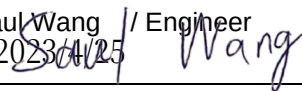
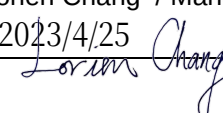


Antenna Measurement Report	
Model: BT-102	
Manufacturer: NUMA Electronics Inc.	
Antenna Type: PIFA	
Tested by (name / position & signature)	Saul Wang / Engineer 2023/4/25 
Approved by (name / position & signature)	Lorien Chang / Manager 2023/4/25 
Date of issue	2023/4/25

Index

Competences and guarantees.....3

General conditions.....3

Data provided by the client.....3

Testing period and place4

Document history4

Environmental conditions4

Testing verdicts4

Used Equipment4

Appendix A: Test results.....5

Competences and guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA Testing and Certification.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification.

Data provided by the client

The following data has been provided by the client:

1. No

DEKRA Testing and Certification declines any responsibility with respect to the information provided by the client and that may affect the validity of results.

Testing period and place

Test Location	DEKRA Testing and Certification No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan
Date (start)	2022/11/22
Date (finish)	2022/11/23

Document history

Report number	Revision	Date	Description
22B0267R-A324310010S-A	Rev. 1.0	2022/11/23	First release
22B0267R-A324310010S-A	Rev. 2.0	2023/4/20	Update info
22B0267R-A324310010S-A	Rev. 2.0	2023/4/25	Remove confidential

Environmental conditions

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	22 °C – 28 °C
Relative Humidity air	< 60%

Testing verdicts

Not applicable:	N/A
Pass:	P
Fail:	F
Information:	Info
Not measured:	N/M

Used Equipment

Name	Manufacturer	Type/Model	Serial Number	Calibration
				Last Cal.
Vector Network Analyzer	R&S	ZNB 8	106333	2022/5/16
Measurement Software	ETS-Lindgren	EMQuest 1.14	1474	N/A

Appendix A: Test results

INDEX

1. TEST CONDITIONS..... 7

1.1 Power supply (V) 7

1.2 Temperature (°C) 7

1.3 Device orientation and Setup Requirements 7

2. TEST RESULTS 8

2.1 Summary 8

2.2 Antenna_Passive 3D_Passive_2402MHz-2480MHz..... 8

2.3 3D Plots 9

2.4 PHOTOGRAPHS 11

2.5 Test Setup 12

Power supply (V) under test:

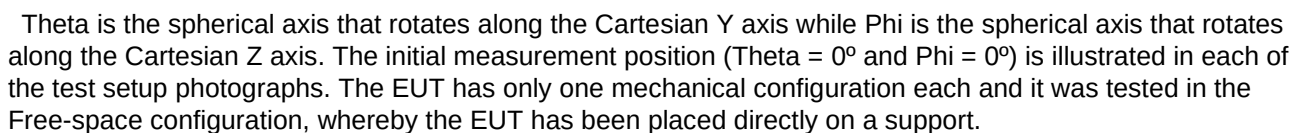
N/A

Tn = +22 to +28

The subscript n indicates normal test conditions.

The EUT has only one mechanical configuration and it was tested in the scenario required by the standard [1]:

- The EUT is rotated along two different spherical axes: theta (θ) and phi (Φ). The relationship between the 3D Cartesian coordinate system (X, Y, Z) and the theta and phi axes is illustrated in the following figure.



2. TEST RESULTS

2.1 Summary

2.2 Antenna_Passive

3D Passive 2402MHz-2480MHz

Frequency (MHz)	Tot. Rad. Pwr. (dBm)	Peak EIRP (dBm)	Directivity (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	NHPRP $\pm\pi/4$ (dBm)	NHPRP $\pm\pi/6$ (dBm)
2402	-5.8	0.4	6.2	-5.8	26.4	0.4	-7.3	-8.9
2450	-1.8	2.7	4.4	-1.8	66.7	2.7	-3.2	-4.9
2480	-1.3	3.3	4.6	-1.3	73.3	3.3	-2.7	-4.4

2.3 3D Plots

