ANTENNA TEST REPORT

1 ANTENNA SPECIFICATION

Typical CoreLocator BLE direction-finding array antenna module parameters are presented on Table 1.The module includes the CHW1010 SP16T antenna switch, a ribbon cable connector for switch controls, and a uFL connector through which the measurements have been conducted.

Table 1 Antenna parameters.

Material	FR-4
Dimensions	150mm x 150mm x 3.6mm
Operating frequency	2.400GHz-2.484GHz
Array configuration	4x4 linear array
Number of elements	16
Antenna type	Patch antenna
Polarization	Circular
Return loss	10dB
Connector type	uFL

Antenna array, the array element enumeration, and coordinate axes are presented in Figure 2.

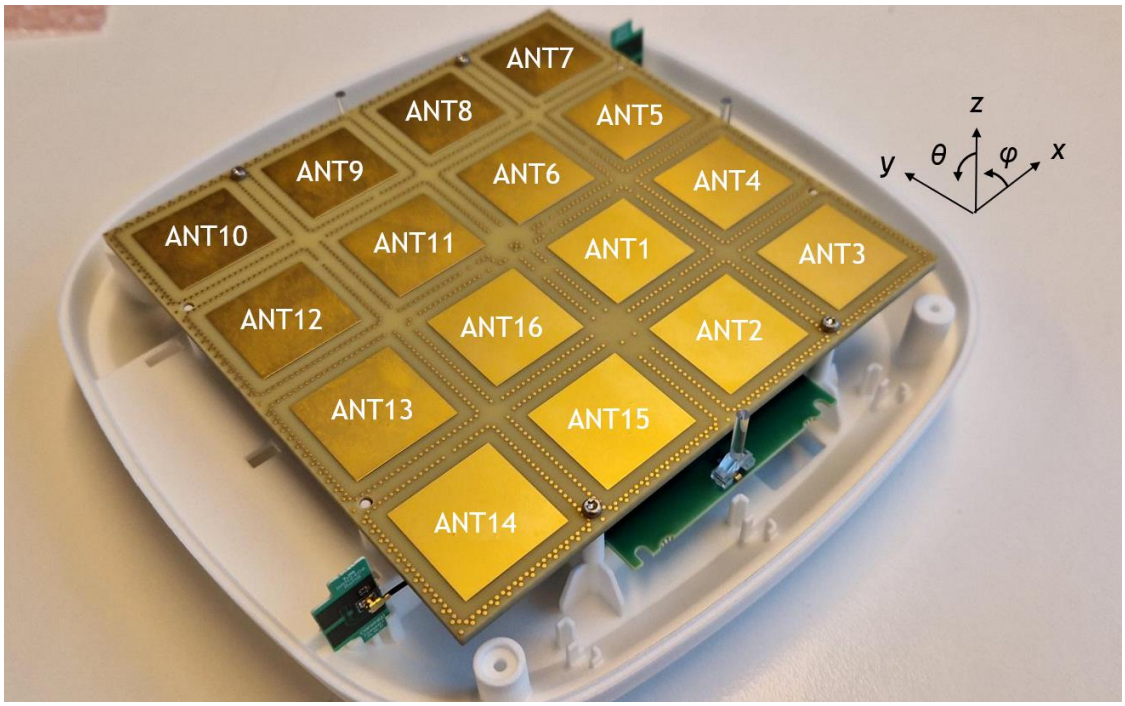

Figure 1 BLE direction finding array module (PCB12) inside CoreLocator (CHW-LOC4000).

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

2 ANTENNA MEASUREMENTS

Table 2 shows maximum gains of each element at low, middle, and high channels (2.40GHz, 2.44GHz, and 2.48GHz, respectively).

Table 2 Antenna maximum gains.

Antenna number	Low channel	Middle channel	High channel
ANT1	-3.37 dBi	-3.66 dBi	-4.04 dBi
ANT2	-1.95 dBi	-2.64 dBi	-3.24 dBi
ANT3	-1.82 dBi	-2.28 dBi	-2.89 dBi
ANT4	-3.17 dBi	-3.28 dBi	-3.84 dBi
ANT5	-1.81 dBi	-2.54 dBi	-3.26 dBi
ANT6	-3.24 dBi	-3.42 dBi	-3.55 dBi
ANT7	-1.62 dBi	-2.02 dBi	-2.48 dBi
ANT8	-3.56 dBi	-3.63 dBi	-4.24 dBi
ANT9	-2.14 dBi	-2.96 dBi	-3.61 dBi
ANT10	-1.61 dBi	-2.15 dBi	-2.85 dBi
ANT11	-3.49 dBi	-3.36 dBi	-3.53 dBi
ANT12	-3.55 dBi	-3.75 dBi	-4.59 dBi
ANT13	-2.37 dBi	-3.12 dBi	-3.69 dBi
ANT14	-1.25 dBi	-1.64 dBi	-2.50 dBi
ANT15	-3.19 dBi	-3.40 dBi	-4.09 dBi
ANT16	-3.27 dBi	-3.63 dBi	-3.83 dBi

Antenna gain patterns for the array elements are shown in the following Figures 2-17.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

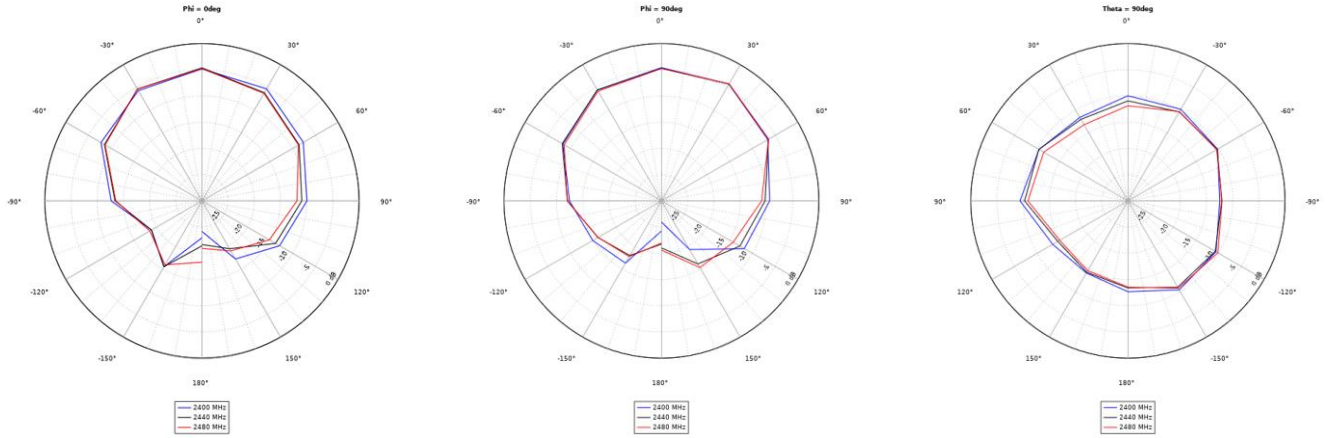

Figure 2 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT1.

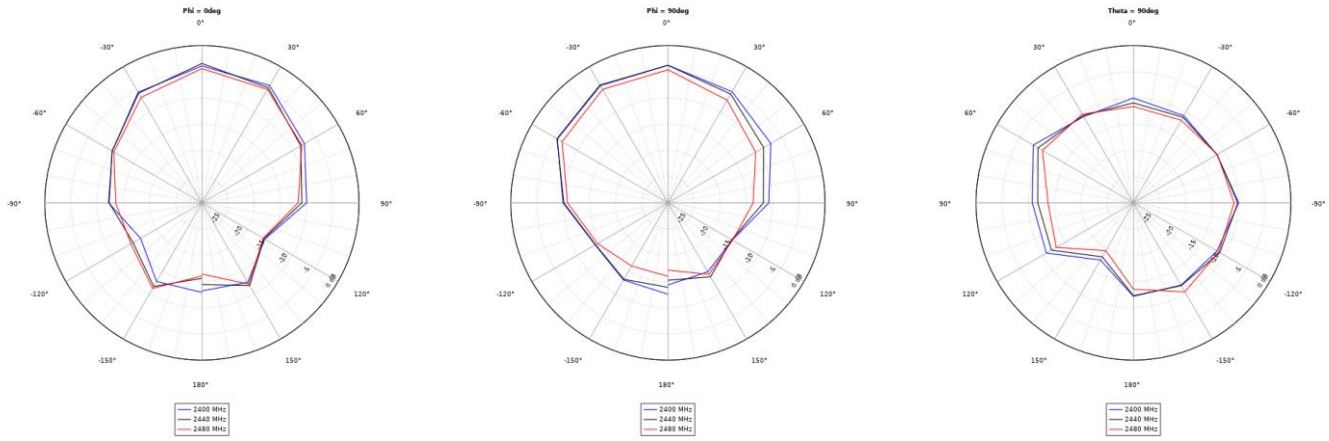

Figure 3 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT2.

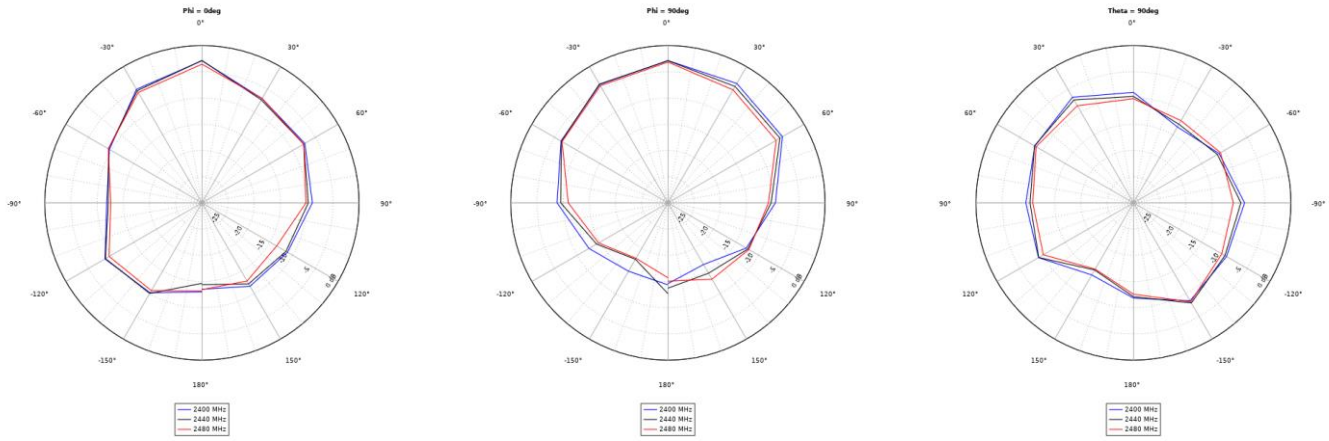

Figure 4 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT3.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

CoreHW www.corehw.com
Visiokatu 1, 33720 Tampere, FINLAND
©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

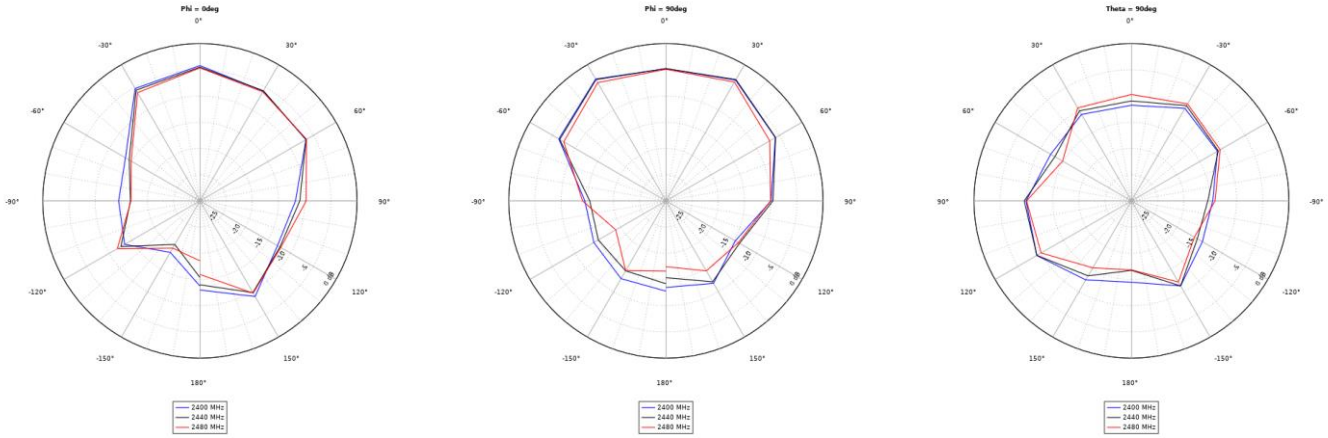

Figure 5 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT4.

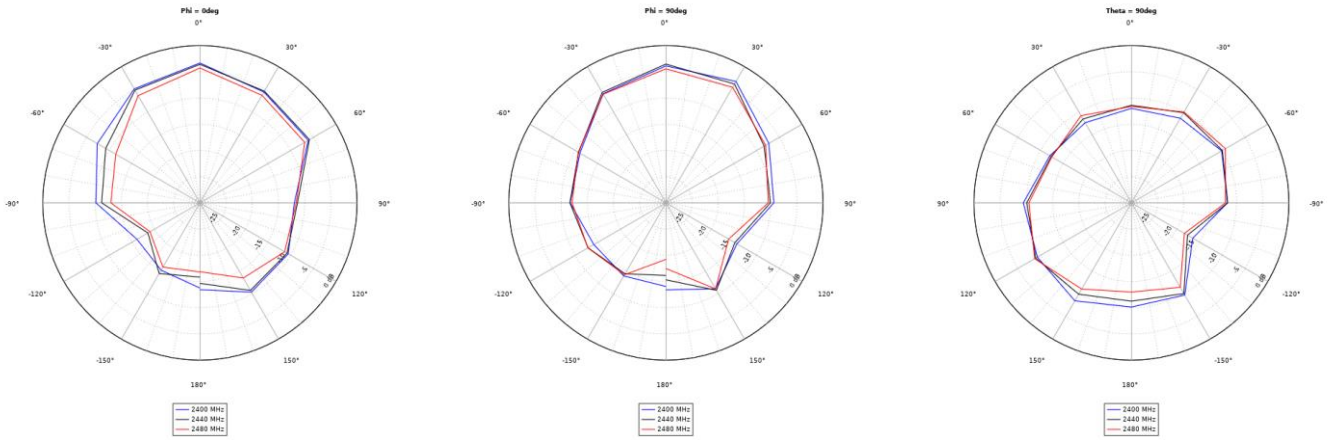

Figure 6 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT5.

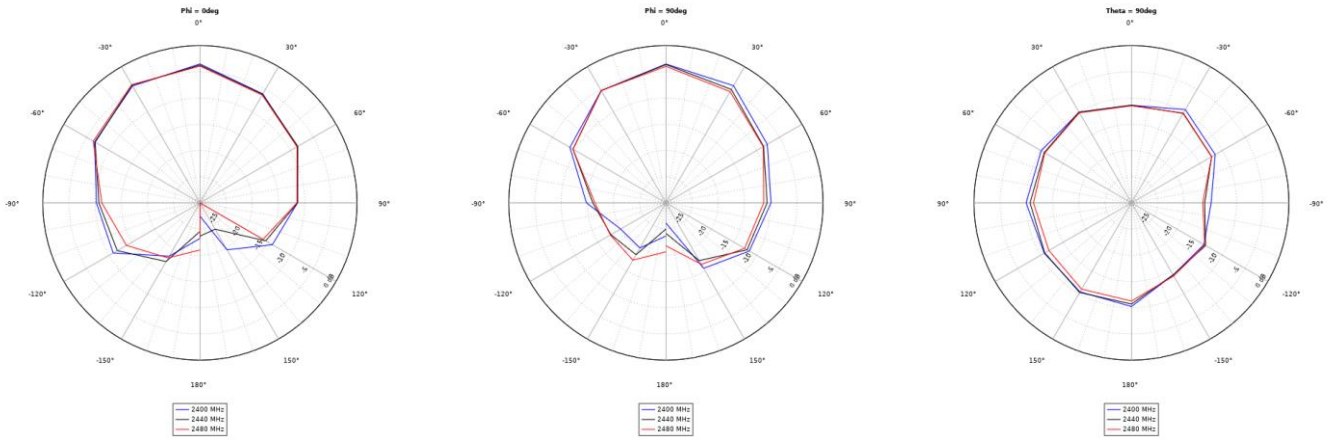

Figure 7 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT6.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

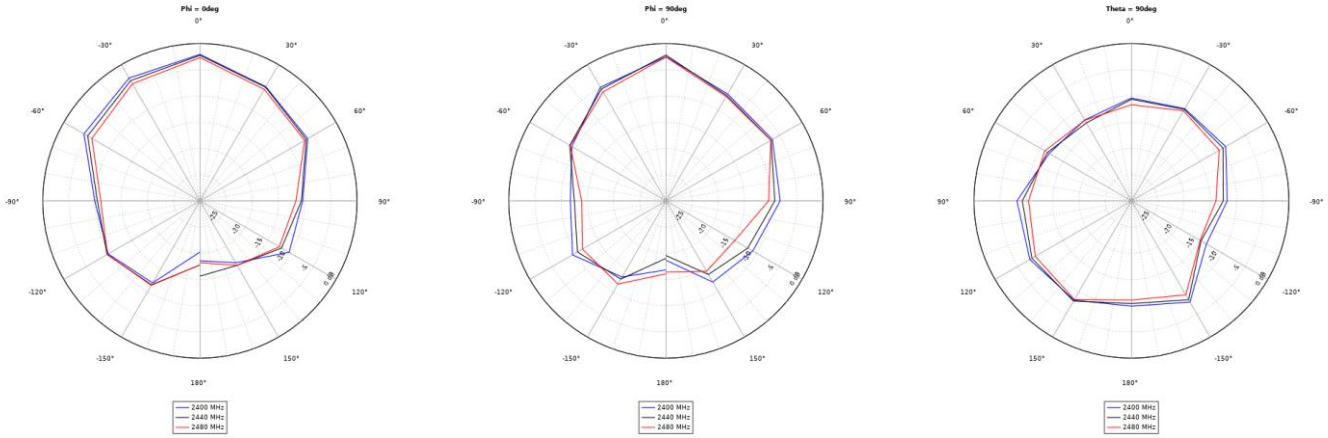

Figure 8 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT7.

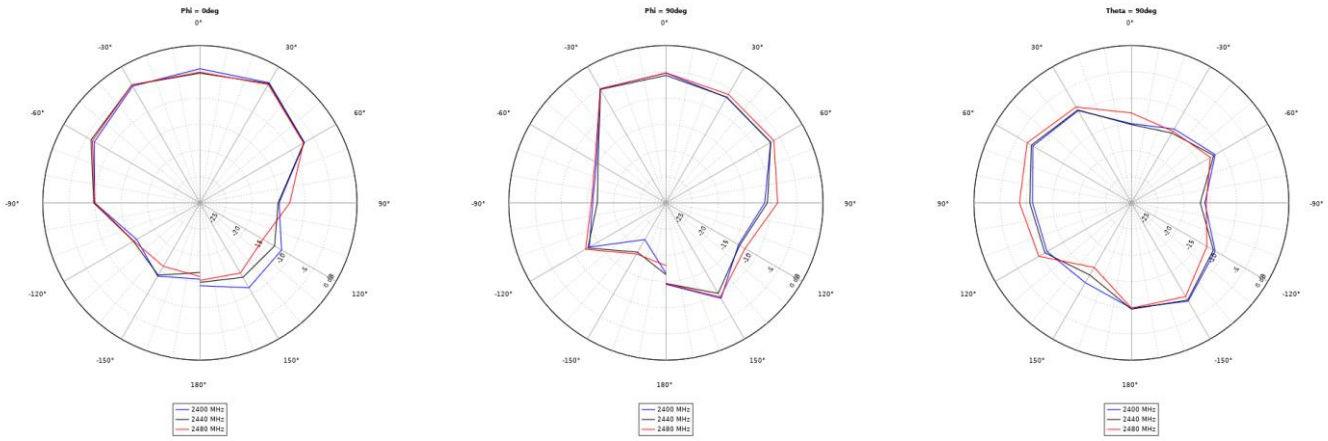

Figure 9 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT8.

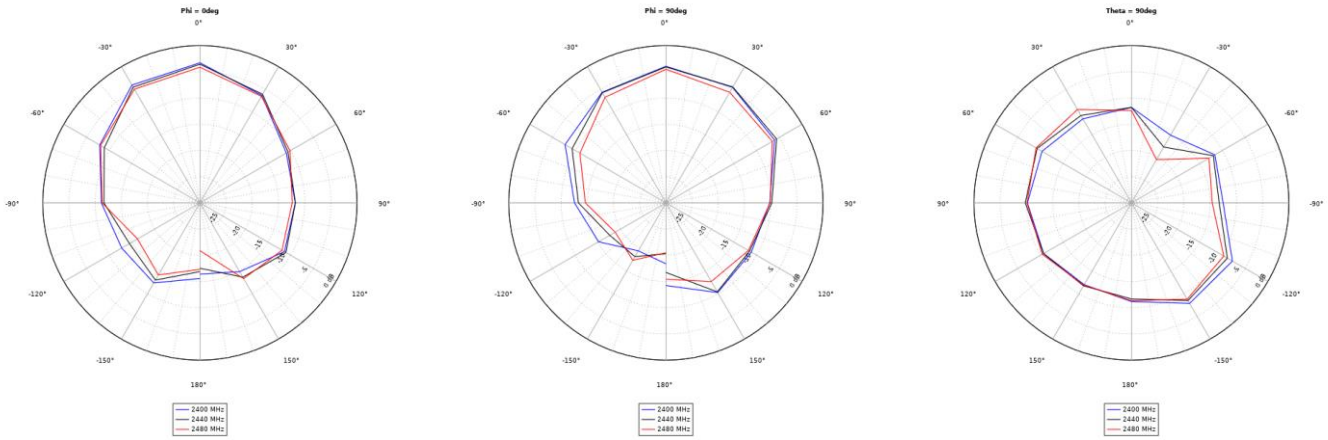

Figure 10 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT9.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

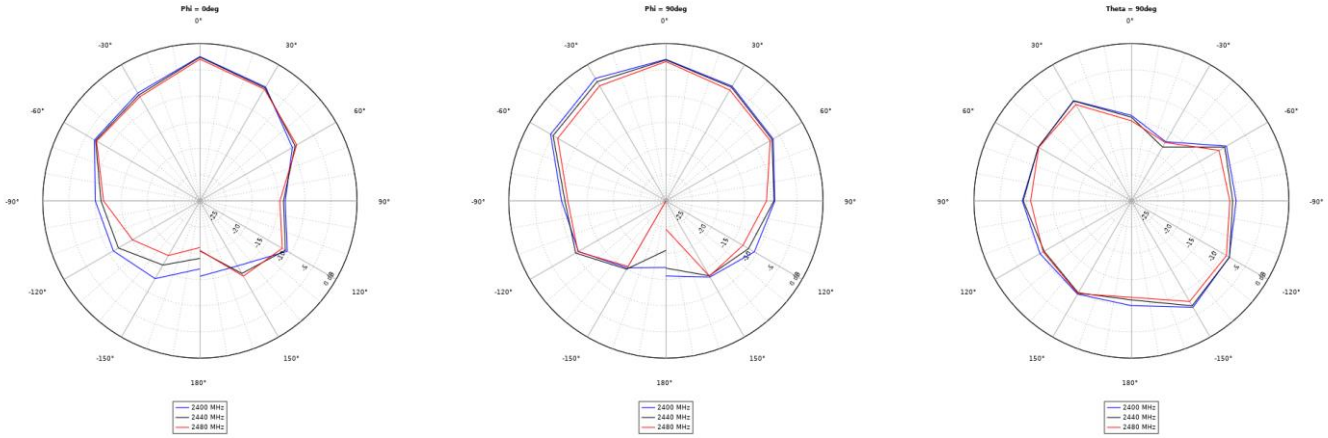

Figure 11 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT10.

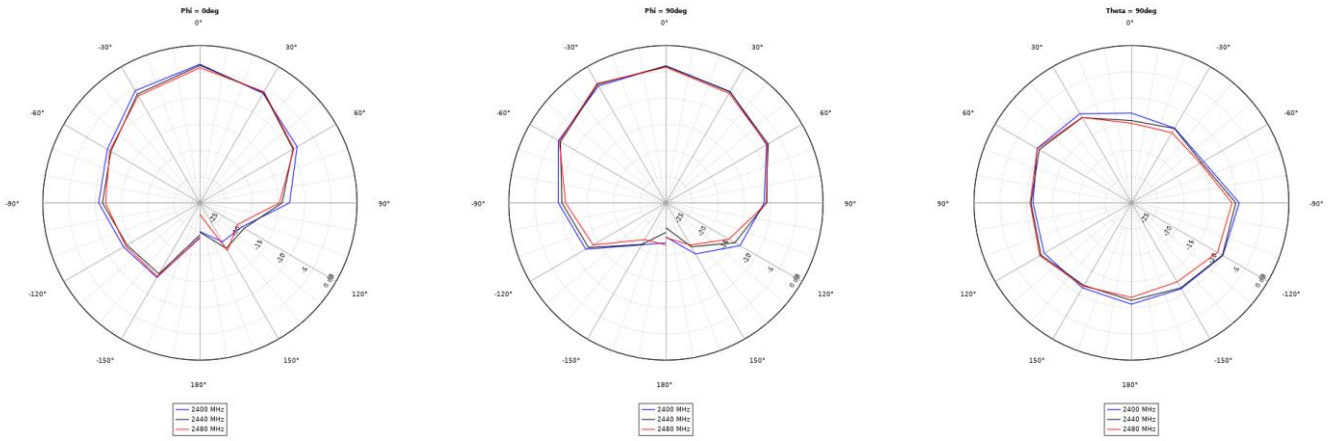

Figure 12 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT11.

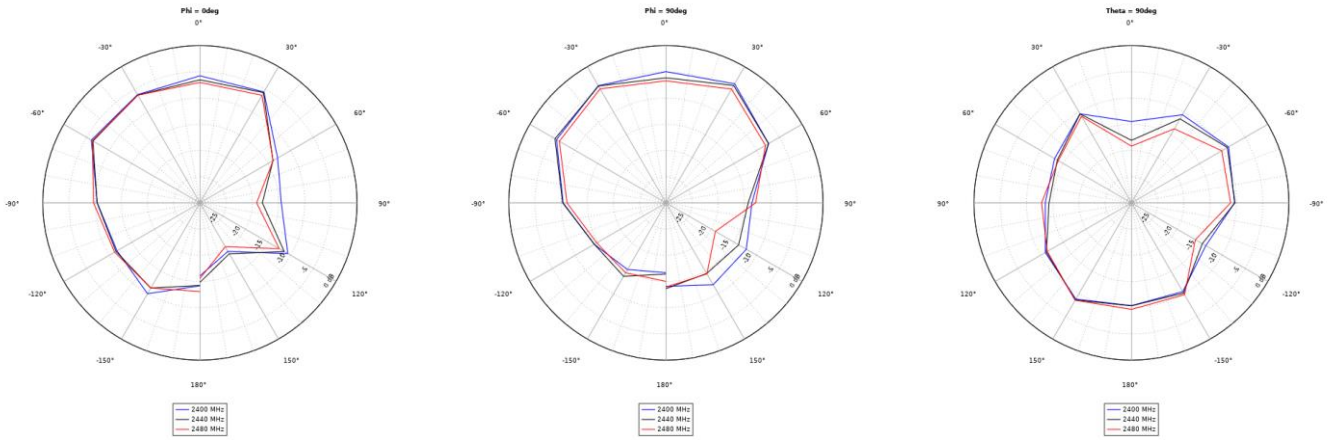

Figure 13 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT12.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

CoreHW www.corehw.com
Visiokatu 1, 33720 Tampere, FINLAND
©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

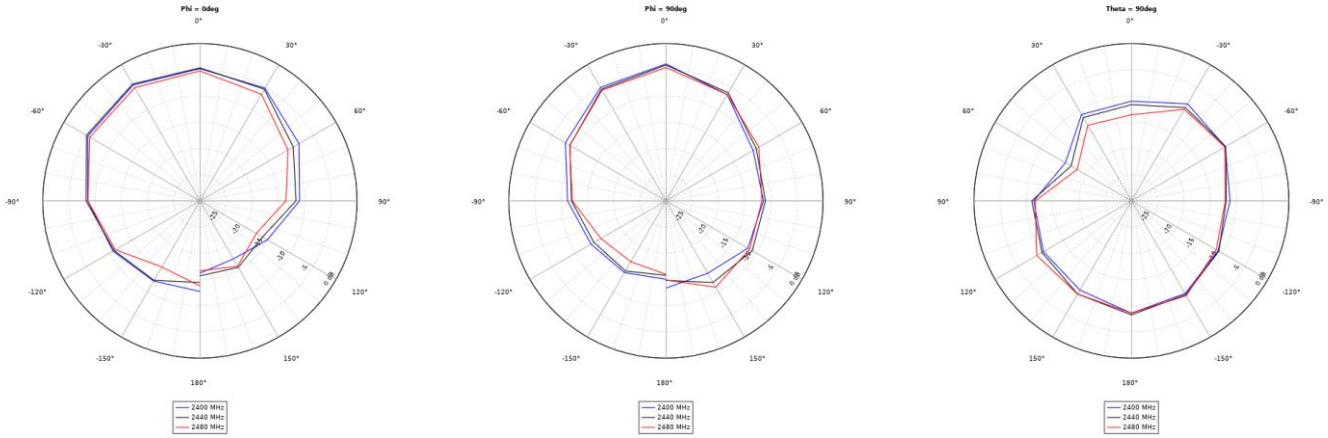

Figure 14 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT13.

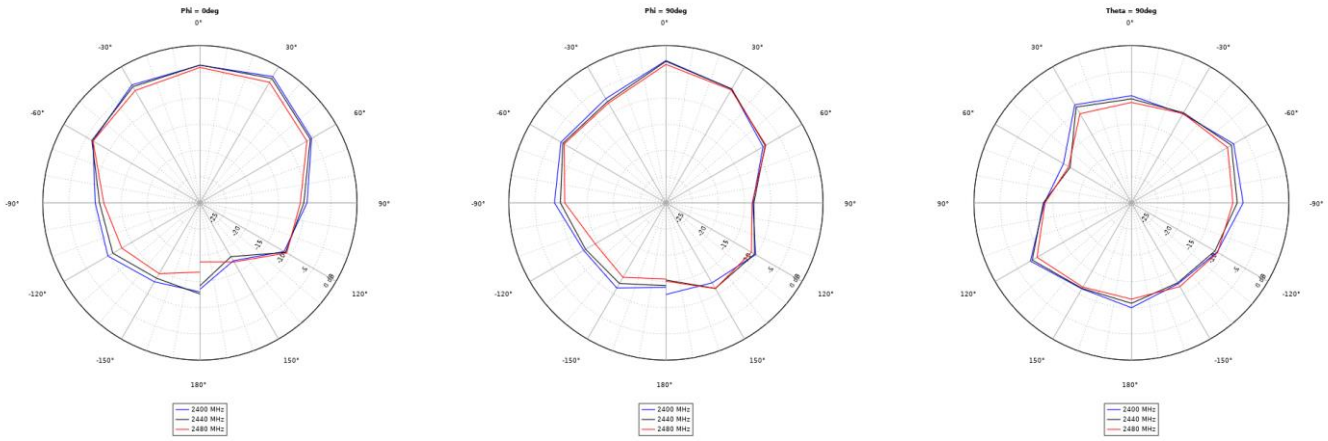

Figure 15 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT14.

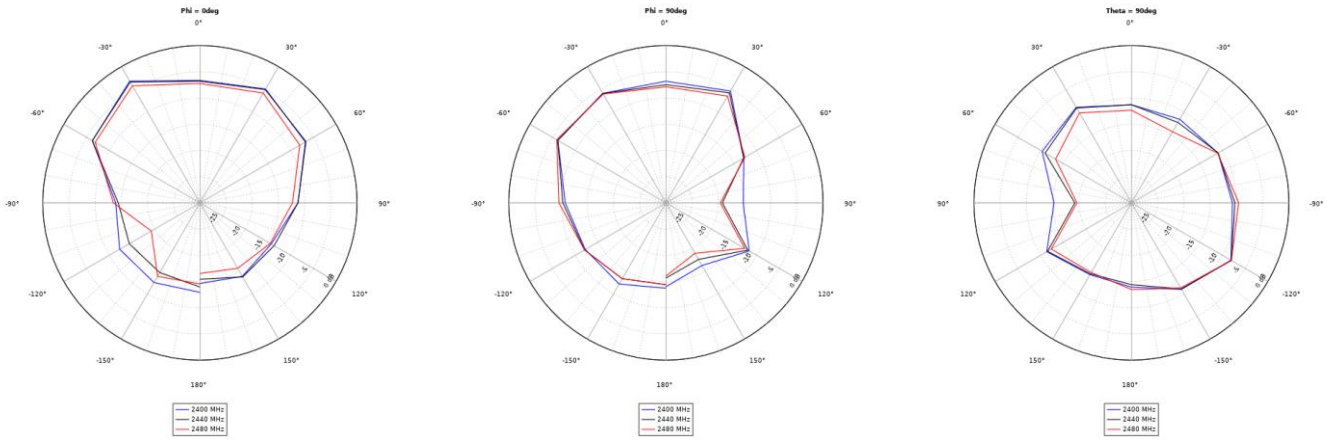

Figure 16 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT15.

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

ANTENNA TEST REPORT

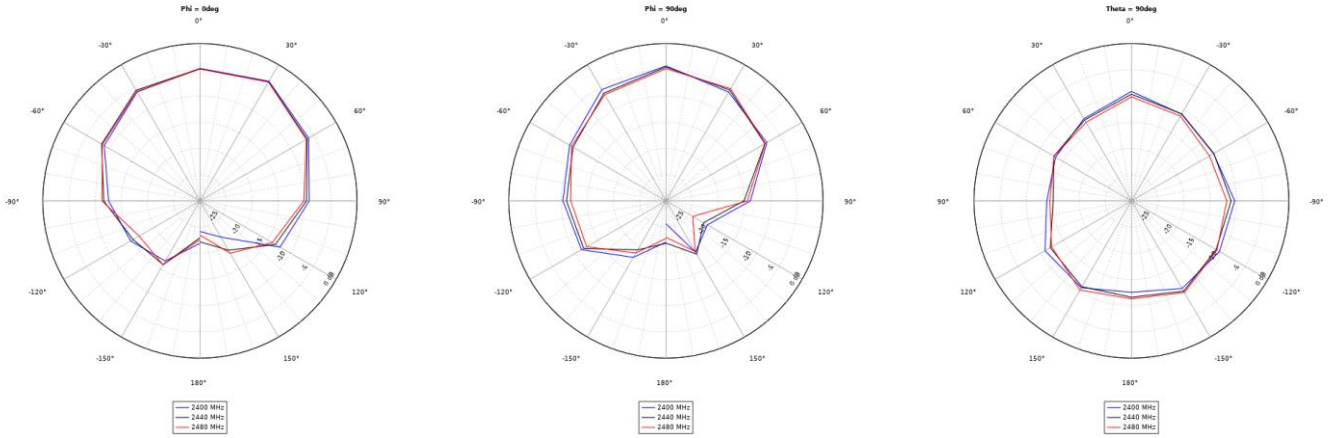

Figure 17 Antenna realized-gain patterns in dBi at low, middle, and high channels for ANT16.

3 CHANGE HISTORY

PCB version	Description	Date
PCB12 V2.0	Antenna measurement report created	2025-03-11

Information furnished by CoreHW is believed to be accurate and reliable. However, no responsibility is assumed by CoreHW for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of CoreHW. Trademarks and registered trademarks are the property of their respective owners.

©2025 CoreHW. All rights reserved.

ANTENNA TEST REPORT

CONTACT DETAILS

CoreHW Oy
Visiokatu 1
33720 Tampere
Finland

www.corehw.com

Disclaimer

The contents of this document are subject to change without prior notice. CoreHW makes no representation or warranty of any nature whatsoever (neither expressed nor implied) with respect to the matters addressed in this document, including but not limited to warranties of merchantability or fitness for a particular purpose, interpretability or interoperability or, against infringement of third party intellectual property rights, and in no event shall CoreHW be liable to any party for any direct, indirect, incidental and or consequential damages and or loss whatsoever (including but not limited to monetary losses or loss of data), that might arise from the use of this document or the information in it.

© Copyright 2025 CoreHW. All rights reserved.