

**Table 1: STEVAL-HKI001V2 bill of materials**

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	1	STEVAL-CTM001V1C		Control board	ST	Not available for separate sale
2	1	STEVAL-CTM002V2		Power stage	ST	Not available for separate sale
3	1	STEVAL-CTM001V2D		Driving board	ST	Not available for separate sale

**Table 2: STEVAL-CTM001V1C bill of materials**

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
1	1	CON1	blkcon100vhtm2oew20014	SPI connector	Sullins Connector Solution	SFH11-PBPC-D07-ST-BK
2	1	CON2	blkcon100vhtm2oew20010	Enc/Hall connector	Any	Any
3	1	CON3	blkcon100vhtm2oew20034	MC SPI connector	Sullins Connector Solution	SFH11-PBPC-D17-ST-BK
4	1	CON5	walcon100vhtm2oew32534	MC Connector	Sullins Connector Solution	SBH11-PBPC-D17-ST-BK
5	2	CON4, CON8	walcon100vhtm2oew32514	SPI-Power module interface	Sullins Connector Solution	SBH11-PBPC-D07-ST-BK
6	2	CON10, CON11	blkcon100vhtm2oew2008	Analog input-digital output-ext encoder	Any	Any
7	1	CON13	blkcon100vhtm2oew2006	Digital input	Any	Any
8	1	CON14	walcon100vhtm2oew32520	JTAG connector	Sullins Connector Solution	SBH11-PBPC-D10-ST-BK
9	1	CON16		Connector	Sullins Connector Solution	SBH11-PBPC-D05-ST-BK

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
10	80	C2, C10, C11, C12, C25, C40, C44, C46, C48, C52, C54, C57, C60, C64, C66, C68, C72, C74, C77, C80, C84, C86, C88, C92, C94, C97, C100, C104, C106, C108, C112, C114, C117, C120, C124, C126, C128, C132, C134, C137, C140, C144, C146, C148, C152, C154, C157, C160, C164, C166, C168, C172, C174, C177, C186, C195, C196, C201, C202, C206, C214, C215, C216, C222, C223, C229, C230, C231, C232, C233, C234, C237, C255, C256, C259, C260, C261, C262	100 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
11	10	C9, C14, C39, C59, C79, C99, C119, C139, C159, C194	150 pF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
12	2	C13, C226	10 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
13	8	C15, C16, C17, C18, C19, C26, C31, C32	47 pF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
14	3	C33, C34, C35	10 pF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors (not assembled)	Any	Any
15	14	C41, C55, C61, C75, C81, C95, C101, C115, C121, C135, C141, C155, C161, C175	4.7 $\mu$ F 25 V $\pm$ 10% SMC 0603 X5R	X5R	Samsung Electro	CL10A475KA8NQNC

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
16	13	C42, C62, C82, C102, C217, C218, C220, C122, C235, C236, C240, C142, C162	SMC 0603	Capacitors (not assembled)		
17	28	C43, C45, C49, C50, C63, C65, C69, C70, C83, C85, C89, C90, C103, C105, C109, C110, C123, C125, C129, C130, C143, C145, C149, C150, C163, C165, C169, C170	4.7 $\mu$ F 35 V $\pm$ 10% SMC 0805 X7R	Capacitors	TDK	CGA4J3X5R1H475K125AB
18	21	C47, C51, C56, C67, C71, C76, C87, C91, C96, C107, C111, C116, C127, C131, C136, C147, C151, C156, C167, C171, C176	100 pF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
19	14	C53, C58, C73, C78, C93, C98, C113, C118, C133, C138, C153, C158, C173, C178	1 $\mu$ F 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
20	1	C185	10 $\mu$ F 35 V $\pm$ 10% tantalioc	Capacitor	Kemet	T491C106K035AT
21	1	C187	2.2 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitor	Any	Any
22	2	C188, C258	47 $\mu$ F 25 V $\pm$ 10% tantaliode	Capacitors	Kemet	T491D476K025AT
23	1	C190	470 pF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
24	2	C191, C197	15 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitors	Any	Any
25	2	C192, C198	47 $\mu$ F 16 V $\pm$ 10% tantalioc	Capacitors	AVX	TPSC476K016R0110
26	2	C193, C199	3.3 $\mu$ F 50 V $\pm$ 10% tantalioc	Capacitors	AVX	TAJC335K050R
27	1	C200	120 pF 50 V $\pm$ 5% SMC 0603	Capacitors	Any	Any
28	2	C203, C225,	10 $\mu$ F 10 V $\pm$ 10% tantaliob	Capacitors	AVX	TAJB106K010RNJ
29	2	C204, C207	22 pF 50 V $\pm$ 5% SMC 0603 C0G	Capacitors	Any	Any
30	1	C221	1 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitor	Any	Any
31	1	C224	470 nF 50 V $\pm$ 10% SMC 0603 X7R	Capacitor	Any	Any

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
32	1	C257	220 nF 25 V ±10% SMC 0603 X7R	Capacitor	Any	Any
33	18	D5, D18, D19, D20, D31, D32, D42, D43, D53, D54, D64, D65, D75, D76, D86, D87, D97, D98, 110	SMD SMR0603	Red LEDs	Osram Opto	LR Q396
34	1	D3	TZMC13-GS08 13 V/0.5 W ±5% smdo213ac21	Zener diode	Vishay	TZMC13-GS08
35	1	D4	TZMB2V7-GS08 2.7 V/0.5 W ±2% smdo213ac21	Zener diode	Vishay	TZMB2V7-GS08
36	5	D6, D7, D8, D11, D13	ESDLIN1524BJ SOD323f	Transil™, transient voltage surge suppressor diode for ESD protection	ST	<a href="#">ESDLIN1524BJ</a>
37	7	D10, D12, D107, D108, D109, D111, D114	BAT48ZFilm SOD123	40 V, 350 mA axial general purpose signal Schottky diode	ST	<a href="#">BAT48ZFILM</a>
38	4	D14, D15, D23, D24	SMD 0603	Green LEDs	Osram Opto	LT Q39G-Q1S2-25-1
39	7	D25, D36, D47, D58, D69, D80, D91	STTH112A SMA	1200 V, 1 A ultrafast Diode	ST	<a href="#">STTH112A</a>
40	7	D26, D37, D48, D59, D70, D81, D92	BAT20JFILM SOD323f	23 V, 1 A general purpose signal Schottky diode	ST	<a href="#">BAT20JFILM</a>
41	7	D27, D38, D49, D60, D71, D82, D93	STPS2H100AY 100 V/2 A SMA	100 V, 2 A SMA SMB automotive power Schottky rectifier	ST	<a href="#">STPS2H100AY</a>
42	7	D28, D39, D50, D61, D72, D83, D94	SMB	Diode (not assembled)	ST	
43	18	D29, D34, D40, D45, D51, D56, D62, D67, D73, D78, D84, D89, D95, D100, D102, D103, D105, D106	STPS3L40SY 40 V/3 A SMC	40 V, 3 A automotive low drop power Schottky rectifier	ST	<a href="#">STPS3L40SY</a>

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
44	12	D30, D33, D41, D44, D52, D55, D63, D66, D74, D77, D85, D88	STPS5L60Y 60 V/5 A SMC	60 V, 5 A SMC automotive low drop power Schottky rectifier	ST	<a href="#">STPS5L60-Y</a>
45	7	D35, D46, D57, D68, D79, D90, D101	SMCJ13CA SMDO214AB21	1500 W, TVS in SMC	ST	<a href="#">SMCJ13CA</a>
46	1	D113	ESDCAN24-2BLY smsot23123	Automotive dual-line TVS in SOT23-3L for CAN bus (12 V system)	ST	<a href="#">ESDCAN24-2BLY</a>
47	12	F4, F5, F6, F7, F8, F9, F12, F13, F14, F15, F20, F21	MPZ1608S121A sml0603	Filters	Würth	742 792 625
					TDK	<a href="#">MPZ1608S121A</a>
48	7	IC1, IC2, IC3, IC4, IC5, IC6, IC7	STGAP1S sog05024wg425l650	Automotive galvanically isolated single gate driver	ST	<a href="#">STGAP1S</a>
49	1	IC8	A7986ATR sog0508wg244l200exposure	3 A step-down switching regulator for automotive applications	ST	<a href="#">A7986ATR</a>
50	2	IC9, IC10	A6902D sog0508wg244l200	Up to 1 A switch step down regulator with adjustable current limit for automotive applications	ST	<a href="#">A6902D</a>
51	1	JMP1	Strip line male 1X3 pitch 2.54 mm siptm3003	Jumper	Any	Any
52	1	JP1	Vin low voltage 36 V/2 A mor2X3812204822	Jumper	Phoenix Contact	1803426
53	3	JP2, JP3, JP4	conwurth61302015721	Jumpers	Würth	61301015721
54	3	JP5, JP6, JP7	conwurth61300415721	Jumpers	Würth	61300415721
55	2	JP14, JP15	Strip line male 1X2 pitch 2.54 mm siptm2002	Jumper	Any	Any
56	1	J22	DAC blkcon100vht2oew2004	Double strip line male 2X2 pitch 2.54mm	Any	Any
57	1	J23	Vdc in mor2X254	Supply connector	Phoenix Contact	1725656
58	1	L1	15 µH indnrs5040t150m	Inductor	Würth Elektronik	74404054150
59	1	L3	68 µH INDLMAXSJ680FTAS	Inductor	Würth Elektronik	744771168
60	6	L2, L4, L5, L6, L8, L9	sml 0603	Filters	Murata	BLM18SG331TN1D

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
61	1	L7	47 $\mu$ H indBOURNSSRR1240470M	Fixed inductor	Würth Elektronik	7447715470
62	1	L10	smr0603	Power line ferrite bead	Murata	BLM18SG700TN1D
63	2	MT2, MT4	M3X10 mm Nylon MTHOLE3	Tower	Keyston electronic	25501
64	7	PS1, PS2, PS3, PS4, PS5, PS6, PS7	15 V/-10 V	Power supply	Any	Any
65	2	P1, P2	DB9-male connector dsubrp318tm9mcon	D-Sub connector	Amphenol	L717TSEH09POL2RM5
66	7	Q2, Q5, Q8, Q11, Q14, Q17, Q20	2STN1550 sot223	Low voltage high performance NPN power transistors	ST	<a href="#">2STN1550</a>
67	13	Q3, Q4, Q6, Q7, Q9, Q10, Q12, Q13, Q15, Q16, Q18, Q19, Q21	2STF2550 smsot89	Low voltage high performance NPN power transistors	ST	<a href="#">2STF2550</a>
68	1	Q23	STN4NF06L sot223	Automotive- grade N- channel 60 V, 0.07 Ohm typ., 4 A STripFET II Power MOSFET in SOT-223 package	ST	<a href="#">STN4NF06L</a>

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
69	71	R32, R34, R35, R36, R37, R38, R39, R40, R45, R50, R57, R61, R62, R63, R64, R86, R87, R88, R90, R103, R104, R105, R107, R120, R121, R122, R124, R137, R138, R139, R141, R154, R155, R156, R158, R171, R172, R173, R175, R188, R189, R190, R192, R219, R220, R221, R226, R227, R228, R229, R230, R232, R234, R237, R238, R240, R243, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R269, R270, R273, R277	0.1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
70	17	R68, R69, R70, R71, R72, R74, R75, R76, R101, R118, R135, R152, R169, R186, R218, R241, R242	10 K 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
71	1	R79	3.5 7K 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
72	3	R65, R66, R77	820 R 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
73	4	R18, R19, R21, R22	392 K 1/2 W $\pm$ 5 %smr1210	Thick film resistors	Panasonic	ERJP14F3923U
74	3	R20, R23, R26	68K 1W $\pm$ 5% smr2512	Thick film resistors	TE Connector	352068KJT
75	1	R24	7.87 KK 1/4 W $\pm$ 1% smr1206	Thick film resistors	Any	Any
76	2	R25, R31	4.02 k 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
77	1	R27	39 R 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any
78	2	R28, R29	2 k 1/16 W $\pm$ 1% smr0603	Thick film resistors	Any	Any

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
79	1	R30	120 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
80	1	R33	3.3 K 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
81	5	R35, R38, R61, R63, R64	0 Ohm 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
82	3	R48, R49, R73	1/16 W $\pm 1\%$ smr0603	Thick film resistors (not assembled)	Any	Any
83	5	R58, R59, R60, R249, R271	4.7 k 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
84	1	R78	1.3 K 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
85		R79	3.57 K 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
86	11	R80, R81, R84, R85, R102, R119, R136, R153, R170, R187, R204	1 K 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
87	1	R82	680 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
88	14	R89, R91, R106, R108, R123, R125, R140, R142, R157, R159, R174, R176, R191, R193	750 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
89	13	R92, R93, R109, R110, R126, R127, R143, R144, R160, R161, R177, R178, R194	24 1 W $\pm 5\%$ smr2512	Thick film resistors	Any	Any
90	21	R94, R97, R98, R111, R114, R115, R128, R131, R132, R145, R148, R149, R162, R165, R166, R179, R182, R183, R196, R199, R200	100 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any
91	12	R95, R96, R112, R113, R129, R130, R146, R147, R163, R164, R180, R181	20 1 W smr2512	Thick film resistors	Any	Any
92	6	R99, R116, R133, R150, R167, R184	330 1/16 W $\pm 1\%$ smr0603	Thick film resistors	Any	Any



Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
93	6	R100, R117, R134, R151, R168, R185	10 1/16 W ±1% smr0603	Thick film resistors	Any	Any
94	1	R205	47 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
95	1	R206	110 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
96	1	R207	1.5 K 1/16 W ±1% sMr0603	Thick film resistors	Any	Any
97	1	R208	2.49 K 1/16 W ±1% sMr0603	Thick film resistors	Any	Any
98	1	R209	220 1/16 W ±1% sMr0603	Thick film resistors	Any	Any
99	2	R210, R214	0.1 R 1/16 W ±1% smr0603	Thick film resistors	Any	Any
100	1	R211	13 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
101	3	R212, R215, R216	9.1 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
102	1	R213	4.3 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
103	1	R217	5.49 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
104	1	R225	5.6 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
105	1	R235	47 R 1/16 W ±1% smr0603	Thick film resistors	Any	Any
106	1	R239	18 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
107	2	R245, R246	60R4 1/16W ±1% smr0603	Thick film resistors	Any	Any
108	5	R250, R251, R252, R253, R254	100 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
109	1	R255	1K5 1/16 W ±1% smr0603	Thick film resistors	Any	Any
110	4	R274, R275, R276, R272	33 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
111	1	SW1	SWITCHMULT	Multiple switch	TE Connectivity	1-1825010-4
112	1	SW5	Strip Line Male 1X3 pitch 2.54 mm sipm3003	Jumper	Any	Any
113	2	SW6, SW7,	0.05 A-12 V SMDPULSE4	Push button	APEM	DTSMW69RW
114	2	S7, S8	Strip Line Male 1X2 pitch 2.54 mm sipm2002	Jumpers	Any	Any
115	1	T1	B82789-C104 indB82789C104	Common mode choke dual	EPCOS	B82789-C104

Item	Q.ty	Reference	Part / Value	Description	Manufacturer	Order code
116	1	U1	TSZ121ILT SOT23L5	Very high accuracy (5 $\mu$ V) zero drift 5 V CMOS Op-Amp, single, GBP=400kHz	ST	<a href="#">TSZ121ILT</a>
117	1	U2	ACPL-782T SWG1008WG387L430	Opto-Isolator	Avago	ACPL-782T-500E
118	1	U24	ESDA14V2LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA14V2LY</a>
119	2	U25, U28	ESDA6V1LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA6V1LY</a>
120	1	U26	ESDA5V3LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA5V3LY</a>
121	1	U27	LF50CDT-TRY smdpak	Very low drop voltage regulator with inhibit	ST	<a href="#">LF50CDT-TRY</a>
122	1	U29	ST32F303RBT7 quad50m64wg1200	Mainstream Mixed signals MCUs ARM Cortex-M4 core comparators	ST	<a href="#">STM32F303RBT7</a>
123	1	U30	ST3232EBTR sog065m16wg820l635	15 KV ESD protected, RS232 drivers and receivers	ST	<a href="#">ST3232EBTR</a>
124	1	U31	L9615D sog0508wg244l200	High speed Can bus transceiver	ST	<a href="#">L9615D</a>
125	1	Y1		Crystal	Fox Electronics	SDLF/080-20

**Table 3: STEVAL-CTM002V2 bill of materials**

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1	1	CON1	walcon100vhtm2oew32514	Power module Interface	Sullins Connector Solution	SBH11-PBPC-D07-ST-BK
2	3	J7, J8, J9	Out connector 40 A PowerTerm40A	Connectors	ERNI	214786
3	3	C5, C7, C9	100 nF 25 V $\pm$ 20% smc0603	Capacitors	Any	Any
4	1	C1	470 nF 630 V DC $\pm$ 5% rad1000x425ls750H39	Polyfilm capacitor	EPCOS	B32653A6474J000
5	3	C2, C3, C4	STPS1L30A 30V/1A SMA	Capacitors	EPCOS	B81123C1222M000
6	3	C6, C8, C10	10 nF 25 V $\pm$ 20% smc0603	Capacitors	Any	

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
7	1	D1	STPS1L30A 30 V/1 A SMA	Low drop power Schottky rectifier	ST	<a href="#">STPS1L30A</a>
8	3	D2, D3, D4	red led Led SMR0603	LED	Osram Opto	LR Q396
9	3	F1, F2, F3	20 A-500 V 500V/25A fuse10X38M + Clip Bussman	Clips+FUSE	SIBA + Bussmann	60-033-05 25A + 1A3400-09
10	1	F10	MPZ1608S121A sml0603	Filter	Wurth ( TDK )	742 792 625 ( MPZ1608S121A )
11	3	JP8, JP9, JP10	1X10 pitch 2.54 mm High 13.5 mm blkcon100vhtm1sqw100X10	Strip line male	FCI	77311-462K10LF
12	3	JP11, JP12, JP13	1X4 pitch 2.54 mm High 13.5 mm siptm4004	Strip line male	FCI	77311-462K04LF
13	5	J4 and other 4	M3X10 mm MTHole3	Tower	RS Pro	606-686
14	1	J6		Testpoint	NOT ASSEMBLY	
15	2	J2, J3	VBUS mthole5	Screw M5 + Nut M5	RS Pro	482-8739+483-0546
16	1	J1	30 A/400 V mors2x9X52	Brake connector	Phonex contact	1714971
17	1	J5	300 V 25 A 25A/300V mors4x9X52	EXT_Brake	Phonex contact	1906129
18	1	LS1	SPST 12VDC SPST releTE112H2MG	Relay	TE CONNECTIVIT OEG	PCFN-112H2MG,000
19	1	Q1	3STF1640 sot89	Low voltage high performance NPN power transistor	ST	<a href="#">3STF1640</a>
20	1	RT1	NTC-10 Ohm NTC-10 rad26NTC		EPCOS	B57464S0100M00
21	4	R2, R3, R4, R14	0 ¼ W ±1% SMR1206	Thick film resistors	Any	Any
22	1	R1	4.7 1/8 W ±1% smr805	Thick film resistors	Any	Any
23	1	R8	1.8 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
24	6	R7, R10, R11, R12, R13, R17	100 K 1 W ±5% smr2512	Thick film resistors	Any	Any
25	1	R5	3.9 K 1/16 W ±1% smr0603	Thick film resistors	Any	Any
26	1	R6	820 R 1/16 W ±1% smr0603	Thick film resistors	Any	Any
27	1	SP!		ACEPACK 2 converter inverter brake	ST	<a href="#">A2C35S12M3-F</a>
28	3	U1, U2, U3	SenseACS755XCB		Allegro	ACS759LCB-050B-PFF-T

Table 4: STEVAL-CTM001V2D bill of materials

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
1	61	C10, C11, C12, C25, C40, C44, C46, C48, C52, C54, C57, C60, C64, C66, C68, C72, C74, C77, C80, C84, C86, C88, C92, C94, C97, C100, C104, C106, C108, C112, C114, C117, C120, C124, C126, C128, C132, C134, C137, C140, C144, C146, C148, C152, C154, C157, C160, C164, C166, C168, C172, C174, C177, C186, C195, C196, C201, C202, C259, C260, C261	100 nF smc0603 50 V ±10% X7R	Capacitors	AVX	06035C104KAT2A
2	1	C13	10 nF smc0603 50 V ±10% X7R	Capacitor	Murata	GRM188R71H103KA01D
3	1	C185	10 µF tantalioc 35 V ±10%	Capacitor	Kemet	T491C106K035AT
4	1	C187	2.2 nF smc0603 50 V ±10% X7R	Capacitor	Vishay	VJ0603Y222KXACW1BC
5	2	C188, C258	47 µF tantaliocDE 25 V ±10%	Capacitors	Kemet	T491D476K025AT
6	1	C190	470 pF smc0603 50 V ±10% X7R	Capacitor	Yageo	CC0603KRX7R9BB471
7	2	C191, C197	15 nF smc0603 50 V ±10% X7R	Capacitors	Samsung	CL10B153KB8NNNC
8	2	C192, C198	47 µF tantalioc 16 V ±10%	Capacitors	AVX	TPSC476K016R0110
9	2	C193, C199	3.3 µF tantalioc 50 V ±10%	Capacitors	AVX	TAJC335K050R
10	1	C200	120 pF SMC0603 50 V ±5%	Capacitor	Murata	GRM1885C1H121JA01D
11	1	C203	10 µF tantaliocB 10 V ±10%	Capacitor	AVX	TAJB106K010RNJ
12	1	C257	220 nF smc0603 25 V ±10% X7R	Capacitor	Murata	GCM188R71E224KA55D
13	14	C41, C55, C61, C75, C81, C95, C101, C115, C121, C135, C141, C155, C161, C175	4.7µF smc0603 25V ±10% X5R	Capacitors	Samsung Electro	CL10A475KA8NQNC

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
14	9	C42, C62, C82, C102, C122, C142, C162	smc0603	Capacitors (not assembled)		
15	28	C43, C45, C49, C50, C63, C65, C69, C70, C83, C85, C89, C90, C103, C105, C109, C110, C123, C125, C129, C130, C143, C145, C149, C150, C163, C165, C169, C170	4.7 $\mu$ F smc0805 35 V $\pm$ 10% X7R	Capacitors	TDK	CGA4J3X5R1H475K125AB
16	21	C47, C51, C56, C67, C71, C76, C87, C91, C96, C107, C111, C116, C127, C131, C136, C147, C151, C156, C167, C171, C176	100 pF smc0603 50 V $\pm$ 10% X7R	Capacitors	Yageo	CC0603KRX7R9BB101
17	14	C53, C58, C73, C78, C93, C98, C113, C118, C133, C138, C153, C158, C173, C178	1 $\mu$ F smc0603 50 V $\pm$ 10% X7R	Capacitors	Taiyo Yuden	UMK107AB7105KA-T
18	10	C9, C14, C39, C59, C79, C99, C119, C139, C159, C194	150 pF smc0603 50 V $\pm$ 10% X7R	Capacitors	Würth	885012206078
19	1	CON1	blkcon100vhtm2oew20014	SPI Connector	Sullins Connector Solution	SFH11-PBPC-D07-ST-BK
20	1	CON16	CON10 male	Connector	Sullins Connector Solution	SBH11-PBPC-D05-ST-BK
21	1	CON2	blkcon100vhtm2oew20010	Enc/Hall connector	AMTEK	PH1S25-2x40GB6/3-L
22	1	CON3	blkcon100vhtm2oew20034	Connector	Sullins Connector Solution	SFH11-PBPC-D17-ST-BK
23	2	CON4, CON8	walcon100vhtm2oew32514	SPI-Power module interface	Sullins Connector Solution	SBH11-PBPC-D07-ST-BK
24	1	CON5	walcon100vhtm2oew32534	Connector	Sullins Connector Solution	SBH11-PBPC-D17-ST-BK
25	2	D23, D24	smd0603	Green LED	Osram Opto	LT Q39G-Q1S2-25-1

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
26	7	D25, D36, D47, D58, D69, D80, D91	STTH112A SMA	1200 V, 1 A ultrafast diode	ST	<a href="#">STTH112A</a>
27	7	D26, D37, D48, D59, D70, D81, D92	BAT20JFILM SOD323f	23 V, 1 A general purpose signal Schottky diode	ST	<a href="#">BAT20JFILM</a>
28	7	D27, D38, D49, D60, D71, D82, D93	STPS2H100AY SMA 100V/2A	100 V, 2 A SMA SMB automotive power Schottky rectifier	ST	<a href="#">STPS2H100AY</a>
29	7	D28, D39, D50, D61, D72, D83, D94	TBD smb	Diode (not assembled)	ST	
30	14	D29, D34, D40, D45, D51, D56, D62, D67, D73, D78, D84, D89, D95, D100	STPS360AFY SOD128 60V/3A	Automotive 60 V, 3 A power Schottky rectifier	ST	<a href="#">STPS360AFY</a>
31	4	D102, D103, D105, D106	STPS3L40SY SMC 3A/40V	Automotive 40 V, 3 A low drop power Schottky rectifier	ST	<a href="#">STPS3L40SY</a>
32	1	D3	TZMC13-GS08 smdo213ac21 13V/0, 5W 5%	Zener diode	Vishay	TZMC13-GS08
33	12	D30, D33, D41, D44, D52, D55, D63, D66, D74, D77, D85, D88	STPS5H100AFY SOD128 100V/5A	Automotive 100 V, 5 A SOD128Flat power Schottky rectifier	ST	<a href="#">STPS5H100AFY</a>
34	7	D35, D46, D57, D68, D79, D90, D101	SMCJ13CA SMDO214AB21	1500 W, TVS in SMC	ST	<a href="#">SMCJ13CA</a>
35	1	D4	TZMB2V7-GS08 smdo213ac21 2, 7V/0, 5W 2%	Zener diode	Vishay	TZMB2V7-GS08
36	17	D5, D18, D19, D20, D31, D32, D42, D43, D53, D54, D64, D65, D75, D76, D86, D87, D97, D98	SMR0603	Red LED	Osram Opto	LS Q976
37	7	IC1, IC2, IC3, IC4, IC5, IC6, IC7	STGAP1S sog05024wg425l650	Automotive galvanically isolated single gate driver	ST	<a href="#">STGAP1S</a>

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
38	1	IC8	A7986ATR sog0508wg244I200exposure	3 A step-down switching regulator for automotive applications	ST	<a href="#">A7986ATR</a>
39	2	IC9, IC10	A6902D sog0508wg244I200	Up to 1 A switch step down regulator with adjustable current limit for automotive applications	ST	<a href="#">A6902D</a>
40	1	J22	DAC blkcon100vhtm2oew2004	Jumper	AMTEK	PH1S25-2x40GB6/3-L
41	1	JP1	Vin Low Voltage mor2X3812204822 36V-2A	Jumper	Phoenix Contact	1803426
42	3	JP2, JP3, JP4	conwurth61302015721	Jumpers	Würth Elektronik	61301015721
43	3	JP5, JP6, JP7	conwurth61300415721	Jumpers	Würth Elektronik	61300415721
44	1	L1	15 µH indnrs5040t150m	Inductor	Würth Elektronik	74404054150
45	6	L2, L4, L5, L6, L8, L9	BLM18SG331TN1D sml0603	Filters	Murata	BLM18SG331TN1D
46	1	L3	68 µH INDLMAXSJM680FTAS	Inductor	Würth Elektronik	744771168
47	1	L7	47 µH indBOURNSSRR1240470M	Inductor	Würth Elektronik	7447715470
48	7	PS1, PS2, PS3, PS4, PS5, PS6, PS7	15 V/-10 V	DC-DC power converter	Murata	MGJ3T12150505MC
49	7	Q2, Q5, Q8, Q11, Q14, Q17, Q20	2STN1550 sot223	Low voltage high performance NPN power transistors	ST	<a href="#">2STN1550</a>
50	1	Q23	STN4NF06L sot223	Automotive-grade N-channel 60 V, 0.07 Ohm typ., 4 A STripFET II Power MOSFET in SOT-223 package	ST	<a href="#">STN4NF06L</a>
51	13	Q3, Q4, Q6, Q7, Q9, Q10, Q12, Q13, Q15, Q16, Q18, Q19, Q21	2STF2550 smsot89	Low voltage high performance NPN power transistors	ST	<a href="#">2STF2550</a>
52	6	R100, R117, R134, R151, R168, R185	10 SMR0603 1/16 W ±1%	Thick film resistors	Vishay	CRCW060310R0FKEA

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
53	6	R101, R118, R135, R152, R169, R186,	10 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	RS Pro	804-8921
54	4	R18, R19, R21, R22	392 K smr1210 1/2 W $\pm 5\%$	Thick film resistors	Panasonic	ERJP14F3923U
55	3	R20, R23, R26	68 K smr2512 1 W $\pm 5\%$	Thick film resistors	TE Connector	352068KJT
56	1	R205	47 K sMr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW060347K0FKEA
57	1	R206	110 K sMr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW0603110KFKEA
58	1	R207	1.5 K sMr0603 1/16 W $\pm 1\%$	Thick film resistors	Panasonic	ERJP03F1501V
59	1	R208	2.49 K sMr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW06032K49FKEA
60	1	R209	220 sMr0603 1/16 W $\pm 1\%$	Thick film resistors	Panasonic	ERJP03F2200V
61	2	R210, R214	0.1 R smr0603 1/16 W $\pm 1\%$	Thick film resistors	Bourns	CRL0603-FW-R100ELF
62	1	R211	13 K SMR0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW060313K0FKEA
63	3	R212, R215, R216	9.1 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	Yageo	RC0603FR-079K1L
64	1	R213	4.3 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW06034K30FKEA
65	1	R217	5.49 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW06035K49FKEA
66	1	R24	7.87 K smr1206 1/4 W $\pm 1\%$	Thick film resistors	Panasonic	ERJP08F7871V
67	2	R25, R31	4.02 k smr0603 1/16 W $\pm 1\%$	Thick film resistors	Panasonic	ERA3AEB4021V
68	1	R255	1K5 SMR0603 1/16 W $\pm 1\%$	Thick film resistors	Panasonic	ERJP03F1501V
69	1	R27	39 R smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW060339R0FKEA
70	3	R274, R275, R276	33 K SMR0603 1/16 W $\pm 1\%$	Thick film resistors	Yageo	RC0603FR-0733KL
71	2	R28, R29	2 k smr0603 1/16 W $\pm 1\%$	Thick film resistors	Bourns	CR0603-FX-2001ELF
72	1	R30	120 smr0603 1/16 W $\pm 1\%$	Thick film resistors	Yageo	RC0603FR-07120RL
73	1	R77	820 R smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW0603820RFKEA
74	1	R78	1.3 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW06031K30FKEA
75	1	R79	3.57 K smr0603 1/16 W $\pm 1\%$	Thick film resistors	Vishay	CRCW06033K57FKEA



Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
76	11	R80, R81, R84, R85, R102, R119, R136, R153, R170, R187, R204	1 K sMr0603 1/16 W $\pm$ 1%	Thick film resistors	Yageo	RC0603FR-071KL
77	1	R82	680 SMR0603 1/16 W $\pm$ 1%	Thick film resistors	Vishay	CRCW0603680RFKEA
78	41	R86, R87, R88, R90, R103, R104, R105, R107, R120, R121, R122, R124, R137, R138, R139, R141, R154, R155, R156, R158, R171, R172, R173, R175, R188, R189, R190, R192, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R269, R270, R273,	0 smr0603 1/16 W $\pm$ 1%	Thick film resistors	Vishay	CRCW06030000Z0EB
79	14	R89, R91, R106, R108, R123, R125, R140, R142, R157, R159, R174, R176, R191, R193	750 smr0603 1/16 W $\pm$ 1%	Thick film resistors	Panasonic	ERJ3GEYJ751V
80	13	R92, R93, R109, R110, R126, R127, R143, R144, R160, R161, R177, R178, R194	24 SMR2512 1 W $\pm$ 5%	Thick film resistors	TE Connectivity	352056RJT
81	21	R94, R97, R98, R111, R114, R115, R128, R131, R132, R145, R148, R149, R162, R165, R166, R179, R182, R183, R196, R199, R200	100 smr0603 1/16 W $\pm$ 1%	Thick film resistors	RS PRO	804-8760
82	12	R95, R96, R112, R113, R129, R130, R146, R147, R163, R164, R180, R181	20 smr2512 1 W $\pm$ 1%	Thick film resistors	Panasonic	ERJ-1TNF20R0U
83	6	R99, R116, R133, R150, R167, R184	330 smr0603 1/16 W $\pm$ 1%	Thick film resistors	Panasonic	ERJ3EKF3300V

Item	Q.ty	Ref.	Part/Value	Description	Manufacturer	Order code
84	1	S7	Strip Line Male 1X2 pitch 2.54 mm sipm2002	Jumper	AMTEK	PH1S25-1x40GB6/3-L
85	1	SW1	SWITCHMULT	Multiple Switch	TE Connectivity	1-1825010-4
86	1	U1	TSZ121ILT SOT23L5		ST	TSZ121ILT
87	1	U2	ACPL-782T SWG1008WG387L430	Opto-Isolator	Avago	ACPL-782T-500E
88	1	U24	ESDA14V2LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA14V2LY</a>
89	2	U25, U28	ESDA6V1LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA6V1LY</a>
90	1	U26	ESDA5V3LY smsot23123	Automotive dual Transil™ array for ESD protection	ST	<a href="#">ESDA5V3LY</a>
91	1	U27	LF50CDT-TRY smdpak	Very low drop voltage regulator with inhibit	ST	<a href="#">LF50CDT-TRY</a>
92	1	PCB	FR4-283x92x1.6mm 283x92x1.6mm	PCB	Any	Any

**STMicroelectronics****EVALUATION BOARD LICENSE AGREEMENT**

By using this evaluation board or kit (together with all related software, firmware, components, and documentation provided by ST, "Evaluation Board"), You ("You") are agreeing to be bound by the terms and conditions of this Evaluation Board License Agreement ("Agreement"). Do not use the Evaluation Board until You have read and agreed to this Agreement. Your use of the Evaluation Board constitutes Your acceptance of this Agreement.

**LICENSE**

STMicroelectronics ("ST") grants You the right to use the enclosed Evaluation Board offering limited features only to evaluate and test ST products solely for Your evaluation and testing purposes in a research and development setting. The Evaluation Board shall not be, in any case, directly or indirectly assembled as a part in any production of Yours as it is solely developed to serve evaluation purposes and has no direct function and is not a finished product. If software and/or firmware is accompanied by a separate end user license agreement ("EULA"), then such software and/or firmware shall be governed by such EULA.

**EVALUATION BOARD STATUS**

The Evaluation Board offers limited features allowing You only to evaluate and test the ST products. The Evaluation Board is not intended for consumer or household use. You are not authorized to use the Evaluation Board in any production system, and it may not be offered for sale or lease, or sold, leased or otherwise distributed for commercial purposes. If the Evaluation Board is incorporated in an evaluation system, the evaluation system may be used by You solely for Your evaluation and testing purposes. Such evaluation system may not be offered for sale or lease or sold, leased or otherwise distributed for commercial purposes and must be accompanied by a conspicuous notice as follows: "This device is not, and may not be, offered for sale or lease, or sold or leased or otherwise distributed for commercial purposes".

**OWNERSHIP AND COPYRIGHT**

Title to the Evaluation Board remains with ST and/or its licensors. You may not remove any copyright or other proprietary rights notices without prior written authorization from ST. You may make one copy of the software and/or firmware of the Evaluation Board for back up or archival purposes provided that You reproduce and apply to such copy any copyright or other proprietary rights notices included on or embedded in the software and/or firmware. You agree to prevent any unauthorized copying in whole or in part of the Evaluation Board.

**RESTRICTIONS AND WARNINGS**

Before You handle or use the Evaluation Board, You must carefully review any related documentation provided by ST. Such documentation may contain important warnings. You shall comply with all such warnings and other instructions and employ reasonable safety precautions in using the Evaluation Board. Failure to do so may result in death, personal injury, or property damage. If You have any questions regarding the safe usage of the Evaluation Board, You should contact ST for guidance. You may not sell, assign, sublicense, lease, rent or otherwise distribute the Evaluation Board for commercial purposes, in whole or in part, or use Evaluation Board in a production system, with the exception that if You are an authorized ST distributor, You may resell the Evaluation Board in compliance with the applicable terms and conditions. Except as provided in this Agreement or as explicitly permitted in the documentation of the Evaluation Board, You may not reproduce the Evaluation Board or modify, reverse engineer, de-compile or disassemble its software and/or firmware, in whole or in part. You shall not use the Evaluation Board in any safety critical or functional safety testing, including but not limited to testing of life supporting, military or nuclear applications. ST expressly disclaims any responsibility for such usage which shall be made at Your sole risk, even if ST has been informed in writing of such usage. Unless expressly designated in writing by ST as suitable for use in testing automotive or aerospace applications, You shall not use the Evaluation Board in such testing.

**Notice applicable to Evaluation Boards according to European Regulation**

For the European Regulation of the Evaluation Board, the applicable EU directives are considered, with a particular attention to the Low Voltage Directive (LVD) 2014/35/EU, the Electromagnetic Compatibility (EMC) Directive 2014/30/EU, and the Radio Equipment Directive (RED) 2014/53/EU. If the Evaluation Board is outside the scope of the foregoing Directives, then the General Product Safety Directive (GPSD) 2001/95/EC and Council Directive 93/68/EEC, amending Directive 73/23/EEC on electrical equipment designed for use within certain voltage limits, are applicable.

The Evaluation Board meets the requirements of the Restriction of Hazardous Substances (RoHS 2 or RoHS recast) Directive 2011/65/EU, Annex II, as amended by Directive 2015/863/EU.

**Notice applicable to Evaluation Boards not FCC-Approved**

This kit is designed to allow:

- (1) Product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and
- (2) Software developers to write software applications for use with the end product.

This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of 47 CFR, Chapter I ("FCC Rules"), the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.

**For Evaluation Boards annotated as FEDERAL COMMUNICATIONS COMMISSION (FCC) Part 15 Compliant**

- **FCC Interference Statement for Class A Evaluation Boards:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
- **FCC Interference Statement for Class B Evaluation Boards:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**WARRANTY**

ST WARRANTS THAT IT HAS THE RIGHT TO PROVIDE THE EVALUATION BOARD TO YOU. THIS WARRANTY IS PROVIDED BY ST IN LIEU OF ALL OTHER WARRANTIES, WRITTEN OR ORAL, STATUTORY, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR UNINTERRUPTED OR ERROR-FREE OPERATION, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. THE EVALUATION BOARD IS PROVIDED "AS IS".

YOU WARRANT TO ST THAT YOU WILL ENSURE THE EVALUATION BOARD IS USED ONLY BY ELECTRONICS EXPERTS WHO UNDERSTAND THE DANGERS OF HANDLING AND USING SUCH ITEMS, YOU ASSUME ALL RESPONSIBILITY AND LIABILITY FOR ANY IMPROPER OR UNSAFE HANDLING OR USE OF THE EVALUATION BOARD BY YOU, YOUR EMPLOYEES, AFFILIATES, CONTRACTORS, AND DESIGNEES.

**LIMITATION OF LIABILITIES**

IN NO EVENT SHALL ST BE LIABLE TO YOU, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR ANY OTHER LEGAL THEORY, FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, INCIDENTAL, PUNITIVE, OR EXEMPLARY DAMAGES WITH RESPECT TO ANY MATTERS RELATING TO THIS AGREEMENT, REGARDLESS OF WHETHER ST HAS BEEN ADVISED OF THE POSSIBILITY OF THE SAME. IN NO EVENT SHALL ST'S LIABILITY ARISING OUT OF THIS AGREEMENT IN THE AGGREGATE EXCEED THE AMOUNT PAID BY YOU UNDER THIS AGREEMENT FOR THE PURCHASE OF THE EVALUATION BOARD, OR TEN UNITED STATES DOLLARS (\$10.00) IF NO PURCHASE PRICE WAS PAID.

**INDEMNIFICATION**

You shall, at Your expense, defend ST and its Affiliates against a claim or action brought by a third party for infringement or misappropriation of any patent, copyright, trade secret or other intellectual property right of a third party to the extent resulting from (1) Your combination of the Evaluation Board with any other component, system, software, or firmware, (2) Your modification of the Evaluation Board, or (3) Your use of the Evaluation Board in a manner not permitted under this Agreement. You shall indemnify ST and its Affiliates against and pay any resulting costs and damages finally awarded against ST or its Affiliates or agreed to in any settlement, provided that You have sole control of the defense and settlement of the claim or action, and ST cooperates in the defense and furnishes all related evidence under its control at Your expense. ST will be entitled to participate in the defense of such claim or action and to employ counsel at its own expense.

"Affiliates" means any corporation or other entity directly or indirectly controlled by, controlling or under common control with the entity in question, for so long as such ownership exists. "Control" means the direct or indirect beneficial ownership of more than fifty (50%) percent of the stock or other equity interests entitled to vote for the election of directors or an equivalent governing body. Any such corporation or other legal entity shall be deemed to be an Affiliate of such Party only as long as such Control exists.

**TERMINATION**

ST may terminate this Agreement without notice if You breach this Agreement. Upon termination, You shall immediately destroy or return all copies of the software, firmware, and documentation of the Evaluation Board to ST and certify in writing to ST that You have done so.

**APPLICABLE LAW AND JURISDICTION**

This Agreement shall be governed, construed and enforced in accordance with the laws of Switzerland, without regard to its conflict of laws rules. The UN Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. In case of dispute and in the absence of an amicable settlement, the only competent jurisdiction shall be the Courts of Geneva, Switzerland. Any breach of this Agreement by You may result in irreparable damage to ST for which ST will not have an

adequate remedy at law. Accordingly, in addition to any other remedies and damages available, You acknowledge and agree that ST may immediately seek enforcement of this Agreement in any jurisdiction by means of specific performance or injunction, without any requirement to post a bond or other security.

#### **SEVERABILITY**

If any provision of this agreement is or becomes, at any time or for any reason, unenforceable or invalid, no other provision of this agreement shall be affected thereby, and the remaining provisions of this agreement shall continue with the same force and effect as if such unenforceable or invalid provisions had not been inserted in this Agreement. In addition, any unenforceable or invalid provision shall be deemed replaced by a provision that is valid and enforceable and that comes closest to expressing the intention of the unenforceable or invalid provision.

#### **WAIVER**

The waiver by either party of any breach of any provision of this Agreement shall not operate or be construed as a waiver of any other or a subsequent breach of the same or a different provision.

#### **RELATIONSHIP OF THE PARTIES**

Nothing in this Agreement shall create, or be deemed to create, any joint venture, partnership, principal-agent, employer-employee or other relationship between the Parties, except that of independent contractors. Neither Party has the authority or power to bind, to contract in the name of, or to create a liability for the other in any way or for any purpose.

#### **SURVIVAL**

Any provision of this Agreement which imposes an obligation after termination of this Agreement shall survive the termination of this Agreement.

#### **SECTION HEADINGS**

Section headings are inserted for convenience only and shall not be used to interpret this Agreement.

#### **WASTE AND RECYCLING**

**The Evaluation Board is not to be disposed of as urban waste. At the end of its life cycle, differentiated waste collection must be followed.** Consult the local authorities for more information on the proper disposal channels. It is mandatory to separately collect the Evaluation Board and make sure it is delivered to the appropriate waste management and recycling centers.

As of 15 August 2018, in all the countries belonging to the European Union, the Evaluation Board is subject to the WEEE Directive 2012/19/EU requirement; therefore, it is forbidden to dispose of the Evaluation Board as undifferentiated waste or with other domestic wastes. Consult the local authorities for more information on the proper recycling centers.

Disposing of the Evaluation Board incorrectly may cause damage to the environment and may be subject to fines based on specific countries' rules.