

Retractable Antenna Performance

- 1. Description : Retractable whip type hand portable Cellular antenna
- 2. Your Part Number : IAV4L90B0521N
- 3. Model Name : SA521N
- 4. Appearance and Architecture : As on drawing.
There should be no damage on outside appearance such as scratch, dirt or plating at the beginning.

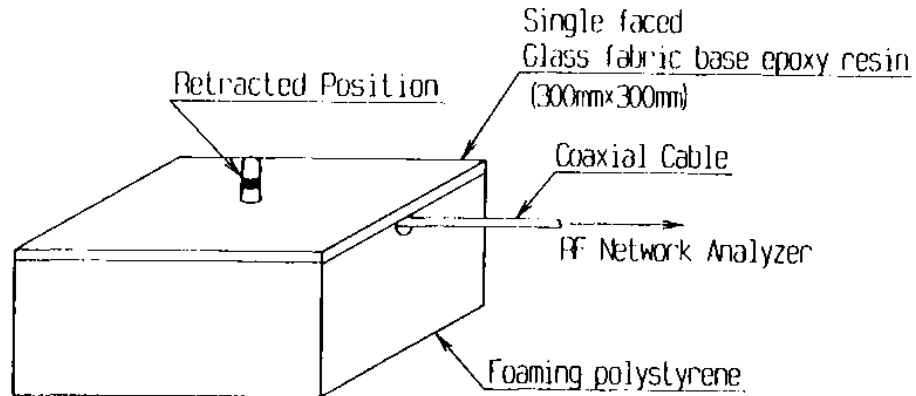
5. Electrical Characteristics

5-1. Contact Resistance :
 Extended position, Holder-Stopper : MAX. 1Ω
 Retracted position, Holder-Top plug: MAX. 1Ω

5-2. Operating Frequency Range : 824 - 894 MHz(Fre.1)
 1850 - 1990 MHz(Fre.2)

5-3. VSWR : Within operating frequency, fixed to requested body.
 Within Fre.1
 Extended position MAX. 2.5
 Retracted position MAX. 4.5
 Within Fre.2
 Extended position MAX. 2.5
 Retracted position MAX. 3.5

Dispatch inspection will be as following.
 Resonant frequency to be within 865 ± 20 MHz and return loss should be MIN. -2dB in resonant frequency when the antenna is retracted and mounted to 300x300 mm earth plate.



N 8 - S 1 2 6 - M 0 0 E

| APPROVED | INSPECTED | DESIGN |
|----------|---------------------------|------------------------------------|
| | <i>y. Izumi</i> 7/5/99 | <i>M. Shimabara</i> 7. May. '99 |



6. Mechanical Characteristics

6-1. Extension and Retraction Initial Force :

Holder-Top plug:200 620 gf. It will be 200 600 gf at dispatch inspection.
Holder-Stopper :200 620 gf. It will be 200 600 gf at dispatch inspection.
It will be 100 600 gf after the test.

6-2. Extension and Retraction Force of Antenna Element :

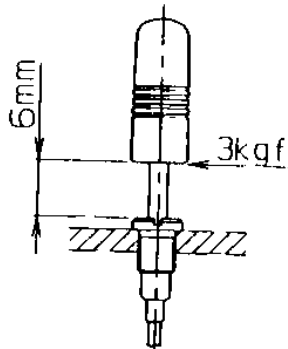
After 10,000 cycles at 30 times/min : MIN.100gf

6-3. Pulling Force :

10 kgf of pulling force to be added for 10 seconds for the direction of axial under condition of antenna element fully extended.
After the test,5-3 and 6-1 to be satisfied.

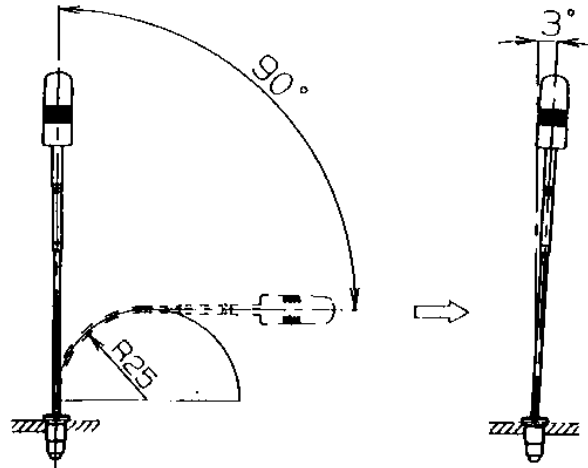
6-4. Break Strength :

Fix the holder and pull out the top part of the antenna 6 mm from the holder surface.
On this condition put 3 kgf force against the antenna element vertical axis for 5 seconds.
Top part and Top plug must not break. But bending to be allowed.



6-5. Bending Force :

MAX. 3 degree of bending deformation is accepted when antenna element is rolled on 25 mm radial of cylinder and bent to direction of 90 degrees, and return by itself under condition of antenna element fully extended as following.



6-6. Anti-Creep Age Performance :

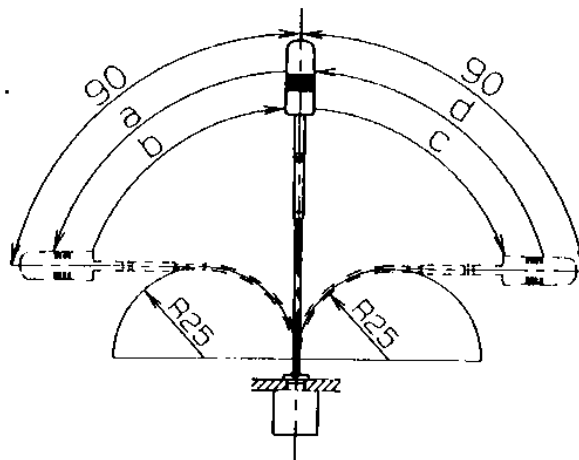
No creep to be found after 1,000 cycles of bending test under condition of following.

But bending deformation is accepted. Roll the antenna element on 25 mm radial cylinder

and bend the antenna to direction of 90 degrees each of right and left.

One cycle is a-b-c-d,

and operation cycle is 20 cycles/min.



6-7. Shock Resistance :

5-3 and 6-1 to be satisfied after spontaneous drop from 150 cm high to concrete floor under the condition of antenna element fully retracted with upside down position. Top part scratch, whitening, bruises and bending of top plug to be accepted. This is on the assumption that your body is ***kg.

6-8. Holder Strength :

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

6-9. Rotary Holding Power of Collet Spring :

Insert stopper at the holder and rotate, collet spring must not rotate against the holder.

7. Environmental Resistance**7-1. Vibration Resistance :**

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

7-2. Humidity Resistance :

5-3 and 6-1 to be satisfied after humidity test under condition of antenna element fully retracted also the following.
Leave for 96 hours under condition of $40 \pm 2^\circ\text{C}$, 90-95% then leave for 2 hours. at room temperature after removing moisture.

7-3. Working Temperature :

5-3 and 6-1 to be satisfied as follow.
Leave for 1-2 hours under condition of -30°C and $+60^\circ\text{C}$.

7-4. Survival Temperature :

No permanent deformation is required under $-40 - +85^\circ\text{C}$.
Bending of element to be allowed on storage condition of element retracted to your body.

7-5. High temperature withstand :

5-3 and 6-1 to be satisfied after left at $+85^\circ\text{C}$ for 96 hours, then kept 2 hours in room(normal) temperature and humidity. No outside appearance failure or eternal deformation to appear.

7-6. Low temperature withstand :

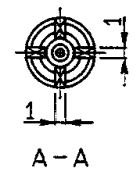
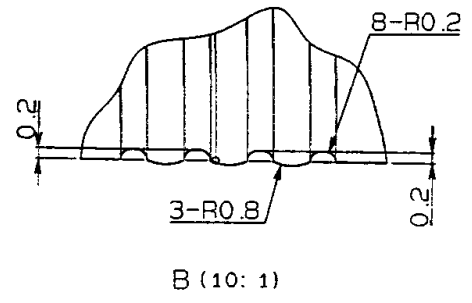
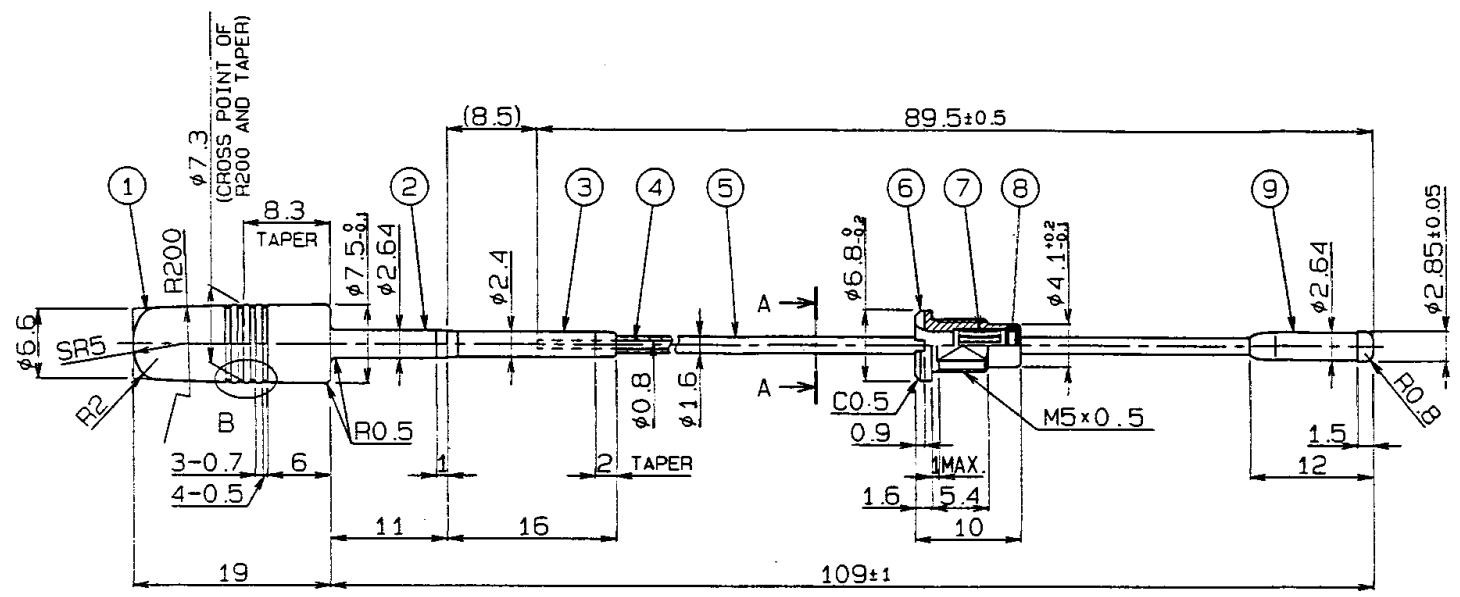
5-3 and 6-1 to be satisfied after left at -40°C for 96 hours, then kept 2 hours in room (normal) temperature and humidity. No outside appearance failure or eternal deformation to appear.

7-7. Temperature cycle :

5-3 and 6-1 to be satisfied after 20 cycles as below, then left 2 hours in room (normal) temperature and humidity. 1 cycle to be 30 minutes at -40°C then 30 minutes at $+85^\circ\text{C}$.
No outside appearance failure or eternal deformation to appear.



形式 SA521N



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

| ITEM | DESCRIPTION | QUANTITY | MATERIAL | TREATMENT | PART DRAWING NO. | NOTE |
|------|-------------|----------|----------|-----------|------------------|-------|
| 9 | STOPPER | 1 | BRASS | MBCr | | |
| 8 | HOLDER RING | 1 | BRASS | MBNi | | |
| 7 | DRUM SPRING | 1 | BRASS | MBNi | | |
| 6 | HOLDER | 1 | ZDC | MZCr | | |
| 5 | TUBE | 1 | PBT | | | BLACK |
| 4 | ELEMENT | 1 | Ni-Ti | | | |
| 3 | JOINT | 1 | NYLON | | | BLACK |
| 2 | TOP PLUG | 1 | BRASS | MBCr | | BLACK |
| 1 | TOP | 1 | ABS | | | BLACK |

| RANGE | COMMON TOLERANCE |
|----------|------------------|
| 10±0.1 | ±0.2 |
| 25±0.15 | ±0.3 |
| 80±0.25 | ±0.5 |
| 250±0.4 | ±1.0 |
| 1000±0.8 | ±1.5 |
| 1000±0.8 | ±2.0 |

| SYMBOL | DATE | REVISION RECORD | DESIGNED | APPROVED |
|--------|------|-----------------|----------|----------|
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| SCALE | DESIGNED | DRAWN | INSPECTED | APPROVED | DESCRIPTION |
|-------|----------|--------------------------|-----------|----------|----------------------------|
| 2:1 | 7/5/99 | 7/5/99 | 7/5/99 | | OUTSIDE APPEARANCE DRAWING |
| DIM | WEIGHT | 日本アンテナ株式会社 | | | DRAWING NO. |
| | | NIPPON ANTENNA CO., LTD. | | | N8-S126-H00E |