|   | 666                            |   |   |                             |                              |                        | CATION APPROVAL  |                    | Page 1    |
|---|--------------------------------|---|---|-----------------------------|------------------------------|------------------------|--|--------------------|-----------|
| Cream E   | SCC                            | Component Title: Quartz Crystal Units in met                  |   |                             | metal holder TO-5 Appl. No.  |                        |  |                    |           |
| CARL D  |                                | Executive Member:   | xecutive Member: DLR                    |                             |                              | Date: 14/08/2015 308 B |  |                    |           |
| Components (includi   | ng series and families         | ) submitted for Extens  | ion of Qual                             | ification Appr              | oval:                        |                        | 200  |                    | 1         |
| ESCC<br>COMPONENT NO.   | VARIANTS                       | RANGE O   | RANGE OF COMPONENTS                     |                             |                              | .D                     |  |                    | COMPONENT |
| 3501/001<br>3501/008<br>3501/011<br>3501/012<br>3501/018                            | all                            | 8 - 140 MHz   |   |                             | Type T807 3501 01            |                        | 3501 018 SXA-<br>5005, 13.99375                                |                    |           |
| Component N<br>KVG Quartz crys<br>GmbH  |                                | 2 Location was Waibstadter S<br>74924 Neckar                  | Str. 2-4                                | turing Plant(s<br>heim-Gern |                              | Date:                  | f original qualification at<br>01/04/2011<br>cate Ref No. 308  | oproval:           | 4         |
| ESCC Specifications<br>Maintenance of quali<br>Generic: 3501<br>Detail(s): 3501 018 | fication testing:<br>Issue: 04 | Deviations to LV used:  No Ø Yes  Deviation from cu  No Ø Yes | s □                                     | (supply det                 | ails in Box                  | referer                | cation Extension Report<br>nce and date:<br>Report_Quartz_LAT- |                    | 7         |
| Summary of procurer<br>Project Name<br>See attached sales<br>overview April 2013 t  | Testing Lev                    |   |   |                             | rt of this appli<br>ate code | cation (               | those to ESCC listed fin<br>Quantit                            | st)<br>y Deliver   | 8<br>ed   |
| April 2015  |                                |   | (f) |                             |                              |                        |  |                    |           |
| PID changes since start of qualification  |                                |   | 9                                       | Current PID Verified by:    |                              |                        | DLR 10   |                    |           |
| None ⊠<br>Minor* □<br>Major* □  | finor* □                       |   |   | sue: 1                      | 14 Date: 22/04/2015          |                        |  | 22/04/2015         |           |
| Current Manufacturin  | g facilities surveyed b        |   | ame of Exe                              | DLR&ESA                     | entative)                    | on                     | 22   | 2/04/201<br>(Date) | 5         |
| Satisfactory:  Report Reference:  |                                | No D-2015-final pdf and r_2015_ActionItem.xls                 | Explain                                 | 6 Finding                   | s, see report                |                        | GCAR tisfactorily  |                    | 30/11/15) |

ESCC\_KVG-AUD-2015-final.pdf and ESCC\_Audit\_Apr\_2015\_ActionItem.xls

| ailure Analysis, DPA, NCCS avai             |   |  |
|---|---|--|
| ne undersigned hereby certifies on behalf o |   |  |
| at the appropriate documentation has been   | of the ESCC Executive - that the above information evaluated; - that full compliance to all ESCC regists and data are available at the ESCC Executive accutive Member for ESCC qualification status to be | quirements is evidence<br>and therefore applies on behalf of |
| re: 14/08/2015                              |   | (G. Joormann)  |
| ontinuation of Boxes above;                 |   | (Signature of the Executive Coo                              |
|   |   |  |
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|                                 | <b>ESCC</b>                 | APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL  Component title: Quartz Crystal Units in metal holder TO-5  Executive Member: DLR Date: 14/08/2015 |  |               |          |
|---------------------------------|-----------------------------|--|--|---------------|----------|
| Non complian                    | ce to ESCC_requirement      | s:   |  |               |          |
| No.:                            | Specification               |  | Paragraph                              | Non con       | npliance |
| Additional tas                  | ss required to achieve full | compliance for ES  | CC qualification or rationale for acce | eptability of | 11       |
| noncompliano                    | e:                          |  |  |               |          |
| Executive Mar                   | ager Disposition            |  |  |               | 143      |
| Application Ap<br>Action / Rema | proval: Yes 🗆               | No 🗆   |  |               | 17       |

Date:

Signature, ESA Representative



## APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: Quartz Crystal Units in metal holder TO-5

Appl. No.

Executive Member: DLR

Date: 14/08/2015

308 B

18

Page 4

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

Tests conducted in compliance with:

ESCC 3501 generic specification; Chart V (for ESCC/QPL parts); Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

Detail Specification reference:

| Chart V  | Test  | Tick<br>when<br>done | Conditions                             | Date Code | Tested<br>Qty | No. of<br>Rejects | Comments if not performed.<br>Comments on Rejection |
|--|---|----------------------|--|-----------|---------------|-------------------|---|
| Enviro<br>nment<br>al/Mec<br>hanica<br> <br>Subgr<br>oup<br>(Colu<br>mn 1) | Shock   | ×                    | IEC Publication No.<br>68-2-27         | 31/13     | 3             | 0                 |   |
|  | Vibration   |                      | IEC Publication No.<br>68-2-6          | 31/13     | 3             | 0                 |   |
|  | Seal Test   | ×                    | IEC Publication No.<br>68-2-17         | 31/13     | 3             | 0                 |   |
|  | Electrical<br>Measurements at<br>Reference<br>Temperature | ×                    | Table 2 of the Detail<br>Specification | 31/13     | 3             | 0                 |   |
|  | External Visual<br>Inspection                             | ×                    | ESCC Basic<br>Specification No. 20500  | 31/13     | 3             | 0                 |   |
| Enviro<br>nment<br>al/Mec<br>hanica<br>I<br>Subgr<br>oup<br>(Colu<br>mn 2) | Climatic Sequence   | $\boxtimes$          | ESCC 3501 Para. 9.14                   | 31/13     | 3             | 0                 |   |
|  | Rapid Change of<br>Temperature                            |                      | IEC Publication No.<br>68-2-14         | 31/13     | 3             | 0                 |   |
|  | Seal Test   | ×                    | IEC Publication No.<br>68-2-17         | 31/13     | 3             | 0                 |   |
|  | Electrical Measurements at Reference Temperature          | Ø                    | Table 2 of the Detail<br>Specification | 31/13     | 3             | 0                 |   |
|  | External Visual<br>Inspection                             | ×                    | ESCC Basic<br>Specification No. 20500  | 31/13     | 3             | 0                 |   |
| Endur<br>ance<br>Subgr<br>oup  | Life Test   | Ø                    | ESCC 3501 Para. 9.17                   | 31/13     | 5             | 0                 |   |
|  | Electrical<br>Measurements during<br>Endurance Testing    | ×                    | Table 6 of the Detail<br>Specification | 31/13     | 5             | 0                 |   |
|  | External Visual<br>Inspection                             |                      | ESCC Basic<br>Specification No. 20500  | 31/13     | 5             | 0                 |   |
| Electri<br>cal<br>Subgr<br>oup –<br>Electr.<br>Meas.                       | Electrical<br>Measurements at<br>Reference<br>Temperature | ×                    | Table 2 of the Detail<br>Specification | 31/13     | 3             | 0                 |   |
|  | Electrical Measurements at High and Low Temperatures      | Ø                    | Table 3 of the Detail<br>Specification | 31/13     | 3             | 0                 |   |



## APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: Quartz Crystal Units in metal holder TO-5

Page 5

Appl. No.

Executive Member: DLR

Date: 14/08/2015

308 B

| Chart V                                    | Test                          | Tick<br>when<br>done | Conditions                            | Date Code | Tested<br>Qty | No. of<br>Rejects | Comments if not performed.<br>Comments on Rejection |
|--|-------------------------------|----------------------|---------------------------------------|-----------|---------------|-------------------|---|
| Electri cal Subgr oup – Ass. Capab . Tests | Solderability                 |                      | IEC Publication No.<br>68-2-20        | 31/13     | 2             | 0                 |   |
|  | Permanence of<br>Marking      |                      | ESCC Basic<br>Specification No. 24800 | 31/13     | 2             | 0                 |   |
|  | Robustness of<br>Terminations | $\boxtimes$          | ESCC 3501 Para. 9.16                  | 31/13     | 2             | 0                 |   |
| Additio<br>nal<br>Tests                    |                               |                      |                                       |           |               |                   |   |
|  |                               |                      |                                       |           |               |                   |   |
|  |                               |                      |                                       |           |               |                   | 100000000000000000000000000000000000000             |



## APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: Quartz Crystal Units in metal holder TO-5

Page 7

Appl. No.

Executive Member: DLR

Date: 14/08/2015

308 B

## 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 and 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.   |
| Вох 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.  |
|                |   |