

Test Report

Report #: 30361841

Project #: 3036184

Report Date:

Date of Test: December 31, 2002 to January 31, 2003

Testing performed on the

Base Station Unit

Models: 40400-25C, 40400-65C

FCC ID: HZB-S58-B60C

to

FCC Part 15.247 DSSS

for

Proxim Corporation



Wernoch Hersey



A2LA Certificate Number: 1755-01

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Date:

3/14/03

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FCC Part 15 DSSS Cert, Rev 01/01

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1.0 Summary of Tests

FCC ID: HZB-S58-B60C

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
AC Line-conducted Emission	15.207	Complies
Radiated Emission from Digital Part	15.109	Complies
Radiated Emission from Receiver L.O.	15.109	Not Applicable. The operating frequency is above 960 MHz
RF Exposure Requirement	2.1091	Complies, see exhibit "RF Exposure"
Antenna Requirement	15.203	Not Applicable; professional installation is required

2.0 General Description

2.1 Product Description

The EUT, Models: 40400-25C, 40400-65C, FCC ID: HZB-S58-S60C consists of two major components: an outdoor unit (ODU) and an indoor power adapter (IPA). The two components are connected with a single category-5 cable (4 unshielded twisted pairs) to transfer direct-current power to the ODU and to transport 10/100BaseT Ethernet data to and from the ODU. The IPA provides an RJ-45 jack to connect the Ethernet data to either a computer or hub/switch.

Through an RF connector and an RF cable, the ODU is connected to an external antenna, from which the radio signal is transmitted.

**Overview of the Models: 40400-25C, 40400-65C
FCC ID: HZB-S58-B60C**

Applicant name & address	Proxim Corporation 935 Stewart Drive, Sunnyvale, CA 94085 USA
Manufacturer	Proxim Corporation
Models	40400-25C, 40400-65C *
FCC Identifier	HZB-S58-B60C
Use of Product	Fixed Wireless Ethernet Access
Type of Transmission	TDD
Type of Modulation	QAM16, QAM8, QPSK 3/4, QPSK 1/2
Rated RF Output	18 dBm (peak)
Frequency Range	5740 – 5810 MHz
Number of Channel(s)	6 channels maximum
Antenna(s) & Gain	Omni, 7.5 dBi, model 5830AN (from Telex) Omni, 12 dBi, model MT-483003/N (from MTI) Flat Panel, 17 dBi, model SEC-5V/H-90-17 (from Radio Waves) Flat Panel, 18 dBi, model SEC-5V/H-60-18 (from Radio Waves)
Antenna Requirement	The EUT requires professional installation.

* The models differ by the type of modulation listed above.

A pre-production version of the EUT was received on December 30, 2002 in good operating condition. As declared by the Applicant, it is identical to the production units.

2.2 Related Submittal(s) Grants

None.

2.3 Test Methodology

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4 (1992). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Data Sheet**" of this Application. All other measurements were made in accordance with the procedures in parts 2 and 15 of CFR 47.

2.4 Test Facility

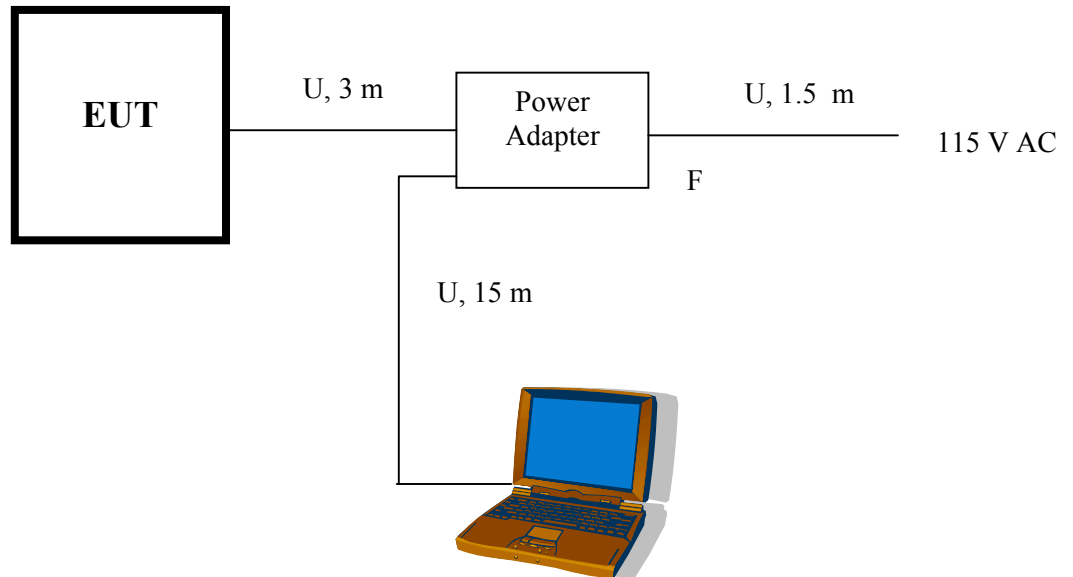
The open area test site and conducted measurement facility used to collect the radiated data is site 1 (10-m semi-anechoic chamber). This test facility and site measurement data have been fully placed on file with the FCC and A2LA accredited.

3.0 System Test Configuration

3.1 Support Equipment and description

Laptop computer: Hewlett Packard Omnibook 4150

3.2 Block Diagram of Test Setup



S = Shielded U = Unshielded	F = With Ferrite m = Meter
--	---

3.3 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.

For radiated emission measurements, the EUT is attached to a cardboard box (if necessary) and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). The EUT is wired to transmit full power.

The signal is maximized through rotation and placement in the three orthogonal axes. 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.

3.4 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.

3.5 Mode of operation during test

Transmitting signal on different channels with different types of modulation.

3.6 Modifications required for Compliance

Intertek Testing Services installed no modifications during compliance testing in order to bring the product into compliance (Please note that this does not include changes made specifically by Proxim Cor. prior to compliance testing).

3.7 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 EUT was connected to the input of a peak power meter. Power was read directly from the power meter.

Test Results

Frequency MHz	Modulation	Output Power mW
5740	QAM16	63.0
	QAM8	61.0
	QPSK 3/4	65.7
	QPSK 1/2	65.3
5768	QAM16	62.9
	QAM8	65.1
	QPSK 3/4	64.8
	QPSK 1/2	64.2
5810	QAM16	63.2
	QAM8	65.3
	QPSK 3/4	65.9
	QPSK 1/2	63.0

4.2 6 dB RF Bandwidth
FCC Rule 15.247(a)(2):

Requirements

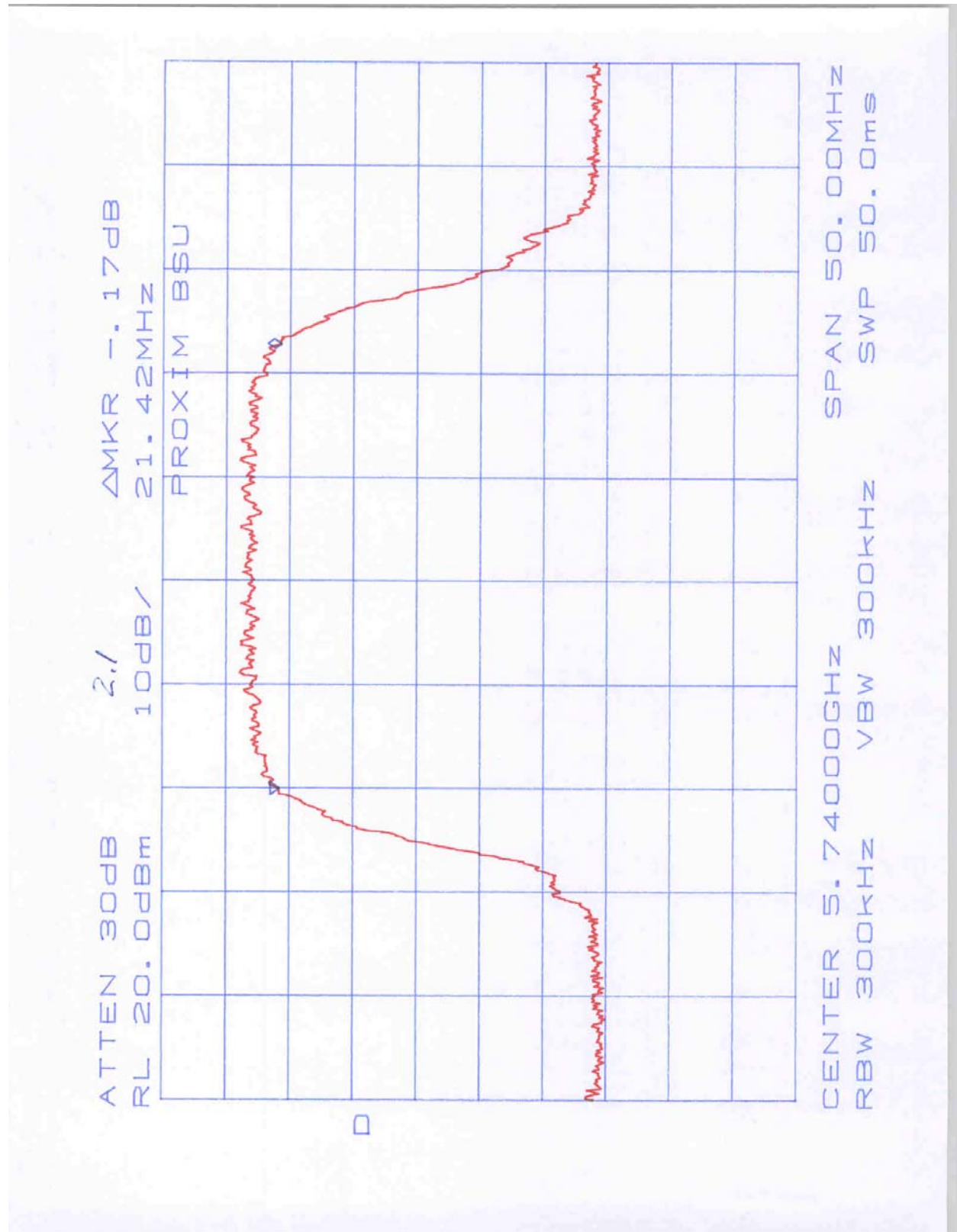
The minimum 6-dB bandwidth shall be at least 500 kHz

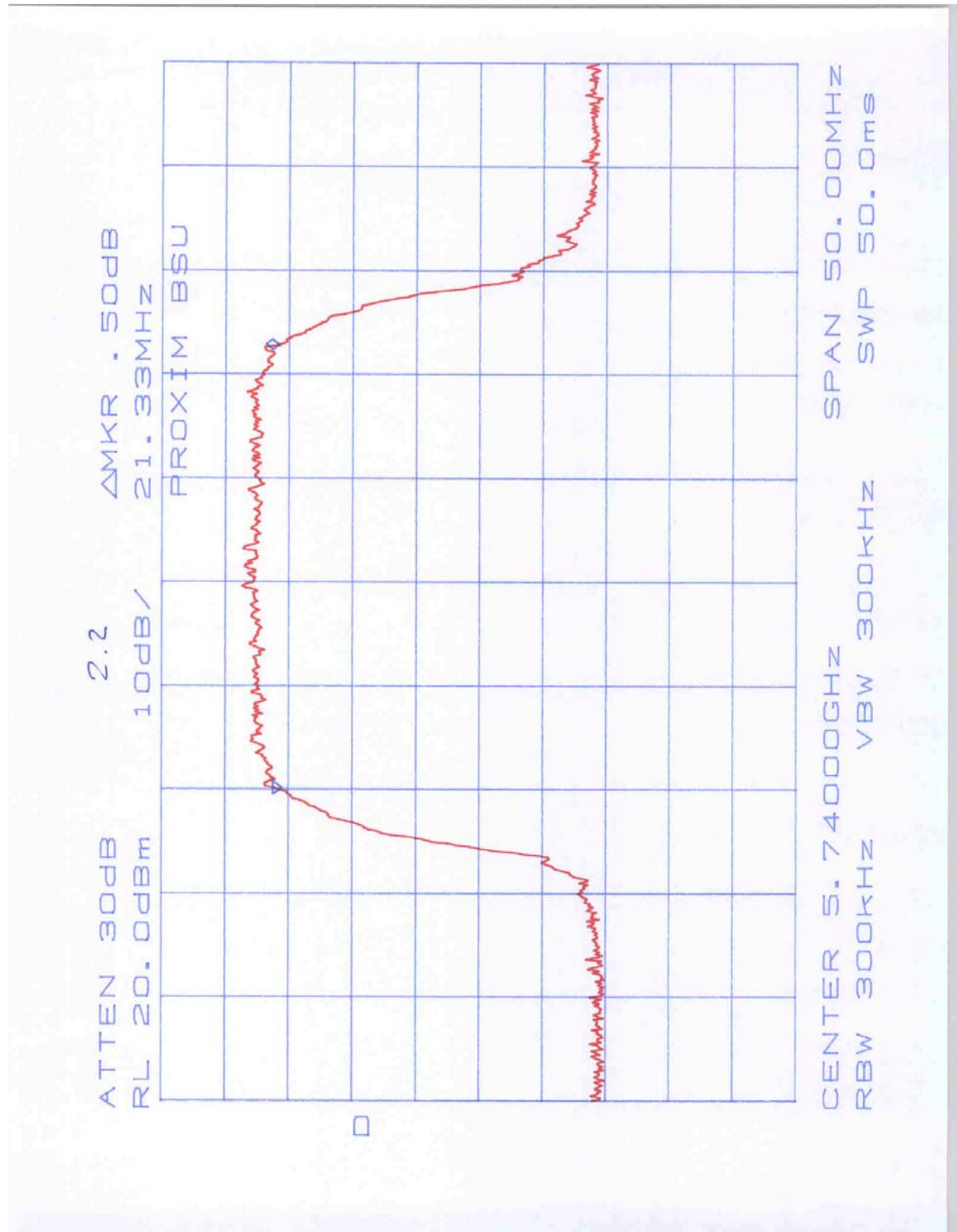
Procedure

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 bandwidth was determined from where the channel output spectrum intersected the display line.

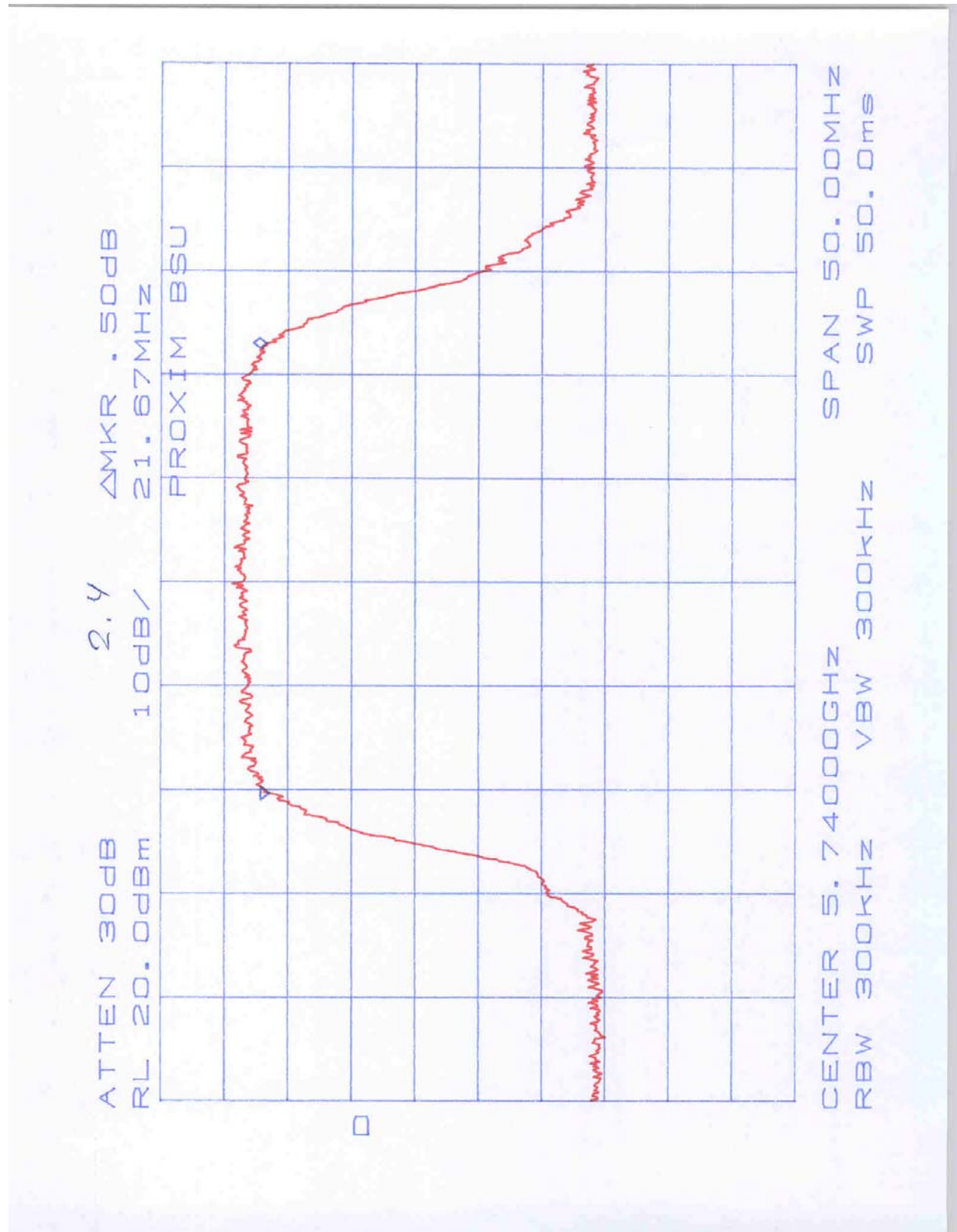
Test Result

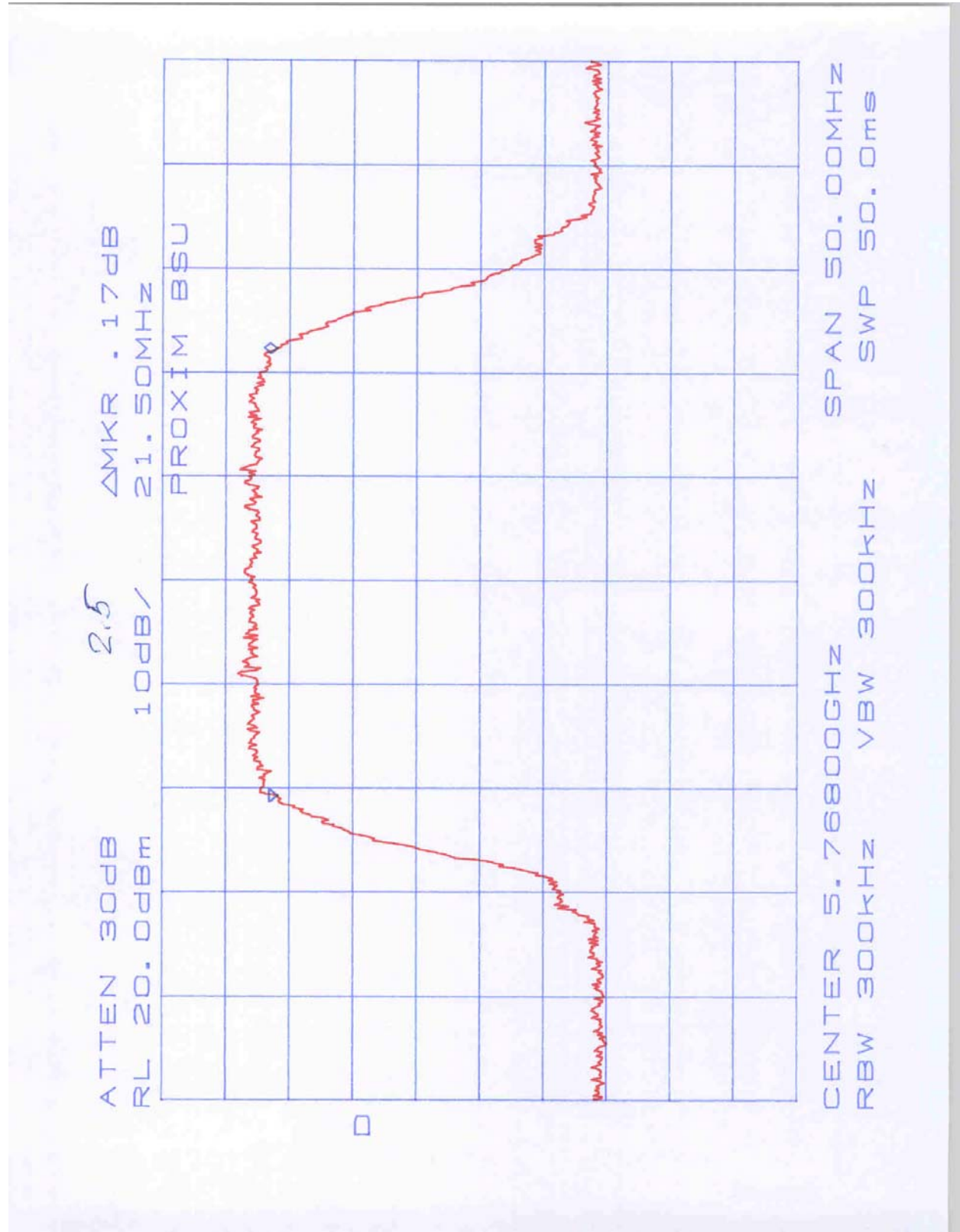
Frequency MHz	Modulation	6-dB Bandwidth MHz	Plot
5740	QAM16	21.42	2.1
	QAM8	21.33	2.2
	QPSK 3/4	21.50	2.3
	QPSK 1/2	21.67	2.4
5768	QAM16	21.50	2.5
	QAM8	21.92	2.6
	QPSK 3/4	21.75	2.7
	QPSK 1/2	21.75	2.8
5810	QAM16	21.33	2.9
	QAM8	21.42	2.10
	QPSK 3/4	21.58	2.11
	QPSK 1/2	21.58	2.12





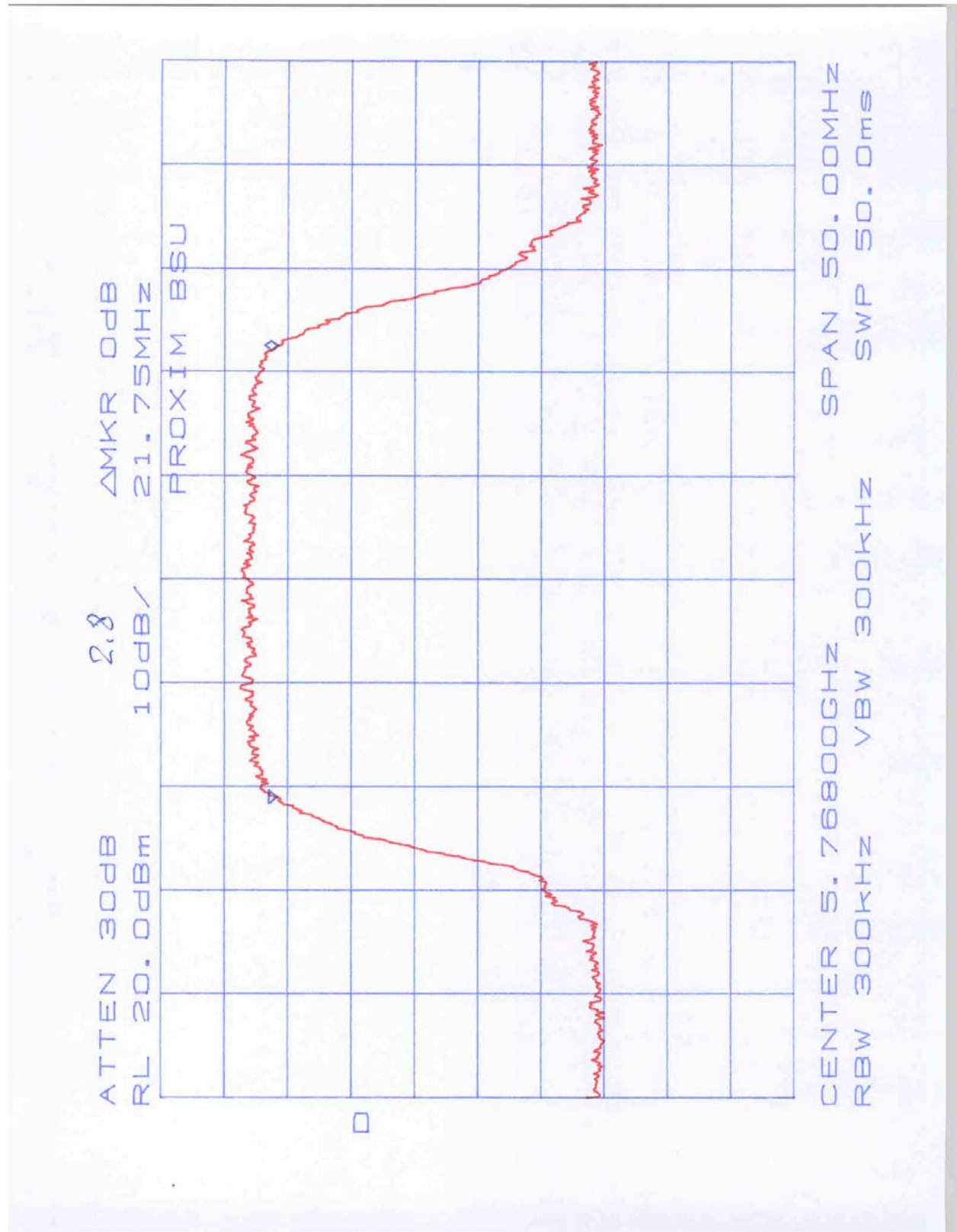




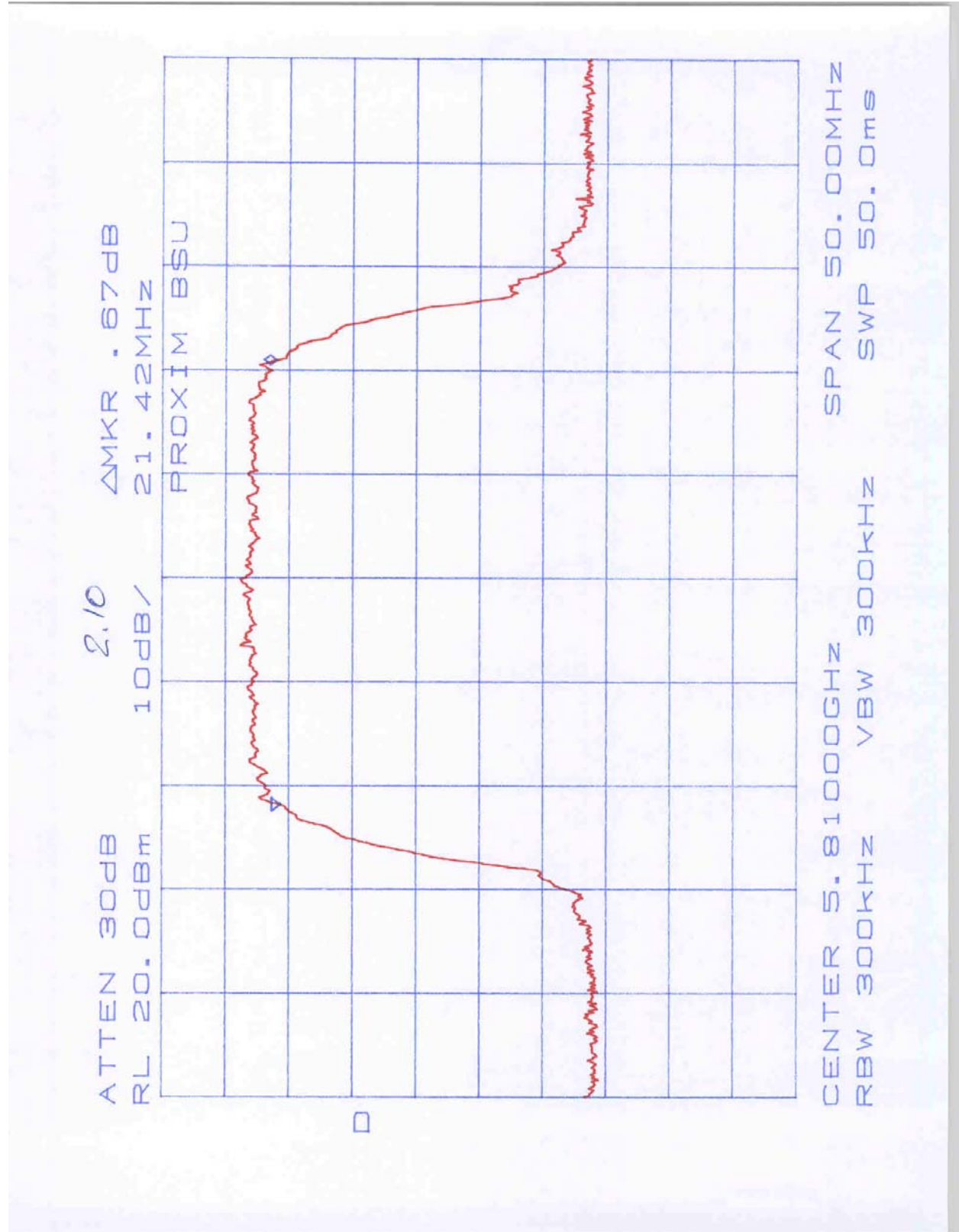
















4.3 Power Density
FCC Rule 15.247(d):

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 pass-band. 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:

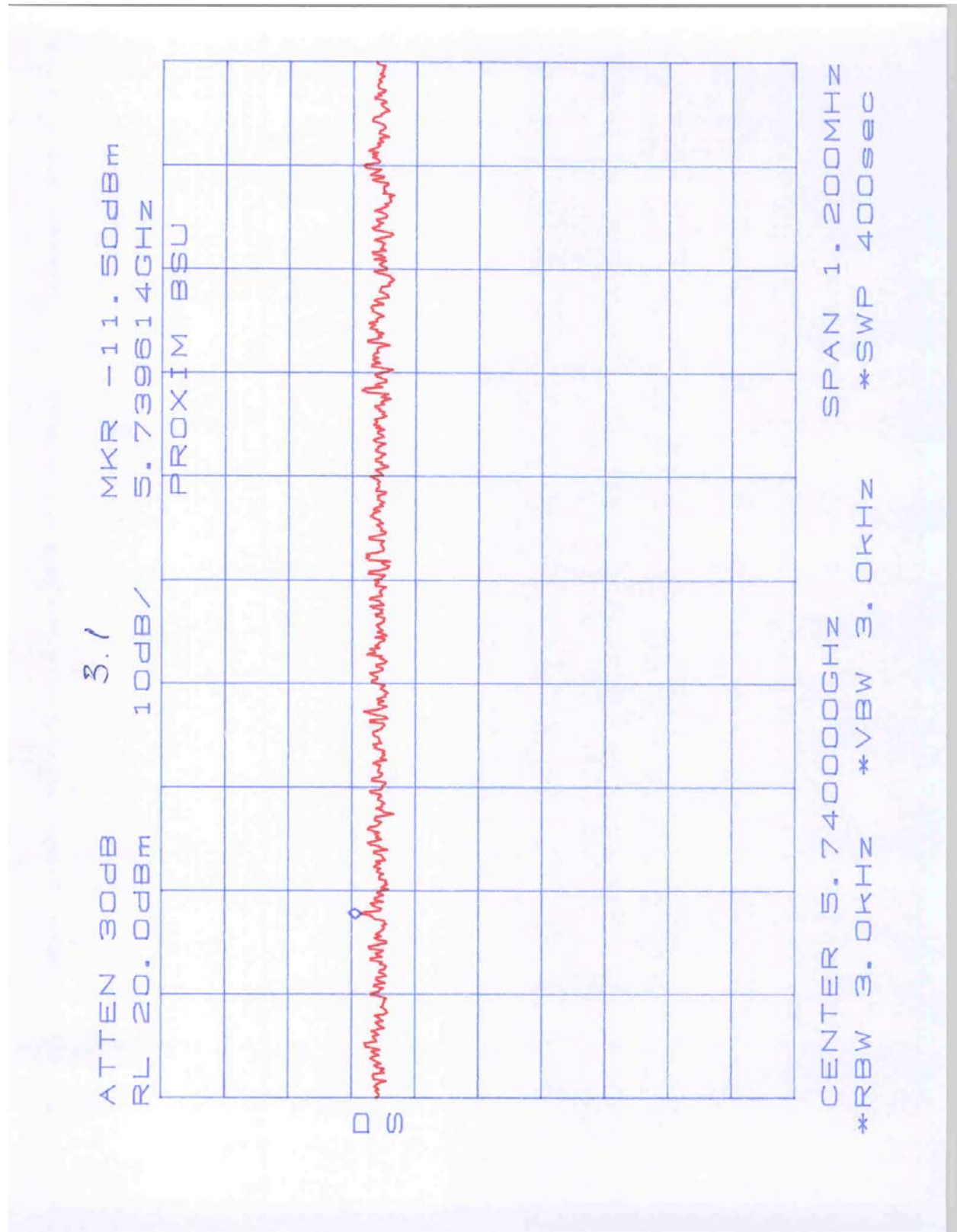
$$\text{SWEEP TIME (SEC)} = (\text{Fstop, kHz} - \text{Fstart, kHz}) / 3 \text{ kHz}$$

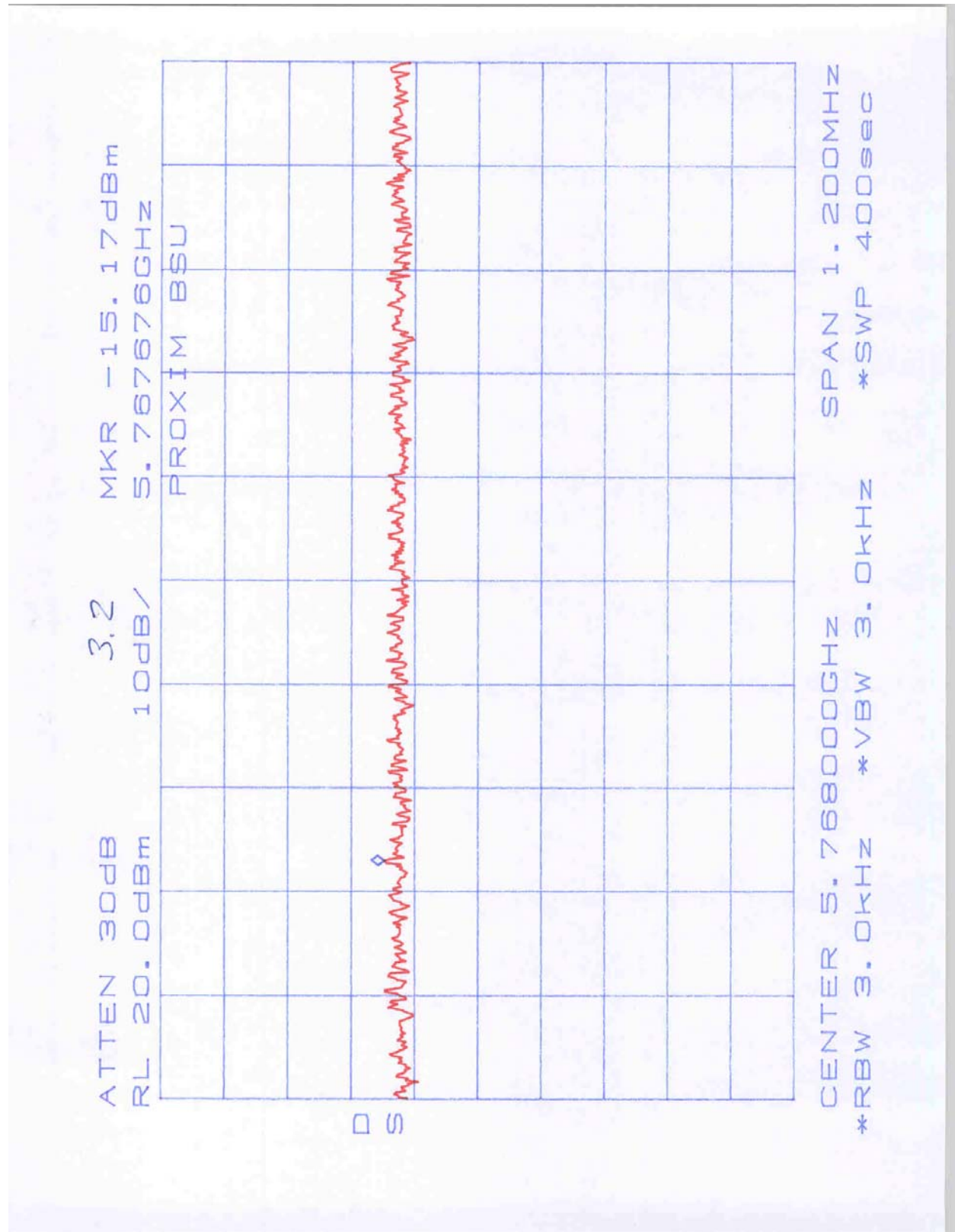
Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

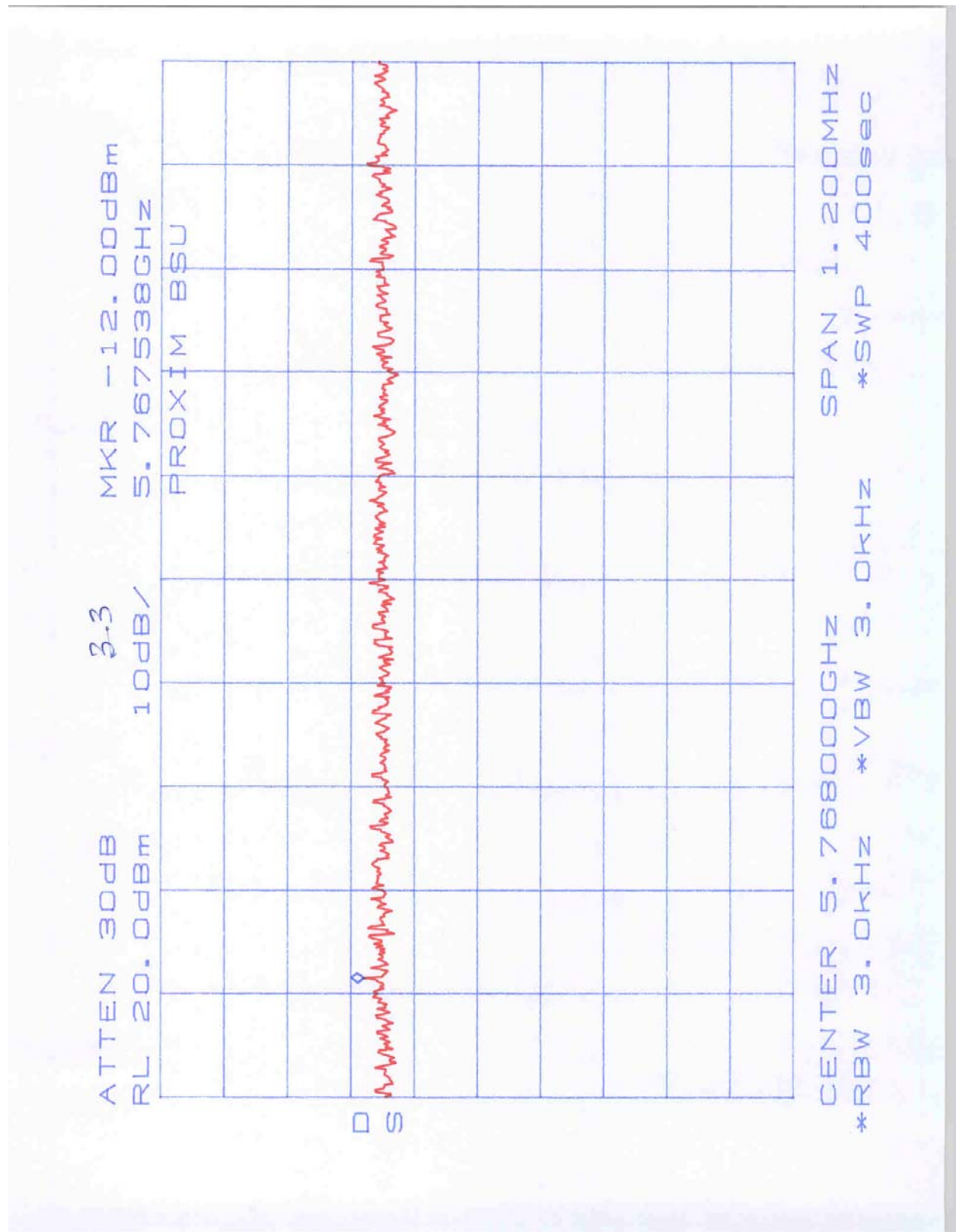
Test Result

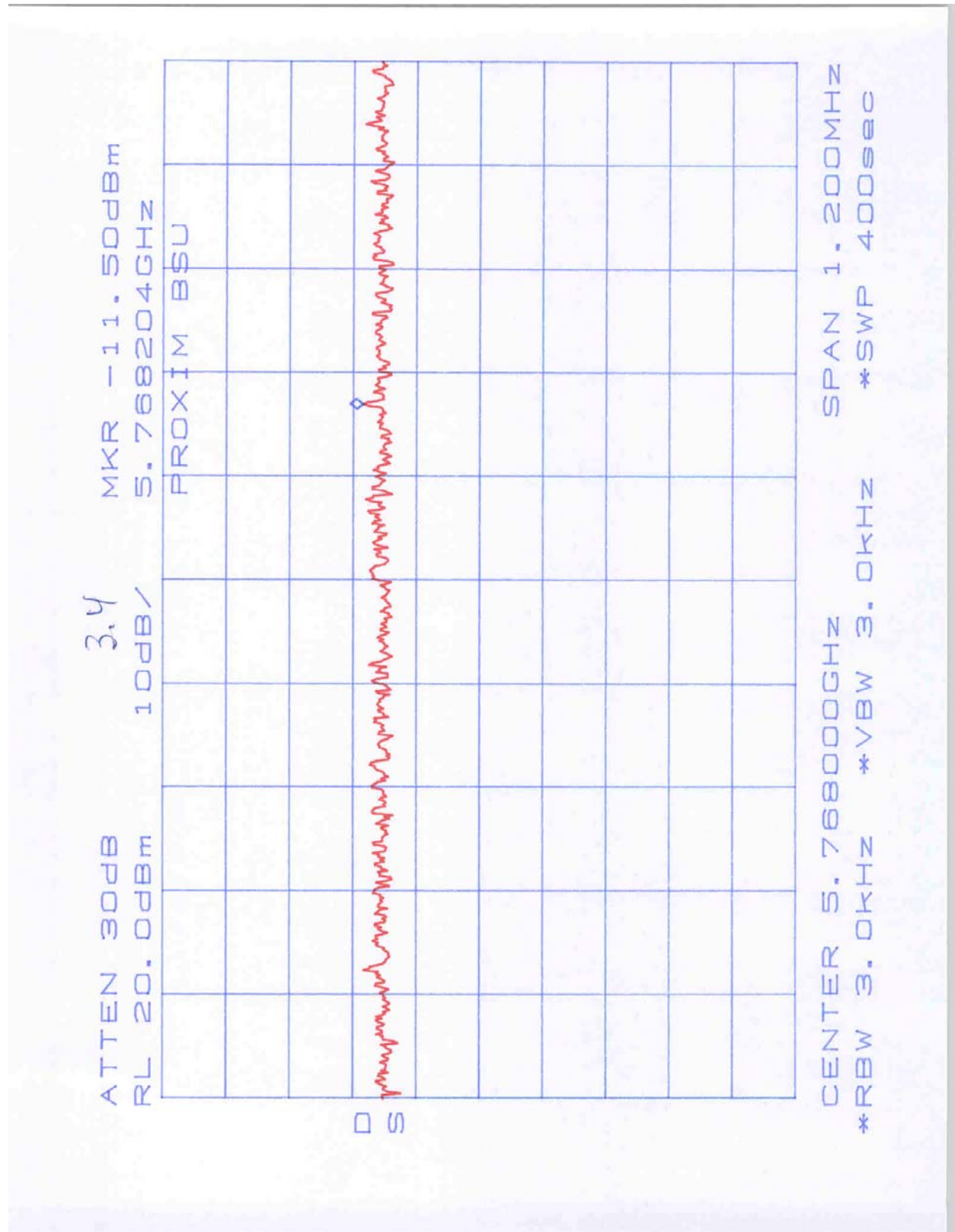
Frequency MHz	Modulation	Power Density dBm	Plot
5740	QPSK 3/4	-11.50	3.1
5768	QAM16	-15.17	3.2
	QAM8	-12.00	3.3
	QPSK 3/4	-11.50	3.4
	QPSK 1/2	-11.17	3.5
5810	QPSK 3/4	-11.17	3.6

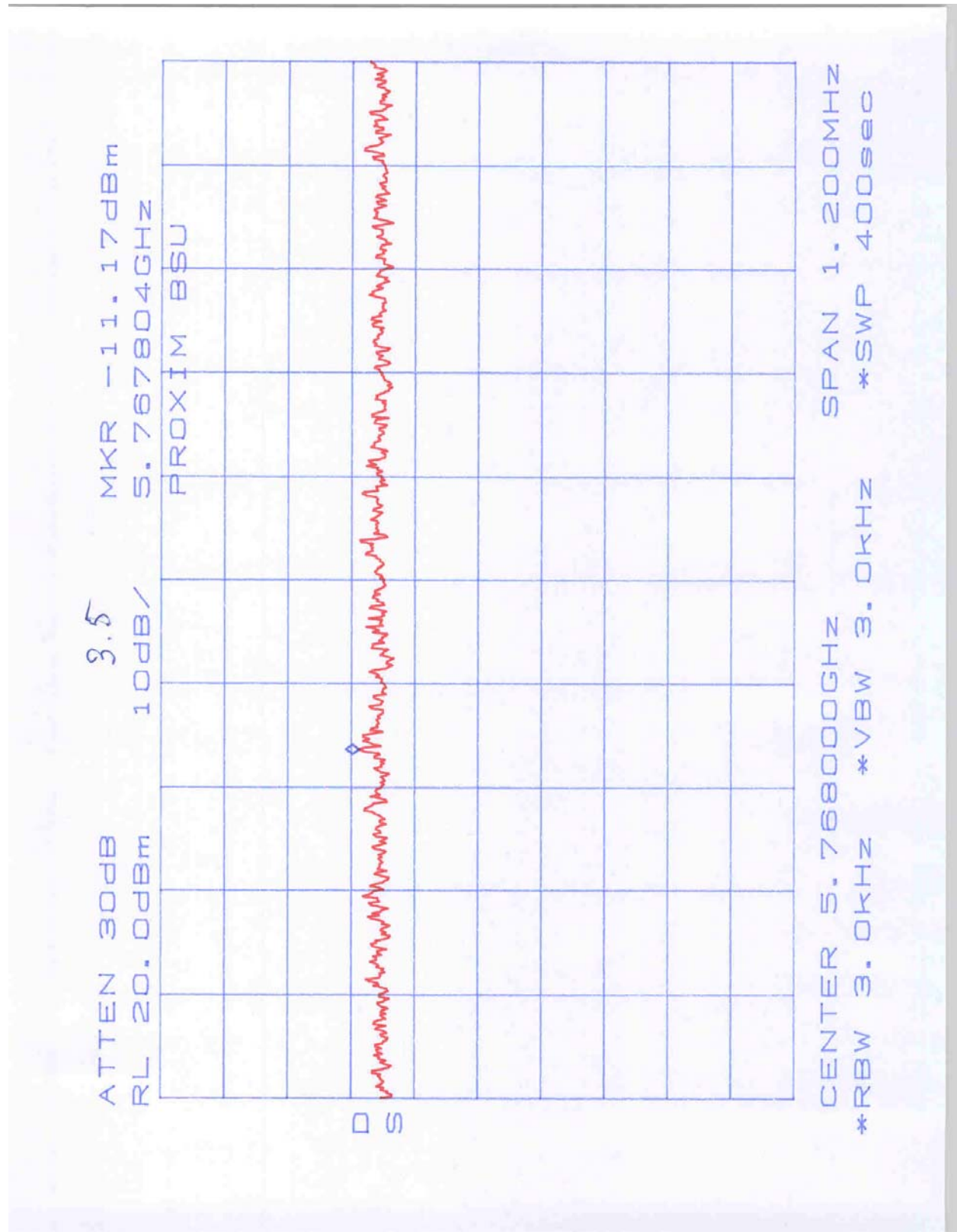
Frequency Span = 1200 kHz
Sweep Time = Frequency Span/3 kHz = 400 Seconds

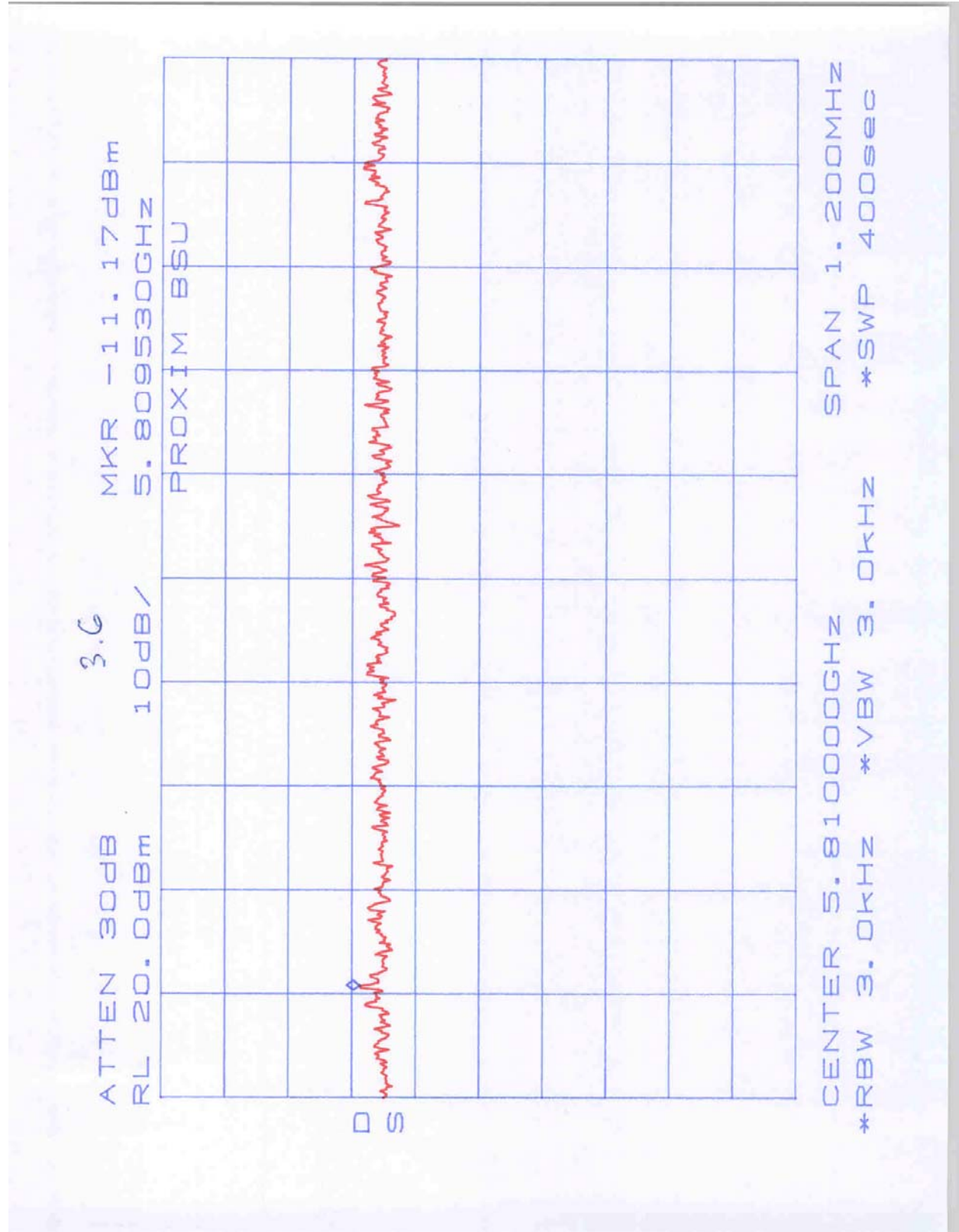












4.4 Out-of-Band Conducted Emissions
FCC Rule 15.247(c):

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 10 MHz to 40 GHz.

Test Result

Refer to the plots in the Appendix for the test result:

Low Channel

Out-of-Band conducted emissions		
Plot	Mode	Scan
4.1.1	QPSK 3/4	30 MHz – 5 GHz
4.1.2	QPSK 3/4	5 GHz – 5.725 GHz
4.1.3	QPSK 3/4	5.725 GHz – 5.85 GHz
4.1.4	QPSK 3/4	5.85 GHz – 10 GHz
4.1.5	QPSK 3/4	10 GHz – 40 GHz
4.1.6	QAM 16	1 GHz – 5 GHz
4.1.7	QAM 16	5 GHz – 5.725 GHz
4.1.8	QAM 16	5.725 GHz – 5.85 GHz
4.1.9	QAM 8	5 GHz – 5.725 GHz
4.1.10	QAM 8	5.725 GHz – 5.85 GHz
4.1.11	QPSK 1/2	5 GHz – 5.725 GHz
4.1.12	QPSK 1/2	5.725 GHz – 5.85 GHz

Middle Channel

Out-of-Band conducted emissions		
Plot	Mode	Scan
4.2.1	QPSK 3/4	30 MHz – 1 GHz
4.2.2	QPSK 3/4	1 GHz – 5.725 GHz
4.2.3	QPSK 3/4	5.725 GHz – 5.85 GHz
4.2.4	QPSK 3/4	5.85 GHz – 10 GHz
4.2.5	QPSK 3/4	10 GHz – 40 GHz

Hi Channel

Out-of-Band conducted emissions		
Plot	Mode	Scan
4.3.1	QPSK 3/4	30 MHz – 1 GHz
4.3.2	QPSK 3/4	1 GHz – 5.725 GHz
4.3.3	QPSK 3/4	5.725 GHz – 5.85 GHz
4.3.4	QPSK 3/4	5.85 GHz – 10 GHz
4.3.5	QPSK 3/4	10 GHz – 40 GHz
4.3.6	QAM 16	5.725 GHz – 5.85 GHz
4.3.7	QAM 16	5.85 GHz – 10 GHz
4.3.8	QAM 8	5.725 GHz – 5.85 GHz
4.3.9	QAM 8	5.85 GHz – 10 GHz
4.3.10	QPSK 1/2	5.725 GHz – 5.85 GHz
4.3.11	QPSK 1/2	5.85 GHz – 10 GHz

The EUT passed by more than 30 dB.

4.6 Transmitter Radiated Emissions FCC Rules: 15.247 (c), 15.205, 15.209

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 dB(μ V/m)

RA = Receiver Amplitude (including preamplifier) in dB(μ V)

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB(1/m)

AG = Amplifier Gain in dB

Assume a receiver reading of 52.0 dB(μ V) is obtained. The antenna factor of 7.4 dB(1/m) and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of 32 dB(μ V/m). This value in dB(μ V/m) was converted to its corresponding level in μ V/m.

$$\begin{array}{ll} RA = 52.0 \text{ dB}(\mu\text{V}) & AF = 7.4 \text{ dB}(1/\text{m}) \\ CF = 1.6 \text{ dB} & AG = 29.0 \text{ dB} \end{array}$$

$$FS = 52 + 7.4 + 1.6 - 29 = 32 \text{ dB}(\mu\text{V}/\text{m})$$

$$\text{Level in } \mu\text{V}/\text{m} = \text{Common Antilogarithm} [(32 \text{ dB}(\mu\text{V}/\text{m})/20) = 39.8 \mu\text{V}/\text{m}$$

Result

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance. The EUT passed by 20 dB.

Company:	PROXIM	FCC ID:	HZB-S58-B60C	Standard_	FCC § 15.247 (R.B.)
EUT:	Base Station	S/N #:	Not labeled	Limits_	2
Project #:	3036052	Test Date:	January 30, 2003	Test Distance_	1 meter
Test Mode:	Tx	Engineer:	Bruce G.	Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used		
Number:	14	21	22	10	4	13	10	0	0
Model:	EMCO 3115	3160-9	3160-10	AFT18855	None	ACO/400	NPS72-1	None	None

Antenna SEC-5V/H-90-17

TX at 5740 MHz

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	dB	dB(μV/m)	dB(μV/m)	dB
11480	32.3*	Ave.	14	10	V		40.7	39.9	1.4	-9.5	25.0	54.0	-29.0		
11480	32.1*	Ave.	14	10	H		40.7	39.9	1.4	-9.5	24.8	54.0	-29.2		
22960	24.2*	Ave.	21	13	V		40.4	23.3	2.2	-9.5	34.0	54.0	-20.0		
22960	24.2*	Ave.	21	13	H		40.4	23.3	2.2	-9.5	34.0	54.0	-20.0		

TX at 5768 MHz

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	dB	dB(μV/m)	dB(μV/m)	dB
11536	32.0*	Ave.	14	10	V		41.2	39.7	1.5	-9.5	25.5	54.0	-28.5		
11536	32.0*	Ave.	14	10	H		41.9	39.7	1.5	-9.5	26.2	54.0	-27.8		
23072	24.2*	Ave.	21	13	V		40.4	23.3	2.2	-9.5	34.0	54.0	-20.0		
23072	24.2*	Ave.	21	13	H		40.4	23.3	2.2	-9.5	34.0	54.0	-20.0		

TX at 5810 MHz

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	dB	dB(μV/m)	dB(μV/m)	dB
11620	32.5*	Ave.	14	10	V		41.2	39.7	1.5	-9.5	26.0	54.0	-28.0		
11620	32.4*	Ave.	14	10	H		41.9	39.7	1.5	-9.5	26.6	54.0	-27.4		

- Notes:**
- a) D.C.F.:Distance Correction Factor
 - b) Inset. Loss (dB) = Cable A + Cable B + Cable C .
 - c) Net (dB) = Reading + Antenna Factor - Pre-amp + Inset. Loss
 - 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.
 - f) * Noise floor reading
 - g) Peak measurement was not done because the difference between the average and peak measurement was no more than 10 dB

Company:	PROXIM	FCC ID:	HZB-S58-B60C	Standard_	FCC § 15.247 (R.B.)				
EUT:	Base Station	S/N #:	Not labeled	Limits_	2				
Project #:	3036052	Test Date:	January 30, 2003	Test Distance_	1 meter				
Test Mode:	Tx	Engineer:	Bruce G.	Duty Relaxation	0 dB				
	Antenna Used			Pre-Amp Used		Cable Used			
Number:	14	21	22	10	4	13	10	0	0
Model:	EMCO 3115	3160-9	3160-10	AFT18855	None	ACO/400	NPS72-1	None	None

Antenna SEC-5V/H-60-18

TX at 5740 MHz

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	34.3	Ave.	14	10	V	40.7	39.9	1.4	-9.5	27.0	54.0	-27.0
11480	34.4	Ave.	14	10	H	40.7	39.9	1.4	-9.5	27.1	54.0	-26.9
22960	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
22960	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5768 MHz

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	34.5	Ave.	14	10	V	41.2	39.7	1.5	-9.5	28.0	54.0	-26.0
11536	35.5	Ave.	14	10	H	41.9	39.7	1.5	-9.5	29.7	54.0	-24.3
23072	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
23072	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5810 MHz

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	35.5	Ave.	14	10	V	41.2	39.7	1.5	-9.5	29.0	54.0	-25.0
11620	35.4	Ave.	14	10	H	41.9	39.7	1.5	-9.5	29.6	54.0	-24.4

- 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
 - 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.
 - f) * Noise floor reading
 - g) Peak measurement was not done because the difference between the average and peak measurement was no more than 10 dB

Company:	PROXIM	FCC ID:	HZB-S58-B60C	Standard_	FCC § 15.247 (R.B.)
EUT:	Base Station	S/N #:	Not labeled	Limits_	2
Project #:	3036052	Test Date:	January 30, 2003	Test Distance_	1 meter
Test Mode:	Tx	Engineer:	Bruce G.	Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used		
Number:	14	21	22	10	4	13	10	0	0
Model:	EMCO 3115	3160-9	3160-10	AFT18855	None	ACO/400	NPS72-1	None	None

Antenna 5830AN

TX at 5740 MHz

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	36.3	Ave.	14	10	V	40.7	39.9	1.4	-9.5	29.0	54.0	-25.0
11480	36.1	Ave.	14	10	H	40.7	39.9	1.4	-9.5	28.8	54.0	-25.2
22960	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
22960	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5768 MHz

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	36.0	Ave.	14	10	V	41.2	39.7	1.5	-9.5	29.5	54.0	-24.5
11536	36.5	Ave.	14	10	H	41.9	39.7	1.5	-9.5	30.7	54.0	-23.3
23072	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
23072	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5810 MHz

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	36.5	Ave.	14	10	V	41.2	39.7	1.5	-9.5	30.0	54.0	-24.0
11620	36.4	Ave.	14	10	H	41.9	39.7	1.5	-9.5	30.6	54.0	-23.4

- 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
 - 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.
 - f) * Noise floor reading
 - g) Peak measurement was not done because the difference between the average and peak measurement was no more than 10 dB

Company:	PROXIM	FCC ID:	HZB-S58-B60C	Standard_	FCC § 15.247 (R.B.)
EUT:	Base Station	S/N #:	Not labeled	Limits_	2
Project #:	3036052	Test Date:	January 30, 2003	Test Distance_	1 meter
Test Mode:	Tx	Engineer:	Bruce G.	Duty Relaxation	0 dB

	Antenna Used			Pre-Amp Used			Cable Used		
Number:	14	21	22	10	4	13	10	0	0
Model:	EMCO 3115	3160-9	3160-10	AFT18855	None	ACO/400	NPS72-1	None	None

Antenna MT-483003/N

TX at 5740 MHz

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	36.8	Ave.	14	10	V	40.7	39.9	1.4	-9.5	29.5	54.0	-24.5
11480	36.6	Ave.	14	10	H	40.7	39.9	1.4	-9.5	29.3	54.0	-24.7
22960	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
22960	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5768 MHz

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	36.5	Ave.	14	10	V	41.2	39.7	1.5	-9.5	30.0	54.0	-24.0
11536	36.5	Ave.	14	10	H	41.9	39.7	1.5	-9.5	30.7	54.0	-23.3
23072	24.2*	Ave.	21	13	V	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0
23072	24.2*	Ave.	21	13	H	40.4	23.3	2.2	-9.5	34.0	54.0	-20.0

TX at 5810 MHz

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	37.0	Ave.	14	10	V	41.2	39.7	1.5	-9.5	30.5	54.0	-23.5
11620	36.9	Ave.	14	10	H	41.9	39.7	1.5	-9.5	31.1	54.0	-22.9

- Notes:**
- a) D.C.F.:Distance Correction Factor
 - b) Inset. Loss (dB) = Cable A + Cable B + Cable C .
 - c) Net (dB) = Reading + Antenna Factor - Pre-amp + Inset. Loss
 - 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.
 - f) * Noise floor reading
 - g) Peak measurement was not done because the difference between the average and peak measurement was no more than 10 dB

4.7 Radiated Emissions from Digital Section of Transceiver
FCC Ref: 15.109

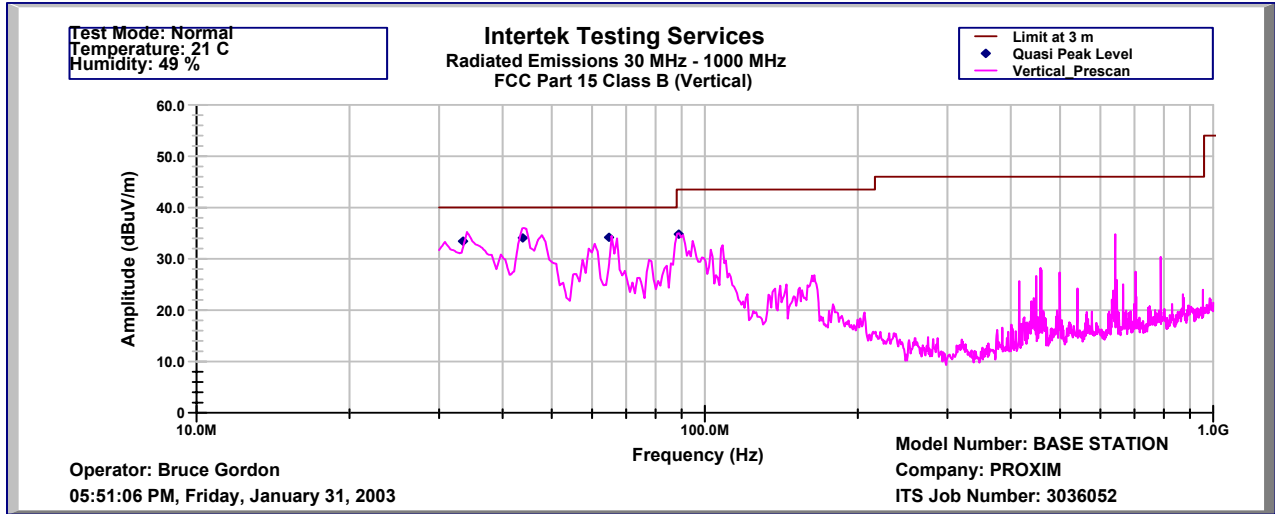
Procedure

Radiated emission measurements were performed from 30 MHz to 1000 MHz. Spectrum Analyzer Resolution Bandwidth is 100 kHz or greater. See also section 4.6.

Result

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

The EUT passed by 3.8 dB.



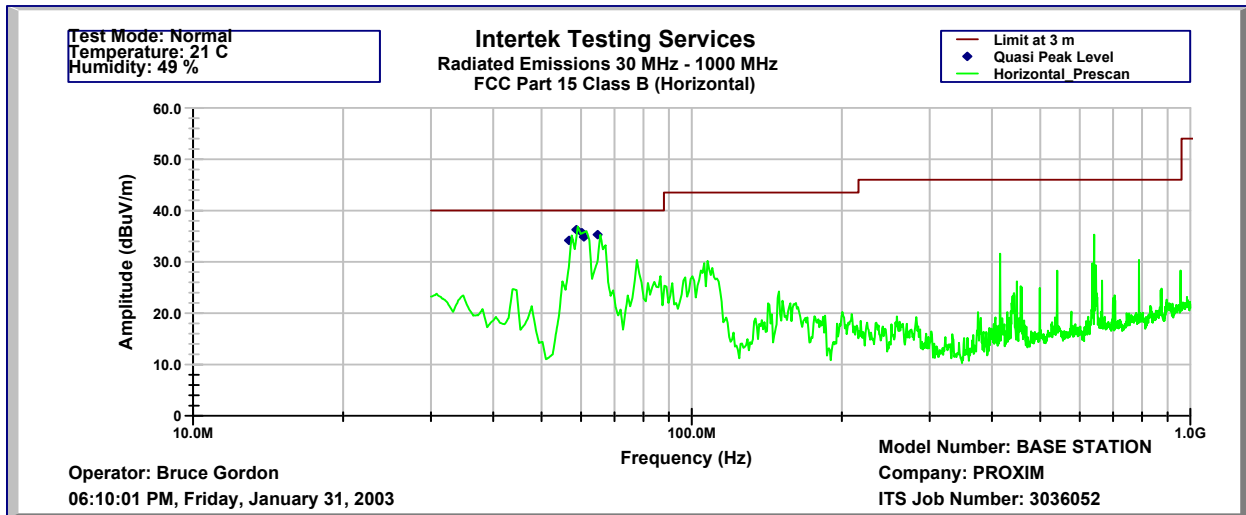
Radiated Emissions 30 MHz - 1000 MHz
FCC Part 15 Class B (QP-Vertical)

Operator: Bruce Gordon
ITS Job Number: 3036052
Fri Feb 14 16:30:06 2003

Model Number: BASE STATION
Company: PROXIM

Frequency	Quasi Pk FS	Limit@3	Margin	RA	AG	CF	AF	Ext. Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB(uV)	dB	dB	dB(1/m)	dB
33.44	33.4	40.0	-6.6	53.9	32.4	0.5	8.3	3
43.83	34.1	40.0	-5.9	53.9	32.4	0.6	8.9	3
64.77	34.2	40.0	-5.8	57.8	32.3	0.8	4.9	3
88.86	34.8	43.5	-8.7	55.3	32.3	0.9	7.9	3

Test Mode: Normal
Temperature: 21 C
Humidity: 49 %



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

Operator: Bruce Gordon
ITS Job Number: 3036052

Model Number: BASE STATION

Company: PROXIM

Frequency	Quasi Pk	FS	Limit@3m	Margin	RA	AG	CF	AF	Ext. Atten
MHz	dB(uV/m)	dB(uV/m)	dB	dB	dB(uV)	dB	dB	dB(1/m)	dB
56.77	34.2	40	-5.8	57.8	32.4	0.7	5.0	3	
58.73	36.2	40	-3.8	59.8	32.3	0.8	5.0	3	
60.22	35.7	40	-4.3	59.0	32.3	0.8	5.2	3	
60.80	34.8	40	-5.2	58.1	32.3	0.8	5.3	3	
64.77	35.3	40	-4.7	57.5	32.3	0.8	6.3	3	

Test Mode: Normal
Temperature: 21 C
Humidity: 49 %

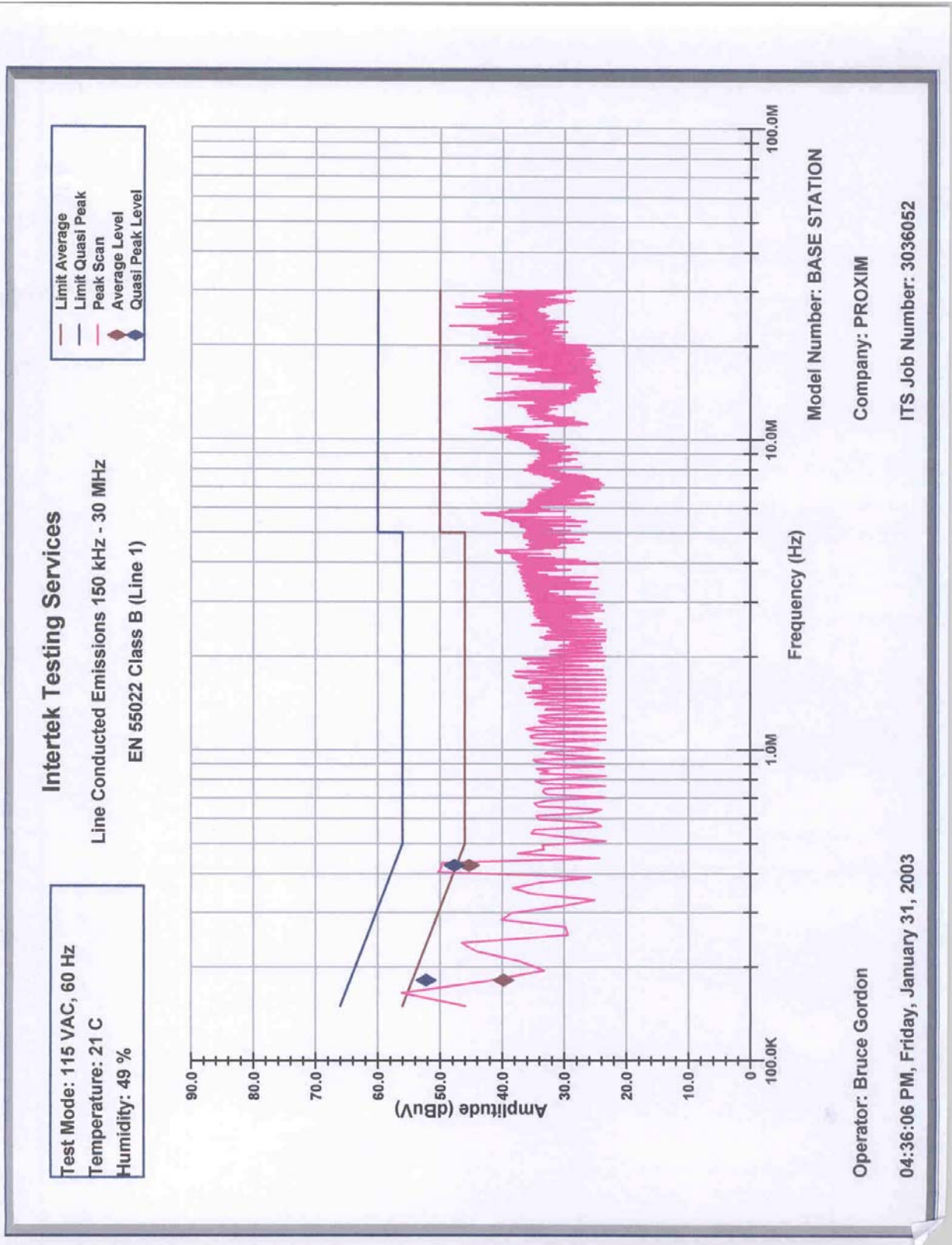
- 4.8 Radiated Emissions from Receiver Section of Transceiver (L.O. Radiation)
FCC Ref: 15.109, 15.111

Not required - EUT operation above 960 MHz only.

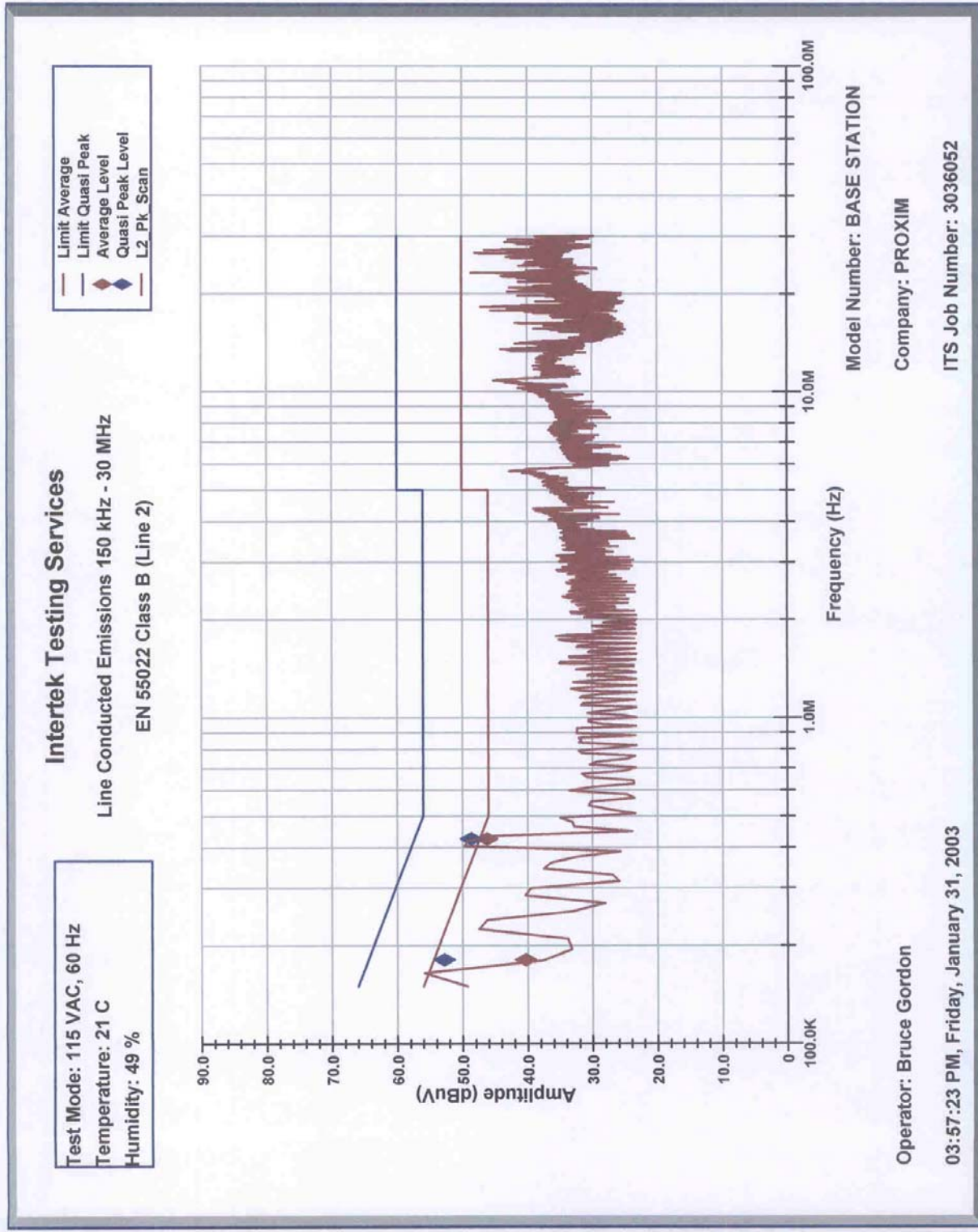
4.9 AC Line Conducted Emission
FCC Rule 15.207:

AC line conducted emission test was performed according the ANSI C63.4 standard. The EUT was connected to AC Line through the LISNs.

For the test result, see attached plots.
The EUT passed by 1.9 dB.



Intertek Testing Services		Line Conducted Emissions 150 kHz - 30 MHz		EN 55022 Class B (Line 1)	
Operator: Bruce Gordon		04:36:06 PM, Friday, January 31, 2003		Model Number: BASE STATION	
04:36:06 PM, Friday, January 31, 2003		04:36:06 PM, Friday, January 31, 2003		ITS Job Number: 3036052	
				Company: PROXIM	
Frequency MHz	Pk Level (dBuV)	Av Level (dBuV)	QP Level (dBuV)	Av Limit (dBuV)	QP Limit (dBuV)
164.925 KHz	56.1			55.6	65.6
181.13 KHz		39.8	52.3	55.1	65.1
239.55 KHz	46.5			53.4	63.4
403.725 KHz	50.3			48.8	58.8
425.13 KHz		45.3	47.7	48.1	58.1
5.776725 MHz	43.3			50.0	60.0
10.80645 MHz	44.6			50.0	60.0
17.71672 MHz	45.2			50.0	60.0
18.22418 MHz	46.6			50.0	60.0
18.28388 MHz	44.8			50.0	60.0
18.3585 MHz	43.3			50.0	60.0
20.25398 MHz	43.6			50.0	60.0
22.4778 MHz	43.5			50.0	60.0
22.5972 MHz	43.8			50.0	60.0
22.8957 MHz	43.3			50.0	60.0
23.0748 MHz	45.0			50.0	60.0
23.14942 MHz	48.4			50.0	60.0
26.49262 MHz	46.7			50.0	60.0
26.55232 MHz	46.2			50.0	60.0
26.61202 MHz	47.5			50.0	60.0
27.16425 MHz	46.2			50.0	60.0
28.70152 MHz	43.8			50.0	60.0
Test Mode:	115 VAC, 60 Hz				
Temperature:	21 C				
Humidity:	49 %				



Intertek Ttesting Services Line Conducted Emissions 150 kHz - 30 MHz EN 55022 Class B (Line 2)				
1	2	3	4	5
Frequency MHz	Pk Level (dBuV)	Av Level (dBuV)	QP Level (dBuV)	QP Limit (dBuV)
164.925 KHz	55.8		52.8	65.6
181.13 KHz	53.5	40.3	52.8	65.1
224.625 KHz	47.4		53.9	63.9
403.725 KHz	49.7		48.8	58.8
425.13 KHz	49.7	46.2	48.6	58.1
10.79152 MHz	45.1		50.0	60.0
13.47803 MHz	44.1		50.0	60.0
17.71672 MHz	45.6		50.0	60.0
18.22418 MHz	47.1		50.0	60.0
18.28388 MHz	45.3		50.0	60.0
18.34358 MHz	43.9		50.0	60.0
22.4778 MHz	43.8		50.0	60.0
22.5972 MHz	43.9		50.0	60.0
22.8957 MHz	43.4		50.0	60.0
23.0748 MHz	44.9		50.0	60.0
23.14942 MHz	48.6		50.0	60.0
26.49262 MHz	47.4		50.0	60.0
26.55232 MHz	46.1		50.0	60.0
26.61202 MHz	48.0		50.0	60.0
27.16425 MHz	46.5		50.0	60.0
27.35828 MHz	43.9		50.0	60.0
28.70152 MHz	43.4		50.0	60.0
Test Mode: 115 VAC, 60 Hz				
Temperature: 21 C				
Humidity: 49 %				

Operator: Bruce Gordon
04:20:53 PM, Friday, January 31, 2003

Model Number: BASE STATION
ITS Job Number: 3036052
Company: PROXIM

5.0 List of test Equipment

Equipment	Manufacturer	Model/Type	Serial #	Cal Int	Cal Due
BI-Log Antenna	EMCO	3143	9509-1160	12	9/19/03
Horn Antenna	EMCO	3115	8812-3049	12	4/03/03
Horn Antenna	EMCO	3160-09	ITS51	#	#
Horn Antenna	EMCO	3160-10	ITS52	#	#
Pre-Amplifier	ITS	ITSPA-1	44156	12	4/16/03
Pre-amplifier	CTT	ACO/400	47526	12	10/5/03
Pre-Amplifier	Avantek	AFT-18855	8723H705	12	10/5/03
Power Meter	Hewlett Packard	8900D	3607U00673	12	1/02/04
Spectrum Analyzer w/85650 QP Adapter	Hewlett Packard	8566B	2416A00317 2043A00251	12	4/06/03
Spectrum Analyzer Display w/85650 QP Adapter	Hewlett Packard	85662B	2403A06796	12	4/06/03
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	7/16/03
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	7/16/03
Spectrum Analyzer w/8650 QP Adapter (LC Room)	Hewlett Packard	8568B	1912A0053 2521A01021	12	11/20/03
Spectrum Analyzer	Hewlett Packard	8565E	-	12	3/30/03
LISN	FCC	FCC-LISN-50-50-M-H	2012	12	1/23/04
Pulse Limiter	Hewlett Packard	11947A	2820A00184	12	9/3/03

No Calibration Required

6.0 Document History

Revision/ Job Number	Writer Initials	Date	Change
1.0 / 3036184	SS	February 5, 2002	Original document
	DC	April 20, 2002	Company Name

7.0 Appendix

See separate file