TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: VS60

To: FCC Part 24: 2007 (Subpart E)

Test Report Serial No:
RFI/RPT1/RP73905JD01A

This Test Report Is Issued Under The Authority Of **Steve Flooks, Service Leader:**  **pp Brian Watson**	
Checked By: **Brian Watson** 	**Report Copy No: PDF01**
Issue Date: 19 September 2008	**Test Dates: 18 August 2008 to 26 August 2008**

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Registered in England and Wales. Company number:2117901

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1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP
Contact Name:	Mr M Hargreaves

2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the customer:

2.1. Identification of Equipment Under Test (EUT)

Description:	Dual mode (W-CDMA FDDI/GSM900/1800/1900MHz) Cellular Mobile Telephone
Brand Name:	SoftBank
Model Name or Number:	830P
Serial Number:	004401220594143
Hardware Version Number:	Rev C
Software Version Number:	830PVA15
FCC ID Number:	UCE208008A
Country of Manufacture:	Japan
Date of Receipt:	18 August 2008

Description:	Dual mode (W-CDMA FDDI/GSM900/1800/1900MHz) Cellular Mobile Telephone
Brand Name:	SoftBank
Model Name or Number:	830P
Serial Number:	004401220594150
Hardware Version Number:	Rev C
Software Version Number:	830PVA15
FCC ID Number:	UCE208008A
Country of Manufacture:	Japan
Date of Receipt:	18 August 2008

2.2. Description of EUT

The equipment under test was a Cellular Mobile Telephone.

2.3. Modifications Incorporated in EUT

During the course of testing the EUT was not modified.

2.4. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	AC Charger
Brand Name:	Softbank
Model Name or Number:	ZTDAA1
Serial Number:	None
Cable Length and Type:	1m multicore
Connected to Port:	Charge/Data/AV Out

Description:	DC Charger
Brand Name:	Softbank
Model Name or Number:	PMJAA1
Serial Number:	None
Cable Length and Type:	0.5m twist cord
Connected to Port:	Charge/Data/AV Out

Description:	Personal Hands-free
Brand Name:	Softbank
Model Name or Number:	ZTCK01
Serial Number:	None
Cable Length and Type:	Multicore, 1m
Connected to Port:	Personal Hands-free Cable Converter

Description:	Personal Hands-free Cable Converter
Brand Name:	Softbank
Model Name or Number:	EB-EM003JP
Serial Number:	None
Cable Length and Type:	Multicore, <0.5m
Connected to Port:	Audio accessory socket

Support Equipment (Continued

Description:	USB Data Cable
Brand Name:	Softbank
Model Name or Number:	None Stated
Serial Number:	None
Cable Length and Type:	USB, 1m
Connected to Port:	Charge/Data/AV Out

Description:	microSD Memory Card
Brand Name:	None Stated
Model Name or Number:	None Stated
Serial Number:	Not Applicable
Cable Length and Type:	Not applicable
Connected to Port:	SD card slot

2.5. Additional Information Related to Testing

Power Supply Requirement:	Internal Battery Supply 3.7V
Intended Operating Environment:	Residential / Commercial / Light industry / Heavy industry
Equipment Category:	Dual Mode (W-CDMA FDD and GSM900/1800/1900)
Type of Unit:	Mobile handset

FCC Part 24

Transmit Frequency Range:	1850 to 1910 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1850.2
	Middle	660	1879.8
	Top	870	1909.8
Receive Frequency Range:	1930 to 1990 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	512	1930.2
	Middle	660	1959.8
	Top	810	1989.8
Maximum Power Output (EIRP):	29.9 dBm (measured)		

3. Test Specification, Methods and Procedures

Reference:	FCC Part 24: 2007 Subpart E (Broadband PCS)
Title:	Code of Federal Regulations, Part 24 (47CFR24) Personal Communication Services.

3.1. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI/TIA-603-B-2003
Land Mobile Communications Equipment, Measurements and performance Standards

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (2003)
Title: American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

3.2. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures Section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

- Transmit on PCS 1900 GSM band.
- Receive on PCS 1900 GSM band (Idle mode).

5.2. Configuration and Peripherals

The EUT was tested in the following configuration unless otherwise stated:

- Powered via the AC Adaptor with the Personal Hands-free connected.

6. Summary of Test Results

Summary of Test Results

FCC Part 24

Range of Measurements	FCC Reference	Port Type	Result
Idle Mode AC Conducted Spurious Emissions (150 kHz to 30 MHz)	15.107	AC Mains Input	Complied
Idle Mode Radiated Spurious Emissions	15.109	Enclosure	Complied
Transmitter Effective Isotropic Radiated Power (EIRP)	24.232	Antenna	Complied
Transmitter Frequency Stability (Temperature Variation)	24.235	Antenna Terminals	Complied
Transmitter Frequency Stability (Voltage Variation)	24.235	Antenna Terminals	Complied
Transmitter Occupied Bandwidth	24.238	Antenna Terminals	Complied
Transmitter Out of Band Radiated Emissions	2.1053/24.238	Antenna	Complied
Transmitter Band Edge Radiated Emissions	2.1053/24.238	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

6.2. Site Registration Numbers

- FCC: 90895
- IC: 3485

7. Measurements, Examinations and Derived Results

7.1. General Comments

This Section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to Section 8 for details of measurement uncertainties.

7.2. Test Results – FCC Part 24 (Subpart E)

7.2.1. Idle Mode AC Conducted Spurious Emissions

Ambient Temperature: 21ºC Relative Humidity: 43%

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Results:

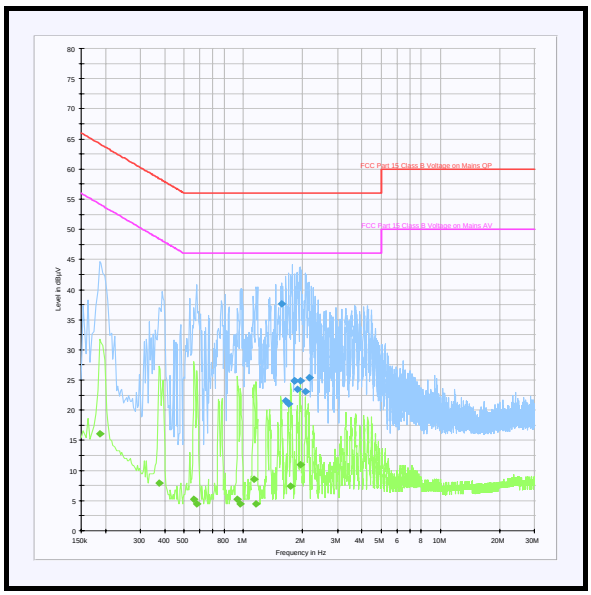
Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.562000	Neutral	37.6	56.0	18.4	Complied
1.642000	Live	21.5	56.0	34.5	Complied
1.698000	Live	21.0	56.0	35.0	Complied
1.814000	Neutral	24.8	56.0	31.2	Complied
1.822000	Neutral	24.8	56.0	31.2	Complied
1.870000	Live	23.5	56.0	32.5	Complied
1.938000	Neutral	24.8	56.0	31.2	Complied
2.062000	Live	23.1	56.0	32.9	Complied
2.150000	Neutral	25.4	56.0	30.6	Complied

Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.186000	Live	16.1	54.2	38.1	Complied
0.374000	Live	7.9	48.4	40.5	Complied
0.562000	Live	5.3	46.0	40.7	Complied
0.582000	Live	4.4	46.0	41.6	Complied
0.934000	Neutral	5.3	46.0	40.7	Complied
0.966000	Live	4.5	46.0	41.5	Complied
1.126000	Live	8.6	46.0	37.4	Complied
1.162000	Live	4.5	46.0	41.5	Complied
1.742000	Neutral	7.4	46.0	38.6	Complied
1.942000	Live	11.0	46.0	35.0	Complied

Idle Mode AC Conducted Spurious Emissions (Continued)



7.2.2. Idle Mode Radiated Spurious Emissions

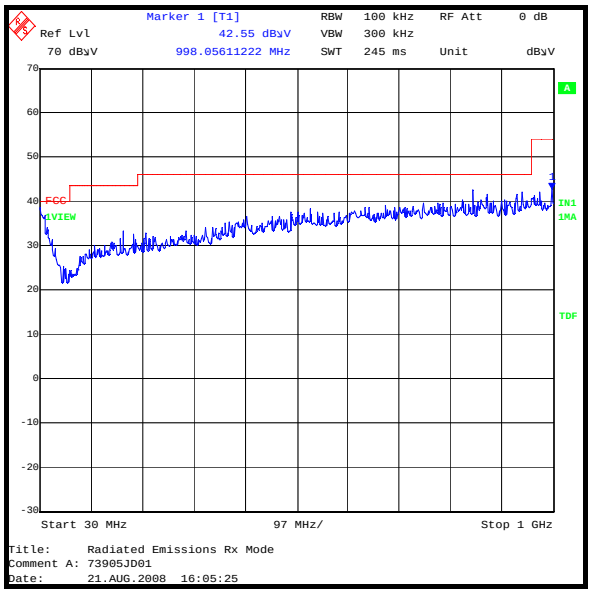
Ambient Temperature: 22ºC Relative Humidity: 48%

Tests were performed using the test methods detailed in ANSI C63.4 Section 8.

Results:

Electric Field Strength Measurements (Frequency Range: 30 to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Quasi Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
998.056	Vertical	42.5	54.0	11.5	Complied



7.2.3. Idle Mode Radiated Spurious Emissions (Continued)

Results:

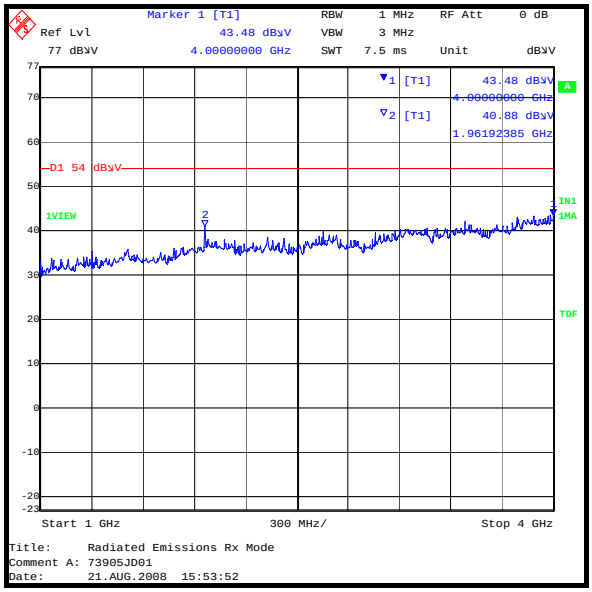
Electric Field Strength Measurements (Frequency Range: 1 to 13 GHz)

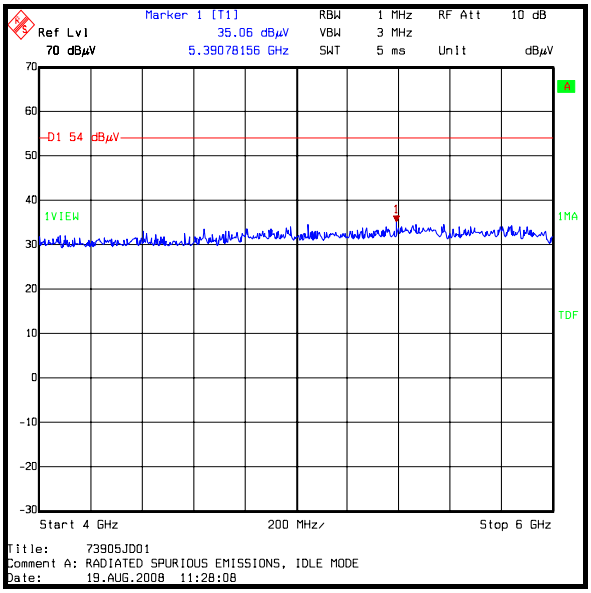
Peak Level:

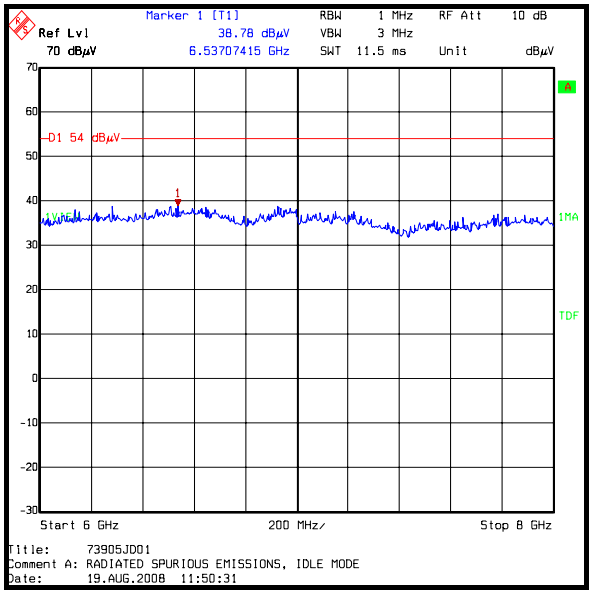
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.819639	Vertical	49.9	-6.5	43.4	*54.0	10.6	Complied

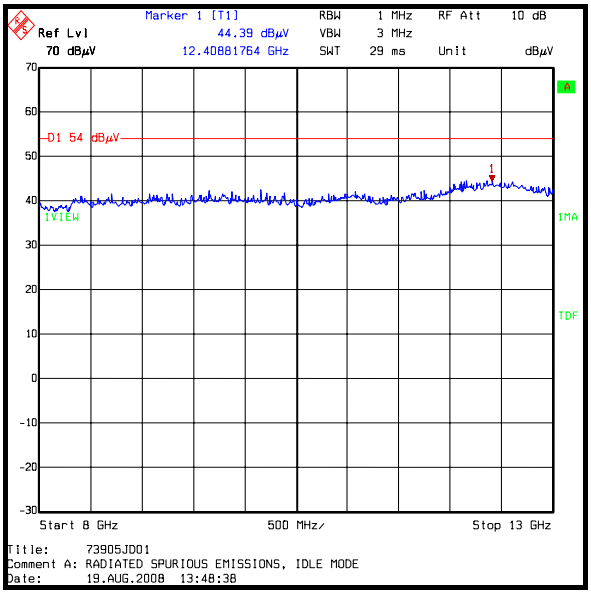
*Note average limit and peak level measured, which gives the worst case comparison.

Receiver Radiated Spurious Emissions (Continued)









7.2.4. Transmitter Effective Isotropic Radiated Power (EIRP)

Ambient Temperature: 22ºC Relative Humidity: 48%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Channel	Measured Frequency (MHz)	Antenna Polarity	Maximum Transmitter EIRP (dBm)	Limit EIRP (dBm)	Margin (dB)	Result
Bottom	1850.2	Horizontal	27.0	33.0	6.0	Complied
Middle	1879.8	Horizontal	28.8	33.0	4.2	Complied
Top	1909.8	Horizontal	29.9	33.0	3.1	Complied

7.2.5. Transmitter Frequency Stability (Temperature Variation)

Ambient Temperature: 23ºC Relative Humidity: 55%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Bottom Channel (1850.2 MHz)

Temperature (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-30	43	1850.200043	1850.0	0.200043	Complied
-20	40	1850.200040	1850.0	0.200040	Complied
-10	22	1850.200022	1850.0	0.200022	Complied
0	-6	1850.199994	1850.0	0.199994	Complied
10	37	1850.200037	1850.0	0.200037	Complied
20	28	1850.200028	1850.0	0.200028	Complied
30	36	1850.200036	1850.0	0.200036	Complied
40	25	1850.200025	1850.0	0.200025	Complied
50	49	1850.200049	1850.0	0.200049	Complied

Top Channel (1909.8 MHz)

Temperature (ºC)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	35	1909.800035	1910.0	0.199965	Complied
-20	39	1909.800039	1910.0	0.199961	Complied
-10	20	1909.800020	1910.0	0.199980	Complied
0	0	1909.800000	1910.0	0.200000	Complied
10	36	1909.800036	1910.0	0.199964	Complied
20	24	1909.800024	1910.0	0.199976	Complied
30	31	1909.800031	1910.0	0.199969	Complied
40	33	1909.800033	1910.0	0.199967	Complied
50	49	1909.800049	1910.0	0. 199951	Complied

7.2.6. Transmitter Frequency Stability (Voltage Variation)

Ambient Temperature: 23ºC Relative Humidity: 55%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Part 2.

Results:

Bottom Channel (1850.2 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	52	1850.200052	1850	0.200052	Complied
4.2	37	1850.200037	1850	0.200037	Complied

Top Channel (1909.8 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	40	1909.800040	1910	0.199960	Complied
4.2	54	1909.800054	1910	0.199946	Complied

7.2.7. Transmitter Occupied Bandwidth

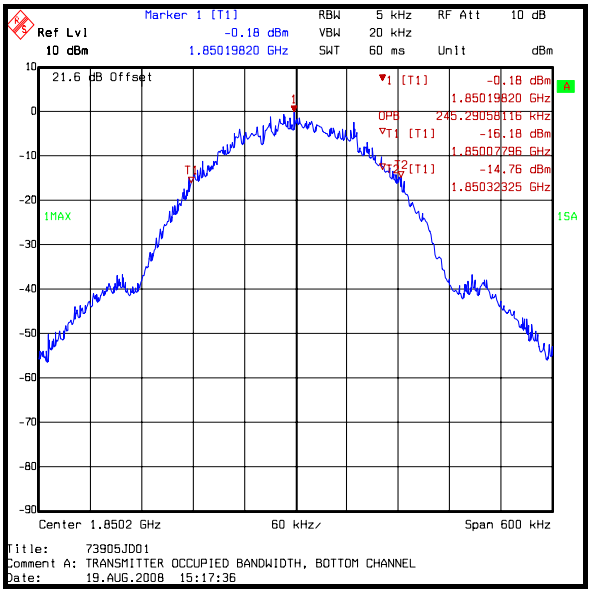
Ambient Temperature: 19ºC Relative Humidity: 55%

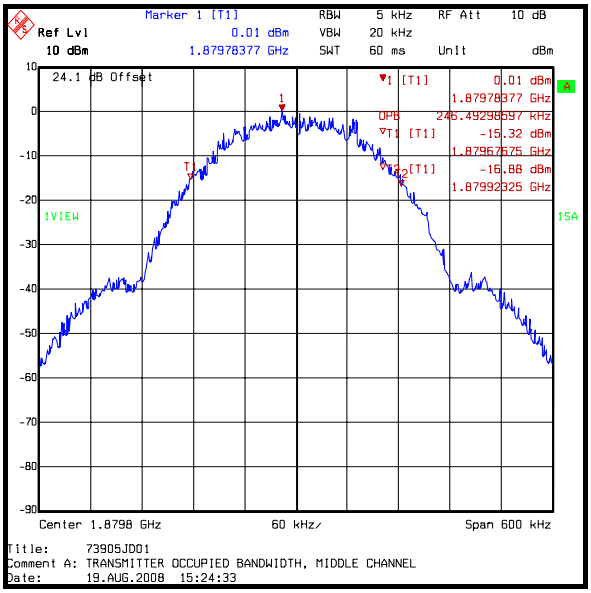
The 99% occupied bandwidth was measured using the channel bandwidth function of the R&S spectrum analyser referencing FCC CFR Part 2.

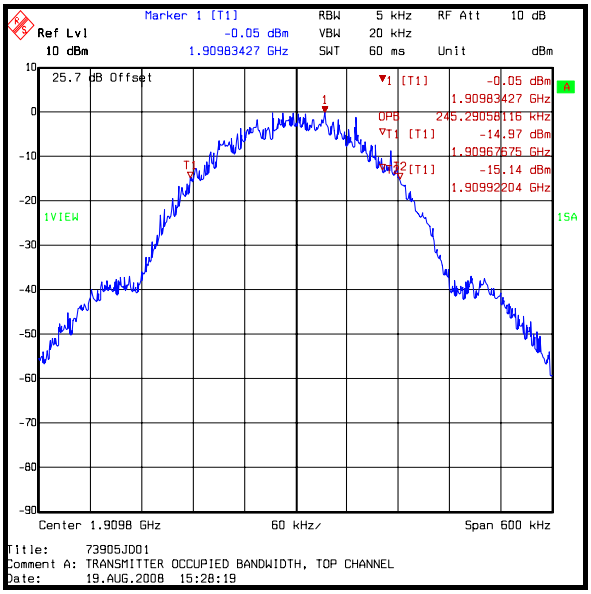
Results:

Channel	Frequency (MHz)	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (kHz)
Bottom	1850.2	3.0	10.0	245.291
Middle	1879.8	3.0	10.0	246.493
Top	1909.8	3.0	10.0	245.291

Transmitter Occupied Bandwidth (Continued)







7.2.8. Transmitter Out of Band Radiated Emissions

Ambient Temperature: 22ºC Relative Humidity: 48%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Parts 2 and 24.238.

Results:

Bottom Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3700.493	-30.1	-13.0	17.1	Complied

Middle Channel

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3759.681	-29.5	-13.0	16.5	Complied

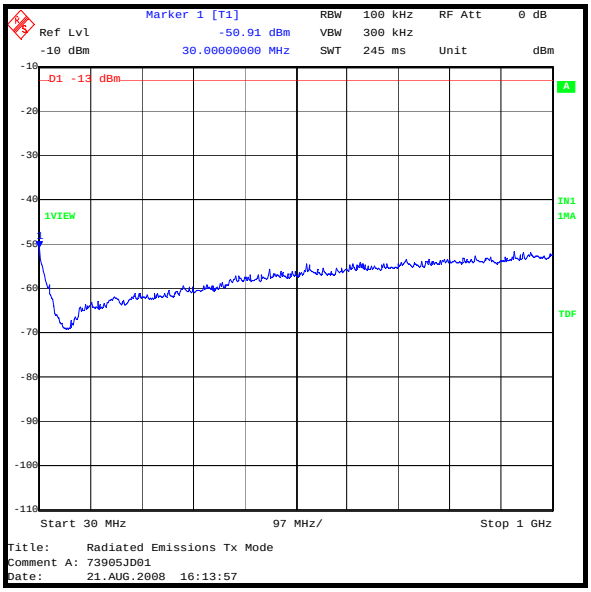
Top Channel

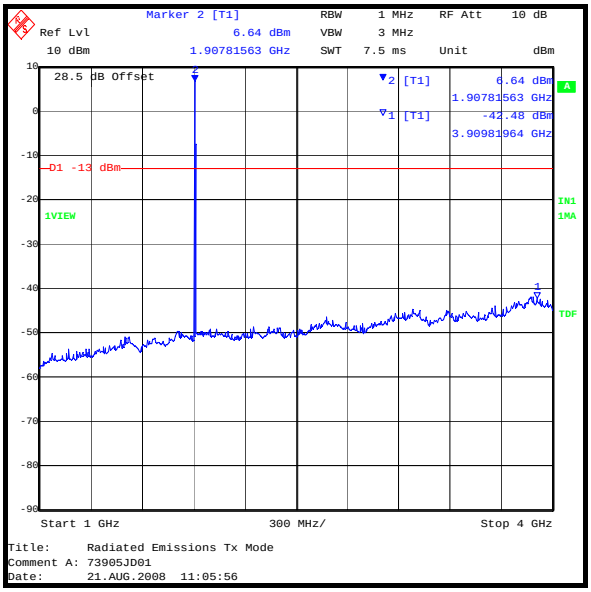
Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
3819.624	30.7	-13.0	17.7	Complied

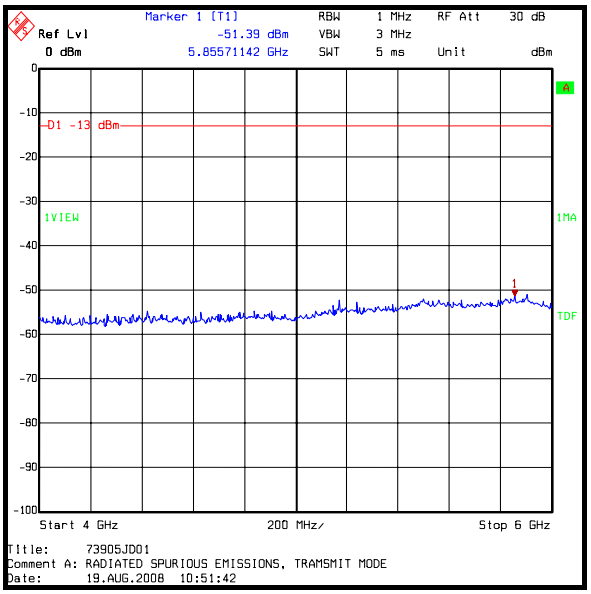
Note(s):

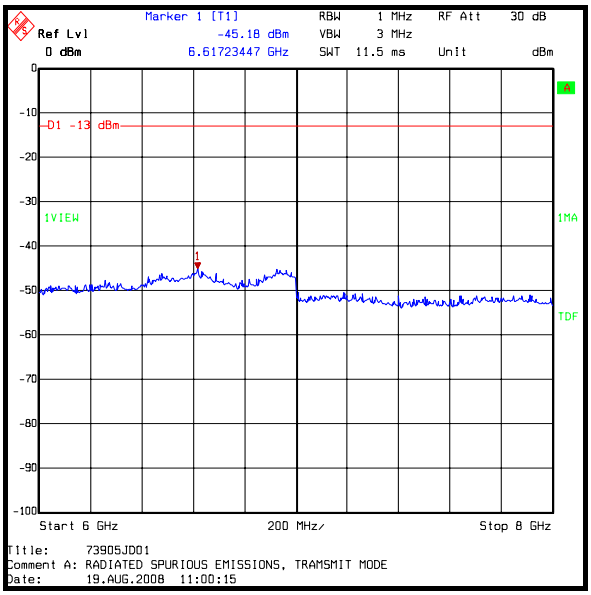
1. Due to the presence of close, high ambient signals, this emission was measured at a test distance of 3 metres.

Transmitter Out of Band Radiated Emissions (Continued)

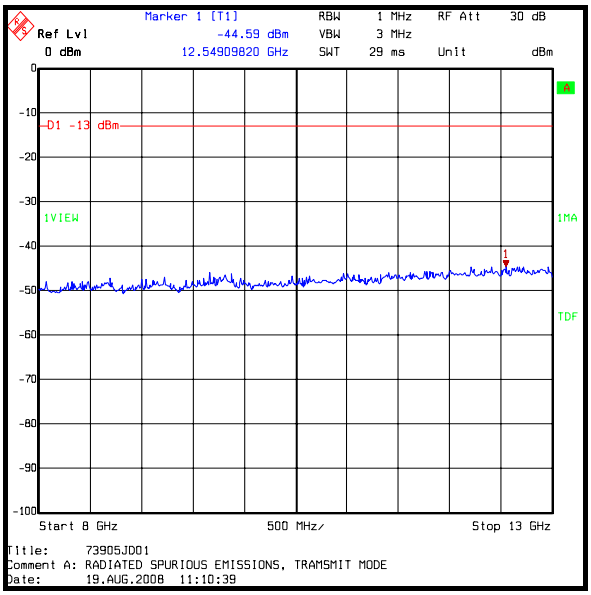


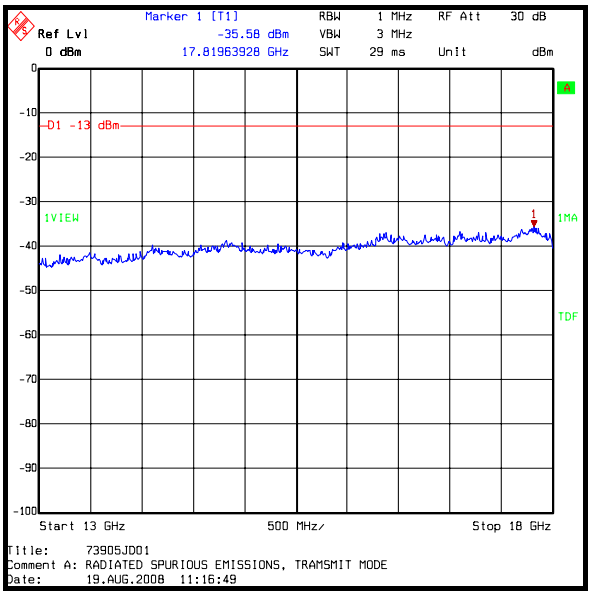


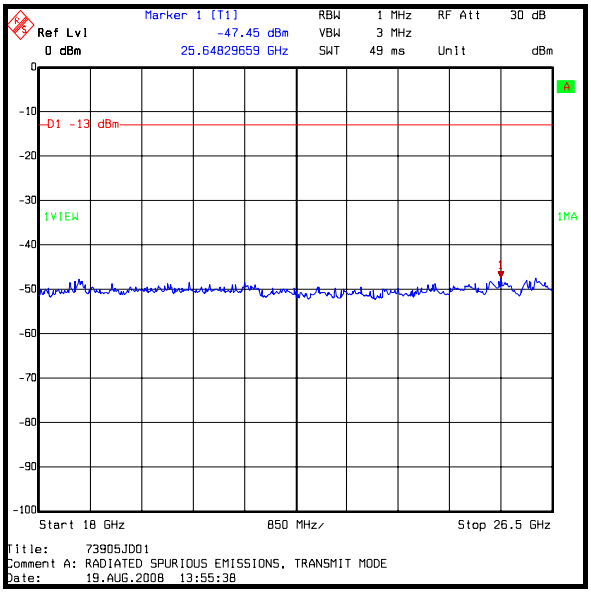




Transmitter Out of Band Radiated Emissions (Continued)







Transmitter Out of Band Radiated Emissions (Continued)

Ambient Temperature: 19ºC Relative Humidity: 55%

Integrated Power Over 1 MHz Strip Band: 1847 to 1849 MHz

1st and 2nd 1 MHz blocks immediately below adjacent frequency block

Results:

Band (MHz)	Peak Power (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Status
1847 to 1848	-24.0	-13.0	11.0	Complied
1848 to 1849	-24.3	-13.0	11.3	Complied

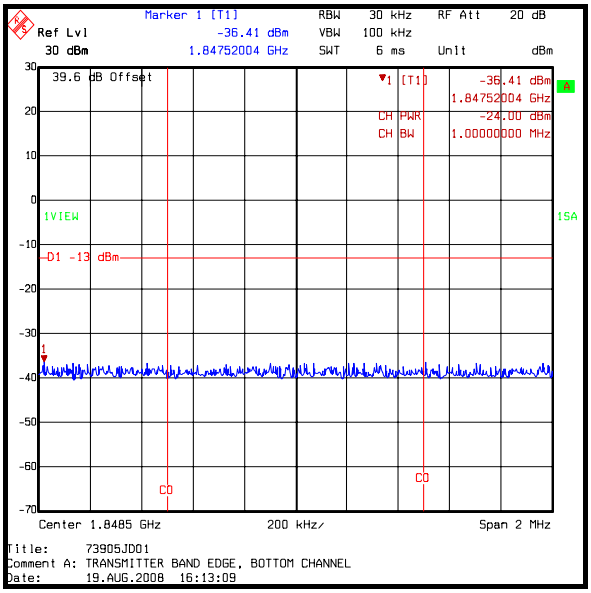
Integrated Power Over 1 MHz Strip Band: 1911 to 1913 MHz

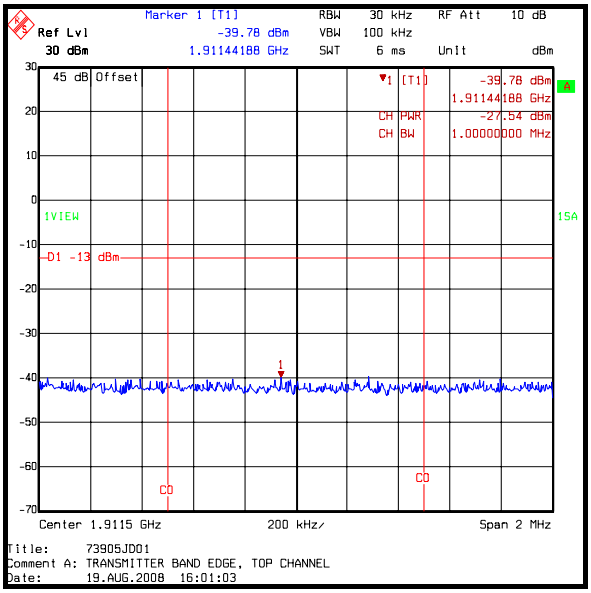
1st and 2nd 1 MHz blocks immediately above adjacent frequency block

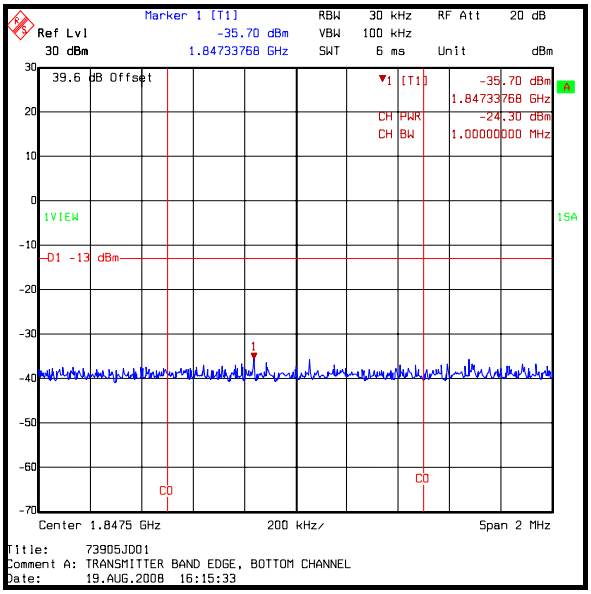
Results:

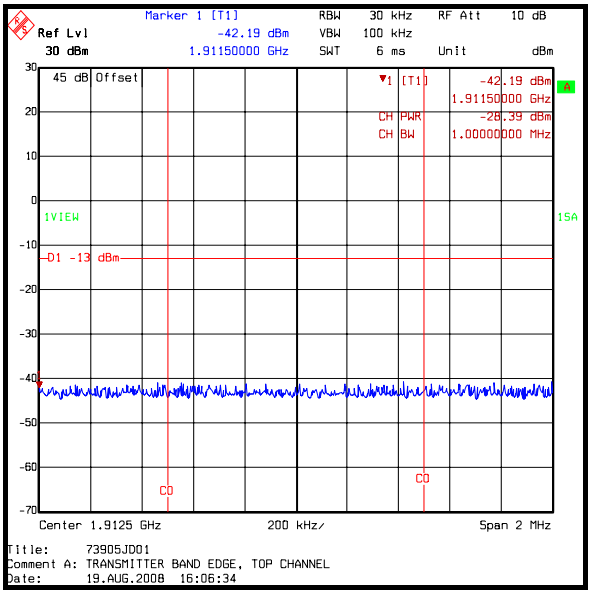
Band (MHz)	Peak Power (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Status
1911 to 1912	-27.5	-13.0	14.5	Complied
1912 to 1913	-28.4	-13.0	15.4	Complied

Transmitter Out of Band Radiated Emissions (Continued)









7.2.9. Transmitter Radiated Emissions at Band Edges

Ambient Temperature: 19ºC Relative Humidity: 52%

Tests were performed using the test methods detailed in ANSI TIA-603-C-2004 referencing FCC CFR Parts 2 and 24.238.

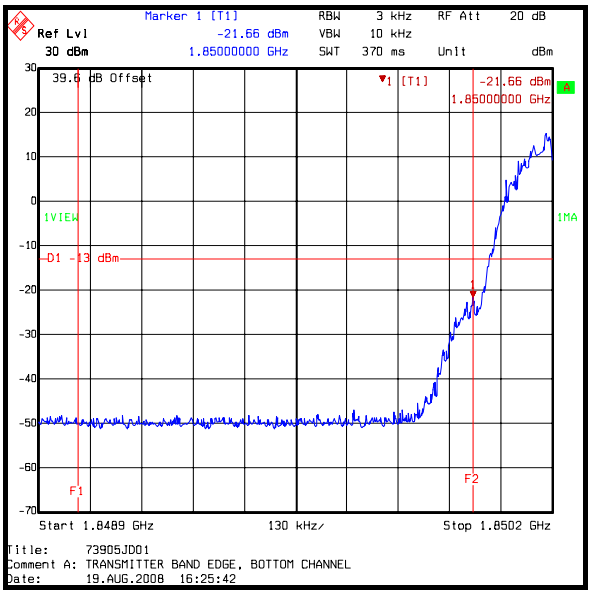
Results:

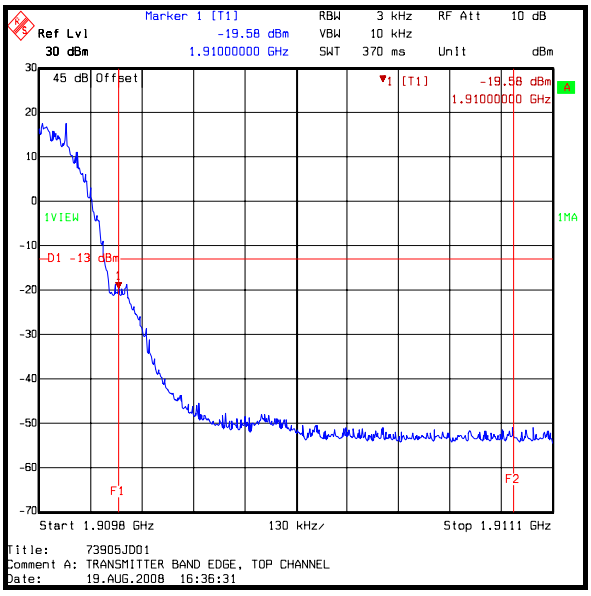
Bottom Band Edge

Frequency (MHz)	Spurious Emission (dBm)	Limit (dBm)	Margin (dB)	Result
1850	-21.6	-13.0	8.6	Complied

Top Band Edge

Frequency (MHz)	Peak Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
1910	-19.5	-13.0	6.5	Complied





8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.72 dB
Effective Isotropic Radiated Power (EIRP)	Not applicable	95%	±2.94 dB
Frequency Stability	Not applicable	95%	±11.4 ppm
Occupied Bandwidth	824 to 849 MHz	95%	±11.4 ppm
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz to 26 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A028	Antenna	Eaton	91888-2	304	08 Jun 2006	36
A031	Antenna	Eaton	91889-2	557	08 Jun 2006	36
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	12
A1793	Pre Amplifier	A.H.Systems Inc.	PAM-0118	183	03 Jul 2008	12
A1818	Antenna	EMCO	3115	00075692	Internal	12
A1829	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100671	16 Jan 2008	12
A253	Antenna	Flann Microwave	12240-20	128	17 Nov 2006	36
A254	Antenna	Flann Microwave	14240-20	139	17 Nov 2006	36
A255	Antenna	Flann Microwave	16240-20	519	17 Nov 2006	36
A490	Antenna	Chase	CBL6111A	1590	07 Feb 2008	12
A649	Single Phase LISN	Rohde & Schwarz	ESH3-Z5	825562/008	07 Mar 2008	12
C1155	Cable	Huber & Suhner	Sucoflex 104PA	1522/4PA	Calibrated before use	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibration not required	12
G088	Power Supply Unit	Thurlby Thandar	CPX200	100700	Calibration not required	-
M1093	Communications Test Set	Will tek	4202S	0513018	Calibration not required	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	29 Nov 2007	12
M1249	Thermometer	Fluke	52II	88800049	09 Jul 2008	12
M1269	Multimeter	Fluke	179	90250210	09 Apr 2008	12
M1379	Test Receiver	Rohde and Schwarz	ESIB7	100330	14 Aug 2008	12
S202	Site 2	RFI	2	S202-15011990	28 Jan 2008	12

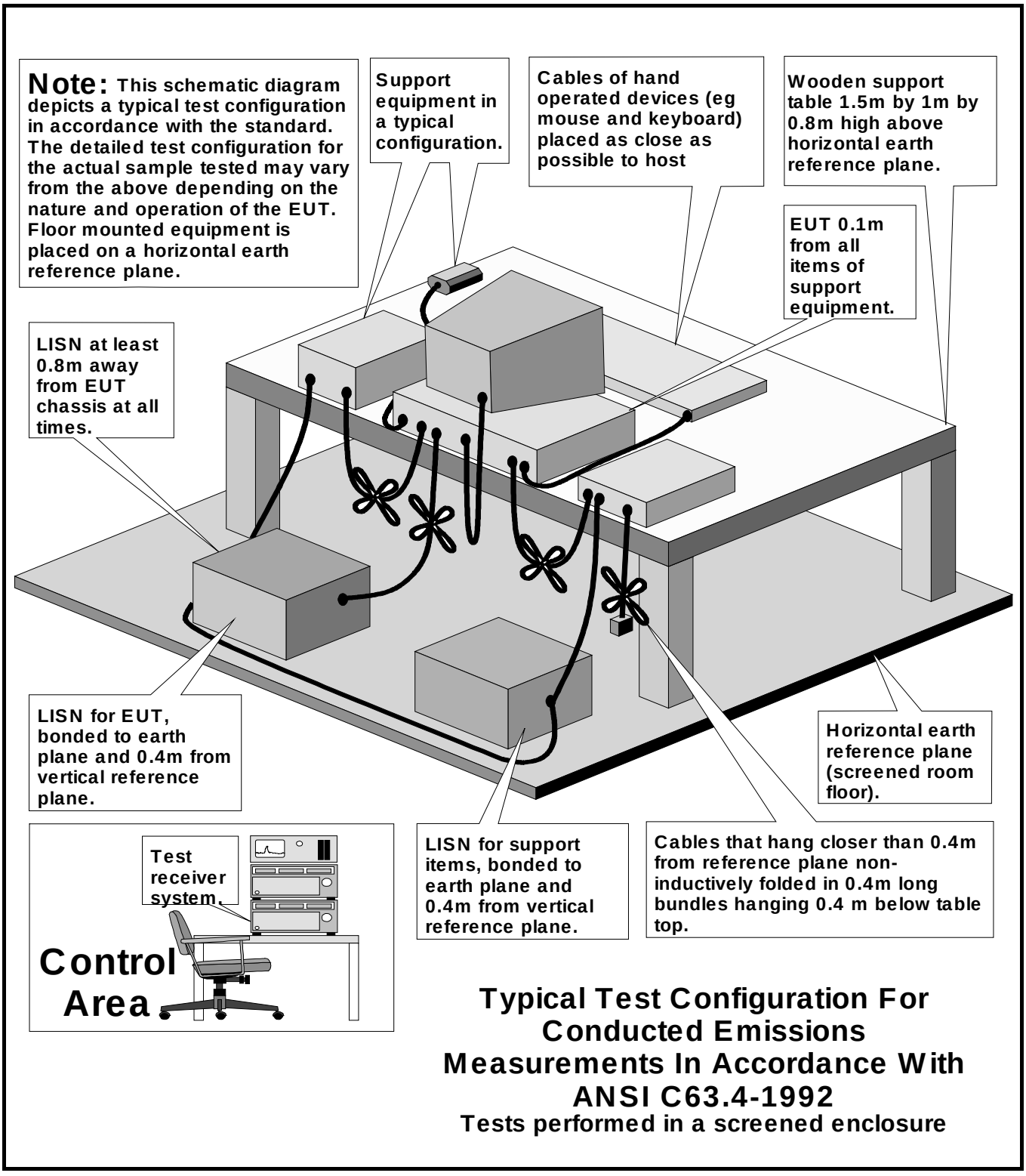
NB In accordance with UKAS requirements, all the measurement equipment is on a calibration schedule.

Appendix 2. Test Configuration Drawings

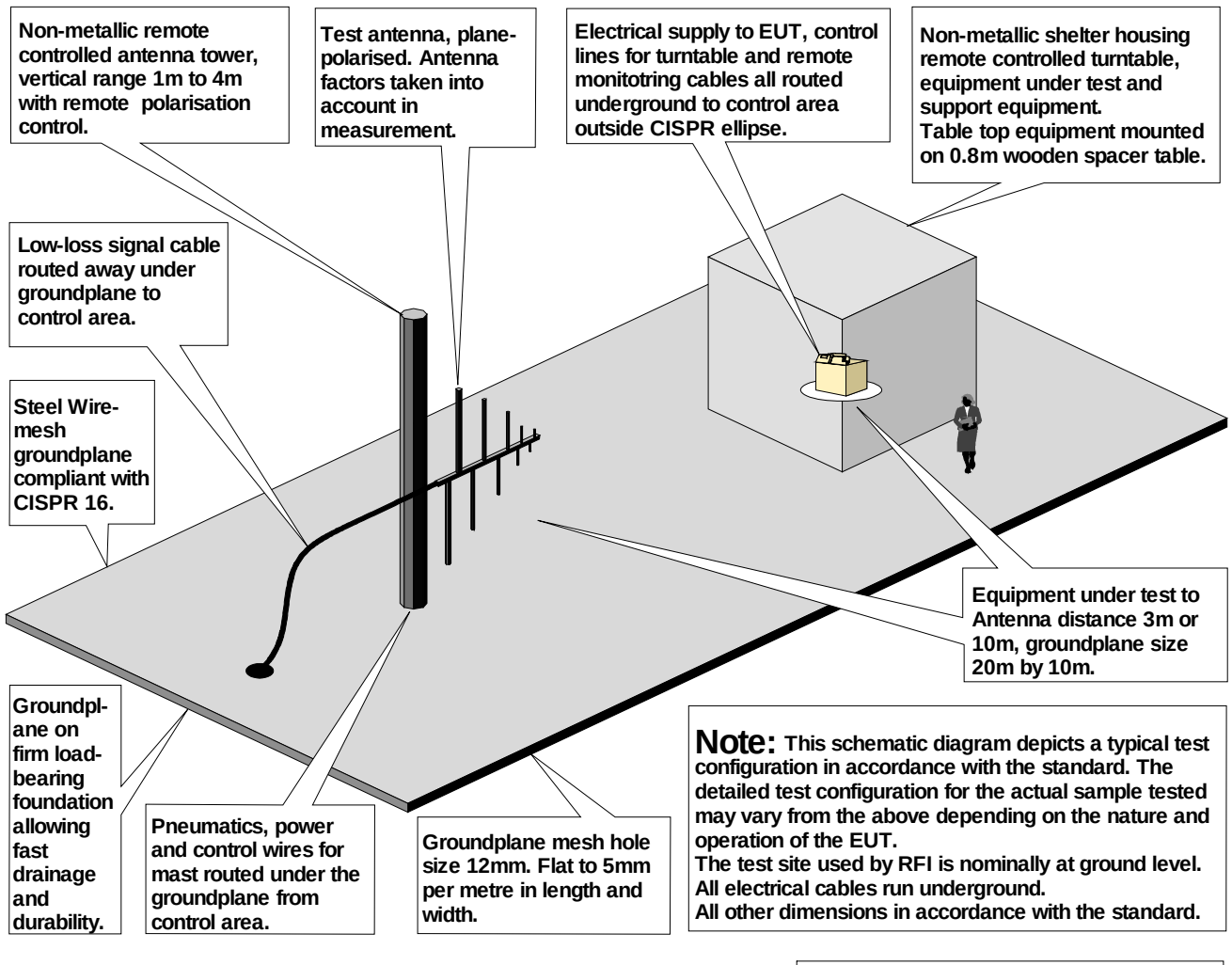
This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\73905JD01\EMICON	Test configuration for measurement of conducted emissions.
DRG\73905JD01\EMIRAD	Test configuration for measurement of radiated emissions.

DRG\73905JD01\EMICON



DRG\73905JD01\EMIRAD



Note: This schematic diagram depicts a typical test configuration in accordance with the standard. The detailed test configuration for the actual sample tested may vary from the above depending on the nature and operation of the EUT.
The test site used by RFI is nominally at ground level.
All electrical cables run underground.
All other dimensions in accordance with the standard.

Test Configuration For Radiated Emissions Measurements

Reflection-free area: >60m by 52m (CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse