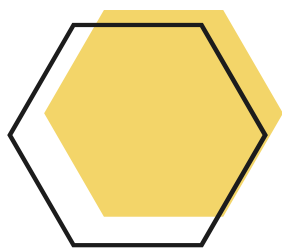




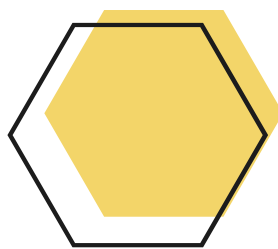
DATASHEET

ahSP1



IEEE 802.11 ah

High-Performance,
World's first WiFi-
HaLow module
available for SONY
SPRESENSE



Sub GHz ISM Band

902 MHz to 928 MHz
operating Frequency in
license-free Band, 1/2/4
MHz Channel Bandwidths



Industrial grade

-40 deg C to +85 deg C
operation temperature



VIZMONET PTE LTD

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HW REV# 02.00

TECHNICAL SPECIFICATION

RADIO MODULE – GENERAL INFO	
Chipset	NRC7292, Cortex-M0,32MHz (11aH) Cortex-M3, 48 MHz (Application), 11aH MAC/PHY
Memory	8Mb, Serial NOR Flash, 752 KB SRAM
Operating frequency	902 MHz to 928 MHz
300,600,900,1200,1800,2400,2700,3000	BPSK(1/2),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4),64QAM(5/6) (1MHz CH BW)
650,1300,1950,2600,3900,5200,5850,6500	BPSK(1/2),BPSK(3/4),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4) (2MHz CH BW)
1350,2700,4050,5400,8100,10800,12150,13500	BPSK(1/2),QPSK(1/2),QPSK(3/4),16QAM(1/2),16QAM(3/4),64QAM(2/3),64QAM(3/4),64QAM(5/6) (4MHz CH BW)
Channel BW	1MHz/2 MHz/4 MHz
RoHS Compliance	Compliant
INTERFACE SPECIFICATIONS	
Operating Voltage	5V +/- 10% (Power feed through USB Micro B connector)
Interface	SPI (1.8V)
RF Antenna connector	x1 SMA
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature Range	-40 deg C to +85 deg C
PHYSICAL SPECIFICATIONS	
Mechanical Dimension	(L) 68.6 mm x (W) 53.3 mm
Weight	12G
REGULATORY INFORMATION	
Compliance	TBD
PACKAGING INFORMATION	
No of units	TBD

ORDERING INFORMATION

ahSP1

Extension Board for SONY SPRESENSE, SISO, IEEE 802.11 ah ,902 MHz, 25 dBm

RADIO SPECIFICATION

Frequency Channel Mapping, JAPAN

BW = 1 MHz	
Channel number	Frequency (MHz)
40	921
42	923
43	924
44	925
45	926
46	927

BW = 2 MHz	
Channel number	Frequency (MHz)
36	923.5
37	924.5
38	925.5
39	926.5

BW = 4 MHz	
Channel number	Frequency (MHz)
47	924.5
48	925.5

TX Power and RX Sensitivity

Tolerance for TX Power and Sensitivity = +/- 1 dBm

Parameter	BW (MHz)	Spec (dBm) +/- 1 dBm
Transmit Power	1,2,4	13
RX Sens @ <10% PER, MCS10	1	-108
RX Sens @ <10% PER, MCS0	4	-101

Frequency Channel Mapping, USA, CANADA

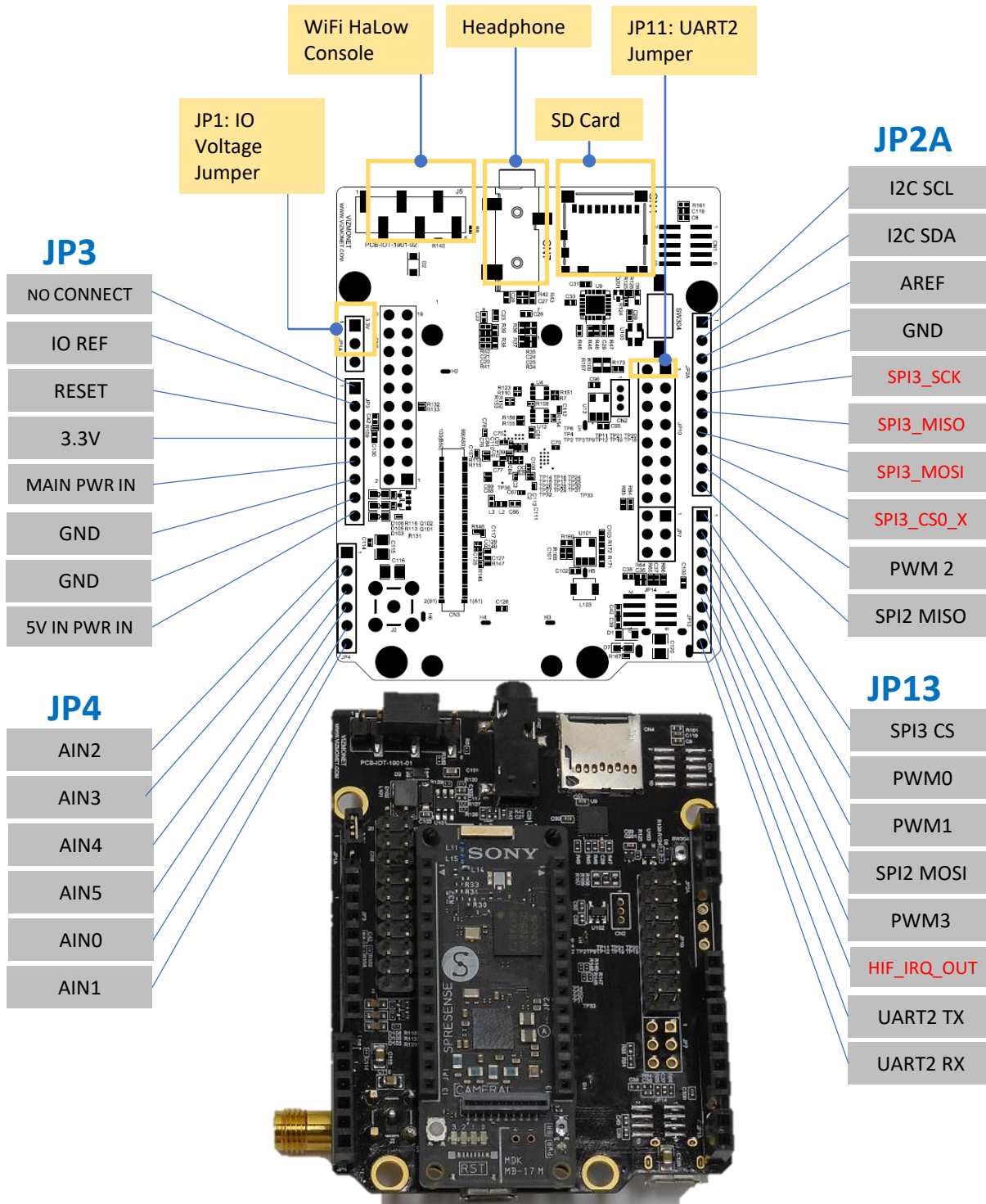
Country: USA, Canada
Tolerance for TX Power and Sensitivity = +/- 1 dBm

BW = 1 MHz		BW = 2 MHz		BW = 4 MHz	
Channel number	Frequency (MHz)	Channel number	Frequency (MHz)	Channel number	Frequency (MHz)
30	902.5	150	903	TBD	904
31	903.5	151	905	TBD	908
32	904.5	152	907	TBD	912
33	905.5	153(Default)	909	TBD	916
34	906.5	154	911	TBD	920
35	907.5	155	913	TBD	924
36	908.5	156	915		
37	909.5	157	917		
38	910.5	158	919		
39	911.5	159	921		
40	912.5	160	923		
41	913.5	161	925		
42	914.5	162	927		
43	915.5				
44	916.5				
45	917.5				
46	918.5				
47	919.5				
48	920.5				
49	921.5				
50	922.5				
51	923.5				
52	924.5				
53	925.5				
54	926.5				
55	927.5				

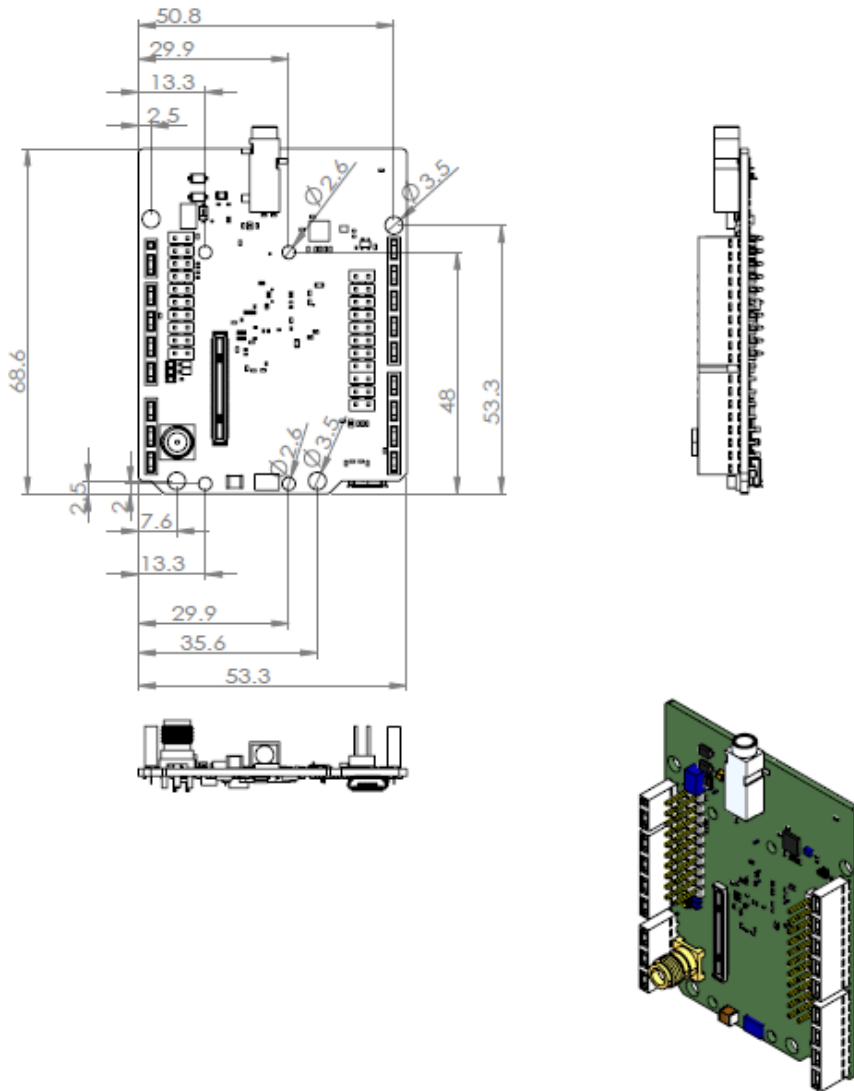
TX Power & RX Sensitivity

Parameter	Data Rate	Spec (BW=1 MHz)	Spec (BW=2 MHz)	Spec (BW=4 MHz)
Tx Power (dBm)	MCS0	25	25	25
Tx Power (dBm)	MCS1	23	24	24
Tx Power (dBm)	MCS2	23	24	24
Tx Power (dBm)	MCS3	22	23	23
Tx Power (dBm)	MCS4	21	21	21
Tx Power (dBm)	MCS5	20	20	20
Tx Power (dBm)	MCS6	19	19	19
Tx Power (dBm)	MCS7	14	16	16
RX Sens (dBm)	MCS0	-108	-105	-102

PIN OUT



MECHANICAL DIMENSIONS



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