



Test Report

Prepared for: Sierzega Elektronik GmbH

Model: SR7

Serial Number: 35057, 35058

Project No: p2440002

Test Results: Compliant

To

FCC Part 1.1310 / 2.1091
and
RSS-102: Issue 5 (March 2015)

Date of Issue: June 27, 2024

On the behalf of the applicant:

Sierzega Elektronik GmbH
Valentinstr. 11
Thening, 4062, Austria

Attention of:

Robert Sierzega, CEO
Ph: +43 7221 64114 0
E-Mail: Robert.Sierzega@sierzega.com

Prepared By:

Compliance Testing, LLC
Mesa, AZ 85204
(480) 926-3100 phone / (480) 926-3598 fax
www.compliancetesting.com
ANAB Cert#: AT-2901
FCC Site Reg. #US2901
ISED Site Reg. #2044A-2

Reviewed / Authorized By:

Jeremiah Darden, Principal Engineer

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	June 27, 2024	Jeremiah Darden	Original Document

Current revision of the test report replaces any prior versions. Only the current version of the test report is valid.

EUT Description

Model:	SR7
Serial:	35057, 35058
Firmware:	V1.0
Software:	N/A
Description:	Vehicle Traffic Counter
Additional Information:	<p>Calculations in this report are based on measured values from the respective FCC 15.249 and RSS-210 Reports. RF exposure based on radiated measurements</p> <p>EUT operates at 12VDC.</p> <p>Usage: Table/Desktop (Mounted at installation)</p> <p>Radar 24GHz: FCC ID: S6P-SR7 IC: 5792A-SR7</p> <p>Co-Located Radio: Contains FCC ID's: BLE: QOQ-GM220P Cellular: XMR201910BG95M3</p>

MPE Evaluation (FCC)

This is a mobile device used in Uncontrolled Exposure environment.

Limits Controlled Exposure
47 CFR 1.1310
Table 1, (A)

0.3-3.0 MHz:	Limit [mW/cm ²] = 100
3.0-30 MHz:	Limit [mW/cm ²] = (900/f ²)
30-300 MHz:	Limit [mW/cm ²] = 1.0
300-1500 MHz:	Limit [mW/cm ²] = f/300
1500-100,000 MHz	Limit [mW/cm ²] = 5

Limits Uncontrolled Exposure
47 CFR 1.1310
Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data

Test Frequency, MHz	24,000 – 24,250
Peak Power, Radiated, V/m (E)	6.78
Antenna Type	1 Tx Antenna with Beam Squint of 19° and 1x14 patch, 16dBi 1 Tx Antenna with Beam Squint of 25° and 1x14 patch, 16dBi 1 Rx Antenna with Beam Squint of 19° and 4x14 patch, 22.1dBi 1 Rx Antenna with Beam Squint of 25° and 1x14 patch, 16dBi
Distance (R)	21 cm

$S = \frac{P * G}{4\pi r^2}$
$S = \frac{E^2}{Z, FS} * .1$
Power Density (S) mW/cm ²
0.011 mW/cm ²

Note: Conversions are based on free space conditions (impedance of 377 ohm)

Power Density (S) =
Limit = (from above table) = 1 mW/cm ²

MPE Evaluation (RSS 102)

RF Exemption Section 2.5

EIRP Calculations

Frequency (MHz)	Radiated Power (dBuV/m@3m)	Duty Cycle (%)	Time Averaged Radiated Power (dBuV/m@3m)	EIRP (dBm)	EIRP (W)	Exemption Limit (W)
24,000-24,250	113.1	100	113.1	17.87	0.061	5

2.5.2 Exemption Limits for Routine Evaluation – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device’s radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $22.48/f0.5W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f0.6834 W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

The SAR measurement is not necessary.

RSS 102 Annex C has been submitted with this Technical Brief, which shows compliance to the RF Exposure Limits in RSS 102.

FCC 47 CFR 1.1307(b)(3)(ii)(B) for multiple RF sources operating in the same time-averaging period.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i .

ERP_j = the ERP of fixed, mobile, or portable RF source j .

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source j , at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

$Evaluated_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k , as applicable from § 1.1310 of this chapter.

Radio	Frequency (MHz)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio
BTLE	2402-2483.5	21	0.001	1	0.002

Radio	Frequency (MHz)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio
Cellular	GSM850	21	0.513	0.566	0.906

Radio	Frequency (MHz)	Duty Cycle	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio
24GHz Radar	24,075 – 24,175	100	21	0.011	1	0.011

Sum of Maximum Ratios	Limit	Compliant
0.919	1	Compliant

END OF TEST REPORT