504137648 12/20/2016 PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE: NATURE OF CONVEYANCE:		NEW ASSIGNMENT	NEW ASSIGNMENT	
		ASSIGNMENT	ASSIGNMENT	
CONVEYING PARTY	/ DATA			
		Name	Execution Date	
CHAO-CHIEH LI			12/19/2016	
ROBERT BOGDAN S	STASZEWSKI		12/15/2016	
RECEIVING PARTY	DATA			
Name:	TAIWAN	SEMICONDUCTOR MANUFACTURI	NG COMPANY LTD.	
Street Address:	NO.8, LI-	HSIN RD. 6, HSINCHU SCIENCE PA	RK	
City:	HSINCH	J		
State/Country:	TAIWAN	TAIWAN		
PROPERTY NUMBE	RS Total: 1			
Property Ty	pe	Number]	
Application Number	·: 1!	5385213	-	
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Address Line 1: Address Line 4: ATTORNEY DOCKET	IF	VINE, CALIFORNIA 92612		
Address Line 4: ATTORNEY DOCKET	IF NUMBER:			
Address Line 4: ATTORNEY DOCKET NAME OF SUBMITTE	IF NUMBER:	18506-1091		
Address Line 4:	IF NUMBER:	18506-1091 ANTHONY KING		

ASSIGNMENT

WHEBEAS, Rocel, LI, CHAO-CHIEH and STASZEWSKI, ROBERT BOGDAN whose post office address(es) appear(s) below, hereinafter referred to as ASSIGNOR, have suveried certain new and useful invention institute.

OSCILLATOR AND CLOCK CENERATOR

(herematter referred to as the INVENTION) for which an application for United States Latters Patent /Utility Patent is executed on even date herewith unless at least one of the following is checked:

C United States Design Patent was

C executed on:

CI filed on: CI established by PCT I United States of America	Serial No.: normational Patent Application No.:	filed.	designating the
🖸 Esuad on	as U.S. Patent No.		

WHEREAS, TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD, whose post office uddress in NO.8, LA-HSIN RD. 6, HSINCHU SCIENCE PARK, HSINCHU, TAIWAN, R.O.C. hereingher referred to as ASERONEL, is desirous of acquiring the entire right, title and interest in and to the same in the United States and its territorial possessions:

NOW. THEREFORE, for good and valuable consideration, receipt of which is hereby ecknowledged, I (we), Assumptor, by these presents do soft, assign and transfer units said ASSUMEL, the entire right, title, and interest in and to said INVENTION and application throughout the United States of America, including any and all Letters Patent granted on any division, continuation, continuation-in-part and reissue of said application for the full term or terms for which the same may be granted, including all priority rights under any International Convention

ASSIGNOR (urther covenants that no assignments, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Assignment.

AUSO, Assuance hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and manuemence of said application of any other patent application(s) in the United States for said (XVFNTRO), including additional documents that may be required to affirm the rights of ASSIGNES in and Wi said INVENTION, all without further consideration. Assistment also agrees, without further consideration and at Assignue's expense to identify and communicate to Assignue at Assignue's request documents and information concerning the DAYMAON that are within ASSIGNOR'S possession or control, and to provide further appurances and terations on behalf of ASNE OFF that lawfully may be required of ASSKAVIR in respect of the prosecution. maintenance, htization and detonse of any patent application or patent encompassed within the terms of this instrument. Assumbly obligations under this instrument shall extend to ASSUMDR's helps, executors, administratory and other legal corresontatives.

ALSO, ASSIGNOR hereby authorizes and coquests the Commissioner of Patents and Trademarks to listic any and all Letters Patent referred to above to ANSIGNUL, as the ASSIGNED of the entire right, title and interest m and to the same, for ABSIGNER'S sole use and behooft and for the use and behoof of ASSIGNED'S legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSRP-OK had this assignment and sale not been made

u, chao-chiek U, chao-chiek	NO.3. ALY 6, UN 67 , MINZU RD. EAST DIST. HSINCHU CITY 390, TAIWAN (R-O C)
Suganne a) Assigna (X)	(X) 500 6 / 12/19
Nome of Witness toptionals	Some of Witness inpliced)
Nignatore of Watazzi represently	Signature of Vitters (Optimid)

PATENT REEL: 040693 FRAME: 0993

ASSIGNMENT

WHEREAS, I(we), <u>L1, CHAO-CHIEH</u> and <u>STASZEWSK1</u>, <u>ROBERT BOGDAN</u> whose post office address(es) appear(s) below, hereinafter referred to as ASSIGNOR, have invented certain new and useful invention entitled

OSCILLATOR AND CLOCK GENERATOR

(hereinafter referred to as the INVENTION) for which an application for United States Letters Patent /Utility Patent is executed on even date herewith unless at least one of the following is checked:

C United States Design Patent was

C executed on:
 C filed on:
 Serial No.:
 C established by PCT International Patent Application No.:
 filed:
 designating the
United States of America
 C issued on _______as U.S. Patent No.:______

WHEREAS, **TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD**, whose post office address is **NO.8**, **LI-HSIN RD. 6**, **HSINCHU SCIENCE PARK**, **HSINCHU**, **TAIWAN**, **R.O.C**, hereinafter referred to as ASSIGNEE, is desirous of acquiring the entire right, title and interest in and to the same in the United States and its territorial possessions;

NOW. THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, I (we), ASSIGNOR, by these presents do sell, assign and transfer unto said ASSIGNEE, the entire right, title, and interest in and to said INVENTION and application throughout the United States of America, including any and all Letters Patient granted on any division, continuation, continuation-in-part and reissue of said application for the full term or terms for which the same may be granted, including all priority rights under any International Convention.

ASSIGNOR further covenants that no assignments, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this Assignment;

ALSO, ASSIGNOR hereby agrees to execute any documents that legally may be required in connection with the filing, prosecution and maintenance of said application or any other patent application(s) in the United States for said INVENTION, including additional documents that may be required to affirm the rights of ASSIGNEE in and to said INVENTION, all without further consideration. ASSIGNOR also agrees, without further consideration and at ASSIGNEE'S expense, to identify and communicate to ASSIGNEE at ASSIGNEE'S request documents and information concerning the INVENTION that are within ASSIGNOR'S possession or control, and to provide further assurances and testimony on behalf of ASSIGNEE that lawfully may be required of ASSIGNOR in respect of the prosecution, maintenance, litigation and defense of any patent application or patent encompassed within the terms of this instrument. ASSIGNOR'S obligations under this instrument shall extend to ASSIGNOR'S heirs, executors, administrators and other legal representatives.

ALSO, ASSIGNOR hereby authorizes and requests the Commissioner of Patents and Trademarks to issue any and all Letters Patent referred to above to ASSIGNEE, as the ASSIGNEE of the entire right, title and interest in and to the same, for ASSIGNEE's sole use and behoof; and for the use and behoof of ASSIGNEE's legal representatives and successors, to the full end of the term for which such Letters Patent may be granted, as fully and entirely as the same would have been held by ASSIGNOR had this assignment and sale not been made.

Assignor Name LI, CHAO-CHIEH	Address NO.3, ALY. 6, LN. 67 , MINZU RD., EAST DIST., HSINCHU CITY 300, TAIWAN (R.O.C.)
Signature of Assignor (X)	Date of Signature (X)
Name of Witness (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Wilness (Optional)

Assignor Name STASZEWSKI, ROBERT BOGDAN	Address SUMMERHILL, 12 MOUNT ANVILLE ROAD, DUBLIN D14 P9H0, IRELAND
Signuture of Assignor	Date of Signature (X) 2016 - 12 - 15
Name of Wantess (optional)	Name of Witness (optional)
Signature of Witness (optional)	Signature of Wilness (Optional)