

FORM: 159-ATT-DTA

DATE: 4/12/06



PLANAR MONOLITHICS INDUSTRIES

**FINAL TEST DATA  
ON  
ATTENUATOR ASSEMBLY**

CUSTOMER: NORTHROP GRUMMAN

JOB NO: P508039

MODEL NO: SAA-218-6-093-013542

SERIAL NO: PM604052

CURRENT DRAW: + 5 VDC @ 235 mA; - 5 VDC @ 255 mA

TECHNICIAN: E. ELDER

NGC P/N: 037-005334-0001

OPTION NO: HERM

SPECIFICATION: \_\_\_\_\_

FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORST CASE)			RETURN LOSS (WORST CASE)				
			INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db
J2-J8	"1" 2.18 dB @	2 - 18 GHz	13.75 dB	1.52 : 1	12.95 dB	1.58 : 1	dB : 1
J2-J8	"0" 20.01 dB @	2 - 18 GHz	11.57 dB	1.72 : 1	11.90 dB	1.68 : 1	dB : 1
J3-J9	"1" 2.74 dB @	2 - 18 GHz	12.80 dB	1.59 : 1	12.85 dB	1.59 : 1	dB : 1
J3-J9	"0" 21.25 dB @	2 - 18 GHz	11.37 dB	1.74 : 1	9.98 dB	1.93 : 1	dB : 1
J4-J10	"1" 2.77 dB @	2 - 18 GHz	11.27 dB	1.75 : 1	10.80 dB	1.81 : 1	dB : 1
J4-J10	"0" 19.49 dB @	2 - 18 GHz	13.03 dB	1.57 : 1	13.15 dB	1.56 : 1	dB : 1
J5-J11	"1" 2.69 dB @	2 - 18 GHz	13.58 dB	1.53 : 1	11.09 dB	1.77 : 1	dB : 1
J5-J11	"0" 19.74 dB @	2 - 18 GHz	11.35 dB	1.74 : 1	13.81 dB	1.51 : 1	dB : 1
J6-J12	"1" 2.64 dB @	2 - 18 GHz	10.27 dB	1.88 : 1	9.65 dB	1.98 : 1	dB : 1
J6-J12	"0" 19.89 dB @	2 - 18 GHz	14.25 dB	1.48 : 1	13.27 dB	1.55 : 1	dB : 1
J7-J13	"1" 2.48 dB @	2 - 18 GHz	13.46 dB	1.54 : 1	14.01 dB	1.50 : 1	dB : 1
J7-J13	"0" 19.92 dB @	2 - 18 GHz	10.96 dB	1.79 : 1	13.03 dB	1.57 : 1	dB : 1
RESPONSE TIME							
J2 - J8	60	nS					
J3 - J9	60	nS					
J4 - J10	60	nS					
J5 - J11	60	nS					
J6 - J12	60	nS					
J7 - J13	60	nS					

NOTE: Any additional test data on back

TESTED ON: HP 8720D

QA/QC APPROVAL: 02

DATED: 4/13/06

FORM: 159-ATT-DTA

DATE: 4/12/06



PLANAR MONOLITHICS INDUSTRIES

**FINAL TEST DATA  
ON  
ATTENUATOR ASSEMBLY**

CUSTOMER: NORTHROP GRUMMAN

JOB NO: P508039

MODEL NO: SAA-218-6-093-013542

SERIAL NO: PM604053

CURRENT DRAW: + 5 VDC @ 236 mA; - 5 VDC @ 254 mA

TECHNICIAN: E. ELDER

NGC P/N: 037-005334-0001

OPTION NO: HERM

SPECIFICATION: \_\_\_\_\_

FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db	OUTPUT OFF VSWR
J2-J8 "1" 2.47 dB @ 2-18 GHz	12.45 dB	1.63 : 1	13.30 dB	1.55 : 1	dB	1. : 1
J2-J8 "0" 19.84 dB @ 2-18 GHz	12.02 dB	1.67 : 1	10.86 dB	1.80 : 1	dB	1. : 1
J3-J9 "1" 2.41 dB @ 2-18 GHz	12.68 dB	1.61 : 1	11.17 dB	1.76 : 1	dB	1. : 1
J3-J9 "0" 20.11 dB @ 2-18 GHz	10.73 dB	1.82 : 1	10.53 dB	1.85 : 1	dB	1. : 1
J4-J10 "1" 2.37 dB @ 2-18 GHz	15.30 dB	1.41 : 1	14.42 dB	1.47 : 1	dB	1. : 1
J4-J10 "0" 19.84 dB @ 2-18 GHz	10.83 dB	1.81 : 1	11.34 dB	1.74 : 1	dB	1. : 1
J5-J11 "1" 2.61 dB @ 2-18 GHz	10.86 dB	1.80 : 1	11.56 dB	1.72 : 1	dB	1. : 1
J5-J11 "0" 18.99 dB @ 2-18 GHz	10.53 dB	1.85 : 1	11.08 dB	1.77 : 1	dB	1. : 1
J6-J12 "1" 2.58 dB @ 2-18 GHz	12.54 dB	1.62 : 1	13.04 dB	1.57 : 1	dB	1. : 1
J6-J12 "0" 19.72 dB @ 2-18 GHz	10.21 dB	1.89 : 1	10.54 dB	1.85 : 1	dB	1. : 1
J7-J13 "1" 2.38 dB @ 2-18 GHz	10.44 dB	1.86 : 1	12.19 dB	1.65 : 1	dB	1. : 1
J7-J13 "0" 19.49 dB @ 2-18 GHz	12.88 dB	1.59 : 1	11.46 dB	1.73 : 1	dB	1. : 1
RESPONSE TIME						
J2 - J8	60 nS					
J3 - J9	60 nS					
J4 - J10	60 nS					
J5 - J11	60 nS					
J6 - J12	60 nS					
J7 - J13	60 nS					

NOTE: Any additional test data on back

TESTED ON: HP 8720D

QA/QC APPROVAL: 02

DATED: 4/21/06

FORM: 159-ATT-DTA

DATE: 4/12/06



PLANAR MONOLITHICS INDUSTRIES

**FINAL TEST DATA  
ON  
ATTENUATOR ASSEMBLY**

CUSTOMER: NORTHROP GRUMMAN

JOB NO: P508039

MODEL NO: SAA-218-6-093-013542

SERIAL NO: PM604054

CURRENT DRAW: + 5 VDC @ 236 mA; - 5 VDC @ 259 mA

TECHNICIAN: E. ELDER

NGC P/N: 037-005334-0001

OPTION NO: HERM

SPECIFICATION: \_\_\_\_\_

FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db	OUTPUT OFF VSWR
J2-J8 "1" 2.93 dB @ 2-18 GHz	10.99 dB	1.79 : 1	9.75 dB	1.96 : 1	dB	: 1
J2-J8 "0" 19.17 dB @ 2-18 GHz	10.95 dB	1.79 : 1	10.93 dB	1.79 : 1	dB	: 1
J3-J9 "1" 2.03 dB @ 2-18 GHz	13.89 dB	1.51 : 1	11.86 dB	1.69 : 1	dB	: 1
J3-J9 "0" 19.82 dB @ 2-18 GHz	10.17 dB	1.90 : 1	14.58 dB	1.46 : 1	dB	: 1
J4-J10 "1" 2.22 dB @ 2-18 GHz	9.74 dB	1.97 : 1	10.52 dB	1.85 : 1	dB	: 1
J4-J10 "0" 19.08 dB @ 2-18 GHz	12.71 dB	1.60 : 1	12.15 dB	1.66 : 1	dB	: 1
J5-J11 "1" 2.22 dB @ 2-18 GHz	12.40 dB	1.63 : 1	11.46 dB	1.73 : 1	dB	: 1
J5-J11 "0" 19.42 dB @ 2-18 GHz	10.91 dB	1.80 : 1	13.55 dB	1.53 : 1	dB	: 1
J6-J12 "1" 2.41 dB @ 2-18 GHz	10.75 dB	1.82 : 1	10.56 dB	1.84 : 1	dB	: 1
J6-J12 "0" 19.60 dB @ 2-18 GHz	10.85 dB	1.80 : 1	13.96 dB	1.50 : 1	dB	: 1
J7-J13 "1" 2.30 dB @ 2-18 GHz	15.09 dB	1.43 : 1	12.00 dB	1.67 : 1	dB	: 1
J7-J13 "0" 18.43 dB @ 2-18 GHz	11.40 dB	1.74 : 1	11.59 dB	1.71 : 1	dB	: 1

RESPONSE TIME						
J2 - J8	60	nS				
J3 - J9	60	nS				
J4 - J10	60	nS				
J5 - J11	60	nS				
J6 - J12	60	nS				
J7 - J13	60	nS				

NOTE: Any additional test data on back

TESTED ON: HP 8720D

QA/QC APPROVAL: \_\_\_\_\_

**02**

DATED: \_\_\_\_\_

4/21/06

FORM: 159-ATT-DTA

DATE: 4/12/06



PLANAR MONOLITHICS INDUSTRIES

**FINAL TEST DATA  
ON  
ATTENUATOR ASSEMBLY**

CUSTOMER: NORTHROP GRUMMAN

JOB NO: P508039

MODEL NO: SAA-218-6-093-013542

SERIAL NO: PM604055

CURRENT DRAW: + 5 VDC @ 235 mA; - 5 VDC @ 257 mA

TECHNICIAN: E. ELDER

NGC P/N: 037-005334-0001

OPTION NO: HERM

SPECIFICATION: \_\_\_\_\_

FREQUENCY RANGE: 2 - 18 GHz

INSERTION LOSS (WORST CASE)	RETURN LOSS (WORST CASE)					
	INPUT dB	INPUT VSWR	OUTPUT ON db	OUTPUT ON VSWR	OUTPUT OFF db	OUTPUT OFF VSWR
J2-J8 "1" 2.84 dB @ 2-18 GHz	10.64 dB	1.83 : 1	10.63 dB	1.83 : 1	dB	: 1
J2-J8 "0" 20.51 dB @ 2-18 GHz	9.83 dB	1.95 : 1	14.24 dB	1.48 : 1	dB	: 1
J3-J9 "1" 2.72 dB @ 2-18 GHz	9.97 dB	1.93 : 1	11.39 dB	1.74 : 1	dB	: 1
J3-J9 "0" 19.89 dB @ 2-18 GHz	14.25 dB	1.48 : 1	12.94 dB	1.58 : 1	dB	: 1
J4-J10 "1" 2.68 dB @ 2-18 GHz	9.82 dB	1.95 : 1	10.19 dB	1.90 : 1	dB	: 1
J4-J10 "0" 20.59 dB @ 2-18 GHz	9.57 dB	2.00 : 1	9.93 dB	1.94 : 1	dB	: 1
J5-J11 "1" 2.39 dB @ 2-18 GHz	10.40 dB	1.87 : 1	10.34 dB	1.87 : 1	dB	: 1
J5-J11 "0" 20.56 dB @ 2-18 GHz	10.78 dB	1.81 : 1	14.68 dB	1.45 : 1	dB	: 1
J6-J12 "1" 2.42 dB @ 2-18 GHz	12.10 dB	1.66 : 1	12.11 dB	1.66 : 1	dB	: 1
J6-J12 "0" 19.29 dB @ 2-18 GHz	12.05 dB	1.67 : 1	11.92 dB	1.68 : 1	dB	: 1
J7-J13 "1" 2.82 dB @ 2-18 GHz	10.12 dB	1.91 : 1	11.15 dB	1.77 : 1	dB	: 1
J7-J13 "0" 20.02 dB @ 2-18 GHz	13.38 dB	1.55 : 1	12.52 dB	1.62 : 1	dB	: 1
RESPONSE TIME						
J2 - J8	60 nS					
J3 - J9	60 nS					
J4 - J10	60 nS					
J5 - J11	60 nS					
J6 - J12	60 nS					
J7 - J13	60 nS					

NOTE: Any additional test data on back

TESTED ON: HP 8720D

QA/QC APPROVAL: \_\_\_\_\_

*Q2*

DATED: 4/21/06