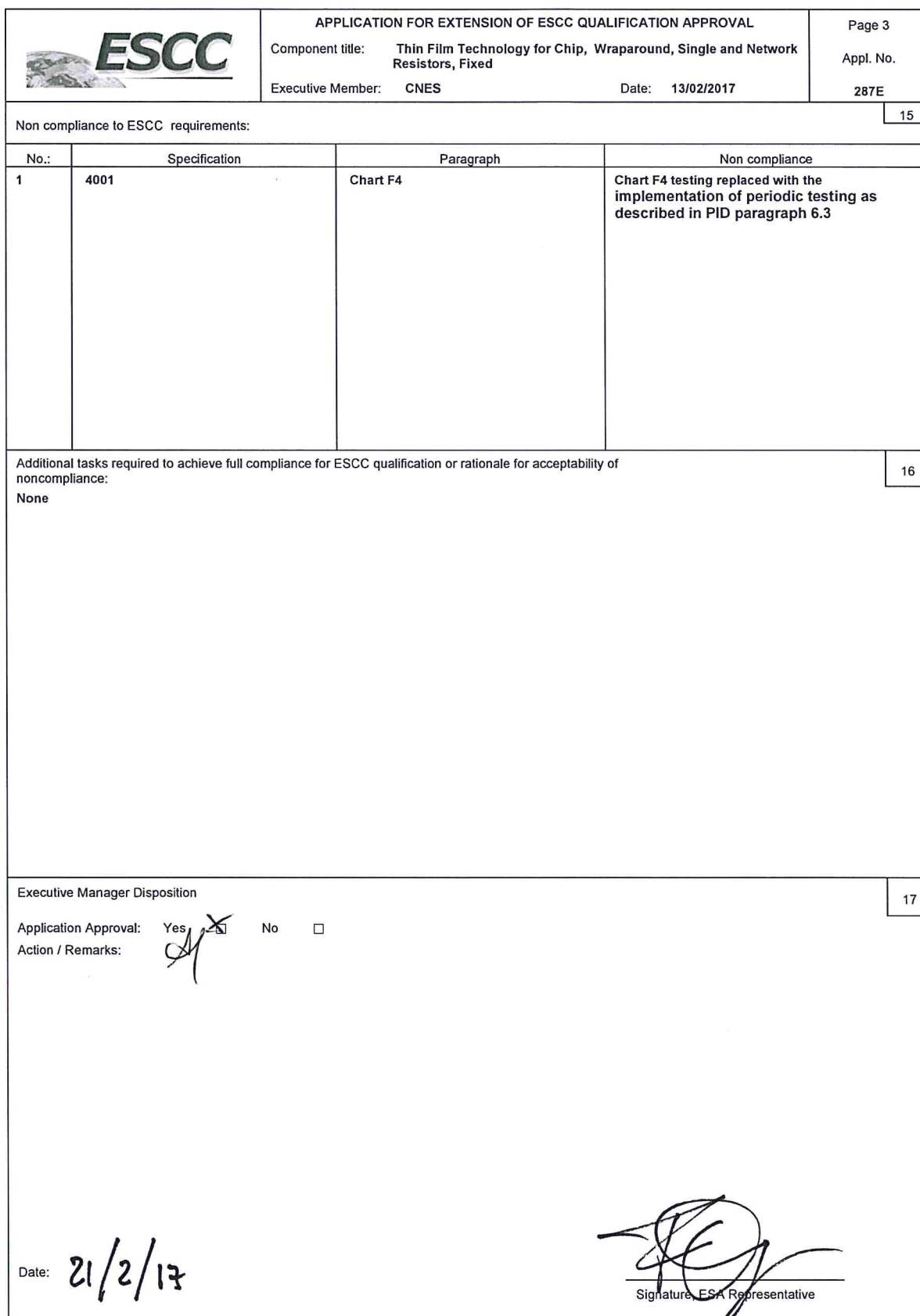

		APPLICATION FOR EXTENSION OF ESCC TECHNOLOGY FLOW APPROVAL			Page 1
		Component Title: Executive Member:	<b>Thin Film Technology for Chip, Wraparound, Single and Network Resistors, Fixed</b> CNES		Date: 13/02/2017 Appl. No. 287E
Technology Flow submitted for Extension of Qualification Approval:					1
SUMMARY DESCRIPTION		TEST STRUCTURES		COMPONENTS PROPOSED FOR QUALIFICATION	
P : Single resistor 0402, 0603, 0805, 1206, 2010 chip PRA : 2 to 8 resistors of similar value, based on 0603 (PRA 100), 0805 (PRA135) or 1206 (PRA182) units CNW : 2 to 8 resistors with at least two different values with the same form factor as PRA Substrate : Alumina Resistive layer : Nickel Chromium Protection : Silicon nitride Termination : Nickel Barrier Processes : Thin Film deposition Finish : SnPbAg or Au		P0402, P0603, P0805, P1206 and P2010 with min., critical resistance and max. values, PRA100, PRA135, PRA182 with min., critical resistance and max. values.		By form factor : ESCC4001023 var. 15 and 13, 14(*) ESCC4001023 var. 01, 05 (*) and 09 ESCC4001023 var. 02, 06 (*) and 10 ESCC4001023 var. 03, 07 (*) and 11 ESCC4001023 var. 04, 08 (*) and 12 ESCC4001025 var. 01 to 07, 22 to 28 ESCC4001025 var. 08 to 14, 29 to 35 ESCC4001025 var. 15 to 21, 36 to 42 (*) Note that gold finish variants are not intended for de-golding and tinning	
Component Manufacturer	2	Location of Manufacturing Plant(s)	3	Date of original qualification approval:	4
VISHAY SA Division Résistances de Très Haute Précision		Nice (France)		Date: 15/02/2009 Certificate Ref No. 287	
ESCC Specifications used for Maintenance testing:	5	Deviations to LVT testing and Detail Specification used:	6	Qualification Extension Report reference and date:	7
Generic: 4001 Issue: 4 Detail(s): 4001/023 Issue: 11 4001/025 Issue: 7		No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> (supply details in Box 15) Deviation from current Specifications: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (Supply details)		QML Quality Synthesis reports : QML 2015 Synthesis, 06/01/2016 QML 2016 Synthesis, 03/01/2017	
Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first) See box 22					8
PID changes since start of qualification		9	Current PID Verified by:		10
None <input type="checkbox"/> Minor* <input checked="" type="checkbox"/> Major* <input type="checkbox"/>		Name of Executive Representative Ref No: PID-TFD P PRA CNW Issue: 8 Date: 14/02/2017 Rev. 0 Date: 02/02/2017		*Provide details in box: 19	
Current Manufacturing facilities surveyed by:		ESA and CNES		on	01/02/2017
		(Name of Executive Representative)			(Date)
Satisfactory:		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain			
Report Reference:		CR-2017-02072			





	<b>APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL</b>					Page 4	
	Component Title: Thin Film Technology for Chip, Wraparound, Single and Network Resistors, Fixed					Appl. No.	
Executive Member: CNES					Date: 13/02/2017		287E

**ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION**

Tests conducted in compliance with:

- ESCC 4001 generic specification; Chart F4 (for ESCC/QPL parts);
- or PID-TFD P PRA CNW Issue 7 (for ESCC/QML parts)

Tests vehicle identification/description:

PHR0402 dc 1438 (4K7) PHR0603 dc 1420 (49R9), 1438 (12K1), 1505 (46K4), 1529 (75R), 1612 (90K9)	PHR1206 dc 1451 (2K67), 1420 (10R), 1505 (6K81), 1522 (53R), 1543 (90R9), 1606 (1M) PHR2010 dc 1439 (160K), 1539 (10R)
PHR0805 dc 1452 (22K), 1444 (90R9), 1504 (49K9), 1504 (20R), 1608 (249K)	PRAHR dc 1413, 1430, 1441, 1513, 1523, 1615 CNWHR dc 1410, 1442, 1601, 1610

Detail Specification reference: 4001/023 & /025

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**Extracted from 2015 & 2016 QML Synthesis**

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	1430 1441 1442 1451 1452 1504 1505 1522 1539 1529 1543 1612 1606 1513 1523 1615 1601 1610	5 5 5 5 5 5 5 5 5 7 7 5 5 5 5 5 5 5	0	
	Rapid Change Of Temperature	<input checked="" type="checkbox"/>	IEC 60068-2-14	1451 1452 1504 1505 1522 1539 1529 1543 1513 1523 1615 1601 1610	5 5 5 5 5 5 7 7 5 5 5 5 5	0	
	Vibration	<input type="checkbox"/>	IEC 60068-2-6				NA
	Climatic test Sequence	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.10	1451 1452 1504 1505 1522 1539 1529 1543 1612 1606	10 10 10 10 10 10 10 10 10 10	0	
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	1451 1452 1505 1504 1505 1504 1522 1539 1529 1543 1612 1608 1606	5 5 5 5 5 5 5 5 3 3 5 5 5	0	
	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	1451 1452 1505 1504 1505 1504 1522 1539 1529 1543 1612 1608 1606	5 5 5 5 5 5 5 5 3 3 5 5 5	0	Adhesion + Substrate bending
	Climatic test Sequence	<input type="checkbox"/>	ESCC 4001, Para 8.10				NA vs PID

Endurance Subgroup	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Resistance to Soldering Heat	<input checked="" type="checkbox"/>	IEC 60068-2-20	1430 1441 1442 1451 1452 1505 1505 1522 1539 1529 1543 1608 1606 1513 1523 1615 1601 1610	5 5 5 5 5 5 5 5 5 3 2 3 3 5 5 3 3 3	0	
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31				
	Climatic test Sequence	<input type="checkbox"/>	ESCC 4001, Para 8.10				NA vs PID
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
	Mounting	<input type="checkbox"/>	IEC 60115-1 clause 4.31				
	Insulation Resistance	<input type="checkbox"/>	ESCC 4001, Para 8.3.1.2				NA vs PID
	Voltage Proof	<input type="checkbox"/>	ESCC 4001, Para 8.3.1.3				NA vs PID
	Mounting	<input checked="" type="checkbox"/>	IEC 60115-1 clause 4.31	1420 1420 1444 1430 1441 1442 1504 1522 1539 1529 1543 1513 1523 1615 1601 1610	10 10 10 5 5 5 10 10 10 10 10 5 5 5 5 5	0	
	Operating Life	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.13	1420 1420 1444 1430 1441 1442 1504 1522 1539 1529 1543 1513 1523 1615 1601 1610	10 10 10 5 5 5 10 10 10 10 10 5 5 5 5 5	0	PHR Low Ohmic value PHR Low Ohmic value PHR Low Ohmic value PRAHR 13514B PRAHR 10014B CNWHR 1668 PHR Low Ohmic value PHR Low Ohmic value PHR Low Ohmic value PHR Low Ohmic value PHR Low Ohmic value PRAHR 10014B PRAHR 13514B PRAHR 18213B CNWHR 1687 CNWHR 1930
	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA
Assembly Capability Subgroup	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-20	1430 1441 1442 1451 1452 1505 1505 1504 1522 1529 1543 1612 1608 1513 1523 1615 1601 1610	5 5 5 5 5 5 5 5 5 3 3 5 5 5 5 5 5 5	0	
	Permanence of marking	<input checked="" type="checkbox"/>	ESCC 24800	1430 1441 1442 1513 1523 1615 1601 1610	2 2 2 2 2 2 2 2	0	PRA / CNW
	Operating Life	<input checked="" type="checkbox"/>	ESCC 4001, Para 8.13	April '15 to June '16	200 470 90 360	0	2 000H 4 000H 6 000H 8 000H
Failure Rate Endurance Subgroup	Seal Test	<input type="checkbox"/>	IEC 60068-2-17				NA



Additional Tests	High & Low Temp (Temperature Coefficient)	<input checked="" type="checkbox"/>	ESCC 4001	1430 1441 1442 1451 1452 1505 1504 1505 1504 1522 1539 1529 1543 1612 1608 1606 1513 1523 1615 1601 1610	5 5 5 5 5 5 5 5 5 5 5 7 8 5 5 5 5 5 5 5 5	0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
		<input type="checkbox"/>					
		<input type="checkbox"/>					

