Figure 3 : Spectral Diagram, LINE - PE (16.450MHz)

RECEIVER 02 Apr 2001 15:53

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: LINE-PE
Operating Frequency : 16.450 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement: Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

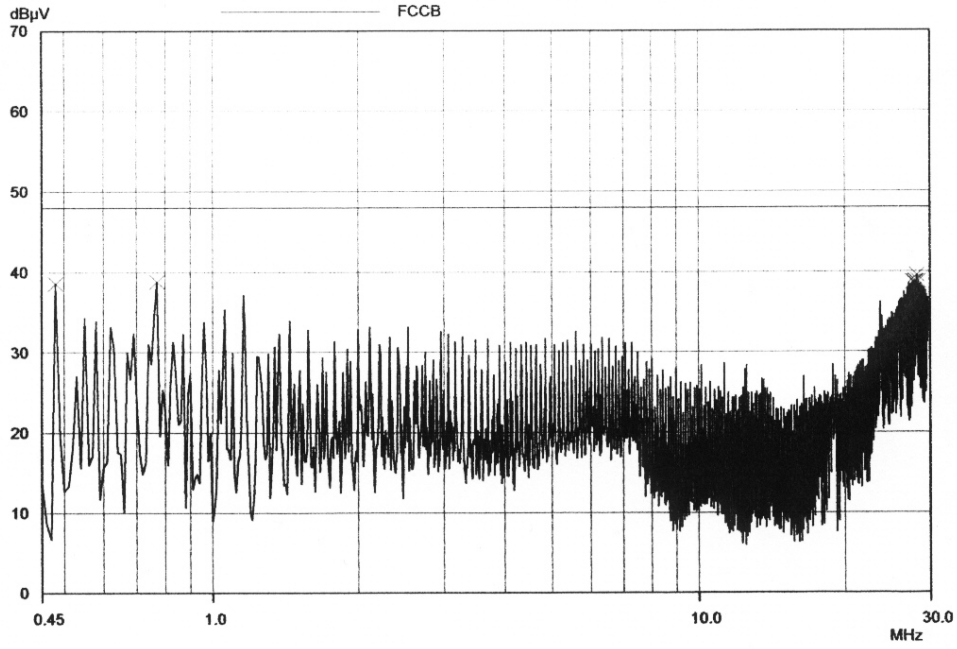

Figure 4 : Spectral Diagram, NEUTRAL – PE (16.450 MHz)

RECEIVER 02 Apr 2001 16:07

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: NEUTRAL-PE
Operating Frequency : 16.450 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement: Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

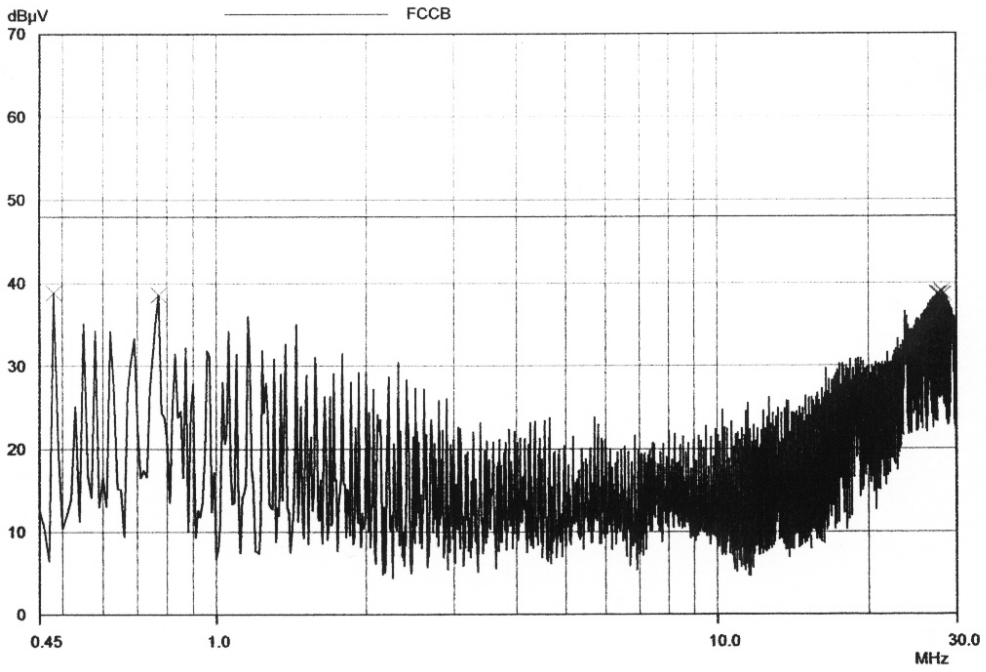

Table 3 : Test Data, Conducted Emissions (16.450MHz)

Frequency (MHz)	(1)Reading (dBμV)	Line	(2)C/F (dB)	(3)C/L (dB)	(4)Actual (dBμV)	(5)Limit (dBμV)	(6)Margin (dB)
0.48	38.14	A	0.1	0.1	38.34	48.0	9.66
0.77	38.39	A	0.0	0.1	38.49	48.0	9.51
23.71	37.20	A	0.6	0.7	38.50	48.0	9.50
28.19	32.02	B	0.8	0.8	33.62	48.0	14.38

NOTES:

1. All modes of operation were investigated
   and the worst-case emission are reported.
2. All other emissions are non-significant.
3. All readings are calibrated by self-mode in receiver.
4. Measurements using CISPR quasi-peak mode.
5. Line A = LINE-PE, Line B = NEUTRAL-PE
6. C/F = Correction Factor
7. C/L = Cable Loss

♠ **Margin Calculation**

(6)Margin = (5)Limit - (4)Actual

[(4)Actual = (1)Reading + (2)C/F + (3)C/L]

Figure 5 : Spectral Diagram, LINE - PE (16.480MHz)

RECEIVER 06 Apr 2001 10:31

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: LINE-PE
Operating Frequency : 16.480 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement: Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

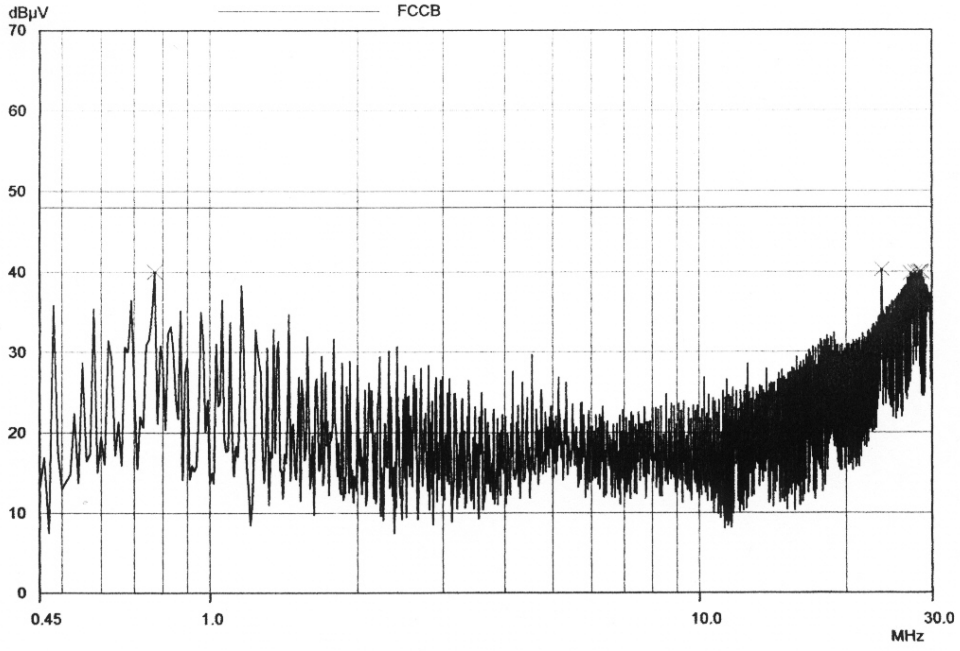

Figure 6 : Spectral Diagram, NEUTRAL – PE (16.480 MHz)

RECEIVER 06 Apr 2001 10:43

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: NEUTRAL-PE
Operating Frequency : 16.480 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement: Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

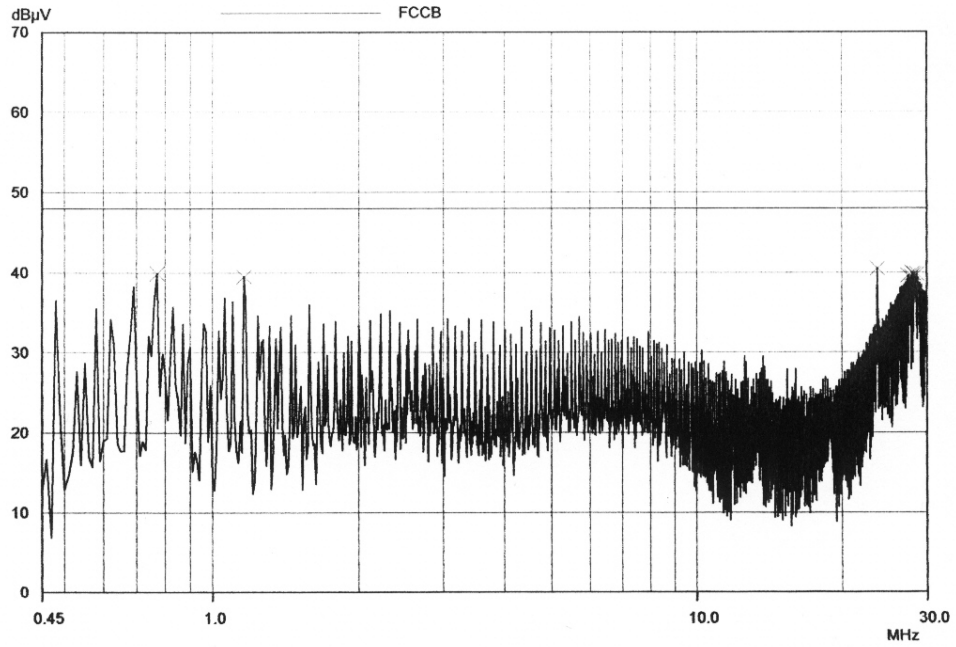

Table 4 : Test Data, Conducted Emissions (16.480MHz)

Frequency (MHz)	(1)Reading (dBμV)	Line	(2)C/F (dB)	(3)C/L (dB)	(4)Actual (dBμV)	(5)Limit (dBμV)	(6)Margin (dB)
0.77	40.3	A	0.0	0.1	40.4	48.0	7.6
1.16	38.1	B	0.1	0.1	38.3	48.0	9.7
23.71	40.9	A	0.6	0.7	42.2	48.0	5.8
28.50	24.1	A	0.8	0.8	25.7	48.0	22.3

NOTES:

1. All modes of operation were investigated
   and the worst-case emission are reported.
2. All other emissions are non-significant.
3. All readings are calibrated by self-mode in receiver.
4. Measurements using CISPR quasi-peak mode.
5. Line A = LINE-PE, Line B = NEUTRAL-PE
6. C/F = Correction Factor
7. C/L = Cable Loss

♠ **Margin Calculation**

(6)Margin = (5)Limit - (4)Actual

[(4)Actual = (1)Reading + (2)C/F + (3)C/L]

Figure 7 : Spectral Diagram, LINE - PE (16.510MHz)

RECEIVER

06 Apr 2001 11:38

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: LINE-PE
Operating Frequency : 16.510 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement:
Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

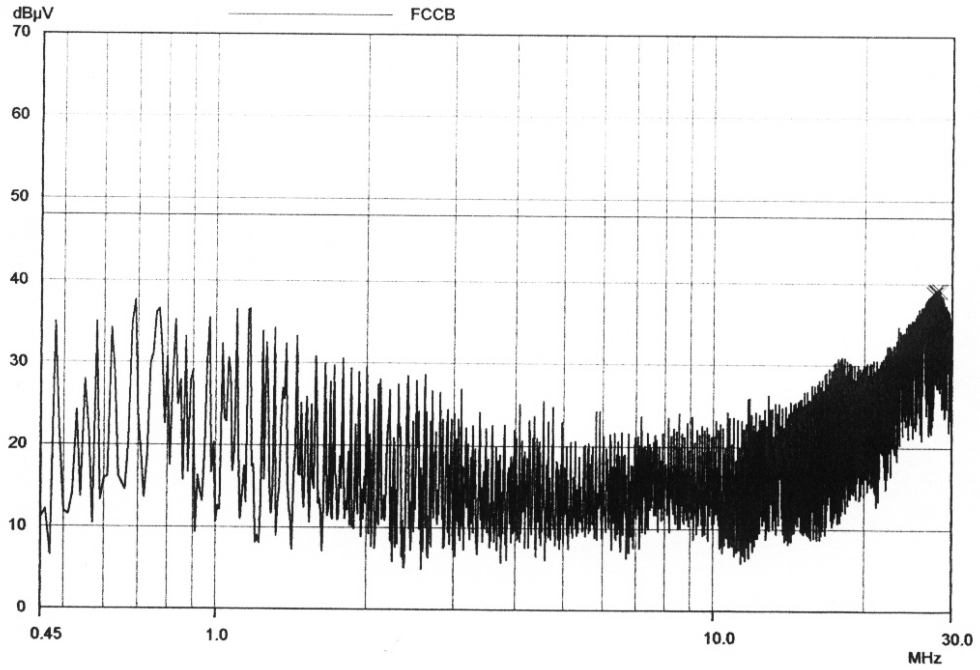

Figure 8 : Spectral Diagram, NEUTRAL – PE (16.510 MHz)

RECEIVER 06 Apr 2001 11:28

CONDUCTED DISTURBANCE

EUT: SWR-1027F1
Manuf:
Op Cond:
Operator:
Test Spec:
Comment: NEUTRAL-PE
Operating Frequency : 16.510 MHz

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
450kHz	30MHz	10kHz	10kHz	PK	100msec	Auto	OFF	60dB

Prescan Measurement:
Detector: X PK
Meas Time: see scan settings
Peaks: 8
Acc Margin: 25 dB

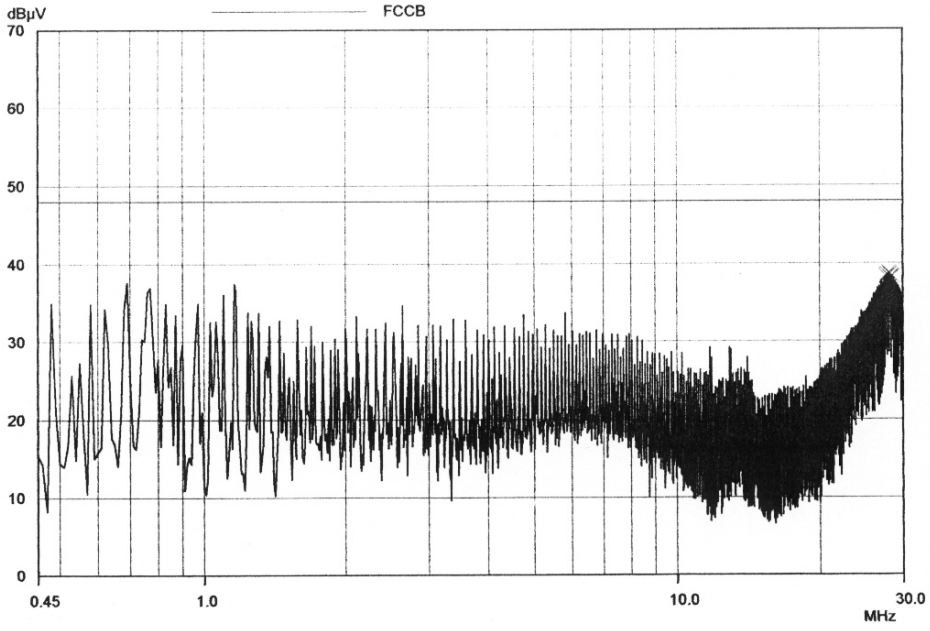

Table 5 : Test Data, Conducted Emissions (16.510MHz)

Frequency (MHz)	(1)Reading (dBμV)	Line	(2)C/F (dB)	(3)C/L (dB)	(4)Actual (dBμV)	(5)Limit (dBμV)	(6)Margin (dB)
0.77	39.5	A	0.0	0.1	39.6	48.0	8.4
1.16	37.0	A	0.1	0.1	37.2	48.0	10.8
28.41	37.5	A	0.8	0.8	38.1	48.0	9.9

NOTES:

1. All modes of operation were investigated
   and the worst-case emission are reported.
2. All other emissions are non-significant.
3. All readings are calibrated by self-mode in receiver.
4. Measurements using CISPR quasi-peak mode.
5. Line A = LINE-PE, Line B = NEUTRAL-PE
6. C/F = Correction Factor
7. C/L = Cable Loss

♠ **Margin Calculation**

(6)Margin = (5)Limit - (4)Actual

[(4)Actual = (1)Reading + (2)C/F + (3)C/L]

5.2 Radiated Emissions

Result : **Pass**

Preliminary measurements were made indoors at 1 meter using broadband antennas, broadband amplifier, and spectrum analyzer to determine the frequency producing the maximum EME. Appropriate precaution was taken to ensure that all EME from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, turntable azimuth with respect to the antenna were noted for each frequency found.
The spectrum was scanned from 30 to 300 MHz using biconical antenna and from 300 to 1000 MHz using log-periodic antenna. Above 1GHz, linearly polarized double ridge horn antennas were used.

Final measurements were made outdoors at 3-meter test range using SCHWARZBECK dipole antennas. The test equipment was placed on a wooden table situated on a 4x4 meter area adjacent to the measurement area. Turntable was to protect from weather in the dome that made with FRP. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. Each frequency found during pre-scan measurements was re-examined and investigated using EMI/Field Intensity Meter(ESVS 10) and Quasi-Peak Adapter. The detector function was set to CISPR quasi-peak mode and the bandwidth of the receiver was set to 100kHz or 1MHz depending on the frequency or type of signal.

The half-wave dipole antenna was tuned to the frequency found during preliminary radiated measurements. The EUT, support equipment and interconnecting cables were re-configured to the set-up producing the maximum emission for the frequency and were placed on top of a 0.8-meter high non-metallic 1 x 1.5 meter table.
The EUT, support equipment, and interconnecting cables were re-arranged and manipulated to maximize each EME emission. The turntable containing the system was rotated; the antenna height was varied 1 to 4 meters and stopped at the azimuth or height producing the maximum emission.
Each emission was maximized by: varying the mode of operation or resolution; clock or data exchange speed, and/or support equipment, if applicable; and changing the polarity of the antenna, whichever determined the worst-case emission.
Photographs of the worst-case emission can be seen in photograph of radiated emission test.
Each EME reported was calibrated using self-calibrating mode.

Table 6 : Test Data, Radiated Emissions

Frequency (MHz)	Pol.	Height [m]	Angle [°]	(1) Reading (dBμV)	(2) AFCL (dB/m)	(3) Actual (dBμV/m)	(4) Limit (dBμV/m)	(5) Margin (dB)

Table. Radiated Measurements at 3-meters

※***Test results were under the required limit with 20dB margin or more.***

NOTES:

1. All modes of operation were investigated and the worst-case emission are reported.
2. All other emission are non-significant.
3. All readings are calibrated by self-mode in receiver.
4. Measurements using CISPR quasi-peak mode.
5. AFCL = Antenna factor and cable loss
6. H = Horizontal, V = Vertical Polarization

♠ **Margin Calculation**

(5)Margin = (4)Limit - (3)Actual

[(3)Actual = (1)Reading + (2)AFCL]