



SERVICE MANUAL

1.2 GHz REPEATER

ID-RP1200VD

S-15803XZ-C1
October 2021

Icom Inc.

INTRODUCTION

This service manual describes the latest technical information for the following version of the ID-RP1200VD 1.2 GHz REPEATER at the time of publication.

Model	Version	Version number	Frequency range (MHz)	Maximum output power
ID-RP1200VD	EUR	#21	1240 ~ 1300	10 W
	USA	#31	1240 ~ 1300	

To upgrade quality, any electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

SERVICE CAUTION

NEVER connect the repeater to an AC outlet or to a DC power supply that outputs more than the specified voltage. This will ruin the repeater.

DO NOT expose the repeater to rain, snow or liquids.

DO NOT reverse the polarity of the DC power cable when directly connecting to the repeater.

DO NOT apply an RF signal of more than 20 dBm (100 mW) to the RX antenna connector. This could damage the repeater's front-end.



ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit Icom part number
2. Component name
3. Equipment model name and unit name
4. Quantity required

<ORDER EXAMPLE>

2710001060 FD128025HB ID-RP1200VD CHASSIS 5 pieces
4030023010 0402B104K160CT ID-RP1200VD MAIN 1 piece

REPAIR NOTES

1. Make sure that the problem is internal before disassembling the repeater.
2. **DO NOT** open the repeater until the repeater is disconnected from its power source.
3. **DO NOT** short any circuits or electronic parts.
4. **DO NOT** keep power ON for a long time when the repeater is defective.
5. **NEVER** directly transmit power into any test equipment such as Standard Signal Generator or a Sweep Generator, otherwise the RF power may damage them.
6. **ALWAYS** connect a 40 dB to 50 dB attenuator between the repeater and such test equipment.
7. **READ** the instructions of the test equipment thoroughly before connecting it to the repeater.

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SECTION 1

SPECIFICATIONS

■ GENERAL

• Operating frequency range:		1240 ~ 1300 MHz
• Type of emission:	ID	F2A
	FM	F3E
	DD	F1D
	DV	F7W
• Antenna impedance:		50 Ω nominal
• Antenna connector type:		N-Type
• Operating temperature range:		-10°C ~ +50°C, 14°F ~ +122°F
• Frequency stability:		± 0.5 ppm
• Frequency resolution:		1 Hz
• Transfer rate:	DV	4.8 kbps
	DD	128 kbps
• Current drain:	TX High	6.0 A or less
	TX Low	4.0 A or less
	Maximum AF output	1.8 A or less
• Power supply voltage:		13.8 V DC $\pm 15\%$ (negative ground)
• Dimensions:		482 (W) \times 88 (H) \times 275 (D) mm,
(Projections not included)		19 (W) \times 3.5 (H) \times 10.8 (D) inches
• Weight (Approximate):		6 kg, 13.2 lbs

■ TRANSMITTER

• Output power:		10 W (High), 1 W (Low)
• Modulation system:	FM	Digital reactance modulation
	DV	Digital GMSK modulation
	DD	Digital Quadrature modulation
• Maximum frequency deviation:	FM narrow	± 2.5 kHz
	FM wide	± 5.0 kHz
• Occupied bandwidth:	DV	6 kHz or less
	DD	150 kHz or less
• Spurious emissions:	Harmonics	-53 dB or less
	Out-of-band emission	-50 dB or less

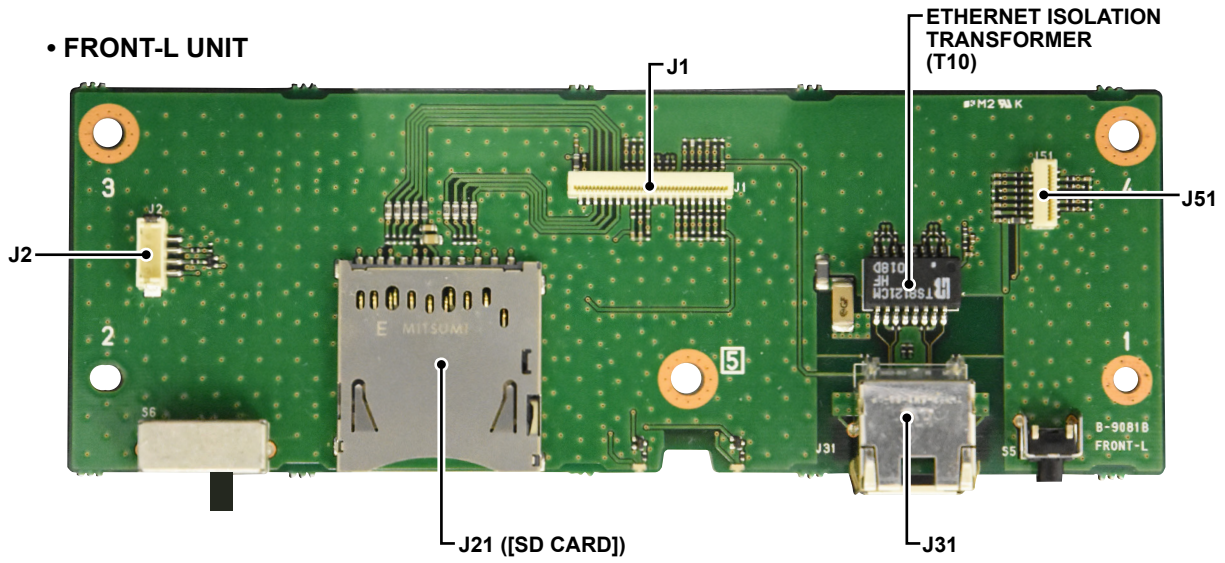
■ RECEIVER

• Receive system:		Superheterodyne
• Sensitivity:	FM	-15 dB μ V (0.18 μ V) PD or less (At 12 dB SINAD)
	DV	-13 dB μ V (0.22 μ V) PD or less (At 1% BER (PN9))
	DD	4 dB μ V (1.58 μ V) PD or less (At 1% BER (PN9))
• Selectivity:	FM (BW: 15 kHz)	20 kHz or less/-50 dB
	FM (BW: 7 kHz)	10 kHz or less/-50 dB
	DV	-40 dB or less (Channel spacing=12.5 kHz)
	DD	-40 dB or less (Channel spacing=300 kHz)
• Intermodulation:		-50 dB or less
• Receive spurious:		2 nW (-57 dBm) or less
• Spurious & image rejection:		50 dB or more
• Intermediate frequencies		311 ~ 371 MHz
• Audio output power:		2.0 W or more (1 kHz, 10% distortion into an 8 Ω load)
• AF output impedance:		8 Ω

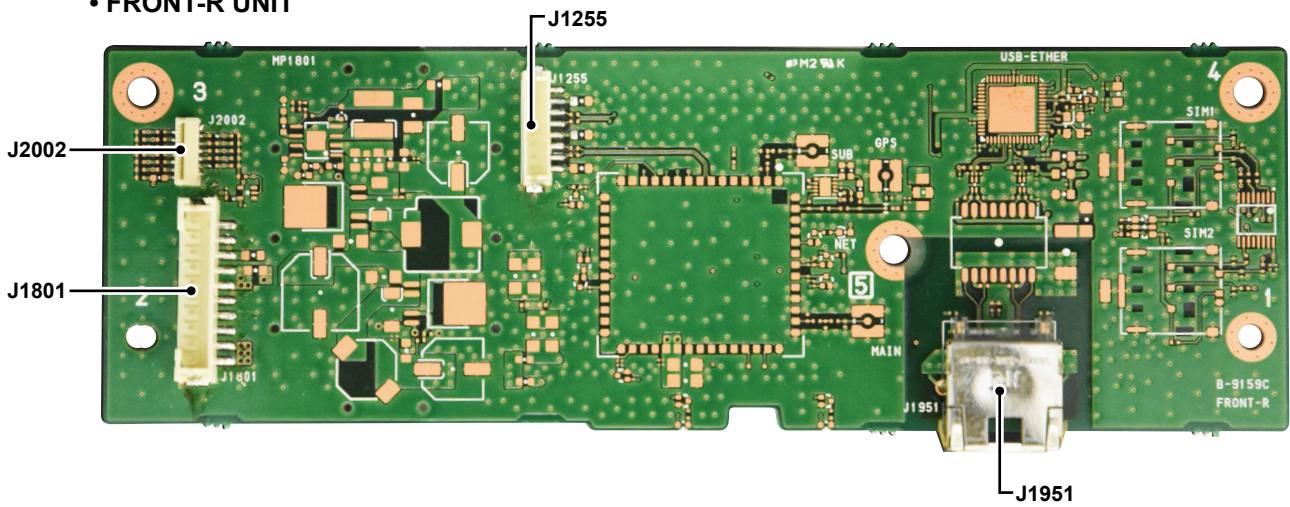
① Measurements made without an antenna.

① All stated specifications are subject to change without notice or obligation.

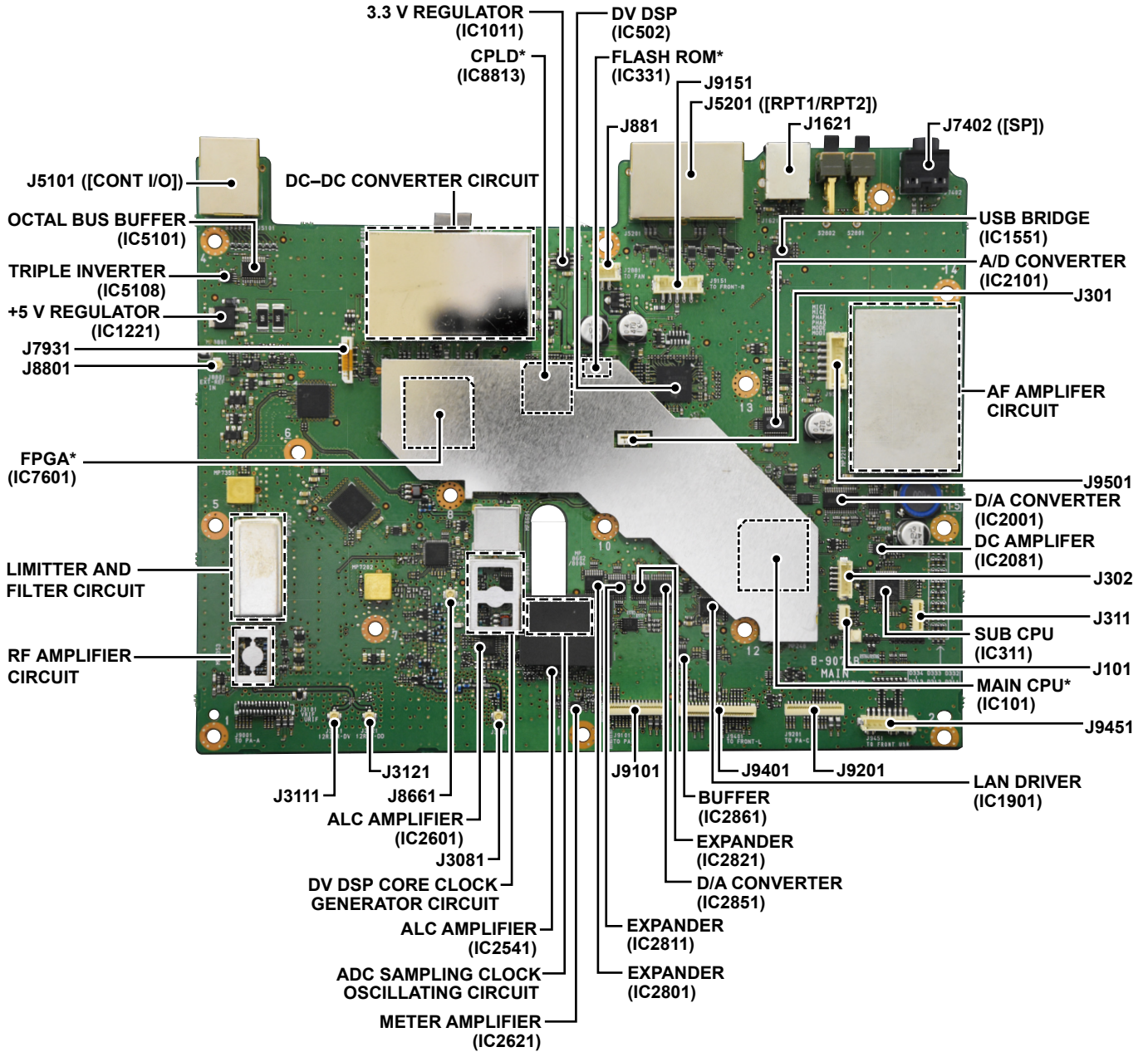
• FRONT-L UNIT



• FRONT-R UNIT

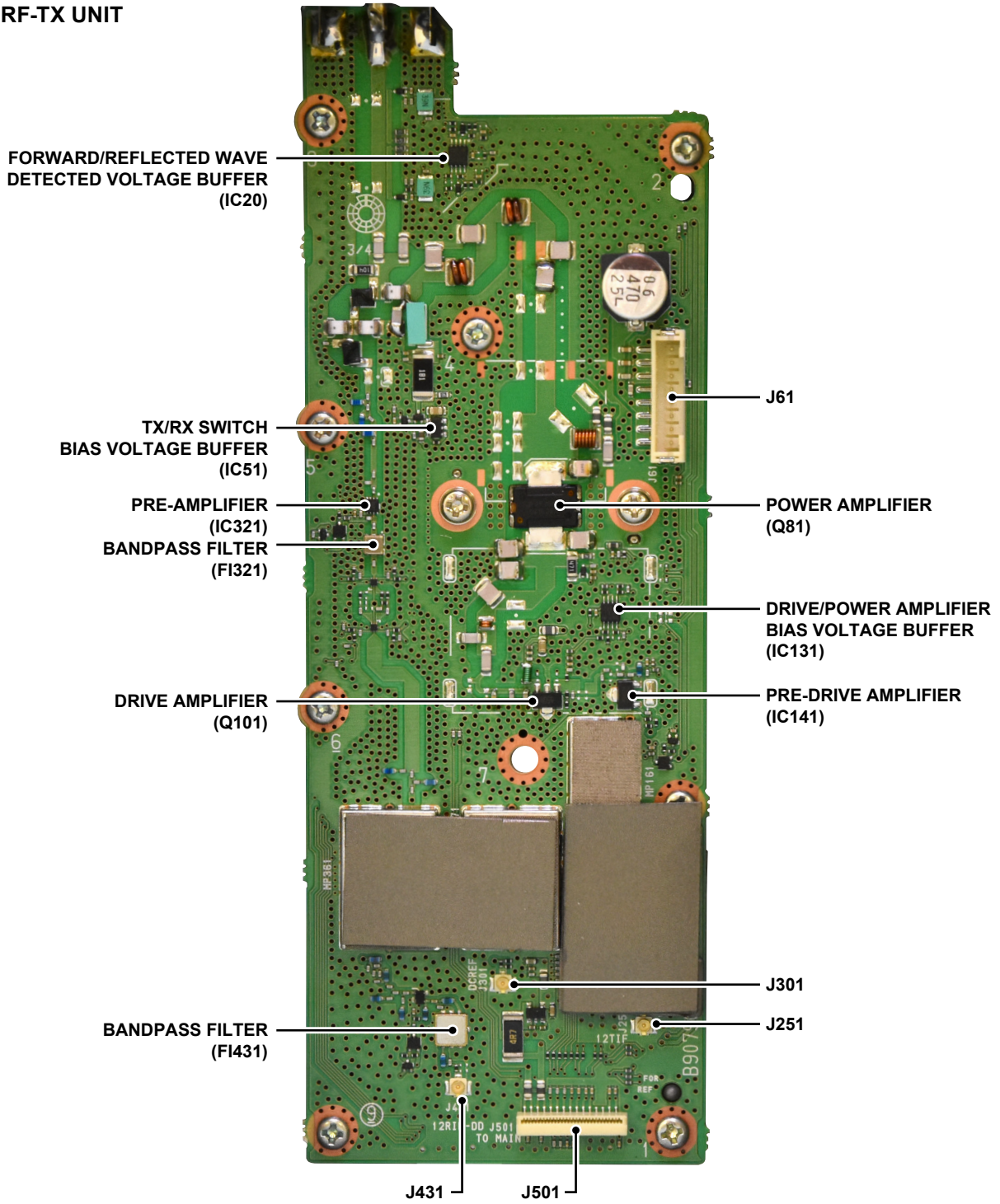


• MAIN UNIT

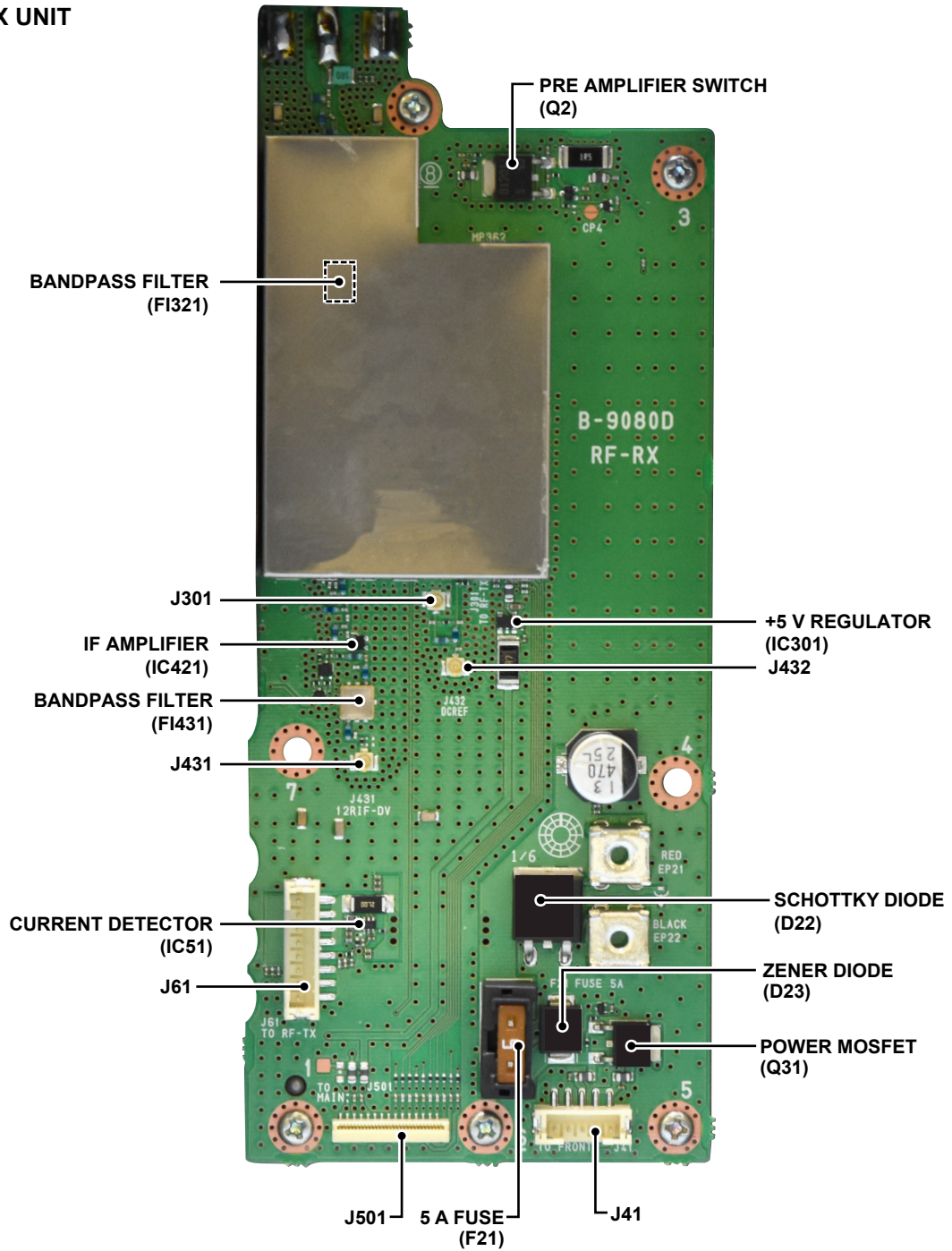


*Mounted under the shield cover

• RF-TX UNIT



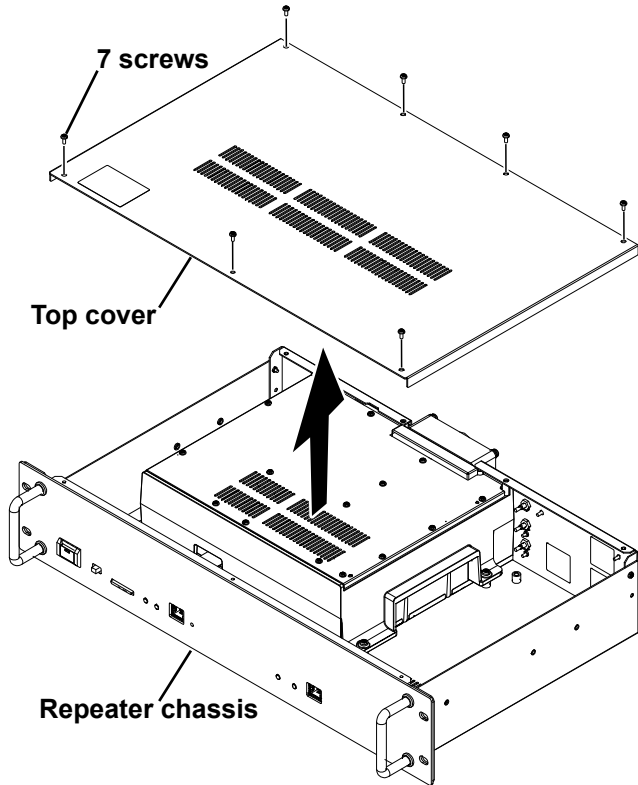
• RF-RX UNIT



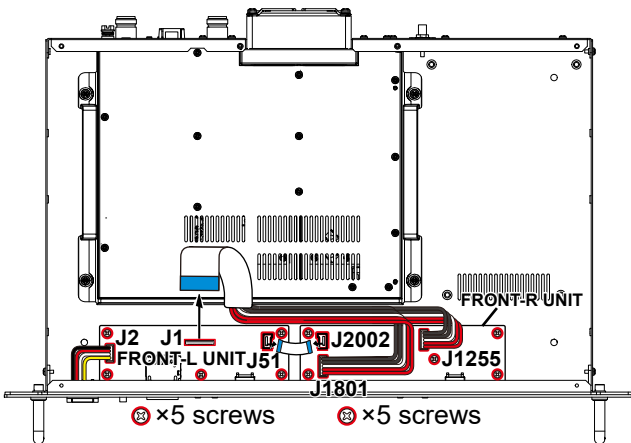
SECTION 3 DISASSEMBLY INSTRUCTION

1. Removing the FRONT-R and FRONT-L UNITS

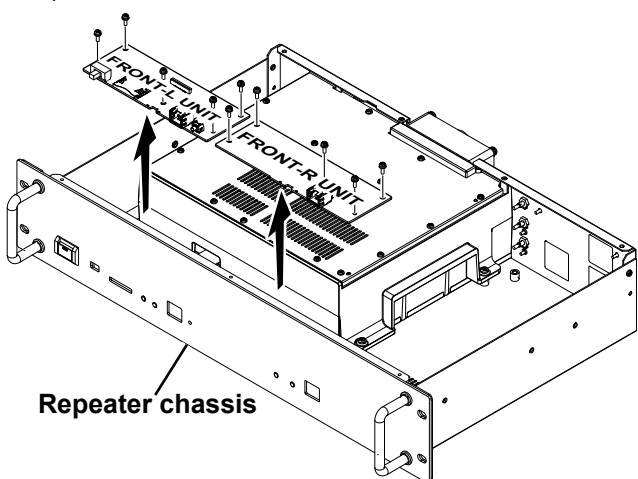
1) Remove the 7 screws from the top cover, then remove the top cover from the repeater chassis.



2) Remove the 10 screws and the 5 cables from the FRONT-R and FRONT-L UNITS.

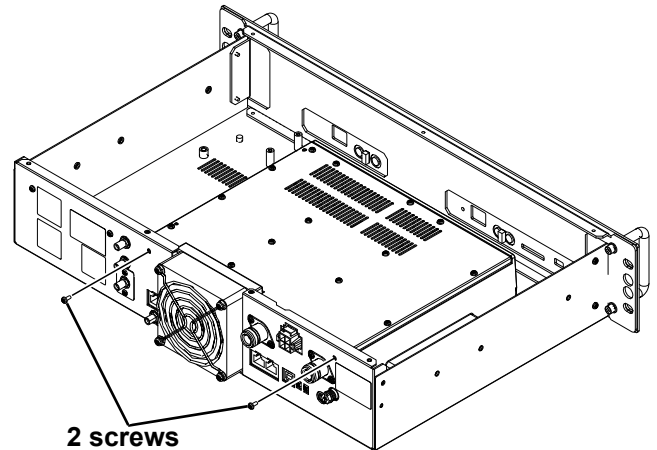


3) Remove the FRONT-R and FRONT-L UNITS from the repeater chassis.

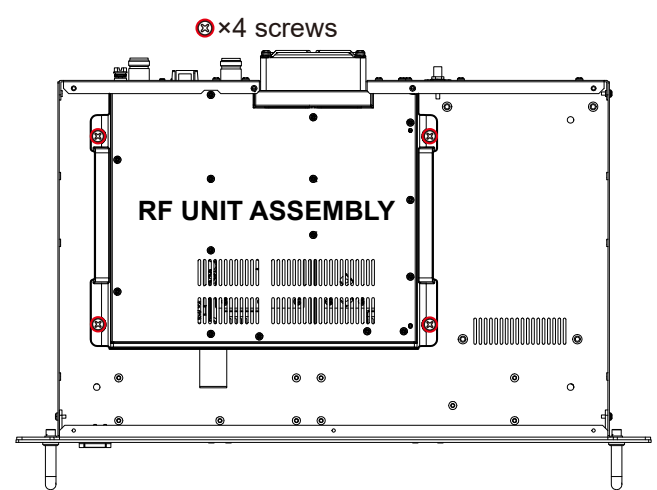


2. Removing the RF UNIT ASSEMBLY

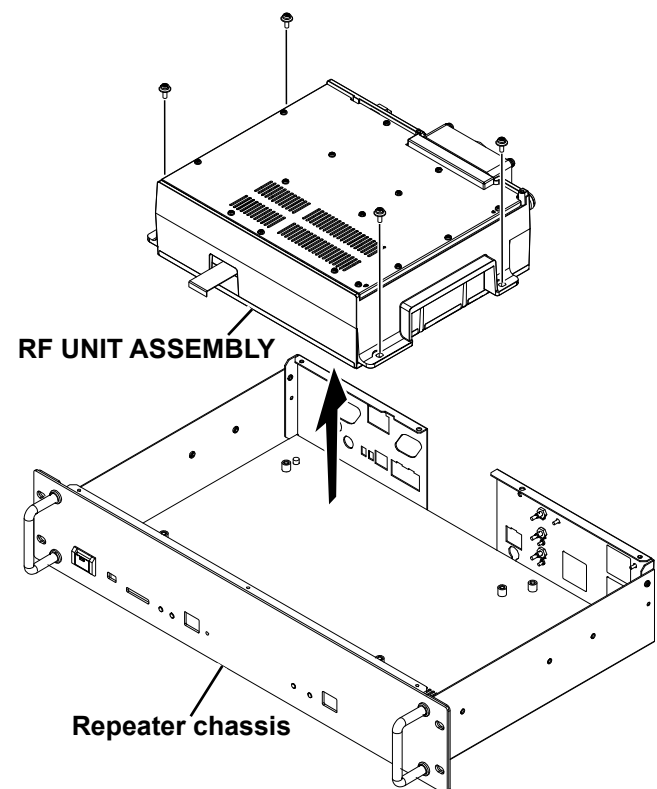
1) Remove the 2 screws from the rear panel of the repeater chassis.



2) Remove the 4 screws from the RF UNIT ASSEMBLY.

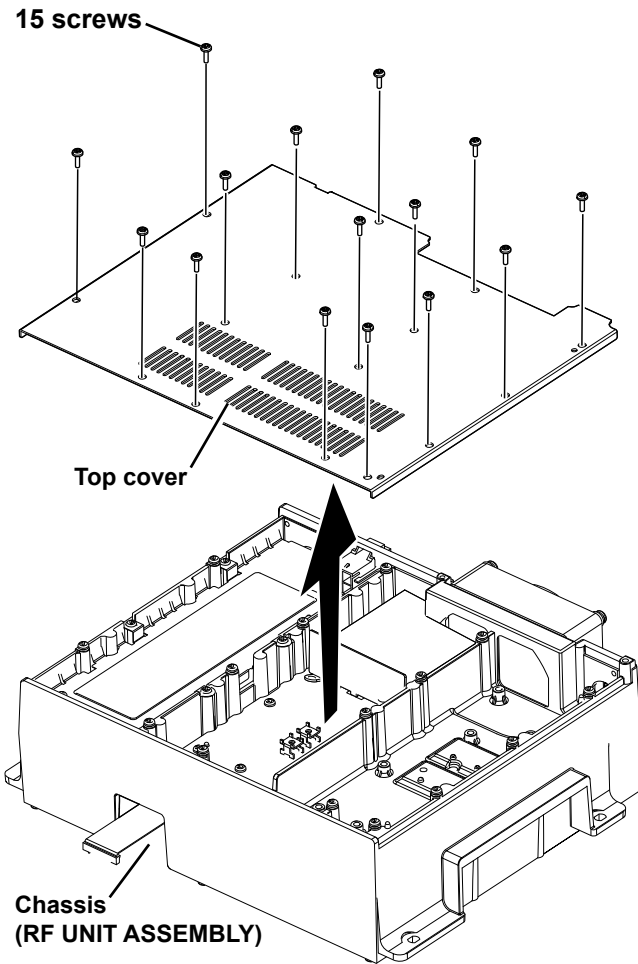


3) Remove the RF UNIT ASSEMBLY from the repeater chassis.

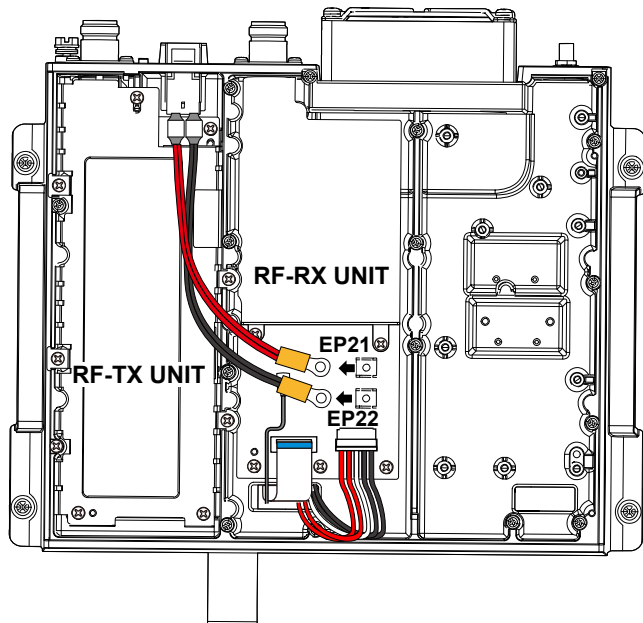


3. Removing the RF-RX and RF-TX UNITS

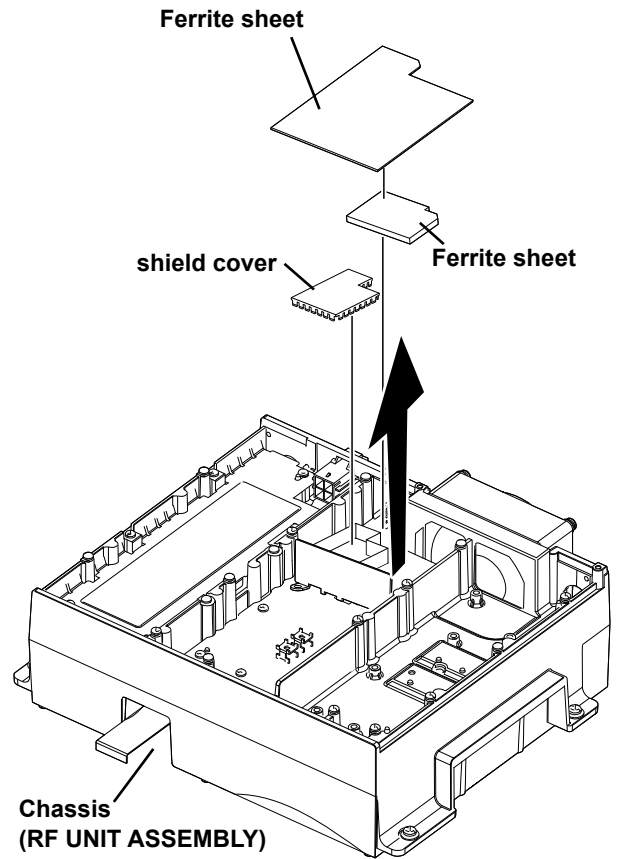
1) Remove the 15 screws from the top cover, then remove it.



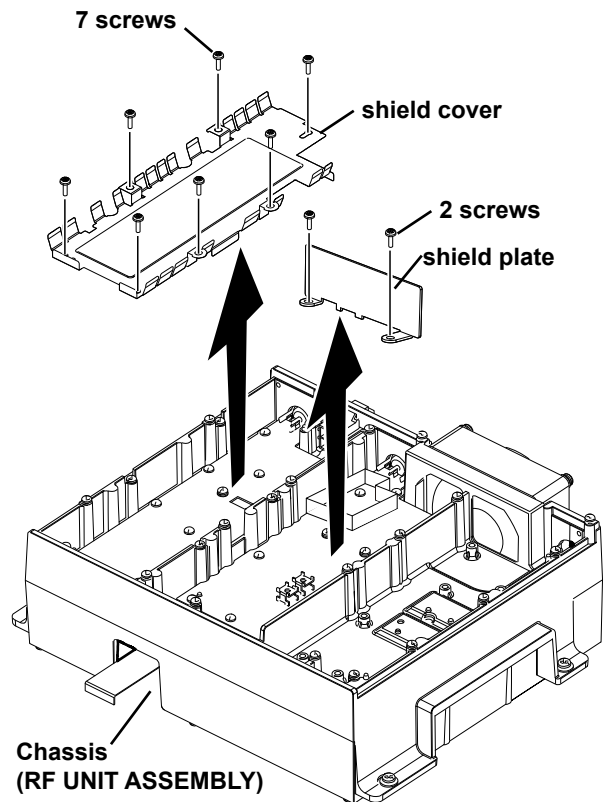
2) Remove the DC cables from the RF-TX UNIT.



3) Remove the 2 ferrite sheets and shield cover from the RF-RX UNIT.



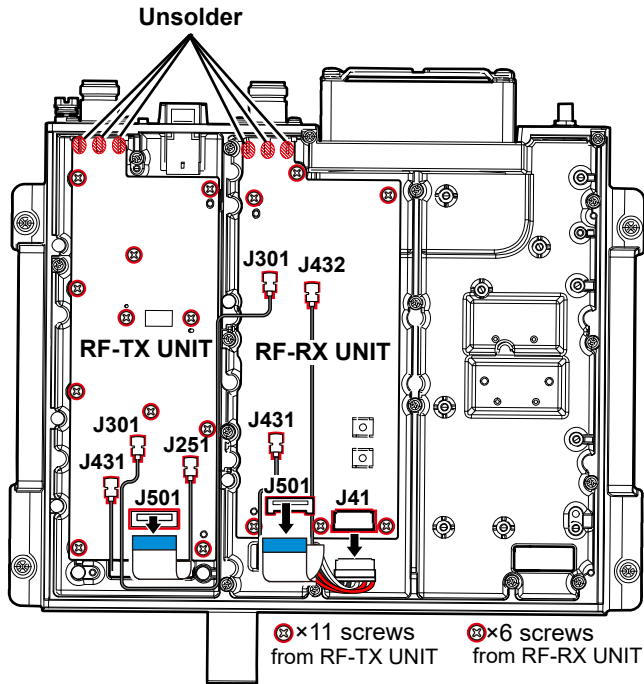
4) Remove the 9 screws from the shield cover and shield plate, then remove it.



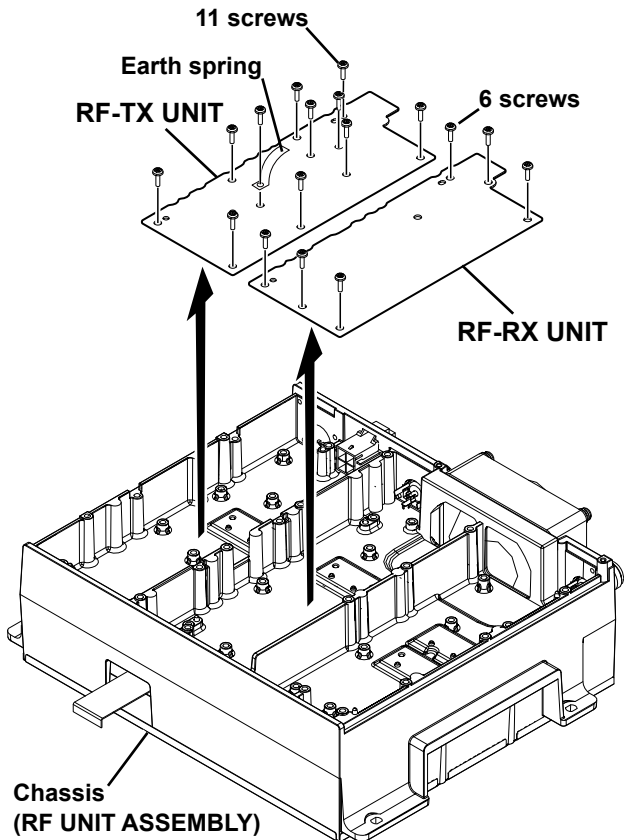
(Continued on the next page)

3. Removing the RF-RX and RF-TX UNITS (Continued)

5) Remove the 17 screws and disconnect the cables from the RF-RX and RF-TX UNITS, and unsolder the antenna connectors.

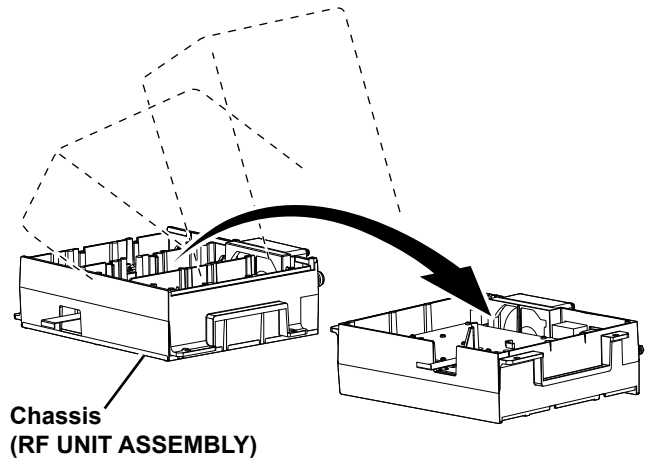


6) Remove the RF-RX and RF-TX UNITS from the chassis.

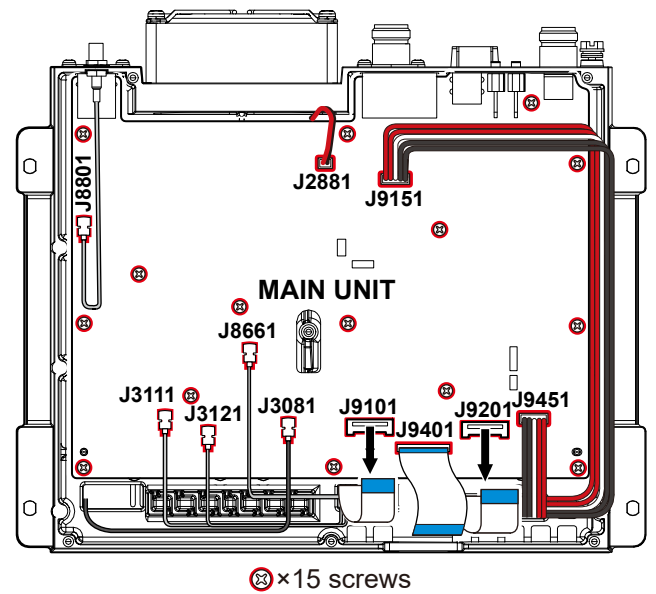


4. Removing the MAIN UNIT

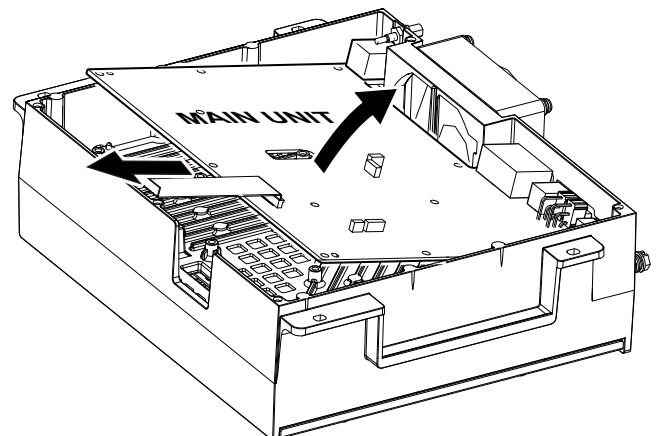
1) Turn the RF UNIT ASSEMBLY upside down.



2) Remove the 15 screws, and disconnect the 8 cables from the MAIN UNIT.



3) Remove the MAIN UNIT from the chassis in the direction of the arrow.

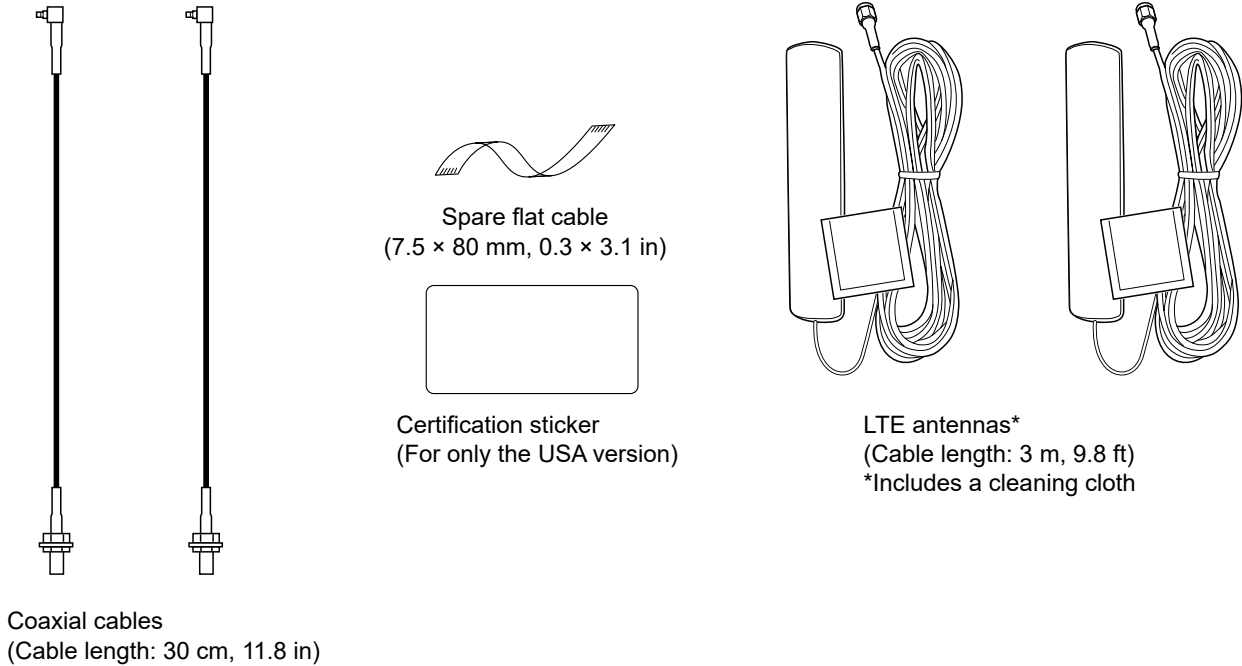


SECTION 4 OPTIONAL PRODUCT INSTALLATION

NOTE: For the latest information, refer to the UX-262 SETTING GUIDE that is available from the Extranet.

4-1 INSTALLING THE LTE MODULE (UX-262)

■ SUPPLIED ACCESSORIES



NOTE: Place the repeater within reach of the antenna cables to paste the LTE antennas on a window glass.

About the certification sticker:

For the USA version, paste the supplied certification sticker on the repeater case to show that the repeater is certified.

CAUTION: DO NOT paste the sticker where it blocks vents on the case. This may damage the repeater.

D Preparation

Carefully check your repeater settings before installing the LTE unit.

The system with a single repeater:

Confirm the repeater is connected to a Gateway Server.

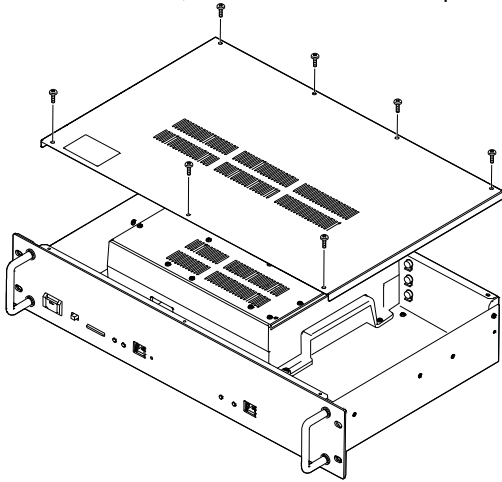
The system with multiple repeaters:

Install the unit to a repeater that is connected to a Gateway Server.

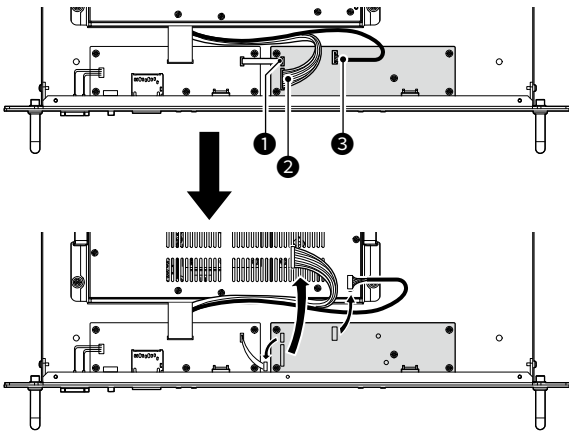
Connect the gateway server to the ID-RP1200VD in DD mode if it is included in your system. The system will not work if it is connected to other repeaters.

■ INSTALLING THE UNIT

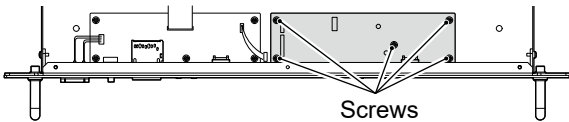
1) Remove the screws, and then remove the top cover.



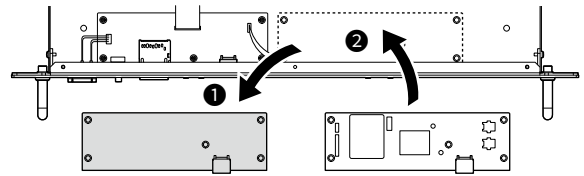
2) Carefully remove three cables (①②③), as shown below.



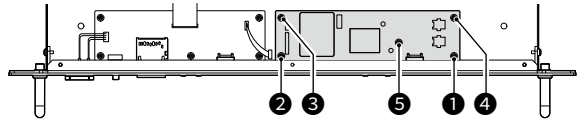
3) Remove the five screws.



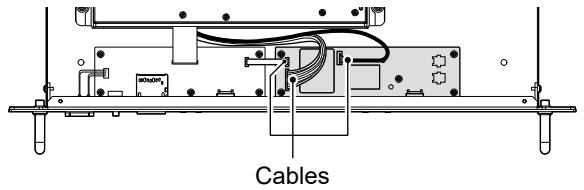
4) Remove the PCB (FRONT-R UNIT: ①), and then attach the unit (②).



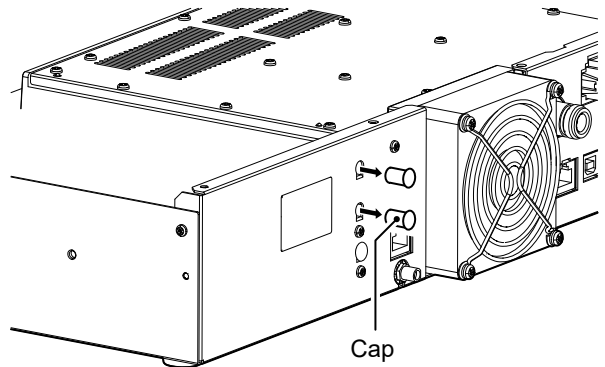
5) Secure the unit using the screws removed in step 3.
① Firmly tighten the screws in the order shown below.



6) Reattach the cables removed in step 2.



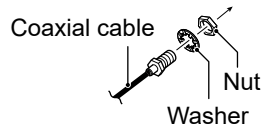
7) Remove the two caps on the rear panel, as shown below.



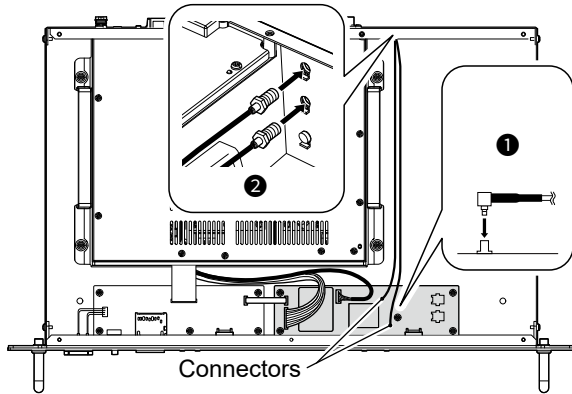
(Continued on the next page)

■ INSTALLING THE UNIT (CONTINUED)

- 8) Remove the nuts and washers from the straight connectors on the supplied coaxial cables.

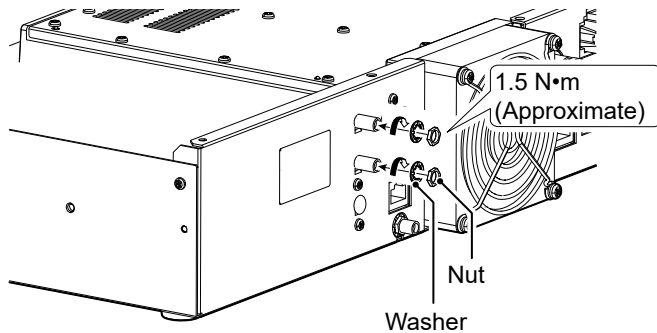


- 9) Attach one end of the cables to the connectors on the unit (❶), and then attach the other ends through the holes in the repeater's rear panel (❷) where the caps were located.



- 10) Secure the coaxial cables to the rear panel using the nuts and washers removed in step 8.

❶ Torque the nuts to approximately 1.5 N•m.



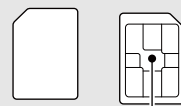
■ INSTALLING THE SIM CARD

Install valid SIM cards, as shown below.

Caution for handling the nanoSIM cards:

- To avoid damage from static discharge, touch a metal object such as a doorknob or a metal window sash to remove any static electricity that may be accumulated in your body before handling the nanoSIM cards.
- Never directly touch the IC part (metal sections) of the nanoSIM, or the unit's contacts connected to the nanoSIM card, with your fingers.
- Observe the proper direction when installing the card.
- Always carefully install and remove the card.
- Do not apply too much force to the slot cover when removing or replacing a nanoSIM card. If it is bent or damaged, it will not be usable.

① Install the nanoSIM card to the SIM1 slot when using the unit with a single nanoSIM card.

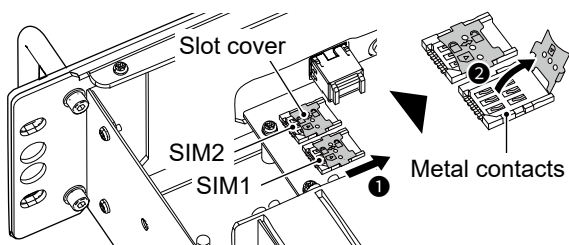


IC (Metal sections)

1) Carefully slide the slot cover in the direction of the arrow (①), and then open it (②).

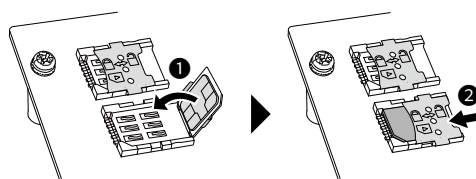
① Do not apply too much force to the slot cover.

② Do not touch the metal contacts of the slot with your finger.



3) Close the slot cover (①), and then slide it in the direction of the arrow until it locks (②).

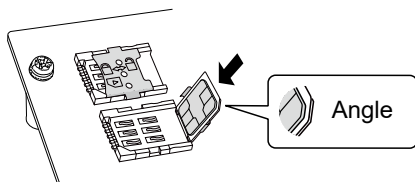
4) Do not apply too much force to the slot cover.



5) If you install a second nanoSIM card, repeat steps 1 ~ 3.


6) Reattach the top cover that you removed on page 2.

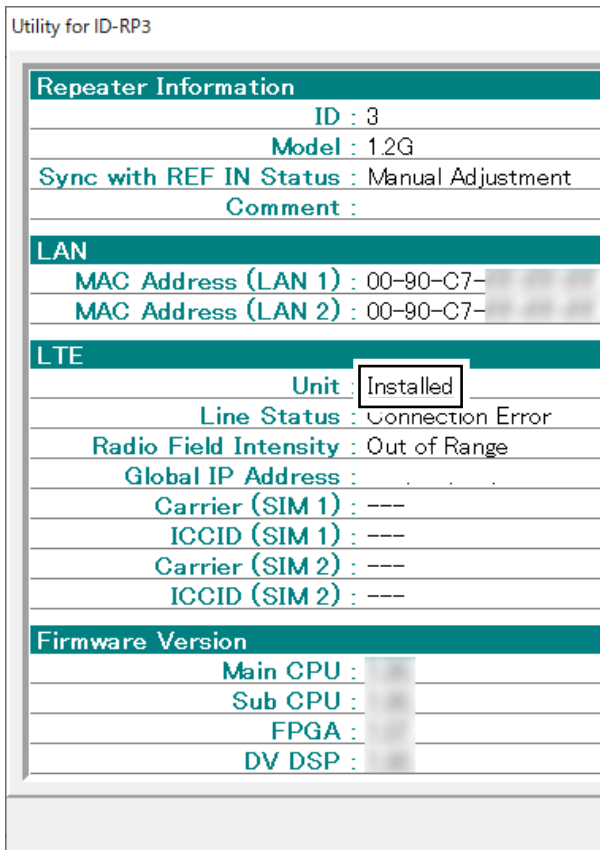
2) Observe the angled corner of the nanoSIM card and install the card as shown below.



■ VERIFICATION

Use the Utility for ID-RP3 to verify that the repeater recognizes the installed unit.

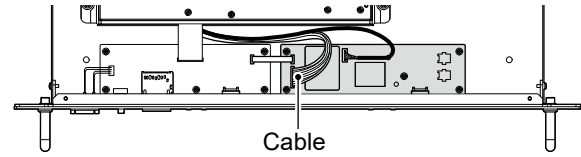
- 1) Connect the PC to the repeater with a unit
 - ① See the instruction manual included with the repeater for details of USB driver settings, utility installation, and connection instructions.
- 2) Turn ON the repeater.
- 3) Open the Utility.
- 4) Select the COM port that the USB cable is connected to.
- 5) Click “- ① “Connection Error” is displayed in “Line Status” until you complete the LTE settings.



D Troubleshooting

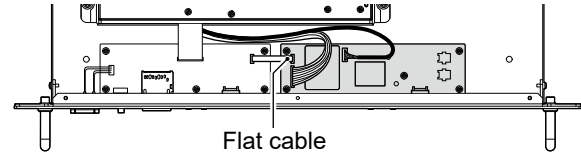
The repeater does not turn ON:

Confirm the cable shown below is properly attached.



“None” is displayed in “Unit”:

Confirm the flat cable shown below is properly attached.



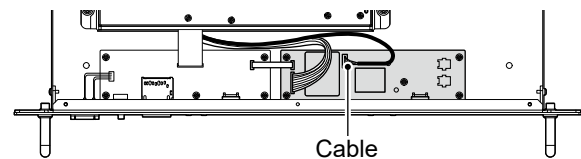
“Connection Error” is displayed in “Line Status”:

Check after you complete the LTE settings described in section 3.

If the problem is not solved, confirm the cable shown below is properly attached.

① You must complete the LTE settings before checking “Line Status” and “Radio Field Intensity.”

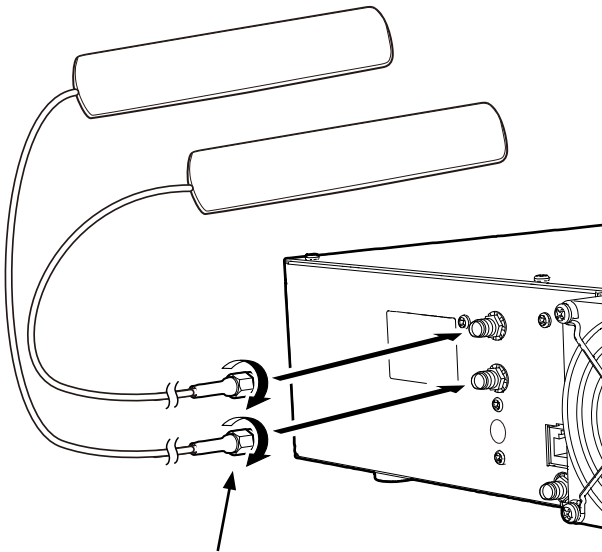
① You can also check the status on the repeater’s front panel. See the instruction manual included with the repeater for details.



■ PLACING ANTENNAS

D Attaching antennas

Attach the supplied antennas as shown below.

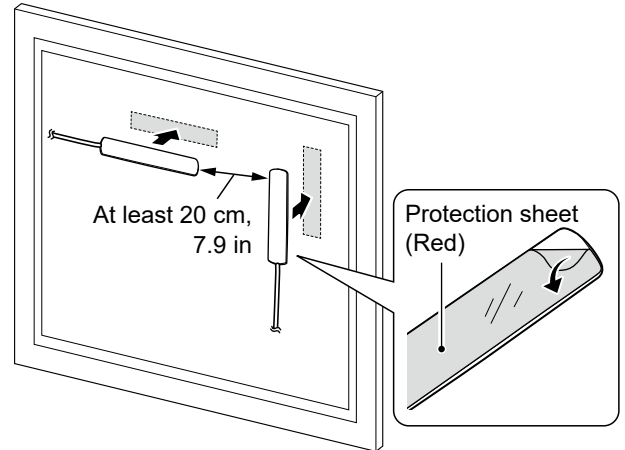


Firmly secure by turning the nut in the direction of the arrow.

D Securing antennas

Remove the protection sheet on the antenna surface, and then paste antennas on the window glass.

- ① Clean the window glass using the supplied cleaning cloth before pasting.
- ① Place the two antennas at a distance of at least 20 cm, 7.9 in apart.
- ① Relocate the antennas if the repeater has a poor connection.



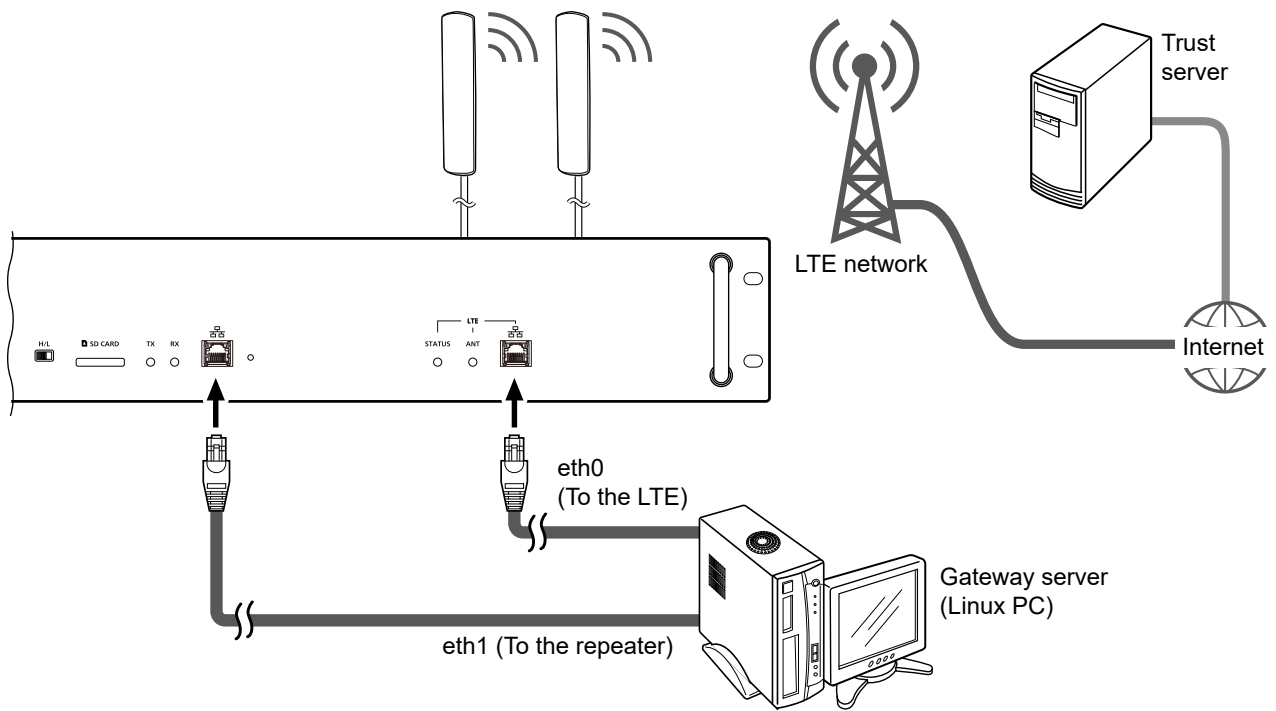
CAUTION:

- **DO NOT** use other than the supplied antennas.
- **DO NOT** forcibly bend or pull the coaxial cables. This may damage the cables.
- **DO NOT** step on the coaxial cables, place heavy objects on them, or pinch them. This may damage the cables.
- **DO NOT** touch the coaxial cables with wet hands. This may damage the cables.
- **DO NOT** apply too much force to the coaxial cable when removing it. This may damage the cables.

4-2 CONNECTING A SIMPLE GATEWAY

■ USING A GATEWAY SERVER

Connect a Gateway server to the repeater to use an LTE network.

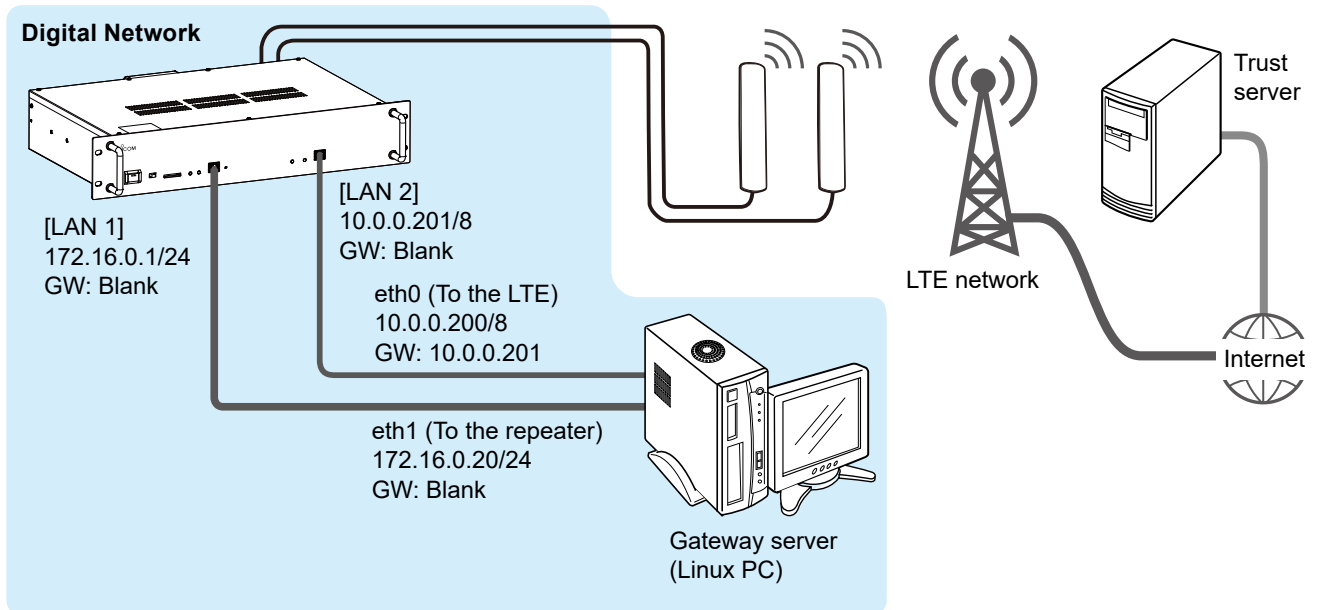


4-3 REPEATER SETTINGS

This section describes about the required IP address and LTE settings in the Utility for ID-RP3.

① The IP addresses shown in the figure are examples. Set appropriate IP addresses according to your environment.

■ USING A GATEWAY SERVER



■ UTILITY FOR ID-RP3 SETTINGS (COMMON)

① If your repeater is already in operation online, skip this topic.

The settings shown below are the minimum required to use the Digital Repeater function. See the Utility for ID-RP3 HELP for more details for other setting items.

D RX Frequency/TX Frequency

Enter the repeater's receive/transmission frequency.

- ① "X" is displayed when frequencies are set to default.
- ① Confirm the entered frequencies are assigned to your repeater.

DV mode:

Common Setting	
Frequency	
RX Frequency	X
TX Frequency	X
TX/RX Frequency (DD)	—

DD mode:

Confirm the [DV/DD] switch on the repeater's rear panel is set to "DD."

Common Setting	
Frequency	
RX Frequency	—
TX Frequency	
TX/RX Frequency (DD)	X

D Mode

Select the repeater's operating mode.

- ① Not selectable when configuring the DD mode ID-RP1200VD.

Common Setting	
Mode	
Mode	DV

D Call Sign

Enter the repeater call sign assigned to it.

- ① An Emergency Stop command provided through the LAN is usable by setting the call sign.

Common Setting	
Repeater Call Sign	
Call Sign	

D Squelch Level

Enter the squelch level at which the squelch just opens, and the repeater starts operating.

Common Setting	
Squelch	
Squelch Level	77 (30%)

D Selecting the output power

Select the output power using the [H/L] switch on the repeater's front panel.

■ UTILITY FOR ID-RP3 SETTINGS (GATEWAY SETTINGS)

① If your repeater is already in operation online, skip this topic.

Settings shown below are required if operating the repeater as a Gateway.

D Using a Gateway server

- 1) Select "Use Gateway Server" in "Gateway" (❶).
① The option "Use Simple gateway" is usable only in Japan.
- 2) Enter the IP address of the port to the repeater (❷).
① Enter the IP address assigned by your environment.
- 3) Enter the UDP port number (❸).
① Confirm the UDP port number is not a duplicate if using the Monitor function on the same IP address.

Digital Repeater		
Gateway		
Gateway	Use Gateway Server	❶
Gateway Server		
IP Address	172. 16. 0. 20	❷
UDP Port	20000	❸
Monitor		
Monitor	Not Used	
IP Address	172. 16. 0. 20	
UDP Port	21000	

TIP: Using the Gateway function with multiple repeaters

Only one repeater is settable as a Gateway.

① "✖" is displayed if multiple repeaters are set as Gateways.

If the ID-RP1200VD in DD mode is included, set it as a Gateway.

① "✖" is displayed if another repeater is set as a Gateway

Digital Repeater		
Gateway	Not Used	Use Gateway Server
Gateway Server		
IP Address	172. 16. 0. 20	
UDP Port	20000	
Monitor		
Monitor	Not Used	
IP Address	172. 16. 0. 20	
UDP Port	21000	

UHF (ID=2) | 1.2G (ID=3)

■ UTILITY FOR ID-RP3 SETTINGS (NETWORK SETTINGS)

D Using a Gateway server

Using the DHCP Client function:

Automatically gets the repeater IP address and Subnet mask from the connected router.

- Select "ON" in "DHCP."

Network	
LAN 1	
DHCP	ON
IP Address	172.16.0.1
Subnet Mask	255.255.255.0 (24bit)
Default Gateway	. . .
Primary DNS Server	. . .
Secondary DNS Server	. . .

D Time Settings

Turn the Network Time Protocol (NTP) function ON or OFF. If the NTP function is "ON," the repeater gets the exact time through the network.

- ① The setting is required for giving a file-generating date when saving a setting file (icf).
- ① Use the default NTP server address if possible.

Network	
Time Set	
NTP Function	ON
NTP Server Address	time.nist.gov
UTC Offset	0:00

Manually entering the repeater IP address and Subnet mask:

- 1) Select "OFF" in "DHCP" (①).
- 2) Enter the fixed IP address and Subnet Mask (② ③).
 - ① If connecting to a router that has the DHCP Server function enabled, set the IP address that is outside the range of the automatically assigned one.
 - ① If you connect to other networks through the repeater, enter the same IP address as the target network.
- 3) Confirm nothing is entered in "Default Gateway" (④).

Network	
LAN 1	
DHCP	OFF ①
IP Address	172.16.0.1 ②
Subnet Mask	255.255.255.0 (24bit) ③
Default Gateway	. . . ④
Primary DNS Server	. . .
Secondary DNS Server	. . .

■ LTE SETTINGS

D Using a Gateway server

- 1) Select "OFF" in "DHCP" (❶).
- 2) Enter the fixed IP address and Subnet Mask (❷ ❸).

LTE	
	UHF (ID=2)
LAN 2	
DHCP	OFF ❶
IP Address	10. 0. 0.201 ❷
Subnet Mask	255. 0. 0. 0 (8bit) ❸
Default Gateway	. . .

D LTE settings

- Select "ON" in "LTE Function" (❶), and then select a SIM card slot with a valid SIM card in it (❷).
- ❶ If "ON" is selected in "SIM Auto Switch," the repeater switches to the other SIM card slot if the selected SIM card slot goes offline for a certain period of time.

LTE	
LTE	
LTE Function	ON ❶
SIM Select	SIM1 ❷
SIM Auto Switch	OFF
Primary Recovery Time	OFF

D SIM card settings

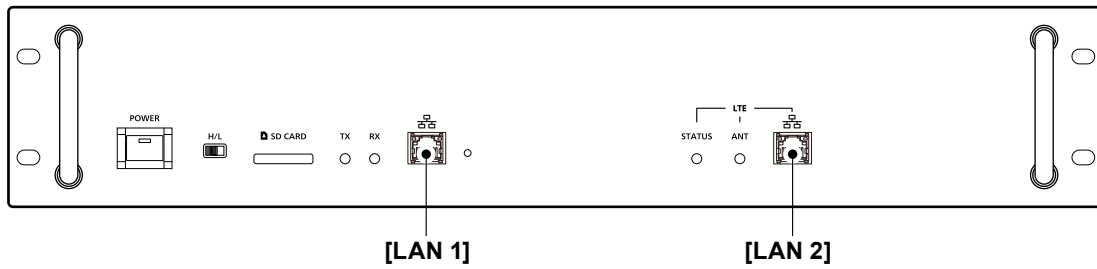
Enter the APN, User Name, Password, and Authentication Type provided by the mobile carrier.

- ❶ If "ON" is selected in "SIM Auto Switch," enter the information of SIM 2 as well.
- ❶ Confirm the settings completed adequately by checking the "Information" in the <Program> menu.
You can also check the status on the repeater's front panel. See the instruction manual included with the repeater for details.

SIM 1	
APN	
User Name	
Password	
Authentication Type	OFF
SIM 2	
APN	
User Name	
Password	
Authentication Type	OFF

SECTION 5 INTERFACE INFORMATION

• FRONT PANEL



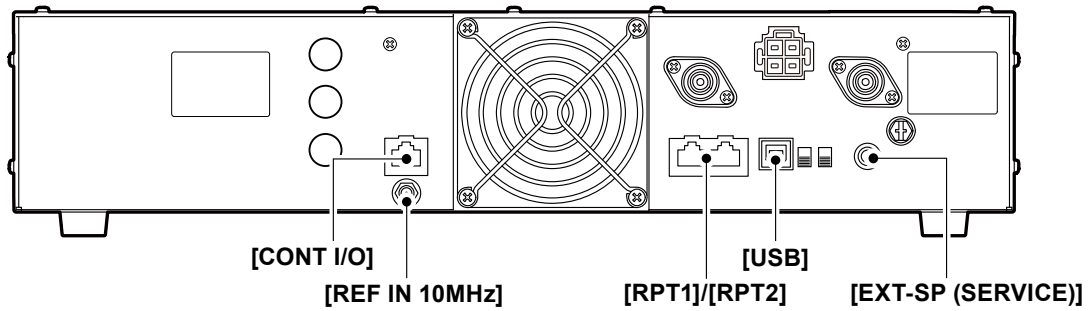
[LAN 1]

[LAN 1]	Indication	Description	Specification
	① LINK/ACT	<ul style="list-style-type: none"> Lights when a cable is connected. Does not light when a cable is not connected. Blinks while communicating. 	Connects to a Gateway server when operating in the Gateway repeater mode.
	② SPEED	<ul style="list-style-type: none"> Lights while communicating in 100BASE-TX. Does not light while communicating. Blinks while communicating in 10BASE-T, or not connected. 	


[LAN 2]

[LAN 2]	Indication	Description	Specification
	① LINK/ACT	<ul style="list-style-type: none"> Lights when a cable is connected. Does not light when a cable is not connected. Blinks while communicating. 	Connects to a Gateway server when operating in the LTE mode. ① An optional LTE unit is required.
	② SPEED	<ul style="list-style-type: none"> Lights while communicating in 100BASE-TX. Does not light while communicating. Blinks while communicating in 10BASE-T, or not connected. 	

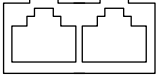
• REAR PANEL




[CONT I/O]

[CONT I/O]	Description
	<p>Connects to the LAN port of the ID-RP2C using a supplied control cable, when the repeater system is operating as a gateway or assist repeater with the ID-RP2C.</p> <ul style="list-style-type: none"> ① Set [CONT I/O RPT] on the rear panel to "CONT I/O," when using this port. ① Not usable in DD mode.


[RPT1]/[RPT2]

[RPT1]/[RPT2]	Description
	<p>Connects to other repeaters using the supplied control cable for data communications, when multiple repeaters are installed in the repeater system.</p> <ul style="list-style-type: none"> ① Set [CONT I/O RPT] on the rear panel to "RPT," when using this port.

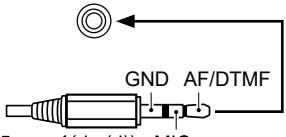
[REF IN 10MHz]

[REF IN 10MHz]	Description
 SMA connector	<p>Inputs a 10 MHz signal as a reference frequency signal.</p> <ul style="list-style-type: none"> • Input frequency: 10 MHz • Impedance: 50 Ω (unbalanced) • Input level: -10 dBm (approximately)

[USB]

[USB]	Description
	<p>Connects to the PC with a supplied USB cable to set the details of the repeater, such as the callsign, frequencies, IP address, and any other functions using the utility software.</p> <ul style="list-style-type: none"> • Connector type: USB type B (1.1/2.0)

[EXT-SP (SERVICE)]

[EXT-SP (SERVICE)]	Line Name	Description
 (3.5 mm, 1/8 in (d)) MIC Connects a 3.5 mm stereo plug	AF/DTMF	<p>Received audio or DTMF tone signal output port.</p> <ul style="list-style-type: none"> • Output impedance: 4 ~ 8 Ω • Output level: 2 W or more at 10% distortion into an 8 Ω load.
	MIC	<p>Audio input port for adjustment. Connects to an audio generator. Refer to ADJUSTMENT PROCEDURE for details.</p>

SECTION 6 ADJUSTMENT PROCEDURE

6-1 PREPARATION

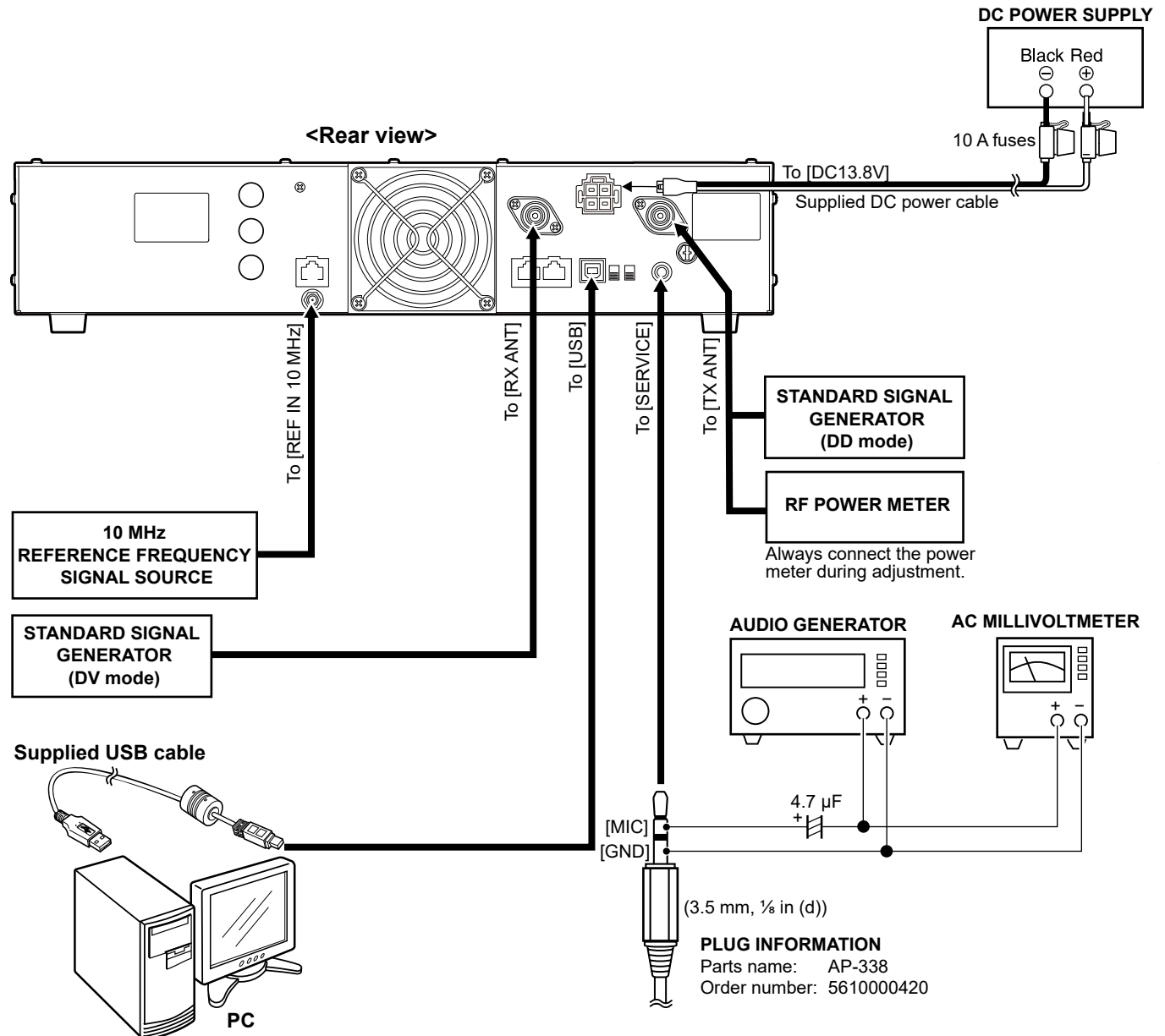
■ REQUIRED EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
Adjustment software	ID-RP3 ADJ	Programming cable	USB cable (Supplied with the repeater)
DC power supply	Output voltage: 13.8 V Current capacity: 10 A or more	Standard signal generator (SSG)	Frequency range: 0.1 ~ 1500 MHz Output level: -20 to 90 dB μ V (-127 to -17 dBm)
RF power meter (50 Ω terminated)	Measuring range: 0.1 ~ 30 W Frequency range: 100 ~ 1500 MHz SWR: 1.2 : 1 or less	10 MHz reference frequency signal source	Frequency: 10.000000 MHz Accuracy: $\pm 5 \times 10^{-4}$ ppm or less Output level: 97 dB μ V (-10 dBm)
Audio generator (AG)	Frequency range: 300 ~ 3000 Hz Output level: 1 ~ 500 mV	AC millivoltmeter	Measuring range: 1 mV ~ 10 V

■ SAVE THE PROGRAMMING DATA

- Adjusting the repeater will change the programming setting.
- Before adjusting, save the programming data of the repeater with the programming software.
After adjusting, write back the programming data.

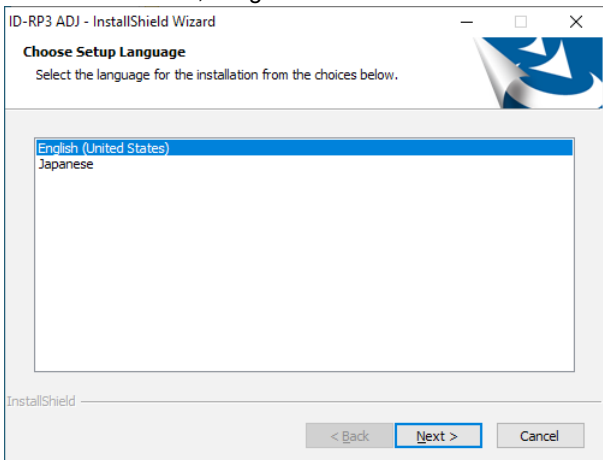
■ CONNECTIONS



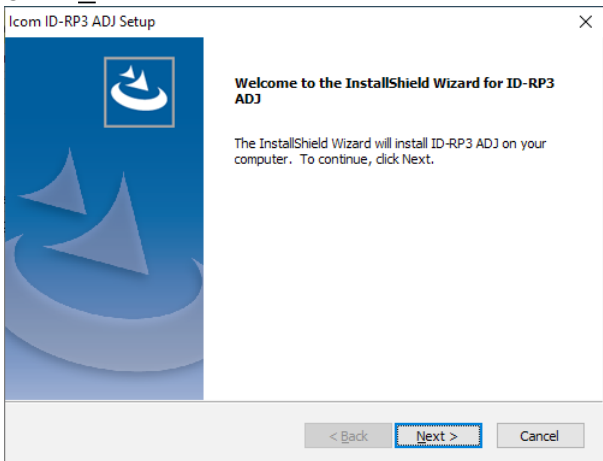
■ INSTALLING THE ADJUSTMENT SOFTWARE (ID-RP3 ADJ)

When installing the software, confirm Windows has completed its startup, and then log in as the **administrator**.

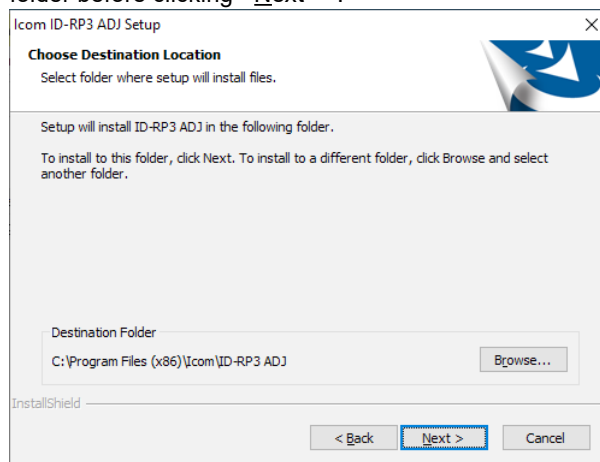
- 1) Confirm no other applications are running.
- 2) Double-click "setup.exe."
 - If "User Account Control" is displayed, click <Yes> to continue.
- 3) Select "English" (or "Japanese") and then click <Next >>.
 - In this document, "English" is selected.



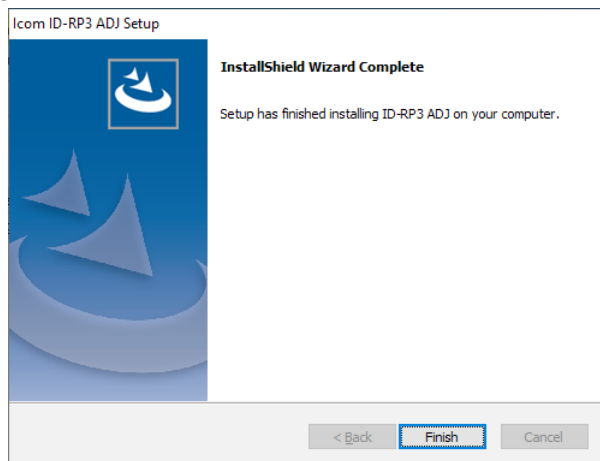
- 4) "Welcome to the InstallShield Wizard for ID-RP3 ADJ" is displayed. Click <Next >>.



- 5) "Choose Destination Location" is displayed. Click <Next >>.
 - If desired, click <Browse...> to select another destination folder before clicking <Next >>.



- 6) After the installation has completed, "InstallShield Wizard Complete" is displayed. Click <Finish>.



- 7) An 'ID-RP3 ADJ' group is created on the menu, and a shortcut icon is created on the desktop.

■ BEFORE CONNECTING THE REPEATER TO THE PC

To use the USB cable between the repeater and a PC, you must first install a USB driver.

The latest USB driver and installation guide can be downloaded from the Icom website.

Carefully read the guide, before installing the driver.

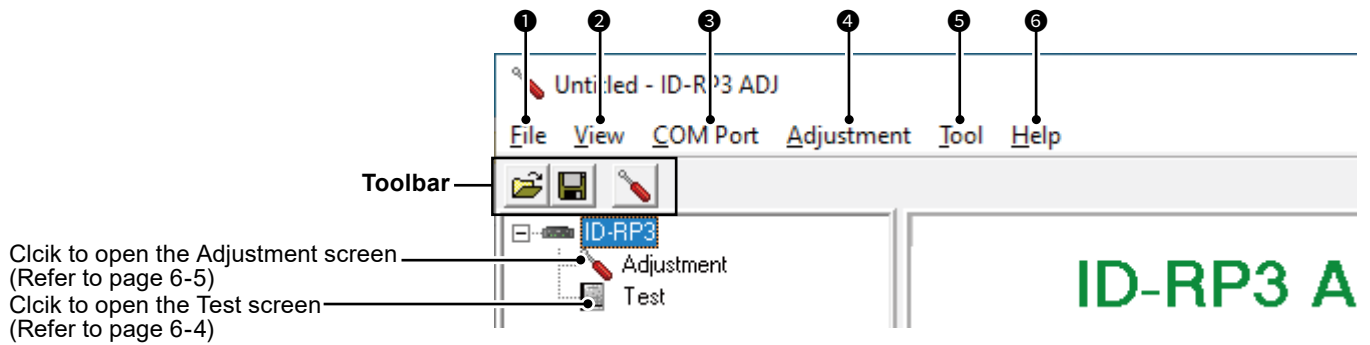
https://www.icomjapan.com/support/firmware_driver/

■ IF A COMMUNICATION ERROR MESSAGE APPEARS

Check the following if an error message appears.

- The correct port number is set in the [COM Port] menu.
- The repeater and PC are correctly connected together with the cloning cable.
- The repeater is turned ON.

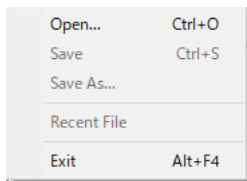
■ ABOUT THE ADJUSTMENT SOFTWARE (ID-RP3 ADJ)



Click to open the Adjustment screen
(Refer to page 6-5)
Click to open the Test screen
(Refer to page 6-4)

1 File

The File menu contains sub-menus that you use to open, and save data file, and to exit the software.



Open... (Ctrl+O)

Click to open a data file (.icf).

- The Adjustment data is not written to the repeater at opening a file.

Save (Ctrl+S)

Click to save the settings to a data file (.icf).

- You need to load the data to save from the repeater.

Save As...

Click to save the current settings with a different file name, or in a different location.

If the same file name exists in the selected folder, a warning message appears. Click <OK> if you want to overwrite it, otherwise change the file name or location and then save it.

- You need to load the data to save from the repeater.

Recent File

Click to show up to the last four files that you accessed.

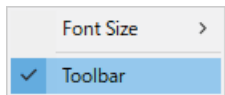
Select a file for simple reloading.

Exit (Alt+F4)

Click to close the software.

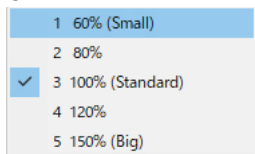
2 View

The View menu contains sub-menu that you use to change the font size and to hide or display the toolbar.



Font Size

Click to select the font size of the contents list screen.



Toolbar

Click to hide or display the toolbar.

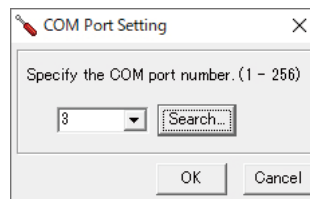
The toolbar has 3 function icons, Open, Save, and load the adjustment data.

3 COM Port

Setting

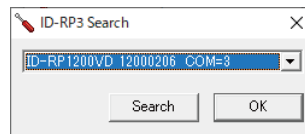
Opens the "COM Port Setting" window.

Select the number of the COM port that the repeater is connected to.



You may also search the COM port number that the ID-RP1200V is connected to, by clicking <Search> on the "COM Port Setting" window.

- The "ID-RP3 Search" window appears.



4 Adjustment

Read <- Repeater

Loads the adjustment value from the repeater.

NOTE: Check the following if an error message appears.

- The correct port number is set in the [COM Port] menu.
- The repeater and PC are correctly connected together with the programming cable.
- The repeater is turned ON.

5 Tool

All Reset

Performs the Repeater All Reset.

All Reset returns all repeater settings to their default value.

- [TX] and [RX] blink until the repeater setting data is newly programmed.

NOTE: It is recommended that you save the programming data of the repeater with the programming software before adjusting.

6 Help

About ID-RP3 ADJ

Click to open the information window which displays the revision number of the software.

Click <OK> to close the window.

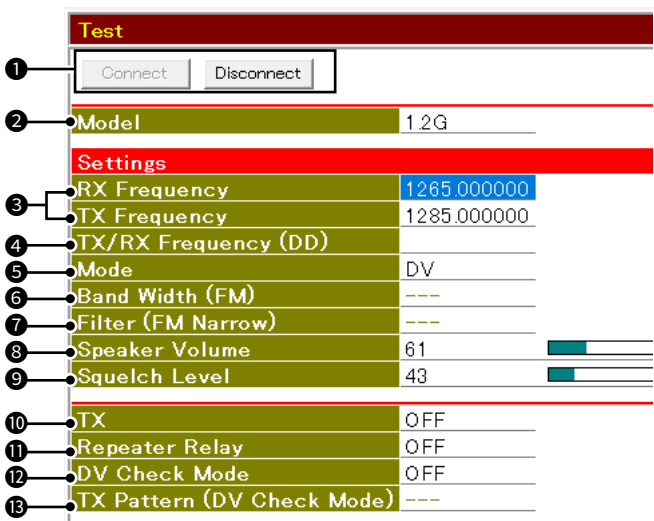


(This window is an example.)

■ ABOUT THE TEST SCREEN

On the Test screen, you can temporarily change the repeater settings to test the repeater operation.

- Perform the Repeater All Reset after you have changed all the necessary settings on this screen, checked the result, and finished the test. Click <Disconnect>, then Repeater All Reset.



(This screen is an example.)

❶ <Connect> and <Disconnect> buttons

Click <Connect> to load the repeater setting data onto the PC. Click <Disconnect> to exit the repeater test.

NOTE: Check the following if an error message appears.

- The correct port number is set in the [COM Port] menu.
- The repeater and PC are correctly connected together with the programming cable.
- The repeater is turned ON.

❷ Model

“1.2G” is displayed when the repeater setting data has been successfully loaded.

❸ RX Frequency / TX Frequency

Sets the uplink (RX) or downlink (TX) frequency (in MHz). Double-click on the item and enter the frequency using the PC’s keyboard, then push [Enter].

Enter the frequency of up to 6 digits (in MHz).

The settable frequency range may differ, depending on the repeater version.

❹ TX/RX Frequency (DD)

Sets the frequency (MHz) to be transmitted or received in DD (Digital Data) mode.

Double-click on the item and enter the frequency using the PC’s keyboard, then push [Enter].

Enter the frequency of up to 6 digits (in MHz).

The settable frequency range may differ, depending on the repeater version.

❺ Mode

Sets the operating mode.

Double-click on the item and set the mode to “FM” (Analog audio), “DV” (Digital audio), or “DD”(Digital data).

❻ Band Width (FM)

Sets the pass bandwidth in the FM mode.

Double-click on the item and set the bandwidth to “Wide” or “Narrow.”

- This item can be set when the “Mode” item is set to “FM.”

❼ Filter (FM Narrow)

Sets the IF filter pass bandwidth in the FM mode.

Double-click on the item and set the bandwidth to “10k” (10 kHz) or “7k” (7 kHz).

- This item can be set when the “Mode” item is set to “FM.”

❽ Speaker Volume

Sets the output signal level of the [SERVICE] jack.

Double-click on the item and push the PC’s [←] or [→] key to increase or decrease the audio output level.

- Settable range: 0 (0%) ~ 255 (100%)
- The received audio signal (the demodulated signal in the FM mode or the decoded digital signal in the DV mode) is output from the [SERVICE] jack.

❾ Squelch Level

Sets the noise squelch level.

Double-click on the item and push the PC’s [←] or [→] key to increase or decrease the squelch level.

- Settable range: 0 (0% loose) ~ 255 (100% tight)
- When you set to “0,” the squelch is forcibly opened.

❿ TX

Turns the test transmission ON or OFF.

Double-click this item and select “ON” to start transmission. Select “OFF” to stop transmission.

⓫ Repeater Relay

Turns the repeater relay operation ON or OFF.

Double-click on the item and select “ON” to turn ON the relay operation (Normal repeater operation).

Select “OFF” to inhibit the transmission (The repeater does not transmit even when an uplink signal is received.)

⓬ DV Check Mode

Turns the DV Check Mode ON or OFF.

When “ON” is selected, clock and data signals for the RX decoding are output from the SD card slot, and the downlink signal with the test pattern that is selected in the “TX Pattern (DV Check Mode)” is transmitted.

- This item can be set when the “Mode” item is set to “DV” or “DD.”
- You need to restart the repeater when changing the selection from “ON” to “OFF.” Restart the repeater by following the instructions that are displayed when you select “OFF.”

⓭ TX Pattern

Selects the test pattern of the transmit signal (downlink signal).

Normal: Received signal is transmitted. (Normal repeater operation)

0/1 Repeat: Data bits “0” and “1” are repeatedly transmitted.

PN9: PN9 data is transmitted.

PN15: PN15 data is transmitted.

All 1: Only data bit “1” is transmitted.

All 0: Only data bit “0” is transmitted.

- This item can be set when the “DV Check Mode” item is set to “ON.”

About the transmitted signal

The repeater transmits the following signal (if there is no uplink signal received), depending on the related item settings.

“Mode” item	“DV Check Mode” item	“Repeater Relay” item	Transmit signal
FM	—*1	ON	Non-modulated signal
FM	—*1	OFF	Externally applied AF signal
DV	OFF	ON	The DV signal and carrier.*2
		OFF	The coded data (AMBE) of externally applied AF signal
DV	ON	—*1	The signal with the pattern that is selected in “TX Pattern (DV Check Mode)”
DD	OFF	—*1	Only data bit “1”.
DD	ON	—*1	The signal with the pattern that is selected in “TX Pattern (DV Check Mode)”

*1 Does not affect the transmit signal.

*2 2 seconds of DV signal followed by the continuous non-modulated signal.

■ ABOUT THE ADJUSTMENT SCREEN

On the Adjustment screen, you can adjust the repeater.

- Perform the Repeater All Reset after you have finished the adjustment.

Adjustment value in hexadecimal

Adjustment			
Start	Stop	[Enter]: Starts the automatic adjustment.	
Model	1.2G		
IDLING			
VDL IDL Set	Hex	02DD (2.364V)	Result
		00D5 (0.687V)	--
1.2G FIDV		D7 (4.215V)	--
1.2G DIDV		8B (2.725V)	--
TX OUTPUT POWER			
TX Total 1.2G Gain	8C	(2.745V)	--
POWER 1.2G3 MIN	1B	(0.529V)	--
POWER 1.2G3 1%	1B	(0.529V)	--
POWER 1.2G3 10%	44	(1.333V)	--
POWER 1.2G3 50%	90	(2.823V)	--
POWER 1.2G3 100%	CD	(4.019V)	--
TX BALANCE			
POWER 1.2G2 100%	CB	(99%)	--
POWER 1.2G4 100%	D0	(101%)	--
POWER 1.2G1 100%	C8	(98%)	--
ALC/DRIVE GAIN			
ALC 1.2G	0054	(0.270V)	
	02A3	(2.177V)	
	0327	(2.603V)	
DRIVE 1.2G	36	(1.058V)	
	69	(2.058V)	
	34	(1.019V)	
	63	(1.941V)	
	87	(2.647V)	
	36	(1.058V)	--
	74	(2.274V)	
	96	(2.941V)	
	33	(1.000V)	
	60	(1.882V)	
	92	(2.862V)	
REFERENCE FREQUENCY			
REF OSC 1	71		
	7F		
RX TOTAL GAIN/AGC ATTENUATOR			
Total Gain 1.2GA PRE ON ref	[Enter]		--
Total Gain 1.2GA PRE ON set	8B		--
1.2GA AGC set	[Enter]		--
Total Gain 1.2GB PRE ON ref	[Enter]		--
Total Gain 1.2GB PRE ON set	7B		--
1.2GB AGC set	[Enter]		--

“OK” is displayed when the automatic adjustment is successfully finished.

■ COMMON ADJUSTMENT PROCEDURE

For the Automatic adjustments

- 1) Click on the adjustment value in hexadecimal for the item.
 - The cell is highlighted in blue and selected.
- 2) Push the PC's [ENTER] key.
 - “OK” is displayed and the adjustment value is stored.

Adjustment value in hexadecimal

IDLING	Hex	Result
VDL IDL Set	02DD (2.364V)	
	00D5 (0.687V)	--

“OK” is displayed.

For the Manual adjustments

- 1) Click on the adjustment value in hexadecimal for the item.
 - The cell is highlighted in blue.
- 2) Push the PC's [ENTER] key.
 - The cell is selected.
- 3) Push the PC's [←] or [→] key to adjust the value.
- 4) If you want to cancel the adjustment, push the PC's [ESC] key.
 - The adjustment value returns to its original value.
- 5) Push the PC's [ENTER] key.
 - “OK” is displayed and the adjustment value is stored.

Adjustment value in hexadecimal

TX OUTPUT POWER	Hex	Result
TX Total 1.2G Gain	63 (1.941V)	--
POWER 1.2G3 MIN	1B (0.529V)	--

6-2 TRANSMIT ADJUSTMENTS AND VERIFICATIONS

*The repeater automatically transmits while pushing the PC's [←], [→], or [ENTER] key. Be sure to select the appropriate power range before pushing keys.

ADJUSTMENT		ITEM NAME	REPEATER'S CONDITION	OPERATION	VALUE
IDLING -Adjustment (Auto)-	1	[VDL IDL Set]	• Transmitting	<ul style="list-style-type: none"> • Connect the RF power meter* to the TX antenna connector. • Connect the audio generator and AC millivoltmeter to the [SERVICE] jack (MIC line), and set it to: Frequency: 1.5 kHz Level: 30 mV rms • Push the PC's [ENTER] key. 	"OK" is displayed in the Result row.
	2	[1.2G FIDV]			
	3	[1.2G DIDV]			
TX OUTPUT POWER -Adjustment (Manual)-	1	[TX Total 1.2G Gain]	• Transmitting	<ul style="list-style-type: none"> • Connect the RF power meter* to the TX antenna connector. • Connect the audio generator and AC millivoltmeter to the [SERVICE] jack (MIC line), and set it to: Frequency: 1.5 kHz Level: 30 mVrms • Push the PC's [←] or [→] key to adjust, then push the [ENTER] key. 	5 W
	2	[POWER 1.2G3 MIN]			0.1 W
	3	[POWER 1.2G3 1%]			1 W
	4	[POWER 1.2G3 10%]			5 W
	5	[POWER 1.2G3 50%]			10 W
	6	[POWER 1.2G3 100%]			
TX BALANCE -Adjustment (Manual)-	1	[POWER 1.2G2 100%]	• Transmitting	<ul style="list-style-type: none"> • Connect the RF power meter* to the TX antenna connector. • Connect the audio generator and AC millivoltmeter to the [SERVICE] jack (MIC line), and set it to: Frequency: 1.5 kHz Level: 30 mV rms • Push the PC's [←] or [→] key to adjust, then push the [ENTER] key. 	10 W
	2	[POWER 1.2G4 100%]			
	3	[POWER 1.2G1 100%]			
ALC/DRIVE -Adjustment (Auto)-	1	[ALC 1.2G]	• Transmitting	• Connect the RF power meter* to the TX antenna connector.	"OK" is displayed in the Result row.
	2	[DRIVE 1.2G]			

6-3 FREQUENCY VERIFICATION

†The output level of the signal source is measured at the load end (PD).

ADJUSTMENT	ITEM NAME	REPEATER'S CONDITION	OPERATION	VALUE
REFERENCE FREQUENCY -Adjustment (Auto)-	1 [REF OSC1]	• Receiving	<ul style="list-style-type: none"> Connect the 10 MHz reference frequency source to the [REF IN 10 MHz] connector, and set it to: Frequency: 10.000000 MHz Level: +97 dBμV† (-10 dBm) Modulation: None Push the PC's [ENTER] key. 	"OK" is displayed in the Result row.

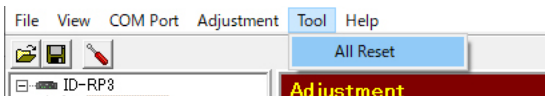
6-4 RECEIVE VERIFICATIONS

†The output level of the standard signal generator (SSG) is measured at the load end (PD).

ADJUSTMENT	ITEM NAME	REPEATER'S CONDITION	OPERATION	VALUE
RECEIVE SENSITIVITY -Adjustment (Auto)- (DV mode)	1 [Total Gain 1.2GA PRE ON ref]	• Receiving	<ul style="list-style-type: none"> Connect the SSG to the [RX ANT] connector, and set it to: Frequency: 1280.0215MHz MHz Level: +30 dBμV† (-77 dBm) Modulation: None Push the PC's [ENTER] key. 	"OK" is displayed in the Result row.
	2 [Total Gain 1.2GA PRE ON set]		<ul style="list-style-type: none"> Set the SSG output as: Level: OFF Push the PC's [ENTER] key. 	
	3 [1.2GA AGC set]		<ul style="list-style-type: none"> Set the SSG output as: Level: +50 dBμV† (-57 dBm) Push the PC's [ENTER] key. 	
(DD mode)	4 [Total Gain 1.2GB PRE ON ref]	<ul style="list-style-type: none"> Connect the SSG to the [TX ANT] connector, and set it to: Frequency: 1280.0215MHz MHz Level: +30 dBμV† (-77 dBm) Modulation: None Push the PC's [ENTER] key. 		
	5 [Total Gain 1.2GB PRE ON set]	<ul style="list-style-type: none"> Set the SSG output as: Level: OFF Push the PC's [ENTER] key. 		
	6 [1.2GB AGC set]	<ul style="list-style-type: none"> Set the SSG output as: Level: +50 dBμV† (-57 dBm) Push the PC's [ENTER] key. 		

6-5 RESTARTING THE REPEATER

1) Click [Stop], then perform the All Reset on the ID-RP3 ADJ window.



2) Turn OFF the repeater.

SECTION 7

PARTS LIST

[FRONT-L UNIT]

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
Q3	1590004690	S.TRA LDTC143ZET1G	T	18.4/28.0
Q7	1590004690	S.TRA LDTC143ZET1G	T	75.5/4.0
Q9	1590004690	S.TRA LDTC143ZET1G	T	88.5/4.1
L1	6200011910	S.COI BLM31PG330SN1L	T	99.7/26.8
R1	7030016560	S.RES RMC1/16SJPTH	T	16.4/29.5
R2	7030015910	S.RES RMC1/16S-101JTH (100)	T	73.7/41.1
R3	7030016210	S.RES RMC1/16S-121JTH (120)	T	16.4/28.0
R4	7030016250	S.RES RMC1/16S-220JTH (22)	T	86.6/34.6
R5	7030015910	S.RES RMC1/16S-101JTH (100)	T	75.6/34.6
R6	7030015910	S.RES RMC1/16S-101JTH (100)	T	74.6/34.6
R7	7030016210	S.RES RMC1/16S-121JTH (120)	T	76.1/2.2
R8	7030016250	S.RES RMC1/16S-220JTH (22)	T	75.7/41.1
R9	7030016210	S.RES RMC1/16S-121JTH (120)	T	89.1/2.3
R10	7030016250	S.RES RMC1/16S-220JTH (22)	T	74.7/41.1
R11	7030016370	S.RES RMC1/16S-271JTH (270)	T	105.4/15.7
R12	7030016370	S.RES RMC1/16S-271JTH (270)	T	117.4/15.7
R13	7030016250	S.RES RMC1/16S-220JTH (22)	T	81.5/41.1
R14	7030016250	S.RES RMC1/16S-220JTH (22)	T	83.5/41.1
R15	7030015910	S.RES RMC1/16S-101JTH (100)	T	85.5/41.1
R16	7030016250	S.RES RMC1/16S-220JTH (22)	T	83.6/34.6
R17	7030015910	S.RES RMC1/16S-101JTH (100)	T	81.6/34.6
R18	7030015910	S.RES RMC1/16S-101JTH (100)	T	82.5/41.1
R19	7030015910	S.RES RMC1/16S-101JTH (100)	T	84.5/41.1
R20	7030016250	S.RES RMC1/16S-220JTH (22)	T	82.6/34.6
R21	7030015050	S.RES RMC1/16-221JTP (220)	T	45.6/35.5
R22	7030014940	S.RES RMC1/16-270JTP (27)	T	44.4/35.5
R23	7030014940	S.RES RMC1/16-270JTP (27)	T	43.2/35.5
R24	7030014940	S.RES RMC1/16-270JTP (27)	T	53.3/34.9
R25	7030014940	S.RES RMC1/16-270JTP (27)	T	42.0/35.5
R26	7030014940	S.RES RMC1/16-270JTP (27)	T	52.1/34.9
R27	7030015910	S.RES RMC1/16S-101JTH (100)	T	84.6/34.6
R28	7030014940	S.RES RMC1/16-270JTP (27)	T	50.9/34.9
R29	7030015050	S.RES RMC1/16-221JTP (220)	T	49.7/34.9
R30	7030015910	S.RES RMC1/16S-101JTH (100)	T	80.6/34.6
R40	7030016660	S.RES RMC1/16SK49R9FTH (49.9)	T	107.4/31.2
R41	7030016660	S.RES RMC1/16SK49R9FTH (49.9)	T	109.0/31.2
R42	7030016660	S.RES RMC1/16SK49R9FTH (49.9)	T	115.4/31.2
R43	7030016660	S.RES RMC1/16SK49R9FTH (49.9)	T	113.8/31.2
R44	7030016560	S.RES RMC1/16SJPTH	T	118.7/30.5
R45	7030018740	S.RES RMC1/16S-750JTH (75)	T	109.5/19.3
R46	7030018740	S.RES RMC1/16S-750JTH (75)	T	113.3/19.3
R47	7030018740	S.RES RMC1/16S-750JTH (75)	T	111.4/16.6
R48	7030018740	S.RES RMC1/16S-750JTH (75)	T	110.5/16.6
R51	7030015910	S.RES RMC1/16S-101JTH (100)	T	125.9/34.8
R52	7030015910	S.RES RMC1/16S-101JTH (100)	T	125.9/35.8
R53	7030016250	S.RES RMC1/16S-220JTH (22)	T	125.9/36.8
R54	7030015910	S.RES RMC1/16S-101JTH (100)	T	125.9/38.8
R55	7030015910	S.RES RMC1/16S-101JTH (100)	T	125.9/39.8
R56	7030016250	S.RES RMC1/16S-220JTH (22)	T	132.6/35.3
R57	7030016250	S.RES RMC1/16S-220JTH (22)	T	132.6/36.3
R58	7030015910	S.RES RMC1/16S-101JTH (100)	T	125.9/37.8
R59	7030016250	S.RES RMC1/16S-220JTH (22)	T	132.6/38.3
R60	7030015910	S.RES RMC1/16S-101JTH (100)	T	132.6/39.3
R71	7030016560	S.RES RMC1/16SJPTH	T	78.1/41.1
R72	7030016560	S.RES RMC1/16SJPTH	T	79.1/41.1
R73	7030016560	S.RES RMC1/16SJPTH	T	77.2/41.1
R74	7030016560	S.RES RMC1/16SJPTH	T	80.0/41.1
R76	7030016250	S.RES RMC1/16S-220JTH (22)	T	85.5/34.6
R77	7030016250	S.RES RMC1/16S-220JTH (22)	T	132.6/37.3
C2	4030023030	S.CER 0402B103K250CT	T	73.7/44.0
C5	4030023030	S.CER 0402B103K250CT	T	75.6/31.7
C6	4030023030	S.CER 0402B103K250CT	T	74.6/31.7
C8	4030023010	S.CER 0402B104K160CT	T	67.0/44.0
C17	4030023030	S.CER 0402B103K250CT	T	81.6/31.7
C18	4030022740	S.CER 0402N220J500CT	T	82.5/44.0
C19	4030023030	S.CER 0402B103K250CT	T	84.5/44.0
C21	4030023820	S.CER 0603B104K250CT	T	47.5/33.7
C22	4030019560	S.CER GRM21BB31C106KE15L	T	47.7/32.1
C24	4030023030	S.CER 0402B103K250CT	T	84.6/31.7
C25	4030023030	S.CER 0402B103K250CT	T	80.6/31.7
C26	4030026880	S.CER GA352QR7GF102KW01L	T	102.5/22.5
C27	4030023010	S.CER 0402B104K160CT	T	119.2/29.2
C32	4030023010	S.CER 0402B104K160CT	T	119.7/31.3
C33	4030023010	S.CER 0402B104K160CT	T	68.1/41.9
C51	4030023010	S.CER 0402B104K160CT	T	123.0/33.8
C52	4030022740	S.CER 0402N220J500CT	T	123.0/34.8
C53	4030023030	S.CER 0402B103K250CT	T	123.0/35.8
C55	4030023030	S.CER 0402B103K250CT	T	123.0/38.8
C56	4030023030	S.CER 0402B103K250CT	T	123.0/39.8
C57	4030023030	S.CER 0402B103K250CT	T	134.8/39.3
J1	6510022472	S.CON 40FLT-SM2-TB(LF)(SN)(M)	T	76.8/37.8
J2	6510015541	S.CON B4B-ZR-SM4-TF(LF)(SN)	T	10.9/28.8
J21	6510034190	S.CON DM1AA-SF-PEJ(82)	T	49.0/15.3
J31	6510024040	CON TM11R-5M2-88-LP		
J51	6510022022	S.CON 14FLT-SM2-TB(LF)(SN)(M)	T	129.3/37.1
DS7	5040003001	S.LED SML-A12UT T86J	T	75.4/0.8
DS9	5040002961	S.LED SML-A12MT T86J	T	88.4/0.8
DS11	5040003590	S.LED SML-D12P8WT86	T	105.8/14.0

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
DS12	5040003590	S.LED SML-D12P8WT86	T	117.0/14.0
S5	2260002590	SWI SKHHLU		
S6	2220000631	SWI MFS201N-16-Z		
T10	5910001380	S.TRA TS8121CM HF	T	111.4/25.1
EP12	6910016330	S.BEA MMZ1005S 601CT-S	T	76.6/34.6
EP13	6910019900	S.BEA MPZ1608S601AT	T	67.0/41.4
EP14	6910016330	S.BEA MMZ1005S 601CT-S	T	86.5/41.1
EP17	6910016330	S.BEA MMZ1005S 601CT-S	T	118.7/32.2
EP21	6910019900	S.BEA MPZ1608S601AT	T	46.8/35.5
EP51	6910019900	S.BEA MPZ1608S601AT	T	125.6/33.8

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
H/V LOCATION= Shows mounting location on the PCB.

[MAIN UNIT]

Table with 5 columns: REF NO., PART NO., DESCRIPTION, M., H/V LOCATION. Rows C5 to C531.

Table with 5 columns: REF NO., PART NO., DESCRIPTION, M., H/V LOCATION. Rows C532 to C1261.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side) H/V LOCATION= Shows mounting location on the PCB.

[MAIN UNIT]

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
EP9012	6910018460	S.BEA MMZ1005Y102C-T	T	13.3/9.8
EP9013	6910018460	S.BEA MMZ1005Y102C-T	T	12.3/9.8
EP9014	6910018460	S.BEA MMZ1005Y102C-T	T	11.3/10.1
EP9101	6910024660	S.BEA MPZ2012S102AT	T	131.8/8.9
EP9102	6910024660	S.BEA MPZ2012S102AT	T	130.0/8.9
EP9103	6910024660	S.BEA MPZ2012S102AT	T	128.2/8.9
EP9104	6910018460	S.BEA MMZ1005Y102C-T	T	126.5/9.8
EP9105	6910018460	S.BEA MMZ1005Y102C-T	T	125.5/9.8
EP9111	6910018460	S.BEA MMZ1005Y102C-T	T	119.5/9.8
EP9112	6910018460	S.BEA MMZ1005Y102C-T	T	118.5/9.8
EP9113	6910018460	S.BEA MMZ1005Y102C-T	T	117.5/9.8
EP9114	6910018460	S.BEA MMZ1005Y102C-T	T	117.0/16.1
EP9115	6910018460	S.BEA MMZ1005Y102C-T	T	118.0/16.1
EP9151	6910024660	S.BEA MPZ2012S102AT	T	130.3/126.5
EP9152	6910024660	S.BEA MPZ2012S102AT	T	135.3/126.1
EP9201	6910024660	S.BEA MPZ2012S102AT	T	181.4/8.9
EP9202	6910024660	S.BEA MPZ2012S102AT	T	179.4/8.9
EP9208	6910018460	S.BEA MMZ1005Y102C-T	T	175.4/16.1
EP9209	6910018460	S.BEA MMZ1005Y102C-T	T	174.9/9.8
EP9217	6910018460	S.BEA MMZ1005Y102C-T	T	168.9/9.8
EP9218	6910018460	S.BEA MMZ1005Y102C-T	T	167.9/9.8
EP9219	6910018460	S.BEA MMZ1005Y102C-T	T	166.9/9.8
EP9418	6910015970	S.BEA MMZ1608B 301CT-AS	T	136.9/16.1
EP9419	6910015970	S.BEA MMZ1608B 301CT-AS	T	147.6/8.7
EP9420	6910015970	S.BEA MMZ1608B 301CT-AS	T	148.8/8.7
EP9421	6910019900	S.BEA MPZ1608S601AT	T	137.7/8.7
EP9422	6910019900	S.BEA MPZ1608S601AT	T	147.8/16.1
EP9423	6910015970	S.BEA MMZ1608B 301CT-AS	T	142.9/8.7
EP9424	6910015970	S.BEA MMZ1608B 301CT-AS	T	140.8/8.7
EP9426	6910015970	S.BEA MMZ1608B 301CT-AS	T	139.7/16.1
EP9427	6910015970	S.BEA MMZ1608B 301CT-AS	T	140.9/16.1
EP9428	6910023350	S.BEA MMZ1005B601CT	T	158.7/13.5
EP9429	6910023350	S.BEA MMZ1005B601CT	T	154.8/8.7
EP9430	6910023350	S.BEA MMZ1005B601CT	T	155.8/8.7
EP9431	6910015970	S.BEA MMZ1608B 301CT-AS	T	138.1/16.1
EP9451	6910014730	S.BEA MPZ2012S331A-T	T	201.4/6.3
EP9452	6910014730	S.BEA MPZ2012S331A-T	T	196.9/6.3
EP9453	6910014730	S.BEA MPZ2012S331A-T	T	190.4/6.3
EP9501	6910019900	S.BEA MPZ1608S601AT	T	173.3/116.5
EP9502	6910019900	S.BEA MPZ1608S601AT	T	173.3/114.5
EP9503	6910019900	S.BEA MPZ1608S601AT	B	188.3/112.5
EP9504	6910019900	S.BEA MPZ1608S601AT	B	188.4/110.5
EP9505	6910019900	S.BEA MPZ1608S601AT	T	173.3/108.5
EP9506	6910023350	S.BEA MMZ1005B601CT	T	173.8/106.5

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M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
H/V LOCATION= Shows mounting location on the PCB.

[RF-TX UNIT]

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
C425	4030023030	S.CER 0402B103K250CT	T	23.4/44.7
C431	4030026760	S.CER RF15N8R0C500CT	T	24.1/40.7
C432	4030026760	S.CER RF15N8R0C500CT	T	15.6/39.2
C501	4030023090	S.CER 0402B102K500CT	T	3.2/13.2
C502	4030023090	S.CER 0402B102K500CT	T	11.3/13.8
C503	4030023090	S.CER 0402B102K500CT	T	11.3/14.7
C506	4030023090	S.CER 0402B102K500CT	T	11.3/17.4
C507	4030023090	S.CER 0402B102K500CT	T	11.3/18.3
C509	4030023090	S.CER 0402B102K500CT	T	11.3/19.4
C510	4030023090	S.CER 0402B102K500CT	T	3.2/20.2
C511	4030023090	S.CER 0402B102K500CT	T	11.3/20.5
C512	4030023090	S.CER 0402B102K500CT	T	3.2/21.2
C513	4030026690	S.CER RF15N100G500CT	T	11.3/21.6
C514	4030026690	S.CER RF15N100G500CT	T	3.2/22.2
C515	4030026690	S.CER RF15N100G500CT	T	11.3/22.7
C516	4030026690	S.CER RF15N100G500CT	T	3.2/23.2
C517	4030026690	S.CER RF15N100G500CT	T	11.3/23.8
C518	4030023090	S.CER 0402B102K500CT	T	3.9/25.2
C519	4030023090	S.CER 0402B102K500CT	T	3.9/27.2
C531	4030026690	S.CER RF15N100G500CT	T	28.3/22.6
C532	4030026690	S.CER RF15N100G500CT	T	30.1/22.6
C533	4030026690	S.CER RF15N100G500CT	T	31.9/22.6
C534	4030026690	S.CER RF15N100G500CT	T	31.0/22.6
C535	4030026690	S.CER RF15N100G500CT	T	29.2/22.6
C536	4030026700	S.CER RF15N1R0B500CT	T	125.4/58.0
J61	6510018921	S.CON B8B-PH-SM4-TB(LF)(SN)	T	117.4/5.9
J251	6510032350	S.CON 20279-001E-01	T	21.2/9.5
J301	6510032350	S.CON 20279-001E-01	T	27.5/31.1
J431	6510032350	S.CON 20279-001E-01	T	11.6/37.9
J501	6510021722	S.CON 30FLT-SM2-TB(LF)(SN)(M)	T	6.8/20.5
EP81	6910014640	S.BEA MPZ2012S221A-T	T	113.2/15.1
EP82	6910014640	S.BEA MPZ2012S221A-T	T	114.3/16.8
EP83	6910018460	S.BEA MMZ1005Y102C-T	T	88.5/15.5
EP101	6910014730	S.BEA MPZ2012S331A-T	T	81.8/24.1
EP102	6910018460	S.BEA MMZ1005Y102C-T	T	78.6/20.9
EP141	6910018460	S.BEA MMZ1005Y102C-T	T	75.8/7.7
EP191	6910018460	S.BEA MMZ1005Y102C-T	T	63.0/8.4
EP231	6910018460	S.BEA MMZ1005Y102C-T	T	34.2/8.2
EP271	6910018460	S.BEA MMZ1005Y102C-T	T	39.5/25.0
EP272	6910018460	S.BEA MMZ1005Y102C-T	T	45.5/26.5
EP273	6910018460	S.BEA MMZ1005Y102C-T	T	44.5/32.8
EP274	6910018460	S.BEA MMZ1005Y102C-T	T	44.5/33.7
EP275	6910018460	S.BEA MMZ1005Y102C-T	T	36.6/31.5
EP276	6910018460	S.BEA MMZ1005Y102C-T	T	35.2/27.6
EP301	6910014730	S.BEA MPZ2012S331A-T	T	28.3/24.8
EP321	6910018460	S.BEA MMZ1005Y102C-T	T	98.9/54.9
EP361	6910018460	S.BEA MMZ1005Y102C-T	T	46.8/52.5
EP362	6910018460	S.BEA MMZ1005Y102C-T	T	38.9/52.4
EP421	6910018460	S.BEA MMZ1005Y102C-T	T	21.0/44.7
EP501	6910018460	S.BEA MMZ1005Y102C-T	T	13.5/11.8
EP502	6910018460	S.BEA MMZ1005Y102C-T	T	12.6/11.8
EP503	6910018460	S.BEA MMZ1005Y102C-T	T	14.4/11.8
EP511	6910018460	S.BEA MMZ1005Y102C-T	T	17.1/11.8
EP512	6910018460	S.BEA MMZ1005Y102C-T	T	18.0/11.8
EP518	6910014730	S.BEA MPZ2012S331A-T	T	11.3/25.2
EP519	6910014730	S.BEA MPZ2012S331A-T	T	11.3/27.2

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
H/V LOCATION= Shows mounting location on the PCB.

[RF-RX UNIT]

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
C376	4030024550	S.CER 0402N3R5B500CT	T	111.8/49.5
C381	4030026730	S.CER RF15N4R0B500CT	T	84.4/56.2
C382	4030026730	S.CER RF15N4R0B500CT	T	84.8/54.9
C383	4030026690	S.CER RF15N100G500CT	T	83.6/55.3
C384	4030022720	S.CER 0402N1R5B500CT	T	83.6/54.4
C385	4030026560	S.CER RF15N6R0C500CT	T	82.4/54.9
C391	4030026590	S.CER RF15N180J500CT	T	81.3/53.0
C392	4030022740	S.CER 0402N220J500CT	T	80.1/53.2
C393	4030026760	S.CER RF15N8R0C500CT	T	78.8/52.7
C394	4030022900	S.CER 0402N680J500CT	T	77.6/53.2
C395	4030026580	S.CER RF15N150J500CT	T	76.4/52.7
C424	4030023030	S.CER 0402B103K250CT	T	73.1/50.0
C425	4030023030	S.CER 0402B103K250CT	T	74.6/54.9
C431	4030026760	S.CER RF15N8R0C500CT	T	71.7/51.5
C432	4030026760	S.CER RF15N8R0C500CT	T	61.8/51.6
C504	4030023090	S.CER 0402B102K500CT	T	9.3/41.5
C505	4030023090	S.CER 0402B102K500CT	T	9.3/42.5
C509	4030023090	S.CER 0402B102K500CT	T	9.3/45.5
C513	4030026690	S.CER RF15N100G500CT	T	9.3/38.5
C514	4030026690	S.CER RF15N100G500CT	T	9.3/39.5
C515	4030026690	S.CER RF15N100G500CT	T	9.3/40.5
C516	4030026690	S.CER RF15N100G500CT	T	9.3/43.5
C517	4030026690	S.CER RF15N100G500CT	T	9.3/44.5
C518	4030023090	S.CER 0402B102K500CT	T	9.3/50.5
C520	4030023090	S.CER 0402B102K500CT	T	9.3/51.5
C521	4030023090	S.CER 0402B102K500CT	T	9.3/37.5
C522	4030023090	S.CER 0402B102K500CT	T	9.3/36.5
C523	4030023010	S.CER 0402B104K160CT	T	27.6/63.5
C524	4030023090	S.CER 0402B102K500CT	T	27.6/64.4
C525	4030022860	S.CER 0402N470J500CT	T	50.8/16.4
C526	4030022750	S.CER 0402N221J500CT	T	51.7/16.4
C531	4030026690	S.CER RF15N100G500CT	T	82.7/27.1
C532	4030026690	S.CER RF15N100G500CT	T	84.5/27.1
C533	4030026690	S.CER RF15N100G500CT	T	86.3/27.1
C534	4030026690	S.CER RF15N100G500CT	T	85.4/27.1
C535	4030026690	S.CER RF15N100G500CT	T	83.6/27.1
C536	4030022870	S.CER 0402N471J500CT	T	103.1/31.0
C537	4030017630	S.CER C1005 CH 1H 120J-T	T	78.3/40.5
C538	4030017630	S.CER C1005 CH 1H 120J-T	T	78.3/36.4
C539	4030022740	S.CER 0402N220J500CT	T	74.4/36.6
CP362	6910009670	S.CHE HK3-S-T	T	50.2/40.9
CP363	6910009670	S.CHE HK3-S-T	T	49.8/59.3
CP364	6910009670	S.CHE HK3-S-T	T	48.3/53.9
CP365	6910009670	S.CHE HK3-S-T	T	151.2/62.8
CP366	6910009670	S.CHE HK3-S-T	T	151.2/48.5
J41	6510022311	S.CON B5B-PH-SM4-TB(LF)(SN)	T	5.8/18.5
J61	6510018921	S.CON B8B-PH-SM4-TB(LF)(SN)	T	30.9/59.3
J301	6510032350	S.CON 20279-001E-01	T	81.6/39.9
J431	6510032350	S.CON 20279-001E-01	T	57.8/50.3
J432	6510032350	S.CON 20279-001E-01	T	71.6/37.1
J501	6510021722	S.CON 30FLT-SM2-TB(LF)(SN)(M)	T	5.0/46.3
F21	5220000440	HOL FHA040-01		
F22	5210001430	FUS 11930011 (BFLP 5A 58V)		
EP1	6910014730	S.BEA MPZ2012S331A-T	T	142.3/16.6
EP2	6910014730	S.BEA MPZ2012S331A-T	T	142.6/35.5
EP15	6910018460	S.BEA MMZ1005Y102C-T	T	12.1/37.5
EP21	6910020710	E.O OT-047		
EP22	6910020710	E.O OT-047		
EP41	6910024660	S.BEA MPZ2012S102AT	T	12.4/18.1
EP42	6910024660	S.BEA MPZ2012S102AT	T	12.4/12.6
EP271	6910018460	S.BEA MMZ1005Y102C-T	T	93.9/29.5
EP272	6910018460	S.BEA MMZ1005Y102C-T	T	99.9/31.0
EP273	6910018460	S.BEA MMZ1005Y102C-T	T	98.9/37.3
EP274	6910018460	S.BEA MMZ1005Y102C-T	T	98.9/38.2
EP275	6910018460	S.BEA MMZ1005Y102C-T	T	91.0/36.0
EP276	6910018460	S.BEA MMZ1005Y102C-T	T	89.6/32.1
EP301	6910014730	S.BEA MPZ2012S331A-T	T	82.8/29.3
EP321	6910018460	S.BEA MMZ1005Y102C-T	T	139.4/53.6
EP361	6910018460	S.BEA MMZ1005Y102C-T	T	101.3/57.0
EP362	6910018460	S.BEA MMZ1005Y102C-T	T	93.4/56.9
EP421	6910018460	S.BEA MMZ1005Y102C-T	T	73.3/55.4
EP504	6910018460	S.BEA MMZ1005Y102C-T	T	12.1/41.5
EP518	6910014730	S.BEA MPZ2012S331A-T	T	13.0/50.1
EP520	6910014730	S.BEA MPZ2012S331A-T	T	13.0/51.9

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
H/V LOCATION= Shows mounting location on the PCB.

[FRONT-R UNIT]

REF NO.	PART NO.	DESCRIPTION	M.	H/V LOCATION
J1255	6510019421	S.CON B8B-ZR-SM4-TF(LF)(SN)	T	56.9/40.2
J1801	6510022801	S.CON B10B-PH-SM4-TB(LF)(SN)	T	12.3/18.4
J1951	6510024040	CON TM11R-5M2-88-LP		
J2002	6510022022	S.CON 14FLT-SM2-TB(LF)(SN)(M)	T	10.8/37.1

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
H/V LOCATION= Shows mounting location on the PCB.

[RF-TX UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J61*	6510018921	B8B-PH-SM4-TB (LF) (SN)	1
J251*	6510032350	20279-001E-01	1
J301*	6510032350	20279-001E-01	1
J431*	6510032350	20279-001E-01	1
J501*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
MP61*	8510022620	OG-363065HD	1
MP81*	8410003220	3913 B-CU HEATSINK	1
MP141*	8510022620	OG-363065HD	1
MP161*	8510019650	3250 VCO CASE	1
MP231*	8510019650	3250 VCO CASE	1
MP271*	8510022610	3913 SHIELD CASE	1
MP361*	8510022610	3913 SHIELD CASE	1

[RF-RX UNIT]

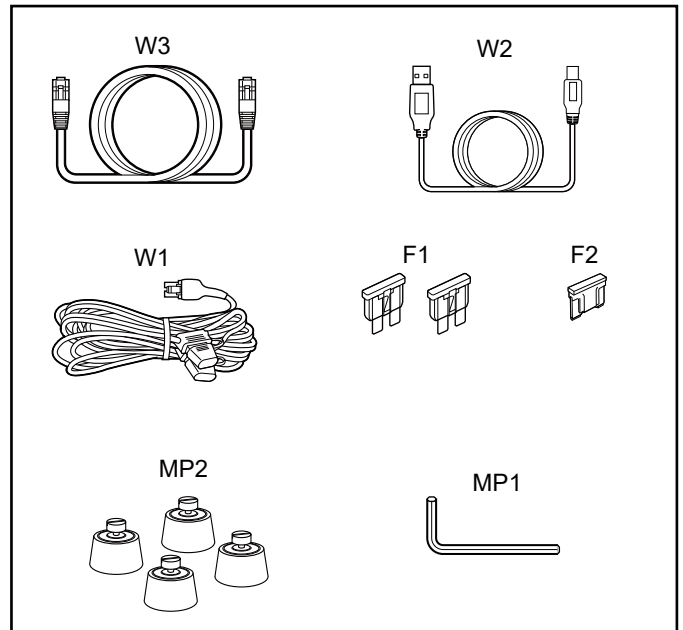
REF NO.	PART NO.	DESCRIPTION	QTY.
J41*	6510022311	B5B-PH-SM4-TB (LF) (SN)	1
J61*	6510018921	B8B-PH-SM4-TB (LF) (SN)	1
J301*	6510032350	20279-001E-01	1
J431*	6510032350	20279-001E-01	1
J432*	6510032350	20279-001E-01	1
J501*	6510021722	30FLT-SM2-TB (LF) (SN) (M)	1
F21	5220000440	FHA040-01	1
F22	5210001430	11930011 (BFLP 5A 58V)	1
EP21	6910020710	OT-047 M3	1
EP22	6910020710	OT-047 M3	1
MP271*	8510022610	3913 SHIELD CASE	1
MP361*	8510022610	3913 SHIELD CASE	1
MP362*	8510024020	4079 R-SHIELD CASE	1

[FRONT-R UNIT]

REF NO.	PART NO.	DESCRIPTION	QTY.
J1255*	6510019421	B8B-ZR-SM4-TF (LF) (SN)	1
J1801*	6510022801	B10B-PH-SM4-TB (LF) (SN)	1
J1951	6510024040	TM11R-5M2-88-LP	1
J2002*	6510022022	14FLT-SM2-TB (LF) (SN) (M)	1

[SUPPLIED ACCESSORIES]

REF NO.	PART NO.	DESCRIPTION	QTY.
F1	5210001590	ATQ 10A 32V	2
F2	5210001430	11930011 (BFLP 5A 58V)	1
W1	8900022800	OPC-2467	1
W2	8900010530	OPC-1045	1
W3	8900022600	OPC-2423	1
MP1	8860001320	HEX WRENCH 3MM	1
MP2	8930105980	RUBBER STAND (R) SF104	4

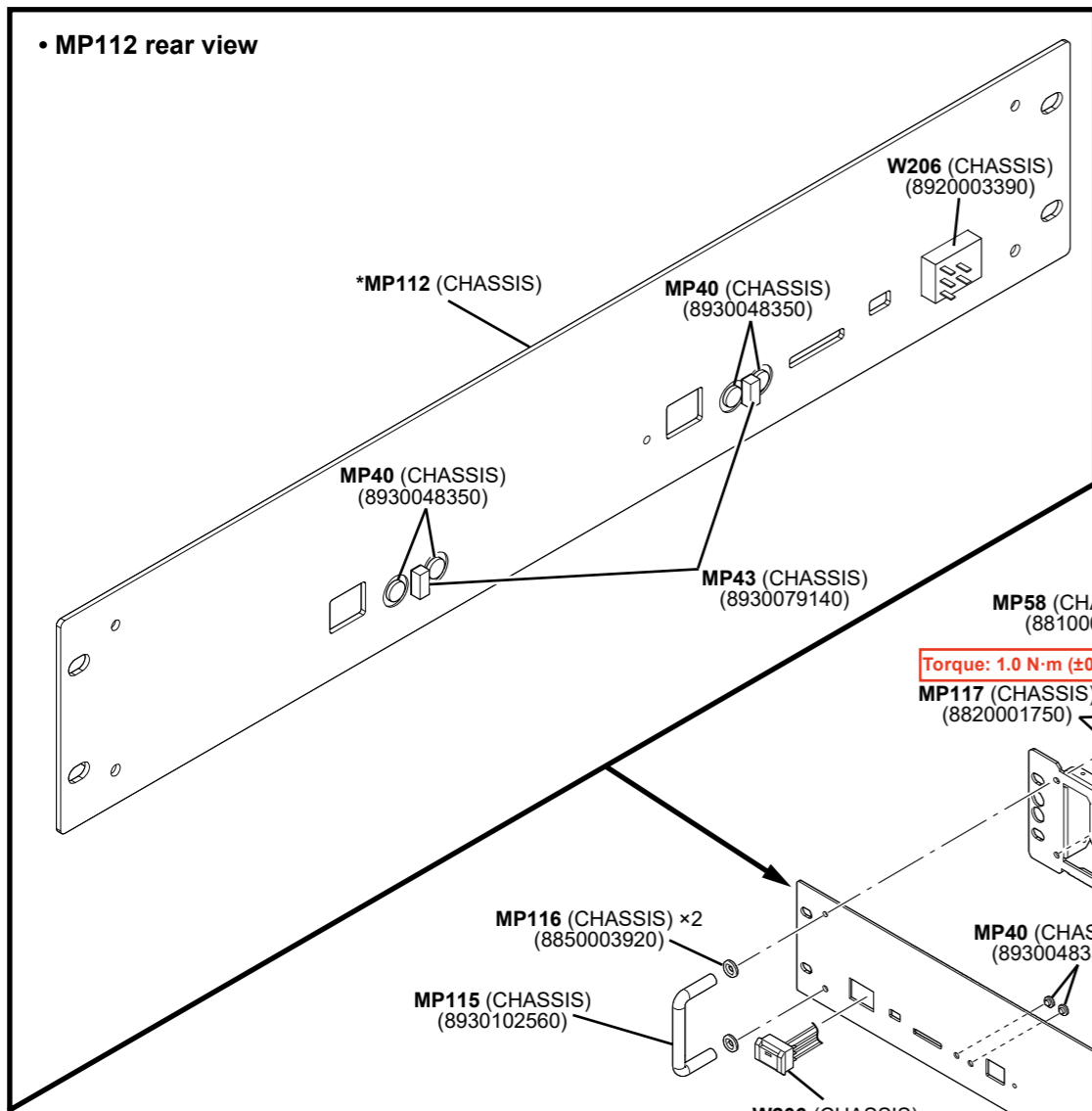


*: Refer to "BOARD LAYOUTS" for the location.

** : Refer to "GENERAL WIRING" for the connection

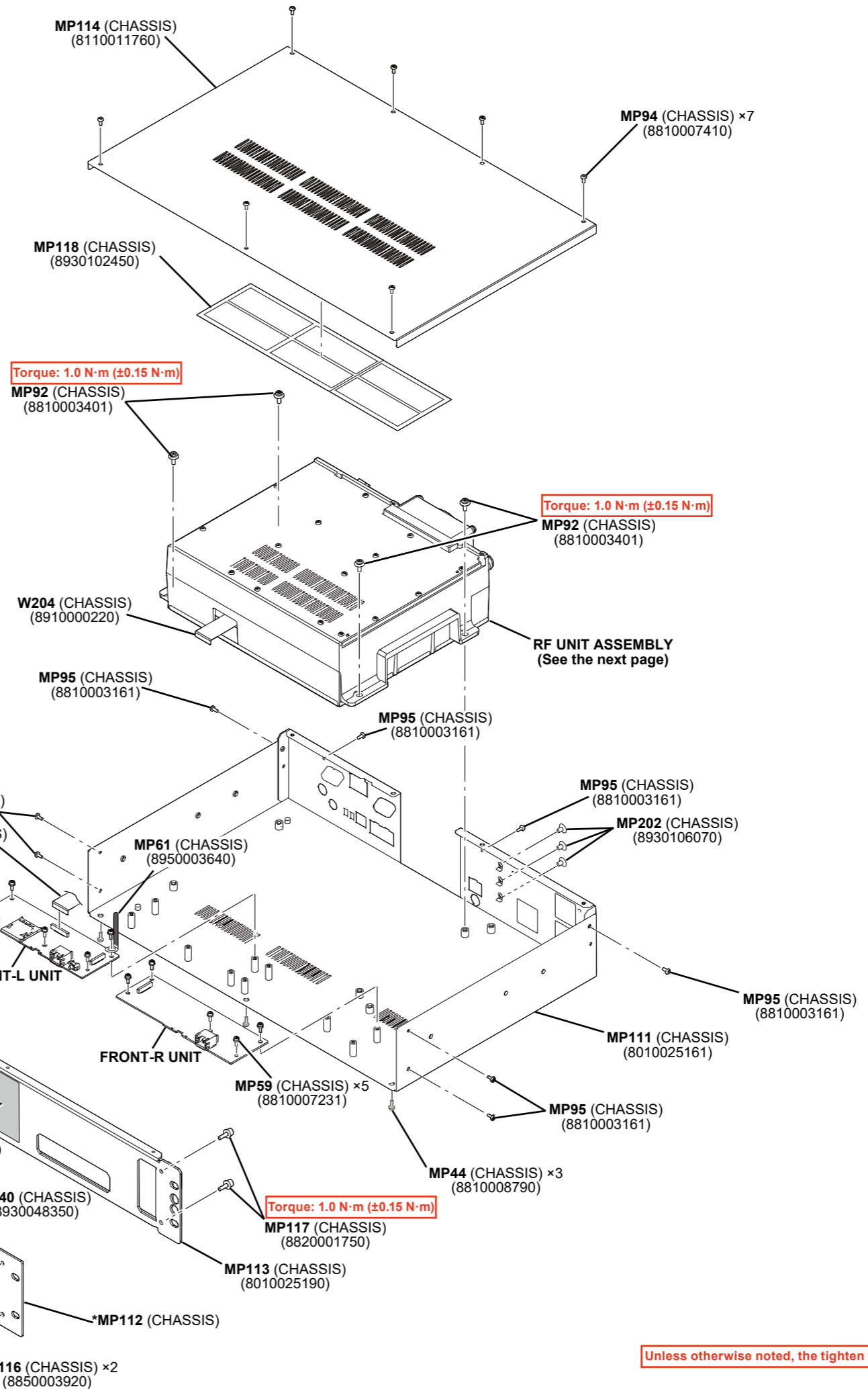
Screw abbreviations A, B0, BT: Self-tapping PH: Pan head BS: Brass NI: Nickel ZU: Zinc SUS: Stainless

• CHASSIS ASSEMBLY



Legend:

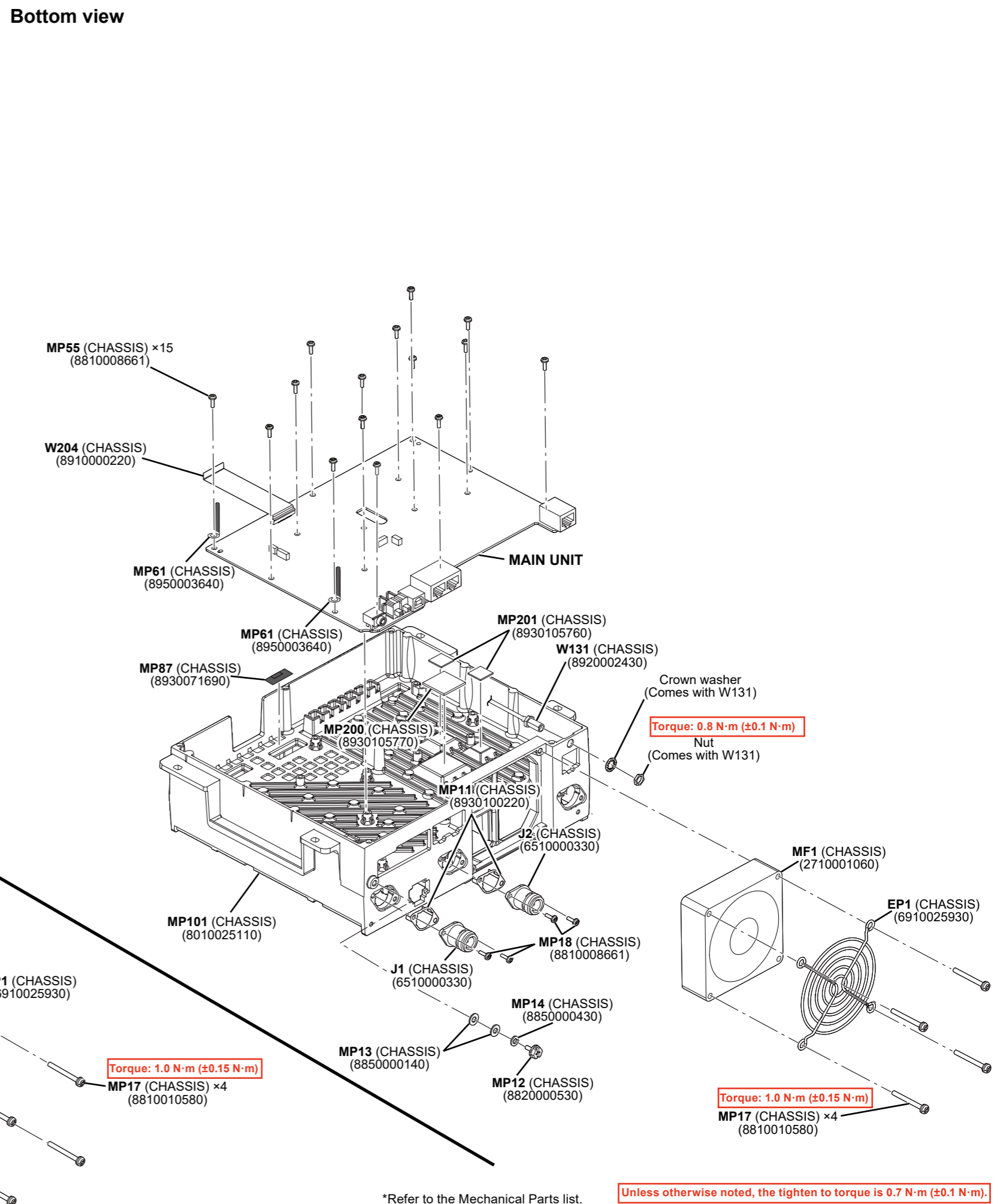
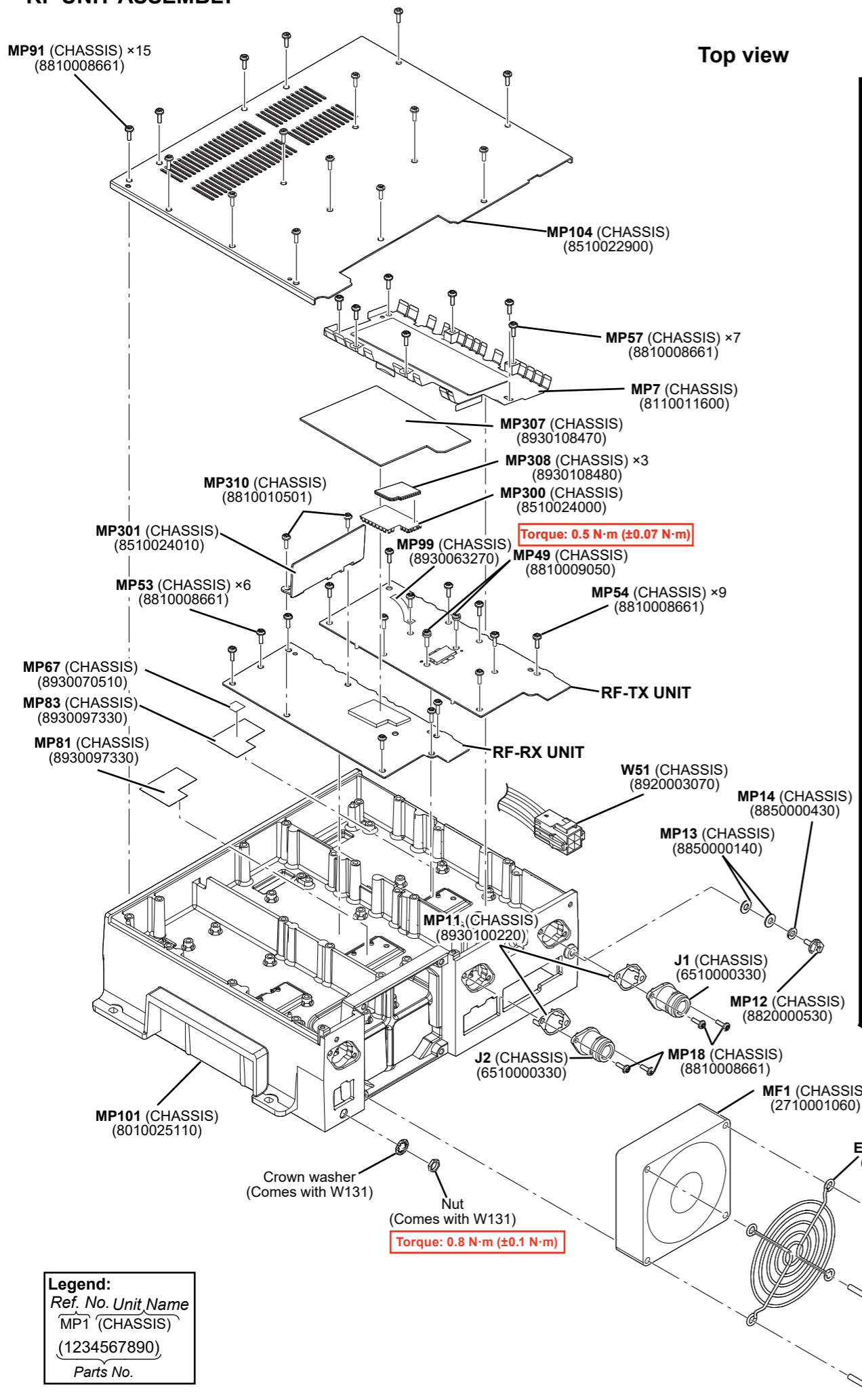
Ref. No.	Unit Name
MP1	(CHASSIS)
(1234567890)	
Parts No.	



Unless otherwise noted, the tighten to torque is 0.7 N·m (±0.1 N·m).

*Refer to the Mechanical Parts list.

• RF UNIT ASSEMBLY

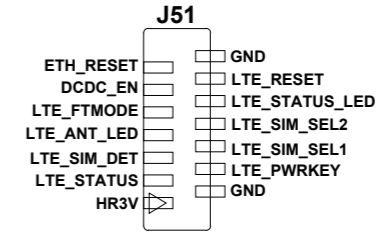
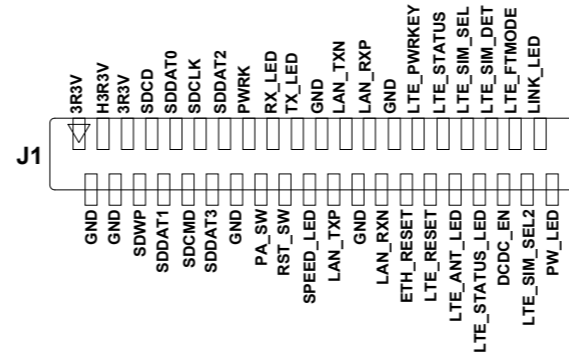


Legend:

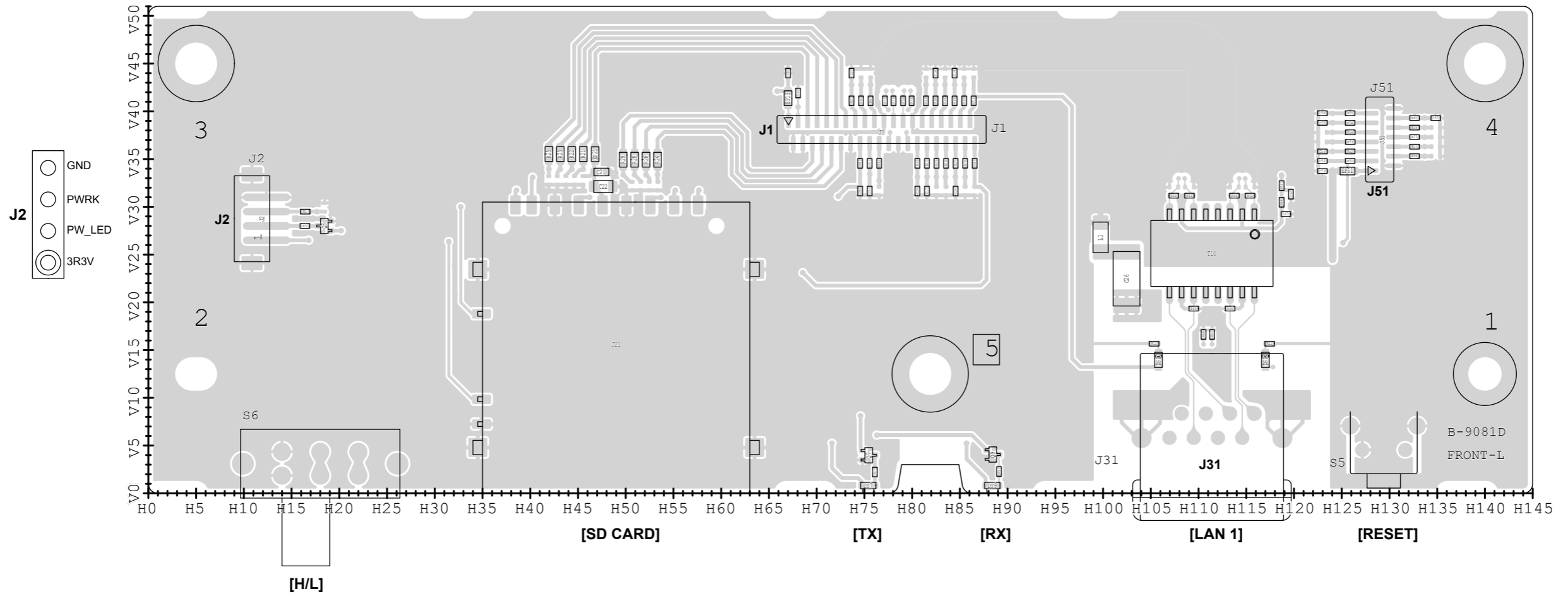
Ref. No.	Unit Name
MP1	(CHASSIS)
(1234567890)	
Parts No.	

*Refer to the Mechanical Parts list.

Unless otherwise noted, the tighten to torque is 0.7 N·m (±0.1 N·m).

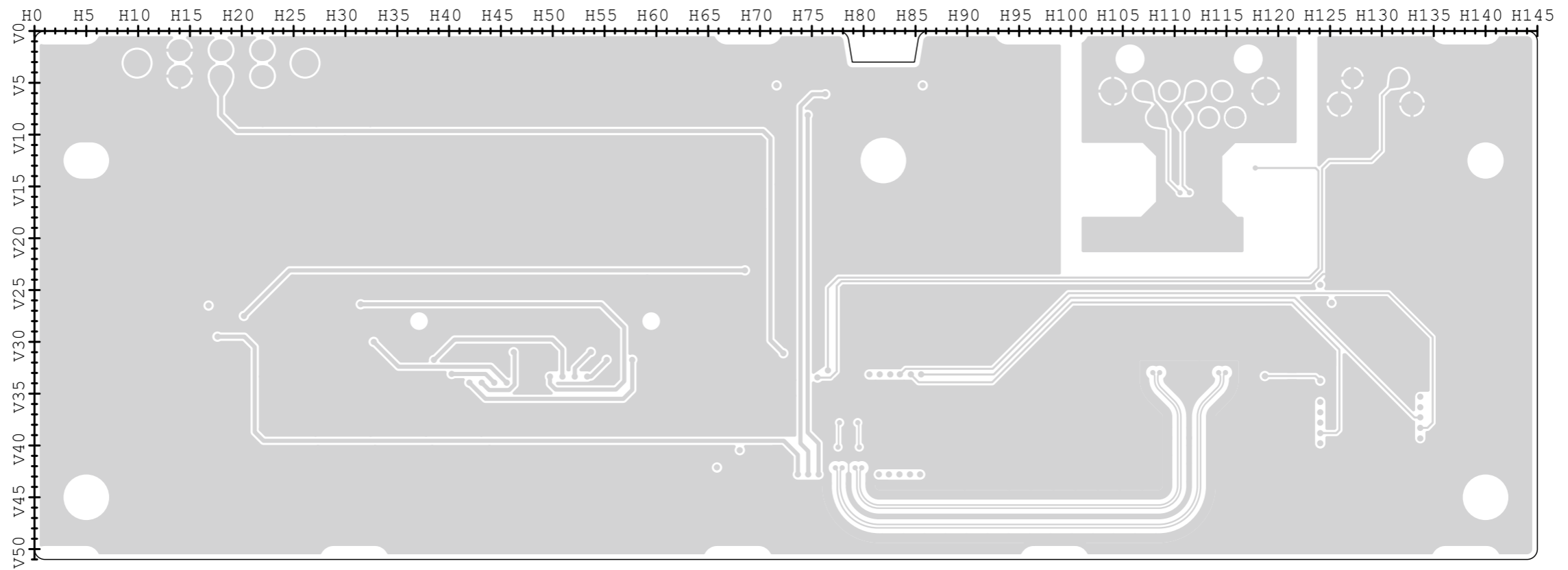


• FRONT-L UNIT (B-9081D: Top view)



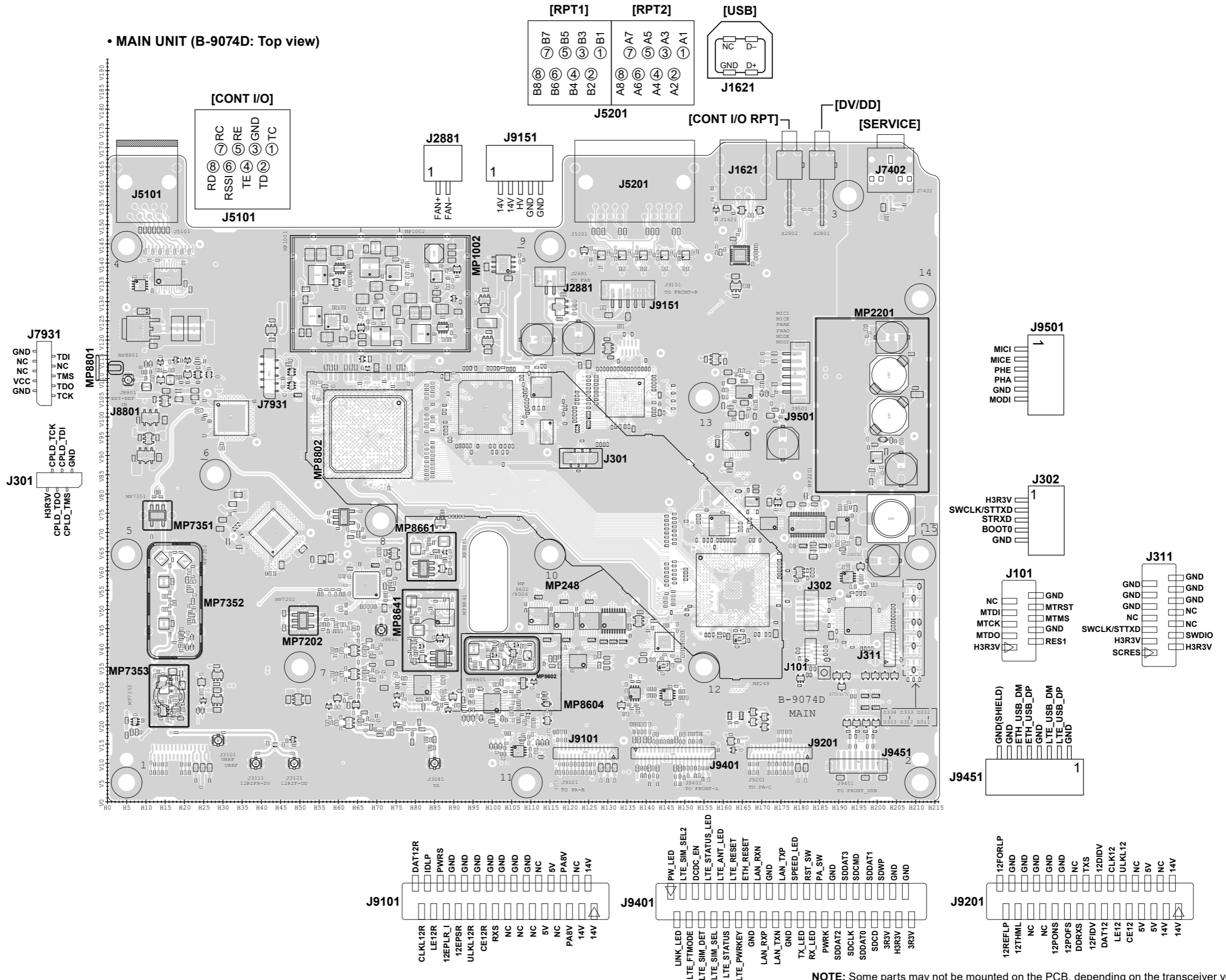
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version. Refer to the PARTS LIST for the mounted parts. The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• FRONT-L UNIT (B-9081D: Bottom view)



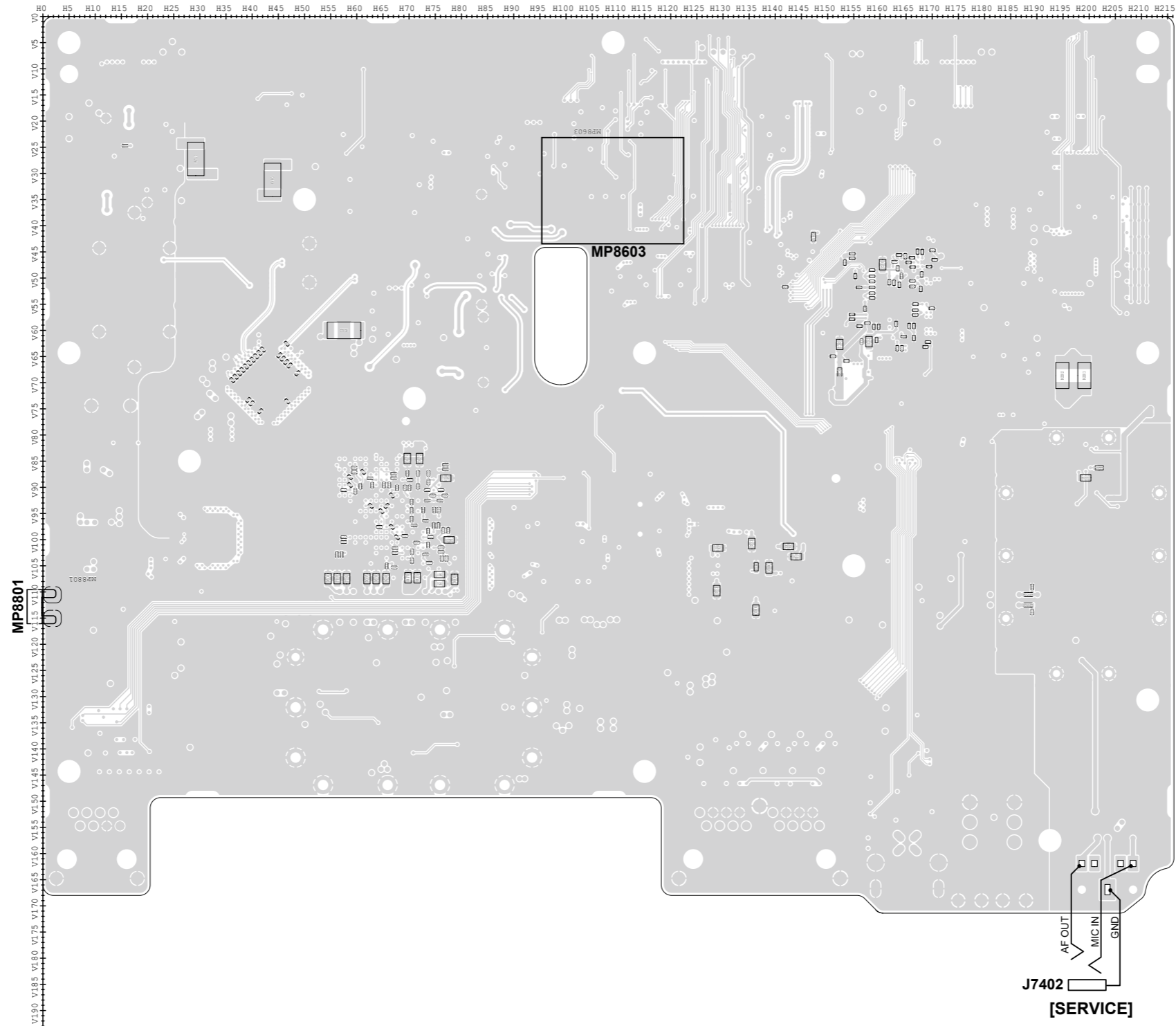
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
Refer to the PARTS LIST for the mounted parts.
The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• MAIN UNIT (B-9074D: Top view)



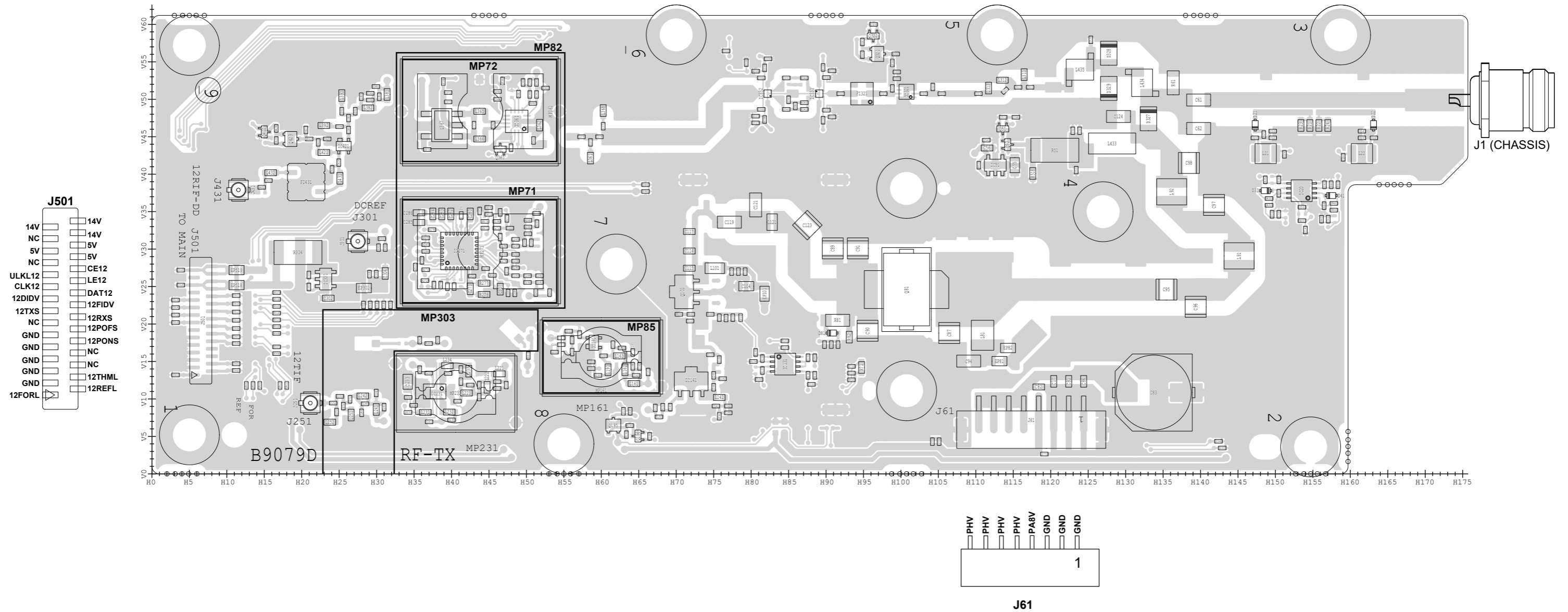
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version. Refer to the PARTS LIST for the mounted parts. The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• MAIN UNIT (B-9074D: Bottom view)



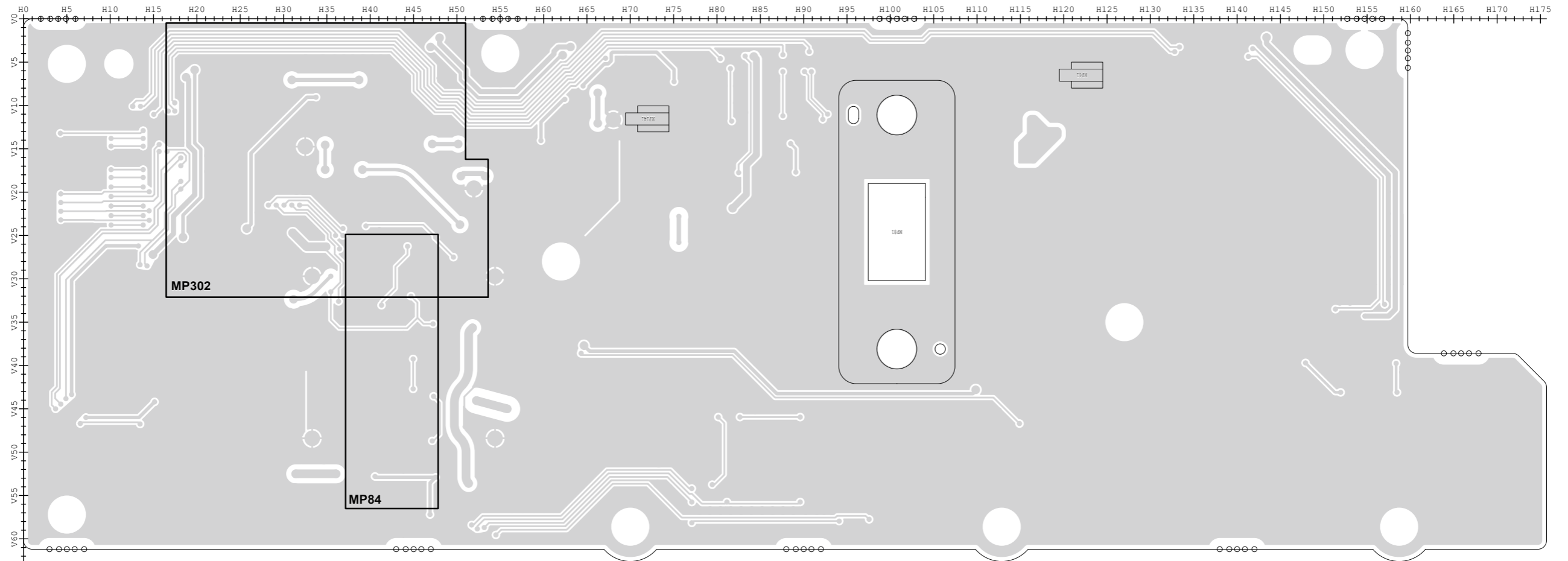
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
 Refer to the PARTS LIST for the mounted parts.
 The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• RF-TX UNIT (B-9079D: Top view)



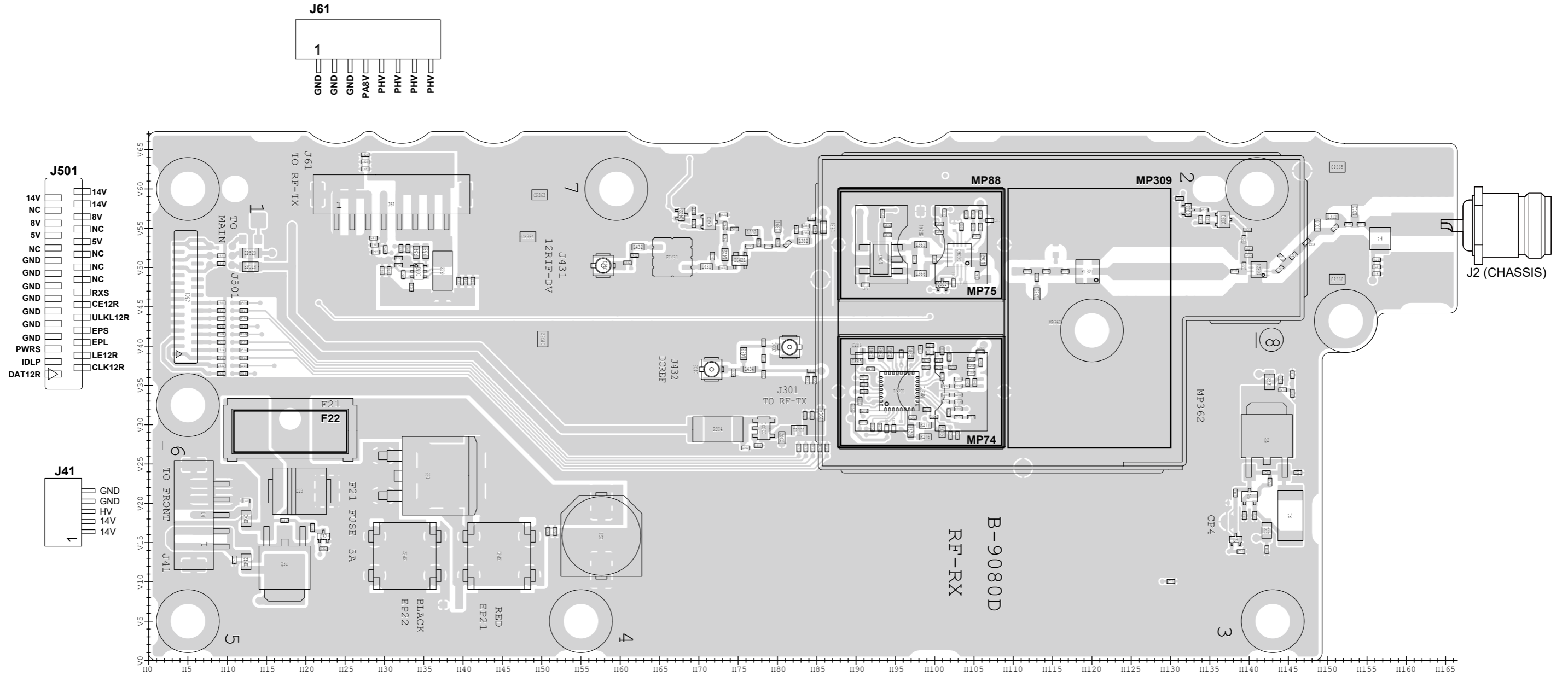
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version. Refer to the PARTS LIST for the mounted parts. The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• RF-TX UNIT (B-9079D: Bottom view)



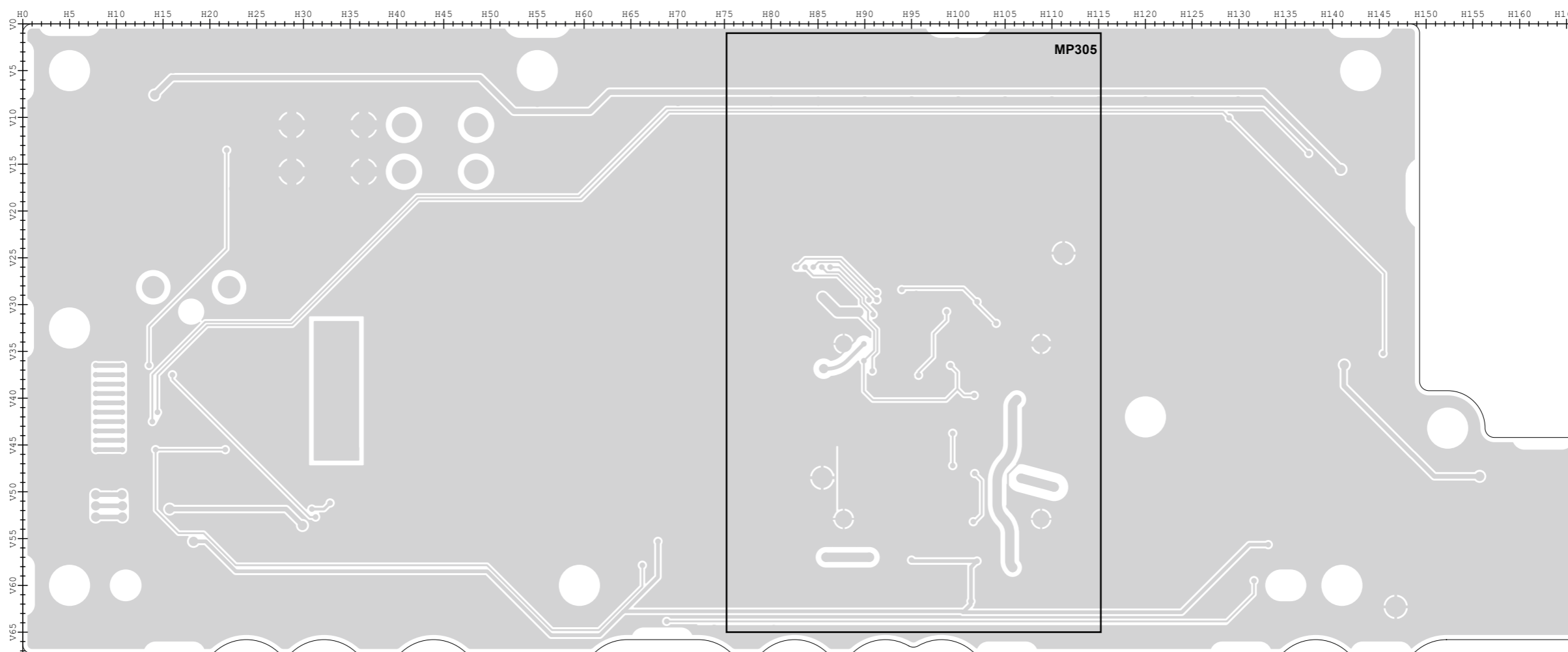
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
 Refer to the PARTS LIST for the mounted parts.
 The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• RF-RX UNIT (B-9080D: Top view)



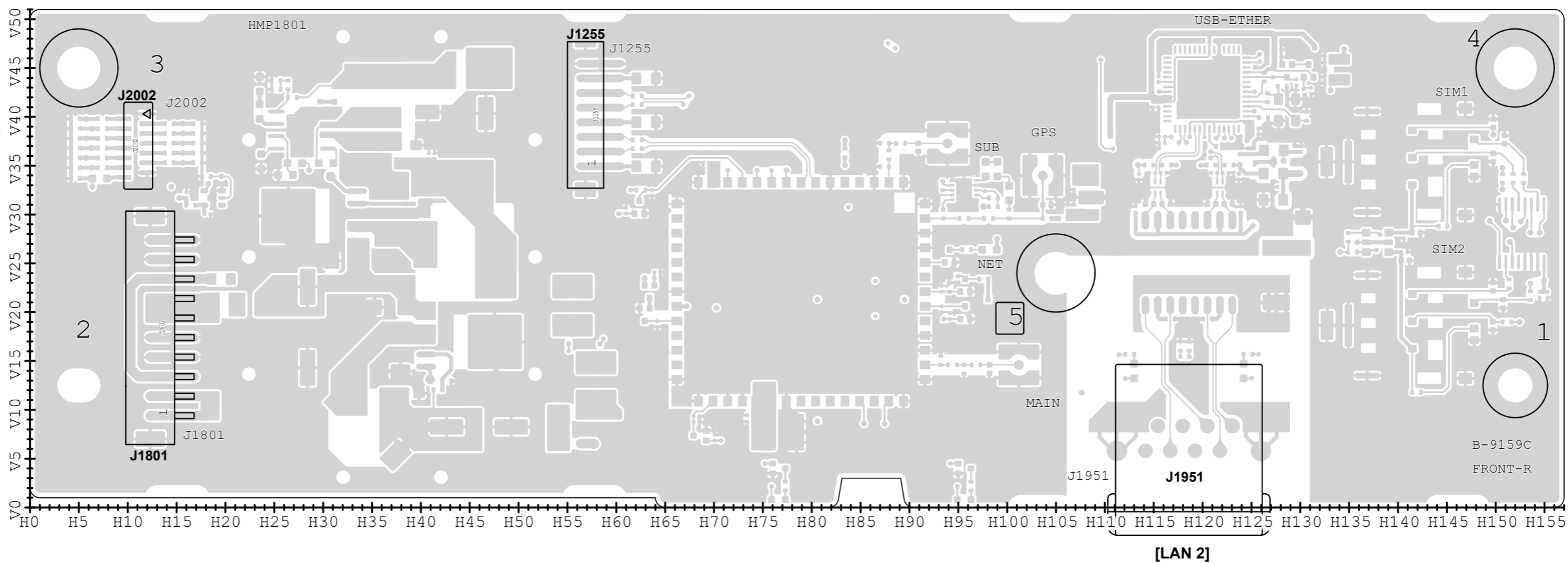
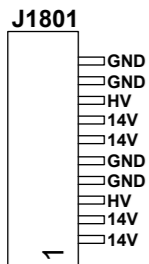
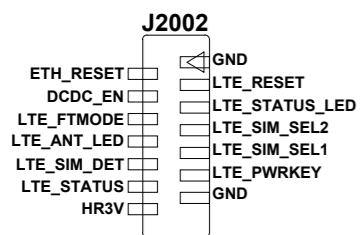
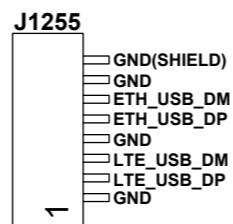
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version. Refer to the PARTS LIST for the mounted parts. The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• RF-RX UNIT (B-9080D: Bottom view)



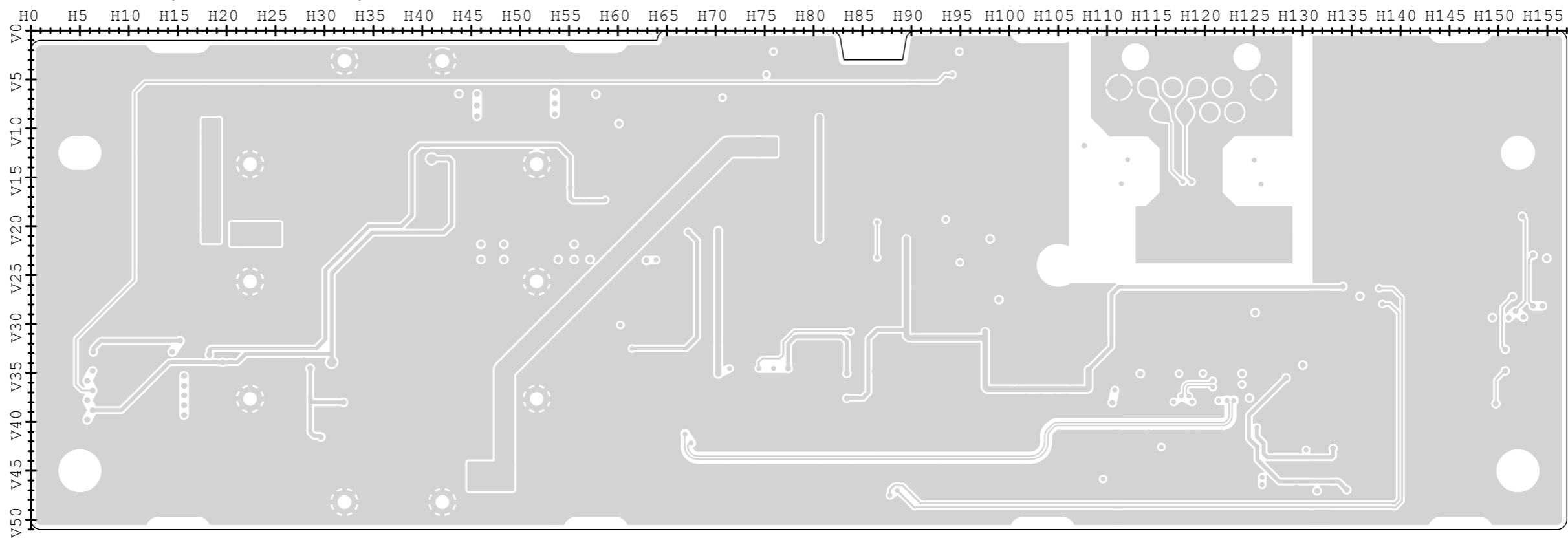
NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
 Refer to the PARTS LIST for the mounted parts.
 The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

• FRONT-R UNIT (B-9159C: Top view)

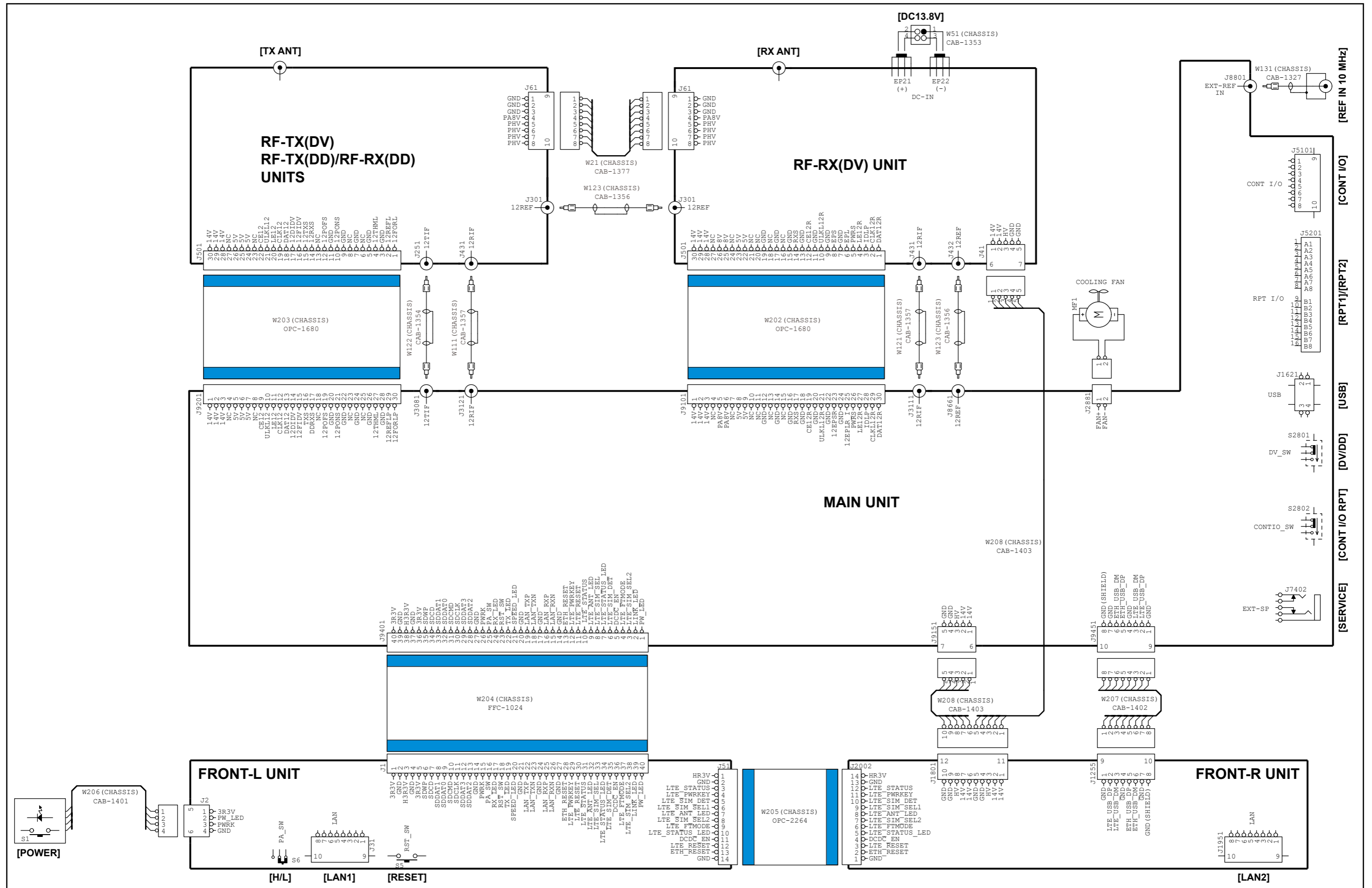


NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
Refer to the PARTS LIST for the mounted parts.
The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.

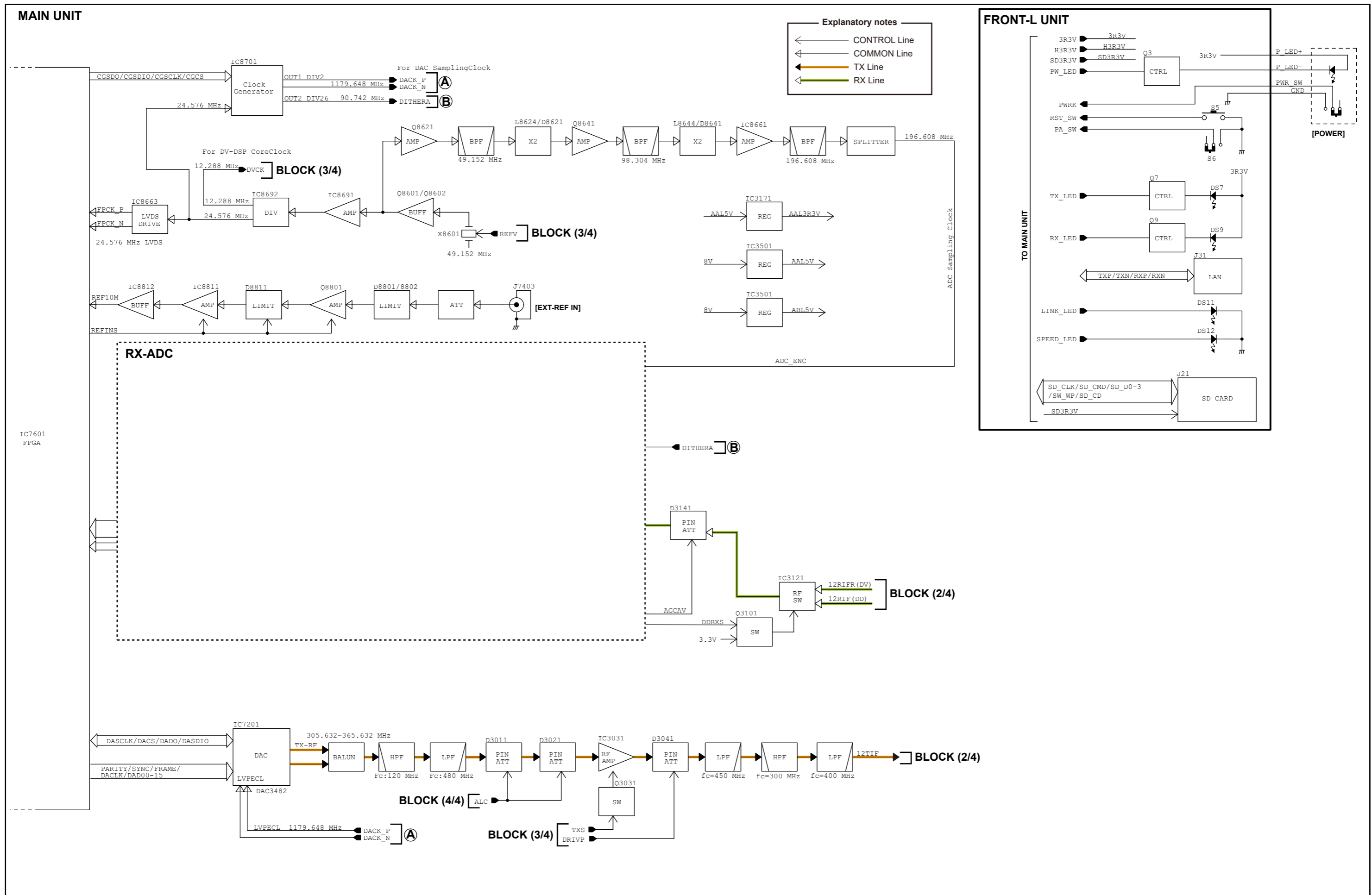
• FRONT-R UNIT (B-9159C: Bottom view)

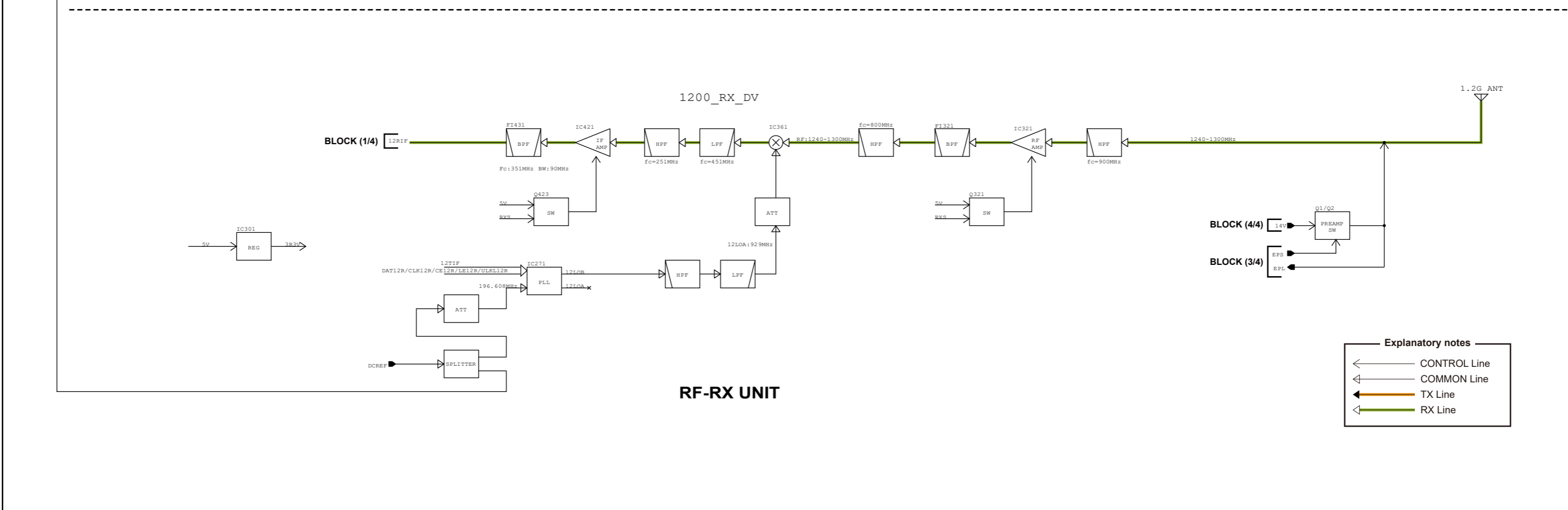
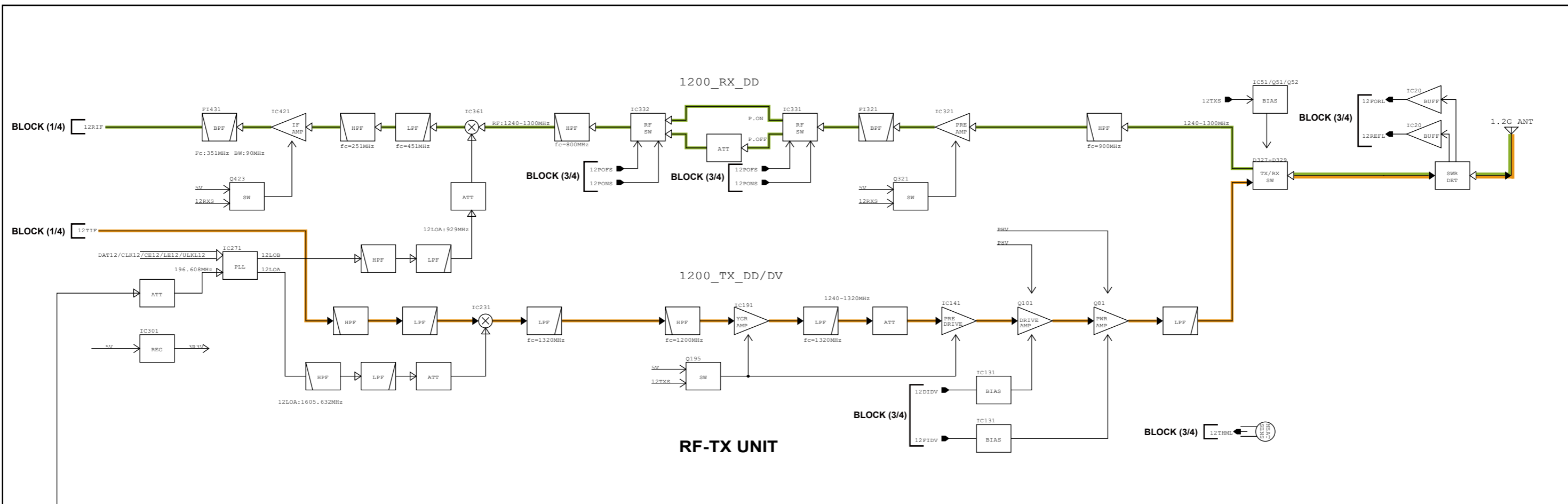


NOTE: Some parts may not be mounted on the PCB, depending on the transceiver version.
Refer to the PARTS LIST for the mounted parts.
The scale along the PCB indicates the corresponding "H/V LOCATION" on the parts list.



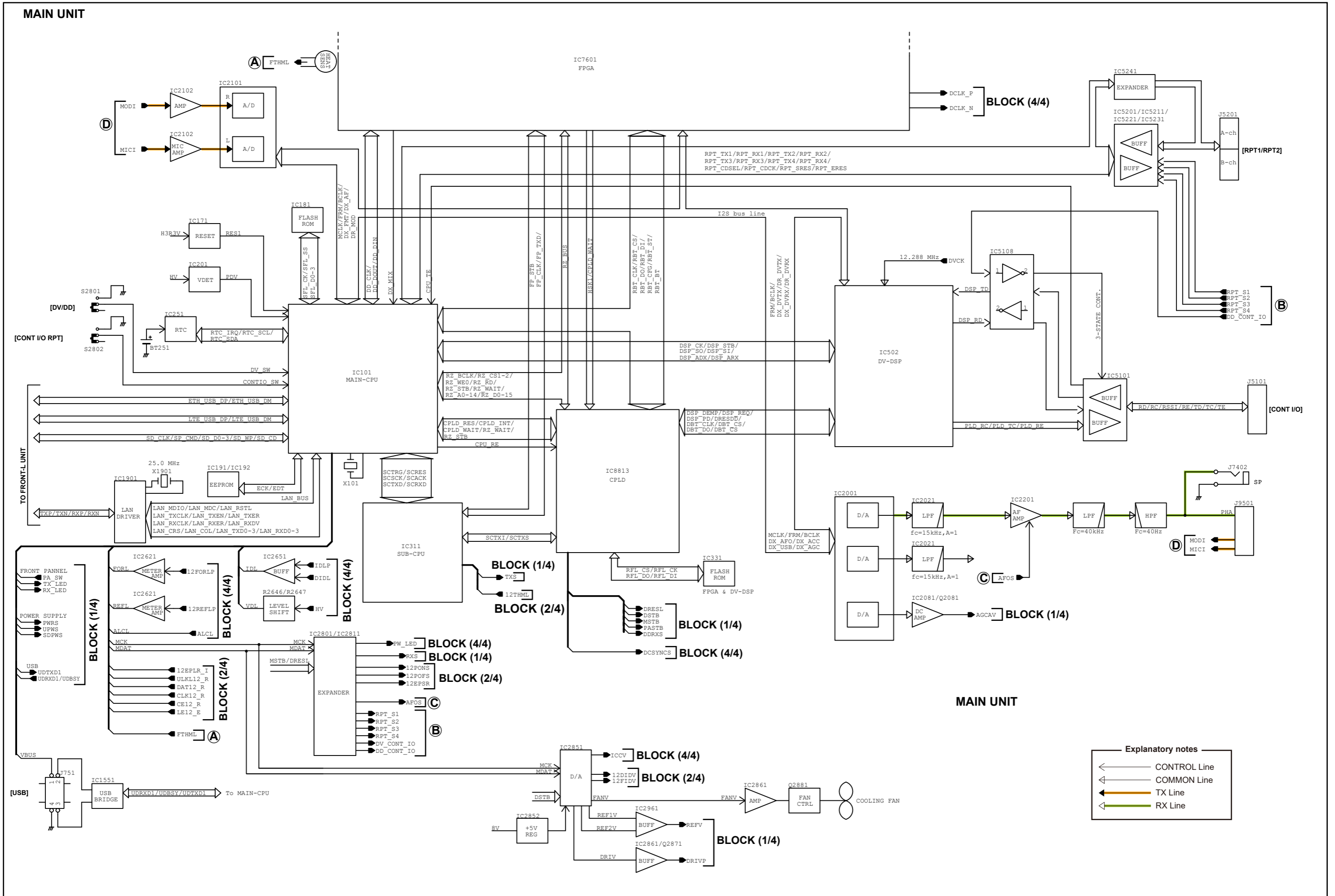
SECTION 11 BLOCK DIAGRAM



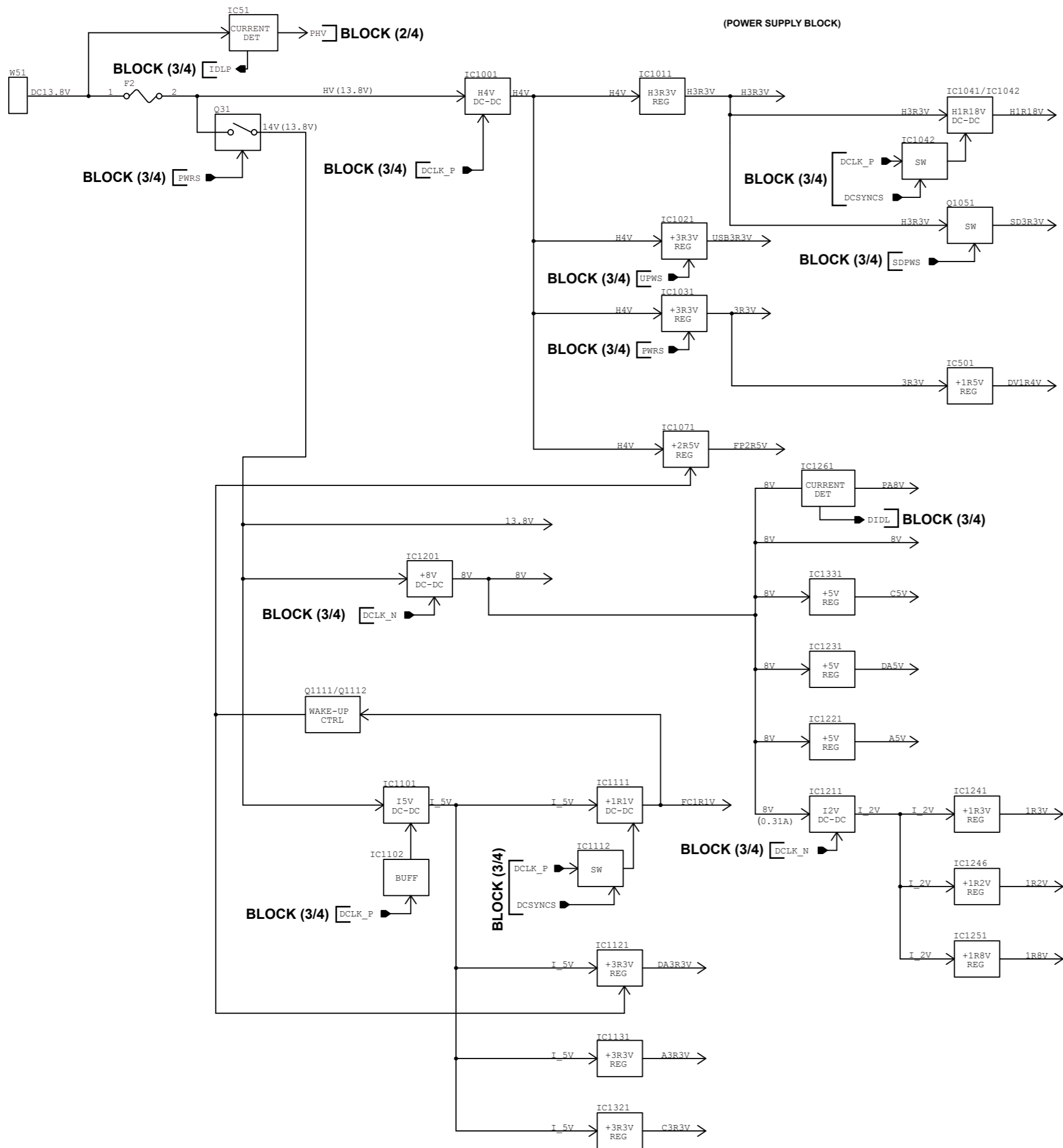


Explanatory notes

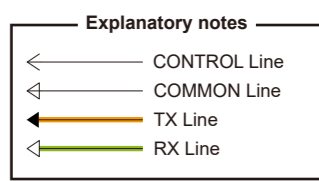
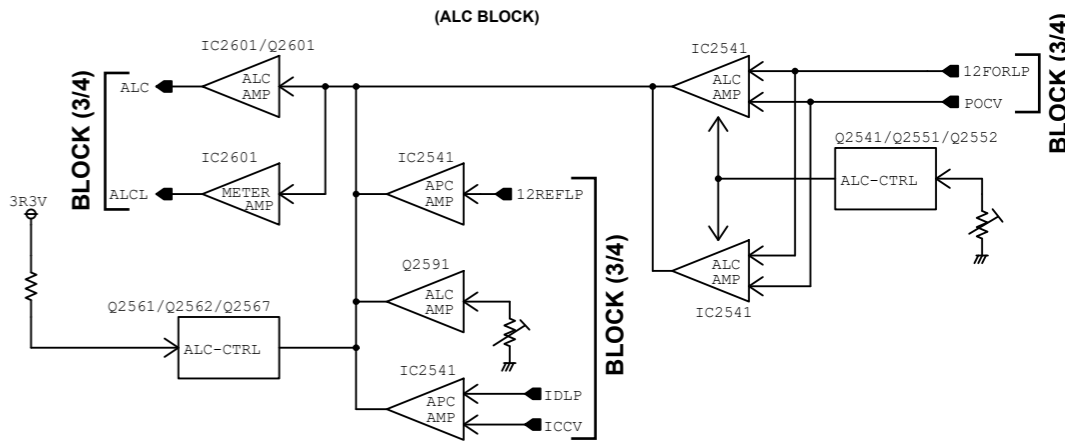
←	CONTROL Line
←	COMMON Line
←	TX Line
←	RX Line



MAIN UNIT



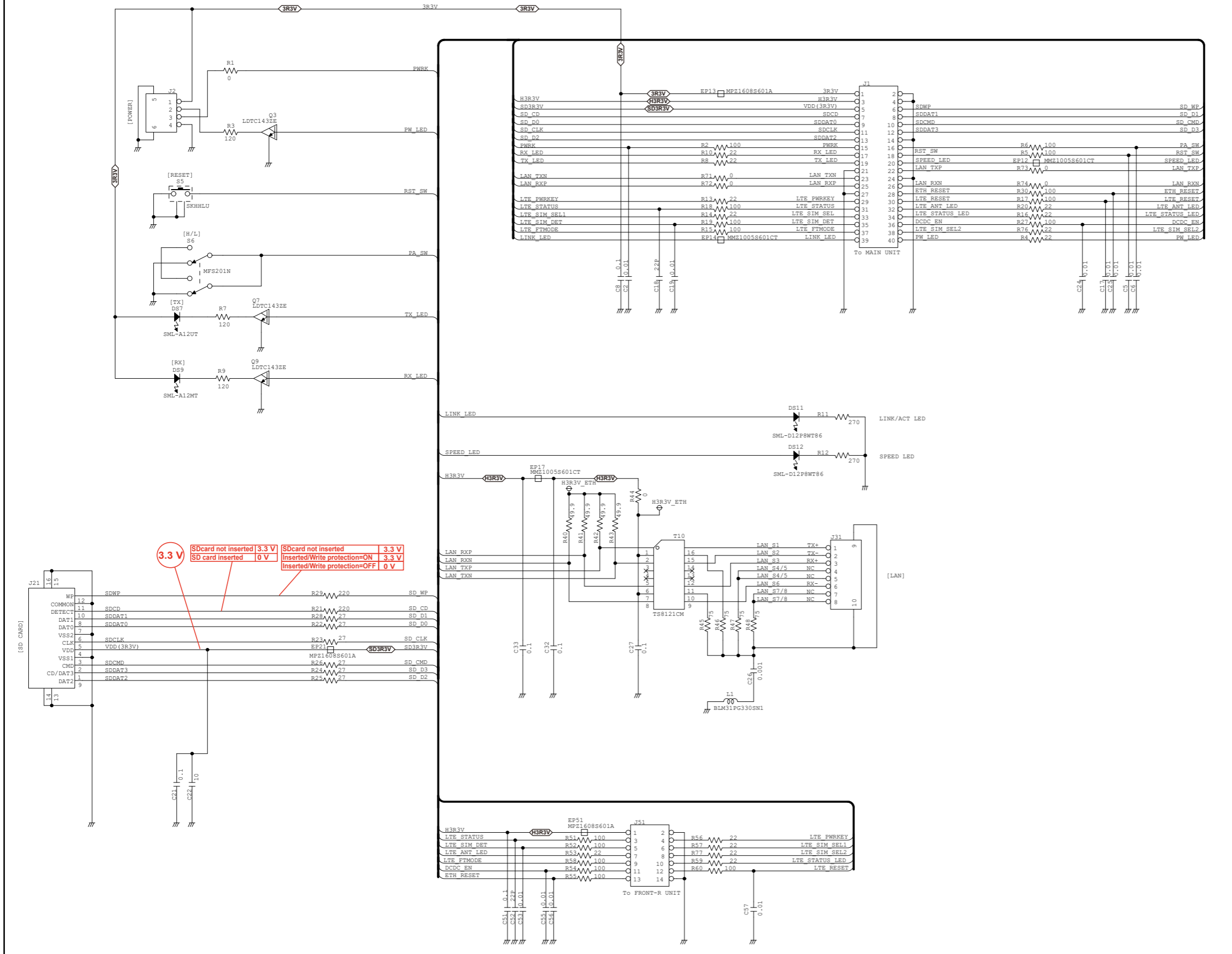
MAIN UNIT



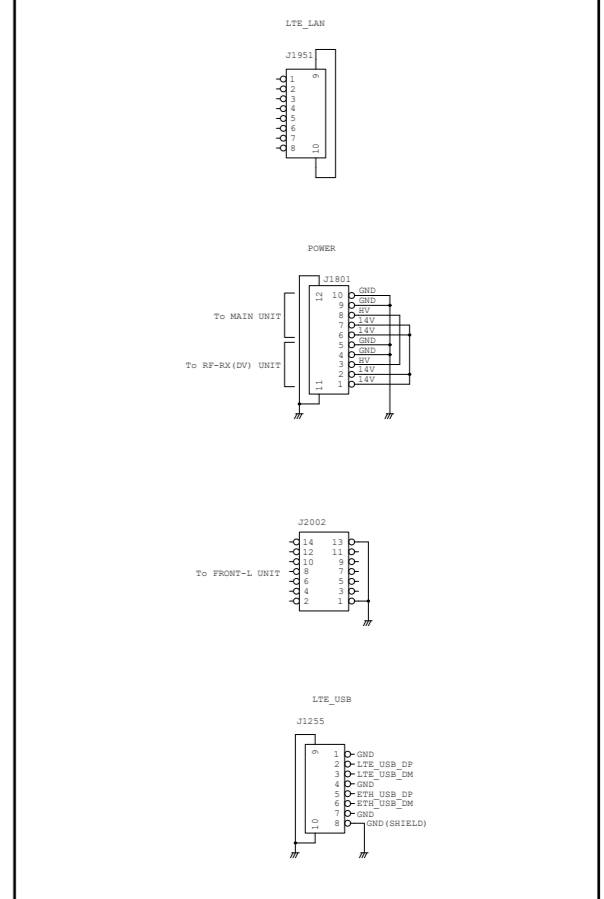
SECTION 12

VOLTAGE DIAGRAM

FRONT-L UNIT

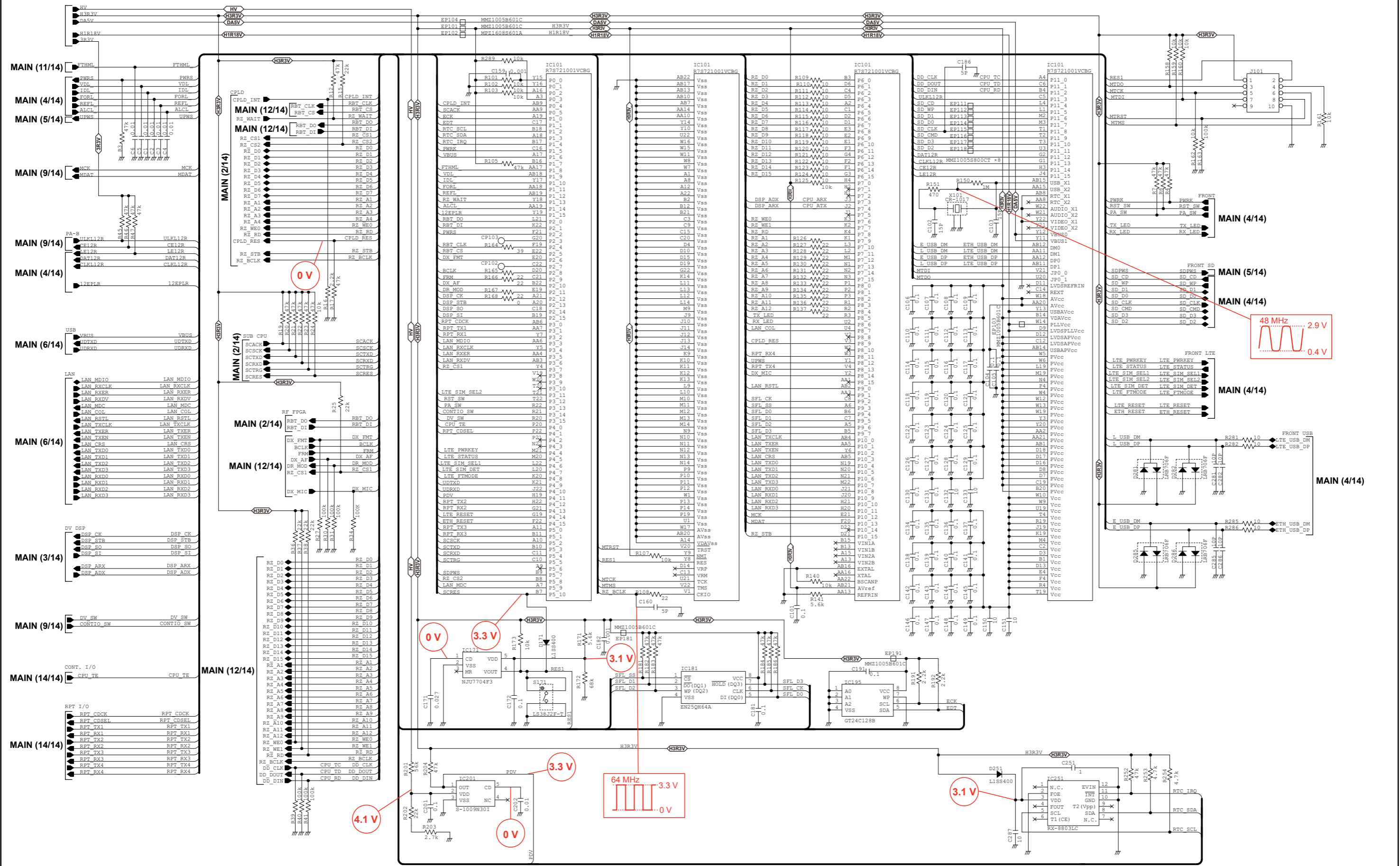


FRONT-R UNIT



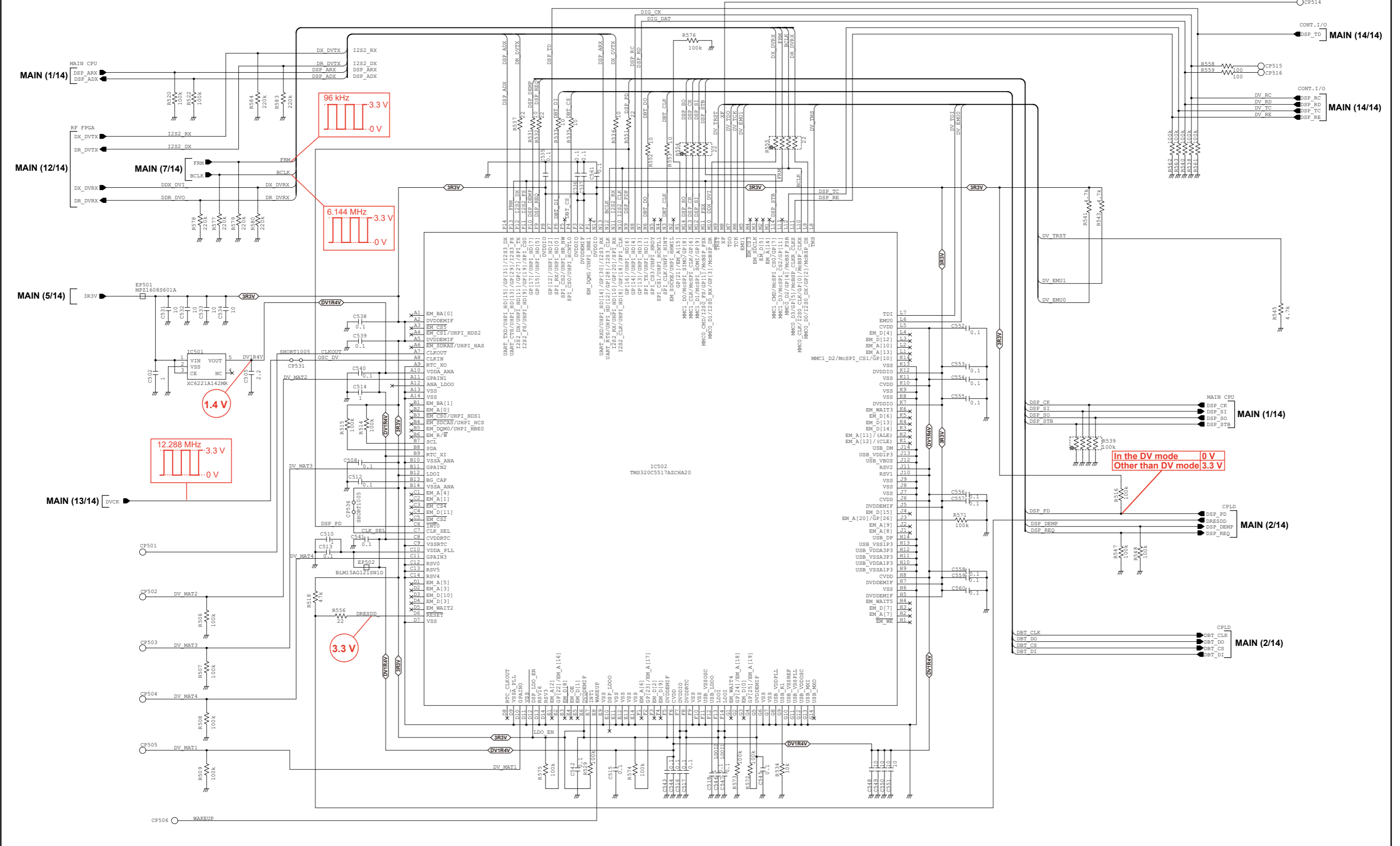
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (1/14)



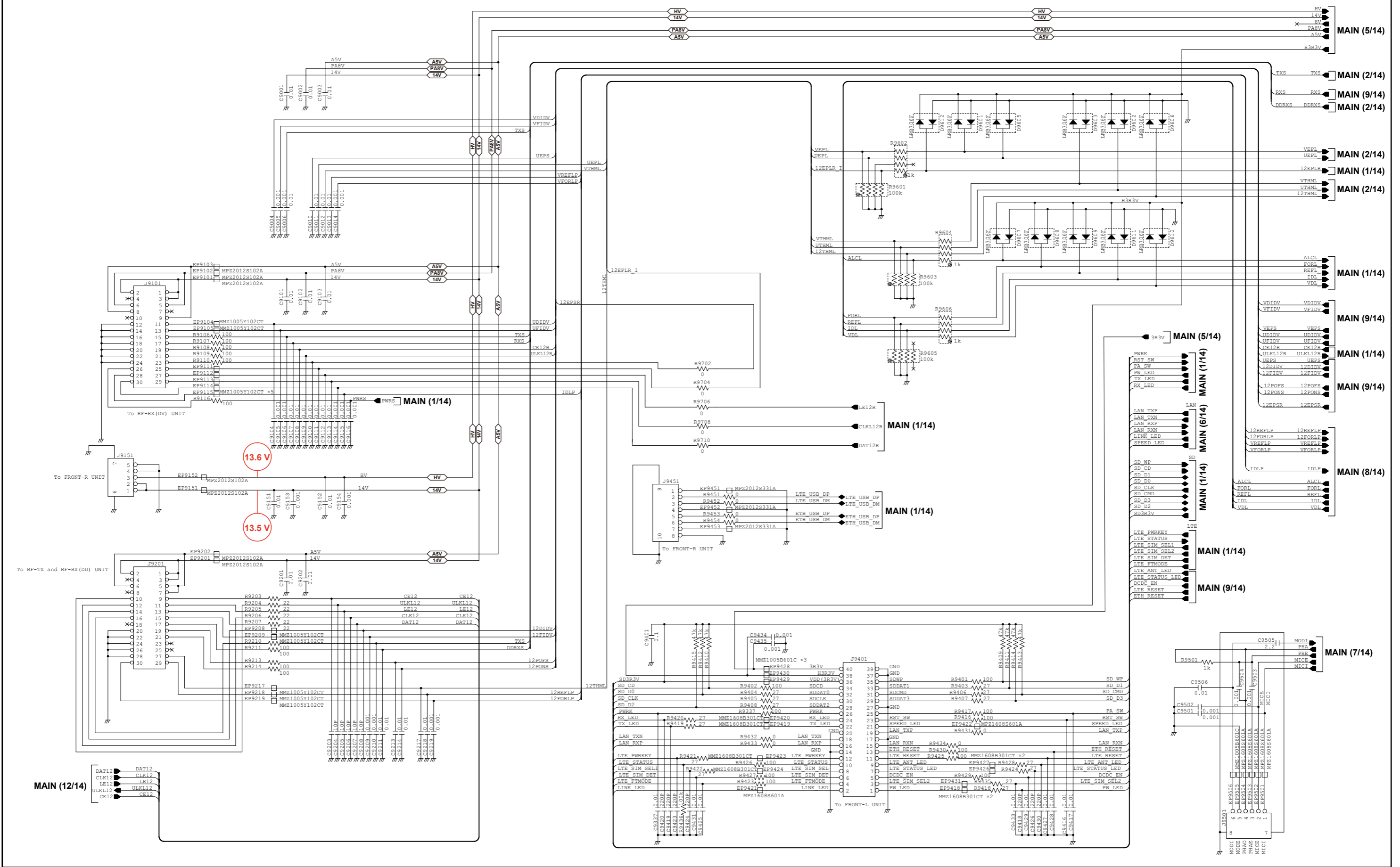
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (3/14)



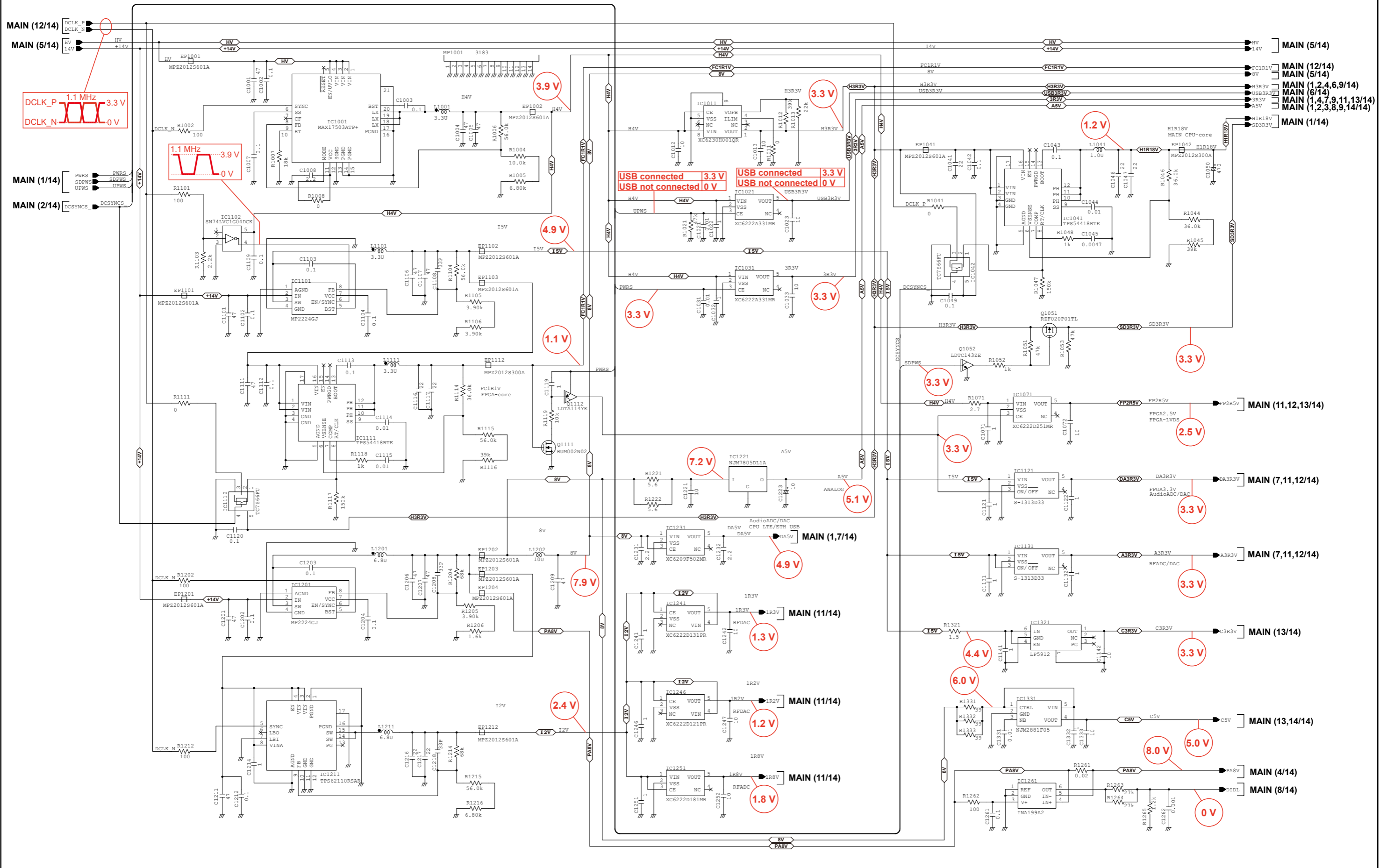
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (4/14)



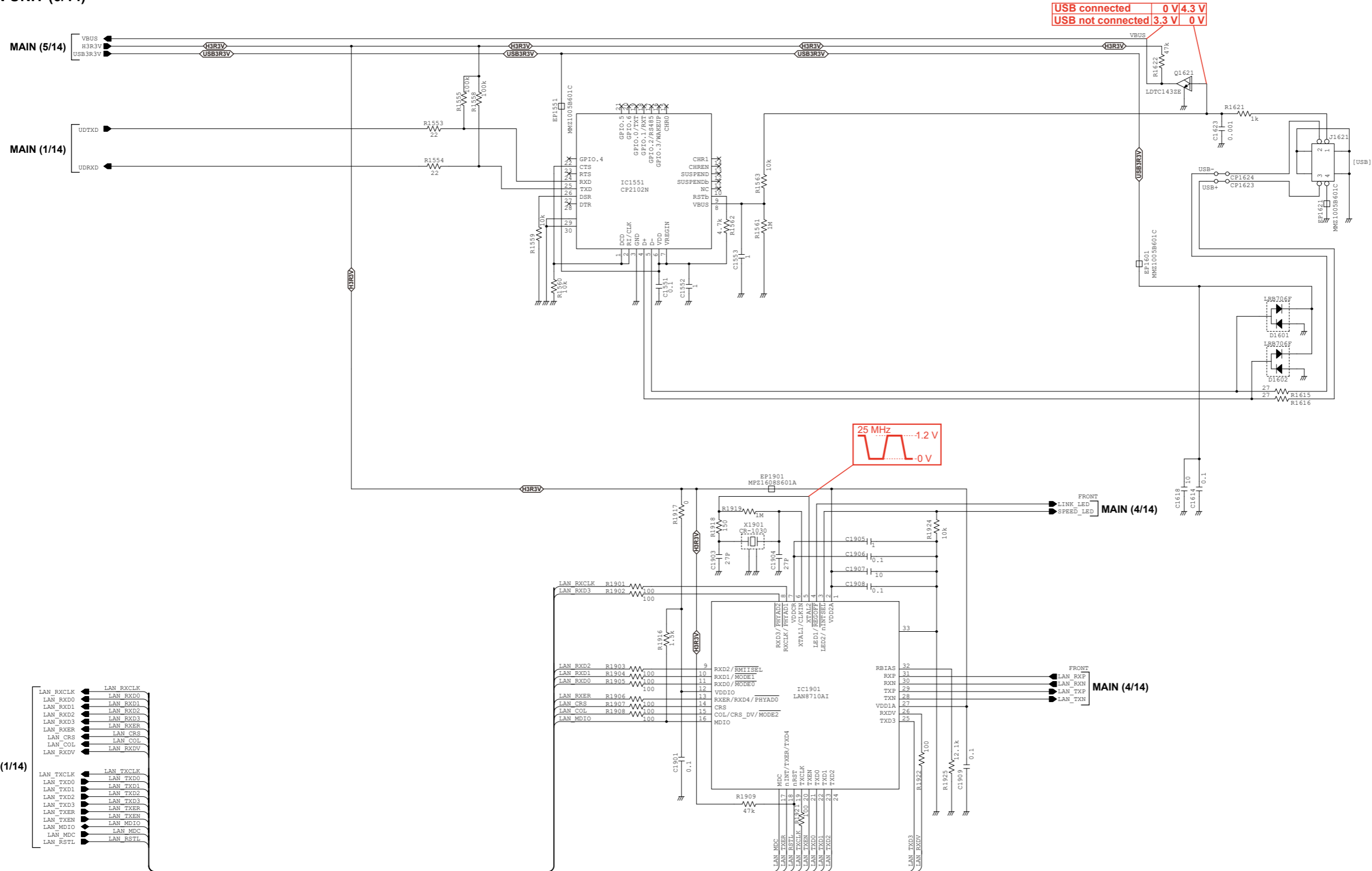
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (5/14)



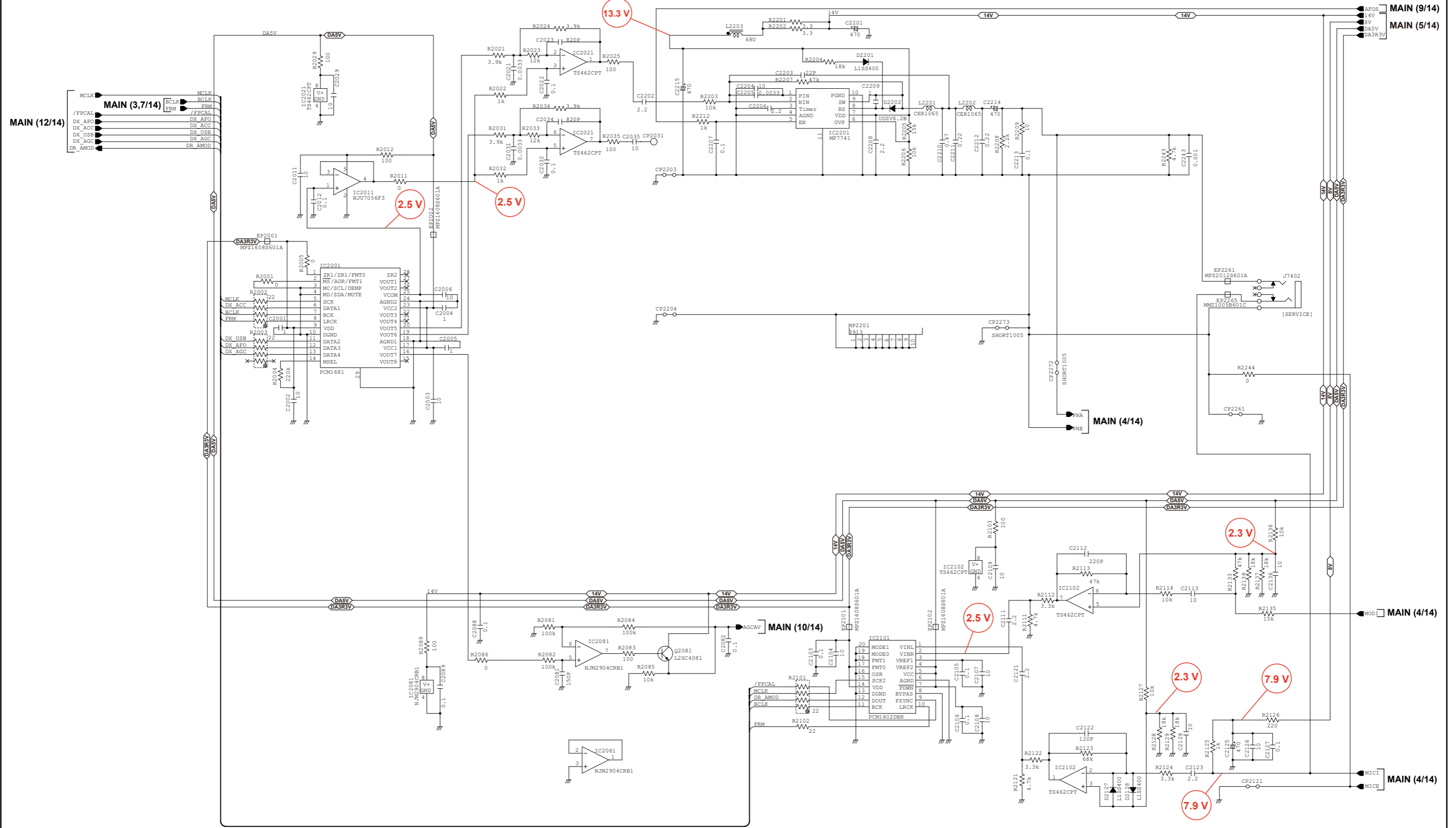
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (6/14)



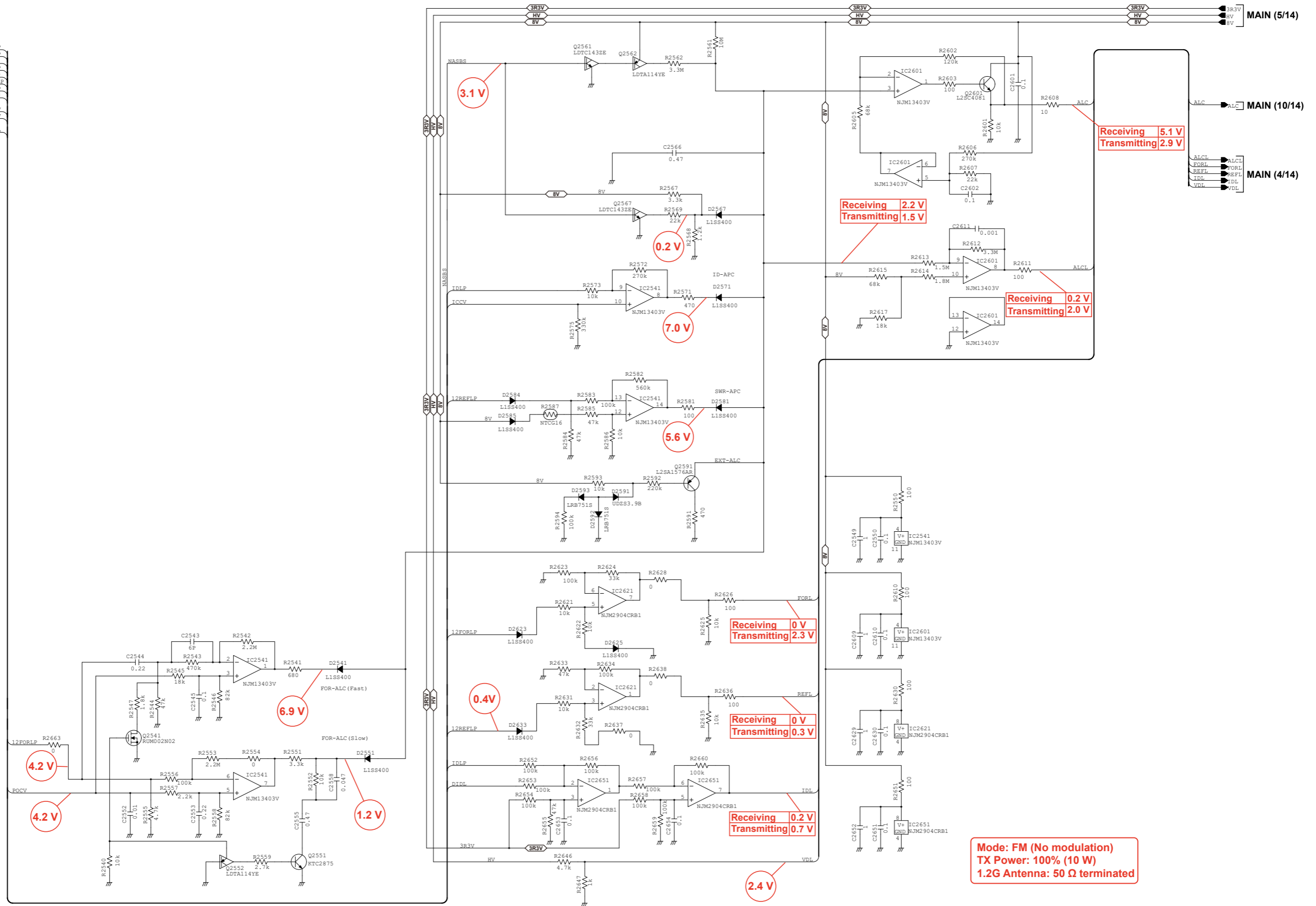
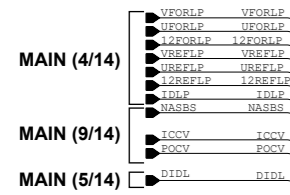
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (7/14)



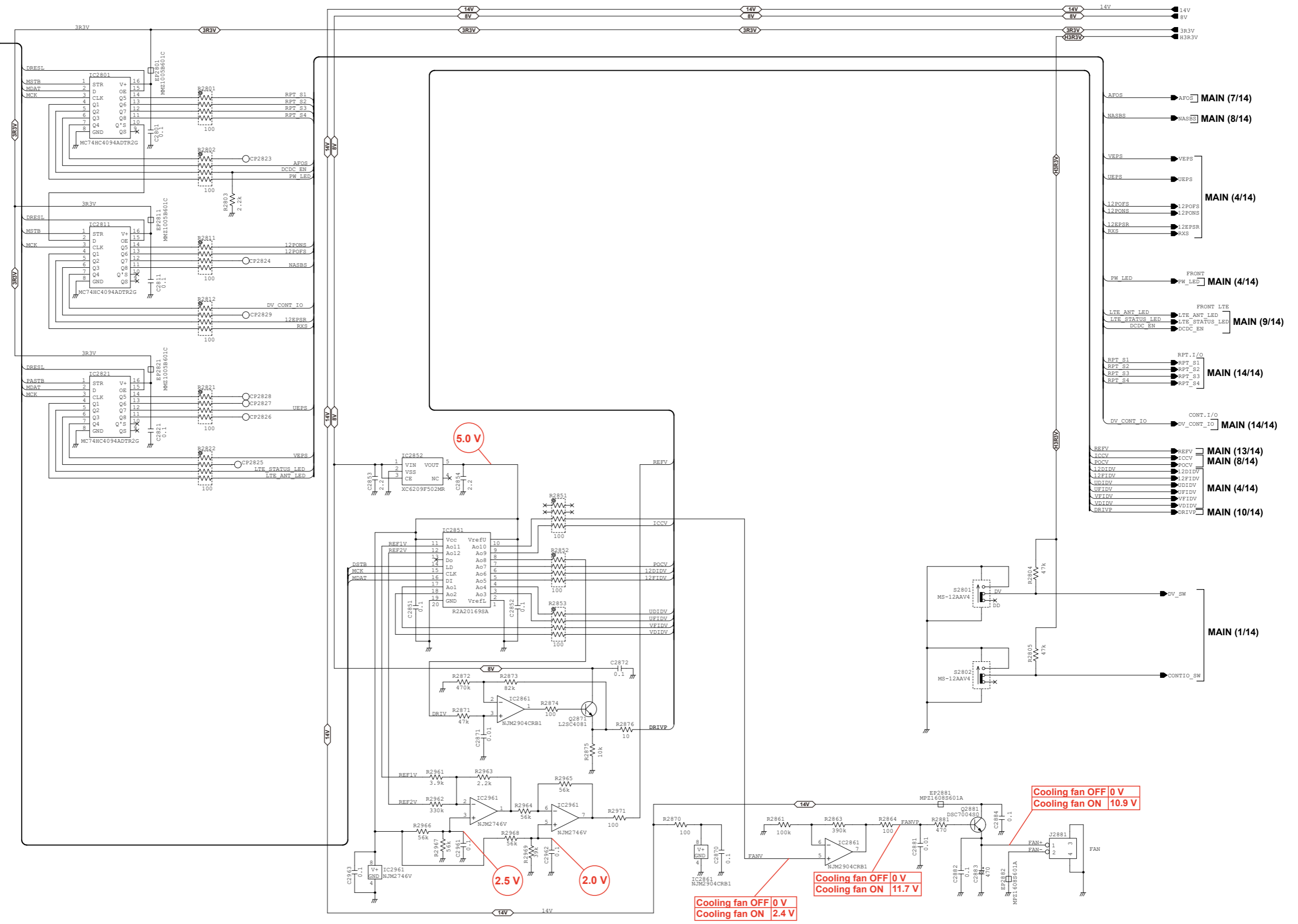
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (8/14)



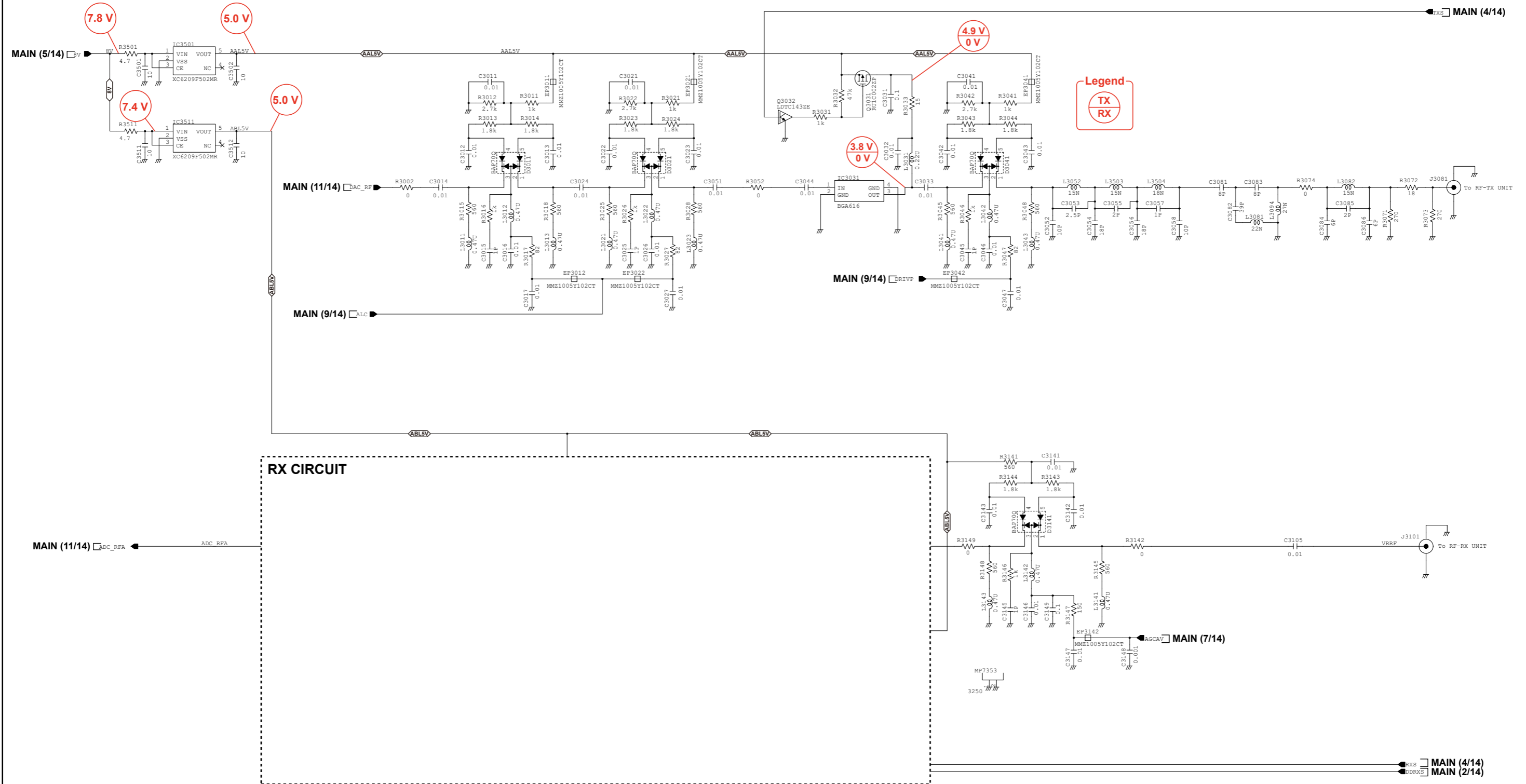
• MAIN UNIT (9/14)

- MAIN (2/14) DRESL
- MAIN (1/14) MCK
- MAIN (2/14) MCK
- MAIN (1/14) DSTB
- MAIN (2/14) DSTB
- MAIN (1/14) MDT
- MAIN (2/14) MDT
- MAIN (1/14) PASTB
- MAIN (2/14) PASTB



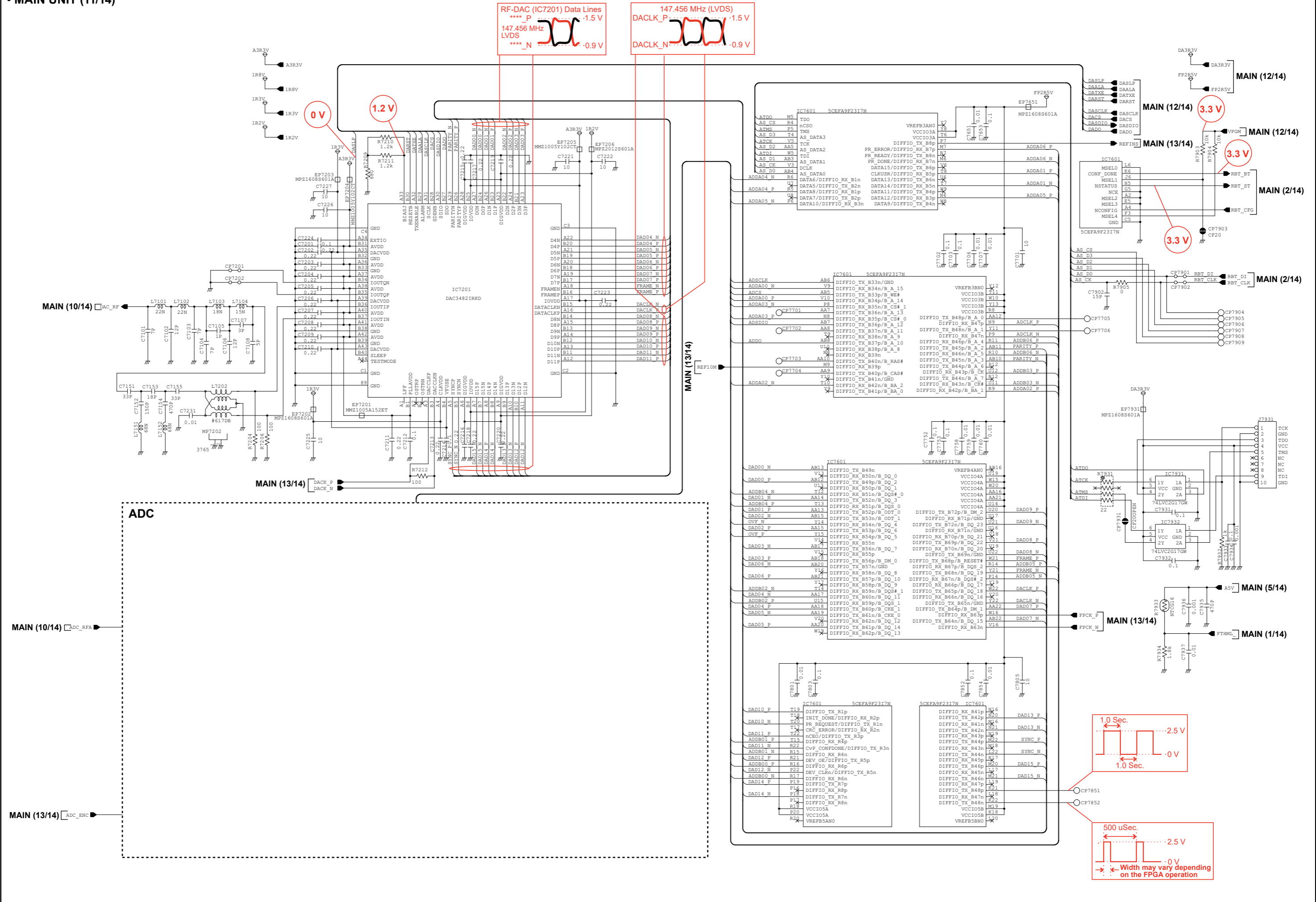
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (10/14)



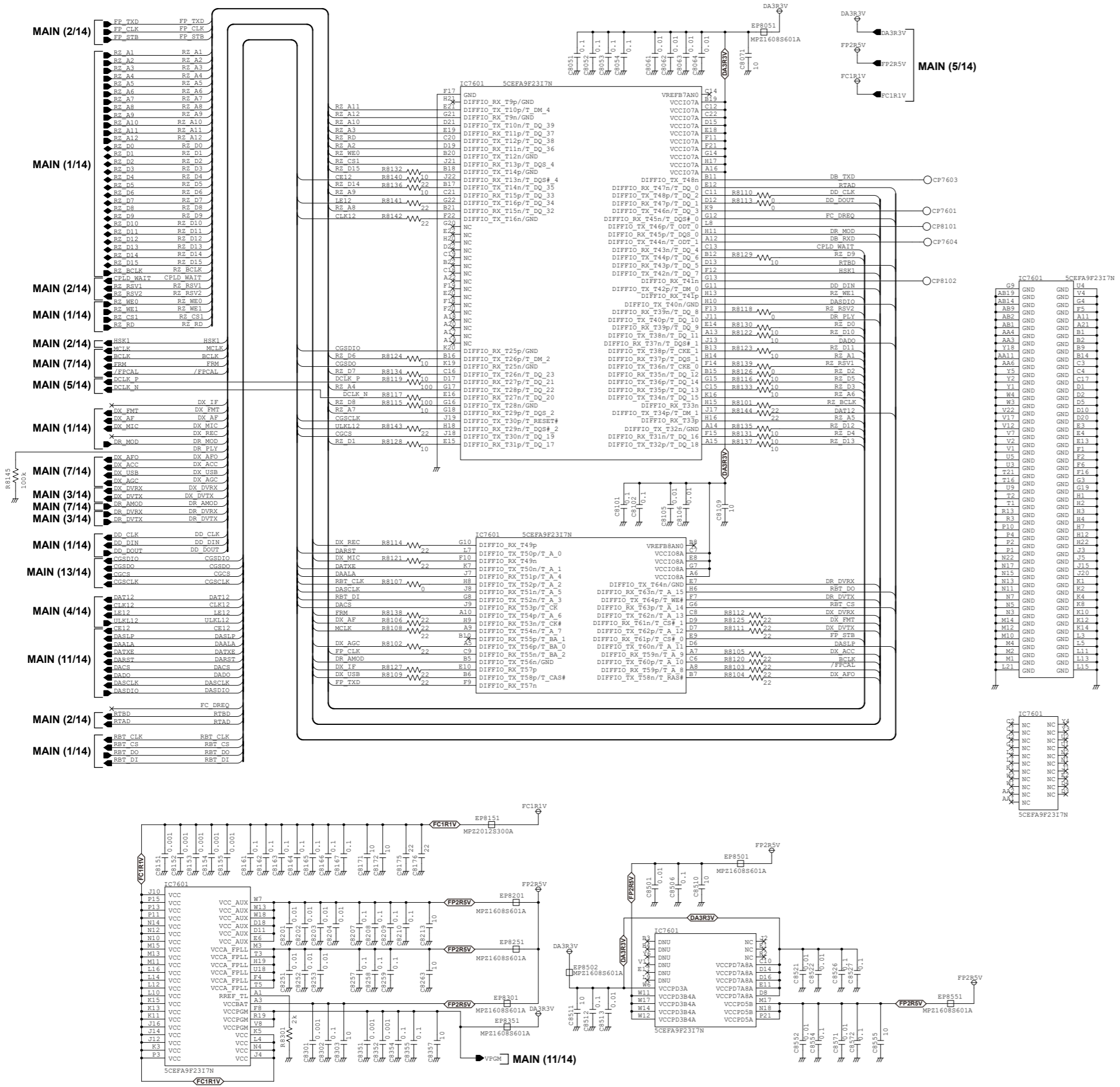
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (11/14)



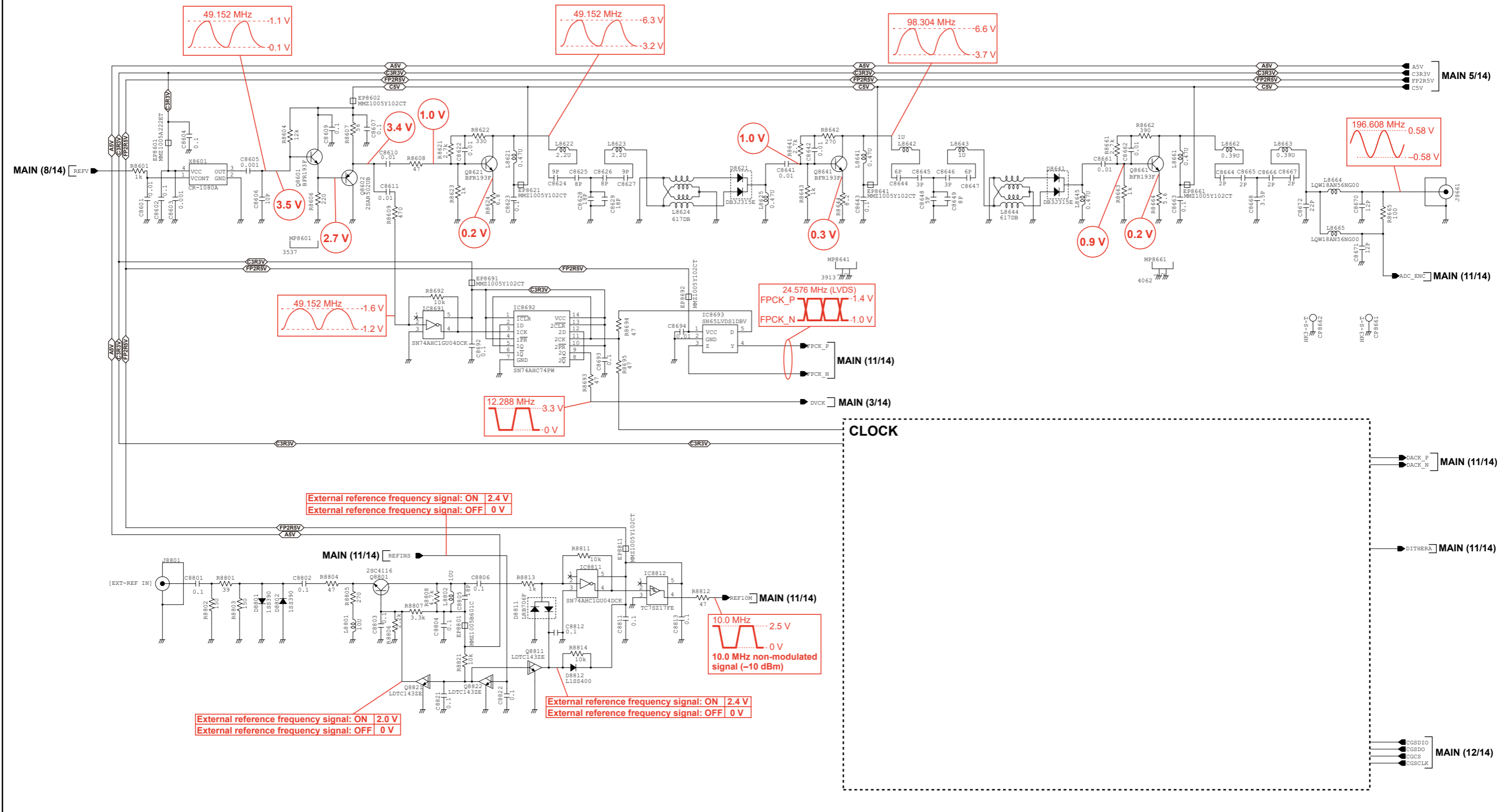
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (12/14)



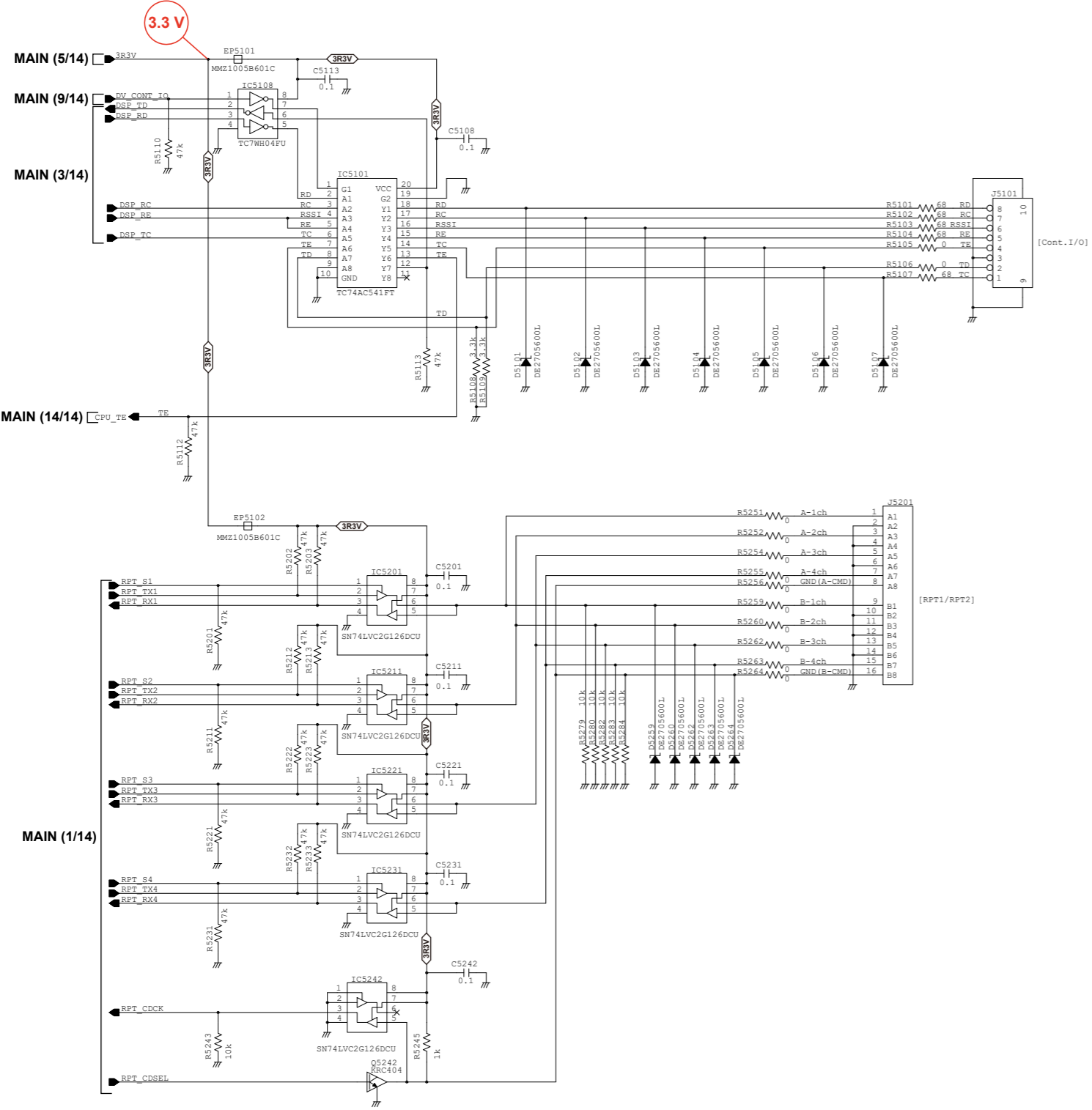
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (13/14)



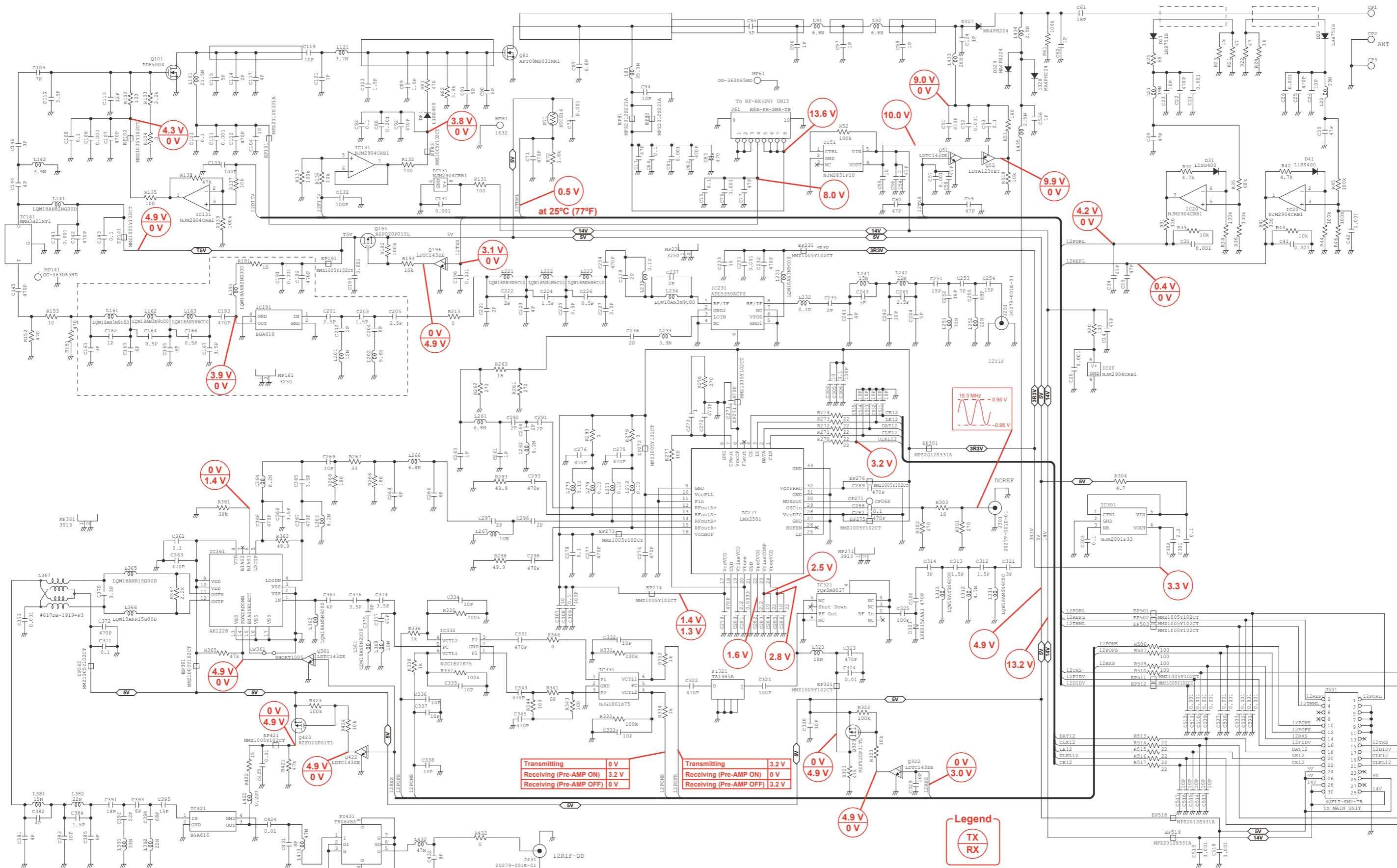
*Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (14/14)



*Refer to the PARTS LIST for the value and name of component.

• RF-TX UNIT



Transmitting	0 V
Receiving (Pre-AMP ON)	3.2 V
Receiving (Pre-AMP OFF)	0 V

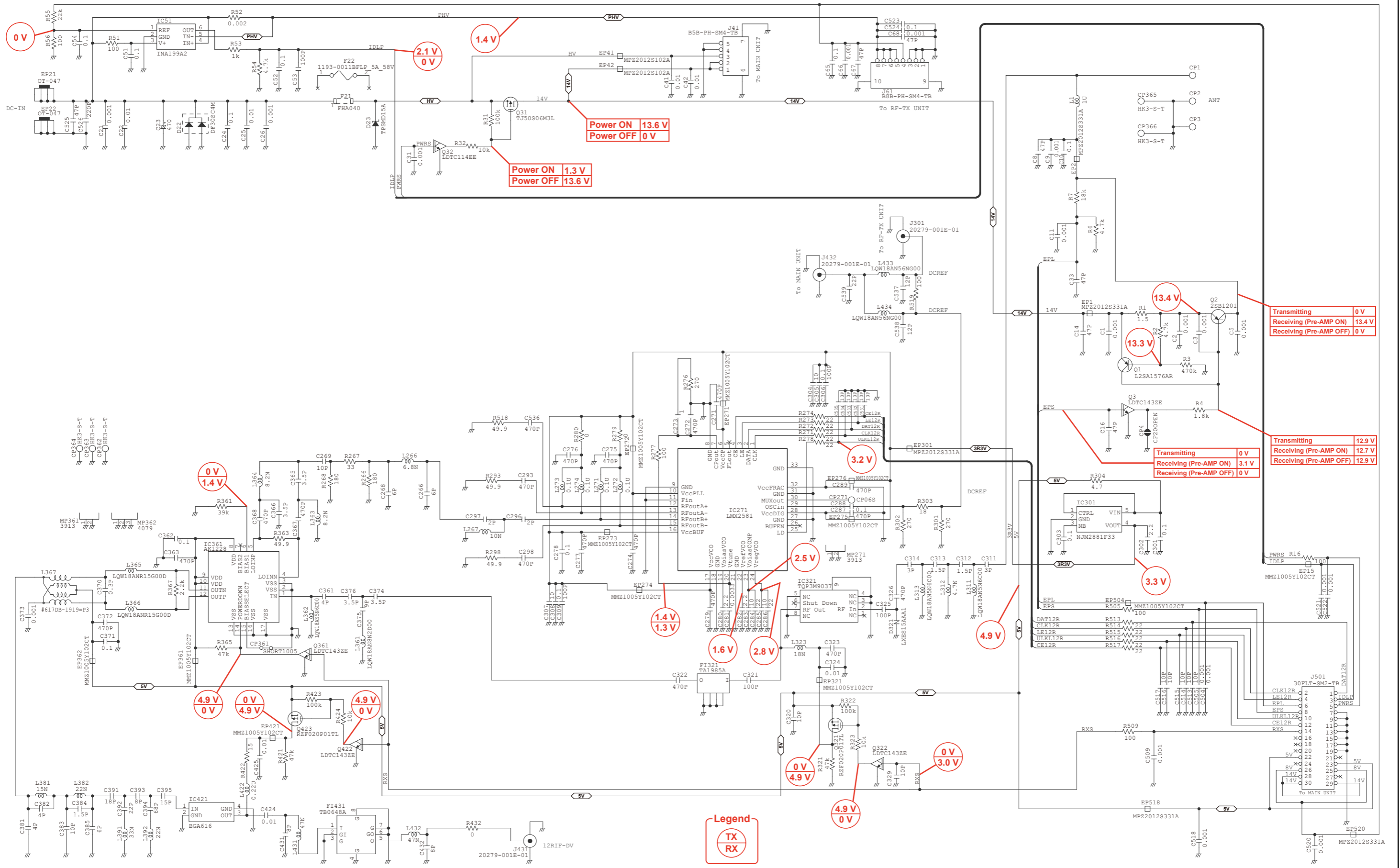
Transmitting	3.2 V
Receiving (Pre-AMP ON)	0 V
Receiving (Pre-AMP OFF)	3.2 V

TX
RX

Frequency: 1280.02 MHz
 Mode: FM (No modulation)
 TX Power: 100% (10 W)
 1.2G Antenna: 50 Ω terminated

*Refer to the PARTS LIST for the value and name of component.

• RF-RX UNIT



Power ON 13.6 V
Power OFF 0 V

Power ON 1.3 V
Power OFF 13.6 V

Transmitting 0 V
Receiving (Pre-AMP ON) 13.4 V
Receiving (Pre-AMP OFF) 0 V

Transmitting 0 V
Receiving (Pre-AMP ON) 3.1 V
Receiving (Pre-AMP OFF) 0 V

Transmitting 12.9 V
Receiving (Pre-AMP ON) 12.7 V
Receiving (Pre-AMP OFF) 12.9 V

Legend
TX
RX

*Refer to the PARTS LIST for the value and name of component.

If you have any inquiries regarding service, contact your distributor. The contact number or E-mail address of your distributor can be found on our website.

<https://www.icomjapan.com/>

