

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                              |                                      |                                          |                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| <b>Prüfbericht-Nr.:</b><br>Test report no.:                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>CN25CROT 001</b>                                                                                                                                          | <b>Auftrags-Nr.:</b><br>Order no.:   | 168570547                                | Seite 1 von 13<br>Page 1 of 13                                                                                            |
| <b>Kunden-Referenz-Nr.:</b><br>Client reference no.:                                                                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                          | <b>Auftragsdatum:</b><br>Order date: | 2025-10-28                               |                                                                                                                           |
| <b>Auftraggeber:</b><br>Client:                                                                                                                                                                                                                                                                                                                                                                                                                                      | Nicegent<br>101# HOUDA ROAD,DALINGSHAN SECTION,DALINGSHAN TOWN,DONGGUAN CITY,GUANGDONG PROVINCE.                                                             |                                      |                                          |                                                                                                                           |
| <b>Prüfgegenstand:</b><br>Test item:                                                                                                                                                                                                                                                                                                                                                                                                                                 | Robomax Apex                                                                                                                                                 |                                      |                                          |                                                                                                                           |
| <b>Bezeichnung / Typ-Nr.:</b><br>Identification / Type no.:                                                                                                                                                                                                                                                                                                                                                                                                          | LL-ALLpr-001                                                                                                                                                 |                                      |                                          |                                                                                                                           |
| <b>Auftrags-Inhalt:</b><br>Order content:                                                                                                                                                                                                                                                                                                                                                                                                                            | OTA Test Report                                                                                                                                              |                                      |                                          |                                                                                                                           |
| <b>Prüfgrundlage:</b><br>Test specification:                                                                                                                                                                                                                                                                                                                                                                                                                         | IEEE Std 149-2021                                                                                                                                            |                                      |                                          |                                                                                                                           |
| <b>Wareneingangsdatum:</b><br>Date of sample receipt:                                                                                                                                                                                                                                                                                                                                                                                                                | 2025-10-29                                                                                                                                                   |                                      |                                          |                                                                                                                           |
| <b>Prüfmuster-Nr.:</b><br>Test sample no:                                                                                                                                                                                                                                                                                                                                                                                                                            | A004088124-001                                                                                                                                               |                                      |                                          |                                                                                                                           |
| <b>Prüfzeitraum:</b><br>Testing period:                                                                                                                                                                                                                                                                                                                                                                                                                              | 2025-10-30                                                                                                                                                   |                                      |                                          |                                                                                                                           |
| <b>Ort der Prüfung:</b><br>Place of testing:                                                                                                                                                                                                                                                                                                                                                                                                                         | TÜV Rheinland (Shenzhen) Co., Ltd.                                                                                                                           |                                      |                                          |                                                                                                                           |
| <b>Prüflaboratorium:</b><br>Testing laboratory:                                                                                                                                                                                                                                                                                                                                                                                                                      | TÜV Rheinland (Shenzhen) Co., Ltd.                                                                                                                           |                                      |                                          |                                                                                                                           |
| <b>Prüfergebnis*:</b><br>Test result*:                                                                                                                                                                                                                                                                                                                                                                                                                               | Pass                                                                                                                                                         |                                      |                                          |                                                                                                                           |
| <b>geprüft von:</b><br>tested by:                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input checked="" type="checkbox"/>                                       |                                      | <b>genehmigt von:</b><br>authorized by:  | <input checked="" type="checkbox"/>  |
| <b>Datum:</b><br>Date:                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2025-11-13<br><small>Signed by: Breeze Jiang</small>                                                                                                         |                                      | <b>Ausstellungsdatum:</b><br>Issue date: | 2025-11-13<br><small>Signed by: Jonathan Li</small>                                                                       |
| <b>Stellung / Position:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sachverständige(r)/Expert                                                                                                                                    |                                      | <b>Stellung / Position:</b>              | Sachverständige(r)/Expert                                                                                                 |
| <b>Sonstiges /</b><br>Other:                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                              |                                      |                                          |                                                                                                                           |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br>Condition of the test item at delivery:                                                                                                                                                                                                                                                                                                                                                                      | Prüfmuster vollständig und unbeschädigt<br>Test item complete and undamaged                                                                                  |                                      |                                          |                                                                                                                           |
| <small>* Legende:</small>                                                                                                                                                                                                                                                                                                                                                                                                                                            | <small>P(ass) = entspricht o.g. Prüfgrundlage(n)    F(ail) = entspricht nicht o.g. Prüfgrundlage(n)    N/A = nicht anwendbar    N/T = nicht getestet</small> |                                      |                                          |                                                                                                                           |
| <small>* Legend:</small>                                                                                                                                                                                                                                                                                                                                                                                                                                             | <small>P(ass) = passed a.m. test specification(s)    F(ail) = failed a.m. test specification(s)    N/A = not applicable    N/T = not tested</small>          |                                      |                                          |                                                                                                                           |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the above mentioned test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |                                                                                                                                                              |                                      |                                          |                                                                                                                           |

Prüfbericht-Nr.: CN25CROT 001  
Test report no.:

Seite 2 von 13  
Page 2 of 13

**Anmerkungen**  
*Remarks*

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | <p>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</p> <p>Detaillierte Informationen bezüglich Prüfbedingungen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</p> <p><i>The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 2 | <p>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben. Informationen zur Verifizierung der Authentizität unserer Dokumente erhalten Sie auf folgender Webseite: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></p> <p><i>As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. For information on verifying the authenticity of our documents, please visit the following website: <a href="http://go.tuv.com/digital-signature">go.tuv.com/digital-signature</a></i></p> |
| 3 | <p>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</p> <p>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</p> <p><i>Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report.</i></p> <p><i>Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 4 | <p>Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnissen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2023, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezüglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.</p> <p><i>The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the "Zero Guard Band Rule" and "Simple Acceptance" in accordance with ILAC G8:2019 and IEC Guide 115:2023, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019.</i></p>                                                                                                                                                                                                                                                                                       |

## Index

|            |                                                     |           |
|------------|-----------------------------------------------------|-----------|
| <b>1</b>   | <b>General Information.....</b>                     | <b>4</b>  |
| <b>1.1</b> | <b>Laboratory Information .....</b>                 | <b>4</b>  |
| <b>1.2</b> | <b>Equipment Under Test (EUT) Information .....</b> | <b>4</b>  |
| <b>2</b>   | <b>Measurement System Information .....</b>         | <b>5</b>  |
| <b>2.1</b> | <b>Testing Condition .....</b>                      | <b>5</b>  |
| <b>2.2</b> | <b>List of Equipment .....</b>                      | <b>5</b>  |
| <b>2.3</b> | <b>Measurement Uncertainty.....</b>                 | <b>5</b>  |
| <b>2.4</b> | <b>Test Setup .....</b>                             | <b>6</b>  |
| <b>3</b>   | <b>Test Results .....</b>                           | <b>7</b>  |
| <b>4</b>   | <b>2D Pattern.....</b>                              | <b>8</b>  |
| <b>5</b>   | <b>3D Pattern.....</b>                              | <b>10</b> |
| <b>6</b>   | <b>Photograph.....</b>                              | <b>13</b> |

# 1 General Information

## 1.1 Laboratory Information

|                    |                                                                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site          | TÜV Rheinland (Shenzhen) Co., Ltd.                                                                                                               |
| Test Site Location | 2-3F, 101 & 102, No.2 Nuclear Power Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen, Guangdong Province, P.R. China |
| Telephone          | +86 755 8268 1186                                                                                                                                |
| Fax                | +86 755 2598 0321                                                                                                                                |
| Mail               | service-gc@tuv.com                                                                                                                               |
| Website            | <a href="https://www.tuv.com">https://www.tuv.com</a>                                                                                            |

## 1.2 Equipment Under Test (EUT) Information

|                                        |                    |
|----------------------------------------|--------------------|
| Equipment Under Test (EUT) Information | Robomax Apex       |
| Manufacturer                           | Nicegent           |
| Model                                  | LL-ALLpr-001       |
| ANT. Type                              | PCB layout antenna |
| ANT. Gain Max.                         | -2.93 dBi          |

## 2 Measurement System Information

### 2.1 Testing Condition

| Environment Parameter                     | Ambient Pressure | Temperature | Voltage | Relative Humidity |
|-------------------------------------------|------------------|-------------|---------|-------------------|
| Normal Temperature, Normal Voltage (NTNV) | 100 to 102 KPa   | 26.0°C      | AC 220V | 40%               |

### 2.2 List of Equipment

| Description                      | Manufacturer | Model      | Serial No. | Cal. Date  | Cal. Due |
|----------------------------------|--------------|------------|------------|------------|----------|
| Vector Network Analyzer          | R&S          | ZNB 8      | 107040     | 2025.09.22 | 1 year   |
| Open switch and control platform | R&S          | OSP120     | 102054     | N/A        | N/A      |
| Positioner Controllor            | R&S          | NCD        | 2367-01    | N/A        | N/A      |
| Test antenna                     | R&S          | TC-TA18    | 101198     | N/A        | N/A      |
| Head Phantom                     | SPEAG        | SAM V4.5BS | 4221       | NCR        | NCR      |

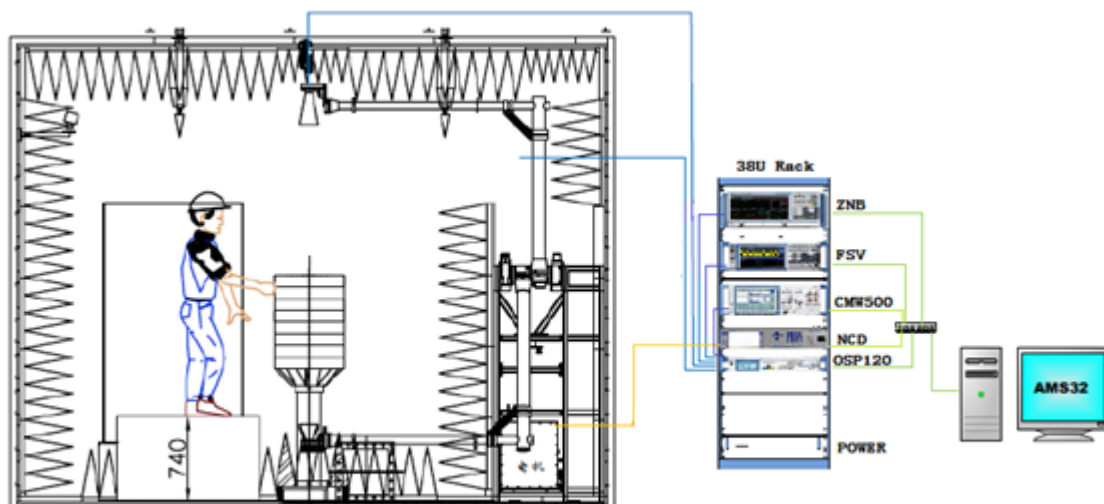
### 2.3 Measurement Uncertainty

|                 |                |
|-----------------|----------------|
| Frequency Range | 2300 – 2800MHz |
| Efficiency      | 0.91 dB        |
| Gain            | 0.91 dB        |

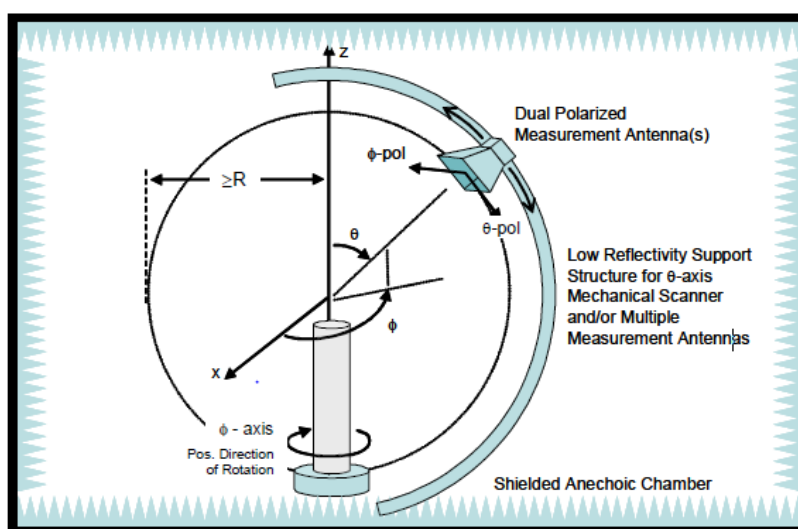
Note: Expanded Uncertainty, U, with 95% Confidence Interval

## 2.4 Test Setup

Measurements are performed in a R&S TS8991 3D fully anechoic test system. The test system includes a high-performance RF-shielded, rectangular anechoic chamber, a Distributed-axes system, and R&S AMS32 data acquisition and analysis software.



### Typical Setup for R&S TS8991

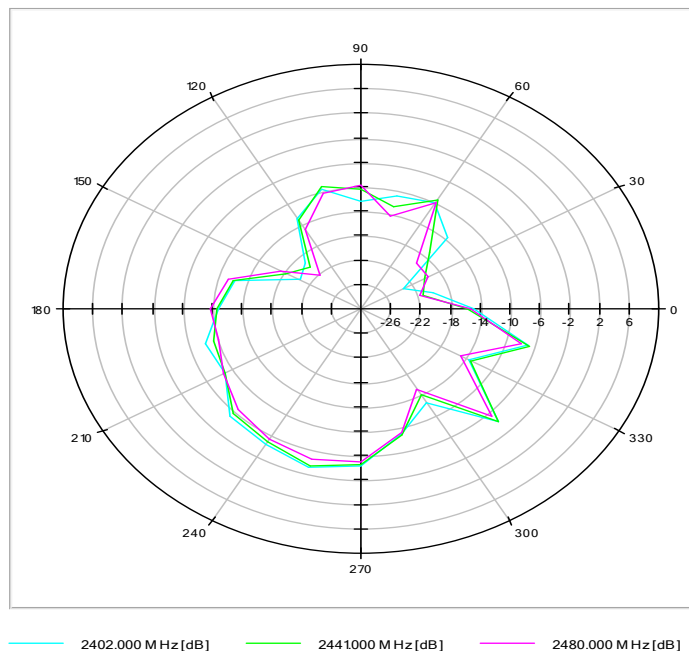


### 3 Test Results

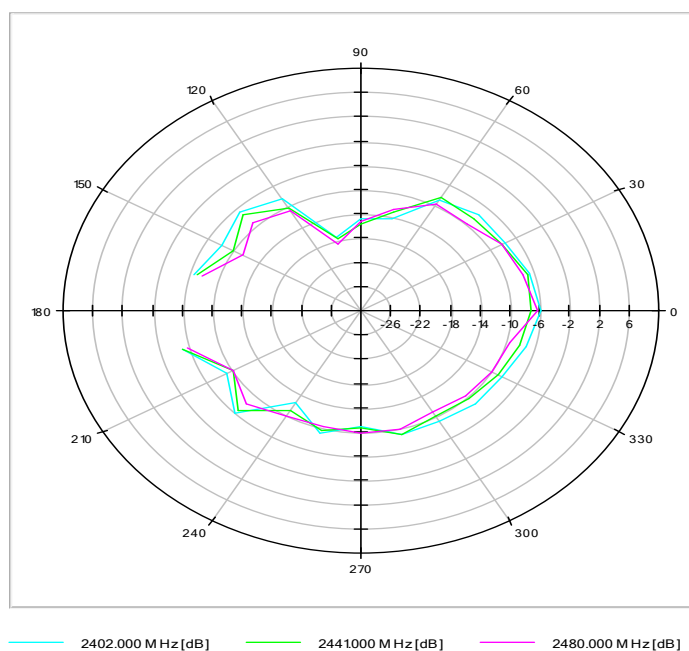
| Frequency (MHz) | Efficiency (dB) | Efficiency (%) | Peak Gain (dBi) |
|-----------------|-----------------|----------------|-----------------|
| 2400.00         | -7.72           | 16.90          | -2.93           |
| 2402.00         | -7.74           | 16.81          | -3.06           |
| 2405.00         | -7.85           | 16.42          | -3.23           |
| 2410.00         | -7.70           | 16.99          | -3.09           |
| 2415.00         | -7.94           | 16.06          | -3.27           |
| 2420.00         | -7.74           | 16.84          | -3.05           |
| 2425.00         | -8.14           | 15.36          | -3.57           |
| 2430.00         | -8.08           | 15.58          | -3.58           |
| 2435.00         | -8.36           | 14.59          | -3.72           |
| 2440.00         | -8.18           | 15.20          | -3.50           |
| 2441.00         | -8.09           | 15.54          | -3.39           |
| 2445.00         | -8.06           | 15.63          | -3.41           |
| 2450.00         | -8.19           | 15.16          | -3.48           |
| 2455.00         | -8.28           | 14.86          | -3.55           |
| 2460.00         | -8.37           | 14.57          | -3.78           |
| 2465.00         | -8.58           | 13.87          | -4.03           |
| 2470.00         | -8.59           | 13.83          | -4.08           |
| 2475.00         | -8.63           | 13.72          | -4.31           |
| 2480.00         | -8.83           | 13.10          | -4.47           |
| 2485.00         | -9.05           | 12.43          | -4.75           |
| 2490.00         | -9.21           | 11.98          | -4.82           |
| 2495.00         | -9.07           | 12.40          | -4.91           |

## 4 2D Pattern

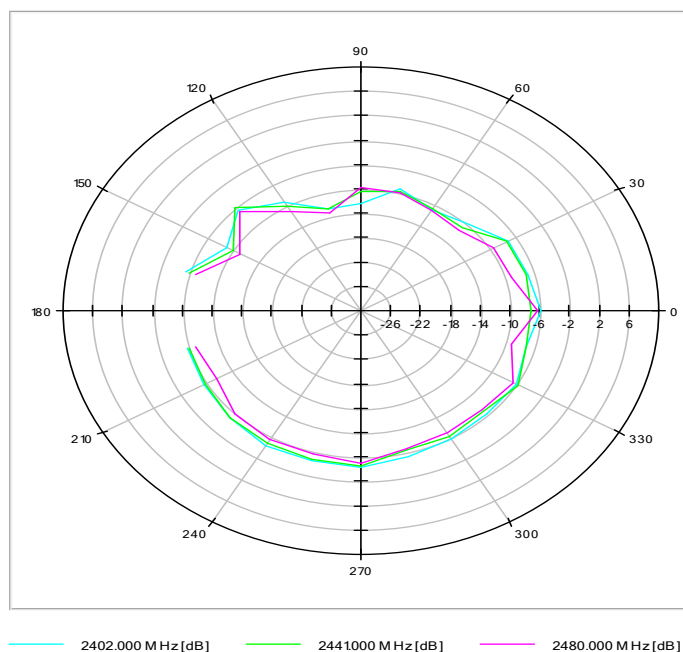
Cuts Plot \_ XY Plane



Cuts Plot \_ XZ Plane



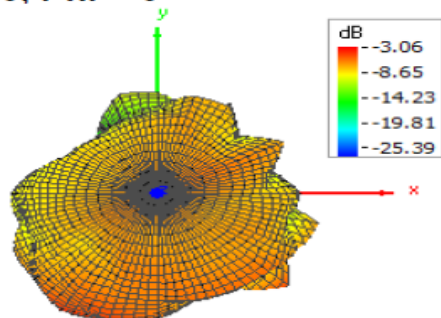
### Cuts Plot \_ YZ Plane



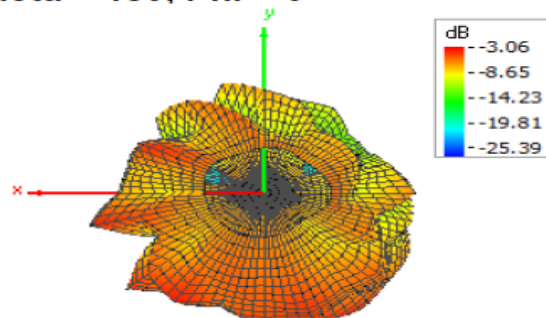
## 5 3D Pattern

Free Space\_2402MHz

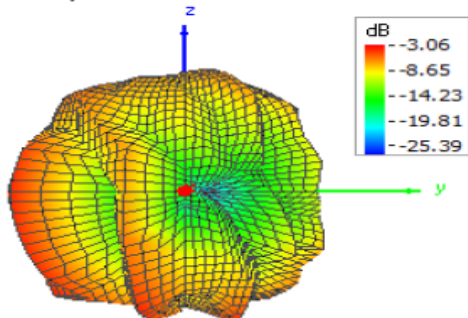
Theta = 0, Phi = 0



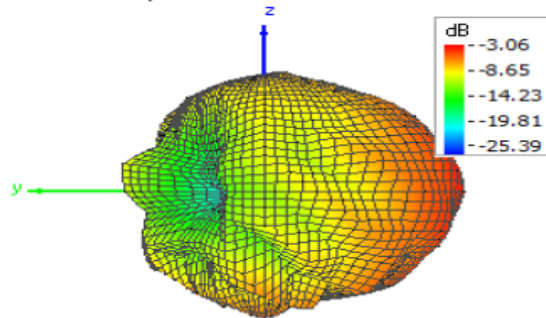
Theta = 180, Phi = 0



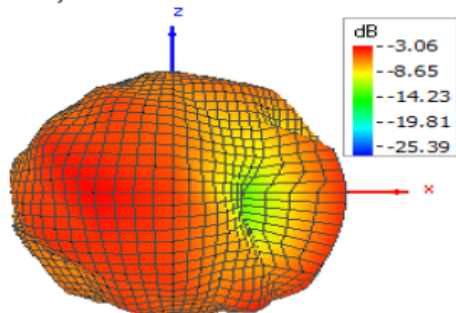
Theta = 90, Phi = 0



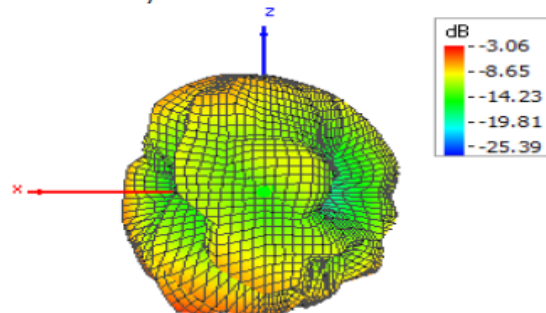
Theta = 90, Phi = 180



Theta = 90, Phi = 270

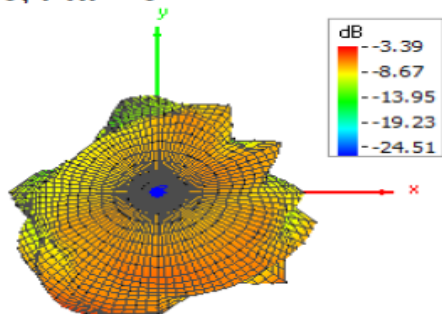


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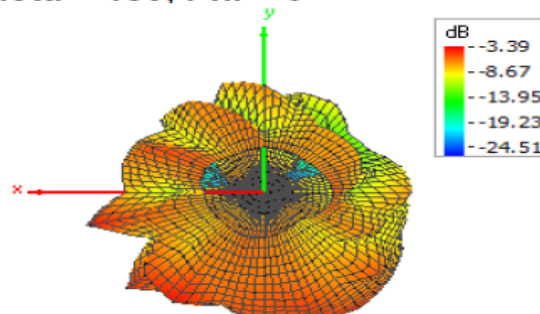


Free Space\_2441MHz

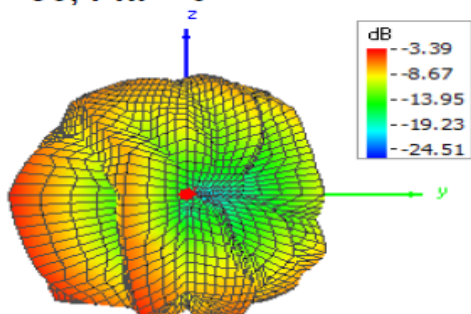
Theta = 0, Phi = 0



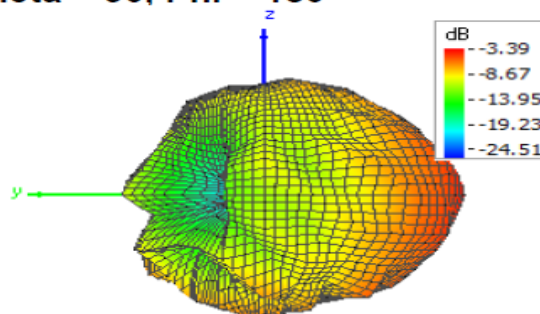
Theta = 180, Phi = 0



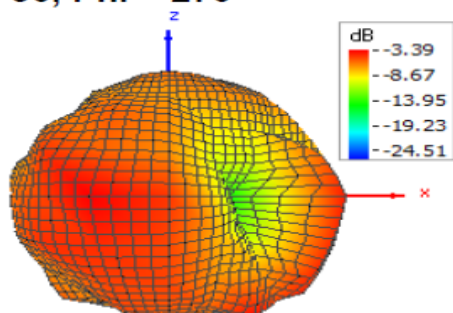
Theta = 90, Phi = 0



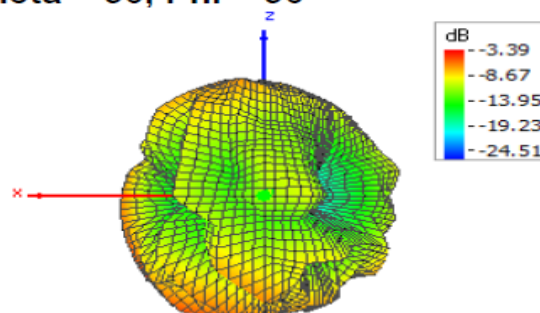
Theta = 90, Phi = 180



Theta = 90, Phi = 270

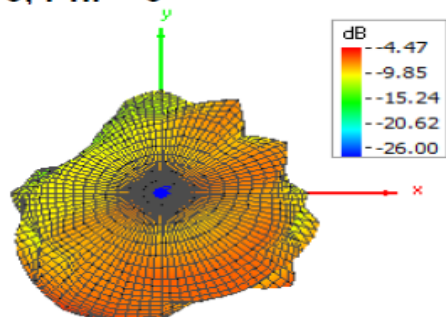


Theta = 90, Phi = 90

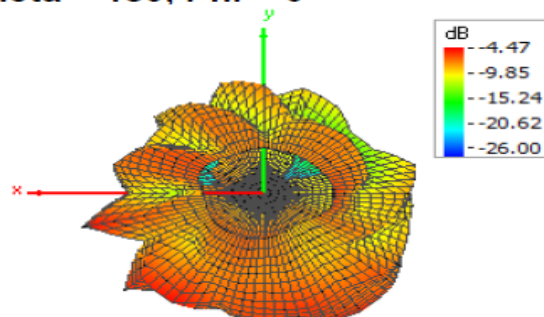


Free Space\_2480MHz

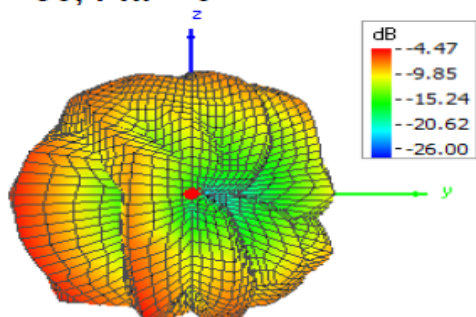
Theta = 0, Phi = 0



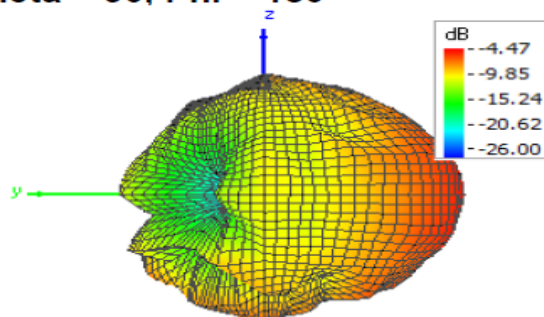
Theta = 180, Phi = 0



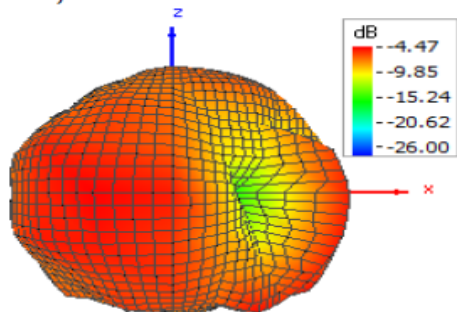
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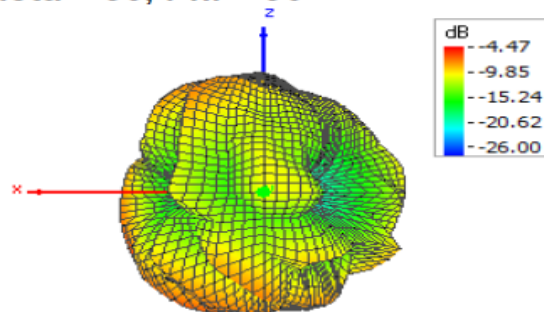
Theta = 90, Phi = 180



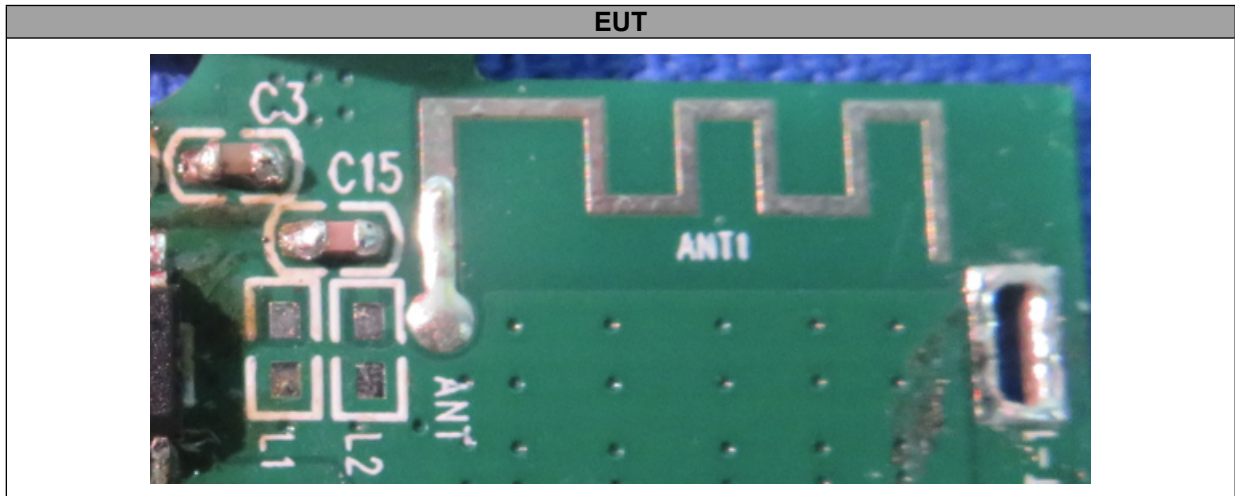
Theta = 90, Phi = 270



Theta = 90, Phi = 90



## 6 Photograph



**End of Report**