

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultant
EUT Descrip.: 2.4GHz DTS
EUT M/N: Point Red Device **FCC ID:** QDU-MCRD-2R4
Test Target: FCC Class B
Mode Oper: Tx with 9dBi omni **Power into antenna:** 26.35 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
1 MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10Hz Video Bandwidth

Flat Panel Antenna--15dBi, Low Channel

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
2.405	9.8	82.3		28.9	3.6	-36.3	0.0	0.0	78.4		74.0	54.0			V
4.810	9.8	56.7	34.8	33.8	5.3	-36.1	0.0	1.0	60.7	38.8	74.0	54.0	-13.3	-15.2	V
4.810	9.8	52.9	33.5	33.8	5.3	-36.1	0.0	1.0	56.8	37.5	74.0	54.0	-17.2	-16.5	H
7.215	9.8	45.4	32.2	37.0	6.8	-36.3	0.0	1.0	53.8	40.6	74.0	54.0	-20.2	-13.4	V
7.215	9.8	41.9	32.4	37.0	6.8	-36.3	0.0	1.0	50.2	40.7	74.0	54.0	-23.8	-13.3	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/04/03 **High Frequency Measurement**
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Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultant
EUT Descrip.: 2.4GHz DTS
EUT M/N: Point Red Device FCC ID: QDU-MCRD-2R4
Test Target:FCC Class B
Mode Oper: Tx with 9dBi omni Power input: 25.05 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
1 MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10Hz Video Bandwidth

Flat Panel Antenna--15dBi, Mid Channel

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
2.440	9.8			29.0	3.6	-36.3	0.0	0.0			74.0	54.0			V
4.880	9.8	58.0	34.0	34.0	5.4	-36.1	0.0	1.0	62.2	38.2	74.0	54.0	-11.8	-15.8	V
4.880	9.8	60.9	34.4	34.0	5.4	-36.1	0.0	1.0	65.1	38.6	74.0	54.0	-8.9	-15.4	H
7.319	9.8	52.0	33.9	37.2	6.8	-36.3	0.0	1.0	60.7	42.6	74.0	54.0	-13.3	-11.4	V
7.319	9.8	52.7	34.7	37.2	6.8	-36.3	0.0	1.0	61.4	43.4	74.0	54.0	-12.6	-10.6	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1821-1
 Company: Tokeias RFI/EMI Consultant
 EUT Descrip.: 2.4GHz DTS
 EUT M/N: Point Red Device FCC ID: QDU-MCRD-2R4
 Test Target:FCC Class B
 Mode Oper: Tx with 9 dBi omni Power input: 25.73 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

Flat Panel Antenna--15dBi, Low Channel

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
2.475	9.8			29.0	3.6	-36.3	0.0	1.0			74.0	54.0			V
4.950	9.8	47.6	32.5	34.2	5.4	-36.1	0.0	1.0	52.1	36.9	74.0	54.0	-21.9	-17.1	V
7.424	9.8	42.8	32.3	37.4	6.9	-36.2	0.0	1.0	51.9	41.3	74.0	54.0	-22.1	-12.7	V
4.950	9.8	53.5	33.4	34.2	5.4	-36.1	0.0	1.0	58.0	37.9	74.0	54.0	-16.0	-16.1	H
7.424	9.8	45.0	32.2	37.4	6.9	-36.2	0.0	1.0	54.0	41.2	74.0	54.0	-20.0	-12.8	Hr
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultant
EUT Descrip.: 2.4GHz DTS
EUT M/N: Point Red **FCC ID:** QDU-MCRD-2R4
Test Target: FCC Class B
Mode Oper: Tx on flat panel antenna **Power input:** 26 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
1 MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10 Hz Video Bandwidth

Antenna--PC-2415N, 15dBi, Low Channel

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
2.405	9.8	83.1		28.9	3.6	-36.3	0.0	0.0	79.2		74.0	54.0			V
4.810	9.8	52.3	35.3	33.8	5.3	-36.1	0.0	1.0	56.3	39.2	74.0	54.0	-17.7	-14.8	V
4.810	9.8	44.6	32.0	33.8	5.3	-36.1	0.0	1.0	48.6	36.0	74.0	54.0	-25.4	-18.0	H
7.215	9.8	45.7	33.6	37.0	6.8	-36.3	0.0	1.0	54.0	42.0	74.0	54.0	-20.0	-12.0	V
7.215	9.8	45.1	32.0	37.0	6.8	-36.3	0.0	1.0	53.4	40.4	74.0	54.0	-20.6	-13.6	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultanthomas N. C
EUT Descrip.: 2.4GHz DTS
EUT M/N: Point Red **FCC ID:** QDU-MCRD-2R4
Test Target:FCC Class B
Mode Oper: Tx on flat panel antenna **Power input:** 25 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10Hz Video Bandwidth

PC-2415N Antenna--15dBi, Mid Channel

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
2.440	9.8			29.0	3.6	-36.3	0.0	0.0			74.0	54.0			V
4.880	9.8	56.0	32.3	34.0	5.4	-36.1	0.0	1.0	60.2	36.5	74.0	54.0	-13.8	-17.5	V
4.880	9.8	52.9	32.8	34.0	5.4	-36.1	0.0	1.0	57.1	37.1	74.0	54.0	-16.9	-16.9	H
7.319	9.8	50.3	32.7	37.2	6.8	-36.3	0.0	1.0	59.0	41.4	74.0	54.0	-15.0	-12.6	V
7.319	9.8	51.0	34.0	37.2	6.8	-36.3	0.0	1.0	59.7	42.7	74.0	54.0	-14.3	-11.3	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultant
EUT Descrp.: 2.4GHz DTS
EUT M/N: Point Red **FCC ID:** QDU-MCRD-2R4
Test Target: FCC Class B
Mode Oper: Tx on flat panel antenna **Power input:** 25.73 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10Hz Video Bandwidth

Antenna--PC-2415N, 15dBi, Hi Channel

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
2.475	9.8	82.7		29.0	3.6	-36.3	0.0	0.0	79.0		74.0	54.0			V
4.950	9.8	44.1	32.3	34.2	5.4	-36.1	0.0	1.0	48.5	36.8	74.0	54.0	-25.5	-17.2	V
7.424	9.8	44.5	32.9	37.4	6.9	-36.2	0.0	1.0	53.6	42.0	74.0	54.0	-20.4	-12.0	V
4.950	9.8	48.0	33.3	34.2	5.4	-36.1	0.0	1.0	52.5	37.8	74.0	54.0	-21.5	-16.2	H
7.424	9.8	44.9	32.6	37.4	6.9	-36.2	0.0	1.0	54.0	41.6	74.0	54.0	-20.0	-12.4	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

Note: No emissions found above 3rd harmonic

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		

02/03/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: NEELESH RAJ
Project #:
Company: POINT RED FCC ID: QDU-MCRD-2R4 with yagi antenna Power input: 26.35 dBm
EUT Descrip.:
EUT M/N:
Test Target:
Mode Oper:

Test Equipment:

Cable (feet	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
15	T73; S/N: 6717	Miteq NSP2600-44	PSA	

Peak Measurements:

1 MHz Resolution Bandwidth
1MHz Video Bandwidth

Average Measurements:

1 MHz 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
HIGH CHANNEL HARMONICS (2.475GHz)															
4.950	9.8	43.9	33.2	34.2	5.8	-36.1	0.0	1.0	48.8	38.1	74.0	54.0	-25.2	-15.9	V
7.425	9.8	43.3	32.2	37.4	7.3	-36.2	0.0	1.0	52.8	41.7	74.0	54.0	-21.2	-12.3	V
9.900	9.8	40.9		40.1	8.6	-35.5	0.0	1.0	55.0		94.4		-39.4		V
12.375	9.8	41.5	31.8	39.1	9.6	-36.5	0.0	1.0	54.8	45.0	74.0	54.0	-19.2	-9.0	V
4.950	9.8	43.8	32.0	34.2	5.8	-36.1	0.0	1.0	48.7	36.9	74.0	54.0	-25.3	-17.1	H
7.425	9.8	43.4		37.4	7.3	-36.2	0.0	1.0	52.9		86.7		-33.8		H
9.900	9.8	41.0	30.0	40.1	8.6	-35.5	0.0	1.0	55.2	44.2	74.0	54.0	-18.8	-9.8	H
12.375	9.8	42.0	31.5	39.1	9.6	-36.5	0.0	1.0	55.3	44.8	74.0	54.0	-18.7	-9.2	H
MIDDLE CHANNEL HARMONICS (2.440)															
4.880	9.8	48.6	30.6	34.0	5.8	-36.1	0.0	1.0	53.2	35.2	74.0	54.0	-20.8	-18.8	V
7.320	9.8	45.7	30.9	37.2	7.3	-36.3	0.0	1.0	54.9	40.1	74.0	54.0	-19.1	-13.9	V
9.750	9.8	42.1		39.9	8.6	-35.5	0.0	1.0	56.0		97.3		-41.2		V
12.200	9.8	41.7	31.1	39.3	9.6	-36.4	0.0	1.0	55.1	44.5	74.0	54.0	-18.9	-9.5	V
4.880	9.8	44.9	30.5	34.0	5.8	-36.1	0.0	1.0	49.6	35.1	74.0	54.0	-24.4	-18.9	H
7.320	9.8	41.8	30.8	37.2	7.3	-36.3	0.0	1.0	51.0	40.0	74.0	54.0	-23.0	-14.0	H
9.750	9.8	41.0		39.9	8.6	-35.5	0.0	1.0	54.9		87.7		-32.8		H
12.200	9.8	40.0	30.2	39.3	9.6	-36.4	0.0	1.0	53.4	43.6	74.0	54.0	-20.6	-10.4	H
SPURIOUS															
10.551	9.8	54.0		39.2	8.9	-35.6	0.0	1.0	67.4		87.7		-20.3		H
LOW CHANNEL HARMONICS (2.405GHz)															
4.810	9.8	43.1	31.1	33.8	5.7	-36.1	0.0	1.0	47.5	35.5	74.0	54.0	-26.5	-18.5	V
7.215	9.8	42.1		37.0	7.2	-36.3	0.0	1.0	50.9		90.4		-39.5		V
9.620	9.8	45.1		39.7	8.5	-35.4	0.0	1.0	58.8		90.4		-31.6		V
12.025	9.8	42.5	30.9	39.5	9.5	-36.3	0.0	1.0	56.1	44.5	74.0	54.0	-17.9	-9.5	V
4.810	9.8	42.8	30.1	33.8	5.7	-36.1	0.0	1.0	47.2	34.5	74.0	54.0	-26.8	-19.5	H
7.215	9.8	41.3		37.0	7.2	-36.3	0.0	1.0	50.1		82.7		-32.6		H
9.620	9.8	44.0		39.7	8.5	-35.4	0.0	1.0	57.7		82.7		-25.0		H
12.025	9.8	42.3	30.0	39.5	9.5	-36.3	0.0	1.0	55.9	43.6	74.0	54.0	-18.1	-10.4	H

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		

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultant
EUT Descrp.: 2.4GHz DTS
EUT M/N: Point Red Device FCC ID: QDU-MCRD-2R4
Test Target:FCC Class B
Mode Oper: Tx with 24 dBi dish Power input: 24 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414	T73; S/N: 6717	Miteq NSP2600-44	8564E Analyzer	

Peak Measurements:

1 MHz Resolution Bandwidth
1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
10Hz Video Bandwidth

Antenna--24dBi, disk. Low Channel

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
2.405	9.8	97.5		28.9	3.6	-36.3	0.0	0.0	93.6		74.0	54.0			V
4.810	9.8	65.7	33.8	33.8	5.3	-36.1	0.0	1.0	69.7	37.8	74.0	54.0	-4.3	-16.2	V
4.810	9.8	52.0	32.4	33.8	5.3	-36.1	0.0	1.0	56.0	36.4	74.0	54.0	-18.0	-17.6	H
7.215	9.8	59.1	33.2	37.0	6.8	-36.3	0.0	1.0	67.4	41.6	74.0	54.0	-6.6	-12.4	V
7.215	9.8	42.8	30.0	37.0	6.8	-36.3	0.0	1.0	51.1	38.4	74.0	54.0	-22.9	-15.6	H, Noise Floor
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m Peak Calculated Peak Field Strength HPF High Pass Filter Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit															

02/04/03 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: Chin Pang
 Project #: 03U1821-1
 Company: Tokeias RFI/EMI Consultant
 EUT Descrip.: 2.4GHz DTS
 EUT M/N: Point Red Device FCC ID: QDU-MCRD-2R4
 Test Target:FCC Class B
 Mode Oper: Tx with 24 dBi dish Power input: 24 dBm

Test Equipment:

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414 ▼	T73; S/N: 6717 ▼	Miteq NSP2600-44 ▼	8564E Analyzer ▼	▼

Peak Measurements:

1 MHz Resolution Bandwidth
 1MHz Video Bandwidth

Average Measurements:

1 MHz Resolution Bandwidth
 10Hz Video Bandwidth

Antenna--24dBi, disk. Mid Channel

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
2.440	9.8			29.0	3.6	-36.3	0.0	0.0			74.0	54.0			V
4.880	9.8	69.6	35.0	34.0	5.4	-36.1	0.0	1.0	73.9	39.2	74.0	54.0	-0.1	-14.8	V
4.880	9.8	49.2	32.6	34.0	5.4	-36.1	0.0	1.0	53.4	36.8	74.0	54.0	-20.6	-17.2	H
7.319	9.8	51.5	33.3	37.2	6.8	-36.3	0.0	1.0	60.2	42.0	74.0	54.0	-13.8	-12.0	V
7.319	9.8	50.1	32.5	37.2	6.8	-36.3	0.0	1.0	58.8	41.2	74.0	54.0	-15.2	-12.8	H
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

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		

Test Engr: Chin Pang
Project #: 03U1821-1
Company: Tokeias RFI/EMI Consultanthomas N. C
EUT Descrip.: 2.4GHz DTS
EUT M/N: Point Red Device FCC ID: QDU-MCRD-2R4
Test Target:FCC Class B
Mode Oper: Tx with 24 dBi dish Power input: 24 dBm

Cable (feet)	EMCO Horn 1-18GHz	Pre-amplifier 1-26GHz	Spectrum Analyzer	Horn > 18GHz
1414	T73; S/N: 6717	Miteq NSP2600-44	8564E Analyzer	

1 MHz Resolution Bandwidth
1MHz Video Bandwidth

1 MHz 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
2.475	9.8			29.0	3.6	-36.3	0.0	1.0			74.0	54.0			V
4.950	9.8	62.5	39.0	34.2	5.4	-36.1	0.0	1.0	67.0	43.4	74.0	54.0	-7.0	-10.6	V
7.424	9.8	59.6	39.2	37.4	6.9	-36.2	0.0	1.0	68.6	48.2	74.0	54.0	-5.4	-5.8	V
4.950	9.8	42.0	30.0	34.2	5.4	-36.1	0.0	1.0	46.5	34.5	74.0	54.0	-27.5	-19.5	H
7.424	9.8	44.0	31.5	37.4	6.9	-36.2	0.0	1.0	53.0	40.5	74.0	54.0	-21.0	-13.5	H, Noise Floor
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V
								1.0			74.0	54.0			V

f

Measurement Frequency

Dist

Distance to Antenna

Read

Analyzer Reading

AF

Antenna Factor

CL

Cable Loss

Amp

Preamp Gain

D Corr

Distance Correct to 3 meters

Avg

Average Field Strength @ 3 m

Peak

Calculated Peak Field Strength

HPF

High Pass Filter

Avg Lim

Average Field Strength Limit

Pk Lim

Peak Field Strength Limit

Avg Mar

Margin vs. Average Limit

Pk Mar

Margin vs. Peak Limit