

Kadex Vigil V1.01 (DEV915080): internal pcb antenna for 915 MHz

author: René Gruhle

date: 26.05.2026

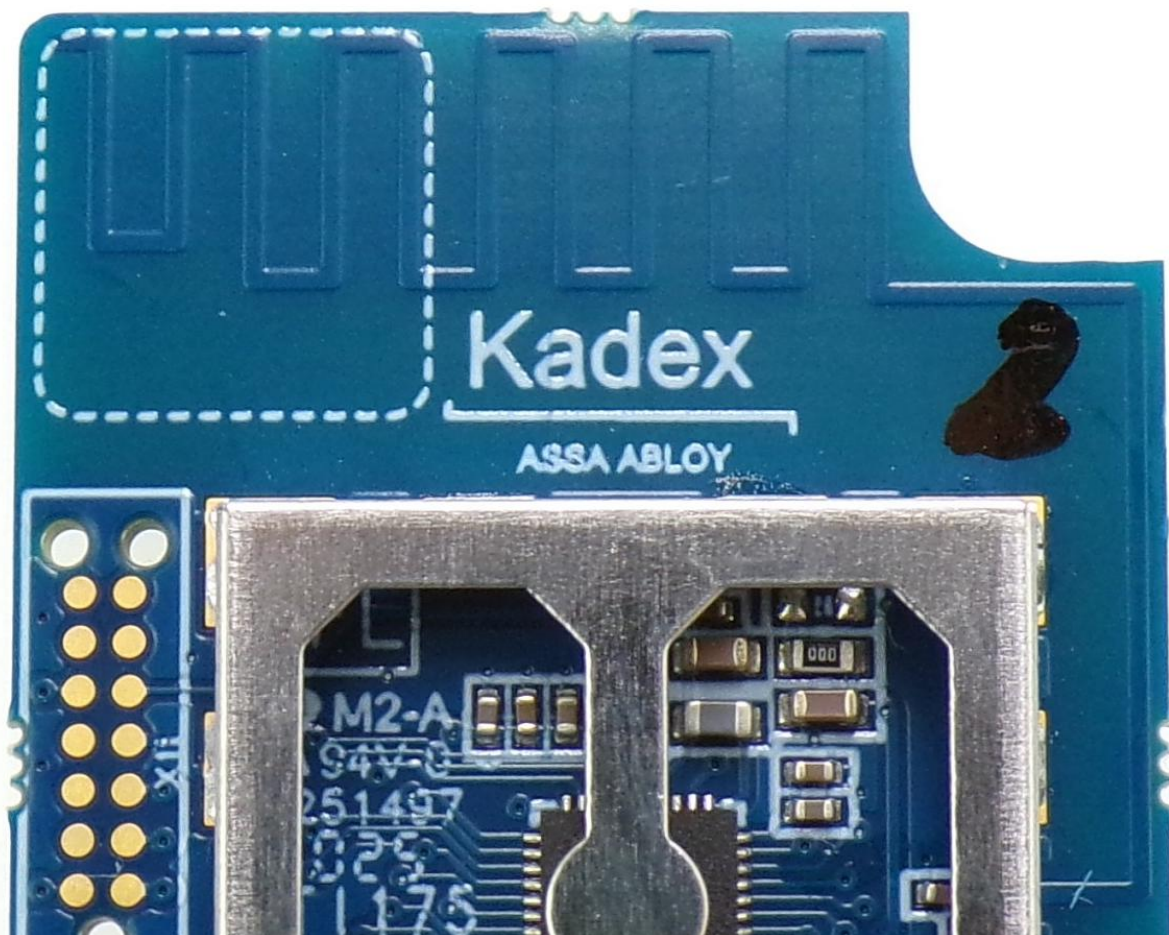


figure 1: antenna section

antenna type: L-antenna

implementation: microstrip on FR4

dimensions: approx. 28.2mm x 22.4mm

RF characteristics:

*black solder mask, others is identical to sales version

DUT module on main pcb

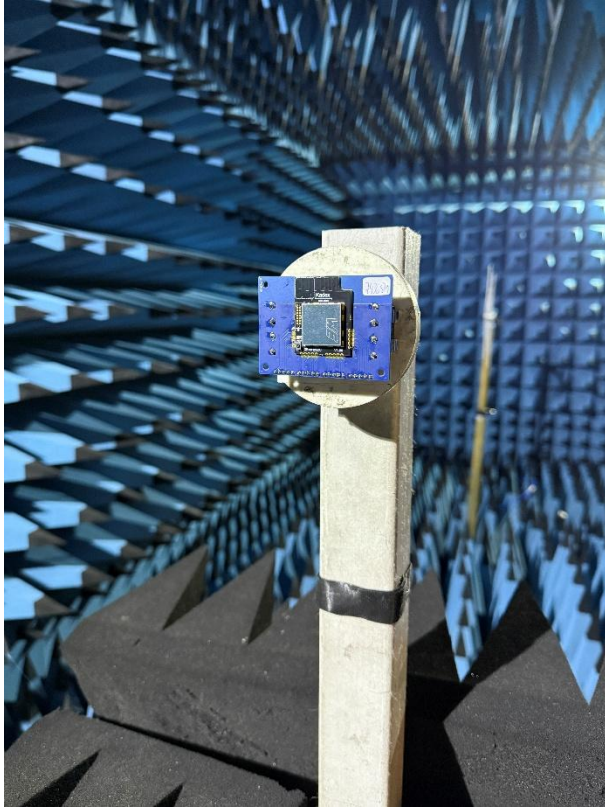


figure 2: DUT module on main pcb, mounted on antenna rotating stand

Parameter	902MHz	915MHz	928MHz
Directivity	2.4dBi	2.5dBi	2.4dBi
Peak gain	-4.8dBi	-2.2dBi	-3.4dBi
Efficiency	18%	33%	26%
Impedance (with matching)	50Ω	50Ω	50Ω

Matching:

*black solder mask, others is identical to sales version

DUT module mounted on a main pcb, on a wooden board

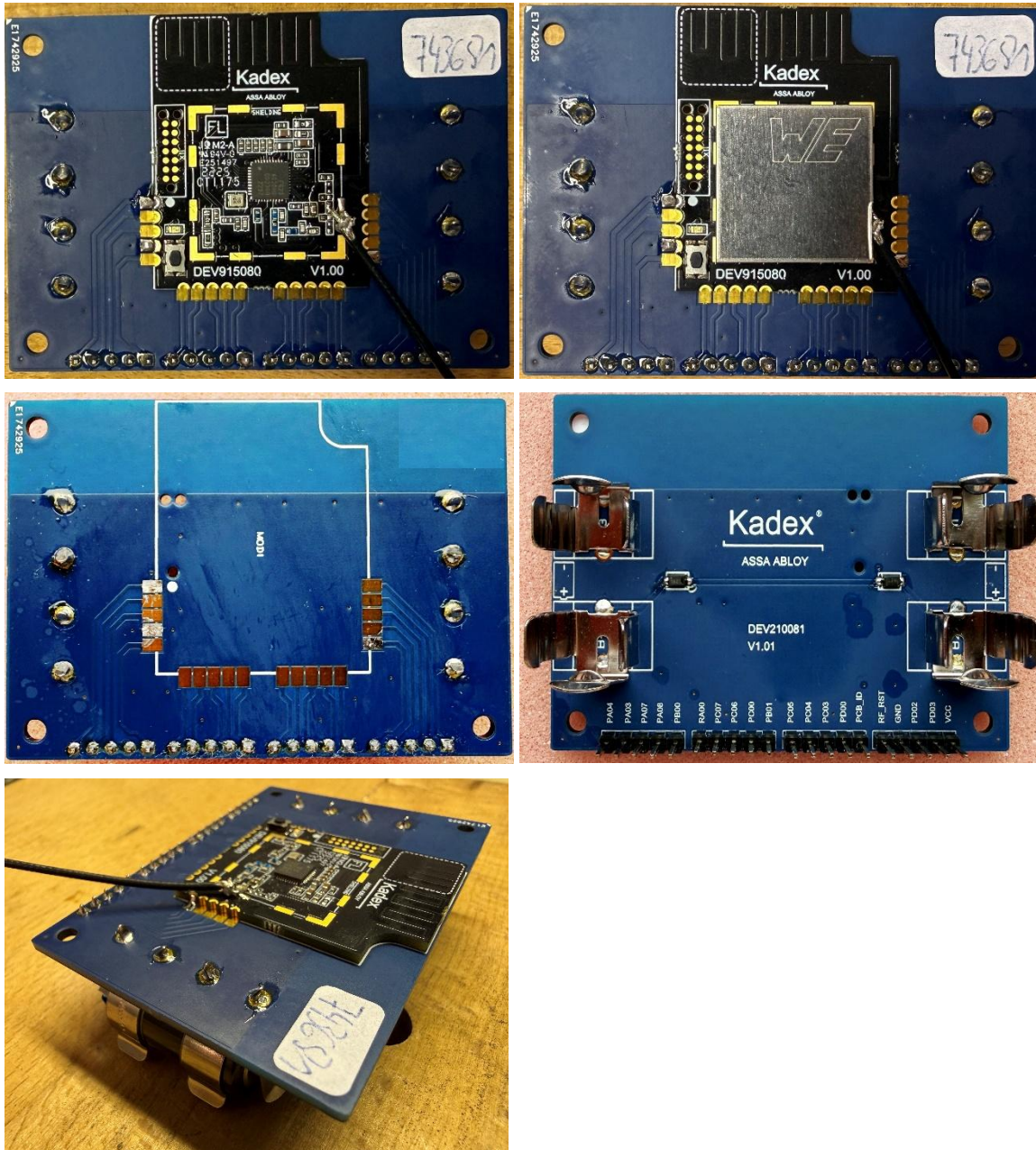


figure 3: test setup return loss, DUT module on main pcb, all on a wooden board

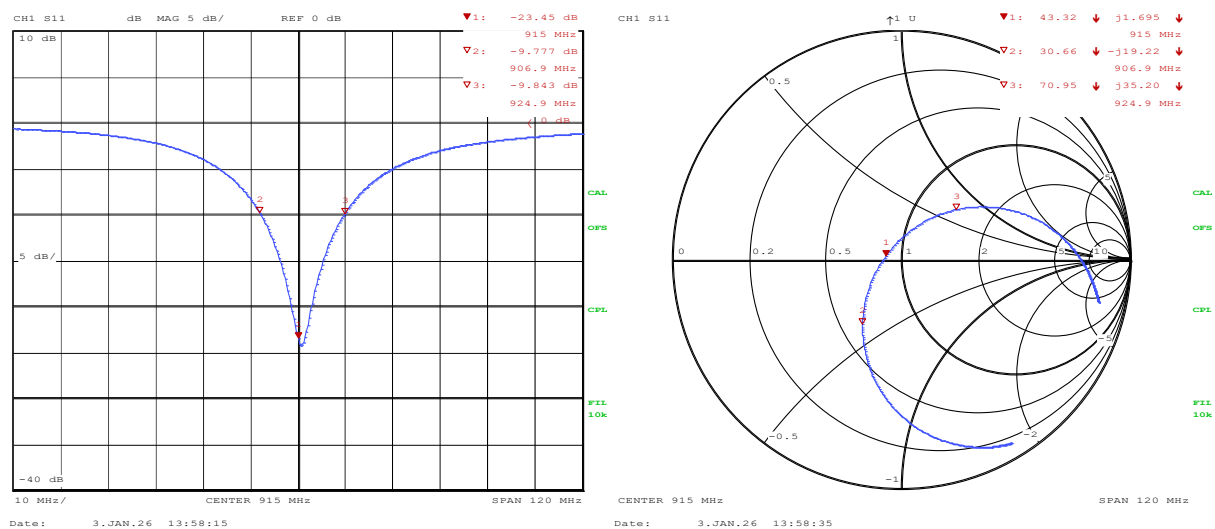


figure 4: antenna matching

Antenna patterns:

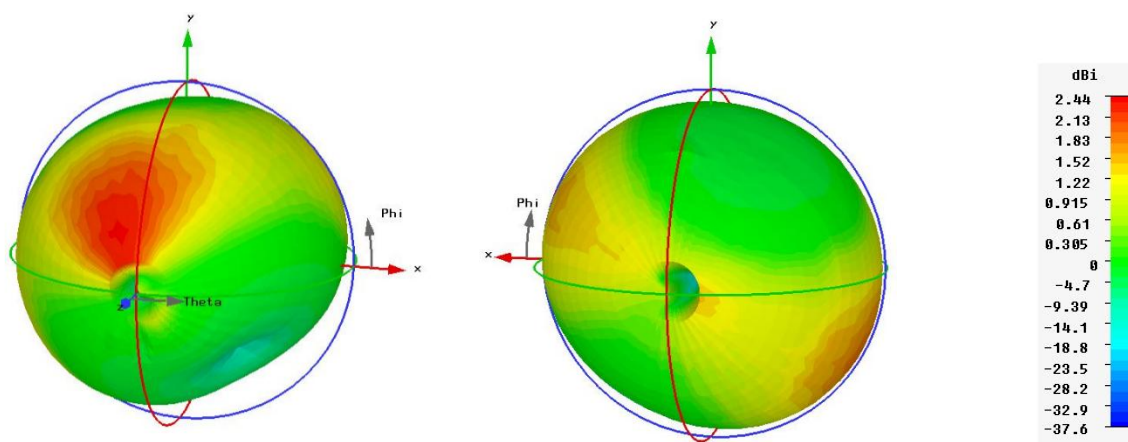


figure 5: 3D pattern at 902MHz

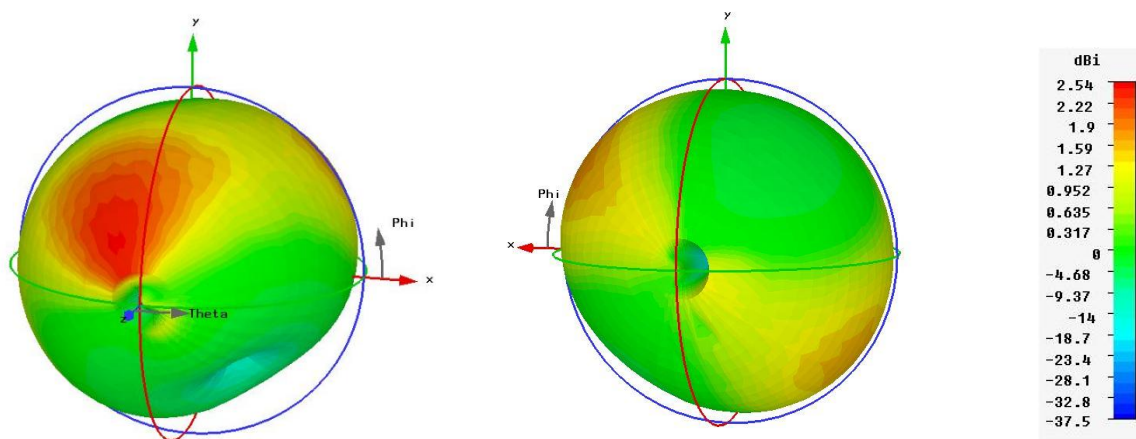


figure 6: 3D pattern at 915MHz

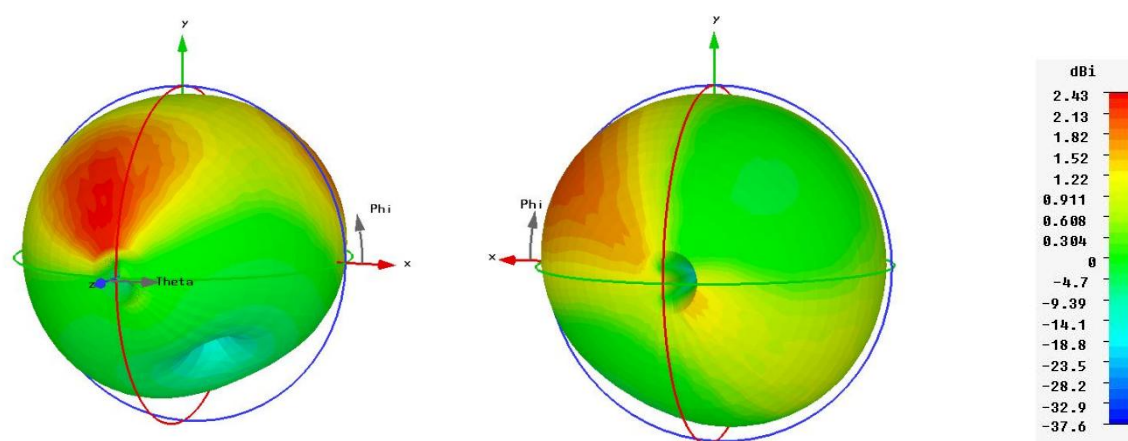


figure 7: 3D pattern at 928MHz

Test setup and equipment:

- DUT in TX CW mode (test mode)
- Rohde & Schwarz ZVCE VNA
- Anritsu MS2830A signal analyzer
- Schwarzbeck USLP 9143 UHF-SHF log. - per. broadband antenna
- Self-build antenna rotating and anechoic chamber for radiated measurements