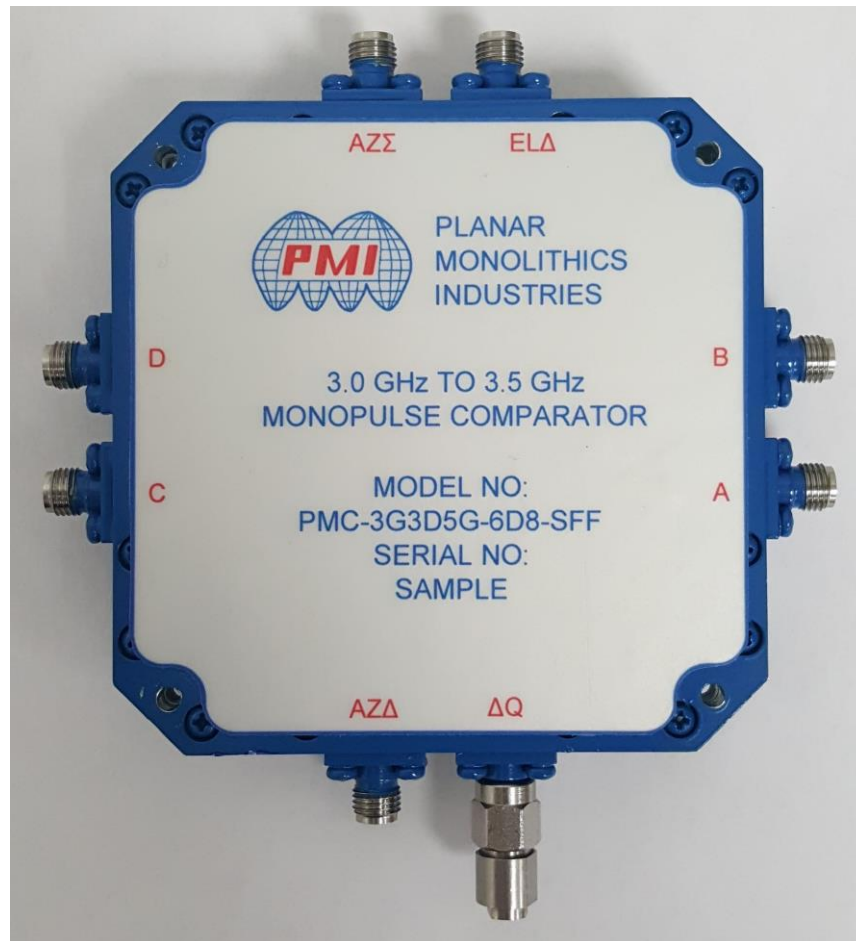




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

PMI MODEL: PMC-3G3D5G-6D8-SFF IS A MONOPULSE COMPARATOR OPERATING OVER THE 3.0 TO 3.5 GHz FREQUENCY RANGE. THIS MODEL OFFERS A MAXIMUM INSERTION LOSS OF 0.8 dB MAXIMUM IF INPUT SIGNALS AT PORTS A, B, C AND D ARE EQUAL IN AMPLITUDE OR POWER & INPHASE WITH AN OUTPUT AT PORT AZΣ. INSERTION LOSS OF 6.8 dB MAXIMUM IF INPUT SIGNAL AT PORT A, B, C or D AND ALL OTHER PORTS ARE TERMINATED TO 50 OHMS WITH AN OUTPUT AT PORTS ELΔ, AZΣ, AQ or AZΔ, WHILE MAINTAINING A MAXIMUM AMPLITUDE BALANCE OF ± 0.4 dB AND A MAXIMUM PHASE BALANCE OF $\pm 5^\circ$



August 15th, 2016

**Designed By:
Dr. Ashok Gorwara**

**Tested & Reported By:
Sebastian Palacio**

Page 1 of 50

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731
Email: sales@pmi-rf.com



TYPICAL CHARACTERISTICS ON PMC-3G3D5G-6D8-SFF

DESCRIPTION

PMI MODEL: PMC-3G3D5G-6D8-SFF IS A MONOPULSE COMPARATOR OPERATING OVER THE 3.0 TO 3.5 GHz FREQUENCY RANGE. THIS MODEL OFFERS A MAXIMUM INSERTION LOSS OF 0.8 dB MAXIMUM IF INPUT SIGNALS AT PORTS A, B, C AND D ARE EQUAL IN AMPLITUDE OR POWER & INPHASE WITH AN OUTPUT AT PORT AZZ. INSERTION LOSS OF 6.8 dB MAXIMUM IF INPUT SIGNAL AT PORT A, B, C or D AND ALL OTHER PORTS ARE TERMINATED TO 50 OHMS WITH AN OUTPUT AT PORTS ELA, AZZ, AQ or AZA, WHILE MAINTAINING A MAXIMUM AMPLITUDE BALANCE OF ± 0.4 dB AND A MAXIMUM PHASE BALANCE OF $\pm 5^\circ$.

SPECIFICATIONS

- FREQUENCY RANGE: ----- 3.0 GHz TO 3.5 GHz
- INSERTION LOSS: ----- 0.8 dB MAXIMUM (If input signals at ports A, B, C and D are equal Amplitude or Power & Inphase with an output at Port AZZ)
- INSERTION LOSS: ----- 6.8 dB MAXIMUM (If input signals at port A, B, C or D and all other ports are terminated to 50 Ohms with an output at ports ELA, AZZ, AQ or AZA)
- AMPLITUDE BALANCE: ----- ± 0.4 dB MAXIMUM
- PHASE BALANCE: ----- $\pm 5^\circ$ MAXIMUM
- ISOLATION: ----- 23 dB MINIMUM
- VSWR: ----- 1.25:1 MAXIMUM
- POWER HANDLING: ----- AVERAGE: 11 WATT MAXIMUM (PORT A, B, C & D)
PEAK: 0.1 kW MAXIMUM
- IMPEDANCE: ----- 50 Ω
- CONNECTORS: ----- SMA FEMALE
- SIZE: ----- 82 mm x 82 mm x 11 mm
3.23" x 3.23" x 0.43"
EXCLUDING CONNECTORS
- FINISH: ----- BLUE EPOXY POLIMIDE COATING IAW
MIL-C-22750, TYPE I OVER EPOXY POLIMIDE
PRIMER IAW MIL-P-23377, TYPE I, CLASS 1 OR 3.

ENVIRONMENTAL RATINGS

- TEMPERATURE: ----- -55 °C TO +85 °C (OPERATING)
-65 °C TO +125 °C (STORAGE)
- HUMIDITY: ----- MIL-STD-202, METHOD 103B COND. B
- SHOCK: ----- MIL-STD-202, METHOD 213B COND. B
- VIBRATION: ----- MIL-STD-202, METHOD 204D COND. B
- ALTITUDE: ----- MIL-STD-202, METHOD 105C COND. B
- TEMPERATURE CYCLE: ----- MIL-STD-202, METHOD 107D COND. A

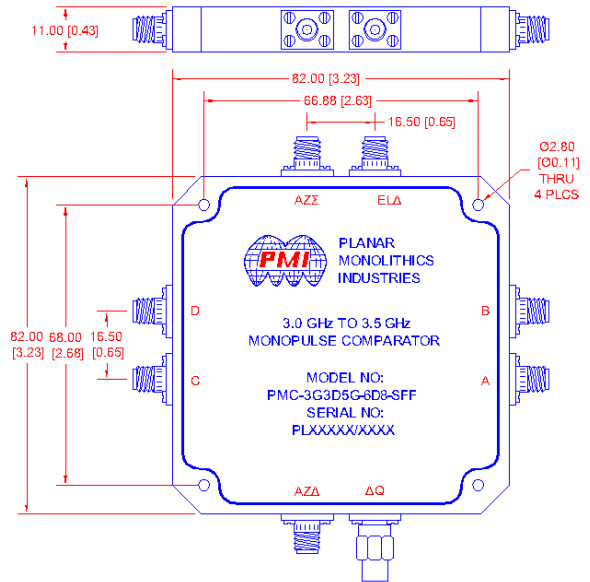
NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

PMI CONFIDENTIAL AND PROPRIETARY

ALL DIMENSIONS
ARE IN mm [INCH]
TOLERANCES:
A,XX ± 0.508 [0.020]
A,XXX ± 0.254 [0.010]

REVISIONS				
REV#	DATE	DESCRIPTION	DATE	APPROVED
-		PRELIMINARY	08/24/16	
1		UPDATE PORTS	08/15/16	

MECHANICAL OUTLINE



PLANAR MONOLITHICS INDUSTRIES, INC.

7311-F GROVE ROAD
FREDERICK, MARYLAND 21704 USA
TEL: (301)-662-5019, FAX: (301)-662-1731
WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED



REV#		DATE	PRODUCT FEATURE		REV#
A		08/24/16	3.0 TO 3.5 GHz Monopulse Comparator PMC-3G3D5G-6D8-SFF		1
REV#		DATE	REV#	REV#	REV#
A		05XQ0	PRELIMINARY		1
REV#		DATE	REV#	REV#	REV#
N:S					1 OF 1



**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	3.0 GHz To 3.5 GHz	3.0 GHz to 3.5 GHz See Plots	
2	Insertion Loss:	0.8 dB Max (If input signals at ports A, B, C and D are equal Amplitude or Power & Inphase with an output at Port AZΣ)	0.4dB Max See Page 4	
3	Insertion Loss:	6.8 dB MAXIMUM (If input signals at port A, B, C or D and all other ports are terminated to 50 Ohms with an output at ports ELΔ, AZΣ, AQ or AZΔ)	6.077 dB Min 6.6132 dB Max See Plots	
4	Amplitude Balance:	+/-0.4 dB Max	+/-0.2681 dB See Plots	
5	Phase Balance:	+/-5 Degrees	+/-3.2 Degrees See Plots	
6	Isolation:	23 dB Min	25.052 dB See Plots	
7	VSWR / Return Loss:	1.25:1 Max	1.25:1 / -18.841dB See Plots	
8	Power Handling:	Average 11W Max (Ports A, B, C & D) Peak 0.1kW Max	Average 11W Max (Ports A, B, C & D) Peak 0.1kW Max See Page 4	
9	Weight:	10 oz	8 oz	



**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

Test Setup to Validate Summation of Port (A+B) + (C+D)

Test No. 1 at 3.25GHz

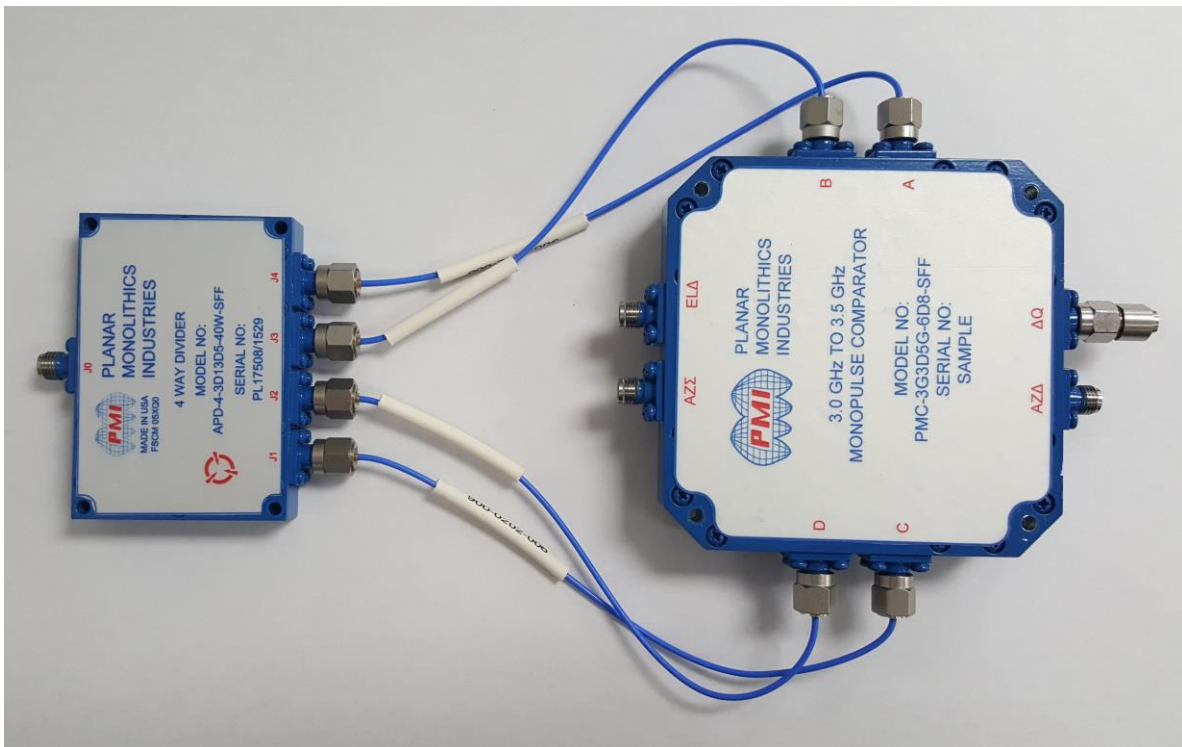
RF Power @ Port A = 0dBm (1 mW)
RF Power @ Port B = 0dBm (1 mW)
RF Power @ Port C = 0dBm (1 mW)
RF Power @ Port D = 0dBm (1 mW)
All other Ports Terminated to 50 Ohms

RF Power @ Port AZ Σ = 5.6 dBm (3.6 mW) = (6 dBm (4 mW) – Insertion Loss of 0.4 dB)
RF Power @ Port Δ Q = -20.5 dBm

Test No. 2 at 3.25GHz

RF Power @ Port A = 40.38 dBm (10.91 W)
RF Power @ Port B = 40.38 dBm (10.91 W)
RF Power @ Port C = 40.38 dBm (10.91 W)
RF Power @ Port D = 40.38 dBm (10.91 W)
All other Ports Terminated to 50 Ohms

RF Power @ Port AZ Σ = 46 dBm (40 W) = (46.4 dBm (43.65 W) – Insertion Loss of 0.4 dB)
RF Power @ Port Δ Q = 25.5 dBm





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

Phase Data Relative to AZΣ

S-Parameter Plots - Pages 6 to 21

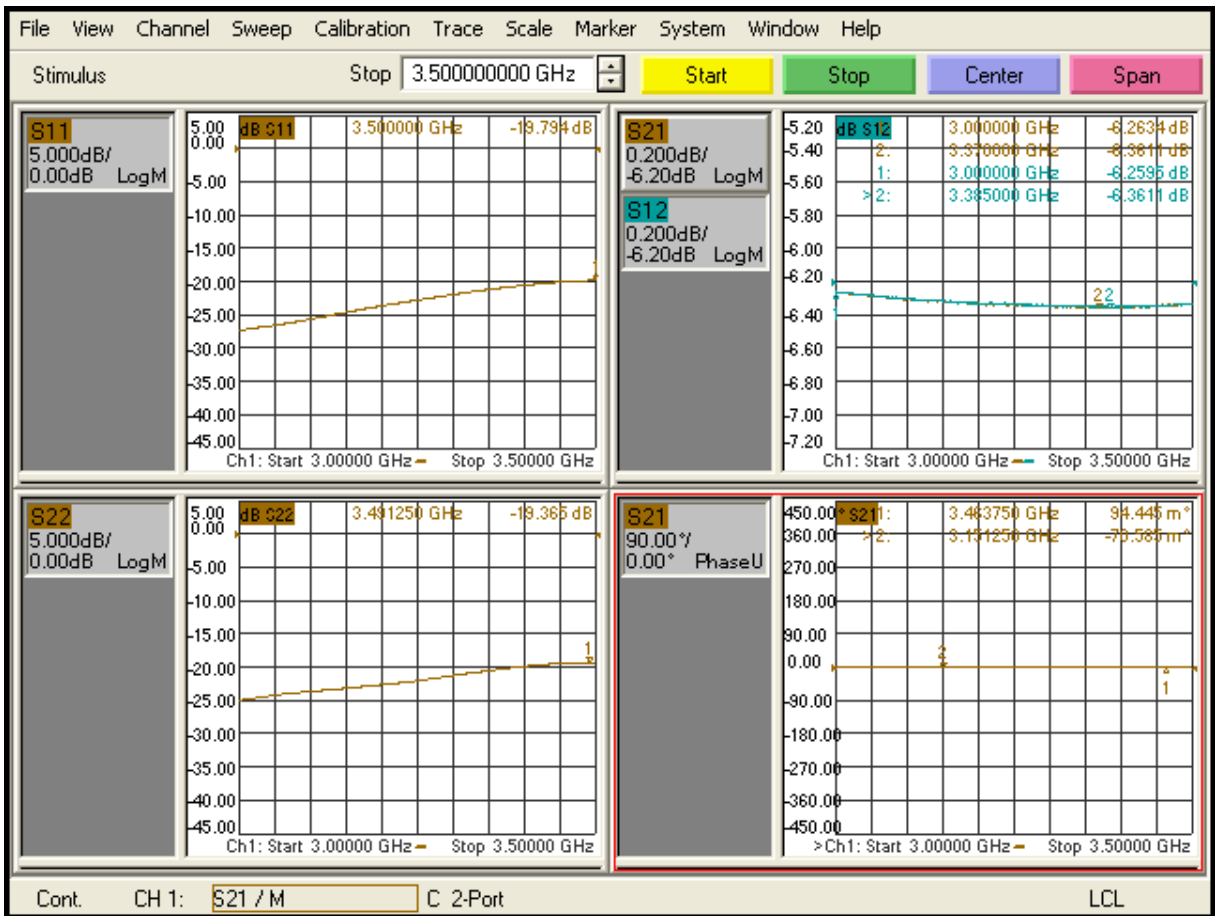
	A	B	C	D	ELΔ	AZΣ	ΔQ	AZΔ
A	Isolation	Isolation	Isolation	Isolation	+90°	0°	+90°	0°
B	Isolation	Isolation	Isolation	Isolation	+90°	0°	-90° / +270°	+180°
C	Isolation	Isolation	Isolation	Isolation	-90° / +270°	0°	+90°	+180°
D	Isolation	Isolation	Isolation	Isolation	-90° / +270°	0°	-90° / +270°	0°
ELΔ	+90°	+90°	-90° / +270°	-90° / +270°	Isolation	Isolation	Isolation	Isolation
AZΣ	0°	0°	0°	0°	Isolation	Isolation	Isolation	Isolation
ΔQ	+90°	-90° / +270°	+90°	-90° / +270°	Isolation	Isolation	Isolation	Isolation
AZΔ	0°	+180°	+180°	0°	Isolation	Isolation	Isolation	Isolation



**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**A to AZ
(Normalized Phase)**

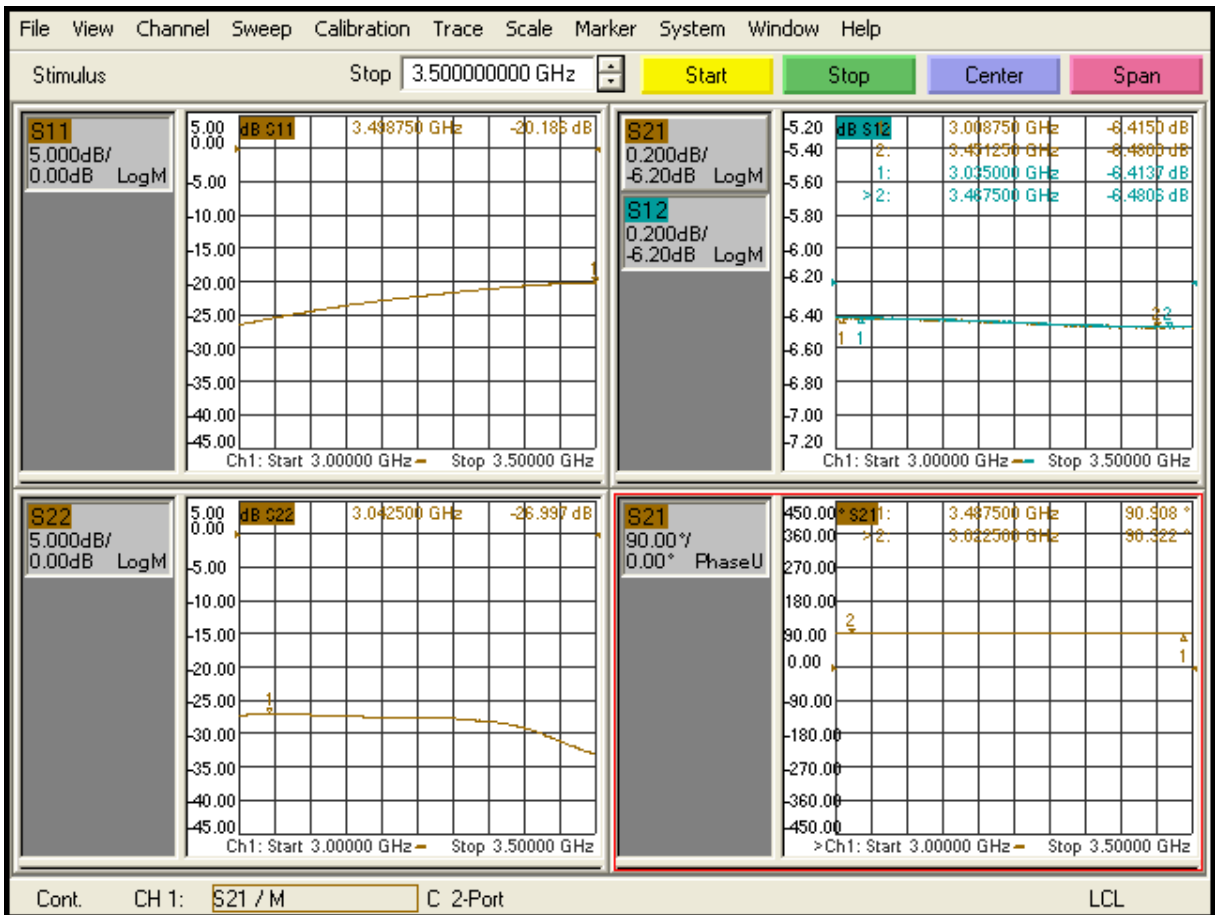




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

A to ELA

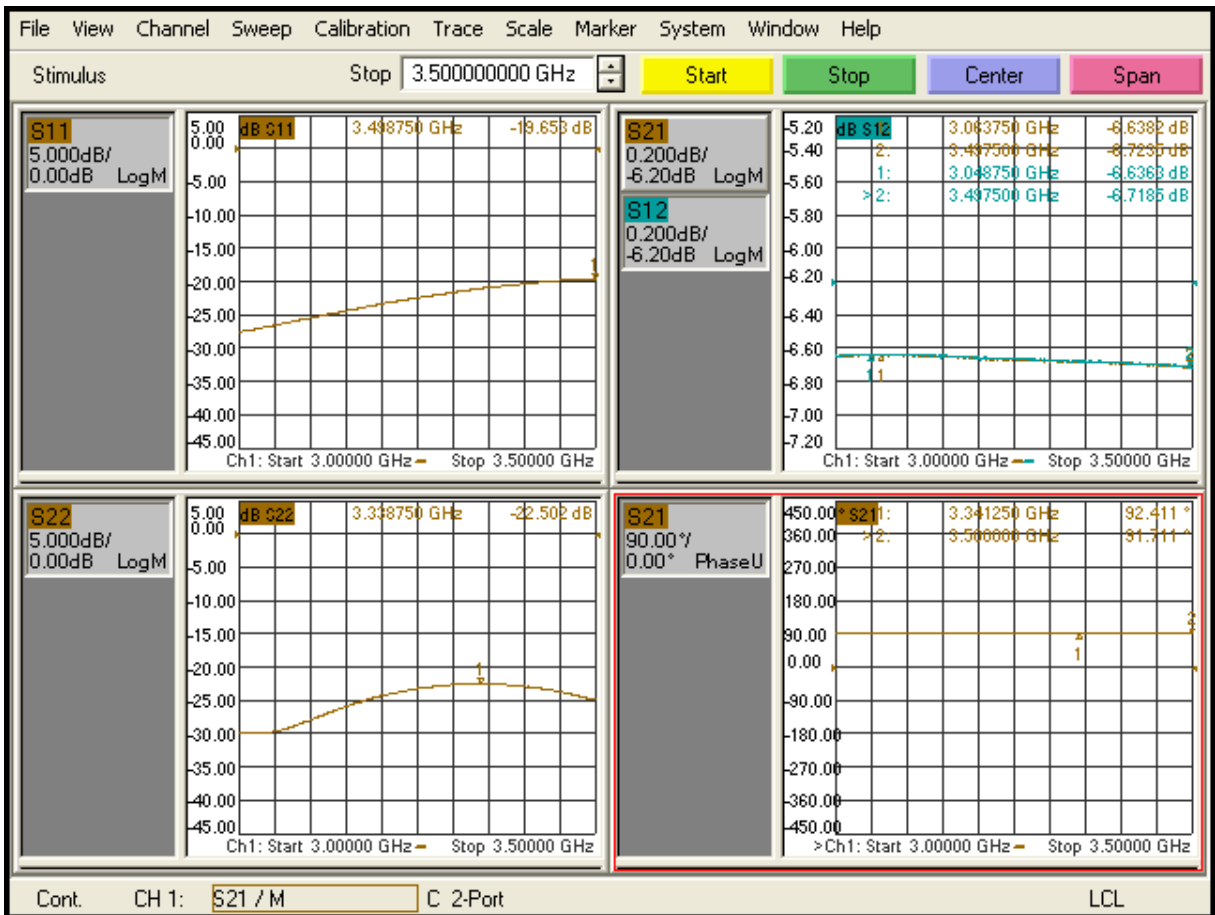




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

A to Δ Q

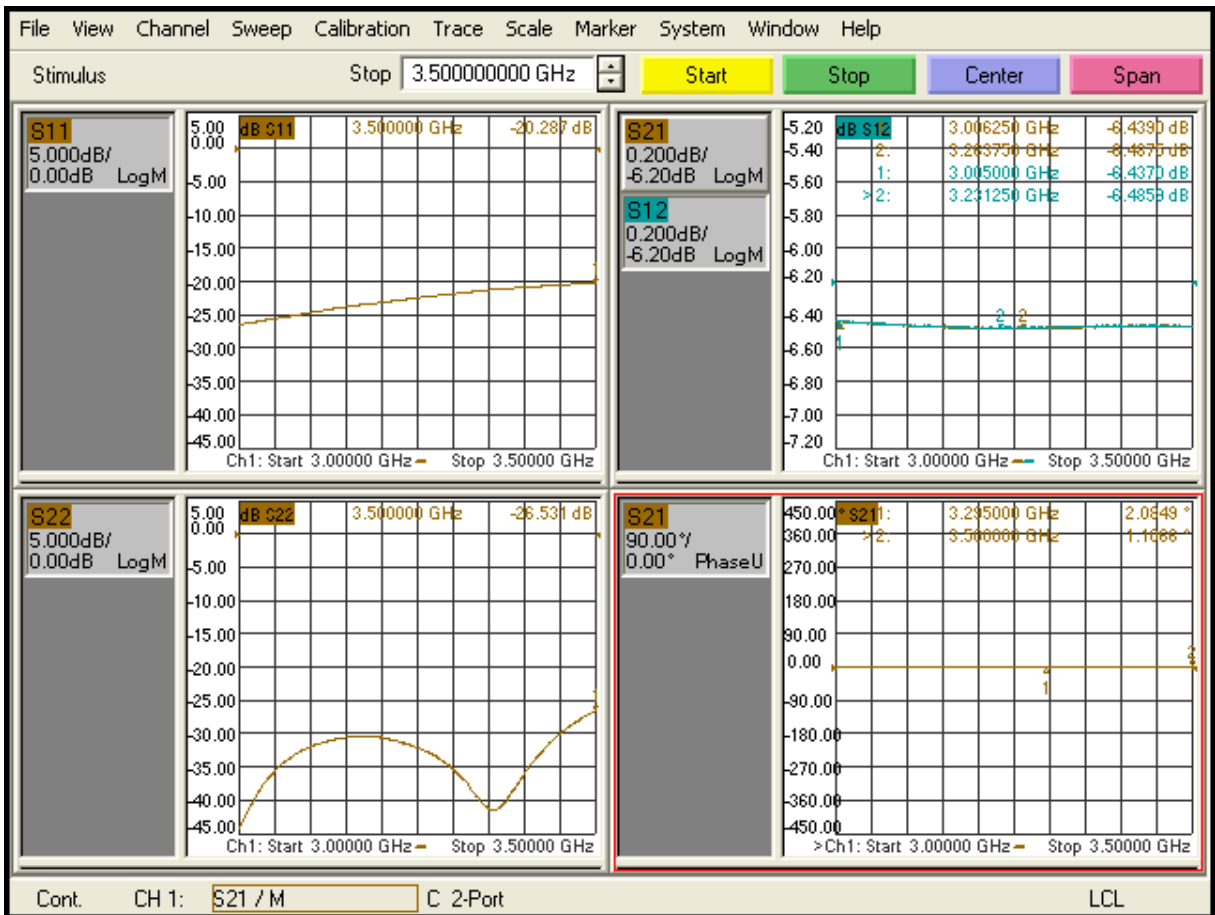




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

A to AZ

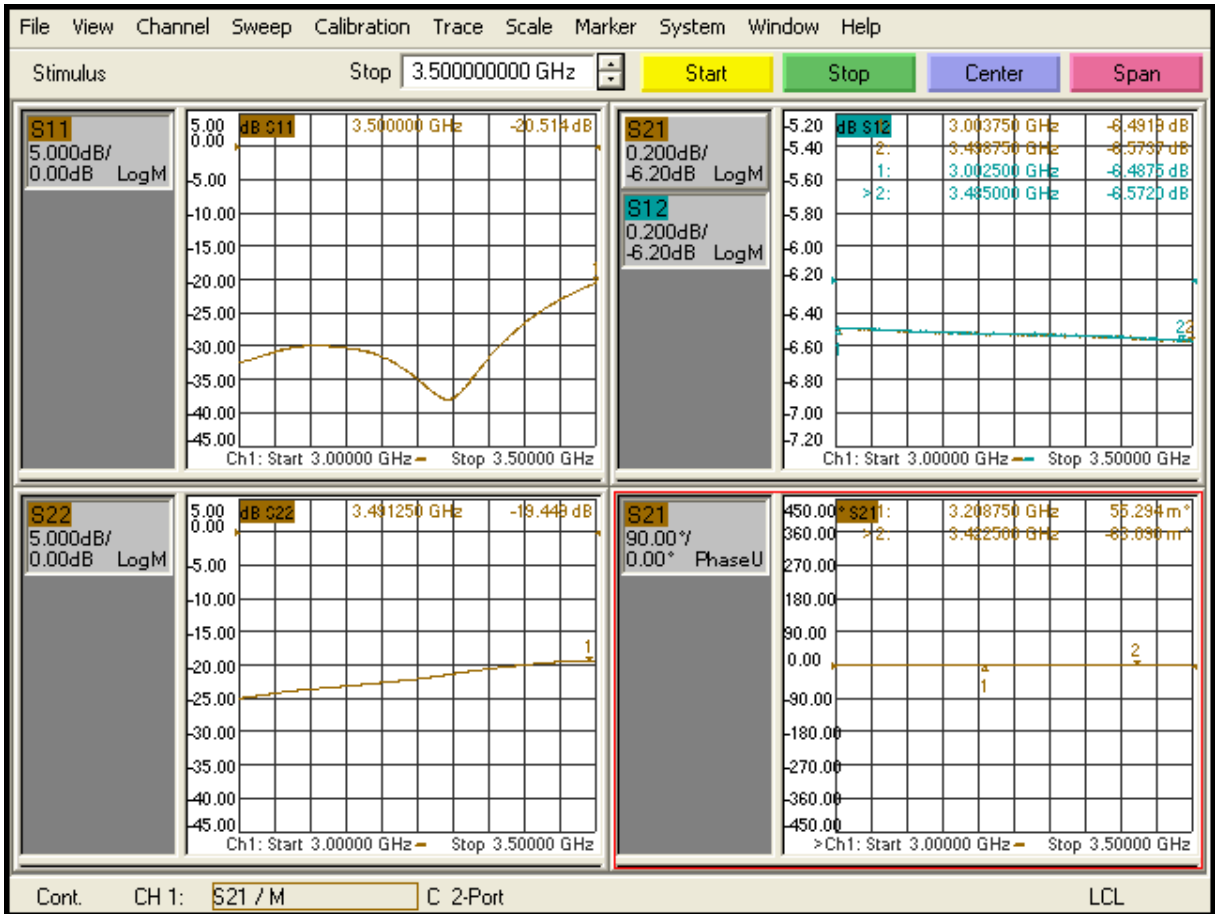




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**B to AZ
(Normalized Phase)**

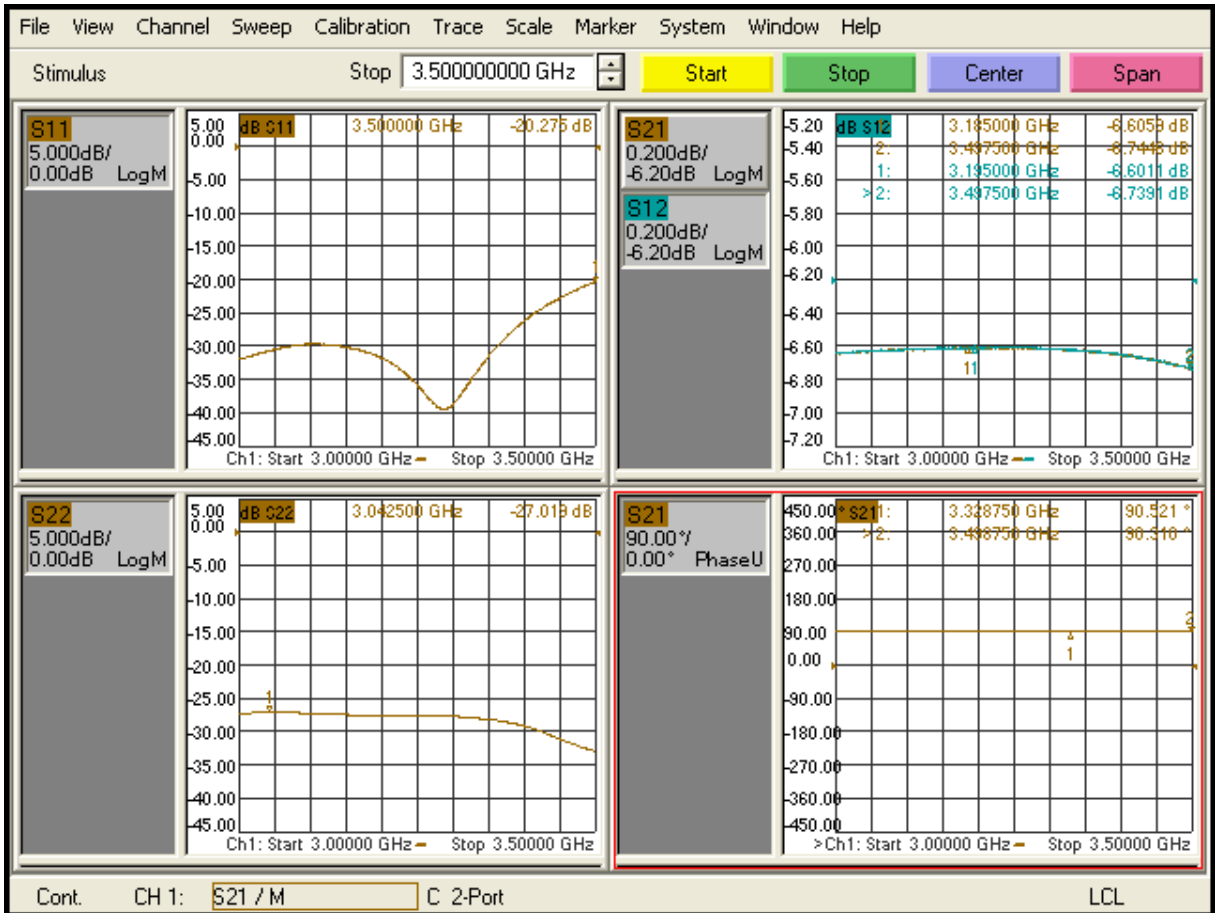




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

B to ELA

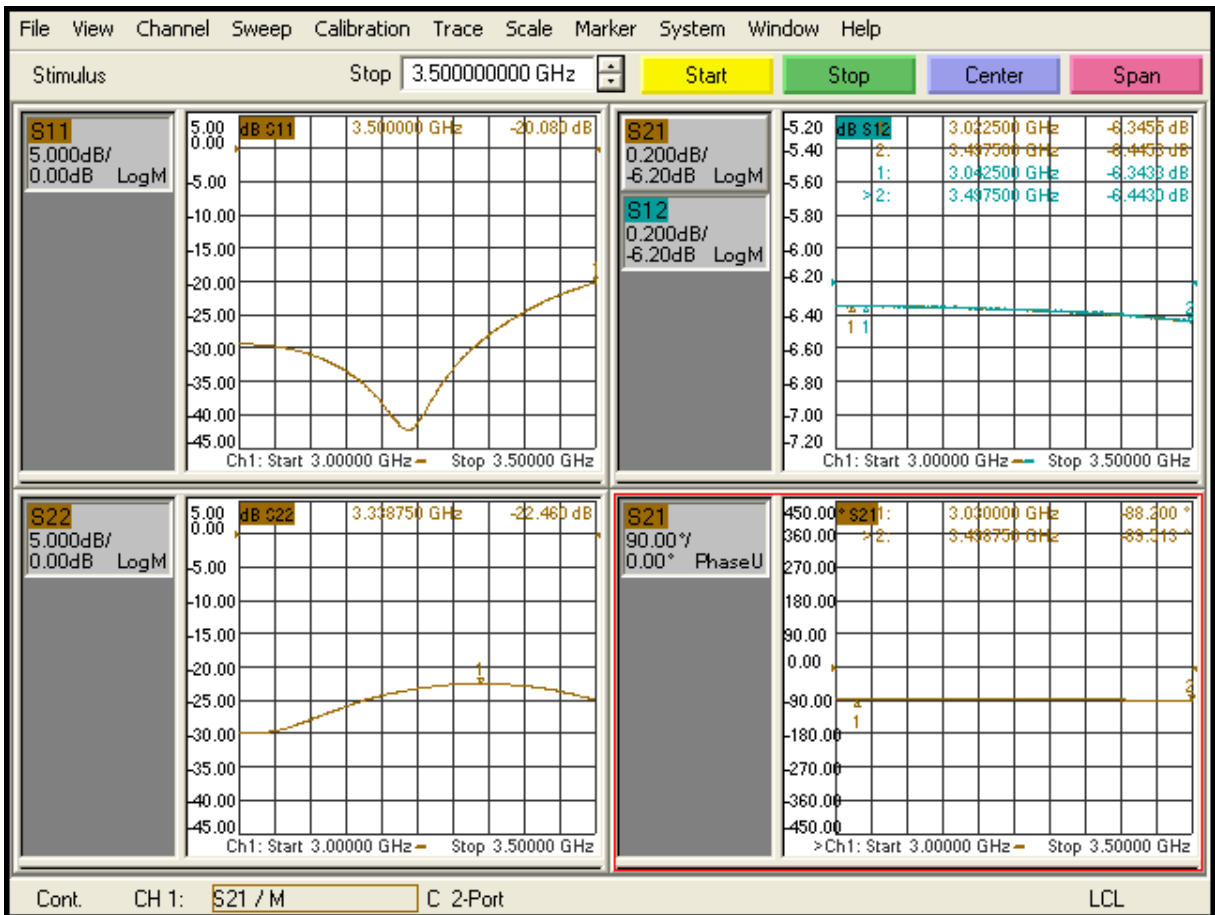




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

B to ΔQ

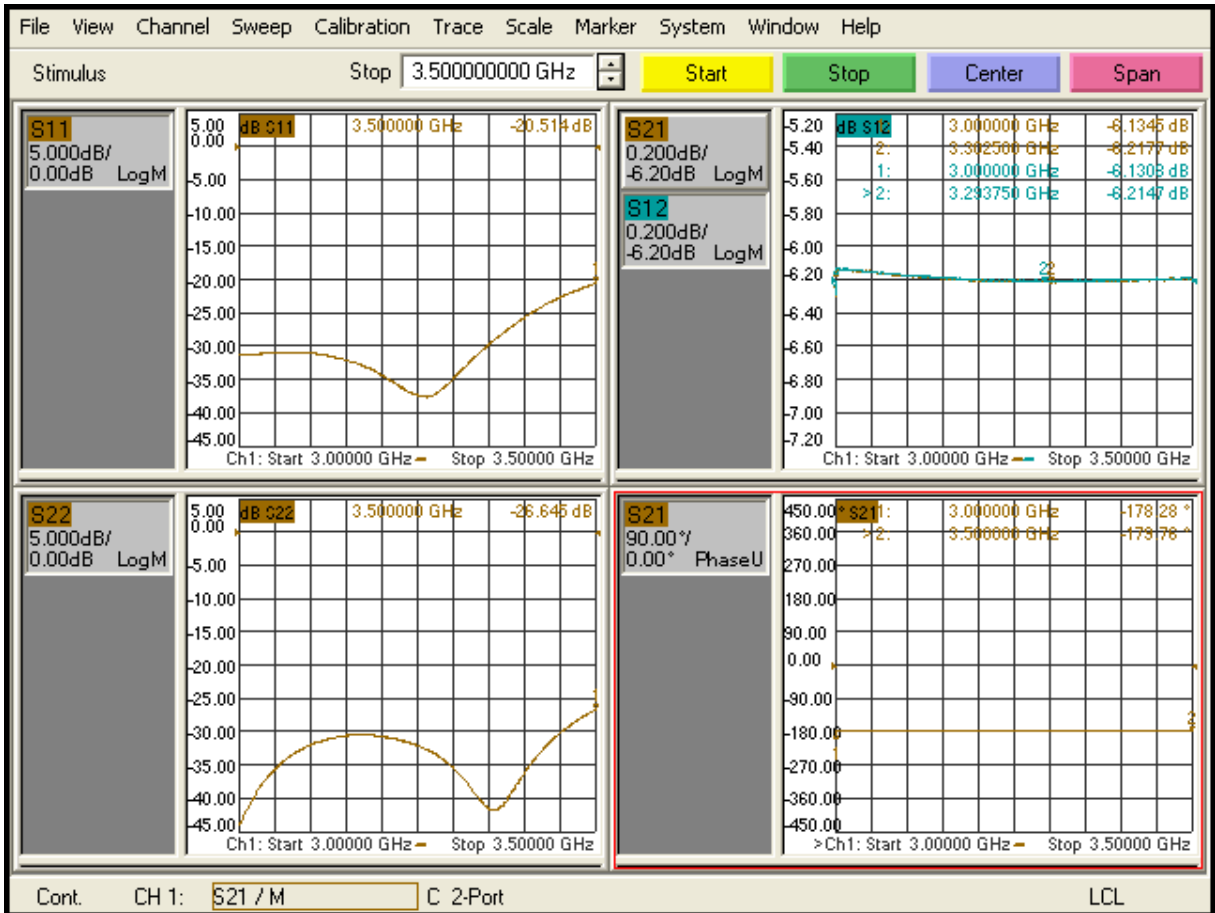




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

B to AZA

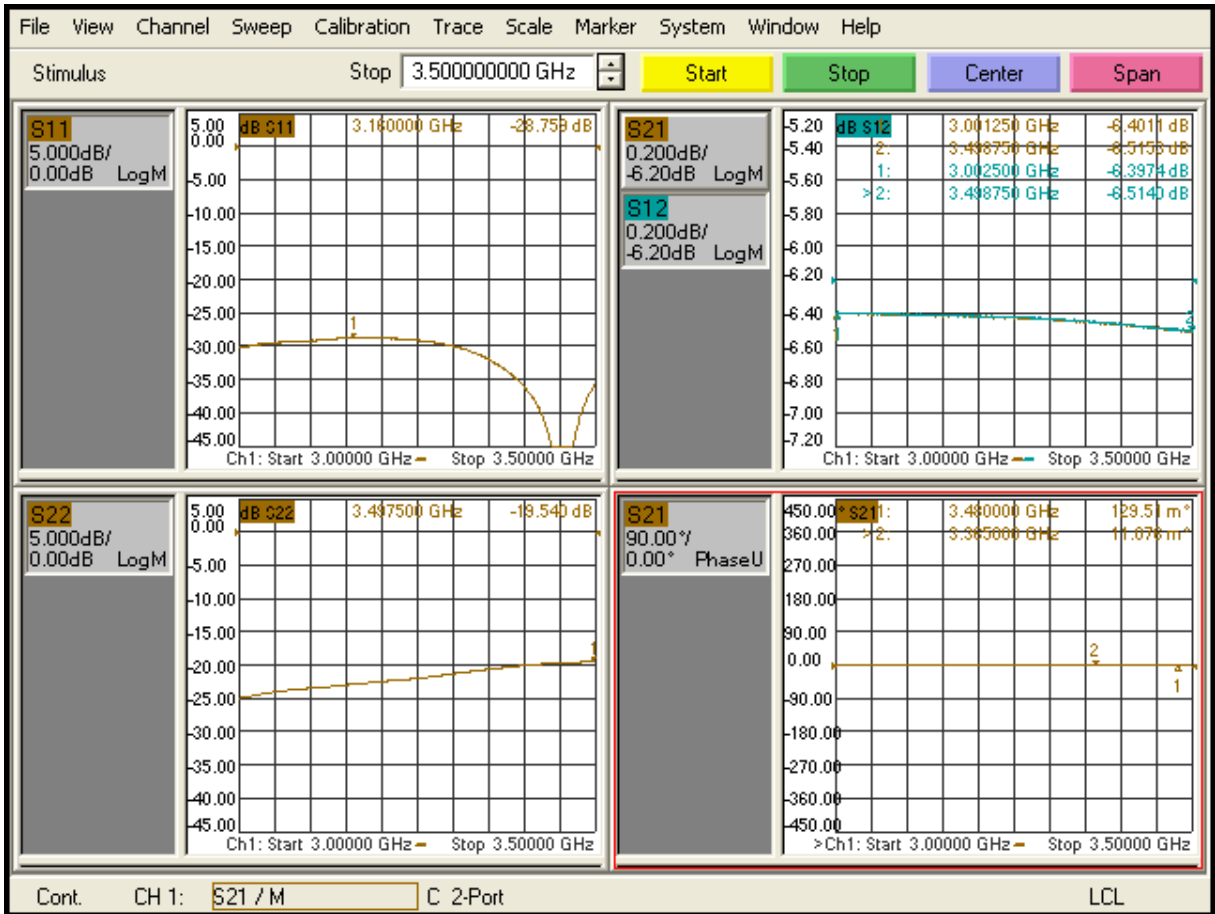




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**C to AZ
(Normalized Phase)**

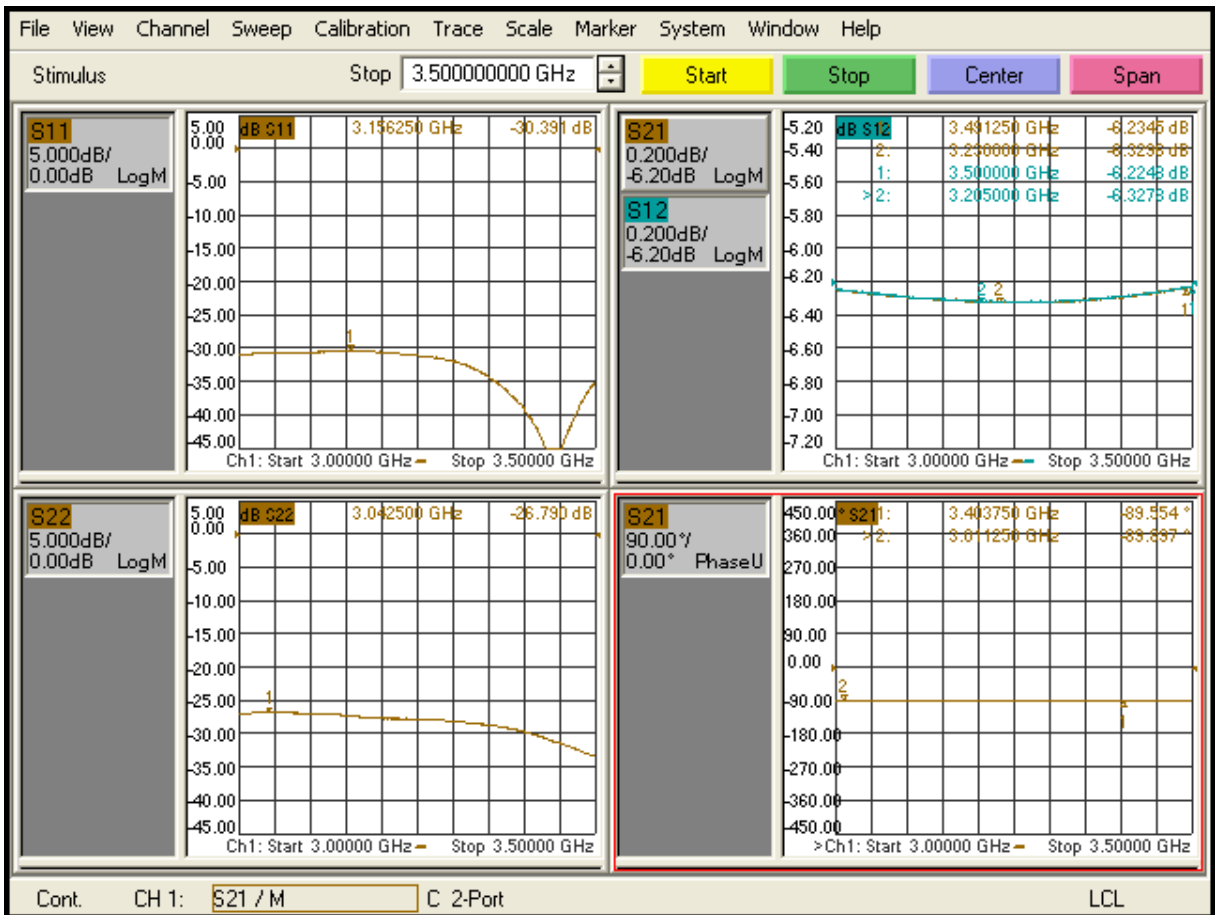




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

C to ELA

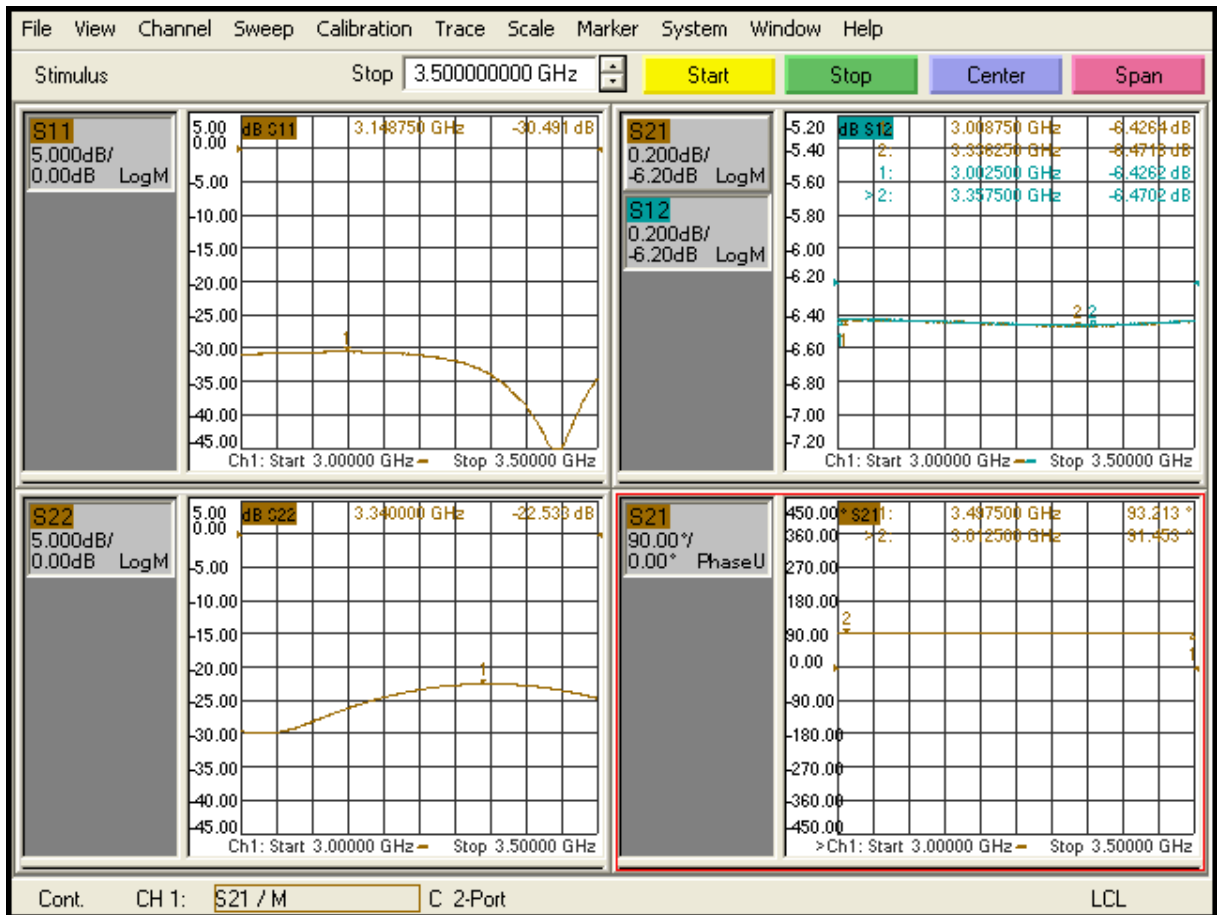




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

C to ΔQ

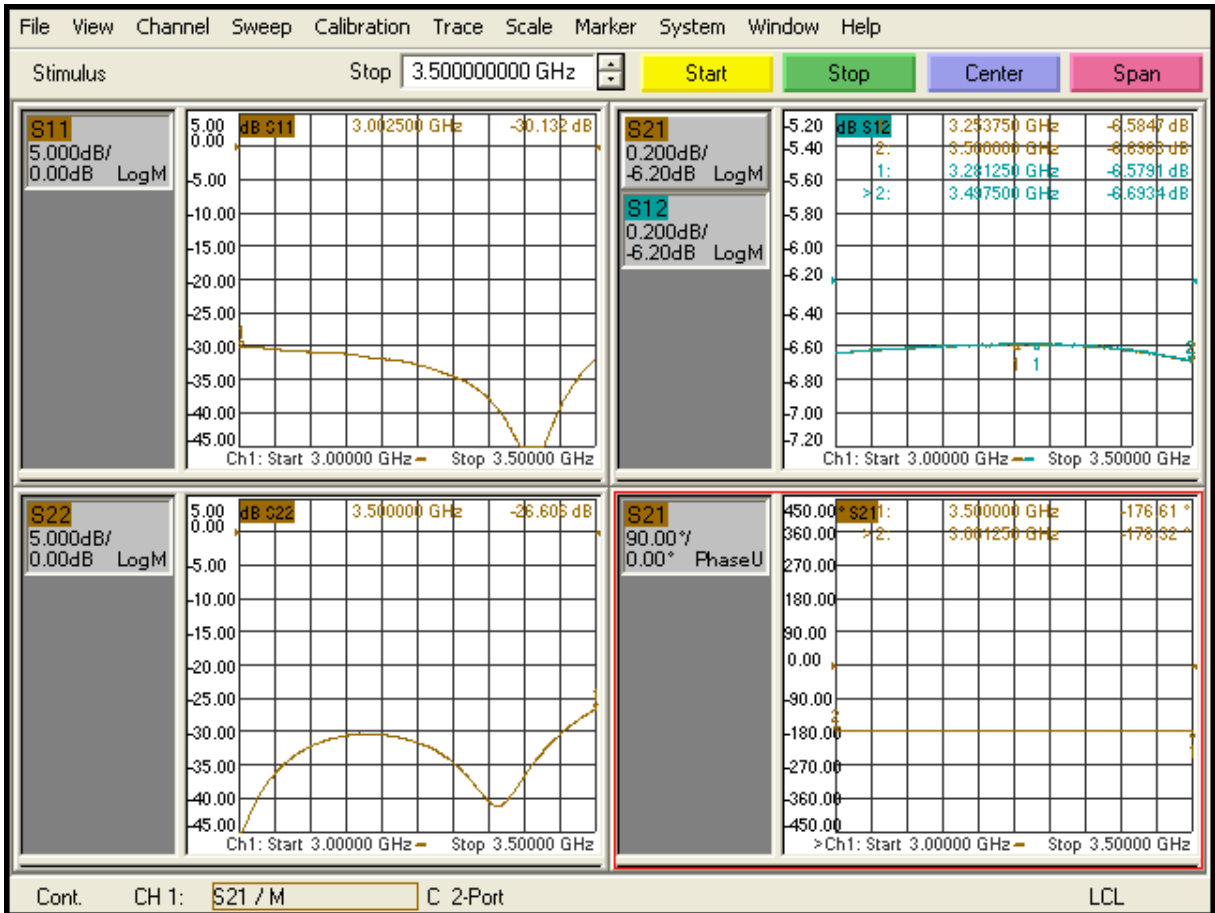




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

C to AZA

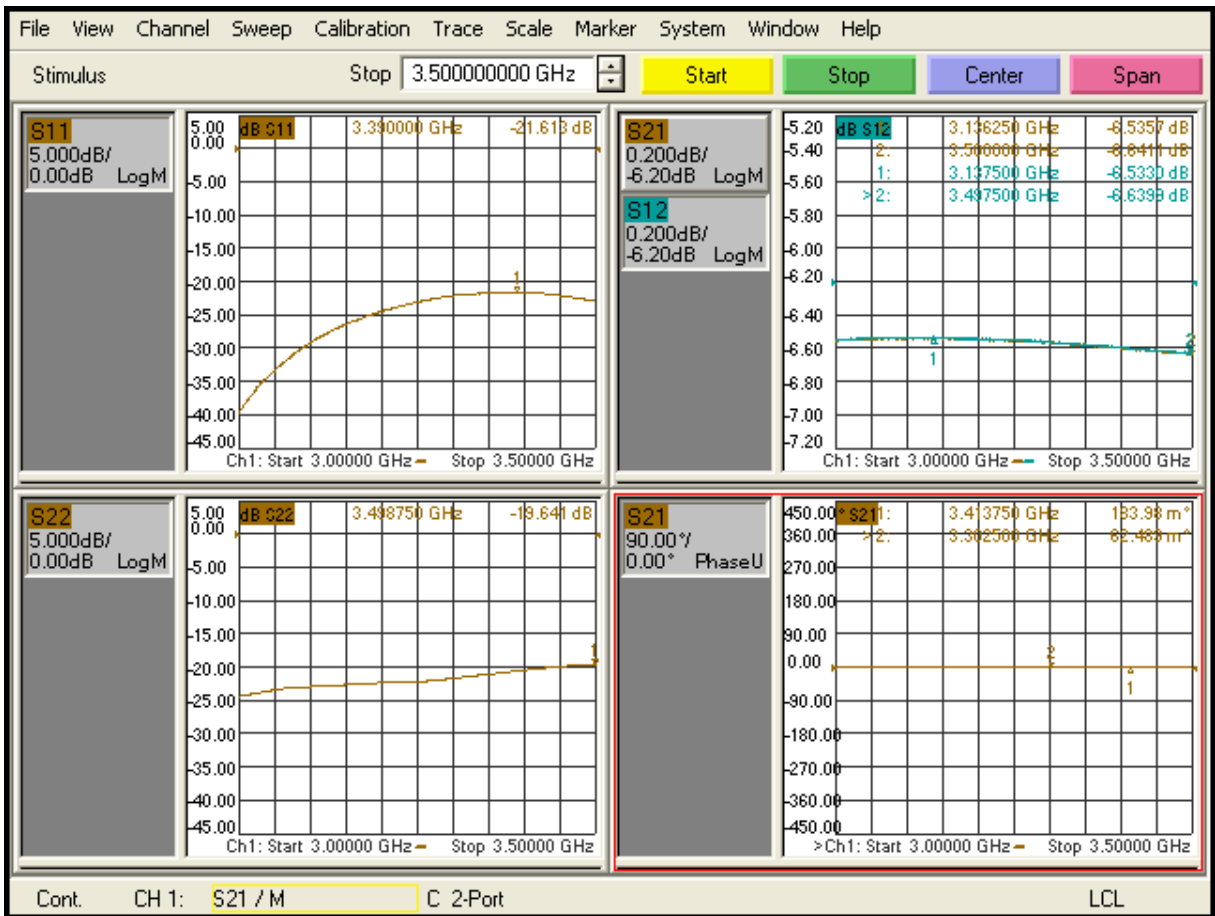




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**D to AZ
(Normalized Phase)**

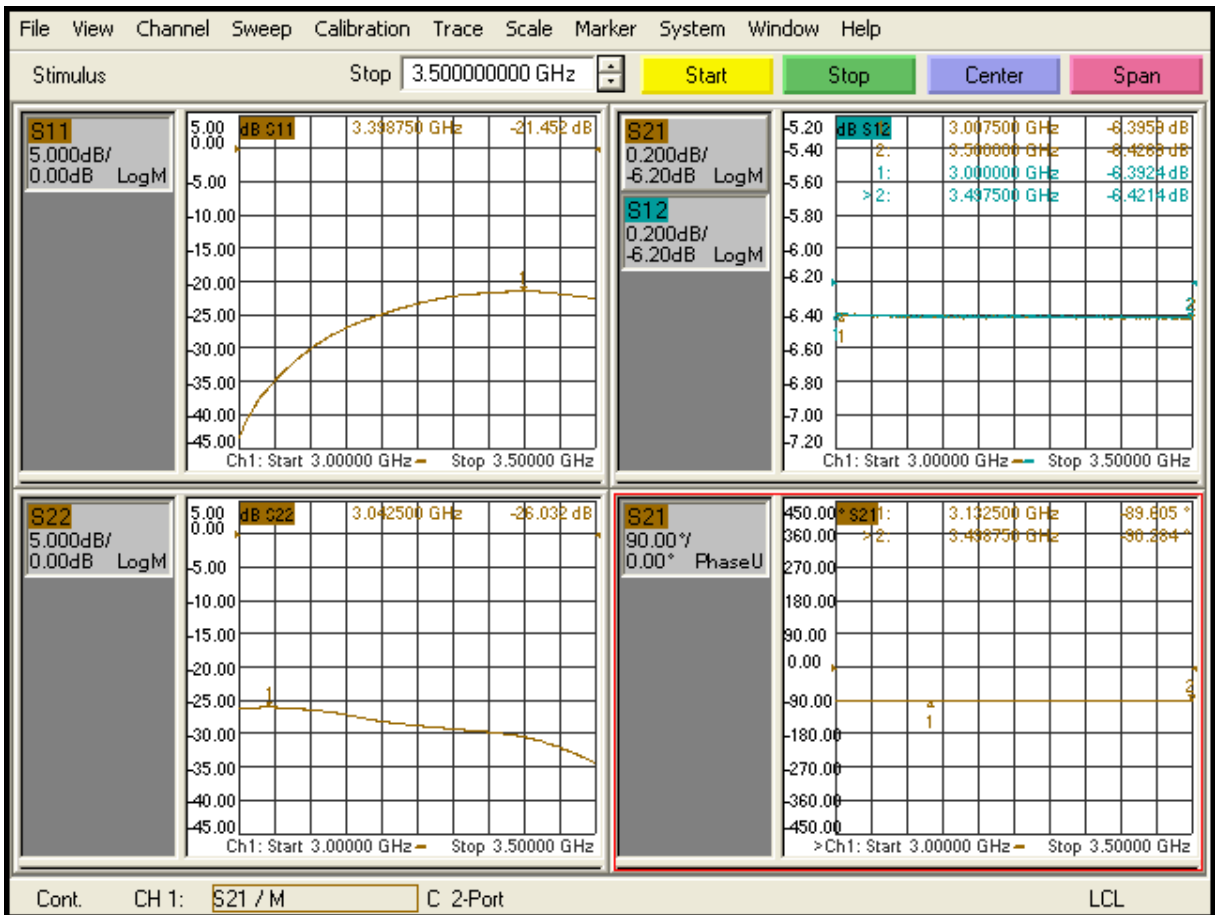




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

D to ELA

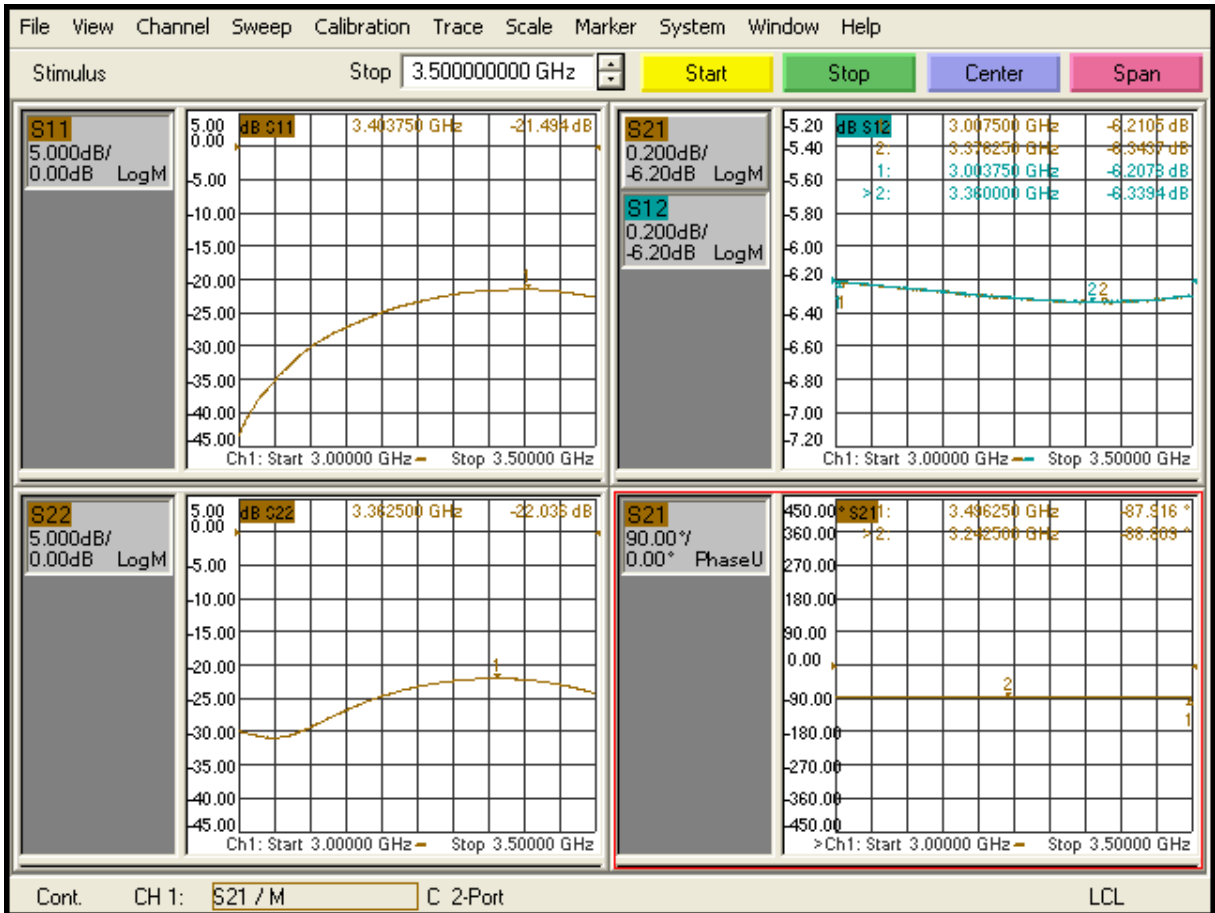




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

D to ΔQ

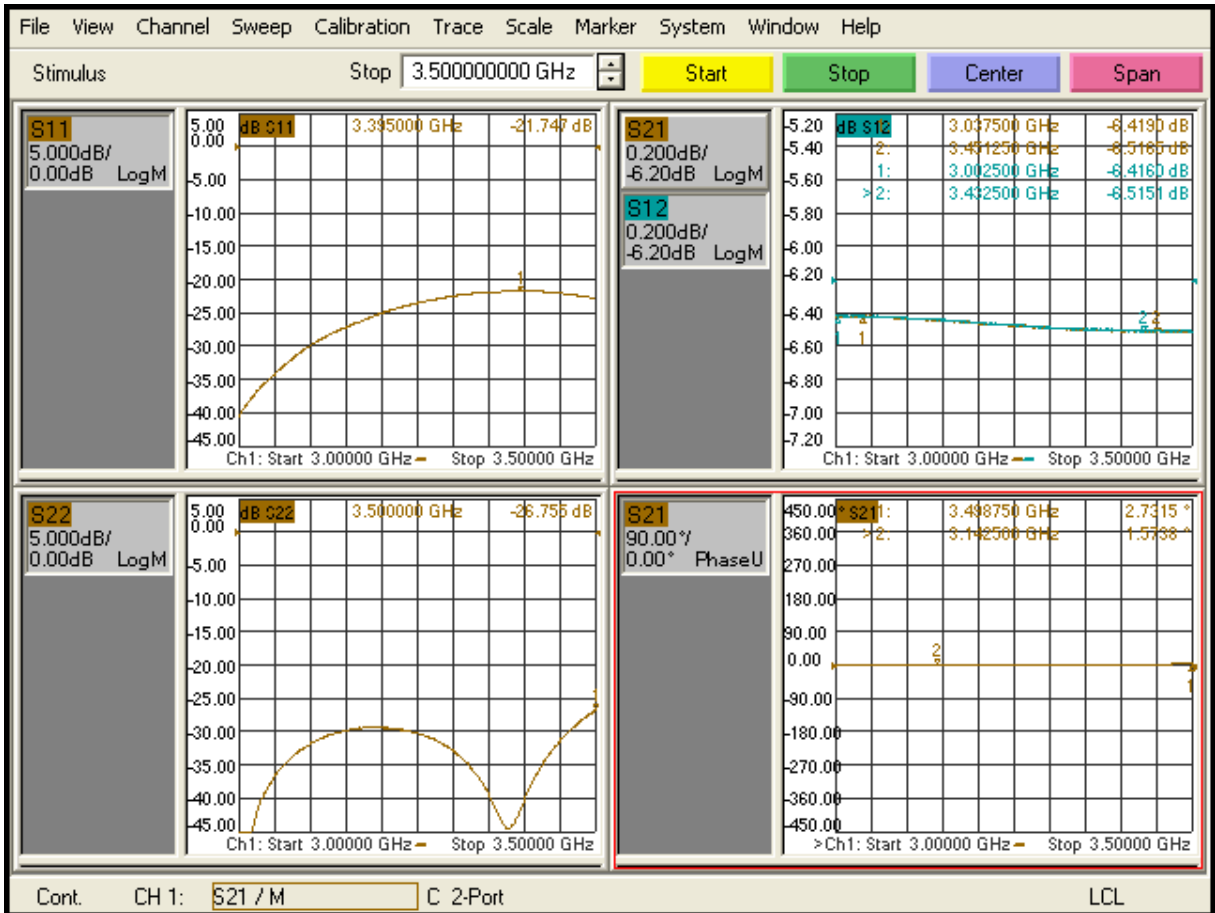




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

D to AZA





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

Phase Data Relative to EL Δ

S-Parameters Plots - Page 23 to 50

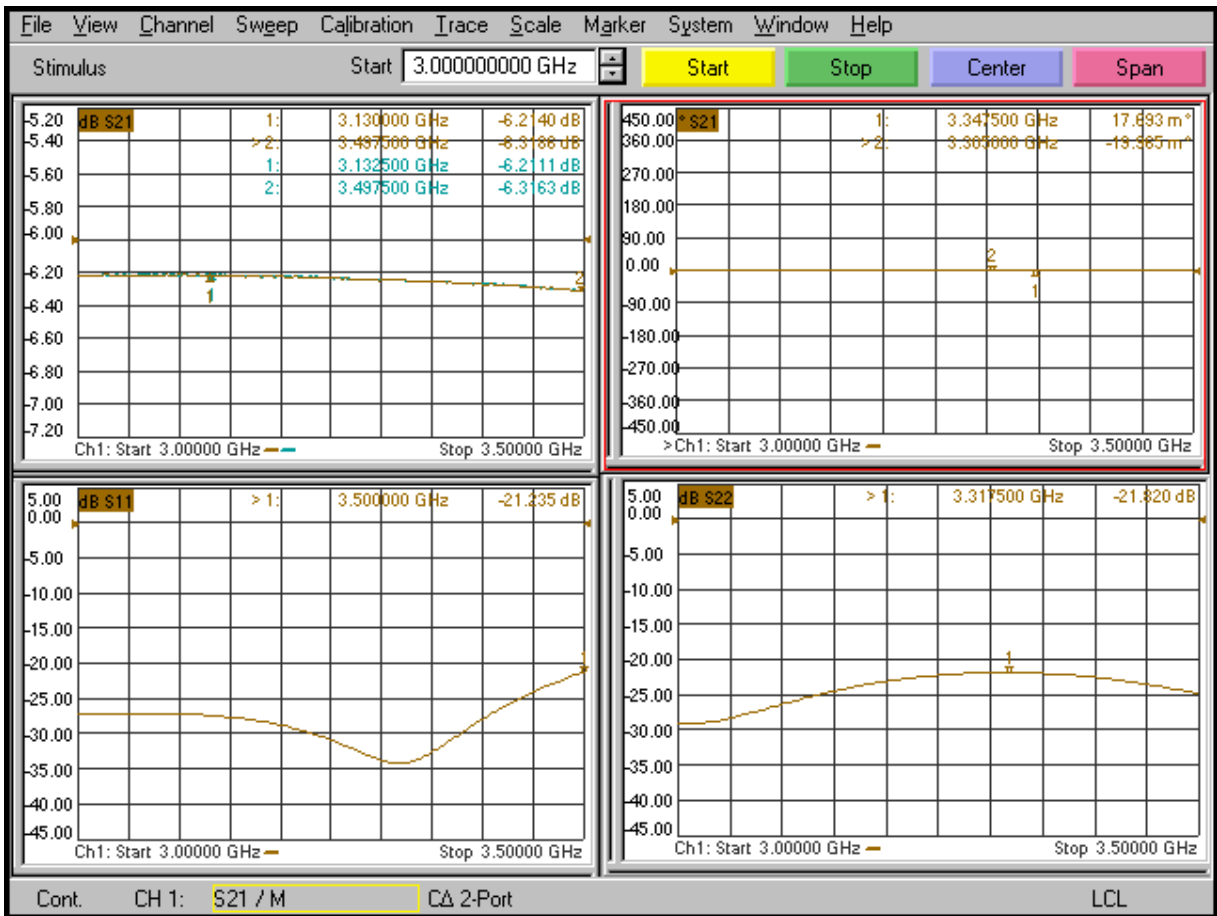
	A	B	C	D	ELΔ	AZΣ	ΔQ	AZΔ
A	Isolation	Isolation	Isolation	Isolation	0°	-90° / +270°	+180°	+90°
B	Isolation	Isolation	Isolation	Isolation	0°	-90° / +270°	0°	-90° / +270°
C	Isolation	Isolation	Isolation	Isolation	0°	+90°	0°	+90°
D	Isolation	Isolation	Isolation	Isolation	0°	+90°	+180°	-90° / +270°
ELΔ	0°	0°	0°	0°	Isolation	Isolation	Isolation	Isolation
AZΣ	-90° / +270°	-90° / +270°	+90°	+90°	Isolation	Isolation	Isolation	Isolation
ΔQ	+180°	0°	0°	+180°	Isolation	Isolation	Isolation	Isolation
AZΔ	+90°	-90° / +270°	+90°	-90° / +270°	Isolation	Isolation	Isolation	Isolation



**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**A to ELΔ
(Normalized Phase)**

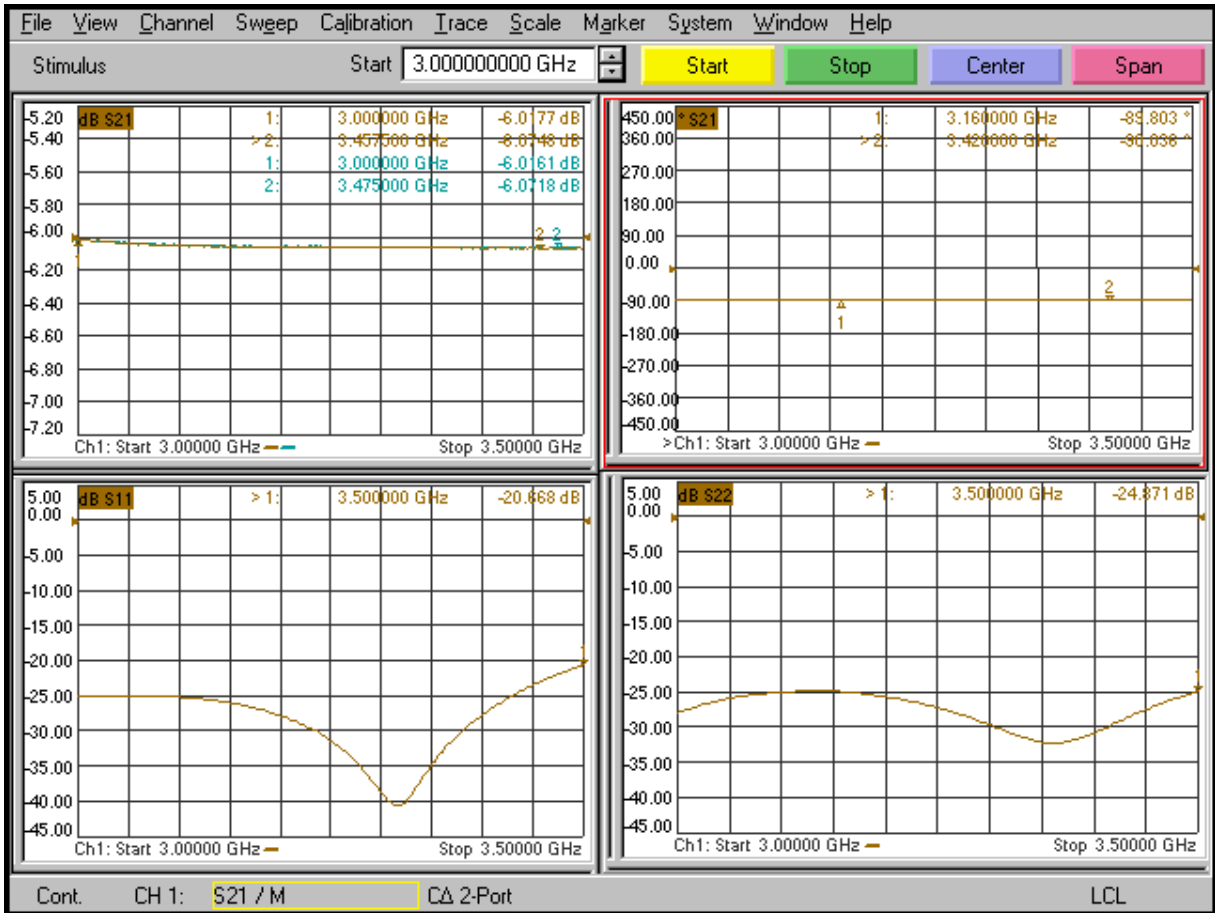




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

A to AZ

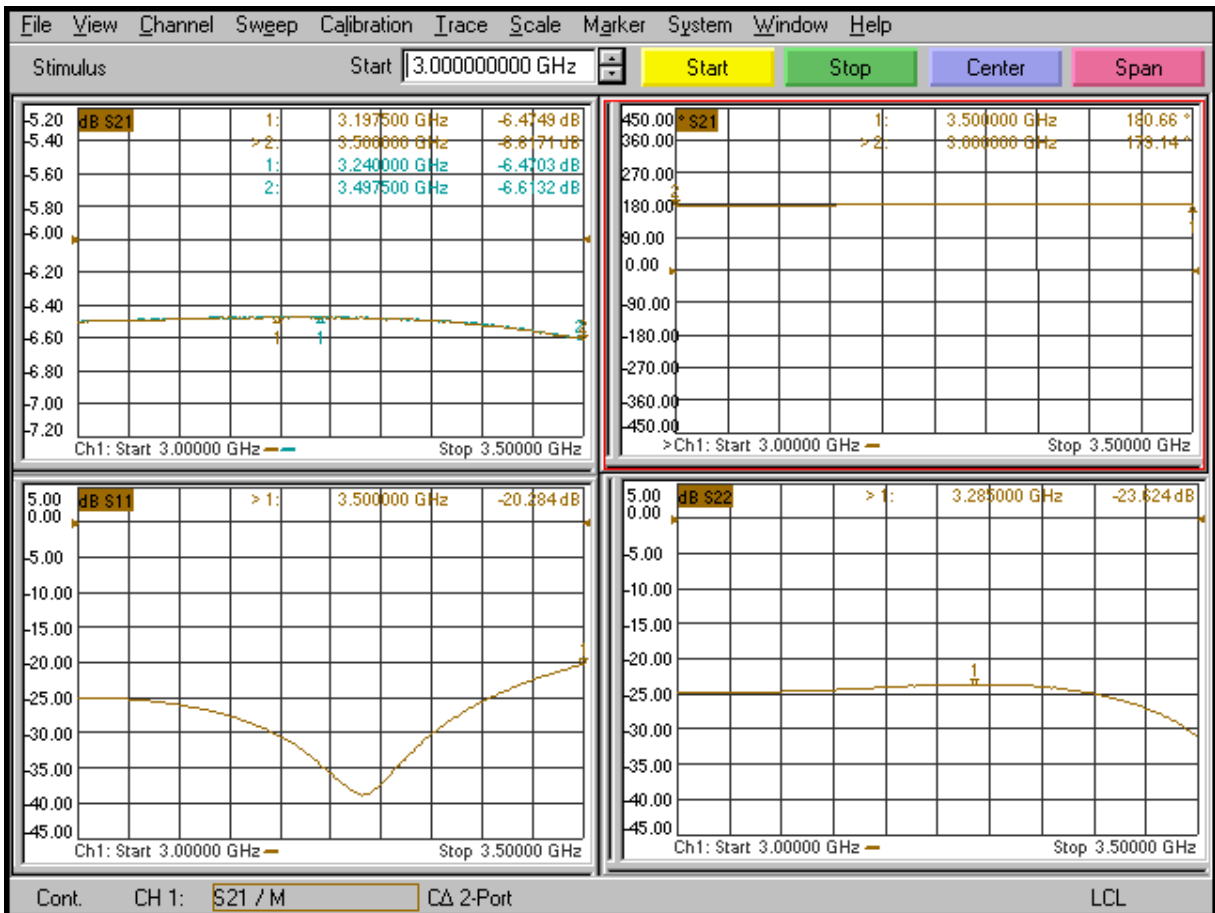




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11 & S22)**

A to ΔQ

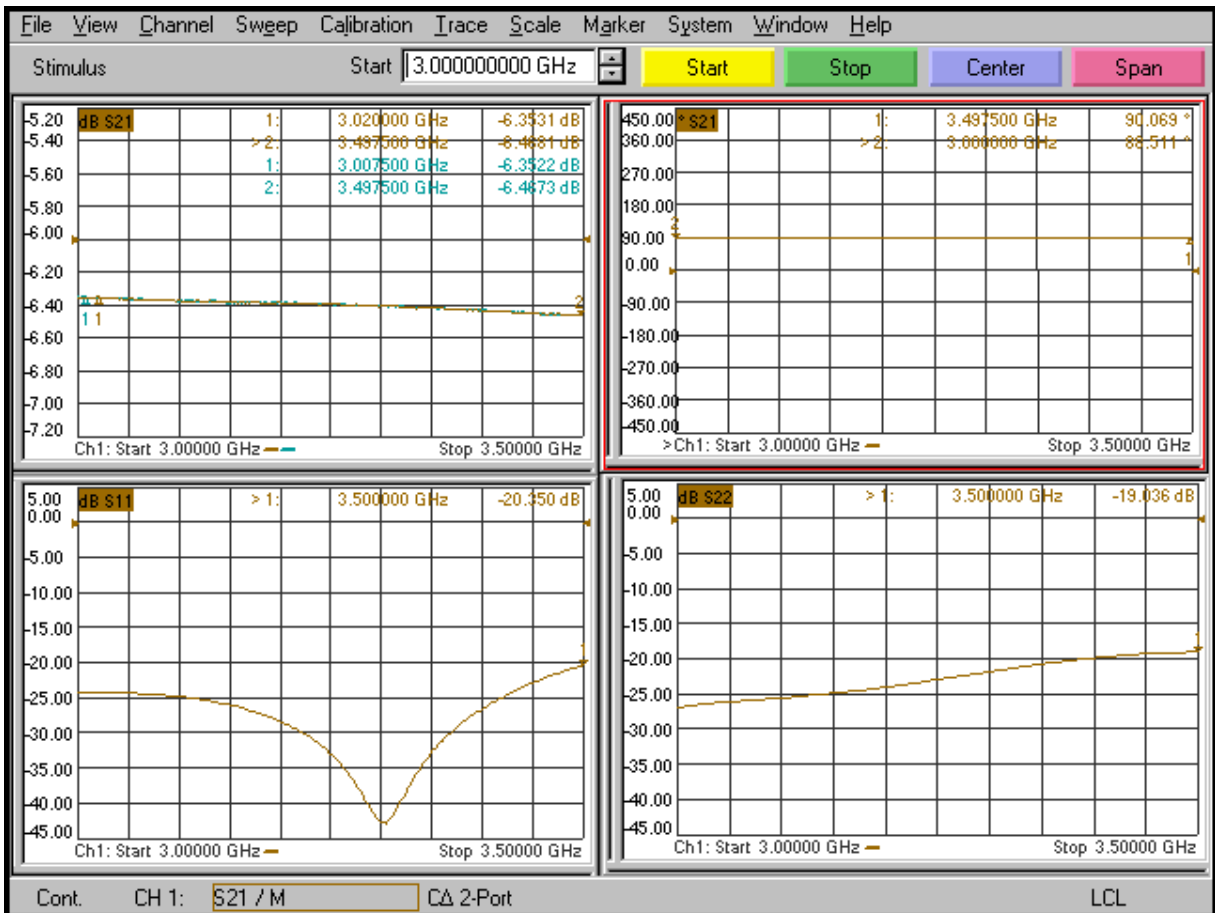




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11 & S22)**

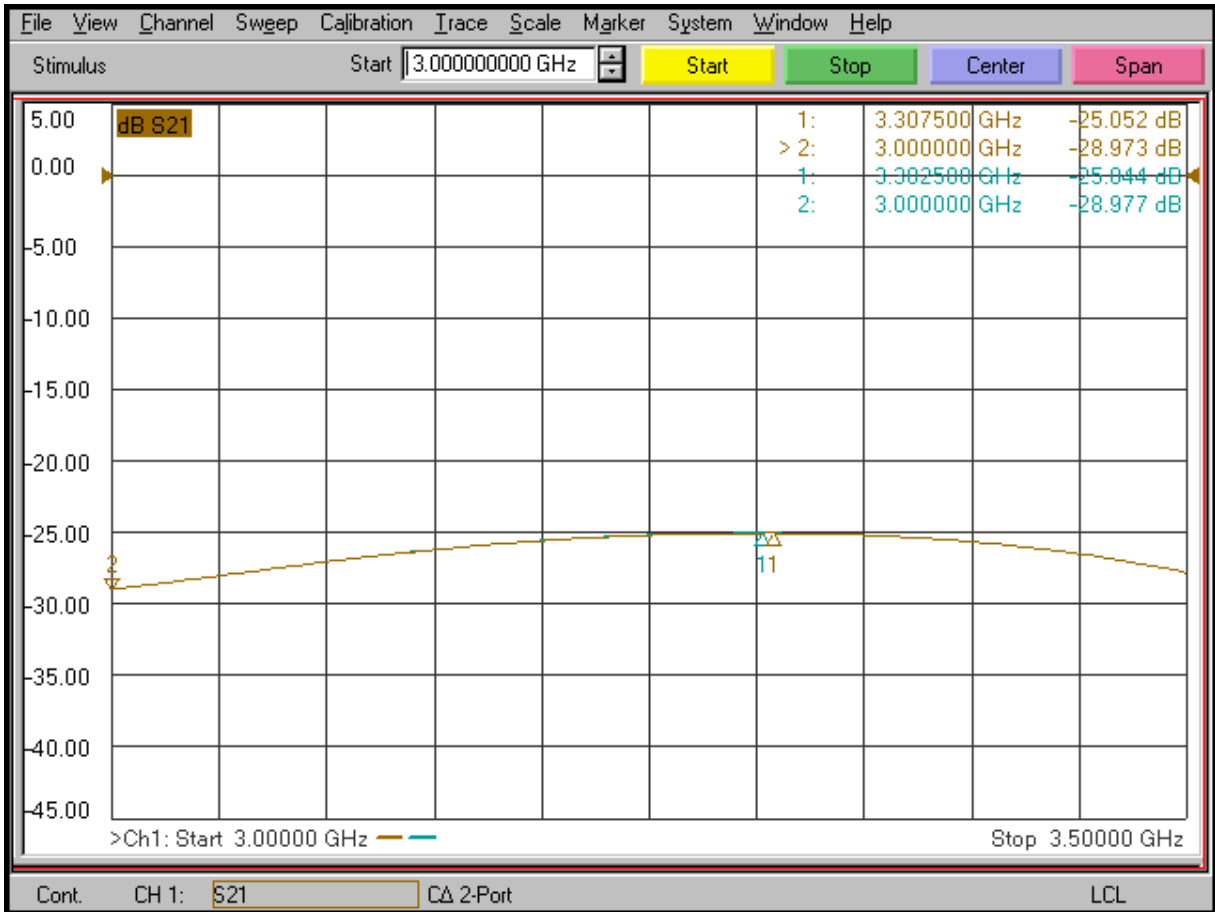
A to AZ





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

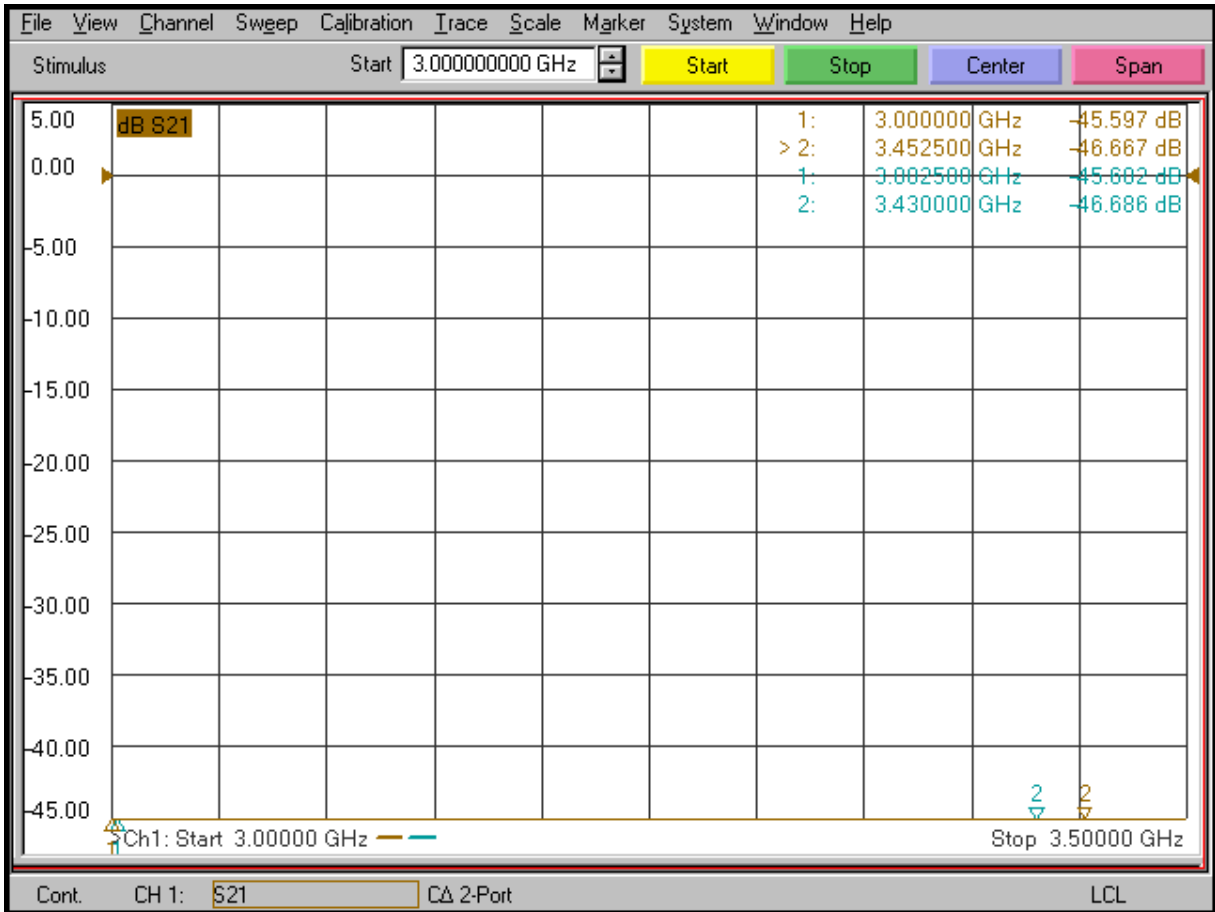
A to B Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

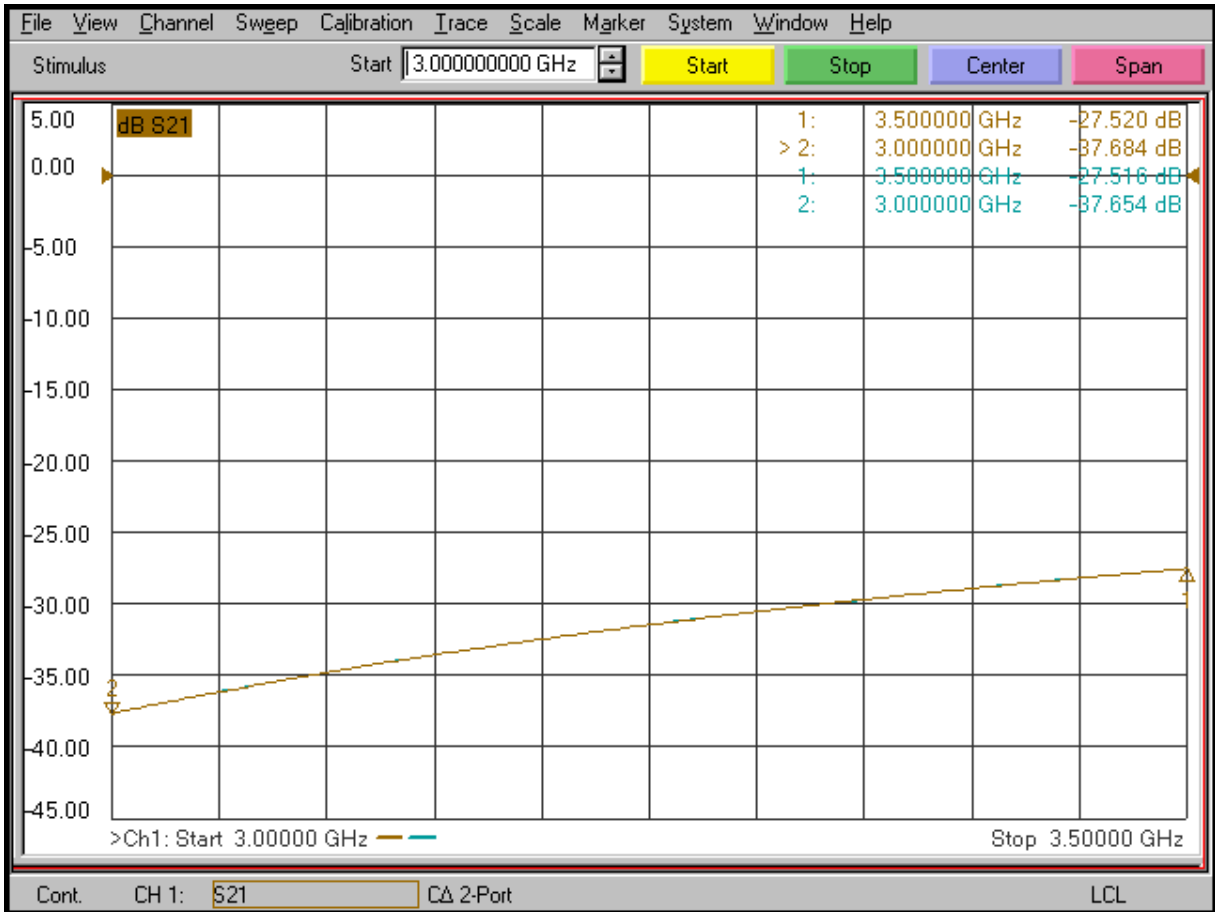
A to C Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

A to D Isolation

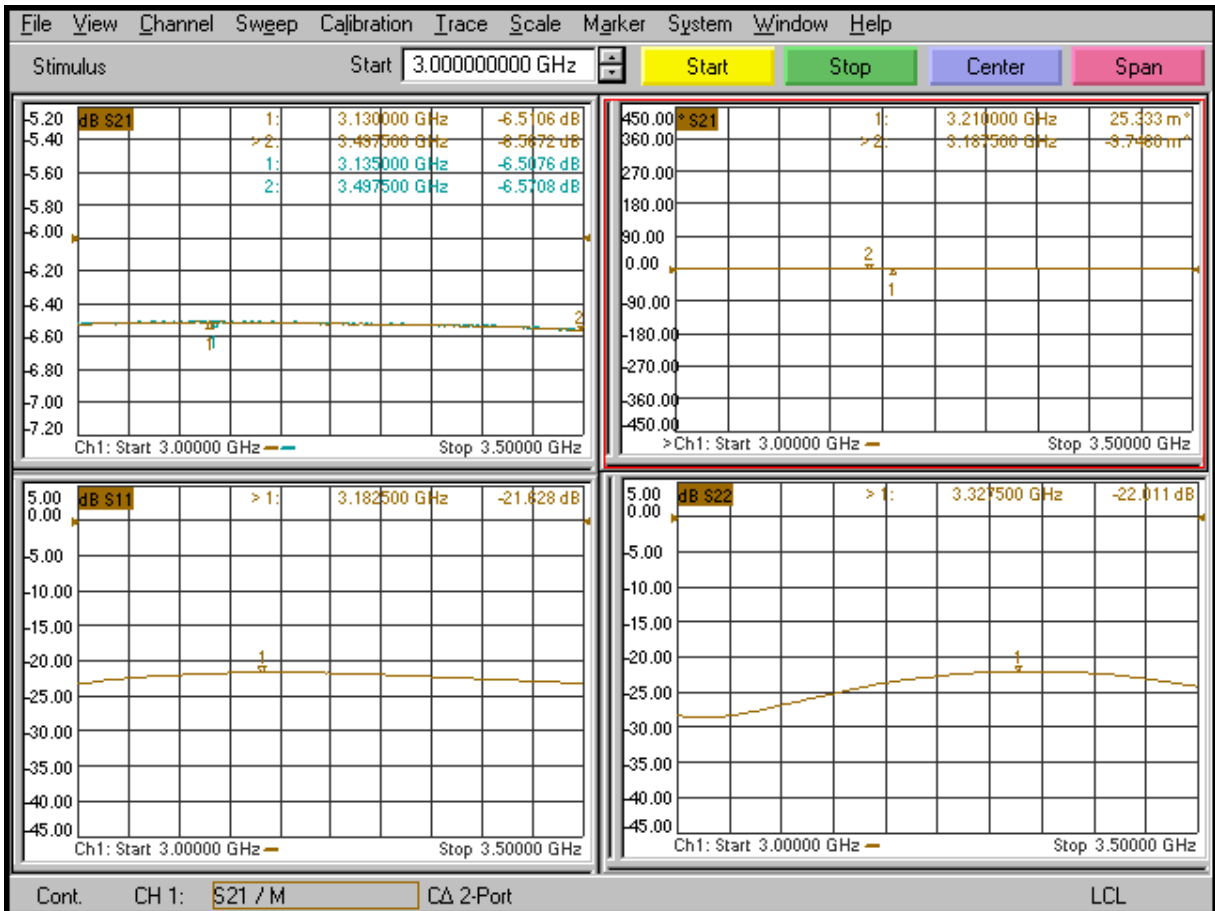




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**B to EL Δ
(Normalized Phase)**

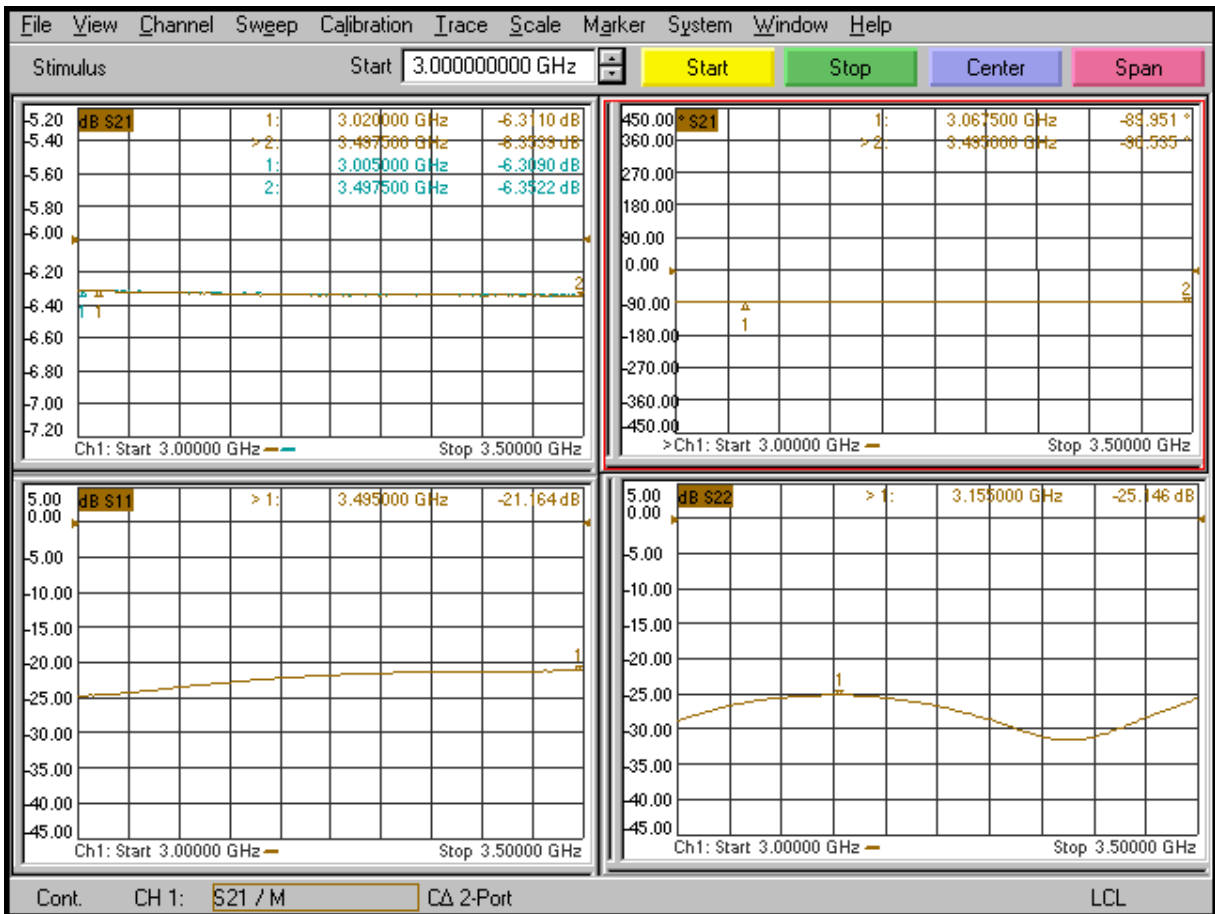




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

B to AZΣ

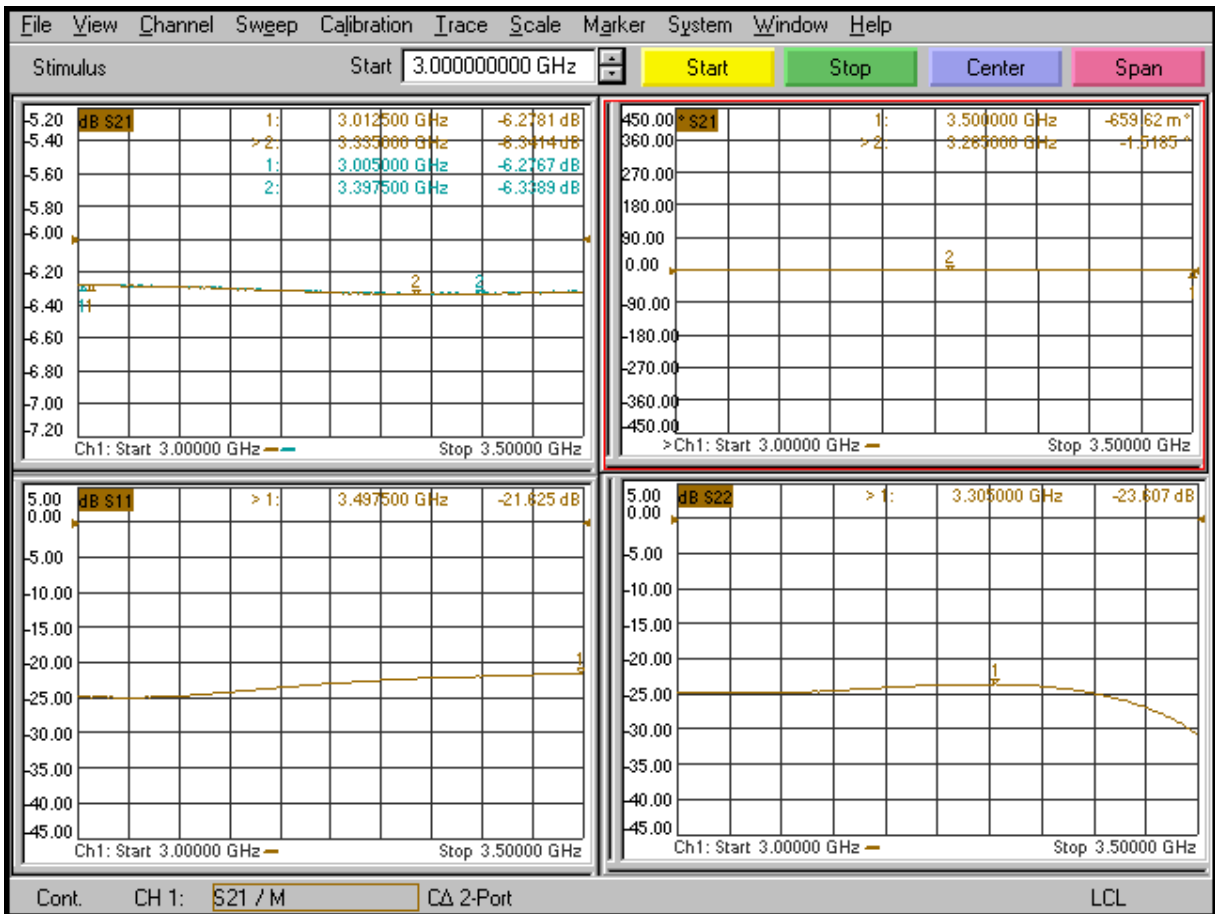




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

B to Δ Q

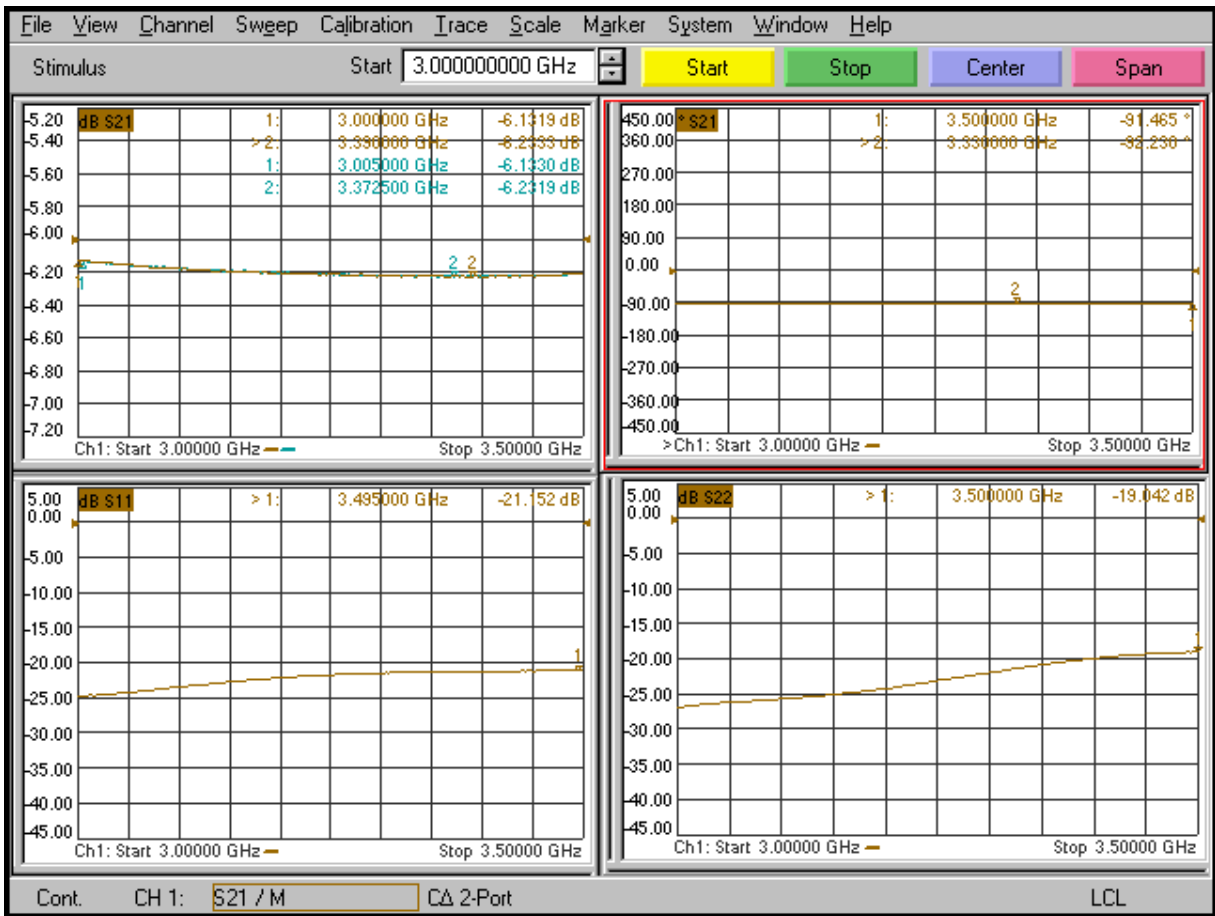




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

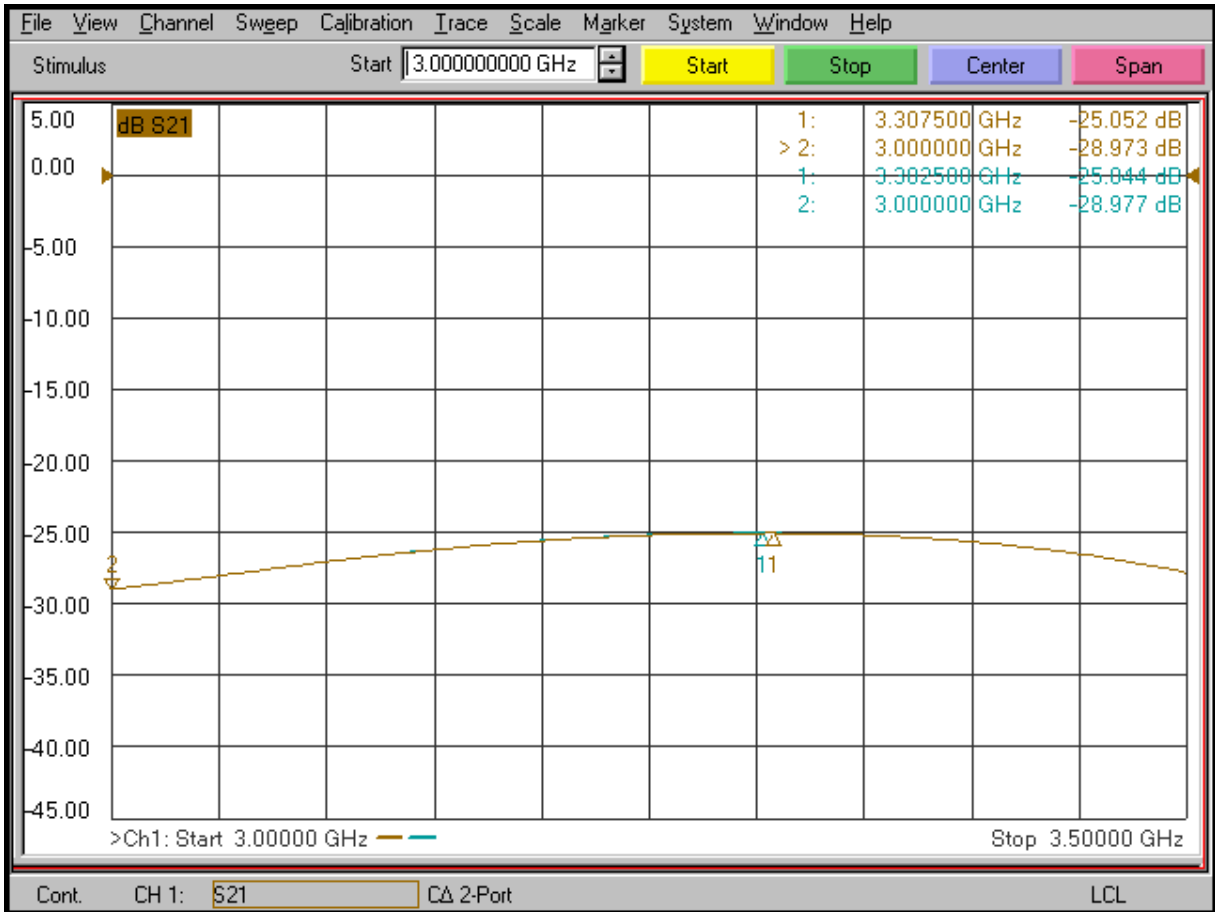
B to AZΔ





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

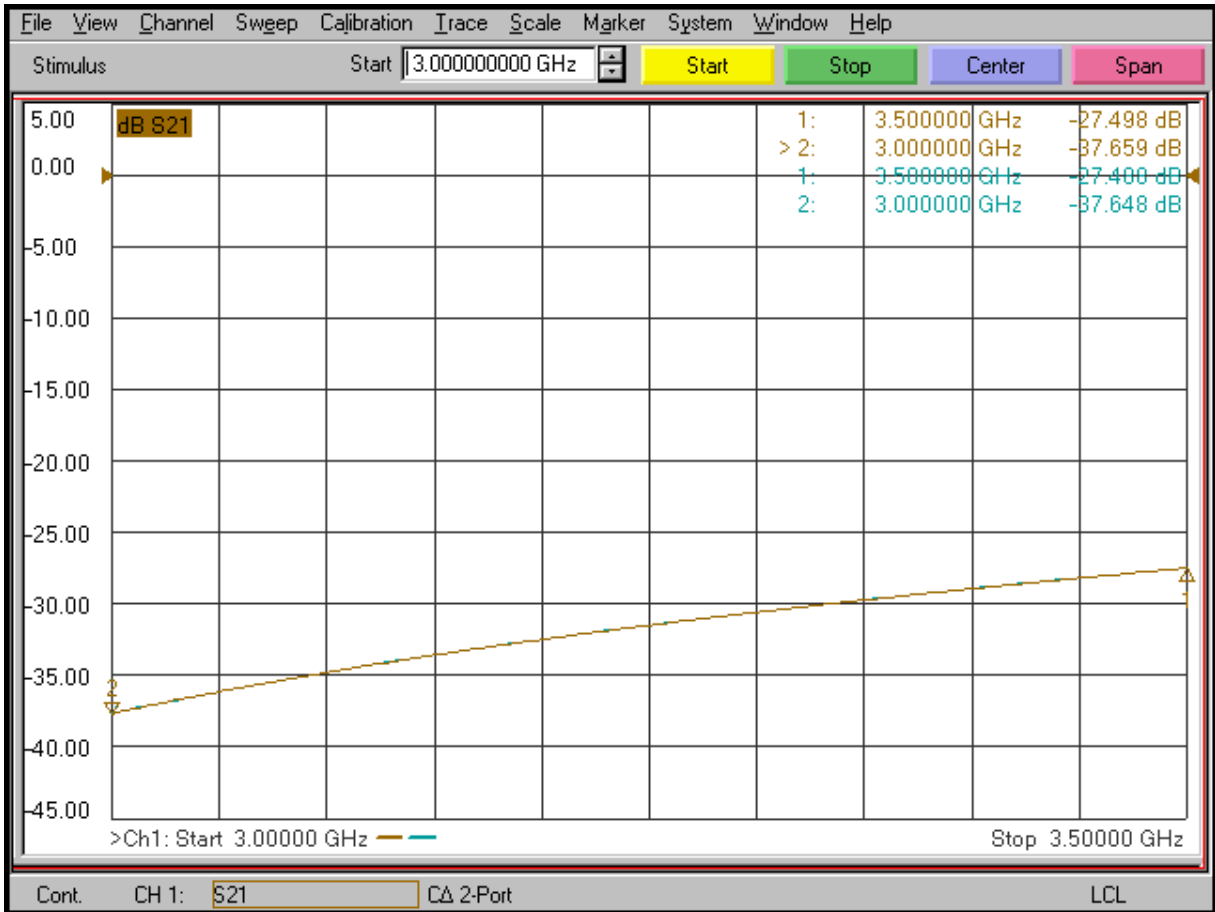
B to A Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

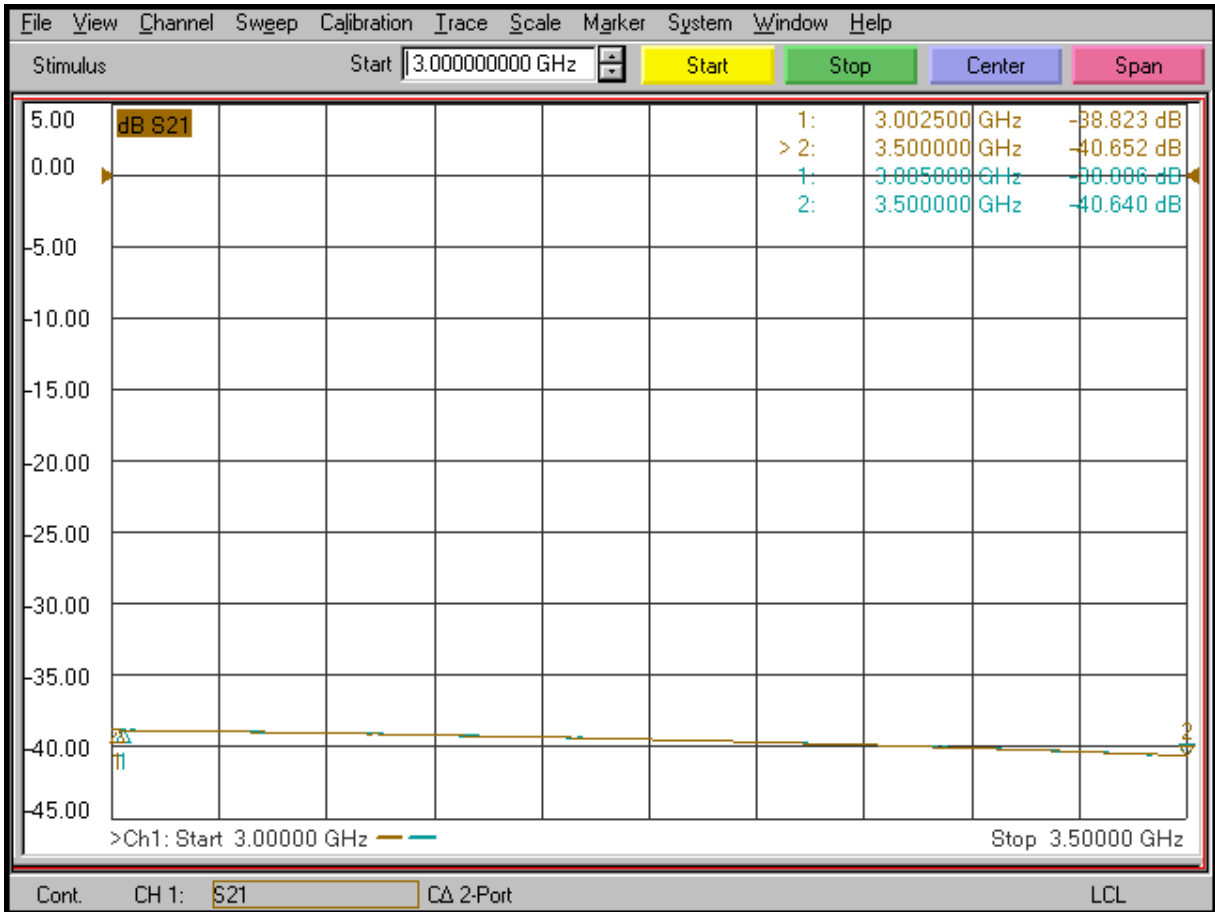
B to C Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

B to D Isolation

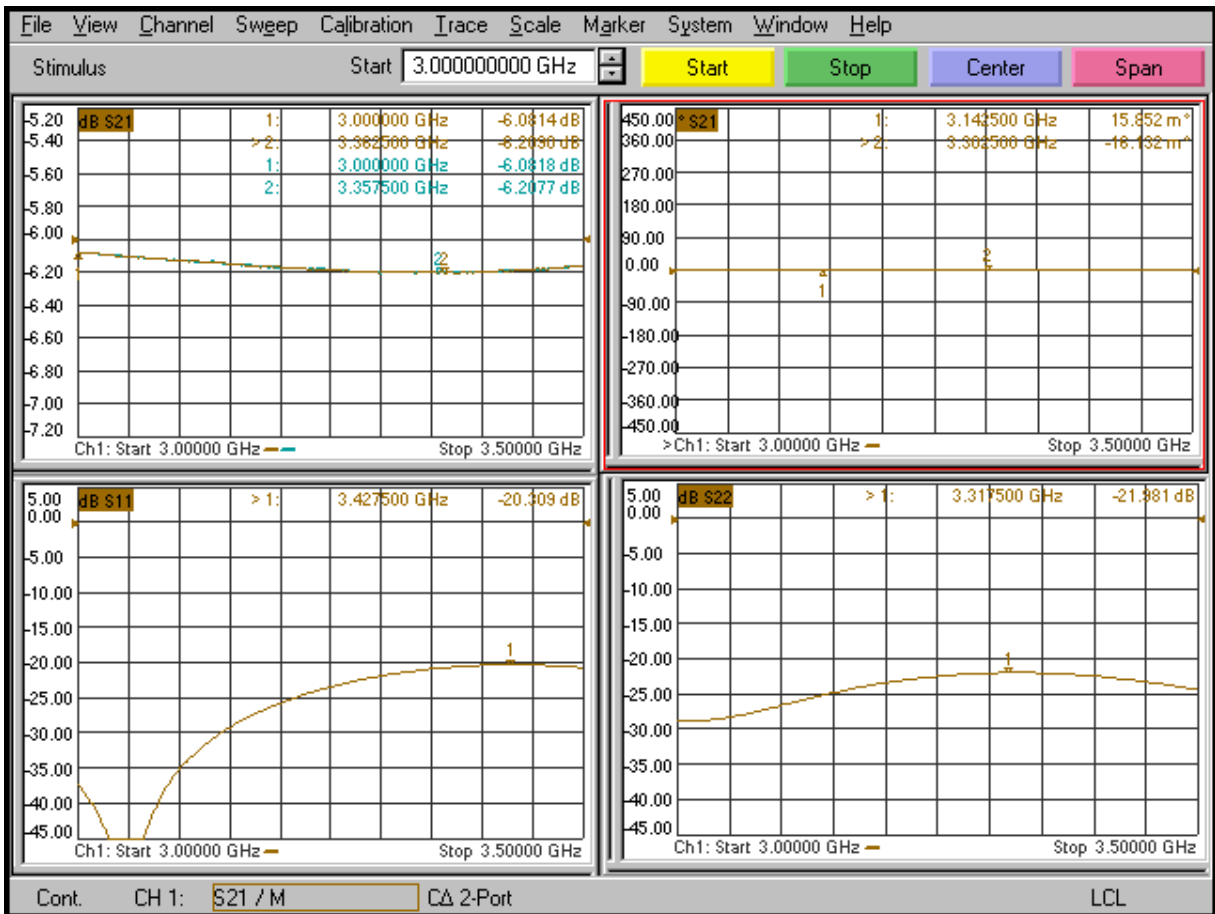




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**C to EL Δ
(Normalized Phase)**

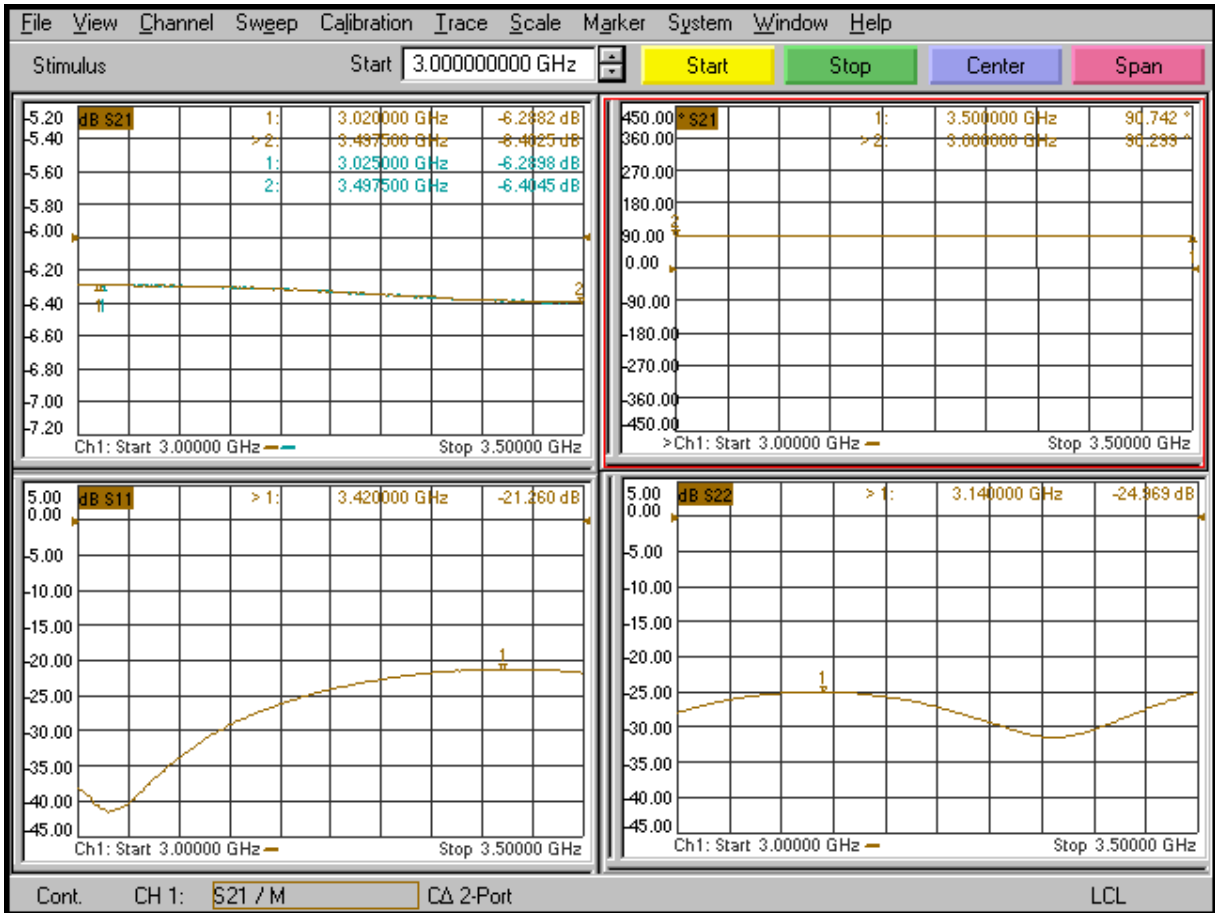




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

C to AZ

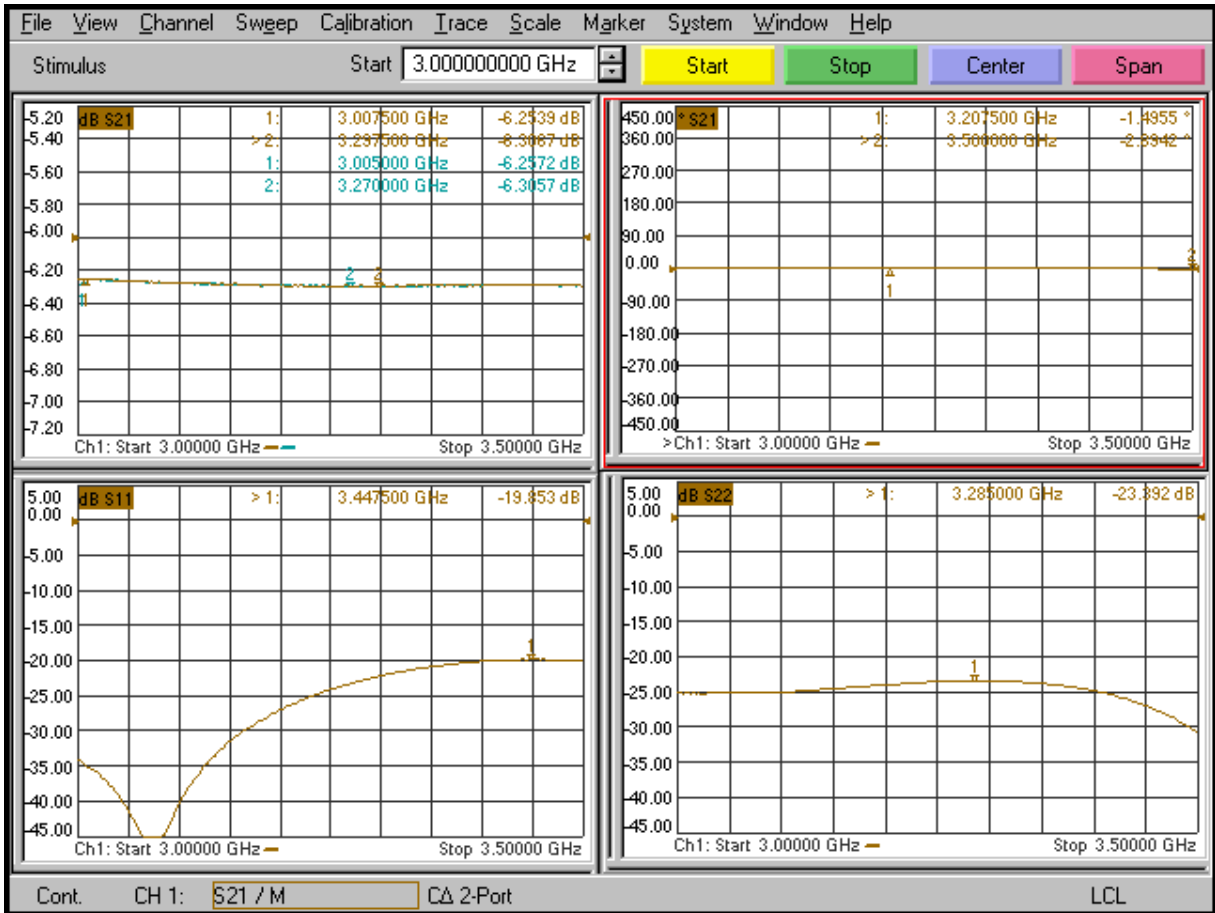




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

C to Δ Q

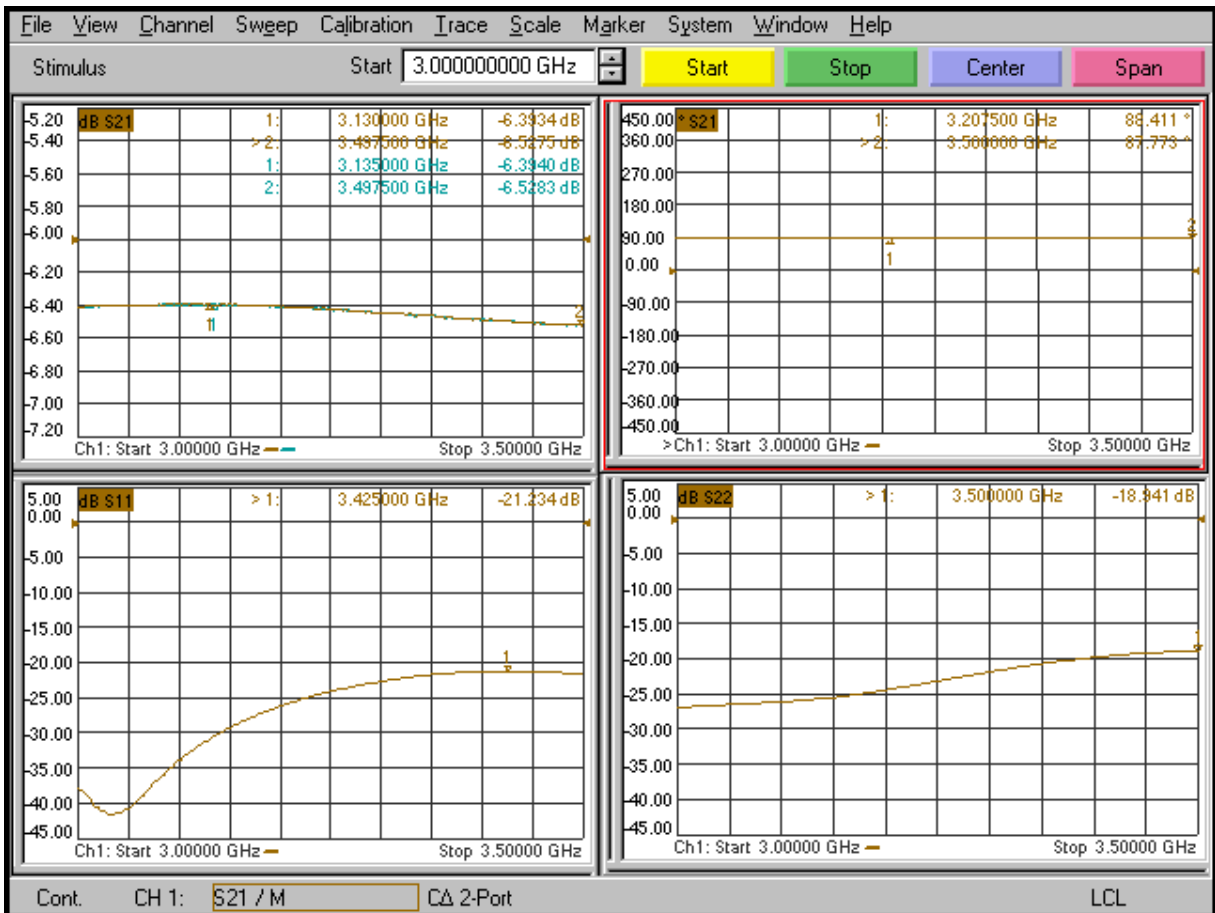




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11 & S22)**

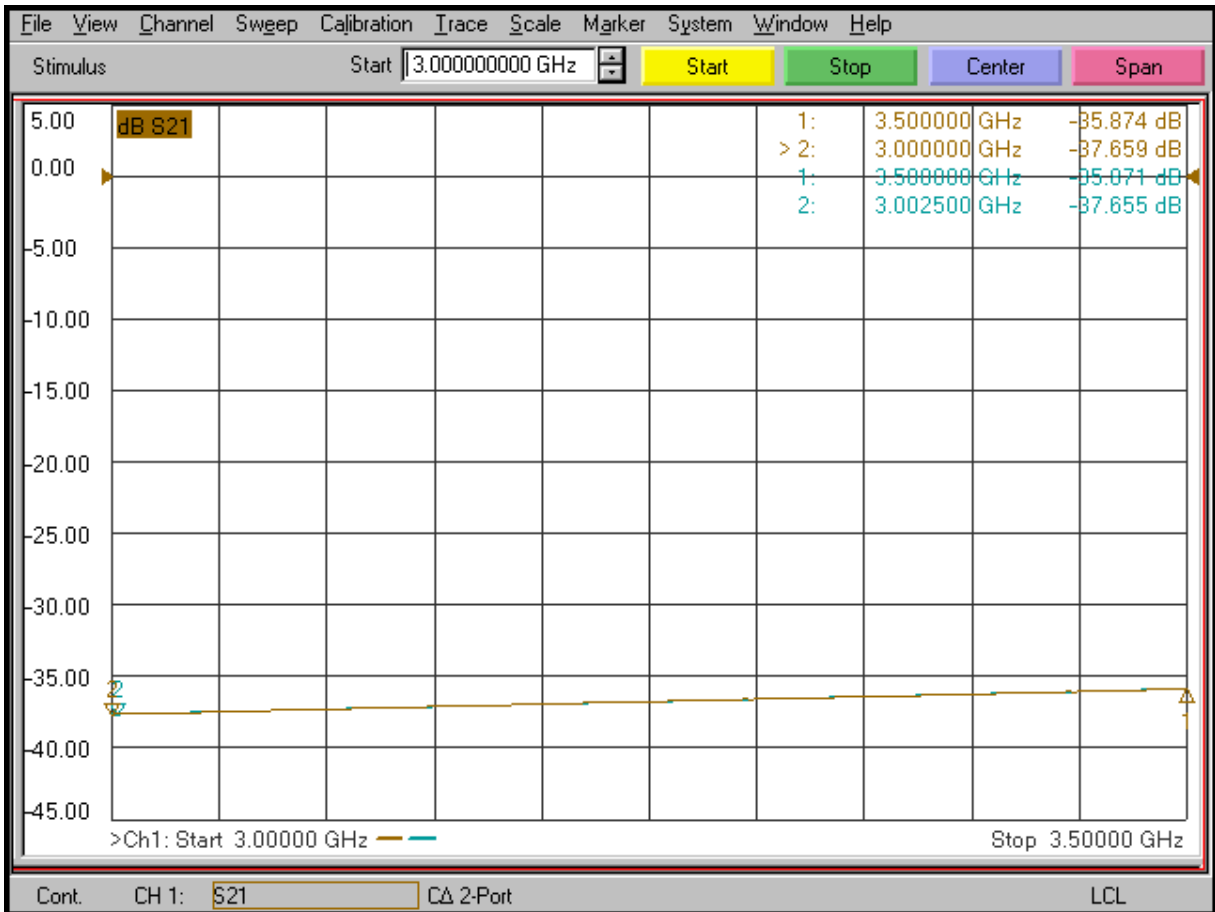
C to AZA





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

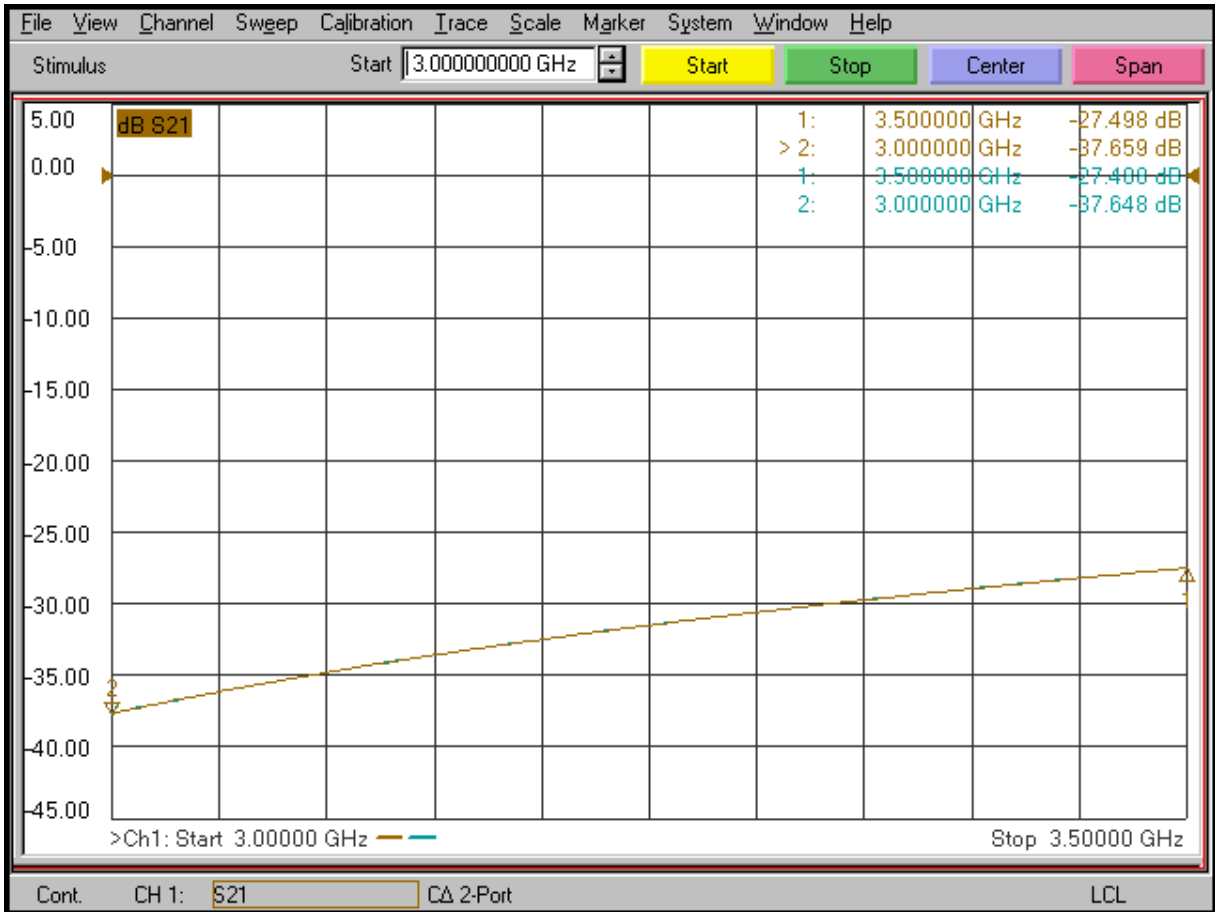
C to A Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

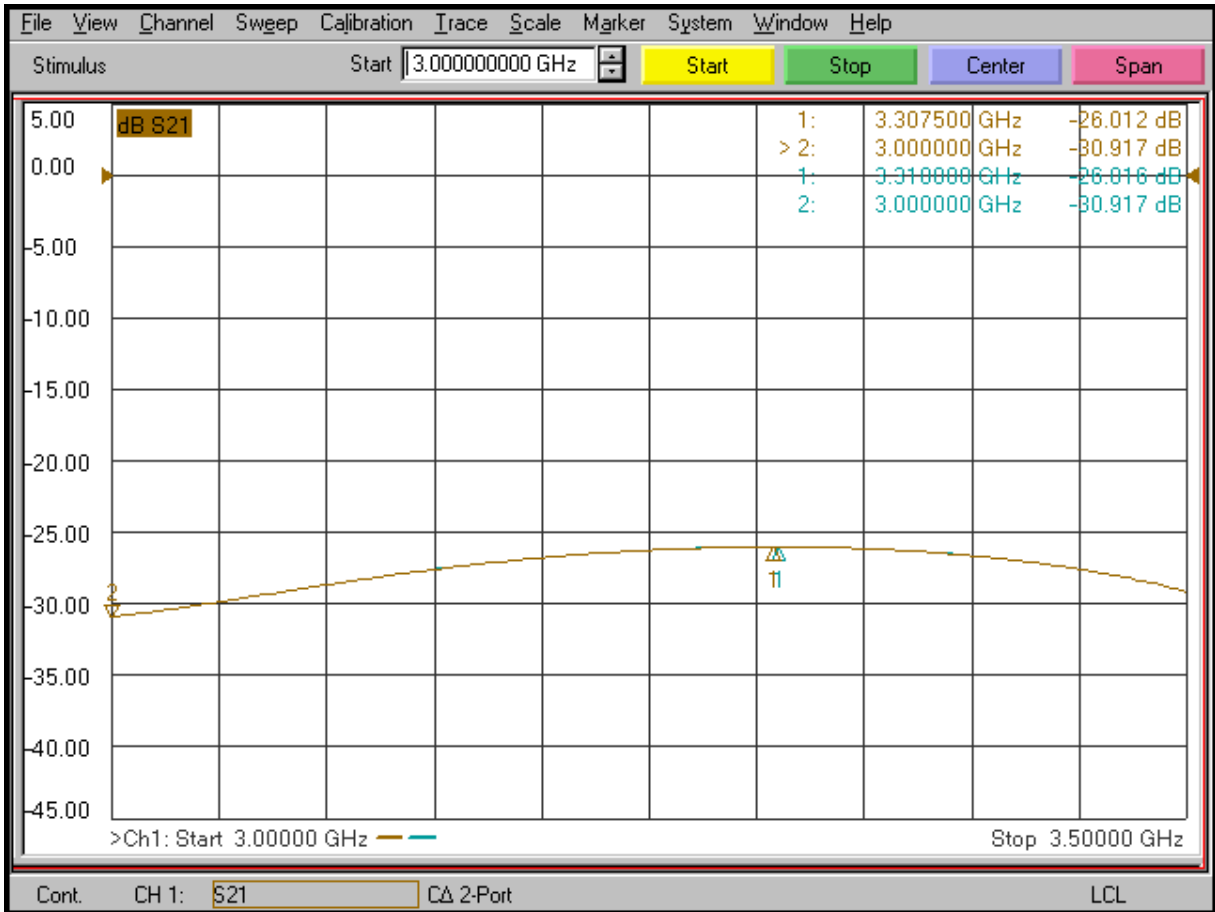
C to B Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

C to D Isolation

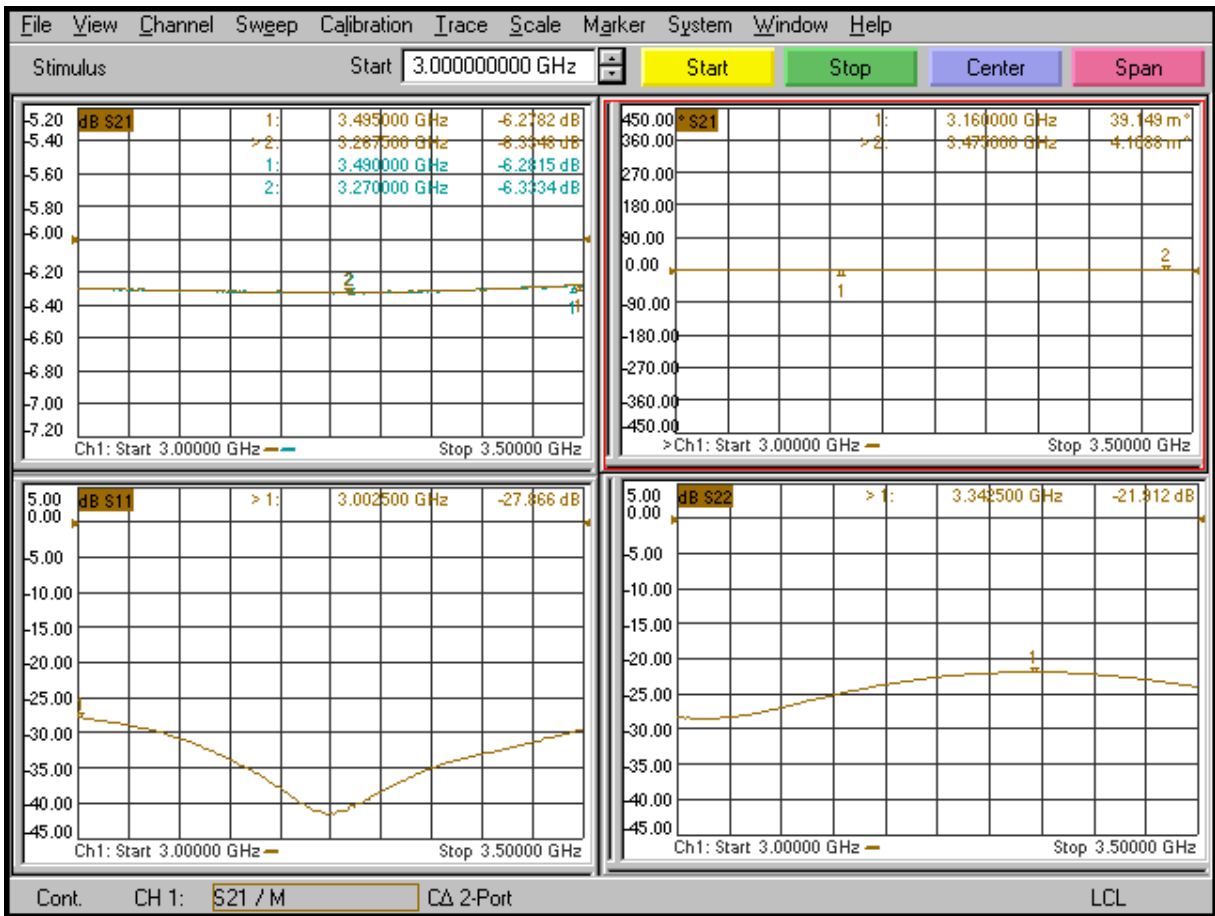




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

**D to ELΔ
(Normalized Phase)**

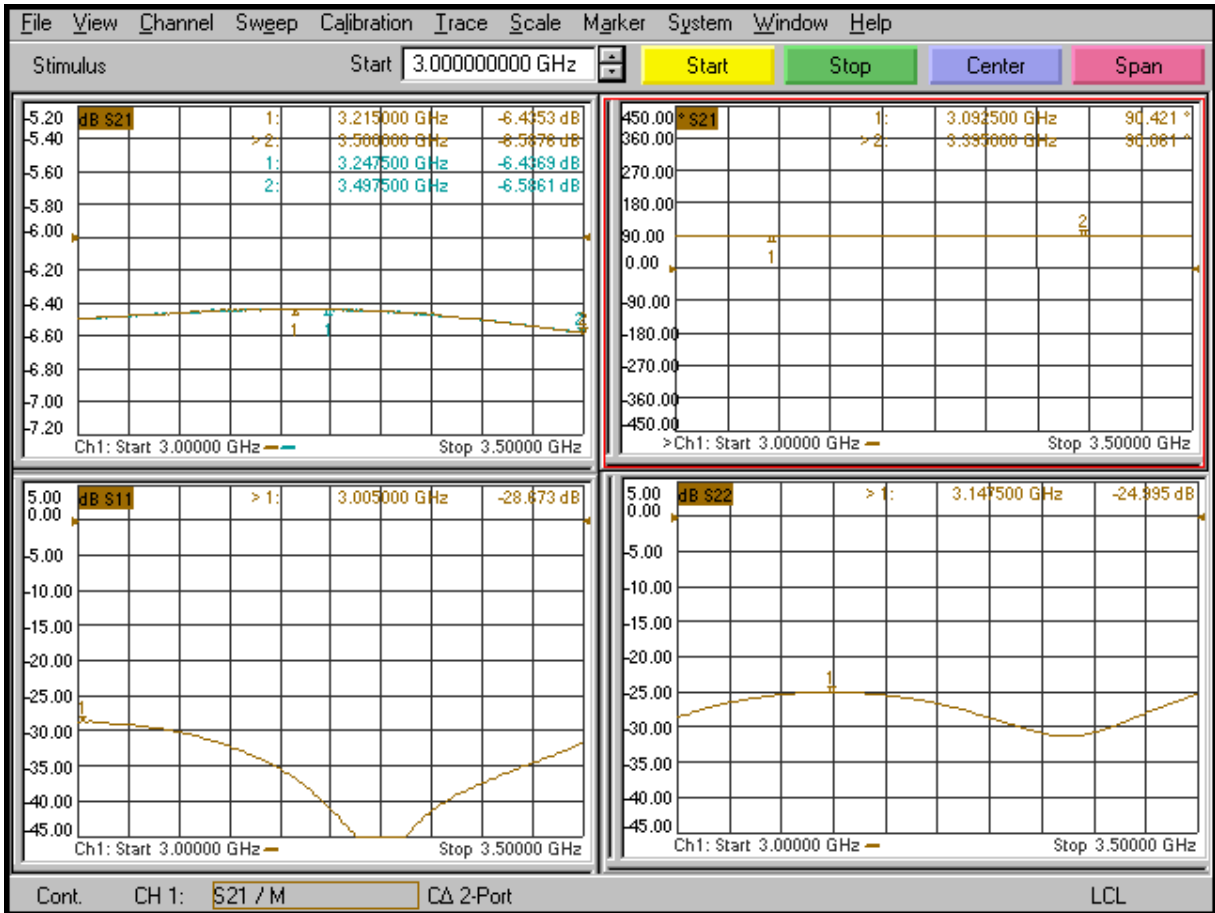




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11 & S22)**

D to AZ

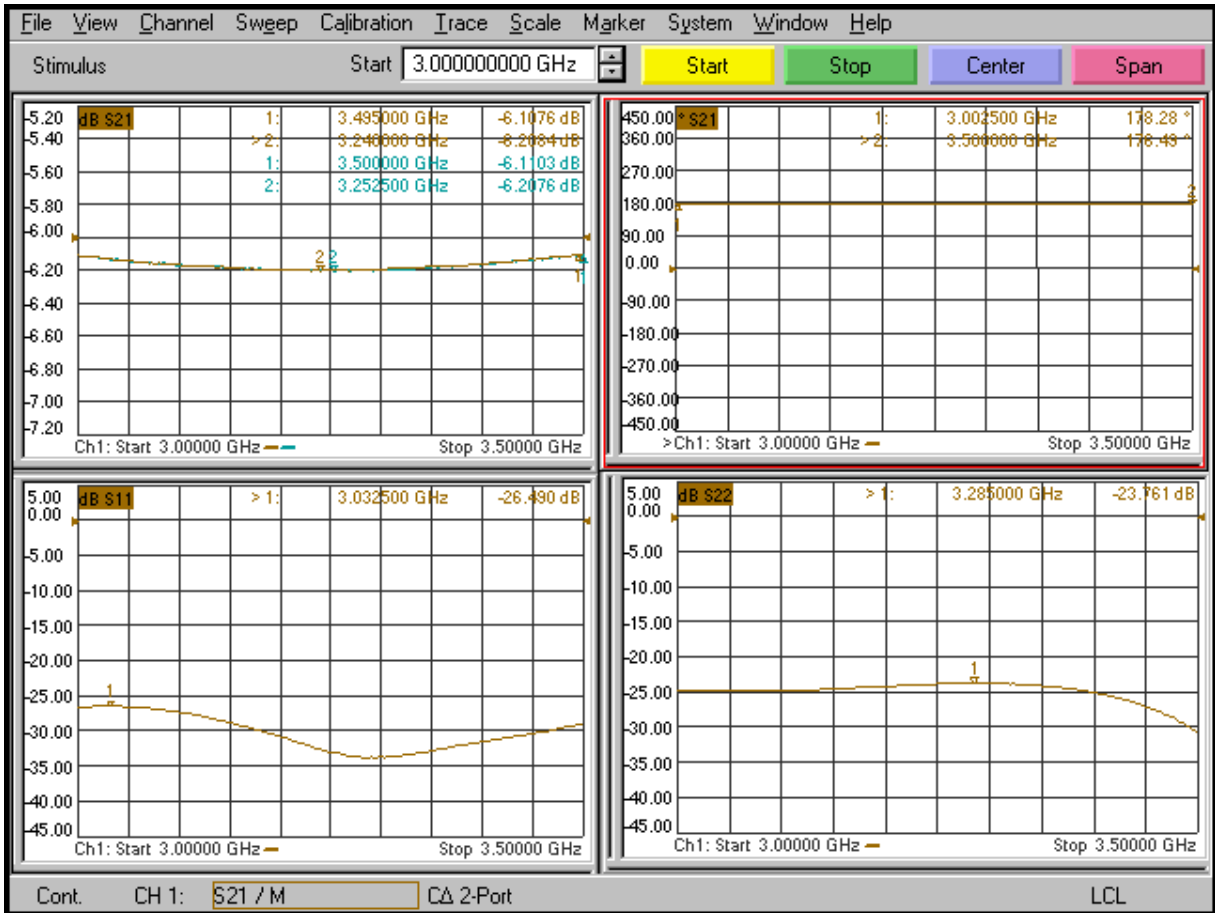




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

D to Δ Q

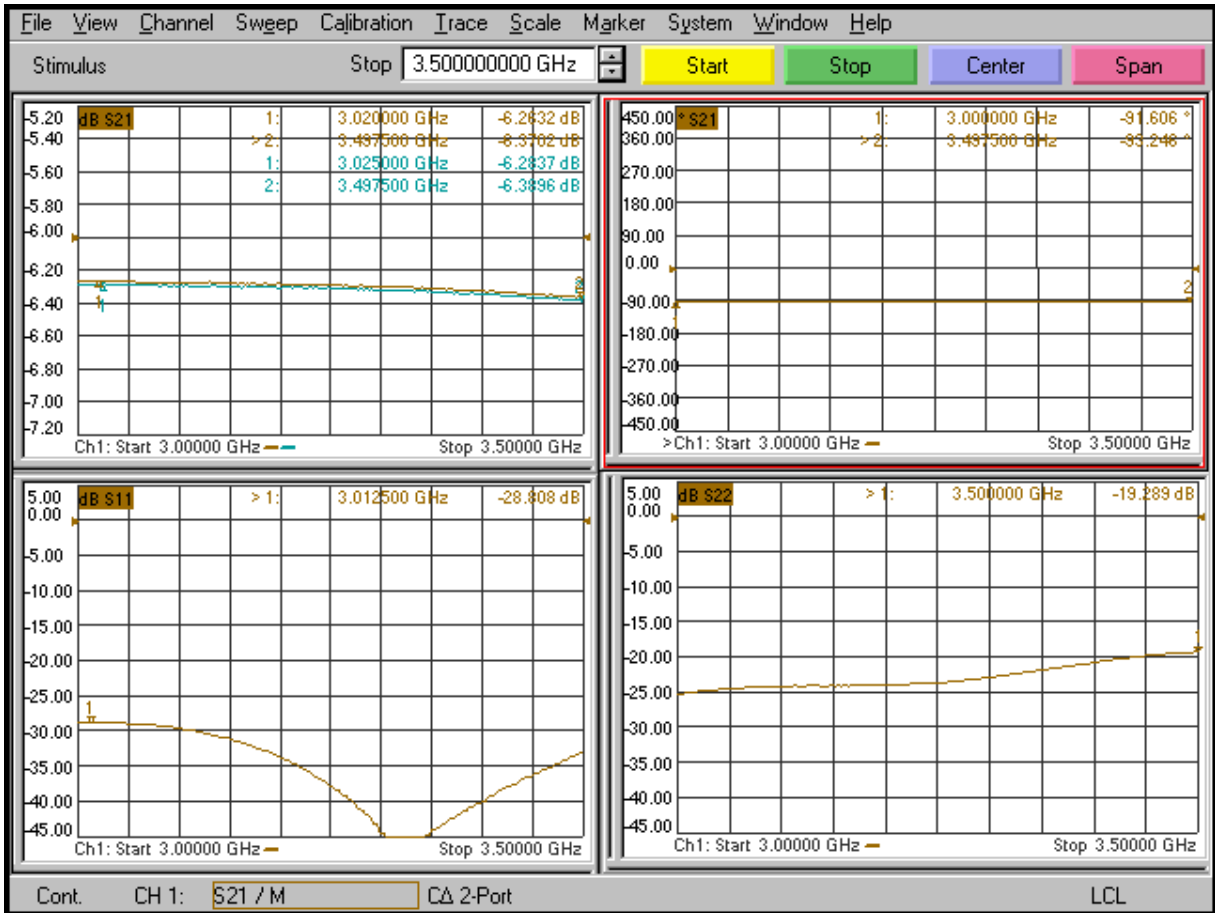




**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

**Insertion Loss (S12/S21) and Phase Balance
Return Loss (S11& S22)**

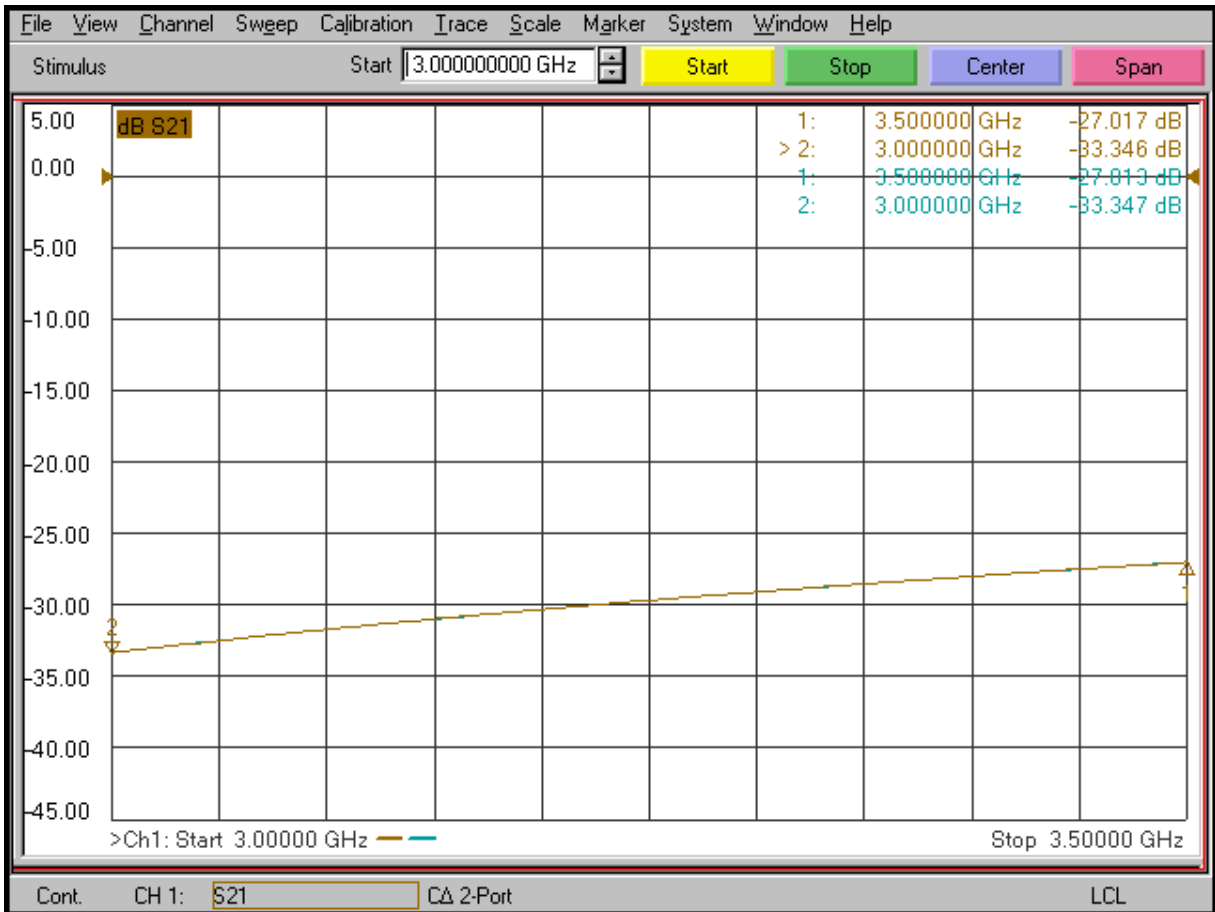
D to AZA





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

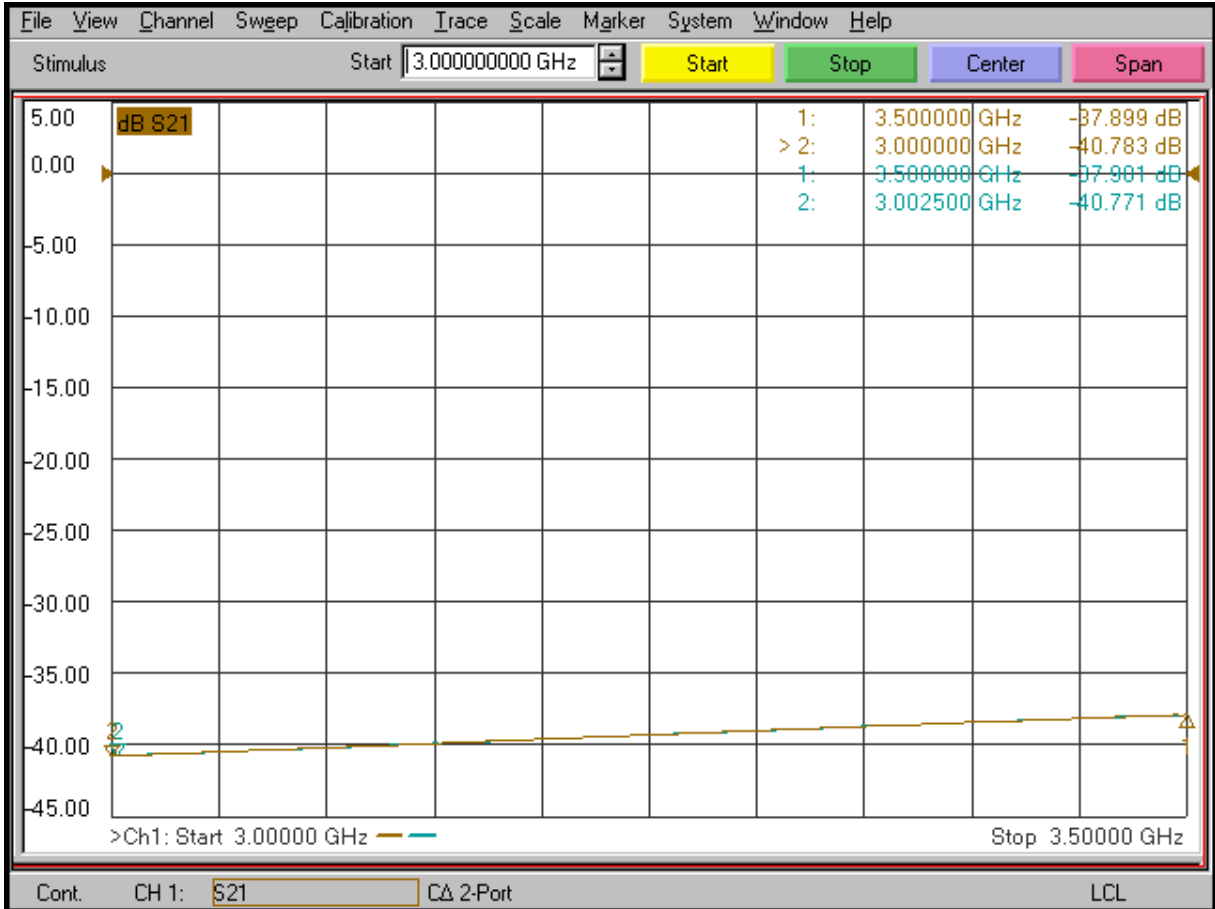
D to A Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

D to B Isolation





**TYPICAL CHARACTERISTICS
ON
PMC-3G3D5G-6D8-SFF**

D to C Isolation

