6. Single Channel Band Edge Plots

Test Requirement: FCC CFR47, Part 15C, 15.249

Test Procedure: ANSI C63.4:1992

6.1 Purpose

The purpose of these plots is to show compliance of the radiated emissions at the band edge of the 902 – 928 MHz band.

6.2 Test Equipment

⇒ Spectrum Analyzer (yellow): Hewlett-Packard 8566B, Serial Number 2403A06519, Calibrated: 7 January 2000, Calibration due Date: 7 January 2001

⇒ RF Preselector (yellow): Hewlett-Packard 85685A, Serial Number 2926A00971, Calibrated: 17 March 2000, Calibration due Date: 17 March 2001

⇒ Quasi Peak Adapter (yellow): Hewlett-Packard 85650A, Serial Number 2521A-00689, Calibrated: 19 November 1999, Calibration due Date: 19 November 2000

⇒ Broadband Biconical Antenna (red) (20 MHz to 200 MHz): EMCO 3110, Serial Number 1115, Calibrated: 28 December 1999, Calibration due Date: 28 December 2000

⇒ Broadband Log Periodic Antenna (red) (200 MHz to 1000 MHz): EMCO 3146, Serial Number 2853, Calibrated: 28 December 1999, Calibration due Date: 28 December 2000

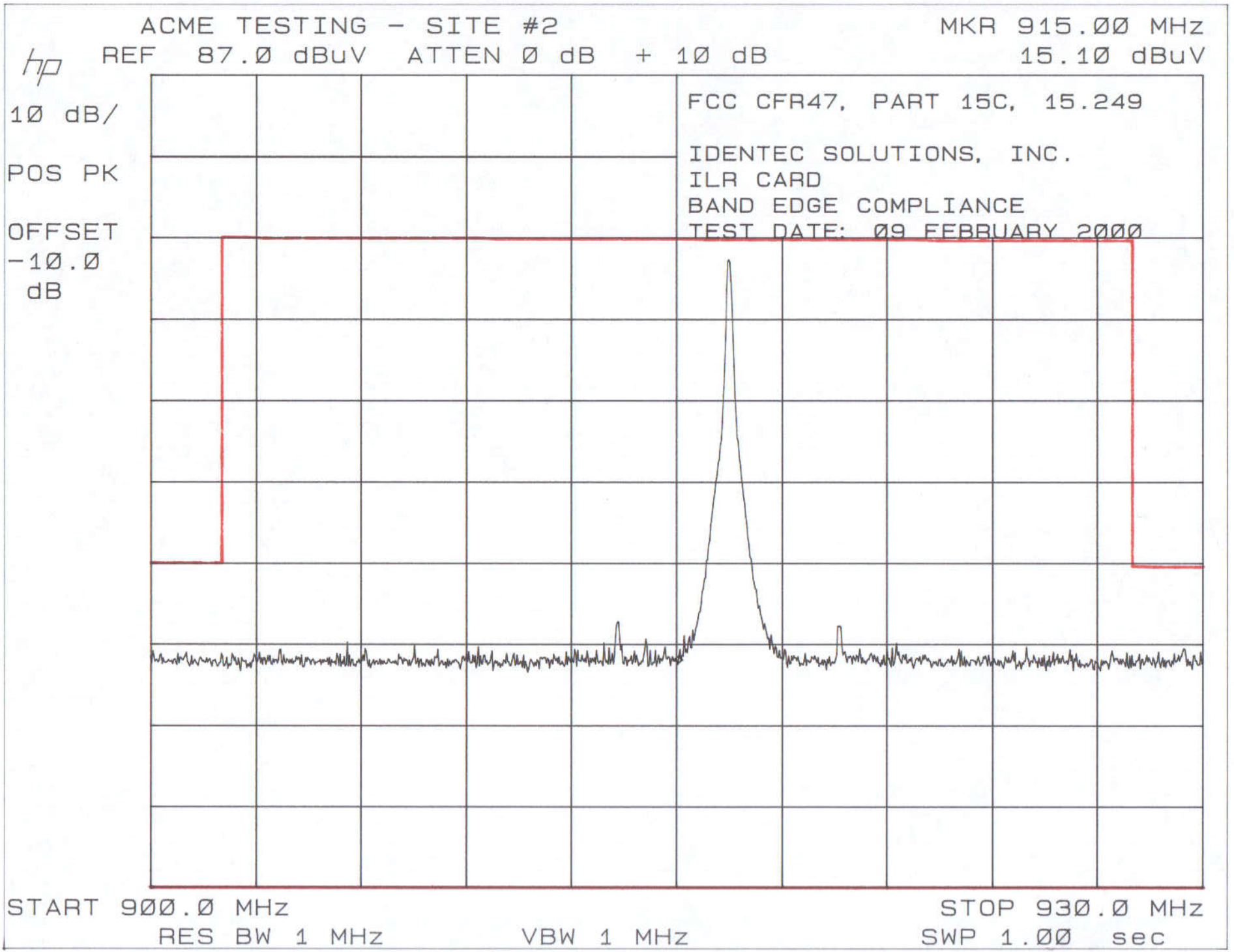
⇒ EUT Turntable Position Controller: EMCO 1061-3M, Serial Number 9003-1441, No Calibration Required

⇒ Antenna Mast with Controller: EMCO 1051, Serial Number 9002-1457, No Calibration Required

⇒ 2 GHz to 10 GHz Low Noise Preamplifier: Milliwave 593-2898, Serial Number 2494, No Calibration Required

⇒ Double Ridge Guide Horn Antenna: EMCO 3115, Serial Number 9807-5534, Calibrated: 30 December 1999, Calibration due Date: 30 December 2000

⇒ 10KHz – 1GHz Preamplifier: Amplifier Research LN1000A, Serial Number 21541, Calibrated: 25 October 1999, Calibration Due Date: 25 October 2000


ACME TESTING - SITE #2
MKR 915.00 MHz
REF 87.0 dBuV ATTEN 0 dB + 10 dB
15.10 dBuV
10 dB/
POS PK
OFFSET
-10.0
dB
FCC CFR47, PART 15C, 15.249
IDENTEC SOLUTIONS, INC.
ILR CARD
BAND EDGE COMPLIANCE
TEST DATE: 09 FEBRUARY 2000
START 900.0 MHz
STOP 930.0 MHz
RES BW 1 MHz
VBW 1 MHz
SWP 1.00 sec

7. Radiated Emissions

Test Requirement: FCC CFR47, Part 15C, 15.249

Test Procedure: ANSI C63.4:1992

7.1 Test Equipment

⇒ Spectrum Analyzer (yellow): Hewlett-Packard 8566B, Serial Number 2403A06519, Calibrated: 7 January 2000, Calibration due Date: 7 January 2001

⇒ RF Preselector (yellow): Hewlett-Packard 85685A, Serial Number 2926A00971, Calibrated: 17 March 2000, Calibration due Date: 17 March 2001

⇒ Quasi Peak Adapter (yellow): Hewlett-Packard 85650A, Serial Number 2521A-00689, Calibrated: 19 November 1999, Calibration due Date: 19 November 2000

⇒ Broadband Biconical Antenna (red) (20 MHz to 200 MHz): EMCO 3110, Serial Number 1115, Calibrated: 28 December 1999, Calibration due Date: 28 December 2000

⇒ Broadband Log Periodic Antenna (red) (200 MHz to 1000 MHz): EMCO 3146, Serial Number 2853, Calibrated: 28 December 1999, Calibration due Date: 28 December 2000

⇒ EUT Turntable Position Controller: EMCO 1061-3M, Serial Number 9003-1441, No Calibration Required

⇒ Antenna Mast with Controller: EMCO 1051, Serial Number 9002-1457, No Calibration Required

⇒ 2 GHz to 10 GHz Low Noise Preamplifier: Milliwave 593-2898, Serial Number 2494, No Calibration Required

⇒ Double Ridge Guide Horn Antenna: EMCO 3115, Serial Number 9807-5534, Calibrated: 30 December 1999, Calibration due Date: 30 December 2000

⇒ 10KHz – 1GHz Preamplifier: Amplifier Research LN1000A, Serial Number 21541, Calibrated: 25 October 1999, Calibration Due Date: 25 October 2000

7.2 Regulation

(a) The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

(b) Field strength limits are specified at a distance of 3 meters.

(c) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

(d) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

(e) Parties considering the manufacture, importation, marketing or operation of equipment under this section should also note the requirement in Section 15.37(d).

7.3 Test Procedures

For tabletop equipment, the EUT is placed on a 1 meter by 1.5 meters wide and 0.8 meter high nonconductive table that sits on a flush mounted metal turntable. Floor standing equipment is placed directly on the flush mounted metal turntable. The EUT is connected to its associated peripherals with any excess I/O cabling bundled to approximately 1 meter.

Preview tests are performed to determine the "worst case" mode of operation. With the EUT operating in "worst case" mode, emissions from the unit are maximized by adjusting the polarization and height of the receive antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions.

Radiated Emissions Test Characteristics	
Frequency range	30 MHz – 10,000 MHz
Test distance	3 m
Test instrumentation resolution bandwidth	120 kHz (30 MHz - 1000 MHz) 1 MHz (1000 MHz – 10,000 MHz)
Receive antenna scan height	1 m - 4 m
Receive antenna polarization	Vertical/Horizontal

7.4 Test Results

I-PORT/II
ANTENNA PORT #1
PEAK OR QUASI-PEAK PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	916.640	94.0	90.6	-3.4	QP	H	140	49	27.2	
2	916.648	94.0	91.4	-2.6	QP	V	121	27	27.2	
3	1833.30	74.0	49.8	-24.2	PK	V	130	42	31.9	

I-PORT/II
ANTENNA PORT #1
AVERAGE PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	1833.26	54.0	41.2	-12.8	AVG	V	130	42	31.9	

I-PORT/II
ANTENNA PORT #2
PEAK OR QUASI-PEAK PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	916.636	94.0	90.2	-3.8	QP	V	122	284	27.2	
2	916.637	94.0	91.5	-2.5	QP	H	149	307	27.2	
3	1833.94	74.0	49.6	-24.4	PK	V	100	56	31.9	

I-PORT/II
ANTENNA PORT #2
AVERAGE PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	1833.32	54.0	40.2	-13.8	AVG	V	100	56	31.9	

I-PORT/II
ANTENNA PORT #3
PEAK OR QUASI-PEAK PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	916.637	94.0	92.1	-1.9	QP	H	140	122	27.2	
2	916.637	94.0	90.4	-3.6	QP	V	126	119	27.2	
3	1833.30	74.0	49.2	-24.8	PK	V	100	225	31.9	

I-PORT/II
ANTENNA PORT #3
AVERAGE PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	1833.13	54.0	41.5	-12.5	AVG	V	100	225	31.9	

I-PORT/II

ANTENNA PORT #4

PEAK OR QUASI-PEAK PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	916.638	94.0	89.5	-4.5	QP	V	128	187	27.2	
2	916.644	94.0	90.9	-3.1	QP	H	151	208	27.2	
3	1833.30	74.0	51.8	-22.2	PK	V	100	222	31.9	

I-PORT/II

ANTENNA PORT #4

AVERAGE PRODUCT EMISSIONS

No	EMISSION FREQUENCY MHz	SPEC LIMIT dBuV/m	MEASUREMENTS ABS	dLIM dB	MODE	POL	SITE HGT cm	AZM deg	CORR FACTOR dB	comments
1	1833.26	54.0	43.2	-10.7	AVG	V	100	222	31.9	

8. Miscellaneous Comments and Notes

1. None

9. List of Attachments

1. Photographs of test set-ups. (2)