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VERITAS

Type Certificate

Applicant: SMA Solar Technology AG
Address: Sonnenallee 1
34266 Niestetal
Germany

Type of power generating unit:
Technical data:

Grid-tied PV inverter / Battery converter	Sunny Central / Sunny Central Storage (Product Family) (for details see supplement of certificate)
Max. apparent power:	4600 kVA
Nominal voltage:	337 V ... 690 V, (depending on model type), 3~ + PE
Nominal frequency:	50 Hz
Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600^{(1)}}$:	(for details see supplement of certificate from p.2 to p.5)
Firmware version:	07.01.xx.R with xx = 03 or higher; 08.00.xx.R with xx = 12 or higher; 08.01.xx.R; 08.02.xx.R; 09.00.xx.R; 09.02.xx.R; 10.00.xx.R; 10.01.xx.R; 10.02.xx.R "xx" can be any number, changes in this position indicate no certification relevant modifications

Validated type model:

Model file:	SMA_20-0955_TR4_SC(S)_V4.zip ⁴⁾
Identification number (MD5):	b4cf752f1f79a69c5462f2ef2e6d3eed
Model file:	SMASC(S)_RMS_GFL_V06_35_1_enc_PowerFactory.zip ⁴⁾
Identification number (MD5):	87f07d4b83afed95ff5b4532c62dfe37

Grid connection regulation:

VDE-AR-N 4110:2023-09 – Technical requirements for the connection and operation of customer installations to the medium voltage network (TCR medium voltage) [1]
VDE-AR-N 4120:2018-11 – Technical requirements for the connection and operation of customer installations to the high voltage network (TCR high voltage) [2]
VDE-AR-N 4130:2018-11 – Technical requirements for the connection and operation of customer installations to the extra high voltage network (TCR extra high voltage) [25]

Pertinent standards / Guidelines:

Technical guidelines:
FGW TR 3 Rev. 25 [3], FGW TR 4 Rev. 10 [4], FGW TR 8 Rev. 09 [5]

The power generating units, stated in the certificate, were tested and certified according to the technical guidelines referenced to the grid connection regulation. The electrical characteristics fulfil the requirements of the grid connection regulation:

- Quasi-steady-state operation
- Dynamic network stability (reactive current characteristic according to TCR medium voltage)
- Active power output and network security management
- Active power adjustment as a function of the grid frequency
- Protection technology and protection settings on generating unit level
- Power quality

The manufacturer has provided proof of certification of the quality management system of his production facility in accordance with ISO 9001

Restrictions, deviations or notes on usage: see supplement of certificate on p.5 and 6.

The certificate includes the following information:

- technical data of the power generating unit, the auxiliary equipment used and the software version used;
- schematic structure of the power generating units;
- summarized information on the properties of the power generating unit.

The certificate is comprised of 317 pages (including Annex of 309 pages).

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BV project number : 15TH0407

Certificate no. : 20-0955_6

Issued : 2025-11-26

Certification scheme : NSOP-0032-DEU-ZE-V10

Valid until : 2030-11-25

Certification body

Georg Loritz
Lab Supervisor Energy Systems



Accredited certification body by Deutsche Akkreditierungsstelle GmbH (DAKs) according to ISO/IEC 17065. The accreditation is valid only for the scope listed in the annex of the accreditation certificate D-ZE-12024-01-00. The Deutsche Akkreditierungsstelle GmbH (DAKs) is signatory of the multilateral arrangements of EA, ILAC and IAF for mutual recognition.

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ZERT-0005-DEU-ZE-ES-V01/TEMP-0048-DEU-ZE-ES-V01

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Ratings

Type of power generating unit: Technical data:	Grid-tied photovoltaic inverter	SUNNY CENTRAL UP	
		SC 4000 UP	SC 4200 UP
	Rated active power:	4000 kW (@35°C)	4200 kW (@35°C)
	Rated / Max. apparent power:	4000 kVA (@35°C)	4200 kVA (@35°C)
	Nominal voltage:	600 V, 3~ + PE	630 V, 3~ + PE
Technical data determined by measurements:	Nominal frequency:	50 Hz	
	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Type of power generating unit: Technical data:	Grid-tied photovoltaic inverter	SUNNY CENTRAL UP	
		SC 4400 UP	SC 4600 UP
	Rated active power:	4400 kW (@35°C)	4600 kW (@35°C)
	Rated / Max. apparent power:	4400 kVA (@35°C)	4600 kVA (@35°C)
	Nominal voltage:	660 V, 3~ + PE	690 V, 3~ + PE
Technical data determined by measurements:	Nominal frequency:	50 Hz	
	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	4650,1 kW ³⁾
Firmware version:	08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)		
Type of power generating unit: Technical data:	Grid-tied photovoltaic inverter	SUNNY CENTRAL UP	
		SC XXXX UP (3S)	
	Rated active power:	2000 – 2667(@25°C)	
	Rated / Max. apparent power:	2000 – 2667 (@25°C)	
	Nominal voltage:	300 - 400, 3~ + PE, 50Hz	
Firmware version:	Nominal frequency:	50 Hz	
		10.02.xx.R (with xx=00 or higher)	
Type of power generating unit: Technical data:	Grid-tied photovoltaic inverter	SUNNY CENTRAL UP (2-stack-version)	
		SC 2660 UP	SC 2800 UP
	Rated active power:	2667 kW (@35°C)	2800 kW (@35°C)
	Rated / Max. apparent power:	2667 kVA (@35°C)	2800 kVA (@35°C)
	Nominal voltage:	600 V, 3~ + PE	630 V, 3~ + PE
Technical data determined by measurements:	Nominal frequency:	50 Hz	
	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Type of power generating unit: Technical data:	Grid-tied photovoltaic inverter	SUNNY CENTRAL UP (2-stack-version)	
		SC 2930 UP	SC 3060 UP
	Rated active power:	2933 kW (@35°C)	3067 kW (@35°C)
	Rated / Max. apparent power:	2933 kVA (@35°C)	3067 kVA (@35°C)
	Nominal voltage:	660 V, 3~ + PE	690 V, 3~ + PE
Technical data determined by measurements:	Nominal frequency:	50 Hz	50 Hz
	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Firmware version:	08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher) , 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)		



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Annex type certificate No. 20-0955_6

Ratings

Type of power generating unit:	Grid-tied photovoltaic inverter		SUNNY CENTRAL	
			SC 2200-10	SC 2475-10
	Technical data:		Rated active power:	2200 kW (@35°C)
			Rated / Max. apparent power:	2200 kVA (@35°C)
			Nominal voltage:	385 V, 3~ + PE
Technical data determined by measurements:			Nominal frequency:	50 Hz
			Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600}^{1)}$:	2)
			Firmware version:	08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)
Type of power generating unit:	Grid-tied bi-directional battery converter		SUNNY CENTRAL STORAGE	
			SCS 1900-10	SCS 2200-10
	Technical data:		Rated active power:	1900 kW (@25°C)
			Rated / Max. apparent power:	1900 kVA (@25°C)
			Nominal voltage:	337 V, 3~ + PE
Technical data determined by measurements:			Nominal frequency:	50 Hz
			Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600}^{1)}$:	2)
			Firmware version:	07.01.xx.R (with xx=03 or higher), 08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)
Type of power generating unit:	Grid-tied bi-directional battery converter		SUNNY CENTRAL STORAGE	
			SCS 2475-10	SCS 2900-10
	Technical data:		Rated active power:	2475 kW (@25°C)
			Rated / Max. apparent power:	2475 kVA (@25°C)
			Nominal voltage:	434 V, 3~ + PE
Technical data determined by measurements:			Nominal frequency:	50 Hz
			Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600}^{1)}$:	2)
			Firmware version:	07.01.xx.R (with xx=03 or higher), 08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)
Type of power generating unit:	Grid-tied bi-directional battery converter		SUNNY CENTRAL STORAGE UP	
			SCS 3450 UP	SCS 3600 UP
	Technical data:		Rated active power:	3450 kW (@25°C)
			Rated / Max. apparent power:	3450 kVA (@25°C)
			Nominal voltage:	600 V, 3~ + PE
Technical data determined by measurements:			Nominal frequency:	50 Hz
			Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600}^{1)}$:	2)
			Firmware version:	07.01.xx.R (with xx=03 or higher), 08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)
Type of power generating unit:	Grid-tied bi-directional battery converter		SUNNY CENTRAL STORAGE UP	
			SCS 3800 UP	SCS 3950 UP
	Technical data:		Rated active power:	3800 kW (@25°C)
			Rated / Max. apparent power:	3800 kVA (@25°C)
			Nominal voltage:	660 V, 3~ + PE
Technical data determined by measurements:			Nominal frequency:	50 Hz
			Max. active power $P_{E_{max}}$ / Max. active power peak $P_{600}^{1)}$:	2)
			Firmware version:	07.01.xx.R (with xx=03 or higher), 08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher), 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)



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Annex type certificate No. 20-0955_6

Ratings

Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-XT	
		SCS 3450 UP-XT	SCS 3600 UP-XT
	Rated active power:	4000 kW (@25°C)	4200 kW (@25°C)
	Rated / Max. apparent power:	4000 kVA (@25°C)	4200 kVA (@25°C)
	Nominal voltage:	600 V, 3~ + PE	630 V, 3~ + PE
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-XT	
		SCS 3800 UP-XT	SCS 3950 UP-XT
	Rated active power:	4400 kW (@25°C)	4600 kW (@25°C)
	Rated / Max. apparent power:	4400 kVA (@25°C)	4600 kVA (@25°C)
	Nominal voltage:	660 V, 3~ + PE	690 V, 3~ + PE
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Firmware version:	07.01.xx.R (with xx=03 or higher), 08.00.xx.R (with xx=12 or higher),08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher),09.00.xx.R (with xx=00 or higher) , 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher), 10.02.xx.R (with xx=00 or higher)		
Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-S	
		SCS 4600 UP-S	SCS 4400 UP-S
	Rated active power:	4600 kW (@25°C)	4400 kW (@25°C)
	Rated / Max. apparent power:	4600 kVA (@25°C)	4400 kVA (@25°C)
	Nominal voltage:	690 V, 3~ + PE	660 V, 3~ + PE
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-XT	
		SCS XXXX UP-XT (3S)	
	Rated active power:	2000-2667 kW (@25°C)	
	Rated / Max. apparent power:	2000-2667 kVA (@25°C)	
	Nominal voltage:	300-400 V, 3~ + PE	
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2))	
Firmware version:	10.02.xx.R (with xx=00 or higher)		
Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-XT (2-stack-version)	
		SCS 2300 UP-XT	SCS 2400 UP-XT
	Rated active power:	2667 kW (@25°C)	2800 kW (@25°C)
	Rated / Max. apparent power:	2667 kVA (@25°C)	2800 kVA (@25°C)
	Nominal voltage:	600 V, 3~ + PE	630 V, 3~ + PE
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Type of power generating unit: Technical data:	Grid-tied bi-directional battery converter	SUNNY CENTRAL STORAGE UP-XT (2-stack-version)	
		SCS 2530 UP-XT	SCS 2630 UP-XT
	Rated active power:	2933 kW (@25°C)	3067 kW (@25°C)
	Rated / Max. apparent power:	2933 kVA (@25°C)	3067 kVA (@25°C)
	Nominal voltage:	660 V, 3~ + PE	690 V, 3~ + PE
	Nominal frequency:	50 Hz	
Technical data determined by measurements:	Max. active power P _{E_{max}} / Max. active power peak P ₆₀₀ ¹⁾ :	2)	2)
Firmware version:	08.00.xx.R (with xx=12 or higher), 08.01.xx.R (with xx=00 or higher), 08.02.xx.R (with xx=00 or higher), 09.00.xx.R (with xx=00 or higher) , 09.02.xx.R (with xx=00 or higher), 10.00.xx.R (with xx=00 or higher), 10.01.xx.R (with xx=00 or higher)		

Note:

- 1) The $P_{E_{max}}$ is the highest 10-min mean of the active power of a power generating unit defined according to VDE-AR-N 4110:2023 [1]. The P_{600} is the maximum active power peak of the overall system (averaging period 10 min) defined according to FGW TR 3 Rev. 25 [3].
- 2) Due to spot testing the tests marked were not conducted.
- 3) The stated measurement result was determined according to test 4.1.1, FGW TR 3 Rev. 25 [3].
The active power results of the SC 4600 UP can be applied to other *SUNNY CENTRAL UP / SUNNY CENTRAL / SUNNY CENTRAL STORAGE / SUNNY CENTRAL STORAGE UP / SUNNY CENTRAL STORAGE UP-XT* inverters / converters scaled (by the factor $P_{n, \text{ notmeasured }} / P_{n, \text{ SC 4600 UP }}$).
For the charging operation of the battery converters of *SUNNY CENTRAL STORAGE / SUNNY CENTRAL STORAGE UP* the same characteristics is provided. For the battery converters of *SUNNY CENTRAL STORAGE UP-XT* the asymmetrical PQ capability in charging and discharging operation need to be considered).
- 4) SMA_20-0955_TR4_SC(S)_V4.zip contains version 6.10 of the simulation model. SMASC(S)_RMS_GFL_V06_35_1_enc_PowerFactory.zip contains version 6.35 of the simulation model. Both models were validated in against measurements & plausibility checked, see also [9] & [27]. There are no certification relevant changes between both versions of the model. However, the manufacturer recommends that model version 6.35 is used for new plant certification projects.

Restrictions, deviations or notes on usage

- The implementation of the reactive power control functions on PGU level (Q(U) characteristic, Q(P) and Reactive power with voltage limitation function) may deviate to requirements according to VDE-AR-N 4110:2023-09 / VDE-AR-N 4120 / VDE-AR-N 4130:2018-11. This needs to be considered for project planning. If needed, these have to be implemented on the plant level e.g. in the superimposed PGS controller. (see p.228)
- For frequency protection and voltage protection with long delay setting (e.g. 180s) the sum of time elements of the integrated protection relay and switching equipment may exceed 100ms, this has to be considered for project planning. (see p.240)
- The default configuration of the units may not meet the reactive power requirement at the grid connection point. A permanent active power reduction may be needed (see p.225). This needs to be considered for project planning.
- Restriction for devices before HW Version A7:
The FRT capability at the terminal HVRT(1) (see Annex 7) is less than the required capabilities in VDE-AR-N 4120/30 (pic. 12).
For these inverters, measures on the PGS level to limit the AC voltage at the inverter terminals must be taken. These measures are e.g. the use of a transformer-tap-changer (OLTC), automatic voltage regulation, etc.
- Prioritization of grid security management over P(f) control and prioritization of P(f) control over setpoint specification by third parties has been implemented but was not tested.
Correct setpoint prioritization must be implemented via a superimposed PGS controller.

Description of the revisions of certificate 20-0955_6

Rev. 0	First issue
Rev. 1	- Information of <i>Type of power generating unit</i> and <i>Technical data</i> on front page updated - References for <i>Restrictions, deviations or notes on usage</i> on Supplement of Certificate added - Changes in <i>Annex 3 – Extract from the test report</i>: - Chapter 3.3: <i>Note to methods for the reactive power supply implemented on the PGU level</i> added - Chapter 3.4: <i>Note to PGU integrated protection relay</i> added - Chapter 3.7: <i>Note to FRT abilities of the units</i> added
Rev. 2	General changes: - Model types: - SC 2200-10, SC 2475-10, SC 2750-EV-10, SC 3000-EV-10 - SCS 2200-10, SCS 2475-10, - SCS 3450 UP, SCS 3600 UP, SCS 3800 UP, SCS 3950 UP, - SCS 3450 UP-XT, SCS 3600 UP-XT, SCS 3800 UP-XT and SCS 3950 UP-XT added. - Simulation model updated. - General technical data of model types of <i>SUNNY CENTRAL UP</i> updated. <i>Restrictions, deviations or notes on usage</i> updated. <i>Technical data determined by measurements</i> on front page added Changes in the certificate annexes: - Reference [7], [8], [9], [10], [11], [12], [13], [14], [15], [17] and [23] updated. <i>Annex 3 – Extract from the test report</i> updated. <i>Annex 4 – Validated simulation model</i> updated. <i>Annex 5 – Certification-relevant parameters</i> updated.
Rev. 3	General changes: - Extension of the assessment scope to include <i>VDE-AR-N 4130:2018-11</i> [25] - Model types: - SC 2660 UP, SC 2800 UP, SC 2930 UP, SC 3060 UP, - SCS 2300 UP-XT, SCS 2400 UP-XT, SCS 2530 UP-XT and SCS 2630 UP-XT added. - Simulation model updated. <i>Restrictions, deviations or notes on usage</i> updated. Changes in the certificate annexes: <i>Annex 1 – Guidelines, test reports and documents</i> - Reference [7], [8], [9], [10], [11], [12], [13], [14], [15], [16], [22] and [23] updated. - Reference [25] added. <i>Annex 2 – Technical characteristics of the power generating unit (Manufacturer's data)</i> updated. <i>Annex 3 – Extract from the test report</i> updated. <i>Annex 4 – Validated simulation model</i> updated. <i>Annex 5 – Certification-relevant parameters</i> updated.

Rev. 4	General changes: - Firmware versions added - Removed types SC 2500-EV-10, SC 2750-EV-10 and SC 3000-EV-10 - Updated restrictions and deviations. Units with $U_n = 660$ V now fulfil requirements of FRT capability of VDE-AR-N 4120/ 4130:2018-11 (depending on additional HW-options) Changes in the certificate annexes: <i>Annex 1 – Guidelines, test reports and documents</i> - Reference [7], [9], [10], [11], [12], [13], [15], [16] updated. - Reference [26] added. <i>Annex 2 – Technical characteristics of the power generating unit (Manufacturer's data)</i> - Description of software version updated <i>Annex 3 – Extract from the test report</i> updated. - Updated Figure 14 – Unit-Design depending Fault Ride-Through (FRT) limit curve from [16] <i>Annex 5 – Certification-relevant parameters</i> updated. <i>Annex 6– SC(S) reduction of higher-frequency harmonics</i> added.
Rev. 5	General changes: - Renewal of the certificate according to 4110/4120/4130 and check of changes - VDE-AR-N 4110:2018-11 reference standard updated to VDE-AR-N 4110:2023-09 - All units (from HW-Version A7) now fulfil requirements of FRT capability of VDE-AR-N 4120/ 4130:2018 - Firmware versions added - Simulation model updated (The previous model <i>SMA_20-0955_TR4_SC(S)_V3.zip</i> from certificate revision 200955_4 can still be used as long as no limited dynamic grid support has to be simulated) Changes in the certificate annexes: <i>Annex 1 – Guidelines, test reports and documents</i> - Reference [7], [9], [10], [11], [12] and [13] updated. <i>Annex 2 – Technical characteristics of the power generating unit (Manufacturer's data)</i> - Description of a typical installation updated - Description of software version updated <i>Annex 3 – Extract from the test report</i> updated. <i>Annex 4 – Validated simulation model</i> updated. <i>Annex 5 – Certification-relevant parameters</i> updated. <i>Annex 6– SC(S) reduction of higher-frequency harmonics</i> updated.
Rev. 6	General changes: - Renewal of the certificate according to 4110/4120/4130 and check of changes for new five-year validity - Firmware versions added - Types SC XXXX UP (3S), SCS 4600 UP-S, SCS 4400 UP-S, SCS XXXX UP-XT (3S) added - New version of simulation model added - Restriction regarding HVRT capability for hardware versions <A7 added - Restriction regarding correct active power setpoint prioritization during an underfrequency event added Changes in the certificate annexes: <i>Annex 1 – Guidelines, test reports and documents</i> - References [7], [9], [10], [11], [12], [13], [14], [15], [16], [18], updated. - References [27], [28], [29] added <i>Annex 2 – Technical characteristics of the power generating unit (Manufacturer's data)</i> - Description of a typical installation updated - Description of software version updated <i>Annex 3 – Extract from the test report</i> updated. <i>Annex 4 – Validated simulation model</i> updated. <i>Annex 5 – Certification-relevant parameters</i> updated.