

Symbol	Count	Hole Size	Plated	Hole Type	Via/Pad	Pad Shape
O	11	0.350mm (13.78mil)	PTH	Round	Via	Rounded
	11 Total					

Layer	Name	Material	Thickness	Constant	Board Layer Stack
	Top Overlay, Top Silk				
	Top Solder, Top Mask	Solder Resist	0.010mm	3.5	
1	Top Layer, Top	Copper	0.036mm		
	Dielectric 1	FR-4	0.800mm	4.2	
2	Bottom Layer, Bottom	Copper	0.036mm		
	Bottom Solder, Bot Mask	Solder Resist	0.010mm	3.5	
	Bottom Overlay, Bot Silk				

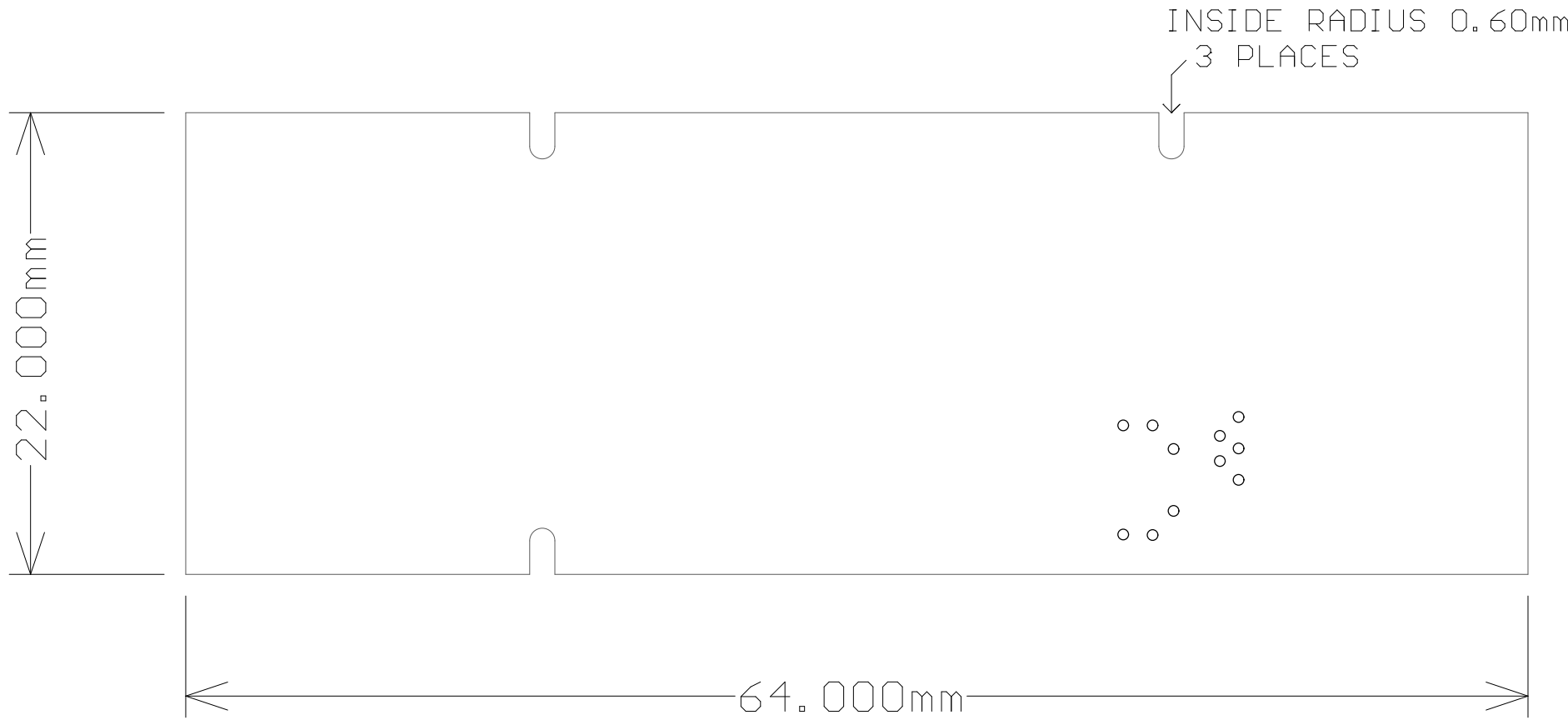
ARTWORK FABRICATION FILES:

ASB01.GTL – Top Copper Layer 1
ASB01.GBL – Bottom Copper Layer 2
ASB01.GTO – Top Silkscreen

ASB01.GTS – Top Solder Mask
ASB01.GBS – Bottom Solder Mask

ASB01.GM13 – Top Assembly Drawing

ASB01.DRL – NC Drill File
ASB01.GD1 – Fabrication drawing



FABRICATION NOTES:

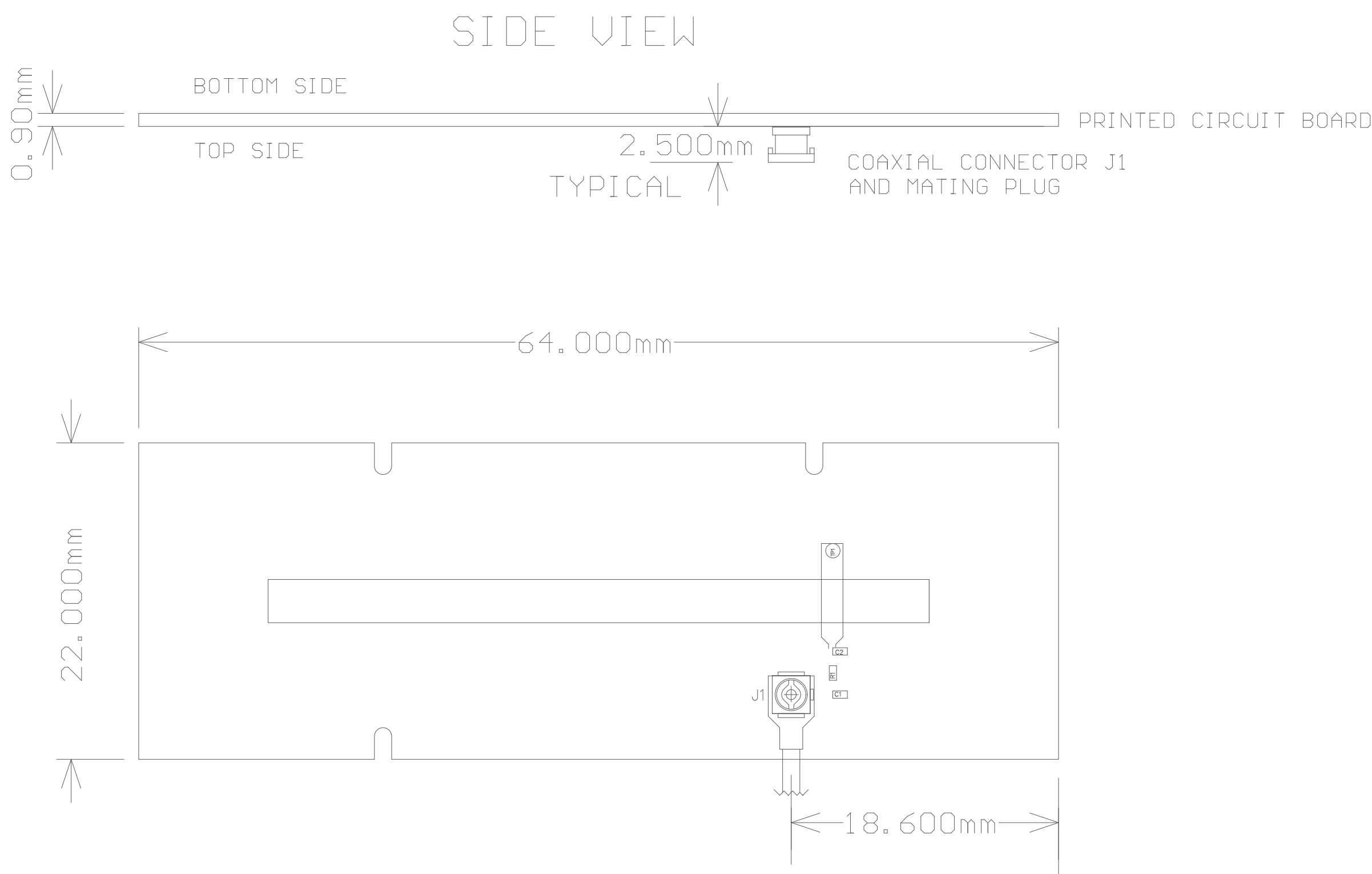
- BOARD FABRICATION AND QUALITY ACCEPTANCE PER IPC-6012B, CLASS 2. THESE DETAILED NOTES AND INSTRUCTIONS MAY SUPERSEDE IPC REQUIREMENTS.
- ALL BOARD DIMENSIONS IN MILLIMETERS. TOLERANCE = +/-0.125mm UNLESS NOTED OTHERWISE.
- MATERIAL – FR-4 GRADE GLASS EPOXY, LEAD-FREE COMPLIANT PER IPC-4101B/126 OR /129. THICKNESS – 0.90mm +/- 0.1mm MEASURED OVER SOLDERMASK MINIMUM FLAMMABILITY RATING UL 94V-0
- OUTER LAYER COPPER THICKNESS = 0.035mm (1 OZ) FINISHED.
- FINISH-LEAD FREE REFLOWED OR HOT AIR SOLDER LEVELED, 0.005mm TO 0.051mm PLATING THICKNESS. NO EXPOSED BARE COPPER PERMITTED.
- SOLDER MASK OVER BARE COPPER, LPI, PER IPC-SM-840, REGISTRATION +/-0.075mm, GREEN. NO COVERAGE ON SOLDER PADS PERMITTED.
- SILK SCREEN BOTH SIDES WITH WHITE EPOXY NON-CONDUCTIVE INK. SILK SCREEN SHOULD BE TRIMMED OFF ANY SOLDERED ENTITY.
- HOLE SIZE TOLERANCE = +/- 0.075mm UNLESS NOTED OTHERWISE.
- HOLE CENTERS AND PAD CENTERS TO BE CONCENTRIC WITHIN 0.075mm
- PLATED THROUGH HOLES SHALL HAVE A COPPER WALL THICKNESS OF 0.025mm TYP, 0.020mm MIN.
- COPPER ADDITION (THEIVING, CROSSHATCH, ETC) IS NOT PERMITTED ON ANY LAYERS UNLESS OTHERWISE SPECIFIED. COPPER ADDITION IN BREAKAWAY AREAS FOR PANEL FORMS IS ACCEPTABLE.
- LAMINATION, STACKUP, COPPER PLATING, AND ETCHING TO BE CLOSELY MONITORED TO ENSURE PRODUCT MEETS DESIGN INTENT. NO CHANGES TO MATERIALS AND/OR GERBER FILES ARE PERMITTED WITHOUT WRITTEN APPROVAL.
- UL DATE/LOGO AND/OR VENDOR INFORMATION CAN BE IN SILKSCREEN NOMENCLATURE WHERE SPACE PERMITS, UNLESS OTHERWISE SPECIFIED. NO ADDITIONAL COPPER, LOGOS, OR TEXT OF ANY KIND IN COPPER LAYERS.

REV.	DESCRIPTION	DATE	ENG.
X1	FIRST REVIEW RELEASE	05-21-2020	MW
X2	SECOND REVIEW RELEASE	05-22-2020	MW
X3	MOVE CONNECTOR J1 IN-BOARD	05-27-2020	MW
A	FIRST PROTOTYPE RELEASE	06-01-2020	MW

APPROVALS		DATE		Laird				
DRAWN:	Mike Hennig	05/21/2020						
CHECKED:	Mark Wolski	06/01/2020						
APPROVED:	Mark Wolski	06/01/2020						
REVISED:				Title: Slot Antenna				
Q.A:								
ISSUED:								
Description:				SIZE:	SCALE:	VARIANT:	DWG NO.	REV:
FABRICATION DRAWING				B	1X		ASB01PCB	A
File: ASB01_A.PcbDoc						LAST MODIFIED 6/1/2020 1:28:19 PM		SHEET: 1 OF 1

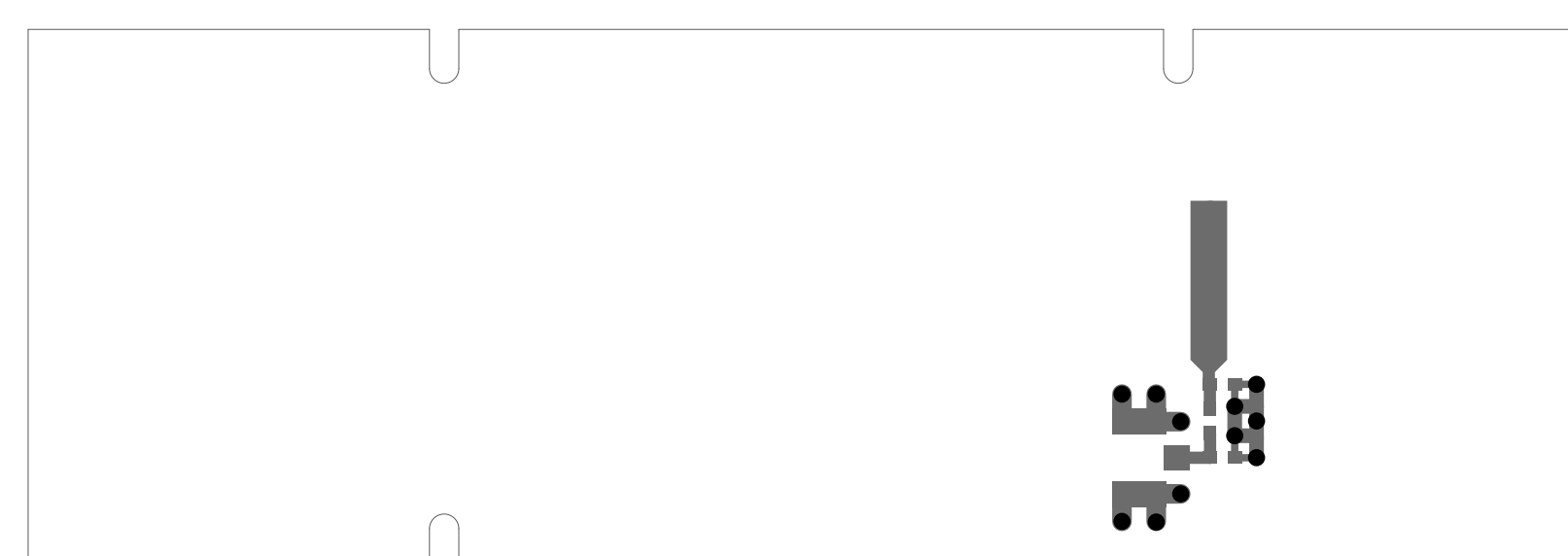
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APPROVALS		DATE	Laird Title: Slot Antenna				
DRAWN:	Mike Hennig	05/21/2020					
CHECKED:	Mark Wolski	06/01/2020					
APPROVED:	Mark Wolski	06/01/2020					
REVISED:							
Q.A:			SIZE: B SCALE: 1X VARIANT: DWG NO. ASB01PCB REV: A				
ISSUED:							
Description:		TOP SIDE ASSEMBLY DRAWING					
File:		ASB01_A.PcbDoc		LAST MODIFIED 6/1/2020 1:28:19 PM		SHEET: 1 OF 1	



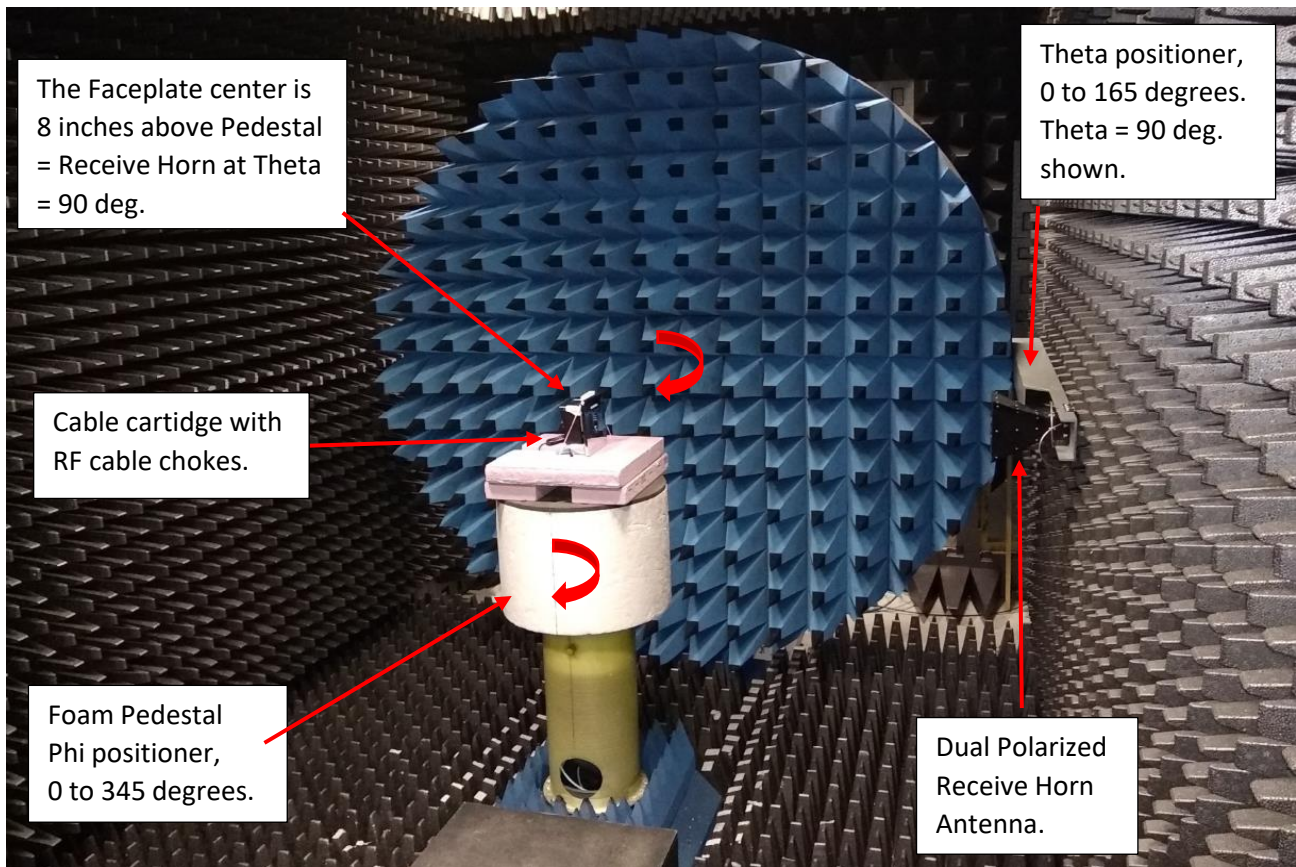
TOP COPPER



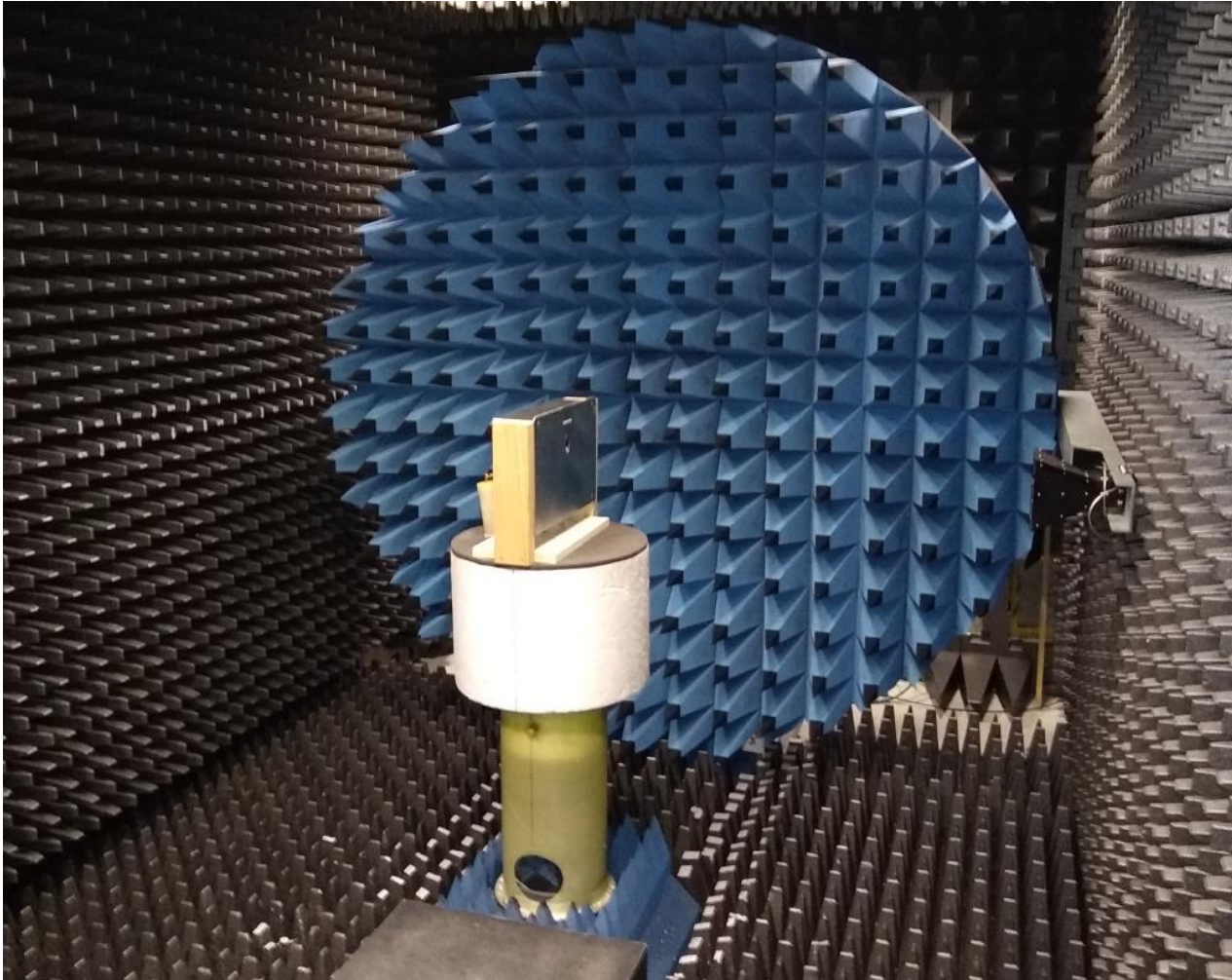
BOTTOM COPPER

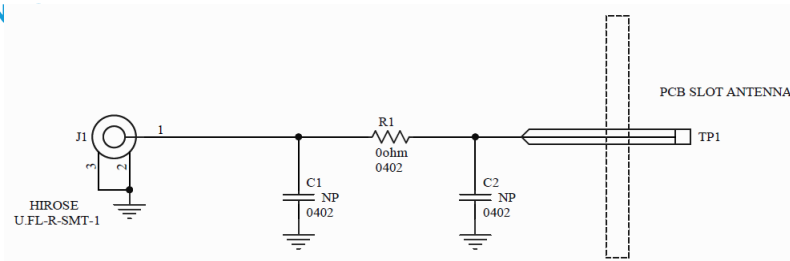
An Anechoic Antenna chamber using the Howland 3100 Dual Positioner System was used.
The Theta positioner rotates from 0 to 165 degrees in 15 degree increments.
For each value of Theta, the Phi positioner rotates from 0 to 345

SMALL FACEPLATE:



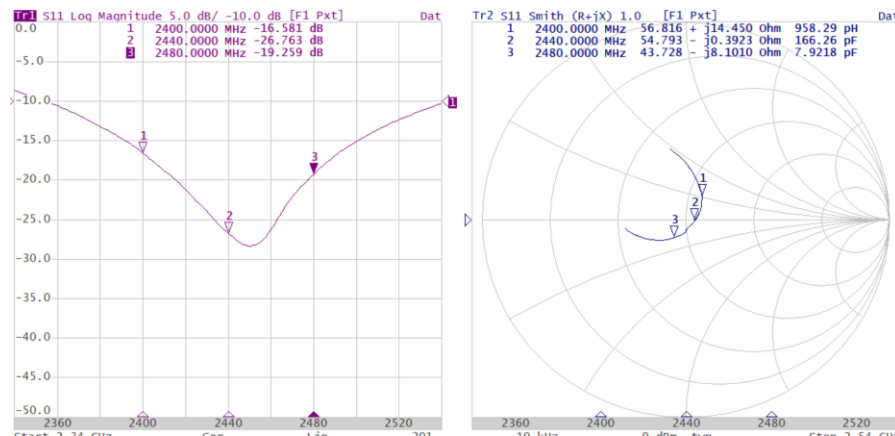
LARGE FACEPLATE:



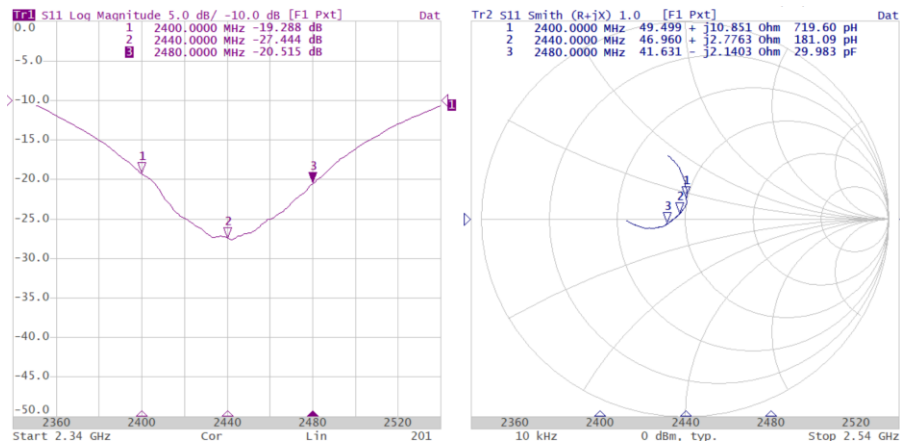


Component	Part number
J1	Hirose U.FL-R-SMT-1
C1	Do not populate.
R1	Murata 2.2 nH Inductor: LQG15HS2N2S02
C2	Murata 0.75 pF Capacitor: GJM1555C1HR75BB01

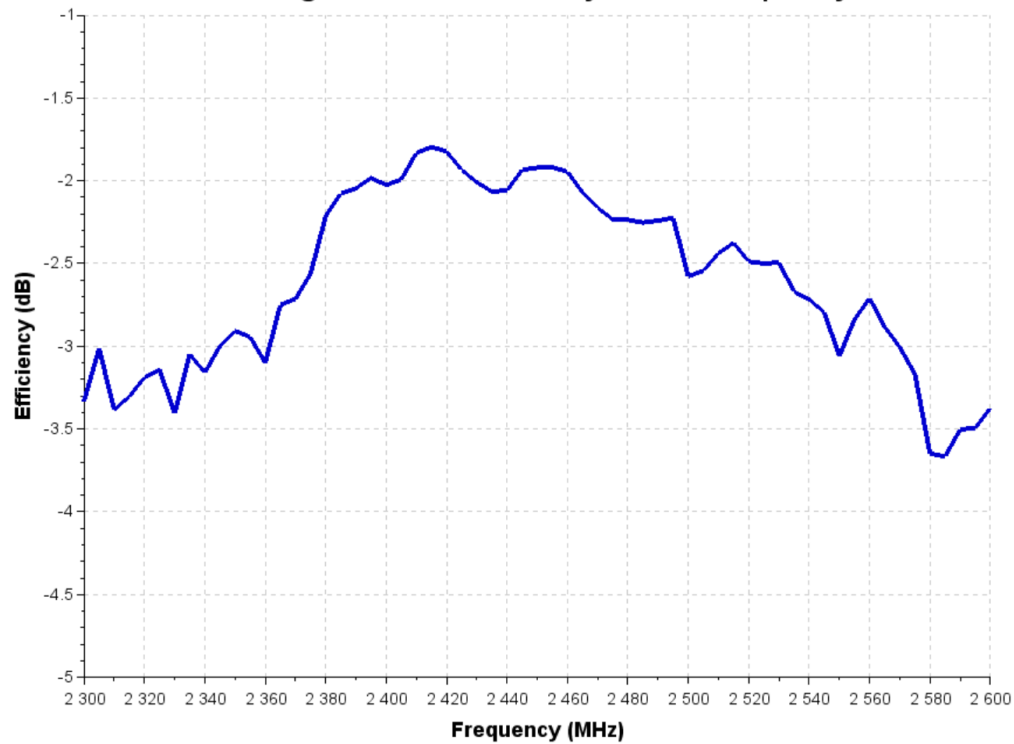
SMALL FACEPLATE INPUT REFLECTION COEFFICIENT AND IMPEDANCE:



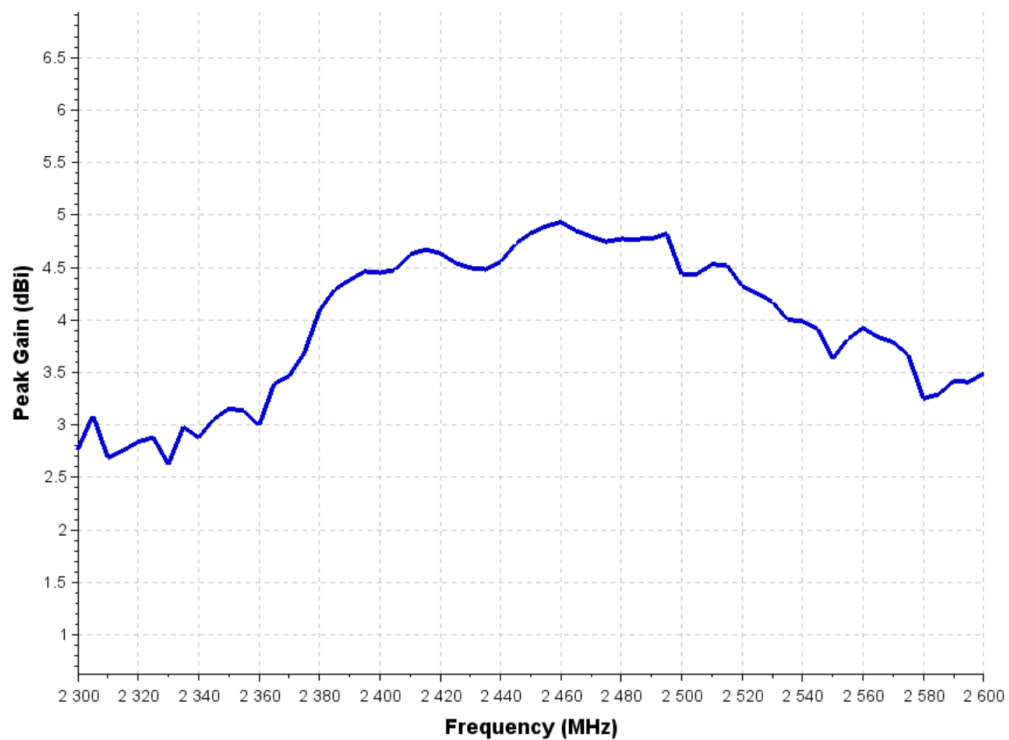
LARGE FACEPLATE INPUT REFLECTION COEFFICIENT AND IMPEDANCE:



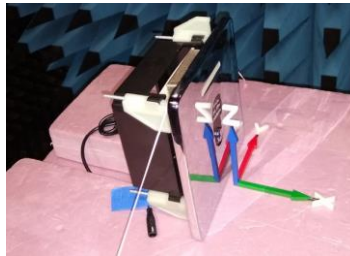
Average Radiated Efficiency Versus Frequency



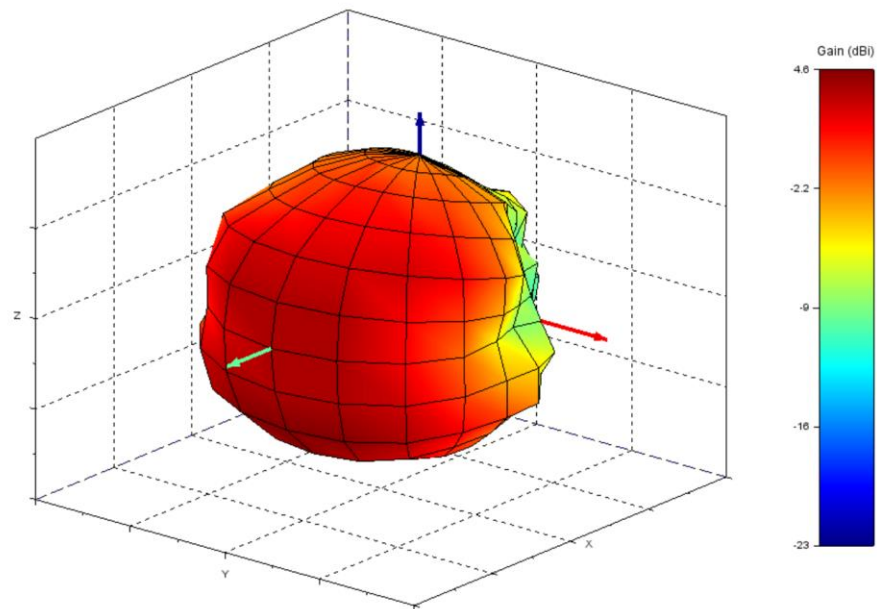
Peak Gain Versus Frequency



x-axis = GREEN = Faceplate front.
y-axis = RED
z-axis = BLUE

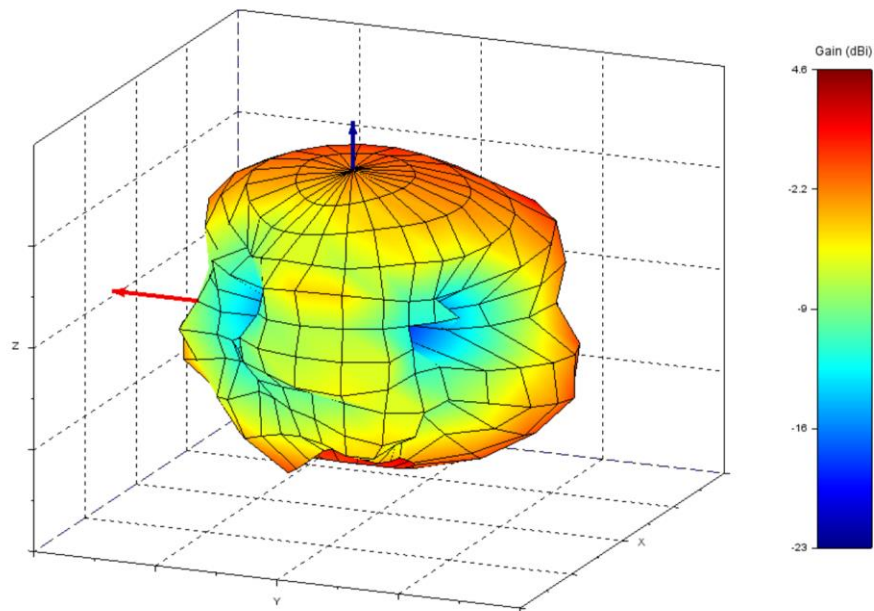


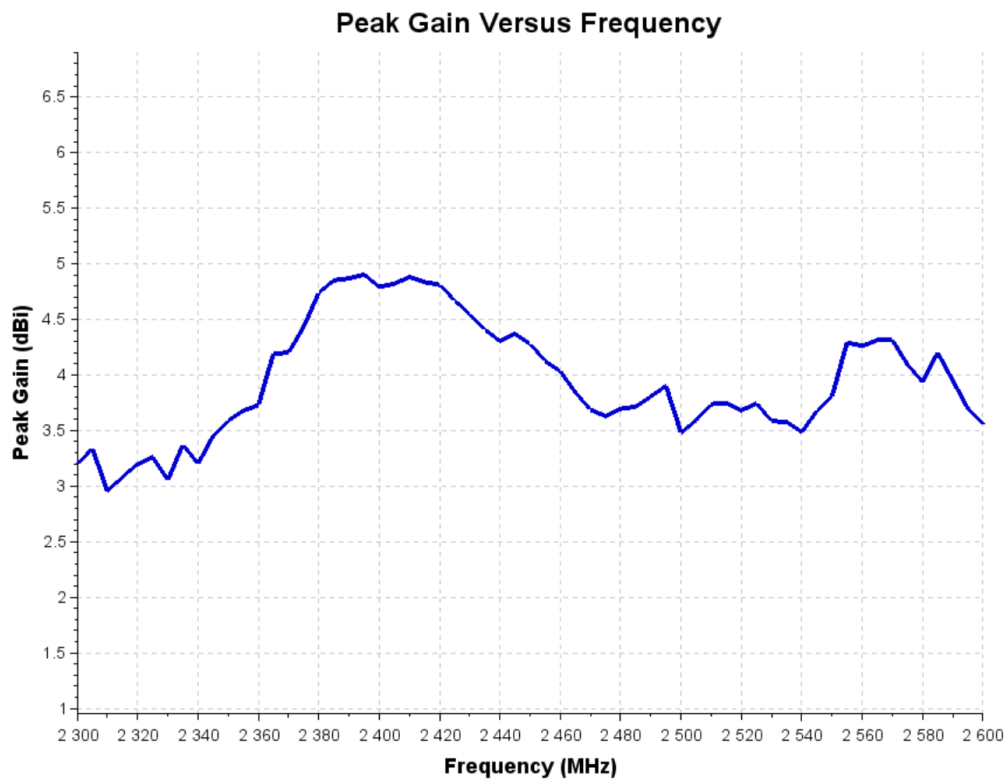
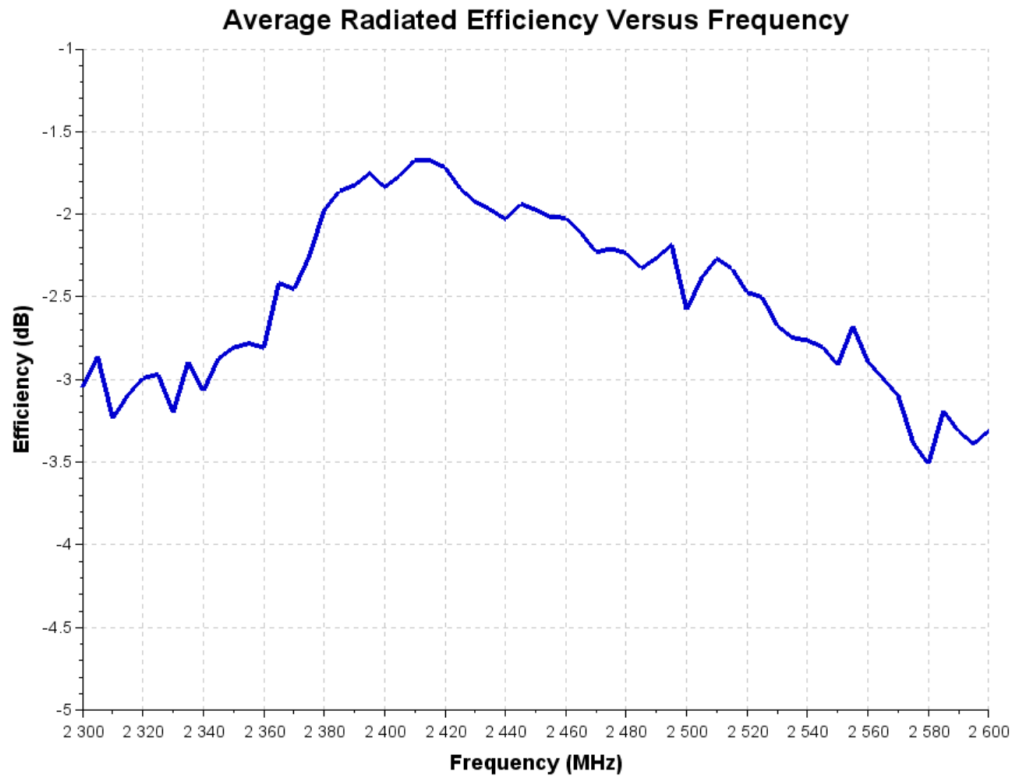
3D Radiation Pattern - Total Gain at 2440 MHz



Rotated about
z-axis:

3D Radiation Pattern - Total Gain at 2440 MHz

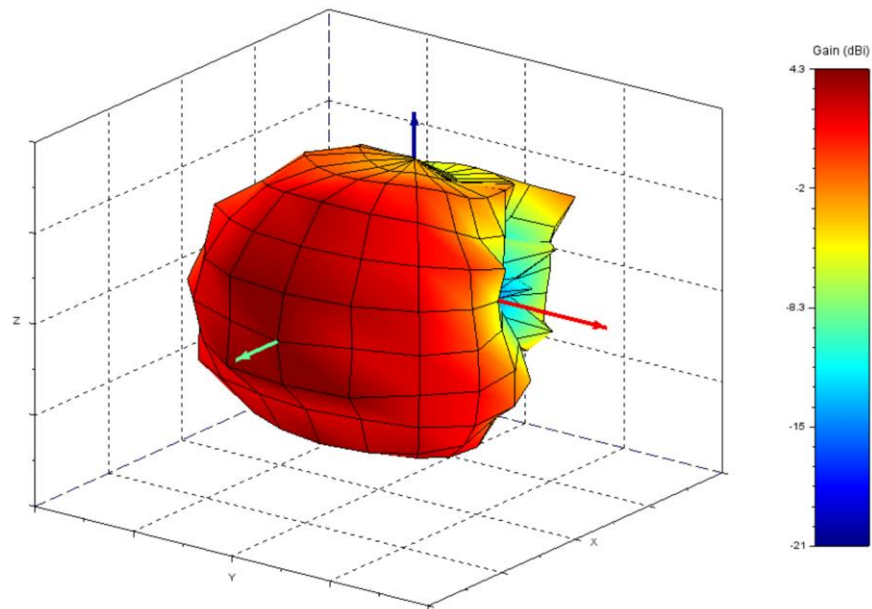




x-axis = GREEN = Faceplate front.
y-axis = RED
z-axis = BLUE



3D Radiation Pattern - Total Gain at 2440 MHz



Rotated about
z-axis:

3D Radiation Pattern - Total Gain at 2440 MHz

