

LMR SDR V1.7 15watt

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## BOM (Bill of materials) / Daftar Komponen

| Item # | Name   | Designator                                                                                                        | Quantity | Type | Notes                |
|--------|--------|-------------------------------------------------------------------------------------------------------------------|----------|------|----------------------|
| 1      | 104    | C1,C3,C9,C17,C19,C20,C24,C28,C34,C36,C37,C41,C42,C43,C44,C45,C46,C47,C48,C52,C58,C60,C61,C64,C66,C71,C72,C75,C109 | 29       | TH   | Multilayer Capacitor |
| 2      | 100uF  | C2,C6,C21,C35,C38,C39,C40,C70,C73,C76,C110                                                                        | 11       | TH   | Elco                 |
| 3      | 221    | C4,C5,C7,C16                                                                                                      | 4        | TH   | Multilayer Capacitor |
| 4      | 10uF   | C8,C10,C13,C18,C22,C25,C26,C29,C31,C32                                                                            | 10       | TH   | Elco                 |
| 5      | 223    | C11,C12,C14,C15,C23,C27,C30,C33                                                                                   | 8        | TH   | Multilayer Capacitor |
| 6      | 121    | C49                                                                                                               | 1        | TH   | Ceramic Capacitor    |
| 7      | 271    | C50,C51                                                                                                           | 2        | TH   | Ceramic Capacitor    |
| 8      | 181    | C53                                                                                                               | 1        | TH   | Ceramic Capacitor    |
| 9      | 391    | C54,C55,C56                                                                                                       | 3        | TH   | Ceramic Capacitor    |
| 10     | 821    | C57,C59                                                                                                           | 2        | TH   | Ceramic Capacitor    |
| 11     | 681    | C62                                                                                                               | 1        | TH   | Ceramic Capacitor    |
| 12     | 152    | C63,C65                                                                                                           | 2        | TH   | Ceramic Capacitor    |
| 13     | 122    | C67                                                                                                               | 1        | TH   | Ceramic Capacitor    |
| 14     | 272    | C68,C69                                                                                                           | 2        | TH   | Ceramic Capacitor    |
| 15     | 104    | C74                                                                                                               | 1        | SMD  | cap 0805             |
| 16     | 100pF  | C77,C79                                                                                                           | 2        | TH   | cap > 500V           |
| 17     | 180pF  | C78,C80,C82                                                                                                       | 3        | TH   | cap > 500V           |
| 18     | 330pF  | C81                                                                                                               | 1        | TH   | cap > 500V           |
| 19     | 104    | C83,C84,C85,C103                                                                                                  | 4        | TH   | cap > 100V           |
| 20     | 104    | C90,C91,C92,C94,C100,C101,C107,C108                                                                               | 8        | TH   | Multilayer Capacitor |
| 21     | 1000uF | C86                                                                                                               | 1        | TH   | Elco                 |
| 22     | 430pF  | C87,C89                                                                                                           | 2        | TH   | cap > 500V           |
| 23     | 820pF  | C88,C96,C98                                                                                                       | 3        | TH   | cap > 500V           |
| 24     | 100uF  | C93                                                                                                               | 1        | TH   | Elco                 |
| 25     | 472    | C95                                                                                                               | 1        | TH   | Multilayer Capacitor |
| 26     | 1500pF | C97,C104,C106                                                                                                     | 3        | TH   | cap > 500V           |
| 27     | 102    | C99                                                                                                               | 1        | TH   | Multilayer Capacitor |
| 28     | 223    | C102                                                                                                              | 1        | TH   | Multilayer Capacitor |

|    |                 |                                                             |    |    |                               |
|----|-----------------|-------------------------------------------------------------|----|----|-------------------------------|
| 29 | 2700pF          | C105                                                        | 1  | TH | cap > 500V                    |
| 30 | MIC             | CN1                                                         | 1  | TH | Audio Socket 3.5mm stereo     |
| 31 | Line in         | CN2                                                         | 1  | TH | Audio Socket 3.5mm stereo     |
| 32 | Phone           | CN3                                                         | 1  | TH | Audio Socket 3.5mm stereo     |
| 33 | Line out        | CN4                                                         | 1  | TH | Audio Socket 3.5mm stereo     |
| 34 | PTT             | CN5                                                         | 1  | TH | Audio Socket 3.5mm stereo     |
| 35 | 1N4007          | D1                                                          | 1  | TH | Dioda                         |
| 36 | 1N4148          | D2,D3,D4,D5,D6,D7,D8,D9,D10,D11,D12,D13,D14,D15,D16,D17,D18 | 17 | TH | Dioda                         |
| 37 | 12-13.8V        | DC1                                                         | 1  | TH | Terminal Block3.5mm           |
| 38 | HDR-F-2.54_1x20 | H1,H2 ( STM32F103C8T6)                                      | 2  | TH | for STM32F103C8T6             |
| 39 | Jumper          | J1,J2                                                       | 2  | TH | Header Male 2.54mm            |
| 40 | AF              | J3                                                          | 1  | TH | Header Male 2.54mm            |
| 41 | ANT             | J4                                                          | 1  | TH | Antenna Pad                   |
| 42 | GND             | J5                                                          | 1  | TH | Antenna Ground                |
| 43 | PTT_EXT         | J6                                                          | 1  | TH | Header Male 2.54mm            |
| 44 | RX AMP          | J7                                                          | 1  | TH | Header Male 2.54mm            |
| 45 | LPF             | J8                                                          | 1  | TH | Header Male 2.54mm            |
| 46 | TX+             | JP3                                                         | 1  | TH | Header Male 2.54mm            |
| 47 | RX+             | JP4                                                         | 1  | TH | Header Male 2.54mm            |
| 48 | HRS2H-S-DC12V-N | K1,K2,K3,K4                                                 | 4  | TH | Relay 12V                     |
| 49 | HRS2H-S-DC12V-N | K5,K6,K7,K8,K9,K10                                          | 6  | TH | Relay 12V                     |
| 50 | 100uH           | L1,L2,L3,L5,L6,L14                                          | 6  | TH | Color Ring Inductor           |
| 51 | 47uH            | L4                                                          | 1  | TH | Color Ring Inductor           |
| 52 | 0.47uH          | L7,L11,L12                                                  | 3  | TH | Color Ring Inductor           |
| 53 | 0.22uH          | L8,L9                                                       | 2  | TH | Color Ring Inductor           |
| 54 | 1uH             | L10,L15,L16                                                 | 3  | TH | Color Ring Inductor           |
| 55 | 2.2uH           | L13,L18,L19                                                 | 3  | TH | Color Ring Inductor           |
| 56 | 4.7uH           | L17,L21,L22                                                 | 3  | TH | Color Ring Inductor           |
| 57 | 10uH            | L20                                                         | 1  | TH | Color Ring Inductor           |
| 58 | Toroid-Single   | L23,L24,L25,L26,L28,L29,L30,L31,L32,L33                     | 10 | TH | 160-40M=T50-2   20-10M= T50-6 |
| 59 | Toroid-Single   | L27                                                         | 1  | TH | Toroid Ring Ø=10mm, 10T       |
| 60 | Pre             | LED1                                                        | 1  | TH | Yellow                        |

|    |                     |                                                                                            |    |     |                              |
|----|---------------------|--------------------------------------------------------------------------------------------|----|-----|------------------------------|
| 61 | TX                  | LED2                                                                                       | 1  | TH  | Red                          |
| 62 | PWR                 | LED3                                                                                       | 1  | TH  | Green                        |
| 63 | 817                 | OC1                                                                                        | 1  | TH  | opto                         |
| 64 | 2N3904              | Q1,Q2,Q3,Q4,Q5,Q7,Q9,Q11,Q13,Q15                                                           | 10 | TH  | NPN                          |
| 65 | 2N3906              | Q6,Q8,Q10,Q12,Q14                                                                          | 5  | TH  | PNP                          |
| 66 | RD16HHF1 / RD15HVF1 | Q16,Q17                                                                                    | 2  | TH  | Final                        |
| 67 | 2SC1971             | Q18                                                                                        | 1  | TH  | Driver                       |
| 68 | 10K                 | R1,R2,R5,R6,R7,R8,R10,R13,R14,R21,R24,R27,R30,R31,R33,R45,R46,R49,R54,R55,R62,R75,R76      | 23 | TH  | Metal Film RES 0.25W         |
| 69 | 330R                | R3,R18                                                                                     | 2  | TH  | Metal Film RES 0.25W         |
| 70 | 2K2                 | R4,R25,R32                                                                                 | 3  | TH  | Metal Film RES 0.25W         |
| 71 | 1K                  | R9,R26,R34,R39,R40,R43,R48,R56,R57,R59,R60,R61,R63,R64,R65,R66,R67,R68,R69,R70,R71,R88,R89 | 23 | TH  | Metal Film RES 0.25W         |
| 72 | 100R                | R11,R12,R15,R16,R52                                                                        | 5  | TH  | Metal Film RES 0.25W         |
| 73 | 10R                 | R17,R19,R47,R53,R86,R87                                                                    | 6  | TH  | Metal Film RES 0.25W         |
| 74 | 220R                | R20,R28,R29,R35,R38,R85                                                                    | 6  | TH  | Metal Film RES 0.25W         |
| 75 | 68R                 | R22,R23                                                                                    | 2  | TH  | Metal Film RES 0.25W         |
| 76 | 470R                | R36,R51,R58                                                                                | 3  | TH  | Metal Film RES 0.25W         |
| 77 | 560R                | R37,R82                                                                                    | 2  | TH  | Metal Film RES 0.25W         |
| 78 | 390R                | R41                                                                                        | 1  | TH  | Metal Film RES 0.25W         |
| 79 | 6R8                 | R42                                                                                        | 1  | TH  | Metal Film RES 0.25W         |
| 80 | 33R                 | R44                                                                                        | 1  | TH  | Metal Film RES 0.25W         |
| 81 | 100R                | R50                                                                                        | 1  | TH  | Trimpot 3296W                |
| 82 | 27R                 | R72,R73                                                                                    | 2  | TH  | Metal Film RES 0.25W         |
| 83 | 200R                | R74                                                                                        | 1  | TH  | Metal Film RES 0.25W         |
| 84 | 4R7/1W              | R77                                                                                        | 1  | TH  | Resistor 2Watt / Toroid Beat |
| 85 | 680r                | R78,R80,R84                                                                                | 3  | TH  | Metal Film RES 0.25W         |
| 86 | 2R2                 | R79,R83                                                                                    | 2  | TH  | Metal Film RES 0.25W         |
| 87 | 82/100R             | R81                                                                                        | 1  | TH  | Metal Film RES 0.25W         |
| 88 | 1K                  | R90,R91                                                                                    | 2  | TH  | Trimpot 3296W                |
| 89 | Trifillar 5T        | T1                                                                                         | 1  | TH  | Toroid Ring Ø=10mm           |
| 90 | BN43-3312           | T2                                                                                         | 1  | TH  | Balun Core                   |
| 91 | FST3253MX           | U2                                                                                         | 1  | SMD | Mixer                        |

|     |              |           |   |     |              |
|-----|--------------|-----------|---|-----|--------------|
| 92  | 74LVC74      | U4        | 1 | SMD | Flip-Flop    |
| 93  | 7812         | U5        | 1 | TH  | Reg          |
| 94  | AMS1117-5.0  | U6,U9,U11 | 3 | SMD | Reg          |
| 95  | 7809         | U7        | 1 | TH  | Reg          |
| 96  | AMS1117-3.3  | U8        | 1 | SMD | Reg          |
| 97  | SI5351A-B-GT | U10       | 1 | SMD | MSOP10       |
| 98  | USB Printer  | USB1      | 1 | TH  | USB-B        |
| 99  | 27.000MHZ    | X1        | 1 | TH  | Crystal 2Pin |
| 100 | TCXO 27Mhz   | X2        | 1 | SMD | Optional     |
| 101 | 5532         | U1        | 1 | SMD | op amp       |
| 102 | TL084IDR     | U3        | 1 | SMD | op amp       |