Component Title:

Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220 $\,$

CNES Executive Member:

16/12/2019

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Components (inclu	uding s	series and f	amili	es) submitt	ed for Ex	ktensi	ion of Q	ualificatio	п Арр	oroval			<u></u>
ESCC COMPONENT NO.	\	/ARIANTS		RANGE (OF COM	PONI	ENTS	0.00000	SED ON		TEST VEHICLE / S	COMPONEN' SIMILAR	Т
3009 008	03, 0	06, 07		See box 1	4			0805			300900807104KC 300900807104JC	AN12ZD0683KT	5
3009 009	03, 0	06, 07	İ					1210			300900907334KC 300900907154KE	Click here to ente	er.
3009 010	03, 0	06, 07						1812			300901007474KE 300901007684KC	AN14ZD0334KT	2
3009 011 -								- 2220 -			300901007473KG 300901107105KE 300901107334KG	- AN15ZE0105KT; AN15ZF0394KT; AN15ZE0474K2	3
3009 023	03,	06, 07						1206			300902307104KE 300902307473KG	AN20ZD0473KT AN20ZE0104KT	
Component M	anufa	cturer	2	Locatio	n of Mar	nufac	turing P	lant(s)	3				4
TPC				Avenue d						Date	e of original qualification	n approval:	
A division of AVX	Corpo	ration		21850 SA	INT APC	OLLIN	IAIRE -	FRANCE		Date	01/02/1983		
										Cert No.	ificate Ref 110		
										Clic	k here to enter text.		
201000-2000-0000-0000-0000-0000-0000-00			5				V 120-2		6	-		no modernia	7
ESCC Specification Maintenance of qu				Deviation Specifical			ng and [Detail			lification Extension Re rence and date:	eport	
Generic 3009		lss 2		No 🗆	Yes	 🛛	(suppl	y details i	n	I Section	2019 Certificate 110	(Type 2), 04/2019	
				_			Box 1	5)			ort 1G2QALTDGT2-20		
Detail(s) 3009/0 3009/0		Iss 5/		Deviation	from cui	rrent	Specific	ations:		кер	ort 1G2EXT12ZC1020	719, 17/10/2019	
3009/0		4/	-	No ⊠	Yes		(Supp	ly details)	()				
3009/0 3009/0		4 / 5 /	200										
3009/0	125	37	0	<u> </u>					-	L.,			T 8
Summary of procu	ıreme	nt or equiva	alent	test results	during o	urren	nt validity	y period in	supp	ort of	this application (those	to ESCC listed	
first, see also varia				pendix)				6720		Т	10/20%		
Project Name		Testing Le		-	LAT	-	**********	Date coo				Delivered	
AIRBUS (TESAT)		Click here t enter text.	O				April 2 2019	017 to Ma	arch	J.	305 534 parts		
TTI, A.BEHRENS(G),	İ			2			1725						
RUAG, APC(ÙK)						1							
PID changes since	e start	t of qualifica	ation		9	Cu by:		O Verifie	d	,	CNES		10
None 🗆											me of Excutive presentative Agency		
Minor* □						Re	f No:	1G2 PI	100	19W0	2		
Major* ⊠	*Prov	vide details	in bo	ox:		Iss	ue:	19			Date	e: 19/12/2019	
						Re Da		18/12/2	019				
					-0-	1 00							11
Current Manufacti	uring f	facilities sur	veye	d by:		CN	ES			on	18	3/12/2018	
				_	(Nan	ne of	Executi	ve Repres	senta	tive Ag	gency)	(Date)	
Satisfactory:	9	Yes ⊠		No	□ Explai	in							
			-co-c		⊔ ⊏хріаі	nct							
Report Reference	: 2	2018-00227	59-C	K									



Component title:

Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on

types 0805, 1206, 1210, 1812, 2220

Executive Member:

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Failure Analysis, DPA, NCCS available:

Yes

No

 \boxtimes

(Supply data)

Ref. No's and purposes: See DPA included in reports 1G2QALTDGT2-2019 and 1G2EXT12ZC1012019

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The undersigned hereby certifies on behalf of the ESCC Executive - that the above information is correct; that the appropriate documentation has been evaluated; - that full compliance to all ESCC requirements is evidence (except as stated in box 15;) - that the reports and data are available at the ESCC Executive and therefore applies on behalf of CNES as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date:

19/12/2019

JP. BUSSENOT

(Signature of the Executive Coordinator)

Continuation of Boxes above:

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Style	Detail Spec.	Model	Variants (1, 2)	Capacitance Range (pF)	Rated Volt. (V)	Tolerance (±%)
0805	3009/008	A_12G	03, 06	820 to 47 000	25	5, 10, 20
				820 to 27 000	50	
				820 to 10 000	100	
		A612Z	07, 10	2 700 to 150 000 (3)	25	1
				2 700 to 100 000	50	
				2 700 to 47 000	100	
				330 to 15 000	200	
1210	3009/009	A_13G	03, 06	3 900 to 220 000	25	
				3 900 to 150 000	50	
				3 900 to 47 000	100	
		A613Z	07, 10	3 900 to 470 000	25	
				3 900 to 330 000	50	
		+		3 900 to 220 000	100	
		1		680 to 68 000	200	
1812 3	3009/010	A_14G	03, 06	6 800 to 470 000	25	
				6 800 to 270 000	50	
				6 800 to 82 000	100	
		A614Z	07, 10	22 000 to 1 000 000	25	
			97	22 000 to 680 000	50	
				22 000 to 470 000	100	
				3 300 to 150 000	200	
2220	3009/011	A_15G	03, 06	18 000 to 1 000 000	25	
				18 000 to 680 000	50	
				18 000 to 180 000	100	
		A615Z	07, 10	100 000 to 2 200 000	25	
		1		100 000 to 1 500 000	50	1
				100 000 to 1 000 000	100	ľ
				6 800 to 330 000	200	
1206	3009/023	A_20G	03, 06	2 200 to 100 000	25	12
				2 200 to 68 000	50	
				2 200 to 22 000	100	
		A620Z	07, 10	3 300 to 220 000	25	
				3 300 to 150 000	50	
				3 300 to 100 000	100	
				470 to 47 000	200	

Variant 01 (AgPd), replaced in 2013 with variant 03 (AgPdPt), was removed from TPC PID issue 15

Variant 10 (AgPdPt) added to X7R variants as per customers' requests

Validation of a thicker chip (1.6mm instead of 1,25 typical for 0805 X7R 25V / 50V ranges)

Note that in order to facilitate deliveries, minimum values were harmonized on the basis that a capacitance value may be delivered with a qualified process using either a higher voltage product or a compatible temperature characteristic (i.e. a variant 06 design against a variant 07 order) provided that the maximum chip thickness is compliant.

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Component title:

Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220

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Executive Member:

CNES

Date:

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Non com	pliance to ESCC requirements:			_ 13
No.:	Specification	Paragraph	Non compliance	
1				
Addition	al tanks required to achieve full complic	nce for ESCC qualification or rationale for	accentability of	
non com	ipliance:	nice for E3CC qualification of fationale for	acceptability of	16
Executiv	re Manager Disposition			17
Applicat	ion Yes 🗹 No 🗆			
Applicat Approva	i: res 💆 No 📋			
Action /	Remarks:			
	20		2 (1)1	
Date :	27.01.2020		3. 201	
			B. Schade, Head of ESA Product As	surance
			and Safety Department	



Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220 Component Title:

Executive Member: **CNES** Date: 16/12/2019

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

Tests conducted in compliance with:

ESCC 3009 generic specification; Chart F4 (for ESCC/QPL parts);

Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

300900807104KC/JC DC 1737, 1808, 1826	300902307104KE DC 1722
AN12ZD0683KT5 DC 1820	300902307473KG DC 1751, 1828
300900907334KC DC 1802	AN20ZD0473KT2 DC 1744
300900907154KE DC 1830	AN20ZE0104KT2 DC 1741
300901007474KE DC 1735 300901007684KC DC 1740 300901007473KG DC 1725 AN14ZD0334KT2 DC 1821	300901107105KE DC 1747 300901107105KE DC 1737, 1814, 1824, 1803 300901107334KG DC 1818 AN15ZE0105KT2 DC 1749, 1736 AN15ZF0394KT3 DC 1737 AN15ZE0474K2Y DC 1838

Detail Specification reference:

3009/008/009/010/011/023

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
	Mounting	×	IEC 60384-1	1737 1808 1826 1820 1722 1751 1744 1802 1830 1735 1740 1821 1737 1803 1814 1818 1824 1749 1737 1736 1838	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 25 20 20 20	0	
echanical Subgroup	Rapid Change of Temperature	⊠	IEC 60068-2-14	1737 1808 1826 1820 1722 1751 1744 1802 1830 1735 1740 1821 1737 1803 1814 1818 1824 1749 1737 1736 1838	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 25 20 20 20	0	
Environmental / Mechanical Subgroup	Steady State Humidity		ESCC 3009, Para. 8.2	1737 1808 1826 1820 1722 1751 1744 1802 1830 1735 1740 1821 1737 1803 1814 1818 1824 1749 1737 1736 1838	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 25 20 20 20	0	1 000 hours
in and a second	Visual Inspection	×	ESCC 3009, Para. 8.5	1737 1808 1826 1820 1722 1751 1744 1802 1830 1735 1740 1821 1737 1803 1814 1818 1824 1749 1737 1736 1838	20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 25 20 20 20	0	

	Mounting	×	IEC 60384-1	1820 1737 1808 1826 1744 1741 1722 1751 1828 1802 1830 1821 1735 1740 1725 1838 1736 1737 1814 1824 1749 1818 1737 1803	20 20 25 20 40 40 20 20 30 40 25 20 20 20 20 20 40 20 30 25 40 25 40 40	0	
Endurance Subgroup	Operating Life	⊠	ESCC 3009, Para. 8.9	1820 1737 1808 1826 1744 1741 1722 1751 1828 1802 1830 1821 1735 1740 1725 1838 1736 1737 1814 1824 1749 1818 1737 1803	20 20 25 20 40 40 20 20 30 40 25 20 20 20 40 20 30 25 40 25 40 40	0	2 000 hours
	Electrical Measurements during Endurance Testing	⊠	ESCC 3009, Para. 8.9	1820 1737 1808 1826 1744 1741 1722 1751 1828 1802 1830 1821 1735 1740 1725 1838 1736 1737 1814 1824 1749 1818 1737 1803	20 20 25 20 40 40 20 20 30 40 25 20 20 20 20 20 40 20 30 25 40 25 40 40	0	
	Mounting		IEC 60384-1				
	Temperature Coefficient (Type I)		ESCC 3009, Para. 8.10				Not applicable
Subgroup Meas.)	Temperature Characteristic (Type II)	×	ESCC 3009, Para. 8.10	1725 1826 1828 1830 1740 1824 1845 1805 1846	6 6 6 6 6 6 6 6	0	
Electrical Subgrou (Elect. Meas.)	Robustness of Terminations	X	ESCC 3009, Para.8.7	1826 1820 1736 1744 1751 1830 1821 1737 1749 1838	6 20 (a) 20 (a) 20 (a) 6 6 20 (a) 6 20 (a) 6 20 (a)	0	(a) CECC testing qty
Subgroup Capab.	Solderability	⊠	IEC 60068-2-58 Test Td	.1725	4	0	
Electrical Subgroup (Ass. / Capab. Tests)	Permanence of Marking	0	ESCC 24800				Not applicable
Additional Tests	Insulation resistance at +125°C	⊠	ESCC 3009 lss. 1 Para 9.4.1.3	1808 1722 1737 1739 1740 1818 1826 1751 1814	6 6 6 6 6 6 6 6	0	
Adc							
Republication of							



Component Title:

Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220

Executive Member: **CNES**

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ANNEX 1bis: LIST OF TESTS DONE TO SUPPORT VALIDATION OF TUMBLING AFTER FIRING

Date: 16/12/2019

Tests conducted in compliance with:

ESCC 3009 generic specification; Chart F4 (for ESCC/QPL parts);

Or PID-TFD

(for ESCC/QML parts)

Tests vehicle identification/description: (See report 1G2QALTDGT2-2019)

ì	1 - 300900806103KE (2C1 0805 10nF 100V) Lot 1G2B61990401	3 - 300900906154KC (2C1 1210 150nF 50V) Lot 1G2B62890002
	2 - 300900807104KC (X7R 0805 100nF 50V) Lot 1G2B61990001	4 - 300900907474KA (X7R 1210 470nF 25V) Lot 1G2B61990101
	5 - 300901007154KG (X7R 1812 150nF 200V) Lot 1G2B61990201	7 - 300901107105KE (X7R 2220 1µF 100V) Lot 1G2B61990301
	6 - 300901007154KG (X7R 1812 150nF 200V) Lot 1G2B65100301	8 - 300901007154KG (X7R 1812 150nF 200V) Lot 1G2B41401301

Detail Specification reference: 3009/008/009/010/011

Chart F4	Test	Tick when done	Conditions	Date Code Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroup	Mounting	×	IEC 60384-1	1 2 3 4 5 7	20 20 20 20 20 20 20	0	,
	Rapid Change of Temperature	⊠	IEC 60068-2-14	1 2 3 4 5 7	20 20 20 20 20 20 20	0	10 cycles
	Steady State Humidity		ESCC 3009, Para. 8.2	1 2 3 4 5 7	20 20 20 20 20 20 20	0	1 000 hours
Ē	Visual Inspection	⊠	ESCC 3009, Para. 8.5	1 2 3 4 5 7	20 20 20 20 20 20 20	0	
dr	Mounting	⊠	IEC 60384-1	1 2 3 4 5 7	40 40 40 40 40 40	0	
Endurance Subgroup	Operating Life	×	ESCC 3009, Para. 8.9	1 2 3 4 5 7	40 40 40 40 40 40	0	2 000 hours
	Electrical Measurements during Endurance Testing	×	ESCC 3009, Para. 8.9	1 2 3 4 5 7	40 40 40 40 40 40	0	
Electri cal Subgr	Mounting		IEC 60384-1				
Electri cal Subgr	Temperature Coefficient (Type I)		ESCC 3009, Para. 8.10				Not applicable

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	Temperature Characteristic (Type II)	⊠	ESCC 3009, Para. 8.10	1 2 3 4 5 7	7 7 7 7 7	0	U = 0 and U = Un
	Robustness of Terminations	⊠	ESCC 3009, Para.8.7	1 2 3 4 5 7	6 6 6 6 6 6	0	
Electrical Subgroup (Ass. / Capab. Tests)	Solderability	⊠	IEC 60068-2-58 Test Td	1 2 3 4 5 7	10 10 10 10 10	0	
Electrica (Ass. / C	Permanence of Marking		ESCC 24800				Not applicable
Additional Tests	Insulation resistance at +125°C	⊠	ESCC 3009 lss. 1 Para 9.4.1.3	1 2 3 4 5 7	7 7 7 7 7 7	0	
Additional Tests	Voltage Step Stress	×	ESCC 2263000	1 2 3 4 5 6 7	40 15 15 15 15 20	4 0 0 0 5 20 9	200V to 800V, 168H x 7steps 100V to 400V, 168H x 7steps 100V to 400V, 168H x 7steps 50V to 175V, 168H x 6steps 400V to 1000V, 168H x 4steps 400V to 1000V, 168H x 4steps 200V to 700V, 168H x 6steps
¥	High Temperature Storage	×	+150°C / 2H	2 4	15 15	0	Post Step stress recovery of capacitance value
Additional Tests	Accelerated Endurance	×	+150°C / 4Un / 1 000H	1 2 3 4 5 5 8 7	20 20 20 20 15 20 20 20	0 0 0 0 5 0 18	- - - - 4Un excessive for 200V range +150°C / 3Un / 2 000H 4Un excessive for 200V range
	Mounting	×	IEC 60384-1	1 2 3 4 5 7	20 20 20 20 20 20 20	0	
Additional Tests	Rapid Change of Temperature	×	IEC 60068-2-14	1 2 3 4 5 7	20 20 20 20 20 20 20	0	100 cycles
	Steady State Humidity	×	ESCC 3009, Para. 8.2	1 2 3 4 5 7	20 20 20 20 20 20 20	0	1 000 hours
Additional Tests	Rapid Change of Temperature	⊠	IEC 60068-2-14	1 2 3 4 8 7	20 20 20 20 20 20 20	0	1 000 cycles

Additional Tests	Steady State Humidity	⊠	ESCC 3009, Para. 8.2	1 2 3 4 5 7	20 20 20 20 20 20 20	0	1 000 hours



Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220

CNES 16/12/2019 Executive Member: Date:

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ANNEX 1ter: LIST OF TESTS DONE TO SUPPORT EXTEBSION OF 0805 X7R 25V range to 150nF

Tests conducted in compliance with:

ESCC 3009 generic specification; Chart F4 (for ESCC/QPL parts);

Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description: (See report 1G2EXT12ZC102019)

300900807154*A (0805 X7R 150nF 25V) Lot 1G2B701900 dc1708

Detail Specification reference: 3009/008

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed, Comments on Rejection
,	Mounting	×	IEC 60384-1	1708	20	0	
Environmental / Mechanical Subgroup	Rapid Change of Temperature	×	IEC 60068-2-14	1708	20	0	10 cycles
Mech. Subg	Steady State Humidity	×	ESCC 3009, Para. 8.2	1708	20	0	1 000 hours
ш	Visual Inspection	×	ESCC 3009, Para. 8.5	1708	20	0	
4	Mounting	×	IEC 60384-1	1708	60	0	
rance	Operating Life	×	ESCC 3009, Para. 8.9	1708	60	0	2 000 hours
Endurance	Electrical Measurements during Endurance Testing	×	ESCC 3009, Para. 8.9	1708	60	0	
<u>o</u> .	Mounting	8	IEC 60384-1				
ubgrou eas.)	Temperature Coefficient (Type I)		ESCC 3009, Para. 8.10				Not applicable
Electrical Subgroup (Elect. Meas.)	Temperature Characteristic (Type II)	×	ESCC 3009, Para. 8.10	1708	7	0	U = 0 and U = 25V
E E	Robustness of Terminations	×	ESCC 3009, Para.8.7	1708	6	0	
Electrical Subgroup (Ass. / Capab. Tests)	Solderability		IEC 60068-2-58 Test Td				
Electrical Subgro (Ass. / Capab. Tests)	Permanence of Marking		ESCC 24800				Not applicable
-	Insulation resistance at +125°C	×	ESCC 3009 Iss. 1 Para 9.4.1.3	1708	7	0	
S	Mounting	×	IEC 60384-1	1708	20	0	
Additional Tests	Rapid Change of Temperature	×	IEC 60068-2-14	1708	20	0	100 cycles
	Steady State Humidity	⊠	ESCC 3009, Para. 8.2	1708	20	0	1 000 hours
3 Ac	Rapid Change of Temperature	×	IEC 60068-2-14	1708	20	0	1 000 cycles
4	Steady State Humidity	⊠	ESCC 3009, Para. 8.2	1708	20	0	1 000 hours



Capacitors, Fixed, Chip, Ceramic Dielectric, type II, based on types 0805, 1206, 1210, 1812, 2220 Component title:

Executive Member: Date: 16/12/2019

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NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL

ENTRIES Form heading	shall indicate: - the title of the component as given in its detail specification or the name of the series, family; - the Executive Member; - the entering date; - the certificate number and its sequential suffix.
Box 1	shall provide details given in the table; in particular there shall be listed: - the variants or range of variants; - the range of components (the ESCC code is recommended to indicate the values or values range, the tolerance, the voltage, etc); the designation given in the detail specification as 'base on'; - under Test Vehicle enter either an ESCC code or the specific characteristic capable of identifying the component tested (e.g., voltage of coil for a relay); - under component similar enter a cross if relevant.
Box 2, 3 & 4	As per QPL entry; otherwise, an explanation of the changes must be supplied.
Box 5	Will show the ESCC Generic and Detail specifications, including issue number and revision letter, current at the time the tests reported were performed. If the specifications are different from those current on the date of the application, see Box 6.
Box 6	Will show the deviations from the Generic and Detail Specifications listed in Box 5, in particular deviations from testing. In case of deviations this must be listed in Box 15. In case the referenced specification in Box 5 have currently a different issue and/or revision indicate also whether the test data deviates or not from such current documents.
Box 7	Must reference the report(s) supplied in support of the application.
Box 8	Should provide the details of procurement to the full ESCC System, documentation of all of which should already have been delivered to the ESCC Executive under the terms of the relevant Generic Specification. An appropriate table has been drawn in this box.
Box 9	If the PID evolved after the Original Qualification or after the last Extension of Qualification, adequate details of such evolution shall be provided together with the reasons for the changes. Major changes shall be clearly marked.
Box 10	Identify the current PID issue status, date and actual date of verification. The date of verification of the current PID should be arranged as close as possible to the required date of extension.
Box 11	This box can be completed only after a physical visit to the plant to confirm that no unexplained changes occurred and that the practices, procedures, material, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 12	Provide details of, or reference to, any Destructive Physical Analysis (DPA) and Failure Analysis reports as well as any Nonconformance(s) (NCCS) occurred during the qualification validity period, stating if established corrective action have produced satisfactory results.
Box 13	Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.
Box 14	To be used when there is a need to expand any of the boxes from 1 through 12. Identify box affected and reference the Box 14 in the relevant Box. Box 14 can be broken into 14a, 14b, etc. if several boxes have to be expanded.
Box 15	Fill in Table as requested.
Box 16	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 17	All Executive Manager recommendations on the application itself, special conditions or restrictions, modifications of the QPL or QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 19, signed by the representative for ESA, and dated.
Box 18	Fill in Table as requested.
Box 19	Confidential Details of PID changes including those of a confidential nature, shall be provided.
Box 20	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 16 each nonconformance shall be sequentially numbered. If relevant state 'None'.
Box 21	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 22	Additional Comments.