LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de la Mobilité
et des Travaux publics

Département de la mobilité
et des transports

SOCIÉTÉ NATIONALE DE
CERTIFICATION ET D'HOMOLOGATION
S.A.

Registre de Commerce: B 27180

**L-8070 Bertrange**

**Référence:** E13*10R06/02*16749*00

**Annexes:** - Rapport Technique
- Fiche de Renseignements du constructeur

Bertrange, le 18 juillet 2023

**Communication concernant:**[2]
Communication concerning:


- **la délivrance d'une homologation**
  approval granted
- ~~**l'extension d'homologation**~~
  ~~approval extended~~
- ~~**le refus d'homologation**~~
  ~~approval refused~~
- ~~**le retrait d'homologation**~~
  ~~approval withdrawn~~
- ~~**l'arrêt définitif de la production**~~
  ~~production definitely discontinued~~

**d'un type de sous-ensemble ~~électrique~~/électronique[2] en ce qui concerne le Règlement N° 10**
of a type of ~~electrical~~/electronic sub-assembly with regard to Regulation N° 10

**Numéro d'homologation par type:** E13*10R06/02*16749*00
Approval number:

**Marque d'homologation:**
Approval mark:


10R - 06 16749

**1.** **Fabricant: (marque commerciale du constructeur):** Autel
Make (trade name of manufacturer):

**2.** **Type:** ASR110
Type:

**Dénomination(s) commerciale(s) générale(s):** Side radar
General commercial description(s):

***~~Variante(s)~~/version(s):*** *ASR110*
*~~Variant(s)~~/version(s):*

| | | |
|---|---|---|
| **3.** | **Moyens d'identification du type, s'ils sont marqués sur le ~~véhicule~~ / composant / ~~entité technique~~[(2)]:**<br>Means of identification of type, if marked on the ~~vehicle~~ / component / ~~separate technical unit~~: | ASR110 |
| **3.1.** | **Emplacement de ce marquage:**<br>Location of that marking: | Engraved on the housing of the product |
| **4.** | **Catégorie du véhicule:**<br>Category of vehicle: | Not applicable |
| **5.** | **Nom et adresse du constructeur:**<br>Name and address of manufacturer: | Autel Intelligent Technology Co., Ltd.<br>7, 8, 10F, Building B1, Zhiyuan, No. 1001,<br>Xueyuan Avenue, Xili Street, Nanshan District,<br>Shenzhen City, Guangdong Province,<br>P.R. China |
| **6.** | **Dans le cas de composants ou d'entités techniques, emplacement et procédé de fixation de la marque de réception CEE:**<br>In the case of components and separate technical units, location and method of affixing of the ECE approval mark: | Engraved on the housing of the product |
| **7.** | **Adresse(s) de l' (des) usine(s) d'assemblage:**<br>Address(es) of assembly plant(s): | Autel Intelligent Technology Co., Ltd.<br>Guangming Branch<br>601 on the East Side and 601 on the West Side of the Third Electronic Building, and 601 on the Fourth Machinery Building, Yanxiang Science and Technology Industrial Park, Gaoxin Road, Dongzhou Community, Guangming Street, Guangming District, Shenzhen City, Guangdong Province, P.R. China |
| **8.** | **Informations supplémentaires (s'il y a lieu):**<br>Additional informations (where applicable): | See appendix below |
| **9.** | **Service technique responsable de l'exécution des essais:**<br>Technical service responsible for carrying out the tests: | TÜV Rheinland Luxemburg S.à r.l.<br>2-4, rue Edmond Reuter<br>L-5326 Contern |
| **10.** | **Date du rapport d'essai:**<br>Date of test report: | 25.06.2023 |
| **11.** | **Numéro du rapport d'essai:**<br>Number of test report: | 85-R10-602/23-00 |
| **12.** | **Remarques (s'il y a lieu):**<br>Remarks (if any): | See appendix below |

**13.** **Lieu:** Bertrange
Place:

**14.** **Date:** 18 juillet 2023
Date:

**15.** **Signature:**
Signature:

**Pour le Ministre de la Mobilité et des Travaux publics**

**Pol PHILIPPE**
**Attaché**

**Pour la SNCH**

Société Nationale de Certification et d'Homologation
snch

**Laurent LINDEN**
**Directeur opérationnel**

OLAS OFFICE LUXEMBOURGEOIS D'ACCREDITATION ET DE SURVEILLANCE
ACCREDITATION NUMBER: 5/001
ISO/IEC 17065

**16.** **L'index de l'ensemble des renseignements déposé chez l'autorité de réception, qui peut être obtenu sur demande, est joint.**
The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

See index to type-approval report

**17.** **Raison(s) de l'extension:** Not applicable
Reason(s) for extension:

[2] **Biffer la mention inutile**
Strike out what does not apply

# Appendice
Appendix

**au certificat d'homologation par type N° E13*10R06/02*16749*00**
to type-approval certificate N° E13*10R06/02*16749*00
**concernant l'homologation par type d'un sous ensemble électrique/électronique selon le Règlement N° 10.**
concerning the type-approval of an electrical/electronic sub-assembly under Regulation N° 10.

| | | |
|---|---|---|
| **1.** | **Informations supplémentaires.**<br>Additional information. | |
| **1.1.** | **Tension nominale du système électrique [V]:**<br>Electrical system rated voltage [V]: | DC 8 to 32 V |
| | **Masse:**<br>Ground: | ~~Positive/~~negative (2) |
| **1.2.** | **Ce SEEE peut être utilisé sur n'importe quel type de véhicule avec les restrictions suivantes:**<br>This ESA can be used on any vehicle type with the following restrictions: | No restrictions |
| **1.2.1.** | **Conditions d'installation, s'il y a lieu:**<br>Installation conditions, if any: | Connected to car power and vertical installation |
| **1.3.** | **CE SEEE peut seulement être utilisé sur les types de véhicules suivants:**<br>This ESA can be used only on the following vehicle types: | Not applicable |
| **1.3.1.** | **Conditions d'installation, s'il y a lieu:**<br>Installation conditions, if any: | Not applicable |
| **1.4.** | **La (les) méthode(s) spécifique(s) d'essais utilisée(s) et les bandes de fréquences couvertes pour déterminer l'immunité étai(ent): (indiquez s'il vous plaît à partir de l'annexe 9 la méthode précise utilisée).**<br>The specific test method(s) used and the frequency ranges covered to determine immunity were: (Please specify precise method used from annex 9). | Bulk current injection 20 to 400 MHz<br>ISO 11452-4, 4th edition 2011<br>Free field 400 to 2000 MHz<br>ISO 11452-2, 2nd edition 2004 |
| **1.5.** | **Laboratoire accrédité au titre de la norme ISO 17025 et reconnu par l'autorité d'homologation chargé d'effectuer les essais:**<br>Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests: | Not applicable |
| **2.** | **Commentaires:**<br>Remarks: | None |

LE GOUVERNEMENT
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SOCIÉTÉ NATIONALE DE
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S.A.
Registre de Commerce: B 27180

**L-8070 Bertrange**

**Référence:** E13*10R06/02*16749*00

**Annexes:** - Rapport Technique
- Fiche de Renseignements du constructeur

Bertrange, le 18 juillet 2023

# Index du dossier d'homologation

Index to type-approval report

| | | |
|---|---|---|
| | **Numéro d'homologation:**<br>Approval number: | E13*10R06/02*16749*00 |
| | **Révision:**<br>Revision: | 00 |
| | ***Marque de fabrique ou de commerce:***<br>*Trade name or mark:* | *Autel* |
| | ***Type:***<br>*Type:* | *ASR110* |
| **1.** | **Procès-verbal d'essai:**<br>Test report: | N° 85-R10-602/23-00 |
| | - Test report:<br>- Technical information:<br>- List of modifications:<br>- Test protocol:<br>- List of equipments: | Page 1 to 4<br>Appendix L - Page 5 & 6<br>Appendix 0 - Page 7<br>Appendix 1 - Page 8 to 27<br>Appendix 2 - Page 28 |
| **2.** | **Dossier du constructeur:**<br>Report of the manufacturer: | N° IF-Autel-ASR110-00 |
| | - Manufacturer's information folder | Page 1 to 16 |
| **3.** | **Autres documents annexés:**<br>Other documents annexed: | Not applicable |
| **4.** | **Date de délivrance de l'homologation initiale:**<br>Date of issue of initial type approval: | 18.07.2023 |
| **5.** | **Date de la dernière délivrance de pages révisées:**<br>Date of last issue of revised pages: | Not applicable |
| **6.** | **Date de la dernière délivrance d'une homologation révisée:**<br>Date of last extension: | Not applicable |

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation

# TEST REPORT

according to UN-Regulation

**Uniform provisions concerning the approval of vehicles with regard to electromagnetic compatibility**

**UN-Regulation No. 10**

including all amendments until

**Amendment 06, supplement 2**

Approval Status

~~EU/~~UN-Type approval : --

Structure of the Test Report

Item No.

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## 0. General information

| | | | |
|---|---|---|---|
| 0.1. | Make (trade name of the manufacturer) | : | Autel |
| 0.2. | Type | : | ASR110 |
| | Version(s) | : | ASR110 |
| 0.3. | Category of vehicle | : | Not applicable |
| 0.4. | Name and address of the manufacturer | : | Autel Intelligent Technology Co., Ltd.<br>7, 8, 10F, Building B1, Zhiyuan, No. 1001, Xueyuan Avenue, Xili Street, Nanshan District, Shenzhen City, Guangdong Province, P.R. China |
| 0.5. | No. of the Information folder | : | IF-Autel-ASR110-00 |
| | - Date of issue | : | May 24, 2023 |
| | - Date of last change | : | Not applicable |

## 1. Tested ~~vehicle(s) /~~ object(s)

1.1. Description

1.1.1. ~~Vehicle /~~ object

| | | |
|---|---|---|
| Trade name | : | Autel |
| Type(s) /variant(s) /version(s) | : | ASR110 / --- / ASR110 |
| Identification number | : | Not applicable |
| 1.1.2. Condition of ~~vehicle(s)/~~Object(s) | : | New~~/ used / pretested~~ |
| 1.2. Worst case configuration | : | Only one variant/version, so no worst case assessment required.<br><br>~~There is no worst case selection applicable because all versions mentioned in the information folder are tested.~~<br><br>~~Based on the pre-test result / simulation analysis / WCC discussion record.~~<br>~~- Document no. and date:~~<br><br>~~Only one version is selected for test, because all versions use the same electronic components & layout & wires.~~ |
| 1.3. Remark | : | --- |

## 2. Test record

| | | |
|---|---|---|
| 2.1. | Equipment for measuring and testing | : The test facilities / measurement equipment used were in compliance with the test requirements. Please see Appendix 2. |
| 2.1.1. | Specifications for the test site | : Not applicable |
| 2.1.2. | Subcontracting | : Not applicable |
| 2.2. | Test results | |
| | Remark concerning extension | : ~~The component type has been tested according to the modification(s) mentioned in appendix 0.~~<br>~~The new parts meet the requirements of the regulation.~~<br>~~An actual practical test of the object was not necessary. The results of the previous test(s) are still valid.~~ |
| 2.2.1. | Test results referring to measurement | |
| 2.2.1.1. | General requirements | : All general requirements are met.<br>(Test data see Appendix 1) |
| 2.2.1.2. | Test results – radiated narrowband electromagnetic emissions | : The requirements of the standards are met.<br>(Test data see Appendix 1) |
| 2.2.1.3. | Test results – radiated broadband electromagnetic emissions | : The requirements of the standards are met.<br>(Test data see Appendix 1) |
| 2.2.1.4. | Test results – Immunity to electromagnetic radiation | : The requirements of the standards are met.<br>(Test data see Appendix 1) |
| 2.2.1.5. | Test results – conducted Emission | : The requirements of the standards are met.<br>(Test data see Appendix 1) |
| 2.2.1.6. | Test results – immunity to conducted Transients | : The requirements of the standards are met.<br>(Test data see Appendix 1) |
| 2.2.2. | Test results of not measurable attributes | : Not applicable |
| 2.2.3. | Alternative test methods | : Not applicable |

| | | | |
|---|---|---|---|
| 2.3. | Additional information | : | The results of the test refer exclusively to the object(s) mentioned under point 1. of this report. |
| | Test site | : | TÜV Rheinland (Guangdong) Co., Ltd. EMC Laboratory No.102, 1F of Southwest Warehouse Building, No.767 TianYuan Road, Tianhe District, Guangzhou, P.R.China, |
| | Test date | : | January 17-22, 2022 |
| 2.4. | Remarks | : | Not applicable |

## 3. Appendices

| | | |
|---|---|---|
| Appendix L | : | Technical information about the electrical/electronic sub-assembly (ESA) according to Annex 3B for the communication concerning the UN-type approval |
| Appendix 0 | : | List of modifications |
| Appendix 1 | : | Test protocol |
| Appendix 2 | : | List of equipments |
| Information folder No. | : | IF-Autel-ASR110-00 |

## 4. Statement of conformity

The Information Document listed in section 0.5., and the type described therein, comply with the requirements stated on page 1.

The test results in this report refer to the ~~vehicle(s)/~~object(s) described under section 1.1.

With regards to the required level of performance to be achieved, the tested samples were representative for the type to be approved (see section 1.2).

Engineering Centre Shanghai, June 25, 2023
JZ

Jennifer Zhang

Jennifer Zhang
Technical Expert Technical Service

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

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**Technical information about the electrical/electronic sub-assembly(ESA) according to Annex 3B for the communication concerning the UN-type approval** **APPENDIX L**

| | | | |
|---|---|---|---|
| 1. | Make (trade name of manufacturer) | : | Autel |
| 2. | Type and general commercial description(s) | : | ASR110 |
| | Commercial description(s) | : | Side radar |
| | Version(s) | : | ASR110 |
| 3. | Means of identification of type, if marked on the ~~vehicle~~/component/ ~~separate technical unit~~ (2) | : | ASR110 |
| 3.1. | Location of that marking | : | Engraved on the housing of the product |
| 4. | Category of vehicle | : | Not applicable |
| 5. | Name and address of manufacturer | : | Autel Intelligent Technology Co., Ltd.<br>7, 8, 10F, Building B1, Zhiyuan, No. 1001, Xueyuan Avenue, Xili Street, Nanshan District, Shenzhen City, Guangdong Province, P.R. China |
| 6. | In the case of components and separate technical units, location and method of affixing of the approval mark | : | Engraved on the housing of the product |
| 7. | Address(es) of assembly plant(s) | : | Autel Intelligent Technology Co., Ltd. Guangming Branch<br>601 on the East Side and 601 on the West Side of the Third Electronic Building, and 601 on the Fourth Machinery Building, Yanxiang Science and Technology Industrial Park, Gaoxin Road, Dongzhou Community, Guangming Street, Guangming District, Shenzhen City, Guangdong Province, P.R. China |
| 8. | Additional information (where applicable) | : | See Appendix |
| 9. | Technical service responsible for carrying out the tests | : | TÜV Rheinland Luxemburg S.à r.l.<br>2-4, rue Edmond Reuter<br>L-5326 Contern |
| 10. | Date of test report | : | June 25, 2023 |
| 11. | Number of test report | : | 85-R10-602/23-00 |
| 12. | Remarks (if any) | : | See Appendix |
| 16. | The index to the information package lodged with the Approval authority, which may be obtained on request, is attached | | |
| 17. | Reasons for extension | : | --- |

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

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**Appendix to type-approval communication form No. E13*10R06/02*XXXX*00**
**concerning the type-approval of an electrical/electronic sub-assembly under Regulation No. 10**

| | | | |
|---|---|---|---|
| 1. | Additional information | | |
| 1.1. | Electrical system rated voltage | : | DC 8-32V ~~pos./~~neg. ground[(2)] |
| 1.2. | This ESA can be used on any vehicle type with the following restrictions | : | No restrictions |
| 1.2.1. | Installation conditions, if any | : | Connected to car power and vertical installation |
| 1.3. | This ESA can be used only on the following vehicle types | : | Not applicable |
| 1.3.1. | Installation conditions, if any | : | Not applicable |
| 1.4. | The specific test method(s) used and the frequency ranges covered to determine immunity were (please specify precise method used from Annex 9) | : | ISO 11452-4, fourth edition 2011<br>Bulk current injection testing method (from 20 to 400MHz)<br><br>ISO 11452-2, 2nd edition: 2004<br>Free field testing method (from 400 MHz to 2000MHz) |
| 1.5. | Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests | : | Not applicable |
| 2. | Remarks | : | --- |

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

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

**List of modifications** **Appendix 0**

Correction of : ---

Modification of : ---

Addition of : ---

Deletion of : ---

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

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**Test protocol** **Appendix 1**

**Test object**

| | | |
|---|---|---|
| Trade name | : | Autel |
| Type(s) /variant(s) /version(s) | : | ASR110 / --- / ASR110 |
| Technical data of the tested object(s) type | | |
| Electrical system rated voltage | : | DC 8-32V (negative ground) |
| This ESA can be used on any vehicle type with the following restrictions | : | No restrictions |
| Installation conditions | : | Connected to car power and vertical installation |
| This ESA can be used on the following vehicle types | : | Not applicable |
| Installation conditions | : | Not applicable |

**Test results**

**1. Radiated narrow band / broadband electromagnetic emissions:**

| | | |
|---|---|---|
| Antenna position | : | horizontal and vertical |
| Rated voltage | : | DC 12V, 24V |
| Operation mode | : | On |

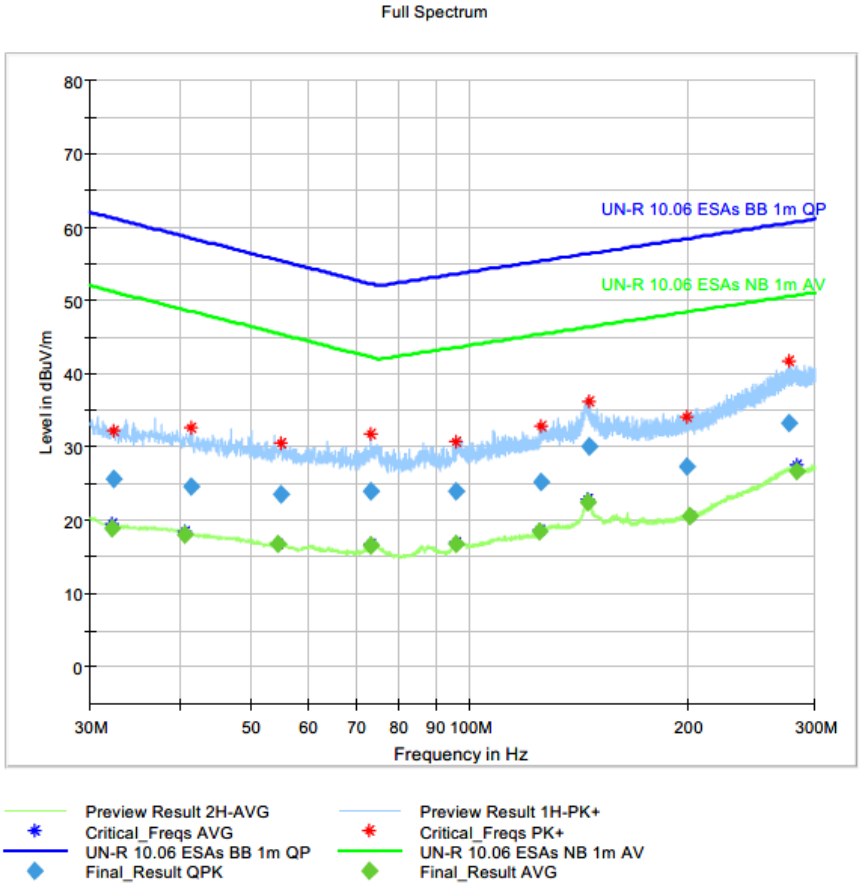
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

**Horizontal Polarity and Vertical Polarity Test Result Diagram (Broadband&Narrow band)**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 13.5V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Horizontal |
| | |
| Subrange 1 | |
| Frequency Range: | 30M-300MHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VHBB9124 |



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 32.150000 | --- | 18.83 | 51.25 | 32.42 | 1000.0 | 120.000 | H | 13.2 |
| 32.300000 | 25.72 | --- | 61.19 | 35.47 | 1000.0 | 120.000 | H | 13.2 |
| 40.550000 | --- | 18.08 | 48.71 | 30.63 | 1000.0 | 120.000 | H | 12.8 |
| 41.250000 | 24.68 | --- | 58.53 | 33.85 | 1000.0 | 120.000 | H | 12.7 |
| 54.500000 | --- | 16.72 | 45.49 | 28.77 | 1000.0 | 120.000 | H | 11.2 |
| 55.000000 | 23.64 | --- | 55.39 | 31.75 | 1000.0 | 120.000 | H | 11.3 |
| 73.000000 | --- | 16.50 | 42.30 | 25.80 | 1000.0 | 120.000 | H | 10.0 |
| 73.100000 | 24.07 | --- | 52.28 | 28.21 | 1000.0 | 120.000 | H | 10.0 |
| 95.650000 | --- | 16.81 | 43.60 | 26.79 | 1000.0 | 120.000 | H | 11.1 |
| 95.900000 | 24.05 | --- | 53.62 | 29.57 | 1000.0 | 120.000 | H | 11.1 |
| 125.000000 | --- | 18.44 | 45.36 | 26.92 | 1000.0 | 120.000 | H | 13.5 |
| 125.350000 | 25.22 | --- | 55.38 | 30.16 | 1000.0 | 120.000 | H | 13.5 |
| 145.250000 | --- | 22.57 | 46.34 | 23.77 | 1000.0 | 120.000 | H | 14.6 |
| 146.150000 | 30.15 | --- | 56.38 | 26.23 | 1000.0 | 120.000 | H | 14.6 |
| 199.800000 | 27.40 | --- | 58.44 | 31.04 | 1000.0 | 120.000 | H | 15.8 |
| 201.500000 | --- | 20.59 | 48.49 | 27.90 | 1000.0 | 120.000 | H | 15.9 |
| 275.400000 | 33.33 | --- | 60.55 | 27.22 | 1000.0 | 120.000 | H | 21.7 |
| 282.400000 | --- | 26.79 | 50.71 | 23.92 | 1000.0 | 120.000 | H | 22.0 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 32.150000 | 23:26:52 - 1/22/2022 |
| 32.300000 | 23:26:20 - 1/22/2022 |
| 40.550000 | 23:26:54 - 1/22/2022 |
| 41.250000 | 23:26:24 - 1/22/2022 |
| 54.500000 | 23:26:57 - 1/22/2022 |
| 55.000000 | 23:26:27 - 1/22/2022 |
| 73.000000 | 23:26:59 - 1/22/2022 |
| 73.100000 | 23:26:31 - 1/22/2022 |
| 95.650000 | 23:27:02 - 1/22/2022 |
| 95.900000 | 23:26:34 - 1/22/2022 |
| 125.000000 | 23:27:04 - 1/22/2022 |
| 125.350000 | 23:26:38 - 1/22/2022 |
| 145.250000 | 23:27:07 - 1/22/2022 |
| 146.150000 | 23:26:42 - 1/22/2022 |
| 199.800000 | 23:26:45 - 1/22/2022 |
| 201.500000 | 23:27:09 - 1/22/2022 |
| 275.400000 | 23:26:49 - 1/22/2022 |
| 282.400000 | 23:27:12 - 1/22/2022 |

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

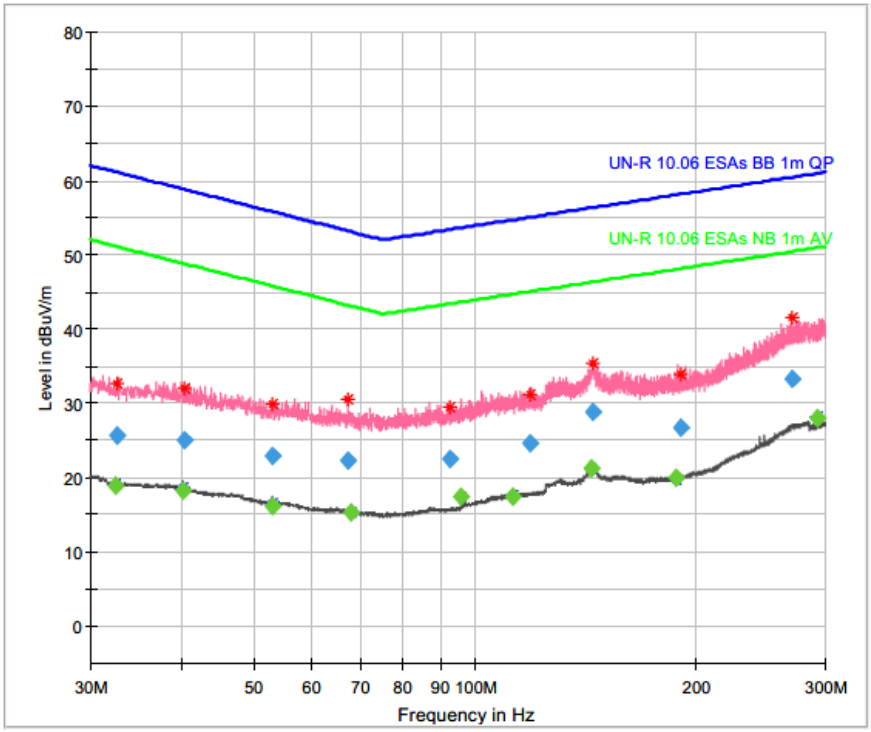
# EMC Test Record (Emission)

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 13.5V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Vertical |
| | |
| Subrange 1 | |
| Frequency Range: | 30M-300MHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VHBB9124 |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 32.450000 | --- | 18.81 | 51.14 | 32.33 | 1000.0 | 120.000 | V | 13.2 |
| 32.600000 | 25.68 | --- | 61.09 | 35.41 | 1000.0 | 120.000 | V | 13.2 |
| 40.050000 | --- | 18.20 | 48.85 | 30.65 | 1000.0 | 120.000 | V | 13.0 |
| 40.350000 | 24.96 | --- | 58.77 | 33.81 | 1000.0 | 120.000 | V | 12.9 |
| 53.150000 | --- | 16.16 | 45.76 | 29.60 | 1000.0 | 120.000 | V | 11.2 |
| 53.150000 | 22.99 | --- | 55.76 | 32.77 | 1000.0 | 120.000 | V | 11.2 |
| 67.250000 | 22.28 | --- | 53.19 | 30.91 | 1000.0 | 120.000 | V | 10.4 |
| 67.900000 | --- | 15.36 | 43.09 | 27.73 | 1000.0 | 120.000 | V | 10.3 |
| 92.450000 | 22.43 | --- | 53.38 | 30.95 | 1000.0 | 120.000 | V | 10.6 |
| 96.000000 | --- | 17.47 | 43.62 | 26.15 | 1000.0 | 120.000 | V | 11.1 |
| 112.600000 | --- | 17.43 | 44.67 | 27.24 | 1000.0 | 120.000 | V | 12.8 |
| 118.950000 | 24.65 | --- | 55.03 | 30.38 | 1000.0 | 120.000 | V | 13.1 |
| 144.150000 | --- | 21.27 | 46.29 | 25.02 | 1000.0 | 120.000 | V | 14.5 |
| 144.650000 | 28.94 | --- | 56.32 | 27.38 | 1000.0 | 120.000 | V | 14.6 |
| 187.600000 | --- | 19.87 | 48.03 | 28.16 | 1000.0 | 120.000 | V | 15.1 |
| 190.750000 | 26.79 | --- | 58.13 | 31.34 | 1000.0 | 120.000 | V | 15.2 |
| 270.600000 | 33.31 | --- | 60.43 | 27.12 | 1000.0 | 120.000 | V | 21.5 |
| 292.800000 | --- | 27.97 | 50.95 | 22.98 | 1000.0 | 120.000 | V | 22.3 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 32.450000 | 23:34:32 - 1/22/2022 |
| 32.600000 | 23:34:01 - 1/22/2022 |
| 40.050000 | 23:34:34 - 1/22/2022 |
| 40.350000 | 23:34:04 - 1/22/2022 |
| 53.150000 | 23:34:37 - 1/22/2022 |
| 53.150000 | 23:34:08 - 1/22/2022 |
| 67.250000 | 23:34:12 - 1/22/2022 |
| 67.900000 | 23:34:39 - 1/22/2022 |
| 92.450000 | 23:34:15 - 1/22/2022 |
| 96.000000 | 23:34:41 - 1/22/2022 |
| 112.600000 | 23:34:44 - 1/22/2022 |
| 118.950000 | 23:34:19 - 1/22/2022 |
| 144.150000 | 23:34:46 - 1/22/2022 |
| 144.650000 | 23:34:22 - 1/22/2022 |
| 187.600000 | 23:34:49 - 1/22/2022 |
| 190.750000 | 23:34:26 - 1/22/2022 |
| 270.600000 | 23:34:29 - 1/22/2022 |
| 292.800000 | 23:34:52 - 1/22/2022 |

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Société Nationale de Certification et d'Homologation

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

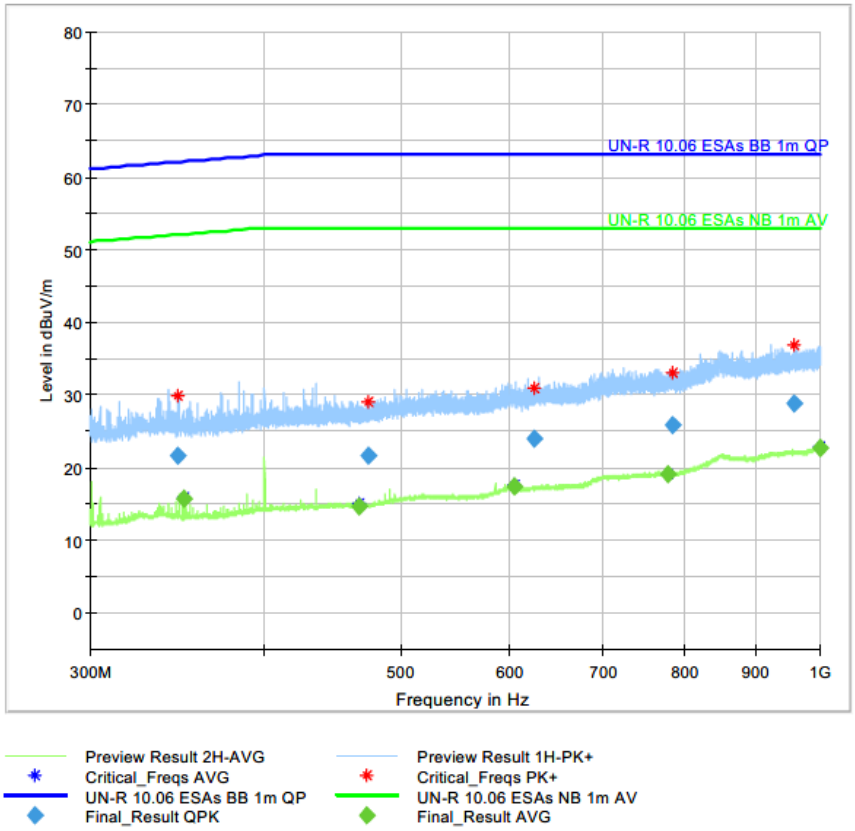
# EMC Test Record (Emission)

## Common Information

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 13.5V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Horizontal |
| | |
| Subrange 1 | |
| Frequency Range: | 300M-1GHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VULP9118A |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 347.050000 | 21.66 | --- | 62.07 | 40.41 | 1000.0 | 120.000 | H | 16.5 |
| 349.750000 | --- | 15.67 | 52.12 | 36.45 | 1000.0 | 120.000 | H | 16.5 |
| 467.800000 | --- | 14.74 | 53.00 | 38.26 | 1000.0 | 120.000 | H | 18.5 |
| 474.200000 | 21.60 | --- | 63.00 | 41.40 | 1000.0 | 120.000 | H | 18.6 |
| 603.900000 | --- | 17.33 | 53.00 | 35.67 | 1000.0 | 120.000 | H | 20.7 |
| 623.550000 | 23.97 | --- | 63.00 | 39.03 | 1000.0 | 120.000 | H | 21.0 |
| 779.050000 | --- | 19.07 | 53.00 | 33.93 | 1000.0 | 120.000 | H | 22.7 |
| 783.700000 | 25.89 | --- | 63.00 | 37.11 | 1000.0 | 120.000 | H | 22.8 |
| 957.700000 | 28.93 | --- | 63.00 | 34.07 | 1000.0 | 120.000 | H | 25.5 |
| 999.200000 | --- | 22.71 | 53.00 | 30.29 | 1000.0 | 120.000 | H | 25.8 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 347.050000 | 23:43:57 - 1/22/2022 |
| 349.750000 | 23:44:14 - 1/22/2022 |
| 467.800000 | 23:44:17 - 1/22/2022 |
| 474.200000 | 23:44:01 - 1/22/2022 |
| 603.900000 | 23:44:20 - 1/22/2022 |
| 623.550000 | 23:44:04 - 1/22/2022 |
| 779.050000 | 23:44:22 - 1/22/2022 |
| 783.700000 | 23:44:08 - 1/22/2022 |
| 957.700000 | 23:44:12 - 1/22/2022 |
| 999.200000 | 23:44:25 - 1/22/2022 |

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Société Nationale de Certification et d'Homologation

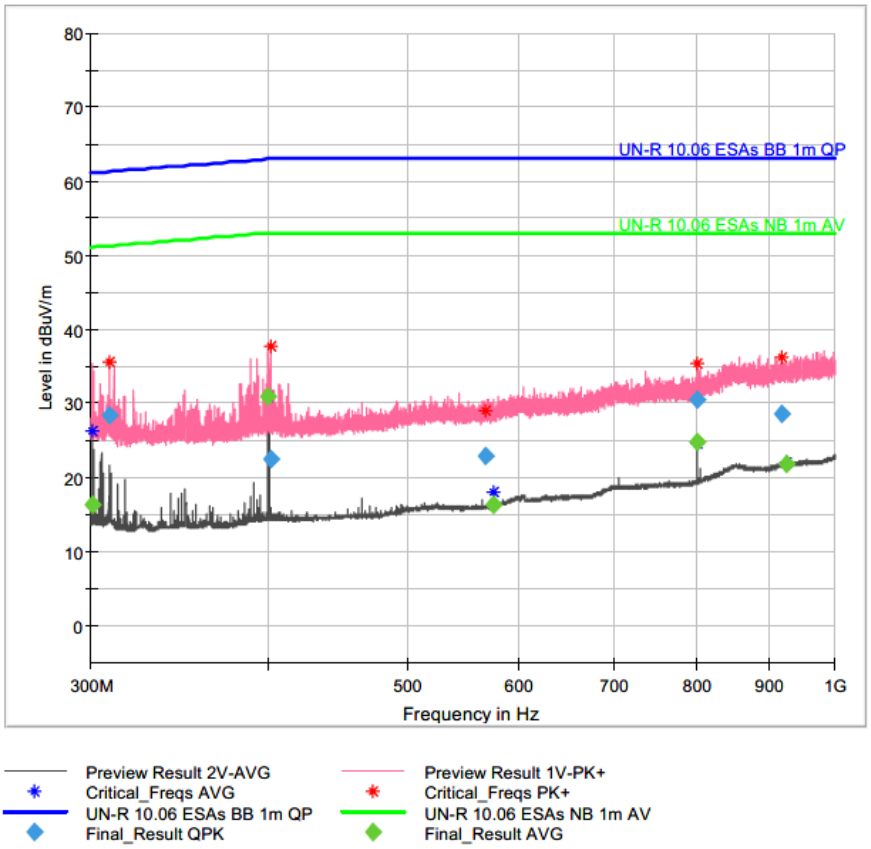
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 13.5V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Vertical |
| | |
| Subrange 1 | |
| Frequency Range: | 300M-1GHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VULP9118A |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 300.750000 | --- | 16.31 | 51.13 | 34.82 | 1000.0 | 120.000 | V | 15.6 |
| 309.150000 | 28.42 | --- | 61.31 | 32.89 | 1000.0 | 120.000 | V | 15.9 |
| 400.000000 | --- | 30.94 | 53.00 | 22.06 | 1000.0 | 120.000 | V | 18.3 |
| 401.250000 | 22.55 | --- | 63.00 | 40.45 | 1000.0 | 120.000 | V | 18.3 |
| 568.250000 | 22.83 | --- | 63.00 | 40.17 | 1000.0 | 120.000 | V | 19.8 |
| 574.900000 | --- | 16.30 | 53.00 | 36.70 | 1000.0 | 120.000 | V | 19.9 |
| 800.000000 | 30.55 | --- | 63.00 | 32.45 | 1000.0 | 120.000 | V | 23.1 |
| 800.000000 | --- | 24.81 | 53.00 | 28.19 | 1000.0 | 120.000 | V | 23.1 |
| 918.450000 | 28.59 | --- | 63.00 | 34.41 | 1000.0 | 120.000 | V | 24.9 |
| 924.700000 | --- | 21.88 | 53.00 | 31.12 | 1000.0 | 120.000 | V | 25.0 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 300.750000 | 23:57:59 - 1/22/2022 |
| 309.150000 | 23:57:41 - 1/22/2022 |
| 400.000000 | 23:58:01 - 1/22/2022 |
| 401.250000 | 23:57:45 - 1/22/2022 |
| 568.250000 | 23:57:48 - 1/22/2022 |
| 574.900000 | 23:58:04 - 1/22/2022 |
| 800.000000 | 23:57:52 - 1/22/2022 |
| 800.000000 | 23:58:07 - 1/22/2022 |
| 918.450000 | 23:57:56 - 1/22/2022 |
| 924.700000 | 23:58:09 - 1/22/2022 |

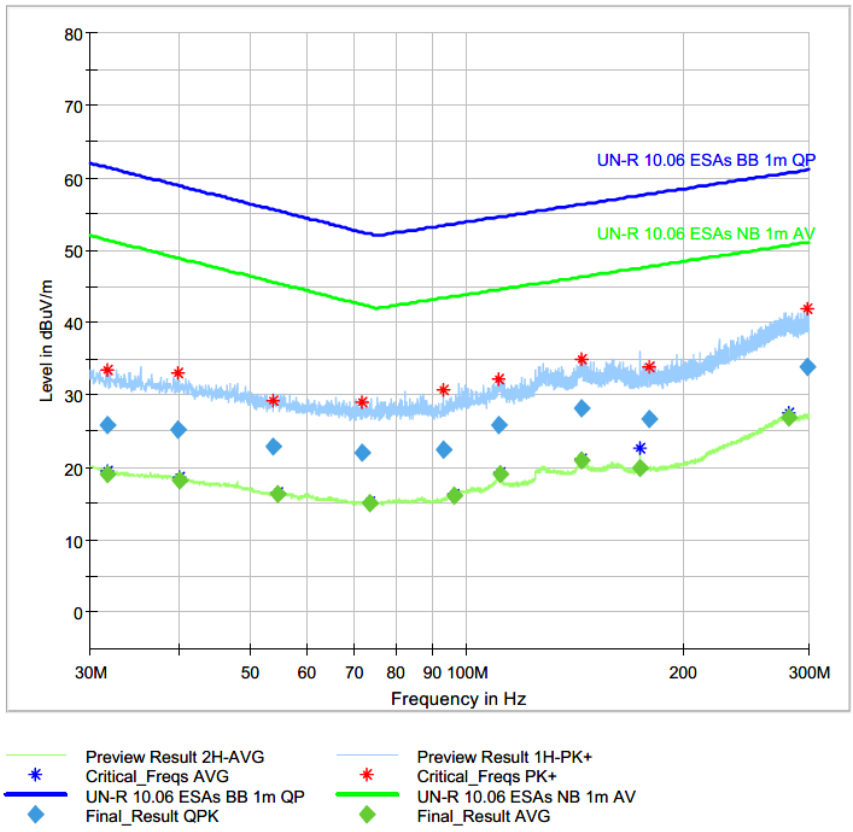
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%,101 kPa |
| Test Voltage/ Freq: | DC 27V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Horizontal |
| | |
| Subrange 1 | |
| Frequency Range: | 30M-300MHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VHBB9124 |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 31.650000 | --- | 19.00 | 51.42 | 32.42 | 1000.0 | 120.000 | H | 13.2 |
| 31.700000 | 25.80 | --- | 61.40 | 35.60 | 1000.0 | 120.000 | H | 13.2 |
| 39.750000 | 25.14 | --- | 58.93 | 33.79 | 1000.0 | 120.000 | H | 13.0 |
| 39.900000 | --- | 18.21 | 48.89 | 30.68 | 1000.0 | 120.000 | H | 13.0 |
| 53.750000 | 22.95 | --- | 55.64 | 32.69 | 1000.0 | 120.000 | H | 11.2 |
| 54.600000 | --- | 16.46 | 45.47 | 29.01 | 1000.0 | 120.000 | H | 11.2 |
| 71.550000 | 22.06 | --- | 52.51 | 30.45 | 1000.0 | 120.000 | H | 10.1 |
| 73.400000 | --- | 15.11 | 42.24 | 27.13 | 1000.0 | 120.000 | H | 10.0 |
| 93.150000 | 22.47 | --- | 53.42 | 30.95 | 1000.0 | 120.000 | H | 10.7 |
| 96.050000 | --- | 16.22 | 43.63 | 27.41 | 1000.0 | 120.000 | H | 11.1 |
| 111.200000 | 25.91 | --- | 54.59 | 28.68 | 1000.0 | 120.000 | H | 12.7 |
| 111.650000 | --- | 19.04 | 44.62 | 25.58 | 1000.0 | 120.000 | H | 12.7 |
| 144.500000 | 28.22 | --- | 56.31 | 28.09 | 1000.0 | 120.000 | H | 14.6 |
| 144.700000 | --- | 20.98 | 46.32 | 25.34 | 1000.0 | 120.000 | H | 14.6 |
| 174.900000 | --- | 19.98 | 47.56 | 27.58 | 1000.0 | 120.000 | H | 14.6 |
| 179.800000 | 26.66 | --- | 57.75 | 31.09 | 1000.0 | 120.000 | H | 14.8 |
| 281.150000 | --- | 26.94 | 50.68 | 23.74 | 1000.0 | 120.000 | H | 22.0 |
| 297.800000 | 33.87 | --- | 61.06 | 27.19 | 1000.0 | 120.000 | H | 22.5 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 31.650000 | 00:48:37 - 1/23/2022 |
| 31.700000 | 00:48:06 - 1/23/2022 |
| 39.750000 | 00:48:10 - 1/23/2022 |
| 39.900000 | 00:48:39 - 1/23/2022 |
| 53.750000 | 00:48:13 - 1/23/2022 |
| 54.600000 | 00:48:42 - 1/23/2022 |
| 71.550000 | 00:48:16 - 1/23/2022 |
| 73.400000 | 00:48:45 - 1/23/2022 |
| 93.150000 | 00:48:20 - 1/23/2022 |
| 96.050000 | 00:48:47 - 1/23/2022 |
| 111.200000 | 00:48:24 - 1/23/2022 |
| 111.650000 | 00:48:50 - 1/23/2022 |
| 144.500000 | 00:48:27 - 1/23/2022 |
| 144.700000 | 00:48:52 - 1/23/2022 |
| 174.900000 | 00:48:55 - 1/23/2022 |
| 179.800000 | 00:48:31 - 1/23/2022 |
| 281.150000 | 00:48:57 - 1/23/2022 |
| 297.800000 | 00:48:34 - 1/23/2022 |

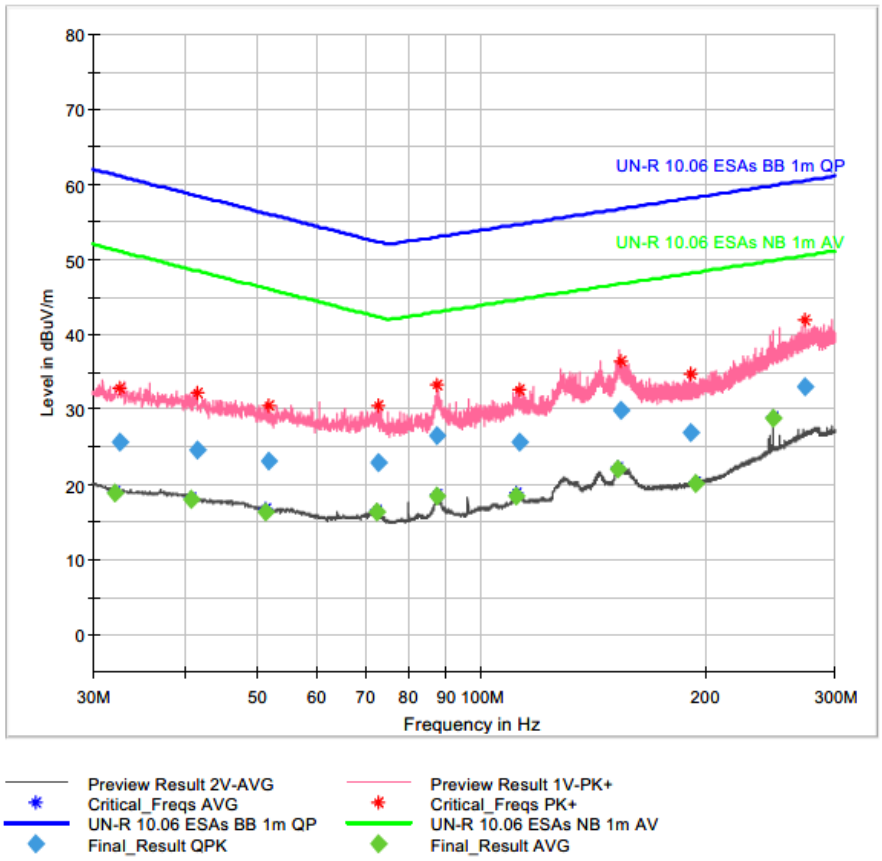
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 27V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Vertical |
| | |
| Subrange 1 | |
| Frequency Range: | 30M-300MHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VHBB9124 |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 32.100000 | --- | 18.85 | 51.26 | 32.41 | 1000.0 | 120.000 | V | 13.2 |
| 32.650000 | 25.66 | --- | 61.08 | 35.42 | 1000.0 | 120.000 | V | 13.2 |
| 40.750000 | --- | 18.02 | 48.66 | 30.64 | 1000.0 | 120.000 | V | 12.8 |
| 41.550000 | 24.63 | --- | 58.45 | 33.82 | 1000.0 | 120.000 | V | 12.6 |
| 51.300000 | --- | 16.34 | 46.15 | 29.81 | 1000.0 | 120.000 | V | 11.3 |
| 51.800000 | 23.06 | --- | 56.04 | 32.98 | 1000.0 | 120.000 | V | 11.2 |
| 72.250000 | --- | 16.43 | 42.41 | 25.98 | 1000.0 | 120.000 | V | 10.1 |
| 72.900000 | 22.81 | --- | 52.31 | 29.50 | 1000.0 | 120.000 | V | 10.0 |
| 87.200000 | --- | 18.41 | 42.99 | 24.58 | 1000.0 | 120.000 | V | 10.5 |
| 87.250000 | 26.47 | --- | 52.99 | 26.52 | 1000.0 | 120.000 | V | 10.5 |
| 111.700000 | --- | 18.45 | 44.62 | 26.17 | 1000.0 | 120.000 | V | 12.7 |
| 112.600000 | 25.56 | --- | 54.67 | 29.11 | 1000.0 | 120.000 | V | 12.8 |
| 152.700000 | --- | 22.08 | 46.67 | 24.59 | 1000.0 | 120.000 | V | 14.9 |
| 154.750000 | 29.78 | --- | 56.76 | 26.98 | 1000.0 | 120.000 | V | 14.9 |
| 191.950000 | 26.90 | --- | 58.18 | 31.28 | 1000.0 | 120.000 | V | 15.3 |
| 195.050000 | --- | 20.23 | 48.28 | 28.05 | 1000.0 | 120.000 | V | 15.5 |
| 248.050000 | --- | 28.93 | 49.86 | 20.93 | 1000.0 | 120.000 | V | 20.1 |
| 272.750000 | 33.15 | --- | 60.48 | 27.34 | 1000.0 | 120.000 | V | 21.6 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 32.100000 | 00:41:20 - 1/23/2022 |
| 32.650000 | 00:40:49 - 1/23/2022 |
| 40.750000 | 00:41:22 - 1/23/2022 |
| 41.550000 | 00:40:52 - 1/23/2022 |
| 51.300000 | 00:41:25 - 1/23/2022 |
| 51.800000 | 00:40:56 - 1/23/2022 |
| 72.250000 | 00:41:27 - 1/23/2022 |
| 72.900000 | 00:40:59 - 1/23/2022 |
| 87.200000 | 00:41:30 - 1/23/2022 |
| 87.250000 | 00:41:03 - 1/23/2022 |
| 111.700000 | 00:41:32 - 1/23/2022 |
| 112.600000 | 00:41:06 - 1/23/2022 |
| 152.700000 | 00:41:35 - 1/23/2022 |
| 154.750000 | 00:41:10 - 1/23/2022 |
| 191.950000 | 00:41:14 - 1/23/2022 |
| 195.050000 | 00:41:38 - 1/23/2022 |
| 248.050000 | 00:41:40 - 1/23/2022 |
| 272.750000 | 00:41:17 - 1/23/2022 |

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Société Nationale de Certification et d'Homologation

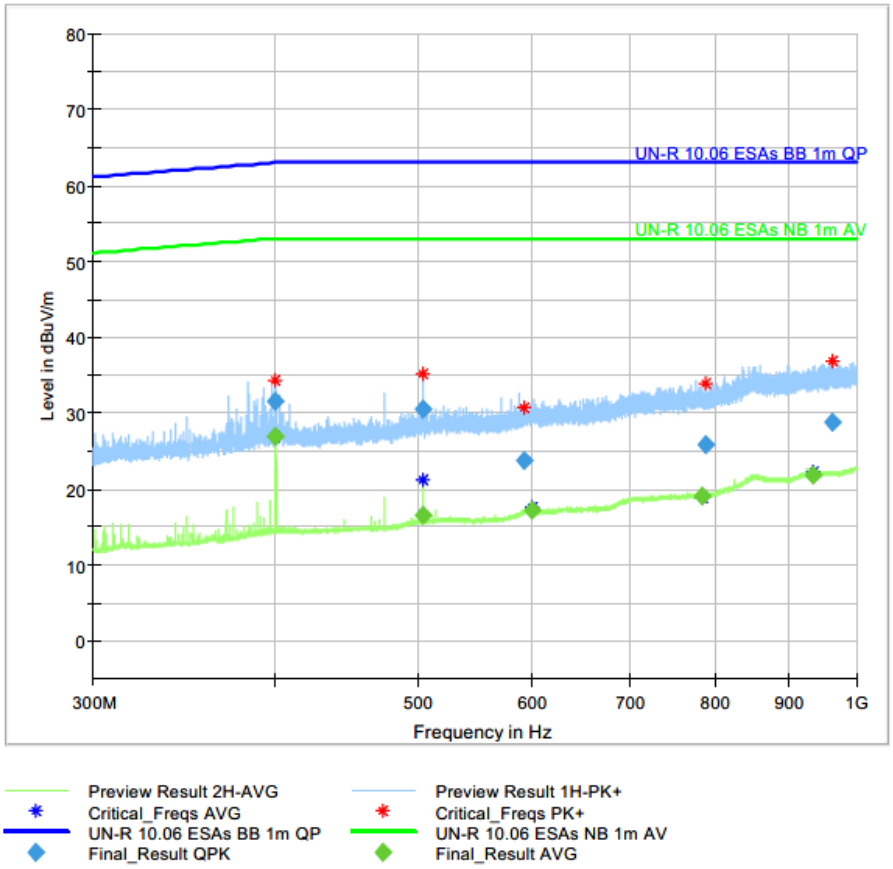
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 27V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Horizontal |
| | |
| Subrange 1 | |
| Frequency Range: | 300M-1GHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VULP9118A |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 400.000000 | --- | 26.94 | 53.00 | 26.06 | 1000.0 | 120.000 | H | 18.3 |
| 400.000000 | 31.62 | --- | 63.00 | 31.38 | 1000.0 | 120.000 | H | 18.3 |
| 504.950000 | --- | 16.47 | 53.00 | 36.53 | 1000.0 | 120.000 | H | 19.5 |
| 504.950000 | 30.62 | --- | 63.00 | 32.38 | 1000.0 | 120.000 | H | 19.5 |
| 591.150000 | 23.65 | --- | 63.00 | 39.35 | 1000.0 | 120.000 | H | 20.4 |
| 599.700000 | --- | 17.29 | 53.00 | 35.71 | 1000.0 | 120.000 | H | 20.6 |
| 783.950000 | --- | 19.04 | 53.00 | 33.96 | 1000.0 | 120.000 | H | 22.8 |
| 787.800000 | 25.92 | --- | 63.00 | 37.08 | 1000.0 | 120.000 | H | 22.9 |
| 934.800000 | --- | 21.85 | 53.00 | 31.15 | 1000.0 | 120.000 | H | 25.2 |
| 962.150000 | 28.87 | --- | 63.00 | 34.13 | 1000.0 | 120.000 | H | 25.5 |

**(continuation of the "Final_Result" table from column 14 ...)**

| Frequency (MHz) | Comment |
|---|---|
| 400.000000 | 00:33:21 - 1/23/2022 |
| 400.000000 | 00:33:03 - 1/23/2022 |
| 504.950000 | 00:33:24 - 1/23/2022 |
| 504.950000 | 00:33:07 - 1/23/2022 |
| 591.150000 | 00:33:11 - 1/23/2022 |
| 599.700000 | 00:33:27 - 1/23/2022 |
| 783.950000 | 00:33:29 - 1/23/2022 |
| 787.800000 | 00:33:15 - 1/23/2022 |
| 934.800000 | 00:33:32 - 1/23/2022 |
| 962.150000 | 00:33:19 - 1/23/2022 |

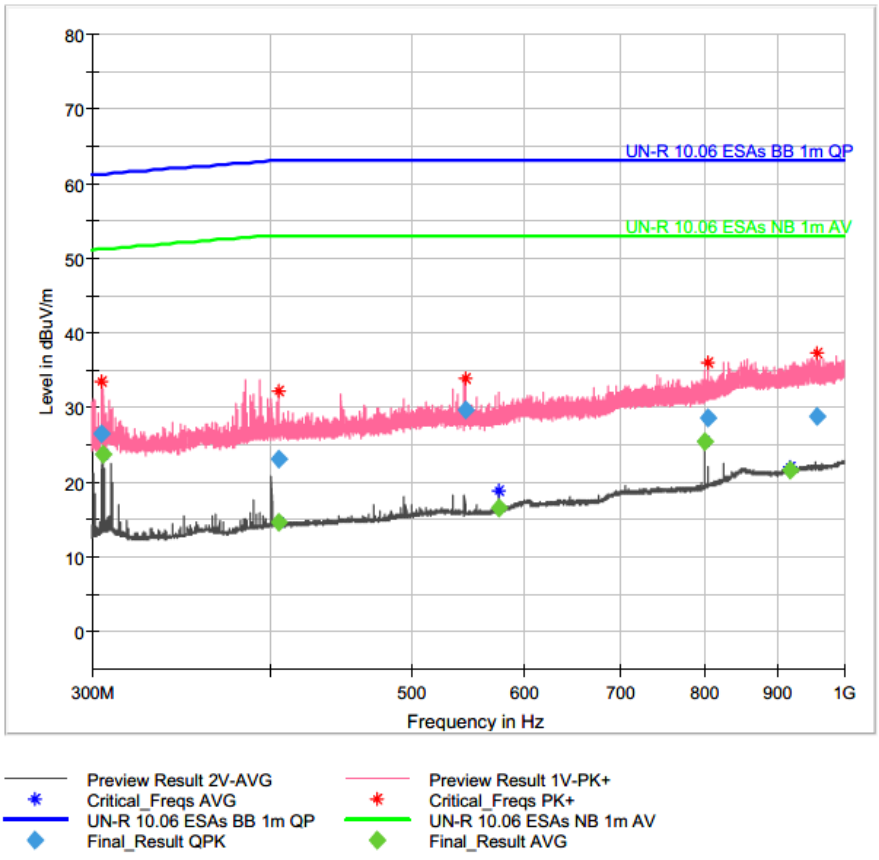
**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

# EMC Test Record (Emission)

## Common Information

| | |
|---|---|
| Manufacturer: | Autel Intelligent |
| Test Item: | Side radar |
| Identification: | ASR110 |
| Test Standard: | UN R10.06 |
| Test Detail: | Radiated Emission |
| Operation Mode: | On |
| Climate Condition: | 24 degree, 53%, 101 kPa |
| Test Voltage/ Freq: | DC 27V |
| Receipt No: | 170343659 |
| Report No: | |
| Result: | Pass |
| Comment: | Test distance is 1m, Vertical |
| | |
| Subrange 1 | |
| Frequency Range: | 300M-1GHz |
| Receiver: | TUV ESW8 |
| Transducer: | TUV VULP9118A |

Full Spectrum



**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

## Final_Result

| Frequency (MHz) | QuasiPeak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 304.900000 | 26.54 | --- | 61.22 | 34.68 | 1000.0 | 120.000 | V | 15.8 |
| 305.000000 | --- | 23.80 | 51.22 | 27.42 | 1000.0 | 120.000 | V | 15.8 |
| 404.150000 | 23.19 | --- | 63.00 | 39.81 | 1000.0 | 120.000 | V | 18.3 |
| 404.200000 | --- | 14.56 | 53.00 | 38.44 | 1000.0 | 120.000 | V | 18.3 |
| 545.000000 | 29.76 | --- | 63.00 | 33.24 | 1000.0 | 120.000 | V | 19.6 |
| 574.900000 | --- | 16.52 | 53.00 | 36.48 | 1000.0 | 120.000 | V | 19.9 |
| 800.000000 | --- | 25.40 | 53.00 | 27.60 | 1000.0 | 120.000 | V | 23.1 |
| 805.050000 | 28.71 | --- | 63.00 | 34.29 | 1000.0 | 120.000 | V | 23.3 |
| 918.300000 | --- | 21.74 | 53.00 | 31.26 | 1000.0 | 120.000 | V | 24.9 |
| 956.650000 | 28.90 | --- | 63.00 | 34.10 | 1000.0 | 120.000 | V | 25.5 |

(continuation of the "Final_Result" table from column 14 ...)

| Frequency (MHz) | Comment |
|---|---|
| 304.900000 | 00:12:54 - 1/23/2022 |
| 305.000000 | 00:13:11 - 1/23/2022 |
| 404.150000 | 00:12:58 - 1/23/2022 |
| 404.200000 | 00:13:14 - 1/23/2022 |
| 545.000000 | 00:13:01 - 1/23/2022 |
| 574.900000 | 00:13:17 - 1/23/2022 |
| 800.000000 | 00:13:19 - 1/23/2022 |
| 805.050000 | 00:13:05 - 1/23/2022 |
| 918.300000 | 00:13:22 - 1/23/2022 |
| 956.650000 | 00:13:08 - 1/23/2022 |

Maximum value (DC 12V):

| Frequency [MHz] | Test results [dBµV/m] | | Reference Limit [dBµV/m] | Margin to reference value [dBµV/m] |
|---|---|---|---|---|
| | hor. | vert. | | |
| 145.25 | 22.57 | --- | 46.34 | 23.77 |
| 400.00 | --- | 30.94 | 53.00 | 22.06 |

Maximum value (DC 24V):

| Frequency [MHz] | Test results [dBµV/m] | | Reference Limit [dBµV/m] | Margin to reference value [dBµV/m] |
|---|---|---|---|---|
| | hor. | vert. | | |
| 281.15 | 26.94 | --- | 50.68 | 23.74 |
| 248.05 | --- | 28.93 | 49.86 | 20.93 |

## 2. Emissions of transient conducted disturbances

Test method : ISO 7637-2 2nd edition: 2004

Worst result of fast pulse and slow pulse

| Polarity of pulse amplitude | Maximum allowed value for vehicles with 12V/24V systems | Measured Pulse amplitude True value |
|---|---|---|
| Positive | +75V / +150V | +6.0V / +14.9V |
| Negative | -100V / -450V | -13.5V / -27.0V |

## 3. Immunity to electromagnetic radiation

Test method : ISO 11452-4, fourth edition 2011
Bulk current injection testing method (from 20 to 400MHz)

ISO 11452-2, 2nd edition: 2004
Free field testing method (from 400 MHz to 2000MHz)

Measurement result (12V):

| Frequency range (MHz) | Test level | Type of modulation | Test distance | Antenna position | Result |
|---|---|---|---|---|---|
| 20~400 | 60mA | AM, 80% | 150mm | / | Passed* |
| 400~800 | 30volts/m | AM, 80% | 1 m | Vertical | Passed* |
| 800~2000 | 30volts/m | PM, 577µs | 1 m | Vertical | Passed* |

* no degradation of performance of 'immunity-related functions'.

Measurement result (24V):

| Frequency range (MHz) | Test level | Type of modulation | Test distance | Antenna position | Result |
|---|---|---|---|---|---|
| 20~400 | 60mA | AM, 80% | 150mm | / | Passed* |
| 400~800 | 30volts/m | AM, 80% | 1 m | Vertical | Passed* |
| 800~2000 | 30volts/m | PM, 577µs | 1 m | Vertical | Passed* |

* no degradation of performance of 'immunity-related functions'.

## 4. Immunity to transient disturbances

Test method : ISO 7637-2 2nd edition: 2004

Measurement result:

| Test pulse | Test level | | Number of pulse / test time | Burst cycle / pulse repetition time | Required minimum function status** | Status of function true value | | Result |
|---|---|---|---|---|---|---|---|---|
| | 24V | 12V | | | | 24V | 12V | |
| 1 | -450V | -75V | 5000 pulses | 0.5 s | C | A | A | passed |
| 2a | +37V | +37V | 5000 pulses | 0.2 s | B | A | A | passed |
| 2b | +20V | +10V | 10 pulses | 0.5 s | C | A | A | passed |
| 3a | -150V | -112V | 1 h | 90 ms | A | A | A | passed |
| 3b | +150V | +75V | 1 h | 90 ms | A | A | A | passed |
| 4 | -12V | -6V | 1 pulse | -- | C | A | A | passed |

**Remark:**

* Class A: all functions of a device/system perform as designed during and after exposure to disturbance.
Class 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.
Class 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.
Class 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.
Class 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.

**Type : ASR110**
**Manufacturer : Autel Intelligent Technology Co., Ltd.**

**List of equipments** **Appendix 2**

| Equipment | Type | Make | Serial no. | Calibration expire date |
|---|---|---|---|---|
| EMI Test Receiver | ESW8 | Rohde & Schwarz | 101313 | 2024-03-09 |
| Biconical Antenna Balun | VHBB 9124 | SCHWARZBECK | 01364 | 2024-08-27 |
| Log-Periodical Antenna | VULP 9118 A | SCHWARZBECK | 00816 | 2024-07-02 |
| LISN | NNBM 8124-200 | SCHWARZBECK | 05489 | 2023-10-20 |
| LISN | NNBM 8124-200 | SCHWARZBECK | 05490 | 2023-10-20 |
| Electronic Switch | BS200N | EM TEST | V0927104954 | 2024-03-09 |
| LISN | NNBM 8124 | Schwarzbeck | 8124-340 | 2024-03-09 |
| Digital Phosphor Oscilloscope | DPO4054 | Tektronix | B010438 | 2024-03-09 |
| Ultra Compact Simulator | UCS 200 N50 | EM TEST | P1704191643 | 2023-12-20 |
| Voltage Drop Simulator | VDS 200 N50 | EM TEST | V0927104953 | 2024-03-09 |
| Power Meter | NRVD | Rohde & Schwarz | 835430/019 | 2024-03-09 |
| Signal Generator | SMC100A | Rohde & Schwarz | 105646 | 2024-03-10 |
| Power amplifier | BBA150-A125B125 | Rohde & Schwarz | 102144 | 2023-11-24 |
| LISN | NNBM 8125 BCI | Schwarzbeck | 1877 | 2024-03-09 |
| LISN | NNBM 8125 BCI | Schwarzbeck | 1878 | 2024-03-09 |
| Injection Probe | F-120-9A | Fischer Custom Communication Inc. | 429 | 2024-03-14 |
| RF Signal Generator | SMB100A | Rohde & Schwarz | 104621 | 2024-03-10 |
| Stacked Broadband Log Periodic Antenna | STLP 9128 ES | Schwarzbeck | 3020 | N/A |
| Broadband High Gain Horn Antenna | BBHA 9120 J | SCHWARZBECK | 00261 | N/A |
| LISN | ESH3-Z6 | Rohde & Schwarz | 100291 | 2024-03-09 |
| LISN | ESH3-Z6 | Rohde & Schwarz | 100290 | 2024-03-09 |
| Power Amplifier | AP32 MT310A | PRANA | 1104-1079 | 2023-10-20 |

***Contents***

INFORMATION DOCUMENT FOR TYPE-APPROVAL OF AN ELECTRIC/ELECTRONIC SUB-ASSEMBLY WITH RESPECT TO ELECTROMAGNETIC COMPATIBILITY ACCORDING UN-R10-06 Annex 2B

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation

| | | | |
|---|---|---|---|
| 1. | Make (trade name of the manufacturer) | : | Autel |
| 2. | Type and general commercial description(s) | : | ASR110<br>Side radar |
| | Version(s) | : | ASR110 |
| 3. | Means of identification of type if marked on the ~~vehicle/~~component~~/STU~~ | : | ASR110 |
| 3.1 | Location of that marking | : | Engraved on the housing of the product |
| 4. | Name and address of the manufacturer | : | Autel Intelligent Technology Co., Ltd.<br>7, 8, 10F, Building B1, Zhiyuan, No. 1001, Xueyuan Avenue, Xili Street, Nanshan District, Shenzhen City, Guangdong Province, P.R. China |
| 5. | In the case of components and separate technical units, location and method of affixing of the approval mark | : | Engraved on the housing of the product |
| 6. | Address(es) of assembly plant(s) | : | Autel Intelligent Technology Co., Ltd. Guangming Branch<br>601 on the East Side and 601 on the West Side of the Third Electronic Building, and 601 on the Fourth Machinery Building, Yanxiang Science and Technology Industrial Park, Gaoxin Road, Dongzhou Community, Guangming Street, Guangming District, Shenzhen City, Guangdong Province, P.R. China |
| 7. | This ESA shall be approved as a | : | Component |
| 8. | Any restrictions of use and conditions for fitting | : | No restrictions |
| 9. | Electrical system rated voltage | : | DC 8-32V (negative ground) |
| 10. | Charger | : | --- |
| 11. | Charging current | : | --- |
| 12. | Maximal nominal current (in each mode if necessary) | : | 812 mA |
| 13. | Nominal charging voltage | : | --- |
| 14. | Basic ESA interface functions: ex. L1/L2 /L3/N/PE/control pilot | : | --- |
| 15. | Minimum Rsce value (see paragraph 7.11. of this Regulation) | : | --- |

| | | | |
|---|---|---|---|
| 1 | Additional information | | |
| 1.1 | Electrical system rated voltage | : | DC 8-32V (negative ground) |
| 1.2 | This ESA can be used on any vehicle type with the following restrictions | : | No restrictions |
| 1.2.1 | Installation conditions | : | Connected to car power and vertical installation |
| 1.3 | This ESA can be used on the following vehicle types | : | Not applicable |
| 1.3.1 | Installation conditions | : | Not applicable |
| 1.4 | The specific test method(s) used and the frequency ranges covered to determine immunity were | : | Bulk current injection testing method (from 20 to 400MHz)<br>Free field testing method (from 400 to 2000MHz) |
| | frequency range | : | 20-2000MHz |
| 1.5 | Remarks | : | --- |

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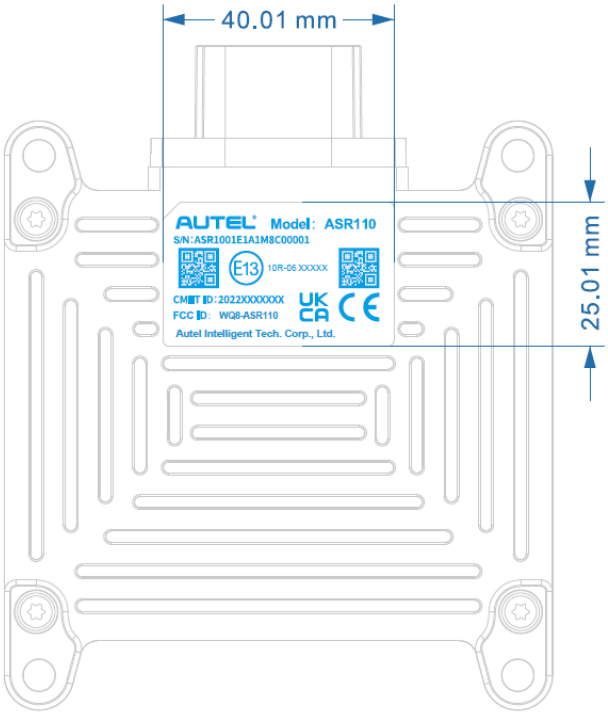
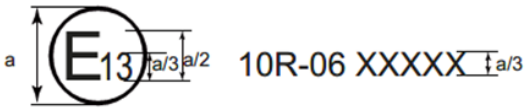



E-mark example:




a=6mm

| DRW. | 1 | Mark |
|---|---|---|

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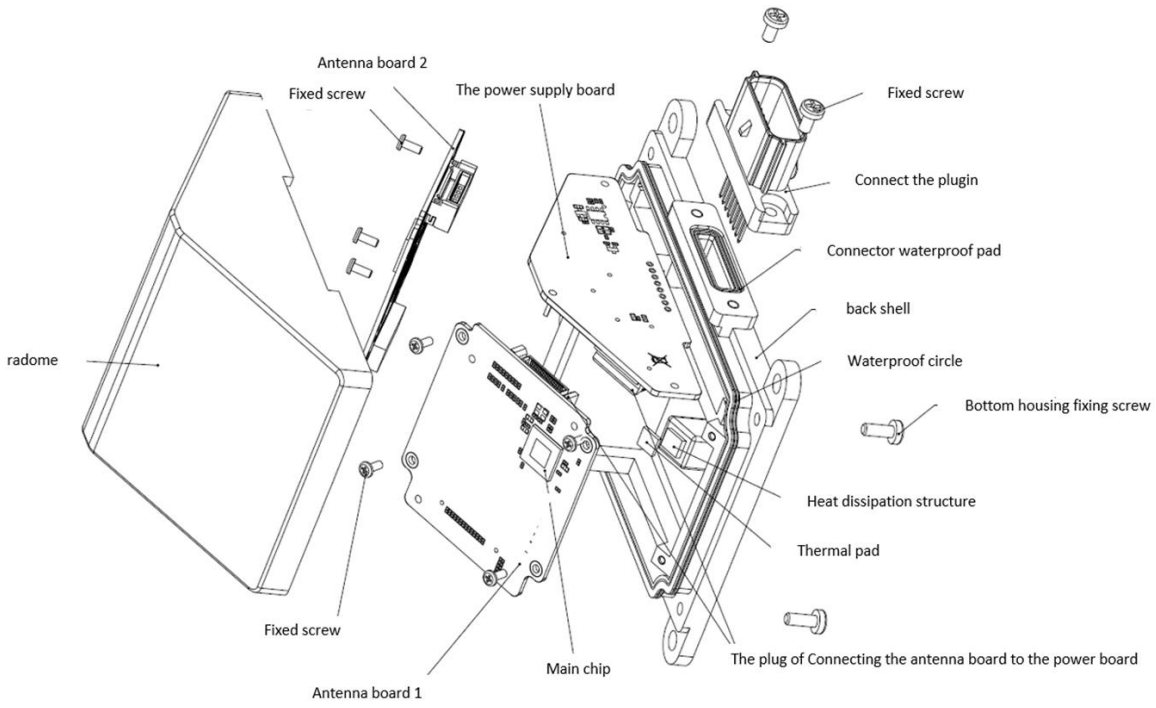
Société Nationale de Certification et d'Homologation




| DRW. | 2 | Constructed Profile |
|---|---|---|

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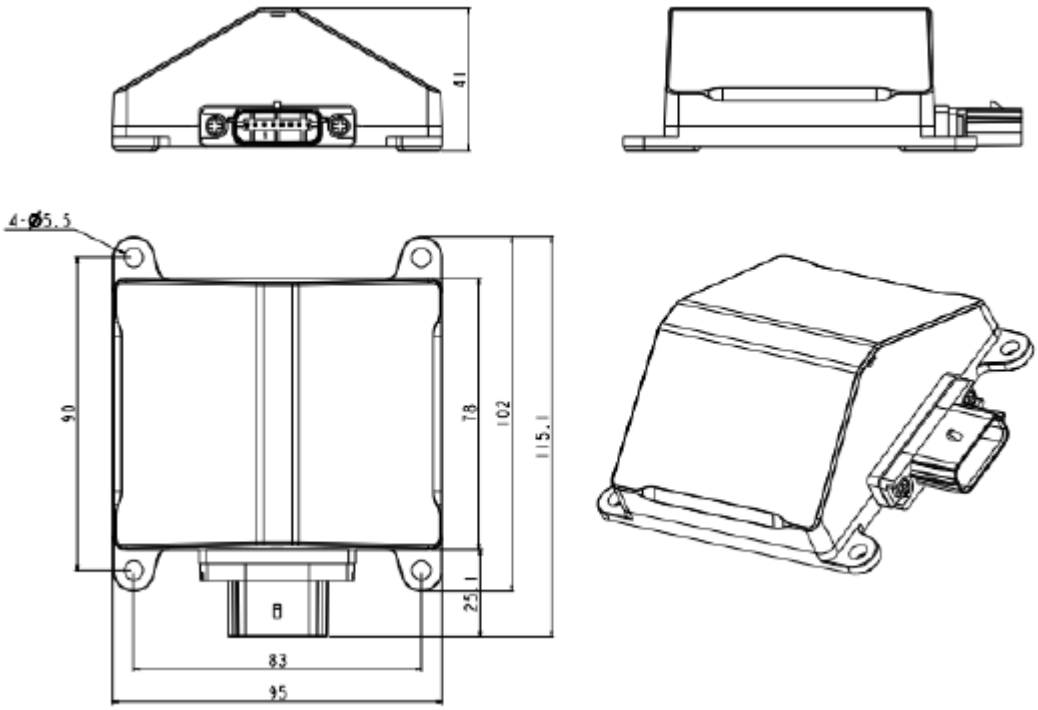
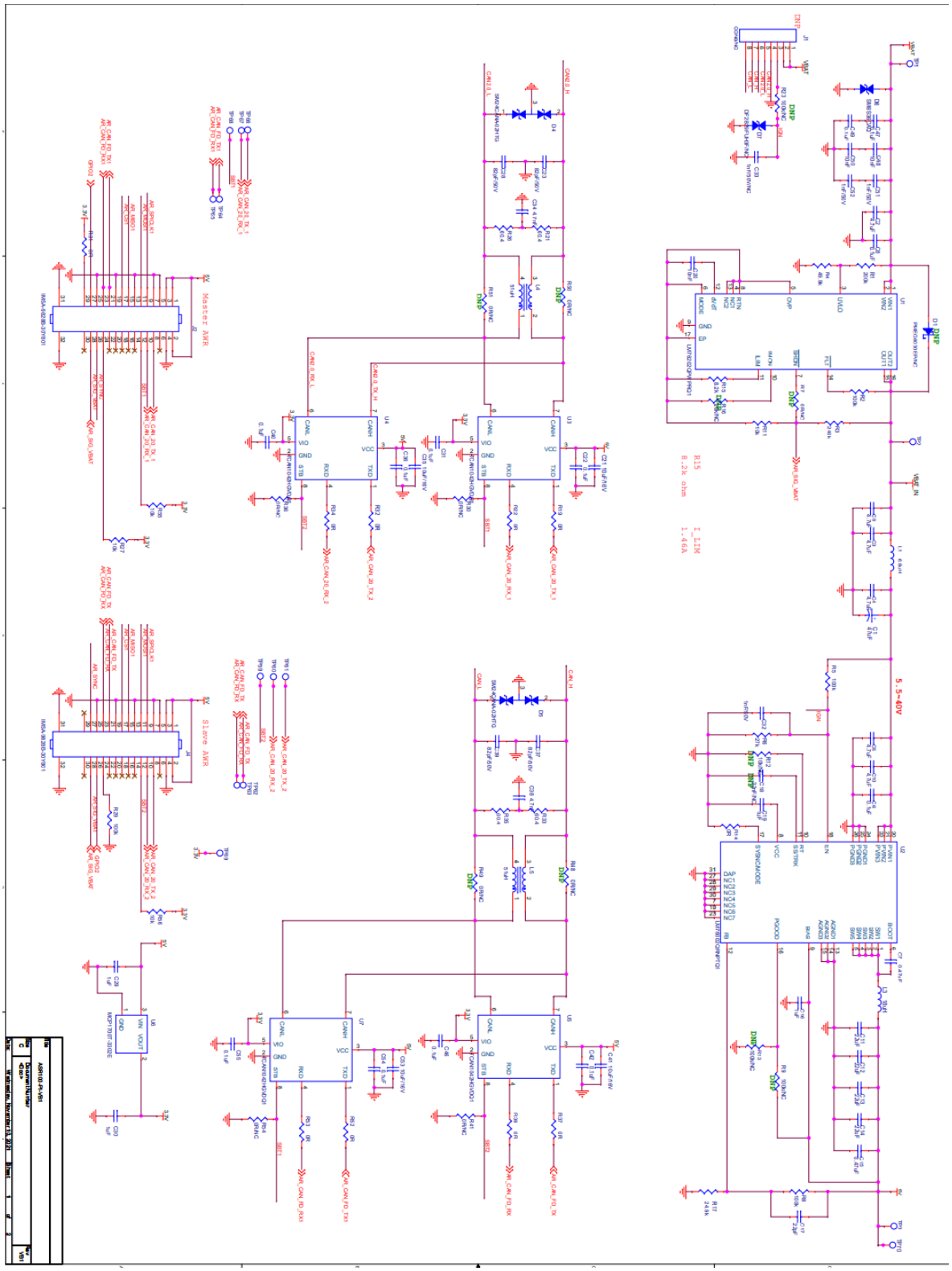
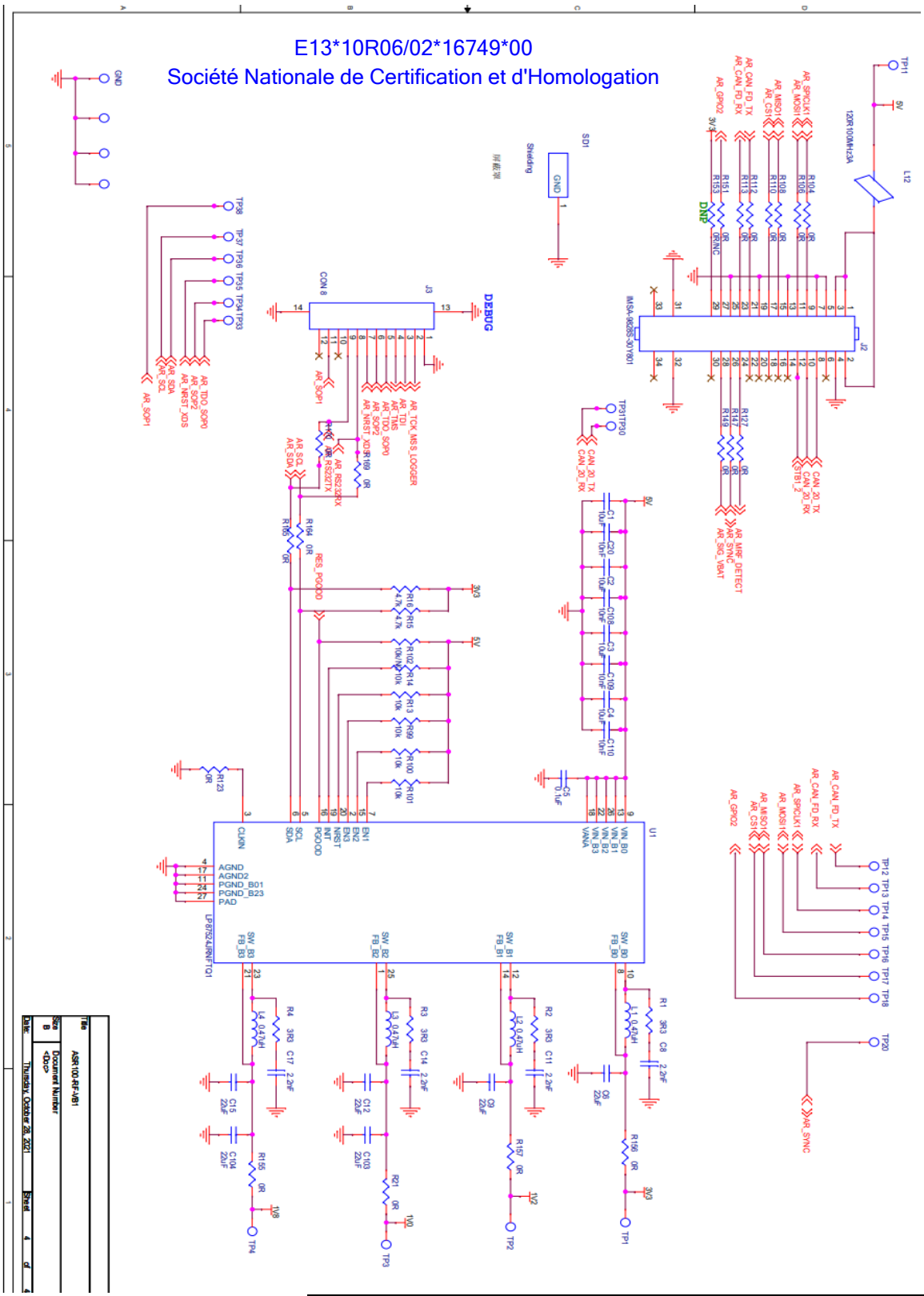



| DRW. | 3 | Assembly Drawing |
|---|---|---|




| DRW. | 4 | Circuit Diagram |
|---|---|---|




| DRW. | 5 | Circuit Diagram |
|---|---|---|

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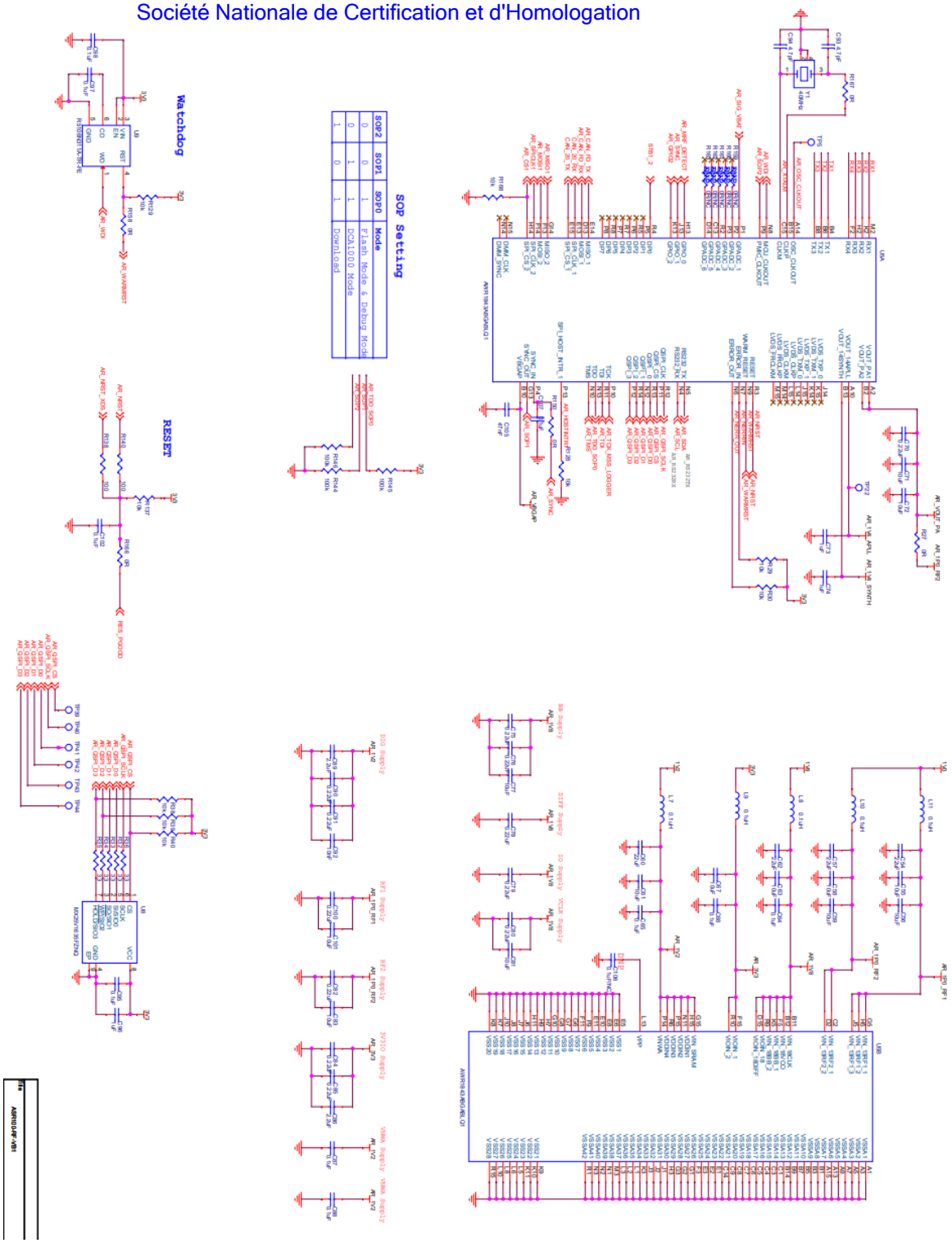
Société Nationale de Certification et d'Homologation




| DRW. | 6 | Circuit Diagram |
|---|---|---|

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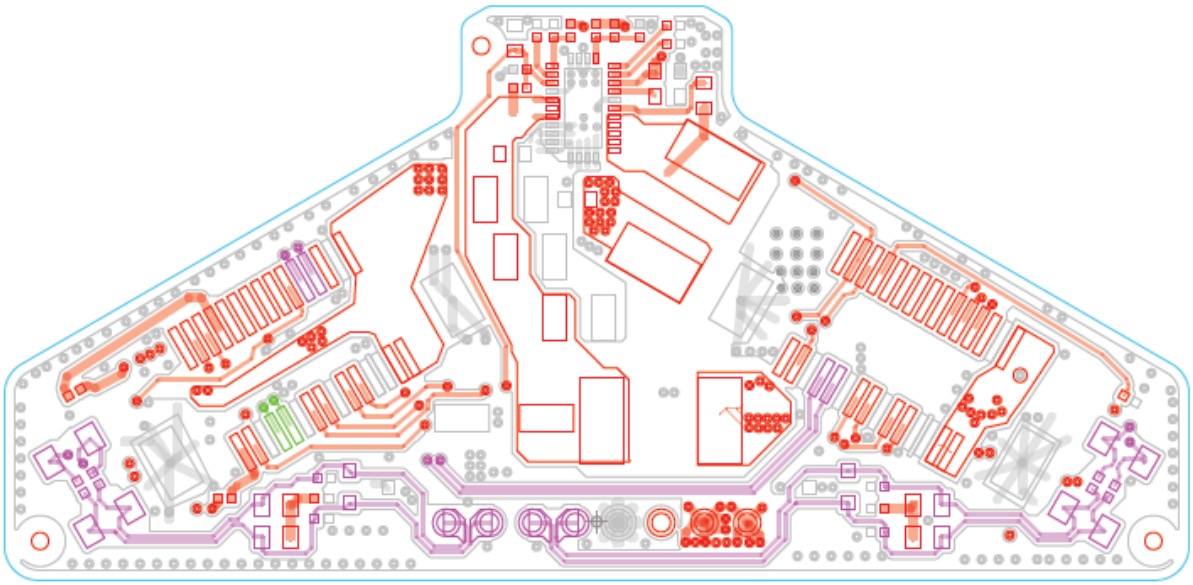
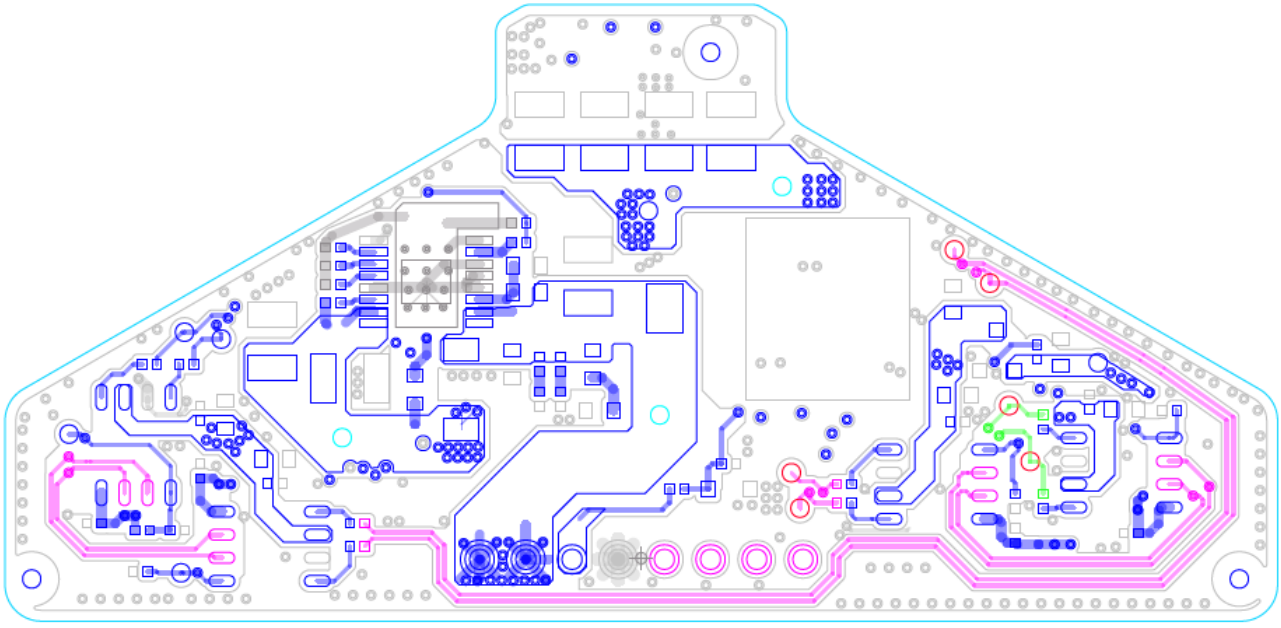
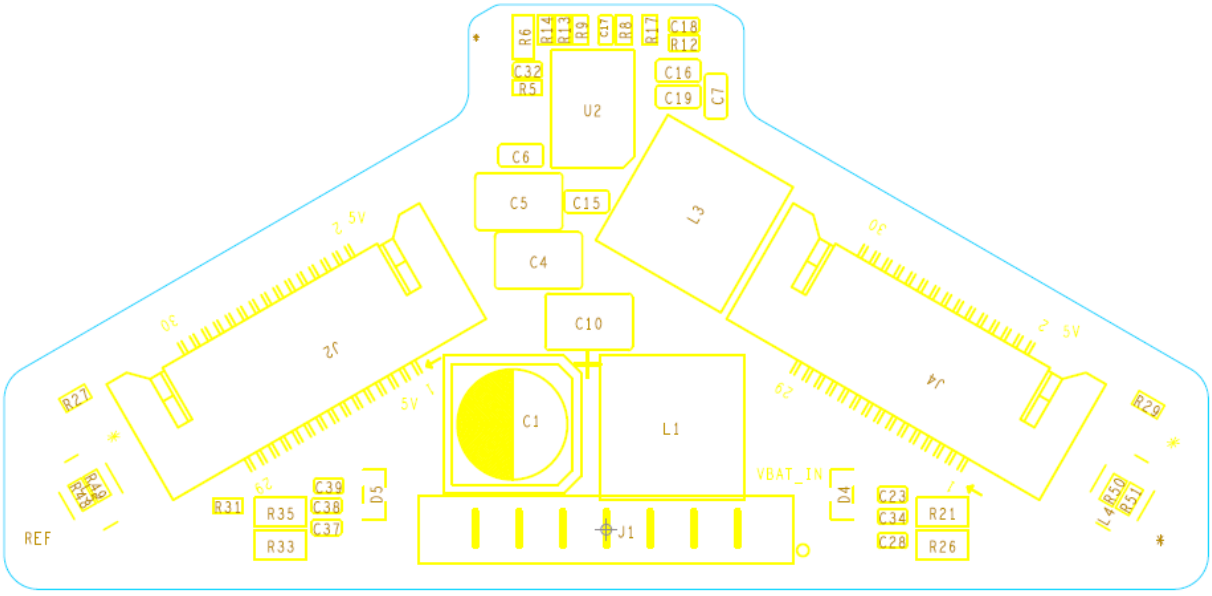
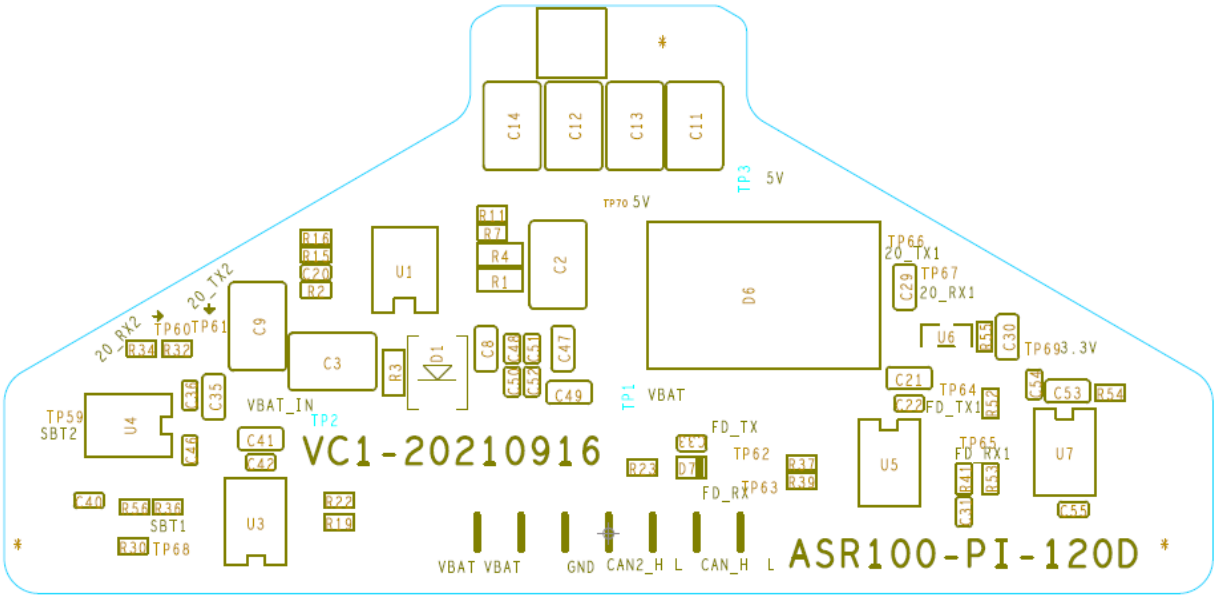




| DRW. | 7 | PCB Layout |
|---|---|---|

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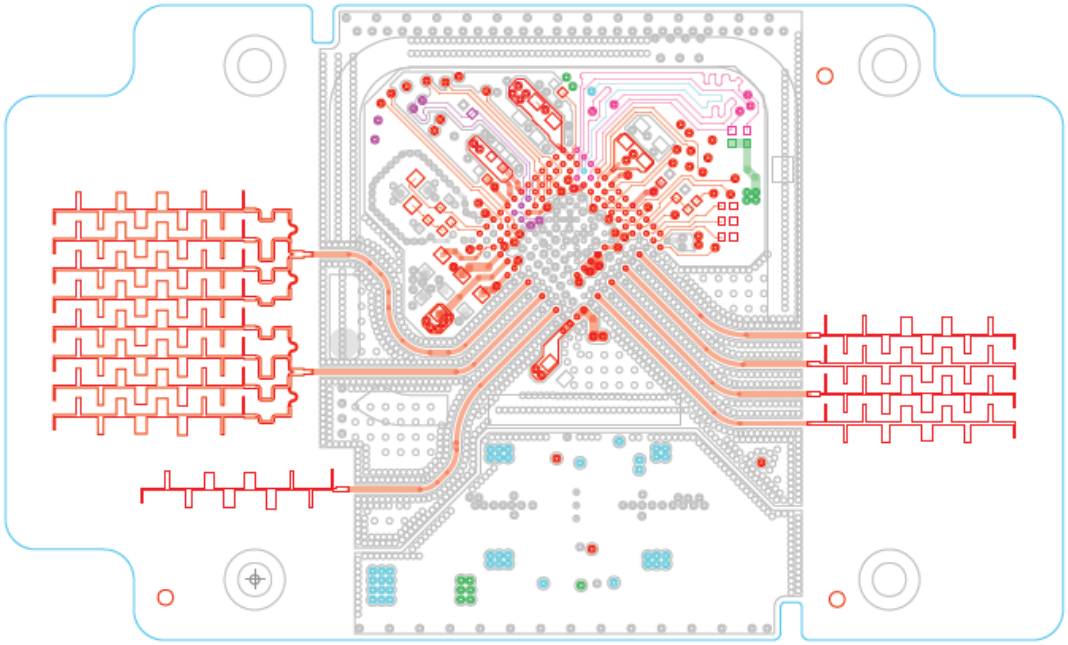
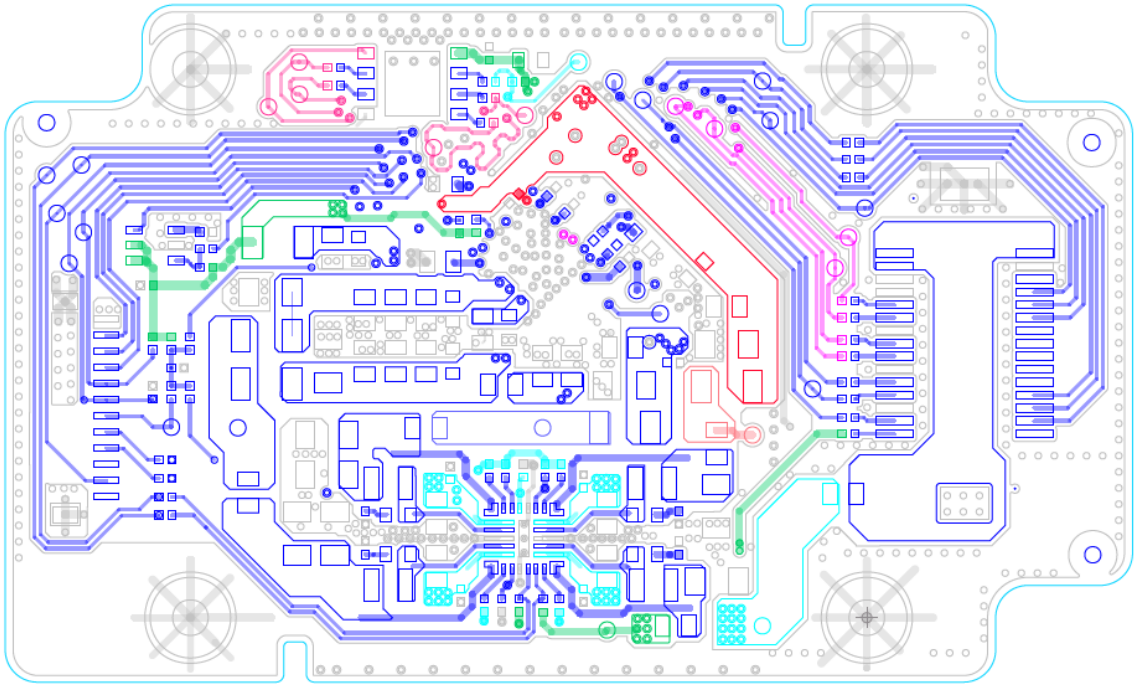
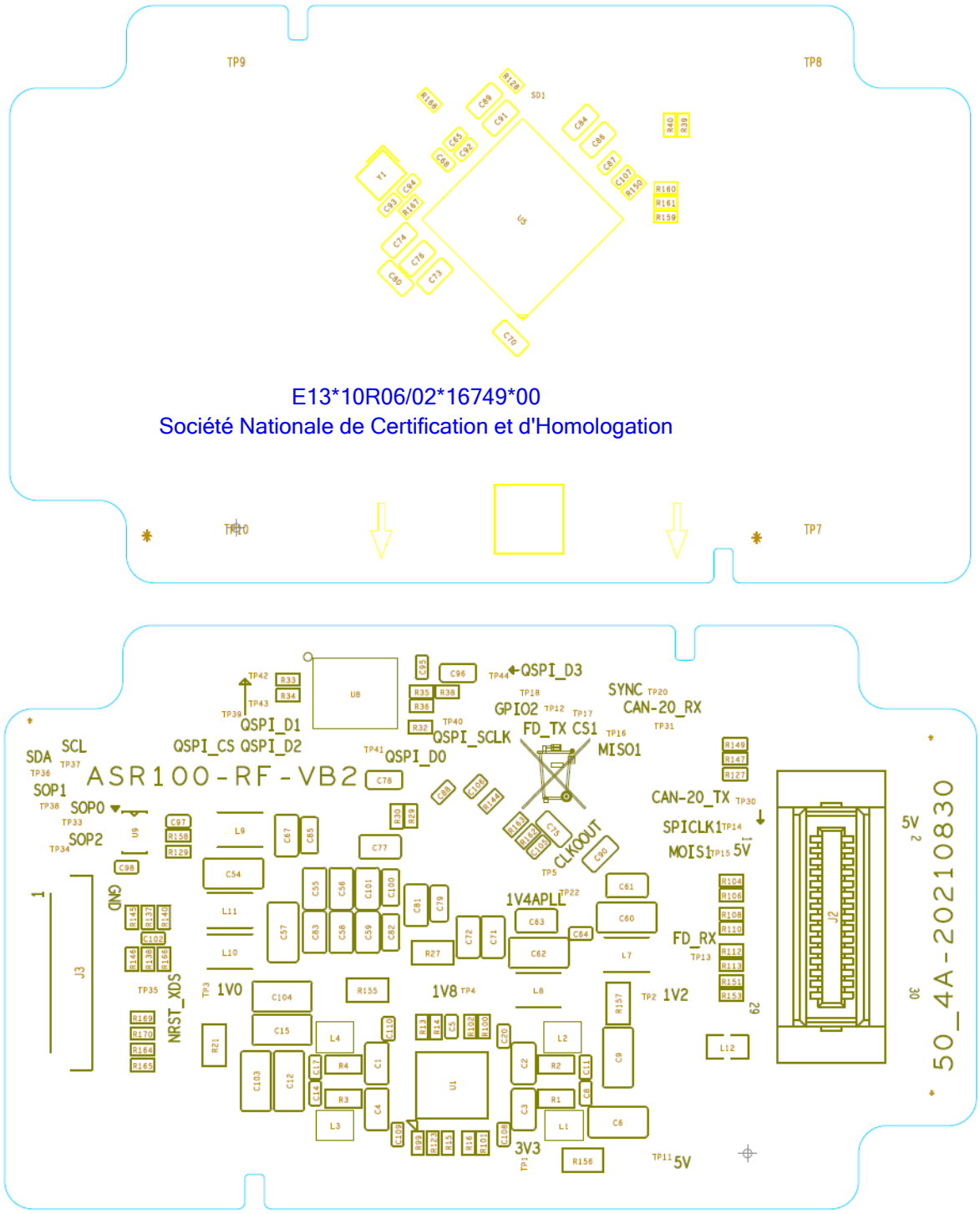
| DRW. | 8 | PCB Layout |
|---|---|---|

E13*10R06/02*16749*00
Société Nationale de Certification et d'Homologation





| | | |
|---|---|---|
| **DRW.** | **9** | **PCB Layout** |




| DRW. | 10 | PCB Layout |
|---|---|---|

## Bill of Materials

| No. | Device description | Unit | Quantity | Mark |
|---|---|---|---|---|
| 1 | /DLW43SH510XK2#/51uH/0.23A/1812/ -40℃~125℃ | EA | 2.0 | L4,L5 |
| 2 | /22pF/±2%/50V/C0G/0402/GCQ1555C1H220GB01D | EA | 1.0 | C17 |
| 3 | /200K/"1/10W"/±1%/0603 | EA | 1.0 | R1 |
| 4 | /8.2K/"1/16W"/±1%/0402 | EA | 1.0 | R15 |
| 5 | /82pF/±5%/50V/COG/0402/MT15N820J500CT/Walsin | EA | 4.0 | C23,C28,C37,C39 |
| 6 | /0.47uF/±20%/16V/X7R/0603/GCJ188R71C474MA12# /AEC-Q200 | EA | 2.0 | C15,C7 |
| 7 | /27K/"1/10W"/±1%/0603 | EA | 1.0 | R6 |
| 8 | /10nF/±10%/50V/X7R/0402/MT15B103K500CT | EA | 3.0 | C20,C48,C50 |
| 9 | TVS/3A/±36kV/SOT23-2/SM24CANA-02HTG/Automative | EA | 2.0 | D4,D5 |
| 10 | /2×15pin/0.8mm/SMD/IRISO/IMSA-9828B-30Y801 | EA | 2.0 | J2,J4 |
| 11 | /24.9K/"1/16W"/±1%/0402 | EA | 1.0 | R17 |
| 12 | /22uF/±10%/16V/X7R/1210/GCM32ER71C226ME19/AEC-Q200 | EA | 4.0 | C11,C12,C13,C14 |
| 13 | /DEM8045Z-180M=P3/18uH/±20%/3131/2.9A | EA | 1.0 | L3 |
| 14 | /10uF/±10%/16V/X5R/0603/GRT188R61C106KE13D/ AEC-Q200 | EA | 4.0 | C21,C35,C41,C53 |
| 15 | IC/DCDC/LM76202QPWPRQ1/HTSSOP16/1CH/4.2~60V/4.2~60V/TI | EA | 1.0 | U1 |
| 16 | IC/DCDC/LM76002QRNPTQ1/WQFN/1CH/3.5V-60V/1-57V/TI/AEC-Q100 | EA | 1.0 | U2 |
| 17 | /4.7nF/±10%/100V/X7R/0402/GCM155R72A472KA37 #/AEC-Q200 | EA | 2.0 | C34,C38 |
| 18 | /100k/"1/16W"/±1%/0402/MR04X1003FTL | EA | 4.0 | R2,R29,R5,R8 |
| 19 | TVS/114A/±36V/DO-218AB/SM8S36CA/AEC-Q101 | EA | 1.0 | D6 |
| 20 | ASR100-PI-120D-VC1/4L/VC/FR4-Tg170C/1.6mm/142x83.8mm/2x2/20210916 | EA | 1.0 | PCB plate |
| 21 | /0.1uF/±20%/100V/X7R/0603/GCJ188R72A104MA01 | EA | 4.0 | C47,C49,C6,C8 |
| 22 | /DEM8045Z-6R8N=P3/6.8uH/±30%/L3131/4.8A | EA | 1.0 | L1 |
| 23 | /47μF/±20%/50V/SMD/VZH470M1HTR-0607K/AEC-Q200 | EA | 1.0 | C1 |
| 24 | /240K/"1/10W"/±1%/0603/MR06X2403FTL/Walsin/AEC-Q200 | EA | 1.0 | R3 |
| 25 | /1uF/±10%/50V/X5R/0603/GRT188R61H105KE13D/AEC-Q200 | EA | 4.0 | C16,C19,C29,C30 |
| 26 | /1000pF/±10%/50V/X7R/0402/MT15B102K500CT | EA | 3.0 | C32,C51,C52 |
| 27 | /0R/"1/16W"/±5%/0402 | EA | 10.0 | R14,R19,R22,R31,R32, R34,R37,R39,R52,R53 |
| 28 | /4.7uF/±20%/100V/X7S/1210/GCM32DC72A475ME02 # | EA | 6.0 | C10,C2,C3,C4,C5, C9 |
| 29 | /10k/"1/16W"/±1%/0402/MR04X1002FTL/ | EA | 4.0 | R11,R27,R55,R56 |
| 30 | /0.1uF/±20%/50V/X7R/0402/GCM155R71H104ME02#/ /AEC-Q200 | EA | 8.0 | C22,C31,C36,C40,C42, C46,C54,C55 |
| 31 | IC//TCAN1042HGVDQ1/TI/2CH/VSON/AEC Q100 | EA | 4.0 | U3,U4,U5,U7 |
| 32 | IC//LDO/MCP1700T-3302E/SOT23-3/1CH/2.3V~6.0V/3.3V/MICROCHIP | EA | 1.0 | U6 |
| 33 | /49.9K/"1/10W"/±1%/0603 | EA | 1.0 | R4 |
| 34 | /60.4R/"1/4W"/±1%/0805/WF08P60R4FTLJ/Walsin/ | EA | 4.0 | R21,R26,R33,R35 |

| No. | Device description | Unit | Quantity | Mark |
|---|---|---|---|---|
| 1 | /1uF/±15%/10V/X7R/0603/LMK107B7105KAHT/ | EA | 3.0 | C73,C74,C96 |
| 2 | /0.22uF/±10%/50V/X7R/0603/GCM188R71H224KA64D/ | EA | 12.0 | C100,C70,C75,C76,C78, C79,C80,C82,C84,C85, C90,C91 |
| 3 | /DFE252012PD-R47M/0.47uH/±20%/2520/5.2A/ | EA | 4.0 | L1,L2,L3,L4 |
| 4 | /0R/"1/8W"/±5%/0805 | EA | 5.0 | R155,R156,R157,R21,R27 |
| 5 | /10nF/±10%/50V/X7R/0402/MT15B103K500CT/ | EA | 5.0 | C108,C109,C110,C20,C92 |
| 6 | /12/1.0mm/SMD/ATOM/WF10012-01200 | EA | 1.0 | J3 |
| 7 | /100R/"1/16W"/±1%/0402/MR04X1000FTL/ | EA | 2.0 | R138,R140 |
| 8 | /NLCV32T-R10M/100nH/±20%/ 3.2mmx2.5mm/2.85A/TDK | EA | 5.0 | L10,L11,L7,L8,L9 |
| 9 | /2200pF/±10%/100V/X7R/0402/HMK105B7222KVHFE/ | EA | 4.0 | C11,C14,C17,C8 |
| 10 | IC//FLASH/MX25V1635FZNQ/wson8I_6x5mm/ 16Mbit/MXIC/AEC-Q100 | EA | 1.0 | U8 |
| 11 | /BLM21PG121SZ/120R100MHz/3A/L0805/ | EA | 1.0 | L12 |
| 12 | /3.3R/"1/10W"/±5%/0603/MR06X3R3 JTL/ | EA | 4.0 | R1,R2,R3,R4 |
| 13 | /100k/"1/16W"/±1%/0402/MR04X1003FTL/ | EA | 3.0 | R144,R145,R146 |
| 14 | 2.2uF/±10%/16V/X7S/0603/GRT188C71C225KE13J/ /AEC-Q200 | EA | 2.0 | C86,C89 |
| 15 | IC/Logic//R5106N311A-TR-FE/TI/1CH/SOT-23-6/ RICOH/ | EA | 1.0 | U9 |
| 16 | /ASR100/ | EA | 1.0 | SD1 |
| 17 | IC/RF/AWR1843ABGABLQ1/76-81G/FCBGA161/ 3TX 4RX/TI | EA | 1.0 | U5 |
| 18 | /4.7k/"1/16W"/±1%/0402/MR04X4701FTL/ | EA | 2.0 | R15,R16 |
| 19 | /10uF/±10%/10V/X7R/0805/GCM21BR71A106KE22/ AEC-Q200 | EA | 17.0 | C1,C101,C2,C3,C4,C55, C56,C58,C59,C61,C63, C67,C71,C72,C77,C81, C83 |
| 20 | PCB//ASR100-RF-VB2-50_4A/6L/VB/RO3003/ 1.2mm/156x86mm/4x1/RO3003/-20210830PCB | EA | 1.0 | PCB plate |
| 21 | /22uF/±10%/10V/X7R/1206/GCM31CR71A226KE02// AEC-Q200 | EA | 10.0 | C103,C104,C12,C15, C54,C57,C6,C60,C62,C9 |
| 22 | /33R/"1/16W"/±5%/0402/MR04X330JTL | EA | 5.0 | R32,R33,R34,R35,R36 |
| 23 | /2×15pin/0.8mm/SMD/IRISO/IMSA-9828S-30Y801/ | EA | 1.0 | J2 |
| 24 | /0.1uF/±10%/16V/X7R/0402/GCM155R71C104KA55D/ | EA | 12.0 | C102,C106,C107,C5, C64,C65,C68,C87,C88, C95,C97,C98 |
| 25 | /0R/"1/16W"/±5%/0402 | EA | 19.0 | R104,R106,R108,R110, R112,R113,R123,R127, R147,R149,R150,R151, R158,R164,R165,R166, R167,R169,R170 |
| 26 | /10k/"1/16W"/±1%/0402/MR04X1002FTL/ | EA | 14.0 | R100,R101,R128,R129, R13,R137,R14,R168,R29, R30,R38,R39,R40,R99 |
| 27 | IC//PMIC/LP87524JRNFTQ1/VQFN26H1/4CH/ 2.8V-5.5V/0.6V-3.36V/TI/AEC-Q100 | EA | 1.0 | U1 |
| 28 | /4.7pF/±0.1/50V/COG/0402/GCM1555C1H4R7BA16D/ | EA | 2.0 | C93,C94 |
| 29 | /40Mhz/±50ppm/8pF/CX2016SA/ CX2016SA40000D0HSSCC/-40℃~125℃/ | EA | 1.0 | Y1 |
| 30 | /47nF/±10%/50V/X7R/0402/GCM155R71H473KE02#/ | EA | 1.0 | C105 |

| No. | Device description | Unit | Quantity | Mark |
|---|---|---|---|---|
| 1 | /3.3R/"1/10W"/±5%/0603/MR06X3R3 JTL/ | EA | 4.0 | R1,R2,R3,R4 |
| 2 | /BLM21PG121SZ/120R100MHz/3A/L0805/ | EA | 1.0 | L12 |
| 3 | /FLASH/MX25V1635FZNQ/wson8l_6x5mm/ 16Mbit/MXIC/AEC-Q100 | EA | 1.0 | U8 |
| 4 | /100k/"1/16W"/±1%/0402/MR04X1003FTL/ | EA | 3.0 | R144,R145,R146 |
| 5 | /2.2uF/±10%/16V/X7S/0603/ GRT188C71C225KE13J/AEC-Q200 | EA | 2.0 | C86,C89 |
| 6 | 10uF/±10%/10V/X7R/0805/ GCM21BR71A106KE22/AEC-Q200 | EA | 17.0 | C1,C101,C2,C3,C4, C55,C56,C58,C59, C61,C63,C67,C71, C72,C77,C81,C83 |
| 7 | /ASR100/ | EA | 1.0 | SD1 |
| 8 | IC/Logic//R5106N311A-TR-FE/TI/1CH/SOT-23-6/RICOH/ | EA | 1.0 | U9 |
| 9 | IC/RF/AWR1843ABGABLQ1/76-81G/FCBGA161/ 3TX 4RX/TI | EA | 1.0 | U5 |
| 10 | /4.7k/"1/16W"/±1%/0402/MR04X4701FTL/ | EA | 2.0 | R15,R16 |
| 11 | /33R/"1/16W"/±5%/0402/MR04X330JTL/ | EA | 5.0 | R32,R33,R34,R35,R36 |
| 12 | /22uF/±10%/10V/X7R/1206/GCM31CR71A226KE02// AEC-Q200 | EA | 10.0 | C103,C104,C12,C15, C54,C57,C6,C60,C62, C9 |
| 13 | IC//PMIC/LP87524JRNFTQ1/VQFN26H1/4CH/ 2.8V-5.5V/0.6V-3.36V/TI/AEC-Q100 | EA | 1.0 | U1 |
| 14 | /10k/"1/16W"/±1%/0402/MR04X1002FTL | EA | 14.0 | R100,R101,R128, R129,R13,R137,R14, R168,R29,R30,R38, R39,R40,R99 |
| 15 | /0R/"1/16W"/±5%/0402 | EA | 19.0 | R104,R106,R108, R110,R112,R113, R123,R127,R147,R14 9,R150,R151,R158, R164,R165,R166, R167,R169,R170 |
| 16 | /40Mhz/±50ppm/8pF/CX2016SA/ CX2016SA40000D0HSSCC/-40℃~125℃ | EA | 1.0 | Y1 |
| 17 | /4.7pF/±0.1/50V/COG/0402/GCM1555C1H4R7BA16D/ | EA | 2.0 | C93,C94 |
| 18 | /0.1uF/±10%/16V/X7R/0402/GCM155R71C104KA55D/ | EA | 12.0 | C102,C106,C107,C5, C64,C65,C68,C87, C88,C95,C97,C98 |
| 19 | /2×15pin/0.8mm/SMD/IRISO/IMSA-9828S-30Y801/ | EA | 1.0 | J2 |
| 20 | /47nF/±10%/50V/X7R/0402/GCM155R71H473KE02#/ | EA | 1.0 | C105 |
| 21 | /0.22uF/±10%/50V/X7R/0603/GCM188R71H224KA64D | EA | 12.0 | C100,C70,C75,C76, C78,C79,C80,C82, C84,C85,C90,C91 |
| 22 | /1uF/±15%/10V/X7R/0603/LMK107B7105KAHT/ | EA | 3.0 | C73,C74,C96 |
| 23 | /DFE252012PD-R47M/0.47uH/±20%/2520/5.2A/ | EA | 4.0 | L1,L2,L3,L4 |
| 24 | /10nF/±10%/50V/X7R/0402/MT15B103K500CT/ | EA | 5.0 | C108,C109,C110, C20,C92 |
| 25 | RO3003/ | EA | 1.0 | PCB empty plate |
| 26 | /0R/"1/8W"/±5%/0805 | EA | 5.0 | R155,R156,R157, R21,R27 |
| 27 | /12/1.0mm/SMD/ATOM/WF10012-01200 | EA | 1.0 | J3 |
| 28 | /100R/"1/16W"/±1%/0402/MR04X1000FTL/ | EA | 2.0 | R138,R140 |
| 29 | 2200pF/±10%/100V/X7R/0402/HMK105B7222KVHFE/ | EA | 4.0 | C11,C14,C17,C8 |
| 30 | /NLCV32T-R10M/100nH/±20%/3.2mmx2.5mm/2.85A/TDK/ | EA | 5.0 | L10,L11,L7,L8,L9 |