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| **Annex 1 to the contract pursuant to DE-UZ 161**  **Environmental label for “Energy Efficient Data Center Operation”** |  | **Please use this printed form!** |

Applicant (label holder):

Name, location of DC:

Date of application:

Date DC commissioned:

Date of Energy Efficiency Report:

Reporting period: from       to

Auditor of the DC:

| **Paragraph** | **Criterion** | **Requirement** | **Confirmation**  **of compliance** |  | **Compliance verification** | **Enclosed document** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **3.1** | **Requirements at the time of application** | | | | | |
|  |  |  |  |  |  |  | |
| **3.1.1.1** | Building technology and energy provision:  **PUE** | * **PUE ≤ 1.30** if DC commissioned on 01/01/2019 or later | Does not apply: Exemption has been utilised. |  |  |  | |
|  |  | * **PUE ≤ 1.50** if DC commissioned between 01/01/2015 and 31/12/2018 * **PUE ≤ 1.60** if DC commissioned on 31/12/2014 or earlier | Compliance with the requirement is confirmed. |  | Date DC commissioned: |  | |
|  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | Calculation of the PUE value in accordance with the DIN EN 50600-4-2 standard for PUE category 2 or using an equivalent method | Compliance with the requirement is confirmed. |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | Stating the PUE value (12 month measurement period, end of the measurement period not more than three months ago) and documenting its calculation in the Energy Efficiency Report according to Paragraph 3.1.3 | Compliance with the requirement is confirmed. |  | PUE = | (Annex 2) | |
|  |  |  |  |  |  |  | |
|  |  | ***Exemption:*** new DC, which was commissioned less than 15 months ago at the time of the application | Does not apply: Commissioned more than 15 months ago |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | Calculation of the expected PUE value 12 months after the DC has been commissioned based on the planning data according to DIN EN 50600 from a qualified specialist planner and documentation in the Energy Efficiency Report according to Paragraph 3.1.3 | Compliance with the requirement is confirmed. |  | Date DC commissioned:  Expected PUE value  =        Submission of the planning data according to DIN EN 50600 as an appendix to the Energy Efficiency Report and confirmation of its plausibility by the auditor | (Appendix to Annex 2) | |
|  |  |  |  |  |  |  | |
|  |  | Submission of the measurement values for calculating the PUE value for a measurement period of twelve months in accordance with the stated measurement rules, at the latest 15 months after the commissioning of the DC, to confirm compliance with the minimum requirements | Compliance with the requirement is confirmed. |  | Subsequent provision of the PUE value on the basis of the measurements, at the latest 15 months after the commissioning of the DC |  | |
| **3.1.1.2** | Building technology and energy provision:  **Energy efficiency of the cooling system** | * **EER > 8** if DC commissioned on 01/01/2019 or later | Does not apply: Exemption has been utilised. |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | * **EER > 7** if DC commissioned between 01/01/2015 and 31/12/2018 * **EER > 5** if DC commissioned on 31/12/2014 or earlier | Compliance with the requirement is confirmed. |  | EER =  Calculated using measurements carried out at the required measurement points in accordance with Appendix C “Determining the key values for the cooling system” in cooling systems that are operated by means of electrically operated compression-type chillers and documentation of the amounts of energy | (Annex 2) | |
|  |  | ***Exemption 1:*** new DC, which was commissioned less than 15 months ago at the time of the application | Does not apply: Commissioned more than 15 months ago |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | Calculation of the expected EER value after 12 months based on the planning data from a qualified specialist or a load test according to Paragraph 3.1.1.2 and documentation in the Energy Efficiency Report according to Paragraph 3.1.3 | Compliance with the requirement is confirmed. |  | Expected EER value  =  Submission of the planning data or a measurement report for the load test as an appendix to the Energy Efficiency Report and confirmation of its plausibility by the auditor | (Appendix to Annex 2) | |
|  |  |  |  |  |  |  | |
|  |  | Submission of the measurement values for calculating the EER value for a measurement period of twelve months in accordance with the stated measurement rules, at the latest 15 months after the commissioning of the DC, to confirm compliance with the minimum requirements | Compliance with the requirement is confirmed. |  | Subsequent submission of the EER value on the basis of the measurements, at the latest 15 months after the commissioning of the DC |  | |
|  |  | ***Exemption 2:*** Use of absorption chillers | Does not apply:  No use of absorption chillers |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | Calculation of the specific greenhouse gas emissions (FATC) [kgCO2e/kWhth] associated with the cooling output using the method described in Appendix C “Determining the key values for the cooling system”, whereby the greenhouse gas emissions from electrically operated compression-type chillers may not exceed the requirements described in Paragraph 3.1.1.2 and documentation in the Energy Efficiency Report according to Paragraph 3.1.3 | Compliance with the requirement is confirmed. |  | Documentation as an appendix to the Energy Efficiency Report and confirmation of its plausibility by the auditor | (Appendix to Annex 2) | |
|  |  |  |  |  |  |  | |
| **3.1.1.3** | Building technology and energy provision:  **Refrigerant** | Use of chlorine-free refrigerants in the cooling system for cooling the DC | Compliance with the requirement is confirmed. |  | Stating the refrigerant and the quantity of refrigerant used in the Energy Efficiency Report | (Annex 2) | |
|  |  |  |  |  |  |  | |
|  |  | Use of halogen-free refrigerants in cooling units that were placed into operation after 01/01/2013 | Does not apply: Exemption has been utilised. |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  |  | Compliance with the requirement is confirmed. |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  | ***Exemption:*** Cooling units with a maximum cooling performance of 10 kWth used for the cooling of battery rooms (separate ambient spaces in accordance with DIN-EN-50600-99-1) or cooling units placed into operation before 01/01/2013 | Does not apply: Exemption has not been utilised |  |  |  | |
|  |  |  | Compliance with the requirement is confirmed. |  | Justification |  | |
|  |  |  |  |  |  |  | |
| **3.1.1.4** | Building technology and energy provision:  **Electrical energy** | Electricity demand covered 100% by renewable energies, alternatively from decentralised combined heat and power plants | Does not apply: Applicant is not a contractual partner of an electricity supplier |  |  |  | |
|  |  |  |  |  |  |  | |
|  |  |  | Compliance with the requirement is confirmed. |  | * Submission of the electricity labelling according to Article 42 of the German Energy Act (Energiewirtschaftsgesetz) providing information on at least the CO2 emissions [g/kWh] and the shares accounted for by renewable energies * Individual verification according to the system used in the German Energy Act for own systems for power generation | (Annex 5) | |
|  |  | ***Exemption:*** Applicant is not a contractual partner of an electricity supplier and less than half of the total electricity supplied is consumed by the DC | Does not apply: Applicant is a contractual partner of an electricity supplier |  |  |  | |
|  |  |  | Compliance with the requirement is confirmed. |  | Disclosure of the contractual partner for the electricity supply contract and the share of the total electricity supplied that is consumed by the DC and confirmation of its plausibility by the auditor | (Annex 5) | |
| **3.1.2.1** | Information technology and IT management:  **Creation of an inventory list** | IT inventory list about at least the following IT components:   * Servers * External storage systems * Network equipment   with the exception of equipment with a connected electrical rating of less than 10 Watts, of which a maximum of 5 identical pieces of equipment are utilised | Compliance with the requirement is confirmed. |  | Documentation of the IT inventory list in the Energy Efficiency Report as Annex 2a (Servers), 2b (External Storage Systems) and 2c (Network Equipment) | (Annex 2a-c) | |
| **3.1.2.2** | Information technology and IT management:  **Monitoring of the IT load** | Documentation for the past 12 months or in the case of data centers that were commissioned less than 15 months ago, from the time the data center was commissioned, with at least the following values:   * Load average for the CPUs [%] * Load average for the storage [%] * Data transmissions for external network connections [Gbit/a]   at least monthly using the method described in Appendix D “Calculation of the load average of the IT equipment” by monitoring at least 90% of the relevant IT equipment (CPUs, storage) | Compliance with the requirement is confirmed. |  | Documentation for the monthly monitoring results for a period of at least 12 months based on the time series in the Energy Efficiency Report in Annex 2f (end of the measurement period not more than three months ago) | (Annex 2f) | |
|  |  |  |  |  |  |  | |
| **3.1.2.3** | Information technology and IT management:  **Minimum load of the servers** | CPU load average ITEUSV for the servers used in the data center over a period of 12 months ≥ 20%, Calculation of the ITEUSV in accordance with the ISO 30134-5 standard | Compliance with the requirement is confirmed. |  | ITEUSV =  Documentation in the Energy Efficiency Report | (Annex 2) | |
|  |  |  |  |  |  |  | |
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| **3.1.3** | **Energy Efficiency Report at the time of application** | Submission of an Energy Efficiency Report and confirmation from an auditor according to Paragraph 3.1.3 | Compliance with the requirement is confirmed. |  | Energy Efficiency Report according to the document template or presented in an equivalent form  Report by the auditor: | (Annex 2)         (Annex 4) | |
|  |  |  |  |  |  |  | |
| **3.2** | **Requirements during the term of the contract** | | | | | |
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| **3.2.1.1** | Building technology and energy management:  **Monitoring electrical energy** | Continuous recording and evaluation of measurements of the electrical output and the energy consumption according to Paragraph 3.2.1.1 | Compliance with the requirement is confirmed. |  | Documentation of the results in Annex 2e and submitting it together with the Energy Efficiency Report for final evaluation according to 3.2.3 |  | |
|  |  |  |  |  |  |  | |
|  |  | at least yearly calculations of   * PUE (see Paragraph 3.1.1.1) * EER (see Paragraph 3.1.1.2) |  |  |  |  | |
|  |  | at least monthly calculations of   * (MPESC + MPOSG) [kWhel] * MPIT2 [kWhel] * MPCS [kWhel] * MPSo [kWhel] * Cooling load of the entire DC [kWhth] |  |  |  |  | |
|  |  |  |  |  |  |  | |
| **3.2.1.2** | Building technology and energy management:  **Acquisition of new components for the cooling system** | No deterioration of the EER, documentation of the EER and no use of halogenated hydrocarbons as a refrigerant | Compliance with the requirement is confirmed. |  | Documentation of the newly installed components and stating the refrigerant and the quantity of refrigerant used and the EER or corresponding verification of exemptions in the Energy Efficiency Report for the final evaluation according to Paragraph 3.2.3 |  | |
|  |  |  |  |  |  |  | |
|  |  |  |  |  |  |  | |
| **3.2.1.3** | Building technology and energy management:  **Acquisition of new UPS** | Efficiency rate in double conversion mode   * ≥ 92% at 100% nominal output * ≥ 95% at 75% nominal output * ≥ 95% at 50% nominal output * ≥ 90% at 25% nominal output | Compliance with the requirement is confirmed. |  | Documentation of newly acquired UPS and stating the efficiency rate in the Energy Efficiency Report for the final evaluation according to Paragraph 3.2.3 |  | |
|  |  |  |  |  |  |  | |
| **3.2.1.4** | Building technology and energy management:  **Acquisition of new switching systems** | Exclusion of SF6 as an insulating medium in medium-voltage and low-voltage switching systems | Compliance with the requirement is confirmed. |  | Documentation of newly acquired switching systems and stating the insulating medium used in the Energy Efficiency Report for the final evaluation according to Paragraph 3.2.3 |  | |
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|  |  |  |  |  |  |  | |
| **3.2.2.1** | Information technology and IT management:  **Continued use of an inventory list** | Continuing the IT inventory list according to Paragraph 3.1.2.1 | Compliance with the requirement is confirmed. |  | Documenting the existing IT technology in Annexes 2a (Servers), 2b (External Storage Systems), 2c (Network Equipment) and Annex 2d (Acquisition of New Intelligent PDUs) and submitting them together with the Energy Efficiency Report for final evaluation according to Paragraph 3.2.3 |  | |
|  |  |  |  |  |  |  | |
| **3.2.2.2** | Information technology and IT management:  **Monitoring of the IT load** | Documentation for the past 12 months or in the case of data centers that were commissioned less than 15 months ago, from the time the data center was commissioned, with at least the following values:   * Load average for the CPUs [%] * Load average for the storage [%] * Data transmissions for external network connections [Gbit/a]   at least monthly using the method described in Appendix D “Calculation of the load average of the IT equipment” by monitoring at least 90% of the relevant IT equipment (CPUs, storage) | Compliance with the requirement is confirmed. |  | Documentation of the results of the IT monitoring in Annex 2f and submitting it together with the Energy Efficiency Report for final evaluation according to 3.2.3 |  | |
| **3.2.2.3** | Information technology and IT management:  **Acquisition of new servers** | * Before the **ecodesign regulation** for servers and data storage products comes into force (planned for **01/03/2020**): Compliance with the maximum value for **Pidle** stated in the regulation * After the **ecodesign regulation** comes into force: The value for **Pidle** is at least 20% lower than the maximum value stated in the regulation | Compliance with the requirement is confirmed. |  | Documentation of the newly acquired servers and stating the manufacturer, model, nominal power output and total energy efficiency in Annex 2a, with justification for any exemptions where relevant, and submitting it together with the Energy Efficiency Report for final evaluation according to 3.2.3 |  | |
|  |  | * Compliance with the minimum values for **Effactive** stated in Table 3 (determined using the metric SPEC SERT 2 or the metric stated in the ecodesign regulation from the date it is published) | Compliance with the requirement is confirmed. |  |  |  | |
|  |  | Except in justified cases |  |  |  |  | |
| **3.2.2.4** | Information technology and IT management:  **Acquisition of new energy efficient external power supplies** | Compliance with the 80 PLUS PLATINUM energy efficiency standard | Compliance with the requirement is confirmed. |  | Documentation of the newly acquired external power supplies and stating the manufacturer, model, nominal power output and total energy efficiency in the IT inventory list and submitting it together with the Energy Efficiency Report for final evaluation according to 3.2.3 |  | |
| **3.2.2.5** | Information technology and IT management:  **Acquisition of new intelligent PDUs** | Power loss ≤ 0.5 Watt per available power outlet | Compliance with the requirement is confirmed. |  | * Measurement of the power losses in accordance with DIN EN 50564 or IEC 62301 * Documentation of the newly acquired intelligent PDUs and stating the manufacturer, model, number of available power outlets and their power losses in Annex 2d and submitting it together with the Energy Efficiency Report for final evaluation according to 3.2.3 |  | |
|  |  |  |  |  |  |  | |
| **3.2.2.6** | Information technology and IT management:  **Taking into account life cycle costs when making acquisitions** | Calculation of the life cycle costs for the planned period of use (e.g. investment costs, maintenance and energy costs, disposal costs) and taking this into account in the acquisition of new equipment and systems | Compliance with the requirement is confirmed. |  |  |  | |
|  |  |  |  |  |  |  | |
| **3.2.3** | **Energy Efficiency Report for final evaluation** | Submission of an Energy Efficiency Report at the latest 6 months before the end of the agreed term of the contract in which compliance with the requirements during the term of the contract is documented. **The reporting period must cover a period from the beginning of the term of contract through to at least 9 months before the end of the term of contract.** | Compliance with the requirement is confirmed. |  | Submission of an Energy Efficiency Report and an updated IT inventory list according to the Annexes 2a-f |  | |
|  |  |  | Does not apply:  End of the reporting period less than 12 months ago at the time of the application |  |  |  | |
|  |  |  |  |  |  |  | |

**Annexes to the contract**

Please use this printed form of Annex 1 to the contract.

Please attach the following Annexes to the application documentation:  
Annex 2: Energy Efficiency Report (EER) according to the document template or presented in an equivalent form (Paragraph 3.1.3)  
Annex 2a: IT Inventory List for Servers (Paragraph 3.1.2.1)  
Annex 2b: IT Inventory List for External Storage Systems (Paragraph 3.1.2.1)  
Annex 2c: IT Inventory List for Network Equipment (Paragraph 3.1.2.1)  
Annex 2e: Energy Monitoring (Paragraphs 3.1.1.1 and 3.1.1.2)  
Annex 2f: Monitoring of the IT load (Paragraph 3.1.2.2)  
Annex 2g: IT Inventory List for Cooling Systems (Paragraph 3.1.2.1)  
Annex 4: Report by the auditor according to Annex 3  
Annex 5: Electricity labelling data or individual verifications (Paragraph 3.1.1.4)

Location:

Date:

Applicant:

(Legally binding signature

and company stamp)