

FCC APPLICATION INQUIRY RESPONSE
L82-228870: SIEMENS GIGASET 2400 DESK STATION
Correspondence Number: Unknown
September 24, 1998

1.0 Overview

This package was compiled to reply to inquiries made by Mr. Joe Dichoso of the FCC regarding the Type Certification Application for the Siemens Gigaset 2400 Desk Station. Each Inquiry item is listed below followed by the response.

2.0 Inquiry Responses

- (1) **Based on the bandwidth plot of the device, transmitting on Channel 95, the device is not 20 dB down at the bandedge of 2843.5 MHz. It is only 10 dB down at the bandedge. Also, if the peak radiated field strength of the fundamental is 128 dBuV/m, the peak field strength at the restricted band frequency is 118 dBuV/m, (128-10 = 118 dBuV/m). This is 44 dB above the peak limit of 74 dBuV/m. Please correct/explain.**

Answer:

The original version of Part 15 (Oct 1996) version that we were using showed the limit for this section (15.247(c)) shall be either 20 dB down or meet 15.209, whichever has the least attenuation. The revised (July 1998) version of this document states the 20 dB criteria without a 'least attenuation' criteria. The appropriate portions of 15.205 must also be met.

Following the last correspondence regarding this application, an inspection of the EUT was made. It was found that the cover of the RF compartment on the device was not secured properly. This was corrected and the bandedge and occupied bandwidth tests redone. All bandedges are now within the 20 dB criteria. The occupied bandwidth still meets the requirements of the Rules. All of these tests were made with the EUT in fixed frequency mode.

Measurements of the emissions of the EUT in fixed frequency mode set to Channel 95 were made at the base of this restricted band. Measurements were made using average detection criteria in accordance with Section 15.205 (b) of the Rules (measurement above 1 GHz). All emissions in this area were below the 15.205/15.209 limit. Data indicating compliance with the 15.205 restricted band is included with this submission.

- (2) **Redo the output power tests with the EUT in fixed transmit (non-hopping) mode. Perform the ERP calculation based on the following formula:**

$$P(EIRP) = \{(E * d)^2\} / 30$$

Answer:

Radiated emissions data for Channels 00, 46 and 95 are included with this document. Calculations of ERP based on the corrected formula are included with this data. We request that the Commission correct the 731 data as necessary. For all measurements, the test distance was 1 meter.

(3) Re-evaluation the RF Safety issue based on the revised EIRP results.

Answer:

Based on a conversation with Kwok Chan of the Commission on September 16, 1998, the following RF Safety analysis is provided:

The power used for evaluation to the RF Safety Hazard Specification can be derated based on the percentage that the transmit signal is actually present over time. For the Gigaset 2400 Desk Station, the duty cycle of the transmit signal over time is 1/8. The Power level used for comparison to the OET-65C limit can be calculated as follows:

$$\text{Ref. Power} = (\text{Peak Power}) * (\text{Duty Cycle}) = (0.192 \text{ watts}) * (1/8) = 0.024 \text{ watts}$$

This figure is below the threshold (<0.2 watts at 2450 MHz for cordless phone handsets and most other transmitters using monopole or dipole type antennas as an integral part of the device) for this device. The Gigaset 2400 Desk Station uses an integral monopole antenna. Based on this criteria, special warnings or instructions are not required to show compliance for this device.

(4) Resend the Photo to the L82-228870 file

Answer:

Photo was resent on September 24, 1998.

APPENDIX

EIRP AND RESTRICTED BAND DATA

Radiated Data Sheet

Siemens Business Communication Systems Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: September 24, 1998
PROJECT #: 99-016

MEASUREMENT DISTANCE (m): 1
MEASUREMENT HEIGHT: 1 meter
EUT Orientation: 180

EIRP

Freq. (MHz)	Channel Setting	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	EIRP (Watts)
2401.0	0.0	97.7	26.8	1.6	126.1	0.1358
2440.8	46.0	98.0	26.8	1.6	126.4	0.1455
2483.1	95.0	99.2	26.8	1.6	127.6	0.1918

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1: All measurements for this test based on peak measurement methods

COMMENT #2:

TEST ENGINEER: _____ APPROVED BY: _____
John O'Brien Jeffery Lenk

Radiated Data Sheet

Siemens Business Communication Systems Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: Septmber 16, 1998
PROJECT #: 99-016

MEASUREMENT DISTANCE (m): 1
MEASUREMENT HEIGHT: 1 meter
EUT Orientation: 180

RESTRICTED BAND TEST

Freq. (MHz)	Notes and Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2483.5	(1) Vertical	26.5	26.8	1.6	54.9	63.5	-8.6
2483.5	(1) Horizontal	26.2	26.8	1.6	54.6	63.5	-8.9

$$\text{Corrected Level} = \text{Recorded Level} + \text{Antenna Factor} + \text{Cable Loss}$$

COMMENT #1: All measurements are average measurements

COMMENT #2: Test Distance 1 meter

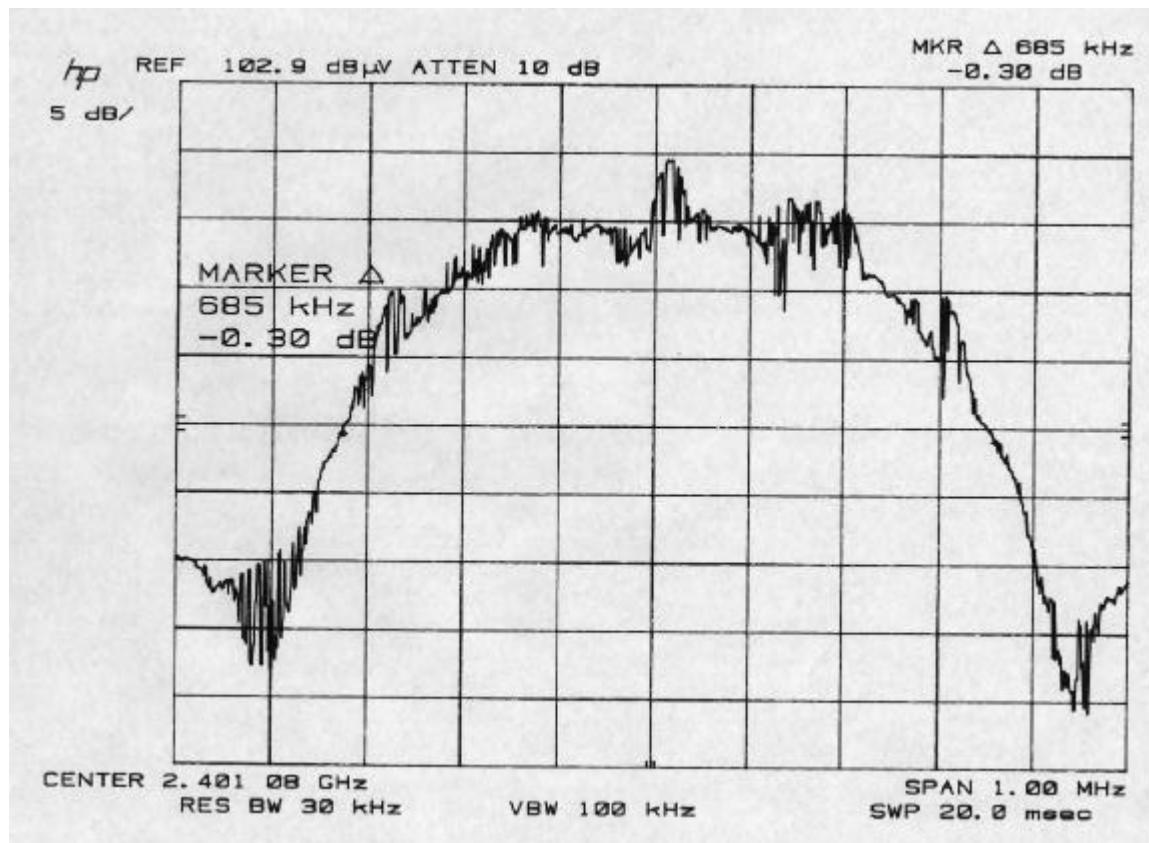
TEST ENGINEER: _____ APPROVED BY: _____
John O'Brien Jeffery Lenk

Occupied Bandwidth Data Sheet

Siemens Business Communication Systems Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: September 24, 1998

PROJECT #: 99-016



COMMENT #1: Channel Setting = 00

COMMENT #2: 20dB Bandwidth = 685 kHz

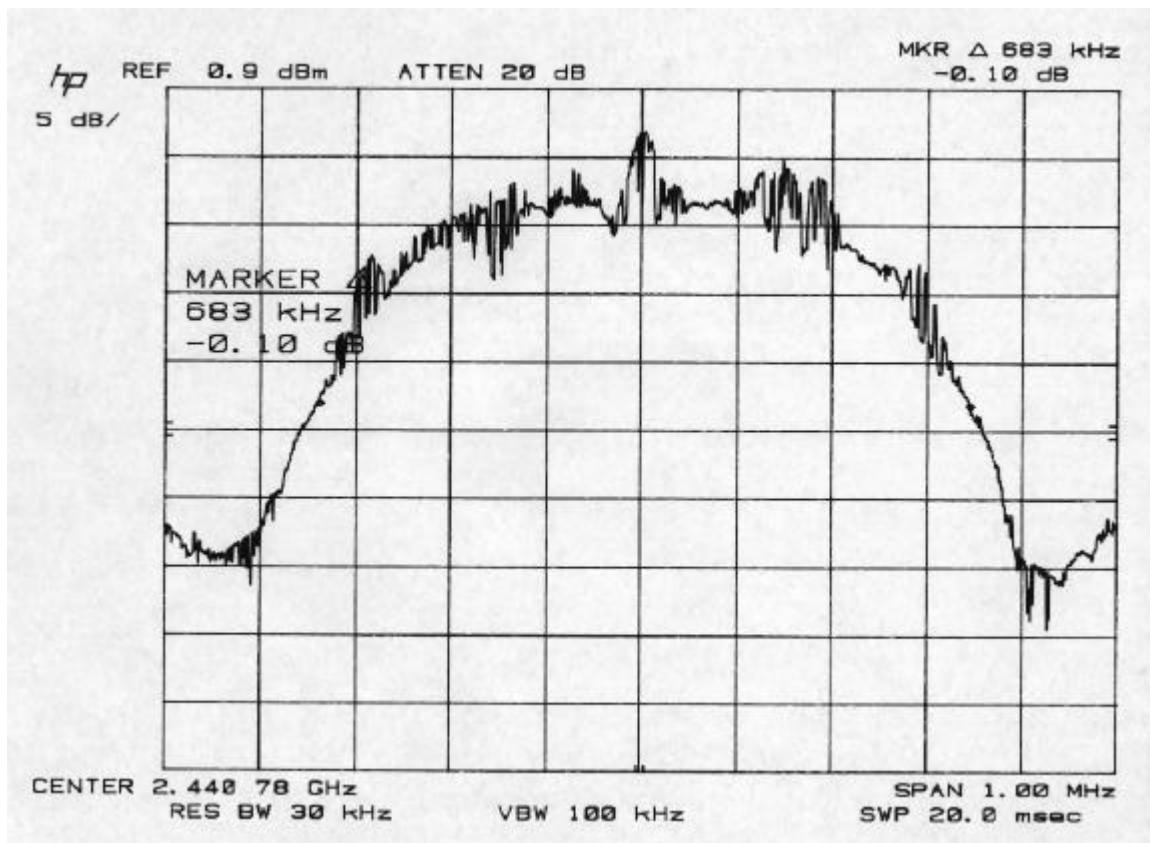
TEST ENGINEER: _____ APPROVED BY: _____
John O'Brien Jeffrey Lenk

Occupied Bandwidth Data Sheet

Siemens Business Communication Systems Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: September 24, 1998

PROJECT #: 99-016



COMMENT #1: Channel Setting = 46

COMMENT #2: 20dB Bandwidth = 683 kHz

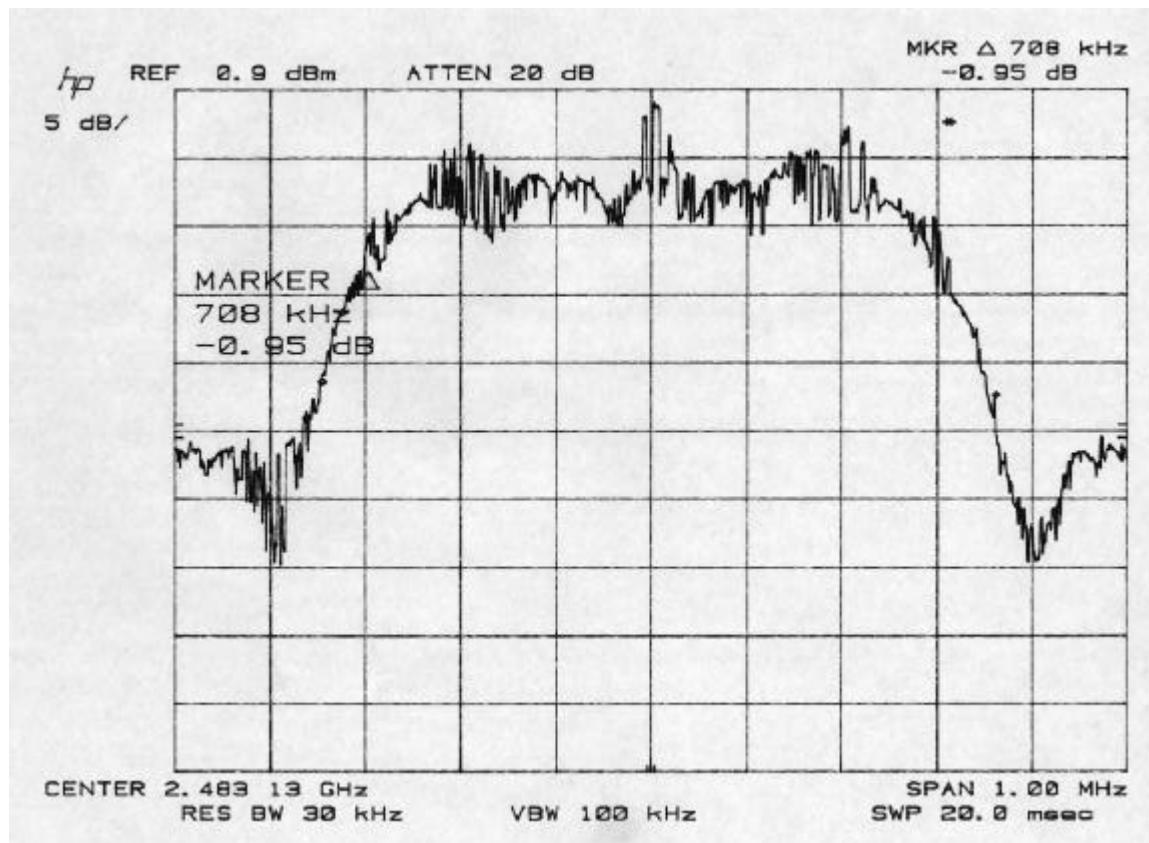
TEST ENGINEER: _____ APPROVED BY: _____
John O'Brien Jeffrey Lenk

Occupied Bandwidth Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: September 24, 1998

PROJECT #: 99-016



COMMENT #1: Channel Setting = 95

COMMENT #2: 20dB Bandwidth = 708 kHz

TEST ENGINEER: _____ APPROVED BY: _____
John O'Brien Jeffrey Lenk

Radiated Data Sheet

Siemens Business Communication Systems Gigaset 2420HS Desk Station

SERIAL #: 505
DATE: September 24, 1998
PROJECT #: 99-016

MEASUREMENT DISTANCE (m): 1
MEASUREMENT HEIGHT: 1 meter
EUT Orientation: 180

20 dB BAND EDGE TEST: LOWER END (TX = CHANNEL 00) (1)

Freq. (MHz)	Notes and Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2401.00	(2) Vertical	98.4	26.8	1.6	126.8	Ref	Ref
2409.90	(2) Vertical	74.5	26.8	1.6	102.9	106.8	-3.9
2409.90	(2) Horizontal	66.4	26.8	1.6	94.8	106.8	-12.0

20 dB BAND EDGE TEST: UPPER END (TX = CHANNEL 95) (3)

Freq. (MHz)	Notes and Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2483.13	(2) Vertical	97.5	26.8	1.6	125.9	Ref	Ref
2483.53	(2) Vertical	75.2	26.8	1.6	103.6	105.9	-2.3
2483.53	(2) Horizontal	68.4	26.8	1.6	96.8	105.9	-9.1

$$\text{Corrected Level} = \text{Recorded Level} + \text{Antenna Factor} + \text{Cable Loss}$$

COMMENT #1:

Low Band Edge Measurement Point = Bottom Channel - $\frac{1}{2}$ OBW - $\frac{1}{2}$ RBW
 $= 2401.00 - \frac{1}{2} (682k) - \frac{1}{2} (100k) = 2401.00 - 0.391 = 2400.6$ MHz

COMMENT #2: Peak Measurements; 100k/100k BW Settings.

COMMENT #3:

High Band Edge Measurement Point = Bottom Channel - $\frac{1}{2}$ OBW - $\frac{1}{2}$ RBW
 $= 2483.13 + \frac{1}{2} (697k) + \frac{1}{2} (100k) = 2483.13 - 0.399 = 2483.53$ MHz

TEST ENGINEER: _____ APPROVED BY: _____
 John O'Brien Jeffery Lenk