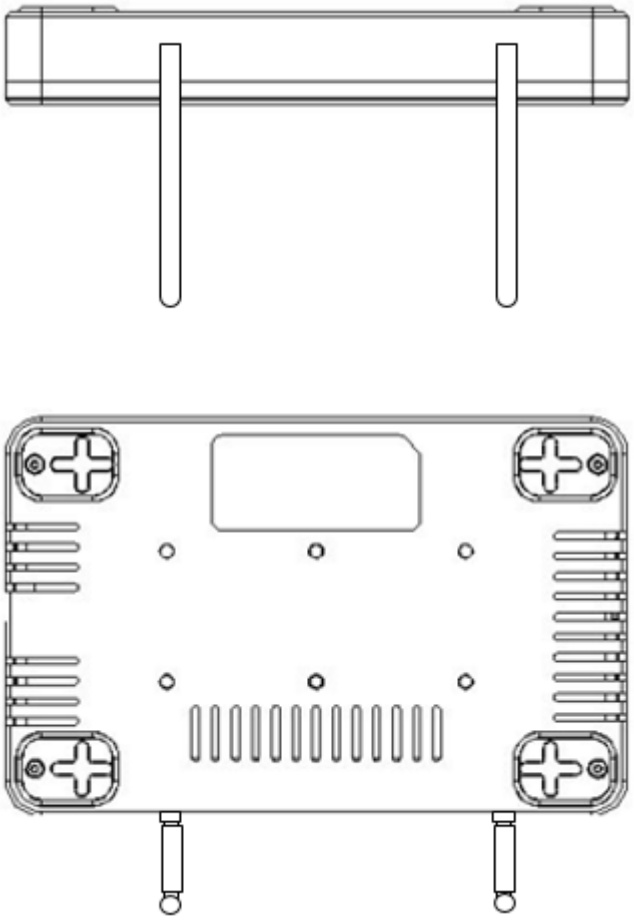
3.5 Ethernet

Ethernet port is used for Ethernet connection. It complies with IEEE802.3 10/100 Base-T.

4. Size of Appearance



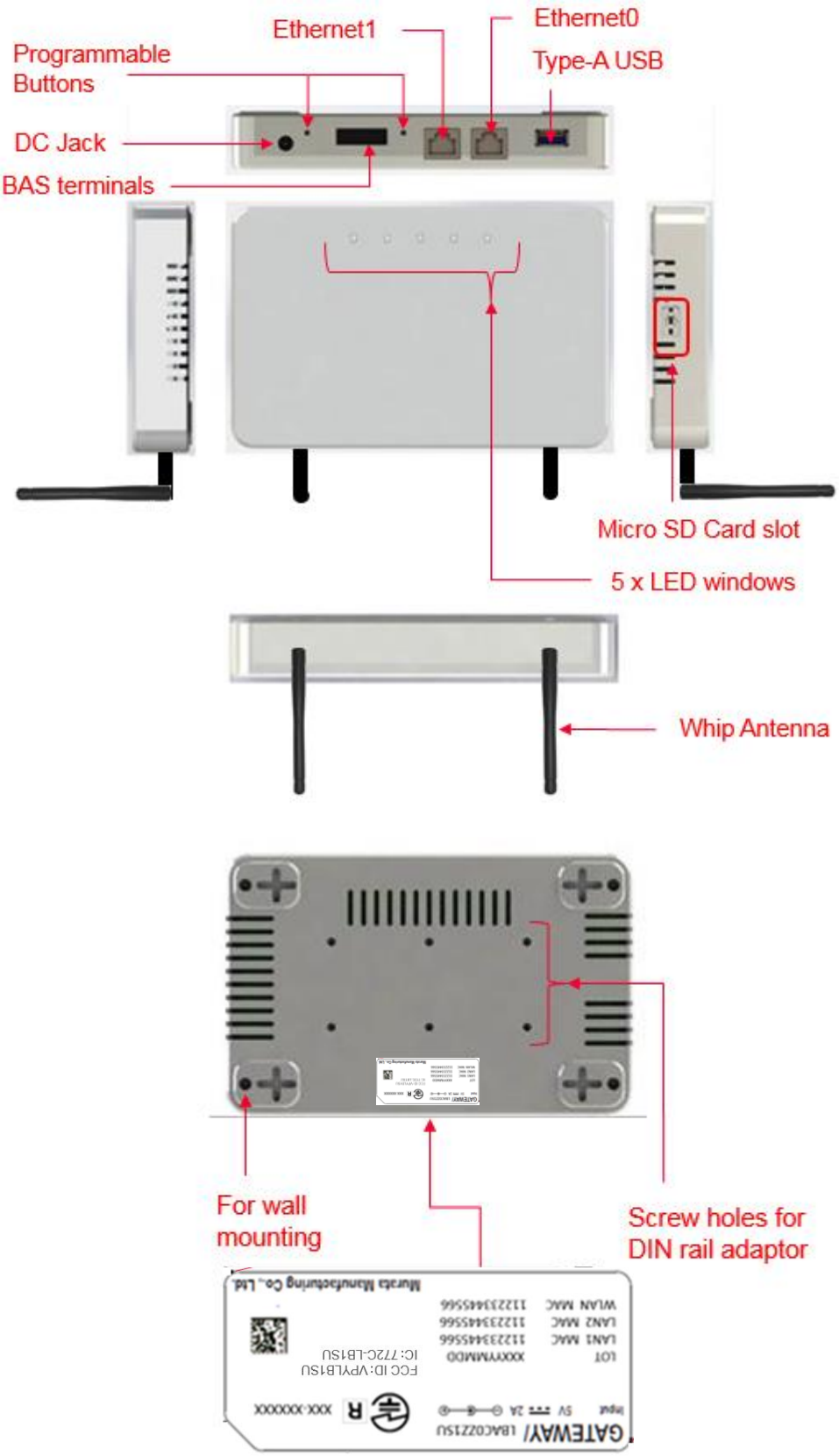




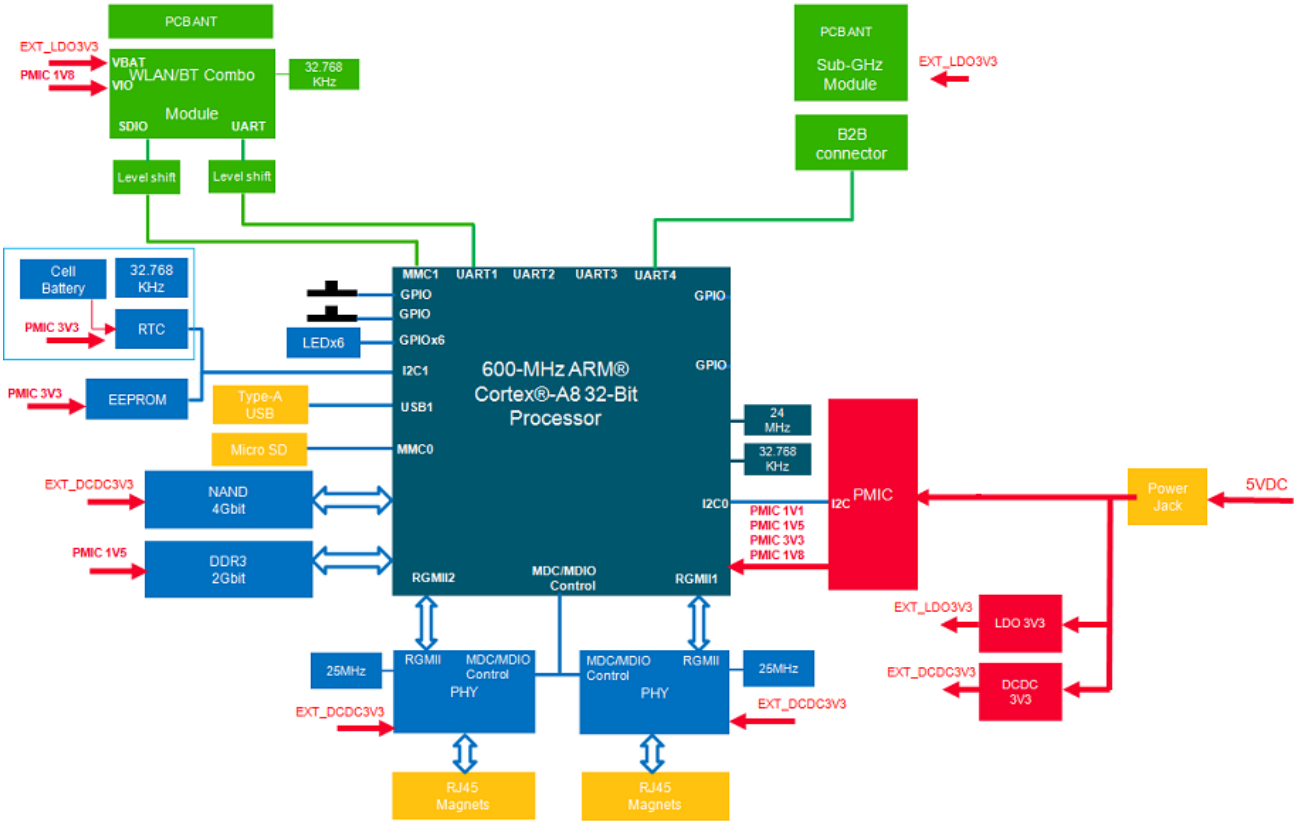
Mark	Min.	Typ.	Max.
L	108.8	109.0	109.2
W	169.8	170.0	170.2
T	26.3	26.5	26.7

(Unit: mm)

5. Part Name and Function

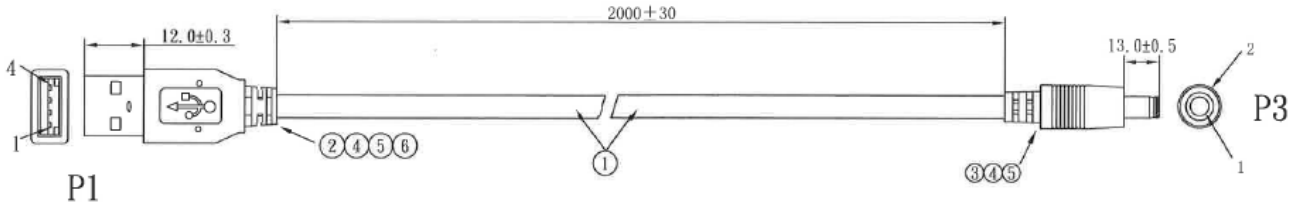


6. Block Diagram



7. Power Supply

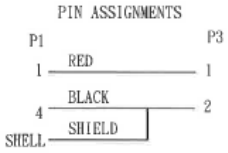
The below USB Cable is contained in the gift box.



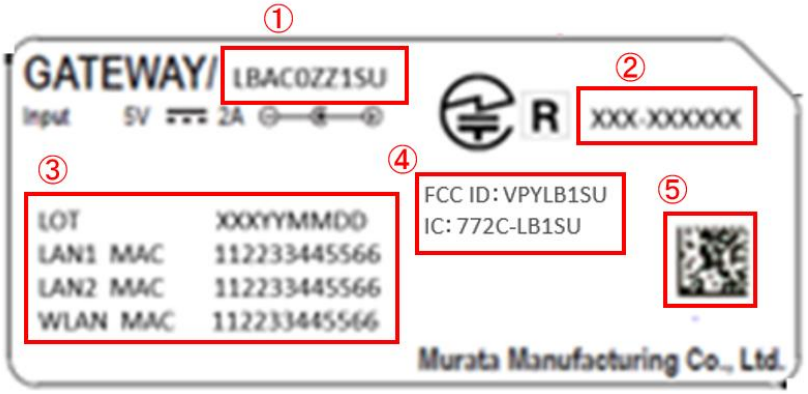
MATERIAL:

NO	DESCRIPTION	MATERIAL	SUPPLIER	REMARK
1	CABLE	UL 2725 28AWG*1P+28AWG*2C+AB65% OD:3.5mm 外被：黑色	GLORY MARK	12-7046001-07A
2	CONNECTOR	USB"A"TYPE MALE SHELL PLATED NICKEL PBT WHITE PIN G/F	YA LIAN	24-001-148
3	CONNECTOR	DC POWER PLUG OD:5.5*ID:2.1*L:22mm 材質：黃銅鍍鎳 黑色膠芯	正新杰	25-005-048-27A
4	PVC	PVC SHORE A 88±2 CLR-006	GLORY MARK	41-001-006
5	PE	CLEAR	GLORY MARK	41-001-034
6	TUBE	UL/CSA 125 VW-1(FT4) 300V Ø1.0 BLACK	WOER	42-A001003

NOTES:
1. 100%OPEN, SHORT & MISWIRE TEST.
2. PAY ATTENTION TO PIN ASSIGNMENTS.



8. Product Label



No.	Item	Contents to be printed
1	Product name	LBAC0ZZ1SU
2	TELEC certification number	XXX-XXXXXX (TBD)
3	Lot number LAN1 MAC LAN2 MAC WLAN MAC	XXXYYMMDD 12digits individual MAC address 12digits individual MAC address 12digits individual MAC address
4	Certification number for FCC/IC Others	 FCC ID: VPYLB1SU IC: 772C-LB1SU TBD
5	QR code	(For LAN1 MAC)

9. Rating

Item	Min	Max	Unit
DC input voltage through DC power jack	-0.3	5.25	V
Input Current through DC power jack	--	2	A
Storage Temperature	0	60	degC
Storage Relative Humidity	10	90	%RH

10. Operating Condition

Item	Min	Typ	Max	Unit
DC input voltage through DC power jack	4.75	5	5.25	V
Operating Temperature	0	60	60	degC
Operating Relative Humidity	10	90	90	%RH
Current consumption (*)	0.4		0.85	A

(*) Condition (*with different software the current value may vary*)

- Power supply through DC power jack
- Operating temperature: 25degC
- WLAN: Tx mode
- Murata Sub-G: Non-active
- Ethernet transmission data

11. Appearance and Dimension

Item	Spec
Appearance	Refer to standard of Product appearance criteria, Package appearance criteria.
Dimension	Satisfy L, W, T size in chapter 4. Size of Dimension

12. Electrical Characteristics

12.1 RF Characteristics for IEEE802.11b - 2.4GHz

Condition: 25degC, 11Mbps mode unless otherwise specified, measured at antenna feed point

Item	Contents			
Specification	IEEE802.11b-2.4GHz			
Mode	DSSS/CCK			
Channel frequency (spacing)	2412 to 2462MHz (5MHz)			
Data rate	1,2,5.5,11Mbps			
Tx	**Min**	**Typ**	**Max**	**Unit**
Power		8		dBm
Spectrum Mask 1st side lobes			-30	dBr
Spectrum Mask 2nd side lobes			-50	dBr
RF carrier suppression	15			dB
Modulation Accuracy		10	35	%
Rx	**Min**	**Typ**	**Max**	**Unit**
Minimum Input Level (PER≦8%)		-87	-81	dBm
Maximum Input Level (PER≦8%)	-10			dBm

12.2 RF Characteristics for IEEE802.11g - 2.4GHz

Condition: 25degC, 54Mbps mode unless otherwise specified, measured at antenna feed point

Item	Contents			
Specification	IEEE802.11g-2.4GHz			
Mode	OFDM			
Channel frequency (spacing)	2412 to 2462MHz (5MHz)			
Data rate	6,9,12,18,24,36,48,54Mbps			
Tx	**Min**	**Typ**	**Max**	**Unit**
Power		9		dBm
Spectrum Mask at fc +/-11MHz			-20	dBr
Spectrum Mask at fc +/-20MHz			-28	dBr
Spectrum Mask at fc +/-30MHz			-40	dBr
Constellation Error			-25	dB
Rx	**Min**	**Typ**	**Max**	**Unit**
Minimum Input Level (PER≦10%)		-73	-68	dBm
Maximum Input Level (PER≦10%)	-20			dBm

12.3 RF Characteristics for IEEE802.11n - 2.4GHz

Condition: 25degC, 65Mbps (MCS7-HT20MHz) mode unless otherwise specified, measured at antenna feed point

Item	Contents			
Specification	IEEE802.11n-2.4GHz			
Mode	OFDM			
Channel frequency (spacing)	2412 to 2462MHz (5MHz)			
Data rate	6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps			
Tx	**Min**	**Typ**	**Max**	**Unit**
Power		9		dBm
Spectrum Mask at fc +/-11MHz			-20	dBr
Spectrum Mask at fc +/-20MHz			-28	dBr
Spectrum Mask at fc +/-30MHz			-45	dBr
Constellation Error			-27	dB
Rx	**Min**	**Typ**	**Max**	**Unit**
Minimum Input Level (PER≦10%)		-71	-66	dBm
Maximum Input Level (PER≦10%)	-20			dBm

12.4 RF Characteristics for Murata SubGHz module

Condition: 25degC, measured at antenna feed point

Item	Contents		
Specification	ARIB STD-T108		
Mode	GFSK		
Channel frequency (spacing)	902.5 to 927.5MHz (200kHz)		
Data rate	100kbps		
Tx	**Min**	**Max**	**Unit**
Power (Peak)	-8.0	13.0	dBm e.i.r.p
Frequency Tolerance		20	Ppm
Rx	**Min**	**Max**	**Unit**
Sensitivity (PER≦10%)		-98	dBm
Stand-by Current		9.5	mA

*The setting value differs from country to country.

Annex A
Certification

For FCC

Model No.: LBAC0ZZ1SU

FCC ID: VPYLB1SU

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.

- Name of company that declared conformity: Murata Electronics North America, Inc.
Address: 3079 Premier Parkway, Suite 140, Duluth, GA 30097 USA.
TEL: +1 678 684 2000

FCC 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.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

For ISED

Model No.: LBAC0ZZ1SU

IC: 772C-LB1SU

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic
Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

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.

This radio transmitter (772C-LB1SU) has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible

gain indicated.
Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Antenna type	Gain	Impedance
Whip antenna	2.0dBi	50 ohm

Le présent émetteur radio (ISED Certification Number) a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Type d’antenne	Gain	l'impédance
Antenne fouet	2.0dBi	50 ohm

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the ISED radio frequency (RF) Exposure rules. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person’s body.

Cet équipement est conforme aux limites d’exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d’exposition aux fréquences radioélectriques (RF) CNR-102 de l’ISDE. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.