

MAXIMUM PERMISSIBLE EXPOSURE REPORT

GOFAR V1.5 Adapter and Ray Set

Model: GOFAR V1.5

**Performed
for
GOFAR Pty. Ltd.**

**Report Number
S190310-2**

Issue Date: 17/07/2019

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GOFAR with Model: GOFAR V1.5

Report Number: S190310-2

Test Sample: GOFAR V1.5 Adapter and Ray Set
Model Number: GOFAR V1.5
Serial Number: GFR190100001
Part Number: Not applicable

Tested for: GOFAR PTY LTD
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Test Standard: **447498 D01 General RF Exposure Guidance v06**
RF Exposure Procedures and Equipment Authorization Policies For
Mobile and Portable Devices.

FCC Title 47, Part 15.247(i), 1.1307(b), and 1.1310

Test Date: 16th July 2019

Test Officer:



Quinn Wu

Authorised Signature:



Robert Middleton
Sydney Branch Manager
EMC Technologies Pty Ltd

1 INTRODUCTION

The report has been prepared on behalf of GOFAR Pty Ltd. The GOFAR V1.5 Adapter and Ray Set with Model Number: GOFAR V1.5, operates in 2402MHz to 2480MHz.

2 DEFINITION

Three different categories of transmitters are defined by the FCC in OET Bulletin 65. These categories are fixed installation, mobile and portable and are defined as follows:

2.1 Fixed installation:

Fixed location means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Additionally, distance to humans from the antenna is maintained to at least 2 metres.

2.2 Mobile Devices:

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimetres is normally maintained between the transmitters' radiating structures and the body of the user or nearby persons. Transmitters designed to be used by consumers or workers that can be easily re-located are considered mobile devices if they meet the 20 centimetre separation requirement. The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR 2.1091.

2.3 Portable Devices:

Portable device is defined as a transmitting device designed to be used so that the radiating structure(s) of the device is/are within 20 centimetres of the body of the user. Portable device requirements are found in Section 2.1093 of the FCC's Rules (47 CFR 2.1093)

The FCC also categorizes the use of the device as based upon the user's awareness and ability to exercise control over his or her exposure. The two categories defined are Occupational/Controlled Exposure and General Population/Uncontrolled Exposure. These two categories are defined as follows

2.3.1 Occupational/controlled Exposure:

In general, occupational/controlled exposure limits are applicable to situation in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure. Awareness of the potential for RF exposure in a workplace or similar environment can be provided through specific training as part of a RF safety program. If appropriate, warning signs and labels can also be used to establish such awareness by providing prominent information on the risk of potential exposure and instructions on methods to minimize such exposure risks

2.3.2 General Population/Uncontrolled Exposure:

The general population / uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category and the general population/uncontrolled exposure limits apply to these devices

3 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

According to FCC 1.1310 table 1: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500	-	-	f/300	6
1,500-100,000	-	-	5	6
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500	-	-	f/1500	30
1,500-100,000	-	-	1.0	30

f = Frequency in MHz

4 DESCRIPTION OF DEVICE

The GOFAR V1.5 Adapter and Ray Set with Model Number: GOFAR V1.5 logs and transmits vehicle data to a connected mobile via Bluetooth. It operates in 2402MHz to 2480MHz.

5 MPE EVALUATION

$$S = \frac{P * G}{4\pi r^2}$$

Where

S: power density (mW/cm^2)

P: Peak Power Input to antenna (mW)

G: Antenna Gain (numerical value)

r: Distance to the radiated antenna (cm^2) ($r = 20\text{ cm}$)

5.1 MPE Calculation at 20 cm from the antenna

Frequency (MHz)	Antenna Gain (dBi)	Antenna Gain (ratio)	Peak output power (mW)	Duty factor *	Average transmitted power (mw)	Calculated power density (mW/cm^2)	Power density Limit (mW/cm^2)	Result
2402–2480	0.5	1.12	1	100%	1	0.00022	1	Complies

* Worst case calculation.

6 CONCLUSION

All evaluated frequency bands of the EUT were found to be lower than the limits in FCC 1.1310 table 1. The maximum calculated power density was 0.00022 mW/cm^2 at 20 cm from the antenna which is lower than the general public limit.