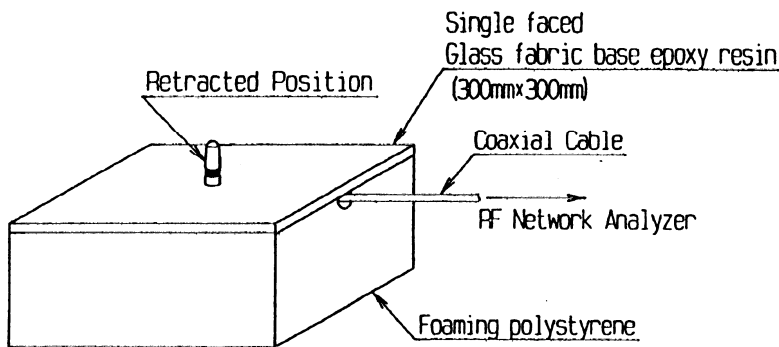


Retractable Antenna Performance

1. Description : Retractable whip type hand portable Cellular antenna
2. Your Part Number : 1AD4L90A04324
3. Model Name : SA4324
4. Appearance and Architecture : As on Outside appearance drawing(N8-S122-H02)  
To have no remarkable damage to outside appearance  
-ce such like Scratch, Dirt or plating.

5. Electrical Characteristics

- 5-1. Contact Resistance :
  - Extended position, Holder-Stopper : MAX. 3 Ω
  - Retracted position, Holder-Top plug: MAX. 3 Ω
- 5-2. VSWR : To have Resonance of Return loss Max -3dB at condition of Antenna retracted within frequency of 934 MHz(+40, -20), when attached to 300mm×300m earth plate.



N 8 - S 1 2 2 - M 0 2 E

APPROVED	INSPECTED	DESIGN
<i>H. Makino</i>	<i>T. Tokunaga</i>	<i>J. Kubota</i>
24. SEP. '99	24/9/99	24/9/99



**NIPPON ANTENNA**

6. Mechanical Characteristics

6-1. Extension and Retraction Initial Force :

Holder-Top plug:200-620 gf. (Nippon Antenna insection:200~600 gf)  
 Holder-Stopper :200-620 gf. (Nippon Antenna insection:200~600 gf)  
 After initial inspection to be 100~620 gf.

6-2. Extension and Retraction Force (Endurance)

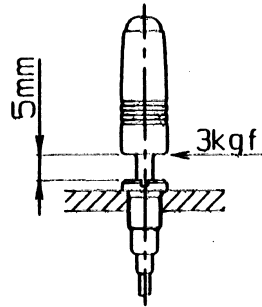
To be MIN.100gf after 10,000 cycles at 30 times/Minute

6-3. Pulling Force :

Element not to come off after adding 10 kgf for 10 seconds to direction of axial, under condition of the element To satisfy 5-2 and 6-1.

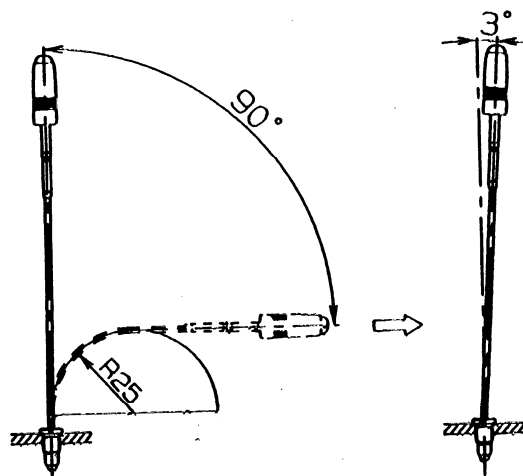
6-4. Break Strength :

Top part and Top plug not to break after 3 Kgf for 5 seconds to the Top bottom part at direction of 90° against element axial, under condition of the holder fixed and Top part extended 5 mm from the holder surface.  
 Bend to be allowed.



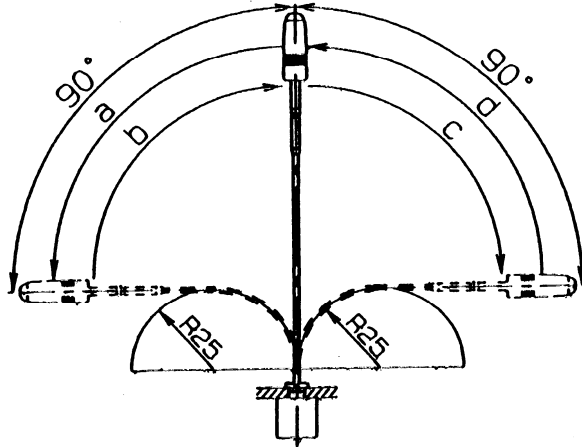
6.5. Bending Force:

Bend to be MAX. 3° after returned by itself , under condition of force the Top and give a 90° bend against a R25 cylinder, element extended and holder fixed.



6-6. Anti-Cleep Age Performance :

To be no break after following condition.  
 Bend 90° left and by hand to R25 cylinder, holder fixed.  
 1,000 cycles, 1 cycle to be (a-b-c-d) at speed of 20 cycle/Minute.  
 Bending deformation of element allowed.



6-7. Shock Resistance :

5-2 and 6-1 to be satisfied after spontaneous drop from 150 cm high to concrete floor under the condition of Antenna fully retracted, dropped from Antenna top and fixed to your specified body.  
 Drop and Break of Cap not allowed. But Scratch, Whitening, bruises of Top part and Bendind of Top plug allowed.

6-8. Holder Strength :

Not to break after putting 8kgfcm of fixing force to your body.

7. Environmental Resistance

7-1. Vibration Resistane :

5-2 and 6-1 to be satisfied after 5-150 Hz of vibration test to 3 directions under the condition  
 Antenna fully retracted  
 Acceleration : 3G constant.  
 Sweep : 20 minutes.

7-2. Humidity Resistance :

5-2 and 6-1 to be satisfied after humidity test Antenna fully retracted and under following condition.  
 Leave for 96 hours under condition of 40±2℃, 90-95% then leave for 2 hours at room temperature after removing moisture.



**7-3. Working Temperature :**

5-2 and 6-1 to be satisfied after left for 1-2 hours at  $-30^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$  for Working temperature.  
(Heat resistance/Cold resistance working.)

**7-4. Storage Temperature :**

No be no permanent abnormality or deformation at  $-40 - +85^{\circ}\text{C}$ .  
But Bending of element on condition of Antenna fully retracted, fixed to your specified body to be allowed.

**7-5. High temperature withstand :**

5-2 and 6-1 to be satisfied after left at  $+85^{\circ}\text{C}$  for 96 hours, than 2 hours in room temperature.  
To be permanent abnormality or deformation.

**7-6. Low temperature withstand :**

5-2 and 6-1 to be satisfied after left at  $-40^{\circ}\text{C}$  for 96 hours, than 2 hours in room temperature.  
To be permanent abnormality or deformation.

**7-7. Temperature cycle :**

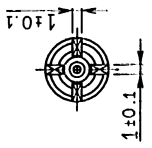
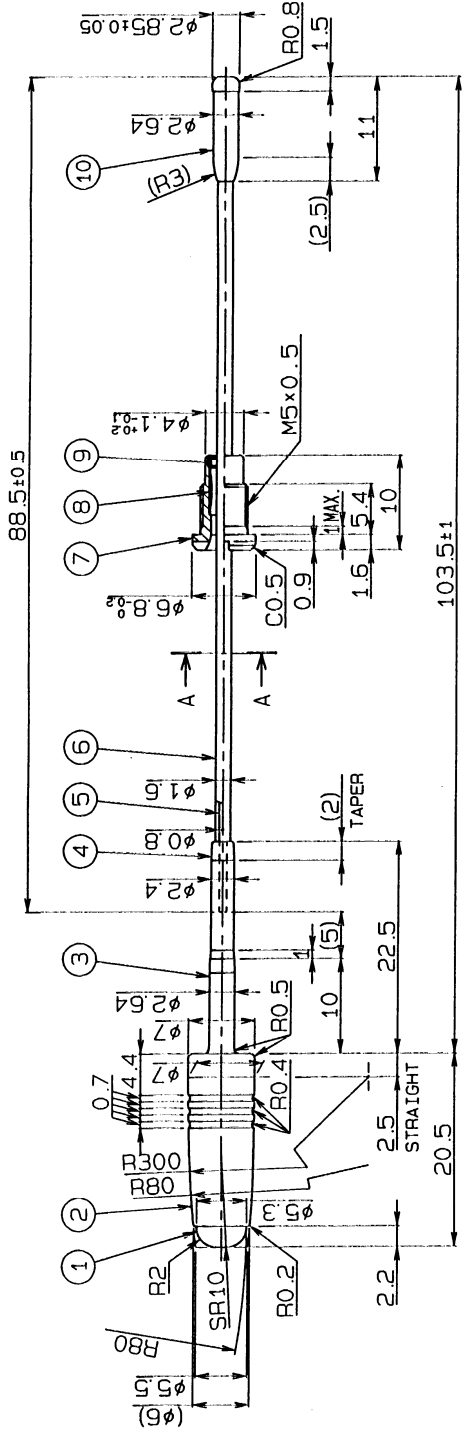
5-2 and 6-1 to be satisfied after 20 cycles at 1 cycle condition of  $-40^{\circ}\text{C}$  / 30 minutes at  $+85^{\circ}\text{C}$  be 30 minutes, than left 2 hours in room temperature.  
To be no permanent abnormality or deformation.



図面を製図しない事

DO NOT SCALE DRAWING

形式 SA4324



A - A

NOTES  
 1. TOLERANCE NOT SPECIFIED TO BE  $\pm 0.2$   
 2. SCREW PART TO PASS 2ND GRADE SCREW GAUGE

ITEM	DESCRIPTION	QUANTITY	INSPECTED	MATERIAL	TREATMENT	APPROVED	PART DRAWING NO.	NOTE
10	STOPPER	1		ALUMINIUM-MACr				
9	HOLDER RING	1		BRASS · MBN1				
8	DRUM SPRING	1		BRASS				
7	HOLDER	1		ALUMINIUM-MACr				
6	TUBE	1		PBT				BLACK
5	ELEMENT	1		Ni-Ti				
4	JOINT	1		NYLON				BLACK
3	TOP PLUG	1		BRASS · MBCr				
2	TOP	1		ABS				OC-P0125 (BLUE)
1	CAP	1		ABS · MPCr				

SCALE	DESIGNED	DRAWN	INSPECTED	APPROVED	DESCRIPTION
R 2:1	田中 浩吉	田中 浩吉	田中 浩吉	田中 浩吉	OUTSIDE APPEARANCE DRAWING
DIM	DATE	DATE	DATE	DATE	
	2019.1.29	2019.1.29	2019.1.29	2019.1.29	

公差	公差	公差	公差	公差
±0.05	±0.10	±0.15	±0.20	±0.30
±0.40	±0.50	±0.60	±0.70	±0.80
±0.90	±1.00	±1.10	±1.20	±1.30
±1.40	±1.50	±1.60	±1.70	±1.80
±1.90	±2.00	±2.10	±2.20	±2.30
±2.40	±2.50	±2.60	±2.70	±2.80
±2.90	±3.00	±3.10	±3.20	±3.30
±3.40	±3.50	±3.60	±3.70	±3.80
±3.90	±4.00	±4.10	±4.20	±4.30
±4.40	±4.50	±4.60	±4.70	±4.80
±4.90	±5.00	±5.10	±5.20	±5.30
±5.40	±5.50	±5.60	±5.70	±5.80
±5.90	±6.00	±6.10	±6.20	±6.30
±6.40	±6.50	±6.60	±6.70	±6.80
±6.90	±7.00	±7.10	±7.20	±7.30
±7.40	±7.50	±7.60	±7.70	±7.80
±7.90	±8.00	±8.10	±8.20	±8.30
±8.40	±8.50	±8.60	±8.70	±8.80
±8.90	±9.00	±9.10	±9.20	±9.30
±9.40	±9.50	±9.60	±9.70	±9.80
±9.90	±10.00	±10.10	±10.20	±10.30
±10.40	±10.50	±10.60	±10.70	±10.80
±10.90	±11.00	±11.10	±11.20	±11.30
±11.40	±11.50	±11.60	±11.70	±11.80
±11.90	±12.00	±12.10	±12.20	±12.30
±12.40	±12.50	±12.60	±12.70	±12.80
±12.90	±13.00	±13.10	±13.20	±13.30
±13.40	±13.50	±13.60	±13.70	±13.80
±13.90	±14.00	±14.10	±14.20	±14.30
±14.40	±14.50	±14.60	±14.70	±14.80
±14.90	±15.00	±15.10	±15.20	±15.30
±15.40	±15.50	±15.60	±15.70	±15.80
±15.90	±16.00	±16.10	±16.20	±16.30
±16.40	±16.50	±16.60	±16.70	±16.80
±16.90	±17.00	±17.10	±17.20	±17.30
±17.40	±17.50	±17.60	±17.70	±17.80
±17.90	±18.00	±18.10	±18.20	±18.30
±18.40	±18.50	±18.60	±18.70	±18.80
±18.90	±19.00	±19.10	±19.20	±19.30
±19.40	±19.50	±19.60	±19.70	±19.80
±19.90	±20.00	±20.10	±20.20	±20.30
±20.40	±20.50	±20.60	±20.70	±20.80
±20.90	±21.00	±21.10	±21.20	±21.30
±21.40	±21.50	±21.60	±21.70	±21.80
±21.90	±22.00	±22.10	±22.20	±22.30
±22.40	±22.50	±22.60	±22.70	±22.80
±22.90	±23.00	±23.10	±23.20	±23.30
±23.40	±23.50	±23.60	±23.70	±23.80
±23.90	±24.00	±24.10	±24.20	±24.30
±24.40	±24.50	±24.60	±24.70	±24.80
±24.90	±25.00	±25.10	±25.20	±25.30
±25.40	±25.50	±25.60	±25.70	±25.80
±25.90	±26.00	±26.10	±26.20	±26.30
±26.40	±26.50	±26.60	±26.70	±26.80
±26.90	±27.00	±27.10	±27.20	±27.30
±27.40	±27.50	±27.60	±27.70	±27.80
±27.90	±28.00	±28.10	±28.20	±28.30
±28.40	±28.50	±28.60	±28.70	±28.80
±28.90	±29.00	±29.10	±29.20	±29.30
±29.40	±29.50	±29.60	±29.70	±29.80
±29.90	±30.00	±30.10	±30.20	±30.30
±30.40	±30.50	±30.60	±30.70	±30.80
±30.90	±31.00	±31.10	±31.20	±31.30
±31.40	±31.50	±31.60	±31.70	±31.80
±31.90	±32.00	±32.10	±32.20	±32.30
±32.40	±32.50	±32.60	±32.70	±32.80
±32.90	±33.00	±33.10	±33.20	±33.30
±33.40	±33.50	±33.60	±33.70	±33.80
±33.90	±34.00	±34.10	±34.20	±34.30
±34.40	±34.50	±34.60	±34.70	±34.80
±34.90	±35.00	±35.10	±35.20	±35.30
±35.40	±35.50	±35.60	±35.70	±35.80
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±36.40	±36.50	±36.60	±36.70	±36.80
±36.90	±37.00	±37.10	±37.20	±37.30
±37.40	±37.50	±37.60	±37.70	±37.80
±37.90	±38.00	±38.10	±38.20	±38.30
±38.40	±38.50	±38.60	±38.70	±38.80
±38.90	±39.00	±39.10	±39.20	±39.30
±39.40	±39.50	±39.60	±39.70	±39.80
±39.90	±40.00	±40.10	±40.20	±40.30
±40.40	±40.50	±40.60	±40.70	±40.80
±40.90	±41.00	±41.10	±41.20	±41.30
±41.40	±41.50	±41.60	±41.70	±41.80
±41.90	±42.00	±42.10	±42.20	±42.30
±42.40	±42.50	±42.60	±42.70	±42.80
±42.90	±43.00	±43.10	±43.20	±43.30
±43.40	±43.50	±43.60	±43.70	±43.80
±43.90	±44.00	±44.10	±44.20	±44.30
±44.40	±44.50	±44.60	±44.70	±44.80
±44.90	±45.00	±45.10	±45.20	±45.30
±45.40	±45.50	±45.60	±45.70	±45.80
±45.90	±46.00	±46.10	±46.20	±46.30
±46.40	±46.50	±46.60	±46.70	±46.80
±46.90	±47.00	±47.10	±47.20	±47.30
±47.40	±47.50	±47.60	±47.70	±47.80
±47.90	±48.00	±48.10	±48.20	±48.30
±48.40	±48.50	±48.60	±48.70	±48.80
±48.90	±49.00	±49.10	±49.20	±49.30
±49.40	±49.50	±49.60	±49.70	±49.80
±49.90	±50.00	±50.10	±50.20	±50.30
±50.40	±50.50	±50.60	±50.70	±50.80
±50.90	±51.00	±51.10	±51.20	±51.30
±51.40	±51.50	±51.60	±51.70	±51.80
±51.90	±52.00	±52.10	±52.20	±52.30
±52.40	±52.50	±52.60	±52.70	±52.80
±52.90	±53.00	±53.10	±53.20	±53.30
±53.40	±53.50	±53.60	±53.70	±53.80
±53.90	±54.00	±54.10	±54.20	±54.30
±54.40	±54.50	±54.60	±54.70	±54.80
±54.90	±55.00	±55.10	±55.20	±55.30
±55.40	±55.50	±55.60	±55.70	±55.80
±55.90	±56.00	±56.10	±56.20	±56.30
±56.40	±56.50	±56.60	±56.70	±56.80
±56.90	±57.00	±57.10	±57.20	±57.30
±57.40	±57.50	±57.60	±57.70	±57.80
±57.90	±58.00	±58.10	±58.20	±58.30
±58.40	±58.50	±58.60	±58.70	±58.80
±58.90	±59.00	±59.10	±59.20	±59.30
±59.40	±59.50	±59.60	±59.70	±59.80
±59.90	±60.00	±60.10	±60.20	±60.30
±60.40	±60.50	±60.60	±60.70	±60.80
±60.90	±61.00	±61.10	±61.20	±61.30
±61.40	±61.50	±61.60	±61.70	±61.80
±61.90	±62.00	±62.10	±62.20	±62.30
±62.40	±62.50	±62.60	±62.70	±62.80
±62.90	±63.00	±63.10	±63.20	±63.30
±63.40	±63.50	±63.60	±63.70	±63.80
±63.90	±64.00	±64.10	±64.20	±64.30
±64.40	±64.50	±64.60	±64.70	±64.80
±64.90	±65.00	±65.10	±65.20	±65.30
±65.40	±65.50	±65.60	±65.70	±65.80
±65.90	±66.00	±66.10	±66.20	±66.30
±66.40	±66.50	±66.60	±66.70	±66.80
±66.90	±67.00	±67.10	±67.20	±67.30
±67.40	±67.50	±67.60	±67.70	±67.80
±67.90	±68.00	±68.10	±68.20	±68.30
±68.40	±68.50	±68.60	±68.70	±68.80
±68.90	±69.00	±69.10	±69.20	±69.30
±69.40	±69.50	±69.60	±69.70	±69.80
±69.90	±70.00	±70.10	±70.20	±70.30
±70.40	±70.50	±70.60	±70.70	±70.80
±70.90	±71.00	±71.10	±71.20	±71.30
±71.40	±71.50	±71.60	±71.70	±71.80
±71.90	±72.00	±72.10	±72.20	±72.30
±72.40	±72.50	±72.60	±72.70	±72.80
±72.90	±73.00	±73.10	±73.20	±73.30
±73.40	±73.50	±73.60	±73.70	±73.80
±73.90	±74.00	±74.10	±74.20	±74.30
±74.40	±74.50	±74.60	±74.70	±74.80
±74.90	±75.00	±75.10	±75.20	±75.30
±75.40	±75.50	±75.60	±75.70	±75.80
±75.90	±76.00	±76.10	±76.20	±76.30
±76.40	±76.50	±76.60	±76.70	±76.80
±76.90	±77.00	±77.10	±77.20	±77.30
±77.40	±77.50	±77.60	±77.70	±77.80
±77.90	±78.00	±78.10	±78.20	±78.30
±78.40	±78.50	±78.60	±78.70	±78.80
±78.90	±79.00	±79.10	±79.20	±79.30
±79.40	±79.50	±79.60	±79.70	±79.80
±79.90	±80.00	±80.10	±80.20	±80.30
±80.40	±80.50</			

### Antenna Gain (Peak Value)

	Extended (Whip)	Retracted (Helical)
CDMA	+0.4	-1.7

(Unit:dBd)