

Kadex Motion Sensor Long V6.01 (DEV915067): internal pcb antenna for 915 MHz

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figure 1: antenna section

antenna type: printed ILA antenna

implementation: microstrip on FR4

dimensions: approx. 47mm x 12mm

RF characteristics:

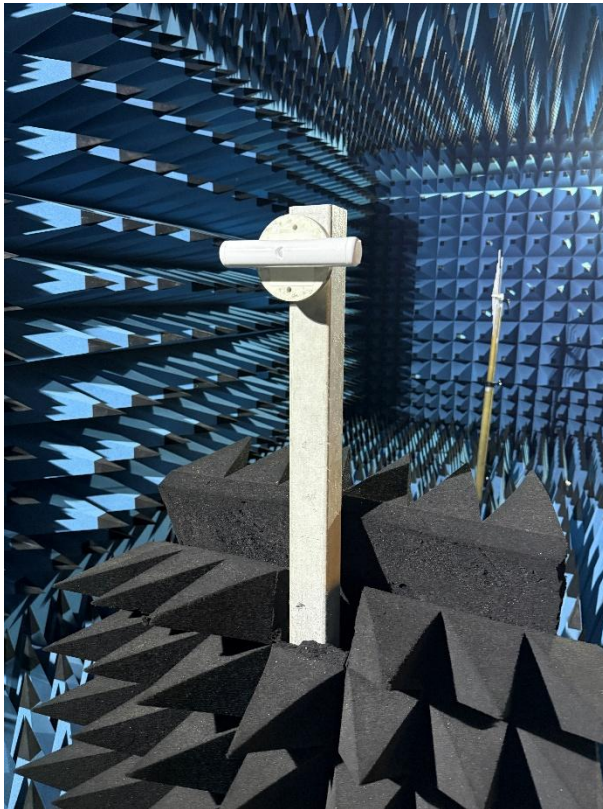


figure 2: DUT mounted on antenna rotating stand, battery powered, variant half open

Parameter	902MHz	915MHz	928MHz
Directivity	4.2dBi	4.5dBi	4.1dBi
Peak gain	-4.1dBi	-2.0dBi	-1.9dBi
Efficiency	14.8%	22.5%	25.3%
Impedance (with matching)	50Ω	50Ω	50Ω

peak gain vs frequency:

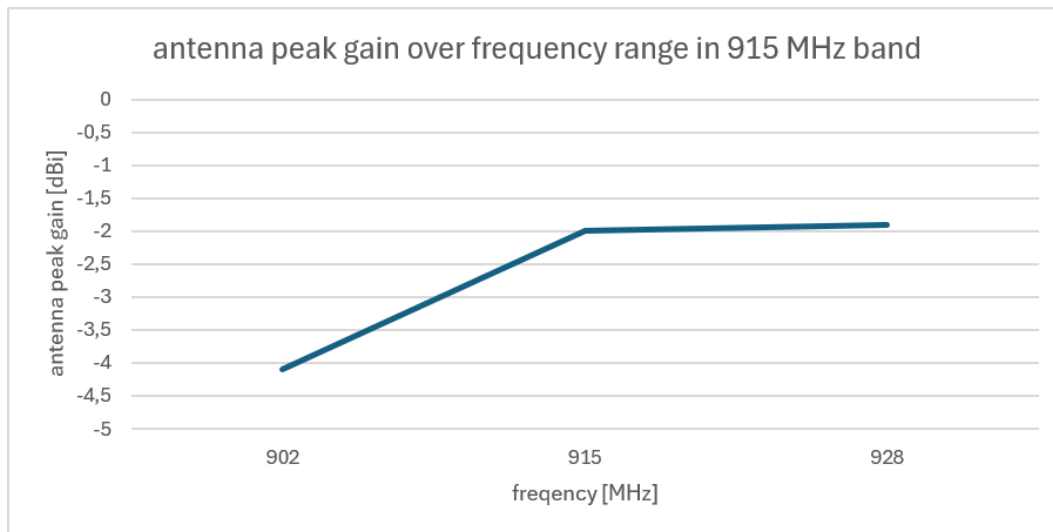


figure 3: antenna peak gain vs. frequency

Matching:

DUT antenna matching was performed on a wooden board, variant half open



figure 4: test setup return loss, DUT on a wooden board

Antenna patterns:

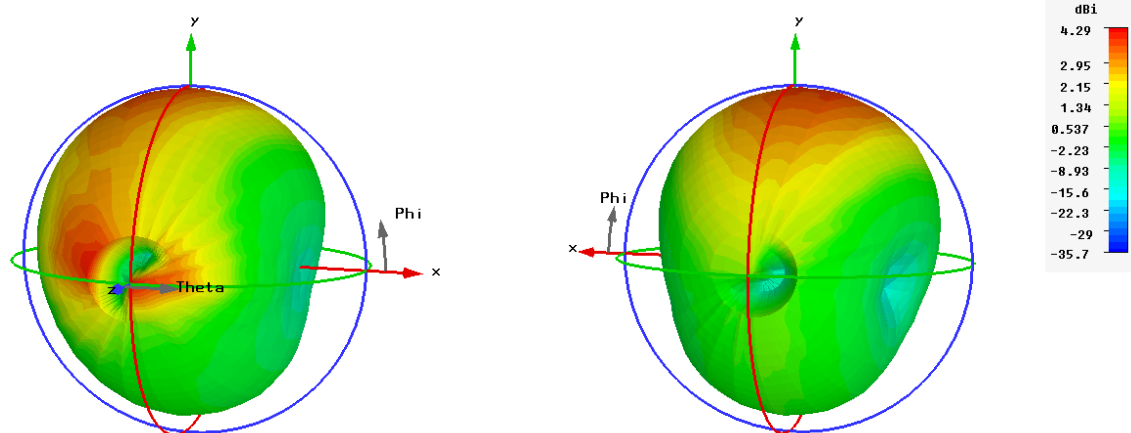


figure 5: 3D pattern at 902MHz

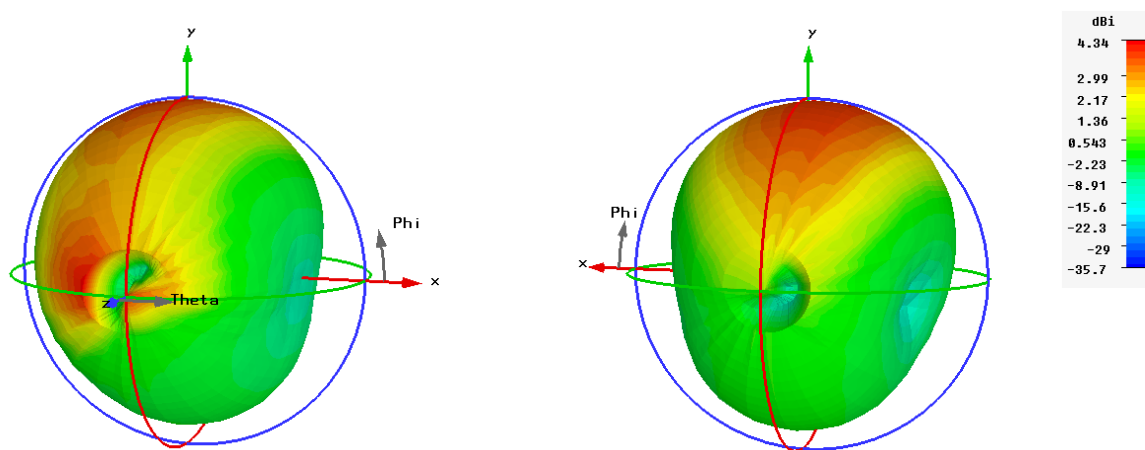


figure 6: 3D pattern at 915MHz

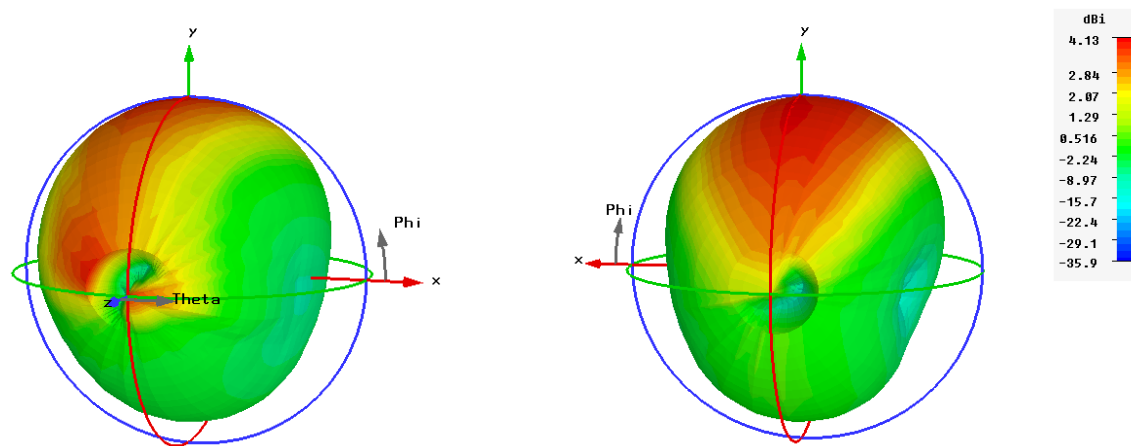


figure 7: 3D pattern at 928MHz

Test setup and equipment:

- DUT in TX CW mode (test mode)
- Rohde & Schwarz ZVCE Vector Network Analyzer
- Anritsu MS2830A Spectrum Analyzer / Signal Analyzer
- Schwarzbeck USLP 9143 UHF-SHF logarithmic periodic broadband antenna
- Self-build antenna rotating and anechoic chamber for radiated measurements