

FCC Testing of the  
ELTA S.A.  
Emergency Locator Transmitter, Model: Elite  
In accordance with FCC 47 CFR Part 87 and  
FCC 47 CFR Part 2

Prepared for: ELTA S.A.  
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FCC ID: LYJELiTe

## COMMERCIAL-IN-CONFIDENCE

Date: September 2017  
Document Number: 75939365-01 | Issue: 01



Product Service

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| RESPONSIBLE FOR      | NAME            | DATE              | SIGNATURE |
|----------------------|-----------------|-------------------|-----------|
| Project Management   | Sarah Jones     | 29 September 2017 |           |
| Authorised Signatory | Matthew Russell | 29 September 2017 |           |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

### ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 87 and FCC 47 CFR Part 2. The sample tested was found to comply with the requirements defined in the applied rules.

| RESPONSIBLE FOR | NAME          | DATE              | SIGNATURE |
|-----------------|---------------|-------------------|-----------|
| Testing         | Dan Ralley    | 29 September 2017 |           |
| Testing         | Graeme Lawler | 29 September 2017 |           |

FCC Accreditation  
90987 Octagon House, Fareham Test Laboratory

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with FCC 47 CFR Part 87:2016 and FCC 47 CFR Part 2: 2016.



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## 1 Report Summary

### 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue     |
|-------|-----------------------|-------------------|
| 1     | First Issue           | 29 September 2017 |

**Table 1**

### 1.2 Introduction

|                               |                                                     |
|-------------------------------|-----------------------------------------------------|
| Applicant                     | ELTA S.A.                                           |
| Manufacturer                  | ELTA S.A.                                           |
| Model Number(s)               | Elite                                               |
| Serial Number(s)              | 16-0014                                             |
| Hardware Version(s)           | E                                                   |
| Software Version(s)           | 1.0.30                                              |
| Number of Samples Tested      | 1                                                   |
| Test Specification/Issue/Date | FCC 47 CFR Part 87: 2016<br>FCC 47 CFR Part 2: 2016 |
| Order Number                  | 170464                                              |
| Date                          | 09-June-2017                                        |
| Date of Receipt of EUT        | 15-June-2017                                        |
| Start of Test                 | 28-June-2017                                        |
| Finish of Test                | 26-July-2017                                        |
| Name of Engineer(s)           | Dan Ralley and Graeme Lawler                        |
| Related Document(s)           | KDB 971168 D01 v02r02<br>ANSI C63.26: 2015          |



### 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 87 and FCC 47 CFR Part 2 is shown below.

| Section                                     | Specification Clause |        | Test Description                        | Result | Comments/Base Standard        |
|---------------------------------------------|----------------------|--------|-----------------------------------------|--------|-------------------------------|
|                                             | Part 87              | Part 2 |                                         |        |                               |
| Configuration: 121.5 MHz Homing Transmitter |                      |        |                                         |        |                               |
| 2.1                                         | 87.131               | -      | Power and Emissions                     | Pass   | KDB 971168 D01                |
| 2.2                                         | 87.133               | 2.1055 | Frequency Stability                     | Pass   | KDB 971168 D01<br>ANSI C63.26 |
| 2.3                                         | 87.135               | 2.1049 | Bandwidth of Emission                   | Pass   | ANSI C63.26                   |
| 2.4                                         | 87.137               | -      | Types of Emission                       | Pass   |                               |
| 2.5                                         | 87.139               | 2.1051 | Spurious Emissions at Antenna Terminals | Pass   | KDB 971168 D01                |
| 2.6                                         | 87.139               | 2.1051 | Radiated Spurious Emissions             | Pass   | KDB 971168 D01                |
| 2.7                                         | 87.141               | -      | Modulation Requirements                 | Pass   | KDB 971168 D01                |

**Table 2**



## 1.4 Application Form

| EQUIPMENT DESCRIPTION                                                                           |  |           |  |                                                   |  |  |  |  |  |
|-------------------------------------------------------------------------------------------------|--|-----------|--|---------------------------------------------------|--|--|--|--|--|
| Model Name/Number                                                                               |  | ELiTe ELT |  |                                                   |  |  |  |  |  |
| Part Number                                                                                     |  | 12N67880  |  |                                                   |  |  |  |  |  |
| Hardware Version                                                                                |  | E         |  |                                                   |  |  |  |  |  |
| Software Version                                                                                |  | 1.0.30    |  |                                                   |  |  |  |  |  |
| FCC ID (if applicable)                                                                          |  |           |  | LYJELiTe                                          |  |  |  |  |  |
| Industry Canada ID (if applicable)                                                              |  |           |  |                                                   |  |  |  |  |  |
| Technical Description (Please provide a brief description of the intended use of the equipment) |  |           |  | COSPAS/SARSAT ELT (Emergency Locator Transmitter) |  |  |  |  |  |

| INTENTIONAL RADIATORS |                      |                                       |                    |                               |                      |                         |                     |        |     |
|-----------------------|----------------------|---------------------------------------|--------------------|-------------------------------|----------------------|-------------------------|---------------------|--------|-----|
| Technology            | Frequency Band (MHz) | Conducted Declared Output Power (dBm) | Antenna Gain (dBi) | Supported Bandwidth (s) (MHz) | Modulation Scheme(s) | ITU Emission Designator | Test Channels (MHz) |        |     |
|                       |                      |                                       |                    |                               |                      |                         | Bottom              | Middle | Top |
|                       | 406,000<br>406,100   | 37,5                                  | 3,7                | 406,040<br>+/-0,001           | Bi-Phase             | 16K0G1D                 | NA                  | 406,04 | NA  |
|                       | 121,5<br>+/-0,050    | 26                                    | -5,5               | 121,5<br>+/-0,006             | Amplitude Modulation | 3K20A3X                 | NA                  | 121,5  | NA  |
|                       |                      |                                       |                    |                               |                      |                         |                     |        |     |
|                       |                      |                                       |                    |                               |                      |                         |                     |        |     |
|                       |                      |                                       |                    |                               |                      |                         |                     |        |     |

| UN-INTENTIONAL RADIATOR                                                                    |      |
|--------------------------------------------------------------------------------------------|------|
| Highest frequency generated or used in the device or on which the device operates or tunes | None |

| Power Source                           |                 |             |                                                                     |
|----------------------------------------|-----------------|-------------|---------------------------------------------------------------------|
| AC                                     | Single Phase    | Three Phase | Nominal Voltage                                                     |
|                                        |                 |             |                                                                     |
| External DC                            | Nominal Voltage |             | Maximum Current                                                     |
|                                        |                 |             |                                                                     |
| Battery                                | Nominal Voltage |             | Battery Operating End Point Voltage                                 |
|                                        | 6V              |             | 3V                                                                  |
| Can EUT transmit whilst being charged? |                 |             | Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> |

| EXTREME CONDITIONS  |       |    |                     |
|---------------------|-------|----|---------------------|
| Maximum temperature | +55°C | °C | Minimum temperature |
|                     |       |    | -20°C °C            |

| Ancillaries                                                     |
|-----------------------------------------------------------------|
| Please list all ancillaries which will be used with the device. |
| AF BRACKET : 12N67900 for Automatic version                     |



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| ANTENNA CHARACTERISTICS             |                             |      |                                                  |        |
|-------------------------------------|-----------------------------|------|--------------------------------------------------|--------|
| <input checked="" type="checkbox"/> | Antenna connector           |      | State impedance                                  | 50 Ohm |
| <input type="checkbox"/>            | Temporary antenna connector |      | State impedance                                  | Ohm    |
| <input checked="" type="checkbox"/> | Integral antenna            | Type | Survival version<br>(Cospas/Sarsat<br>Approved)  |        |
| <input checked="" type="checkbox"/> | External antenna            | Type | Automatic version<br>(Cospas/Sarsat<br>Approved) |        |

I hereby declare that the information supplied is correct and complete.

Name: ABADIE Jean-Paul  
Position held: System Engineering Manager

Date: August 21,2017

## 1.5 Product Information

### 1.5.1 Technical Description

COSPAS/SARSAT ELT (Emergency Locator Transmitter).

### 1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

### 1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.  
The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State     | Description of Modification still fitted to EUT | Modification Fitted By | Date Modification Fitted |
|------------------------|-------------------------------------------------|------------------------|--------------------------|
| Serial Number: 16-0014 |                                                 |                        |                          |
| 0                      | As supplied by the customer                     | Not Applicable         | Not Applicable           |

**Table 3**

### 1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

| Test Name                                   | Name of Engineer(s) | Accreditation |
|---------------------------------------------|---------------------|---------------|
| Configuration: 121.5 MHz Homing Transmitter |                     |               |
| Power and Emissions                         | Dan Ralley          | UKAS          |
| Frequency Stability                         | Dan Ralley          | UKAS          |
| Bandwidth of Emission                       | Dan Ralley          | UKAS          |
| Types of Emission                           | Dan Ralley          | UKAS          |
| Spurious Emissions at Antenna Terminals     | Dan Ralley          | UKAS          |
| Radiated Spurious Emissions                 | Graeme Lawler       | UKAS          |
| Modulation Requirements                     | Dan Ralley          | UKAS          |

**Table 4**

Office Address:

Octagon House  
Concorde Way  
Segensworth North  
Fareham  
Hampshire  
PO15 5RL  
United Kingdom



## 2 Test Details

### 2.1 Power and Emissions

#### 2.1.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.131

#### 2.1.2 Equipment Under Test and Modification State

Elite, S/N: 16-0014 - Modification State 0

#### 2.1.3 Date of Test

29-June-2017

#### 2.1.4 Test Method

This test was performed in accordance with KDB 971168 D01, clause 5.2.2.1.

#### 2.1.5 Environmental Conditions

Ambient Temperature 19.8 - 19.9 °C

Relative Humidity 58.3 - 59.2 %

#### 2.1.6 Test Results

121.5 MHz Homing Transmitter

| Maximum Power (dBm) | Maximum Power (W) |
|---------------------|-------------------|
| 21.907              | 0.155             |

**Table 5 - Power Results**

FCC 47 CFR Part 87, Limit Clause 87.131

<10 W



### 2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument              | Manufacturer          | Type No                    | TE No | Calibration Period (months) | Calibration Due |
|-------------------------|-----------------------|----------------------------|-------|-----------------------------|-----------------|
| Rubidium Standard       | Rohde & Schwarz       | XSRM                       | 1316  | 6                           | 09-Sep-2017     |
| Hygrometer              | Rotronic              | I-1000                     | 2891  | 12                          | 23-Aug-2017     |
| Attenuator (30dB, 150W) | Narda                 | 769-30                     | 3369  | 12                          | 31-May-2018     |
| Network Analyser        | Rohde & Schwarz       | ZVA 40                     | 3548  | 12                          | 15-Sep-2017     |
| 'N' - 'N' RF Cable (2m) | Rhophase              | NPS-1803-2000-NPS          | 3698  | 12                          | 12-Oct-2017     |
| True RMS multimeter     | Fluke                 | 179                        | 4006  | 12                          | 13-Dec-2017     |
| Calibration Unit        | Rohde & Schwarz       | ZV-Z54                     | 4368  | 12                          | 08-Sep-2017     |
| Frequency Standard      | Spectracom            | Secure Sync 1200-0408-0601 | 4393  | 6                           | 09-Sep-2017     |
| PXA Signal Analyser     | Keysight Technologies | N9030A                     | 4653  | 12                          | 12-Jan-2018     |
| 2 Channel PSU           | Rohde & Schwarz       | HMP2020                    | 4735  | -                           | O/P Mon         |

**Table 6**

O/P Mon – Output Monitored using calibrated equipment

## 2.2 Frequency Stability

### 2.2.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.133  
FCC 47 CFR Part 2, Clause 2.1055

### 2.2.2 Equipment Under Test and Modification State

Elite, S/N: 16-0014 - Modification State 0

### 2.2.3 Date of Test

29-June-2017

### 2.2.4 Test Method

This test was performed in accordance with KDB 971168 D01, clause 9, FCC 47 CFR Part 2, Clause 2.1055 and ANSI C63.26 Clause 5.6.

### 2.2.5 Environmental Conditions

Ambient Temperature 21.0 - 23.4 °C  
Relative Humidity 49.8 - 56.3 %

### 2.2.6 Test Results

121.5 MHz Homing Transmitter

| Voltage | Frequency Error (ppm) |
|---------|-----------------------|
| 3 V DC  | -3.2922               |
| 6 V DC  | -4.5679               |

**Table 7 - Frequency Stability Under Voltage Variations**

| Temperature | Frequency Error (ppm) |
|-------------|-----------------------|
| +50 °C      | -6.7490               |
| +40 °C      | -6.6255               |
| +30 °C      | -4.5679               |
| +20 °C      | -2.3457               |
| +10 °C      | -1.2346               |
| 0 °C        | 0.3704                |
| -10 °C      | -0.1235               |
| -20 °C      | -0.8642               |

**Table 8 - Frequency Stability Under Temperature Variations**

FCC 47 CFR Part 87, Limit Clause 87.133(a)

± 50 ppm.

## 2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument               | Manufacturer          | Type No                    | TE No | Calibration Period (months) | Calibration Due |
|--------------------------|-----------------------|----------------------------|-------|-----------------------------|-----------------|
| Climatic Chamber         | Votsch                | VT4002                     | 161   | -                           | O/P Mon         |
| Rubidium Standard        | Rohde & Schwarz       | XSRM                       | 1316  | 6                           | 09-Sep-2017     |
| Hygrometer               | Rotronic              | I-1000                     | 2891  | 12                          | 23-Aug-2017     |
| Thermocouple Thermometer | Fluke                 | 51                         | 3174  | 12                          | 22-Dec-2017     |
| Attenuator (30dB, 150W)  | Narda                 | 769-30                     | 3369  | 12                          | 31-May-2018     |
| 'N' - 'N' RF Cable (2m)  | Rhophase              | NPS-1803-2000-NPS          | 3698  | 12                          | 12-Oct-2017     |
| TRUE RMS MULTIMETER      | Fluke                 | 179                        | 4006  | 12                          | 13-Dec-2017     |
| Frequency Standard       | Spectracom            | Secure Sync 1200-0408-0601 | 4393  | 6                           | 09-Sep-2017     |
| PXA Signal Analyser      | Keysight Technologies | N9030A                     | 4653  | 12                          | 12-Jan-2018     |
| 2 Channel PSU            | Rohde & Schwarz       | HMP2020                    | 4735  | -                           | O/P Mon         |

**Table 9**

O/P Mon – Output Monitored using calibrated equipment



Product Service

**2.3      Bandwidth of Emission**

**2.3.1    Specification Reference**

FCC 47 CFR Part 87, Clause 87.135  
FCC 47 CFR Part 2, Clause 2.1049

**2.3.2    Equipment Under Test and Modification State**

Elite, S/N: 16-0014 - Modification State 0

**2.3.3    Date of Test**

26-July-2017

**2.3.4    Test Method**

This test was performed in accordance with ANSI C63.26, clause 5.4.4 and FCC 47 CFR Part 2, Clause 2.1049.

**2.3.5    Environmental Conditions**

Ambient Temperature      20.7 - 21.0 °C  
Relative Humidity          56.0 - 59.8 %

**2.3.6    Test Results**

121.5 MHz Homing Transmitter

|                              |
|------------------------------|
| 99% Occupied Bandwidth (kHz) |
| 4.051                        |

**Table 10 - Occupied Bandwidth Results**



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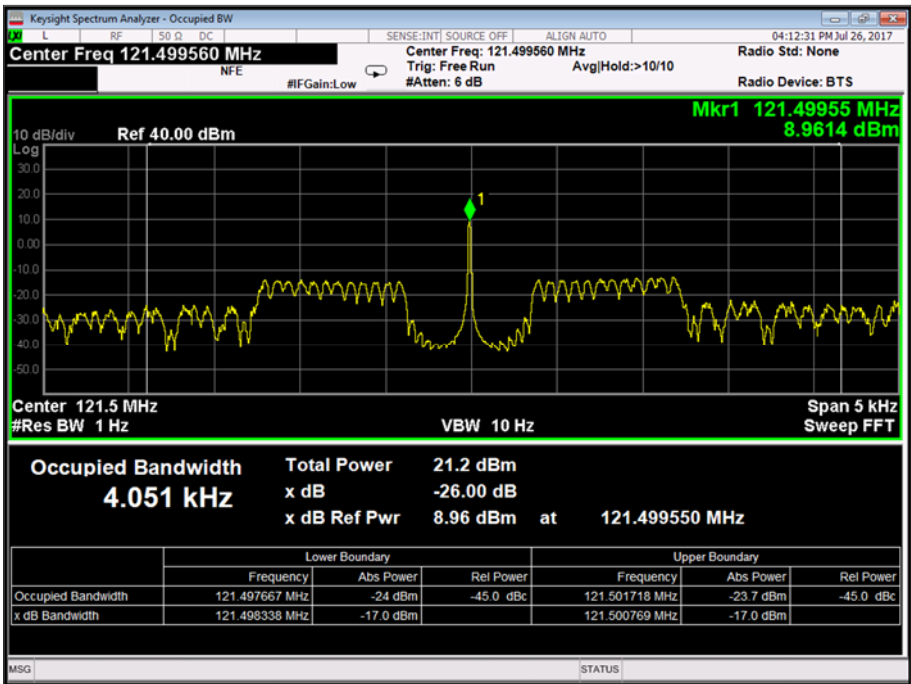


Figure 1 - Occupied Bandwidth - 121.5 MHz

FCC 47 CFR Part 87, Limit Clause 87.135(a)

The authorized bandwidth is the maximum occupied bandwidth authorised to be used by a station.

The authorized bandwidth declared by the manufacturer is: 25 kHz



### 2.3.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument                         | Manufacturer          | Type No                    | TE No | Calibration Period (months) | Calibration Due |
|------------------------------------|-----------------------|----------------------------|-------|-----------------------------|-----------------|
| Rubidium Standard                  | Rohde & Schwarz       | XSRM                       | 1316  | 6                           | 09-Sep-2017     |
| Hygrometer                         | Rotronic              | I-1000                     | 2891  | 12                          | 23-Aug-2017     |
| Attenuator (30dB/50W)              | Aeroflex / Weinschel  | 47-30-34                   | 3164  | 12                          | 11-Jul-2018     |
| DC - 12.4 GHz 10 dB Attenuator 1 W | Suhner                | 6810.17.A                  | 3964  | 12                          | 25-Oct-2017     |
| TRUE RMS MULTIMETER                | Fluke                 | 179                        | 4006  | 12                          | 13-Dec-2017     |
| Frequency Standard                 | Spectracom            | Secure Sync 1200-0408-0601 | 4393  | 6                           | 09-Sep-2017     |
| PXA Signal Analyser                | Keysight Technologies | N9030A                     | 4654  | 12                          | 06-Oct-2017     |
| 2 Channel PSU                      | Rohde & Schwarz       | HMP2020                    | 4735  | -                           | TU              |

**Table 11**

O/P Mon – Output Monitored using calibrated equipment



Product Service

## **2.4 Types of Emission**

### **2.4.1 Specification Reference**

FCC 47 CFR Part 87, Clause 87.137

### **2.4.2 Test Method**

Declaration

### **2.4.3 Test Results**

121.5 MHz Homing Transmitter

The emission designator used by the equipment was declared by the manufacturer as: 3K20A3X



## 2.5 Spurious Emissions at Antenna Terminals

### 2.5.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.139  
FCC 47 CFR Part 2, Clause 2.1051

### 2.5.2 Equipment Under Test and Modification State

Elite, S/N: 16-0014 - Modification State 0

### 2.5.3 Date of Test

28-June-2017 to 29-June-2017

### 2.5.4 Test Method

This test was performed in accordance with KDB 971168 D01, clause 6 and ANSI C.63.26, clause 5.7.3 (4), with a max hold trace to determine the worst case level.

The spurious domain measurements were performed in accordance with KDB 971168 D01, clause 6 and 5.3.

### 2.5.5 Environmental Conditions

Ambient Temperature 19.4 - 20.5 °C  
Relative Humidity 57.9 - 60.1 %

### 2.5.6 Test Results

#### 121.5 MHz Homing Transmitter

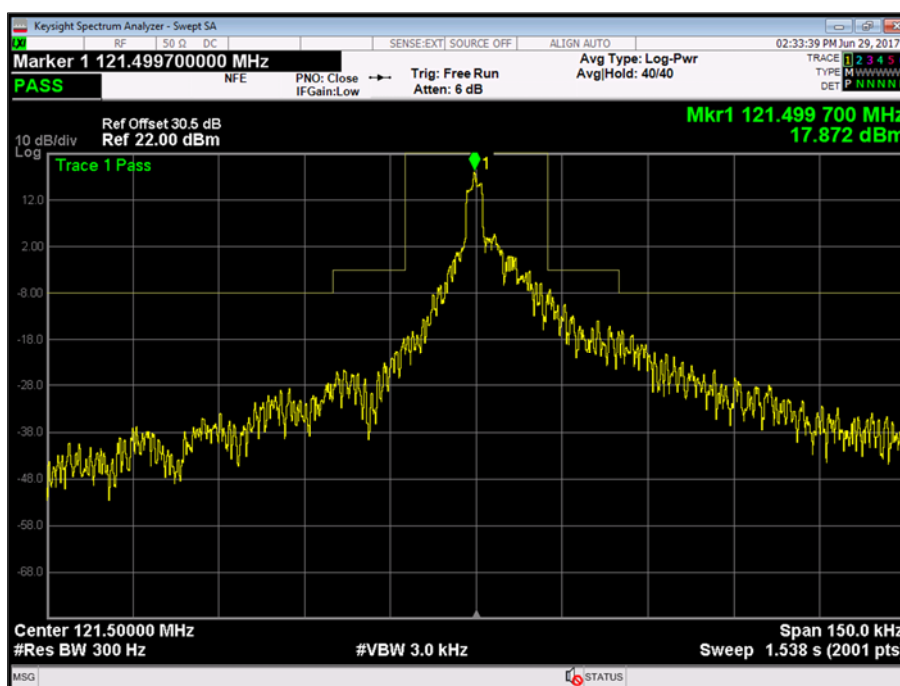


Figure 2 - Transmitter Spectrum Mask

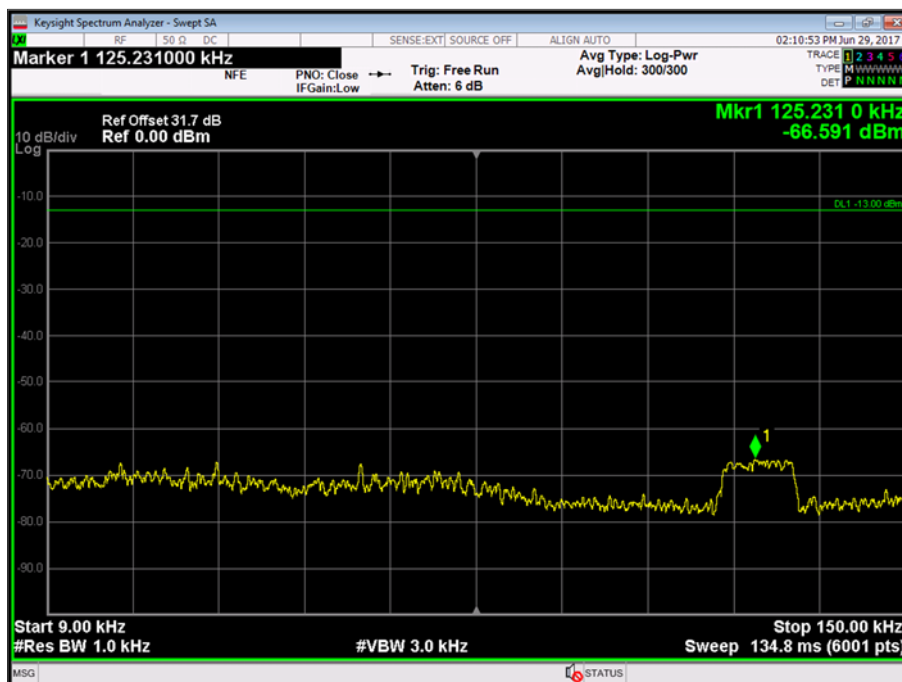


Figure 3 - 9 kHz to 150 kHz

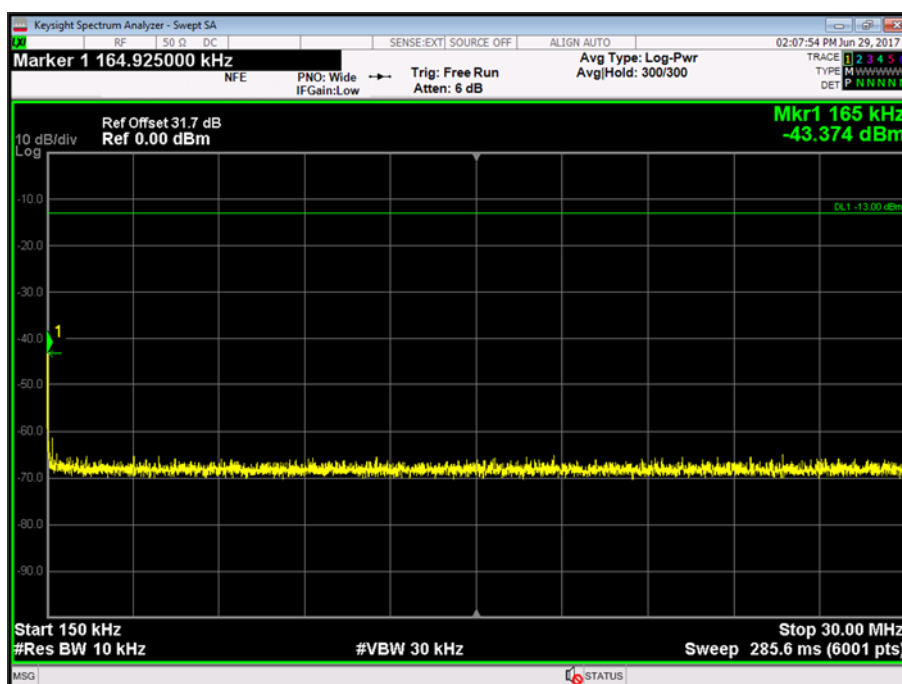


Figure 4 - 150 kHz to 30 MHz

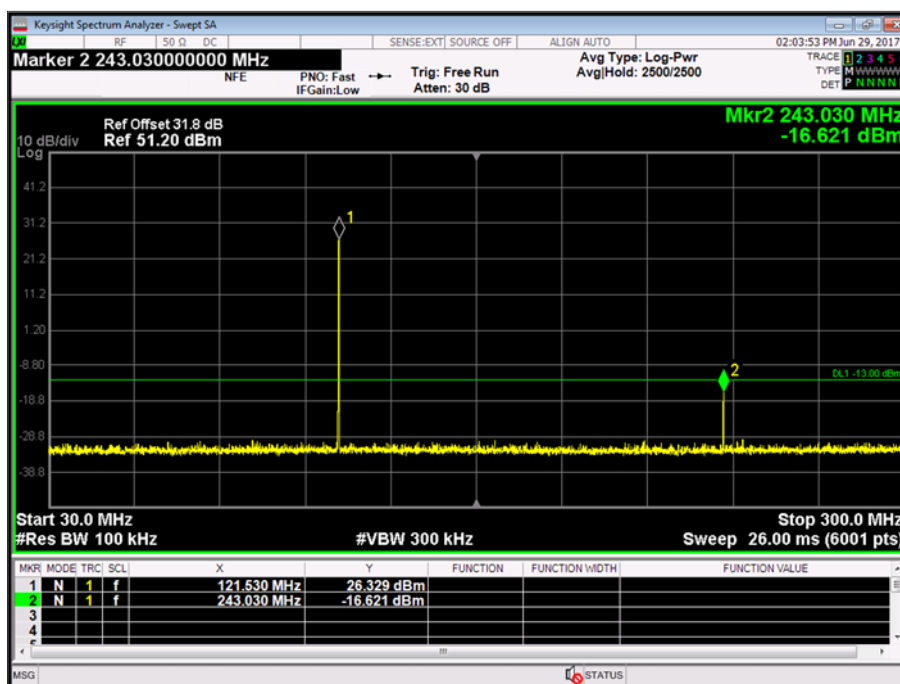


Figure 5 - 30 MHz to 300 MHz

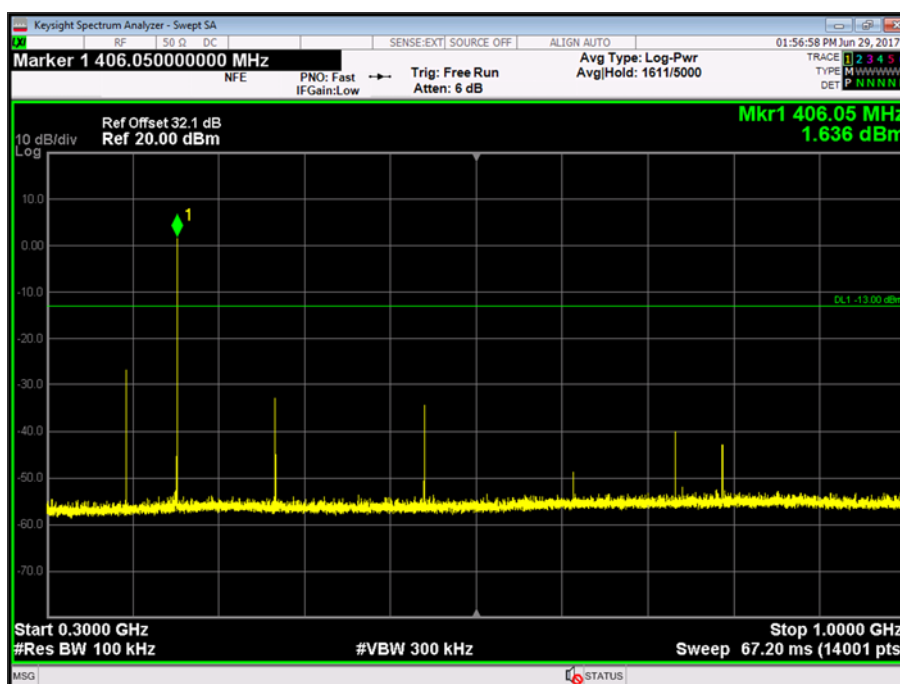


Figure 6 - 300 MHz to 1 GHz

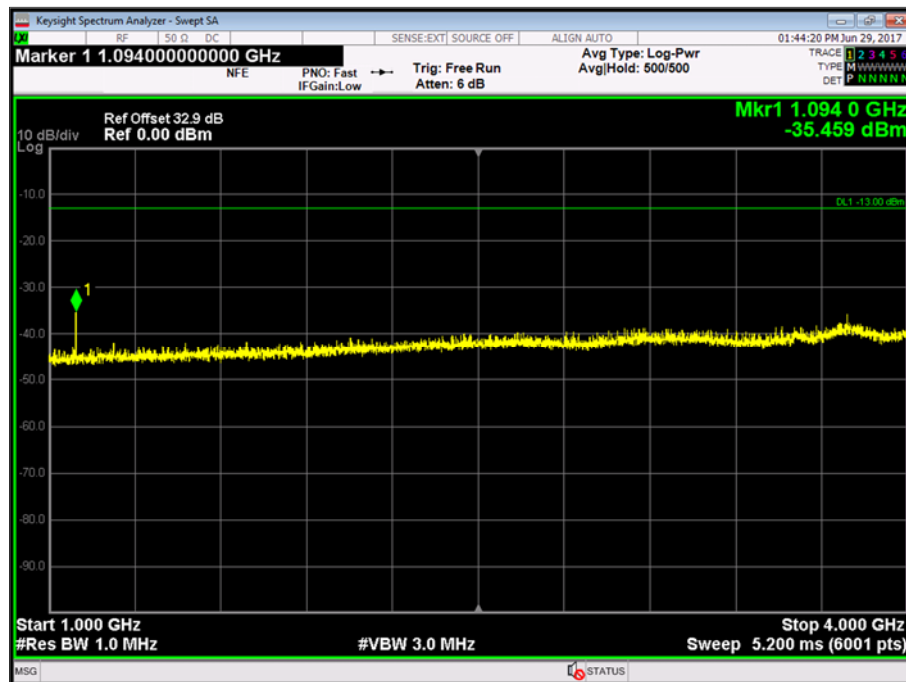


Figure 7 - 1 GHz to 4 GHz

#### Remarks

It was not possible to disable the 406 MHz transmitter during testing and therefore the emission at 406 MHz is evident on the plot above is not considered a spurious emission.

#### FCC 47 CFR Part 87, Limit Clause 87.139 (d)(h)

For ELTs operating on 121.500 MHz, 243.000 MHz and 406.0–406.1 MHz the mean power of any emission must be attenuated below the mean power of the transmitter (pY) as follows:

- (1) When the frequency is moved from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth the attenuation must be at least 25 dB;
- (2) When the frequency is removed from the assigned frequency by more than 100 percent of the authorized bandwidth the attenuation must be at least 30 dB.

Except for telemetry in the 1435 to 1525 MHz band, when the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth for aircraft stations above 30 MHz and all ground stations the attenuation must be at least  $43 + 10 \log_{10} pY$  dB.

### 2.5.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument              | Manufacturer          | Type No                    | TE No | Calibration Period (months) | Calibration Due |
|-------------------------|-----------------------|----------------------------|-------|-----------------------------|-----------------|
| Rubidium Standard       | Rohde & Schwarz       | XSRM                       | 1316  | 6                           | 09-Sep-2017     |
| High Pass Filter        | Mini-Circuits         | NHP-300                    | 1640  | 12                          | 19-Sep-2017     |
| Attenuator (30dB, 150W) | Narda                 | 769-30                     | 3369  | 12                          | 31-May-2018     |
| Network Analyser        | Rohde & Schwarz       | ZVA 40                     | 3548  | 12                          | 15-Sep-2017     |
| 'N' - 'N' RF Cable (2m) | Rhophase              | NPS-1803-2000-NPS          | 3698  | 12                          | 12-Oct-2017     |
| TRUE RMS MULTIMETER     | Fluke                 | 179                        | 4006  | 12                          | 13-Dec-2017     |
| Calibration Unit        | Rohde & Schwarz       | ZV-Z54                     | 4368  | 12                          | 08-Sep-2017     |
| Frequency Standard      | Spectracom            | Secure Sync 1200-0408-0601 | 4393  | 6                           | 09-Sep-2017     |
| PXA Signal Analyser     | Keysight Technologies | N9030A                     | 4653  | 12                          | 12-Jan-2018     |
| 2 Channel PSU           | Rohde & Schwarz       | HMP2020                    | 4735  | -                           | O/P Mon         |

**Table 12**

O/P Mon – Output Monitored using calibrated equipment



## 2.6 Radiated Spurious Emissions

### 2.6.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.139  
FCC 47 CFR Part 2, Clause 2.1051

### 2.6.2 Equipment Under Test and Modification State

Elite, S/N: 16-0014 - Modification State 0

### 2.6.3 Date of Test

04-July-2017

### 2.6.4 Test Method

This test was performed in accordance with KDB 971168 D01, clause 7.

The lines shown on the plots below show a -13 dBm (EIRP) limit.

### 2.6.5 Environmental Conditions

Ambient Temperature 19.5 °C  
Relative Humidity 61.0 %

### 2.6.6 Test Results

121.5 MHz Homing Transmitter

| Frequency (MHz) | Level (dBm) |
|-----------------|-------------|
| *               |             |

**Table 13 - Emissions Results**

\*No emissions were detected within 10 dB of the limit.



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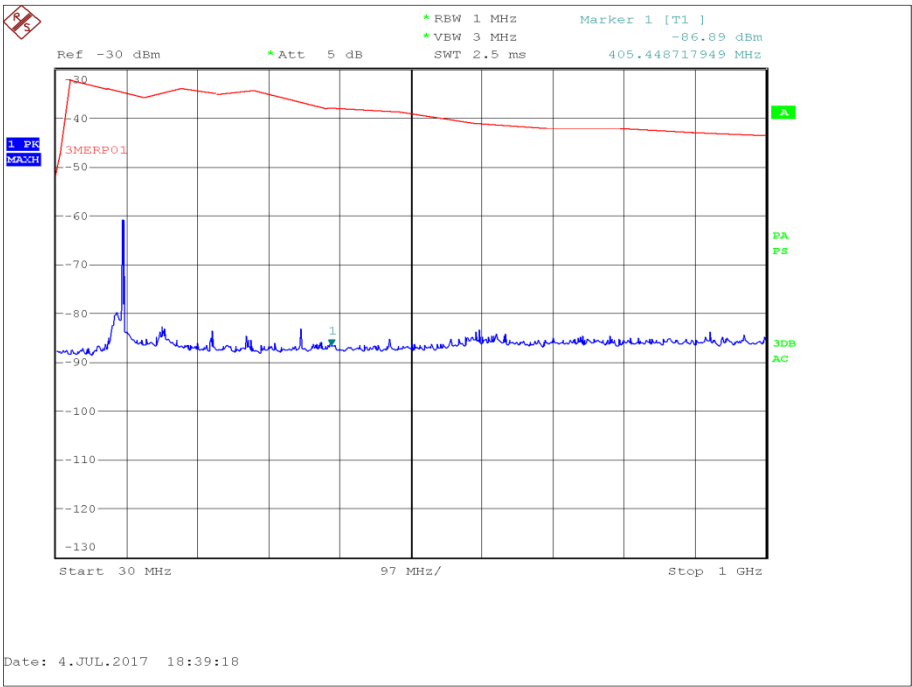


Figure 8 - 30 MHz to 1 GHz

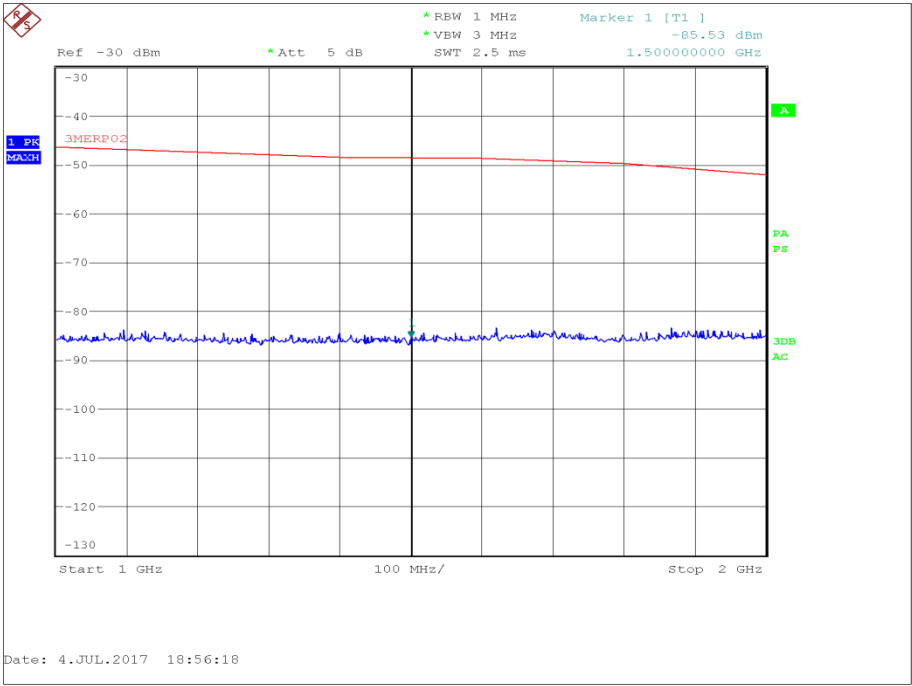


Figure 9 - 1 GHz to 2 GHz

FCC 47 CFR Part 87, Limit Clause 87.139 (d)

Except for telemetry in the 1435 to 1525 MHz band, when the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth for aircraft stations above 30 MHz and all ground stations the attenuation must be at least  $43 + 10 \log_{10} P_Y$  dB.

**2.6.7 Test Location and Test Equipment Used**

This test was carried out in EMC Chamber 5.

| Instrument                           | Manufacturer    | Type No           | TE No | Calibration Period (months) | Calibration Due |
|--------------------------------------|-----------------|-------------------|-------|-----------------------------|-----------------|
| Antenna (Bilog)                      | Schaffner       | CBL6143           | 287   | 24                          | 18-Apr-2018     |
| Screened Room (5)                    | Rainford        | Rainford          | 1545  | 36                          | 20-Dec-2017     |
| Turntable Controller                 | Inn-Co GmbH     | CO 1000           | 1606  | -                           | TU              |
| Hygrometer                           | Rotronic        | A1                | 2138  | 12                          | 02-Feb-2018     |
| Comb Generator                       | Schaffner       | RSG1000           | 3034  | -                           | TU              |
| Cable (N-N, 8m)                      | Rhophase        | NPS-2302-8000-NPS | 3248  | 12                          | 02-May-2018     |
| EMI Test Receiver                    | Rohde & Schwarz | ESU40             | 3506  | 12                          | 12-Nov-2017     |
| Tilt Antenna Mast                    | maturio GmbH    | TAM 4.0-P         | 3916  | -                           | TU              |
| Mast Controller                      | maturio GmbH    | NCD               | 3917  | -                           | TU              |
| Double Ridged Waveguide Horn Antenna | ETS-Lindgren    | 3117              | 4722  | 12                          | 17-Feb-2018     |

**Table 14**

TU - Traceability Unscheduled



## 2.7 Modulation Requirements

### 2.7.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.141

### 2.7.2 Equipment Under Test and Modification State

Elite, S/N: 16-0014 - Modification State 0

### 2.7.3 Date of Test

29-June-2017

### 2.7.4 Test Method

The test was performed in accordance with KDB 971168 D01, clause 3.

### 2.7.5 Environmental Conditions

Ambient Temperature 20.8 °C

Relative Humidity 56.7 %

### 2.7.6 Test Results

121.5 MHz Homing Transmitter

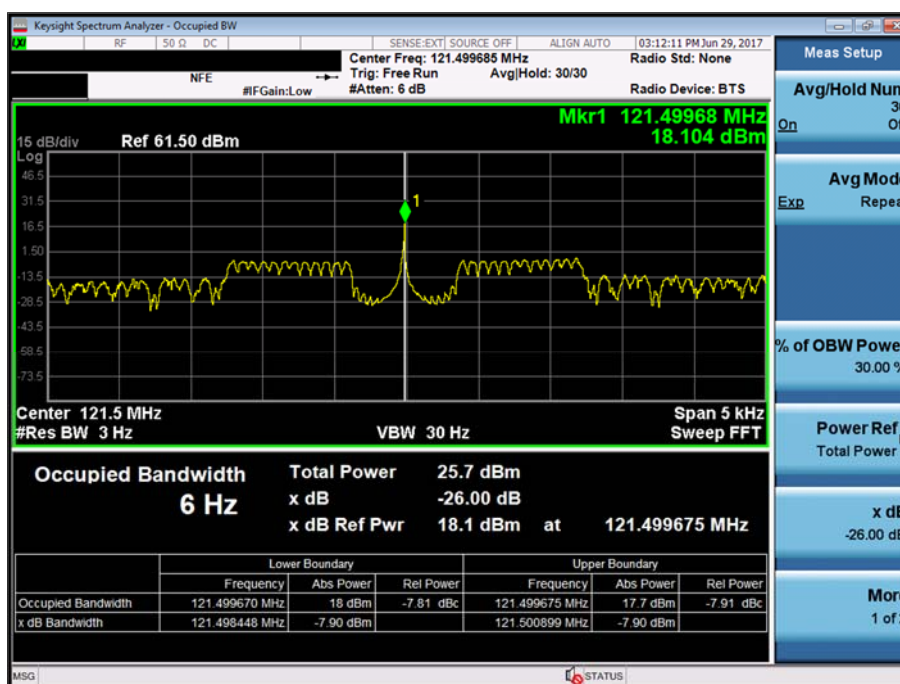


Figure 10 – 30% Occupied Bandwidth



Product Service

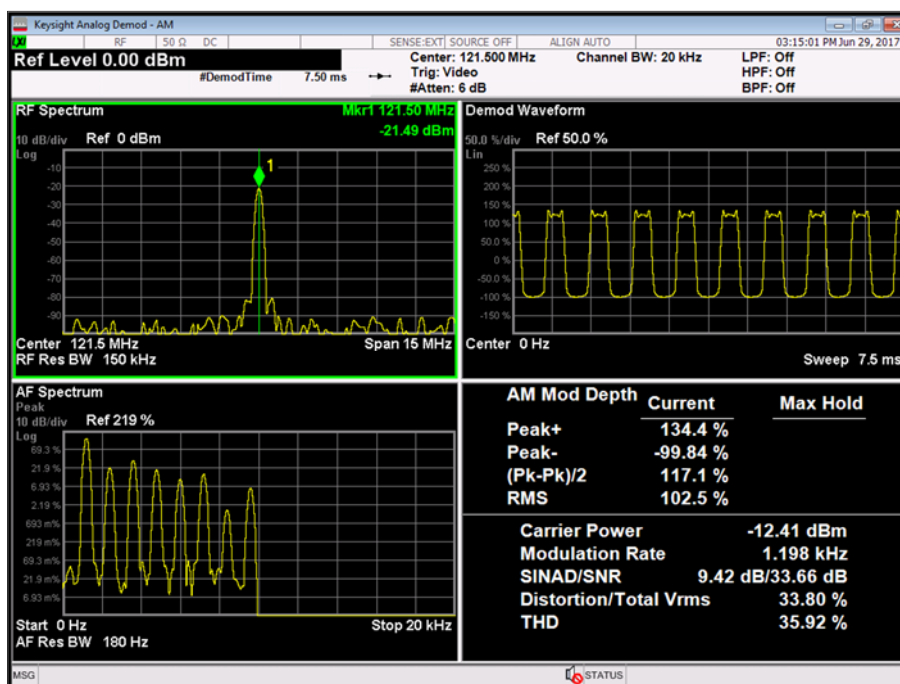


Figure 11 - Plot of the Demodulated Waveform

The following description was supplied by the manufacturer:

AM from 400 Hz, to 1200 Hz

FCC 47 CFR Part 87, Limit Clause 87.141 (i)

ELTs manufactured on or after October 1, 1988, must have a clearly defined carrier frequency distinct from the modulation sidebands for the mandatory emission, A3X, and, if used, the A3E or NON emissions.

On 121.500 MHz at least thirty per cent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 30 Hz of the carrier frequency.

On 243.000 MHz at least thirty percent of the total power emitted during any transmission cycle with or without modulation must be contained within plus or minus 60 Hz of the carrier frequency.

Additionally, if the type of emission is changed during transmission, the carrier frequency must not shift more than plus or minus 30 Hz on 121.500 MHz and not more than plus or minus 60 Hz on 243.000 MHz.

The long term stability of the carrier frequency must comply with the requirements in FCC 47 CFR Part 87.133.



### 2.7.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 3.

| Instrument              | Manufacturer          | Type No                    | TE No | Calibration Period (months) | Calibration Due |
|-------------------------|-----------------------|----------------------------|-------|-----------------------------|-----------------|
| Rubidium Standard       | Rohde & Schwarz       | XSRM                       | 1316  | 6                           | 09-Sep-2017     |
| Hygrometer              | Rotronic              | I-1000                     | 2891  | 12                          | 23-Aug-2017     |
| Attenuator (30dB, 150W) | Narda                 | 769-30                     | 3369  | 12                          | 31-May-2018     |
| 'N' - 'N' RF Cable (2m) | Rhophase              | NPS-1803-2000-NPS          | 3698  | 12                          | 12-Oct-2017     |
| True RMS multimeter     | Fluke                 | 179                        | 4006  | 12                          | 13-Dec-2017     |
| Frequency Standard      | Spectracom            | Secure Sync 1200-0408-0601 | 4393  | 6                           | 09-Sep-2017     |
| PXA Signal Analyser     | Keysight Technologies | N9030A                     | 4653  | 12                          | 12-Jan-2018     |
| 2 Channel PSU           | Rohde & Schwarz       | HMP2020                    | 4735  | -                           | O/P Mon         |

**Table 15**

O/P Mon – Output Monitored using calibrated equipment

### 3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

| Test Name                               | Measurement Uncertainty |
|-----------------------------------------|-------------------------|
| Power and Emissions                     | ± 0.70 dB               |
| Frequency Stability                     | ± 8.03 Hz               |
| Bandwidth of Emission                   | ± 0.48 kHz              |
| Types of Emission                       | -                       |
| Spurious Emissions at Antenna Terminals | ± 3.45 dB               |
| Radiated Spurious Emissions             | ± 3.08 dB               |
| Modulation Requirements                 | -                       |

Table 16