

<h1 style="text-align: center;">Product Specification</h1>		Mechanical E..	RF E.	Reviewed by	Approved by
		03.01.22	03.01.22	03.01.22	03.01.22
		Product Description		CDMA ANT.	
		Model		QCM - 710Ti	
		Supplier Code		-	
Attached Documents					
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<p>Please approve this product with specifications.</p> <p style="text-align: right;">2003 . 01 . 22</p> <p>Address : #25-49 Juan5-Dong Nam-Ku, Inchon Korea</p> <p>Trade Name : SB TELCOM,. LTD.</p> <p>Substitute : President Eung - Soon, Chan</p>					





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1. General				
1.1 The Product				
MODEL		NSB241 - 0000800 - IC9		
ANTENNA TYPE		FIXED TYPE		
APPLICATIONS		CELLULAR PHONE ANTENNA		
1.2 Electrical Properties				
FREQUENCY RANGE (TX)		824 ~ 849MHz		
FREQUENCY RANGE (RX)		869 ~ 894MHz		
RADIATION PATTERN		OMNI-DIRECTIONAL		
POLARIZATION		VERTICAL		
V.S.W.R	CLOSE	LESS THAN 2.5 : 1.0		
	OPEN	LESS THAN 2.0 : 1.0		
1.3 Mechanical Properties				
LENGTH		27.3mm (±0.3mm)		
TEMPERATURE		-40 ~ +85		
CONNECTOR TYPE		SCREW TYPE		

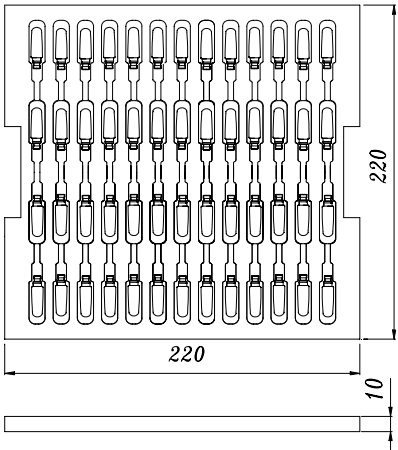


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### 1.4 Packing

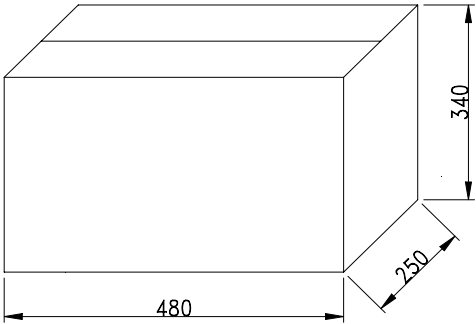
#### Packing Condition

52EA of antennas are placed on a pad (H480 X W250 X I340) according to figure 1.



( FIG. 1 )

A box contains 40 pads and 2080 antennas and be packing according to figure 2.



( FIG. 2 )

#### Remarks

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



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## 2. Electrical Properties

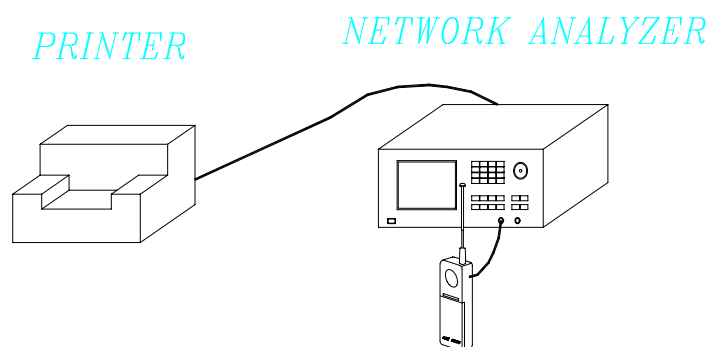
824 ~ 894Mhz	Tx Band	824 ~ 849Mhz
	Rx Band	869 ~ 894Mhz

### 2.1 Frequency Range

### 2.2 VSWR

#### Method

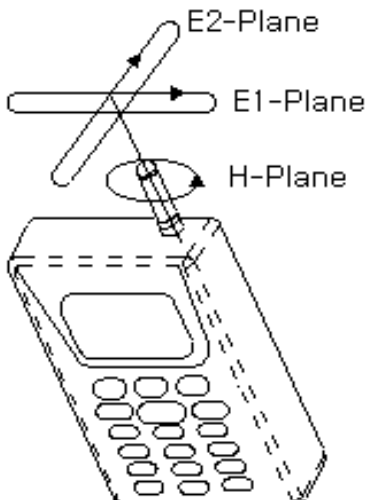
To measure the appropriate VSWR with the frequency desired after connecting a handset with the antenna installed to the reflection point from the network analyzer.



( FIG. 3 )

Maximum value in free space



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<p><b>2.3 GAIN</b></p> <p>Below are minimum peak gain values of the frequency with the lowest peak gain within each band including production variation influences.</p> <p><b>2.3.1 Method of Measurement</b></p> <p>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.</p> <p>Only the coplanar polarization component os measured. The antenna is measure in 2 orthogonal E-planes &amp; H-Plane in free Space.</p> <p>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.</p>			
 <p>The diagram illustrates the measurement planes for a mobile phone antenna. It shows a side view of a mobile phone with an antenna extending from the top. Three planes are defined: E1-Plane (horizontal), E2-Plane (vertical), and H-Plane (circular, perpendicular to the antenna axis). Arrows indicate the orientation of these planes relative to the antenna and the phone body.</p>			



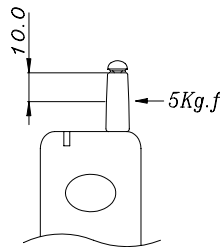
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### 3. Mechanical Properties

#### 3.1 Appearance

The appearance shall be according to specification drawing

#### 3.2 Helix Deformation



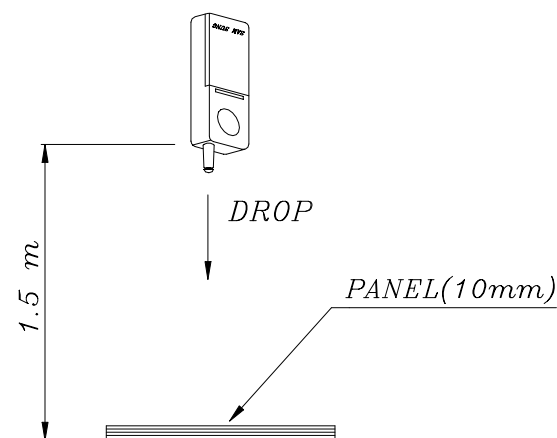
( FIG. 4 )

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 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. 5 )





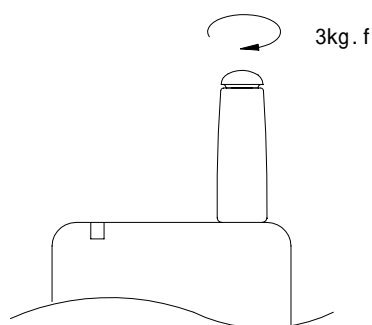
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### 3.4 Torque

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 6.



( FIG. 6 )



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## 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

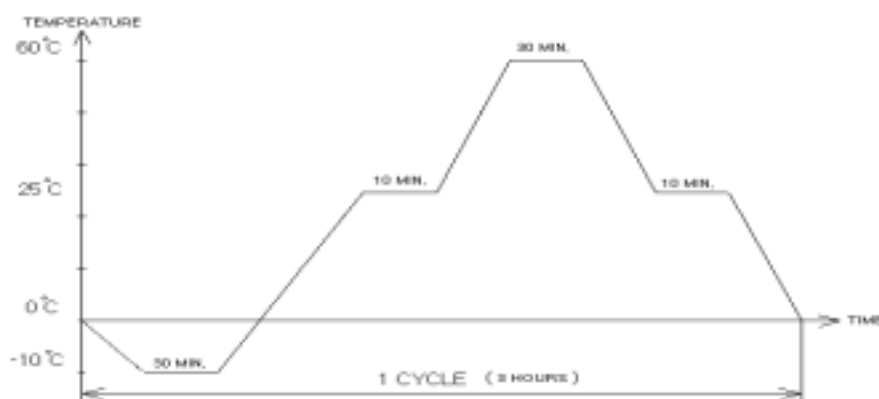
Temperature : 20C +- 2C

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.

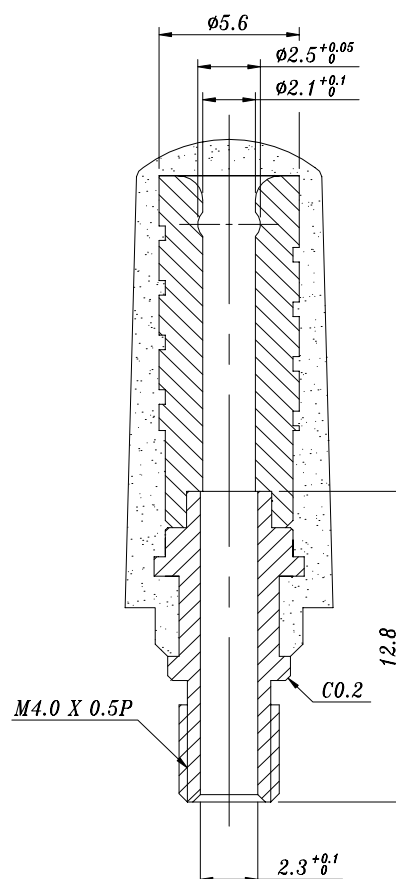
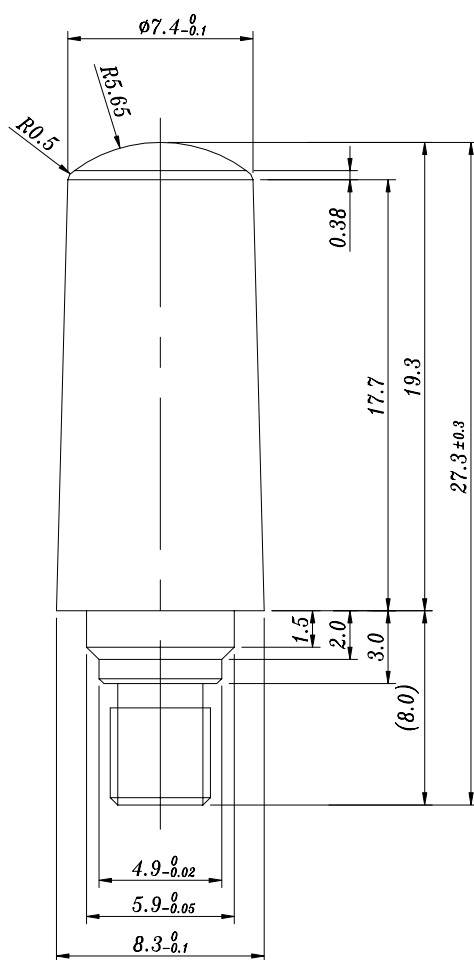


( FIG. 7 )



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



1	NSB-241	PIPE	POLYURETHANE(68D)	1	COLOR : SILVER
NO.	PARTS NO.	NAME	MATERIAL	Q'TY.	REMARKS
DRAW BY	CHECK BY	APPROVE BY	SCALE	UNIT	
			1/1	mm	
DRAWING CODE NUMBER	MODEL NAME	(QCM-710TI)	PARTS NAME		
	NSB241-0000800-IC9		NSB-241		