



# FCC Test Report

APPLICANT : Dexter Axle Company LLC  
EQUIPMENT : DEX 102  
BRAND NAME : DEXTER  
MODEL NAME : DEX-102  
FCC ID : 2BOIO-DEX102  
STANDARD : 47 CFR Part 15 Subpart B  
CLASSIFICATION : Certification  
TEST DATE(S) : Apr. 01, 2025

We, Sporton International Inc. (Shenzhen), would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.

*Fly Liang*

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Approved by: Fly Liang



**Sporton International Inc. (ShenZhen)**

**1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055**

**People's Republic of China**



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## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC531715	Rev. 01	Initial issue of report	Jun. 24, 2025

## SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.109	Radiated Emission	< 15.109 limits	PASS	Under limit 13.36 dB at 936.95 MHz

**Conformity Assessment Condition:**

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. Please refer to each test results in the section "Measurement Uncertainty".

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



## 1. General Description

### 1.1. Applicant

**Dexter Axle Company LLC**

2900 Industrial parkway; Elkhart, IN 46515

### 1.2. Manufacturer

**Shenzhen Xiyuan Electronic Technology Co.,Ltd.**

Room 602, Huachuangda Business Building, Cuizhu Road, 46 District, Bao'an District, Shenzhen, Guangdong province, P.R.China

### 1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	DEX 102
Brand Name	DEXTER
Model Name	DEX-102
FCC ID	2BOIO-DEX102
EUT supports Radios application	GSM/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth LE GNSS
SN	C0VOP9SI
HW Version	V 2.3
SW Version	V 0.1.11
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4. Product Specification of Equipment Under Test

Standards-related Product Specification	
<b>Tx Frequency</b>	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850MHz ~ 1910MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz
<b>Rx Frequency</b>	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 4 : 2110 MHz ~ 2155 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz 802.11b/g/n: 2400 MHz ~ 2483.5 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz GNSS : 1559 MHz ~ 1610 MHz
<b>Antenna Type</b>	WWAN : PIFA Antenna WLAN : PCB Antenna Bluetooth : PCB Antenna GNSS: Ceramic Antenna
<b>Type of Modulation</b>	GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK LTE: QPSK / 16QAM 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK GNSS : BPSK

## 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6. Test Location

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH05-SZ	CN1256	421272

## 1.7. Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH05-SZ	AUDIX	E3	6.2009-8-24

## 1.8. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 15 Subpart B
- ♦ ANSI C63.4-2014

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 2. Test Configuration of Equipment Under Test

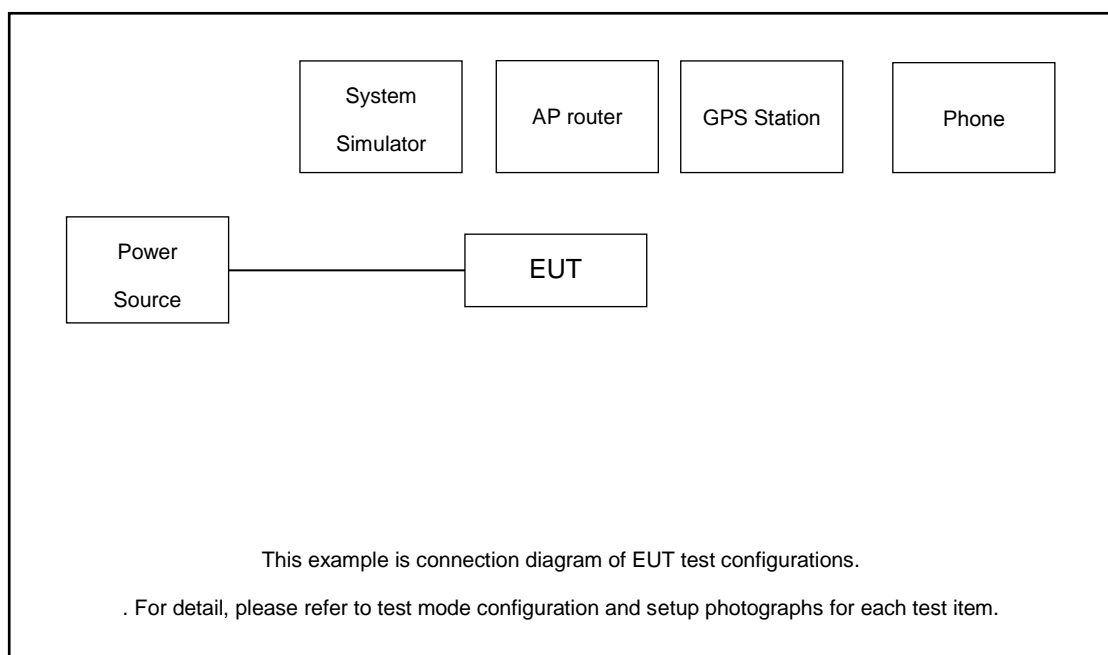
### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (30MHz to the 5th harmonic of the highest frequency or to 40 GHz, whichever is lower).

Test Items	Function Type
Radiated Emissions	Mode 1: GSM 850 Idle(Low CH) + BT Link + WIFI Link + GNSS RX + SIM 1 + charging from DC power
	Mode 2: LTE Cat-M1 Band 12 Idle(High CH) + BT idle + WIFI Link + GNSS RX + SIM 1 + charging from DC power
	Mode 3: LTE Cat-M1 Band 13 Idle(Middle CH) + BT Link + WIFI idle + GNSS RX + SIM 1 + charging from DC power
	Mode 4: LTE Cat-M1 Band 5 Idle(Low CH) + BT idle + WIFI idle + GNSS RX + SIM 1 + charging from DC power
<b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of RE is mode 1; only the test data of this mode is reported.</li> <li>Pre-scanned Low/Middle/High channel, the worst channel was recorded in this report.</li> </ol>	

### 2.2.Connection Diagram of Test System





The EUT has been associated with peripherals pursuant to ANSI C63.4-2014 and configuration operated in a manner tended to maximize its emission characteristics in a typical application

### 2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded,1.8m
2.	Base Station	Anritsu	MT8821	N/A	N/A	Unshielded,1.8m
3.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded,1.8m
4.	WLAN AP	ASUSTek	RT-AC66U	MSQ-RTAC66U	N/A	Unshielded,2.7m with Core
5.	Mobile phone	Oneplus	A5010	N/A	N/A	N/A
6.	DC Power Supply	LVYTECH	LV3303	N/A	N/A	N/A

### 2.4. EUT Operation Test Setup

The EUT was in GSM or LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Turn on GNSS function to make the EUT receive continuous signals from GNSS station.

### 3. Test Result

#### 3.1. Test of Radiated Emission Measurement

##### 3.1.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

**<Class B Limit>**

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

##### 3.1.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

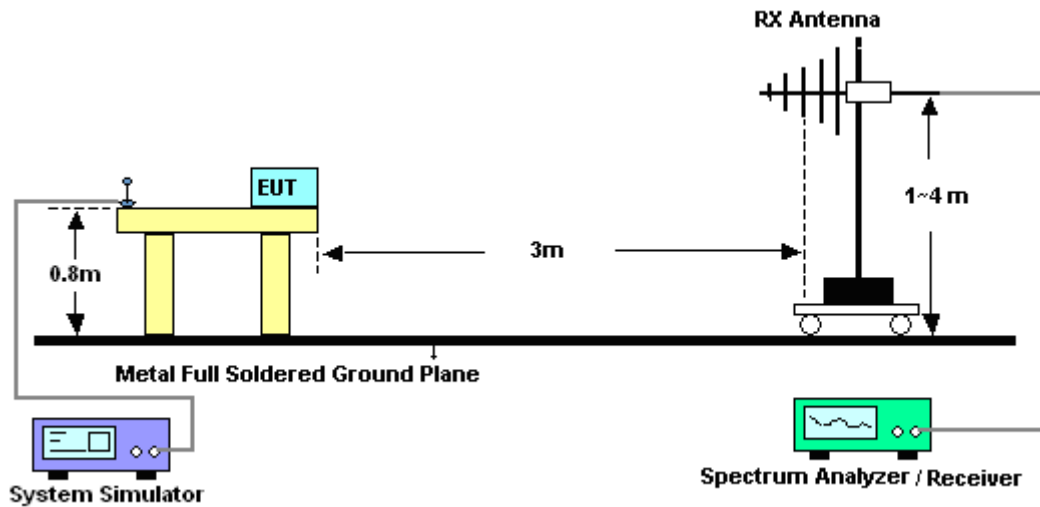
##### 3.1.3. Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.

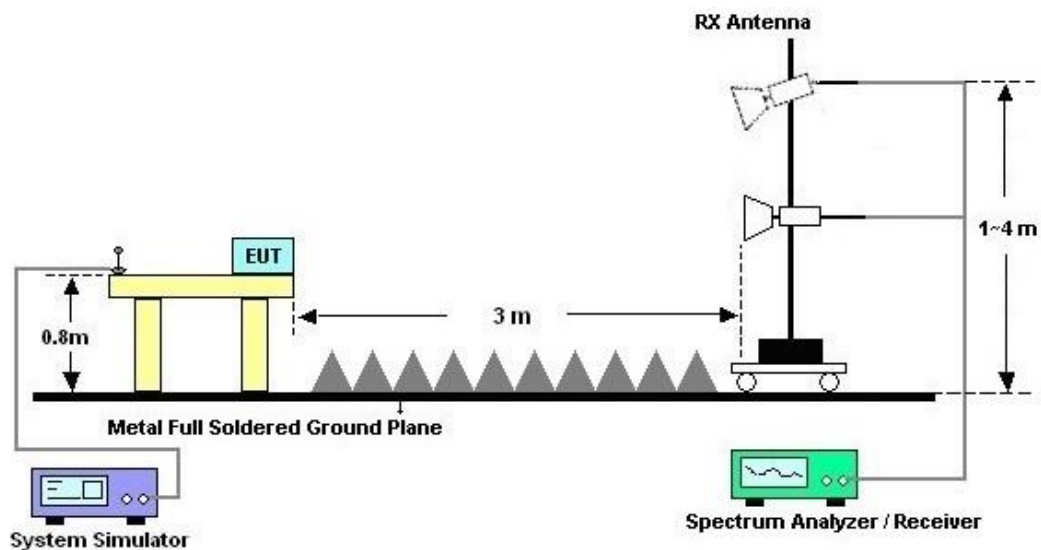
8. Emission level (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level
10. Exploratory radiated emissions testing of handheld and/or body-worn devices shall include rotation of the EUT through three orthogonal axes (X/Y/Z Plane) to determine the orientation (attitude) that maximizes the emissions.

### 3.1.4. Test Setup of Radiated Emission

**For radiated emissions from 30MHz to 1GHz**



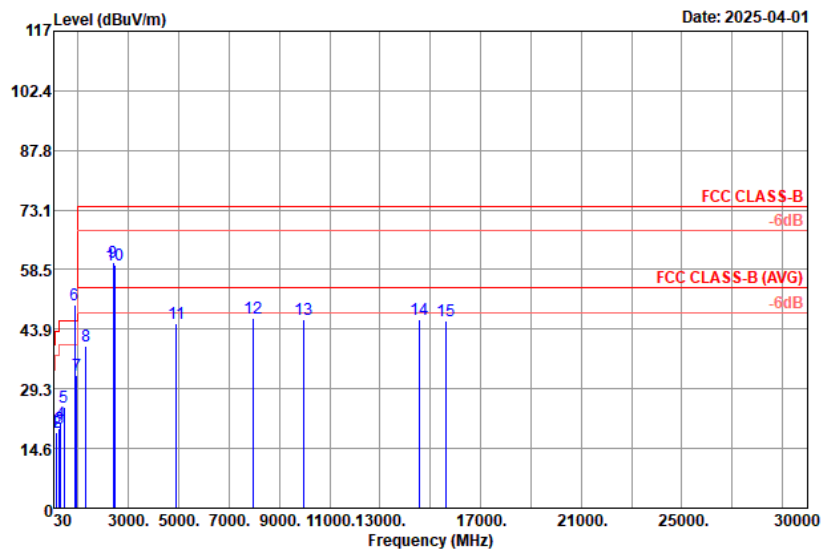
**For radiated emissions above 1GHz**





## 3.1.5. Test Result of Radiated Emission

Test Engineer :	ZhanSheng Liu	Temperature :	24~25°C
		Relative Humidity :	48~49%
Test Distance :	3m	Polarization :	Horizontal
Remark :	#6 is system simulator signal which can be ignored. #9 and #10 are RF signals which come from Bluetooth and WLAN Access Point used to connect the EUT, and which can be ignored.		



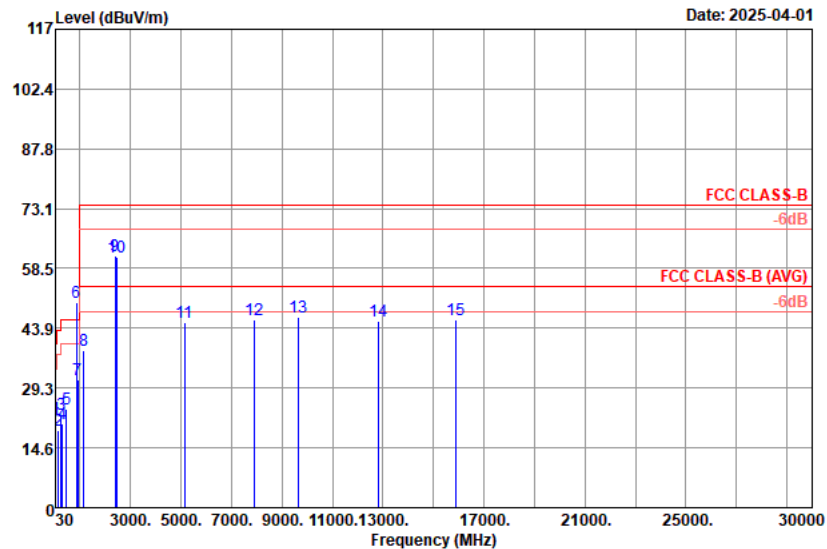
Site : 03CH05-SZ  
Condition : FCC CLASS-B 3m VULB9168-01001 HORIZONTAL

Plane : X

	Azimuth	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp	A/Pos	T/Pos			
	deg	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	Remark
1	44.55	19.02	-20.98	40.00	32.38	19.55	1.58	34.49	---	---	Peak
2	147.37	18.62	-24.88	43.50	32.36	19.04	2.31	35.09	---	---	Peak
3	250.19	19.68	-26.32	46.00	33.52	17.75	3.01	34.60	---	---	Peak
4	320.03	20.73	-25.27	46.00	32.68	19.85	3.30	35.10	---	---	Peak
5	450.01	24.66	-21.34	46.00	32.58	23.01	3.47	34.40	---	---	Peak
6 *	869.05	49.83			50.29	29.10	4.40	33.96	---	---	Peak
7	936.95	32.64	-13.36	46.00	32.08	29.97	4.49	33.90	---	---	Peak
8	1320.00	39.82	-34.18	74.00	57.71	29.80	5.60	53.29	---	---	Peak
9	2402.00	60.42			73.99	32.60	7.17	53.34	---	---	Peak
10	2437.00	59.67			73.14	32.67	7.22	53.36	---	---	Peak
11	4904.00	45.16	-28.84	74.00	53.48	35.12	9.44	52.88	---	---	Peak
12	7952.00	46.61	-27.39	74.00	51.06	36.70	11.45	52.60	---	---	Peak
13	9954.00	46.26	-27.74	74.00	46.65	38.10	13.46	51.95	---	---	Peak
14	14580.00	46.28	-27.72	74.00	42.13	40.06	15.11	51.02	---	---	Peak
15	15633.00	46.11	-27.89	74.00	41.85	40.80	15.55	52.09	---	---	Peak



<b>Test Engineer :</b>	ZhanSheng Liu	<b>Temperature :</b>	24~25°C
		<b>Relative Humidity :</b>	48~49%
<b>Test Distance :</b>	3m	<b>Polarization :</b>	Vertical
<b>Remark :</b>	#6 is system simulator signal which can be ignored. #9 and #10 are RF signals which come from Bluetooth and WLAN Access Point used to connect the EUT, and which can be ignored.		



Site : 03CH05-SZ  
Condition : FCC CLASS-B 3m VULB9168-01001 VERTICAL

Plane : X

	Azimuth	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Factor	A/Pos	T/Pos	Remark
	deg	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm
1	38.73	22.00	-18.00	40.00	35.90	19.14	1.33	34.37	---
2	142.52	18.96	-24.54	43.50	33.14	18.63	2.28	35.09	---
3	250.19	22.88	-23.12	46.00	36.72	17.75	3.01	34.60	---
4	306.45	20.68	-25.32	46.00	32.95	19.59	3.24	35.10	---
5	470.38	23.99	-22.01	46.00	31.76	23.32	3.43	34.52	---
6 *	869.05	50.06			50.52	29.10	4.40	33.96	---
7	921.43	31.25	-14.75	46.00	31.09	29.60	4.46	33.90	---
8	1160.00	38.42	-35.58	74.00	56.86	29.70	5.06	53.20	---
9	2402.00	61.54			75.11	32.60	7.17	53.34	---
10	2437.00	61.42			74.89	32.67	7.22	53.36	---
11	5136.00	45.15	-28.85	74.00	53.03	35.43	9.46	52.77	---
12	7920.00	46.00	-28.00	74.00	50.61	36.64	11.35	52.60	---
13	9666.00	46.52	-27.48	74.00	47.01	38.03	13.15	51.67	---
14	12825.00	45.66	-28.34	74.00	44.25	39.43	14.07	52.09	---
15	15885.00	46.04	-27.96	74.00	41.93	40.99	15.56	52.44	---

Note:

- Level(dBμV/m) = Read Level(dBμV) + Antenna Factor(dB/m) + Cable Loss(dB) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)



## 4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	102261	9kHz~7GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY59071191	10Hz~44GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
Log-periodic Antenna	SCHWARZBECK	VULB 9168	01001	20MHz~1.5GHz	Jul. 08, 2024	Apr. 01, 2025	Jul. 07, 2025	Radiation (03CH05-SZ)
Amplifier	EM Electronics	EM330	060756	0.01Hz ~3000MHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-2206	1GHz~18GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
HF Amplifier	EM Electronics	EM01G18GA	060781	1GHz~18GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
HF Amplifier	EM Electronics	EM18G40G	060778	18GHz~40GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	00983	15GHz~40GHz	Apr. 09, 2024	Apr. 01, 2025	Apr. 08, 2025	Radiation (03CH05-SZ)
AC Power Source	APC	AFV-S-600	F119050013	N/A	Oct. 14, 2024	Apr. 01, 2025	Oct. 13, 2025	Radiation (03CH05-SZ)
Turn Table	EMEC	T-200-S-1	060925-T	0~360 degree	NCR	Apr. 01, 2025	NCR	Radiation (03CH05-SZ)
Antenna Mast	EMEC	MBS-400-1	060927	1 m~4 m	NCR	Apr. 01, 2025	NCR	Radiation (03CH05-SZ)

NCR: No Calibration Required



## 5. Measurement Uncertainty

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.2dB
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### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	5.1dB
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### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.1dB
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