

NSAI

ECE TYPE-APPROVAL CERTIFICATE

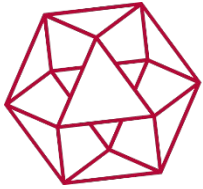


Communication Concerning:² ~~Approval granted~~
~~Approval extended~~
~~Approval refused~~
~~Approval withdrawn~~
~~Production definitively discontinued~~

Of a type of ~~vehicle~~/component/~~separate technical unit~~² with regard to Regulation No. 10.
Of a type of electrical/electronic sub-assembly² with regard to Regulation No.10.


Approval No: **E24*10R06/02*5012*00**

Reason for extension:	<i>-N/A</i>
1. Make (trade name of manufacturer):	<i>3J</i>
2. Type and general commercial description:	<i>3J-PF Ventilator</i>
Variant(s):	<i>3J-PF , PLUS FAN</i>
3. Means of identification of type, if marked on the vehicle / component/separate technical unit ² :	<i>Type Designation</i>
3.1 Location of that marking:	<i>On the left of the rail situated at the back of mounting frame</i>
4. Category of vehicle:	<i>N/A</i>
5. Name and address of manufacturer:	<i>Jiangsu Sanjo Intelligent Technology Co., Ltd No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China</i>
6. In the case of components and separate technical units, location and method of affixing of the approval mark:	<i>Adhesive label on the left of the rail situated at the back of mounting frame</i>
7. Address(es) of assembly plant(s):	<i>Jiangsu Sanjo Intelligent Technology Co., Ltd No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China</i>



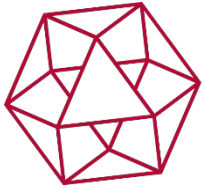
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Approval No: E24*10R06/02*5012*00

- | | |
|--|---|
| 8. Additional information (where applicable): | <i>See appendix below</i> |
| 9. Technical service responsible for carrying out the tests: | <i>SGS-TÜV Saar GmbH</i> |
| 10. Date of test report: | <i>19.10.2023</i> |
| 11. Number of test report: | <i>HOM ECN T23/171-00</i> |
| 12. Remarks (if any): | <i>See Appendix below</i> |
| 13. Place: | <i>Dublin</i> |
| 14. Date: | <i>23rd November, 2023</i> |
| 15. Signature: |  |
16. The index to the information package lodged with the approval authority, which may be obtained on Request, is attached.



-
1. Distinguishing number of the country which issued/extended/refused or withdrawn approval. (see Regulation, provisions on approval).
 2. Strike out what does not apply.



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Approval No: E24*10R06/02*5012*00

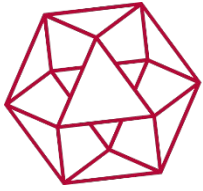
Appendix

To type-approval communication concerning the type approval of an electrical/electronic sub-assembly under Regulation No.10.

1. Additional information
 - 1.1. Electrical system rated voltage: **DC 12V, negative ground**
 - 1.2. This ESA can be used on any vehicle type with the following restrictions: **See manufacturer's specifications.**
 - 1.2.1 Installation conditions, if any: **See manufacturer's specifications.**
 - 1.3. This ESA can only be used on the following vehicle types: **N/A**
 - 1.3.1 Installation conditions, if any: **N/A**
 - 1.4. The specific test method(s) used and the frequency ranges covered to determine immunity were: **N/A**
 - 1.5. Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests: **SGS-TÜV Saar GmbH**
2. Remarks: **N/A**

Appendix to type-approval communication concerning the type approval of a vehicle under Regulation No.10.

1. Additional information
2. Electrical system rated voltage: **N/A**
3. Type of bodywork: **N/A**
4. List of electronic systems installed in the tested vehicle(s) not limited to the items in the information document: **N/A**
 - 4.1. Vehicle equipped with 24 GHz short-range radar equipment (yes/no/optional)²: **N/A**
5. Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests: **N/A**
6. Remarks: **N/A**

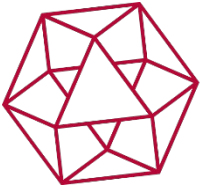


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Approval No: E24*10R06/02*5012*00

Index to the Information Package

Date of issue:	<i>23rd November, 2023</i>
Date of latest amendment:	<i>N/A</i>
Reason for extension/revision:	<i>N/A</i>
1. Additional conditions, and advisory notes on legal alternatives.	
2. Test report(s)	
- numbers(s):	<i>HOM ECN T23/171-00</i>
- date of issue:	<i>19.10.2023</i>
- date of latest amendment:	<i>N/A</i>
3. Information document	
- number(s):	<i>IF_3J-PF_R10.06_00</i>
- date of issue:	<i>26.09.2023</i>
- date of latest amendment:	<i>N/A</i>
Documentation:	<i>62 pages</i>



NSAI

Approval No: E24*10R06/02*5012*00

Appendix: **Additional conditions, and advisory notes on legal alternatives**

A: Additional conditions:

1. The attached technical report, with any of its attachments, forms part of this Type Approval certificate.
2. Each device from series production shall be to the measurements specified in the attached drawings, and shall be manufactured only from the materials specified in the Approval documents.
3. Changes in the type are permitted only with the explicit permission of NSAI. Breaches of this requirement will lead to a withdrawal of the Type Approval, and in addition may be subject to criminal prosecution.
4. At regular intervals, any tests or associated checks prescribed by the applicable legislation to verify continued conformity with the approved type shall be carried out. The manufacturer shall demonstrate compliance with this by submitting to NSAI evidence of adequate arrangements and documented control plans for each type approved.
5. Any set of samples or test pieces showing evidence of non-conformity shall give rise to further sampling and testing and all steps shall be taken to restore conformity of production.
6. This Type Approval will expire when it is surrendered by the holder, or withdrawn by NSAI, or when the approved type no longer conforms to legal requirements. The recall of the Type Approval can be issued by NSAI when the conditions required for the issuing or continuation of the Type Approval are no longer current, or when the Approval holder is in breach of the duties attached to the Type Approval, or when it is established that the approved type no longer meets the requirements of traffic safety.
7. Changes in the company name, address or manufacturing site, as well as in any of the sales or other agents specified in the issuing of the approval must immediately be notified to NSAI.
8. The duties imposed by the issuing of this certificate are not transferable. The legal protection of third parties is not affected by this certificate.
9. When the manufacture or sale of the system, component or separate technical unit has not been started within one year of the date of issue of this certificate, then NSAI is to be informed. This requirement also applies when the manufacture or sale has been halted for more than one year, or when it ought to have been halted for more than one year. The initial commencement of manufacture or sale, or the resumption of manufacture or sale, shall then be notified to NSAI within one month of commencement or resumption.

B: Legal Options:

Any objection to the requirements set out in this certificate shall be made within one month of the date of issue. The objection shall be made, in writing, to NSAI in Dublin.

Technical Report

V00

Test standard:
ECE R10

Level of amendment:
06 Series of amendments, 02 supplement

Title:
Electromagnetic compatibility

Manufacturer:
Jiangsu Sanjo Intelligent Technology Co., Ltd.

Type:
3J-PF

Subject of testing:
Component

0 General:

- | | | |
|-------|---|--|
| 0.1 | Make
(trade name of manufacturer): | 3J |
| 0.2 | Type: | 3J-PF |
| 0.2.1 | Commercial description(s): | Ventilator |
| 0.2.2 | Variant: | 3J-PF, PLUS FAN |
| 0.3 | Means of identification of type, if
marked on the vehicle / component
/ technical unit: | refer to information document |
| 0.3.1 | Location of that markings: | refer to information document |
| 0.4 | Category of vehicle: | n.a. |
| 0.5 | Manufacturer's name and address: | Jiangsu Sanjo Intelligent Technology Co., Ltd
No. 8, Jinguazi Road, Nandu Town, Liyang
City, Jiangsu Province, China |
| 0.8 | Name(s) and address(es) of
assembly plant(s): | refer to information document |
| 0.9 | Name and address of
representative: | n.a. |
| | Location of the approval mark: | refer to information document |



Technical Report
No.: HOM ECN T23/171-00
Type: 3J-PF

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1 Appendices

1.1 Test Record See appendix A

1.2 List of modifications See appendix B

2 Attachments:

2.1 Information folder: No.: IF_3J-PF _R10.06_00

Date of issue: 26.09.2023

2.2 Test Report: No.: SZEM230900622001

Date of issue: 22.09.2023

3 Statement of conformity:

The information folder as mentioned under no. 2.1 and the type described therein are in compliance with the test standard mentioned above. With regard to the required level of performance to be achieved, the test specimen were representative for the type to be approved.

The tests were carried out in accordance to the relevant requirements of the

EN ISO/IEC 17025 EN ISO/IEC 17020

Test Laboratory

SGS-TÜV Saar GmbH

notified by

<p>KBA Krafftahrt-Bundesamt, Germany</p> <p>No. KBA-P 00084-10</p>	<p>NSAI National Standards Authority of Ireland</p> <p>No. 101</p>	<p>RDW Rijksdienst voor het Wegverkeer, The Netherlands</p> <p>No. 99050064 00</p>	<p>TRANSPORT STYRELSEN, Sweden</p> <p>No. TT 0015</p>
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Formal review (Conformity Check) by:

Authorized by expert:

Cinney Zhang



Cinney Zhang

Gangling Zhang

Shanghai, 19.10.2023



Technical Report
No.: HOM ECN T23/171-00
Type: 3J-PF

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To assess the conformity, the laboratory refers to the "scope classification" of the Kraftfahrt-Bundesamt (KBA) – Federal Motor Transport Authority (in its valid version at the time of testing) and the specified consideration of the measurement uncertainty for the related test procedure.

In case the measurement uncertainty does not need to be considered according to the scope classification, the laboratory considers the result conform if its measured value is within the specification.

In case the measurement uncertainty does need to be considered according to the scope classification, the laboratory considers the result conform if its value incl. its measurement uncertainty is within the specification.

Test record

1 Test conditions

- | | | |
|-------|---|---|
| 1.1 | Test component | |
| 1.1.1 | Function description | Ventilator |
| 1.1.2 | Type | 3J-PF |
| 1.1.3 | Variant | 3J-PF |
| 1.1.4 | Tested operating mode(s) | See test report of the enclosure. |
| 1.1.5 | Tested rated voltage(s) | <input checked="" type="checkbox"/> 12V <input type="checkbox"/> 24V <input type="checkbox"/> 12V/24V |
| 1.1.6 | The approval object is ... | |
| | an ESA that is not related to a connection system for charging a REESS | <input checked="" type="checkbox"/> yes
<input type="checkbox"/> no |
| | a complete connection system for charging a REESS | <input type="checkbox"/> yes
<input checked="" type="checkbox"/> no |
| | a component of a connection system for charging a REESS | <input type="checkbox"/> yes
<input checked="" type="checkbox"/> no |
| | Have the HV voltages and HV currents been taken into account in the tests and measurements? | <input type="checkbox"/> yes
<input type="checkbox"/> no
<input checked="" type="checkbox"/> n.a. |
| | a light source or a part of a light source acc. to item 3.2.10 of the Regulation? | <input type="checkbox"/> yes
<input type="checkbox"/> no
<input checked="" type="checkbox"/> n.a. |
| 1.1.7 | Approval number or number of test report | <input checked="" type="checkbox"/> n.a. |
| | Do the devices of the type have immunity related functions? | <input type="checkbox"/> yes
<input checked="" type="checkbox"/> no |
| | Reason if necessary: | Ventilator not related to safety functions and within ECE R10.06, 2.12. |
| 1.1.8 | Do the devices of the type have to be in operation during the engine start phase? | <input type="checkbox"/> yes
<input checked="" type="checkbox"/> no |
| 1.1.9 | Photo documentation of the examinee including existing labels | See test report of the enclosure. |

1.1.10 Remarks:

X	All the test modes and voltage were pre-scanned to determine the worst case and recorded in the test report.
---	--

1.2 Test equipment

Parameter of the test area:

The equipment, on which the tests were carried out, fulfilled the requirements of the Regulation.

2 Test Results

2.1	Test results in configurations <u>other</u> than „REESS charging mode coupled of the power grid	<input checked="" type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input type="checkbox"/> n.a.
	Remarks:	<input checked="" type="checkbox"/> n.a.
2.1.1	Measurement of <u>radiated broadband</u> electromagnetic emissions from electrical/ electronic subassemblies according to item 6.5 of the Regulation:	<input checked="" type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input type="checkbox"/> n.a.
2.1.1.1	Measurement procedure:	Quasi-peak-detector
2.1.1.2	Measurement setup:	Anechoic chamber
2.1.1.3	Measurement results:	The measured values, expressed in dB µV/m, are below the reference limits. See test report of the enclosure
2.1.1.4	Photo documentation of the measurement setup (if applicable):	See test report of the enclosure.
2.1.1.5	Remarks:	<input checked="" type="checkbox"/> n.a.
2.1.2	Measurement of <u>radiated narrowband</u> electromagnetic emissions from electrical/ electronic subassemblies according to item 6.6 of the Regulation:	<input checked="" type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input type="checkbox"/> n.a.
2.1.2.1	Measurement procedure:	Average-detector
2.1.2.2	Measurement setup:	Anechoic chamber
2.1.2.3	Measurement results:	The measured values, expressed in dB µV/m, are below the reference limits. See test report of the enclosure.
2.1.2.4	Photo documentation of the measurement setup (if applicable):	See test report of the enclosure.
2.1.2.5	Remarks:	<input checked="" type="checkbox"/> n.a.

2.1.3	Testing for <u>emission of transient conducted disturbances</u> of electrical/electronic subassemblies on 12/24/48 V supply lines according to item 6.7 of the Regulation:	<input checked="" type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input type="checkbox"/> n.a.
2.1.3.1	Test results:	The limits are kept. See test report of the enclosure.
2.1.3.2	Photo documentation of the measurement setup (if applicable):	See test report of the enclosure.
2.1.3.3	Remarks:	<input checked="" type="checkbox"/> n.a. <input type="checkbox"/> See below table.
2.1.4	Testing for <u>radiated immunity</u> of electrical/electronic subassemblies to electromagnetic radiation according to item 6.8 of the Regulation:	<input type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input checked="" type="checkbox"/> n.a.
2.1.4.1	Test procedure:	<input checked="" type="checkbox"/> n.a.
2.1.4.2	Test setup:	<input checked="" type="checkbox"/> n.a.
2.1.4.3	Test results:	<input checked="" type="checkbox"/> n.a.
2.1.4.4	Photo documentation of the measurement setup (if applicable):	<input checked="" type="checkbox"/> n.a.
2.1.4.5	Remarks:	<input type="checkbox"/> n.a. ESA not safety-related according to item 2.12 of the Regulation.
2.1.5	Testing for <u>immunity to transient disturbances</u> conducted along on 12/24 V supply lines of electrical/electronic subassemblies according to item 6.9 of the Regulation:	<input checked="" type="checkbox"/> fulfilled <input type="checkbox"/> not fulfilled <input type="checkbox"/> n.a.
2.1.5.1	Test results:	During the test was no unacceptable degradation. See test report of the enclosure.
2.1.5.2	Photo documentation of the measurement setup (if applicable):	See test report of the enclosure.
2.1.5.3	Remarks:	<input checked="" type="checkbox"/> n.a.

2.2 Test results in configurations „REESS charging mode coupled of the power grid: fulfilled
 not fulfilled
 n.a.

Remarks: n.a.

Test component not related to REESS



3 Other Information

3.1 Date of test: 2023-09-20 to 2023-09-21

3.2 Place of test: SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Room 105, Building A, Xinlong Technology Industrial Park, No. 50 Fengtang Road, Xintian Community, Fuyong Street, Bao'an District, Shenzhen, China

4 **Remarks:** n.a.



List of modifications:

- | | | |
|---|------------------|------|
| 1 | Correction of: | n.a. |
| 2 | Modification of: | n.a. |
| 3 | Addition of: | n.a. |
| 4 | Deletion of: | n.a. |

- End of Technical Report -

TEST REPORT

Application No.: SZEM2309006220AU
Applicant: Jianguo Sanjo Intelligent Technology Co., Ltd.
Address of Applicant: No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China
Manufacturer: Jianguo Sanjo Intelligent Technology Co., Ltd
Address of Manufacturer: No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China
Factory: Jianguo Sanjo Intelligent Technology Co., Ltd
Address of Factory: No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China
Equipment Under Test (EUT):
EUT Name: Ventilator
Model No.: 3J-PF, PLUS FAN ♣
♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: 3J
Standard(s) : ECE R10.06 supplement 02
Date of Receipt: 2023-09-19
Date of Test: 2023-09-20 to 2023-09-21
Date of Issue: 2023-09-22

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2023-09-22		Original

Authorized for issue by:			
		<i>Powell Bao</i>	
		_____ Powell Bao/Project Engineer	
		<i>Eric Fu</i>	
		_____ Eric Fu/Reviewer	



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Shenzhen Branch Testing & Calibration Laboratory

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2 Test Summary

Emission Part				
Item	Standard	Method	Requirement	Result
Radiated Emission(30MHz-1GHz)	ECE R10.06 supplement 02	CISPR 25:2002	Clause 6.5 & 6.6 of R10-06	Pass
Conducted transient disturbances		ISO 7637-2:2004	Clause 6.7 of R10-06	Pass

Immunity Part				
Item	Standard	Method	Requirement	Result
Conducted transient immunity	ECE R10.06 supplement 02	ISO 7637-2:2004	Clause 6.9 of R10-06	Pass

Declaration of EUT Family Grouping:

Model No.: 3J-PF, PLUS FAN

Only the model 3J-PF was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on installation size:



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Shenzhen Branch Testing & ETC Laboratory

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC12V, Remote Controller DC3V (2 x DC1.5V “AAA” batteries)
Test Voltage:	DC 13.5V

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emission(30MHz-1GHz)	±4.5dB
Conducted transient immunity	±5%

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{cispr/ETSI}$ (CISPR/ETSI Uncertainty), so the test results

– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;

– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

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

Room 105, Building A, Xinlong Technology Industrial Park, No. 50 Fengtang Road, Xintian Community, Fuyong Street, Bao'an District, Shenzhen, China

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: Monitored the fan work status of EUT



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5 Equipment List

Radiated Emission(30MHz-1GHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
764 Anechoic Chamber	CRT	N/A	SEM001-12	2022-10-15	2025-10-14
Measurement Software	Rohde & Schwarz	EMC 32 V10.01.00	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM034-01	2023-05-15	2024-05-14
Biconical Antenna	Schwarzebeck	VHBB9124	SEM003-27	2022-10-16	2023-10-15
Log.-Per. Antenna	Schwarzebeck	VUSLP9111B	SEM003-28	2022-10-16	2023-10-15
Amplifier	Sonoma Instrument Co	310N	SEM005-03	2023-03-30	2024-03-29
EMI Test Receiver	Rohde & Schwarz	ESR	SEM004-03	2023-03-20	2024-03-19
LISN	Schwarzebeck	NNBM8124- 200	SEM007-20	2022-10-24	2023-10-23
LISN	Schwarzebeck	NNBM8124- 200	SEM007-21	2022-10-24	2023-10-23

Conducted transient disturbances					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Oscilloscope	Tektronix	MSO 4104	SEM022-02	2023-09-13	2024-09-12
Switch	EM TEST	BS 200B	SEM018-07	2023-09-14	2024-09-13
LISN	Schwarzebeck	NNBM8125	SEM007-18	2023-09-14	2024-09-13

Conducted transient immunity					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Automotive Transient Test System	Noiseken	ISS 7600	SEM050-13	2023-04-07	2024-04-06
DC Power supply	Noiseken	BP4610	SEM050-15	2023-03-30	2024-03-29
Measurement Software	EM Test/AG	ISMISO for windows V4.21	N/A	N/A	N/A
Oscilloscope	Tektronix	MSO 4104	SEM022-02	2023-09-13	2024-09-12

General used equipment					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	deli	8838	SEM002-48	2023-07-28	2024-07-27
Humidity/ Temperature Indicator	deli	8838	SEM002-49	2023-07-28	2024-07-27
Barometer	DUMAI	DYM3	SEM002-24	2023-07-28	2024-07-27



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6 Emission Test Results

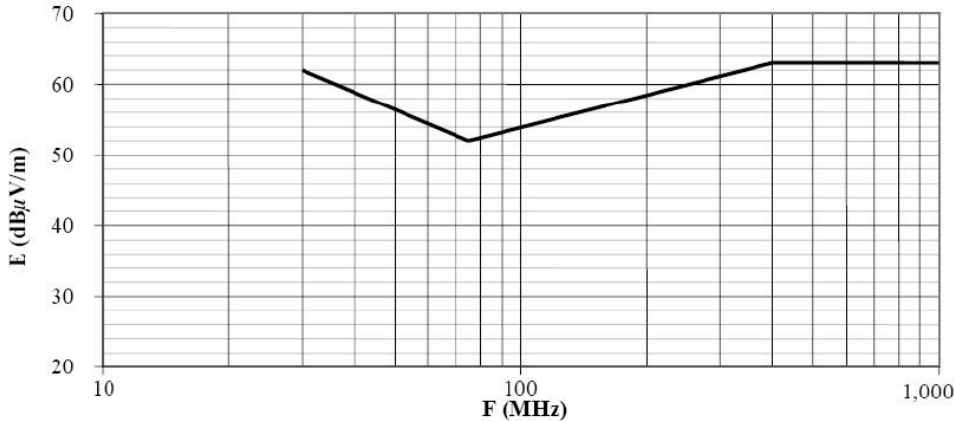
6.1 Radiated Emission(30MHz-1GHz)

Test Requirement: ECE R10.06
 Test Method: CISPR 25:2002
 Test Distance: 1m

Limit:

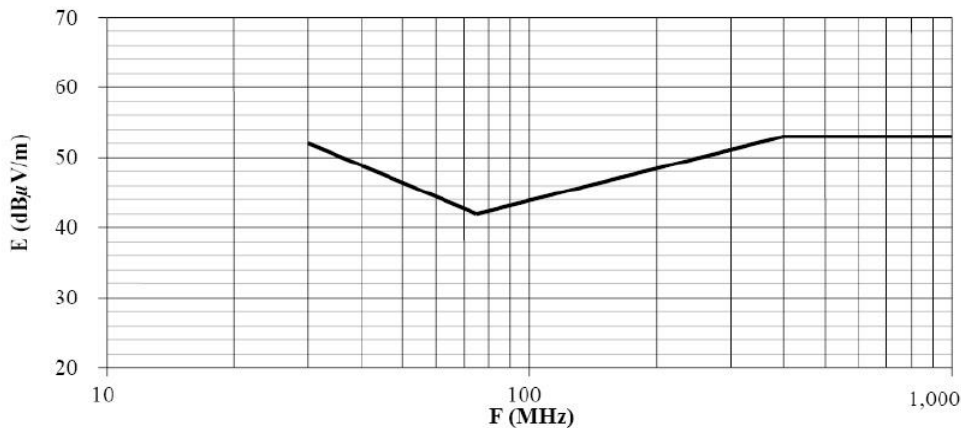
Radiated Emission (Broadband Type) Limit for ESA

Limit E (dBμV/m) at Frequency F (MHz)		
30-75MHz	75-400MHz	400-1,000MHz
$E = 62 - 25.13 \log (F/30)$	$E = 52 + 15.13 \log (F/75)$	$E = 63$



Radiated Emission (Narrowband Type) Limit for ESA

Limit E (dBμV/m) at Frequency F (MHz)		
30-75MHz	75-400MHz	400-1,000MHz
$E = 52 - 25.13 \log (F/30)$	$E = 42 + 15.13 \log (F/75)$	$E = 53$



6.1.1 E.U.T. Operation

Operating Environment:

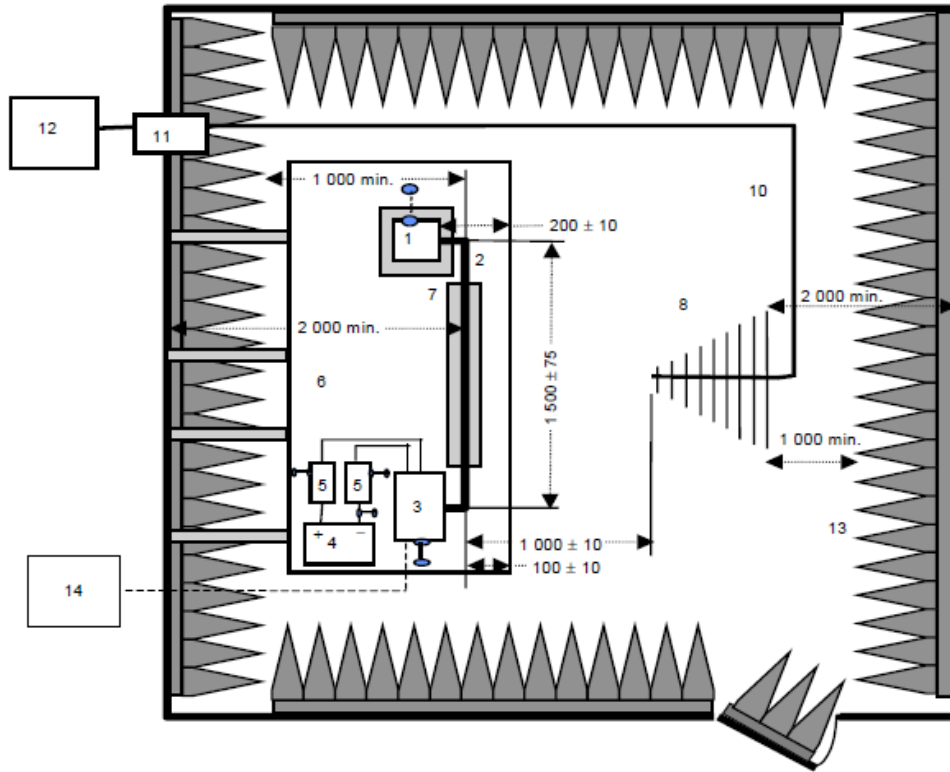
Temperature: 22.3 °C Humidity: 55.0 % RH Atmospheric Pressure: 1000 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	DC 13.5V Power Supply_Keep EUT working normally



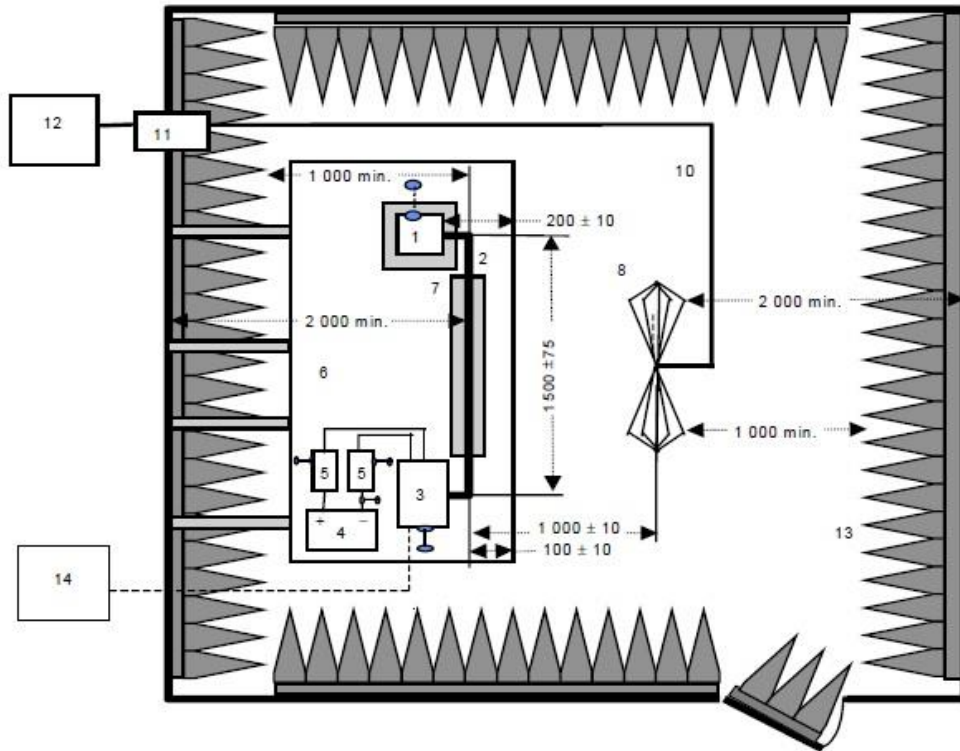
6.1.3 Test Setup Diagram



Key

1. EUT (grounded locally if required in test plan)	8. Log-periodic antenna
2. Test harness	10. High-quality coaxial cable
3. Load simulator	11. Bulkhead connector
4. Power supply (location optional)	12. Measuring instrument
5. Artificial network (AN)	13. RF absorber material
6. Ground plane (bonded to shielded enclosure)	14. Stimulation and monitoring system
7. Low relative permittivity support	

Figure – Example of test set-up – Log-periodic antenna



Key

1. EUT (grounded locally if required in test plan)	8. Biconical antenna
2. Test harness	10. High-quality coaxial cable
3. Load simulator	11. Bulkhead connector
4. Power supply (location optional)	12. Measuring instrument
5. Artificial network (AN)	13. RF absorber material
6. Ground plane (bonded to shielded enclosure)	14. Stimulation and monitoring system
7. Low relative permittivity support	

Figure – Example of test set-up – Biconical antenna

6.1.4 Measurement Procedure and Data

Frequency Range:30MHz-1GHz



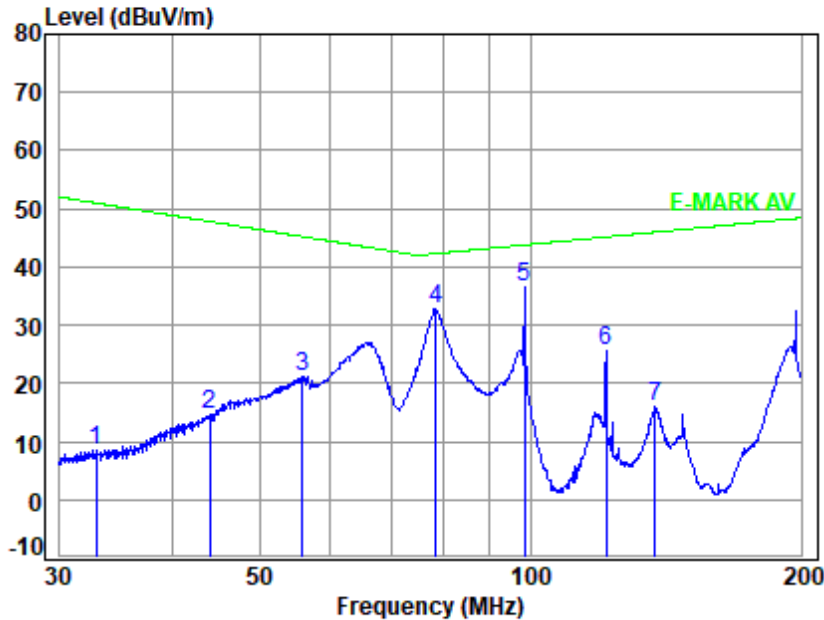
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30-200MHz, Detector: QP & AV
Mode 00: Polarization: Horizontal

Test Mode: 00



Condition: 1m Horizontal
Job No : 06220AU
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.9225	0.40	12.63	32.60	28.09	8.52	50.99	-42.47	Average
2	44.0099	0.45	12.23	32.60	34.73	14.81	47.82	-33.01	Average
3	55.7878	0.52	10.88	32.58	42.35	21.17	45.23	-24.06	Average
4	78.6442	0.65	9.83	32.53	54.85	32.80	42.31	-9.51	Average
5 pp	98.5626	0.76	10.53	32.50	57.75	36.54	43.80	-7.26	Average
6	121.4345	0.87	11.95	32.53	45.24	25.53	45.17	-19.64	Average
7	137.6322	0.93	13.42	32.55	34.12	15.92	45.99	-30.07	Average

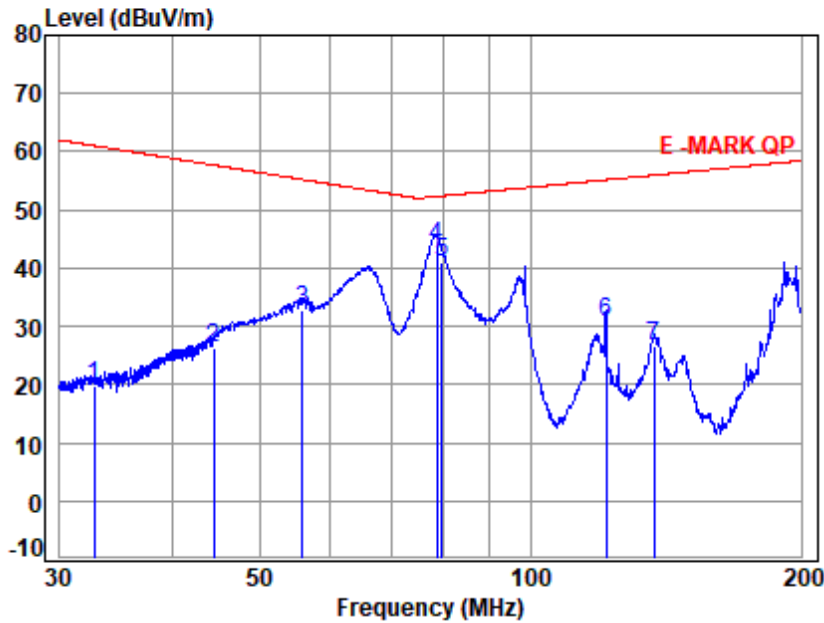


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Test Mode: 00



Condition: 1m Horizontal

Job No : 06220AU

Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	32.7978	0.40	12.63	32.60	39.49	19.92	61.03	-41.11	QP
2	44.5138	0.46	12.17	32.60	46.21	26.24	57.69	-31.45	QP
3	55.7878	0.52	10.88	32.58	54.04	32.86	55.23	-22.37	QP
4 pp	78.7936	0.65	9.82	32.53	65.83	43.77	52.32	-8.55	QP
5	79.8469	0.66	9.80	32.53	63.06	40.99	52.41	-11.42	QP
6	121.4345	0.87	11.95	32.53	50.38	30.67	55.17	-24.50	QP
7	137.3713	0.93	13.40	32.55	44.95	26.73	55.98	-29.25	QP



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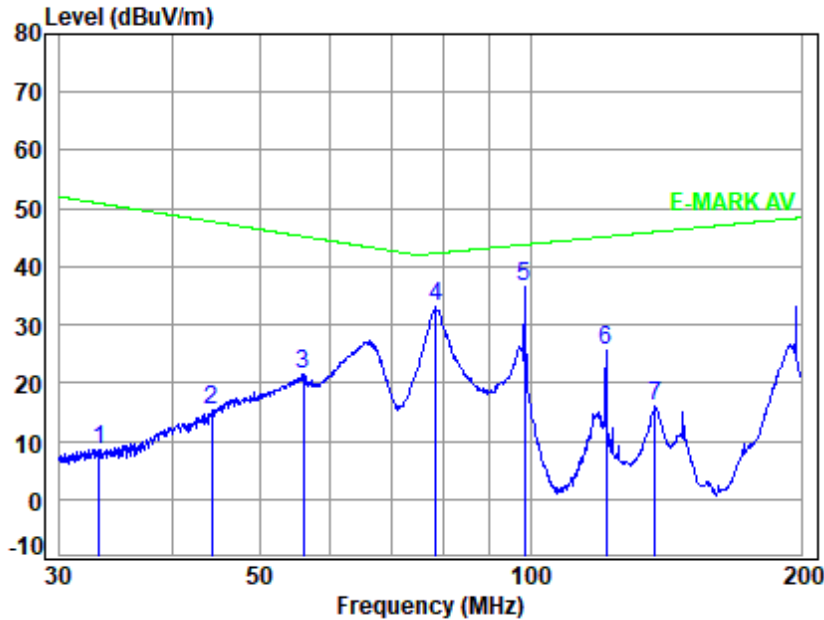
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30-200MHz, Detector: QP & AV

Mode 00: Polarization: Vertical

Test Mode: 00



Condition: 1m Vertical
Job No : 06220AU
Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	33.1733	0.40	12.63	32.60	28.16	8.59	50.90	-42.31	Average
2	44.2611	0.46	12.20	32.60	35.12	15.18	47.76	-32.58	Average
3	55.9999	0.53	10.85	32.58	42.63	21.43	45.19	-23.76	Average
4	78.6442	0.65	9.83	32.53	55.01	32.96	42.31	-9.35	Average
5 pp	98.5626	0.76	10.53	32.50	57.89	36.68	43.80	-7.12	Average
6	121.4345	0.87	11.95	32.53	45.20	25.49	45.17	-19.68	Average
7	137.6322	0.93	13.42	32.55	34.09	15.89	45.99	-30.10	Average

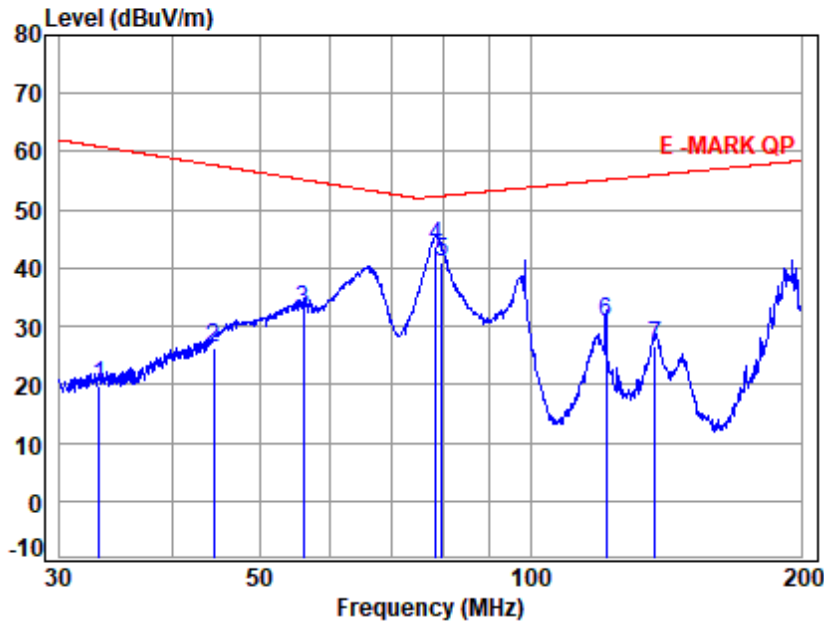


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Test Mode: 00



Condition: 1m Vertical

Job No : 06220AU

Mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	33.1733	0.40	12.63	32.60	39.42	19.85	60.90	-41.05	QP
2	44.5138	0.46	12.17	32.60	46.36	26.39	57.69	-31.30	QP
3	55.9999	0.53	10.85	32.58	54.06	32.86	55.19	-22.33	QP
4 pp	78.6442	0.65	9.83	32.53	65.82	43.77	52.31	-8.54	QP
5	79.8469	0.66	9.80	32.53	63.21	41.14	52.41	-11.27	QP
6	121.4345	0.87	11.95	32.53	50.57	30.86	55.17	-24.31	QP
7	137.6322	0.93	13.42	32.55	44.86	26.66	55.99	-29.33	QP



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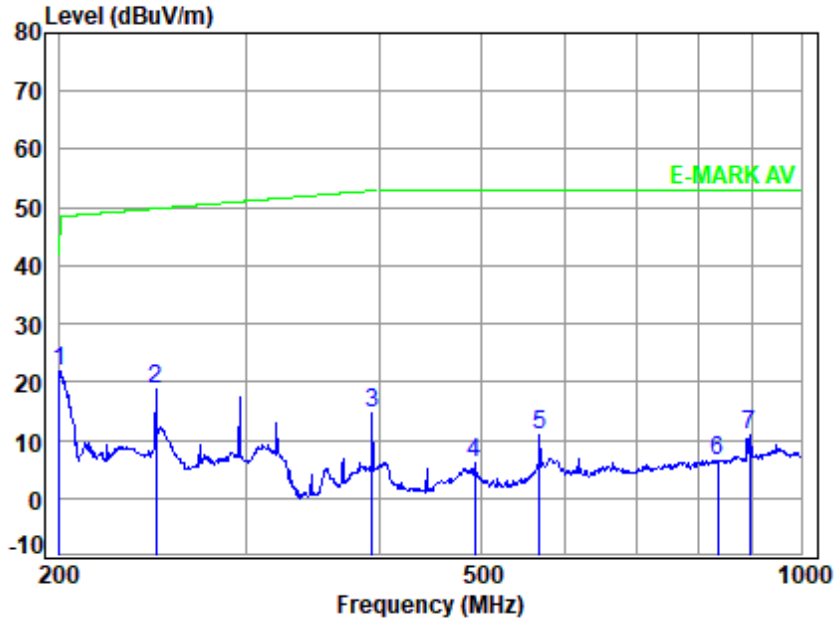
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200MHz-1GHz, Detector: QP & AV

Mode 00: Polarization: Horizontal

Test Mode: 00



Condition: 1m Horizontal

Job No : 06220AU

mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	200.0000	1.17	13.40	32.60	39.84	21.81	48.45	-26.64	Average
2	246.5449	1.33	12.46	32.55	37.63	18.87	49.82	-30.95	Average
3	394.4531	1.77	15.76	32.40	29.62	14.75	52.91	-38.16	Average
4	492.5533	2.01	16.80	32.40	19.68	6.09	53.00	-46.91	Average
5	566.5831	2.20	17.14	32.40	23.78	10.72	53.00	-42.28	Average
6	835.0555	2.79	19.71	31.98	15.93	6.45	53.00	-46.55	Average
7	894.8929	2.92	20.07	31.63	19.64	11.00	53.00	-42.00	Average

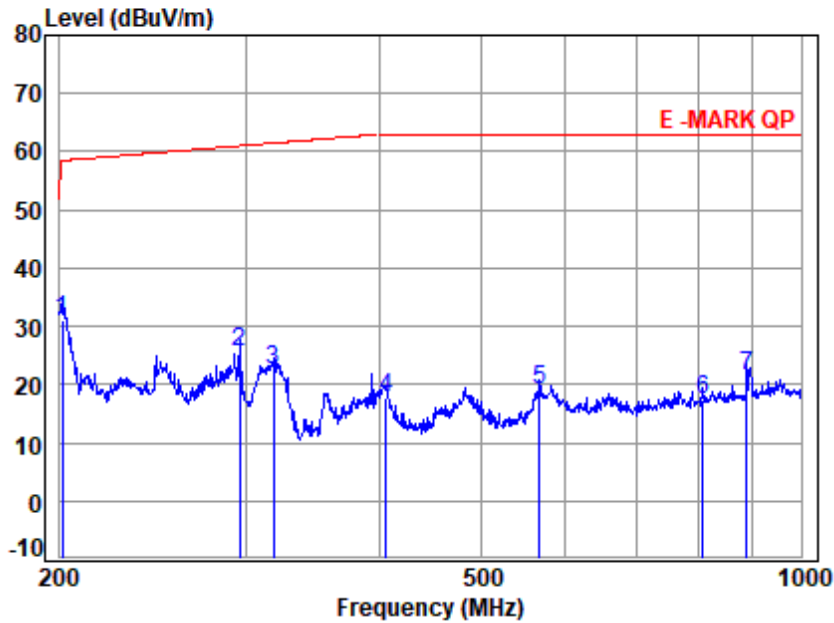


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Test Mode: 00



Condition: 1m Horizontal
Job No : 06220AU
mode : 00

	Cable	Ant	Preamp	Read	Limit	Over		
Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp 200.9680	1.17	13.38	32.60	49.25	31.20	58.48	-27.28	QP
2 295.7193	1.50	14.43	32.50	42.15	25.58	61.02	-35.44	QP
3 317.9314	1.56	14.60	32.48	38.85	22.53	61.49	-38.96	QP
4 406.0475	1.81	15.86	32.40	32.46	17.73	63.00	-45.27	QP
5 566.5831	2.20	17.14	32.40	31.98	18.92	63.00	-44.08	QP
6 808.6041	2.73	19.55	32.15	27.13	17.26	63.00	-45.74	QP
7 889.1503	2.91	20.04	31.66	30.26	21.55	63.00	-41.45	QP



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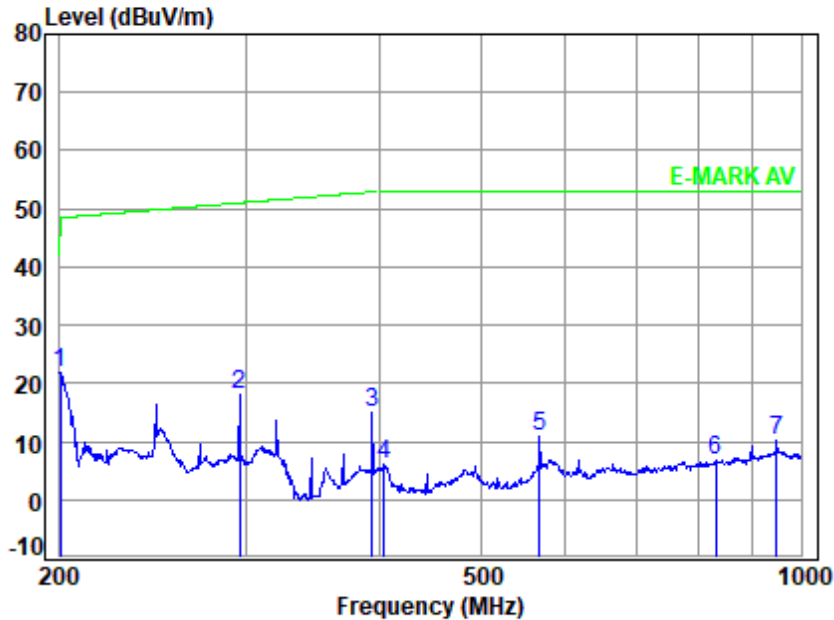
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200MHz-1GHz, Detector: QP & AV

Mode 00: Polarization: Vertical

Test Mode: 00



Condition: 1m Vertical
Job No : 06220AU
mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Over Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 200.3221	1.17	13.39	32.60	39.96	21.92	48.46	-26.54	Average
2	295.7193	1.50	14.43	32.50	34.78	18.21	51.02	-32.81	Average
3	394.4531	1.77	15.76	32.40	29.78	14.91	52.91	-38.00	Average
4	404.7426	1.80	15.87	32.40	20.88	6.15	53.00	-46.85	Average
5	566.5831	2.20	17.14	32.40	23.87	10.81	53.00	-42.19	Average
6	831.0333	2.79	19.69	32.01	16.26	6.73	53.00	-46.27	Average
7	948.2743	3.02	20.68	31.15	17.74	10.29	53.00	-42.71	Average

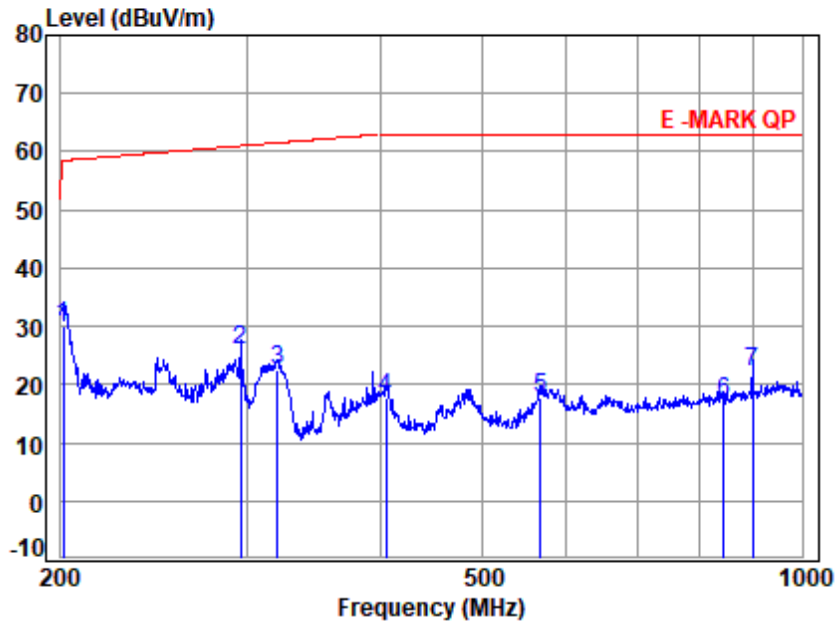


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Test Mode: 00



Condition: 1m Vertical
Job No : 06220AU
mode : 00

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp 201.2917	1.17	13.37	32.60	48.24	30.18	58.49	-28.31	QP
2	295.7193	1.50	14.43	32.50	42.38	25.81	61.02	-35.21	QP
3	320.5001	1.57	14.60	32.48	38.69	22.38	61.54	-39.16	QP
4	405.3945	1.80	15.87	32.40	32.62	17.89	63.00	-45.11	QP
5	566.5831	2.20	17.14	32.40	30.77	17.71	63.00	-45.29	QP
6	843.1584	2.81	19.76	31.93	26.27	16.91	63.00	-46.09	QP
7	897.7781	2.93	20.09	31.61	30.75	22.16	63.00	-40.84	QP



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6.2 Conducted transient disturbances

Test Requirement: ECE R10.06
Test Method: ISO 7637-2:2004

Limit:

Table – Limits of transient disturbances

Polarity of pulse amplitude	Maximum allowed pulse amplitude for	
	Vehicles 12V systems	Vehicles 24V systems
Positive	+75	+150
Negative	-100	-450

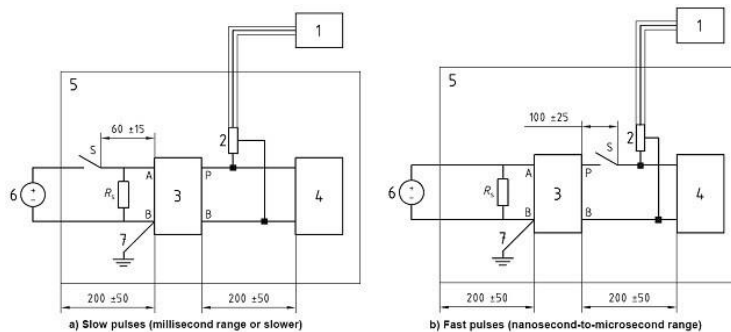
6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24.6 °C Humidity: 51.5 % RH Atmospheric Pressure: 1000 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	DC 13.5V Power Supply_Keep EUT working normally

6.2.3 Test Setup Diagram



Key	
1. oscilloscope	5. ground plane
2. voltage probe	6. power supply
3. artificial network	7. Ground connection; length 100 mm
4. EUT(source of transient)	



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6.2.4 Measurement Procedure and Data

For 12V system

Limit	Measured Value [V]			
	Slow pulse OFF→ON	Slow pulse ON→OFF	Fast pulse OFF→ON	Fast pulse ON→OFF
+75V	+0.5V	+0.9V	+0.7V	+0.3V
-100V	-13.9V	-14.1V	-13.9V	-14.3V

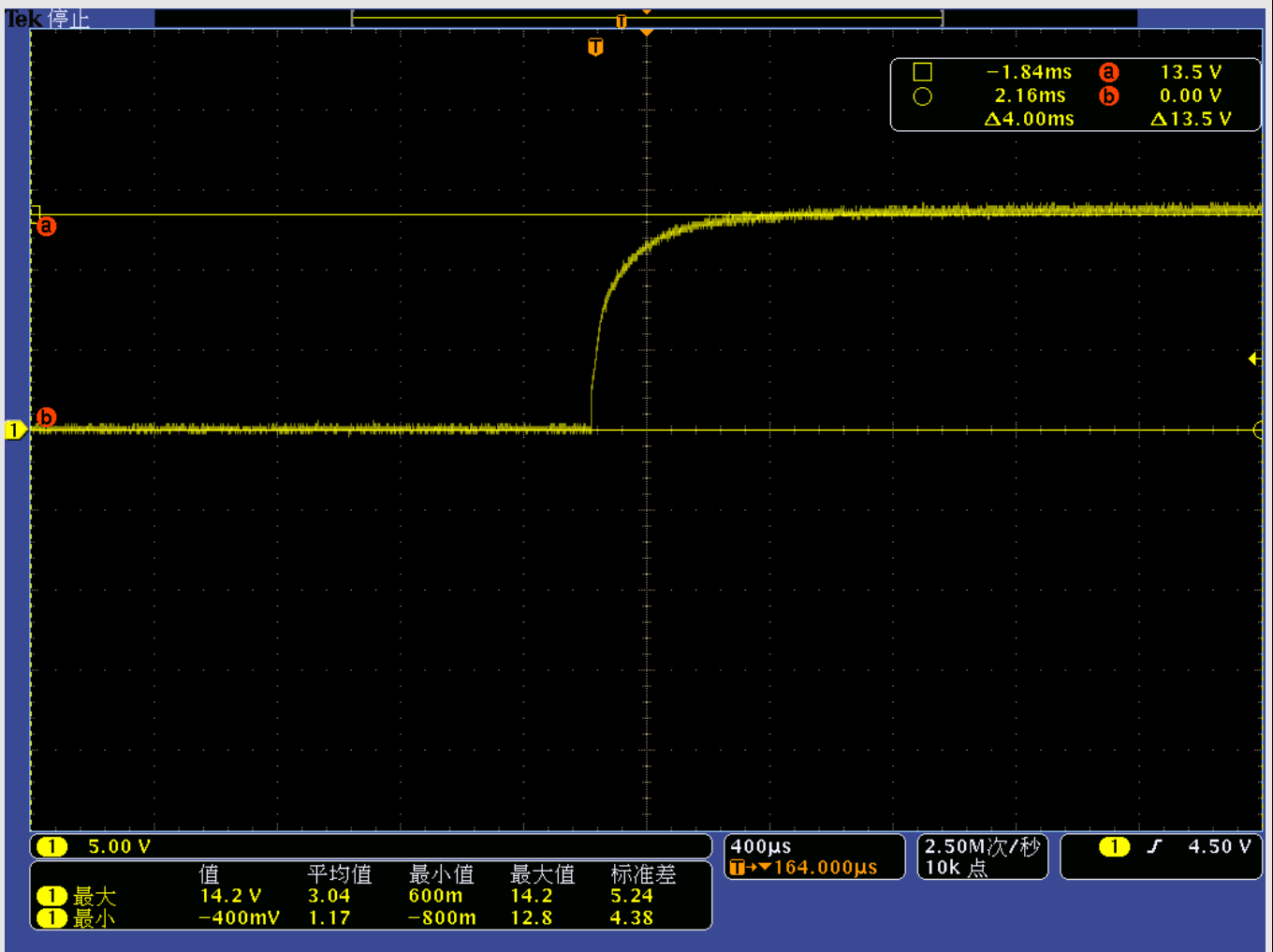


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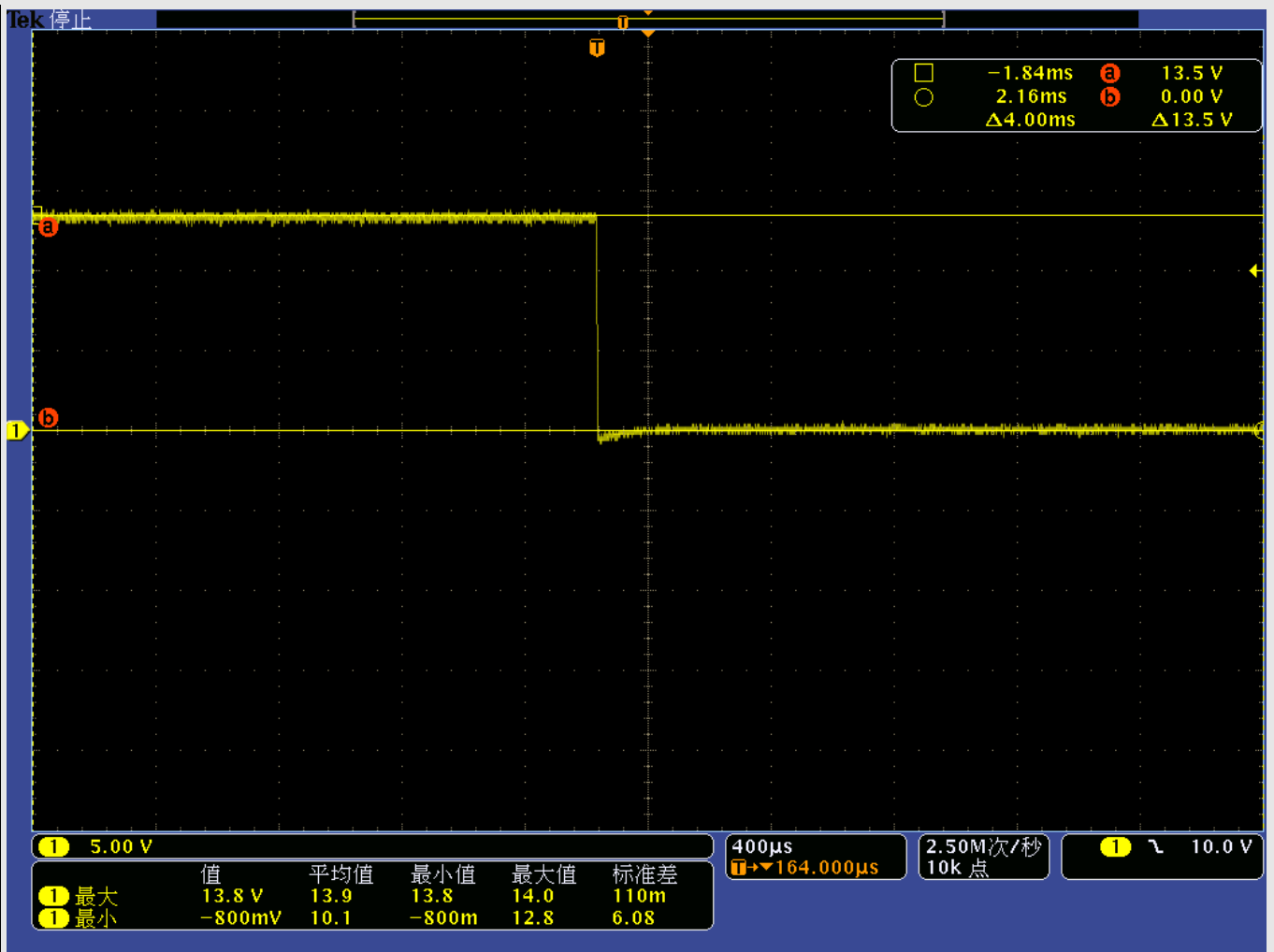
Mode 00					
Switch type	Pulse	Test Times	Off → On		
			Fast Pulses		
			Worst Reading	Limit	Result
Electronic switch	Positive	10	+0.7V	+75V	Pass
	Negative		-13.9V	-100V	Pass



maximum amplitude



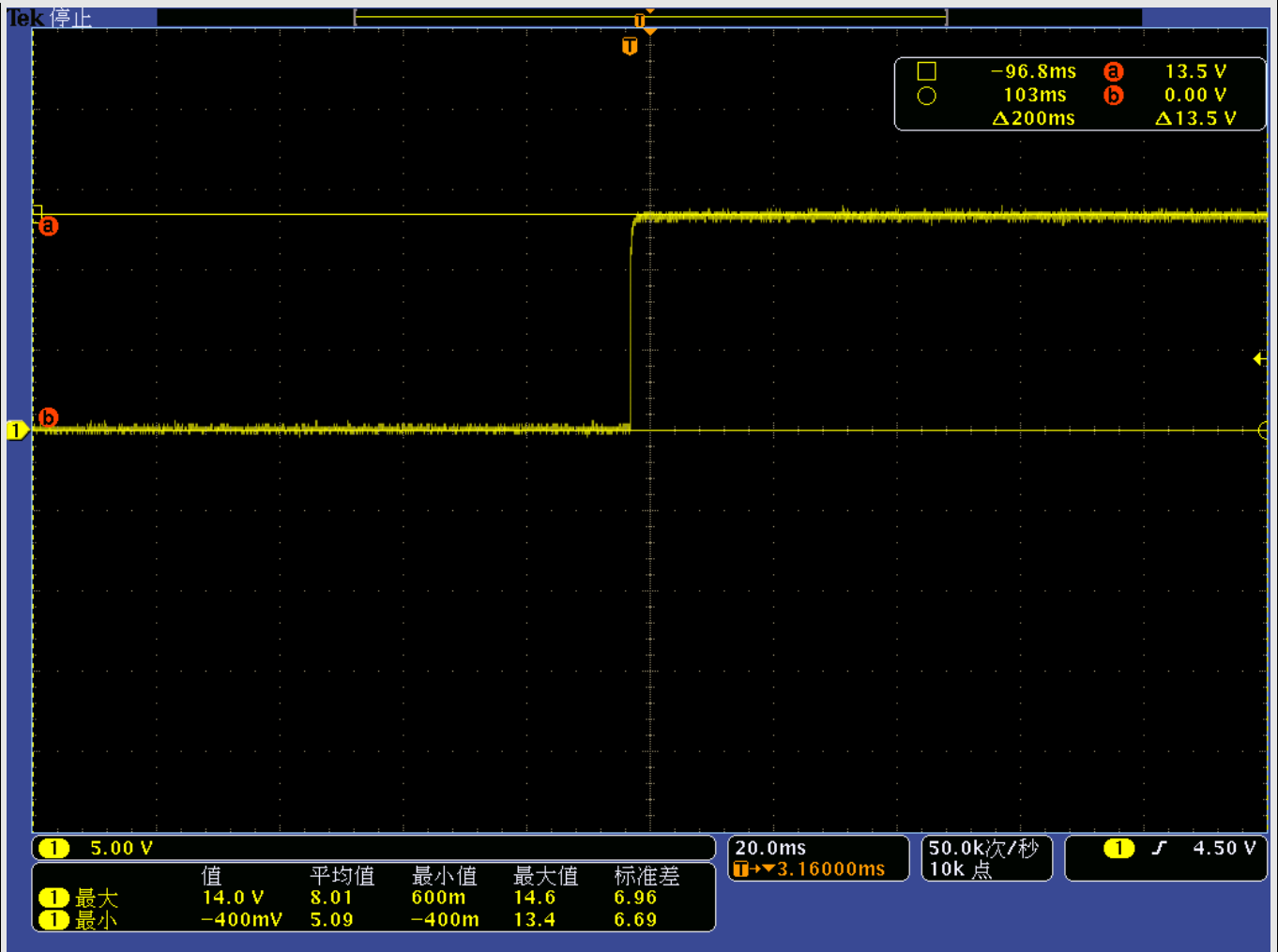
Mode 00					
Switch type	Pulse	Test Times	On → Off		
			Fast Pulses		
			Worst Reading	Limit	Result
Electronic switch	Positive	10	+0.3V	+75V	Pass
	Negative		-14.3V	-100V	Pass



maximum amplitude



Mode 00					
Switch type	Pulse	Test Times	Off → On		
			Slow Pulses		
			Worst Reading	Limit	Result
Electronic switch	Positive	10	+0.5V	+75V	Pass
	Negative		-13.9V	-100V	Pass



maximum amplitude

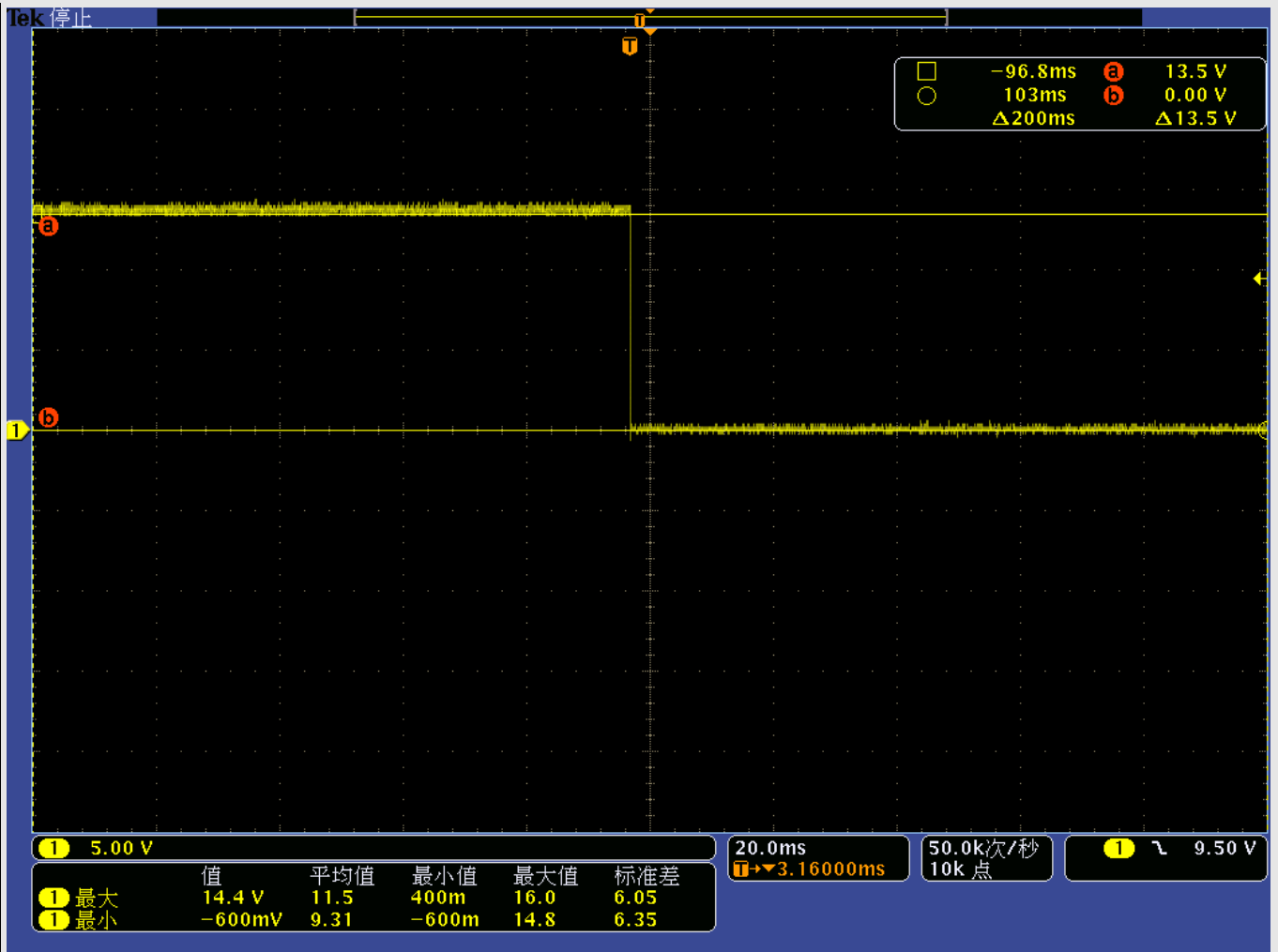


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Mode 00					
Switch type	Pulse	Test Times	On → Off		
			Slow Pulses		
			Worst Reading	Limit	Result
Electronic switch	Positive	10	+0.9V	+75V	Pass
	Negative		-14.1V	-100V	Pass



maximum amplitude



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7 Immunity Test Results

Performance Criteria Description in ECE R10-06, ISO 7637-2:2004, ISO 11452-2:2004 and ISO 11452-4:2011.

Criterion A	All functions of a device/system perform as designed during and after exposure to disturbance
Criterion B	All functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A
Criterion C	One or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed
Criterion D	One or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and the device/system is reset by simple "operator/use" action
Criterion E	One or more functions of a device/system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device/system

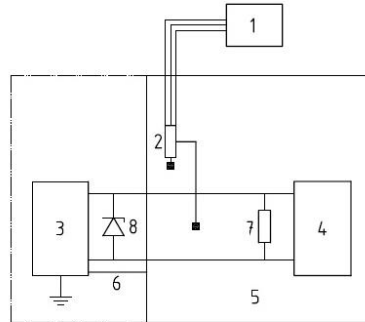


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7.1 Conducted transient immunity

Test Requirement: ECE R10.06
Test Method: ISO 7637-2:2004

7.1.1 Test Setup Diagram



Key

1	oscilloscope or equivalent	5	ground plane
2	voltage probe	6	Ground connection
3	test pulse generator with internal power supply resistance R_i	7	optional resistor (R_o) ^a
4	DUT	8	optional diode bridge ^b

7.1.2 E.U.T. Operation

Operating Environment:
Temperature: 24.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1000 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	DC 13.5V Power Supply_Keep EUT working normally

7.1.4 Test Condition and Results:

Test Pulse Number	Immunity Test Level	Min. number of pulses or test time	Performance Criterion required	Result / Observations
1	III (Us=-75V)	5000 pulses	D	C
2a	III (Us=+37V)	5000 pulses	D	A
2b	III (Us=+10V)	10 pulses	D	C
3a	III (Us=-112V)	1h	D	A
3b	III (Us=+75V)	1h	D	A
4	III (Us=-6V)	1 pulse	D	C

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

C: The EUT resets periodicity during the test and manual recovery after the test (comply with DUT logic setting requirements)



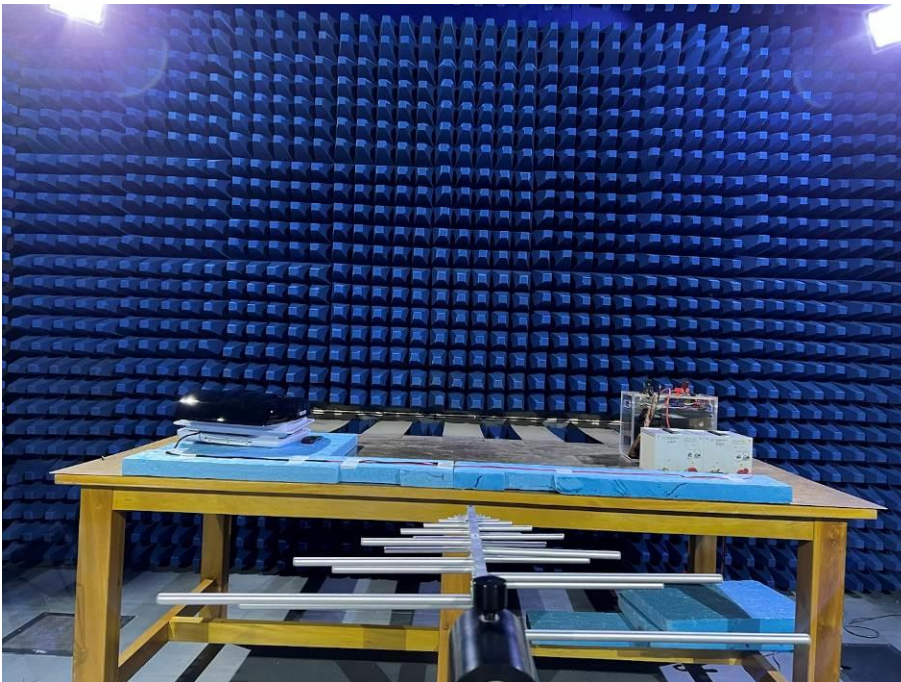
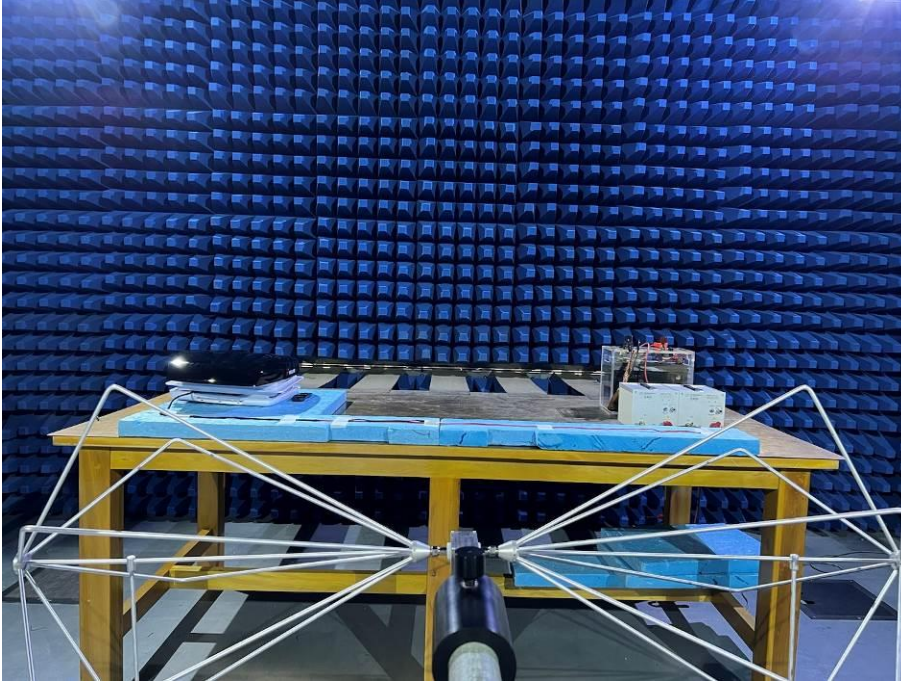
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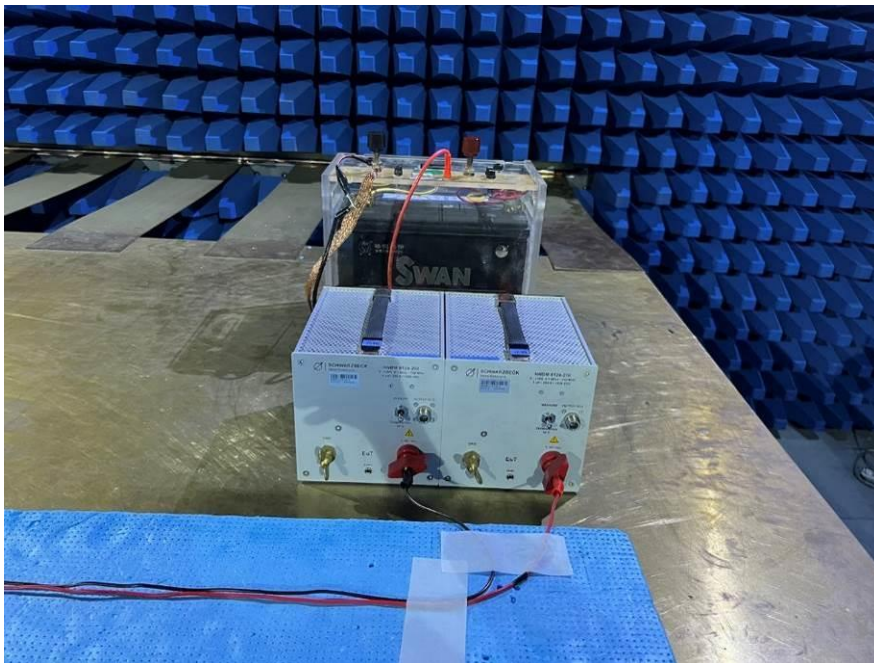
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Shenzhen Branch Testing & Calibration EEC Laboratory

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8 Test Setup Photo

Radiated Emission(30MHz-1GHz)





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Conducted transient disturbances



Conducted transient immunity



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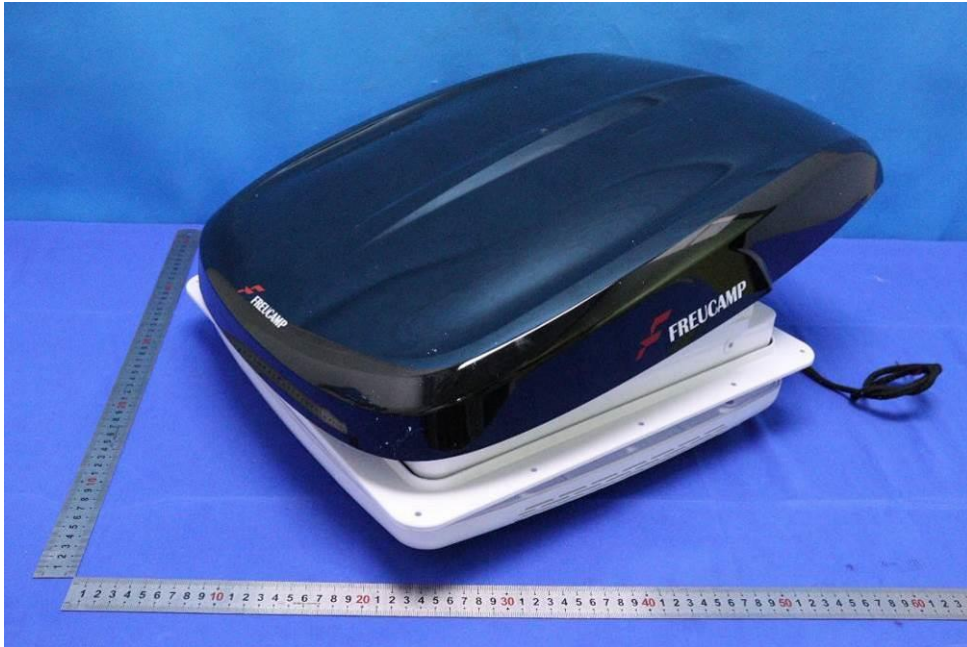
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9 EUT Construnctional Details (EUT Photos)

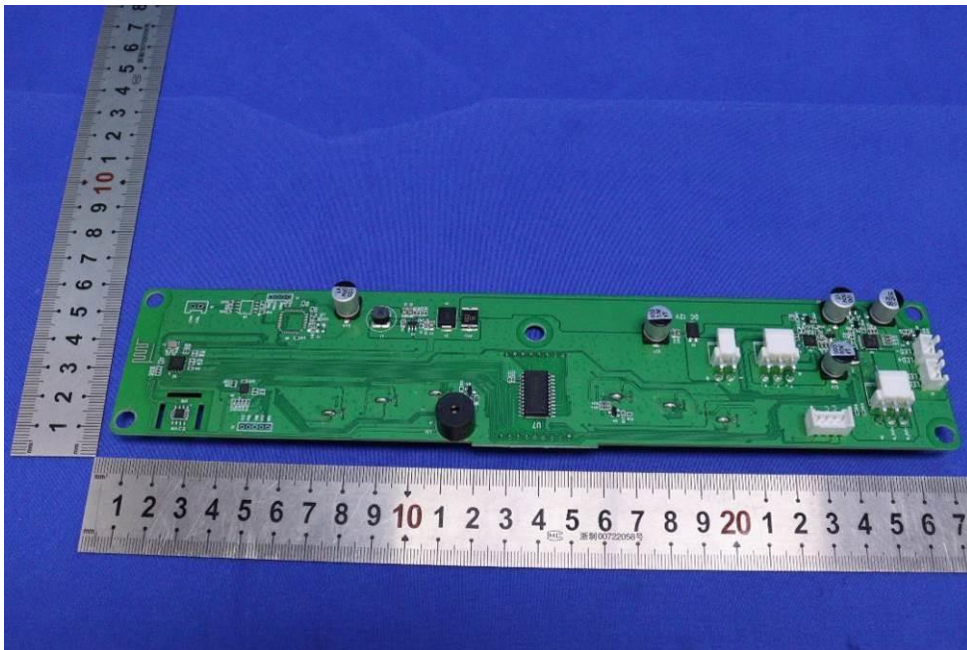
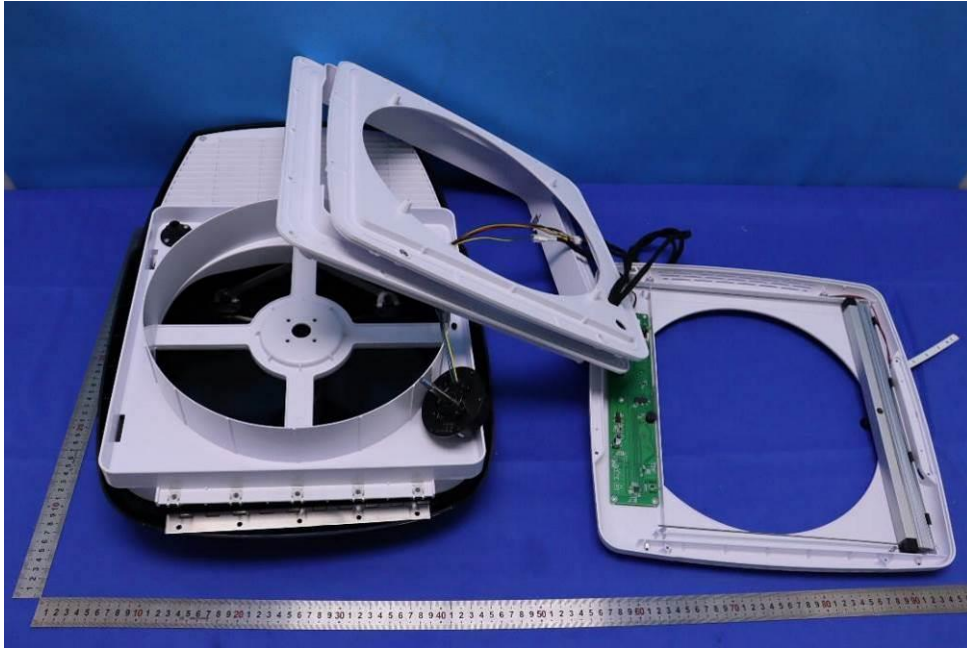


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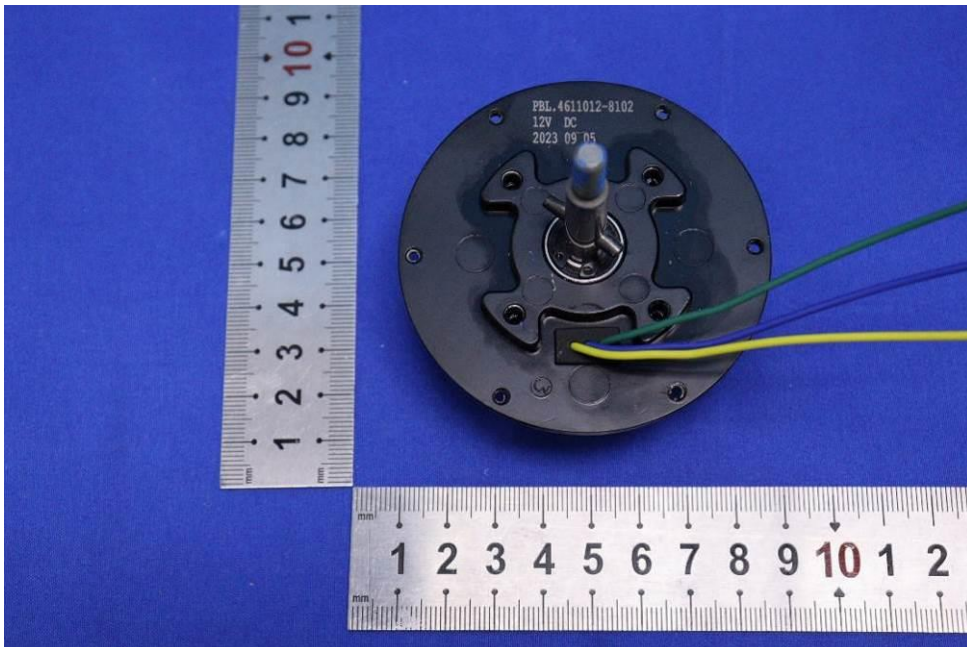
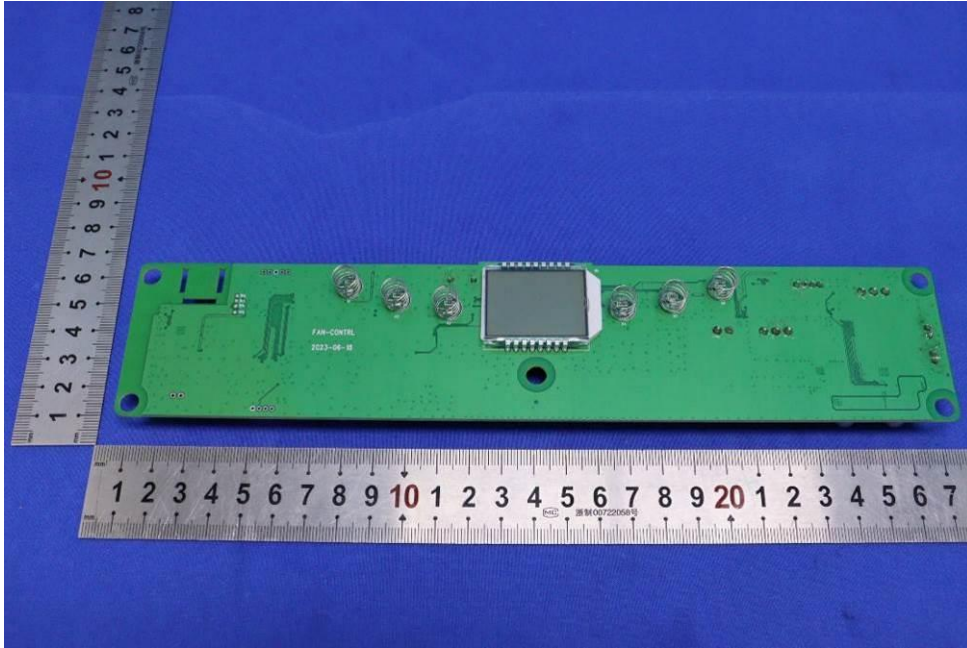
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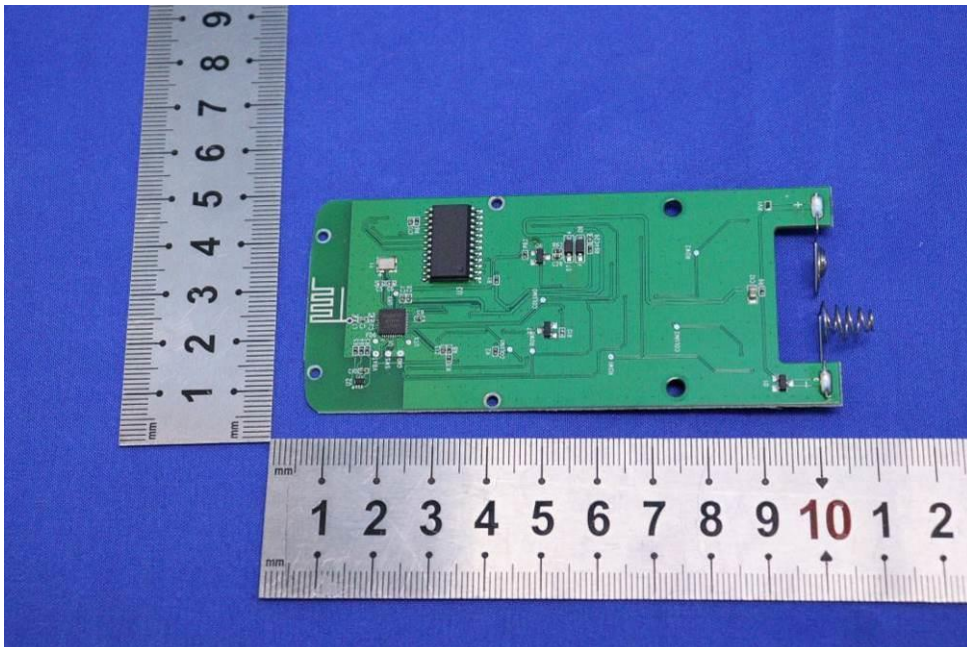
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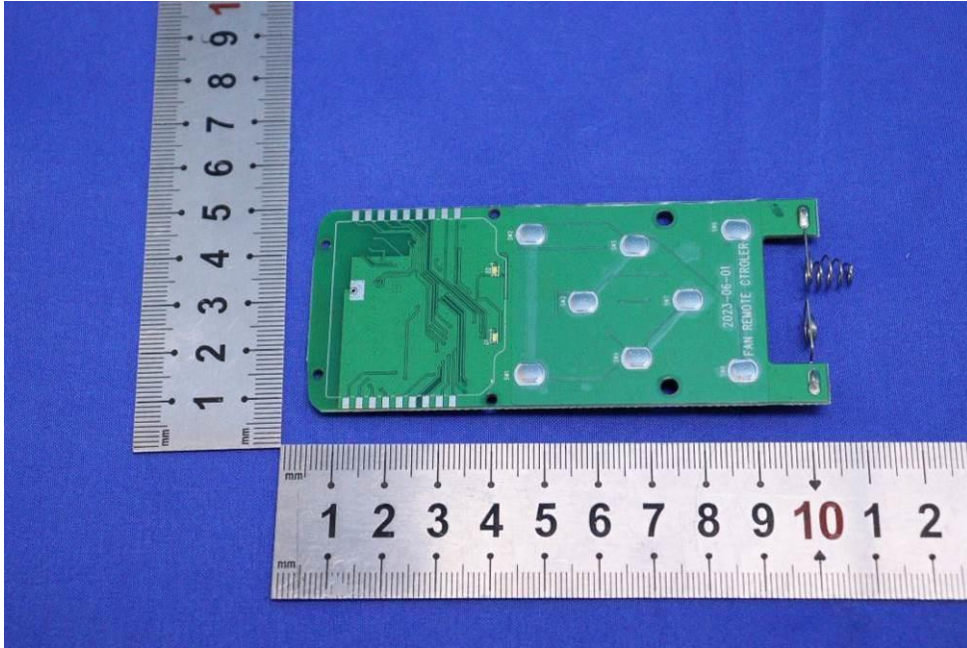
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- End of the Report -



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		Date: 26.09.2023
		Pages: Page 1 of 13

Application for Type Approval Pursuant
To ECE R10.06
Relating to Electromagnetic compatibility of an ESA

For: Jiangsu Sanjo Intelligent Technology Co., Ltd
Component: Ventilator
Type: 3J-PF
Place: No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China



Jiangsu Sanjo Intelligent
Technology Co., Ltd.

Type:3J-PF
Information document No.:
IF_3J-PF_R10.06_00

Date: 26.09.2023

Pages: Page 2 of 13

1.	Make (trade name of manufacturer)	3J
2.	Type	3J-PF
2.1.	Variant	3J-PF , PLUS FAN
3.	Means of identification of type, if marked on the component/separate technical unit	Type Designation
3.1.	Location of that marking	On the left of the rail situated at the back of mounting frame
4.	Name and address of manufacturer	Jiangsu Sanjo Intelligent Technology Co., Ltd No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China
	Name and address of authorized representative, if any	n.a
5.	In the case of components and separate technical units, location and method of affixing of the approval mark	adhesive label on the left of the rail situated at the back of mounting frame
6.	Address (es) of assembly plant(s)	Jiangsu Sanjo Intelligent Technology Co., Ltd No. 8, Jinguazi Road, Nandu Town, Liyang City, Jiangsu Province, China
7.	This ESA shall be approved as a	Component
8.	Any restrictions of use and conditions for fitting	n.a
9.	Electrical system rated voltage	DC12V negative ground, Remote Controller DC3V (2 x DC1.5V "AAA" batteries)
10.	Charger: on board/external	n.a.
11.	Charging current: direct current/alternating current (number of phases/frequency)	n.a.

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		Date: 26.09.2023
		Pages: Page 3 of 13

- | | | |
|-----|---|------|
| 12. | Maximal nominal current (in each mode if necessary) | n.a. |
| 13. | Nominal charging voltage | n.a. |
| 14. | Basic ESA interface functions: | n.a. |
| 15. | Minimum Rsce value (see paragraph 7.11. of this Regulation) | n.a. |

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Attachment 2: Dimensional drawing -----	6
Attachment 3: Photo of the PCB -----	8
Attachment 4: Electric Circuit Diagram -----	10
Attachment 5: Bill of Materials -----	12

This information document consists of pages 4 to 13 including Appendix and Attachments

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		Date: 26.09.2023
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Appendix 1: Description of the ESA

1. Input range : DC12V
Remote Controller DC3V (2 x DC1.5V “AAA” batteries)
2. Consumption power : MAX 24W
3. Resource of X-tal or oscillator : n.a.
4. Main dimensions : 593mm*420mm*127mm
Remote controller: 156.74mm*
57mm*27.24mm
5. Description/Manual:

The product is an exhaust fan and installed on the RV roof.

Performance Parameters	
Opening size	355mm×355mm
Thickness of mounting wall	27-80mm
Power	Full load power: 20W+4W (max. wind speed and full lighting)
Voltage	Normal voltage: 12V, working voltage: 9-16V (PLUS FAN does not work when the voltage is smaller than 9V or greater than 16V)
Current	Gear 4 by default: ≤0.25A, full-load maximum current ≤1.6A, locked-rotor maximum current ≤2.0A
Working noise	Air outlet noise of Gear 4 by default of PLUS FAN ≤ 29dB, air inlet noise ≤32dB;
	Air outlet noise of Gear 10 ≤47dB, air inlet noise ≤53dB;
Max. ventilation	Max. ventilation: 3,000 m³/min
IP rating	IP rating: IPX4
Temperature adjustment in AUTO mode	Default temperature of control panel: 26°C (non-adjustable); range of adjustable temperature in remote control: -2°C~40°C

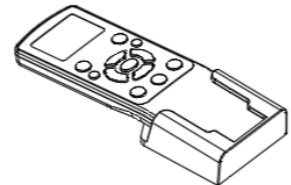
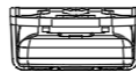
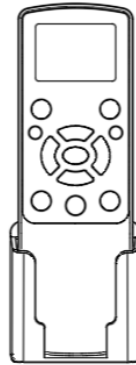
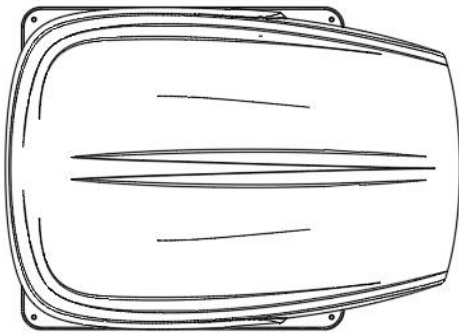
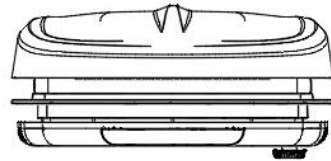
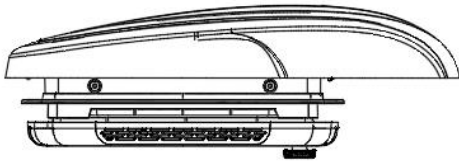
Declaration of EUT Family Grouping:

Model No.: 3J-PF, PLUS FAN

Only the model 3J-PF was tested, since according to the declaration from the applicant, the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on installation size

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Attachment 1: Photo of the ESA





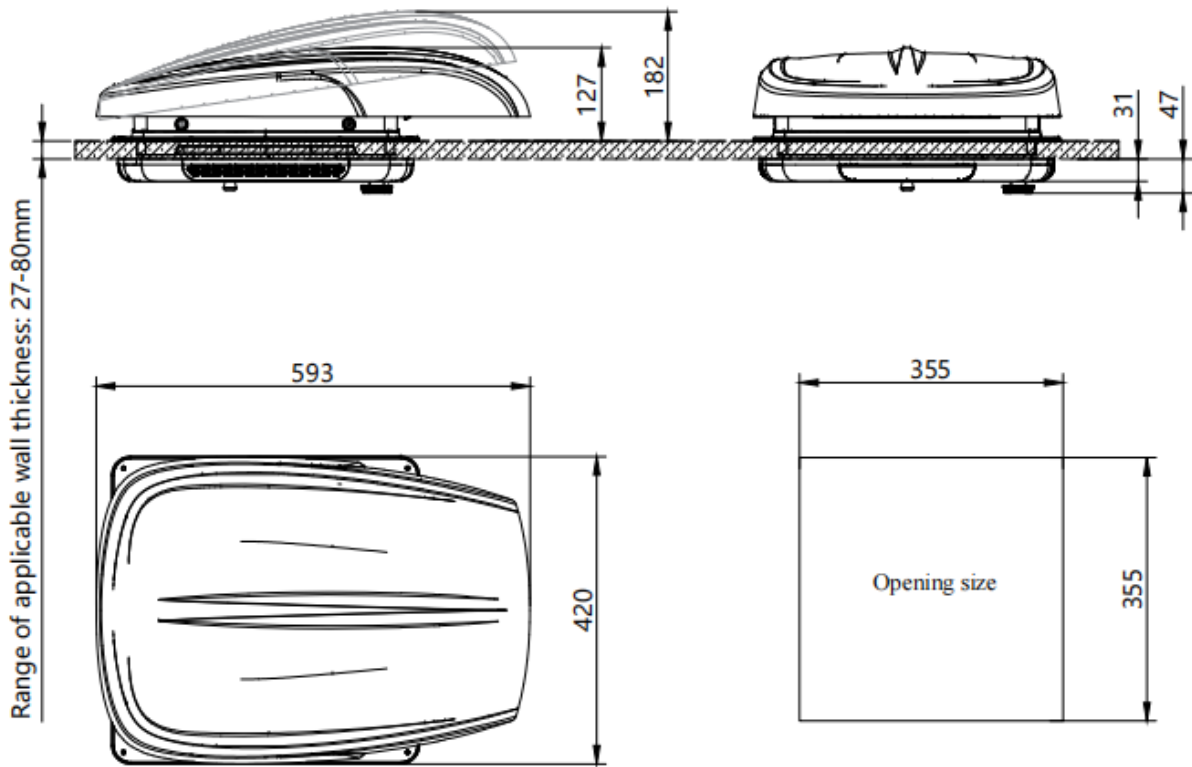
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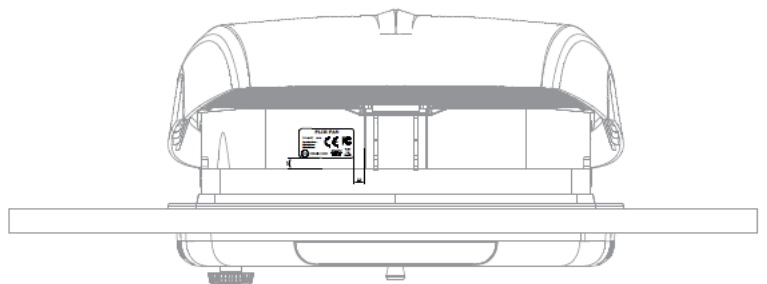
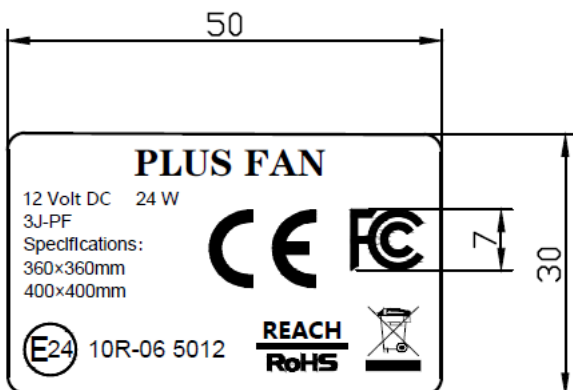
Date: 26.09.2023

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Attachment 2: Dimensional drawing



Unit:mm



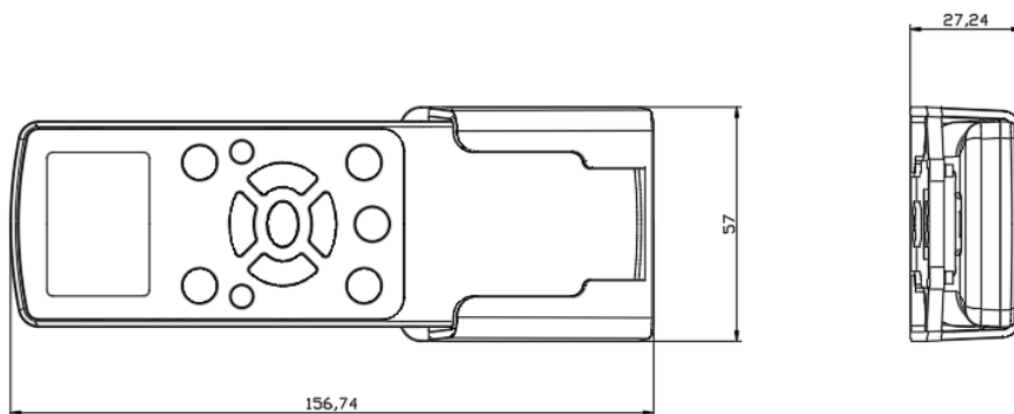
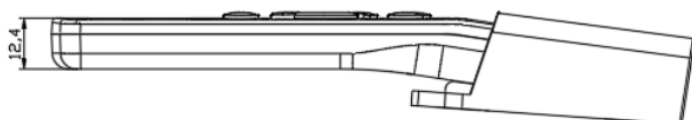


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Unit: mm



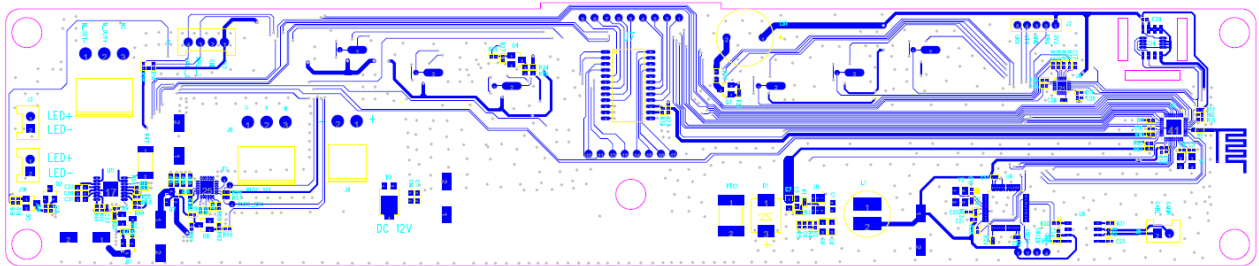
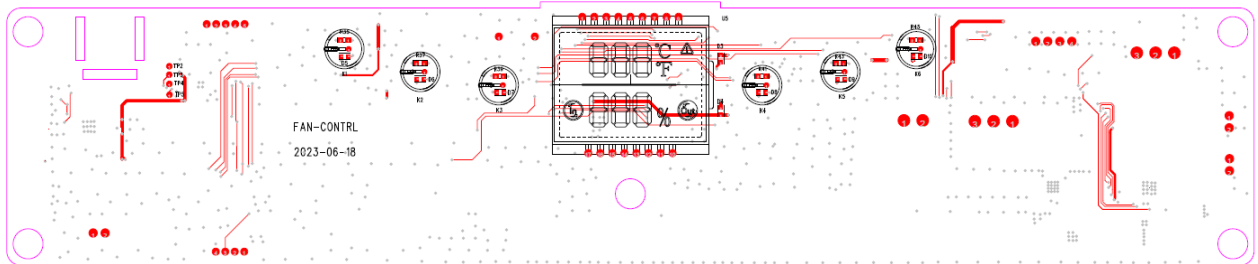
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Attachment 3: Photo of the PCB



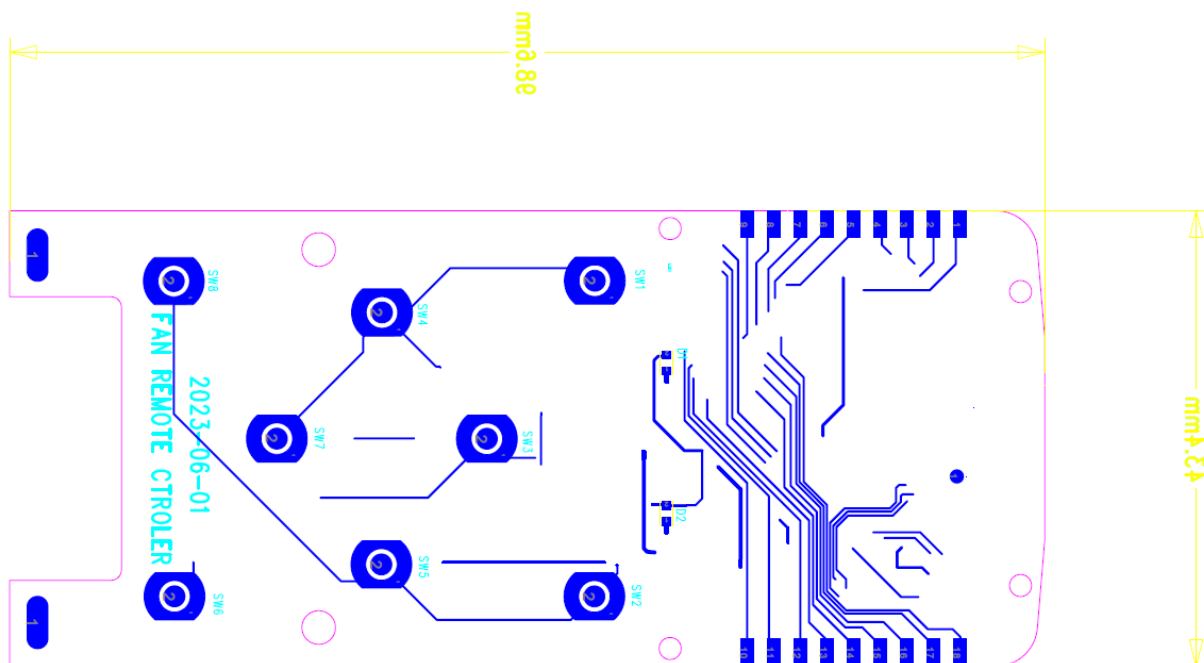
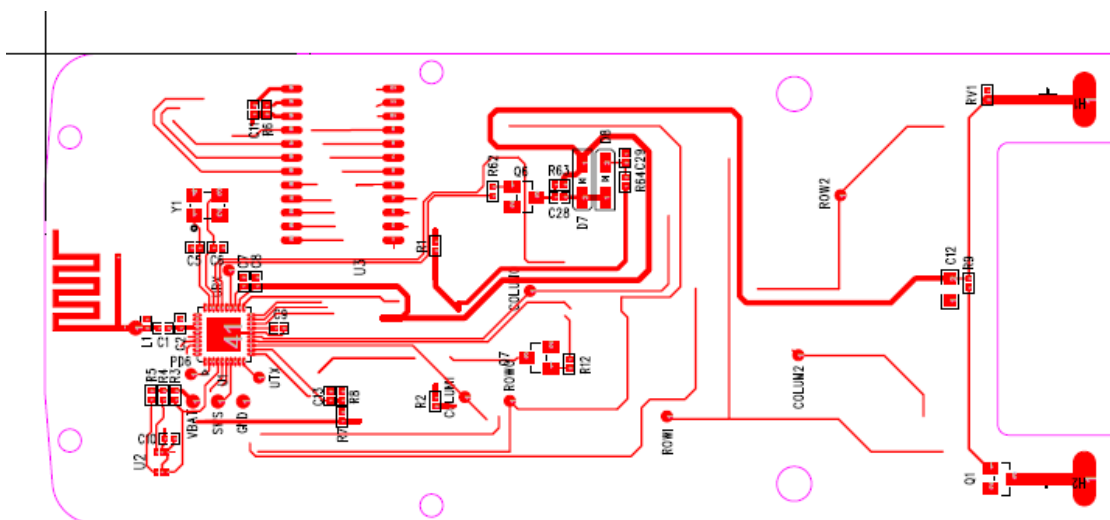


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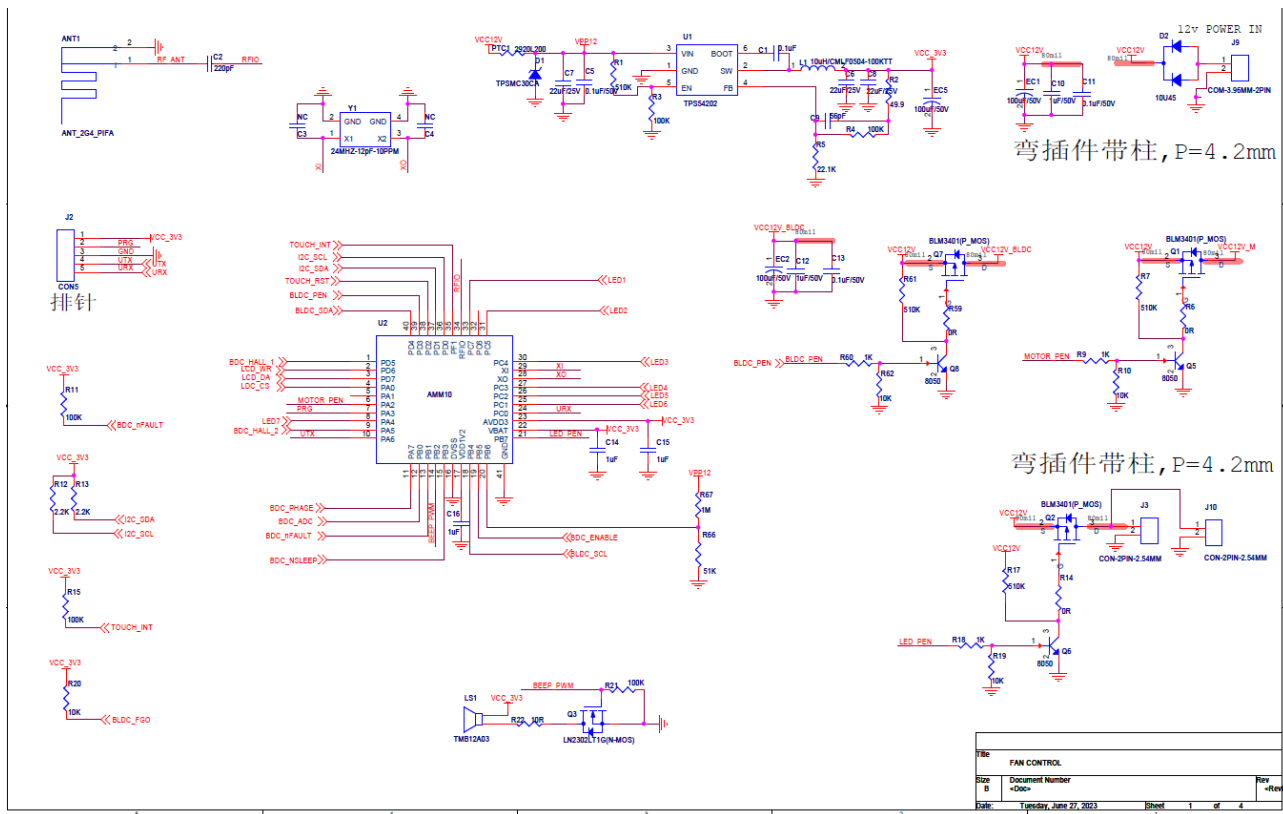
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Attachment 4: Electric Circuit Diagram



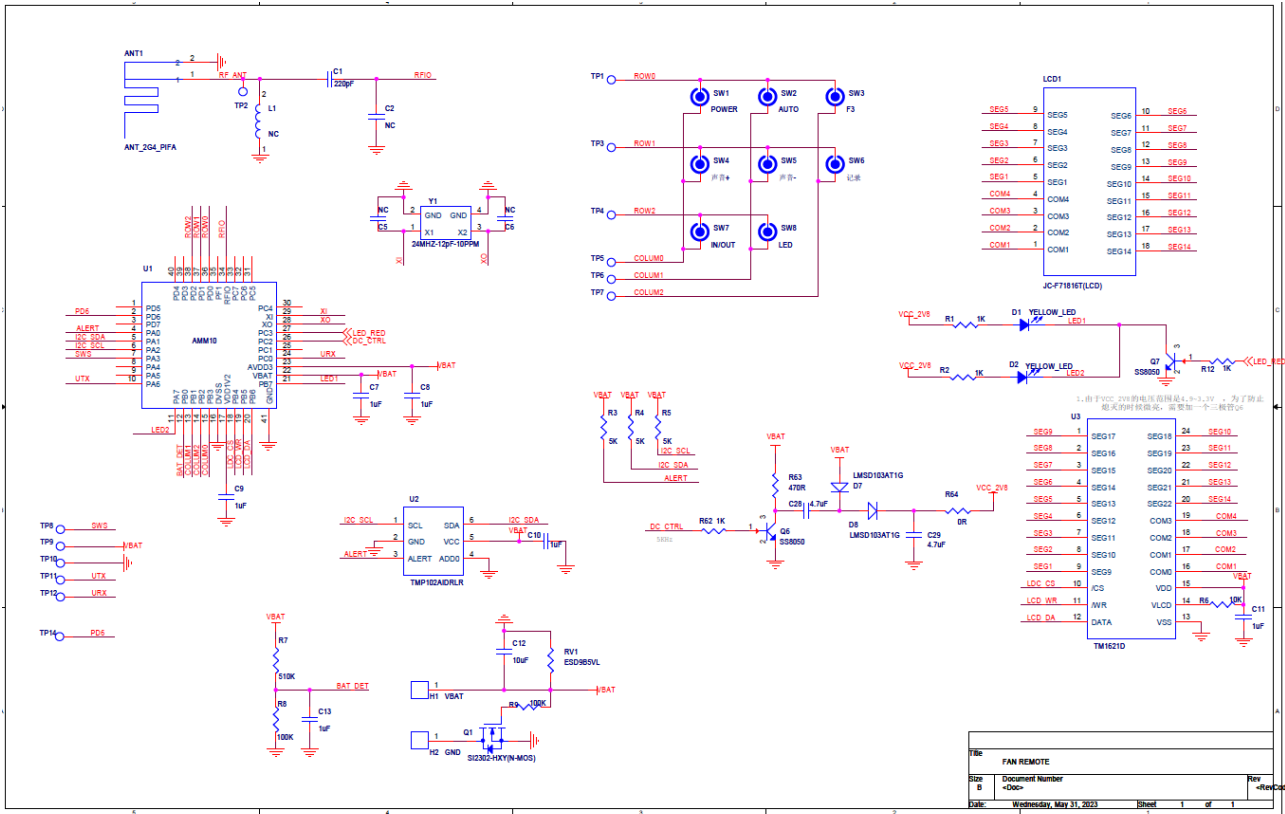


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Attachment 5: Bill of Materials

BOM-FAN-CONTRL-20230407BOM

NUM	Description	QTY	Reference	Value	PCB Footprint
1	SMD-56pF-10%-50V-0402-NP0	1	C9	56pF	C0402
2	SMD-1uF-10%-35V-0402-X5R	14	C14, C15, C16, C17, C20, C21, C22, C23, C24, C25, C26, C29, C34, C39	1uF	C0402
3	10pF	2	C18, C19	10pF	C0402
4	1nF/10V	2	C27, C28, C33	1nF/10V	C0402
5	SMD-220pF-5%-35V-0402-NP0	1	C2	220pF	C0402
6	NC	2	C3, C4	NC	C0402
7	SMD-0.1uF-10%-50V-0603-X5R	10	C5, C11, C13, C30, C31, C32, C35, C37, C38, C1	0.1uF/50V	C0603
8	SMD-1uF-10%-25V-0603-X5R	2	C12, C36	1uF/35V	C0603
9	SMD-22uF-20%-35V-0805-X5R	3	C6, C7, C8	22uF/35V	C0805
10	SMD-1uF-10%-50V-0805-X5R	1	C10	1uF/50V	C0805
11	SMD-100uF/50V-D8x10.2	4	EC1, EC2, EC3, EC4, EC5	100uF/50V	CAPAE800X1020
12	SMD-510K-1%-0402	4	R1, R7, R17, R61	510K	R0402
13	SMD-49.9Ω-1%-0402	1	R2	49.9R	R0402
14	SMD-100K-5%-0402	7	R3, R4, R11, R15, R21, R52, R68	100K	R0402
15	SMD-22.1K-1%-0402	1	R5	22.1K	R0402
16	SMD-0R-5%-0402	11	R6, R14, R28, R29, R30, R34, R49, R50, R51, R53, R59	0R	R0402
17	SMD-10K-5%-0402	12	R8, R10, R16, R19, R20, R23, R27, R33, R54, R55, R58, R62	10K	R0402
18	SMD-1K-5%-0402	11	R9, R18, R26, R31, R36, R38, R40, R42, R44, R46, R60	1K	R0402
19	SMD-10R-5%-0603	1	R22	10R	R0603
20	SMD-100R-5%-0603	8	R24, R25, R35, R37, R39, R41, R43, R45	100R	R0603
21	SMD-120R-5%-0402	1	R32	120R	R0402
22	SMD-200mΩ-1%-2512	1	R47	200mΩ	R2512
23	NC	1	R48	NC	R0402
24	SMD-4.7K-5%-0402	4	R56, R57, R12, R13	4.7K	R0402
25	SMD-51K-5%-0402	1	R66	51K	R0402
26	SMD-1M-5%-0402	1	R67	1M	R0402
27	TVS-TPSMC30CA	1	D1	TPSMC27CA	TPSMC18A
28	TVS-ES3.3D1MA10	1	D11	ES3.3D1MA10	R0402



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29	10U45	1	D2	10U45	T0-277
30	SMD-LED-W	2	D3, D4	W_LED	LED0603
31	SMD-LED-R	6	D5, D6, D7, D8, D9, D10	Red_LED	LED0603
32	FWB12A03-buzzer	1	LS1	FWB12A03	BUZZER_12MM
33	10uH/CMLF0504-100KTT	1	L1	10uH/CMLF0504-100KT	CMLF0504-100KTT
34	FUSE-2A 15V-2920L200	1	FTC1	2920L200	2920
35	BLM3401 (P_MOS)	3	Q1, Q2, Q7	BLM3401 (P_MOS)	SOT-23
36	LN2302LT1G (N-MOS)	1	Q3	LN2302LT1G (N-MOS)	SOT-23
37	SS8050-NPN-SOT23-1.5A	4	Q4, Q5, Q6, Q8	SS8050	SOT-23
38	LDO-IC-TPS54202-SOT23-6L	1	U1	TPS54202	SOT23-6L
39	SCO-AMM10-QFN40	1	U2	AMM10	QFN40(5X5)
40	BLDC-ACM6753-QFN24	1	U3	ACM6753	QFN24_4X4
41	display-JC-F71765T (LCD)	1	U5	JC-F71765T (LCD)	JC-F71765T
42	reserved SOC-PY32F072R8-LQFP48	NC	U6	PY32F072R8	LQFP48
43	LCD driver SOC-TM1621D	1	U7	TM1621D	SOP24
44	reserved CAN-SIT65HVD230-SOP8	NC	U8	SIT65HVD230	SOP8
45	touch soc CST812T	1	U9	CST812T	QFN20_3X3
46	temperature sensor-LM75BDP-SOP8150MIL	1	U10	LM75BDP	SOP8-150MIL
47	drv8801-HTSSOP16	1	U11	drv8801	HTSSOP16
48	crystal-24MHZ-12pF-10PPM	1	Y1	24MHZ-12pF-10PPM	CRY3225
49	reserved crystal-12MHZ-12pF-10PPM	NC	Y2	12MHZ-12pF-10PPM	CRY3225
50	Touch spring	6	K1, K2, K3, K4, K5, K6	TOUCH	CON-TOUCH
51	connector-FWF42004-D04B22TK	1	J1	FWF42004-D04B22TK	弯角, P=4.2mm
52	connector-FWF42004-D02B22TK	1	J3	FWF42004-D02B22TK	FWF42004-D02B22TK
53	connector-XHB-2A	1	J5, J6	XHB-2A	CON-2PIN-2.54MM
54	connector-XHB-4A	1	J7	XHB-4A	CON-4PIN-2.54MM
55	connector-FWF42007-S03B22TK	1	J8	FWF42007-S03B22TK	P=4.2mm

BOM-AMM10-QFN40

num	Description	qty	Reference	Value	PCB Footprint
1	SMD-220pF-5%-16V-0402-NFO	1	C1	220pF	C0402
2	SMD-1uF-10%-6.3V-0402-X5R	6	C7, C8, C9, C10, C11	1uF	C0402
	SMD-4.7uF-10%-6.3V-0805-X5R	2	C28, C29	4.7uF	c0402
3	贴片陶瓷电容-10uF-10%-6.3V-0805-X5R	1	C12	10uF	C0805
4		3	C2, C5, C6	NC	C0402
5	TVS-ESD9B5VL	1	RV1	ESD9B5VL	R0402
	SMDOR-5%-0402	1		OR	R0402
	SMD-470R-5%-0402	1	R63	470R	R0402
6	SMD-1K-5%-0402	3	R1, R2, R62	1K	R0402
7	SMD-5K-5%-0402	3	R3, R4, R5	5K	R0402
8	SMD-10K-5%-0402	1	R6	10K	R0402
9	SMD-510K-5%-0402	1	R7	510K	R0402
10	SMD-100K-5%-0402	2	R8, R9	100K	R0402
11	SMD-LED-W	2	D1, D2	white_LED	LED0603
13		1	L1	NC	L0402
	LMSD103AT1G	2	D7, D8	LMSD103AT1G	SOD-123
	NPN-8050	1	Q7	8050	SOT-23
14	SI2302	1	Q1	SI2302-HXY (N-MOS)	SOT23-3
15	SOC-AMM10-QFN40	1	U1	AMM10	QFN40(5X5)
16	Temperature sensor-TMP102AIDRLR-SOT-563	1	U2	TMP102AIDRLR	SOT-563
17	LCD driver SOC-TM1621D-SOIC-24	1	U3	TM1621D	SOP24_10x12
18	crystal-24MHZ-12pF-10PPM	1	Y1	24MHZ-12pF-10PPM	CRY3225
12	LCD display-JC-F71716T (LCD)	1	LCD1	JC-F71716T (LCD)	JC-F71716T
13		1	H1	VBAT	CELL_BAT
14		1	H2	GND	CELL_BAT