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JX-CD-2442-MC30_07/04/2017 Rev: V1.0



Technical proposal for JX-CD-2442-MC30 Cavity Duplexer

Revision History

Version	Date	Author	Revision description	Comment
V1.0	2017/04/07	Ramsay Lee	Created	/

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1. Mechanical layout

Table 1 Mechanical Specifications

Dimension	LxWxH: 200mm x 80mm x 76.5 mm
Port connectors	SMA Right Angle(Female)- LOW/HIGH; SMA(Female)- ANT; MCX(Female)- CPL
Finish	Black Painting
Notes	Material shall be RoHS 6/6

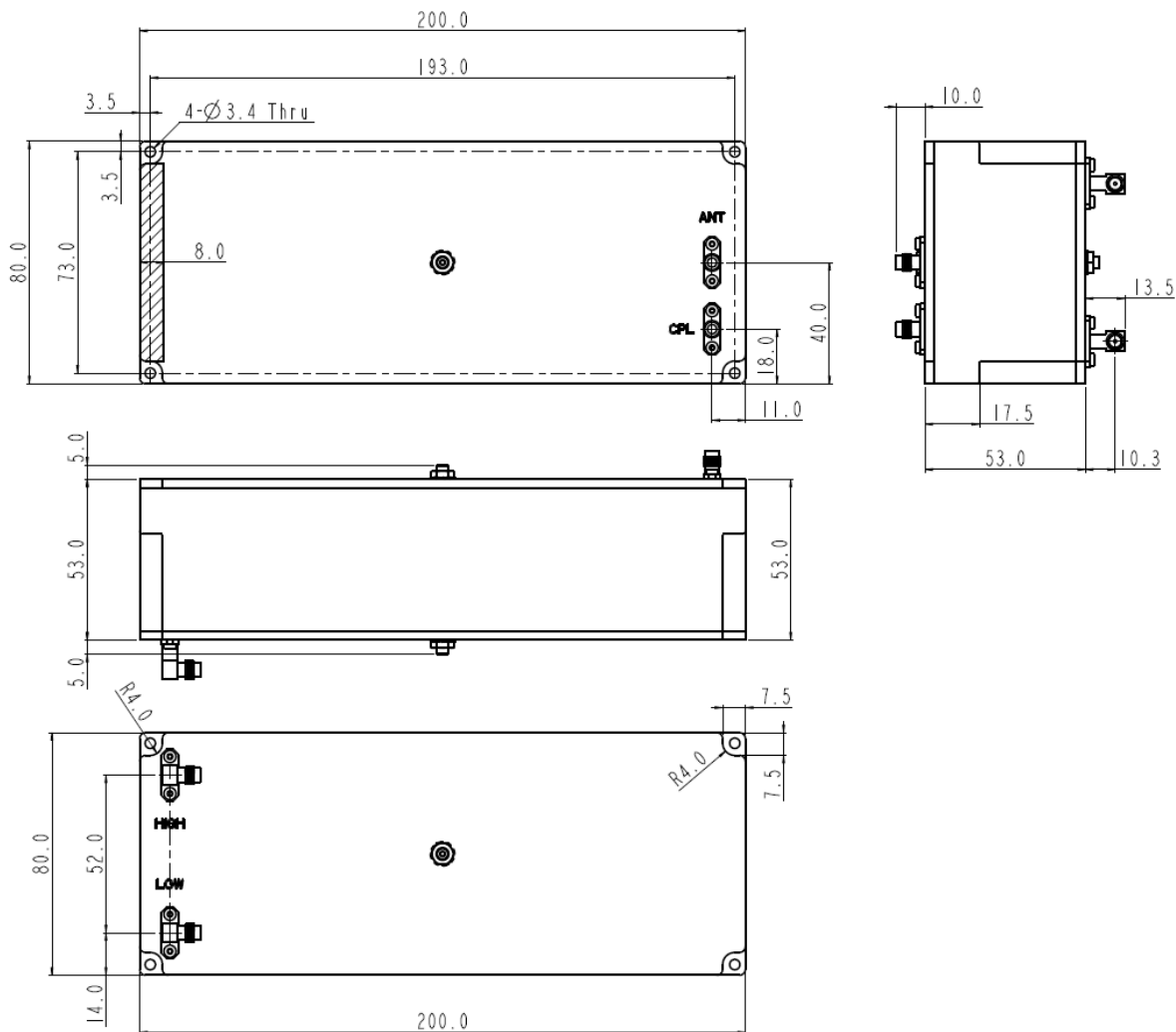


Figure 1 JX-CD-2442-MC30 front panel layout

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2. Electrical analysis

2.1 Schematic diagram of the Duplexer

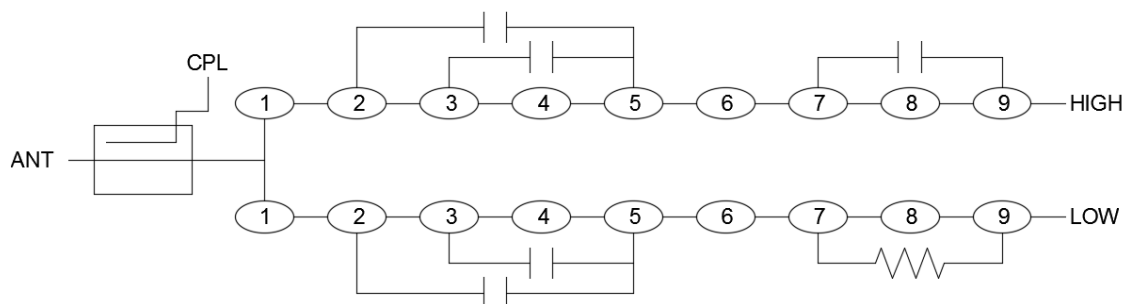


Figure 2 Topology of the Duplexer

2.2 Insertion loss budget

Table 2 Insertion loss budget @ HIGH/LOW path

No.	Parameter Name	Insertion Loss @ LOW path		Insertion Loss @ HIGH path	
		2407.8~2437.8MHz		2445.7~2475.7MHz	
1	TEMP	Normal	FULL	Normal	FULL
2	Simulate	1.83	1.89	2.20	2.3
3	Loss Variation by ambient temperature	/	0.10	/	0.10
4	Coupler+Lowpassfilter+connection link	0.30	0.30	0.30	0.30
5	Margin	0.05	0.05	0.05	0.05
6	Total	2.18	2.34	2.55	2.75
7	Spec	2.2	2.2	2.4	2.4

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2.3 Electrical specifications

Table 3 Electrical specifications @ HIGH path

Item	Parameter	Frequency Range	Spec	JX Suggest
1	Return loss (Normal Temp)	2445.7-2475.7MHz	≥14 dB	OK
	Return loss (Full Temp)	2445.7-2475.7MHz	≥14 dB	OK
2	Max insertion loss (Normal Temp)	2445.7-2475.7MHz	≤2.4 dB	≤2.6 dB
	Max insertion loss (Full Temp)	2445.7-2475.7MHz	≤2.4 dB	≤2.8 dB
3	In-band ripple (Full Temp)	2445.7-2475.7MHz	≤1.5 dB	OK
4	Rejections (Full Temp)	DC-2400MHz	≥50 dB	OK
		2407.8-2437.8MHz	≥75 dB	OK
		2483.5-5000MHz	≥50 dB	OK
		5000-12750MHz	≥30 dB	OK
5	Isolation	2407.8-2437.8MHz	≥75 dB	OK
6	Delay		150 max	OK
7	Impedance all ports		50 Ohm	OK
8	Maximum Power Handling		5W	OK
9	Temperature Range		-40°C to 65°C	OK

Table 4 Electrical specifications @ LOW path

Item	Parameter	Frequency Range	Spec	JX Suggest
1	Return loss (Normal Temp)	2407.8-2437.8MHz	≥14 dB	OK
	Return loss (Full Temp)	2407.8-2437.8MHz	≥14 dB	OK
2	Max insertion loss (Normal Temp)	2407.8-2437.8MHz	≤2.2 dB	OK
	Max insertion loss (Full Temp)	2407.8-2437.8MHz	≤2.2 dB	≤2.4 dB
3	In-band ripple (Full Temp)	2407.8-2437.8MHz	≤1.5 dB	OK
4	Rejections (Full Temp)	DC-2400MHz	≥50 dB	OK
		2445.7-2475.7MHz	≥65 dB	OK
		2483.5-5000MHz	≥50 dB	OK
		5000-12750MHz	≥30 dB	OK
5	Isolation	2445.7-2475.7MHz	≥65 dB	OK
6	Delay		150 max	OK
7	Impedance all ports		50 Ohm	OK
8	Maximum Power Handling		5W	OK
9	Temperature Range		-40°C to 65°C	OK

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Table 5 Electrical specifications @ CPL path

Item	Parameter	Frequency Range	Spec	JX Suggest
1	Coupling	2407.8-2437.8MHz&2445.7-2475.7MHz	25 ± 5.0 dB	OK
2	Coupling Stability	0.3<2 Variation over temperature, post vibration		OK
3	Directivity	20 dB min		OK

2.4 The simulation curve

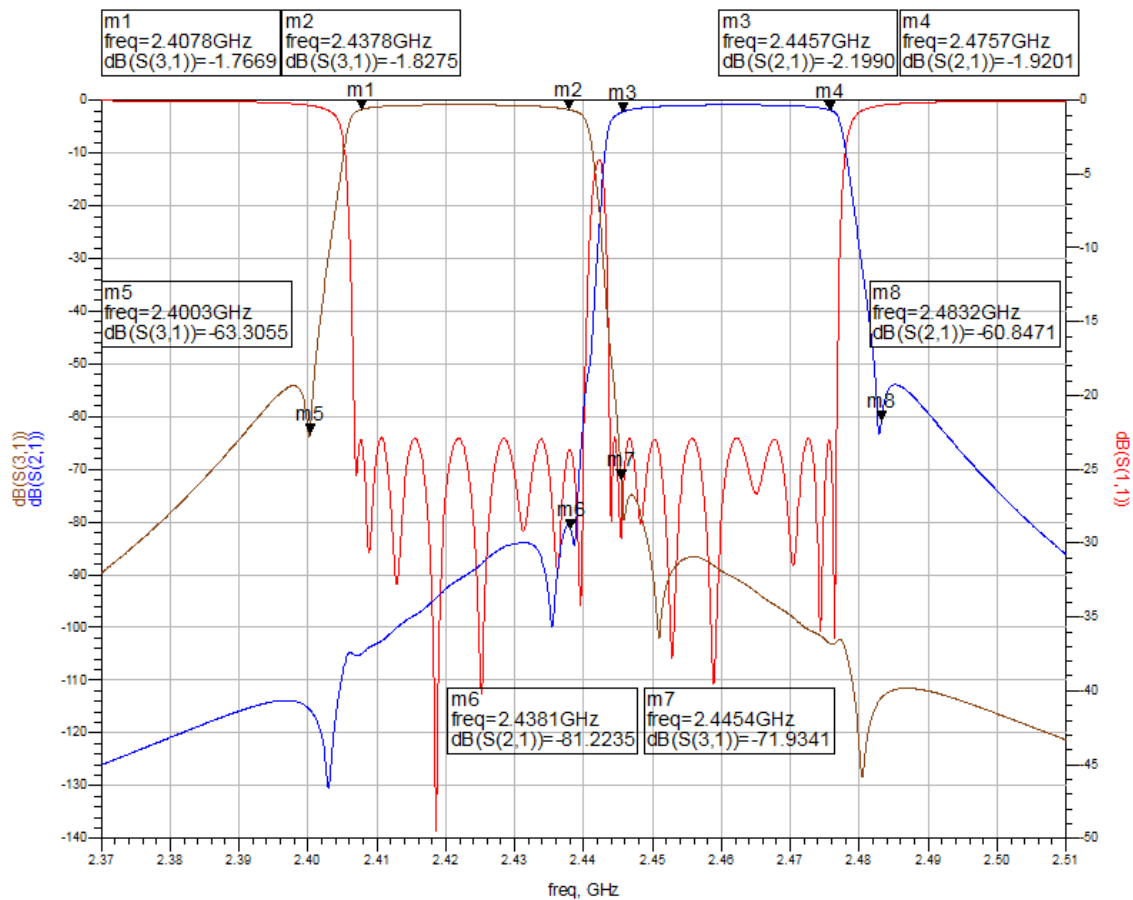


Figure 3 The simulation curve of Duplexer

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