muRata LB2AB UWB and Bluetooth Combo Module User Manual

Contents

muRata LB2AB UWB and Bluetooth Combo Module

Product Information

Product Name	UWB+BLE Module
Part Number	LBUA5QJ2AB
FCC ID	VPYLB2AB
IC ID	772C-LB2AB

Product Usage Instructions

This UWB+BLE Module has been FCC/ISED certified as Single Modular Approval. It is important to follow the guidelines and instructions provided to ensure proper usage of the device.

Antenna Compatibility
The module is approved to operate with specific antenna types. Antennas not included in the certified list, or those with a gain greater than the indicated maximum gain for that type, are strictly prohibited for use with this device.

Antenna Type	Frequency Channel	Peak Gain (dBi)
TWR/TDoA antenna for UWB	Channel 5	3.9
TWR/TDoA antenna for UWB	Channel 9	2.8
AoA/PDoA antenna I for UWB	Channel 5	1.8
AoA/PDoA antenna I for UWB	Channel 9	-1.5
AoA/PDoA antenna II for UWB	Channel 5	0.9
AoA/PDoA antenna II for UWB	Channel 9	2.8
PCB antenna for BLE	N/A	-3.8

Please refer to the next pages of the user manual for detailed antenna application guidance, including antenna patterns and design files.

Guidance to Host Product Manufacturer:

- If you are a host product manufacturer using this module, please ensure that you provide appropriate warnings in your product’s instructions, stating that the product is limited to professional users only.
- Additionally, it is important to use the unique antenna connector provided by Murata for Part 15 authorized transmitters used in the host product. For a list of acceptable unique connectors, please contact Murata.
- If there are any deviations from the defined parameters of the antenna trace as described in the instructions, the host product manufacturer must notify Murata and obtain approval for changes in the antenna trace design. This may require filing a Class II permissive change application.

FCC & IC Regulatory Compliance Statement:

- This module complies with FCC radiation exposure limits for an uncontrolled environment. It is recommended to install and operate the equipment with a minimum distance of 20cm between the radiator and the body. The

transmitter should not be co-located or operated in conjunction with any other antenna or transmitter.
- If you wish to increase antenna gain or make changes to the antenna type, a Class II permissive change application must be filed by Murata or the host manufacturer, depending on the circumstances.

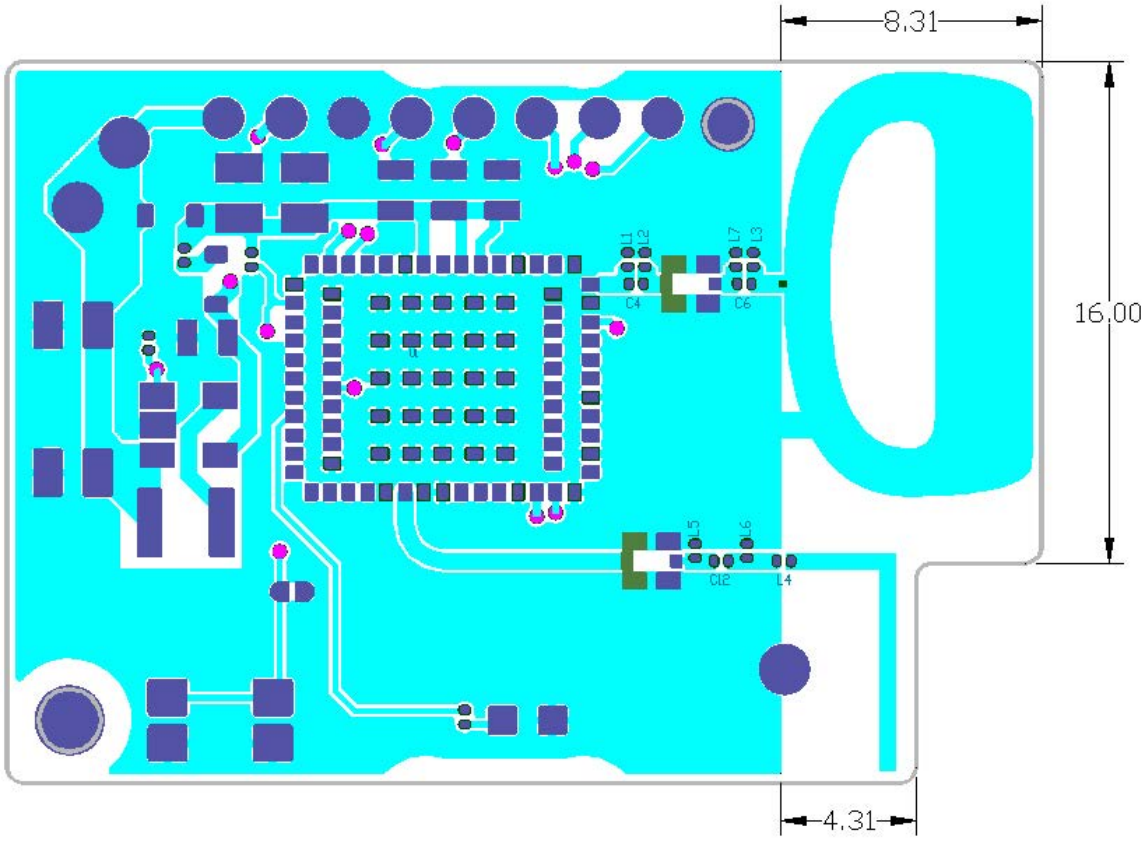
Part Number: LBUA5QJ2AB

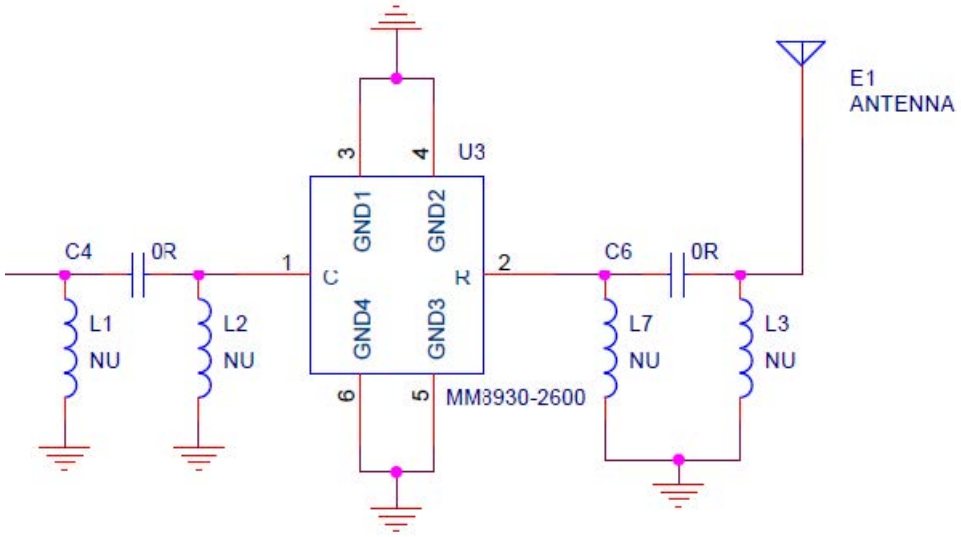
- LBUA5QJ2AB has been FCC/ISED certified as Single Modular Approval with the following IDs.
  - **FCC ID:** VPYLB2AB
  - **IC:** 772C-LB2AB
- The module is limited to OEM installation ONLY. The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.
  Therefore, the final host product must be submitted to Murata for confirmation that the installation for the module into the host is in compliance with regulations of FCC and IC Canada. Specially, if an antenna other than the model documented in the Filing is used, a Class 2 Permissive Change must be filed with the FCC.
- Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.
- This module has been approved by FCC to operate with the antenna types with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device. The following antennas have been certified in combination with the module.

Refer to next pages for the antenna application guidance.

1. TWR/TDoA antenna for UWB with peak gains of 3.9dBi (channel 5) and 2.8dBi (channel 9);
2. AoA/PDoA antenna I for UWB with peak gains of 1.8dBi (channel 5) and -1.5dBi (channel 9);
3. AoA/PDoA antenna II for UWB with peak gains of 0.9dBi (channel 5) and 2.8dBi (channel 9);
4. PCB antenna for BLE with a peak gain of -3.8dBi;

Antenna Application Guidance_ TWR/TDoA antenna

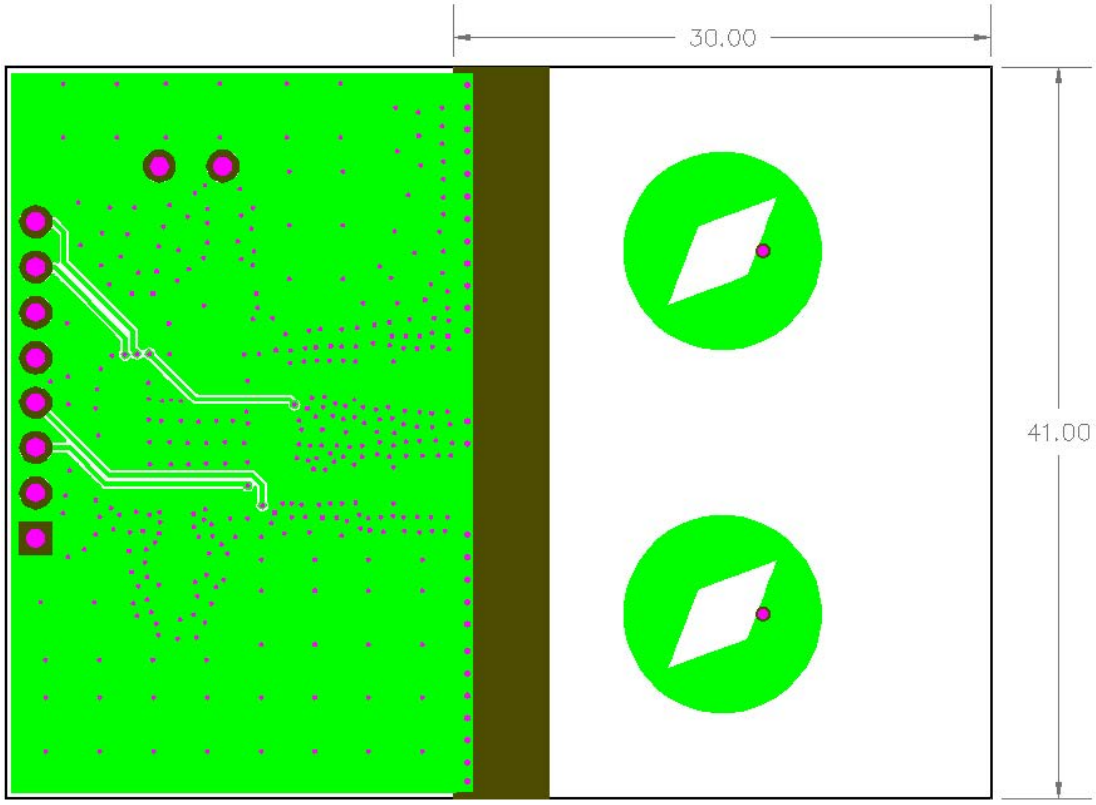




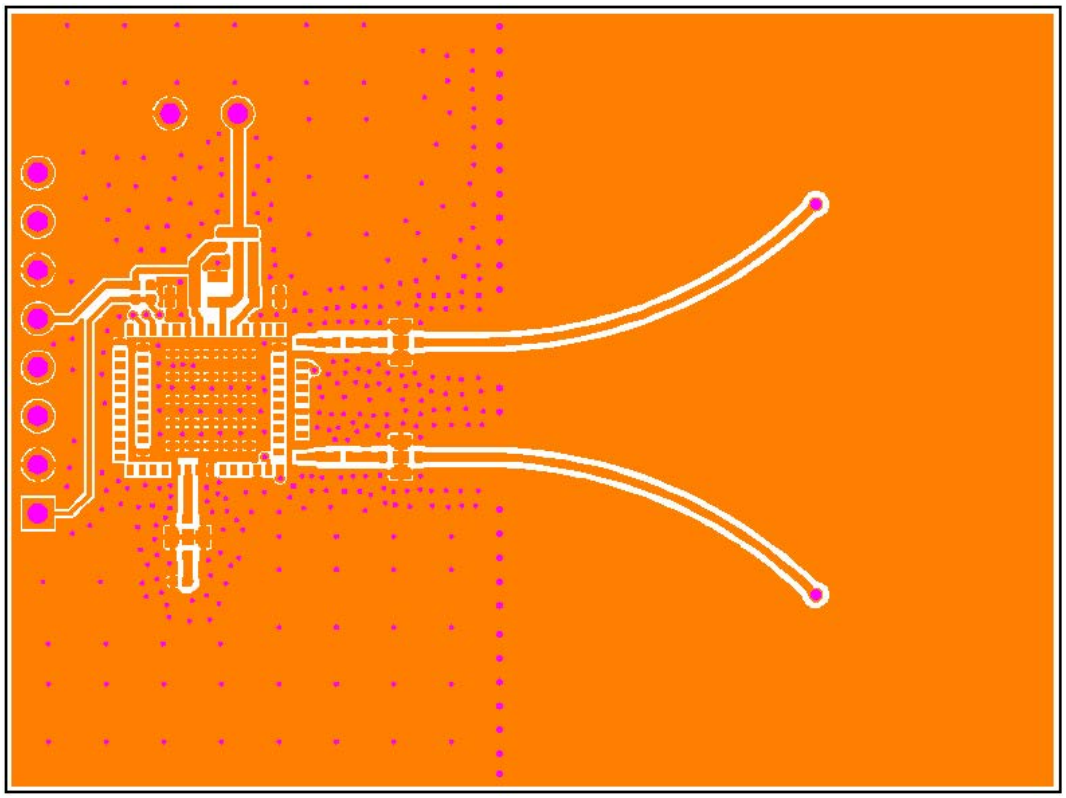
- Refer to js-0977-type 2cutag_antenna.dwg for antenna pattern.
- Contact Murata for the design file.

Antenna Application Guidance_ AoA/PDoA antenna I

Top

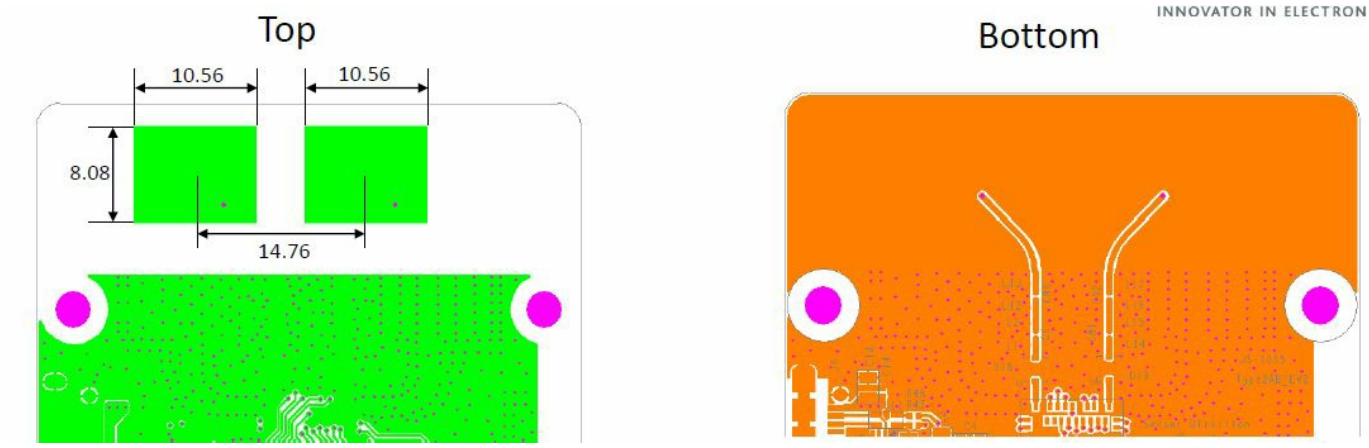


Bottom

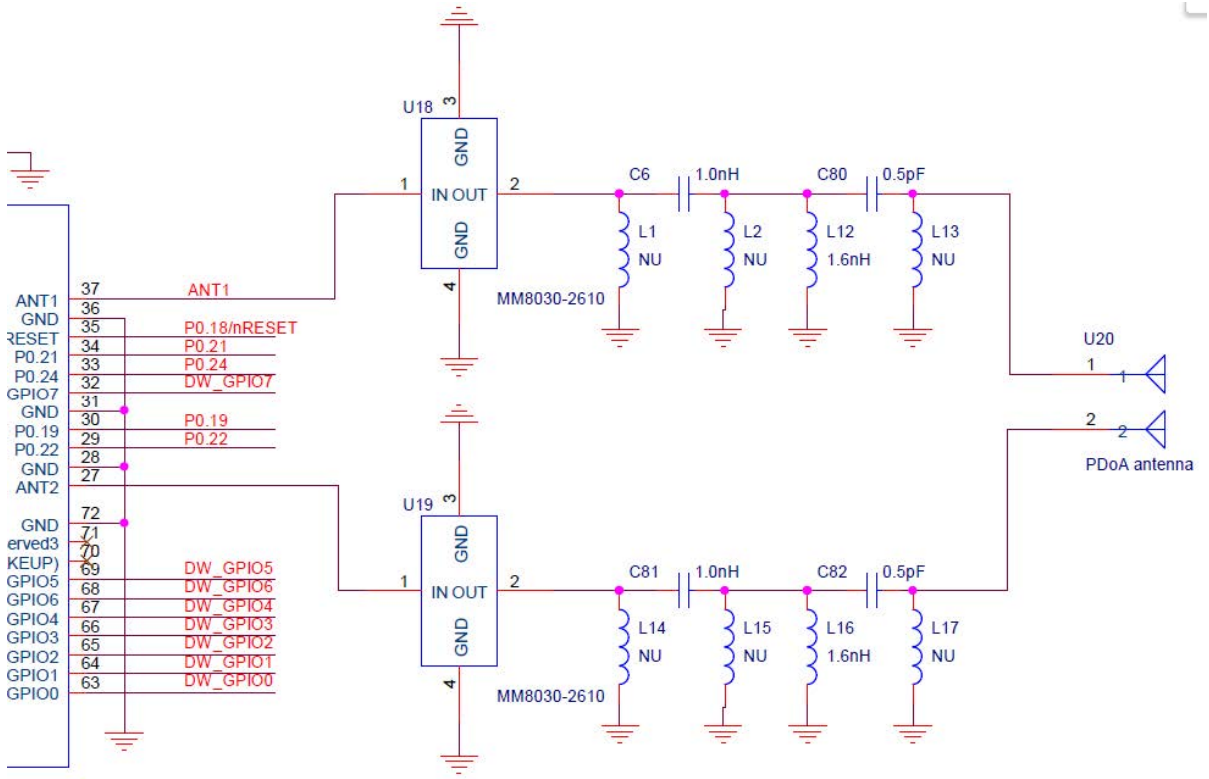


- Refer to js-0958_2ab certification board_pdoa_antenna.dxf for antenna pattern.
- Contact Murata for the design file.

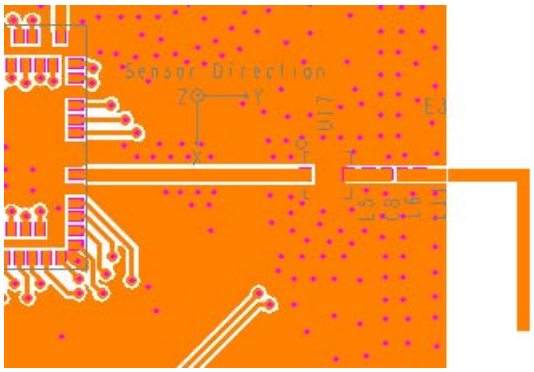
Antenna Application Guidance_ AoA/PDoA antenna II

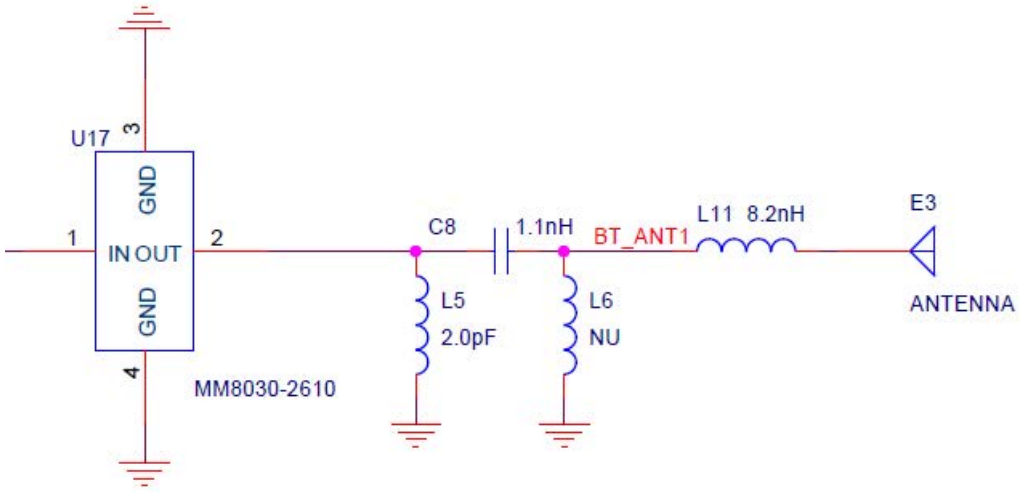


- Refer to JS-1055_2AB_EVB_Layout.dxf for antenna pattern.
- Contact Murata for the design file.



Antenna Application Guidance_ PCB antenna for BLE





- Refer to JS-1055_2AB_EVB_Layout.dxf for antenna pattern.
- Contact Murata for the design file.

Guidance to host product manufacturer

- Module has professional users use condition limitations, Host product manufacturer please ensure giving such warning like “Product is limited to professional users use” in your product’s instruction.
- Unique antenna connector must be used on our Part 15 authorized transmitters used in the host product. Contact Murata for a list of acceptable unique connectors.
- Any deviation(s) from the defined parameters of the antenna trace, as described by this instruction, host product manufacturer must notify us that you wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID and IC ID (new application) procedure followed by a Class II permissive change application.

FCC&IC regulatory compliance statement

- **15.19 &RSS-Gen Statement**
  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.
- **15.21 Information to user**
  Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

RF Exposure compliance statement
This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Labelling Instruction for Host Product Integrator
Please notice that if the FCC and IC identification number is 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. For FCC, this exterior label should follow “Contains FCC ID: VPYLB2AB”. In accordance

with FCC KDB guidance 784748 Labeling Guidelines. For IC, this exterior label can use the wording “Contains IC: 772C-LB2AB”.

- **15.19 Labelling requirements shall be complied on end user device.**
  Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

Installation Notice to Host Product Manufacturer

- The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.
- The module is limited to installation in mobile application, a separate approval is required for all other operating configurations, including portable configurations with respect to
  - 2.1093 and difference antenna configurations.

Antenna Change Notice to Host manufacturer

- If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

FCC other Parts, Part 15B Compliance Requirements for Host product manufacturer

- This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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.
- This device is approved under Part 15.519 for handheld use.
- The use of antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole, or any fixed outdoors infrastructure is prohibited.
- Antennas may be mounted only on the hand held UWB device.
- UWB devices may not be employed for the operation of toys. Operation onboard an aircraft, a ship or a satellite is prohibited.
- Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements.
- Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105
- Information to the user or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

For Class B

Note:

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to

part 15 ofthe 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.

For Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IC Statements

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.

- Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent is tropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.
- This equipment complies with FCC/IC RSS-102 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.
- When the Industry Canada certification number is 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. This exterior label can be use wording ”Contains transmitter module IC: 772CLB2AB” or “Contains IC: 772C-LB2AB”.

Documents / Resources

	**muRata LB2AB UWB and Bluetooth Combo Module** [pdf] User Manual LBUA5QJ2AB, VPYLB2AB, 772C-LB2AB, LB2AB UWB and Bluetooth Combo Module, UWB and Bluetooth Combo Module, Bluetooth Combo Module, Combo Module