

# EMC TEST REPORT

#### For Electromagnetic Interference of

Report Reference No	ATSE200416621
Date of issue	2020-04-29
Testing Laboratory	ATS Electronic Technology Co., Ltd. 3/F, Building A, No. 1 Hedong Three Road, Jinxia Community, Changan Town, Dongguan City, Guangdong, P.R. China
Applicant's name	Shenzhen weizhi innovation technology co., LTD Room 401, building A, zhongshun business building, NO.554, longfeng road, longyuan community, longhua street, longhua district, shenzhen
Test specification	
Test item description	Multifunctional sterilization box
Model/Type reference	W50
Ratings	I/P: 5VDC or 9VDC
	WIreless Output: 10W; Output Watch: 2W
	Output rarphone: 5W; Output UV light: 2W

**Responsible Engineer** 

Brant Yang

(Brant Yang / Engineer)





Table of Contents	Page
1. CERTIFICATION	5
1.1PRODUCT INFORMATION	6
2 . SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	7
2.2 DESCRIPTION OF TEST MODES	8
2.3 EQUIPMENT USED DURING TESTING:	9
2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
3 . EMC EMISSION TEST	10
3.1 CONDUCTED EMISSION MEASUREMENT	10
3.1.1 POWER LINE CONDUCTED EMISSION	10
3.1.2 MEASUREMENT INSTRUMENTS LIST 3.1.3 TEST PROCEDURE	10
3.1.4 DEVIATION FROM TEST STANDARD	11
3.1.5 TEST SETUP	11
3.1.6 EUT OPERATING CONDITIONS	11
	12
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	17
3.2.2 MEASUREMENT INSTRUMENTS LIST	18
3.2.3 TEST PROCEDURE	18
3.2.4 DEVIATION FROM TEST STANDARD	18 19
3.2.6 EUT OPERATING CONDITIONS	19
3.2.7 TEST RESULTS	20
3.3 HARMONICS CURRENT MEASUREMENT	25
3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT	26
3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKSMEASUREMENT	26 26
3.4.3 TEST PROCEDURE	26
3.4.4 DEVIATION FROM TEST STANDARD	26
	27
3.4.6 EUT OPERATING CONDITIONS 3.4.7 TEST RESULTS	27 28
4 FMC IMMUNITY TEST	29
4.1 STANDARD COMPLIANCE/SERVRITY   EVEL/CRITERIA	29
4.2 GENERAL PERFORMANCE CRITERIA	30
4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP	30



Table of Contents	
	Page
4.4 ESD TESTING	31
4.4.1 TEST SPECIFICATION	31
4.4.2 MEASUREMENT INSTRUMENTS	31
4.4.3 TEST PROCEDURE	31
4.4.4 DEVIATION FROM TEST STANDARD	32
4.4.5 TEST SETUP	32
4.4.6 TEST RESULTS	33
4.5 RS TESTING	34
4.5.1 TEST SPECIFICATION	34
4.5.2 MEASUREMENT INSTRUMENTS	34
4.5.3 TEST PROCEDURE	34
4.5.4 DEVIATION FROM TEST STANDARD	34
4.5.5 TEST SETUP	35
4.5.6 TEST RESULTS	36
4.6 EFT/BURST TESTING	37
4.6.1 TEST SPECIFICATION	37
4.6.2 MEASUREMENT INSTRUMENTS	37
4.6.3 TEST PROCEDURE	37
4.6.4 DEVIATION FROM TEST STANDARD	37
4.6.5 TEST SETUP	38
4.6.6 TEST RESULTS	39
4.7 SURGE TESTING	40
4.7.1 TEST SPECIFICATION	40
4.7.2 MEASUREMENT INSTRUMENTS	40
4.7.3 TEST PROCEDURE	40
4.7.4 DEVIATION FROM TEST STANDARD	41
4.7.5 TEST SETUP	41
4.7.6 TEST RESULTS	42
4.8 INJECTION CURRENT TESTING	43
4.8.1 TEST SPECIFICATION	43
4.8.2 MEASUREMENT INSTRUMENTS	43
4.8.3 TEST PROCEDURE	43
4.8.4 DEVIATION FROM TEST STANDARD	43
4.8.5 TEST SETUP	44
4.8.6 TEST RESULTS	45
4.9 VOLTAGE INTERRUPTION/DIPS TESTING	46
4.9.1 TEST SPECIFICATION	46
4.9.2 MEASUREMENT INSTRUMENTS	46
4.9.3 IEST PROCEDURE	46
4.9.4 DEVIATION FROM TEST STANDARD	46
4.9.5 IEST SETUP	47
4.9.6 TEST RESULTS	48



Table of Contents	Page
	-
5. EUT TEST PHOTOS	49
6. EUT PHOTOS	52



1. CERTIFICATION	
Testing Laboratory	ATS Electronic Technology Co., Ltd.
Address:	3/F, Building A, No. 1 Hedong Three Road, Jinxia Community, Changan Town, Dongguan City, Guangdong, P.R. China
Applicant's name	Shenzhen weizhi innovation technology co., LTD
Address	Room 401, building A, zhongshun business building, NO.554, longfeng road, longyuan community, longhua street, longhua district, shenzhen
Manufacturer	Same as applicant
Address	Same as applicant
Factory	Same as applicant
Address	Same as applicant
Test specification	
Test item description	Multifunctional sterilization box
Trade Mark	N/A
Model/Type reference	W50
Test Sample	W50
Ratings:	I/P: 5VDC or 9VDC
	Wireless Output: 10W; Output Watch: 2W
	Output rarphone: 5W; Output UV light: 2W
Tested Power	DC 5V, DC 9V
Standards	EN 55032:2015/AC:2016
	EN 55035:2017
	EN 61000-3-2:2014
	EN 61000-3-3:2013

The device described above was tested by ATS Electronic Technology Co., Ltd. to determine the maximum emission levels emanated from the device and severity levels of the device endure and it performance criterion. The measurement results are contained in this test report and ATS Electronic Technology Co., Ltd. assumes full responsibility for the accuracy and completeness of these measurements. This report shows the EUT is technically compliance with the above official standards. This report applies to the above sample only and shall not be reproduced in part without written approval of ATS Electronic Technology Co., Ltd.



#### **1.1 PRODUCT INFORMATION**

#### 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
	Conducted Emission	Class B	PASS	
EN 55032:2015/AC:2016	Radiated Emission	Class B	PASS	
EN61000-3-2:2014	Harmonic Current Emission	Class A	PASS	(2)
EN61000-3-3:2013	Voltage Fluctuations & Flicker		PASS	
	EMC Immunity			
	(EN 55035:2017)			
Section	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	В	PASS	
EN 61000-4-3: 2006+A1:2008+A2:2010	RF electromagnetic field	А	PASS	
EN 61000-4-4: 2012	Fast transients	В	PASS	
EN 61000-4-5: 2014	Surges	В	PASS	
EN 61000-4-6: 2014/AC:2015	Injected Current	A	PASS	
EN 61000-4-8: 2010	Power Frequency Magnetic Field	А	N/A	(1)
EN 61000-4-11:2004/A1:2017	Volt. Interruptions Volt. Dips	B/C/C	PASS	(3)

**REMARK:** 

- (1)" N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: >95% reduction Performance Criteria B
   Voltage dip: 30% reduction Performance Criteria C
   Voltage Interruption: >95% reduction Performance Criteria C



#### 2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	2.44	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)	NOTE
R03	ANSI	30MHz ~ 200MHz	V	3.42	
	ANSI	30MHz ~ 200MHz	H	3.52	
	ANSI	200MHz ~ 1,000MHz	V	3.52	
	ANSI	200MHz ~ 1,000MHz	Н	3.54	



#### 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description		
Mode 1	NORMAL OPERATION		
	For Conducted Test		
Final Test Mode	Description		
Mode 1	NORMAL OPERATION		
For Radiated Test			
Final Test Mode	Description		
Mode 1	NORMAL OPERATION		

For Harmonics / Flicks Test			
Final Test Mode Description			
Mode 1 NORMAL OPERATION			

For EMS Test		
Final Test Mode Description		
Mode 1 NORMAL OPERATION		

IL



2.3 EQUIPMENT USED DURING TESTING:					
Product Type*	Device	Manufacturer	Model No.	Comments	
AE	Dummy load	/	/	/	
Cable	/	/	/	/	
Cable *Note: Us 2.4 BLOCK	/ ee abbreviations: EUT - Equipment Un AE - Auxiliary/Assoc SIM - Simulator (Not CABL – Connecting DIGRAM SHOWING	/ der Test, iated Equipment, or Subjected to Test) cables THE CONFIGURATI	ON OF SYSTEM TEST	ED	



#### 3. EMC EMISSION TEST

#### 3.1CONDUCTED EMISSION MEASUREMENT

#### 3.1.1 POWER LINE CONDUCTED EMISSION

#### (Frequency Range 150KHz-30MHz)

	Class A (dBuV)		Class B (dBuV)		
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	
0.50 -5.0	73.00	60.00	56.00	46.00	
5.0 -30.0	73.00	60.00	60.00	50.00	

Note:

#### (1) The tighter limit applies at the band edges.

(2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

#### 3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	R&S	ESCI	101569	10/24/2020
2	LISN	Schaffner	MN2050D	1467	10/24/2020
3	LISN	R&S	ENV216	101348	10/24/2020



#### 3.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal reference ground plane and 0.4 meters from vertical reference ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.
- 3.1.4 DEVIATION FROM TEST STANDARD



#### 3.1.5 TEST SETUP



#### 3.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use.



#### 3.1.7 TEST RESULTS

EUT :	Multifunctional sterilization box
Model No. :	W50
Test Mode :	NORMAL OPERATION
Test Result:	PASS

#### Remark:

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz; SPA setting in RBW=10KHz,VBW =10KHz, Sweep. Time = 0.3 sec./MHz. Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Sweep. Time =0.3 sec./MHz.
- (2) All readings are QP Mode value unless otherwise stated AVG in column of [Note]. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.
- (4) Measurement result=Reading + Correct.



EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	24 °C	Relative Humidity:	55 %
Phase:	L1	Test Power :	Power adapter DC 5V
Standard:	(CE)EN55032 class B_QP	Test By:	Jack
Test Mode :	NORMAL OPERATION		



No.	Frequency	Reading	Factor	Measure-	Limit	Margin	Detector	Comme
	(MHz)	Level(dBuV)	( <b>dB</b> )	ment(dBuV)	(dBuV)	( <b>dB</b> )		nt
1 *	0.1620	40.39	9.60	49.99	65.36	-15.37	QP	
2	0.1620	19.05	9.60	28.65	55.36	-26.71	AVG	
3	0.1819	38.13	9.61	47.74	64.40	-16.66	QP	
4	0.1819	17.39	9.61	27.00	54.40	-27.40	AVG	
5	0.2020	36.68	9.62	46.30	63.53	-17.23	QP	
6	0.2020	15.73	9.62	25.35	53.53	-28.18	AVG	
7	0.2620	33.25	9.66	42.91	61.37	-18.46	QP	
8	0.2620	13.74	9.66	23.40	51.37	-27.97	AVG	
9	0.5299	29.70	9.68	39.38	56.00	-16.62	QP	
10	0.5299	19.00	9.68	28.68	46.00	-17.32	AVG	
11	1.2660	27.28	9.68	36.96	56.00	-19.04	QP	
12	1.2660	16.33	9.68	26.01	46.00	-19.99	AVG	

![](_page_13_Picture_2.jpeg)

EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	<b>24</b> ℃	Relative Humidity:	55 %
Phase:	N	Test Power :	Power adapter DC 5V
Standard:	(CE)EN55032 class B_QP	Test By:	Jack
Test Mode :	NORMAL OPERATION		

![](_page_13_Figure_4.jpeg)

Ν	Frequency	Reading	Factor	Measure-	Limit	Margin	Detector	Com
0.	(MHz)	Level(dBuV)	( <b>dB</b> )	ment(dBuV)	(dBuV)	( <b>dB</b> )		ment
1*	0.5220	36.59	9.68	46.27	56.00	-9.73	QP	
2	0.5220	25.56	9.68	35.24	46.00	-10.76	AVG	
3	0.5780	31.05	9.68	40.73	56.00	-15.27	QP	
4	0.5780	20.65	9.68	30.33	46.00	-15.67	AVG	
5	0.9260	31.74	9.68	41.42	56.00	-14.58	QP	
6	0.9260	21.71	9.68	31.39	46.00	-14.61	AVG	
7	1.2420	34.89	9.68	44.57	56.00	-11.43	QP	
8	1.2420	24.08	9.68	33.76	46.00	-12.24	AVG	
9	1.3180	34.26	9.68	43.94	56.00	-12.06	QP	
10	1.3180	23.91	9.68	33.59	46.00	-12.41	AVG	
11	1.4819	34.81	9.68	44.49	56.00	-11.51	QP	
12	1.4819	23.41	9.68	33.09	46.00	-12.91	AVG	

![](_page_14_Picture_2.jpeg)

EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	<b>24</b> °C	Relative Humidity:	55 %
Phase:	L1	Test Power :	Power adapter DC 9V
Standard:	(CE)EN55032 class B_QP	Test By:	Jack
Test Mode :	NORMAL OPERATION		

![](_page_14_Figure_4.jpeg)

No.	Frequency	Reading	Factor	Measure-	Limit	Margin	Detector	Comme
	(MHz)	Level(dBuV)	( <b>dB</b> )	ment(dBuV)	(dBuV)	( <b>dB</b> )		nt
1	0.4900	27.80	9.68	37.48	56.17	-18.69	QP	
2 *	0.4900	17.95	9.68	27.63	46.17	-18.54	AVG	
3	0.5580	25.16	9.68	34.84	56.00	-21.16	QP	
4	0.5580	15.96	9.68	25.64	46.00	-20.36	AVG	
5	1.0420	25.40	9.68	35.08	56.00	-20.92	QP	
6	1.0420	15.27	9.68	24.95	46.00	-21.05	AVG	
7	1.1820	27.08	9.68	36.76	56.00	-19.24	QP	
8	1.1820	16.51	9.68	26.19	46.00	-19.81	AVG	
9	1.3380	27.03	9.68	36.71	56.00	-19.29	QP	
10	1.3380	16.73	9.68	26.41	46.00	-19.59	AVG	
11	1.4620	25.53	9.68	35.21	56.00	-20.79	QP	
12	1.4620	15.65	9.68	25.33	46.00	-20.67	AVG	

![](_page_15_Picture_2.jpeg)

EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	<b>24</b> °C	Relative Humidity:	55 %
Phase:	Ν	Test Power :	Power adapter DC 9V
Standard:	(CE)EN55032 class B_QP	Test By:	Jack
Test Mode :	NORMAL OPERATION		

![](_page_15_Figure_4.jpeg)

No.	Frequency	Reading	Factor	Measure-	Limit	Margin	Detector	Com
	(MHZ)	Level(dBuV)	( <b>d</b> B)	ment(dBuV)	(dBuV)	( <b>d</b> B)		ment
1 *	0.4940	34.17	9.68	43.85	56.10	-12.25	QP	
2	0.4940	22.70	9.68	32.38	46.10	-13.72	AVG	
3	0.5580	31.52	9.68	41.20	56.00	-14.80	QP	
4	0.5580	20.04	9.68	29.72	46.00	-16.28	AVG	
5	1.0180	30.45	9.68	40.13	56.00	-15.87	QP	
6	1.0180	19.50	9.68	29.18	46.00	-16.82	AVG	
7	1.1460	31.30	9.68	40.98	56.00	-15.02	QP	
8	1.1460	20.80	9.68	30.48	46.00	-15.52	AVG	
9	1.2540	31.65	9.68	41.33	56.00	-14.67	QP	
10	1.2540	21.02	9.68	30.70	46.00	-15.30	AVG	
11	1.4140	31.82	9.68	41.50	56.00	-14.50	QP	
12	1.4140	20.79	9.68	30.47	46.00	-15.53	AVG	

![](_page_16_Picture_2.jpeg)

#### 3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

(Below 1000MHz)

FREQUENCY (MHz)	Field strengths limits at 3m Measuring distance: dBuV/m
30 – 230	40
230 – 1000	47

Notes:

- (1) The limit for radiated test was performed according to as following: EN 55032.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The highest internal source of the EUT is less than108 MHz,the measurement shall only be Made up to 1GHz.

![](_page_17_Picture_2.jpeg)

#### 3.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	SCHWARZBECK	VULB9168	VULB9168 VULB9168-192	
2	Pre-Amplifier	EM Electronics Corporation	EM330	EM330 60603	
3	EMI Test Receiver	R&S	ESCI	101368	10/24/2020
4	Turn Table	UC	UC3000	N/A	N/A
5	Antenna Mast	UC	UC3000	N/A	N/A

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

#### 3.2.3 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item -EUT Test Photos.

#### 3.2.4 DEVIATION FROM TEST STANDARD

No deviation

![](_page_18_Picture_2.jpeg)

![](_page_18_Figure_3.jpeg)

![](_page_19_Picture_2.jpeg)

#### 3.2.7 TEST RESULTS

EUT :	Multifunctional sterilization box
Model No. :	W50
Test Mode :	NORMAL OPERATION
Test Result:	PASS

#### Remark:

- Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Sweep. Time = 0.3 sec./MHz.
- (2) All readings are Peak unless otherwise stated QP in column of Note.
  Peak denotes
  that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz.
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table.
- (5) Measurement Result = Reading + Correct

30.000

60

![](_page_20_Picture_2.jpeg)

![](_page_20_Figure_3.jpeg)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.0000	28.34	2.68	31.02	40.00	-8.98	QP
2 *	39.1616	34.42	-2.61	31.81	40.00	-8.19	QP
3	43.9658	34.19	-4.35	29.84	40.00	-10.16	QP
4	99.5281	37.53	-9.53	28.00	40.00	-12.00	peak
5	109.7960	37.20	-8.90	28.30	40.00	-11.70	peak
6	116.5401	36.94	-8.23	28.71	40.00	-11.29	peak

1000.0

![](_page_21_Picture_2.jpeg)

![](_page_21_Figure_3.jpeg)

-10												
-20												
30	.000	60	l		100	(MHz)		5	00		10	00.0

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.6379	24.24	2.10	26.34	40.00	-13.66	peak
2 *	38.4809	29.19	-2.48	26.71	40.00	-13.29	peak
3	43.3534	29.25	-4.10	25.15	40.00	-14.85	peak
4	98.8326	31.76	-9.62	22.14	40.00	-17.86	peak
5	120.2766	27.31	-7.89	19.42	40.00	-20.58	peak
6	162.0414	28.88	-8.36	20.52	40.00	-19.48	peak

![](_page_22_Picture_2.jpeg)

![](_page_22_Figure_3.jpeg)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	30.0000	27.25	2.68	29.93	40.00	-10.07	QP
2	37.2855	31.64	-2.24	29.40	40.00	-10.60	QP
3 *	39.1616	32.70	-2.61	30.09	40.00	-9.91	QP
4	102.3597	37.05	-9.33	27.72	40.00	-12.28	peak
5	118.6014	33.11	-8.03	25.08	40.00	-14.92	peak
6	136.4598	29.15	-7.54	21.61	40.00	-18.39	peak

6

![](_page_23_Picture_2.jpeg)

![](_page_23_Figure_3.jpeg)

peak

![](_page_24_Picture_2.jpeg)

#### 3.3 HARMONICS CURRENT MEASUREMENT

Current Test Result	Summary (Run time)		
UT:	Multifunctional sterilization	Model No. :	W50
emperature:	<b>24</b> °C	Relative Humidity:	55 %
ressure:	1009 hPa	Test Power :	DC 5V, DC 9V
ighest parameter	values during test:		
Remark: This	s rated power of EUT is under 7	75W, therefore it isn't	specified in this standard.

![](_page_25_Picture_2.jpeg)

#### 3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

#### 3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKSMEASUREMENT

	Li	mits	Descriptions		
lests	IEC61000-4-15	IEC/EN 61000-3-3			
Pst	≤ 1.0, Tp= 10 min. ≤ 1.0, Tp= 10 min.		Short Term Flicker Indicator		
Plt	≤ 0.65, Tp=2 hr.	≤ 0.65, Tp=2 hr.	Long Term Flicker Indicator		
dc	$\leq$ 3.3 %	$\leq$ 3.3 %	Relative Steady-State V-Chang		
dmax	≤ 4 %	≤ 4 %	Maximum Relative V-change		
d (t)	>3.3%	>3.3%	Relative V-change characteristic		
Tmax for d (t)	≤ 500 ms	≤ 500 ms	Maximum time duration		

#### 3.4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Low Frequency Measurement System	EMC-Partner	HARMONIC1000	130488	10/24/2020

#### 3.4.3 TEST PROCEDURE

a. Harmonic Current Test:

Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.

#### b. Fluctuation and Flickers Test: Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.

c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.

d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

### 3.4.4 DEVIATION FROM TEST STANDARD No deviation

27 of 55

![](_page_26_Picture_2.jpeg)

![](_page_26_Figure_3.jpeg)

![](_page_27_Picture_2.jpeg)

0.00

0.07

1.00

0.07

0.65

0.00%

4.00%

0.01%

3.30%

500ms

#### 3.4.7 TEST RESULTS

EUT:	Multifunctional sterilization box	Model No. :	W50,
Temperature:	24 °C	Relative Humidity:	55 %
Pressure:	1009 hPa	Test Power :	DC 5V, DC 9V
Test Mode :	NORMAL OPERATION		

![](_page_27_Figure_5.jpeg)

ATS Electronic Technology Co., Ltd.	
3/F, Building A, No. 1 Hedong Three Road, Jinxia Co	mmunity, Changan Town, DongGuan City, GuangDong, P.R.China
Phone: 86-769-3897 5958; Fax: 86-769-38975968	E-mail:ats@dgats.com

![](_page_28_Picture_2.jpeg)

#### 4. EMC IMMUNITY TEST

#### 4.1 STANDARD COMPLIANCE/SERVRITY LEVEL/CRITERIA

Tests Standard No	TEST SPECIFICATION	Test Mode Test Ports	Perform. Criteria	Remark
1. ESD	<u>+</u> 8KV air discharge <u>+</u> 4KV contact discharge	Direct Mode	В	
IEC/EN 61000-4-2	<u>+</u> 4KV HCP discharge <u>+</u> 4KV VCP discharge	Indirect Mode	В	
2. RS IEC/EN 61000-4-3	80 MHz to 1000 MHz, 1.8GHz, 2.6GHz, 3.5GHz, 5GHz, 3V/m(rms), 1 KHz, 80%, AM modulated	Enclosure	A	
3. EFT/Burst	1.0KV(peak) 5/50ns Tr/Th 5KHz Repetition Freq.	AC Power Port	В	
IEC/EN 61000-4-4	0.5 KV(peak) 5/50ns Tr/Th 5KHz Repetition Freq.	CTL/Signal Data Line Port	В	N/A
4. Surges	<u>+</u> 1 KV(5P/5N) 1.2/50(8/20) Tr/Th us	L-N	В	
IEC/EN 61000-4-5	<u>+</u> 2 KV(5P/5N) 1.2/50(8/20) Tr/Th us	L-PE N-PE	В	N/A
	0.15 MHz to 10 MHz: 3V(rms), 10 MHz to 30 MHz: 3 to 1V(rms), 30 MHz to 80 MHz: 1V(rms), 1KHz 80%, AM Modulated	CTL/Signal Port	A	N/A
5 Injected Current IEC/EN 61000-4-6	0.15 MHz to 10 MHz: $3V(rms)$ , 10 MHz to 30 MHz: 3 to $1V(rms)$ , 30 MHz to 80 MHz: $1V(rms)$ , 1KHz 80%, AM Modulated 150 $\Omega$ source impedance	AC Power Port	A	
	0.15 MHz to 10 MHz: 3V(rms), 10 MHz to 30 MHz: 3 to 1V(rms), 30 MHz to 80 MHz: 1V(rms), 1KHz 80%, AM Modulated	DC Power Port	A	N/A
6. Power Frequency Magnetic Field IEC/EN 61000-4-8	50 Hz, 1A/m	Enclosure	А	N/A
7. Volt. Interruptions Volt. Dips IEC/EN 61000-4-11	Voltage dip>95% / 30% Interruption>95%	AC Power Port	B/C C	

\* Remark:

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

![](_page_29_Picture_2.jpeg)

#### 4.2 GENERAL PERFORMANCE CRITERIA

According to EN55035 standard, the general performance criteria as following:

Criterion A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment 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, then either of these may be derived from the product description and documentation, and by what the user product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B	After the test, the equipment shall continue to operate as intended without operator Intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state if stored data allowed to persist after the test. If the minimum performance level (or the permissible performance loss ) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

#### 4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of 4.2 Unless otherwise a special operating condition is specified in the follows during the testing.

![](_page_30_Picture_2.jpeg)

#### 4.4 ESD TESTING

#### 4.4.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance	В
Discharge Voltage:	Air Discharge: <u>+</u> 2kV/ <u>+</u> 4kV/ <u>+</u> 8kV (Direct)
	Contact Discharge: <u>+</u> 2kV/ <u>+</u> 4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 50 times at each test point
	Contact Discharge: min. 200 times in total
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum

#### 4.4.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Electrostatic Discharge Simulator	Prima	ESD61002BG	PR15092978	10/24/2020

#### 4.4.3 TEST PROCEDURE

The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT. During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.
If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second. Vertical Coupling Plane (VCP): The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m

from, the EUT, with the Discharge Electrode touching the coupling plane.

The four faces of the EUT will be performed with electrostatic discharge.

Horizontal Coupling Plane (HCP):

The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane. The four faces of the EUT will be performed with electrostatic discharge.

b. Air discharges at insulation surfaces of the EUT.

It was at least ten single discharges with positive and negative at the same selected point. c. For the actual test configuration, please refer to the related Item –EUT Test Photos. 32 of 55

![](_page_31_Picture_2.jpeg)

#### 4.4.4 DEVIATION FROM TEST STANDARD No deviation

#### 4.4.5 TEST SETUP

![](_page_31_Figure_5.jpeg)

Note:

#### TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure. FLOOR-STANDING EQUIPMENT

## The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

![](_page_32_Picture_2.jpeg)

#### 4.4.6 TEST RESULTS

EUT:	Multifunctional sterilization box	Model No. :	W50,
Temperature:	24 °C	Relative Humidity:	55 %
Pressure:	1007 hPa	Test Power :	DC 5V, DC 9V
Test Mode :	NORMAL OPERATION		

Mode	Air Discharge						Contact Discharge									
	<u>+</u> 2	KV	<u>+</u> 4	ΚV	<u>+</u> 8	KV	<u>+</u> 12	2KV	<u>+</u> 2	KV	<u>+</u> 4	KV	<u>+</u> 6	KV	<u>+</u> 8	KV
Location	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν
Slot	Α	Α	Α	Α	Α	Α										
Enclosure	Α	Α	Α	Α	Α	Α										
Criteria	B						B									
Result	A								N/	A						
Judgment				PAS	SS							N/	A			

Mode		HCP Discharge								V	CP [	Discha	rge			
	<u>+</u> 2	ΚV	<u>+</u> 4	ΚV	<u>+</u> 6	ΚV	<u>+</u> 8	KV	<u>+</u> 2	ΚV	<u>+</u> 4	ΚV	<u>+</u> 6	ΚV	<u>+</u> 8	KV
Location	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν	Р	Ν
Front	Α	Α	Α	Α					Α	Α	Α	Α				
Rear	Α	Α	Α	Α					Α	Α	Α	Α				
Left	Α	Α	Α	Α					Α	Α	Α	Α				
Right	Α	Α	Α	Α					Α	Α	Α	Α				
Criteria		B										E	3			
Result	A										A	١				
Judgment				PAS	SS							PA	SS			

Note:

- 1) P/N denotes the Positive/Negative polarity of the output voltage.
- 2) Test condition:
  - Direct / Indirect (HCP/VCP) discharges: Minimum 50 times (Positive/Negative) at each point. Air discharges: Minimum 50 times (Positive/Negative) at each point.
- 3) Test location(s) in which discharge (Air and contact discharge) to be applied illustrated by photos shown in next page(s)
- 4) The Indirect (HCP/VCP) discharges description of test point as following: 1.left side 2.right side 3.front side 4.rear side
- 5) N/A denotes test is not applicable in this test report
- 6) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

![](_page_33_Picture_2.jpeg)

#### 4.5 RS TESTING

#### 4.5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance	A
Frequency Range:	80 MHz - 1000 MHz 1.8GHz, 2.6GHz, 3.5GHz, 5GHz,
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	at least 3 seconds

#### 4.5.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal Generator	Aglilet	N517113-50B	MY53050160	10/24/2020
2	Amplifier	A&R	150W1000M3	313157	10/24/2020
3	Log-periodic Antenna	Schwarzbeck	STLP 9128E	9128E-012	10/24/2020
4	Isotropic Field Probe	A&R	FL7006	0342652	10/24/2020
5	Amplifier	A&R	50SIG6M2	0342835	10/24/2020
6	Antenna	Schwarzbeck	STLP9149	9149.222	10/24/2020

#### 4.5.3 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

The testing distance from antenna to the EUT was 3 meters.

The other condition as following manner:

a. The field strength level was 3V/m.

- b. The frequency range is swept from 80 MHz to 1000 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

#### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

![](_page_34_Picture_2.jpeg)

![](_page_34_Figure_3.jpeg)

#### Note:

#### TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

#### FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

![](_page_35_Picture_2.jpeg)

#### 4.5.6 TEST RESULTS

EUT:	Multifunctional sterilization box	Model No. :	W50,
Temperature:	<b>24</b> ℃	Relative Humidity:	55 %
Pressure:	1004 hPa	Test Power :	DC 5V, DC 9V
Test Mode :	NORMAL OPERATION		

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Perform. Criteria	Results	Judgment
80MHz - 1000MHz, 1.8GHz, 2.6GHz, 3.5GHz, 5GHz,	H/V	3 V/m (rms) AM Modulated 1000Hz, 80%	0 90 180 270	A	A	PASS

#### Note:

1) H/V denotes the Horizontal/Vertical polarity of the RF field.

2) Criteria A: There was no change operated with initial operating during the test.

3) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

4) Criteria C: The system shut down during the test.

![](_page_36_Picture_2.jpeg)

#### 4.6 EFT/BURST TESTING

#### 4.6.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-4
Required Performance	В
Test Voltage:	Power Line: 1 kV
	Signal/Control Line: 0.5 KV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

#### 4.6.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Transient 3000 Test System	Prima	EFT61004AG	PR15094549	10/24/2020
2	Capacitive Coupling Clamp	Prima	CN-EFT1000	709	10/24/2020

#### 4.6.3 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min.

The other condition as following manner:

- a. The length of power cord between the coupling device and the EUT should not exceed 1 meter.
- b. Both positive and negative polarity discharges were applied.
- c. The duration time of each test sequential was 1 minute
- d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

38 of 55

![](_page_37_Picture_2.jpeg)

![](_page_37_Figure_3.jpeg)

#### Note:

#### TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

#### FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

![](_page_38_Picture_2.jpeg)

#### 4.6.6 TEST RESULTS

EUT:	Multifunctional sterilizat		ion box Model No. :		W50	W50,		
Temperature:	<b>24</b> ℃		F	Relat	tive Humidity:	55 %	55 %	
Pressure:	1004 hPa		Test Power :		DC 5V, DC 9V			
Test Mode :	NORMAL C	OPERATION						
				-				
Mode	( X ) AC F	Power Line	(	) D	C Power Line	(	) Sig	nal/Control Line
Test Level	1K	V		0.5k	۲V		0.5	ΚV
Port(s)	Polarity	Results	Polarity	/	Results	Polari	ty	Results
	Р	А	Р			Р		
Line (L)	Ν	А	N			N		
	Р	А	Р			Р		
Neutral (N)	Ν	А	N			N		
Line + Neutral	Р	А	Р			Р		
(L+N)	Ν	А	N			Ν		
	Р		Р			Р		
Ground (PE)	Ν		N			N		
Line + Ground	Р		Р			Р		
(L+PE)	Ν		N			N		
Neutral + Ground	Р		Р			Р		
(N+PE)	Ν		N			Ν		
Line + Neutral +	Р		Р			Р		
Ground(L+N+PE)	Ν		N			Ν		
Signal/Control	Р		Р			Р		
Line	Ν		N			Ν		
Criteria	В		В		В			
Result	A			N/A		N/A		
Judgment	PASS		N/A		N/A			

Note:

1) P/N denotes the Positive/Negative polarity of the output voltage.

2) N/A - denotes test is not applicable in this test report

3) Criteria A: There was no change operated with initial operating during the test.

4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

5) Criteria C: The system shut down during the test.

![](_page_39_Picture_2.jpeg)

#### 4.7 SURGE TESTING

#### 4.7.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-5
Required Performance	В
Wave-Shape:	Combination Wave
	1.2/50 us Open Circuit Voltage
	8 /20 us Short Circuit Current
Test Voltage:	Power Line: <u>+</u> 0.5 kV, <u>+</u> 1 kV
Surge Input/Output:	L-N
Generator Source:	2 ohm between networks
Impedance:	12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0 °/ 90 °/ 180 °/ 270 °
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

#### 4.7.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Lightning Surge Generator	Prima	SOG61005BX	PR150751003	10/24/2020

#### 4.7.3 TEST PROCEDURE

a. For EUT Multifunctional sterilization box:

The surge is to be applied to the EUT Multifunctional sterilization box 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 EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT:

The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

![](_page_40_Figure_1.jpeg)

![](_page_40_Picture_4.jpeg)

![](_page_41_Picture_2.jpeg)

#### 4.7.6 TEST RESULTS

EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	24 °C	Relative Humidity:	55 %
Pressure:	1004 hPa	Test Power :	DC 5V, DC 9V
Test Mode :	NORMAL OPERATION		

Wave Form	1.2/50(8/20)Ti/Th us							
	Polarity	Phase	Voltage		Criteria	Judgment		
EUT Ports Tested	Tolanty	Thase	0.5kV	1kV	1.5kV	2kV		
	+/-	0°		А				
	+/-	90°		А			P	PASS
L - N	+/-	180°		А			-	
	+/-	270°		А				
	+/-	<b>0</b> °					В	
	+/-	90°						N/A
L-PE	+/-	180°						
	+/-	270°						
	+/-	0°						Ν/Α
	+/-	90°						
N - PE	+/-	180°					В	14/7
	+/-	270°						
	+/-	0°						
Signal Line (N/A)	+/-	90°						N/A
	+/-	180°					В	
	+/-	270°						

Note:

1) +/- denotes the Positive/Negative polarity of the output voltage.

2) Polarity and Numbers of Impulses: 5 Pst / Ngt at each tested mode

3) N/A - denotes test is not applicable in this Test Report

4) All voltages of the lower levels shall be satisfied

![](_page_42_Picture_2.jpeg)

#### 4.8 INJECTION CURRENT TESTING

#### 4.8.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-6
Required Performance	A
Frequency Range:	0.15 MHz - 80 MHz
Field Strength:	3 Vr.m.s.
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Dwell Time:	at least 3 seconds

#### 4.8.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Conducted Immunity Test System	Frankonia	CIT-10	102D1253	10/24/2020
2	CDN	Frankonia	CDN M2+M3	A3011059	10/24/2020
3	EM Clamp	Schaffner	KEMZ 801	21044	10/24/2020
4	Attenuation	Bird	DAM75W(6dB)	29750	10/24/2020

#### 4.8.3 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m\*1m min. and 0.65mm thick min.

The other condition as following manner:

a. The field strength level was 3V.

- b. The frequency range is swept from 150 KHz to 80 MHz, with the signal 80% amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. For the actual test configuration, please refer to the related Item -EUT Test Photos.

#### 4.8.4 DEVIATION FROM TEST STANDARD

No deviation

![](_page_43_Picture_2.jpeg)

![](_page_43_Figure_3.jpeg)

For the actual test configuration, please refer to the related Item -EUT Test Photos.

#### NOTE:

#### FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

![](_page_44_Picture_2.jpeg)

#### 4.8.6 TEST RESULTS

EUT:	Multifunctional s	sterilization box	Model No.	Model No. :		W50	
Temperature:	<b>24</b> ℃		Relative Hu	Relative Humidity:			
Pressure:	1004 hPa		Test Power	:	DC 5V, DC 9V		
Test Mode :	NORMAL OPEI	RATION					
Test Ports	Freq. Range	Field Strength		Perform.	Booulto	Judgment	
(Mode)	MHz)			Criteria	Results		
Input/ Output	0.1580			А	А	PASS	
AC. Power Port							
Input/ Output	0.45 00		$\nabla \Pi Z$ . $\nabla V$ ,	٨	N1/A	N1/A	
DC. Power Port	0.15 80		$\neg 2.3 (0   V,$	IZ: 3 to 1 V, A		N/A	
Signal Line ( N/A )	0.15 80	1KHz 80%, AM	Modulated	A	N/A	N/A	

Note:

1) N/A - denotes test is not applicable in this Test Report.

![](_page_45_Picture_2.jpeg)

#### 4.9 VOLTAGE INTERRUPTION/DIPS TESTING

#### 4.9.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-11
Required Performance:	B (For >95% Voltage Dips)
	C (For 30% Voltage Dips)
	C (For >95% Voltage Interruptions)
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0°
Test Cycle:	3 times

#### 4.9.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Transient 3000 Test System	Prima	DRP61011	PR15086913	10/24/2020

#### 4.9.3 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

#### 4.9.4 DEVIATION FROM TEST STANDARD

No deviation

ATS

![](_page_46_Figure_2.jpeg)

![](_page_47_Picture_2.jpeg)

#### 4.9.6 TEST RESULTS

EUT:	Multifunctional sterilization box	Model No. :	W50
Temperature:	24 °C	Relative Humidity:	55%
Pressure:	1004hPa	Test Power :	DC 5V, DC 9V
Test Mode :	NORMAL OPERATION		

Voltage Reduction	Periods 50Hz	Periods 60Hz	Perform Criteria	Results	Judgment
Voltage dip $>$ 95%	0.5	0.5	В	A	PASS
Voltage dip 30%	25	30	С	В	PASS
Interruption>95%	250	300	С	В	PASS

![](_page_48_Picture_2.jpeg)

### 5. EUT TEST PHOTOS

**Conducted Measurement Photo** 

![](_page_48_Picture_5.jpeg)

Radiated Measurement Photo

![](_page_48_Picture_7.jpeg)

![](_page_49_Picture_2.jpeg)

![](_page_49_Picture_3.jpeg)

![](_page_50_Picture_2.jpeg)

![](_page_50_Picture_3.jpeg)

![](_page_51_Picture_2.jpeg)

![](_page_51_Picture_3.jpeg)

![](_page_52_Picture_2.jpeg)

![](_page_52_Picture_3.jpeg)

![](_page_53_Picture_2.jpeg)

![](_page_53_Picture_3.jpeg)

![](_page_54_Picture_2.jpeg)

![](_page_54_Figure_3.jpeg)