

## DINAH – BRIAN(SM) – SHARI Comparison Matrix

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FEATURE	DINAH	BRIAM(SM)	SHARI (Pi3U,Pi3V,Pi4U,Pi4V)	SHARI PiHat (U and V)
Photo				
Radio	External VHF or UHF ham transceiver with 6 pin DIN interface. ( Note 1).	Circuit board from UHF Baofeng BF888S (newest half-size version). Uses RDA1846 single IC for radio	niceRF SA818 UHF radio module with custom firmware. Uses RDA1846 single IC for radio.	niceRF SA818 UHF radio module with custom firmware. Uses RDA1846 single IC for radio.
Frequency	Depends on external transceiver	Per Baofeng BF888S specifications	PiXU - 420-450 MHz (70 cm) PiXV – 144-148 MHz (2m)	PiHatU - 420-450 MHz (70 cm) PiHatV – 144-148 MHz (2m)
Radio cost	User supplied. Must have 6 pin DIN 'packet' connector on radio. (Note 1)	User supplied, BF888S is \$10-13 from Amazon.	NiceRF SA818U or SA818V included with the kit.	NiceRF SA818U or SA818V included with the kit.
PC Board Technology	Single PC board using surface mount and through-hole parts.	Single PC board using surface mount and through-hole parts.	Single PC board using surface mount and through-hole parts.	Single PC board using surface mount and through-hole parts.
PC board assembly required	PC board supplied with all surface mount parts installed. Kit builder installs 4 through-hole parts.	PC board supplied with all surface mount parts installed. Kit builder installs 8 through-hole parts. Also modifies, mounts and wires the BF888S board.	PC board supplied with all surface mount parts installed. Kit builder installs 9 through-hole parts and the SA818 radio module .	PC board supplied with all surface mount parts installed. Kit builder installs 2 through-hole parts, the SA818 radio module and the SMA RF connector.
PC board Mounting	PC board slides into two slots in the enclosure.	PC board slides into two slots in the enclosure.	PC board slides into two slots in the enclosure.	PC board plugs into the Raspberry Pi GPIO connector
RF Power Output	Depends on external transceiver.	200-600 mW (Note 2).	100-450 mW	100-450 mW
Harmonics and spurious	Depends on external transceiver.	As provided by Baofeng BF888S.	Low pass filter incorporated into design (less than -16 dBm).	Low pass filter incorporated into design (less than -16 dBm).
USB audio interface	CMedia CM119B/108B (depends on part availability)	CMedia CM119B/108B (depends on part availability)	CMedia CM119B/108B (depends on part availability)	CMedia CM119B/108B (depends on part availability)
Raspberry Pi Interface	USB Type A male connector on DINAH plugs directly into USB Type A female on Raspberry Pi (2, 3 or 4). A USB extension cable can be used if desired.	A short USB Type A male to Type B male cable (provided with the kit) is used to connect BRIAN to a Raspberry Pi (2, 3 or 4).	2 USB Type A male connectors mate with USB female connectors on the Raspberry Pi (2,3 or 4). There are four SHARI models – Pi3U, Pi3V, Pi4U and Pi4V. The location of USB connectors is reversed between the Pi3 and Pi4 models. A short USB extension cable can be used if desired.	A 2 wire jumper cable with JST connector is soldered to 2 USB test pads on the Pi4. The serial RX/TX pins on the GPIO connector are used to program the SA818.

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<b>LED indicators</b>	Blinking green LED at USB end indicates USB connection status. Yellow and red LEDs at DIN connector end indicate SQUELCH and PTT status. (Note 3)	Blinking green LED indicates USB connection status. Two green LEDs show BRIAN and radio power status. Yellow and red LEDs indicate SQUELCH and PTT status. (Note 3)	Blinking green LED indicates USB connection status. Green LED shows SHARI power status. Yellow and red LEDs indicate SQUELCH and PTT status. (Note 3)	Blinking green LED indicates USB connection status. Yellow and red LEDs indicate SQUELCH and PTT status. (Note 3)
<b>Input DC Power</b>	Supplied by the Raspberry Pi USB. Less than 100 mA.	Supplied by the Raspberry Pi USB. Less than 800 mA. (Note 2)	Supplied by the Raspberry Pi USB. Less than 500 mA.	Supplied by the Raspberry Pi GPIO. Less than 500 mA.
<b>Enclosure Type</b>	Two piece aluminum extrusion with 3D printed PLA end caps. Aluminum metal end caps also provided with kit for builder to modify if desired.	Two piece aluminum extrusion with 3D printed PLA end caps. Aluminum metal end caps also provided with kit for builder to modify if desired.	Two piece aluminum extrusion with 3D printed PLA end caps. Aluminum metal end caps also provided with kit for the builder to modify if desired.	Argon40 Neo case. Builder drills 5 holes in case. A 3D printed hole location tool is provided to aid in construction
<b>Enclosure size</b>	50 x 25 x 25 mm (2" x 1" x 1")	100 x 76 x 35 mm (4" x 3" x 1 3/8")	80 x 50 x 20 mm (3.15" x 2" x 0.8")	9.53 x 7.15 x 2.75 cm (3.75" x 2.81" x 1.08")
<b>Frequency Selection</b>	As provided by external transceiver.	16 position rotary switch (no channel selection audio feedback).	No external frequency selection.	No external frequency selection.
<b>Frequency Programming</b>	As provided by external transceiver.	16 channels programmed using Chirp program, PC and adapter cable. Enclosure must be opened to plug in Baofeng programming cable.	Single frequency programmed using "SA818-prog" running on the Raspberry Pi. The 2 <sup>nd</sup> USB port on SHARI is used for programming. Uses CH340G USB to serial converter.	Single frequency programmed using "SA818-prog" running on the Raspberry Pi. Use RX and TX via the GPIO connector from the Pi4 UART.
<b>Construction difficulty</b>	Simple - Solder in 4 through-hole parts and screw on the end caps.	Moderate – Solder in 8 through-hole parts. Disassemble Baofeng, remove and modify board/connect jumper wires. Mount Baofeng board to motherboard and connect 5 wires. Screw on the end caps.	Simple – Solder in 9 through-hole parts and radio module. Screw on the end caps.	Moderate – Drill 5 holes in case. Solder 2 through-hole connectors, radio module and SMA RF connectors to PCB. Solder 2 wires to test point pads on the Pi4.
<b>Cost (kit) + shipping via USPS Priority Mail</b>	\$35 + \$8 shipping.	\$55 + \$8 Shipping. (Baofeng BF888S not included)	\$60 (UHF), \$65 (VHF) + \$8 shipping. (includes SA818 radio module)	\$75 (UHF), \$80 (VHF) + \$8 shipping (includes SA818 radio module)

**Note 1** – DINAH will also work with some radios that do not use a 6 pin DIN connector for the "Packet" connector. For instance:

-Yaesu FTM400/FTM100 with the CT-175 6 pin to 10 pin DIN adapter cable.

-Alinco DR135/DR/235/DR435 with a 6 pin DIN to DB-9 adapter cable. (Available from <http://hammadeparts.com/shop-for-cables/ols/categories/alinco-tnc-cables>)

**Note 2** – BF888S board must be programmed to low power which can only be done on the newest BF888S versions.

**Note 3** – COS LED operation requires minor setup in HamVOIP Allstar software.