

SDMC - GPON GEN8v2-Mainstream

Antenna System Design

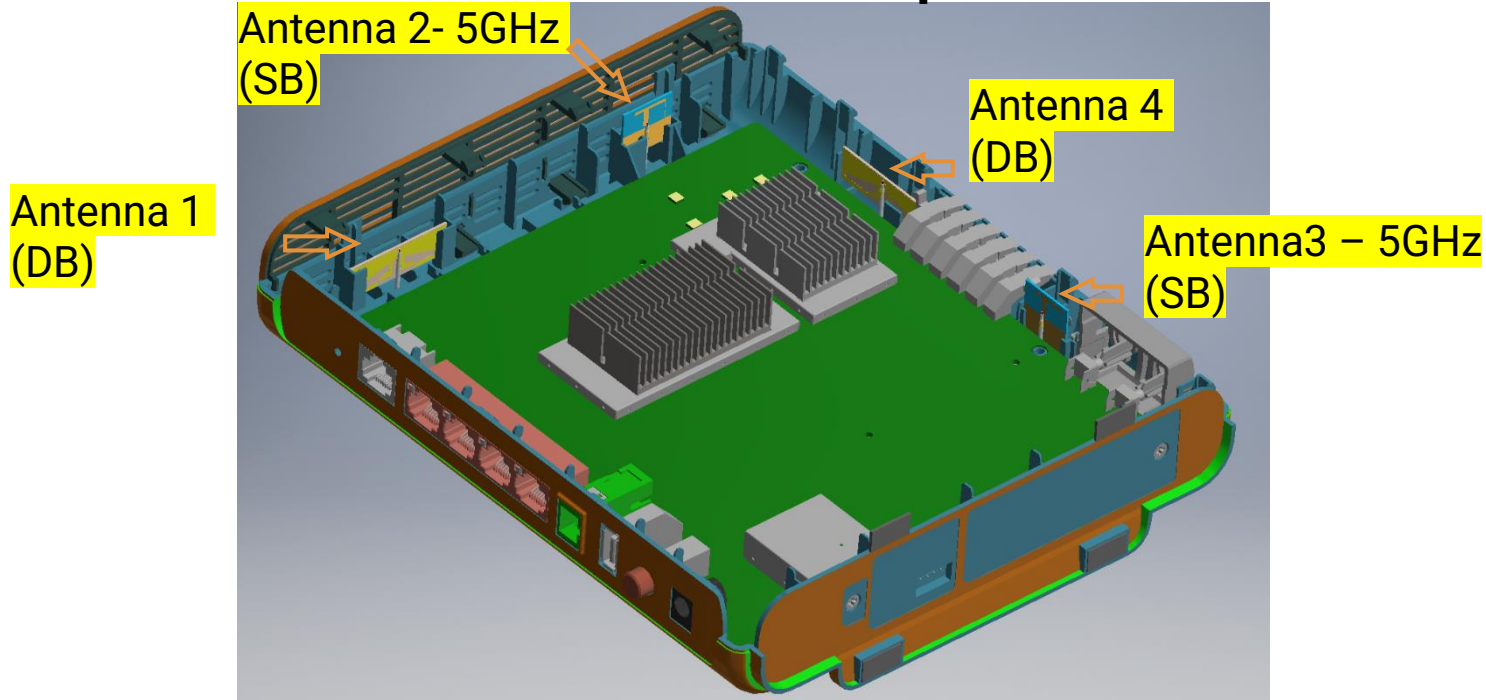
2023 March, 22



Version control

Version	date	Description
1.0	DEC 2022 05th	Document creation - v1 spec
2.0	JAN 2023, 16	UPDATE DOCUMENT with P/N
2.1	Fev 2023, 01	Antenna placement picture update
2.2	Fev 2023, 07	Antenna pigtail length update - SDMC proposal
3.0	March 2023, 22	Pigtail length update and add Total antenna Gain and Efficiency

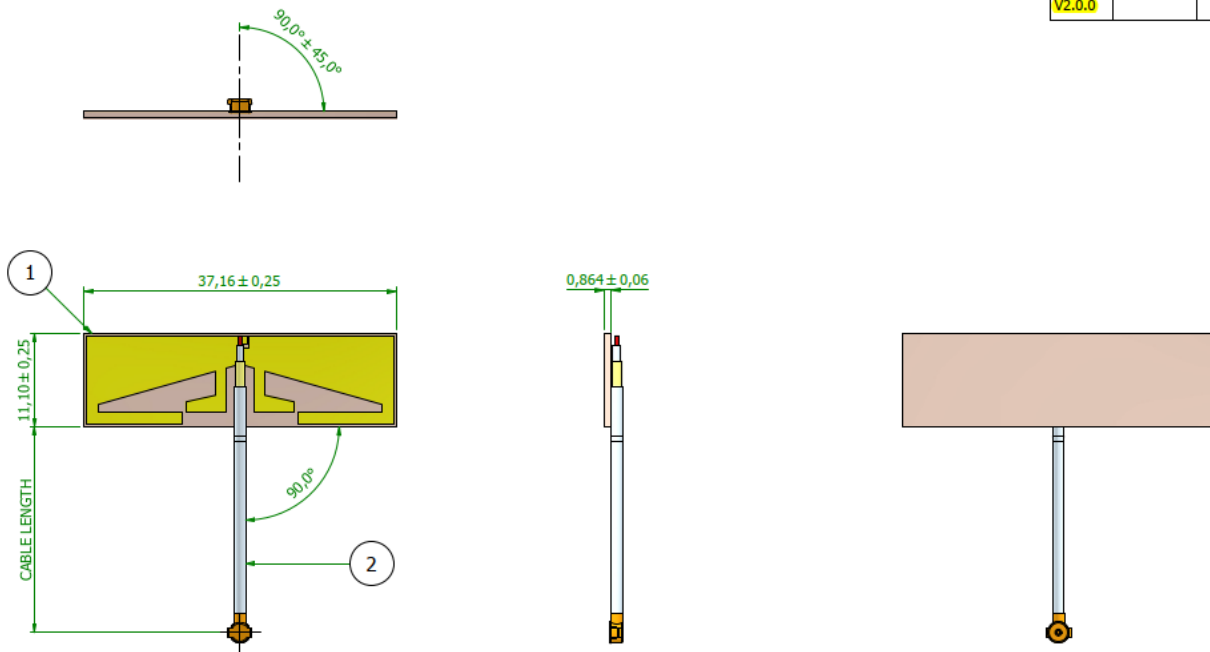
GPONv2 – Mainstream: Antenna placement



P/N	Description	Qty
W24DB50P130GY4-BW	Antenna 1 - DB 2.4GHz + 5GHz - 130mm Grey - PCB2210 v2.0	1
W50HB00P40BK3-BW	Antenna 2 - SB 5GHz - 40mm Black - PCB1477 v3.0	1
W50HB00P210GY3-BW	Antenna 3 - SB 5GHz - 210mm Grey - PCB1477 v3.0	1
W24DB50P120BK4-BW	Antenna 4 - DB 2.4GHz + 5GHz - 120mm Black - PCB2210 v2.0	1

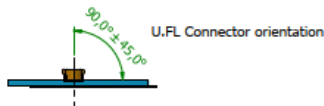
Antenna spec: W24DB50Pxxxxx4-BW (w/o) Glue - dual band 2.4/5GHz

Revision History			
REV	DATE	BY	DESCRIPTION
V2.0.0			

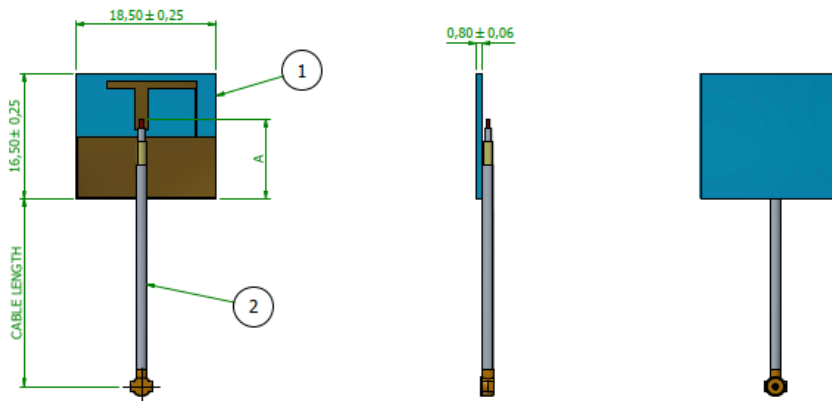


ITEM	PART NUMBER	DESCRIPTION	NOTES
1	W24DB50Pxxxxx4-BW	Dual band 2.4Ghz + 5Ghz	Material FR4, Finish Solder & Mask
2	Pigtail coax cable w/ U.FL	Ø1.37mm O.D cable with U.FL connector	Observe length and color (Impedance: 50ohms)

Antenna spec: W50HB00Pxxxxx3-BW (w/o) Glue - Single band 5GHz



Revision History			
REV	DATE	BY	DESCRIPTION
V3.0.0			



ITEM	PART NUMBER	DESCRIPTION	NOTES
1	W50HBxxxxxxxx-BW PCB1477-V3.0	Antenna Single Band 5GHz	Material FR4, Finish Solder & Mask
2	Pigtail coax cable w/ U.FL	Ø1.37mm O.D cable with U.FL connector	Observe length (Impedance: 50ohms)

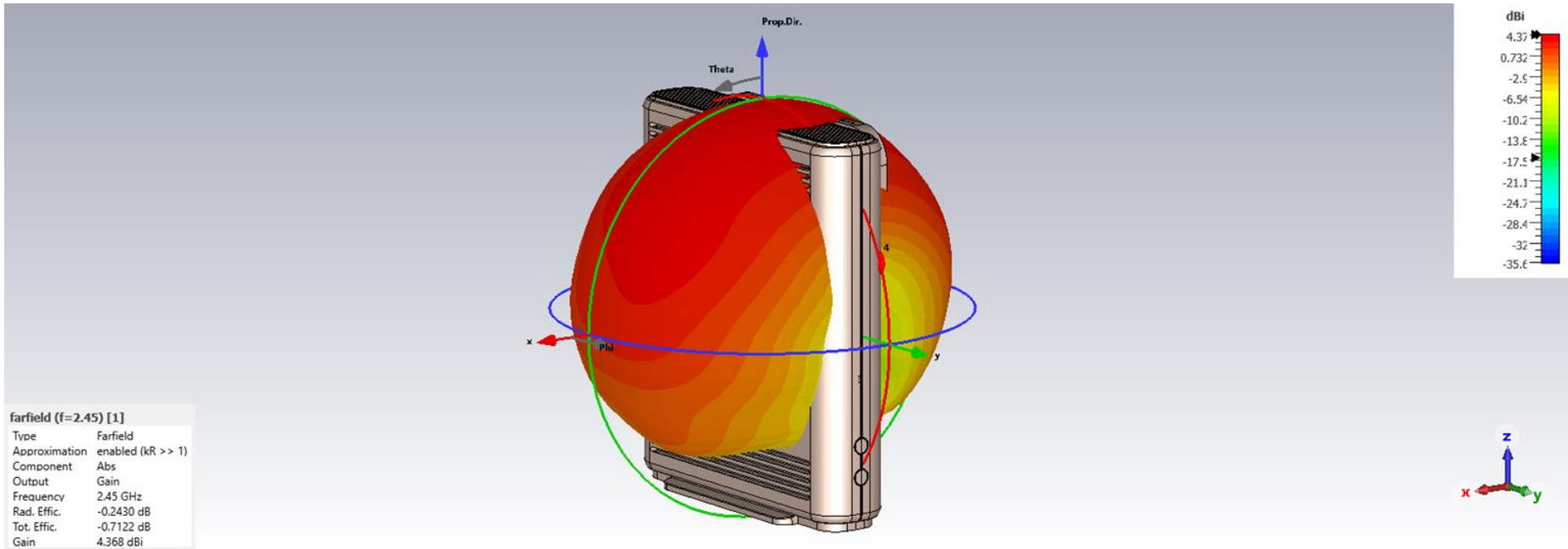
Notes:

Tolerances of $\pm 0,2\text{mm}$, unless otherwise specified.
Rounded corners with a typical radius of $0,2\text{mm}$.
Remove all sharp edges and burrs.

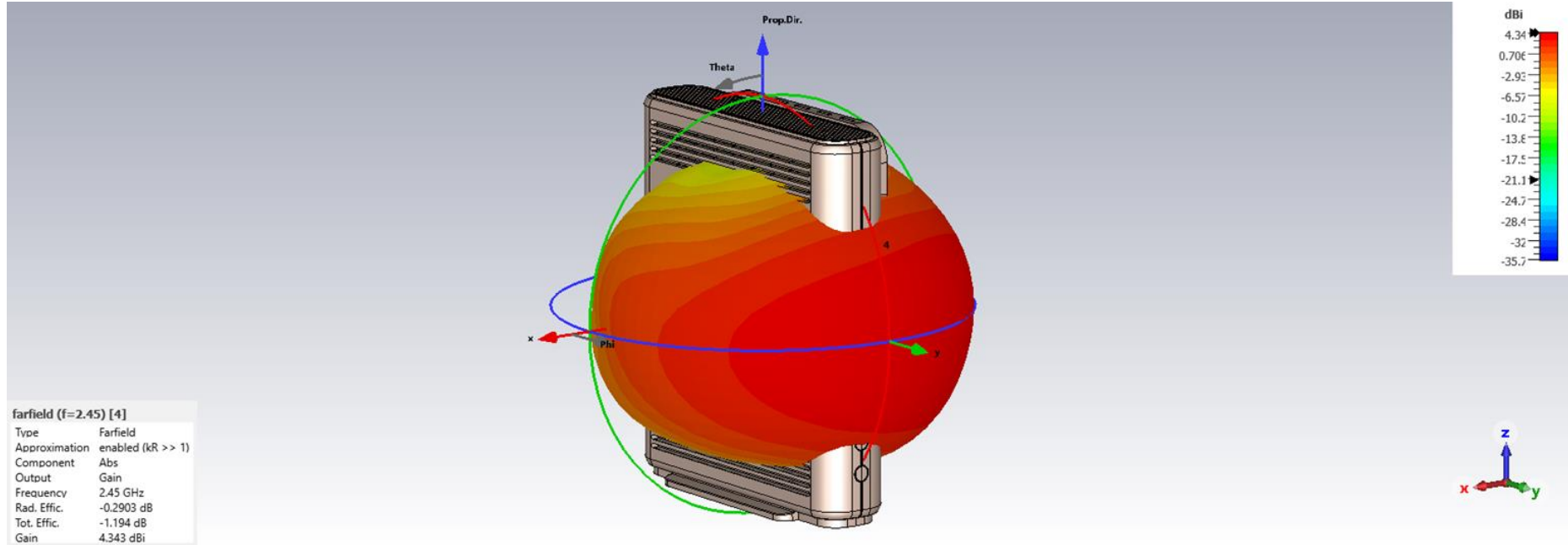
Designed by	02/06/2023	Luís Henriques
Checked by		

Project
PCB1477-V3.0

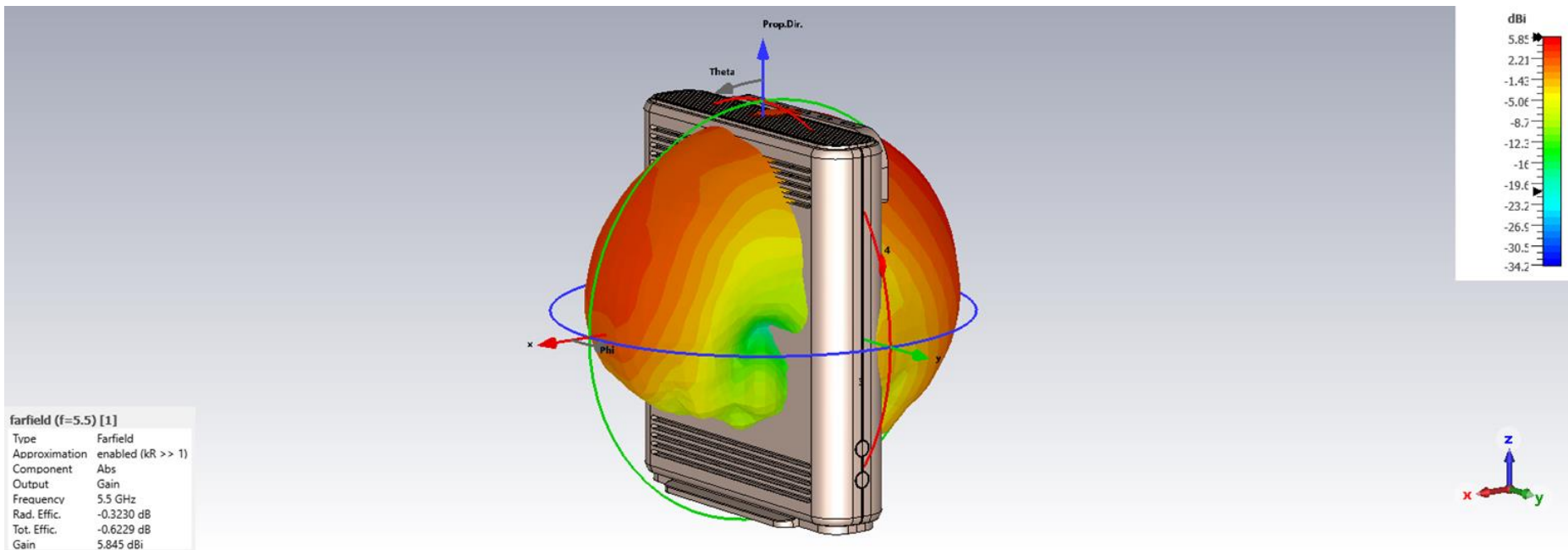
3D system coverage @2.450GHz (Ant1)



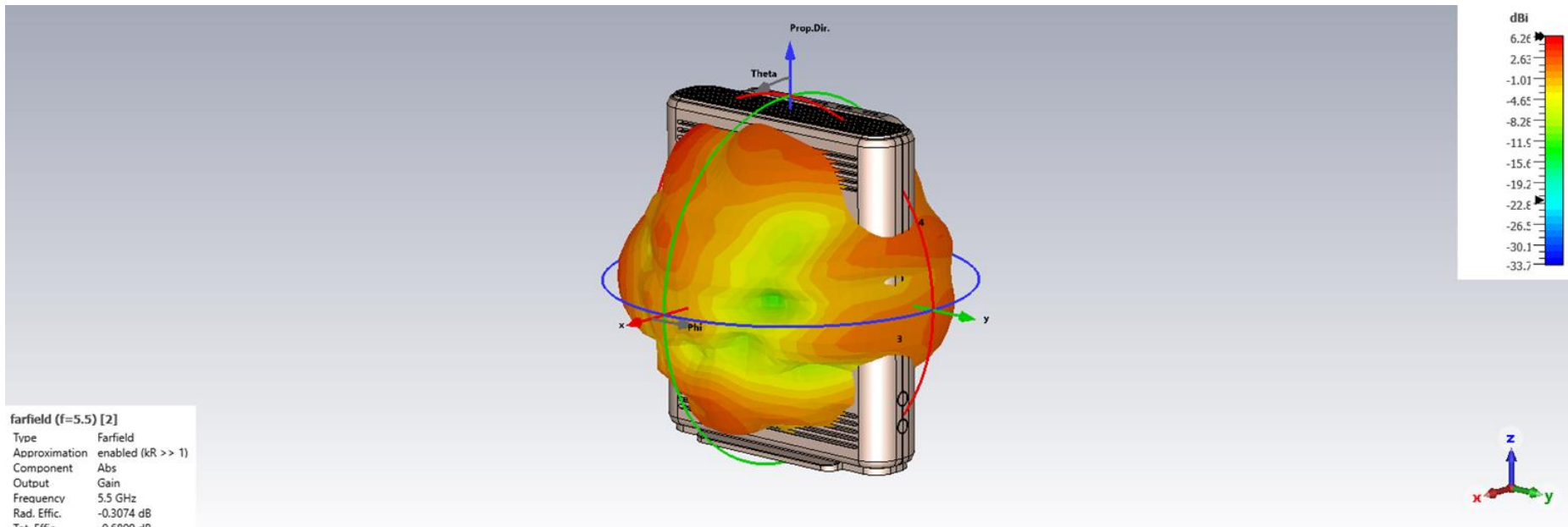
3D system coverage @2.450GHz (Ant4)



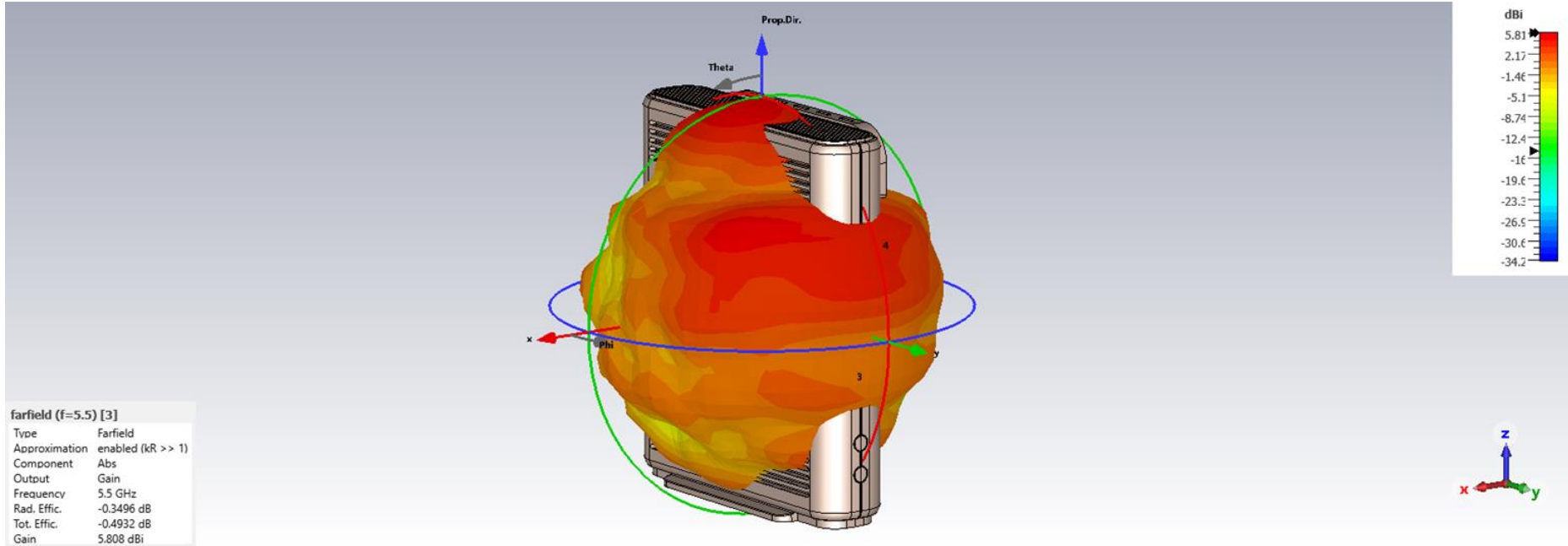
3D system coverage @5.500GHz (Ant1)



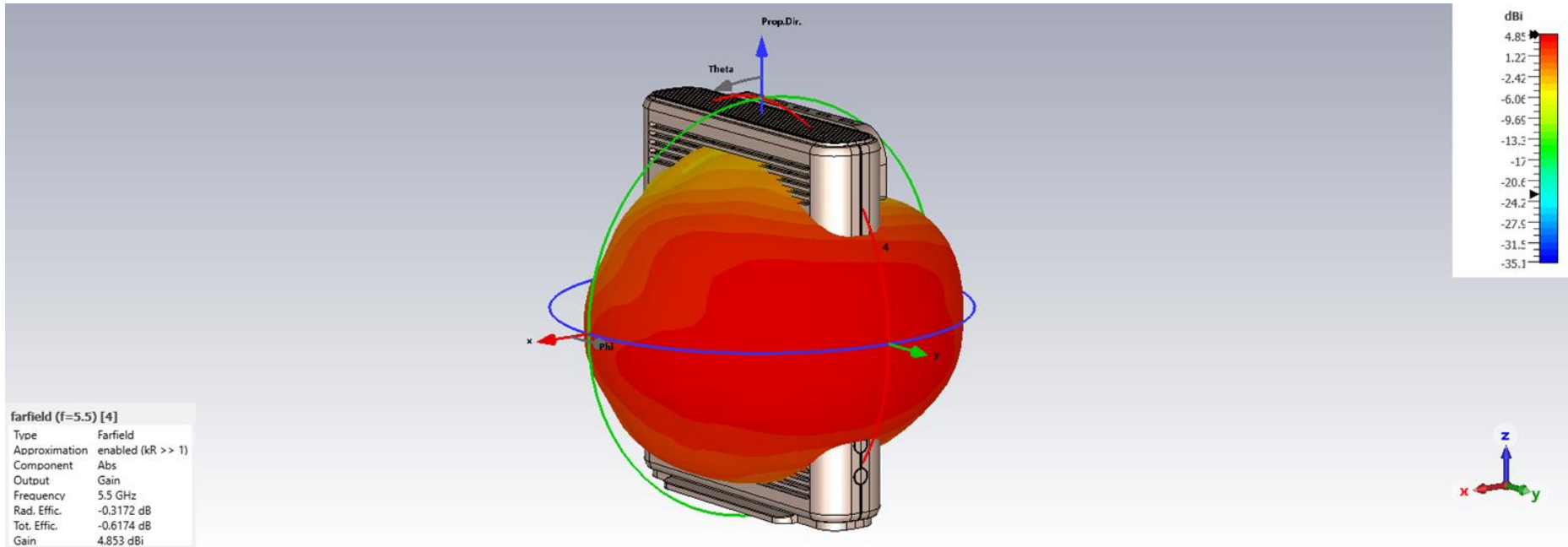
3D system coverage @5.500GHz (Ant2)



3D system coverage @5.500GHz (Ant3)



3D system coverage @5.500GHz (Ant4)



Total efficiency and gain

Antenna	Efficiency % @2450MHz	Efficiency % @5500MHz	Gain (dBi) @2450MHz	Gain (dBi) @5500MHz
1	84.5	86.5	3.92	5.45
2	-	85.4	-	5.89
3	-	78.6	-	5.65
4	75.6	86.6	3.42	4.59

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