



RF MEASUREMENT REPORT

Applicant: ALE USA Inc.
Address: 2000 Corporate Center Drive, Thousand Oaks, CA 91320
Product: OmniAccess Stellar
Model No.: OAW-AP1511
Brand Name: Alcatel-Lucent Enterprise
Product Category: Article 2, Paragraph 1, Item 19
Test Procedure: MIC Notice No.88 Annex 43
Result: Complies
Received Date: 2025-02-14
Test Date: 2025-03-07 ~ 2025-03-18

Reviewed By:

Vincent Yu

Vincent Yu

Approved By:

Robin Wu

Robin Wu

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
R25S1025026-J202	V01	Initial Report	2025-03-27	Valid

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複製禁

A 91320

2000 Corporate Center Drive, Thousand Oaks, CA 91320

Manufacturer
JSA Inc.
Corporate Center Drive, Thousand

2000 Corporate Center Drive, Thousand Oaks, CA 91320

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禁止

1.4. Product Information

Product Name	OmniAccess Stellar
Model No.	OAW-AP1511
EUT Identification No.	20250214Sample#07
Wi-Fi Specification	802.11a/b/g/n/ac/ax/be
Bluetooth Specification	v5.4 single mode, BLE only
ZigBee Specification	802.15.4
Antenna Information	Refer to section 1.5
Operating Temperature	-10 ~ 50 °C
Power Type	AC/DC Adapter or PoE input
Accessories	
AC/DC Adapter	Model No.: ADP-50GR B Input Power: 100 - 240V ~ 50/60Hz, 1.3A Output Power: 48V, 1.042A
PoE Injector	Model: POE60U-1BT-X (ALE P/N: POE60U-1BT-X-R) Input: 100-240V ~ 1.5A, 50/60Hz Output: 56.0V, 0.535A, 30W PIN 3, 6+ PIN 1, 2 Return Output: 56.0V, 0.535A, 30W PIN 4, 5+ PIN 7, 8 Return
Notes:	
- The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. - AC Power Adapter and PoE Injector are not sold with Product. For this report, we select AC Adapter for testing.	

1.5. Radio Specification under Test

Frequency Range	2405 ~ 2480MHz
Channel Number	16
Type of Modulation	O-QPSK
Data Rate	250kbps
Channel Spacing	5MHz
Declared Output Power	10mW/MHz
Antenna Type	Dipole
Antenna Gain	4.3dBi

1.6. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency
11	2405 MHz	12	2410 MHz	13	2415 MHz
14	2420 MHz	15	2425 MHz	16	2430 MHz
17	2435 MHz	18	2440 MHz	19	2445 MHz
20	2450 MHz	21	2455 MHz	22	2460 MHz
23	2465 MHz	24	2470 MHz	25	2475 MHz
26	2480 MHz	--	--	--	--

2. Test Configuration

2.1. Test Mode

Mode 1: Transmit by 802.15.4
Mode 2: Receive by 802.15.4

2.2. Test Software

The test utility software used during testing was “IPOP” and commands were provided by the manufacturer.

2.3. Test Condition

The change of the measured voltage at the radio part of the EUT is below $\pm 1\%$, when input voltage from external power supply to the equipment under test is varied by $\pm 10\%$, thus the RF test is tested at rated voltage only.

Test Site	WZ-SR5	Temperature	20.1 °C
Test Engineer	Amy Zhang	Humidity	46.1 %RH
Test Date	2025-03-18		

Extreme Voltage	100V	90V	110V
Measure Voltage	3.307V	3.307V	3.307V
Tolerance	-	0%	0%

2.4. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- MIC Notice No.88 Annex 43
- Article 49-20 and the relevant articles of the Ordinance Regulating Radio Equipment
- ARIB STD-T66 v3.7

3. Measuring Instrument

Conducted Test Equipment (WZ-SR5)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Date	Cali. Due Date	Cali. Body	Cali. Method
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2024-05-09	2025-05-08	Ceprei	c
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2024-05-13	2025-05-12	Ceprei	c
Signal Analyzer	Keysight	N9010B	MRTSUE06558	1 year	2024-05-21	2025-05-20	Ceprei	c
Digital Multimeter	Fluke	18B+	MRTSUE06636	1 year	2025-03-04	2026-03-03	Ceprei	c

Note: All the above test equipment was used and kept valid calibration period during the testing.

Calibration Method:

- Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph.
- Correction conducted pursuant to the previous of Article 135 or Article 144 of the measurement Law (Law No. 51 of 1992), Japan calibration Service System
- 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.

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.
(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 2.5dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 2.5dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$): 3.2%

5. Test Result

5.1. Summary

ORRE Reference	Test Description	Test Condition	Test Result
Article 49-20	Antenna Power	Conducted	Pass
Article 14 7	Antenna Power Tolerance		
Article 49-20	EIRP		
Article 49-20	Spread Bandwidth Spread Factor		Pass
Article 6	Occupied Bandwidth		Pass
Article 5	Frequency Tolerance		Pass
Article 7	Unwanted Emission Strength		Pass
Article 24.2	Secondary Radiated Emission Strength		Pass
Article 49-20	Carrier Sensing		N/A

Notes:

- 1) The analyzer plots shown in this section were captured using a correction table to account for cable and attenuator losses in the system connecting the EUT to the analyzer across relevant frequencies.
- 2) "N/A" means that this item is not applicable, and the detail information refers to relevant section.
- 3) ORRE: Ordinance Regulating Radio Equipment.

5.2. Antenna Power, Antenna Power Tolerance and EIRP Measurement

5.2.1. Test Limit

Antenna Power $\leq 10\text{mW/MHz}$

Antenna Power Tolerance: +20% to - 80%

EIRP $\leq 12.14\text{dBm/MHz}$

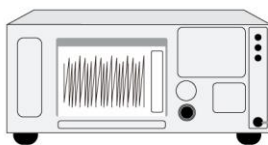
5.2.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

1. A sample detector function must be used.
2. A measurement instrument with an integrated 1MHz power bandwidth function may be used to automate the test process.
3. The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
4. 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.2.3. Test Setup

Spectrum Analyzer



DC Block
&
Attenuator



EUT



5.2.4. Test Result

Test Site	WZ-SR5	Temperature	19.3 °C
Test Engineer	Luis Yang	Humidity	47.7 %RH
Test Date	2025-03-07	Test Item	Output Power

Test Mode	Frequency (MHz)	Output Power (dBm/MHz)	Output Power (mW/MHz)	Limit (mW/MHz)	Result
802.15.4	2405	7.34	5.42	10	Pass
	2440	7.28	5.35	10	Pass
	2480	7.44	5.55	10	Pass

Note: Output Power(mW/MHz) = $10^{[\text{Output Power (dBm/MHz)}/10]}$.

Test Site	WZ-SR5	Temperature	19.3 °C
Test Engineer	Luis Yang	Humidity	47.7 %RH
Test Date	2025-03-07	Test Item	Output Power Tolerance

Test Mode	Frequency (MHz)	Output Power Density (mW/MHz)	Declared Output Power (mW/MHz)	Tolerance (%)	Limit (%)	Result
802.15.4	2405	5.42	10	-45.80	+20 ~ -80	Pass
	2440	5.35	10	-46.50	+20 ~ -80	Pass
	2480	5.55	10	-44.50	+20 ~ -80	Pass

Note: Tolerance (%) = $(\text{Output Power (mW/MHz)} - \text{Declared Output Power (mW/MHz)}) / \text{Declared Output Power (mW/MHz)} * 100\%$

Test Site	WZ-SR5	Temperature	19.3 °C
Test Engineer	Luis Yang	Humidity	47.7 %RH
Test Date	2025-03-07	Test Item	EIRP

Test Mode	Frequency (MHz)	Output Power (dBm/MHz)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Result
802.15.4	2405	7.34	11.64	12.14	Pass
	2440	7.28	11.58	12.14	Pass
	2480	7.44	11.74	12.14	Pass

Note: EIRP (dBm/MHz) = Output Power (dBm/MHz) + Antenna Gain (dBi).

5.3. Occupied Bandwidth Measurement

5.3.1. Test Limit

Occupied Bandwidth ≤ 26 MHz

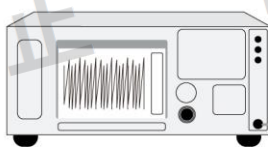
5.3.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

1. A positive peak detector function must be used.
2. A measurement instrument with an integrated 99% power bandwidth function may be used to automate the test process.
3. The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
4. 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.3.3. Test Setup

Spectrum Analyzer



DC Block
&
Attenuator



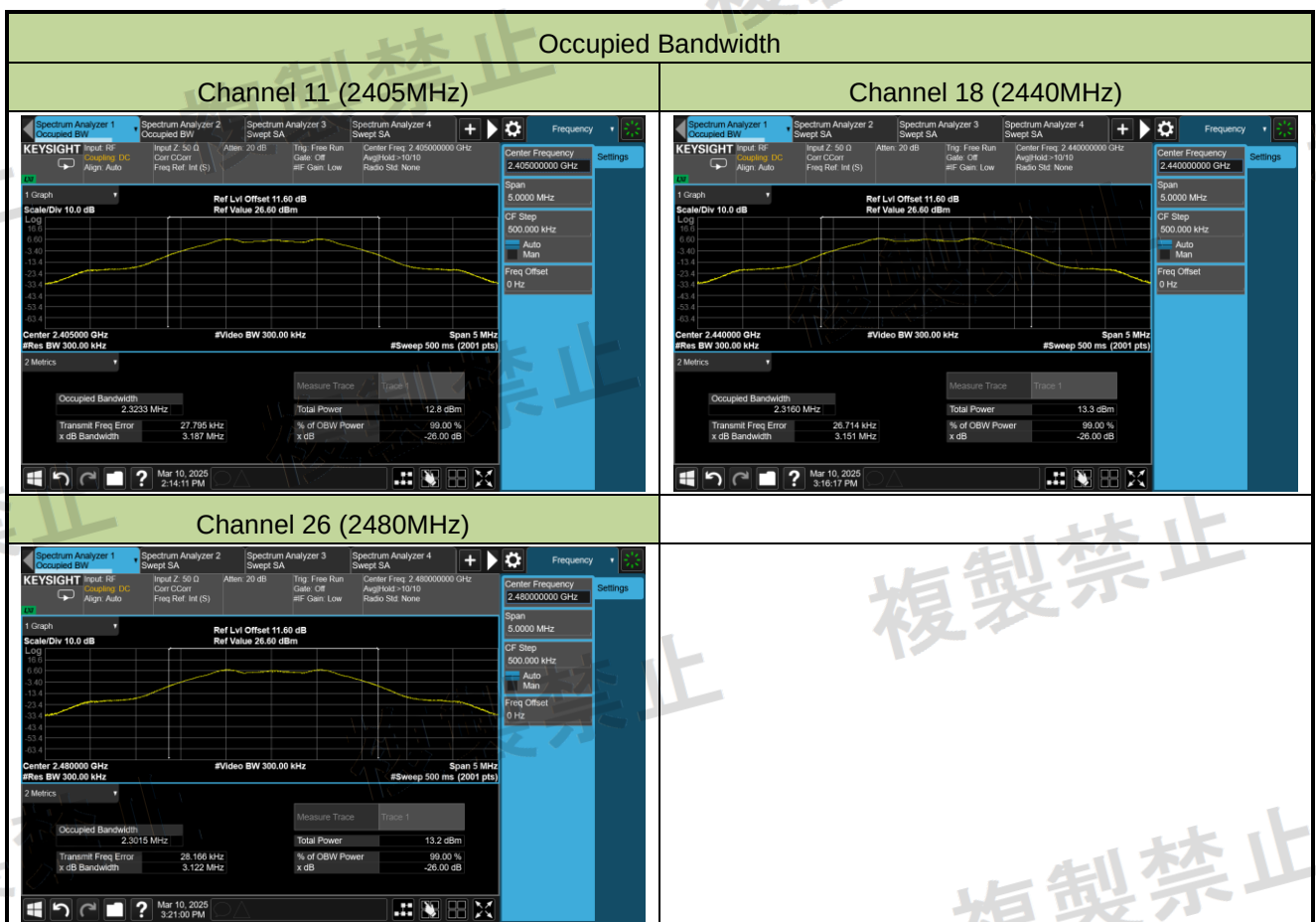
EUT



5.3.4. Test Result

Test Site	WZ-SR5	Temperature	18.2 °C
Test Engineer	Luis Yang	Humidity	47.8 %RH
Test Date	2025-03-10		

Test Mode	Frequency (MHz)	Occupied Bandwidth (MHz)	Limit (MHz)	Result
802.15.4	2405	2.3233	≤ 26.00	Pass
	2440	2.3160	≤ 26.00	Pass
	2480	2.3015	≤ 26.00	Pass



5.4. Frequency Tolerance Measurement

5.4.1. Test Limit

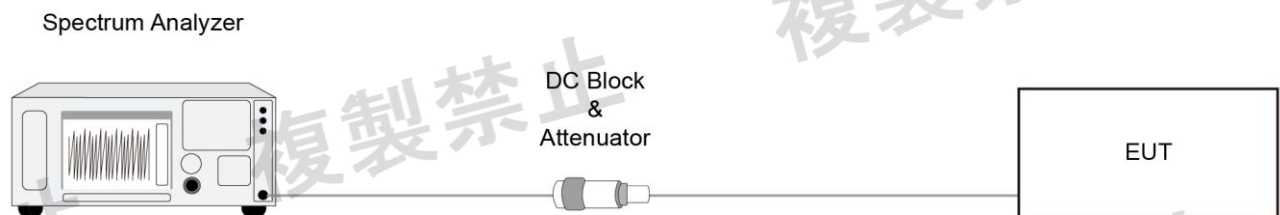
-50 ~ +50 ppm

5.4.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the unmodulated transmitter's radio frequency power output.

1. A positive peak detector function must be used.
2. The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
3. 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.4.3. Test Setup

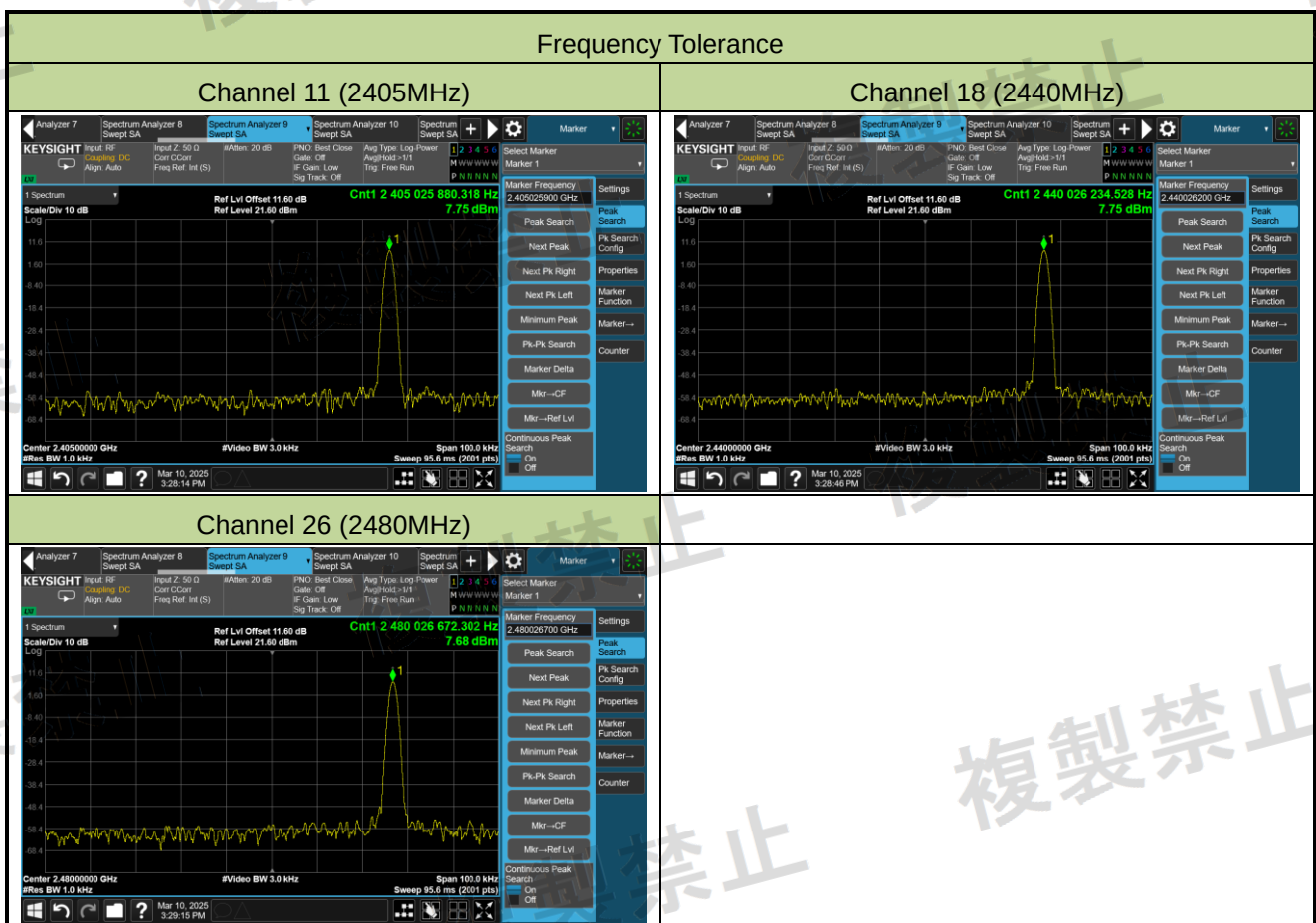


5.4.4. Test Result

Test Site	WZ-SR5	Temperature	18.2 °C
Test Engineer	Luis Yang	Humidity	47.8 %RH
Test Date	2025-03-10		

Mode	Measurement Frequency (MHz)	Reading Frequency (MHz)	Tolerance (ppm)	Limit (ppm)	Result
802.15.4	2405	2405.025880	10.76	-50 ~ +50	Pass
	2440	2440.026235	10.75	-50 ~ +50	Pass
	2480	2480.026672	10.75	-50 ~ +50	Pass

Note: Frequency Tolerance (ppm) = (Reading Frequency (MHz)- Measurement Frequency (MHz)) / Measurement Frequency (MHz)* 10⁶



5.5. Transmitter Spurious Emissions Measurement

5.5.1. Test Limit

$\leq 2.5\mu\text{W}/\text{MHz}$ for 30 ~ 2387 MHz

$\leq 25\mu\text{W}/\text{MHz}$ for 2387 ~ 2400 MHz

$\leq 25\mu\text{W}/\text{MHz}$ for 2483.5 ~ 2496.5 MHz

$\leq 2.5\mu\text{W}/\text{MHz}$ for 2496.5 ~ 8000 MHz

$\leq 2.5\mu\text{W}/\text{MHz}$ for 8000 ~ 12500 MHz

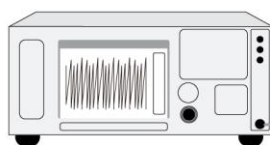
5.5.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

1. A positive peak detector function must be used.
2. The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slowly, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
3. 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.5.3. Test Setup

Spectrum Analyzer



DC Block
&
Attenuator



EUT



5.5.4. Test Result

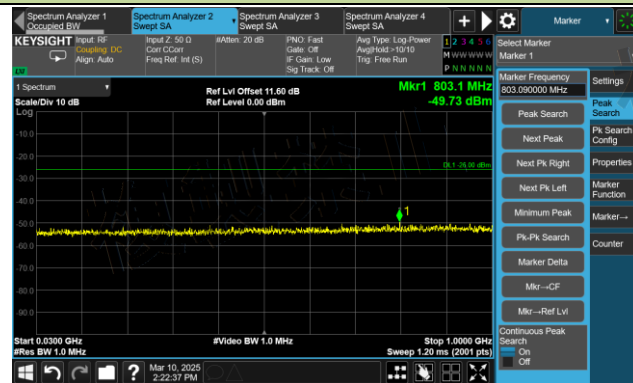
Test Site	WZ-SR5	Temperature	18.2 °C
Test Engineer	Luis Yang	Humidity	47.8 %RH
Test Date	2025-03-10		

Test Frequency	Frequency Range (MHz)	Measurement Freq (MHz)	Max Measurement Level		Limit (μW/MHz)	Result
			(dBm/MHz)	(μW/MHz)		
2405MHz	30 ~ 1000	803.1	-49.73	0.0106	≤ 2.5	Pass
	1000 ~ 2387	2126.9	-46.97	0.0201	≤ 2.5	Pass
	2387 ~ 2400	2399.909	-39.20	0.1202	≤ 25	Pass
	2483.5 ~ 2496.5	2495.785	-48.10	0.0155	≤ 25	Pass
	2496.5 ~ 8000	3729.3	-44.54	0.0352	≤ 2.5	Pass
	8000 ~ 12500	8038.25	-45.66	0.0272	≤ 2.5	Pass
2440MHz	30 ~ 1000	764.3	-51.09	0.0078	≤ 2.5	Pass
	1000 ~ 2387	1886.3	-47.49	0.0178	≤ 2.5	Pass
	2387 ~ 2400	2392.6420	-48.80	0.0132	≤ 25	Pass
	2483.5 ~ 2496.5	2490.4355	-48.50	0.0141	≤ 25	Pass
	2496.5 ~ 8000	5063.9	-44.40	0.0363	≤ 2.5	Pass
	8000 ~ 12500	10907.0	-45.16	0.0305	≤ 2.5	Pass
2480MHz	30 ~ 1000	509.2	-50.28	0.0094	≤ 2.5	Pass
	1000 ~ 2387	2122.8	-47.52	0.0177	≤ 2.5	Pass
	2387 ~ 2400	2399.2070	-48.73	0.0134	≤ 25	Pass
	2483.5 ~ 2496.5	2483.5065	-33.75	0.4217	≤ 25	Pass
	2496.5 ~ 8000	3839.4	-44.27	0.0374	≤ 2.5	Pass
	8000 ~ 12500	8960.75	-44.62	0.0345	≤ 2.5	Pass

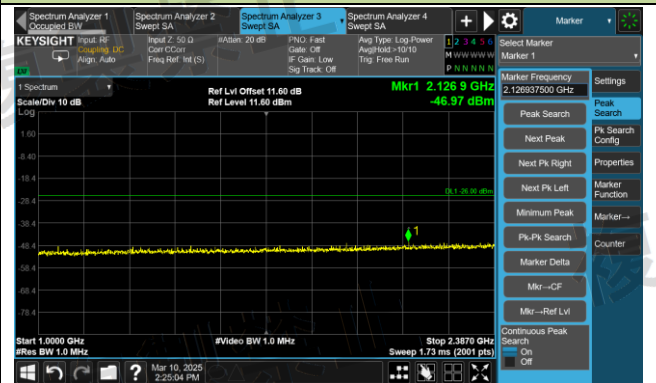
Transmitter Spurious Emissions

Channel 11 (2405MHz)

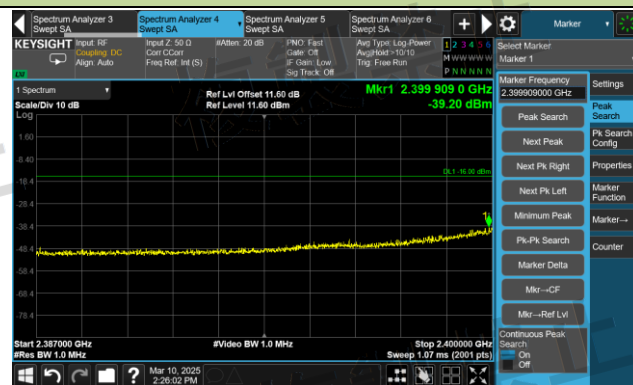
30 ~ 1000MHz



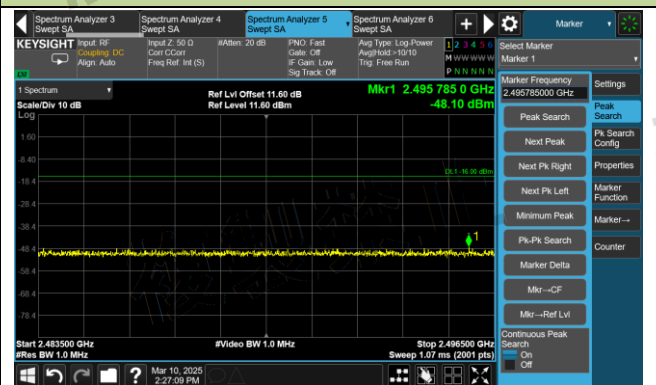
1000 ~ 2387MHz



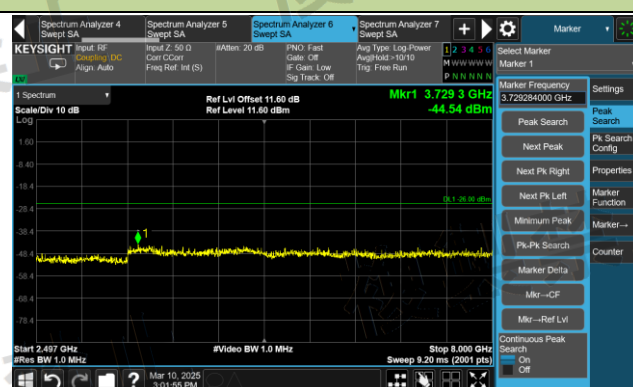
2387 ~ 2400MHz



2483.5 ~ 2496.5MHz

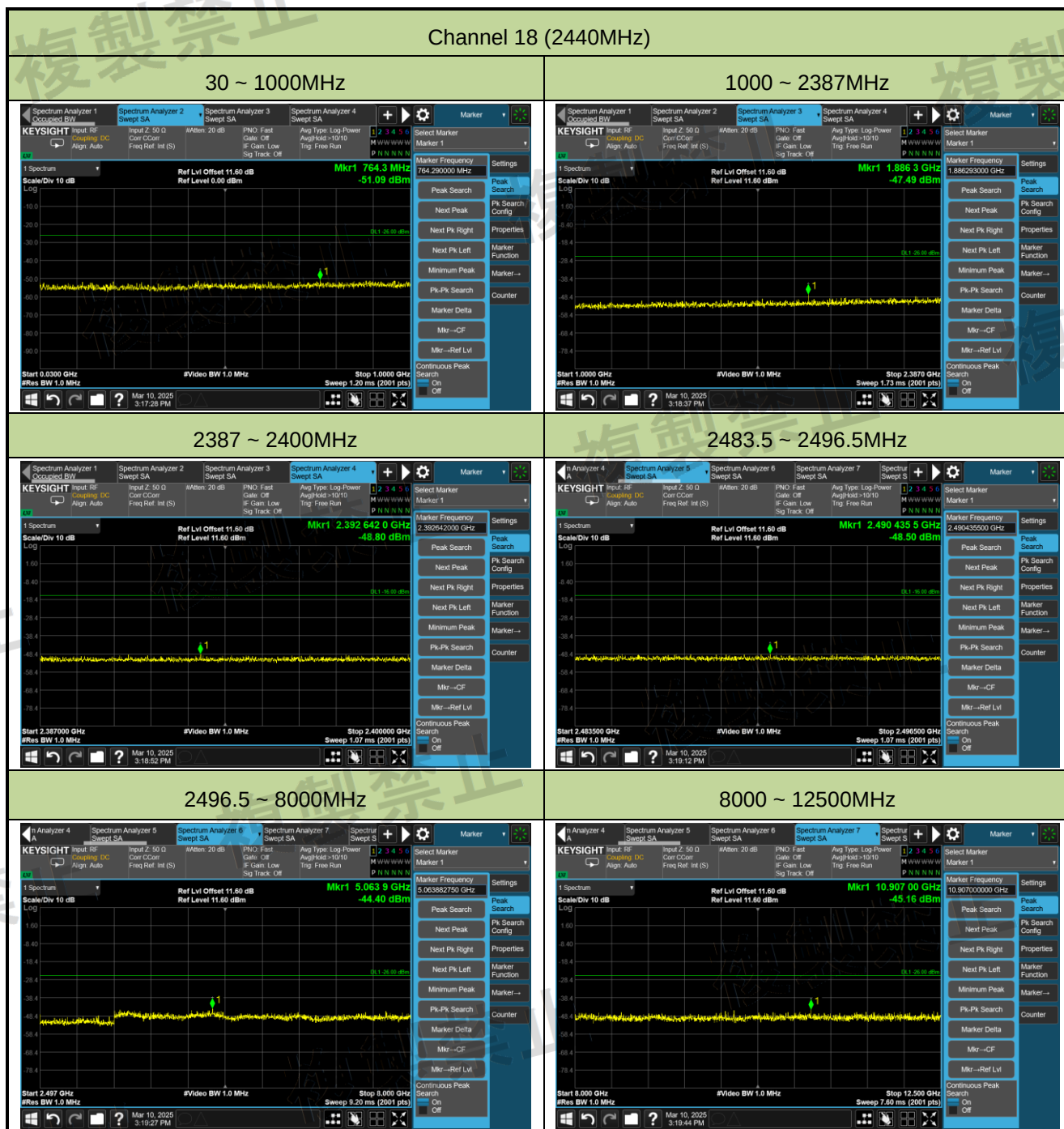


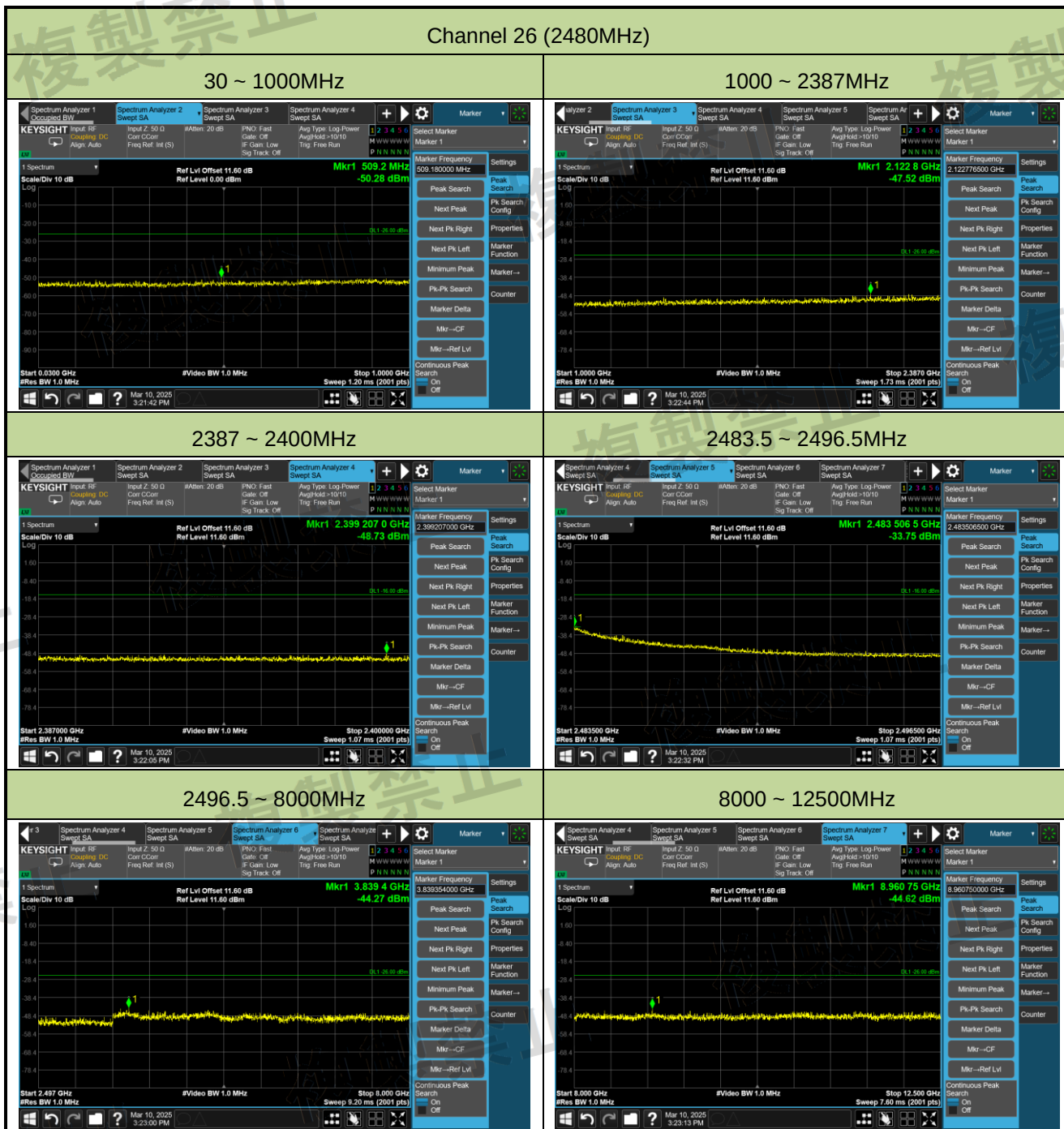
2496.5 ~ 8000MHz



8000 ~ 12500MHz







5.6. Receiver Spurious Emissions Measurement

5.6.1. Test Limit

$\leq 4\text{nW}$ for 30 ~ 1000MHz;

$\leq 20\text{nW}$ for 1000 ~ 12500MHz

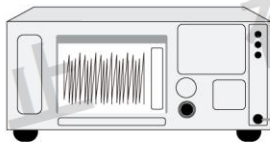
5.6.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

1. A positive peak detector function must be used.
2. The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
3. 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.6.3. Test Setup

Spectrum Analyzer



DC Block
&
Attenuator



EUT



5.6.4. Test Result

Test Site	WZ-SR5	Temperature	18.2 °C
Test Engineer	Luis Yang	Humidity	47.8 %RH
Test Date	2025-03-10		

Test Frequency	Frequency Range (MHz)	Measurement Freq (MHz)	Max Measurement Level		Limit (nW)	Result
			(dBm)	(nW)		
2405MHz	30 ~ 1000	817.2	-92.42	0.0006	≤ 4.0	Pass
	1000 ~ 12500	3633.5	-76.41	0.0229	≤ 20.0	Pass
2440MHz	30 ~ 1000	914.6	-92.46	0.0006	≤ 4.0	Pass
	1000 ~ 12500	3725.5	-74.97	0.0318	≤ 20.0	Pass
2480MHz	30 ~ 1000	829.8	-92.22	0.0006	≤ 4.0	Pass
	1000 ~ 12500	5076.75	-76.15	0.0243	≤ 20.0	Pass



5.7. Carrier Sensing Measurement

5.7.1. Test Limit

Stop transmission while carrier detecting.

Field intensity in the direction of the maximum gain of a receiving antenna: 100mV/m (It's a radiated testing detection threshold level).

The conducted detection threshold level shows as below:

(6)式の電界強度 E を既定値の 100mV/m (100dB μ V/m) とし、 λ (m)を F (MHz) に変換し、 P を dBm 単位で表すと (7) 式を得る。

$$P[\text{dBm}] = 22.79 + G - 20\log F \quad (7)$$

P : 受信機のアンテナ端子に入力される受信電力 [dBm]

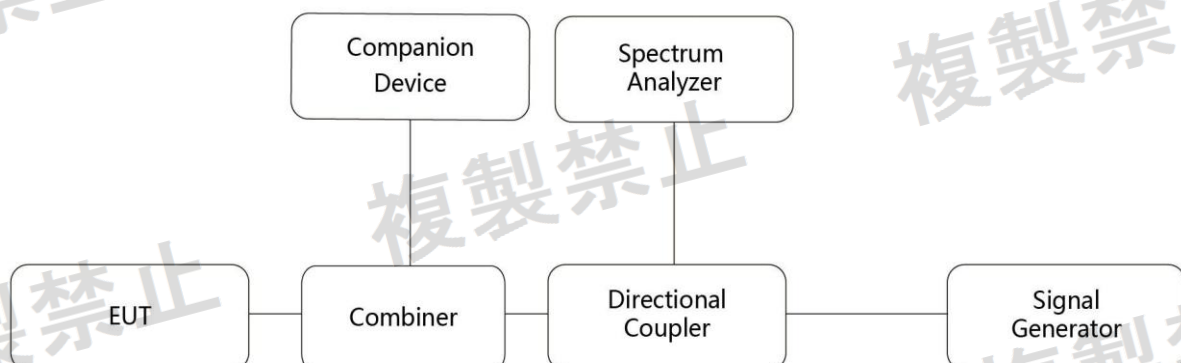
G : 受信アンテナの絶対利得 [dBi]

F : キャリア周波数 [MHz]

5.7.2. Test Procedure

1. A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.
2. Link EUT and Access Point to Directional Coupler input port.
3. Link Signal Generator and Spectrum Analyzer to test port and output port in the Directional Coupler separately.
4. A positive Peak Detector function in Spectrum Analyzer must be used.
5. Set the Span to Zero.
6. Press the Signal Generator on and it will output the Carrier Signal. When the Link breaks off, wait a minute and press the Signal Generator off. After a while, reset the Link and done the test.

5.7.3. Test Setup



5.7.4. Test Result

The requirement does not apply for O-QPSK modulation.

Appendix A - EUT Photograph

Refer to "R25S1025026-JE" file.

Appendix B - Test Setup Photograph

Refer to "R25S1025026-JT" file.

The End