Malibu M-Link by Wet Sounds
Mech Overview

Eleven Engineering Inc.
071023

30 mm

10 mm

Front View

Side View

Motherboard w/FE antenna in upper section

No metal parts allowed in top half of product (the antenna region)

SKAA Icon on M-Link upper enclosure– can be subtle for example gloss black on matte black – for detailed dimension and location requirements see ***DO5501 SKAA Standard Rules***

Flair with weatherproof seal to deck

Boat's Bow Deck

SKAA compatible badge on lower enclosure

M-Link I/O jacks (100% waterproof jack solution is required)

70 mm

120 mm

50 mm

160 mm pigtail

DT04-4/p connector

CANBUS and Power

DT04-6/p connector

4 audio channels (2 in 2 out) and shared ground for each

160 mm pigtail to 2 jacks

Notes

- The I/O jacks are **DT04-4/p** and **DT04-6/p** from brand **TE Connectivity**
- If possible, some jacks will be combined/ eliminated; for example if power for M-Link can be drawn from the CANBUS network connection, the power connection to the M-Link will be removed
- This sketch is NOT meant to represent the Industrial Design for the M-Link —that ID will be integrated into the product design during Beta development phase
- Rather this sketch defines the overall mech configuration and the minimum dimensions

Malibu M-Link by Wet Sounds
Motherboard PCB dimensions

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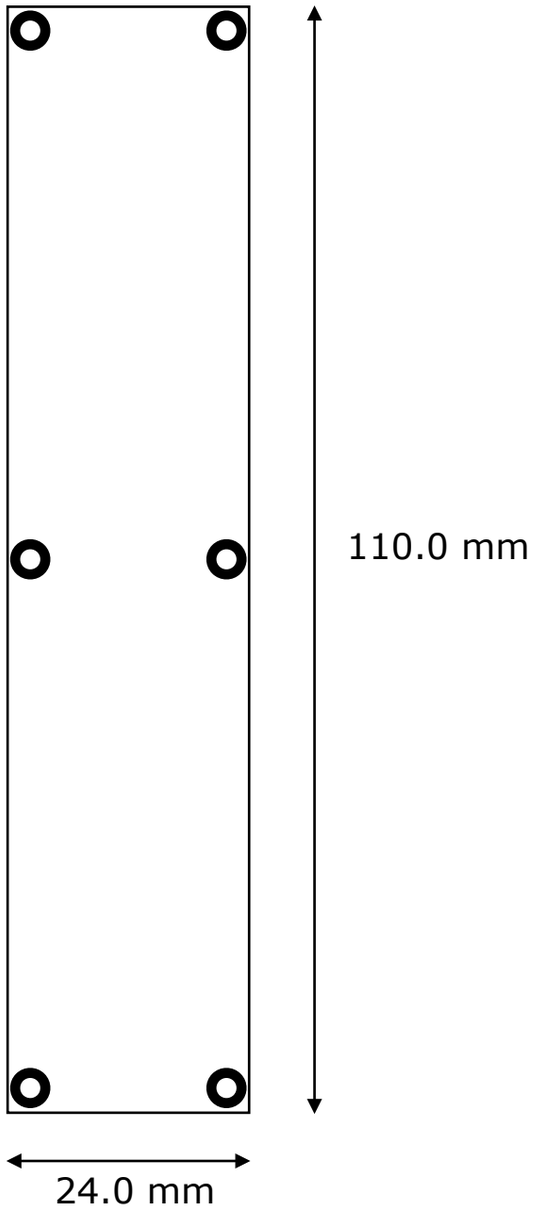
PCB is 1.6 mm thick

All components one side



Malibu M-Link by Wet Sounds
MFD Software UI - Transmit Mode

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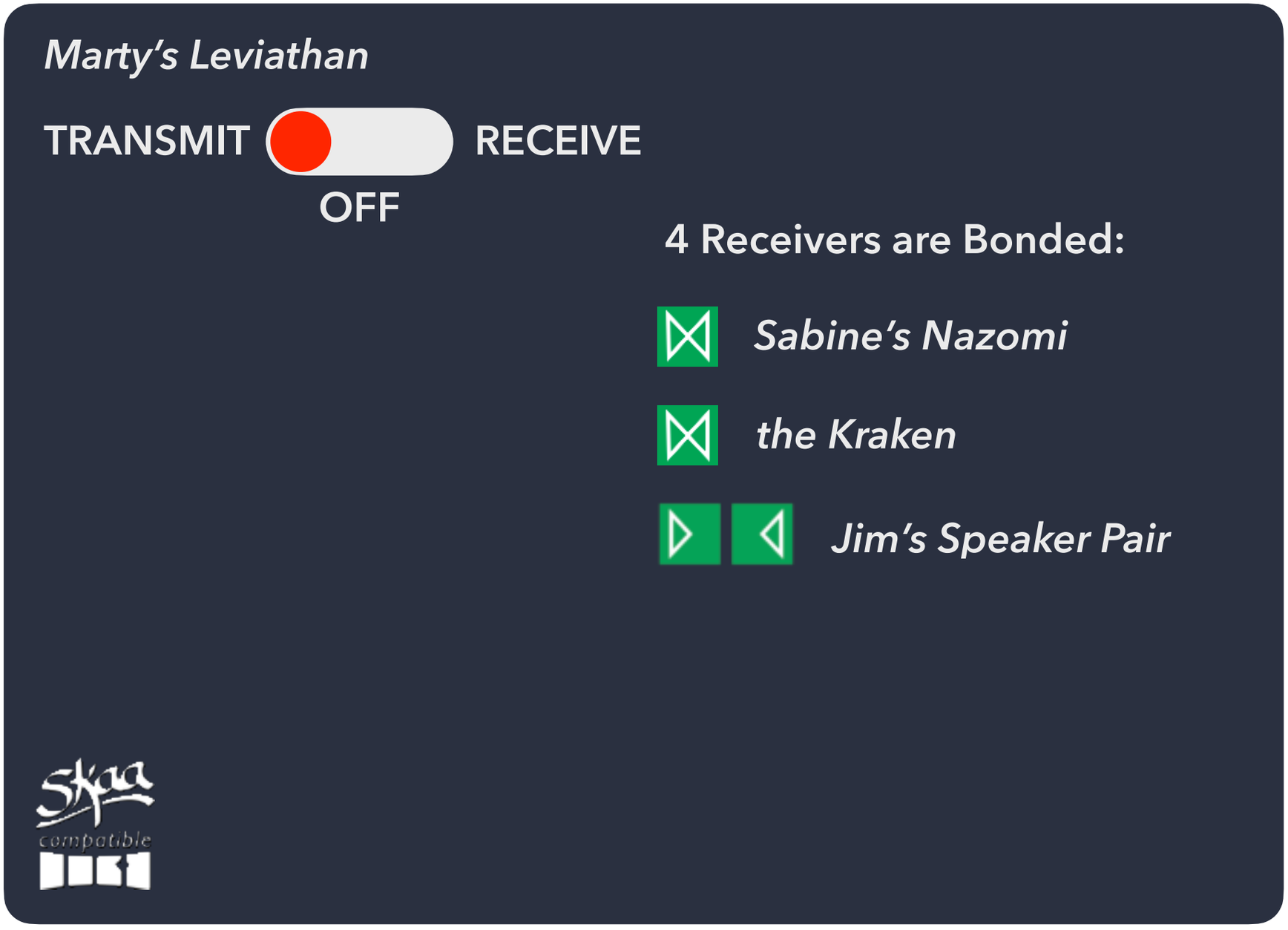
Notes
- This is the MFD screen when the M-Link is in Transmit mode
- Global Volume for the M-Link (SKAA API hVOL) is always fixed at “full up” (0xFF).



Malibu M-Link by Wet Sounds
MFD Software UI - Mode = OFF

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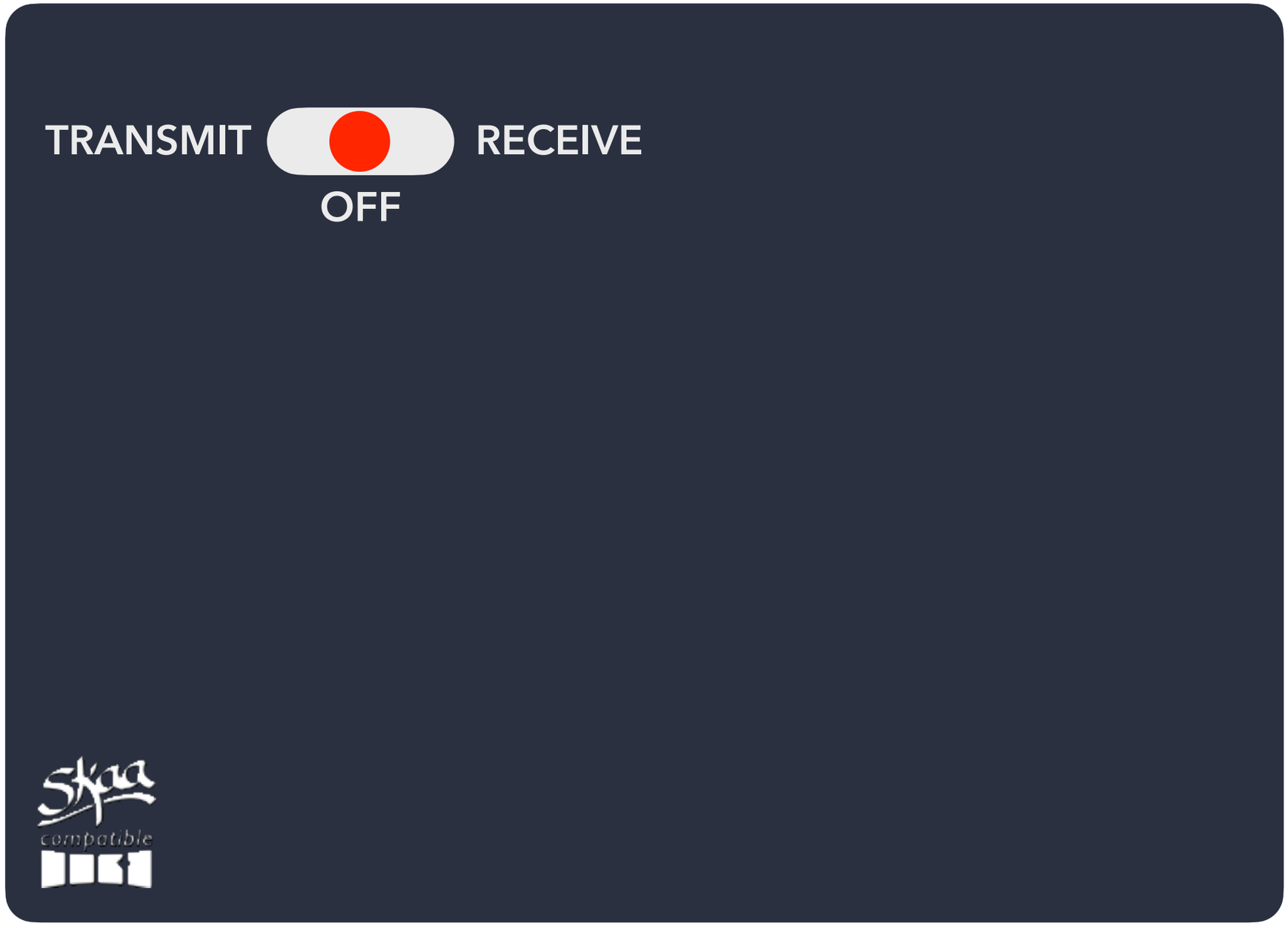
Notes
- This is the MFD screen when the M-Link is set to OFF



Malibu M-Link by Wet Sounds
MFD Software UI - Receive Mode

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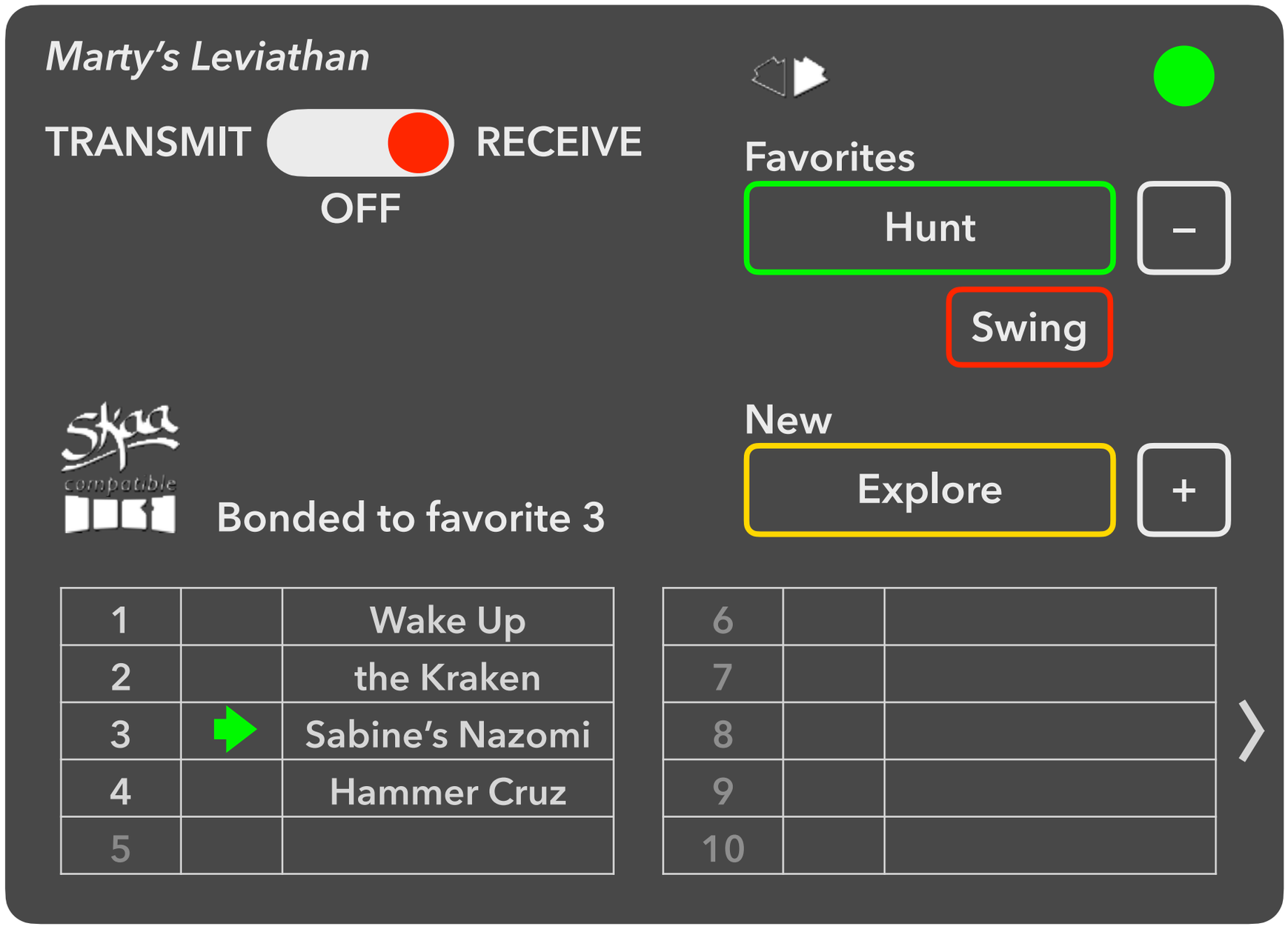
062823

Notes
- This is the MFD screen when the M-Link is in Receive mode
- Specifically, this is what the screen looks like BEFORE the chevron (bottom right) is clicked



Malibu M-Link by Wet Sounds
MFD Software UI - Receive Mode (page 2)

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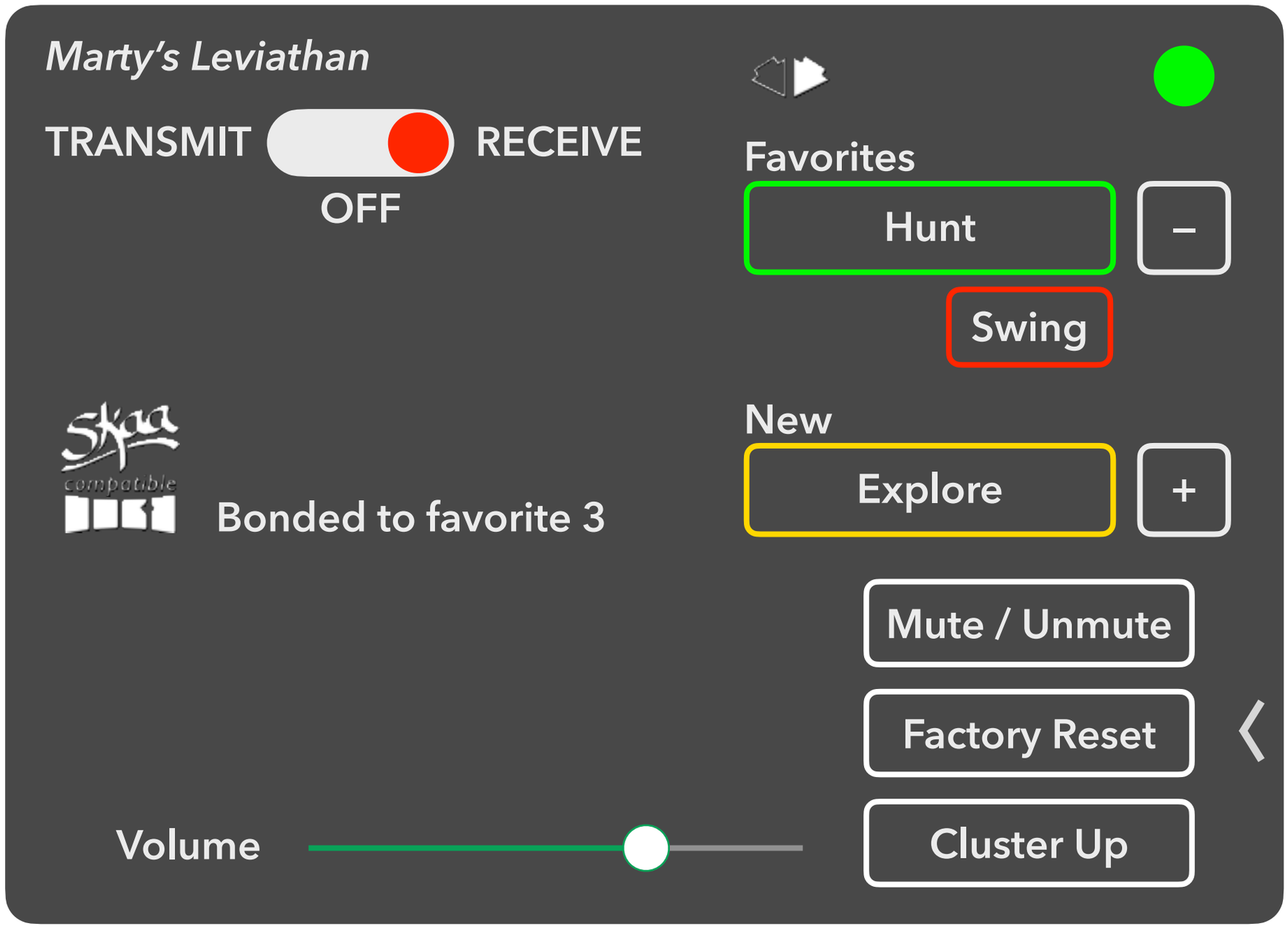
Notes
- This is the MFD screen when the M-Link is in Receive mode
- Specifically, this is what the screen looks like AFTER the chevron (bottom right) is clicked
- The chevron reveals power user feature buttons plus a local SKAA volume fader
- Factory Reset will max bVTR
- bVTR will also be set to max on Power Up



Bond Button / Bond Indicator
Standard Definition
Eleven Engineering Inc.

Essentials

Button	*Command*	*Indicator*
Hold a few seconds	Add / Delete Manually add / delete the current transmitter to / from your Green List	● to ● = Added ● (flash) = Deleted
-	Auto Add SKAA will automatically add the current Amber transmitter to your Green List if you listen to it for 30 minutes	● to ● = Added
1 Click	Green Mode Rotate through your list of *favourite* transmitters (Green List) — when a favourite transmitter is found, the search stops and audio plays from that transmitter	● (dim) = Hunting ● (flash) = Next one ● (bright) = Bonded
2 Clicks	Amber Mode *Explore* for new, unknown transmitters (ones which are not already on your Green List)	● (dim) = Hunting ● (bright) = Bonded

More Commands

Button	*Command*	*Indicator*
3 Clicks	Mute do again to Unmute; any Click command will first Unmute and then do its function	●, ● or ● = Muted (slow flash)
4 Clicks	Red Mode If you have 2 or more transmitters on your Green List, power on just the one you want to hear and it plays automatically.	● (dim) = Hunting ● (bright) = Bonded
6 Clicks	Factory Reset Clear Green List. Start Over!	● (flash) = Reset Done
Hold during power on	Make a Cluster of Receivers: 1. Power off all transmitters and receivers 2. Power on the Master receiver while holding down its Bond Button—hold the button down until the Indicator begins to flash Red 3. With the remaining receivers within 3 meters of the Master receiver, power on the first one, wait for its Indicator to flash Red and then power on the second one; continue until all of them are powered on 4. Once all of the Indicators stop flashing (turn solid Red), power off all of the receivers	● (flash) = Receiver has entered 'Cluster Up' mode ● (bright) = The Cluster has been successfully made

Notes

- In the MFD software UI, most of the multi-click Bond Button functions have a dedicated button (Receive mode only)
- A fully spec-compliant Bond button is also implemented to spec in the software UI (Receive mode only)

FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not ca use harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the use r's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the F CC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructio ns, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determine d by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following m easures: • Reorient or relocate the receiving antenna.• Increase the separation between the equipment and receiver.• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.-

Consult the dealer or an experienced radio/TV technician for help important announcement

Important Note:

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Malibu M-Link by Wet Sounds
How SKAA Volume Works

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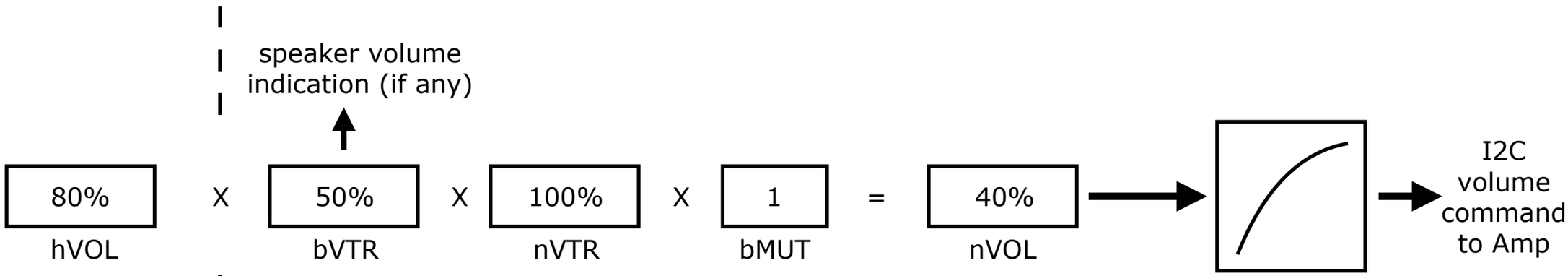
Notes
- M-Link Global Volume (SKAA API hVOL) is always fixed at "full up" (0xFF)
- M-Link I2C volume scaling takes place in the DAC chip



hVOL is "Host Volume"; a GLOBAL volume which is always maintained and stored in the SKAA transmitter. hVOL is usually linked to the host device volume (e.g. iOS, Mac OS, Windows or Android system volume) and mirrors it. If volume data from the host device is not available (for example from dumb audio sources like a 3.5mm AUX input), then hVOL is set to full up.

hVOL affects all receivers bonded to this transmitter (up to 4 of them)

bVTR is "Bay Volume Trim"

This is a LOCAL volume which is stored and maintained in the Receiver.

If this Receiver is part of a Cluster, bVTR affects all nodes in the Cluster.

nVTR is "Node Volume Trim" which is disabled (set to full up) in most products.

It is used only in select cases, such as for trimming volume in subwoofers which are slave nodes in Clusters.

If this Receiver is part of a Cluster, only this receiver is affected (all other member nodes of the Cluster are not)

bMUT is "Local" mute which is stored and maintained in the Receiver. 3x clicking the BOND BUTTON will toggle bMUT. It's a 1 or 0.

nVOL is continuously being calculated in the receiver. It is the product of all the parameters on the left.

nVOL is transformed through a volume table (so a log curve may be applied) prior to sending the volume commands to the amplifier chip via I2C

transmitter side

receiver side

Malibu M-Link by Wet Sounds
Power States

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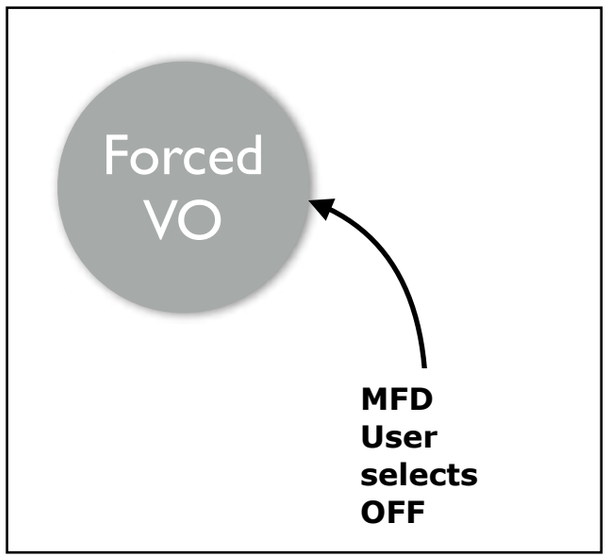
Notes

- "VO" means Virtual Off —this is a power saving state for SKAA transmitters, triggered by lack of audio (silence).
- In VO state, Ginseng's RF section is shut off causing all Bonds to drop (all Bonded SKAA receivers are dropped)
- "Standby" is a power saving state for SKAA receivers.
- in Standby state, Ginseng shuts off the ADC, DAC and buffers
- "Sleep" is a power saving state for SKAA receivers. Sleep is triggered by a loss of Bond.
- In Sleep state, the SKAA receiver improves on the power saving performance of Standby state by also duty cycling the SKAA radio. You can tell the unit has gone to sleep when the SKAA indicator shuts off and the Power LED dims
- Powering off certain chips will be effected by holding them in RESET
- Power OFF commands sent from MFD to M-Link will actually place the M-Link into VO or Sleep state

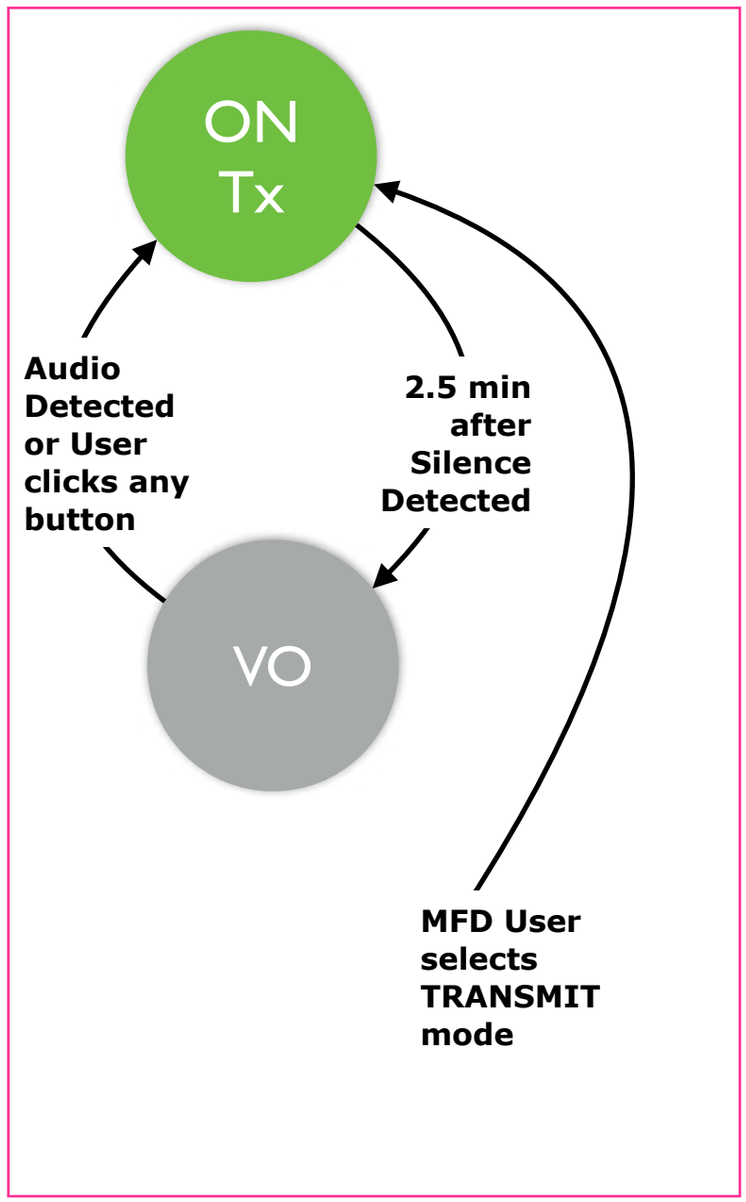
Chip Power

Chip:	Ginseng	ADC	DAC	CANBUS interface
ON Tx	√	√	-	√
VO	RF off	√	-	√
Forced VO	RF off	-	-	√
ON Rx	√	-	√	√
Standby	√	-	-	√
Sleep	RF 33% duty cycle	-	-	√

All modes



Tx mode



Rx mode