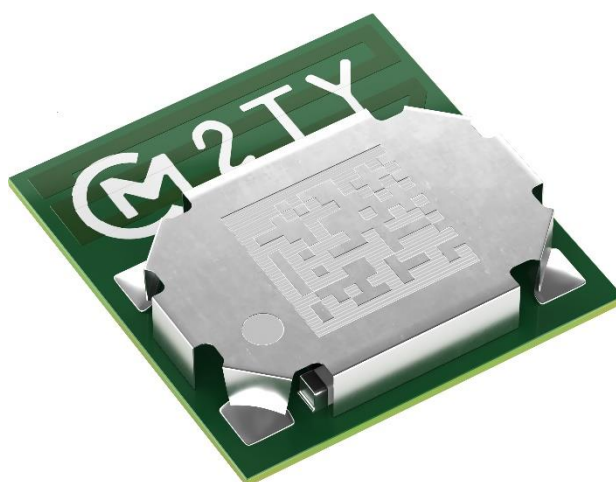


# Type 2TY Radio Regulatory Certification

Application Note - Rev. 2.0



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## About This Document

Murata Type 2TY is a Bluetooth® Low Energy module. This guide is an application note on the radio regulatory certification of Murata Type 2TY module.









## Audience & Purpose

The Intended audience of this document are the manufacturers and system integrators who will integrate this module to their solutions.

## Document Conventions

**Table 1** describes the document conventions.

**Table 1: Document Conventions**

Conventions	Description
	<b>Warning Note</b> Indicates very important note. Users are strongly recommended to review.
	<b>Info Note</b> Intended for informational purposes. Users should review.
	<b>Menu Reference</b> Indicates menu navigation instructions. <b>Example:</b> Insert → Tables → Quick Tables → Save Selection to Gallery 
	<b>External Hyperlink</b> This symbol indicates a hyperlink to an external document or website. <b>Example:</b> <a href="#">Murata</a>  Click on the text to open the external link.
	<b>Internal Hyperlink</b> This symbol indicates a hyperlink within the document. <b>Example:</b> <a href="#">Model Number</a>  Click on the text to open the link.
<code>Console input/output or code snippet</code>	<b>Console I/O or Code Snippet</b> This text <b>Style</b> denotes console input/output or a code snippet.
<code># Console I/O comment // Code snippet comment</code>	<b>Console I/O or Code Snippet Comment</b> This text <b>Style</b> denotes a console input/output or code snippet comment. <ul style="list-style-type: none"> <li>• Console I/O comment (preceded by "#") is for informational purposes only and does not denote actual console input/output.</li> <li>• Code Snippet comment (preceded by "//") may exist in the original code.</li> </ul>

## 1 Model Number

2TY

## 2 Label

Since there is no space which indicates the Certification Number/ID on this module, it is indicated in this application note and/or a package as follows:

FCC ID: VPYLBCA2HN2AY IC: 772C-LBCA2HN2AY HVIN: 2TY

This device complies with part 15 of FCC Rules and Innovation, Science and Economic Development Canada's license-exempt RSSs. 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.

Le présent appareil est conforme à la partie 15 des règles de la FCC et aux normes des CNR d'I 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, et (2) l'appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.



R 001-P01775

## 3 Antenna

Our module has an internal antenna. Approved for antenna gain +1 dBi.



Please do not exceed this when incorporating into your product.

## 4 Output Power Table (Settings) and Available Mode

Output power supply and available modes are described in **Table 2**.

**Table 2: Output Power Supply (Settings) and Available Modes**

Band	Mode	Rate	Channel	Setting [dBm] (Target)
2.4 GHz	Low Energy	1 Ms/s	1-39 ch (2 MHz step)	2.5

## 5 Japan

**Certification Number / 認証番号 : 001-P01775**

製造者名（端末機器の製造者名）：株式会社村田製作所

当モジュールは日本電波法に基づく工事設計認証を受けた製品です。

当モジュールはアンテナを内蔵しております。

-----  
下記①または②の内容を、当モジュールを組み込む製品に記載を推奨します。

製品上への表示（①または②）に支障がある場合は当モジュールを組み込む製品のユーザーマニュアルや

包装（梱包）パッケージへの表示または電子表示を推奨いたします。

電子表示の場合は、『電子表示していること』+『その表示までの操作方法』を製品のマニュアルに記載いただく

必要がございます。

\*\*\*\*\*

①【本製品は、電波法に基づく工事設計認証(認証番号: 001-P01775)を受けた特定無線設備を内蔵しています。】

もしくは

② 技適マーク + モジュールの電波法の認証番号を製品上への表示

\*\*\*\*\*

## 6 FCC (US)

### FCC ID: VPYLBCA2HN2AY

Since this module is not sold to general end users directly, there is no user manual of module.

For the details about this module, please refer to the specification sheet of module.

This module should be installed in the host device according to the interface specification (installation procedure).

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.

This device complies with below part 15 of FCC Rules.  
Part 15 Subpart C

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and 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.  
The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

This module is designed for mounting inside of the end product by us professionally.  
Therefore, it complies with the antenna and transmission system requirements of §15.203.

Since there is no space which indicates FCC ID on this module, FCC ID is indicated in a manual. If the FCC ID is not visible when the module is installed inside another device, then the module is installed must also display a label referring to the enclosed module.

This manual is based on KDB 996369, which is designed to ensure that module manufacturers correctly communicate the necessary information to host manufacturers that incorporate their modules.

### 6.1 General: Applicable

Sections from [List of Applicable FCC Rules: Applicable ☑](#) to [Additional Testing, Part 15 Subpart B Disclaimer: Applicable ☑](#) (section 6.2 through 6.10) describe the items that must be provided in the integration instructions for host product manufacturers (e.g., OEM instruction manual) to use when integrating a module in a host product. This Modular transmitter applicant (muRata) should include information in their instructions for all these items indicating clearly when they are not applicable.

### 6.2 List of Applicable FCC Rules: Applicable

This device complies with below part 15 of FCC Rules.  
Part 15 Subpart C

## 6.3 Summarize the Specific Operational Use Conditions: Applicable

This module is designed for mounting inside of the end product by us professionally. Therefore, it complies with the antenna and transmission system requirements of §15.203.

## 6.4 Limited Module Procedures: Applicable

This module needs to supply a regulated voltage from host device.

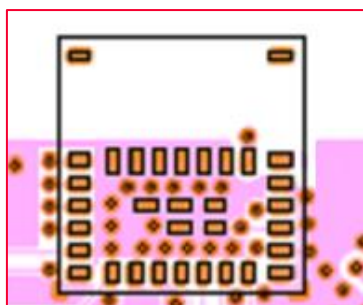
Since there is no space which indicates FCC ID on this module, FCC ID is indicated in a manual. If the FCC ID is not visible when the module is installed inside another device, then the module is installed must also display a label referring to the enclosed module.

## 6.5 Trace Antenna Designs: Applicable

Do not place a metal plane in the area shown in the figure below (within the red dotted line) except for mounting pads.

A design of applicable trace antenna is shown in **Figure 1**.

**Figure 1: Applicable Trace Antenna Design**



Also, please confirm the following performance after implementing it in your product.

The concrete contents of a check are the following points.

1. An antenna gain is lower than a gain given in antenna specifications.  
Measure the gain and confirm the peak gain is less than the application value.
2. The emission level is not getting worse.  
Measure the spurious and confirm degradation of less than 3dB than spurious value of worst of report used for the application.

If there is any problem, please consult us.

## 6.6 RF Exposure Considerations: Applicable

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 20 cm or more away from a person's body.

When the host is a portable device, it is necessary to take a SAR test with your set mounting this module.

However, as of April 2023, due to exposure test exempt power levels, it is not necessary to take a SAR test with your set mounting this module.

In the future, if your product becomes subject to the exposure test due to changes in regulations and regulations, please contact us ([www.murata.com](http://www.murata.com) .



- **Portable equipment:** Equipment for which the spaces between human body and antenna are used within 20 cm.
- **Mobile equipment:** Equipment used at position in which the spaces between human body and antenna exceeded 20 cm.

## 6.7 Antennas: Applicable

Applicable antennas are described in **Table 3**.

**Table 3: Applicable Antennas**

Part number	Vendor	Peak Gain (dBi)	Type	Connector
Internal Trace Antenna	Murata	+1.0	Monopole	-

## 6.8 Label and Compliance Information: Applicable

The following statements must be described in the user manual of the host device of this module.

Contains Transmitter Module FCC ID:  
VPYLBCA2HN2AY

or

Contains FCC ID: VPYLBCA2HN2AY

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.



If it is difficult to describe this statement on the host product due to the size, please describe in the User's manual.

### FCC CAUTION

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

Frequency Tolerance:  $\pm 20$  ppm

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




## 6.9 Information on Test Modes and Additional Testing Requirements: Applicable



Please check the installation manual first.



Please contact Murata ([www.murata.com](http://www.murata.com) ) if you have any questions when conducting the RF certification test on the host.

We (Murata) are ready to present the control manual and others for the RF certification test.

## 6.10 Additional Testing, Part 15 Subpart B Disclaimer: Applicable

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and 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.

The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

## 6.11 Note EMI Considerations: Applicable



A host manufacture is recommended to use KDB 996369 D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant 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<sup>7</sup>; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.

## 6.12 How to Make Changes: Applicable

When changing from the conditions of approval, please present technical documentation that it is equivalent to a Class I change.

For example, when adding or changing an antenna, the following technical documents are required.

1. The document indicating the same type as the original antenna.
2. Technical document showing that the gain is the same or lower than the gain at the time of the original approval.
3. Technical document showing that the spurious is no more than 3 dB worse than when it was originally certified.

## 7 ISED (Canada)

**IC: 772C-LBCA2HN2AY**

**HVIN: 2TY**

Since this module is not sold to general end users directly, there is no user manual of module.

For the details about this module, please refer to the specification sheet of module.

This module should be installed in the host device according to the interface specification (installation procedure).

- The following information must be indicated on the host device of this module.

Contains IC: 772C-LBCA2HN2AY
------------------------------

- The following statements must be described on the user manual of the host device of this module:

<p>This device complies with Innovation, Science and Economic Development Canada's applicable licence-exempt RSSs. Operation is subject to the following two conditions:</p>
--

<p>(1) This device may not cause interference; and</p>
--

<p>(2) This device must accept any interference, including interference that may cause undesired operation of the device.</p>
---

<p>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 :</p>
--

<p>1) l'appareil ne doit pas produire de brouillage;</p>
--

<p>2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.</p>
--



If it is difficult to describe this statement on the host product due to the size, please describe in the User's manual.



Approved for antenna gain +1dBi.

Please do not exceed this when incorporating into your product.

- The following statements must be described on the user manual of the host device of this module:

<p>Data transmission is always initiated by software, through the digital and analog baseband, and finally to the RF chip. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.</p>
--

<p>La transmission de données est toujours initiée par le logiciel, par la bande de base numérique et analogique, et enfin par la puce RF. Ce sont les seules façons dont la bande de base numérique activera le transmetteur RF, qu'elle éteint à la fin du paquet.</p>
--

Par conséquent, l'émetteur ne sera allumé que pendant la transmission de l'un des paquets mentionnés ci-dessus. En d'autres termes, ce dispositif interrompt automatiquement la transmission en cas d'absence d'information à transmettre ou de défaillance opérationnelle.



If it is difficult to describe this statement on the host product due to the size, please describe in the User's manual.

- RF Exposure Compliance

This equipment complies with Innovation, Science and Economic Development Canada radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the Innovation, Science and Economic Development Canada radio frequency (RF) Exposure rules as this equipment has very low levels of RF energy.

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'Innovation, Sciences et Développement économique Canada puisque cet appareil a un niveau très bas d'énergie RF.

As of April 2023, due to exposure test exempt power levels, it is not necessary to take a SAR test with your set mounting this module.

In the future, if your product becomes subject to the exposure test due to changes in regulations and regulations, please contact us ([www.murata.com](http://www.murata.com) .



- **Portable equipment:** Equipment for which the spaces between human body and antenna are used within 20 cm.
- **Mobile equipment:** Equipment used at position in which the spaces between human body and antenna exceeded 20 cm.

## Revision History

Revision	Date	Author	Change Description
1.0			Initial Release
2.0	Nov 23, 2023	TF	Migrated to new document template



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