RADIATED Measurements (Restricted Band)

Transmitter Section

Configuration 2

These tests were performed on the quad array converging system. This configuration produced the highest EIRP and therefore these levels represent the maximum levels that would emanate from any combination of transmitter and antenna configuration.

Operating Frequency: 2474 MHz

Distance of Measurements: 10 meters

FREQ	LEVEL	AFCL	POL	dBUV/M	F/S	WATTS	dBm	dBc/ mar
2483.8	-96.2	33	V	43.8	154.882	7.2E-09	-51.429	10.2
22484	-95.5	33	V	44.5	167.88	8.46E-09	-50.729	9.5
2484.4	-93	33.1	V	47.1	226.464	1.54E-08	-48.129	9.5
2486	-96.3	33.1	V	43.8	154.882	7.2E-09	-51.429	10.2
2493	-98.5	33.2	V	41.7	121.619	4.44E-09	-53.529	12.3
2496	-94.3	33.2	V	45.9	197.242	1.17E-08	-49.329	8.1

Table 8

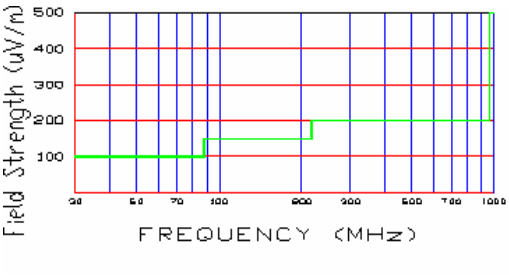


Figure 12. Restricted band harmonics and spurious limits.

Above 1 GHz limit is 500 uV/m (54dBu/m)

NOTES:

1. All harmonics in the restricted bands specified in §15.205 are below the limit shown in table 2. (note: * Restricted Band)(Also see tables 5, 6, and 7)

2. All harmonics/spurs are at least 20 dB below the highest emission in the authorized band using RBW = 100kHz (See table 4)

3. Average Measurements > 1GHz using RBW = 1 MHz VBW = 10 Hz.

4. The peak emissions above 1 GHz are not more than 20 dB above the average limit.

5. The antenna is manipulated through typical positions, polarity and length during the tests to maximize EIRP and radiated measurements.

6. The EUT is supplied with nominal AC voltage or/and a new/fully recharged battery.

7. The spectrum was measured from 9kHz the 10th harmonic and the worst-case emissions are reported.

8. < - 120 dBm are below the analyzer floor level.

level.

RADIATED Measurements Subpart B compliance

Transmitter operating with RF output terminated in 50 ohm load

These test were performed to determine compliance with the requirements of Section 15.109 for digital emissions.

Operating Frequency: 2474 MHz

Distance of Measurements: 3 meters

FREQ (MHz)	Level (dBm)	AFCL (dB)	POL (H/V)	Height (m)	Azimuth (° angle)	F/S (uV/M)	Margin (dB)
146.22	-83.07	13.37	V	2.1	70	73.33	-6.2
178.74	-81.63	13.64	H	1.9	180	89.18	-4.5
228.54	-84.11	17.81	H	1.6	320	108.44	-5.3
341.25	-91.18	22.09	V	1.4	210	78.57	-8.1
390	-90.72	23.42	V	1.4	60	96.66	-6.3
536.33	-95.34	26.84	V	1.3	120	84.19	-7.5

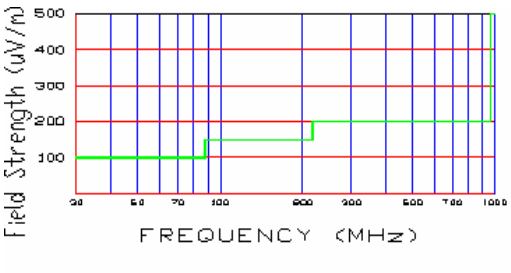


Figure 13. Restricted band harmonics and spurious limits.

Above 1 GHz, the limit is 500 uV/m (54dBu/m)

NOTES:

1.All emissions were investigated and the worst case emissions are reported

2. EUT was rotated and measurement antenna raised and lowered to determine the maximum emission levels.

3. The EUT is supplied with the nominal AC voltage.

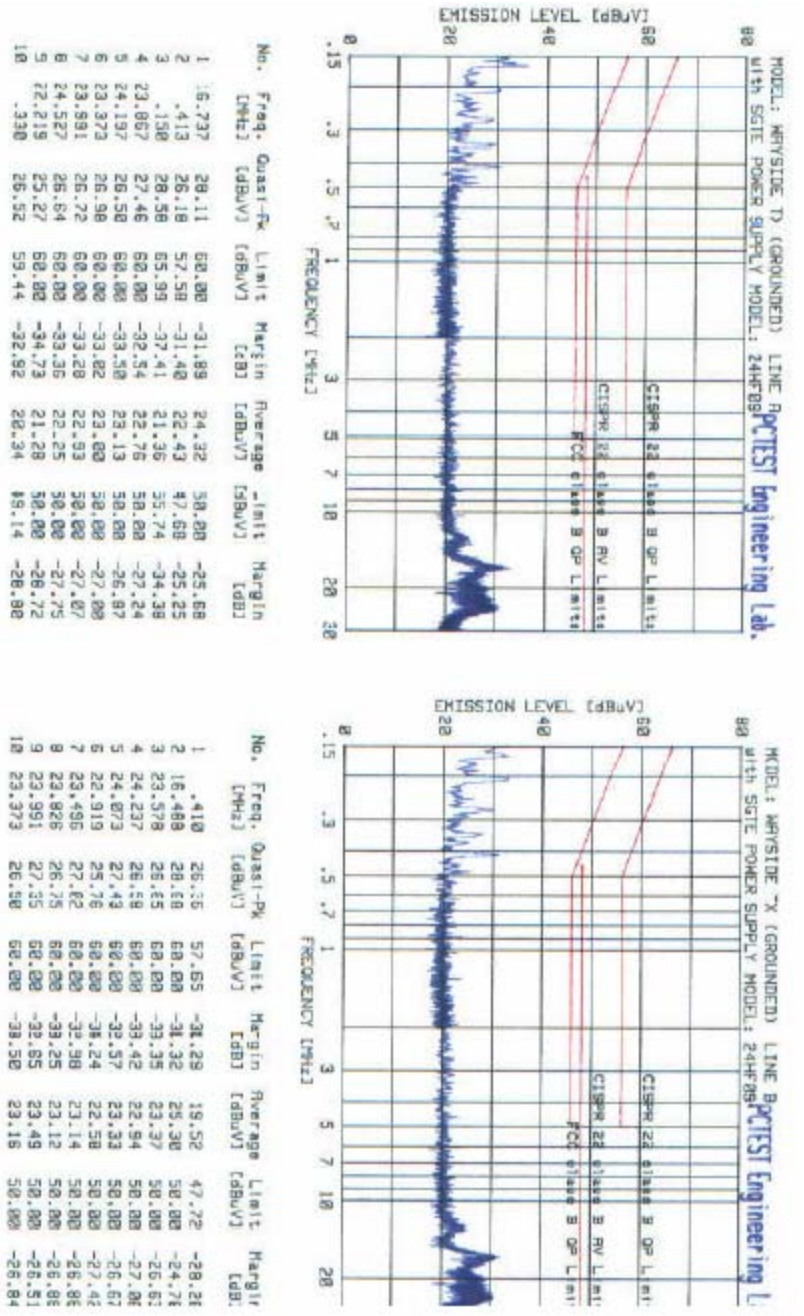
Power Line Conducted Measurements, Subpart C Section 15.207 Compliance

Transmitter operating with RF output terminated in 50 ohm load

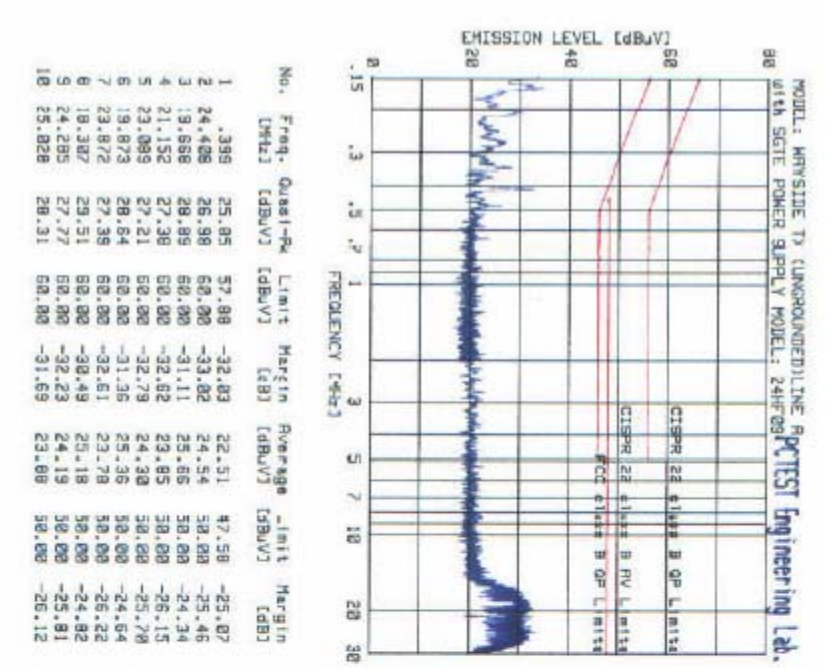
These test were performed to determine compliance with the requirements of Section 15.109 for digital emissions.

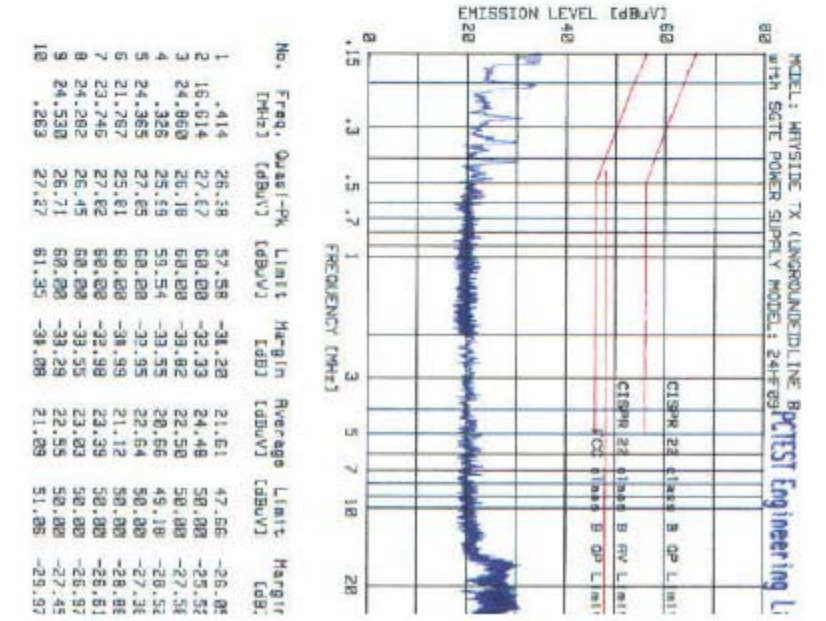
Operating Frequency: 2408 MHz

Line conducted test site specification is in accordance with the requirements of ANCI C63.4. The system was configured and operated in a manner representative of actual installation. Test data taken for grounded and ungrounded situations using a 50 ohm 50 micro-henry LISN os presented on the following sheets.



Grounded Configuration





Ungrounded Configuration

TEST EQUIPMENT

Type	Model	Cal. Due Date	S/N
Microwave Spectrum Analyzer	HP 8566B (100Hz-22GHz)	12/05/02	3638A08713
Microwave Spectrum Analyzer	HP 8566B (100Hz-22GHz)	04/17/03	2542A11898
Spectrum Analyzer/Tracking Gen.	HP 8591A (9kHz-1.8GHz)		06/02/03 3144A02458
Spectrum Analyzer	HP 8591A (9kHz-1.8GHz)	10/15/02	3108A02053
Spectrum Analyzer	HP 8594A (9kHz-2.9GHz)	11/02/02	3051A00187
Signal Generator*	HP 8640B (500Hz-1GHz)	06/02/03	2232A19558
Signal Generator*	HP 8640B (500Hz-1GHz)	06/02/03	1851A09816
Signal Generator*	Rohde & Schwarz (0.1-1000MHz)	09/11/02	894215/012
Ailtech/Eaton Receiver	NM 37/57A-SL (30-1000MHz)	04/12/03	0792-03271
Ailtech/Eaton Receiver	NM 37/57A (30-1000MHz)	03/11/03	0805-03334
Ailtech/Eaton Receiver	NM 17/27A (0.1-32MHz)	09/17/02	0608-03241
Quasi-Peak Adapter	HP 85650A	08/09/02	2043A00301
Ailtech/Eaton Adapter	CCA-7 CISPR/ANSI QP Adapter	03/11/03	0194-04082
RG58 Coax Test Cable	No. 167		n/a
Harmonic/Flicker Test System	HP 6841A (IEC 555-2/3)		3531A00115
Broadband Amplifier (2)	HP 8447D		1145A00470, 1937A03348
Broadband Amplifier	HP 8447F		2443A03784
Transient Limiter	HP 11947A (9kHz-200MHz)		2820A00300
Horn Antenna	EMCO Model 3115 (1-18GHz)		9704-5182
Horn Antenna	EMCO Model 3115 (1-18GHz)		9205-3874
Horn Antenna	EMCO Model 3116 (18-40GHz)		9203-2178
Biconical Antenna (4)	Eaton 94455/Eaton 94455-1/Singer 94455-1/Compliance Design		1295, 1332, 0355
Log-Spiral Antenna (3)	Ailtech/Eaton 93490-1		0608, 1103, 1104
Roberts Dipoles	Compliance Design (1 set) A100		5118
Ailtech Dipoles	DM-105A (1 set)		33448-111
EMCO LISN (2)	3816/2		1077, 1079
EMCO LISN	3725/2		2009
Microwave Preamplifier 40dB Gain	HP 83017A (0.5-26.5GHz)		3123A00181
Microwave Cables	MicroCoax (1.0-26.5GHz)		
Ailtech/Eaton Receiver	NM37/57A-SL		0792-03271
Spectrum Analyzer	HP 8591A		3034A01395
Modulation Analyzer	HP 8901A		2432A03467
NTSC Pattern Generator	Leader 408		0377433
Noise Figure Meter	HP 8970B		3106A02189

Noise Figure Meter	Ailtech 7510	TE31700
Noise Generator	Ailtech 7010	1473
Microwave Survey Meter	Holaday Model 1501 (2.450GHz)	80931
Digital Thermometer	Extech Instruments 421305	426966
Attenuator	HP 8495A (0-70dB) DC-4GHz	
Bi-Directional Coax Coupler	Narda 3020A (50-1000MHz)	
Shielded Screen Room	RF Lindgren Model 26-2/2-0	6710 (PCT270)
Shielded Semi-Anechoic Chamber (PCT278)	Ray Proof Model S81	R2437
Environmental Chamber PCT285	Associated Systems Model 1025	(Temperature/Humidity)

* Calibration traceable to the National Institute of Standards and Technology (NIST).

Conclusion

The data collected shows that the **Siemens Transportation Systms Transportation Control System** complies with Part 15C of the FCC Rules.