Cameron Health, Inc. SQ-RX Antenna Information

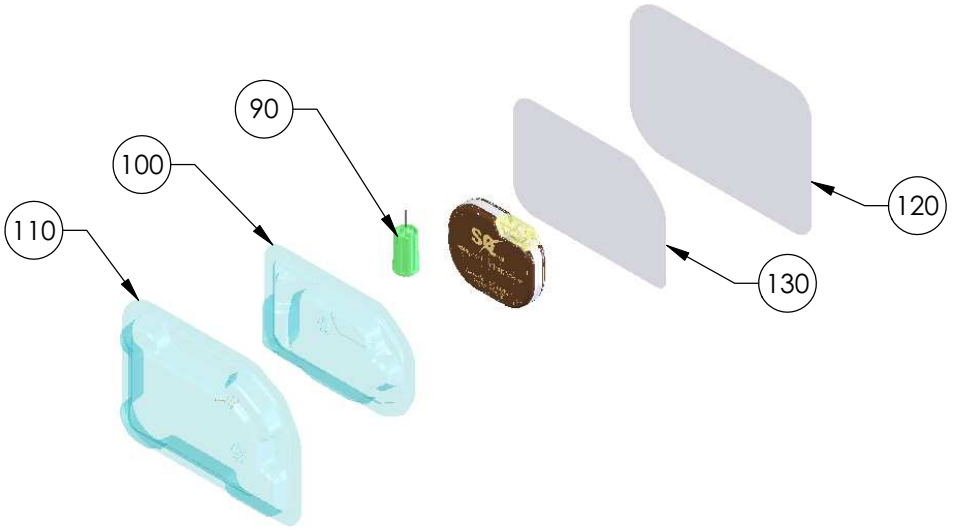
The SQ-RX device uses an integrated antenna that is permanently affixed as part of the header assembly. The attached drawings show the shape of the antenna and its positioning. In addition, the attached drawings provide details as to the connection through the feedthru into the hermetically sealed canister from the header assembly to the low power substrate.

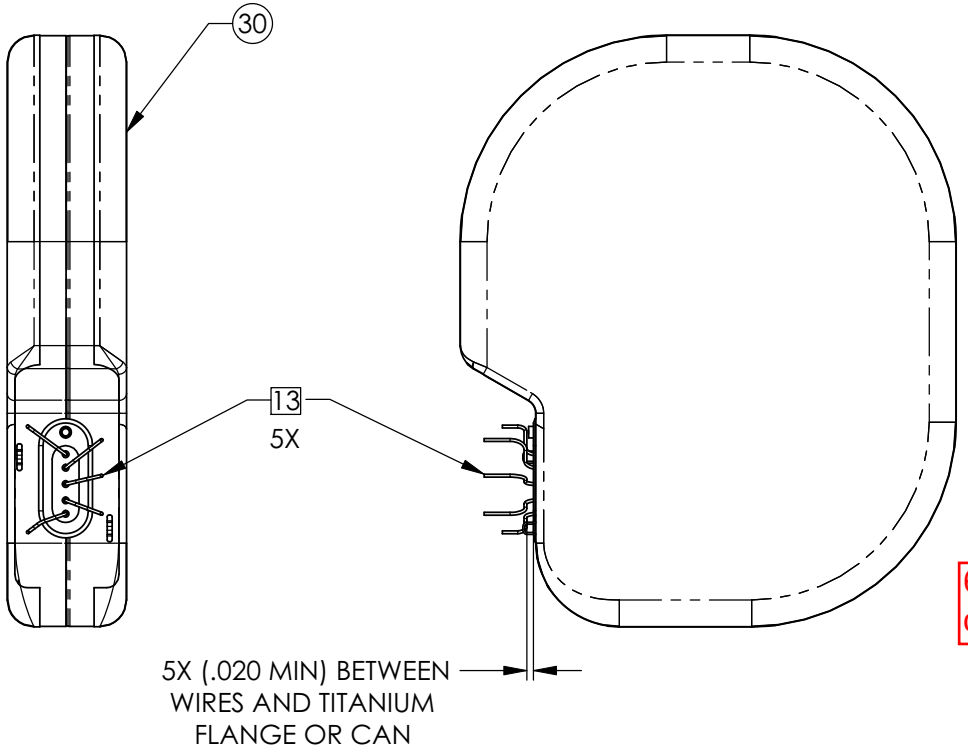
a) The device complies with paragraph 15.203 of the FCC rules because the antenna provided in the header assembly is the only antenna that can be used with the device. The header and antenna are permanently affixed thereto, and destructive disassembly would be required to use a different antenna.

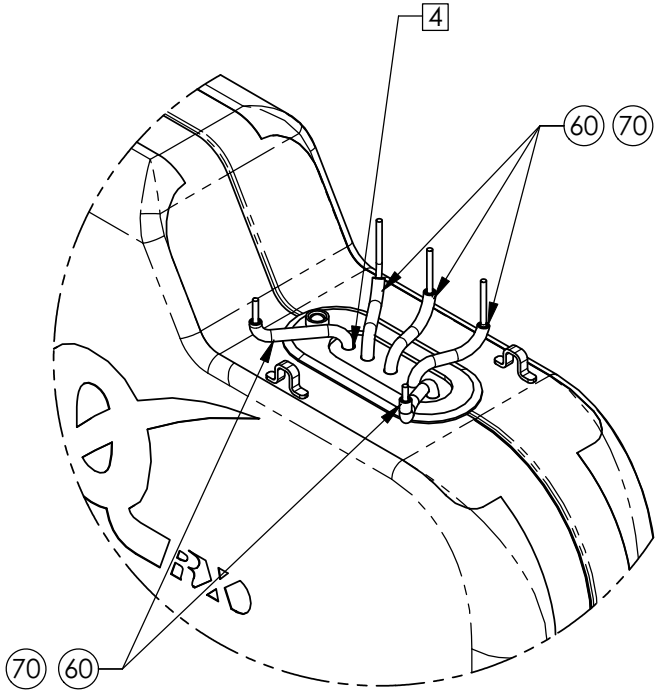
b) The device is not a transmitter regulated under paragraph 15.247 of the FCC rules.

c) The only antenna that can or will be used with the device is that shown in the drawings below. No separate model number is available as the antenna is not separately sold or made available.

d) Drawings that supplement the external photos follow. It is believed that, due to the semi-transparent nature of the header itself, the attached drawings provide a better understanding of shape and placement than could be had by reference to the photographs alone.





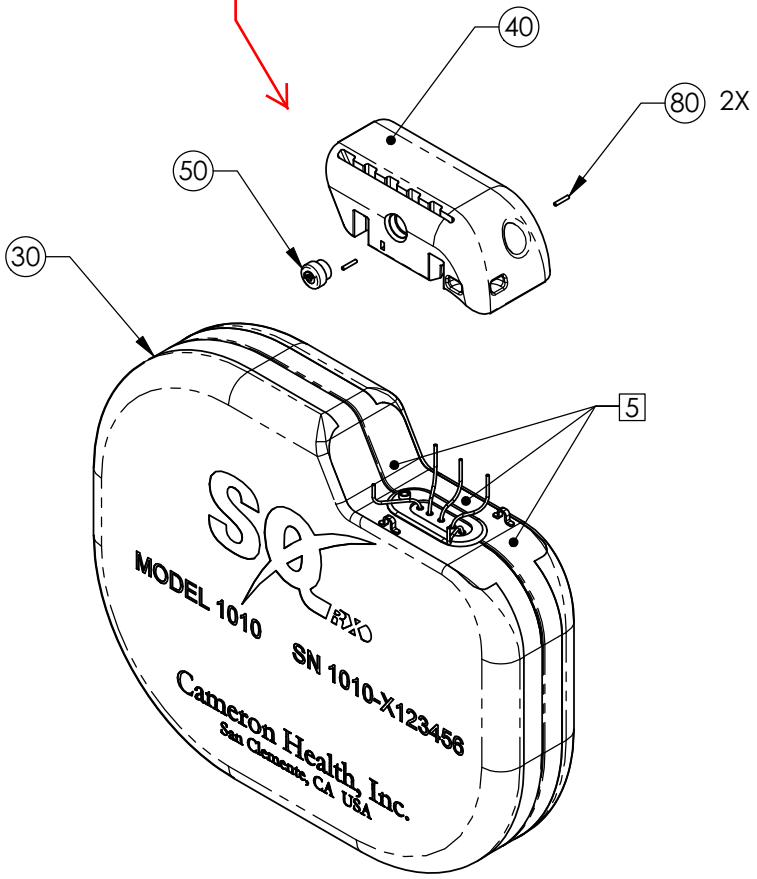


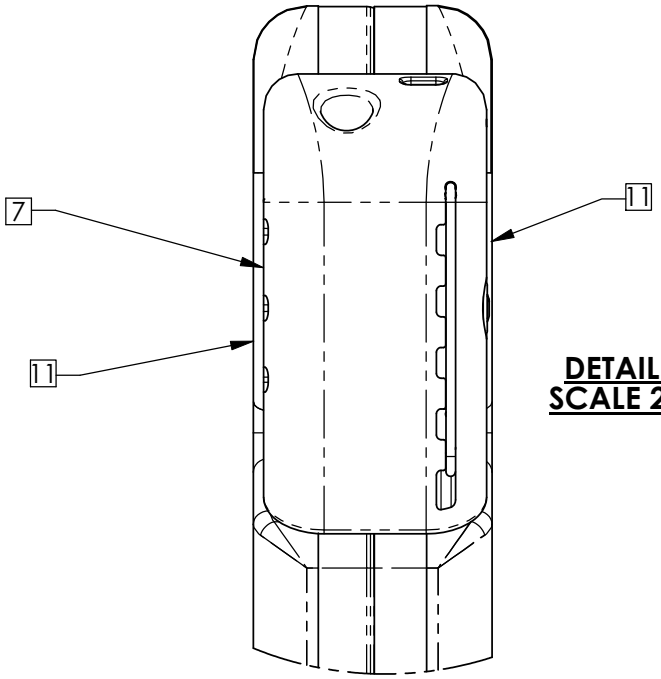
DETAIL A
SCALE 2 : 1

60, 70 point to feedthru connections for the antenna

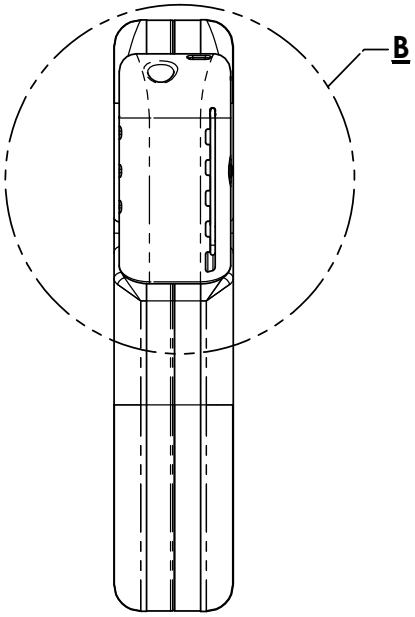
SIZE	DWG. NO.	REV.
A	DN-02365	D
file: DN-02365 Rev D.pdf		SHEET 2 OF 4

Showing placement of header onto can.



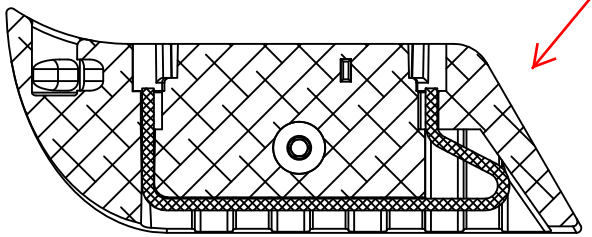


DETAIL B
SCALE 2 : 1

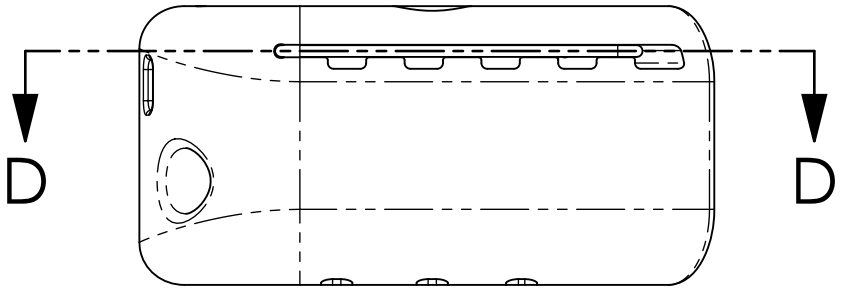


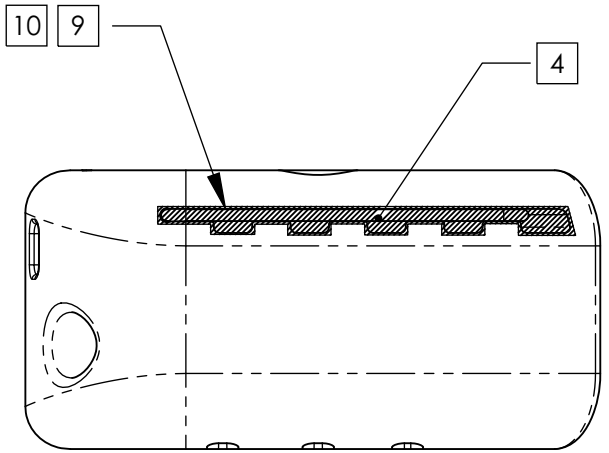
SIZE	DWG. NO.	REV.
A	DN-02365	D
file: DN-02365 Rev D.pdf		SHEET 3 OF 4

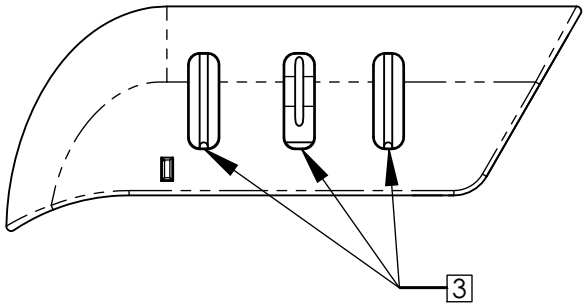
Header cross section showing antenna



SECTION D-D
SCALE 2.5 : 1



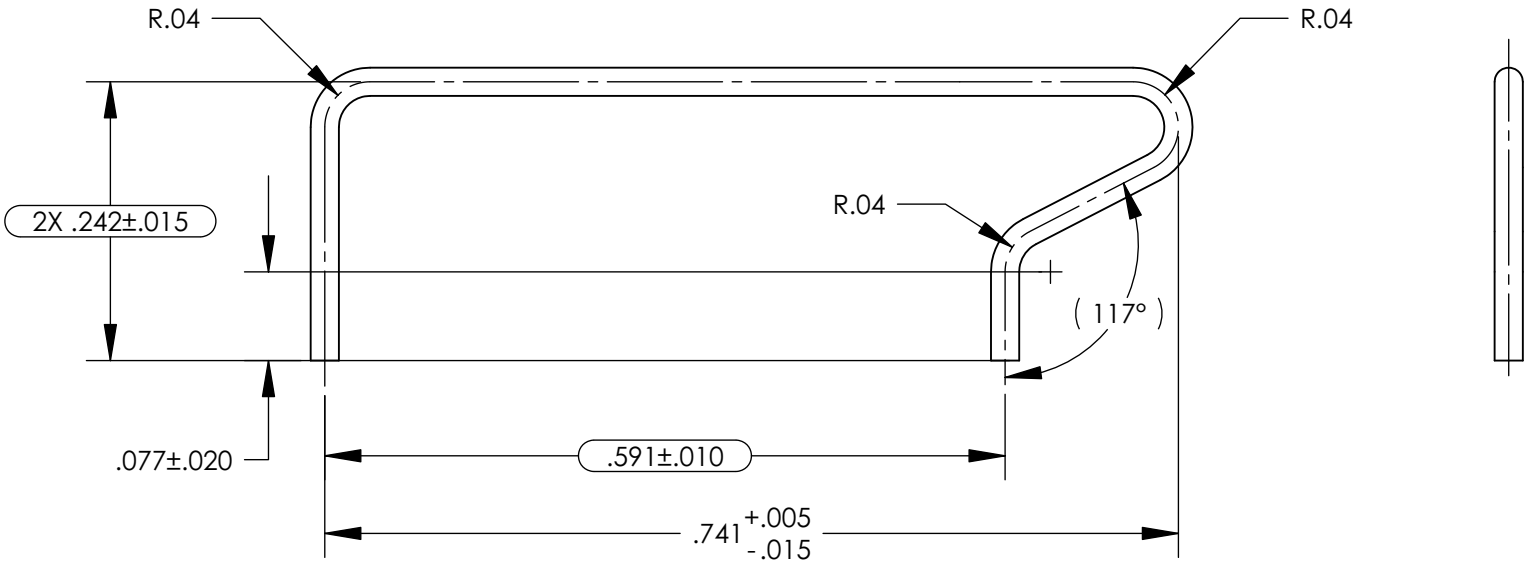




SIZE	DWG. NO.	REV.
A	DN-06248	A
file: DN-06248 rev A.pdf		SHEET 2 OF 3

NOTES:

1. CERTIFICATE OF COMPLIANCE REQUIRED WITH EACH SHIPMENT.
2. INSPECTION DIMENSIONS ARE CIRCLED.
3. PARTS SHALL BE CLEAN AND FREE OF ANY PROCESSING CHEMICALS,OILS OR SURFACE CONTAMINATION INTRODUCED BY THE MANUFACTURING PROCESS.
4. SHIP PARTS IN RESEALABLE CONTAINERS IN ACCORDANCE WITH BEST SHIPPING PRACTICES FOR CLEANLINESS AND TO PREVENT DAMAGE.
5. SHIPPING BAGS TO BE LABELED WITH AT MINIMUM:
   A) MANUFACTURER NAME
   B) CAMERON HEALTH P/N AND REVISION
   C) LOT NUMBER
   D) QUANTITY



UNLESS OTHERWISE SPECIFIED:
INTERPRET DRAWING AND DIMENSIONS PER ASME Y14.5M-1994 (R2003).

DIMENSIONS ARE IN INCHES [mm]
TOLERANCES:
FRACTIONAL ± X/Y
ANGULAR: ± 1 DEG
TWO PLACE DECIMAL ± .01
THREE PLACE DECIMAL ± .003
FOUR PLACE DECIMAL ± .0010

MATERIAL: PLATINUM WIRE, 99.99% PURE, Ø.025"±.001"

FINISH:

DO NOT SCALE DRAWING

3RD ANGLE PROJECTION

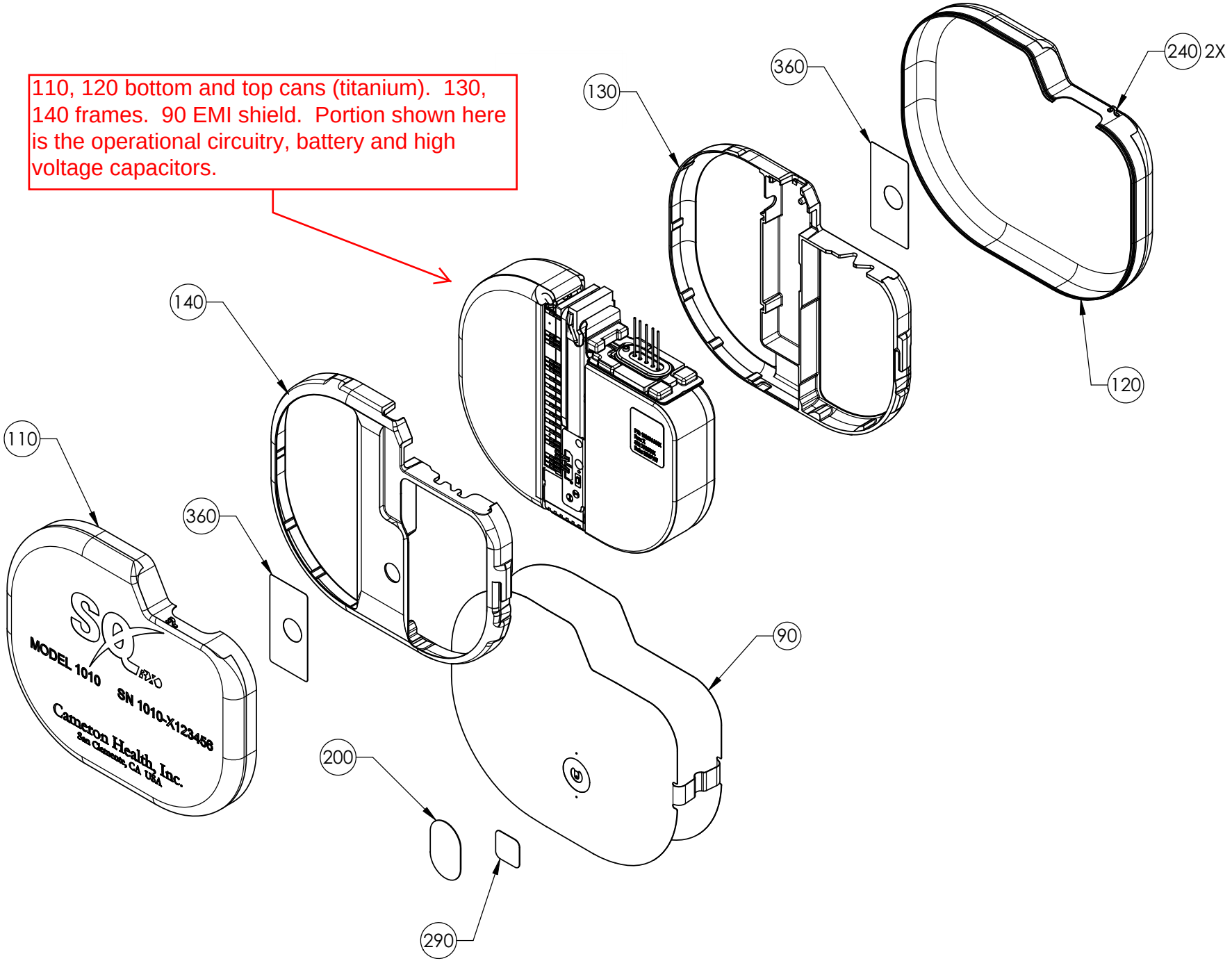
Cameron Health, Inc.
SAN CLEMENTE, CA

TITLE:

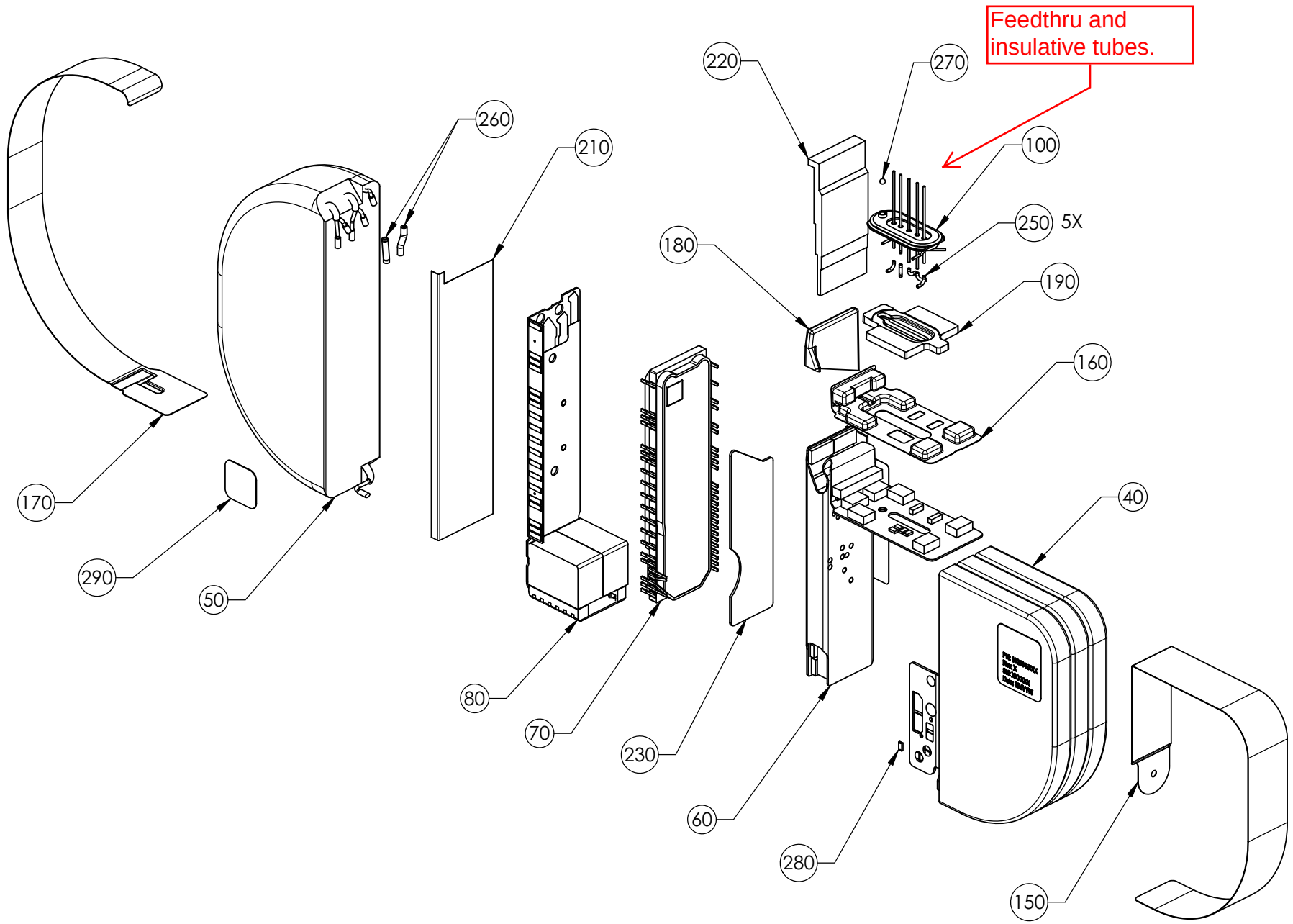
ANTENNA, PLATINUM, HEADER

SIZE	DWG. NO.	REV.
A	102801-001	B

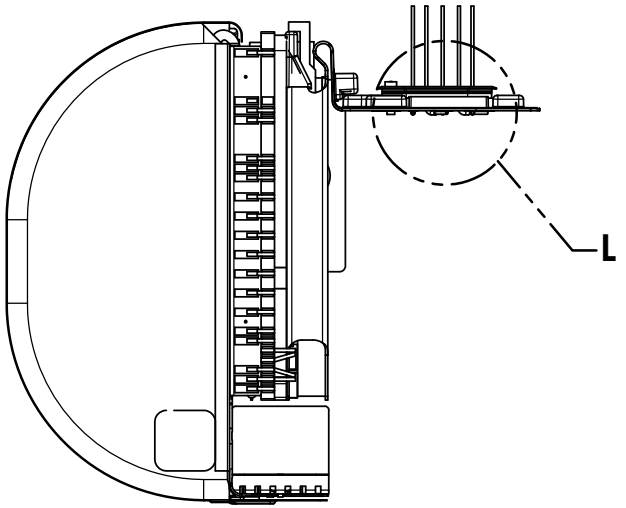
FILE: 102801-001 Rev B.pdf

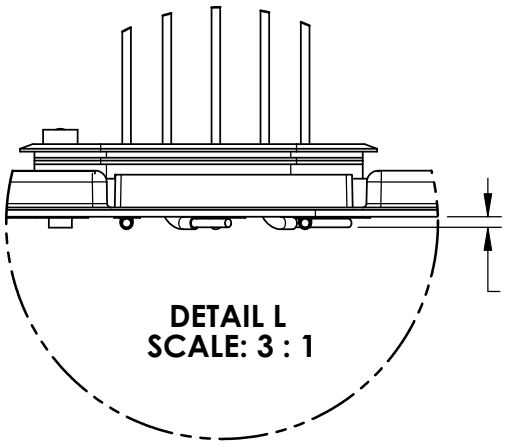


SIZE	DWG. NO.	REV.
A	DN-06302	H
FILE: DN-06302 Rev H.pdf		SHEET 2 OF 10

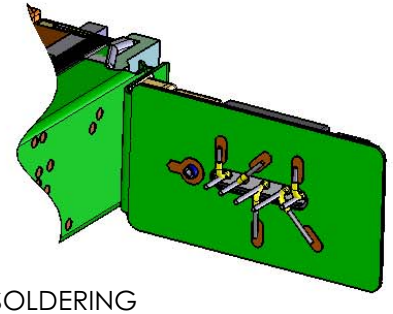


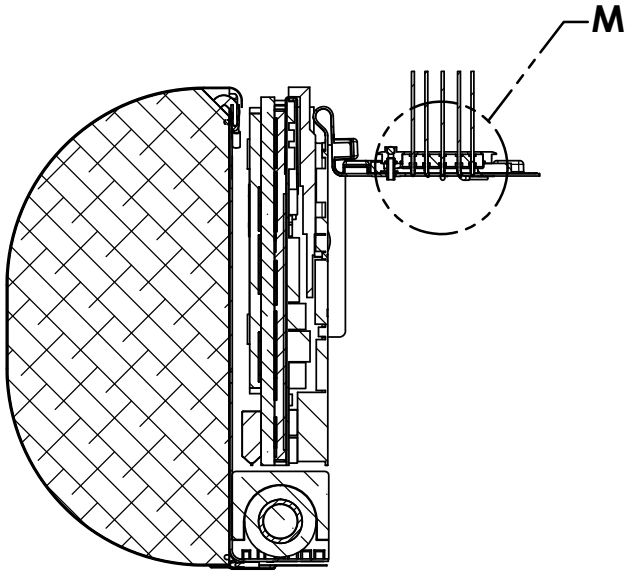
SIZE	DWG. NO.	REV.
A	DN-06302	H
FILE: DN-06302 Rev H.pdf		SHEET 3 OF 10



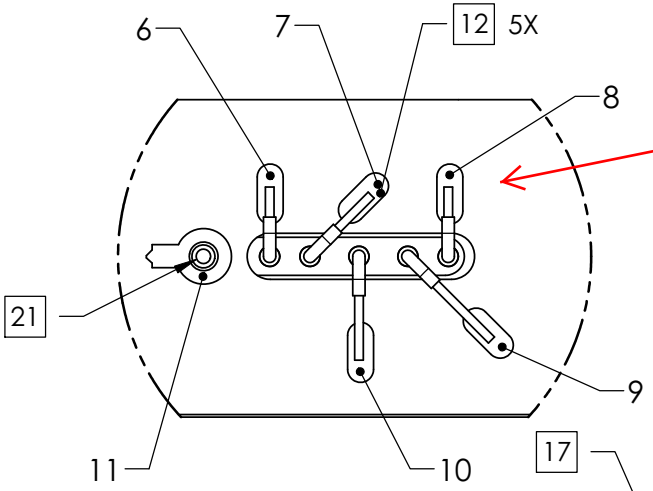


DETAIL L
SCALE: 3 : 1



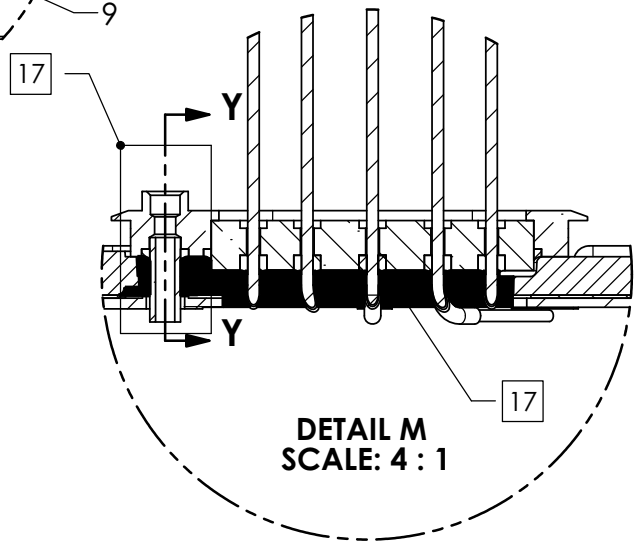


SECTION P-P

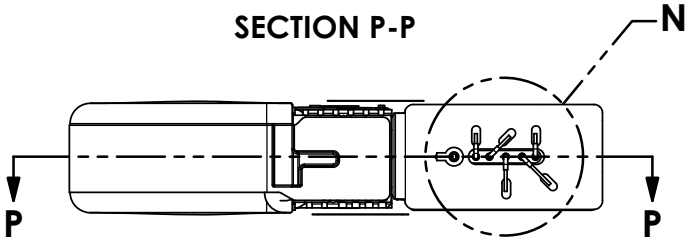


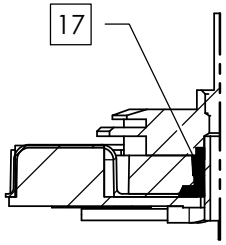
Feedthru solder plan. 6, 8 are the antenna connection solder points.

DETAIL N
SCALE: 3 : 1



DETAIL M
SCALE: 4 : 1





SECTION Y-Y
SCALE: 4 : 1

SIZE	DWG. NO.	REV.
A	DN-06302	H
FILE: DN-06302 Rev H.pdf		SHEET 6 OF 10

Step by step procedure and calculations for the PG Antenna and RF Circuit Output Gain relative to CC1000 Output

Description	Value	Units	
Distance	3	meters	As documented in NWEMC Tests
Received Maximum Field	59.2	dB uV/m	Measured Maximum Field Strength*
RMF in V/m	9.12E-04	V/m	dBu (amplitude) convert to linear units
RMF in W/m2	2.21E-09	W/m2	Equation 1
Pa*4pi*d*d	2.50E-07	W	Equation 2 - moved 4p*d^2 to left side
Pt	0.0	dBm	Tx power from CC1000 Programmed at 0X0F Output
Pt in W	1.00E-03	W	dBm (power) convert to linear units
G	0.000250	(none)	Divide Pa*4pi*d*d by Pt
G (in dBi)	-36.0	dBi	dBi = 10 log (G)

The Gain, G, is referenced from the output power of the CC1000 chip, and is not necessarily the gain of the the antenna standing alone.

* The Maximum field strength was measured with the lead inserted in a device with the implant in an upright position relative to the measurement antenna

$$W/m^2 = \frac{(V/m)^2}{377\Omega}$$

Equation 1

These calculations are based on testing performed at NWEMC on 5 November 2007.

$$P_A = \frac{P_T \times G}{4\pi \times d^2}$$

Equation 2

where :

P_A = Apparent Power

P_T = *Transmit* Power

G = Linear Gain of Transmit Antenna

d = Distance from Transmit Antenna

NORTHWEST
EMC

RELATIVE GAIN DATA SHEET

PSA 2007.05.07
EMI 2006.4.26

EUT:	Implant			**Work Order:**	CAME0017
Serial Number:	0X14			**Date:**	11/05/07
Customer:	Cameron Health, Inc.			**Temperature:**	23.04C
Attendees:	Paul Erlinger			**Humidity:**	50%
Project:	None			**Barometric Pres.:**	1018.3mb
Tested by:	Andrey Marcus	**Power:**	120VAC/60Hz	**Job Site:**	OC08

TEST SPECIFICATIONS	Test Method

TEST PARAMETERS

Antenna Height(s) (m)		**Test Distance (m)**	3

COMMENTS

Implant upright position with electrode.

EUT OPERATING MODES

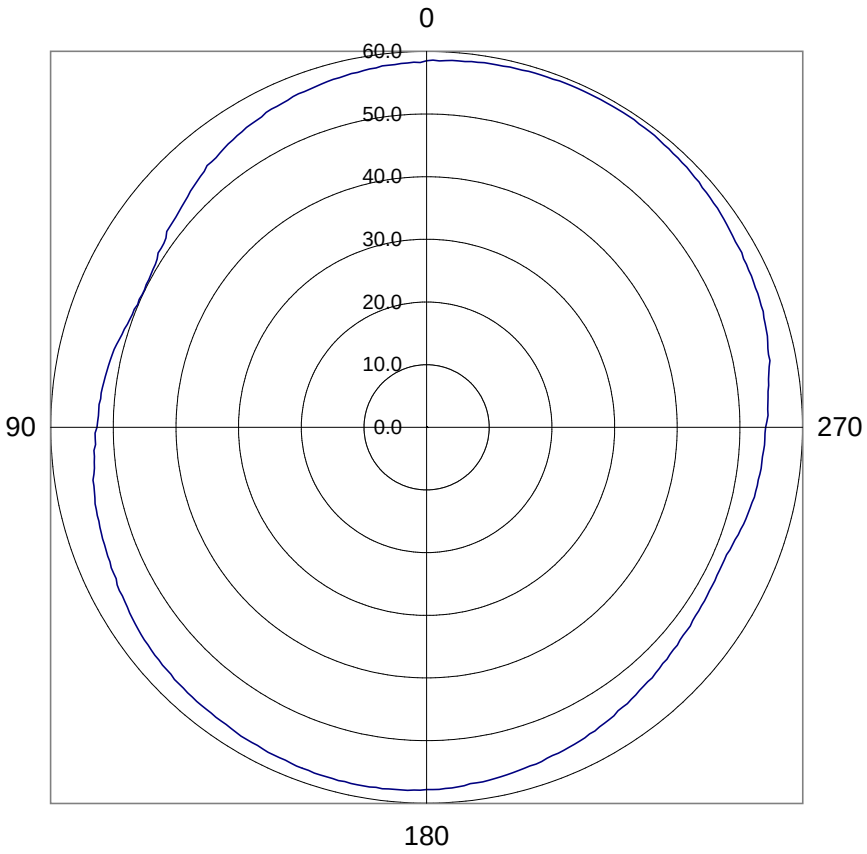
Transmitt Power 0X0F

DEVIATIONS FROM TEST STANDARD

Run #	96
Configuration #	1
Results	

Signature

Relative Gain of AUT



Frequency	403.50	
Measurement Antenna Polarity	Vertical	
Antenna Under Test (AUT) Polarity	Horizontal	
Max level	59.20	dBuV/m
Min level	50.10	dBuV/m