



**Typical Characteristics**  
**on**  
**AGTM-2000-90**

**THE PMI MODEL AGTM-2000-90 IS AN ULTRA LOW VIDEO TRANSIENT, HIGH SPEED VOLTAGE VARIABLE, MATCHED, MMIC ATTENUATOR OPERATING FROM DC TO 2.4 GHz. THIS MODEL HAS 75 dB OF DYNAMIC RANGE AND A SWITCHING SPEED OF LESS THAN 50 ns.**



**November 12, 2021**

**Tested and Reported by: E. Kretz**



# Typical Characteristics on AGTM-2000-90

## Product Feature Drawing

REVISIONS			
CHG. NO.	DESCRIPTION	DATE	APPROV.
A1	ORIGINAL RELEASE	2/23/21	
A2	ETCH# 21-0180	11/12/21	

**DESCRIPTION**

THE PMI MODEL AGTM-2000-90 IS AN ULTRA LOW VIDEO TRANSIENT, HIGH SPEED VOLTAGE VARIABLE, MATCHED, MMIC ATTENUATOR OPERATING FROM DC TO 2.4 GHz. THIS MODEL HAS 75 dB OF DYNAMIC RANGE AND A SWITCHING SPEED OF 50 ns.

**SPECIFICATIONS**

- FREQUENCY RANGE: ..... DC TO 2.4 GHz
- INSERTION LOSS: ..... 5.0 dB MAX (25°C)  
5.25 dB MAX (-40°C TO +85°C)
- VSWR: ..... 2.0:1 MAX (INSERTION LOSS SETTING)  
3.2:1 MAX (OVER ALL CONTROL VOLTAGES)
- ATTENUATION/ISOLATION: ..... 75 dB TYP
- SWITCHING SPEED: ..... RISE - 20 ns MAX 12 ns TYP  
FALL - 20 ns MAX 16 ns TYP  
ON - 50 ns MAX 22 ns TYP  
OFF - 50 ns MAX 26 ns TYP
- VIDEO TRANSIENTS ..... ≤20 mV P-P IN 300 MHz BANDWIDTH
- CONTROL ..... 0 TO +3.5 VOLTS (NON-LINEAR)
- RF POWER ..... +20 dBm OPERATING, +27 dBm SURVIVAL
- POWER SUPPLY  
+V: ..... +15V @ 50mA MAX  
-V: ..... -15V @ 100mA MAX
- SIZE: ..... 1.00" x 1.00" x 0.50"
- WEIGHT: ..... ≤2.0 OZ.
- FINISH: ..... PAINTED BLUE

**ENVIRONMENTAL RATINGS**

- TEMPERATURE: ..... -40°C TO +85°C (OPERATING)  
-65°C TO +125°C (STORAGE)
- HUMIDITY: ..... MIL-STD-202F, METHOD 103B COND. B
- SEOCK: ..... MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: ..... MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: ..... MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: ..... MIL-STD-202F, METHOD 107D COND. A

NOTE: SPECIFICATIONS MAY VARY OVER OPERATING TEMPERATURE RANGE. THE ABOVE OPERATIONS ARE SUBJECT TO CHANGE OR REVISION.

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ISO 9001 CERTIFIED

APPROVAL	DATE	<b>TITLE</b>	
JALP	8/28/21	PRODUCT FEATURE AGTM-2000-90	
DATE	REV. FROM NO.	QTY. NO.	NO.
2021	A	05XQ0	27040680
ISSUE	MADE IN:	1 OF 1	



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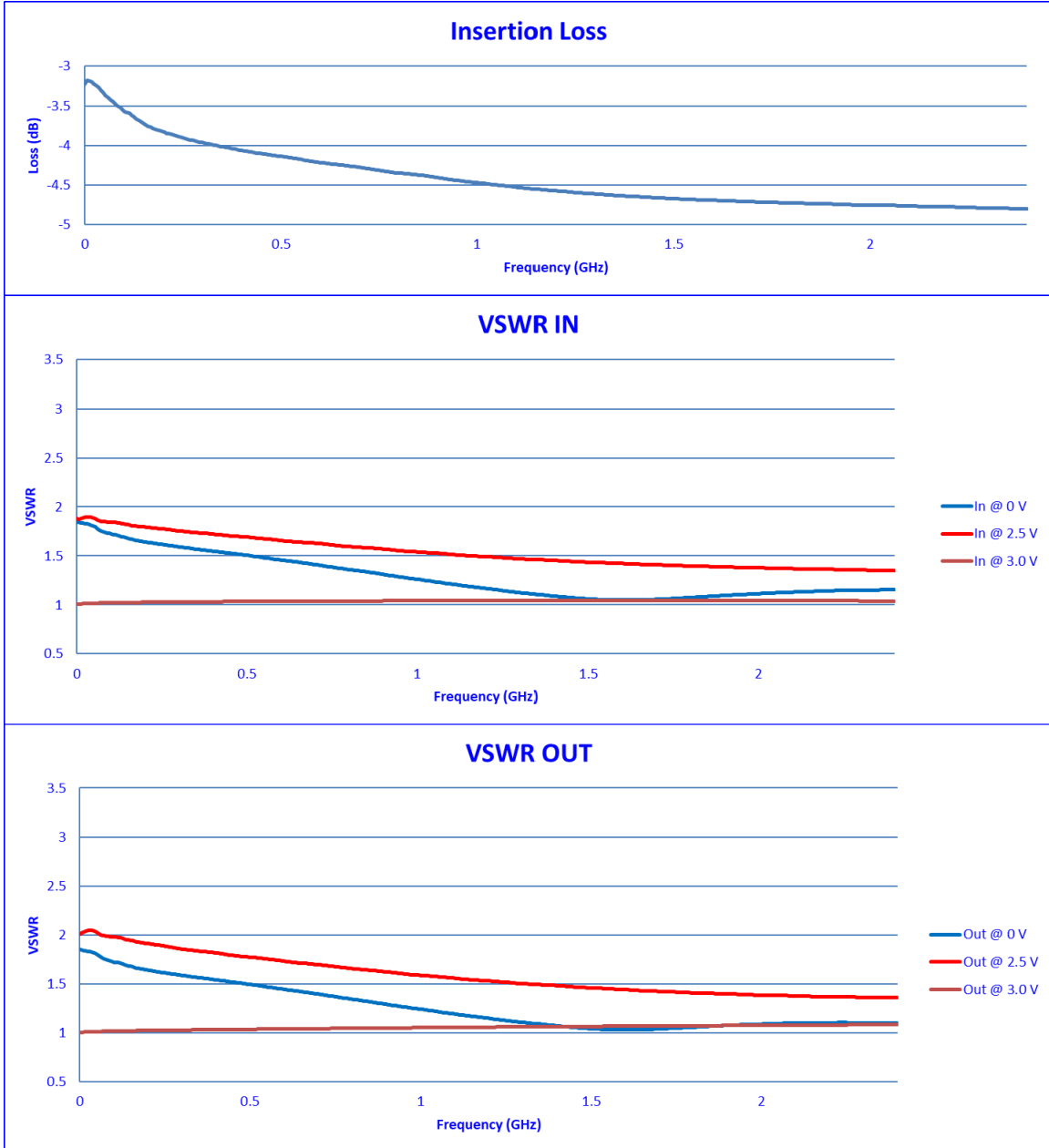
**Summary Data +25C**

<b>TEST. ITEM NO</b>	<b>PARAMETERS</b>	<b>SPECIFIED VALUE</b>	<b>Test Results</b>	<b>QA QC</b>
1	Frequency Range:	DC to 2.4 GHz	<b>DC to 2.4 GHz</b>	
2	Insertion Loss	5.0 dB Max.	<b>4.8 dB</b>	
3	VSWR	2.0:1 @ Insertion Loss 3.2:1 Over All Control Voltages	<b>1.86:1 @ 0 V</b> <b>2.88:1 @ Worst Case</b>	
4	Attenuation	75 dB Typ.	<b>87 dB</b>	
5	Switching Speed	Rise - 20 ns Max Fall - 20 ns Max On - 50 ns Max Off - 50 ns Max	<b>Rise - 17.0 ns</b> <b>Fall - 16.6 ns</b> <b>On - 26.9 ns</b> <b>Off - 28.5 ns</b>	
6	Video Transients	≤20 mV P-P in 300 MHz Bandwidth	<b>≤20 mV P-P in 300 MHz Bandwidth</b>	
7	Control	0 to 3.5 V (Non- Linear)	<b>0 to 3.5 V (Non- Linear)</b>	
8	RF Power	+20 dBm Operating, +27 dBm Survival	<b>+20 dBm</b> <b>Operating, +27</b> <b>dBm Survival</b>	
9	Power Supply	+15 V @ 50 mA -15 V @ 100 mA	<b>+15 V @ 30 mA</b> <b>-15 V @ 90 mA</b>	



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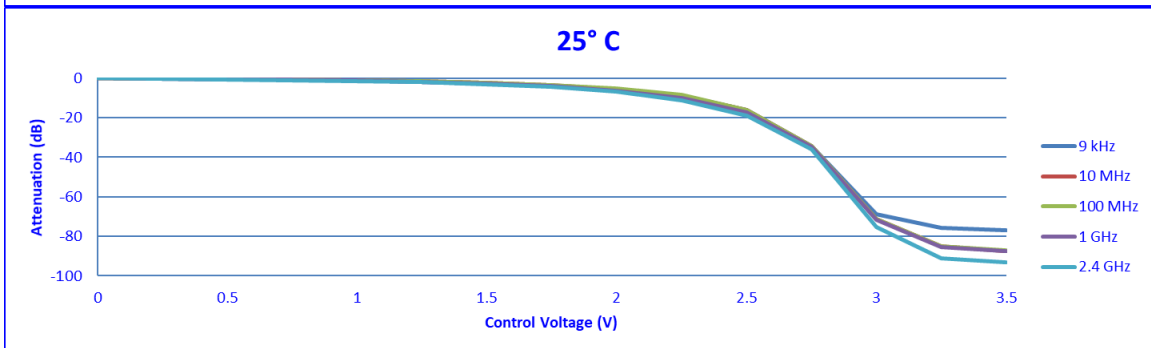
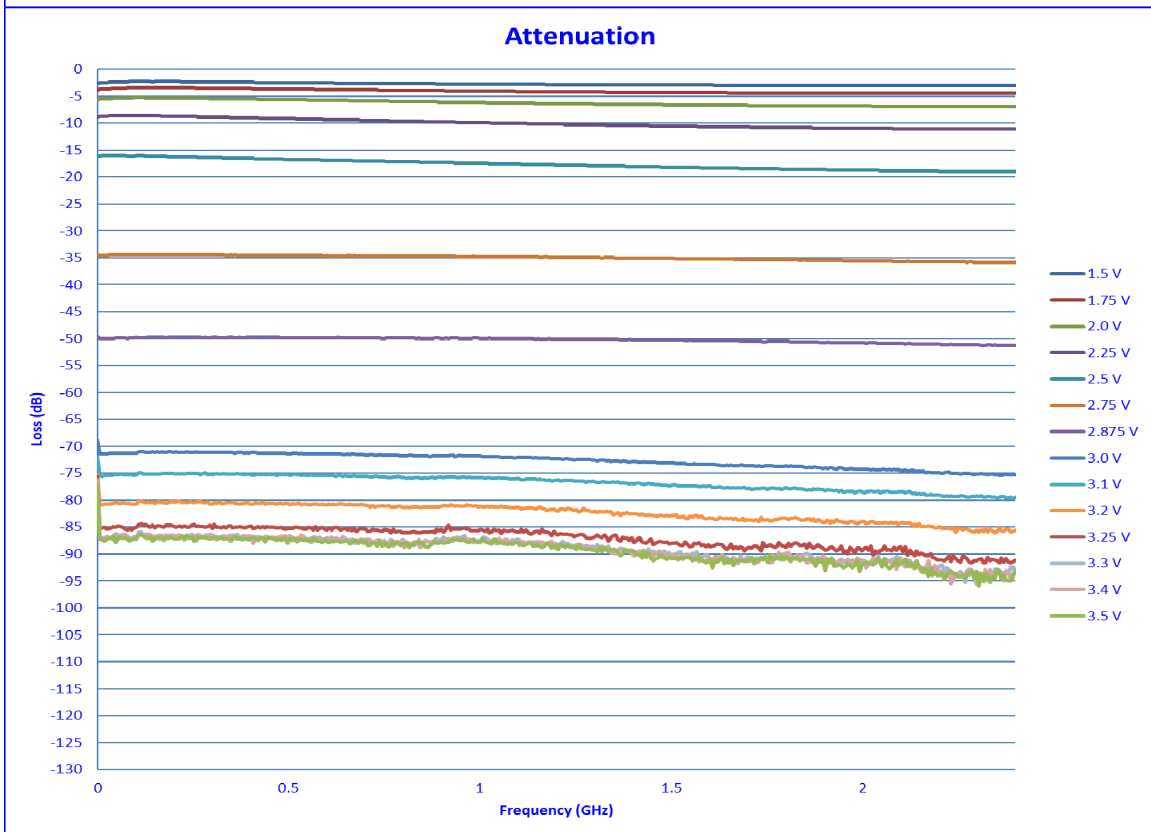
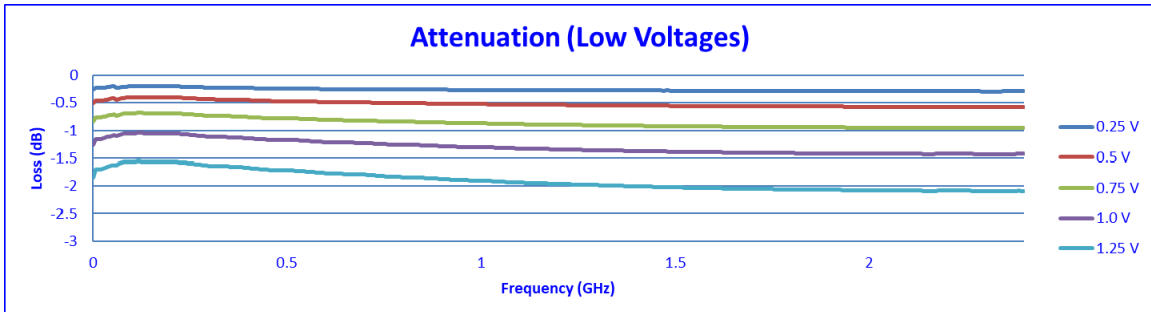
+25C





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+25C





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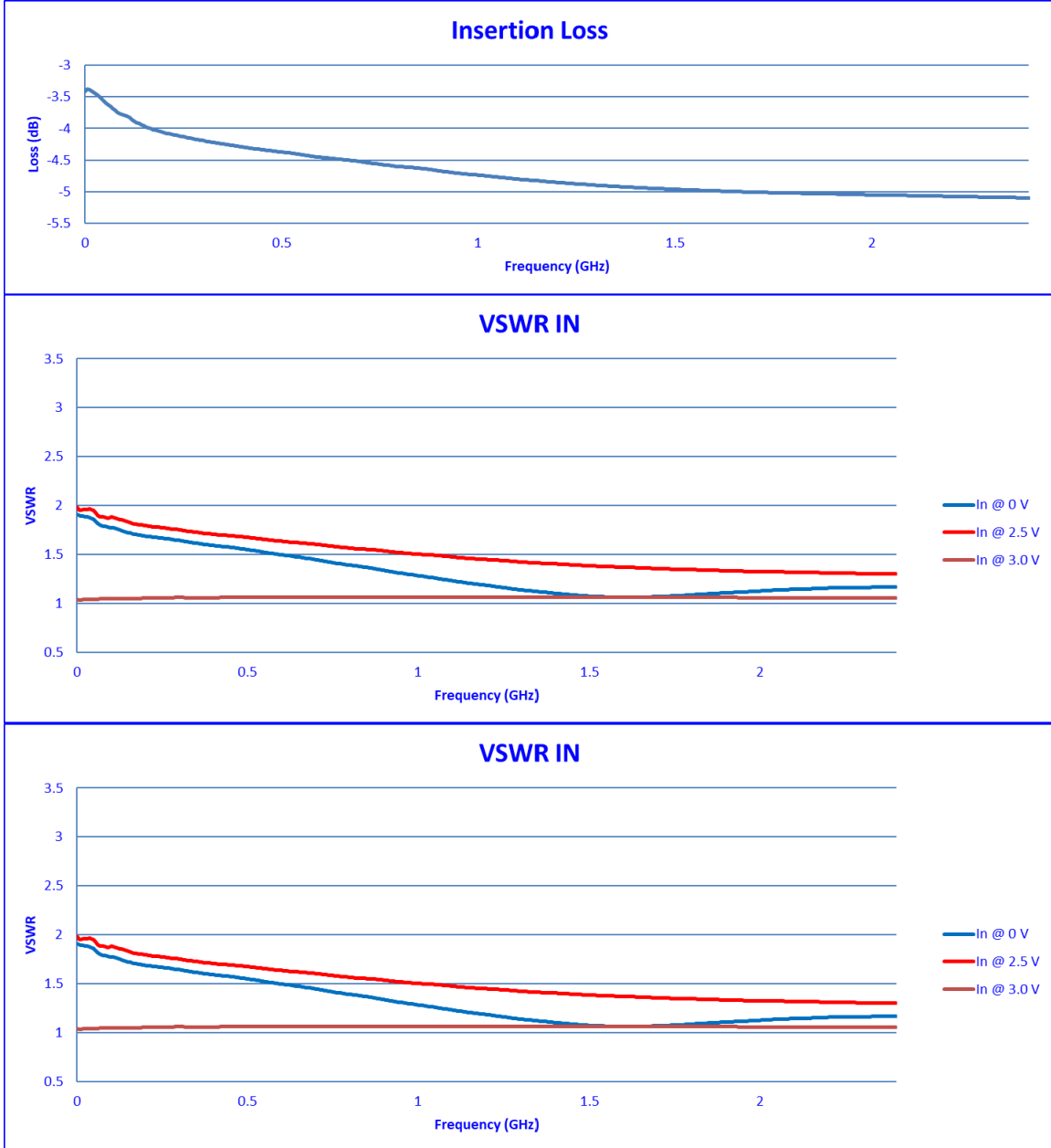
**Summary Data +85C**

<b>TEST. ITEM NO</b>	<b>PARAMETERS</b>	<b>SPECIFIED VALUE</b>	<b>Test Results</b>	<b>QA QC</b>
1	Frequency Range:	DC to 2.4 GHz	<b>DC to 2.4 GHz</b>	
2	Insertion Loss	5.25 dB Max.	<b>5.1 dB</b>	
3	VSWR	2.0:1 @ Insertion Loss 3.2:1 Over All Control Voltages	<b>1.92:1 @ 0 V</b> <b>2.69:1 @ Worst Case</b>	
4	Attenuation	75 dB Typ.	<b>86 dB</b>	
5	Switching Speed	Rise - 20 ns Max Fall - 20 ns Max On - 50 ns Max Off - 50 ns Max	<b>Rise - 17.0 ns</b> <b>Fall - 16.6 ns</b> <b>On - 26.9 ns</b> <b>Off - 28.5 ns</b>	
6	Video Transients	≤20 mV P-P in 300 MHz Bandwidth	<b>≤20 mV P-P in 300 MHz Bandwidth</b>	
7	Control	0 to 3.5 V (Non-Linear)	<b>0 to 3.5 V (Non-Linear)</b>	
8	RF Power	+20 dBm Operating, +27 dBm Survival	<b>+20 dBm</b> <b>Operating, +27 dBm Survival</b>	
9	Power Supply	+15 V @ 50 mA -15 V @ 100 mA	<b>+15 V @ 30 mA</b> <b>-15 V @ 90 mA</b>	



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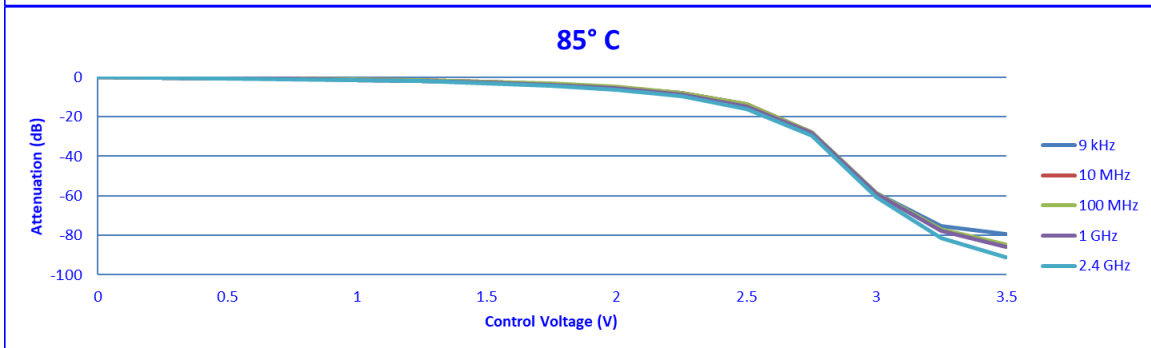
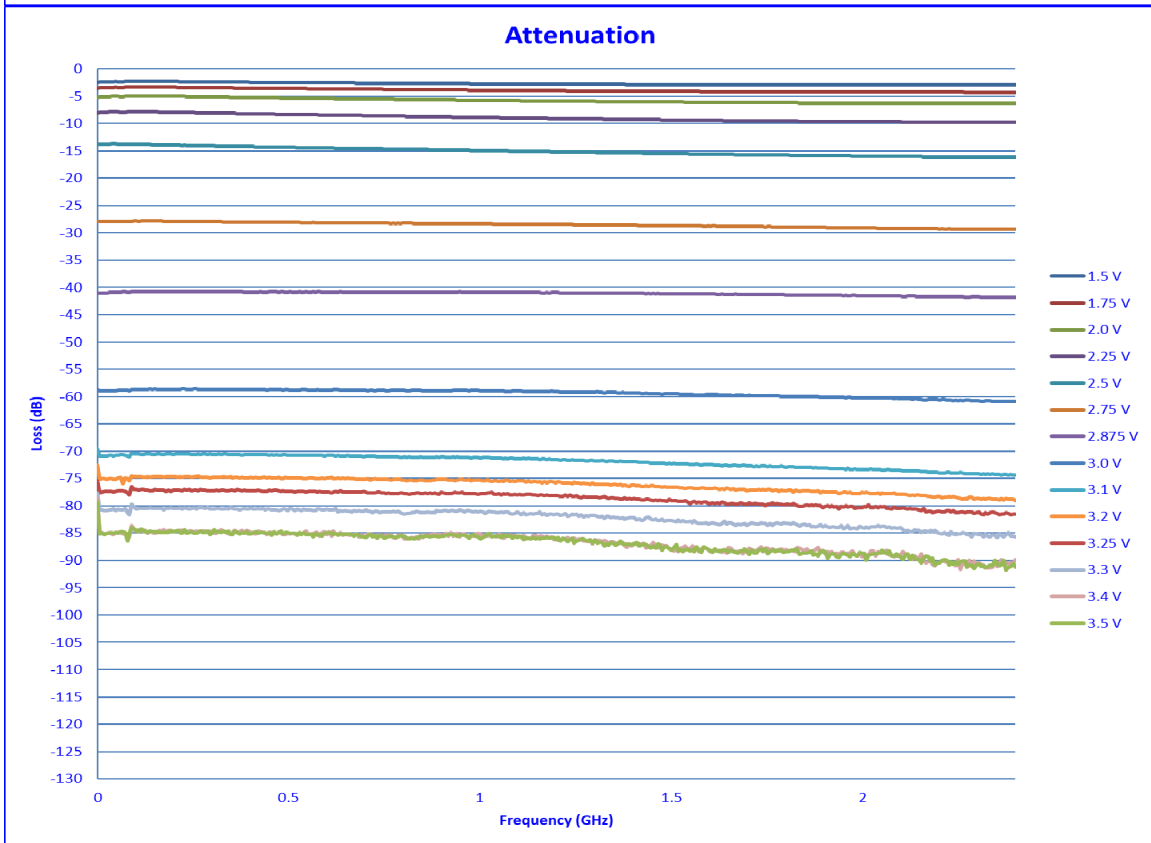
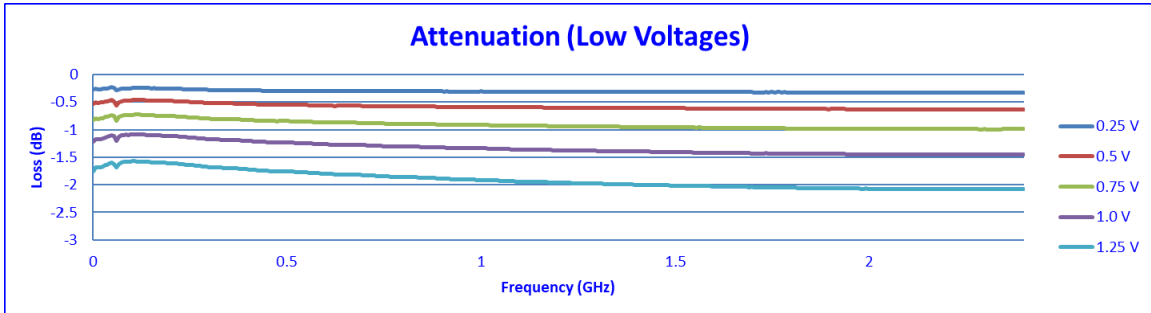
+85C





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+85C







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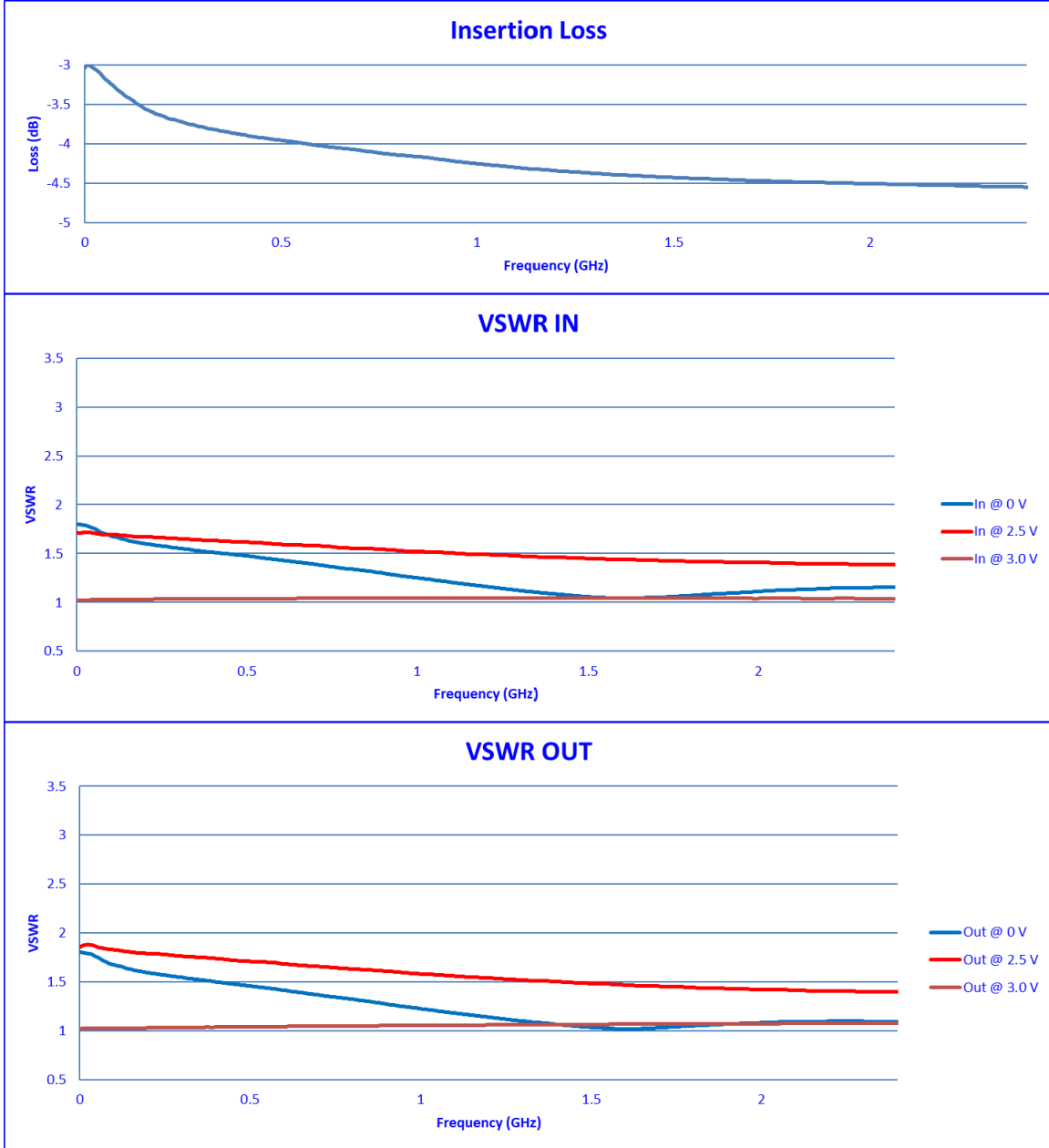
**Summary Data -40C**

<b>TEST. ITEM NO</b>	<b>PARAMETERS</b>	<b>SPECIFIED VALUE</b>	<b>Test Results</b>	<b>QA QC</b>
1	Frequency Range:	DC to 2.4 GHz	<b>DC to 2.4 GHz</b>	
2	Insertion Loss	5.25 dB Max.	<b>4.55 dB</b>	
3	VSWR	2.0:1 @ Insertion Loss 3.2:1 Over All Control Voltages	<b>1.81:1 @ 0 V</b> <b>3.09:1 @ Worst Case</b>	
4	Attenuation	75 dB Typ.	<b>90 dB</b>	
5	Switching Speed	Rise - 20 ns Max Fall - 20 ns Max On - 50 ns Max Off - 50 ns Max	<b>Rise - 17.0 ns</b> <b>Fall - 16.6 ns</b> <b>On - 26.9 ns</b> <b>Off - 28.5 ns</b>	
6	Video Transients	≤20 mV P-P in 300 MHz Bandwidth	<b>≤20 mV P-P in 300 MHz Bandwidth</b>	
7	Control	0 to 3.5 V (Non-Linear)	<b>0 to 3.5 V (Non-Linear)</b>	
8	RF Power	+20 dBm Operating, +27 dBm Survival	<b>+20 dBm</b> <b>Operating, +27 dBm Survival</b>	
9	Power Supply	+15 V @ 50 mA -15 V @ 100 mA	<b>+15 V @ 30 mA</b> <b>-15 V @ 90 mA</b>	



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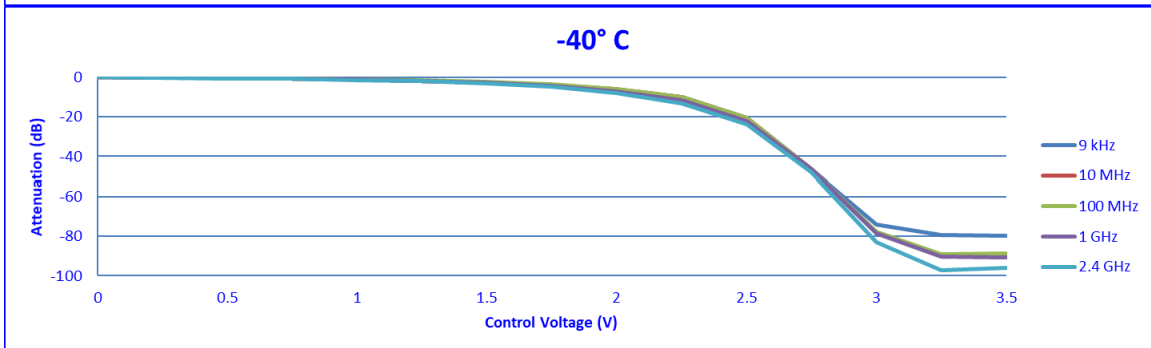
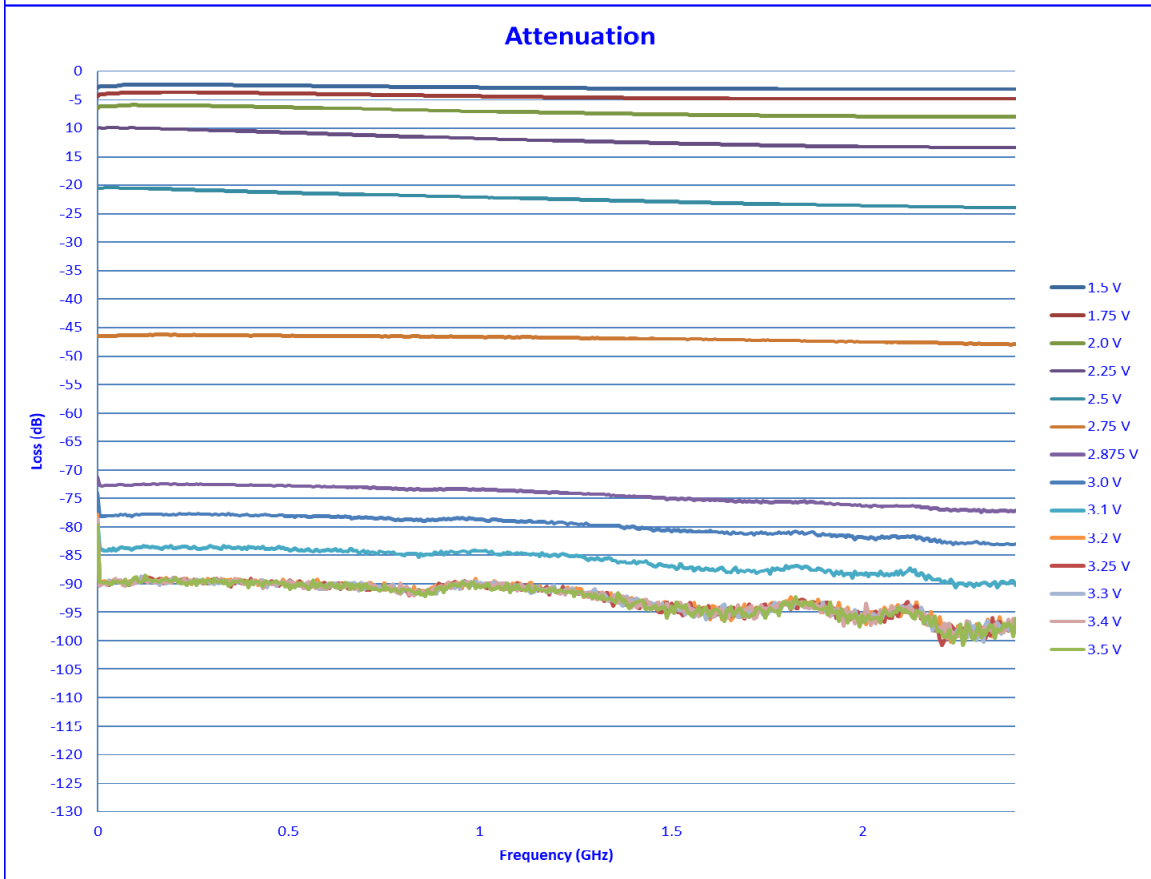
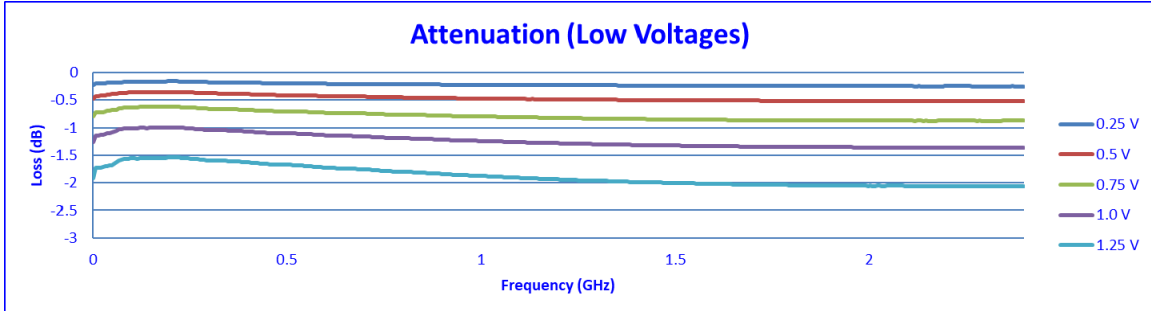
**-40C**





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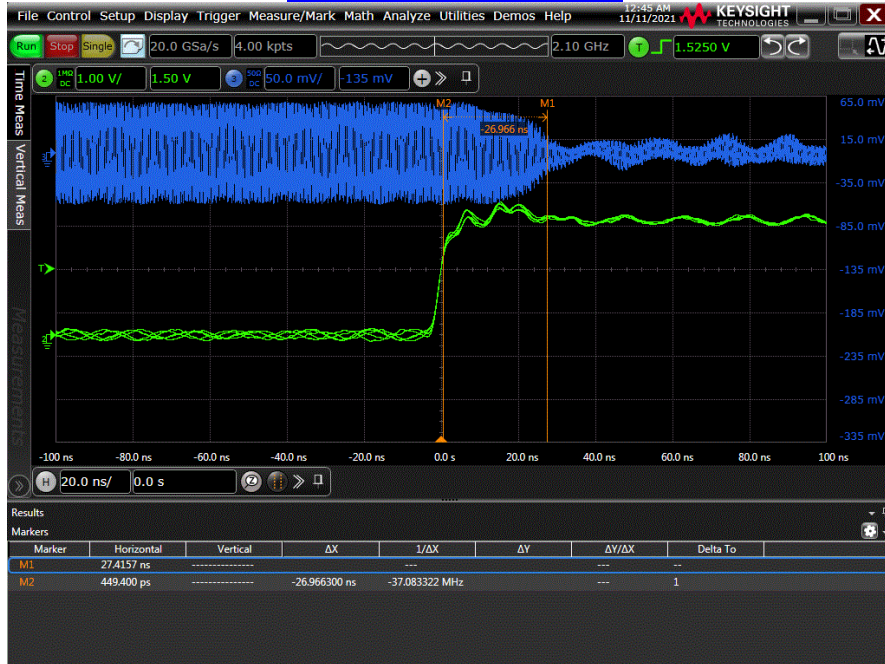
**-40C**





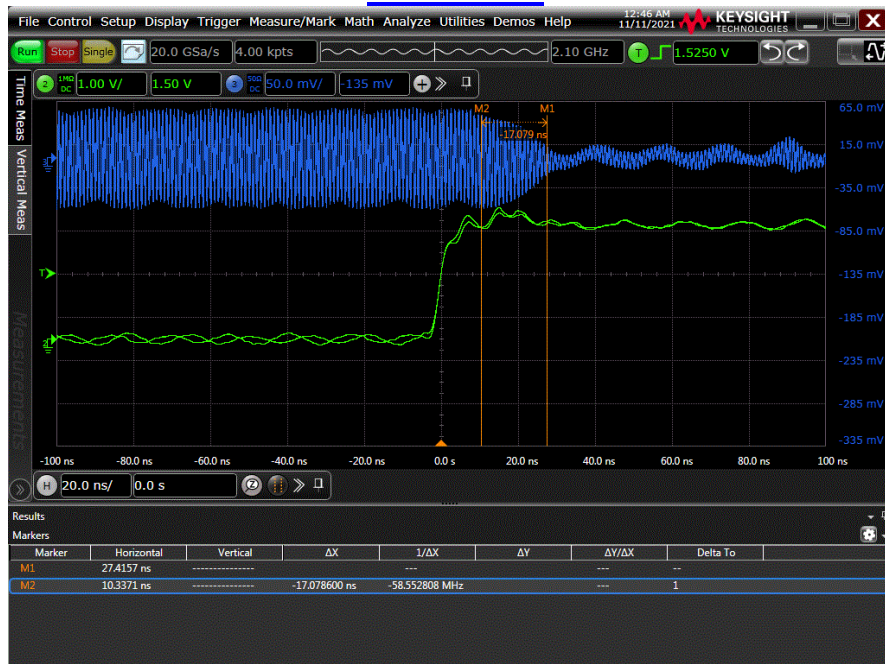
# Typical Characteristics on AGTM-2000-90

## On Switching Time



Blue = RF  
Green = Control Voltage

## Rise Time

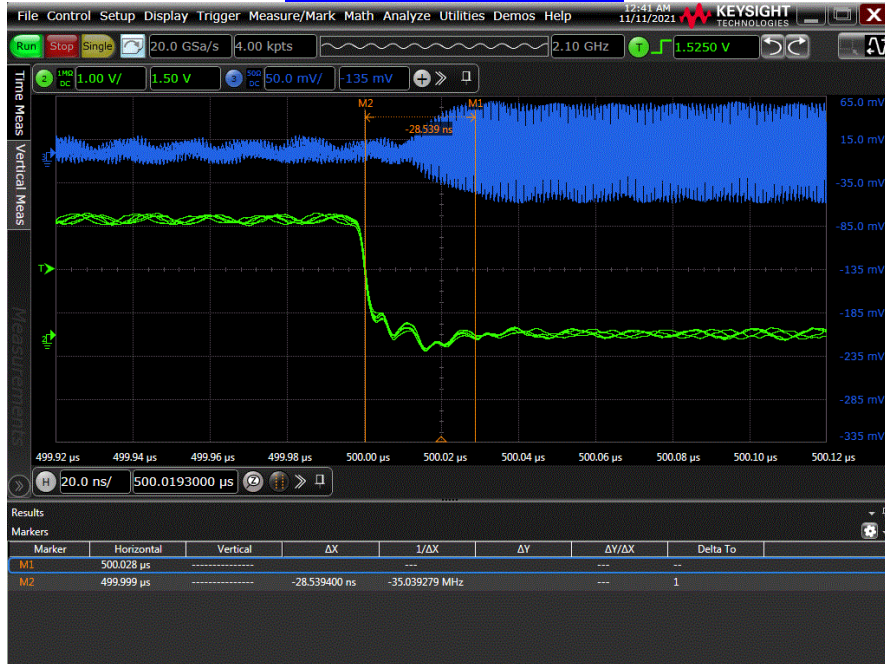


Blue = RF  
Green = Control Voltage



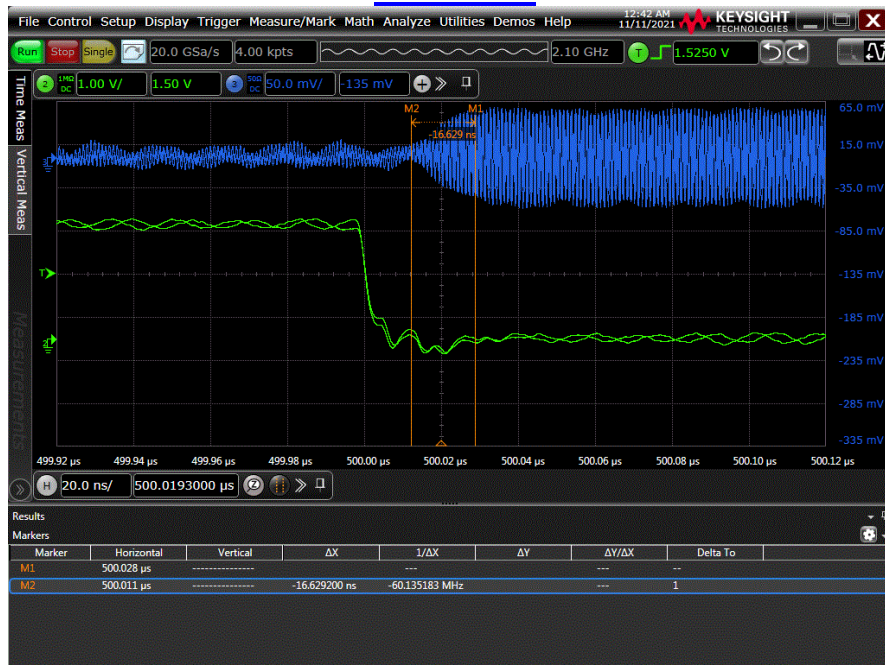
# Typical Characteristics on AGTM-2000-90

## Off Switching Time



Blue = RF  
Green = Control Voltage

## Fall Time



Blue = RF  
Green = Control Voltage



# Typical Characteristics on AGTM-2000-90

## Transient Plots



Blue = RF  
Green = Control Voltage



# Typical Characteristics on AGTM-2000-90

## Transient Full Pulse



Blue = RF  
Green = Control Voltage