

JAPAN SPECIFIED RADIO EQUIPMENT

TEST REPORT

For

Digital Paper System

Trade Name: Avalue, Fujitsu Client Computing Limited

Model: EL31001, ZD04, ZD06

Issued to

AIMobile Co., Ltd.

6F., No. 166, Sec.4, Chengde Rd., Shilin Dist., Taipei City 11167 , Taiwan

Issued by

Compliance Certification Services Inc.

Wugu Laboratory

No.11, Wugong 6th Rd., Wugu Dist.,

New Taipei City, Taiwan.

Issued Date: September 10, 2024

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 07, 2021	Initial Issue	ALL	Mita Wu
01	September 10, 2024	See the following Note Rev. (01)	ALL	Peggy Tsai

Rev. (01):

1. Added model name: ZD06& trade name: Fujitsu Client Computing Limited, as per requested to verify secondarily emitted radio wave strength 30MHz to 1GHz. Other Test data is referenced from cross authorization(s) Measurement results in the original test report (T201104D06-RJ3) under issue date (January 7, 2021) are fully leveraged in this test report.

2. Model Discrepancy please see as below:

	Model	Brand	Color	Panel
Original	EL31001	Avalue	White & Black	Monochrome
	ZD04	Fujitsu Client Computing Limited	Pearl white	
New	ZD06	Fujitsu Client Computing Limited	Pearl white	Color

3. Other information, please refer to the T201104D06-RJ3 and this report.

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1. TEST RESULT CERTIFICATION

Applicant: AIMobile Co., Ltd.
6F., No. 166, Sec.4, Chengde Rd., Shilin Dist., Taipei City
11167, Taiwan

Manufacturer: AIMobile Co., Ltd.
6F., No. 166, Sec.4, Chengde Rd., Shilin Dist., Taipei City
11167, Taiwan

Equipment Under Test: Digital Paper System

Trade Name: Avalue, Fujitsu Client Computing Limited

Model Number: EL31001, ZD04, ZD06

Detailed EUT Description: See Item 3 of this report

Date of Test: August 16, 2024

EUT Receive Date: July 26, 2024

APPLICABLE STANDARDS	
CLASSIFICATION	TEST RESULT
ARIB STD T-71 Ver 7.0	Compliance
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in ARIB STD T-71 Ver 7.0. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Dally Hong

Dally Hong
Sr. Engineer

2. SUMMARY OF TEST RESULTS

2.1 WLAN IEEE 802.11a (W52 & W53 & W56)

APPLIED STANDARD: ARIB STD T-71 Ver 6.1			
Standard Section	Report Section	Test Type and Limit	Test Result
General provisions			
5	-	Frequency Error	PASS
6	-	Occupied Bandwidth	PASS
7	-	Spurious Emissions Intensity	PASS
Transmitting equipment			
14	-	Antenna Power	PASS
14.2	-	SAR	-
Transmitting antenna			
20	3	Type, Configuration, etc., of Transmitting Antenna	PASS
22	-	Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report)	PASS
Receiving antenna			
24	6.1	Limitation of Collateral Emission of Receiver	PASS
26	4.2	Refer to All Articles for Transmitting Antenna	PASS
Operating frequency 5180 ~ 5240MHz (20MHz Space 4 Channels)			
49.20(3);a	4.4	RF Shielding Method	PASS
49.20(3);b	3/4	Communication Method	PASS
49.20(3);c	3/4	Modulation Method	PASS
49.20(3);d	3/4	Signal Transmission Rate	PASS
49.20(3);e	-	Transmission Burst Length	PASS
49.20(3);f	-	Antenna Power	PASS
49.20(3);g	-	Equivalent Isotropic Radiated Power	PASS
49.20(3);h	-	Number of Carriers	PASS
49.20(3);i	-	Spreading Factor	PASS
49.20(3);j	-	Out-Band Leakage Power	PASS
49.20(3);j	-	Adjacent Channel Leakage Power	PASS
49.20(3);k	-	Comply with The Technical Conditions	PASS

2.2 WLAN IEEE 802.11n HT 20 (W52 & W53 & W56)

APPLIED STANDARD: ARIB STD T-71 Ver 6.1			
Standard Section	Report Section	Test Type and Limit	Test Result
General provisions			
5	-	Frequency Error	PASS
6	-	Occupied Bandwidth	PASS
7	-	Spurious Emissions Intensity	PASS
Transmitting equipment			
14	-	Antenna Power	PASS
14.2	-	SAR	-
Transmitting antenna			
20	3	Type, Configuration, etc., of Transmitting Antenna	PASS
22	-	Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report)	PASS
Receiving antenna			
24	6.1	Limitation of Collateral Emission of Receiver	PASS
26	4.2	Refer to All Articles for Transmitting Antenna	PASS
Operating frequency 5180 ~ 5240MHz (20MHz Space 4 Channels)			
49.20(3);a	4.4	RF Shielding Method	PASS
49.20(3);b	3/4	Communication Method	PASS
49.20(3);c	3/4	Modulation Method	PASS
49.20(3);d	3/4	Signal Transmission Rate	PASS
49.20(3);e	-	Transmission Burst Length	PASS
49.20(3);f	-	Antenna Power	PASS
49.20(3);g	-	Equivalent Isotropic Radiated Power	PASS
49.20(3);h	-	Number of Carriers	PASS
49.20(3);i	-	Spreading Factor	PASS
49.20(3);j	-	Out-Band Leakage Power	PASS
49.20(3);j	-	Adjacent Channel Leakage Power	PASS
49.20(3);k	-	Comply with The Technical Conditions	PASS

2.3 WLAN IEEE 802.11n HT 40 (W52 & W53 & W56)

APPLIED STANDARD: ARIB STD T-71 Ver 6.1			
Standard Section	Report Section	Test Type and Limit	Test Result
General provisions			
5	-	Frequency Error	PASS
6	-	Occupied Bandwidth	PASS
7	-	Spurious Emissions Intensity	PASS
Transmitting equipment			
14	-	Antenna Power	PASS
14.2	-	SAR	-
Transmitting antenna			
20	4.2	Type, Configuration, etc., of Transmitting Antenna	PASS
22	-	Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report)	PASS
Receiving antenna			
24	6.1	Limitation of Collateral Emission of Receiver	PASS
26	4.2	Refer to All Articles for Transmitting Antenna	PASS
Operating frequency 5190 ~ 5230MHz (20MHz Space 2 Channels)			
49.20(3);a	4.4	RF Shielding Method	PASS
49.20(3);b	3/4	Communication Method	PASS
49.20(3);c	3/4	Modulation Method	PASS
49.20(3);d	3/4	Signal Transmission Rate	PASS
49.20(3);e	-	Transmission Burst Length	PASS
49.20(3);f	-	Antenna Power	PASS
49.20(3);g	-	Equivalent Isotropic Radiated Power	PASS
49.20(3);h	-	Number of Carriers	PASS
49.20(3);i	-	Spreading Factor	PASS
49.20(3);j	-	Out-Band Leakage Power	PASS
49.20(3);j	-	Adjacent Channel Leakage Power	PASS
49.20(3);k	-	Comply with The Technical Conditions	PASS

2.4 WLAN IEEE 802.11n AC 80 (W52 & W53 & W56)

APPLIED STANDARD: ARIB STD T-71 Ver 6.1			
Standard Section	Report Section	Test Type and Limit	Test Result
General provisions			
5	-	Frequency Error	PASS
6	-	Occupied Bandwidth	PASS
7	-	Spurious Emissions Intensity	PASS
Transmitting equipment			
14	-	Antenna Power	PASS
14.2	-	SAR	-
Transmitting antenna			
20	4.2	Type, Configuration, etc., of Transmitting Antenna	PASS
22	-	Direction Pattern of Transmitting Antenna (Provided at Individual Antenna Report)	PASS
Receiving antenna			
24	6.1	Limitation of Collateral Emission of Receiver	PASS
26	4.2	Refer to All Articles for Transmitting Antenna	PASS
Operating frequency 5190 ~ 5230MHz (20MHz Space 2 Channels)			
49.20(3);a	4.4	RF Shielding Method	PASS
49.20(3);b	3/4	Communication Method	PASS
49.20(3);c	3/4	Modulation Method	PASS
49.20(3);d	3/4	Signal Transmission Rate	PASS
49.20(3);e	-	Transmission Burst Length	PASS
49.20(3);f	-	Antenna Power	PASS
49.20(3);g	-	Equivalent Isotropic Radiated Power	PASS
49.20(3);h	-	Number of Carriers	PASS
49.20(3);i	-	Spreading Factor	PASS
49.20(3);j	-	Out-Band Leakage Power	PASS
49.20(3);j	-	Adjacent Channel Leakage Power	PASS
49.20(3);k	-	Comply with The Technical Conditions	PASS

3 EUT DESCRIPTION

Product Name	Digital Paper System	
Model Name	EL31001, ZD04, ZD06	
Trade Name	Avalue, Fujitsu Client Computing Limited	
Power Supply	Power from Host System.	
Model Discrepancy	Please see remark as below.	
Frequency Range	IEEE 802.11a (W52 / CH36~48): 5180~5240MHz IEEE 802.11a (W53 / CH52~64): 5260~5320MHz IEEE 802.11a (W56 / CH100~140):5500~5700MHZ IEEE 802.11n HT20 (W52 / CH36~48): 5180~5240MHz IEEE 802.11n HT20(W53 / CH52~64): 5260~5320MHz IEEE 802.11n HT20 (W56 / CH100~140):5500~5700MHZ IEEE 802.11n HT40 (W52 / CH38~46): 5190~5230MHz IEEE 802.11n HT40 (W53 / CH54~62): 5270~5310MHz IEEE 802.11n HT40 (W56 / CH102~134):5510~5670MHZ IEEE 802.11ac VHT 80 (W52 / CH42): 5210MHz IEEE 802.11ac VHT 80 (W53 / CH58): 5290MHz IEEE 802.11ac VHT 80 (W56 / CH106 / CH 122):5530MHZ / 5610 MHz	
Rated Antenna Power (mW/MHz)		
		(mW/MHz)
	IEEE 802.11a (W52 / CH36~48 & W53 / CH52~64)	0.55
	IEEE 802.11a (W56 / CH100~140)	0.61
	IEEE 802.11n HT20 (W52 / CH36~48 & W53 / CH52~64)	0.53
	IEEE 802.11n HT20 (W56 / CH100~140)	0.49
	IEEE 802.11n HT40 (W52 / CH38~46 & W53 / CH54~62)	0.54
	IEEE 802.11n HT40 (W56 / CH102~134)	0.69
	IEEE 802.11ac VHT 80 (W52 / CH42 & W53 / CH58)	0.11
	IEEE 802.11ac VHT 80 (W56 / CH106 / CH 122)	0.11

Measured Antenna Power (mW/MHz)		(mW/MHz)
	IEEE 802.11a (W52 / CH36~48 & W53 / CH52~64)	0.5464
	IEEE 802.11a (W56 / CH100~140)	0.60610
	IEEE 802.11n HT20 (W52 / CH36~48 & W53 / CH52~64)	0.5238
	IEEE 802.11n HT20 (W56 / CH100~140)	0.48645
	IEEE 802.11n HT40 (W52 / CH38~46 & W53 / CH54~62)	0.5393
	IEEE 802.11n HT40 (W56 / CH102~134)	0.68173
	IEEE 802.11ac VHT 80 (W52 / CH42 & W53 / CH58)	0.1091
	IEEE 802.11ac VHT 80 (W56 / CH106 / CH 122)	0.10350
Modulation Technique	IEEE 802.11a: OFDM (QPSK, BPSK, 16-QAM, 64-QAM) IEEE 802.11n: OFDM (QPSK, BPSK, 16-QAM, 64-QAM) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)	
Number of Channels	IEEE 802.11a (W52 / CH36~48): 4 channels IEEE 802.11a (W53 / CH52~64): 4 channels IEEE 802.11a (W56 / CH100~140): 11 channels IEEE 802.11nHT20 (W52 / CH36~48): 4 channels IEEE 802.11nHT20 (W53 / CH52~64): 4 channels IEEE 802.11nHT20 (W56 / CH100~140): 11 channels IEEE 802.11nHT40 (W52 / CH38~46): 2 channels IEEE 802.11nHT40 (W53 / CH54~62): 2 channels IEEE 802.11nHT40 (W56 / CH102~134): 5 channels IEEE 802.11ac VHT 80 (W52 / CH42): 1 channel IEEE 802.11ac VHT 80 (W53 / CH58): 1 channel IEEE 802.11ac VHT 80 (W56 / CH106 / CH 122): 2 channels	
Antenna Specification	PIFA Antenna Chain 0: 2.95 dBi Chain 1: 2.3 dBi	
Hardware Version	AX1	
Software Version	0.0.42.1_20200929.001146	

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: The variant model numbers / trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.
3. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
4. Model Discrepancy:

	Model	Brand	Color	Panel
Original	EL31001	Avalue	White & Black	Monochrome
	ZD04	Fujitsu Client Computing Limited	Pearl white	
New	ZD06	Fujitsu Client Computing Limited	Pearl white	Color

4 TEST METHODOLOGY & CONDITIONS

4.1 TEST CONDITIONS

Temperature: 23.5°C

Test date: August 16, 2024

Humidity: 54% RH

Tested by: Marco Chan

802.11a_W52_20MHz

Test Category	5GHz Band Low-Power Data Communication System (1TX1RX)					
	802.11a W52 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5	Ⅳ		5	PASS
			Ⅲ		35	
Environment of Test Room Humidity	%	54	Ⅳ		45	PASS
			Ⅲ		85	
Input Power Voltage	VDC	9.00			---	---
802.11a_W52_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5180	5220	5240	---	---
Channel Number	Ch.	36	44	48	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---

802.11a_W53_20MHz

Test Category	5GHz Band Low-Power Data Communication System (1TX1RX)					
	802.11a W53 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5	Ⅳ		5	PASS
			Ⅴ		35	
Environment of Test Room Humidity	%	54	Ⅳ		45	PASS
			Ⅴ		85	
Input Power Voltage	VDC	9.00			---	---
802.11a_W53_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5260	5300	5320	---	---
Channel Number	Ch.	52	60	64	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---

802.11a_W56_20MHz

Test Category	5GHz Band Low-Power Data Communication System (1TX1RX)					
	802.11a W56 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			$\geq$ 5 $\leq$ 35	PASS
Environment of Test Room Humidity	%	54			$\geq$ 45 $\leq$ 85	PASS
Input Power Voltage	VDC	9.00			---	---
802.11a_W56_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5500	5600	5720	---	---
Channel Number	Ch.	100	120	144	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---

802.11n_W52_20MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W52 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≥ 5 ≤ 35	PASS
Environment of Test Room Humidity	%	54			≥ 45 ≤ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W52_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5180	5220	5240	---	---
Channel Number	Ch.	36	44	48	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11n_W53_20MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W53 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≧ 5	PASS
					≦ 35	
Environment of Test Room Humidity	%	54			≧ 45	PASS
					≦ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W53_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5260	5300	5320	---	---
Channel Number	Ch.	52	60	64	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11n_W56_20MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W56 20MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≥ 5	PASS
					≤ 35	
Environment of Test Room Humidity	%	54			≥ 45	PASS
					≤ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W56_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5500	5600	5720	---	---
Channel Number	Ch.	100	120	144	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11n_W52_40MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W52 40MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≧ 5 ≦ 35	PASS
Environment of Test Room Humidity	%	54			≧ 45 ≦ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W52_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5190	5230	-	---	---
Channel Number	Ch.	38	46	-	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11n_W53_40MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W53 40MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≧ 5	PASS
					≦ 35	
Environment of Test Room Humidity	%	54			≧ 45	PASS
					≦ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W53_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5270	5310	-	---	---
Channel Number	Ch.	54	62	-	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11n_W56_40MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11n W56 40MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			≥ 5	PASS
					≤ 35	
Environment of Test Room Humidity	%	54			≥ 45	PASS
					≤ 85	
Input Power Voltage	VDC	9.00			---	---
802.11n_W56_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5510	5590	5710	---	---
Channel Number	Ch.	102	118	142	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11ac_W52_80MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11ac W52 80MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			$\geq$ 5 $\leq$ 35	PASS
Environment of Test Room Humidity	%	54			$\geq$ 45 $\leq$ 85	PASS
Input Power Voltage	VDC	9.00			---	---
802.11ac_W52_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5210	-	-	---	---
Channel Number	Ch.	42	-	-	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11ac_W53_80MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11ac W53 80MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			$\geq$ 5 $\leq$ 35	PASS
Environment of Test Room Humidity	%	54			$\geq$ 45 $\leq$ 85	PASS
Input Power Voltage	VDC	9.00			---	---
802.11ac_W53_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5290	-	-	---	---
Channel Number	Ch.	58	-	-	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

802.11ac_W56_80MHz

Test Category	5GHz Band Low-Power Data Communication System (2TX2RX)					
	802.11ac W56 80MHz System					
	This equipment is a client that supports TPC function.					
	unit				Limit	Result
Environment of Test Room Temperature	°C	23.5			$\geq$ 5 $\leq$ 35	PASS
Environment of Test Room Humidity	%	54			$\geq$ 45 $\leq$ 85	PASS
Input Power Voltage	VDC	9.00			---	---
802.11ac_W56_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5530	5610	5690	---	---
Channel Number	Ch.	106	122	138	---	---
Peak Antenna Gain (Chain0)	dBi	0			---	---
Peak Antenna Gain (Chain1)	dBi	0			---	---
Tested Circuit Insertion Loss (RX_Chain0)	dB	1.53			---	---
Tested Circuit Insertion Loss (RX_Chain1)	dB	1.53			---	---

4.2 DESCRIPTION OF TEST MODES

The EUT (Model: EL31001) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

The worst case data rate is determined as the data rate with highest output power.

The device supports SISO and mimo mode, and MIMO at 802.11n20/n40/ac20/ac40/ac80 mode, because SISO' chain and MIMO chain use the same power. Therefore, MIMO power will always be greater than SISO power. So MIMO 2TX mode was the worst case and reported.

The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report.

4.3 TESTING APPLIED STANDARDS

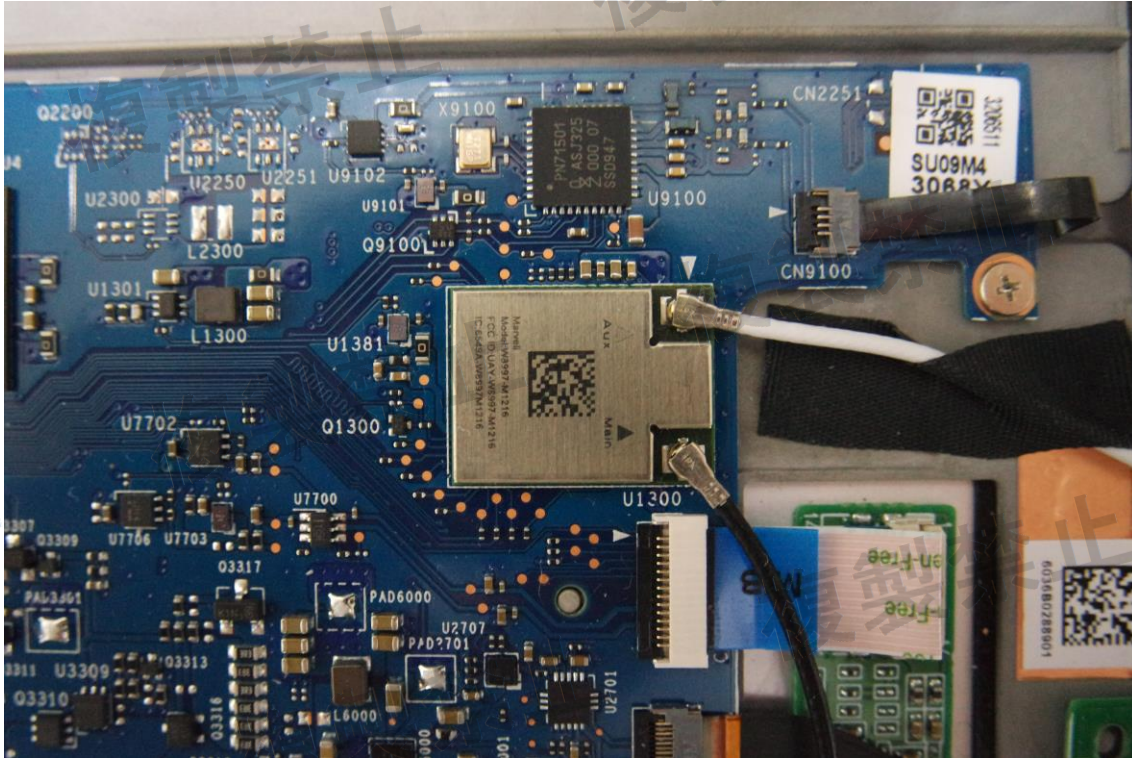
MIC Notice No.88 Appendix No.45

MIC Certification Rule, Article 2 Paragraph 1 Item 19-3

ARIB STD-71

4.4 RF SHIELDING METHOD

The RF part is not easily accessible because the EUT is using a shielding case as below.



4.5 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Conducted TELECOM(All)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
TypeA to RJ45 Cable	N/A	N/A	N/A	N/A	N/A
Internet Cable	N/A	N/A	N/A	N/A	N/A
TypeA to Micro USB Cable	N/A	N/A	N/A	N/A	N/A
Test kit	N/A	N/A	N/A	N/A	N/A
TypeC to TypeA	N/A	N/A	N/A	N/A	N/A
NB(B)	Lenovo	T470	N/A	N/A	N/A

5 INSTRUMENT AND CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other equivalent standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Conducted TELECOM(All)								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due	Calibration Lab	Accreditation Organization of the-Cal. Lab	Calibration Method
Power Sensor	Anritsu	MA2411B	1911387	2024-07-19	2025-07-18	ETC	TAF	c
Power Meter	Anritsu	ML2496A	2136002	2024-07-19	2025-07-18	ETC	TAF	c
EXA Signal Analyzer	Keysight	N9010B	MY55460167	2024-01-03	2025-01-02	ETC	TAF	c
Vector Signal Generator	KEYSIGHT	N5138B	MY59100973	2024-08-12	2025-08-11	ETC	TAF	c
DC Block	Marvelous Microwave Inc	MVE6411	MVE-001	2024-08-08	2025-08-07	ETC	TAF	c
Software	Radio Test Software Ver. 21							

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- Calibration Method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)
 - Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1)
 - Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

5.3 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Table 6 is based on such expansion factors.

Table: Maximum measurement uncertainty

PARAMETER	UNCERTAINTY
RF Output Power	± 1.871 dB
Frequency Tolerance	± 0.03 ppm
Occupied Bandwidth(99%)	± 1.9 %
Adjacent channel leakage power	± 1.873 dB
Out-Band leakage power & Unwanted emission strength	± 1.875 dB
Secondarily emitted radio wave strength	± 1.875 dB

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

6 TEST RESULT

Temperature: 23.5°C**Test date:** August 16, 2024**Humidity:** 54% RH**Tested by:** Marco Chan

6.1 SECONDARILY EMITTED RADIO WAVE STRENGTH

Secondarily emitted radio wave strength						
802.11a_W52_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5180	5220	5240	---	---
Channel Number	Ch.	36	44	48	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 4.00	PASS
	MHz	820.1	600.0	689.0	---	---

Secondarily emitted radio wave strength						
802.11a_W53_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5260	5300	5320	---	---
Channel Number	Ch.	52	60	64	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 4.00	PASS
	MHz	826.9	838.7	916.1	---	---

Secondarily emitted radio wave strength						
802.11a_W56_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5500	5600	5720	---	---
Channel Number	Ch.	100	120	144	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 4.00	PASS
	MHz	848.4	831.8	728.5	---	---

Secondarily emitted radio wave strength						
802.11n_W52_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5180	5220	5240	---	---
Channel Number	Ch.	36	44	48	---	---
Under 1GHz (Chain0)	nW	0.001	0.007	0.001	≤ 2.00	PASS
	MHz	34.7	38.3	764.4	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	697.5	931.0	827.5	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0018	0.0074	0.0015	≤ 4.00	PASS
	MHz	---	---	---	---	---

Secondarily emitted radio wave strength						
802.11n_W53_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5260	5300	5320	---	---
Channel Number	Ch.	52	60	64	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	848.9	867.5	789.9	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	854.3	309.4	872.6	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0016	0.0015	0.0013	≤ 4.00	PASS
	MHz	---	---	---	---	---

Secondarily emitted radio wave strength						
802.11n_W56_20MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5500	5600	5720	---	---
Channel Number	Ch.	100	120	144	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	902.4	87.8	980.0	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	852.5	600.0	880.2	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0014	0.0017	0.0015	≤ 4.00	PASS
	MHz	---	---	---	---	---

Secondarily emitted radio wave strength						
802.11n_W52_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5190	5230	-	---	---
Channel Number	Ch.	38	46	-	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	-	≤ 2.00	PASS
	MHz	863.5	885.3	-	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	-	≤ 2.00	PASS
	MHz	865.4	959.9	-	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0013	0.0015	-	≤ 4.00	PASS
	MHz	---	---	-	---	---

Secondarily emitted radio wave strength						
802.11n_W53_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5270	5310	-	---	---
Channel Number	Ch.	54	62	-	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	-	≤ 2.00	PASS
	MHz	808.2	788.5	-	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	-	≤ 2.00	PASS
	MHz	987.1	858.1	-	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0015	0.0015	-	≤ 4.00	PASS
	MHz	---	---	-	---	---

Secondarily emitted radio wave strength						
802.11n_W56_40MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5510	5590	5710	---	---
Channel Number	Ch.	102	118	142	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	865.9	898.9	858.0	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	998.8	786.7	883.8	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0015	0.0014	0.0015	≤ 4.00	PASS
	MHz	---	---	---	---	---

Secondarily emitted radio wave strength						
802.11ac_W52_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5210	-	-	---	---
Channel Number	Ch.	42	-	-	---	---
Under 1GHz (Chain0)	nW	0.001	-	-	≤ 2.00	PASS
	MHz	839.1	-	-	---	---
Under 1GHz (Chain1)	nW	0.001	-	-	≤ 2.00	PASS
	MHz	884.8	-	-	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0014	-	-	≤ 4.00	PASS
	MHz	---	-	-	---	---

Secondarily emitted radio wave strength						
802.11ac_W53_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5290	-	-	---	---
Channel Number	Ch.	58	-	-	---	---
Under 1GHz (Chain0)	nW	0.001	-	-	≤ 2.00	PASS
	MHz	718.5	-	-	---	---
Under 1GHz (Chain1)	nW	0.001	-	-	≤ 2.00	PASS
	MHz	898.4	-	-	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0015	-	-	≤ 4.00	PASS
	MHz	---	-	-	---	---

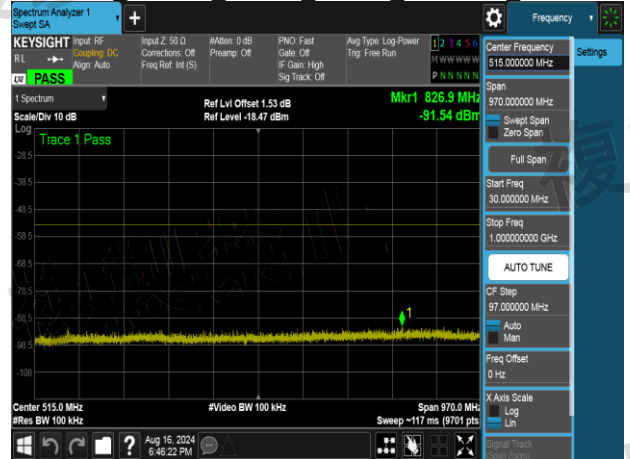
Secondarily emitted radio wave strength						
802.11ac_W56_80MHz	unit	---	---	---	Limit	Result
Measurement Center Frequency	MHz	5530	5610	5690	---	---
Channel Number	Ch.	106	122	138	---	---
Under 1GHz (Chain0)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	645.1	893.9	773.2	---	---
Under 1GHz (Chain1)	nW	0.001	0.001	0.001	≤ 2.00	PASS
	MHz	903.9	891.7	858.3	---	---
Under 1GHz (Chain0+Chain1)	nW	0.0016	0.0014	0.0015	≤ 4.00	PASS
	MHz	---	---	---	---	---

TEST PLOTS

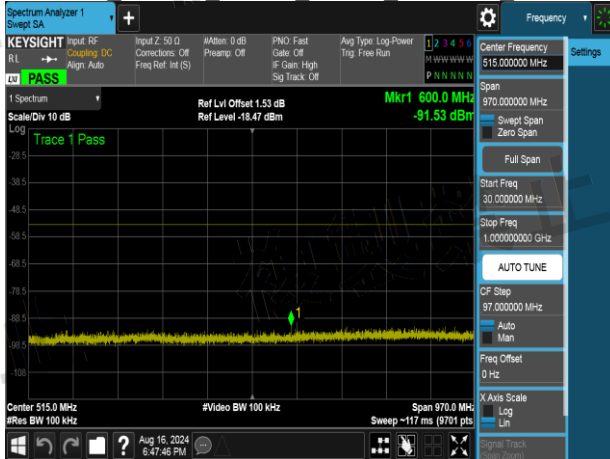
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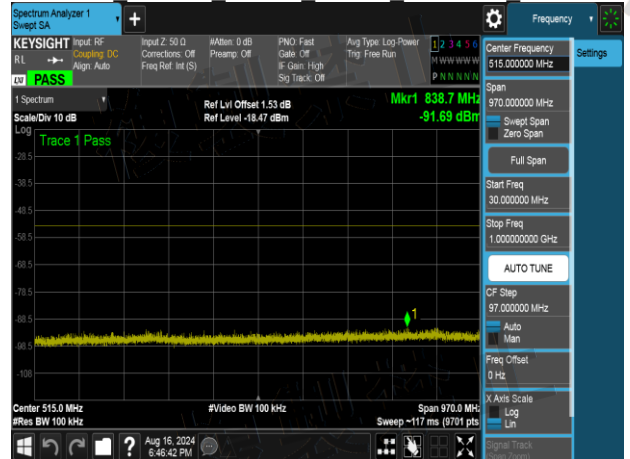
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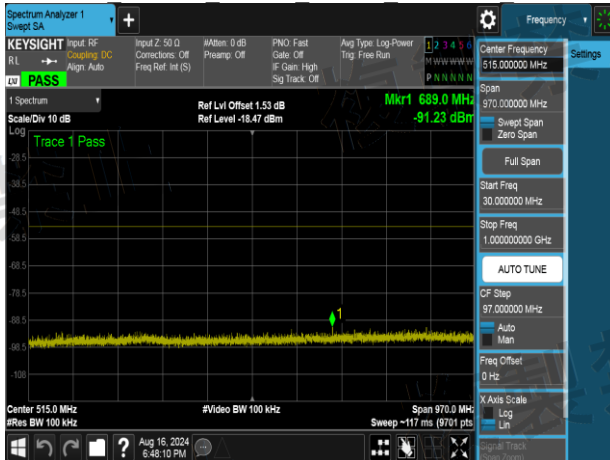
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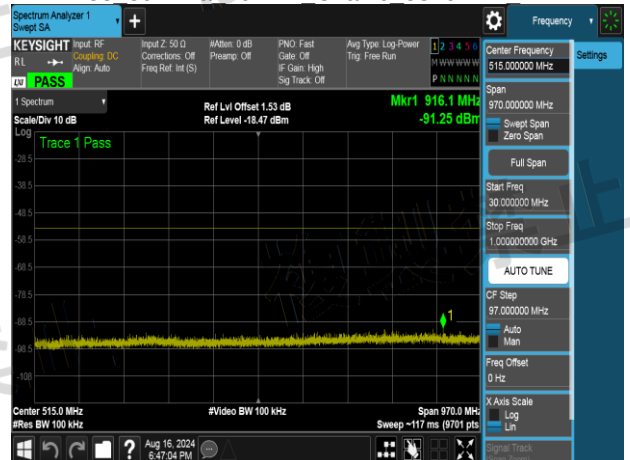
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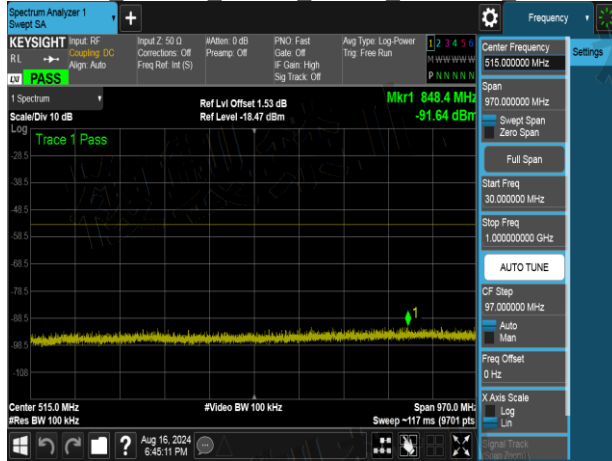
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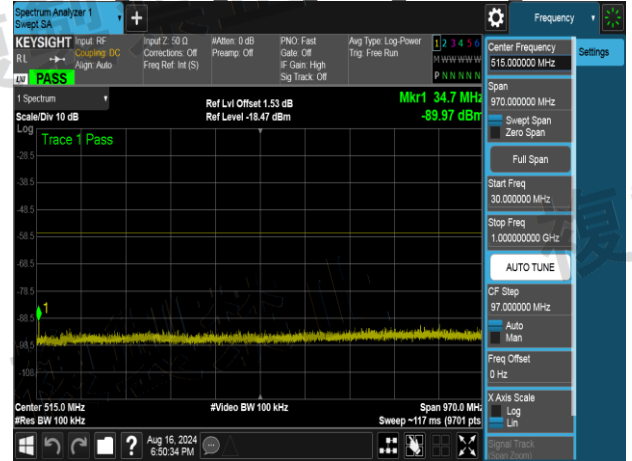
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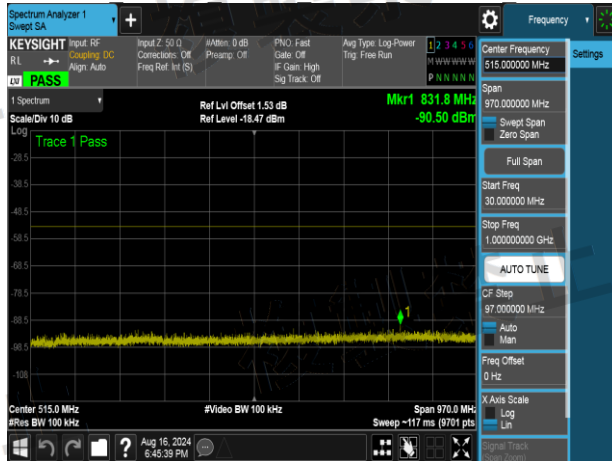
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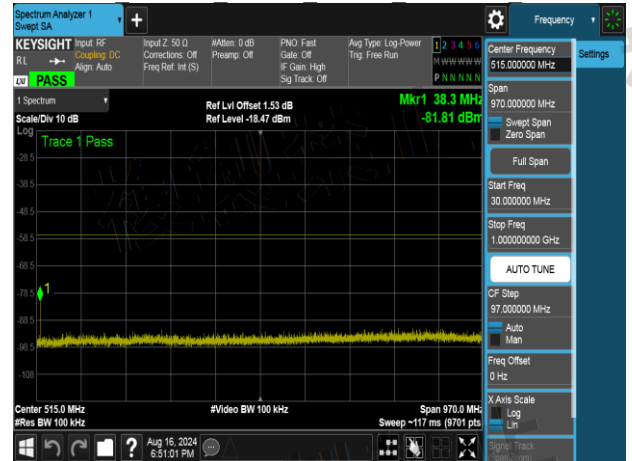
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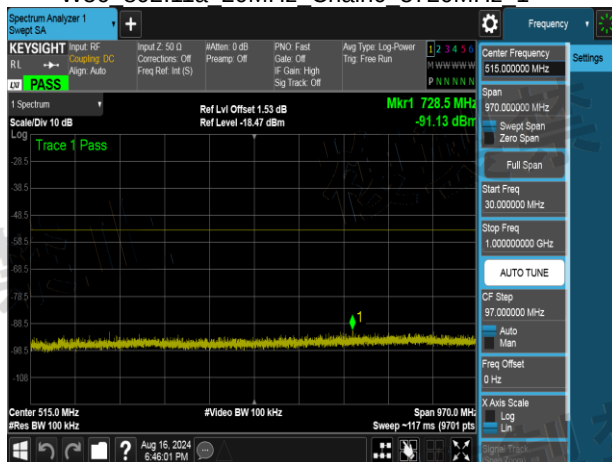
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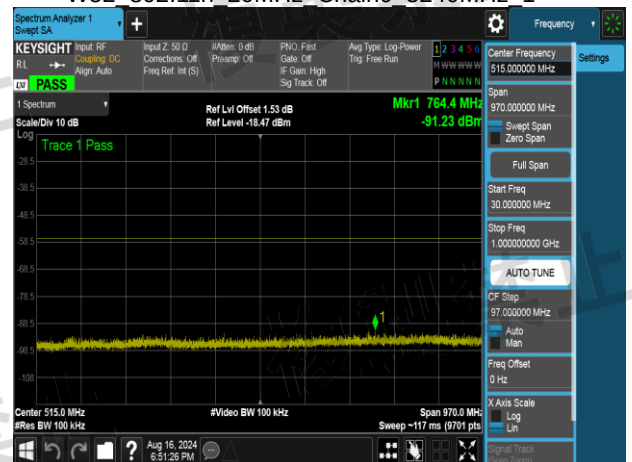
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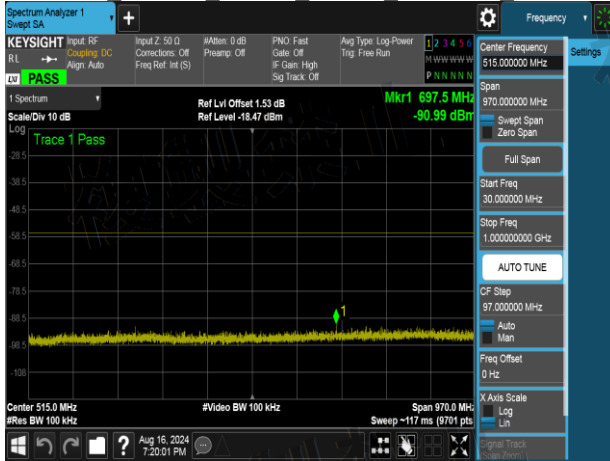
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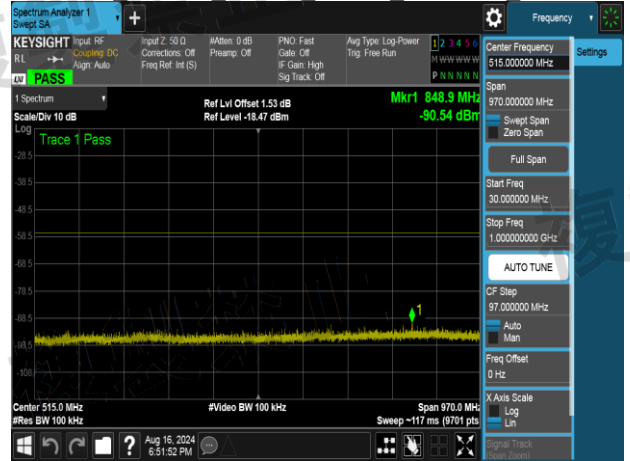
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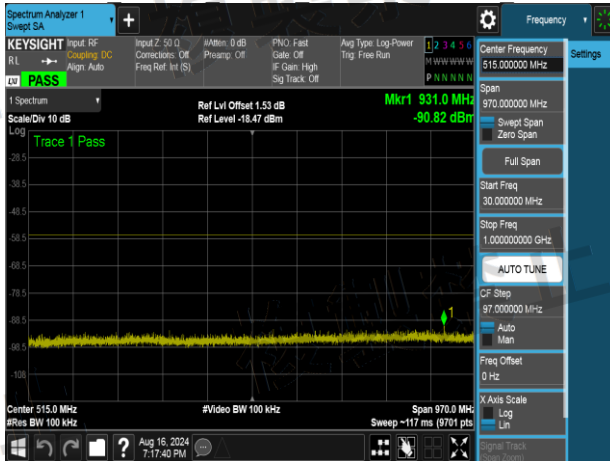
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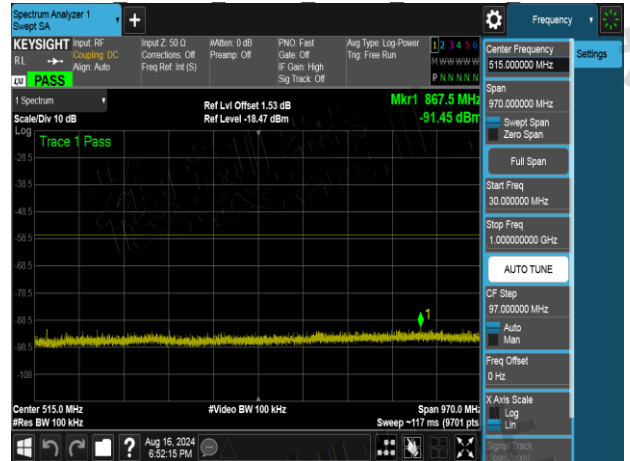
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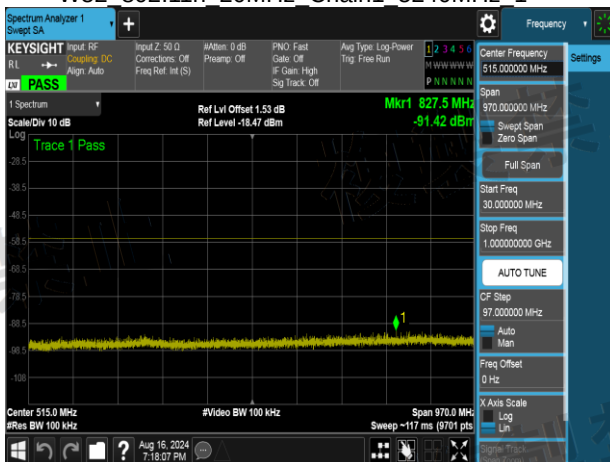
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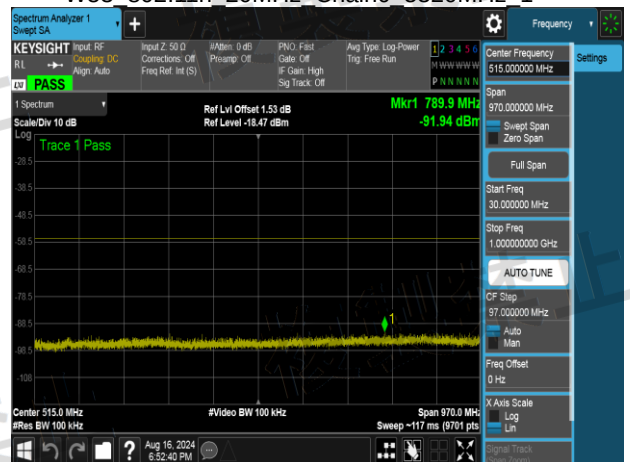
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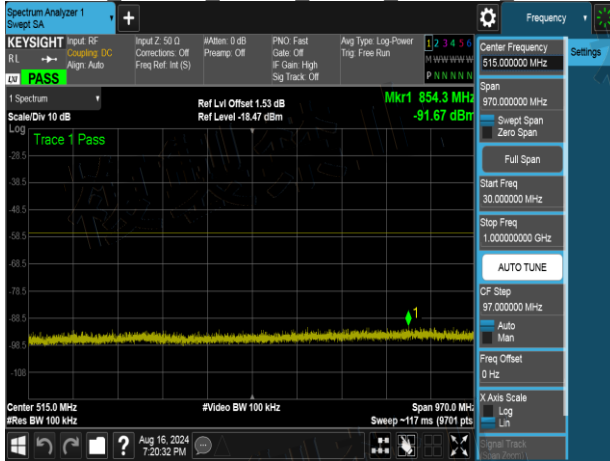
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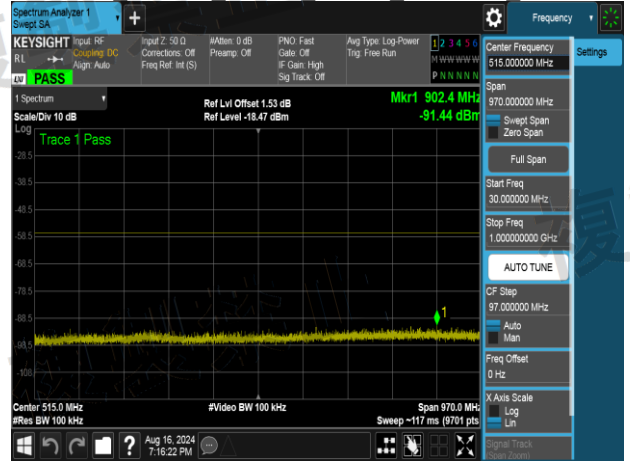
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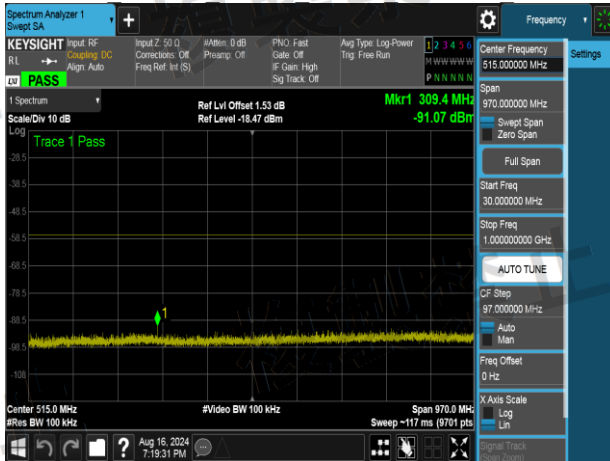
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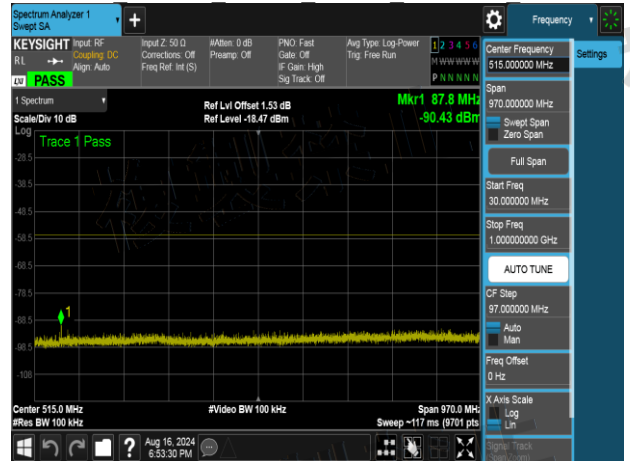
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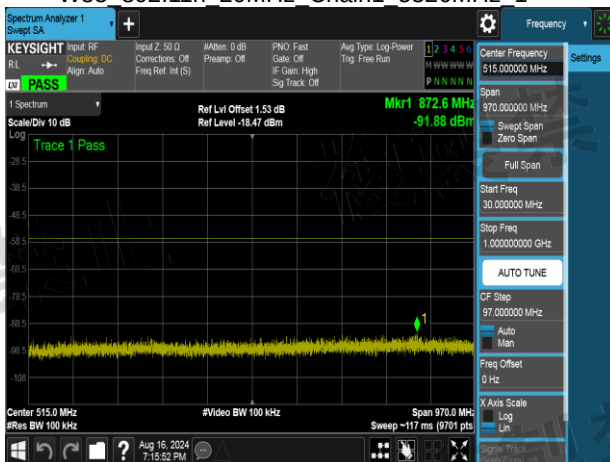
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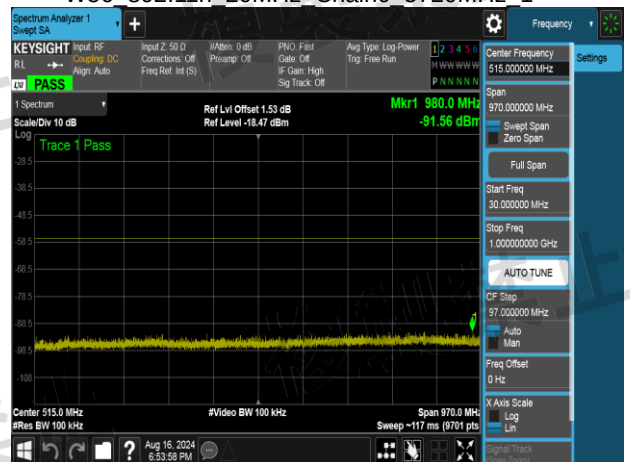
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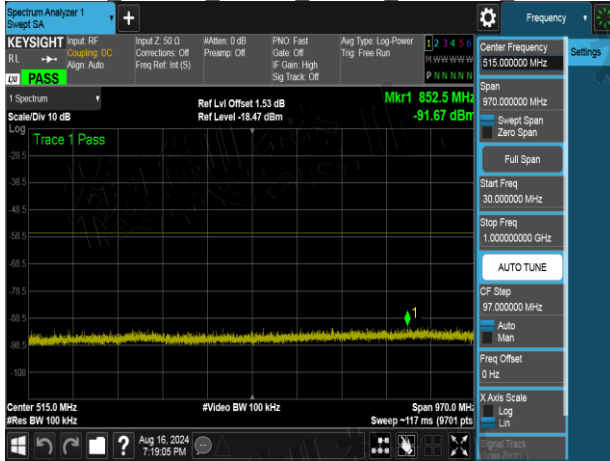
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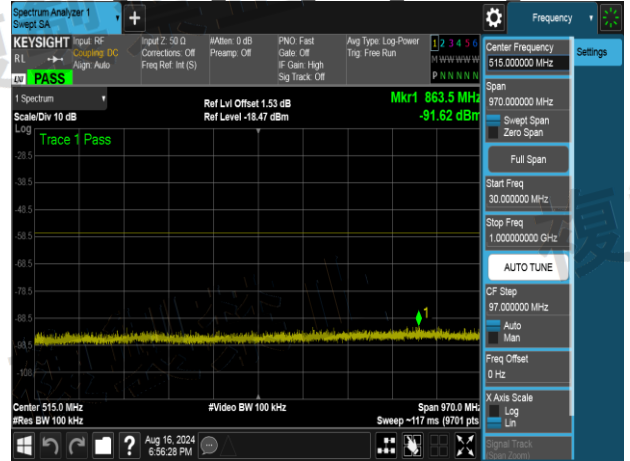
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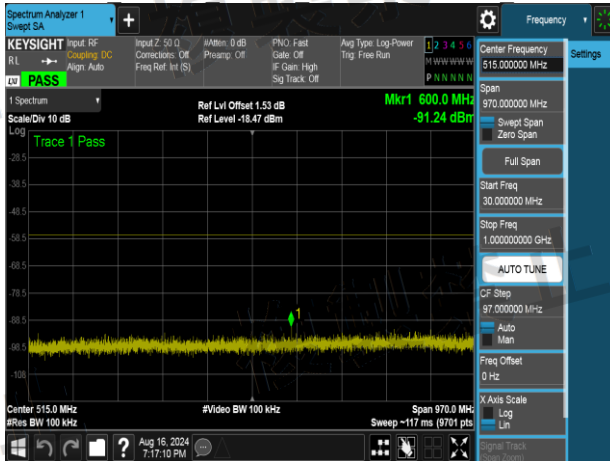
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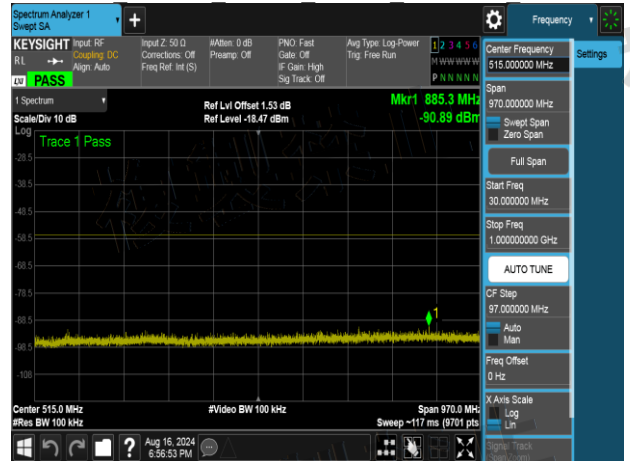
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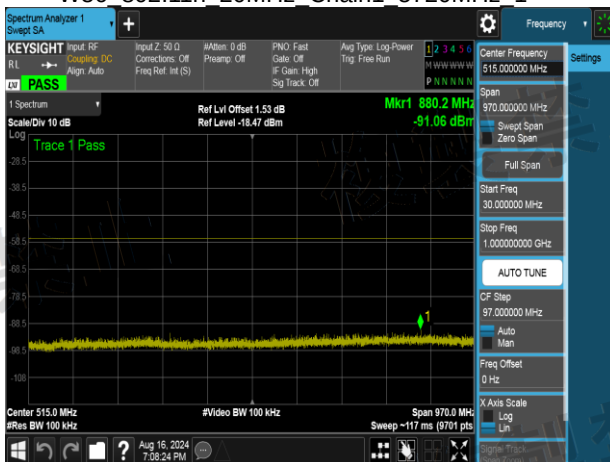
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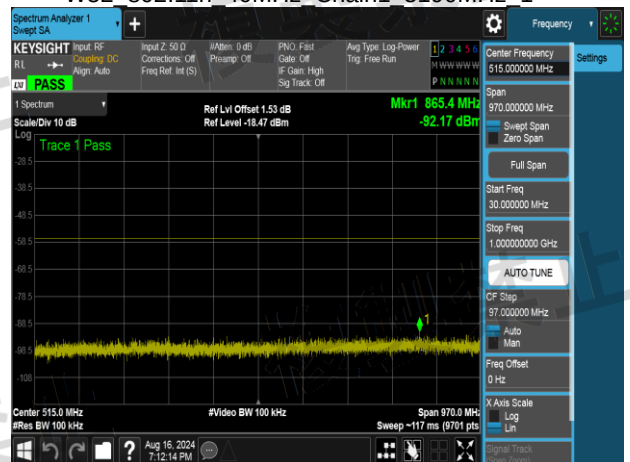
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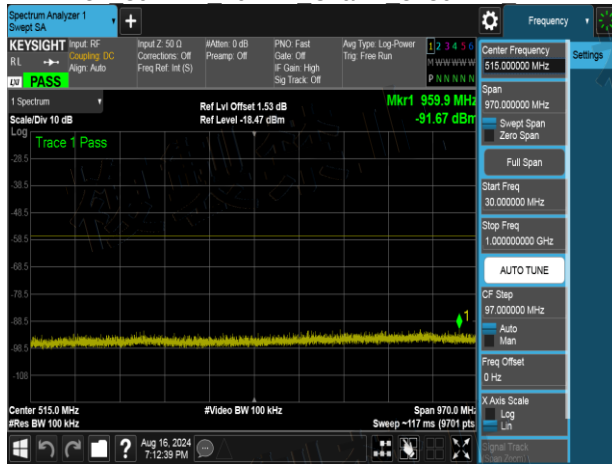
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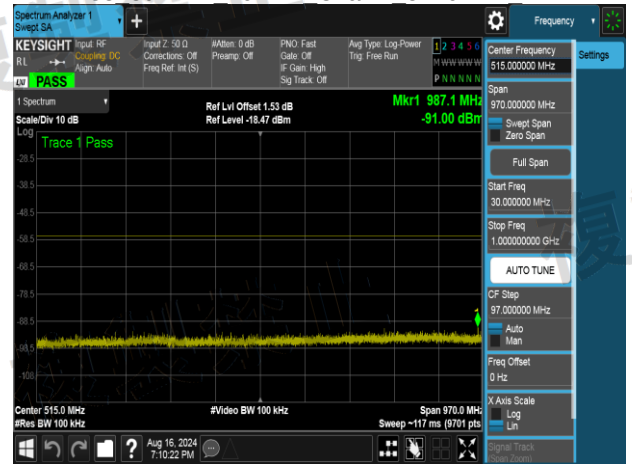
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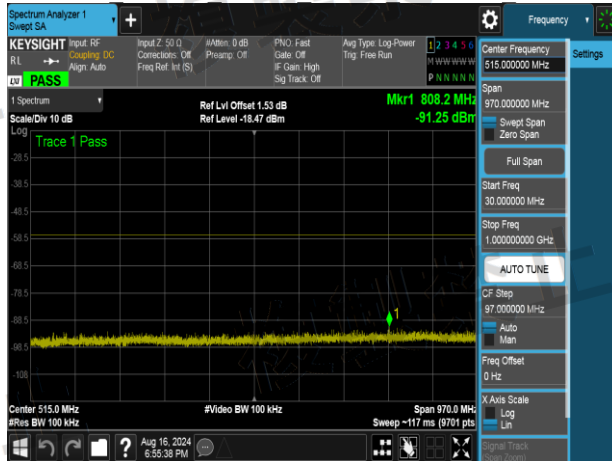
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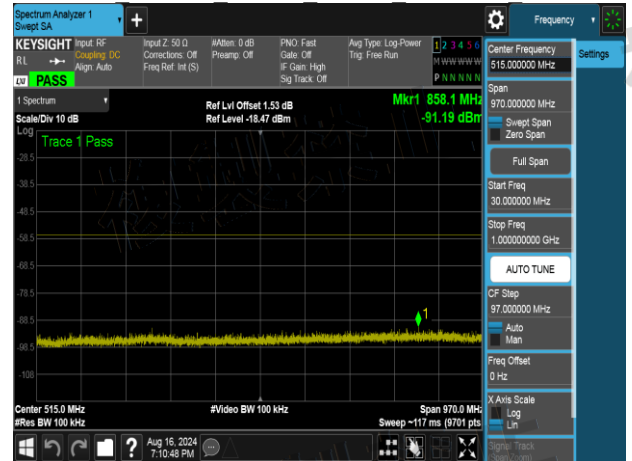
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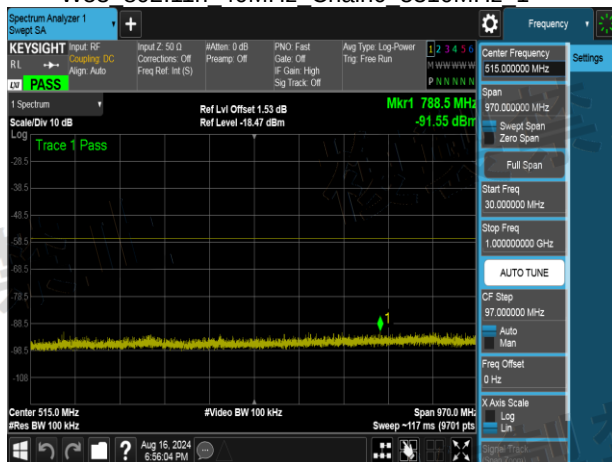
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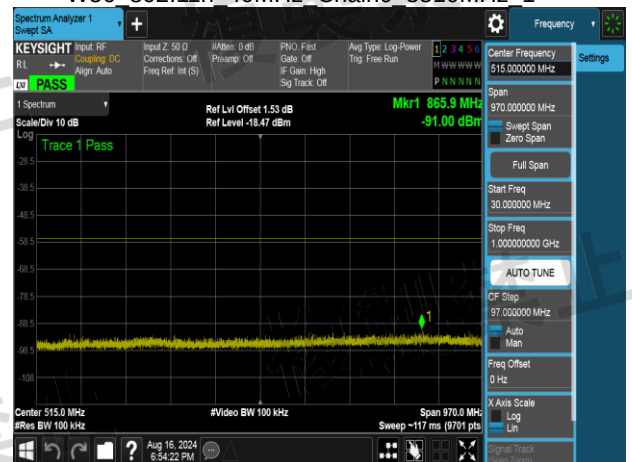
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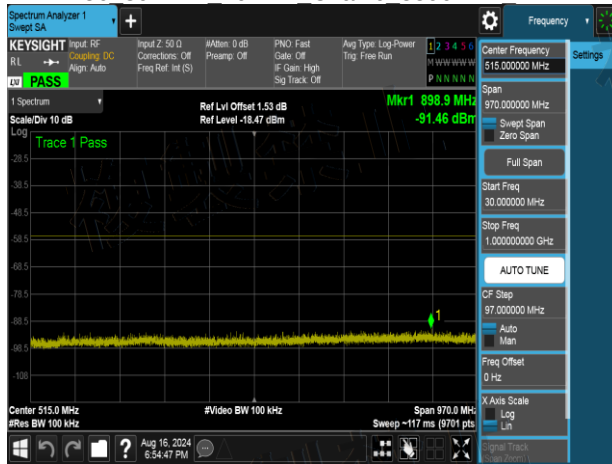
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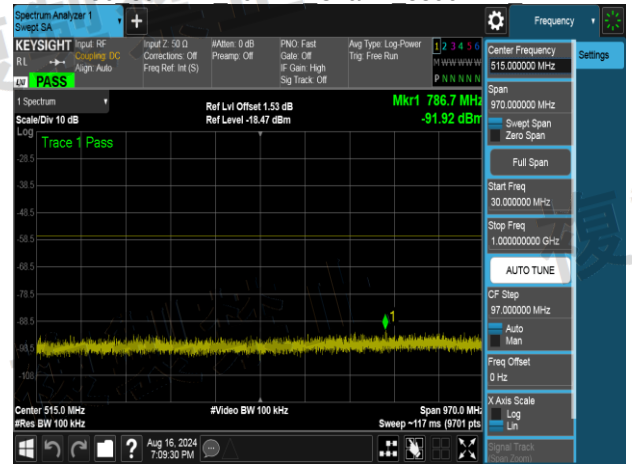
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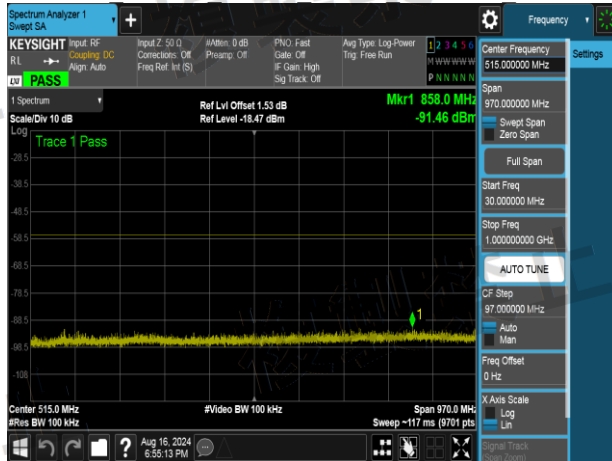
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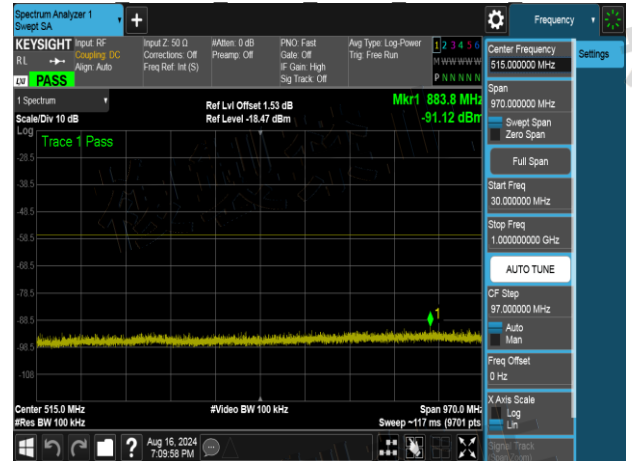
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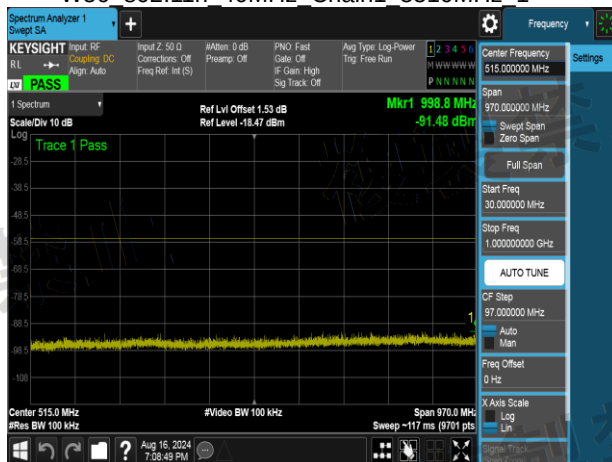
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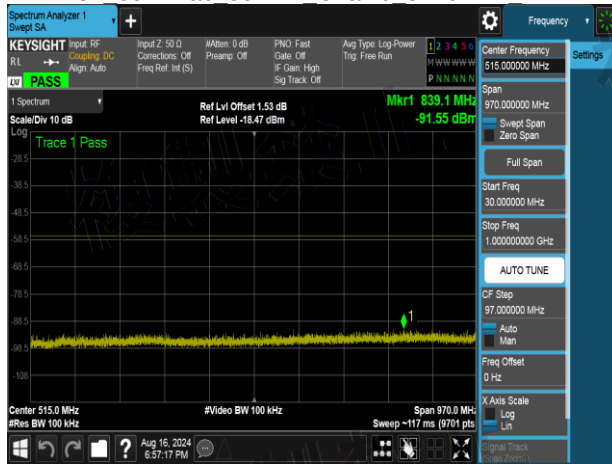
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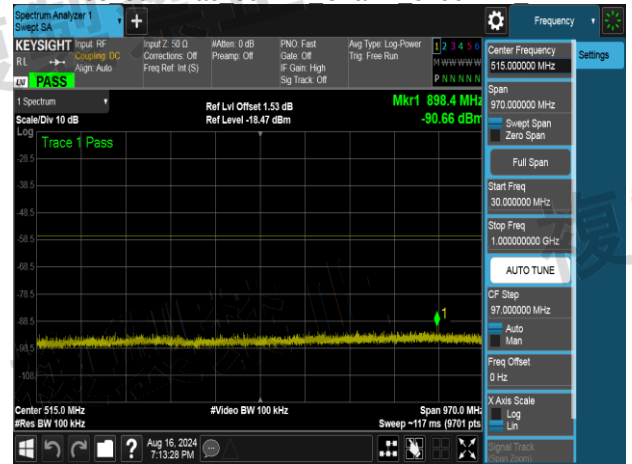
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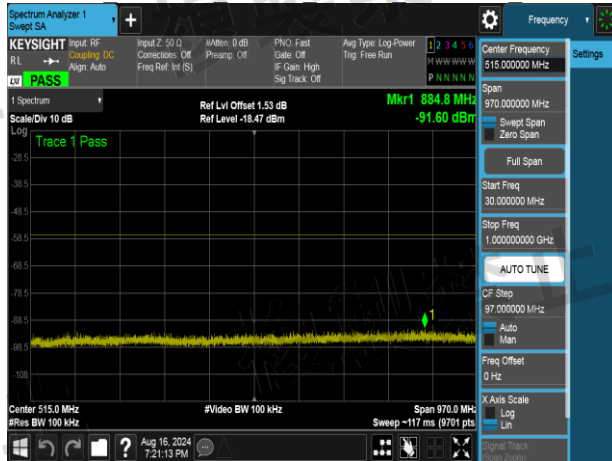
W52 802.11ac 80MHz Chain0 5210MHz 1



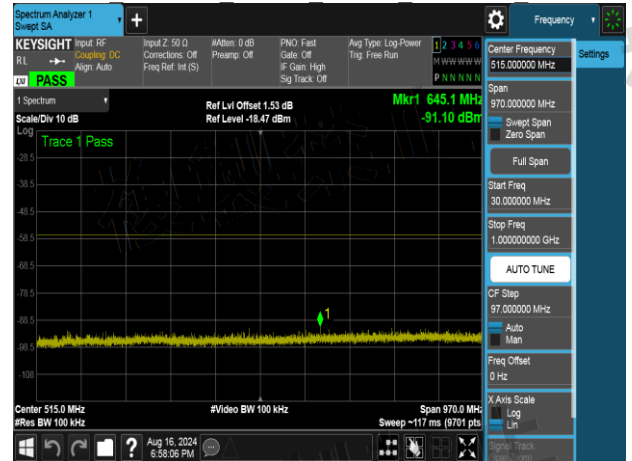
W53 802.11ac 80MHz Chain1 5290MHz 1



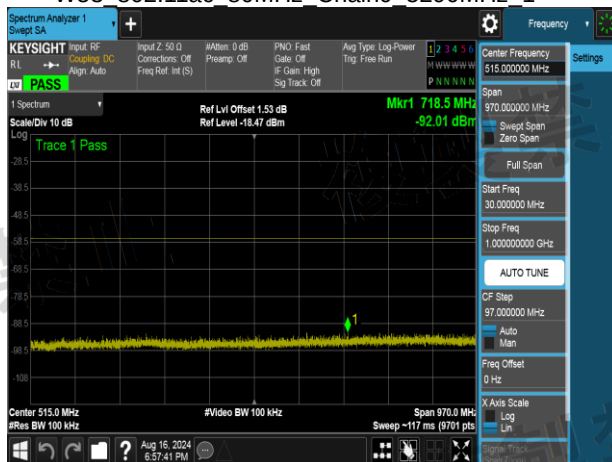
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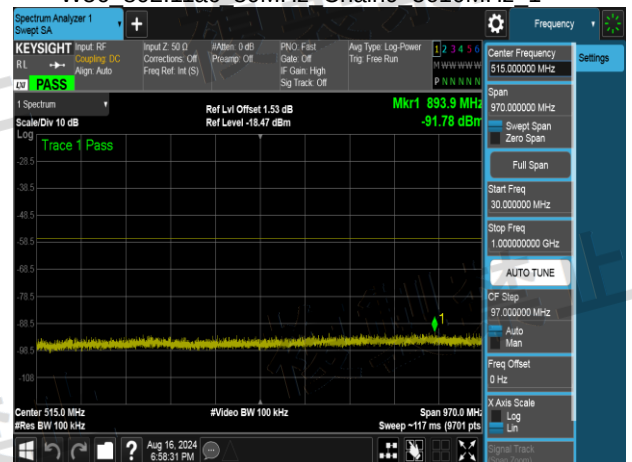
W56 802.11ac 80MHz Chain0 5530MHz 1



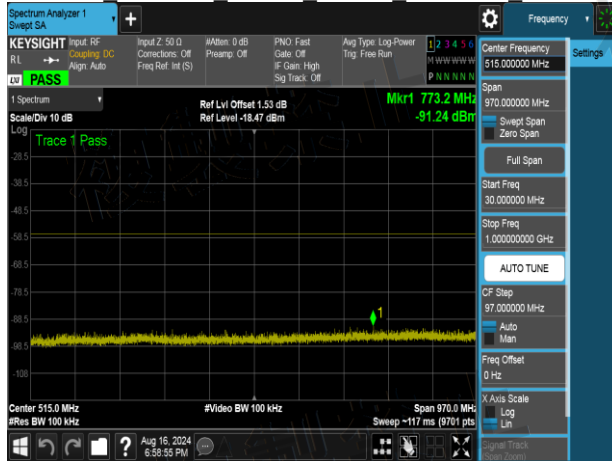
W53 802.11ac 80MHz Chain0 5290MHz 1



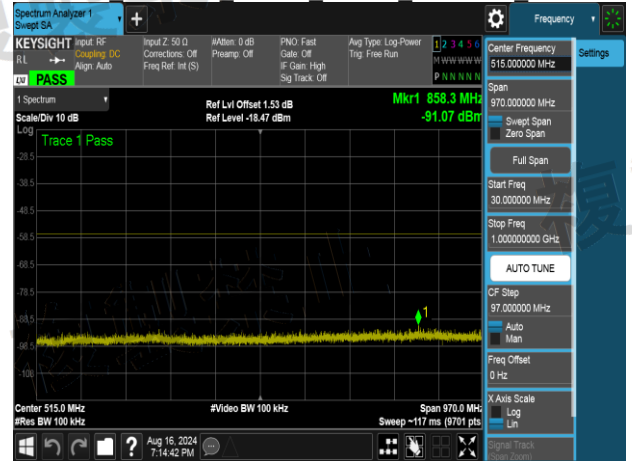
W56 802.11ac 80MHz Chain0 5610MHz 1



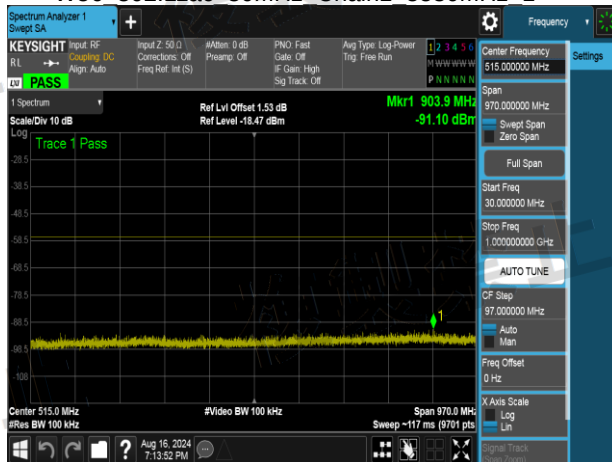
W56 802.11ac 80MHz Chain0 5690MHz 1



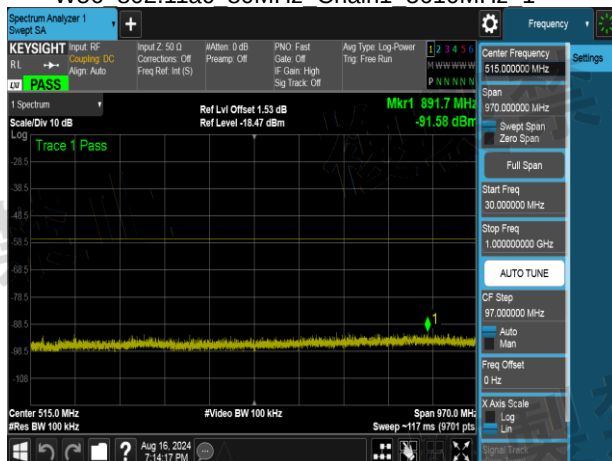
W56 802.11ac 80MHz Chain1 5690MHz 1



W56 802.11ac 80MHz Chain1 5530MHz 1



W56 802.11ac 80MHz Chain1 5610MHz 1



- End of Test Report -