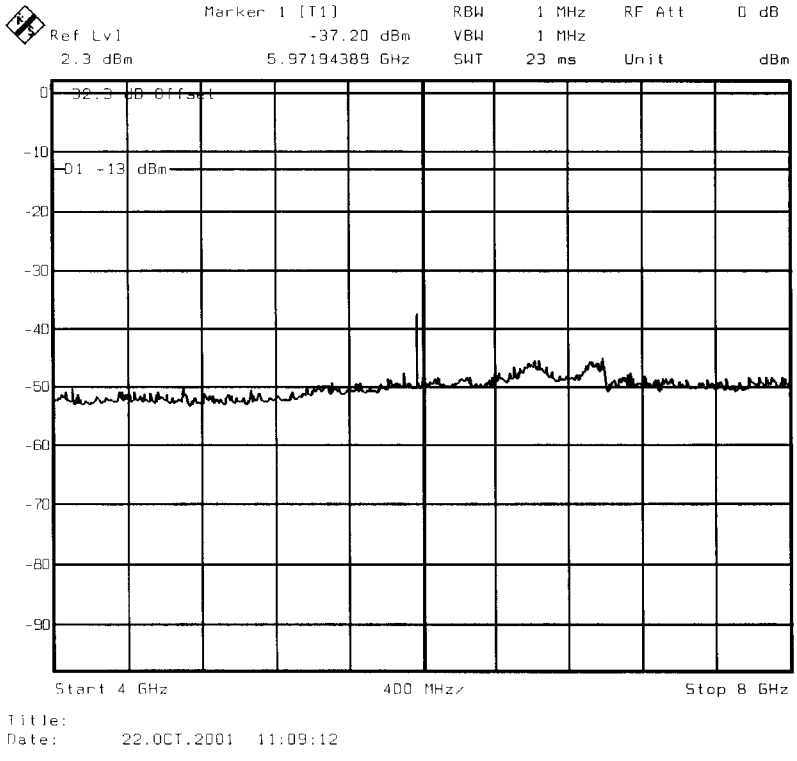
Test Case	:	Spurious Emissions
Test Date	:	22nd October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (4GHz – 8GHz)

Channel 810, (1989.8MHz) – Maximum Power



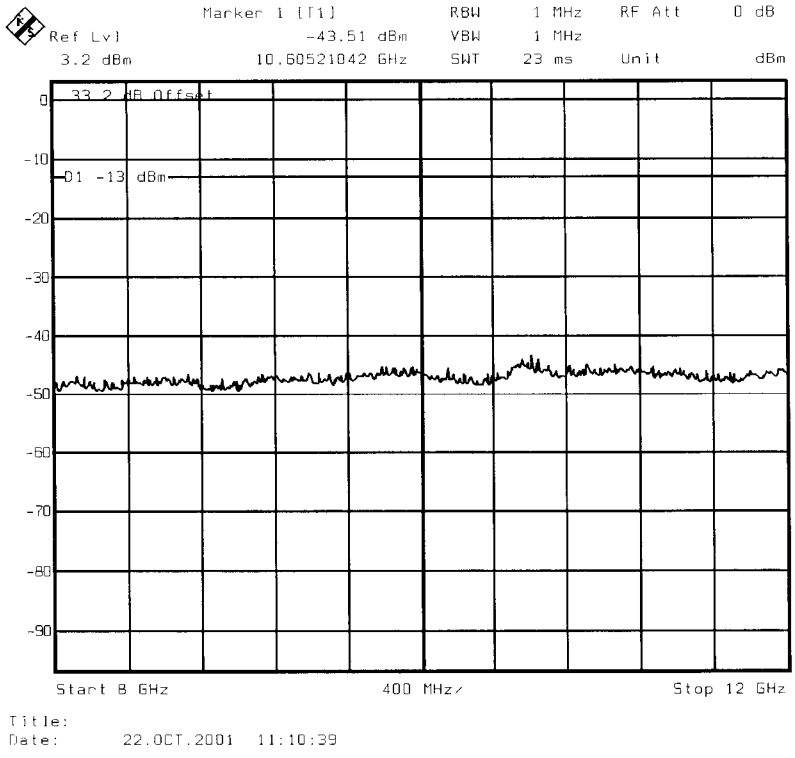
Test Equipment Used:
1, 3, 5, 6, 8, 9, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	22nd October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (8GHz – 12GHz)

Channel 810, (1989.8MHz) – Maximum Power



Test Equipment Used:

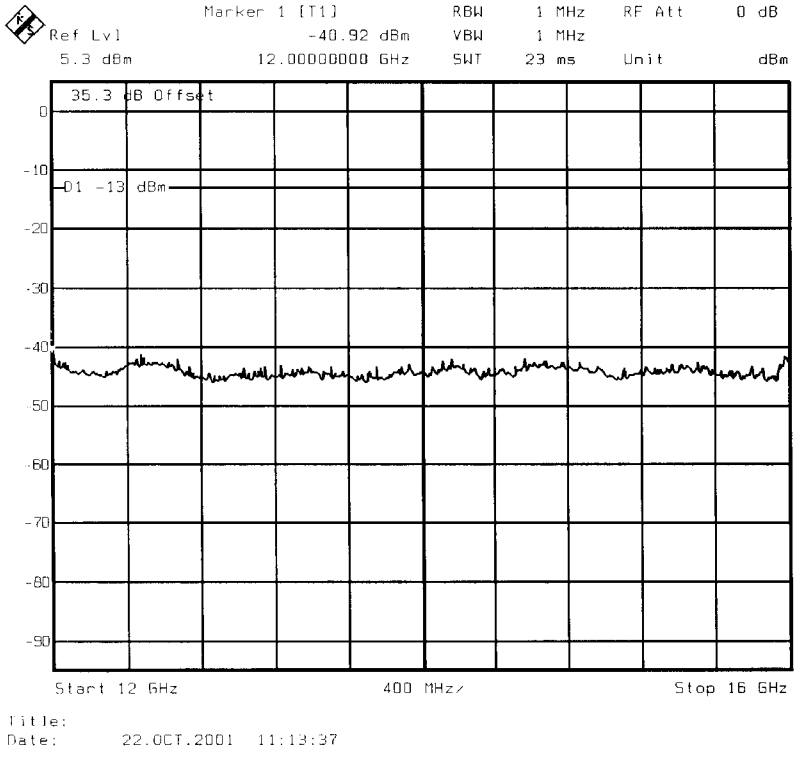
1, 3, 5, 6, 8, 9, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	22nd October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (12GHz – 16GHz)

Channel 810, (1989.8MHz) – Maximum Power



Test Equipment Used:

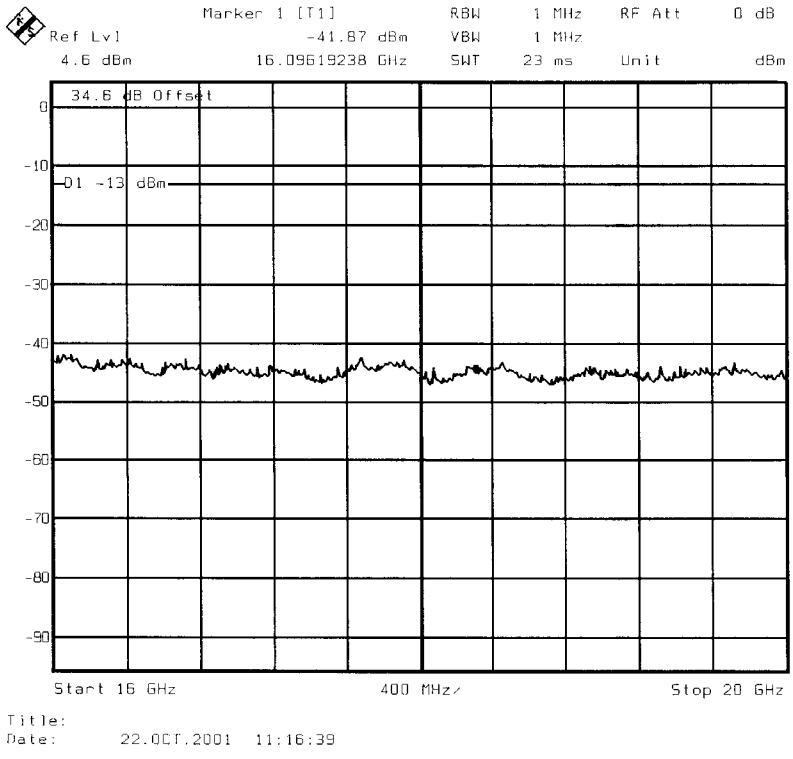
1, 3, 5, 6, 8, 9, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	22nd October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (16GHz – 20GHz)

Channel 810, (1989.8MHz) – Maximum Power



Test Equipment Used:

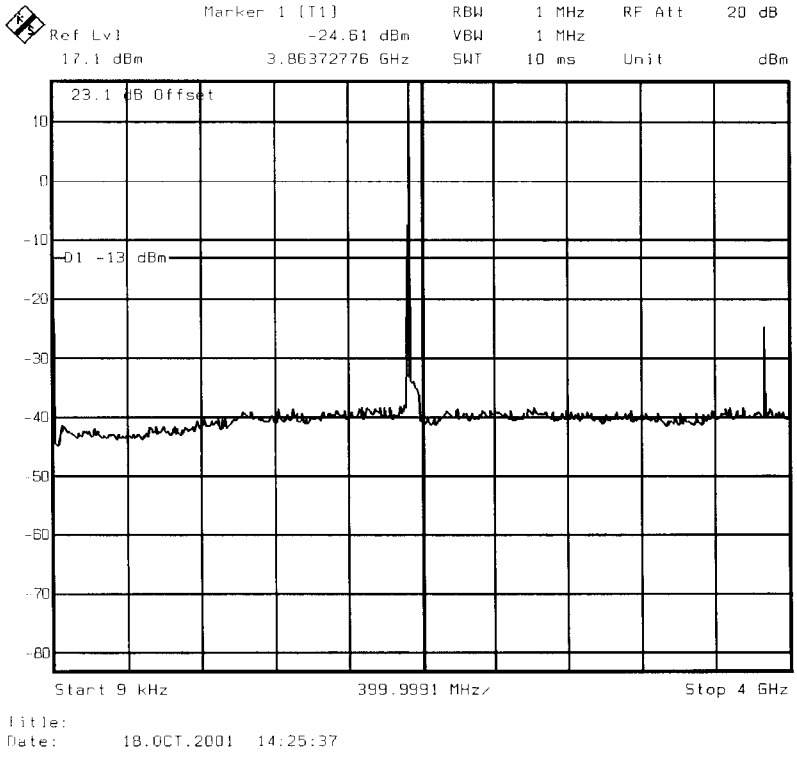
1, 3, 5, 6, 8, 9, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (9kHz – 4GHz)

Channel 512, (1930.2MHz) – Minimum Power

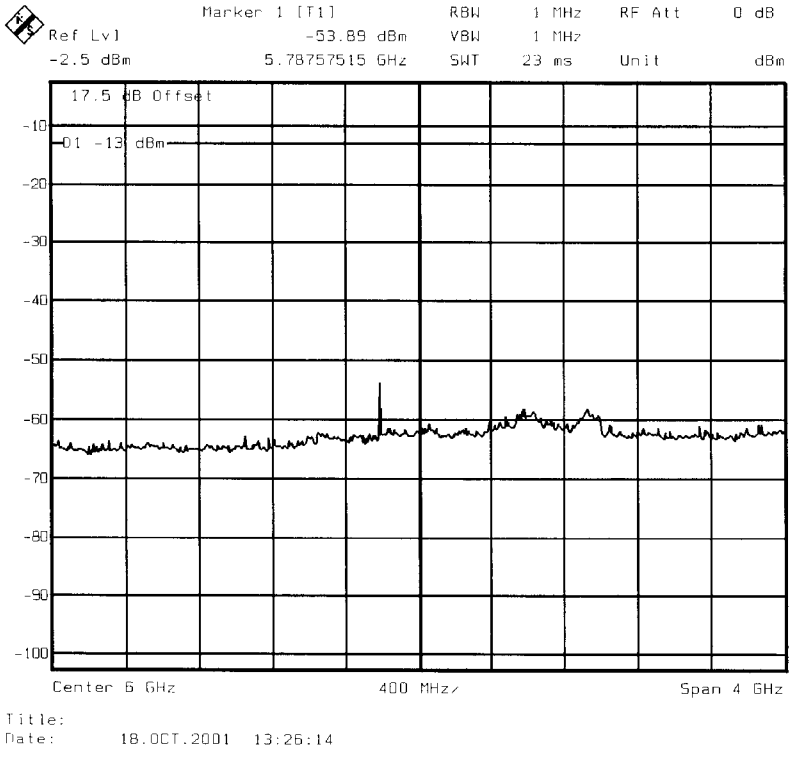


Test Equipment Used:
1, 3, 5, 6, 11
.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (4GHz – 8GHz)

Channel 512, (1930.2MHz) – Minimum Power



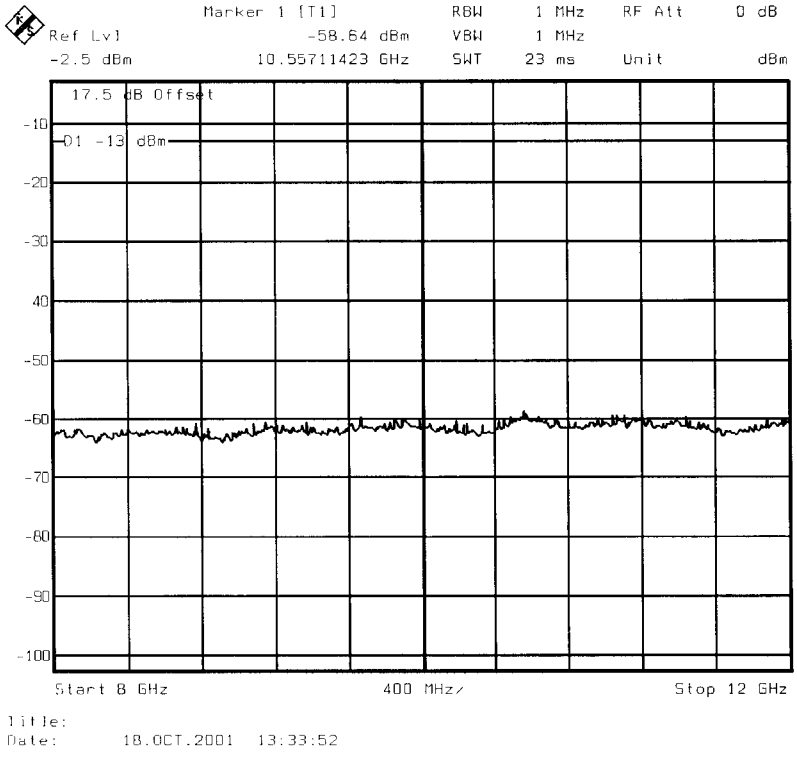
Test Equipment Used:
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (8GHz – 12GHz)

Channel 512, (1930.2MHz) – Minimum Power



Test Equipment Used:

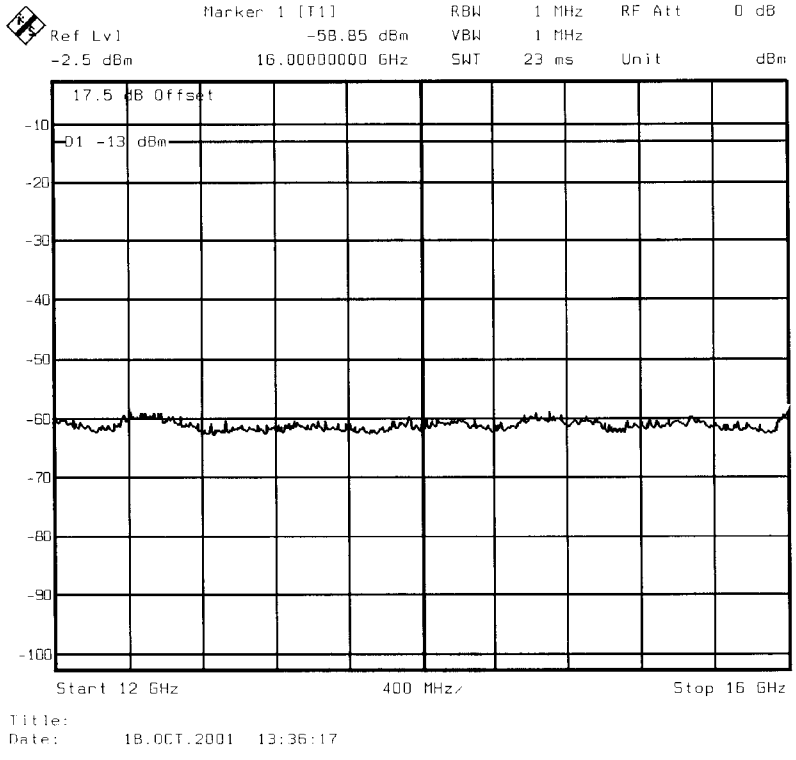
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (12GHz – 16GHz)

Channel 512, (1930.2MHz) – Minimum Power



Test Equipment Used:

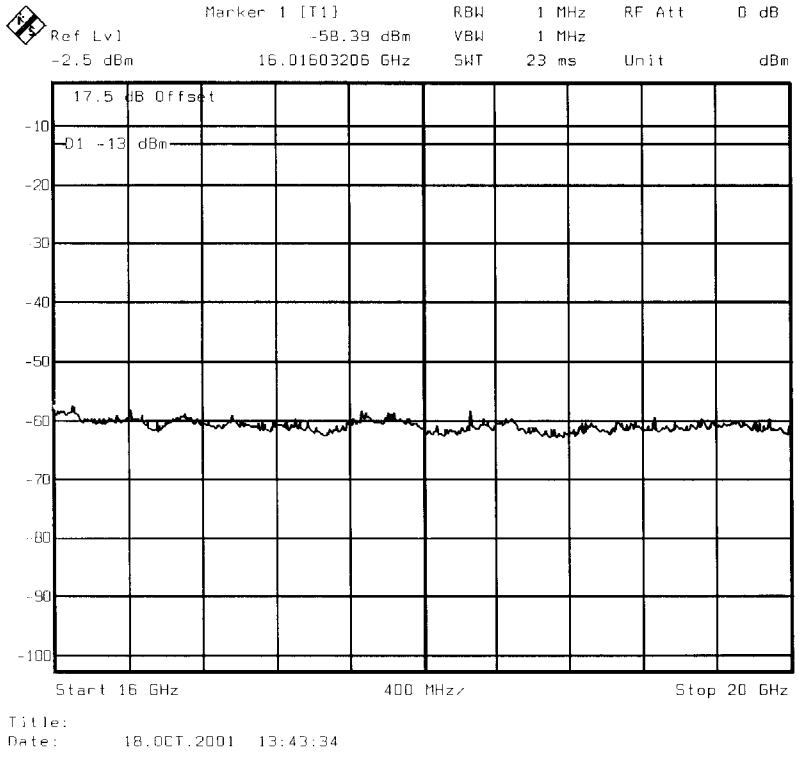
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (16GHz – 20GHz)

Channel 512, (1930.2MHz) – Minimum Power



Test Equipment Used:

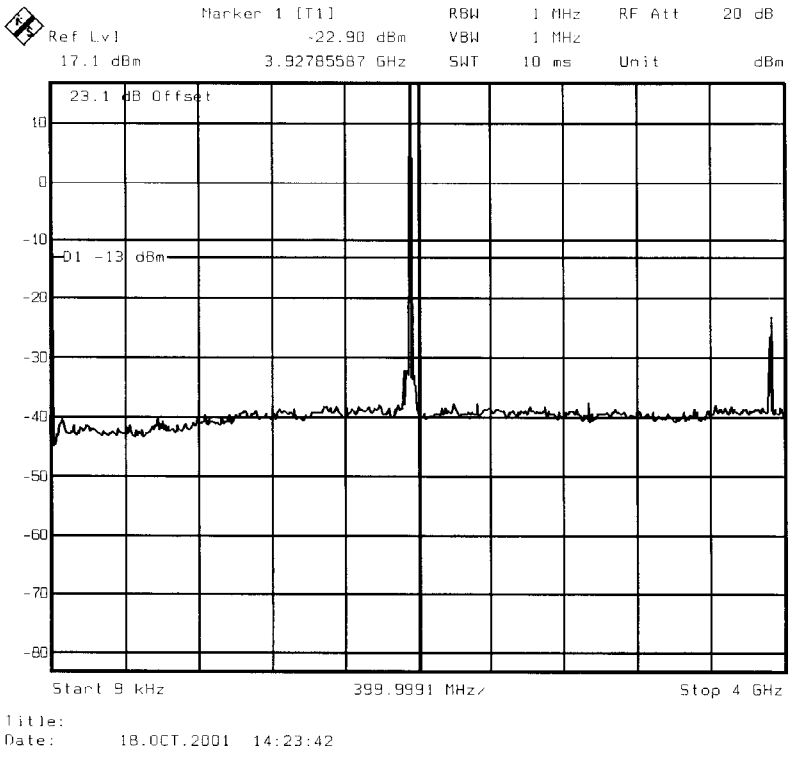
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (9kHz – 4GHz)

Channel 661, (1960.0MHz) – Minimum Power



Test Equipment Used:

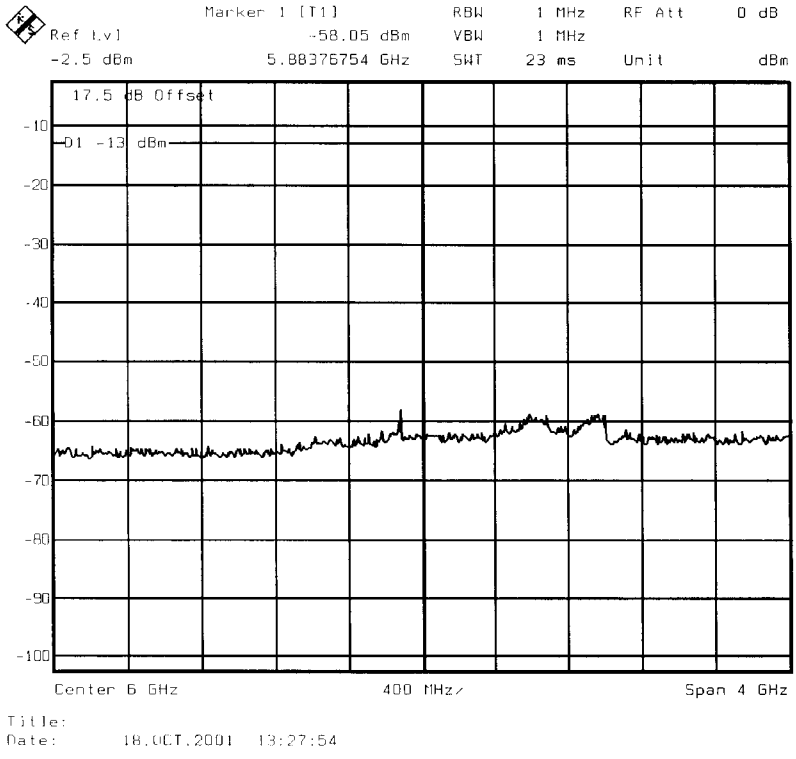
1, 3, 5, 6, 11

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (4GHz – 8GHz)

Channel 661, (1960.0MHz) – Minimum Power



Test Equipment Used:

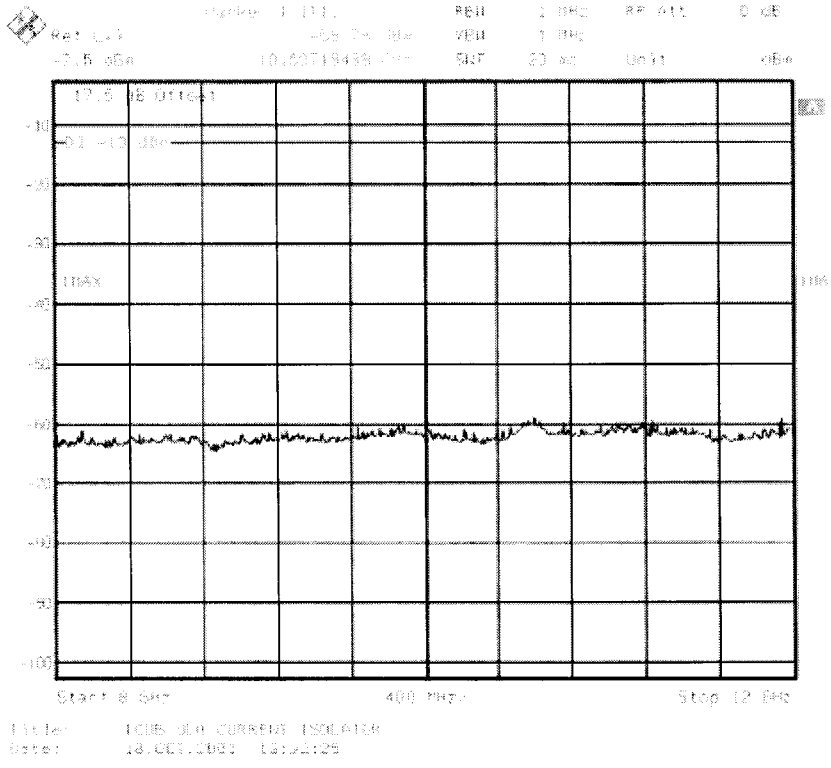
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (8GHz – 12GHz)

Channel 661, (1960.0MHz) – Minimum Power



Test Equipment Used:

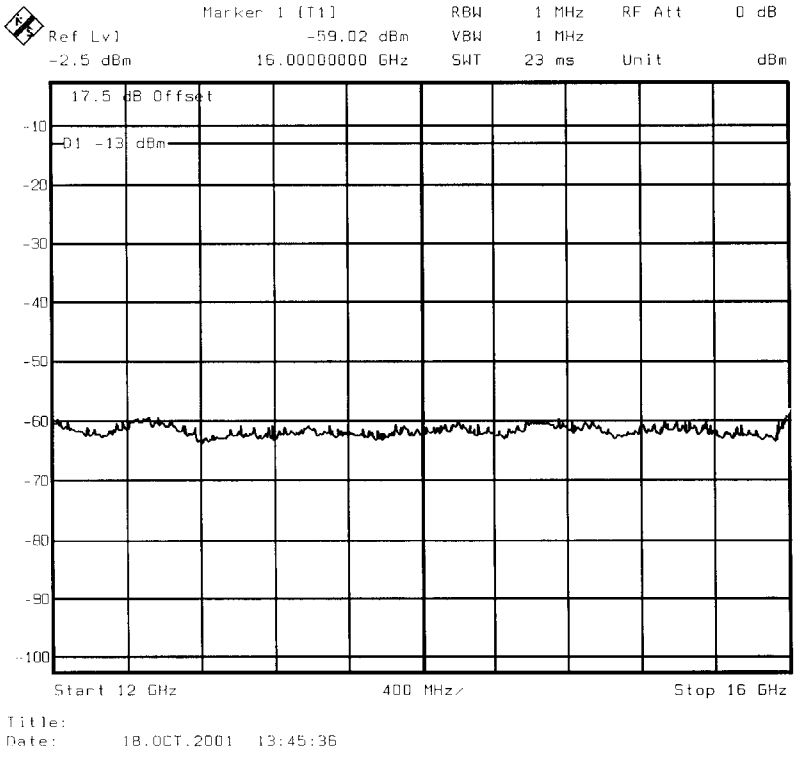
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (12GHz – 16GHz)

Channel 661, (1960.0MHz) – Minimum Power



Test Equipment Used:

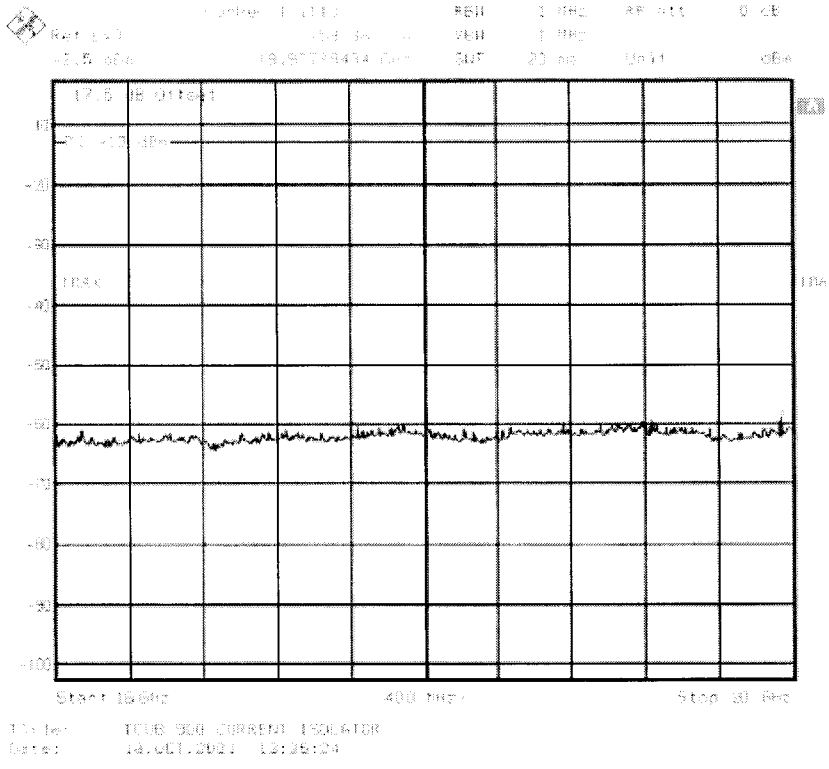
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (16GHz – 20GHz)

Channel 661, (1960.0MHz) – Minimum Power



Test Equipment Used:

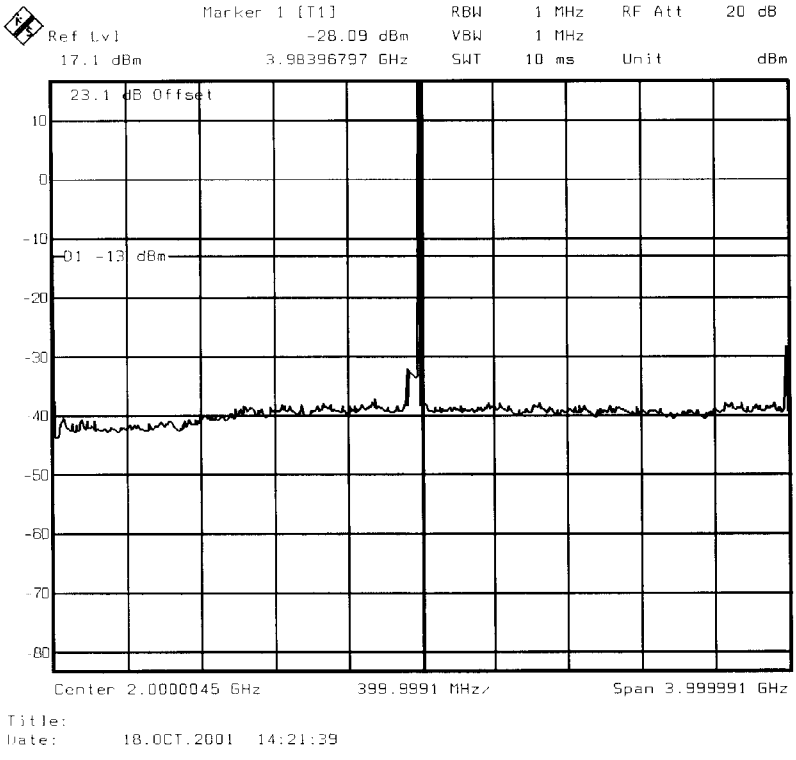
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (9kHz – 4GHz)

Channel 810, (1989.8MHz) – Minimum Power



Test Equipment Used:

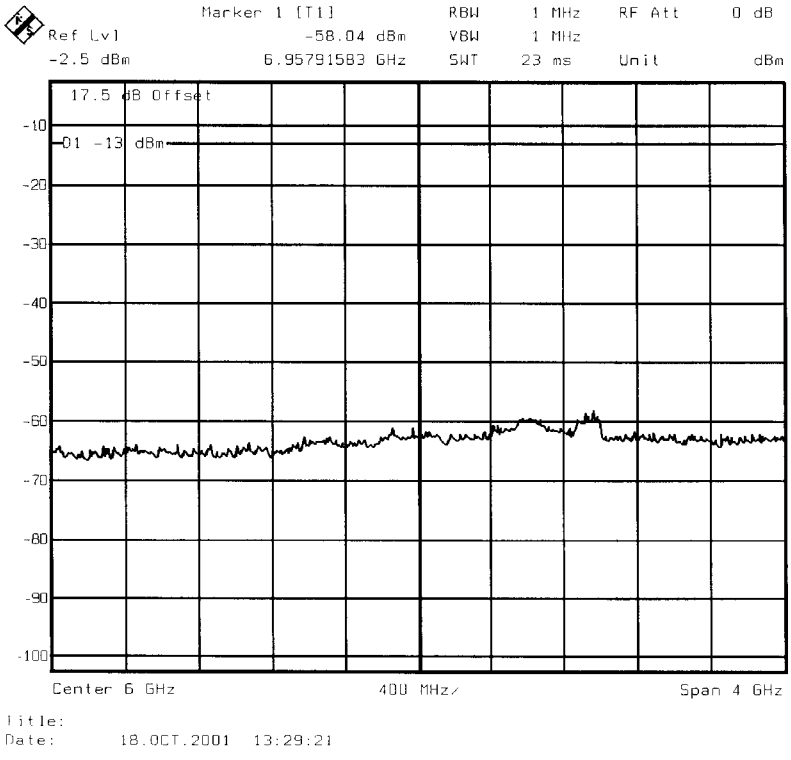
1, 3, 5, 6, 11

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (4GHz – 8GHz)

Channel 810, (1989.8MHz) – Minimum Power



Test Equipment Used:

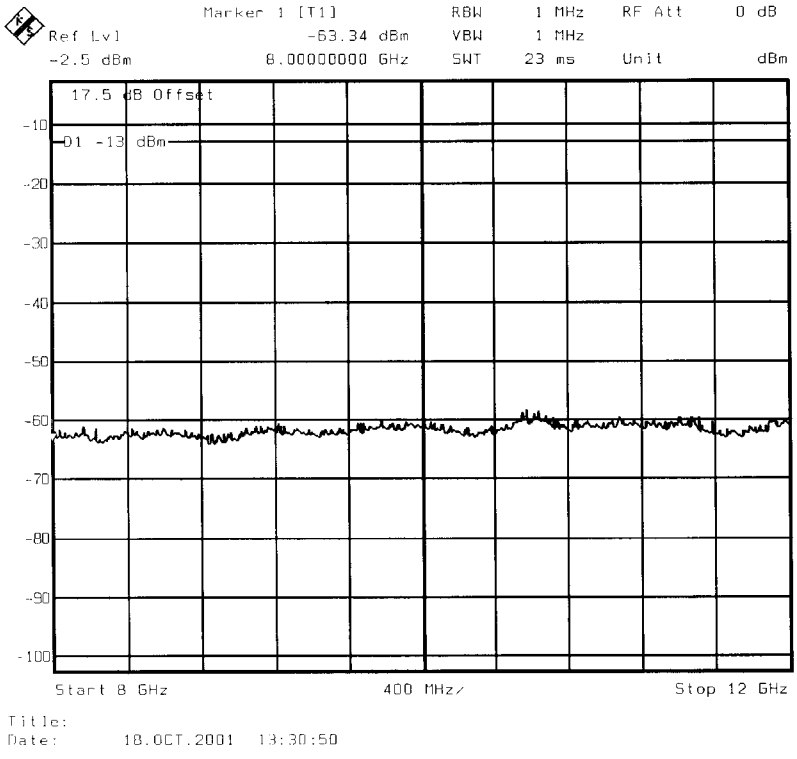
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (8GHz – 12GHz)

Channel 810, (1989.8MHz) – Minimum Power



Test Equipment Used:

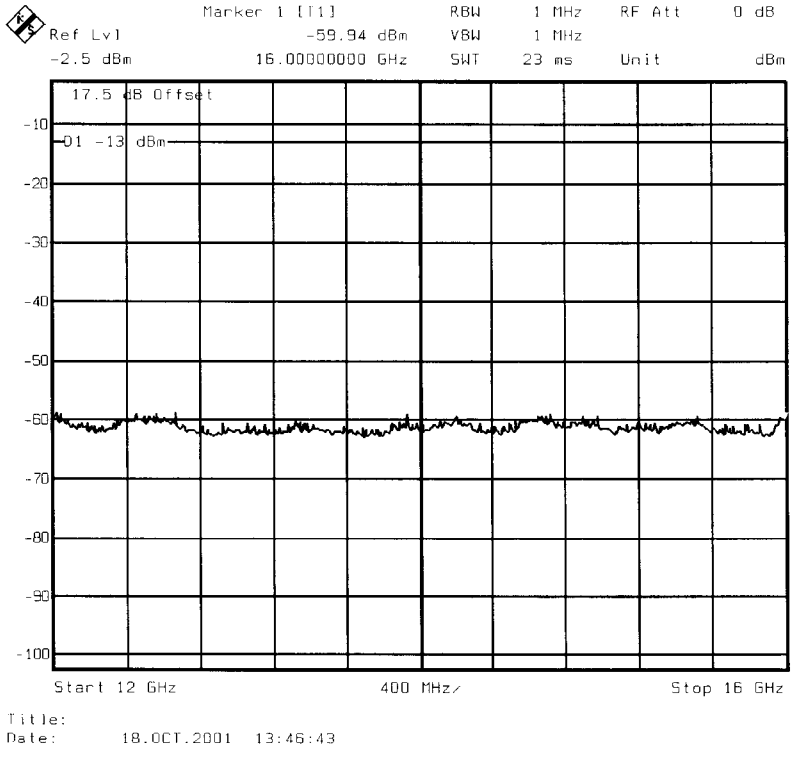
1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (12GHz – 16GHz)

Channel 810, (1989.8MHz) – Minimum Power



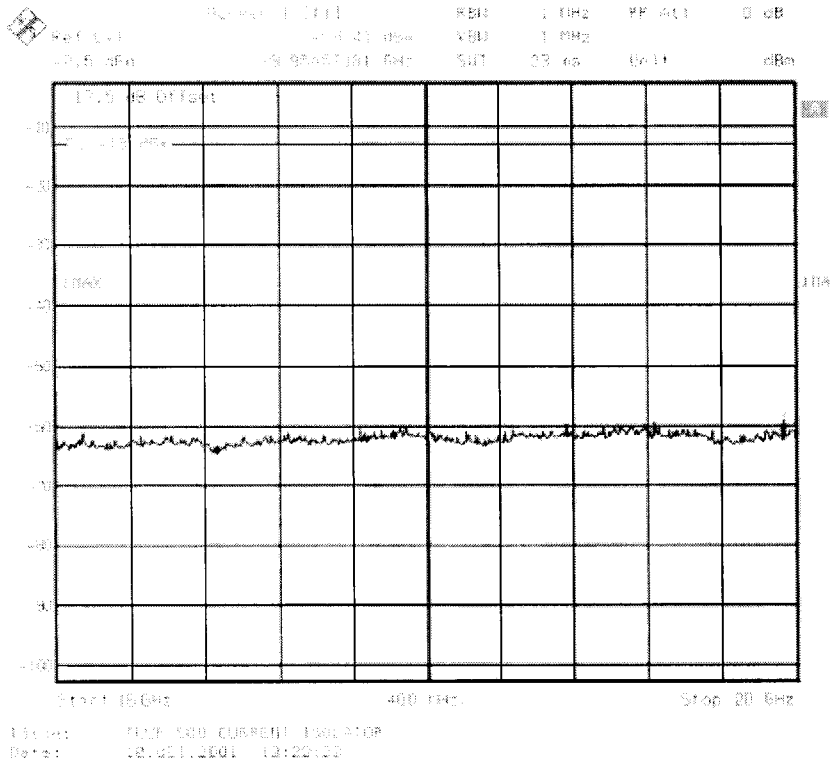
Test Equipment Used:

1, 3, 5, 6, 8, 10

.....

Test Case	:	Spurious Emissions
Test Date	:	18th October 2001
Rule Parts	:	2.1051, 24.238(a)

Spurious Emissions (16GHz – 20GHz)
Channel 810, (1989.8MHz) – Minimum Power



Test Equipment Used:
1, 3, 5, 6, 8, 10

.....

Test Case : Spurious Emissions

Test Date : 12th October 2001

Rule Parts : 2.1051, 24.238(a)

Harmonic Emissions — Channel 512, (1930.2MHz) – Maximum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.8604	-63.88	24.0	-39.88	-13
5.7906	-75.70	30.1	-45.60	-13
7.7208	Noise Floor*	31.8	-	-13
9.6510	Noise Floor*	31.2	-	-13
11.5812	Noise Floor*	31.2	-	-13
13.5114	Noise Floor*	31.3	-	-13
15.4416	Noise Floor*	31.6	-	-13
17.3718	Noise Floor*	32.1	-	-13
19.3002	Noise Floor*	33.6	-	-13

*Instrumentation Noise Floor

Harmonic Emissions — Channel 661, (1960.0MHz) – Maximum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.9200	-64.21	23.9	-40.31	-13
5.8800	-68.77	30.3	-38.47	-13
7.8400	Noise Floor*	30.9	-	-13
9.8000	Noise Floor*	32.5	-	-13
11.7600	Noise Floor*	30.7	-	-13
13.7200	Noise Floor*	31.3	-	-13
15.6800	Noise Floor*	31.7	-	-13
17.6400	Noise Floor*	32.3	-	-13
19.6000	Noise Floor*	33.2	-	-13

*Instrumentation Noise Floor

Test Case : Spurious Emissions (continued)

Harmonic Emissions Channel 810, (1989.8MHz) – Maximum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.9796	-61.39	23.5	-37.89	-13
5.9694	-67.97	30.4	-37.57	-13
7.9592	Noise Floor*	29.9	-	-13
9.9949	Noise Floor*	32.6	-	-13
11.9388	Noise Floor*	31.1	-	-13
13.9286	Noise Floor*	32.2	-	-13
15.9184	Noise Floor*	31.8	-	-13
17.9082	Noise Floor*	31.8	-	-13
19.8980	Noise Floor*	32.5	-	-13

*Instrumentation Noise Floor

Test Equipment Used:
1, 3, 5, 6, 7, 8, 10
.....

Test Case : Spurious Emissions

Test Date : 12th October 2001

Rule Parts : 2.1051, 24.238(a)

Harmonic Emissions Channel 512, (1930.2MHz) – Minimum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.8604	-76.59	13.1	-63.49	-13
5.7906	-71.53	13.8	-57.73	-13
7.7208	Noise Floor*	14.9	-	-13
9.6510	Noise Floor*	15.3	-	-13
11.5812	Noise Floor*	15.6	-	-13
13.5114	Noise Floor*	16.3	-	-13
15.4416	Noise Floor*	15.4	-	-13
17.3718	Noise Floor*	15.6	-	-13
19.3002	Noise Floor*	17.6	-	-13

*Instrumentation Noise Floor

Harmonic Emissions Channel 661, (1960.0MHz) – Minimum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.9200	-74.41	13.1	-61.31	-13
5.8800	-74.58	13.9	-60.68	-13
7.8400	Noise Floor*	15.5	-	-13
9.8000	Noise Floor*	15.8	-	-13
11.7600	Noise Floor*	15.0	-	-13
13.7200	Noise Floor*	15.1	-	-13
15.6800	Noise Floor*	15.2	-	-13
17.6400	Noise Floor*	16.0	-	-13
19.6000	Noise Floor*	18.0	-	-13

*Instrumentation Noise Floor

Test Case : Spurious Emissions (continued)

Harmonic Emissions Channel 810, (1989.8MHz) – Minimum Power

Frequency (GHz)	Raw Result (dBm)	Path Loss (dB)	Corrected Result (dBm)	Limit (dBm)
3.9796	-74.12	12.9	-61.22	-13
5.9694	-77.37	13.7	-63.67	-13
7.9592	Noise Floor*	13.9	-	-13
9.9949	Noise Floor*	14.7	-	-13
11.9388	Noise Floor*	14.9	-	-13
13.9286	Noise Floor*	16.0	-	-13
15.9184	Noise Floor*	15.5	-	-13
17.9082	Noise Floor*	15.0	-	-13
19.8980	Noise Floor*	17.0	-	-13

*Instrumentation Noise Floor

Test Equipment Used:
1, 3, 5, 6, 7, 8, 10
.....

Test Case	:	Frequency Stability Under Temperature Variations
Test Date	:	12th October 2001
Rule Parts	:	2.1055, 24.135(a)

Measurement Method

The EUT was set to transmit on maximum power with all timeslots active. A Digital Communications Analyser, (CMD57), was used to measure the frequency error. The average result was taken over 200 bursts.

The temperature was adjusted between –30°C and +50°C in 10° steps as per 2.1055.

Results

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (kHz)
-30	1.96	-1	±1.96
-20	1.96	-3	±1.96
-10	1.96	0	±1.96
0	1.96	0	±1.96
+10	1.96	0	±1.96
+20	1.96	-1	±1.96
+30	1.96	-2	±1.96
+40	1.96	-4	±1.96
+50	1.96	-4	±1.96

Limit	±0.0001% or 1ppm

Remarks

EUT complies with CFR 47 Part 24.135(a). The EUT does not exceed ±1.96kHz at the measured frequency at any temperature interval across the measured range.

Test Equipment Used:
2, 4, 5, 6, 11

.....

Test Case	:	Frequency Stability Under Voltage Variations
Test Date	:	12th October 2001
Rule Parts	:	24.135(a)

Measurement Method

The EUT was set to transmit on maximum power with all timeslots active. A Digital Communications Analyser, (CMD57), was used to measure the frequency error. The average result was taken over 200 bursts.

The mains voltage was adjusted between 85 and 115% of the nominal declared operating voltage as specified by the manufacturer using a variac in conjunction with a DVM.

Results

Supply Variation(%)	AC Voltage (V/50Hz)	Test Frequency (GHz)	Deviation (Hz)	Deviation Limit (kHz)
85	195.5	1.96	-2	±1.96
0	230	1.96	-3	±1.96
115	264.5	1.96	-2	±1.96

Limit	±0.0001% or 1ppm

Remarks

EUT complies with CFR 47 Part 24.135(a). The EUT does not exceed ±1.96kHz at the measured frequency either at nominal or voltage variation.

Test Equipment Used:
2, 5, 6

.....

Test Case : AC Conducted Line Emissions

Test Date : 20th October 2001

Rule Parts : 15.207

Measurement Method

All Conducted Emission Measurements were undertaken on the Open Field Site. The EUT was placed on the ground plane on a 10mm insulated support. Conducted Emission measurements were undertaken on the Live and Neutral Lines.

The emissions were formally measured using a Quasi-Peak Detector which meets the CISPR requirements. The details of the worst case emissions were then recorded in the Job Log Book. Details of the worst case emissions for the Live and Neutral Lines are presented in Tables 2 and 3 respectively.

The EUT was connected to a 115V 60Hz supply.

The Conducted Emission measurements were made using a Hewlett Packard 8542E EMI Receiver.

The test was performed in accordance with ANSI C63.4.

Equipment Designation : Intentional Radiator. Live Line.

The EUT met the requirements of FCC Part 15 Subpart C for Conducted Emissions on the Live Line.

Conducted Emissions Live Line : A search was made in the frequency range 450kHz to 30MHz. The levels of the six highest emissions were measured in accordance with the specification and are presented below :-

Frequency	Measured Level	Cable Loss	Sensor Factor	Absolute Level		Spec Limit	
MHz	dBµV	dB	dB	dBµV	µV	dBµV	µV
15.36	20.5	0.0	10.6	31.1	35.9	48.0	250.0
17.41	23.3	0.0	11.3	34.6	53.7	48.0	250.0
18.42	22.6	0.0	11.6	34.2	51.3	48.0	250.0
19.33	17.6	0.0	11.9	29.5	29.9	48.0	250.0
19.46	17.4	0.0	11.9	29.3	29.2	48.0	250.0
22.53	18.2	0.0	11.3	29.5	29.9	48.0	250.0

The margin between the specification requirements and all other emissions was 19dB or more below the specified limit.

Procedure Test performed in accordance with ANSI C63.4.

Test Case : AC Conducted Line Emissions (continued)

Test Date : 20th October 2001

Rule Parts : 15.207

Equipment Designation : Intentional Radiator. Neutral Line.

The EUT met the requirements of FCC Part 15 Subpart C for Conducted Emissions on the Neutral Line.

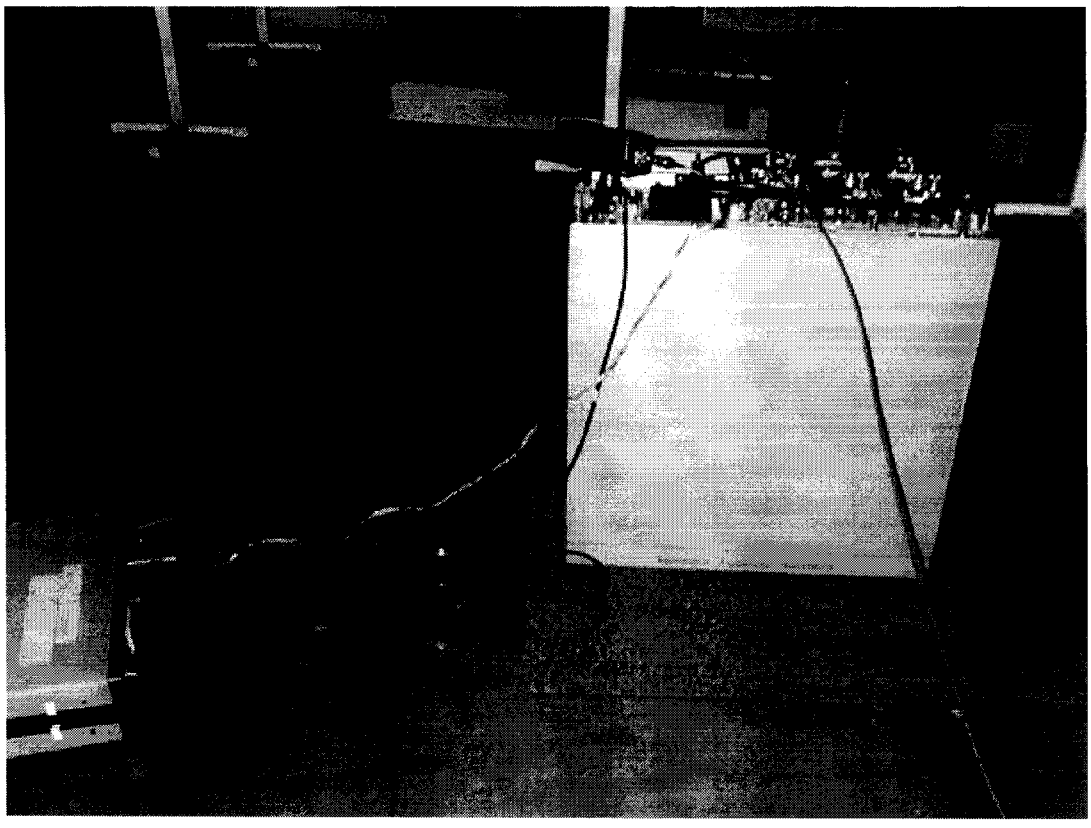
Conducted Emissions Neutral Line : A search was made in the frequency range 450kHz to 30MHz. The levels of the seven highest emissions were measured in accordance with the specification and are presented below:-

Frequency	Measured Level	Cable Loss	Sensor Factor	Absolute Level		Spec Limit	
MHz	dBµV	dB	dB	dBµV	µV	dBµV	µV
15.36	27.1	0.0	10.6	37.7	76.7	48.0	250.0
16.38	18.2	0.0	10.7	28.9	27.9	48.0	250.0
17.41	23.9	0.0	10.9	34.8	55.0	48.0	250.0
18.44	22.3	0.0	11.1	33.4	46.8	48.0	250.0
19.33	19.0	0.0	11.3	30.3	32.7	48.0	250.0
19.46	18.9	0.0	11.3	30.2	32.4	48.0	250.0
22.53	17.7	0.0	10.9	28.6	26.9	48.0	250.0

The margin between the specification requirements and all other emissions was 20dB or more below the specified limit.

Procedure Test performed in accordance with ANSI C63.4.

PHOTOGRAPHS OF EQUIPMENT



Photograph No 2 –Conducted Emissions