

<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	CN24PSD6 001	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	238544116	Seite 1 von 25 Page 1 of 25
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	2022-06-01	
<b>Auftraggeber:</b> <i>Client:</i>	CUBTEK INC. Rm. 7, 6F., No.38, Taiyuan St., Zhubei City, Hsinchu County, 30265 Taiwan			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Middle-short range radar			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	B122-019, B122-019XXX-XXX, B122-019XXX-XX (The suffix X may be any alpha character "a"-“z”, "A"-“Z”, or numeric character "0"-“9”, or -, (, ), or blank or combination of alpha and numeric characters for the marketing purpose.)			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	FCC Part 95 Test report			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47CFR Part 95 Subpart M			
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2024-01-16			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A003644536-001			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	2024-03-23 - 2024-03-27			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	Taipei Testing Laboratories			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>zusammengestellt von:</b> <i>compiled by:</i>			<b>genehmigt von:</b> <i>authorized by:</i>	
<b>Datum:</b> <i>Date:</i>	2024-04-09	<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2024-04-09	
<b>Stellung / Position:</b>	David Huang Project Manager	<b>Stellung / Position:</b>	Ryan Chen Senior Project Manager	
<b>Sonstiges / Other:</b>				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<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> <i>This test report only relates to the a. m. 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>				

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**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. Detaillierte Informationen bezüglich Prüfkonditionen, 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. TÜV 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, TÜV 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. 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. 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 115:2021, 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 115:2021, 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>

## TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	95.3367(a)(b)	Radiated Power	Pass
5.1.2	2.1049 95.3379(b)	Occupied Bandwidth	Pass
5.1.3	95.3379(a)	Radiated Emissions	Pass
5.1.4	2.1055 95.3379(b)	Frequency Stability	Pass

**Note:** Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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**APPENDIX A - TEST RESULT OF RADIATED EMISSIONS**

**APPENDIX SP - PHOTOGRAPHS TEST SETUP**

**APPENDIX EP - PHOTOGRAPHS OF EUT**

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## HISTORY OF THIS TEST REPORT

Revision	Description	Date Issued
R01	Original Release	2024-04-09

## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

**Appendix A - Test Result of Radiated Emissions**

**Appendix SP - Photographs Test Setup**

**Appendix EP - Photographs of EUT**

### Applied Standard and Test Levels

Radio
FCC 47CFR Part 2
FCC 47CFR Part 95 Subpart M
ANSI C63.10-2013
ANSI C63.4-2014

### 1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

## 2. Test Sites

### 2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,  
New Taipei City 244  
Taiwan (R.O.C.)  
FCC Registration No.: 180491  
ISED Registration No.: 25563

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95% level of confidence.

### Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	$\pm 1.15$ dB
Radiated Emission (30 MHz ~ 200 MHz)	$\pm 1.30$ dB
Radiated Emission (200 MHz ~ 1 GHz)	$\pm 1.30$ dB
Radiated Emission (1 GHz ~ 18 GHz)	$\pm 1.54$ dB
Radiated Emission (18 GHz ~ 40 GHz)	$\pm 2.52$ dB
Radiated Emission (40 GHz ~ 231 GHz)	$\pm 2.84$ dB
Mains Conducted Emission	$\pm 1.65$ dB



### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is an Middle-short range radar. It contains a 76-77GHz compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 System Details and Ratings

##### Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Middle-short range radar
Type Identification	B122-019, B122-019XXX-XXX, B122-019XXX-XX (The suffix X may be any alpha character "a"-“z”, "A"-“Z”, or numeric character "0"-“9”, or -, ( , ), or blank or combination of alpha and numeric characters for the marketing purpose.)
FCC ID	2AN3BB122-019

##### Technical Specification of EUT

Item	EUT information
Operating Frequency	76 ~ 77 GHz
Modulation	FMCW
Operation Voltage	12 Vdc
Maximum EIRP (dBm)	Average Power: 9.18 Peak Power: 29.19
Antenna Information	Microstrip with 12.65 dBi gain
Accessory Device	Refer to 4.3

### **3.3 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.4 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Setup for testing: Test sample is provided with test mode firmware which makes it possible to continuously transmitting and receiving when power on the device. It was used to enable the operation modes listed as below.

The samples were used as follows:

A003644536-001

Full test was applied on all test modes, but only worst case was shown.

EUT Configure Mode	Applicable To				Description
	Radiated Power (e.i.r.p.)	Occupied Bandwidth	Radiated Spurious Emissions	Frequency Stability	
-	√	√	√	√	-

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Y-plane**.
2. "-" means no effect.

#### Radiated Power (e.i.r.p.)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (GHz)	Tested Frequency (GHz)
-	76 ~ 77	76.45

#### Occupied Bandwidth

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (GHz)	Tested Frequency (GHz)
-	76 ~ 77	76.45

#### Radiated Spurious Emissions

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (GHz)	Tested Frequency (GHz)
-	76 ~ 77	76.45

#### Frequency Stability

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (GHz)	Tested Frequency (GHz)
-	76 ~ 77	76.45

**Test Condition**

Test Item	Ambient Temperature	Relative Humidity	Tested by
Radiated Power (e.i.r.p.)	22.5-24.7 °C	56-59 %	Peter Chiou
Occupied Bandwidth	22.5-24.7 °C	56-59 %	Peter Chiou
Radiated Spurious Emissions	22.5-24.7 °C	56-59 %	Peter Chiou
Frequency Stability	22.5-24.7 °C	56-59 %	Peter Chiou

### 4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

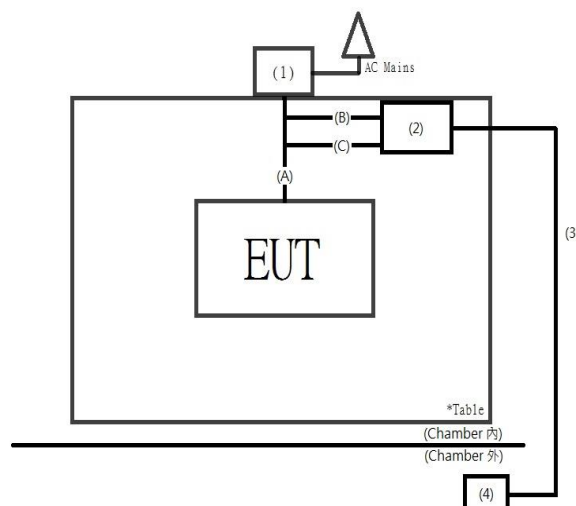
**Accessory of EUT**

None.

**Support Unit**

Support Unit								
No	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
A	Radar Cable	CUBTEK	N/A	N/A	N/A	N/A	200	--
B	CAN Transmission line	CUBTEK	N/A	N/A	N/A	N/A	80	--
C	CAN Transmission line	CUBTEK	N/A	N/A	N/A	N/A	80	--
1	Power Supply	Gwinstek	GPS-3030	GEU915613	-	-	-	--
2	Notebook	HP	EliteBOOK	00073500PR	-	-	-	--
3	RJ45	TUV	TUV-001	N/A	-	-	-	--
4	AP	TP-LINK	TL-MR6400	221A163002389	-	-	-	--

### 4.4 Test Setup Diagram

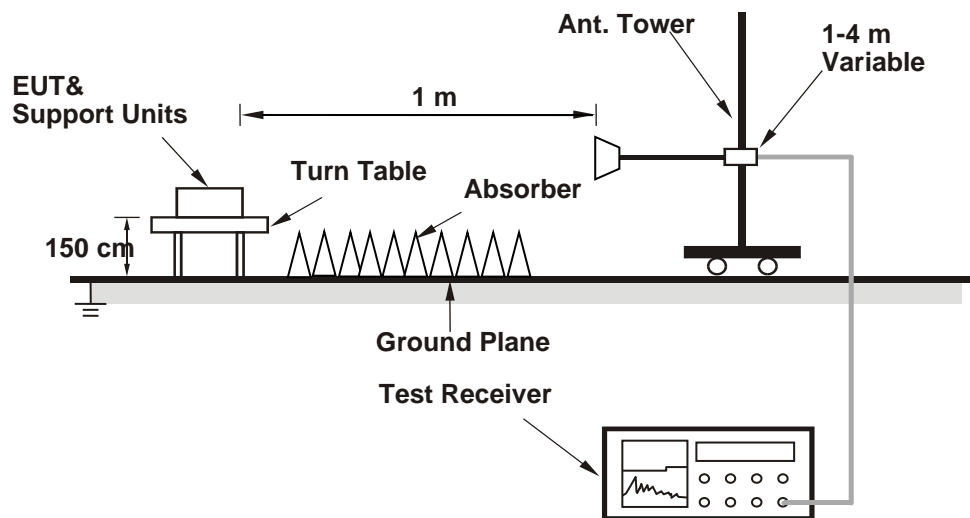


## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Radiated Power Measurement

<b>Limit</b>	FCC Part 95.3367 (a), Average E.I.R.P. $\leq 50\text{dBm/MHz}$ FCC Part 95.3367 (b), Peak E.I.R.P. $\leq 55\text{dBm/MHz}$
<b>Test standard</b>	FCC Part 95.3367
<b>Basic standard</b>	ANSI C63.10: 2013, Clause 9
<b>Kind of Test Site</b>	3m Semi-anechoic Chamber
<b>Test Setup</b>	



**Test Instruments**

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
SA	R&S	FSV40	101508	2023/4/20	2024/4/19
Bilog Antenna	SCHWARZBECK	VULB-9168	00951	2023/3/31	2024/3/29
Horn Antenna	ETS-Lindgren	3117	00218927	2024/1/18	2025/1/17
Horn Antenna	SCHWARZBECK	BBHA 9170	00896	2024/1/16	2025/1/15
AMP	E MEC	EM330	060904	2023/12/6	2024/12/5
AMP	E MEC	EM01G18GA	060905	2023/11/29	2024/11/28
AMP	R&S	SCU40A	100498	2023/9/4	2024/9/3
Coincal Horn Antenna	VDI	WR15CH	1-15	2023/8/22	2024/8/21
Coincal Horn Antenna	VDI	WR12CH	RCH012RL	2023/8/22	2024/8/21
Coincal Horn Antenna	VDI	WR10CH	1-10	2023/8/22	2024/8/21
Coincal Horn Antenna	VDI	WR8.0CH	1-8.0	2023/8/22	2024/8/21
Coincal Horn Antenna	VDI	WR5.1CH	1-5.1	2023/8/28	2024/8/27
Mixer SA	VDI	SAX WR15	US54250104	2023/8/23	2024/8/22
Mixer SA	VDI	SAX WR12	US54250151	2023/8/23	2024/8/22
Mixer SA	VDI	SAX WR10	US53250005	2023/8/23	2024/8/22
Mixer SA	VDI	SAX WR8.0	US53250003	2023/8/24	2024/8/23
Mixer SA	VDI	SAX WR5.1	US53250002	2023/8/28	2024/8/27
Horn Antenna	OML	M19RH	16070501	2023/8/21	2024/8/20
Harmonic Mixer	OML	M19HWDX	160118-1	2023/8/23	2024/8/22
Signal Analyzer	Agilent	N9010A	MY52221334	2024/3/13	2025/3/12
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A

**Test Result**
**<Horizontal>**

Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)
76.45	1	-41.68	21	7.43	55 (Peak)
76.45	1	-61.97	21	-12.86	50 (Average)

**<Vertical>**

Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)
76.45	1	-19.92	21	29.19	55 (Peak)
76.45	1	-39.93	21	9.18	50 (Average)

**Remark:**

1. Rx antenna is the receiver antenna from the test equipment.
2. The measured power level is converted to EIRP using the Friis equation:

$$EIRP = P_T * G_T = (P_R / G_R) * (4 * \pi * D / \lambda)^2$$

Where:

PR is the power of the receive measurement

GR is the gain of the receive measurement antenna

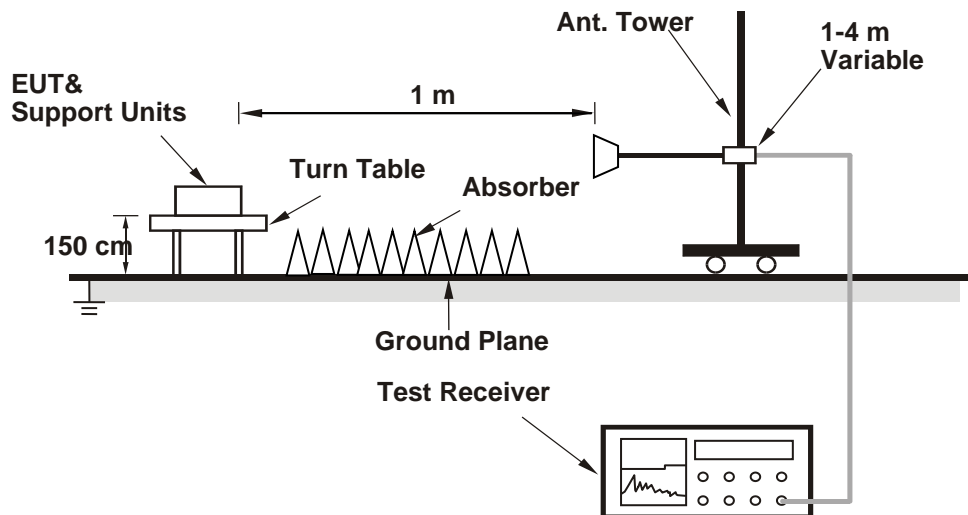
D is the measurement distance

$\lambda$  is the wavelength

### 5.1.2 Occupied Bandwidth

<b>Limit</b>	Within assigned band (76GHz to 81GHz)
<b>Test standard</b>	FCC Part 2.1049;FCC Part 95.3379 (b)
<b>Basic standard</b>	ANSI C63.26: 2015, Clause 5.4
<b>Kind of Test Site</b>	3m Full-anechoic Chamber

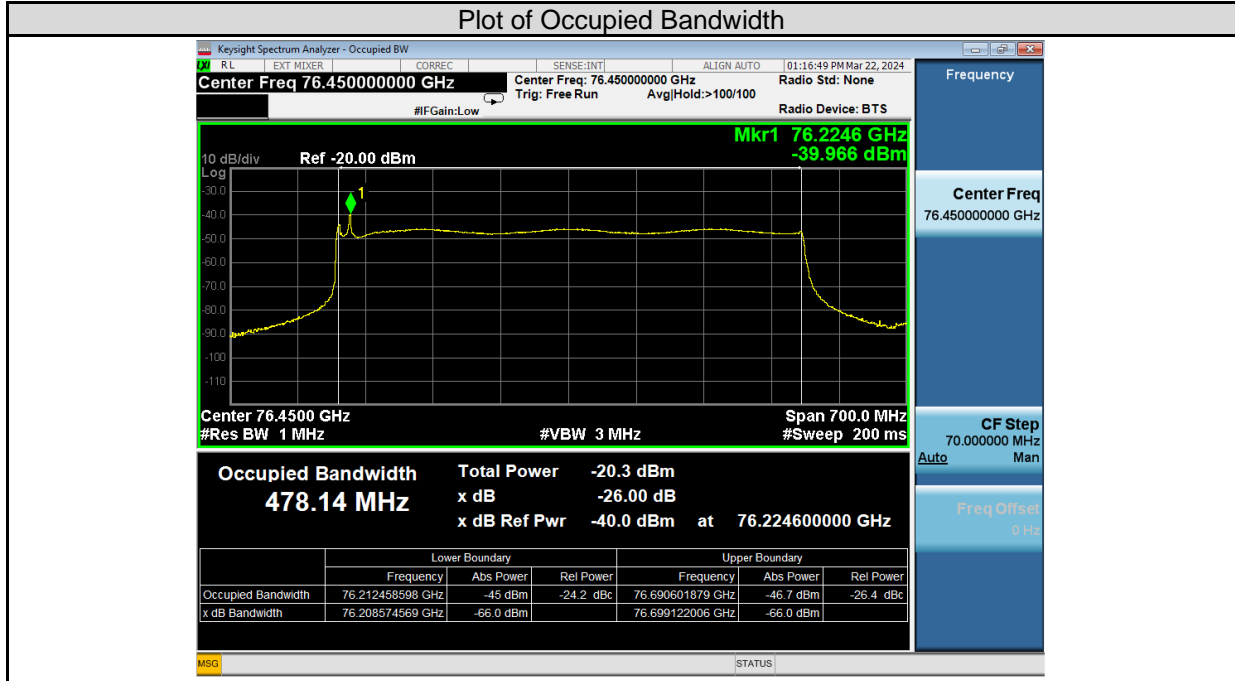
#### Test Setup



#### Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	Agilent	N9010A	MY52221334	2024/03/13	2025/03/12	2024/3/26	2024/3/27
Thermal Chamber	GIANT FORCE	GCT-099-40-S	MAF0103-007	2024/02/22	2025/02/20	2024/3/26	2024/3/27



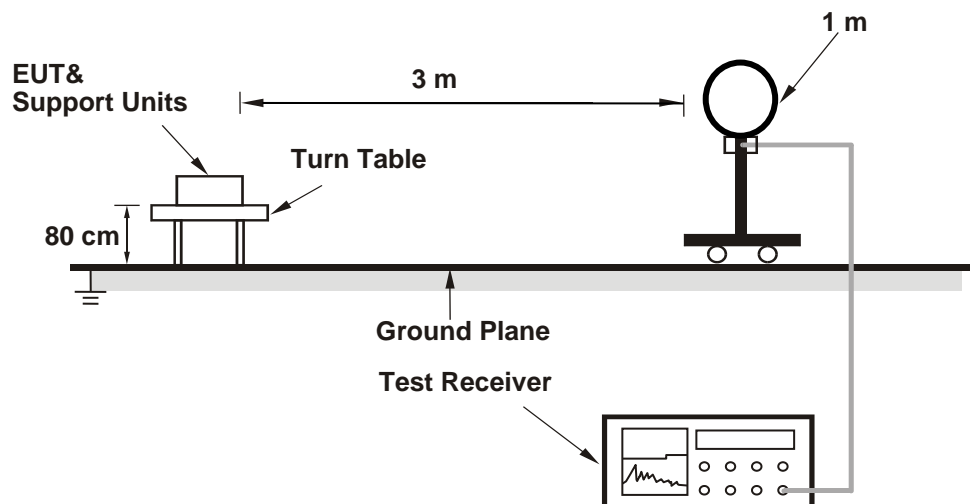
**Test Results**


### 5.1.3 Radiated Emissions

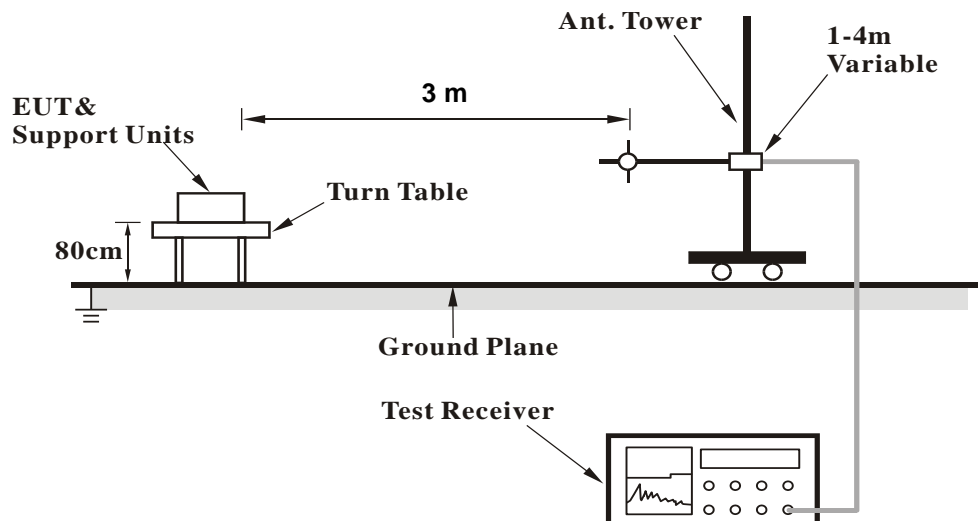
<b>Limit</b>	FCC Part 95.3379 (a)(1) FCC Part 95.3379 (a)(2) FCC Part 95.3379 (a)(3)
<b>Test standard</b>	FCC Part 95.3379
<b>Basic standard</b>	ANSI C63.26: 2015, Clause 5.5
<b>Kind of Test Site</b>	3m Semi-anechoic Chamber

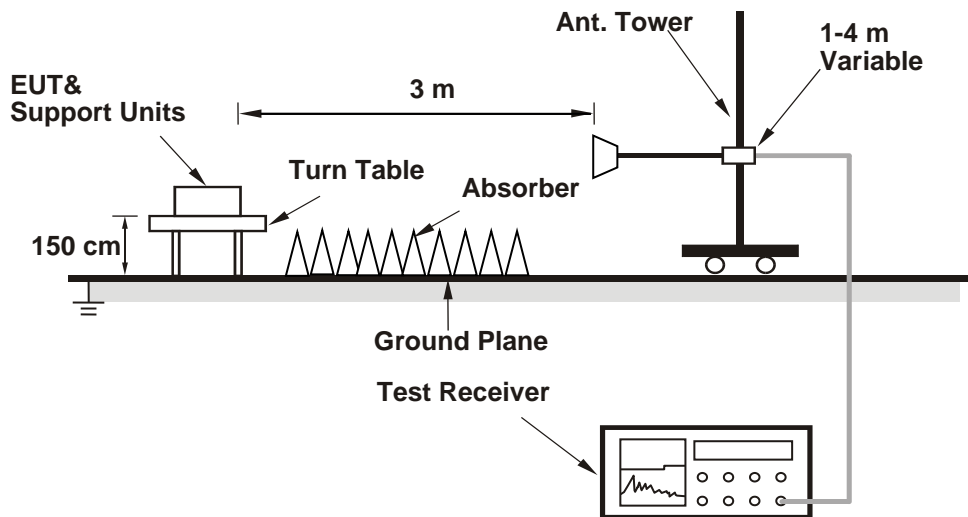
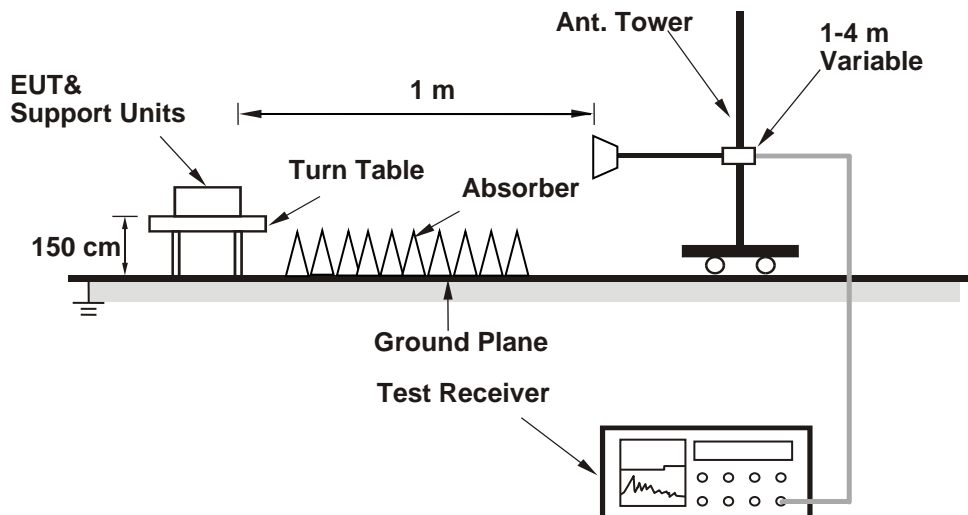
**Test Setup**

<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



**<Radiated Emissions 1 GHz to 40 GHz>**

**<Radiated Emissions 40 GHz to 231 GHz>**


For the actual test configuration, please refer to the attached file (Test Setup Photo).

**Test Instruments**

Refer to 5.1.1 Test Instruments

**Test Procedures****For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

**For Radiated Emissions from 30 MHz to 40 GHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98 %) or 10 Hz (Duty cycle  $\geq 98$  %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.

**Test Results**

Below 40GHz Please refer to Appendix A.

Above 40GHz as below:

TX_40G~50G_H				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
44.861	1	-90.589	21	-46.11
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000002	3	0.0000000002	0.02	600

TX_40G~50G_V				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
45.066	1	-90.38	21	-45.86
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000003	3	0.0000000002	0.02	600

TX_50G~75G_H				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
66.305	1	-91.589	21	-43.72
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000004	3	0.0000000004	0.04	600

TX_50G~75G_V				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
65.465	1	-70.871	21	-23.11
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000489	3	0.000000043	4.32	600

TX_75G~110G_H				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
83.61	1	-80.038	21	-30.15
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000097	3	0.000000009	0.85	600

TX_75G~110G_V				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
83.617	1	-72.612	21	-22.72
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000534	3	0.000000047	4.72	600

TX_110G~140G_H				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
131.537	1	-92.319	21	-38.50
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000014	3	0.000000001	0.13	600

TX_110G~140G_V				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
128.066	1	-92.129	21	-38.54
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000014	3	0.000000001	0.12	600

TX_140G~231G_H				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
173.196	1	-91.292	21	-35.08
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000031	3	0.000000003	0.27	600

TX_140G~231G_V				
Frequency (GHz)	Measurement Distance (m)	Measured Power (dBm)	Rx Antenna Gain (dBi)	EIRP (dBm)
143.858	1	-91.648	21	-37.05
EIRP (W)	Specification Distance (m)	Power Density (W/cm <sup>2</sup> )	Power Density (pW/cm <sup>2</sup> )	Limit (pW/cm <sup>2</sup> )
0.00000020	3	0.000000002	0.17	600

Remark: Rx antenna is the receiver antenna from the test equipment.

### 5.1.4 Frequency Stability

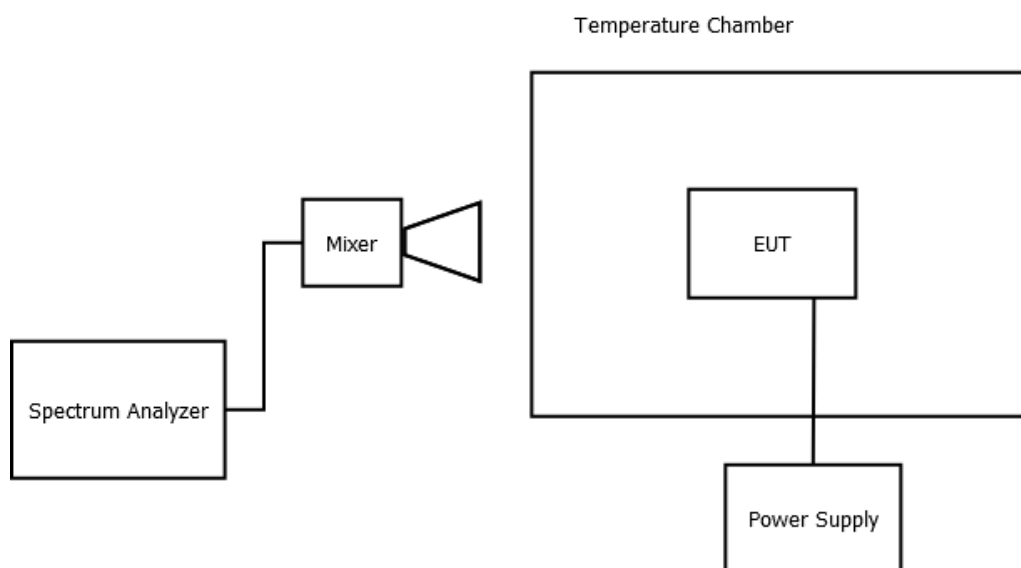
**Limit** Within assigned band (76GHz to 81GHz)

**Test standard** FCC Part 95.3379 (b)

**Basic standard** ANSI C63.26: 2015, Clause 5.6

**Kind of Test Site** Temperature and Humidity Chamber

#### Test Setup



#### Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	Agilent	N9010A	MY52221334	2024/03/13	2025/03/12	2024/3/26	2024/3/27
Thermal Chamber	GIANT FORCE	GCT-099-40-S	MAF0103-007	2024/02/22	2025/02/20	2024/3/26	2024/3/27



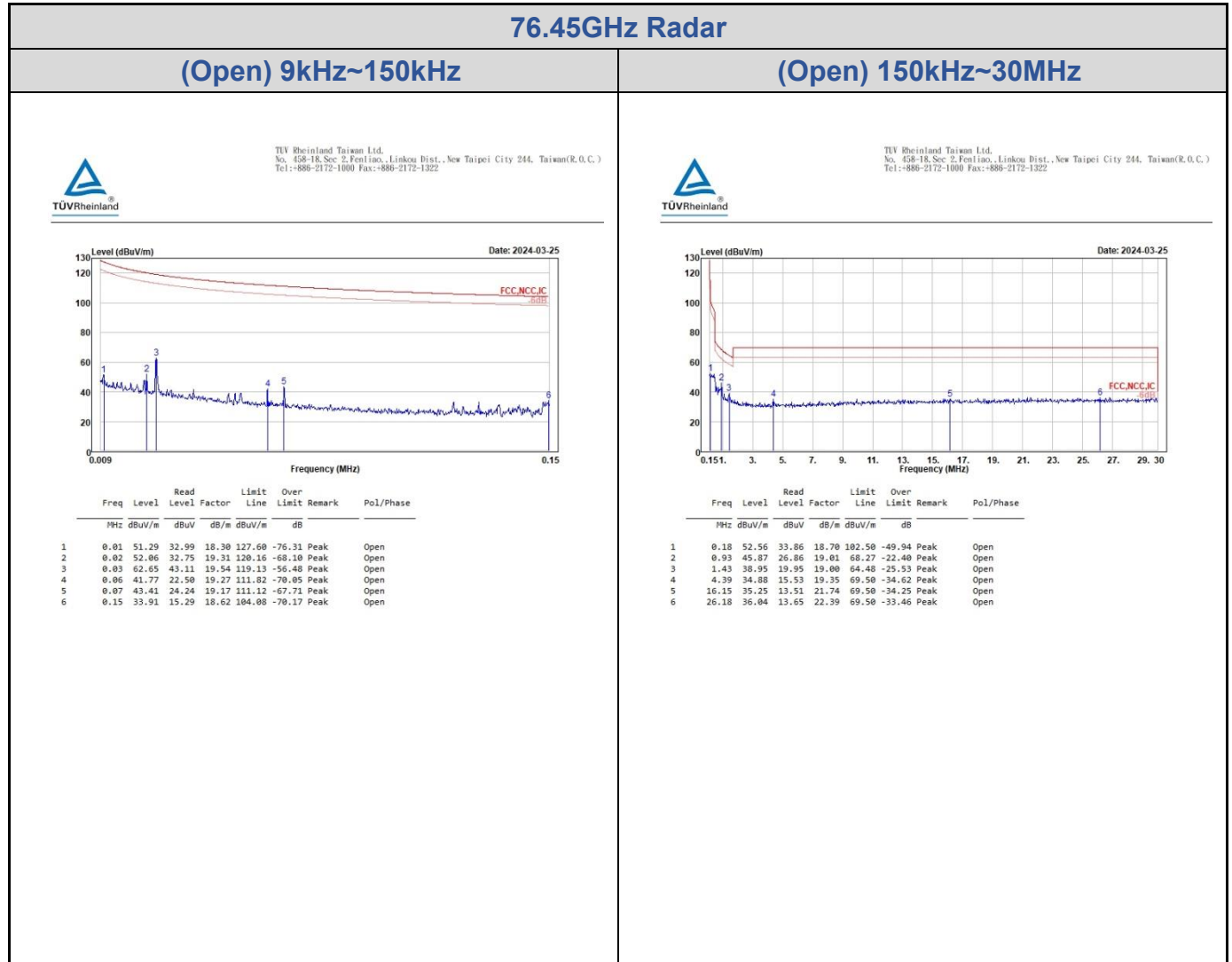
**Test Results**

Power Supply (Vdc)	Temperature (°C)	Measured Frequency (MHz)	Operating Frequency (MHz)
12	-20	76453.57	76450
12	-10	76453.22	
12	0	76452.94	
12	10	76452.38	
12	20	76452.8	
12	30	76452.17	
12	40	76452.38	
12	50	76451.26	

Power Supply (Vdc)	Temperature (°C)	Measured Frequency (MHz)	Operating Frequency (MHz)
16	20	76452.8	76450
12		76451.96	
9		76452.03	

# Appendix A: Test Results of Radiated Spurious Emissions

## Tx Mode, 9kHz ~ 30MHz



Tx Mode, 30MHz ~ 1GHz

76.45GHz Radar

Horizontal

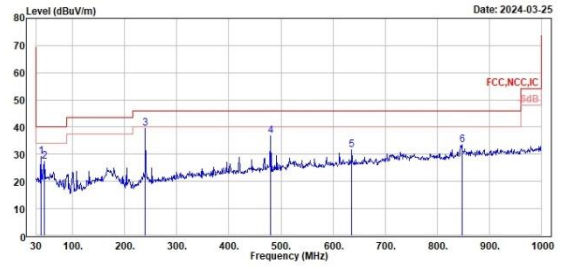
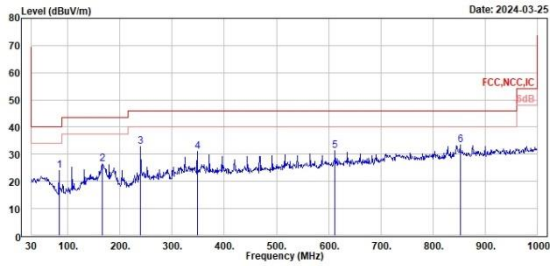
Vertical



TÜV Rheinland Taiwan Ltd.  
No. 458-18, Sec. 2, Feniiao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



TÜV Rheinland Taiwan Ltd.  
No. 458-18, Sec. 2, Feniiao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



Peak	Freq	Level	Read	Limit	Over	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dB/m	dB		
1	83.35	23.89	36.19	-12.30	46.00	-16.11 Peak	Horizontal
2	166.77	26.34	32.98	-6.64	43.50	-17.16 Peak	Horizontal
3	239.52	32.77	40.55	-7.78	46.00	-13.23 Peak	Horizontal
4	348.16	31.04	36.40	-5.36	46.00	-14.96 Peak	Horizontal
5	612.00	31.22	32.64	-1.42	46.00	-14.78 Peak	Horizontal
6	852.56	33.33	31.57	1.76	46.00	-12.67 Peak	Horizontal

Peak	Freq	Level	Read	Limit	Over	Remark	Pol/Phase
	MHz	dBuV/m	dBuV	dB/m	dB		
1	38.73	29.06	36.56	-7.50	40.00	-10.94 Peak	Vertical
2	45.52	27.39	33.84	-6.45	40.00	-12.61 Peak	Vertical
3	239.52	39.65	47.43	-7.78	46.00	-6.35 Peak	Vertical
4	480.00	36.76	40.10	-3.34	46.00	-9.24 Peak	Vertical
5	636.25	31.61	32.57	-0.96	46.00	-14.39 Peak	Vertical
6	847.71	33.37	31.57	1.80	46.00	-12.63 Peak	Vertical

Tx Mode, 1GHz ~ 40GHz

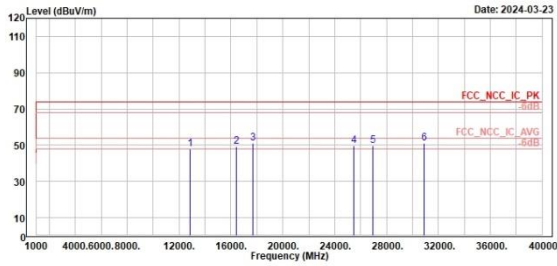
76.45GHz Radar

Horizontal

Vertical



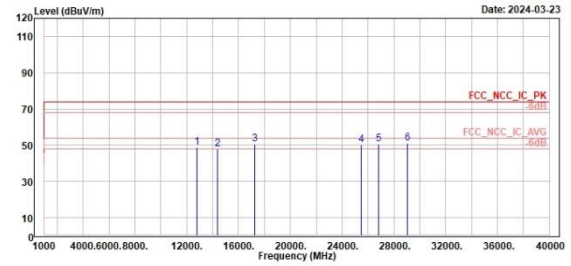
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No. 458-18, Sec. 2, Fenhiao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



Freq	Level	Read	Limit	Over	Remark	Pol/Phase
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	
1 12831.00	48.09	48.37	-0.28	74.00	-25.91 Peak	Horizontal
2 16396.00	49.22	45.55	3.67	74.00	-24.78 Peak	Horizontal
3 17697.00	51.21	45.00	6.21	74.00	-22.79 Peak	Horizontal
4 25469.00	49.61	49.01	0.60	74.00	-24.39 Peak	Horizontal
5 26931.00	49.82	48.51	1.31	74.00	-24.18 Peak	Horizontal
6 38888.00	50.89	49.16	1.73	74.00	-23.11 Peak	Horizontal



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No. 458-18, Sec. 2, Fenhiao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.)  
Tel: +886-2172-1000 Fax: +886-2172-1322



Freq	Level	Read	Limit	Over	Remark	Pol/Phase
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	
1 12757.00	48.69	48.99	-0.30	74.00	-25.31 Peak	Vertical
2 14372.00	47.94	46.37	1.57	74.00	-26.06 Peak	Vertical
3 17231.00	50.77	45.67	5.10	74.00	-23.23 Peak	Vertical
4 25470.00	50.13	49.53	0.60	74.00	-23.87 Peak	Vertical
5 26821.00	50.76	49.32	1.44	74.00	-23.24 Peak	Vertical
6 29866.00	51.14	49.30	1.84	74.00	-22.86 Peak	Vertical