

REVISIONS				
Rev	ECN	Description	Date	Approved
A	C51921	Release to Production	1/17/12	A.P.
B	C52533	Modified Specs	1/25/12	A.P.
C	C54003	Modified specs for pull force & ,added FCC logo	3/16/12	A.P
D	54804	Changed operating temp.to-40/+85	4/27/12	A.P



Approvals	Date	5m, 3V, MCX GPS & GLONASS Trimble Miniature Antenna Specification - RoHS compliant.		
DRAWN: A. Perez	1/19/12			
CHECKED		Sheet	Size	Drawing Number
ISSUED		1 of 5	A	<b>70229-50-SP</b>
				Revision <b>D</b>

TRIMBLE NAVIGATION  
3V MINIATURE GPS/GLONASS ANTENNA WITH 5 M CABLE,  
MCX CONNECTOR, AND LOW NOISE AMPLIFIER

**Part Number 70229-50**

Part Number 70229-50-SP

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SPECIFICATION FOR GPS/GLONASS ANTENNA WITH LOW NOISE AMPLIFIER.  
 ALL ELECTRICAL VALUES ARE DEFINED AT 25±15°C, 65±20 % RH, POWER HANDLING 1  
 μWATT, AIR PRESSURE 960 ±100 HPA UNLESS OTHERWISE NOTED. PATCH  
 CHARACTERISTICS ARE MEASURED WITH 70x70 MM GROUND PLANE IN AN ANECHOIC  
 CHAMBER.

1.0 APPLICATION

THIS SPECIFICATION DESCRIBES THE ELECTRICAL AND MECHANICAL  
 CONDITIONS OF THE TRIMBLE MINIATURE ANTENNA, P/N 70229-50.

2.0 SYSTEM

THIS ANTENNA SYSTEM CONSISTS OF TWO FUNCTIONAL BLOCKS LISTED BELOW.

2.1 ANTENNA ELEMENT

2.2 LNA

3.0 GENERAL

3.1 ENVIRONMENTAL CONDITIONS

3.1.1 OPERATING TEMPERATURE -40°C TO +85°C

3.1.2 STORAGE TEMPERATURE -40°C TO +85°C

3.1.3 RELATIVE HUMIDITY 65 ± 20% RH

3.2 ELECTRICAL SPECIFICATIONS

3.2.1 INPUT VOLTAGE 3.3V±0.6V

3.2.2 CURRENT CONSUMPTION 8 +/- 3 mA (at 3 +/- .1 V)

3.2.3 OUTPUT CONNECTOR MCX-Plug

3.2.4 CABLE RG 174 5M:BLACK (halogen free)  
 TATUNG RG-174, XLPE, E54979

3.3 MECHANICAL SPECIFICATIONS

3.3.1 MOUNTING MAGNET MOUNT

3.3.2 PULLING FORCE OF MAGNET 17.64N Min.

3.3.3 WATER PROOF WATER PROOF (JISD0203 S2)

3.3.4 SHOCK 50G : VERTICAL AXIS

30G : ALL AXIS

3.3.5 VIBRATION 10 ~ 200Hz. LOG SWEEP 3.0G

(SWEEP TIME : 15 MIN.) 3 AXIS

3.3.6 MAGNET MOUNT WITHSTAND WITHSTAND UP TO SPEED OF

180Km/h.

3.3.7 CABLE PULLING FORCE 49N MIN.

Visible or electrical damage must not  
 appear when applying up to 49N pulling  
 force between cable and antenna as well  
 as between cable and connector.

3.3.8 BENDING TEST AFTER BENDING TEST 90° DEGREE

RIGHT AND LEFT x 1,000 CYCLES, NO  
 PERMANENT DAMAGE FOUND.

3.3.9 ANTI-COROSION BASED ON JIS Z 2371, SPRAY 5%

SALT WATER 35°C SHOULD NOT

RUST AFTER 96Hrs,

3.3.10 CONFIGURATION AND SEE MECHANICAL DRAWING

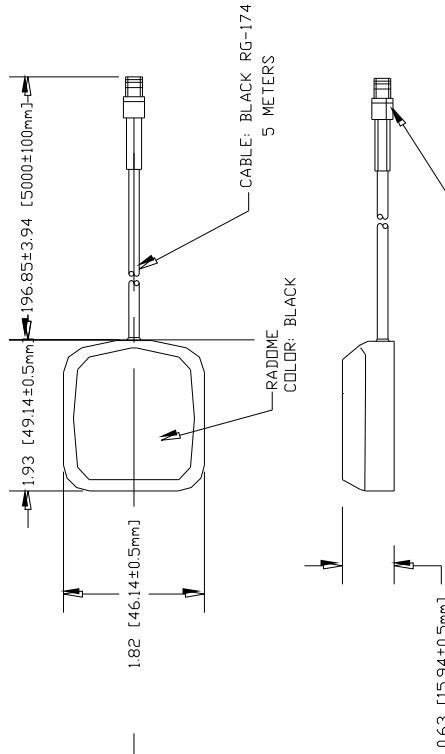
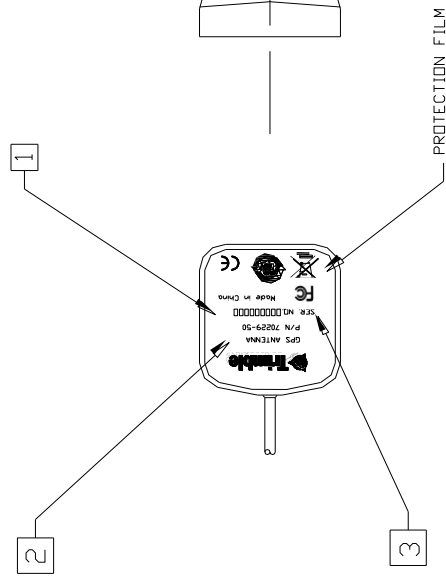
DIMENSION

3.3.11 WEIGHT 130 g TYPICAL, INCLUDING CABLE

SPECIFICATION FOR GPS/GLONASS ANTENNA WITH LOW NOISE AMPLIFIER

4.0	ANTENNA	
4.1	FREQUENCY RANGE	1,575.~1615MHz
4.2	CENTER FREQUENCY	1593± 5MHz
4.3	AVERAGE GAIN	2.0 dBic typ
4.4	POLARIZATION	RHCP
4.5	AXIAL RATIO	90° : 4.0dB MAX. 10° : 6.0dB MAX. (MOUNTED ON THE 70mm X 70mm SQUARE GROUND PLANE)
4.6	BANDWIDTH (10dB RETURN LOSS)	43 MHz TYP
5.0	LNA	
5.1	FREQUENCY RANGE	1,575.~1615MHz
5.2	GAIN	28± 3dB (at 3.0± 0.1V)
5.3	NOISE FIGURE	2.0 dB MAX
5.4	OUT OF BAND REJECTION	$f_o=1,593$ MHz $f_o \pm 20$ MHz      7dB MIN. $f_o \pm 30$ MHz      12dB MIN. $f_o \pm 50$ MHz      20dB MIN. $f_o \pm 100$ MHz     30dB MIN.
5.5	OUTPUT IMPEDANCE	50Ω
5.6	OUTPUT VSWR	2.0MAX.
5.7	OSCILLATION	NO OSCILLATION MUST BE FOUND IN BAND AND OUT BAND. (IN YOKOWO STANDARD MEASUREMENT).
5.8	ESD	ANTENNA SURFACE ± 15KV CONNECTOR PIN ± 8KV (TEST CONDITION JASOD001-94 C-3)
6.0	OVERALL SPECIFICATIONS (THROUGH ANTENNA, LNA, WITHOUT CABLE LOSS)	
6.1	CENTER FREQUENCY	1593 MHz
6.2	FREQUENCY RANGE	1575-1615 MHz
6.3	AVERAGE GAIN	30dBic typ(for ground 70X70mm at 3.0± 0.1V)
6.4	OUTPUT IMPEDANCE	50Ω
6.5	VSWR	2.0 typ
6.6	CURRENT	8± 3 mA (at 3.0± 0.1V)
7.0	MTBF	5.0E+6Hr
8.0	RECOMMENDED STORAGE CONDITION	STORE IN ROOM CONDITION AS LISTED BELOW: TEMPERATURE -20°C~+45°C, HUMIDITY 80% MAX.
9.0	EXTERNAL APPEARANCE	NO STAIN OR FLAW MUST BE FOUND.
10	DATA	GAIN (AT 3.0V ± 0.2V f=1593MHz) AND POWER CONSUMPTION AT ROOM TEMPERATURE.

REVISIONS				
ECN	REV	DESCRIPTION	DATE	APPROVED
	01	ENGINEERING RELEASE	10/03/11	AP
C52533	A	PRODUCTION RELEASE	1/17/12	AP



3 SERIAL NUMBER TO BE 8 DIGITS CODED AS FOLLOWS

XX Y ZZ WWWW

WHERE; XX = DATE (DAY) OF THE MONTH  
 Y = NUMBER OF THE MONTH 1-9 OCT.=0, NOV.=N, DEC.=D  
 ZZ = YEAR i.e. 1996 = 96  
 WWWW=ORDINAL NUMBER OF THE UNIT PRODUCED ON THAT DAY  
 ( i.e 0001 thru 9999)

2 PRINTING TO BE BLACK POSITIVE, UV PROTECTION,  
 HELVETICA BOLD CONDENSED

1 LABEL TO BE 50 MICRON THK SILVER MAT ON POLYESTER FILM  
 WITH PERMANENT ADHESIVE

NOTES;

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE IN INCHES (MILLIMETERS)  
 TOLERANCE

CONTRACT NO.		DATE	
MATERIAL	APPROVALS	DRWN	10-03-11
FINISH	CHECKED	ISSUED	AP

GPS/GLONASS ANTENNA		SIZE	FSCM NO.	DWG NO.	REV
DO NOT SCALE DRAWING		B		70229-50-AD	A
SCALE		NONE	SHEET 1 OF 1		



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FILE: 70229-50-AD