



FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1259-1
Report #: 020426A1
Date & Time: 04/26/02 10:00 AM
Test Engr: JCH

Company: Interwave Communications
EUT Description: Pt to Pt Radio Link, Link Cx, 5.8 GHz TX Low S/N 006449
Test Configuration : EUT Only
Type of Test: FCC 15.205/15.209
Mode of Operation: Transmitt

A-Site
 B-Site
 C-Site
 F-Site
 6 Worst Data
 Descending

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
649.99	39.70	20.22	9.30	30.59	38.64	46.00	-7.36	3mH	180.00	1.00	P
480.01	43.70	17.50	7.57	30.81	37.95	46.00	-8.05	3mH	180.00	1.00	P
420.02	42.30	16.09	6.86	30.64	34.62	46.00	-11.38	3mH	180.00	1.00	P
399.98	48.60	15.62	6.63	30.58	40.27	46.00	-5.73	3mH	180.00	1.00	P
380.00	45.70	15.44	6.40	30.51	37.03	46.00	-8.97	3mH	180.00	1.00	P
360.00	44.40	15.26	6.17	30.44	35.39	46.00	-10.61	3mH	180.00	1.00	P
350.00	47.70	15.16	6.05	30.40	38.51	46.00	-7.49	3mH	180.00	1.00	P
320.00	50.20	14.89	5.71	30.30	40.50	46.00	-5.50	3mH	180.00	1.00	P
300.00	51.70	14.71	5.48	30.23	41.66	46.00	-4.34	3mH	180.00	1.00	P
280.01	47.10	13.56	5.23	30.29	35.60	46.00	-10.40	3mH	180.00	1.00	P
250.00	53.20	11.83	4.86	30.38	39.51	46.00	-6.49	3mH	180.00	1.00	P
240.01	52.80	11.44	4.72	30.46	38.51	46.00	-7.49	3mH	180.00	1.00	P
200.00	50.60	16.57	4.18	30.78	40.57	43.50	-2.93	3mH	180.00	1.00	P
160.00	41.50	16.98	3.63	31.07	31.04	43.50	-12.46	3mH	180.00	1.00	P
150.02	46.80	16.46	3.46	31.11	35.61	43.50	-7.89	3mH	180.00	1.00	P
80.00	50.10	7.38	2.38	31.58	28.28	40.00	-11.72	3mH	180.00	1.00	P
Total data #: 16 V.2a											



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561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1259-1
Report #: 020425A1
Date & Time: 04/26/02 5:08 PM
Test Engr: JCH

Company: Interwave Communications
EUT Description: Pt to Pt Radio Link, Link CX 5.8 GHz High S/N00644D
Test Configuration : EUT Only
Type of Test: FCC 15.205/15.209
Mode of Operation: Transmitt



Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
80.00	48.90	7.38	2.38	31.58	27.08	40.00	-12.92	3mH	180.00	1.00	P
100.00	43.70	10.71	2.71	31.48	25.64	43.50	-17.86	3mH	180.00	1.00	P
150.00	46.10	16.46	3.46	31.11	34.91	43.50	-8.59	3mH	180.00	1.00	P
160.00	41.70	16.98	3.63	31.07	31.24	43.50	-12.26	3mH	180.00	1.00	P
200.00	52.70	16.57	4.18	30.78	42.67	43.50	-0.83	3mH	180.00	1.00	P
240.00	56.00	11.44	4.72	30.46	41.70	46.00	-4.30	3mH	180.00	1.00	P
250.00	57.10	11.83	4.86	30.38	43.41	46.00	-2.59	3mH	180.00	1.00	P
280.00	54.50	13.56	5.23	30.29	43.00	46.00	-3.00	3mH	180.00	1.00	P
319.99	51.10	14.89	5.71	30.30	41.40	46.00	-4.60	3mH	180.00	1.00	P
350.00	48.90	15.17	6.06	30.41	39.72	46.00	-6.29	3mH	180.00	1.00	P
479.98	41.60	17.50	7.57	30.81	35.86	46.00	-10.14	3mH	180.00	1.00	P

<p>04/29/02 FCC Measurement Compliance Certification Services, Morgan Hill Open Field Site</p> <p>Test Engr: Jerry Hovey Project #: 02U1259-1 Company: Interwave Communications EUT Descrip.: 5.8 GHz Point to Point DSX3 / IP Transceiver, Antenna : Integral EUT M/N: LINK CX 5.8 Tx Low S/N 006449, Tx High S/N 00644D Test Target: FCC Class B</p> <p>Equipment for 1-22 GHz: HP8566B Analyzer HP 8449B S/N 3008A00369 EMCO 3115 Antenna Cable: 3.0 feet</p> <p>Equipment for 22 - 58 GHz: HP8566B Analyzer HP 11975A Amplifier (LO) HP 11970K External mixer/antenna Cable: IF Only (321 MHz)</p> <p>Peak Measurements: 1 MHz Resolution Bandwidth 1MHz Video Bandwidth</p> <p>Average Measurements: 1MHz Resolution Bandwidth 10Hz Video Bandwidth</p>															
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
5.8 LOW															
11.470	3.0	51.9	40.2	38.9	2.9	-34.0	-10.3	1.0	50.4	38.7	74.0	54.0	-23.6	-15.3	2nd Harmonic, Horizontal (NF)
17.210	3.0	45.4	33.8	32.4	3.6	-33.0	-10.3	1.0	39.1	27.5	74.0	54.0	-34.9	-26.5	3rd Harmonic, Horizontal (NF)
22.940	3.0	43.1	32.6	32.7	3.1	-43.4	-10.3	1.0	26.2	15.7	74.0	54.0	-47.8	-38.3	4th Harmonic, Horizontal (NF)
5.8 HIGH															
11.626	3.0	48.6	37.5	38.9	2.2	-34.0	-10.3	1.0	46.4	35.3	74.0	54.0	-27.6	-18.7	2nd Harmonic, Horizontal (NF)
17.439	3.0	45.2	34.0	41.9	2.9	-33.0	-10.3	1.0	47.7	36.5	74.0	54.0	-26.3	-17.5	3rd Harmonic, Horizontal (NF)
23.252	3.0	43.0	33.2	32.4	3.6	-33.0	-10.3	1.0	36.7	26.9	74.0	54.0	-37.3	-27.1	4th Harmonic, Horizontal (NF)
f	Measurement Frequency			Amp	Preamp Gain				Avg Lim	Average Field Strength Limit			Pk Lim	Peak Field Strength Limit	
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters				Avg Mar	Margin vs. Average Limit			Pk Mar	Margin vs. Peak Limit	
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m										
AF	Antenna Factor			Peak	Calculated Peak Field Strength										
CL	Cable Loss			HPF	High Pass Filter										
<p>Note: Readings up to 40 GHz are noise floor for the spectrum analyzer which was 40-45 dBuV/m</p>															

05/06/02 FCC Measurement																	
Compliance Certification Services, Morgan Hill Open Field Site																	
Test Engr:		Frank Ibrahim															
Project #:		02U1259-1															
Company:		Interwave Communications															
EUT Descrip.:		5.8 GHz Point to Point DSX3 / IP Transceiver, Tx Low, S/N 006449, Antenna : 2' Parabolic, Model: SP2-5.2															
EUT M/N:		LINK CX															
Test Target:		FCC Class B															
Equipment for 1-22 GHz:								Equipment for 22 - 58 GHz:									
HP8566B Analyzer								HP8566B Analyzer									
Miteq NSP2600-44 Preamp								HP 11975A Amplifier (LO)									
EMCO 3115 Antenna								HP 11970K External mixer/antenna									
Cable: 17.0 feet								Cable: IF Only (321 MHz)									
Peak Measurements:								Average Measurements:									
1 MHz Resolution Bandwidth								1MHz Resolution Bandwidth									
1MHz Video Bandwidth								10Hz Video Bandwidth									
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes		
5.737	3.0	89.1		34.4	5.2	0.0	-10.3	0.0	118.4						Fundamental, Vertical		
7.919	3.0	47.9		36.8	8.6	-40.5	-10.3	1.0	43.6		98.4		-54.8		V		
15.839	3.0	48.9	40.2	38.7	13.2	-44.4	-10.3	1.0	47.0	38.3	74.0	54.0	-27.0	-15.7	V		
7.887	3.0	46.9		36.9	8.6	-40.5	-10.3	1.0	42.5		98.4		-55.9		V		
11.474	3.0	24.7	18.4	39.1	10.5	-39.6	-10.3	1.0	25.4	19.1	74.0	54.0	-48.6	-34.9	2nd Harmonic, Vertical (NF)		
17.211	3.0	28.7		44.1	14.1	-44.1	-10.3	1.0	33.5		74.0		-40.5		3rd Harmonic, Vertical (NF)		
22.948	3.0	31.2	22.0	32.7	17.6	-43.4	-10.3	1.0	28.8	19.6	74.0	54.0	-45.2	-34.4	4th Harmonic, Vertical (NF)		
								0.0									
11.474	3.0	24.3	16.9	39.1	10.5	-39.6	-10.3	1.0	25.0	17.6	74.0	54.0	-49.0	-36.4	2nd Harmonic, Horizontal (NF)		
17.211	3.0	26.5	19.2	44.1	14.1	-44.1	-10.3	1.0	31.3	24.0	74.0	54.0	-42.7	-30.0	3rd Harmonic, Horizontal (NF)		
22.948	3.0	40.6	32.0	32.7	17.6	-43.4	-10.3	1.0	38.2	29.6	74.0	54.0	-35.8	-24.4	4th Harmonic, Horizontal (NF)		
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit				
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit				
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit				
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit				
CL	Cable Loss					HPF	High Pass Filter										
Note: Readings up to 40 GHz are noise floor for the spectrum analyzer which was 25 - 30 dBuV/m																	

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes		
5.813	3.0	90.2		34.5	7.3	0.0	-10.3	0.0	121.7						Fundamental, Vertical		
11.626	3.0	26.9	16.3	39.1	10.6	-39.7	-10.3	1.0	27.6	17.0	74.0	54.0	-46.4	-37.0	2nd Harmonic, Vertical (NF)		
17.439	3.0	27.1		45.8	14.2	-44.1	-10.3	1.0	33.8		101.7		-67.9		3rd Harmonic, Vertical (NF)		
23.252	3.0	31.0		32.8	17.9	-43.6	-10.3	1.0	28.7		101.7		-73.0		4th Harmonic, Vertical (NF)		
11.903	3.0	47.8	38.1	39.0	10.7	-39.9	-10.3	1.0	48.3	38.6	74.0	54.0	-25.7	-15.4	Vertical		
11.626	3.0	22.9	15.5	39.1	10.6	-39.7	-10.3	1.0	23.6	16.2	74.0	54.0	-50.4	-37.8	2nd Harmonic, Horizontal (NF)		
17.439	3.0	29.0		45.8	14.2	-44.1	-10.3	1.0	35.7		101.7		-66.0		3rd Harmonic, Horizontal (NF)		
23.252	3.0	29.4		32.8	17.9	-43.6	-10.3	1.0	27.1		101.7		-74.6		4th Harmonic, Horizontal (NF)		
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit				
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit				
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit				
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit				
CL	Cable Loss					HPF	High Pass Filter										
Note: Readings up to 40 GHz are noise floor for the spectrum analyzer which was 25 - 30 dBuV/m																	

05/06/02 FCC Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Test Engr: Frank Ibrahim Project #: 02U1259-1 Company: Interwave Communications EUT Descrip.: 5.8 GHz Point to Point DSX3 / IP Transceiver, Tx High, S/N 00644D, Antenna : 4' Parabolic, Model: SSP4-52B / QFP4-52 EUT M/N: LINK CX Test Target: FCC Class B															
Equipment for 1-22 GHz: HP8566B Analyzer Miteq NSP2600-44 Preamp EMCO 3115 Antenna Cable: 17.0 feet								Equipment for 22 - 58 GHz: HP8566B Analyzer HP 11975A Amplifier (LO) HP 11970K External mixer/antenna Cable: IF Only (321 MHz)							
Peak Measurements: 1 MHz Resolution Bandwidth 1MHz Video Bandwidth								Average Measurements: 1MHz Resolution Bandwidth 10Hz Video Bandwidth							
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
5.813	3.0	89.9		34.5	7.3	0.0	-10.3	0.0	121.4						Fundamental, Vertical
11.626	3.0	24.4	16.2	39.1	10.6	-39.7	-10.3	1.0	25.1	16.9	74.0	54.0	-48.9	-37.1	2nd Harmonic, Vertical (NF)
17.439	3.0	27.7		45.8	14.2	-44.1	-10.3	1.0	34.4		101.4		-67.0		3rd Harmonic, Vertical (NF)
23.252	3.0	29.2		32.8	17.9	-43.6	-10.3	1.0	26.9		101.4		-74.5		4th Harmonic, Vertical (NF)
11.626	3.0	22.8	15.5	39.1	10.6	-39.7	-10.3	1.0	23.5	16.2	74.0	54.0	-50.5	-37.8	2nd Harmonic, Horizontal (NF)
17.439	3.0	26.5		45.8	14.2	-44.1	-10.3	1.0	33.2		101.4		-68.2		3rd Harmonic, Horizontal (NF)
23.252	3.0	29.1		32.8	17.9	-43.6	-10.3	1.0	26.8		101.4		-74.6		4th Harmonic, Horizontal (NF)
f	Measurement Frequency			Amp	Preamp Gain			Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna			D Corr	Distance Correct to 3 meters			Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading			Avg	Average Field Strength @ 3 m			Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor			Peak	Calculated Peak Field Strength			Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss			HPF	High Pass Filter										
Note: Readings up to 40 GHz are noise floor for the spectrum analyzer which was 25 - 30 dBuV/m															

f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
5.737	3.0	88.2		34.4	7.3	0.0	-10.3	0.0	119.6						Fundamental, Vertical
11.474	3.0	25.5	17.4	39.1	10.5	-39.6	-10.3	1.0	26.2	18.1	74.0	54.0	-47.8	-35.9	2nd Harmonic, Vertical (NF)
17.211	3.0	28.8		44.1	14.1	-44.1	-10.3	1.0	33.6		99.6		-66.0		3rd Harmonic, Vertical (NF)
22.948	3.0	29.7	22.5	32.7	17.6	-43.4	-10.3	1.0	27.3	20.1	74.0	54.0	-46.7	-33.9	4th Harmonic, Vertical (NF)
11.474	3.0	25.1	16.7	39.1	10.5	-39.6	-10.3	1.0	25.8	17.4	74.0	54.0	-48.2	-36.6	2nd Harmonic, Horizontal (NF)
17.211	3.0	28.8		44.1	14.1	-44.1	-10.3	1.0	33.6		99.6		-66.0		3rd Harmonic, Horizontal (NF)
22.948	3.0	30.3	22.3	32.7	17.6	-43.4	-10.3	1.0	27.9	19.9	74.0	54.0	-46.1	-34.1	4th Harmonic, Horizontal (NF)
f	Measurement Frequency		Amp		Preamp Gain		Avg Lim		Average Field Strength Limit		Pk Lim		Peak Field Strength Limit		
Dist	Distance to Antenna		D Corr		Distance Correct to 3 meters		Avg Mar		Margin vs. Average Limit		Pk Mar		Margin vs. Peak Limit		
Read	Analyzer Reading		Peak		Calculated Peak Field Strength										
AF	Antenna Factor		HPF		High Pass Filter										
CL	Cable Loss														
Note: Readings up to 40 GHz are noise floor for the spectrum analyzer which was 25 - 30 dBuV/m															

05/06/02

**FCC Measurement
Compliance Certification Services, Morgan Hill Open Field Site**

Test Engr:	Frank Ibrahim
Project #:	02U1259-1
Company:	Interwave Communications
EUT Descrip.:	5.8 GHz Point to Point DSX3 / IP Transceiver
EUT M/N:	LINK CX
Test Target:	FCC Class B

List of Equipment used

Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP100Hz - 22GHz	8566B	2140A01296	05/04/2002
Quasi-Peak Detector	HP9K - 1GHz	85650A	2811A01335	05/04/2002
Spectrum Display	HP	85662A	3026A19146	06/28/2002
Pre-Amplifier	MITEQ1-26GHz	NSP2600-44	646456	04/26/2003
Horn Antenna	EMCO	3115	6739	01/31/2003
LISN	Fischer 9k - 100MHz	FCC-LISN-50/250-25-2	114	08/08/2002
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
LISN	Solar Elec. Co.	8012-50-R-24-BNC	837990	08/08/2002
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	04/17/2003
Horn Antenna	Antenna Research Associates	MWH 1826/B	1013	07/26/2002