Product Specification

	Mechanical E.	RF E.	Reviewed by	Approved by
	/	/	/	/

Description	RETRACTABLE ANT.
Model	SCH- A310
Supplier Code	

Attached Documents

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Please approve this product with specifications.

Address : #25-49 Juan7-Dong Nam-Ku, Inchon Korea
Trade Name : SB TELCOM, LTD.
Substitute : President Eung - Soon, Chang (sign)

Antenna Specifications

MODEL : SCH-A310

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SB TELCOM CO.,LTD.

24. FEB.2002

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1. General

1.1 The Product

MODEL	NSB88C - 0200800/1900 - SS112
ANTENNA TYPE	Extendable with ½λ Helical Over ¼λ whip
APPLICATIONS	DUAL PHONE ANTENNA

1.2 Electrical Properties

FREQUENCY RANGE	AMPS	824 ~ 894MHz
FREQUENCY RANGE	US-PCS	1850 ~ 1990MHz
IMPEDANCE		50Ω (NOMINAL)
V.S.W.R	AMPS	LESS THAN 2.5 : 1 (Ret Position)
		LESS THAN 2.5 : 1 (Ext Position)
	US-PCS	LESS THAN 2.5 : 1 (Ret Position)
		LESS THAN 4.7 : 1 (Ext Position)
RADIATION PATTERN		OMNI-DIRECTIONAL
POLARIZATION		VERTICAL

1.3 Mechanical Properties

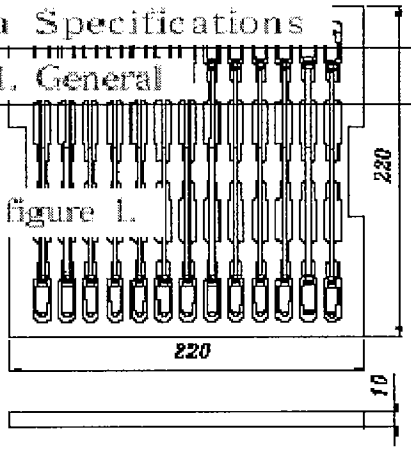
LENGTH	118.0 (+1.0mm, -1.0mm)
TEMPERATURE	-30 ℃ ~ +70℃
CONNECTOR TYPE	SCREW TYPE

1.4 Packing

① Packing Condition

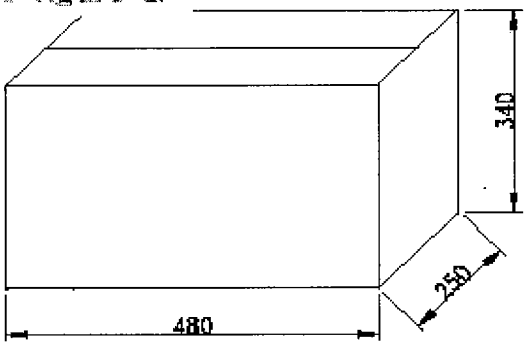
26EA of antennas are placed on a pad (H480 X W250 X D340)

according to figure 1.



(FIG. 1)

A box contains 40 pads and 1040 antennas and be packing according to figure 2.



(FIG. 2)

② Remarks

A change of packing material shall be executed with mutual approval between buyer and supplier.

2. Electrical Properties

2.1 Frequency Range

AMPS : 824 ~ 894MHz

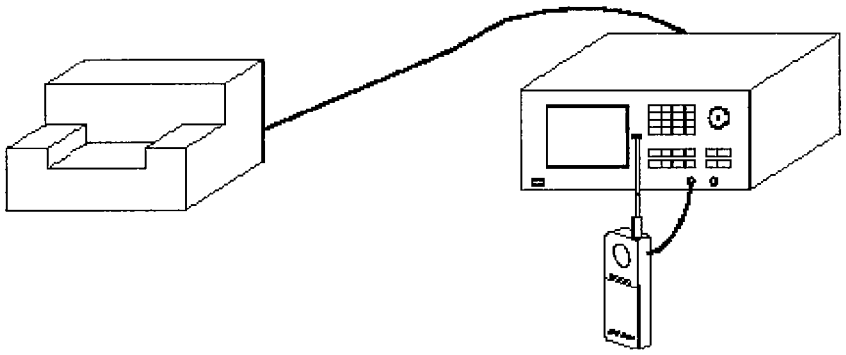
US-PCS : 1850 ~ 1990MHz

2.2 Impedance

① Nominal Value : 50 Ω

② Method

To measure the appropriate impedance with the frequency desired after connecting a handset with the antenna installed to the reflection point from the network analyzer.



(FIG. 3)

2.3 GAIN

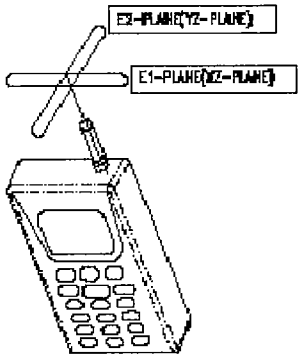
Below are minimum peak gain values of the frequency with the lowest peak gain within each band including production variation influences.

2.3.1 Minimum Peak Values-Free Space

BAND	MODE	TX	RX
824~894MHz	Retracted (dBi)	-3.5	-2.5
	Extended (dBi)	-1.0	-0.5
1850~1990MHz	Retracted (dBi)	-4.4	-3.5
	Extended (dBi)	-3.2	-3.2

2.5.2 Method of Measurement

The connection is done according to Radiation Pattern are Measured at the Tx and Rx band edges for each Band.
The measurements are Performed so as to minimize the influence of the cables.
Only the coplanar polarization component as measured. The antenna is measure in 2 orthogonal E-planes in free Space.
The antenna is measured in free space calibration for absolute Measurements is done with a reference antenna which is in turn calibrated by a certified calibration company.

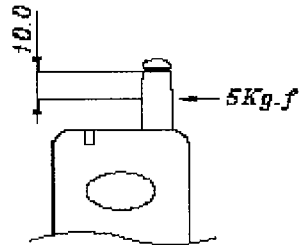


3. Mechanical Properties

3.1 Appearance

The appearance shall be according to specification drawing

3.2 Helix Deformation

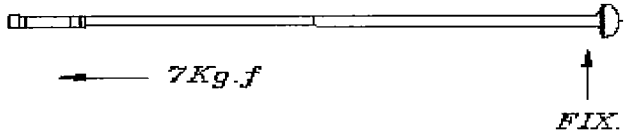


(FIG. 4)

The antenna is assembled to the test equipment according to figure 4. A force of 5kg.f is applied perpendicular to the antenna 10mm below the Top of the helix.

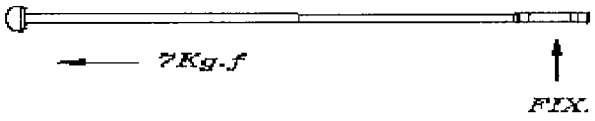
3.3 Whip Pulling Force

① The knob of the antenna is assembled to the fixed equipment. A force of 7kg.f on the whip is applied during 30s parallel to the antenna axis from the fixed knob.



(FIG. 5)

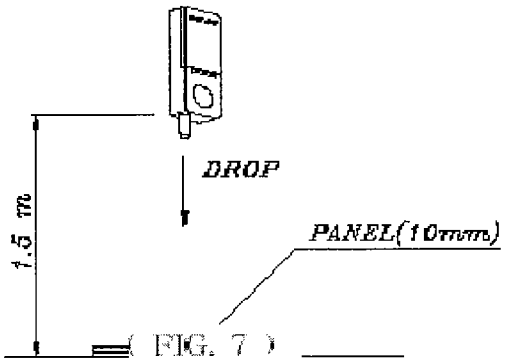
② The stopper of the antenna is assembled to the fixed equipment. A force of 7kg.f on the whip is applied during 30 s parallel to the antenna axis from the fixed stopper.



(FIG. 6)

3.4 Drop

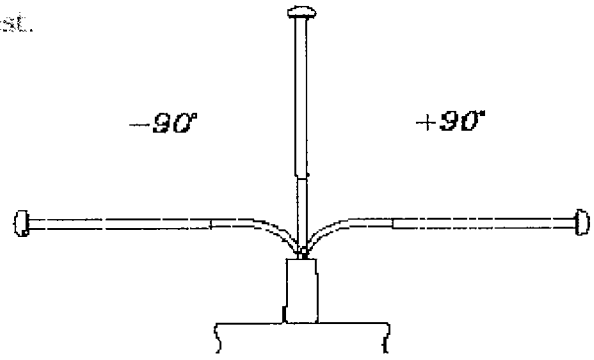
The antenna is attached to the handset or an equivalent test fixture. The handset is dropped with the antenna downward from the height of 1.5m onto a wood panel with thickness of 10mm prepared on the ground.



(FIG. 7)

3.5 Whip Bending Endurance

The antenna assembled to the test equipment in extended mode according to figure 8. The antenna is bent 90 left and 90 right (1 cycle) with 6 cycles per 1 minute. This is repeated for the duration for the test.



Bending Cycle : 400 Cycle

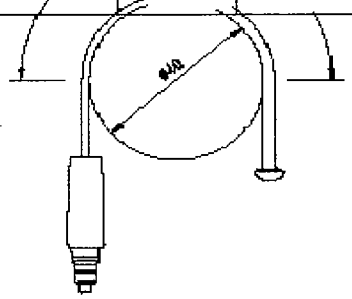
(FIG. 8)

3.6 Whip Deformation

The antenna is bent 180 around a cylinder with diameter 40mm in extended mode according to figure 9. The antenna is released and sprung back to vertical position.

* "A" zone : No remaining deformation

* "B" zone : No fracture

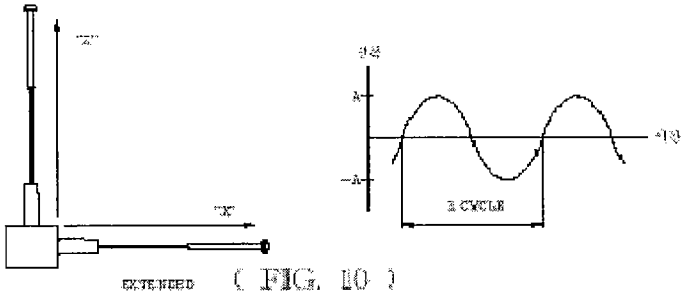


(FIG. 9)

3.7 Random Vibration

The extended antenna assembled to the test equipment. The vibration is done both in X and Z directions according to figure 10 with duration of 2 hours in each direction.

* Frequency Bands: 10 ~ 50Hz
* Maximum Amplitude: A = 1.5mm
* Duration: 2 Hour



(FIG. 10)

3.8 Whip Extension and Retraction Forces

① Whip Extension Force

The stopper of the antenna is pushed from retracted mode.

The maximum force before the antenna is released from retracted mode is registered. The mean value of measurements on the antennas shall be within 100g ~ 300g.

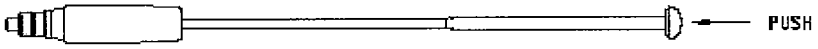
SECESSION FORCE : 100g ~ 300g

(FIG. 11)

② Whip Retraction Force

The knob of the antenna is pushed from extended mode. The maximum force before the antenna is released from extended mode is registered.

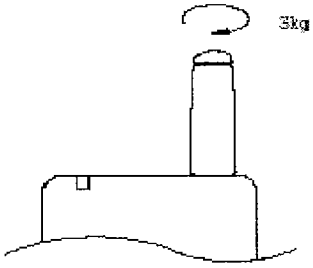
The mean value of measurements on the antennas shall be within 150g ~ 350g.



(FIG. 12) INSERTION FORCE : 150g ~ 450g

3.9 Torque

The antenna is assembled to the test equipment. A torque instrument is attached to the helical antenna without introduction of any radial force. The specified torque, 3kg.f, is applied in a clockwise direction according to figure 13.



(FIG. 13)

4. Environmental Resistance Properties

4.1 Test Surroundings

The antenna is placed at temperature 20C +- 5C and humidity 25%~80%(Under 55% RH) for executing all testes (Electrical, Mechanical and Environmental Tests).

4.2 Humidity

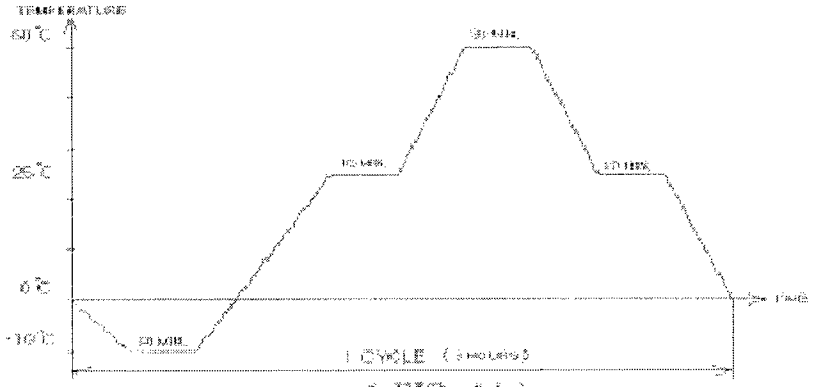
Temperature : 20C +- 2C

Humidity : 93%RH +- 2,

The antenna is placed in a climatic chamber for 24 hours. And the procedures are executed based on KSC-0222.

4.3 Temperature Cycling

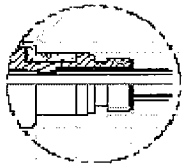
The antenna is placed in a climate chamber. The temperature is cycled as follows: The temperature is kept constant at -10C for ½ hour, kept constant at +25C for 1/6 hour, kept constant at +60C for ½ hour, kept at +25C for 1/6 hour and then moved back to the chamber at -10C.This procedure is repeated 5 times. The procedures are executed based on KSC-0222.



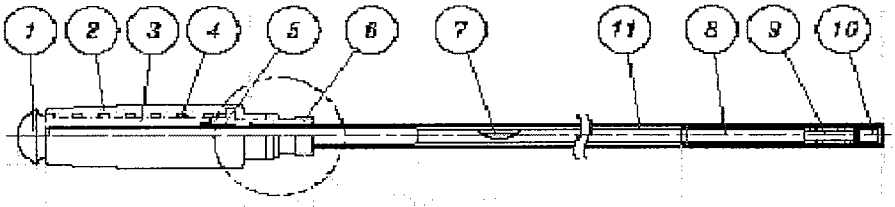
(FIG. 14)

AMEND	MRK.	DATE	REVISION	SIGN

DIMENSION	LIMITS
1mm ~ 20mm	± 0.1
21mm ~ 40mm	± 0.2
41mm ~ 80mm	± 0.3
81mm ~ 100mm	± 0.4
101mm ~	± 0.5



DETAIL "A"



NO.	PARTS NO.	NAME	MATERIAL	Q'TY.	
11	TSS-1056	TUBE	P.P	1	COLOR : B/K
10	RSS-1065	METAL ROD	BRASS(BSBM2)	1	Ni PLATED
9	RSS-1064	METAL ROD	BRASS(BSBM2)	1	Ni PLATED
8	ESS-9002	ELEMENT(ROD)	SUS	1	
7		WIRE	Ni-Ti WIRE	1	90.86 X 79.1L
6	RSS-1057	METAL ROD	BRASS(BSBM2)	1	Ni PLATED
5	C-RING(ø2.2 X 5.6L)	C-RING	CI720-HM	1	Ni PLATED
4	SS-9023	SPRING	STEEL WIRE(ø0.4□ ○)	1	Ni PLATED
3	ABS-1022	BOBBIN	POLYURETHANE(K-295PCAT)	1	COLOR : B/K
2	NSB88C	PIPE	POLYURETHANE(K-295PCAT)	1	COLOR : B/K
1	KNB-12(B)	KNOB	KM333H1-2	1	COLOR : B/K

DRAW BY	CHECK BY	APPROVE BY	SCALE	UNIT
			N/S	mm

DRAWING CODE NUMBER	MODEL NAME (SCH-N370)	PARTS NAME
—	NSB88C-0200800/1900-SS112	—

SB TELCOM CO.,LTD.