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## **Retlif Testing Laboratories Report No. R-3578P-6B**

**For**

**Siemens Mobility, Inc.  
On-Board Radio**

**FCC ID: 2A8HRS25441-B57-A3**

**Requirement: 1.1310(d)(2), Radiofrequency Radiation Exposure Limits  
(MPE Calculations)**



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## **Requirements and Test Results**

### **Requirement: 1.1310(d)(2), Radiofrequency Radiation Exposure Limits**

For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 in [paragraph \(e\)\(1\)](#) of this section, may be used instead of whole-body SAR limits as set forth in [paragraphs \(a\)](#) through [\(c\)](#) of this section to evaluate the environmental impact of human exposure to RF radiation as specified in [§ 1.1307\(b\) of this part](#), except for portable devices as defined in [§ 2.1093 of this chapter](#) as these evaluations shall be performed according to the SAR provisions in [§ 2.1093](#).

Table 1 FCC [§ 1.1310\(e\)\(1\)](#) - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(i) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1,500			f/300	<6
1,500-100,000			5	<6
<b>(ii) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<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. \* = Plane-wave equivalent power density.

- **Results:**

The calculated power density based on the manufacturers specified antenna gain and maximum measured output power did not exceed the specified MPE limits at a distance of 20 cm for both General Population/Uncontrolled Exposure and for Occupational/Controlled Exposure.

## MPE CALCULATION DATA SHEET

<b>Test Specification:</b>	FCC Part 1.1310, Radiofrequency radiation exposure limits
<b>Method:</b>	FCC Part 1.1310 (d)(2), Maximum Permissible Exposure (MPE)
<b>Limit:</b>	FCC Part 1.1310 (e)(1), Table 1, Section(ii), Limits for General Population / Uncontrolled Exposure
<b>Job Number/Customer:</b>	R-3578P-6B/ Siemens Mobility
<b>Test Sample:</b>	2.4 GHz ZRadio System, Train to Wayside Communications
<b>Model Number:</b>	S25441-B57-A3-1.B; 8708660000 (P/S)
<b>Serial Number:</b>	6101142745-003; 7508000291 (P/S)
<b>Date(s):</b>	2/2/23

### Radio

The test sample is a DTS Radio operating in the 2400 to 2483.5 MHz frequency band

### Antenna Employed

The test sample utilizes the following antenna:

Manufacturer: Huber+Suhner

Model: SENCITY Spot-S

Part Number: 1324.17.0098

Antenna Gain: 8.5 dBi

### MPE Evaluation for Single Source Emitters

Band	Antenna Gain		Conducted Output		EIRP	PG	Result	Limit
	dBi	Numeric	dBm	mW	dBm	mW	mW/cm <sup>2</sup>	mW/cm <sup>2</sup>
WiFi	8.5	7.079	9.01	7.962	17.510	56.364	0.011	1.000

The transmitter complies with the specified MPE limits at a distance of 20 cm for both General Population/Uncontrolled Exposure and for Occupational Controlled Exposure.

# Data Sheet



## SENCITY® Spot-S WiFi Antenna 1324.17.0098

### Description

Small directional, planar, linear vertical polarized WiFi antenna with 8.5 dBi gain  
WLAN IEEE 802.11 b/g - WiFi band 2.4 - 2.485 GHz  
Rugged design, meets EN 50155 and EN 50125-3 railway standards  
Fire retardant acc. to EN 45545-2 and NFPA130  
For outdoor and indoor applications  
Ingress protection IP 66 and IP 67

Wall mounting material included



### Product Configuration

### Technical Data

#### Electrical Data

	Band 1
Frequency (MHz)	2400 - 2500
VSWR	1.5
Impedance (Ohm)	50
Gain (dBi)	8.5
3dB beamwidth (h) (°)	75
3dB beamwidth (v) (°)	75
Composite power max (W)	30
Ambient temperature (°C)	25
Front to back ratio (dB)	12
Vertical electrical tilt (°)	0

#### Ports

	Port 1
Connector	N, jack (female)
Polarization	vertical
DC grounded	Yes