למתי THE STANDARDS INSTITUTION OF ISRAEL

## Test Report No.7212328714

<u>Applicant</u>: Silk'n Beauty Ltd. (formerly Home Skinovations Ltd.)

<u>Equipment Under Test:</u> Personal home use hair removal device

Product Name: Silk'n 7

Model: H3500/H3501

Issued by The Standards Institution of Israel Industry Division Electrical & Electronics Laboratory EMC Branch



# THE STANDARDS INSTITUTION OF ISRAEL

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Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

	Applicant:	Silk'n Beauty Ltd. (formerly Home Skinovations Ltd.)
	Address:	Tower Building, Shaar Yokneam, P.O.B. 533, Yokneam
		2069206, Israel
	Sample for test selected by:	The customer
	The date of test:	25/12, 29/12/2022; 9-10/1, 17/4, 25/4/2023
	Description of Equipment under Test (EUT):	Personal home use hair removal device
	Product Name:	Silk'n 7
	Model:	H3500/H3501
	Ser. No.:	1
	Manufactured by:	Silk'n Beauty Ltd. (formerly Home Skinovations Ltd.)
	Address 1:	Tower Building, Shaar Yokneam, P.O.B. 533, Yokneam 2069206,
	Address 2:	Israel New Silk'n beauty I to to be applicable upon new MDSAP
	Add(035 2.	certificate): Alon-Hatavor 15, Caesarea, 3079516, Israel
	Deference Standarda	
	IEC 60601-1-2 Edition 4 1 (2020)	Medical electrical equipment: Part 1-2: General requirements for
		basic safety and essential performance - Collateral Standard: Electromagnetic disturbances - Requirements and tests.
*	ETSI EN 301 489-1 V2.2.3 (2019)	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements. Harmonised
	FTOL EN 004 400 47 \/0 0 4/0000	Standard for ElectroMagnetic Compatibility.
**	ETSI EN 301 489-17 V3.2.4(2020)	Part 17: Specific conditions for Broadband Data Transmission Systems, Harmonised Standard for ElectroMagnetic Compatibility
*	EN IEC 55014-1 (2021)	Electromagnetic compatibility - Requirements for household
	· · · · · ·	appliances, electric tools and similar apparatus – Part 1: Emission
÷	EN IEC 55014-2 (2021)	Electromagnetic compatibility - Requirements for household
		appliances, electric tools and similar apparatus – Part 2: Immunity –
	CFR 47 FCC (2020)	Rules and Regulations: Part 15. "Radio frequency devices"
		Subpart B: Unintentional radiators.

#### **Customer Documents:**

and may be used only in its entirety.

- Silkn VII LVD User Manual Doc. No. PB116670A"
- Model H3500 Risk Analysis Report Doc. No. DO116666A

Test Result:	The EUT was found to be in compliance with the requirements of the standards
	- IEC 60601-1-2 Edition 4.1
	- ETS EN 301 489-1 V2.2.3
	- ETS EN 301 489-17 V3.2.4
	- EN IEC 55014-1
	- EN IEC 55014-2
	- CFR 47 FCC
	Environment of intended uses: Professional Healthcare and Home Healthcare Facility Environment
	See details in clause 1.
This Test Report cont	ains 66 pages This Test Report applies only to the specimen tested and may not

be applied to other specimens of the same product.

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## 1. Summary of Test Results per IEC 60601-1-2

Test	Standard	Class/ Severity level	Test result
Documentation(IEC 60601-1	-2 sections 4 and 5)		
General requirements	Section 4.1		Complies
Instruction for use	Section 5.2.1.		Complies
Technical Description	Section 5.2.2		Complies
Emission (IEC 60601-1-2 se	ction 7.1 & 7.2)		
Conducted emission Freg. range:150 kHz - 30 MHz	CISPR 11	Group 1 Class B 230VAC, 120 VAC mains	Complies
Radiated emission Freq. range: 150kHz– 1GHz	CISPR 11	Group 1 Class B	Complies
Harmonic current emission test	IEC 61000-3-2	230VAC mains	Complies
Voltage changes, Voltage fluctuations and Flicker test	IEC 61000-3-3	230VACmains	Complies
Immunity (IEC 60601-1-2se	ction 8.9 - 8.11)		
Immunity from Electrostatic discharge (ESD)	IEC 61000-4-2	8 kV contact discharges & 15 kV air discharges	Complies
Immunity from radiated electromagnetic fields	IEC 61000-4-3	10.0 V/m; 80 MHz ÷ 2.7 GHz, 80% AM, 1 kHz	Complies
Immunity from Proximity field from wireless communications equipment	IEC 61000-4-3	List of frequencies, from 9 V/m up to 28 V/m, PM (18 Hz or 217 Hz), FM 1 kHz	Complies
Immunity from Electrical Fast transient (EFT)	IEC 61000-4-4	± 2.0 kV on AC mains Tr/Th – 5/50 ns, 100 kHz	Complies
Immunity from Surge	IEC 61000-4-5	±1.0 kV DM on AC mains Tr/Th – 1.2/50 (8/20) μs	Complies
Immunity from conducted disturbances induced by radio-frequency fields	IEC 61000-4-6	3.0, 6.0 VRMS on AC mains; 0.15÷ 80 MHz, 80% AM 1 kHz	Complies
Immunity from power frequency magnetic field	IEC 61000-4-8	30 A/m @ 50 Hz & 60Hz	Complies
Immunity to proximity magnetic fields in range 9 kHz to 13,56 MHz	Section 8.11 IEC 61000-4-39	65 A/m @134.2kHz PM 2.1kHz 50% 7.5 A/m @13.56MHz PM 50kHz 50% 8A/m @ 30kHz CW	Complies
Immunity from voltage dips, short interruptions and voltage variations	IEC 61000-4-11	120 VAC & 230VAC 50 Hz; 0 % - 0.5 cycle & 1 cycle; 70% - 25 cycles; 0% - 250 cycles	Complies



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## (cont'd)

# Summary of test results per ETSI EN 301 489-1, ETSI EN 301 489-17 & FCC Part 15

Test	Standard	Class/ Severity level	Result
Emission			
Conducted emission Freq. range:150 kHz - 30 MHz	EN 55032	Class B - 230 VAC mains	Complies
Radiated emission Freq. range: 30MHz–6GHz		Class B	Complies
Harmonic current emission test	EN 61000-3-2	230VAC mains	Complies
Voltage changes, Voltage fluctuations and Flicker test	EN 61000-3-3	230VACmains	Complies
Conducted emission FCC Part 15 Freq. range:150 kHz - 30 MHz Subpart B		Class B - 120 VAC mains	Complies
Radiated emission Freq. range: 30MHz–6GHz		Class B	Complies
Immunity (ETSI EN 301 489	-1/ ETSI EN 301 489	9-17 sec.7.2)	
Immunity from Electrostatic discharge (ESD)	EN 61000-4-2	4 kV contact discharges & 8 kV air discharges	Complies
Immunity from radiated electromagnetic fields	EN 61000-4-3	3.0 V/m; 80 MHz ÷6 GHz, 80% AM, 1 kHz	Complies
Immunity from Electrical Fast transient (EFT)	EN 61000-4-4	± 2.0 kV on AC mains Tr/Th – 5/50 ns, 100 kHz	Complies
Immunity from Surge	EN 61000-4-5	±1.0 kV DM on AC mains Tr/Th – 1.2/50 (8/20) μs	Complies
Immunity from conducted disturbances induced by radio-frequency fields	EN 61000-4-6	3.0 VRмs on AC mains 0.15÷ 80 MHz, 80% AM 1 kHz	Complies
Immunity from voltage dips, short interruptions and voltage variations	EN 61000-4-11	230VAC mains 0 % - 0.5 cycle & 1 cycle; 70% - 25 cycles; 0% - 250 cycles	Complies



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Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

#### (cont'd)

## Summary of test results per EN IEC 55014-1 & EN IEC 55014-2

Test Standard		Class/ Severity level	Result			
Emission (EN IEC 55014-1)						
Conducted emission Freq. range:150 kHz - 30 MHz	EN IEC 55014-1 Tab.5,9	Class B - 230 VAC mains	Complies			
Radiated emission Freq. range: 30MHz–6GHz	CISPR32	Class B	Complies			
Harmonic current emission test	EN 61000-3-2	230VAC mains	Complies			
Voltage changes, Voltage fluctuations and Flicker test	EN 61000-3-3	230VACmains	Complies			
Immunity (EN IEC 55014-2 0	Category IV)					
Immunity from Electrostatic discharge (ESD)	EN 61000-4-2	4 kV contact discharges & 8 kV air discharges	Complies			
Immunity from radiated electromagnetic fields	EN 61000-4-3	3.0 V/m; 80 MHz ÷6 GHz, 80% AM, 1 kHz	Complies			
Immunity from Electrical Fast transient (EFT)	EN 61000-4-4	± 2.0 kV on AC mains Tr/Th – 5/50 ns, 100 kHz	Complies			
Immunity from Surge	EN 61000-4-5	±1.0 kV DM on AC mains Tr/Th – 1.2/50 (8/20) μs	Complies			
Immunity from conducted disturbances induced by radio-frequency fields	EN 61000-4-6	3.0 VRMS on AC mains: 0.15÷ 230 MHz, 80% AM 1 kHz	Complies			
Immunity from voltage dips, short interruptions and voltage variations	EN 61000-4-11	230VAC mains 0 % - 0.5 cycle & 1 cycle; 70% - 25 cycles; 0% - 250 cycles	Complies			

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## 2. EUT Description

<u>Note:</u> All information in this section was provided by the customer.

#### 2.1. General description

The Equipment under Test (hereinafter: EUT) is a Personal home use hair removal device. It is used for permanent hair reduction of hair re-growth defined as long-term, stable reduction in hair counts following a treatment regiment.

**H3500/H3501** is based on well-established Photo-Epilation technology. The term Photo-Epilation describes the use of a pulse of light to remove unwanted hairs.

**H3500/H3501** removes hair by emitting a pulse of light that is absorbed by pigment in the hair shaft beneath the skin surface. This disables the hair follicle and delays hair growth. Before flash activation H3500/H3501 also activates short dc current pulse.

The **H3500/H3501** devices have three different size cartridges (Small, Medium and Large) for comfortable treatment in the adapted areas of the body.

The Customer has declared that Silk'n 7 Model H3500 is substantially equivalent to Silk'n 7 Model H3501. Both models have identical electronics, mechanics and software. The sole difference is that in Model H3501 the BLE option is disabled.

The EUT dimensions: 30.0 x 9.0 x 7.0 cm approx. Power supply: AC-DC-Adaptor: Input: 100-240 VAC 50-60Hz1.8A; Phase one; Output: 20VDC; 3.0A; 60W

The EUT contains the following modules:

<u>Module</u> AC-DC-Adaptor 20VDC 3A Handpiece	Description Wall mount Switched-mode power supply adaptor with an output DC plug.
Main Card	Contains the Flash Lamp, HV charger, Lamp ignition circuit, Buck Convertor 20V-12V, 3.3V voltage regulator, MMI, Main system controller, Temperature sensor, FAN driver, Micro current Isolated Driver, BLE Fully Qualified Module and ON/Off button
Cartridge Card	Contain the color sensor and Electrode of micro current touch sensing
Trigger Card	Trigger button

Environment of intended uses: Professional Healthcare and Home Healthcare Facility Environment

The EUT general view is presented in Picture #1, the block diagram - in Picture #2. Labels for H3500/H3501 are presented in Pictures #3-5.



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Picture 1. EUT general view



Picture 2. EUT block diagram





Picture 3. Label H3500 - For the LVD (Non-Medically)



Picture 4. Label H3500 – For the MDD (Medically)



Picture 5. Label H3501 – For the MDD (Medically) without Bluetooth



#### 2.2. EUT sub-assembling list

Table1.1. Sub-assem	blies list
---------------------	------------

No.	Description (function)	Manufacturer	Model		
1	AC Adaptor	Ktec	KSA-60B-200300D5		
2	Main Card	Silk'n Beauty	AE116562x		
3	Cartridge Card	Silk'n Beauty	AE116568x		
4	Trigger Card	Silk'n Beauty	AE116565x		

#### 2.3. EUT cable / connector list

#### Table2. Cables/connectors list

No.	Connector's name	Connector's type	Type of Cable	Length (m)	No. of identical connectors
1	DC Inlet	DC plug	Unshielded	<3	1
2	Connectors Socket – Main to caps & power (DC Inlet)	6 pin	Unshielded	<3	1
3	Connectors Receptacle – Main to Switch (DC Inlet)	2 pin	Unshielded	<3	1
4	Connectors Receptacle - µCurrent (DC Inlet)	2 pin	Unshielded	<3	1

#### 2.4. Potential emission sources

#### Table3. Auxiliary equipment used

Frequency	Location
32 MHz	Main Card (µC)
2.0 MHz	Buck Convertor 20V-12V
0.132 MHz	Boost Convertor
2.0 MHz	Buck/Flyback Convertor 20V-13.6V



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#### 2.5. EUT setup and operation

#### Test configuration:

Model **H3500** was defined as a worst case device and tested in full. Model **H3501** have got compliance by similarity principle.

The EUT was configured for testing in its maximum energy (as a customer can use it). The EUT was powered from the AC-DC-Adaptor and was active to fire light flash every 2.6 sec (High Level) with the large cartridge, since it was found to be the worst case operating mode.

#### Exercise software:

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

The software parameters were changed so that the limitation of no of pulses that lamp can provide was disabled, the skin color senor and proximity capacitive sensors results were ignored (but still operated).

Those changes enable the test to be preformed continuously.

The program sequentially exercises each system component in turn. The sequence used is: 1) Charging the Flash Capacitors, 2) Provide Micro current Pulse, 3) Provide Light pulse, 4) Self testing. The complete cycle takes about 2.6 seconds and is repeated continuously. The Trigger button is constantly pressed

Operation mode: Stand By and Emitting light pulse Tested power voltages: 120VAC / 230VAC 50Hz

Mains voltage	Emission tests					Immunity tests						
	CISPR 11 Harmonics IEC 61000-3-x		IEC 60601-1-2 / EN 61000-4-x									
	Cond.	Rad.	-2	-3	-2	-3	-4	-5	-6	-8	-11	-39
230VAC	✓	✓	✓	✓	✓	✓	$\checkmark$	✓	✓	$\checkmark$	$\checkmark$	$\checkmark$
120VAC	✓	-	N/A	N/A	N/A See Note							

#### Table4a. List of performed tests per IEC 60601-1-2

Note: Per IEC 60601-1-2 the test may be performed at any one input voltage within the ME EQUIPMENT

Table4b.
List of performed tests per EN 301 489-1/ -17/FCC Part 15/ EN55014-1/-2

	Emissio				Immunity tests						
Mains voltage	EN 55032 FCC Part 15 EN55014-1		Harmo IEC 610	Harmonics IEC 61000-3-x		EN 301 489-1/ EN 301 489-17/ EN 55014-2 & EN 61000-4-x					
	Cond.	Rad.	-2	-3	-2	-3	-4	-5	-6	-11	
230VAC	✓	✓	✓	✓	✓	✓	$\checkmark$	✓	✓	✓	
120VAC	✓	✓	N/A	N/A	N/A						



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Picture 6. EUT test setup



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## 3. Test specification, Methods and Procedures

### Test Specification:

	IEC 60601-1-2	Medical electrical equipment; Part 1-2: General requirements for basic safety
	Edition 4.1 (2020)	and essential performance. Collateral Standard: Electromagnetic
		disturbances - Requirements and tests.
*	ETSI EN 301 489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and
	V2.2.3 (2019)	services;Part 1: Common technical requirements. Harmonised Standard for
		ElectroMagnetic Compatibility.
	ETSI EN 301 489-17	Part 17: Specific conditions for Broadband Data Transmission Systems.
	V3.2.4 (2020)	Harmonised Standard for ElectroMagnetic Compatibility.
*	EN IEC 55014-1 (2021)	Electromagnetic compatibility - Requirements for household appliances, electric
		tools and similar apparatus – Part 1: Emission
÷	EN IEC 55014-2 (2021)	Electromagnetic compatibility - Requirements for household appliances, electric
		tools and similar apparatus – Part 2: Immunity – Product family standard.
*	CFR 47 FCC (2020)	"Rules and Regulations": Part 15. "Radio frequency devices",
		Subpart B: Unintentional radiators

#### Methods and Procedures:

*	CISPR 11:	"Industrial, scientific and medical (ISM) radio-frequency equipment – Electromagnetic disturbance characteristics - Limits and methods of measurement" Ed.6.2 (2015 + AMD1:2016 +AMD2:2019)					
	CISPR32	Electromagnetic Compatibility of multimedia equipment –Emissions					
	EN 55032	Electromagne	(2015). tic Compatibility of multimedia equipment –Emissions (2015 A11: 2020)				
	IEC 61000 3 v:	Electromagne	tic Compatibility (EMC):				
•••	61000 3 v	Dort 3	Limite				
	01000-3-X	Section 2:	Limits for harmonic current emissions (equipment input current $\leq$ 16A per phase (2018 +A1:2020).				
		Section 3.	Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <16 A per phase and not subjected to conditional connection (2013 +A1:2017+A2:2021).				
*	IEC 61000-4-x:	Part 4.	Testing and measurement techniques;				
		Section 2:	Electrostatic discharge immunity tests (2008).				
		Section 3:	Radiated, radio-frequency, electromagnetic field immunity test (2006+A1:2008+A2:2010).				
		Section 4:	Electrical Fast Transient/burst immunity test (2012).				
		Section 5:	Surge immunity tests (2014 + AMD1:2017).				
		Section 6:	Immunity to conducted disturbances induced by radio-frequency fields (2013).				
		Section 8:	"Power frequency magnetic field immunity test" (2010).				
		Section 11:	Voltage dips, short interruptions and voltage variations immunity tests (2020).				
		Section 39:	Radiated fields in close proximity – Immunity test (2017)				
*	ANSI C63.4:2014:	"American Nat	tional Standard for Method of Measurement				
		of Radio Noise	e Emissions from Low Voltage Electrical and Electronic				
		Equipment in	the Range 9 kHz to 40 GHz".				

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## 4. Additional deviations or exclusions from the test specifications

Not applicable.

## 5. General conditions

#### 5.1. Location of the Test Site:

All tests were conducted at the EMC Laboratory of the Standards Institution of Israel. Address: 42 Chaim Levanon St., Tel Aviv 6997701 Israel

#### 5.2. Emission tests:

- For both radiated and conducted measurements, initial scans were made using a peak detector but still using the appropriate CISPR 16 (Quasi-Peak) detector IF bandwidth.
- For conducted emissions, a tolerance limit was set 6 dB below the specification limit. Levels above the tolerance limit were retested using the Quasi-Peak detector or an average detector.
- For radiated emissions, a tolerance limit was set 10 dB below the specification limit. Levels above the tolerance limit were retested using the Quasi-Peak detector.

#### 5.3. Initial visual check and functional test:

Initial visual check and brief built- in- test of the EUT was performed before testing. The BIT test passed successfully.

No external damages were found.

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## 6. Emissions Summary

#### 6.1. Radiated Emission Summary

#### Test procedure

The radiated emission measurements were performed for each operation mode, as detailed in section 2.5.

The radiated emission measurements were conducted in 3-m semi-anechoic chamber.

The frequency range from 30 MHz to 6000 MHz was investigated.

Antennas used: Biconilog Antenna - 30 MHz-2 GHz & Double Ridged Waveguide Antenna 1-18 GHz.

The levels were maximized by changing antenna polarization from vertical to horizontal, rotating turntable through 360 degree, varying antenna height from 1m to 4m and rerouting EUT cables.

Measuring equipment settings:

0
Peak
Max hold
120 kHz (30-1000 MHz)
Continuous sweep
>1 seconds/MHz

<u>Measurements</u> Detector type

Bandwidth Observation Measurement time Quasi-peak (CISPR)

120 kHz (30-1000 MHz) >15 seconds 20 seconds/MHz

#### <u>Test results</u>

Test results are summarized below. Tested modes: Operation max power and Standby

Tested mode	Specified Standard	Freq. range	Polari- zation	Refer. Plot# / Table#	Result	Remarks
STNDBY	IEC 60601-1-2 / CISPR 11 Group 1 Class B;	30- 1000 MHz	V/H	Table 5 Plot 1	PASS	All QPeak emissions are 2.4dB at least below limit
Operation	ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B, EN55014-1			Table 6 Plot 2	PASS	All QPeak emissions are 1.4dB at least below limit
STNDBY	ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B,	N 301 489-1, 1-6GHz N 301 489-17 032 Class B,	ETSI EN 301 489-1, 1-6GHz V/H ETSI EN 301 489-17 EN55032 Class B,	Table 7 Plots 3-6	PASS	All Peak & Avg emissions are 8dB at least below limit
Operation	EN55014-1			Table 8 Plots 7-10	PASS	All Peak & Avg emissions are 5.3dB at least below limit
STNDBY	FCC Part 15 Subpart B Class B	30MHz- 6GHz	V/H	Table 9,11	PASS	All QPeak emissions are 8dB at least below limit
Operation				Table 10,12	PASS	All Peak & Avg emissions are 2.5dB at least below limit

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Results:	Pass
Specified standard / Class:	IEC 60601-1-2 / CISPR 11 Group 1 Class B ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	30 MHz – 1 GHz
Operation mode: Measured distance:	STNDBY 3 m

#### Table 5. Radiated emission test results

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No.	Frequency (MHz)	Antenna Polariz. V/H	Antenna Height (m)	Turn- table Angle (°)	Emission Level	Limit @ 3 m (dBuV/m)	Margin (dB)	Result
	(	•//1	(,	()	(αυμν////)	(αυμψητη)	(42)	
1	104.8	V	1.0	217	32.7	40.0	-7.3	Pass
2	155.8	V	1.0	0	37.0	40.0	-3.0	Pass
3	175.3	V	1.0	32	37.6	40.0	-2.4	Pass
4	208.4	V	1.0	355	30.7	40.0	-9.3	Pass
5	219.8	V	1.0	156	35.0	40.0	-5.0	Pass
6	533.2	V	1.0	344	35.3	47.0	-11.7	Pass

Note:

Emission level = E Reading ( $dB\mu V$ ) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.



#### Plot #1. Radiated emission scan



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	IEC 60601-1-2 / CISPR 11 Group 1 Class B ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	30 MHz – 1 GHz
Operation mode:	Operation
Measured distance:	3 m

#### Table 6. Radiated emission test results

No.	Frequency	Antenna Polariz.	Antenna Height	Turn- table	Emission Level	Limit	Margin	Result
	(MHz)	V/H	(m)	Angle (°)	(dBµV/m)	@ 3 m (dBµV/m)	(dB)	
1	105.7	V	1.0	257	38.0	40.0	-2.0	Pass
2	156.6	V	1.0	0	37.8	40.0	-2.2	Pass
3	173.2	V	1.0	111	38.6	40.0	-1.4	Pass
4	289.0	V	1.0	200	43.5	47.0	-3.5	Pass
5	324.2	V	1.0	0	42.1	47.0	-4.9	Pass
6	648.7	V	1.0	350	42.0	47.0	-5.0	Pass
7	849.4	V	1.0	115	42.3	47.0	-4.7	Pass

Note:

Emission level = E Reading  $(dB\mu V)$  + Cable loss (dB) + Antenna Factor (dB/m)For Cable Loss and Antenna Factor refer to Appendix 3.



#### Plot #2. Radiated emission scan



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results: Specified standard / Class:	<b>Pass</b> ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	1 GHz-6GHz
Operation mode: Measured distance:	STNDBY 3 m
	0 m

#### Table 7. Radiated emission test results

No	Frequency	Antenna Polarizatio	Antenna Height	Turntable angle	Emission (dBµV/m)		Class B Limit (dBµV/m)		Margin (dB)			
	(GHZ)	n	(m)	(°)	Peak	Avg	Peak	Avg	Peak	Avg		
1	1.784	V	1.0	100	45.0	32.6	70	50	-25.0	-17.4		
2	2.402		Tx BLE									
3	2.426		Tx BLE									
4	2.480		Tx BLE									
5	2.531	Н	1.0	252	49.5	35.5	70	50	-20.5	-14.5		
6	3.630	V	1.0	360	53.2	41.0	74	54	-20.8	-13.0		
7	5.966	V	1.0	360	58.1	45.6	74	54	-15.9	-8.4		

Note:

Emission level = E Reading ( $dB\mu V$ ) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.



#### Plot #3. Radiated emission scan



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	2.300GHz- 2.484GHz
Operation mode:	STNDBY
Measured distance:	3 m

	Plo	ot #4- Plo	ot #5.	Radiated	emission scans i	n BLE range
EMI Receiver 1 Frequency Sca	t an	• +				
	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr Freq Ref: Int (S) NFE: Off	RF Presel: Off Atten: 0 dB Preamp: 44.0 GHz EMC Std: CISPR	Scan Type: Smooth Seq: Scan # of Scans: >1/1 Trig: Free Run	1 2 3 Atten: 0 dB M M ₩ P A P	
1 Spectrum Scale/Div 10.0	v dB			Ref Value S	90.00 dBµV/m	Mkr1 2.3450 GHz 48.51 dBµV/m
Log						*
80.0						
70.0						Limit 1: Peak Detector
60.0						
50.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			1	مىرىكى ئىسىم ئىسىمى كىرىسىتىكى بىرىكى ئى	Lind 3. Arrests Detector PEAK
40.0						AVG
30.0						
20.0						
10.0						
0.00						
Start 2.300 GH Res BW 1.0 M	iz Hz			Video B	W 10 MHz	Stop 2.400 GHz Dwell Time 100 µs (500 kHz)
<b>4</b> 5	C	2 Dec 29, 2022 3:30:51 PM				

EMI Receiver 1	• +		
KEYSIGHT Input: RF Coupling: DC Align: Auto	Input Z 50 Ω RF Presel Off Corr Atten. 0 dB Freq Ref. Int (S) Preamp. 44.0 GHz NFE. Off EMC Std: CISPR	Scan Type: Smooth         1         2         3         Attraction           Seq: Scan         M         M         W         Pre           # of Scans: >1/1         P         A         P           Trig: Free Run         P         A         P	em: 0 dB semp: 44.0 GHz
1 Spectrum v Scale/Div 10.0 dB		Ref Value 90.00 dBµV/m	Mkr1 1.7690 GHz 43.48 dBµV/m
Start 2.400 GHz Res BW 1.0 MHz	Dec 29, 2022	Video BW 10 MHz	Stop 2.484 GHz Dwell Time 100 µs (500 kHz)



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Results: Specified standard / Class:	<b>Pass</b> ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B: EN55014-1
Frequency range: Operation mode:	2.484GHz – 2.500GHz
Measured distance:	3 m

		Plot	#6.	Radiated	emiss	ion scan in E	BLE range
EMI Receiver 1 Frequency Sca	n	• +					
	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr Freq Ref: Int (S) NFE: Off	RF Presel: Off Atten: 0 dB Preamp: 44.0 GHz EMC Std: CISPR	Scan Type: Smooth Seq: Scan # of Scans: >1/1 Trig: Free Run	1 2 3 M M W P A P	Atten: 0 dB Preamp. 44.0 GHz	
1 Spectrum Scale/Div 10.0	, dB			Ref Value 90	.00 dBµV/m		Mkr1 2.4985 GHz 48.01 dBµV/m
Log							*
80.0							
70.0							Limit 1: Peak Detector
60.0							
50.0							
40.0							
30.0							
50,0							
20.0							
10.0							
0.00							
Start 2.484 GH Res BW 1.0 M	lz Hz			Video BV	/ 10 MHz		Stop 2.500 GHz Dwell Time 100 μs (500 kHz)
1	<	Dec 29, 2022 3:31:30 PM					

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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results: Specified standard / Class:	<b>Pass</b> ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	1 GHz-6GHz
Operation mode: Measured distance:	Operation max power 3 m

#### Table 8. Radiated emission test results

No	Frequency	Antenna	Antenna Turntable Height angle		Emission (dBμV/m)		Class B Limit (dBµV/m)		Margin (dB)	
	(GHZ)	Polarization	(m)	(°)	Peak	Avg	Peak	Avg	Peak	Avg
1	1.304	V	1.0	360	62.6	32.8	70	50	-7.4	-17.2
2	1.357	Н	1.0	180	57.4	33.3	70	50	-12.6	-16.7
3	1.813	V	1.0	270	58.2	36.5	70	50	-11.8	-13.5
4	2.402		Tx BLE							
5	2.426	Tx BLE								
6	2.480	Tx BLE								
7	5.782	V	1.0	360	61.7	48.7	74	54	-12.3	-5.3

Note:

Emission level = E Reading  $(dB\mu V)$  + Cable loss (dB) + Antenna Factor (dB/m)For Cable Loss and Antenna Factor refer to Appendix 3.



#### Plot #7. Radiated emission scan



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Title: Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	2.400GHz – 2.500GHz
Operation mode:	Operation max power
Measured distance:	3 m

	Plo	t #8- Plo	t #9.	Radiated	emission	scans in Bl	E range
EMI Receiver 1 Frequency Scal	n	+					
	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr Freq Ref. Int (S) NFE: Off	RF Presel: Off Atten: 4 dB Preamp: 44.0 G EMC Std: CISP	Scan Type: Smooth Seq: Scan Hz # of Scans: >1/1 R Trig: Free Run	1 2 3 Atten: 0 di M M ₩ P A P	18 44 0 GHz	
1 Spectrum							Mkr1 2.4020 GHz
Scale/Div 10.0 Log 1 80 0 70 0 60 0 50 0 40 0 20 0	dB			Ref Value ا	00.00 dBμV/m د می کسی میں کی میں	ریہ ۵ <b>مسالہ کاری ک</b> ر	
20.0							
0.00							
Start 2.400 GH Res BW 1.0 Mi		<b>)</b> Jan 09, 2023		Video E	W 10 MHz		Stop 2.484 GHz Dwell Time 100 µs (500 kHz)
	ال_الد	12:37:38 PM					

EMI Receiver Frequency Sca	1 in	+					
KEYSIGHT	Input: RF Coupling: DC Align: Auto	Input Z. 50 Ω Corr Freq Ref: Int (S) NFE: Off	RF Presel: Off Atten: 4 dB Preamp: 44.0 GHz EMC Std: CISPR	Scan Type: Smooth Seq: Scan # of Scans: >1/1 Trig: Free Run	1 2 3 M M W P A P	Atten: 0 dB Preamp. 44.0 GHz	
1 Spectrum Scale/Div 10.0	, dB			Ref Value 9	0.00 dBµV/m		Mkr1 2.4980 GHz 51.72 dBµV/m
80.0							*
70.0							Cirvit 1 / Paak Detentor
60 0							
50.0							 Average DetPEAK
40.0							
30.0							
20.0							
0.00							
Start 2.484 G Res BW 1.0 M	łz Hz			Video B	W 10 MHz		Stop 2.500 GHz Dwell Time 100 µs (500 kHz)
<b>4</b> 5		<b>2</b> Jan 09, 2023	ÐA				



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Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

Results: Specified standard / Class:	<b>Pass</b> ETSI EN 301 489-1, ETSI EN 301 489-17 EN55032 Class B; EN55014-1
Frequency range:	2.390GHz – 2.400GHz
Operation mode: Measured distance:	Operation max power 3 m

	Plot #10.	Radiated emission scan in B	LE range
EMI Receiver 1 Frequency Scan	• +		
KEYSIGHT Input: RF Coupling: DC Align: Auto	Input 2: 50 Ω RF Presel 0 Corr Atten: 4 dB Freq Ref. Int (S) Preamp 44 NFE: Off EMC Std: C	Off         Scan Type. Smooth         1         2         3         Alten: 0 dB           Seq: Scan         M         M         W         Preamp         44.0 GHz         0           ISPR: Trid; Free Run         D         ∧         D	
1 Spectrum v Scale/Div 10.0 dB		Ref Value 90.00 dBpV/m	Mkr1 2.3950 GHz 51.54 dBµV/m
Log			*
70.0			Limit 1: Peak Distoctor
60.0		<u></u> 1	
50.0			Linit 3' Average GeePEAK
40.0			AVG
30.0			
20.0			
10.0			
0.00			
Start 2.390 GHz Res BW 1.0 MHz		Video BW 10 MHz	Stop 2.400 GHz Dwell Time 100 µs (500 kHz)
	<b>?</b> Jan 09, 2023		.:: 💦 🔀



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	FCC Part 15 Subpart B Class B
Frequency range:	30 MHz – 1 GHz
Operation mode:	STNDBY
Measured distance:	3 m

#### Table 9. Radiated emission test results

No.	Frequency	Antenna Polariz.	Antenna Height	Turn- table Angle	Emission Level	Limit @ 3 m	Margin	Result
	(MHz)	V/H	(m)	(°)	(dBµV/m)	(dBµV/m)	(dB)	
1	104.8	V	1.0	217	32.7	43.5	-10.8	Pass
2	155.8	V	1.0	0	37.0	43.5	-6.5	Pass
3	175.3	V	1.0	32	37.6	43.5	-5.9	Pass
4	208.4	V	1.0	355	30.7	43.5	-12.8	Pass
5	219.8	V	1.0	156	35.0	46.0	-11.0	Pass
6	533.2	V	1.0	344	35.3	46.0	-10.7	Pass

Note:

Emission level = E Reading (dB $\mu$ V) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.

Results: Specified standard / Class: Frequency range: Operation mode:

**Pass** FCC Part 15 Subpart B Class B 30 MHz – 1 GHz Operation

#### Table 10. Radiated emission test results

No.	Frequency	Antenna Polariz.	Antenna Height	Turn- table	Emission Level	Limit	Margin	Result
	(MHz)	V/H	(m)	Angle (°)	(dBµV/m)	@ 3 m (dBµV/m)	(dB)	
1	105.7	V	1.0	257	38.0	43.5	-5.5	Pass
2	156.6	V	1.0	0	37.8	43.5	-5.7	Pass
3	173.2	V	1.0	111	38.6	43.5	-4.9	Pass
4	289.0	V	1.0	200	43.5	46.0	-2.5	Pass
5	324.2	V	1.0	0	42.1	46.0	-3.9	Pass
6	648.7	V	1.0	350	42.0	46.0	-4.0	Pass
7	849.4	V	1.0	115	42.3	46.0	-3.7	Pass

Note:

Emission level = E Reading (dB $\mu$ V) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	FCC Part 15 Subpart B Class B
Frequency range:	1 GHz-6GHz
Operation mode:	STNDBY
Measured distance:	3 m

#### Table 11. Radiated emission test results

No	Frequency	Antenna Polarizatio	Antenna Height	Turntable angle	Emis (dBµ	ssion V/m)	Class I (dB <sub>L</sub>	B Limit ເV/m)	Maı (d	rgin B)
	(612)	n	(m)	(°)	Peak	Avg	Peak	Avg	Peak	Avg
1	1.784	V	1.0	100	45.0	32.6	74	54	-29.0	-21.4
2	2.402	Tx BLE								
3	2.426	Tx BLE								
4	2.480	Tx BLE								
5	2.531	Н	1.0	252	49.5	35.5	74	54	-24.5	-18.5
6	3.630	V	1.0	360	53.2	41.0	74	54	-20.8	-13.0
7	5.966	V	1.0	360	58.1	45.6	74	54	-15.9	-8.4

Note:

Emission level = E Reading (dB $\mu$ V) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.

Results: Specified standard / Class: Frequency range: Operation mode: Measured distance: **Pass** FCC Part 15 Subpart B Class B 1 GHz-6GHz Operation max power 3 m

#### Table 12. Radiated emission test results

No	Frequency	Antenna	Antenna Turntable Height angle		Emis (dBµ	ssion V/m)	Class I (dB <sub>I</sub>	B Limit ເV/m)	Maı (d	rgin B)
	(GHZ)	Polarization	(m)	(°)	Peak	Avg	Peak	Avg	Peak	Avg
1	1.304	V	1.0	360	62.6	32.8	74	54	-11.4	-21.2
2	1.357	Н	1.0	180	57.4	33.3	74	54	-16.6	-20.7
3	1.813	V	1.0	270	58.2	36.5	74	54	-15.8	-17.5
4	2.402	Tx BLE								
5	2.426	Tx BLE								
6	2.480	Tx BLE								
7	5.782	V	1.0	360	61.7	48.7	74	54	-12.3	-5.3

Note:

Emission level = E Reading (dB $\mu$ V) + Cable loss (dB) + Antenna Factor (dB/m) For Cable Loss and Antenna Factor refer to Appendix 3.



#### 6.2. Conducted Emission Summary

#### Test procedure:

The tests were performed on Power Supply Model: KSA-60B-200300D5 mfr Ktec. During the measurements EUT was operated in each operation mode, as detailed in section 2.5.

The tests were performed when the EUT was powered from 230 VAC and 120 VAC mains. The test was started with an initial scan. Final measurements were performed at the peaks, exceeded the tolerance limit.

Initial scan: Detector type Mode Bandwidth Step size Sweep time

Peak Max hold 9 kHz Continuous sweep >100 msec Measurements Detector type Bandwidth Observation

Quasi-peak (CISPR) 9 kHz >15 seconds

#### <u>Test results:</u>

The test results are summarized in table below.

Tested modes: Operation max power (high level 5) and Standby

Mains voltage	Specified Standard	Meas. equip.	Reference Plot #	Result	Remark
230VAC	IEC 60601-1-2/ CISPR 11 Group 1 Class B EN 301 489-1, EN 301 489-17 / EN 55032 Class B	LISN	#11-14	PASS	Operation All QP/AVG emissions are 2.2dB at least below limit <u>STDBY</u> All QP/AVG emissions are 1.6dB at least below limit
120VAC	IEC 60601-1-2/ CISPR 11 Group 1 Class B FCC Part 15 Subpart B Class B	LISN	#15-18	PASS	<u>Operation</u> All QP/AVG emissions are 0.8dB at least below limit <u>STDBY</u> All QP/AVG emissions are 0.9dB at least below limit
230VAC	EN55014-1	LISN	#19-22	PASS	<u>Operation</u> All QP/AVG emissions are 2dB at least below limit <u>STDBY</u> All QP/AVG emissions are 1.4dB at least below limit



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	IEC 60601-1-2 sec. 7.1 & CISPR 11 Group 1 Class B; ETSI EN 301 489-1 & EN 55032 Class B
Tested line:	230 VAC mains
Operation mode:	Operation max power

#### Plot # 11-Plot # 12. Conducted emission – 230 VAC mains Phase & Neutral







Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

Results:	Pass
Specified standard / Class:	IEC 60601-1-2 sec. 7.1 & CISPR 11 Group 1 Class B; ETSI EN 301 489-1 & EN 55032 Class B
Tested line:	230 VAC mains
Operation mode:	Standby

#### Plot # 13-Plot # 14. Conducted emission – 230 VAC mains Phase & Neutral



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Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

Results:	Pass
Specified standard / Class:	FCC Part 15 Subpart B Class B IEC 60601-1-2 sec. 7.1 & CISPR 11 Group 1 Class B
Tested line:	120 VAC mains
Operation mode:	Operation max power

#### Plot # 15-Plot # 16. Conducted emission – 120 VAC mains Phase & Neutral





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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results:	Pass
Specified standard / Class:	FCC Part 15 Subpart B Class B IEC 60601-1-2 sec. 7.1 & CISPR 11 Group 1 Class B
Tested line:	120 VAC mains
Operation mode:	Standby

#### Plot # 17-Plot # 18. Conducted emission – 120 VAC mains Phase & Neutral



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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results: Specified standard: Tested line: Operation mode: **Pass** EN 55014-1 230 VAC mains Operation max power

#### Plot # 19-Plot # 20. Conducted emission – 230 VAC mains Phase & Neutral





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<u>Title:</u> Test on Personal home use hair removal device <u>Name:</u> Silk'n 7 <u>Model</u>: H3500/H3501

Results: Specified standard: Tested line: Operation mode: Pass EN 55014-1 230 VAC mains Standby

#### Plot # 21-Plot # 22. Conducted emission – 230 VAC mains Phase & Neutral







#### 6.3. Harmonic current emission (distortion) summary:

Result:	Pass
Specified standard:	IEC 60601-1-2 Section 7.2.1 ETSI EN 301 489-1 section 9.2; ETSI EN 301 489-17 section 7.2
Test procedure:	IEC/EN 61000-3-2

California Instruments	5/27/2023
San Diego, California	8:03 AM
Current Tes	t Result Summary (Run time)
EUT: Silk'n VII Test category: Class-A per Ed. 5.0 ( Test date: 1/10/2023 Start Test duration (min): 2.5 Data Comment: Comments Customer: HoveSkinovation / Silk'	Tested by: Piter Sapir 2018) (European limits) Test Margin: 100 time: 12:47:14 PM End time: 12:47:55 PM file name: H-000478.cts_data n Beauty
Test Result: N/A (test aborted)	Source qualification: Normal
J.H.C.(A): 0.131 I-THD(%): 61.1	POHC(A): 0.029 POHC Limit(A): 0.251
Highest parameter values during te	st:
V RMS (Volts): 230.64	Ecequency(Hz): 50.00
I_Peak (Amps): 2.307	I_RMS(Amps): 0.582
I_Fund (Amps): 0.214	Crest Factor: 14.863
Power (Watts): 47.6	Power Factor: 0.469

#### Table 13. Harmonic current emission results

<u>Note:</u> Measured power consumption is equal to 47.6W (see table above), which is less than the minimal power 75W, specified in the reference standard IEC 61000-3-2. This test is not applicable since the Power Supply is out of scope of the reference standard.



#### 6.4. Voltage changes, Voltage fluctuations and Flicker summary

Results:	Pass
Specified standard:	IEC 60601-1-2 Section 7.2.2 ETSI EN 301 489-1 section 9.2; ETSI EN 301 489-17section 7.2
Test procedure:	IEC/EN 61000-3-3

#### Table 14. Voltage changes, Voltage fluctuations and Flicker results



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Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501

#### Immunity Tests Summary 7.

#### 7.1. Performance criteria

#### 7.1.1. Compliance criteria per IEC 60601-1-2

Throughout the course of the immunity tests, the EUT shall not become dangerous or unsafe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- component failures;
- changes in programmable parameters;
- reset to factory defaults (manufacturer's presets); -
- change of operating mode;
- cessation or interruption of any intended operation, even if accompanied by an alarm;
- initiation of any unintended operation, including unintended or uncontrolled operation, even if accompanied by an alarm;

#### Particular Customer criteria 7.1.2.

- ✓ During normal operation EUT emitting light pulse continuously.
- ✓ Output IPL energy limits of Level 5 should be within the range : 8.1J 10.8J

Monitoring the energy level of light pulse was provided by dedicated instruments (OPHIR -NOVA II). The purpose is to view, during the test, that the EUT is immune against noise by examining the energy results, which are received by OPHIR - NOVA II, and the energy values are according with the specification. The measurement setup is shown in Picture 6 below.



Picture # 7. Light pulse energy measurement test setup



#### 7.1.3. Pass/ Fail criteria per ETSI EN301489-17 section 6

Criteria	During test	After test		
		(i.e. as a result of the application of the test)		
A	Shall operate as intended.	Shall operate as intended.		
	(see note).	Shall be no degradation of performance.		
	Shall be no loss of function.	Shall be no loss of function.		
	Shall be no unintentional transmissions.	Shall be no loss of critical stored data.		
B	May be loss of function.	Functions shall be self-recoverable.		
		Shall operate as intended after recovering.		
		Shall be no loss of critical stored data.		
С	May be loss of function.	Functions shall be recoverable by the operator.		
		Shall operate as intended after recovering.		
		Shall be no loss of critical stored data.		
NOTE: Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2.				

#### 7.1.4. Pass/ Fail criteria per ETSI EN 301 489-1 section 6

Continuous phenomena

During the test, the equipment shall:

- continue to operate as intended;
- not unintentionally transmit;
- not unintentionally change its operating state;
- not unintentionally change critical stored data.

#### Transient phenomena

The application of the transient phenomena shall not result in a change of the mode of operation (e.g. unintended transmission) or the loss of critical stored data.

• After application of the transient phenomena, the equipment shall operate as intended

#### For a voltage dip the following performance criteria apply:

The performance criteria for transient phenomena shall apply.

For a voltage interruption the following performance criteria apply:

- In the case where the equipment is powered solely from the AC mains supply (without the use of a parallel battery back-up) volatile user data may have been lost and if applicable the communication link need not to be maintained and lost functions should be recoverable by user or operator;
- No unintentional responses shall occur at the end of the test.
- In the event of loss of function(s) or in the event of loss of user stored data, this fact shall be recorded.



#### 7.1.5. Pass/ Fail criteria per EN55014-2 section 6

#### Performance criterion A:

The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended

#### Performance criterion B:

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however no change of actual operating state or stored data is allowed to persist after the test. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended

#### Performance criterion C:

Temporary loss of function is allowed, provided the function is selfrecoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use



#### 7.2. Electrostatic Discharge (ESD)

Results:	Pass
Specified standard:	IEC 60601-1-2 Table 4
Test procedure:	IEC 61000-4-2
EUT operation mode:	See section 2.5
Temperature:	23.9° C
Relative humidity:	43 %
Atmosphere pressure:	1010 mbar

ESD type	Test points	Test Voltage (kV)	Number of pulses	EUT performance during test	Performance criteria	Results
	Buttons	2, 4, 8, 15	± (2*10)	Normal operation		PASS
Air	Plastic parts	2, 4, 8, 15	± (8*10)	Normal operation		PASS
	Cable	2, 4, 8, 15	± (1*10)	Normal operation	See contione	PASS
Contact	Touch panel See Note	8	± (1*10)	Normal operation	7.1.1 & 7.1.2	PASS
	To HCP	8	± (4*10)	Normal operation		PASS
	To VCP	8	± (4*10)	Normal operation		PASS

#### Table 15. ESD Results

Results: Specified standard:

Test procedure:

Pass ETSI EN 301 489-1 sec. 9.3/ EN 301 489-17 sec. 7.2; EN IEC 55014-2 sec.5.1 EN 61000-4-2

#### Table 16. ESD Results.

ESD type	Test points	Test Voltage (kV)	Number of pulses	EUT performance during test	Performance criteria	Results
	Buttons	2, 4, 8	± (2*10)	Normal operation		PASS
Air	Plastic parts	2, 4, 8	± (8*10)	Normal operation	See sections 7.1.2,	PASS
	Cable	2, 4,8	± (1*10)	Normal operation		PASS
Contact	Touch panel See Note	2,4	± (1*10)	Normal operation	7.1.3 (B), 7.1.4 (transient)	PASS
	To HCP	2,4	± (4*10)	Normal operation	7.1.5 (B)	PASS
	To VCP	2,4	± (4*10)	Normal operation		PASS

**Note:** Touch panel was tested in STDBY mode only. The rest of the test was performed in STDBY and Operation modes



#### 7.3. Radiated Immunity Test

Results:	Pass
Specified standard:	IEC 60601-1-2 Tables 4& 9
Test procedure:	IEC 61000-4-3
EUT operation mode:	See section 2.5
Temperature:	23.9° C
Relative humidity:	43 %
Atmosphere pressure:	1010 mbar

#### Severity Frequency EUT position Modulation **EUT** perfor-Performance Result range, vs antenna level. mance criteria MHz V/m rms during test unmodulated 80-2700 Vertical / 10.0 80 % AM, Normal See sections PASS Horizontal 1 kHz sinwave operation 7.1.1& 7.1.2 (sweep) Proximity field from wireless communications equipment Vertical / Normal 27.0 PASS 385 PM, 18 Hz Horizontal operation FM, ±5 kHz Normal 450 28.0 deviation, PASS operation 1 kHz sinwave 710 745 Normal 9.0 PM, 217 Hz PASS 780 operation 810 See sections Normal 870 28.0 PM, 18 Hz 7.1.1& 7.1.2 PASS operation 930 1720 Normal 28.0 PASS 1845 PM, 217 Hz operation 1970 Normal 2450 28.0 PM, 217 Hz PASS operation 5240 Normal 5500 9.0 PM, 217 Hz PASS operation 5785

#### Table 17. Radiated immunity Results

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Results:	Pass
Specified standard:	ETSI EN 301 489-1 section 9.2; ETSI EN 301 489-17section 7.2 EN IEC 55014-2 section 5.5
Test procedure:	EN 61000-4-3
EUT operation mode:	See section 2.5
Temperature:	23.9° C
Relative humidity:	43 %
Atmosphere pressure:	1010 mbar

#### Table 18. Radiated immunity Results

Freq. range, MHz	EUT position vs antenna	Severity level, V/m rms. unmodulated	Modulation	EUT perfor- mance during test	Perfor- mance criteria	Result
80-2700 (sweep)	Vertical / Horizontal	10.0	80 % AM, 1 kHz	Normal operation	Sections 7.1.2,	PASS
2700-6000 (sweep)		3.0	80 % AM, 1 kHz	Normal operation	7.1.3 (A), 7.1.4 (continuous) 7.1.5 (A)	PASS



## 7.4. Electrical Fast Transients (EFT)

601-1-2 Table 5
N 301 489-1 sec. 9.4; EN 301 489-17 sec. 7.2;
55014-2 section 5.2
61000-4-4
)
bar

Table 19. EFT Results

No.	Cable Description	Type of coupling	Test Voltage kV	Impulse	EUT performance during test	Performance criteria	Result
1	AC mains (PS)	CDN	±2.0	Tr/Th – 5/50 ns, 100 kHz	Normal operation	Sections 7.1.1, 7.1.2, 7.1.3 (B), 7.1.4 (transient), 7.1.5 (B)	PASS

Note: The test was performed in STDBY and Operation modes

## 7.5. Surge testing

Results: Specified standard:	<b>Pass</b> IEC 60601-1-2 Table 5 ETSI EN 301 489-1 sec. 9.8; EN 301 489-17 sec. 7.2; EN IEC 55014-2 section 5.6
Test procedure:	IEC/EN 61000-4-5
Temperature:	22.33° C
Relative humidity:	58 %
Atmosphere pressure:	1010 mbar

#### Table 20. Surge Results

No.	Cable Description	Test Voltage, kV	Type of coupling	Type of Surge, μs	Pulses	EUT performance during test	Performance criteria	Result
1	AC mains (PS)	1.0 DM	CDN	1.2/50 (8/20)	± 5	Normal operation	Sections 7.1.1, 7.1.2 7.1.3 (B), 7.1.4 (transient), 7.1.5 (B)	PASS



#### 7.6. RF conducted immunity test

Results:	Pass
Specified standard:	IEC 60601-1-2 Table 5
Test procedure:	IEC 61000-4-6
Temperature:	23.9° C
Relative humidity:	43 %
Atmosphere pressure:	1010 mbar

#### Table 21. RF Conducted Immunity Results

No.	Cable Descrip- tion	Type of coupling	Frequency range, MHz	Severity level, V rms	Modula- tion	EUT performance during test	Performance criteria	Result
1	AC mains (PS)	CDN	0.15 ÷ 80	3.0 6.0	AM 80%, 1 kHz	Normal operation	See sections 7.1.1& 7.1.2	PASS

Results: Specified standard: Test procedure: Pass ETSI EN 301 489-1 sec. 9.5; EN 301 489-17 sec.7.2 EN 61000-4-6

#### Table 22. RF Conducted Immunity Results

No.	Cable Descrip- tion	Type of coupling	Frequency range, MHz	Severity level, V rms	Modula- tion	EUT performance during test	Performance criteria	Result
1	AC mains (PS)	CDN	0.15 ÷ 80	3.0	AM 80%, 1 kHz	Normal operation	See sections 7.1.2, 7.1.3 (A), 7.1.4 (continuous)	PASS

Results: Specified standard: Test procedure: Pass EN IEC 55014-2 section 5.3 EN 61000-4-6

#### Table 23. RF Conducted Immunity Results

No.	Cable Descrip- tion	Type of coupling	Frequency range, MHz	Severity level, V rms	Modula- tion	EUT performance during test	Performance criteria	Result
1	AC mains (PS)	CDN	0.15 ÷ 230	3.0	AM 80%, 1 kHz	Normal operation	sections 7.1.2, 7.1.5 (A)	PASS



### 7.7. Power Magnetic Field Immunity

Results:	Pass
Specified standards:	IEC 60601-1-2 Table 4
Test procedure:	IEC 61000-4-8
EUT operation mode:	See section 2.5
Temperature:	23.9° C
Relative humidity:	43 %
Atmosphere pressure:	1010 mbar

#### Table 24. Power Magnetic Field Results

Point of application	Magnetic field strength, A/m	EUT performance Performance during test criteria		Result	
		50Hz	60Hz		
x-Axis		Normal performance	Normal performance	See sections 7.1.1& 7.1.2	PASS
y-Axis	30.0	Normal performance	Normal performance		PASS
z-Axis		Normal performance	Normal performance		PASS

Note: The test was performed in STDBY and Operation modes

#### 7.8. Immunity to proximity magnetic fields in range 9kHz – 13.56MHz

Results:	Pass
Specified standards:	IEC 60601-1-2 section 8.11
Test procedure:	IEC 61000-4-39

#### **Table 25. Proximity Magnetic Field Results**

Test Frequency	Magnetic field strength	Modulation	EUT performance during test	Performance criteria	Result
134.2kHz	65A/m	PM 2.1kHz 50%	Normal performance	See sections 7.1.1& 7.1.2	PASS
13.56MHz	7.5A/m	PM 50kHz 50%	Normal performance		PASS
30kHz	8A/m	CW 30kHz	Normal performance		PASS



#### 7.9. Voltage dips, short interruptions and voltage variations

Results:	Pass
Specified standard:	IEC 60601-1-2 Table 5; ETSI EN 301 489-1 sec. 9.7; EN 301 489-17 sec.7.2; EN IEC 55014-2 sec.5.7
Test procedure:	IEC 61000-4-11
Temperature:	22.33° C
Relative humidity:	58 %
Atmosphere pressure:	1010 mbar

#### Table 26. Voltage dips and short interruptions results

No.	Phenomena	% U <sub>T</sub>	Time duration, cycle	EUT performance during test	Required criteria	Result
1	Voltage dips	0 at 0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°	0.5	Normal performance	Sections 7.1.1, 7.1.2, 7.1.3 (B), 7.1.4	PASS
		0 at 0°	1	Normal performance (transient), 7.1.5 (B)		PASS
		70 at 0°	25	Normal performance		PASS
2	Voltage interruptions	0	250	Normal performance	Sections 7.1.1, 7.1.2, 7.1.3 (C), 7.1.4 (voltage interruption), 7.1.5 (C)	PASS

#### Notes:

- 1. Power voltage: 120VAC & 230VAC
- 2. The test was performed in STDBY and Operation modes



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# 8. Appendix 1: Test equipment used

Instrument	Manufac- turer	Model	SII No.	Last calibration date	Next calibration date				
EN 55011									
EMI Test Receiver 20 Hz – 26.5 GHz	Keysight	N9038A	6501147	12/22	12/23				
LISN 9 kHz – 30 MHz	Schwarbeck Mess Elektronik	NSLK 8128	6505753	08/22	08/23				
Bigonilog Antenna 20 MHz - 6000 MHz	ETS LINDGREN	3142D	6503046	10/21	10/23				
Double Ridged Waveguide horn Antenna 1-18 GHz	ETS Lindgren	3115	143138	07/21	07/23				
Semi Anechoic Chamber	ETS-Lindgren	RFSD-F/A-100	5002	N/A	N/A				
Multi-Device Positioning Controller	ETS-Lindgren	2090	5002	N/A	N/A				
Antenna Tower	ETS-Lindgren	2175	5002	N/A	N/A				
Boresight Antenna Tower	ETS-Lindgren	2171B	5002	N/A	N/A				
Turntable	ETS-Lindgren	2188	5002	N/A	N/A				
IEC 61000-3-2 / IEC 6	1000-3-3								
15 kVA 3 Ph, AC Power Supply	AMETEK	15003iX	6502589	02/22	02/24				
Power Analyzer, 3 Ph	AMETEK	PACS3	6502589	02/23	02/24				
Impedance Network, 3 Ph	AMETEK	OMNI 3-18	6502589	02/23	02/24				
Software	AMETEK (California Instruments)	CTS 4.0	Version V4.11.2	N/A	N/A				



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Instrument	Manufac- turer	Model	SII No.	Last calibration date	Next calibration date					
IEC 61000-4-2										
ESD Simulator 200 V- 16.5 kV	Teseq AG	NSG.435	606332	12/22	12/24					
IEC 61000-4-3	IEC 61000-4-3									
MXG Analog Microwave Signal generator 100 KHz - 20 GHz	Agilent	N5183A	6501148	02/23	02/24					
RF power amplifier 80-1000 MHz, 100W	Amplifier Research	100W1000M1	4883	N/A	N/A					
RF power amplifier 0.8 - 4.2 GHz; 25 W	Amplifier Research	25S1G4A	4991	N/A	N/A					
RF power amplifier 4.2 GHz - 18 GHz; 20 W	Amplifier Research	20T4G18	4967	N/A	N/A					
RF power amplifier 80 MHz - 1000 MHz; 500W	IFI- Instrument for Industry.	SMC500D-MRC	1508-1212	N/A	N/A					
RF power amplifier 1 GHz - 18 GHz; 50 W	IFI- Instrument for Industry	ST181-50MRC	1522-1212	N/A	N/A					
Biconilog Antenna 30 – 2000 MHz	Schaffner	CBL 6112D 23181	5866	04/21	04/23					
Antenna, Double-Ridged Waveguide Horn (Medium); 750 MHz - 18 GHz	ETS Lindgren	3115	S/N: 00143138	07/21	07/23					
Anechoic chamber 26 MHz - 40GHz	ETS LINDGREN	RFSD-F/A-100	5002	N/A	N/A					
Field Strength Monitor	Wavecontrol	-	6505932	N/A	N/A					
Field Strength Probe 1MHz – 40GHz	Wavecontrol	WPF40	6505934	11/22	11/23					
IEC 61000-4-4										
Set Multifunction Generator CDN, 1 phase StepTransformer	Teseq	NSG-3060 CDN- 3061 INA-6502	6502113	01/23	01/24					
Coupling Network, 3 PH 32 A	Teseq	NSG 3063	6502116	01/23	01/24					
Capacitive coupling clamp	Teseq	CDN-3425	6502117	N/A	N/A					
Software	Teseq	WIN 3000 SDR	Ver. 1.3.2	N/A	N/A					
IEC 61000-4-5										
Set Multifunction Generator CDN, 1 phase StepTransformer	Teseq	NSG-3060 CDN- 3061 INA-6502	6502113	01/23	01/24					
Coupling Network, 3 PH 32 A	Teseq	NSG 3063	6502116	01/23	01/24					



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h									
Instrument	Manufac- turer	Model	SII No.	Last calibration date	Next calibration date				
IEC 61000-4-6	IEC 61000-4-6								
RF Generator 100 KHz - 20 GHz	Agilent	N5183A	6501148	02/23	02/24				
RF power amplifier 10 kHz - 250 MHz; 75 W	Ampl Research	75A250	4847	N/A	N/A				
Digital Oscilloscope, 1 GHz , 4 channels	ROHDE&S CHWARZ	RTE1104	6503858	01/22	01/24				
CDN 150 kHz – 230 MHz	Schaffner	CDN M325	5122	02/23	02/24				
CDN 150 kHz – 80 MHz	TESEQ AG	CDN 800	606307	02/23	02/24				
Attenuator 6 dB, 50W	Huber- Suhner AG	5906.17.0005	6502577	11/22	11/23				
IEC 61000-4-8	•								
Current Tr-r	SII	-	SN 50	NA	NA				
Low frequency survey meter 1 V/m-199 kV/m; 0.1m G-20 G	Holaday Ind.Inc.	HI-3604	mfr HI3604	04/21	04/23				
Magnetic Field Immunity Loop Antenna	Fischer Custom	F-1000-4- 8/9/10-L-1M	5966	02/22	02/24				
True RMS Multimeter	Fluke	87V	6500732	04/21	04/23				
AC Current Clamp	Fluke	i200	6500734	04/21	04/23				
AC Power Supply Phase	Elgar	SW 5250A	4684	N/A	N/A				
IEC 61000-4-11	•								
Set Multifunction Generator CDN, 1 phase StepTransformer	Teseq	NSG-3060 CDN- 3061 INA-6502	6502113	01/23	01/24				
IEC 61000-4-39									
LF coil F=134.2kHz	Voyantic	-	001	01/22	01/24				
HF coil F=13.56MHz	Voyantic	-	002	01/22	01/24				
Active Loop Antenna	ETS LINDGREN	6507	00144641	11/22	11/24				



## 9. Appendix 2: Measurement uncertainty

The test equipment has been calibrated according to its recommended procedures and is within the manufacturer's published limit of error.

The laboratory calibrates its standards by a third party (traceable to NIST, USA) on a regular basis according to equipment manufacturer requirements.

In the following table the uncertainty calculation is given.

Calculated uncertainty U LAB are less than U CISPR, therefore compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.

Type of disturbance Test description	Calculated uncertainty U <sub>LAB</sub>	U cispr
Conducted disturbance at mains port (9 kHz to 150 kHz)	3.3 dB	3.8 dB
Conducted disturbance at mains port (150 kHz to 30 MHz)	2.8 dB	3.4 dB
Disturbance power (30 MHz to 300 MHz)	3.3 dB	4.5 dB
Radiated disturbance (electric field strength at an OATS at 10 m distance) (30 MHz to 1 000 MHz)	4.18 dB	6.3 dB
Radiated disturbance (electric field strength in a SAR at 3 m distance) (30 MHz to 1 000 MHz)	4.32 dB	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	4.47 dB	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	4.47 dB	5.5 dB

The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by coverage factor of 2.

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## 10. Appendix 3: Antenna Factor and Cable Loss

No.	Frequency (MHz)	Attenuation (dB)	Frequency (MHz)	Attenuation (dB)	Frequency (MHz)	Attenuation (dB)		
1	28.71	0.4	97.21	1.0	329.17	1.7		
2	30.14	0.4	102.07	1.0	345.63	1.8		
3	31.65	0.5	107.17	1.0	362.91	1.8		
4	33.23	0.5	112.53	1.0	381.06	1.8		
5	34.89	0.5	118.15	1.0	400.11	1.9		
6	36.64	0.5	124.06	1.1	420.12	2.0		
7	38.47	0.5	130.27	1.1	441.12	2.0		
8	40.39	0.6	136.78	1.1	463.18	2.1		
9	42.41	0.6	143.62	1.1	486.34	2.1		
10	44.53	0.6	150.80	1.1	510.66	2.2		
11	46.76	0.6	158.34	1.1	536.19	2.2		
12	49.10	0.6	166.26	1.1	563.00	2.4		
13	51.55	0.6	174.57	1.2	591.15	2.4		
14	54.13	0.7	183.30	1.2	620.70	2.5		
15	56.83	0.7	192.46	1.3	651.74	2.6		
16	59.68	0.7	202.08	1.3	684.33	2.6		
17	62.66	0.7	212.19	1.3	718.54	2.8		
18	65.79	0.8	222.80	1.4	754.47	2.9		
19	69.08	0.8	233.94	1.4	792.19	2.9		
20	72.54	0.8	245.63	1.4	831.80	3.0		
21	76.16	0.8	257.92	1.5	873.39	3.2		
22	79.97	0.9	270.81	1.5	917.06	3.2		
23	83.97	0.9	284.35	1.5	962.92	3.3		
24	88.17	0.9	298.57	1.6	1011.06	3.4		
25	92.58	0.9	313.50	1.6				

Cable Loss (SAC, frequency range: 30 MHz-1.0 GHz)

Cable Loss (SAC, frequency range: 1.0 GHz - 6.0 GHz)

No.	Frequency (MHz)	Attenuation (dB)	Frequency (MHz)	Attenuation (dB)	Frequency (MHz)	Attenuation (dB)
1	962.92	3.3	1815.72	5.0	3423.81	7.2
2	1011.06	3.4	1906.51	5.1	3595.00	6.8
3	1061.61	3.4	2001.83	5.2	3774.75	7.0
4	1114.70	3.5	2101.92	5.3	3963.49	7.1
5	1170.43	3.7	2207.02	5.4	4161.67	7.6
6	1228.95	3.9	2317.37	5.5	4369.75	7.7
7	1290.4	3.9	2433.24	5.6	4588.24	7.7
8	1354.92	4.0	2554.90	5.9	4817.65	7.8
9	1422.67	4.2	2682.65	5.8	5058.53	8.1
10	1493.80	4.6	2816.78	5.8	5311.46	8.4
11	1568.49	4.7	2957.62	6.3	5577.03	8.6
12	1646.91	4.8	3105.50	6.2	5855.88	9.1
13	1729.26	4.9	3260.77	6.7	6000.00	9.3



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#### Antenna Factor

Biconilog Antenna, Model Number: 3142D S/N: 6503046 3 m distance

No.	f / MHz	ACF / dB/m	f / MHz	AF / dB/m
1	30	22.7	200	16.7
2	35	20.4	250	18.0
3	40	17.8	300	19.8
4	45	15.7	400	22.7
5	50	14.2	500	25.8
6	60	13.0	600	27.4
7	70	13.0	700	28.4
8	80	12.4	800	30.0
9	90	13.3	900	31.3
10	100	14.2	1000	32.8
11	120	13.3	1250	35.8
12	140	13.3	1500	42.9
13	160	14.6	1750	36.1
14	180	16.3	2000	34.6

Double Ridged Waveguide Antenna Model Number: 3115 S/N 0143138 3m distance

No.	f / MHz	AF / dB/m	f / MHz	AF / dB/m	f / MHz	AF / dB/m
1	1000	23.6	7000	36.7	13000	39.7
2	1500	25.6	7500	37.3	13500	40.3
3	2000	28.2	8000	37.0	14000	41.0
4	2500	27.8	8500	37.6	14500	41.0
5	3000	29.3	9000	37.8	15000	39.6
6	3500	30.7	9500	38.0	15500	38.8
7	4000	31.8	10000	38.3	16000	39.1
8	4500	32.1	10500	38.6	16500	40.0
9	5000	32.9	11000	38.6	17000	40.9
10	5500	32.9	11500	38.9	17500	42.3
11	6000	34.0	12000	38.8	18000	42.5
12	6500	35.3	12500	38.9		



## 11. Appendix 4: Test illustrations



Picture # 8. Radiated emission test setup



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Picture # 9. Conducted emission test setup



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Picture # 10. Power Supply used on tests



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Picture # 11. Radiated Immunity test setup per IEC 61000-4-3



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Picture # 12. Radiated Immunity test setup. Light pulse energy reading on OPHIR – NOVA II



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Picture # 13. RF Conducted Immunity test setup on AC mains per IEC 61000-4-6



Picture # 14. EFT/ Surge Immunity test setup on AC mains per IEC 61000-4-4/ IEC 61000-4-5



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Picture # 15. Voltage dips/interruption test setup on AC mains per IEC 61000-4-11



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Picture # 16. Magnetic field immunity test setup per IEC 61000-4-8



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Picture # 17. Immunity to proximity magnetic fields test setup in the frequency range 9 kHz to 13.56 MHz per IEC 61000-4-39



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Picture # 18. Immunity to proximity magnetic fields test setup in the frequency range 9 kHz to 13.56 MHz per IEC 61000-4-39



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Picture # 19. ESD Immunity test setup per IEC 61000-4-2. Contact ESD to VCP/HCP planes



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Picture # 20. ESD Immunity test setup – tested points. Contact ESD to VCP/HCP planes



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Picture # 21. ESD Immunity test setup – tested points. Contact ESD to Touch panel



Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501









Picture # 22. ESD Immunity test setup – tested points. Air ESD to plastic parts, cable & buttons



Title: Test on Personal home use hair removal device Name: Silk'n 7 Model: H3500/H3501



Picture # 23. ESD Immunity test setup – tested points. Contact ESD to Touch panel



## 12. Appendix 5 Customer documents

- Silkn VII LVD User Manual Doc. No. PB116670A"
- Model H3500 Risk Analysis Report Doc. No. DO116666A

## END OF THE DOCUMENT