

Test Report on

Blues Wireless
Model: NOTE-NBNAW
SW Version: 5
HW Version: 5
PTCRB # 119757
SVN: 31

Test Report Reference: MUS_BLUES_2303_CON_Rev0

Date: 2023-08-25



Cert# 2742.01

Test Laboratory:
Bureau Veritas CPS Inc.
775 Montague Expy
Milpitas, CA 95035
USA



Authorized
Test Lab
Lab Code: **20200911-00**

Table of Contents

1 Administrative Data	3
1.1 Project Information	3
1.2 Applicant Information	3
1.3 Test Laboratory Information	4
1.4 Signature of responsible for testing	5
1.5 Signature of responsible for accreditation scope	5
1.6 Revision History	5
2 Test Object Data	6
2.1 Object Under Test (OUT) Description(s)	6
3 Results	7
3.1 General	7
3.2 Measurement Uncertainties	8
3.3 Applicable Quality Policies	9
3.4 Applicable Test Specification(s)	9
3.5 Result Statistics	10
3.6 Result Summary	11
4 Test Equipment Details	12
4.1 List of Test Equipment	12
5 Annex	14
5.1 Object Under Test (OUT) Features	14
5.2 Sample AA01	14

1 Administrative Data

1.1 Project Information

Project Name	MUS_BLUES_2303
Responsible for Testing	Jenil Nathwani
Date of Report	2023-08-25
Testing Time Frame	2023-07-10 to 2023-07-27

1.2 Applicant Information

Company	Blues Wireless
Address	50 Harbor Street Manchester, MA 01944 United States
Contact Person	James Batson
Phone	+1 (339) 293 7956
Email	jbatson@blues.com

1.3 Test Laboratory Information

The following list shows all Locations and Test Resources involved in the generation of test results:

Bureau Veritas, USA, CA, Milpitas

Company Name	Bureau Veritas Consumer Products Services, Inc.
Address	775 Montague Expy Milpitas, CA 95035 United States
Contact	Sarb Shelopal
Phone	+1 (925) 963 4420
Email	sarbjit.shelopal@bureauveritas.com
Laboratory accreditation no.	A2LA 2742.01

List of Test Resources

ID	Name	Responsible	Accreditation Info
1	Radiated Spurious Emissions	Marco Orantes	A2LA 2742.01

1.4 Signature of responsible for testing

Jenil Nathwani

Jenil Nathwani

1.5 Signature of responsible for accreditation scope

Marco Orantes

Marco Orantes

1.6 Revision History

Report version control			
Version	Release date	Change Description	Version validity
Initial	2023-08-25	Initial Release	Valid

2 Test Object Data

2.1 Object Under Test (OUT) Description(s)

The following section lists all Objects Under Test (OUTs) involved during testing.

Object Under Test: NOTE-NBNAW

Type / Model Blues Wireless
Model: NOTE-NBNAW
SW Version: 5
HW Version: 5
PTCRB # 119757
SVN: 31

Normal Temperature 23 °C

Normal Voltage 5 V

Manufacturer:

Company Blues Wireless
Address 50 Harbor Street
Manchester, MA 01944
United States
Contact Person James Batson
Phone +1 (339) 293 7956
Email jbatson@blues.com

3 Results

3.1 General

Documentation of tested devices

Available at the test laboratory.

Interpretation of the test results

The results of the inspection are described on the following pages, where 'Conformity' or 'Passed' means that the certification criteria were verified and that the tested device conforms to the applied standard.

In cases where 'Declaration' is stated, the required documents are available in the manufacturer's product documentation.

In cases where 'not applicable' is stated, the test case requirements are not relevant to the specific equipment implementation.

Notes

1. This report contains the abbreviated information content pertaining to services rendered. Supporting documentation not included herein is maintained and available at the test laboratory.
2. All tests are performed under environmental conditions within the requirements of the specifications. Environmental condition records are available at the test laboratory.
3. Test sample (NOTE-NBNAW) of this project received in good condition.

Project specific notes

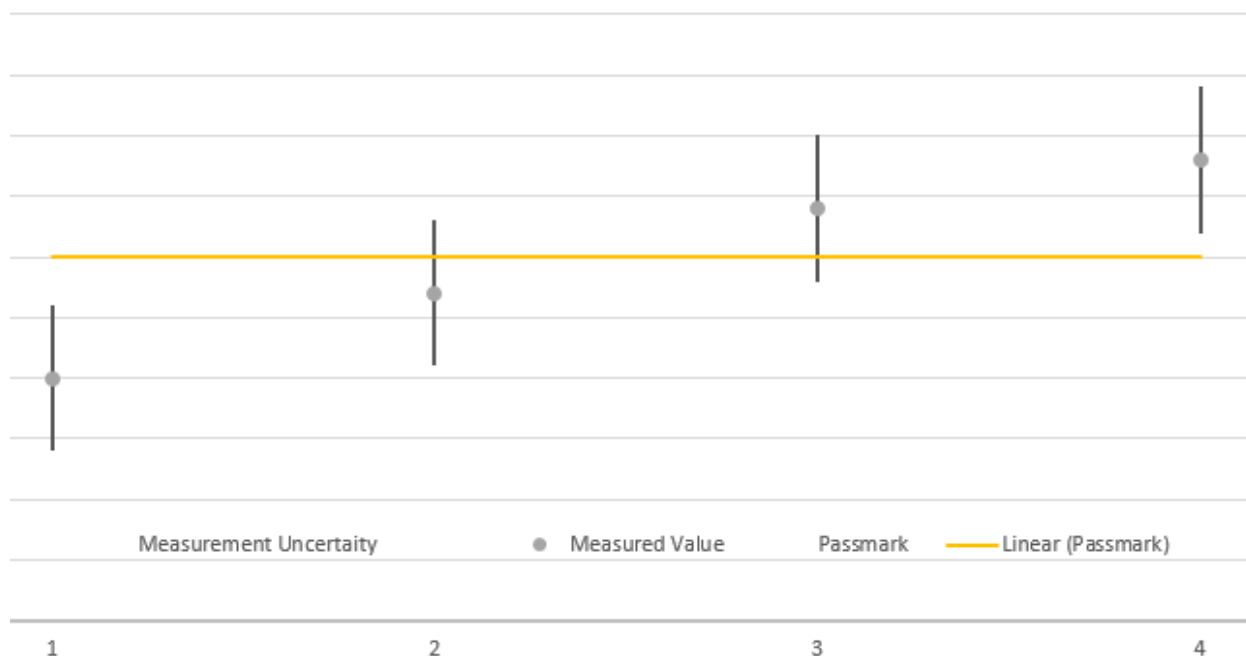
This is a delta test report based on PTCRB modular approval guideline for a final product that integrates a Quectel BG95-M1 Module which has been approved by PTCRB (Request# 117407) according to NAPRD.03 v6.11 with HW version: R2.1 and SW version: BG95M1LAR02A04 (SVN31) on April 26, 2023.

3.2 Measurement Uncertainties

Parameter	Uncertainty
Occupied channel Bandwidth	± 2%
Radiated Emissions	30 MHz – 1 GHz: ± 2.4 dB 180 MHz – 18 GHz: ± 2.6 dB
Spurious emissions, conducted	0.22 – 1.82 dB (*)
Transmitter tests, conducted	0.33 – 0.8 dB (*)
Receiver tests, conducted	0.22 – 1.027 dB (*)
Frequency error, conducted	< 15 Hz (*)
Phase error, conducted	≤ 02 °RMS EVM: ≤ 2.5%
Temperature	± 1.0 °C
Humidity	± 3%
DC and low frequency voltages	± 0.05%
Time	0.28 ms
Duty Cycle	± 5%

(*) Depending on the used test resource and the performed test case the uncertainty is in the given range. Detailed documentation is available at Bureau Veritas Consumer Products Services, Inc.

The measurement uncertainties for all parameters are calculated with an expansion factor (coverage factor) $k = 1.96$. This means, that the true value is in the corresponding interval with a probability of 95 %.



The verdicts in this test report are given according the above diagram:

Case	Measured Value	Uncertainty Range	Verdict
1	below pass mark	below pass mark	Passed
2	below pass mark	within pass mark	Passed
3	above pass mark	within pass mark	Failed
4	above pass mark	above pass mark	Failed

That means, the laboratory applies, as decision rule (see ISO/IEC 17025:2017), the so-called shared risk principle.

3.3 Applicable Quality Policies

Quality Policy	Version	Expiration Date
NAPRD03	6.11	

3.4 Applicable Test Specification(s)

Test Specification	3GPP TS 36.124
Version	V17.1.0
Description	3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); ElectroMagnetic Compatibility (EMC) requirements for mobile terminals and ancillary equipment (Release 17)

3.5 Result Statistics

Test Specification	Total	Result Verdict					Pass ratio
		Pass	Fail	Declaration	Blocked	Performed	
3GPP TS 36.124	6	6	0	0	0	0	100.00 %

Note: Pass, Declaration, Performed, Fail and Inconclusive results are regarded for the pass ratio calculation. Pass, Performed and Declaration are summarized as Pass results. Fail and Inconclusive are summarized as Fail results. All are summarized as total count (Pass + Declaration + Performed + Fail + Inconclusive). The pass ratio is calculated by the number of Pass results divided by the number of total results. All other results like Error, Not Tested or Blocked are not regarded for the calculation.

3.6 Result Summary

3.6.1 Pass Results

Test Specification: 3GPP TS 36.124

Test Case Name / Description Test Condition	Category	Verdict	Date	Test Res. ID	Sample/Setup
8.2 / Radiated Emission					
Band = eFDD66, Part = traffic (CatM1)	A	Passed	2023-07-27	TR 1	AA01
Band = eFDD66, Part = idle (CatM1)	A	Passed	2023-07-27	TR 1	AA01
Band = eFDD25, Part = traffic (CatM1)	A	Passed	2023-07-27	TR 1	AA01
Band = eFDD5, Part = traffic (CatM1)	A	Passed	2023-07-27	TR 1	AA01
Band = eFDD12, Part = traffic (CatM1)	A	Passed	2023-07-27	TR 1	AA01
Band = eFDD13, Part = traffic (CatM1)	A	Passed	2023-07-27	TR 1	AA01

4 Test Equipment Details

4.1 List of Test Equipment

The information shown below is valid for the testing time frame of this test report.

Test Resource 1: Radiated Spurious Emissions

Description: Radiated Spurious Emissions Test System

Single Devices of Test Resource Radiated Spurious Emissions

Test System Radiated Spurious Emissions of Test Resource Radiated Spurious Emissions

Description: Radiated Spurious Emissions Test System
 Manufacturer: Comtest Engineering
 Serial Number: 5122.0387.02-100693-mq

Single Devices of Test System Radiated Spurious Emissions

Name	Serial Number	Manufacturer		
CMW500	102333	Rohde & Schwarz Korea Ltd.		
CMW500	127723-eE	Rohde & Schwarz		
	<i>Event</i>		<i>Execution Date</i>	<i>Next Execution</i>
	Calibration		2022-11	2023-11
	<i>Software Version</i>		<i>Start Date</i>	<i>End Date</i>
	CMW Base 3.7.90		2019-02-13	
Name	Serial Number	Manufacturer		
Conical Log Spiral Antenna	00049087	ETS-Lindgren		
DC Power Supply	MY50270015	Agilent Technologies		
DRH-118	A060905-2	Sunol Sciences Corporation		
	<i>Event</i>		<i>Execution Date</i>	<i>Next Execution</i>
	Calibration		2021-11	2023-11
Name	Serial Number	Manufacturer		
FSU26	200522 (Model No: 1166.1660K26)	Rohde & Schwarz		
Highpass Filter #7	S/N: 5	Wainwright Instruments GmbH		
HP 6627A	US37350668	Agilent Technologies		
OSP 130	1505.3009K03-100595-CN	Rohde & Schwarz		
Power Meter Sensor (Probe B)	102341	Rohde & Schwarz		
Rohde & Schwarz, 1141.2005K02	102465	Rohde & Schwarz GmbH & Co. KG		
Rohde & Schwarz, 1141.2005K02	102466	Rohde & Schwarz GmbH & Co. KG		
Rohde & Schwarz, 1141.2005K02	102465	Rohde & Schwarz GmbH & Co. KG		
Rohde & Schwarz, 1141.2005K02	102466	Rohde & Schwarz GmbH & Co. KG		
SMF 100A	101321	Rohde & Schwarz Messgerätebau GmbH		
	<i>Event</i>		<i>Execution Date</i>	<i>Next Execution</i>
	Calibration		2021-05	2024-05

Name	Serial Number	Manufacturer	
Sunol Science, DRH-118	A070605	Sunol Sciences Corporation	
	<i>Event</i>	<i>Execution Date</i>	<i>Next Execution</i>
	Calibration	2022-05	2024-05

Name	Serial Number	Manufacturer
Test Bench 33	TB33	
Thermo-Hygrometer	191988635	Control Company
Thermo-Hygrometer	191988632	Control Company
Thermo-Hygrometer	191988635	Control Company
Top Hat antenna -001	407078-0001	
Top Hat antenna -002	406713-0002	
TS-PR18	101623	
WHKS1.3/15G-6SS	S/N 6	Wainwright Instruments GmbH
WHKX2.7/18G-10SS	S/N 10	Wainwright Instruments GmbH
WW-NF18	S/N 56	Rohde & Schwarz
WW-NF19	S/N 44	Rohde & Schwarz
WW-NF85	S/N 25	Rohde & Schwarz
WW-NF9	S/N 22	Rohde & Schwarz

5 Annex

5.1 Object Under Test (OUT) Features

Supported Features for Object Under Test: NOTE-NBNAW

Name	Short Description
3GPP TS 36.523-2	
A.4.1-1/1	E-UTRA FDD
A.4.3.1-1/1	eFDD1
A.4.3.1-1/2	eFDD2
A.4.3.1-1/3	eFDD3
A.4.3.1-1/4	eFDD4
A.4.3.1-1/5	eFDD5
A.4.3.1-1/8	eFDD8
A.4.3.1-1/12	eFDD12
A.4.3.1-1/13	eFDD13
A.4.3.1-1/18	eFDD18
A.4.3.1-1/19	eFDD19
A.4.3.1-1/20	eFDD20
A.4.3.1-1/25	eFDD25
A.4.3.1-1/26	eFDD26
A.4.3.1-1/28	eFDD28
A.4.3.1-1/34	eFDD66
A.4.3.1-1/85	eFDD85
ETSI TS 102 230-1	
A.1/3	Class A
A.1/4	Class B
A.1/5	Class C

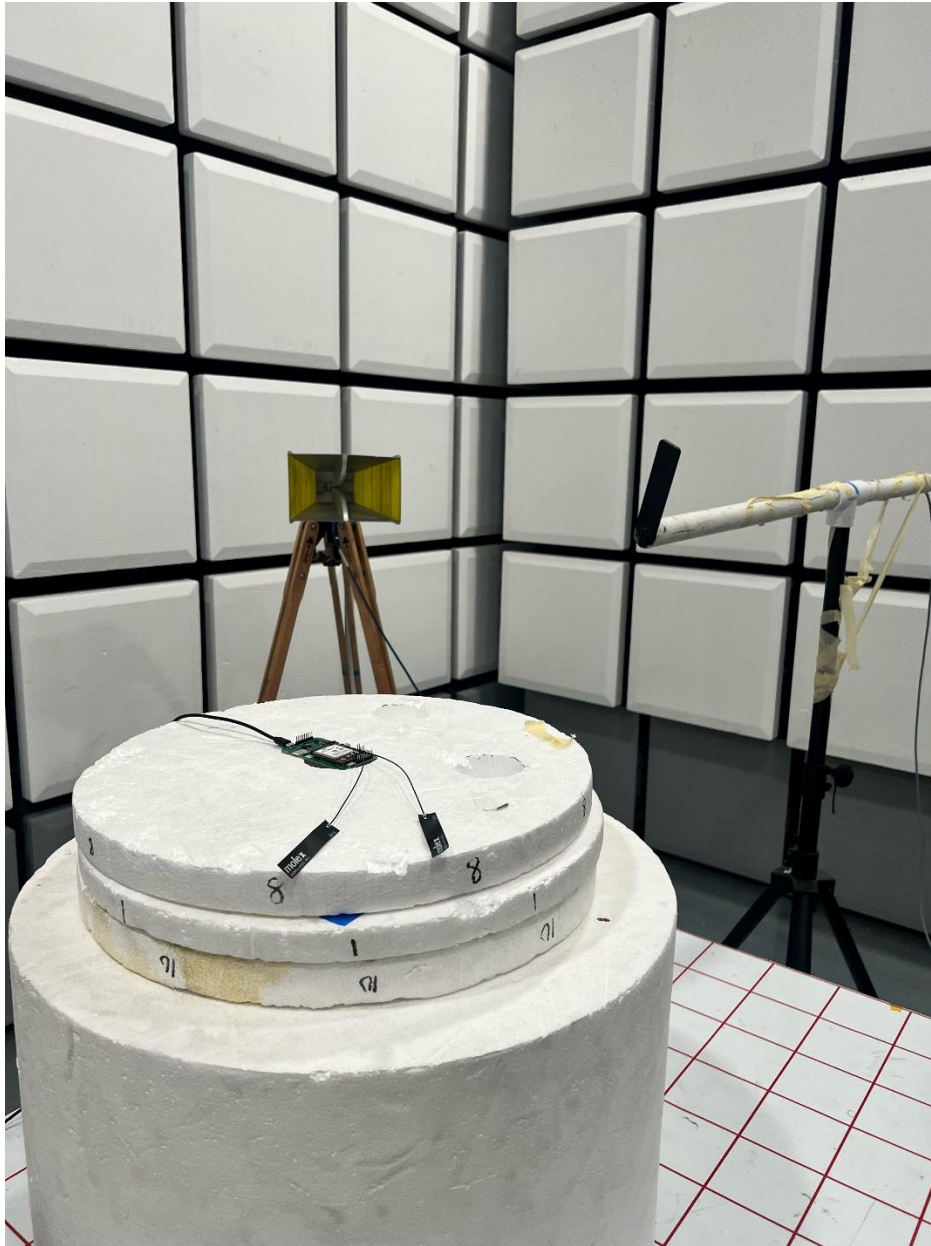
5.2 Sample AA01

Sample Name: AA01	
Object Under Test	NOTE-NBNAW
Description	Sample_AA01
Hardware Version	5
Software Version	5
Parameter Name	Value
IMEI	861492069057567

APPENDIX A. EUT Set-up Photographs



Sample



Set-Up

End of Test Report