

1 April 2005

FAA Spectrum Engineering Division
800 Independence Avenue SW
Washington,
DC 20591

Dear Sirs,

Please be advised that we are making applications to the Federal Communications Commission to obtain Equipment Authorisation grants for Park Air Systems new range of VHF multimode transmitters and receiver type T6.

The models covered are :

T6T 50W VHF AM transmitter under filing C8LB6350/S2

T6TR 50W VHF AM transceiver under filing C8LB6550/S2

T6R VHF AM receiver under filing C8LB6100/S2

T6T HS 100 VHF 100W AM transmitter under filing C8LB63100HS

The equipment provides upto 50W/100W RF output power in the 118 – 136.975 MHz band employing A3E (AM) modulation.

The original versions of the 50W T6 transmitter and receiver were filed in 2000.

The new models have been redesigned to use more common modules and improve compatibility with future digital modes. A summary of the equipment's performance is attached.

Our application to the FCC is being made via TuV Product Service in the UK, acting as our Conformity Assessment Body. If you could address any concerns or objections to myself or TuV I would be grateful.

Yours faithfully,



Allan Horsfield
Principal Engineer
EMC and Approvals

CAB:

TUV Product Service Ltd, Segensworth Road, Fareham, Hampshire PO15 5RH
England

Attention: Maggie Glasspool MGlasspool@tuvps.co.uk

FAA Notification of FCC Type Acceptance Application for T6 Series.

General

FCC Number

T6T	50W VHF transmitter	C8LB6350/S2
T6TR	50W VHF transceiver	C8LB6550/S2
T6T HS 100	A 100W variant of the T6T HS	C8LB63100HS
T6R	VHF receiver	C8LB6100/S2

Manufacturer	Park Air Systems Ltd. England.
RF Output Power	50 Watts (100 Watts for T6T HS 100)
Antenna port	50R N-type connector
Frequency range	118 MHz to 136.975 MHz.
Method of tuning	Frequency selected by front panel control and LCD display.
Channelling capability	25 kHz (8.33kHz capable).
Emission bandwidth	Within FCC limits see attached report summary
Emission type	6K00A3E
Emission/harmonics	See attached report summary
EMC	All products are Type examined under the EMC Directive to comply with emission and immunity requirements to Class B. Certificates attached.

Description

Park Air Systems T6 series are VHF multi-mode air-traffic control radios compatible with analogue (AM) and digital (D8PSK) modulation modes. Current models are supplied programmed for AM voice operation in the frequency range 118 to 136.975 MHz using 25 kHz or 8.33 kHz channel spacing. The latter is disabled through front panel settings for the American market.

The transmitter produces a 50W/100W carrier output that can be reduced, in steps, to 5/10W. The output power, and the majority of operational settings, can be selected at the front panel, using the virtual front panel (VFP) on a pc, or through a compatible control and data system such as the PAE multi-access remote control (MARC) system. A multi-channel feature allows up to 100 frequency channels to be stored and recalled by channel number.

The T6R is the complementary receiver utilising the same front panel and processor modules to minimise spares requirements.

The equipment is designed to be fitted in an industrial 19 inch (483 mm) equipment rack. Operation is from either a standard ac mains supply, or from a low voltage dc supply. When both input supplies are connected, the dc supply acts as a back-up if the mains supply fails.

Comprehensive continuous and interruptive Built-In Tests (BIT) provide confidence of the radios serviceability.

All transmitters employ the same processor control module, power amplifiers and power supplies. The T6TR power amplifier is identical to the T6T but has a PIN diode antenna changeover device fitted.
The 100W version uses two combined 50W power amplifiers.

T6 Series transmitter emission performance summary:

All results taken from report number OR613603/02 (T6T) OR613603/03 (T6TR) & OR613878/01 (T6 HS 100) produced by TuV Product Service* for our applications for Grant of Equipment Authorisation.

Occupied Bandwidth - 47 CFR 2.1049 (1)

From Report OR613603/02 T6T

2.4.6 Test Results

Channel Number/ Frequency	Power Level W	Result kHz	Authorized Bandwidth kHz
118 MHz	50	2.1146	25
127.5 MHz	50	2.1112	25
136.975 MHz	50	2.0690	25

Limit	≤25kHz
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From Report OR613603/03 T6TR

Channel Number/ Frequency	Power Level W	Result kHz	Authorized Bandwidth kHz
118 MHz	25	2.0504	25
127.5 MHz	25	2.0485	25
136.975 MHz	25	2.0493	25

Limit	≤25kHz
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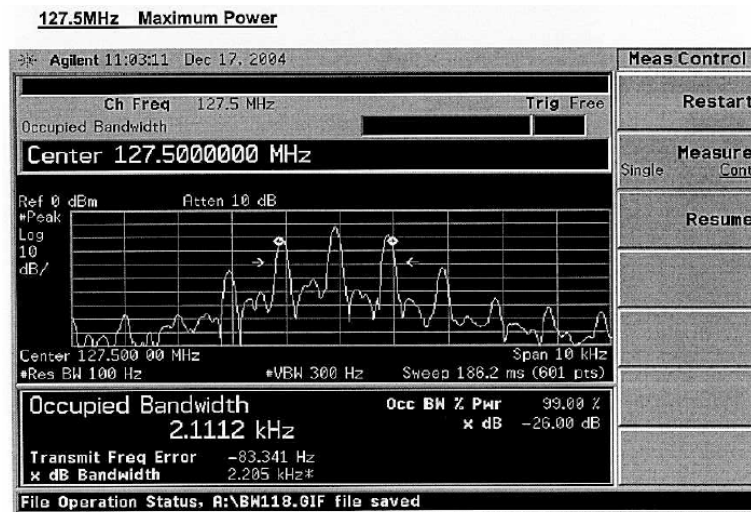
From Report OR613878/01 T6T HS 100

Channel Number/ Frequency	Power Level (W)	Result (kHz)	Authorized Bandwidth (kHz)
118 000 MHz	100	1.092	25
127.500 MHz	100	1.092	25
136.975 MHz	100	1.087	25

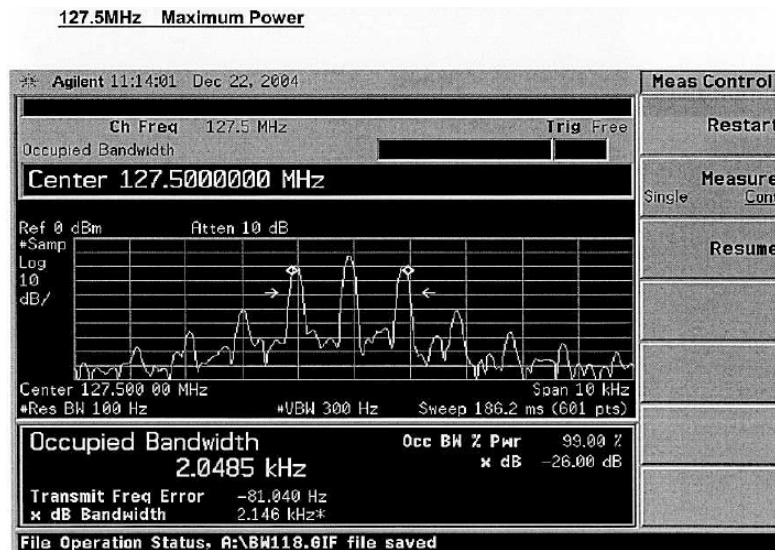
Limit	≤25kHz
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*** FCC Registration Number 90987**

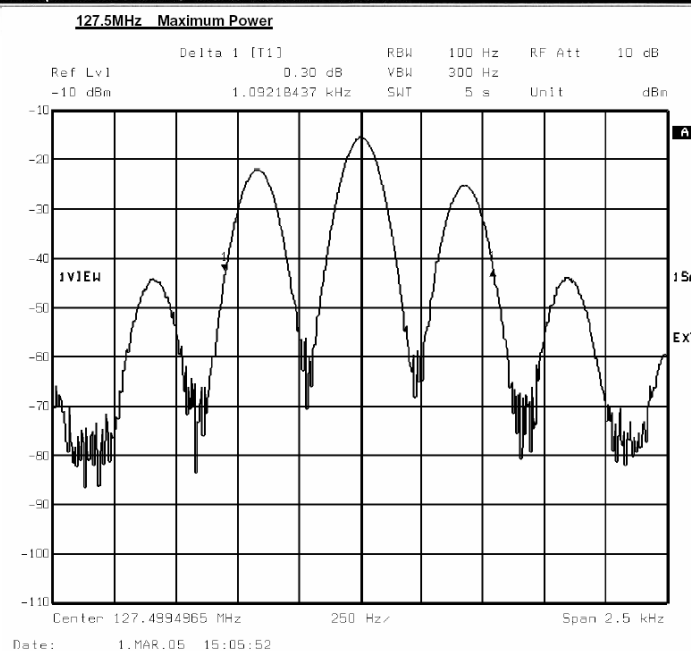
T6T



T6TR



T6T HS 100



Spurious emissions at antenna terminals - 47 CFR 2.1051

Results in accordance with Part 2.1051 and 87.139 Emission Limits

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

Carrier Frequency (Fc) : 127.5 MHz Transmitting

From Report OR613603/02 T6T

Middle Channel Tx: 127.50MHz

Emission Frequency	Polarity	Height	Azimuth	Raw Peak	ERP Final	Specification Limit
MHz		cm	Degrees	dBm	dBm	dBm
143.75	V	100	45	-79.4	-51.8	-13.0
255.00	H	137	126	-79.8	-57.5	-13.0
382.50	V	100	0	-74.1	-47.7	-13.0

From Report OR613603/03 T6TR

Middle Channel Tx: 127.50MHz

Emission Frequency	Polarity	Height	Azimuth	Raw Peak	ERP Final	Specification Limit
MHz		cm	Degrees	dBm	dBm	DBm
179.21	Horizontal	100	115	-78.4	-58.6	-13.0
255.00	Vertical	100	180	-73.2	-47.8	-13.0
382.50	Horizontal	100	65	-72.1	-46.3	-13.0

From Report OR613878/01 T6T HS 100

Middle Channel Tx: 127.50MHz

Emission Frequency	Polarity	Height	Azimuth	Raw Peak	ERP Final	Specification Limit
MHz		cm	Degrees	dBm	dBm	dBm
163.480	V	100	153	-78.07	-57.94	-10.0
254.496	V	100	277	-81.59	-63.22	-10.0
381.749	H	161	149	-66.34	-47.16	-10.0

Field Strength of Spurious radiation - 47 CFR 2.1053

Carrier Frequency (Fc) : 118 MHz (T6T/TR)

		Absolute Level	Level (relative to RF Power 50W) dB w.r.t limit of 43+10 log power	
Frequency (MHz)	Identity	dBm	dBc	Remarks
		limit - 13	limit - 60	
236.00	2Fc	--26.68	-73.68	All others greater than 20dB within Specification Limit.
354.00	3Fc	-27.67	-74.67	

From Report OR613878/01 T6T HS 100

Carrier Frequency (Fc) : 118 MHz

		Absolute Level	Level (relative to RF Power 50W) dB w.r.t limit of 43+10 log power	
Frequency (MHz)	Identity	dBm	dBc	Remarks
		limit - 13	limit - 63	
200.8	spur	-24.83	-74.83	All others greater than 20dB within Specification Limit.
236.00	2Fc	--22.45	-72.45	
354.00	3Fc	-42.33	-92.33	

UK EMC Type Certification

Safety Regulation Group
Air Traffic Services Standards Department



*Notified Body No 0190 under
the UK EMC Regulations*

EC Type Examination Certificate

Certificate No	04/12
Issue No	2
Manufacturer Address	Park Air Electronics Ltd Northfields, Market Deeping Nr. Peterborough *
European Agent Address	N/A N/A
Equipment	: VHF AM Transmitter
Type tested	: T6T
Type(s) covered	: T6T HS
Option(s) covered	: HS
Modifications	: 5
Software Issue	: 65-00000465v2 AM Voice
Firmware Issue	: Boot Code 65-00000431v1, Base Code 65-00000435v2
EMC Standards	EN 55022 B EN 61000-3-2,A EN 61000-3-3 EN 61000-4-2 L2&3,B EN 61000-4-3,L3,A EN 61000-4-6,L3,A EN 61000-4-4 L2&3,B EN 61000-4-5,L3,B EN 61000-4-8 L2,A EN 61000-4-11,B/C

*Certificate address

The UK Civil Aviation Authority in exercise of its powers under regulation 64 of the Electromagnetic Compatibility Regulations 1992 hereby certifies that the apparatus described above conforms with the protection requirements referred to in the regulations.

This certificate does not confer CAA type or installation approval under the Air Navigation Order

Signed on behalf of the CAA Notified Body by

Date 22 July 2004

Issued by the Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR

CAA/NB/7 Issue 5 Sept 2001

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T K Dunford

For the Civil Aviation Authority

*Notified Body No 0190 under
the UK EMC Regulations*

EC Type Examination Certificate

Certificate No	04/16
Issue No	2
Manufacturer Address	Park Air Systems Ltd Northfields, Market Deeping, Nr. Peterborough *
European Agent Address	N/A N/A
Equipment	: VHF 50W Ground Station Transceiver
Type tested	: B6550 (T6TR)
Type(s) covered	: As tested
Option(s) covered	: Opt 1
Modifications	: 5
Software Issue	: 65-00000465v2 AM Voice
Firmware Issue	: Boot Code 65-00000431v1 Base Code 65-00000435v2
EMC Standards	EN 61000-4-2 L2&3,B EN 61000-3-2,A EN 61000-3-3 EN 61000-4-4 L2&3,B EN 61000-4-3,L3,A EN 55022 B EN 61000-4-6,L3,A EN 61000-4-5,L3,B EN 61000-4-11,B/C

*Certificate address

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Date 22 July 2004

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CAA/NB/7 Issue 5 Sept 2001



*Notified Body No 0190 under
the UK EMC Regulations*

EC Type Examination Certificate

Certificate No	:	04/20
Issue No	:	1
Manufacturer	:	Park Air Systems Ltd
Address	:	Northfields, Market Deeping, Nr. Peterborough *
European Agent	:	N/A
Address	:	N/A
Equipment	:	T6T HS VHF 100W Ground Station Transmitter
Type tested	:	B63100HS
Type(s) covered	:	As tested
Option(s) covered	:	None
Modifications	:	7
Software Issue	:	65-00000465v5 AM Voice
Firmware Issue	:	Boot Code 65-00000434v2 Base Code 65-00000435v3
EMC Standards	:	EN 61000-4-2 L2&3,B EN 61000-3-2,A EN 61000-3-3 EN 61000-4-4 L2&3,B EN 61000-4-3,L3,A EN 55022 B EN 61000-4-6,L3,A EN 61000-4-5,L3,B EN 61000-4-11,B/C

*Certificate address

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Signed on behalf of the CAA Notified Body by

Date 25 February 2005

Issued by the Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR

CAA/NB/7 Issue 5, Sept 2001



T K Dunford

For the Civil Aviation Authority

Equipment Photos

T6TR Front Panel



T6T/ T6R Front Panel



T6T HS 100



T6T HS 100 Rear panel. Note all interface connections are common across the range.

