CoreLocator Wi-Fi Antennas

ANTENNA TEST REPORT

1 ANTENNA SPECIFICATION

Typical CoreLocator Wi-Fi antenna parameters are presented on Table 1. The antenna parameters include the losses of the antenna cables.

Table 1 Antenna parameters.

Version	CHA683 0.1.2
Material	Rogers RO4350B
Dimensions	30mm x 15.5mm x 0.6mm
Operating frequency	5150MHz-5850MHz
Antenna type	PCB slot antenna
Polarization	Linear
Return loss	10dB
Maximum gain	4.7dBi
Connector type	uFL

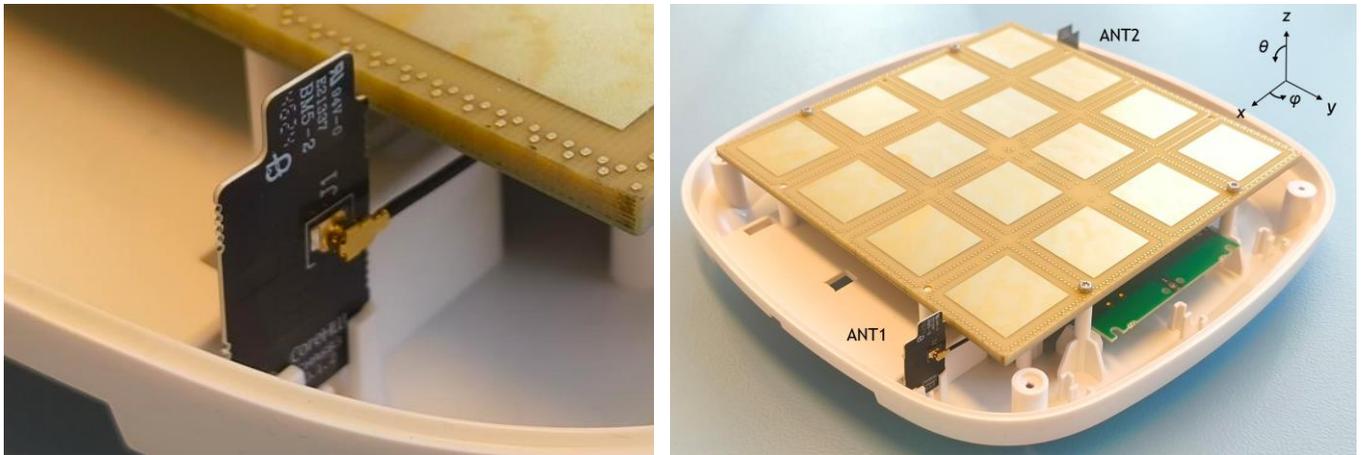Antennas in the CoreLocator and coordinate axes are presented in Figure 1.

Figure 1 Wi-Fi 4 antennas (ANT1 & ANT2) inside CoreLocator (CHW-LOC4000).

PCB layout of the antennas is presented in Figure 2.

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Figure 2 Wi-Fi 4 antenna PCB layout

2 ANTENNA MEASUREMENTS

Measured maximum gain for ANT1 and ANT2 are shown in Figure 3. Table 2 shows maximum gains of antennas at W52, W53, W56, and W58 bands (5150-5250MHz, 5250-5350MHz, 5470-5725MHz, and 5725-5850MHz, respectively). Cable impedance mismatch loss has been removed from the results, but cable loss is included. Measured antenna gain patterns are shown in Figure 4.
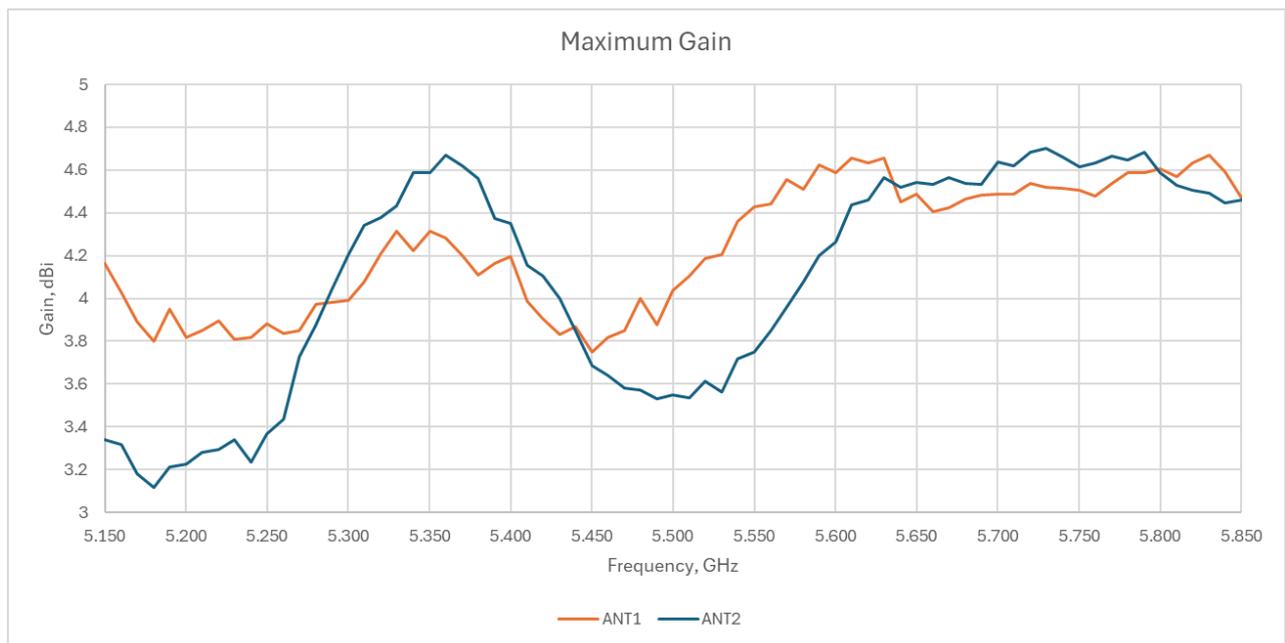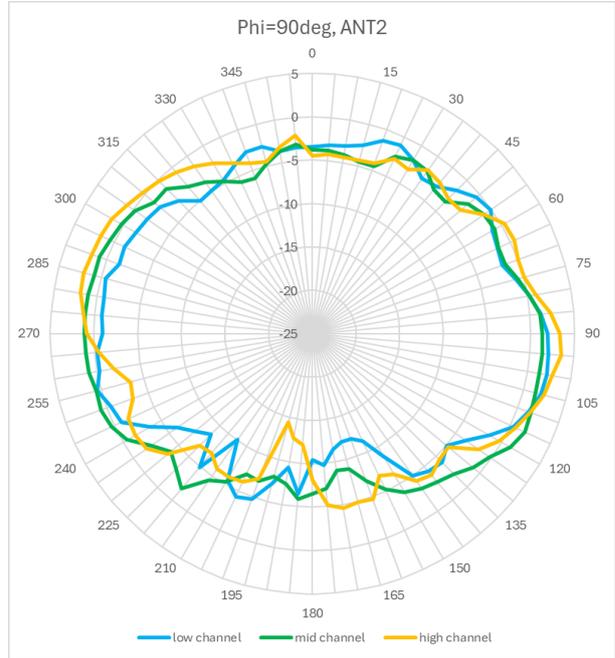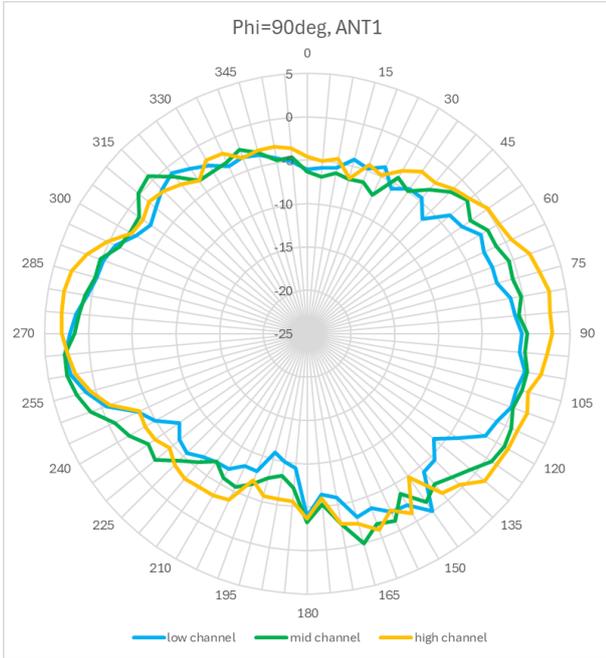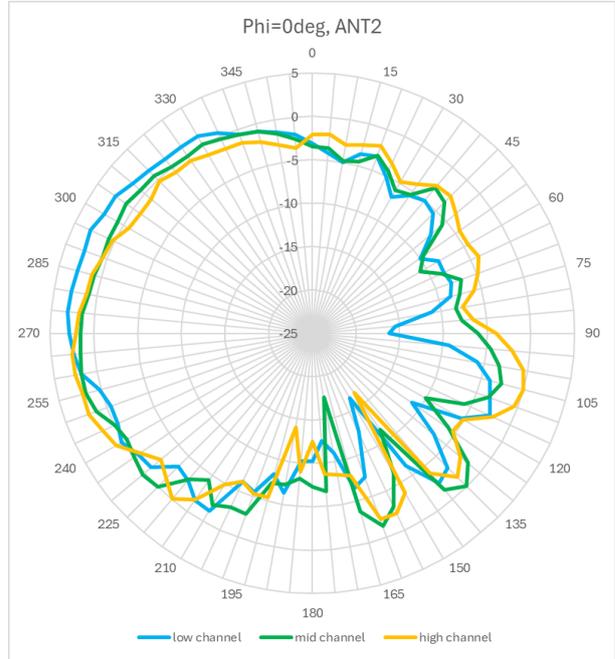

Figure 3 Measured antenna maximum gains.

Table 2 Antenna maximum gains at W52, W53, W56, and W58 bands.

Antenna #	W52 (5150-5250MHz)	W53 (5250-5350MHz)	W56 (5470-5725MHz)	W58 (5725-5850MHz)
ANT1	4.2dBi	4.3dBi	4.7dBi	4.7dBi
ANT2	3.4dBi	4.6dBi	4.7dBi	4.7dBi

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Phi=0deg, ANT1 — low channel, mid channel, high channel

Phi=0deg, ANT2 — low channel, mid channel, high channel

Phi=90deg, ANT1 — low channel, mid channel, high channel

Phi=90deg, ANT2 — low channel, mid channel, high channel
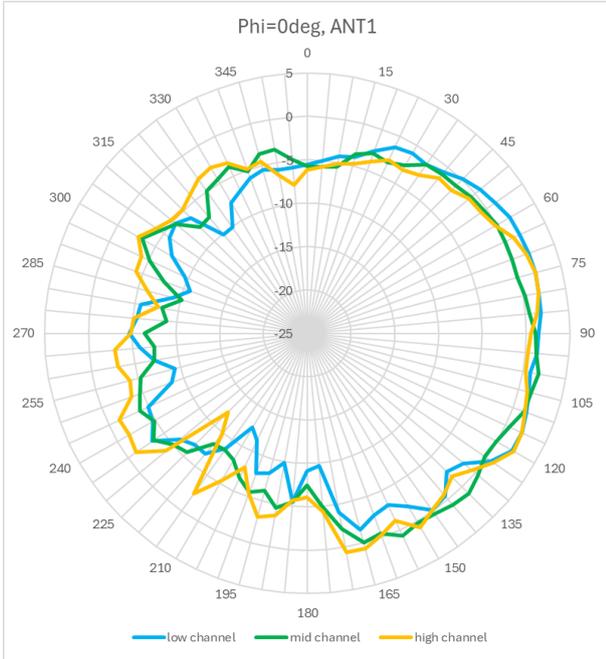
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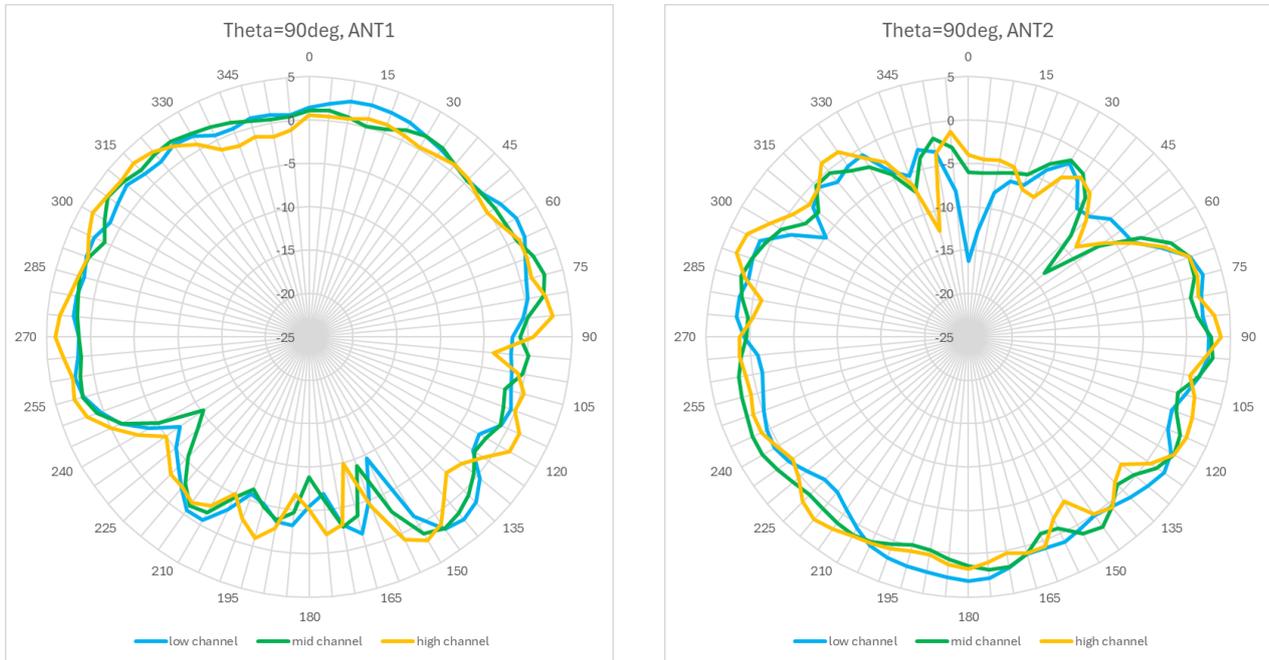Figure 4 Antenna realized-gain patterns in dBi at 5180MHz ("low channel"), 5500MHz ("mid channel"), and 5830MHz ("high channel") for ANT1 & ANT2.

3   CHANGE HISTORY

PCB version	Description	Date
CHA683 0.2.1	Antenna measurement report created	2025-03-18
CHA683 0.2.1	Added maximum gain to Antenna Specification section	2025-03-21
CHA683 0.2.1	Updated results from measurements	2025-04-25
CHA683 0.2.1	Updated maximum-gain table bands	2025-05-18

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