



UHF Board Details & Technical Specifications

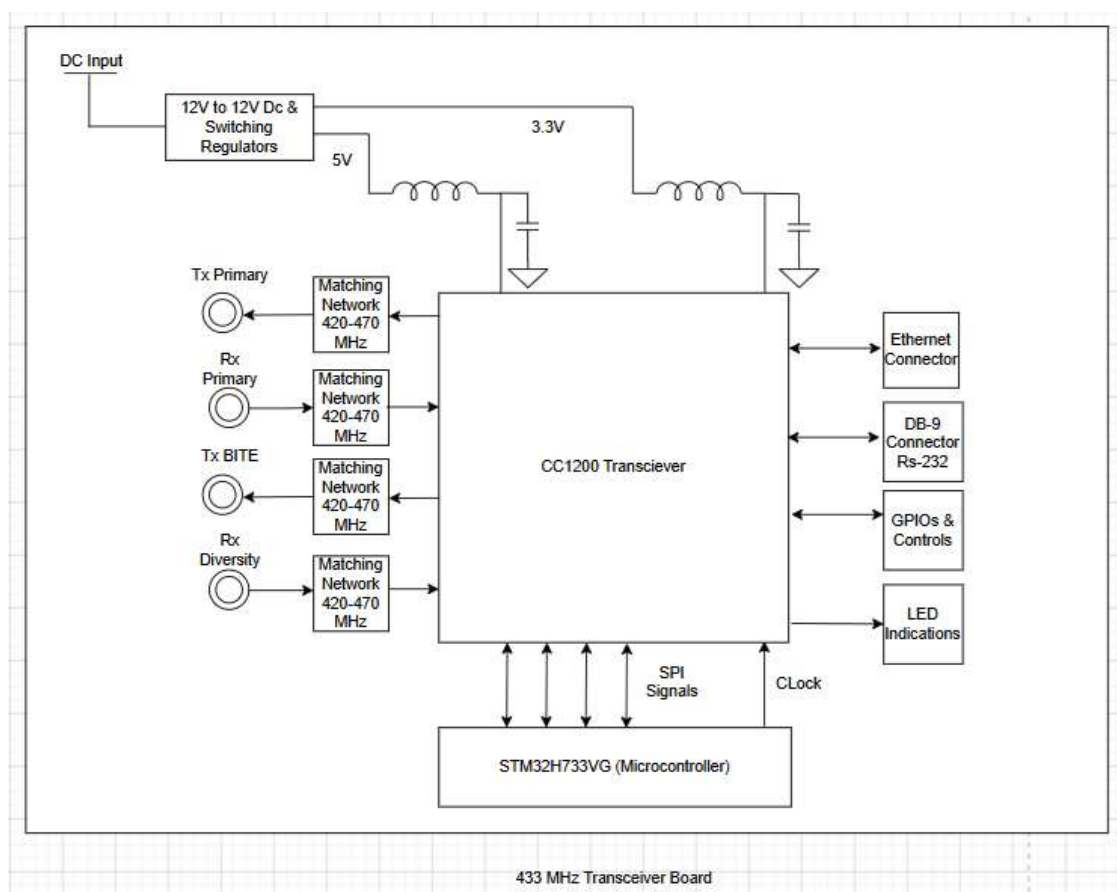
1.0 Introduction

The CC1200-based UHF board operates in the Sub-1 GHz frequency range, tuned between 420–470 MHz, and delivers RF output power through a dedicated Tx port on the board. A separate Rx port is also provided. In addition to these, the board features two auxiliary ports — one for transmit and one for receive — and can be reconfigured for operation at 866 MHz by substituting the appropriate matching network components.

An onboard STM32H733VG microcontroller manages the system configuration, allowing users to programmatically set parameters such as data rate, operating frequency, channel spacing, frequency deviation, and Rx bandwidth. The board accepts a wide DC input voltage range of 9–36V and operates fully under the control of the STM32H733VG.

Connectivity options include GPIO headers, an Ethernet interface, and an RS-232 port. All RF inputs and outputs are accessible via SMA female (SMA-F) connectors, each matched to a 50-ohm impedance for reliable signal integrity.

2.0 Board Block Diagram



The board is organized into four main sections: the DC power section, RF section, controller section, and interfaces.

In the power section, the input voltage ranging from 9–36V is stepped down to 12V via a DC-DC converter. The 3.3V and 5V rails are subsequently derived using switching regulators, while the 3V supply is generated through a Low Dropout Regulator (LDO).

The board provides several interface options, including an RS-232 serial interface, an Ethernet interface, General Purpose Input/Output (GPIO) connections and RF connectors. LED indicators are incorporated on the board to provide visual status feedback for the power supply and other control signals.

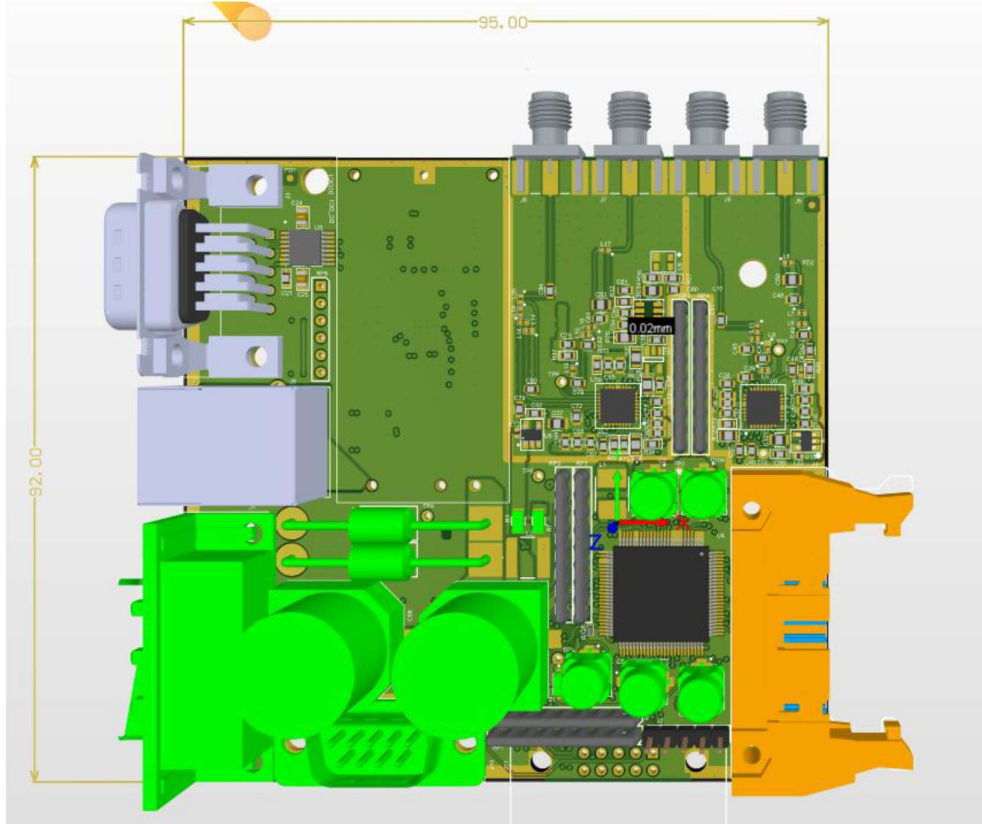
2.1 Requirement Specifications

S.No	Parameter	Specifications
1.	Operating frequency	Tuned to 420-470 MHz (Tunable to any other frequency)
2.	Data Rate	19.2kbps (Variable)
3.	Channel Spacing	25KHz (Tunable)
4.	Operating Dc Voltage	9-36V Dc
5.	Tx and Rx Connectors	SMA(F)
6.	Interfaces	Rs-232, Ethernet and General I/O connectors
7.	Mechanical Dimensions	95mmX92mm
8.	No of Layers	6

2.2 Implementation- Board design Floor Plan

The board is implemented using 6 layers Board. Top and Bottom Layers are shown in the following figures

Top Layer 3D Picture:



Bottom Layer

