

Test result and instruments about Type certificate

Bluetooth Low Energy

1. General

Model name	Varjo Aero	Date	11/11/2021
Serial number	V0032D805AE0210026	Place	Karakaarenkuja 4, FI-02610 Espoo, Finland
Class of emissions, Assigned frequency and Antenna power	F1D, 2402-2480 MHz (2 MHz step 40ch), 0.001 W	Remarks	

2. Measuring Instruments

Equipment type	Model number	Serial number	Manufacturer	Calibrated Date	Calibration Authority		Remarks
Attenuator	10 dB, DC-40 GHz	A2	Inmet	4/20/2021	SGS	(c)	SGS inv. 10347
Cable	Sucoflex 104	SN506335_RF-CABLE 21	Suhner	5/17/2021	SGS	(c)	SGS inv. C050
Multimeter	974A	-	Hewlett Packard	11/2/2020	SGS	(c)	SGS inv. 5126
Spectrum analyzer	FSV40	101838	Rohde & Schwarz	6/22/2021	Rohde & Schwarz	(c)	SGS inv. 10881
Temperature chamber	VC4033	522/79484	Vötsch	-	-	-	SGS inv. 10412
Temperature/humidity meter	HMT 333	G040030105	Vaisala	7/8/2021	SGS	(c)	SGS inv. 8638

3. Test Result

Condition	Test Items	Unit	Normal Voltage + 10% (13.2 V)			Normal Voltage (12.0 V)			Normal Voltage - 10% (10.8 V)			Judgment	Limit	Remarks
			2402MHz	2440MHz	2480MHz	2402MHz	2440MHz	2480MHz	2402MHz	2440MHz	2480MHz			
Normal (25 ° C, 58 %)	Frequency	MHz				2401.978	2439.977	2479.977				Pass		
		ppm				-9.284	-9.303	-9.274					50ppm	
	Occupied Bandwidth	MHz				2.296	2.315	2.306				Pass	26MHz	
	Spurious Emissions	30MHz-2387MHz				-36.48	-46.61	-46.49				Pass	-26dBm	
						2386.880	1219.810	1240.320						
		2387MHz-2400MHz				-33.65	-43.86	-48.08				Pass	-16dBm	
						2399.999	2399.999	2391.350						
		2483.5MHz-2496.5MHz				-48.50	-45.08	-25.01				Pass	-16dBm	
						2489.979	2484.188	2483.501						
		2496.5MHz-12.5GHz				-32.95	-33.07	-33.42				Pass	-26dBm	
						4803.600	4879.600	4959.600						
	Antenna Power	W				0.000873	0.000789	0.000653				Pass	0.01W	
		%				-12.710	-21.120	-34.690					+20 ~ -80%	
	Secondary Radiated Emissions	30MHz-1GHz				-71.21	-70.68	-71.71				Pass	-54dBm	
						959.992	959.992	959.992						
		1GHz-12.5GHz				-57.34	-57.34	-59.02				Pass	-47dBm	
						1374.300	1396.100	1418.000						
	Interference Prevention Function		Function was checked by having two sets of the EUT and the controller. Each EUT was paired with one controller and it was verified that only the paired controller could be used with each EUT.									Pass		

Note:

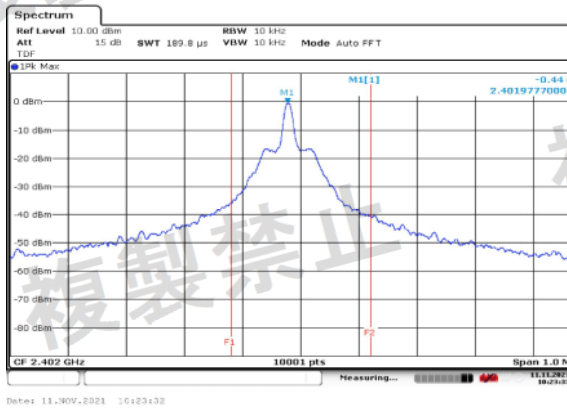
The RF section input voltage is within 1 %, when the EUT input voltage is varied ±10 %. The RF section input voltage was measured with a multimeter.

Input (V)	Regulated output (V)	Error (%)
10.8	3.3242	0.012
12.0	3.3238	-
13.2	3.3246	0.024

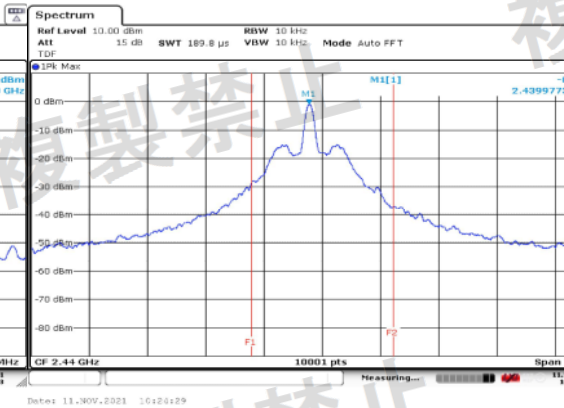
Screen Shot at normal voltage

Frequency

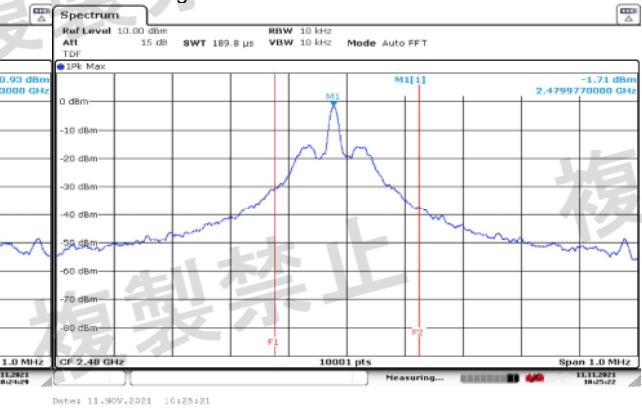
Low channel



Middle channel

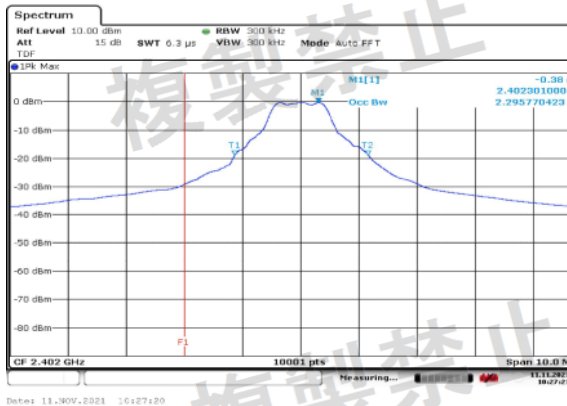


High channel

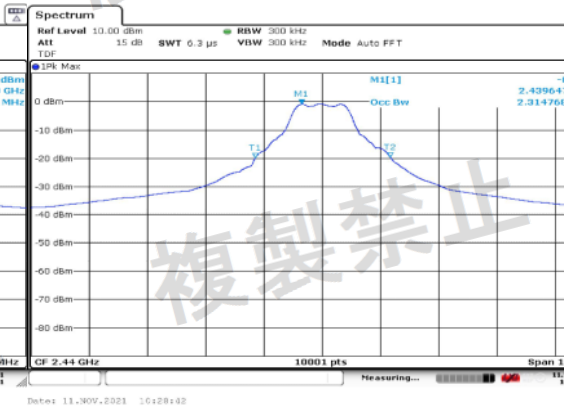


Occupied Bandwidth

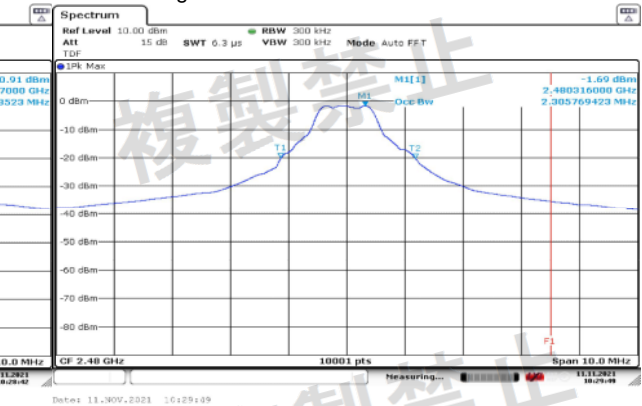
Low channel



Middle channel

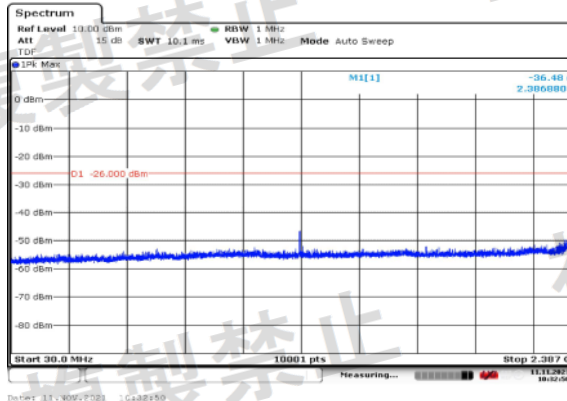


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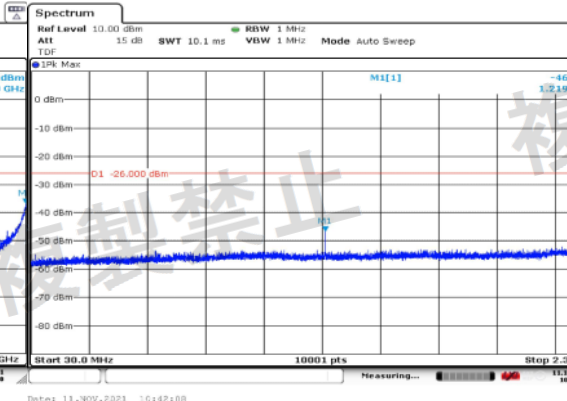


Spurious Emission Intensity

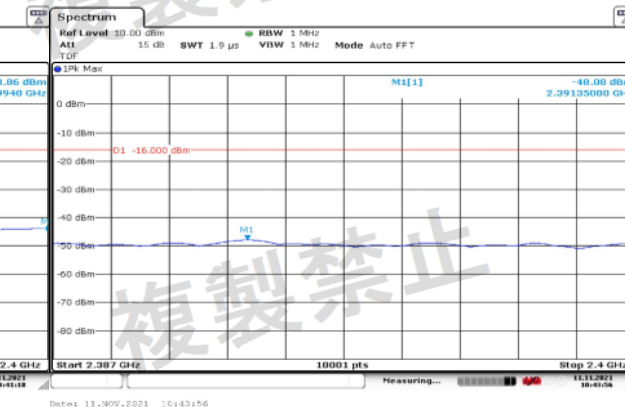
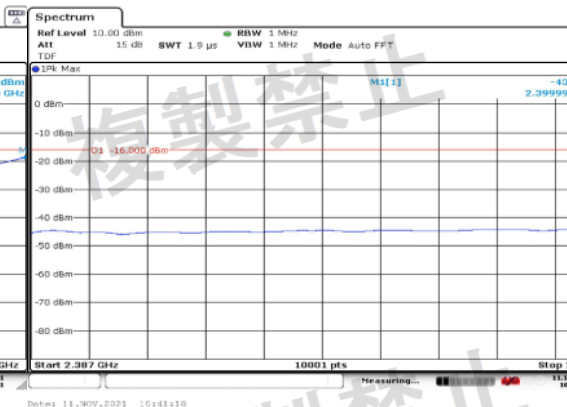
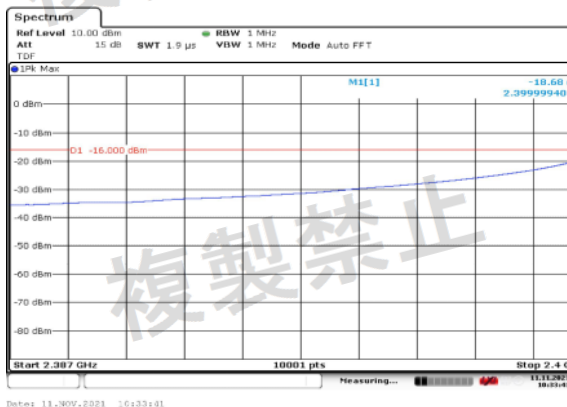
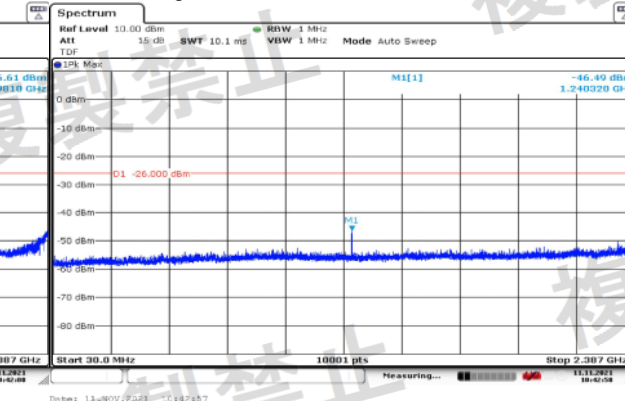
Low channel

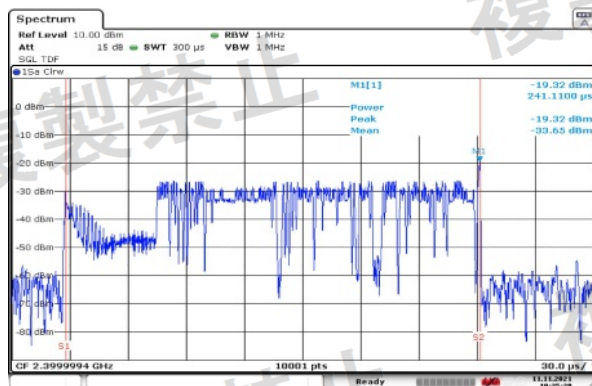


Middle channel

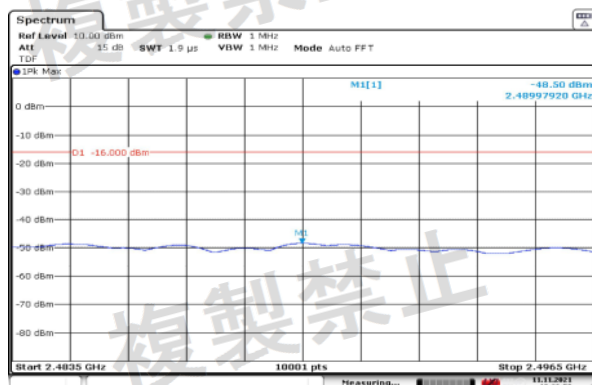


High channel

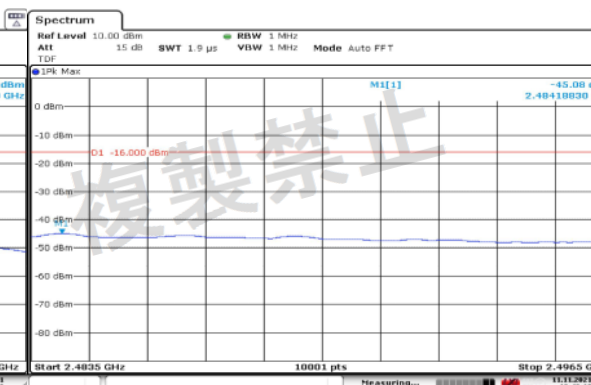




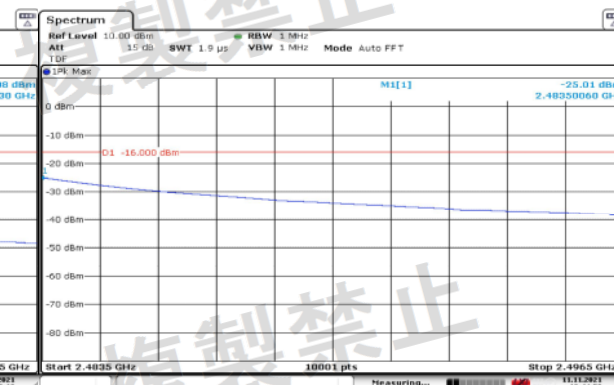
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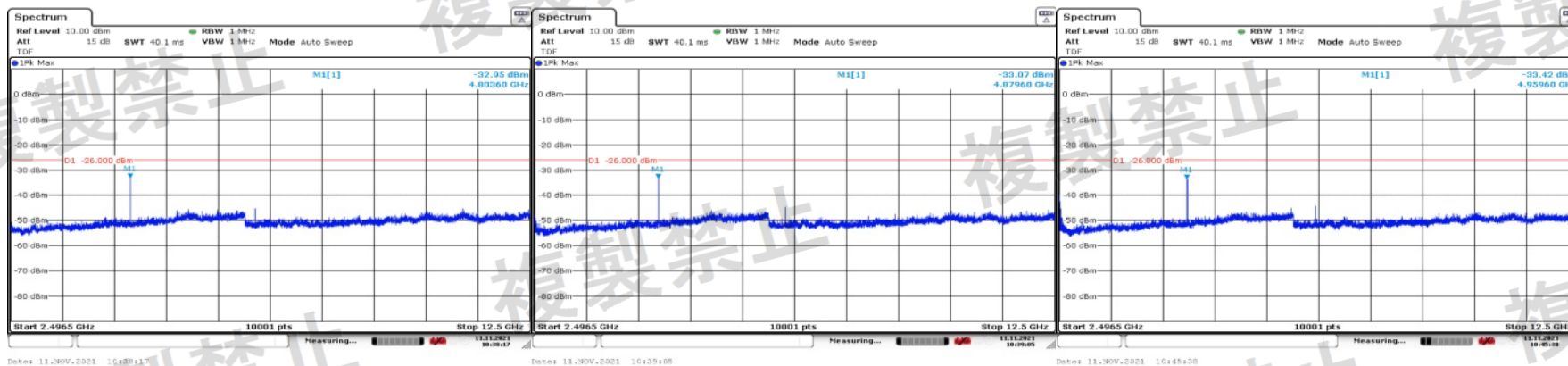
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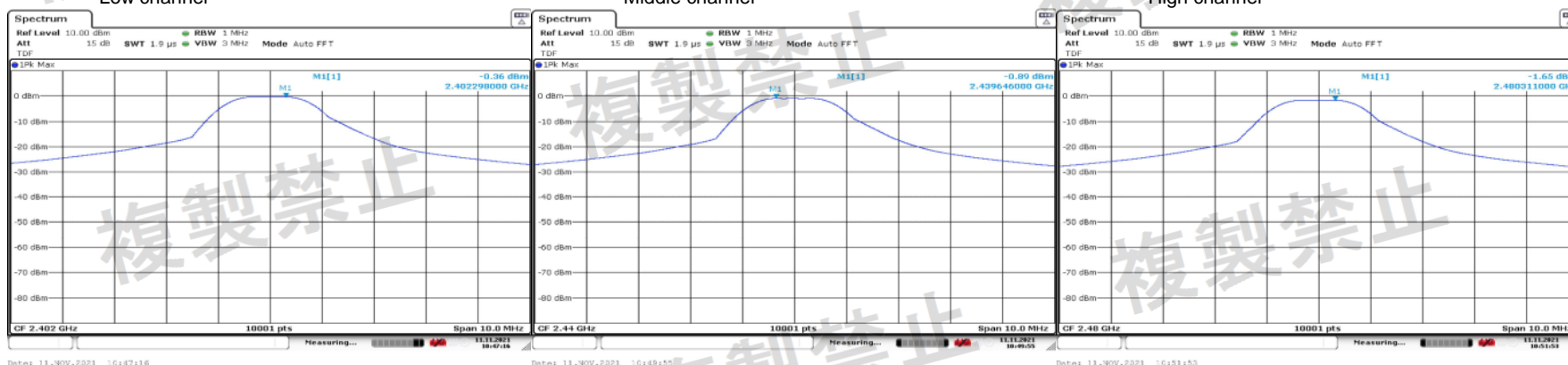


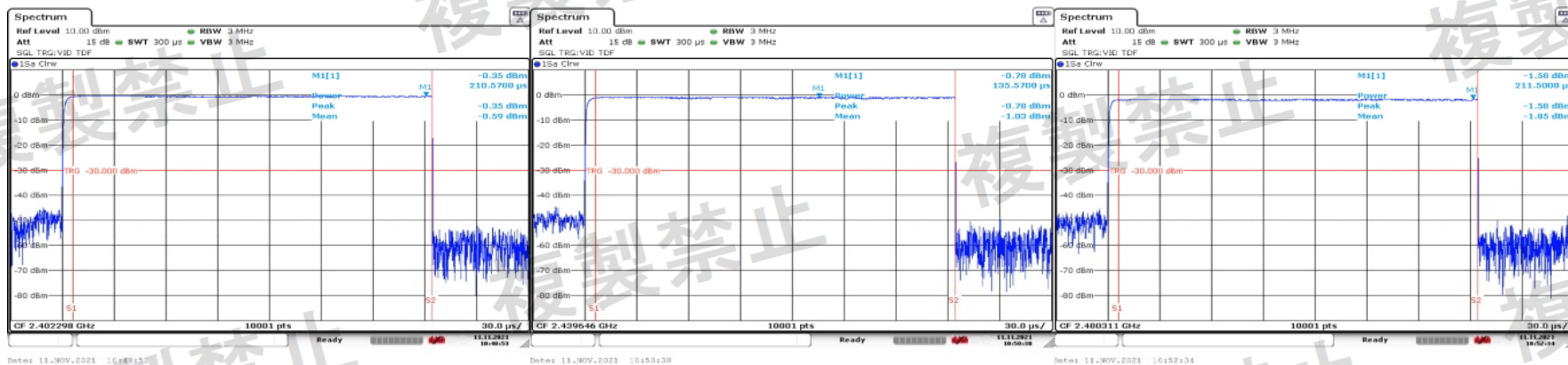
Antenna Power

Low channel

Middle channel

High channel





Secondary Radiated Emissions

Low channel

Middle channel

High channel

