



Product Service

---

**Choose certainty.  
Add value.**

# Report On

Limited FCC and Industry Canada Testing of the  
Park Air Systems Ltd T6-TV  
In accordance with FCC 47 CFR Part 87, FCC 47 CFR Part 2 and  
Industry Canada RSS-141

**COMMERCIAL-IN-CONFIDENCE**

FCC ID: C8LT6-TV  
IC: 2137AT6TV

**Document 75934311 Report 04 Issue 3**

**June 2016**



Product Service

TÜV SÜD Product Service, Octagon House, Concorde Way, Segensworth North,  
Fareham, Hampshire, United Kingdom, PO15 5RL  
Tel: +44 (0) 1489 558100. Website: [www.tuv-sud.co.uk](http://www.tuv-sud.co.uk)

COMMERCIAL-IN-CONFIDENCE

**REPORT ON**

Limited FCC and Industry Canada Testing of the  
Park Air Systems Ltd T6-TV  
In accordance with FCC 47 CFR Part 87, FCC 47 CFR Part 2 and  
Industry Canada RSS-141

Document 75934311 Report 04 Issue 3

June 2016

**PREPARED FOR**

Park Air Systems Ltd  
Northfields  
Market Deeping  
Peterborough  
PE6 8UE

**PREPARED BY**

  
**Natalie Bennett**  
Senior Administrator, Project Support

**APPROVED BY**

  
**Matthew Russell**  
Authorised Signatory

**DATED**

20 June 2016

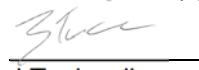
**This report has been up-issued to Issue 3 to include an amended application form.**

---

**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, FCC 47 CFR Part 2 and Industry Canada RSS-141. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

  
J Tuckwell





## CONTENTS

<b>Section</b>		<b>Page No</b>
<b>1</b>	<b>REPORT SUMMARY .....</b>	<b>3</b>
1.1	Introduction .....	4
1.2	Brief Summary of Results .....	5
1.3	Application Form .....	6
1.4	Product Information .....	8
1.5	Test Conditions .....	8
1.6	Deviations from the Standard .....	8
1.7	Modification Record .....	8
<b>2</b>	<b>TEST DETAILS .....</b>	<b>9</b>
2.1	Radiated Spurious Emissions .....	10
<b>3</b>	<b>TEST EQUIPMENT USED .....</b>	<b>18</b>
3.1	Test Equipment Used .....	19
3.2	Measurement Uncertainty .....	20
<b>4</b>	<b>ACCREDITATION, DISCLAIMERS AND COPYRIGHT.....</b>	<b>21</b>
4.1	Accreditation, Disclaimers and Copyright .....	22



Product Service

## **SECTION 1**

### **REPORT SUMMARY**

Limited FCC and Industry Canada Testing of the  
Park Air Systems Ltd T6-TV

In accordance with FCC 47 CFR Part 87, FCC 47 CFR Part 2 and Industry Canada RSS-141



## 1.1 INTRODUCTION

The information contained in this report is intended to show the verification of Limited FCC and Industry Canada Testing of the Park Air Systems Ltd T6-TV to the requirements of FCC 47 CFR Part 87, FCC 47 CFR Part 2 and Industry Canada RSS-141

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Park Air Systems Ltd
Model Number(s)	T6-TV
Serial Number(s)	140340
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 87 (2015) FCC 47 CFR Part 2 (2015) Industry Canada RSS-141(Issue 2, 2010)
Incoming Release Date	Application Form 3 May 2016
Disposal	Held Pending Disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	55210
Date	21 March 2016
Start of Test	26 May 2016
Finish of Test	26 May 2016
Name of Engineer(s)	J Tuckwell



## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 87, FCC 47 CFR Part 2, Industry Canada RSS-141 and Industry Canada RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 80	Part 2	RSS-141			
Transmit						
2.1	87.139 (a)	2.1053	5.2	Radiated Spurious Emissions	Pass	



## 1.3 APPLICATION FORM

EQUIPMENT DESCRIPTION	
Model Name/Number	T6-TV
Part Number	24-04635031
Hardware Version	1
Software Version	V01P11
FCC ID (if applicable)	C8LT6-TV
Industry Canada ID (if applicable)	2137AT6TV
Technical Description (Please provide a brief description of the intended use of the equipment)	Ground to air transmitter for use in the VHF aeronautical band using 25/8.33kHz channel spacing

POWER SOURCE					
<input checked="" type="checkbox"/> AC mains			State voltage		
AC supply frequency	50	(Hz)			
110-	VAC				
240					
3 A	Max Current				
47-63	Hz				
<input checked="" type="checkbox"/> Single phase			<input type="checkbox"/> Three phase		
And / Or					
<input checked="" type="checkbox"/> External DC supply					
Nominal voltage		24 V	Max Current	15	A
Extreme upper voltage		32 V			
Extreme lower voltage		21 V			
Battery					
<input type="checkbox"/> Nickel Cadmium		<input type="checkbox"/> Lead acid (Vehicle regulated)			
<input type="checkbox"/> Alkaline		<input type="checkbox"/> Leclanche			
<input type="checkbox"/> Lithium		<input type="checkbox"/> Other Details :			
Volts nominal.					
End point voltage as quoted by equipment manufacturer				V	

FREQUENCY INFORMATION				
Frequency Range	118	to	136.975	MHz
Channel Spacing (where applicable)	25kHz / 8.33kHz			
Receiver Frequency Range (if different)	to	MHz		
Channel Spacing (if different)				
Test Frequencies*	Bottom	118.000	MHz	Channel Number (if applicable)
	Middle	127.500	MHz	Channel Number (if applicable)
	Top	136.975	MHz	Channel Number (if applicable)
Intermediate Frequencies	MHz			
Highest Internally Generated Frequency :	136.975 MHz			



POWER CHARACTERISTICS					
Maximum TX power	50	W			
Minimum TX power	5	W (if variable)			
Is transmitter intended for :					
Continuous duty	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Intermittent duty	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
If intermittent state DUTY CYCLE					
Transmitter ON	seconds				
Transmitter OFF	seconds				

ANTENNA CHARACTERISTICS					
<input checked="" type="checkbox"/> Antenna connector		State impedance	50	Ohm	
<input type="checkbox"/> Temporary antenna connector		State impedance		Ohm	
<input type="checkbox"/> Integral antenna	Type	State impedance		dBi	
<input type="checkbox"/> External antenna	Type	State impedance		dBi	

MODULATION CHARACTERISTICS					
<input checked="" type="checkbox"/> Amplitude	<input type="checkbox"/> Frequency				
<input type="checkbox"/> Phase	<input type="checkbox"/> Other (please provide details):				
Can the transmitter operate un-modulated?					<input type="checkbox"/> Yes <input type="checkbox"/> No

CLASS OF EMISSION USED					
ITU designation or Class of Emission:					
1 6K80A3EJN					
(if applicable) 2 5K00A3EJN					
(if applicable) 3					
If more than three classes of emission, list separately:					

BATTERY POWER SUPPLY					
Model name/number	Identification/Part number				
Manufacturer	Country of Origin				

ANCILLARIES (If applicable)					
Model name/number	Identification/Part number				
Manufacturer	Country of Origin				

EXTREME CONDITIONS					
Extreme test voltages (Max)	264	V	Extreme test voltages (Mix)	99	V
Nominal DC Voltage	24	V	DC Maximum Current	15	A
Maximum temperature	55	°C	Minimum temperature	-20	°C

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

Name: Phil Ackerman

Position held:

Consultant

Engineer

Date: 3<sup>rd</sup> May 2016



## 1.4 PRODUCT INFORMATION

### 1.4.1 Technical Description

The Equipment Under Test (EUT) was a Park Air Systems Ltd T6-TV. A full technical description can be found in the manufacturer's documentation.

## 1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 110 V AC supply.

FCC Measurement Facility Registration Number  
90987 Octagon House, Fareham Test Laboratory

Industry Canada Company Address Code  
IC2932B-1 Octagon House, Fareham Test Laboratory

## 1.6 DEVIATIONS FROM THE STANDARD

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

## 1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



Product Service

## **SECTION 2**

### **TEST DETAILS**

Limited FCC and Industry Canada Testing of the  
Park Air Systems Ltd T6-TV

In accordance with FCC 47 CFR Part 87, FCC 47 CFR Part 2,  
Industry Canada RSS-141 and Industry Canada RSS-GEN



## 2.1 RADIATED SPURIOUS EMISSIONS

### 2.1.1 Specification Reference

FCC 47 CFR Part 87, Clause 87.139 (a)  
FCC 47 CFR Part 2, Clause 2.1053  
Industry Canada RSS-141, Clause 5.2

### 2.1.2 Equipment Under Test and Modification State

T6-TV S/N: 140340 - Modification State 0

### 2.1.3 Date of Test

26 May 2016

### 2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

### 2.1.5 Test Procedure

This test was performed in accordance with ANSI/TIA-603-D, clause 2.2.12 and Industry Canada RSS-141, clause 4.2.

#### Remarks

The RBW was set as 1 MHz which was considered worst case.

### 2.1.6 Environmental Conditions

Ambient Temperature	21.6°C
Relative Humidity	32.0%



Product Service

### 2.1.7 Test Results

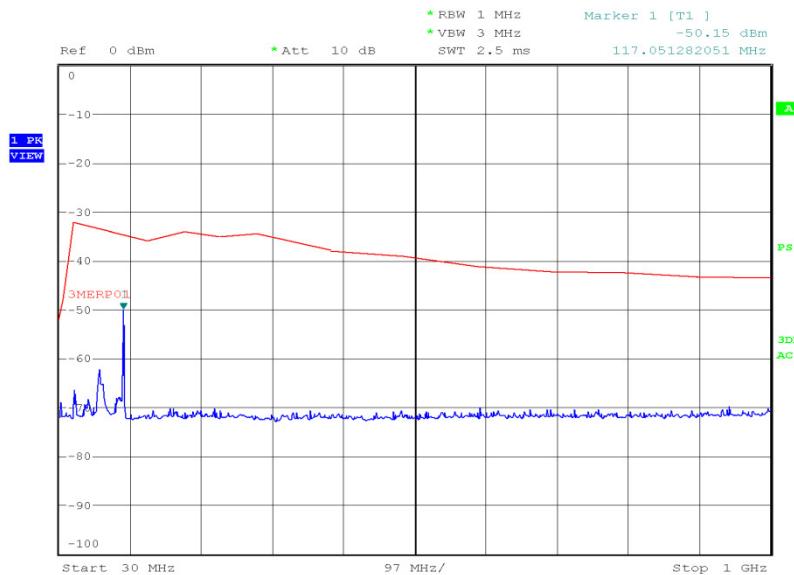
110 V AC Supply

#### Transmit, 118.000 MHz, Radiated Spurious Emissions Results

Frequency (MHz)	Emission Results (dBm)
*	

\*No emissions were detected within 20 dB of the limit.

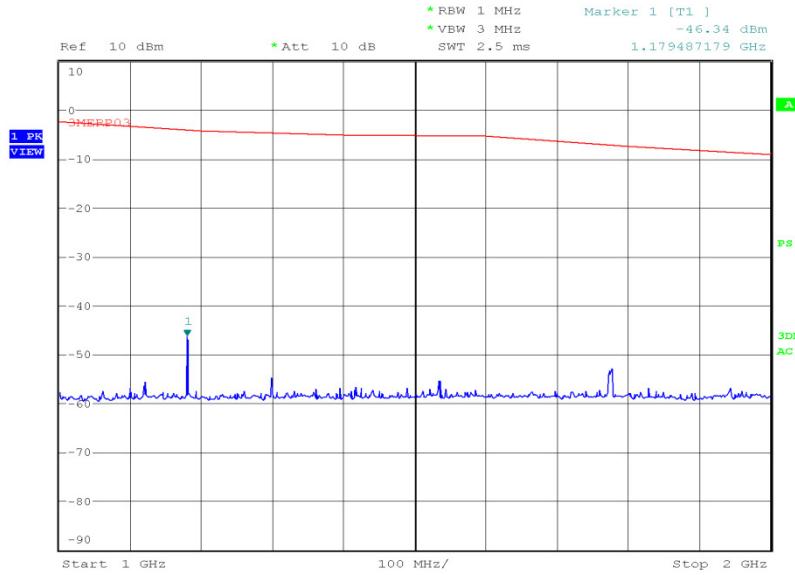
#### Transmit, 118.000 MHz, 30 MHz to 1 GHz, Radiated Spurious Emissions Plot



Date: 26.MAY.2016 16:34:25



Product Service

Transmit, 118.000 MHz, 1 GHz to 2 GHz, Radiated Spurious Emissions Plot

Date: 26.MAY.2016 15:50:44

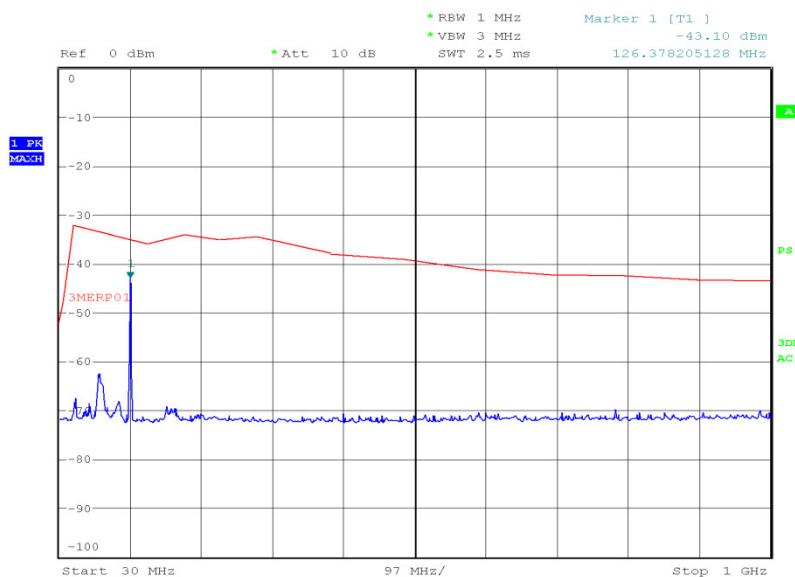


Product Service

Transmit, 127.500 MHz, Radiated Spurious Emissions Results

Frequency (MHz)	Emission Results (dBm)
*	

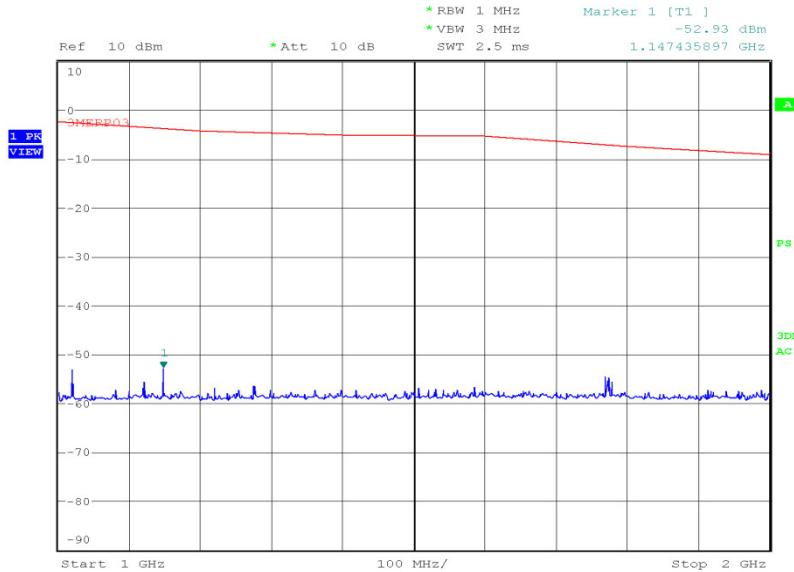
\*No emissions were detected within 20 dB of the limit.

Transmit, 127.500 MHz, 30 MHz to 1 GHz, Radiated Spurious Emissions Plot

Date: 26.MAY.2016 16:38:54



Product Service

Transmit, 127.500 MHz, 1 GHz to 2 GHz, Radiated Spurious Emissions Plot

Date: 26.MAY.2016 15:47:52

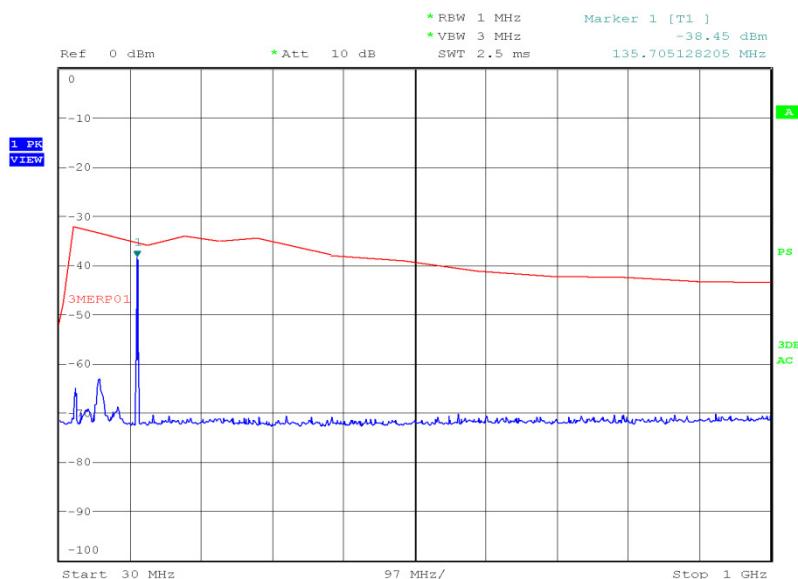


Product Service

Transmit, 136.975 MHz, Radiated Spurious Emissions Results

Frequency (MHz)	Emission Results (dBm)
*	

\*No emissions were detected within 20 dB of the limit.

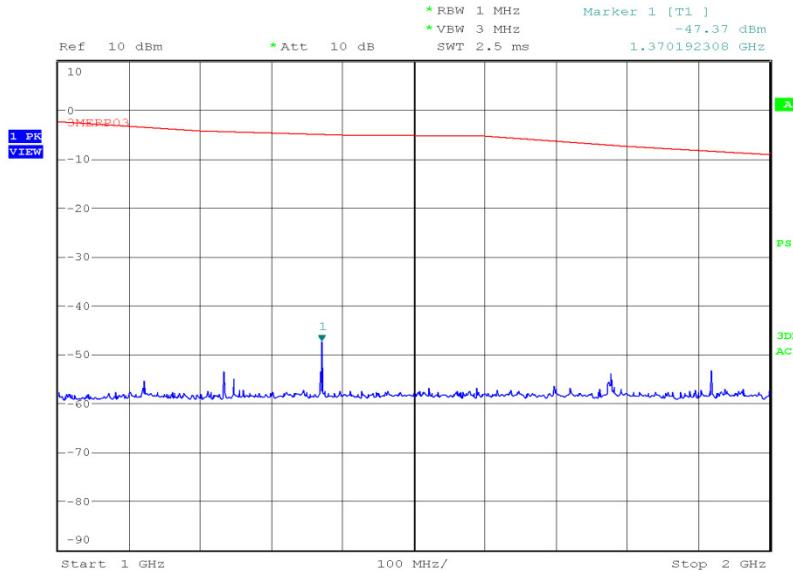
Transmit, 136.975 MHz, 30 MHz to 1 GHz, Radiated Spurious Emissions Plot

Date: 26.MAY.2016 16:47:40



Product Service

### Transmit, 136.975 MHz, 1 GHz to 2 GHz, Radiated Spurious Emissions Plot



Date: 26.MAY.2016 15:40:32

### FCC 47 CFR Part 87, Limit Clause 87.139 (a)(3)

Except for ELTs and when using single sideband (R3E, H3E, J3E), or frequency modulation (F9) or digital modulation (F9Y) for telemetry or telecommand in the 1435–1525 MHz, 2345 – 2395 MHz, or 5091–5150 MHz band or digital modulation (G7D) for differential GPS, the mean power of any emissions must be attenuated below the mean power of the transmitter (pY) as follows:

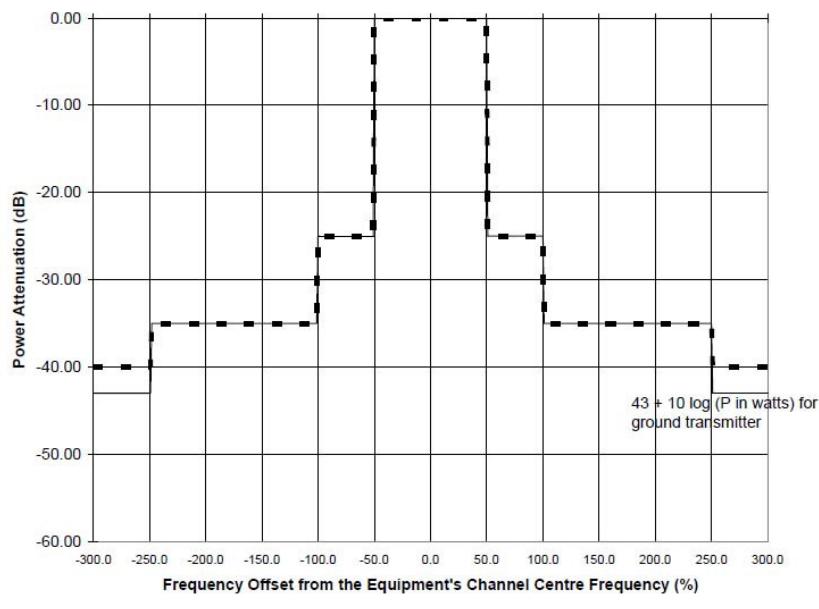
When the frequency is removed from the assigned frequency by more than 250 percent of the authorized bandwidth the attenuation for aircraft station transmitters must be at least 40 dB; and the attenuation for aeronautical station transmitters must be at least  $43 + 10 \log_{10} pY$  dB.



Industry Canada RSS-141, Limit Clause 5.2.2 (c)

For transmitters with A3E or A9W emissions, the mean power of any emissions shall be attenuated below the mean power of the transmitter, P as follows:

When the frequency is removed from the equipment's channel centre frequency by more than 250% of the channel bandwidth, the attenuation for on-board aircraft transmitters shall be at least 40 dB; and the attenuation for ground transmitters shall be at least  $43 + 10 \log_{10} P$  (in watts) dB, measured with a bandwidth of 3 kHz





Product Service

## **SECTION 3**

### **TEST EQUIPMENT USED**



### 3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.1 - Radiated Spurious Emissions</b>					
Modulation Analyser	Hewlett Packard	8901B	555	12	01-Dec-2016
Audio Analyser	Hewlett Packard	8903B	1881	12	16-Nov-2016
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Multimeter	Iso-tech	IDM101	2417	12	29-Sep-2016
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
Sensor Module	Hewlett Packard	11722A	3293	12	03-Dec-2016
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	2-Nov-2016
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	6-Oct-2016
Hygropalm Temperature and Humidity Meter	Rotronic	HP21	4410	12	27-Apr-2017
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	29-Dec-2016

TU – Traceability Unscheduled



Product Service

### 3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Radiated Spurious Emissions	30 MHz to 1 GHz: $\pm 5.1$ dB 1 GHz to 40 GHz: $\pm 6.3$ dB



Product Service

## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



Product Service

#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA  
(Not UKAS Accredited).

This report must not be reproduced, except in its entirety, without the written permission of  
TÜV SÜD Product Service

© 2016 TÜV SÜD Product Service