Nemko USA, Inc.
Phone (858) 755-5525 Fax (858) 452-1810
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024

Test Report: **2004 090071 FCC24**

Applicant: **Kyocera Wireless**
10300 Campus Point Drive
San Diego, CA 92121
858 449-9835
619 330-4977- fax

Equipment Under Test: **AT Road Internet Location Mobile Device**
Model **iLM2720**

FCC ID: **OVFKWC-M200**

In Accordance With: **FCC Part 24, Subpart E**
And **Industry Canada RSS-133**

Tested By: Nemko USA, Inc.
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024

Date: **October 5, 2004**

Total Number of Pages: **20**

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Section 1. Summary of Test Results

General

All measurements are traceable to national standards.

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24, Subpart E.

DOCUMENT HISTORY

REVISION	DATE	COMMENTS	
-	October 5, 2004	Prepared By:	Alan Laudani
-	October 5, 2004	Initial Release:	R. L. Hill
	February 14, 2005	Revised Ant. Model #'s	Alan Laudani

NOTE: Nemko USA, Inc. hereby makes the following statements so as to conform to Chapter 10 (Test Reports) Requirements of ANSI C63.4 (1992) "Methods and Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz":

- The unit described in this report was received at Nemko USA, Inc.'s facilities on **September 10, 2004**. Testing was performed on the unit described in this report on **September 10, 2004 to** September 14, 2004 .
- The Test Results reported herein apply only to the Unit actually tested, and to substantially identical Units.
- This report does not imply the endorsement of the Federal Communications Commission (FCC), NVLAP or any other government agency.

CERTIFICATION

Nemko USA, Inc., an independent Electromagnetic Compatibility (EMC) Test Laboratory, produced this Test Report and performed the Radio Frequency Interference (RFI) testing and data evaluation contained herein.

Nemko USA, Inc.'s measurement facility is currently registered with the United States Federal Communications Commission (FCC) in accordance with the provisions of 47 United States Code (CFR) Part 2, Subpart I, Section 2.948(a). A current description of Nemko USA, Inc.'s measurement facility is on file with the FCC. Nemko USA Inc. has additionally satisfied the FCC that it complies with the requirements set forth in 47 CFR Part 2, Subpart I, Section 2.948(d) regarding the accreditation of EMC laboratories. As a result, the FCC has placed Nemko USA Inc. on its list of EMC laboratories approved to perform Declaration of Conformity (DOC) procedure testing.

The RFI testing, test data collection and test data evaluation were accomplished in accordance with the ANSI C63.4-1992 Standard, and in accordance with the applicable sections of the FCC rules (47 CFR Parts 2 and 18)." digital devices. The testing was also accomplished in accordance with Industry Canada's ICES-003 standard for unintentional radiating device per EMCAB-3, Issue 3 (May 1998). The administrative summary of this test report provides a description of the test sample

I hereby certify that the test data, test data evaluation, and equipment configurations used to compile this test report are a true and accurate representation of the test sample's radio frequency interference characteristics as of the test date(s), and, for the design of the test sample.

_*Chip Fleury* for Rick Hill_____
Ricky L. Hill, EMC Supervisor

Summary Of Test Data

The intent of this report is to present representative data to conform to a previously tested module and antenna(s). The Center frequency of one Cellular Test Mode is presented as evident of no pronounced changes in emissions.

Name Of Test	Para. No.	Result
RF Power Output	2.1046	PASS
Occupied Bandwidth	2.1049	NOT TESTED
Spurious Emissions at Antenna Terminals	2.1051	NOT TESTED
Field Strength of Spurious Emissions	2.1053	PASS
Frequency Stability	2.1055	NOT TESTED

Test Conditions:

Indoor	N/A	Temperature:	°C
		Humidity:	%
Outdoor		Temperature:	16-20 °C
		Humidity:	80-98 %

Section 2. General Equipment Specification

Manufacturer:	**Kyocera Wireless**
Model No.:	**AT Road Internet Location Mobile Device iLM2720**
Serial No.:	N/A
Date Received In Laboratory:	**September 10, 2004**
Nemko Identification No.:	**24-071-kyo-r1**
Frequency Range:	1851.25—1908.75 MHz
RF Output (Limit):	2.0 W
RF Output (Measured):	0.45 W
Emission Designator:	1M25F9W
FCC Identifier:	OVFKWC-M200

Section 3. RF Power Output

Para. No.: 2.1046

Test Performed By: A. Laudani **Date of Test: Sept 13, 2004**

Minimum Standard: Para. No.: 24.232.

Test Results: Pass

Measurement Data:

M200 module with antenna model:	Modulation	Frequency (MHz)	Measured / Rated (dBm)
SMM-UCE-3ASC	PCS	1851.25	23.7
SMM-UCE-3ASC		1880.00	25.3
SMM-UCE-3ASC		1908.75	25.1
MM3-900/1900	PCS	1851.25	22.1
MM3-900/1900		1880.00	26.5
MM3-900/1900		1908.75	22.1
MM3-U15-1A-2C	PCS	1851.25	17.8
MM3-U15-1A-2C		1880.00	16.4
MM3-U15-1A-2C		1908.75	14.6

Section 4. Occupied Bandwidth

Para. No.: 2.1049

Test Performed By:	**Date of Test:**

Minimum Standard: Para. No.: 24.238.

Test Results: NOT TESTED

Test Data:

Section 5. Spurious Emissions at Antenna Terminals

Para. No.: 2.1051

Test Performed By:	**Date of Test:**

Minimum Standard: Para. No.: 24.238.

Test Results: NOT TESTED

Test Data:

Section 6. Field Strength of Spurious

Para. No.: 2.1053

Test Performed By: Alan Laudani	**Date of Test: Sept. 13, 2004**

Minimum Standard: Para. No.: 24.238.

Test Results: Pass

Test Data: As per attached tabulated data.

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NEMKO USA, Inc.

Substitution Method For Radiated Emissions

Complete	Yes		Job # :	24-071-KYO-R1	Test # : 6
Preliminary				Page 1	of 1
Client Name :	KYOCERA WIRELESS Corp.				
EUT Name :	1	M200 with SMM-UCE-3A2C			
	2	M200 with MM3-900/1900			
	3	M200 with MM3-U15-1A-2C			
Specification :	FCC Part 24				
Rod. Ant. #:	NA	Temp. (deg. C) :	22	Date :	9/14/2004
Bicon Ant.#:	NA	Humidity (%) :	60	Staff :	A. Laudani
Log Ant.#:	NA	EUT Voltage :			
DRG Ant. #	529	EUT Frequency :			
Dipole Ant.#:	NA	Phase:		Peak Bandwidth:	RBW-1MHz, VBW-1MHz
Cable#:	60ft	Location:	SOATS		
Preamp#:	317	Distance:	3m		
Spec An.#:	537				

	EUT	target Frequency mHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin dBm
PCS Low Freq.	1	1851.31	82.0	9.5	0.8	15.0	23.7	33	-9.3
PCS Mid Freq.	1	1880.00	83.6	9.5	0.8	16.6	25.3	33	-7.7
PCS High Freq.	1	1908.70	83.8	9.5	0.8	16.4	25.1	33	-7.9
PCS Low Freq.	2	1851.31	80.4	9.5	0.8	13.4	22.1	33	-10.9
PCS Mid Freq.	2	1880.00	84.8	9.5	0.8	17.8	26.5	33	-6.5
PCS High Freq.	2	1908.70	80.8	9.5	0.8	13.4	22.1	33	-10.9
PCS Low Freq.	3	1851.31	76.1	9.5	0.8	9.1	17.8	33	-15.2
PCS Mid Freq.	3	1880.00	74.7	9.5	0.8	7.7	16.4	33	-16.6
PCS High Freq.	3	1908.70	73.3	9.5	0.8	5.9	14.6	33	-18.4
PCS 2ND Harm.	1	3702.5	52.7	9.7	1.3	-47.3	-38.9	-13	-25.9
PCS 2ND Harm.	1	3760.0	52.9	9.7	1.3	-47.1	-38.7	-13	-25.7
PCS 2ND Harm.	1	3817.0	52.6	9.7	1.3	-46.8	-38.4	-13	-25.4
PCS 2ND Harm.	2	3702.5	52	9.7	1.3	-48.0	-39.6	-13	-26.6
PCS 2ND Harm.	2	3760.0	55.6	9.7	1.3	-44.4	-36.0	-13	-23.0
PCS 2ND Harm.	2	3817.0	56	9.7	1.3	-43.4	-35.0	-13	-22.0
PCS 2ND Harm.	3	3702.5	50.1	9.7	1.3	-49.9	-41.5	-13	-28.5
PCS 2ND Harm.	3	3760.0	52.3	9.7	1.3	-47.7	-39.3	-13	-26.3
PCS 2ND Harm.	3	3817.0	53.4	9.7	1.3	-46.0	-37.6	-13	-24.6

Radiated Disturbance Test Data:

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Radiated Emissions Data

Complete: YES
Preliminary:
Job # : 24-071-KYO-R Test # : 1
Page 1 of 1

Client Name : KYOCERA WIRELESS Corp.
EUT Name : M200 MODULE
EUT Model # : M200 with SMM-UCE-3A2C
EUT Serial # :
EUT Config. : Transmit PCS
Specification : FCC Part 24 Reference :
Rod. Ant. #: NA Temp. (C) : 25 Date : 9/13/2004
Bicon Ant.#: NA Humidity (%) : 65 Time :
Log Ant.#: 112 EUT Voltage : 4.2 V Staff : A. LAUDANI
DRG Ant. # 752 EUT Frequency : dc Photo ID:
Dipole Ant.#: NA Phase: - Peak Bandwidth: 1 MHz
Cable#: NOATS Location: NOATS Video Bandwidth 1 MHz
Preamp#: 317 Distance (meters): 3 Fund. RBW 30 kHz(Video Ave +17 dB)
Spec An.#: 537 2000 MHz high pass filer NF = Noise Floor

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25	82.0	75.0	34.0	22.74	33.0	-10.3	90.0	1.2	Pass	
3702.50	52.7	49.3	11.2	-29.36	-13.0	-16.4	90.0	1.0	Pass	
5553.75	43.8	41.7	14.0	-35.46	-13.0	-22.5			Pass	NF
7405.00	46.3	45.3	18.5	-28.46	-13.0	-15.5			Pass	NF
9256.25	47.7	46.4	23.9	-21.66	-13.0	-8.7			Pass	NF
11107.50	48.0	47.2	21.0	-24.26	-13.0	-11.3			Pass	NF
12958.75	51.9	52.6	20.6	-20.06	-13.0	-7.1			Pass	NF
14810.00	48.2	48.3	24.2	-20.76	-13.0	-7.8			Pass	NF
16661.25	50.7	50.6	23.0	-19.56	-13.0	-6.6			Pass	NF
18512.50	42.1	42.2	31.3	-19.8	-13.0	-6.8			Pass	NF 100 kHz RBW
1880.00	83.6	76.3	34.0	24.3	33.0	-8.7	120.0	1.8	Pass	
3760.00	52.9	50.4	11.2	-29.2	-13.0	-16.2	110.0	1.0	Pass	
5640.00	44.7	42.4	14.0	-34.6	-13.0	-21.6	110.0	1.0	Pass	
7520.00	42.1	42.0	18.7	-32.5	-13.0	-19.5			Pass	NF
9400.00	40.7	41.1	23.9	-28.3	-13.0	-15.3			Pass	NF
11280.00	40.3	41.5	21.0	-30.8	-13.0	-17.8			Pass	NF
13160.00	43.1	43.2	22.8	-27.3	-13.0	-14.3			Pass	NF
15040.00	43.7	43.7	23.5	-26.1	-13.0	-13.1			Pass	NF
16920.00	41.9	42.8	23.0	-27.5	-13.0	-14.5			Pass	NF
18800.00	42.1	42.2	31.3	-19.8	-13.0	-6.8			Pass	NF 100 kHz RBW
1908.75	83.8	78.8	34.0	24.5	33.0	-8.5	120.0	1.8	Pass	
3817.50	52.6	51.1	11.2	-29.5	-13.0	-16.5			Pass	
5726.25	43.3	41.1	14.0	-36.0	-13.0	-23.0			Pass	NF
7635.00	41.0	40.2	18.7	-33.6	-13.0	-20.6			Pass	NF
9543.75	39.7	40.3	23.8	-29.2	-13.0	-16.2			Pass	NF
11452.50	41.0	41.7	21.0	-30.6	-13.0	-17.6			Pass	NF
13361.25	44.0	44.1	22.8	-26.4	-13.0	-13.4			Pass	NF
15270.00	43.6	43.7	23.5	-26.1	-13.0	-13.1			Pass	NF
17178.75	41.9	43.2	25.8	-24.3	-13.0	-11.3			Pass	NF
19087.50	42.1	42.2	31.3	-19.8	-13.0	-6.8			Pass	NF 100 kHz RBW

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Radiated Emissions Data

Complete	YES			Job # :	24-071-KYO-R1	Test # :	1
Preliminary				Page	1	of	1
Client Name :	KYOCERA WIRELESS Corp.						
EUT Name :	M200 MODULE						
EUT Model # :	M200 with MM3-900/1900						
EUT Serial # :							
EUT Config. :	Transmit PCS						
Specification :	FCC Part 24			Reference :			
Rod. Ant. #:	NA	Temp. (C) :	22		Date :	9/13/2004	
Bicon Ant.#:	NA	Humidity (%) :	68		Time :		
Log Ant.#:	112	EUT Voltage :	4.2 V		Staff :	A. LAUDANI	
DRG Ant. #	752	EUT Frequency :	dc		Photo ID:		
Dipole Ant.#:	NA	Phase:	-		Peak Bandwidth:	1 MHz	
Cable#:	NOATS	Location:	NOATS		Video Bandwidth	1 MHz	
Preamp#:	317	Distance (meters):	3		Fund. RBW	30 kHz(Video Ave +17 dB)	
Spec An.#:	537	2000 MHz high pass filer				NF = Noise Floor	

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25	80.4	72.1	34.0	19.17	33.0	-13.8	90.0	1.2	Pass	
3702.50	52	48.5	11.2	-32.03	-13.0	-19.0	100.0	1.0	Pass	
5553.75	43.6	42.4	14.0	-37.63	-13.0	-24.6			Pass	NF
7405.00	39.6	40.0	18.5	-36.73	-13.0	-23.7			Pass	NF
9256.25	40.2	40.7	23.9	-30.63	-13.0	-17.6			Pass	NF
11107.50	40.5	40.2	21.0	-33.73	-13.0	-20.7			Pass	NF
12958.75	44.4	45.8	20.6	-28.83	-13.0	-15.8			Pass	NF
14810.00	42.4	43.6	24.2	-27.43	-13.0	-14.4			Pass	NF
16661.25	43.0	43.2	23.0	-29.03	-13.0	-16.0			Pass	NF
18512.50	44.1	42.8	31.3	-19.8	-13.0	-6.8			Pass	NF
1880.00	84.8	76.0	34.0	23.6	33.0	-9.4	120.0	1.8	Pass	
3760.00	53.5	55.6	11.2	-28.4	-13.0	-15.4	110.0	1.0	Pass	
5640.00	40.1	40.1	14.0	-41.1	-13.0	-28.1	110.0	1.0	Pass	
7520.00	41.9	42.2	18.7	-34.3	-13.0	-21.3			Pass	NF
9400.00	39.6	40.0	23.9	-31.3	-13.0	-18.3			Pass	NF
11280.00	40.7	40.4	21.0	-33.5	-13.0	-20.5			Pass	NF
13160.00	43.5	43.8	22.8	-28.6	-13.0	-15.6			Pass	NF
15040.00	42.7	41.8	23.5	-29.0	-13.0	-16.0			Pass	NF
16920.00	43.7	43.1	23.0	-28.5	-13.0	-15.5			Pass	NF
18800.00	47.1	47.5	31.3	-16.4	-13.0	-3.4			Pass	NF
1908.75	80.8	72.1	34.0	19.6	33.0	-13.4	120.0	1.8	Pass	
3817.50	55.2	47.3	11.2	-28.8	-13.0	-15.8	10.0	1.0	Pass	
5726.25	41.3	41.8	14.0	-39.4	-13.0	-26.4			Pass	NF
7635.00	41.8	40.4	18.7	-34.7	-13.0	-21.7			Pass	NF
9543.75	40.6	40.9	23.8	-30.5	-13.0	-17.5			Pass	NF
11452.50	40.8	40.8	21.0	-33.4	-13.0	-20.4			Pass	NF
13361.25	43.9	44.1	22.8	-28.3	-13.0	-15.3			Pass	NF
15270.00	43.2	43.2	23.5	-28.5	-13.0	-15.5			Pass	NF
17178.75	42.7	42.8	25.8	-26.6	-13.0	-13.6			Pass	NF
19087.50	48.8	46.6	31.3	-15.1	-13.0	-2.1			Pass	NF

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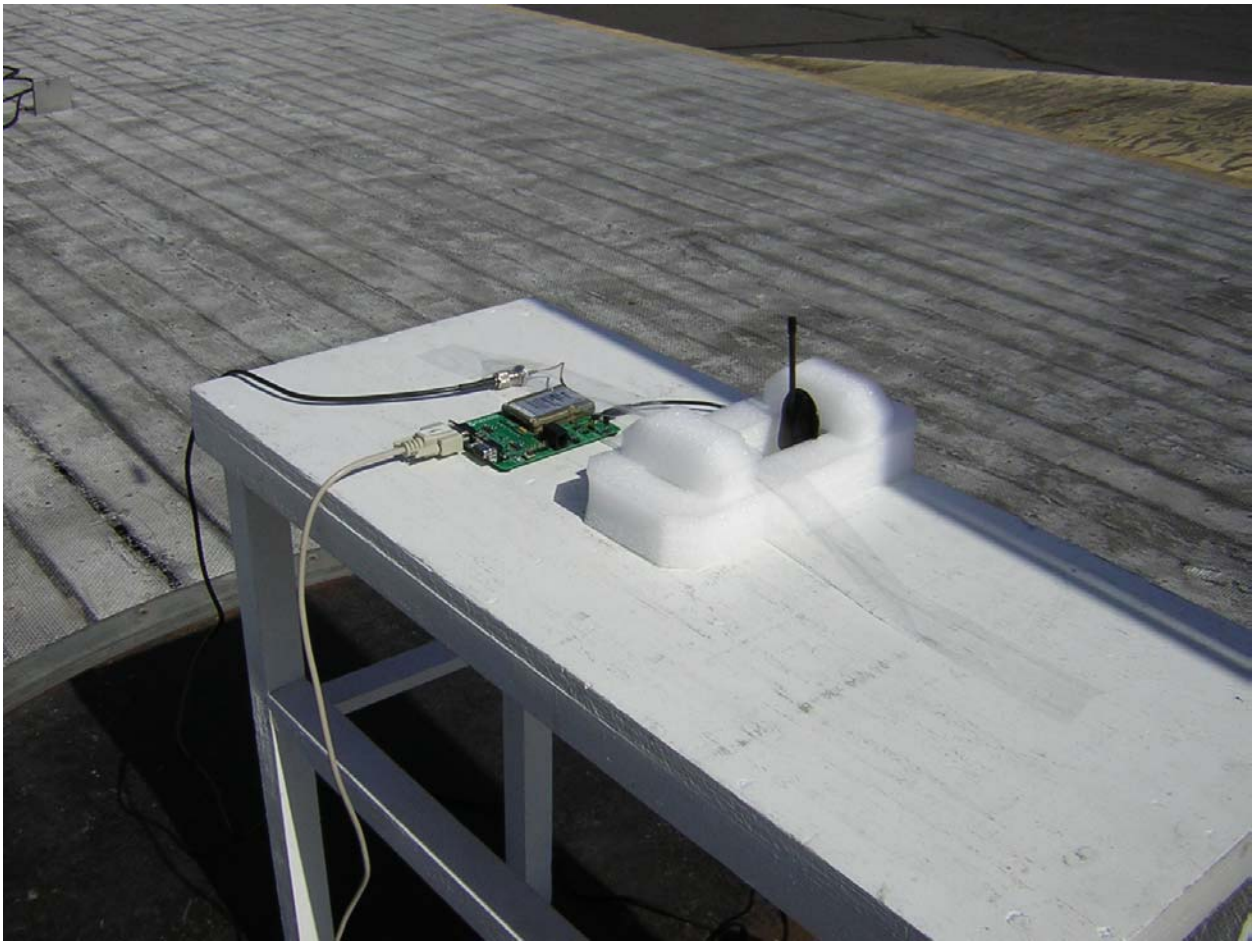
Radiated Emissions Data

Complete	YES			Job # :	24-071-KYO-R1	Test # :	1
Preliminary				Page	1	of	1
Client Name :	KYOCERA WIRELESS Corp.						
EUT Name :	M200 MODULE						
EUT Model # :	M200 with MM3-U15-1A-2C						
EUT Serial # :							
EUT Config. :	Transmit PCS						
Specification :	FCC Part 24			Reference :			
Rod. Ant. #:	NA	Temp. (C) :	22	Date :	9/13/2004		
Bicon Ant.#:	NA	Humidity (%) :	68	Time :			
Log Ant.#:	112	EUT Voltage :	4.2 V	Staff :	A. LAUDANI		
DRG Ant. #	752	EUT Frequency :	dc	Photo ID:			
Dipole Ant.#:	NA	Phase:	-	Peak Bandwidth:	1 MHz		
Cable#:	NOATS	Location:	NOATS	Video Bandwidth	1 MHz		
Preamp#:	317	Distance (meters):	3	Fund. RBW	30 kHz(Video Ave +17 dB)		
Spec An.#:	537	2000 MHz high pass filer			NF = Noise Floor		

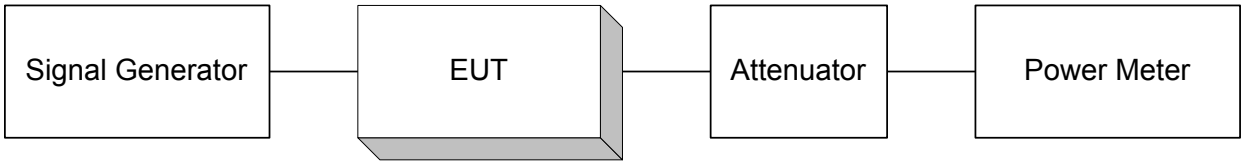
Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25	76.1	76.1	34.0	14.87	33.0	-18.1	90.0	1.2	Pass	
3702.50	50.1	48.4	11.2	-33.93	-13.0	-20.9	100.0	1.0	Pass	
5553.75	49.3	43.4	14.0	-31.93	-13.0	-18.9	100.0	1.0	Pass	
7405.00	40.0	41.6	18.5	-35.13	-13.0	-22.1			Pass	NF
9256.25	39.3	41	23.9	-30.33	-13.0	-17.3			Pass	NF
11107.50	41.4	40.7	21.0	-32.83	-13.0	-19.8			Pass	NF
12958.75	45.0	44.1	20.6	-29.63	-13.0	-16.6			Pass	NF
14810.00	42.3	43.2	24.2	-27.83	-13.0	-14.8			Pass	NF
16661.25	43.1	44.1	23.0	-28.13	-13.0	-15.1			Pass	NF
18512.50	43.0	43.1	31.3	-20.8	-13.0	-7.8			Pass	NF
1880.00	74.7	69.4	34.0	13.5	33.0	-19.5	120.0	1.8	Pass	
3760.00	52.3	50.8	11.2	-31.7	-13.0	-18.7	110.0	1.0	Pass	
5640.00	41.2	42.4	14.0	-38.8	-13.0	-25.8	110.0	1.0	Pass	
7520.00	40.4	42.1	18.7	-34.4	-13.0	-21.4			Pass	NF
9400.00	40.1	40.7	23.9	-30.6	-13.0	-17.6			Pass	NF
11280.00	40.7	41.8	21.0	-32.4	-13.0	-19.4			Pass	NF
13160.00	40.3	42.7	22.8	-29.7	-13.0	-16.7			Pass	NF
15040.00	43.7	47	23.5	-24.7	-13.0	-11.7			Pass	NF
16920.00	43.3	46.8	23.0	-25.4	-13.0	-12.4			Pass	NF
18800.00	47.1	46.2	31.3	-16.8	-13.0	-3.8			Pass	NF
1908.75	73.3	69.9	34.0	12.1	33.0	-20.9	120.0	1.8	Pass	
3817.50	50.5	51.2	11.2	-32.8	-13.0	-19.8	10.0	1.0	Pass	
5726.25	42.8	42.2	14.0	-38.4	-13.0	-25.4			Pass	NF
7635.00	41.4	41.7	18.7	-34.8	-13.0	-21.8			Pass	NF
9543.75	40.2	40.4	23.8	-31.0	-13.0	-18.0			Pass	NF
11452.50	42.9	42.5	21.0	-31.3	-13.0	-18.3			Pass	NF
13361.25	43.2	43.5	22.8	-28.9	-13.0	-15.9			Pass	NF
15270.00	43.0	44.2	23.5	-27.5	-13.0	-14.5			Pass	NF
17178.75	43.2	43.6	25.8	-25.8	-13.0	-12.8			Pass	NF
19087.50	47.4	47.1	31.3	-16.5	-13.0	-3.5			Pass	NF

Range Set up:
Photo

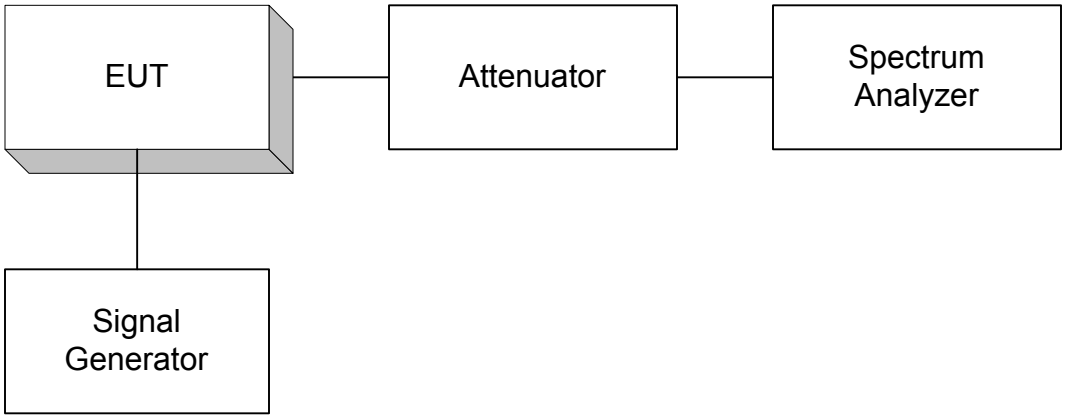


Section 7. Block Diagrams

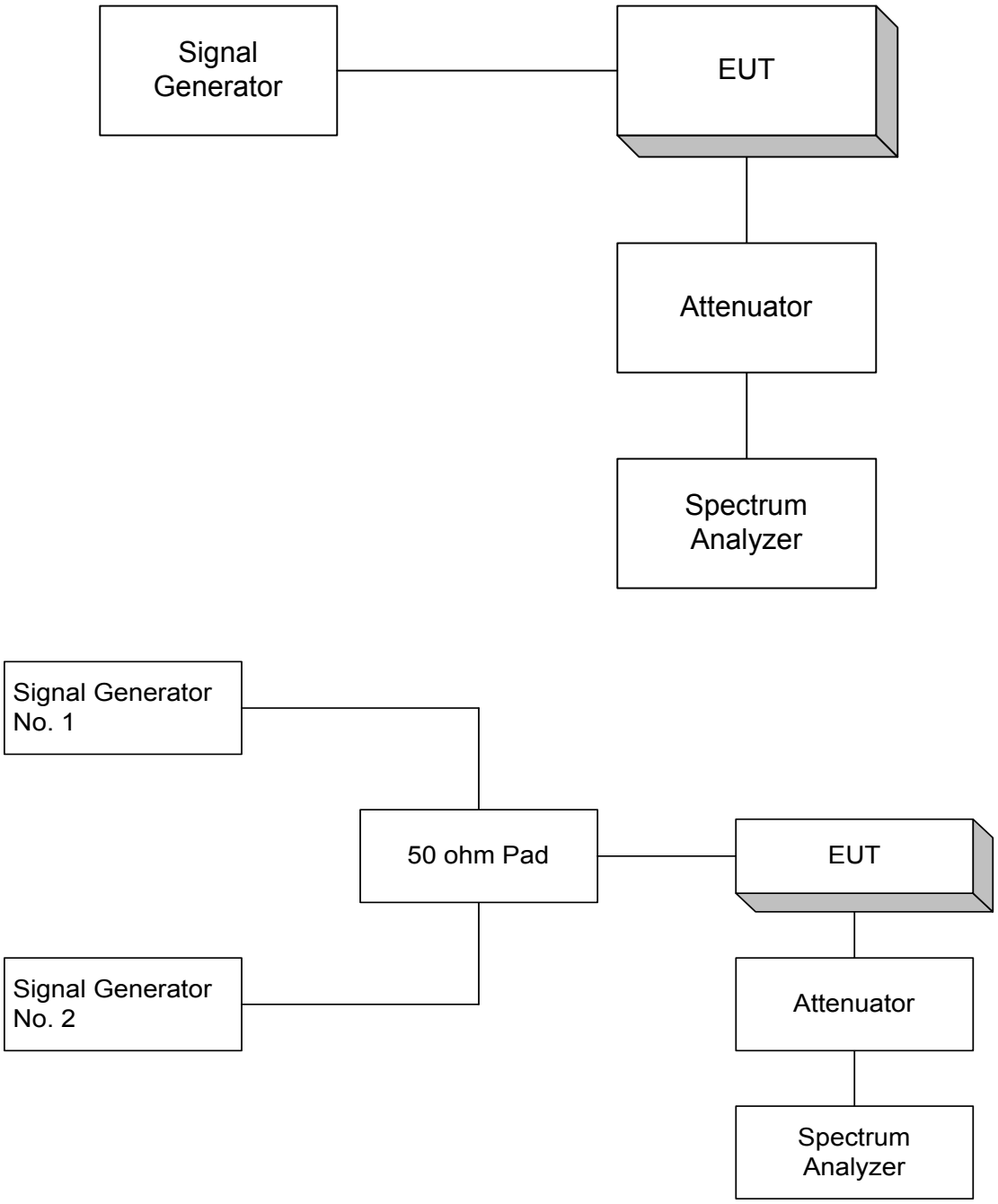
Para. No. 1046 - R.F. Power Output



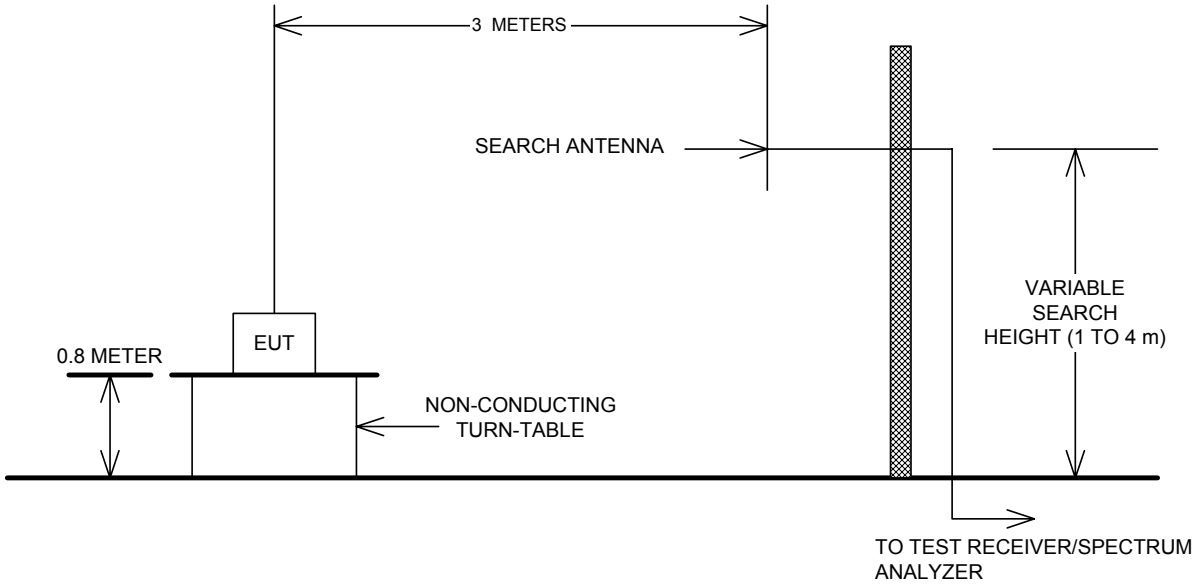
Para. No. 2.1049 - Occupied Bandwidth



Para. No. 2.1051 - Spurious Emissions at Antenna Terminals



Para. No. 2.1053 - Field Strength of Spurious Radiation



Section 8. Test Equipment List

Radiated Emissions Test Equipment

Client	Kyocera Wireless	**EUT Name**	AT Road Internet Location Mobile Device
PAN #	**24-071-KYO-R1**	**EUT Model**	iLM2720

Device Type	*Model #*	*MFG*	*Asset #*	*SN*	*Cal Due*
OATS #1 (North)					
Spectrum Analyzer	8566B	HP	357	2517A01757	10/26/04
Antenna, Ridged Guide	3115	EMCO	529	2505	3/30/04
Antenna, Ridged Guide	3116	EMCO	625	9611-2325	1/12/05
Preamplifier	8449A	HP	317	2749A00167	10/16/04
Dipole Set	3121C	EMCO	756	1215	8/27/04
Antenna, LPA	3146	EMCO	112	9101-2988	9/19/04
Antenna, Ridged Guide	3115	EMCO	752	9609-4943	12/19/04
Signal Generator	E8254A	Agilent	836	US41140229	11/6/04