

BL654

Regulatory Information

v2.0

The BL654 Module holds current certifications in the following countries:

Country/Region	Regulatory ID
USA (FCC)	SQGBL654
Canada (ISED)	3147A-BL654
UK (UKCA)	*No Regulatory ID required
EU	*No Regulatory ID required
Japan (MIC)	201-180112
Taiwan (NCC)	CCAF25Y10470T0
Korea (KC)	R-C-L7C-BL654
Australia (AS)	*No Regulatory ID required
New Zealand (NZS)	*No Regulatory ID required
Brazil	02735-25-10188

*Indicates countries where Ezurio has conducted testing and evaluation in accordance with local regulatory requirements; however, a regulatory ID is not available for OEM use. Comprehensive test reports and other relevant documentation can be accessed on the Ezurio website.

1 Certified Antennas

The antennas listed below were tested for use with the BL654. The OEM can choose a different manufacturer's antenna but must make sure it is of same type and that the gain is less than or equal to the antenna that is approved for use.*

***Note:** Japan (MIC) lists applicable antennas on its certificates. If your antenna is not on the approved list, regardless of whether it is comparative, it must be added to the certificate before it can be used in Japan.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

2 Documentation Requirements

To ensure regulatory compliance, when integrating the BL654 into a host device, it is necessary to meet the documentation requirements set forth by the applicable regulatory agencies. The following sections (FCC, ISED Canada, European Union, and others) outline the information that may be included in the user's guide and external labels for the host devices into which the BL654 is integrated.

3 FCC Regulatory

Model	Part Number	US/FCC
BL654	451-00001	SQGBL654
BL654	451-00002	SQGBL654

3.1 Antenna Information

The BL654 family has been designed to operate with the antennas listed below.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

Note: The OEM is free to choose another vendor's antenna of like type and equal or lesser gain as an antenna appearing in the table and still maintain compliance. Reference FCC Part 15.204(c)(4) for further information on this topic.

FCC Documentation Requirements

Federal Communication Commission (FCC) Interference Statement

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 an 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 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.

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.

FCC Radiation Exposure Statement

This product complies with the FCC RF exposure limit set forth for an uncontrolled environment and is safe for intended operation as described in this manual. Further RF exposure reduction can be achieved if the product is kept as far as possible from the user body or is set to a lower output power if such function is available.

This transmitter has been evaluated as a portable device with a minimum separation distance of 5mm using a 2dBi gain antenna and 7mm using a 3.1dBi antenna as noted on the FCC grant of authorization and RF Exposure reports. The transmitter should be installed and operated at a minimum distance of 5mm with a 2dBi gain or lower antenna and 7mm when using a 3.1dBi antenna between the radiator and any operator or bystander.

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

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

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

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

IMPORTANT NOTE:

If this condition 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 is responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

3.2 End-Product Labeling

The end product must be labeled in a visible area with the following: ***Contains FCC ID: SQG-BL654***

3.3 Manual Information to the End User

The OEM integrator must 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 shown in this manual. Specifically, the information outlined **FCC Interference Statement**, **FCC Caution Statement** and **FCC Radiation Exposure Statement**.

4 Industry Canada Statement

Model	Part Number	ISED
BL654	451-00001	3147A-BL654
BL654	451-00002	3147A-BL654

4.1 Antenna Information

This radio transmitter (IC: 3147A-BL654) was approved by Innovation, Science and Economic Development (ISED) Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio (IC: 3147A-BL654) a été approuvé par Innovation, Sciences et Développement économique 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 pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

4.2 ISED Canada Statement

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

This device complies with Industry Canada's license-exempt RSSs. 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.

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;*
2. *l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

4.3 Radiation Exposure Statement

The product complies with the Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The minimum separation distance for portable use is limited to 15mm assuming use of antenna with 3.1 dBi of gain. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

4.4 Déclaration d'exposition aux radiations:

Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada établies pour un environnement non contrôlé. La distance de séparation minimale pour l'utilisation portative est limitée à 15mm en supposant l'utilisation de l'antenne avec 3.1 dBi de gain. Le produit est sûr pour un fonctionnement tel que décrit dans ce manuel. La réduction aux expositions RF peut être augmentée si l'appareil peut être conservé aussi loin que possible du corps de l'utilisateur ou que le dispositif est réglé sur la puissance de sortie la plus faible si une telle fonction est disponible.

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

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

If the condition above is met, further transmitter testing is not 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:

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

Tant que les 1 condition ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. 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:

If this condition 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 ID **cannot** be used on the final product. In these circumstances, the OEM integrator is 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'ID 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.

4.5 End-Product Labeling

The final end product must be labeled in a visible area with the following: **Contains IC:** 3147A-BL654

4.6 Plaque signalétique du produit final

*Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: **Contient des IC:** 3147A-BL654*

4.7 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.

4.8 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.

4.9 ICES-003 Issue 7 Compliance Statement

This device was originally tested to the requirements of ICES-003 Issue 6, Information Technology Equipment (Including Digital Apparatus) – Limits and Methods of Measurement; and evaluated to the updates published in ICES-003, Issue 7, Information Technology Equipment (Including

Digital Apparatus). Based on this evaluation, this product continues to observe compliance to the requirements set forth by The Innovation, Science and Economic Development Canada (ISED), and complies with the updates published in ICES-003, Issue 7, Information Technology Equipment (Including Digital Apparatus).

5 Japan (MIC) Regulatory

The BL654 is approved for use in the Japanese market. The part numbers listed below hold WW type certification. Refer to **ARIB-STD-T66**, for further guidance on OEM's responsibilities.

Model	Part Number	Certification Number
BL654	451-00001	201-180112
BL654	451-00002	201-180112

5.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: Japan (MIC) lists applicable antennas on its certificates. If your antenna is not on the approved list, regardless of whether it is comparative, it must be added to the certificate before it can be used in Japan.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

5.2 Labeling Requirements

It is recommended that the host device bears a label showing the Japanese "GITEKI" mark and the certification number accompanied by the following statement:

当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している

Translation: *This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law.*



201-180112

6 Korea (KC) Regulatory

The BL654 is approved for use in the Korean market. End-Products may require additional testing for EMC and linking to modular approval.

Model	Part Number	Certification Number
BL654	451-00001	R-C-L7C-BL654
BL654	451-00002	R-C-L7C-BL654

6.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: Korea (KCC) lists applicable antennas on its test reports. If your antenna is not on the approved list, regardless of whether it is comparative, it must be added to the certificate before it can be used in Korea.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

6.2 Labeling Requirements

KC mark, Certification No. and Conformity Information must be indicated both on the product and in the user manual.

The **Conformity Information** consist from:

- the applicant name,
- equipment & model name,
- manufacturer & country-of-origin
- manufactured year & month.



R-C-L7C-BL654

7 Taiwan (NCC) Regulatory

The BL654 is approved for use in the Taiwan market. End-Products may require additional testing for EMC and linking to modular approval.

Model	Part Number	Certificate Number
BL654	451-00001	CCAF25Y10470T0
BL654	451-00002	CCAF25Y10470T0

7.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: NCC lists applicable antennas on its certificates. If your antenna is not on the approved list, regardless of whether it is comparative, it must be added to the certificate before it can be used in Japan.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

7.2 Labeling Requirements

Note: You must place
 “本產品內含射頻模組： CCAF25Y10470T0”
 or
 “本產品內含射頻模組： CCAF25Y10470T0”
 on the host product in such a location that it can be seen by an operator at the time of purchase.

Additional Information and Statements that should be in the User Manual

依據【低功率射頻器材技術規範】

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
 低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。
 前述合法通信，指依電信管理法規規定作業之無線電通信。
 低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

8 Australia and New Zealand Regulatory

RCM: Compliant to standards AS/NZS 4268: 2017+Amd 1:2021, AS/NZS 2772.2:2011, EN 300 328 V2.2.2 (2019-07), and EN 300 330 V2.1.1 (2017-02).

If this device is used in a product, the OEM has responsibility to verify compliance of the final end product to the Australia/New Zealand (RCM) Standards. All end-products require their own certification (SDoc). You will not be able to leverage the module certification and ship product into the country. For RF exposure product was tested to AS/NZS 2772.2:2011, however product is still compliant to AS/NZS 2772.2:2016 +AM1:2018 as product did not change and the standard changes did not impact the areas of evaluation for a Bluetooth radio.

8.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: The OEM is free to choose another vendor's antenna of like type and equal or lesser gain as an antenna appearing in the table and still maintain compliance.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

8.2 Labeling Requirements

RCM - Regulatory Compliance Mark

- The compliance label applied to the external surface of the packaging used for the device must:
 - occupy an area that is greater than 1% of that external surface;



- be clearly visible.
- The compliance label must be durable.
- A compliance label must be applied to a device:
 - permanently; or
 - in a way that makes removal or obliteration difficult.

9 Brazil Regulatory

The BL654 is approved for use in the Brazil market. Some End-Products may NOT be covered by Ezurio's modular approval. It is recommended that OEM's contact Ezurio to engage with a Brazilian Regulatory agency to determine best approach for leveraging modular approval.

Model	Part Number	Certificate Number
BL654	451-00001	02735-25-10188
BL654	451-00002	02735-25-10188

9.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: The OEM is free to choose another vendor's antenna of like type and equal or lesser gain as an antenna appearing in the table and still maintain compliance.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

9.2 Labeling Requirements

The ANATEL ID: 02735-25-10188 shall replace the HHHHH-AA-FFFFF as shown in the examples below.

Conditions:

- Located in a non-removable part of the product
- Located in a product location whose access does not depend on the use of tools

Example of Labeling:

 ANATEL HHHHH-AA-FFFFF	 ANATEL HHHHH-AA-FFFFF	 ANATEL Agência Nacional de Telecomunicações HHHHH-AA-FFFFF
 ANATEL HHHHH-AA-FFFFF	 ANATEL HHHHH-AA-FFFFF	 ANATEL Agência Nacional de Telecomunicações HHHHH-AA-FFFFF

10 UK (UKCA)

10.1 UKCA Declaration of Conformity

BL654 Series

Manufacturer	Ezurio
Products	BL654
Product Description	Bluetooth 5.3 + 802.15.4 + NFC
UK Legislation	Radio Equipment Regulations 2017/1206 Electromagnetic Compatibility Regulations 2016/1091 Electrical Equipment (Safety) Regulations 2016/1101



Reference standards used for conformity:

Legislation	Requirement	Reference standard(s)
Safety	Low voltage equipment safety	EN 62368-1: 2014+A11:2017, IEC 62368-1:2014
	RF Exposure	BS EN 62311:2020, BS EN50385:2017, BS EN 50665:2017
EMC	Protection requirements – Electromagnetic compatibility	EN 301 489-1 v2.2.3 (2019-11)
		EN 301 489-3 v2.3.2 (2023-01)
		EN 301 489-17 v3.3.1 (2024-09)
Radio Equipment	Means of the efficient use of the radio frequency spectrum (ERM)	EN 300 328 v2.2.2 (2019-07) Wide-band transmission systems
		EN 300 330 v2.1.1 (2017-02) Short Range Devices (SRD) 9kHz to 30 MHz

Declaration:

We, Ezurio, declare under our sole responsibility that the essential test suites have been carried out and that the above product to which this declaration relates is in conformity with all the applicable requirements outlined above, when used for its intended purpose.

The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20 cm.

Place of Issue:	Ezurio W66N220 Commerce Court, Cedarburg, WI 53012 USA tel: +1-262-375-4400 fax: +1-262-364-2649
Date of Issue:	January 27, 2025
Name of Authorized Person:	Brian Petted, Technology Leader
Signature of Authorized Person:	

11 EU Regulatory

The BL654 was tested for compliance with relevant standards for the EU market. The BL654 module was tested with a 2.0 dBi antenna. The OEM can operate the BL654 module with any other type of antenna but must ensure that the gain does not exceed 2.0 dBi to maintain the Ezurio approval.

The OEM should consult with a qualified test house before entering their device into an EU member country to make sure all regulatory requirements have been met for their complete device.

11.1 Antenna Information

The BL654 was tested with antennas listed below.

Note: The OEM is free to choose another vendor's antenna of like type and equal or lesser gain as an antenna appearing in the table and still maintain compliance.

Manufacturer	Model	Part Number	Type	Connector	Frequency Range	Peak Gain (dBi)
Ezurio (Laird Connectivity)	mFlexPIFA	EFA2400A3S-10MH4L	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	FlexPIFA	001-0022	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Ezurio (Laird Connectivity)	NanoBlue	EBL2400A1-10MH4L	PCB Dipole	MHF4	2.4 - 2.5GHz	2.0
Ezurio (Laird Connectivity)	Onboard PCB printed BLE Antenna	N/A	Printed PCB	N/A	2.4 - 2.48GHz	0
Ezurio (Laird Connectivity)	FlexNotch	001-0023	PIFA	MHF4L	2.4 - 2.48GHz	2.0
Mag.Layers	0600-00057	EDA-8709-2G4C1-B27-CY	Dipole	IPEX MHF4	2.4GHz-2.5 GHz	2.0
Ezurio (Laird Connectivity)	NFC	0600-00061	NFC	N/A	N/A	N/A
Ezurio (Laird Connectivity)	i-FlexPIFA	EFG2400A3S-10MH4L	PIFA	MHF4L	2.4 GHz-2.48 GHz	3.1

User's Guide Requirements

The integrator must include specific information in the user's guide for the device into which the BL654 is integrated. In addition to the required FCC and IC statements outlined above, the following Radio Equipment Directive (RED) statements must be added in their entirety and without modification into a prominent place in the user's guide for the device into which the BL654 is integrated:

This device complies with the essential requirements of the 2014/53/EU – Radio Equipment Directive (RED). The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the 2014/53/EU – Radio Equipment Directive (RED):

Standard	Description
IEC/EN 62368-1: 2014 + A11:2017	Audio/video, information and communication technology equipment - Part 1: Safety requirements
IEC/EN 62311:2020	Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
IEC/EN 50385:2017	Product standard to demonstrate the compliance of base station equipment with radio frequency electromagnetic field exposure limits (110 MHz – 100GHz), when placed on the market

IEC/EN 50665:2017	Generic standard for assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz – 300 GHz)
EN 301 489-1 v2.2.3 (2019-11)	Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
EN 301 489-3 v2.3.2 (2023-01)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard for ElectroMagnetic Compatibility
EN 301 489-17 v3.3.1 (2024-09)	E Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband and Wideband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility
EN 300 328 v2.2.2 (2019-07)	Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz band; Harmonised Standard for access to radio spectrum
EN 300 330 v2.1.1 (2017-02)	Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9kHz to 30 MHz; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU
EU 2015/863 (RoHS 3)	Declaration of Compliance – EU Directive 2015/863; Reduction of Hazardous Substances (RoHS)

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

български [Bulgarian]	С настоящото [име на производителя] декларира, че това устройство [вид оборудване] е в съответствие със съществените изисквания и други приложими разпоредби на Директиви 2014/53/EC
Hrvatski [Croatian]	[naziv proizvođača] ovim putem izjavljuje da je ovaj uređaj [vrsta opreme] sukladan osnovnim zahtjevima i ostalim bitnim odredbama Direktiva 2014/53/EU
Česky [Czech]	[Jméno výrobce] tímto prohlašuje, že tento [typ zařízení] je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.
Dansk [Danish]	Undertegnede [fabrikantens navn] erklærer herved, at følgende udstyr [udstyrets typebetegnelse] overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.
Deutsch [German]	Hiermit erkläre [Name des Herstellers], dass sich das Gerät [Gerätetyp] in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2014/53/EU befindet.
Eesti [Estonian]	Käesolevaga kinnitab [tootja nimi] seadme [seadme tüüp] vastavust direktiivi 2014/53/EL põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, [name of manufacturer], declares that this [type of equipment] is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.
Español [Spanish]	Por medio de la presente [nombre del fabricante] declara que el [clase de equipo] cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/UE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ [όνομα του κατασκευαστή] ΔΗΛΩΝΕΙ ΟΤΙ [εξοπλισμού] ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/ΕΕ.
Français [French]	Par la présente [nom du fabricant] déclare que l'appareil [type d'appareil] est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/UE.
Íslenska [Icelandic]	Hér, [Nafn framleiðanda], því yfir að þetta [gerð búnaðar] tæki er í samræmi við grunnkröfur og önnur viðeigandi ákvæði tilskipana 2014/53/ ESB
Italiano [Italian]	Con la presente [nome del costruttore] dichiara che questo [tipo di apparecchio] è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/UE.
Latviešu valoda [Latvian]	Ar šo [izgatavotājanosaukums] deklarē, ka [iekārtas tips] atbilst Direktīvas 2014/53/ES būtiskajām prasībām un citiemar to saistītajiem noteikumiem.

Lietuvių kalba [Lithuanian]	Šiuo [gamintojo pavadinimas] deklaruojama, kad šis [įrangos tipas] atitinka esminius reikalavimus ir kitas 2014/53/ES Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart [naam van de fabrikant] dat het toestel [type van toestel] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.
Malti [Maltese]	Hawnhekk, [isem tal-manifattur], jiddikjara li dan [il-mudel tal-prodott] jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Direttiva 2014/53/UE.
Magyar [Hungarian]	Alulírott, [gyártó neve] nyilatkozom, hogy a [...] típus] megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.
Norsk [Norwegian]	Herved [navnet på produsenten], erklærer at denne [type utstyr] enheten, er i samsvar med de grunnleggende kravene og andre relevante bestemmelser i direktivene 2014/53/EU.
Polski [Polish]	Niniejszym [nazwa producenta] oświadczam, że [nazwa wyrobu] jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/UE.
Português [Portuguese]	[Nome do fabricante] declara que este [tipo de equipamento] está conforme com os requisitos essenciais e outras disposições da Diretiva 2014/53/UE.
Română [Romanian]	Prin prezenta, [numele producătorului] declară că acest dispozitiv [tipul de echipament] este în conformitate cu cerințele esențiale și alte prevederi relevante ale Directivei 2014/53/UE.
Slovenščina [Slovenian]	[Ime proizvajalca] izjavlja, da je ta [tip opreme] v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.
Slovenčina [Slovak]	[Menovýrobcu] týmto vyhlasuje, že [typzariadenia] spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.
Suomi [Finnish]	[Valmistaja] vakuuttaa täten että [laitteen tyyppimerkintä] tyyppinen laite on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar [företag] att denna [utrustningstyp] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

12 EU Declarations of Conformity

Manufacturer	Ezurio
Products	BL654 Series
Product Description	Bluetooth 5.3 + 802.15.4 + NFC
EU Directives	2014/53/EU – Radio Equipment Directive (RED) 2011/65/Eu- Restriction of Hazardous Substances (RoHS)



Reference standards used for presumption of conformity:

Legislation	Requirement	Reference standard(s)	
3.1a	Low voltage equipment safety	EN 62368-1: 2014+A11:2017, IEC 62368-1:2014	
	RF Exposure	EN 62311:2020, EN50385:2017, EN 50665:2017	
3.1b	Protection requirements – Electromagnetic compatibility	EN 301 489-1 v2.2.3 (2019-11)	
		EN 301 489-3 v2.3.2 (2023-01)	
		EN 301 489-17 v3.3.1 (2024-09)	
3.2	Means of the efficient use of the radio frequency spectrum (ERM)	EN 300 328 v2.2.2 (2019-07)	Wide-band transmission systems
		EN 300 330 v2.1.1 (2017-02)	Short Range Devices (SRD) 9kHz to 30 MHz

Declaration:

We, Ezurio, declare under our sole responsibility that the essential radio test suites have been carried out and that the above product to which this declaration relates is in conformity with all the applicable essential requirements of Article 3 of the EU Radio Equipment Directive 2014/53/EU, when used for its intended purpose.

Cybersecurity Requirements under Article 3.3(d), (e), and (f):

Ezurio has determined that cybersecurity testing requirements outlined in these sections are not applicable at the modular level. Instead, OEMs are responsible for conducting assessments using software specific to their end products.

The minimum distance between the user and/or any bystander and the radiating structure of the transmitter is 20 cm.

Place of Issue:	Ezurio LLC W66N220 Commerce Court, Cedarburg, WI 53012 USA tel: +1-262-375-4400 fax: +1-262-364-2649
Date of Issue:	January 27, 2025
Name of Authorized Person:	Brian Petted, Technology Leader
Signature of Authorized Person:	

13 Regulatory Domain Support

Domain support but not currently certified for – TBD

14 Revision History

Version	Date	Notes	Contributor(s)	Approver
1.0	11 Jan 2021	Initial version	Maggie Teng	Jonathan Kaye
1.1	01 Mar 2021	Updated DoC and signature	Brian Petted	Jonathan Kaye
1.2	05 Mar 2021	Fixed grammatical errors/typo; added ASNZS section	Sue White	Jonathan Kaye
1.3	16 Mar 2021	Added C2PC information	Brian Petted	Jonathan Kaye
1.4	09 Apr 2021	Changed SMA antenna connector type to RPSMA	Maggie Teng	Jonathan Kaye
1.5	20 May 2021	Added ISED ICES-003 Issue 7 compliance declaration	Sue White	Ryan Urness
1.6	09 Sept 2021	Added UKCA DoC	Sue White	Brian Petted
1.7	22 Feb 2022	Updated UKCA standards	Dave Drogowski	Jonathan Kaye
1.8	1 June 2022	Added KC Certification	Dave Drogowski	Ryan Urness
1.9	8 Dec 2023	Added EFG2400A3S to supported antennas for FCC / ISED	Dave Drogowski	Brian Petted
2.0	27 Jan 2026	Ezurio rebranding	Tom Smith	Brian Petted

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