

RFID Tuning Guide



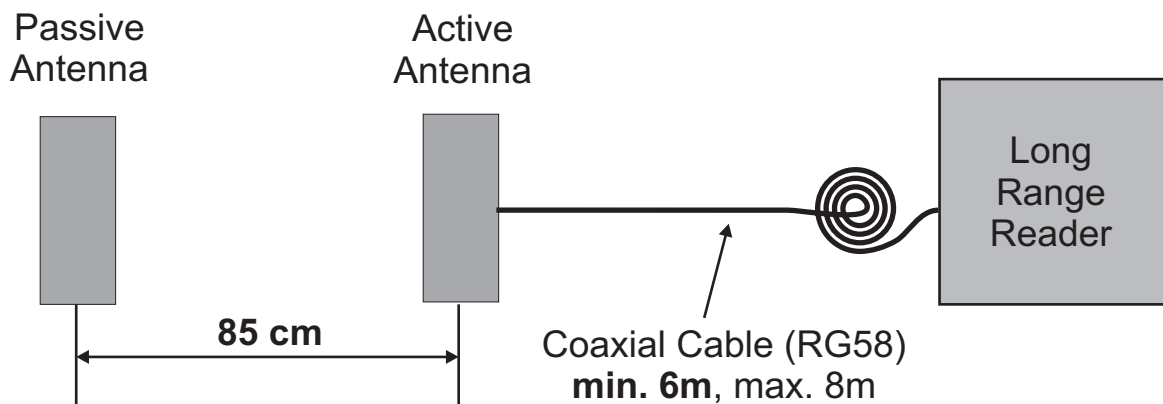
Aquila-System

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1. Installation

Reference installation layout for a library with CD-Labels



Important: The coax cable MUST have a length of minimum 6 meters.

2. Detection Rate with a CD-Label (label on CD)

Facts:

- Aisle width 85 cm
- Reader output power 6 watts
- Reference CD

Detection rate:

- Side position 90-95%
- Front position 50%
- Flat position 10%

3. Preparation

3.1. Required Tools

- Network Analyzer (HP 8712ET), must be calibrated
- Program file "RFID_Ant.sta" (date 08.08.2002)

3.2. System Preparation

- Prepare the system (1 x passive + 1 x active antenna) with an aisle width of 85 cm
- Disconnect antenna wiring on passive antenna (X3)

4. Tuning

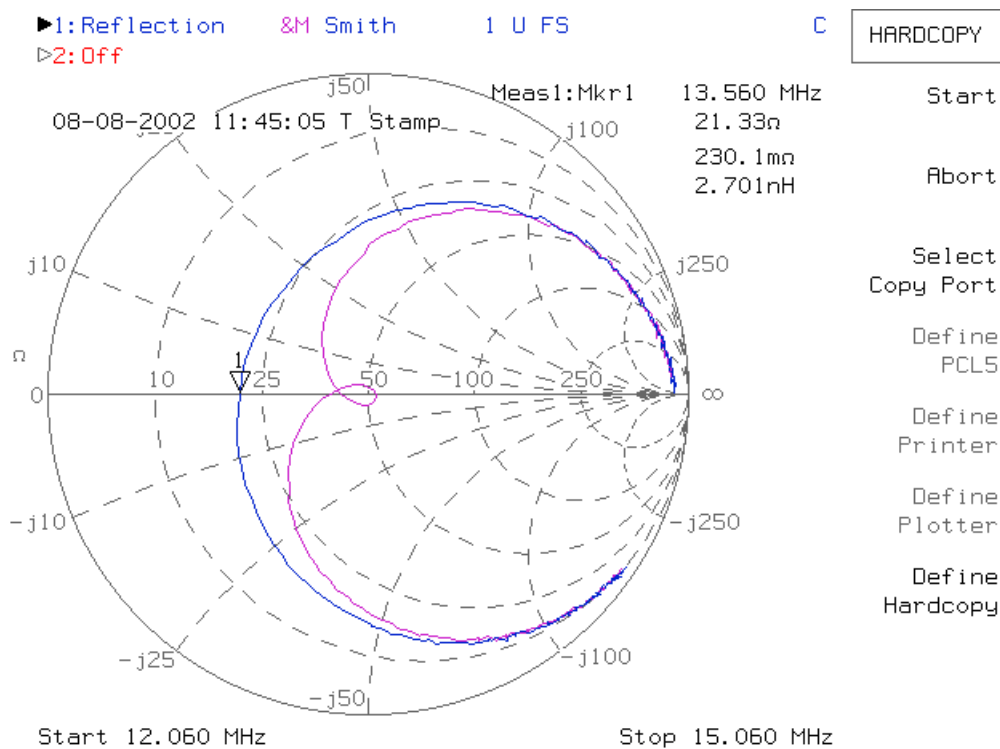
4.1. Pre-Tuning

- Turn C10 and C11 to 1/3 of the capacity
- Turn C2 to approx. $xx \Omega$ (resistive)
 - o * e.g. 85 cm aisle width, active + passive antenna = 22 Ω
 - o e.g. 85 cm aisle width, only active antenna = 50 Ω

This value varies if the distance between the antennas changes.

4.2. Fine-Tuning Aquila Active Antenna

- Turn on all three (3) trimmers until a similar diagram (fig. 2) is reached (C10 and C11 should have more or less the same capacity, symmetrical).



4.3. Fine Tuning Passive Antenna

- Reconnect antenna wire into X3
- Turn on C10 and C11 symmetrical until the curve looks like the diagram in figure 3

Important: The resistance must be 50 +/- 3 Ω

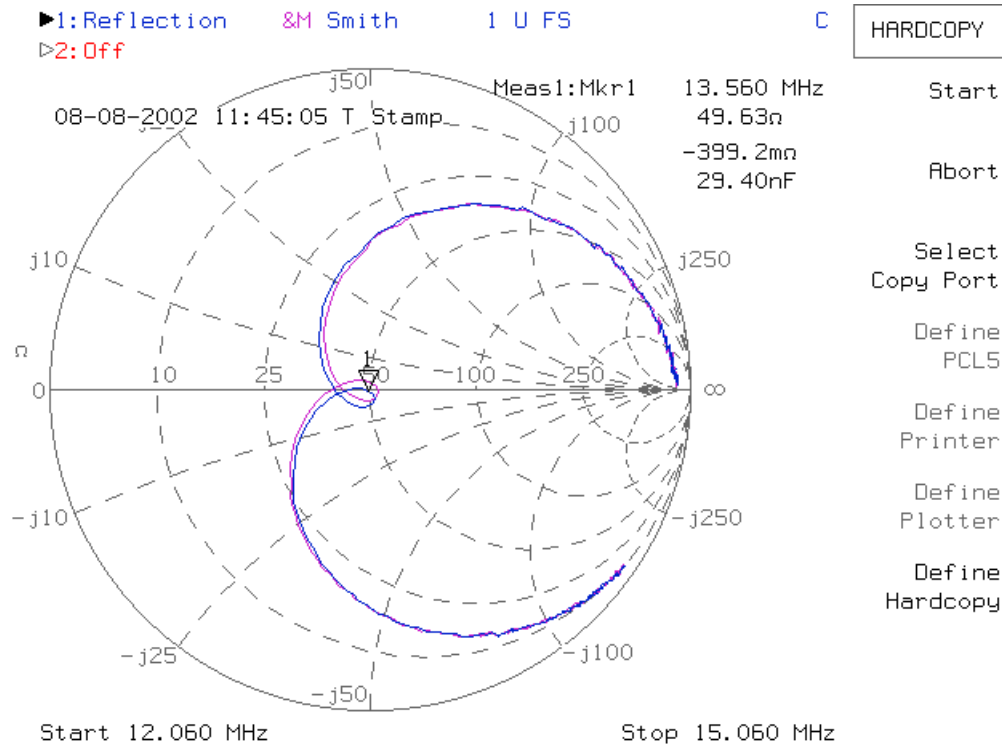
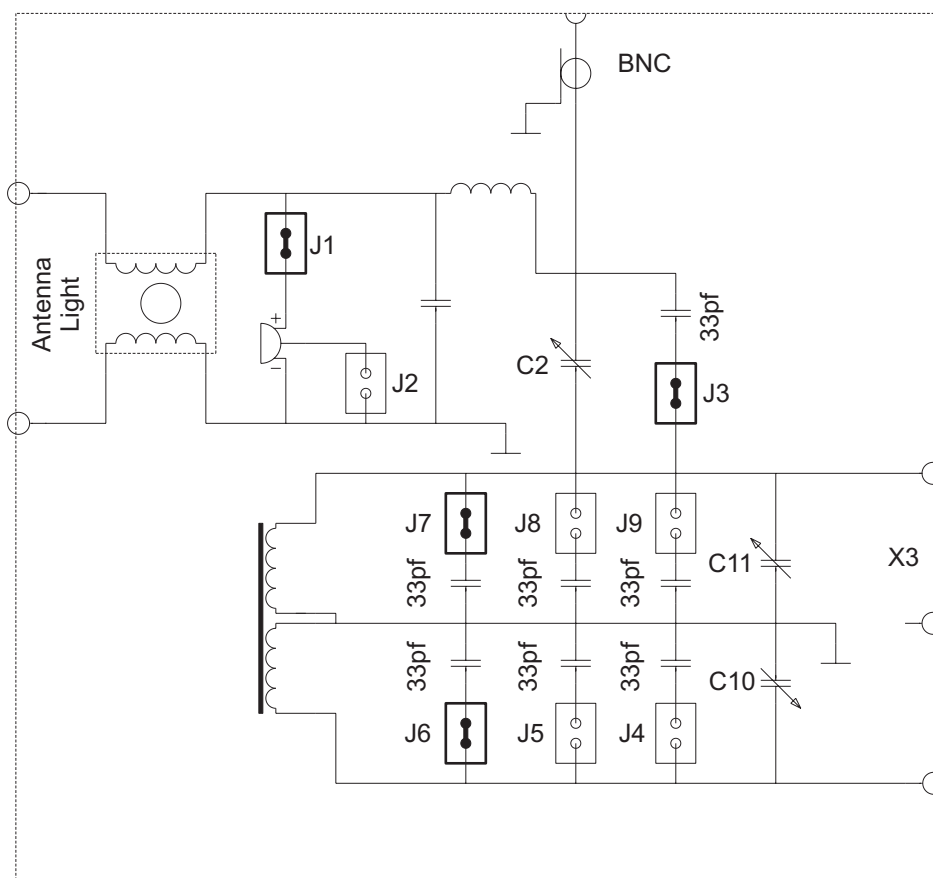


Figure 3, Final Diagram

5. System Test

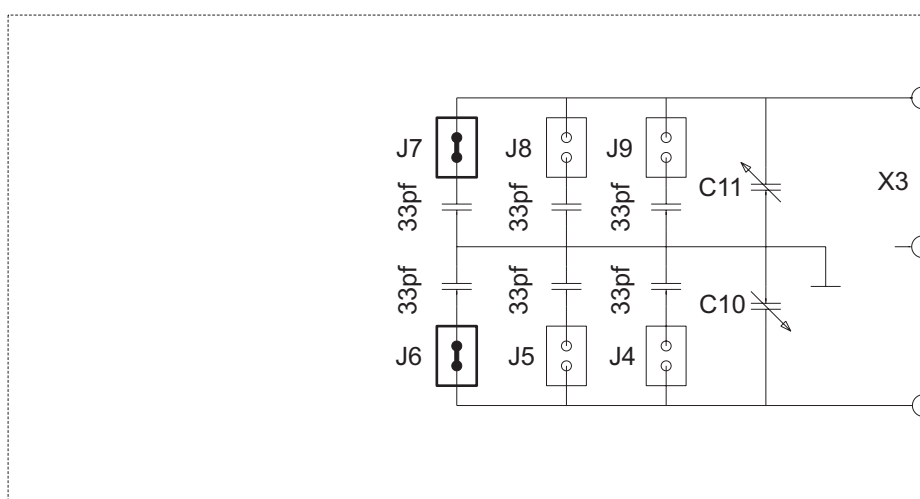
- Connect the coax cable to the long range reader
- Take a reference CD and test detection (see detection rate)

6. MAB Active Antenna Schematic



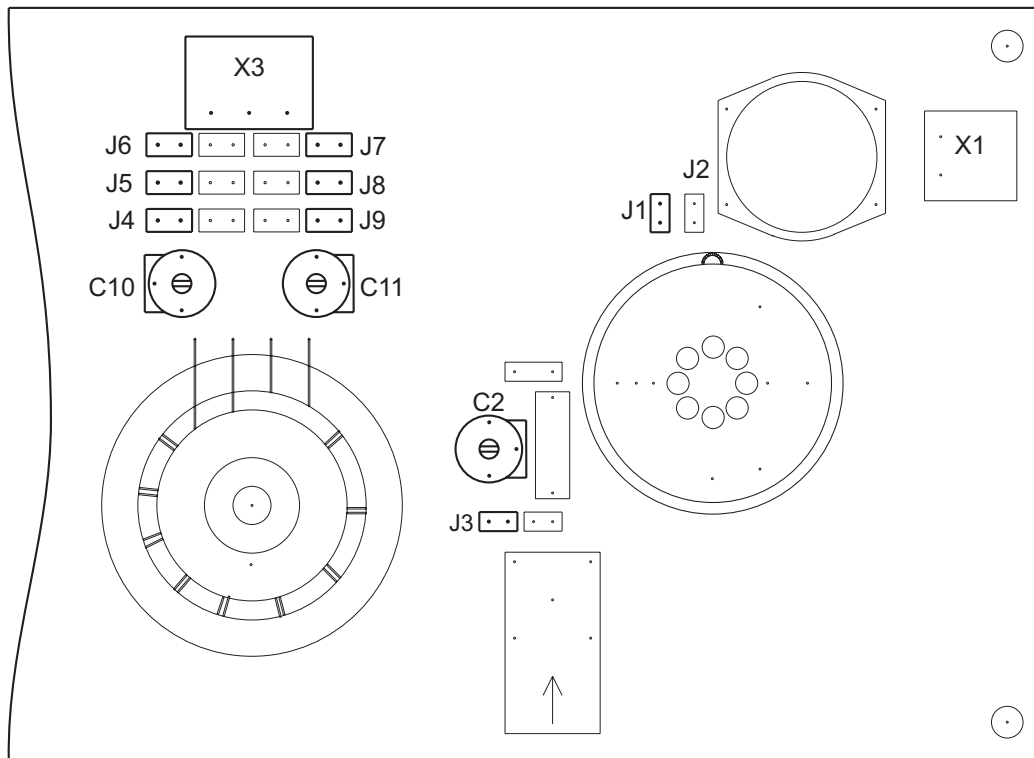
MAB Active Antenna Schematic

6.1. MAB Passive Antenna Schematic



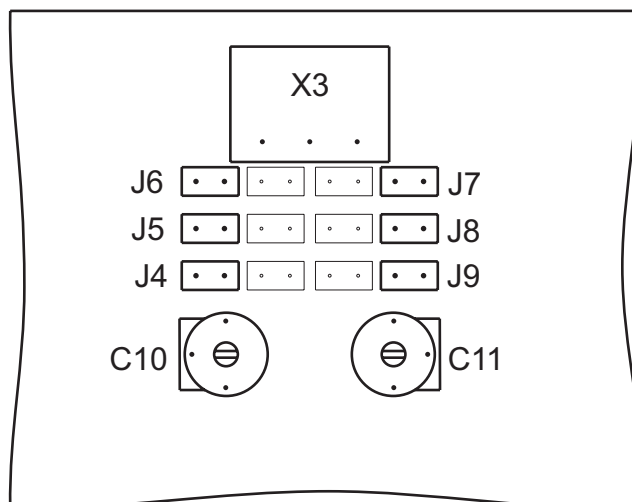
MAB Passive Antenna Schematic

7. MAB Active Antenna Layout



MAB Active Antenna Layout

7.1. MAB Passive Antenna Layout



MAB Passive Antenna Layout