

Type1VY-934 User Manual for FCC

FCC ID:VPYLB1VY934

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
Part 15 Subpart E

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 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 module needs to supply a regulated voltage from host device.

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

INTEGRATION INSTRUCTIONS

1. General: Applicable

Sections 2 through 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.

2. List of applicable FCC rules: Applicable

<p>This device complies with below part 15 of FCC Rules. Part 15 Subpart C Part 15 Subpart E</p>
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3. Summarize the specific operational use conditions : Applicable

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

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.

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5. Trace antenna designs : Applicable

Please perform the Trace antenna design that followed the specifications of the antenna.

The concrete contents of a check are the following three points.

- 1) It is the same type as the antenna type of antenna specifications.
Confirm the same size as the Gerber file.
- 2) 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.
- 3) 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. However it is spurious defined below.
Please send those reports to Murata.

And please refer Antenna in Section 6 of the installation manual.

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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 20cm or more away from person's body.

When the host is a portable device, it is necessary to take a SAR test with your set mounting this module.
(except to use only Bluetooth LE or 2.4GHz-WLAN)

Class II permissive change application is necessary using the SAR report. Please contact Murata (www.murata.com).
And an application for a Class II permissive change from a Mobile equipment to a Portable equipment is also required.

Note)

Portable equipment : Equipment for which the spaces between human body and antenna are used within 20cm.

Mobile equipment : Equipment used at position in which the spaces between human body and antenna exceeded 20cm.

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7. Antennas : Applicable

Antenna Port	Antenna model Name	Antenna Type	connector	Antenna Gain
Chain0	Antenna0 1VY DC1231	[2.4GHz] Monopole antenna	N/A	+2.0 dBi
		[5GHz] Monopole antenna	N/A	+1.9 dBi
Chain1	Antenna1 1VY DC1231	[2.4GHz] Monopole antenna (RF cable: 30 ~ 315 mm)	I-PEX: 20449-001E *1	+2.0 ~ +1.4 dBi
		[5GHz] Monopole antenna (RF cable: 30 ~ 315 mm)	I-PEX: 20449-001E *1	+1.3 ~ -1.3 dBi

*1: The connector is present, but the feed point is the soldered land portion of the module's RFOUT terminal

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8. Label and compliance information : Applicable

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

Contains Transmitter Module FCC ID:VPYLB1VY934

or

Contains FCC ID: VPYLB1VY934

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.

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. 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.

Frequency Tolerance: ± 20 ppm

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

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When installing it in a mobile equipment. Please describe the following warning to the manual.

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.

When installing it in a portable equipment. Please describe the following warning to the manual.

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. Type1VY-934 has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.

It is necessary to take a SAR test with your set mounting this module (except to use only Bluetooth V4.2(LE)).
Class II permissive change application is necessary using the SAR report. Please contact Murata (www.murata.com).

Note)

Portable equipment : Equipment for which the spaces between human body and antenna are used within 20cm.

Mobile equipment : Equipment used at position in which the spaces between human body and antenna exceeded 20cm.

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9. Information on test modes and additional testing requirements: Applicable

Please check the installation manual first.

Please contact Murata (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.

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.

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11. Note EMI Considerations : Applicable

Note that 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 mode⁷; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.

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