

Antenna Specifications	MODEL	<b>MT-8000</b>	
Cover sheet	REV.	0R	PAGE
			1/10

## **Antenna Specifications**

**MODEL : MT-8000**

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**SB TELCOM CO.,LTD.**

Address : #25-49 Juan5-Dong Nam-Ku, Inchon Korea

Trade Name : SB TELCOM., LTD.

Substitute : President      Eung - Soon, Chang (sign)



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Antenna Specifications		MODEL	MT-8000	
1. General		REV.	· 0R	PAGE
4.3 Temperature Cycling		-- 10 PAGE		3/10

## 1. General

### 1.1 The Product

MODEL	NSB115 - 0800 - TS1
ANTENNA TYPE	Extendable with $\frac{1}{4}$ $\lambda$ Helical Over $\frac{1}{4}$ $\lambda$ whip
APPLICATIONS	RTRACTABLE ANTENNA

### 1.2 Electrical Properties

FREQUENCY RANGE(TX)	824 ~ 849MHz
FREQUENCY RANGE(RX)	869 ~ 894MHz
IMPEDANCE(NOMINAL)	50 $\Omega$
V.S.W.R(NOMINAL)	LESS THAN 2 : 1(Ext Position) LESS THAN 2 : 1(Ret Position)
RADIATION PATTERN	OMNI-DIRECTIONAL
POLARIZATION	VERTICAL

### 1.3 Mechanical Properties

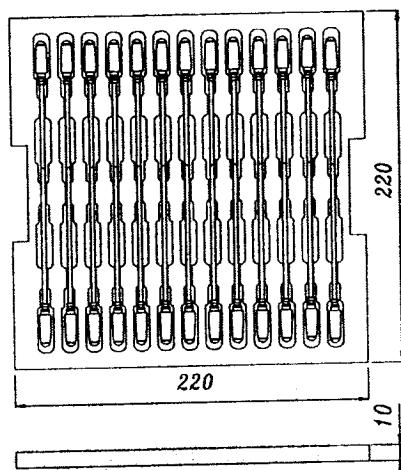


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LENGTH	Antenna Specifications	62.7mm ( $\pm 0.3$ mm)	MODEL	MT-8000
TEMPERATURE	General	-30 °C ~ +70 °C	REV.	0R
CONNECTOR TYPE	SCREW TYPE		PAGE	4/10

#### 1.4 Packing

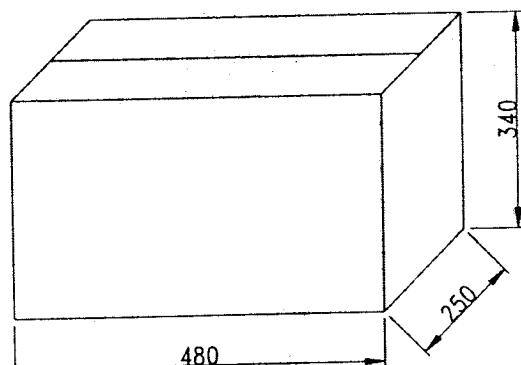
① Packing  
26EA of  
pad (H480 X  
according to



#### Condition

antennas are placed on a  
W250 X 1340)  
figure 1.

A box  
1040 antennas  
according to



#### ( FIG. 1 )

contains 40 pads and  
and be packing  
figure 2.



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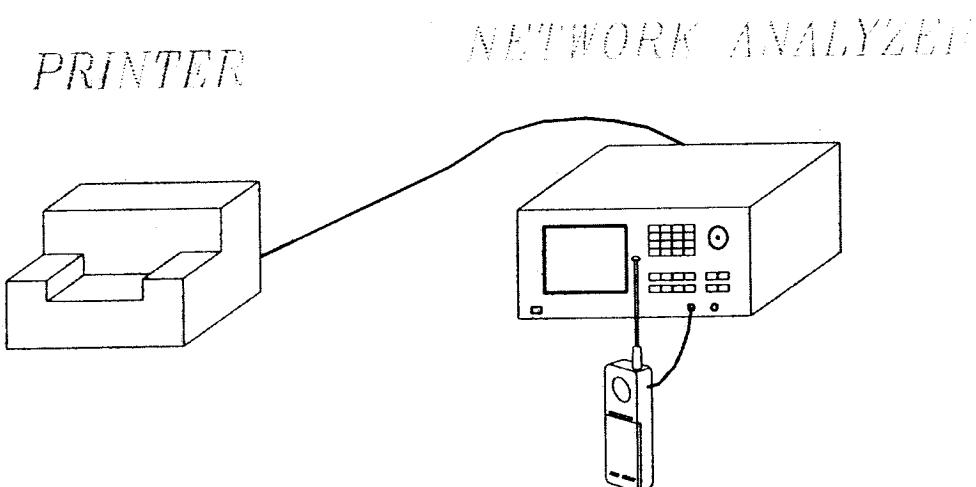
Antenna Specifications	MODEL	MT-8000	
2. Electrical Properties	REV.	0R	PAGE
			5/10

( 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

824 ~ 894MHz

### 2.2 Impedance

① Nominal Value : 50 Ω

② Method

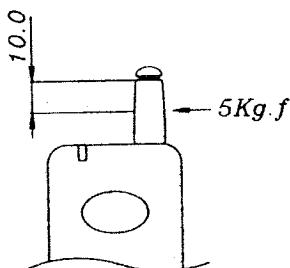
To measure the appropriate impedance with the frequency



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Antenna Specifications	MODEL	HWC-3000	
3. Mechanical Properties	REV.	0R	PAGE
			6/10

desired after connecting a handset with the antenna installed to the reflection point from the network analyzer.



( FIG. 3 )

### 2.3 VSWR

- ① RETRACTED → Less than 2 : 1
- ② EXTENDED → Less than 2 : 1
- ③ Identical test method when measuring impedance

## 3. Mechanical Properties

### 3.1 Appearance

The appearance shall be according to specification drawing

### 3.2 Helix Deformation

The antenna is assembled to the test



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Antenna Specifications	MODEL	MT-8000	
3. Mechanical Properties	REV.	OR	PAGE
			7/10

equipment according to figure 4.

A force of 5kg.f is applied  
perpendicular to the antenna 10mm  
below the Top of the helix.

( FIG. 4 )

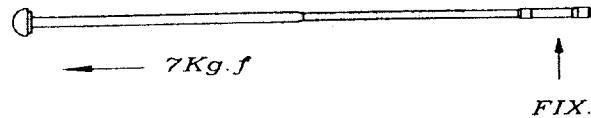
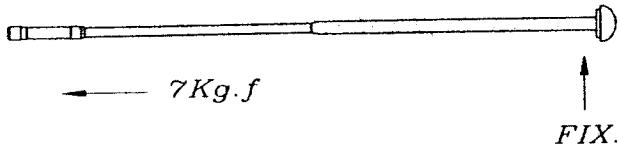
### 3.3 Whip Pulling Force

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.

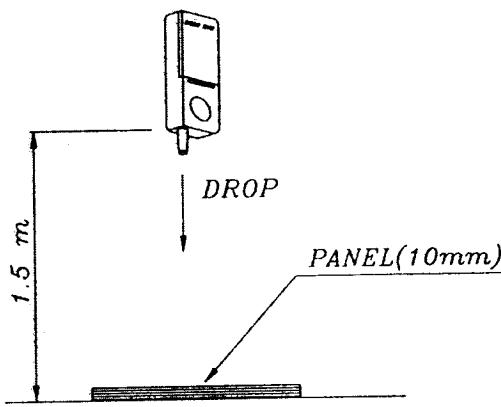
( FIG. 6 )



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### 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.



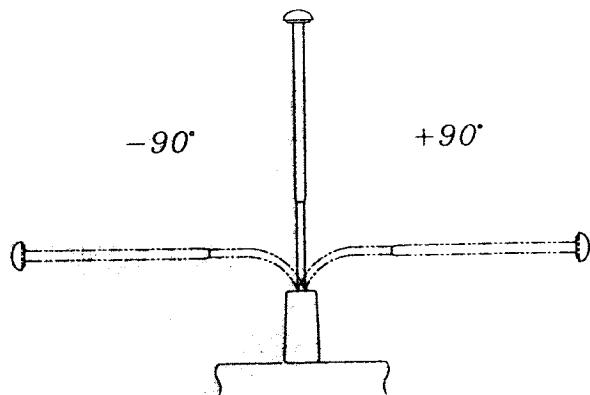
( FIG. 7 )

### 3.5 Whip Bending Endurance

according

The antenna assembled to the test equipment in extended mode 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.



( FIG. 8 )

*Bending Cycle : 400 Cycle*



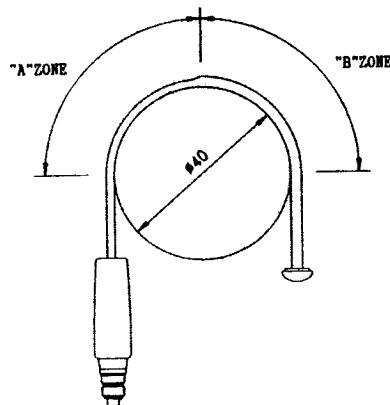
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Antenna Specifications		MODEL	MT-8000	
3. Mechanical Properties		REV.	0R	PAGE
				8/10

### 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

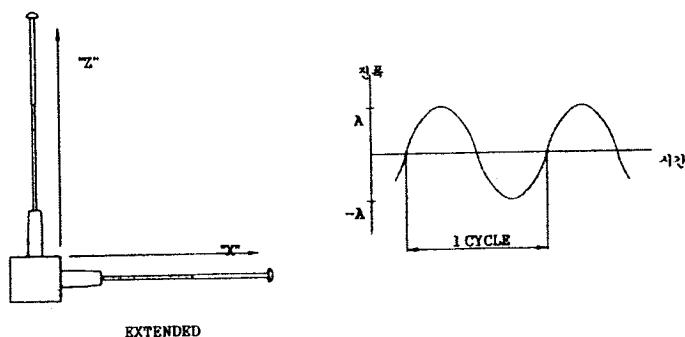
\* B zone : No fracture

( 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.

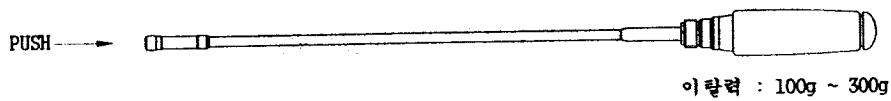
- ※ Frequency Bands: 10 ~ 50Hz
- ※ Maximum Amplitude: A = 1.5mm



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Antenna Specifications	MODEL	HWC-3000	
3. Mechanical Properties	REV.	0R	PAGE
			9/10

※ 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.



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( 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 )

**3.9 Torque**

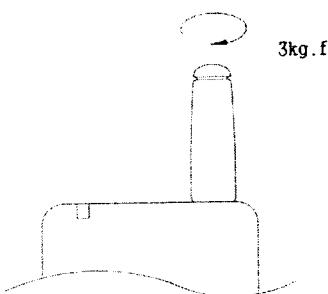
The antenna is assembled to the test equipment. A torque instrument is attached to the helical antenna without introduction of any radial

SELECTION FORCE : 100g ~ 300g



AL0123 - 1000 - 0000

INSERTION FORCE : 150g ~ 450g



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Antenna Specifications	MODEL	MT-8000	
4. Environmental Resistance Properties	REV.	0R	PAGE
		10/10	

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 hour, kept constant at +25C for 1/6 hour, kept constant at +60C for 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.



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( FIG. 14 )



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AMEND	MRK.	DATE	REVISION	SIGN																			
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">DIMENSION</th> <th>LIMITS</th> </tr> </thead> <tbody> <tr> <td>1mm ~ 20mm</td> <td colspan="2"><math>\pm 0.1</math></td> </tr> <tr> <td>21mm ~ 40mm</td> <td colspan="2"><math>\pm 0.2</math></td> </tr> <tr> <td>41mm ~ 80mm</td> <td colspan="2"><math>\pm 0.3</math></td> </tr> <tr> <td>81mm ~ 100mm</td> <td colspan="2"><math>\pm 0.4</math></td> </tr> <tr> <td>101mm ~</td> <td colspan="2"><math>\pm 0.5</math></td> </tr> </tbody> </table>						DIMENSION		LIMITS	1mm ~ 20mm	$\pm 0.1$		21mm ~ 40mm	$\pm 0.2$		41mm ~ 80mm	$\pm 0.3$		81mm ~ 100mm	$\pm 0.4$		101mm ~	$\pm 0.5$	
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101mm ~	$\pm 0.5$																						
9	TSS-1048	TUBE	P.P	1	COLOR : WHITE																		
8	RSS-1065	METAL LOD	BRASS (BSBM2)	1	Ni PLATED																		
7	RSS-1064	METAL LOD	BRASS (BSBM2)	1	Ni PLATED																		
6	ESS-9008	ELEMENT(LOD)	SUS	1																			
5	RSS-1057	METAL LOD	BRASS (BSBM2)	1	Ni PLATED																		
4	NSB115	PIPE	POLY URETHANE(K-395PCAT)	1	COLOR :																		
3	SS-9020	SPRING	STEEL WIRE	1	동도금																		
2	ASS-1011	BOBBIN	POLY URETHANE(K-395PCAT)	1	COLOR : WHITE																		
1	KNB-24(C)	KNOB	NYLON66	1	COLOR : WHITE																		
NO.	PARTS NO.	NAME	MATERIAL	Q'TY.	REMARKS																		
DRAW BY		CHECK BY	APPROVE BY	SCALE	UNIT																		
				2/1	mm																		
DRAWING CODE NUMBER			MODEL NAME	PARTS NAME																			
A4 (20 297) SB TELCOM CO.,LTD.																							
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