

Nien Made Enterprise Co., Ltd

TEST REPORT

Model:

BMCS-RF

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Radio Spectrum TEST REPORT

Applicant:	Nien Made Enterprise Co., Ltd 26F.-1, No. 98, Shizheng N. 7th Rd., Xitun Dist., Taichung City 407, Taiwan
Product:	Motorized cellular shade RF module
Model No.:	BMCS-RF
FCC ID:	Q3V-BMCS1
Test Method/ Standard:	47 CFR FCC Part 15.249 & ANSI C63.10 2013
Test By:	Intertek Testing Services Taiwan Ltd., Hsinchu Laboratory No. 17, Ln. 246, Niupu S. Rd., Xiangshan Dist, Hsinchu City 300075, Taiwan
Note:	This report is issued as a supplementary document and shall be used combined together with original report no.: 240200104THC-001.



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Revision History

Report No.	Issue Date	Revision Summary
240200104THC-001	Apr. 16, 2024	Original report
240200104THC-001R1	Mar. 27, 2025	Change the zero-ohm jumper(R60) to a diode (D40) to prevent the motor output from draining the capacitor after power loss, and add a 220uF electrolytic capacitor (C86) to extend the duration of 3.3V power supply. So the FCC C2PC (radiated for 30MHz ~ 1GHz) is exeuted.

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Summary of Tests

Test	Reference	Results
Radiated Emission test	15.249(c), 15.209	Pass

Note: Please note that the test results with statement of conformity, the decision rules which are based on: Safety Testing: the specification, standard or IEC Guide 115.

Other Testing: the specification, standard and not taking into account the measurement uncertainty.

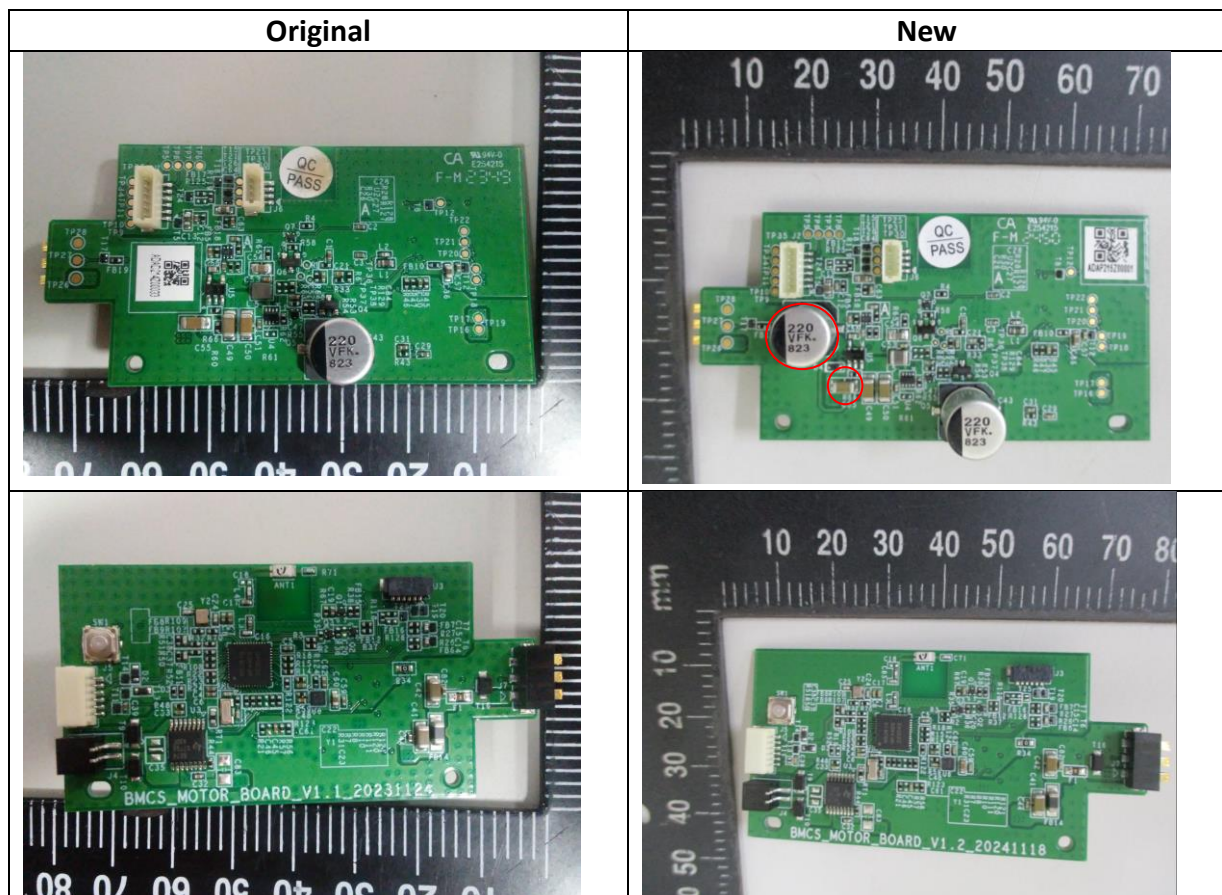
1. General Information

1.1 Identification of the EUT

Product:	Motorized cellular shade RF module
Model No.:	BMCS-RF
Operating Frequency:	2415, 2439, 2459MHz
Channel Number:	3 channels
Rated Power:	DC 7.4V from battery
Power Cord:	N/A
Sample receiving date:	2025/02/10
Sample condition:	Workable
Test Date(s):	2025/02/14

1.2 Additional information about the EUT

Change the zero-ohm jumper(R60) to a diode (D40) to prevent the motor output from draining the capacitor after power loss, and add a 220uF electrolytic capacitor (C86) to extend the duration of 3.3V power supply.



1.3 Antenna description

Antenna Type:	Chip Antenna
Connector Type:	Fixed
Antenna Gain:	1.8 dBi

2. Test specifications

2.1 Test standard

The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

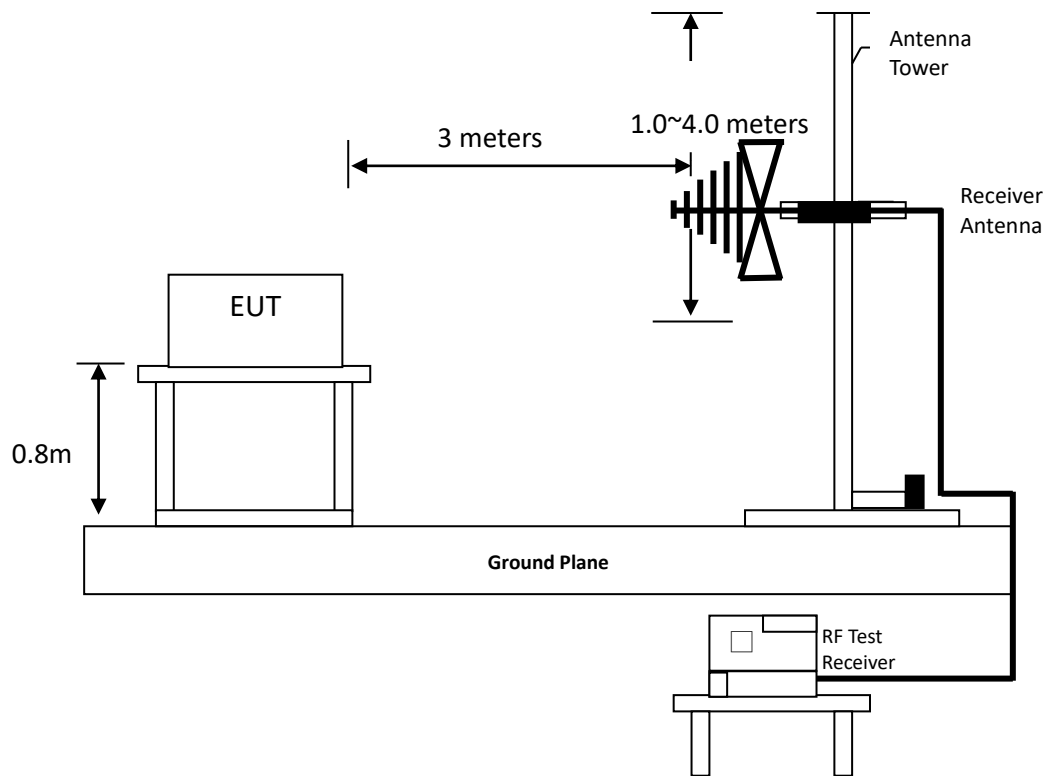
The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

2.2 Operation mode

Connect the EUT to the power supply, control the EUT transmission frequency, and start the test.

3. Radiated emission test FCC 15.249 (C)

3.1 Test setup & procedure



Radiated emissions were investigated cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/ 3 MHz VBW) recorded also on the report.

The EUT for testing is arranged on a turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

3.2 Emission limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

Frequency MHz	15.209 Limits (dB μ V/m@3m)
30-88	40
88-216	43.5
216-960	46
Above 960	54

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

3.3 Radiated spurious emission test data

Temperature (°C) :	20
Relative Humidity (%) :	69
Test date :	2025/02/14
Remark :	Normal mode

Antenna Polarity	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Horizontal	163.86	PK	20.64	6.69	27.33	43.50	-16.17
Horizontal	250.19	PK	20.48	5.67	26.15	46.00	-19.85
Horizontal	303.54	PK	21.89	13.47	35.36	46.00	-10.64
Horizontal	461.65	PK	25.93	6.38	32.31	46.00	-13.69
Horizontal	526.64	PK	27.09	6.31	33.40	46.00	-12.60
Horizontal	600.36	PK	28.96	4.31	33.27	46.00	-12.73

Remark: Corr. Factor = Antenna Factor + Cable Loss

Antenna Polarity	Frequency (MHz)	Spectrum Analyzer Detector	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
Vertical	60.07	PK	20.37	4.92	25.29	40.00	-14.71
Vertical	160.95	PK	20.72	2.69	23.41	43.50	-20.09
Vertical	283.17	PK	21.29	6.68	27.97	46.00	-18.03
Vertical	302.57	PK	21.87	6.75	28.62	46.00	-17.38
Vertical	462.62	PK	25.96	4.55	30.51	46.00	-15.49
Vertical	489.78	PK	26.36	5.24	31.60	46.00	-14.40

Remark: Corr. Factor = Antenna Factor + Cable Loss

Appendix A: Test equipment list

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
EMI Test Receiver	KEYSIGHT	N9038B	MY63060107	2024/03/06	2025/03/05
Bilog Antenna	SCHWARZBECK	VULB 9168 & N-6-06	1382 & AT-06012	2024/11/29	2025/11/28
Cable	SUHNER	SUCOFLEX 104	295105/4	2024/03/02	2025/03/02
Cable	SUHNER	SUCOFLEX 104P	CB0005	2024/06/14	2025/06/13
966-2_3m Semi-Anechoic Chamber	CHANCE MOST	CEM-966_2	N/A	2024/07/30	2025/07/29
Test software	Audix	e3	V9	NCR	NCR

Note: No Calibration Required (NCR).

Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k=2$.

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	3.91 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	3.49 dB