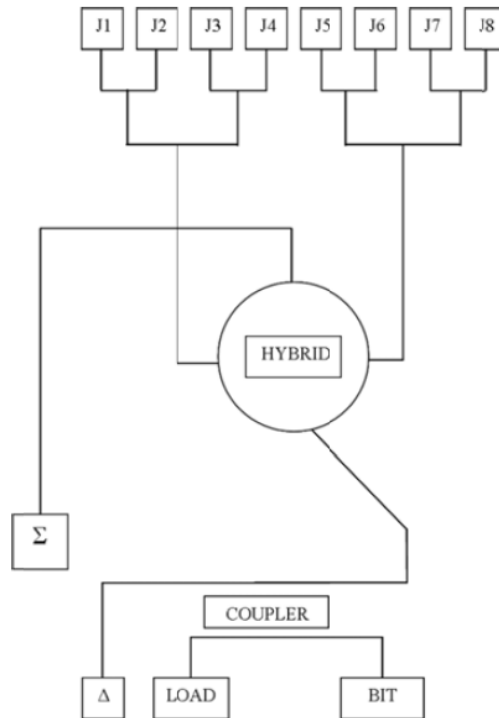


PRODUCT SPECIFICATION FOR INFORMATION

- Product Name : 8WAY DIVIDER
- Part No : M8D_1-1.1G_1GT

PRELIMINARY SPECIFICATION



[Block Diagram]

■ Electrical Specification

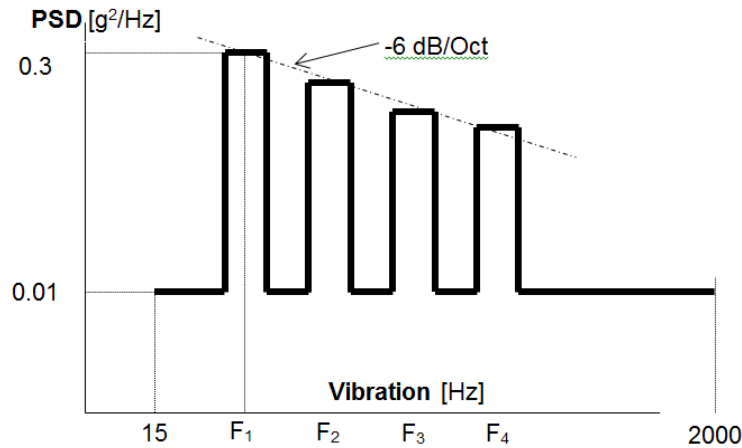
No.	Parameter	Value
1	Frequency range Optimum frequency range	1.0GHz ~ 1.1GHz 1.03GHz ~ 1.09GHz
2	Insertion Loss of Sigma Channel (Sigma to J1~J8)	0.6dB → 10.0dB max.
3	Insertion Loss of Delta Channel (Delta to J1~J8)	1.dB → 10.7dB max.
4	Phase Imbalance of Sigma Channel (Sigma to J1~J8)	5°
5	Phase Imbalance of Delta Channel (Delta to J1~J4 , J5~8) Phase Imbalance of Delta Channel (Delta to J1~J4 between J5~8)	5° 180°
6	Amplitude Imbalance of Sigma Channel	±0.3 → ±0.6dB
7	Amplitude Imbalance of Delta Channel	±0.3 → ±0.6dB
8	Amplitude Distribution	Ports 1, 8: -9.93 dB Ports 2, 7: -5.24 dB Ports 3, 6: -1.63 dB Ports 4, 5: 0 dB.
9	VSWR of All Ports	1.4:1 = 1.0GHz ~ 1.1GHz 1.3:1 = 1.03GHz ~ 1.09GHz.

10	Isolation between Delta and Sigma	-30dB
11	Isolation between two channels (any two ports on separate channels J1~J8)	-15dB
12	Power Handling	100W avg , 10Kw Peak.
13	Coupler	10±0.5dB
14	Directivity	20dB
15	Connectors	TNC(F) : Sigma & Delta SMA(F) : J1~J8 & Bit , Load
16	Sealing	The unit shall be sealed with an O-ring to make it moisture-proof. (better than IP-67)
17	Useful Life	15 year (operating and non operating)
18	Storage Life	
19	Finish	See below (DESIGN AND CONSTRUCTION)
20	Weight	T . B .D

■ Environmental Conditions

No.	Environmental	Requirement
1	Electrical Performance at Extreme Temperatures	Continuous operation: -54°C to +71°C. Non-operating: -54°C to +95°C.
2	Altitude	40,000 feet (as 0.5 inches of mercury per second.)
3	Humidity	Up to 100%
4	Vibration	Random 20~2,000Hz (MIL-STD-810, Method 514.5)
5	Shock	The unit shall withstand at least 12 impact shocks of 40g, consisting of 2 shocks in opposite directions along each of 3 mutually perpendicular axes. Each shock impulse shall have time duration of 6 to 9 milliseconds. The conditions specified in MIL-STD-810F, Method 516.5,
6	Functional Conditions	The unit shall not suffer damage or subsequently fail to provide the performance specified herein when subjected to 18 impact shocks of 20g, consisting of 3 shocks in opposite directions along each 3 mutually perpendicular axes, each shock impulse having time duration of 6 to 9 milliseconds. The conditions are specified in MIL-STD-810F, Method 516.5, Procedure I.
7	Sand and Dust	The unit shall withstand exposure to sand and dust particles as encountered in operational areas of the world. Sand and dust requirements for test purposes shall be in accordance with MIL-STD-810F, Method 510.4, and Procedures I and II.
8	Fungus	The unit shall withstand exposure to fungus growth as encountered in tropical climates. In no case should overall spraying of the equipment be necessary to meet this requirement. The fungus

		requirements of MIL-STD-810, Method 508.5 shall apply.
9	Salt Atmosphere	The unit shall withstand, in both an operating and non-operating condition, exposure to salt-sea atmosphere. The conditions specified in MIL-STD-810F Method 509.4 shall apply.
10	Explosive Atmosphere	The unit shall be designed to not cause ignition of an ambient-explosive-gaseous mixture with air when operating in such an atmosphere and shall be capable of passing the tests of MIL-STD-810F, Method 511.4, Procedure I.
11	Acceleration	The unit shall perform as specified when subjected to forces induced by in-service accelerations. The acceleration values specified in MIL-STD-810F, Method 513.5, Procedures I and II shall be applicable.



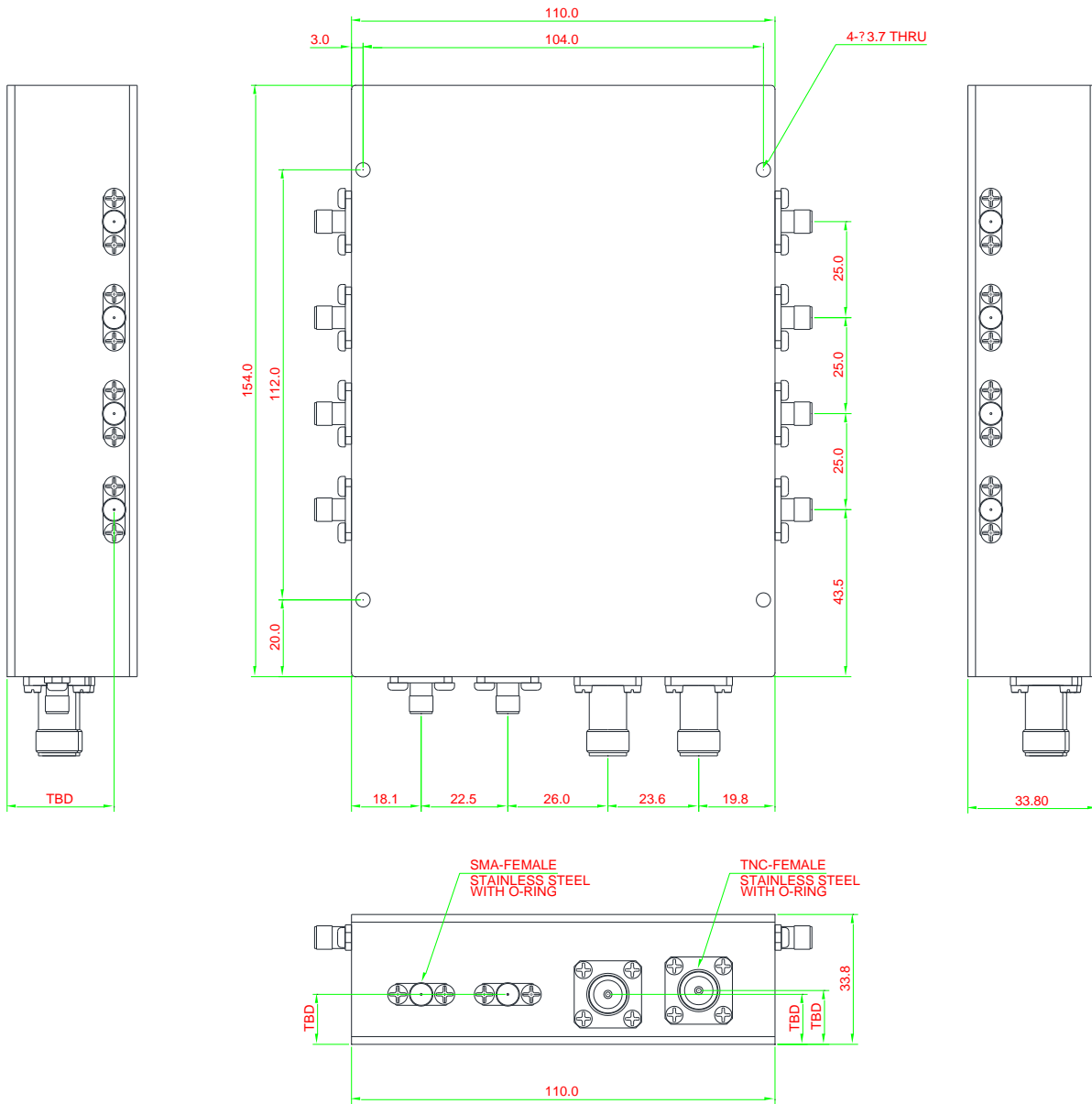
Where:
 $F_1 = 68 \text{ Hz}$, $F_2 = 2 \times F_1$, $F_3 = 3 \times F_1$, $F_4 = 4 \times F_1$,
 $F_1 = \text{Fundamental excitation frequency}$
 $\text{VBW} = \pm 5\% \text{ FK}$, $\text{VBW} = \text{Vibration Band Width}$

■ DESIGN AND CONSTRUCTION

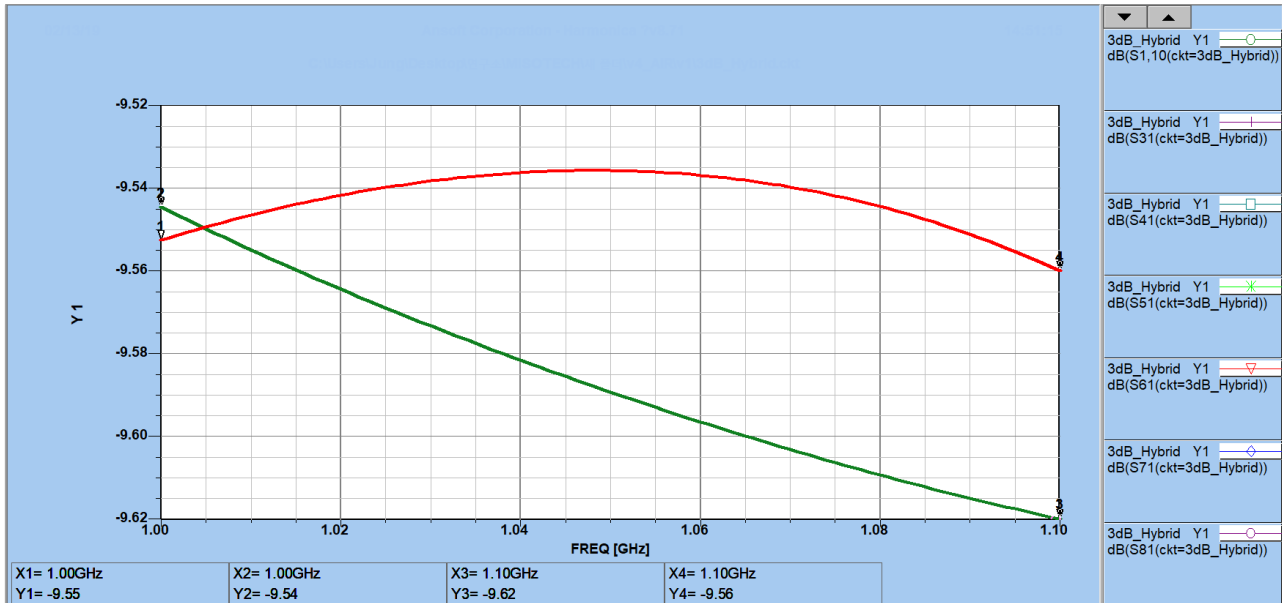
No.	Parts, Materials and Processes	Requirement
1	General	The unit shall only be constructed of materials that meet the requirements for non-flammability, fungus resistance and non-toxicity IAW MIL-HDBK-454. All parts, materials and processes shall IAW MIL-E-4158 and MIL-HDBK-454.
2	Magnesium	No magnesium materials or parts shall be used in the unit
3	Dissimilar Metals	Unless suitably protected against electrolytic corrosion, dissimilar metals shall not be used in intimate contact with each other. Dissimilar metals are defined in MIL-STD-889.
4	Finish and Colors	The finish shall be in accordance with MIL-STD-454. The exterior of all units shall be painted lusterless gray (color number 26251) using the following methods: a. Metal treatment: Chemical conversion coating per MIL-DTL-5541, Type I or II, Class 1A. b. Primer: Fluid Resistant Epoxy Polyamide/Strontium Chromate per MIL-PRF-23377, Type II, class C, thickness 15 to 25 microns. c. Top Coat: Polyurethane-Polyester per MIL-PRF-85285, Type 1, thickness 40 to 50 microns. d. Color: Gray per FED-STD-595B, Color No. 26251. e. Overall dry thickness: 55 to 75 microns.
5	Threaded Parts	All threaded parts shall have inserted screw threads in the unified screw thread series in accordance with FED-STD-H28.
6	Connector Covers	All connectors shall be covered to prevent the entrance of moisture or foreign materials during shipment or storage

■ EMC and EMI Requirements

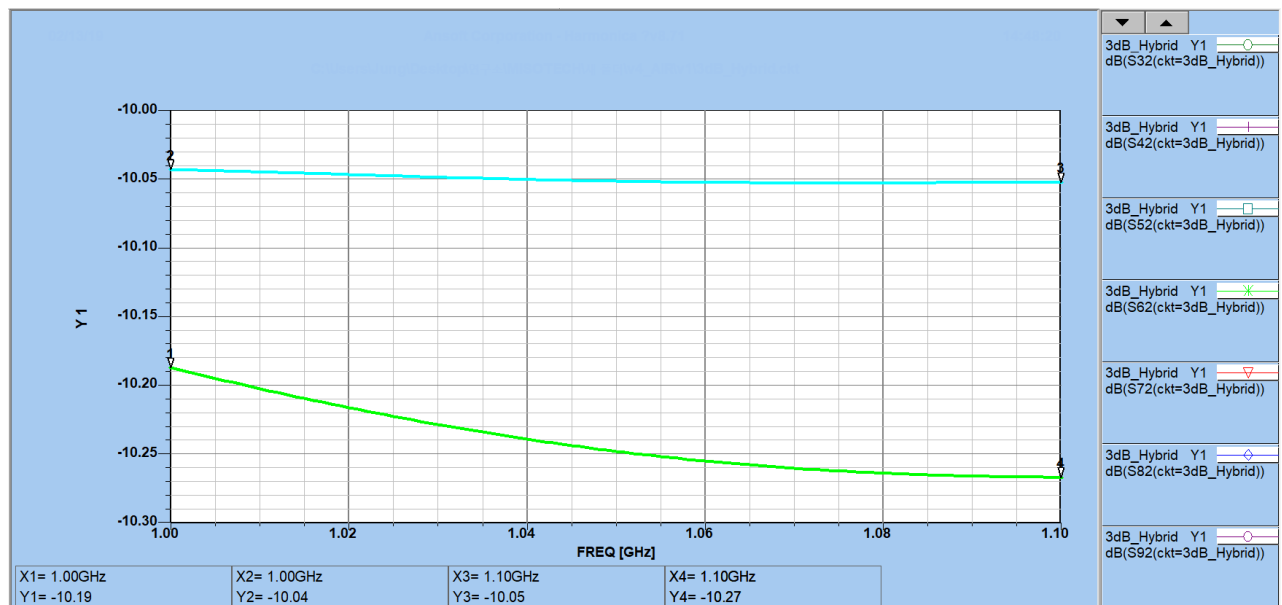
No.	Parameter	Requirement
1	Electromagnetic Radiation	The E-Field emissions shall not be in excess of the limits of RE02 as given in figures 2-11 (limit extended to 18 GHz) and 2-12 of MIL-STD-461C (Curve No. 1).
2	Radiation Emission	The supplier shall conduct a RF leakage measurement at the operating frequency the emission at the operating frequency shall be less than 65 dB μ v/m at a distance of 1m.
3	Corona and Electrical Breakdown Prevention	Corona and Electrical Breakdown Prevention shall be IAW MIL-HDBK-454 , guideline 45.



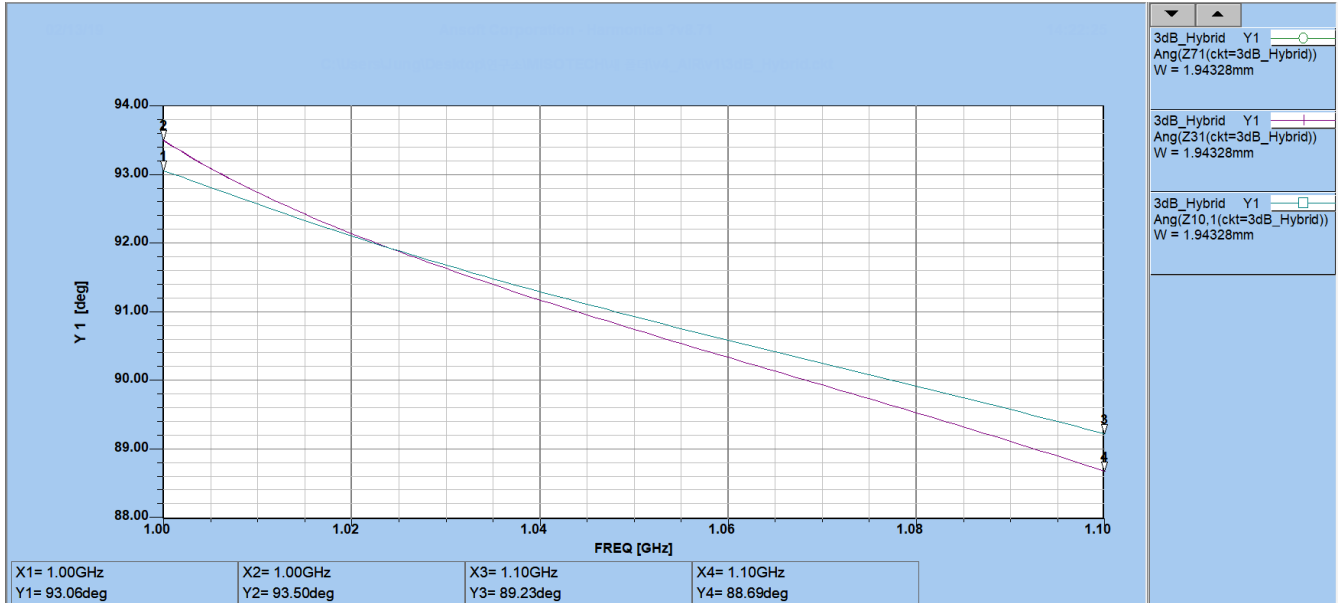
[Mechanical 2D Drawing]



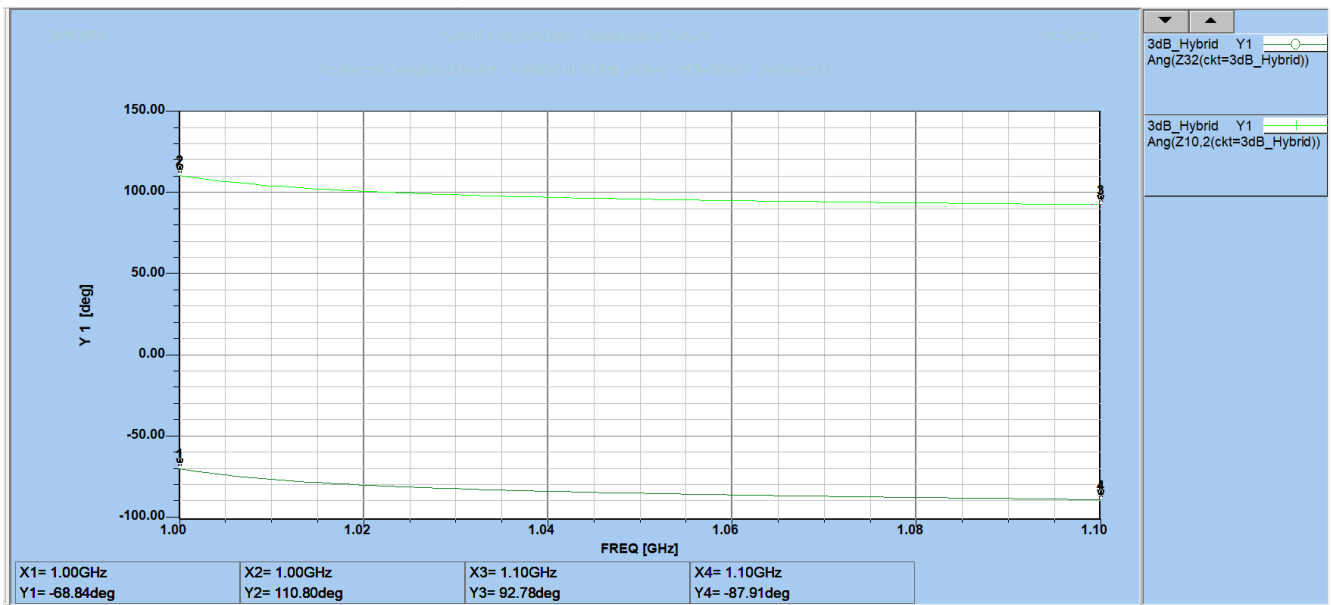
Insertion Loss of Sigma Channel (Sigma to J1~J8)



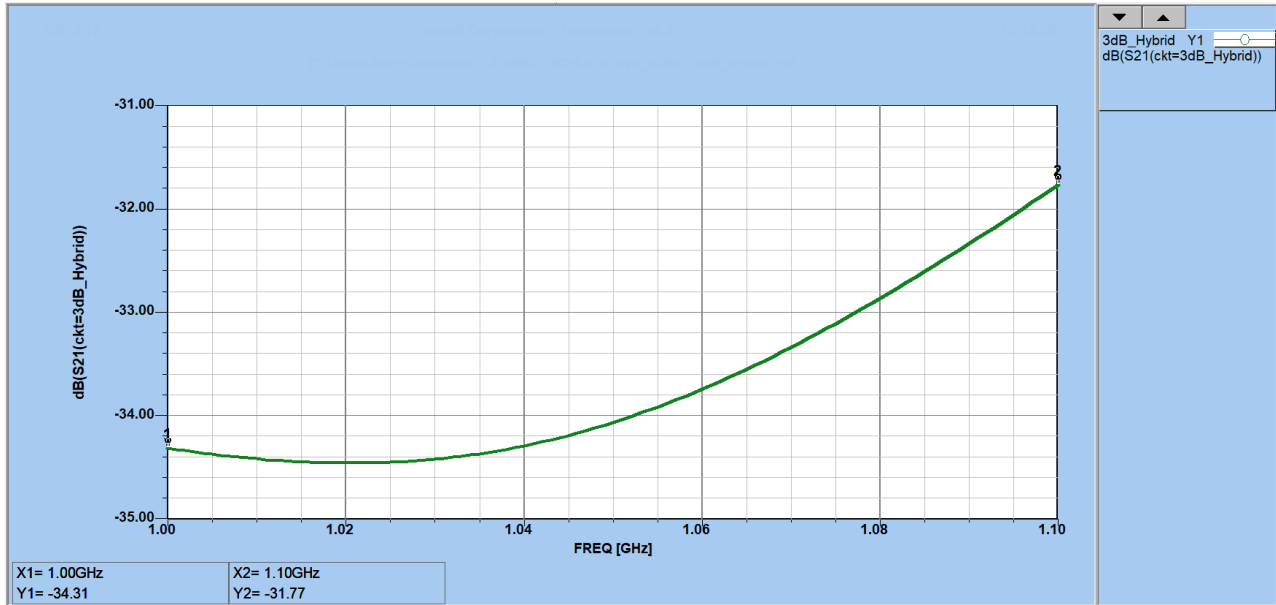
Insertion Loss of Delta Channel (Delta to J1~J8)



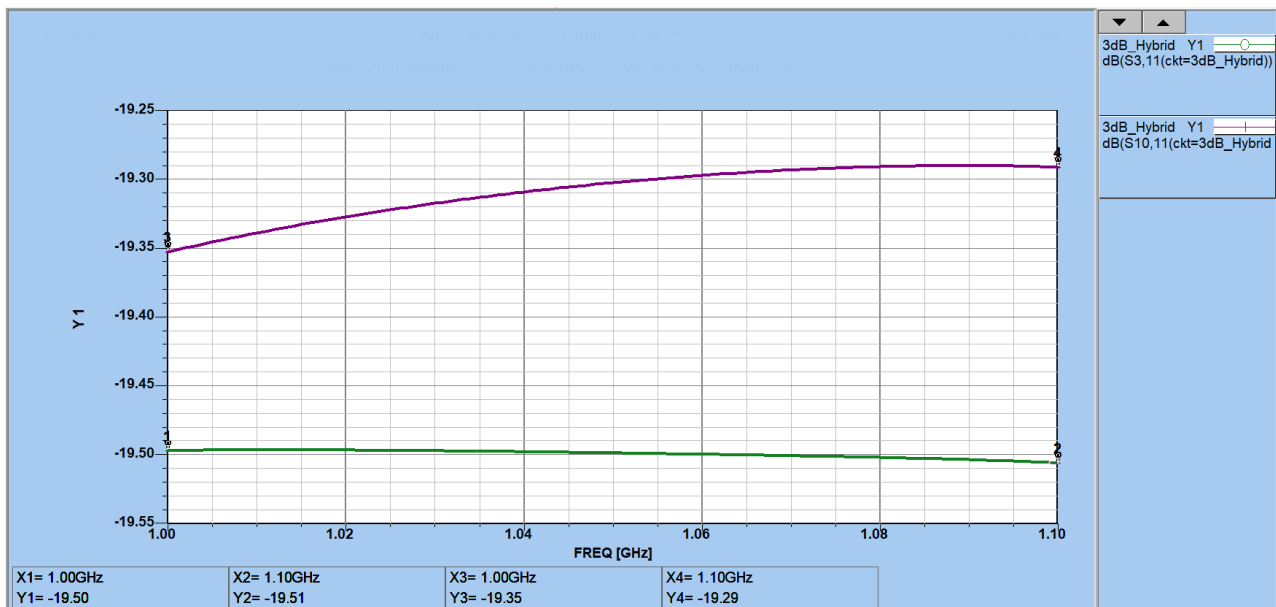
Phase Imbalance of Sigma Channel (Sigma to J1,J8)



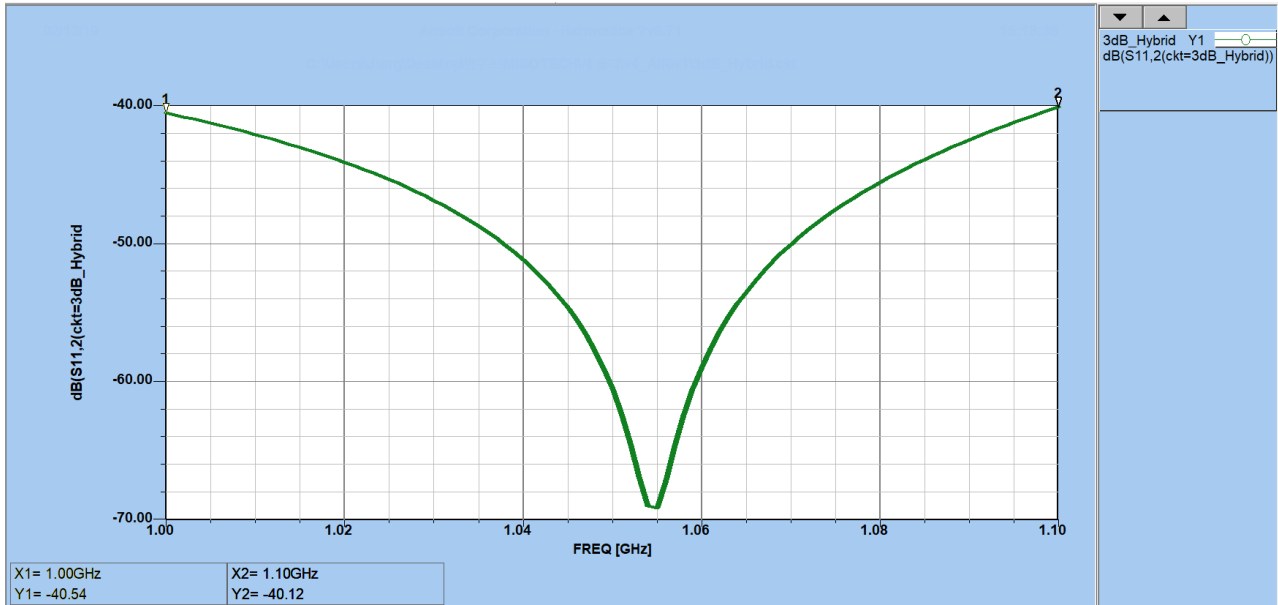
Phase Imbalance of Delta Channel (Delta to J1,J8)
J1~J4 between J5~J8 anti phase 180°



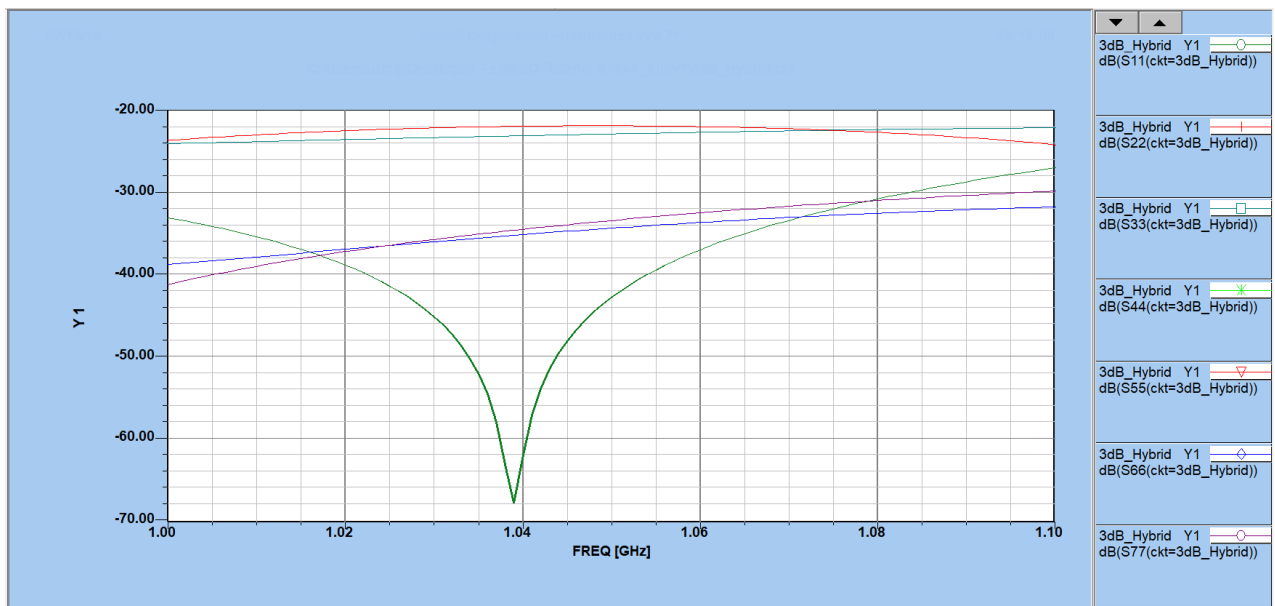
Isolation between Delta and Sigma



Coupler (included Loss -9.5dB)



Directivity (Isolation - Coupler = 20.6dB)



VSWR of All Ports