



SPOT CHECK EVALUATION

Applicant: Quectel Wireless Solutions Co., Ltd.
Address: Building 5, Shanghai Business Park Phase III (Area B), No.1016
Tianlin Road, Minhang District, Shanghai, 200233, China
Product: IATF 16949 Compliant Automotive Grade 5G NR + DSDS Module
Model No.: AG598E-ROWA
Brand Name: QUECTEL
FCC ID: XMR025AG598EROWA
Standards: 47 CFR Part 22
47 CFR Part 24
47 CFR Part 27
47 CFR Part 90
Report No.: PD20250077-R3G
Issue Date: 2025/08/14
Test Result: PASS *

* Testing performed at Hefei Panwin Technology Co., Ltd. on the above equipment indicates the product meets the requirements of the relevant standards.

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Revision History

Report No.	Version	Description	Issue Date	Note
PD20250077-R3G	01	Initial Report	2025/08/14	Valid

CONTENTS

1 Introduction Section	4
2 Model Difference Information	5
3 Spot Check Verification Data Section	6
4 Reference detail Section	9
5 Test Condition	10
5.1 Equipment List	10
ANNEX A: Test Setup Photographs	12
ANNEX B: Test Results	13

1 Introduction Section

FCC ID: XMR2025AG598EROWA (Parent Device HW: R1.0) and FCC ID: XMR025AG598EROWA (Variant Device HW: R1.1, R1.2) all use Qualcomm SA522M chipset, share the same chipset baseline.

Based on their similarity, the FCC Part 22, 24, 27, 90 reuse the original model's result and do spot-check.

The spot check data in this report is used to justify the data reuse following FCC KDB 484596 D01 Referencing Test Data v02r03.

The applicant should take full responsibility that the test data as referenced in this report represent compliance for this FCC ID: XMR025AG598EROWA.

2 Model Difference Information

FCC ID: XMR2025AG598EROWA (Parent Device HW: R1.0) and FCC ID: XMR025AG598EROWA (Variant Device HW: R1.1, R1.2).

Model AG598E-ROWA all use Qualcomm SA522M chipset, share the same chipset baseline.

They support the same LGA form factor package.

The difference between these three OCs are the GNSS function, LTE UE categories and DL MIMO:

- R1.0 GNSS supports L1+L5 & LTE CAT 19 & 4*4 MIMO, and with U2601 PA used for MIMO3 LB + UHB (N77/N78/B42) NSA mode;
- R1.1 GNSS supports L1+L5 & LTE CAT 16 & 2*2 MIMO, and only have a single PA (N77/N78/N79/B42) for UHB LTE/NR and NSA mode;
- R1.2 does not support GNSS and supports LTE CAT 16 & 2*2 MIMO, and only have a single PA (N77/N78/N79/B42) for UHB LTE/NR and NSA mode.

Based on the differences in hardware versions mentioned above, the testing plan is as follows:

- Compared with R1.0, we conducted complete testing on LTE Band 42 and CA_42C of R1.1 and R1.2.
- Compared with R1.0, SA and NSA of N77/N78 with R1.1 and R1.2 were fully tested.

Based on the information, spot check on conducted power, ERP/EIRP and radiated spurious emission was performed to ensure compliance.

3 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test configurations were selected from the worst cases identified in the parent model and tested to demonstrate the test data from original model remains representative for the variant model.

Based on the RF parameter is still identical so the EBW from original model remains representative for the variant model.

Summary for power and RSE spot check for each FCC rule part is listed as below:

Test Item	Mode	Item	XMR2025AG598EROWA Parent Worst Result	XMR025AG598EROWA Variant Check Result	Difference (dB)
Conducted Power ERP/EIRP (dBm)	WWAN LTE Band 5 10MHz 1RB#49 QPSK CH20450	Power	22.73	22.93	0.2
	Antenna gain (dBi) 0.3	ERP	20.88	21.08	0.2
	WWAN LTE Band 38 5MHz 1RB#12 QPSK CH37775	Power	22.91	23.16	0.25
	Antenna gain (dBi) 1.4	ERP	24.31	24.56	0.25
	WWAN NR n5 5MHz Inner_1RB_Left QPSK MCH	Power	23.41	23.34	-0.07
	Antenna gain (dBi) 0.3	ERP	21.56	21.49	-0.07
	WWAN NR n12 10MHz Inner_1RB_Left QPSK HCH	Power	23.18	23.32	0.14
	Antenna gain (dBi) -0.5	ERP	20.53	20.67	0.14
	WWAN NR n26(814-824MHz) 5MHz Inner_1RB_Left QPSK MCH	Power	23.45	23.31	-0.14
	Antenna gain (dBi) 0.3	ERP	21.6	21.46	-0.14
	WWAN NR n38 25MHz Inner_1RB_Left BPSK HCH	Power	23.58	23.49	-0.09
	Antenna gain (dBi) 1.4	ERP	24.98	24.89	-0.09
Peak-to-Average Ratio(dB)	WWAN LTE Band 5 10MHz 50RB#0 QPSK CH20525	PAR	4.7	4.67	-0.03
	WWAN LTE Band 38 20MHz 100RB#0 QPSK CH38000	PAR	4.22	4.24	0.02
	WWAN NR n5 20MHz Outer_Full QPSK MCH	PAR	4.99	4.98	-0.01
	WWAN NR n12 15MHz Outer_Full QPSK MCH	PAR	4.37	4.42	0.05

	WWAN NR n26(814-824MHz) 10MHz Outer_Full QPSK MCH	PAR	4.83	4.75	-0.08
	WWAN NR n38 40MHz Outer_Full QPSK MCH	PAR	4.52	4.52	0
Occupied Bandwidth(M Hz)	WWAN LTE Band 5 10MHz 50RB#0 QPSK CH20525	OBW	8.9965	9.0167	0.0202
	WWAN LTE Band 38 20MHz 100RB#0 QPSK CH38000	OBW	18.022	17.994	-0.028
	WWAN NR n5 20MHz Outer_Full QPSK MCH	OBW	18.979	18.971	-0.008
	WWAN NR n12 15MHz Outer_Full QPSK MCH	OBW	14.125	14.104	-0.021
	WWAN NR n26(814-824MHz) 10MHz Outer_Full QPSK MCH	OBW	9.3229	9.2996	-0.0233
	WWAN NR n38 40MHz Outer_Full QPSK MCH	OBW	38.081	37.911	-0.17
Band Edge(dBm)	WWAN LTE Band 5 10MHz 1RB#0 QPSK CH20450	Spur	-30.28	-30.09	0.19
	WWAN LTE Band 38 20MHz 1RB#99 QPSK CH37850	Spur	-50.85	-50.96	-0.11
	WWAN NR n5 20MHz Outer_Full QPSK LCH	Spur	-29.82	-31.14	-1.32
	WWAN NR n12 15MHz Outer_Full QPSK LCH	Spur	-32.99	-33.31	-0.32
	WWAN NR n26(814-824MHz) 10MHz Outer_Full QPSK LCH	Spur	-28.19	-28.94	-0.75
	WWAN NR n38 40MHz Outer_Full QPSK LCH	Spur	-37.88	-37.55	0.33
Conducted Spurious Emission(dB m)	WWAN LTE Band 5 1G~3G 10MHz 1RB#0 QPSK CH20525	Spur	-40.20	-39.41	0.79
	WWAN LTE Band 38 1G~20G 20MHz 1RB#0 QPSK CH38000	Spur	-41.71	-41.58	0.13
	WWAN NR n5 1G~3G 20MHz Inner_1RB_Left QPSK MCH	Spur	-50.32	-48.80	1.52
	WWAN NR n12 30M~1G 15MHz Inner_1RB_Left QPSK MCH	Spur	-54.23	-53.62	0.61
	WWAN NR n26(814-824MHz) 1G~3G 10MHz Inner_1RB_Left QPSK LCH	Spur	-50.38	-49.35	1.03
	WWAN NR n38 3G~12G 40MHz Inner_1RB_Left QPSK MCH	Spur	-50.57	-50.39	0.18

Test Item	Mode	Item	XMR2025AG598EROWA Parent Worst Result	XMR025AG598EROWA Variant Check Result	Verdict
Frequency Stability(Hz)	WWAN LTE Band 5 NTNV 10MHz 50RB#0 QPSK CH20525	Freq	-2.90	1.81	PASS
	WWAN LTE Band 38 NTNV 20MHz 100RB#0 QPSK CH38000	Freq	FL2586.04027 FH2603.93227	FL2586.0545 FH2603.9285	PASS
	WWAN NR n5 NTNV 20MHz Outer_Full QPSK MCH	Freq	-6.13	-6.72	PASS
	WWAN NR n12 NTNV 15MHz Outer_Full QPSK MCH	Freq	-3.82	-2.08	PASS
	WWAN NR n26(814-824MHz)NTNV 10MHz Outer_Full QPSK MCH	Freq	-3.04	-2.91	PASS
	WWAN NR n38 NTNV 40MHz Outer_Full QPSK MCH	Freq	-2.2	-4.1	PASS

Test Item	Mode	ANT	XMR2025AG598EROWA Parent Worst Result	XMR025AG598EROWA Variant Check Result	Difference (dB)
Radiated Spurious Emission (dBm)	LTE_B5_10M_CH20525	DIV	-47.89	-48.46	-0.57
	LTE_B38_20M_CH3800	MAIN	-50.11	-49.89	0.22
	NR_n5_20M_CH167800	DIV	-47.9	-48.6	-0.7
	NR_n12_15M_CH141500	DIV	-47.94	-47.82	0.12
	NR_n26_10M_CH163800	DIV	-48.32	-49.85	-1.53
	NR_n38_40M_CH518500	MAIN	-49	-49.7	-0.7

Conclusion:

Radiated spurious emission 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.

The spot check emission level is not degraded more than 3dB, and the margin to the limit is greater than 1.5dB, data referencing is justified according to the guidance in the KDB inquiry

4 Reference detail Section

Rule Part	Equipment Class	Wireless Technology	Rule Part & Frequency Band	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Report	Full report referenced	FCC ID Filling (Variant)
22, 24, 27, 90	PCE	GSM	Part 22/24 GSM850/1900	XMR2025AG 598EROWA	Original Grant	PD20250077 -R3A	Y	XMR025AG5 98EROWA
		WCDMA	Part 22/24/27 Band II, IV, V	XMR2025AG 598EROWA	Original Grant	PD20250077 -R3A	Y	XMR025AG5 98EROWA
		LTE	Part 22/24/27/90 Band 2, 4, 5, 7, 12, 25, 26, 38, 41, 42, 66, 71	XMR2025AG 598EROWA	Original Grant	PD20250077 -R3A	Y ^{Note1}	XMR025AG5 98EROWA
		NR	Part 22/24/27/90 n2, 5, 7, 12, 25, 26, 38, 41, 66, 71, 77, 78	XMR2025AG 598EROWA	Original Grant	PD20250077 -R3B	Y ^{Note2}	XMR025AG5 98EROWA

Note1: Compared with R1.0, we conducted complete testing on LTE Band 42 and CA_42C of R1.1 and R1.2.

Note2: Compared with R1.0, SA and NSA of N77/N78 with R1.1 and R1.2 were fully tested.

5 Test Condition

5.1 Equipment List

Instrument	Manufacturer	Model	Asset No.	Cal. Interval	Cal. Due Date
Conducted					
Base Station Simulator	R&S	CMW500	PWC0052	1 Year	2025/09/12
Spectrum Analyzer	Keysight	N9020B	PWC0047	1 Year	2025/09/11
Base Station Simulator	R&S	CMW500	PWC0006	1 Year	2025/09/11
Spectrum Analyzer	R&S	FSV3030	PWC0003	1 Year	2025/09/12
DC Power	KEYSIGHT	E3640A	PWC0043	1 Year	2025/09/12
Climate Chamber	Boyi	B-T-48C	PWC0051	1 Year	2025/09/12
Shielded Chamber	Mao Rui	MR534	PWC0041	3 Years	2026/08/26
RF cable	TIMES Microwave Systems	SFT205PUR-NMSWSM-1.50M	PWD0165	1 Year	2025/09/12
RF cable	TIMES Microwave Systems	HF160-KMKMR-1.50M	PWD0166	1 Year	2025/09/12
Coupling unit	COM-MW	ZDC6-10M1	PWD0167	1 Year	2025/09/12
Test Software	Tonscend	JS1120 V3.1.46	-	-	-
Base Station Simulator	Keysight	E7515E	PWC0042	1 Year	2025/09/12
Spectrum Analyzer	Keysight	N9020B	PWC0049	1 Year	2025/09/12
Base Station Simulator	Anritsu	MT8000A_020/021	PWC0032	1 Year	2025/09/12
Spectrum Analyzer	R&S	FSV3044	PWC0036	1 Year	2025/10/20
Coupling unit	Tonscend	JS0806-1	PWC0056	1 Year	2025/09/12
DC Power	Keysight	E3640A	PWC0044	1 Year	2025/09/12
Climate Chamber	Boyi	B-T-48C	PWC0050	1 Year	2025/09/12
Shielded Chamber	Mao Rui	MR534	PWC0041	3 Years	2026/08/26
RF cable	TIMES Microwave Systems	SFT205PUR-NMSWSM-1.50M	PWD0154	1 Year	2025/09/12
RF cable	TIMES Microwave Systems	SFT205PUR-NMSWSM-1.50M	PWD0155	1 Year	2025/09/12
RF cable	TIMES Microwave Systems	HF160-KMKMR-1.50M	PWD0153	1 Year	2025/09/12
Test Software	Tonscend	JS1120 V2.4.1	-	-	-
Radiated					

Receiver	R&S	ESR7	PWB0023	1 Year	2025/09/11
Spectrum Analyzer	R&S	FSV3044	PWB0024	1 Year	2025/09/11
Loop Antenna	R&S	HFH2-Z2E	PWB0026	1 Year	2025/09/13
TRILOG Broadband Antenna	Schwarzbeck	VULB9162	PWB0029	1 Year	2025/09/09
Double-Ridged Guide Antenna	ETS-Lindgren	3117	PWB0031	1 Year	2025/09/26
k Type Horn Antenna	Steatite Antennas	QMS-00880	PWB0035	1 Year	2025/09/08
Pre-Amplifier	R&S	OSP220 (OSP-B155G)	PWB0042	1 Year	2025/09/11
Pre-Amplifier	COM-MW	DLNA8	PWB0094	1 Year	2025/09/11
Pre-Amplifier	R&S	SCU18F	PWB0034	1 Year	2025/09/11
Pre-Amplifier	R&S	SCU40F1	PWB0036	1 Year	2025/09/11
Anechoic Chamber	ETS-Lindgren	Fact 3-2m	PWB0003	3 Years	2026/06/05
Test Software	Tonscend	JS36 V5.0.0	-	-	-

ANNEX A: Test Setup Photographs

The Test Setup Photographs are submitted separately.

ANNEX B: Test Results

Test Results of Conducted Test

LTE Band 5	Refer to ANNEX B.1
LTE Band 38	Refer to ANNEX B.2
NR Band n5	Refer to ANNEX B.3
NR Band n12	Refer to ANNEX B.4
NR Band n26(814-824MHz)	Refer to ANNEX B.5
NR Band n38	Refer to ANNEX B.6

Test Results of Radiated Test

Radiated Emission	Refer to ANNEX B.7
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