|  |  |  |  |
| --- | --- | --- | --- |
| *Supplier:* | **HTI** | *Type Nr.:* |  |
| *Product:* | **Smart Suction cup** | *Art. no.:* |  |
| *Project Number* | **TBC** | *Issued by PM:* | **Mandar / David** |
| *EE/ME* | **Danny/Zenger** | *QE/* *Compliance* | **Tim/Ice** |
| **Any change on the product, part or process as well as change of sub supplier has to be approved and confirmed by Therabody in written form.** | | | |

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| --- | --- | --- | --- | --- |
|  | | ***Product Specification PM*** | | |
| *Pictures / Design:* | | | | |
| **A close-up of a salt shaker and a salt shaker  Description automatically generated with medium confidence** | | | |  |
| *Replacement for:* | | |  | |
| ***1.1*** | ***Specification / Features*** | | | |
| *Easy portable* | | | Yes, attached & de-attached at least 4500 times in total | |
| *Vibration* | | | Yes, 1 motor | |
| *Battery* | | | Yes | |
| *Heating element:* | | | Yes | |
| *Control Panel* | | | Yes, integrated into the device | |
| *Bluetooth ready* | | | Yes, remote control range >15m | |
| *Vibration area* | | | TBC | |
| *Washable/water proof* | | | Yes, cup is washable/device is cleaned with wet cloth, IP22 for medical device | |
| *Air Pump* | | | Yes | |
| *Hook and rope* | | | TBD | |
| *Cup* | | | Quantity 3 cups TBC | |
| ***1.2*** | ***Optical / Design / Material Specification*** | | | |
| *Decoration sheets* | | | No, but cosmetically appealing | |
| *Charging time* | | | <70mins 1C charging | |
| *Discharging time* | | | 120mins with full load | |
| *Display functions* | | | No display, only LED indicators | |
| *LED indicator* | | | 3 modes 9 LEDs, timer 3 LEDs, battery energy 1 RGB LED  Refer to software spec | |
| *Control Panel material* | | | TBC (HTI) | |
| *Packaging* | | | acc. to Therabody design TBC: 1 device with 3 size cups, 3 devices with 3 size cups, 3 devices with 9 cups(3 size) | |
| *IM* | | | Instruction manual acc. to Therabody design | |

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| --- | --- | --- | --- | --- |
|  | ***Technical requirements*** | | | |
| ***2.1*** | ***General Technical requirements*** | | | |
| *Rating:* | | *3.7V, max. 1.4A* | *Dimensions (L x W x H) [mm]:* | D67mmx95mm, |
| *Weight:* | | *Approx. 220g* | *Noise:* | TBC, should be smaller than 50dB |
| *Temperature rise time:* | | Target 30secs to 43C | Working temperature: | -10C to 40C |
| *Heating temperature setting:* | | TBC | Working duration time: | 5, 10 or 15mins per cycle |
| *Working time with full loading:* | | 120mins | Battery capacity: | 2000mAh,  Support 1C charge and 2C discharge. |
| *Charge time:* | | <70mins | *Battery size:* | Size:18550 (HTI) |
| *Charging port:* | | *USB-C* | *USB cable:* | *USB-A to USB-C and 1m* |
| *MCU voltage ripple:* | | *<60mV* | *EMC margin:* | *>5dB* |
| *Button debounce time:* | | 50mS | *Sleep current (Standby):* | *<40uA* |
| *Temperature protection:* | | *Yes, NTC + software*  *Stop heating if NTC detect normally. (HTI)* | *Air Pump max pressure:* | *>60KPa* |
| *Vibration intensity:* | | TBC RMP:900, 1800, 3000, Hz: 15, 30, 50 (HTI) | *Vibration area:* | *35mm, 45mm, 55mm* |
| *Suction intensity:* | | *-30Kpa, -45Kpa, -60Kpa* | *FDA Grade:* | *US/EU/AU/UK Class I, JP/CA Class II?* |
| *Pressure relief valve:* | | *Yes, ?Kpa (HTI)* | *Treatment mode:* | *Pressure+vibration+heat*  *Pressure mode: Breath suction or steady suction US team* |
| *Drop test:* | | *1.2m height, cement ground* | *Storage temperature:* | *According to TTR temperature test requirement* |
|  | |  |  |  |
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|  | |  |  |  |
|  | | | | |

**Battery level RGB indicator LEDs definitions and setting.**

Charging mode battery LED indicator**：**The RGB LED indicator definitions.

|  |  |  |  |
| --- | --- | --- | --- |
|  | | RGB LED indicator | Battery capacity |
| Battery charging | Red LED breathing | | 0~25% |
| Blue LED breathing | | 26%~75% |
| Green LED breathing | | 76%~99% |
| Green LED solid on | | 100% |

Remark: Breathing patten is 2S ON,0.5S OFF. (Fading)

Non-charging mode battery LED indicator**.** The RGB LED indicator definitions. (Short press the suction button to display the battery capacity. The device auto turns off after 3mins.

|  |  |  |
| --- | --- | --- |
|  | RGB LED indicator | Battery capacity |
| Device | Red LED flashing | <15% |
| Red LED solid on | 15~25% |
| Blue LED solid on | 26%~75% |
| Green LED solid on | 76%~100% |

Remark: When reach 0%，red LED flash by 5 times then device turns off.

**Bluetooth indicator LEDs definitions and settings.**

1. Press any button, it will wake up the battery level LED for 5secs and the blue tooth keep been searching for 3mins for user connecting to the APP.
2. After connecting to the APP, all LEDs including battery level LED and the speed or mode LEDs will flash with 1Hz.
3. After 3mins no activation, the device sleep and all LEDs turn off.

**Firmware and test APP requirements:**

1. The blue tooth name can be changed by user.
2. Follow Therabody blue tooth communication protocols format.
3. Has manufacturing/MCU code in firmware for APP team tracking.
4. The firmware can be upgraded and downgraded.
5. Test app can check the CRC code for the firmware. The firmware only can be updated when the CRC code check correct.

### Set product manufacturing information：

a Host sends command to Slave

|  |  |  |  |
| --- | --- | --- | --- |
| Start | Checksum | Command | Data Length |
| 0xAA | 0x20 | 0x20 | 0x00 |

b Slave responses to Host

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Start | Checksum | Command | Data Length | D0 | D1 | D2 | D3 |
| 0xBB | 0x xx | 0x20 | 0x10 | Delivery time HH | Delivery time H | Delivery time L | Delivery time LL |
| D4 | | D5 | | D6 | D7 | D8 | D9 |
| Manufacturer code | | Product code | | MCU code | reserved | Firmware Version  H | Firmware Version  L |
| D10 | | D11 | | D12 | D13 | D14 | D15 |
| Communication protocol version  H | | Communication protocol version  L | | APP change product parameters setting  Bit0: bluetooth name | reserved | Product type number  H\* | Product type number  L\* |

**D4 list(Manufacturer code):** 0x03(HTI)

**D5 list(Product code):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Product type name | Bluetooth name | Product code(hex) | Remark |
| 9 | Smart suction cup | Smart suction cup | 160(0xA0) | Support D0~D15 |
|  |  |  |  |  |

**D6 list(Product code):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Products | MCU | MCU code(hex) | Remark |
| 1 | 1st MCU | Compatible | 1(0X01) | Support D0~D15 |

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|  | ***Workmanship*** | | |
| ***3.1*** | ***Handling / function ability*** | | |
| *Buttons / knob must work smoothly.* | | | |
| *Easy to use and self-explanatory operation.* | | | |
| *Easy cleaning.* | | | |
| *No sharp edges allowed.* | | | |
| *All plastic – and lacquered parts must be UV resistant* | | | |
| *The item must be BPA free (limit 0 mg/kg)* | | | |
| *A permanently bad smell during normal use is not acceptable* | | | |
| *No big gaps and height differences between housing parts allowed.  Gaps and height differences must be even* | | | |
| *Rating label must be reliable to N-Hexane (15 sec rubbing test)* | | | |
|  | | | |
| ***3.2*** | | ***Material / colour / coating*** | |
| *Mat* | | | *PC+ABS, color TBC* |
| *Control panel* | | | *Material TBC, color TBC* |
| *Adapter* | | | *Not included.* |
| *Decoration film/layer* | | | *No* |
| Etc. | | |  |

|  |  |
| --- | --- |
|  | ***Product safety & documents*** |
| *The seller has to ensure, that all documents are available, that Therabody can start the certification at an independent institute.* | |
| ***Documents from independent certification body:*** | |
| *Certificate and report with country deviation from an independent institute. Tests acc. to IEC and EN safety standard)* | |
| *EMC certificate and report acc. to IEC/EN standard* | |
| *RoHS* | |
| *REACh* | |
| *Bill of Material (BOM)* | |
| *Explosion Drawing* | |
| *Electric circuit diagram, layout drawing, firmware bin file (including* CRC code or checksum*)* | |
| *Rust test acc. to Therabody Humidity Test Report (HTR)* | |
| *UV stability test for plastic and painted parts* | |
| *Supplier LTT (life time test) report* | |
| *Packaging test report from an independent institute* | |
| *etc.* | |

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| --- | --- | --- |
|  | ***Long Life Test Requirements*** | |
| *Requirements according to:* | | Therabody |
| *Life time:* | | 2 years / 1200 hours |
| *Cycles / hours* | | N/A |
| *Cycle description:* | | One cycle: 15 mins ON, 15 mins Off |
| *Load:* | | Full load |
| *Test condition:* | | 20-25 degree, ambient temperature |
| *Test description:* | | N/A |
| *Approx. testing time:* | | 1200 hours running time |
| *Requirement:* | | All tested samples must pass the life time test. During testing no visual or functional changes of the samples are allowed. The requirement of the standard must be fulfilled anyway. |

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| --- | --- | --- |
| ***6.*** | ***Revision History*** | |
| **Status** | ***Date*** | ***Change*** |
| 1 | *08.09.2021* | *First Draft* |
| 2 |  |  |
| 3 |  |  |