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<th>Description</th>
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<td>Release to Production</td>
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(V3 TMA) Trimble Miniature Antenna Specification RoHS compliant.

DRAWN: A. Perez

CHECKED

ISSUED

Sheet 1 of 5

Size A

Drawing Number 66800-50-SP

Revision C
TRIMBLE NAVIGATION
MINIATURE ANTENNA
GPS ANTENNA WITH LOW NOISE AMPLIFIER

Part Number 66800-50

Part Number 66800-50-SP

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935 Stewart Drive
Sunnyvale, CA  94085, USA

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### SPECIFICATION FOR GPS ANTENNA WITH LOW NOISE AMPLIFIER

1.0 APPLICATION

This specification describes the electrical and mechanical conditions of the Trimble Miniature Antenna, P/N 66800-50.

2.0 SYSTEM

This antenna system consists of two functional blocks listed below.

- 2.1 ANTENNA ELEMENT
- 2.2 LNA

3.0 GENERAL

#### ENVIRONMENTAL CONDITIONS

- **3.1.1 OPERATING TEMPERATURE**
  -40°C TO +85°C
- **3.1.2 STORAGE TEMPERATURE**
  -40°C TO +100°C (110°C MAX 1HR.)
- **3.1.3 RELATIVE HUMIDITY**
  20% TO 95%

#### ELECTRICAL SPECIFICATIONS

- **3.2.1 INPUT VOLTAGE**
  3.0V±0.3V
- **3.2.2 POWER CONSUMPTION**
  15mA TYPICAL (+25°C±5°C)
  20mA MAX (-40°C~+85°C)
- **3.2.3 OUTPUT CONNECTOR**
  MCX-Plug
- **3.2.4 CABLE**
  RG 174 5M:BLACK (halogen free)
  TATUNG RG-174, XLPE, E54979

#### MECHANICAL SPECIFICATIONS

- **3.3.1 MOUNTING**
  MAGNET MOUNT
- **3.3.2 PULLING FORCE OF MAGNET**
  29.4N 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.
  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.
- **3.3.7 CABLE PULLING FORCE**
  49N MIN.
- **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 SHOULDN'T RUST AFTER 96Hrs.
- **3.3.10 CONFIGURATION AND DIMENSION**
  SEE MECHANICAL DRAWING
- **3.3.11 WEIGHT**
  25g WITHOUT CABLE
## SPECIFICATION FOR GPS ANTENNA WITH LOW NOISE AMPLIFIER

### 4.0 ANTENNA
- **4.1 FREQUENCY RANGE**: 1,575.42 +/- 1.023MHz
- **4.2 GAIN**
  - $90^\circ$: 3.0dBi MIN.
  - $20^\circ$: -5.0dBi MIN.
  - (MOUNTED ON THE 65mm x 65mm SQUARE GROUND PLANE)
- **4.3 POLARIZATION**: RHCP
- **4.4 AXIAL RATIO**
  - $90^\circ$: 4.0dB MAX.
  - $10^\circ$: 6.0dB MAX.
  - (MOUNTED ON THE 65mm x 65mm SQUARE GROUND PLANE)

### 5.0 LNA
- **5.1 FREQUENCY RANGE**: 1,575.42 ± 1.023MHz
- **5.2 GAIN**
  - $28 \pm 3$dB (-40°C~+85°C)
- **5.3 NOISE FIGURE**
  - 1.5dB MAX. (+25°C± 5°C)
  - 2.2dB MAX. (+85°C)
- **5.4 OUT OF BAND REJECTION**
  - $f_o=1,575.42$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, CABLE AND CONNECTOR)
- **6.1 FREQUENCY RANGE**: 1,575.42 +/- 1.023MHz
- **6.2 GAIN**
  - $27 \pm 3$dB (+25°C~ ± 5°C)
  - $27 \pm 4$dB (-40°C~ ± 85°C)
  - (MOUNTED ON THE 65mm x 65mm SQUARE GROUND PLANE)
- **6.3 OUTPUT IMPEDANCE**: 50Ω
- **6.4 VSWR**: 2.0MAX.

### 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=1575MHz) AND POWER CONSUMPTION AT ROOM TEMPERATURE.