ECE TYPE-APPROVAL CERTIFICATE

E24

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~~Approval withdrawn~~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-assembly[2] with regard to Regulation No.10.

Approval No: ***E24*10R06/02*6814*00***

Reason for extension: *-N/A*

1.	Make (trade name of manufacturer):	sunlux POWERBOX+
2.	Type and general commercial description:	***SU-BLE12180MH*** *LiFePO4 battery*
3.	Means of identification of type, if marked on the ~~vehicle~~/ component/~~separate technical unit~~[2]:	***Letters and digits.***
3.1	Location of that marking:	***Label on the surface of the product.***
4.	Category of vehicle:	***N/A***
5.	Name and address of manufacturer:	***Nordic Web Commerce AB*** ***Bangårdsgatan 57*** ***SE-331 35 Värnamo, Sweden***
6.	In the case of components and separate technical units, location and method of affixing of the approval mark:	
7.	Address(es) of assembly plant(s):	

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Approval No: ***E24*10R06/02*6814*00***

8.	Additional information (where applicable):	***See appendix below***
9.	Technical service responsible for carrying out the tests:	***TÜV SÜD Auto Service GmbH, Westendstraße 199, D-80686 München***
10.	Date of test report:	***25.03.2025***
11.	Number of test report:	***25-00742-CX-SHA-00***
12.	Remarks (if any):	***See Appendix below***
13.	Place:	***Dublin***
14.	Date:	***13th May, 2025***
15.	Signature:	

NATIONAL STANDARDS AUTHORITY OF IRELAND
NSAI Certification
TRANSPORT DEPARTMENT

16. The index to the information package lodged with the approval authority, which may be obtained on Request, is attached.

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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 Distinguishing number of the country which issued/extended/refused or withdrawn approval.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.

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Approval No: ***E24*10R06/02*6814*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:	***Bulk Current Injection Method:*** *Frequency: (20 – 400 MHz)* ***Absorber Chamber Test:*** *Frequency: (400 – 2000 MHz)*
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests:	***TÜV SÜD Auto Service 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***

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Approval No: ***E24*10R06/02*6814*00***

Index to the Information Package

Date of issue:	***13th May, 2025***
Date of latest amendment:	***N/A***
Reason for extension/revision:	***N/A***

1. Additional conditions, and advisory notes on legal alternatives.

2. Test report(s)

- numbers(s):	***25-00742-CX-SHA-00***
- date of issue:	***25.03.2025***
- date of latest amendment:	***N/A***

3. Information document

- number(s):	***SU-12180-00***
- date of issue:	***05.03.2025***
- date of latest amendment:	***N/A***
Documentation:	***53 pages***

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Approval No: ***E24*10R06/02*6814*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.

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Test Report

No.: 25-00742-CX-SHA-00

Test of a type of component
with regard to **UN/ECE Regulation No. 10**

including all amendments up to
supplement 2 to the 06 series

Approval subject:
Electromagnetic Compatibility

Approval status	
☑	Granting of a type approval
☐	Extension/correction to type approval no. :

E24*10R06/02*6814*00

I. General

Make (trade name of manufacturer)	:	sunlux POWERBOX+
Type	:	SU-BLE12180MH
Variant(s)	:	SU-BLE12180M, SU-BLE12180MHC, SU-BLE12190M, SU-BLE12190MH, SU-BLE12200MH, SU-BLE12200M, SU-BLE12280M, SU-BLE12280MH, SU-BLE12300MH, SU-BLE12300M, SU-BLE12300MHC, SU-BLE12330MH, SU-BLE12330MHC, SU-BLE12350MH, SU-BLE12360MH, SU-BLE12380MH, SU-BLE12400MH
Commercial description(s)	:	LiFePO4 battery
Name and address of manufacturer	:	Nordic Web Commerce AB Bangårdsgatan 57 SE-331 35 Värnamo, Sweden
Name and address of manufacturer's representative (if applicable)	:	N/A
Address(es) of assembly plant(s)	:	
Location and method of affixing of the approval mark	:	Label on the surface of the product

II. Test results

Refer to the Annex II

III. Enclosures

Annex I Reason of Extension

Annex II Test results

Information folder No. SU-12180-00 dated 05.03.2025 (dd.mm.yyyy)

IV. Statement of conformity

The mentioned information folder and the type described therein are in accordance with the test basis mentioned above. Sampling plan or method result from the requirements of the test basis. The worst-case configuration was selected in accordance with process description "Requirements for Test Reports (AS-PB-T-02)". Valid decision rule in accordance with ILAC G8:2019, 4.2.1: in question of meeting the limits the measurement uncertainty was ignored.

The manufacturer is responsible for the information (III.) and the test specimens provided by him. The test results relate only to the test specimens as received and mentioned (II.). The test specimens are representative for the type described (III.).

The test report may be reproduced and published in full and by the client only. It can be reproduced partially with the written permission of the test laboratory only.

TÜV SÜD Auto Service GmbH is designated as Technical Service by:

Approval authority	Country	Registration number
Kraftfahrt-Bundesamt (KBA)	Germany	KBA-P 00100-10
Vehicle Certification Agency (VCA)	United Kingdom	VCA-TS-006
Approval Authority of the Netherlands (RDW)	The Netherlands	RDWT-082-xx
National Standards Authority of Ireland (NSAI)	Ireland	Technical Service Number: 49
Société Nationale de Certification et d'Homologation s.a. (SNCH)	Luxembourg	13/B(g)
Swedish Transport Agency (STA)	Sweden	TT 0024

München, 25.03.2025 (dd.mm.yyyy)

Pan Lu

Annex I Reason of Extension

Correction of : ---

Modification of : ---

Addition of : ---

Deletion of : ---

Annex II Test results

1. Description of the test object

1.1. Representative ESA : SU-BLE12180MH

1.2. Tested variant (if any) : N/A

2. Test conditions

2.1. Test equipment :

No.	Name Test Apparatus	Model	Serial No.	Expiry Date
1	Transient Test System (Programmable Arbitrary Waveform Generator)	EMC-7637(PAWG100D)	TW/C-027-1	2024.09.25
2	Transient Test System (High power voltage variation simulator)	EMC-7637(APG40C50)	TW/C-027-2	2024.09.25
3	Transient Test System (Transient Pulse simulator)	EMC-7637(TIS700)	TW/C-027-3	2024.09.25
4	Transient Test System (Load dump simulator)	EMC-7637(LDS200)	TW/C-027-4	2024.09.25
5	oscilloscope	DS7054	TW/C-028	2024.09.25
6	Voltage probe	CP3308R	TW/C-028-1	2024.09.25
7	Test receiver	ESR7	TW/C-003	2024.09.25
8	LISN	NNBM8124-200	TW/C-014-1	2024.09.25
9	LISN	NNBM8124-200	TW/C-014-2	2024.09.25
10	Biconical antenna	BBA9106	TW/C-007	2024.12.04
11	Log Periodic Antenna	VULP9118A	TW/C-008	2024.12.04
12	Preamplifier	PAP-0101	TW/C-009	2024.09.25

2.2. Ambient condition : In accordance to the standard above

2.3. Carrying out of the test

2.3.1. Broadband electromagnetic interference generated by ESA

2.3.1.1. Method of measurement : Measured by the method described in Annex 7 of ECE-R10.

2.3.1.2. Results : The measured values, expressed in dBµV/m, are below the reference limits.
The test was passed.

2.3.2. Narrowband electromagnetic interference generated by ESA

2.3.2.1. Method of measurement : Measured by the method described in Annex 8 of ECE-R10.

2.3.2.2. Results : The measured values, expressed in dBµV/m, are below the reference limits. The test was passed.

2.3.3. Immunity of ESA to electromagnetic radiation

2.3.3.1. Method of measurement : No examinations were accomplished, since the ESA does not have influence on direct control of vehicles and/or the system cannot be affected due to its specific structure by electromagnetic disturbances.

2.3.3.2. Performance criteria : N/A

2.3.3.3. Results : N/A

2.3.4. Immunity of ESA to conducted transient interferences

2.3.4.1. Method of measurement : Measured as described in Annex 10 of ECE-R10.

2.3.4.2. Results : The ESA has not exhibited any unacceptable malfunction. The claimed functional state was fulfilled during the test. The test was passed.

2.3.5. Conducted transient interferences generated by ESA

2.3.5.1. Method of measurement : Measured as described in Annex 10 of ECE-R10.

2.3.5.2. Results : The measured values are below the reference limits. The test was passed.

3. Test results

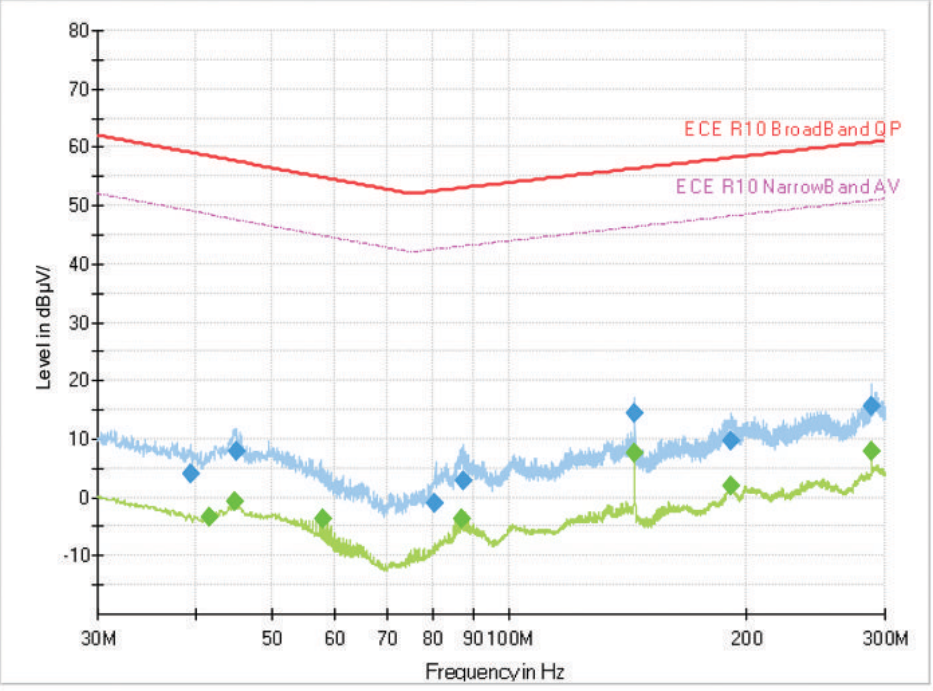
The results of the tests are attached in the diagrams of the enclosure.

4. Place and date of the test : Jiangsu TEM-Wave Test Service Ltd.
15.07.2024 (dd.mm.yyyy)

Annex 2a Measurement diagrams of the radio interference 30 MHz - 1 GHz

DUT Model: SU-BLE12180MH
Test Voltage: 13.5V
Test Mode: Charging
Test Result: Pass

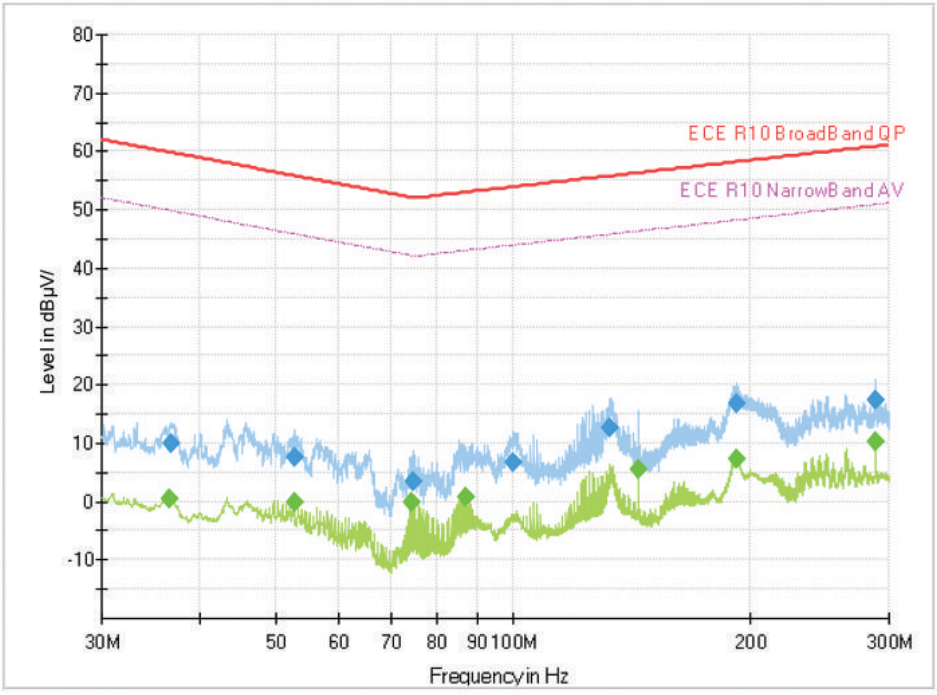
30 to 300MHz – Horizontal:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
39.350000	3.91	---	59.04	55.13
41.600000	---	-3.42	48.43	51.85
44.850000	---	-0.61	47.61	48.22
44.950000	7.94	---	57.59	49.64
58.100000	---	-3.60	44.79	48.38
80.450000	-0.92	---	52.46	53.38
87.150000	---	-3.79	42.99	46.78
87.300000	2.78	---	53.00	50.22
144.100000	14.34	---	56.29	41.95
144.200000	---	7.45	46.30	38.85
190.750000	---	1.91	48.13	46.23
190.800000	9.58	---	58.14	48.56
288.450000	---	7.90	50.85	42.95
288.450000	15.53	---	60.85	45.32

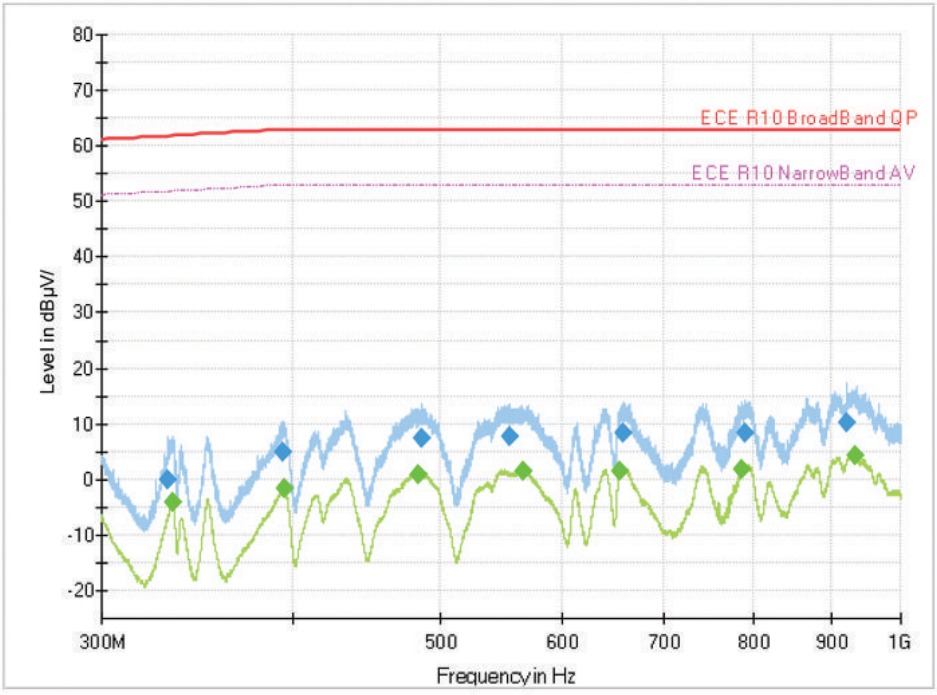
30 to 300MHz – Vertical:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
36.650000	---	0.59	49.82	49.23
36.700000	9.99	---	59.80	49.81
52.650000	---	-0.07	45.86	45.93
52.650000	7.49	---	55.86	48.37
74.400000	---	-0.01	42.09	42.10
74.750000	3.58	---	52.04	48.46
87.100000	---	0.71	42.98	42.28
100.000000	6.63	---	53.89	47.26
132.700000	12.52	---	55.75	43.23
144.100000	---	5.45	46.29	40.84
191.850000	---	7.42	48.17	40.75
191.900000	16.80	---	58.17	41.37
288.450000	17.48	---	60.85	43.37
288.550000	---	10.21	50.85	40.64

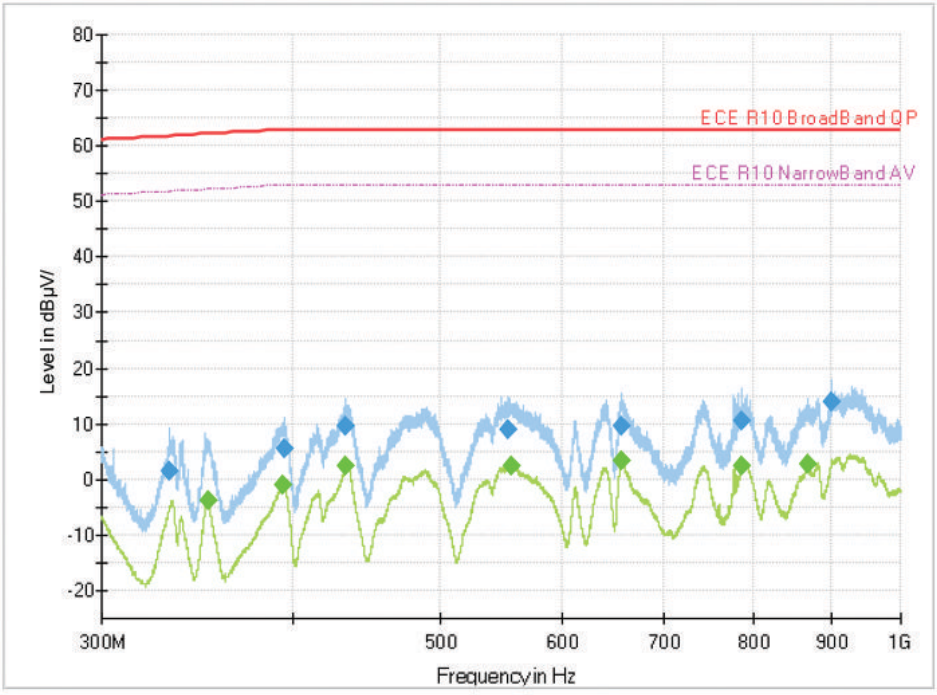
300 to 1000MHz – Horizontal:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
331.400000	-0.09	---	61.76	61.86
333.550000	---	-4.04	51.81	55.84
394.000000	4.92	---	62.90	57.98
394.650000	---	-1.69	52.91	54.60
483.400000	---	0.71	53.00	52.29
486.350000	7.36	---	63.00	55.64
554.900000	7.58	---	63.00	55.42
566.750000	---	1.36	53.00	51.64
655.600000	---	1.48	53.00	51.52
657.650000	8.22	---	63.00	54.78
787.000000	---	1.69	53.00	51.31
790.250000	8.21	---	63.00	54.79
922.250000	10.14	---	63.00	52.86
934.200000	---	4.23	53.00	48.77

300 to 1000MHz – Vertical:

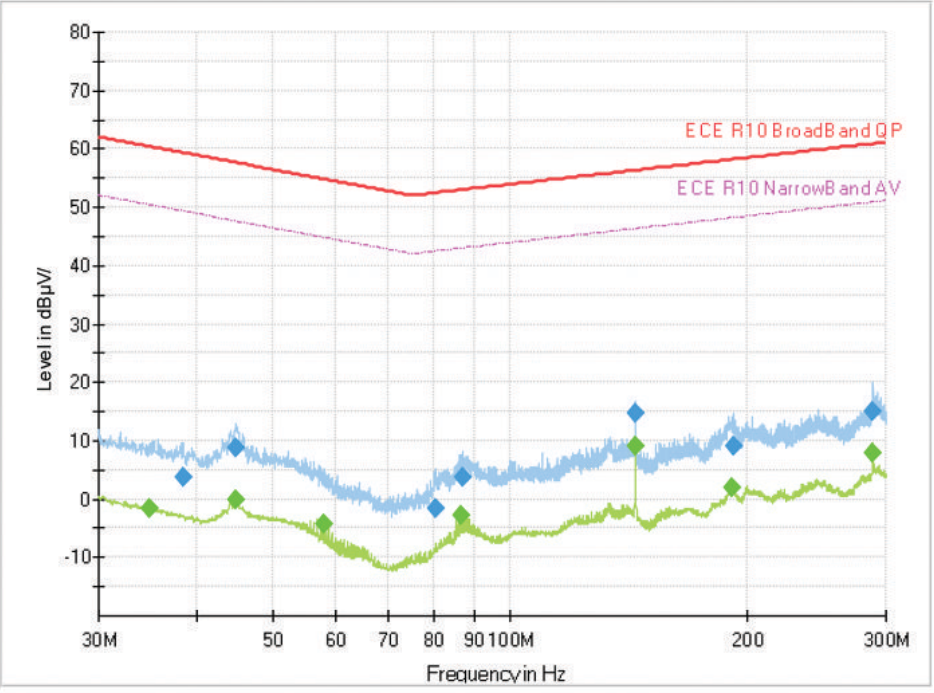


PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
332.200000	1.54	---	61.78	60.24
351.950000	---	-3.85	52.16	56.01
394.450000	---	-1.11	52.91	54.02
394.850000	5.60	---	62.92	57.31
432.850000	---	2.43	53.00	50.57
433.100000	9.44	---	63.00	53.56
553.800000	8.94	---	63.00	54.06
555.750000	---	2.39	53.00	50.61
655.700000	9.64	---	63.00	53.36
657.250000	---	3.25	53.00	49.75
786.300000	10.48	---	63.00	52.52
786.300000	---	2.48	53.00	50.52
869.150000	---	2.62	53.00	50.38
900.650000	13.99	---	63.00	49.01

DUT Model: SU-BLE12180MH
Test Voltage: 13.5V
Test Mode: Discharging
Test Result: Pass

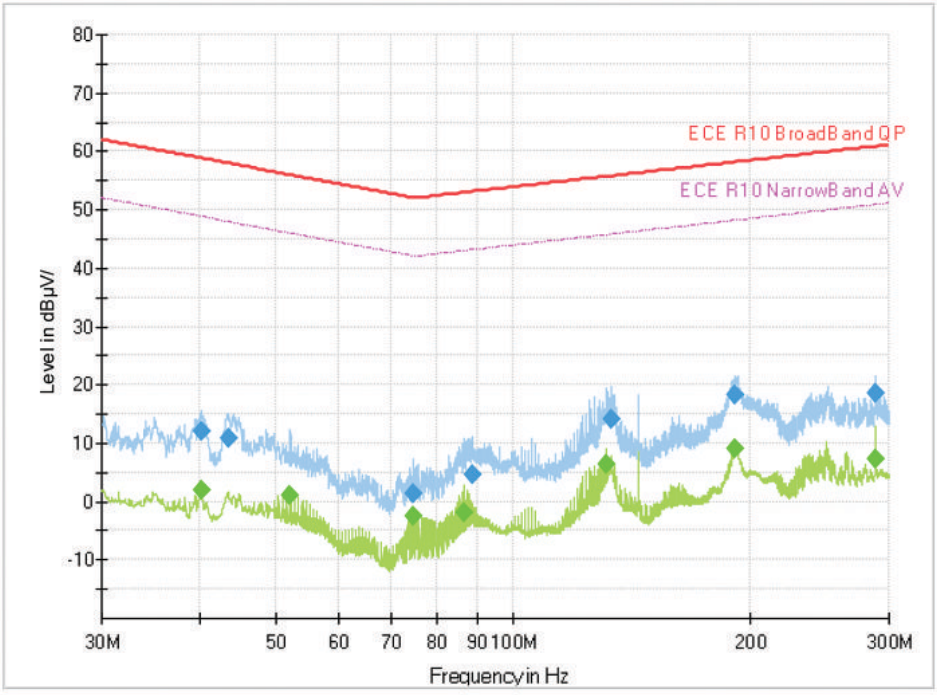
30 to 300MHz – Horizontal:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
34.800000	---	-1.55	50.38	51.93
38.450000	3.76	---	59.29	55.53
44.850000	---	-0.20	47.61	47.81
44.850000	8.82	---	57.61	48.79
58.100000	---	-4.34	44.79	49.12
80.200000	-1.60	---	52.44	54.04
86.600000	---	-2.82	42.95	45.76
87.150000	3.86	---	52.99	49.13
144.250000	14.70	---	56.30	41.59
144.250000	---	8.95	46.30	37.34
190.750000	---	1.85	48.13	46.28
191.950000	9.12	---	58.18	49.05
288.650000	---	7.95	50.86	42.91
288.750000	15.08	---	60.86	45.78

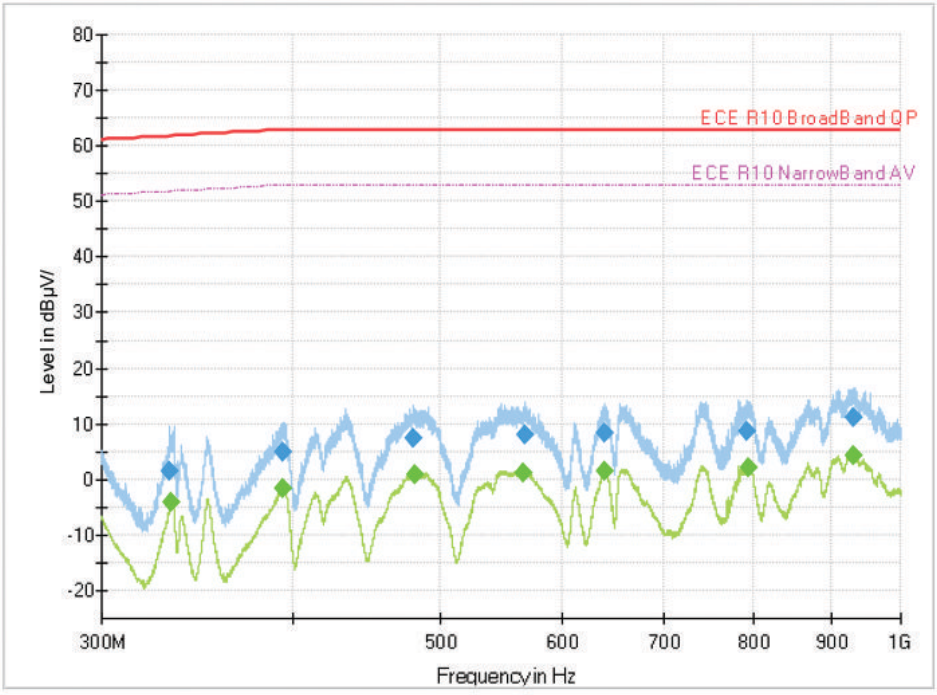
30 to 300MHz – Vertical:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.100000	---	2.04	48.83	46.80
40.100000	12.10	---	58.83	46.73
43.400000	10.75	---	57.97	47.22
52.100000	---	1.03	45.98	44.94
74.550000	---	-2.51	42.07	44.57
74.600000	1.45	---	52.06	50.61
86.700000	---	-1.97	42.95	44.92
88.550000	4.65	---	53.09	48.44
131.050000	---	6.47	45.67	39.20
133.150000	14.02	---	55.77	41.75
191.450000	18.26	---	58.16	39.90
191.500000	---	9.12	48.16	39.04
288.100000	---	7.37	50.84	43.47
288.450000	18.45	---	60.85	42.41

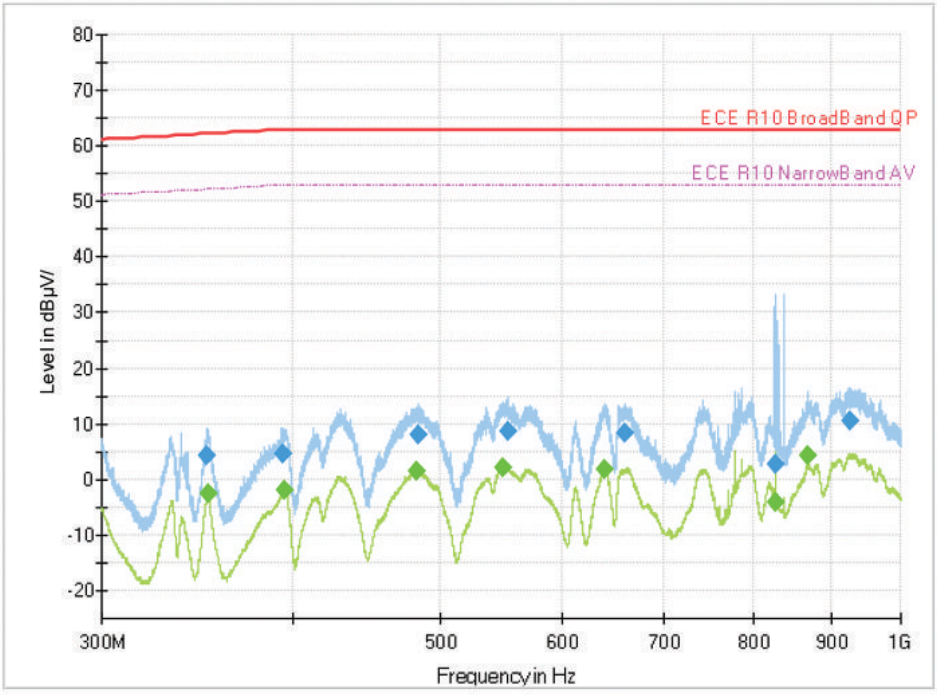
300 to 1000MHz – Horizontal:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
332.100000	1.34	---	61.78	60.44
333.400000	---	-4.02	51.80	55.83
394.150000	5.03	---	62.90	57.88
394.500000	---	-1.64	52.91	54.55
479.250000	7.35	---	63.00	55.65
480.900000	---	0.79	53.00	52.21
566.500000	---	1.21	53.00	51.79
567.550000	7.93	---	63.00	55.07
640.050000	8.28	---	63.00	54.72
640.550000	---	1.57	53.00	51.43
793.050000	8.74	---	63.00	54.26
795.200000	---	2.19	53.00	50.81
931.250000	---	4.40	53.00	48.60
931.650000	11.15	---	63.00	51.85

300 to 1000MHz – Vertical:



PK result AV result

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	Limit (dBuV/m)	Margin (dB)
351.750000	4.39	---	62.16	57.76
352.200000	---	-2.50	52.16	54.66
394.500000	4.54	---	62.91	58.37
395.050000	---	-1.97	52.92	54.89
482.300000	---	1.50	53.00	51.50
483.050000	8.11	---	63.00	54.89
549.350000	---	2.19	53.00	50.81
552.900000	8.78	---	63.00	54.22
639.900000	---	1.86	53.00	51.14
660.150000	8.19	---	63.00	54.81
828.650000	2.58	---	63.00	60.42
828.650000	---	-4.11	53.00	57.11
869.100000	---	4.41	53.00	48.59
927.500000	10.60	---	63.00	52.40

Annex 2b Immunity of ESA to conducted transient interferences

DUT Model: SU-BLE12180MH Test Voltage: 13.5V

Test Mode: Charging Test Result: Pass

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
1	-75V	5000 pulses	0.5s	D	A
2a	+37V	5000 pulses	0.2s	D	A
2b	+10V	10 pulses	0.5s	D	A
3a	-112V	1h	90ms	D	A
3b	+75V	1h	90ms	D	A
4	-6V	1 pulse	/	D	A

Remark:
"A": all functions of EUT perform as designed during and after exposure to disturbance.
"B": all functions of EUT 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.
"C": EUT power off during exposure but return automatically to normal operation after exposure is removed.
"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

Annex 2c Conducted transients from ESAs to the vehicle power supply

DUT Model: SU-BLE12180MH Test Voltage: 13.5V

Test Mode: Charging Test Result: Pass

Measurement result:

Polarity of pulse amplitude	Maximum allowed value for vehicles with 12V systems	Measured Pulse amplitude True Value (Fast)	Measured Pulse amplitude True Value (Slow)
Positive	+75V	+0.583V	+0.666V
Negative	-100V	-11.66V	-11.83V