



2000-6000MHz-100W

Power Amplifier Test Report

July, 2025



1. Description

This report is applicable only to the 2000-6000M 100W power amplifier.

Product Name: Solid-State High-Power Amplifier;

Model No.: AMT-SPA-2060-100;

Series No.: 200029303

Quantity: 1 unit

2. Inspection Basis

2000-6000M 100W spec.

3. Test Instruments List

No.	Equipment Name	Instrument Model	QTY	Remarks
1	VNA	E5063A	1 Set	
2	Spectrum Analyzer	N9000A	1 Set	
3	Signal Generator	N5182A	1 Set	

4. Specifications Test Table

No.	Technique Spec.s	Technique Spec.s	Test Result	Remarks
1	Frequency range	2000-6000 MHz	2000-6000	
2	Output power Saturation	≥ 50 dBm	≥ 49.5	
3	Power gain	50 ± 2 dB	50 ± 1.3	
4	Small signal gain ripple	± 3 dB	± 3	
5	ATT adjusting Range	0-30 dB	0-30	
6	ATT adjusting Step	0.5 dB	0.5	



7	Input power level (achieve saturation power)	0 dBm	0	
8	Input return loss	≤ -12 dB	≤ -11.8	
9	Harmonics @Psat	≤ -12 dBc	≤ -15.7	
10	Spurious signals	≤ -60 dBc	≤ -78.4	
11	Operating voltage	230 V AC	176~264	
12	Input and output RF Impedance	50 Ω	50	

5. Mechanical specification

No.	Parameter	Specification	Inspection Result	Remark
1	Dimension (WxDxH)	300x180x120mm	300.1x180.2x119.8	
2	Weight	5.5 Kg maximum	6.18	
3	RF connector input	Type-N, Female	N-F	
4	RF connector output	Type-N, Female	N-F	
5	Power Supply Connector	Circular connector Type: TBD	PT02E-12-3P	
6	Control Connector	Circular connector Type: TBD	PT02E-10-6P	
7	Cooling	Forced air	Forced air	

6. Environmental characteristics

No.	Parameter	Specification	Inspection Result	Remark
1	Operating temperature	-20~+55°C	Compliance	
2	Non- operating temperature	-40~+75°C	Compliance	
3	Relative Humidity	0-95%	Compliance	

7. Protections

No.	Parameter	Specification	Inspection Result	Remark
1	Input overdrive	Diode limiter protection 1dB compression +15dBm	Compliance	
2	Reverse RF power	$1 \leq VSWR < 3$: normal operation (active output) $4 \leq VSWR < \infty$: shut down and send error	Compliance	
3	Temperature	$T > 80^{\circ}\text{C}$: alarming(active output) $T > 85^{\circ}\text{C}$: error (output off)	Compliance	
4	Short and open of RF Output	Shutdown	Compliance	
5	Over current	Shutdown	Compliance	
6	Over/Under voltage	Shutdown	Compliance	

8. Communication interfaces

No.	Parameter	Specification	Inspection Result	Remark
1	RS-422	Serial management of Module	Compliance	
2	Interface Protocol	Reference "RS422 protocol"	Compliance	
3	Module Output Data	Forward & Reverse Power, Temp, Current, Voltage	Compliance	
4	Module Input Data	Output Desired Power, Standby, Reset, alarm level, ALC ON/OFF	Compliance	

9. Conclusion

Through the inspection of the power amplifier, the product performance specification meet the technical specifications required by the 'Power Amplifier'."



10. Test Data

10.1 +25°C Test Data

No.	Parameter	Unit	Test Data																				
			2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6	5.8	6
1	Frequency	GHz																					
2	Output power@Input powerlevel 0dBm	dBm	52.1	50.6	50.4	50.9	50.5	51.1	50.7	50.6	50.2	49.9	50.1	51.2	50.9	51.2	50.6	50.5	51.1	50.9	49.5	51.3	50.6
3	Power gain	dB	52.1	50.6	50.4	50.9	50.5	51.1	50.7	50.6	50.2	49.9	50.1	51.2	50.9	51.2	50.6	50.5	51.1	50.9	49.5	51.3	50.6
4	Power gain fluctuations	dB	± 1.3																				
5	Output power Saturation	dBm	52.1	51.2	51.2	51.5	51.1	51.4	50.7	51.3	52	51.6	50.5	51.8	50.6	51.2	50.6	50.5	51.3	50.9	49.5	51.3	50.7
6	Harmonics @Psat	dBc	-19	-15.7	-16.8	-19.5	-23.5	-19.4	-23.7	-30.2	-32.4	-30.6	-25.3	-38.2	-32.4	-37.7	-24.2	-41.1	-38.4	-29.5	-34.8	-40.6	-27.6
7	Spurious signals	dBc	≤ 78.4																				



10.2 -20°C Test Data

No.	Parameter	Unit	Test Data																				
1	Frequency	GHz	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6	5.8	6
2	Output power@Inp ut powerlevel 0dBm	dBm	52.2	50.7	50.6	50.9	50.2	50.5	50.8	50.5	49.7	49.8	49.2	50.8	51.5	51.1	50.3	50.6	50.5	50.2	50.8	51	51.2
3	Power gain	dB	52.2	50.7	50.6	50.9	50.2	50.5	50.8	50.5	49.7	49.8	49.2	50.8	51.5	51.1	50.3	50.6	50.5	50.2	50.8	51	51.2
4	Power gain fluctuations	dB	±1.5																				
5	Output power Saturation	dBm	52.1	51.3	51.1	51.2	51.3	50.7	51.3	51.3	51.9	51.6	51	51.7	51.5	51.1	50.3	50.6	50.5	50.2	50.8	51	51.2
6	Harmonics @Psat	dBc	-21	-16.4	-18.6	-20.2	-21.8	-19.4	-24.6	-22	-32.6	-28.6	-27	-36.6	-30.8	-32.4	-23.1	-39.4	-38.2	-28.4	-34.8	-33.2	-25.4
7	Spurious signals	dBc	≤-78																				

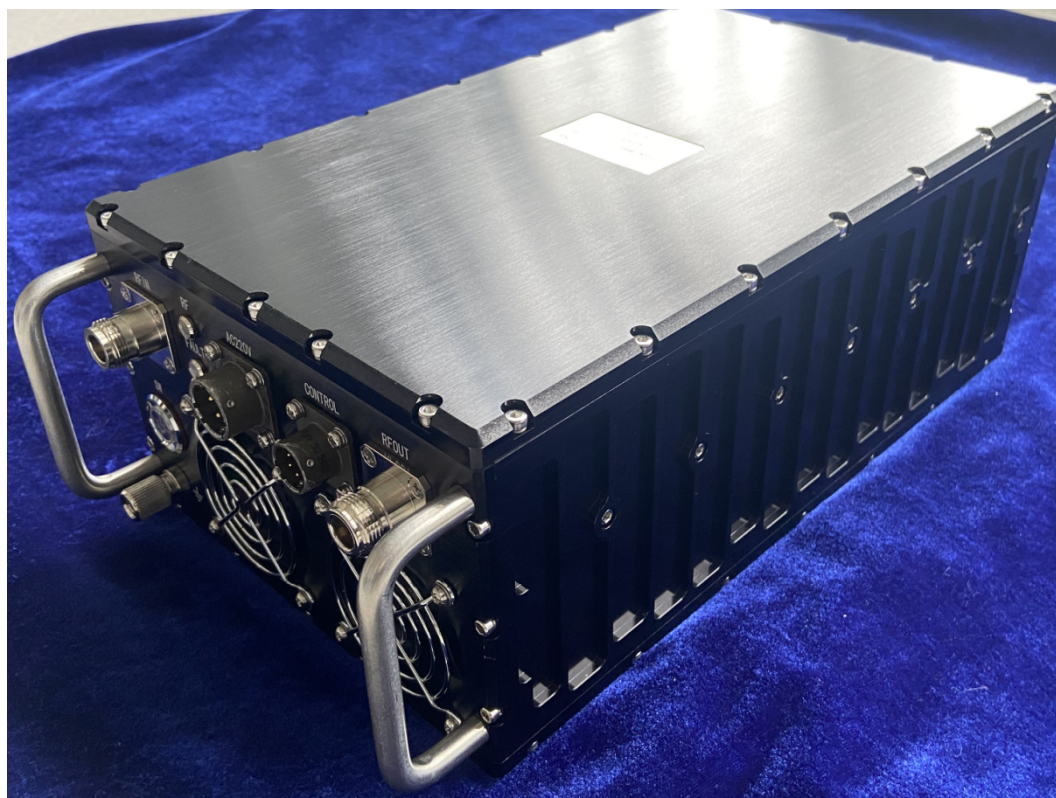


10.3 +55°C Test Data

No.	Parameter	Unit	Test Data																				
1	Frequency	GHz	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	4	4.2	4.4	4.6	4.8	5	5.2	5.4	5.6	5.8	6
2	Output power@Input powerlevel 0dBm	dBm	51.3	49.9	49.8	49.8	49.5	50.3	50	49.8	48.3	48.2	48.3	49.4	49.7	49.7	49.2	48.7	48.9	49.4	50.1	50.1	49.3
3	Power gain	dB	51.3	49.9	49.8	49.8	49.5	50.3	50	49.8	48.3	48.2	48.3	49.4	49.7	49.7	49.2	48.7	48.9	49.4	50.1	50.1	49.3
4	Power gain fluctuations	dB	±1.55																				
5	Output power Saturation	dBm	51.8	50.8	51.3	51.3	50.5	50.6	50.3	50.3	50.4	50.1	50	50.7	50.2	50	49.9	49.7	49.8	49.7	50.4	50.4	49.6
6	Harmonics @Psat	dBc	-19.5	-14.3	-18.1	-20.5	-21.3	-22.5	-24.6	-31.2	-30.6	-28.4	-23.8	-36.6	-31.1	-34.2	-23.3	-40.6	-37.7	-28.6	-41.3	-33.7	-27
7	Spurious signals	dBc	≤-78																				

11. Photos (Product Visual Inspection)

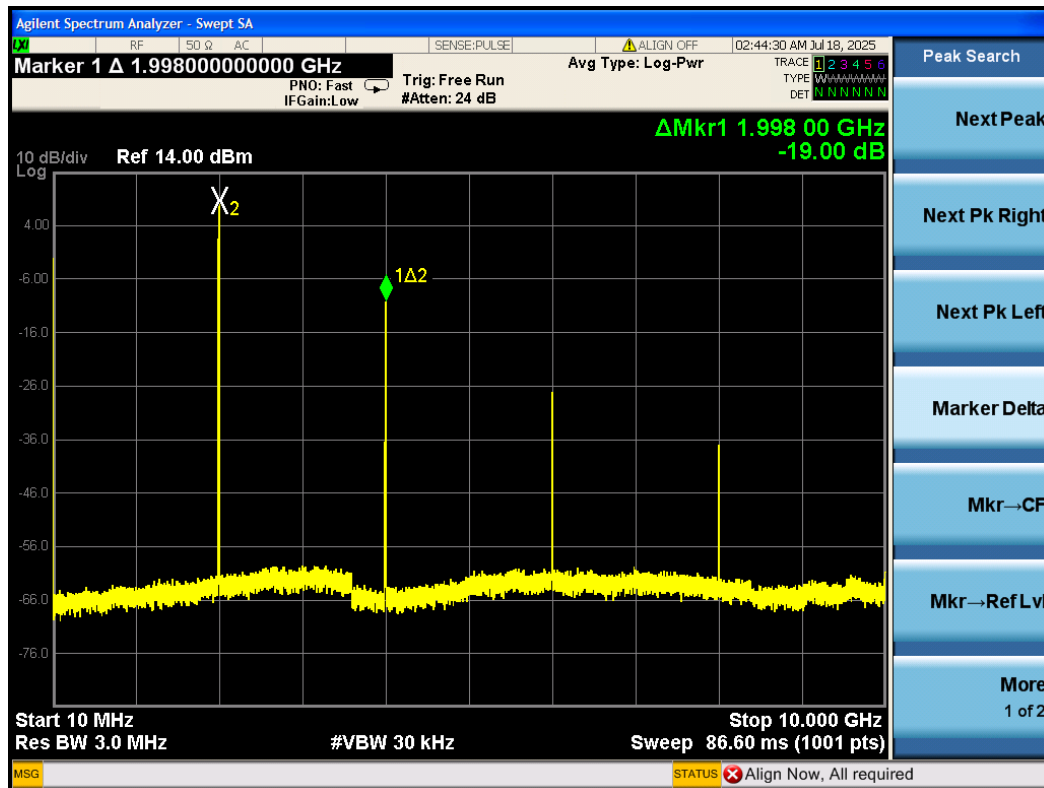
11.1 Product Visual Inspection



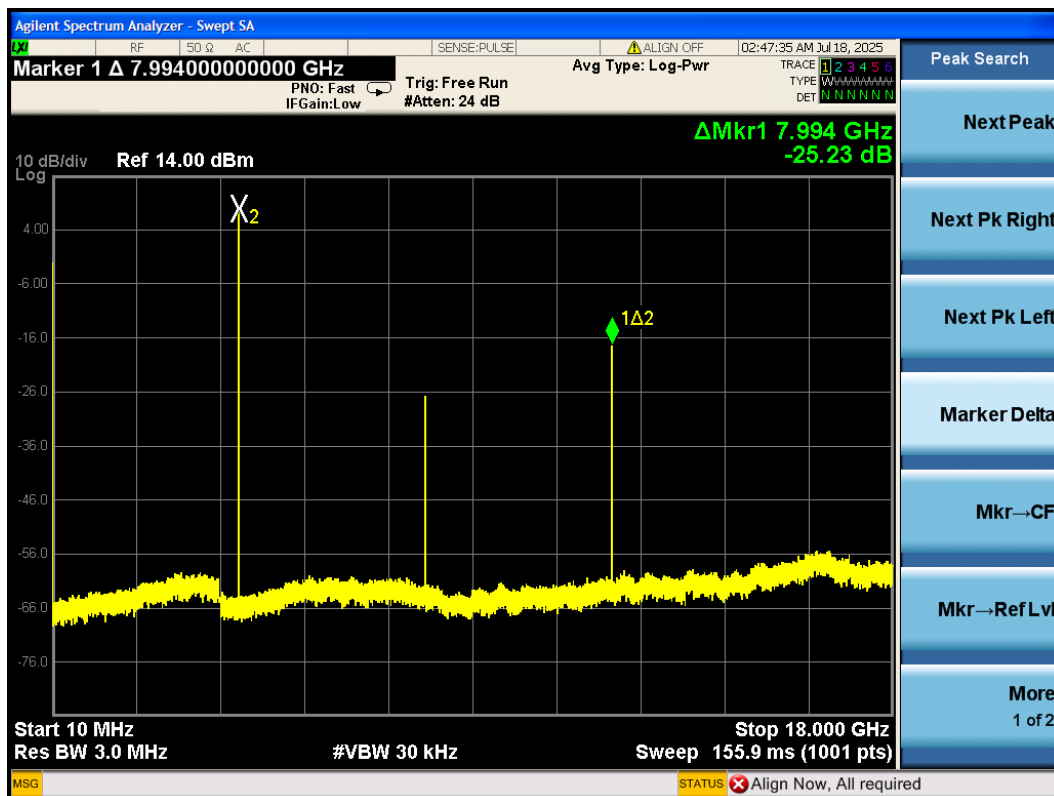


11.2 Harmonics

a. 2000MHz

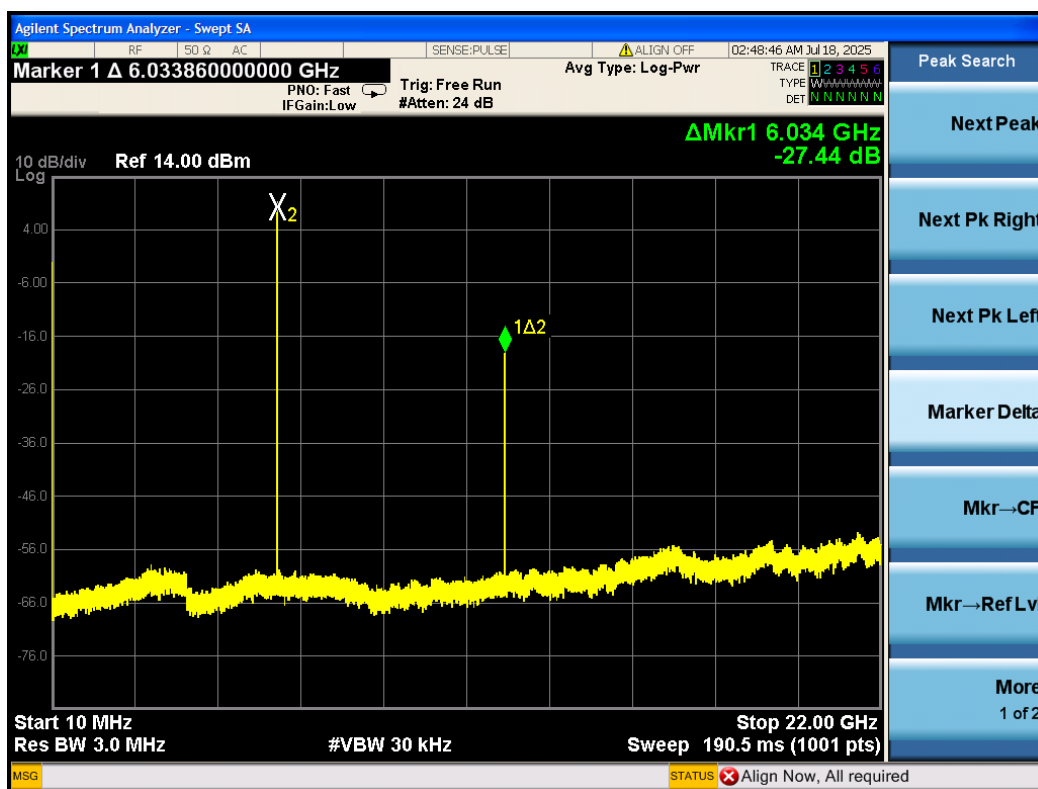


b. 4000MHz



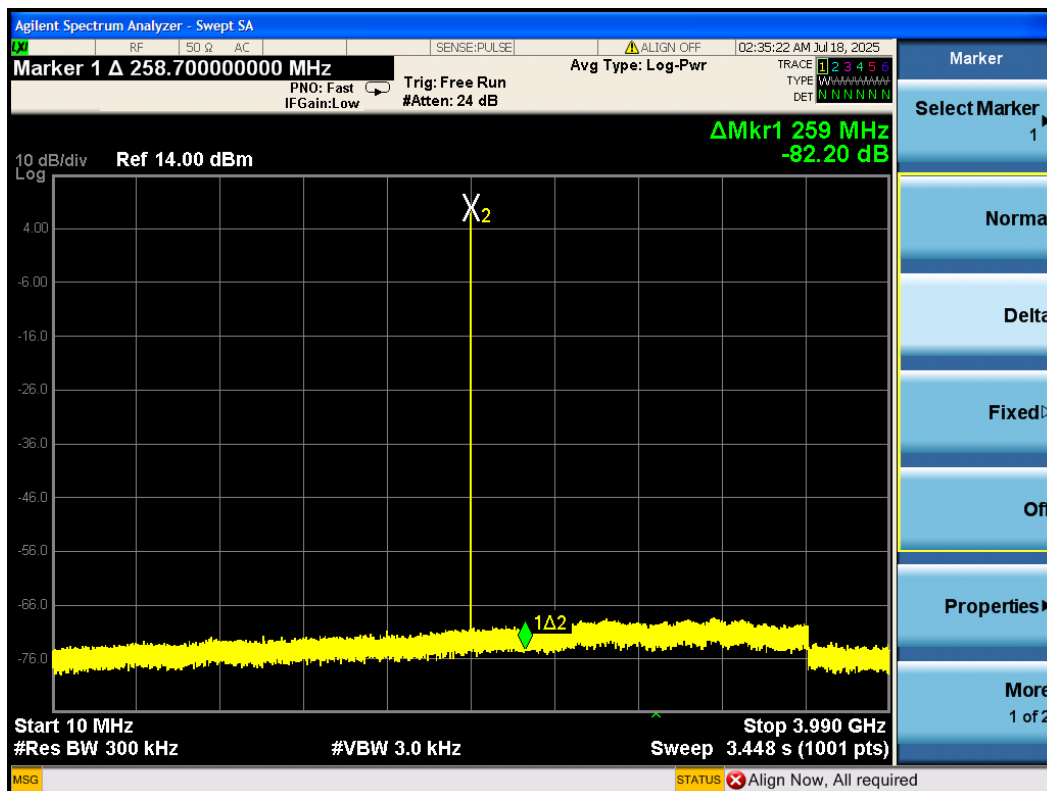


c. 6000MHz

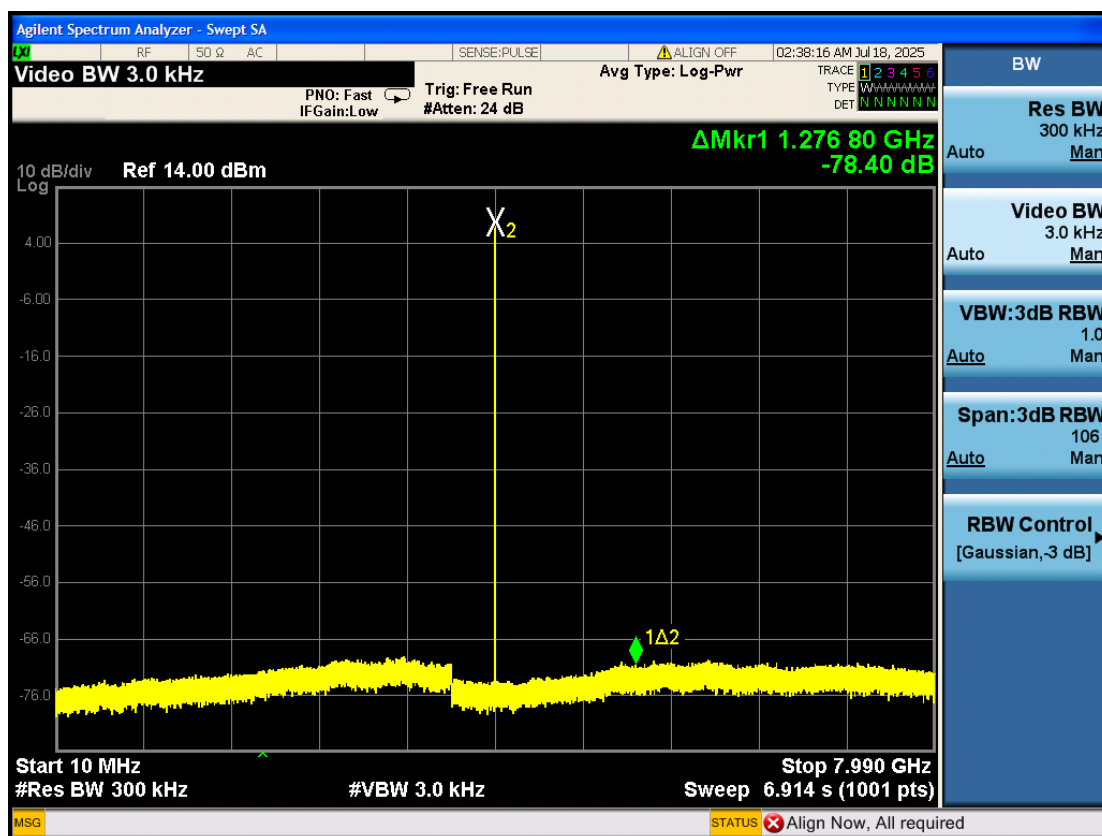


11.3 Spurious

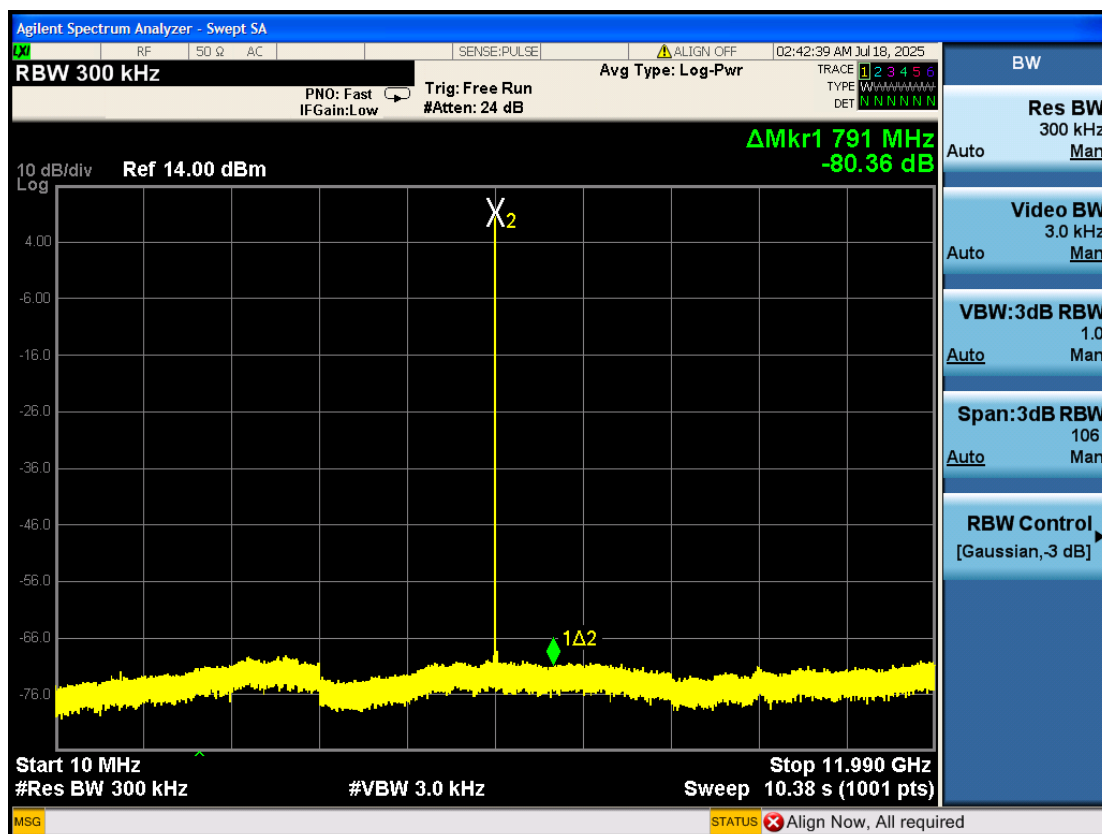
a. 2000MHz



b. 4000MHz

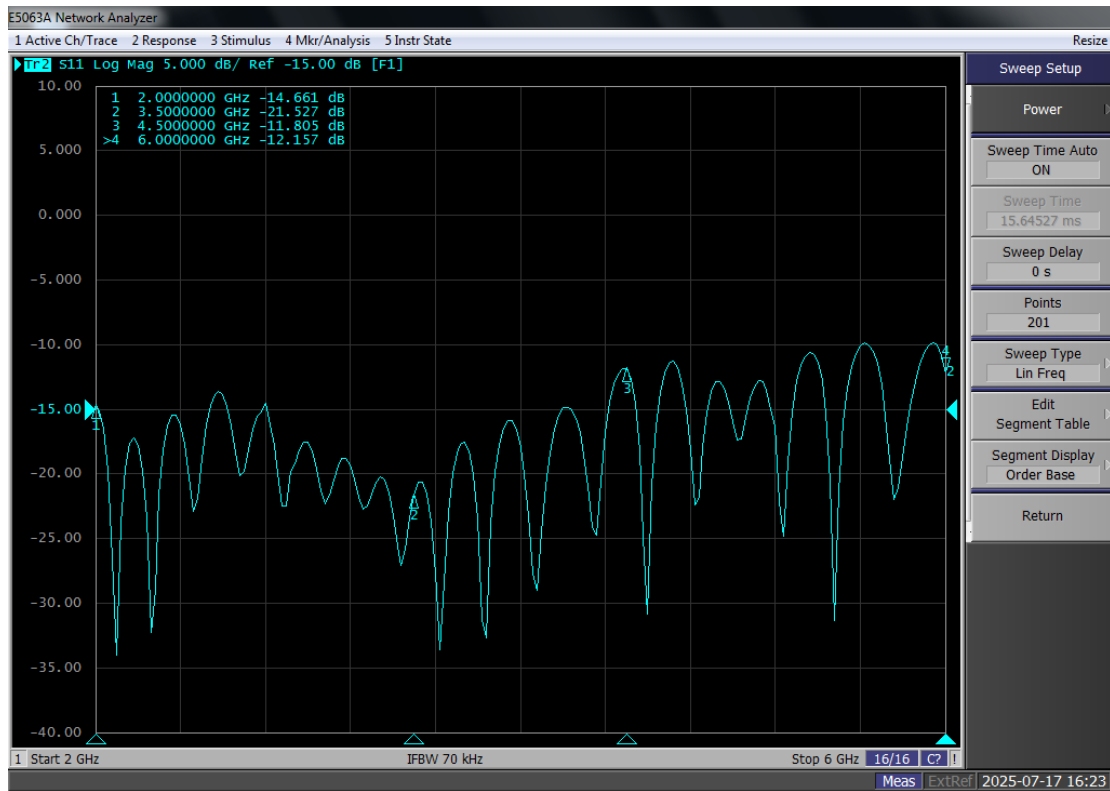


c. 6000MHz

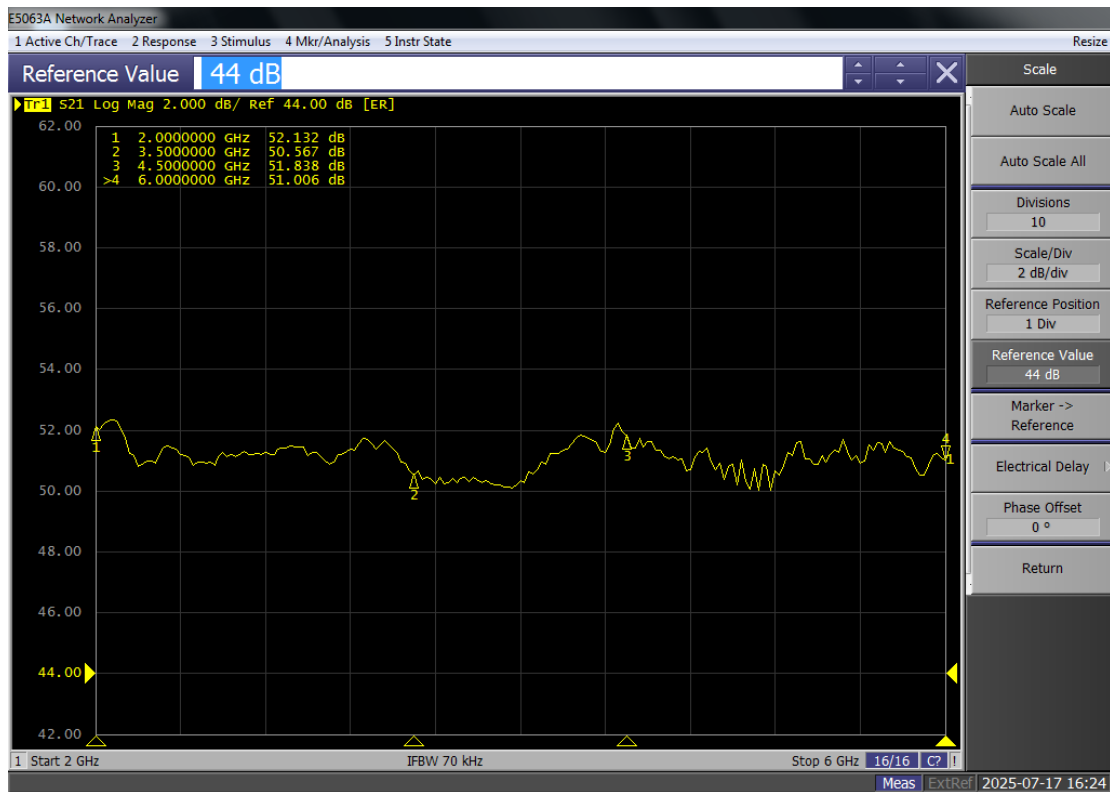




11.4 Input return loss(ALC off / Power 0dBm)



11.5 Gain(ALC off / Power 0dBm)



12. Interface definition

12.1 PT02E-12-3P definition(AC220V)

No.	Parameter	Definition	Specification
1	A	L	AC live
2	B	N	AC neutral
3	C	GND	GND

12.2 PT02E-10-6P definition(CONTROL)

No.	Parameter	Definition	Specification
1	A	RS422_RX+	RS422 receiver +
2	B	RS422_RX-	RS422 receiver -
3	C	RS422_TX+	RS422 transmit +
4	D	RS422_TX-	RS422 transmit -
5	E	GND	GND
6	F	RF_EN	RF Enable, TTL High: RF Enable Low or NC: RF Disable

12.2 Other

No.	Definition	Specification
1	RF	RF Enable Indicator
2	FAULT	Fault Indicator
3	SW	230 V AC Switch
4		GND