



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 1 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

**620 OLD PREACHTREE ROAD SUWANE, GA 30024 USA (770) 570-1800**

Project No. 3544591

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations (UL 913, Fifth Ed. Dated: 02/21/97) and the Standard for Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations (CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2).

<b>Issuing Laboratory</b> .....	SGS North America (USTC)
Address .....	620 Old Peachtree Road Suwanee, GA 30024 USA
<b>Applicant</b> .....	Vertex Standard LMR, Inc.
Address .....	Tamachi First Building 4-6-8 Shibaura Minato-ku Tokyo, 108-0023, JAPAN
Contact Details .....	Satoshi Akiyama Phone: 81-3-6722-2400 Email: <a href="mailto:satoshi.akiyama@vertexstandard.com">satoshi.akiyama@vertexstandard.com</a>
<b>Manufacturer 1(Radio Only)</b> .....	Sanmina-SCI Systems (Kunshan) Co., Ltd.
Address .....	312 Qing Yang South Road, Economic and Technical Development Zone Kunshan Jiangsu, 215300 CHINA
Contact Details .....	Yori Hu Phone: 86-512-57714449 Email: <a href="mailto:yori.hu@sanmina.com">yori.hu@sanmina.com</a>
<b>Manufacturer 2(Battery Only)</b> .....	Motorola Solutions Malaysia Sdn Bhd
Address .....	Plot 2, Bayan Lepas Techoplex, Industrial Park Mukim 12, S.W.D Bayan Lepas, Penang 11900 Malaysia
Contact Details .....	Sharon Wong                      or                      Sharon Lim Phone: 604-8503586                      Phone: 604-8503180 Email: <a href="mailto:Sharon.wong@motorolasolutions.com">Sharon.wong@motorolasolutions.com</a> or <a href="mailto:DFH784@motorolasolutions.com">DFH784@motorolasolutions.com</a>

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 2 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

<b>Product Type</b> .....	Handheld Transceiver																																										
Trade Mark .....	NA																																										
Product description .....	The radios are powered by a Lithium battery pack and include radio accessories that are used for communication which include a speaker and microphone.																																										
<b>Model Number(s)</b> .....	EVX-531-D0-5, EVX-534-D0-5, EVX-539-D0-5, EVX-531-G6-5, EVX-534-G6-5, EVX-539-G6-5, EVX-531-G7-5, EVX-534-G7-5, EVX-539-G7-5																																										
Model Differences.....	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 25%;">Model Name</th> <th style="width: 25%;">Frequency</th> <th style="width: 15%;">LCD</th> <th style="width: 35%;">Keypad</th> </tr> </thead> <tbody> <tr> <td>EVX-531-D0-5</td> <td>136 -174 MHz</td> <td>X</td> <td>No</td> </tr> <tr> <td>EVX-534-D0-5</td> <td>136 -174 MHz</td> <td>O</td> <td>Limited</td> </tr> <tr> <td>EVX-539-D0-5</td> <td>136 -174 MHz</td> <td>O</td> <td>Full</td> </tr> <tr> <td>EVX-531-G7-5</td> <td>450 - 512MHz</td> <td>X</td> <td>No</td> </tr> <tr> <td>EVX-534-G7-5</td> <td>450 - 512MHz</td> <td>O</td> <td>Limited</td> </tr> <tr> <td>EVX-539-G7-5</td> <td>450 - 512MHz</td> <td>O</td> <td>Full</td> </tr> <tr> <td>EVX-531-G6-5</td> <td>403 - 470 MHz</td> <td>X</td> <td>No</td> </tr> <tr> <td>EVX-534-G6-5</td> <td>403 - 470 MHz</td> <td>O</td> <td>Limited</td> </tr> <tr> <td>EVX-539-G6-5</td> <td>403 - 470 MHz</td> <td>O</td> <td>Full</td> </tr> </tbody> </table>			Model Name	Frequency	LCD	Keypad	EVX-531-D0-5	136 -174 MHz	X	No	EVX-534-D0-5	136 -174 MHz	O	Limited	EVX-539-D0-5	136 -174 MHz	O	Full	EVX-531-G7-5	450 - 512MHz	X	No	EVX-534-G7-5	450 - 512MHz	O	Limited	EVX-539-G7-5	450 - 512MHz	O	Full	EVX-531-G6-5	403 - 470 MHz	X	No	EVX-534-G6-5	403 - 470 MHz	O	Limited	EVX-539-G6-5	403 - 470 MHz	O	Full
Model Name	Frequency	LCD	Keypad																																								
EVX-531-D0-5	136 -174 MHz	X	No																																								
EVX-534-D0-5	136 -174 MHz	O	Limited																																								
EVX-539-D0-5	136 -174 MHz	O	Full																																								
EVX-531-G7-5	450 - 512MHz	X	No																																								
EVX-534-G7-5	450 - 512MHz	O	Limited																																								
EVX-539-G7-5	450 - 512MHz	O	Full																																								
EVX-531-G6-5	403 - 470 MHz	X	No																																								
EVX-534-G6-5	403 - 470 MHz	O	Limited																																								
EVX-539-G6-5	403 - 470 MHz	O	Full																																								
<b>Electrical Ratings</b> .....	Lithium battery pack FNB-V134LIIS, 7.4Vdc, 2300mAh																																										
Other Ratings.....	Class I, II, III, Division 1 Groups C, D, E, F, G, T3C																																										
<b>Accessories</b> .....	MH-66, MH-81, VH-150A, VH-150B, MH-201A4B																																										
<b>Testing Laboratory</b> .....	Consumer Testing Services, A division of SGS North America, Inc.																																										
Address.....	620 Old Peachtree Road, Suwanee, GA 30024 USA																																										
Date of receipt of test item.....	12/12/13																																										
Date(s) of performance of tests .....	12/29/13-1/10/14																																										
<b>Conditions of Acceptability</b> .....	NA																																										

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 3 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### CO-LISTING PAGE

#### CO-LISTING APPLICANT I

Applicant's Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Primary Contact: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

#### Product Correlation:

Basic Models	Co-Listed Models	Note any differences between Basic and Co-Listed models
1.		
2.		
3.		

#### CO-LISTING APPLICANT II

Applicant's Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Primary Contact: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

#### Product Correlation:

Basic Models	Co-Listed Models	Note any differences between Basic and Co-Listed models
1.		
2.		
3.		

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 4 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### GENERAL INFORMATION

#### Components

Components used in the covered products must be those outlined in the latest edition of the Listing Report.

#### Listing Marking

This Procedure authorizes the above Applicant to use the Listing Marking of SGS Consumer Testing Services only on products covered by this Procedure, in accordance with the Listing and Follow-Up Service Agreement. All Listing Mark descriptions shown above are of the combination type except for bulk labeling which may be of the standard type. Bulk labeling applies to Power Supply Cords, Detachable Power supply cords which can be labeled to match quantity shipped in smallest unit container. Once manufacturer has signed license agreement, authorization to produce the applicable Product Safety marks necessary by the manufacturer may be used.

#### Production Line Tests

Manufacturing and Production Tests shall be performed as required by this Report.

#### Responsibility of the Manufacturer

- 1) It is the manufacturer's responsibility to restrict the use of markings which reference SGS to those products which are found by the manufacturers own inspection to comply with the product description in this report. This includes reference to SGS directly and/or indirectly.
- 2) During hours in which the factory is in operation the manufacturer shall permit the SGS inspector unlimited access to any portion of the premises where the product and/or parts are being manufactured, processed and to the test area designated for inspectors use. The SGS inspector shall be permitted to inspect and subject to prescribed tests prior to shipment any product bearing or intended to bear marking referencing SGS.
- 3) The manufacturer shall provide all required testing equipment and facilities including trained personnel for conducting all tests that are to be performed at the factory. These shall be available when needed so that the inspection work can proceed without delays.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 5 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### **Follow up Inspections**

As part of the SGS Follow-Up inspection, it is required that a member and/or representative periodically visit the manufacturing location and select for testing and/or examination, product of the most recent production of the product covered in association with the Listing Report.

### **SGS Inspector**

- 1) A product which is found by the SGS inspector to have features which make it unacceptable to bear marking referencing SGS shall be corrected if the marking is to be used. The inspector shall carefully check additional production for such features until conditions are considered normal.
- 2) A product which does not comply with the provisions of the follow-up procedure report shall have all reference to SGS removed. If the rejection of the product is questioned by the manufactures representative, it may be put on hold in separate area of location pending appeal. The manufacturer shall satisfy the inspector that all marks referencing SGS are removed from the rejected material or finished product. Manufacturer shall destroy product and or turn over to inspector for destruction.
- 3) All discrepancies between the product and the description in the following procedure shall be immediately stated to the attention of the manufactures representative. This shall be noted in the follow-up inspection report as discrepancy.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 6 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### GENERAL CONSTRUCTIONAL REQUIREMENTS

Construction Details - This section specifies construction and component details which are to be verified during factory follow-up inspections. The examples below are provided as commonly identified areas of concern which can be used as a guideline for the type of constructional and component details an inspector might need to verify. It is not intended to be a complete list, and if there are any additional or alternate considerations that should be added to assure continuing compliance of the certified product, they should be added here.

1. Spacings – Reference PCB layout drawings in critical components list.
2. Schematics – Verify schematics in item 8 and 9 in critical components list has current revision as specified.
3. Bill of Material – Verify bill of materials in items 11-15 in critical components list has current revision as specified
4. Mechanical Assembly – The following table lists the assembly drawings for the evaluated equipment.

Item No.	Drawing Title	Drawing Number	Revision	Date (mm/dd/yy)
1	Bill of Material Main Unit (VHF)	IS-AC113N-036-1	1	01/23/14
2	Bill of Material Main Unit (UHF)	IS-AC113U-036-1	1	01/23/14
3	Bill of Material Main Unit (VHF)	IS-AC115N-036-1	1	01/23/14
4	Bill of Material Main Unit (UHF)	IS-AC115U-036-1	1	01/23/14
5	Bill of Material Battery Pack	IS-AC115N-104-3	3	01/23/14
6	Bill of Material Accessory MH-66	IS-AC115N-073-1	1	12/24/13
	Bill of Material Accessory MH-81	IS-AC115N-079-1	1	03/06/14
	Bill of Material Accessory MH-66	IS-AC094N-073-A	1	03/02/12

5. Schematics – The following table lists the schematics used during evaluation. Verify schematics in item 8 and 9 in critical components list has current revision as specified

Item No.	Drawing Title	Drawing Number	Revision	Date (mm/dd/yy)
1	Circuit Diagram of Main Model EVX-530	BR024510E, BR025450B, BR0255510A, BR025490B, BR025510A, BR025490B	1	12/24/13

6. Manual – Title: Operating Manual; Drawing Number: IS-AC115N-004-3; Dated: 10/16/15; Rev: 3

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 7 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### ROUTINE TESTS FOR MANUFACTURING AND PRODUCTION

The manufacturer shall perform the following Manufacturing and Production Tests on 100% of equipment produced which has both hazardous live parts and accessible conductive parts

None

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

**PHOTOGRAPHS**

Handheld Transceiver, Models: EVX-531, EVX-534, EVX-539

PHOTO NO. 1-2



1

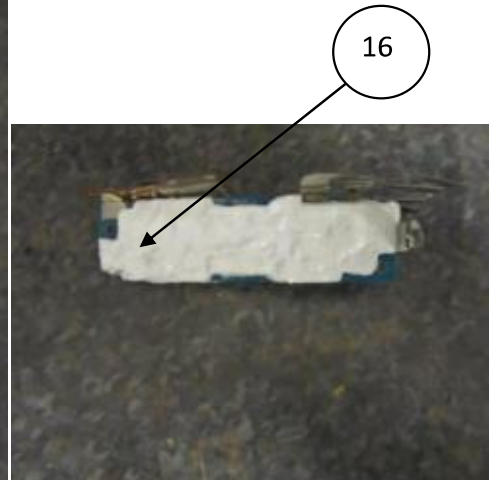
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 9 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015  
PHOTO NO. 3-4

Handheld Transceiver, Model: EVX-531



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 10 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015  
PHOTO NO. 5-6

Handheld Transceiver, Model: MH-201A4B



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 11 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### CRITICAL COMPONENTS

The following components are considered "critical" in terms of this certification and must be verified during factory inspections. No substitutions or alternate components are allowed unless specifically as stated in this report.

Item No.	Object/part No	Manufacturer/trademark	Type/model	Technical data	Standard	Mark(s) of conformity
1	Enclosure	Teijin Chemicals Ltd	Panlite AM-1800	Polycarbonate, HB flame rating, 80°C	UL 746C	UR
	Alternate	Teijin Chemicals Ltd	Multilon T-2711J	Polycarbonate, 94V-1, 122°C	UL 913	Tested as part of the Equipment
2	Battery Pack	Vertex	FNB-V134LIIS	Battery pack consists of 2 cells rating: 7.4V, 2300mAh	UL 913	Tested as part of the Equipment
	Battery Pack Enclosure	Sabic	EXL1414	Lexan Resin Polycarbonate, HB flame rating, 120°C	UL 746C	UR
	Capacitor(C1003, C1006)	Various	Various	Chip capacitance 0603 0.22uF or 220pF, 25V	UL 913	Tested as part of the Equipment
	Integrated Circuit(Q1011, Q1012)	Seiko Instruments	S-8252AAQ and S-8252AAE	Overcharge detection voltage 4.3V, Load short-circuiting detection delay 280us, Pd = 400mW, -40°C to +85°C	UL 913	Tested as part of the Equipment
	Integrated Circuit(Q1005-Q1006, Q1008, Q1009)	Toshiba	TPC6067	N-channel MOSFET, Vdss = 30V, Id = 6A, PD = 2.2W, RDS(ON) = 18mΩ	UL 913	Tested as part of the Equipment
	Resistor(R1021-R1024)	KAMAYA Electronics	RLC32-R200	0.2Ω, 1/2W, 1% thick film	UL 913	Tested as part of the Equipment
3	Cell	Sanyo	UR18650FB	Lithium cell, Rated: 3.7V, 2300mAh	UL 1642	UR
	Battery Pack PCB Layout	Vertex	FR026510D	Title: PCB Layout of Protect Unit for FNB-V134 LIIS, Rev 3, Dated: 03/28/14, Reference Illustration 2	UL 913	Tested as part of the Equipment
4	Battery Pack Schematic	Vertex Standard LMR Inc.	IS-AC115N-102-3	Title: Circuit Diagram of PROTECT-UNIT for FNB-V134LIIS, Drawing Number: IS-AC115N-102-3, Rev 3, Dated: 03/28/14, Reference Illustration 1	UL 913	Tested as part of the Equipment
5	Speaker(Model EVX-539/534)	FST	M4090204	16Ω minimum, 354uH maximum	UL 913	Tested as part of the Equipment

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 12 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

Item No.	Object/part No	Manufacturer/trademark	Type/model	Technical data	Standard	Mark(s) of conformity
	Speaker(Model EVX-531)	Prime	36N-02114B	3.79Ω minimum, 56uH maximum	UL 913	Tested as part of the Equipment
6	Inductance	Vertex	Inductance	Total unprotected inductance 26uH maximum	UL 913	Tested as part of the Equipment
7	Capacitance	Vertex	Capacitance	Total Capacitance 237uF maximum	UL 913	Tested as part of the Equipment
8	PCB Layout	Vertex	FR024510E, FR024460F, FR025450B, FR025490B,	Material IT158(FR-4), Reference Illustrations 3-6	UL 913	Tested as part of the Equipment
	PCB Layout of Display	Vertex	FR025470B	Title: PCB Layout of Display, Drawing Number: IS-AC115N-023-1, Rev 1, Dated: 01/23/14	UL 913	Tested as part of the Equipment
9	Encapsulation	Momentive Performance Materials Japan LLC	TSE3944	94V-0, -55°C to +200°C, thermal conductivity 0.36W/(m K), Covers battery PCB	UL 746C	UR
10	Accessory VH-150A	Vertex	VH-150A	Maximum Inductance 162.3uH, Minimum Resistance 32.45Ω	UL 913	Tested as part of Equipment
11	Accessory VH-150B	Vertex	VH-150B	Maximum Inductance 468uH, Minimum Resistance 98.56Ω	UL 913	Tested as part of Equipment

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 13 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### EVALUATION OF UNLISTED COMPONENTS

Because unlisted components are uncontrolled, and they do not fall under a third party follow up program, SGS may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The unlisted components in the table below require testing and/or evaluation as indicated.

**Note to SGS Follow Up Inspector: The Certification Manager will notify you in writing when these components must be selected and sent to the Certification Lab for re-evaluation.**

Ship the samples to: SGS North America  
620 Old Peachtree Road, Ste. 100  
Suwanee, GA 30024  
USA

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless the manufacturer specifically requests the return of the samples. The request for return **must** accompany the initial component shipment.

The unlisted components covered by this report are shown in the following table:

PHOTO #	ITEM #	DESCRIPTION	MANUFACTURER	PART #	FREQ*	QTY**	REQUIRED ACTION***
3	5	Speaker	FST	M4090204	Annual	5	Measured value to be >16Ω minimum, <354uH maximum
3	5	Speaker	Prime	36N-02114B	Annual	5	Measured value to be >3.79Ω minimum, <56uH maximum
6	12	Speaker from headset	Vertex	MH-201A4B	Annual	10	Measured: Maximum Inductance 155uH, Minimum Resistance 7.11Ω

\*Quarterly, Semi-Annual, Annual

\*\* Note: Indicate any samples not available and provide expected availability date.

\*\*\* Visual, Partial or Full

Note: Visual means the quarterly verification of the description of the unlisted component in the report is sufficient for Certification.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



# LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 14 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

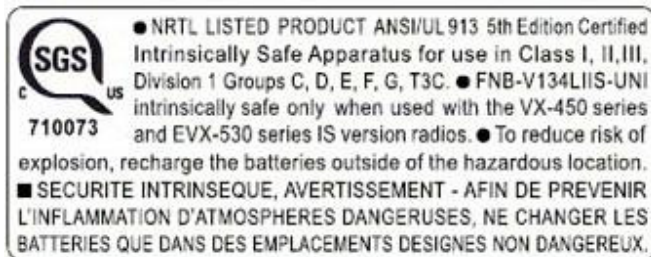
## MARKINGS

The following markings are required:



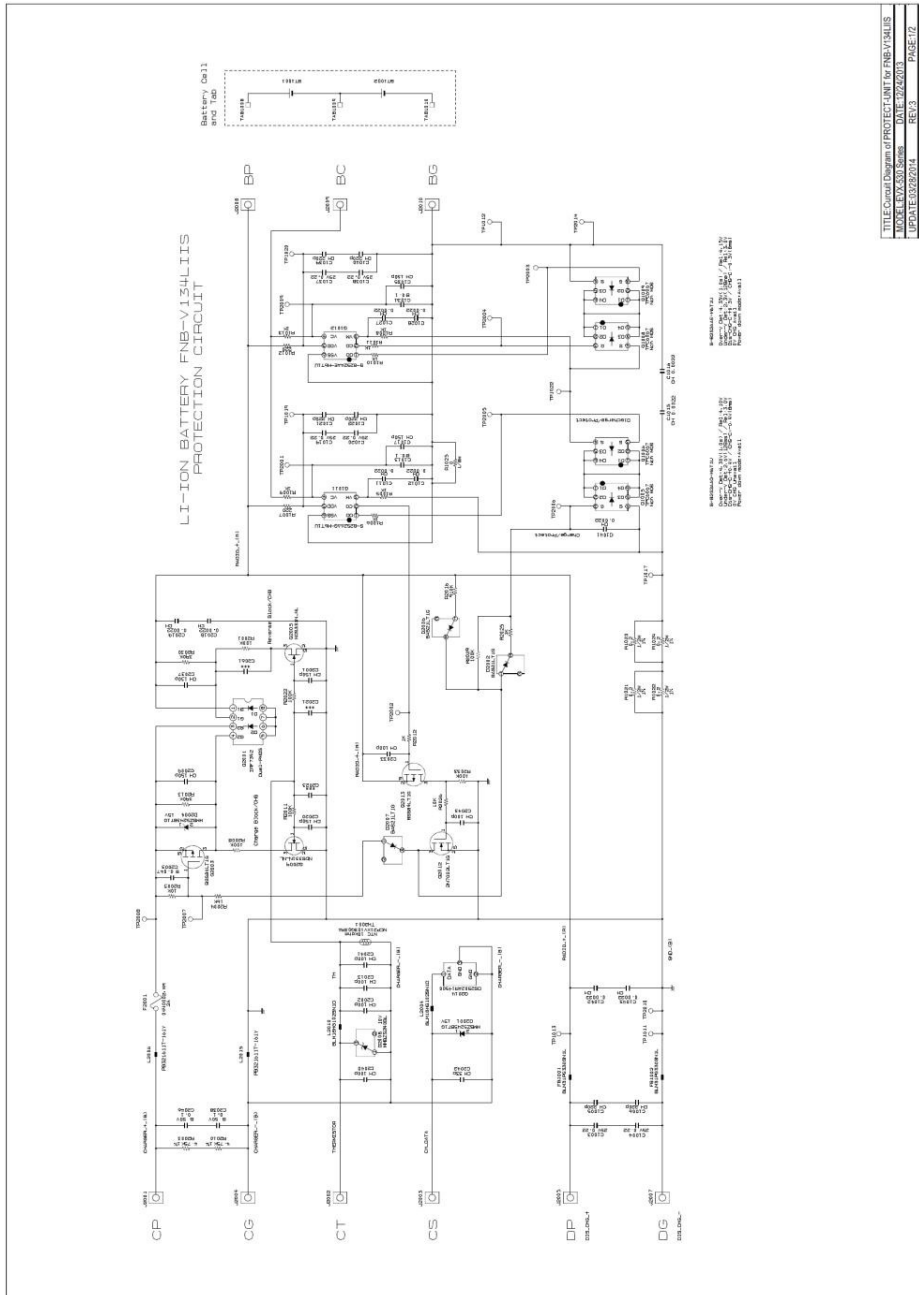
**NRTL LISTED PRODUCT ANSI/UL 913 5th Edition  
Certified Intrinsically Safe Apparatus for use in  
Class I, II, III, Division 1 Groups C, D, E, F, G, T3C.**

**WARNING:** SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY. USE ONLY WITH Vertex Standard FNB-V134LIIS-UNI.  
**CAUTION:** TO REDUCE THE RISK OF EXPLOSION, RECHARGE THE BATTERIES OUTSIDE OF THE HAZARDOUS LOCATION.  
SECURITE INTRINSEQUE, AVERTISSEMENT - AFIN DE PREVENIR L'INFLAMMATION D'ATMOSPHERES DANGEREUSES, NE CHANGER LES BATTERIES QUE DANS DES EMPLACEMENTS DESIGNES NON DANGEREUX.



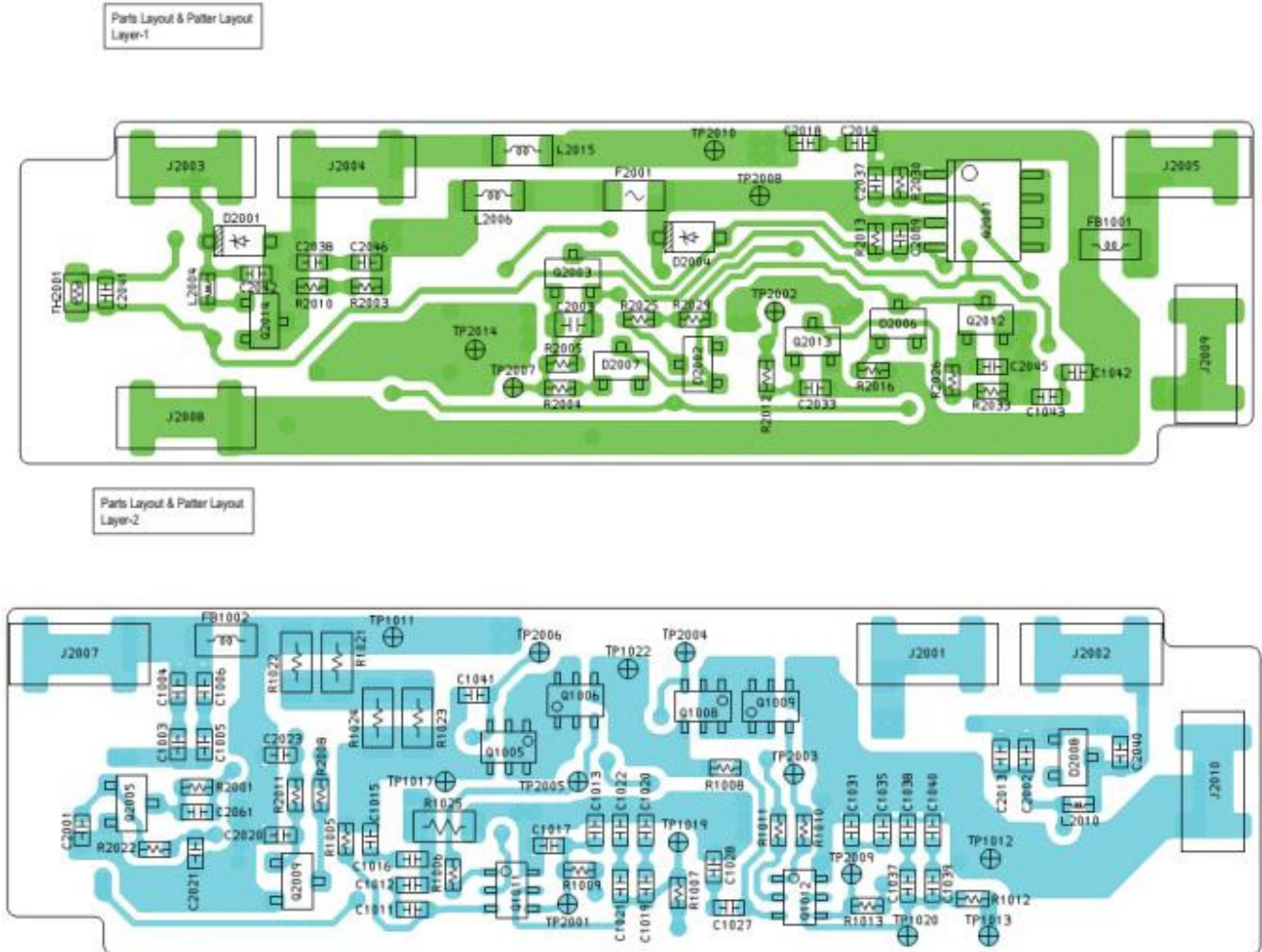
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

**ILLUSTRATION 1**



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

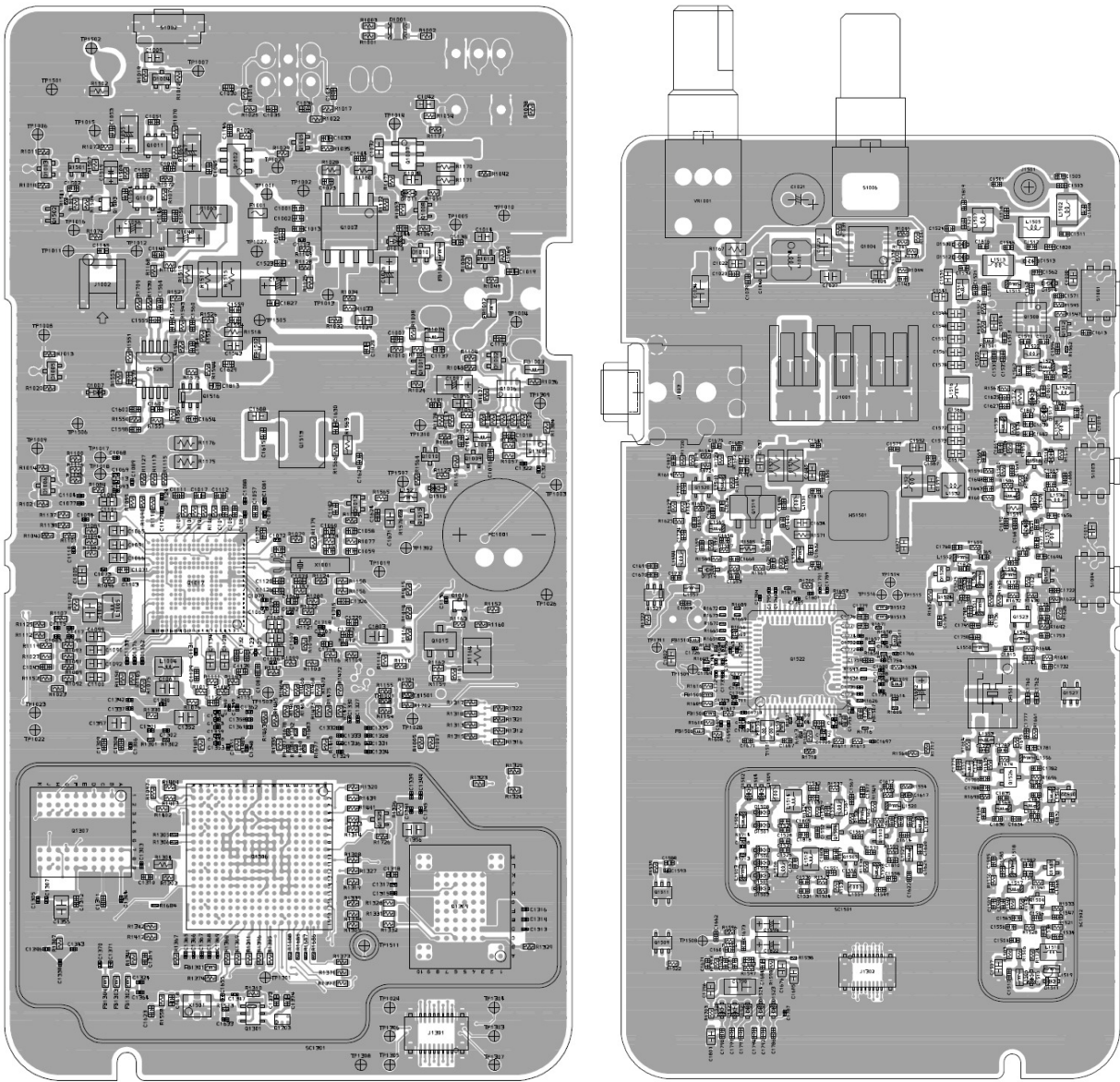
## ILLUSTRATION 2



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



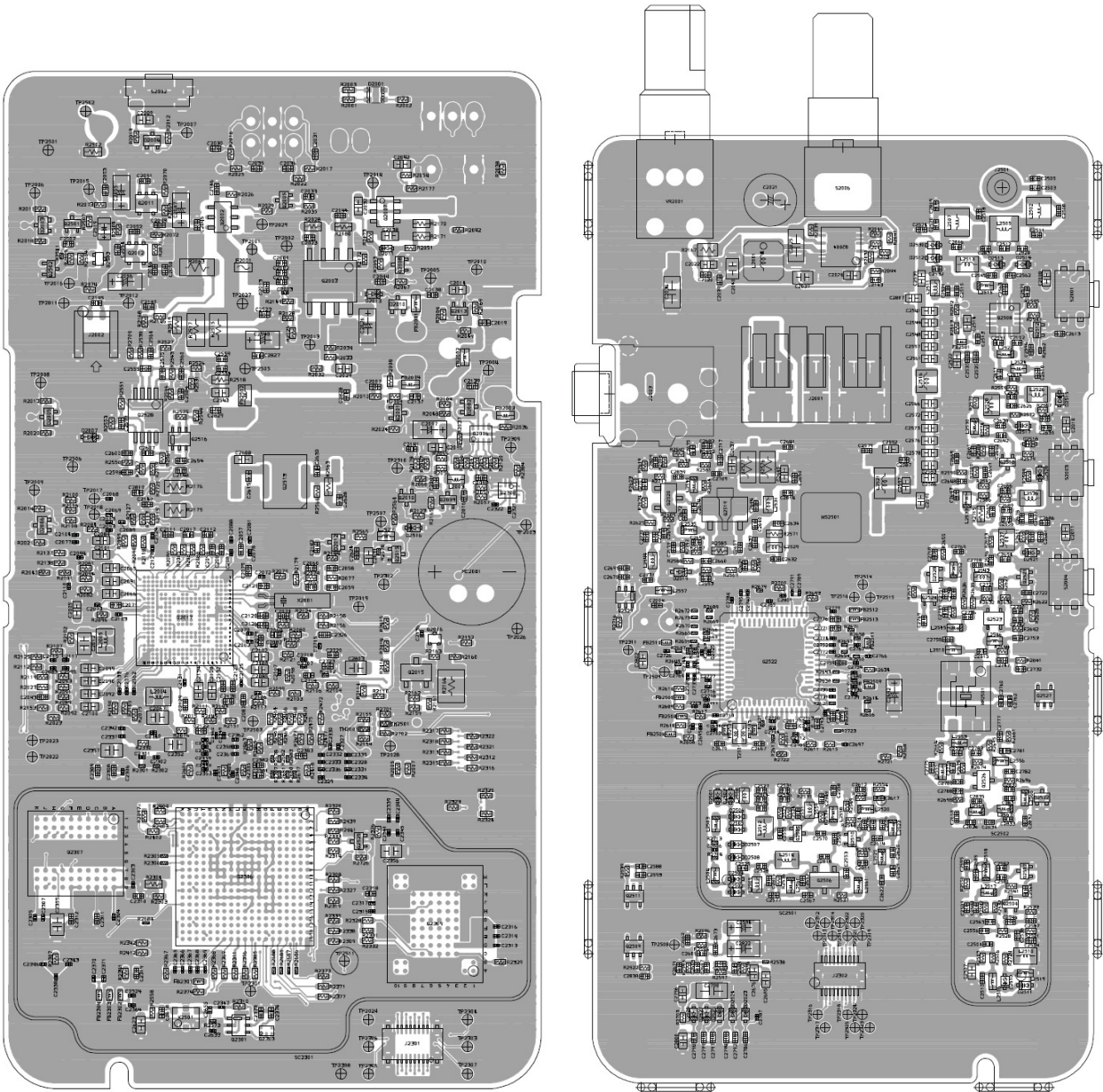
**ILLUSTRATION 3**



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

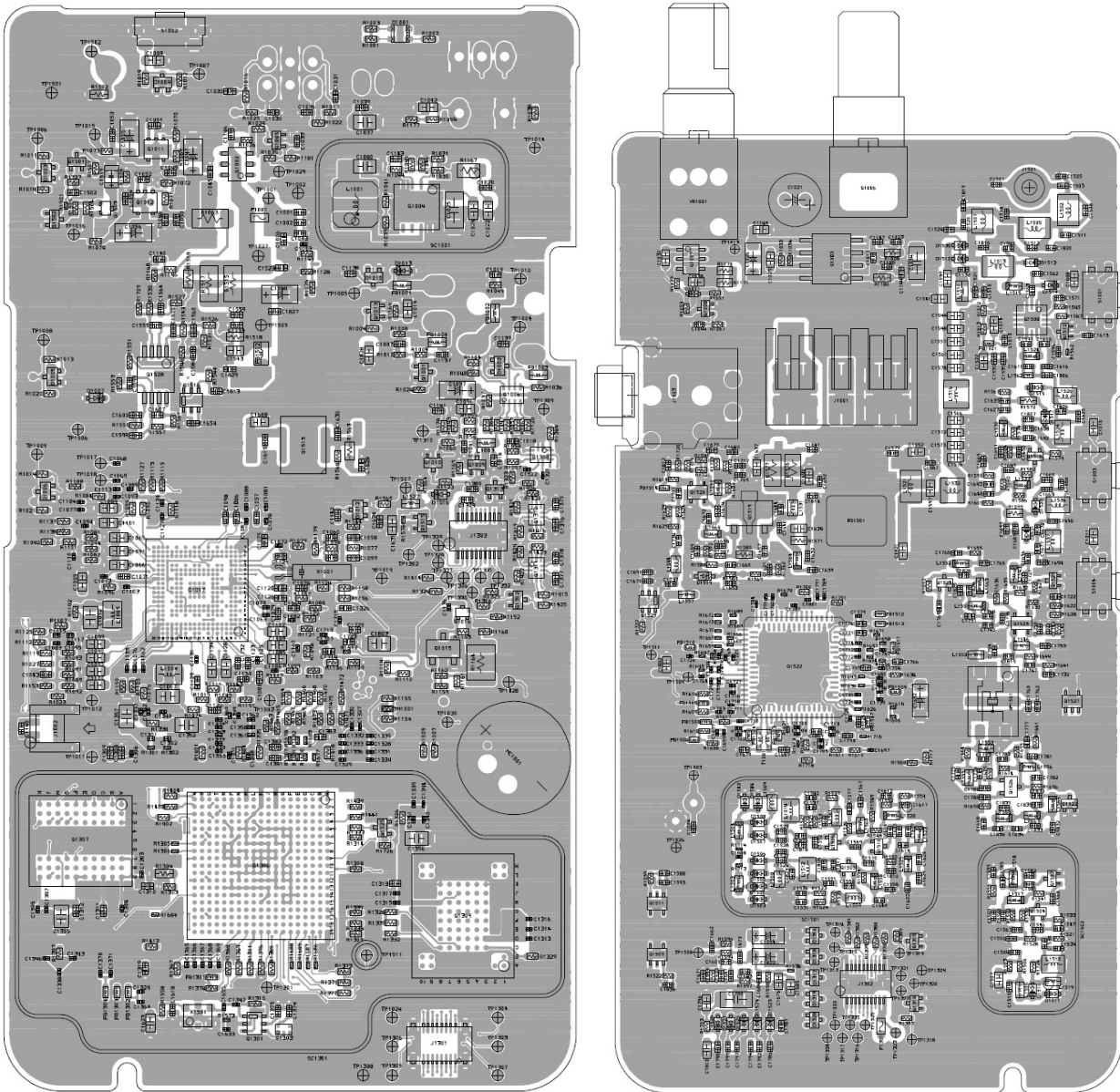
**ILLUSTRATION 4**

Layout for EVX-531-G7-5



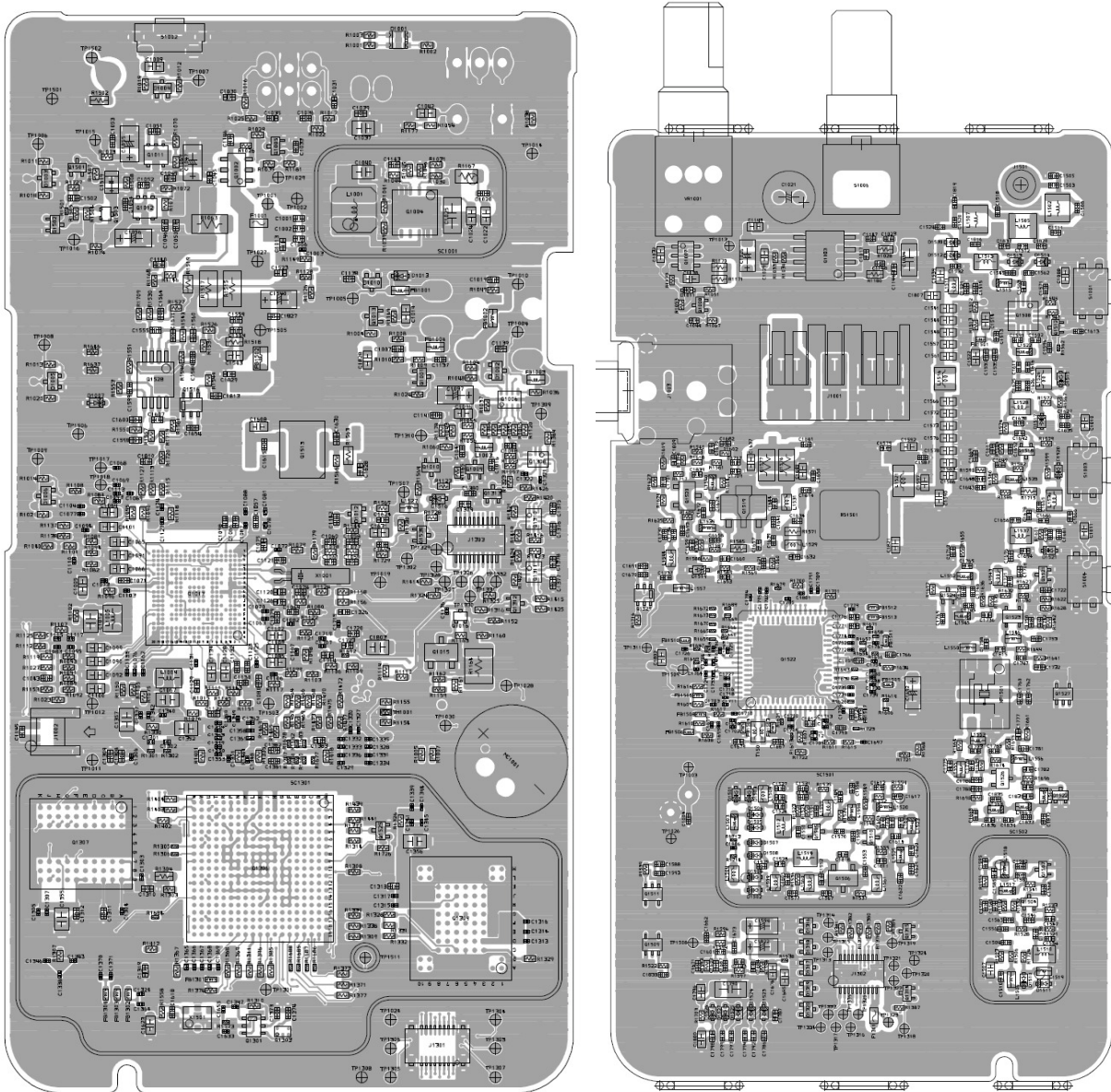
This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

**ILLUSTRATION 5**



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

**ILLUSTRATION 6**



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 21 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### SUMMARY OF TEST RESULTS

The following tests were performed:

<u>Section</u>	<u>Test Description</u>
8	Creepage and Clearance Distances
15	Cells and Batteries
19	Maximum Voltage and Current Levels
27	Temperature Test
31	Drop Test
32	Dust-Tight Enclosure Test
37	Spark ignition Test
NA	Additional Test

Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations (CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2)

The following tests are equivalent to the testing above:

<u>Section</u>	<u>Test Description</u>
4.4.5	Batteries
6.2	Spark Ignition Test
6.3	Temperature Code Rating
6.5	Drop Test
6.14	Inductance and Capacitance Determination

The following tests were performed:

<u>Section</u>	<u>Test Description</u>
37	Spark ignition Test
NA	Additional Test

Results of the tests indicate the specimens conform to the test criteria that were found to be applicable.

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 22 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### REVISION TABLE

The following changes have been made to this Report:

<u>Date</u>	<u>Project #</u>	<u>Engineer</u>	<u>Page</u>	<u>Description of Change</u>	<u>Reviewer</u>
4/30/14	347309 6	A Delisle	10	Item 4. Updated schematic rev	J Smith
			10	Item 3. Updated PCB rev	
			14	Updated illustration 1 with latest rev	
			15	Updated illustration 2 with latest rev	
07/24/14	354459 1	A Delisle	1	Added CSA C22.2 No. 157 to standards list.	J Smith
			13	Replaced markings with French markings required by CSA standard.	
			20	Added CSA C22.2 No. 157 to standards tested to.	
			22	Added CSA C22.2 No. 157 to standards list.	
03/09/15	369391 5	A. Delisle	2	Added VH-150A and VH-150B	J. Smith
			11	Added items 17 and 18	
11/18/15	388705 6	A Delisle	2	Added MH-201A4B Accessory.	J Smith
			6	Drawings relocated from Critical Components list to General Requirements section.	
			10	Added pictures of MH-201A4B.	
			12	Added Item 12 MH-201A4B.	
			13	Added speaker from MH-201A4B to unlisted components.	
			14	Updated Marking to omit CE mark and update wording in warning.	
21	Added tests to this page				

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.



## LISTING REPORT/INSPECTION PROCEDURE

Vertex Standard LMR, Inc.  
REPORT NO.: 607008/01

Page 23 of 23  
Issued: 17 March 2014  
Revised: 11 November 2015

### CONCLUSION

Samples of the products covered by this Report have been found to comply with the applicable requirements of the Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations (UL 913, Fifth Ed. Dated: 02/21/97)

Report Prepared by:  
Signature on File  
Andrew Delisle  
Project Engineer

Report Reviewed by:  
Signature on File  
Jedd Smith  
Senior Project Engineer

Samples of the products covered by this Report have been found to comply with the applicable requirements of the Standard for Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations (CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2).

Report Prepared by:  
Signature on File  
Andrew Delisle  
Project Engineer

Report Reviewed by:  
Signature on File  
Jedd Smith  
Senior Project Engineer

Samples of the products covered by this Report have been found to comply with the applicable requirements of the Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations (UL 913, Fifth Ed. Dated: 02/21/97) and Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations (CSA C22.2 No. 157-92 (R2012) +UPD1 +UPD2).

Report Prepared by:  
Signature on File  
Andrew Delisle  
Project Engineer

Report Reviewed by:  
Signature on File  
Jedd Smith  
Senior Project Engineer

Report Revised by:

Andrew Delisle  
Project Engineer

Report Reviewed by:

Jedd Smith  
Senior Project Engineer

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.