TEST REPORT NO: RU1252/7074

COPY NO: 1

ISSUE NO: 1

FCC ID: ACJPCCUKKX-TG4500

REPORT ON THE CERTIFICATION TESTING OF A
PANASONIC COMMUNICATIONS COMPANY (UK) Ltd.
KX-TG4500
WITH RESPECT TO
THE FCC RULES CFR 47, PART 15.247 February 2006
INTENTIONAL RADIATOR SPECIFICATION

TEST DATE: 19th – 21st June 2006

TESTED BY: Daniel Winstanley — Digitally signed by Daniel Winstanley DN: CN = Daniel Winstanley, C = <n Reason: I am the author of this document Date: 2006.06.29 16:11:02 +01'00' — D Winstanley

APPROVED BY: Peter Green — Peter Green I am approving this document 2006.06.30 08:40:29 +01'00' — P Green Product Manager

DATE: 29th June 2006

Distribution:

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1. PANASONIC COMMUNICATIONS COMPANY (UK) Ltd.
2. FCC Evaluation Laboratories
3. TRL Compliance Ltd

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UKAS TESTING
0728

CONTENTS

Notes:

1. Component failure during test — YES [ ] NO [X]
2. If Yes, details of failure:
3. The facilities used for the testing of the product contain in this report are FCC Listed.
4. The contents of the attached applicants declarations and other supplied information are not covered by the scope of this laboratory's UKAS or FCC accreditations' and is provided in good faith.

CERTIFICATE OF CONFORMITY & COMPLIANCE

FCC IDENTITY:	ACJPCCUKKX-TG4500					
PURPOSE OF TEST:	Certification					
TEST SPECIFICATION:	FCC RULES CFR 47, Part 15.247 February 2006					
TEST RESULT:	Compliant to Specification					
EQUIPMENT UNDER TEST:	KX-TG4500					
EQUIPMENT SERIAL No:	6ECGA000088					
EQUIPMENT TYPE:	Cordless Telephone System Base Unit					
CARRIER EMISSION:	0.066 Watts					
ANTENNA TYPE:	Integral Diversity Antenna					
GAIN ANTENNA:	5dBi Maximum Gain Antenna					
BAND OF OPERATION:	5725 MHz - 5850 MHz					
CHANNEL SPACING:	2.592 MHz					
NUMBER OF CHANNELS:	47					
FREQUENCY GENERATION:	SAW Resonator	[ ]	Crystal	[ ]	Synthesiser	[X]
MODULATION METHOD:	Amplitude	[ ]	Digital	[X]	Angle	[ ]
POWER SOURCE(s):	+110Vac					
TEST DATE(s):	19th – 21st June 2006					
ORDER No(s):	40020182					
APPLICANT:	Panasonic Communications Company (UK) Ltd.					
ADDRESS:	Pencarn Way Duffryn Newport South Wales NP10 8YE					

TESTED BY: Daniel Winstanley — Digitally signed by Daniel Winstanley DN: CN = Daniel Winstanley, C = <n Reason: I am the author of this document Date: 2006.06.29 16:11:10 +01'00' — D Winstanley

APPROVED BY: Peter Green I am approving this document 2006.06.30 08:40:18 +01'00' — P Green Product Manager

APPLICANT'S SUMMARY

EQUIPMENT UNDER TEST (EUT):	KX-TG4500
EQUIPMENT TYPE:	Cordless Telephone System Base Unit
SERIAL NUMBER OF EUT:	6ECGA000088
PURPOSE OF TEST:	Certification
TEST SPECIFICATION(s):	FCC RULES CFR 47, Part 15.247 February 2006
TEST RESULT:	COMPLIANT Yes [X] No [ ]
APPLICANT'S CATEGORY:	MANUFACTURER [X] IMPORTER [ ] DISTRIBUTOR [ ] TEST HOUSE [ ] AGENT [ ]
APPLICANT'S ORDER No(s):	40020182
APPLICANT'S CONTACT PERSON(s):	Mr Keith Jones
E-mail address:	keith.jones@eu.panasonic.com
APPLICANT:	Panasonic Communications Company (UK) Ltd.
ADDRESS:	Pencarn Way Duffryn Newport South Wales NP10 8YE
TEL:	+44 (0) 1633 653843
FAX:	+44 (0) 1633 816363
MANUFACTURER:	Panasonic Communications Company (UK) Ltd.
EUT(s) COUNTRY OF ORIGIN:	United Kingdom
TEST LABORATORY:	TRL Compliance
UKAS ACCREDITATION No:	0728
TEST DATE(s):	19th – 21st June 2006
TEST REPORT No:	RU1252/7074

EQUIPMENT TEST / EXAMINATIONS REQUIRED

1.

TEST/EXAMINATION	RULE PART	DETECTOR	APPLICABILITY
Intentional Emission Frequency:	15.247(b)	Peak	Yes
Intentional Emission Field Strength:	-	-	No
Intentional Emission Band Occupancy 6dB:	15.247 (a)	Peak	Yes
Intentional Emission ERP (mW):	15.247 (b)	Peak	Yes
Spurious Emissions – Conducted:	-	-	No
Spurious Emissions – Radiated <1000MHz:	15.209	Quasi Peak	Yes (note 1)
Spurious Emissions – Radiated >1000MHz:	15.209	Average	Yes (note 1)
Spectral Power Density:	15.247 (e)	Peak	Yes
Spurious Emissions – Power Line TX:	15.207	Quasi Peak Average	Yes
Spurious Emissions – Power Line RX:	15.107	Quasi Peak Average	Yes
Maximum Frequency of Search:	15.33	-	Yes
Antenna Arrangements Integral:	15.203	-	Yes
Antenna Arrangements External Connector:	15.204	-	Yes
Restricted Bands:	15.205	-	Yes
Extrapolation Factor:	15.31(f)	-	Yes

Note 1:The unit has integral antennas, therefore all measurements were performed radiated.

2. Emission Designator: 1M01F1D

3. Duty Cycle: <8%

4. Transmitter bit or pulse rate and level: 1152kbps

5. Temperatures: Ambient (Tnom) 21°C

6. Supply Voltages: Vnom +110Vac

Note: Vnom voltages are as stated above unless otherwise shown on the test report page

7. Equipment Category:
   Single channel [X]
   Two channel [ ]
   Multi-channel [ ]

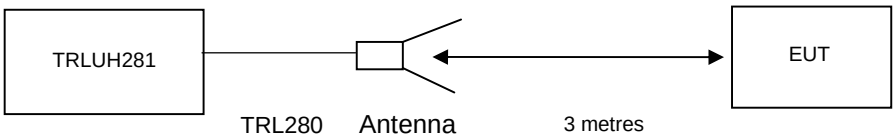
8. Channel Allocation:
   Narrowband [ ]
   Wideband [X]

TRANSMITTER TESTS

TRANSMITTER 6dB BANDWIDTH – RADIATED - PART 15.247(A)(2)

Ambient temperature	=	18°C(<1GHz)	Test Distance	3m	[X]
Relative humidity	=	58% (<1GHz)			
Conditions	=	Semi Anechoic chamber			
Supply voltage	=	+110Vac			

Diagram



Frequency (MHz)	Channel	Measured Bandwidth	Limit
5728.320	0	961.538 kHz	>500kHz
5787.936	23	1011.218 kHz	>500kHz
5847.552	46	993.590 kHz	>500kHz

Notes: 1 For analyser plots of channel 0 antenna 1 see annex C.

Test Method: 1 The EUT was set to top middle and bottom operating frequencies
2 The bandwidth was measured on the antenna with the strongest output power
3 The 6dB bandwidth was recorded with the EUT actively transmitting data.

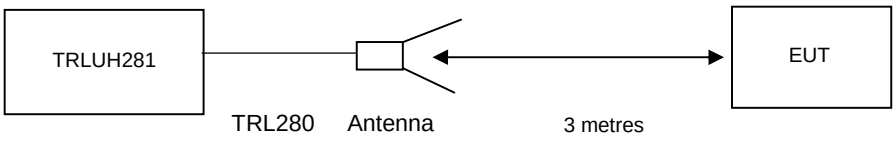
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	**X**
HORN ANTENNA	EMCO	3115	9010-3580	138	**X**
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	**X**

TRANSMITTER TESTS

TRANSMITTER - MAXIMUM PEAK POWER - RADIATED - PART 15.247(B)(3)

Ambient temperature	=	18°C(<1GHz)	Test Distance	3m	[X]
Relative humidity	=	58% (<1GHz)			
Conditions	=	Semi Anechoic chamber			
Supply voltage	=	+110Vac			

Diagram



Frequency MHz	Channel	Analyser Level (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Field Strength (dBuV/m)	Field Strength V/m	Power Watts	Limit Watts
5728.320	0	80.5	4.8	34.8	120.1	1.01	0.066	1
5787.936	23	79.9	4.9	34.8	119.6	0.95	0.054	1
5847.552	46	80.3	5.1	34.8	120.2	1.02	0.063	1

Notes:
1 Gain of antenna 5dB maximum gain antenna stated by manufacturer.
2 Power in watts calculated using $P = (E \times D)^2/(30 \times G)$, where E = V/m, D = Test distance G = maximum gain of EUT antenna.

Test Method:
1 The EUT was set to top, middle and bottom operating frequencies.
2 The EUT was operated in transmit mode with modulation.
3 The EUT maximum field strength was measured.

Test equipment used for Peak Power measurement:

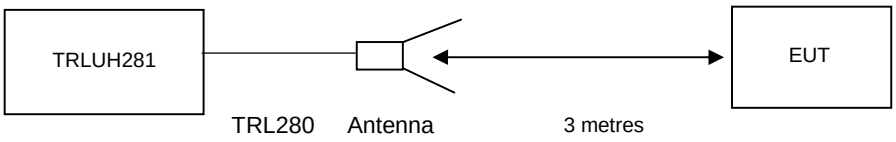
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	**X**
HORN ANTENNA	EMCO	3115	9010-3580	138	**X**
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	**X**

TRANSMITTER TESTS

TRANSMITTER POWER SPECTRAL DENSITY – RADIATED - PART 15.247(E)

Ambient temperature	=	18°C(<1GHz)	Test Distance	3m	[X]
Relative humidity	=	58% (<1GHz)			
Conditions	=	Semi Anechoic chamber			
Supply voltage	=	+110Vac			

Diagram



Frequency MHz	Channel	Analyser Level (dBuV)	Cable loss (dB)	Antenna Factor (dB/m)	Field Strength (dBuV/m)	Field Strength (V/m)	Power (Watts)	Power (dBm)	Limit (dBm)
5728.320	0	60.3	4.8	34.8	99.9	0.09	0.00081	-0.92	8dBm
5787.936	23	62.2	4.9	34.8	101.9	0.12	0.00144	1.58	8dBm
5847.552	46	62.3	5.1	34.8	102.2	0.13	0.00169	2.28	8dBm

Notes:
1 For analyser plots of channel 0 antenna 1 see annex E.
2 Gain of antenna 5dB maximum gain antenna stated by manufacturer.
3 Power in watts calculated using $P = (E \times D)^2/(30 \times G)$, where E = V/m, D = Test distance G = maximum gain of EUT antenna.

Test Method:
1 The EUT was rotated to get the maximum emission level.
2 The resolution bandwidth on the analyser was set to 3kHz and trace set to max hold.
3 The span was set to 3 MHz.
4 The sweep time was set to 1000 seconds.
5 The peak level was noted.

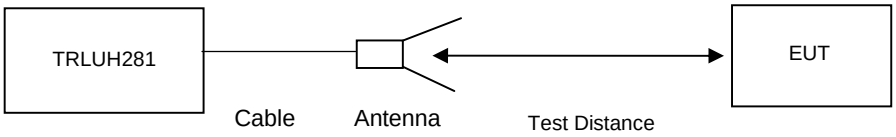
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	**X**
HORN ANTENNA	EMCO	3115	9010-3580	138	**X**
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	**X**

TRANSMITTER TESTS

TRANSMITTER SPURIOUS EMISSIONS – RADIATED – Part 15.247(c) and 15.209

Ambient temperature	=	21°C(<1GHz)	3m measurements <1GHz	[X]
Relative humidity	=	57% (<1GHz)	3m measurements 1GHz – 18GHz	[X]
Conditions	=	Semi Anechoic chamber	1m measurements 18GHz – 26.5GHz	[X]
Supply voltage	=	+110Vac	0.3m measurements 26.5GHz – 40GHz	[X]

Diagram



Antenna 0 Top, Middle & Bottom	Emission Freq (GHz)	Meas. Rx. (dBuV)	Cable loss (dB)	Ant. Factor (dB/m)	Pre Amp (dB)	Field Strength dBµV/m	Extrap. Factor (dB)	Duty Cycle Corr Fact	Result (µV/m)	Limit (µV/m)
30MHz – 88MHz Restricted band	Note 7									100
88MHz – 216MHz Restricted band	Note 7									150
216MHz – 960MHz Restricted band	Note 7									200
960MHz – 1GHz Restricted band	Note 7									500
1GHz – 40GHz Restricted band	11.45607	55.9	8.5	32.7	-36.0	61.1	-	20	113.5	500
	11.47587	56.2	8.5	32.7	-36.0	61.4	-	20	117.5	500
	11.69575	54.8	8.5	32.7	-36.0	60.0	-	20	100.0	500
	22.91203	64.6	5.8	37.2	-36.4	71.2	-	20	363.1	500
	23.15174	61.9	5.8	37.2	-36.4	68.5	-	20	266.1	500
	23.39021	60.8	5.8	37.2	-36.4	67.4	-	20	234.4	500
30MHz -40GHz	Note 7									-20dBc
See annex G for initial pre scan results.										

Antenna 1 Top, Middle & Bottom	Emission Freq (GHz)	Meas. Rx. (dBuV)	Cable loss (dB)	Ant. Factor (dB/m)	Pre Amp (dB)	Field Strength dBµV/m	Extrap. Factor (dB)	Duty Cycle Corr Fact	Result (µV/m)	Limit (µV/m)
30MHz – 88MHz Restricted band	Note 7									100
88MHz – 216MHz Restricted band	Note 7									150
216MHz – 960MHz Restricted band	Note 7									200
960MHz – 1GHz Restricted band	Note 7									500
1GHz – 40GHz Restricted band	11.45607	56.7	8.5	32.7	-36.0	61.9	-	20	124.4	500
	11.47587	53.8	8.5	32.7	-36.0	59.0	-	20	89.1	500
	11.69575	55.1	8.5	32.7	-36.0	60.3	-	20	103.5	500
	22.91203	62.1	5.8	37.2	-36.4	68.7	-	20	272.3	500
	23.15174	60.3	5.8	37.2	-36.4	66.9	-	20	221.3	500
	23.39021	56.9	5.8	37.2	-36.4	63.5	-	20	149.6	500
30MHz -40GHz	Note 7									-20dBc
See annex G for initial pre scan results.										

Notes:

1 Initial pre scans were performed see Annex G for plots <1GHz.
2 See annex H for radiated bandedge compliance plots.
3 Emissions above 1GHz were measured with a peak detector.
4 Average levels are determined using duty cycle correction as per 15.35
5 Measurements are at distances as stated.
6 A pre amp is used for measurements in restricted bands.
7 Only emissions with in 20dB of limit are recorded.
8 The EUT was tested on top, middle and bottom operating frequencies.
9 Both EUT diversity antennas were tested.
10 See Annex I for duty cycle correction figures.

Test Method:

1 As per section 15.247. ANSI C63.4 2003
2 Measuring distances as stated.
3 EUT 0.8 metre above ground plane.
4 Emissions maximised by rotation of EUT, on an automatic turntable.
Raising and lowering the receiver antenna between 1m & 4m >30MHz.
Horizontal and vertical polarisations, of the receive antenna.
EUT orientation in three orthagonal planes. Maximum results recorded.

The test equipment used for the tests is shown below:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
HORN ANTENNA	EMCO	3115	9010-3580	138	**X**
HORN ANTENNA	FLANN	20240-20	309	263A	**X**
HORN ANTENNA	FLANN	20240-20	322	300	**X**
HORN ANTENNA	FLANN	22240-20	394	301	**X**
HORN ANTENNA	AGD	200	N/A	302	**X**
PRE AMP	AGILENT	8449B	3008A01610	572	**X**
RECEIVER	ROHDE & SCHWARZ	ESVS 10	825892/003	UH04	**X**
RANGE 1	TRL	3 METRE	N/A	UH06	**X**
BILOG ANTENNA	CHASE	CBL6112	2129	UH93	**X**
OSCILLOSCOPE	TEKTRONIX	TDS520B	B020491	UH122	**X**
SPECTRUM ANALYSER	ROHDE & SCHWARZ	FSU46	200034	UH281	**X**

TRANSMITTER and RECEIVER TESTS

TRANSMITTER CONDUCTED EMISSIONS – AC POWER LINE Part 15.207

Ambient temperature = 20^{o}C(<1GHz)
Relative humidity = 47%(<1GHz)
Conditions = Power Line Laboratory
Supply voltage = +110V AC
Supply Frequency = 60Hz

SIGNIFICANT EMISSIONS

EUT operating in normal mode (transmitting dummy bearer)

FREQUENCY (MHz)	MEASUREMENT RECEIVER READING (dBµV)	DETECTOR	CONDUCTOR (L or N)	LIMIT (dBµV)
0.525	47.76	Quasi Peak	Live	56.00
0.660	47.99	Quasi Peak	Live	56.00
0.675	36.86	Average	Live	46.00
0.705	46.71	Quasi Peak	Live	56.00
0.775	47.04	Quasi Peak	Live	56.00

SIGNIFICANT EMISSIONS

EUT with active call to handset

FREQUENCY (MHz)	MEASUREMENT RECEIVER READING (dBµV)	DETECTOR	CONDUCTOR (L or N)	LIMIT (dBµV)
0.525	47.92	Quasi Peak	Live	56.00
0.660	47.91	Quasi Peak	Live	56.00
0.675	37.26	Average	Live	46.00
0.700	46.09	Quasi Peak	Live	56.00

Notes: 1 See attached plots annex I (Worst Case Scan for EUT in normal operation or active call mode).
2 Only emissions within 10 dB of the limit are recorded.

Test Method: 1 As per Radio – Noise Emissions, ANSI C63.4: 2003.

The test equipment used for the Transmitter Conducted Emissions – AC Power Line Part 15.207 test was:

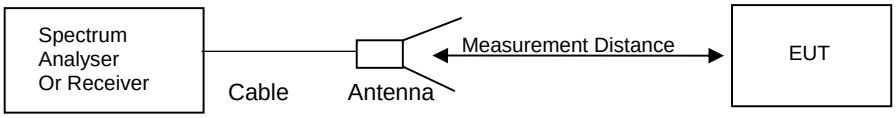
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
RECEIVER	ROHDE & SCHWARZ	ESHS 10	830051/001	UH03	**X**
LISN/AMN	ROHDE & SCHWARZ	ESH3-Z5	863906/018	UH05	**X**

RECEIVER TESTS

RECEIVER SPURIOUS EMISSIONS – RADIATED – PART 15.109

Ambient temperature	=	20°C(<1GHz)	3m measurements <1GHz	[X]
Relative humidity	=	53% (<1GHz)	1m measurements >1GHz	[X]
Conditions	=	Open Area Test Site (OATS)	3m extrapolated from 1m	[X]
Supply voltage	=	+110Vac		

Diagram



Antenna 1 Top, Middle and Bottom	FREQ. (MHz)	MEAS. Rx. (dBµV)	CABLE LOSS (dB)	ANT FACTOR	FIELD STRENGTH (dBµV/m)	EXTRAP. FACTOR (dB)	FIELD STRENGTH (µV/m)	LIMIT (µV/m)
30MHz - 88MHz	62.2	22.54	0.86	4.60	28.0	-	25.1	100
88MHz - 216MHz	91.80	16.57	1.08	8.75	26.4	-	20.8	150
	103.70	31.17	1.13	10.20	42.5	-	133.4	150
	109.60	24.54	1.16	10.80	36.5	-	66.8	150
	110.60	14.53	1.17	10.80	26.5	-	21.1	150
	115.50	19.20	1.20	10.90	31.3	-	36.7	150
	118.50	18.93	1.22	11.05	31.2	-	36.3	150
	120.50	10.46	1.24	11.10	22.8	-	13.9	150
	145.15	21.20	1.40	10.80	33.4	-	46.7	150
216MHz - 960MHz	Note 5							
960MHz - 1GHz	Note 5							
1GHz - 5GHz	Note 5							

Limits		
	1.705MHz to 30MHz	30µV/m @ 30m
	30MHz to 88MHz	100µV/m @ 3m
	88MHz to 216MHz	150µV/m @ 3m
	216MHz to 960MHz	200µV/m @ 3m
	960MHz to 1GHz	500µV/m @ 3m
	1GHz to 5GHz	500µV/m @ 3m

Notes:

1 Initial pre scans were performed see Annex J for plots <1GHz.
2 Emissions above 1GHz were measured with both a peak and average detectors.
3 Measurements <1GHz were performed at 3 meters.
4 Measurements >1GHz were initial performed at 0.3metres. This distance was increased if sensitivity of analyser allowed.
5 Only emissions with in 20dB of limit are recorded.
6 Antenna 1 worst case antenna.

Test Method:

1 As per Radio – Noise Emissions, ANSI C63.4: 2003.
2 Measuring distances as Notes 1 to 4 above.
3 EUT 0.8 metre above ground plane.
4 Emissions maximised by rotation of EUT, on an automatic turntable.
Raising and lowering the receiver antenna between 1m & 4m.
Horizontal and vertical polarisations, of the receive antenna.
EUT orientation in three orthagonal planes.
Maximum results recorded.

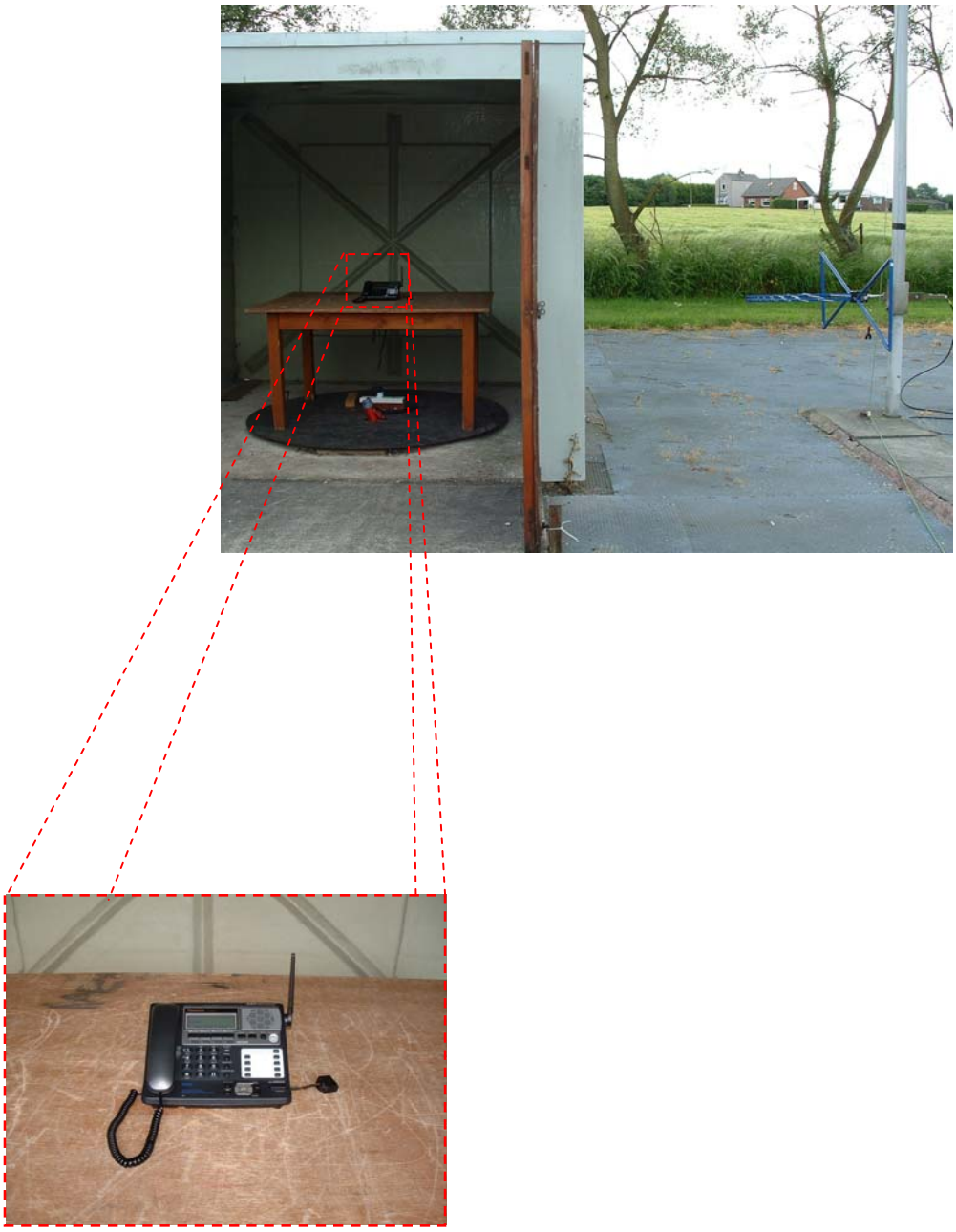
The test equipment used for the Transmitter Spurious Emissions – Radiated – Part 15.209 tests is shown overleaf:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
AE, LOOP, Z2, 9kHz - 30MHz	ROHDE & SCHWARZ	HFH2	881058 - 53	07	
HORN ANTENNA	EMCO	3115	9010-3580	138	
HORN ANTENNA	EMCO	3115	9010-3581	139	**X**
RECEIVER	ROHDE & SCHWARZ	ESHS 10	830051/001	UH03	
RECEIVER	ROHDE & SCHWARZ	ESVS 10	825892/003	UH04	**X**
RANGE 1	TRL	3 METRE	N/A	UH06	**X**
AE, LOOP, Z2, 9kHz - 30MHz	ROHDE & SCHWARZ	HFH2	881058 - 53	07	
BILOG ANTENNA	CHASE	CBL6112	2129	UH93	**X**
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	**X**

ANNEX A

PHOTOGRAPHS

PHOTOGRAPH No. 1 **TEST SETUP**

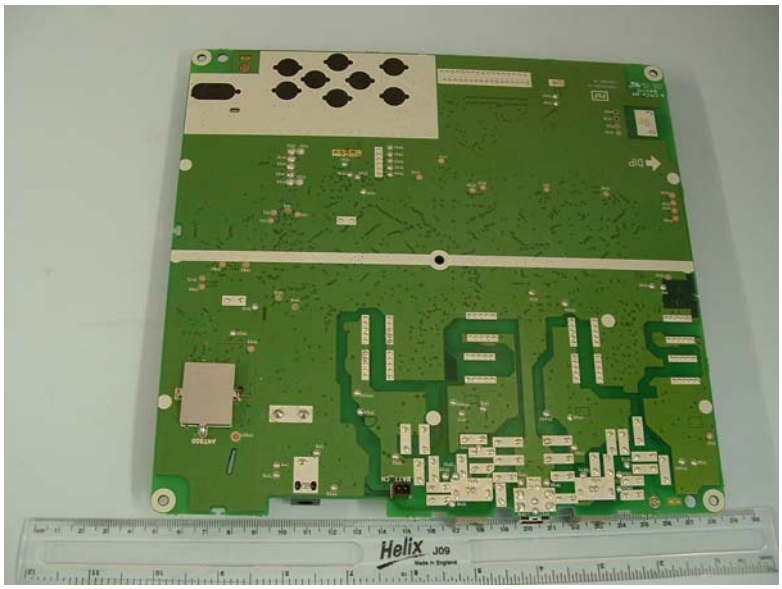


PHOTOGRAPH No. 2 **TRANSMITTER TOP VIEW**

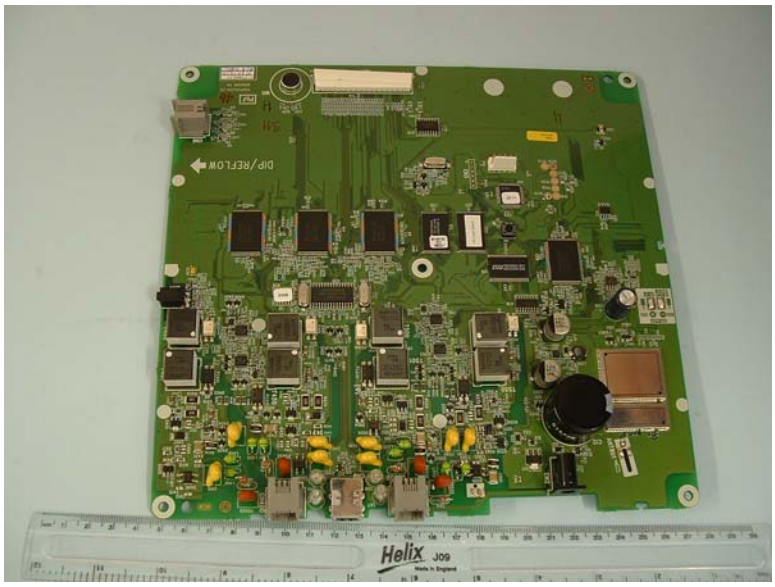
PHOTOGRAPH No. 3 **TRANSMITTER REAR VIEW**

PHOTOGRAPH No. 4 **TRANSMITTER REAR VIEW COVER REMOVED**

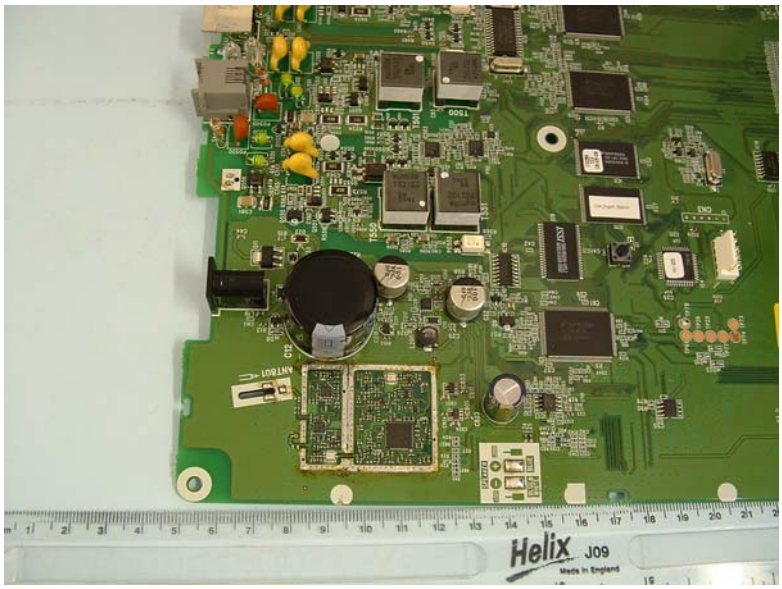
PHOTOGRAPH No. 5 **MAIN PCB TRACK SIDE**



PHOTOGRAPH No. 6 **MAIN PCB COMPONENT SIDE**



PHOTOGRAPH No. 7 **MAIN PCB COMPONENT SIDE CAN REMOVED**



ANNEX B

APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

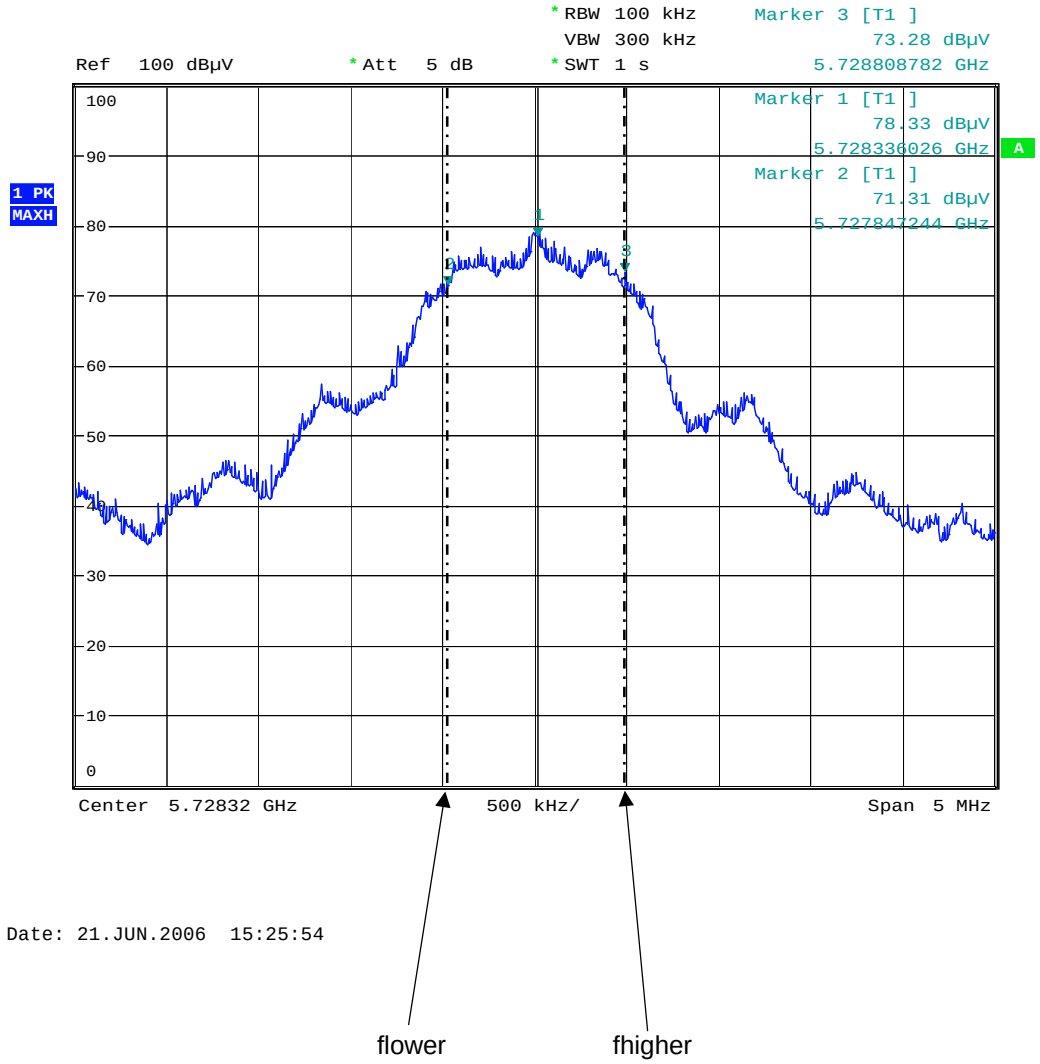
APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

a.	TCB	-	APPLICATION	[X]
		-	FEE	[X]
b.	AGENT'S LETTER OF AUTHORISATION	-		[X]
c.	MODEL(s) vs IDENTITY	-		[ ]
d.	ALTERNATIVE TRADE NAME DECLARATION(s)	-		[ ]
e.	LABELLING	-	PHOTOGRAPHS	[X]
		-	DECLARATION	[X]
		-	DRAWINGS	[X]
f.	TECHNICAL DESCRIPTION	-		[X]
g.	BLOCK DIAGRAMS	-	Tx	[X]
		-	Rx	[X]
		-	PSU	[ ]
		-	AUX	[ ]
h.	CIRCUIT DIAGRAMS	-	Tx	[X]
		-	Rx	[X]
		-	PSU	[ ]
		-	AUX	[ ]
i.	COMPONENT LOCATION	-	Tx	[X]
		-	Rx	[X]
		-	PSU	[ ]
		-	AUX	[ ]
j.	PCB TRACK LAYOUT	-	Tx	[X]
		-	Rx	[X]
		-	PSU	[ ]
		-	AUX	[ ]
k.	BILL OF MATERIALS	-	Tx	[X]
		-	Rx	[X]
		-	PSU	[ ]
		-	AUX	[ ]
l.	USER INSTALLATION / OPERATING INSTRUCTIONS	-		[X]

ANNEX C

6 dB BANDWIDTH

6dB Bandwidth

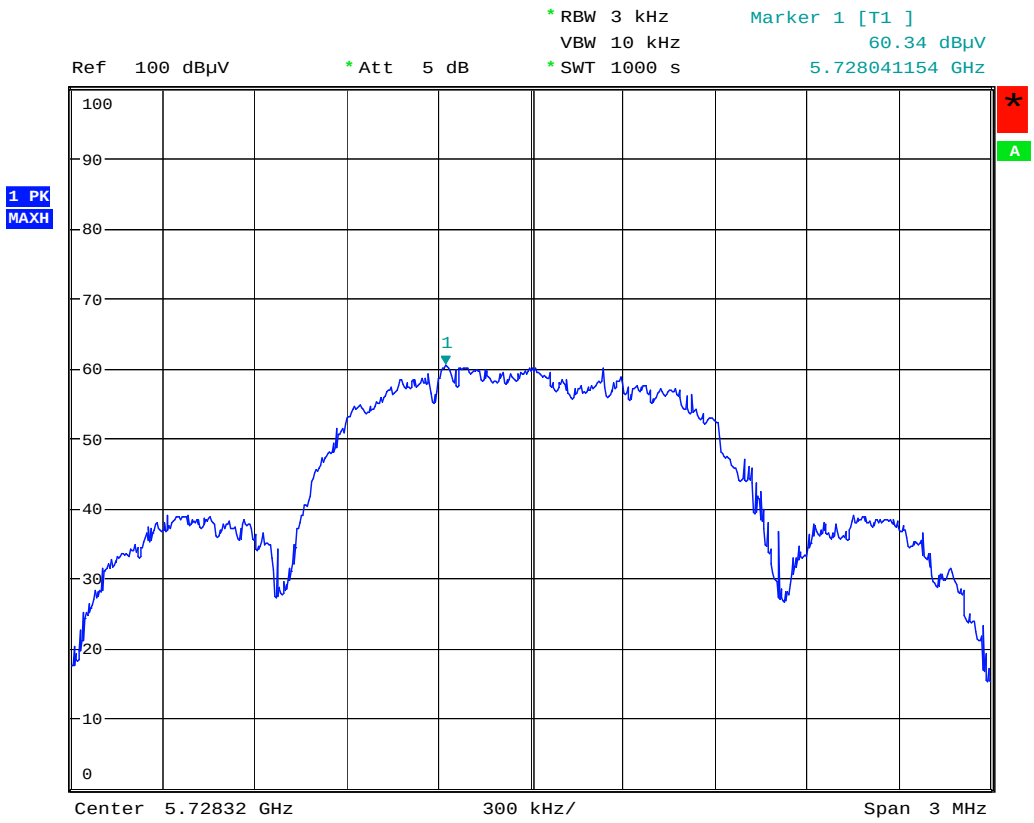


flower	= 5727.847244 MHz
fhigher	= 5728.808782 MHz
Occupied Bandwidth	= 961.538 kHz

ANNEX D

POWER SPECTRAL DENSITY

Power Spectral Density



Date: 21.JUN.2006 15:24:45

ANNEX E

TRANSMITTER SPURIOUS EMISSIONS RADIATED

Channel 0 Antenna 1 **30MHz – 1 GHz**

TRL Compliance Services Ltd 20 Jun 2006 11:06

E-Field Radiation (30MHz-1GHz)

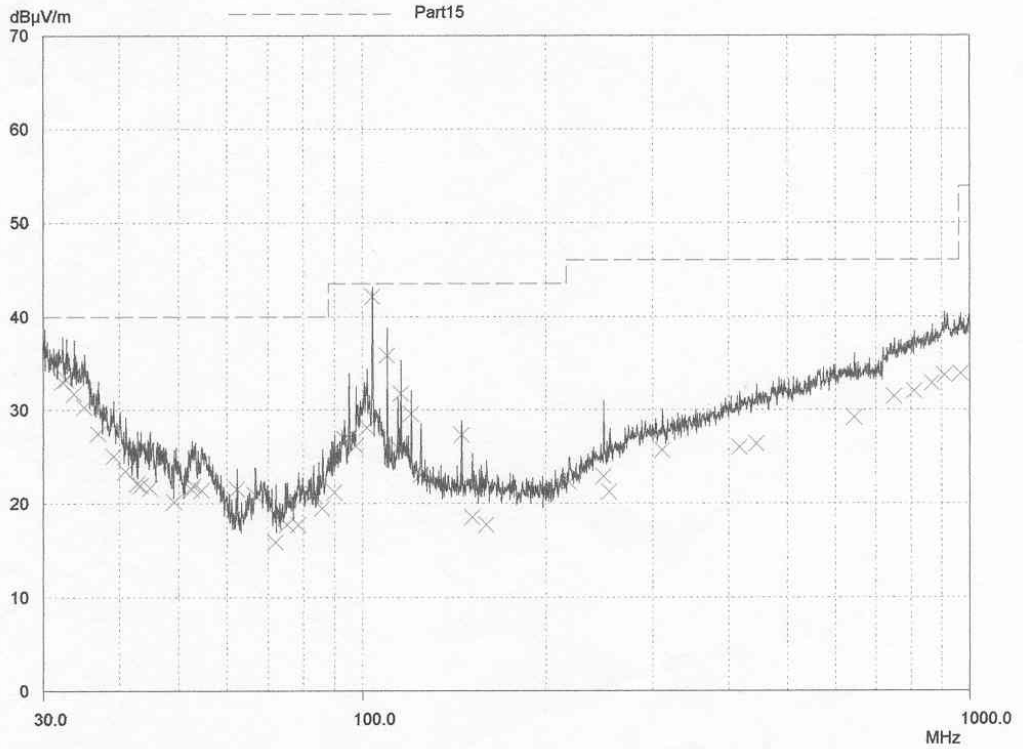
EUT: Handset
Manuf: Panasonic
Op Cond: Prescan 30MHz - 1000MHz
Operator: S hodgkinson
Test Spec: Part15
Comment: BASE ~~Handset~~ in Tx mode Chan 0 selected, Ant 1 selected
Rx antenna Vertical.

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30MHz	1000MHz	50kHz	120kHz	PK	1msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	21	30MHz	1000MHz	UH72
	22	30MHz	1000MHz	UH93

Final Measurement: Detector: X QP
Meas Time: 2sec
Subranges: 50
Acc Margin: 10 dB



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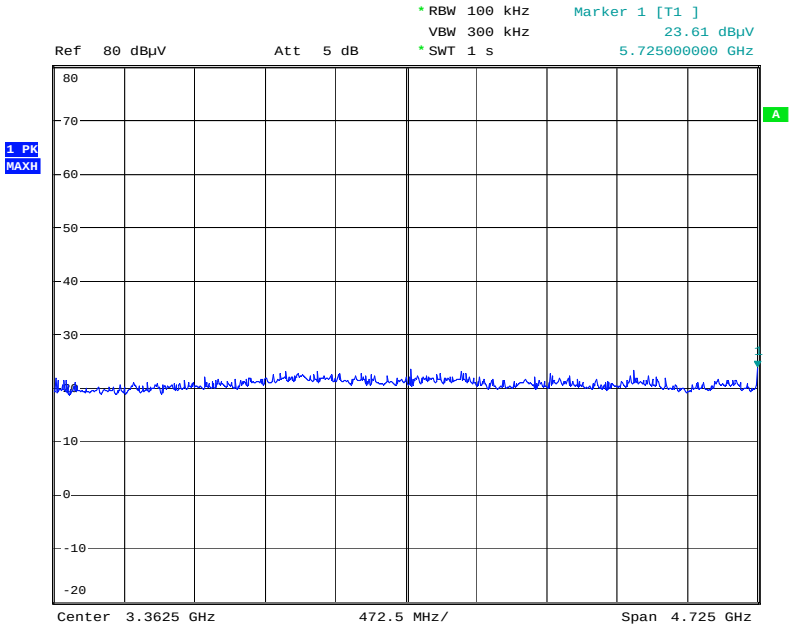
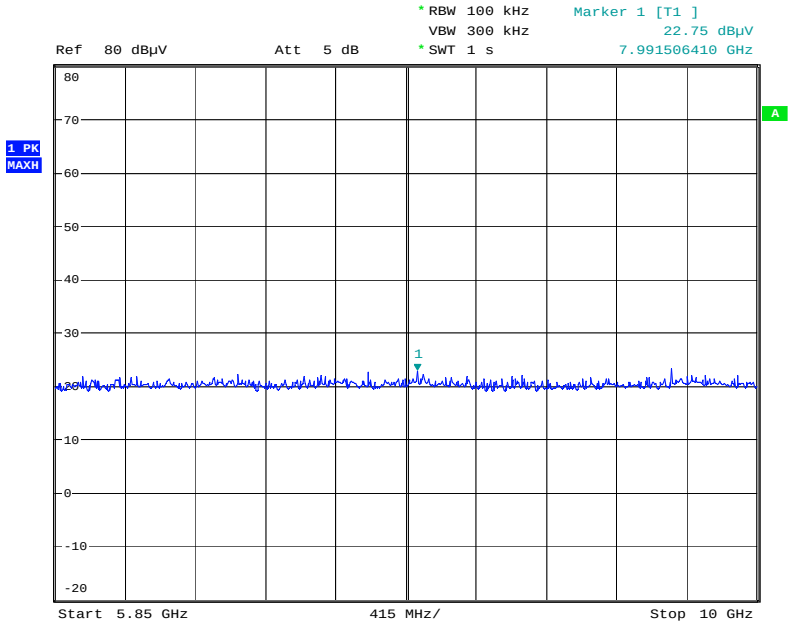
Channel 0 Antenna 1 — 1 GHz – 5.725 GHz



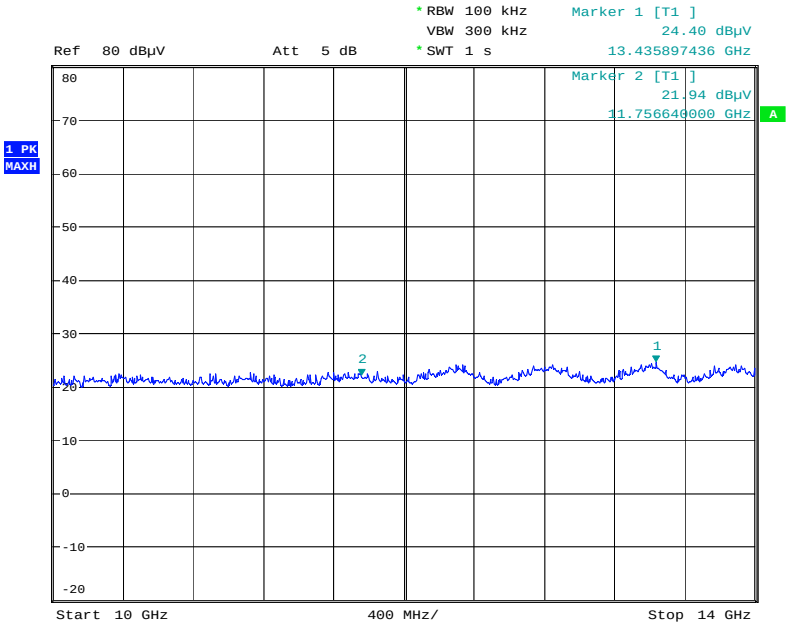
Date: 19.JUN.2006 15:40:59

Channel 0 Antenna 1 — 5850 MHz – 10 GHz



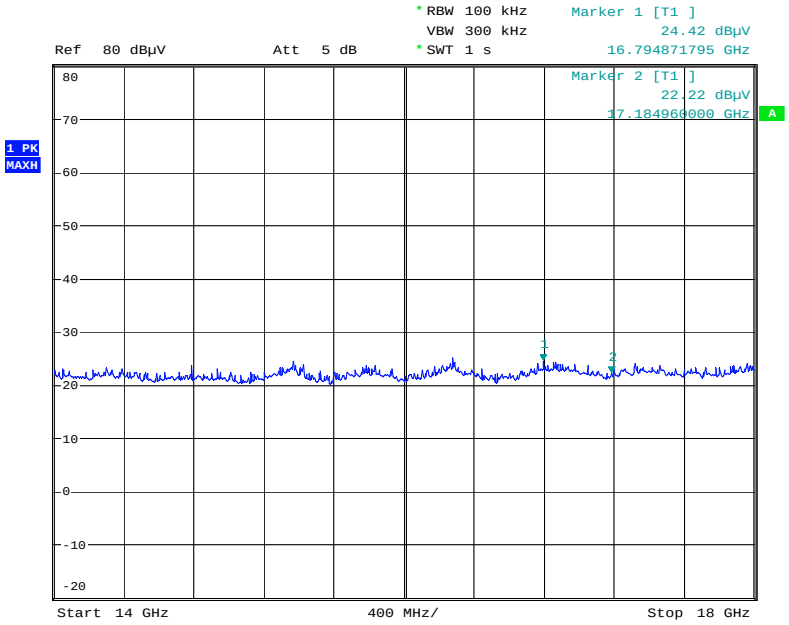
Date: 19.JUN.2006 15:41:26

Channel 0 Antenna 1 — 10 GHz – 14 GHz



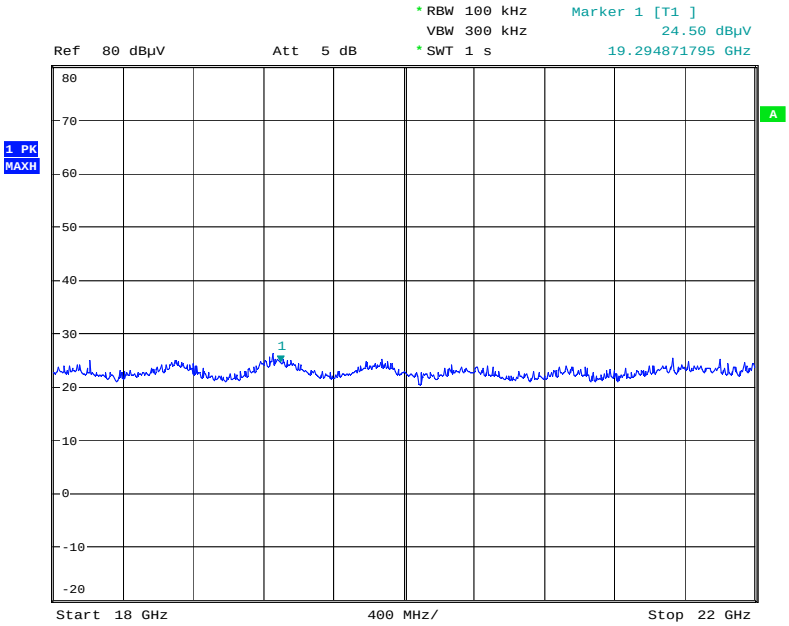
Date: 19.JUN.2006 15:42:58

Channel 0 Antenna 1 — 14 GHz – 18 GHz



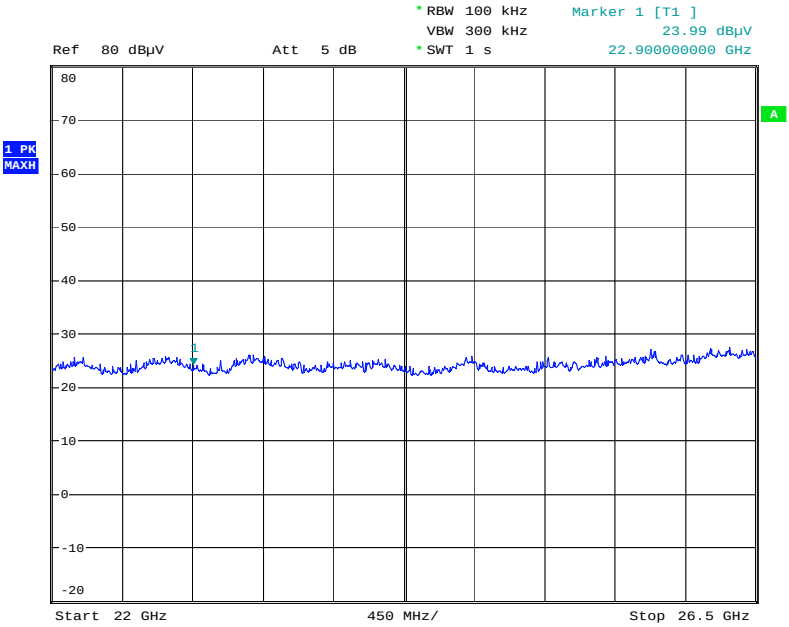
Date: 19.JUN.2006 15:44:00

Channel 0 Antenna 1 **18 GHz– 22 GHz**



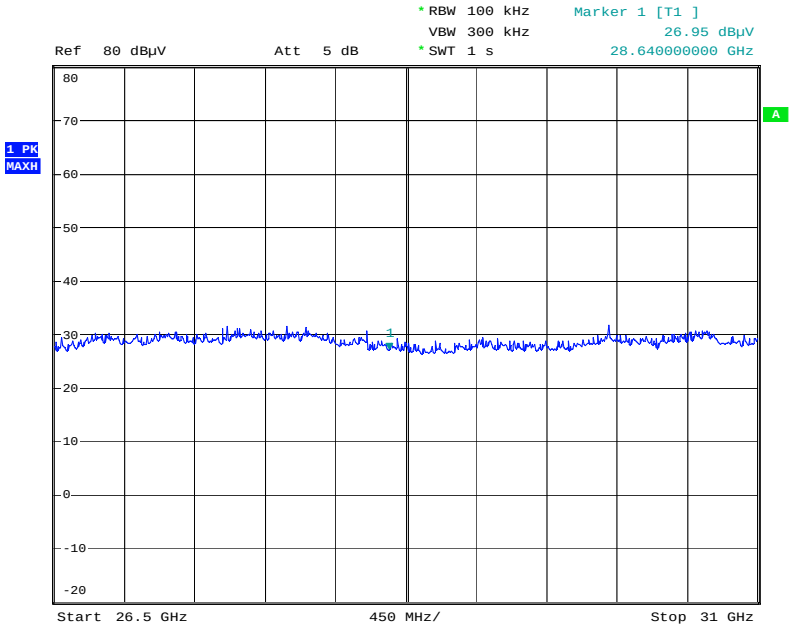
Date: 20.JUN.2006 15:55:44

Channel 0 Antenna 1 **22 GHz – 26.5 GHz**



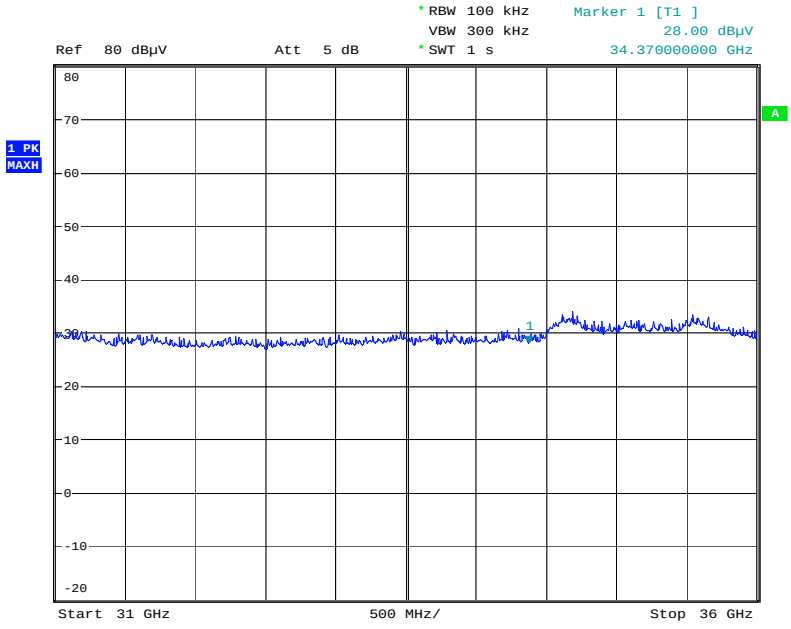
Date: 20.JUN.2006 15:56:36

Channel 0 Antenna 1 26.5 GHz – 31 GHz



Date: 20.JUN.2006 16:47:38

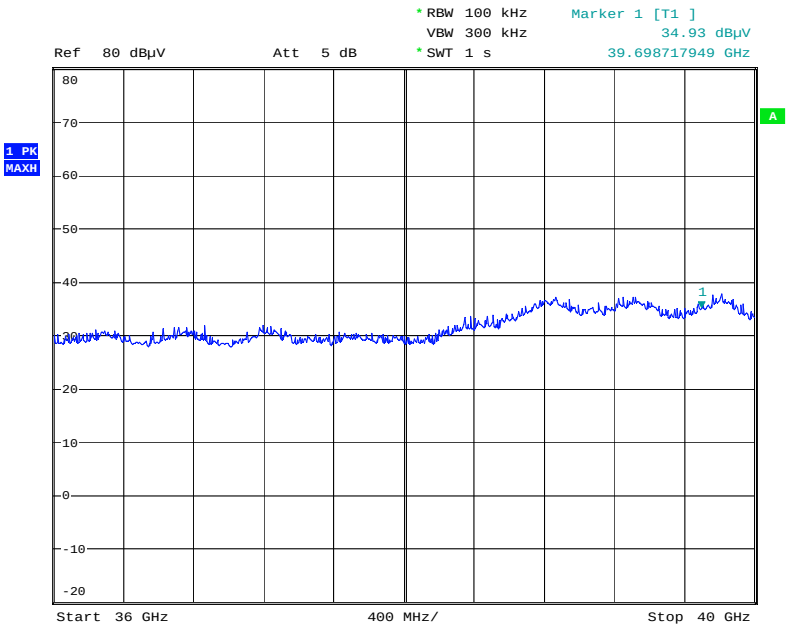
Channel 0 Antenna 1 31GHz – 36 GHz



Date: 20.JUN.2006 16:47:02

Channel 0 Antenna 1

36 GHz – 40 GHz

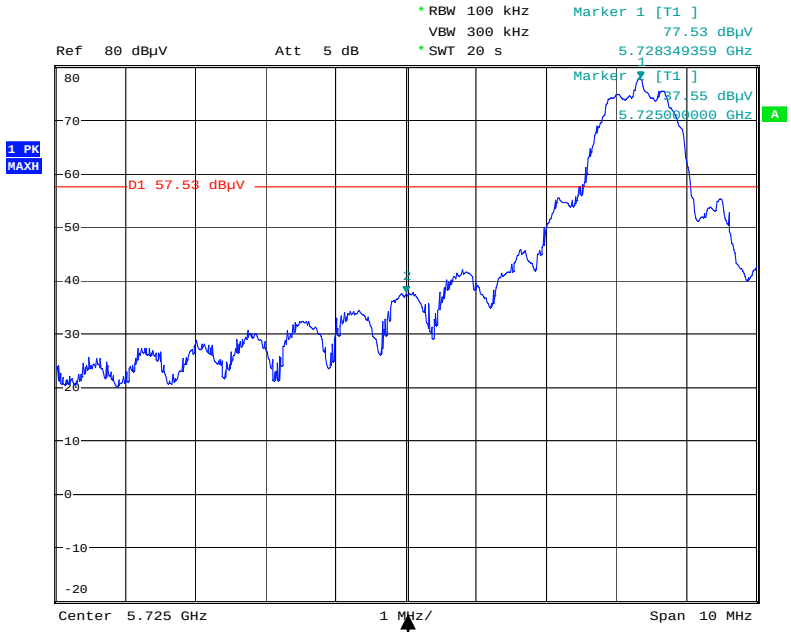


Date: 20.JUN.2006 16:45:48

ANNEX F

SPURIOUS EMISSIONS RADIATED (BAND EDGE)

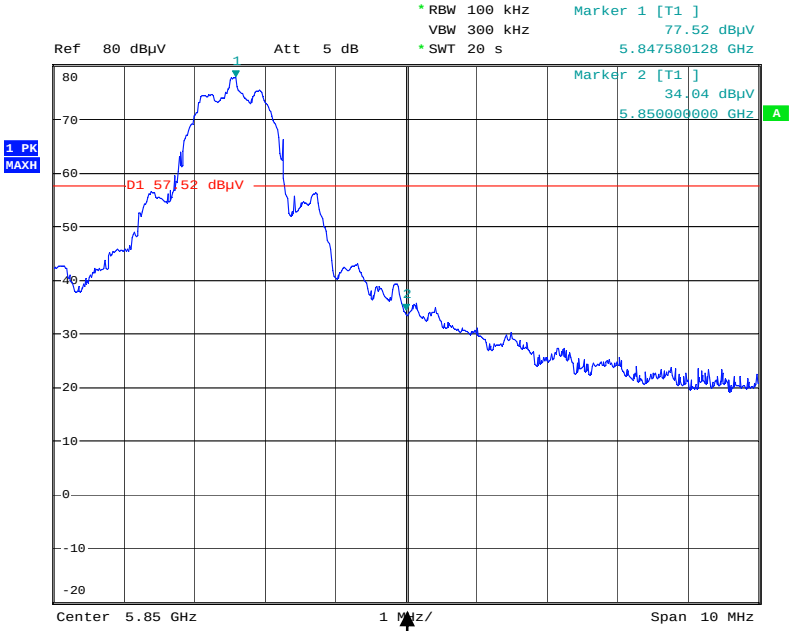
Lower Band Edge



Date: 19.JUN.2006 16:07:32

Bandedge

Upper Band Edge



Date: 19.JUN.2006 16:08:40

Bandegde

ANNEX G

AC POWER LINE CONDUCTION

Powerline Conduction

21 Jun 2006 15:15

150kHz - 30MHz

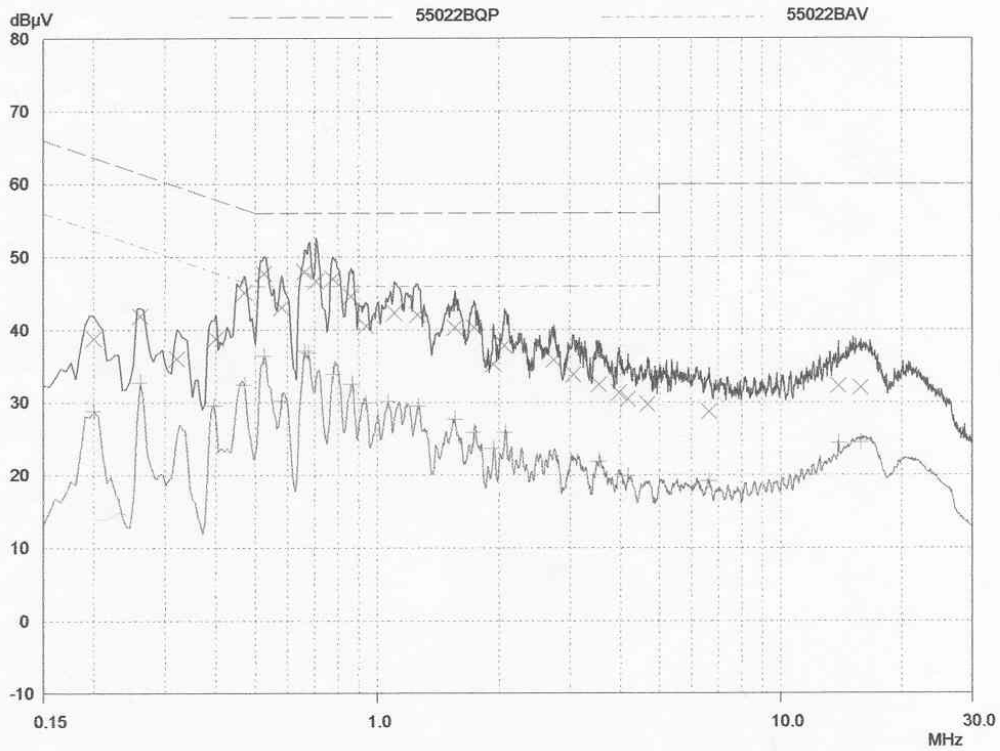
EUT:	Base Unit
Manuf:	Panasonic
Op Cond:	LISN UH05, cable UH21 & Receiver UH187
Operator:	S HODGKINSON
Test Spec:	EN55022 Class B (or Variant)
Comment:	Live Line, 110V, 60Hz
	Base Unit in normal operating mode.

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	30MHz	5kHz	10kHz	PK+AV	50msec	Auto	OFF	60dB

Transducer	No.	Start	Stop	Name
	1	150kHz	30MHz	UH21

Final Measurement:		
	Detectors:	X QP / + AV
	Meas Time:	2sec
	Subranges:	25
	Acc Margin:	20 dB



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ANNEX H

RECEIVER SPURIOUS EMISSIONS RADIATED

TRL Compliance Services Ltd

20 Jun 2006 12:43

E-Field Radiation (30MHz-1GHz)

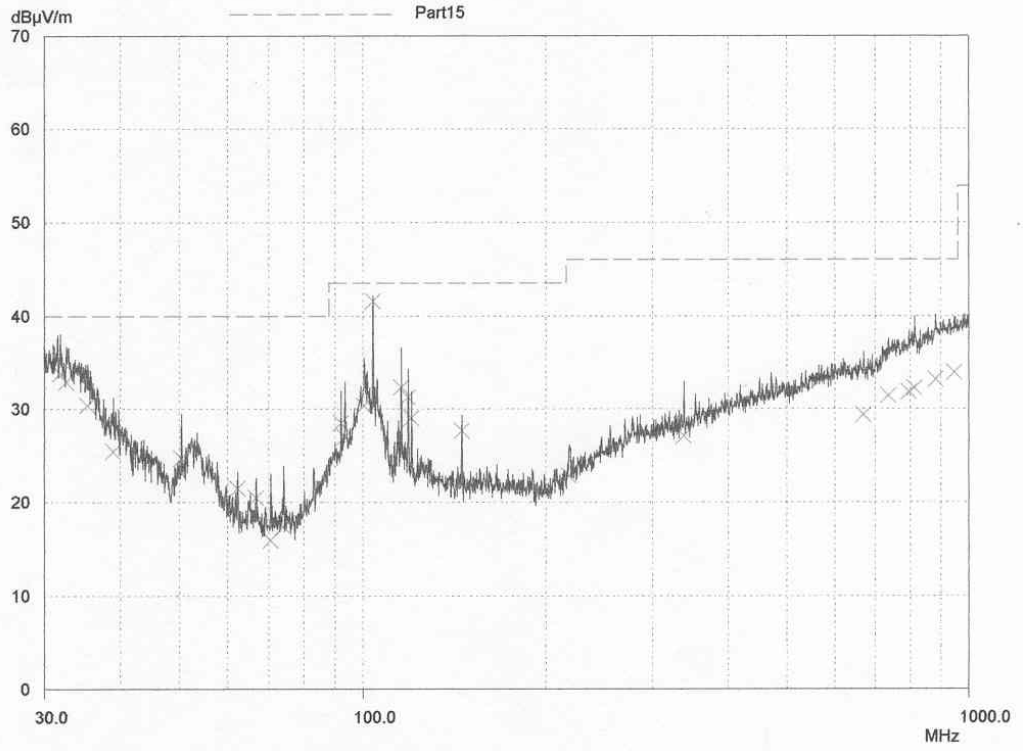
EUT:	Base
Manuf:	Panasonic
Op Cond:	Prescan 30MHz - 1000MHz
Operator:	D Winstanley
Test Spec:	Part15
Comment:	Base in Rx mode Chan 0 selected, Ant 1 selected Rx antenna Vertical.

Scan Settings (1 Range)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
30MHz	1000MHz	50kHz	120kHz	PK	1msec	Auto	ON	60dB

Transducer	No.	Start	Stop	Name
1	21	30MHz	1000MHz	UH72
	22	30MHz	1000MHz	UH93

Final Measurement: Detector: X QP
Meas Time: 2sec
Subranges: 50
Acc Margin: 10 dB



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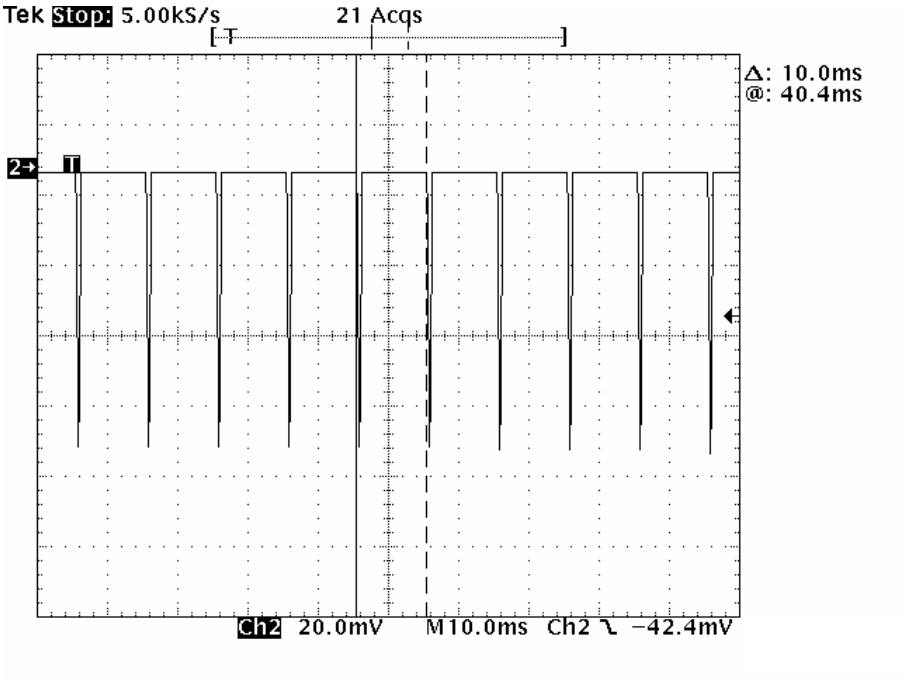
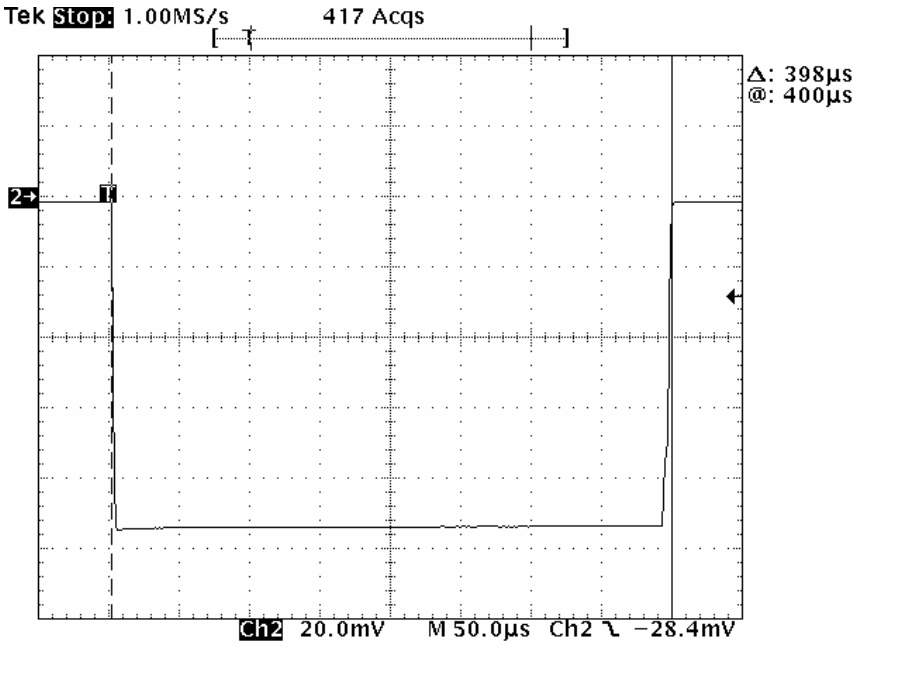
ANNEX I

DUTY CYCLE



Number of times on during a 100ms period = 10



Time of one transmission (Ton) = 398µs

Duty Cycle correction

Correction Factor = 10 Log_{10} (Ton/100ms)

Correction Factor = 10 Log_{10} (398µs **/**100ms)

Correction Factor = 10 Log_{10} 0.00398

Correction Factor = -24.00dB

Maximum correction allowed as per 15.35 = -20dB

ANNEX J

TEST EQUIPMENT CALIBRATION DETAILS

TRL Number	Equipment Type	Manufacturer	Last Cal Calibration	Calibration Period	Due For Calibration
UH006	3m Range ERP CAL	TRL	06/01/2006	12	06/01/2007
UH028	Log Periodic Ant	Schwarbeck	28/04/2005	24	28/04/2007
UH029	Bicone Antenna	Schwarbeck	27/04/2005	24	27/04/2007
UH041	Multimeter	AVOmeter	20/12/2005	12	20/12/2006
UH120	Spectrum Analyser	Marconi	15/03/2005	12	15/03/2006
UH122	Oscilloscope	Tektronix	07/06/2005	24	07/06/2007
UH132	Power meter	Marconi	03/01/2006	12	03/01/2007
UH162	ERP Cable Cal	TRL	06/01/2006	12	06/01/2007
UH228	Power Sensor	Marconi	03/01/2006	12	03/01/2007
UH253	1m Cable N type	TRL	23/02/2006	12	23/02/2007
UH254	1m Cable N type	TRL	05/01/2006	12	05/01/2007
UH265	Notch filer	Telonic	24/06/2005	12	24/06/2006
UH271	1m Cable N type	TRL	23/02/2006	12	23/02/2007
UH273	1m Cable N type	TRL	23/02/2006	12	23/02/2007
L005	CMTA	R&S	05/12/2005	12	05/12/2006
L007	Loop Antenna	R&S	29/03/2005	24	29/03/2007
L138	1-18GHz Horn	EMCO	15/04/2005	24	15/04/2007
L139	1-18GHz Horn	EMCO	03/05/2005	24	03/05/2007
L176	Signal Generator	Marconi	31/01/2005	12	31/01/2006
L193	Bicone Antenna	Chase	12/10/2003	24	12/10/2005
L203	Log Periodic Ant	Chase	21/10/2003	24	21/10/2005
L280	18GHz Cable	Rosenberger	05/01/2006	12	05/01/2007
L343	CCIR Noise Filter	TRL	07/06/2005	12	07/06/2006
L426	Temperature Indicator	Fluke	04/01/2006	12	04/01/2007
L479	Analyser	Anritsu	18/11/2005	12	18/11/2006
L552	Signal Generator	Agilent	25/04/2005	12	25/04/2006
N/A	High Pass Filter	AFL	23/02/2006	12	23/02/2007

ANNEX K

MEASUREMENT UNCERTAINTY

Radio Testing – General Uncertainty Schedule

All statements of uncertainty are expanded standard uncertainty using a coverage factor of 1.96 to give a 95% confidence where no required test level exists.

[1] Adjacent Channel Power

Uncertainty in test result = **1.86dB**

[2] Carrier Power

Uncertainty in test result (Equipment - TRLUH120) = **2.18dB**
Uncertainty in test result (Equipment – TRL05) = **1.08dB**
Uncertainty in test result (Equipment – TRL479) = **2.48dB**

[3] Effective Radiated Power

Uncertainty in test result = **4.71dB**

[4] Spurious Emissions

Uncertainty in test result = **4.75dB**

[5] Maximum frequency error

Uncertainty in test result (Equipment - TRLUH120) = **119ppm**
Uncertainty in test result (Equipment – TRL05) = **0.113ppm**
Uncertainty in test result (Equipment – TRL479) = **0.265ppm**

[6] Radiated Emissions, field strength OATS 14kHz-18GHz Electric Field

Uncertainty in test result (14kHz – 30MHz) = **4.8dB**, Uncertainty in test result (30MHz – 1GHz) = **4.6dB**, Uncertainty in test result (1GHz-18GHz) = **4.7dB**

[7] Frequency deviation

Uncertainty in test result = **3.2%**

[8] Magnetic Field Emissions

Uncertainty in test result = **2.3dB**

[9] Conducted Spurious

Uncertainty in test result (Equipment TRL479) Up to 8.1GHz = **3.31dB**
Uncertainty in test result (Equipment TRL479) 8.1GHz – 15.3GHz = **4.43dB**
Uncertainty in test result (Equipment TRL479) 15.3GHz – 21GHz = **5.34dB**
Uncertainty in test result (Equipment TRLUH120) Up to 26GHz = **3.14dB**

[10] Channel Bandwidth

Uncertainty in test result = **15.5%**

[11] Amplitude and Time Measurement – Oscilloscope

Uncertainty in overall test level = **2.1dB**, Uncertainty in time measurement = **0.59%,** Uncertainty in Amplitude measurement = **0.82%**

[11] Power Line Conduction

Uncertainty in test result = **3.4dB**