

## TEST EQUIPMENT USED FOR TSSCKP

Part 15.231, ANSI C63.4, RSS 210

This is a list of all test equipment used.

Note: Calibration Certificates are on following pages.

| Test Equipment list for Honeywell OATS & Conducted Line |                      |               |                  |                      |
|---------------------------------------------------------|----------------------|---------------|------------------|----------------------|
| <b>EQUIPMENT:</b>                                       | <b>MANUFACTURER:</b> | <b>MODEL:</b> | <b>CAL DATE:</b> | <b>CAL DUE DATE:</b> |
| Spectrum Analyzer                                       | Rohde & Schwarz      | FSU26         | 05/09/2013       | 05/09/2014           |
| Antenna ('Biconilog')                                   | ETS (EMCO)Lindgren   | 3149          | 07/08/2013       | 07/08/2014           |
| Spectrum Analyzer                                       | Rohde & Schwarz      | FSU3          | 05/09/2013       | 05/09/2014           |
| LISN                                                    | COM-POWER            | LI-115        | 10/17/2013       | 10/17/2014           |

If you need any additional information from Honeywell, please contact:

Andrew Roussin, Engineer  
(Acting for Mark Schmidt)  
Phone (Direct): 516-577-5935  
Email: andrew.roussin@honeywell.com

# Certificate of Calibration

Issue Date: 5/13/2013



General Calibration, Inc.  
2 Mars Court, Boonton, New Jersey 07005  
Phone (973) 299-2950 Fax (973) 299-0595

Certificate #: 1034725  
Work Order #: RH509  
Customer #: 001464

## Performed By:

GENERAL CALIBRATION, INC.  
2 MARS COURT

BOONTON, NJ 07005

## Location of Calibration:

HONEYWELL SECURITY (001464)  
2 CORPORATE CENTER DRIVE

MELVILLE, NY 11747

## Equipment Information:

Job No.: 066617  
Manufacturer: R&S  
Description: SPECTRUM ANALYZER  
Department:  
Temp./RH: 22.0 C / 53.0 %  
Cal. Interval: 12 MONTHS  
Cal Date: 05/09/2013

## Purchase Order:

583920

Asset Tag No.: 11496  
Model Number: FSU26  
Serial Number: 100303  
Inspected By: RH1  
Job Title: METROLOGIST  
Calibration Result: PASSED  
Cal. Due Date: 05/09/2014

Procedure #GCP: RS FSU26

## Calibration Notes:

Condition: Found In Tolerance and Left In Tolerance

## Standards Used To Calibrate Equipment

| Company             | I.D. | Description                | Serial Number | Cal. Due Date |
|---------------------|------|----------------------------|---------------|---------------|
| GENERAL CALIBRATION | 335  | SYNTHESIZED SWEEPER, 50GHZ | 3614A00157    | 08/02/2014    |
| GENERAL CALIBRATION | 676  | LEVEL GENERATOR            | 2516A04043    | 05/21/2013    |
| GENERAL CALIBRATION | 856  | FREQUENCY COUNTER          | 51002-5       | 06/28/2013    |
| GENERAL CALIBRATION | 874  | POWER SENSOR               | 3318A15971    | 10/18/2013    |
| GENERAL CALIBRATION | 974  | POWER METER                | 2709A29063    | 06/04/2013    |

This is to certify that General Calibration, Inc. is A2LA accredited and that its calibration system is in compliance with ISO/IEC 17025-2005, ANSI NCSL Z540-1, ANSI NCSL Z540-3, and ISO 9001:2008. The test limits stated in the report correspond to the Manufacturer calibration and published specifications of the equipment, at the points tested. Calibration of standards; reference standards and intermediate standards in this calibration have been checked and calibrated against the above working standard(s) which are traceable to the National Institute of Standards and Technology. Any accredited calibration under our A2LA scope of accreditation is denoted with A2LA accredited symbol on the calibration certificate. If the certificate includes any unaccredited items calibrated, they are clearly marked as unaccredited calibration.

Best Uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

The results documented in this certificate relate only to the item(s) calibrated or tested.

Approved By

General Calibration, Inc. - Q. A. Manager



# ETS-LINDGREN™

An ESCO Technologies Company

1301 Arrow Point Drive  
Cedar Park, Texas 78613  
(512) 531-6400

Cert I.D.: 97937

## Certificate of Calibration Conformance

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The instrument identified below has been individually calibrated in compliance with the following standard(s):

SAE, ARP-958 - 2003, Electromagnetic Interference Measurement Antennas; Standard Calibration Method, Society of Automotive Engineers, Aerospace Recommended Practice. Fixed height, three antenna rotation, 1 meter separation. 3 meter separation performed per Annex C. Vertical calibration performed per above listed methodology.

Environment: Laboratory MTE is maintained in a temperature controlled environment with ambient conditions from 18 to 28 C, relative humidity less than 90%. The instrument under test has been calibrated on an open air test site (OATS) with environment temperature conditions ranging from 0 to 40 C which has no known influences on measurement quality.

|                                 |                                 |                         |                                                                                  |
|---------------------------------|---------------------------------|-------------------------|----------------------------------------------------------------------------------|
| <b>Manufacturer:</b>            | ETS-Lindgren                    | <b>Operating Range:</b> | 80 MHz - 6 GHz                                                                   |
| <b>Model Number:</b>            | 3149.                           | <b>Instrument Type:</b> | Biconilog (Type 5)                                                               |
| <b>Serial Number/ ID:</b>       | 00029390                        | <b>Date Code:</b>       |                                                                                  |
| <b>Tracking Number:</b>         | S 000028197                     | <b>Alternate ID:</b>    | 11243                                                                            |
| <b>Date Completed:</b>          | 08-Jul-13                       | <b>Customer:</b>        | HONEYWELL (NY)                                                                   |
| <b>Test Type:</b>               | 3 meter Horizontal and Vertical |                         |                                                                                  |
| <b>Calibration Uncertainty:</b> | 01m                             |                         |                                                                                  |
| k=2, (95% Confidence Level)     |                                 |                         | 26 - 1000 MHz, +/-0.9 dB; 1000 - 2000 MHz, +/-0.8 dB; 2000 - 6000 MHz, +/-1.2 dB |
|                                 | 03m                             |                         | 26 - 1000 MHz, +/-0.9 dB; 1000 - 2000 MHz, +/-0.8 dB; 2000 - 6000 MHz, +/-1.3 dB |
|                                 | 10m                             |                         | 26 - 1000 MHz, +/-1.0 dB; 1000 - 2000 MHz, +/-1.4 dB; 2000 - 6000 MHz, +/-2.3 dB |

**Test Remarks:** Extended Calibration: from 26 MHz to 6 GHz

Calibration Traceability: All Measuring and Test Equipment (M/TE) identified below are traceable to the SI units through the National Institute for Standards and Technology (NIST) or other recognized National Metrology Institute Calibration Laboratory and Quality System; controls are compliant with ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994.

### Standards and Equipment Used:

Make / Model / Name / S/N / Recall Date

Agilent N5230C PNA-L Net/Wrk Analyzer MY49002145 13-Jul-13

**Condition of Instrument Upon Receipt:**

In Tolerance to Internal Quality Standards

**On Release:**

In Tolerance to Internal Quality Standards

Calibration Completed By

James Hansell, Calibration Technician

Attested and Issued on 08-Jul-13

Doug Kramer, EMC/Wireless Lab Manager

This document provides traceability of measurements to recognized national standards using controlled processes at the ETS-Lindgren Calibration Laboratory. Uncertainties listed are derived from the methods described by NIST Tech Note 1297. This certificate and report may not be reproduced, except in full, without the written approval of ETS-Lindgren Calibration Laboratory in accordance with ISO/IEC 17025-2005 and ANSI/NCSL Z540-1-1994. QAF 1127 (03/11)

# Certificate of Calibration

Issue Date: 5/13/2013



General Calibration, Inc.  
2 Mars Court, Boonton, New Jersey 07005  
Phone (973) 299-2950 Fax (973) 299-0595

Certificate #: 1034723  
Work Order #: RH509  
Customer #: 001464

## Performed By:

GENERAL CALIBRATION, INC.  
2 MARS COURT

BOONTON, NJ 07005

## Location of Calibration:

HONEYWELL SECURITY (001464)  
2 CORPORATE CENTER DRIVE

MELVILLE, NY 11747

## Equipment Information:

Job No.: 066615  
Manufacturer: R&S  
Description: SPECTRUM ANALYZER  
Department:  
Temp./RH: 22.0 C / 53.0 %  
Cal. Interval: 12 MONTHS  
Cal Date: 05/09/2013

## Purchase Order: 583920

Asset Tag No.: 11493  
Model Number: FSU3  
Serial Number: 100029  
Inspected By: RH1  
Job Title: METROLOGIST  
Calibration Result: PASSED  
Cal. Due Date: 05/09/2014

## Procedure #GCP: RS FSU3

## Calibration Notes:

Condition: Found In Tolerance and Left In Tolerance

## Standards Used To Calibrate Equipment

| Company             | I.D. | Description                | Serial Number | Cal. Due Date |
|---------------------|------|----------------------------|---------------|---------------|
| GENERAL CALIBRATION | 335  | SYNTHESIZED SWEEPER, 50GHZ | 3614A00157    | 08/02/2014    |
| GENERAL CALIBRATION | 661  | POWER SENSOR               | US37298428    | 07/06/2013    |
| GENERAL CALIBRATION | 676  | LEVEL GENERATOR            | 2516A04043    | 05/21/2013    |
| GENERAL CALIBRATION | 856  | FREQUENCY COUNTER          | 51002-5       | 06/28/2013    |
| GENERAL CALIBRATION | 974  | POWER METER                | 2709A29063    | 06/04/2013    |

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Approved By

General Calibration, Inc. - Q. A. Manager

# Certificate of Calibration

Issue Date: 10/17/2013



General Calibration, Inc.  
2 Mars Court, Boonton, New Jersey 07005  
Phone (973) 299-2950 Fax (973) 299-0595

Certificate #: GC49-10365  
Work Order #: GC49-135  
Customer #: 001464

## Performed By:

GENERAL CALIBRATION, INC.  
2 MARS COURT

## Location of Calibration:

HONEYWELL SECURITY (001464)  
2 CORPORATE CENTER DRIVE

BOONTON, NJ 07005

MELVILLE, NY 11747

## Equipment Information:

Job No.: 076905  
Manufacturer: COM-POWER  
Description: LISN  
Department: DAVID KALMUS  
Temp./RH: 22.0 C / 24.0 %  
Cal. Interval: 12 MONTHS  
Cal Date: 10/17/2013

Purchase Order: 583920  
Asset Tag No.: 11262  
Model Number: LI-115  
Serial Number: 241050  
Inspected By: MR1  
Job Title: METROLOGIST  
Calibration Result: PASSED  
Cal. Due Date: 10/17/2014

Procedure #GCP: COM-POWER LI-115

## Calibration Notes:

Condition: Found In Tolerance and Left In Tolerance  
Standards Used To Calibrate Equipment

| Company             | I.D. | Description        | Serial Number | Cal. Due Date |
|---------------------|------|--------------------|---------------|---------------|
| GENERAL CALIBRATION | 418  | DIGITAL MULTIMETER | 2201A12339    | 01/16/2014    |
| GENERAL CALIBRATION | 700  | DIGITAL MULTIMETER | 77820175      | 02/11/2014    |

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General Calibration, Inc. - Q. A. Manager