

Proposal for a 2.3GHz beacon transmitter for Bristol

John Worsnop G4BAO

- **Basic Specification**

- Minimum 25Watts EIRP with 10dBi slotted waveguide antenna
- To cope with a up to a 50m feeder run
- Minimum of ovened oscillator stability
- FSK keying
- Mains operation via 12 Volt SMPSU
- 19 inch rack mounted

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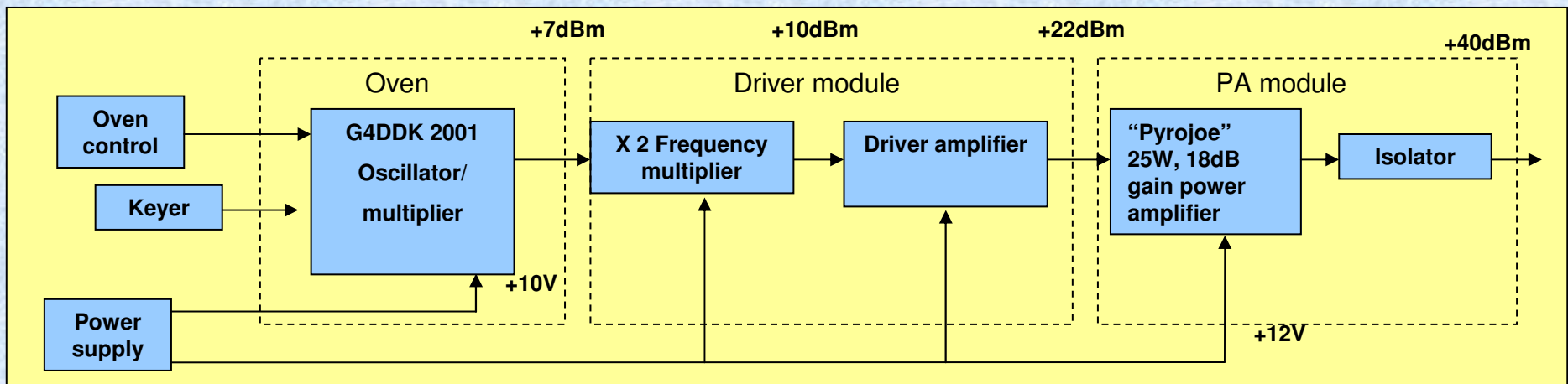
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- Power budget
- RF
 - Assuming 50m of Andrews LDF 4-50 cable + connectors and tails ,
 - feeder loss = 6dB
 - Antenna gain
 - 2 x 6 slot = 10dBi
 - Overall gain including feeder loss = 4dBi
 - TX power for 25W (+44dBm) EIRP
 - = +40dBm or 10 Watts
- DC
 - Power Amplifier
 - Assume PA efficiency = 20%,
 - DC input for 10 Watts out = 50W
 - Rest of Beacon
 - Assume a further 25 Watts (conservative)
- **Total DC power consumption = 75Watts**

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Bristol 2.3GHz Transmitter System Block Diagram



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Outline Cost estimates

Item	Estimated cost
G4DDK2001 kit	£37
Decent Crystal	£50
Power Amplifier	£90
Isolator	£10
Keyer parts	£15
Heatsink (surplus)	£20
Rack (surplus)	£50
Driver Module parts	£70
Oven parts	£25
12 volt 75W PSU	£50
Total	£417

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Outline Time estimates

Item	Estimated elapsed time
Multiplier and buffer amp development	2 weeks
Source and order components	1 week
Crystal order	5 weeks
Order PyroJoe items	2 weeks
Build up PCBs and Rack	1 week
System integration and test	2 weeks
Crystal burn-in and soak test	8 weeks
Total project elapsed time	18 weeks