

TEST REPORT NO: RU1252/7073
COPY NO: .1-----
ISSUE NO: 1
FCC ID: ACJPCCUKKX-TG4500

**REPORT ON THE CERTIFICATION TESTING OF A
PANASONIC COMMUNICATIONS COMPANY (UK) Ltd.
KX-TGA450B
WITH RESPECT TO
THE FCC RULES CFR 47, PART 15.247 February 2006
INTENTIONAL RADIATOR SPECIFICATION**

TEST DATE: 19th – 21st June 2006

TESTED BY: ----- D Winstanley
APPROVED BY: ----- P Green
Product Manager
DATE: 29th June 2006-----

Distribution:

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

THIS DOCUMENT MAY BE REPRODUCED ONLY IN ITS ENTIRETY AND WITHOUT CHANGE

TRL COMPLIANCE LTD

MOSS VIEW NIPE LANE UP HOLLAND WEST LANCASHIRE WN8 9PY UNITED KINGDOM
TELEPHONE +44 (0)1695 556666 FAX +44 (0)1695 557077
E-MAIL test@trl-emc.co.uk www.trlcompliance.com



CONTENTS

	PAGE		
CERTIFICATE OF CONFORMITY & COMPLIANCE	3		
APPLICANT'S SUMMARY	4		
EQUIPMENT TEST CONDITIONS	5		
TESTS REQUIRED	5		
TEST RESULTS	6-13		
		ANNEX	
PHOTOGRAPHS		A	
PHOTOGRAPH No. 1: Test setup			
PHOTOGRAPH No. 2: Transmitter top overview			
PHOTOGRAPH No. 3: Transmitter bottom overview			
PHOTOGRAPH No. 4: Transmitter overview			
PHOTOGRAPH No. 5: Main PCB LCD and Keypad Side			
PHOTOGRAPH No. 6: Main PCB Component and RF Side			
PHOTOGRAPH No. 7: Main PCB RF Side Can Removed			
APPLICANT'S SUBMISSION OF DOCUMENTATION LIST		B	
6dB BAND WIDTH PLOT		C	
RADIATED POWER SPECTRAL DENSITY		D	
RADIATED SPURIOUS EMISSIONS – TX		E	
RADIATED SPURIOUS EMISSIONS – BANDEDGE		F	
POWER LINE CONDUCTED EMISSIONS		G	
RADIATED SPURIOUS EMISSIONS – RX		H	
DUTY CYCLE		I	
TEST EQUIPMENT CALIBRATION DETAILS		J	
MEASUREMENT UNCERTAINTY		K	
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-TGA450B
EQUIPMENT SERIAL No: 6ECGA000088
EQUIPMENT TYPE: Cordless Telephone
CARRIER EMISSION: 0.00484 Watts
ANTENNA TYPE: Integral Diversity Antenna
GAIN ANTENNA: 3dBi 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): +3.6Vdc
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: _____ D Winstanley

APPROVED BY: _____ P Green
Product Manager

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.

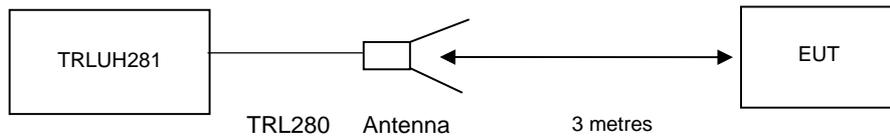
- | | | | |
|--|--|--|-------------------|
| 2. | Emission Designator: | 1M04F1D | |
| 3. | Duty Cycle: | | <8% |
| 4. | Transmitter bit or pulse rate and level: | | 1152kbps |
| 5. | Temperatures: | Ambient (Tnom) | 21°C |
| 6. | Supply Voltages: | Vnom | +3.6Vdc |
| Note: Vnom voltages are as stated above unless otherwise shown on the test report page | | | |
| 7. | Equipment Category: | Single channel
Two channel
Multi-channel | []
[]
[X] |
| 8. | Channel Allocation: | Narrowband
Wideband | []
[X] |

TRANSMITTER TESTS

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

Ambient temperature = 18°C(<1GHz)
 Relative humidity = 58% (<1GHz)
 Conditions = Semi Anechoic chamber
 Supply voltage = +3.6Vdc

Diagram



Frequency (MHz)	Channel	Measured Bandwidth	Limit
5728.320	0	977.565 kHz	>500kHz
5787.936	23	984.577 kHz	>500kHz
5847.552	46	1041.667 kHz	>500kHz

Notes: 1 For analyser plots of channel 46 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.

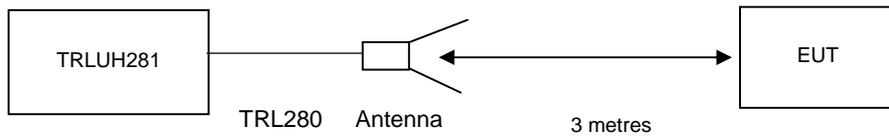
TYPE OF EQUIPMENT	MAKER/SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	X
HORN ANTENNA	EMCO	3115	9010-3580	138	X
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	X

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 = +3.6Vdc

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	78.07	4.8	34.8	117.66	0.76	0.057	1
5787.936	23	79.08	4.9	34.8	117.78	0.77	0.059	1
5847.552	46	80.47	5.1	34.8	120.37	1.04	0.108	1

- Notes:**
- 1 Gain of antenna 3dB 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:

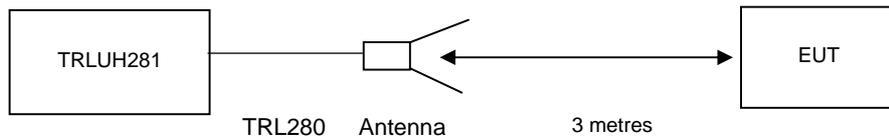
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	X
HORN ANTENNA	EMCO	3115	9010-3580	138	X
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	X

TRANSMITTER TESTS

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

Ambient temperature = 18°C(<1GHz)
 Relative humidity = 58% (<1GHz)
 Conditions = Semi Anechoic chamber
 Supply voltage = +3.6Vdc

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	60.74	4.8	34.8	100.34	0.11	0.00121	0.83	8dBm
5787.936	23	63.30	4.9	34.8	103.00	0.14	0.00196	2.92	8dBm
5847.552	46	62.66	5.1	34.8	102.56	0.13	0.00169	2.28	8dBm

Notes:

- 1 For analyser plots of channel 46 antenna 1 see annex E.
- 2 Gain of antenna 3dB 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.

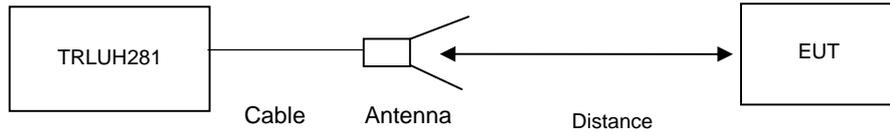
TYPE OF EQUIPMENT	MAKER/SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	R&S	FSU46	200034	UH281	X
HORN ANTENNA	EMCO	3115	9010-3580	138	X
CABLE	ROSENBERGER	RTK161-GP-N	N/A	280	X

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	=	+3.6Vdc	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	55.8	8.5	32.7	-36.0	61.0	-	20	112.2	500
	11.47587	53.7	8.5	32.7	-36.0	58.9	-	20	88.1	500
	11.69575	54.1	8.5	32.7	-36.0	59.3	-	20	92.3	500
	22.91203	62.0	5.8	37.2	-36.4	68.6	-	20	269.2	500
	23.15174	62.0	5.8	37.2	-36.4	68.6	-	20	269.2	500
23.39021	60.6	5.8	37.2	-36.4	67.2	-	20	229.1	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	54.0	8.5	32.7	-36.0	59.2	-	20	91.2	500
	11.47587	53.8	8.5	32.7	-36.0	59.0	-	20	89.1	500
	11.69575	55.0	8.5	32.7	-36.0	60.2	-	20	102.3	500
	22.91203	61.2	5.8	37.2	-36.4	67.8	-	20	245.5	500
	23.15174	61.9	5.8	37.2	-36.4	68.5	-	20	266.1	500
23.39021	62.4	5.8	37.2	-36.4	69.0	-	20	281.8	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. and ANSI C64.3 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 orthogonal 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°C(<1GHz)
Relative humidity	=	47%(<1GHz)
Conditions	=	Power Line Laboratory
Supply voltage	=	+110V AC
Supply Frequency	=	60Hz

SIGNIFICANT EMISSIONS

Transmitting

FREQUENCY (MHz)	MEASUREMENT RECEIVER READING (dBµV)	DETECTOR	CONDUCTOR (L or N)	LIMIT (dBµV)
0.73	46.75	Quasi Peak	Live	56.00

SIGNIFICANT EMISSIONS

Receiving

FREQUENCY (MHz)	MEASUREMENT RECEIVER READING (dBµV)	DETECTOR	CONDUCTOR (L or N)	LIMIT (dBµV)
0.75	46.03	Quasi Peak	Live	56.00

Notes: 1 See attached plots annex I (Worst Case Scan for TX or RX).

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:

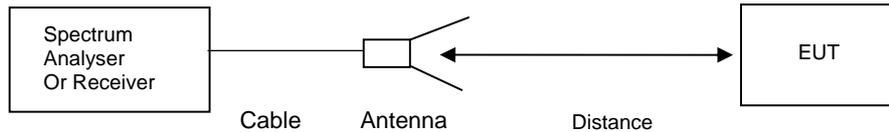
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
LISN / AMN	ROHDE & SCHWARZ	ESH3-Z5	83746/010	289	
RECEIVER	ROHDE & SCHWARZ	ESHS10	844077/019	353	
RECEIVER	ROHDE & SCHWARZ	ESHS 10	830051/001	UH03	X
LISN/AMN	ROHDE & SCHWARZ	ESH3-Z5	863906/018	UH05	X
SPECTRUM ANALYSER	MARCONI	2386/2380	152076/004	UH120	

RECEIVER TESTS

RECEIVER SPURIOUS EMISSIONS – RADIATED – PART 15.109

Ambient temperature	=	23°C (<1GHz)	3m measurements <1GHz	[X]
Relative humidity	=	49% (<1GHz)	1m measurements >1GHz	[X]
Conditions	=	Open Area Test Site (OATS)	3m extrapolated from 1m	[X]
Supply voltage	=	+3.6Vdc		

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	Note 6							
88MHz - 216MHz	Note 6							
216MHz - 960MHz	Note 6							
960MHz - 1GHz	Note 6							
1GHz - 5GHz	1909.437	30.3	1.5	27.8	59.6	9.5	319.8	500
	1929.318	30.8	1.5	27.8	60.1	9.5	338.8	500
	1948.185	30.6	1.5	27.8	59.9	9.5	331.1	500
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 R indicates frequency with a restricted band.
- 2 Initial pre scans were performed see Annex J for plots <1GHz.
- 3 Emissions above 1GHz were measured with both a peak and average detectors.
- 4 Measurements <1GHz were performed at 3 meters.
- 5 Measurements >1GHz were initial performed at 0.3metres. This distance was increased if sensitivity of analyser allowed.
- 6 Only emissions with in 20dB of limit are recorded.
- 7 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 orthogonal 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



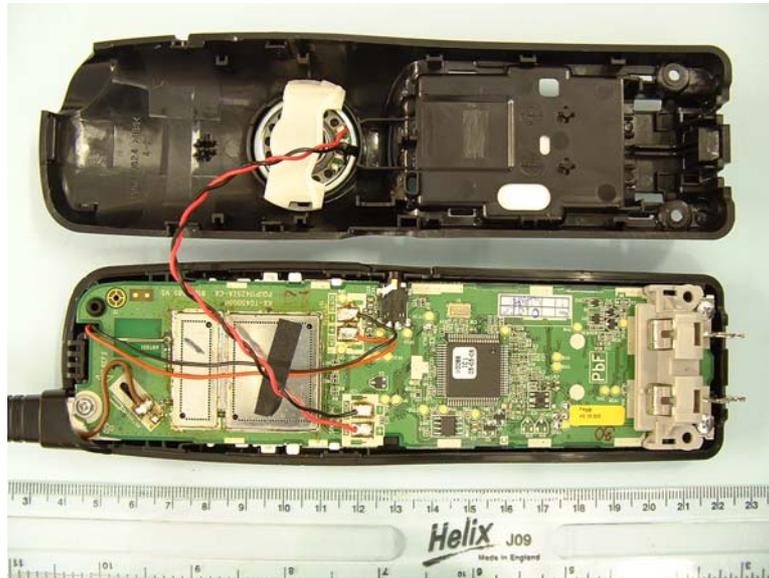
PHOTOGRAPH No. 3

TRANSMITTER REAR VIEW



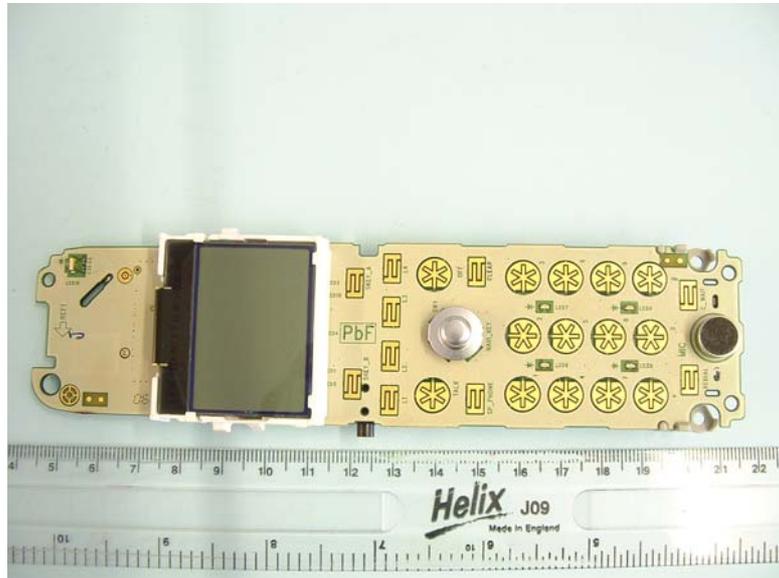
PHOTOGRAPH No. 4

TRANSMITTER OVERVIEW



PHOTOGRAPH No. 5

MAIN PCB LCD & KEYPAD SIDE



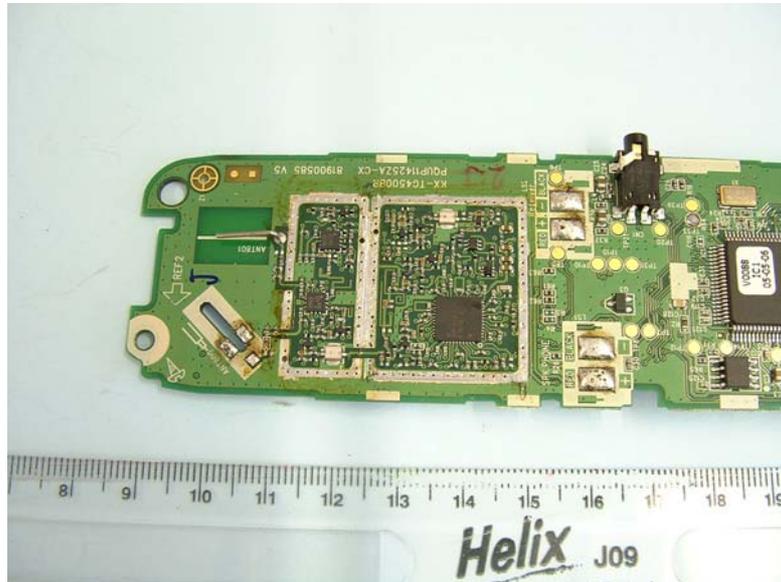
PHOTOGRAPH No. 6

MAIN PCB COMPONENT & RF SIDE



PHOTOGRAPH No. 7

MAIN PCB RF SIDE CAN REMOVED



ANNEX B
APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

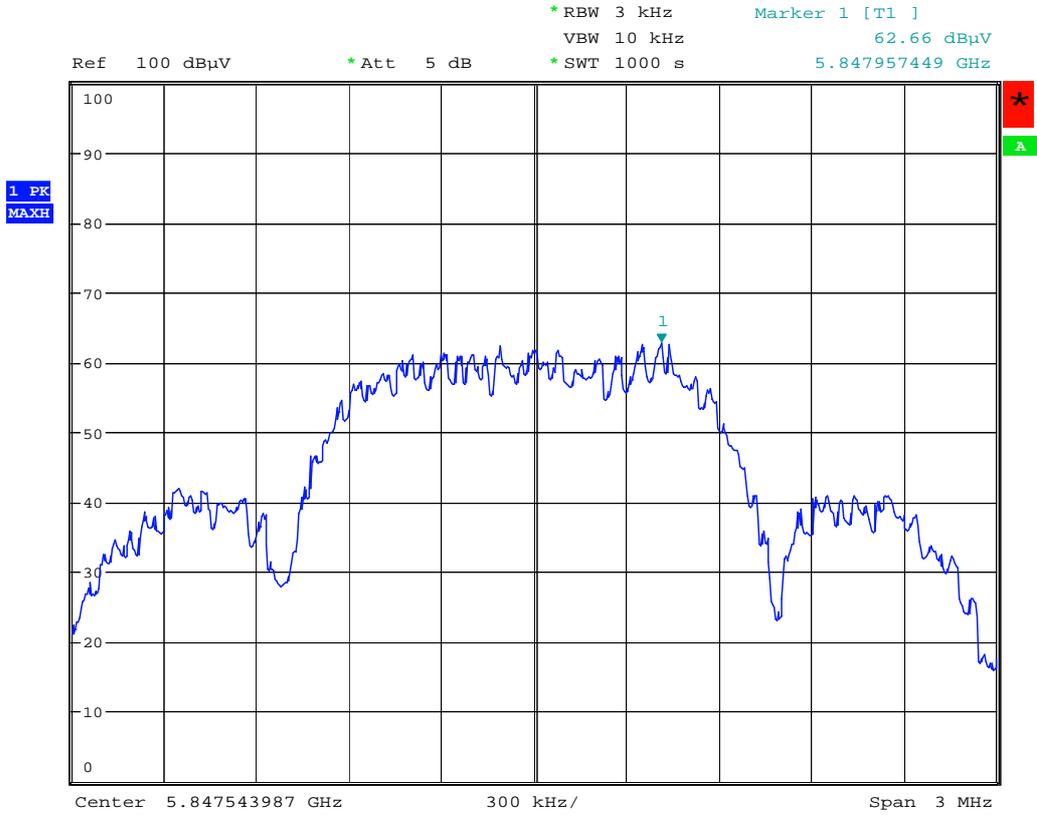
APPLICANT'S SUBMISSION OF DOCUMENTATION LIST

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

ANNEX D
POWER SPECTRAL DENSITY

Power Spectral Density



Date: 21.JUN.2006 16:09:06

ANNEX E
TRANSMITTER SPURIOUS EMISSIONS RADIATED

Channel 46 Antenna 1

30MHz – 1 GHz

TRL Compliance Services Ltd
E-Field Radiation (30MHz-1GHz)

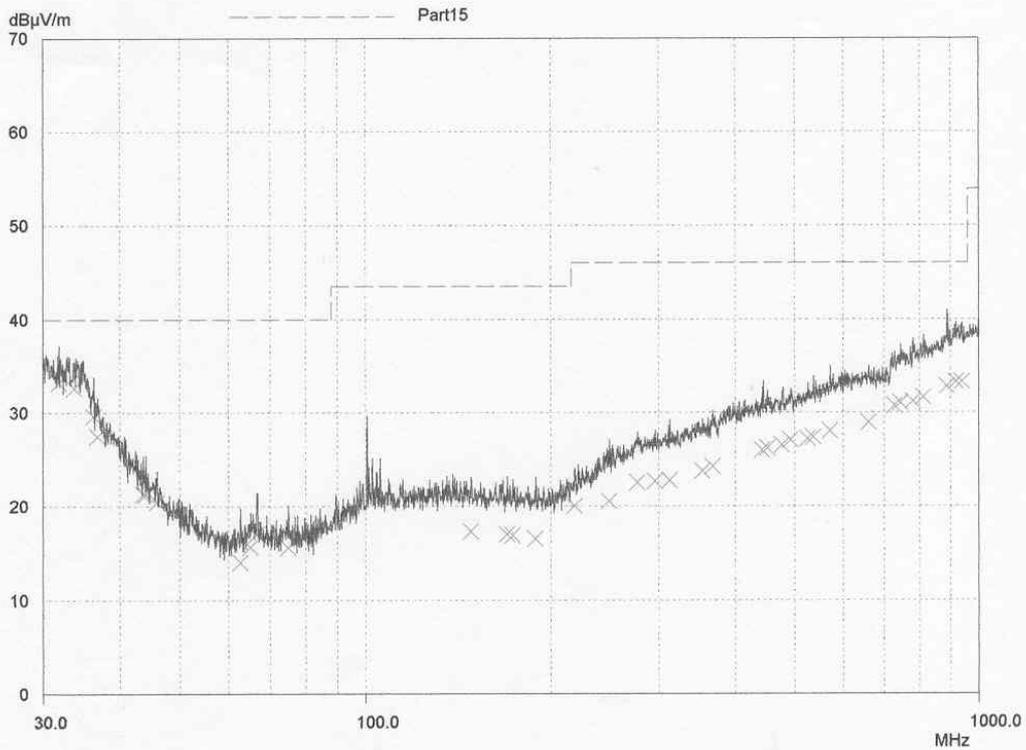
20 Jun 2006 09:16

EUT: Handset
 Manuf: Panasonic
 Op Cond: Prescan 30MHz - 1000MHz
 Operator: S hodgkinson
 Test Spec: Part15
 Comment: Handset on permanent Tx Chan 46 selected, Ant 1 selected
 Rx antenna Vertical.

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

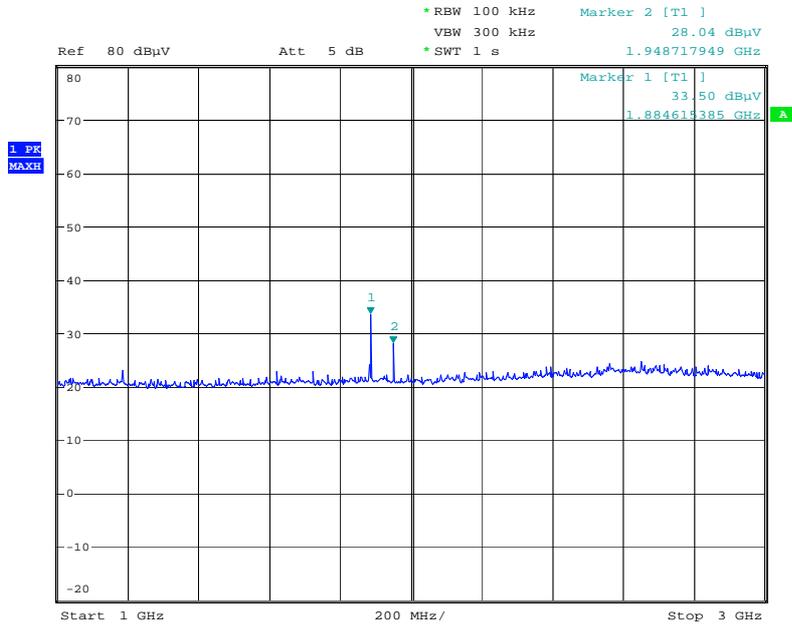
Transducer	No.	Start	Stop	Name
1	21	30MHz	1000MHz	UH72
	22	30MHz	1000MHz	UH93

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



Channel 46 Antenna 1

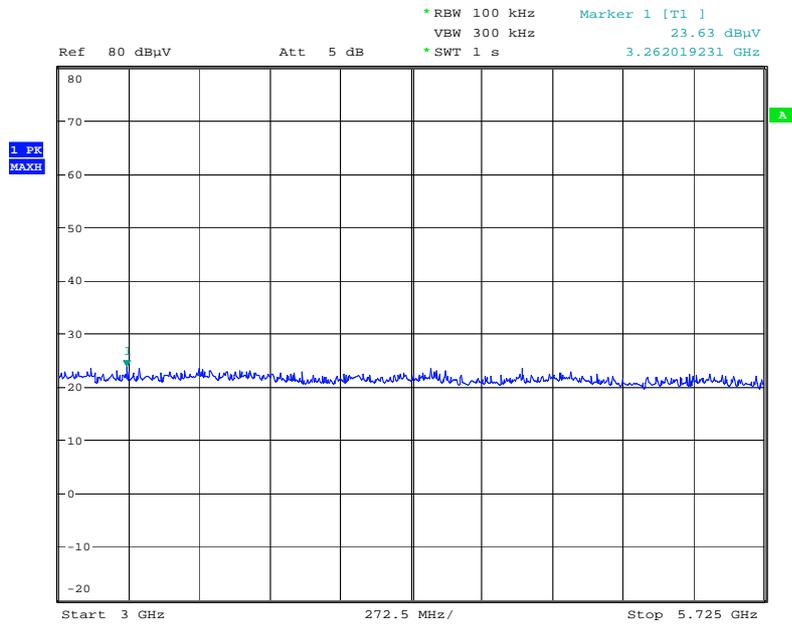
1 GHz – 3 GHz



Date: 19.JUN.2006 12:36:52

Channel 46 Antenna 1

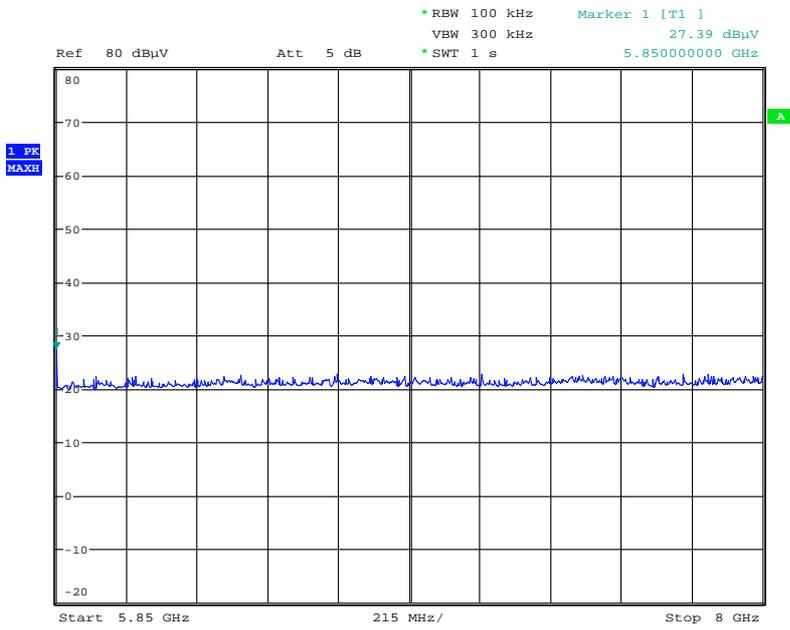
3 GHz – 5.725 GHz



Date: 19.JUN.2006 12:39:17

Channel 46 Antenna 1

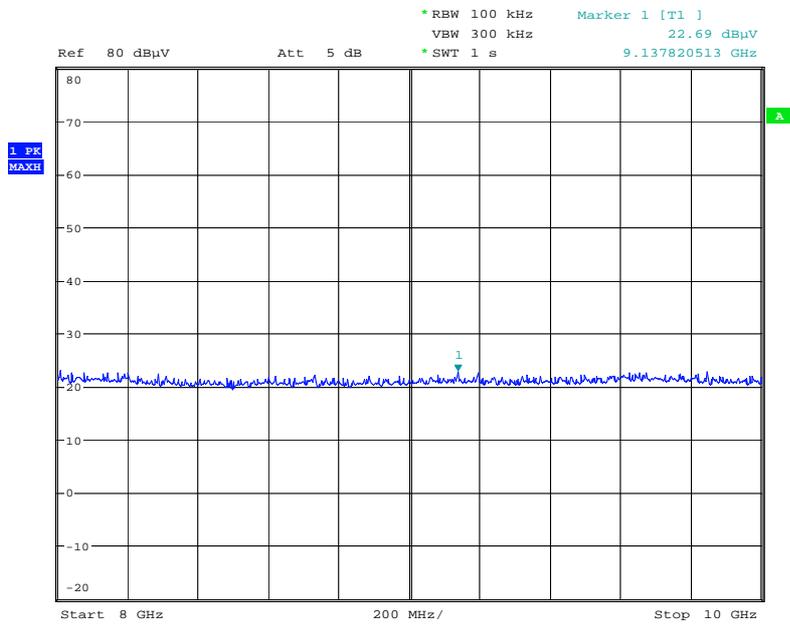
5.850 GHz – 8 GHz



Date: 19.JUN.2006 12:59:43

Channel 46 Antenna 1

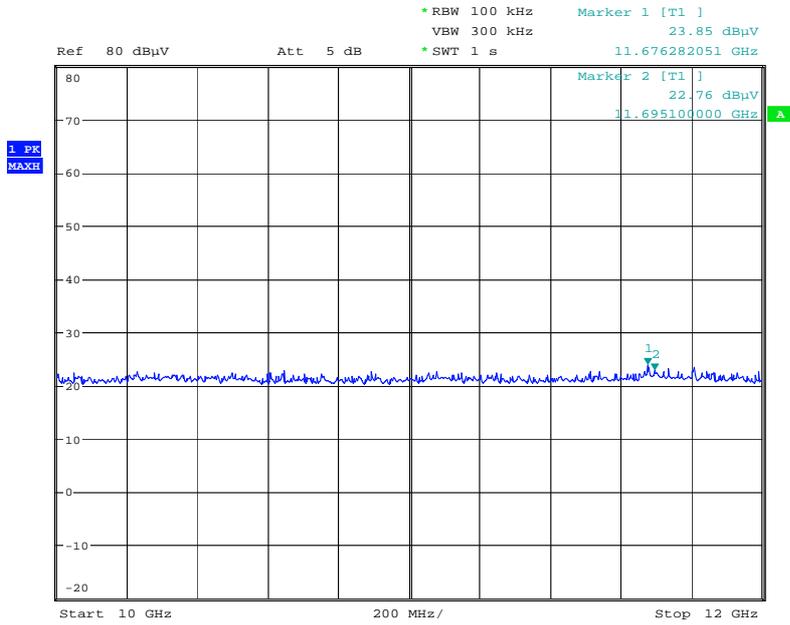
8 GHz – 10 GHz



Date: 19.JUN.2006 13:03:42

Channel 46 Antenna 1

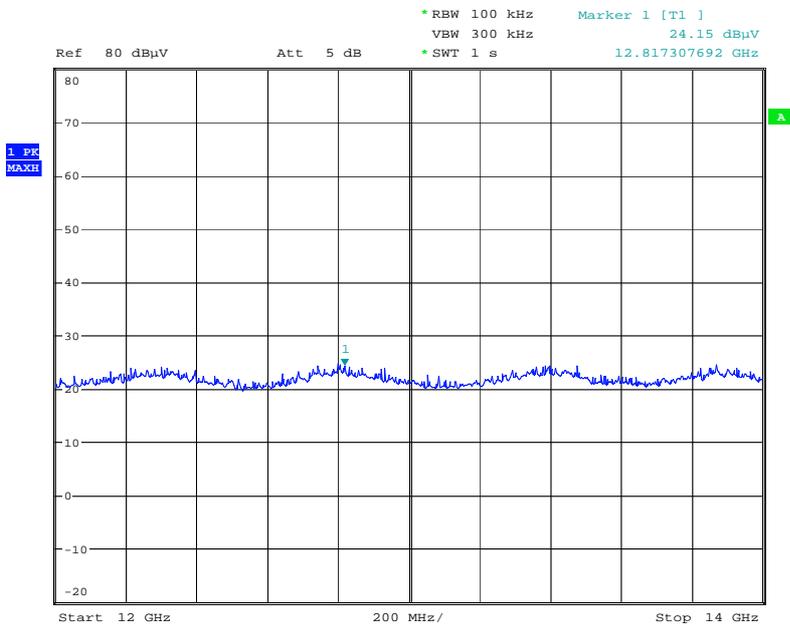
10 GHz – 12 GHz



Date: 19.JUN.2006 13:08:08

Channel 46 Antenna 1

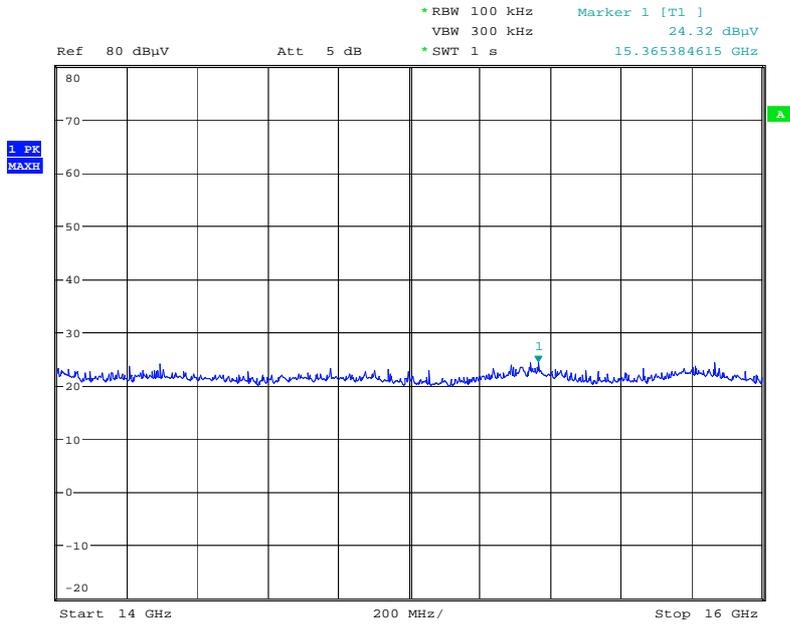
12 GHz – 14 GHz



Date: 19.JUN.2006 13:09:06

Channel 46 Antenna 1

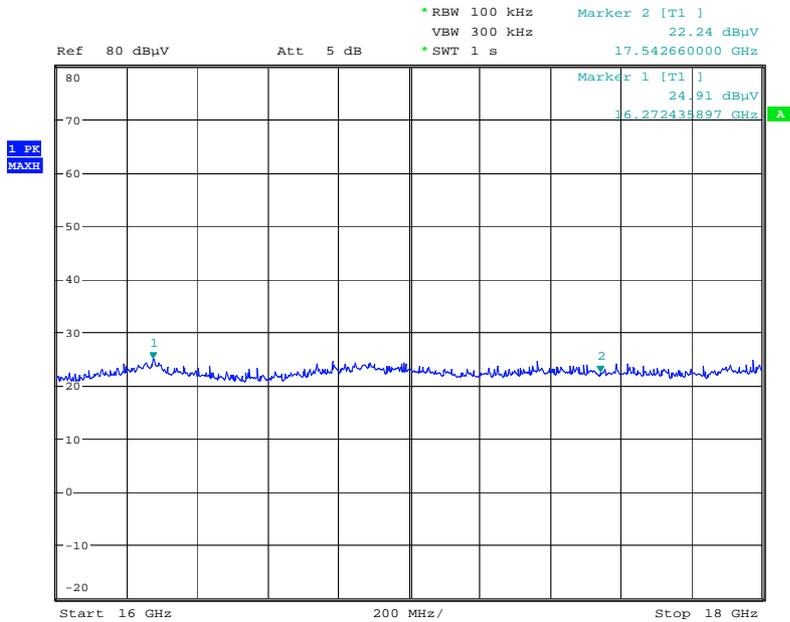
14 GHz – 16 GHz



Date: 19.JUN.2006 13:09:57

Channel 46 Antenna 1

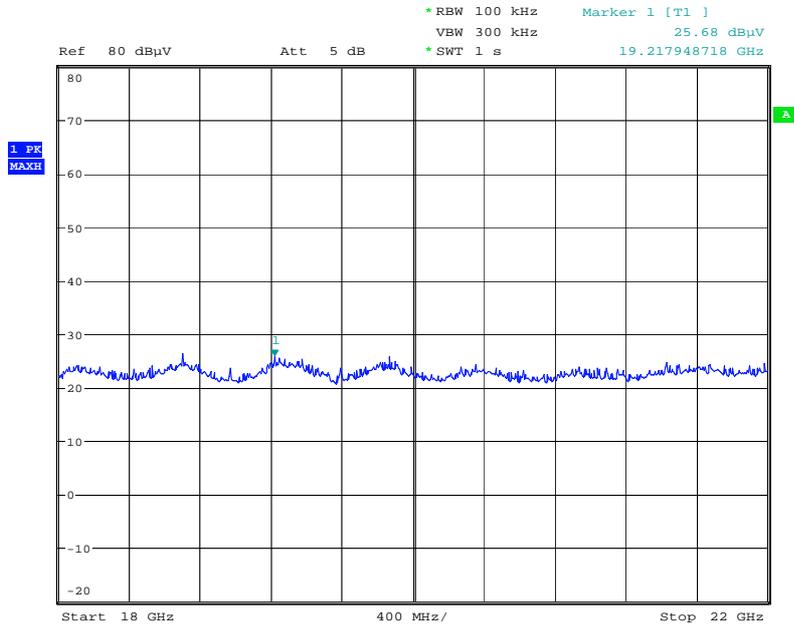
16 GHz – 18 GHz



Date: 19.JUN.2006 13:11:35

Channel 46 Antenna 1

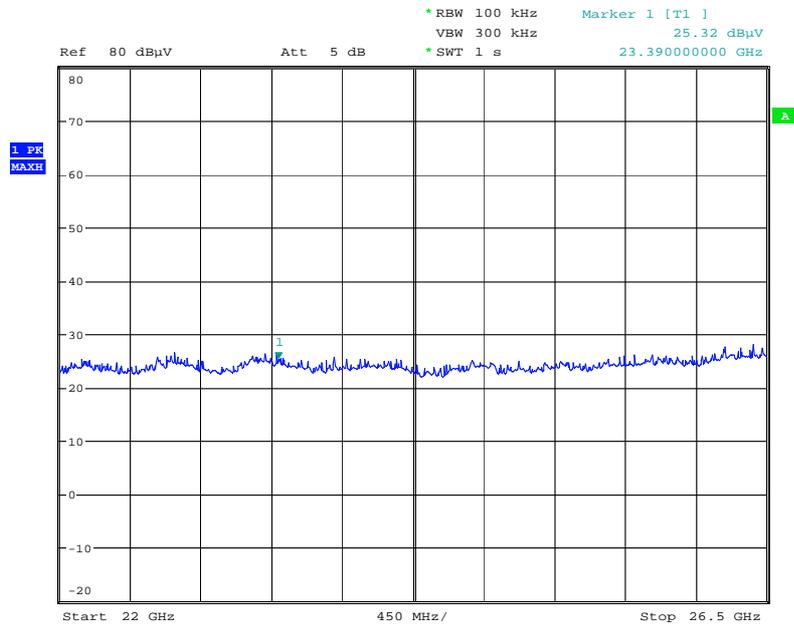
18 GHz– 22 GHz



Date: 20.JUN.2006 15:35:18

Channel 46 Antenna 1

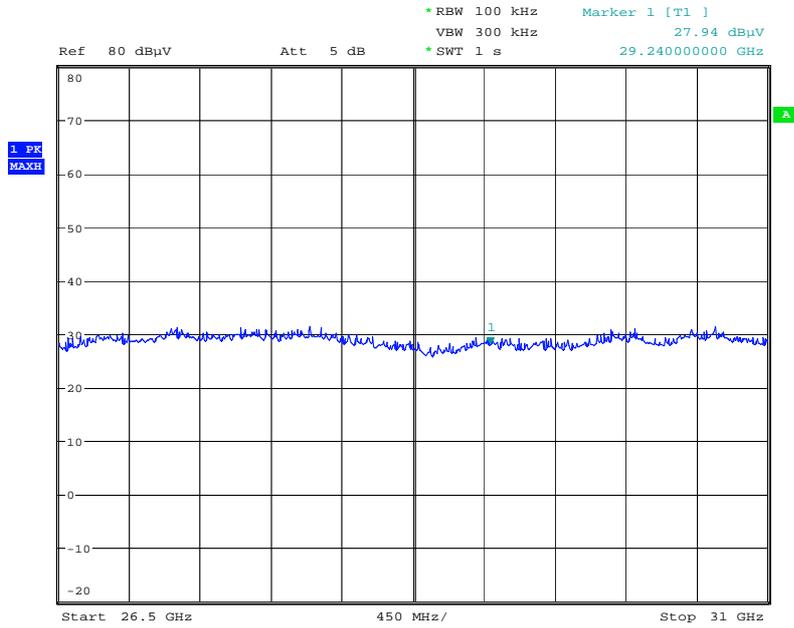
22 GHz – 26.5 GHz



Date: 20.JUN.2006 15:36:12

Channel 46 Antenna 1

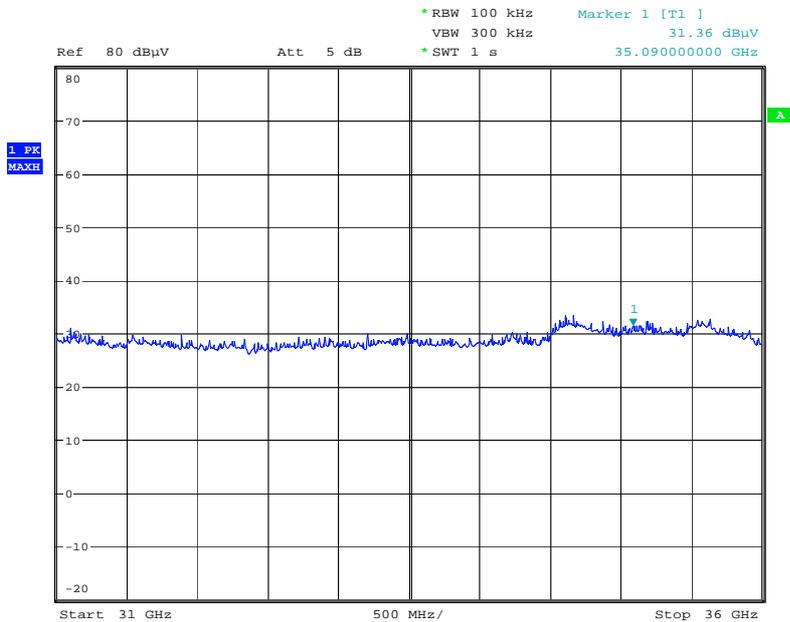
26.5 GHz – 31 GHz



Date: 20.JUN.2006 17:01:37

Channel 46 Antenna 1

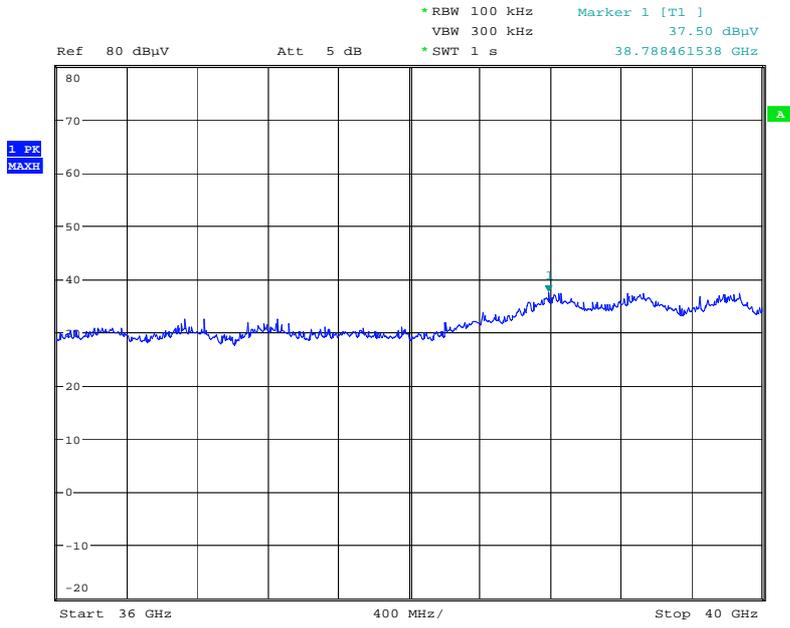
31GHz – 36 GHz



Date: 20.JUN.2006 17:02:21

Channel 46 Antenna 1

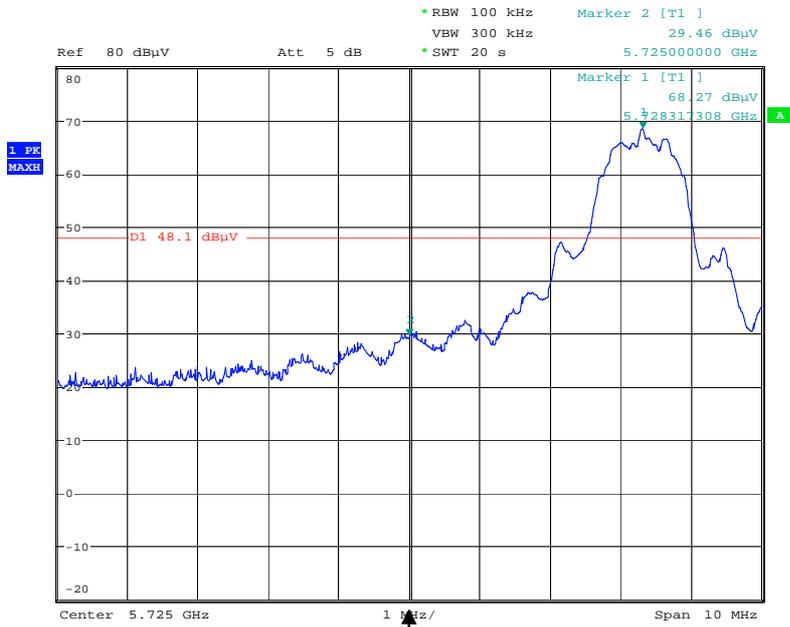
36 GHz – 40 GHz



Date: 20.JUN.2006 17:02:53

ANNEX F
SPURIOUS EMISSIONS RADIATED (BAND EDGE)

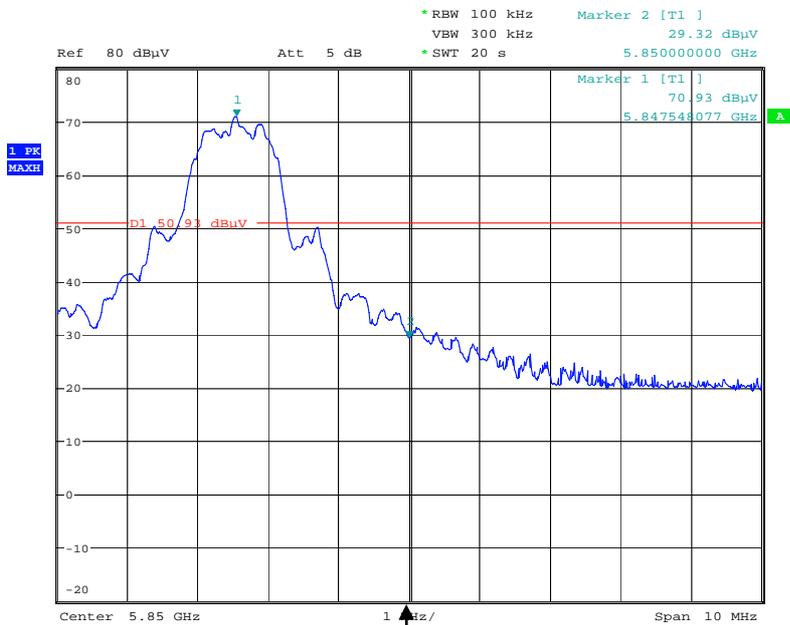
Lower Band Edge



Date: 19.JUN.2006 11:46:38

Bandedge

Upper Band Edge



Date: 19.JUN.2006 13:14:35

Bandedge

ANNEX G
AC POWER LINE CONDUCTION

Powerline Conduction

20 Jun 2006 12:17

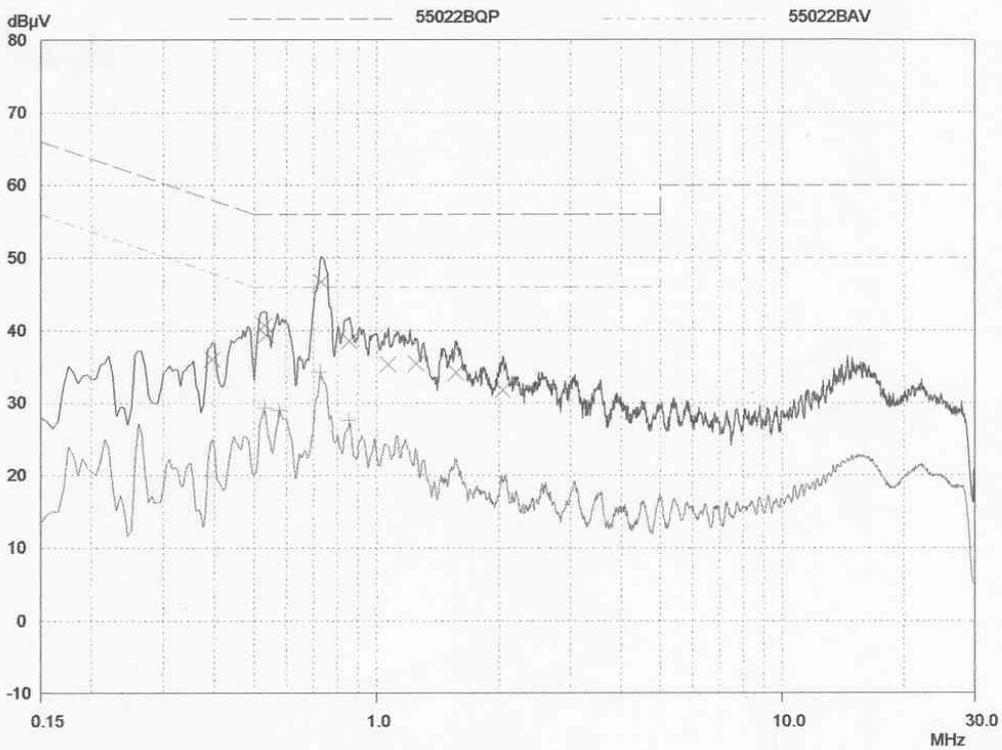
150kHz - 30MHz

EUT: Handset
 Manuf: Panasonic
 Op Cond: LISN UH05, cable UH21 & Receiver UH187
 Operator: D Winstanley
 Test Spec: Part 15
 Comment: Live Line, 110Vac, 60Hz, EUT in cradle charging battery
 EUT transmitting simulating ringing tone comms with base unit

Scan Settings				Receiver Settings				
(1 Range)								
Frequencies		Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
Start	Stop							
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



ANNEX H
RECEIVER SPURIOUS EMISSIONS RADIATED

TRL Compliance Services Ltd
E-Field Radiation (30MHz-1GHz)

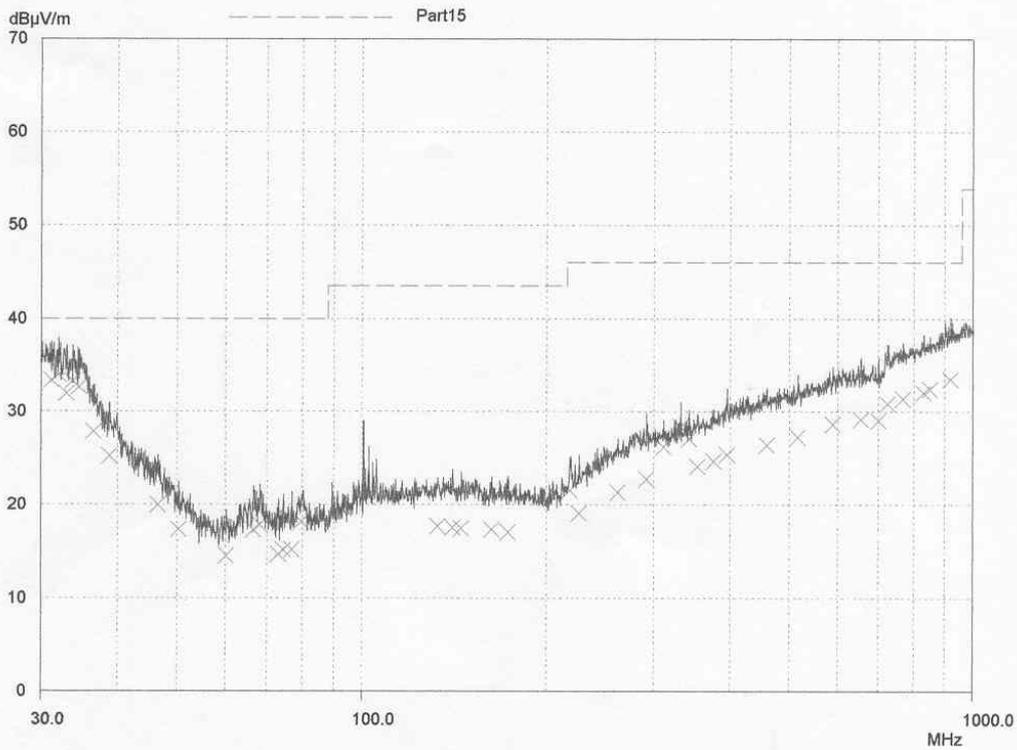
20 Jun 2006 09:38

EUT: Handset
 Manuf: Panasonic
 Op Cond: Prescan 30MHz - 1000MHz
 Operator: S hodgkinson
 Test Spec: Part15
 Comment: Handset in Rx mode Chan 46 selected, Ant 1 selected
 Rx antenna Vertical.

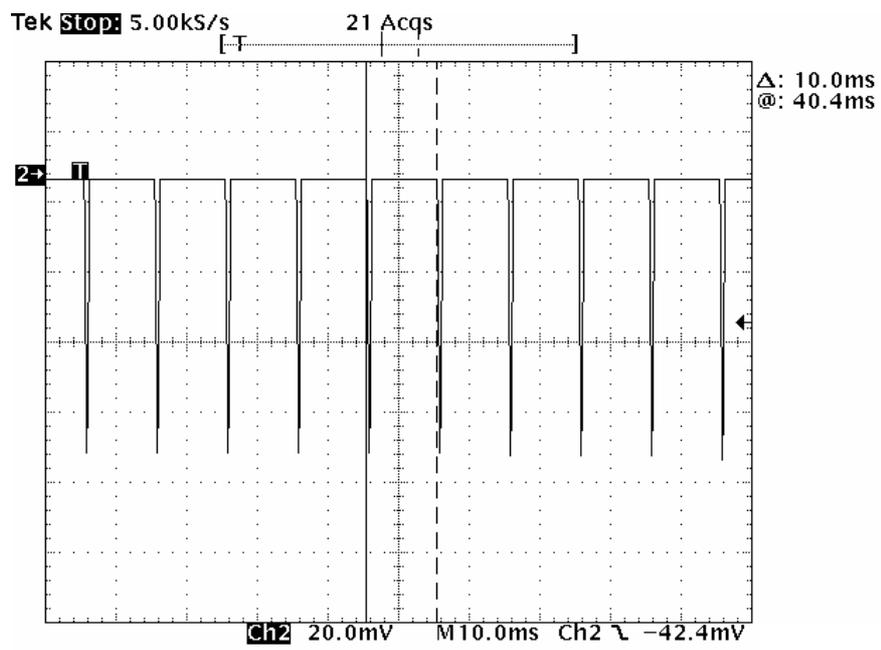
Scan Settings (1 Range)				Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
30MHz	1000MHz	50kHz	120kHz	PK	1msec	Auto	ON
OpRge							
60dB							

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

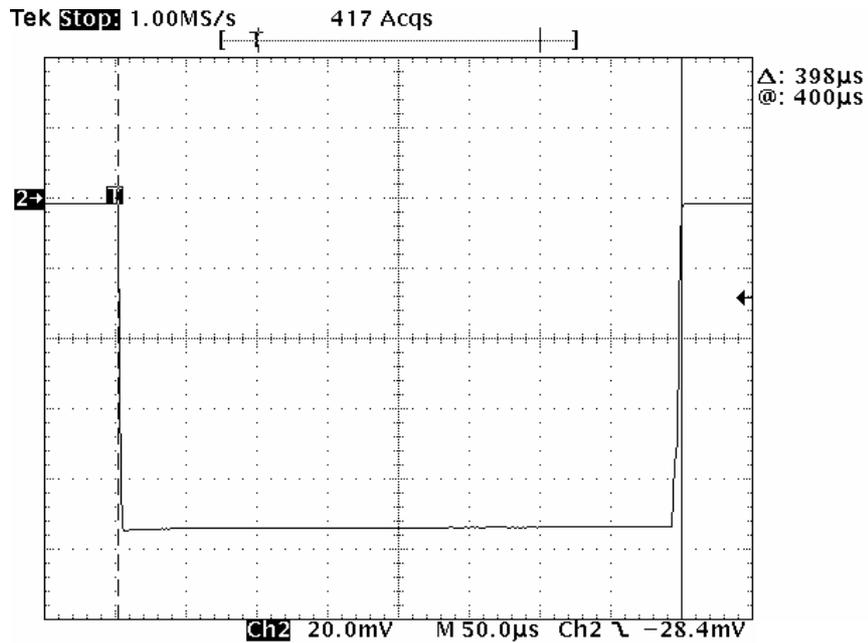
Final Measurement: Detector: X QP
 Meas Time: 2sec
 Subranges: 50
 Acc Margin: 10 dB



ANNEX I
DUTY CYCLE



Number of times on during a 100ms period = 10



Time of one transmission (Ton) = 398µs

Duty Cycle correction

Correction Factor = $10 \text{ Log}_{10} (\text{Ton}/100\text{ms})$

Correction Factor = $10 \text{ Log}_{10} (398\mu\text{s} / 100\text{ms})$

Correction Factor = $10 \text{ Log}_{10} 0.00398$

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**