Spot Check Evaluation

APPLICANT	:	**Quectel Wireless Solutions Co., Ltd.**
EQUIPMENT	:	**Smart Module**
BRAND NAME	:	**Quectel**
MODEL NAME	:	**SC696S-WF**
FCC ID	:	**XMR2023SC696SWF**
STANDARD	:	**47 CFR Part 15 Subpart C §15.247** **47 CFR Part 15 Subpart E §15.407**

We, Sporton International Inc. (Kunshan), 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 report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
2N1442-01A	Rev. 01	Initial issue of report	Oct. 18, 2023

Conformity Assessment Condition:
1. 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.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”
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.

1 General Description

1.1 Applicant

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

1.2 Manufacturer

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, China 200233

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Module
Brand Name	Quectel
Model Name	SC696S-WF
FCC ID	XMR2023SC696SWF
SN Code	Conducted: E1C23FA0D000027
HW Version	R1.0
SW Version	SC696SWFNAR60A02
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-KS	CN1257	314309

1.6 Applicable Standards

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

- FCC KDB 484596 D01 Referencing Test Data v02r01
- 47 CFR Part 15 Subpart C §15.247
- 47 CFR Part 15 Subpart E §15.407
- ANSI C63.10-2013
- ANSI C63.26-2015

2 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: SC696S-WF, FCC ID: XMR2023SC696SWF) is electrically identical to the reference device (Model: SC668S-WF, FCC ID: XMR2022SC668SWF) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS) and FCC Part 15E (equipment class: NII) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 Referencing Test Data v02r01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: XMR2023SC696SWF .

2.2 Model Difference Information

The **main** difference between FCC ID: XMR2022SC668SWF and FCC ID: XMR2023SC696SWF is as below:

- Changed the operating system.

Other differences and all the details of similarity and difference can be found in the confidential documents (SC696S-WF_Operational Description of Product Equality Declaration).

2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
15C	DSS (BR/EDR)	2400~2483.5	XMR2022SC668SWF	Original Grant	FR2N1442A	XMR2023SC696SWF	All sections applicable
	DTS (BLE)	2400~2483.5	XMR2022SC668SWF	Original Grant	FR2N1442B	XMR2023SC696SWF	All sections applicable
	DTS (WLAN)	2400~2483.5	XMR2022SC668SWF	Original Grant	FR2N1442C	XMR2023SC696SWF	All sections applicable
15E	U-NII	5180~5240	XMR2022SC668SWF	Original Grant	FR2N1442D	XMR2023SC696SWF	All sections applicable
		5260~5320	XMR2022SC668SWF	Original Grant	FR2N1442D	XMR2023SC696SWF	All sections applicable
		5500~5720	XMR2022SC668SWF	Original Grant	FR2N1442D	XMR2023SC696SWF	All sections applicable
		5745~5825	XMR2022SC668SWF	Original Grant	FR2N1442D	XMR2023SC696SWF	All sections applicable
		5260~5320 5500~5720	XMR2022SC668SWF	Original Grant	FZ2N1442	XMR2023SC696SWF	All sections applicable

2.4 Spot Check Verification Data Section

Conducted power test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.
All test procedures follow the related section of parent report.

For any given test, the maximum identified difference between spot check and reference data shall be no larger than 25%, in linear units.

$$|spot\ check\ data - reference\ data| / |reference\ data| \leq 0.25 ,$$

where "| |" is the absolute value of the measured quantity.
Summary for power spot check for each rule entry and technology is listed as below:

Test Item	Mode	XMR2022SC668SWF Parent Worst Result (dBm)	XMR2023SC696SWF Variant Check Result (dBm)	Difference	Limit
Conducted Power (dBm)	BT BR/EDR	11.80	10.58	0.245	0.25
	BLE 1Mbps	2.77	1.55	0.245	0.25
	BLE 2Mbps	2.91	1.68	0.247	0.25
	11b, 2.4GHz	18.43	17.99	0.096	0.25
	11g, 2.4GHz	20.38	19.74	0.137	0.25
	11n HT20, 2.4GHz	19.42	18.82	0.129	0.25
	11n HT40, 2.4GHz	20.44	20.27	0.038	0.25
	11a, 5.2GHz	15.94	15.81	0.029	0.25
	11a, 5.3GHz	15.93	15.8	0.029	0.25
	11a, 5.5GHz	15.89	15.85	0.009	0.25
	11a, 5.8GHz	15.31	15.28	0.007	0.25
	11n HT20, 5.2GHz	15.75	15.68	0.016	0.25
	11n HT20, 5.3GHz	15.76	15.72	0.009	0.25
	11n HT20, 5.5GHz	15.73	15.68	0.011	0.25
	11n HT20, 5.8GHz	15.12	15.06	0.014	0.25
	11n HT40, 5.2GHz	16.56	16.38	0.041	0.25
	11n HT40, 5.3GHz	16.37	15.87	0.109	0.25
	11n HT40, 5.5GHz	15.94	15.43	0.111	0.25
	11n HT40, 5.8GHz	15.79	15.75	0.009	0.25
	11ac VHT20, 5.2GHz	14.69	14.62	0.016	0.25
	11ac VHT20, 5.3GHz	14.65	14.56	0.021	0.25
	11ac VHT20, 5.5GHz	14.61	14.52	0.021	0.25
	11ac VHT20, 5.8GHz	14.25	14.2	0.011	0.25
	11ac VHT40, 5.2GHz	14.55	14.51	0.009	0.25
	11ac VHT40, 5.3GHz	14.36	14.23	0.029	0.25
	11ac VHT40,	13.87	13.85	0.005	0.25

	5.5GHz				
	11ac VHT40, 5.8GHz	13.86	13.82	0.009	0.25
	11ac VHT80, 5.2GHz	14.08	13.99	0.021	0.25
	11ac VHT80, 5.3GHz	14.05	13.92	0.029	0.25
	11ac VHT80, 5.5GHz	13.90	13.85	0.011	0.25
	11ac VHT80, 5.8GHz	13.50	13.41	0.021	0.25

For example: BT BR/EDR:

Difference = |10^(Parent/10) - 10^(Variant/10)| / |10^(Parent/10)| ≤ 0.25

= |10^(11.8/10) - 10^(10.58/10)| / |10^(11.8/10)| ≤ 0.25

= 0.245 ≤ 0.25

Conclusion:

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level spot check are shown within expected level compliant to limit line.

We are using power and ERP/EIRP measurements from the original parent model reports to list on the grant.

The same DFS detection mechanism/software is used in the variant. Hence, there is no spot check data for DFS hand-shaking mechanism.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.

3 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 12, 2022	Sep. 12, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2023	Sep. 12, 2023	Jan. 04, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2023	Sep. 12, 2023	Jan. 04, 2024	Conducted (TH01-KS)

NCR: No Calibration Required.

4 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	**±0.46 dB**

-THE END-