

Test Report TR3664C BL654

Equipment Under Test:	BL654
Requirement(s):	FCC 15.247 RSS-102
Test Date(s):	3/9/2023
Prepared for:	Laird Connectivity Attn: Jonathan Kaye W66 N220 Commerce Ct. Cedarburg, WI 53012

Report Issued by: Anthony Smith, EMC Engineering Specialist
 Signature: *AS* Date: 03/05/2024

Report Reviewed by: Adam Alger, Laboratory Manager
 Signature: *AA* Date: 03/05/2024

Report Constructed by: Anthony Smith, EMC Engineering Specialist
 Signature: *AS* Date: 12/8/2023

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Laird Connectivity Test Services in Review

The Laird Connectivity LLC laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



**Government
of Canada**

Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

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Report: TR3664C BL654		Model: BL654
Quote: NBO-12-2022-005678		Serial: Engineering Sample

1 TEST REPORT SUMMARY

During **March 9th, 2023** the Equipment Under Test (EUT), **BL654**, as provided by **Laird Connectivity** was tested to the following requirements for the purpose of a Class 2 permissive change to add an antenna:

Requirements	Description	Method	Compliant
FCC 1.1307, 2.1091, 2.1093	Radiofrequency Radiation Exposure Limits	FCC KDB 447498	Yes
ISED Canada: RSS-102	Radiofrequency Radiation Exposure Limits	RSS-102 § 2.5.2	Yes

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

The decision rule for Pass / Fail assessment to the specification or standard listed in this test report has been agreed upon by the client and laboratory to be as follows:

Measurement Type	Rule
Emissions – Amplitude	1 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

2 CLIENT INFORMATION

Company Name	Laird Connectivity
Contact Person	Jonathan Kaye
Address	W66N220 Commerce Court Cedarburg, WI, 53012

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	BL654
Model Number	BL654
Serial Number	Engineering Sample
FCC ID	SQGBL654
IC ID	3147A-BL654

2.2 Product Description

Bluetooth 5.0 BLE and 802.15.4 Data Module

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Additional Information

USB to Serial connection to program radio utilizing Tera Term v4.105 terminal simulation software. Zigbee 802.15.4 250kbit signal utilizing channels 11 (2405 MHz), 18 (2440 MHz), 25 (2475 MHz), and 26 (2480 MHz).

nRF Connect for Desktop v4.0.0 – Direct Test Mode v2.0.4 used to program EUT. Bluetooth LE (Low Energy) 125k, 500k, 1M, 2M Data Rates. Channels tested: 37 (2402 MHz), 17 (2440 MHz), and 39 (2480 MHz). Dell Latitude 5480 Laptop used to program radio.

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2.6 Additional Information

This testing is for a permissive change to add the iFlex-Pifa Antenna, with an antenna gain of 3.1 dBi, to the list of antennas usable by the BL654. EUT tested via Cabinet Radiation method.

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3 REFERENCES

Publication	Edition	Date	AMD 1
eCFR	-	2023	-
RSS-247	3	2023	-
RSS-GEN	5	2018	2019
ANSI C63.10	-	2013	-
KDB 178919 D01	6	2015	-
RSS-102	5	2015	2021
KDB 447498	-	2015	-