Intertek Testing Services
ETL SEMKO

Class II Permissive Change Test Report

Report Number: 30301661
Project Number: 3030166
Report Date: August 22, 2002
Revised: October 7, 2002

Testing performed on the

DSSS Radio
Model: 40100-XXX
FCC ID: HZB-US58-S60

for

Proxim Corporation

Test Performed by:
Intertek Testing Services
1365 Adams Court
Menlo Park, CA 94025

Test Authorized by:
Proxim Corporation
1196 Borregas Avenue,
Sunnyvale, CA 94089 USA

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1.0 Introduction

This report intends to show compliance of the certified device Model No: 40100-XXX (FCC ID: HZB-US58-S60**)** with the FCC Rules after modifications made by Proxim Corp.

Change Description

The Tsunami Subscriber Unit is replacing the 100-00644-10 RF board with the 100-00864-00 RF board in order to take advantage of an improved RF ASIC chip. The new RF ASIC chip provides the capability of implementing the first local oscillator and additional transmitter gain on-chip instead of with discrete circuitry. While primary motivation is to reduce cost, it has the added benefit of reducing spurious emissions as more RF circuits are now contained on chip at lower power levels. The architecture, block diagram, and frequency plan of both RF boards are identical.

For the detailed list of changes please refer to the document "644 to 864 Change Description".

The changes may affect the in-band and out-of-band conducted and radiated emissions. Therefore, the following tests were performed to show that the device still in compliance with FCC Part 15.247:

Conducted output power
6 dB Bandwidth
Power Density
Out-of-band Antenna Conducted Emission

The test procedures, as described in American National Standards Institute C63.4-1992, were employed. A description of the product and operating configuration, the various provisions of the rules, the methods for determining compliance and a detailed summary of the results are included within this test report.

2.0 Test Summary

Test results are given in full in Sections 4.

TEST	REFERENCE	RESULTS
Output power	15.247(b)	Complies
6 dB Bandwidth	15.247(a)(2)	Complies
Power Density	15.247(d)	Complies
Out-of-band Antenna Conducted Emission	15.247(c)	Complies
Out-of-band Radiated Emission (except emissions in restricted bands)	15.247(c)	Not Applicable. The EUT passed out-of-band antenna conducted emission
Radiated Emission in Restricted Bands	15.209, 15.205	Complies
Radiated Emission from Digital Part	15.109	Complies
AC Line-conducted Emission	15.207	Test was not performed

3.0 General Description

3.1 Description of Equipment

The EUT Model No.: 40100-XXX is a device used for wireless point-to-point communications operating in the frequency range 5.725 - 5.825 GHz.

Overview of the Tsunami Subscriber Unit

Applicant	Proxim Corporation
Trade Name & Model No.	Tsunami Subscriber Unit, Model 40100-XXX
FCC Identifier	HZB-US58-S60
Use of Product	**Fixed Wireless Ethernet Access**
Type of Transmission	TDD
Type of Modulation	**QAM16, QAM8, QPSK R $^{3}/_{4}$, QPSK R $^{1}/_{2}$**
Rated RF Output	18 dBm (peak)
Frequency Range	5740 – 5810 MHz
Number of Channel(s)	6 channels maximum
Antenna(s) & Gain	Circle polarized internal permanently connected antenna, 21 dBi gain
Antenna Requirement	The EUT uses a permanently connected antenna.
Manufacturer name & address	Proxim Corporation 1196 Borregas Avenue, Sunnyvale, CA 94089 USA

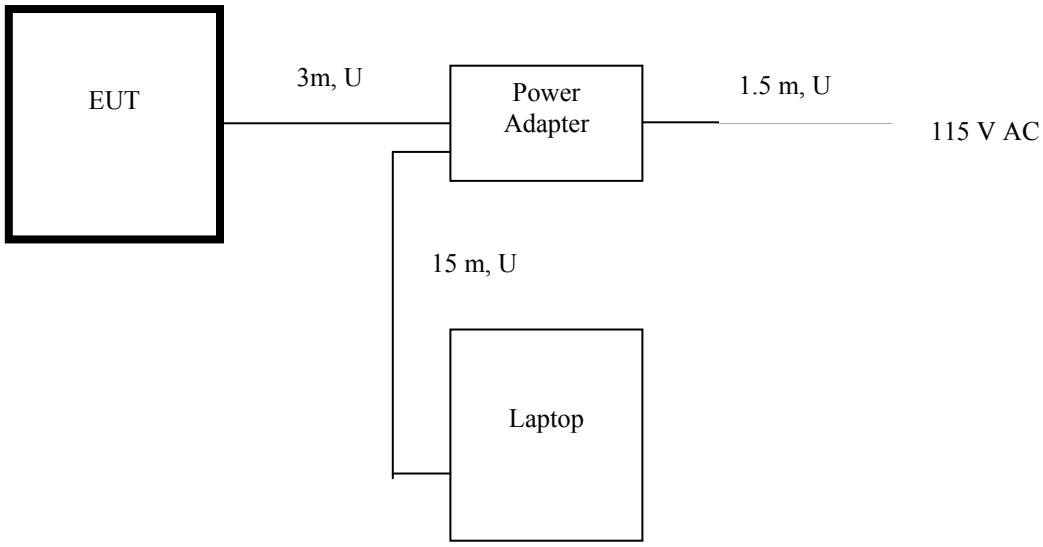
A production version of the sample was received on August 15, 2002 in good operating condition.

3.2 System Test Configuration

3.2.1 Support Equipment and description

Laptop computer: Hewlett Packard Omnibook 4150.

3.2.2 Block Diagram of Test Setup



S = Shielded **U** = Unshielded	**F** = With Ferrite **M** = Meter

3.3 Test Facility

The test facility and site measurement data have been fully placed on file with the FCC and NVLAP accredited.

3.4 Justification

For emission testing, the Equipment under Test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

3.5 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. For emissions testing, the units were setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing.

3.6 Mode of operation during test

100% time transmitting/receiving signal. The device was setup for **QPSK R $^{1}/_{2}$** modulation.

3.7 Modifications required for Compliance

The following modifications were installed during compliance testing in order to bring the product into compliance (Please note that this list does not include changes made specifically by Western Multiplex prior to compliance testing):

Intertek Testing Services made no modifications to the EUT.

3.8 Additions, deviations and exclusions from standards

No additions, deviations or exclusion have been made from standard.

4.0 Measurement Results

4.1 Conducted Output Power at Antenna Terminals
[FCC Rules 15.247(b)]

Requirements

For systems operating in the 5725 - 5850 MHz band that are used exclusively for fixed, point-to-point operations, maximum allowed transmitter output is 1 watt (+30 dBm).

Procedure

The antenna port of the 40100-XXX was connected to the input of a peak power meter. Power was read directly and cable loss correction was added to the reading to obtain the power at the 40100-XXX antenna terminal.

Test Results

Frequency (MHz)	Modulation	Output in dBm
5740	QPSK R $^1/_2$	17.8
5768	QPSK R $^1/_2$	17.8
5810	QPSK R $^1/_2$	17.9

4.2 6-dB Bandwidth
[FCC 15.247(a)(2)]

Requirements

For the device operating in DSSS mode, the minimum 6-dB bandwidth shall be at least 500 kHz

Procedure

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken; a DISPLAY line was drawn 6-dB lower than PEAK level. The 6-dB bandwidths were determined from where the channel output spectrum intersected the display line.

Test Result

Frequency (MHz)	Modulation	6-dB Bandwidth	Plot
5740	QPSK R 1/2	20.40 MHz	1.2
5810	QPSK R 1/2	20.45 MHz	1.5

Refer to the following plots for 6-dB and 26-dB bandwidths.


BWMkrΔ 20.40MHz
Ref Lvl 10.0dBm
Δ6.00dB
10dB/
Atten 20dB
Tek
PROXIM SU
08/15/02
11:01:12
Plot 1.2
Freq 5.740 00GHz
ResBW 100KHz
VidBW 100KHz
Span 50MHz
SWP 50mS
LEVEL
SPAN
Freq
5.740 00GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0


Plot 1.5
BWMkrΔ 20.45MHz
Ref Lvl 10.0dBm
Δ6.00dB
10dB/
Atten 20dB
Tek
PROXIM SU
08/15/02
10: 56: 33
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
Freq 5.810 00GHz
ResBW 100KHz
VidBW 100KHz
Span 50MHz
SWP 50mS
LEVEL
SPAN
Mkr 5.808 70GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix 2784

4.3 Power Density
[FCC 15.247(d)]

Requirements

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Procedure

The spectrum analyzer RES BW was set to 3 kHz. The START and STOP frequencies were set to the band edges of the maximum output passband. If there is no clear maximum amplitude in any given portion of the band, it may be necessary to make measurements at a number of bands defined by several START and STOP frequency pairs. Total SWEEP TIME is calculated as follows:

SWEEP TIME (SEC) = (Fstop, kHz - Fstart, kHz)/3 kHz

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

Test Result

Frequency (MHz)	Modulation	Power Density (dBm)	Plot
5740	QPSK R 1/2	-12.8	2a, 2b
5810	QPSK R 1/2	-14.6	2c, 2d

Frequency Span = 600 kHz

Sweep Time = Frequency Span/3 kHz = 200 Seconds

Refer to the following plots for power density data:


Mkr 5.745 20GHz 2.30dBm
Ref Lvl 10.0dBm 10dB/ Atten 20dB
PROXIM SU
08/15/02
11:06:44
Pk 2a
Freq 5.740 00GHz Span 50MHz
ResBW 100KHz VidBW 100KHz SWP 50mS
LEVEL SPAN TRIG 0 %
KNOB 2 KNOB 1 KEYPAD Tektronix 2784
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0


Mkr 5.745 387 2GHz -12.80dBm
Ref Lvl 10.0dBm 10dB/ Atten 20dB
PROXIM SU
08/15/02
11:11:52
Plot 2.6
Freq 5.745 200 0GHz Span 600KHz
ResBW 3KHz VidBW 3KHz SWP 200S
LEVEL SPAN SWP 200S
KNOB 2 KNOB 1 KEYPAD
Tektronix 2784


Plot 2c
Mkr 5.806 75GHz 0.70dBm
Ref Lvl 10.0dBm 10dB/ Atten 20dB
PROXIM SU
08/15/02
11:15:29
Freq 5.810 00GHz Span 50MHz
ResBW 100kHz VidBW 100kHz SWP 50mS
LEVEL SPAN VidBW 100kHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0


Plot 2d
MKr 5.806 894 6GHz -14.60dBm
Ref Lvl 10.0dBm 10dB/ Atten 20dB
PROXIM SU
08/15/02
11:21:26
Freq 5.806 750 0GHz Span 600KHz
ResBW 3KHz VidBW 3KHz SWP 200S
LEVEL SPAN SWP 200S
KNOB 2 KNOB 1 KEYPAD Tektronix 2784
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0

4.4 Out-of-Band Conducted Emissions [FCC 15.247(c)]

Requirements

In any 100 kHz bandwidth outside the EUT passband, the RF power shall be at least 20 dB below that of the maximum in-band 100 kHz emission.

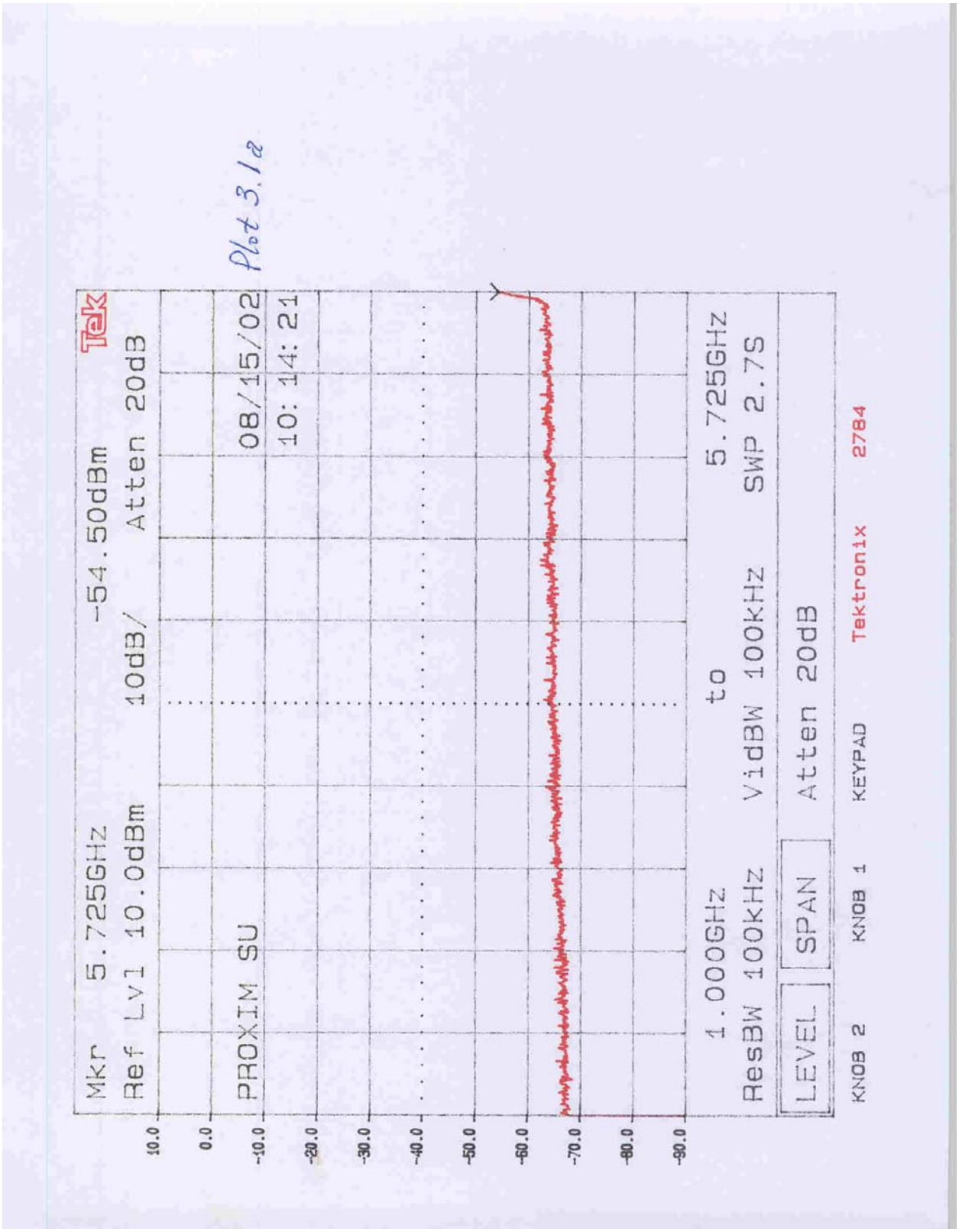
Procedure

A spectrum analyzer was connected to the antenna port of the transmitter. Analyzer Resolution Bandwidth was set to 100 kHz. For each channel investigated, the in-band and out-of-band emission measurements were performed.
The out-of-band emissions were measured from 1 GHz to 10 GHz only, because the device passed the more stringent limit from 10 MHz to 40 GHz in U-NII mode (see report 30301661).

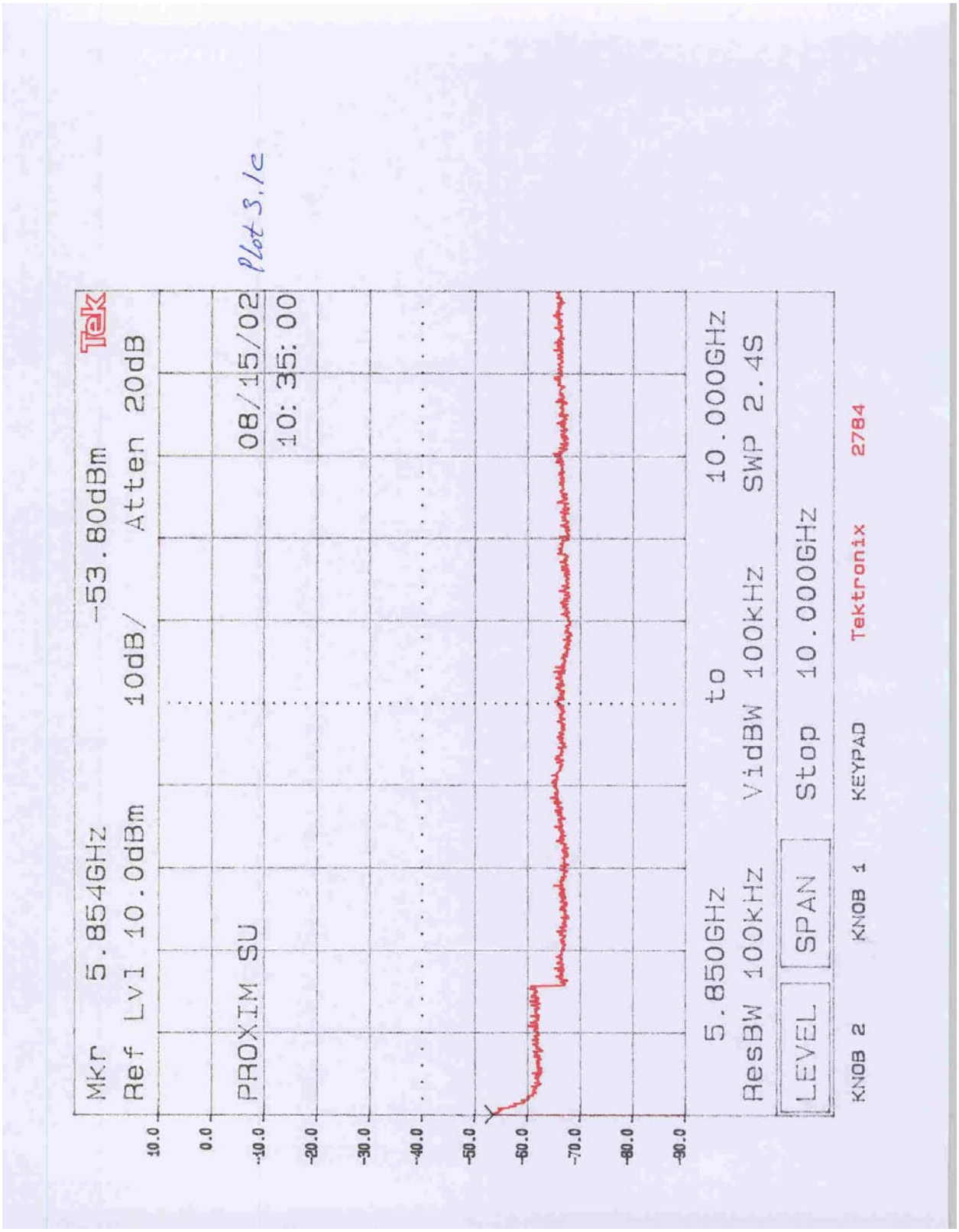
Test Result

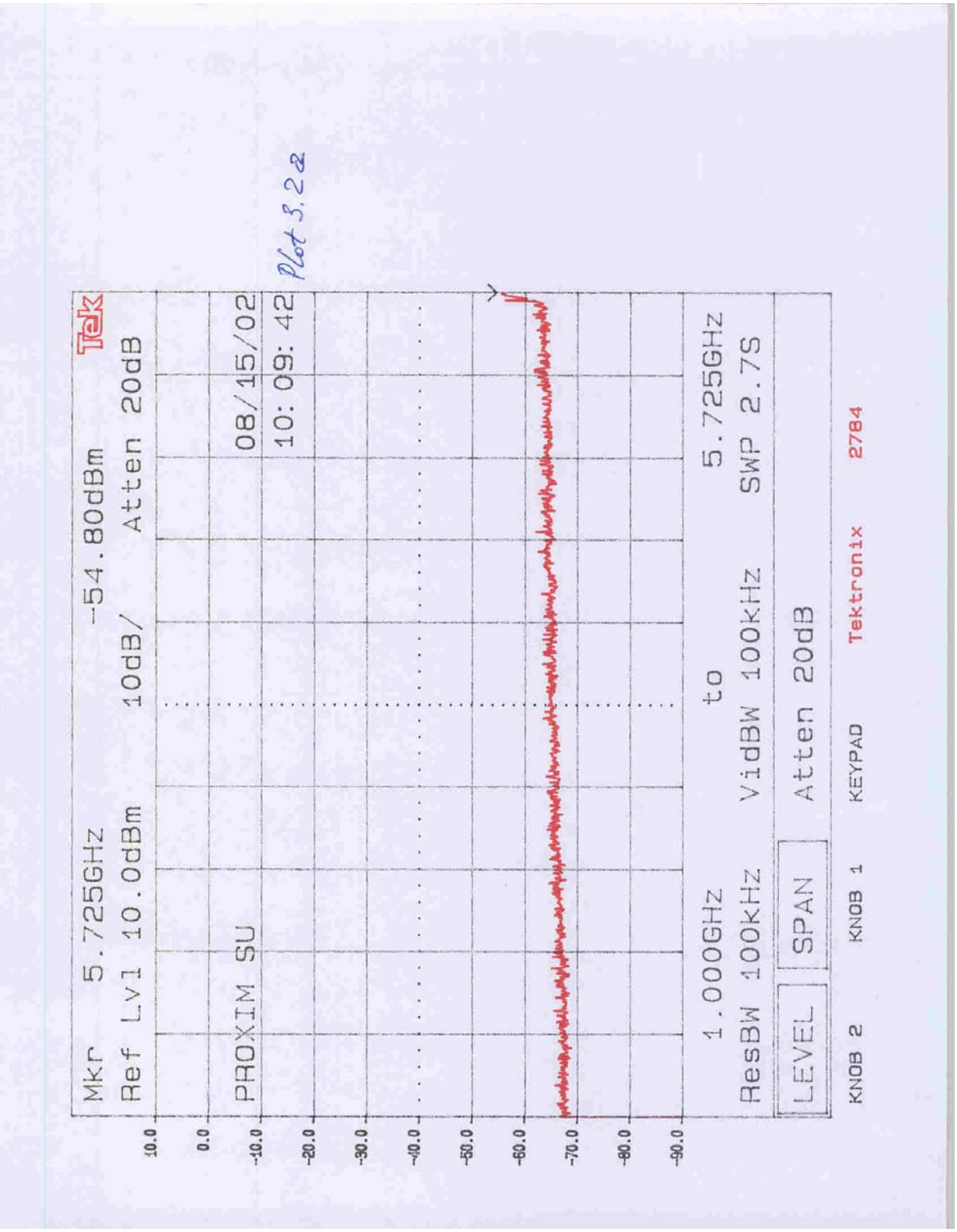
Refer to the following plots for the test result.

Frequency (MHz)	Modulation	Description	Plot
5740	QPSK R 1/2	Scan 1 – 5.725 GHz	3.1a
		Scan 5.725 – 5.850 GHz	3.1b
		Scan 5.85 - 10 GHz	3.1c
5810	QPSK R 1/2	Scan 1 – 5.725 GHz	3.2a
		Scan 5.725 – 5.850 GHz	3.2b
		Scan 5.85 - 10 GHz	3.2c

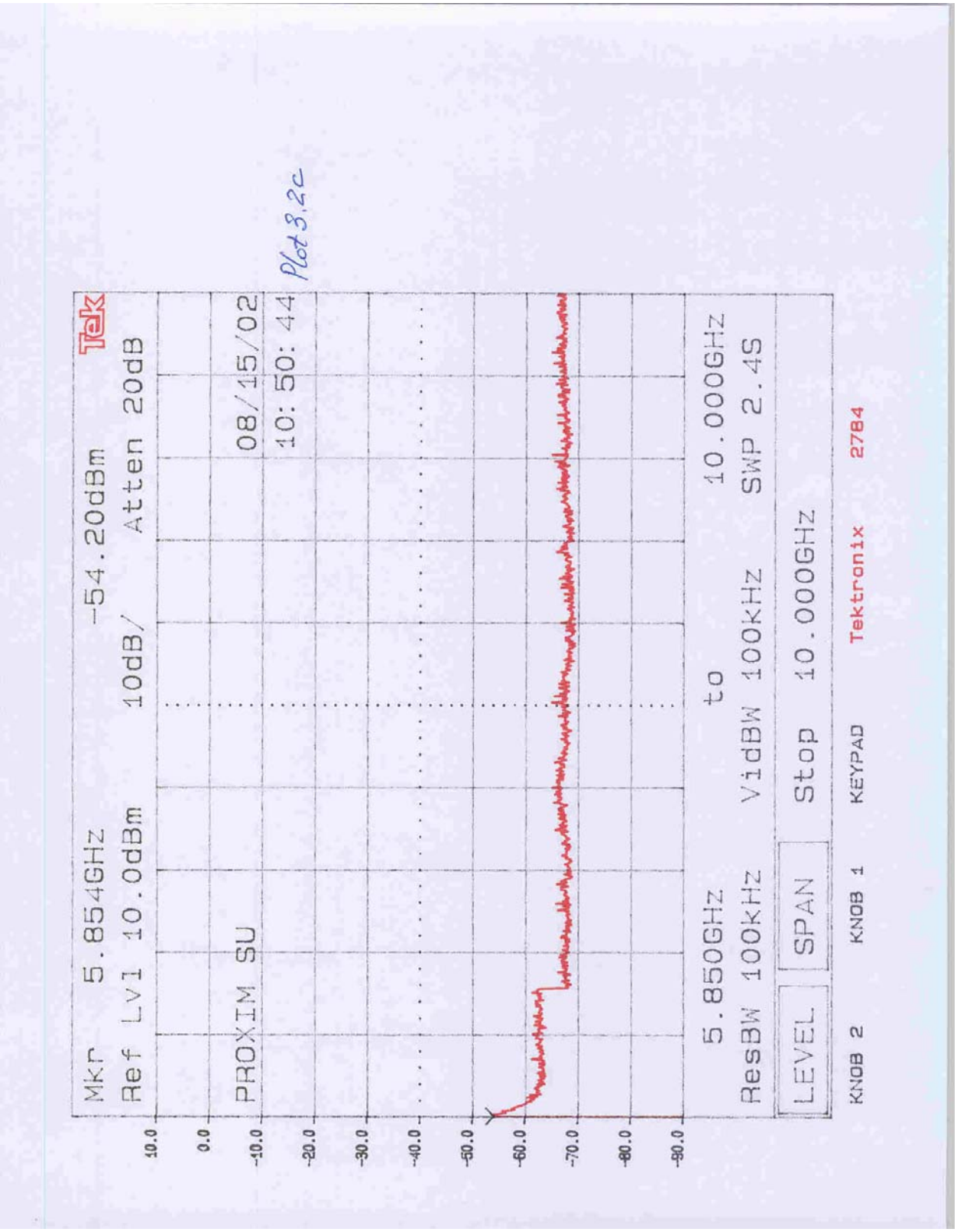

Plot 3.1a
Mkr 5.725GHz -54.50dBm
Ref Lvl 10.0dBm 10dB/ Atten 20dB
PROXIM SU
08/15/02
10: 14: 21
1.000GHz to 5.725GHz
ResBW 100KHz VidBW 100KHz SWP 2.7S
LEVEL SPAN Atten 20dB
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 3,1b
Mkr 5.737 8GHz 1.70dBm
Ref Lvl 10.0dBm 10dB/ Atten 30dB
PROXIM SU
08/15/02
09: 59: 10
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
5.725 0GHz to 5.850 0GHz
ResBW 100KHz VidBW 100KHz SWP 71mS
LEVEL SPAN Stop 5.850 0GHz
KNOB 2 KNOB 1 KEYPAD Tektronix 2784


Plot 3.1c
Mkr 5.854GHz
-53.80dBm
Ref Lvl 10.0dBm
10dB/
Atten 20dB
PROXIM SU
08/15/02
10:35:00
5.850GHz
to
10.000GHz
ResBW 100KHz
VidBW 100KHz
SWP 2.4S
LEVEL
SPAN
Stop 10.000GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784


Mkr 5.725GHz
-54.80dBm
Ref Lvl 10.0dBm
10dB/
Atten 20dB
Tek
PROXIM SU
08/15/02
10:09:42
Plot 3.22
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
1.000GHz
to
5.725GHz
ResBW 100KHz
VidBW 100KHz
SWP 2.7S
LEVEL
SPAN
Atten 20dB
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784


Mkr 5.813 6GHz
1.60dBm
Ref Lvl 10.0dBm
10dB/ Atten 30dB
PROXIM SU
08/15/02
10: 03: 35
Plot 3, 2.6
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
5.725 0GHz
to
5.850 0GHz
ResBW 100KHz
VidBW 100KHz
SWP 71mS
LEVEL
SPAN
Stop 5.850 0GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784


Tek
MKr 5.854GHz
-54.20dBm
Ref Lvl 10.0dBm
10dB/
Atten 20dB
PROXIM SU
08/15/02
10:50:44
Plot 3.2c
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
5.850GHz
to
10.000GHz
ResBW 100KHz
VidBW 100KHz
SWP 2.4S
LEVEL
SPAN
Stop 10.000GHz
KNOB 2
KNOB 1
KEYPAD
Tektronix
2784

4.5 Radiated Emissions in restricted bands
[FCC 15.209, 15.205]

Procedure

Radiated emission measurements were performed from 30 MHz to 40,000 MHz. Spectrum Analyzer Resolution Bandwidth is 100 kHz or greater for frequencies 30 MHz to 1000 MHz, 1 MHz - for frequencies above 1000 MHz.

The EUT is placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF - AG
Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

FS = RR + LF
Where FS = Field Strength in dBμV/m
RR = RA - AG in dBμV
LF = CF + AF in dB

Assume a receiver reading of 52.0 dBμV is obtained. The antennas factor of 7.4-dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 52.0 dBμV
AF = 7.4 dB RR = 23.0 dBμV
CF = 1.6 dB LF = 9.0 dB

AG = 29.0 dB
FS = RR + LF
FS = 23 + 9 = 32 dBμV/m
Level in μV/m = Common Antilogarithm [(32 dBμV/m)/20] = 39.8 μV/m

Result

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Company:	Proxim	**Model #:**		**Standard_**	**FCC § 15B**	
EUT:	TSUNAMI SU	**S/N #:**		**Limits_**	2	
Project #:	3030166	**Test Date:**	August 13, 2002	**Test Distance_**	1	meter
Test Mode:	TX at 5740 MHz	**Engineer:**	Bruce G.	**Duty Relaxation**	0	dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	21	22	9	4	13	10	0	0	0
Model:	EMCO 3115	3160-9	3160-10	WJ	None	ACO/400	NPS72-1	None	None	None

Frequency	**Reading**	**Detector**	**Ant.**	**Amp.**	**Ant. Pol.**	**Ant. Factor**	**Pre-Amp**	**Insert Loss**	**D. C. F.**	**Net**	**Limit @3m**	**Margin**
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(µV/m)	dB(µV/m)	dB
11480	55.0	Peak	14	9	V	40.7	36.3	2.4	-9.5	52.3	74.0	-21.7
11480	40.5	Ave.	14	9	V	40.7	36.3	2.4	-9.5	37.8	54.0	-16.2
11480	53.3	Peak	14	9	H	40.7	36.3	2.4	-9.5	50.6	74.0	-23.4
11480	38.6	Ave.	14	9	H	40.7	36.3	2.4	-9.5	35.9	54.0	-18.1
22960	47.1	Peak	21	13	V	40.4	23.3	3.2	-9.5	57.9	74.0	-16.1
22960	27.0	Ave.	21	13	V	40.4	23.3	3.2	-9.5	37.8	54.0	-16.2
22960	48.6	Peak	21	13	H	40.4	23.3	3.2	-9.5	59.4	74.0	14.6
22960	27.4	Ave.	21	13	H	40.4	23.3	3.2	-9.5	38.2	54.0	-16.8

Notes:

a) D.C.F.:Distance Correction Factor
b) Insert. Loss (dB) = Cable A + Cable B + Cable C .
c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss - Duty Relaxation (transmitter only).
d) Negative signs (-) in Margin column signify levels below the limits.
e) All other emissions not reported are below the equipment noise floor which is at least 10 dB below the limits.

Company:	Proxim	**Model #:**		**Standard_**	**FCC § 15B**	
EUT:	TSUNAMI SU	**S/N #:**		**Limits_**	2	
Project #:	3030166	**Test Date:**	August 13, 2002	**Test Distance_**	1	meter
Test Mode:	TX at 5768 MHz	**Engineer:**	Bruce G.	**Duty Relaxation**	0	dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	21	22	9	4	13	10	0	0	0
Model:	EMCO 3115	3160-9	3160-10	WJ	None	ACO/400	NPS72-1	None	None	None

Frequency	**Reading**	**Detector**	**Ant.**	**Amp. .**	**Ant Pol.**	**Ant. Factor**	**Pre -Amp**	**Insert. Loss**	**D. C. F.**	**Net**	**Limit @3m**	**Margin**
MHz	dB(µV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(µV/m)	dB(µV/m)	dB
11536	61.8	Peak	14	9	V	41.2	37.0	2.5	-9.5	59.0	74.0	-15.0
11536	50.4	Ave.	14	9	V	41.2	37.0	2.5	-9.5	47.6	54.0	-6.4
11536	57.4	Peak	14	9	H	41.9	37.0	2.5	-9.5	55.3	74.0	-18.7
11536	45.0	Ave.	14	9	H	41.9	37.0	2.5	-9.5	42.9	54.0	-11.1
23072	47.0	Peak	21	13	V	40.4	23.3	3.2	-9.5	57.8	74.0	-16.2
23072	27.3	Ave.	21	13	V	40.4	23.3	3.2	-9.5	38.1	54.0	-15.9
23072	47.3	Peak	21	13	H	40.4	23.3	3.2	-9.5	58.1	74.0	-15.9
23072	28.7	Ave.	21	13	H	40.4	23.3	3.2	-9.5	39.5	54.0	-14.5

Notes:

a) D.C.F.:Distance Correction Factor

b) Insert. Loss (dB) = Cable A + Cable B + Cable C .

c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss - Duty Relaxation (transmitter only).

d) Negative signs (-) in Margin column signify levels below the limits.

e) All other emissions not reported are below the equipment noise floor which is at least 10 dB below the limits.

Company:	Proxim	**Model #:**		**Standard_**	**FCC § 15B**	
EUT:	TSUNAMI SU	**S/N #:**		**Limits_**	2	
Project #:	3030166	**Test Date:**	August 13, 2002	**Test Distance_**	1	meter
Test Mode:	TX at 5810 MHz	**Engineer:**	Bruce G.	**Duty Relaxation**	0	dB

	Antenna Used			Pre-Amp Used			Cable Used			Transducer Used
Number:	14	21	22	9	4	13	10	0	0	0
Model:	EMCO 3115	3160-9	3160-10	WJ	None	ACO/400	NPS72-1	None	None	None

Frequency	**Reading**	**Detector**	**Ant.**	**Amp.**	**Ant. Pol.**	**Ant. Factor**	**Pre-Amp**	**Insert. Loss**	**D. C. F.**	**Net**	**Limit @3m**	**Margin**
MHz	dB(μV)	P/A/Q	#	#	H/V	dB(1/m)	dB	dB	dB	dB(μV/m)	dB(μV/m)	dB
11620	55.6	Peak	14	9	V	41.2	37.0	2.5	-9.5	52.8	74.0	-21.2
11620	43.0	Ave.	14	9	V	41.2	37.0	2.5	-9.5	40.2	54.0	-13.8
11620	53.5	Peak	14	9	H	41.9	37.0	2.5	-9.5	51.4	74.0	-32.6
11620	38.7	Ave.	14	9	H	41.9	37.0	2.5	-9.5	36.6	54.0	-17.4

Notes:

a) D.C.F.:Distance Correction Factor

b) Insert. Loss (dB) = Cable A + Cable B + Cable C .

c) Net (dB) = Reading + Antenna Factor - Pre-amp + Insert. Loss - Duty Relaxation (transmitter only).

d) Negative signs (-) in Margin column signify levels below the limits.

e) All other emissions not reported are below the equipment noise floor which is at least 10 dB below the limits.

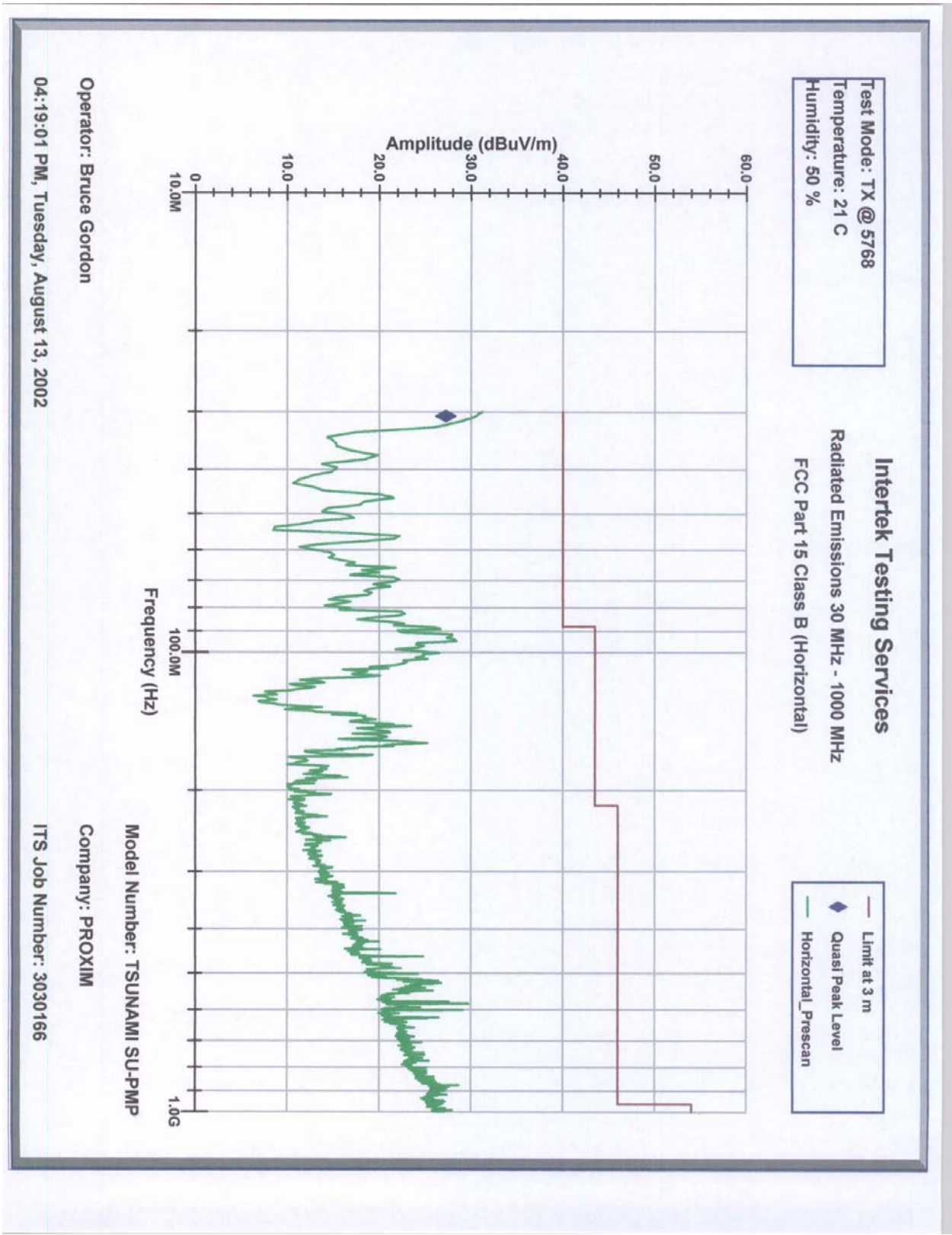
4.6 Radiated Emissions from digital part [FCC 15.109]

Procedure

See section 4.7.

Test Result

See the test results on the following pages.


Test Mode: TX @ 5768
Temperature: 21 C
Humidity: 50 %
Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (Horizontal)
Limit at 3 m
Quasi Peak Level
Horizontal_Prescan
Amplitude (dBuV/m)
0
10.0
20.0
30.0
40.0
50.0
60.0
10.0M
100.0M
1.0G
Frequency (Hz)
Operator: Bruce Gordon
Model Number: TSUNAMI SU-PMP
04:19:01 PM, Tuesday, August 13, 2002
Company: PROXIM
ITS Job Number: 3030166

Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Horizontal)

Operator: Bruce Gordon

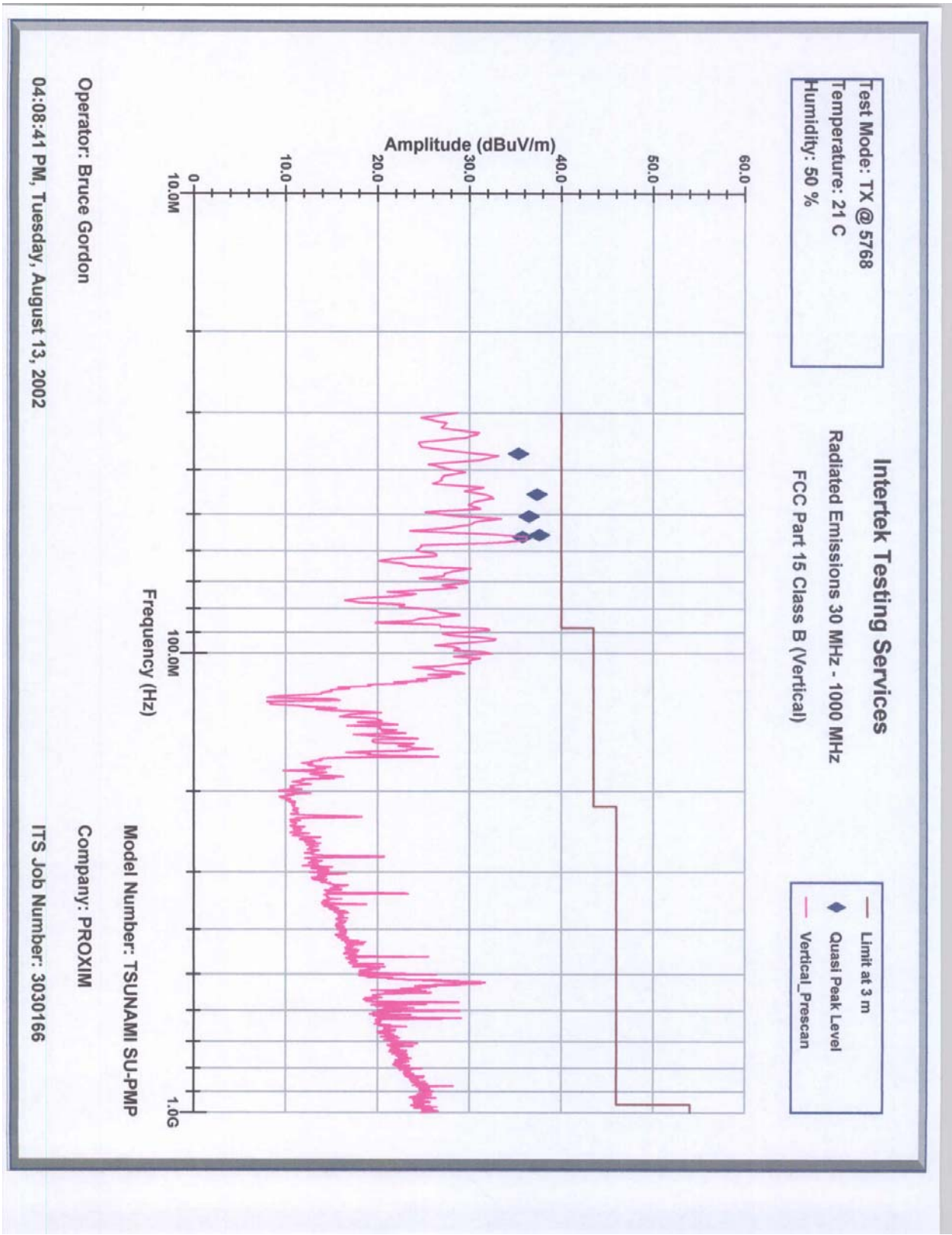
04:24:24 PM, Tuesday, August 13, 2002

Model Number: TSUNAMI SU-PMP
ITS Job Number: 3030166
Company: PROXIM

	1	2	3	4	5	6	
Frequency	Quasi Pk FS	Limit@3m	RA	CF	AG	AF	
MHz	(dBuV/m)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB/m)	
30.613 MHz	27.2	40.0	34.7	3.5	25.3	14.4	

Test Mode: TX @ 5768
Temperature: 21 C
Humidity: 50 %

Page 1


Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (Vertical)
Test Mode: TX @ 5768
Temperature: 21 C
Humidity: 50 %
Limit at 3 m
Quasi Peak Level
Vertical_Prescan
Amplitude (dBuV/m)
0
10.0
20.0
30.0
40.0
50.0
60.0
10.0M
100.0M
1.0G
Frequency (Hz)
Model Number: TSUNAMI SU-PMP
Company: PROXIM
Operator: Bruce Gordon
04:08:41 PM, Tuesday, August 13, 2002
ITS Job Number: 3030166

Intertek Testing Services
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Vertical)

Operator: Bruce Gordon

Model Number: TSUNAMI SU-PMP
ITS Job Number: 3030166
Company: PROXIM

04:46:00 PM, Tuesday, August 13, 2002

	1	2	3	4	5	6
Frequency	Quasi Pk FS	Limit@10m	RA	CF	AG	AF
MHz	(dBuV/m)	(dBuV/m)	(dBuV)	(dB)	(dB)	(dB/m)
36.8905 MHz	35.3	40.0	49.6	3.5	25.4	7.6
45.268 MHz	37.4	40.0	51.3	3.6	25.4	7.9
50.4275 MHz	36.5	40.0	52.8	3.6	25.2	5.3
55.3155 MHz	37.6	40.0	53.7	3.7	25.3	5.5
55.896 MHz	35.8	40.0	51.8	3.7	25.3	5.6

Test Mode: TX @ 5768
Temperature: 21 C
Humidity: 50 %

Page 1

5.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
BI-Log Antenna	EMCO	3143	9509-1164	12	3/04/03
Pre-Amplifier	Sonoma Inst.	310	185634	12	01/10/03
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	7/16/03
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	7/16/03
Spectrum Analyzer	Tektronix	2784	B3020108	12	8/08/03
Spectrum Analyzer w/8650 QP Adapter	Hewlett Packard	8568B	1912A0053 2521A01021	12	3/15/03
Double-ridged Horn Antenna	EMCO	3115	8812-3049	12	4/03/03
Horn Antenna	EMCO	3160-09	-	#	#
Horn Antenna	EMCO	3160-10	-	#	#
Pre-Amplifier	Miteq	AMF-4D-001180-24-10P	799159	12	04/05/03
Pre-amplifier	CTT	ACO/400	47526	12	10/5/02
Pre-Amplifier	Avantek	AFT-18855	8723H705	12	10/5/02
Power Meter	Hewlett Packard	8900D	3607U00673	12	7/8/03
LISN	FCC	FCC-LISN-50-50-M-H	2011	12	1/02/03

No calibration required