

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: June 17, 2017

Object: Jupiter – Non-Io-A

Observer: Unattended

Start - Time UT:	0020	Planetary K-index:	1
Jupiter Altitude (deg):	34.4	Jupiter Azimuth (deg):	177.6
Jupiter CML:	299.2	Jupiter Io Phase:	029.52
Jupiter RA (hr/min):	14:48	Jupiter Dec (hr/min):	-14:56
Hour Angle (hr/min):	-00:08	Polarization	RCP
Sun Altitude (deg):	-14.3	Sun Azimuth (deg):	319.2
Sun RA (hr/min):	05:34	Sun Dec (hr/min):	23:18

End – Time UT:	0141	De:	-3.2
Jupiter Altitude (deg):	21.8	Jupiter Azimuth (deg):	224.8
Jupiter CML:	46.81	Jupiter Io Phase	54.48
Hour Angle (hr/min):	02:50	Duration (min):	121
Sun Altitude (deg):	-26	Sun Azimuth (deg):	000.9
Max Frequency MHz	22	Min Frequency MHz	17

Observatory Configuration

Spectrograph Receiver	Antenna	Polarization	System Loss	Multicoupler	Multicoupler port	Calibrated
FSX-8S	TFD	RCP LCP	-8.35 dB -7.59 dB	#2 RCP #1 LCP	Port 1 +10dB Port 1 +10dB	Twice daily Twice daily
FSX-2	LWA	RCP/LCP manual select		N/A	N/A	N/A
SDRPlay RSP2	TFD	RCP	-8.35 dB	#2 RCP	Port 2 +3dB	Twice daily
SDRPlay RSP2	TFD	LCP	-7.59 dB	#1 LCP	Port 2 +3dB	Twice daily
JOVE 1	TFD	RCP	-8.35 dB	#2 RCP	Port 3 +3 dB	04/20/2018
JOVE 1	TFD	LCP	-7.59 dB	#1 LCP	Port 3 +3 dB	04/20/2018
JOVE II	Jove dipoles	Linear	-3.12 dB	#3 Linear	Port 4 +3 dB	04/10/2018
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season

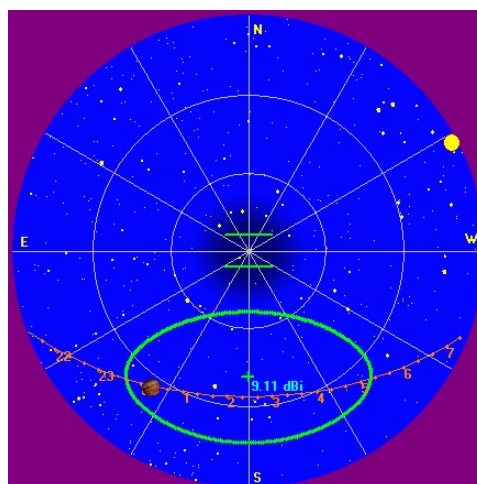
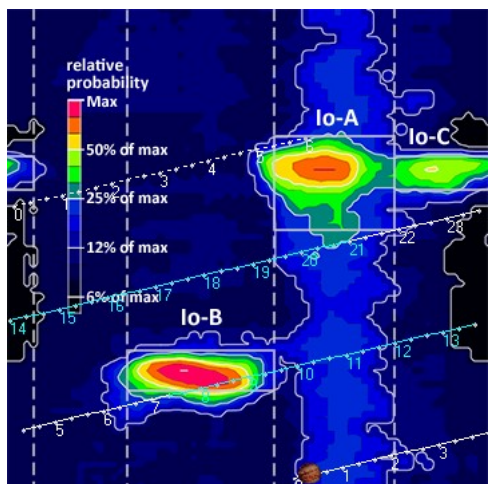
TFD array phased @ 35 degrees for 2017-2018 season

LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees

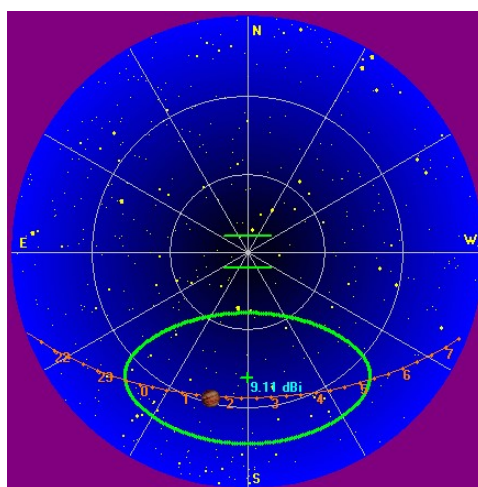
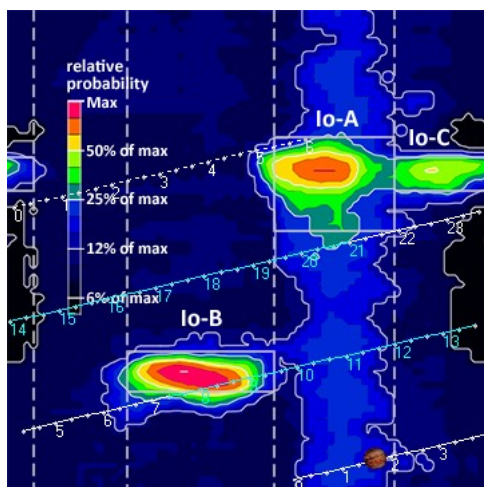
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

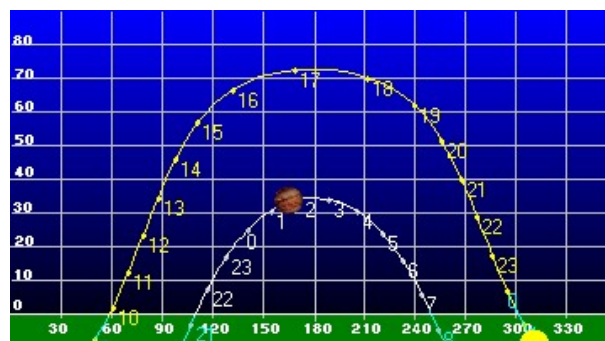
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Beginning of Pass



End of Pass



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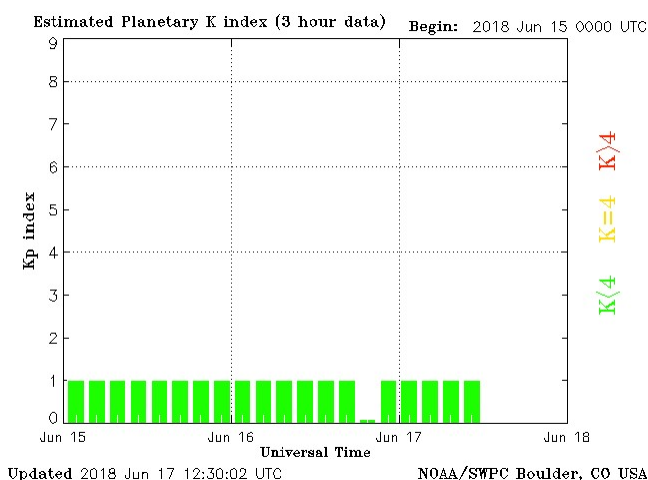


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	38	RH	Late	
Io-C	(300-20)	(225-260)	36	RH&LH	Late	Also called "third source"
non-Io-C	300-360	0-360	32	RH&LH	Late	Voyager info

<https://www.radiosky.com/jupmodes.html>

Modulation Lanes Designations*	
L - Burst	S-Burst
L1 – No lanes	S1 – No lanes
L2 - Positive slope	S2 – Positive slope
L3 - Cross hatched	S3 – Cross hatched
L4 – Negative slope	S4 – Negative slope

*Modulation Lanes in the Dynamic Spectra of Jovian L-bursts, J.J. Riihimaa, Astron. & Astrophys. 4, 1970



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Observed with the FSX-8S/TFD Array, FSX-2/LWA Array, SDRPlay RSP2/TFD Array and the Radio Jove 2/Jove Dipole Array.

A Non-Io-A storm with L-burst RCP emissions as low as perhaps $\frac{1}{2}$ dB above GB to several dB above GB. The strongest L-burst at 20 MHz was recorded with the calibrated, linear polarized, Jove dipoles at 560 kK. This was during the strongest emissions period observed. L4 modulation lanes throughout the storm. The L-bursts were very nebulous.

Weather conditions were clear with distant lightning showing as bright vertical lines in spectrographs. The K indices was low at 1.

Broadcast stations between 18 MHz and 16 MHz were very strong during the first $\frac{1}{2}$ of the observation. They began to fade at about 0140 UT.

Some sort of emission centered around 23 MHz showed modulation lane like structure, but the sharp start and start rule them out as Jupiter emission.

Nothing else of note.

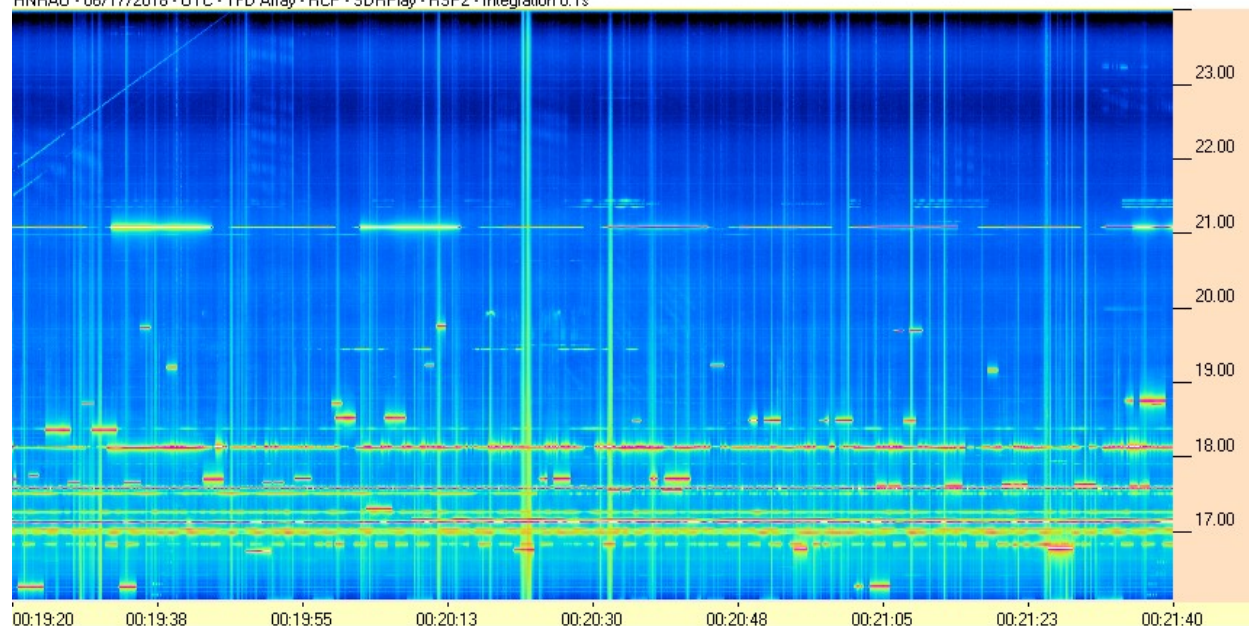
EOR.

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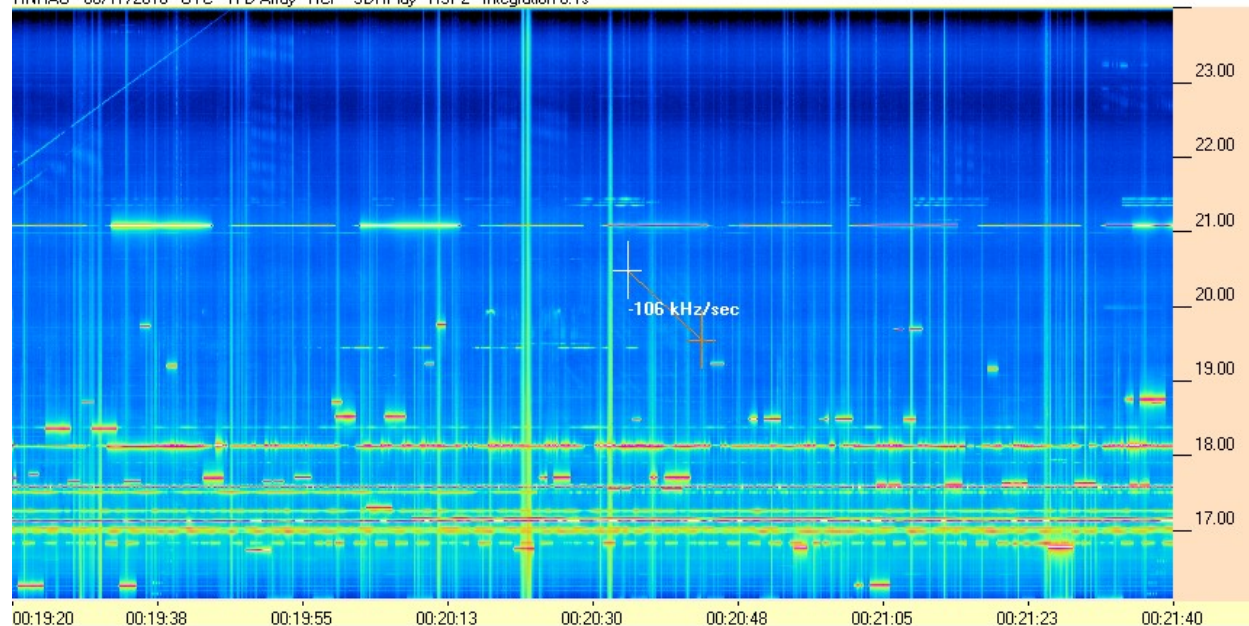


SDRPlay RSP2 / TFD Array

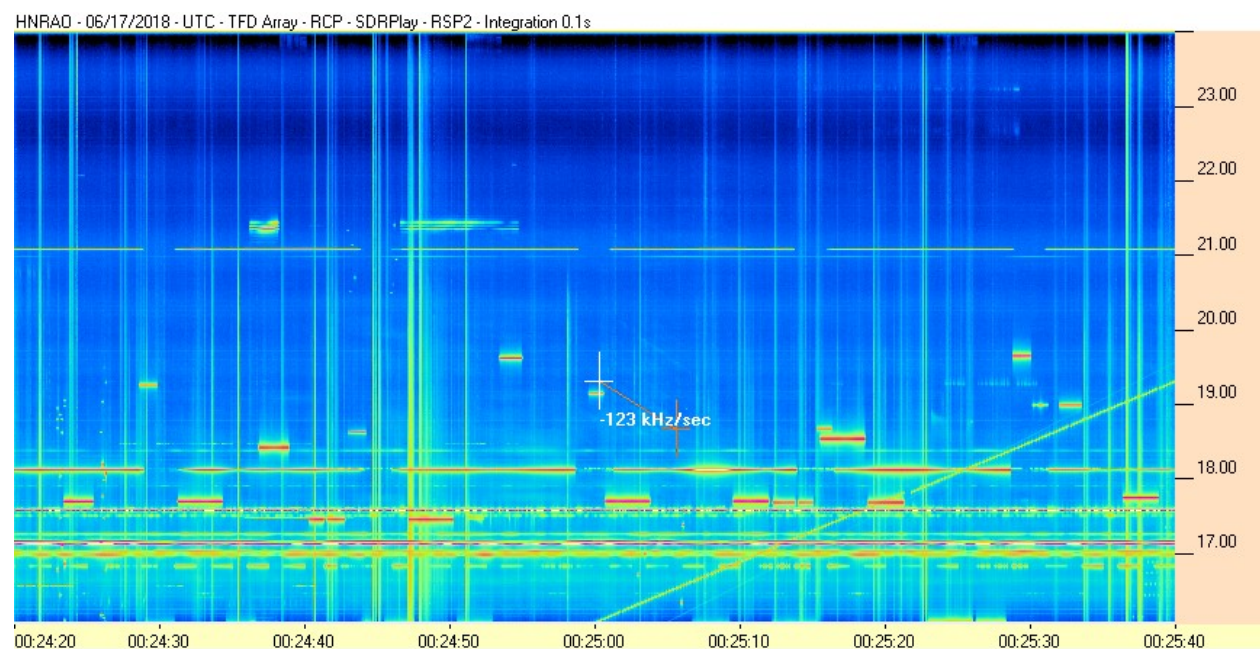
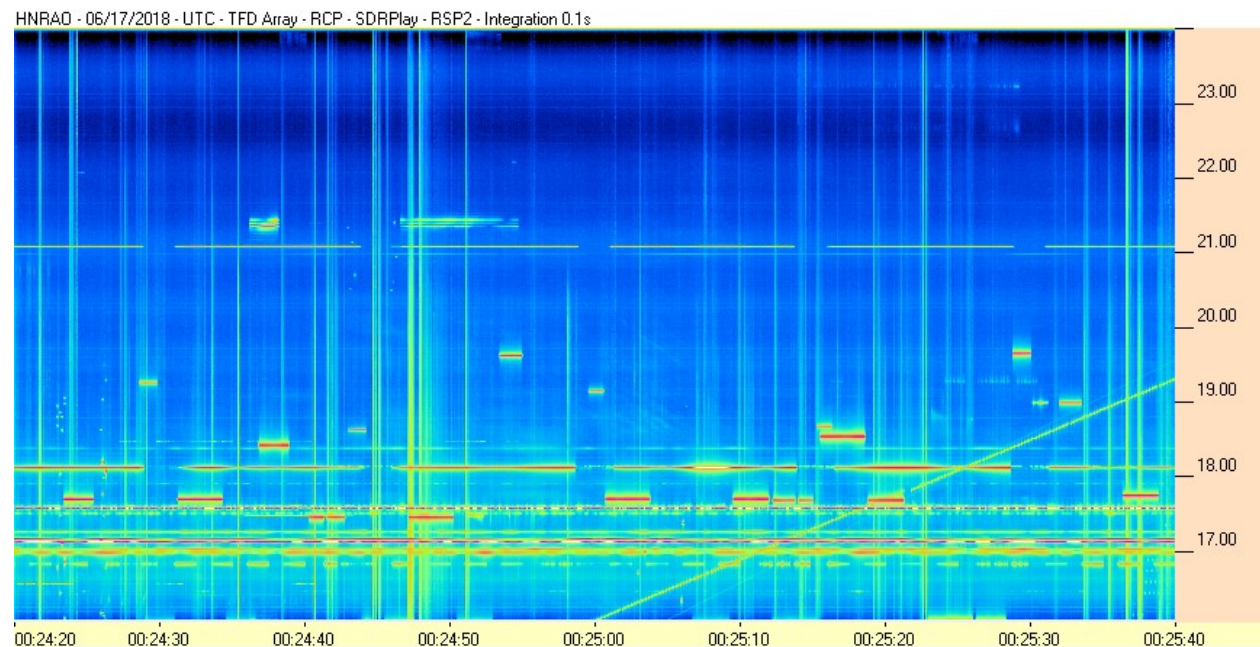
HNRAO - 06/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



HNRAO - 06/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



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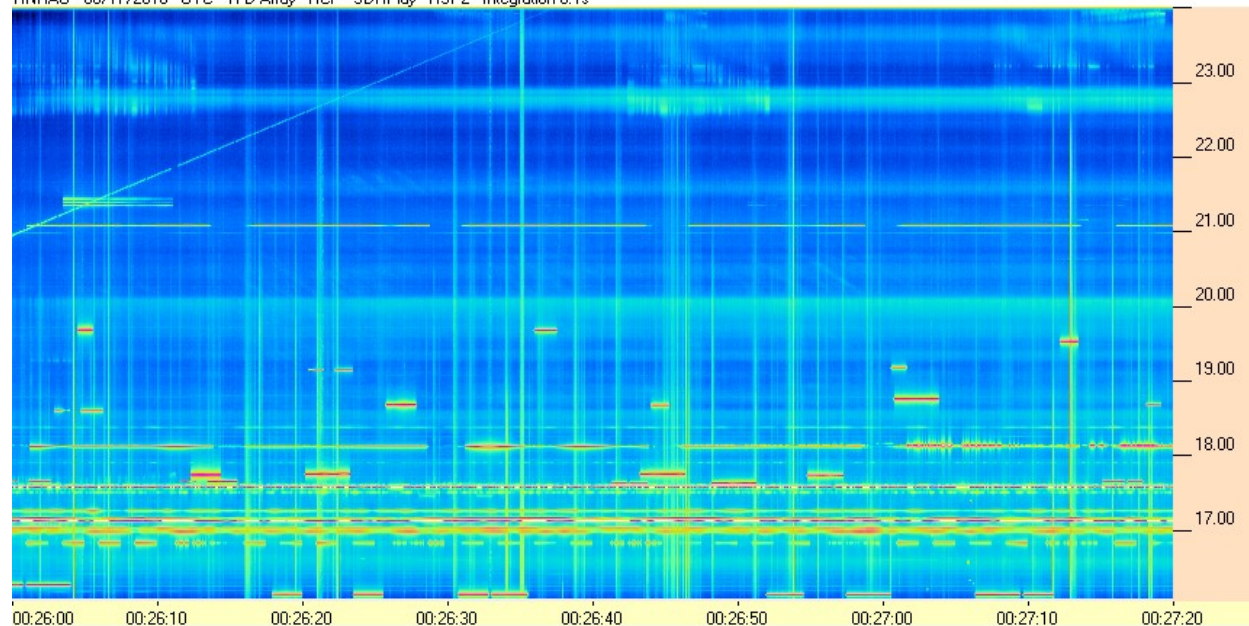


HNRAO Observing Log

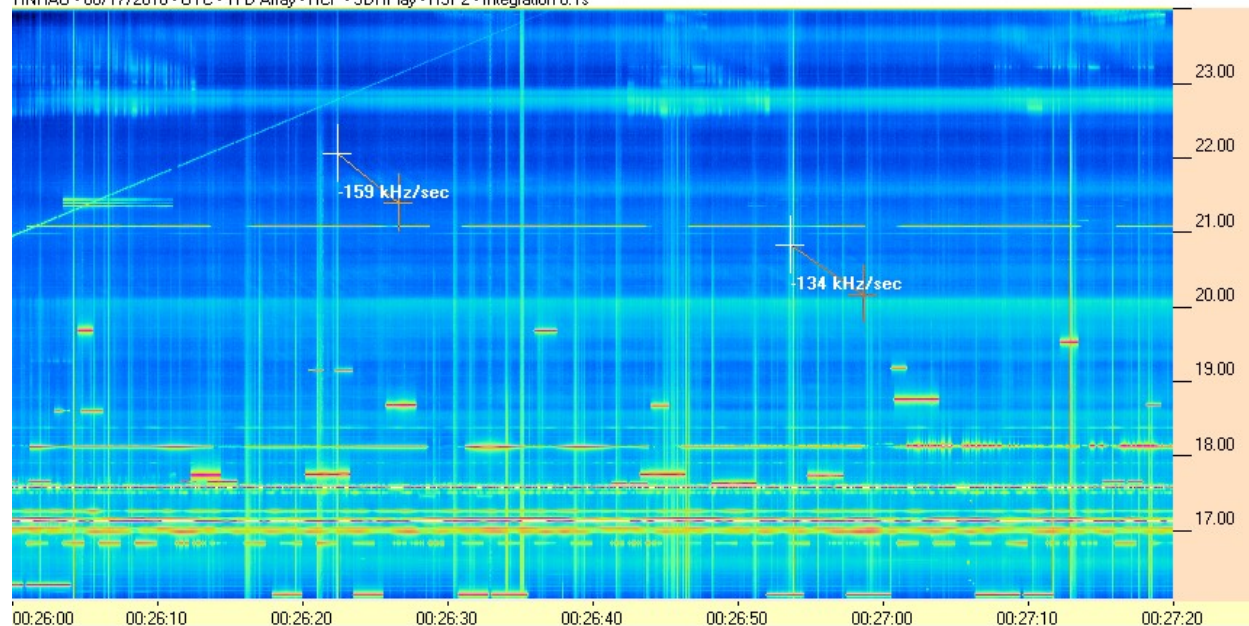
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HNRAO - 06/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



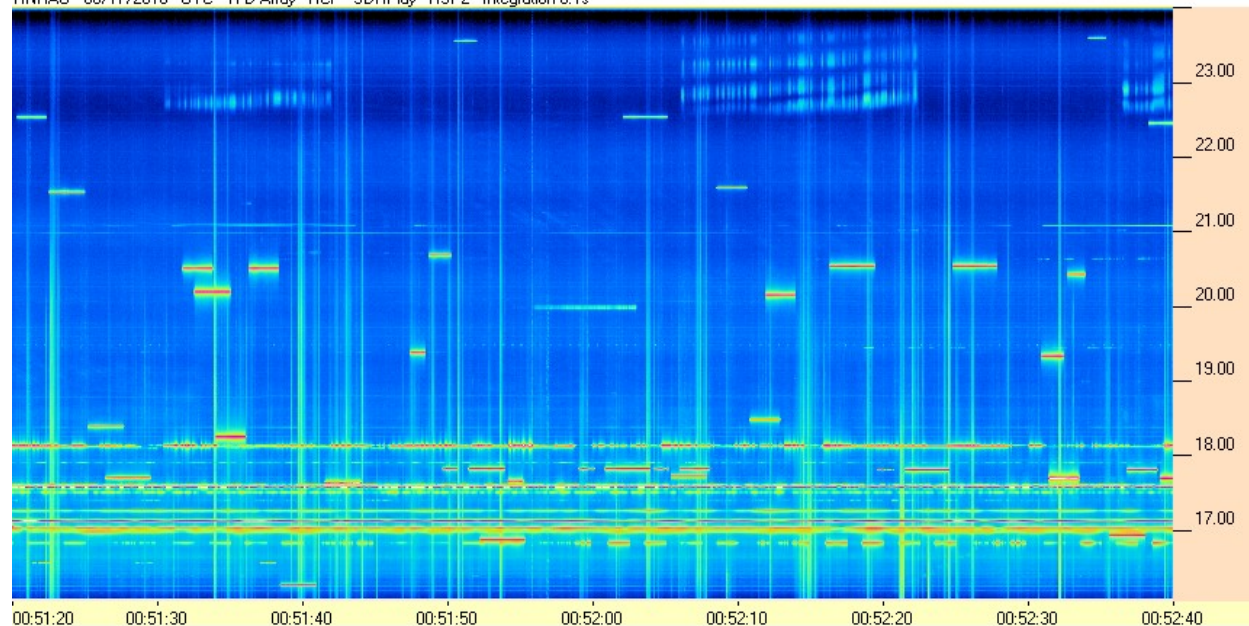
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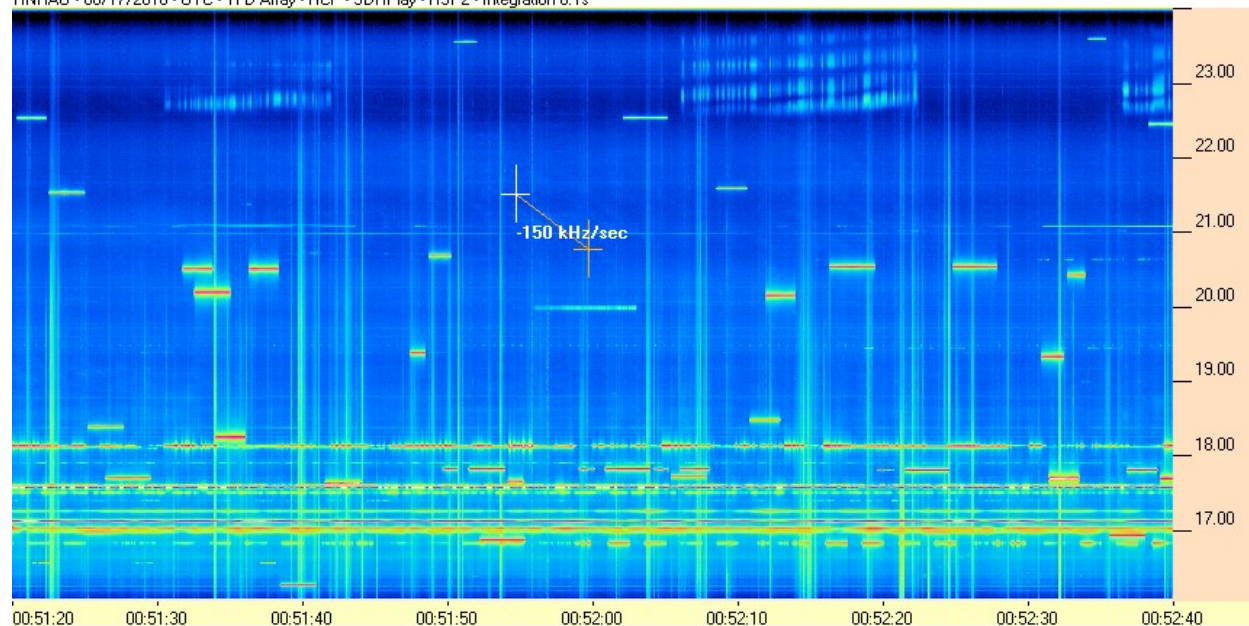
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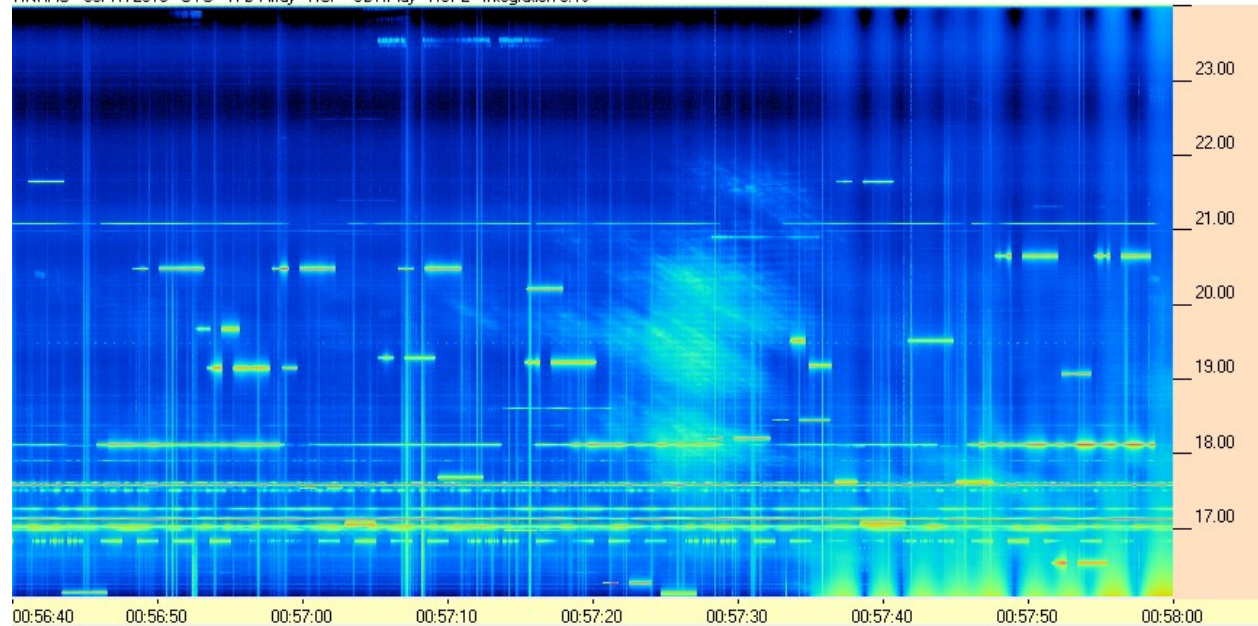
HNRAO - 06/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



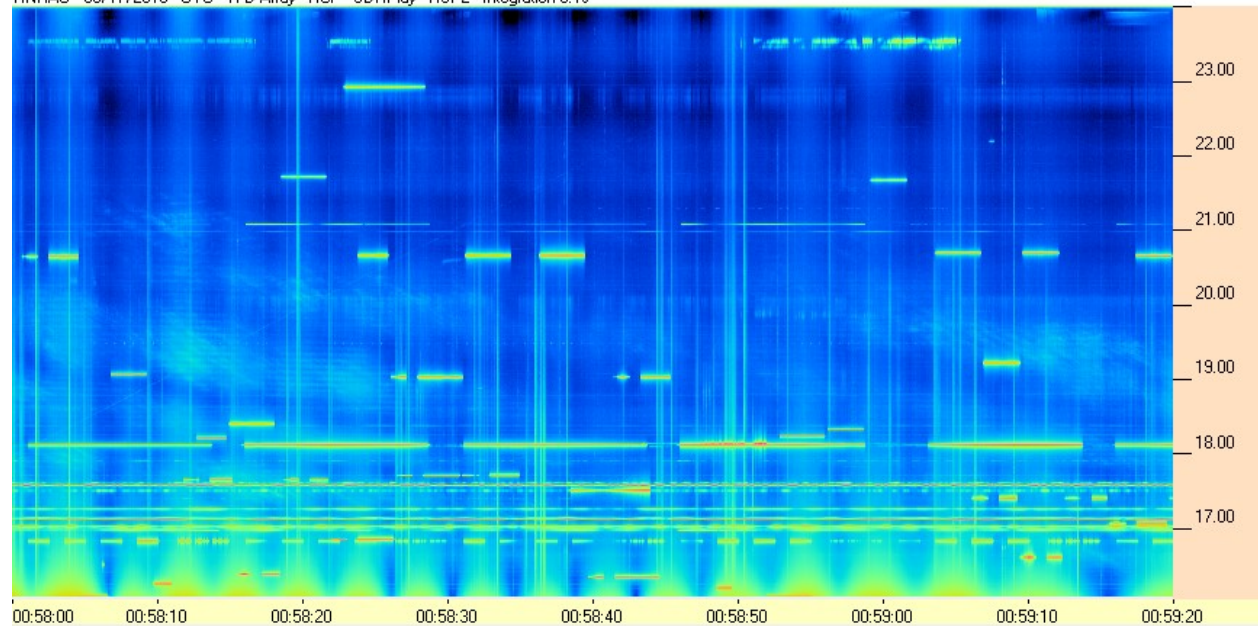
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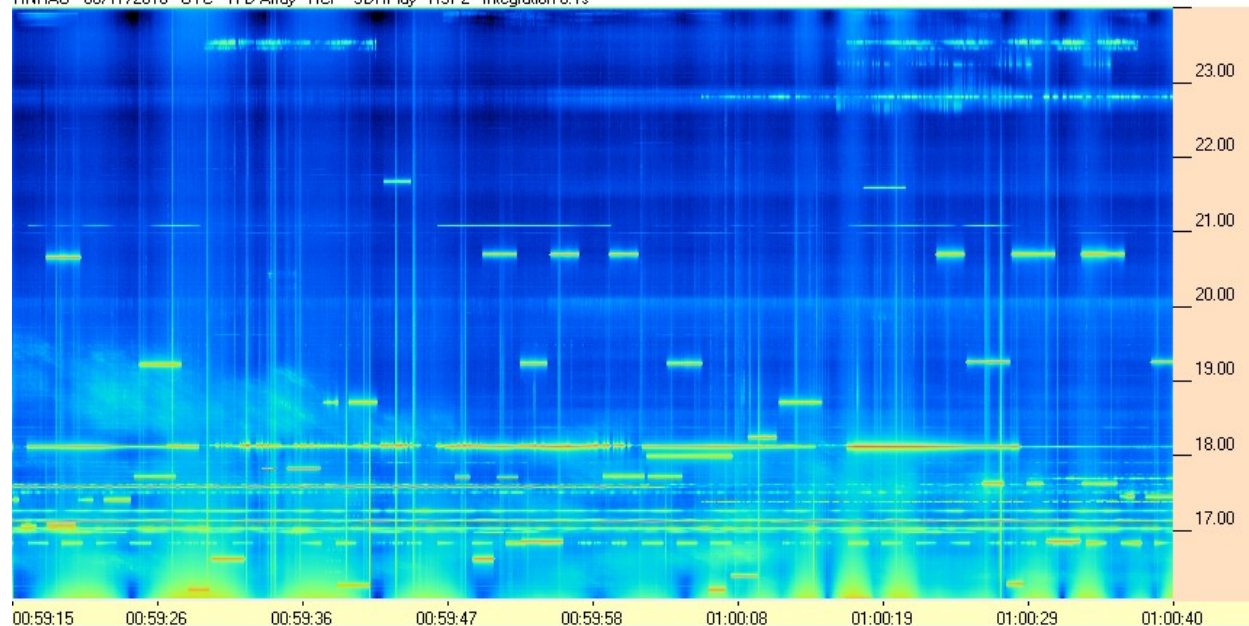
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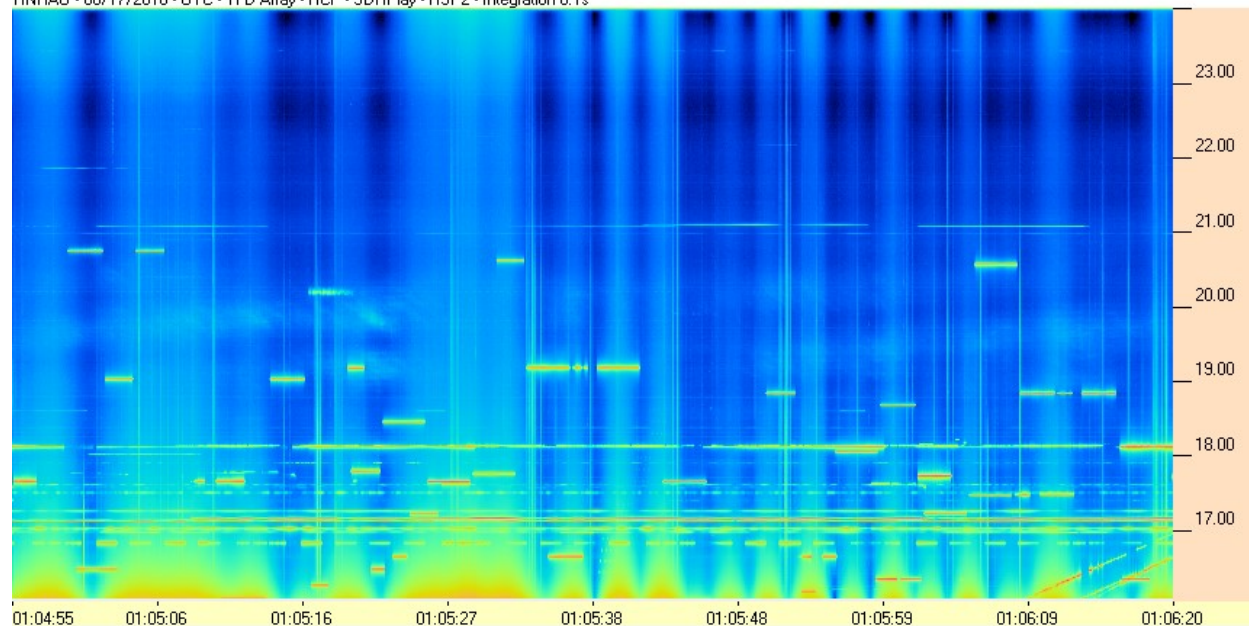
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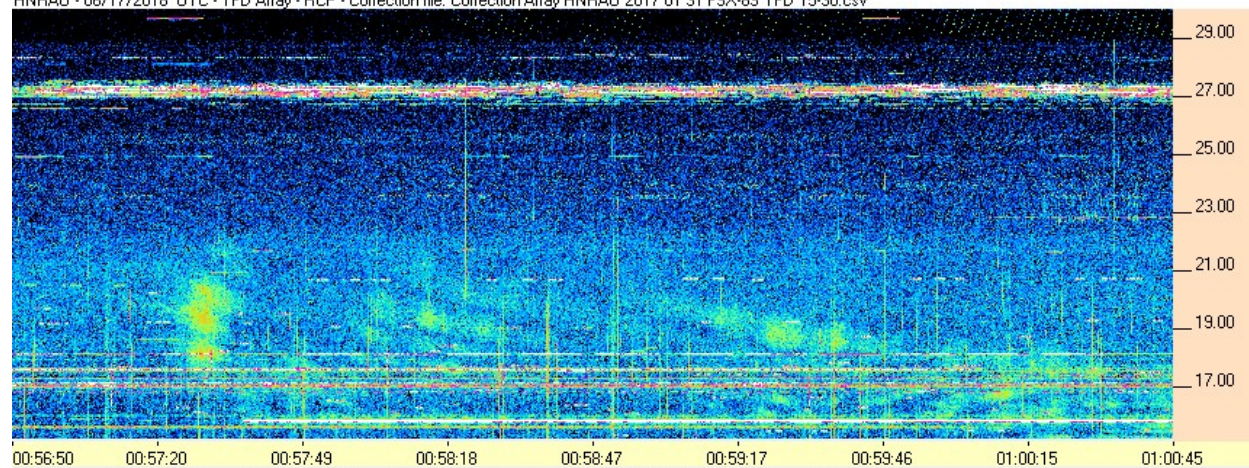


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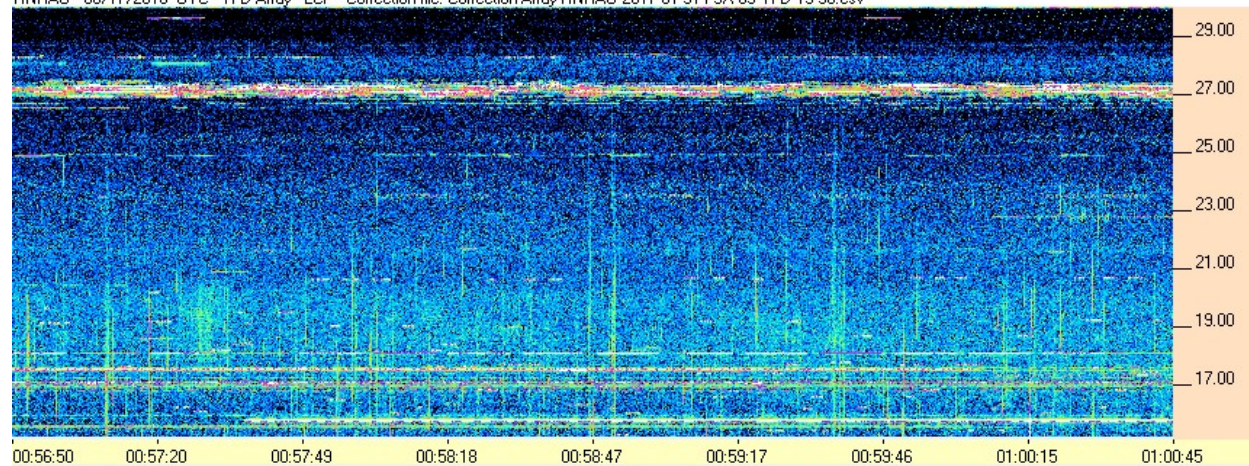


FSX-8S / TFD Array

HNRAO - 06/17/2018 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 06/17/2018 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

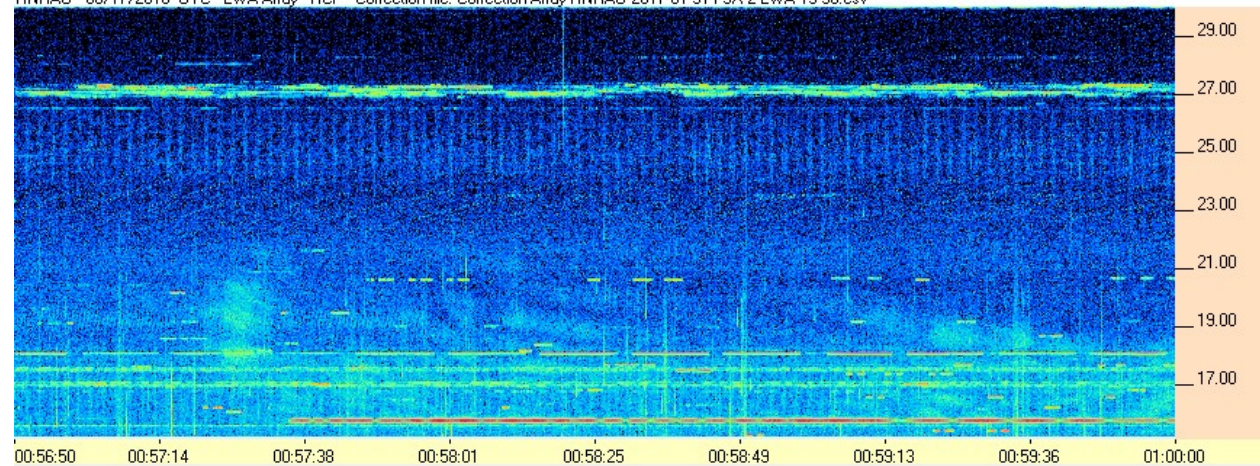


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FSX-2 / LWA Array

HNRAO - 06/17/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



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Radio Jove 2 / Jove Dipole Array

