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LIFE ALERT EMERGENCY RESPONSE, INC. MPE REPORT

SCOPE OF WORK

MPE CALCULATION
ON THE LIFE ALERT HELP PERS LTE DECT (921)

REPORT NUMBER

104539488LEX-010

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MPE TEST REPORT

Report Number: 104539488LEX-010

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Report Issue Date: 11/5/2021

Product Name: Life Alert HELP PERS LTE DECT (921)

Standards: FCC Part 1.1310 Limits for Maximum
Permissible Exposure (MPE)

**RSS-102 Issue 5 RF Field Strength Limits for
Devices Used by the General Public**

Tested by:
Intertek Testing Services NA, Inc.
731 Enterprise Drive
Lexington, KY 40510
USA

Client:
LIFE ALERT EMERGENCY RESPONSE, INC.
16027 Ventura Blvd
Ste 400
Encino, CA 91436-2747
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Table of Contents

1	<i>Introduction and Conclusion</i>	4
2	<i>Test Summary</i>	4
3	<i>Client Information</i>	5
4	<i>Description of Equipment under Test and Variant Models</i>	6
5	<i>FCC Limits</i>	7
6	<i>RSS-102 Issue 5 Exposure Limits:</i>	8
7	<i>Test Procedure</i>	9
8	<i>Results:</i>	10
9	<i>Revision History</i>	11



1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
8	FCC Part 1.1310 Limits for Maximum Permissible Exposure (MPE) (Limits for General Population / Uncontrolled Exposure)	Pass
	RSS-102 Issue 5 RF Field Strength Limits (For Devices Used by the General Public)	Pass



3 Client Information

This product was tested at the request of the following:

Client Information	
Client Name:	LIFE ALERT EMERGENCY RESPONSE, INC.
Address:	16027 Ventura Blvd Ste 400 Encino, CA 91436-2747 USA
Contact:	Yasha Sigal
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Manufacturer Information	
Manufacturer Name:	LIFE ALERT EMERGENCY RESPONSE, INC.
Manufacturer Address:	16027 Ventura Blvd Ste 400 Encino, CA 91436-2747 USA



4 Description of Equipment under Test and Variant Models

Equipment Under Test	
Product Name	Life Alert HELP PERS LTE DECT (921)
Model Number	Life Alert HELP PERS LTE DECT (921)
Serial Number	1218000115
Hardware Version	V.0.3
Software Version	Ver 1.0
Supported Cellular Transmit Bands	LTE Bands 2, 4, 5, 17
Embedded Module	Gemalto Centurion ALS3.US R4 and DSP Group DECT Module DHAN-M
Embedded Module hardware Version	Revision 2, 4
Embedded Module Software Version	04.003
FCCID (Cellular Module)	QIPALS3-USR4
FCCID (DECT Module)	2AOUK-DHAN.
Receive Date	12/22/2021
Test Start Date	12/22/2020
Test End Date	1/8/2021
Device Received Condition	Good
Test Sample Type	Production
Rated Voltage	5VDC via a 120V60Hz AC Power adapter
Description of Equipment Under Test (provided by client)	
The Life Alert HELP PERS LTE DECT (921) is an emergency alert system with an embedded wireless device.	

4.1 Variant Models:

There were no variant models covered by this evaluation.



5 FCC Limits

§ 1.1310: The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

Part 1.1310 Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f ²)	30
30–300	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.



6 RSS-102 Issue 5 Exposure Limits:

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> ^{0.5}	-	-	6**
10-20	27.46	0.0728	-2	6
20-48	58.07/ <i>f</i> ^{0.25}	0.1540/ <i>f</i> ^{0.25}	8.944/ <i>f</i> ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> ^{0.3417}	0.008335 <i>f</i> ^{0.3417}	0.02619 <i>f</i> ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> ^{1.2}
150000-300000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616000/ <i>f</i> ^{1.2}

Note: *f* is frequency in MHz.
 * Based on nerve stimulation (NS).
 ** Based on specific absorption rate (SAR).



7 Test Procedure

An MPE evaluation for was performed in order to show that the device was compliant with the general population exposure limits from FCC §2.1091 and RSS-102 Issue 5. The maximum power density was calculated for each transmitter band at a separation distance of 20cm using the maximum declared output power including tune up tolerance.

For each transmitter the maximum RF exposure at a 20 cm distance using the formula:

$$\text{ConductedPower}_{mW} = 10^{\text{ConductedPower}(dBm)/10}$$

$$\text{PowerDensity} = \frac{\text{ConductedPower}_{mW} \times \text{Ant.Gain}}{4\pi \times (20_{cm})^2}$$

For transmitters that could operate simultaneously, the MPE to limit ratio for each was calculated and then summed. If the sum of the MPE to limit ratios was less than 1, that specific combination of transmitters was deemed to comply.



8 Results:

The calculated maximum power density at 20cm distance was equal to or less than the required limits for general population exposure for FCC Part 1.1310 and RSS-102 Issue 5.

Additionally, to demonstrate compliance for simultaneous transmission between DECT and LTE the worst-case limit to MPE ratios for each radio were summed. Since that sum was less than 1 that combination of radios is deemed to comply with the simultaneous transmission RF exposure criteria.

FCC MPE Data

Duty Cycle		100 (%)						
Separation Dist.		20 (cm)						
Operating Mode	Frequency (MHz)	Declared Max Cond. Power (Inc. Tolerance) (dBm)	Duty Cycle Adjusted Cond. Output Power (dBm)	Antenna Gain (dB)	MPE Value (mW/cm ²)	MPE Limit (mW/cm ²)	Margin to Limit (mW/cm ²)	MPE / Limit Ratio (for Co-Location)
DECT	1921	21	21.00	3.2	0.0523	1.0000	0.9477	0.0523
LTE Band 2	1850	23	23.00	2.02	0.0632	1.0000	0.9368	0.0632
LTE Band 4	1710	23	23.00	1.26	0.0531	1.0000	0.9469	0.0531
LTE Band 5	824	23	23.00	0.61	0.0457	0.5493	0.5037	0.0832
LTE Band 17	706	23	23.00	1.68	0.0584	0.4707	0.4122	0.1242

Note: the declare maximum transmitter power was obtained from the module specification sheet which was provided by LIFE ALERT EMERGENCY RESPONSE, INC. as was the maximum antenna gain.

Worst Case Simultaneous Transmission Limit / MPE Ration Sum: DECT + LTE Band 17
 0.0523 + 0.1242 = 0.1765

RSS-102 Issue 5 MPE Data

Duty Cycle		100 (%)						
Separation Dist.		20 (cm)						
Operating Mode	Frequency (MHz)	Declared Max Cond. Power (Inc. Tolerance) (dBm)	Duty Cycle Adjusted Cond. Output Power (dBm)	Antenna Gain (dB)	MPE Value (W/m ²)	MPE Limit (W/m ²)	Margin to Limit (W/m ²)	MPE / Limit Ratio (for Co-Location)
DECT	1921	21	21.00	3.2	0.5233	4.5930	4.0697	0.1139
LTE Band 2	1850	23	23.00	2.02	0.6320	4.4763	3.8443	0.1412
LTE Band 4	1710	23	23.00	1.26	0.5306	4.2419	3.7114	0.1251
LTE Band 5	824	23	23.00	0.61	0.4568	2.5756	2.1188	0.1774
LTE Band 17	706	23	23.00	1.68	0.5844	2.3174	1.7330	0.2522

Note: the declare maximum transmitter power was obtained from the module specification sheet which was provided by LIFE ALERT EMERGENCY RESPONSE, INC. as was the maximum antenna gain.

Worst Case Simultaneous Transmission Limit / MPE Ration Sum: DECT + LTE Band 17
 0.1139 + 0.0.2522 = 0.3661



9 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	11/5/2021	104539488LEX-010	BC	BCT	Original Issue