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				Approved JJPU

## Operational description 3M Peltor WS LiteCom Pro III


To Whom It May Concern

### 1.1 Statement

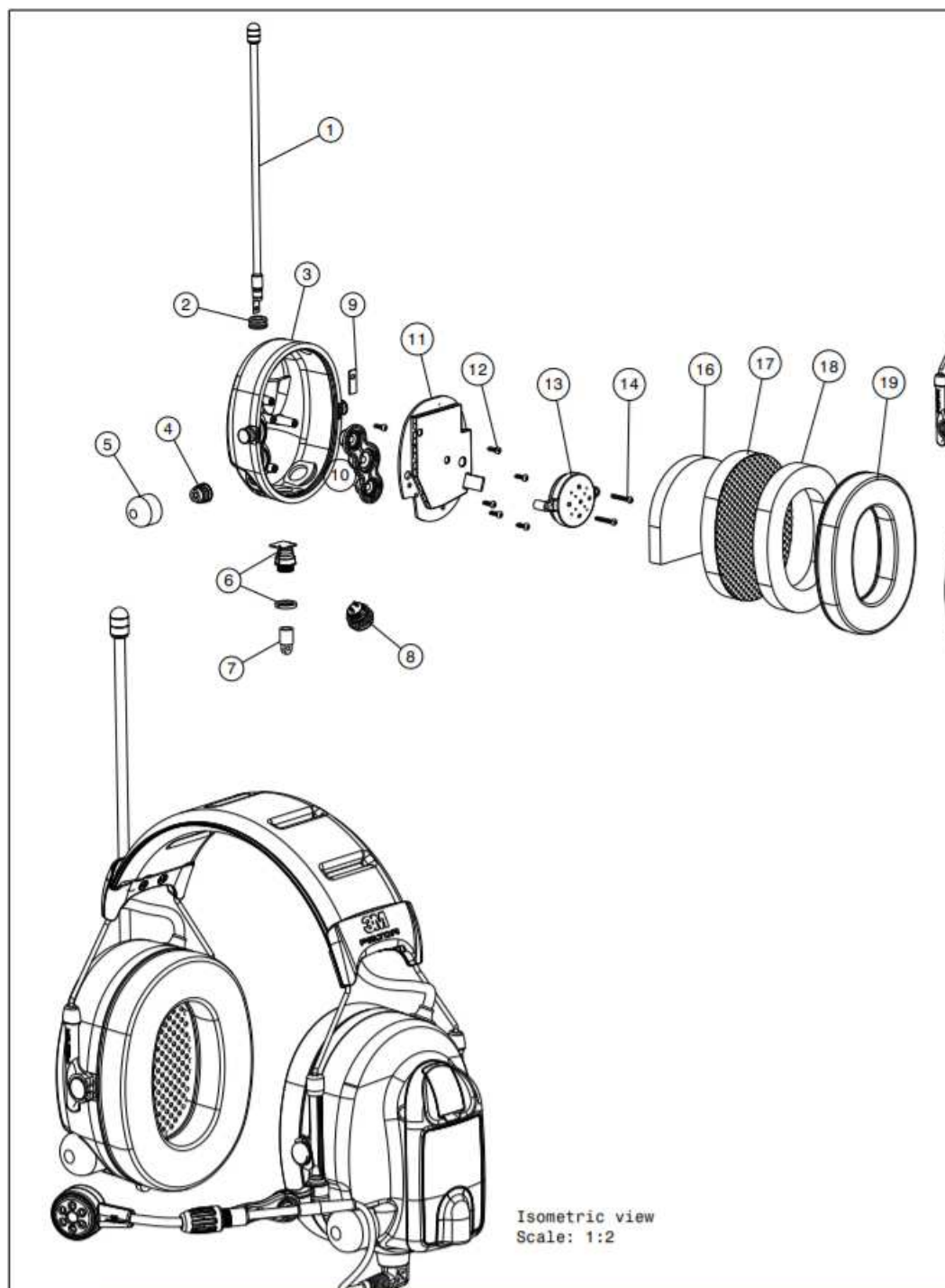
The 3M Peltor WS LiteCom Pro III is a hearing protector headset with a level dependent ambient listening, external connector to third party communication radio. The external connector is via cable and blue tooth. It also offers built in radio communication over the FRS and DMR bands. The headset is intended for the USA and Canada only.

### 1.2 Theory of operation


The 3M Peltor LiteCom Pro III is a hearing protector worn over the ear. It includes a half duplex Communication radio. The LiteCom Pro III is working on the 462 and 467 MHz FRS band. The headset is using a dedicated Li-Ion battery pack.

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### 1.3 Antenna information two way radio

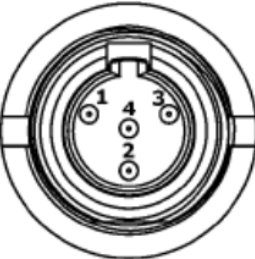



The LiteCom Pro III antenna can be seen in the picture above as the long stick leaving the headset. The PCB itself works as a ground plane. Antenna gain 3.3 dBd.

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## 1.4 Technical data

### TECHNICAL DATA

POWER		
The Intrinsically safe models are powered by a rechargeable Li-ion battery pack (ACK082). 3.7 V, 1350 mAh 3.7 V, 1800 mAh		
OPERATING TIME		
<b>Intrinsic safe models</b> Expected operating time, in power save mode, (according to standardized measurement) in room temperature with <b>ACK082</b>	High power: ~12h Medium power: ~13h Low power: ~14h	
<b>Non Intrinsic safe models</b> Expected operating time, in power save mode, (according to standardized measurement) in room temperature with <b>ACK081</b>	High power: ~16h Medium power: ~17h Low power: ~18h	
EXTERNAL INPUT		
3M™ PELTOR™ Type J111-A	4-pole connector for external equipment	
RADIO		
Frequency range	403 - 470 MHz	
Operation mode	Half-duplex	
Antenna	¼ wave, integrated whip antenna Fixed to the headset Omni directional Gain: 2 dBi	
Channels	Up to 70 programmable channels	
Modulation	Analog: Max narrow 2.5 kHz (FM), Max wide 5 kHz (FM) Digital: 4-level FSK, 2.5 kHz max deviation.	
Receiver sensitivity	Typical -120 dBm	
Output power	High power: 200 mW e.r.p Medium power: 20 mW e.r.p Low power: 10 mW e.r.p	
EXTERNAL INTERFACE PIN OUT		
	Pin 1	EXTERNAL PTT Activated when shorted to Pin 2 (ground)
	Pin 2	GROUND
	Pin 3	INPUT The input signal is mixed with the WS™ LiteCom Pro III Headset audio output level (speaker output). 94 mV = Input signal level for which the mean plus one standard deviation equals 82 dB(A) in cup.
	Pin 4	BOOM MICROPHONE OUTPUT Applied signal at the boom microphone input comes out on pin 4 2.25 mV Microphone input = 10 mV output

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Type of Equipment: Family Radio Service Device (FRS), Analog or digital (DMR)  
 Frequency Range: FRS: 462.5500-467.71250 MHz;  
 Maximum Tune Up Tol. 1 dB  
 Antenna Information: Integrated Antenna  
 Emission Designation: 7K10F3E  
 Operation mode: Half duplex  
 Channels: Max 30  
 Channel separation: 12.5 kHz  
 Modulation: FM: 2.5 kHz  
 Microphone type: Electret (MT73)  
 Receiver sensibility: Typical-122 dBm  
 Output power: 200 mW  
 Selective squelch: CTCSS (38 sub channels)  
 Range: Up to 3 km depending on conditions  
 Power supply: 3.6 V Li-Ion ack-pack 1350 mAh (Ack082) 1800 mAh (Ack081)  
 Power consumption: Stand-by: <59 mA  
 Receiving: <70 mA  
 Transmission: <210 mA  
 Operating time: 12-18 hours  
 Operating temperature: -4°F to +131°F (-20°C to +55°C)  
 Storage temperature: -40°F to +131°F (-40°C to +55°C)


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**(F) CTCSS (Continuous Tone Coded Squelch System) (\*NA Models)**

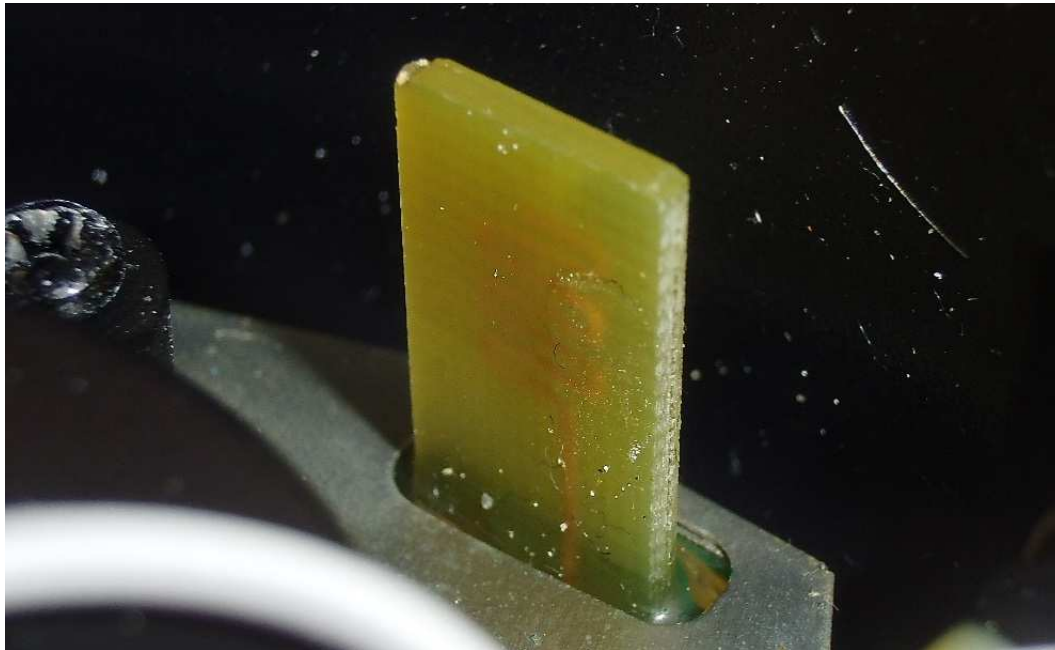
1. 67.0	8. 88.5	15. 110.9	22. 141.3	29. 179.9	36. 233.6
2. 71.9	9. 91.5	16. 114.8	23. 146.2	30. 186.2	37. 241.8
3. 74.4	10. 94.8	17. 118.8	24. 151.4	31. 192.8	38. 250.3
4. 77.0	11. 97.4	18. 123.0	25. 156.7	32. 203.5	
5. 79.7	12. 100.0	19. 127.3	26. 162.2	33. 210.7	
6. 82.5	13. 103.5	20. 131.8	27. 167.9	34. 218.1	
7. 85.4	14. 107.2	21. 136.5	28. 173.8	35. 225.7	

**(G) DCS (Digital Coded Squelch) (\*NA Models)**

39. 023	53. 114	67. 174	81. 315	95. 445	109. 631
40. 025	54. 115	68. 205	82. 331	96. 464	110. 632
41. 026	55. 116	69. 223	83. 343	97. 465	111. 654
42. 031	56. 125	70. 226	84. 346	98. 466	112. 662
43. 032	57. 131	71. 243	85. 351	99. 503	113. 664
44. 043	58. 132	72. 244	86. 364	100. 506	114. 703
45. 047	59. 134	73. 245	87. 365	101. 516	115. 712
46. 051	60. 143	74. 251	88. 371	102. 532	116. 723
47. 054	61. 152	75. 261	89. 411	103. 546	117. 731
48. 065	62. 155	76. 263	90. 412	104. 565	118. 732
49. 071	63. 156	77. 265	91. 413	105. 606	119. 734
50. 072	64. 162	78. 271	92. 423	106. 612	120. 743
51. 073	65. 165	79. 306	93. 431	107. 624	121. 754
52. 074	66. 172	80. 311	94. 432	108. 627	

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### 1.5 Antenna Information Bluetooth



Type: PCB Antenna  
Max.Gain: -1 dBi  
Manufacturer: 3M Svenska AB / 3M PELTOR Communications

### 1.6 Bluetooth

Modulation Type	GFSK, $\pi/4$ DQPSK, 8-DPSK
Datarates	GFSK Modulation, 1-DH1 packets, 1 Mbps (BLE) GFSK Modulation, 1-DHx packets, 1 Mbps (Classic) $\pi/4$ DQPSK Modulation, 2-DHx packets, 2 Mbps (Classic) 8-DPSK Modulation, 3-DHx packets, 3 Mbps (Classic)
Frequency spann	2400-2483.5 MHz
6 dB bandwidth	750 kHz
Occupied Channel BW	BT: 1 MHz; BT-LE: 1.2 MHz
Number of Transmit Chains	1
Number of Receive Chains	1
Number of Hopping Channels	BT: 79; BT-LE: 39
Output Power [E.I.R.P] Type of TX / RX chains	BT: 4 dBm; BT-LE: 0 dBm -
Dwell Time (FHSS modulation)	625 $\mu$ s (x-DH1 packets, equivalent to one time slot) within 98.75 ms to 3.125 ms (x-DH5 packets, equivalent to five time slots) within 296.25 ms. This is equivalent to one complete hopping sequence over 79 channels.
Minimal Channel Occupation time (FHSS modulation)	625 $\mu$ s, x-DH1 packets (equivalent to one time slot) within 98.75 ms (equivalent to one complete hopping sequence over 79 channels).
Other modulation than FHSS	yes

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Max. No. of Hopping frequencies (adaptive FHSS modulation) 79

Min. No. of Hopping frequencies (adaptive FHSS modulation) 20

Occupied Channel Bandwidth BT: 1 MHz; BT-LE: 1.2 MHz

Maximum peak power Temperature span Wireless range <10 m BT: 4 dBm; BT-LE: 0 dBm -20 to +55 deg C (operating)