

[NX-E640 Specifications]



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NA-U Telecommunications

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1. Product Introduction

1.1. Description

The NA-U Telecom model NX-E640 is a 800Mhz cellular band antenna internally mounted in the particular equipment operating on CDMA network.

This antenna was designed with patent pending NX technology of NA-U Telecommunication

1.2 Photo



1.3. Model Name (NX-E640)

NX : represents NA-U Tel's patent pending NX technology representing Numbers of cross-over of X saped phase alteration.

E640 : names after the application equipment of the antenna.

1.4. Application

Equipment: CDMA 800Mhz USB type data communication modem

Company: INNOMTEK Co., Ltd.

2. Antenna Characteristics

2.1. Electric

2.1.1 Frequency Band

Tx : 824 ~ 849MHz

Rx : 869 ~ 894MHz

2.1.2. Impedance : 50

2.1.3. VSWR(Voltage Standing Wave Ratio) : 2.0 below

2.1.4. Peak GAIN : 0 dBi (824Mhz), 0.5dBi(894Mhz)

2.2. Mechanical

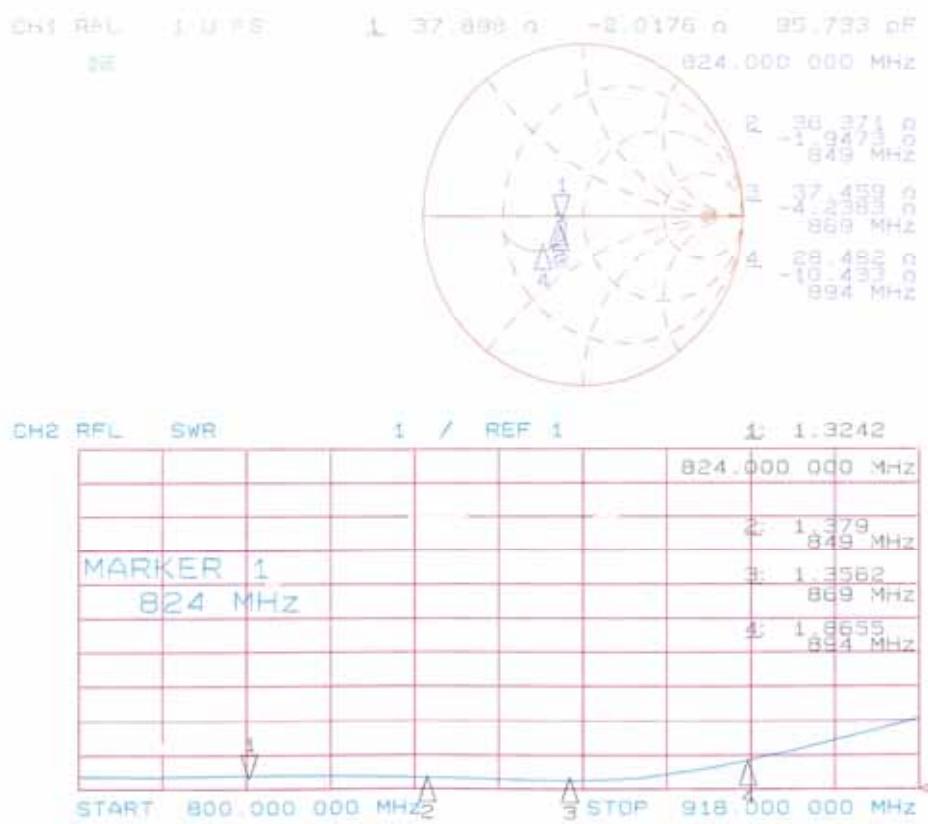
NO	Part	Spec	Finishing
1	Holder	Brass (C3604)	Au Plating
2	Housing	Poly-Carbonate(SC1004A, LG - ET41)	Black-Color
3	Connector	Beryllium Copper	Au Plating
4	Load Coil	Phosphor Bronze	Au Plating
5	Total length	refer to the drawing	N/A

2.3. Disclaimer

This document provides specification and test data for NX-E640 antenna. The test included in this documents are limited to the application for USB modem ICU-E640 of the company INNOMTEK. Tests were performed at an external test facility.

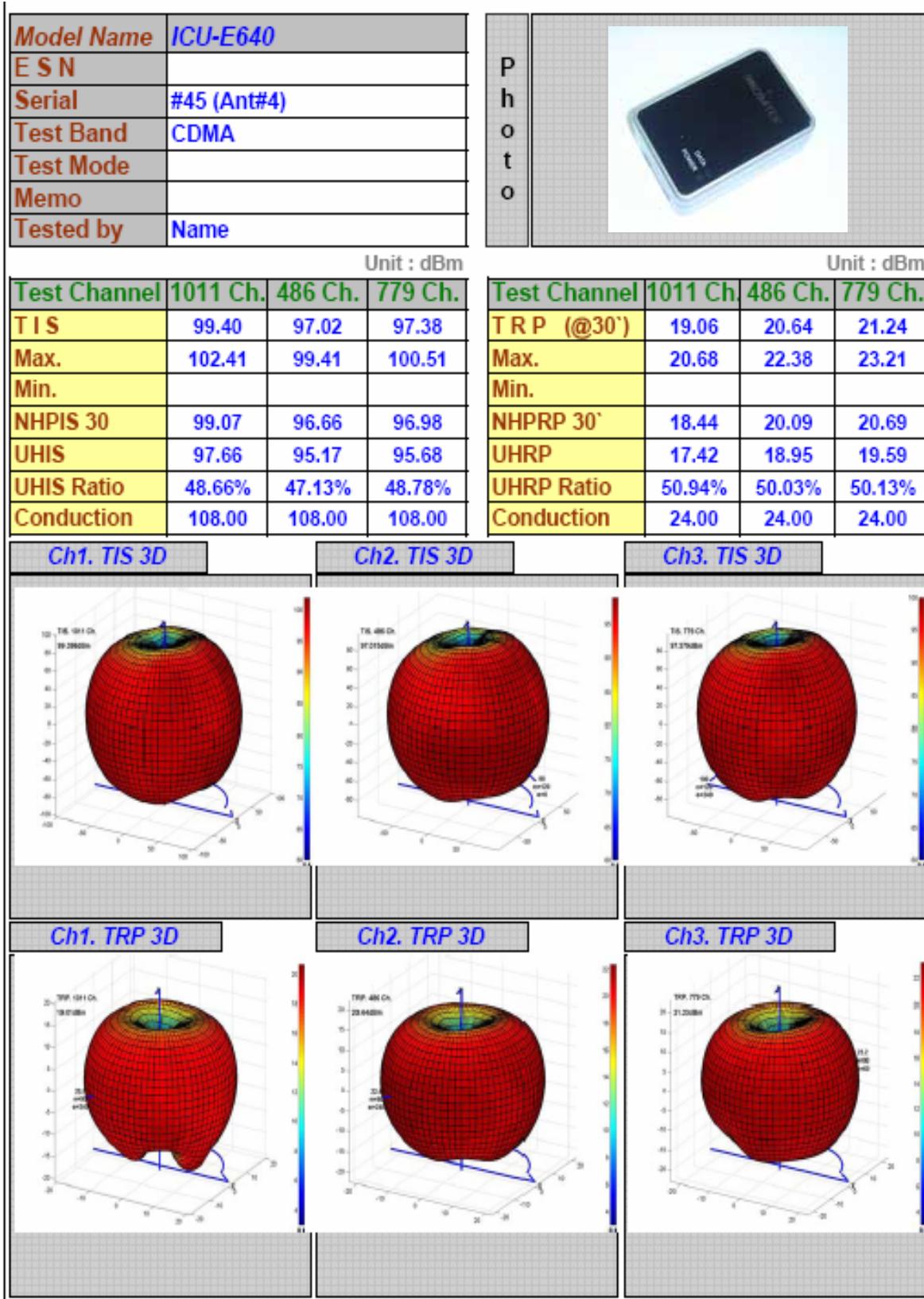
3. Test data

3.1. S-Parameter, VSWR

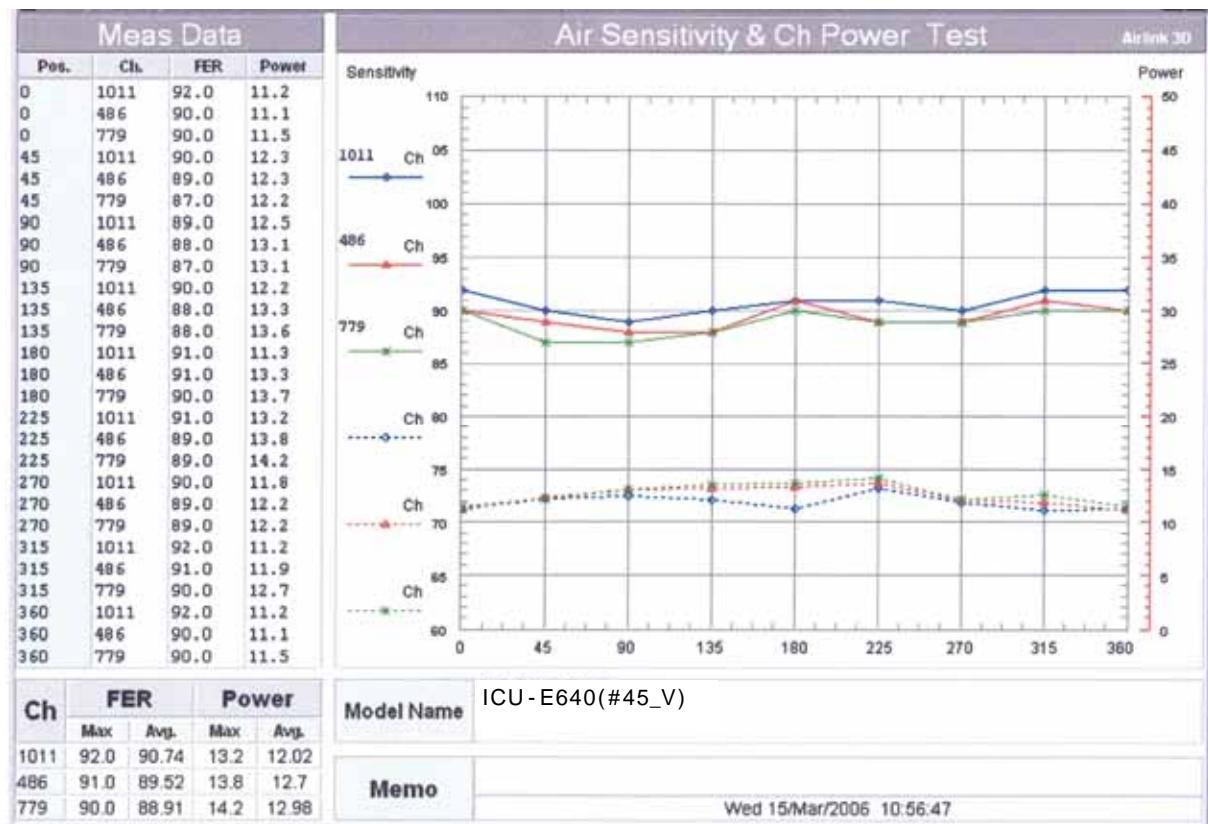


BAND	Tx		Rx	
FREQUENCY(MHz)	824	849	869	894
VSWR	1.32	1.38	1.36	1.87

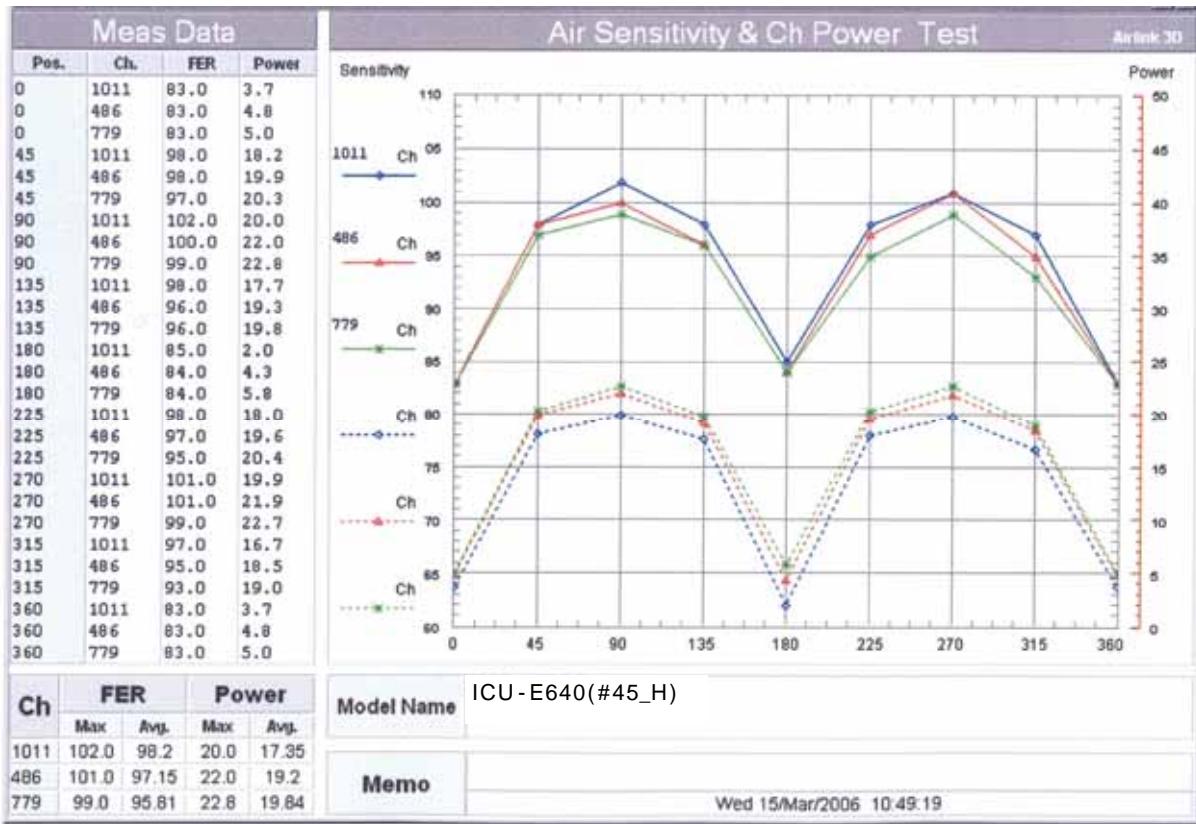
3.2 3D TIS/TRP



3.3 2D Air Sensitivity & Power TEST(V-plane)



3.4 2D Air Sensitivity & Power TEST(H-plane)



4. Reliability Test

4.1. Pulling Test

Test condition: 7.0kgf for 30 minutes.

Criteria: No mechanical and external damage

Test result: OK

4.2. Drop Test

Test condition: Antenna built in the application equipment or if not applicable dummy set of equivalent weight.

1.5meter height drop onto solid concrete surface

8times per 12 different edge angles respectively

Criteria: No mechanical damage and electrical characteristics unchanged.

Test result: OK

4.3. Environmental test

4.3.1. Low Temperature

Test Procedure: At normal temperature check the outer appearance and electric characteristics according the the specification.

Keep the antenna inside the temperature chamber by 1 /min decrease until the temperature decreased to -40

Keep the antenna inside the temperature chamber for 48Hours.

Keep the antenna in the ambient condition until normal condition.

Check the appearance and electric characteristics.

Criteria: No mechanical distortion and electrical characteristics unchanged.

Test result: OK

4.3.2. High Temperature

Test Procedure: At normal temperature check the outer appearance and electric characteristics according the the specification.

Keep the antenna inside the temperature chamber by 1 /min increase until the temperature decreased to +85

Keep the antenna inside the temperature chamber for 48Hours.

Keep the antenna in the ambient condition until normal condition.

Check the appearance and electric characteristics.

Criteria: No mechanical distortion and electrical characteristics unchanged.

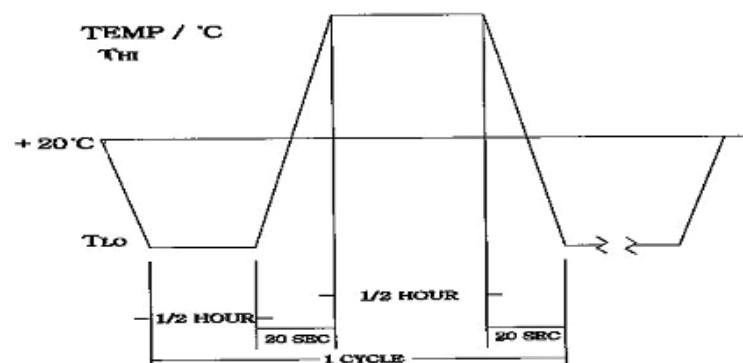
Test result: OK

4.3.3. Temperature Shock

Test Procedure: At normal temperature check the outer appearance and electric characteristics according the the specification.
10 Cycle times between two temperature chambers.
Chamber #1 for 30Min at -40 and Chamber #2 for 30Min at +85
Set the time to reach Max and Min temperature within 20Sec.
Keep the antenna in the ambient condition until normal condition.
Check the appearance and electric characteristics.

Criteria: No mechanical distortion and electrical characteristics unchanged.

Test result: OK



4.3.4 Salt Spray

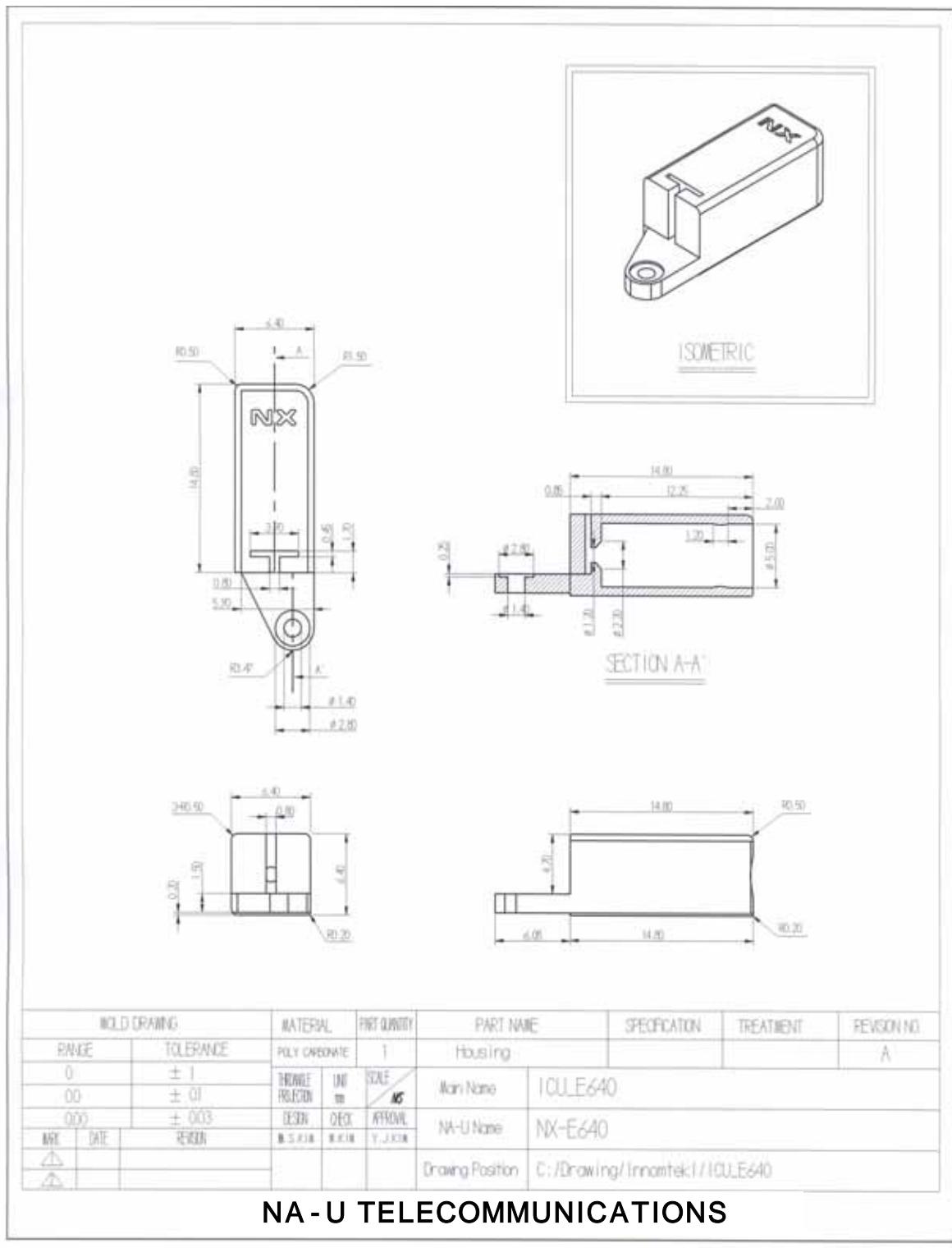
Test condition: Keep antenna for 48hrs after spray of 35 , 5% Sodium Chloride solution.

Criteria: No mechanical damage and electrical characteristics unchanged.

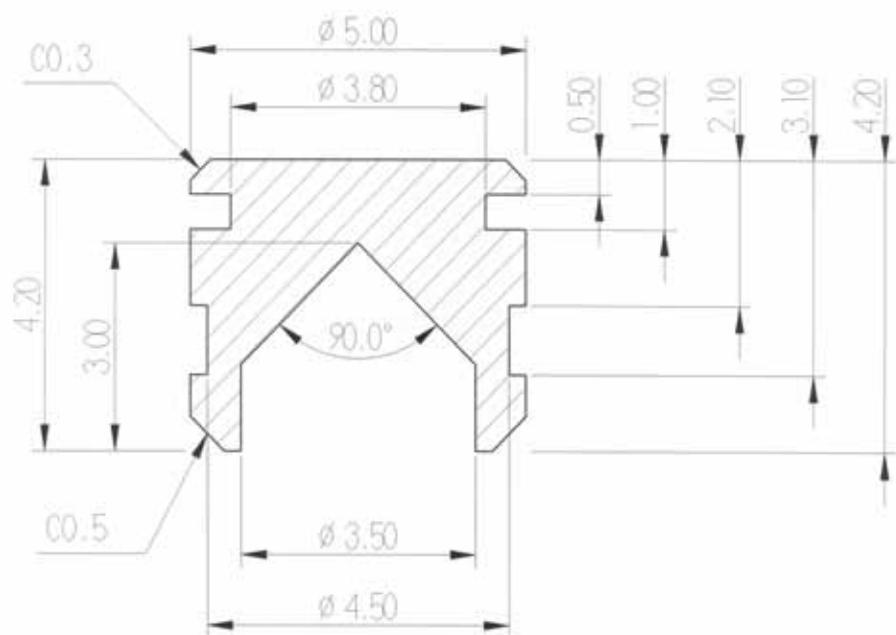
Test result: OK

5. Mechanical Drawings

5.1. Housing



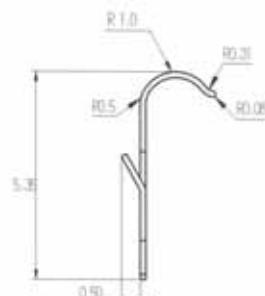
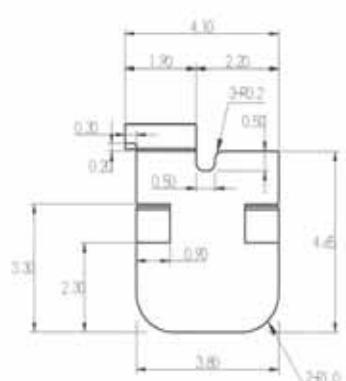
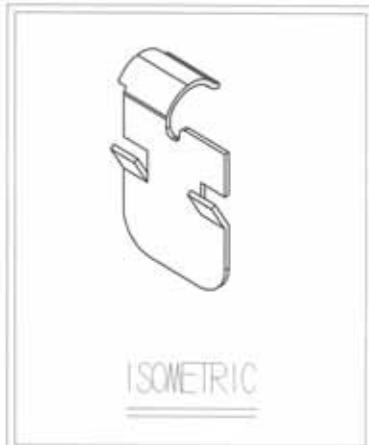
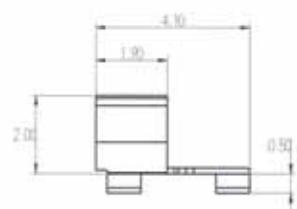
5.2. Holder



MOLD DRAWING		MATERIAL	PART QUANTITY	PART NAME		SPECIFICATION	TREATMENT	REVISION NO
RANGE	TOLERANCE	C3604	1	5042H				A
0	± 1	BRONZE ALLOY	UNIT INCH	5042H	AS	Main Name	5042H	
00	± 0.1							
000	± 0.03	DESIGN	CHECK	NA-U Name	5042H			
MAX DATE	REVISION	0.5.2010	W.15.2010	Y.1.2010				
				Drawing Position	CDrawinghostek/01UE640			

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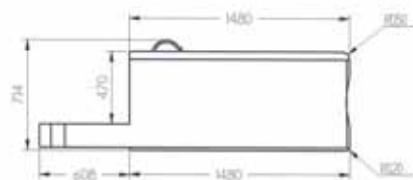
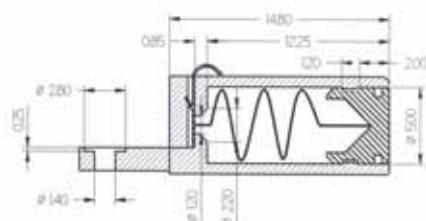
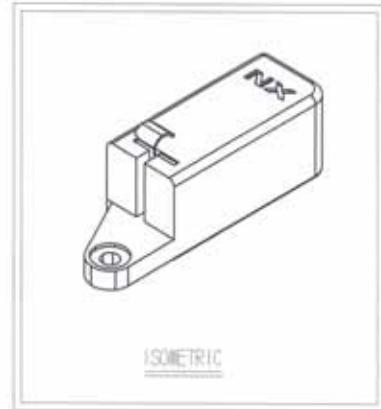
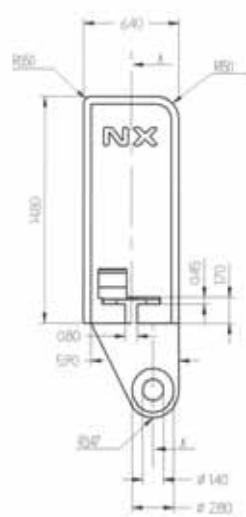
5.3. Connector



MOLD DRAWING		MATERIAL		PART QUANTITY	PART NAME		SPECIFICATION	TREATMENT	REVISION NO
RANGE	TOLERANCE	Beryllium Copper		1	Connector			T=0.15	A
0	± 1	BERYLLIUM COPPER			Main Name		10U-E640		
00	± 01	UNIT	mm	45					
000	± 003	TECH	CHOK	APPROVAL	NA-U Name		NX-E640		
MR	ME	REASON	W.S.KIM	Y.J.KIM	Drawing Position		C:/Drawing/Innometek/10U-E640		
△	△								
△	△								

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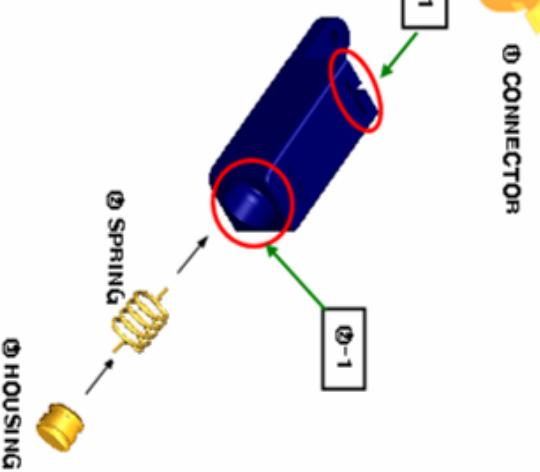
5.4. Assembly



OLD DRAWING		MATERIAL			QUANTITY	PART NAME	SPECIFICATION	REVISION NO.
RANGE	TOLERANCE	GRADE	UNIT	CODE	IRON NAME	IOU-E640		A
0	± 1	PCB	mm	PCB				
10	± 0.1	BRASS	mm	BRASS				
1000	± 0.03	PHOSPHOR BRONZE	mm	PHOSPHOR BRONZE	NA-U Name	NX-E640		
NAU	NAU	BRONZE	mm	BRONZE				
					Drawing Position	01/Drawing/Innometek / IOU-E640		

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6. Process control

		Process control sheet		1	2006 . 03. 16	draft	review	approval						
Model	NX-E640			2	- - -									
Product	Antenna	Ver.	3	- - -										
Part No	-	4	- - -											
Material	PC	Draft by	MSKlim	/	/	/								
Color	Black													
1. Process														
														
2. Work guide		<ol style="list-style-type: none"> 1. Insert connector ① into ④-1 position. 2. Insert Spring ② into ④-1 position. 3. Place the HOLDER ③ onto SPRING ② smoothly. 4. Fix the HOLDER ③ inside the housing by Jig. 5. Contact CONNECTOR ① with Network Analyzer and check VSWR. 												
3. Assy / QC		<table border="1"> <tr> <td colspan="2">1. Assy procedure should be kept.</td> </tr> <tr> <td colspan="2">2. After assembly, check VSWR data.</td> </tr> <tr> <td colspan="2">VSWR data should be lower than the limit specified.</td> </tr> </table>							1. Assy procedure should be kept.		2. After assembly, check VSWR data.		VSWR data should be lower than the limit specified.	
1. Assy procedure should be kept.														
2. After assembly, check VSWR data.														
VSWR data should be lower than the limit specified.														
4. Completed														
Remarks		<p>- Attention and Action against abnormal case -</p> <ul style="list-style-type: none"> * Abnormal sound or damage of the test machine: Report to QC manager. * Measurement and test report should be filed. * If two consecutive abnormal VSWR data occurs, stop assembly and report to QC manager. * After inspection, defective samples should be separately stored. <p>(Sorting by defect type and root cause analysis required)</p>												

7. Packing Standard

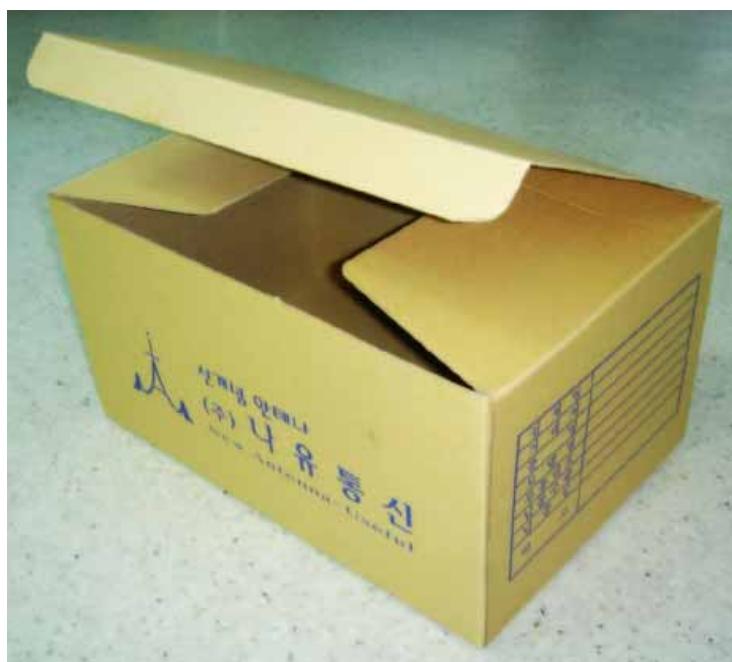
7.1. Internal

Size : B X H X L = 150mm x 26mm x 210mm
(100EA / 1Board)



7.2. External

Size : B X H X L = 210mm x 170mm x 310mm
(1000EA / 1Box)



8. Appendix

#1							
1. Reliability Test							
Test Item	Sample # Description	#1	#2	#3	#4	#5	Result
Pulling Test	Pulling of power 7.0kgf for 30 minutes.	OK	OK	OK	OK	OK	OK
		No mechanical and external damage					
Drop Test	8 times drop from 1.5M height at 12 edges respectively.	OK	OK	OK	OK	OK	OK
		No mechanical damage and electrical characteristics unchanged.					
Low Temperature	Evaluating effect of low temperature conditions on material and performance. Test after 48Hrs storage at low temperature of -40° C	OK	OK	OK	OK	OK	OK
		No mechanical damage and electrical characteristics unchanged.					
High Temperature	Evaluating effect of high temperature conditions on material and performance. Test after 48Hrs storage at high temperature of +85° C	OK	OK	OK	OK	OK	OK
		No mechanical damage and electrical characteristics unchanged.					
Temperature shock	Temperature shock tests to determine if materiel can withstand sudden changes in the temperature of the surrounding atmosphere without experiencing physical damage or deterioration in performance. 10 Cycle times of each 30Min at -40° and +85° C	OK	OK	OK	OK	OK	OK
		No mechanical distortion and electrical characteristics unchanged.					
Salt Spray	The salt fog method is performed to determine the effectiveness of protective coatings and finishes on materials. It can also be applied to determine the effects of salt deposits on the physical and electrical aspects of materiel. 48Hrs storage after 35° , 5% Sodium Chloride fluid spray.	OK	OK	OK	OK	OK	OK
		No mechanical distortion and electrical characteristics unchanged.					

2

1. VSWR test

#	VSWR				Remarks
	824 MHz	849 MHz	869 MHz	894 MHz	
	Below 2.0				
1	1.35	1.39	1.37	1.85	
2	1.32	1.38	1.36	1.88	
3	1.30	1.40	1.36	1.86	
4	1.34	1.37	1.36	1.87	
5	1.37	1.39	1.38	1.87	
6	1.33	1.38	1.37	1.85	
7	1.35	1.39	1.37	1.89	
8	1.31	1.36	1.38	1.88	
9	1.31	1.38	1.36	1.86	
10	1.30	1.38	1.36	1.87	