

STANDARD PRODUCT SPECIFICATIONS

COMPANY		MATSUSHITA ELECTRIC WORKS,LTD
MODEL		CCAG23ST01
PRODUCT NAME		GPS Antenna device

NOTE: Specification number : GAST04-02

RELEASE

NEW

REVISED

JUL 14 1997

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ELECTRIC
WORKS, LTD.
T P D

July / 14 / 1997

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1. Application:

This application shall apply for an antenna unit which shall be used with an GPS engine

This antenna supposes to be installed on the roof of vehicle.

2. Appearance:

GPS Active Antenna (with Antenna Element,LNA,Shield Case,Connector and Cable)

--- refer to an attached drawing----

3. Operating Condition:

Temperature -30 to +85 deg. C

Humidity 40 to 95 % RH (Below Dew Point)

4. Storage Condition:

Temperature -40 to +85 deg. C

Humidity 40 to 95 % RH (Below Dew Point)

5. Output Terminal:

Connector SMA(SP)

Cable 1.5D-XVS corresponding

6. Electrical Specifications :

* All value are defined at 25 ± 15 deg.C , 65 ± 20 % RH unless otherwise noted.

* Antenna characteristics are measured with a 60 X60 cm ground plane in an anechoic chamber

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6-1-1) Antenna Element (Reference)

Gain	3.0 dBi (Typ.) -10 dBi (Min.)	at elevation angle 90 deg. at elevation angle 0 deg.
Axial Ratio	3 dB (Typ.)	

6-1-2) Filter/LNA (Reference)

Band Width	1575.42 ± 1.023 MHz (Typ.)	
Variation	1.0 dB	(Max.)
Gain	15.0 dB	(Typ.) With 6 m cable
Noise Figure	2.2 dB	(Max.)

6-2) Antenna Overall Characteristic

Polarization	Right hand circular polarization	
Band Width	1575.42 ± 1.023 MHz	
Power Supply	DC 5 ± 0.5 V	
Current	20 mA (Typ.)	27 mA (Max.)
Total Gain	18 ± 5 dBi	With 6m cable.
	Note : 25 ± 5 dBi	Without cable
Output VSWR	2.5	(Max.)

7. Shipping Inspection on performance

All of antenna overall characteristics must be checked by MEW before shipment.

8. Outgoing Inspection

Visual inspection and performance(overall gain and output VSWR) inspection are made in accordance with the Matsushita Product Inspection Standard and the test result are enclosed in the carton box.

****This specification would be changeable without notice.****

<i>K. Tsukamoto</i>
<i>Y. Maeda</i>



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DOCUMENT NAME	Environment Test Condition
PRODUCT NAME	GPS Antenna
TYPE NUMBER	CCAG23ST Series

TEST ITEMS	Test Condition	Evaluation Item
High Temperature Test	The specimens are subject to 80°C for 90 minutes.	Standard Item According to Note 2
Low Temperature Test	The specimens are subject to -30°C for 90 minutes.	Standard Item According to Note 2
Heat Cycle Test	-30°C 2H \leftrightarrow (2H) \leftrightarrow 80°C 2H, 30 cycles, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Heat/Humidity Cycle Test	<p>5 cycle, then stored at standard evaluation condition for 60 +/- 10 minutes.</p>	Standard Item According to Note 2
Thermal Shock Test	-40°C 2H \leftrightarrow (5M) \leftrightarrow 85°C 2H, 30 cycles, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Connector Mating Test	Mating connectors 250 times, then stored at standard test evaluation for more than 30 minutes.	Standard Item According to Note 2
Moisture Resistance Test	The specimens are subject to 60°C, 90% RH for 96 hours, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Water Proofing Test	The specimens are subject to 80°C for 1 hour, then sprays water at more than 600mm/H for 1 hour, then stored at standard evaluation condition for 60 +/- 10 minutes.	Standard Item According to Note 2
Heat/Vibration Cycle Test	Vibration: 33 to 50Hz .15 min. sweep, 1G, for four hours Heat Cycle: -40°C 25M \leftrightarrow (5M) \leftrightarrow 85°C 25M, 4 cycles then stored at standard evaluation condition for more than 2 hours.	Standard Item, According to Note 2
High Temperature Storage Test	The specimens are subject to 85°C for 96 hours, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Low Temperature Storage Test	The specimens are subject to -40°C for 72 hours, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Oil Resistant Test	Dip quarter-folded gauze in oil, then wipe the surface of specimens lightly for more than 5 times to wet throughout; and then stored at standard evaluation condition for 30 to 60 minutes.	Appearance Inspection Only

DOCUMENT NAME	Environment Test Condition	
PRODUCT NAME	GPS Antenna	
TYPE NUMBER	CCAG23ST Series	

TEST ITEMS	Test Condition	Evaluation Item
Weather Resistance Test	The specimens are subject to below conditions (according to JISC) in a sunshine weather meter, then stored at standard evaluation condition for more than 2 hours. Temperature of black panel: 63+/-3°C Rain: 12 minutes/60 minutes Nozzle: φ1mm Water pressure at the nozzle: 0.0 to 1.3kg/ sq. cm Light radiation time: 1200 hours	Standard Item According to Note 2
Salt atmosphere test	Spray 5+/- 1% NaCl solvent (35°C+/-2°C) to the specimens for 16 then stop spraying 0 hours: 20 cycles.	Standard Item According to Note 2
Package drop test	Packaged specimens are dropped on a cement floor from 1 m height in each direction along 6 surfaces, 3 mutually perpendicular and one corner.	Standard Item According to Note 2
High Temperature Test (Operating)	The specimens are subject to DC 6.0V at 80°C for 120 hours, then stored at standard evaluation condition for more than 2 hours.	Standard Item According to Note 2
Low Temperature Test (Operation)	The specimens are subject to DC 4.5V at -30°C for 72 hours, then stored at standard evaluation condition for more than 2 hours.	Standard Item, According to Note 2
Long Time Operating Test	The specimens are subject to DC5V for more than 1,000 hrs, then stored at standard evaluation condition.	Standard Item According to Note 2
Static Electricity Resistance Test	Adding +/- 10kV to every touchable place at 10 times, then stored at standard evaluation condition.	Standard Item According to Note 2

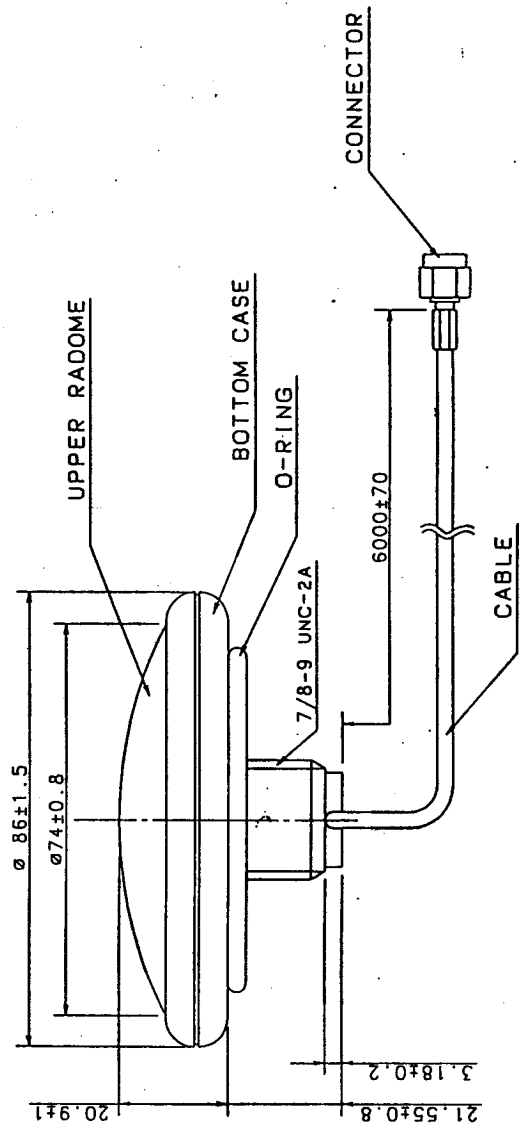
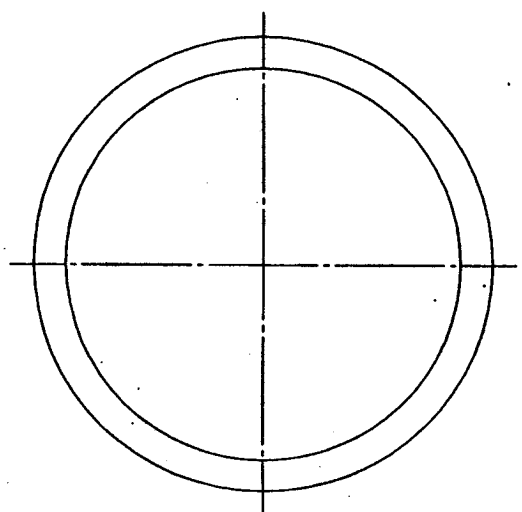
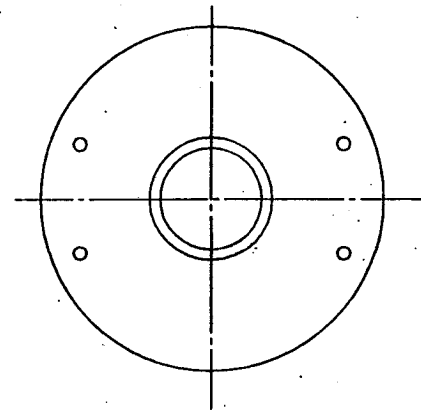
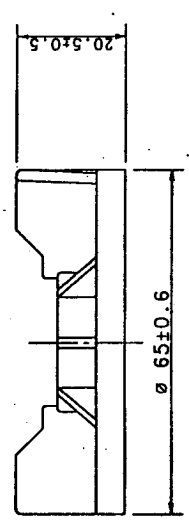
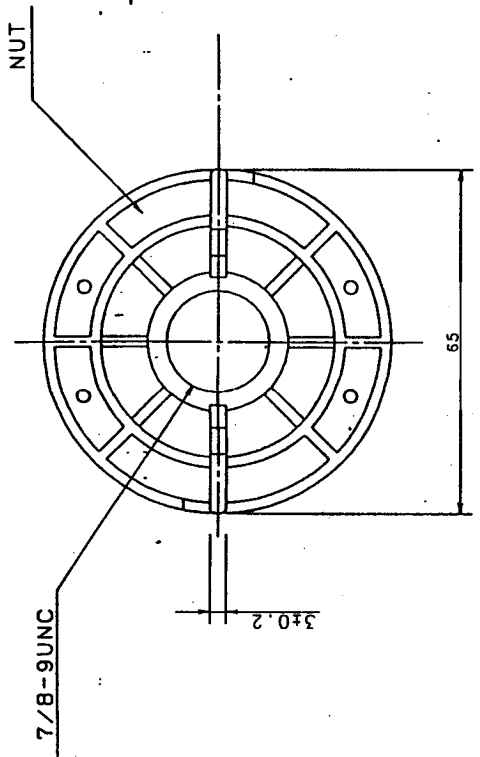
Note 1: Standard evaluation condition

Temperature: 25+/-15°C

Humidity: 65+/-20% RH

Note 2: Standard evaluation items

- Appearance...
- Gain
- VSWR
- Electric Power Consumption



Unit:mm

Date	Specification number	Product	Tolerance	Scale
5.12.1997		GPS Antenna		1:1
Approval	Check	Design	Drawing number	
<i>K. Tsubota</i>		<i>T. Furuta</i>	CCAG235T01-B01	
		<i>Y. Maeda</i>		