



LM540v2 Long Range Bluetooth USB Adapter

750m Distance with 2Dbi RP Dipole Antenna

Product: LM540
Part No: 540-0542
Datasheet Rev 1.1/15-10-13



1 Features

- World's Smallest Bluetooth USB SMA Antenna Fit Adapter
- Powered From USB only
- 787m connection and data distance tested between 2 x LM540 with 2dBi Antenna
Test conducted at Eton Dorney Olympic Rowing Range Surrey, England
- CSR Bluecore 4 ROM Bluetooth 2.1+EDR HCI firmware
- Compatible with 14 Bluetooth Profiles
- Plug n Play with most operating systems - Windows XP-7, OSX, Linux
- Windows 8 compatible with freely downloadable driver
- IVT Pre-loaded License Available. LM tested a range of Bluetooth Profiles. IVT and LM540v2 recorded lowest latency of any Bluetooth Stack in the retail market
- 17.9dBm Output + 2dBi Gain Antenna 19.9 dBm output allows LM540v2 to be within 20dBm legal broadcasting output limit
- Bluetooth 2.1+EDR firmware based design backward compatible with Bluetooth 2.0+EDR
Optionally, Bluetooth 2.0+EDR firmware also available upon special request
- EOL (End of Life) will be 10+ years
- FCC, RoHS, CE, RTTE Certified with SIG Certifications ongoing

2 Overview

The LM540v2 has a wide range of uses due to the huge range of profiles the adapter can work with. Its exceptional range will allow users to connect at distances not available before now. Other similar products use external power source and are twice the size.

LM540v2's small overall footprint allows users to plug the adapter into a laptop without it being too bulky. Users will be able to connect Bluetooth headsets at distances that were unobtainable before thereby making internet telephone calls up to 100m away from your notebook or PC.

The LM540v2 has also been fully tested with all of LM Technologies Bluetooth range and allows users to connect LM048 and LM058 series products directly to the LM540 at far greater distances than ever possible before.



3 Packaging Options

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Mft Ptn No.	540-0546	540-0545	540-0544	540-0543	540-0542
Details	Adapter + Antenna + IVT Keys	Adapter + Antenna RP	Single Adapter	Adapter + 2dBi Antenna	Single Adapter
Packaging	Retail Pack	Retail Pack	Bulk	Bulk	Bulk
Contents	1 x LM540-0542 1 x LM251-1022 1 x User Guide 1 x Retail Box 1 x IVT License Key (programmed in the unit)	1 x LM540-0542 1 x LM251-1022 1 x User Guide 1 x Retail Box	1 x LM540-0542 (Custom Made)	1 x LM540-0542 1 x LM251-1022	1 x LM540-0542

4 General Specification

Specification	Description
Product Name	LM540 Long Range Bluetooth USB Adapter
Chipset	CSR Bluecore 4 ROM
RF Output Power	Class 1
Transfer Rate (Max)	Up to 3 Mbps enhanced data rate
Range	0-787 m with 2 dBi Antenna
I/O Interface	USB 2.0
Bluetooth Standard	Bluetooth v2.1 + EDR
Frequency Band	2.4 - 2.4835 GHz ISM Band
Frequency Hopping	1600 hops/sec, 1 MHz channel width
Modulation Method	GFSK for 1 Mbps, $\pi/4$ -DQPSK for 2 Mbps, 8-DPSK for 3 Mbps
Spread Spectrum	FHSS (Frequency Hopping Spread Spectrum)
Firmware	CSR Bluetooth 2.1 HCI ROM Image
Rx Sensitivity	< -86 dBm typical
RF Output	+17.6 dBm
Antenna Gain	Max 2.3 dBi
Input Voltage	DC 5V (via USB port)
LED indicator	Power/Active

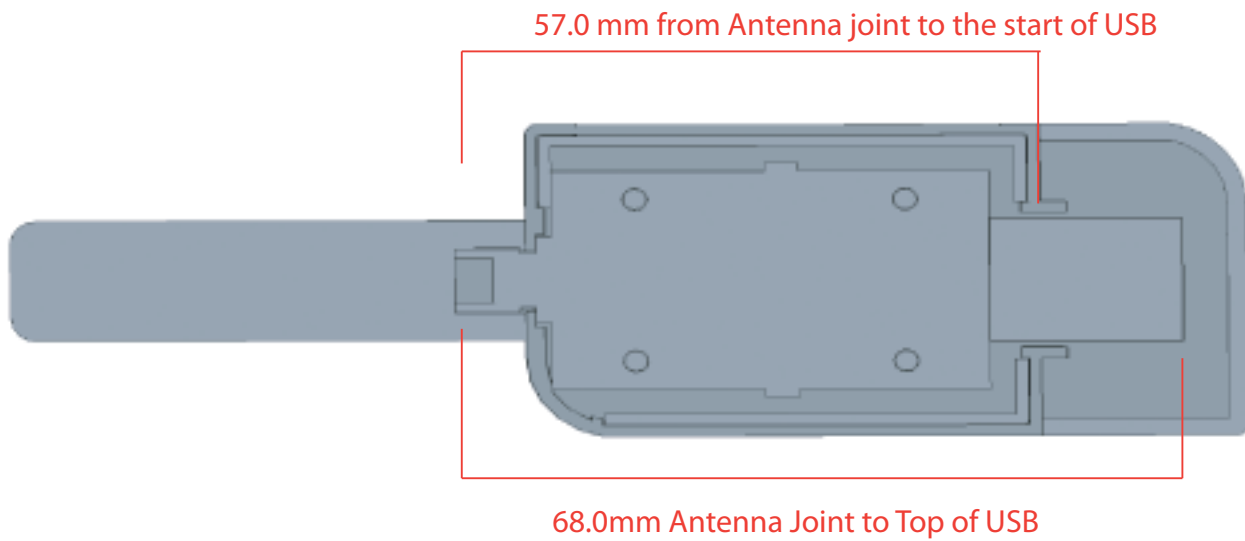


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General Specification Contd..

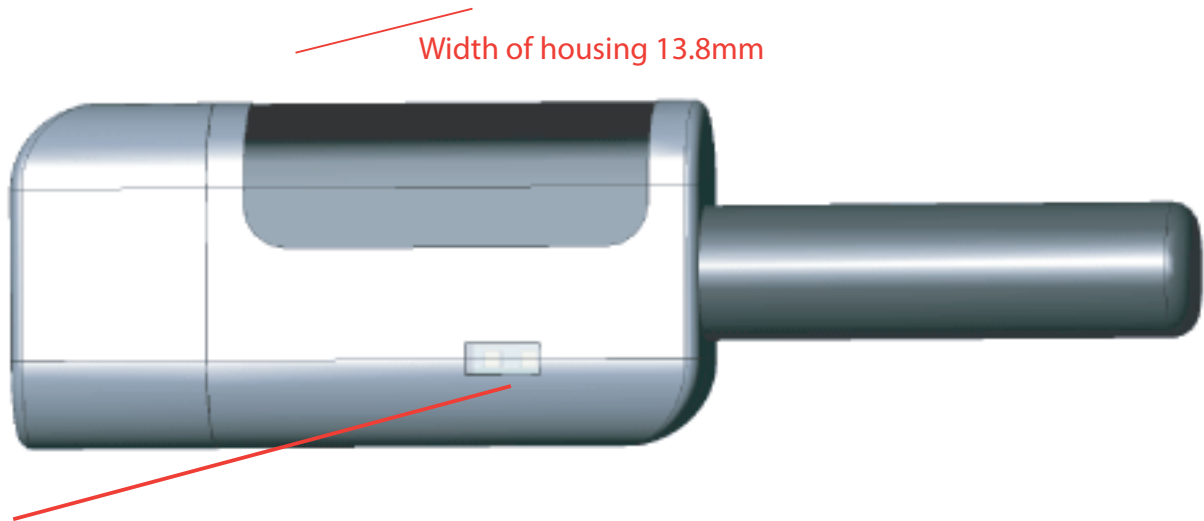
OS Support	Win XP-8/OSX/Linux. IVT Bluesoleil Driver available. Win8 driver freely downloadable
Environment	Operating Temperature : -20°C to +75°C
	Storage Temperature: -40°C to +85°C
Size	50.00(L) x 27.00(W) x 18.5(H) mm
Software/Drivers	IVT Bluesoleil 8.0, Standard Windows, Linux and OSX Bluetooth Driver
Bluetooth Profiles	GAP,SPP,HSP, HFP, DUN, FTP, FAX, PAN, LAN, HID, SYNC, HCRP, A2DP, AVRCP, BIP, GOEP, SDAP, OPP
Certification	FCC, CE, RoHS

5 Hardware Structure





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LM540 LED Colour Sequence is as follows: -

<p>■ LED Red:</p> <p>■ LED Red:</p>	<p>Power On</p> <p>Power OFF</p>	<p>LED is on</p> <p>LED is off</p>
<p>■ LED Amber:</p> <p>■ LED Amber:</p>	<p>Transmitting Data</p> <p>No Data is Transmitted</p>	<p>LED is flashing</p> <p>LED is off</p>
<p>■ LED Blue:</p> <p>■ LED Blue:</p>	<p>Bluetooth is Searching</p> <p>Bluetooth is Connected</p>	<p>LED is flashing slow</p> <p>LED is on permanatly</p>



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6 FCC Warning Statement

This device complies with Part 15 and 15C 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 equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 and 15C 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.

Installation and use of this device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

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.

7 Revision History

Revision	Date	Comments
Rev1.0	05/01/2011	First Version
Rev1.1	15/10/2013	<ol style="list-style-type: none">1. Updated datasheet as per new Hardware revision LM540v22. Added FCC Warning Statement