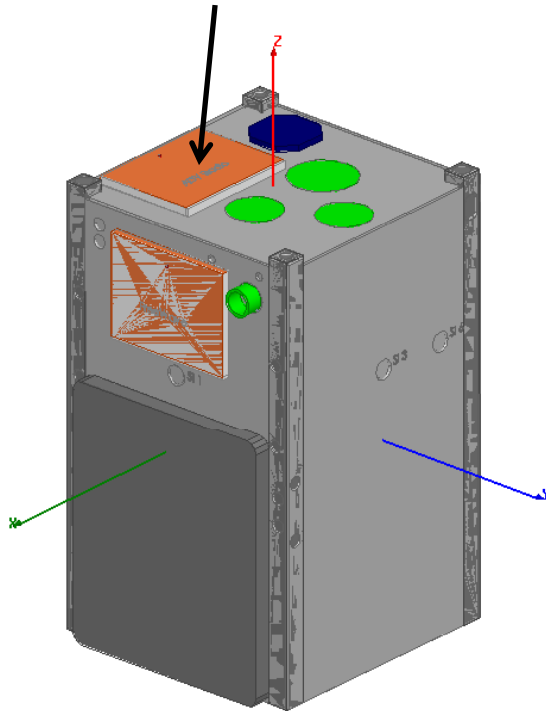


AeroCube-5 (AC5)

HFSS simulation of antenna patterns
and gain

915 MHz +Z QWSC Patch
78% radiation efficiency



Gain dBic >=	% of sphere
6	0.0
5	0.0
4	0.0
3	0.0
2	0.0
1	0.0
0	0.3
-1	5.2
-2	15.8
-3	33.9
-4	51.0
-5	66.5
-6	75.7
-7	80.8
-8	84.5
-9	87.4
-10	89.7

Antenna Parameters

Inputs

Setup Name: Infinite Sphere1

Solution: LastAdaptive

Array Setup: None

Intrinsic Variation: Freq='0.915GHz'

Design Variation: body_mz='84.1mm' body_pz

OK

Export

Export Fields

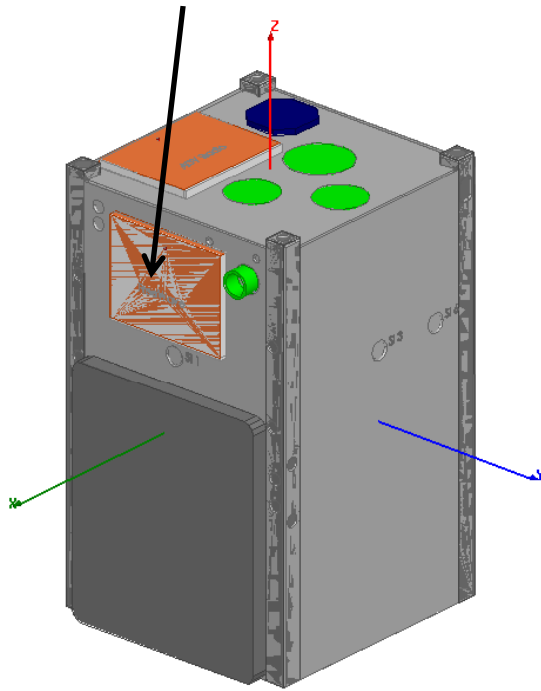
Antenna Parameters:

	Quantity	Value	Units
Max U		0.14365	W/sr
Peak Directivity		2.3372	
Peak Gain		1.8256	
Peak Realized Gain		1.8053	
Radiated Power		0.77238	W
Accepted Power		0.98886	W
Incident Power		1	W
Radiation Efficiency		0.78109	
Front to Back Ratio		1.5382	
Decay Factor		0	

Maximum Field Data:

	rE Field	Value	Units	At Phi	At Theta
Total		10.407	V	10deg	2deg
X		4.6987	V	50deg	123deg
Y		10.396	V	4deg	2deg
Z		8.9697	V	97deg	88deg
Phi		10.407	V	3deg	2deg
Theta		10.397	V	93deg	0deg
LHCP		7.8566	V	18deg	-15deg
RHCP		7.8007	V	178deg	-21deg
Ludwig3/X dominant		8.3981	V	49deg	-176deg
Ludwig3/Y dominant		10.396	V	5deg	2deg

915 MHz +X QWSC Patch
77.5% radiation efficiency



Gain dBic >=	% of sphere
6	0.0
5	0.0
4	0.0
3	0.0
2	0.0
1	0.0
0	0.0
-1	1.8
-2	14.8
-3	33.9
-4	49.7
-5	59.8
-6	69.0
-7	75.6
-8	80.4
-9	84.1
-10	87.0

Antenna Parameters

Inputs

Setup Name: Infinite Sphere1

Solution: LastAdaptive

Array Setup: None

Intrinsic Variation: Freq='0.915GHz'

Design Variation: body_mz='84.1mm' body_pz

OK

Export

Export Fields

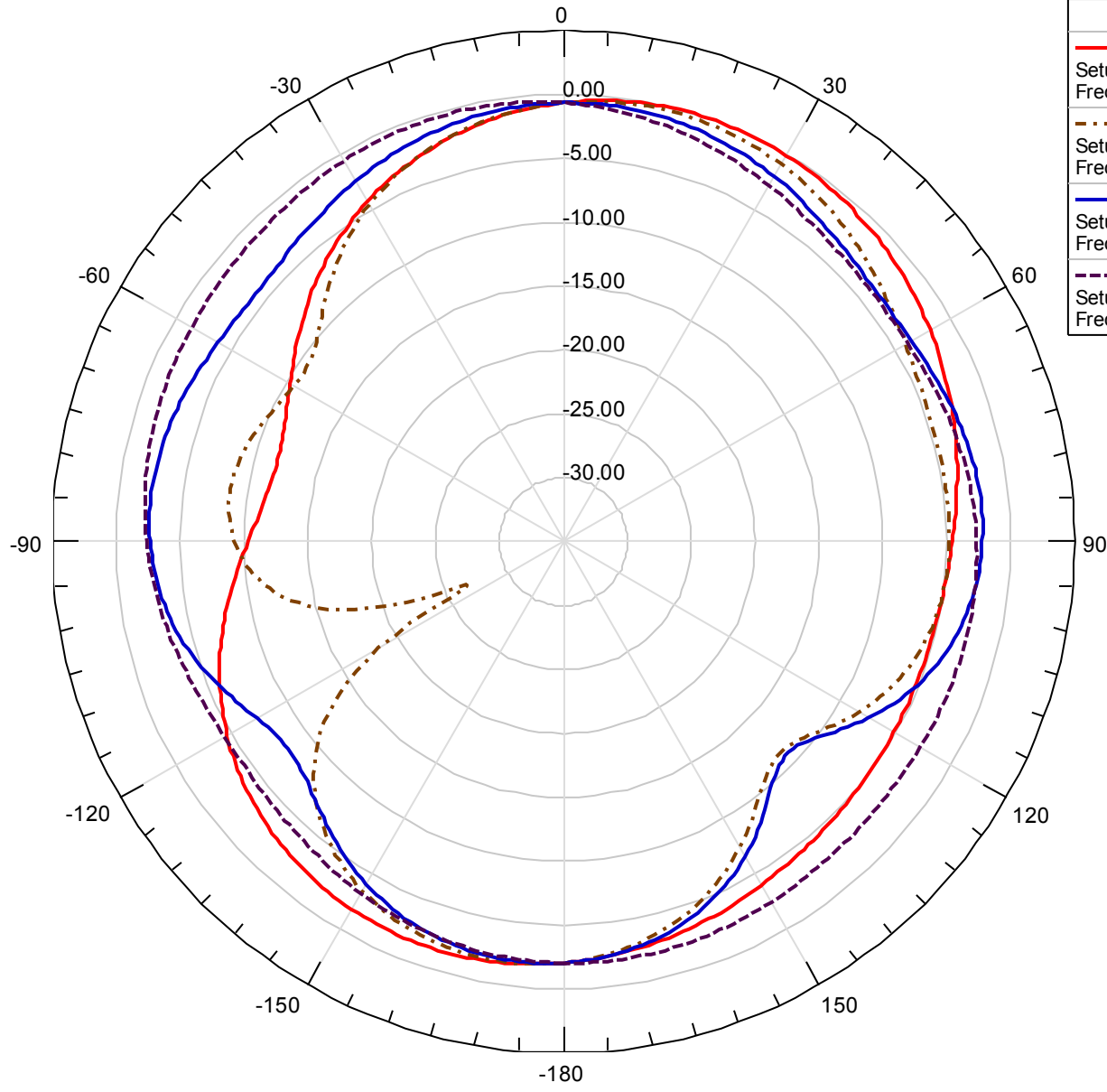
Antenna Parameters:

	Quantity	Value	Units
Max U		0.14419	W/sr
Peak Directivity		2.3691	
Peak Gain		1.8357	
Peak Realized Gain		1.8119	
Radiated Power		0.76481	W
Accepted Power		0.98706	W
Incident Power		1	W
Radiation Efficiency		0.77484	
Front to Back Ratio		2.5195	
Decay Factor		0	

Maximum Field Data:

	rE Field	Value	Units	At Phi	At Theta
Total		10.427	V	3deg	155deg
X		9.8332	V	2deg	165deg
Y		4.814	V	125deg	132deg
Z		9.276	V	1deg	96deg
Phi		8.9653	V	93deg	178deg
Theta		10.418	V	2deg	155deg
LHCP		7.657	V	178deg	-155deg
RHCP		7.0939	V	14deg	155deg
Ludwig3/X dominant		10.417	V	1deg	155deg
Ludwig3/Y dominant		10.001	V	50deg	157deg

915 MHz Patch 1 (+Z Face) RHCP Realized Gain (dBic)



Curve Info	
—	dB(RealizedGainRHCP)
Setup1 : LastAdaptive	
Freq='0.915GHz' Phi='0deg'	
- - -	dB(RealizedGainRHCP)
Setup1 : LastAdaptive	
Freq='0.915GHz' Phi='45deg'	
—	dB(RealizedGainRHCP)
Setup1 : LastAdaptive	
Freq='0.915GHz' Phi='90deg'	
- - -	dB(RealizedGainRHCP)
Setup1 : LastAdaptive	
Freq='0.915GHz' Phi='135deg'	