

## MEASUREMENT/TECHNICAL REPORT



**Intermec Technologies Corporation**  
**EasyLAN® Wireless CF Radio**  
**2.4 GHz Spread Spectrum Transmitter**

**REPORT NO: 040804-1**

**DATE: Aug. 8, 2004**

### **Appendix E**

AC WIRELINE CONDUCTED EMISSIONS

Page 2-5 EasyLAN Wireless CF within 3400E

Page 6-9 EasyLAN Wireless CF within 4400

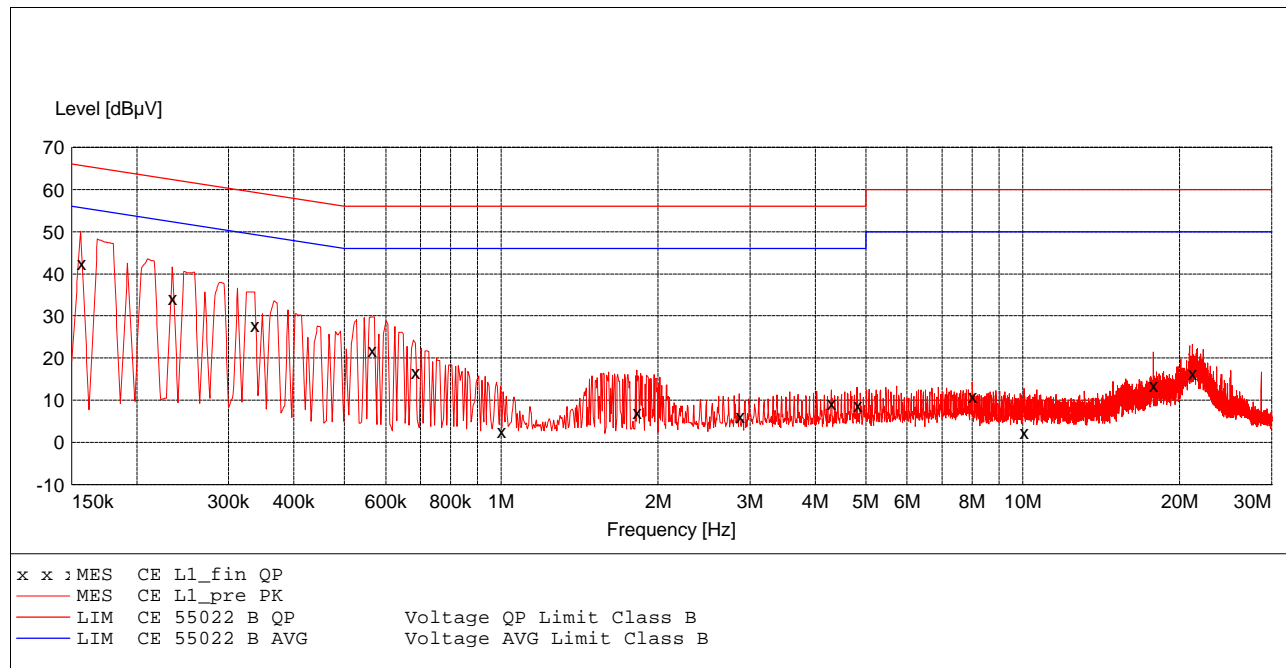
**Intermec Technologies Corporation**

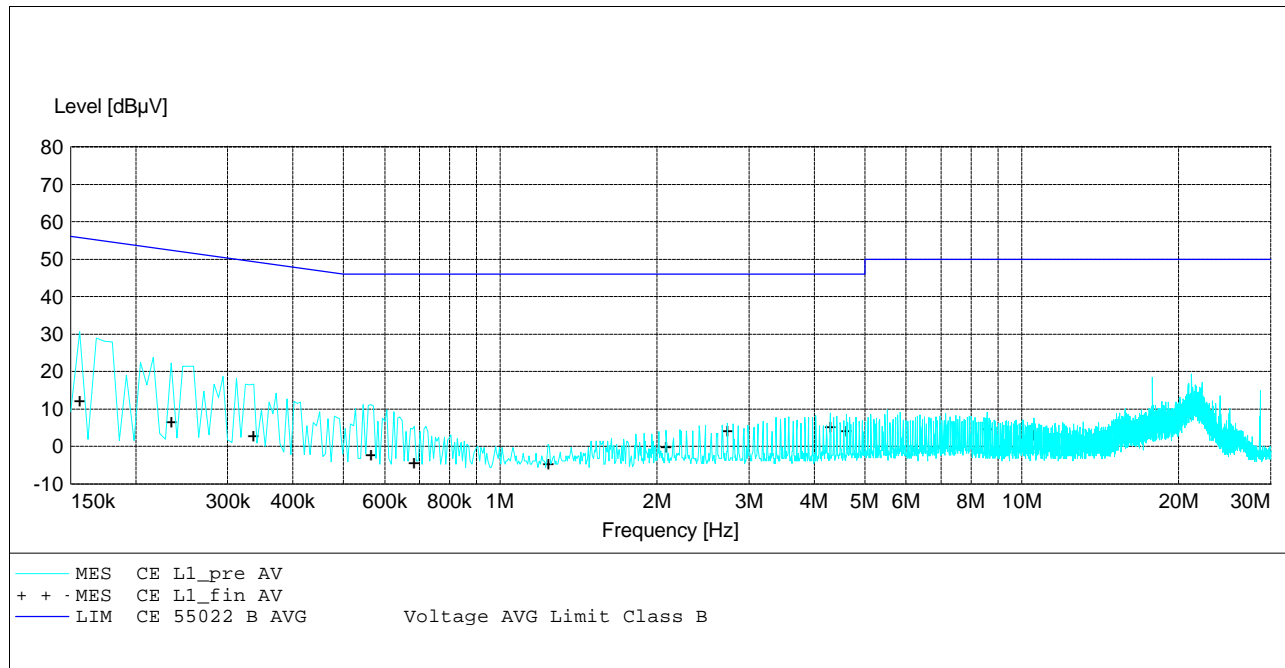
**Emission Test**

EUT: EasyLAN Wireless, 3400E  
 Manufacturer / Eng.: Intermec / Katie M  
 Operating Condition: emissions test program  
 Test Site: EMC Lab, Cedar Rapids IA  
 Operator: df  
 Test Specification: CISPR 22 Class B  
 Comment: Max test, L1 Side, 120V, TX Ch6  
 Start of Test: 8/16/04 / 1:23:20PM

**SCAN TABLE: "CE ESI R&S L1"**

Short Description:	EN 55022 Voltage L1 Side					
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	6.0 kHz	MaxPeak	1.0 ms	9 kHz	C LISN R&S L1
Average						





**MEASUREMENT RESULT: "CE L1\_fin QP"**

8/16/04 1:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	42.50	-0.10	65.70	23.20	L1	GND
0.234000	34.30	0.00	62.30	28.00	L1	GND
0.336000	27.80	0.00	59.30	31.50	L1	GND
0.564000	22.10	0.00	56.00	33.90	L1	GND
0.684000	16.70	0.10	56.00	39.30	L1	GND
0.996000	2.80	0.10	56.00	53.20	L1	GND
1.818000	7.10	0.20	56.00	48.90	L1	GND
2.862000	6.30	0.20	56.00	49.70	L1	GND
4.290000	9.30	0.20	56.00	46.70	L1	GND
4.812000	9.00	0.30	56.00	47.00	L1	GND
7.998000	11.10	0.30	60.00	48.90	L1	GND
10.044000	2.60	0.20	60.00	57.40	L1	GND
17.766000	13.70	0.10	60.00	46.30	L1	GND
21.138000	16.40	0.00	60.00	43.60	L1	GND

**MEASUREMENT RESULT: "CE L1\_fin AV"**

8/16/04 1:27PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	12.70	-0.10	55.70	43.00	L1	GND
0.234000	7.00	0.00	52.30	45.30	L1	GND
0.336000	3.00	0.00	49.30	46.30	L1	GND
0.564000	-1.90	0.00	46.00	47.90	L1	GND
0.684000	-4.00	0.10	46.00	50.00	L1	GND
1.236000	-4.30	0.10	46.00	50.30	L1	GND
2.082000	0.20	0.30	46.00	45.80	L1	GND
2.730000	4.50	0.20	46.00	41.50	L1	GND
4.290000	5.40	0.20	46.00	40.60	L1	GND
4.614000	4.50	0.30	46.00	41.50	L1	GND
8.580000	4.90	0.20	50.00	45.10	L1	GND
10.530000	3.50	0.20	50.00	46.50	L1	GND
17.766000	7.80	0.10	50.00	42.20	L1	GND
21.138000	9.00	0.00	50.00	41.00	L1	GND

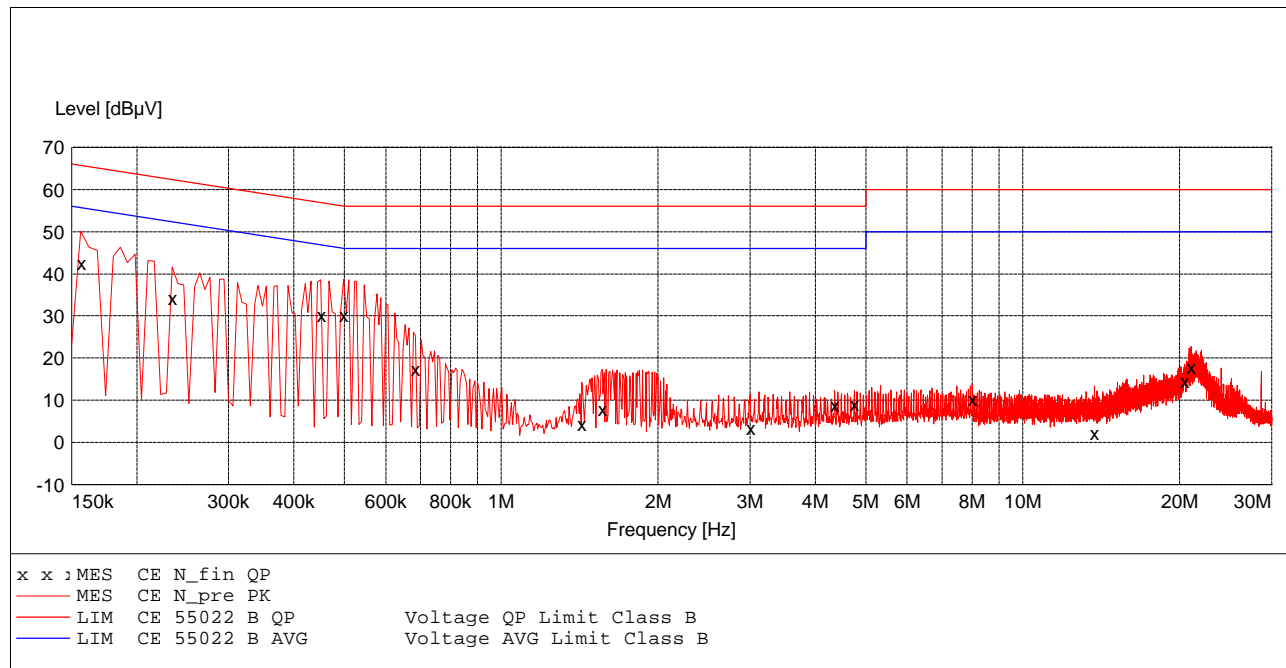
**Intermec Technologies Corporation**

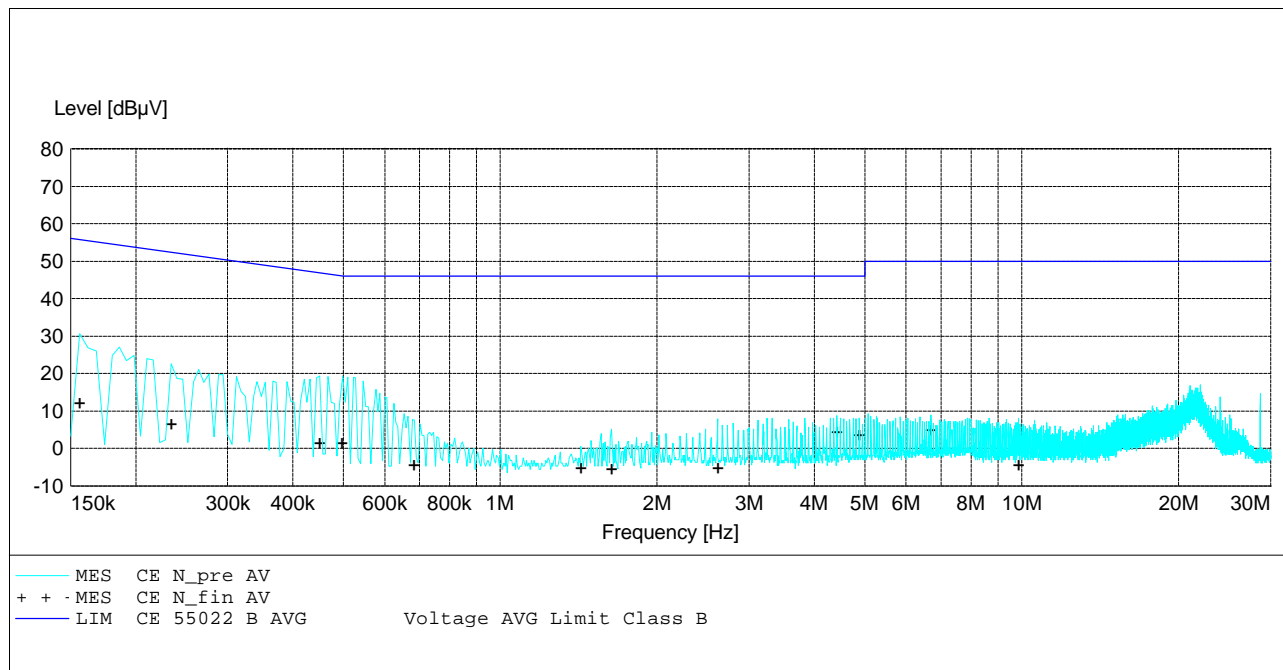
**Emission Test**

EUT: EasyLAN Wireless, 3400E  
 Manufacturer / Eng.: Intermec / Katie M  
 Operating Condition: emissions test program  
 Test Site: EMC Lab, Cedar Rapids IA  
 Operator: df  
 Test Specification: CISPR 22 Class B  
 Comment: Max test, N Side, 120V TX Ch6  
 Start of Test: 8/16/04 / 1:30:18PM

**SCAN TABLE: "CE ESI R&S N"**

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	6.0 kHz	MaxPeak	1.0 ms	9 kHz	C LISN R&S N
Short Description:			EN 55022 Voltage N Side			
			Average			





**MEASUREMENT RESULT: "CE N\_fin QP"**

8/16/04 1:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	42.50	-0.10	65.70	23.20	N	GND
0.234000	34.40	0.00	62.30	27.90	N	GND
0.450000	30.20	0.00	56.90	26.70	N	GND
0.498000	30.20	0.00	56.00	25.80	N	GND
0.684000	17.50	0.10	56.00	38.50	N	GND
1.428000	4.40	0.10	56.00	51.60	N	GND
1.560000	8.00	0.10	56.00	48.00	N	GND
3.000000	3.40	0.30	56.00	52.60	N	GND
4.356000	9.00	0.20	56.00	47.00	N	GND
4.746000	9.20	0.30	56.00	46.80	N	GND
7.998000	10.40	0.30	60.00	49.60	N	GND
13.704000	2.30	0.30	60.00	57.70	N	GND
20.418000	14.60	0.20	60.00	45.40	N	GND
20.994000	17.90	0.20	60.00	42.10	N	GND

**MEASUREMENT RESULT: "CE N\_fin AV"**

8/16/04 1:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	12.60	-0.10	55.70	43.10	N	GND
0.234000	7.00	0.00	52.30	45.40	N	GND
0.450000	1.90	0.00	46.90	45.00	N	GND
0.498000	1.90	0.00	46.00	44.20	N	GND
0.684000	-3.90	0.10	46.00	49.90	N	GND
1.428000	-4.80	0.10	46.00	50.80	N	GND
1.632000	-5.20	0.10	46.00	51.20	N	GND
2.610000	-4.90	0.20	46.00	50.90	N	GND
4.422000	4.60	0.20	46.00	41.40	N	GND
4.878000	3.80	0.30	46.00	42.20	N	GND
6.696000	5.30	0.20	50.00	44.70	N	GND
9.852000	-3.90	0.30	50.00	53.90	N	GND
20.418000	8.60	0.20	50.00	41.40	N	GND
21.984000	10.10	0.10	50.00	39.90	N	GND

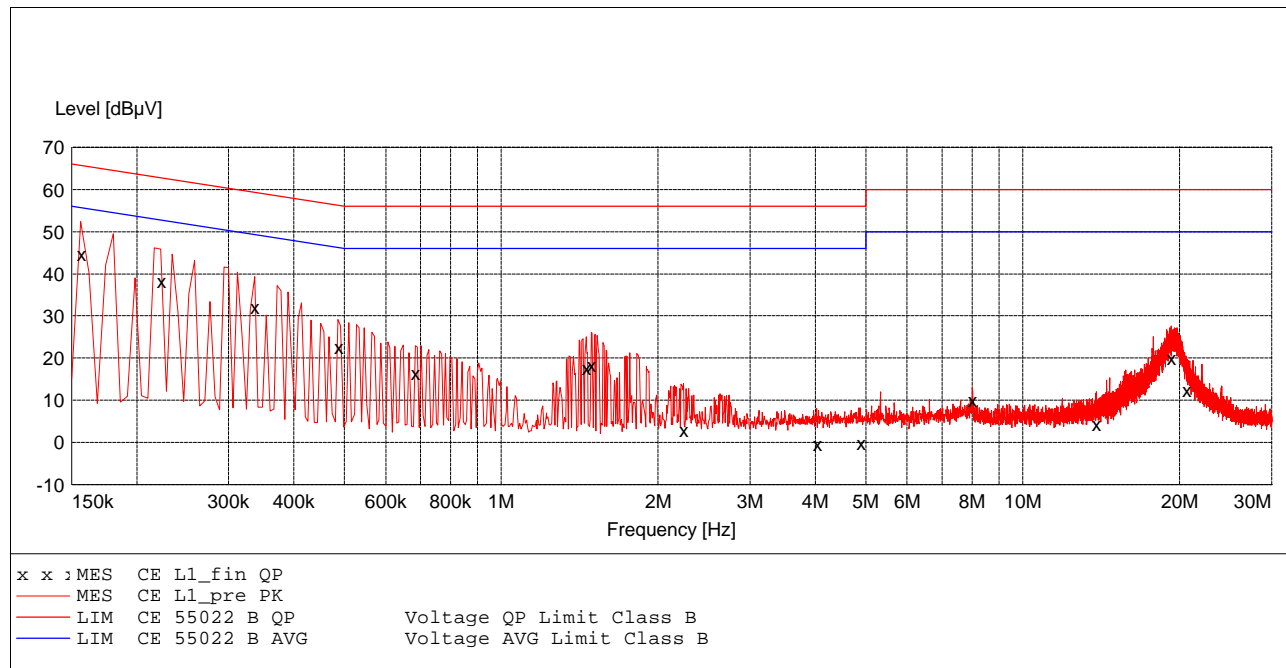
**Intermec Technologies Corporation**

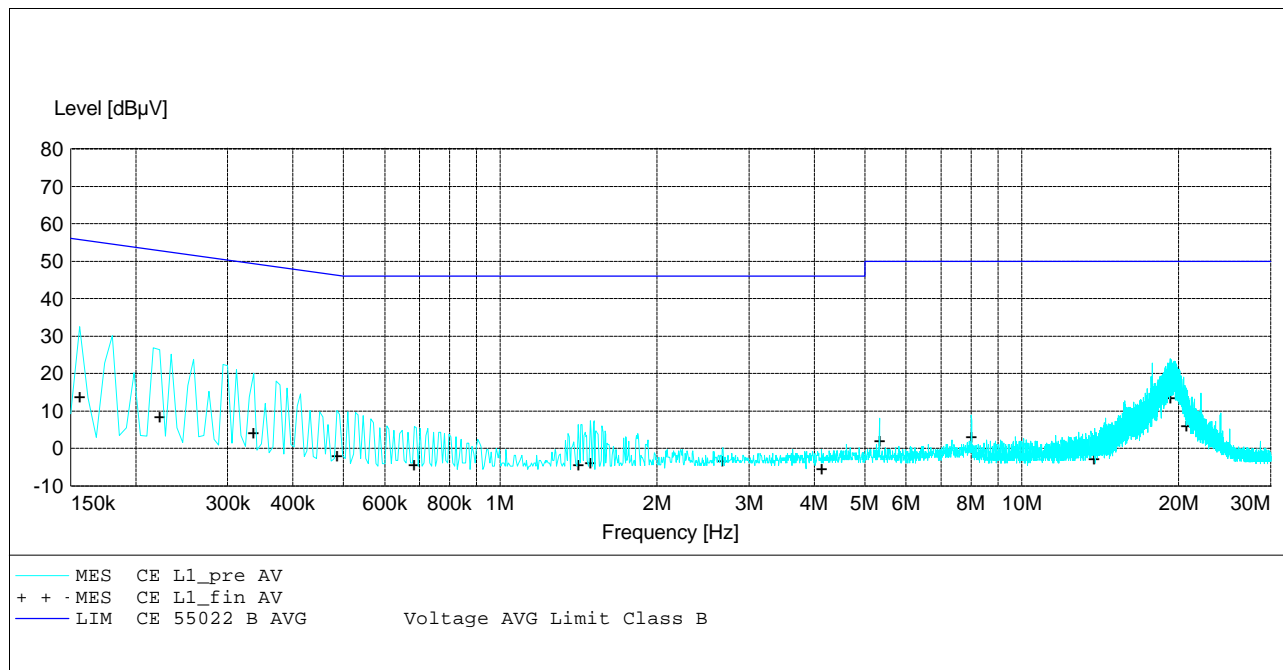
**Emission Test**

EUT: EasyLAN Wireless, 4400  
 Manufacturer / Eng.: Intermec / Katie M  
 Operating Condition: emissions test program  
 Test Site: EMC Lab, Cedar Rapids IA  
 Operator: df  
 Test Specification: CISPR 22 Class B  
 Comment: Max test, L1 Side, 120V, TX Ch6  
 Start of Test: 8/16/04 / 2:26:23PM

**SCAN TABLE: "CE ESI R&S L1"**

Short Description:	EN 55022 Voltage L1 Side					
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	30.0 MHz	6.0 kHz	MaxPeak	1.0 ms	9 kHz	C LISN R&S L1
			Average			





**MEASUREMENT RESULT: "CE L1\_fin QP"**

8/16/04 2:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	44.80	-0.10	65.70	20.90	L1	GND
0.222000	38.40	-0.10	62.80	24.30	L1	GND
0.336000	32.00	0.00	59.30	27.30	L1	GND
0.486000	22.60	0.00	56.20	33.60	L1	GND
0.684000	16.50	0.10	56.00	39.50	L1	GND
1.452000	17.80	0.10	56.00	38.20	L1	GND
1.488000	18.40	0.10	56.00	37.60	L1	GND
2.232000	3.00	0.30	56.00	53.00	L1	GND
4.026000	-0.30	0.20	56.00	56.30	L1	GND
4.872000	-0.20	0.30	56.00	56.20	L1	GND
7.998000	10.00	0.30	60.00	50.00	L1	GND
13.818000	4.40	0.10	60.00	55.60	L1	GND
19.230000	20.00	0.00	60.00	40.00	L1	GND
20.586000	12.40	0.00	60.00	47.60	L1	GND

**MEASUREMENT RESULT: "CE L1\_fin AV"**

8/16/04 2:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	14.10	-0.10	55.70	41.60	L1	GND
0.222000	8.80	-0.10	52.80	43.90	L1	GND
0.336000	4.50	0.00	49.30	44.80	L1	GND
0.486000	-1.50	0.00	46.20	47.70	L1	GND
0.684000	-4.00	0.10	46.00	50.00	L1	GND
1.410000	-4.20	0.10	46.00	50.20	L1	GND
1.488000	-3.60	0.10	46.00	49.60	L1	GND
2.670000	-3.10	0.20	46.00	49.10	L1	GND
4.128000	-5.10	0.20	46.00	51.10	L1	GND
5.334000	2.40	0.30	50.00	47.60	L1	GND
7.998000	3.60	0.30	50.00	46.40	L1	GND
13.770000	-2.40	0.10	50.00	52.40	L1	GND
19.230000	13.70	0.00	50.00	36.30	L1	GND
20.664000	6.30	0.00	50.00	43.70	L1	GND

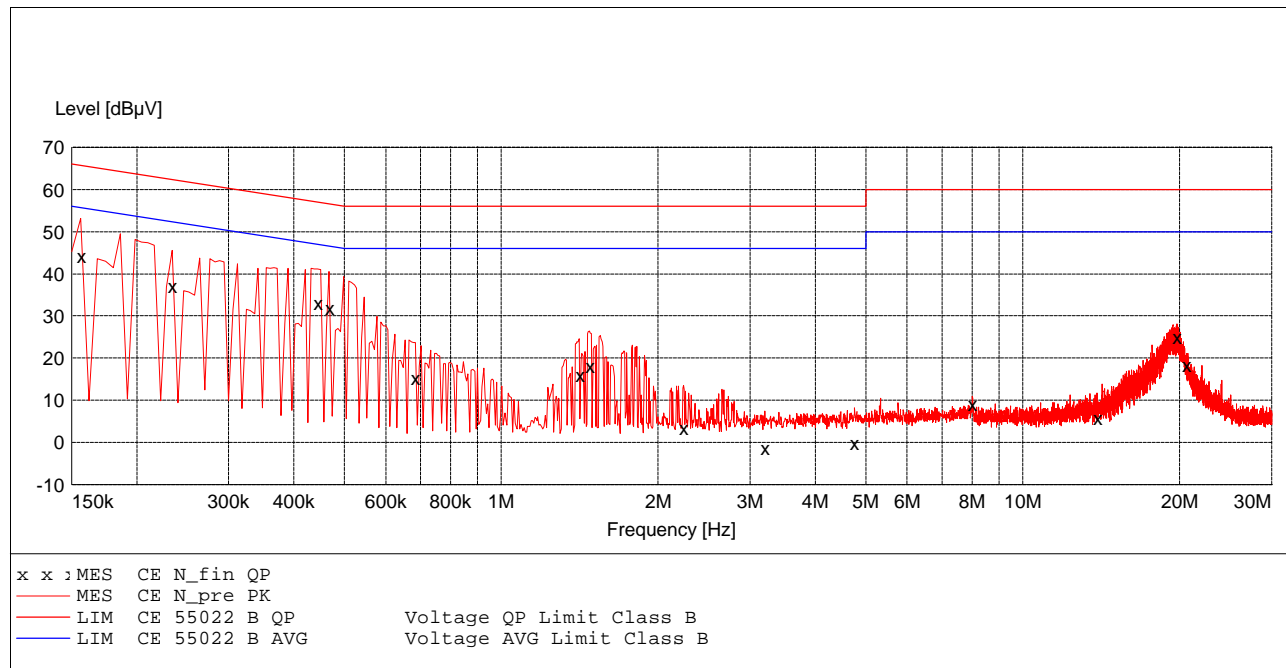
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**Emission Test**

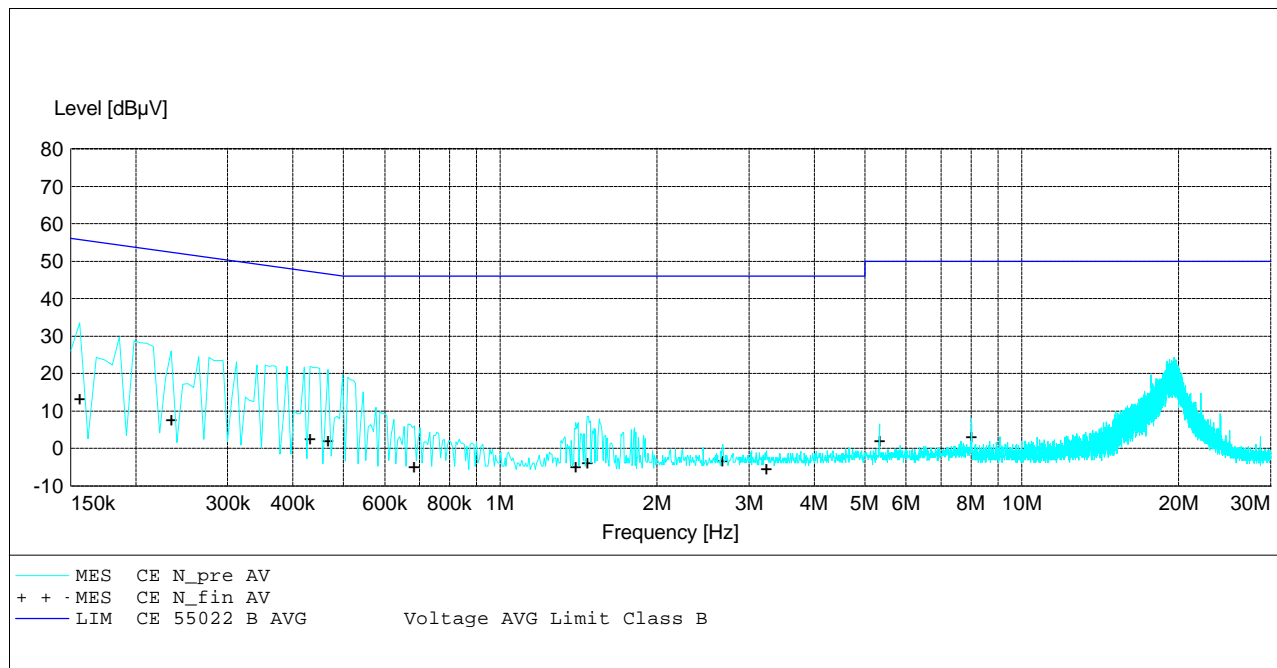
EUT: EasyLAN Wireless, 4420  
 Manufacturer / Eng.: Intermec / Katie M  
 Operating Condition: emissions test program  
 Test Site: EMC Lab, Cedar Rapids IA  
 Operator: df  
 Test Specification: CISPR 22 Class B  
 Comment: Max test, N Side, 120V TX Ch6  
 Start of Test: 8/16/04 / 2:34:56PM

**SCAN TABLE: "CE ESI R&S N"**

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	6.0 kHz	MaxPeak	1.0 ms	9 kHz	C LISN R&S N
Short Description: EN 55022 Voltage N Side			Average			







**MEASUREMENT RESULT: "CE N\_fin QP"**

8/16/04 2:39PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	44.20	-0.10	65.70	21.40	N	GND
0.234000	37.20	0.00	62.30	25.10	N	GND
0.444000	33.20	0.00	57.00	23.80	N	GND
0.468000	31.90	0.00	56.50	24.60	N	GND
0.684000	15.30	0.10	56.00	40.70	N	GND
1.410000	16.10	0.10	56.00	39.90	N	GND
1.476000	18.10	0.10	56.00	37.90	N	GND
2.232000	3.30	0.30	56.00	52.70	N	GND
3.198000	-1.20	0.30	56.00	57.20	N	GND
4.752000	-0.20	0.30	56.00	56.20	N	GND
7.998000	9.20	0.30	60.00	50.80	N	GND
13.872000	5.80	0.30	60.00	54.20	N	GND
19.710000	24.90	0.20	60.00	35.10	N	GND
20.550000	18.40	0.20	60.00	41.60	N	GND

**MEASUREMENT RESULT: "CE N\_fin AV"**

8/16/04 2:39PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.156000	13.50	-0.10	55.70	42.10	N	GND
0.234000	8.10	0.00	52.30	44.30	N	GND
0.432000	2.90	0.00	47.20	44.40	N	GND
0.468000	2.30	0.00	46.50	44.30	N	GND
0.684000	-4.50	0.10	46.00	50.50	N	GND
1.398000	-4.40	0.10	46.00	50.40	N	GND
1.470000	-3.60	0.10	46.00	49.60	N	GND
2.670000	-3.10	0.20	46.00	49.10	N	GND
3.240000	-5.00	0.30	46.00	51.00	N	GND
5.334000	2.30	0.30	50.00	47.70	N	GND
7.998000	3.40	0.30	50.00	46.60	N	GND
14.064000	2.00	0.20	50.00	48.00	N	GND
19.578000	19.80	0.20	50.00	30.20	N	GND
20.550000	12.70	0.20	50.00	37.30	N	GND