

# **DW1000 IC REACH SVHC Declaration**

Version 3.00

This document is subject to change without notice



#### **DW1000 IC REACH SVHC DECLARATION**

As a fabless company Decawave confirms REACH SVHC compliance via our supply chain partners. Please see the below statement which confirms that the DW1000 IC does not contain substances classified as Substances of Very High Concern according to the EU REACH Directive (EC no 1907/2006).

#### REACH SVHC Declaration



Date 18-Feb-2016

Customer: Decawave

Products: DW1000/ DW1000A

(ECW645228C-1N, ECS645228E-1N, ECS645230E-1N)

eSilicon has confirmed with its suppliers through lab reports and certifications provided by such suppliers that all products listed above (the "Products") supplied by eSilicon do not contain substances classified as Substances of Very High Concern (SVHC) according to the EU REACH Directive (EC No 1907/2006) (http://echa.europa.eu/chem\_data/authorisation\_process/candidate\_list\_table\_en.asp) above the indicated threshold limit as of the date of this Declaration.

The table in Exhibit A lists substances defined by The European Chemicals Agency's (ECHA) REACH Substance of Very High Concern Candidate List. The Products do not contain any REACH SVHCs in levels above 0.1% by article weight.

eSilicon has not performed any of its own testing of the Products to independently verify the statements made by its suppliers or the lab reports and certifications provided by them.

eSilicon's statements in this document do not extend to, or apply to, Products subjected to unintentional contamination, misuse, neglect, accident or improper installation, or to use in violation of instructions furnished by eSilicon or its suppliers. Furthermore, this document is for informational purposes only and does not modify, alter or change the terms of eSilicon's agreement(s) with the customer listed above or any other documents that govern the business relationship between eSilicon and such customer.

Name

Quality Assurance Representative

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#### Exhibit A

Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
4,4'- Diaminodiphenylmethane (MDA)	202-974-4	101-77-9	10/28/2008	No
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	201-329-4	81-15-2	10/28/2008	No
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	287-476-5	85535-84-8	10/28/2008	No
Anthracene	204-371-1	120-12-7	10/28/2008	No
Benzyl butyl phthalate (BBP)	201-622-7	85-68-7	10/28/2008	No
Bis(tributyltin)oxide (TBTO)	200-268-0	56-35-9	10/28/2008	No
Cobalt dichloride	231-589-4	7646-79-9	6/20/2011 10/28/2008	No
Diarsenic pentaoxide	215-116-9	1303-28-2	10/28/2008	No
Diarsenic trioxide	215-481-4	1327-53-3	10/28/2008	No
Triethyl arrenate	427-700-2	15606-95-8	10/28/2008	No
Dibutyl phthalate (DBP)	201-557-4	84-74-2	10/28/2008	No
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: - Alpha-hexabromocyclododecane - Beta-hexabromocyclododecane - Gamma-hexabromocyclododecane	247-148-4 and 221-695-9	2 5637-99-4, 3194- 55-6 (134237- 50-6) (134237- 51-7) (134237- 52-8)	10/28/2008	No
Lead hydrogen arsenate	232-064-2	7784-40-9	10/28/2008	No
Sodium dichromate	234-190-3	7789-12-0, 10588-01-9	10/28/2008	No
2,4-Dinitrotoluene	204-450-0	121-14-2	1/13/2010	No
Anthracene oil	292-602-7	90640-80-5	1/13/2010	No
Anthracene oil, anthracene paste	292-603-2	90640-81-6	1/13/2010	No
Anthracene oil, anthracene paste, anthracene fraction	295-275-9	91995-15-2	1/13/2010	No
Anthracene oil, anthracene paste, distn. lights	295-278-5	91995-17-4	1/13/2010	No
Anthracene oil, anthracene-low	292-604-8	90640-82-7	1/13/2010	No
Düsobutyl phthalate	201-553-2	84-69-5	1/13/2010	No
Lead chromate	231-846-0	7758-97-6	1/13/2010	No
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	235-759-9	12656-85-8	1/13/2010	No
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	215-693-7	1344-37-2	1/13/2010	No
Pitch, coal tar, high temp.	266-028-2	65996-93-2	1/13/2010	No
Tris(2-chloroethyl)phosphate	204-118-5	115-96-8	1/13/2010	No
Acrylamide	201-173-7	79-06-1	3/30/2010	No







Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
Ammonium dichromate	232-143-1	7789-09-5	6/18/2010	No
Boric acid	233-139-2, 234-343-4	10043-35-3, 11113-50-1	6/18/2010	No
Disodium tetraborate, anhydrous	215-540-4	1303-96-4, 1330- 43-4, 12179-04-3	6/18/2010	No
Potassium chromate	232-140-5	7789-00-6	6/18/2010	No
Potassium dichromate	231-906-6	7778-50-9	6/18/2010	No
Sodium chromate	231-889-5	7775-11-3	6/18/2010	No
Tetraboron disodium heptaoxide, hydrate	235-541-3	12267-73-1	6/18/2010	No
Trichloroethylene	201-167-4	79-01-6	6/18/2010	No
2-Ethoxyethanol	203-804-1	110-80-5	12/15/2010	No
2-Methoxyethanol	203-713-7	109-86-4	12/15/2010	No
Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid.	231-801-5, 236-881-5	7738-94-5, 13530-68-2	12/15/2010	No
Chromium trioxide	215-607-8	1333-82-0	12/15/2010	No
Cobalt(II) carbonate	208-169-4	513-79-1	12/15/2010	No
Cobalt(II) diacetate	200-755-8	71-48-7	12/15/2010	No
Cobalt(II) dimitrate	233-402-1	10141-05-6	12/15/2010	No
Cobalt(II) sulphate	233-334-2	10124-43-3	12/15/2010	No
1-Methyl-2-pyrrolidone	212-828-1	872-50-4	6/20/2011	No
1,2-Benzenedicarboxylic acid, di-C7-11- branched and linear alkyl esters	271-084-6	68515-42-4	6/20/2011	No
1,2-Benzenedicarboxylic acid, di-C6-8- branched alkyl esters, C7-rich	276-158-1	71888-89-6	6/20/2011	No
Strontium chromate	232-142-6	7789-06-2	6/20/2011	No
1,2,3-Trichloropropane	202-486-1	96-18-4	6/20/2011	No
2-Ethoxyethyl acetate	203-839-2	111-15-9	6/20/2011	No
Hydrazine	206-114-9	302-01-2, 7803-57-8	6/20/2011	No
1,2-dichloroethane	203-458-1	107-06-2	12/19/2011	No
2,2'-dichloro-4,4'-methylenedianiline	202-918-9	101-14-4	12/19/2011	No
2-Methoxyaniline; o-Anisidine	201-963-1	90-04-0	12/19/2011	No
4-(1,1,3,3-tetramethy/butyl)phenol	205-426-2	140-66-9	12/19/2011	No





Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
	N/A	Extracted from Index no. 650-017-00-8	12/19/2011	No
Aluminosilicate Refractory	Annex VI, pa European Pe classification, I fulfil the three i are the mai concentration i diameter less i (µ	rt 3, table 3.1 of Reg urliament and of the abelling and packag following conditions: in components preser ranges b) fibres have two standard geomes m) c) alkaline oxide m) c) alkaline oxide	ulation (EC) N Council of 16 i ing of substance a) oxides of a nt (in the fibres a length weig tric errors of 6 and alkali ear	December 2008 on ces and mixtures, and duminium and silicon () within variable hted geometric mean or less micrometres
Arsenic acid	231-901-9	7778-39-4	12/19/2011	No
Bis(2-methoxyethyl) ether	203-924-4	111-96-6	12/19/2011	No
Bis(2-methoxyethyl) phthalate	204-212-6	117-82-8	12/19/2011	No
Calcium arsenate	231-904-5	7778-44-1	12/19/2011	No
Dichromium tris(chromate)	246-356-2	24613-89-6	12/19/2011	No
Formaldehyde, oligomeric reaction products with aniline	500-036-1	25214-70-4	12/19/2011	No
Lead diazide, Lead azide	236-542-1	13424-46-9	12/19/2011	No
Lead dipicrate	229-335-2	6477-64-1	12/19/2011	No
Lead styphnate	239-290-0	15245-44-0	12/19/2011	No
N,N-dimethylacetamide	204-826-4	127-19-5	12/19/2011	No
Pentazine chromate octahydroxide	256-418-0	49663-84-5	12/19/2011	No
Phenolphthalein	201-004-7	77-09-8	12/19/2011	No
Potassium hydroxyoctaoxodizincatedichromate	234-329-8	11103-86-9	12/19/2011	No
Trilead diamenate	222-979-5	3687-31-8	12/19/2011	No





Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
	-	No		
Zirconia Aluminosilicate Refractory Ceramic Fibres (Zr-RCF)	table 3.1 of Reg and of the Coun packaging of conditions: a) o components pre b) fibres have standard geon	ulation (EC) No 127 cil of 16 December ; substances and mixt oxides of aluminium, sent (in the fibres) w a a length weighted so metric errors of 6 or	2/2008 of the s 2008 on classifures, and fulfil silicon and zit within variable geometric meas less micrometri P-K2O+CaO+	res (µm). c) alkaline -MgO+BaO) content
$1,3,5$ -tris[(2S and 2R)-2,3-epoxypropyi]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione ( $\beta$ -TGIC)	423-400-0	59653-74-6	6/18/2012	No
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane- 2,4,6-trione (TGIC)	219-514-3	2451-62-9	6/18/2012	No
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	203-794-9	110-71-4	6/18/2012	No
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	203-977-3	112-49-2	6/18/2012	No
4,4'-bis(dimethylamino)-4" (methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202- 959-2)]	209-218-2	561-41-1	6/18/2012	No
4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	202-027-5	90-94-8	6/18/2012	No
[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1- ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.196 of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	208-953-6	548-62-9	6/18/2012	No
[4-[[4-anilino-1-naphthyl]][4- (dimethylamino)phenyl]methylene]cyclohexa- 2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	219-943-6	2580-56-5	6/18/2012	No
Diboron trioxide	215-125-8	1303-86-2	6/18/2012	No
Formamide	200-842-0	75-12-7	6/18/2012	No
Lead(II) bis(methanesulfonate)	401-750-5	17570-76-2	6/18/2012	No







Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
N,N,N,N-tetramethyl-4,4'-methylenedianiline (Michler's base)	202-959-2	101-61-1	6/18/2012	No
a.a-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)maphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	229-851-8	6786-83-0	6/18/2012	No
Lead cyanamidate	244-073-9	20837-86-9	12/19/2012	No
Sulfurous acid, lead salt, dibasic	263-467-1	62229-08-7	12/19/2012	No
Diazene-1,2-dicarboxamide (C,C'- azodi(formamide))	204-650-8	123-77-3	12/19/2012	No
Fatty acids, C16-18, lead salts	292-966-7	91031-62-8	12/19/2012	No
Diisopentylphthalate	210-088-4	605-50-5	12/19/2012	No
Biphenyl-4-ylamine	202-177-1	92-67-1	12/19/2012	No
Orange lead (lead tetroxide)	215-235-6	1314-41-6	12/19/2012	No
4,4'-oxydianiline and its salts	202-977-0	101-80-4	12/19/2012	No
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	284-032-2	84777-06-0	12/19/2012	No
o-aminoazotoluene	202-591-2	97-56-3	12/19/2012	No
Trilead dioxide phosphonate	235-252-2	12141-20-7	12/19/2012	No
Methyloxirane (Propylene oxide)	200-879-2	75-56-9	12/19/2012	No
4-methyl-m-phenylenediamine (toluene-2,4- diamine)	202-453-1	95-80-7	12/19/2012	No
Methoxyacetic acid	210-894-6	625-45-6	12/19/2012	No
1-bromopropane (n-propyl bromide)	203-445-0	106-94-5	12/19/2012	No
Heptacosafluorotetradecanoic acid	206-803-4	376-06-7	12/19/2012	No
Tricosafluorododecanoic acid	206-203-2	307-55-1	12/19/2012	No
Pentacosafluorotridecanoic acid	276-745-2	72629-94-8	12/19/2012	No







Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
Pentalead tetraoxide sulphate	235-067-7	12065-90-6	12/19/2012	No
Tetraethyllead	201-075-4	78-00-2	12/19/2012	No
Dioxobis(stearato)trilead	235-702-8	12578-12-0	12/19/2012	No
N-pentyl-isopentylphthalate	-	776297-69-9	12/19/2012	No
Tetralead trioxide sulphate	235-380-9	12202-17-4	12/19/2012	No
1,2-Diethoxyethane	211-076-1	629-14-1	12/19/2012	No
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	201-861-7	88-85-7	12/19/2012	No
N-methylacetamide	201-182-6	79-16-3	12/19/2012	No
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	214-604-9	1163-19-5	12/19/2012	No
[Phthalato(2-)]dioxotrilead	273-688-5	69011-06-9	12/19/2012	No
Acetic acid, lead salt, basic	257-175-3	51404-69-4	12/19/2012	No
Lead titanium trioxide	235-038-9	12060-00-3	12/19/2012	No
Lead oxide sulfate	234-853-7	12036-76-9	12/19/2012	No
Dimethyl sulphate	201-058-1	77-78-1	12/19/2012	No
Diethyl sulphate	200-589-6	64-67-5	12/19/2012	No
4,4'-methylenedi-o-toluidine	212-658-8	838-88-0	12/19/2012	No
	-	-	12/19/2012	No
4-Nonylphenol, branched and linear	[substances with a linear and/or branched alkyl chain number of 9 covalently bound in position 4 to phenol, UVCB- and well-defined substances which include any o somers or a combination thereof!			henol, covering also any of the individual
	-	-	12/19/2012	No
4-(1,1,3,3-tetramethy/butyl)phenol, ethoxylated	[coverin	g well-defined subst polymers and	ances and UV homologues]	B substances,





Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
N,N-dimethylformamide	200-679-5	68-12-2	12/19/2012	No
Furan	203-727-3	110-00-9	12/19/2012	No
Trilead bis(carbonate)dihydroxide	215-290-6	1319-46-6	12/19/2012	No
Silicic acid (H:SisOs), barium salt (1:1), lead-doped (with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 08:2-001-00-6 in Regulation (EC) No 1272/2008]	272-271-5	68784-75-8	12/19/2012	No
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3- oxazolidine	421-150-7	143860-04-2	12/19/2012	No
o-Toluidine	202-429-0	95-53-4	12/19/2012	No
Lead monoxide (lead oxide)	215-267-0	1317-36-8	12/19/2012	No
Lead titanium zirconium oxide	235-727-4	12626-81-2	12/19/2012	No
4-Aminoazobenzene	200-453-6	60-09-3	12/19/2012	No
Silicic acid, lead salt	234-363-3	11120-22-2	12/19/2012	No
Lead dinitrate	233-245-9	10099-74-8	12/19/2012	No
Lead bis(tetraffuoroborate)	237-486-0	13814-96-5	12/19/2012	No
Dibutyltin dichloride (DBTC)	211-670-0	683-18-1	12/19/2012	No
Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2],	201-604-9, 236-086-3, 238-009-9	85-42-7, 13149-00-3, 14166-21-3	12/19/2012	No
trans-cyclohexane-1,2-dicarboxylic anhydride [3]	[The individual cis- [2] and trans- [3] isomer substances and combinations of the cis- and trans-isomers [1] are covered by			
Hexahydromethyiphthalic anhydride [1], Hexahydro-4-methyiphthalic anhydride [2], Hexahydro-1-methyiphthalic anhydride [3],	247-094-1, 243-072-0, 256-356-4, 260-566-1	25550-51-0, 19438-60-9, 48122-14-1, 57110-29-9	12/19/2012	No
Hexahydro-3-methylphthalic anhydride [4]			ble combination	g their cis- and trans- ons of the isomers [1]





Substance Name	EC Number	CAS Number	Date of inclusion	Present in amounts greater than 0.1% by article weight
Henicosafluoroundecanoic acid	218-165-4	2058-94-8	12/19/2012	No
6-methoxy-m-toluidine (p-cresidine)	204-419-1	120-71-8	12/19/2012	No
Pyrochlore, antimony lead yellow	232-382-1	8012-00-8	12/19/2012	No
Cadmium	231-152-8	7440-43-9	6/20/2013	No
Cadmium oxide	215-146-2	1306-19-0	6/20/2013	No
Ammonium pentadecafluorooctanoate (APFO)	223-320-4	3825-26-1	6/20/2013	No
Pentadecaffuorooctanoic acid (PFOA)	206-397-9	335-67-1	6/20/2013	No
Dipentyl phthalate (DPP)	205-017-9	131-18-0	6/20/2013	No
4-Nonylphenol, branched and linear, ethoxylated fsubstances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereoff			6/20/2013	No
Cadmium sulphide	215-147-8	1306-23-6	12/16/2013	No
Disodium 4-amino-3-[[4'-[(2,4- diaminopheurv]]azo][1,1'-bipheuv]1-4-yl]azo] - 5-hydroxy-6-(pheuylazo)maphthalene-2,7- disulphonate (C.I. Direct Black 38)	217-710-3	1937-37-7	12/16/2013	No
Dihexyl phthalate	201-559-5	84-75-3	12/16/2013	No
Imidazolidine-2-thione; (2-imidazoline-2-thiol)	202-506-9	96-45-7	12/16/2013	No
Trixylyl phosphate	246-677-8	25155-23-1	12/16/2013	No
Disodium 3,3'-[[1,1'-biphenyl]-4,4'- diylbis(azo)]bis(4-aminomaphthalene-1- sulphomate) (C.I. Direct Red 28)	209-358-4	573-58-0	12/16/2013	No
Lead di(acetate)	206-104-4	301-04-2	12/16/2013	No
<ol> <li>2-Benzenedicarboxylic acid, dihexyl ester, branched and linear</li> </ol>	271-093-5	68515-50-4	06/16/2014	No
Sodium perborate; perboric acid, sodium salt	239-172-9; 234-390-0	-	06/16/2014	No





Sodium peroxometaborate	231-556-4	7632-04-4	06/16/2014	No
Cadmium chloride	233-296-7	10108-64-2	06/16/2014	No
Bis (2-ethylhexyl)phthalate (DEHP)	204-211-0	117-81-7	2014/12/17; 2008/10/28	No
Cedmium fluoride	232-222-0	7790-79-8	2014/12/17	No
reaction mass of 2-ethylhervi 10-ethyl-4.4-diochi-7-oxo-8- oxs-3,5-dthis-4-starnstate/docnosets and 2-ethylheryi 10-ethyl-4-[2]-(2-ethylheryi)cnyl-2-oxoethylthio)4-oxhi- 7-oxo-8-oxs-3,5-dthis-4-starnstate/sdocnosets (reaction mass of DOTE and MOTE.	-	-	2014/12/17	No
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4- stennatetradecanoste (DOTE)	239-822-4	15571-58-1	2014/12/17	No
2-benzotriszol-2-yl-4,6-di-tert-butylphenol (UV-320)	223-348-8	3848-71-7	2014/12/17	No
Cedmium sulphate	233-331-6	10124-38-4 31119-53-8	2014/12/17	No
2-(2H-benzotriszol-2-yl)-4,6-ditertpentylphenol (UV-328)	247-384-8	25973-55-1	2014/12/17	No
1,2-benzenedicarboxylic acid, d-C8-10-alityl extens; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diestens with > 0.3% of dhexyl phthelate (EC No. 201-559-5)	271-094-0 272-013-1	68515-51-5 68648-93-1	2015/08/15	No
5-sec-butyl-2-(2,4-dimethylopicheu-3-en-1-y),5-methyl- 1,3-dioxene [1], 5-sec-butyl-2-(4,8-dimethylopicheu-3-en- 1-y),5-methyl-1,3-dioxene [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof)	-	-	2015/08/15	No
1,3-propanesultone	214-317-9	1120-71-4	2015/12/17	No
2,4-di-tert-butyl-8-(5-chlorobenzotriazol-2-yl)phenol (UV- 327)	223-383-8	3884-99-1	2015/12/17	No
2-(2H-berurotriszol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	253-037-1	38437-37-3	2015/12/17	No
Nitroberzene	202-716-0	98-95-3	2015/12/17	No
Perfluorononen-1-oic-acid and its sodium and ammonium selbs	208-801-3	375-95-1 21049-39-8 4149-80-4	2015/12/17	No



## **About DecaWave**

DecaWave is a pioneering fabless semiconductor company whose flagship product, the DW1000, is a complete, single chip CMOS Ultra-Wideband IC based on the IEEE 802.15.4-2011 UWB standard. This device is the first in a family of parts that will operate at data rates of 110 kbps, 850 kbps and 6.8 Mbps.

The resulting silicon has a wide range of standards-based applications for both Real Time Location Systems (RTLS) and Ultra Low Power Wireless Transceivers in areas as diverse as manufacturing, healthcare, lighting, security, transport, inventory & supply chain management.

#### **Further Information**

For further information on this or any other DecaWave product contact a sales representative as follows: -

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