FCC APPLICATION INQUIRY RESPONSE
L82-228869: SIEMENS GIGASET 2400 HANDSET
Correspondence Number: 3531
September 22, 1998

1.0 Overview

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

2.0 Inquiry Responses

(1) Provide radiated emission test data on two more channels as required by Section 15.31(m) of the FCC rules. This section requires test data on three chnnels, high middle and low when the transmitter operates over a frequency range greater than 10 MHz. Test data for only one channel (high channel) was provided.

Answer:

Additional tests were performed on September 22, 1998 and are included with this report. Comparison of the spurious emissions to Section 15.205 has also been made as part of this process.

(2) Address the RF safety of this transmitter as required by Section (15.247(b)(4) of the Rules. See Supplement C to OET Bulletin 65 or call Mr. Kwok Chan for guidance. Please talk to Mr. Chan regarding SAR data which may be needed for this transmitter.

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:

Ref. Power = (Peak Power) * (Duty Cycle) = (0..373 watts) * (1/8) = 0.0466 watts

This figure is below the threshold (<0.2 watts at 2450 MHz for cordless phone handsets and most other trasnmitters using monopole or dipole type antennas as an integral part of the

device) for this device. The Gigaset 2400 Handset uses an internal monopole antenna. Based on this criteria, special warnings or instructions are not required to show compliance for this device.

(3) The measured output power from this transmitter (469 milliwatts ERP) does not match the maximum output power (372 milliwatts) requested on the application (731) form. Please address this discrepancy.

Answer:

An error was made during the filing of the application. The highest ERP of the device was 372 (retested as 373 mW yesterday). We request that the 731 be corrected to accurately reflect this test data.

(4) Provide a signed and dated letter on company letterhead paper that specifies what sections of the application require confidentiality because they are trade secret information. Trade secret information is typically information that involves considerable expense in research and development for the applicant. User's Manuals and photos of the equipment are not considered trade secret information without documented, special considerations.

Answer:

Following an additional review of this application, the only portion of this application that should be confidential are the schematics. All other items should be not confidential.

(5) Provide a list of the hop sequences and their channel frequencies used by this transmitter to show that its algorithm is pseudo-random in nature, not in equal increments. Where does the hop commence when the previous hop sequence is not completed?

Answer:

The full frequency listing is provided in the original test report. The Pseudo Random Hopping Sequence is derived from the Base station unique identity. It is done by taking the Base ID number and modulo it with 16. The result "B_ID" is a number from 0 to 15.

2 variables are implemented which are Subset_Counter and Index_Counter.

- Subset_Counter repeats a sequence of 0,2,4,6,8,10,12,11,9,7,5,3,1,0,..
- Index_Counter repeats a sequence of 0,1,2,3,4,5,6,7,0,…

Depending on B_ID and Subset_Counter a Sequence_Number (a number from 1 to 12) is derived:

		1	2	3	4	5	6	7	8	9	10	11	12
0		1	2	3	4	5	6	7	8	9	10	11	12
1		2	3	4	5	6	7	8	9	10	11	12	1
2		3	4	5	6	7	8	9	10	11	12	1	2
3		4	5	6	7	8	9	10	11	12	1	2	3
4		5	6	7	8	9	10	11	12	1	2	3	4
5		6	7	8	9	10	11	12	1	2	3	4	5
6		7	8	9	10	11	12	1	2	3	4	5	6
7		8	9	10	11	12	1	2	3	4	5	6	7
8		9	10	11	12	1	2	3	4	5	6	7	8
9		10	11	12	1	2	3	4	5	6	7	8	9
10		11	12	1	2	3	4	5	6	7	8	9	10
11		12	1	2	3	4	5	6	7	8	9	8	11
12		12	11	10	9	8	7	6	5	4	3	2	1
13		11	10	9	8	7	6	5	4	3	2	1	12
14		10	9	8	7	6	5	4	3	2	1	12	11
15		9	8	7	6	5	4	3	2	1	12	11	10

Subset Counter

Sequence Number

B_ID

Given a sequence number and Index_Counter an offset is derived.

		1	2	3	4	5	6	7	8	9	10	11	12
0		1	3	5	3	1	5	4	8	6	4	6	8
1		2	4	6	4	2	6	3	7	5	3	5	7
2		3	1	1	7	5	3	6	4	2	8	8	6
3		4	2	2	8	6	4	5	3	1	7	7	5
4		5	7	3	1	7	7	2	2	8	6	2	4
5		6	8	4	2	8	8	1	1	7	5	1	3
6		7	5	7	5	3	1	8	6	4	2	4	2
7		8	6	8	6	4	2	7	5	3	1	3	1

Sequence Number

Offset

Index Counter

Then : Channel = (Subset_Counter) x 8 + Offset

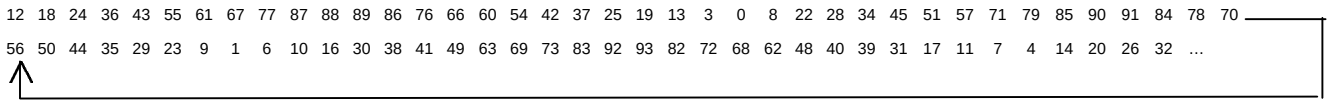
So the following are samples of sequences

Base ID 1:

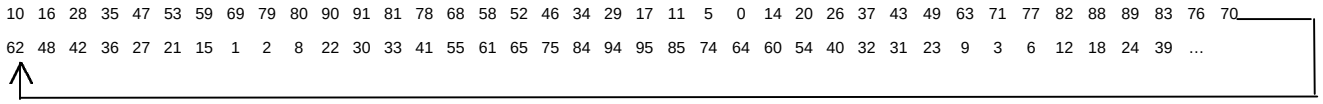
10 20 26 32 44 51 63 69 75 85 95 94 84 74 68 62 50 45 33 27 21 11 1 2 8 16 30 36 42 53 59 65 79 87 93 92 86 78 64

58 52 43 37 31 17 9 3 4 14 18 24 38 46 49 57 71 77 81 91 90 80 76 70 56 48 47 39 25 19 15 5 6 12 22 28 34 …

Base ID 2:



Base ID 3:



The phone hops after each 10 ms frame, not during a frame. The base transmitter is on continuously, with or without voice data, thus the phone transmits frequencies as the pseudo random sequence dictates. Sequential transmissions do not start on the same hopping channel except when that channel comes around in the pseudo random sequence.

(6) Provide a statement confirming that the receiver bandwidths match the hopping channel bandwidths and shift frequencies in sync with the transmitter in accordance with the last sentence of Section 15.247 (a)(1).

Answer:

The IF bandwidth determines the receiver bandwidth. The IF bandwidth at 3 dB down is 700 kHz. This is equal to the bandwidth of the transmitter. Each base has its own pseudo random hopping sequence. When the mobile is registered with a base, it is given the same hopping sequence and is thus synchronized with that base. Any blocked frequencies are told to the mobile by the base. The phone does not repeat packets, and it does not use multiple packets. Bad packets are dropped.

(7) Provide a copy of the compliance statement required by Section 15.19(a)(3) and confirm that it will be in the user's manula in accordance with Sections 15.19(a)(5). Since this statement was not on the handset, it must be in the user's manual.

Answer:

A modification for the user's manual is included with this submission. The text of the modification and the location of the modification in the user's manual are shown in the Appendix.

(8) **Grant of the equipment authorization for this cordless telephone handset will be defered until the grant for the associated base transmitter (L82-22887) is issued.**

Reply:

All information requested to date by Joe Dichoso for L82-228870 has been submitted.

APPENDIX

Addition Data Requested:

- ERP Data
- Confidentiality Letter
- Manual Update Sheet

Radiated Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Handset

SERIAL #: 505
DATE: Septmber 21, 1998
PROJECT #: 99-016

MEASUREMENT DISTANCE (m): 1
MEASUREMENT HEIGHT: 1 meter
EUT Orientation: 0

Freq. (MHz)	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	ERP (Watts)
2401.8	96.3	26.8	3.1	126.2	0.373
2440.8	94.4	26.8	3.1	124.3	0.300
2483.2	94.3	26.8	3.1	124.2	0.296

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1:

COMMENT #2:

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

Radiated Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Handset

SERIAL #: 6-507
DATE: September 22, 1998
PROJECT #: 99-016

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

Freq. (MHz)	EUT (Degrees) Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2401.8	0.0	93.4	26.8	1.6	121.8	Ref	Ref
4803.6	0.0	17.0	36.4	3.0	56.4	63.5	-7.1
7205.4	0.0	41.5	36.0	3.4	80.9	101.8	-20.9
9607.2	0.0	41.4	38.0	3.0	82.4	101.8	-19.4
12009.0	0.0	19.0	38.7	3.9	61.6	63.5	-1.9
14410.8	0.0	45.2	41.0	4.4	90.6	101.8	-11.2
16812.6	0.0	45.5	43.2	5.5	94.2	101.8	-7.6

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1: Channel Setting = 00

COMMENT #2: All measurements above the fundimental are ambients

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

Radiated Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Handset

SERIAL #: 6-507
DATE: September 22, 1998
PROJECT #: 99-016

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

Freq. (MHz)	EUT (Degrees) Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2401.8	0.0	97.2	26.8	1.6	125.6	Ref	Ref
4803.6	0.0	16.8	36.4	3.0	56.2	63.5	-7.3
7205.4	0.0	42.0	36.0	3.4	81.4	105.6	-24.2
9607.2	0.0	41.6	38.0	3.0	82.6	105.6	-23.0
12009.0	0.0	19.6	38.7	3.9	62.2	63.5	-1.3
14410.8	0.0	45.7	41.0	4.4	91.1	105.6	-14.5
16812.6	0.0	47.9	43.2	5.5	96.6	105.6	-9.0

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1: Channel Setting = 00

COMMENT #2: All measurements above the fundimental are ambients

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

Radiated Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Handset

SERIAL #: 6-507
DATE: September 22, 1998
PROJECT #: 99-016

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

Freq. (MHz)	EUT (Degrees) Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2440.8	0.0	96.3	26.8	1.6	124.7	Ref	Ref
4881.6	0.0	23.0	36.7	2.2	61.9	63.5	-1.6
7322.4	0.0	21.0	36.3	3.4	60.7	63.5	-2.8
9763.2	0.0	43.5	38.0	3.8	85.3	104.7	-19.4
12204.0	0.0	18.0	38.4	3.9	60.3	63.5	-3.2
14644.8	0.0	45.2	41.0	4.6	90.8	104.7	-13.9
17085.6	0.0	47.0	43.2	5.5	95.7	104.7	-9.0

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1: Channel Setting = 46

COMMENT #2: All measurements above the second harmonic are ambients

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

Radiated Data Sheet

Siemens Business Communication Systems
Gigaset 2420HS Handset

SERIAL #: 6-507
DATE: September 22, 1998
PROJECT #: 99-016

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

Freq. (MHz)	EUT (Degrees) Polarization	Recorded Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2440.8	0.0	93.9	26.8	1.6	122.3	Ref	Ref
4881.6	0.0	18.0	36.7	2.2	56.9	63.5	-6.6
7322.4	0.0	21.0	36.3	3.4	60.7	63.5	-2.8
9763.2	0.0	43.7	38.0	3.8	85.5	102.3	-16.8
12204.0	0.0	19.0	38.4	3.9	61.3	63.5	-2.2
14644.8	0.0	46.8	41.0	4.6	92.4	102.3	-9.9
17085.6	0.0	47.2	43.2	5.5	95.9	102.3	-6.4

Corrected Level = Recorded Level + Antenna Factor + Cable Loss

COMMENT #1: Channel Setting = 46

COMMENT #2: All measurements above the second harmonic are ambients

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

SIEMENS

September 21, 1998

Federal Communication Commission
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD 21048

Subject: Confidentiality Request for the Siemens Gigaset 2400 Phone System
FCC ID Numbers L82-228869 & L82-228870

TO WHOM IT MAY CONCERN

Pursuant to Paragraph §0.475(d) of the Commission's Rules (47 C.F.R.) and Section §552(b)(4) of the Freedom of Information Act, Siemens requests confidentiality for the following Exhibits as part of the Equipment Authorization Process for **the Siemens Gigaset 2400 Phone System**:

1) Exhibit(s) containing the Circuit Diagrams

The above exhibits contain Siemens' trade secrets and proprietary information that could be of benefit to our competitors regarding the design of our mobile handset. This material is not customarily available to the general public and we request that it be withheld from public inspection.

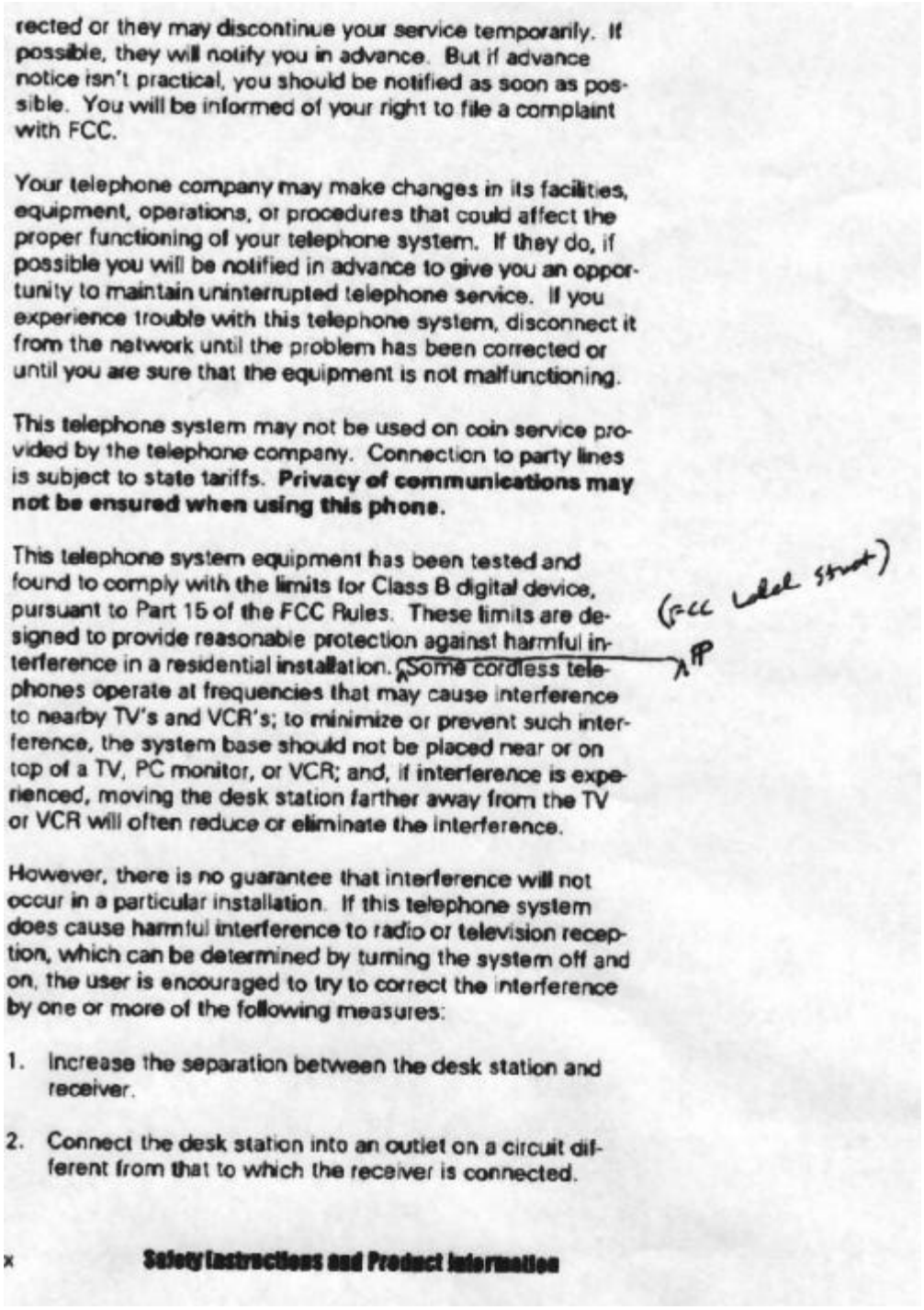
If you have any questions, please feel free to contact me at the address shown below.

Sincerely,

SIEMENS BUSINESS COMMUNICATIONS

Edwin L. Bronaugh
Edwin L. Bronaugh, Sr. Eng.
Lead, Hardware Design Assurance
2205 Grand Avenue Parkway
Austin, TX 78728-3811
email: Edwin.Bronaugh@siemenscom.com
Fax: 512-990-6335

Location of Manual Modification



rected or they may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you should be notified as soon as possible. You will be informed of your right to file a complaint with FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your telephone system. If they do, if possible you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service. If you experience trouble with this telephone system, disconnect it from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

This telephone system may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. **Privacy of communications may not be ensured when using this phone.**

This telephone system equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Some cordless telephones operate at frequencies that may cause interference to nearby TV's and VCR's; to minimize or prevent such interference, the system base should not be placed near or on top of a TV, PC monitor, or VCR; and, if interference is experienced, moving the desk station farther away from the TV or VCR will often reduce or eliminate the interference.

(FCC Label sticker)

However, there is no guarantee that interference will not occur in a particular installation. If this telephone system does cause harmful interference to radio or television reception, which can be determined by turning the system off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Increase the separation between the desk station and receiver.

2. Connect the desk station into an outlet on a circuit different from that to which the receiver is connected.

x **Safety Instructions and Product Information**

Text Of Manual Modification

[In the fourth paragraph on page x, rewrite the paragraph as shown below.]

This telephone system equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Some cordless telephones operate at frequencies that may cause interference to nearby ...

[Note that a new paragraph was started after the inserted material.]