

[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

Equipemnt: 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

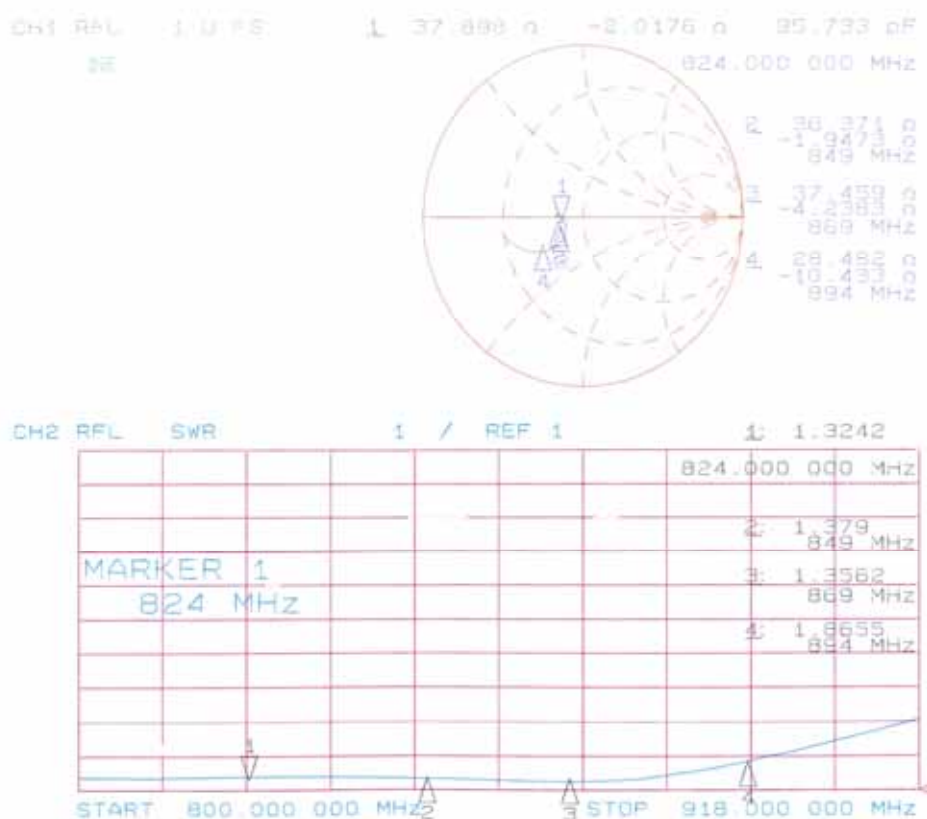
NO	Part	Spec	Finishing
1	Holder	Brass (C3604)	Au Plating
2	Housing	Poly - Carbonate(SC1004A, LG - ET41	Black - Color
3	Connector	Beryllium Copper	Au Plating
4	Load Coil	Phosphor Bronze	Au Plating
5	Total length	refer to the drawing	N/A

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.

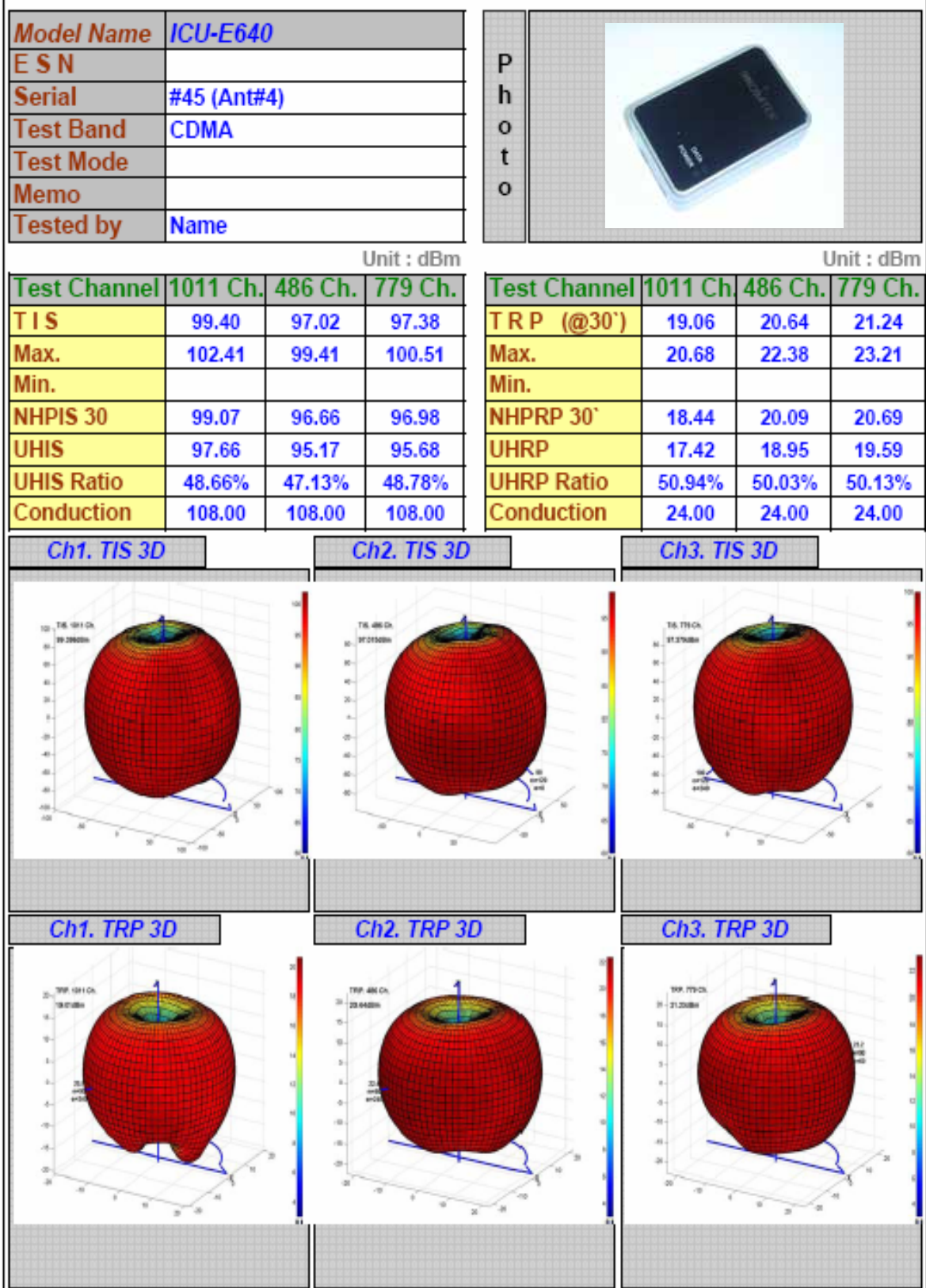
3. Test data

3.1. S-Parameter, VSWR

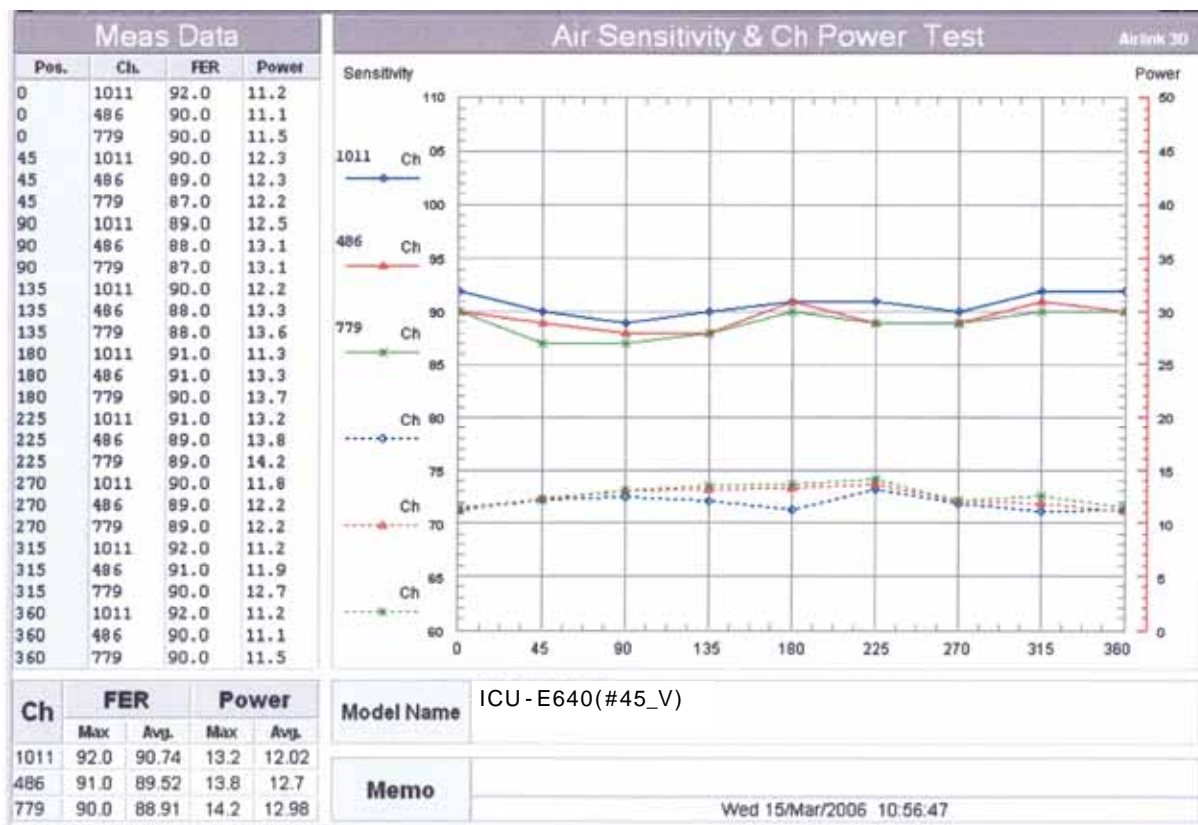


BAND	Tx		Rx	
FREQUENCY(MHz)	824	849	869	894
VSWR	1.32	1.38	1.36	1.87

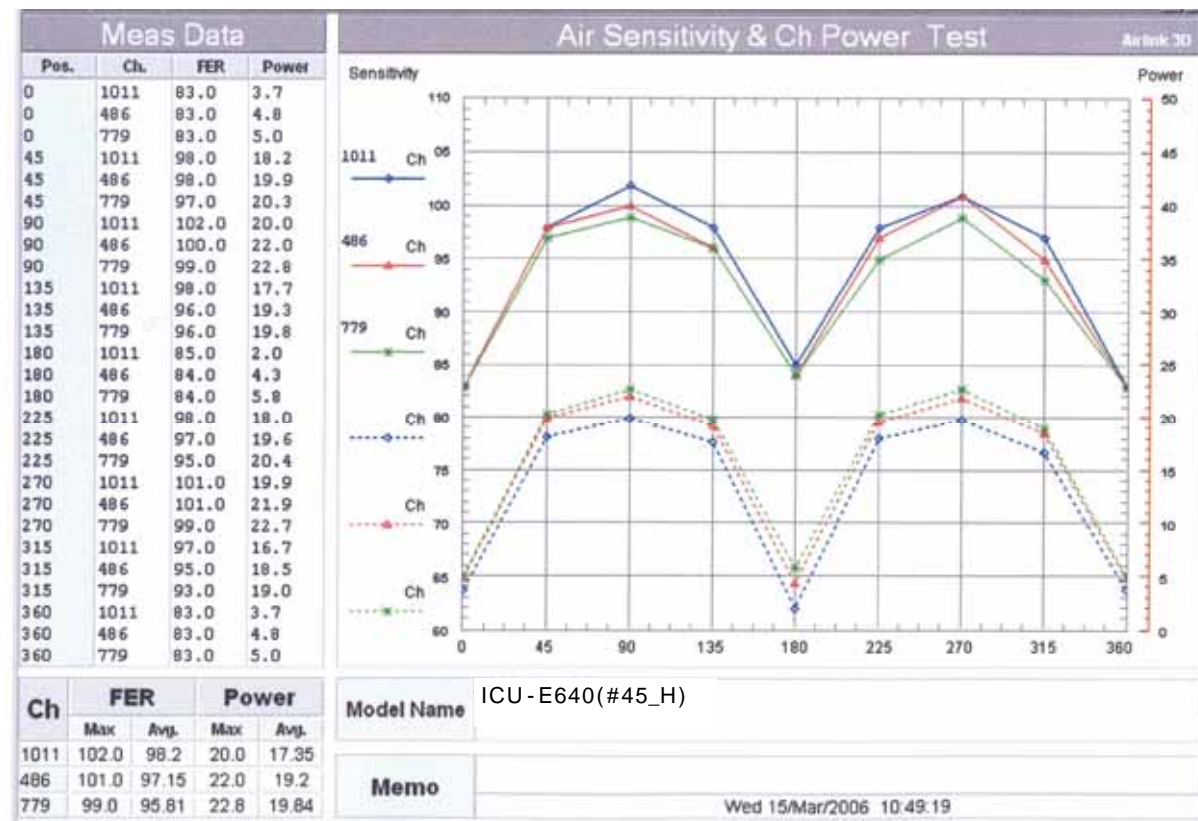
3.2 3D TIS/TRP



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.

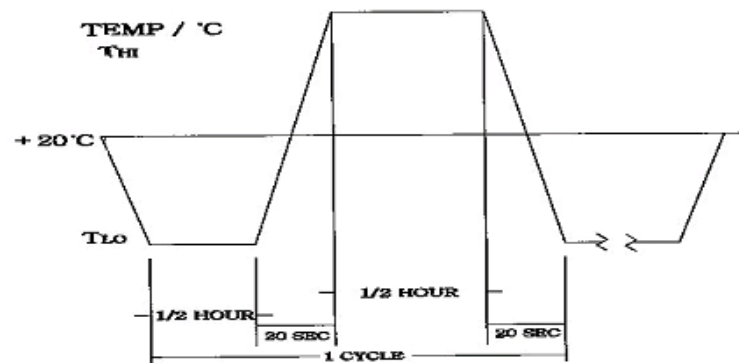
Test result: OK

4.3.3. Temperature Shock

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

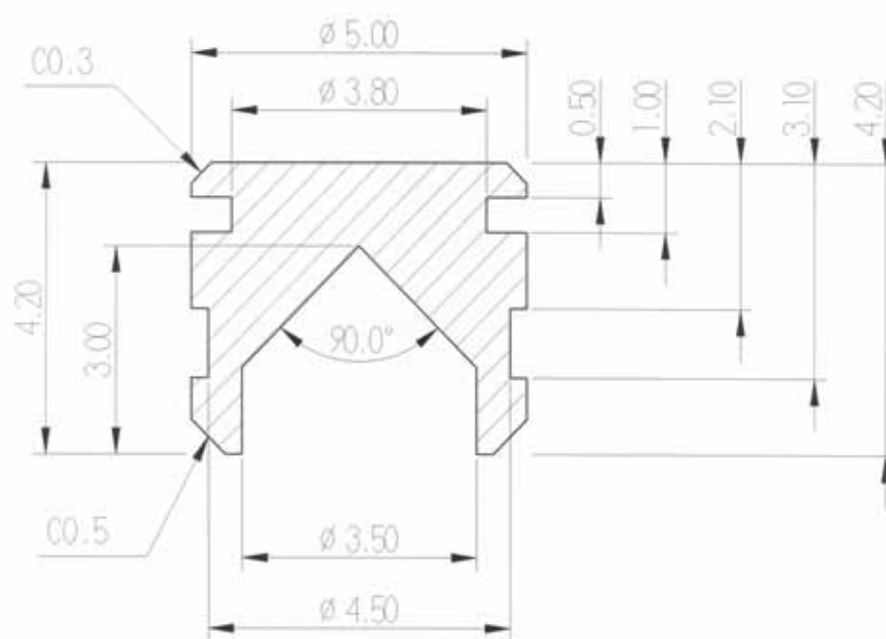
Criteria: No mechanical damage and electrical characteristics unchanged.

Test result: OK

5.1. Housing



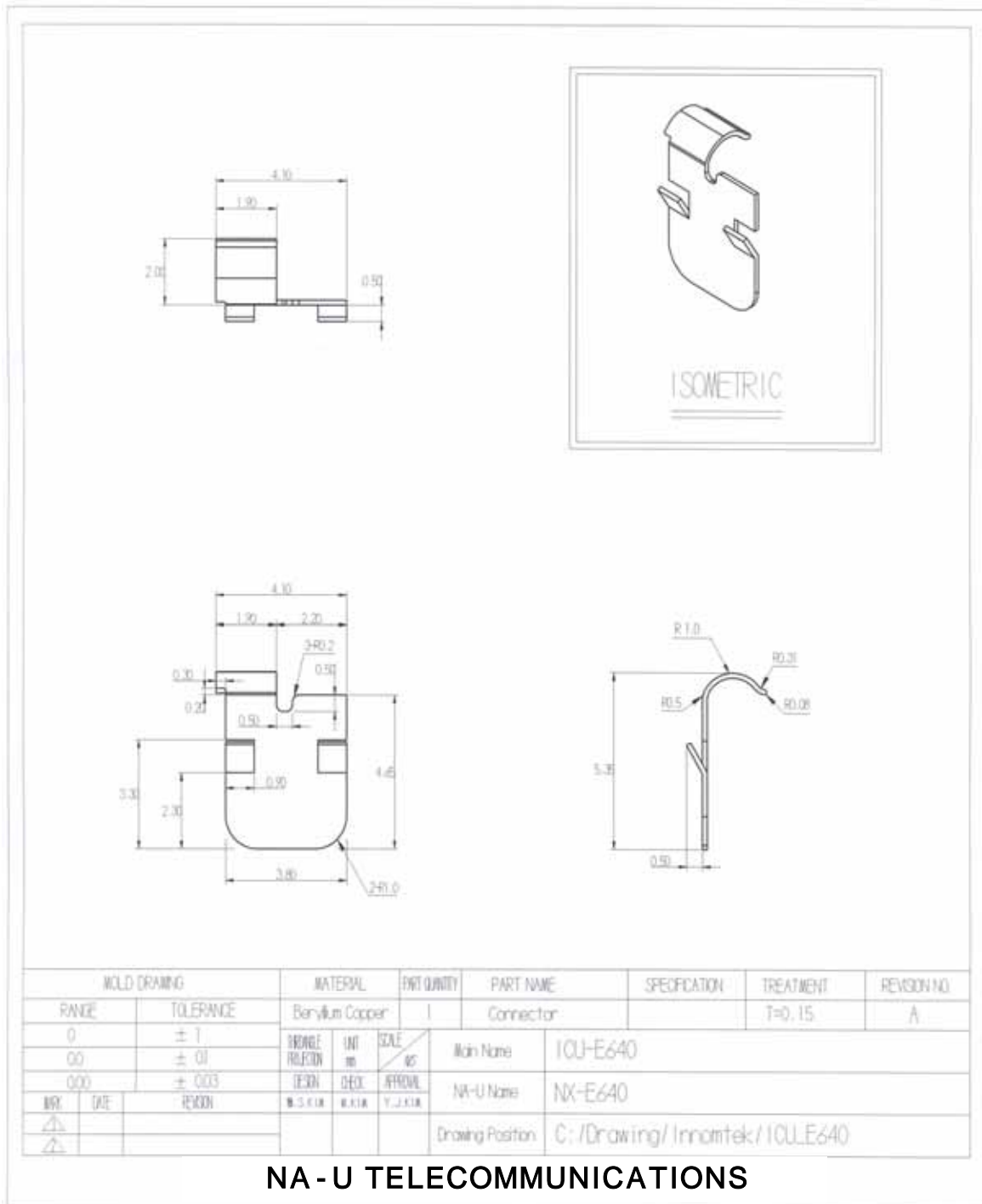
5.2. Holder



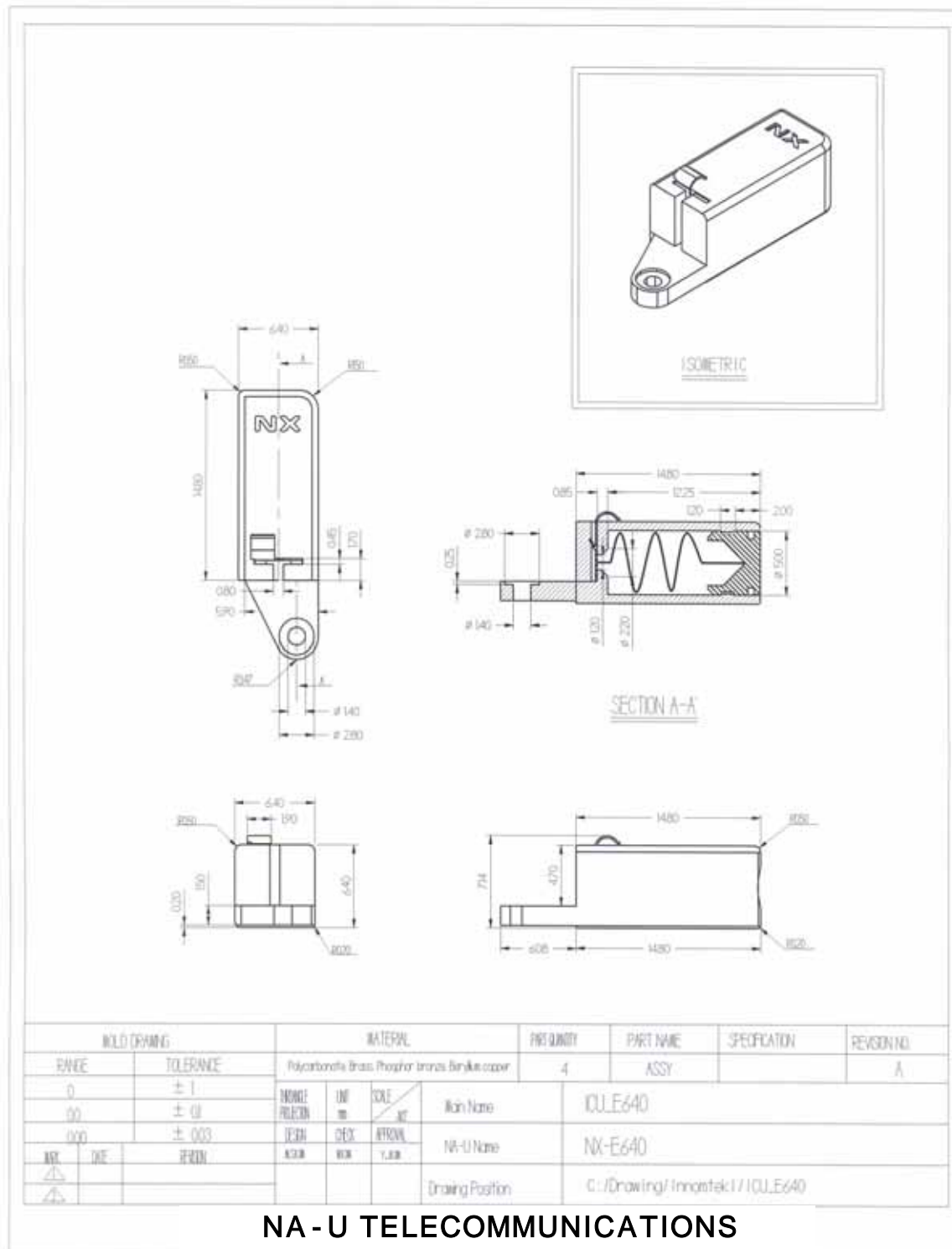
WELD DRAWING		MATERIAL	PART QUANTITY		PART NAME		SPECIFICATION	TREATMENT	REVISION NO.
RANGE	TOLERANCE	C3604	1		5042H				A
0	± 1	THICKNESS	UNIT	SCALE	Main Name	5042H			
00	± 01	DESIGN	CHECK	APPROVAL	NA-U Name	5042H			
000	± 003	REVISION	REVISION	REVISION	NA-U Name	5042H			
REV	DATE				Drawing Position	C:\Drawing\Innotek\IDU_E640			

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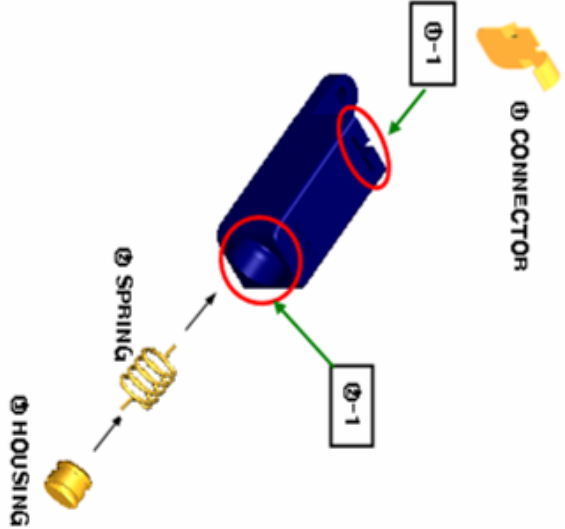

5.3. Connector



5.4. Assembly



6. Process control

Model	NX-E640	Process control sheet																	
Product	Antenna																		
Part No	-																		
Material	PC																		
Color	Black																		
1. Process		<div>Ver.<table border="1"><tr><td>1</td><td>2006 . 03. 16</td></tr><tr><td>2</td><td>. . .</td></tr><tr><td>3</td><td>. . .</td></tr><tr><td>4</td><td>. . .</td></tr></table></div> <div>Draft by MSKim</div> <div>Approval<table border="1"><tr><td>draft</td><td>review</td><td>approval</td></tr><tr><td>/</td><td>/</td><td>/</td></tr></table></div>				1	2006 . 03. 16	2	. . .	3	. . .	4	. . .	draft	review	approval	/	/	/
1	2006 . 03. 16																		
2	. . .																		
3	. . .																		
4	. . .																		
draft	review	approval																	
/	/	/																	
2. Work guide		<div>1. Insert connector ① into ②-1 position. 2. Insert Spring ③ into ②-1 position. 3. Place the HOLDER ④ onto SPRING ③ smoothly. 4. Fix the HOLDER ④ inside the housing by Jig. 5. Contact CONNECTOR ① with Network Analyzer and check VSWR.</div> <div>3. Assy / QC</div> <div>4. Completed</div>																	
<div></div>		<div>1. Assy procedure should be kept 2. After assembly, check VSWR data. VSWR data should be lower than the limit specified.</div> <div></div>																	
Remarks		<div>- Attention and Action against abnormal case -</div> <div>★ 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. (Sorting by defect type and root cause analysis required)</div>																	

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	Description	Sample #					Result
		#1	#2	#3	#4	#5	
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 material 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	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 material. 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	