

GPS antenna kit

Quality Management System – AS9100

Approvals	Name	Date	Signature
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ECO	Rev.	Description	Date	Gabi Ickowicz	Signature
-	A	Initial Revision	AUG 2023	Gabi Ickowicz	01/08/2023

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All specs are @ 25°C, quiescent conditions and sea level ambient unless otherwise specified

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1. GENERAL

In figure 1 below you can find the all gradients of the GPS ANTENNA KIT
For AR76/77/78/79 connection.
P/N AA50830.

With this kit you will be able connect GPS antenna to GPS receiver.

The kit includes the following items:

1. L1 GPS ground antenna
2. M17/60-RG142 cable
3. GPS lightning protector
4. TNC-m-N-m RG213 cable

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L1 GPS ground antenna



M17/60-RG142 CABLE



GPS lightning protector



TNC-m-N-m RG213 CABLE



2. L1 GPS ground antenna

Part number	Description
EM30064	L1 GPS ground antenna, 36dB gain, TNC F, 1W power handling

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Electrical specifications:

Frequency: 1575 ±2MHz
 Gain: 36dB ±2dB
 Input DC power: 5-18VDC/50mA
 Polarization: Right hand circular
 Axial ratio: 3dB max.
 Radiation coverage: 4.0 dBic $\theta = 0^\circ$
 -1.0 dBic $0 < \theta = 75^\circ$
 -3.0 dBic $\theta = 90^\circ$
 VSWR: ≤1.5:1
 Impedance: 50 ohm
 Power handling: 1 Watt
 Finish: Weatherable polymer
 Weight: 8 oz
 Altitude: 20,000 feet
 Operating temperature range: -40°C to 70°C
 Connector: TNC Female
 Color: White
 Designed to: DO-160C

Environmental Conditions

Temperature and Altitude (DO-160D Section 4, Category F2)

Ground survival low temperature -55° C; Operating low temperature -55° C; Ground survival high temperature +85° C; Operating low temperature +85° C; Altitude of 55000 feet for 2 hours minimum with unit operating.

Humidity (DO-160D Section 6, Category B)

RH of 95±4 %, +65°C, 10 cycles of 24 hours each.

Rain (DO-160D Section 10, Category S)

Continuous stream of 50°C water, 5 minutes minimum on each side, distance of one to two meter . The stream of water produces at least 6 meter vertical stream through a 6.4 mm diameter nozzle.

Sand and Dust (DO-160D Section 12, Category D)

Silica concentration of 3.5 to 8.8 g/m³. Jet velocity between 0.5 and 2.5 m/sec. First cycle +25°C, RH ≥ 30%, one hour each axis. Second cycle +55°C, RH ≥ 30%, one hour each axis.

Vibration (DO-160D Section 8, Category S(CLMY)U(FF1))

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CURVE C (RANDOM)		
FREQUENCY (Hz)	LEVEL	OVERALL ACCELERATION
10-40	0.012 g ² /Hz	4.12 grms
40-51.7	6 dB/octave	
51.7-500	0.02 g ² /Hz	
500-2000	-6 dB/octave	

CURVE L (SINUSOIDAL)		
FREQUENCY (Hz)	LEVEL	SWEEP RATE
5-15	0.1 inch peak to peak	0.9 octave per minute
15-55	0.02 inch peak to peak	
55-150	3.0 g peak	

CURVE M (SINUSOIDAL)		
FREQUENCY (Hz)	LEVEL	SWEEP RATE
5-15	0.1 inch peak to peak	0.9 octave per minute
15-55	0.01 inch peak to peak	
55-150	1.5 g peak	

CURVE Y (SINUSOIDAL)		
FREQUENCY (Hz)	LEVEL	SWEEP RATE
5-14	0.1 inch peak to peak	0.9 octave per minute
14-24	1 g peak	
24-40	0.036 inch peak to peak	
40-767	3 g peak	

CURVE F		
FREQUENCY (Hz)	LEVEL	OVERALL ACCELERATION
5-40	3 dB/octave	2.97 grms
40-200	0.05 g ² /Hz	
200-300	-12 dB/octave	

CURVE F1		
FREQUENCY (Hz)	LEVEL	OVERALL ACCELERATION
5-40	3 dB/octave	4.20 grms
40-200	0.10 g ² /Hz	
200-300	-12 dB/octave	

Shock (DO-160D Section 7, Category B)

1. Operational Shock: terminal sawtooth , 6 g for 11 ms, 3 shocks in each of ±X, ±Y ±Z axis.
2. Crash Safety – Impulse: terminal sawtooth , 20 g for 11 ms, one shock in each of ±X, ±Y ±Z axis.
3. Crash Safety – Sustained: centrifuge , 20 g for 3 sec, 3 shocks in each of ±X, ±Y ±Z axis.

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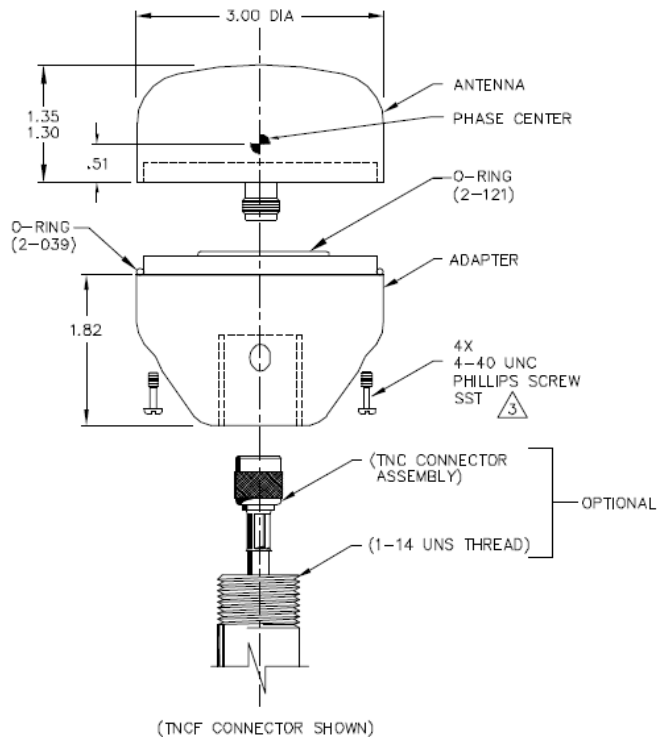
Fluid Contamination (DO-160D Section 11, Category F)

- 1. Ethylene Glycol Spray : +50°C for 24 hours, 10 minutes operating, +65°C for 160 hours, +25°C operating for 2 hours.**
- 2. Skydrol (Hydraulic Fluid): +70°C for 24 hours, 10 minutes operating, +65°C for 160 hours, +25°C operating for 2 hours.**

Salt Fog (DO-160D Section 14, Category S)

Sodium Chloride, 5 ±1 % solution, 48 hours exposure, 48 hours drying.

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Notes:

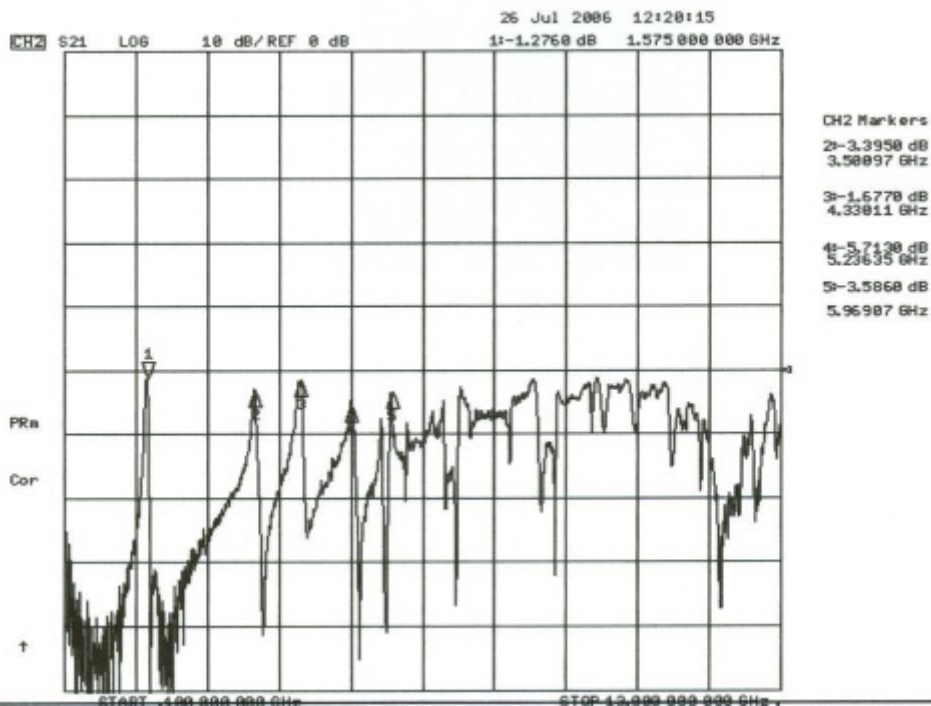
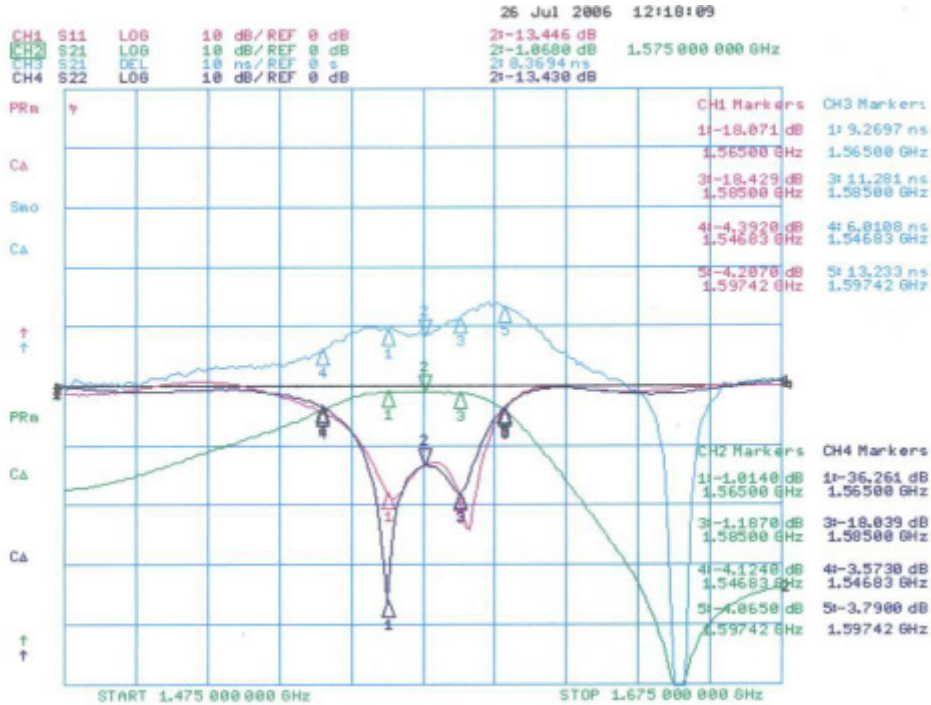
1. All dimensions are in Inches.

2. Tolerances: .xx = $\pm .03$

.xxx = $\pm .010$

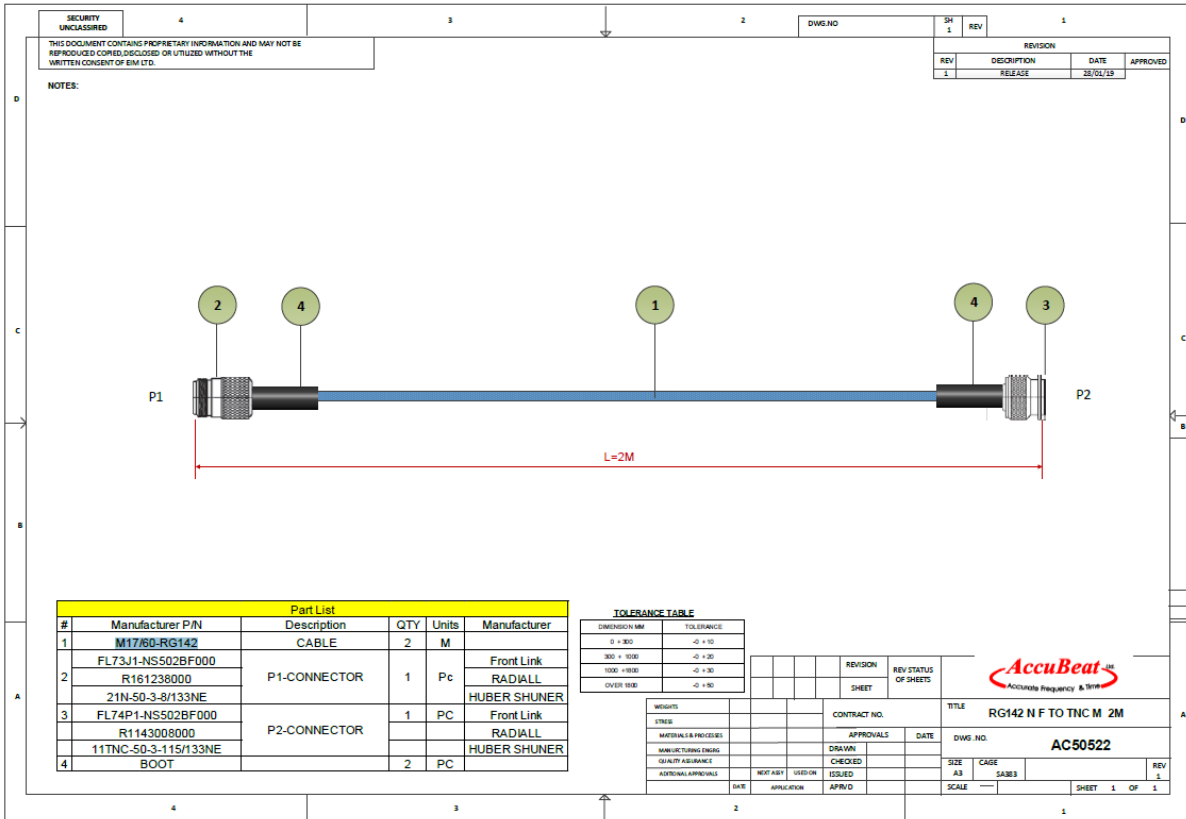
$\triangle 3$: Assembly antenna to adaptor using 4 screws on cross motion suggested torque: 5.0-6.0 in LB, do not over torque.

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3. M17/60-RG142 cable

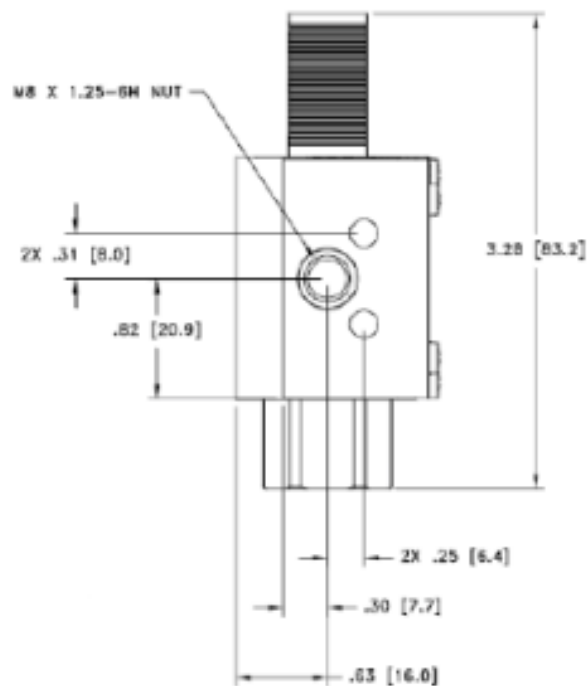
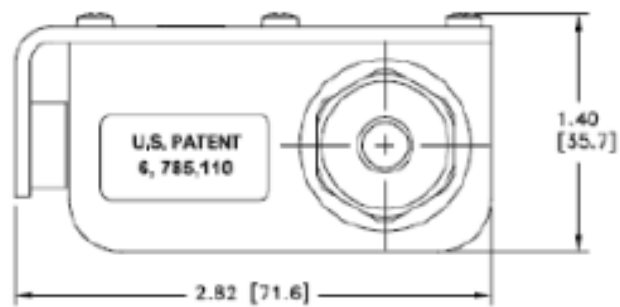


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4. GPS lightning protector

Part number	Description
EM30045	GPS lightning protector

Physical & Electrical specifications:



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MAXIMUM CHARACTERISTICS

APPLICATION:

WEATHERIZED, FLANGE OR BULKHEAD MOUNT

FREQUENCY RANGE:

800MHz TO 2500MHz

VSWR:

≤1.1:1 OVER FREQUENCY RANGE

INSERTION LOSS:

≤0.1dB OVER FREQUENCY RANGE

POWER:

.25W RMS AVERAGE

TURN ON:

+6.5Vdc

TURN ON TIME:

4ns FOR 2kV/ns

MAX. SURGE:

20kA IEC 61000-4-5 8/20μs WAVEFORM

THROUGHPUT ENERGY:

≤175μJ FOR 3kA, 8/20μs WAVEFORM

USER VOLTAGE:

+6.0Vdc MAX

USAGE CURRENT:

≤4.0A CONTINUOUS

RELATIVE HUMIDITY:

TO 95%

ENVIRONMENTAL:

MEETS IEC 60529 IP67

MEETS BELLCORE #TA-NWT-000487

PROCEDURE 4.11, WIND DRIVEN (120MPH)

RAIN INTRUSION TEST.

TEMPERATURE:

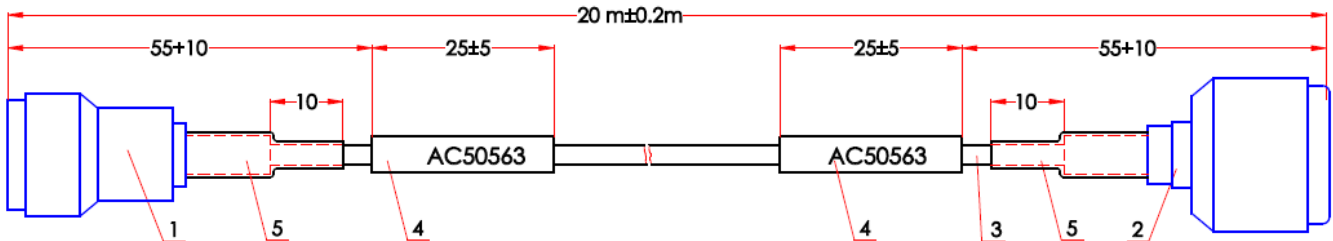
-50°C TO +85°C STORAGE/OPERATING

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5. TNC-m-N-m RG213 cable

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REV	DESCRIPTION	DATE
Δ	added manufacturer	22.06.17



THE CABLE & WIRE HARNESS AND WIRE BUNDLE SECURING MUST BE MANUFACTURED ACCORDING TO STANDARD IPC-A-620 CLASS 3.

5	HW50011	SHRINK INS 1/2" RNF 100 BLACK (SAE-AMS-DTL-23053)	2	
4	TMS-SCE-1/2-1.0-9	SHRINK WITH P/N OF CABLE	2	SHRINK SAE-AMS-DTL-23053
3		CABLE RG213	1	L=20 m
2	FL73P1-NS5138F000	N CRIMPT PLUG	1	FRONTLYNK
	N21CR	N-Type CRIMP PLUG (male) N1121A1-NT3G-213U-50		AMPHENOL
	J01020A0107	N STRAIGHT PLUG (male)		TELEGARTNER
	R161075000	N-Type STRAIGHT CRIMP PLUG (male)		RADIALL
1	11 N-50-7-43/133 NE	STRAIGHT PLUG (male)	1	SUHNER
	7411NS513CF000B	TNC CRIMPT PLUG		BO-JIANG
	T1121A6-NT3G-7-50	TNC CRIMPT PLUG (male) T1121A6-NT3G-213U-50		AMPHENOL
	J01010A0051	TNC STRAIGHT PLUG (male)		TELEGARTNER
	R143018000	TNC STRAIGHT PLUG (male)		RADIALL
	11 TNC-50-7-2/133	STRAIGHT PLUG (male)		SUHNER

No.	PART No.	NAME	QTY	NOTES
	Prod/Prog	TOLERANCES	DESIGN	SEMYON MILSHEYN 01.07.13
		LINEAR HOLES	CHECK	DAVID SASSON 01.07.13
		±3	CHECK	
		BETWEEN HOLES	APPROVE	DAVID SASSON 01.07.13
		BENDING RADIUS		
	USED ON	DIMENSIONS: mm	MATERIAL:	
		ROUGHNESS:		



TNC-m - N-m RG213 CABLE L=20 m

No: AC50563 0 Rev: A1
Scale Page 1/1 Size: A5

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