



FCC RADIO TEST REPORT

FCC ID : U4G-AELNRNA
Equipment : MOBILE COMPUTER/BARCODE READER
Brand Name : DATALOGIC
Model Name : AELNRNA
Applicant : Datalogic S.r.l.
Via San Vitalino 13
CALDERARA DI RENO, BO 40012 Italy
Manufacturer : Datalogic S.r.l.
Via San Vitalino 13
CALDERARA DI RENO, BO 40012 Italy
Standard : FCC Part 15 Subpart E §15.407

The product was received on Nov. 18, 2024 and testing was performed from Dec. 31, 2024 to Jan. 08, 2025. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

Sportun International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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History of this test report



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2.1	15.407 KDB 987594 D02 Section II. L.	Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point (APC)	Pass	-
2.2	15.407 KDB 987594 D02 Section II. K.	Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP	Pass	-

Conformity Assessment Condition:

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Duko Chen

Report Producer: Wilda Wei



1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
General Specs WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, Wi-Fi 6GHz 802.11a/ax, WPT and GNSS.	
Antenna Type WLAN: <Ant. 8>: LDS Antenna <Ant. 9>: LDS Antenna	
SW Version	1.18.001.20241225

Antenna information		
5925 MHz ~ 6425 MHz	Peak Gain (dBi)	Ant. 8: -1.0 Ant. 9: -1.0
6525 MHz ~ 6875 MHz	Peak Gain (dBi)	Ant. 8: -1.0 Ant. 9: -1.0

Remark:

1. The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.
2. The correlated antenna gain is provided by the MIMO antenna report using KDB 662911 D01 from manufacturer.



1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sportun International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sportun Site No. DF02-HY
Test Engineer	Ray Wang
Temperature (°C)	21.4~23.4
Relative Humidity (%)	43.2~48.2

FCC designation No.: TW1190

1.4 Applicable Standards

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

- FCC Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v03
- ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.



2 Test Result

2.1 Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point (APC)

2.1.1 Limit of Standard Client Proper Power Adjustment

15.407 KDB 987594 D02 Section II. L. Power limits for standard client devices

The maximum power limits shall remain at least 6 dB below the power levels authorized for the associated standard-power access point

2.1.2 Test Procedures of Standard Client Proper Power Adjustment

The testing follows FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v03.

Section L. Proper Power Adjustment

2.1.3 Proper Power Adjustment, Client Devices Connected to a Standard Power Access Point

A client device that connects to a Standard Power AP must limit its power to a minimum of 6 dB lower than its associated Standard Power access point's authorized transmit power. The term "authorized" means the AFC-approved power level for the AP to use on a particular channel.

Test procedure to show that the client device can lower its power accordingly.

2.1.4 Test Procedure:

1. Connect equipment as shown in Figure 7 below.
2. Adjust Atten 1 to Std Power AP so as to facilitate error free communication with the Client but protect the Client receiver from overload or damage.
3. Configure the Client and AP so that they associate and start sending data (stream data). The AP should be configured such that its registered power is 36 dBm EIRP.
4. Verify transmission between Client and Std Power AP. Additional attenuators may be required to protect measurement equipment. Measure the Client RF power using any of the methods in C63.10 for NII devices.
5. Use this power, along with its antenna gain, to calculate the Client EIRP.
6. The Client EIRP should be minimally 6 dB lower than that of the AP.
7. Repeat Steps 2 through 5 at two other selected measurement points – the first at the midpoint and the second at the lowest rated power of the client as declared by the manufacturer.

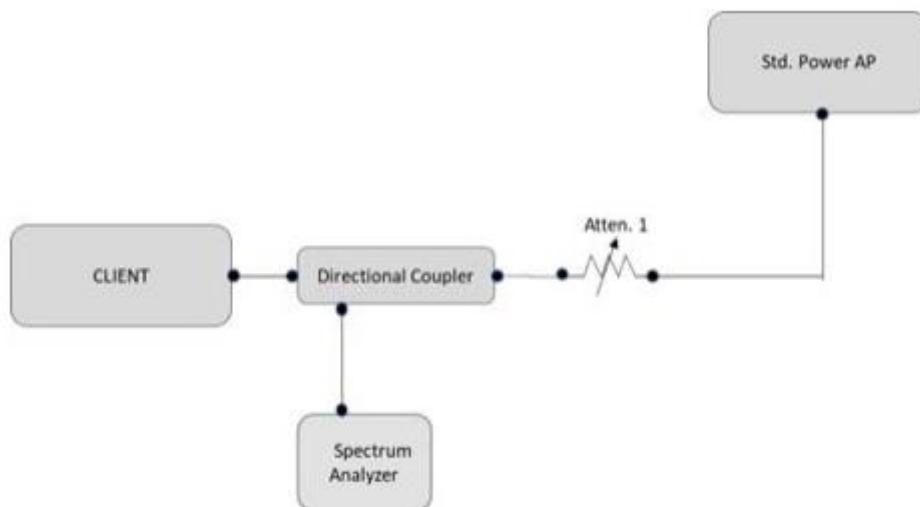


Figure 7. Test setup for conducted testing

2.1.5 Test Result Summary

Companion Standard Power AP: Brand name: Qualcomm, Model name: Wakiki

802.11ax 20MHz bandwidth

Test channel 149

	Client Conducted Power (dBm)			Client EIRP (dBm)	AP EIRP (dBm)	AP to client EIRP Delta (dB)
	Ant. 8	Ant. 9	MIMO			
Maximum EIRP	13.95	12.60	16.34	15.34	33.2	17.86
Midpoint EIRP	10.84	10.47	13.67	12.67	25.7	13.03
Lowest EIRP	8.24	7.42	10.86	9.86	21.5	11.64
Requirement						At least 6 dB
Result						Pass

Note: Client EIRP = Client MIMO conducted power + antenna gain -1dB



2.1.6 Test Result Plot

Measured highest power

AP EIRP 33.2dBm

Client conducted power

Ant. 8 13.95dBm	Ant. 9 12.60dBm
<p>Ref Level: 25.00 dBm, Offset: 18.37 dB, RBW: 1 MHz, SWF: 1.01 ms, VSW: 3 MHz, Mode: Auto Sweep, 1 ACLR, 10ms Avg/Per. The plot shows a main peak at 8.13 MHz with a power of 13.95 dBm. A table below shows the results: Tx1 (Ref) 40.000 MHz, Offset: None, Power: 13.95 dBm; Tx1 (Total) 13.95 dBm. Total Power: 13.95 dBm. Date: 01/07/2025, Time: 09:23:39 PM.</p>	<p>Ref Level: 25.00 dBm, Offset: 18.37 dB, RBW: 1 MHz, SWF: 1.01 ms, VSW: 3 MHz, Mode: Auto Sweep, 1 ACLR, 10ms Avg/Per. The plot shows a main peak at 8.13 MHz with a power of 12.60 dBm. A table below shows the results: Tx1 (Ref) 40.000 MHz, Offset: None, Power: 12.60 dBm; Tx1 (Total) 12.60 dBm. Total Power: 12.60 dBm. Date: 01/07/2025, Time: 09:03:30 PM.</p>



Measured mid-point power

AP EIRP 25.7dBm

Activities Google Chrome Jan. 7, 2025 19:45 98%

AFC DUT Test Harness localhost:8080/r=0524

WIFI AFC DUT Test... WFA AFC Reso... AFC DUT Test...

Settings Test Cases

DUT Type : Access Point
Certification and Capability Selection

FCC AFC DUT test - [v1: rev1]
AFC capability - Inquired Frequency
Test Group: Default - Always

RF Test Equipment monitors the output of the AFC DUT on channel 149 bandwidth 20

Confirm that the AFC DUT transmit power in the band is less than CEILINGILPI limits (5 dBm/MHz PSD), SP limits (12.7 dBm/MHz PSD; 25.7 dBm EIRP) in Spectrum Response and does not exceed limits in adjacent frequencies

APC_DUT_SP_OPERATION | True | APC DUT sends an Available Spectrum Inquiry Request

APC_DUT_SAND_SPECTRUM_INQUIRYREQUEST_1 | True | APC DUT sends an Available Spectrum Inquiry Request

APC_DUT_SAND_SPECTRUM_INQUIRYREQUEST_1 | True | APC DUT sends an Available Spectrum Inquiry Request

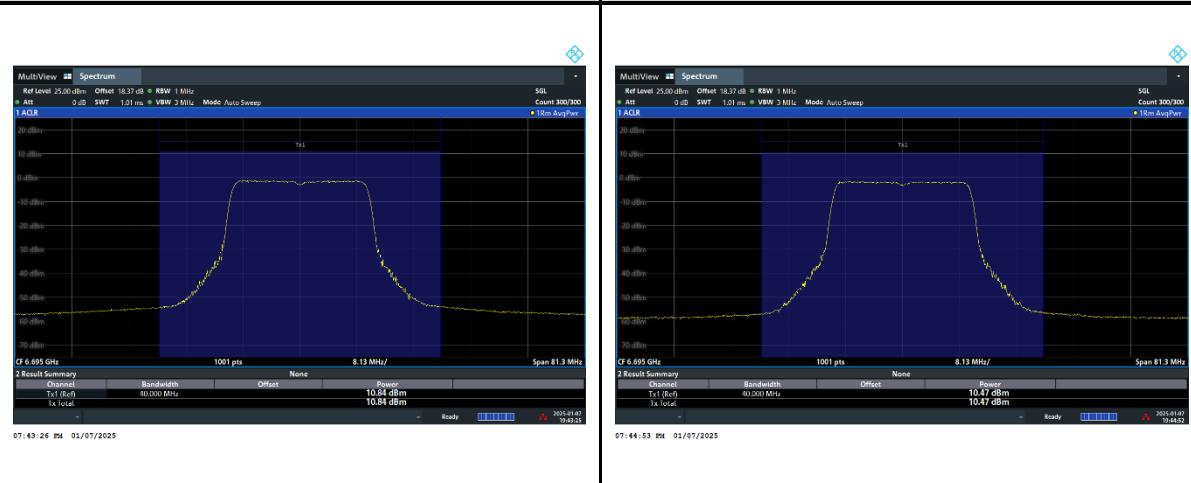
APC_DUT_SPECTRUM_INQUIRYREQUEST_VALID_1 | True | Valid mandatory registration information

✓ Pass ✖ Fail Standard power in the band before the Spectrum Inquiry Response

Step 6 : RF Test Equipment verification

Execution paused for 60 seconds

Client conducted power

Ant. 8
10.84dBmAnt. 9
10.47dBm



Measured lowest power

AP EIRP 21.5dBm

Client conducted power

Ant. 8 8.24dBm	Ant. 9 7.42dBm



2.2 Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP

2.2.1 Limit of Proper Power Adjustment

15.407 KDB 987594 D02 Section II. K. Power limits for standard client devices

A client device may connect to a Standard Power AP with a maximum power level of 30 dBm EIRP. A client may also connect to a Low Power indoor AP, but the power level is limited to a maximum of 24 dBm EIRP.

2.2.2 Test Procedures of Standard Client Proper Power Adjustment

The testing follows FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v03.

Section K. Dual Client Test, Demonstration of Proper Power Adjustment based on Associated AP

2.2.3 Test Procedure:

1. Connect equipment as shown in Figure 6 below.
2. Adjust Atten 2 to Std Power AP so as to facilitate error free communication with the Client (Atten 1 should be set to High on the RF path to the Low Power AP)
3. Configure the Client and APs so that they associate and start sending data (stream data). It is important that the client is configured to transmit at its highest power level. Initially, because the attenuation on Atten 1 is set high, the Client will only associate with the Std Power AP.
4. Verify transmission between Client and Std Power AP. Additional attenuators may be required to protect measurement equipment. Measure the Client RF power using any of the methods in C63.10 for NII devices.
5. Gradually increase Atten 2 while at the same time decreasing Atten 1. This simulates the Client moving from outdoors to indoors. At some level of attenuation the Client should associate with the Low Power indoor AP.
6. Verify transmission between Client and Low Power AP.
7. Measure the RF power of the Client device using the same method as in step 4. Verify the power is no more than 24 dBm EIRP

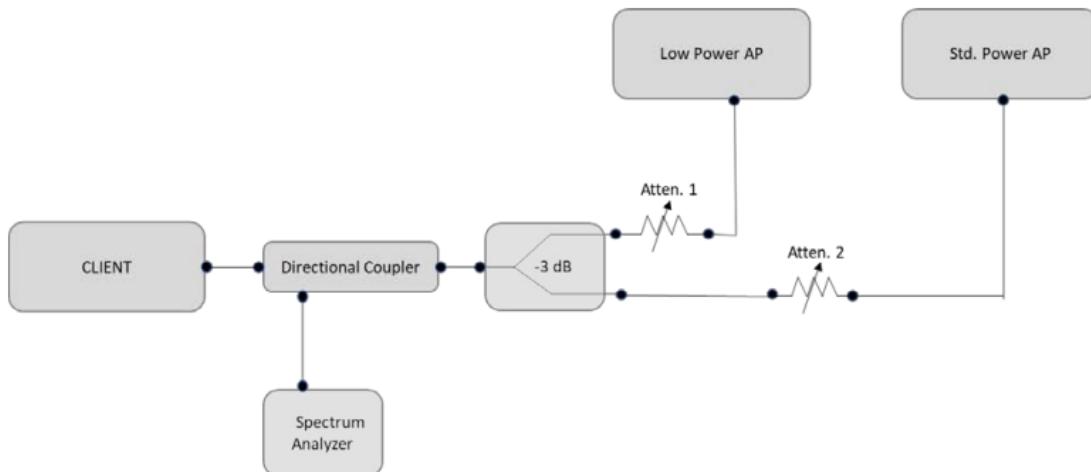


Figure 6. Test setup for conducted testing

2.2.4 Test Result Summary

Companion Standard Power AP: Brand Name: Qualcomm, Model Name: Wakiki

Companion Low Power indoor AP: Brand name: ASUS, Model name: GTAXE11000

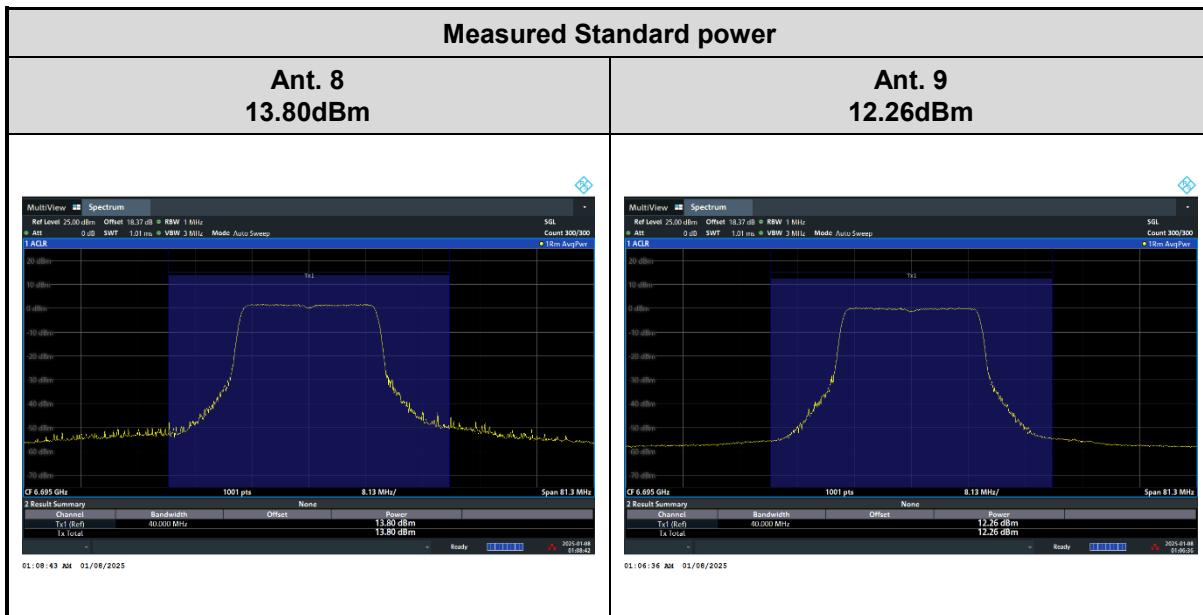
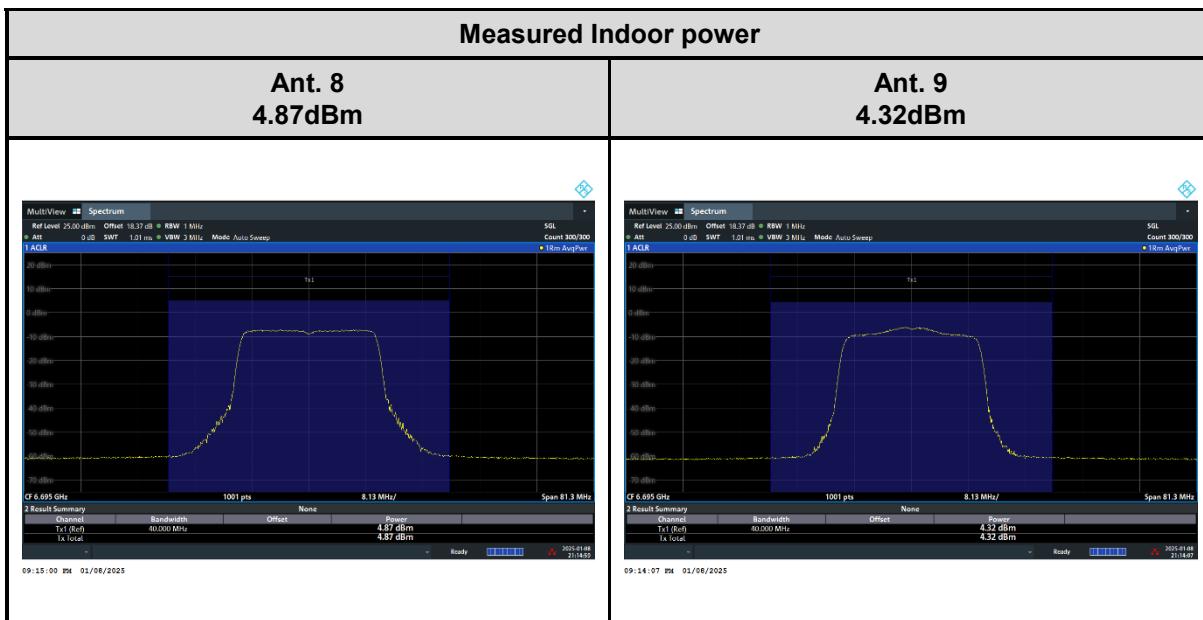
802.11ax 20MHz bandwidth

Test channel 149

	Client Conducted Power (dBm)			Client EIRP (dBm)	Limit EIRP (dBm)	Result
	Ant. 8	Ant. 9	MIMO			
Indoor EIRP	4.87	4.32	7.61	6.61	24	Pass
Standard EIRP	13.80	12.26	16.11	15.11	30	Pass

Note: Client EIRP = Client MIMO conducted power + antenna gain -1dB

2.2.5 Test Result Plot





3 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSV3013	101549	10Hz~13.6GHz	Jan. 30, 2024	Dec. 31, 2024~Jan. 08, 2025	Jan. 29, 2025	AFC (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10003	0.5GHz-6GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
Power Divider	MTJ	SMA 2Way Power Divider	MD10016	0.5GHz-6GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
Power Divider	Woken	3Way SMA Power Divder Rated to 20W	STI08-0010 (#2)	2GHz-8GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EM	SFL402	SFL402-30cm -#9	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	MTJ Cooperstion	SBF405-105FLEX	MTJ-30cm-02	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	MTJ Cooperstion	SBF405-105FLEX	MTJ-30cm-06	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#13	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#14	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	MVE	SPF141	SPF141-100cm-#15	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EC	SLF405	EC-SFL405-100cm-#7	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EC	SLF405	EC-SFL405-100cm-#11	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EC	SS405	SS405-100cm-#13	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EC	SS405	SS405-150cm-#6	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)
RF Cable	EC	SS405	SS405-150cm-#13	30 kHz~18GHz	Calibration from System	Dec. 31, 2024~Jan. 08, 2025	Calibration from System	AFC (DF02-HY)