

Date: 2015-12-09 No. : DM121609		Page 1 of 19
Applicant:	Life Alert Emerge 16027 Ventura Bl States 91436	ency Response, Inc. lvd. Suite 400 Encino California United
Description of Sample(s):	Submitted sample Product: Brand Name: Model Number: FCC ID:	e(s) said to be Transmitter Pendant Life Alert LATR-01 2ABZ7-916
Date Sample(s) Received:	2015-11-09	
Date Tested:	2015-11-11 to 20	15-12-08
Investigation Requested:	Perform ElectroM accordance with F Part 15: 2014 and	Iagnetic Interference measurement inFCC 47CFR [Codes of Federal Regulations]ANSI C63.10: 2013 for FCC Certification.
Conclusion(s):	The submitted pro Federal Commun Regulations Part with the standards Test Report.	oduct <u>COMPLIED</u> with the requirements of nications Commission [FCC] Rules and 15. The tests were performed in accordance s described above and on Section 2.2 in this
Remark(s):		

CONC Yun Jian, Alor Authorized Signatory

ElectroMagnetic Compatibility Department For and on behalf of STC (Dongguan) Company Limited

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date No.	: 2015-12-09 : DM121609	Page 2 of 19
CON	TENT:	
	Cover Content	Page 1 of 19 Page 2-3 of 19
<u>1.0</u>	<u>General Details</u>	
1.1	Equipment Under Test [EUT] Description of EUT operation	Page 4 of 19
1.2	Date of Order	Page 4 of 19
1.3	Submitted Sample(s)	Page 4 of 19
1.4	Test Duration	Page 4 of 19
1.5	Country of Origin	Page 4 of 19
<u>2.0</u>	Technical Details	
2.1	Investigations Requested	Page 5 of 19
2.2	Test Standards and Results Summary	Page 5 of 19
<u>3.0</u>	Test Results	
3.1	Emission	Page 6-9 of 19
3.2	20dB Bandwidth of Fundamental Emission	Page 10-11 of 19

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609	Page 3 of 19
Appendix A	
List of Measurement Equipment	Page 12 of 19
Appendix B	
Duty Cycle Correction During 100 msec	Page 13-15 of 19
<u>Appendix C</u>	
Manual Operated Transmitter Transmission Time	Page 16 of 19
Appendix D	
Photographs	Page 17-19 of 19

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 4 of 19

1.0 General Details

1.1 Equipment Under Test [EUT] Description of Sample(s)

Submitted sample(s) said to be	
Product:	Transmitter Pendant
Manufacturer:	Global Brands Manufacture Limited
	EMS Busmess Unit Block F, Yue Yuen Industrial Estate, Huang
	Jiang Zhen, Dong Guan City, Guang Dong Province, China
	523758
Brand Name:	Life Alert
Model Number:	LATR-01
Rating:	3Vd.c. (CR2032*1)

1.1.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Transmitter Pendant of Life Alert Emergency Response, Inc. The EUT is a wireless remote control operating at 315.1MHz. Test was conducted under Tx mode.

1.2 Date of Order

2015-11-09

1.3 Submitted Sample(s):

1 Sample

1.4 Test Duration

2015-11-11 to 2015-12-08

1.5 Country of Origin

China

STC (Dongguan) Company Limited



Date: 2015-12-09 No. : DM121609

Page 5 of 19

2.0 <u>Technical Details</u>

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 and ANSI C63.10: 2013 for FCC Certification. This is a manually operated transmitter, Press the button to start sending signals.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class /	ſ	est Resul	lt
			Severity	Pass	Failed	N/A
Field Strength of Fundamental Emissions & Spurious Emissions	FCC 47CFR 15.231(a)	ANSI C63.10: 2013	N/A	\boxtimes		
20dB Bandwidth of Fundamental Emission	FCC 47CFR 15.231(c)	ANSI C63.10: 2013	N/A	\boxtimes		
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10: 2013	N/A	\boxtimes		

Note: N/A - Not Applicable

STC (Dongguan) Company Limited

68 Furnin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 6 of 19

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

Test Requirement:	FCC 47CFR 15.231(a)
Test Method:	ANSI C63.10: 2013
Test Date:	2015-12-08
Mode of Operation:	Tx mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

*: Semi-anechoic chamber located on the STC (Dongguan) Company Ltd. 68 Fumin Nan Road, Dalang, Dongguan, Guangdong, PRC with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 629686.

Test Setup:



Ground Plane

- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz hom antennas are used.

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 7 of 19

Limits for Field Strength of Fundamental Emissions [FCC 47CFR 15.231a]:

Frequency Range of	Field Strength of	Field Strength of
Fundamental	Fundamental Emission	Spurious Emission
	[Average]	[Average]
[MHz]	$[\mu V/m]$	$[\mu V/m]$
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1,250 to 3,750 *	125 to 375 *
174-260	3,750	375
260-470	3,750 to 12,500 *	375 to 1,250 *
Above 470	12,500	1,250

¹Linear interpolations.

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.

Results of Tx mode(1GHz - 18GHz): PASS

Field Strength of Fundamental Emissions						
			Peak Value			
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level @3m	Factor	Strength	Strength	@3m	Polarity
MHz	dBμV	dB/m	dBµV/m	μV/m	μV/m	
315.10	58.8	16.2	75.0	5604.0	60,472.2	Horizontal
315.10	45.3	15.9	61.2	1152.1	6,045.8	Vertical

Field Strength of Spurious Emissions Peak Value						
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dBµV	dB/m	dBµV/m	μV/m	μV/m	
945.10	15.5	26.9	42.4	131.4	6,045.1	Vertical
+ 2835.60	16.9	37.4	54.3	520.6	5,000.0	Horizontal
3151.30	18.6	38.1	56.7	682.3	6,045.1	Horizontal

STC (Dongguan) Company Limited

68 Furnin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 8 of 19

Results of Tx mode(1GHz – 18GHz): PASS

Field Strength of Fundamental Emissions						
		I	Average Value			
Frequency	Measured	Correction	Field	Field	Limit	E-Field
	Level @3m	Factor	Strength	Strength	@3m	Polarity
MHz	dBμV	dB/m	dBµV/m	μV/m	μV/m	
315.10	50.5	16.2	66.7	2155.3	6,045.1	Horizontal
315.10	37.0	15.9	52.9	443.1	6,045.8	Vertical

Field Strength of Spurious Emissions						
		A	Average Value	2		
Frequency	Measured	Correction	Field	Field	Limit @3m	E-Field
	Level @3m	Factor	Strength	Strength		Polarity
MHz	dBμV	dB/m	dBµV/m	μV/m	μV/m	
945.10	7.2	26.9	34.1	50.5	604.5	Vertical
+ 2835.60	8.6	37.4	46.0	200.2	500.0	Horizontal
3151.30	10.3	38.1	48.4	262.4	604.5	Horizontal

Remarks:

+:

FCC Limit for Fundamental Average Measurement = $41.67(315.05)-7083=6045.1 \mu$ V/m Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 were not adjusted for averaging and the limits of FCC Rules Part 15 Section 15.209 were applied.

*: Adjusted by Duty Cycle = -10.5dB Duty Cycle Correction =-20dB, if the calculation duty cycle correction >-20dB

Correction Factor includes Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty (30MHz - 1GHz): 4.6dB

(1GHz – 18GHz): 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

STC (Dongguan) Company Limited



Date: 2015-12-09 No. : DM121609

Page 9 of 19

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range	Quasi-Peak Limits
[MHz]	$[\mu V/m]$
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of Tx mode (9kHz - 30MHz): PASS

Emissions detected are more than 20 dB below the limit line(s).

Radiated Emissions								
Quasi-Peak								
Emission	E-Field	Level	Limit	Level	Limit			
Frequency	Polarity	@3m	@3m	@3m	@3m			
MHz		dBµV/m	dBµV/m	μV/m	μV/m			
668.1	Horizontal	39.7	46.0	96.6	200			
522.8	Vertical	37.1	46.0	71.6	200			
834.1	Vertical	40.2	46.0	102.3	200			

Results of Tx mode (30MHz - 1GHz): PASS

Remarks:

Correction Factor includes Antenna Factor and Cable Attenuation. Calculated measurement uncertainty: 9kHz - 30MHz): 3.3dB

(30MHz - 1GHz): 4.6dB

(1GHz – 18GHz): 4.4dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

STC (Dongguan) Company Limited

68 Furnin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 10 of 19

3.2 20dB Bandwidth of Fundamental Emission

Test Requirement: Test Method:	FCC 47 CFR 15.231(c) ANSI C63.10: 2013 (Section 13.1.7)
Test Date:	2015-11-16
Mode of Operation:	Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

STC (Dongguan) Company Limited

68 Furnin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 11 of 19

Limits for 20 dB Bandwidth of Fundamental Emission:

			_
Frequency Range	20dB Bandwidth	FCC Limits *	
[MHz]	[kHz]	[kHz]	
315.1	536.0	787.75	

*: FCC Limit for Bandwidth measurement

= (0.25%)(Center Frequency)

- = (0.0025)(315.1)
- = 787.75kHz



BMP Date: 16.NOV.2015 14:23:17

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 12 of 19

Appendix A

List of Measurement Equipment

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EMD004	LISN	ROHDE & SCHWARZ	ESH3-Z5	100102	2015.3.24	2016.3.24
EMD022	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100314	2015.3.24	2016.3.24
EMD035	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100441	2015.3.24	2016.3.24
EMD036	EMI Test Receiver	ROHDE & SCHWARZ	ESIB 26	100388	2015.3.24	2016.3.24
EMD041	TWO-LINE V- NETWORK	ROHDE & SCHWARZ	ENV216	100261	2015.3.24	2016.3.24
EMD061	Biconilog Antenna	ETS.LINDGREN	3142C	00060439	2014.11.29	2016.11.29
EMD062	Double-Ridged Waveguide (1GHz – 18GHz)	ETS.LINDGREN	3117	00075933	2014.11.15	2016.11.15
EMD084	MULTI-DVICE CONTROLLER	ETS.LINDGREN	2090	00060107	N/A	N/A
EMD088	Video Contol Unit	ETS.LINDGREN	Y21953A	2601073	N/A	N/A
EMD093	Monitor	ViewSonic	VA9036	Q8X064201876	N/A	N/A
EMD102	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707454	N/A	N/A
EMD103	Intelligent Frequency	Ainuo Instrument Co., Ltd	AN97005SS	79707455	N/A	N/A
EMD105	FACT-3 EMC Chamber	ETS.LINDGREN	FACT-3	3803	N/A	N/A
EMD106	Shielding Room #1	ETS.LINDGREN	RFD-100	3802	N/A	N/A
	100V Insertion Unit	ROHDE & SCHWARZ	URV5-Z4	100464	2015.3.24	2016.3.24
EMD113	Pre-Amplifier	ROHDE & SCHWARZ	N/A	1129588	2015.3.24	2016.3.24
EMD124	Loop Antenna	ETS-Lindgren	6502	00104905	2014.04.28	2016.04.28
EMD131	Standard Gain Horn Antenna (18GHz – 26.5GHz)	Chengdu AINFO lnc.	JXTXLB-42- 15-C-KF	J2021100721001	2015.06.27	2017.06.27

Remarks:-

N/A Not Applicable

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 13 of 19

Appendix B

Duty Cycle Correction During 100msec

Each packet period (100msec) never exceeds a series of 44 (0.68msec) long and 30 (0.28msec) short pulses. Assuming any combination of short and long pulses may be obtained due to encoding the worst case transmit duty cycle would be considered (0.68*44+0.28*30) msec per 100msec = 38.32% duty cycle. Figure A through D shows the characteristics of the pulses train for one of these functions.

Remarks:

Duty cycle factor = 20Log [(0.68*44+0.28*30)/100] = -8.3dB

The following figures [Figure A to Figure D] showed the characteristics of the pulse train for one of these functions.



BMP

Date: 8.DEC.2015 13:33:52

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 14 of 19



BMP

Date: 8.DEC.2015 14:12:01

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609

Page 15 of 19



BMP

Date: 8.DEC.2015 14:12:34

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 16 of 19

Appendix C

Manual Operated Transmitter Transmission Time [FCC 47CFR 15.231(a)]

According to FCC 47CFR15.231 (a). A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. The EUT ceases transmission almost immediately upon being released and appears to finish the current packet being transmitted. Therefore the longest period of time the transmitter should take to deactivate is a packet length.



BMP

Date: 16.NOV.2015 15:20:15

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 17 of 19

Appendix D

Photographs of EUT





Inner Circuit Bottom View



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 18 of 19

Photographs of EUT



Measurement of Radiated Emission Test Set Up (30MHz – 1000MHz)



STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org



Date: 2015-12-09 No. : DM121609 Page 19 of 19

Photographs of EUT



***** End of Test Report *****

STC (Dongguan) Company Limited

68 Fumin Nan Road, Dalang, Dongguan, China. (Zip Code : 523 770) Tel : (86 769) 8111 9888 Fax : (86 769) 8111 6222 E-mail : dgstc@dgstc.org Homepage : www.dgstc.org