

Radio Explorer HAT PN: 1287 Rev C As of: 12/6/2019 Patrick Kelly, Jack Kelly © Copyright 2019

2   2     2     C.C.	Item	Qty	Location (bottom)	Mfg Part #	Description	Rating	Footprint	Mfg	Mouser	DigiKey	Notes	\$ each	Total
3   S.   CL.C. C.S. C.O. C.C.   C.C	1	1	<u>A1</u>	1909763-1	Conn UMCC Jack Str 50 Ohm SMD		SMD	TE	571-1909763-1	A118077CT-ND		0.322	0.322
3   0   C22, C24, C30   C0060316XXXXR8B014   C0p Cer 0 Luf 16V X7R 1006 603   X7R   0603   Kernet   050400160608   X7R   0603   Kernet   050400160609   X7R   0603   X7R   0	2	2	<u>C6</u> , <u>C7</u>	GRM1555C1H180JA01D	Cap Cer 18pF 50V COG 5% 0402	COG	0402	Murata	81-GRM1555C1H180JA1D	490-5858-1-ND		0.006	0.012
C22, C24, C30	3	0	C1, C2, <u>C5</u> , C9, C21,										
3   0   C22, C24, C30   C00603C1044C4BACTU  Cap Cer 0.1uF 16V X7R 10% 6003   X7R   6603   Murata   BL00M387456060   M3130.3400   C0020   C22, C24, C30   GMN188R71C1044CABTO   Cap Cer 0.1uF 16V X7R 10% 6003   X7R   6603   Murata   BL00M387456060   M3130.3400   C0020   C22, C24, C30   GMN188R71C1044CABTO   Cap Cer 0.1uF 16V X7R 10% 6003   X7R   C0030   Murata   BL00M387456060   Murata   BL00M387456060   Murata   BL00M387456060   Murata   BL00M387456060   Murata   BL00M3874560   Mu		8	C22, C24, C30	CC0603KRX7R7BB104	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Yageo	603-CC603KRX7R7BB104	311-1088-1-ND		0.005	0.040
C.Z., C.S., C.G. C., C.S. C.	2	0	C1, C2, C5, C9, C21,										
3   0   C22, C24, C30   GRM158877.LIOMAGOLD   Cap Cer O.LIF 16V X7R 10% 6003   X7R   0.663   Mirrital   10-0000000000000000000000000000000000	3	U	C22, C24, C30	C0603C104K4RACTU	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Kemet	80-C0603C104K4R	399-1096-1-ND		0.011	0.000
C22, C24, C30   GRMISBRYTCLOMAGOD   Cap Cer O.Luf Siov XRR 100% 0603   X7R   0603   Murata   st-demissedences   090 1222-140   0.0331   0.000		_	C1, C2, C5, C9, C21,		·								
0   02, C2, C3, C30   GCM188R74C04CA370   Cap Cer 0.1st FeV X7R 100k 0402   X7R   0.002   Murata   s. GCM188T3CC04CND   40   7   C15, C17, C22   GRM15SR71C04CA881   Cap Cer 0.1st FeV X7R 100k 0402   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 0.1st FeV X7R 100k 0402   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 0.1st FeV X7R 100k 0402   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 0.1st FeV X7R 100k 0402   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 1.0st FeV X7R 100k 0403   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 1.0st FeV X7R 100k 0403   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 1.0st FeV X7R 100k 0403   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 1.0st FeV X7R 100k 0403   X7R   0.002   Murata   s. GCM188T3CC04CND   40   Cap Cer 1.0st FeV X7R 100k 100k   X7R   1.006   X7R	3	Ü	C22, C24, C30	GRM188R71C104KA01D	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Murata	81-GRM39X104K16	490-1532-1-ND		0.031	0.000
CZ2, CZ4, CS0   GCM188R71CI04K637D   Cap Cer 0.1uF 16V X7R 10W 6063   X7R   Co603   Murata   Scientespericionary   coextraction   coextract	2	_	C1, C2, C5, C9, C21,										
4	3	U	C22, C24, C30	GCM188R71C104KA37D	Cap Cer 0.1uF 16V X7R 10% 0603	X7R	0603	Murata	81-GCM188R71C104KA7D	490-4774-1-ND		0.034	0.000
C16, C17, C22   GRM15SP1/C104KA889   Cap Cer 0.10   10 V.7F 1.0% O402   X7R   O402   Murata   8-C0MCSSP1/C104MA   890-2232-3-10   O.005   O.007   O.716   C.716   C.		_	C12, C13, C14, C15,										
6   3   C8, C29, C29   GRT1886GLT06KE13D   Cap Cer 10µ6 63 V.SR 10% 6063   XSR   0.663   Muratia   S. ORTISSERICISERS   S. ORTISSERICISERS   CAP   C. O.	4	/	C16, C17, <u>C23</u>	GRM155R71C104KA88J	Cap Cer 0.1uF 16V X7R 10% 0402	X7R	0402	Murata	81-GRM155R71C104KA8J	490-6328-1-ND		0.006	0.042
To   1	5	3	C3, C4, C27	CC0603KRX5R7BB475	Cap Cer 4.7uF 16V X5R 10% 0603	X5R	0603	Yageo	603-CC603KRX5R7BB475	311-1785-1-ND		0.072	0.216
7   0   C10   GRM31MR71A225KA01L   Cap Cer 2.2u F 10V X7R 10V F1206   X7R   1206   Murata   \$1.6MM2160258013. \$4061803.9 No.   0.118   0.000     7   0   C10   C1206C225KRRACTU   Cap Cer 2.2u F 10V X7R 10V 1206   X7R   1206   Taily Vuden   \$1.000   S0.000   S0.0	6	3	C8, C28, C29	GRT188R61C106KE13D	Cap Cer 10uF 6.3V X5R 10% 0603	X5R	0603	Murata	81-GRT188R61C106KE3D	490-12317-1-ND		0.154	0.462
7	7	1	C10	CC1206KKX7R6BB225	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Yageo	603-CC126KKX7R6BB225	311-1953-1-ND		0.037	0.037
7	7	0	C10	GRM31MR71A225KA01L	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	_	81-GRM426X225K010L	490-1803-1-ND		0.118	0.000
8         1         C11         GRM31CR60107KE39L         Cap Cer 100uF 6.3V XS R0 1206         XSR         1206         Samsung         Murata         11 cmM31cR0107MSNL         480 1989 2 NO         0.290         0.290           8         0         C11         GL31A107MQHNNNE         Cap Cer 100uF 6.3V XS R0% 1206         XSR         1206         Fairy Orden         39.8MSR1388107MLT         387.1993-8-00         0.427         0.000           9         3         C125, C25         C05003KRXSRS888847S         Cap Cer 10 UN XSR 10% 6003         XSR         0.003         Yageo         0.0025 0.073         0.025 0.073           10         1         C12         LMK105B1105KV-F         Cap Cer 10 UN XSR 10% 60402         XSR         0.402         Taiyo Yuden         98.3MR1388107MLT         311:121-140         0.023         0.073           10         0         C19         EMK105B1105KV-F         Cap Cer 10 UN XSR 10% 60402         XSR         0.002         Taiyo Yuden         98.3MR1388107MLT         311:121-140         0.023         0.073           10         0         C19         CLDSA105KOSNNNC         Cap Cer 10 UN XSR 10% 60402         XSR         0.002         Taiyo Yuden         98.3MR1388107MLT         387.2477-1 NO         0.024         0.000           10 </td <td>7</td> <td>0</td> <td>C10</td> <td>C1206C225K8RACTU</td> <td>Cap Cer 2.2uF 10V X7R 10% 1206</td> <td>X7R</td> <td>1206</td> <td>Kemet</td> <td>80-C1206C225K8R</td> <td>399-8182-1-ND</td> <td></td> <td>0.470</td> <td>0.000</td>	7	0	C10	C1206C225K8RACTU	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Kemet	80-C1206C225K8R	399-8182-1-ND		0.470	0.000
8 0 C11 C131A107MQHNNNE Cap Cer 100UF 6.3V XSR 20% 1206 XSR 1206 Samsung NA 176-1782-1-NO 0.261 0.000 8.0 C11 JMK316B107ML-T Cap Cer 100UF 6.3V XSR 20% 1206 XSR 1206 Tayloy Cuden \$63-MK316B107ML-T \$78-7485-1-NO 0.472 0.000 0.70	7	0	C10	LMK316B7225KL-T	Cap Cer 2.2uF 10V X7R 10% 1206	X7R	1206	Taiyo Yuden	963-LMK316B7225KL-T	587-2232-1-ND		0.074	0.000
8 0 C11	8	1	C11	GRM31CR60J107KE39L	Cap Cer 100uF 6.3V X5R 10% 1206	X5R	1206	Murata	81-GRM31CR60J107KE9L	490-13982-1-ND		0.290	0.290
8         0         C11         JMK316BJ107ML-T         Cap Cer 100UF 6.3 V XSR 20% 1206         XSR         1206         Talyo Yuden         bis JMK316BJ107ML-T         S87-1863-6 NO         0         0.472         0.000           10         1         C12         LMK105BJ105KV-F         Cap Cer 1uF 10V XSR 10% 0402         XSR         0402         Talyo Yuden bis JMK105BJ105KV-F         S87-1845+ND         0.023         0.023           10         0         C19         EMK105BJ105KV-F         Cap Cer 1uF 16V XSR 10% 0402         XSR         0402         Talyo Yuden bis JMK105BJ105KV-F         S87-2477-3-ND         0.034         0.000           10         0         C19         CLOSA105KOSNNC         Cap Cer 1uF 16V XSR 10% 0402         XSR         0402         Talyo Yuden bis JMK105BJ105KV-F         S87-2477-3-ND         0.024         0.000           10         0         C19         CLOSA105KOSNNC         Cap Cer 10K 55K 10K 0402         XSR         0402         TSR         0402         0402         NSR <td>8</td> <td>0</td> <td>C11</td> <td>CL31A107MQHNNNE</td> <td>Cap Cer 100uF 6.3V X5R 20% 1206</td> <td>X5R</td> <td>1206</td> <td>Samsung</td> <td>NA</td> <td>1276-1782-1-ND</td> <td></td> <td>0.261</td> <td>0.000</td>	8	0	C11	CL31A107MQHNNNE	Cap Cer 100uF 6.3V X5R 20% 1206	X5R	1206	Samsung	NA	1276-1782-1-ND		0.261	0.000
9   3   CLB , CCSC CCCC CCCCCCCCCCCCCCCCCCCCCCCCCC	8	0	C11	JMK316BJ107ML-T	Cap Cer 100uF 6.3V X5R 20% 1206	X5R	1206		963-JMK316BJ107ML-T	587-1963-6-ND		0.472	0.000
10   1   C29	9	3	C18 , C25, C26	CC0603KRX5R5BB475		X5R	0603					0.025	0.075
10	10	1		LMK105BJ105KV-F	Cap Cer 1uF 10V X5R 10% 0402	X5R	0402	_	963-LMK105BJ105KV-F			0.023	0.023
10	10	0	C19	EMK105BJ105KV-F	Cap Cer 1uF 16V X5R 10% 0402	X5R	0402	Taiyo Yuden	963-EMK105BJ105KV-F	587-2477-1-ND		0.034	0.000
10	10	0	C19	CL05A105KO5NNNC	Cap Cer 1uF 16V X5R 10% 0402	X5R	0402	Samsung	NA	1276-1067-1-ND		0.024	0.000
11   1   C20   CC0603KRX7R9BB331   Cap Cer 330pf 50V X7R 10% 0603   X7R   0603   Yage	10	0	C19	C1005X5R1E105K050BC	Cap Cer 1uF 25V X5R 10% 0402	X5R	0402		810-C1005X5R1E105K	445-9066-1-ND		0.068	0.000
12   2   C31, C32   C1608X7R1H224K080AE   Cap Cer 0.22uF 50V X7R 0603 10%   X7R   0603   TDK   810-C1608X7R1H224KAE   445-173612-3-ND   0.075   0.150     13   2   D1, D4	11	1	C20		·	X7R	0603	Yageo				0.024	0.024
13   2   D1, D4   LTST-C190KRKT   LED Red Clear 0603   0603   Lite-On   859-LTST-C190KRKT   160-1436-1-ND   0.068   0.136     14   1   D2   LTST-C191KFKT   LED Grange Clear 0603   0603   Lite-On   859-LTST-C190KRKT   160-1445-1-ND   0.068   0.068     15   1   D3   LTST-C190KGKT   LED Green Clear 0603   0603   Lite-On   859-LTST-C190KGKT   160-1435-1-ND   0.068   0.068     16   1   F1   02CK0100FF2E   Fuse PTC Restable 1.0A 6V Chip 0805   0805   Bel Fuse   30-02CK0100FF2E   507-1815-1-ND   0.185   0.185     17   1   J1   CS25582-40G-M36-0A   Conn Socket 2x20 0.100 inch SMD   0.100   Kaweei Tech   (Buy from Adafrut #2187)   NA   1.950   1.950     18   1   J2   S2B-PH-K-S(LF)(SN)   Conn Header PH Side 2 Pos 2mm   2mm   JST   NA   455-1719-ND   6,7   0.099   0.099     19   0   J3   20021121-00010C4LF   Conn Header 10 Pos DL 0.050 in SMD   SMD   Amphenol   649-20112100010C4LF   669-3695-1-ND   0.660   0.000     17   0   J5 Shunt   M22-2510246   Header 2 Pos 2mm   2mm   Harwin   855-M22-2510246   952-2380-ND   5,6   0.082   0.000     10   J6   M22-2510246   Header 2 Pos 2mm   2mm   Harwin   855-M22-2510046   952-230-ND   5,6   0.082   0.000     10   J7   M22-1900005   Shunt Jumper 2mm   2mm   Harwin   855-M22-1900005   952-1305-ND   0.215   0.000     10   J7   M22-1900005   Shunt Jumper 2mm   2mm   Harwin   855-M22-1900005   952-1305-ND   0.215   0.000     10   J8   M341-682NLT   Inductor 6.8uH 4.5A 60 Mohm SMD   Pulse   673-PA4341.682NLT   533-3420-1-ND   0.702   0.702     10   L1   PA4341.682NLT   Inductor 6.8uH 4.5A 60 Mohm SMD   Pulse   buy from Arrow   0.663   0.000     10   M341-M341-682NLT   M341-M341-682NLT   M341-M341-682NLT   M341-M341-682NLT   0.000   0.018     11   Q2   MMUN2133LT1G   Trans Prebias PNP 246mW S0723-3   SOT-33   SOT-33   SOT-33   Diodes Inc   621-885138-7-F   85138-FDICT-ND   0.099   0.099     25   0   Q3   BS5138-T-F   M05FET N-Chan 50V 200mA S0T-23   SOT-23   Diodes Inc   621-885138-7-F   85138-FDICT-ND   0.000   0.018     26   3   R14, R15, R17   RC0603FR-071KL   Res 732K Ohm 0.1% Thi	12	2	C31 , C32	C1608X7R1H224K080AE		X7R	0603		810-C1608X7R1H224KAE	445-173612-1-ND		0.075	0.150
14   1   D2   LTST-C191KFKT   LED Orange Clear 0603   0603   Lite-On   859-LTST-C191KFKT   160-1445-1-ND   0.068	13			LTST-C190KRKT	·		0603	Lite-On	859-LTST-C190KRKT	160-1436-1-ND		0.068	0.136
15   1   23	14	1		LTST-C191KFKT	LED Orange Clear 0603		0603	Lite-On	859-LTST-C191KFKT			0.068	0.068
F1	15	1	D3	LTST-C190KGKT			0603	Lite-On	859-LTST-C190KGKT	160-1435-1-ND		0.068	0.068
17   1   1   1   1   1   1   1   1   1	16	1	F1	OZCK0100FF2E	Fuse PTC Resttable 1.0A 6V Chip 0805		0805	Bel Fuse	530-0ZCK0100FF2E	507-1815-1-ND		0.185	0.185
19   0   13   20021121-00010C4LF   Conn Header 10 Pos DL 0.050 in SMD   SMD   Amphenol   649-202112100010C4LF   609-3695-1-ND   0.606   0.000	17	1	J1	CS25582-40G-M36-0A			0.100	Kaweei Tech	(Buy from Adafruit #2187)			1.950	1.950
19   0   13   20021121-00010C4LF   Conn Header 10 Pos DL 0.050 in SMD   SMD   Amphenol   649-202112100010C4LF   609-3695-1-ND   0.606   0.000	18	1	J2	S2B-PH-K-S(LF)(SN)	Conn Header PH Side 2 Pos 2mm		2mm	JST	NA	455-1719-ND	6,7	0.099	0.099
20   0   15   M22-2510246	19	0	J3	, ,, ,	Conn Header 10 Pos DL 0.050 in SMD		SMD	Amphenol	649-202112100010C4LF	609-3695-1-ND		0.606	0.000
22         1         L1         PA4341.682NLT         Inductor 6.8uH 4.5A 60 Mohm SMD         Pulse         673-PA4341.682NLT         553-3420-1-ND         0.702         0.702           22         0         L1         PA4341.682NLT         Inductor 6.8uH 4.5A 60 Mohm SMD         Pulse         buy from Arrow         0.663         0.000           23         2         Q1, Q4         FDN340P         MOSFET P-Chan 20V 2A SSOT-3         SSOT-3         On Semi         512-FDN340P         FDN340PCT-ND         0.157         0.314           24         1         Q2         MMUN2133LT1G         Trans Prebias PNP 246mW SOT23-3         SOT23-3         On Semi         863-MMUN2133LT1G         MMUN2133LT1GOSCT-ND         0.039         0.039           25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-BSS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-BSS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo	20	0	J5	M22-2510246	Header 2 Pos 2mm		2mm	<u> </u>	855-M22-2510246	952-2280-ND	5,6	0.082	0.000
22         1         L1         PA4341.682NLT         Inductor 6.8uH 4.5A 60 Mohm SMD         Pulse         673-PA4341.682NLT         553-3420-1-ND         0.702         0.702           22         0         L1         PA4341.682NLT         Inductor 6.8uH 4.5A 60 Mohm SMD         Pulse         buy from Arrow         0.663         0.000           23         2         Q1, Q4         FDN340P         MOSFET P-Chan 20V 2A SSOT-3         SSOT-3         On Semi         512-FDN340P         FDN340PCT-ND         0.157         0.314           24         1         Q2         MMUN2133LT1G         Trans Prebias PNP 246mW SOT23-3         SOT23-3         On Semi         863-MMUN2133LT1G         MMUN2133LT1GOSCT-ND         0.039         0.039           25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-BSS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         SOT-23         On Semi         863-BSS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603	21	0	J5 Shunt	M22-1900005	Shunt Jumper 2mm		2mm	Harwin	855-M22-1900005	952-1305-ND		0.215	0.000
23         2         Q1, Q4         FDN340P         MOSFET P-Chan 20V 2A SSOT-3         SSOT-3         On Semi         \$12-FDN340P         FDN340PCT-ND         0.157         0.314           24         1         Q2         MMUN2133LT1G         Trans Prebias PNP 246mW SOT23-3         SOT23-3         On Semi         863-MMUN2133LT1G         MMUN2133LT1GOSCT-ND         0.039         0.039           25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-8SS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-8SS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-1.00KHRCT-ND         0.014         0.014           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009	22	1		PA4341.682NLT	·			Pulse	673-PA4341.682NLT			0.702	
24         1         Q2         MMUN2133LT1G         Trans Prebias PNP 246mW SOT23-3         SOT23-3         On Semi         863-MMUN2133LT1G         MMUN2133LT1GOSCT-ND         0.039         0.039           25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-8SS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-8SS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-100KHRCT-ND         0.014         0.014           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         YAG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009	22	0	L1	PA4341.682NLT	Inductor 6.8uH 4.5A 60 Mohm SMD			Pulse	buy from Arrow			0.663	0.000
25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-8SS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-8SS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-1.00KHRCT-ND         0.006         0.018           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thin Film 0805         0.1%         0805         Yageo         603-RC0603FR-0732KL         YAG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009	23	2	Q1, <i>Q4</i>	FDN340P	MOSFET P-Chan 20V 2A SSOT-3		SSOT-3	On Semi	512-FDN340P	FDN340PCT-ND		0.157	0.314
25         1         Q3         BSS138-7-F         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         Diodes Inc         621-8SS138-7-F         BSS138-FDICT-ND         0.099         0.099           25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-BSS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-1.00KHRCT-ND         0.006         0.018           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thin Film 0805         0.1%         0805         Yageo         603-RC0603FR-0732KL         YaG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009				MMUN2133LT1G	Trans Prebias PNP 246mW SOT23-3		SOT23-3	On Semi	863-MMUN2133LT1G	MMUN2133LT1GOSCT-ND			0.039
25         0         Q3         BSS138LT1G         MOSFET N-Chan 50V 200mA SOT-23         SOT-23         On Semi         863-BSS138LT1G         BSS138LT1GOSCT-ND         0.070         0.000           26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-1.00KHRCT-ND         0.006         0.018           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thin Film 0805         0.1%         0805         Yageo         603-RC0603FR-0732KL         YAG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009	25	1	Q3	BSS138-7-F	MOSFET N-Chan 50V 200mA SOT-23		SOT-23	Diodes Inc	621-BSS138-7-F	BSS138-FDICT-ND		0.099	0.099
26         3         R14, R15, R17         RC0603FR-071KL         Res 1.0K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-071KL         311-1.00KHRCT-ND         0.006         0.018           27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thin Film 0805         0.1%         0805         Yageo         603-RT0805BRD07732KL         YAG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009													0.000
27         1         R1         RT0805BRD07732KL         Res 732K Ohm 0.1% Thin Film 0805         0.1%         0805         Yageo         603-RT0805BRD07732KL         YaG4938CT-ND         0.114         0.114           28         1         R22         RC0603FR-07383KL         Res 383K Ohm 1% Thick Film 0603         1%         0603         Yageo         603-RC0603FR-07383KL         311-383KHRCT-ND         0.009         0.009						1%							0.018
28 1 R22 RC0603FR-07383KL Res 383K Ohm 1% Thick Film 0603 1% 0603 Yageo 603-RC0603FR-07383KL 311-383KHRCT-ND 0.009 0.009								_					0.114
		1						_					0.009
				RT0603BRD07200KL	Res 200K Ohm 0.1% Thin Film 0603			Yageo	603-RT0603BRD07200KL	YAG1578CT-ND			

30	1	R3	RT0603BRD074K99L	Res 4.99K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD074K99L	YAG1678CT-ND		0.127	0.127
31		R21	RC0603FR-07732KL	Res 732K Ohm 1% Think Film 0603	1%	0603	Yageo	603-RC0603FR-07732KL	311-732KHRCT-ND		0.009	0.009
32		R34 , R39	RC0603FR-07100RL	Res 100 Ohms 1% Think Film 0603	1%	0603	Yageo	603-RC0603FR-07732RL	311-100HRCT-ND		0.009	0.003
33	1	R2	ERA-3AEB2433V	Res 243K Ohm 0.1% Thin Film 0603	0.1%	0603	Panasonic	667-ERA-3AEB2433V	P243KDBCT-ND		0.003	0.018
34	1	R23	RC0603FR-07100KL	Res 100K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-07100KL	311-100KHRCT-ND		0.009	0.009
35	1	R6	CPF0603B1M0E1	Res 1M Ohm 0.1% Thin Film 0603	0.1%	0603	TE	279-CPF0603B1M0E1	A102234CT-ND		0.003	0.003
36	1	R38	ERJ-3EKF1004V	Res 1M Ohm 1% Thick Film 0603	1%	0603	Panasonic				0.137	0.137
37	1	R33	CPF0603B750KE1	Res 750K Ohm 0.1% Thin Film 0603	0.1%	0603	TE	667-ERJ-3EKF1004V	P1.00MHCT-ND		0.018	0.018
38	1	R25	ERA-3AEB8061V	Res 8.06K Ohm 0.1% Thin Film 0603	0.1%	0603	Panasonic	279-CPF0603B750KE1	A102315CT-ND		0.199	0.199
39	1	R9	RN73C1J357KBTD	Res 357K Ohm 0.1% Thin Film 0603	0.1%	0603	TE	667-ERA-3AEB8061V	P8.06KDBCT-ND		0.117	0.117
40		R12, R13			1%	0603		279-RN73C1J357KBTD	A124742CT-ND		0.006	0.000
40		R5, R10, R20	RC0603FR-071KL	Res 1.0K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-071KL	311-1.00KHRCT-ND			0.000
		· · ·	RC0603FR-072KL	Res 2.0K Ohm 1% Thick Film 0603			Yageo	603-RC0603FR-072KL	311-2.00KHRCT-ND		0.006	
42	2	R4, <u>R24</u>	RC0603FR-07100KL	Res 100K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-07100KL	311-100KHRCT-ND		0.006	0.012
43	1	R8	CRCW06032M10FKEA	Res 2.1M Ohm 1% Thick Film 0603	1%	0603	Vishay Dale	71-CRCW06032M10FKEA	541-2.10MHCT-ND		0.014	0.014
44	1	R35	RC0603FR-0710RL	Res 10 Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-0710RL	311-10.0HRCT-ND		0.006	0.006
45	2	R18, R19	RC0603FR-073K9L	Res 3.9K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-073K9L	311-3.90KHRCT-ND		0.006	0.012
46	1	<u>R26</u>	RT0603BRD07442RL	Res 442 Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD07442RL	YAG4558CT-ND		0.069	0.069
47	1	R11	RC0603FR-0710KL	Res 10K Ohm 1% Thick Film 0603	1%	0603	Yageo	603-RC0603FR-0710KL	311-10.0KHRCT-ND		0.003	0.003
48	1	<u>R16</u>	RC0402FR-0756KL	Res 56K Ohm 1% Thick Film 0402	1%	0402	Yageo	603-RC0402FR-0756KL	311-56.0KLRCT-ND		0.005	0.005
49	2	<u>R27</u> , <u>R32</u>	RT0603BRD071KL	Res 1K Ohm 0.1% Thin Film 0603	0.1%	0603	Yageo	603-RT0603BRD071KL	YAG1237CT-ND		0.069	0.138
50	3	R28, R31, <u>R36</u>	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402		0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.009
51	0	R29, R30, <u>R37</u>	RC0402JR-070RL	Res 0 Ohm Jumper Thick Film 0402		0402	Yageo	603-RC0402JR-070RL	311-0.0JRCT-ND		0.003	0.000
52	1	SW1	JS102011JAQN	Switch Slide SPDT 300mA 6V SMD			C&K	611-JS102011JAQN	CKN10720CT-ND		0.350	0.350
53	2	<u>SW2</u> , <u>SW3</u>	PTS645SK43SMTR92 LFS	Switch Tactile SPST-NO 0.05A 12V SMT			C&K	611-PTS645SK43SMTR92	CKN9084CT-ND		0.176	0.352
54	1	U1	MCP73831-2ATI/MC	IC Controller Li-Ion 4.2V 8DFN		8DFN	Microchip	579-MCP73831T-2ATIMC	MCP73831-2ATI/MC-ND		0.450	0.450
55	2	U2, U8	MIC842HYC5-TR	IC Compartor w/Ref Open Drain		SC-70-5	Microchip	998-MIC842HYC5TR	576-2926-1-ND		0.420	0.840
56	1	U3	ADS1014BQDGSRQ1	IC ADC 12-Bit I2C SMD			TI	595-ADS1014BQDGSRQ1	296-45252-1-ND		2.170	2.170
57	1	U4	TPS61090RSAR	IC Reg Boost Adj 2A Sync 16VQFN		16VQFN	TI	595-TPS61090RSAR	296-15259-1-ND		1.720	1.720
58	1	<u>U5</u>	CC1110F32RHHT	IC RF TxRx MCU ISM<1GHz 36-VFQFN		36-VFQFN	TI	595-CC1110F32RHHR	296-38889-1-ND		4.480	4.480
59	1	<u>U6</u>	0896BM15A0001	RF Balun Filter 863-928 MHz		0805	Johanson	609-0896BM15A0001E	712-1474-1-ND		0.522	0.522
60	1	U7	CAT24C32WI-GT3	IC EEPROM 32KBit 400KHz 8SOIC		SOIC-8	On Semi	698-CAT24C32WI-GT3	CAT24C32WI-GT3CT-ND		0.220	0.220
61	2	U10, <u>U11</u>	SN74LVC1G06DBVR	IC Inverter SGL 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G06DBVR	296-8483-1-ND		0.134	0.268
62	1	U9	LTC4411ES5#TRMPBF	IC OR Controller TSOT23-5		TSOT23-5	Linear Tech	584-LTC4411ES5TRMPBF	LTC4411ES5#TRMPBFCT-ND		2.328	2.328
63		U12	74LVC1G07DBVT	IC Buffer Non-Invert 1 input SOT23-5		SOT23-5	TI	595-SN74LVC1G07DBVT	296-26590-1-ND		0.400	0.400
64	2	<u>U13</u> , <u>U14</u>	CM1213A-02SR	TVS Diode 3.3V 10V SOT143-4		SOT143-4	On Semi	748-CM1213A-02SR	CM1213A-02SROSCT-ND		0.261	0.522
65	2	V1, <u>V3</u>	VC120605D150DP	TVS 5.6VDC 150A 1206		1206	AVX	581-VC120605D150DP	478-2517-1-ND		0.370	0.740
66	1	V2	VC120603D100DP	TVS 3.3VDC 150A 1206		1206	AVX	581-VC120603D100DP	478-3653-1-ND		0.556	0.556
67	1	<u>X1</u>	7V-24.000MAHJ-T	Crystal 24.0000MHz 18pF SMD		SMD	TXC Corp	717-7V-24.000MAHJ-T	887-2580-1-ND		0.522	0.522
68	1			PCB Bare			_					0.000
						Sub	total:		\$23.57			
												i
				Assemble Display and Antenna to Explor	er Board	HAT						
												1
1	1	<u>Display</u>	NA	Display 128X64 I2C OLED 0.96 inch white			еВау	NA	NA	6,2	3.670	3.670
1	0	<u>Display</u>	MDOL0962B	Display 128X64 I2C OLED 0.96 inch blue			Makerfabs			6,2	4.100	0.000
2	0	<u>J4</u>	68000-404HLF	Header 4 Pos 0.100 in Str Tin		0.100	Amphenol	649-68000-404HLF	609-3262-ND	6,2	0.155	0.000
3	0	M1, M2, M3,M4	R30-6700394	Spacer M3 nylon 3mm			Harwin	855-R30-6700394	952-1526-ND		0.127	0.000
4	0	M1, M2, M3,M4	MPMS 002 0008 PH	Screw Machine Pan M2 x 8 Phillips			B&F Fastener	945-SCREWM2.0-8	H739-ND		0.070	0.000
5	0	M1, M2, M3,M4	MHNZ 002 4	Nut Hex 0.157" M2			B&F Fastener	NA	H761-ND		0.049	0.000
6	0	M1, M2, M3,M4	3114	Washer Flat #2 Nylon			Keystone	534-3114	36-3114-ND		0.070	0.000
7		M1, M2, M3,M4	222 (Purple)	Threadlocker 222 tube 6 ml			Loctite	(on M2 nut end)	Amazon		8.140	0.000
8	0	<u>A1</u>	66089-0930	Antenna U.FL 915MHz 30MM			Anaren	620-66089-0930	1173-1135-ND		3.560	0.000

8	1	<u>A1</u>	66089-0930	Antenna U.FL 915MHz 30MM			Anaren	RichardsonRFPD			2.180	2.180
9	1	<u>Under Display</u>	Cat 111-24	3M Scotch 111 Heavy Duty 1 inch Mounti	ng Square	es	Scotch	Amazon		4	0.100	0.100
						Sub	total:		\$5.95			

## Notes:

1	These components should be stocked due to concerns over lead time and/or limited substitutions available.
2	Cut pins flush to this board (0.030 inch or less)
3	Do not wash
4	Stack 2 squares on top of each other, then cut to about 0.5 x 0.33 inch, then place under Display to support it
5	Leave holes open (do not fill with solder)
6	Thru-hole component
7	12 pins too long, cut 0.050 inch off pins