

**TEST REPORT ON  
Park Air**

VHF AM Transceiver

FCC Procedures  
Part 15

**TEST REPORT NUMBER  
CTMS 2000/1301B  
May 2000**

**Prepared for:**

**Park Air Electronics Ltd.  
Bleheim Way,  
Northfields,  
Market Deeping,  
Peterborough,  
Lincolnshire  
PE6 8UE**

This results in this report refer to the tested unit only

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number: 93385  
Page 2 of 18

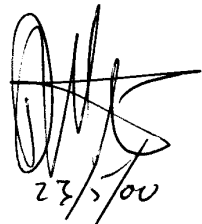
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## Certificate of Application

Cambridge Test and Measurement Services Ltd., certifies that the product tested was fully compliant with the requirements of Parts 15 of the FCC Code of Regulations 47CFR, the results of which are contained in this test report No: CTMS 2000/1301B

I certify that the application was prepared under my supervision and that to the best of my knowledge and belief, the facts set forth in this application and technical data, are true and correct.

Signature :

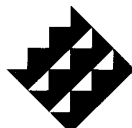


Date :

23/5/00

Name : David Fisher

Title : Radio Technical Manager



**General Test Information**

Date Test Sample Received : 29<sup>th</sup> March 2000

Date Testing Started : 3<sup>rd</sup> April 2000

Date Testing Finished : 7<sup>th</sup> April 2000

Equipment Serial Number : #7

CTMS Project Number : 2000/1301B

Test Engineer : M. Billis

Report Copy No

### **Contents list and Information**

#### **2.1033 Application for Certification**

For use in accordance with FCC Rules and Regulations 47 CFR parts 2 and parts 15.

|                |                                                 |   |                                                                                             |
|----------------|-------------------------------------------------|---|---------------------------------------------------------------------------------------------|
| 2.1033 (b) (1) | Name of applicant                               | : | Park Air Electronics Ltd.                                                                   |
|                | Address of applicant                            | : | Bleheim Way,<br>Northfields,<br>Market Deeping,<br>Peterborough,<br>Lincolnshire<br>PE6 8UE |
| Contact :      | Mr. A. Horsfield                                |   |                                                                                             |
| 2.1033 (b) (2) | FCC Identifier                                  | : | C8L BT6M                                                                                    |
|                | Model Type Number                               | : | BT6M                                                                                        |
| 2.1033 (b) (3) | Installation and operating instructions<br>D    | : | User Guide, see exhibit                                                                     |
| 2.1033 (b) (4) | Brief description of circuit function & antenna | : | see exhibit C & F                                                                           |
| 2.1033 (b) (5) | Block diagram of frequency of oscillators       | : | see exhibit C & F                                                                           |
| 2.1033 (b) (6) | Report of measurements                          |   |                                                                                             |
| 15             | Subpart A General                               |   |                                                                                             |
| 15.31          | Measurement standards (OATS)                    | : | Page 5                                                                                      |
| 15.33          | Frequency range of radiated measurements:       |   | Page 6                                                                                      |
| 15.35          | Measurement detector and bandwidths             | : | Page 6                                                                                      |
| 15             | Subpart B Unintentional Radiators               |   |                                                                                             |
| 15.109         | Radiated emission limits                        | : | Page 7                                                                                      |
| 15.111         | Antenna power conducted limits (receivers)      | : | Page 8                                                                                      |
| 2.1033 (7)     | Photograph of identification plate / label      | : | Pages 9 - 17                                                                                |

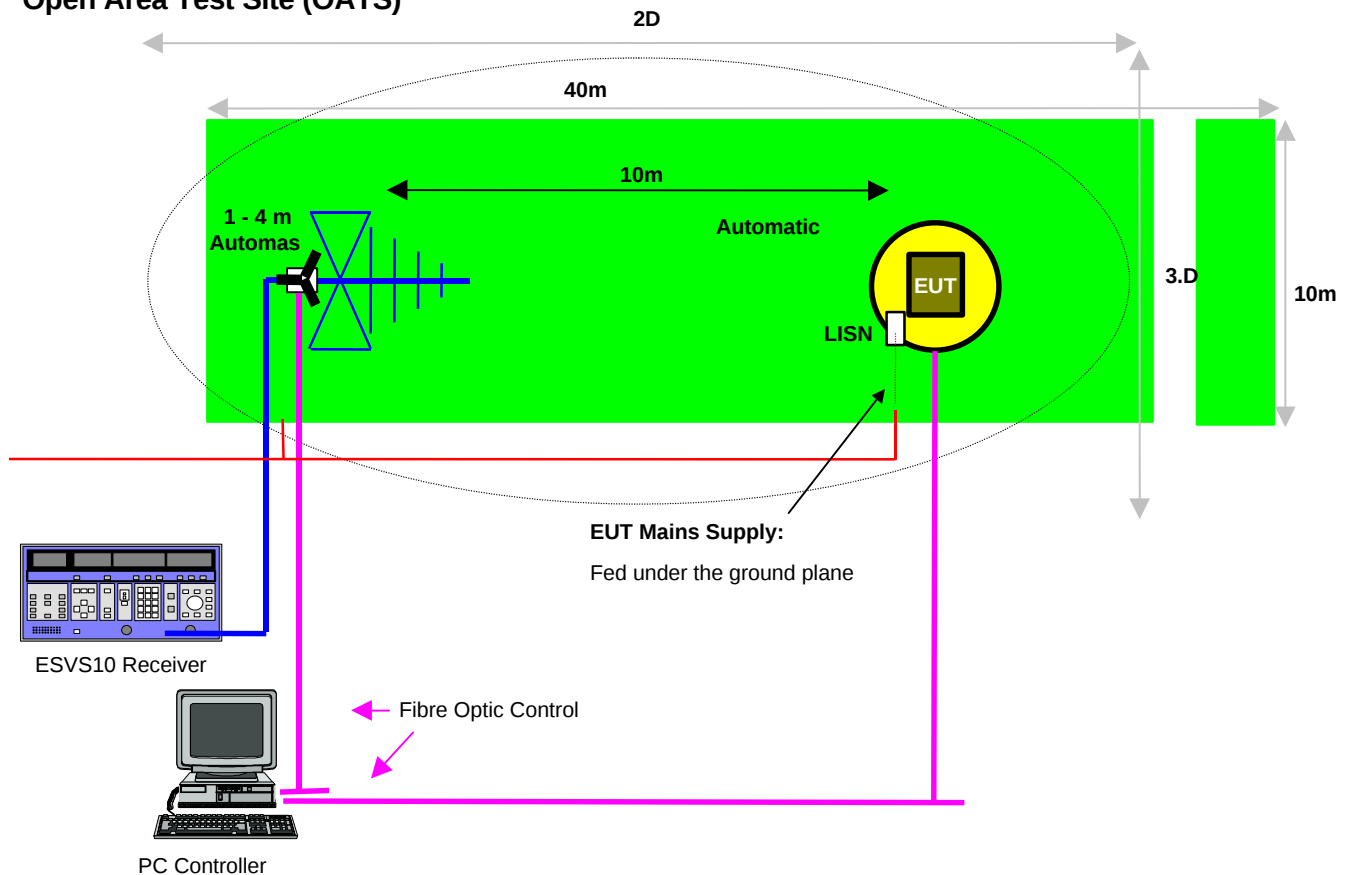
#### **General Information and Attachments :**

|                                      |   |         |
|--------------------------------------|---|---------|
| Company Accreditations & Credentials | : | Page 18 |
|--------------------------------------|---|---------|

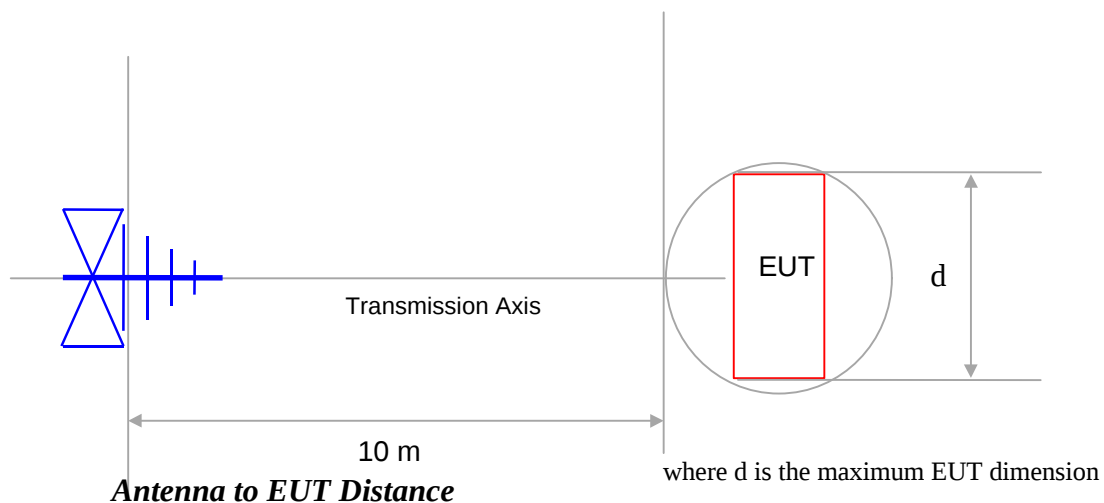
### 15.31 Measurement standards

The measurement facilities at Cambridge Test and Measurement Services LTD, are in accordance with ANCI C63.4 and lodged with the FCC under rule 2.948, a letter from the FCC recognising compliance with the requirements was dated March 02,1999 with the registration number 93385.

#### Open Area Test Site (OATS)



*Equipment Test Set Up*



### **Frequency spectrum to be investigated - 47 CFR 15.33**

The level of frequency search was from the lowest radio frequency generated to the 10<sup>th</sup> Harmonic of the fundamental frequency, the highest carrier frequency.

### **Measurement detector and bandwidths 47 CFR 15.35**

Measurements below 1000 MHz are taken using a quasi-peak detector which has been calibrated to the requirements of CISPR 16-1.

For frequencies above 1000MHz a minimum resolution bandwidth of 1MHz was employed.

### **General Test Conditions**

Laboratory environment .

Ambient Temperature : 23 °C

Relative Humidity : 22 %

Open Area test Site : 12 °C

## Radiated emission limits- 47 CFR 15.109

The receiver (the EUT) was placed on a wooden table with cables suitably dressed. The antenna was connected to a dummy, non-radiating, load of normal impedance matching that of the receiver. At a distance of 3m from the EUT the radiated field for each spurious radiation was detected and measured on a calibrated receiver which was fed from a calibrated log-periodic antenna.

The antenna was oriented in horizontal polarisation plane and was raised and lowered so as to ensure the maximum level of the spurious emission was detached.

The EUT was rotated through 360°, the emission levels for each spurious were observed on the receiver and recorded .

The test above was repeated with the receiving antenna in the vertical polarisation plane.

For each of the emissions detected the EUT was switched off to determine the emission was that of the EUT.

Results in accordance with Part 15.109 Emission Limits

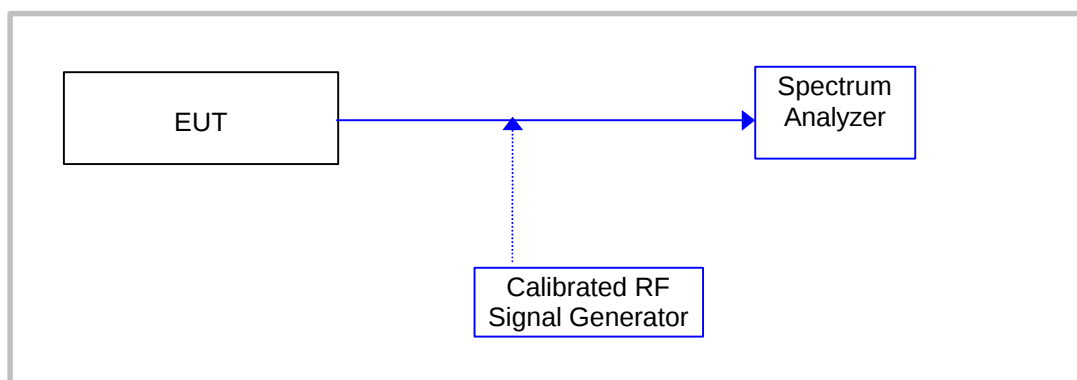
| Level of emissions                                         |          |                                               |                                        |                                        |      |
|------------------------------------------------------------|----------|-----------------------------------------------|----------------------------------------|----------------------------------------|------|
| Frequency<br>MHz                                           | Identity | Level<br>detected in<br><u>dBμV/m</u> @<br>3m | Converted<br>to<br><u>μV/m</u> @<br>3m | Spec. limits<br><u>μV/m</u> @ 3 meters |      |
| 58.98                                                      | spurious | 22.58                                         | 13.46                                  | MHz                                    | μV/m |
| 127.80                                                     | spurious | 24.19                                         | 16.20                                  | 30-88                                  | 100  |
| 137.64                                                     | spurious | 29.88                                         | 31.20                                  | 88-216                                 | 150  |
| 147.48                                                     | spurious | 28.18                                         | 25.65                                  | 216-960                                | 200  |
| 157.32                                                     | spurious | 27.28                                         | 23.13                                  | > 960                                  | 500  |
| 167.10                                                     | spurious | 30.29                                         | 32.68                                  |                                        |      |
| 176.94                                                     | spurious | 34.18                                         | 51.19                                  |                                        |      |
| 186.78                                                     | spurious | 31.48                                         | 37.51                                  |                                        |      |
| 196.62                                                     | spurious | 29.21                                         | 28.86                                  |                                        |      |
| 206.46                                                     | spurious | 25.88                                         | 19.69                                  |                                        |      |
| 245.76                                                     | spurious | 29.48                                         | 29.80                                  |                                        |      |
| 255.60                                                     | spurious | 32.38                                         | 41.61                                  |                                        |      |
| 285.12                                                     | spurious | 27.08                                         | 22.60                                  |                                        |      |
| 294.90                                                     | spurious | 29.68                                         | 30.49                                  |                                        |      |
| 629.16                                                     | spurious | 27.28                                         | 23.13                                  |                                        |      |
|                                                            |          |                                               |                                        |                                        |      |
| All others greater than 20 dB within specification limits. |          |                                               |                                        |                                        |      |
|                                                            |          |                                               |                                        |                                        |      |

### Antenna power conducted limits for receivers - 47 CFR 15.111

The receiver is operated under standard test conditions and the antenna port was connected to a spectrum analyzer. The spurious emissions were observed and recorded.

A calibrated RF signal generator replaced the EUT and the level of the signal generator was adjusted to achieve the same level as that measured on the spectrum analyzer. The level on the signal generator was recorded as being the level of the spurious emission measured by the substitution method. This method was used to as to ensure any unknown characteristics of the connecting cable were taken into account.

(Calibrated items are indicated in [Blue](#))



Test instruments used :

RF Signal Generator : Marconi Type 2032  
Spectrum Analyzer : Anritsu Type MS 2602A

Note: Emissions 20dB below limit are not required to be listed

Carrier Frequency : 127.50 MHz  
Local Oscillator Frequency: 172.50 MHz

Results in accordance with Part 15.111

| Frequency<br>(MHz) | Identity | Level<br>dBm | Specification Level<br>2 nanowatts ( - 57dBm ) |                                                         |
|--------------------|----------|--------------|------------------------------------------------|---------------------------------------------------------|
|                    |          |              | limit                                          | Remarks                                                 |
| 172.50             | LO       | - 91.59      | - 57dBm                                        | All greater than 20dB<br>within Specification<br>Limit. |
| 690.00             | 4 * LO   | - 95.65      | - 57dBm                                        |                                                         |
|                    |          |              |                                                |                                                         |

## PHOTOGRAPHS OF EQUIPMENT

|                                | Page No |
|--------------------------------|---------|
| Transceiver Front View         | 10      |
| Transceiver Back View          | 11      |
| Transceiver Internal 1 View    | 12      |
| Transceiver Internal 2 View    | 13      |
| Transceiver Internal 3 View    | 14      |
| Front Control Board PCB Side 1 | 15      |
| Front Control Board PCB Side 2 | 16      |
| Transceiver Label View         | 17      |

EQUIPMENT : BT6M  
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TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 10 of 18

BT6M Transceiver Front View

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 11 of 18

BT6M Transceiver Back View

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 12 of 18

BT6M Transceiver Internal 1 View

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 13 of 18

BT6M Transceiver Internal 2 View  
Control Board Removed

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 14 of 18

BT6M Transceiver Internal 3 View  
RF Screens Removed

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 15 of 18

BT6M Transceiver Front Control Panel PCB  
Side 1

EQUIPMENT : BT6M  
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TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 16 of 18

BT6M Transceiver Front Control Panel PCB  
Side 2

EQUIPMENT : BT6M  
FCC Identifier : C8L BT6M

TEST REPORT NUMBER: CTMS 2000/1301B  
CTMS FCC Registration Number : 93385  
Page 17 of 18

BT6M Transceiver Label View

### **CTMS LTD, Company Accreditations & Credentials**

#### Appendix

|                               |   |
|-------------------------------|---|
| UKAS Certificate              | A |
| UKAS Schedule                 | B |
| Letter of acceptance from FCC | C |
| ISO 9002 Certification        | D |