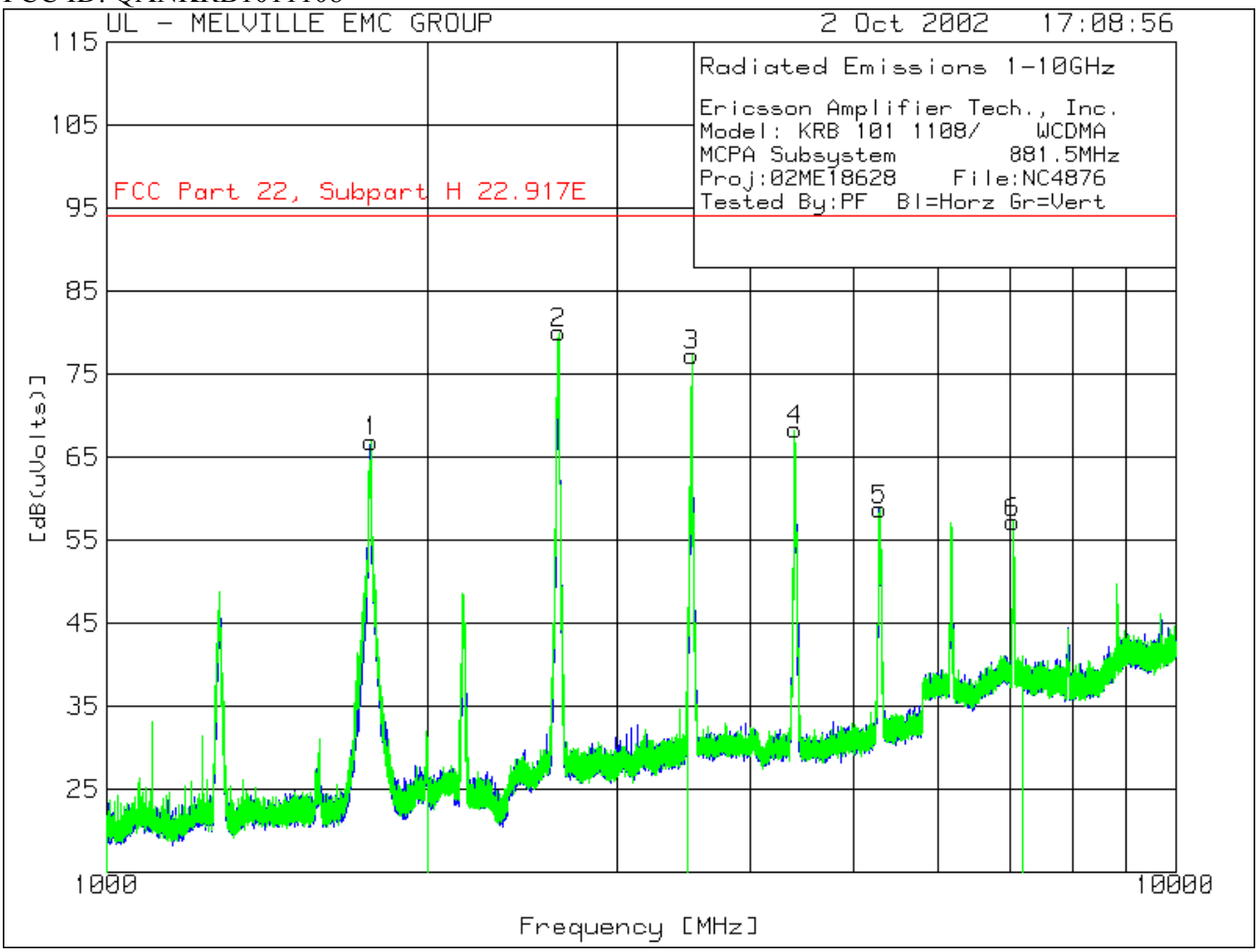
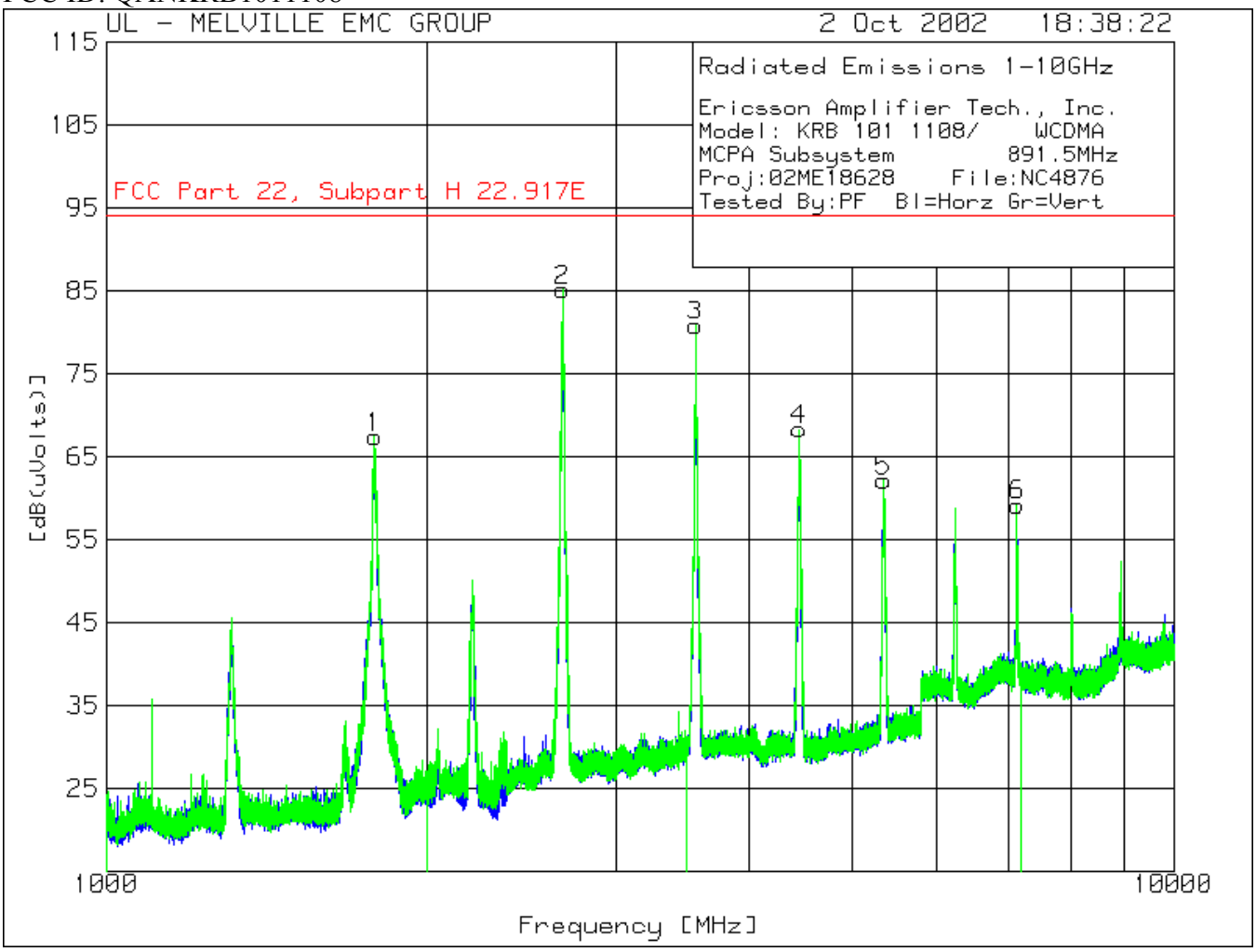

UL – MELVILLE EMC GROUP
2 Oct 2002 17:08:56
Radiated Emissions 1-10GHz
Ericsson Amplifier Tech., Inc.
Model: KRB 101 1108/ WCDMA
MCPA Subsystem 881.5MHz
Proj:02ME18628 File:NC4876
Tested By:PF Bl=Horz Gr=Vert
FCC Part 22, Subpart H 22.917E
115
105
95
85
75
65
55
45
35
25
dB(uVolts)
1000
10000
Frequency [MHz]
M1
M2
M3
M4
M5
M6

Ericsson Amplifier Tech., Inc.
Model: KRB 101 1108/ WCDMA
MCPA Subsystem 881.5MHz
Proj:02ME18628 File:NC4876
Tested By:PF Bl=Horz Gr=Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1
Range: 5 1000 - 2000MHz						
1	1768.193	70.51 pk	-31.49	27.88	66.9	94
	Azimuth:348	Height:101 Vert		Margin [dB]		-27.1
Range: 6 2000 - 3500MHz						
2	2647.996	79.2 pk	-30.07	30.87	80	94
	Azimuth:172	Height:200 Vert		Margin [dB]		-14
Range: 7 3500 - 7200MHz						
3	3525.415	71.54 pk	-27.12	32.88	77.3	94
	Azimuth:83	Height:200 Vert		Margin [dB]		-16.7
4	4402.935	61.78 pk	-27.32	33.84	68.3	94
	Azimuth:186	Height:200 Vert		Margin [dB]		-25.7
5	5287.848	49.46 pk	-26.44	35.68	58.7	94
	Azimuth:192	Height:200 Vert		Margin [dB]		-35.3
6	7051.667	43.25 pk	-23.42	37.37	57.2	94
	Azimuth:235	Height:200 Vert		Margin [dB]		-36.8

LIMIT 1: FCC Part 22, Subpart H 22.917E
pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
tm - Trace Math Result


UL – MELVILLE EMC GROUP
2 Oct 2002 18:38:22
Radiated Emissions 1-10GHz
Ericsson Amplifier Tech., Inc.
Model: KRB 101 1108/ WCDMA
MCPA Subsystem 891.5MHz
Proj:02ME18628 File:NC4876
Tested By:PF Bl=Horz Gr=Vert
FCC Part 22, Subpart H 22.917E
115
105
95
85
75
65
55
45
35
25
dB(uVolts)
1000
10000
Frequency [MHz]
1
2
3
4
5
6

Ericsson Amplifier Tech., Inc.
Model: KRB 101 1108/ WCDMA
MCPA Subsystem 891.5MHz
Proj:02ME18628 File:NC4876
Tested By:PF Bl=Horz Gr=Vert

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1
Range: 5 1000 - 2000MHz						
1	1783.514	70.89 pk	-31.44	27.95	67.4	94
	Azimuth:194	Height:100 Vert		Margin [dB]		-26.6
Range: 6 2000 - 3500MHz						
2	2678.157	84.18 pk	-30	30.92	85.1	94
	Azimuth:235	Height:200 Vert		Margin [dB]		-8.9
Range: 7 3500 - 7200MHz						
3	3565.618	74.93 pk	-27.14	33.01	80.8	94
	Azimuth:56	Height:101 Vert		Margin [dB]		-13.2
4	4459.773	61.85 pk	-27.31	33.76	68.3	94
	Azimuth:248	Height:199 Vert		Margin [dB]		-25.7
5	5350.693	52.64 pk	-26.34	35.8	62.1	94
	Azimuth:247	Height:101 Vert		Margin [dB]		-31.9
6	7131.61	45.34 pk	-23.62	37.48	59.2	94
	Azimuth:244	Height:199 Vert		Margin [dB]		-34.8

LIMIT 1: FCC Part 22, Subpart H 22.917E
pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
tm - Trace Math Result

ERP Measurements with a Substitution Antenna

Ericsson MCPA: KRB101 1108

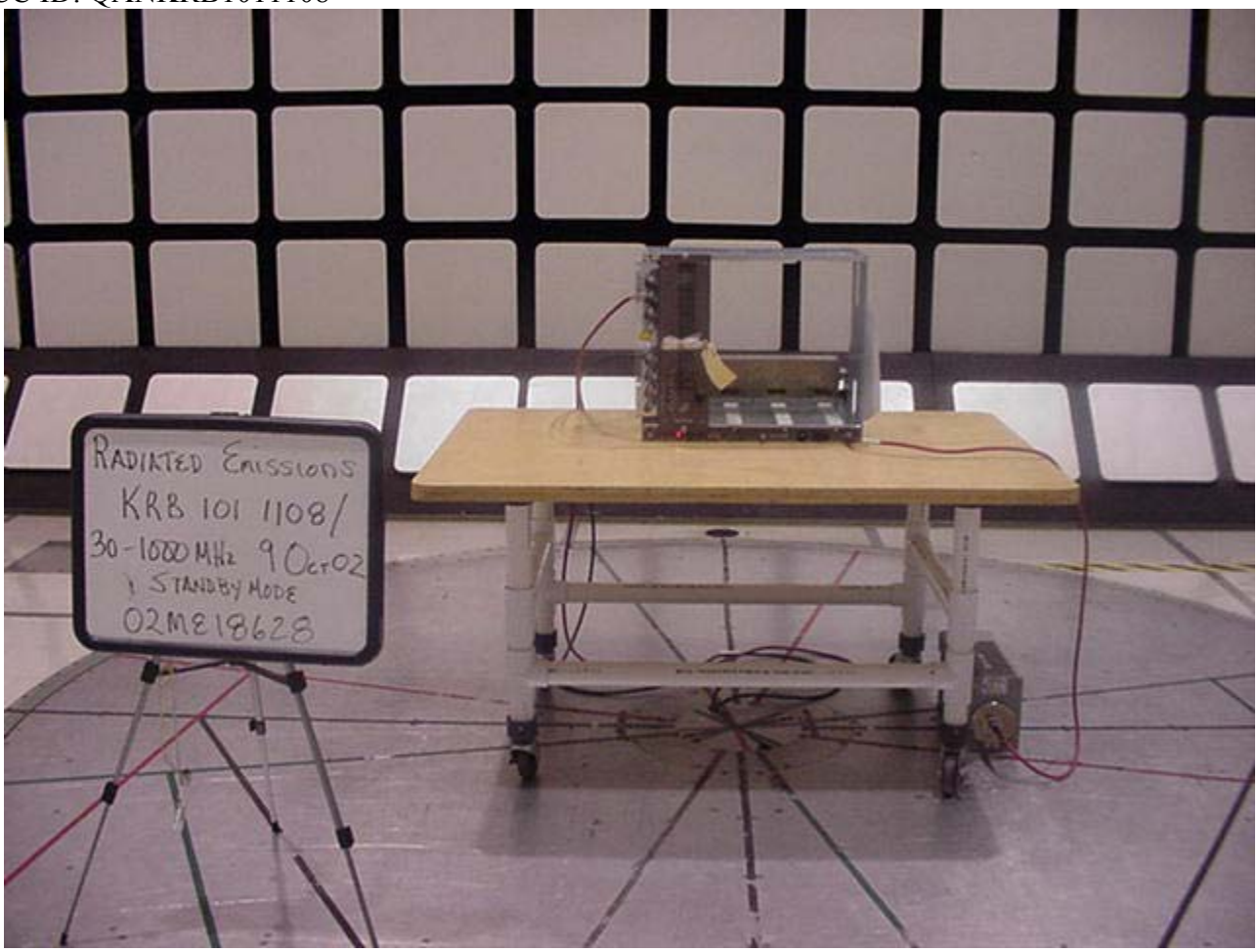
ERP Test

Edge High: 893.6 MHz

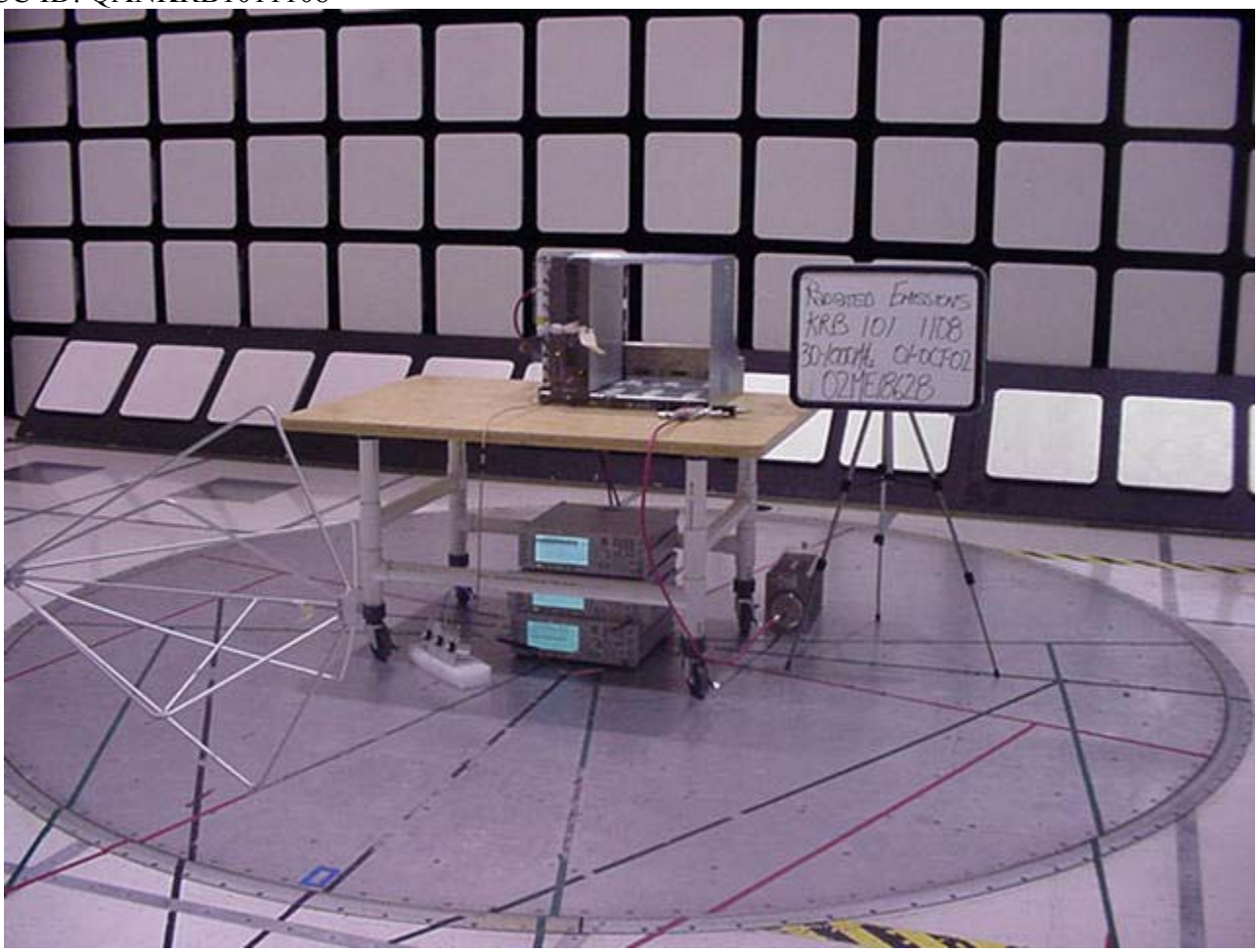
Test Freq	Polarization		Max Amp	Sig Gen	Power	Gain	Substitution	Limit	Delta
MHz	Horizontal	Vertical	dBuV	dBm	dBm	dBi	Calc	dBm	dBm
1316.94		X	54.77	-50.40	-33.00	6.00	-27.00	-13.00	-14.00
1693.12		X	36.44	-68.10	-34.81	7.00	-27.81	-13.00	-14.81
1763.70		X	38.29	-64.90	-34.33	7.00	-27.33	-13.00	-14.33
1316.94	X		55.66	-49.94	-34.10	6.00	-28.10	-13.00	-15.10
1693.12	X		38.93	-65.54	-34.50	7.00	-27.50	-13.00	-14.50
1763.70	X		38.76	-63.76	-34.07	7.00	-27.07	-13.00	-14.07
2053.82		X	36.34	-63.20	-34.36	6.60	-27.76	-13.00	-14.76
2210.51		X	54.98	-42.80	-33.90	7.00	-26.90	-13.00	-13.90
2681.37		X	80.2	-30.13	-27.8	7.00	-20.8	-13.00	-7.8
2053.81	X		39.20	-61.86	-34.02	6.60	-27.42	-13.00	-14.42
2210.51	X		57.83	-42.76	-33.97	7.00	-26.97	-13.00	-13.97
2680.94	X		75.5	-47.14	-33.4	7.00	-26.4	-13.00	-13.4
3574.37		X	75.94	-11.80	-24.70	8.00	-16.70	-13.00	-3.70
4468.20		X	65.72	-20.84	-29.88	9.00	-20.88	-13.00	-7.88
5361.79		X	58.58	-22.04	-31.02	9.00	-22.02	-13.00	-9.02
6255.36		X	48.32	-20.74	-30.89	9.00	-21.89	-13.00	-8.89
7149.00		X	48.89	-19.94	-31.21	9.60	-21.61	-13.00	-8.61
3574.42	X		78.21	-10.96	-22.30	8.00	-14.30	-13.00	-1.30
4468.20	X		71.00	-15.86	-26.34	9.00	-17.34	-13.00	-4.34
5361.60	X		65.99	-15.16	-26.69	9.00	-17.69	-13.00	-4.69
6255.48	X		48.91	-22.86	-31.88	9.00	-22.88	-13.00	-9.88
7148.80	X		47.54	-23.96	-32.39	9.60	-22.79	-13.00	-9.79
8042.44		X	41.26	-22.04	-32.21	10.40	-21.81	-13.00	-8.81
8936.36		X	34.20	-25.54	-32.82	9.00	-23.82	-13.00	-10.82
9829.56		X	31.73	-28.34	-32.87	11.30	-21.57	-13.00	-8.57
8042.48	X		39.27	-30.36	-33.17	10.40	-22.77	-13.00	-9.77
8936.48	X		33.20	-33.16	-33.32	9.00	-24.32	-13.00	-11.32
9829.84	X		31.20	-34.26	-33.07	11.30	-21.77	-13.00	-8.77

This test Modulation mode was deemed worst case

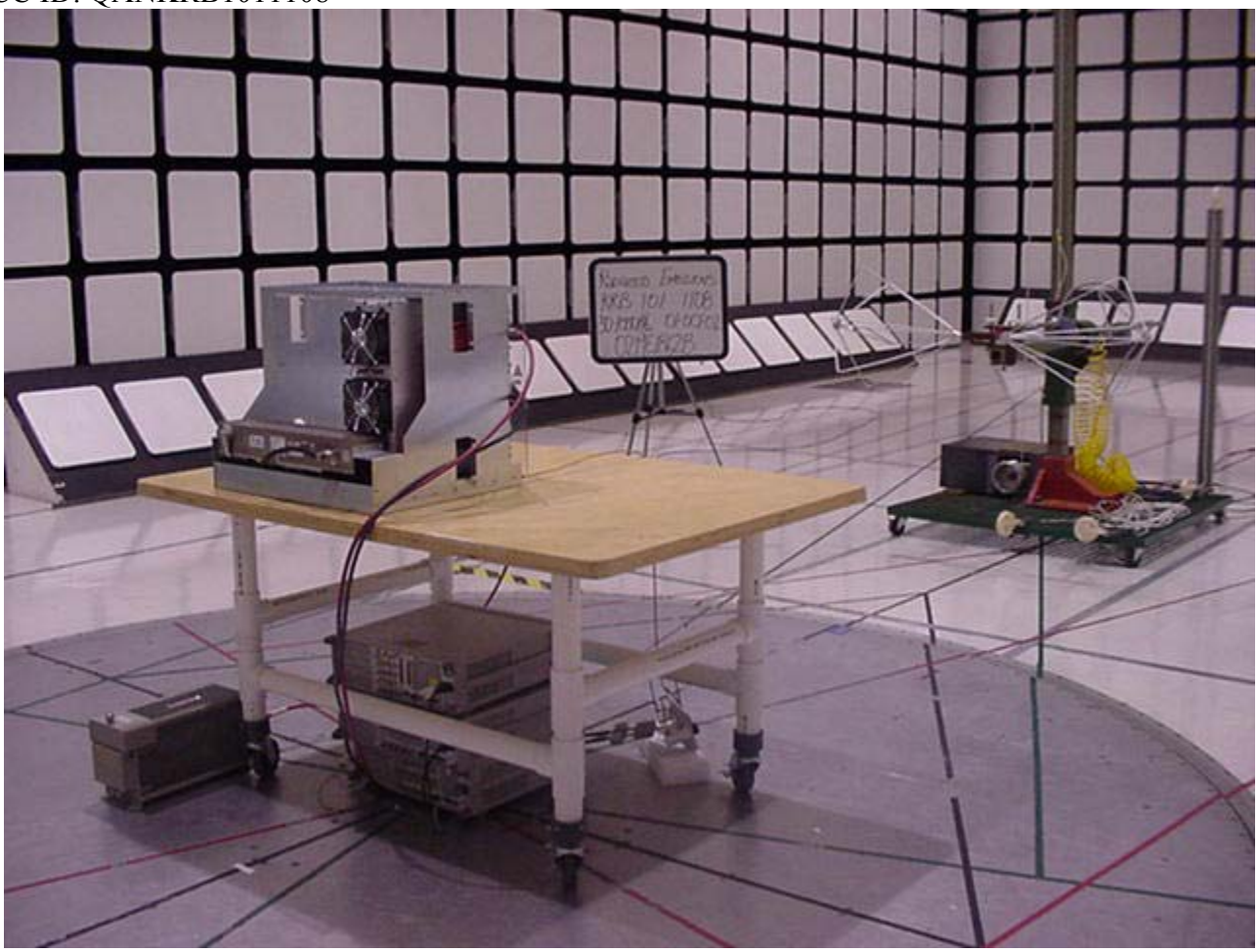
FCC Class “A” test Set-up on Unintentional Radiator Section



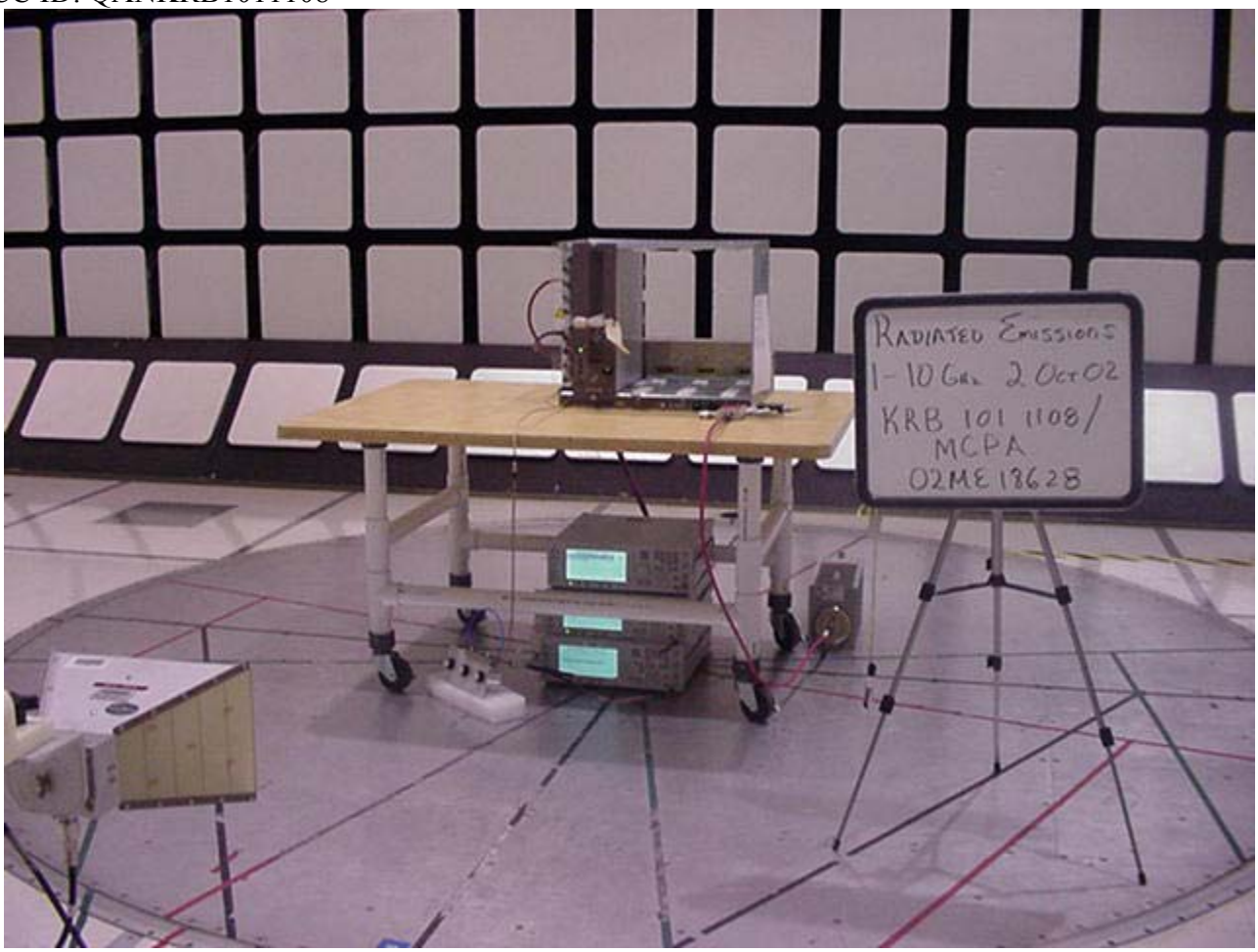
FCC Class “A” test Set-up on Unintentional Radiator Section



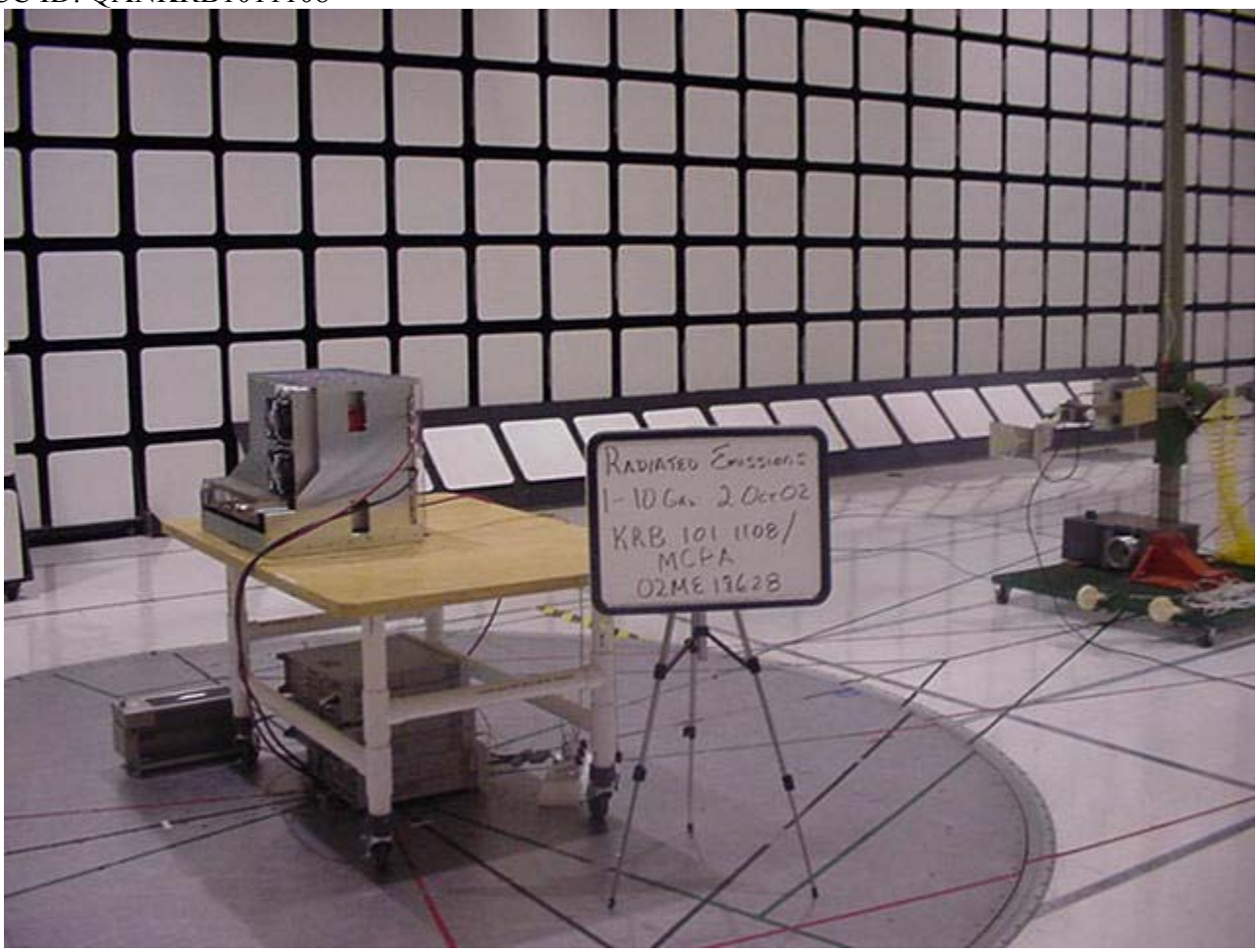
Spurious Radiated Emissions Test Set-Up 30-1000MHz Front View



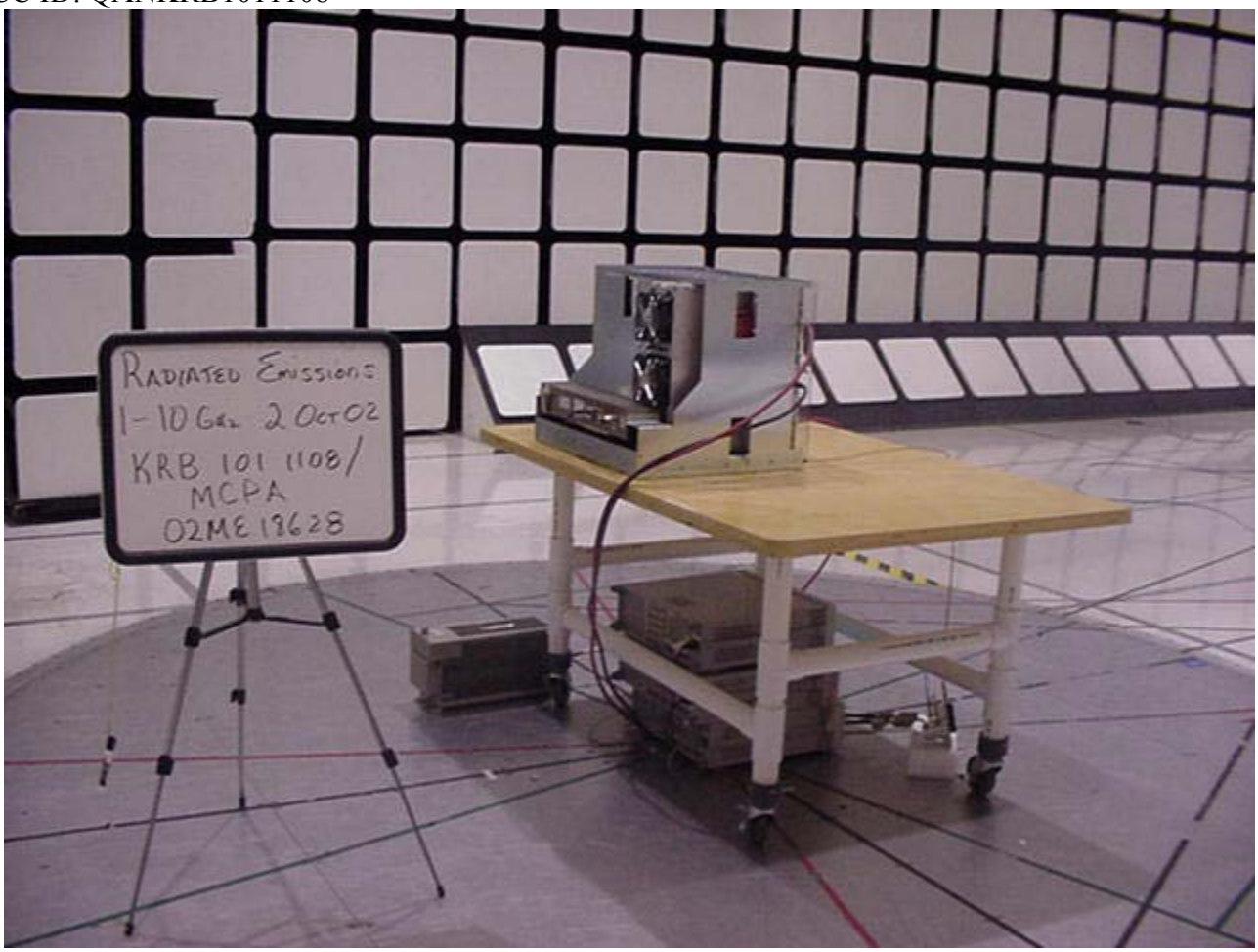
Spurious Radiated Emissions Test Set-Up 30-1000MHz Rear View



Spurious Radiated Emissions Test Set-Up 1GHz –10GHz



Spurious Radiated Emissions Test Set-Up 1GHz –10GHz



Spurious Radiated Emissions Test Set-Up 1GHz –10GHz

2.1.4 Conducted Spurious Emissions at Antenna Terminal:

☒ **Test Applicable** ☐ **Test Not Applicable**

Temperature:	20.1°C
Humidity:	65%RH
Pressure:	1031milbar
Date test performed:	4 Oct 02

Frequency range: From the fundamental out to 10 GHz

The Amplifier will operate in a typical installation. Set the output to 100 watts (example: 50 dBm = 156.99 dBuV) average power and connect to a spectrum analyzer through an attenuator (50dB). Calculate additional losses (i.e. cable loss 1 dB, attenuator) (example 50 +1 =51). . A reference level shall be established at the fundamental frequency (example: 156.99dBuV-51dB= 106dBuV) From this reference point all spurious emissions should be measured. The limits are either 60 dB or 43 + (10 log Pout in watts) which ever provides the lesser value. The value either calculated or 60dB is how far the emissions must be below the carrier (fundamental).

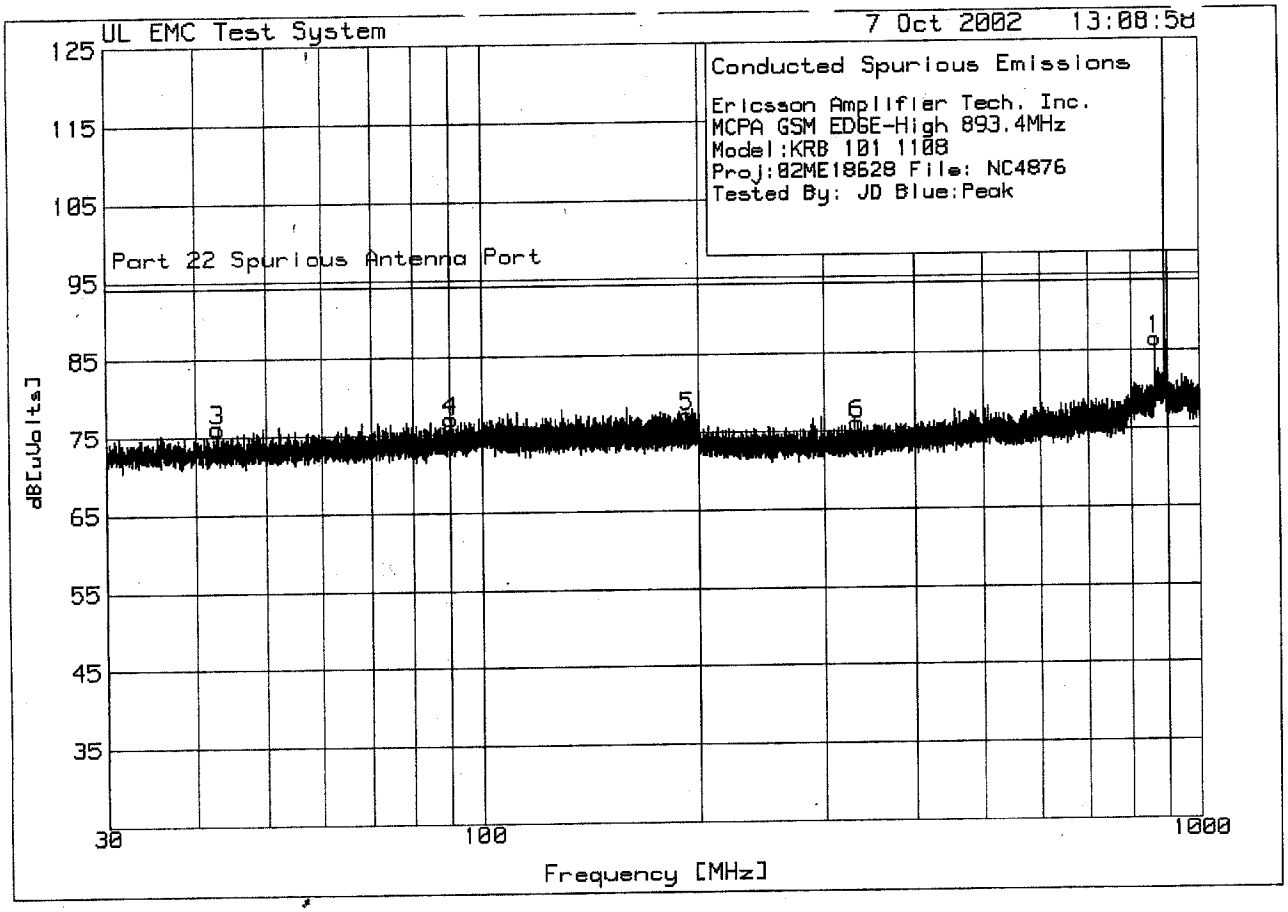
The resolution and video bandwidths are set to 1MHz and maintained throughout test**.**

Note: If the modulations are determined to be of similarities after measurements are taken. Then 1 modulation will be a sufficient representative for final measurements. The GSM Edge High Edge was determined to be the worst case modulation scheme.

Modulation	Frequency (MHz)
GSM Edge	High 893.4

Test equipment used for Conducted Spurious Emissions at Antenna Terminal:

☒ **ESI Rohde & Schwarz EMI Test Reciever, Equipment No.: 5B-081**
Range:_20Hz- 26.5GHz Last Calibration Date: 20 Aug.02 Calibration Due Date: 20 Aug. 03
☒ **Temp/Pressure Oakton Barometer Equipment No.: ME4-263**
Range: Auto Last Calibration Date: 2 April 02 Calibration Due Date: 2 April 03
☒ **453320 Ex-Tech Hydro-Thermometer Equipment No.: ME4-264**
Range:Auto Last Calibration Date: 2 April 02 Calibration Due Date: 2 April 03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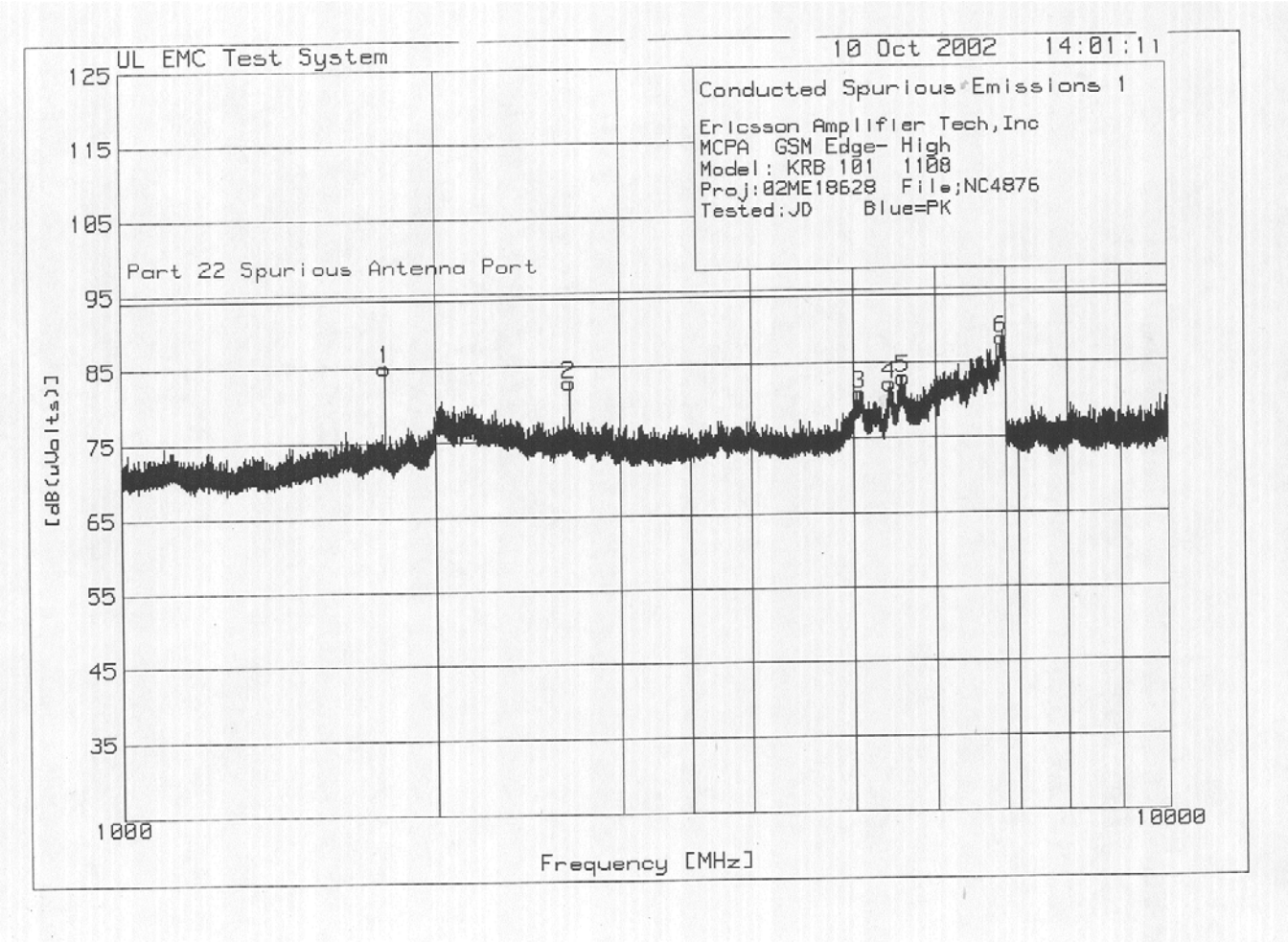
7 Oct 2002 13:08:58
Conducted Spurious Emissions
Ericsson Amplifier Tech. Inc.
MCPA GSM EDGE-High 893.4MHz
Model:KRB 101 1108
Proj:02ME18628 File: NC4876
Tested By: JD Blue:Peak
Part 22 Spurious Antenna Port
dBEuVolts]
125
115
105
95
85
75
65
55
45
35
30
100
1000
Frequency [MHz]

Ericsson Amplifier Tech. Inc.
MCPA GSM EDGE-High 893.4MHz
Model:KRB 101 1108
Proj:02ME18628 File: NC4876
Tested By: JD Blue:Peak

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts]	Limit:1
Range: 1 30 - 200MHz						
3	42.9043	15.84 pk	.3	60	76.14	94
				Margin [dB]		-17.86
4	90.356	16.68 pk	.4	60	77.08	94
				Margin [dB]		-16.92
5	192.8763	16.6 pk	.6	60	77.2	94
				Margin [dB]		-16.8
Range: 3 200 - 1000MHz						
1	866.0666	25.41 pk	1.1	60	86.51	94
				Margin [dB]		-7.49
2	❋893.8294	96.15 pk	1.1	60	157.25	94
				Margin [dB]		63.25
6	332.9733	15.29 pk	.7	60	75.99	94
				Margin [dB]		-18.01

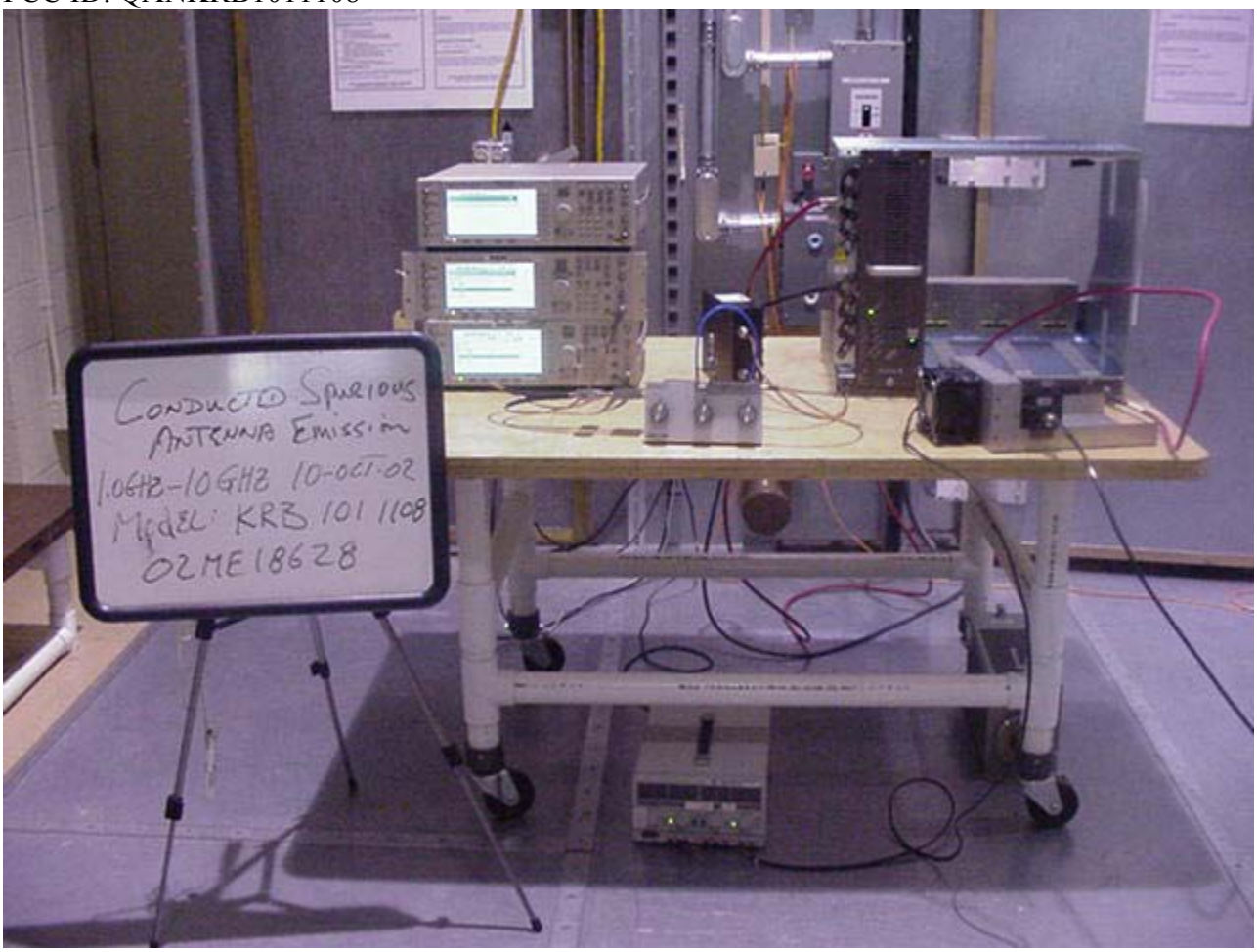
LIMIT 1: Part 22 Spurious Antenna Port
❋ Fundamental Frequency
pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
avem - denotes EMI average detection
tm - Trace Math Result


UL EMC Test System
10 Oct 2002 14:01:11
Conducted Spurious Emissions 1
Ericsson Amplifier Tech,Inc
MCPA GSM Edge- High
Model: KRB 101 1108
Proj:02ME18628 File;NC4876
Tested:JD Blue=PK
Part 22 Spurious Antenna Port
125
115
105
95
85
75
65
55
45
35
[dB(uVolts)]
1000
10000
Frequency [MHz]

Ericsson Amplifier Tech,Inc
MCPA GSM Edge- High
Model: KRB 101 1108
Proj:02ME18628 File;NC4876
Tested:JD Blue=PK

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1
Range: 1 1000 - 2000MHz						
1	1787.279	33.84 pk	1.3	50	85.14	94
				Margin [dB]		-8.86
Range: 2 2000 - 3500MHz						
2	2680.918	30.93 pk	1.9	50	82.83	94
				Margin [dB]		-11.17
Range: 3 3500 - 7200MHz						
3	5078.948	28.38 pk	2.5	50	80.88	94
				Margin [dB]		-13.12
4	5425.673	29.67 pk	2.5	50	82.17	94
				Margin [dB]		-11.83
5	5582.198	30.47 pk	2.5	50	82.97	94
				Margin [dB]		-11.03
6	6931.723	35.15 pk	3	50	88.15	94
				Margin [dB]		-5.85

LIMIT 1: Part 22 Spurious Antenna Port



Test Set-Up Conducted Spurious Emissions Antenna Port

2.1.5 Inter-Modulation Distortion:

☒ **Test Applicable** ☐ **Test Not Applicable**

Temperature:	21.2 °C
Humidity:	60 %RH
Pressure:	1020 milbar
Date test performed :	11 Oct 02

Frequency range to investigate: From the fundamental out to 10 GHz

The Amplifier will operate in a typical installation. Generate 8 tones on the input in an effort to produce spurious emissions due to inter-modulation distortion. The output will be connected to the spectrum analyzer via the attenuator and measurements are made in the pass band. The requirement is that the spectrum output from the amplifier meets the emissions mask of CFR Part 22.917. All inter-modulation shall be at least 60 dB below the carrier.

Note: If the modulations are determined to be of similarities after measurements are taken. Then 1 modulation will be a sufficient representative for final measurements.

The tones were set so the delta between each tone was within 1db apart in amplitude.

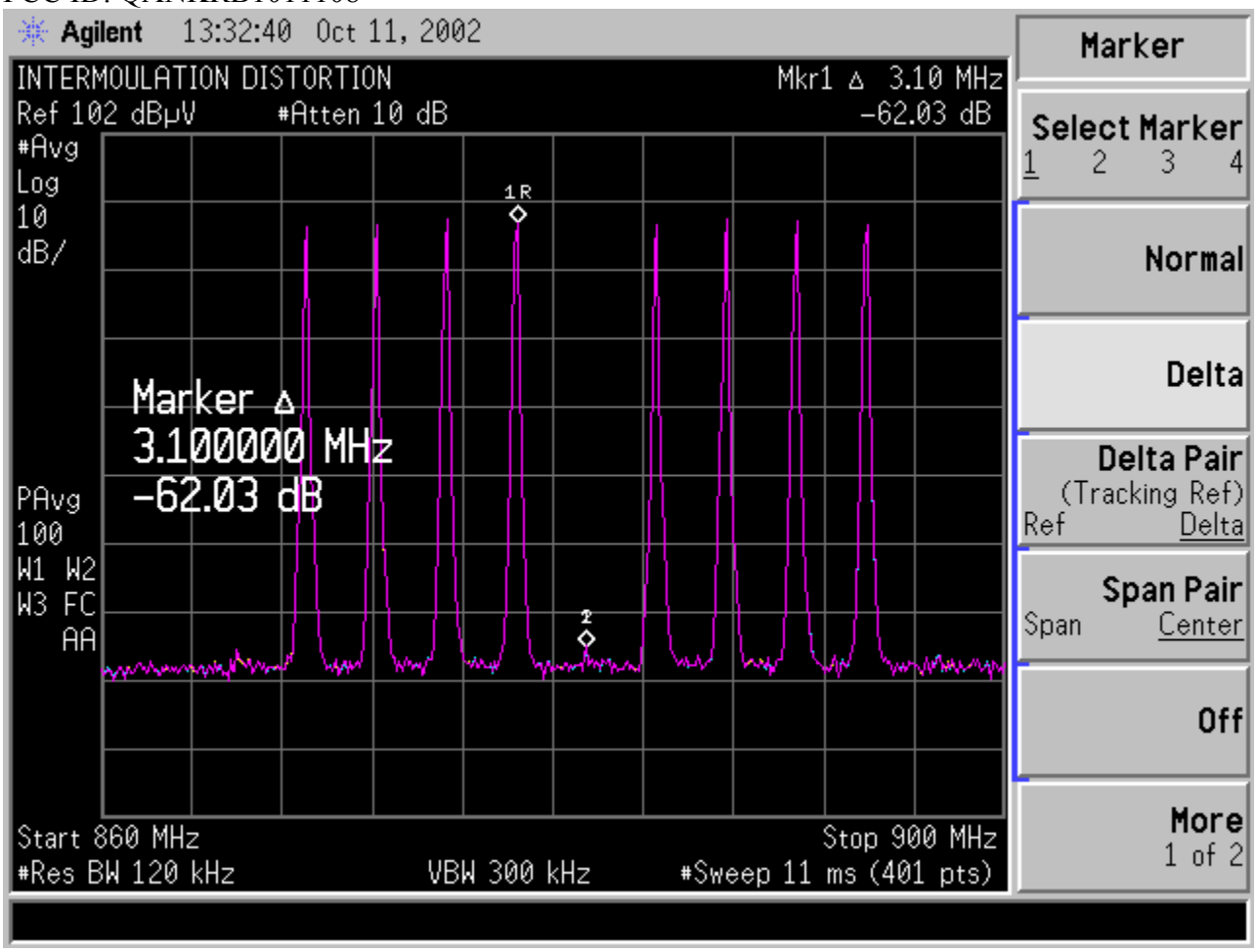
The following frequency were applied:

869.1 MHz	884.6 MHz
872.2 MHz	887.7 MHz
875.3 MHz	890.8 MHz
878.4MHz	893.9 MHz

The Inter-modulation distortion was 62.03db below the fundamental

Test equipment used for Inter-Modulation Distortion:

☒ **E7402A** **Agilent** **EMI Reciever/Spectrum Analyzer,** **Equipment No.: ME5B123**
Range:9KHz-3GHz Last Calibration Date: 17 Sept. 02 Calibration Due Date: 17 Sept. 03
☒ **Temp/Pressure** **Oakton** **Barometer** **Equipment No.: ME4-263**
Range: Auto Last Calibration Date: 2 April 02 Calibration Due Date: 2 April 03
☒ **453320** **Ex-Tech** **Hydro-Thermometer Equipment No.: ME4-264**
Range:Auto Last Calibration Date: 2 April 02 Calibration Due Date: 2 April 03



Inter-modulation Distortion

Inter-Modulation Test Set-up

3.0 SUMMARY:

The equipment under test has

☒ met the technical requirements as defined under section(s) ☒ 2.0

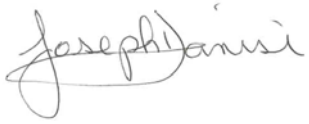
☐ not met the technical requirements as defined under section(s) ☐ 2.0 and ☐ 3.0

Test Start Date: 1 Oct 2002

Test Completion Date: 11 Oct 2002

- UNDERWRITERS LABORATORIES, INC. -

Project Engineer



Joseph Danisi (Ext.23055)
Senior Engineering Associate
International EMC Services
Conformity Assessment Services-3014AMEL

Reviewer

Robert DeLisi (Ext.22452)
Engineering Group Leader
International EMC Services
Conformity Assessment Services -3014AMEL

Filename:	Ericcson Amplifier
Directory:	K:\EMC213B.DIR\Joe D\FCC Products
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Author:	11816
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