XMULTIPLE

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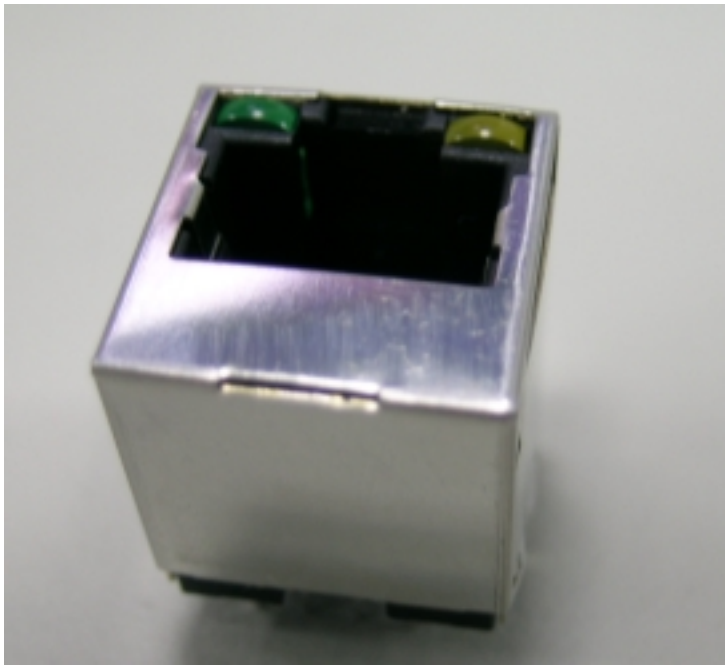
AGE

XRJV Connector Specification



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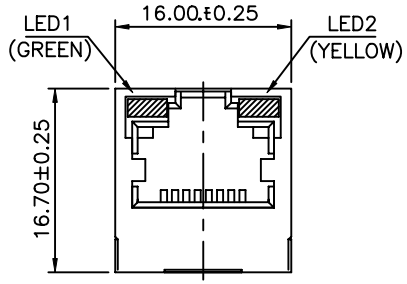
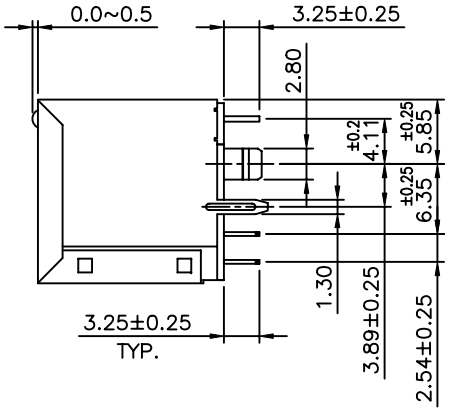
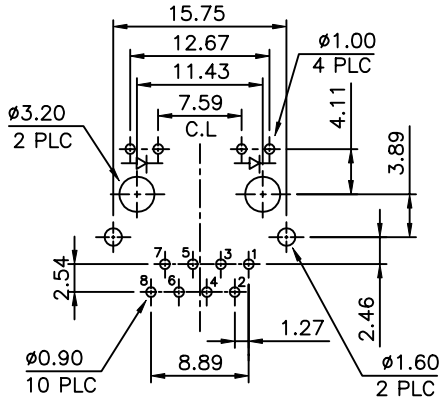
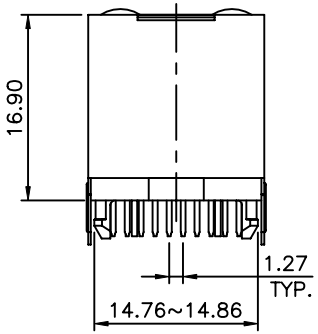
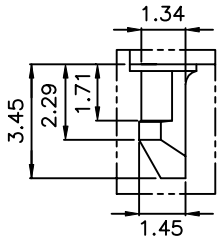






PCB Layout
Ref.





DETAIL X

	CODE	LED 2 [LEFT]	LED 1 [RIGHT]
	0	BLOCKED	BLOCKED
	1	YELLOW	GREEN
	2	BLOCKED	GREEN
	3	YELLOW	BLOCKED
☆	4	GREEN	YELLOW
	5	GREEN	GREEN
	6	YELLOW	YELLOW
	7	OR/GR	OR/GR
	8	YE/GR	YE/GR
	9	OR/GR	YELLOW

NOTES:

1. MATERIALS:
   HOUSING –PBT POLYESTER UL94V–0
   MIXED 30% GLASS FIBER.
   STANDARD COLOR–BLACK.
   CONTACTS–0.35mm THICK PHOS–BRONZE PLATED
   WITH 30u" HARD GOLD IN CONTACT AREA
   , 150u" TIN/LEAD IN SOLDER AREA,
   AND 50u" NICKEL IN ALL AREA.
   SHIELD–0.25mm THICK COPPER ALLOY,
   PLATED WITH NICKEL.

2. ELECTRICAL:
   INSULATION RESISTANCE: 500 MEGOHMS MINIMUM
   CURRENT RATING: 1.5 AMPS
   VOLTAGE RATING: 150 VOLTS AC
   LED FALINGS:
   FORWARD DC CURRENT: 2mA
   FORWARD VOLTAGE: 1.8 VOLTS TYPICAL
   REVERSE VOLTAGE: 5 VOLTS MINIMUM
   POWER DISSIPATION: GRN.=24mW;YELL.=36mW
3. CAVITY CONFIRMS TO FCC RULES AND REGULATIONS
   PART 68,SUBPART F.
4. UNSPECIFIED TOLERANCE: .XX ±0.25[0.010]
   .X ±0.30[0.012]

XMULTIPLE
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XMULTIPLE ASIA
4F, No. 347,Yang Guang St.,
Neihu Chiu , Taipei , Taiwan 11475

XMULTIPLE USA
543 Country Club Drive #B 128
Simi Valley, CA 93065

G/NO:

THIS DRAWING IS A CONTROLLED DOCUMENT.

DWG NO: XRJV-11-01-8-8-4-901

TITLE: RJ45 Jack, Vertical Mount, W/LED, 8P, 8C,
Shielded/Thru Hole/10/100 Mbps LAN Magnetics

DRAWN: F.T CHEN

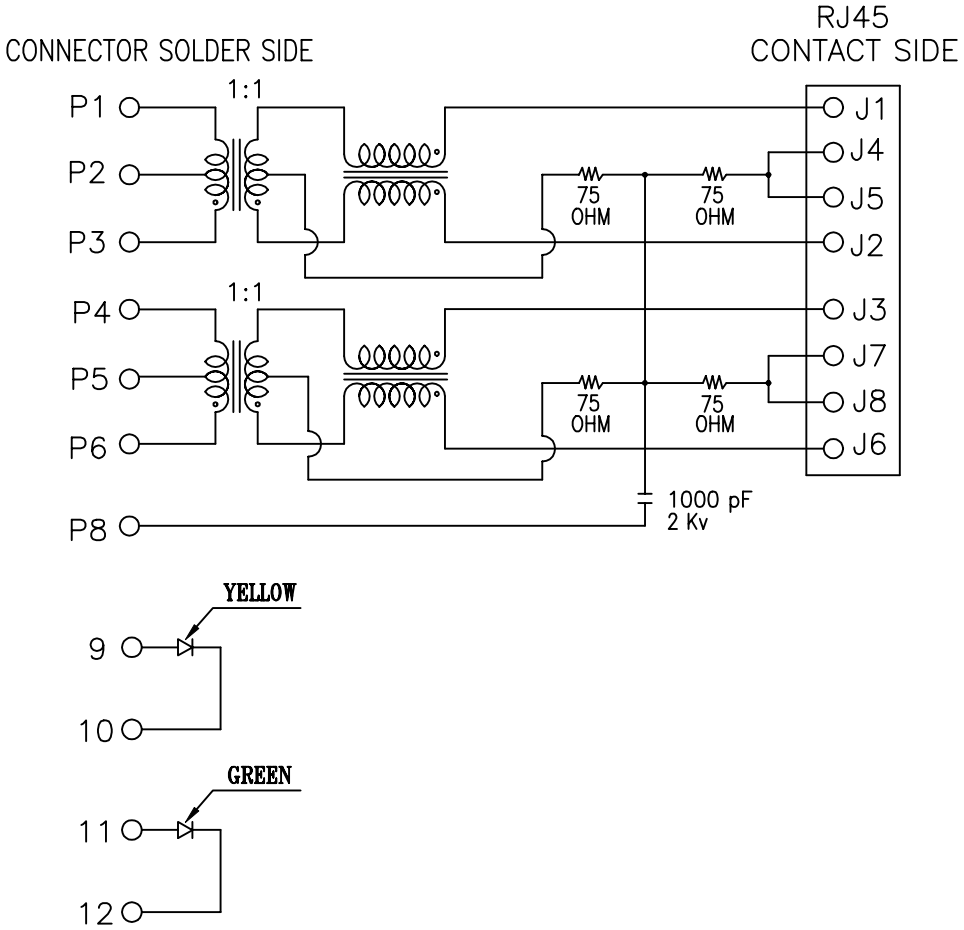
PART NO: XRJV–11–01–8–8–4–901

CHKD: C. TSAI

DIMENSIONS	SHEET	REV
mm[inch]	1 of 2	A

DATE: 03/09/03"

2. SCHEMATIC:



3. ELECTRICAL CHARACTERISTICS :

TEST NOTES:(25±5°C)

1.TR:(100KHz,0.1V);
PINS:(1−3):(J1−J2)=1:1±3%
PINS:(4−6):(J3−J6)=1:1±3%

2.LX:(100KHz,100mV,8mA, DC Bias)
PINS: (1,3),(4,6)=350uH MINIMUM

3.DCR:
PINS:(1−3),(J3−J6),(J1−J2)= 1.0 OHMS MAXIMUM
PINS:(4−6)=1.2 OHMS MAXIMUM

4.HIPOT:
PINS(1,2,3)TO(J1,J2)=1500VAC FOR 60 SECONDS
PINS(4,5,6)TO(J3,J6)=1500VAC FOR 60 SECONDS

5.CAPACTIOR (1KHz,1V) :
SHIDLD TO (J1−J8)=1300pF MAXIMUM AND 700pF MINIMUM

6. INSERTION LOSS:
−1.0dB MAXIMUM AT 0.1MHz TO 100MHz;

7. RETURN LOSS:
−20dB MINIMUM AT 1MHz TO 30MHz;
−15dB MINIMUM AT 30MHz TO 60MHz
−10dB MINIMUM AT 60MHz TO 80MHz

8. CROSS TALK:
−30dB MINIMUM AT 1MHz TO 100MHz

9. COMMON TO COMMON MODE REJECTION:
−30dB MINIMUM AT 1MHz TO 100MHz

XRJV−11−01−8−8−4−901

V−[W/LED Vertical Mount (Top Entry)]

Turns Ratb Xmit/Rcv

1	1:1/1:1
2	1.25:1/1:1
3	1.36:1/1:1
4	1.41:1/1:1
5	2:1/1:1

Application Category

1	10/100 Base Filter
2	10/100/1000 Base Filter
3	10 Base Filter

Number of Port

Number of Position

Number of Contact

LED Color Options Table

SERIAL NUMBER

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4F, No. 347,Yang Guang St.,
Neihu Chiu , Taipei , Taiwan 11475

XMULTIPLE USA
543 Country Club Drive #B 128
Simi Valley, CA 93065

G/NO:

THIS DRAWING IS A CONTROLLED DOCUMENT.

DWG NO: XRJV−11−01−8−8−4−901

TITLE: RJ45 Jack, Vertical Mount, W/LED, 8P, 8C, Shielded/Thru Hole/10/100 Mbps LAN Magnetics

DRAWN: F.T CHEN

PART NO: XRJV−11−01−8−8−4−901

CHKD: C. TSAI

DIMENSIONS	SHEET	REV
mm[inch]	2 of 2	A

DATE: 03/09/03"

XMULTIPLE

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DOCUMENTS	XPS-3012
REV.	1A

Modular Jack With LAN Magnetics

1. SCOPE

1.1. CONTENT

This specification document defines requirements for Xmultiple XRJV Sereis of RJ45 Modular Jack integrated with LAN Magnetics. The specification specified herein defines the testing of performance, quality and reliability of the XRJV series with LAN Magnetics.

1.2. QUALIFICATION

When tests are performed on the subject product line, all inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The specification, standards, and procedures described herein form a part of this document to the extent specified herein. If there is any conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. If there is any conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. SPECIFICATIONS

XMULTIPLE Documents

A.XPS-3012 Test specifications as indicated in Figure 1.

B.XTR-3012 Test report.

Federal

QQ-B-626 Brass; bar, plate, rod, strip, flat wire and special shaped sections

QQ-B-750 Bronze, phosphor; bar, plate, rod, sheet, strip, flat, wire, and structural and Special shaped sections

QQ-N-290 Plating, nickel (electrodeposited)

Military

MIL-STD-105E Sampling procedures for inspection by attributes

MIL-STD-1344A Test methods for electrical connectors

MIL-C-39012C General specification for connectors, coaxial, radio frequency

MIL-G-45204 Gold plating (electrodeposited)

Underwriters' Laboratories, Inc.

UL-std-94 Tests for flammability of plastic material for parts in devices and appliances.

Others

FCC Rules for Registration of Telephone Equipment Part 68, Subpart F, connectors.

3. REQUIREMENTS

3.1. DESIGN AND CONSTRUCTION

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. MATERIALS

A. Housing: PBT POLYESTER UL94V-0 MIXED 30% GLASS FIBER. STAND COLOR-BLACK.

B. Contact: 0.35mm THICK PHOS-BRONZE PLATED WITH 30u" HARD GOLD IN CONTACT AREA, 150u" TIN/LEAD IN SOLDER AREA, AND 50u" NICKEL IN ALL AREA.

C. Shield: 0.25mm THICK COPPER ALLOY, PLATED WITH NICKEL.

3.3. RATINGS

1. Relative Humidity: 70%±10%RH
2. Operating Temperature: standard -40℃ to 70℃ Extended: -40℃ to 85℃.
3. Current Rating: 1A Max
4. Voltage Rating: 150 VAC Max.

3.4. PERFORMANCE AND TEST DESCRIPTION

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.5 TEST REQUIREMENTS AND PROCEDURES SUMMARY

NO.	TEST DESCRIPTION	REQUIREMENT
1	Visual & Mechanical Examination	Mechanical Structure & Appearance & Cosmetics Specs and Drawing.
		ELECTRICAL
2	Termination Resistance.	20 mΩ Max. initial. 30 mΩ Max. final.
3	Dielectric Withstanding Voltage.	AC 1KVrms at 60Hz , 1 minute between adjacent contacts. AC 1.5KVrms at 60Hz , 1 minute between shield and contacts.
4	Insulation Resistance	500 MΩ Min. initial. 200 MΩ Min. final. 100 VDC min. between adjacent contacts.
		MECHANICAL
5	Contact Normal Force	100g Min.
6	Durability	Mate and unmate for 500 cycles at a rate of 20~30 cycles per minute without load.
7	Mating Force	2 contacts -----1.6Kgf Max. 4 contacts -----1.8Kgf Max. 6 contacts -----2.1Kgf Max. 8 contacts -----2.3Kgf Max. 10 contacts -----2.5Kgf Max.
		ENVIRONMENTAL
8	Humidity test	At a temperature of 40℃±2℃ and relative humidity of 90%to 95% for 96 hours.
9	Temperature Life	Exposing in a heat chamber at a temperature of 65℃±2℃ for 96 hours.

Figure 1.

3.6 CONNECTOR TESTS AND SEQUENCES

Items	Test Group				
	A	B	C	D	E
1	1 , 7	1 , 5	1 , 5	1 , 7	
2	2 , 6	2 , 4	2 , 4		
3				2 , 5	
4				3 , 6	
5					1
6	4				
7	3 , 5				
8		3		4	
9			3		

3.7. TEST SAMPLES

The test samples consisted of 25 pcs which were divided into 5 groups (A,B,C,D and E) with 5 pes In each group for each corresponding test group defined in section 3.6 CONNECTOR TESTS AND SEQUENCES.

4. QUALITY ASSURANCE PROVISIONS

4.1. SAMPLE SELECTION

Modular jack test samples shall be selected at random from current production lots. They shall be prepared for testing in accordance with current application specifications and instruction sheets.

4.2. ACCEPTANCE

Acceptance is based on verification that the product meets the requirements of figure 1. Failures attributed to equipment, test setup, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.3 QUALITY CONFORMANCE INSPECTION

The applicable XMULTIPLE quality inspection plan will specify the sampling quality level to be used.

Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

4.4 Temperature Life

Subject mated plug and jack exposing in a heat chamber at a temperature of 65℃±2℃ for 96 hours.

Requirements:

No evidence of physical damaged.

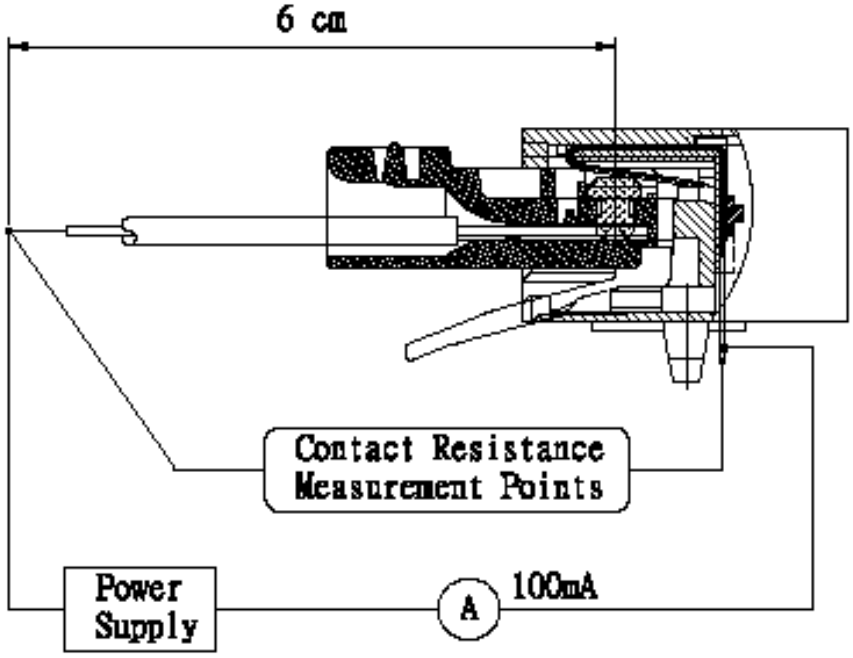

Figure 1

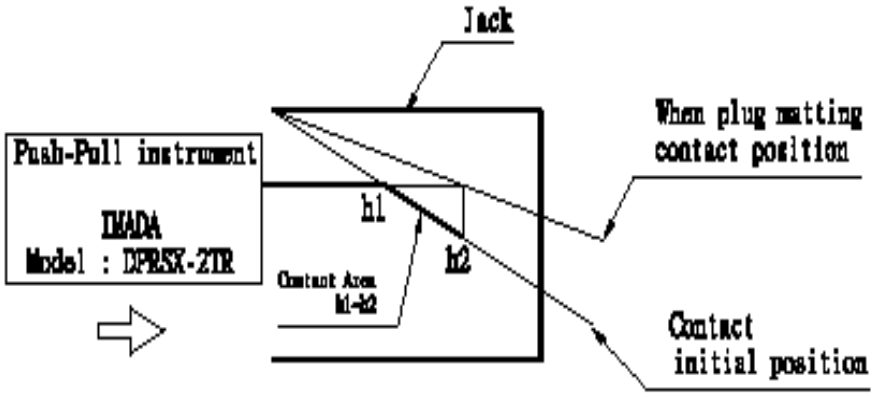

Figure 2

XMULTIPLE

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DOCUMENTS	XPS-3012
REV.	1A

QUALIFICATION TEST REPORT

Xmultiple P/N: XRJV-11-01-8-8-4-901

Description : RJ45 Jack, Vertical Mount, W/LED, 8P, 8C Shielded/Thru Hole/10/100 Mbps LAN Magnetics

TEST REPORT

1. Description

The XMULTIPLE modular jack has been specifically designed for implementation of fast Ethernet Application.

With high voltage isolation, optimized rise time, wideband width and stable inductance, the transformer integrated in this module provide excellent performance as an analog interface.

Common mode chock have been designed to significantly reduce common mode choke level which may contribute EMI emission.

XMULTIPLE modular jack provide the system designer the opportunity of reducing PCB space.

2. Feature

- Designed to meet IEEE802.3u requirement.
- Available in 1:1 turn ratios used by LAN IC manufactures.
- Primary center taps available for additional EMI reduction.
- Simplest magnetic component to place and route on PCB.
- Conserves minimizing PCB space.

3. Test Requirements：

No	Item	Requirement	Test or Inspection Method
1	Examination of product.	Meet requirements of product drawing.	Visual, dimensional and functional per applicable inspection plan.
2	Solderability.	Max. 5% de-wetting , inspection with 10 times magnification.	Inspect surface of soldering legs visually, After soldering samples mounted on a printed circuit board. Solderbath：240±5 ℃. Duration：3~5 seconds.
3	Resistance to Soldering heat.	No functional damage.	Inspect Jack visually after soldering samples on a printed circuit board. Solderbath：240±5 ℃. Duration：3~5 seconds.
4	Contact resistance.	Contact resistance 20 m Ωmax. per initial contact resistance.	Subject mated Plug and Jack to open circuit at 10 mA maximum.
5	Dielectric Withstanding Voltage.	1KVrms dielectric withstanding voltage，1 minute hold.	Subject adjacent contacts of mated Plug and Jack to the specified voltage.
6	Insulation Resistance.	500 MΩ Min.	Subject adjacent contacts of mated Plug and Jack to the specified voltage 500VDC.

7	Printed circuit board retention.	Module Jack should not dislodge from P.C.B.	Apply load of 10 Kgf to modular Jack which is mounted on a printed circuit board at a rate of 10 mm per minute.
8	Plug retention in Jack.	Plug shall not dislodge from Jack and shall maintain electrical continuity.	Apply axial Load of 10 Kgf to modular plug which is mated to a modular jack at a rate of 10 mm per minute.
9	Vibration.	No discontinuities and show no evidence of physical damage.	Subject modular jack and modular plug to sinusoidal vibration along each of 3 mutually perpendicular axes. 10 cycles from10~500 Hz at a rate of 1 octave / minute. (Duration approx. 3 x 2 hours)
10	Durability.	Contact resistance, Plug retention and PCB retention shall meet each specified requirement.	Mate and Unmate Plug and Jack for 500 cycles total at a maximum rate of 500 cycles / hour.
11	Insertion Force.	Insertion force should not exceed 5 pounds.	Measure force necessary to mats Plug and Jack at a rate of 25 mm per minute.
12	Thermal shock.	Contact resistance, insulation resistance shall meet each specified requirement.	Subject mated Plug and Jack to 25 cycles between -40℃ and 70℃. The duration at the extreme temperature shall be 30 minutes.
13	Temperature-humidity cycling.	Contact resistance, insulation resistance shall meet each specified requirement.	Subject mated Plug and Jack to 10 temperature-humidity cycles between 25℃ and 55℃ at 95% RH.

4.Specification：

No	Test Description	Test Condition	Min.	Typ.	Max.	Unit
1	HI-POT	@10 mA ,1 minute	1.5K			Vrms
2	Turn Ratio			1：1		
3	Insertion Loss	@ 1-100 MHz			1.0	dB
4	Return Loss	@ 1-30 MHz	-16			dB
		@ 30-60 MHz * Note 1				dB
		@ 60-80 MHz	-10			dB
5	Cross Talk	@ 100KHz-100 MHz	-35			dB
6	Primary inductance	@ 100KHz, 0.1Vrms, 8 mA	350			μH

◎Note 1：Load 100 ohm.

5.Test Equipment：

NO	Description	Manufacture & Model
1	PROFILE PROJECTOR	NIKON V-12
2	MICROSCOPE INSTRUMENT	NIKON SMZ-1B
3	DIGITAL MULTIMETER	GW GDM-8055
4	DIGITAL MILLI-OHM METER<1m-200Ω>	GW
5	PULSE DETECTOR<0-1uS UP>	GW
6	PULSE GENERATOR	GW GPG-8018G
7	TEMPERATURE EQUIPMENT <20-200℃>	GF
8	PUNCTURE<0-5KV AC>	GW GPI-5005T
9	SUPER MEGOHMMETER<10MM OHM UP>	TOA SM-5E
10	COMPRESSION/TENSILE TESTER <0-2Kg>	IMAPA DPRSX-2TR
11	PULL-FORCE TESTER<0-1,000Kg>	GF PTTS-2A
12	VIBRATION TESTER<5-55Hz,4mmP-P>	GF
13	CONST TEMP.& HUMIDITY CHAMBER <0-100℃,20%-98% RH>	GF GTH-040S
14	SALT SPRAY <CORROSION> EQUIPMENT	GF GSST-060
15	DC POWER SUPPLY (DC 60V)	GW GPR-6030D
16	AUTO PUSH-PULL EQUIPMENT	SJC
17	S-Parameter Network Analyzer (30 KHz-3 GHz).	Agilent 8753 ES
18	Transformer Tester (Version：2.93)	Microtest TF-6885 FAK.

5.1 Qualification Test Report

Part Number		Sample Size	Test Date			
XRJV-11-01-8-8-4-901		5	Set. 03. 2003			
ITEM	DESCRIPTION	SPEC.	TEST RESULT			RMKS
			HIGH	LOW	AVE.	
1	Examination of Product.	Mechanical Structure & Appearance & Cosmetic Spec. and Drawing.	PASS			
	Dimensions. (Unit: mm)	1. 3.25±0.25	3.32	3.23	3.35	
		2. 2.54±0.25	2.49	2.43	2.46	
		3. 16.0±0.25	16.05	16.10	16.08	
2	Solderability.	Solder temperature：240±5 ℃. Duration ：3~5 seconds.	PASS			
3	Resistance to Soldering heat.	Solder temperature：250±5 ℃. Duration ：3~5 seconds.	PASS			
4	Contact Resistance.	20 mΩ Max Initial.	9.9	8.6	9.2	
5	Dielectric Withstanding Voltage.	AC 1KVrms up at 60Hz.	PASS			
6	Insulation Resistance.	500 MΩ Min.	500 MΩ up.			
7	Printed circuit board retention.	Module Jack should not dislodge from P.C.B. when load of 10 Kgf to modular Jack at a rate of 10 mm per minute.	PASS			
8	Plug retention in Jack.	Plug shall not dislodge from Jack and shall maintain electrical continuity, when load of 10 Kgf to modular Jack at a rate of 10 mm per minute.	PASS			

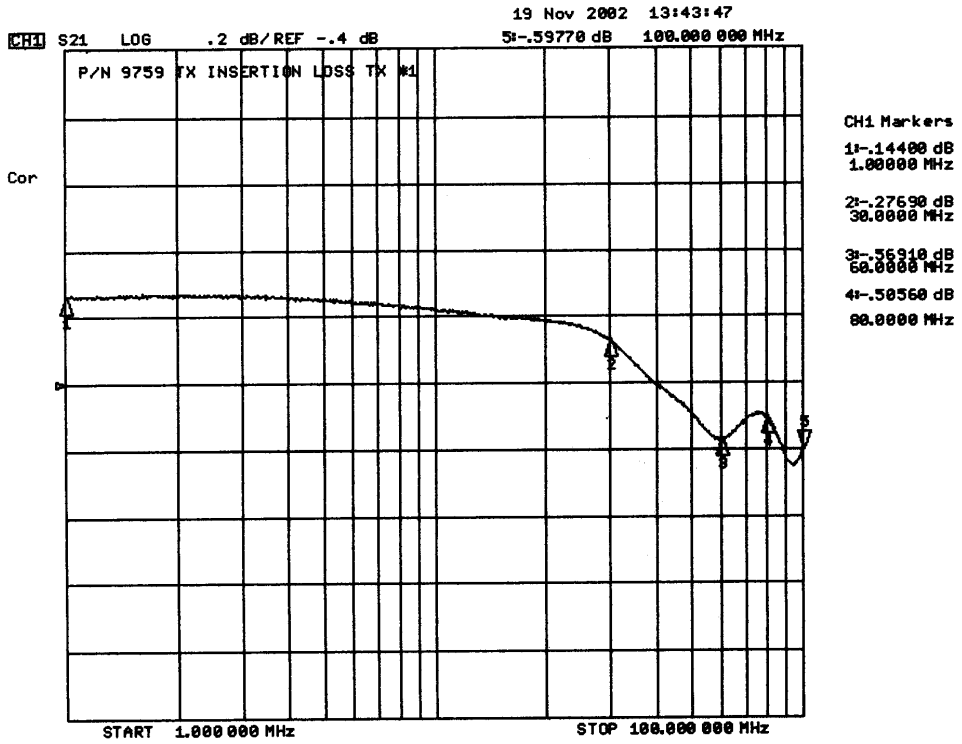
9	Vibration.	No discontinuities and show no evidence of physical damage.	PASS			
10	Durability.	Shall meet visual requirements, show no physical damage.	PASS			
11	Insertion Force.	8 contacts 2.3 Kgf max.	1.75	1.64	1.69	
12	Thermal shock.	Subject mated Plug and Jack to 25 cycles between -40℃ and 70℃. No discontinuities and show no evidence of physical damage.	PASS			
13	Temperature-humidity cycling.	At 40℃±2 ℃and 90%to 95% for 96 hours. No discontinuities and show no evidence of physical damage.	PASS			

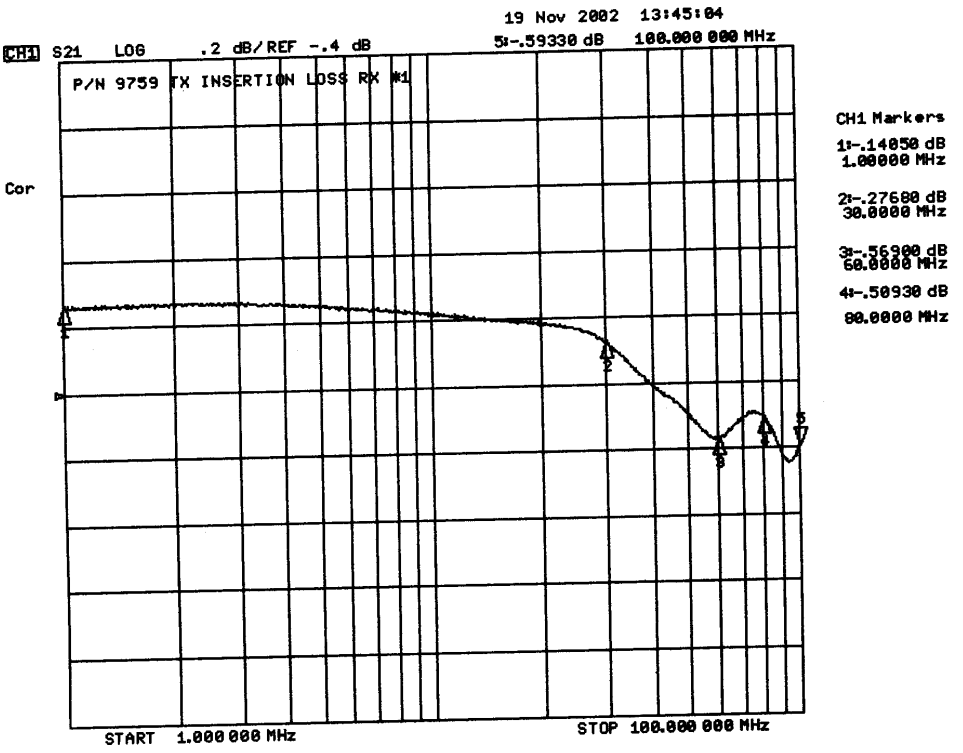
5.2 Transformer Test Report

Part Number	Sample Size		Test Date		
XRJV-11-01-8-8-4-901	5		Set.05.2003		
ITEM	SPEC.		TEST RESULT		REMARKS
			ACC.	REJ.	
1. HI-POT	1.5 KV rms. @10 mA ， 1 minute.		5	0	Note 1
2. Turn Ratio	Tx	1：1 CT	5	0	
	Rx	1：1 CT	5	0	
3. Insertion Loss	Tx	1-100 MHz, -1.0 dB Max.	5	0	Attachment 1
	Rx	1-100 MHz, -1.0 dB Max.	5	0	
4. Return Loss	Tx	1-30 MHz, -16 dB Min.	5	0	Attachment 2
		30-60 MHz , -15 dB Min. (Note 2)	5	0	
		60-80 MHz ,-10 dB Min.	5	0	
	Rx	1-30 MHz, -16 dB Min.	5	0	
		30-60 MHz , -15 dB Min. (Note 2)	5	0	
		60-80 MHz ,-10 dB Min.	5	0	
5. Cross Talk	Tx-Rx	100KHz-100 MHz , -35 dB Min.	5	0	Attachment 3
6. Primary inductance	@ 100 KHz, 0.1Vrms, 8mA , 350 μH Min.		5	0	
Final Judgment	Accept □ Reject				

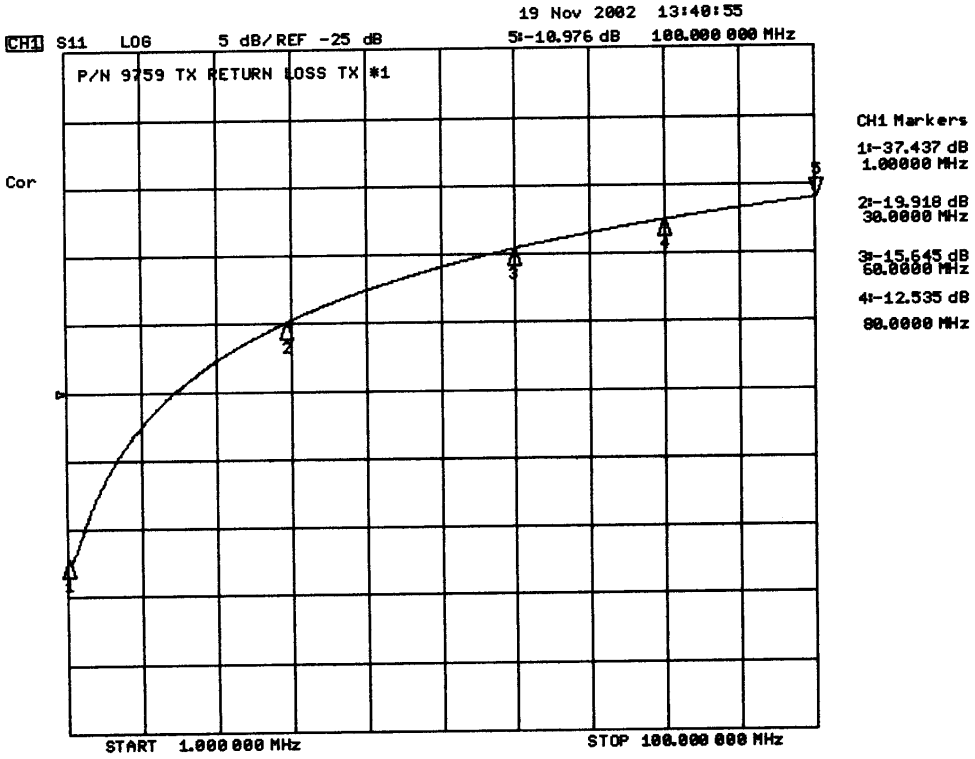
※ Equipment：1. 8753 ES， S-Parameter Network Analyzer (30 KHz-3 GHz).
2. Transformer Tester，Version：2.93，Model：TF-6885 FAK.
※ Note 1：After Hi-pot test OK, than continue to test others item.
※ Note 2：Load 100 ohm.

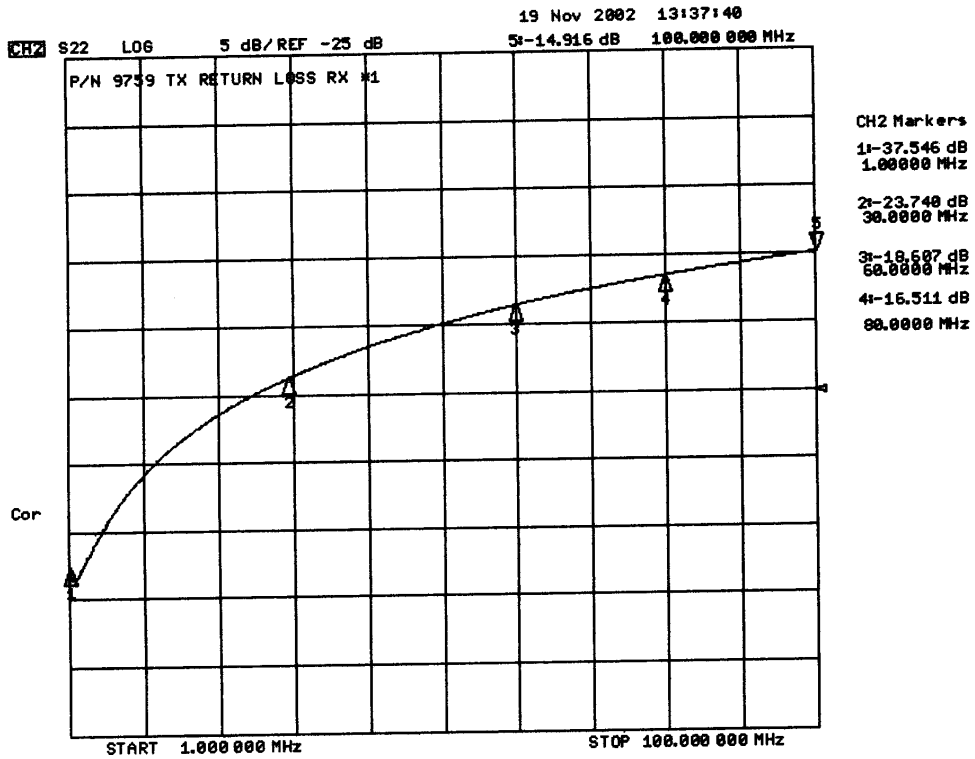
Attachment #1





Attachment #2





Attachment #3