

M10

BLUOS STREAMING AMPLIFIER

SERVICE MANUAL



M10

BLUOS STREAMING AMPLIFIER

SAFETY INFORMATION

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRABLE OPERATION.	
CAN ICES-3(B)/NMB-3(B)	FCC ID : Q2O-NADM10 IC : 152B-NADM10
  CONFORMS TO ANSIUL STD.60965 US CERTIFIED TO CANICSA STD C22.2 No. 60965 Intertek 5012029	
NAD ELECTRONICS INTERNATIONAL 633 GRANITE COURT, PICKERING, ON CANADA L1W 3K1 MODEL : M10 BLUOS STREAMING AMPLIFIER POWER RATING: 100-120V~, 200-240V~, 50/60Hz, 500W DESIGNED AND ENGINEERED IN CANADA, CUSTOM MANUFACTURED TO NAD SPECIFICATIONS IN CHINA NAD® is a trademark of NAD Electronics International, a division of Lenbrook Industries Limited. © NAD All Rights Reserved	
 CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN  WARNING : SHOCK HAZARD - DO NOT OPEN ATTENTION : RISQUE DE CHOC ELECTRIQUE-NE PAS OUVRIR	



SERVICE SAFETY PRECAUTIONS

1. Replacing the fuses

CAUTION:

FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE REPLACE ONLY WITH SAME TYPE OF FUSE.

Reference Designator	Database Part Number	Description
F1 	1601100028-902000	FUSE 932 2A 250V Slow SUB 8.5*8.5*4MM MINIATURE VDE/CQC/UL/PSE "ROHS" "BETTER"

Parts marked with the symbol  are critical with regard to the risk of fire and electric shock.

CONTENTS

DESCRIPTION	PAGE
SPECIFICATIONS.....	4
REAR / TOP / FRONT VIEW.....	5-6
DISASSEMBLY INSTRUCTIONS	7
WIRING DIAGRAM	8
WIRING PARTS LIST.....	9
BLOCK DIAGRAM.....	10
START UP SEQUENCE.....	11
TROUBLE SHOOTING	11
WAVEFORMS ON SYSTEM TEST & DEBUGGING	12-13
EXPLODED VIEW.....	14
EXPLODED VIEW PARTS LIST	15
PACKING DIAGRAM.....	16
PACKING PARTS LIST	17

SPECIFICATIONS

ALL SPECS ARE MEASURED ACCORDING TO IHF 202 CEA 490-AR-2008 STANDARD. THD IS MEASURED USING AP AUX 0025 PASSIVE FILTER AND AES 17 ACTIVE FILTER.

GENERAL SPECIFICATIONS

Continuous output power into 8 ohms and 4 ohms	100W (ref. 20 Hz-20 kHz at rated THD, both channels driven)
THD (20 Hz – 20 kHz)	< 0.03 % (250 mW to 100 W, 8 ohms and 4 ohms)
Signal-to-Noise Ratio	> 85 dB (A-weighted, 500 mV input, ref. 1 W out in 8 ohms)
Clipping power	> 130 W (at 1 kHz 0.1 % THD 8Rx2CH) > 230 W (at 1 kHz 0.1% THD 4Rx2CH)
IHF dynamic power	8 ohms: 160 W 4 ohms: 300 W
Damping factor	> 190 (ref. 8 ohms, 20Hz to 6.5kHz)
Frequency response	±0.6 dB (20 Hz - 20 kHz)
Tone controls	Treble: ±6.0 dB at 20 kHz, Bass: ±6.0dB at 60 Hz
Channel separation	>75 dB (1 kHz), >70 dB (10 kHz)
Input sensitivity (for 100 W in 8 ohms)	Line In: 1.0 V, Digital In: -6.2 %FS
Standby power	0.5W

DAC SECTION

Supported audio file formats	MP3, AAC, WMA, OGG, WMA-L, ALAC, OPUS
Hi-Resolution audio formats	MQA, DSD, FLAC, WAV, AIFF
Sampling rate	up to 32 bit/192 kHz PCM
Bit depths	16 – 24

BluOS SECTION

Supported operating systems	Plays music from network shares on the following desktop operating systems: Microsoft Windows XP, 2000, Vista, 7, 8 to current Windows Operating Systems and Mac OS X versions
User interface mobile operating system	BluOS - Free Android and iOS App available online at Google Play and Apple App store
Supported cloud services*	Amazon Alexa, Amazon Music, Spotify, TIDAL, Deezer, Qobuz, HDTracks, HighResAudio, Murfie, JUKE, Napster, Slacker Radio, KKBox, Bugs
Free internet radio*	TuneIn Radio, iHeartRadio, Calm Radio, Radio Paradise
Bluetooth quality	Bluetooth aptX HD built-in
Bluetooth connectivity	Two-Way (Receive and Headphone modes)
Network connectivity	Gigabit Ethernet RJ45, Wi-Fi 5

DIMENSION AND WEIGHT

Unit Dimensions (W x H x D)	215 x 100 x 260 mm 8-1/2 x 3-15/16 x 10-1/4 inches
Shipping weight	5 kg (11 lbs)

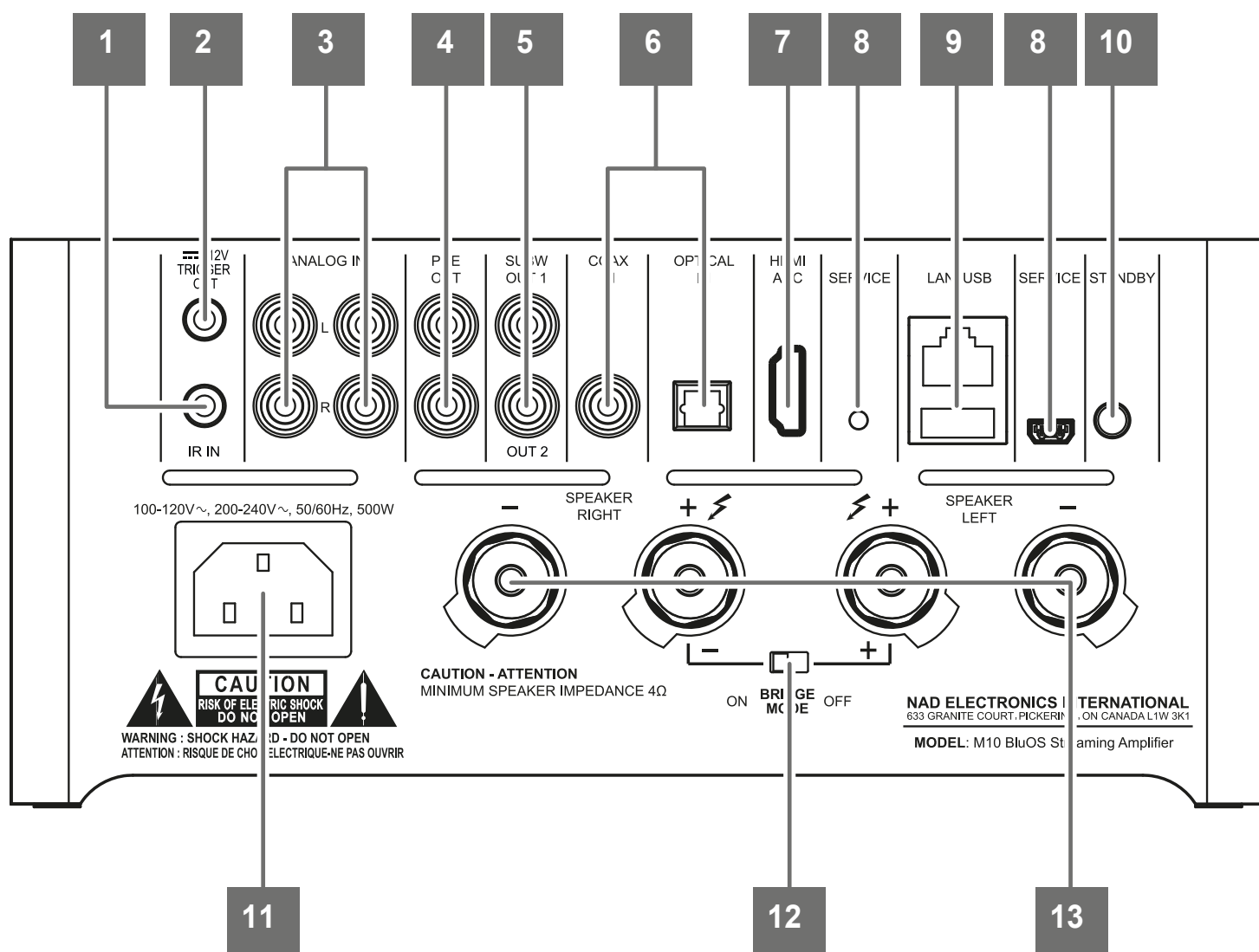
*Some features will become available via future software update

**Supported cloud services and free internet radio are subject to change without notice.

***Gross dimension includes feet and extended rear panel terminals.

Specifications are subject to change without notice. The M10 will include a license for Dirac Live with the option for advanced users to upgrade to a Dirac Live Full Frequency version. Check out www.NADelectronics.com for updated documentation or latest information about M10.

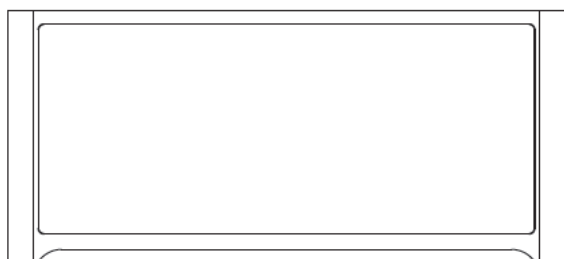
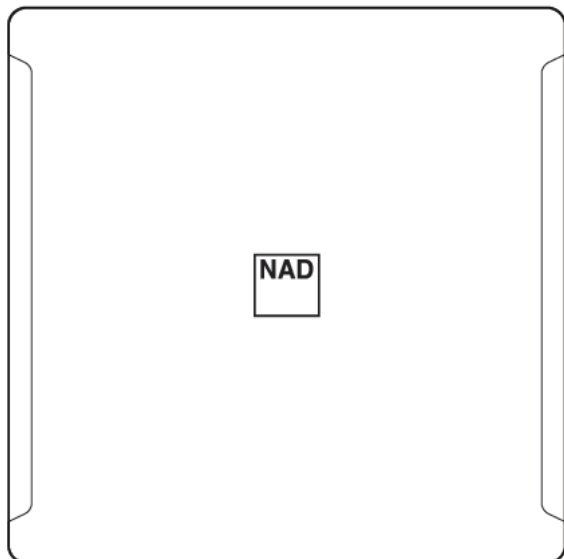
REAR VIEW



1. IR IN
2. +12V TRIGGER OUT
3. ANALOG IN 1-2
4. PRE OUT
5. SUBW (SUBWOOFER) 1, 2
6. OPTICAL IN/COAXIAL IN
7. HDMI ARC

8. SERVICE
9. LAN/USB
10. STANDBY BUTTON
11. AC MAINS INPUT
12. BRIDGE MODE
13. SPEAKERS

TOP AND FRONT VIEW



STATUS INDICATOR (NAD LOGO)

- This indicator will be amber when M10 is in standby mode.
- When M10 is powered up from standby mode, this indicator will change from amber to solid white.

Table of the color blink codes of the NAD logo indicator and their corresponding descriptions.

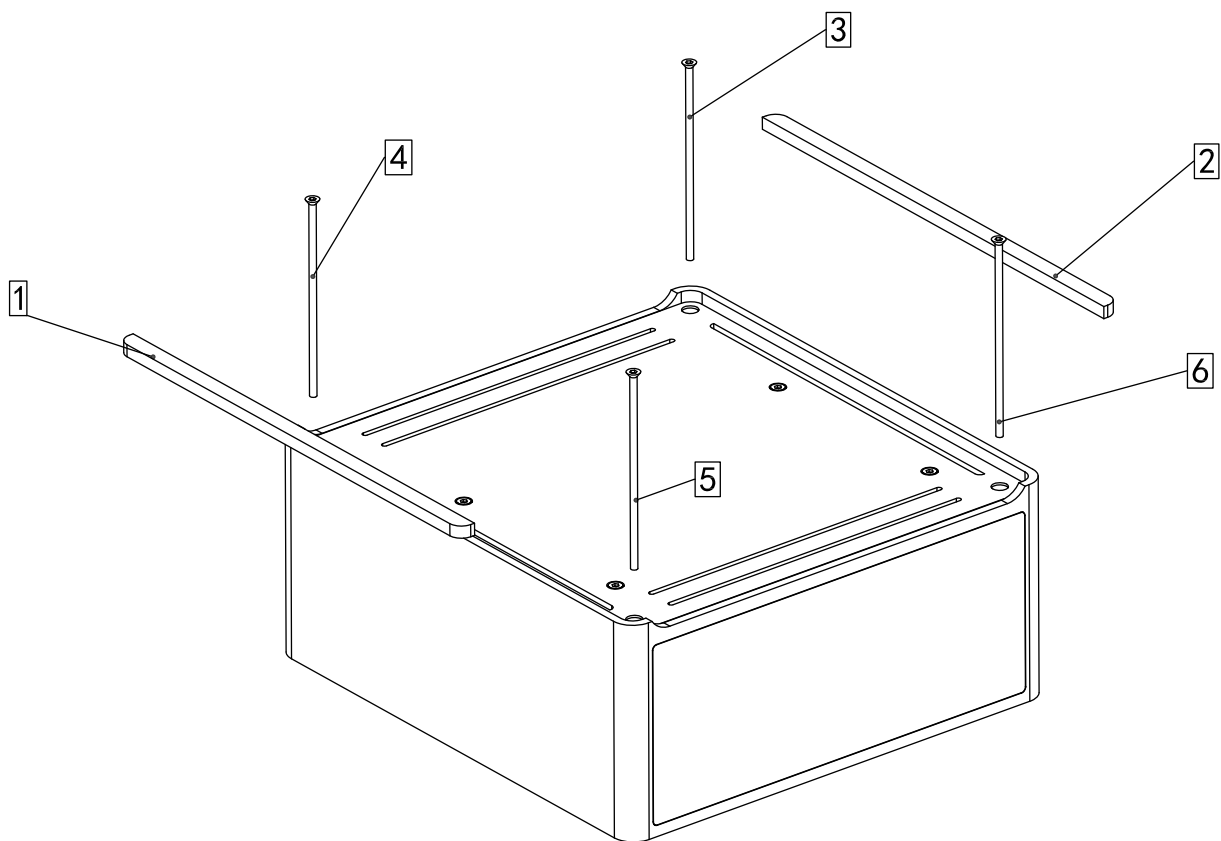
BLINK CODES	DESCRIPTION
Flashing red	Upgrade mode
Flashing red	Powering up, rebooting, booting up
Solid red	Cannot boot up; drive error
Solid white	Indexing
Solid white	Connected to network – ready to use with BluOS App

DISPLAY (TOUCH PANEL DISPLAY)

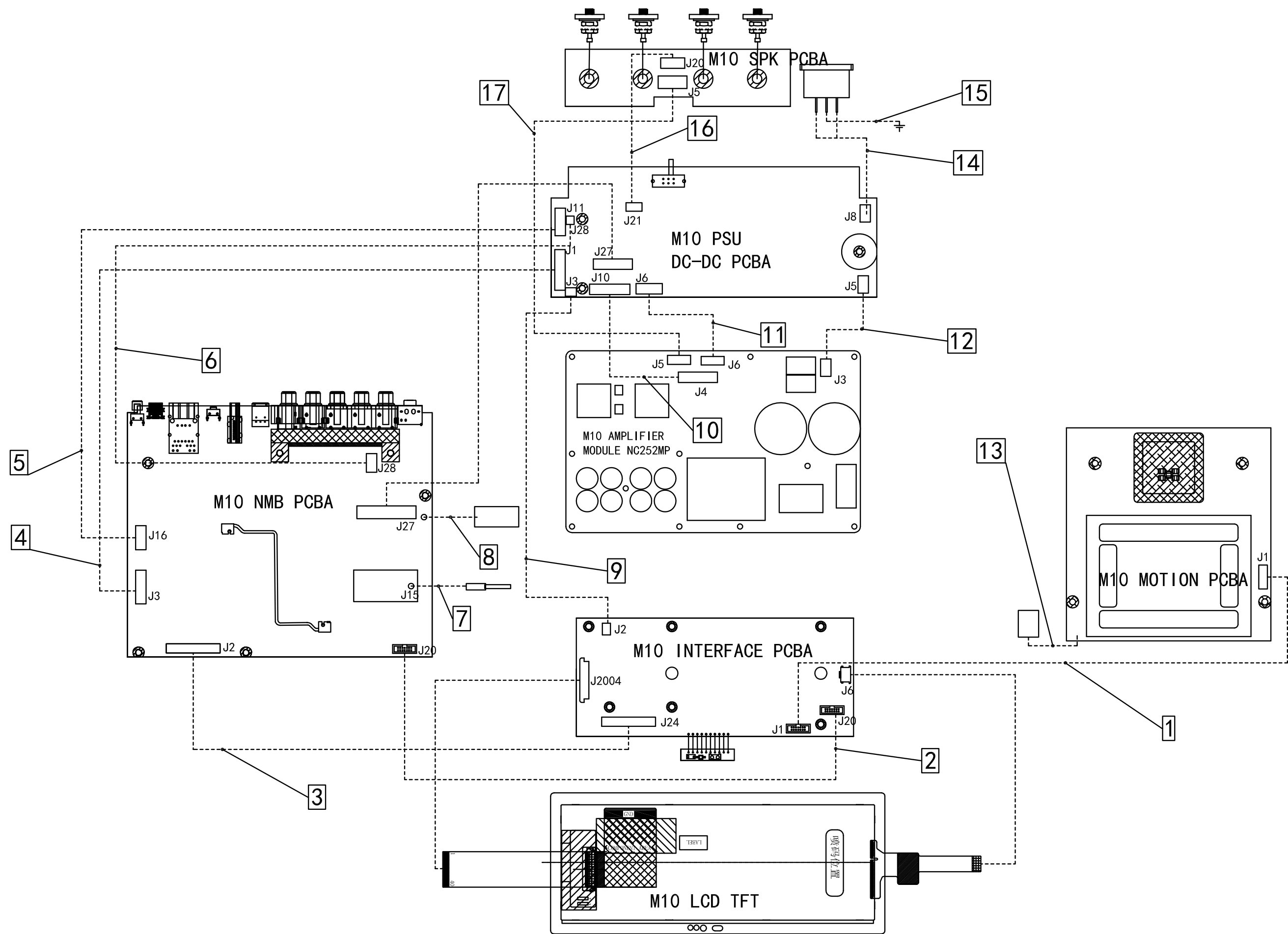
- Display visual information about current music or media source, settings or menu options.
- Touch control functions are also displayed depending upon menu option selected.

DISASSEMBLY INSTRUCTIONS

- Remove the rubber foot strips 1~2 from the bottom plate.
Remove the 4 x long screws 3~6 from the bottom plate.
Then the unit can be opened.



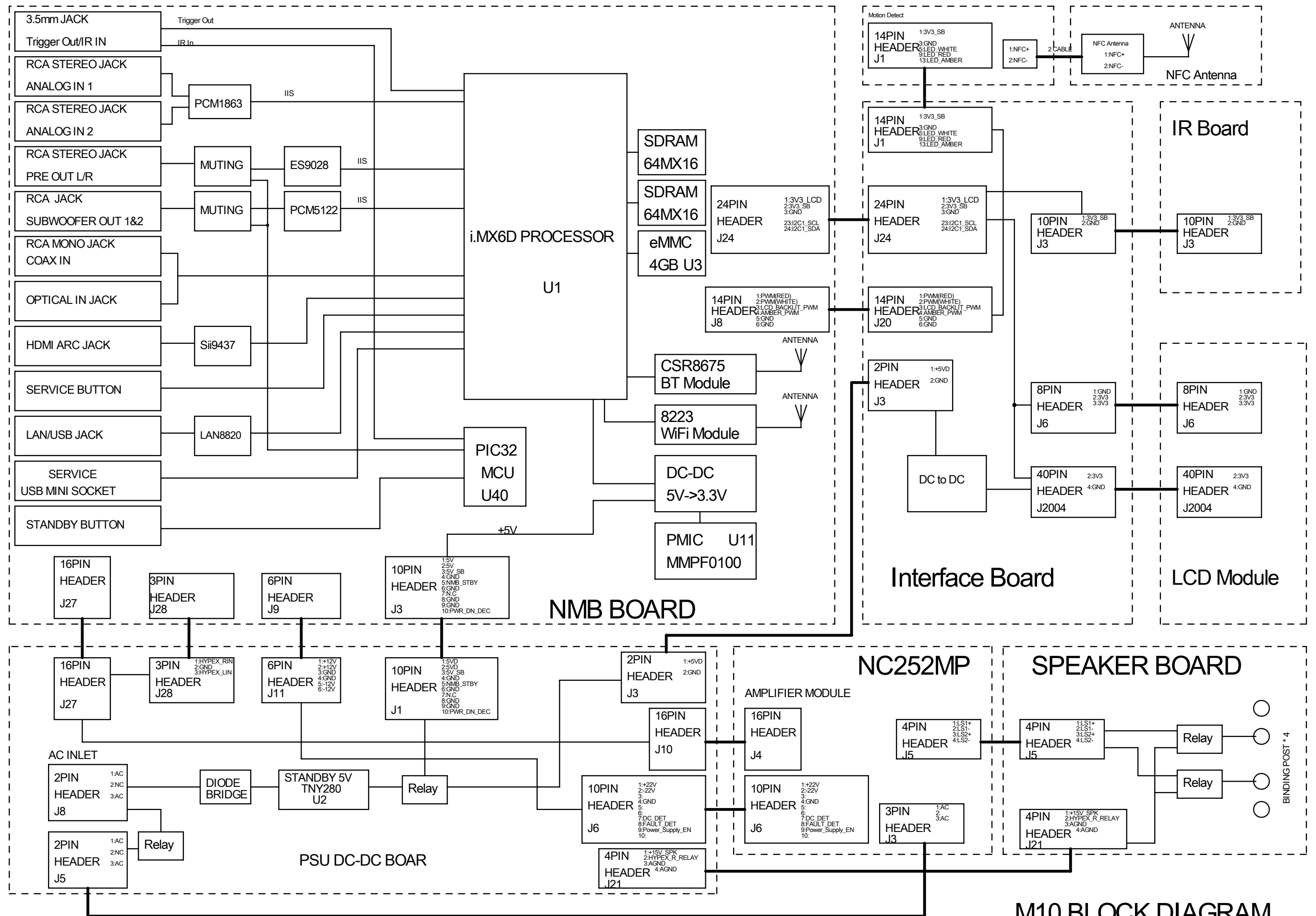
WIRING DIAGRAM



WIRING DIAGRAM PARTS LIST

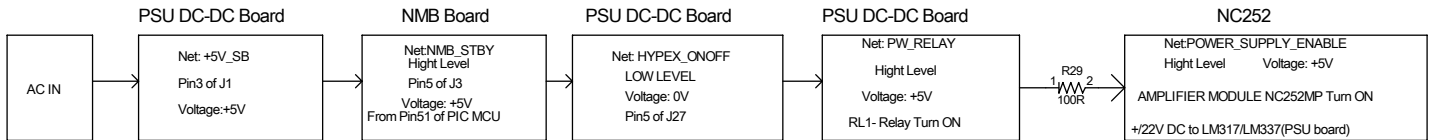
Item	Database Part Number	Description	Quantity
1	0610100026-902000	CABLE ASSY UL2678 AWG30 14PIN (7X2) P=1.27 L=75MM "ROHS"	1
2	0610100026-902000	CABLE ASSY UL2678 AWG30 14PIN (7X2) P=1.27 L=75MM "ROHS"	1
3	0610000010-000000	CABLE ASSY FFC 24 PINS P=1.0mm L=80MM BLACK/ WHITE "ROHS"	1
4	0610100018-902010	CABLE ASSY UL20080 AWG24 10PIN P=2.5 L=110MM "ROHS"	1
5	0610100019-902010	CABLE ASSY UL20080 AWG24 6PIN P=2.5 L=90MM "ROHS"	1
6	0600001990-000000	CABLE ASSY UL2547 AWG24 3PIN 2.0P L=260mm ST "ROHS"	1
7	0804100004-902010	ANTENNA 2.4GHz L=160MM IPEX TERMINAL "ROHS" "FLY ELECTRONIC"	1
8	1705100032-902010	ANTENNA PCB DUAL BAND W/ IPEX TERMINAL L=170MM "ROHS" "VOXMICRO" WAPH-2DBI-17	1
9	0610100027-902010	CABLE ASSY UL20080 AWG24 2PIN P=2.5 L=160MM "ROHS"	1
10	0610100023-902010	CABLE ASSY IDE UL2651 AWG28 16PIN (8x2) P=2.54 L=110MM "ROHS"	1
11	0610100029-902010	CABLE ASSY IDE UL2651 AWG28 10PIN (5x2) P=2.54 L=60MM "ROHS"	1
12	0600001979-000000	CABLE ASSY UL1672 AWG18 2PIN 3.96P 2 VOID L=60mm BROWN/BLUE "ROHS"	1
13	0610100028-902000	CABLE ASSY UL20080 AWG26 2PIN P=2.5 L=30MM "ROHS"	1
14	0600001989-000000	CABLE ASSY UL1672 AWG18 3PIN 3.96P PIN 2 VOID L=70MM (B/BR) "ROHS"	1
15	1705100035-902000	ST WIRE AWG18 L=70MM GREEN/YELLOW UL1015 W/TERMINAL TINNED 5 "ROHS"	1
16	0610100024-902010	CABLE ASSY UL1672 AWG18 4PIN 3.96P L=190MM (BLUE/BLACK/WHITE/BROWN)"ROHS"	1
17	0610100025-902010	CABLE ASSY UL20080 AWG24 4PIN P=2.5 L=50MM "ROHS"	1
..... END.			

BLOCK DIAGRAM



M10 BLOCK DIAGRAM

START UP SEQUENCE



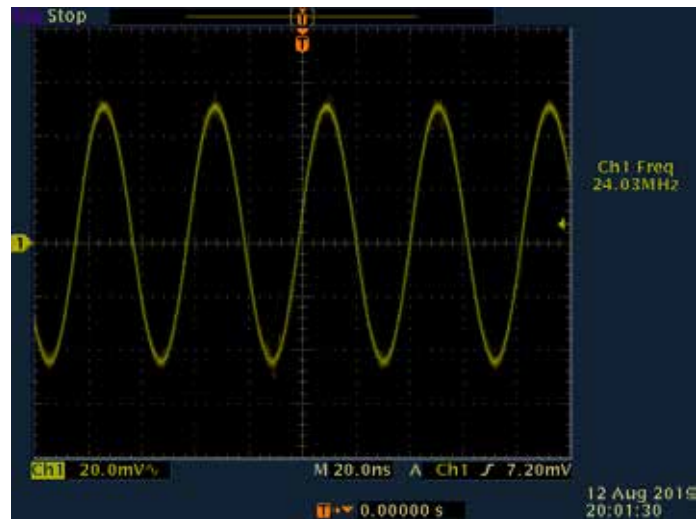
TROUBLE SHOOTING

Troubleshooting	
Power won't turn on, logo LEDs or LCD won't light	1.Please check the J3 cable between NMB board and PSU board if it 's connection loose
	2.Please check the voltage of pin 3 of J3 on NMB board, it should be +5Vdc.
	3.Please check the fuse(F1) if open on psu board
	4.Disconnect the cables between PSU and NCORE/NMB board, and then supply the AC(230V) to PSU board, check the voltage of C25 and C928, it should be 320Vdc and 33Vdc, at last please check voltage of J1(it should be 5Vdc).
	5.If above voltage are correct, please check impedance for the +5V_SB and +5VD of J3 on NMB board to GND, if the value is normal, and than reconnect the cables. Please check the voltage of pin2 of U39 on NMB board(it should be +3.3Vdc and check the frequency of Y4.
	6.If above voltages and frequency are correct, please reprogram the FW.
LCD won't light(but unit can turn on)	1.Please check the LCD Brightness setting
	2.Please check the voltage of J2 on LCD interface board, it should be 5Vdc.
	3.If has 5Vdc,please check the frequency of PWM_B/L pin, it should be ~78.13KHz.
	4.At last please check the LED -A of U7, it should be +8.3Vdc.
	5.If above voltages and frequency are correct, maybe the problem on the LCD module.
No display on LCD(but there are LCD backlight)	1.Please check the connection between NMB board and LCD interface board.(e.g. J24 on NMB board)
	2.Please check the voltage the pin 1 of J24(3.3V_LCD) and Pin2 of J24(3.3V_SB) on NMB board
No Trigger Out	1.Please check the voltage of the net +12_vcc(it is +12Vdc) and net trigger_out1(it is 3.3Vdc)
LCD won't light	1.Please reprogram the FW by Service jack. If it can't be solved, please check following items:
	2.Please check the Net +5V_SB (it's +5Vdc) and net+3.3V_SB of U39 on NMB board.
	3.Please check the frequency of Y4(it's 8MHz), check the voltage of pin51 of U40(net NMB_STBY, it's 0V),and the pin 5 of J3 is +3.7Vdc on NMB board, this pin is control the M2 relay ON and OFF. The PSU will supply main +5VD to NMB board if the M2 relay is ON.
No output at Power amp and Pre out(but Logo LEDs and LCD are light)	1.Please check the net HYPEX_ONOFF(it's 3.3V) on NMB board, this pin will go to Q1/Q4/Q2 and then control RL1 ON and OFF. This relay is control the AC main power to NCORE(AMP module)
	2.Please check the +/-22V on pin1 and pin2 on PSU board.
	3.Please check the +/-12Vdc on the U1 and U3 on PSU board
	4.Please check the voltage on the pin1 of J20(it is +12V) , pin 2 of J20(it is 3.3v) on SPK(speak output board)
	5.If above voltages are correct, please check the signal on DAC and PRE OUT section(please see the schematic of NMB for the PERIPH-ADC/PERIPH-DAC1/PERIPH-DAC2) and M10 PSU schematic.
Bridge is no output	1.Please check the voltage of the net +5VD(R16) is +5VDC on PSU board, the switch S2301 is ON, the net BRIDGE_MODE_DET is 5Vdc go to pin24 of U1 on NMB, and then the net HYPEX_L_RELAY is 3.3V to control the RL4 and let the power amp working on bridge mode.
Can't play the music with flash memory devices from USB A jack	1.Please check the voltage of the net #OC_VBUS_D4(it's 3.3V) and net USB_PWREN4(it's3.3V).
	2.Please check the voltage on the pin 1A of J5, it should be 5V.
	3.If above the voltages are correct, please check the frequency(Y107) is 24MHz when insert flash memory devices.

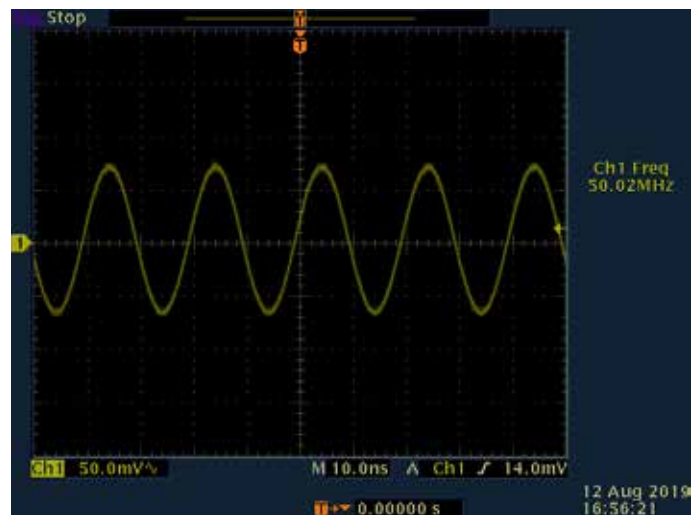
WAVEFORMS ON SYSTEM TEST & DEBUGGING

- Waveforms

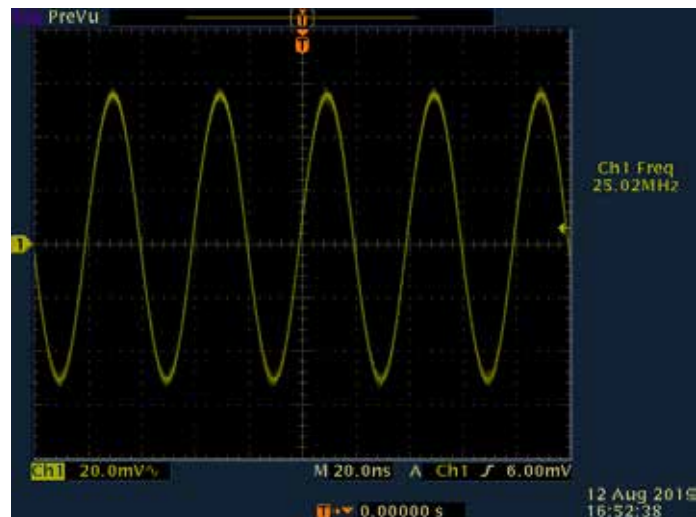
1. Crystal Y1(24MHz) on NMB board



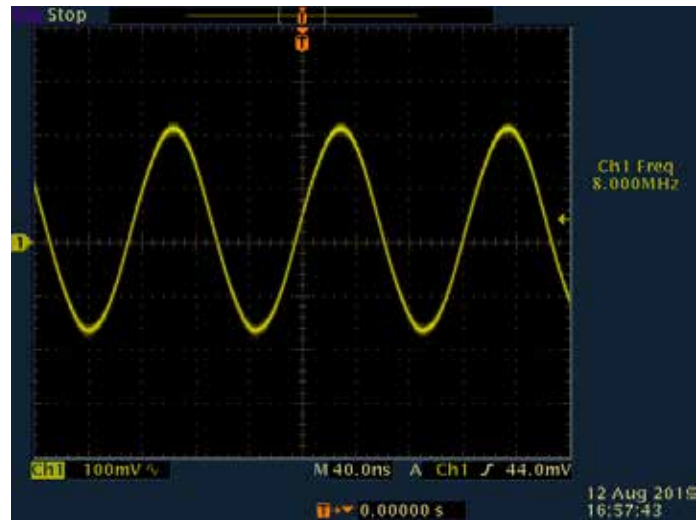
2. Crystal Y2(50MHz) on NMB board



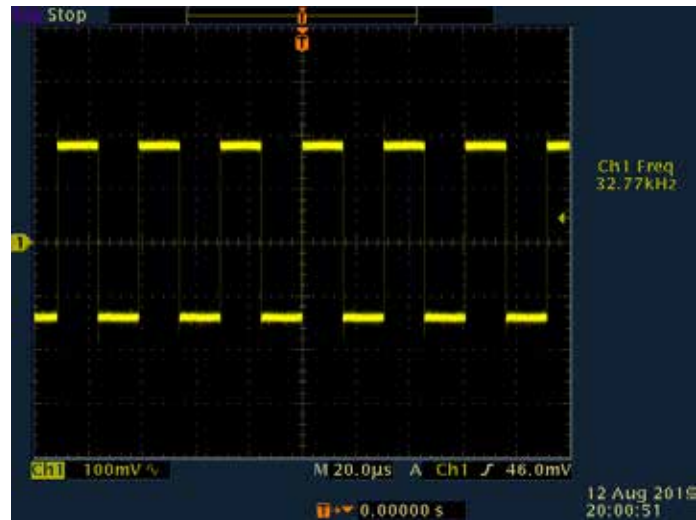
3. Crystal Y3(25MHz) on NMB board.



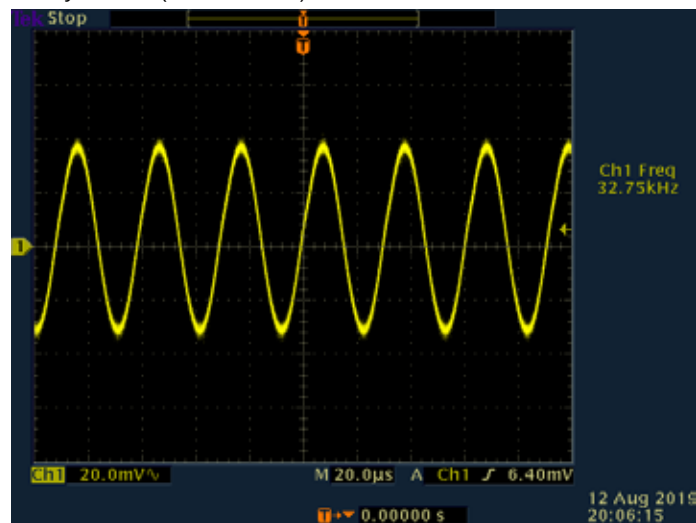
4. Crystal Y4(8MHz) on NMB board



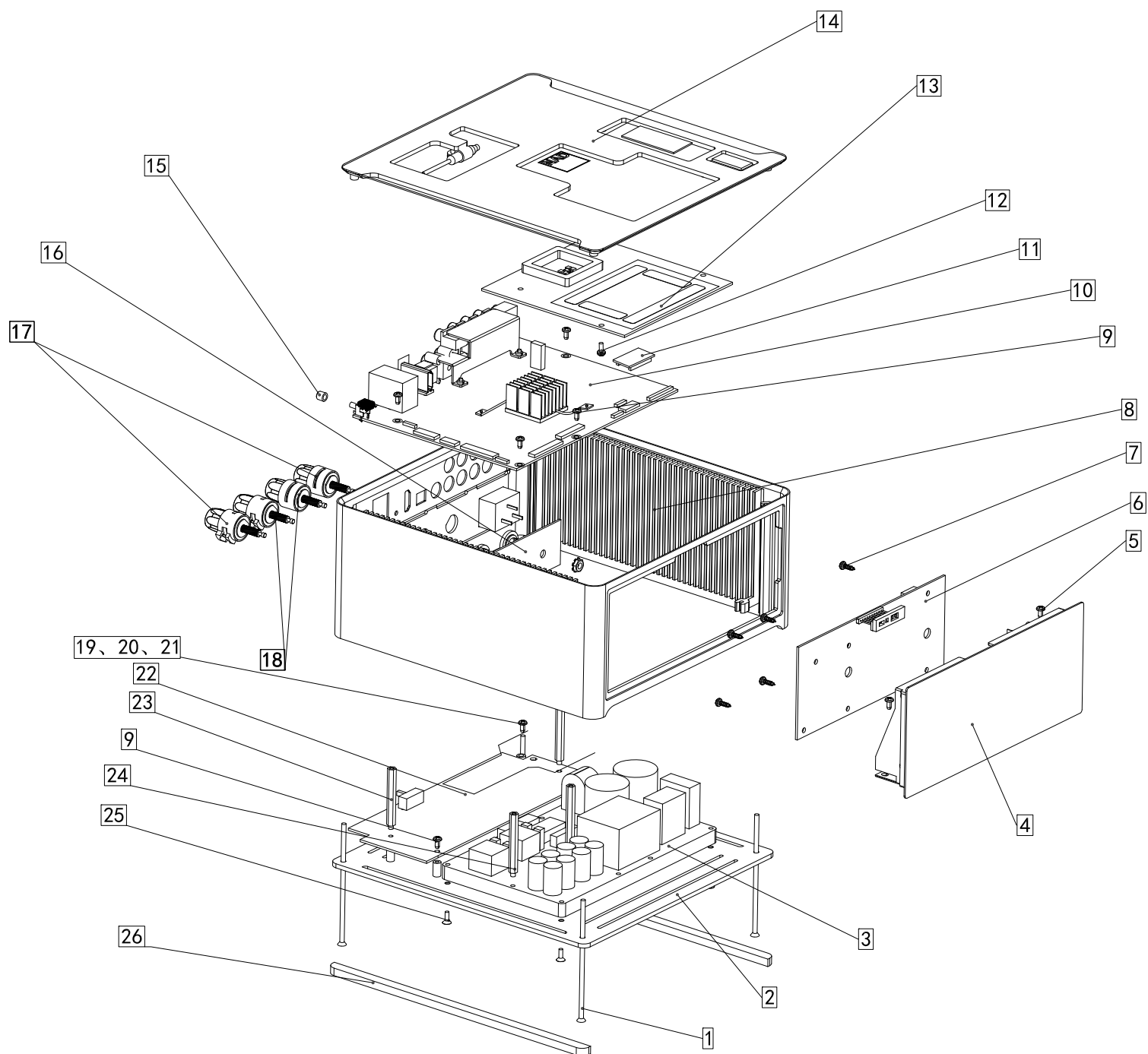
5. OSCILLATOR Y5(32.768KHz) on NMB board



6. Crystal Y6(32.768KHz) on NMB board



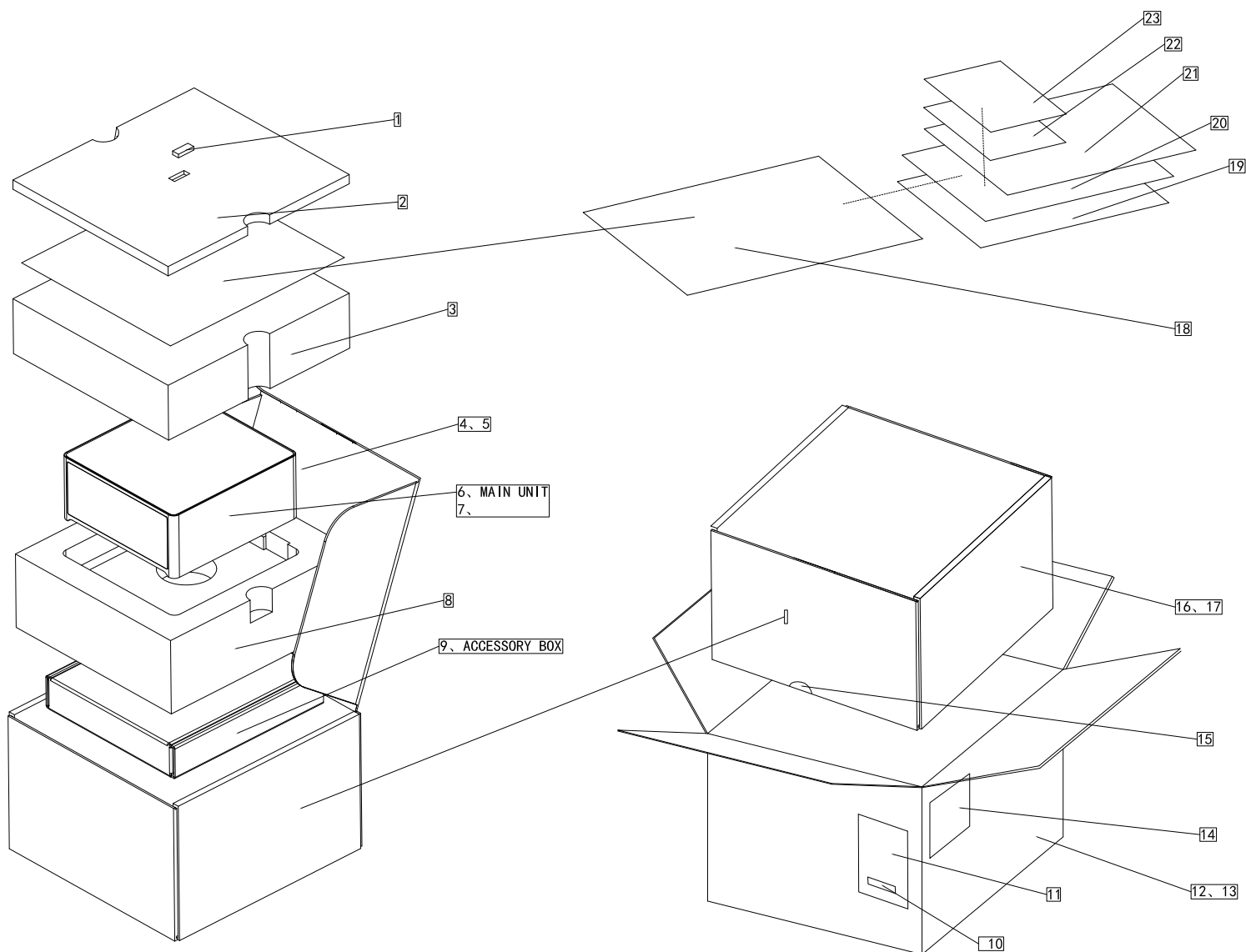
EXPLODED VIEW



EXPLODED VIEW PARTS LIST

ITEM	PART NO.	DESC.	QTY
1	1800300373-902000	SCREW M3X89MM THREAD=10MM NI WHITE HEXAGON RECESS TRUCS REV.A "ROHS"	4
2	0319000126-902000	BOTTOM COVER AL5052 T=3.0MM SILVER ANODIZED REV.A "ROHS"	1
3	0760000164-902000	AMPLIFIER MODULE	1
4	90SLCDTFTMD00-902	M10 LCD TFT MODULE WITH MOUNTING BRACKET	1
5	1800300101-000000	SCREW M3*6mm PAN POZI BLACK REV.A "ROHS"	2
6	90SM10INTERIR-902	M10 SP INTERFACE BOARD & IR BOARD ASSY "	1
7	1800290002-000000	SCREW M2.9x8mm S/T P/H ZINC BLK REV.A "ROHS"	6
8	90SM10HOUSING-902	M10 SP HOUSING FRAME ASSY "NAD"	1
9	1800300084-711000	SCREW M3*8mm PPH INT LCK W/WASHER SS REV.A "ROHS"	5
10	90SM10NMB0000-902	M10 SP NMB BOARD ASSY "NAD"	1
11	90SM10BT00000-902	M10 SP BLUETOOTH BOARD ASSY "NAD"	1
12	1800401005-902000	SCREW M3X6MM M/C +WASHER HEAD NI "ROHS"	4
13	90SM10MOTION0-902	M10 SP MOTION BOARD ASSY "NAD"	1
14	90SM10TOPASSY-902	M10 SP TOP COVER ASSY "NAD"	1
14.1	0804100004-902010	ANTENNA 2.4GHz L=160MM IPEX TERMINAL "ROHS" "FLY ELECTRONIC"	1
14.2	1705100032-902010	ANTENNA PCB DUAL BAND W/ IPEX TERMINAL L=170MM "ROHS" "VOXMICRO" WAPH-2DBI-17	1
14.3	1703100138-902000	ANTENNA NFC FLEX SQUARE 22*12MM "ROHS""DIANCHAIN"NFC102	1
15	0202100282-902000	STANBY BUTTON CAP BLK PLASTIC "HANSONG" M10 "ROHS"	1
16	90SM10SPEAKER-902	M10 SP SPEAKER BOARD ASSY "NAD"	1
17	1703000583-902000	BINDING POST 1P BLACK PANEL MOUNT GOLD PLATE "ROHS""NAD"(M10) 46-0-000148	2
18	1703000582-902000	BINDING POST 1P RED PANEL MOUNT GOLD PLATE "ROHS""NAD"(M10) 46-0-000147	2
19	1800401005-902000	SCREW M4 X 6MM M/C +WASHER HEAD NI PLT"ROHS"	1
20	0411000009-000000	LABEL GROUND DIA 10MM "ROHS"	1
21	1820401001-902000	WASHER SPRING I/D 4 X O/D 7 X 1 THK NI "ROHS"	1
22	90SM10PSUDCDC-902	M10 SP PSU DC-DC BOARD ASSY "NAD"	1
23	1800301103-902000	SCREW HEX M3*41.4 ZINC REV.A "ROHS"	2
24	1800500096-902000	HEX PILLAR 5X43MM-M3-8MM ZINC BLUE REV.A "ROHS"	2
25	1800301101-902000	SCREW M3X6MM NI WHITE HEXAGON RECESS TRUCS REV.A "ROHS"	4
26	0203000362-902000	FEET PAD RUBBER BLACK REV.A "ROHS"	2
.... END.			

PACKING DIAGRAM



PACKING PARTLIST

ITEM	PART NO.	DESCRIPTION	QTY
1	0761000035-902000	USB Flash Drive 16GB USB 2.0 "ROHS"	1
2	0541000061-902000	TOP COVER SPONGE BLACK 330X300X10MM REV.A M10 "ROHS"	1
3	0540000800-902000	EPE TOP M10 330X300X100mm REV.A "ROHS"	1
4	0550000121-902000	CLOTH BAG REV.A "ROHS" M10	1
5	0551000039-000000	DESSICANT BAG 10G iHeir Power Dryer H-10 "ROHS"	1
6	700M10BLK0000-902	SUB FINAL ASSY M10 BLACK CE "ROHS"	1
7	0204000031-902000	HOUSING FRAME PROTECTION FILM OPP M10 REV.A *ROHS*	1
8	0540000801-902000	EPE BOTTOM M10 330X300X70mm REV.A "ROHS"	1
9	90SM10ACCEKIT-902	M10 SP ACCESSORY KIT ASSY "NAD"	1
9.1	0540000802-902000	EPE ACCESSORY M10 280X250X50mm REV.A "ROHS"	1
9.2	0510001345-902000	ACCESSORY BOX M10 280X250X50mm REV.A /ARTWORK REV.A "ROHS"	1
9.3	0550000122-902000	CLEANING CLOTH REV.A "ROHS" M10	1
9.4	0604100005-902000	AC CORD W/ BAG UL/CSA 3PINS 13A 125V L=2M 16/3 60C CT-12 "ROHS" "I-SHENG" SP-301+IS-14	1
9.5	0604100006-902000	AC CORD W/ BAG CE 3 PINS 16A 250V L=2M H05VV-F 3G 1.0 CT-12 "ROHS" "I-SHENG" SP-022+IS-14	1
9.6	0510001346-902000	CLEANNING CLOTH PARER BOX M10 REV.A/ARTWORK REV.A "ROHS"	1
9.7	1500100184-902001	MICROPHONE CJXT748V2A "ROHS" PTECH	1
9.8	0531000002-902000	POLYBAG 05HDPE CORD 120 X 300 MM "ROHS"	1
9.9	700USBCM1B000-902	CASING ASSY USB CM1 BLACK "ROHS"	1
10	0411000723-902010	BLANK LABEL SILVER 53*10 M10 REV.B "ROHS"	6
11	0411000721-902020	SHIPPING LABEL 64*90*R3 WHITE M10 FOR ONE UINT REV.C FOR "ROHS"	2
12	0510001344-902000	MASTER CARTON K=K M10 352X322X232mm REV.A /ARTWORK REV.A "ROHS"	1
13	0411000499-902000	LABEL BOX SEAL "ROHS" BLS	2
14	0411000678-902010	LITHIUM BATTERY MARK 120x110mm R.1 "RoHS" NAD	1
15	0411000267-902000	LABEL OD30mm POLYESTER CLEAR "ROHS" SOVI	1
16	0510001343-902000	PRODUCK CARTON K-K M10 338X308X208mm REV.A /ARTWORK REV.A "ROHS"	1
17	0411000722-902000	PRODUCT BARCODE LABEL 42*29*R3 WHITE M10 REV.A "ROHS"	1
18	0531000005-902000	POLYBAG 05HDPE MANUAL 230 X 330MM W/WARNING "ROHS"	1
19	0431000105-902010	IMPORTANT SAFETY INSTRUCTION REV.B "ROHS" M10	1
20	0430000613-902000	QUICK START GUIDE A4 SIZE REV.A "ROHS" M10	1
21	0431000113-902000	INTERNET UPDATE GUIDELINES REV.A "ROHS" M10	1
22	0421000008-902000	CARD WARRANTY NAD M10 A5a210X145MMaSIZE R2 "ROHS"	1
23	0431000091-902000	DIRAC BROCHURE 157G "ROHS" T777V3	1
..... END.			

SERVICE MANUAL

M10

BLUOS STREAMING AMPLIFIER