

TEST REPORT For FCC

Test Report No. : 2007090040
Date of Issue : September 28, 2007
FCC ID : Q7XGRETA
Model/Type No. : GRETA
Kind of Product : GSM Fax & Printer
Rule Part(s) : §24(E), §22(H), , §15(C), §2
TX Frequency Range : 824.2 ~ 848.8 MHz(GSM850)/1850.2 ~ 1909.8 MHz(PCS1900)
RX Frequency Range : 869.2 ~ 893.8 MHz(GSM850)/1930.2 ~ 1989.8 MHz(PCS1900)
Applicant : Possio AB
Applicant Address : Isafjordsgatan 35, 8tr SE 164 40 Kista, Sweden
Manufacturer : SUNTRONIX, Inc.
Manufacturer Address : 59, Sinbang-ri, Jeonui-myeon, Yeon-gi-gun,
Chungcheongnam-do, Korea
Contact Person : Ralf Wittig / Product Manager
Telephone : +46-8-58744-037
Received Date : September 1, 2007
Test period : Start : September 17, 2007 End : September 20, 2007
Test Results : ☒ In Compliance ☐ Not in Compliance

The test results presented in this report relate only to the object tested.

Tested by



Young-Kug, Song
Test Engineer
Date: September 28, 2007

Reviewed by



Young-Joon, Park
Technical Manager
Date: September 28, 2007



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REPORT REVISION HISTORY

Date	Revision	Page No
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1.0 General Product Description

Trade name : GSM Fax & Printer
Model name : GRETA
Serial number : Identical prototype
EUT condition : Pre-production, not damaged
GSM Module : Siemens MC56 (FCC ID: QIPMC56)
Identification mark: 0682
Antenna type : GSM850 / PCS1900 DIPOLE ANTENNA
Gain: 1.87dBi for GSM850, Gain: 1.53dBi for PCS1900 (Max)
RF output power : GSM850 (33dBm: Level 5) / PCS1900 (30dBm: Level 0)
Modulation : GMSK, 8PSK
Power Source : Adapter Input : 100-240 Vac/1.2 A, Output : 12 Vdc/3.5 A
Battery : Rechargeable NIMH-Battery 7.2 Vdc/1300 mAh

1.1 Tested Frequency

Frequency	Channel	GSM850	Channel	PCS1900
Low frequency (MHz)	128	824.2	512	1850.2
Middle frequency (MHz)	190	836.6	661	1880.0
High frequency (MHz)	251	848.8	810	1909.8

1.2 Test Conditions

Operating Mode	Description
GSM850	A communication link is established between the EUT and CMU200. The EUT is operated at its maximum rated output power: 33 dBm (power class 4 = power control level 5)
PCS1900	A communication link is established between the EUT and CMU200. The EUT is operated at its maximum rated output power: 30 dBm (power class 1 = power control level 0)
Print	Continuous printing mode connected via USB cable between the EUT and Notebook



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1.3 Model Differences

Not applicable

1.4 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.5 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.
Switching Adapter(for EUT)	Dee Van Enterprise Co., Ltd	DSA-0412S-12 2	-
Notebook	Dell Asia Pacific Sdn.	Latitude D505	0H2049-48643-4B6-0573
Adapter	Dongguang Lite Power 2 nd Plant	PA-1650-05DK	0D1100-71615-4A3-0171
Mouse (USB type)	MICROSOFT	Basic Optical Mouse USB/PS2 Compatible	69657-492-4974533-40420

1.6 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.7 Test Facility

The measurement facility is located at 386-1, Ho-dong, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100, Korea.

1.8 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	 93250
JAPAN	VCCI	10 meter Open Area Test Site and one conducted site.	 R-948, C-986
KOREA	MIC	EMI (10 meter Open Area Test Site and two conducted sites) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 No. 51, KR0025
Europe	GLAS	EMC EN 55011, EN 55022, EN 61000-6-3, EN 61000-6-4, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, EN 61000-6-2, EN 50130-4, EN 55024, EN 61204-3, EN 60601-1-2, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11	 No.13000796-02



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2.0 Summary of tests

	Parameter	Limit	Test Condition	Status (note1)
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I. FCC Part Section(s)

GSM 850/1900 Terminal equipment (**MC56**) is certified by FCC(FCC ID: QIPMC56)
Refer to the test report of FCC ID: QIPMC56

II. Additional items

15.209 /109	Field Strength of Harmonics	-	Radiated	C
15.207	AC Conducted Emissions	EN 55022	Line Conducted	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:
ANSI C63.4-2003

2.1 Field Strength of Emissions

Test Date

September 20, 2007

Test Location

☒ Testing was performed at a test distance of 3 meter Open Area Test Site

Test Procedures

The height of the measuring antenna was varied between 1 to 4 m and the table was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 30 MHz ~ 10th harmonic.

RBW = 120 kHz (30MHz ~ 1 GHz)

VBW ≥ RBW

= 1 MHz (1 GHz ~ 10th harmonic)

Span = 100 MHz

Detector function = Quasi-peak

Trace = max hold

Sweep = auto

Measurement Data: Complies

No other emissions were detected are a level greater than 20dB below limit.

Limit

- 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m
30-88	100**	40
88-216	150**	43.5
216-960	200**	46
Above 960	500	54

** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

- 15.109(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54



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Test Results

Model	GRETA	Test Mode	GSM850 mode
Channel	190	Detector function	Quasi-Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
92.09	35.6	7.9	Quasi-Peak

Test Data

Frequency [MHz]	Reading [dBuV / m]	Pol.	Height [m]	Correction Factor		Limits [dBuV / m]	Result [dBuV / m]	Margin [dB]
				Antenna	Cable			
92.09	25.0	V	1.0	9.2	1.4	43.5	35.6	7.9
150.79	23.0	H	2.0	7.9	1.7	43.5	32.6	10.9
175.11	25.2	H	2.7	7.0	1.9	43.5	34.1	9.4
177.81	26.1	H	2.5	6.9	1.9	43.5	34.9	8.6
180.48	25.9	H	3.3	6.8	1.9	43.5	34.6	8.9
183.21	24.4	H	4.0	6.9	2.0	43.5	33.3	10.2

H : Horizontal, V : Vertical



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Test Results

Model	GRETA	Test Mode	PCS1900 mode
Channel	661	Detector function	Quasi-Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
90.72	34.7	8.8	Quasi-Peak

Test Data

Frequency [MHz]	Reading [dBuV / m]	Pol.	Height [m]	Correction Factor		Limits [dBuV / m]	Result [dBuV / m]	Margin [dB]
				Antenna	Cable			
90.72	24.3	V	1.0	9.1	1.3	43.5	34.7	8.8
173.74	24.6	H	2.5	7.0	1.9	43.5	33.5	10.0
176.36	23.2	H	2.8	6.9	1.9	43.5	32.0	11.5
181.03	23.5	H	3.4	6.8	1.9	43.5	32.2	11.3
183.11	24.1	H	4.0	6.9	2.0	43.5	33.0	10.5
185.23	24.8	H	4.0	7.0	2.0	43.5	33.8	9.7

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Test Results

Model	GRETA	Test Mode	Print mode
Channel	-	Detector function	Quasi-Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
52.23	36.5	3.5	Quasi-Peak

Test Data

Frequency [MHz]	Reading [dBuV / m]	Pol.	Height [m]	Correction Factor		Limits [dBuV / m]	Result [dBuV / m]	Margin [dB]
				Antenna	Cable			
31.28	14.2	V	1.0	18.8	0.8	40.0	33.8	6.2
35.94	17.0	V	1.0	17.4	0.9	40.0	35.3	4.7
40.10	19.2	V	1.0	14.4	0.9	40.0	34.5	5.5
48.21	24.5	V	1.0	9.7	0.9	40.0	35.1	4.9
52.23	28.4	V	1.5	7.2	0.9	40.0	36.5	3.5
75.15	27.9	V	2.1	7.3	1.2	40.0	36.4	3.6

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2.2 AC Conducted Emissions

Test Date

September 17, 2007

Test Location

Shielded Room

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Measurement Data: Complies

Limit

- 15.207(a)

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56*	56 to 46*
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency.



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Test Results

Model	GRETA	Test Mode	GSM850 mode
Channel	190	Detector function	Quasi-Peak / Average

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
15.87	40.1	19.9	Quasi-Peak

Test Data

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
				Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
	LISN	Cable		[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
2.78	0.3	0.2	H	56.0	34.8	35.3	20.7	46.0	19.3	19.8	26.2
2.79	0.3	0.2	H	56.0	35.1	35.6	20.4	46.0	18.9	19.4	26.6
2.85	0.3	0.2	H	56.0	35.3	35.8	20.2	46.0	20.4	20.9	25.1
15.87	0.3	0.2	N	60.0	39.6	40.1	19.9	50.0	25.9	26.4	23.6
16.00	0.3	0.2	N	60.0	38.6	39.1	20.9	50.0	25.5	26.0	24.0
16.05	0.3	0.2	N	60.0	38.8	39.3	20.7	50.0	25.4	25.9	24.1
		</									

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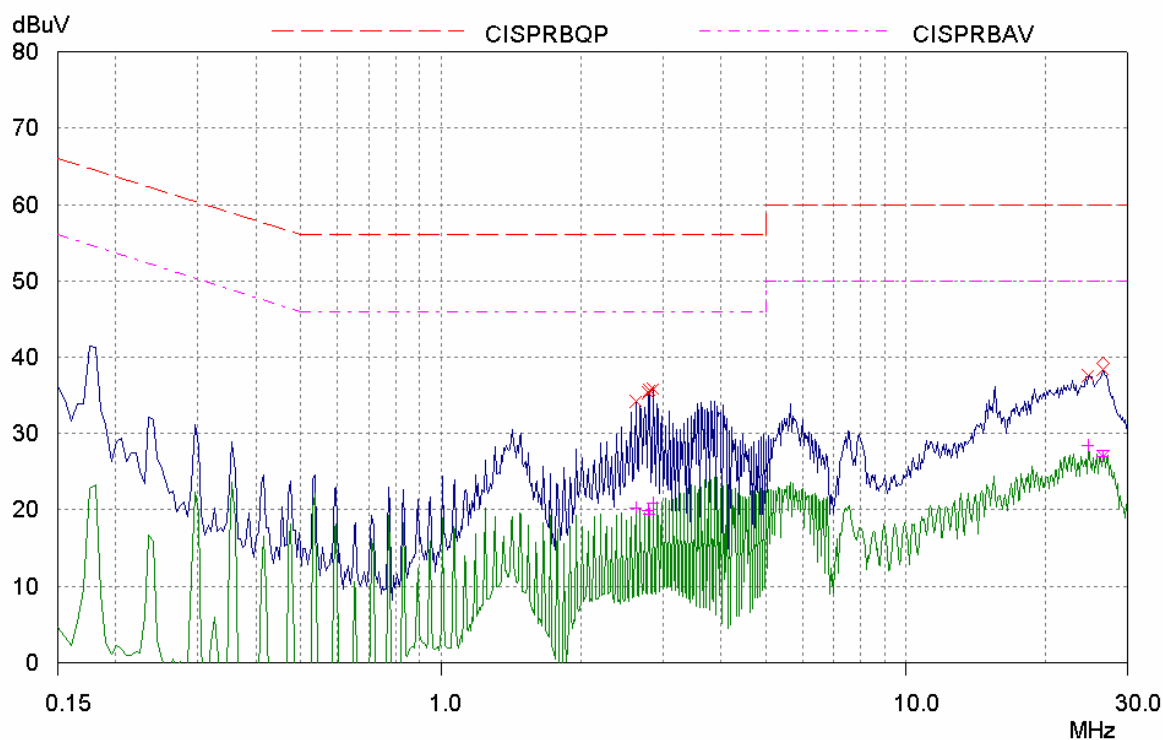
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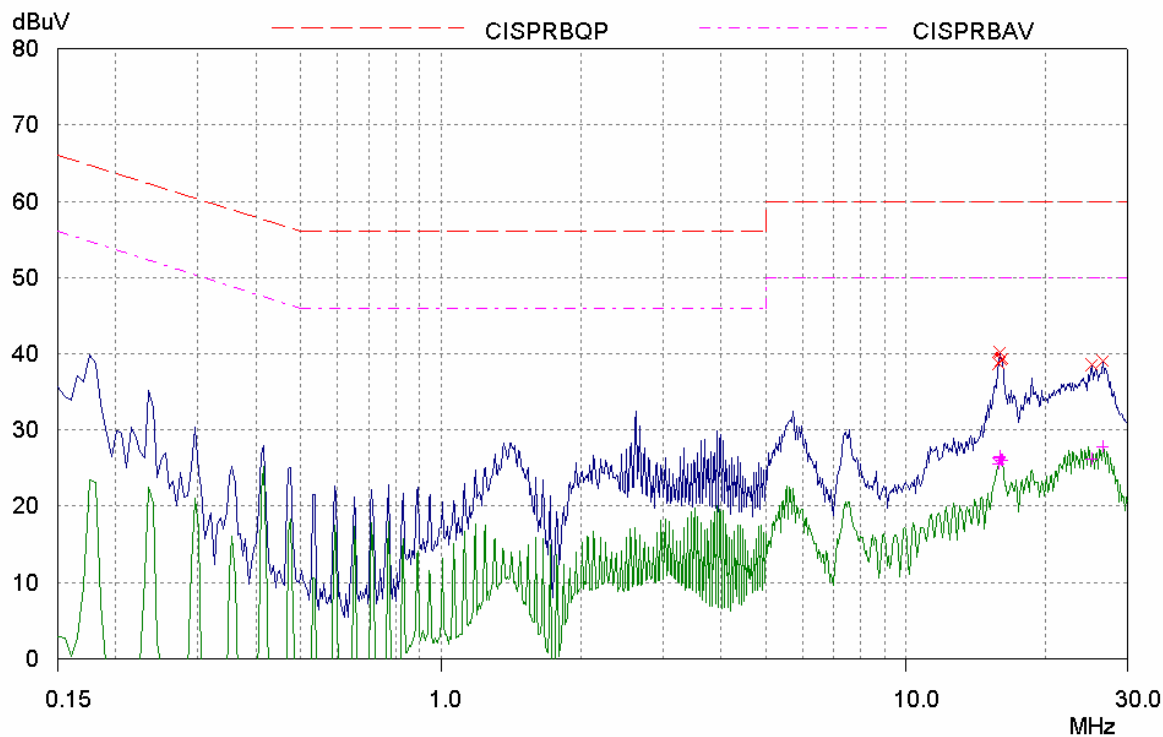
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Test Results

Model	GRETA	Test Mode	PCS1900 mode
Channel	661	Detector function	Quasi-Peak / Average

The requirements are:

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Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
26.66	29.5	20.5	Average

Test Data

Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
				Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
	LISN	Cable		[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
0.41	0.3	0.2	H	57.6	27.7	28.2	29.4	47.6	26.1	26.6	21.0
22.40	0.3	0.2	H	60.0	35.7	36.2	23.8	50.0	28.8	29.3	20.7
23.28	0.3	0.2	N	60.0	35.8	36.3	23.7	50.0	28.9	29.4	20.6
23.29	0.3	0.2	H	60.0	36.1	36.6	23.4	50.0	28.8	29.3	20.7
26.66	0.3	0.2	N	60.0	37.6	38.1	21.9	50.0	29.0	29.5	20.5
26.73	0.3	0.2	H	60.0	38.5	39.0	21.0	50.0	25.0	25.5	24.5

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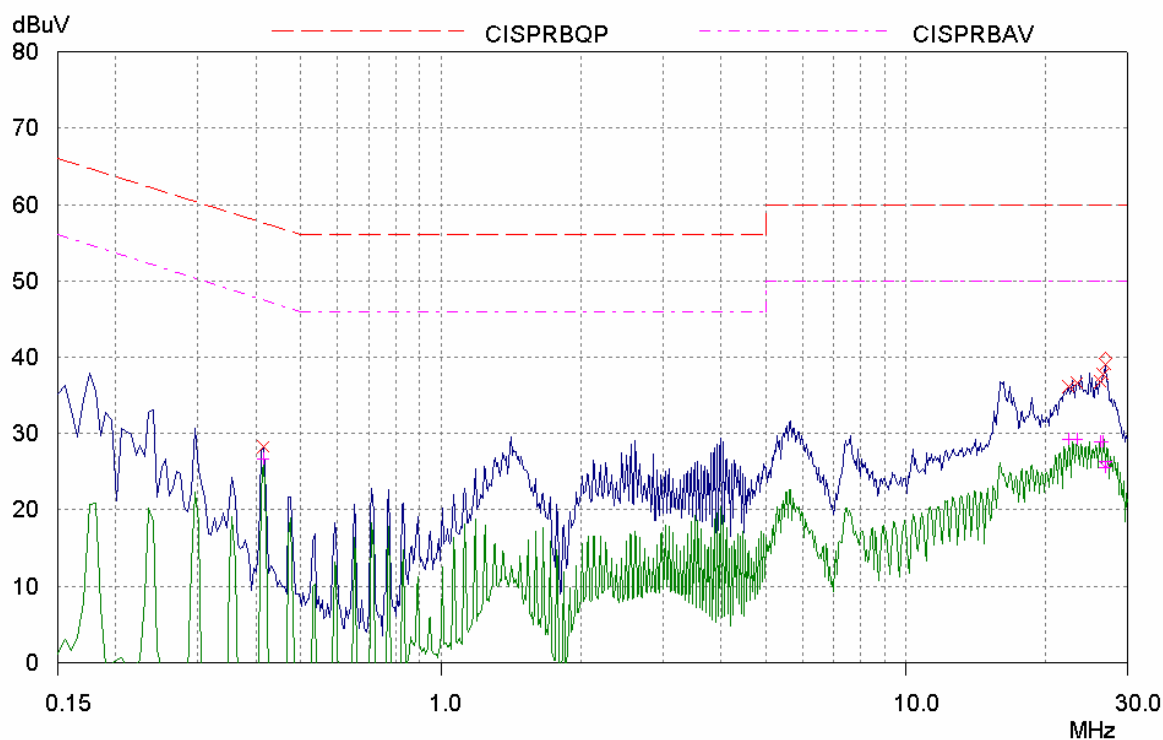
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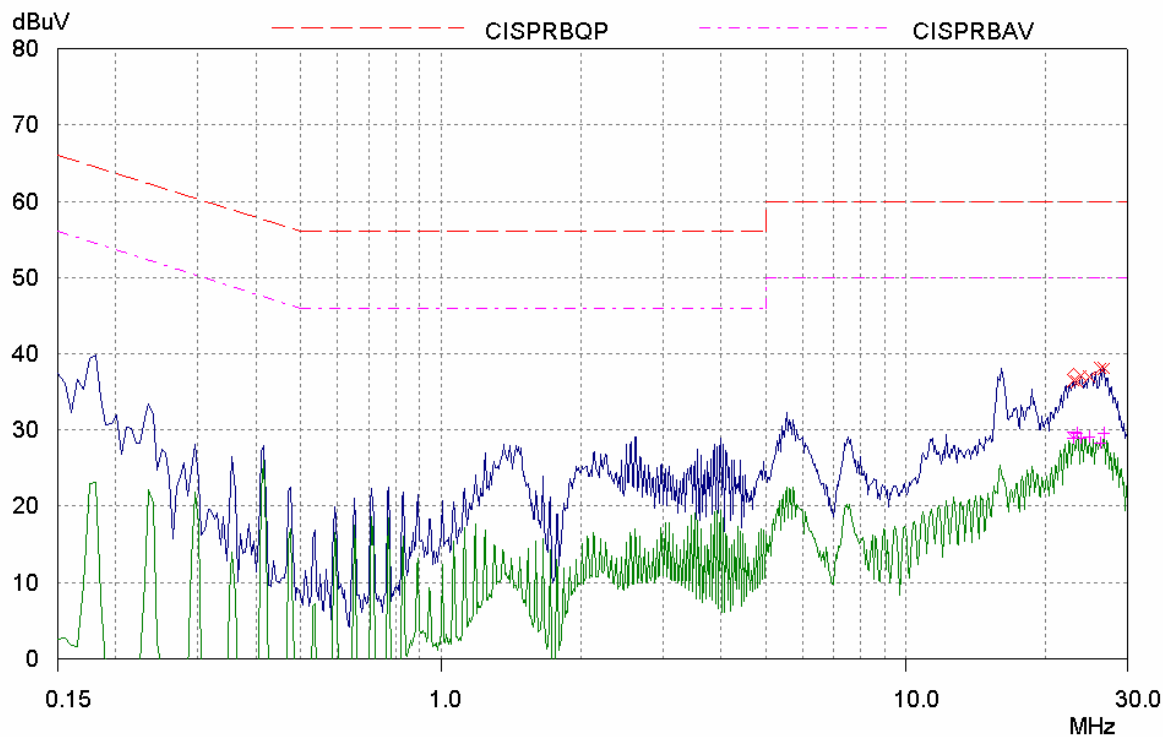
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Test Results

Model	GRETA	Test Mode	Print mode
Channel	-	Detector function	Quasi-Peak / Average

The requirements are:

☒ Complies

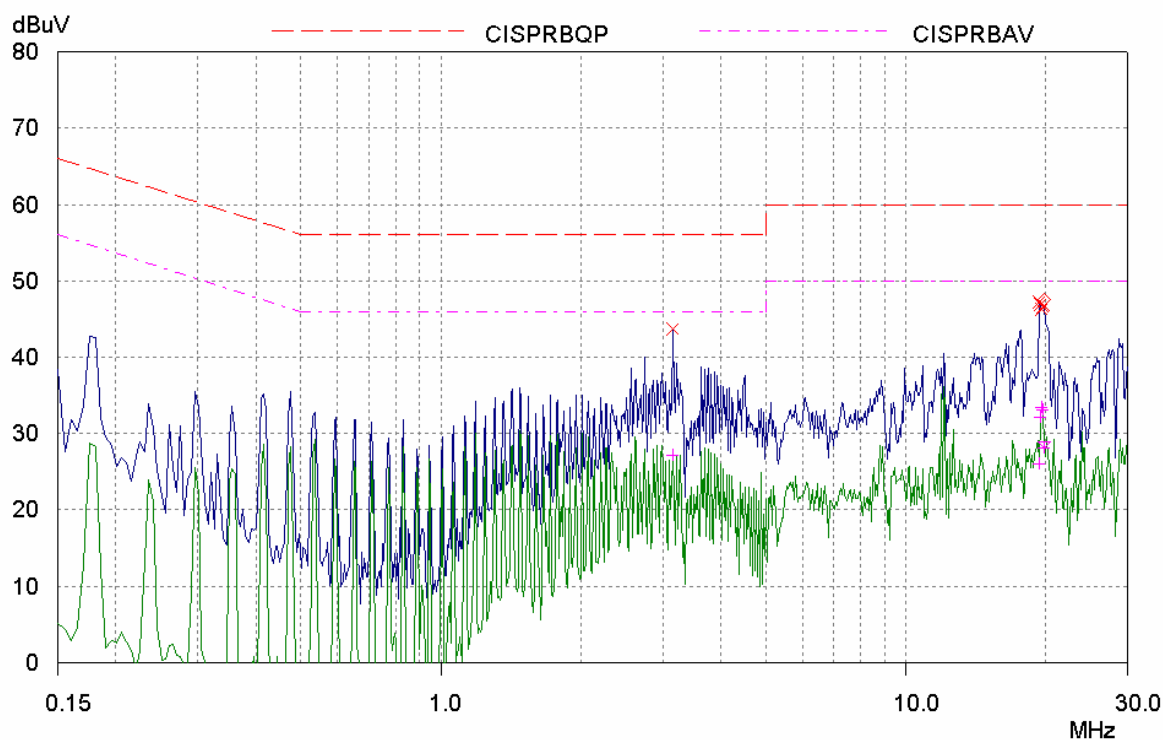
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3.50	44.6	11.4	Quasi-Peak

Test Data

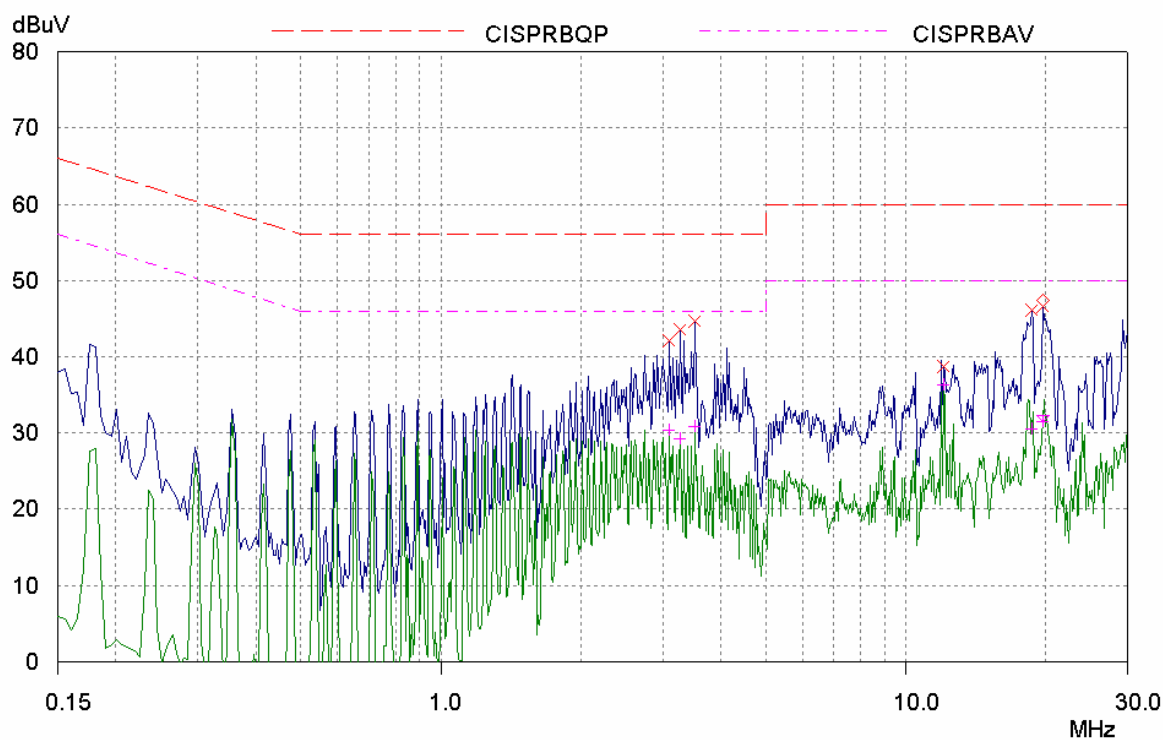
Frequency [MHz]	Correction Factor		Line	Quasi-peak				Average			
	LISN	Cable		Limit	Reading	Result	Margin	Limit	Reading	Result	Margin
				[dBuV]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]
3.14	0.3	0.2	H	56.0	43.1	43.6	12.4	46.0	26.6	27.1	18.9
3.26	0.3	0.2	N	56.0	43.0	43.5	12.5	46.0	28.7	29.2	16.8
3.50	0.3	0.2	N	56.0	44.1	44.6	11.4	46.0	30.3	30.8	15.2
19.28	0.3	0.2	H	60.0	46.7	47.2	12.8	50.0	25.4	25.9	24.1
19.47	0.3	0.2	H	60.0	46.4	46.9	13.1	50.0	31.6	32.1	17.9
19.81	0.3	0.2	H	60.0	46.2	46.7	13.3	50.0	27.6	28.1	21.9

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APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	Spectrum Analyzer	Agilent	8564E	3551A0041	2007-11-03
2	Spectrum Analyzer	HP	E4403B	US39440619	2008-09-03
3	EMI Test Receiver	Rohde & Schwarz	ESVS30	826638/015	2008-01-12
4	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2008-06-12
5	LOOP ANTENNA	EMCO	6502	9107-2652	2008-10-17
6	LOOP ANTENNA	EMCO	6502	9607-3020	2008-03-06
7	System Power Supply	HP	6032A	3440A-10521	2008-07-16
8	EPM Series Power Meter	HP	E4418A	GB38272734	2007-11-03
9	Power Sensor	HP	8481A	331BA92056	2007-11-01
10	Power Sensor	HP	8482B	331BA05406	2007-10-27
11	Audio Analyzer	HP	8903B	2747A03432	2007-11-03
12	ESG-D Series Signal Generator	Agilent	E4432B	US40054094	2007-11-03
13	Modulation Analyzer	HP	8901B	3438A05228	2007-11-06
14	Audio Analyzer	HP	8903B	2747A03432	2007-11-03
15	Attenuator	HP	8494A	3308A33351	2007-10-27
16	Attenuator	HP	8496A	3308A15142	2007-10-27
17	Temp&Humi Chamber	Kunpoong	KP-1000	2002KP050041	2008-01-15
18	Temp&Humi Chamber	Kunpoong	KP-RC2000	2002KP650042	2008-01-15
19	EMC Analyzer	Agilent	E7405A	MY45110859	2007-10-18
20	Horn Antenna	ETS-Lindgren	3115	00078894	2008-11-29
21	Horn Antenna	ETS-Lindgren	3115	00078895	2008-11-29
22	Horn Antenna	ETS-Lindgren	3116	00062504	2008-11-27
23	Horn Antenna	ETS-Lindgren	3116	00062916	2008-11-27
24	OPT H64 AMPLIFIER	HP	8447F	3113A06814	2008-02-28
25	PREAMPLIFIER	Agilent	8449B	3008A02307	2007-11-20
26	Field Strength Meter	Rohde & Schwarz	ESHS30	828144/002	2008-02-15
27	LISN	EMCO	3825/2	9607-2575	2008-08-29
28	LISN	EMCO	3825/2	9409-2246	2008-08-29
29	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2008-02-09