



## EMC TEST REPORT

**Product** : AC Servo Drive

**Trade mark** :  **Leadshine**®  雷赛智能® Leadshine

**Model/Type reference** : L7EC-100S, L7EC-100G, L7EC-100S-\*\*, L7EC-100G-\*\*, L7EC-400S, L7EC-400G, L7EC-400S-\*\*, L7EC-400G-\*\*, L7EC-750S, L7EC-750G, L7EC-750S-\*\*, L7EC-100G-\*\*, L7EC-1000S, L7EC-1000G, L7EC-1000S-\*\*, L7EC-1000G-\*\*, EL7-EC400\*, EL7-EC750\*, EL7-EC1000\*.  
(Remark: "\*\*" may be any letter from A to Z, represent industry requirement)

**Serial Number** : N/A

**Ratings** : AC 230V, 50Hz/60Hz

**Report Number** : EED32P804322

**Date of Issue** : Apr. 12, 2023

**Regulations** : See below

Test Standards	Results
<input checked="" type="checkbox"/> EN IEC 61000-6-2:2019	PASS
<input checked="" type="checkbox"/> EN IEC 61000-6-4:2019	PASS

Prepared for:

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Check No.: 4315300323

Modification Record

No.	Last Report No.	Modification Description
1	EED32N810181	First report
2	EED32P804322	Add Product model.
All test data come from the report of No. EED32N810181		

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(Note: N/A means not applicable)

## 1. GENERAL INFORMATION

**Applicant:** China Leadshine Technology Co., Ltd.  
11/F, Block A3, iPark No. 1001 Xueyuan Blvd., Nanshan District  
Shenzhen, China

**Manufacturer:** China Leadshine Technology Co., Ltd.  
11/F, Block A3, iPark No. 1001 Xueyuan Blvd., Nanshan District  
Shenzhen, China

**EMC Directive:** 2014/30/EU

**Product:** AC Servo Drive

**Trade mark:**  **Leadshine**®  雷赛智能®  
Leadshine

**Model/Type reference:** L7EC-100S, L7EC-100G, L7EC-100S-\*\*, L7EC-100G-\*\*,  
L7EC-400S, L7EC-400G, L7EC-400S-\*\*, L7EC-400G-\*\*,  
L7EC-750S, L7EC-750G, L7EC-750S-\*\*, L7EC-100G-\*\*,  
L7EC-1000S, L7EC-1000G, L7EC-1000S-\*\*,  
L7EC-1000G-\*\*, EL7-EC400\*, EL7-EC750\*, EL7-EC1000\* .  
(Remark: “\*\*” may be any letter from A to Z, represent industry  
requirement)

**Serial Number:** N/A

**Report Number:** EED32P804322

**Sample Received Date:** Oct. 15, 2021

**Sample tested Date:** Oct. 15, 2021 to Oct. 31, 2021

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	Test Item	Test
EN IEC 61000-6-4	Conducted Emission	Yes
EN IEC 61000-6-4	Radiated Emission	Yes

IMMUNITY (EN IEC 61000-6-2)		
Standard	Test Item	Test
IEC 61000-4-2	Electrostatic discharge	Yes
IEC 61000-4-3	Radio-frequency electromagnetic field	Yes
IEC 61000-4-4	Fast transients	Yes
IEC 61000-4-5	Surges	Yes
IEC 61000-4-6	Radio-frequency common mode	Yes



IEC 61000-4-8	Power-frequency magnetic fields	N/A*
IEC 61000-4-11	Voltage dips and voltage interruptions	Yes

Remark\*: The Product doesn't contain any device susceptible to magnetic fields.

### 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted disturbance	3.1
Radiated disturbance (30MHz to 1GHz)	4.9

### 4. PRODUCT INFORMATION AND TEST SETUP

#### 4.1 PRODUCT INFORMATION

Ratings: AC 230V, 50Hz/60Hz

The highest frequency of the internal sources of the EUT is :

- ☒ less than 108 MHz, the measurement shall only be made up to 1 GHz.  
☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.  
☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.  
☐ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

Model difference:

All models are the same except for the Interface connector, software version and current. The test model is L7EC-1000S and the test results are applicable to the others.

#### 4.2 TEST SETUP CONFIGURATION

See test photographs attached in APPENDIX 1 PHOTOGRAPHS OF TEST SETUP for the actual connections between Product and support equipment.

#### 4.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

#### Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## 5. FACILITIES AND ACCREDITATIONS

### 5.1 TEST FACILITY

All measurement facilities used to collect the measurement data are located at Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

### 5.2 TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipments used at CTI for testing. The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

**Equipment used during the tests:**

Shielding Room No. 3 - Conducted Emission Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
Receiver	R&S	ESCI	100435	04/14/2022
LISN	R&S	ENV216	100098	03/03/2022

3M Semi-anechoic Chamber (1)- Radiated disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	05/29/2022
Spectrum Analyzer	Agilent	E4443A	MY45300910	10/16/2022
Receiver	R&S	ESCI	100435	04/14/2022
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	484	04/14/2022
Multi device Controller	ETS-LINGREN	2090	00024675	---

Shielding Room No. 3 - Electrostatic discharge Test (EN 61000-4-2)				
Equipment	Manufacturer	Model	Serial No.	Due Date
ESD Simulator	TESEQ	NSG437	1182	06/27/2022

<b>3M Full-anechoic Chamber - Radio-frequency electromagnetic field Test (EN 61000-4-3)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Due Date</b>
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	05/29/2022
Power Amplifier	AR	150W1000	0322288	12/27/2021
Stacked double Log.-Per. Antenna	schwarzbeck	STLP 9128 E special	9128ES-110	---
Signal Generator	Agilent	E4438C	MY42082153	12/27/2021
Horn Antenna	AR	ATH800M5GA	0342530	---
Power Amplifier	RFLIGHT	NTWPA-106050	18019001	12/27/2021

<b>Shielding Room No. 3 - Fast transients / Surges Test (EN 61000-4-4) (EN 61000-4-5)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Due Date</b>
Compact Generator	EM-Test	UCS500M/6B	V0603101093	04/14/2022

<b>Shielding Room No. 2 - Radio-frequency continuous conducted Immunity Test (IEC 61000-4-6)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Due Date</b>
Signal Generator	IFR	2023B	202307/883	04/23/2022
Power Amplifier	AR	75A 250A	320297	04/23/2022
Attenuator	BIRD	75-A-MFN-06	0543	08/05/2022
CDN	EM-Test	CDN M2/M3	0204-01	10/16/2022

<b>Shielding Room No. 2 -Voltage dips and interruptions Test (IEC 61000-4-11)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Due Date</b>
AC / DC programmable regulated power supply	EM TEST	Net Wave 30	P1613178144	06/13/2022
Voltage dip simulator	EM test	PFS 503N32.2	P1919229535	04/06/2022

### 5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.



## 6. CONDUCTED DISTURBANCE

### 6.1 Limits

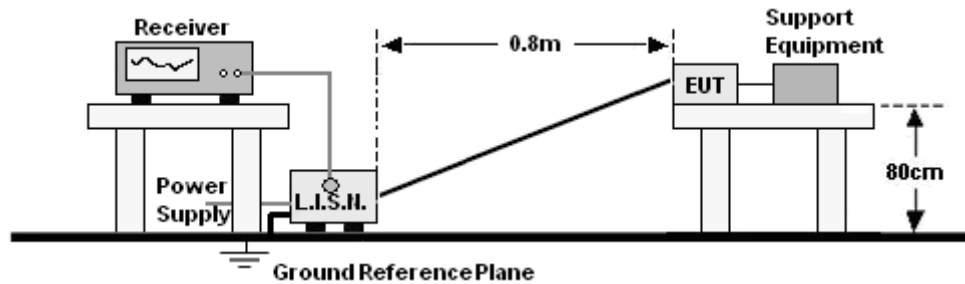
Limits for Group 1 class A Equipment

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60

**NOTE:** The lower limit shall apply at the transition frequency.

### 6.2 BLOCK DIAGRAM OF TEST SETUP

For AC mains port:



### 6.3 TEST PROCEDURE

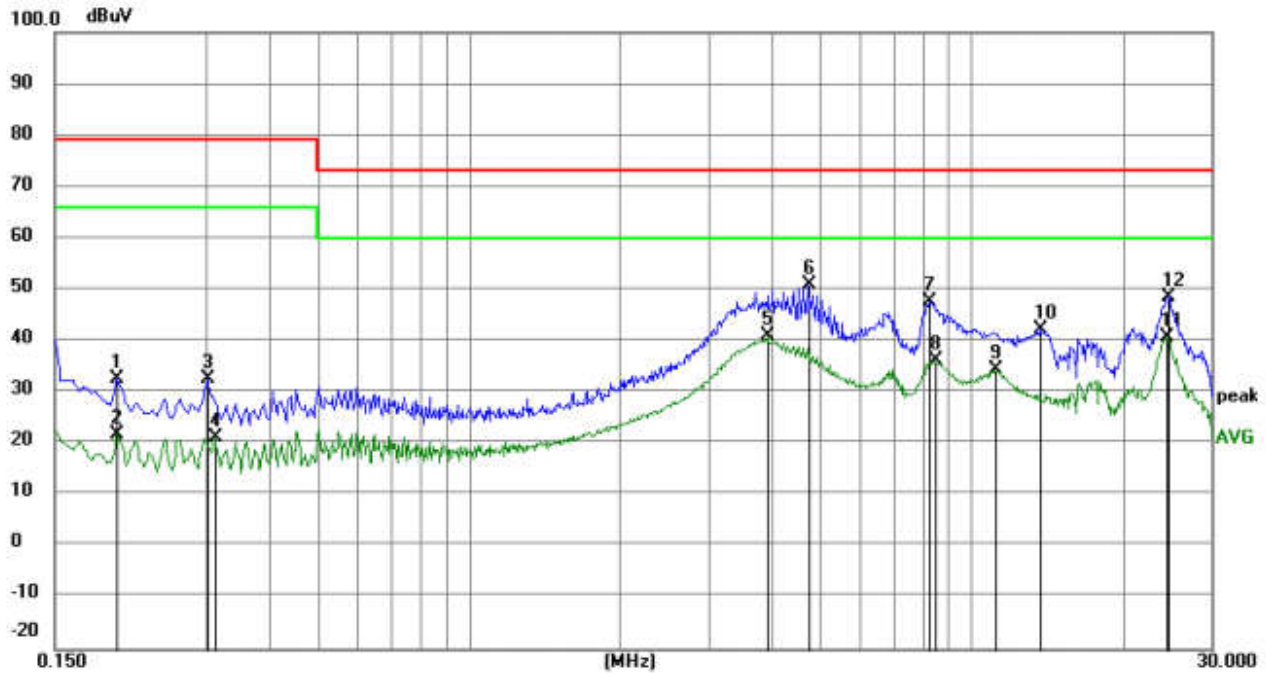
For AC mains port :

- The Product was placed on a nonconductive table 0.8m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

## 6.4 GRAPHS AND DATA

**Product** : AC Servo Drive  
**Power** : AC 230V/50Hz  
**Mode** : Running

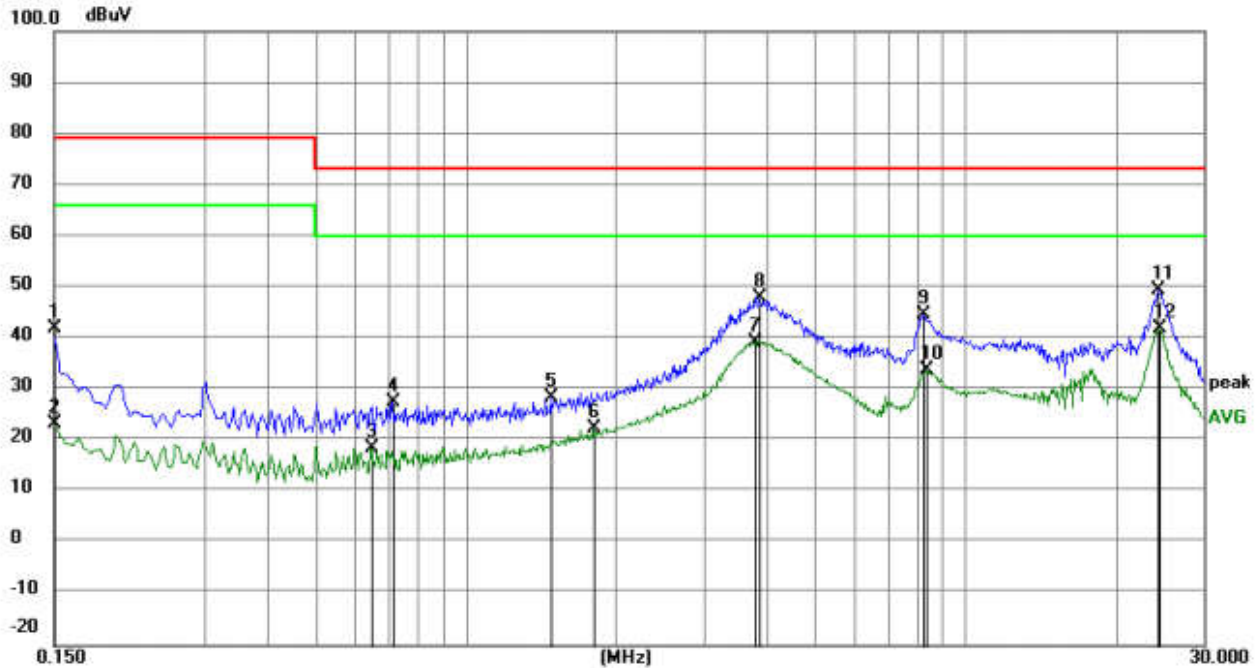
**Model/Type reference** : L7EC-1000S  
**Temperature/Humidity** : 24°C/52%  
**Polarization** : L



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Margin		
		MHz	Level	Factor	ment			Detector	Comment
			dBuV	dB	dBuV	dBuV	dB		
1		0.1995	22.91	9.87	32.78	79.00	-46.22	peak	
2		0.1995	12.12	9.87	21.99	66.00	-44.01	AVG	
3		0.3030	22.50	10.07	32.57	79.00	-46.43	peak	
4		0.3120	11.31	10.06	21.37	66.00	-44.63	AVG	
5	*	3.9300	31.25	9.78	41.03	60.00	-18.97	AVG	
6		4.7355	41.05	9.78	50.83	73.00	-22.17	peak	
7		8.2590	37.75	9.79	47.54	73.00	-25.46	peak	
8		8.4750	26.40	9.78	36.18	60.00	-23.82	AVG	
9		11.1750	24.52	9.82	34.34	60.00	-25.66	AVG	
10		13.7130	32.34	9.89	42.23	73.00	-30.77	peak	
11		24.5130	30.75	10.00	40.75	60.00	-19.25	AVG	
12		24.6390	38.63	10.00	48.63	73.00	-24.37	peak	

**Product** : AC Servo Drive  
**Power** : AC 230V/50Hz  
**Mode** : Running

**Model/Type reference** : L7EC-1000S  
**Temperature/Humidity** : 24°C/52%  
**Polarization** : N



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	31.96	9.87	41.83	79.00	-37.17	peak	
2		0.1500	13.43	9.87	23.30	66.00	-42.70	AVG	
3		0.6450	8.71	9.98	18.69	60.00	-41.31	AVG	
4		0.7125	17.81	9.88	27.69	73.00	-45.31	peak	
5		1.4819	18.51	9.81	28.32	73.00	-44.68	peak	
6		1.8060	12.56	9.80	22.36	60.00	-37.64	AVG	
7		3.7815	29.51	9.78	39.29	60.00	-20.71	AVG	
8		3.8625	38.30	9.78	48.08	73.00	-24.92	peak	
9		8.2500	34.81	9.79	44.60	73.00	-28.40	peak	
10		8.3535	24.07	9.79	33.86	60.00	-26.14	AVG	
11		24.3285	39.43	10.00	49.43	73.00	-23.57	peak	
12	*	24.4320	31.84	10.00	41.84	60.00	-18.16	AVG	

Note: 1.  $\text{Margin(dB)} = \text{Limit(dBuV)} - \text{Measurement(dBuV)}$ .  
 2.  $\text{Measurement(dBuV)} = \text{Reading\_Level(dBuV)} + \text{Correct Factor(dB)}$ .  
 3.  $\text{Correct Factor(dB)} = \text{Cable Loss(dB)} + \text{LISN Factor(dB)}$ .

## 7. RADIATED EMISSION

### 7.1 LIMITS

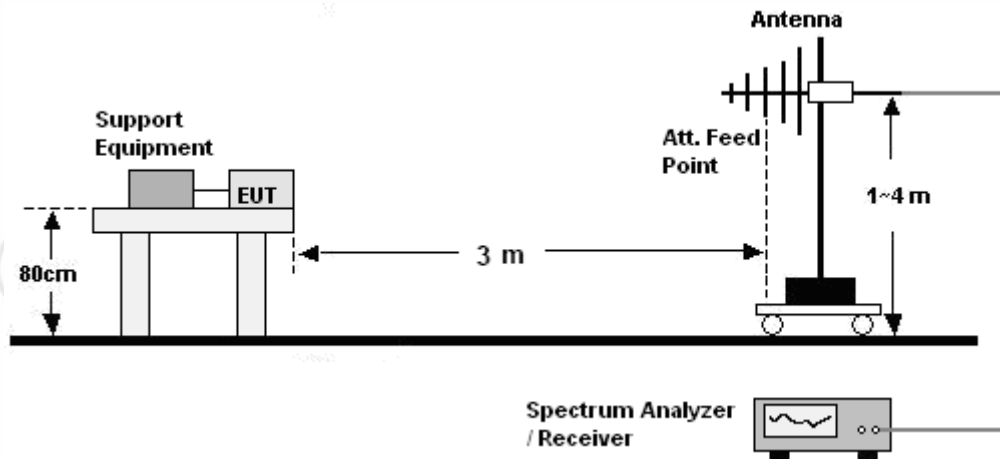
Limits for Group 1 class A Equipment

Frequency (MHz)	Quasi-peak limits at 3m dB( $\mu$ V/m) ( $\leq 20$ kVA)
30-230	50
230-1000	57

NOTE: The lower limit shall apply at the transition frequencies.

### 7.2 BLOCK DIAGRAM OF TEST SETUP

30MHz ~ 1GHz:



### 7.3 TEST PROCEDURE

30MHz ~ 1GHz:

- The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.



7.4 GRAPHS AND DATA

Product : AC Servo Drive

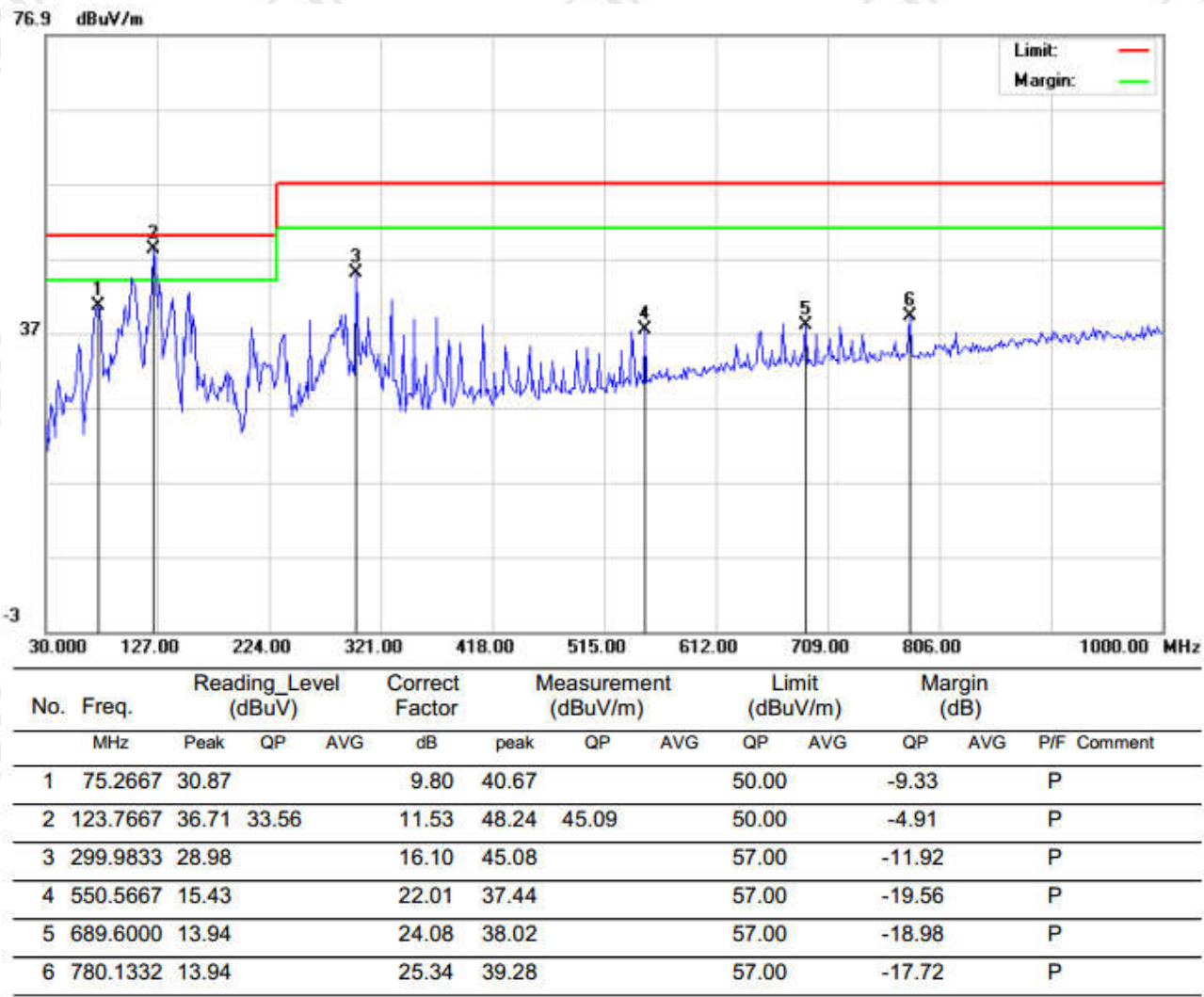
Power : AC 230V/50Hz

Mode : Running

Model/Type reference : L7EC-1000S

Temperature/Humidity : 22℃/50%

Polarization : Horizontal





Product

Power

Mode

: AC Servo Drive

: AC 230V/50Hz

: Running

Model/Type reference

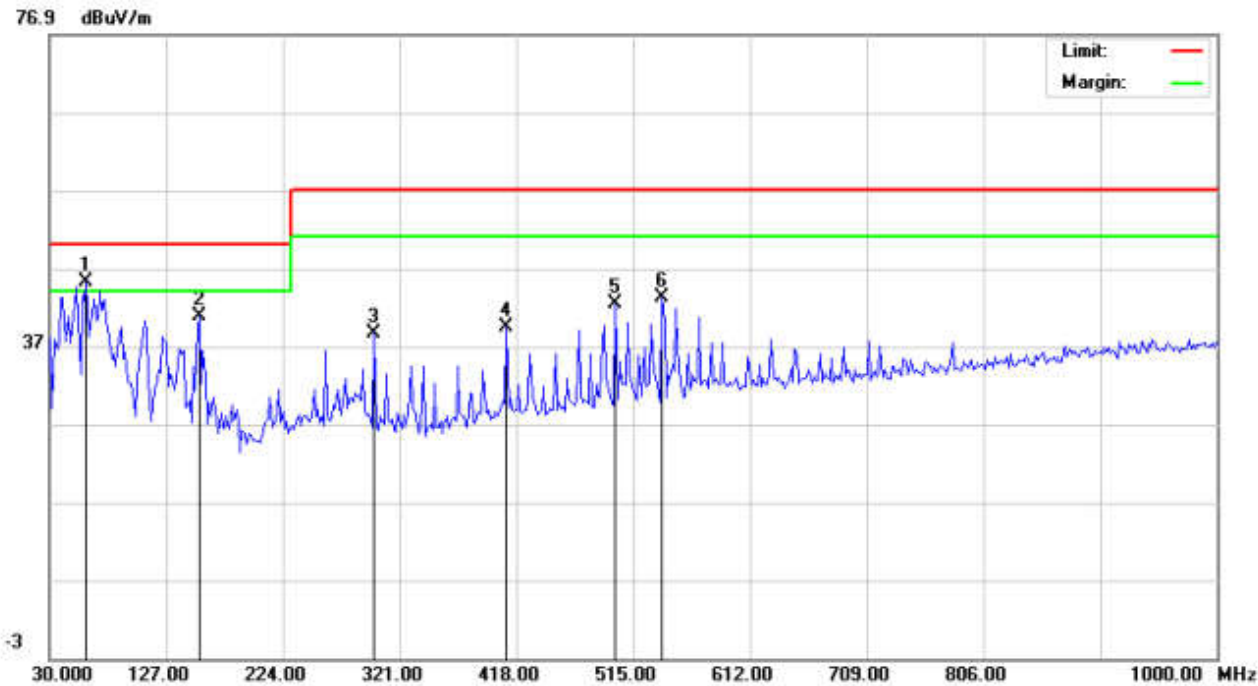
Temperature/Humidity

Polarization

: L7EC-1000S

: 22℃/50%

: Vertical



No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	60.7167	31.94			13.21	45.15			50.00		-4.85		P	
2	154.4832	30.49			10.23	40.72			50.00		-9.28		P	
3	299.9833	22.41			16.10	38.51			57.00		-18.49		P	
4	409.9166	20.40			18.94	39.34			57.00		-17.66		P	
5	500.4500	21.57			20.81	42.38			57.00		-14.62		P	
6	539.2500	21.47			21.74	43.21			57.00		-13.79		P	

Note: 1.  $\text{Margin(dB)} = \text{Measurement(dBuV/m)} - \text{Limit(dBuV/m)}$ .  
2.  $\text{Measurement(dBuV/m)} = \text{Reading\_Level(dBuV)} + \text{Correct Factor(dB)}$ .  
3.  $\text{Correct Factor(dB)} = \text{Ant Factor(dB)} + \text{Cable loss(dB)}$ .  
4. The highest frequency of the internal sources of the EUT is less than 108MHz, so the measurement shall only be made up to 1 GHz.

## 8. IMMUNITY TEST

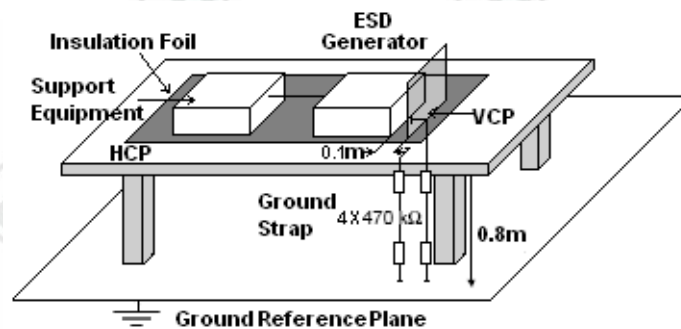
General Performance Criteria	
Product Standard	EN IEC 61000-6-2:2019
<b>CRITERION A</b>	The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
<b>CRITERION B</b>	The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.
<b>CRITERION C</b>	Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

## 8.1 ELECTROSTATIC DISCHARGE

### 8.1.1 TEST SPECIFICATION

Basic Standard	: EN IEC 61000-6-2 & IEC 61000-4-2
Test Port	: Enclosure port
Discharge Impedance	: 330 ohm / 150 pF
Discharge Mode	: Single Discharge
Discharge Period	: one second between each discharge

### 8.1.2 BLOCK DIAGRAM OF TEST SETUP



### 8.1.3 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.

8.1.4 RESULTS & PERFORMANCE

**Product** : AC Servo Drive

**Power** : AC 230V/50Hz

**Mode** : Running

**Model/Type reference** : L7EC-1000S

**Temperature** : 23℃

**Humidity** : 51%

Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	4	10	B	A
	Indirect Discharge HCP	4	10	B	A
	Indirect Discharge VCP	4	10	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	A

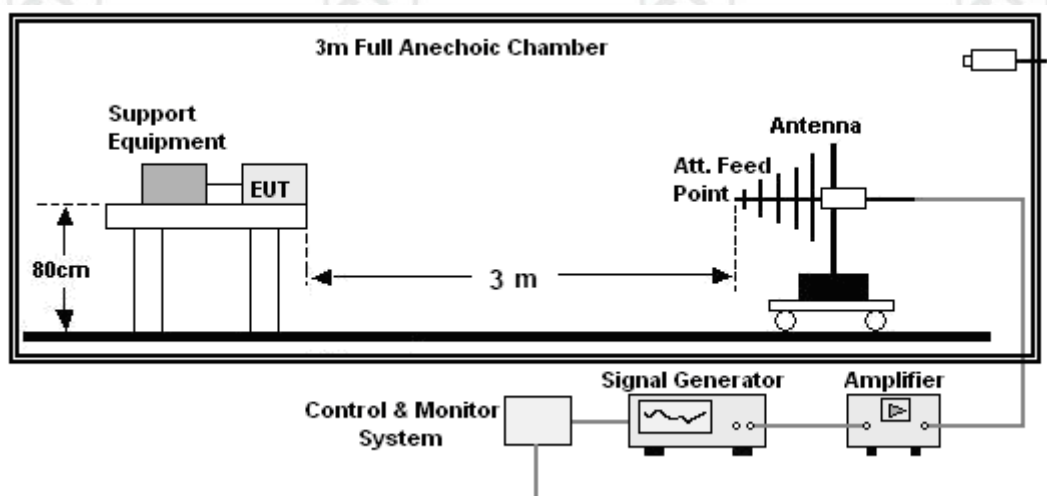
## 8.2 RADIO-FREQUENCY ELECTROMAGNETIC FIELD

### 8.2.1 TEST SPECIFICATION

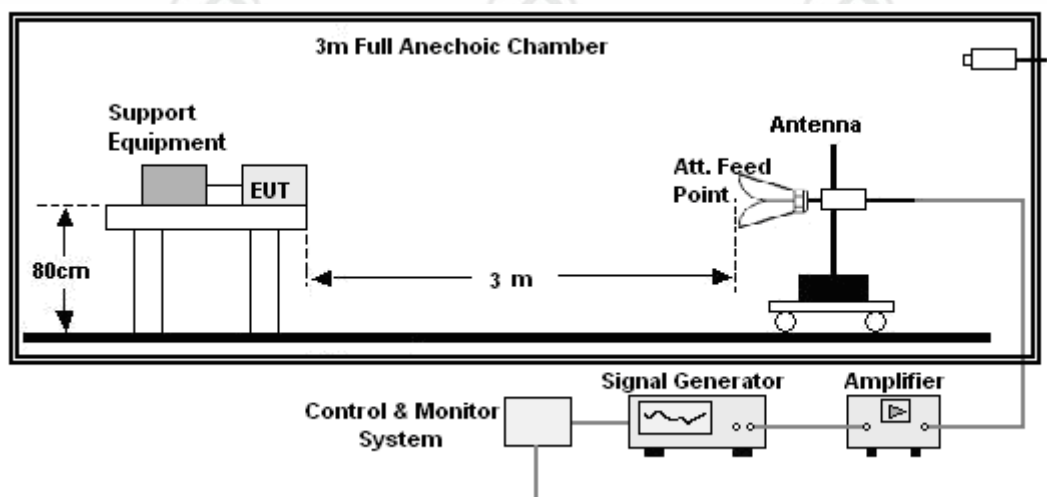
Basic Standard	: EN IEC 61000-6-2 & IEC 61000-4-3
Test Port	: Enclosure port
Step Size	: 1%
Modulation	: 1kHz, 80% AM
Dwell Time	: 1 second
Polarization	: Horizontal & Vertical

### 8.2.2 BLOCK DIAGRAM OF TEST SETUP

Below 1GHz:



Above 1GHz:





8.2.3 TEST PROCEDURE

- a. The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3m from the Product.
- b. The frequency range is swept from 80MHz to 1000MHz and 1400MHz to 2700MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s. Where the frequency range is swept incrementally, the step size was 1%.
- c. The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

8.2.4 RESULT & PERFORMANCE

Product	: AC Servo Drive	Model/Type reference	: L7EC-1000S
Power	: AC 230V/50Hz	Temperature	: 23℃
Mode	: Running	Humidity	: 51%

Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Right, Back, Left	10	A	A
1400 - 6000	Front, Right, Back, Left	3	A	A

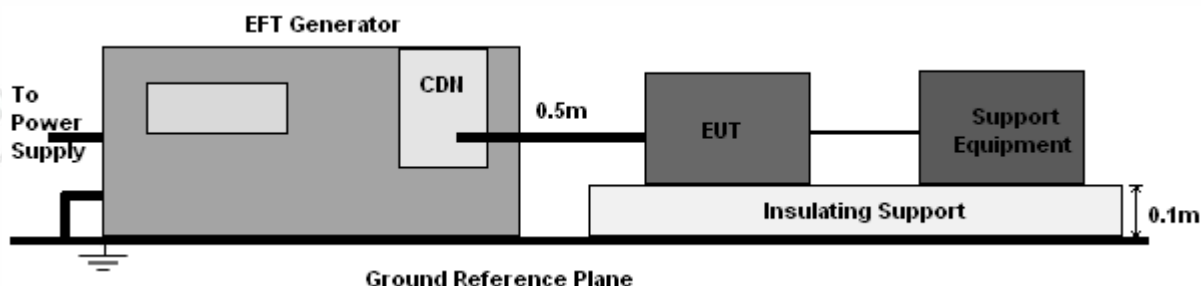
## 8.3 FAST TRANSIENTS

### 8.3.1 TEST SPECIFICATION

Basic Standard	: EN IEC 61000-6-2 & IEC 61000-4-4
Test Port	: Input AC power port
Impulse Frequency	: 5 kHz
Impulse Wave-shape	: 5/50 ns
Burst Duration	: 15 ms
Burst Period	: 300 ms
Test Duration	: 2 minute per polarity

### 8.3.2 BLOCK DIAGRAM OF TEST SETUP

For input AC power ports:



### 8.3.3 TEST PROCEDURE

- The Product and support units were located on a non-conductive table above ground reference plane.
- A 0.5m-long power cord was attached to Product during the test.

### 8.3.4 RESULTS & PERFORMANCE

Product	: AC Servo Drive	Model/Type reference	: L7EC-1000S
Power	: AC 230V/50Hz	Temperature	: 23°C
Mode	: Running	Humidity	: 51%

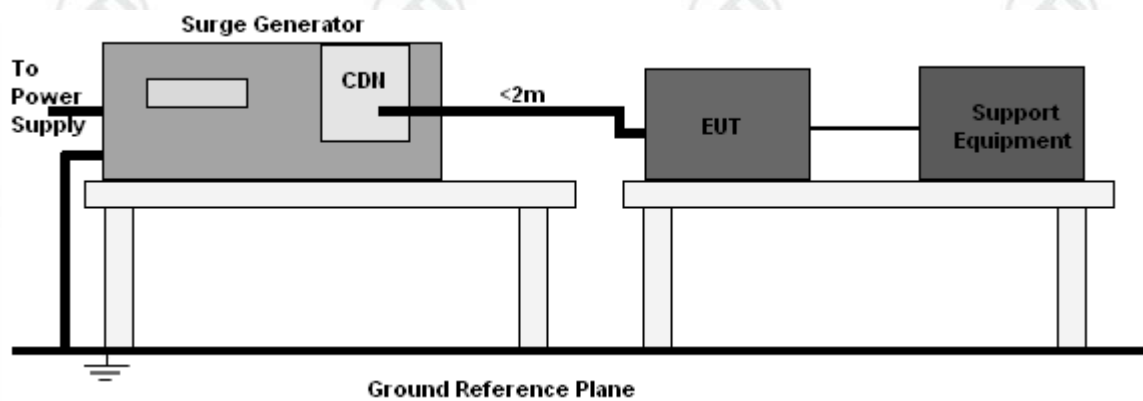
Coupling	Voltage (kV)	Polarity	Required Level	Performance Criterion
L + N + PE	2	±	B	A

## 8.4 SURGES

### 8.4.1 TEST SPECIFICATION

<b>Basic Standard</b>	: EN IEC 61000-6-2 & IEC 61000-4-5
<b>Test Port</b>	: Input AC power port
<b>Wave-Shape</b>	: Open Circuit Voltage - 1.2 / 50 us Short Circuit Current - 8 / 20 us
<b>Pulse Repetition Rate</b>	: 1 pulse / min.
<b>Test Events</b>	: 5 pulses (positive & negative) for each polarity

### 8.4.2 BLOCK DIAGRAM OF TEST SETUP



### 8.4.3 TEST PROCEDURE

- The surge is to be applied to the Product power supply terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave.
- The power cord between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter). Interconnection line between the Product and the coupling/decoupling networks shall be 2 meters in length (or shorter).

### 8.4.4 RESULTS & PERFORMANCE

<b>Product</b>	: AC Servo Drive	<b>Model/Type reference</b>	: L7EC-1000S
<b>Power</b>	: AC 230V/50Hz	<b>Temperature</b>	: 24°C
<b>Mode</b>	: Running	<b>Humidity</b>	: 50%

Coupling Line	Voltage (kV)	Polarity	Required Level	Performance Criterion
L + N	1	±	B	A
L + PE	2	±	B	A
N + PE	2	±	B	A

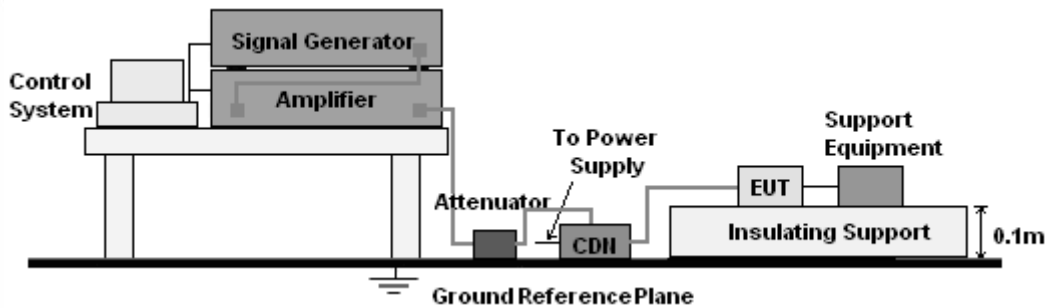
## 8.5 RADIO-FREQUENCY COMMON MODE

### 8.5.1 TEST SPECIFICATION

**Basic Standard** : EN IEC 61000-6-2 & IEC 61000-4-6  
**Test Port** : Input AC power port  
**Step Size** : 1%  
**Modulation** : 1kHz, 80% AM  
**Dwell Time** : 1 second

### 8.5.2 BLOCK DIAGRAM OF TEST SETUP

For input AC power port:



### 8.5.3 TEST PROCEDURE

For AC power port:

- The Product and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
- The frequency range is swept from 150 kHz to 80MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed  $1.5 \times 10^{-3}$  decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- The dwell time at each frequency shall be not less than the time necessary for the Product to be able to respond.

### 8.5.4 RESULTS & PERFORMANCE

<b>Product</b> : AC Servo Drive	<b>Model/Type reference</b> : L7EC-1000S
<b>Power</b> : AC 230V/50Hz	<b>Temperature</b> : 23°C
<b>Mode</b> : Running	<b>Humidity</b> : 51%

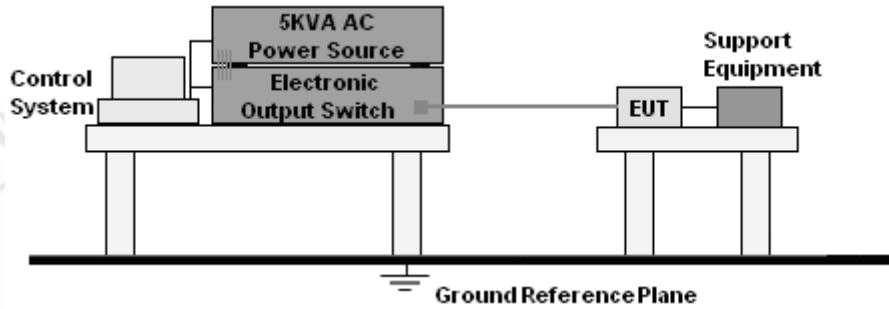
Inject Line	Frequency (MHz)	Voltage Level (V r.m.s.)	Required Level	Performance Criterion
AC power port	0.15 - 80	10	A	A

## 8.6 VOLTAGE DIPS AND VOLTAGE INTERRUPTIONS

### 8.6.1 TEST SPECIFICATION

**Basic Standard** : EN IEC 61000-6-2 & IEC 61000-4-11  
**Test Ports** : Input AC power port  
**Phase Angle** : 0°, 180°

### 8.6.2 BLOCK DIAGRAM OF TEST SETUP



### 8.6.3 TEST PROCEDURE

- The Product and support units were located on a non-conductive table above ground floor.
- Set the parameter of tests and then perform the test software of test simulator.
- Conditions changes to occur at 0 degree crossover point of the voltage waveform.

### 8.6.4 RESULTS & PERFORMANCE

<b>Product</b>	: AC Servo Drive	<b>Model/Type reference</b>	: L7EC-1000S
<b>Power</b>	: AC 230V/50Hz	<b>Temperature</b>	: 23°C
<b>Mode</b>	: Running	<b>Humidity</b>	: 51%

#### Voltage Dips:

Test Level % UT	Reduction (%)	Number of cycles		Required Level	Performance criteria
		50Hz	60Hz		
0	100	1		B	A
40	60	10	12	C	A
70	30	25	30	C	A

#### Voltage Interruptions:

Test Level % UT	Reduction (%)	Number of cycles		Required Level	Performance criteria
		50Hz	60Hz		
0	100	250	300	C	B*

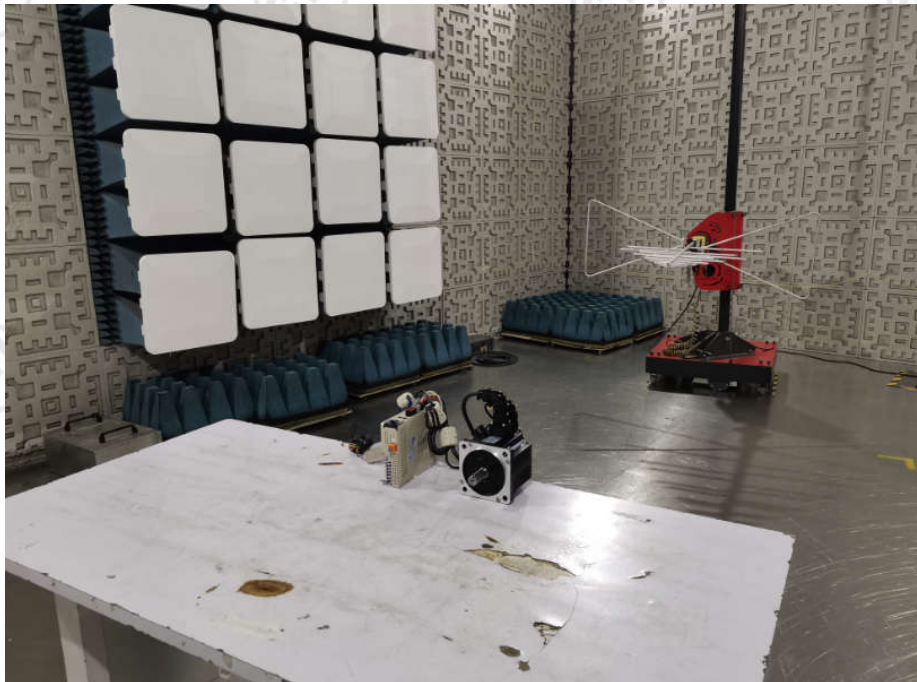
Remark\*: During the test, the EUT stop working; it can recover to normal by itself after testing.

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

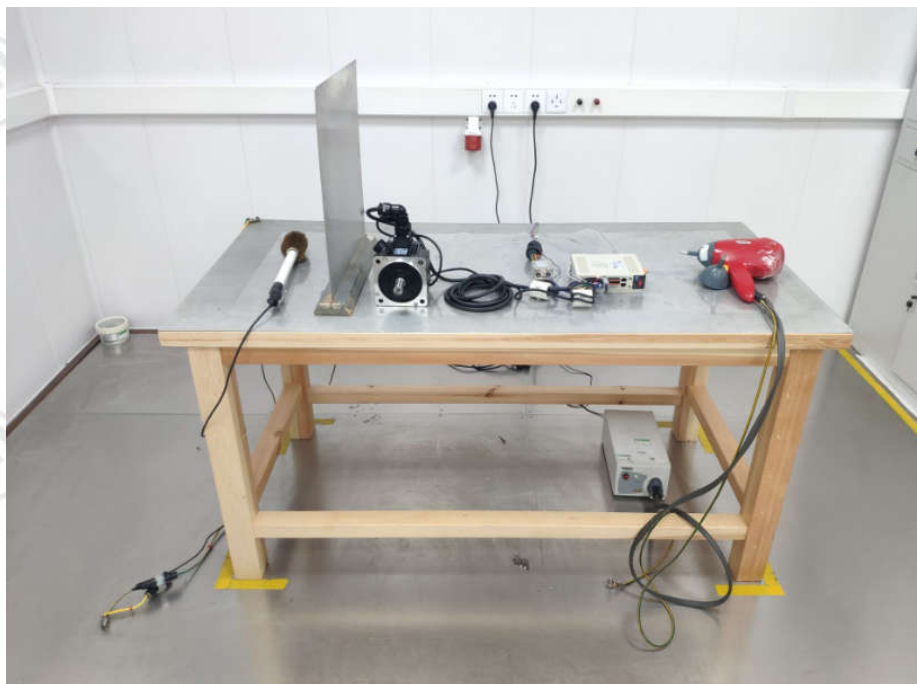




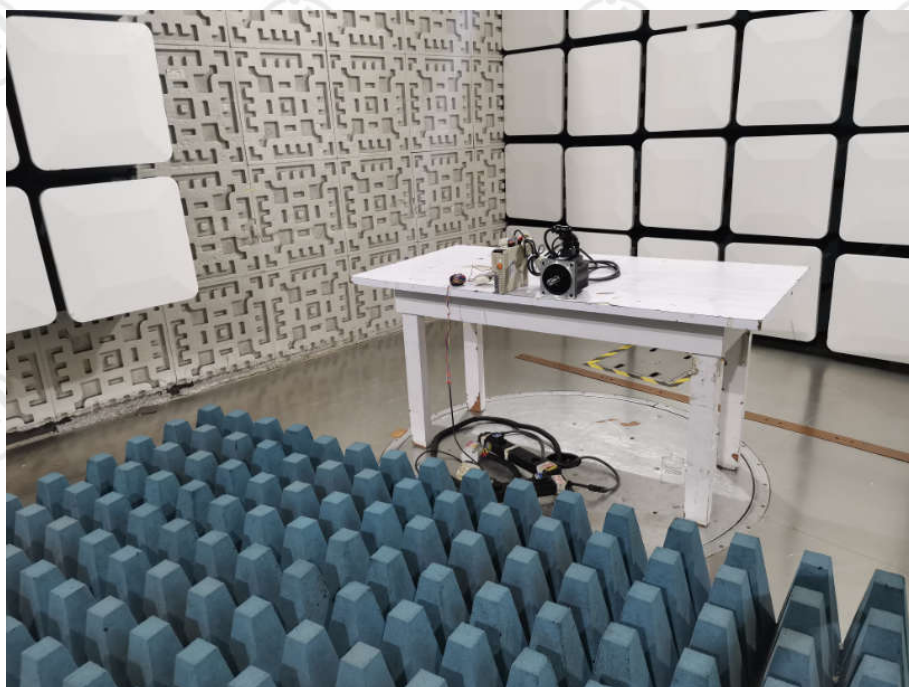
**CONDUCTED EMISSION TEST SETUP**



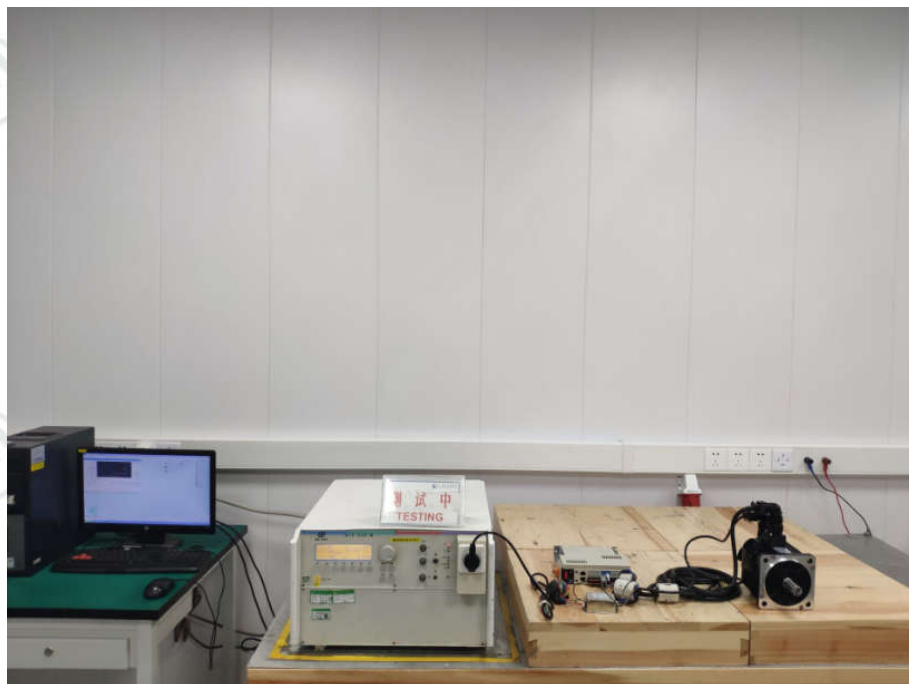
**RADIATED EMISSION TEST SETUP**



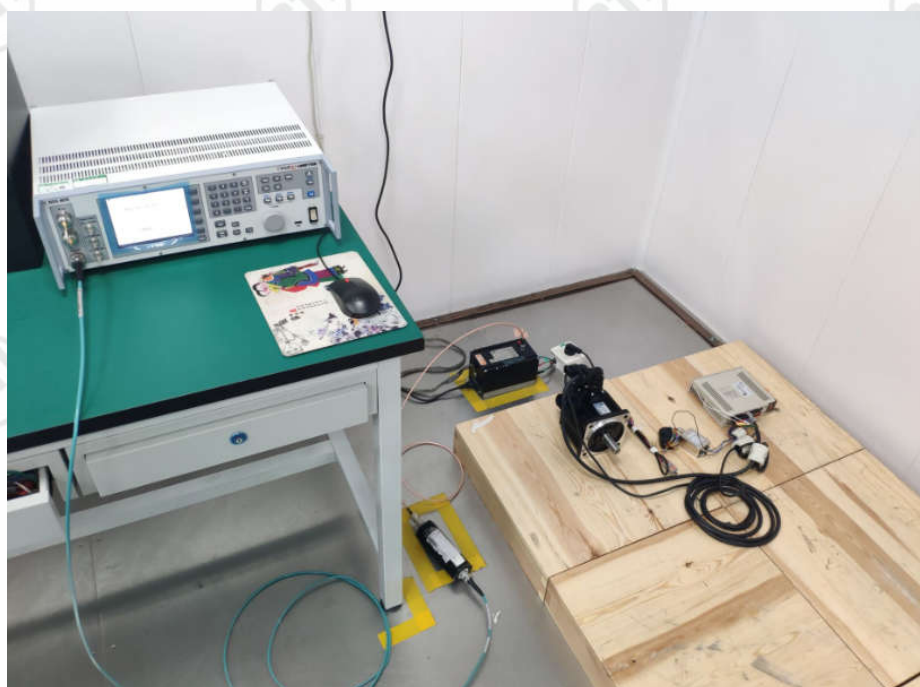
**ELECTROSTATIC DISCHARGE TEST SETUP**



**RADIO-FREQUENCY ELECTROMAGNETIC FIELD TEST SETUP**



**FAST TRANSIENTS/SURGES TEST SETUP**



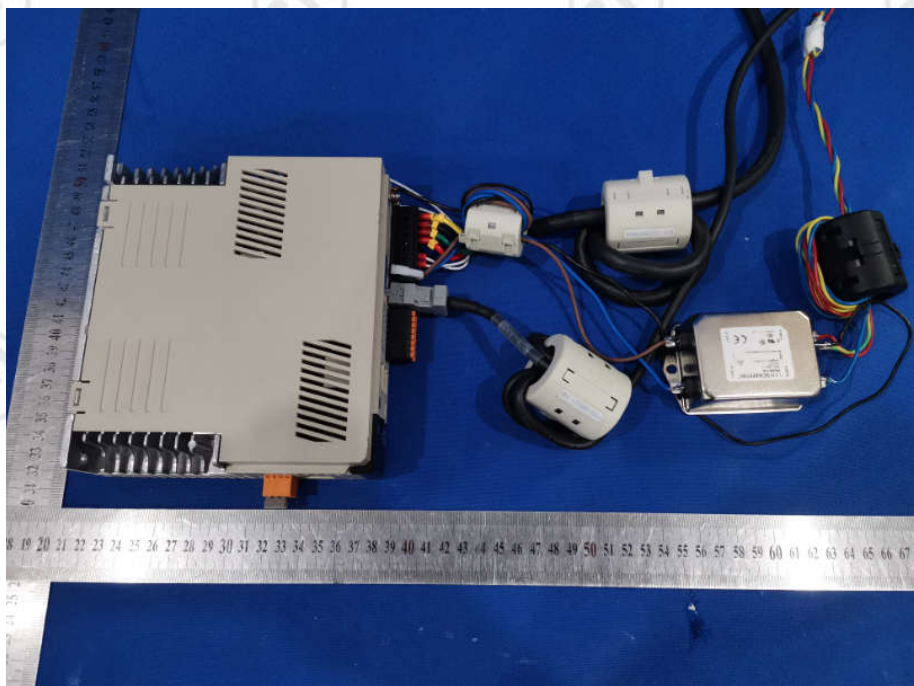
**RADIO-FREQUENCY COMMON MODE TEST SETUP**





**VOLTAGE DIPS AND VOLTAGE TEST SETUP**

## APPENDIX 2 PHOTOGRAPHS OF PRODUCT



View of Product-1



View of Product-2





View of Product-3



View of Product-4



View of Product-5



View of Product-6

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

\*\*\* End of Report \*\*\*