

OfCom's General Notice of Proposal to Vary Wireless Telegraphy Act Licences

In 2021 Ofcom published a general notification proposing to vary Wireless Telegraphy Act Licences. These proposals require the licensees to comply with the ICNIRP general public limits.

OfCom requires knowledge of the compliance distance for all equipment transmitting above 6.1W ERP, where such equipment is not used only in emergencies. The compliance distance is the distance that you need to keep between your antenna and members of the public.

This notification applies to Raymarine Radars, Class A AIS Transponders and VHF Radios. For current and legacy Raymarine Radars, the compliance distance is within the rotating diameter of the antenna on radar arrays, and within the product casing for Radome products. For AIS Transponders the compliance distance is calculated at 20 cm from the antenna. For VHF radios the compliance distance is dependent on model, length, material, and gain of the antenna installed. Raymarine recommends the OFCOM calculation of 1.6m as a conservative figure and recommends consultation of the antenna supplier for specific test reports.

With the exception of Class A AIS units as detailed above Raymarine does not rely on calculations to determine a safe distance to our equipment. All Raymarine products must pass strict control standards regarding emissions using specialised measurement equipment. Radar results are included in the technical documentation of our products and in the table below.

Raymarine recommends that you follow these figures when recording the necessary compliance distances.

With reference to the specific OFCOM notification OFCOM proposes the following calculations.

1. Using the OFCOM online EMF calculator
2. Using another 3rd Party EMF calculator
3. Following the manufacturer's instructions.
4. Follow the advice of the professional who installed your equipment
5. Taking measurements of the levels of EMF of your equipment.

Raymarine have significant experience and expertise in the development of marine VHF and Radar equipment. It is extremely difficult to calculate safe distances using calculations as noted in the OFCOM statement, and they will often be conservative.

https://www.ofcom.org.uk/__data/assets/pdf_file/0024/215655/What-you-need-to-know-Draft-version.pdf

In particular, power density is problematical to calculate when close to the antenna due to near field affects. Accordingly with the exception mentioned above Raymarine measures these distances as documented below.

Radars Model	Description	Part Number	Measured distance from radar where the public exposure limit is exceeded
	CYCLONE OPEN ARRAYS		
Cyclone Open Arrays	Cyclone 55 Watts 3ft Open Array Radar	T70491	0.3 m from centre of core < swept volume 0.52 m
Cyclone Open Arrays	Cyclone 55 Watts 4ft Open Array Radar	T70492	0.4 m from centre of core < swept volume 0.67 m
Cyclone Open Arrays	Cyclone 55 Watts 6ft Open Array Radar	T70493	0.4 m from centre of core < swept volume 0.98 m
Cyclone Open Arrays	Cyclone Pro 110 Watts 3ft Open Array Radar	T70494	0.5 m from centre of core < swept volume 0.52 m
Cyclone Open Arrays	Cyclone Pro 110 Watts 4ft Open Array Radar	T70495	0.5 m from centre of core < swept volume 0.67 m
Cyclone Open Arrays	Cyclone Pro 110 Watts 6ft Open Array Radar	T70496	0.5 m from centre of core < swept volume 0.98 m
Cyclone Open Arrays	Cyclone Radar Pedestal 55 Watts	E70620	N/A Component Part – see system
Cyclone Open Arrays	Cyclone Pro Radar Pedestal 110 Watts	E70621	N/A Component Part – see system
Cyclone Open Arrays	Cyclone 3ft Open Array	E70628	N/A Component Part – see system
Cyclone Open Arrays	Cyclone 4ft Open Array	E70629	N/A Component Part – see system
Cyclone Open Arrays	Cyclone 6ft Open Array	E70630	N/A Component Part – see system
	QUANTUM		
Q24W	Quantum 18" Wi-Fi Only	E70344	Does not occur outside of dome housing
Q24C	Quantum 18" Cabled and Wi-Fi with 10m power cable	E70210	Does not occur outside of dome housing
	Quantum 18" Cabled and Wi-Fi with 10m power cable and 10m data cable	T70243	Does not occur outside of dome housing
	Quantum 18" Cabled and Wi-Fi with 15m power cable and 15m data cable	T70266	Does not occur outside of dome housing
Q24D	Quantum 2 18" Doppler - no cables	E70498	Does not occur outside of dome housing
	Quantum 2 18" Doppler with 10m power cable and 10m data cable	T70416	Does not occur outside of dome housing
	Quantum 2 18" Doppler with 15m power cable and 15m data cable	T70417	Does not occur outside of dome housing
	MAGNUM SHD OPEN ARRAY		
Magnum Open Array	4KW Magnum with 4ft Open Array and 15m cable	T70408	34cm from centre of core
Magnum Open Array	4KW Magnum with 6ft Open Array and 15m cable	T70410	34cm from centre of core
Magnum Open Array	12KW Magnum with 4ft Open Array and 15m cable	T70412	34cm from centre of core
Magnum Open Array	12KW Magnum with 6ft Open Array and 15m cable	T70414	34cm from centre of core
Magnum Open Array	Magnum 12KW pedestal (with VCM100)	E70484	N/A Component Part – see system
Magnum Open Array	Magnum 4KW pedestal (with VCM100)	E70487	N/A Component Part – see system
Magnum Open Array	Magnum 4ft Open Array	E70490	N/A Component Part – see system
Magnum Open Array	Magnum 6ft Open Array	E70491	N/A Component Part – see system
	DOMES DIGITAL		
RD418D	18" 4KW Transmitter Digital Dome with cable	E92129	Does not occur outside of dome housing
RD418D	18" 4KW Transmitter Digital Radome without cable	E92130	Does not occur outside of dome housing
RD424D	24" 4KW Transmitter Digital Dome with cable	E92131	Does not occur outside of dome housing

RD424D	24" 4KW Transmitter Digital Radome without cable	E93132	Does not occur outside of dome housing
	DOMES HD DIGITAL		
RD418HD	18" 4KW HD Transmitter Digital Dome no cable	E92142	Does not occur outside of dome housing
RD418HD	18" 4KW HD Transmitter Digital Dome with 10m cable	T70168	Does not occur outside of dome housing
RD424HD	24" 4KW HD Transmitter Digital Radome no cable	E92143	Does not occur outside of dome housing
RD424HD	24" 4KW HD Transmitter Digital Radome with cable	T70169	Does not occur outside of dome housing
	HD Open Arrays		
RA1048HD	4KW HD Open Array Pedestal	E52069	34cm from centre of core
RA1048HD	4KW HD Enhanced Open Array Pedestal (with VCM100)	E52069E	34cm from centre of core
RA1072HD	72" 4KW HD Colour Open Array with cable	T70171	34cm from centre of core
	SHD Open Arrays		
	4KW SHD Open Array Pedestal (with VCM100)	E52081	34cm from centre of core
	4KW SHD Enhanced Open Array Pedestal (with VCM100)	E52081E	34cm from centre of core
	12KW SHD Open Array Pedestal (with VCM100)	E52082	34cm from centre of core
	12KW SHD Enhanced Open Array Pedestal (with VCM100)	E52082E	34cm from centre of core
	Domes Analogue		
RD218	18" 2KW Transmitter Analogue Radome	E52065	Does not occur outside of dome housing
RD224	24" 4KW Transmitter Analogue Radome	E52067	Does not occur outside of dome housing

VHF Model	Description	Part Number	EIRP Power Watts	Frequency MHz	Measured Distance from VHF Antenna where the public exposure limit is exceeded
Ray53	Single station Fixed mount VHF	E70524	25	155.500-161.425	Recommended to contact local antenna supplier
Ray63	Dual Station Fixed mount VHF	E70616	25	155.500-161.425	Recommended to contact local antenna supplier
Ray73	Dual Station Fixed mount VHF with AIS	E70517	25	155.500-161.425	Recommended to contact local antenna supplier
Ray90	Modular Multi-Station VHF	E70492	25	155.500-161.425	Recommended to contact local antenna supplier
Ray91	Modular Multi-Station VHF with AIS	E70493	25	155.500-161.425	Recommended to contact local antenna supplier
Ray50	Single station Fixed mount VHF	E70243	25	155.500-161.425	Recommended to contact local antenna supplier
Ray52	Single station Fixed mount VHF with integrated GPS	E70345	25	155.500-161.425	Recommended to contact local antenna supplier
Ray60	Dual Station Fixed mount VHF	E70245	25	155.500-161.425	Recommended to contact local antenna supplier
Ray70	Dual Station Fixed mount VHF with AIS	E70251	25	155.500-161.425	Recommended to contact local antenna supplier
Ray260E	Modular Multi-Station VHF for Europe	E70088	25	155.500-161.425	Recommended to contact local antenna supplier
Ray260	Modular Multi-Station VHF for USA	E70087	25	155.500-161.425	Recommended to contact local antenna supplier

VHF Model	Description	Part Number	EIRP Power Watts	Frequency MHz	Measured Distance from VHF Antenna where the public exposure limit is exceeded
Ray260E with AIS	Modular Multi-Station VHF for Europe with AIS	E70090	25	155.500-161.425	Recommended to contact local antenna supplier
Ray260USA With AIS	Modular Multi-Station VHF for USA with AIS	E70090	25	155.500-161.425	Recommended to contact local antenna supplier
Ray101	Hand held VHF	E43026	5	155.500-161.425	Recommended to contact local antenna supplier
Ray430	Fixed Station VHF	M95997	25	155.500-161.425	Recommended to contact local antenna supplier
Ray54	Fixed Station VHF	E43022	25	155.500-161.425	Recommended to contact local antenna supplier
Ray49	Fixed Station VHF for USA	E70101	25	155.500-161.425	Recommended to contact local antenna supplier
Ray49E	Fixed Station VHF for Europe	E43035	25	155.500-161.425	Recommended to contact local antenna supplier
Ray55E	Fixed Station VHF for USA	E43037	25	155.500-161.425	Recommended to contact local antenna supplier
Ray55	Fixed Station VHF for Europe	E43036	25	155.500-161.425	Recommended to contact local antenna supplier
Ray218	Fixed Station VHF for USA	E43032	25	155.500-161.425	Recommended to contact local antenna supplier
Ray218E	Fixed Station VHF for Europe	E43031	25	155.500-161.425	Recommended to contact local antenna supplier
Ray215	Fixed Station VHF for USA	E46021	25	155.500-161.425	Recommended to contact local antenna supplier
Ray215E	Fixed Station VHF for Europe	E46022	25	155.500-161.425	Recommended to contact local antenna supplier
Ray230E	Modular Multi-Station VHF for Europe	E43008	25	155.500-161.425	Recommended to contact local antenna supplier
Ray230	Modular Multi-Station VHF for USA	E43007	25	155.500-161.425	Recommended to contact local antenna supplier
Ray240E	Modular Multi-Station VHF for Europe	E45010	25	155.500-161.425	Recommended to contact local antenna supplier
Ray240	Modular Multi-Station VHF for USA	E42001	25	155.500-161.425	Recommended to contact local antenna supplier