

Kadex Personal Button V6.00 (DEV915057A): internal pcb antenna for 915 MHz and antenna for BLE

author: René Gruhle

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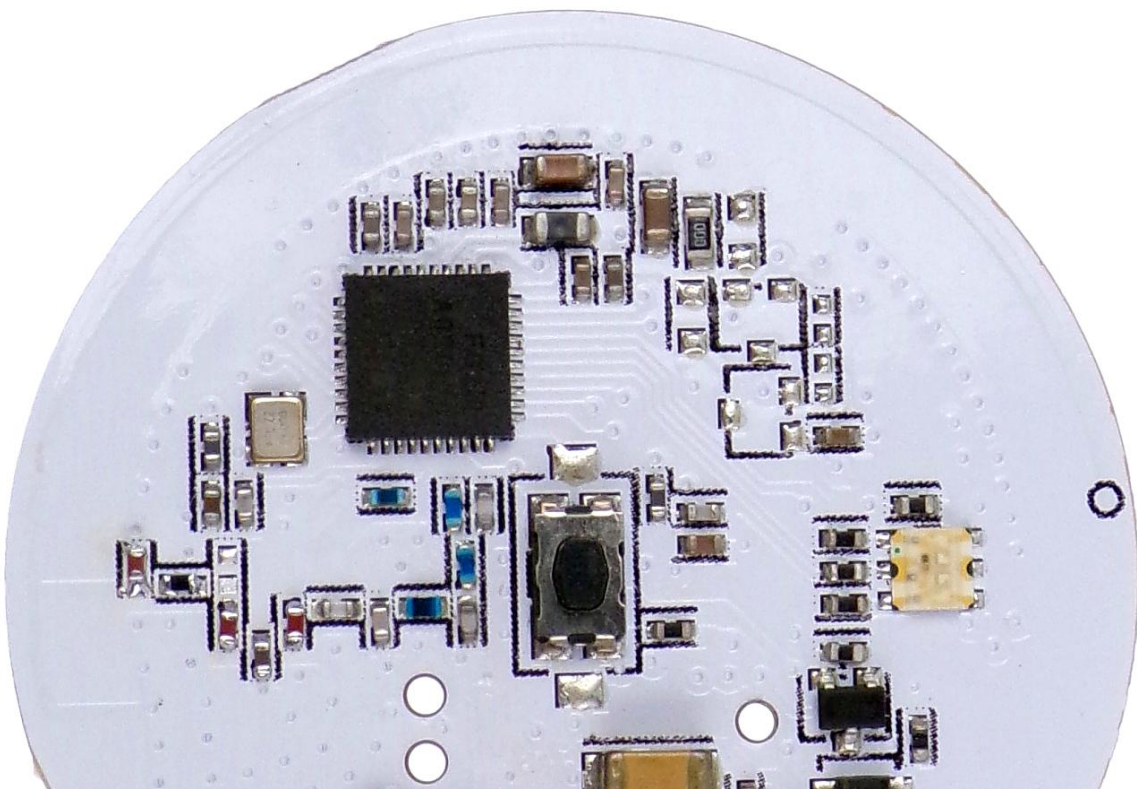


figure 1: antenna section

antenna type: F-antenna

implementation: microstrip on FR4

dimensions: approx. 33.7mm x 20.8mm

RF characteristics:

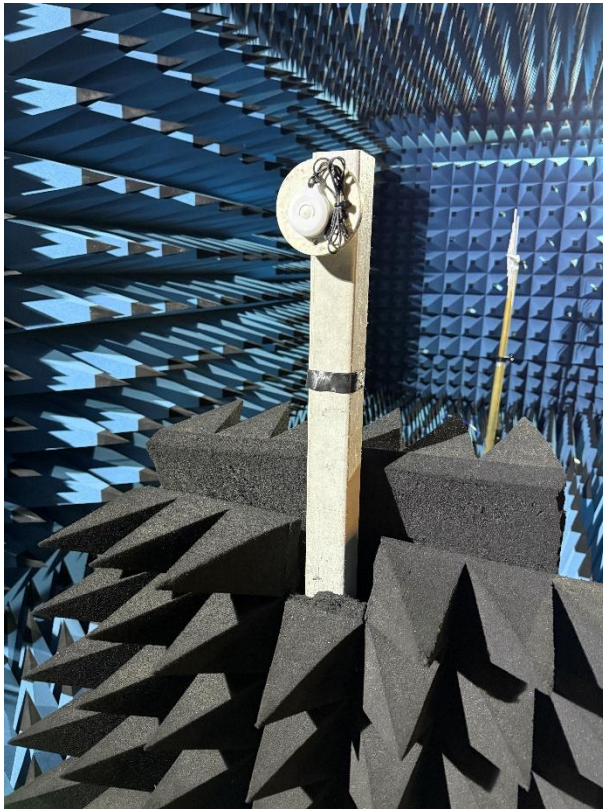


figure 2: DUT mounted on antenna rotating stand

Parameter	902MHz	915MHz	928MHz
Directivity	2.4dBi	2.4dBi	2.0dBi
Peak gain	-12.2dBi	-11.9dBi	-16.0dBi
Efficiency	3,5%	3,7%	1,6%
Impedance (with matching)	50Ω	50Ω	50Ω

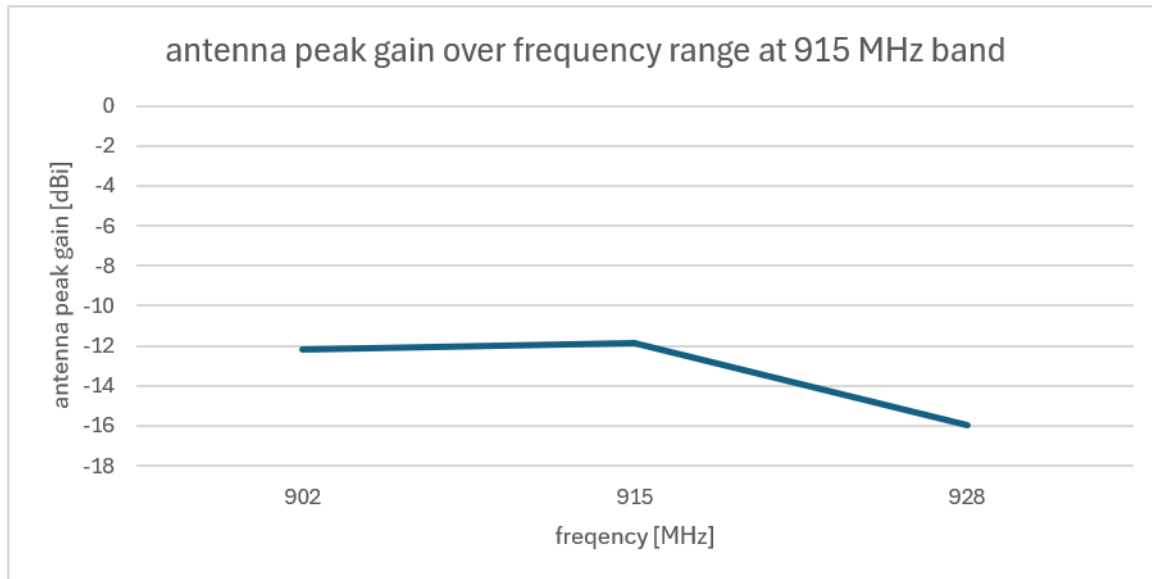


figure 3: antenna peak gain over frequency at 915 MHz band

Matching:

DUT on a wooden board and on the body

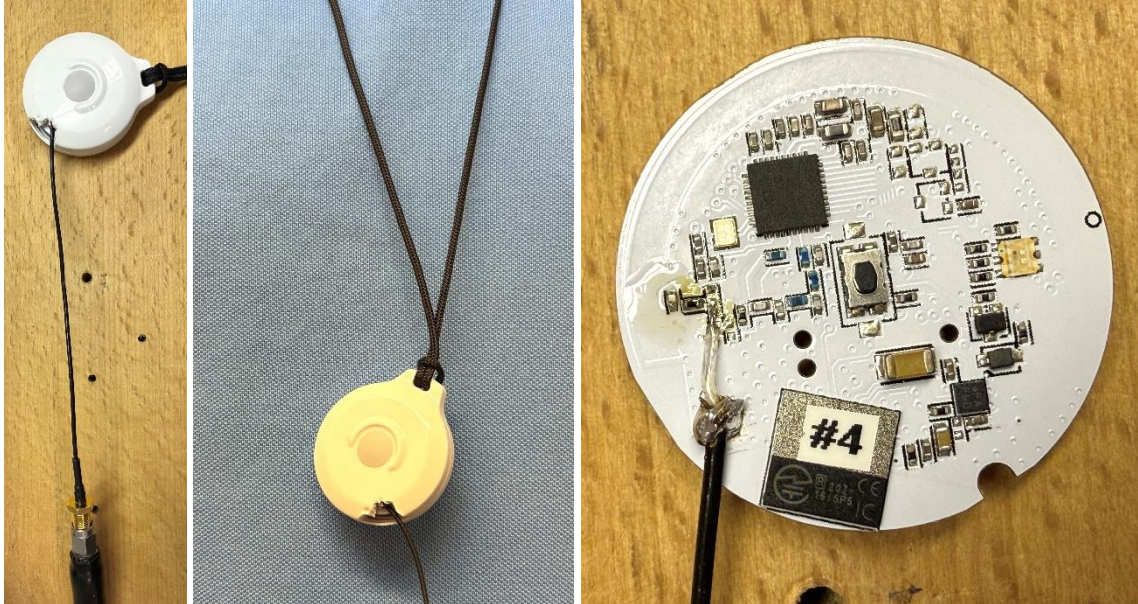


figure 4: test setup return loss, DUT on a wooden board and on the body

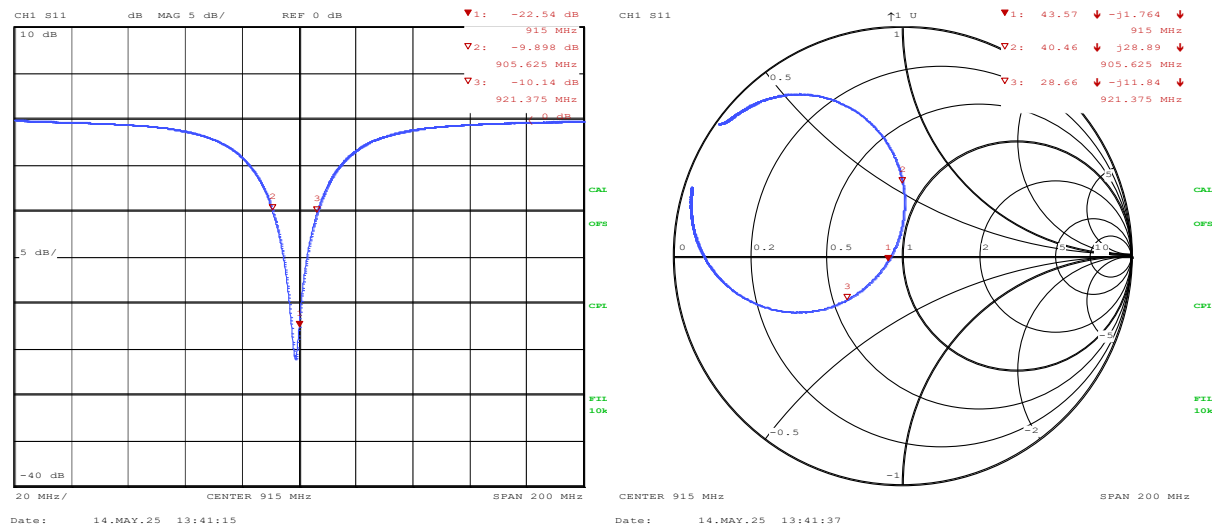


figure 5: antenna matching

Antenna patterns:

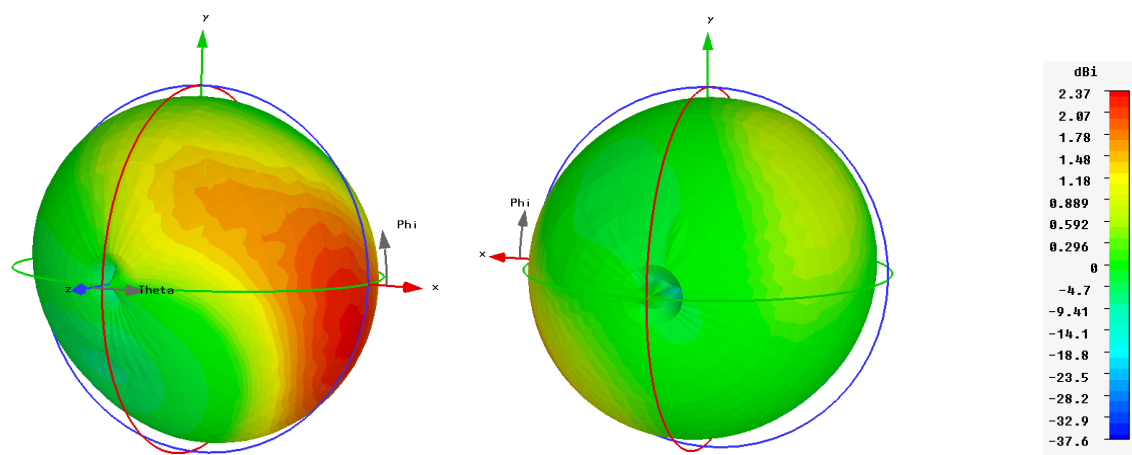


figure 6: 3D pattern at 902MHz

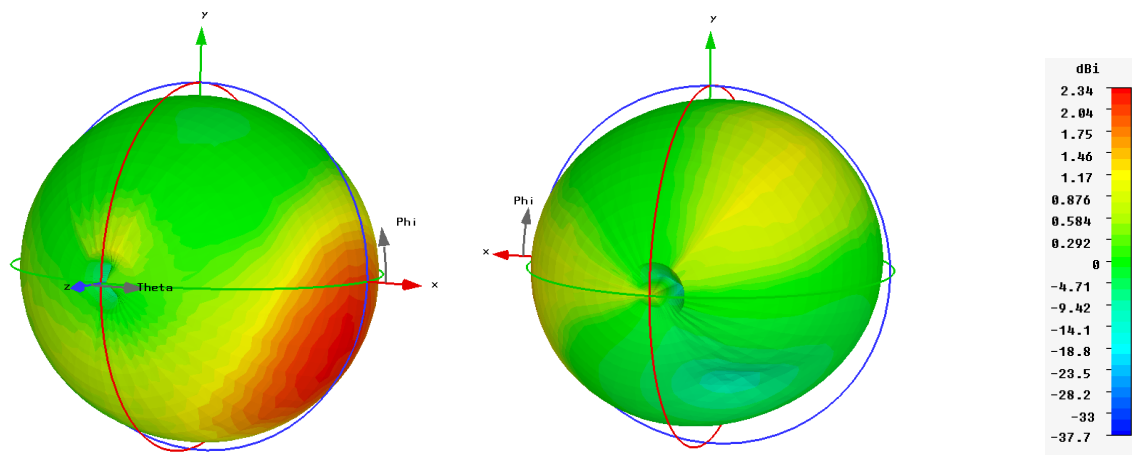


figure 7: 3D pattern at 915MHz

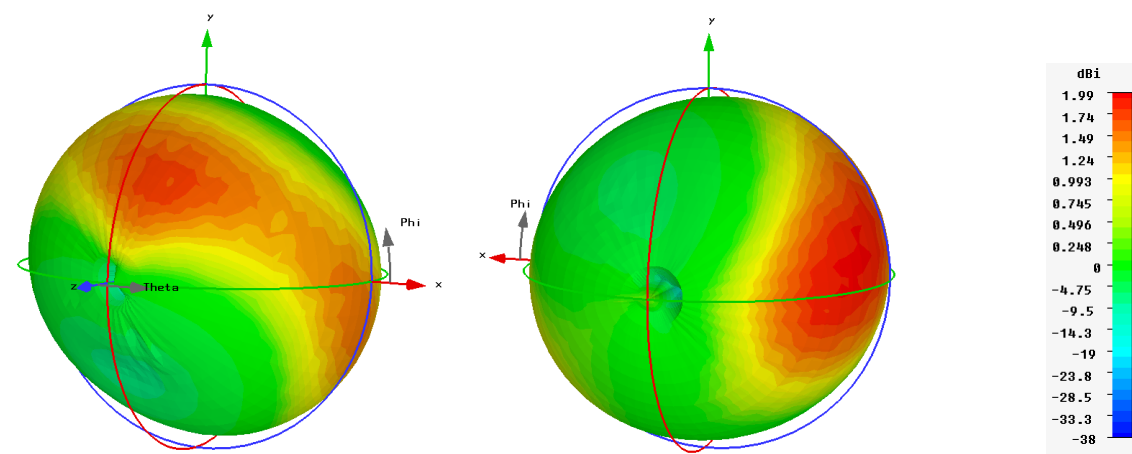


figure 8: 3D pattern at 928MHz

BLE antenna

The antenna for BLE is part of the BLE-module ISP1507 from insight SIP. The antenna is located under the black plastic part.

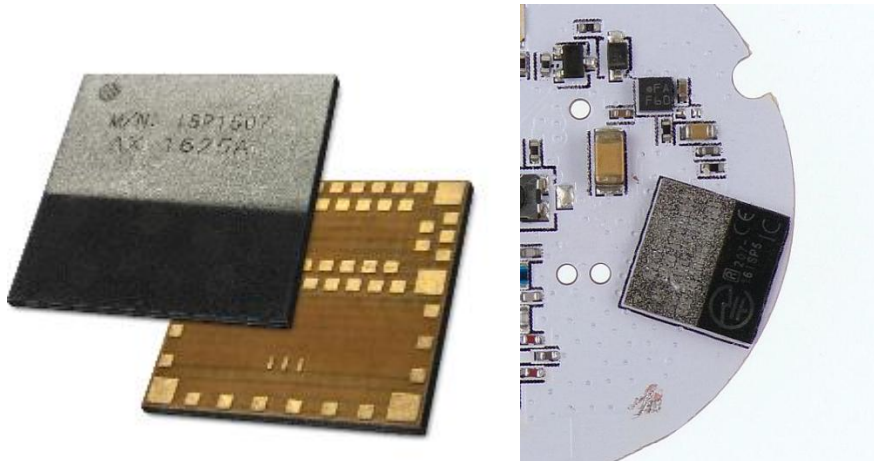


figure 9: BLE module, integrated on the Personal Button PCB (right picture)

The measured antenna gain (see figure below) for BLE on the Personal Button.

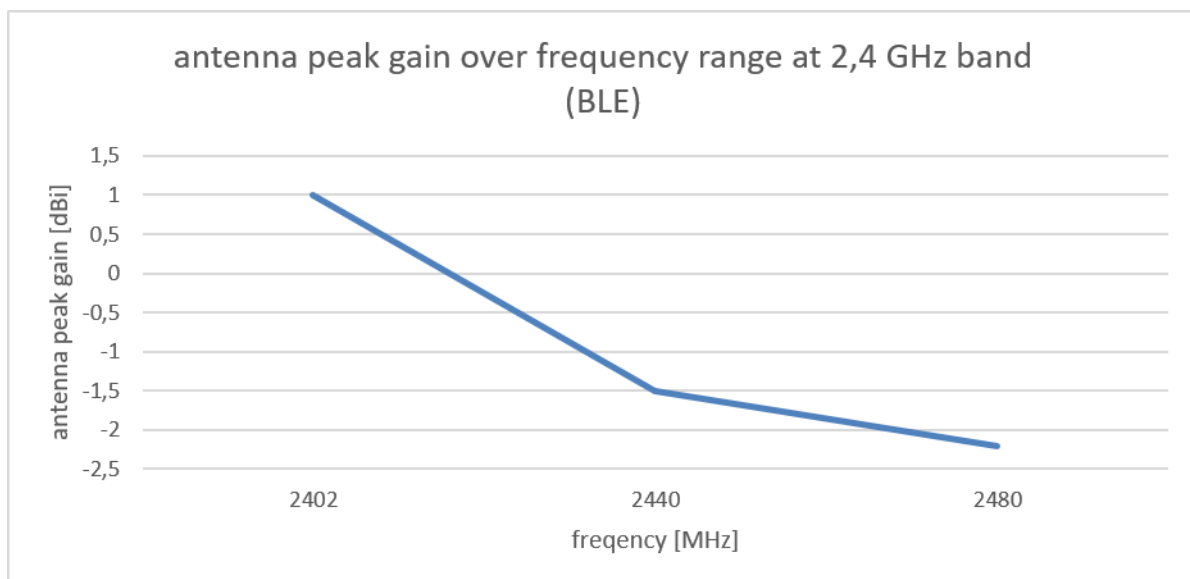


figure 10: antenna peak gain over frequency at 2400 MHz band (BLE). 2402 MHz = channel 37, 2440 MHz = channel 17, 2480 MHz = channel 39

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