

Technical Note

Subject: **Transmission Licence Application Information for the Blighter B202 Radar (US Model)**

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Plextek's Blighter B202 Radar has CE(!) approval and FCC certification to allow it to be sold into the European and American continents respectively. In most countries it is necessary for the operator of the equipment to acquire a Transmission Licence from the national spectrum management authority. In the UK this is OFCOM and in the USA, the FCC.

Each licensing authority asks for specific characteristics of the transmitting equipment. This document provides the majority of information required by most authorities.

Please note that this information must not be freely distributed. It may only be supplied to the relevant licensing authority and wherever possible, the licensing authority should also be asked to restrict the distribution of the information.

1.1 Licence Information

Model Number	Blighter B202
Manufacturer	Plextek Ltd. London Road, Great Chesterford, Essex, CB10 1NY United Kingdom Tel. +44 1799 533200 Email: blighter@plextek.co.uk Web. www.plextek.com or www.blighter.com
Class of emission - UK	1G50WXN
Class of emission - USA	1G50WXN
FCC Certification	FCC IDENTIFIER: UFQ-BLIGHTER-202 Name of Grantee: Plextek Ltd Equipment Class: Licensed Non-Broadcast Station Transmitter
Instrumented range of operation	10 metres to 8000 metres
Antenna Gain	20 dBi min, 24 dBi max.
Antenna Beamwidth - Azimuth	3.5° – 9.5° over approx. 80° electronic-scan segment

Antenna Beamwidth - Elevation	$\pm 9^\circ$ to $\pm 11^\circ$ about boresight (0°)
Polarisation	Linear Horizontal
Peak Transmitter Power supplied to Antenna	+1 dBW = 1.26 Watts
Theoretical Peak Radiated Power (EIRP)	+25 dBW
Theoretical Mean Radiated Power (EIRP)	+22.2 dBW
Mean EIRP over the Full Scan Angle	4.2W
Mean ERP over the Full Scan Angle	2.6W

1.1.1 Derivations

1.1.1.1 Power

Theoretical Peak Radiated Power (EIRP) = Peak Power (+1dBW) + Maximum Antenna gain (+24dBi)

Theoretical Mean Radiated Power (EIRP) = (Peak Power (+1dBW) + Nominal Antenna gain (+22dBi)) + Duty Cycle ($10\log_{10}(84\%)$)

Peak EIRP over the Full Scan Angle = Peak EIRP (+25dBW/316W) / number of spokes in scan angle (40)

Mean EIRP over the Full Scan Angle = Mean EIRP (+22.2dBW/166W) / number of spokes in scan angle (40)

Where;

Maximum number of spokes = 40 (note: scan mode dependant)

Full Scan angle = 83° (ref. 8BT534 00b)

Duty Cycle = 84% (0.76dB)

0dBW ERP = +2.14dBW EIRP (ERP radiated power relative to a dipole antenna)

Therefore $\text{ERP(dBW)} = \text{EIRP(dBW)} - 2.14\text{dB}$

1.1.1.2 Emission Designator

1G50WXN where;

First four digits define bandwidth: 1.5GHz = 1G50

Last three digits define emission class:

W - Cases not covered, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse.

X - Cases not covered

N - No information is transmitted