T10 Plus

Multimedia Player

Specifications

Change History

Document Version	Release Date	Description
V1.0.2	2026-05-22	Updated the certification information.
V1.0.1	2026-01-05	• Updated the playback performance. • Updated the indicator status description. • Updated the media decoding specifications.
V1.0.0	2025-08-29	First release

Introduction

The T10 Plus is a new generation of multimedia player created by NovaStar for full-color LED displays. This multimedia player integrates playback and sending capabilities, allowing users to publish content and control LED displays with a computer, mobile phone, or tablet. Working with our superior cloud-based publishing and monitoring platforms, the T10 Plus enables users to manage LED displays from an Internet-connected device anywhere, anytime.

The T10 Plus can play content from a USB drive, satisfying various playback demands. Multiple protection measures such as terminal authentication and player verification are taken to keep the playback secure.

Thanks to its reliability, ease of use, and intelligent control, the T10 Plus becomes a winning choice for commercial LED displays and smart city applications such as fixed displays, lamp-post displays, chain store displays, advertisement players, retail store displays, door head displays, shelf displays, and much more.

Certifications

CE, FCC, FCC ID, IC, IC ID

If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.

Features

Output

- Loading capacity up to 650,000 pixels

  Maximum width: 2048 pixels, maximum height: 2048 pixels (maximum capacity per Ethernet port: 650,000 pixels)

- 1x Gigabit Ethernet output port
- 1x Stereo audio output connector

  The audio sample rate is fixed at 48 kHz. If NovaStar's multifunction card is used for audio output, audio with a sample rate of 48kHz is required.

Control

- 1x USB 2.0 (Type A) port

  Allows for USB playback, firmware upgrade and storage expansion.

- 1x USB (Type B) port

  Connects to the control computer for content publishing and screen control.

- 1x Fast Ethernet port

  Connects to the control computer, or connects to a LAN or public network for content publishing and screen control.

- 2x RS485 ports

  Connects to the brightness sensor or temperature and humidity sensor.

Performance

- Powerful processing capacity
  - Quad-core ARM A53 processor @1.4GHz
  - Support for hardware decoding of 4K videos
  - 2 GB of RAM
  - 32 GB of storage space
- Flawless playback

  Support for playback of 1x 4K, 2x 1080p, 4x 720p, 4x 480p, or 20x 360p videos

  Notes: Videos with resolutions between 2K and 4K will be converted into 4K videos.

Functionality

- All-round control plans

  - Enables users to publish content and control screens from a computer, mobile phone, or tablet.
  - Allows users to publish content and control screens from anywhere, anytime.
  - Allows users to monitor screens from anywhere, anytime.
- Wi-Fi AP and Wi-Fi Sta can be turned on at the same time
  - Wi-Fi AP

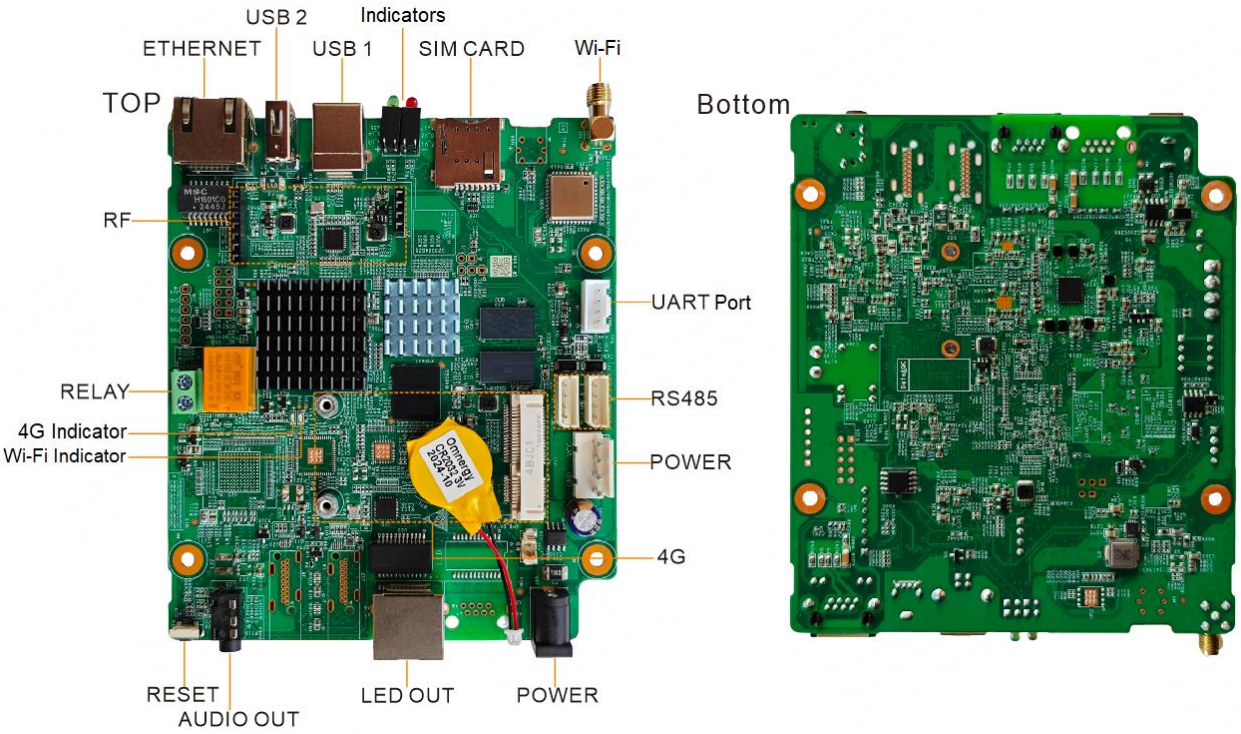
    User terminal devices can be connected to the built-in Wi-Fi hotspot of the multimedia player. The default SSID is "Model+Last 8 digits of SN" and the default password is printed on the SSID label.
  - Wi-Fi AP+Wi-Fi Sta

    Users can connect the multimedia player to a Wi-Fi network and turn on the Wi-Fi hotspot at the same time.
- Ultra-long-screen solution playback
- Synchronous playback across multiple screens

  Enabling synchronous playback halves the decoding capability of the device.
  - NTP time synchronization
  - GPS time synchronization (The specified 4G module must be installed.)
  - RF time synchronization (The specified RF module must be installed.)
- Support for brightness sensors or temperature and humidity sensors
- Support for 4G modules
  - The T10 Plus ships without a 4G module. Users have to purchase 4G modules separately if needed.
  - Network connection priority: Wired network > Wi-Fi network > 4G network

    When multiple networks are available, the device will choose a network according to the priority order.

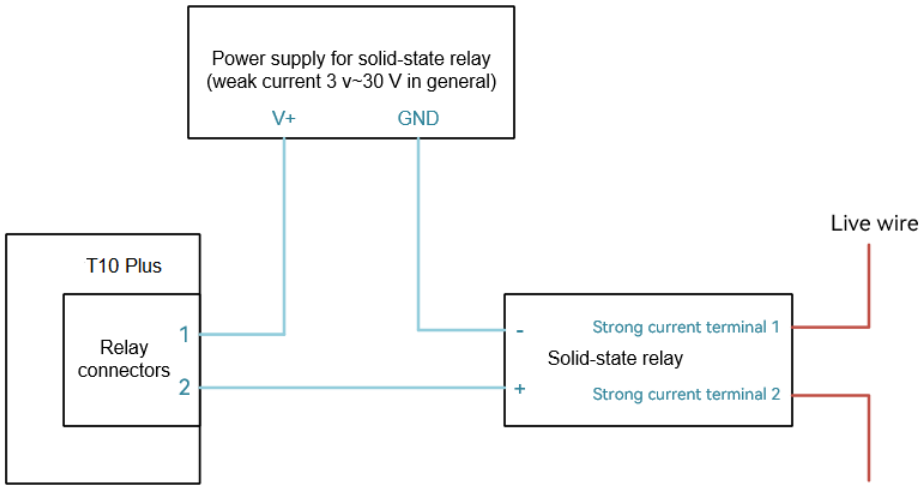
Appearance



All product pictures shown in this document are for illustration purpose only. Actual product may vary.

Name	Description
ETHERNET	Fast Ethernet port Standard RJ45 connector (with built-in LEDs) connecting to the control computer or connecting to a LAN or public network for content publishing and screen control.
USB 2	USB 2.0 (Type A) port for USB playback, firmware upgrade and storage expansion (up to 128 GB) • Supported file systems: FAT32/NTFS • USB drive capacity range: 2 GB to 128 GB • The size of a single file must be greater than 0 KB and less than 4 GB.
USB 1	USB (Type B) port Connects to the control computer for content publishing and screen control.
SIM CARD	SIM card slot Capable of preventing users from inserting a SIM card in the wrong orientation.

Name	Description
Wi-Fi	Wi-Fi antenna connector (2.4GHz Wi-Fi supported)
UART Serial Port	Reserved port for connecting to a third-party GPS module, which can be used for positioning and time synchronization.
RS485	2x RS485 ports for connecting to the brightness sensor or temperature and humidity sensor.
POWER	Power input connector
4G	4G module slot
LED OUT	Gigabit Ethernet output Standard RJ45 connector (with no built-in LEDs)
AUDIO OUT	3.5mm audio output connector Note: 3-pole audio connectors can be connected.
RESET	Factory reset button Press and hold this button for 5s to reset the product to its factory settings.
RELAY	2-pin relay control switch Connection method: The connection method of pins 1 and 2 is not fixed. On the power control page of ViPlex Express, turn on the circuit to connect pin 1 to pin 2, and turn off the circuit to disconnect pin 1 from pin 2. Note: The T10 Plus uses DC power supply. Using the relay to directly control AC is not recommended. If it is required to control AC, the following connection method is recommended.

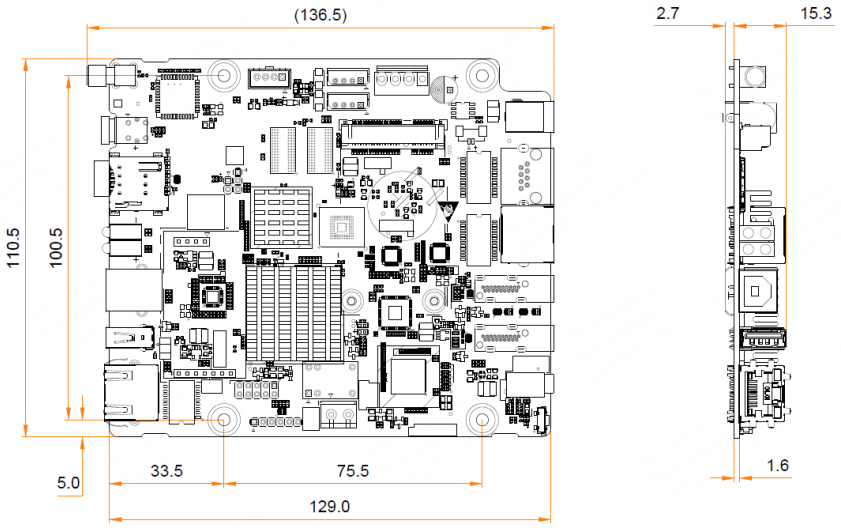
Name	Description
	
RF	RF module connectors

Indicators

Name	Color	Status	Description
PWR	Red	Staying on	The power supply is working properly.
SYS	Green	Staying on/off	The operating system is malfunctioning.
		Flashing once every 2s	The operating system is functioning normally.
CLOUD	Green	Off	The device is not connected to the Internet.
		Staying on	The device is connected to the Internet and the connection is available.
		Flashing once every 2s	The device is connected to VNNOX and the connection is available.
		Flashing once every second	The operating system is being upgraded.
		Flashing once every 0.5s	The device is copying the upgrade package/files from the USB drive.
RUN	Green	Flashing once every 4s	The FPGA has no video source.
		Flashing once every 0.5s	The FPGA is functioning normally.
		Staying on/off	The FPGA loading is abnormal.

Name	Color	Status	Description
4G	Green	Staying on	The network is connected and device communication is successful.
		Flashing once every second	The SIM card is abnormal.
		Off	No 4G module is detected.
Wi-Fi	Green	Staying on	The built-in Wi-Fi Sta is turned on but no network is connected.
		Flashing once every 2s	Wi-Fi Sta is configured and a network is being connected.
		Off	Wi-Fi Sta is turned off.

Dimensions



Tolerance: ±0.3 Unit: mm

Note

To make molds or trepan mounting holes, please contact NovaStar for a higher-precision structural drawing.

Specifications

Electrical Parameters	Input voltage	DC 5 V to 12 V

	Maximum power consumption	15 W
Storage Capacity	RAM	2 GB
	Internal storage	32 GB
Storage Environment	Temperature	–40°C to +80°C
	Humidity	5% RH to 95% RH, non-condensing
Operating Environment	Temperature	–20°C to +60°C
	Humidity	5% RH to 85% RH, non-condensing
Physical Specifications	Dimensions (L×W×H)	136.5 mm × 110.5 mm × 18.0 mm
	Net weight	114.1 g
	Gross weight	296.0 g
Packing Information	Dimensions (L×W×H)	278.0 mm × 63.0 mm × 221.0 mm
	Accessories	1x Wi-Fi omnidirectional antenna 1x QR code 1x Certificate of Approval
IP Rating	IP20 Please prevent the product from water intrusion and do not wet or wash the product.	
System Software	Android 10 operating system software Android terminal application software FPGA program	

Media Decoding Specifications

Image

Category	Codec	Resolution	Format	Remarks
JPEG	JFIF file format 1.02	64×64 pixels to 4096×2304 pixels	JPG, JPEG	Support for interlaced scanning only

Category	Codec	Resolution	Format	Remarks
				Support for SRGB JPEG Support for Adobe RGB JPEG
BMP	BMP	64×64 pixels to 4096×2304 pixels	BMP	N/A
GIF	GIF	64×64 pixels to 1920×1088 pixels	GIF	At a resolution of 1280×720, the supported frame rate range is 1fps to 30fps. At a resolution of 1920×1088, the supported frame rate range is 1fps to 10fps.
PNG	PNG	64×64 pixels to 4096×2304 pixels	PNG	N/A
WEBP	WEBP	64×64 pixels to 4096×2304 pixels	WEBP	

Video

Codec	Resolution	Max Frame Rate	Max Bit Rate (Ideal Case)	Format
H.264	64×64 pixels to 4096×2304 pixels	30fps	60Mbps	MP4, AVI, MKV, MOV
H.265/HEVC	64×64 pixels to 4096×2304 pixels	60fps	100Mbps	MP4, MKV, MOV
MPEG4	64×64 pixels to 1920×1088 pixels	60fps	29Mbps	MP4, AVI, MKV, MOV
VP8	64×64 pixels to 1920×1088 pixels	60fps	60Mbps	MKV, WEBM
VP9	64×64 pixels to 4096×2304 pixels	30fps	49Mbps	MKV, WEBM

Notes and Cautions

FCC Caution

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.

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.

Important Note:

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

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

Country Code selection feature to be disabled for products marketed to the US/Canada.

- The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- The transmitter module may not be co-located with any other transmitter or antenna.

As long as the three conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on

the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling:

The final end product must be labeled in a visible area with the following "Contains FCC ID:2AG8JT60"

If the FCC 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. This exterior label can use wording such as the following; Contains Transmitter Module FCC ID: 2AG8JT60.

Manual Information to the End User:

The OEM integrator has to be aware not provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

When the module is installed inside another device, the user manual of this device must contain below warning statements;

- This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
  - This device may not cause harmful interference,
  - This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

ISED Statement

English: This device complies with Industry Canada license-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. The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

French: Le présentappareilestconforme aux CNR d'Industrie Canada applicables aux appareils

radio exempts de licence. L'exploitationestautorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareildoit accepter tout brouillageradioélectriquesubi, mêmesi le brouillageest susceptible d'encompromettre le fonctionnement.

This radio transmitter (ISED certification number: 23873-T60) has been approved by Industry Canada to operate with the antenna types listed 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.

Le présent émetteur radio (ISED certification number: 23873-T60) a été approuvé par Industrie 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, sont strictement interdits pour l'exploitation de l'émetteur.

Radiation Exposure Statement

This equipment complies with Canada 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.

Déclaration d'exposition aux radiations

Cet équipement est conforme Canada limites d'exposition aux radiations dans un environnement non contrôlé. Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

This device is intended only for OEM integrators under the following condition:

The transmitter module may not be co-located with any other transmitter or antenna.

As long as the condition above is met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes:

Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 1 condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas né cessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

Important Note:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

Note Importante:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considéré comme valide et l' IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

The final end product must be labeled in a visible area with the following: Contains IC: 23873-T60.

Plaque signalétique du produit final

Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: Contient des IC: 23873-T60

Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

Radiation Exposure Statement

This equipment complies with Canada 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.

Cetéquipementestconforme Canada limitesd'exposition aux radiations dans un environnement non contrôlé. Ceté quipementdoitêtreinstallé et utilisé à distance minimum de 20cm entre le radiateur et votre corps.

Integration Instructions for Host Product Manufacturers According to KDB 996369 D03 OEM Manual v01

- List of applicable FCC rules

  FCC Part 15 Subpart C 15.247 & 15.209

- Specific operational use conditions

  The module is a 2.4G WiFi module.

  Operation Frequency: 2412-2462 MHz

  Number of Channel: 11

  Modulation: DSSS, OFDM

  Type: Helix Antenna

  Gain: 5.03 dBi Max.

  The module can be used for mobile or portable applications with a maximum 5.03dBi antenna. The host manufacturer installing this module into their product must ensure that the final composite product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operation. The host manufacturer has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

- Limited module procedures

  Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

- Trace antenna designs

  Not applicable. The module has its own antenna, and doesn’t need a host’s printed board micro strip trace antenna etc.

- RF exposure considerations

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

- Antennas

  Antenna Specification are as follows:

  Type: Helix Antenna

  Gain: 5.03 dBi

  This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna; the module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employ a 'unique' antenna coupler.

  As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

- Label and compliance information

  Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID: 2AG8JT60" with their finished product.

- Information on test modes and additional testing requirements

  Operation Frequency: 2412-2462 MHz

  Number of Channel: 11

  Modulation: DSSS, OFDM

  Host manufacturer must perform test of radiated & conducted emission and spurious emission, etc. according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally. 2.10 Additional testing, Part 15 Subpart B disclaimer. The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.209 and that 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. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuity), 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.

Statement

Thank you for choosing NovaStar's product. This document is intended to help you understand and use the product. For accuracy and reliability, NovaStar may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

Official website
www.novastar.tech

Technical support
support@novastar.tech