

A

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1

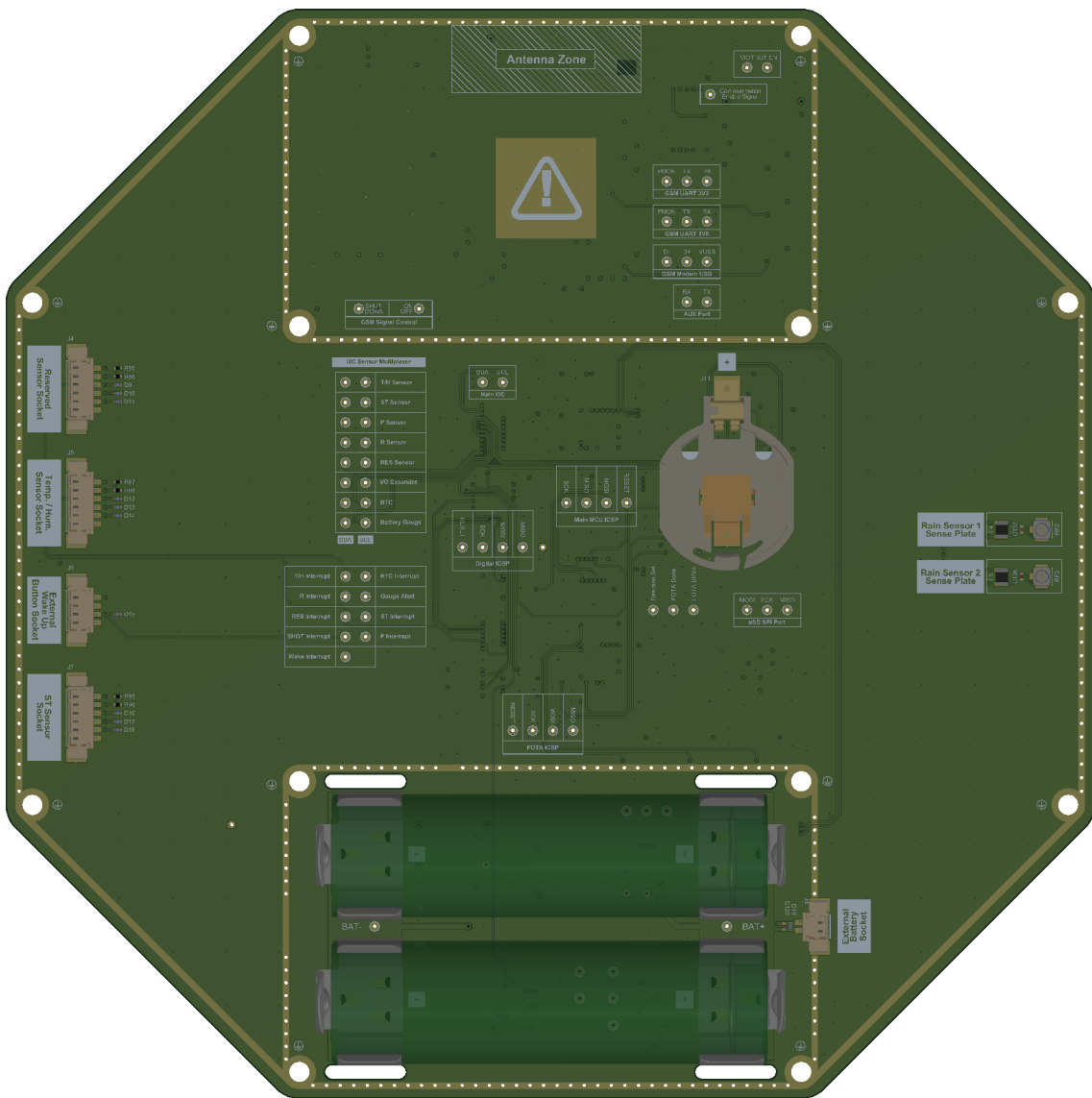
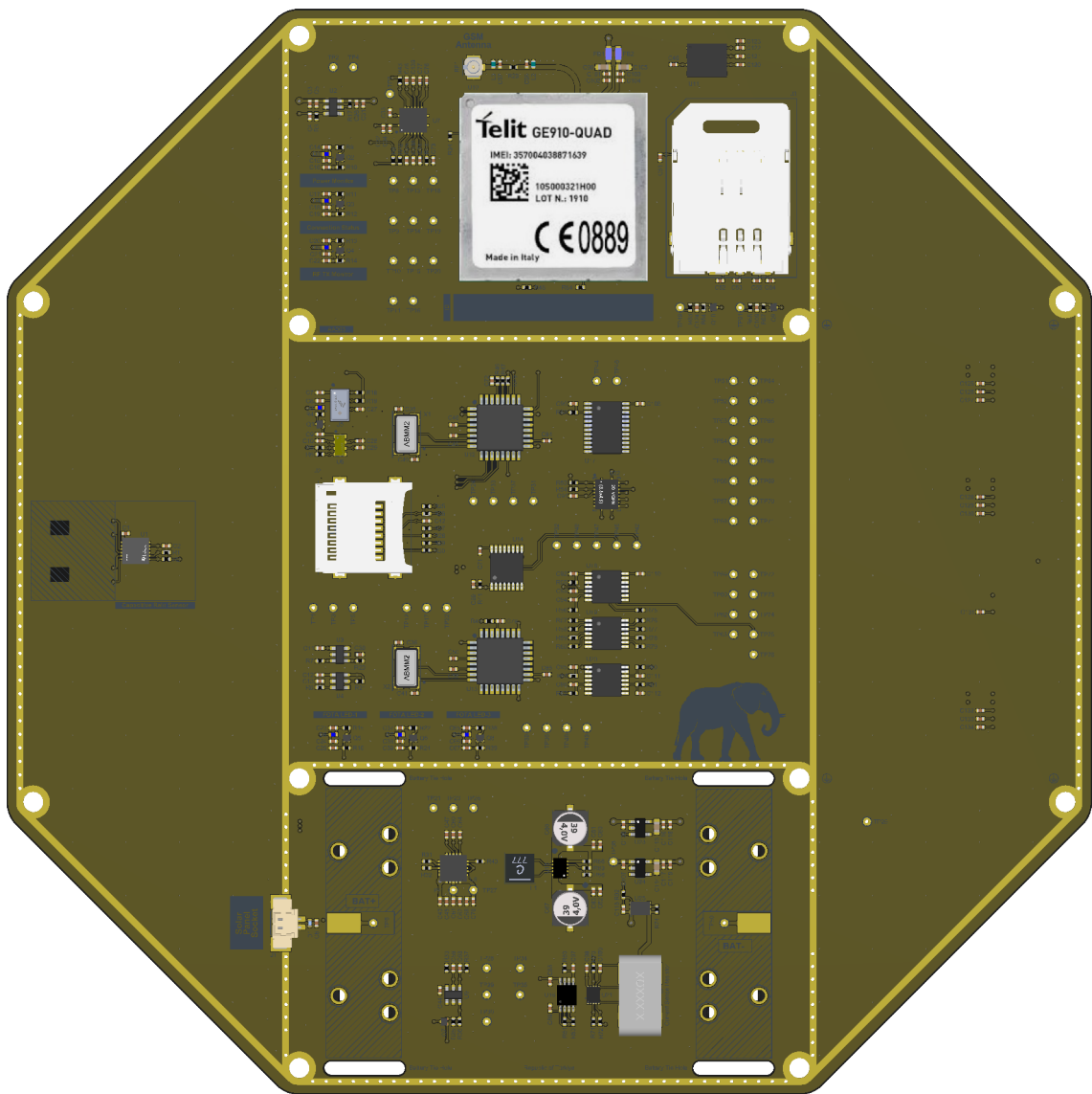
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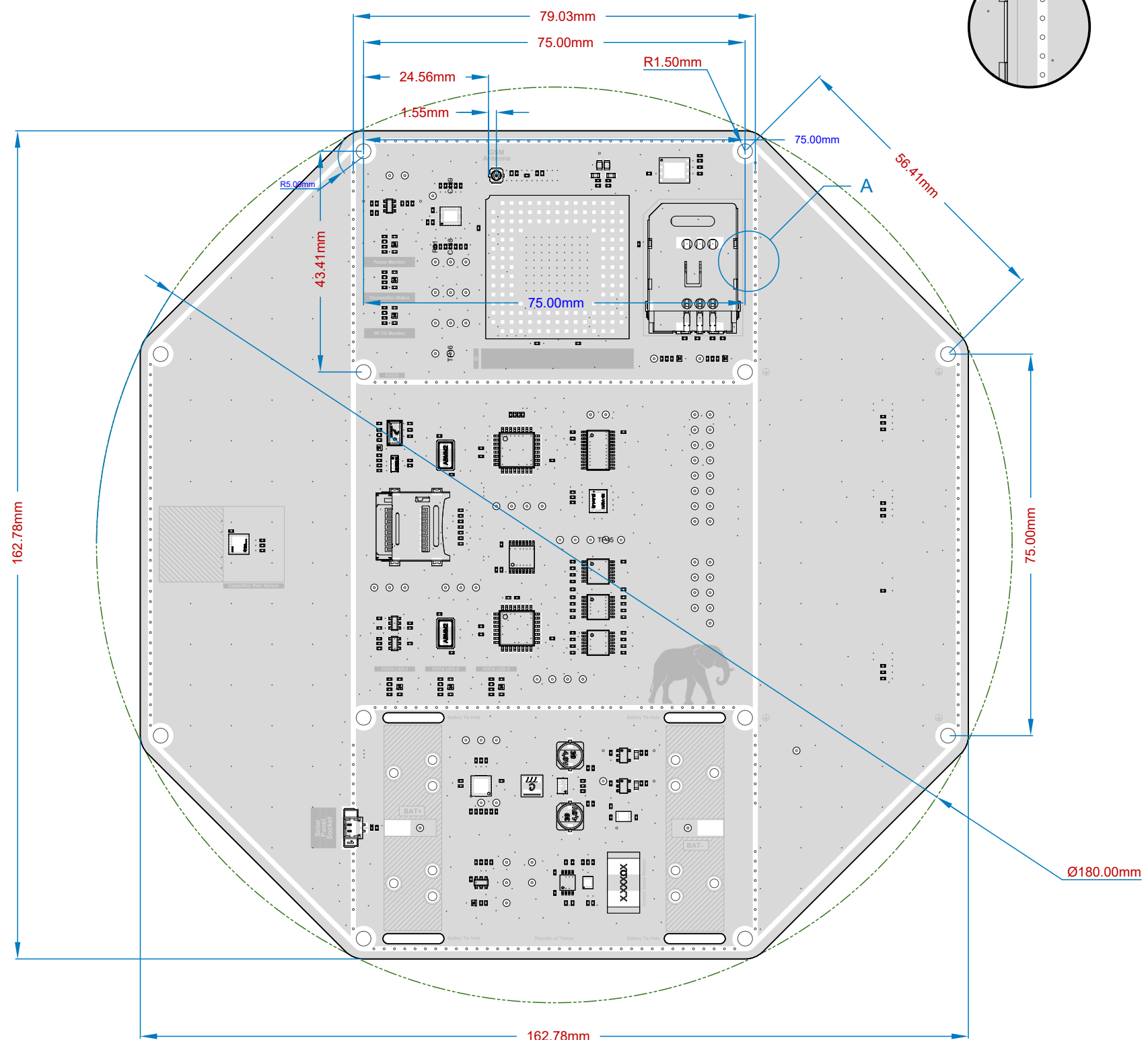
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DETAIL A (Scale 2:1)

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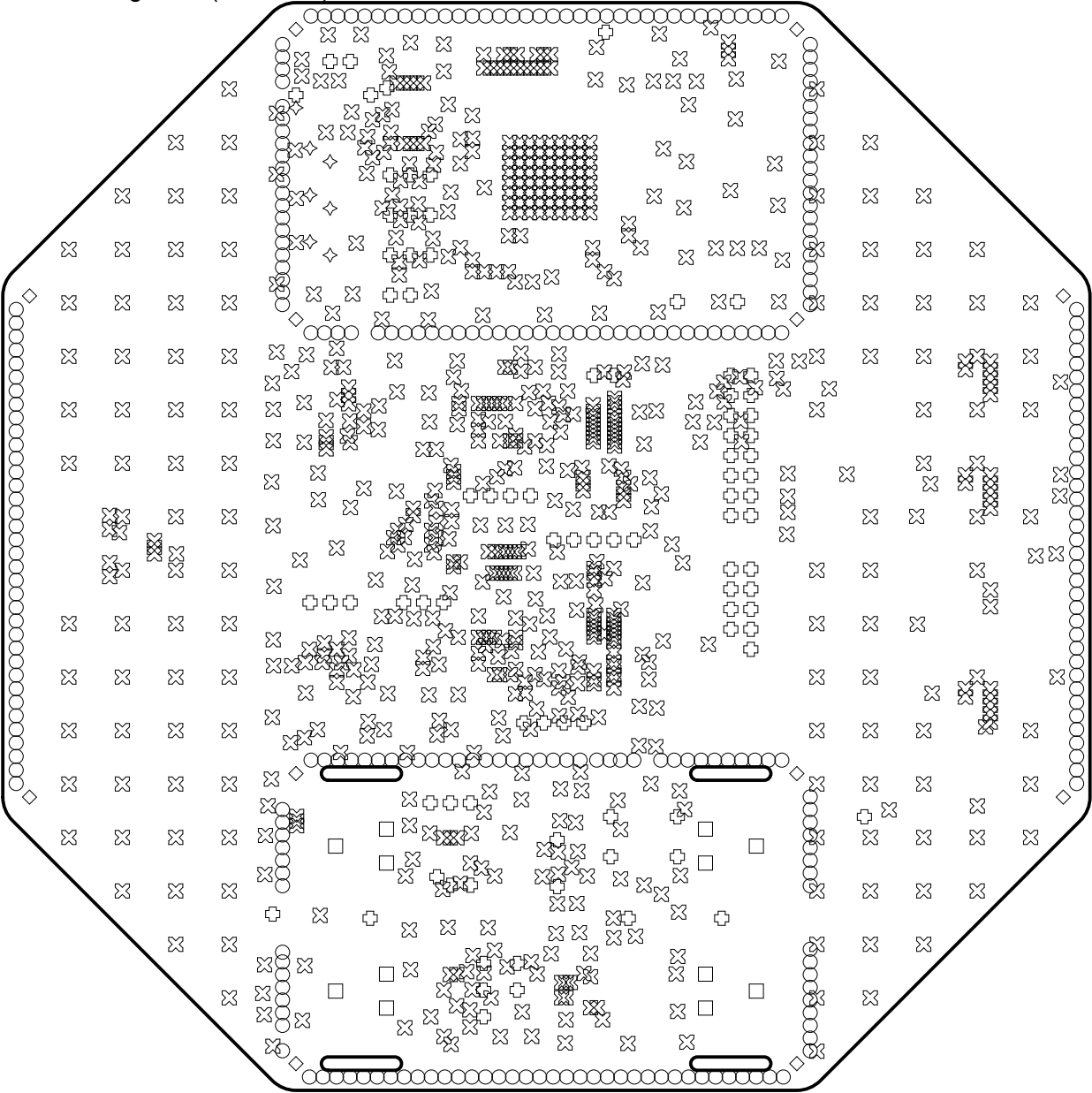
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Drill Drawing View (Scale 1:1)



Drill Table

| Symbol | Count | Hole Size | Plated | Hole Tolerance |
|------------|-------|-----------|--------|----------------|
| ⊗ | 832 | 0.20mm | Plated | None |
| ⋄ | 7 | 0.25mm | Plated | +/-0.01mm |
| ○ | 289 | 0.50mm | Plated | +/-0.05mm |
| ⊕ | 87 | 0.50mm | Plated | None |
| □ | 12 | 1.83mm | Plated | None |
| ◇ | 12 | 3.00mm | Plated | None |
| 1239 Total | | | | |

| A | B | C | D | E | F | G | H |
|---|-------------------|--|--------------------------------------|----------|------------------------------|--------------------------|---|
| 1 | Bill Of Materials | Designator | Comment | Quantity | Manufacturer_Name | Manufacturer_Part_Number | 1 |
| | | C1, C5, C7, C8, C11, C12, C26, C28, C29, C32, C33, C42, C43, C44, C48, C49, C50, C58, C61, C70, C71, C72, C79, C80, C83, C84, C85, C88, C89, C90, C91, C98, C106, C107, C108, C110, C115, C116, C117 | Multilayer Ceramic Capacitor | 39 | AVX | 04026D104KAT4A | |
| | | C2, C3, C4, C6, C9, C10, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C27, C30, C31, C37, C38, C39, C46, C47, C51, C52, C53, C54, C59, C60, C63, C64, C65, C66, C67, C69, C73, C74, C75, C76, C77, C78, C81, C82, C92, C93, C94, C95, C96, C97, C102, C104, C109, C111, C112, C118, C119, C120, C121, C123, C124, C125, C126, C127, C128, C129, C130, C131, C132, C133, C134, C135, C138, C139 | Multilayer Ceramic Capacitor | 77 | Kemet | C0402C330J9RACAUTO | |
| | | C34, C101, C103 | Multilayer Ceramic Capacitor | 3 | Murata Electronics | GRM153R60J105ME95D | |
| | | C35, C36, C40, C41 | Multilayer Ceramic Capacitors | 4 | Kemet | CBR04C130F5GAC | |
| | | C45, C62, C68 | Multilayer Ceramic Capacitors | 3 | Kemet | C0402C475M9PACTU | |
| | | C55, C100, C122 | Multilayer Ceramic Capacitors | 3 | AVX | 04026C474KAT2A | |
| | | C56, C57 | Multilayer Ceramic Capacitor | 2 | AVX | 04026C102MAT2A | |
| | | C86, C87 | Aluminium Organic Polymer Capacitors | 2 | Panasonic | 16SVPC39MV | |
| 2 | | C99, C113, C114 | Tantalum Capacitor | 3 | AVX | F380J106MMAAH3 | 2 |
| | | C105 | Tantalum Capacitor | 1 | AVX | F380J476MMAAXEH3 | |
| | | C136, C137 | Multilayer Ceramic Capacitors | 2 | Vishay | VJ0402Y332KXQCW1BC | |
| | | D1, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19 | ESD Suppressors | 12 | Bussmann / Eaton | 0402ESDA-MLP1 | |
| | | D2, D3, D4, D5, D6, D7, D8 | SMD LED (Blue) | 7 | ROHM Semiconductor | SMLP13BC8TT86 | |
| | | FB1, FB2 | Ferrite Bead | 2 | Murata Electronics | BLM18EG101TZ1D | |
| | | J1, J8 | 2P SMD Tunic Connector | 2 | Molex | 53261-0271 | |
| | | J2 | Memory Card Connectors | 1 | Molex | 47219-2001 | |
| | | J3 | SIM Holder Tray | 1 | Molex | 47388-2001 | |
| | | J4, J5, J7 | 6P Tunic Connector | 3 | Molex | 53261-0671 | |
| | | J6 | 4P SMD Tunic Connector | 1 | Molex | 53261-0471 | |
| | | J9, J10 | Battery Clip Holder and Battery | 2 | Keystone Electronics | 254 | |
| | | J11 | Battery Clip Holder and Battery | 1 | Keystone Electronics | 1070TR | |
| | | L1 | Fixed Inductor | 1 | Coilcraft | XFL4015-471MEB | |
| | | L2, L3 | Fixed Inductor | 2 | Murata Electronics | LQG15HN1N0S02D | |
| | | L4, L5 | Fixed Inductor | 2 | Taiyo Yuden | CB2518T102K | |
| 3 | | Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10 | Bipolar NPN Transistors | 10 | Nexperia | BC847AAQAZ | 3 |
| | | R1, R2, R5, R6, R18, R19, R31, R40, R45, R46, R47, R49, R51, R52, R53, R54, R63, R65, R71, R72, R83, R85, R86, R87, R88, R89, R90 | Thick Film Resistor | 27 | Vishay | CRCW040210K0FKED | |
| | | R3, R8, R10, R12, R14, R16, R20, R24, R26, R27, R29, R33, R37, R39, R41, R42, R43, R44, R50, R55, R56, R57, R58, R59, R60, R61, R62, R67, R70, R75, R76, R77, R78, R79, R80, R81, R84, R91 | Thick Film Resistor | 38 | Vishay | CRCW040247K0FKED | |
| | | R4, R9, R11, R13, R15, R17, R21, R22, R38, R82 | Thick Film Resistor | 10 | Vishay | CRCW0402330RFKED | |
| | | R7, R35, R36 | Thick Film Resistor | 3 | Vishay | CRCW0402249KFKED | |
| | | R23, R25, R28, R30, R34, R48, R64 | Thick Film Resistor | 7 | Vishay | CRCW04020000Z0ED | |
| | | R32 | Thick Film Resistor | 1 | Vishay | CRCW04021K00FKED | |
| | | R66 | Thick Film Resistor | 1 | Vishay | CRCW0402100KFKED | |
| | | R68 | Thick Film Resistor | 1 | Vishay | CRCW040291K0FKED | |
| | | R69 | Thick Film Resistor | 1 | Vishay | CRCW0402604KFKED | |
| | | R73 | Current Sense Resistor | 1 | TT Electronics | OARSXPR010FLF | |
| | | R74 | Thick Film Resistor | 1 | Vishay | CRCW04022K70FKED | |
| | | RF1, RF2, RF3 | Antenna | 3 | | | |
| | | U1 | Capacitive Sensor | 1 | Texas Instruments | FDC2112QDNTRQ1 | |
| | | U2, U4 | Power Switch | 2 | Texas Instruments | TPS22917DBVR | |
| | | U3, U9 | Nanopower Timer IC | 2 | Texas Instruments | | |
| | | U5 | Board Mount Pressure Sensors | 1 | NXP Semiconductors | MPL3115A2R1 | |
| | | U6 | Real Time Clock | 1 | Micro Crystal | RV-3028-C7 | |
| | | U7 | Voltage Level Shifter | 1 | Texas Instruments | SN74AVCH4T245RGYR | |
| | | U8 | Battery Charger | 1 | Microchip | MCP73871-2AAI/ML | |
| | | U10 | GE910 2G GSM Module | 1 | | | |
| | | U11 | MFF2 SIM Chip | 1 | | | |
| | | U12, U13 | 8-bit MicroController | 2 | Microchip Technology / Atmel | ATMEGA328P-AU | |
| | | U14 | SPI Switch IC | 1 | Texas Instruments | SN3257QPWRQ1 | |
| | | U15 | Buck-Boost Converter | 1 | Texas Instruments | TPS63802DLAT | |
| | | U16 | I2C Bus Repeater | 1 | Texas Instruments | TCA9517ADGKR | |
| | | U17 | I2C Switch IC | 1 | Texas Instruments | TCA9548APWR | |
| | | U18 | Logic Gate (NOR) | 1 | Texas Instruments | SN74HCS7002QPWRQ1 | |
| | | U19 | Logic Gate (OR) | 1 | Texas Instruments | SN74HCS32PWR | |
| | | U20 | Logic Gate (NAND) | 1 | Texas Instruments | SN74HCS00PWR | |
| | | U21 | Battery Gauge | 1 | Maxim Integrated | MAX17055ETB+T | |
| | | U22 | I2C I/O Expander | 1 | Texas Instruments | PCF8574RGYR | |
| | | U23, U24 | LDO Voltage Regulator | 2 | Texas Instruments | TPS7A0533PDBVR | |
| | | U25 | Battery Management IC | 1 | Diodes Incorporated | AP9211S-AE-HAC-7 | |
| | | X1, X2 | 7.3728 MHz | 2 | ABRACON | ABMM2-7.3728MHZ-E2-T | |
| 6 | | | | | | | 6 |
| A | B | C | D | E | F | G | H |

Layer Stack Legend

| Material | Layer | Thickness | Dielectric Material | Type | Gerber |
|-------------------------|-----------------------|-----------|---------------------|----------------|--------|
| | Top Overlay | | | Legend | GTO |
| | Surface Material | 0.03mm | SM-001 | Solder Mask | GTS |
| | Nickel, Gold | 0.02mm | | Surface Finish | |
| | Top Copper Plating | 0.03mm | | Signal | GTL |
| CF-004 | Top Layer | | | | |
| Prepreg | | 0.21mm | PP-022 | Dielectric | |
| CF-004 | Power-1 | 0.07mm | | Signal | G1 |
| Core | | 0.99mm | Core-042 | Dielectric | |
| CF-004 | Power-2 | 0.07mm | | Signal | G2 |
| Prepreg | | 0.21mm | PP-022 | Dielectric | |
| CF-004 | Bottom Layer | 0.03mm | | Signal | GBL |
| Nickel, Gold | Bottom Copper Plating | 0.02mm | | Surface Finish | |
| Surface Material | Bottom Solder | 0.03mm | SM-001 | Solder Mask | GBS |
| | Bottom Overlay | | | Legend | GBO |
| Total thickness: 1.71mm | | | | | |

Transmission Line Structure Table

| Impedance Id | Target Impedance | Calculated Impedance | Trace layer | Lower Trace Width | Upper Trace Width | Gap | Reference layers |
|--------------|------------------|----------------------|-------------|-------------------|-------------------|-----|------------------|
| 1 | 50 | 50.26 | Top Layer | 0.70mm | 0.70mm | | Bottom Layer |