



TEST REPORT

Applicant:

Address:

Manufacturer:

Address:

Product Name: Anemometer

Trade Mark: N/A

Model Number: ATL302

Date of Receipt: Oct. 10, 2026

Test Date: Oct. 10, 2026 – Oct. 15, 2026

Date of Report: Oct. 16, 2026

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1
Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, ChinaApplicable Standards: EN IEC 61326-1:2021
EN IEC 61000-3-2:2019+A1:2021+A2:2024, EN 61000-3-3:2013+A1:2019+A2:2021
EN IEC 61000-4-2:2025, EN IEC 61000-4-3:2020, EN 61000-4-4:2012,
EN 61000-4-5:2014+A1:2017, EN IEC 61000-4-6:2023,
EN 61000-4-8:2010, EN IEC 61000-4-11:2020+AC:2022

Test Result: Pass

Report Number:

Prepared (Engineer): HaiLin Yang

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. VERSION

Version No.	Date	Description
00	Oct. 15, 2026	Original
01	Oct. 16, 2026	Update test results for voltage fluctuation/flicker projects to not applicable (N/A) update the equipment calibration date, and revised the RF immunity test table based on actual raw data to align with the updated standard EN IEC 61326-1:2021. Based on report. Starting today, the original report is invalid

2. TEST SUMMARY

EMC Emission			
Standard	Test Item	Limit	Result
CISPR 11:2015+ AMD1:2016/AMD2:2019	Conducted Emission at power ports	Class B	N/A
	Radiated Emission below 1GHz	Class B	PASS
	Radiated Emission above 1GHz	Class B	N/A
EN IEC 61000-3-2 : 2019+A1:2021+A2:2024	Harmonic Current Emission	Class A	N/A
EN 61000-3-3: 2013+A1:2019+A2:2021	Voltage Fluctuations & Flicker	-----	N/A
EMC Immunity			
Section EN IEC 61326-1:2021	Test Item	Performance Criteria	Result
EN IEC 61000-4-2:2025	Electrostatic Discharge	B	PASS
EN IEC 61000-4-3: 2020	RF electromagnetic field	A	PASS
EN 61000-4-4: 2012	Fast transients	B	N/A
EN 61000-4-5: 2014+A1:2017	Surges	B	N/A
EN IEC 61000-4-6: 2023	Injected Current	A	N/A
EN 61000-4-8: 2010	Power Frequency Magnetic Field	A	PASS
EN IEC 61000-4-11: 2020+AC:2022	Volt. Interruptions Volt. Dips	B / B / C / C	N/A

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Comprehensive Building, Tongzhou Electronics Longgang Factory Area, No.1 Baolong Fifth Road, Baolong Community, Baolong Street, Longgang District, Shenzhen, China

PASS*: Customers need to test according to a cruel level.

FCC Test Firm Registration Number: 854456

IC Registered No.: 27485

Designation Number: CN1307

CAB ID.: CN0118

(3) Report version: EN IEC 61326-1_202601



3. GENERAL INFORMATION

3.1 Description of Device (EUT)

Product Name:	Anemometer
Trade Mark:	N/A
Model Number:	ATL302
Test Model:	
Model difference:	All models are same as the samples except model name and appearance color, they have the same structure and circuit.
Power Supply:	Input: DC 5V Battery: 3.7V
Separation into groups	Group 2, Class B
Working Frequency:	Below 108MHz
Note1: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. Note2: The EUT's all information provided by client.	

3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up

EUT

3.4 Test Mode Description

Mode1. On Mode

3.5 Test Auxiliary Equipment

None.

3.6 Test Uncertainty

Conducted Emission Uncertainty : $\pm 2.56\text{dB}$

Radiated Emission Uncertainty : $\pm 3.24\text{dB}$

**4. TEST INSTRUMENT USED****For Conducted Emission Test (843 Shielded Room)**

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	YIHENG	843 Room	843	Nov. 05, 2023	Nov. 04, 2026
EMI Receiver	R&S	ESCI	101421	Oct. 25, 2025	Oct. 24, 2026
LISN	R&S	ENV216	102417	Oct. 25, 2025	Oct. 24, 2026
Clamp	COM-POWER	CLA-050	431072	Oct. 27, 2025	Oct. 26, 2026
3-Loop Antenna	DAZE	ZN30401	13021	Oct. 27, 2025	Oct. 26, 2026
ISN T8	Schwarzbeck	NTFM 8158	101135	Oct. 25, 2025	Oct. 24, 2026
ISN T5	Schwarzbeck	NTFM 8158	101136	Oct. 25, 2025	Oct. 24, 2026
843 Cable 1#	ChengYu	CE Cable	001	Oct. 25, 2025	Oct. 24, 2026
843 Cable 1#	ChengYu	CL Cable	002	Oct. 25, 2025	Oct. 24, 2026

For Radiated Emission Test (966 chamber)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 chamber	YIHENG	966 Room	966	Nov. 06, 2023	Nov. 05, 2026
Spectrum Analyzer	Agilent	E4408B	MY50140780	Oct. 25, 2025	Oct. 24, 2026
EMI Receiver	R&S	ESCI	101393	Oct. 25, 2025	Oct. 24, 2026
Amplifier	Schwarzbeck	BBV9743B	00153	Oct. 25, 2025	Oct. 24, 2026
Amplifier	EMEC	EM01G8GA	00270	Oct. 25, 2025	Oct. 24, 2026
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Oct. 26, 2025	Oct. 25, 2026
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Oct. 26, 2025	Oct. 25, 2026
966 Cable 1#	ChengYu	966	004	Oct. 25, 2025	Oct. 24, 2026
966 Cable 2#	ChengYu	966	003	Oct. 25, 2025	Oct. 24, 2026

For Harmonic & Flicker Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Harmonics, Flicker & power Analyser	LAPLACE INSTRUMENTS	AC2000A	311370	Oct. 25, 2025	Oct. 24, 2026
AC Power Supply	MToni	HPF5010	633659	Oct. 25, 2025	Oct. 24, 2026

For Electrostatic Discharge Immunity Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
ESD Tester	SCHLODER	SESD 230	17352	Oct. 27, 2025	Oct. 26, 2026

**For RF Field Strength Susceptibility Test (Other RS site)**

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Signal Generator	HP	SMB100A	1406600K02	Oct. 13, 2026	Oct. 12, 2027
Amplifier	BONN ELEKTRONIK	BLWAO810-250/100D	066454	Oct. 13, 2026	Oct. 12, 2027
Amplifier	BONN ELEKTRONIK	BLWA0840-5030D	066453	Oct. 13, 2026	Oct. 12, 2027
RS Test Antenna	SKET	STLP 9129 Plus	202301/428	Oct. 13, 2026	Oct. 12, 2027
audio analyzer	R&S	UPL	16755	Oct. 13, 2026	Oct. 12, 2027
Antenna	EMCO	3108	9507-2534	Oct. 13, 2026	Oct. 12, 2027
Log-periodic Antenna	A&R	AT1080	16812	Oct. 13, 2026	Oct. 12, 2027
Power Sensor	R&S	Z11	116655	Oct. 13, 2026	Oct. 12, 2027
Power Sensor	R&S	Z11	121896	Oct. 13, 2026	Oct. 12, 2027
Horn Antenna	AINFO	JXTXLB-10180-SF	J2031090903006	Oct. 13, 2026	Oct. 12, 2027

For EFT /B, Surge, Voltage Dips Interruptions Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Transient Comprehensive Immunity Test System	Graphtec	HVIP16T+HCO MPACT 5	192501+192202	Oct. 25, 2025	Oct. 24, 2026
Coupling Clamp	HTEC	001	0001	Oct. 25, 2025	Oct. 24, 2026

For Injected Currents Susceptibility Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
C/S Test System	LIONCEL	RIS-6091-85	0191101	Oct. 25, 2025	Oct. 24, 2026
CDN	LIONCEL	CDN-M2-16	0191001	Oct. 25, 2025	Oct. 24, 2026
CDN	LIONCEL	CDN-M3-16	0191002	Oct. 25, 2025	Oct. 24, 2026
Injection Clamp	Frankonia	EMCL-20	18101728-0108	Oct. 25, 2025	Oct. 24, 2026

For Magnetic Field Immunity Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Magnetic field Test System	LIONCEL	PMF-801C-C/ PMF-801C-T	190401	Oct. 25, 2025	Oct. 24, 2026

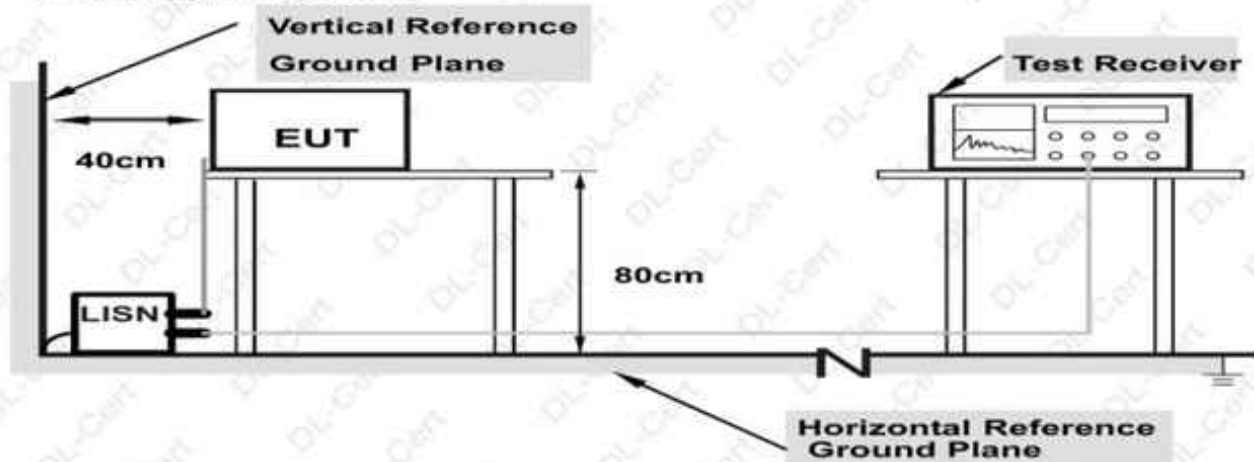
EMC report Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ EMC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ EMC	FA-03A2
3	Harmonic test system	LAPLACE INSTRUMENTS	Harmonic	1.0.0.0
4	RF Immunity test system	LIONCEL	C/S	1.1.0.0



5. DISTURBANCE VOLTAGES TEST

5.1 Block Diagram of Test Setup



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.2 Test Standard and Limit

CISPR 11 Group 2 Class B

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15~0.50	66~56	56~46
0.50~5.00	56	46
5.00~30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet CISPR 11 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipment.

5.4.3 Let the EUT work in test modes and test it.



5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipment. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **CISPR 11** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

The frequency ranges from 150kHz to 30MHz is investigated.

5.6 Test Result

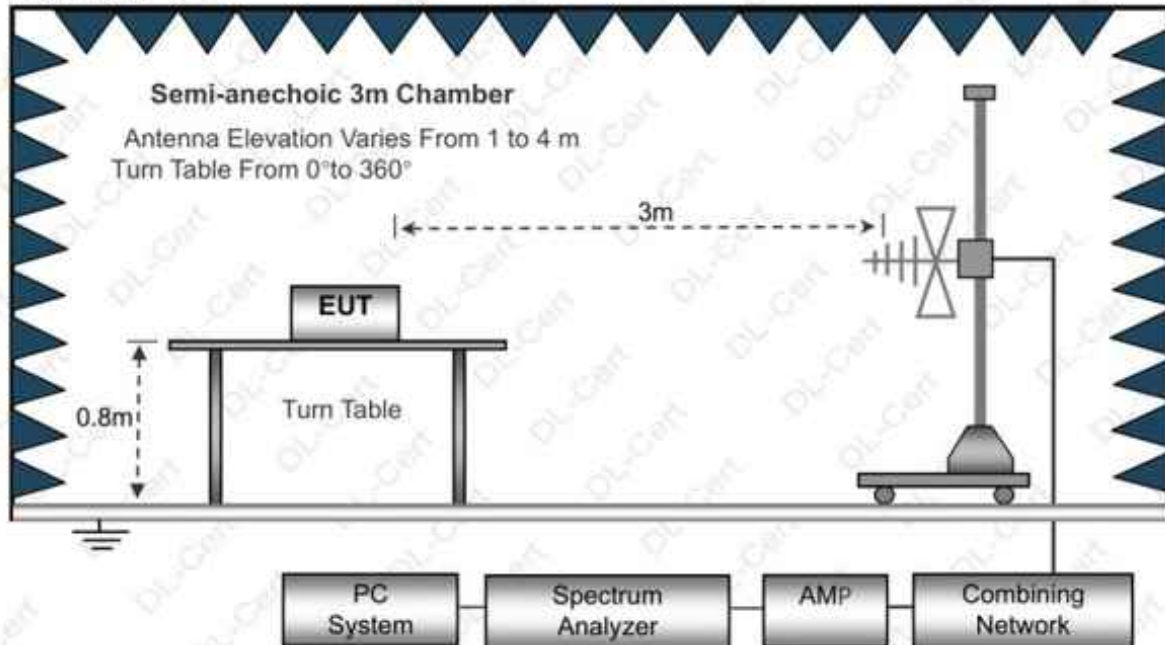
The EUT is powered by DC, no requirements for this item.



6. RADIATED DISTURBANCE TEST

6.1 Block Diagram of Test Setup

Below 1GHz



6.2 Test Standard and Limit

CISPR 11 Group 2 Class B

Frequency (MHz)	Quasi-peak limits at 3m	Unit
30-80.872	40	dB(μV/m)
80.872-81.848	60	
81.848-134.768	40	
134.768-136.414	60	
136.414-230	40	
230-1000	47	

Above 1GHz

Frequency (GHz)	Peak limits at 3m	Unit
1-18	70	dB(μV/m)

Remark:

- (1) The smaller limit shall apply at the cross point between two frequency bands.
- (2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.
- (3) The average limits apply to magnetron driven equipment only. If magnetron driven equipment exceeds the quasi-peak limit at certain frequencies, then the measurement shall be repeated at these frequencies with the average detector and the average limits specified in this table apply.



6.3 EUT Configuration on Test

The CISPR 11 regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

- 1) The radiated emissions test was conducted in a semi-anechoic chamber,
- 2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
- 4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
- 5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.
- 6) The frequency range from 30MHz to 1000MHz is checked.

6.6 Test Result

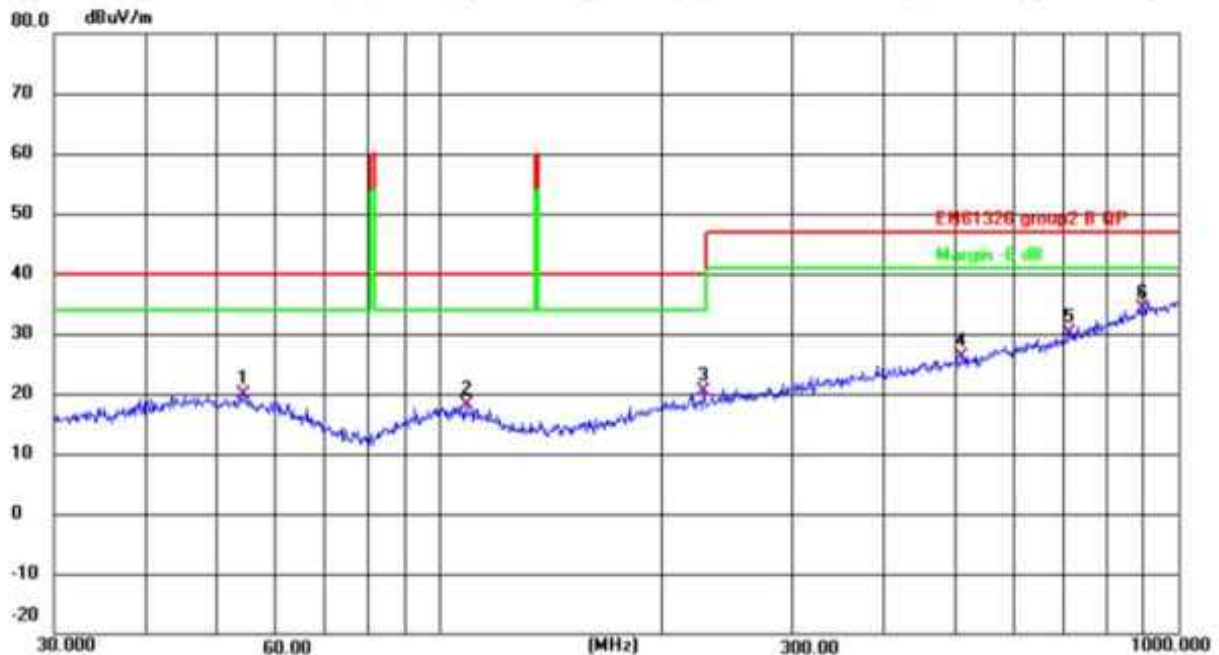
PASS

Please refer to the following page.



Radiated Disturbance Test Data

Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V	Test Mode:	Mode 1
Test Date:	2026.10.10		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		54.0711	27.34	-7.57	19.77	40.00	-20.23	QP	
2		108.6470	27.28	-9.18	18.10	40.00	-21.90	QP	
3		227.6906	28.40	-8.12	20.28	40.00	-19.72	QP	
4		508.2582	27.58	-1.47	26.11	47.00	-20.89	QP	
5		711.6734	27.61	2.47	30.08	47.00	-16.92	QP	
6	*	893.8567	27.96	6.19	34.15	47.00	-12.85	QP	

Remark:

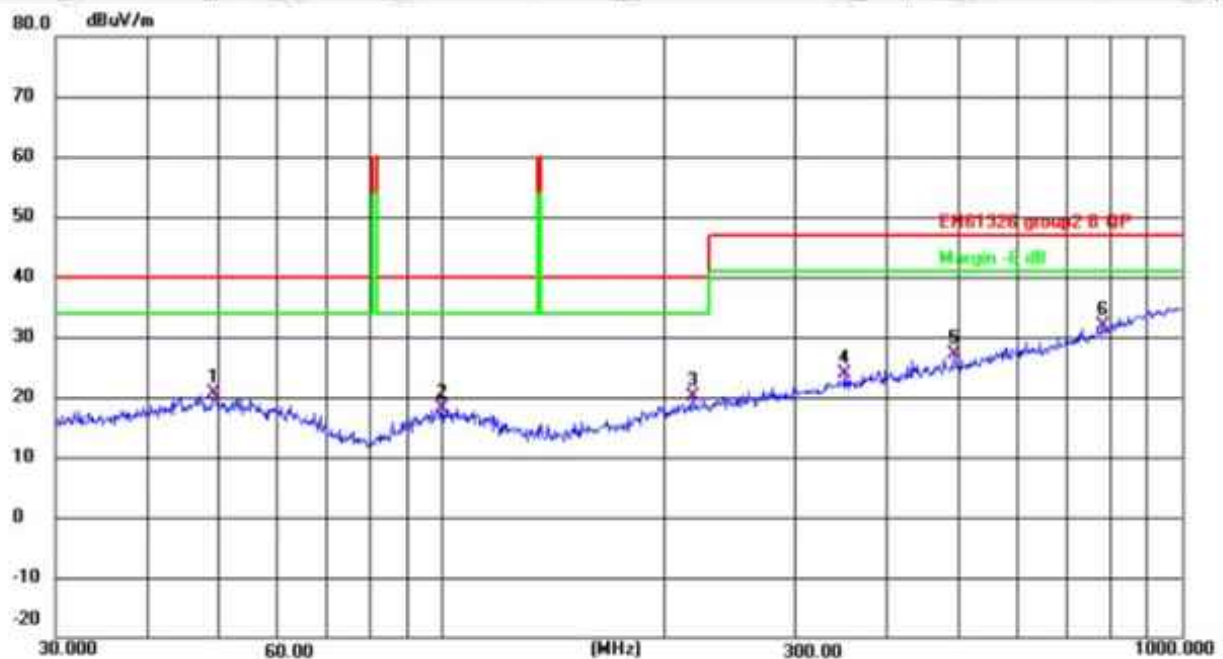
Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level= Reading Level + Correct Factor, Margin = Measurement Level- Limit.



Radiated Disturbance Test Data

Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 3.7V	Test Mode:	Mode 1
Test Date:	2026.10.10		



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1		49.0145	27.60	-7.05	20.55	40.00	-19.45	QP	
2		99.8777	27.26	-9.21	18.05	40.00	-21.95	QP	
3		218.3085	28.48	-8.45	20.03	40.00	-19.97	QP	
4		350.4768	28.58	-4.59	23.99	47.00	-23.01	QP	
5		492.4685	28.93	-1.84	27.09	47.00	-19.91	QP	
6	*	782.3453	27.94	3.93	31.87	47.00	-15.13	QP	

Remark:

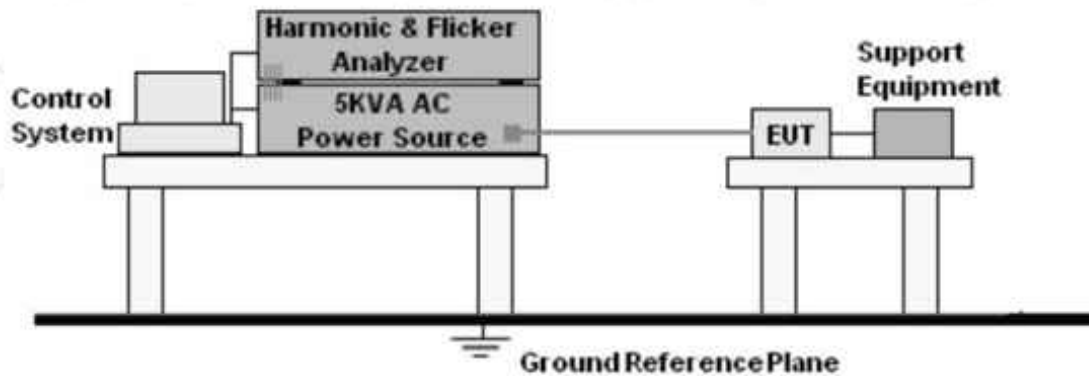
Correct Factor=Cable loss+Antenna factor-Preamplifier

Measurement Level= Reading Level + Correct Factor, Margin = Measurement Level- Limit.



7. HARMONIC CURRENT EMISSION TEST

7.1 Block Diagram of Test Setup



7.2 Test Standard and limit EN IEC 61000-3-2

IEC 555-2					
Table - I			Table - II		
Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (In Amperes)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (In Amperes)
Non Portable Tools or TV Receivers	Odd Harmonics		TV Receivers	Odd Harmonics	
	3	2.30		3	0.80
	5	1.14		5	0.60
	7	0.77		7	0.45
	9	0.40		9	0.30
	11	0.33		11	0.17
	13	0.21		13	0.12
	15≤n≤39	0.15 · 15/n		15≤n≤39	0.10 · 15/n
	Even Harmonics			Even Harmonics	
	2	1.08		2	0.30
	4	0.43		4	0.15
	8	0.30			
	8≤n≤40	0.23 · 8/n		DC	0.05

EN 61000-3-2/IEC 61000-3-2					
Equipment Category	Max. Permissible Harmonic Current (In Amperes)	Equipment Category	Harmonic Order n	Max. Permissible Harmonic Current (In A) (mA/w)	
Class A	Same as Limits Specified in 4-2.1, Table - I, but only odd harmonics required	Class D	3	2.30	3.4
			5	1.14	1.9
			7	0.77	1.0
			9	0.40	0.5
			11	0.33	0.35
			13 ≤ n ≤ 39	see Table I	3.85/n
			only odd harmonics required		



7.3 Operating Condition of EUT

Setup the EUT as shown in Section 7.1.
Turn on the power of all equipment.
Let the EUT work in test mode and test it.

7.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

7.5 Test Results

The EUT is powered by DC, no requirements for this item.



8. VOLTAGE FLUCTUATIONS & FLICKER TEST

8.1 Block Diagram of Test Setup

Same as Section 7.1.

8.2 Test Standard

EN 61000-3-3

8.3 Operating Condition of EUT

Same as Section 7.3. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
Tmax	4.0%
dt	Not exceed 3.3% for 500ms

8.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

8.5 Test Results

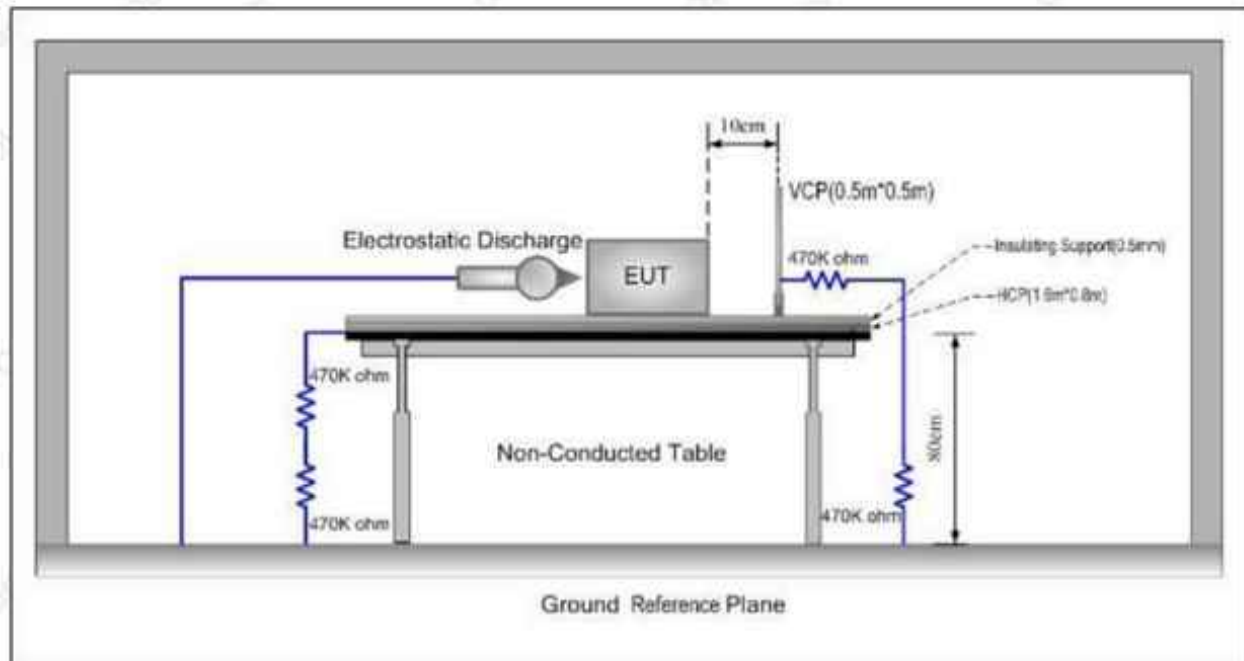
The EUT is powered by DC, no requirements for this item.

**9. IMMUNITY TEST OF GENERAL THE PERFORMANCE CRITERIA**

Product Standard	EN IEC 61326-1
CRITERION A	The equipment shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified in the user documentation, when the equipment is used as intended. In the case of applying immunity tests with continuous electromagnetic phenomena, the performance level may be replaced by a permissible loss of performance which shall recover, without user intervention. A permissible loss of performance is allowed within the performance level only when this information is clearly provided to the end user via documentation, such as the product user manual. No change in the operating state is allowed nor is loss of data.
CRITERION B	The equipment shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified in the user documentation, when the equipment is used as intended. During the test, the equipment performance level may be replaced by a permissible loss of performance if such loss of performance is detailed in the emc test plan. A permissible loss of performance is allowed within the performance level only when this information is clearly provided to the end user via documentation, such as the product user manual. An unintended change of the operating state is allowed if self-recoverable. No loss of stored data is allowed. The following are examples of performance criterion b: Data transfer is controlled or checked by parity check or by other means. In the case of malfunction, such as caused by a surge impulse, the data transfer will be repeated automatically. A reduced data transfer rate at this time is allowable degradation. During testing, an analogue function value may deviate in excess of the specified limits. After the test, the deviation vanishes. In the case of a monitor used only for man-machine monitoring, it is allowable that some degradation takes place, such as momentary display interference during the application of burst impulses.
CRITERION C	Loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls. Recovery procedure shall be included in the user documentation. No permanent damage to the equipment is allowed. The following are examples of performance criterion c: . In the case of an interruption in the mains longer than the specified buffer time, the power supply unit of the equipment is switched off. The switch-on may be automatic or carried out by the operator. After a programme interruption caused by a disturbance, the processor functions of the equipment stops at a defined position and is not left in a "crashed state". An operator's action may be necessary. The test results in an opening of an over-current protection equipment that can be reset by the operator.

10. ELECTROSTATIC DISCHARGE IMMUNITY TEST

10.1 Block Diagram of Test Setup



10.2 Test Standard

EN IEC 61326-1, EN IEC 61000-4-2

10.3 Severity Levels and Performance Criterion

Severity Level: 3 / Air Discharge: $\pm 8\text{KV}$

Level: 2 / Contact Discharge: $\pm 4\text{KV}$

Performance criterion: B

10.4 Test Procedure

- Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.
- The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.
- The time interval between two successive single discharges was at least 1 second.
- The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.
- Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.
- Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.
- At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.
- At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical



edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

10.5 Test Results

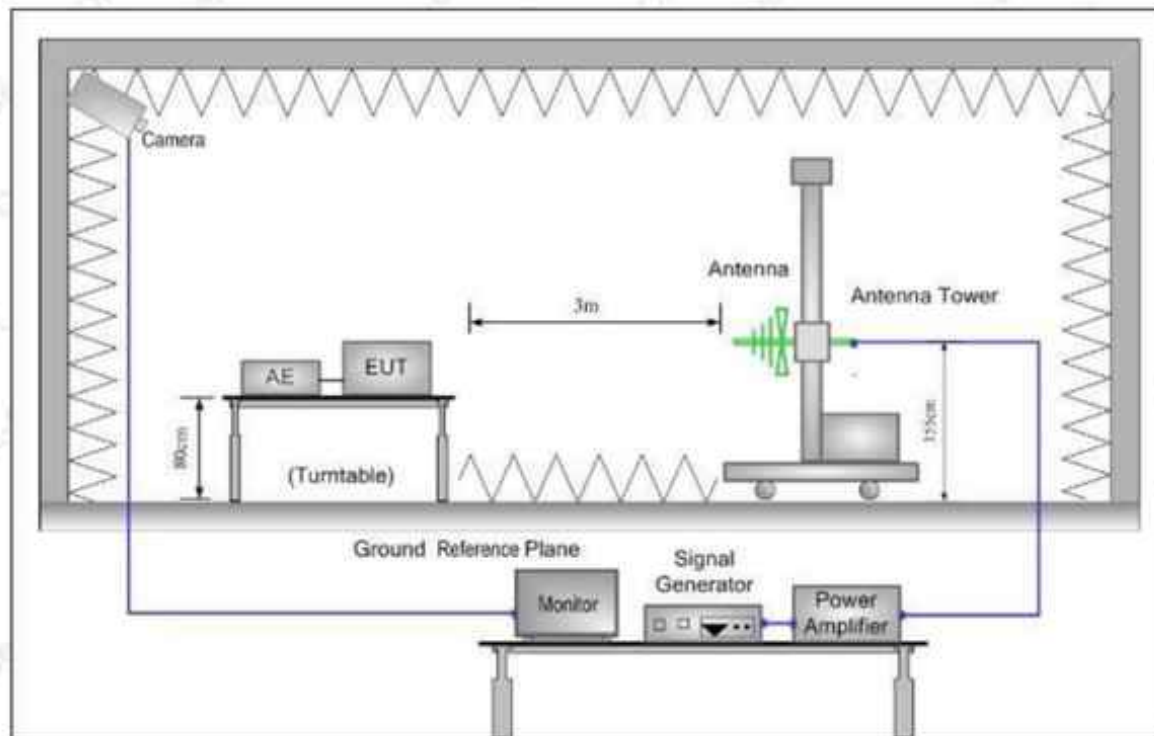
PASS

Electrostatic Discharge Test Data					
Temperature:	25.1°C	Humidity:	55%		
Power Supply :	DC 3.7V	Test Mode:	Mode 1		
Test Date:	2026.10.15				
Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Result
Contact Discharge	Conductive Surfaces	4	10	B	Pass
	Indirect Discharge HCP	4	10	B	Pass
	Indirect Discharge VCP	4	10	B	Pass
Air Discharge	Slots, Apertures, and Insulating Surfaces	4, 8	10	B	Pass
Note: N/A					



11. RF FIELD STRENGTH SUSCEPTIBILITY TEST

11.1 Block Diagram of Test Setup



11.2 Test Standard

EN IEC 61326-1, EN IEC 61000-4-3

11.3 Severity Levels and Performance Criterion

Severity Level 2, 3V / m

Performance criterion: A

11.4 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows:

Condition of Test	Remarks
Fielded Strength	3 V/m (Severity Level 2)
Radiated Signal	Modulated
Scanning Frequency	80 – 6000 MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	1 Sec.



11.5 Test Results

PASS

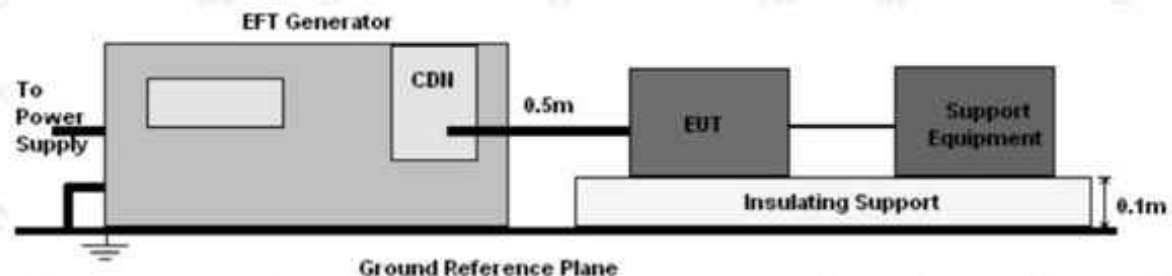
R/S Test Data				
Temperature:	25.1°C	Humidity:	55%	
Power Supply:	DC 3.7V	Test Mode:	Mode 1	
Criterion:	A	Steps	1 %	
Test Date :	2026.10.15			
Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Result
80-1000 1800 2600 3500 6000	Front, Right, Back, Left	3	A	Pass
Note: N/A				



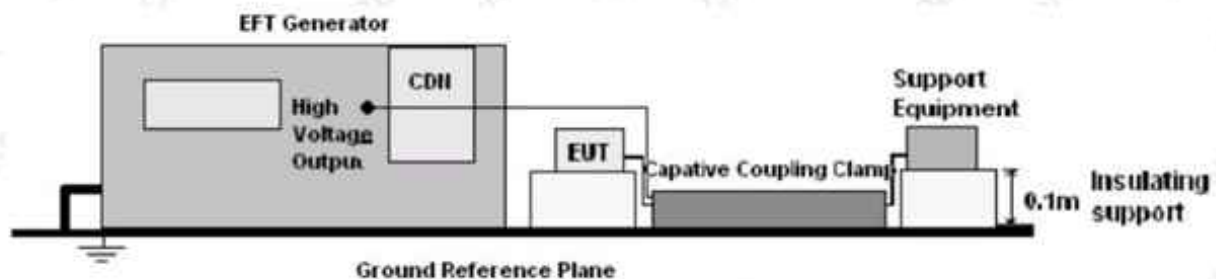
12. ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

12.1 Block Diagram of EUT Test Setup

For input a.c. / d.c. power port:



For signal lines and control lines:



12.2 Test Standard

EN IEC 61326-1, EN 61000-4-4

12.3 Severity Levels and Performance Criterion

Severity Level 3 at 2KV, Pulse Rise time & Duration: 5nS / 50nS

Performance criterion: B

12.4 Test Procedure

EUT shall be placed 0.8m high above the ground reference plane which is a min.1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m

For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

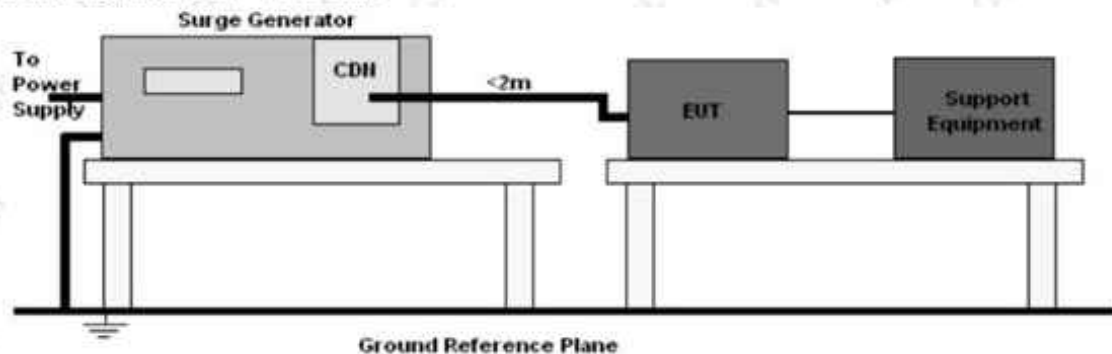
12.5 Test Results

The EUT is powered by battery, no requirements for this item.



13. SURGE TEST

13.1 Block Diagram of EUT Test Setup



13.2 Test Standard

EN IEC 61326-1, EN 61000-4-5

13.3 Severity Levels and Performance Criterion

Severity Level: Line to Line, Level 2 at 1KV;

Severity Level: Line to Earth, Level 3 at 2KV.

Performance criterion: B

13.4 Test Procedure

- 1) Set up the EUT and test generator as shown on section 11.1
- 2) For line to line coupling mode, provide a 1KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Repeat procedure 2) to 4) except the open-circuit test voltage change from 1KV to 2KV for line to earth coupling mode test.
- 6) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

13.5 Test Result

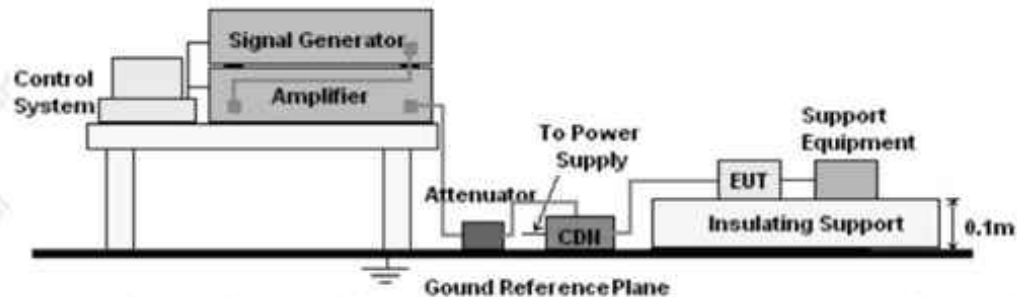
The EUT is powered by battery, no requirements for this item.



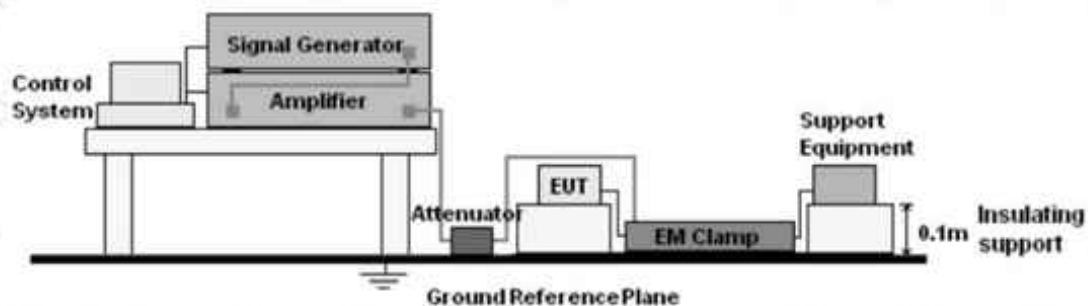
14. INJECTED CURRENTS SUSCEPTIBILITY TEST

14.1 Block Diagram of EUT Test Setup

For input a.c. / d.c. power port:



For signal lines and control lines:



14.2 Test Standard

EN IEC 61326-1, EN IEC 61000-4-6

14.3 Severity Levels and Performance Criterion

Severity Level 2: 3V(rms), 150KHz ~ 80MHz

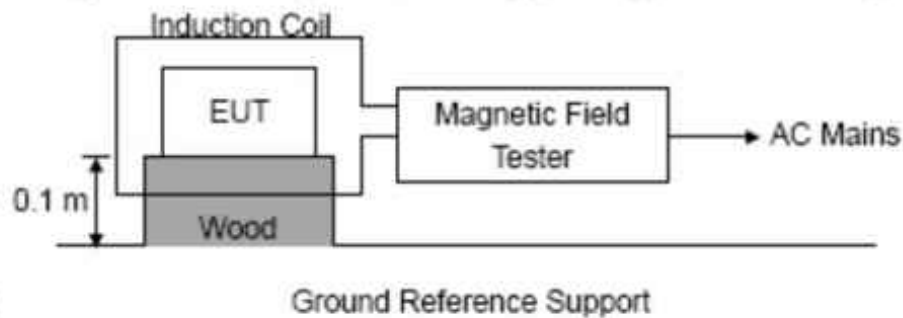
Performance criterion: A

14.4 Test Procedure

- 1) Set up the EUT, CDN and test generator as shown on section 12.1
- 2) Let EUT work in test mode and measure.
- 3) The EUT and supporting equipment are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane at above 0.1-0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave
- 7) The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

14.5 Test Result

The EUT is powered by battery, no requirements for this item.

**15. MAGNETIC FIELD IMMUNITY TEST****15.1 Block Diagram of EUT Test Setup****15.2 Test Standard**

EN IEC 61326-1, EN 61000-4-8

15.3 Severity Levels and Performance Criterion

Severity Level 2: 3A/m

Performance criterion: A

15.4 Test Procedure

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 13.1. The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

15.5 Test Result

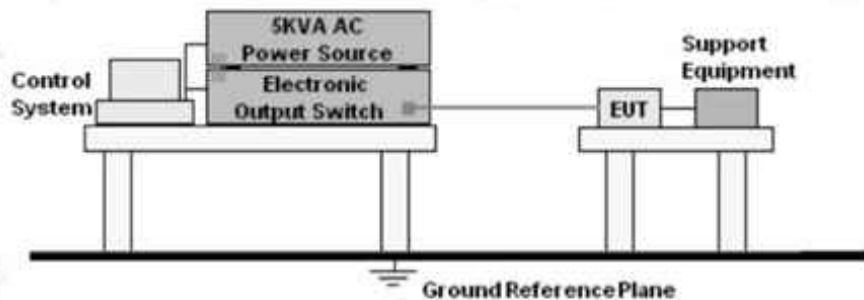
PASS

MS Test Data					
Temperature:	24.5℃		Humidity:	53%	
Power Supply:	DC 3.7V		Test Mode:	Mode 1	
Environmental Phenomena	Test specification	Units	Coil Orientation	Performance Criterion	Result
Magnetic Field	3	A/m	X	A	PASS
			Y	A	PASS
			Z	A	PASS
Note: N/A					



16. VOLTAGE DIPS AND INTERRUPTIONS TEST

16.1 Block Diagram of EUT Test Setup



16.2 Test Standard

EN IEC 61326-1, EN IEC 61000-4-11

16.3 Severity Levels and Performance Criterion

Input and Output AC Power Ports.

- ☒ Voltage Dips.
- ☒ Voltage Interruptions.

Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	0 0.5	% Reduction period	B
	0 1	% Reduction period	B
	70 25/30	% Reduction period	C
Voltage Interruptions	0 250/300	% Reduction period	C

16.4 Test Procedure

- 1) Set up the EUT and test generator as shown on section 14.1
- 2) The interruption is introduced at selected phase angles with specified duration. There is a 3mins minimum interval between each test event.
- 3) After each test a full functional check is performed before the next test.
- 4) Repeat procedures 2 & 3 for voltage dips, only the level and duration is changed.
- 5) Record any degradation of performance.

16.5 Test Result

The EUT is powered by DC, no requirements for this item.