

Customer Name	Standard	FUJITSU MEDIA DEVICES LIMITED	
System	Cellular Duplexer	DATE	June.13.2005
FMD P/N	FAR-D5CF-881M50-D1F1	Version 9.1n	

Table 1 Electrical Specification

Condition		FMD Specification (Ver9.1n/Final)			
Tx to Ant		Min	Typ.	Max	Unit
Insertion loss	824-849MHz	-	1.8	2.3	dB
Pass band ripple		-	0.5	1.0	dB
Pass band Return loss		10	13	-	dB
Input Power		1.2 W >50000 Hours CW tone (Ta=+50 °C)			Watt
Attenuation	779-804MHz	15	18	-	dB
	869-894MHz	45	48	-	dB
	1570-1580MHz	23	26	-	dB
	1648-1698MHz	24	27	-	dB
	2472-2547MHz	4	7	-	dB
Ant to Rx		Min	Typ.	Max	Unit
Insertion loss	869-894MHz	-	2.5	3.3	dB
Pass band ripple		-	0.7	1.5	dB
Return loss (Rx port)		10	14	-	dB
Return loss (Ant port)		10	12	-	dB
Attenuation	824-849MHz	55	58	-	dB
Tx to Rx		Min	Typ.	Max	Unit
Isolation	824-849 MHz	55	60	-	dB
	869-894 MHz	45	48	-	dB
Storage Temperature	-40 to +100			°C	
Operating Temperature	-30 to +85			°C	
Package size	3.8(typ.) x 3.8(typ.) x 1.6(max)			mm	

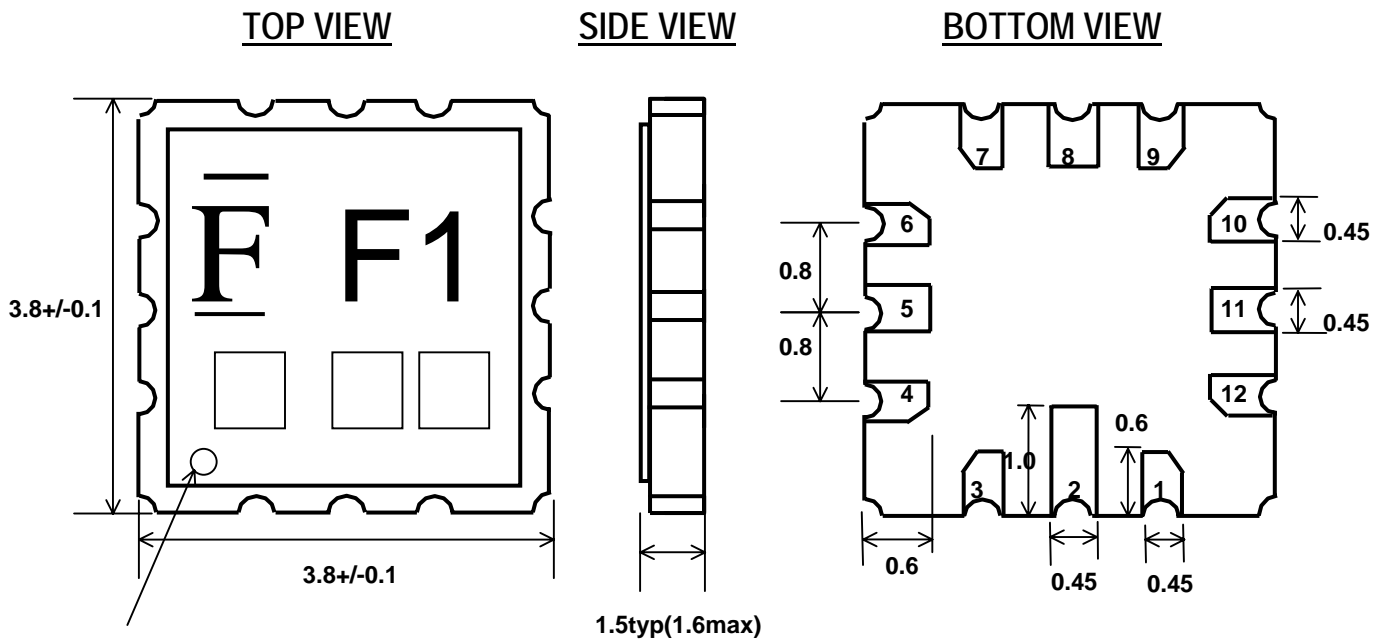
Note

SAW devices are very sensitive against ESD. To protect against damage by ESD, note the ESD following handling precautions:

1. Store and transport devices in conductive container.
2. Use properly grounded workstations, tools, and equipment.
3. On PCB, add matching circuit around SAW Device to protect against damage by ESD. ***(Please see Appendix(Page10 to 13))***

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Package Dimensions

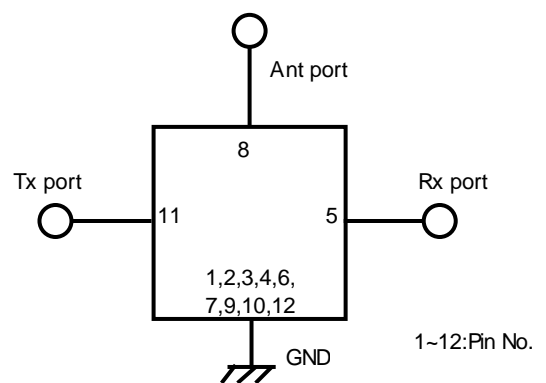


Pin 1 Index

Pin Configuration

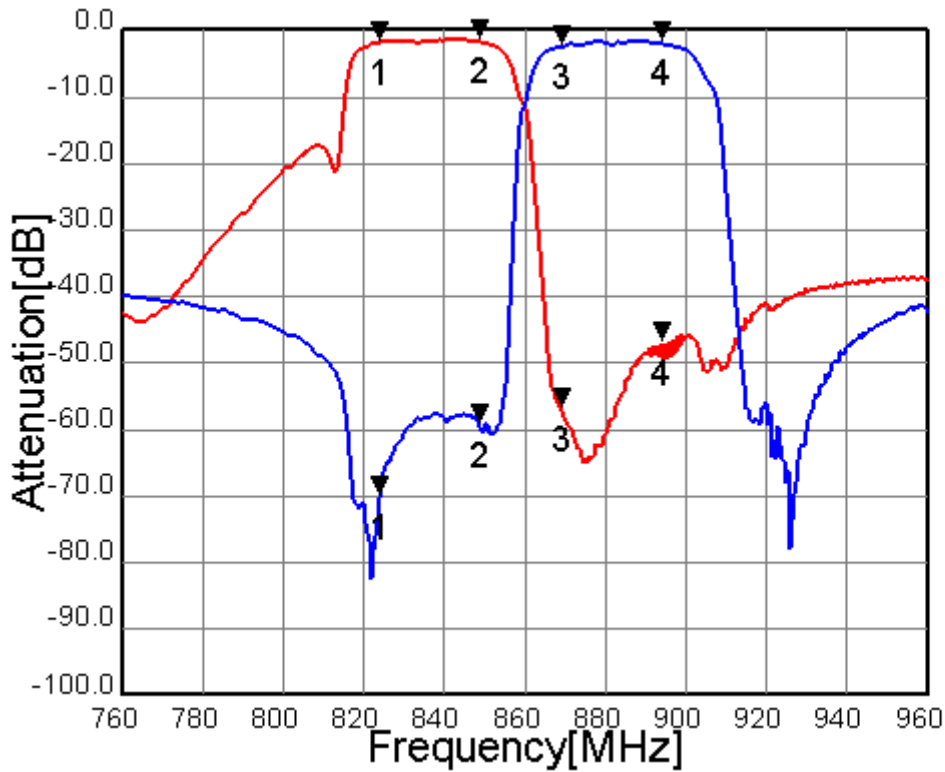
Pin No.	Pin name	Description
1	GND	Ground Pin
2	GND	Ground Pin
3	GND	Ground Pin
4	GND	Ground Pin
5	Rx	Receiver Pin
6	GND	Ground Pin
7	GND	Ground Pin
8	ANT	Antenna Pin
9	GND	Ground Pin
10	GND	Ground Pin
11	Tx	Transmitter Pin
12	GND	Ground Pin

Evaluation Circuit

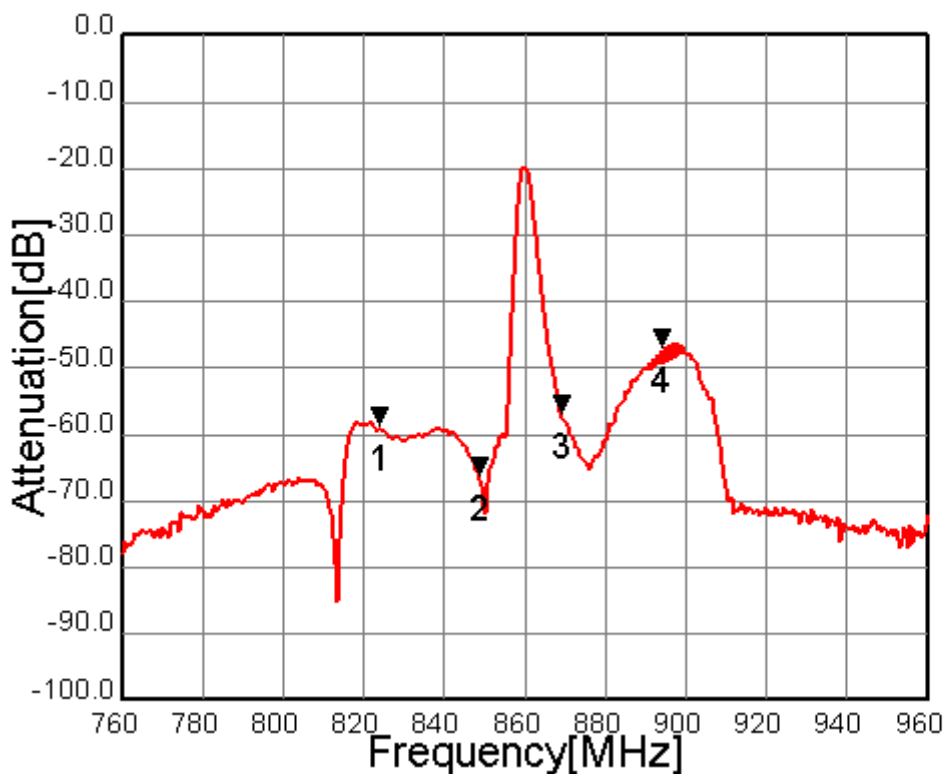


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Tx to Ant, Ant to Rx

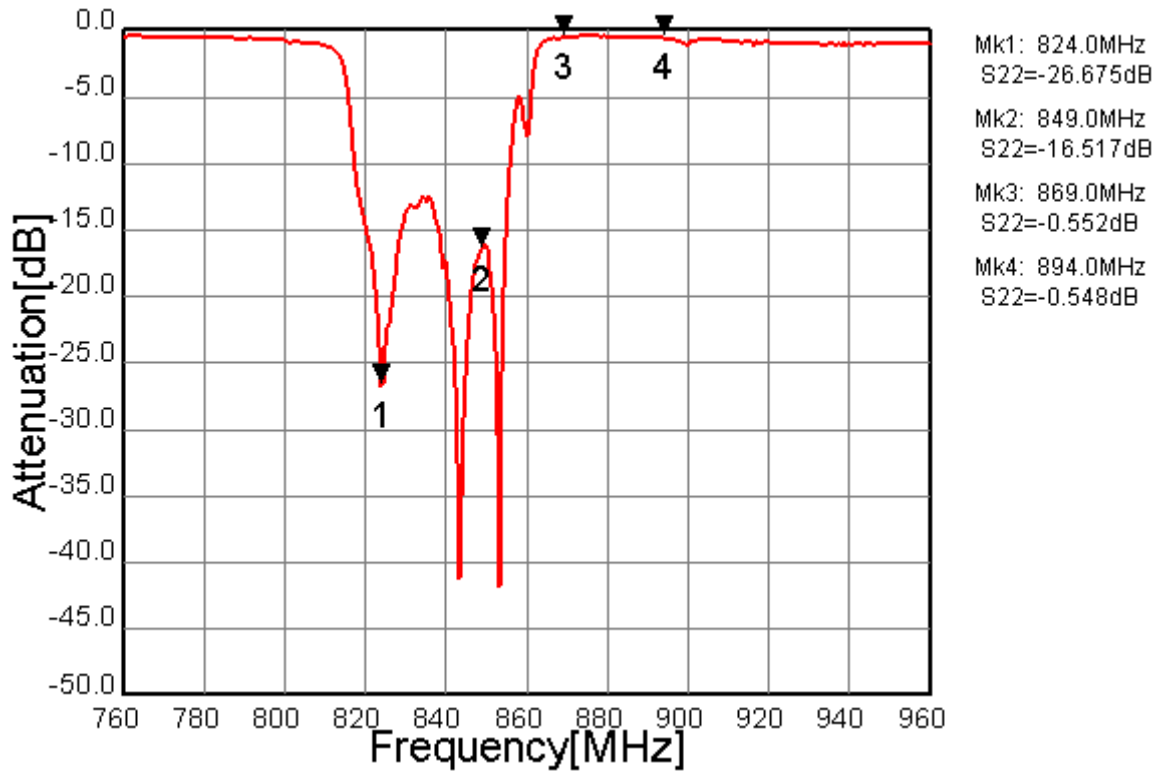


Tx to Rx Isolation

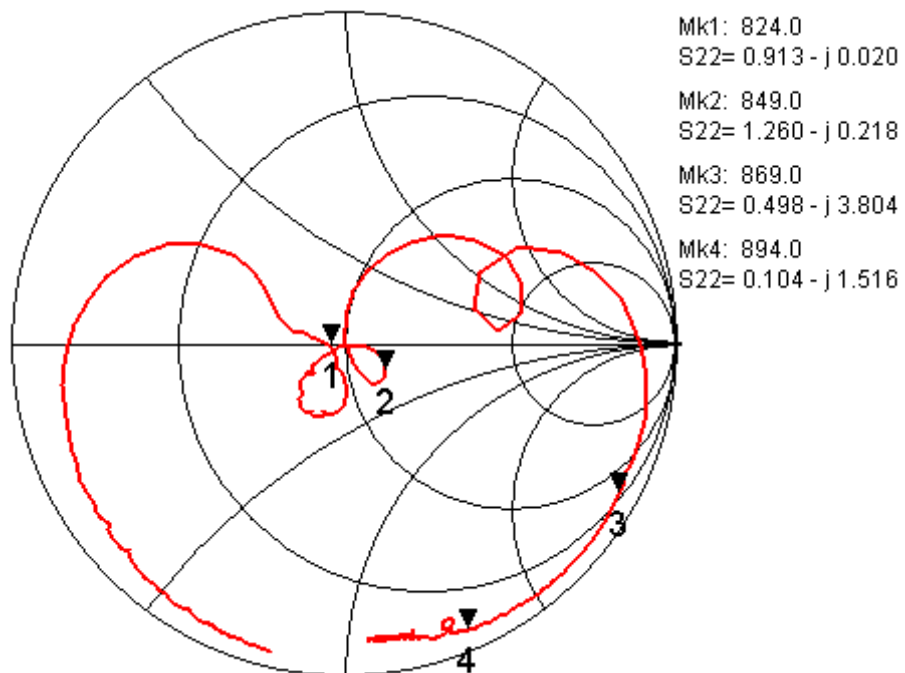


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Tx Port (Return Loss)

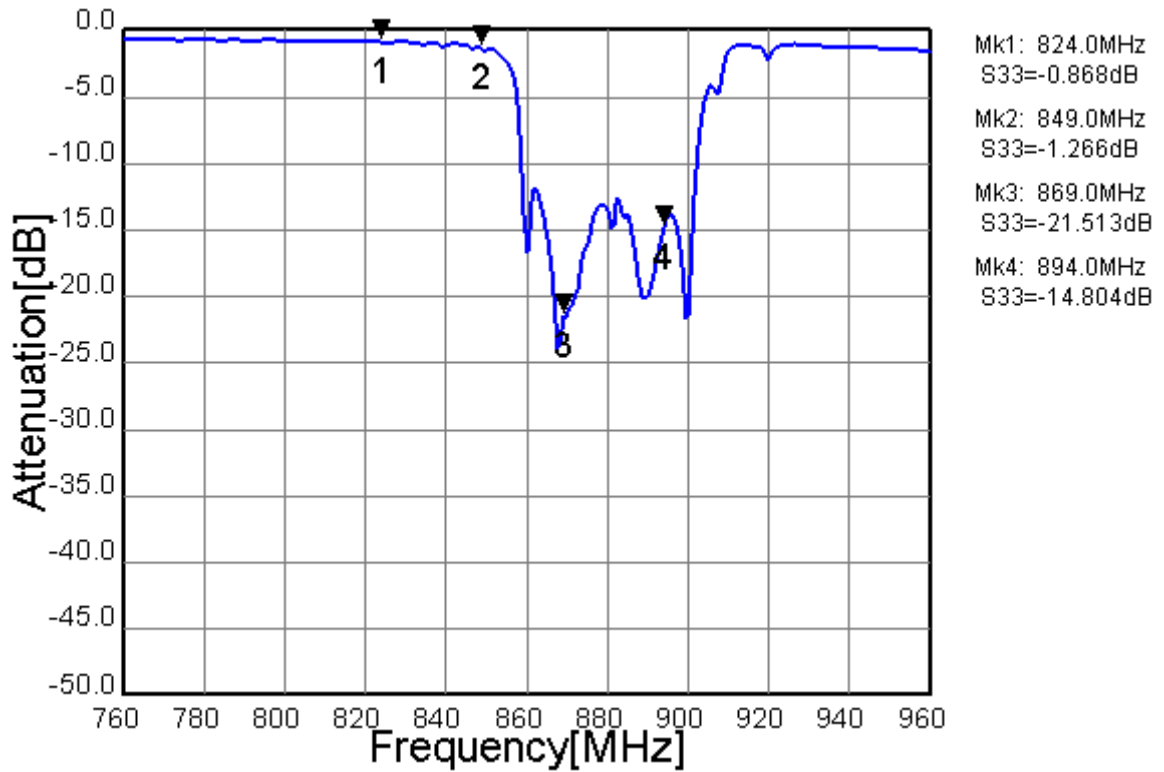


Tx Port (Smith Chart)

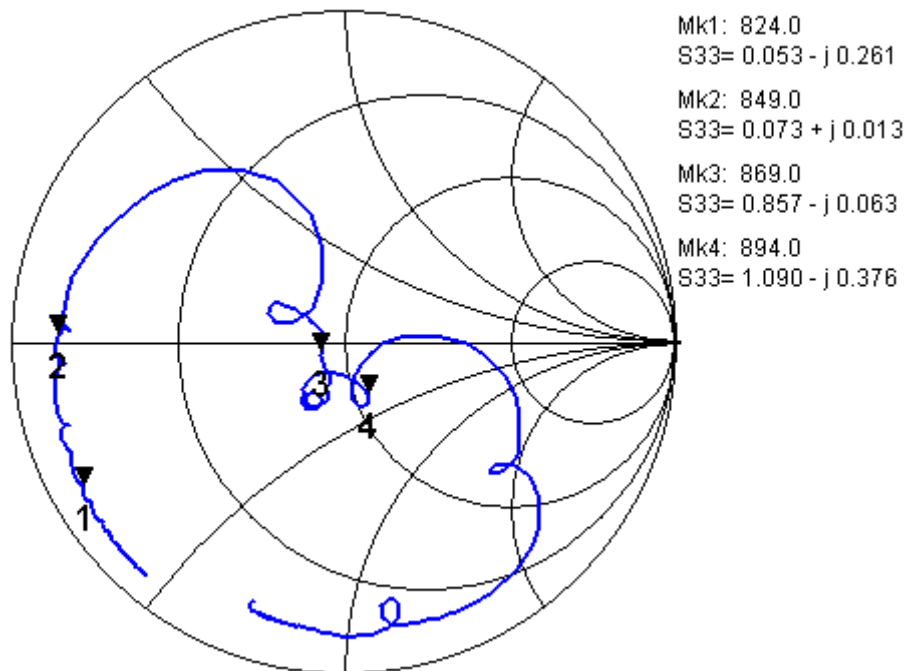


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Rx Port (Return Loss)

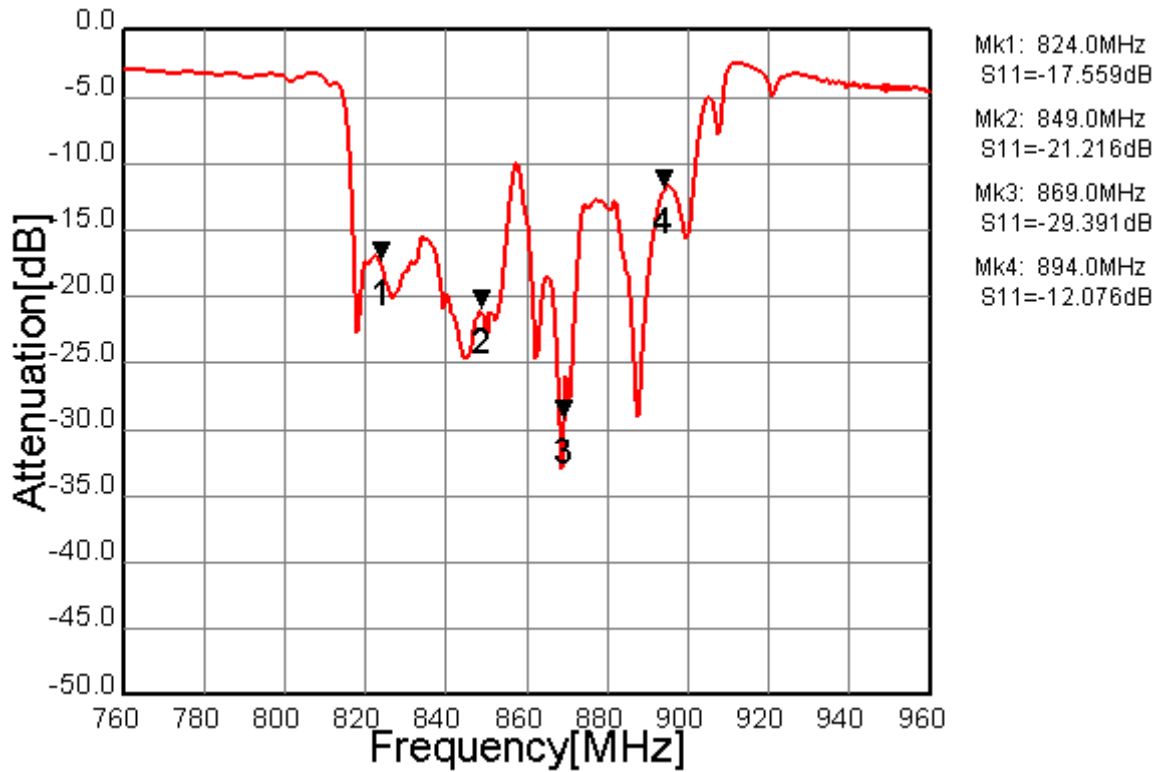


Rx Port (Smith Chart)

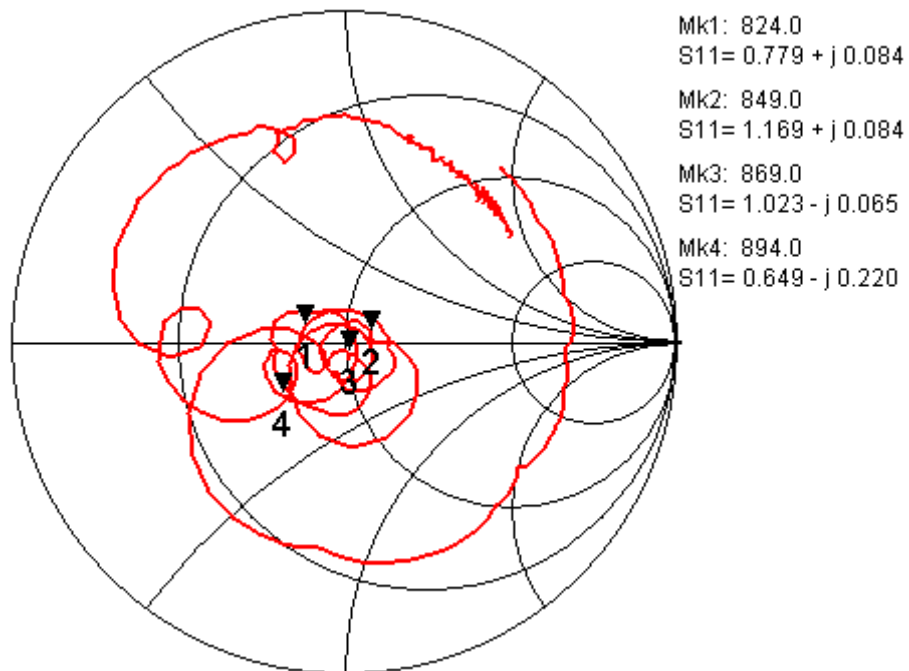


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Ant Port (Return loss)

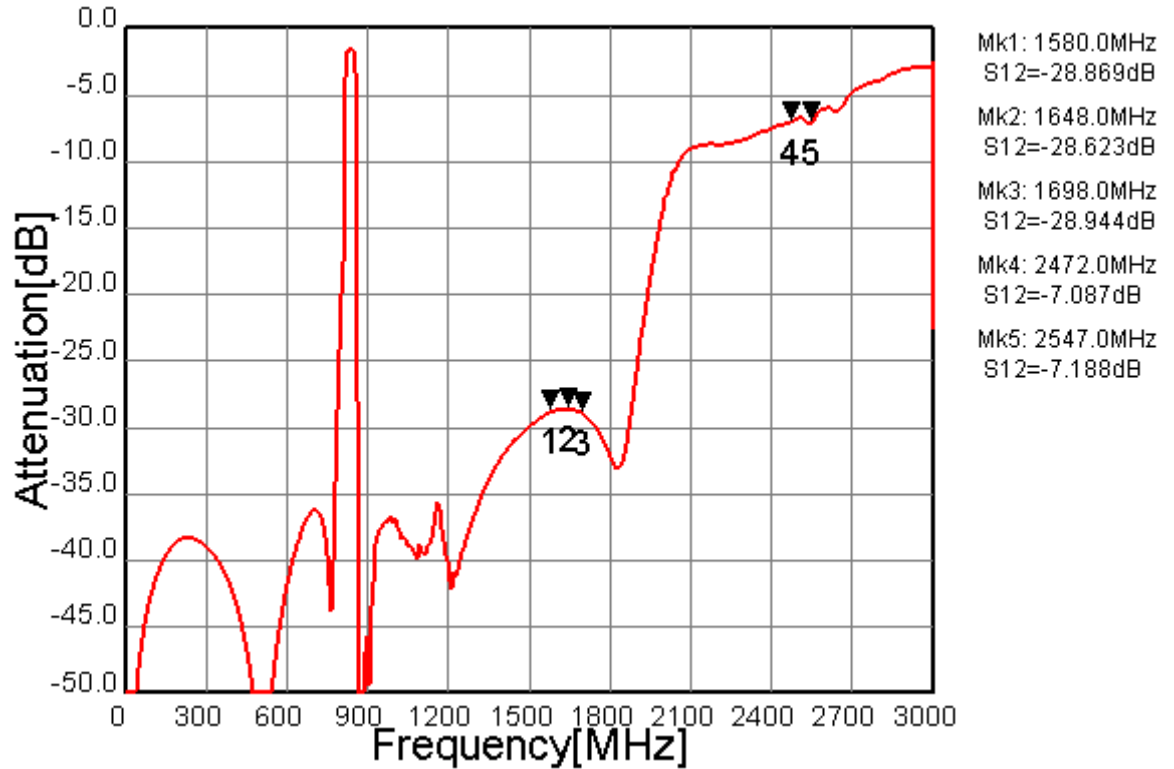


Ant Port (Smith Chart)

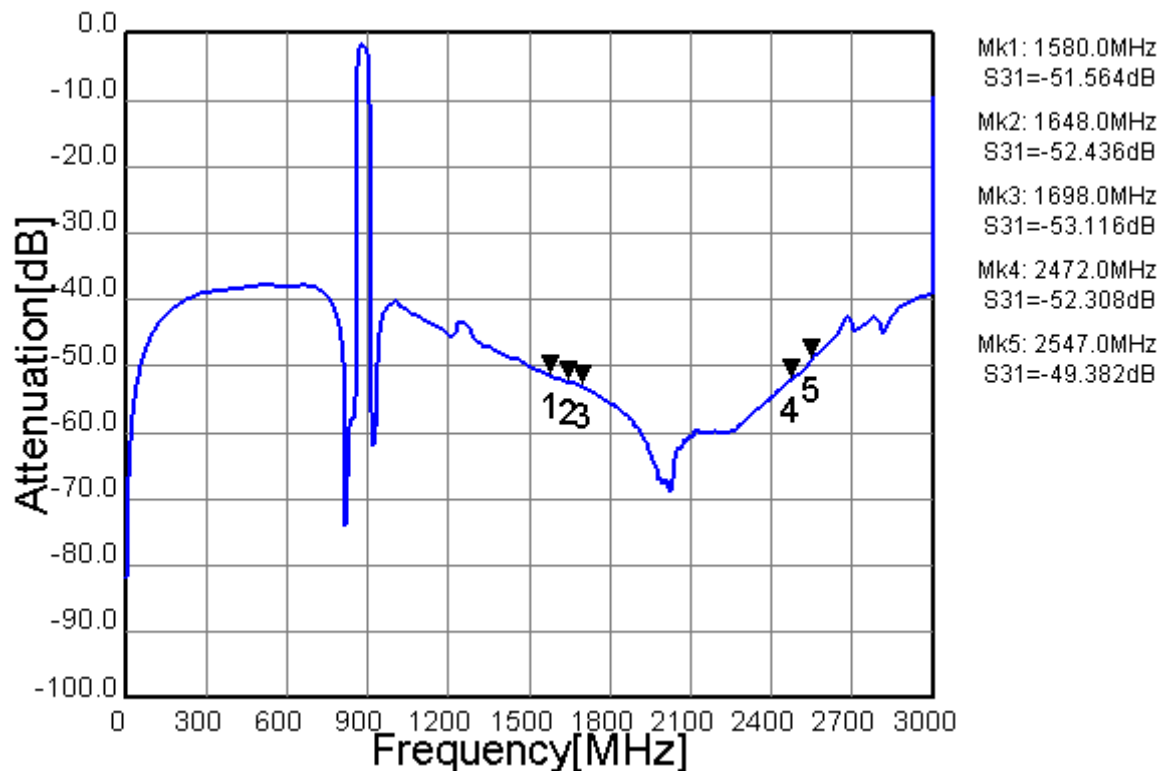


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Tx to Ant (Wide span)

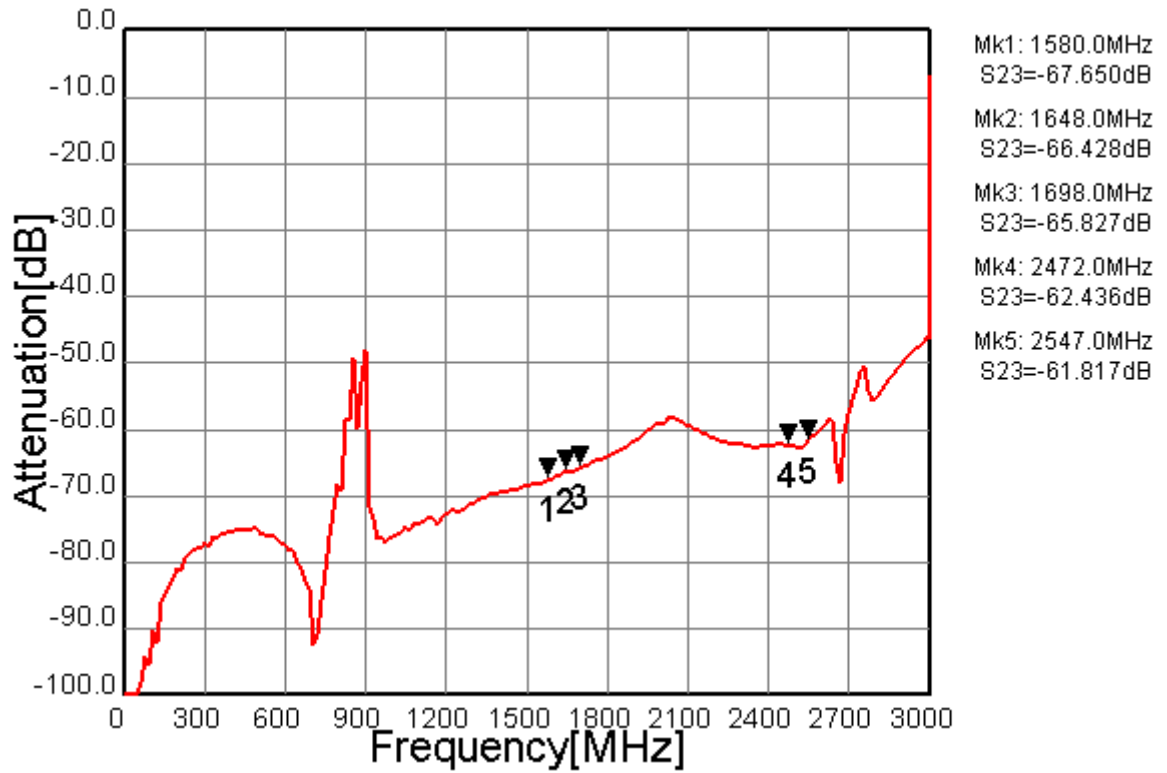


Ant to Rx (Wide span)



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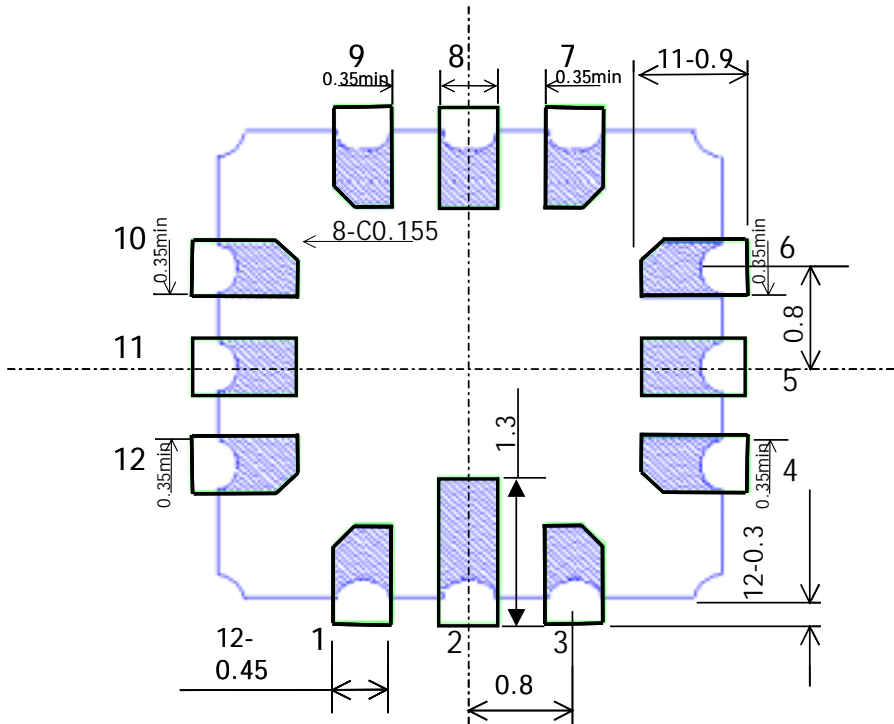
Tx to Rx Isolation (Wide span)



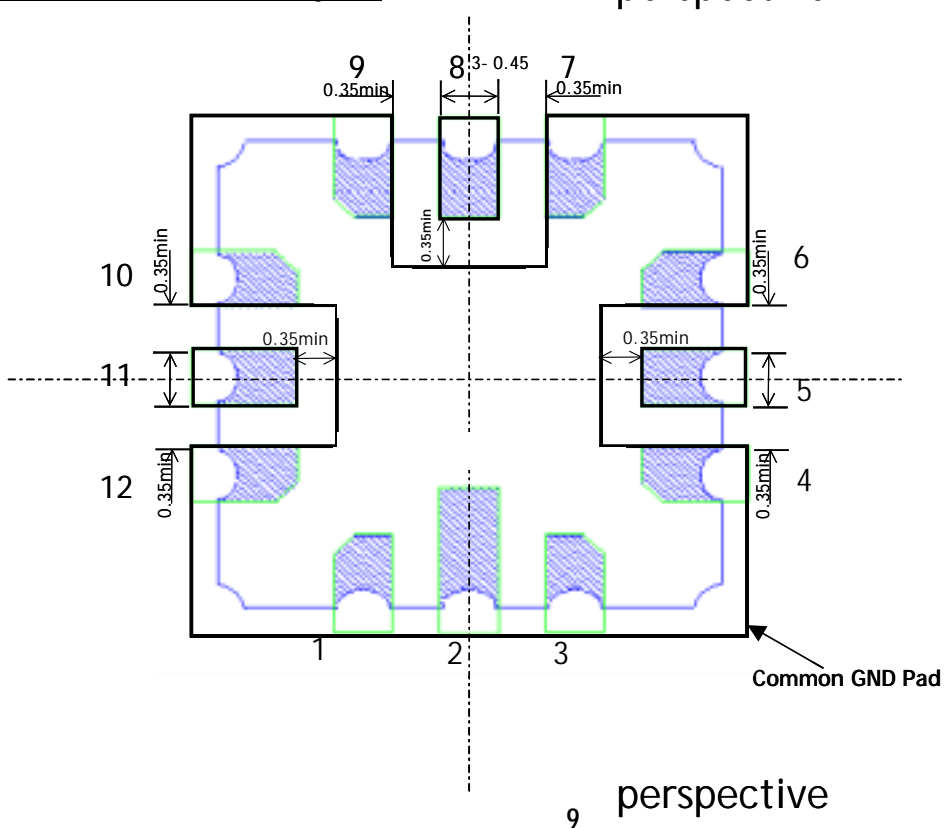
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Recommending footprint pattern

Isolated Pad Layout



Common Ground Pad Layout



perspective

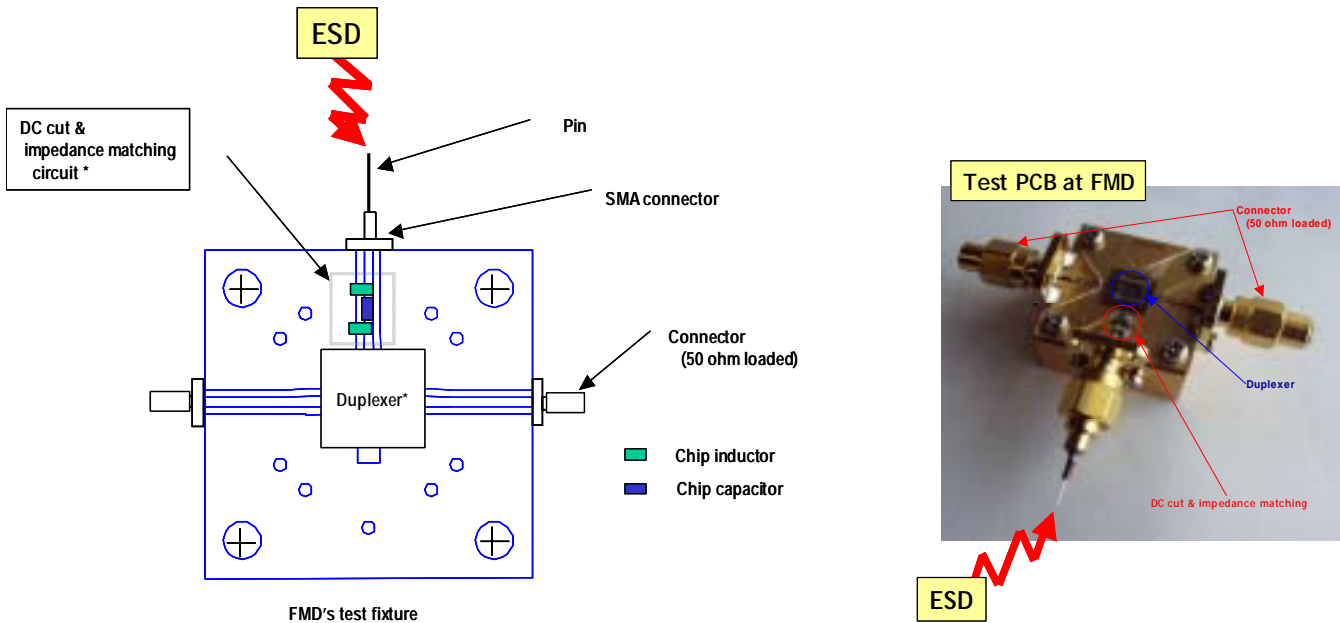
Unit : mm

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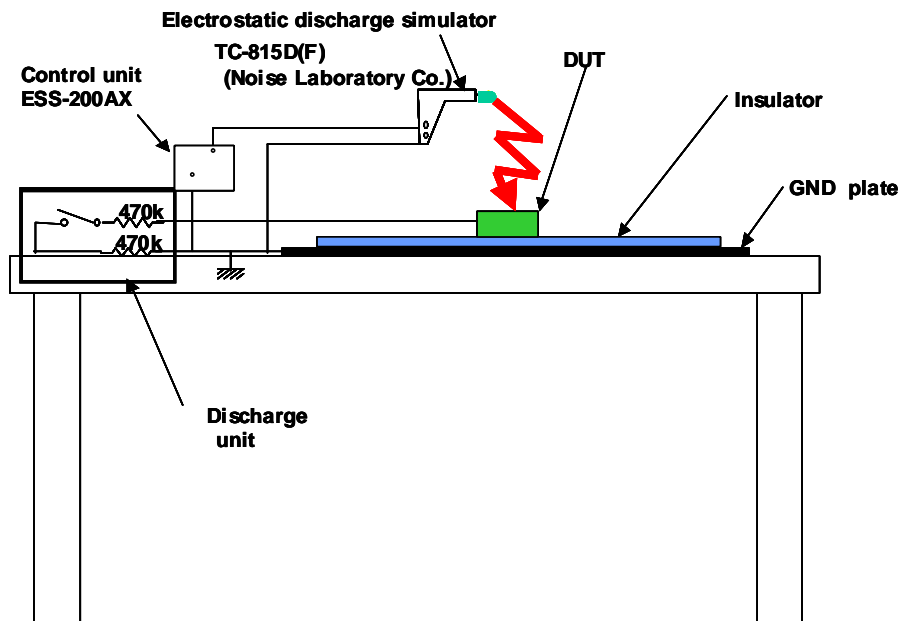
Appendix

ESD (IEC61000) Test Result of Cellular SAW Duplexer

ESD Test Device

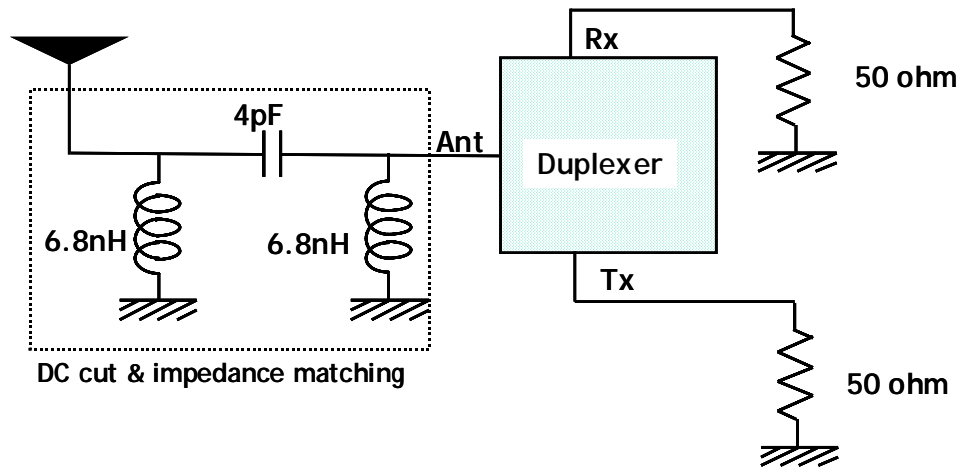


Schematic of ESD Test (IEC61000)



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Matching Circuit at Antenna Port (Example)



ESD (IEC61000) Test Result

Tester:TC-815D+ESS-200AX(Noise Laboratory Co.,Ltd)
 Test Condition:Input Voltage for 30times
 Test Sample Qty.:5pcs

Table: ESD (IEC61000) Test Result

	Application Method	Level 1 Air: +/-2kV	Level 2 Air: +/-4kV	Level 3 Air: +/-8kV	Level 4 Air: +/-15kV
With Matching Circuit	+/- Air Discharge	Pass	Pass	Pass	Pass (Figure-A)
Without Matching Circuit		Fail (Figure-B)	-	-	-

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ESD (IEC61000) Test Result

Air Discharge Level 4(+/-15kV)
With Matching Circuit

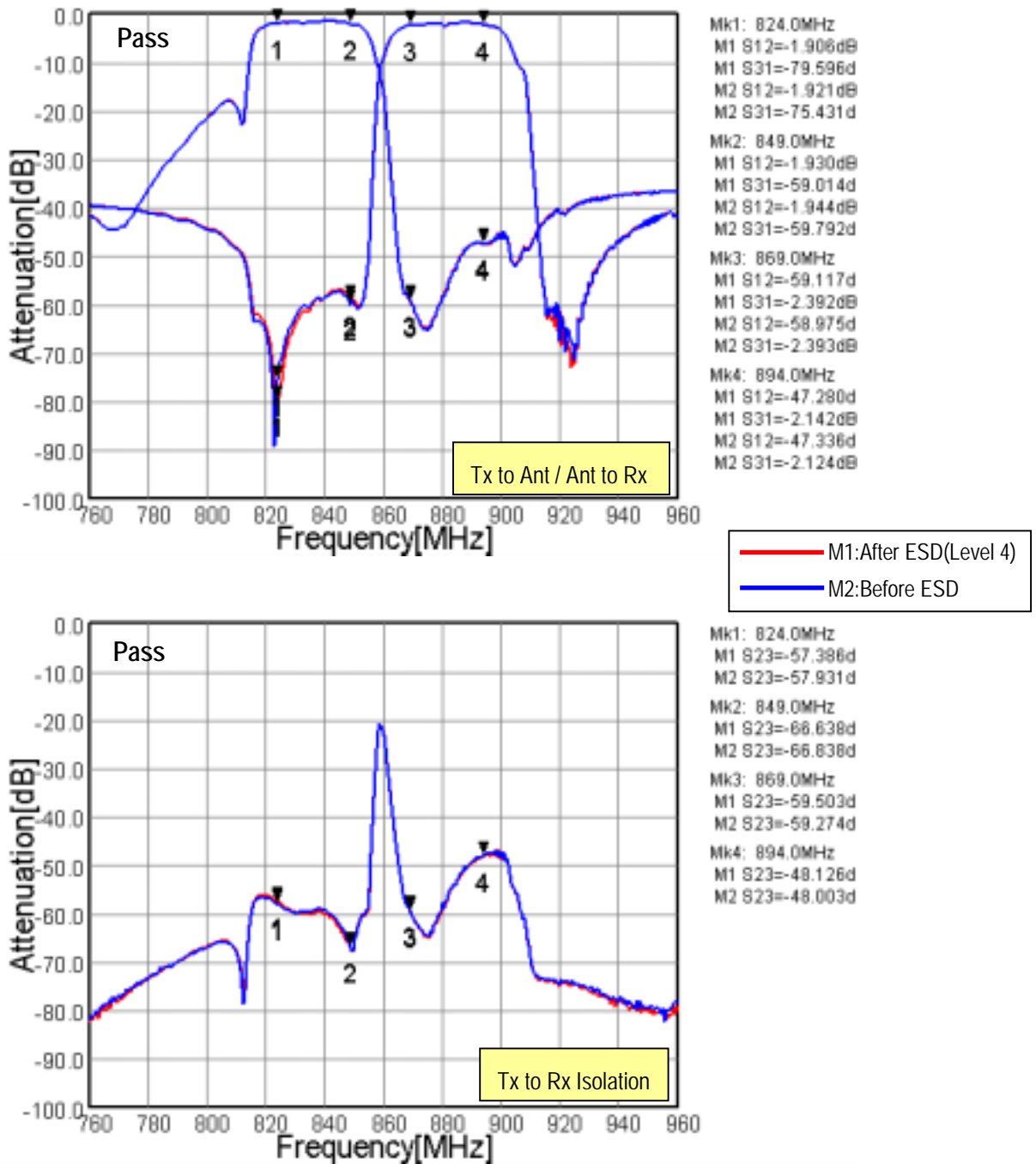


Figure-A: ESD Test Result (Air Discharge: Level 4)

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ESD (IEC61000) Test Result

Air Discharge Level 1(+/-2kV)
Without Matching Circuit

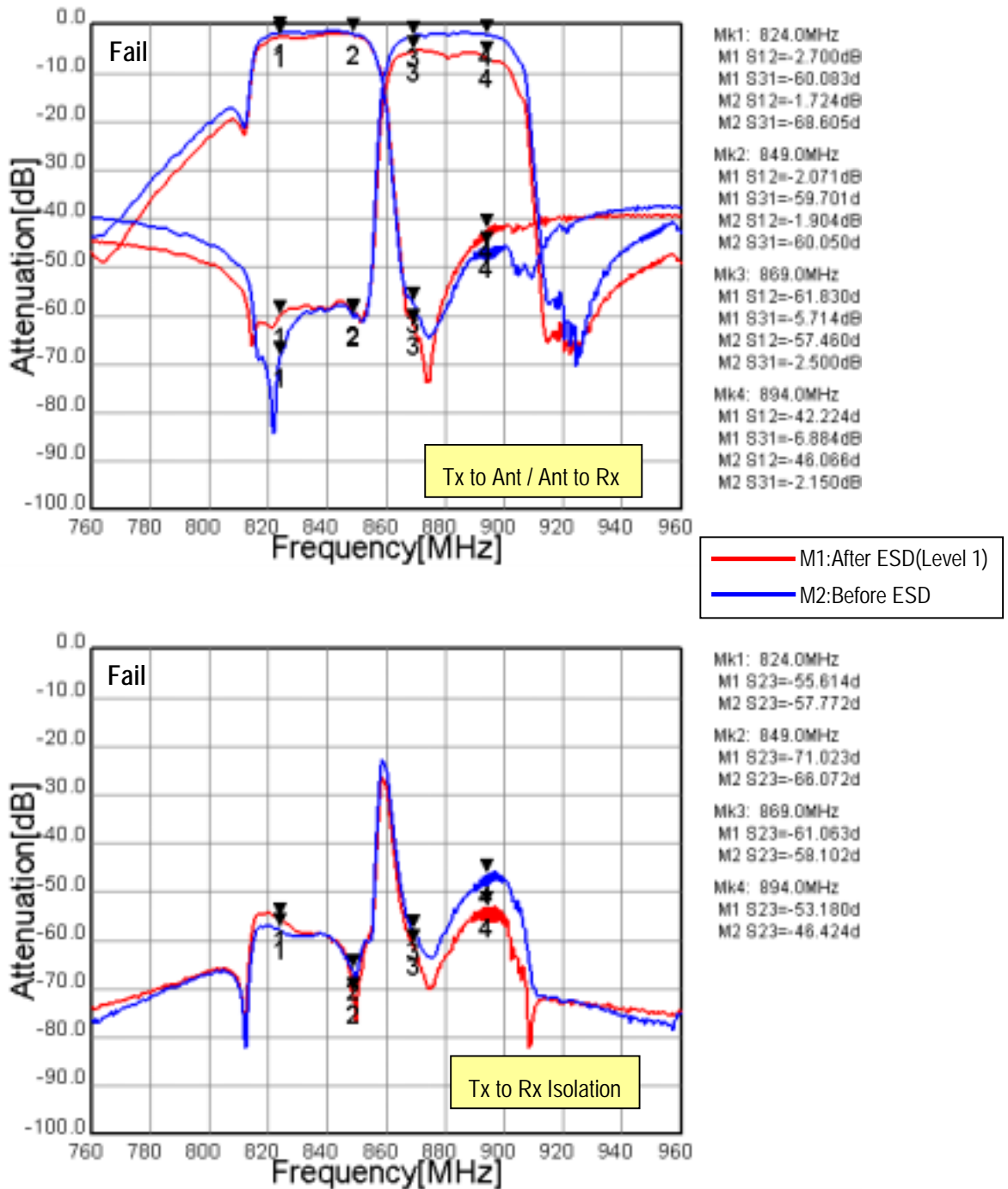


Figure-B: ESD Test Result (Air Discharge: Level 1)