

# Imported N Attenuators, 2W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-2.. Series

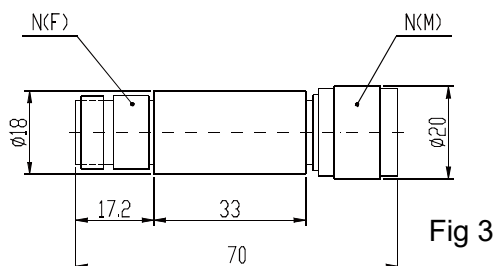
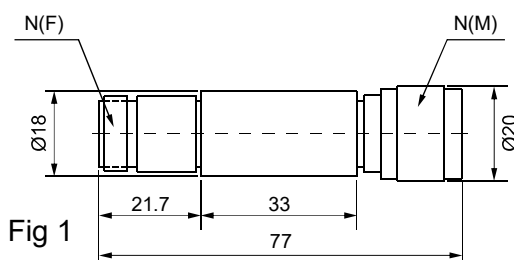
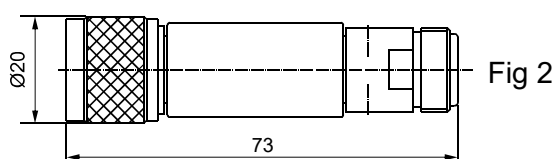


Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)				Connector
					3/6	10/20	30	40	
IHPA-T3-2-XX-4-N	DC-4	1.20	Fig 3	2 <sup>1)</sup>	±0.4	±0.5	±0.6	±0.6	N(M)-(F)
IHPA-T2-2-XX-4-A	DC-4	1.10	Fig 2	2 <sup>1)</sup>	±0.3	±0.3	±0.3	±0.5	N(M)-(F)
IHPA-T1-2-XX-8-N-A	DC-8	1.20	Fig 1	2 <sup>1)</sup>	±0.5	±0.4	±0.5	±0.6	N(M)-(F)
IHPA-T2-2-XX-8-A	DC-8	1.15	Fig 2	2 <sup>1)</sup>	-0.3/+0.6	-0.3/+0.6	-0.3/+0.6	+0.6	N(M)-(F)
IHPA-T1-2-XX-12.4-N-A	DC-12.4	1.25	Fig 1	2 <sup>1)</sup>	±0.7	±0.7	±0.7	±0.75	N(M)-(F)
IHPA-T2-2-XX-12.4-A	DC-12.4	1.20	Fig 2	2 <sup>1)</sup>	-0.3/+0.6	-0.3/+0.6	-0.3/+0.6	+0.75	N(M)-(F)
IHPA-T1-2-XX-18-N-A	DC-18	1.30	Fig 1	2 <sup>1)</sup>	-0.4/+1.2	±1.0	±1.2	±1.2	N(M)-(F)
IHPA-T2-2-XX-18-A	DC-18	1.30	Fig 2	2 <sup>1)</sup>	-0.3/+0.8	-0.3/+0.8	-0.3/+0.8	+1.2	N(M)-(F)

1) Av. Power @25°C amb. temperature, derated linearly to 0.5W @125°C. Peak Power is 0.5kW(5us pulse with 0.2% duty)



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**N14**

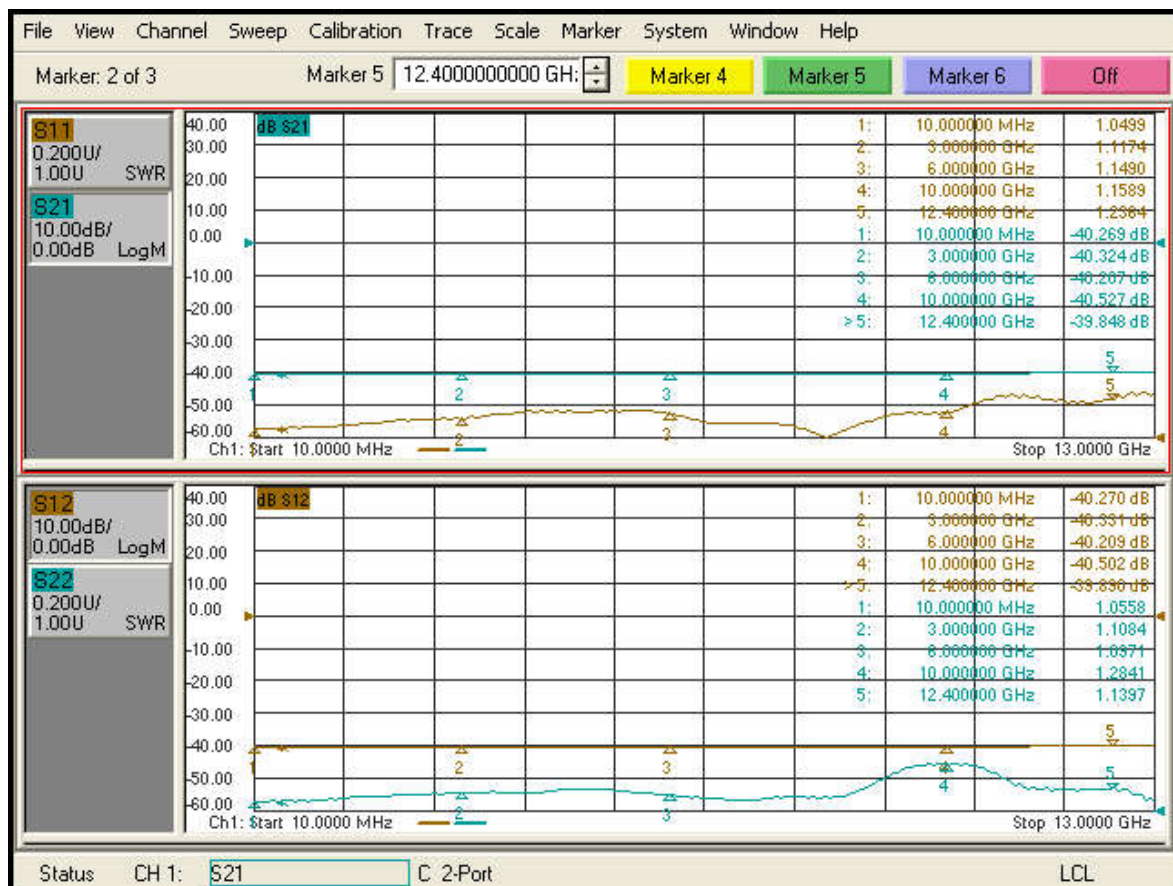
# Imported N Attenuators, 2W

Frequency: DC ~ 18 GHz

P/N: IHPA-??-2.. Series

**INDE**<sup>®</sup>

## VNA Plot for IHPA-T1-2-XX-12.4-N Attenuator (40dB/2W/12.4GHz)



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**N14**

# Imported N Attenuators, 5W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-5.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-T3-5-XX-4	DC-4	<1.10@1 GHz <1.15@2 GHz <1.20 @4 GHz	Fig 3	5 <sup>1)</sup>	±0.4	±0.4	±0.5	±0.5	±0.6	±0.6	N (M)-(F)
IHPA-T1-5-XX-8-N-A	DC-8	1.30	Fig 1	5 <sup>2)</sup>	±0.5	±0.5	±0.4	±0.4	±0.5	±0.6	N (M)-(F)
IHPA-T2-5-XX-8-A	DC-8	1.15	Fig 2	5 <sup>2)</sup>	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	±0.6	N (M)-(F)
IHPA-T1-5-XX-12.4-N-A	DC-12.4	1.35	Fig 1	5 <sup>2)</sup>	±0.7	±0.7	±0.7	±0.7	±0.7	±0.75	N (M)-(F)
IHPA-T2-5-XX-12.4-A	DC-12.4	1.20	Fig 2	5 <sup>2)</sup>	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	±0.75	N (M)-(F)
IHPA-T1-5-XX-18-N-A	DC-18	1.40	Fig 1	5 <sup>2)</sup>	-0.4/ +1.2	-0.4/ +1.2	±1.0	±1.2	±1.2	±1.2	N (M)-(F)
IHPA-T2-5-XX-18-A	DC-18	1.30	Fig 2	5 <sup>2)</sup>	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +1.0	±1.2	N (M)-(F)

1) Av. Power @25°C ambient temperature, derated linearly to 0.5W @125°C. Peak Power is 1kW (5us pulse width with 0.5% duty)

2) Av. Power @25°C ambient temperature, derated linearly to 0.5W @125°C. Peak Power is 1kW (5us pulse width with 0.25% duty)

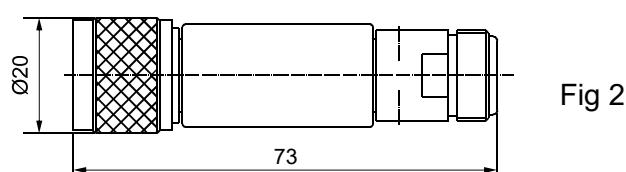


Fig 2

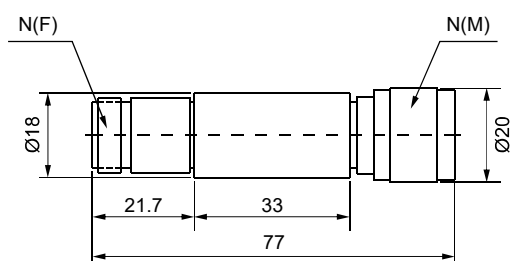


Fig 1

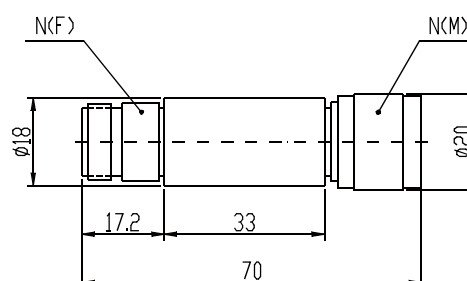


Fig 3

**N15**

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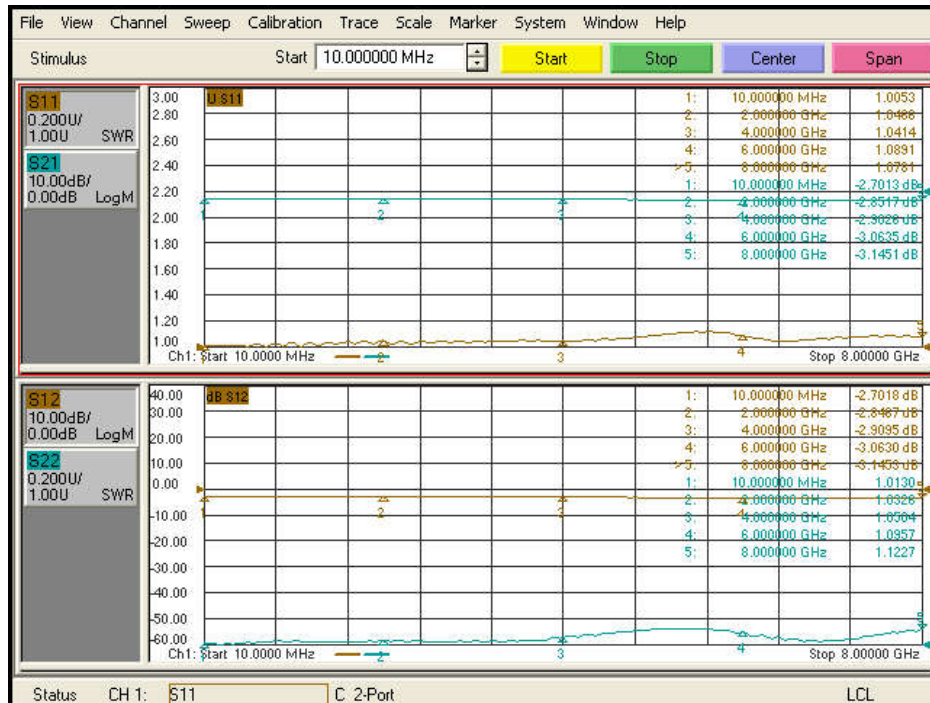
## Imported N Attenuators, 5W

Frequency: DC ~ 18 GHz

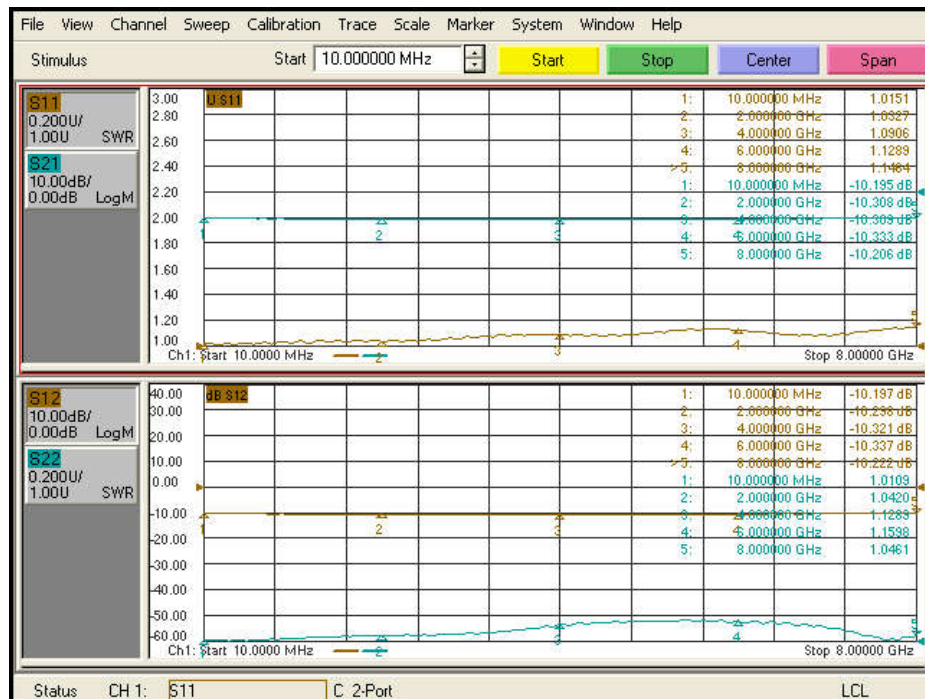
P/N: IHPA-??-5.. Series

**INDE**<sup>®</sup>

### VNA Plot for IHPA-T1-5-03-8-N Attenuator (3dB/5W/8GHz)



### VNA Plot for IHPA-T1-5-10-8-N Attenuator (10dB/5W/8GHz)



N15

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# Imported N Attenuators, 10W

Frequency: DC ~ 18 GHz

P/N: IHPA-??-10.. Series

**INDE**<sup>®</sup>



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-D2-10-XX-4-N	DC-4	<1.15@3 GHz <1.20 @4 GHz	Fig 2	10 <sup>1)</sup>	±0.5	±0.5	±0.6	±0.6	±0.6	±0.8	N (M)-(F)
IHPA-D3-10-XX-4	DC-4	1.15	Fig 2	10 <sup>2)</sup>	±0.3	±0.3	±0.3	±0.3	±0.3	±0.3	N (M)-(F)
IHPA-D1-10-XX-8-N	DC-8	1.30	Fig 1	10 <sup>2)</sup>	/	/	±0.5	±0.5	±0.5	±0.6	N (M)-(F)
IHPA-D3-10-XX-8	DC-8	1.20	Fig 2	10 <sup>2)</sup>	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	N (M)-(F)
IHPA-D1-10-XX-12.4-N	DC-12.4	1.35	Fig 1	10 <sup>2)</sup>	/	/	±1.0	±1.0	±1.0	±1.0	N (M)-(F)
IHPA-D3-10-XX-12.4	DC-12.4	1.25	Fig 2	10 <sup>2)</sup>	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	-0.3/ +0.6	N (M)-(F)
IHPA-D1-10-XX-18-N	DC-18	1.40	Fig 1	10 <sup>2)</sup>	/	/	±1.0	±1.0	±1.2	±1.2	N (M)-(F)
IHPA-D3-10-XX-18	DC-18	1.30	Fig 2	10 <sup>2)</sup>	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +0.8	-0.3/ +1.0	-0.3/ +1.0	N (M)-(F)

1) Average Power at 25°C ambient temperature, derated linearly to 1W @125°C. Peak Power is 1kW(5us pulse width with 1% duty cycle)

2) Average Power at 25°C ambient temperature, derated linearly to 1W @125°C. Peak Power is 1kW(5us pulse width with 0.5% duty cycle)

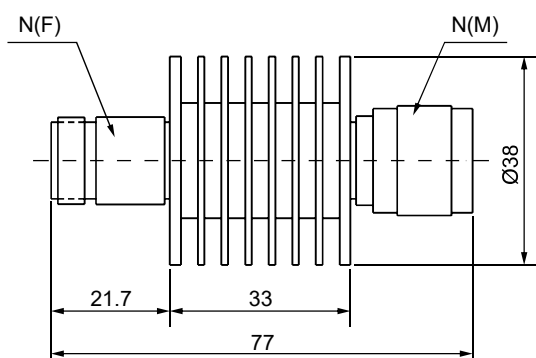


Fig 1

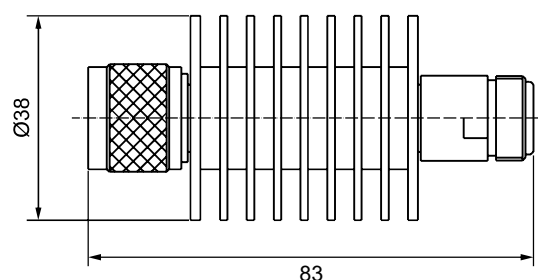


Fig 2

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**N16**

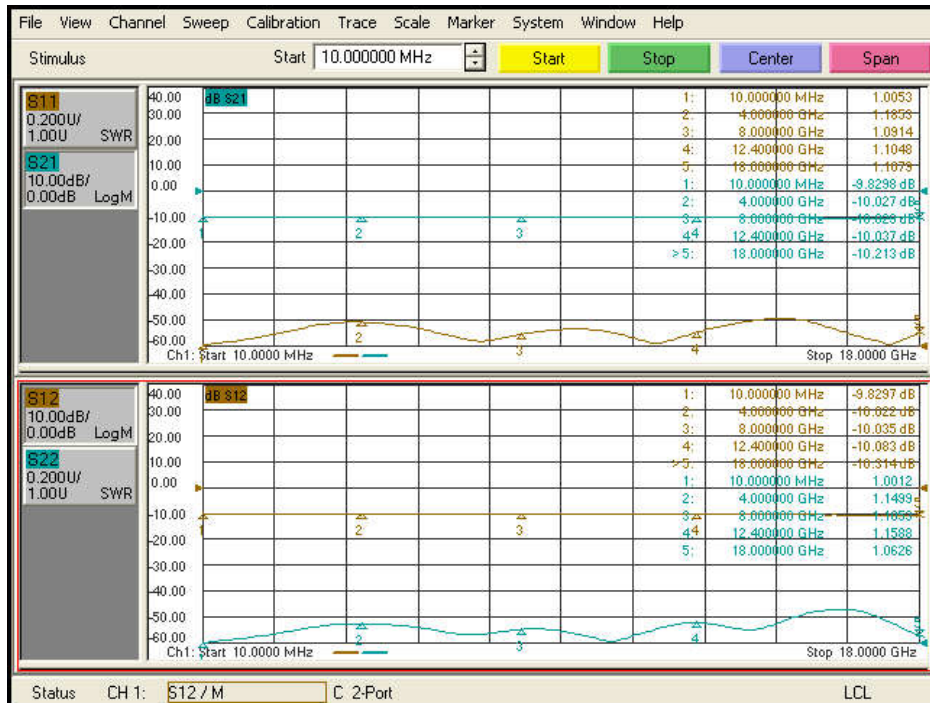
## Imported N Attenuators, 10W

Frequency: DC ~ 18 GHz

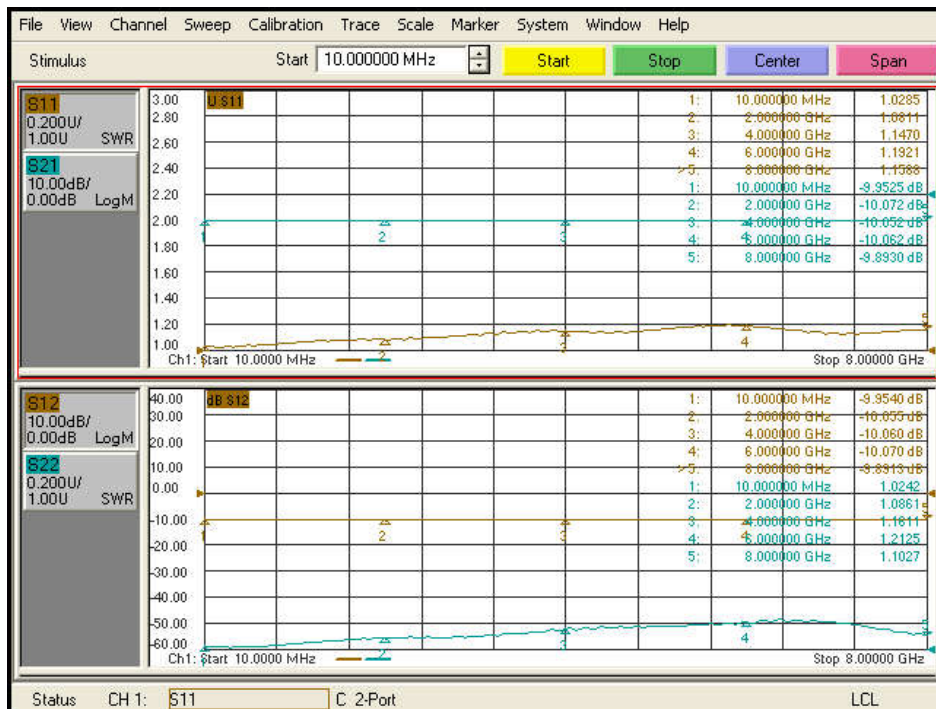
P/N: IHPA-??-10.. Series

**INDE**<sup>®</sup>

### VNA Plot for IHPA-D1-10-10-18-N Attenuator (10dB/10W/18GHz)



### VNA Plot for IHPA-D1-10-10-8-N Attenuator (10dB/10W/8GHz)



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**N16**

# Imported N High Power Attenuators, 25W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-25.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-D2-25-XX-4-N-A	DC-4	<1.05@1 GHz <1.10 @2 GHz <1.15@3 GHz <1.25 @4 GHz	Fig 2	25 <sup>1)</sup>	±0.5	±0.5	±0.6	±0.6	±0.6	±1.0	N(M)-(F)
IHPA-D1-25-XX-4-N-A	DC-4	1.20	Fig 1	25 <sup>2)</sup>	/	/	±0.4	±0.4	±0.4	±0.75	N(M)-(F)
IHPA-D1-25-XX-8-N-A	DC-8	1.30	Fig 1	25 <sup>2)</sup>	/	/	±0.5	±0.5	±0.5	±0.75	N(M)-(F)
IHPA-D1-25-XX-12.4-N-A	DC-12.4	1.35	Fig 1	25 <sup>2)</sup>	/	/	±1.0	±1.0	±1.0	±1.0	N(M)-(F)
IHPA-D1-25-XX-18-N-A	DC-18	1.40	Fig 1	25 <sup>2)</sup>	/	/	±1.0	±1.0	±1.25	±1.25	N(M)-(F)

1) Average Power at 25°C ambient temperature, derated linearly to 2.5W @125°C. Peak Power is 1kW(5us pulse width with 2.5% duty cycle)

2) Average Power at 25°C ambient temperature, derated linearly to 2.5W @125°C. Peak Power is 1kW(5us pulse width with 1.25% duty cycle)

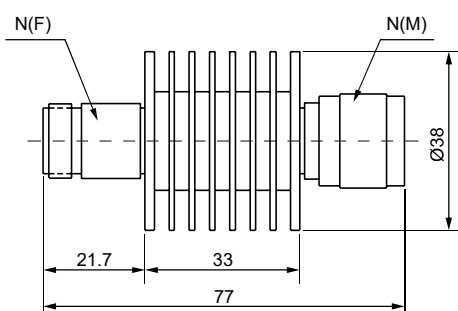


Fig 1

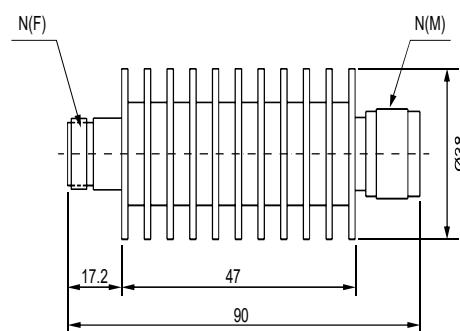


Fig 2

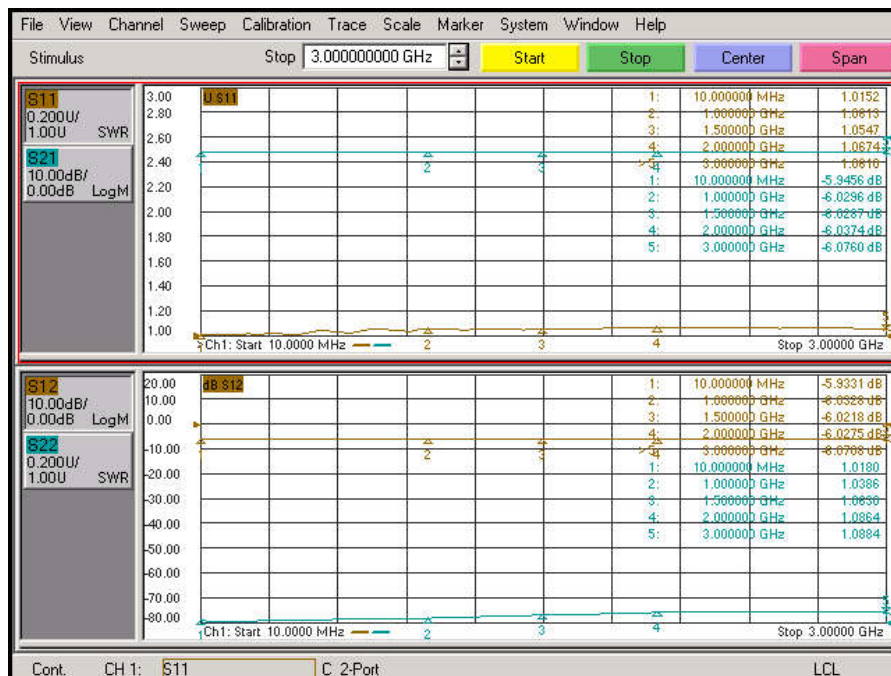
## Imported N High Power Attenuators, 25W

Frequency: DC ~ 18 GHz

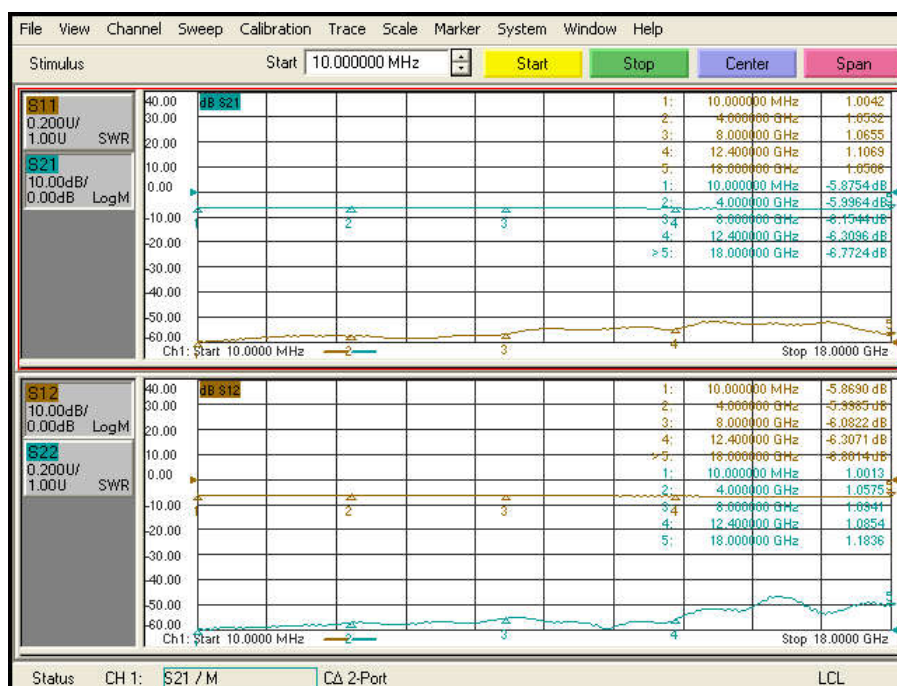
P/N: IHPA-??-25.. Series

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### VNA Plot for IHPA-D1-25-20-4-N-A Attenuator (20dB/25W/4GHz)



### VNA Plot for IHPA-D1-25-20-18-N-A Attenuator (20dB/25W/18GHz)



# Imported N High Power Attenuators, 50W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-50.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-D1-50-XX-4-N-C	DC-4	<1.10 @2.5 GHz <1.15 @4 GHz	Fig 1	50 <sup>1)</sup>	±0.3	±0.3	±0.3	±0.3	±0.4	±0.5	N (M)-(F)
IHPA-D1-50-XX-8-N-C	DC-8	1.30	Fig 1	50 <sup>1)</sup>	±0.6	±0.6	±0.6	±0.6	±0.75	±1.0	N (M)-(F)
IHPA-D2-50-XX-18-N-C	DC-18	1.35	Fig 2	50 <sup>1)</sup>	-1/ +1.5	-1/ +1.5	-1/ +1.5	-1/ +1.5	±1.0	-1/ +1.5	N (M)-(F)

1) Average Power at 25°C ambient temperature, derated linearly to 5W @125°C. Peak Power is 5kW(5us pulse width with 1% duty cycle)

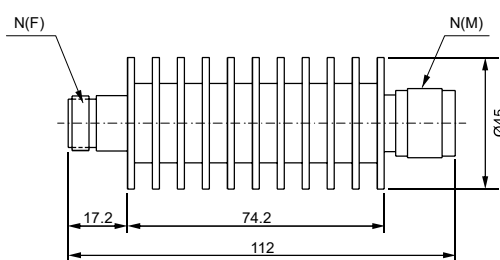


Fig 1

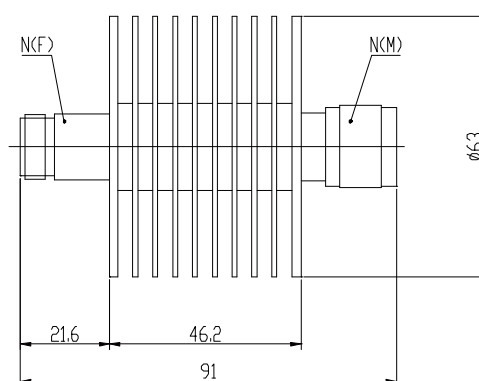


Fig 2

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**N18**

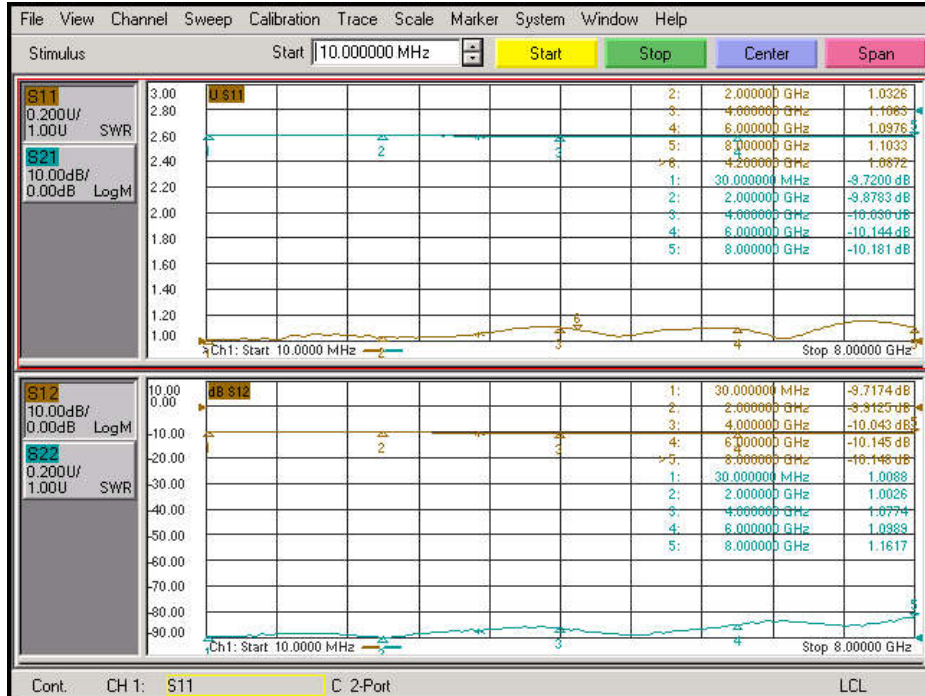
# Imported N High Power Attenuators, 50W

Frequency: DC ~ 18 GHz

P/N: IHPA-??-50.. Series

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## VNA Plot for IHPA-D1-50-10-8-N Attenuator (10dB/50W/8GHz)



## VNA Plot for IHPA-D3-50-06-4-A Attenuator (6dB/50W/4GHz)



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N18

# Imported N High Power Attenuators, 100W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-100.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-W1-100-XX-2.5-N-B	DC-2.5	1.15	Fig 1	100 <sup>1)</sup>	±0.4	±0.4	±0.3	±0.3	±0.3	±0.3	N (M)-(F)
IHPA-D2-100-XX-4-A	DC-4	<1.15@1 GHz <1.20 @2 GHz <1.30@3 GHz <1.35 @4 GHz	Fig 3	100 <sup>2)</sup>	/	/	±0.75	±0.75	±0.75	±0.75	N (M)-(F)
IHPA-W1-100-XX-4-N-B	DC-4	1.20	Fig 1	100 <sup>1)</sup>	±0.6	±0.6	±0.5	±0.5	±0.5	±0.5	N (M)-(F)
IHPA-W1-100-XX-8-N-B	DC-8	1.35	Fig 1	100 <sup>1)</sup>	/	/	±1.0	±0.75	±0.75	±0.75	N (M)-(F)
IHPA-D1-100-XX-18-C	DC-18	1.40	Fig 2	100 <sup>2)</sup>	±0.8	±1.0	-2.0/ +3.0	/	-2.0/ +2.5	±2.0	N(M)-(F)
IHPA-D1-100-XX-18	DC-18	1.45	Fig 4	100 <sup>2)</sup>	-1.0/ +2.0	-1.0/ +3.0	-2.0/ +2.5	-1.5/ +2.5	-1.2/ +2.0	-1.2/ +2.0	N(M)-(F)

- 1) Av. Power @25°C amb. temperature, derated linearly to 10W @125°C. Peak Power is 5kW (5us pulse with 2% duty)  
 2) Av. Power @25°C amb. temperature, derated linearly to 10W @125°C. Peak Power is 10kW (5us pulse with 1% duty)

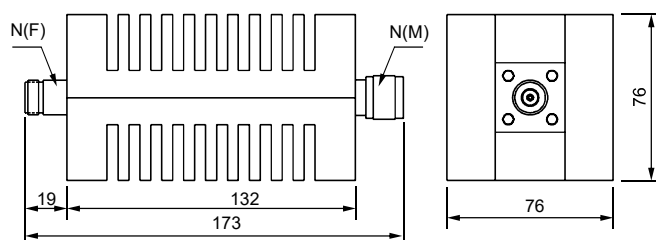


Fig 1

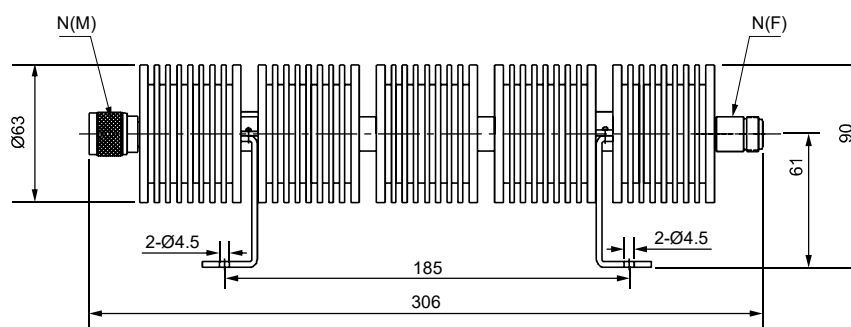


Fig 2

**N19**

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# Imported N High Power Attenuators, 100W

Frequency: DC ~ 18 GHz

P/N: IHPA-??-100.. Series

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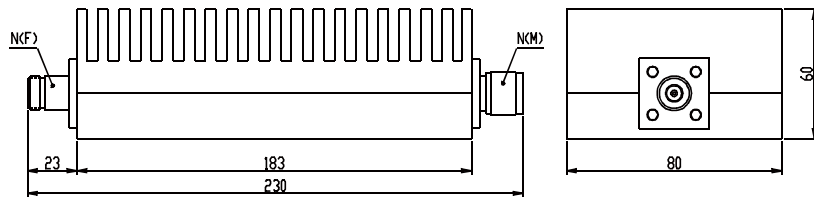


Fig 3

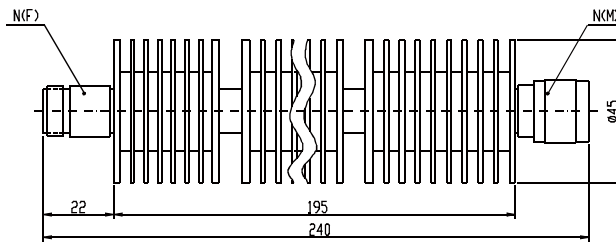
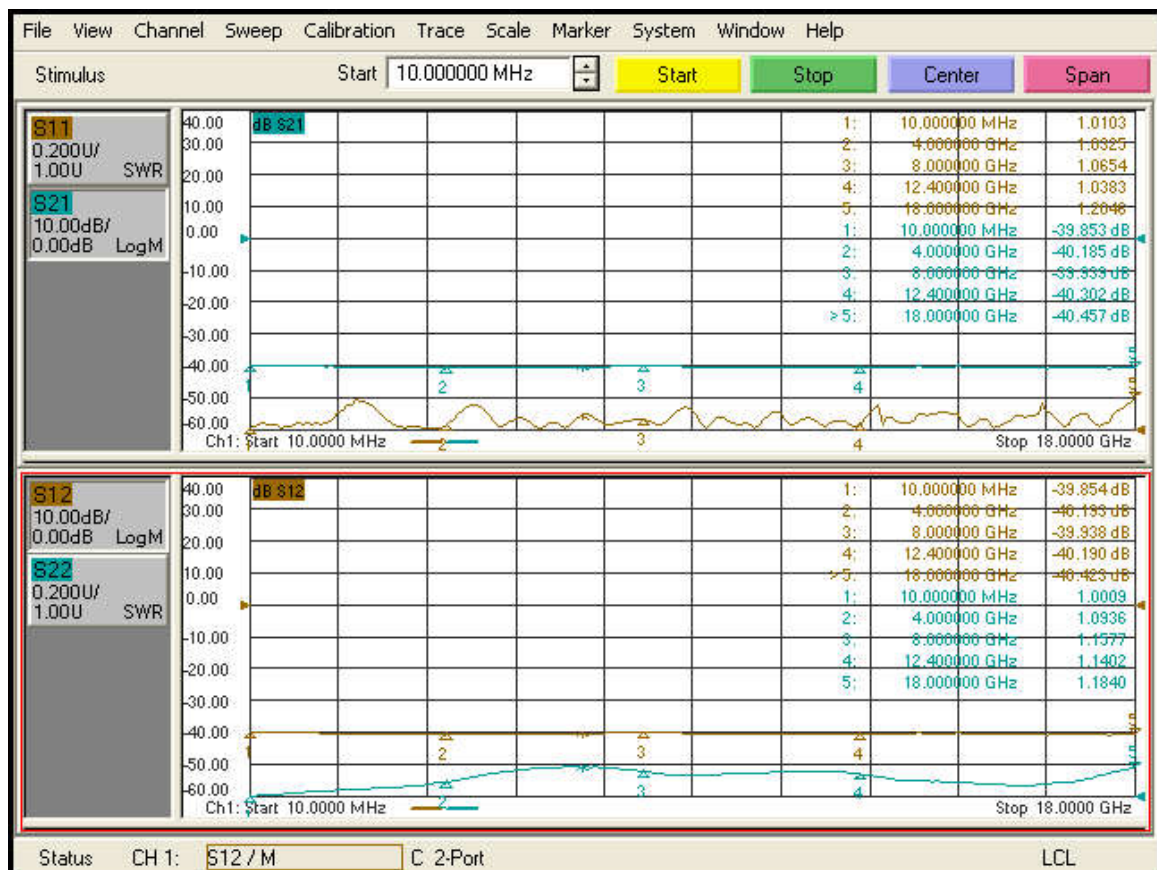


Fig 4

## VNA Plot for IHPA-D1-100-40-18-C Attenuator (40dB/100W/18GHz)

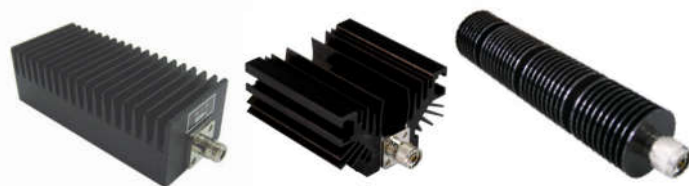


# Imported N High Power Attenuators, 150W

**INDE®**

Frequency: DC ~ 18 GHz

P/N: IHPA-??-150.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-W1-150-XX-2.5-A	DC-2.5	1.15	Fig 1	150 <sup>1)</sup>	±0.4	±0.4	±0.3	±0.3	±0.3	±0.3	N (M)-(F)
IHPA-D2-150-XX-4-A	DC-4	<1.15@1 GHz <1.20@2 GHz <1.35@3 GHz <1.40@4 GHz	Fig 3	150 <sup>1)</sup>	/	/	±1.5	±1.5	±1.0	±1.0	N (M)-(F)
IHPA-W1-150-XX-4-N-A	DC-4	1.20	Fig 1	150 <sup>1)</sup>	±0.6	±0.6	±0.5	±0.5	±0.5	±0.5	N (M)-(F)
IHPA-W1-150-XX-6-N-A	DC-6	1.30	Fig 1	150 <sup>1)</sup>	±0.8	±0.8	±0.75	±0.75	±0.75	±0.75	N (M)-(F)
IHPA-W1-150-XX-8-N-A	DC-8	1.35	Fig 1	150 <sup>1)</sup>	/	/	±1.0	±0.75	±0.75	±0.75	N (M)-(F)
IHPA-D1-150-XX-18-A	DC-18	1.45	Fig 2	150 <sup>2)</sup>	-1.0/ +2.0	-0.7/ +3.5	-2.0/ +2.5	-3.0/ +2.0	-1.0/ +1.5	±1.5	N (M)-(F)

1) Average Power @25°C amb. temperature, derated linearly to 15W @125°C. Peak Power is 5kW(5us pulse with 3% duty)

2) Average Power @25°C amb. temperature, derated linearly to 15W @125°C. Peak Power is 1kW(5us pulse with 15% duty)

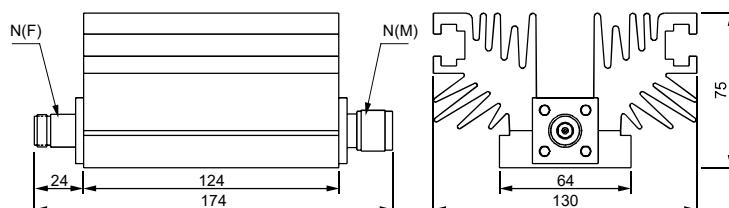


Fig 1

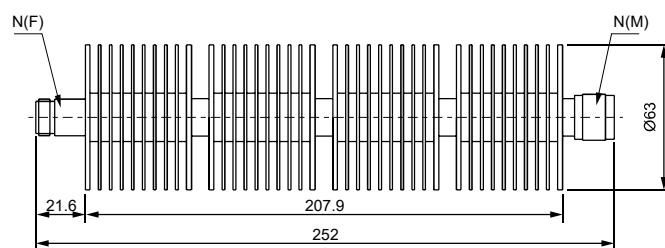


Fig 2

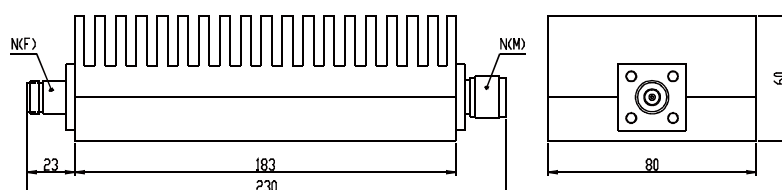


Fig 3

Cross reference is based on manufacturers datasheets and is indicative only. Customers have to verify themselves exact specifications. We accept no legal liability whatsoever for use of this cross reference by the customer. While the information, contained herein in this datasheet, has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. We accept no liability of whatsoever for any fault and errors in this datasheet. Contents of this datasheet and specifications of the products are subject to change without notice due to continuous improvement.

**N20**

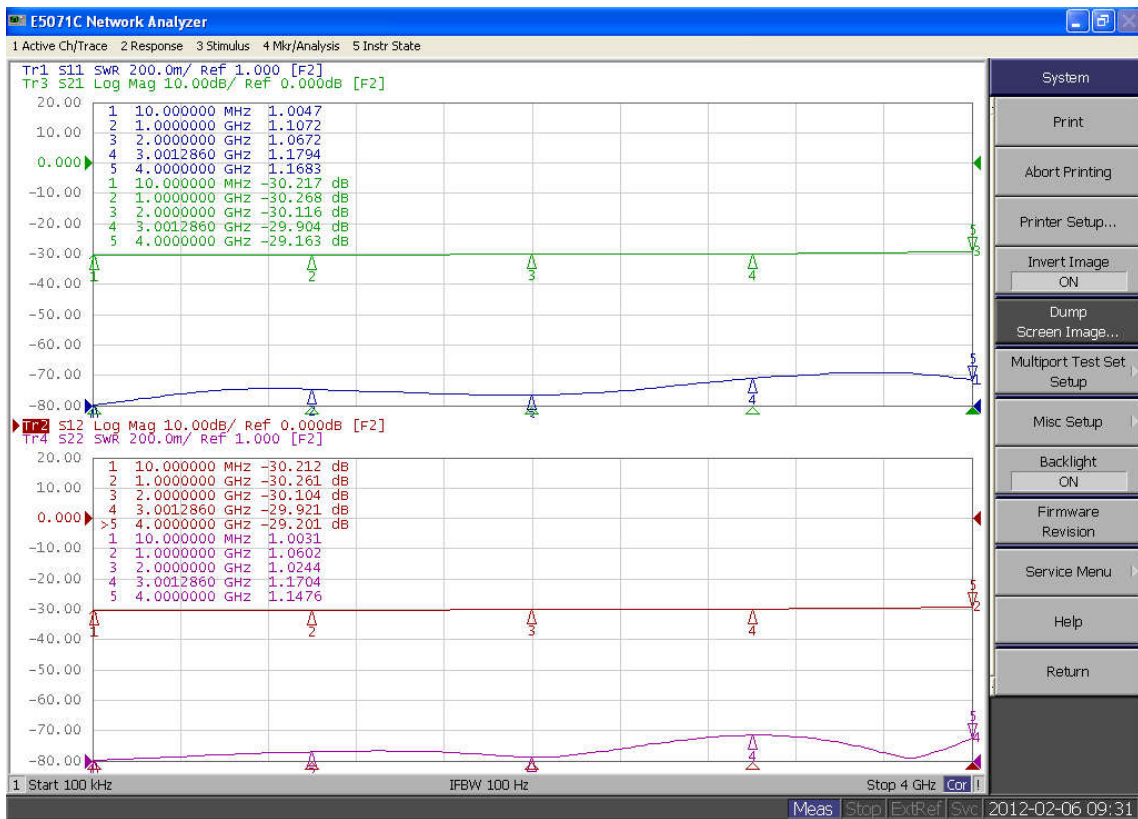
# Imported N High Power Attenuators, 150W

Frequency: DC ~ 18 GHz

P/N: IHPA-??-150.. Series

**INDE<sup>®</sup>**

## VNA Plot for IHPA-D2-150-30-4 Attenuator (30dB/150W/4GHz)



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**N20**

# Imported N High Power Attenuators, 250W

**INDE®**

Frequency: DC ~ 12.4 GHz

P/N: IHPA-??-250.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)						Connector
					3	6	10	20	30	40	
IHPA-D2-250-XX-4	DC-4	<1.20@1.5 GHz <1.25@2 GHz <1.35@3 GHz <1.40@4 GHz	Fig 3	250 <sup>2)</sup>	/	/	±1.5	±1.5	±1.0	±1.0	N (M)-(F)
IHPA-W2-250-XX-4-N-B	DC-4	<1.10@1.5 GHz <1.25@4 GHz	Fig 1	250 <sup>1)</sup>	/	/	±1.0	±0.5	±0.5	±0.5	N (M)-(F)
IHPA-W2-250-XX-6-N-B	DC-6	<1.25@5 GHz <1.30@6 GHz	Fig 1	250 <sup>1)</sup>	/	/	/	±0.6	±0.6	±0.6	N (M)-(F)
IHPA-W2-250-XX-8-N-B	DC-8	1.35	Fig 1	250 <sup>1)</sup>	/	/	/	±0.75	±0.75	±0.75	N (M)-(F)
IHPA-D1-150-XX-12.4	DC-12.4	1.40	Fig 2	250 <sup>2)</sup>	/	/	-1.5/ +2.0	-2.5/ +1.0	±2.0	±2.0	N (M)-(F)

1) Average Power @25°C amb. temperature, derated linearly to 15W @125°C. Peak Power is 5kW(5us pulse with 5% duty)

2) Average Power @25°C amb. temperature, derated linearly to 15W @125°C. Peak Power is 10kW(5us pulse with 2.5% duty)

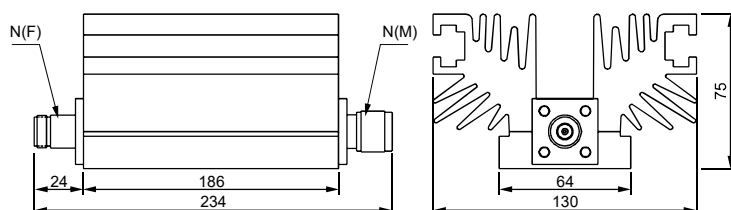


Fig 1

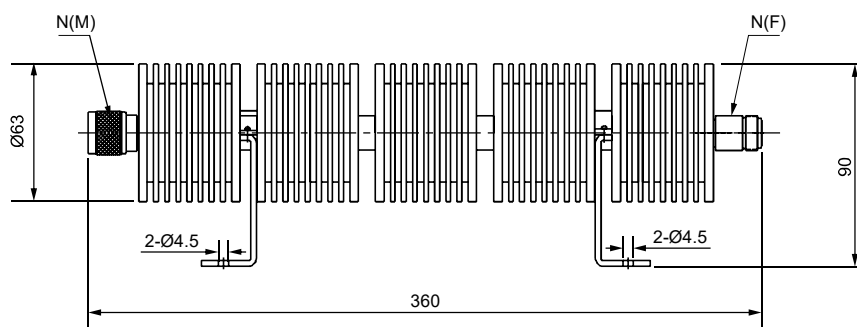


Fig 2

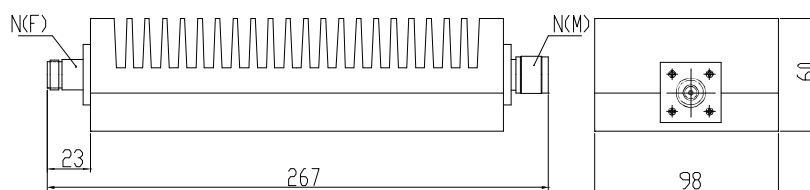


Fig 3

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**N20**

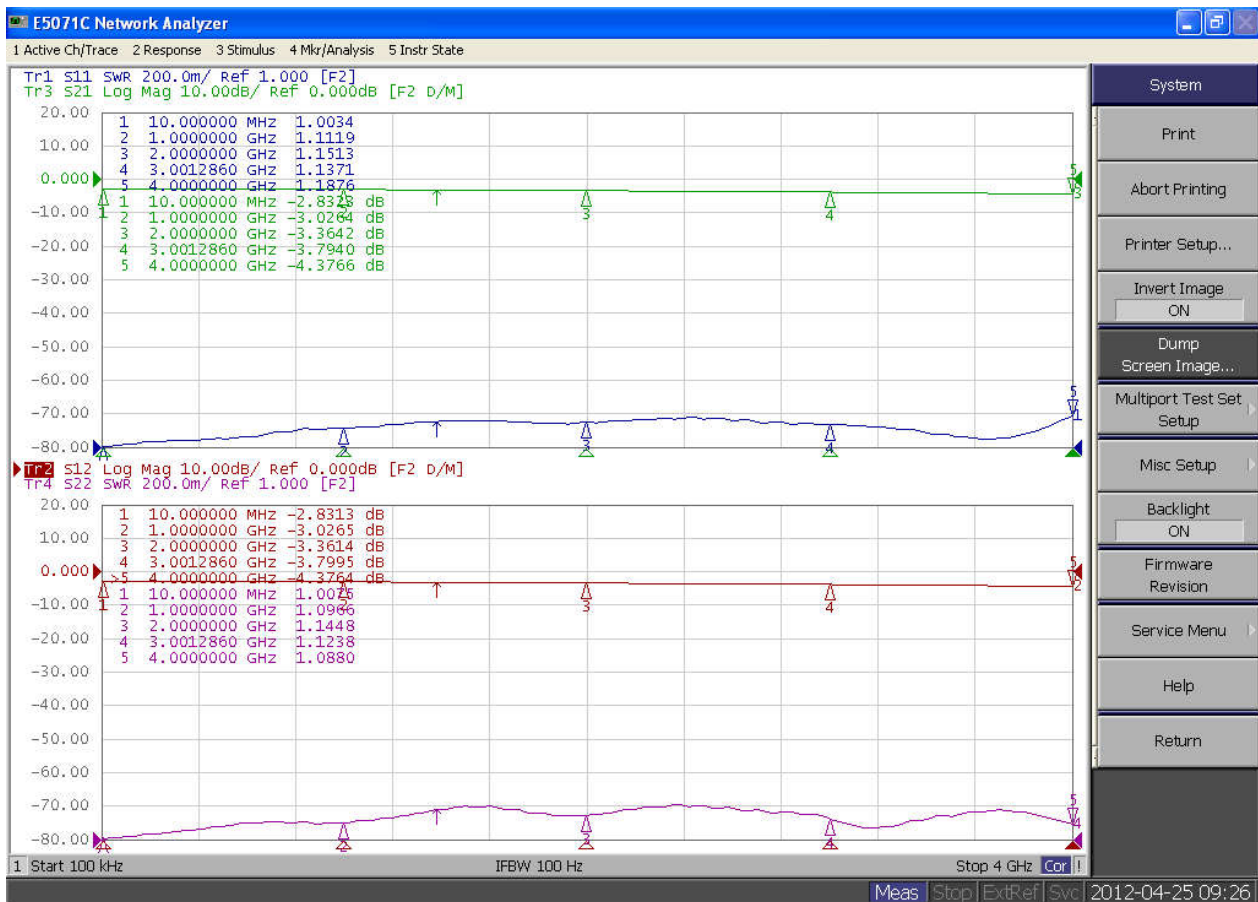
# Imported N High Power Attenuators, 250W

Frequency: DC ~ 12.4 GHz

P/N: IHPA-??-250.. Series

**INDE<sup>®</sup>**

## VNA Plot for IHPA-W2-250-20-4-N-B Attenuator (20dB/250W/4GHz)



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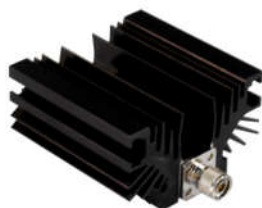
**N20**

# Imported N High Power Attenuators, 300W

**INDE®**

Frequency: DC ~ 10 GHz

P/N: IHPA-??-300.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)					Connector
					10	20	30	40	50	
IHPA-D2-300-XX-4-B	DC-4	<1.2@1 GHz <1.25 @2 GHz <1.35@3 GHz <1.50 @4 GHz	Fig 1	300 <sup>1)</sup>	±2.0	±2.0	±1.5	±1.5	±1.5	N (M)-(F)
IHPA-W1-300-XX-4-N	DC-4	1.25	Fig 2	300 <sup>2)</sup>	/	/	±0.5	±0.5	±0.5	N (M)-(F)
IHPA-W1-300-XX-8N	DC-8	1.40	Fig 2	300 <sup>2)</sup>	/	/	±1.0	±1.0	±1.0	N (M)-(F)
IHPA-W1-300-XX-10	DC-10	1.45	Fig 2	300 <sup>2)</sup>	/	/	±1.0	±1.0	±1.0	N (M)-(F)

1) Average Power @25°C amb. temperature, derated linearly to 30W @125°C. Peak Power is 10kW(5us pulse with 3% duty)

2) Average Power @25°C amb. temperature, derated linearly to 30W @125°C. Peak Power is 5kW(5us pulse with 6% duty)

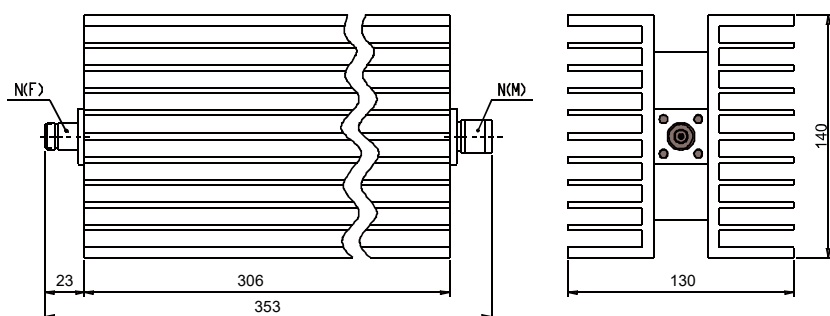


Fig 1

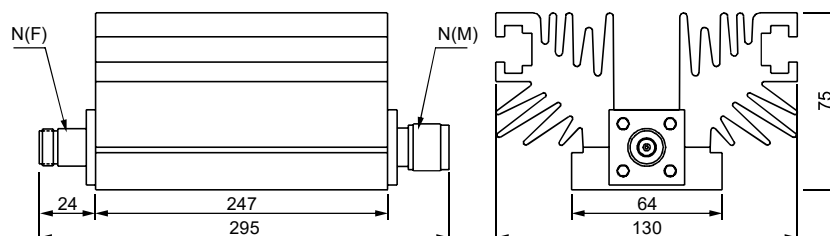


Fig 2

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**N20**

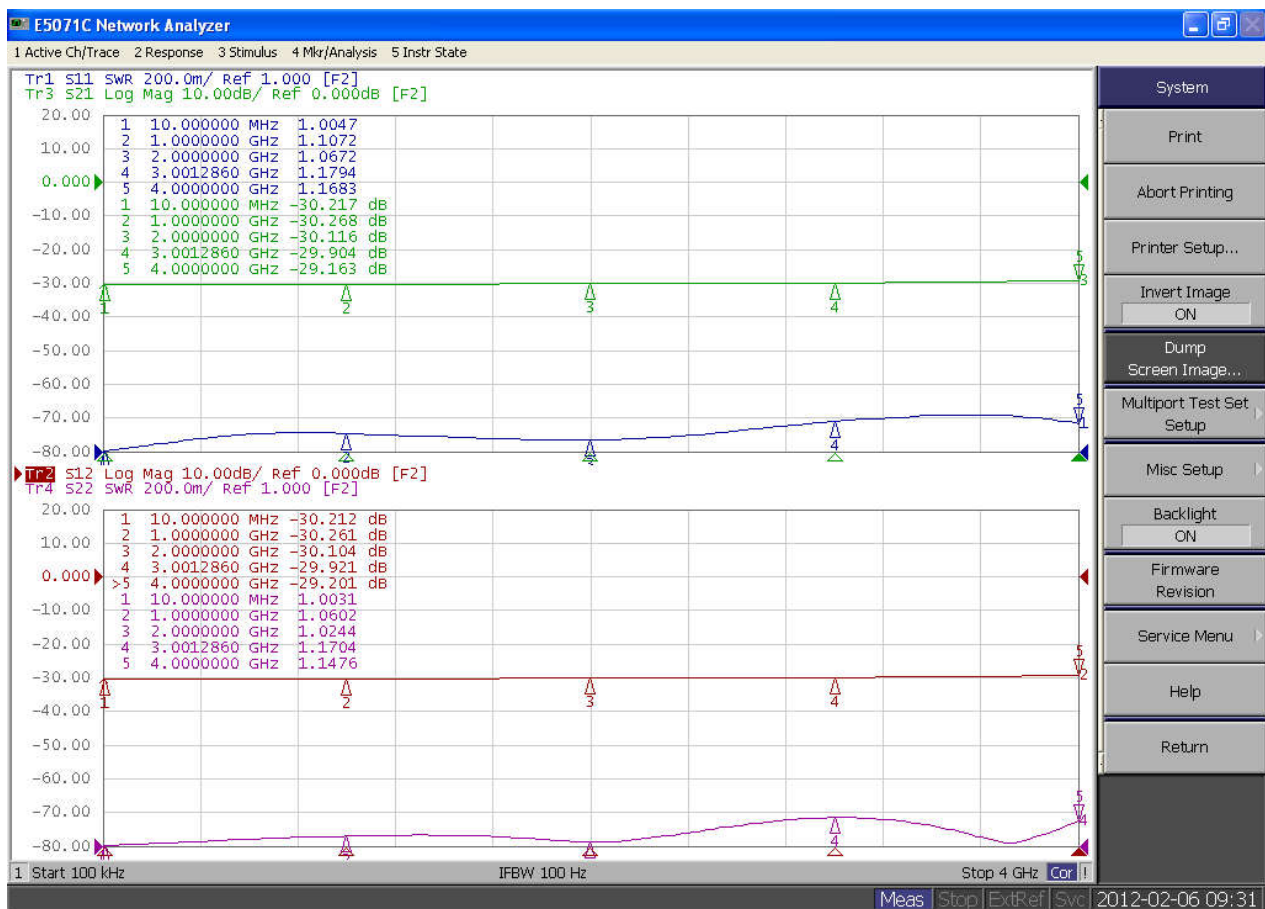
# Imported N High Power Attenuators, 300W

Frequency: DC ~ 10 GHz

P/N: IHPA-??-300.. Series

**INDE<sup>®</sup>**

## VNA Plot for IHPA-W1-300-20-4-N Attenuator (20dB/300W/4GHz)



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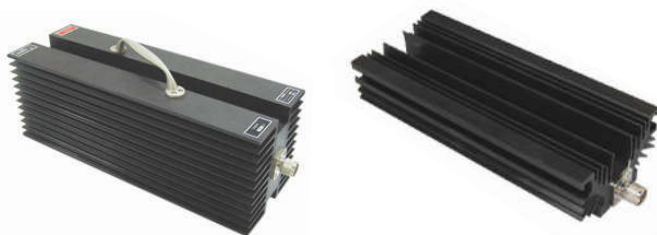
**N20**

# Imported N High Power Attenuators, 500W

**INDE®**

Frequency: DC ~ 10 GHz

P/N: IHPA-??-500.. Series



Impedance : 50 Ω

Operating Temp : -55°C ~125°C

Ordering Code	Freq. (GHz)	VSWR (max)	Figure	Avg. Power (W)	Attenuation and Accuracy (dB)					Connector
					10	20	30	40	50	
IHPA-D2-500-XX-4-B	DC-4	<1.2@1 GHz <1.25 @2 GHz <1.35@3 GHz <1.50 @4 GHz	Fig 1	500 <sup>1)</sup>	±2.0	±2.0	±1.5	±1.5	±1.5	N(M)-N(F)
IHPA-W1-500-XX-4-N	DC-4	1.25	Fig 2	500 <sup>2)</sup>	-	-	±0.5	±0.5	±0.5	N(M)-N(F)
IHPA-W1-500-XX-6-N	DC-6	1.30	Fig 2	500 <sup>2)</sup>	-	-	-	±0.6	±0.6	N(M)-N(F)
IHPA-W1-500-XX-8-N	DC-8	1.40	Fig 2	500 <sup>2)</sup>	-	-	-	±0.8	±0.8	N(M)-N(F)
IHPA-W1-500-XX-10-N	DC-10	1.45	Fig 2	500 <sup>2)</sup>	-	-	-	±1.0	±1.0	N(M)-N(F)

1) Average Power @25°C amb. temperature, derated linearly to 50W @125°C. Peak Power is 10kW(5us pulse with 5% duty)

2) Average Power @25°C amb. temperature, derated linearly to 50W @125°C. Peak Power is 5kW(5us pulse with 5% duty)

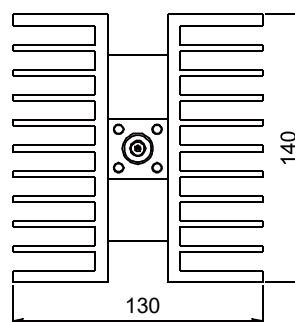
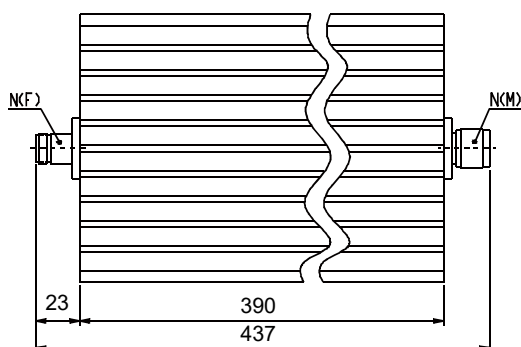


Fig 1

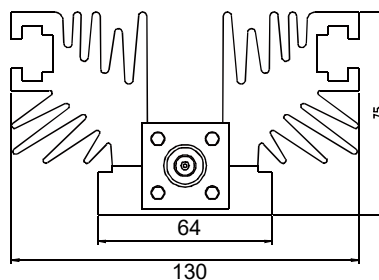
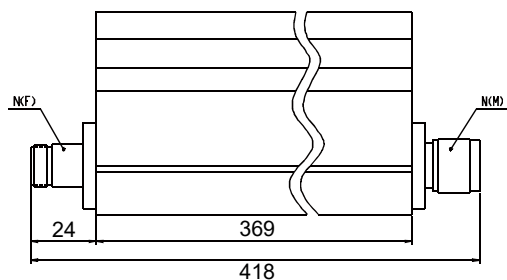


Fig 2

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**N20**

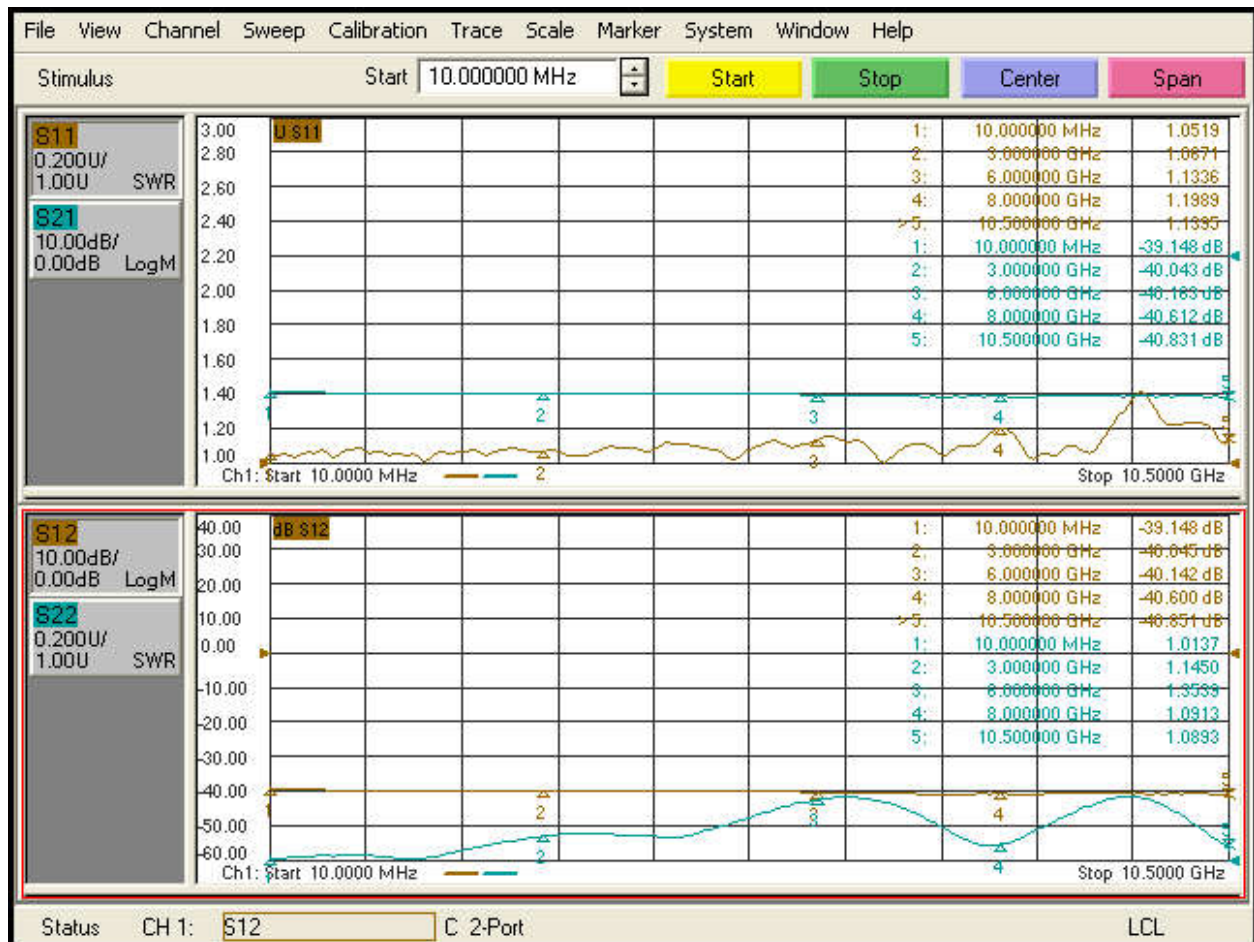
# Imported N High Power Attenuators, 500W

Frequency: DC ~ 10 GHz

P/N: IHPA-??-500.. Series

**INDE**<sup>®</sup>

## VNA Plot for IHPA-W1-500-40-10-N Attenuator (40dB/500W/10GHz)



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**N20**