Test Certificate No. 9412324136

In accordance with Clause 12 of the Standards Law – 1953

Details of order:

Name of customer	:	Bureau Veritas Consumer Product Services GmbH
Address	:	Businesspark A96, 86842 Türkheim, Germany
Date of order	:	20/08/2014

Description of sample:

Solar Inverter		
Models	:	STP 5000TL-20, STP 6000TL-20, STP 7000TL-20, STP 8000TL-20, STP 9000TL-20, STP 10000TL-20, STP 12000TL-20
Manufacturer	:	SMA Solar Technology AG
Country of origin	:	Germany

(see additional product information on pages 2-13)

Sampling details:

No sample required.

Nature of test:

Review of test reports Ref. No. 12TH0259-SI4777_0, dated 15/07/2014, and 12TH0259-AS/NZS3100_2, dated 03/07/2014, issued by Bureau Veritas Consumer Product Services, Germany for the above-specified solar inverter models according to the following standards:

AS 4777.2: 2005 - Grid connection of energy systems via inverters: Inverter requirements, with Deviations for Israel according to SI 4777 part 2
AS 4777.3: 2005 - Grid connection of energy systems via inverters: Grid protection requirements, with Deviations for Israel according to SI 4777 parts 2, 3: 2008
AS 3100: 2009 + A1: 2010 + A2: 2013 - General requirements for electrical equipment

This document contains 13 pages and may be used only in full.	**The test results in this report refer only to the item tested.**	This document alone is not sufficient for the release of goods from customs.

Test Conclusions:

Based on the information provided in the test reports Ref. No. No. 12TH0259-SI4777_0 and 12TH0259-AS/NZS3100_2, the above-specified solar inverter models **comply** with the requirements of the above-specified standards.

Sergey Voytenko
Testing Engineer, Electrical Safety Branch
Electronics and Telematics Laboratory
The Standards Institution of Israel

Date: 25/08/2014

Michael Terman
Head of Electrical Safety Branch
Electronics and Telematics Laboratory
The Standards Institution of Israel

Date: 25/08/2014

This document does not permit marking the product with SII Mark

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ADDITIONAL PRODUCT INFORMATION

Electrical ratings:

Trademark ..... :	SMA						
Model / Type ..... :	STP 5000TL-20, STP 6000TL-20, STP 7000TL-20, STP 8000TL-20, STP 9000TL-20, STP 10000TL-20, STP 12000TL-20						
Ratings ..... :	**STP 5000TL-20**	**STP 6000TL-20**	**STP 7000TL-20**	**STP 8000TL-20**	**STP 9000TL-20**	**STP 10000 TL-20**	**STP 12000 TL-20**
MPP DC voltage range [V] ..... :	245-800	295-800	290-800	330-800	370-800	370-800	440-800
Input DC voltage range [V] ..... :	100-1000						
Input DC current (string A / B) [A] ..... :	11/10	11/10	15/10	15/10	15/10	18/10	18/10
Output AC voltage [V] ..... :	3x 230/400						
Output AC current [A] ..... :	7,3	8,7	10,2	11,6	13,1	14,5	17,4
Output power [VA] ..... :	5000	6000	7000	8000	9000	10000	12000

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List of components:

3.3 3.4	Selection of materials and parts Selection of components (list of critical components)				P
Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
Enclosure	+ SMA	45-11021020	Aluminium; cover overall approx. dimension: 459mm by 605mm by 73mm by min. 3mm thickness Provided with Plastic window for Display Aluminium; case overall approx. dimension: 459mm by 605mm by 216,5mm by min. 3mm thickness Provided with Heat sink Aluminium; rear panel overall approx. dimension: 459mm by 605mm by min. 2,6mm thickness		Accepted
Gasket	Sonderhoff	Fermapor K31 9021-2 or Fermapor K31 A 9230-2-VP	Temp. Class: -40°C to +80°C Short-term heat resistance: >125°C Flash point: >170°C	(JMTS2)	URus MH26871
ESS Connector unit Input	DuPont	FR72G25 V0	1000V; 9kW; max. 30A Flame Class: 5VA; 140°C	(QMFZ2)	cURus E41938
ESS Handle unit Input	DuPont	FR72G25 V0	Plastic; overall approx. dimension: 161mm by 77mm by 151mm by min. 1,5mm thickness Flame Class: 5VA; 140°C	(QMFZ2)	cURus E41938
Connector DC Input + 4 provided	+ Phoenix-Contact	PV-FT-CF-C	1000Vdc; 40A; -40°C to +85°C	EN 50521	TÜV
Connector DC Input – 4 provided	+ Phoenix-Contact	PV-FT-CM-C	1000Vdc; 40A; -40°C to +85°C	EN 50521	TÜV
Connector RJ45	Nilit	Frianyl	Flame Class: 125°C	QMFZ2	cURus E331274
Connection Screw	Jacob	50.625 PA/SWLRV5 Polyamid PA6	Flame Class: 94V-2; 100°C	EN 50262	cURus E140310
Pressure compensation element	Schreiner	14/8-DAE	Temp. Class: 130°C	DIN 40050	Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
Fan 2 provided	+ ebmPapst	3312U	12Vdc; 235mA; 2,8W; cfm 47,1; 75°C Provided with grid Wire: AWG 22; TR 64	(GPWV2)	cURus E38324
Internal wiring Bluetooth from ESS Connector to STP90-CON Board (X1000)	+ General Cable	Style 1354	30Vac; AWG44; max. 80°C	(AVLV2)	URus E76328
Internal wiring from Connector DC Input +/- to STP90-CON Board (X2104, X2105, X2106, X2107)	+ Phoenix Contact	PE/X 1X2,5 PE/X 1X2,5	1,1kVDC/0,6kVAC ; Size 2,5mm²; 105°C	VDE 0472 DIN EN 50267-2-1	Accepted
Internal wiring from ESS Connector to STP90-CON Board (X2204)	+ Huber + Suhner	Radox 4 GKW-AX	1,8kVac/3,0kVac; 2,7kVdc/4,5kVdc; 120°C; Size 4mm²;	EN 60228 class 5	Accepted
Inductor AC/DC (external to the PCB)	DTW	PS2100-i01-121112	Overall approx. dimension: 441,9mm by 408,4mm by 256mm Rating: 3 x (L1 1400µH; 13,5A / L2 120µH; 13,5A Core: Ferrite; CST29/19/28.5-4S2 by FerroxCube Bobbin: Zytel 70G30HSL, Zytel FR72G25V0 by DuPont or Ultramid C3U by BASF Winding: Enamelled copper magnet wire Damid PE by Dahrentrad AB or various manufactures Sleeving: Fiberglass sleeving coated with polyurethane or silicone varnish ADAGLAS by Damerius GmbH or D19.61 by F.I.E. Balconi or Siligaine 15C4 by Omerin S.A.S	EN 61558-1 EN 50178 IEC 62109-1	Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			Lead wire, sleeving: Material: XLPE; XLPO; ETFE; TFE Varpren UL155 by Omerin or BETAtherm 155, BETAtherm 155UL or 145UL by Studer Potting compound: 94V-0; PU515 / PH27 by Elantas Camattini SpA Plastic case: UL 94V-0, V1, V2 or HB Zytel 70G30HSL by DuPont		
STP90-CON Board					Accepted
PCB STP90-CON Board	+ RUWEL	U5	overall approx. dimension: 367mm by 260mm by 2,3mm thickness Flame Class: 94V-0; 130°C	(ZPMV2)	cURus E48403
Connector terminal ((X2104, X2105, X2106, X2107)	Phoenix	SPT 5/2-V-7,5	1000V; 41A Flame Class: 94V-0	(XCFR2)	cURus E60425
Capacitor (C2100, C2101, C2102, C2103) Line to PE	+ Kemet	PME 295	480Vac; 1500Vdc; 1nF; 115°C; Y1	(FOKY2) IEC 60384-14	cURus E100117 VDE
Capacitor (C2104, C2105, C2106, C2107)	+ Epcos	B81123C1222M000	3000Vdc; 250Vac; 10nF; 100°C; Y	(FOWX2) IEC 60384-14	cURus E97863 VDE
Capacitor (C2108, C2109)	+ Vishay	MKP 338 1	300Vac; 1000Vdc; 150nF; 105°C; X2	(FOKY2) IEC 60384-14	URus E109565 VDE
Inductor (L2100, L2102)	Kaschke	RDS 15-1,0	Open type construction with overall approx. dimension: 41mm by 21,5mm by 34mm Rating: 2x1mH; 1500Vdc; 15A Core: R34/20,5/15LL K5500 or equiv Coil: Enamelled copper magnet wire		Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			wound on Core Case: Ultramid A3X2G7 by BASF Temp. Class: 115°C Flame Class: 94V-0; min. 0,75mm thickness Spacer: Ultramid A3X2G7 by BASF Temp. Class: 115°C Flame Class: 94V-0; min. 0,75mm thickness		
Capacitor (C2110, C2112)	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 100nF; 105°C; Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Capacitor (C2116, C2117)	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 47nF; 105°C; Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Capacitor (C2114, C2115)	+ Vishay	MKP 338 1	300Vac; 1000Vdc; 820nF; 105°C; X2	(FOKY2) IEC 60384-14	URus E109565 VDE
Connector terminal (X2204, X2400, X2600)	Phoenix	SPT 5/ 3-V-7,5	1000V; 41A Flame Class: 94V-0	(XCFR2)	cURus E60425
Varistor (XG2300, XG2301, XG2302, XG2303)	Epcos	T20K510	510Vac; 670Vdc; 85°C	IEC 61051	VDE
Connector terminal for Varistor (XG2300, XG2301, XG2302, XG2303)	Wago	739-203	300V; 8A; 28-12; FW2; 105°C Flame Class: 94V-0	(XCFR2)	cURus E45172
Capacitor (C2425, C2426)	+ Vishay	MKP 1848	1100Vdc; 10µF; 70°C	IEC 61071 IEC 60068	Accepted
Capacitor (C1011, C2600, C2601, C2602) Line to PE	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 1000pF; 105°C; Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Capacitor (C1010) Line to PE	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 33nF; 105°C Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Capacitor (C2604, C2608, C2611)	+ Epcos	B3292	305Vac; 3,3µF; 110°C; X2	(FOKY2) IEC 60384-14	cURus E157153 VDE
Relay (K2600, K2601)	+Finder	67 Series	Contact: 250Vac; 30A Coil: 12Vdc	(NLDX2) VDE 6106	cURus E81856 VDE
Capacitor (C2614, C2615, C2617, C3101, C3104, C3105, C3115)	+ Wima	MKP 10	1000Vdc; 10nF; 100°C		Accepted
Diode bridge (V2900, V2901)	+ Vishay	DF10SA-E3	1000Vdc; 30°; 150°C	(QQIJ2)	URus E54214
Inductor (L2900)	Epcos	B82721-K2202N002	Closed type construction with overall approx. dimension: 18,2mm by	VDE 0565-2	VDE

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			13,2mm by min. 20,3mm Rating: 1mH; 2A; 250Vac; 800Vdc Flame Class Case: UL 94V-0		
Capacitor (C2901)	+ Vishay	MKP 1848	1300Vdc; 8µF; 70°C	IEC 61071 IEC 60068	VDE
Capacitor (C2905, C2906) Line to PE	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 6,8nF; 105°C Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Transformer (T2900)	Hartmann	M 122 / 11a	Closed type construction with overall approx. dimension: 27mm by 23mm by 16,7mm Rating: Prim: 200V-750Vdc; Sec: 20Vdc Switching Frequency: 132kHz Gear ratio: 87 : 10 : 18 Insulation Class: Class B; 130°C Flame Class Case: Ultramid A3X2G7 by BASF UL 94V-HB		Accepted
Current sensor (L3001)	VAC	T60404-N4646-X930	Closed type construction with overall approx. dimension: 71,5mm by 48,3mm by 34mm Primary: 50A Secondary: 5V Gear ratio: 1 : 1 : 1 : 1 : 20 : 1000	IEC 62109	Accepted
Capacitor (C3100, C3101, C3102)	+ Epcos	B32922	305Vac; 100nF; 110°C; X2	(FOKY2) IEC 60384-14	cURus E157153 VDE
Inductor (L3101)	Kaschke	RDS 13,5-0,75	Open type construction with overall approx. dimension: 41mm		Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			by 48,5mm by 25,5mm Rating: 3x0,75mH; 300Vac Gear ratio: 1 : 1 : 1 Core: R40/24/16L K5500 or Equiv. Coil: Enamelled copper magnet wire wound on Core with tubed outlets Windings insulation: SH Therm 210 by Schwering & Hasse Temp. Class: 200°C; MW35 Wire insulation: GVES4000 by Isolcavi Temp. Class: 180°C; H Insulation between windings: Nomex type 992 by DuPont Temp. Class: 220°C; H Flame Class: UL 94V-0 Coil base insulation: Ultramid A3X2G7 by BASF Temp. Class: 140°C; B Flame Class: UL 94V-0		
Capacitor (C3114, C3117, C3122)	+ Vishay	B32923	300Vac; 1000Vdc; 220nF; 105°C; X2	(FOKY2) IEC 60384-14	URus E157153 VDE
Capacitor (C3118) Line to PE	+ Xiamen	MKP63	250Vac; 68nF; 110°C; Y2	(FOWX2) IEC 60384-14	cURus E186600 VDE
Inductor (L3108)	Kaschke	RDS 13,5-0,75	Open type construction with overall approx. dimension: 50mm by 27mm Rating: 3x0,75mH;		Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			300Vac; 13,5A Gear ratio: 1 : 1 : 1 Core: R40/24/16L K5500 or Equiv. Coil: Enamelled copper magnet wire wound on Core with tubed outlets Base plate: Ultramid A3X2G7 by BASF Temp. Class: 115°C Flame Class: 94V-0; min. 0,75mm thickness Insulation between windings: Rynite FR530 by DuPont Temp. Class: 155°C; F Flame Class: UL 94V-0; min. 0,35mm thickness Windings insulation: SH Therm 210 by Schwering & Hasse Temp. Class: 200°C; MW35		
Capacitor (C3107, C3109, C3112)	+ Vishay	MKP 339	310Vac; 630Vdc; 150nF; 110°C; X2	(FOWX2) IEC 60348-14	cURus E112471 VDE
Capacitor (C3127) Line to PE	+ Vishay	MKP 338 6	250Vac; 6,8nF; 105°C	(FOWX2) IEC 60384-14	cURus E112471 VDE
Capacitor (C3126)	+ Epcos	B32922	310Vac; 47nF; 110°C; X2	(FOKY2) IEC 60384-14	cURus E157153 VDE
Capacitor (C3119, C3123, C3124, C3125) Line to PE	+ Epcos	B81123	250Vac; 2,2nF; 100°C; Y1	(FOWX2) IEC 60384-14	cURus E97863 VDE
Connector terminal (X3100)	Phoenix	PLH 16/5-10	UL 600V; 51A; 105°C VDE 1000V; 76A Flame Class: 94V-0	(XCFR2)	URus E60425
Optical Isolator (U3300)	Avago	HCNW4503	Rated Isolation Voltage 5000Vrms	(FPQU2) VDE 0884	cURus E55361 VDE
Relay (K1300)	Tyco	RT314A12	Contact: 250Vac; 16A Coil: 12Vdc	(NLDX2) VDE 6106	cURus E214025 VDE

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
Connector terminal (X2001)	Harting	0918 560 6322	Flame Class: UL 94V-0; 125°C	(ECBT2) IEC 60603-13	cURus E102079 VDE
STP90-ESS Board					Accepted
PCB STP90-ESS Board	+ OMR	2	overall approx. dimension: 135,5mm by 117mm by 2mm thickness Flame Class: 94V-0; 105°C	(ZPMV2)	cURus E79991
Fuse (F201, F203)	Littlefuse	SPF4-R	10mm by 38mm 1000Vdc; 4A; 130°C	(JFGA) IEC 60269-6	URus E339112
Transistor (V203)	+ IXYS	IXCH36N250	2500V; 36A; 150°C		Accepted
STP90-AST Board					accepted
PCB STP90-AST Board	+ RUWEL	U5	overall approx. dimension: 350mm by 225mm by 2,3mm thickness Flame Class: 94V-0; 130°C	(ZPMV2)	cURus E48403
IGBT-Modul Boost Converter (V2300)	Infineon	DF120R12W2H3 _B27	VCES = 1200V IC nom = 40A / ICRM = 80A	(QQQX2)	URus E83335
Capacitor (C2300, C2301, C2500, C2501)	+ Kemet	R.75	250Vac; 220nF; 105°C	55/105/56 IEC 60068-1 IEC 60384-16 IEC 60950	VDE CSA
Capacitor (C2302, C2303) Line to PE	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 33nF; 105°C Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Capacitor (C2304, C2305) Line to PE	+ Vishay	MKP 338 6	300Vac; 1000Vdc; 1000pF; 105°C; Y2	(FOKY2) IEC 60384-14	URus E109565 VDE
Connector terminal (X2300)	Phoenix	SPT 5/ 3-V-7,5	1000V; 41A Flame Class: 94V-0	(XCFR2)	cURus E60425
IGBT-Modul AC Bridge (V2500)	Infineon	FS3L25R12W2H3 _B11	VCES = 1200V IC nom = 25A	(QQQX2)	URus E83335
Capacitor (C2502, C2503, C2504, C2505, C2506, C2507) Electrolytic Bulk	+ Epcos	B43505-S6387	500V; 380µF; 105°C		Accepted
Current sensor (L3303, L3304, L3305) STP 5000TL-20 STP 6000TL-20 STP 7000TL-20 STP 8000TL-20 STP 9000TL-20	VAC	T60404-N4646-X460	Closed type construction with overall approx. dimension: 33,25mm by 14,45mm by 21mm Primary: 15A	(NMTR2)	cURus E17483

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			Gear ratio: 1…3 : 1400 Case: 94V-0		
Current sensor (L3303, L3304, L3305) STP 10000TL-20	VAC	T60404-N4646-X661	Closed type construction with overall approx. dimension: 12,7mm by 22,2mm by 24,0mm Primary: 25A Gear ratio: 1…3 : 2000 Case: 94V-0	(NMTR2)	cURus E17483
Capacitor (C3316)	+ Wima	MKP 10	1000Vdc; 10nF; 100°C		Accepted
Connector terminal (X3300)	Phoenix	SPT 5/ 3-V-7,5-ZB	1000V; 41A Flame Class: 94V-0	(XCFR2)	cURus E60425
Relay (K3900, K3901)	+Meder	Li12-1A85	Contact: 1000V; 1A Coil: 12Vdc		Accepted
Reedrelais K3904, K3905	+Meder electronic	1xS-KT05-1A-BV15480-SMD-Variante von 1xS-KT05-1A-BV14460-	Contact: 1000V; 1A Coil: 5Vdc		E156887
Transformer (T4200)	VAC	T60403-D4215-X177	Closed type construction with overall approx. dimension: 14mm by 14mm by 9,4mm Rating: 28kHz Gear ratio: 1 : 1 : 1		Accepted
Capacitor (C4200, C4201)	+ Vishay	MKP 339	310Vac; 630Vdc; 150nF; 110°C; X2	(FOWX2) IEC 60348-14	cURus E112471 VDE
Capacitor (C4204, C4205)	+ Wima	FKP 1	250Vac; 1600Vdc; 330pF; 100°C		Accepted
Transformer (T4201)	Götz-Udo-Hartmann	M 072/11	Open type construction with overall approx. dimension: 33mm by 24mm by 39mm Rating: Input W1/W2: 325V – 500V Output W3: 20V Output W4: 12V		Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			Gear ratio: 44 : 44 : 20 : 12 Core: Ferrite Coil: Prim/Sec enamelled with tubed outlets wound on Bobbin Bobbin: Rynite FR 530 L by DuPont Temp. Class: 140°C Flame Class: HB Insulation Foil: 10260 by CMC Temp. Class: 130°C Margin tape: 18100 by CMC Temp. Class: 130°C Winding reinforced insulation: TEX-E by Furukawa Temp. Class: 130°C; B Wire insulation: SH Sold V155 or SH Sold V180 by Schwering & Hasse Temp. Class: 155°C or 180°C or Heersolit V155 or Heersolit V180 by Heermann Temp. Class: 155°C or 180°C		
Display Unit					Accepted
Display Unit	Getronic	EPB	overall approx. dimension: 122,5mm by 80mm by 58,2mm Temp. Class: 85°C Material Temp.: 94V-0		Accepted
Display Unit	Admatec	992540 Display 3	overall approx. dimension: 122,5mm by		Accepted

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Object/Part No.	**Manufacturer/Trademark**	**Type/Model**	**Technical data**	**Standard**	**Mark(s) of conformity**
			80mm by 58,2mm Temp. Class: 85°C Material Temp.: 94V-0		
Comments: 1) an asterisk indicates a mark which assures the agreed level of surveillance 2) + means, that components from other vendor and other model number, but with the same rating and equivalent approvals are accepted.					