

Global United Technology Services Co., Ltd.

Report No.: GTS2023060457E01

TEST REPORT

NINGBO JUSHENG PLASTIC CO.,LTD **Applicant:**

235-245. Gongmao 2nd Road, Jishigang Industrial Area haishu **Address of Applicant:**

District.Ningbo.China

NINGBO JUSHENG PLASTIC CO.,LTD Manufacturer:

Address of 235-245, Gongmao 2nd Road, Jishigang Industrial Area haishu

Manufacturer: District, Ningbo, China

Equipment Under Test (EUT)

Product Name: LED candle light

Model No.: JSL2040Psnow, JSL1028FSilver; JSL1027FSilver, JSL1028SS,

JSL1027SS, JSL1028 Stearin, JSL1027 Stearin, JSL1028CT,

JSL1027CT, JSL2040PR, JSL2040-1PR, JSL1028FG,

JSL1027FG

Applicable standards: EN IEC 55015:2019+A11:2020

EN 61547:2009

Date of sample receipt: June 26, 2023

Date of Test: June 26-27, 2023

Date of report issued: June 28, 2023

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Laboratory manage

Roxins

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.



2 Version

Version No.	Date	Description
00	June 28, 2023	Original

Prepared By:	Loss 200g	Date:	June 28, 2023
	Project Engineer		
Check By:	Lotzinsonz lust	Date:	June 28, 2023
	Reviewer	OR OF THE PARTY OF	The state of the s

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Report No.: GTS2023060457E01

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4 Test Summary

Test Summary						
Test item	Test Requirement	Test Method	Limit / Severity	Result		
Radiated electromagnetic disturbances (9kHz- 30MHz)	magnetic ances (9kHz-		Table 8	Pass		
Radiated electromagnetic EN IEC 55015 disturbances		EN IEC 55015 Table 10		Pass		
Disturbance voltages	EN IEC 55015	EN IEC 55015	Table 1	N/A		
Harmonic Emission	EN IEC 61000-3-2	00-3-2 EN IEC 61000-3-2 Class C		N/A		
Flicker Emission	EN 61000-3-3	EN 61000-3-3	Clause 5 of EN61000-3-3	N/A		
Electrostatic discharges	EN 61547	EN 61000-4-2	Contact: ±4kV Air: ± 2, ± 4, ±8kV	Pass		
Radio-frequency electromagnetic fields	EN 61547	EN 61000-4-3	3V/m 80%, 1kHz, AM	Pass		
Fast Transients	EN 61547	EN 61000-4-4	AC ± 1.0kV	N/A		
Surges	EN 61547	EN 61000-4-5	Table 10	N/A		
Injected currents	EN 61547	EN 61000-4-6	3Vrms (emf), 80%, 1kHz Amp. Mod.	N/A		
Voltage dips and short interruptions	EN 61547	EN 61000-4-11	0 % UT* for 0.5per 70 % UT* for 10per	N/A		

Remark:

UT* is the nominal supply voltage.

N/A: Not applicable.



5 General Information

5.1 General Description of EUT

Product Name:	LED candle light,suction cup
Model No.:	JSL2040Psnow, JSL1028FSilver; JSL1027FSilver, JSL1028SS, JSL1027SS, JSL1028 Stearin, JSL1027 Stearin, JSL1028CT, JSL1027CT, JSL2040PR, JSL2040-1PR, JSL1028FG, JSL1027FG
Test Model No.:	JSL2040Psnow
Remark:	All above models are identical in the same PCB layout, interior structure and electrical circuits. The difference is model name for commercial purpose.
Power Supply:	DC 3.0V(2*1.5V, SIZE"AA" battery)

5.2 Test mode and voltage

Test mode:	
Operation mode	Keep the EUT in the operation status.
Test voltage:	
DC 3.0V	

5.3 Description of Support Units

None.

5.4 Deviation from Standards

None.

5.5 Abnormalities from Standard Conditions

None.

5.6 Monitoring of EUT for All Immunity Test

0	Visual:	Monitored the luminous intensity.
9	Audio:	N/A



5.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC —Registration No.: 381383 Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

• IC —Registration No.: 9079A

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

5.8 Test Location

Radiated immunity test was performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Address: No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

All other test items were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang

Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480; Fax: 0755-27798960



6 Test Instruments List

Rad	Radiated Emission:							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	June 23, 2021	June 22, 2024		
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A		
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 14, 2023	April 13, 2024		
4	BiConiLog Antenna	SCHWAR7RECK		GTS640	March 19, 2023	March 18, 2025		
5	Double -ridged SCHWARZBECK waveguide horn MESS-ELEKTRONIK		BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025		
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
7	Coaxial Cable	GTS	N/A	GTS213	April 21, 2023	April 20, 2024		
8	Coaxial Cable	GTS	N/A	GTS211	April 21, 2023	April 20, 2024		
9	Coaxial cable GTS		N/A	GTS210	April 21, 2023	April 20, 2024		
10	Coaxial Cable	GTS	N/A	GTS212	April 21, 2023	April 20, 2024		
11	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 14, 2023	April 13, 2024		
12	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 29, 2022	Nov. 28, 2023		
13	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 14, 2023	April 13, 2024		
14	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 14, 2023	April 13, 2024		
15	Horn Antenna (18- 26.5GHz)		UG-598A/U	GTS664	Oct. 30, 2022	Oct. 29, 2023		
16	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 30, 2022	Oct. 29, 2023		
17	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	March 13, 2023	March 12, 2024		
18	Amplifier	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	LNA-1000-30S	GTS650	April 14, 2023	April 13, 2024		
19	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS668	Dec. 20, 2022	Dec.19, 2023		

Loop					and the same of the same of the	Control of the Contro
Item Test Equipment Manufacturer		Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)	
1	1 Shielding Room ZhongYu Electron 2 EMI Test Receiver ROHDE & SCHWARZ		7.3(L)x3.1(W)x2.9(H)	GTS252	July 12, 2022	July 11, 2027
2			ESCI 7	GTS552	April 14, 2023	April 13, 2024
3	TPIPLE-LOOP ANTENNA	EVERFINE	LLA-2	GTS539	April 14, 2023	April 13, 2024



7	ESD					to the second second	and the second
lt	tem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
10	1	ESD Simulator	LINCEL	ESD-203B	GTS645	April 17, 2023	April 16, 2024
9	2	Thermo meter	KTJ	TA328	GTS243	April 18, 2023	April 17, 2024

Rad	liated Immunity		The Control of the			the state of the state of
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	May 09, 2020	May 08, 2025
2	Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	March 29, 2023	March 28, 2024
3	Stacked LogPer Broadband Antenna (70MHz-10GHz)	Schwarzbeck	STLP 9129	SEM003-25	N/A	N/A
4	Signal Generator (9kHz-6GHz)	Rohde & Schwarz	SMB100A	SEM006-11	March 29, 2023	March 28, 2024
5	Broadband Amplifier (80MHz-1GHz)	Rohde & Schwarz	BBA150- BC250	SEM005-12	Sep. 21, 2022	Sep. 20, 2023
6	Broadband Amplifier(800MHz-3GHz)	Rohde & Schwarz	BBA150-D110	SEM005-13	March 29, 2023	March 28, 2024
7	Broadband Amplifier(2.5GHz-6GHz)	Rohde & Schwarz	BBA150-E60	SEM005-16	April 08, 2023	April 07, 2024
8	Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A

General used equipment:					and the second second	
Item Test Equipment		Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	April 18, 2023	April 17, 2024
2	Barometer	KUMAO	SF132	GTS647	April 19, 2023	April 18, 2024



7 Emission Test Results

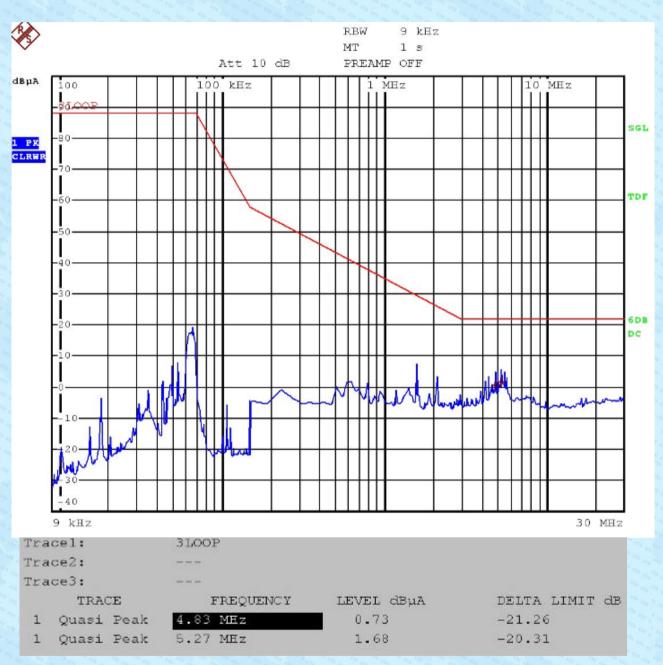
7.1 Radiated Electromagnetic Disturbance(9kHz-30MHz)

Test Requirement:	EN IEC 55015				
Test Method:	EN IEC 55015				
Test Frequency Range:	9kHz to 30MHz				
Receiver set:	Frequency	Frequency Detector		VBW	Value
	9KHz~150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz~30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
Limit:		The state of the state of		and the state of	The state of the state of the state of
	Frequency range	(MHz)		for loop dia BuA @2m	
	0.009-0.070	71		88	
	0.070-0.150 0.15-3.0		1 01 01 01 1 01 01 01	88 to 58* 58 to 22*	
	3.0-30			22	
8	*Decreasing linearly	with the logarit	thm of the f	- Co Co C	
2	For electrodeless lar	10 m 10 m 10 m	Trans.		
	2,2 MHz to 3,0 MH dB(µA) for 4 m loop		() for 2 m,	51dB(µA)	for 3 m and 45
Toot Sotup:	αΒ(μΑ) 101 4 111 100p	diameter.			
Test Setup:					
9					
8	Polarization EUT 70				
	Test Receiver Switcher				
	2m Loop Antenna				
					·
Test procedure	An initial pre-sci	The state of the s		Discourage Control of the Control of	enna using the
	spectrum analys 2. The EUT was m				
			The state of the s	on on on	The state of the s
	No further quasi-peak measurements were performed since no peak emissions from the EUT were detected within 6dB of the limit for 2m				
	diameter loop a			A Company	and the state of the state of the
Test Instruments:	Temp.: 25 °C	Humid.:	50%	Press.:	1 012mbar
Measurement Record:	Uncertainty: 3.26dB				
Test Instruments:	Refer to section 6 for details				
Test mode:	Refer to section 5.2 for details				
Test results:	Pass				

Measurement Data

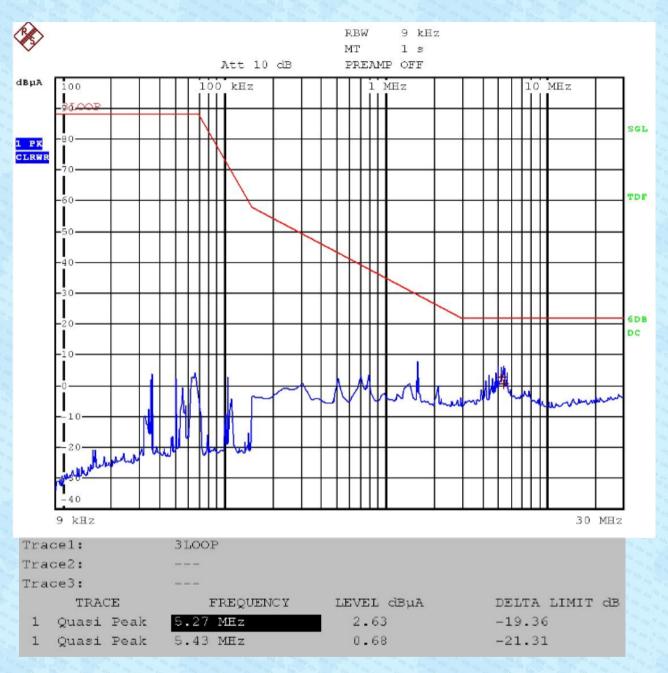


X:



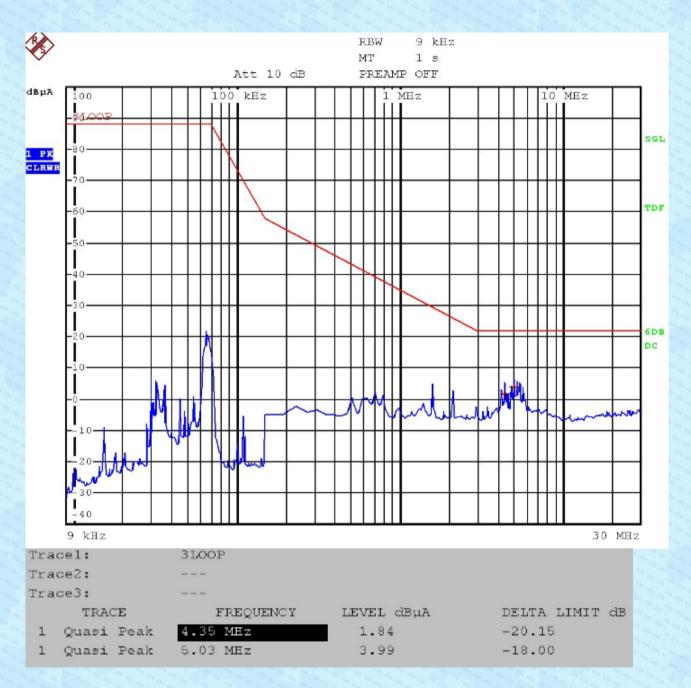


Y:





Z:





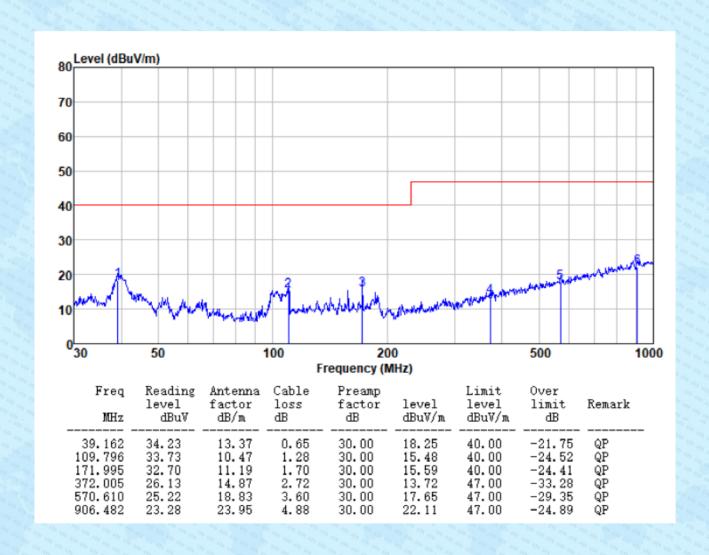
7.2 Radiated electromagnetic disturbances(30MHz-1000MHz)

Toot Dequirements	EN IEC 55015		
Test Requirement:			
Test Method:	EN IEC 55015		
Test Frequency Range:	30MHz to 1000MHz	the state of the s	
Test site:	Measurement Distance: 3m		
Limit:	Frequency range(MHz)	Limit @3m (dBuV)	
	30 to 230	40.00	
	230 to 1000 * At the transition frequency, the low	47.00	
Test setup:	At the transition frequency, the low	or min applico.	
	Antenna Antenna Antenna Ground Reference Plane Ground Reference Plane Control	tenna Tower	
Test procedure	the ground reference plane. And EUT was placed on the horizontal separated from metallic contact vo.1m of insulation. 3. Before final measurements of race performed in the spectrum mode the maximum emissions spectrum. The frequencies of maximum emissions measurement rotated 360°, and the antenna was meters in order to determine the Measurements were performed from antenna polarization.	on a non-metallic table 0.8m above for floor-standing arrangement, the all ground reference plane, but with the ground reference plane by diated emissions, a pre-scan was with the peak detector to find out m plots of the EUT. dission were determined in the final to the table as raised and lowered from 1 to 4 maximum disturbance.	
Measurement Record:	Uncertaint	y: 3.8039dB (30MHz-200MHz) 3.9679dB (200MHz-1GHz)	
Test Instruments:	Refer to section 6 for details		
Test mode:	Refer to section 5.2 for details		
Test results:	Pass		
The state of the s	The state of the s	the state of the s	



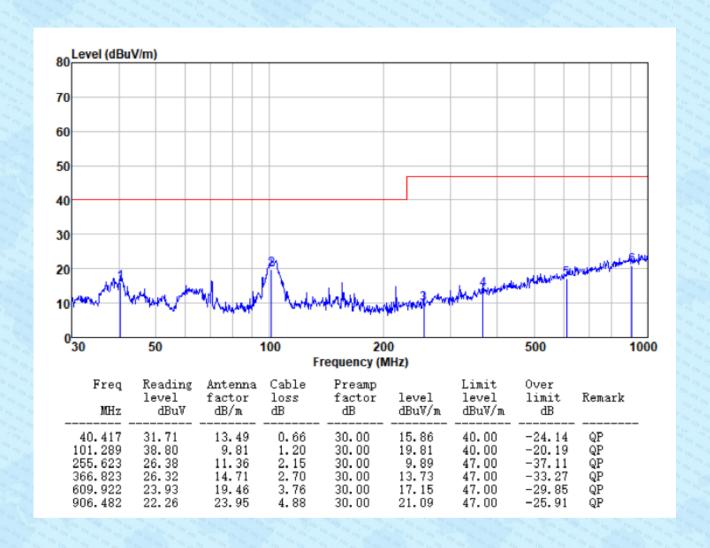
Measurement Data

The state of the s	0	A transfer District	
Test mode:	Operation mode	Antenna Polarity:	Horizontal





mode: Operation mode	Antenna Polarity:	Vertical
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Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor



8 Immunity Test Results

8.1 Performance Criteria Description in Clause 4.2 of EN 61547

Criterion A:	During the test no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
Criterion B:	During the test the luminous intensity may change to any value. After the test the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.
Criterion C:	During and after the test any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal if necessary by temporary interruption of the mains supply and/or operating the regulating control.
	Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.



8.2 Electrostatic Discharge

Test Requirement:	EN 61547
Test Method:	EN 61000-4-2
Discharge Voltage:	Contact Discharge:±4kV Air Discharge: ± 2kV, ± 4kV, ±8kV HCP/VCP: ±4kV
Polarity:	Positive & Negative
Number of Discharge:	Minimum 10 times at each test point.
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Limit:	Criteria B
Test setup:	Electrostatic Discharge EUT VCP(0.5m*0.5m) 470K ohm Non-Conducted Table A70K ohm A70K ohm Ground Reference Plane
Test Procedure:	 Air discharge: The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure was repeated until all the air discharge completed Contact Discharge: The test was applied on conductive surfaces of EUT. the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated. Indirect discharge for horizontal coupling plane At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge. Consideration should be given to exposing all sides of the EUT. Indirect discharge for vertical coupling plane At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X



	the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.
Test environment:	Temp.: 24 °C Humid.: 51% Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details and only show the worst case.
Test results:	Pass

Measurement Record:

Measurement Record:					
Test points:					
Test points.	II: All plastic seams			the state of the state of the state of	
Direct discharge					
Discharge Voltage (KV)	Type of discharge	Test points	Observations (Performance Criterion)	Result	
± 4	Contact		N/A	N/A	
± 2, ± 4, ± 8	Air		Α	Pass	
Indirect discharge					
Discharge Voltage (KV)	Type of discharge	Test points	Observation Performance	Result	
± 4	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	A	Pass	
± 4	VCP-Front/Back /Left/Right	Center of the VCP	A	Pass	

Remark:

A: No degradation in the performance of the EUT was observed.



8.3 Radio-frequency electromagnetic fields

Test Requirement:	EN 61547
Test Method:	EN 61000-4-3
Frequency range:	80MHz to 1GHz
Test Level:	3V/m
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	Criteria A
Test setup:	Ground Reference Plane Generator Generator Ampaliar Antenna Tower Ampaliar
Test Procedure:	 For table-top equipment, the EUT was placed in the chamber on a nonconductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items. If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length. The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area). The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value. The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 0,5 s. The test normally was performed with the generating antenna facing each side of the EUT. The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT.



Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Test Instruments:	Refer to section 6 for details
Test mode:	Refer to section 5.2 for details and only show the worst case.
Test results:	Pass

Measurement Record:

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	
			V	Front	A	
			H	Front	Α	
			V		A	
80 MHz-1 GHz 3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=3seconds	and Handard	Rear	A		
				A A		
			OO O/ Amp Mod	H. Tank	Left	Α
		V		Α		
	time=3seconds	and an Hardinan	Right	A		
		On 100 On	Тор	A		
		H. Wash		A		
			V	on on on on on on on	Α	
			A Harry	Bottom	A	

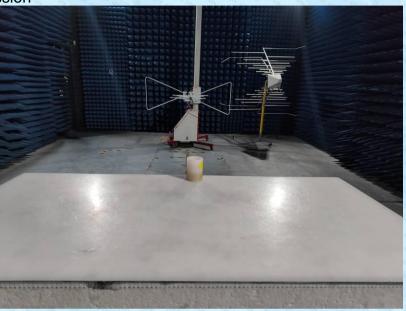
Remark:

A: No degradation in the performance of the EUT was observed.



9 Test Setup Photo

Radiated Emission



ESD





Radiated Electromagnetic Disturbance



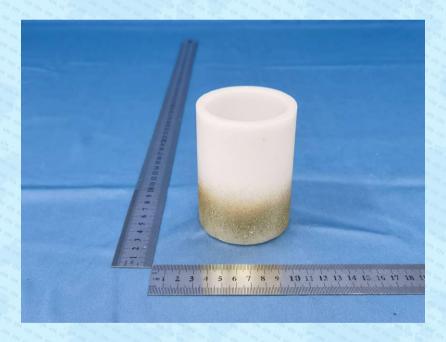


10 EUT Constructional Details



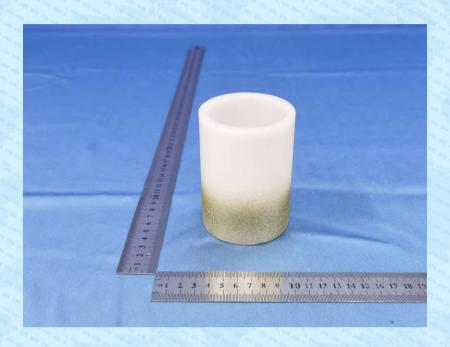














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