PERFORMANCE SPECIFICATIONS

GPS RECEIVING UNIT

MODEL   CCA-55 JZ1

Feb.7, 2006

[JRC] *Japan Radio Co., Ltd.*

INDEX

1. COMPONENTS LIST

Item	Type	Qty	Remarks
Receiving Unit	CCA-552JZ1	1	

2. RECEIVING UNIT SPECIFICATIONS

2.1 GENERAL

Receiving Method:	Multi-channel (Receiving: 12channels,
	SBAS Receiving: 1channel,
	Special search: 1channel)
Receiving Frequency:	1575.42MHz (L1), C/A code
Sensitivity: cquisition:	-135dBm (at NAY-3700S5 antenna receiving level)
Re-acquisition:	-138dBm (at NAY-3700S5 antenna receiving level)
Tracking:	-150dBm (at NAY-3700S5 antenna receiving level)

Dynamic Range: 25dB
Fixing Method: ALL IN VIEW
DATUM: WGS-84 (default, 46 datums selectable)
Accuracy
   Alone   GPS System Accuracy
      Position: 10m 2dRMS   (SA off, PDOP=2.5, HDOP=1.5)
      Speed: 0.04m/sec. RMS   (SA off, PDOP=2.5, HDOP=1.5)
      Course: 0.14° (SA off, speed = 60km/h, PDOP=2.5, HDOP=1.5)
   DGPS
      Position: m 2dRMS (example)
   SBAS
      Position: 9m 2dRMS (example)
Dynamic Capability
   Maximum Velocity: 200km/h
   Maximum Acceleration: $19.6m/s^2$
Time To First Fix (no signal loss)
   HOT START: 8sec. typical
   WARM START: 33sec. typical
   COLD START: 40sec. typical
Re-acquisition Time: 3sec. (within 5 sec. block out)
DGPS Capability: RTCM SC-104 version 2.1, 1200bps (Type 1,2,9)
Position Fix Data Output Rate: 1sec.
SBAS Performance:
   Differential Correction   Valid
   Ranging   Invalid
   Integrity   Invalid
Data I/O
   Interface: CMOS level (3.3V)
      Output: TXD0 4800bps (Position Data Output)
      Input: RXD0 4800bps (Initial Setting Data Input)
                  RXD1 1200bps (DGPS Correction Data Input)
   Data Output Format: NMEA Format 2.28A
Power Requirements
   Main Power: Vcc: +3.3Vdc± 5%, 100mVp-p ripple (max.)
      Consumption Current: Icc: 88mA typical (+3.3Vdc, 25   , except for antenna)
                  100mA max. (+3.3Vdc, 25   , except for antenna)
                  105mA max. (+3.465Vdc, 70   , except for antenna)
   Backup Power (SRAM&RTC):   Vbu: +2.2 to Vcc Vdc
      Consumption Current: Ibu: 5μ A typical (+3.3Vdc, 25   )
                  50μ A max. (+3.465Vdc, 70   )
   Input Power for Active Antenna: Vant: +3.0 to +5.25Vdc
      Consumption Current: Iant: 5 to 30mA
Incorporated Battery: No

Connectors
  RF Connector: UM-QPJ-FHSB-1(70) (Hirose)
  I/O Connector: MA44-10PA-SH(70) (Hirose)
Size: 19mm(H)× 27mm(W)× 7.5mm(D)
Weight: 8g (approx.)
Temperature
  Operating: -30 to +70
  Storage: -40 to +85

2.2 I/O CONNECTOR PIN FUNCTIONS

PIN No.	PIN NAME	DESCRIPTION	PARAMETER	TEST CONDITIONS	VALUE			UNIT
					MIN.	TYP.	MAX.	
2	PPS	PPS Output	Output Level High (V_{OH})	I_{OH}=-8mA	V_{CC}-0.4		Vcc	V
			Output Level Low (V_{OL})	I_{OL}=8mA			+0.4	
3	Vbu	Backup Power Input	Supply Voltage (Vbu)	Vbu　Vcc	+2.2	+3.3	Vcc	Vdc
			Supply Current (Ibu)	Vbu=+3.3V, 25		5		μA
				Vbu=+3.465V, 70			50	
4	TXD0	Position Data Output	Output Level High (V_{OH})	I_{OH}=-8mA	V_{CC}-0.4		Vcc	V
			Output Level Low (V_{OL})	I_{OL}=8mA			+0.4	
5	RXD0	Initial Setting Data Input	Input Level High (V_{IH})		2		V_{CC}+0.3	V
			Input Level Low (V_{IL})		-0.3		0.8	
6	Vcc	Main Power Input	Supply Voltage (Vcc)		+3.135	+3.3	+3.465	Vdc
			Supply Current (Icc)	Vcc=+3.3V, 25		88	100	mA
				Vcc=+3.465V, 70			105	
7	Vant	Active Antenna Power Input	Supply Voltage (Vant)		+3.0		+5.25	Vdc
			Supply Current (Iant)		5		30	A
8	RXD1	DGPS Correction Data Input	Input Level High (V_{IH})		2		V_{CC}+0.3	V
			Input Level Low (V_{IL})		-0.3		0.8	
10	GND	Ground						

Pin No.1 and No.9 shall be left open.

2.3 RF CONNECTOR

NAME		PARAMETER	VALUE		UNIT	REMARKS
			MIN	MAX		
RF CON-NECTOR	AC	Nominal Impedance	50			
		VSWR		2.2		@f=1575.42± 1MHz

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2.4 CSF(Cold Start Fix) Starting Term

1)When a RAM error is detected in the RAM pattern check that has been conducted at powering on.
2)When an RTC read error is detected.
3)When power has been turned on and off in the patter shown in Figure.
4)When the CSF start command is used for turning the CSF on.
5)When the Fail-safe function have detected an abnormal state of the GPS receiver.

** Fail-safe function **
If the non-positioning state continues for ten minutes, one of 13 channels is assigned to PCSF (Partial Cold Start Fix) function, and other than satellites can be searched. If GPS receiver detected an abnormal state during PCSF operation, this is regarded as an impossible event, and the CSF is started.

t1,t2>3sec.(5+/-2 seconds is recommended)
10 times of powering on has been repeated within 120 seconds.
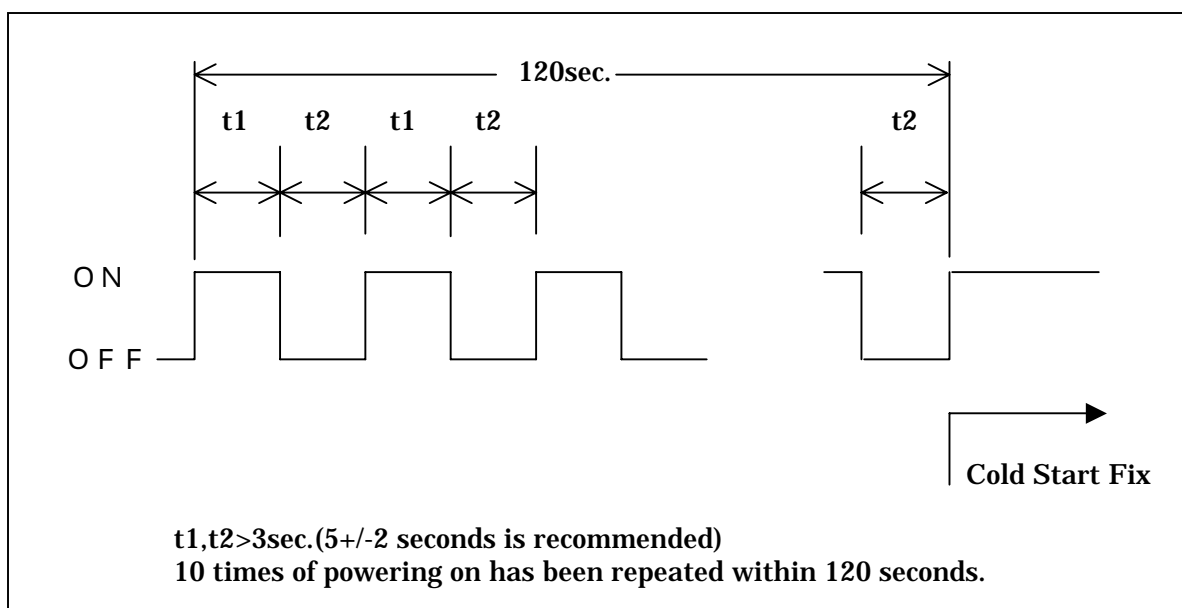
When the CSF has started, latitude, longitude and altitude and control parameters (DATUM, Smoothing level, output format, etc) will be reset to indicate the default values, and time data will be also reset to indicate "00 (Y) 1(M) 1(D) 00 (H) 00 (MIN) 00 (SEC)".
Therefore, when you use the GPS receiver at different values of the parameter from the default value, you need to reset your values again.
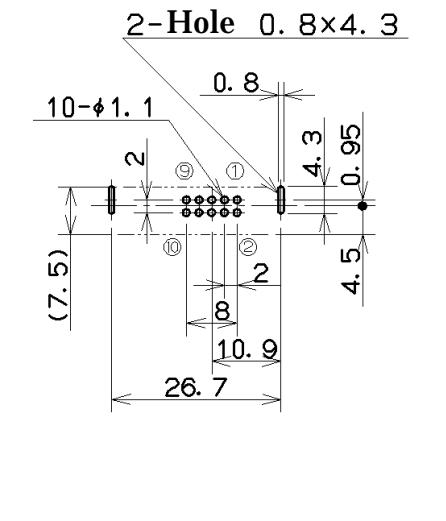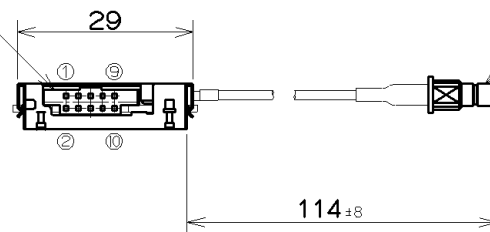
2.5　OUTLINE DRAWINGS

A（S=5:1）
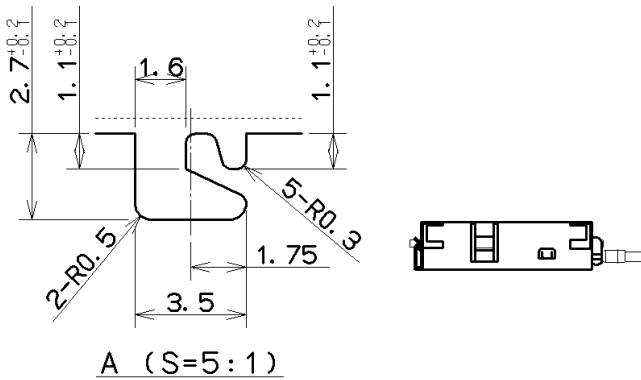
Tolerance	
Classification	Tolerance
0　to　30	± 1
Over 30　to　120	± 1.5
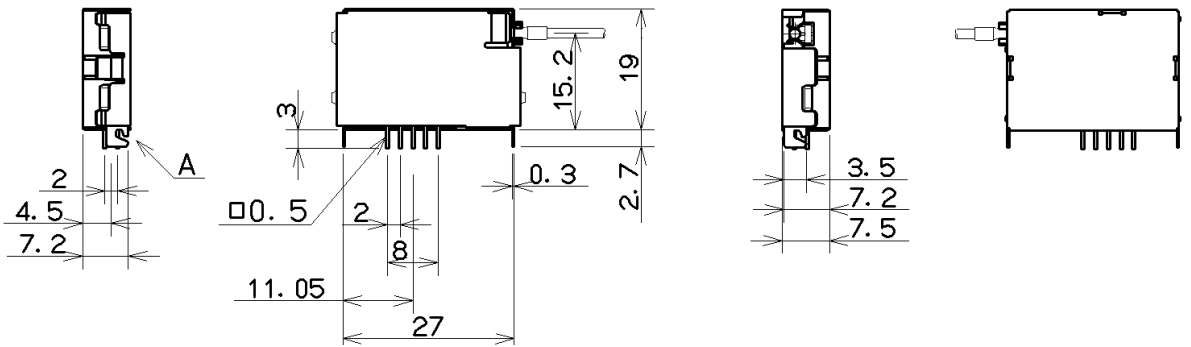
I/O CONNECTOR
MA44-10PA-SH(70)

UM CONNECTOR
UM-QPJ-FHSB-1(70)

2-Hole 0.8×4.3

10-φ1.1

I/O Connector Pin

Pin No.	Pin NAME
1	
2	PPS
3	VBU
4	TXD0
5	RXD0
6	VCC
7	VANT
8	RXD1
9	
10	GND

Unit : mm

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3   RECOMMENDED ANTENNA

Recommended Antenna: NAY-3700S5
  Type: Active
  Overall Performance (Antenna+LNA+Cable)
    Gain: 16dBi min. (Elevation=90 Degrees,-30   +85   )
    Output Impedance: 50
    VSWR: 2.0 max.
    Power Source: 3.0± 0.3V
    Current consumption: Less 17mA
    RF Connector: SMB   Plug
  Antenna Part[Following specification in defined in case the Gound plane(65mm× 65mm) is fitted]
    Gain Coverage: 2 dBi min. (Elevation=90 Degrees)
                                     -5dBi min. (Elevation=10 Degrees)
    Polarization: RHCP
    Axial Ratio: 4.0dB max. (Elevation=90 Degrees)
  Low Noise Amplifier (LNA) Part
    Power Gain: 20dB min.(-30   +85   ),Exclude cable loss
    Noise Figure: 2.0 dB max.(-30   +85   )
    Receiving Frequency width: 1575.42± 1.023MHz
    Out of Band Rejection: 20dB min.(at 1575.42MHz± 50MHz)
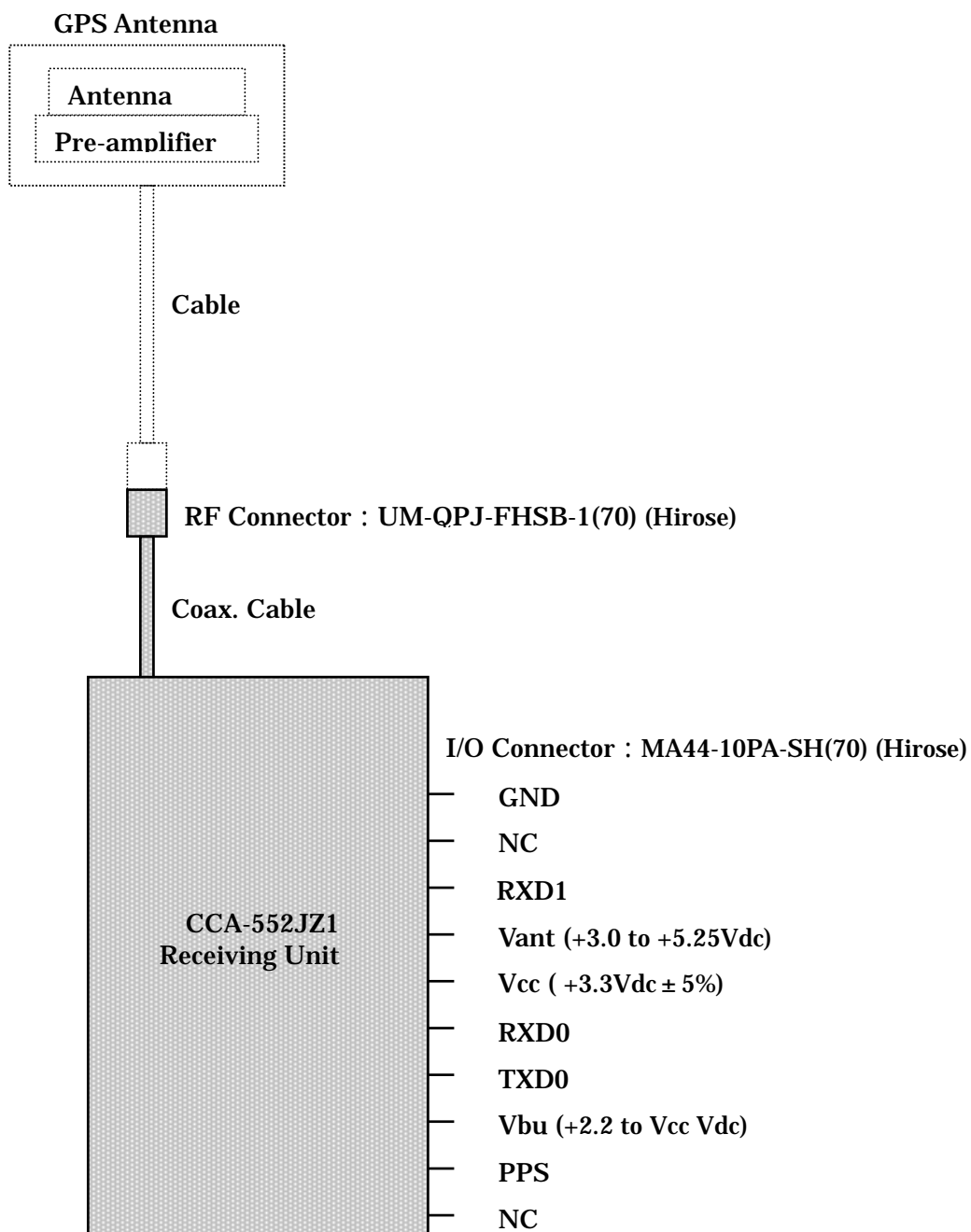 Cable: 1.5D Coax. Cable , 5m long
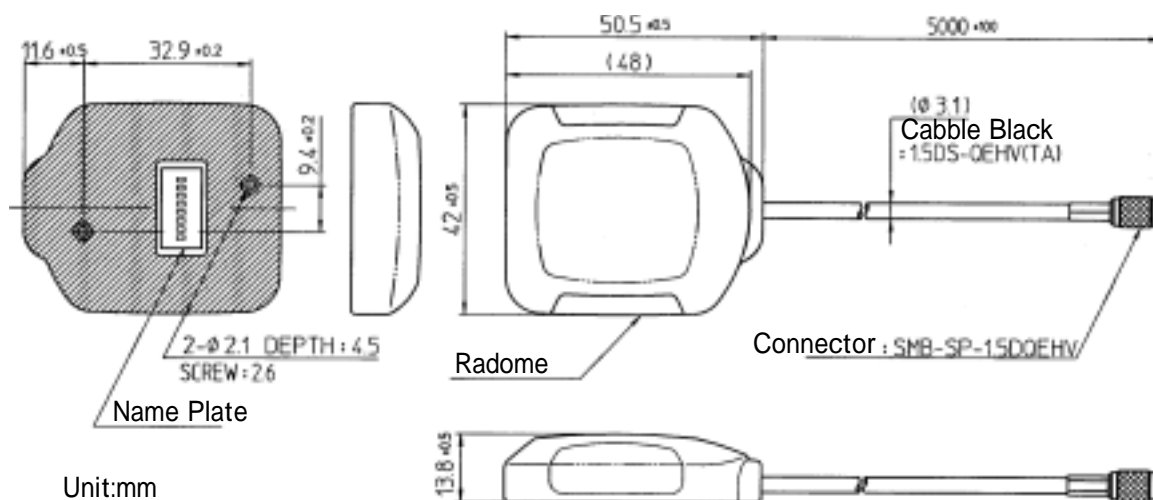
Unit:mm

Tolerance
  (Unless overwise specified):± 0.3

NAY-3700S5   OUTLINE DRAWINGS

4   WIRING DIAGRAM

GPS Antenna

Antenna

Pre-amplifier

Cable

RF Connector   UM-QPJ-FHSB-1(70) (Hirose)

Coax. Cable

CCA-552JZ1
Receiving Unit

I/O Connector   MA44-10PA-SH(70) (Hirose)

— GND

— NC

— RXD1

— Vant (+3.0 to +5.25Vdc)

— Vcc (+3.3Vdc± 5%)

— RXD0

— TXD0

— Vbu (+2.2 to Vcc Vdc)

— PPS

— NC

Pin #   and   shall be left open.

5   NOTICE FOR HANDLING

5.1 Maximum Rating
Do not use over maximum rating because if use over maximum rating it is doubt become the fault.

1)Power Voltage :Vcc
Maximum voltage
It is regulated maximum voltage which conpermit input voltage between input terminal and GND.
Once over the maximum voltage is inputted, it is become the reason of faulty.

2)Input Voltage
It is regulated maximum voltage to input terminal.
Once over the maximum voltage is inputted, it is become the reason of faulty.

3)Operating Temperature
It is the temperature rang which can have a guarantee for operating corestly.
Once over the temperature rang it is become the reason of faulty or it is doubt that can not have the satisfy of the function of GPS.

4)Storage   Temperature
It is the temperature range which unit is strong in case storage   temperature is over this   temperature rang, it is become the reason of faulty or it can not have a satisfy of the function.

5.2 Caution for Installation
In case handle with this unit, be careful against a static electricity.
It is not that unit will be damaged by a static electricity.
Specially, handle with I/O connector, be careful against a static electricity.

Do not touch the RF connector and I/O connector dirty with hand.

5.3 Notice for Storage
1) Do not storage the place where corrosion gas will be generated or exist many dusts.

2) Do not storage the place where temperature rang will be change widely because the dewdrop will be formed therefor.

5.4 Transportation
1) Do not throw,do not drop,otherwise unit itself will be damaged.

2) Protect from water,when transport in the rain/snow,protect from them.

5.5 Overcurrent Protection
GPS Receiving Unit dose not have a fuse for overcurrent protect.
Please put a fuse for overcurrent protect in your system because the prevention of danger.