

Product name: Hue Connect MSL

Model number: 44229607354x, 44229607355x and 92900360800x (x could be 0-9)

Specification

Specification item	
Electrical data	
Input power	100 W
Current of single channel	4.16 A
Electrical output data	100 W
Voltage	24 V ± 1 V
Standby power	<120 mW
Wireless specifications	
Wireless RF mode frequency band	2400–2483.5 MHz
Wireless communications protocol	IEEE 802.15.4 ZigBee Bluetooth LE
Operating channel	Zigbee 11 – 26 Bluetooth 0-39
Output power (Typical)	10 dBm (Measured at antenna feed point)
Receiver Sensitivity (Typical)	-102 dBm (Conducted)
TRP	6 dBm
Operational temperatures and humidity	
Ambient temperature	-20 – 50 °C
Tcase-max	85 °C
Lifetime	
lifetime	25,000 hours (@Ta<50°C)

General use guideline

The Hue Connect MSL is intended to be used for color tunable luminaires. In combination with a 24V DC power supply and defined L1.5 LED kit, color consistency can between luminaires or light points within a luminaire can be guaranteed.

LED board requirements	
Hue White Color Ambience	Unified Gamut (Covered by L1.5 specifications)
	Tunable white CCT range: 2000-6500K
Hue White Ambiance	Tunable white CCT range: 2200-6500K
Hue White	2700K / 3000K / 4000K

List of Applicable FCC Rules

FCC Part 15 Subpart C 15.247

Specific Operational Use Conditions

The module has Zigbee and BLE functions.

- Operation Frequency:

- Zigbee: 2405MHz~ 2480MHz
- BLE: 2402MHz~2480MHz

- Number of Channel:

- Zigbee: 16
- BLE: 40

- Modulation:

- Zigbee: 16-ary orthogonal modulation, O-QPSK PHY
- BLE: GFSK PHY

- Antenna type: Integral PCB PIFA antenna

- Antenna gain: -0.2 dBi peak

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 of 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/warnings as shown in this manual.

Information on test modes and additional testing requirements

The modular transmitter has been fully tested by the module grantee on the required number of channels, modulation types, and modes, it should not be necessary for the host installer to re-test all the available transmitter modes or settings. It is recommended that the host product manufacturer, installing the modular transmitter, perform some investigative measurements to confirm that the resulting composite system does not exceed the spurious emissions limits or band edge limits.

The testing should check for emissions that may occur due to the intermixing of emissions with the other transmitters, digital circuitry, or due to physical properties of the host product (enclosure). This investigation is especially important when integrating multiple modular transmitters where the certification is based on testing each of them in a stand-alone configuration. It is important to note that host product manufacturers should not assume that because the modular transmitter is certified that they do not have any responsibility for final product compliance.

The final host / module combination needs to be evaluated against the FCC Part 15B criteria for unintentional radiators in order to be properly authorized for operation as a Part 15 digital device. The host integrator 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.

FCC 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.

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 device and receiver
- Connect the device into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

Please take attention that changes, or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The advance interface module complies with FCC radiation exposure limits set forth for an uncontrolled environment.

The module and associated antenna must be installed to provide a separation distance of at least 20cm from all persons and must not transmit simultaneously with any other antenna or transmitter.

FCC requirements for manual of end product:

In the manual of end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

If the labelling area is small, then additional FCC part 15.19 statement is required to be available in the manual:

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.

FCC requirements for Labelling of end product:

When integrating Hue Connect MSL into a product it must be ensured that the FCC labelling requirements are met. This includes a clearly visible label on the outside of the finished product specifying the FCC identifier (FCC ID: 2AGBW9290036080X). This exterior label can use wording such as "Contains Transmitter Module FCC ID: 2AGBW9290036080X" although any similar wording that expresses the same meaning may be used.

If the labelling area is large, then the following FCC part 15.19 statement has to also be available on the label:

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.

IC statement:

This device complies with ISED 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.

Under ISED 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 isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication

This module complies with ISED Canada RF radiation exposure limits set forth for general population. To maintain compliance, this module must not be co-located or operating in conjunction with any other antenna or transmitter. This transmitter module is authorized only for use in device where the antenna may be installed such that 20cm may be maintained between the antenna and users.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi) and required impedance for each.

This Class B digital apparatus complies with Canadian CAN ICES-003(B)/NMB-003(B)

Le présent appareil est conforme aux CNR d'Industrie 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'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

En vertu de la réglementation d'Industrie Canada, cet émetteur radio risquera uniquement à l'aide d'une antenne de type et de gain maximum (ou moins) pour l'émetteur approuvé par Industrie Canada. Pour réduire les interférences radio potentielles à d'autres utilisateurs, le type d'antenne et son gain doivent

être choisies que la puissance isotrope rayonnée équivalente (p.i.r.e.) n'est pas plus que celle autorisée pour une communication réussie

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs.

Ce module est conforme à la FCC et Industrie Canada RF limites d'exposition aux rayonnements définies pour l'ensemble de la population. Pour maintenir la conformité, ce module ne doit pas être co-implanté ou fonctionner en conjonction avec toute autre antenne ou émetteur

À la suite de l'avis ci-dessus, le fabricant doit fournir une liste de tous les types d'antenne approuvés pour une utilisation avec l'émetteur, indiquant au maximum gain d'antenne (en dBi) et impédance requise pour chacun.

Cet appareil numérique de la classe B est conforme à la norme CAN ICES-003(B)/NMB-003(B) du Canada

IC requirements for manual of end product:

In the manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. 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.

Dans le Manuel du produit final, l'utilisateur final doit être informé qu'il doit maintenir une distance d'au moins 20 cm de l'antenne lors de l'installation et de l'utilisation de ce produit final. Les utilisateurs finaux doivent être informés que les directives d'exposition aux RF IC pour les environnements non contrôlés peuvent être respectées.

L'utilisateur final doit également être informé que tout changement ou modification non expressément approuvé par le fabricant peut lui faire perdre l'autorisation d'utiliser l'appareil. Le fonctionnement est soumis aux deux conditions suivantes: (1) Cet appareil ne peut pas causer d'interférences nuisibles et (2) Cet appareil doit accepter toute interférence reçue, y compris celles qui peuvent entraîner un fonctionnement indésirable.

IC requirements for Labelling of end product:

The labelling requirements for ISED Canada are similar to those of the FCC. Again a clearly visibly label must be placed on the outside of the finished product stating something like "Contains Transmitter Module, IC: 20812-36080X", although any similar wording that expresses the same meaning may be used.

Les exigences d'étiquetage pour Industrie Canada sont semblables à celles de la FCC. Encore une fois un clairement visiblement étiquette doit être placée à l'extérieur du produit fini indiquant quelque chose comme "Module émetteur de Contains, IC: 20812-36080X", bien que tout même libellé qui exprime que le même sens peuvent être utilisé.