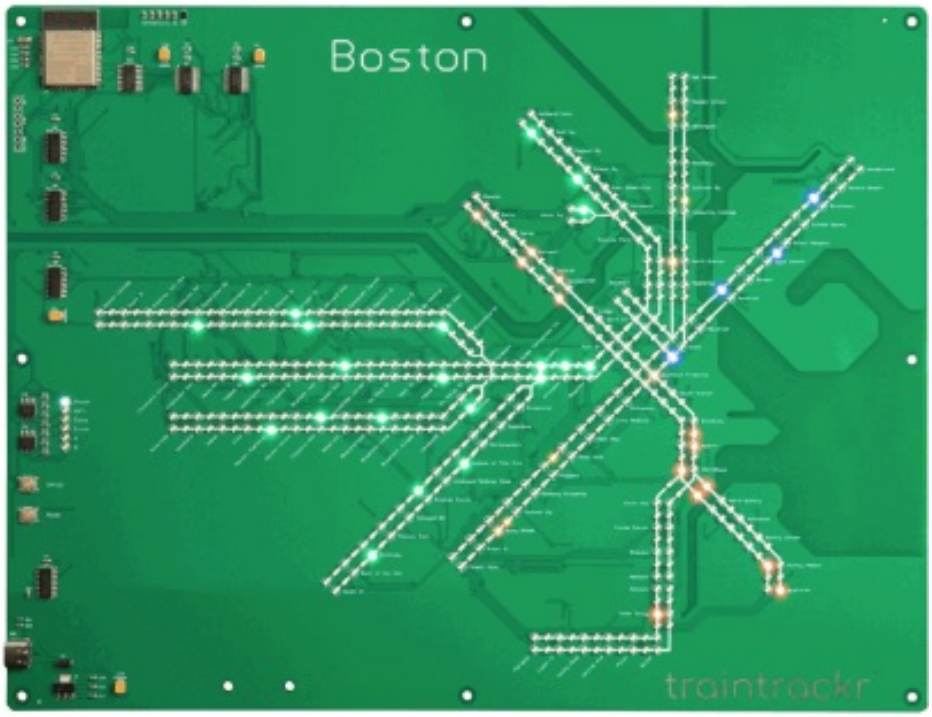
Contents [hide]

Traintrackr MBTA9 Live LED Maps



Technical details

- Operating voltage: 5V DC
- Working current: 200mA
- Peak Current: 500mA
- WiFi Frequency: 2412- 2462MHz
- BT Frequency:2402- 2480MHzz
- Operating temperature: 0°C to +40°C

Box Content

- Traintrackr circuit board
- USB cable
- Wooden stand
- Instructions
- Power supply (on some models)

Operation Notes

- This device is powered via the supplied USB power cable
- Plug your device into a suitable USB power source using the supplied cable.
- Do not use if the cable or devices are damaged

- Visit our website for further setup instructions, linked below

Safety Information

- For indoor use only
- Keep the device away from water, fire, humidity, or hot environments.
- Do not use the device where wireless devices are prohibited.
- Unplug the power adapter from the power source when it is not in use
- Do not leave the device in direct sunlight or near any heat source
- More information can be found on our website
- traintrackr.io (North America)
- traintrackr.co.uk (UK, Europe)
- Save these instructions for future use

Certifications

CE

Certification number: M.2023.206.C92734

Related Directives and Annex

- 2014/35/EU Low Voltage Directive /Annex III
- 2014/30/EU Electromagnetic Compatibility Directive /Annex II

Related Standards

- EN 60204:2018
- EN 61000-6-3:2021
- EN 61000-6-1:2019

FCC

- [pending]

FCC STATEMENT

FCC Caution: Any changes or modifications not expressly approved by the party

responsible for compliance could void the user's authority to operate this equipment. 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 and its antenna(s) must not be co-located or operating in conjunction. With any other antenna or transmitter. 15.105 Information to the user. (b) For a Class B digital device or peripheral, the instructions furnished to the user shall include the following or a similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, under 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 according to 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 to 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 equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimumdistance of 20cm between the radiator and your body.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with

any other antenna or transmitter. The availability of some specific channels and/or operational frequency bands
is country dependent, and is firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user. The final product must be labelled in a visible area with the following: “Contains Transmitter Module “FCC ID: 2BDVP-MBTA9

Requirement per KDB996369 D03

List of applicable FCC rules
List the FCC rules that apply to the modular transmitter. These are the rules that specifically establish the bands of operation, the power, spurious emissions, and operating fundamental frequencies. DO NOT list compliance with unintentional-radiator rules (Part 15 Subpart B) since that is not a condition of a module grant that is extended to a host manufacturer. See also Section 2.10 below concerning the need to notify host manufacturers that further testing is required.3

Explanation: This module meets the requirements of FCC part 15C (15.247.t Specifically identified AC Power Line Conducted Emission, Radiated Spurious emissions, Band edge, and RF Conducted Spurious Emissions, Conducted Peak Output Power, Bandwidth, Power Spectral Density, Antenna Requirement. 2.3 Summarize the specific operational use conditions. Describe use conditions that apply to the modular transmitter, including, for example, any limits on antennas, etc.

For example, if point-to-point antennas are used that require a reduction in power or compensation for cable loss, then this information must be in the instructions. If the use condition limitations extend to professional users, then instructions must state that this information also extends to the host manufacturer’s instruction manual. In addition, certain information may also be needed, such as peak gain per frequency band and minimum gain, specifically for master devices in 5 GHz DFS bands.
Explanation: The product antenna uses an irreplaceable antenna with a gain of BT: 3.28 dBii, WIFI: 3.04 dBi

Single Modular
If a modular transmitter is approved as a “Single Modular,” then the module The

manufacturer is responsible for approving the host environment that the Single Modular is used with. The manufacturer of a Single Modular must describe, both the filing and the installation instructions, the alternative means that the Single Modular manufacturer uses to verify that the host meets the requirements to satisfy the module limiting conditions.

A Single Modular manufacturer has the flexibility to define its alternative method to address the conditions that limit the initial approval, such a shielding, minimum signaling amplitude, buffered modulation/data inputs, or power supply regulation. The alternative method could include the limited module manufacturer reviewing detailed test data or host designs before giving the host manufacturer approval.

This Single Modular procedure is also applicable for RF exposure evaluation when it is necessary to demonstrate compliance in a specific host. The module manufacturer must state how control of the product into which the modular transmitter will be installed will be maintained, such that full compliance of the product is always ensured. For additional hosts other than the specific host originally granted with a limited module, a Class II permissive change is required on the module grant to register the additional host as a specific host also approved with the module. Explanation:
The module is a single module.

Trace antenna designs
For a modular transmitter with trace antenna designs, see the guidance in Question 11 of KDB Publication 996369 D02 FAQ – Modules for Micro-Strip Antennas and traces. The integration information shall be included for the TCB review. The integration instructions for the following aspects: layout of trace design, parts list (BOM), antenna, connectors, and isolation requirements. a) Information that includes permitted variances (e.g., trace boundary limits, thickness, length, width, shape(s), dielectric constant, and impedance as applicable for each type of antenna); b) Each design shall be considered a different type (e.g., antenna length in multiple(s) of frequencies, the wavelength, and antenna shape (traces in phase) can affect antenna gain and must be considered); c)

The parameters shall be provided in a manner permitting host manufacturers to design the printed circuit (PC) board layout; d) Appropriate parts by manufacturer and

specifications; e) Test procedures for design verification; and f) Production test procedures for ensuring compliance The module grantee shall provide a notice that any deviation(s) from the defined parameters of the antenna trace, as described by the instructions, require that the hos product manufacturer must notify the module grantee that they wish to change the antenna trace design. In this case, a Class II permissive change application is required to be filed by the grantee, or the host manufacturer, who can take responsibility through the change inthe FCC ID (new application) procedure, followed by a Class II permissive change application.

RF exposure considerations

It is essential for module grantees to clearly and explicitly state the RF exposure conditions that permit a host product manufacturer to use the module. Two types of instructions are required for RF exposure information: (1) to the host product manufacturer, to define the application conditions.

(mobile, portable – xx cm from a person's body); and (2) additional text needed for the host product manufacturer to provide to end users in their end-product manuals. If RF exposure statements and use conditions are not provided, then the host product manufacturer is required to take responsibility for the module through a change in the FCC ID (new application)

Explanation: The module complies with FCC radiofrequency radiation exposure limits for uncontrolled environments. The device is installed and operated with a distance of more than 20 cm between the radiator and your body." This module follows FCC statement design, FCC ID: 28DVP-MBTA9

Antennas

A list of antennas included in the application for certification must be provided in the instructions. For modular transmitters approved as limited modules, all applicable professional installer instructions must be included as part of the information to the host product manufacturer. The antenna list shall also identify the antenna types (monopole, PIFA, dipole, etc. (note that, for example,e omnidirectional antenna is not considered to be a specific antenna type*). For situations where the host product manufacturer is responsible for an external connector, for example, with an RF pin and antenna trace design, the integration Instructions shall inform the installer that a unique antenna connector must be used on the Part 15 authorized transmitters that are used in the host

product.

The module manufacturers shall provide a list of acceptable unique connectors.
Explanation: The product antenna uses an irreplaceable antenna with a gain of BT: 3.28dBi, WIFI:3.04dBii

Label and compliance information
Grantees are responsible for the continued compliance of their modules with the FCC rules. This includes advising host product manufacturers that they need to provide a physical or e-label stating “Contains FCC ID” with their finished product. See Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748.
Explanation: The host system using this module should have a label in a visible area indicating the following texts: “Contains FCC ID: 2BD 2.9 Information on test modes and additional testingrequirements5 Additional guidance for testing host products is given in the KDB Publication 996369 D04 Module Integration Guide. Test modes should take into consideration no different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.

The grantee should provide information on how to configure test modes for the host product evaluation for different operational conditions for a stand-alone modular transmitter in a host, versus with multiple, simultaneously transmitting modules, or other transmitters in a host. Grantees can increase the utility of their modular transmitters by providing special means, modes, or instructions that simulate or characterize a connection by enabling a transmitter. This can greatly simplify a host manufacturer’s determination that a module as installed in a host complies with FCC requirements.
Explanation: Traintrack LLC can increase the utility of our modular transmitters by providing instructions that simulate or characterize connection by enabling a transmitter.

Additional testing, Part 15 Subpart B disclaimer

The grantee should include a statement that the modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance with withy other FCC rules that apply to the host are not covered by the modular transmitter grant of

certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

Explanation: The module does not have unintentional-radiator digital circuitry, so the module does not require an evaluation by FCC Part 15 Subpart B. The host shoule be evaluated by the FCC Subpart B.

Documents / Resources

	Traintrackr MBTA9 Live LED Maps [pdf] Instruction Manual MBTA9, 2BDVP-MBTA9, 2BDVPMBTA9, MBTA9 Live LED Maps, MBTA9, Live LED Maps, LED Maps, Maps

References

- User Manual

Traintrackr

2BDVP-MBTA9, 2BDVPMBTA9, LED Maps, Live LED Maps, Maps, MBTA9, MBTA9 Live LED Maps, Traintrackr

Leave a comment

Your email address will not be published. Required fields are marked *

Comment *

Name

Email

Website

Save my name, email, and website in this browser for the next time I comment.

Post Comment

Search:

e.g. whirlpool wrf535swhz

Search

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.