TEST REPORT NO: RU1136/5796

COPY NO: 2

ISSUE NO: 1

FCC ID: NE0-50-0780-BDA

REPORT ON THE CERTIFICATION TESTING OF A
Aerial Facilities Limited
Cell Enhancer (NE0-50-0780-BDA)
WITH RESPECT TO
THE FCC RULES CFR 47, PART 90 Subpart S
PRIVATE LAND MOBILE REPEATER

TEST DATE: 22nd September 2004 – 23rd September 2004

TESTED BY: JOHN CHARTERS — P.P. D WINSTANLEY

APPROVED BY: Peter Green — P GREEN
PRODUCT MANAGER
EMC

DATE: 11th October 2004

Distribution:

Copy Nos:
1. Aerial Facilities Limited
2. TCB: TRL Compliance Services Limited
3. TRL EMC

TRL COMPLIANCE SERVICES LTD EMC DIVISION
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E-MAIL test@trlcompliance.com www.trlcompliance.com

FS 21805

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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.

CERTIFICATE OF CONFORMITY & COMPLIANCE

FCC IDENTITY:	NE0-50-0780-BDA
PURPOSE OF TEST:	CERTIFICATION
TEST SPECIFICATION:	FCC RULES CFR 47, Part 90 Subpart S
TEST RESULT:	Compliant to Specification
EQUIPMENT UNDER TEST:	Cell Enhancer
EQUIPMENT TYPE:	Private Land Mobile Repeater
MAXIMIUM GAIN	41.5 dB
MAXIMUM INPUT	Uplink -8.03 dBm, Downlink -7.63 dBm
MAXIMUM OUTPUT	Uplink 33.49 dBm, Downlink 33 dBm
ANTENNA TYPE:	Not applicable
CHANNEL SPACING:	Not applicable, wideband
NUMBER OF CHANNELS:	Not applicable, wideband
FREQUENCY GENERATION:	N/A
MODULATION TYPE:	F3E
POWER SOURCE(s):	+24 Vdc
TEST DATE(s):	22nd September 2004 – 23rd September 2004
ORDER No(s):	26773
APPLICANT:	Aerial Facilities Limited
ADDRESS:	Aerial House Latimer Park, Latimer Chesham Buckinghamshire HP5 1TU United Kingdom
TESTED BY:	JOHN CHARTERS Digitally signed by JOHN CHARTERS DN: cn=JOHN CHARTERS, o=TRL COMPLIANCE SERVICES, c=US Date: 2004.10.12 09:01:27 +01'00' PP D WINSTANLEY
APPROVED BY:	Peter Green Digitally signed by Peter Green DN: cn=Peter Green, o=TRL Compliance Services, c=GB Date: 2004.10.12 10:59:53 Z P GREEN PRODUCT MANAGER EMC

APPLICANT'S SUMMARY

EQUIPMENT UNDER TEST (EUT):	Cell Enhancer
EQUIPMENT TYPE:	Private Land Mobile Repeater
PURPOSE OF TEST:	CERTIFICATION
TEST SPECIFICATION(s):	FCC RULES CFR 47, Part 90 Subpart S
TEST RESULT:	COMPLIANT Yes [X] No [ ]
APPLICANT'S CATEGORY:	MANUFACTURER [X] IMPORTER [ ] DISTRIBUTOR [ ] TEST HOUSE [ ] AGENT [ ]
APPLICANT'S ORDER No(s):	26773
APPLICANT'S CONTACT PERSON(s):	Mr Peter Bradfield
E-mail address:	Peterb@aerial.co.uk
APPLICANT:	Aerial Facilities Limited
ADDRESS:	Aerial House Latimer Park, Latimer Chesham Buckinghamshire HP5 1TU United Kingdom
TEL:	+44 (0)1494777020
FAX:	+44 (0)1494777002
MANUFACTURER:	Aerial Facilities Limited
EUT(s) COUNTRY OF ORIGIN:	United Kingdom
TEST LABORATORY:	TRL EMC
UKAS ACCREDITATION No:	0728
TEST DATE(s)	22nd September 2004 – 23rd September 2004
TEST REPORT No:	RU1136/5796

EQUIPMENT TEST / EXAMINATIONS REQUIRED

1.

TEST/EXAMINATION	RULE PART	APPLICABILITY	RESULT
RF Power Output	90.205	Yes	Complies
Audio Frequency Response	TIA EIA-603.3.2.6	N/A	N/A
Audio Low-Pass Filter Response	TIA EIA-603.3.2.6	N/A	N/A
Modulation Limiting	TIA EIA-603.3.2.6	N/A	N/A
Occupied Bandwidth	90.210	Yes	Complies
Spurious Emissions at Antenna Terminals	90.210	Yes	Complies
Field Strength of Spurious Emissions	90.210	Yes	Complies
Frequency Stability	90.213	N/A(note 1)	N/A
Transient behaviour	90.214	N/A(note 2)	N/A

Notes:
1 The EUT does not contain signal generation circuitry, therefore the test was not performed.
2 The EUT is not a keyed carrier system, therefore the test was not performed.

2. Product Use: Private Land Mobile Repeater

3. Emission Designator: F3E

4. Temperatures: Ambient (Tnom) 26°C

5. Supply Voltages: Vnom +24 Vdc

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

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

7. Channel spacing:
   Narrowband [ ]
   Wideband [X]

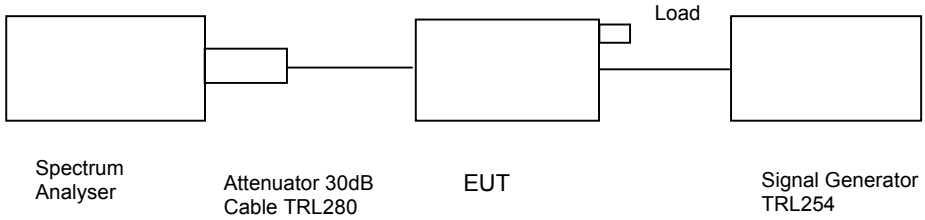
8. Test Location TRL Compliance Services
   Up Holland [X]
   Long Green [ ]

9. Modifications made during test program No modifications were performed.

COMPLIANCE TESTS

AMPLIFIER GAIN – CONDUCTED – PART 2.1046 – UPLINK

Ambient temperature	=	20°C	Radio Laboratory
Relative humidity	=	59%	
Supply voltage	=	+24 Vdc	
Channel number	=	See test results	



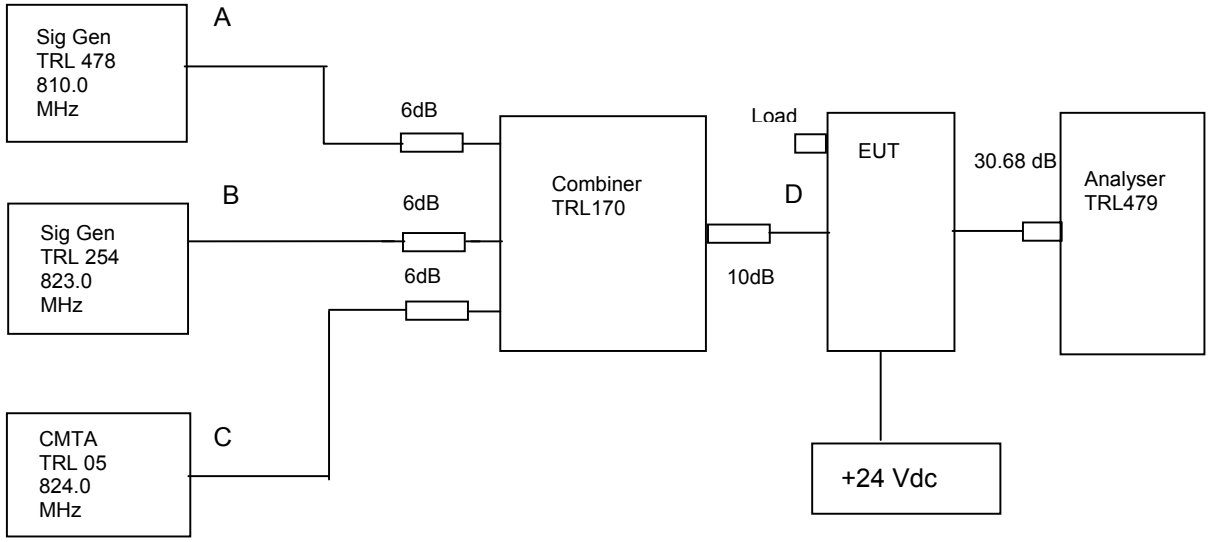
Frequency MHz	Signal Generator input level dBm	Cable & Attenuator loss dB	Level at Spectrum Analyser dBm	Gain dB	Gain after 20dB input level increase dBm
810.0 MHz	-9.13	30.68	1.13	40.94	20.97
817.0 MHz	-8.03	30.68	2.81	41.52	21.52
824.0 MHz	-8.13	30.68	1.79	40.60	21.10

Notes:
1. The level of the signal generator takes into consideration the loss from the cable.
2. The signal generator input was increased by 20dBs and the level of the output signal remeasured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119562/021	254	**X**
50 Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

AMPLIFIER INTERMODULATION SPURIOUS EMISSIONS – CONDUCTED – PART 2.1053– UPLINK

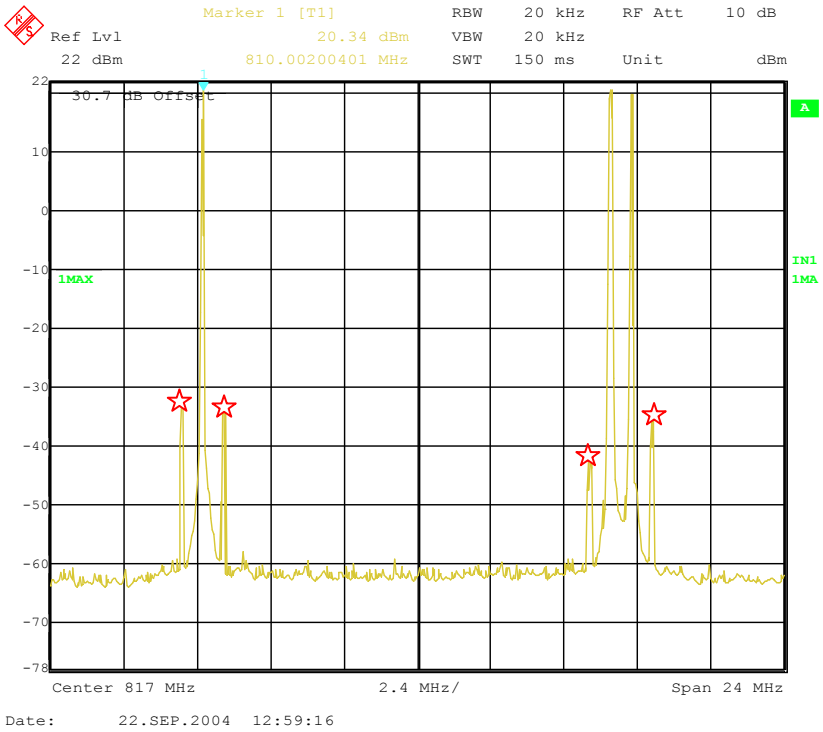
Ambient temperature	=	23°C	Radio Laboratory
Relative humidity	=	56%	
Supply voltage	=	+24 Vdc	



The intermodulation and spurious products were measured with the amplifier operating at maximum gain. A three tone test was conducted using the equipment as above. The input power level was adjusted so the level at point D was the maximum input of -8.03dBm.The cable and attenuator loss between the EUT and the spectrum analyser was 30.68dB. This loss was taken into account by adjusting the analysers level offset.

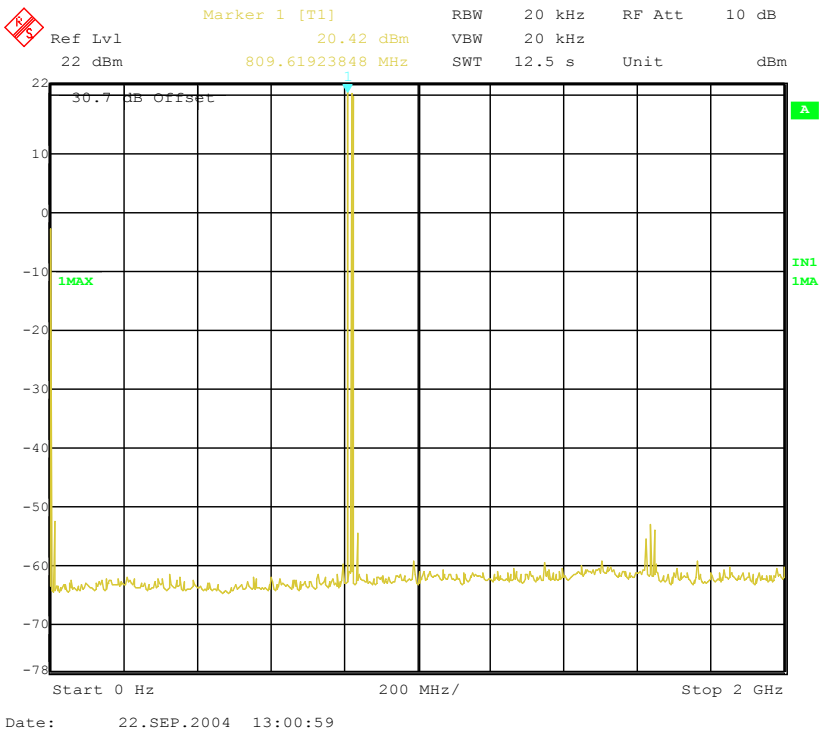
Sweep data is shown on the next page:

Intermodulation Inband



The above plot shows that all products (designated by ☆) are at least 40dB below the fundamentals.

Intermodulation Wideband



The above plot shows that there are no products outside the bands.

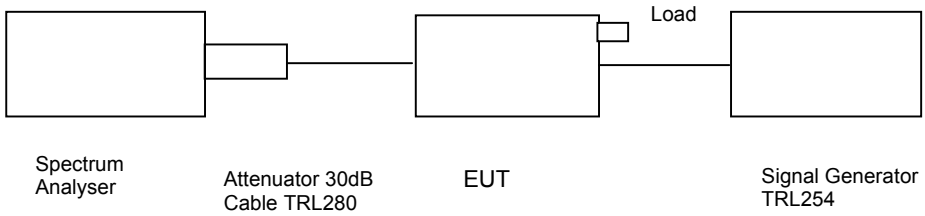
Test equipment used for intermodulation test

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
SIGNAL GENERATOR	MARCONI	2042	119562/021	254	**X**
CMTA	ROHDE & SCHWARZ	CMTA52	894715/033	05	**X**
SIGNAL GENERATOR	ROHDE & SCHWARZ	SMR 20	834671/003	478	**X**
COMBINER	ELCOM	RC-4-50	N/A	170	**X**
50 Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

TRANSMITTER TESTS

AMPLIFER MODULATED CHANNEL TEST – CONDUCTED – Part 2.1049– UPLINK

Ambient temperature	=	24°C	Radio Laboratory
Relative humidity	=	51%	
Supply voltage	=	+24 Vdc	
Channel number	=	See test results	



This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-8.5dBm) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

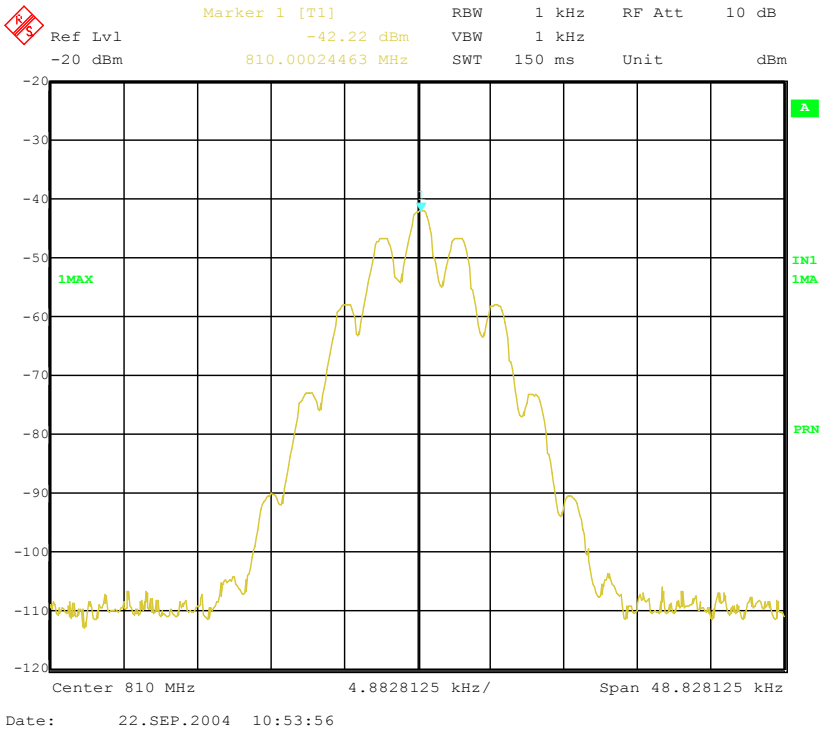
Note: The cables and attenuators had the following losses.

1. Cable TRL280 and attenuator 30dB = 30.68dB
2. Cable between signal generator and EUT 1.72dB

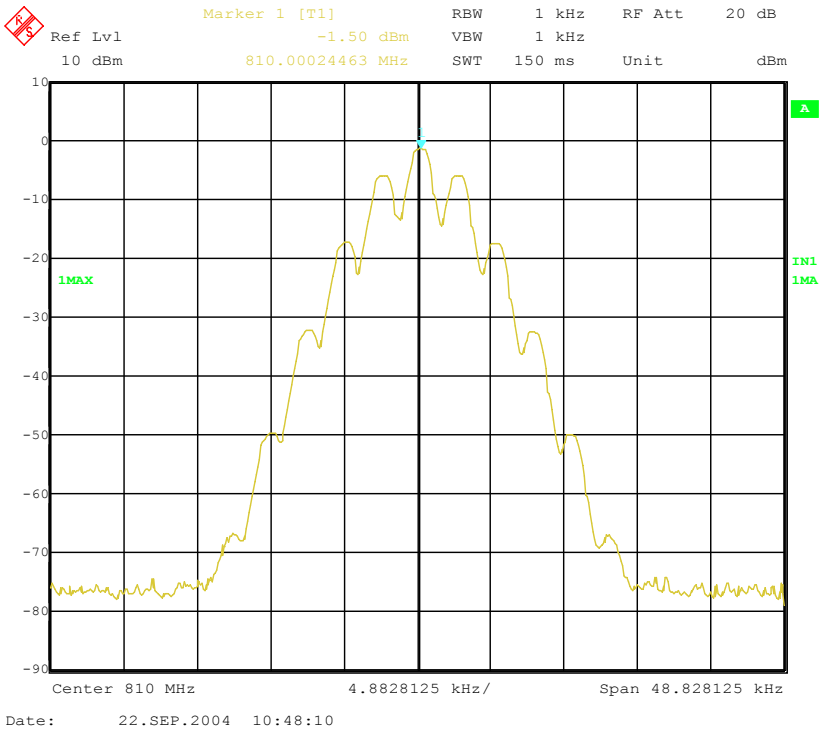
The test equipment used for the Transmitter Modulated Channel tests is shown below:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119562/021	254	**X**
50 Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

810.0 MHz Signal generator deviation set to 2.5kHz

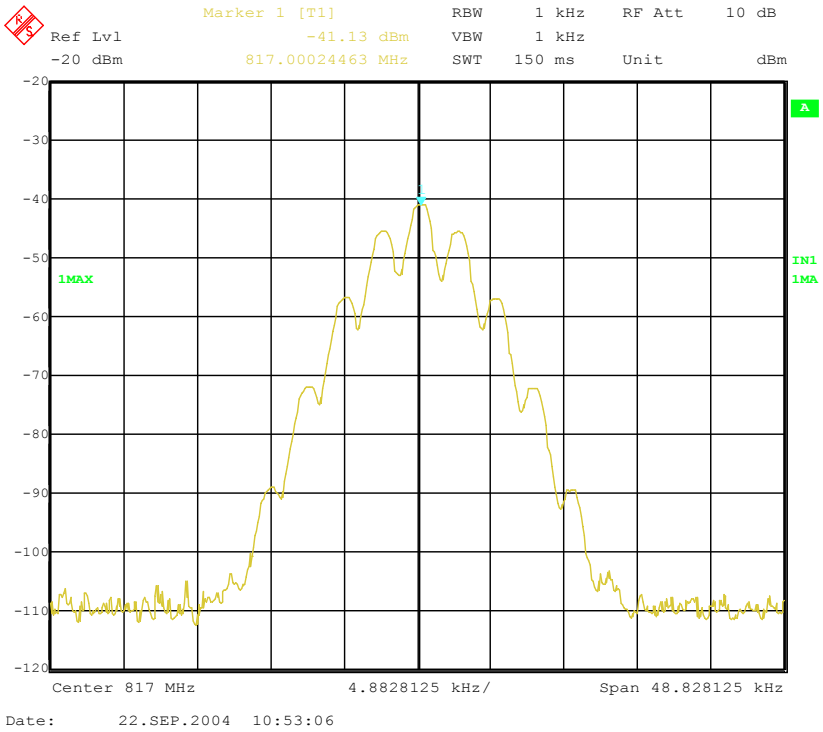


810.0 MHz Signal generator and EUT deviation set to 2.5kHz

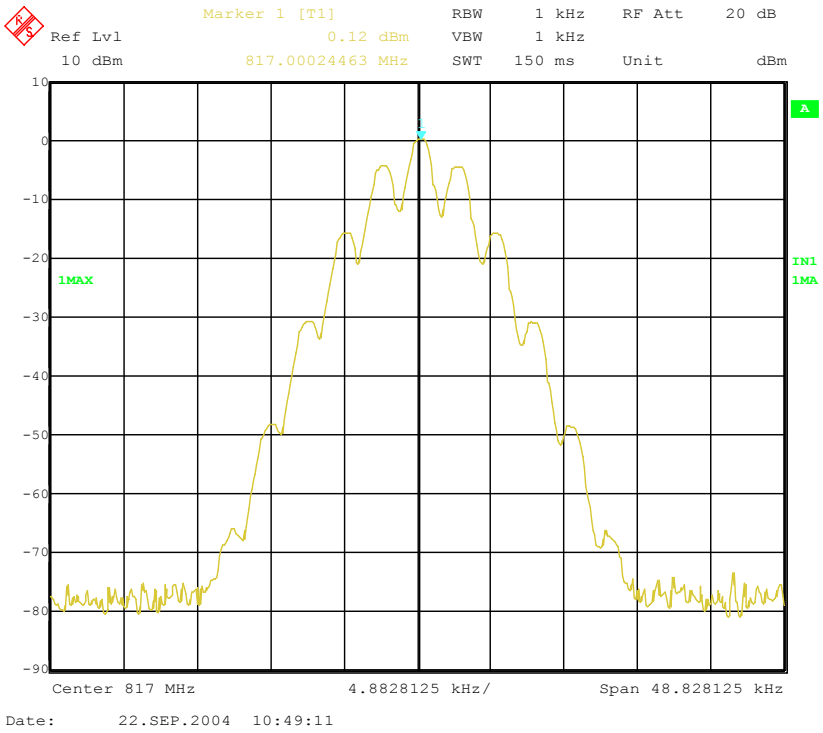


The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

817.0 MHz Signal generator deviation set to 2.5kHz

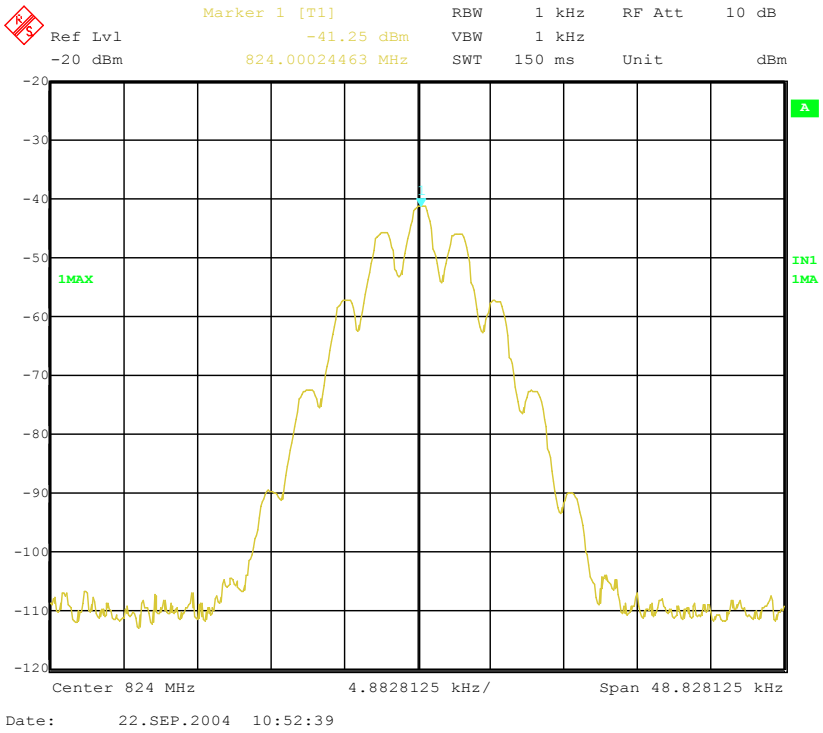


817.0 MHz Signal generator and amplifier deviation set to 2.5kHz

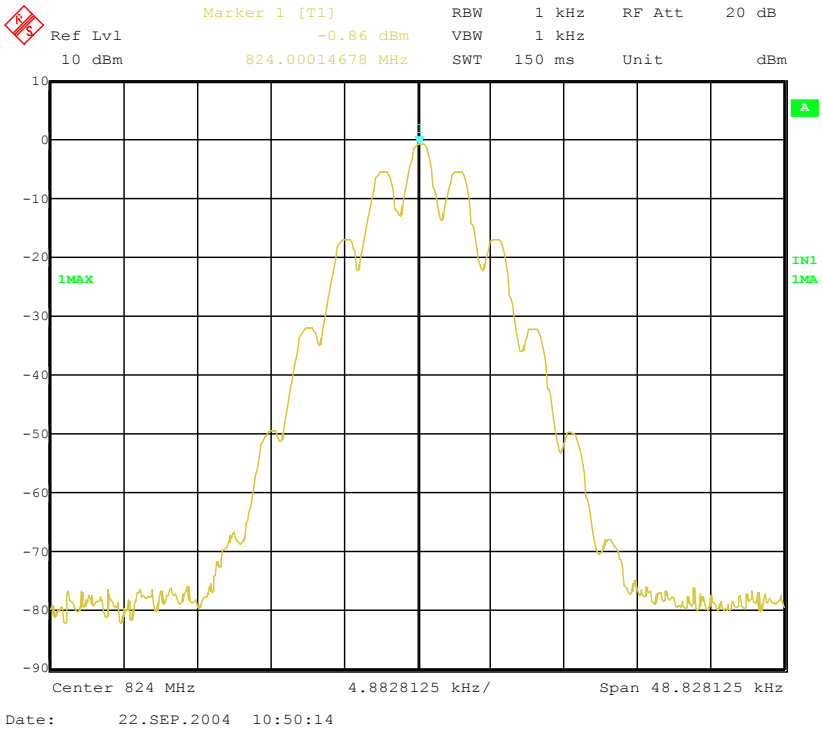


The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

824.0 MHz Signal generator deviation set to 2.5kHz



824.0 MHz Signal generator deviation set to 2.5kHz

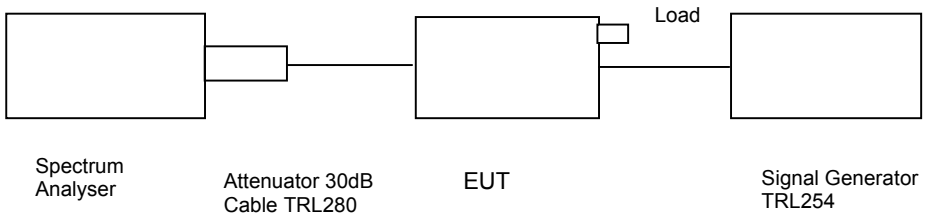


The above plots depicting the output waveshape show no measurable distortion visible. When compared to the input signal.

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – CONDUCTED – Part 2.1051– UPLINK

Ambient temperature	=	23°C	Radio Laboratory		
Relative humidity	=	51%	Test Signal	=	F3E
Supply voltage	=	+24 Vdc			



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating at maximum power and on three test frequencies.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

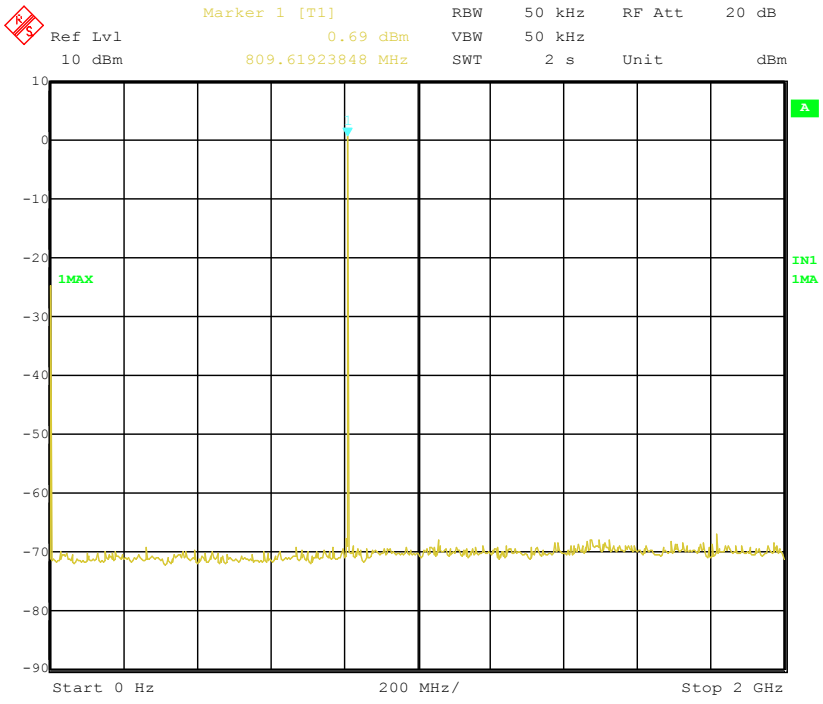
At least 43 + 10 log PdB

$(10\log P_{watts}) – (43+10\log (P_{watts} * 1000)) =$ LIMIT =-13 dBm

The test equipment used for the Transmitter Conducted Emissions:

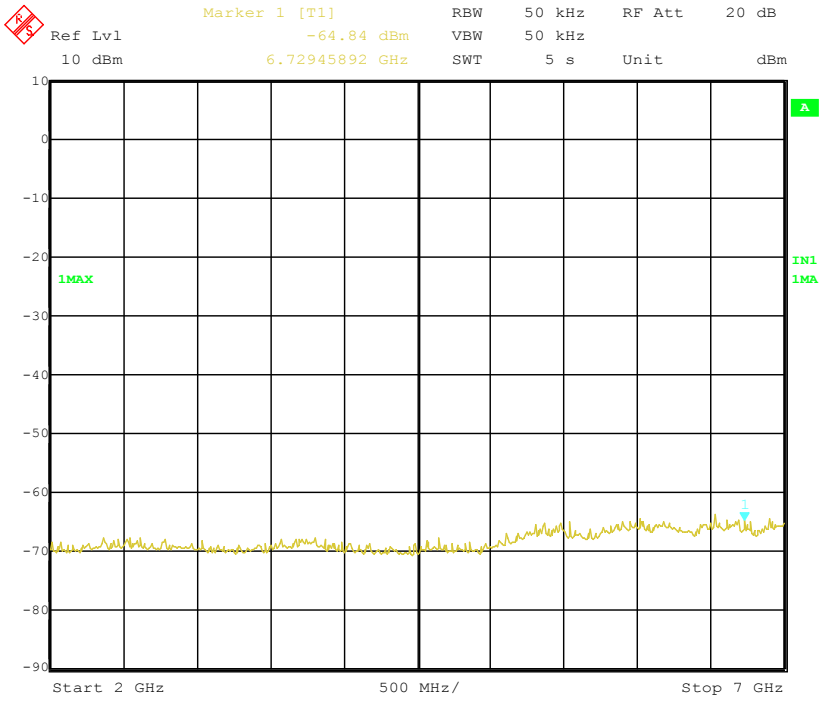
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119562/021	254	**X**
50 Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	**X**

Conducted emissions 810.0 MHz 0 - 2GHz

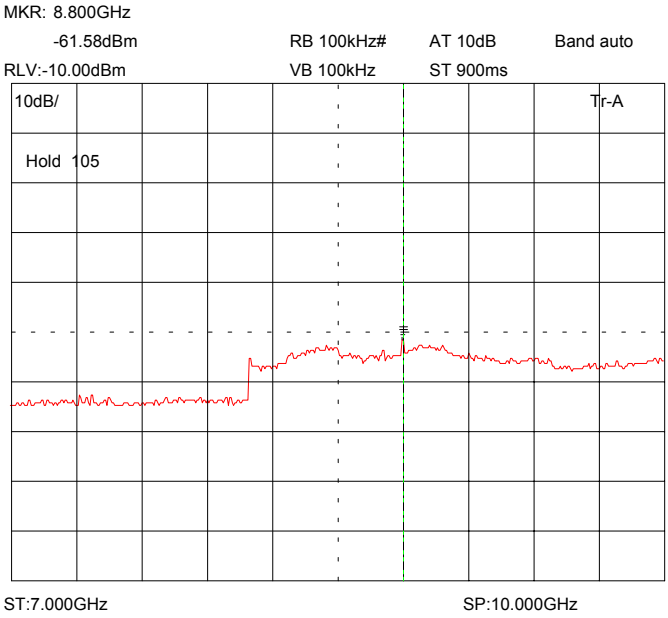


Date: 22.SEP.2004 10:59:26

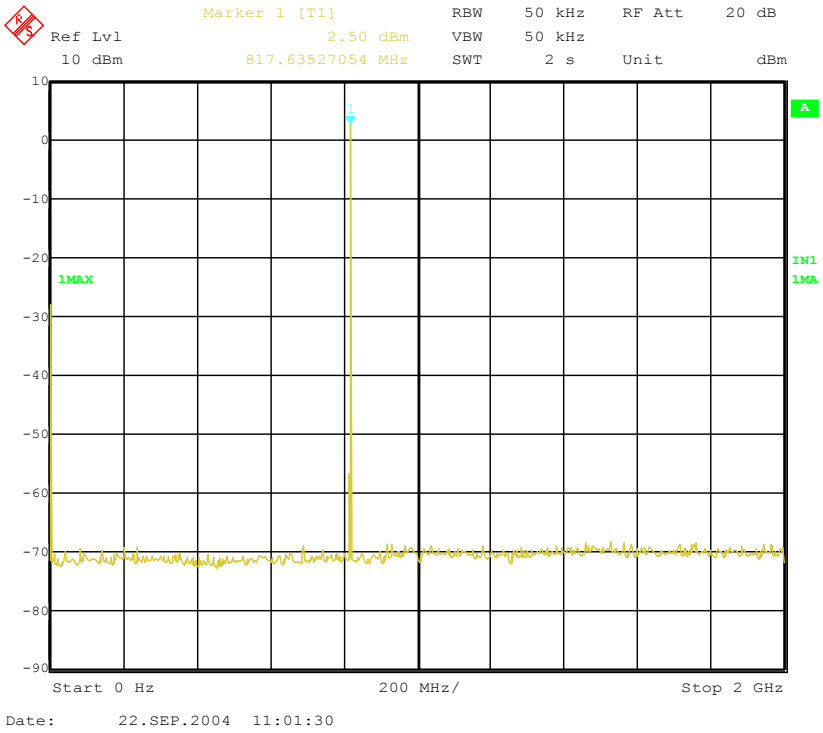
Conducted emissions 810.0 MHz 2 - 7GHz



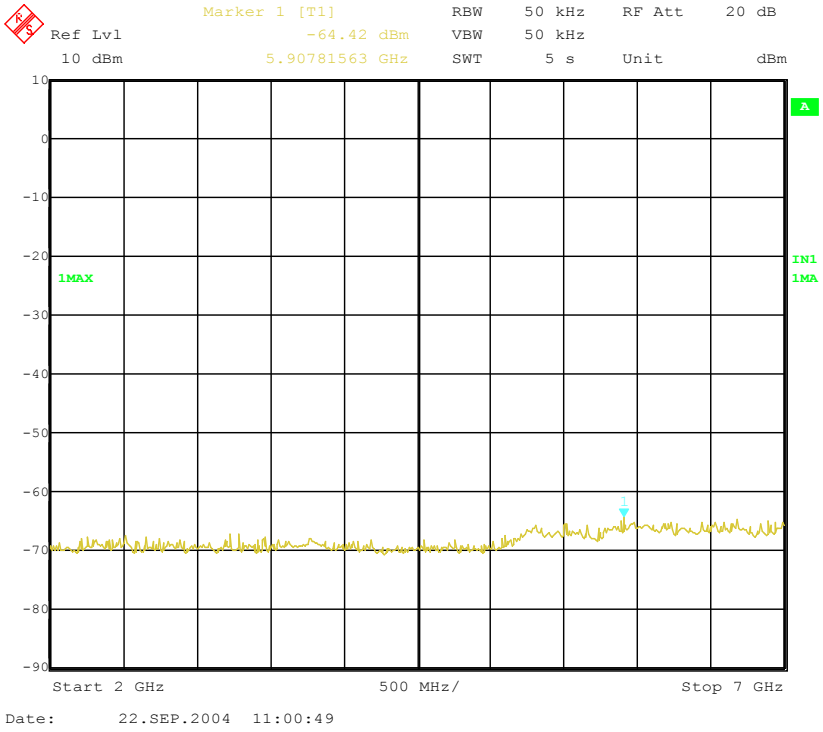
Date: 22.SEP.2004 11:00:01

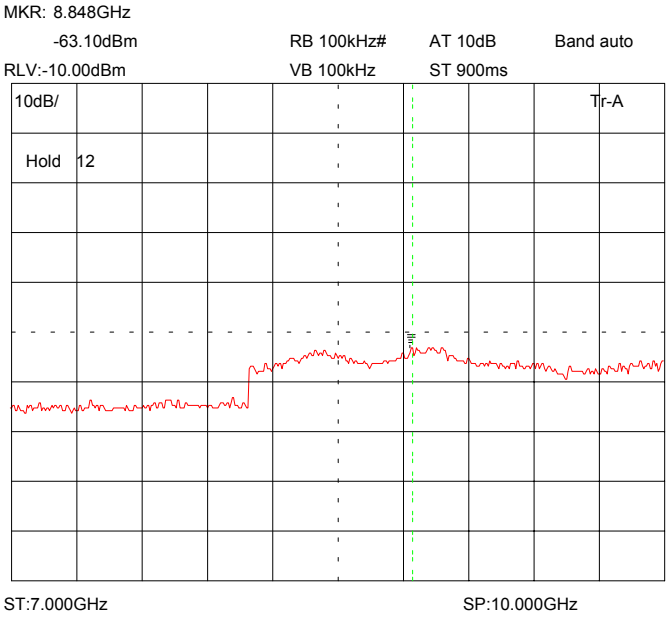

MKR: 8.800GHz
-61.58dBm
RB 100kHz#
AT 10dB
Band auto
RLV:-10.00dBm
VB 100kHz
ST 900ms
10dB/
Tr-A
Hold 105
ST:7.000GHz
SP:10.000GHz

Conducted emissions 817.0 MHz 0 - 2GHz

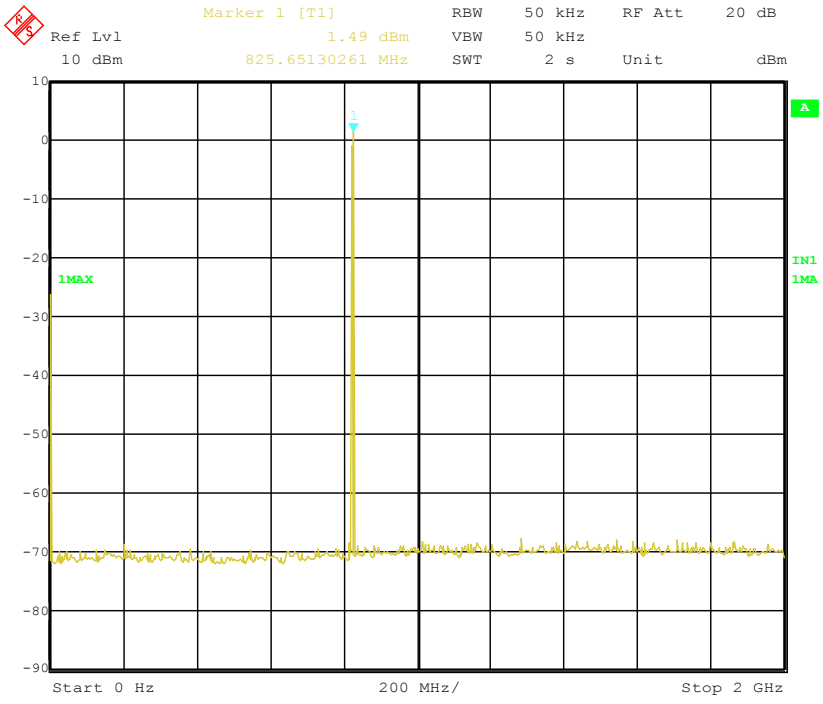


Conducted emissions 817.0 MHz 2 - 7GHz

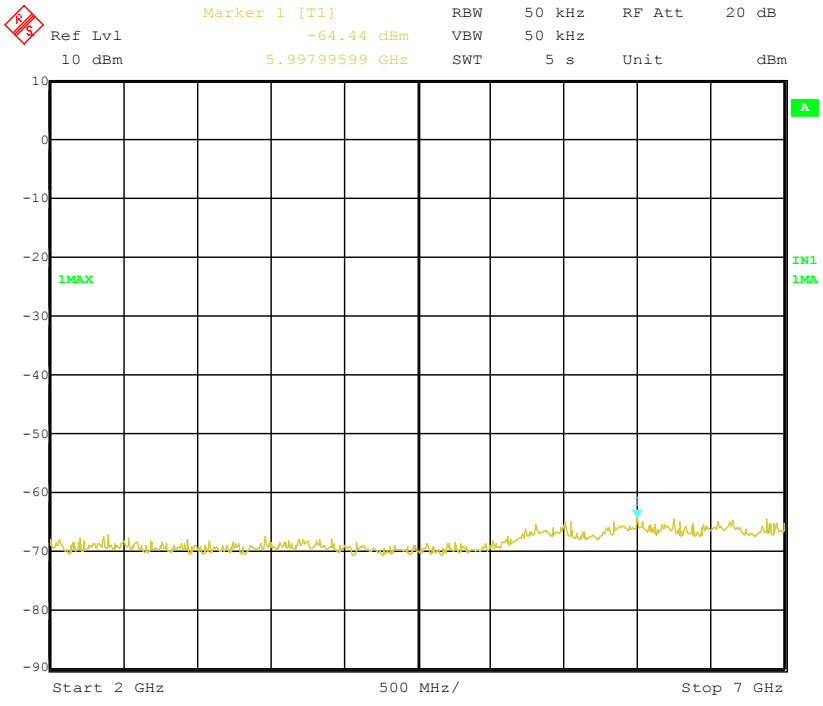


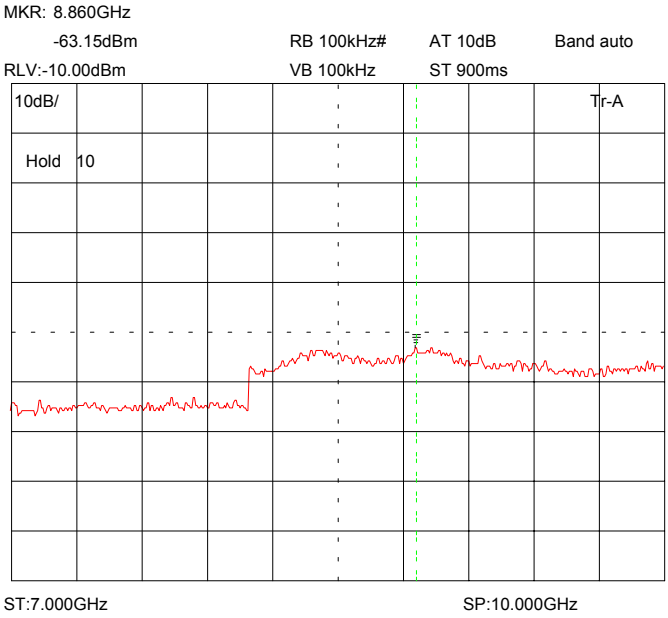

MKR: 8.848GHz
-63.10dBm
RB 100kHz#
AT 10dB
Band auto
RLV:-10.00dBm
VB 100kHz
ST 900ms
10dB/
Tr-A
Hold 12
ST:7.000GHz
SP:10.000GHz

Conducted emissions 824.0 MHz 0 - 2GHz



Conducted emissions 824.0 MHz 2 - 7GHz

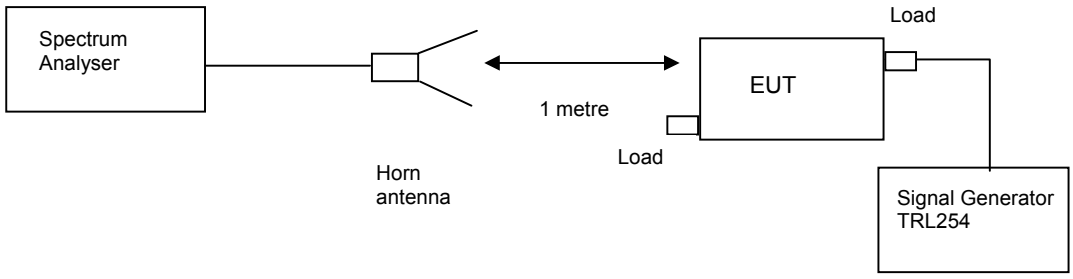



MKR: 8.860GHz
-63.15dBm
RB 100kHz#
AT 10dB
Band auto
RLV:-10.00dBm
VB 100kHz
ST 900ms
10dB/
Tr-A
Hold 10
ST:7.000GHz
SP:10.000GHz

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– UPLINK

Ambient temperature	=	26°C	Test Signal	=	F3E
Relative humidity	=	44%			
Conditions	=	OATS			
Supply voltage	=	+24 Vdc			
Supply Frequency	=	N/A			



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating maximum power on three test frequencies with a 50 ohm load on the output. The unit was also tested with the signal generator replaced by another 50ohm load.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

At least 43 + 10 log PdB

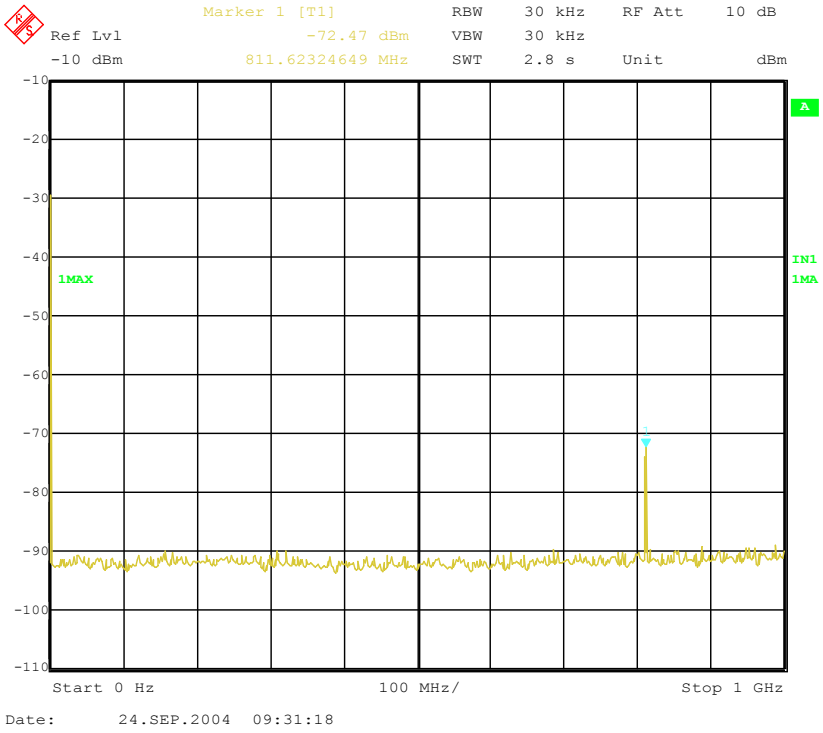
$(10\log P_{watts}) – (43+10\log (P_{watts} * 1000))$ = LIMIT =-13 dBm

The test equipment used for the Transmitter Spurious Emissions:

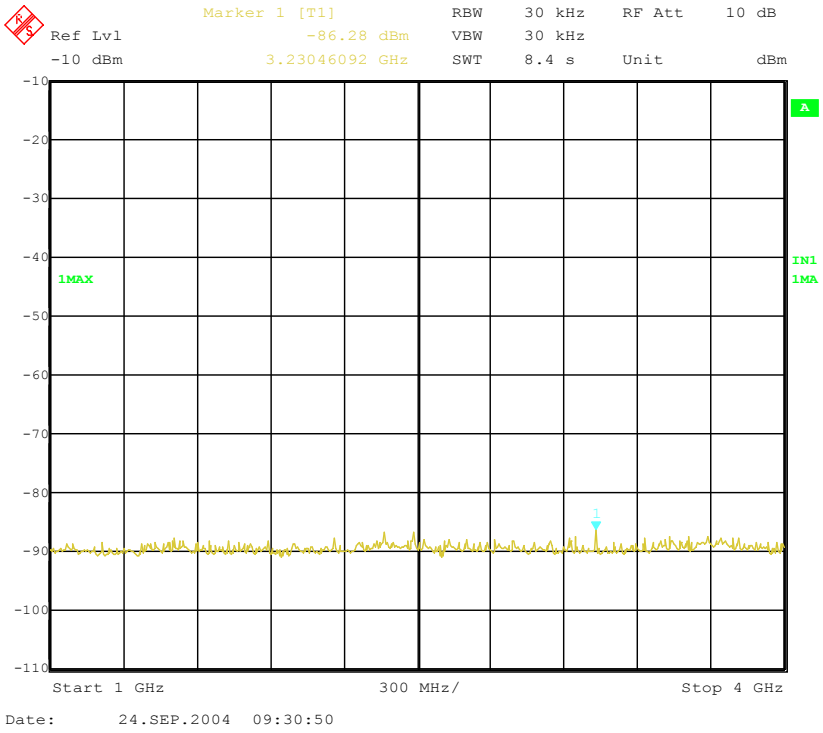
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
HORN	EMCO	3115	9010-3581	139	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119388/021	254	**X**
50Ω LOAD	PHILCO	60B-300	1643	UH139	**X**

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	**X**

Radiated emissions 810.0 MHz 0 -1 GHz

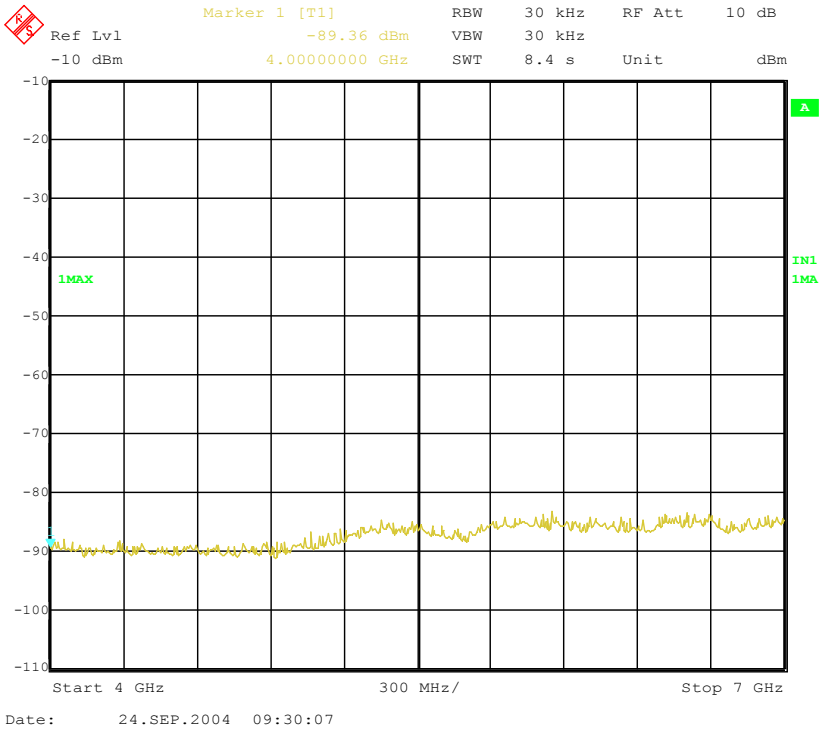


Radiated emissions 810.0 MHz 1-4GHz

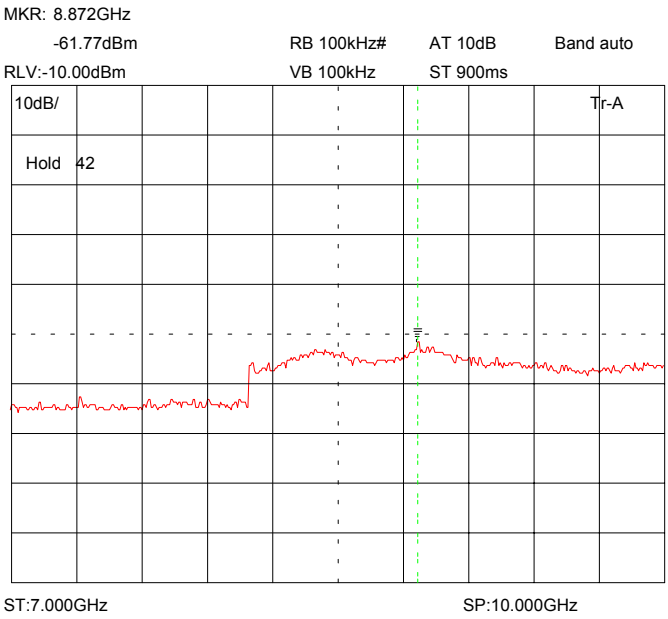


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 810.0 MHz 4-7GHz

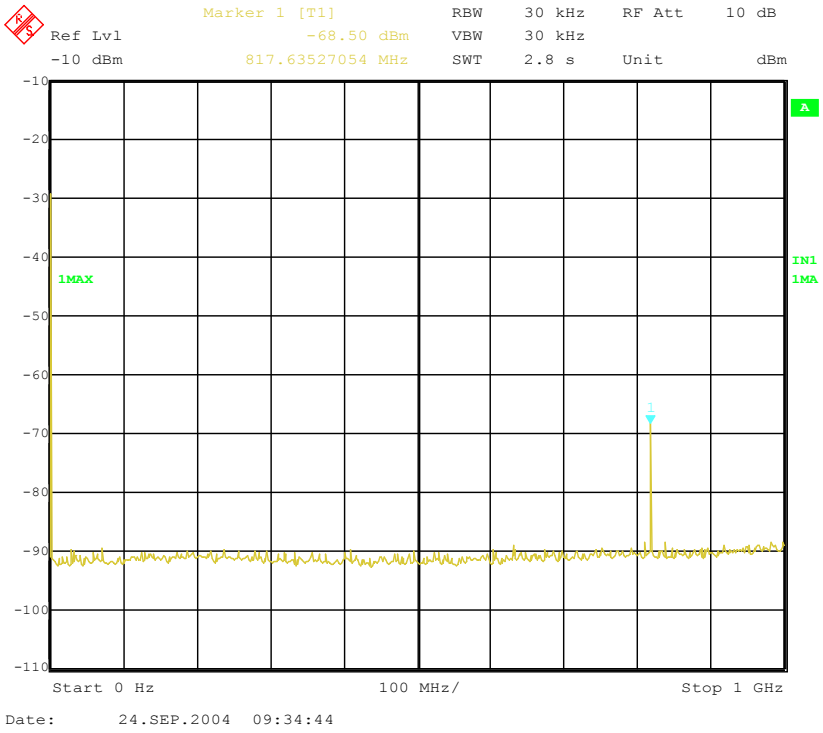


Radiated emissions 810.0 MHz 7-10GHz

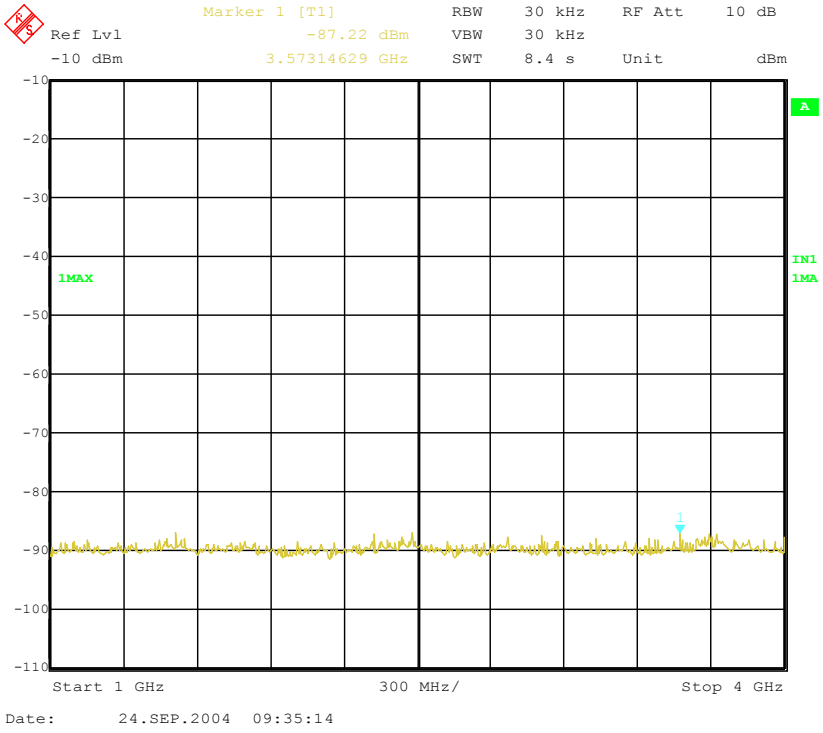


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 817.0 MHz 0 -1GHz

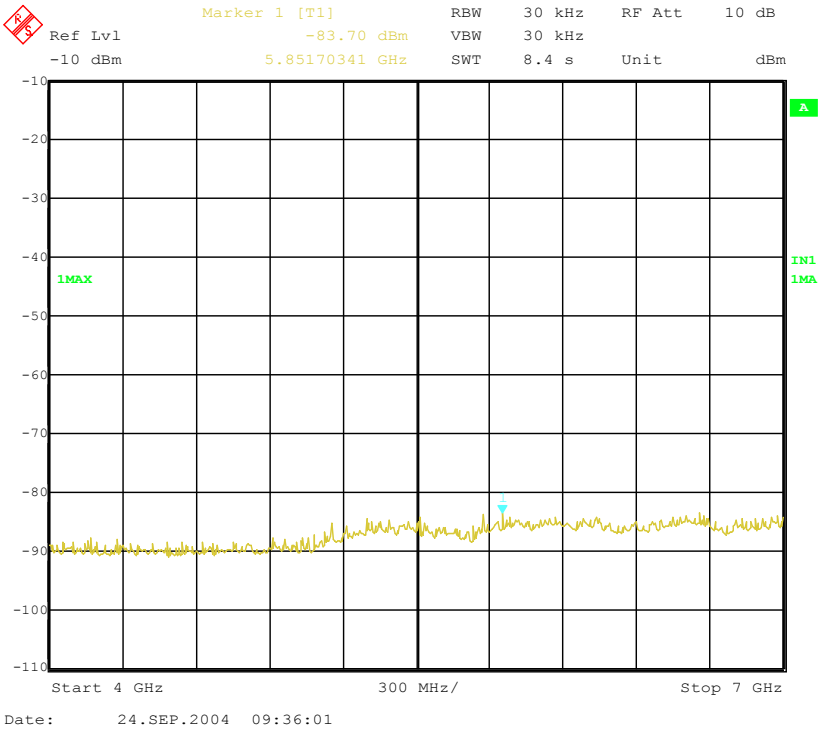


Radiated emissions 817.0 MHz 1-4GHz

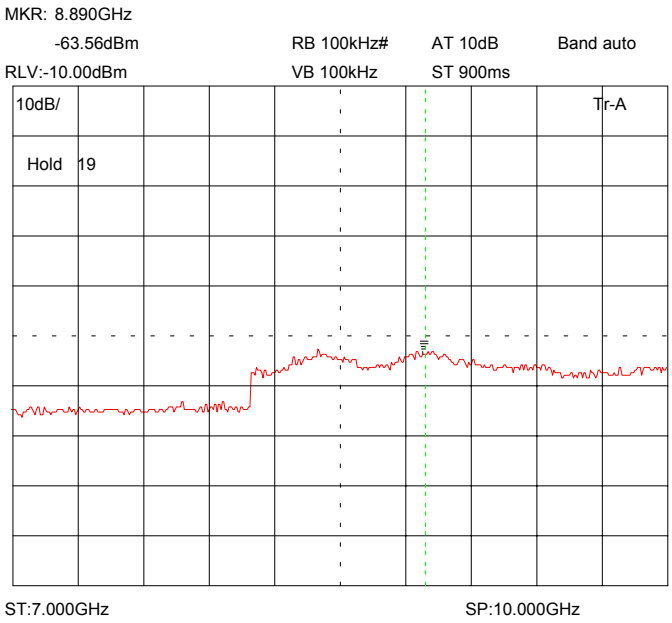


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 817.0 MHz 4-7GHz

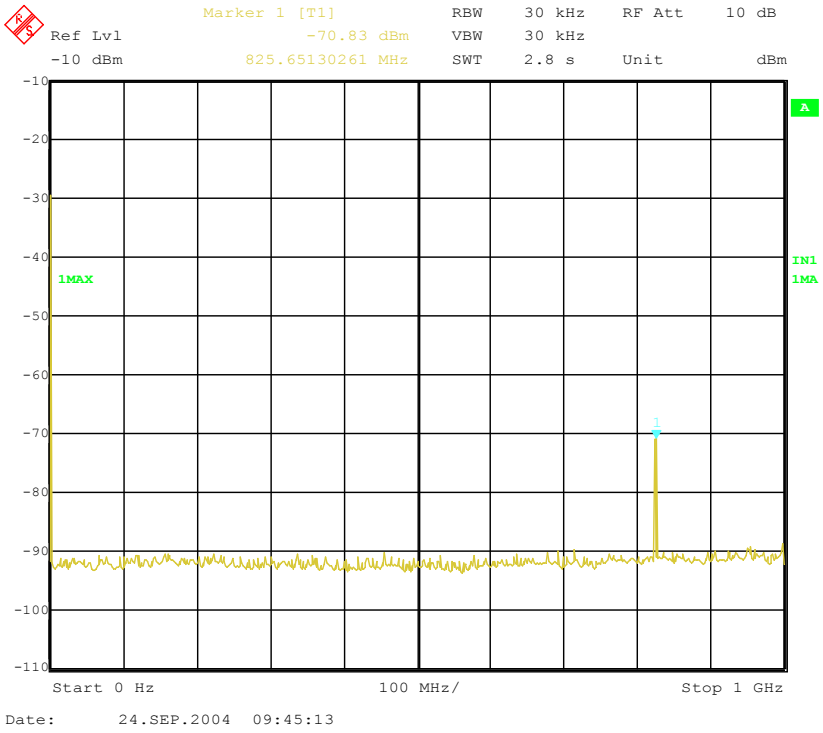


Radiated emissions 817.0 MHz 7-10GHz

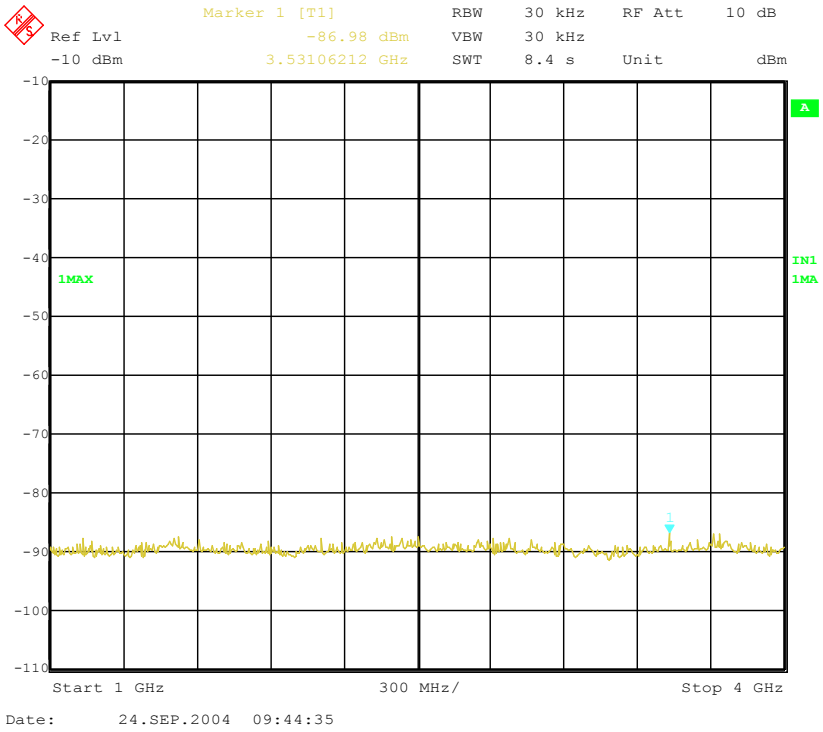


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 824.0 MHz 0 -1GHz

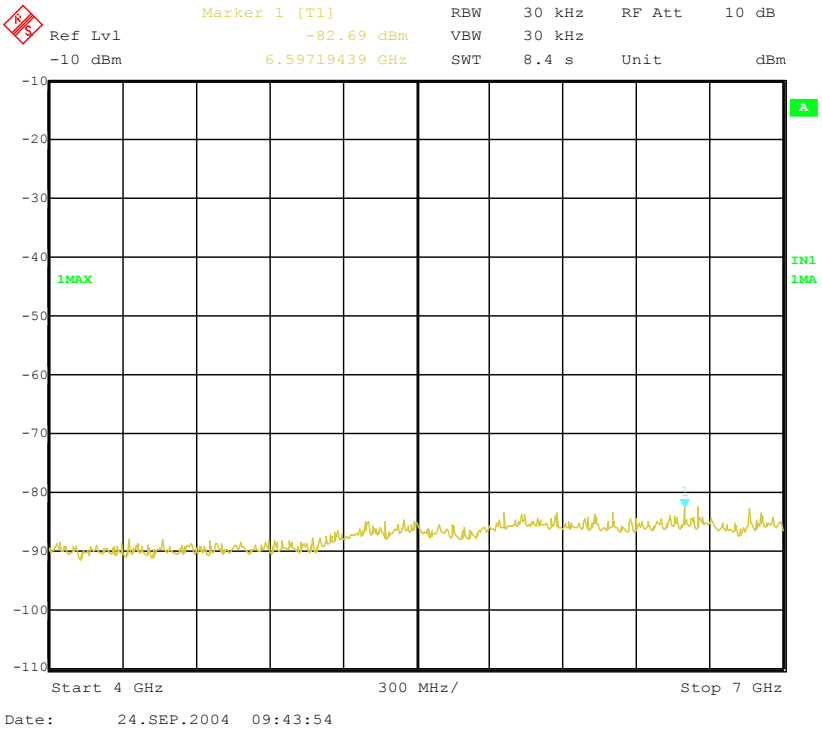


Radiated emissions 824.0 MHz 1-4GHz

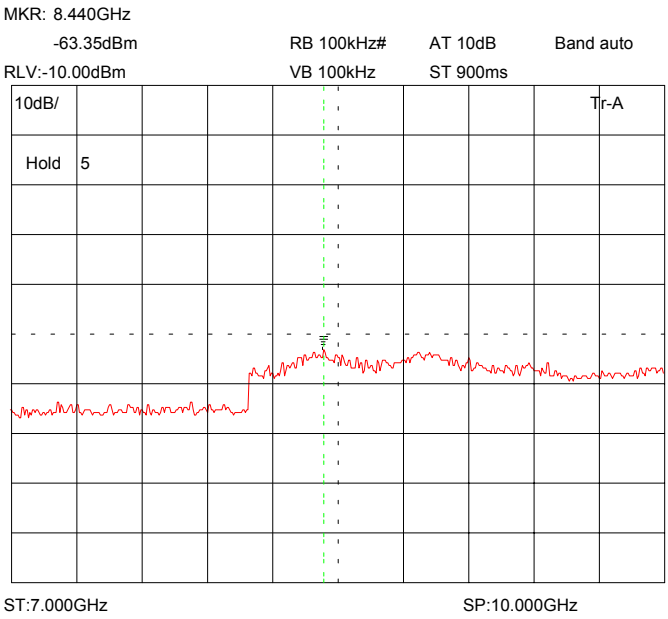


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 824.0 MHz 4-7GHz

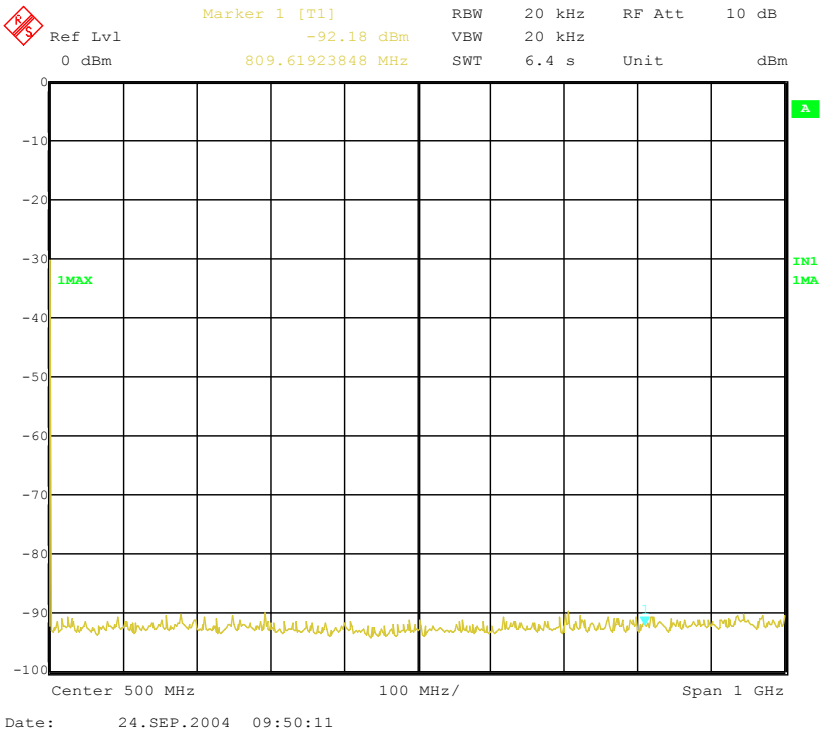


Radiated emissions 824.0 MHz 7-10GHz

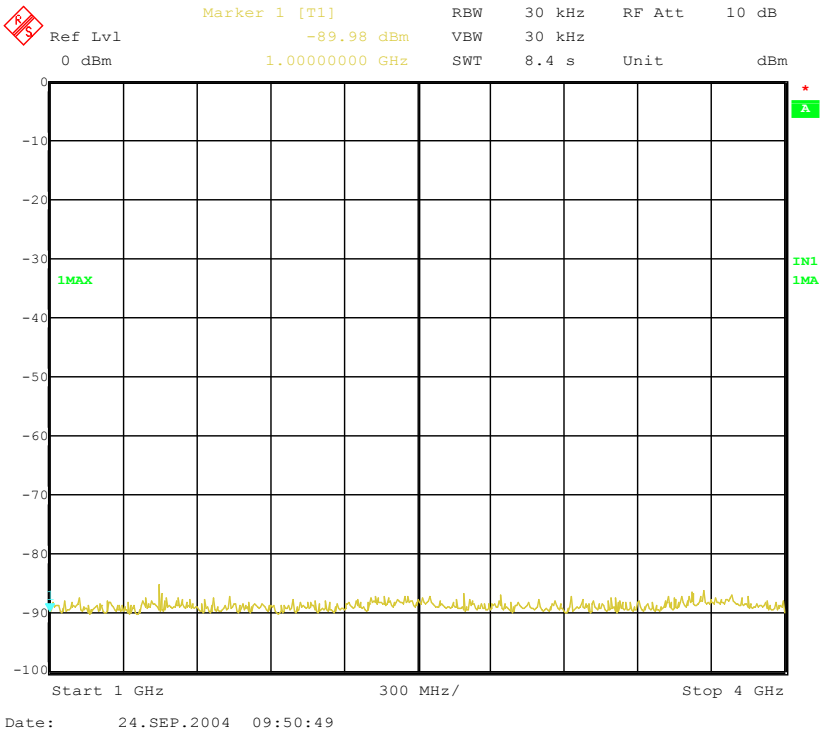


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 0-1GHz

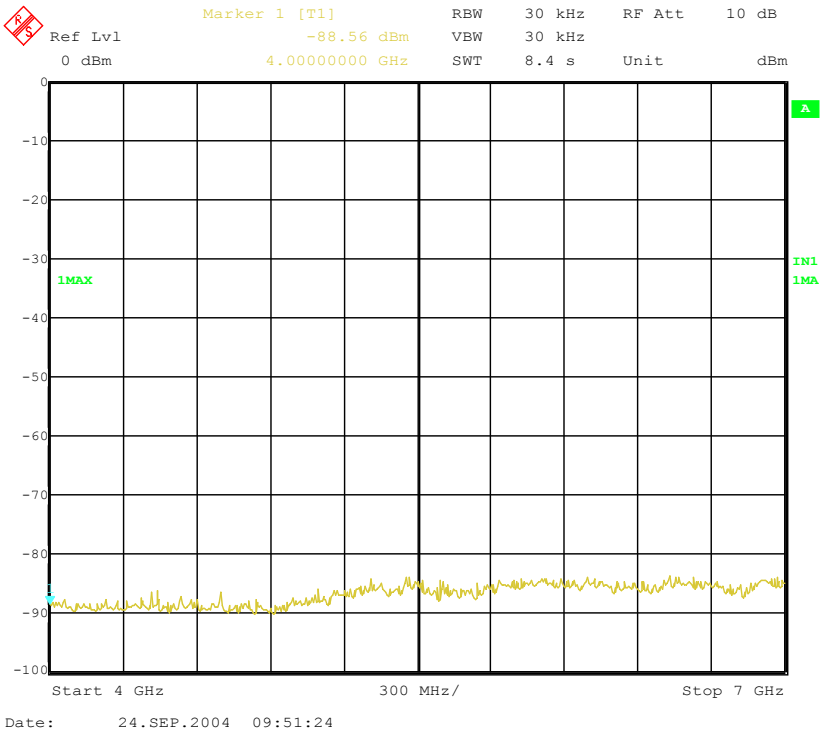


Radiated emissions no input signal 1-4GHz

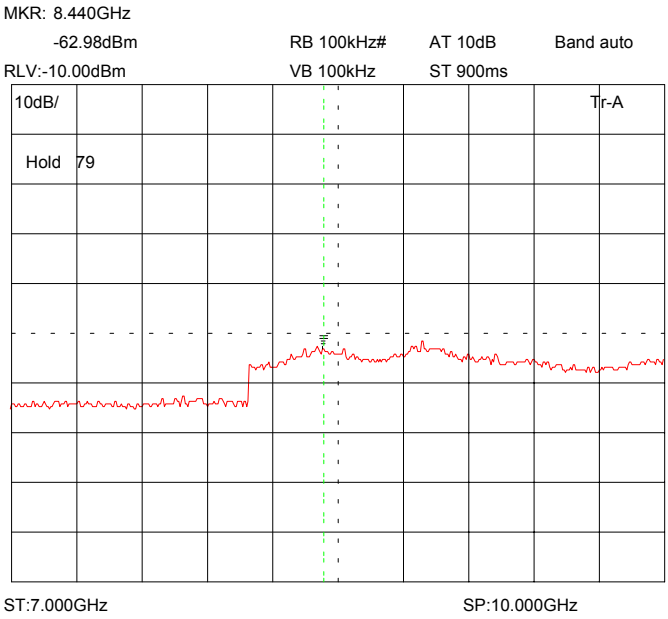


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 4 - 7GHz



Radiated emissions no input signal 7- 10 GHz

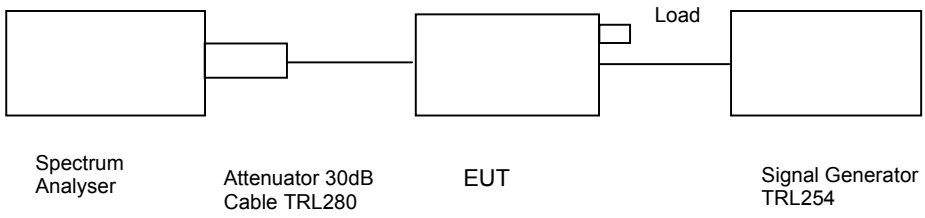


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

AMPLIFIER GAIN – CONDUCTED – PART 2.1046 – DOWNLINK

Ambient temperature = 26°C
Relative humidity = 44%
Supply voltage = +24 Vdc
Channel number = See test results

Radio Laboratory



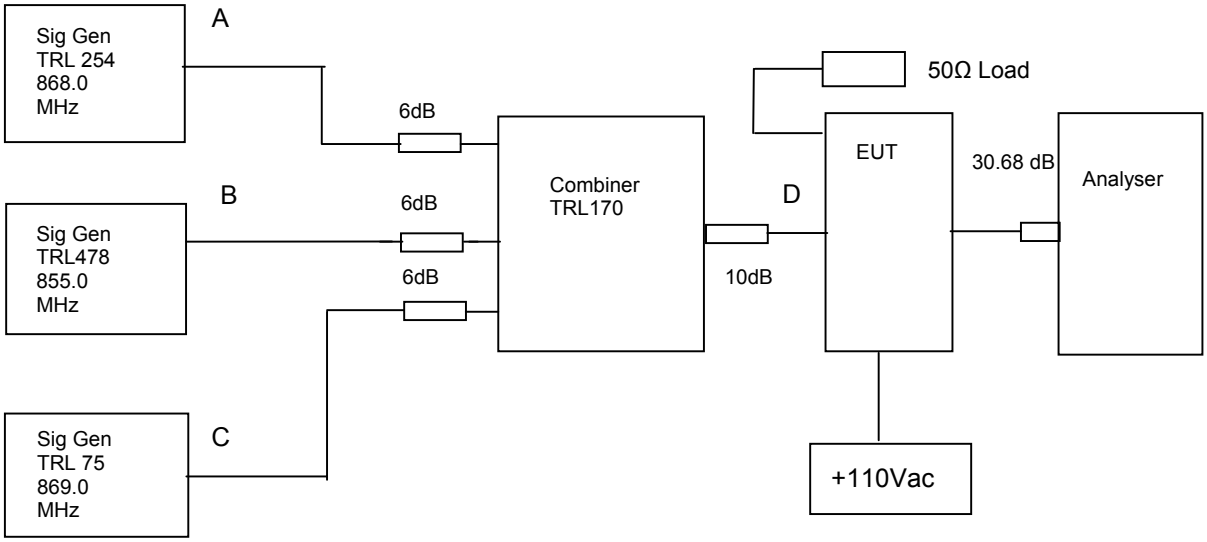
Frequency MHz	Signal Generator input level dBm	Cable & Attenuator loss dB	Level at Spectrum Analyser dBm	Gain dB	Gain after 20dB input level increase dBm
855.0 MHz	-7.63	30.68	1.88	40.19	21.19
862.0 MHz	-7.63	30.68	2.32	40.63	21.94
869.0 MHz	-7.63	30.68	1.63	39.94	21.34

Notes:
1. The level of the signal generator takes into consideration the loss from the cable.
2. The signal generator input was increased by 20dBs and the level of the output signal remeasured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119388/021	254	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

AMPLIFIER INTERMODULATION SPURIOUS EMISSIONS – CONDUCTED – PART 2.1053– DOWNLINK

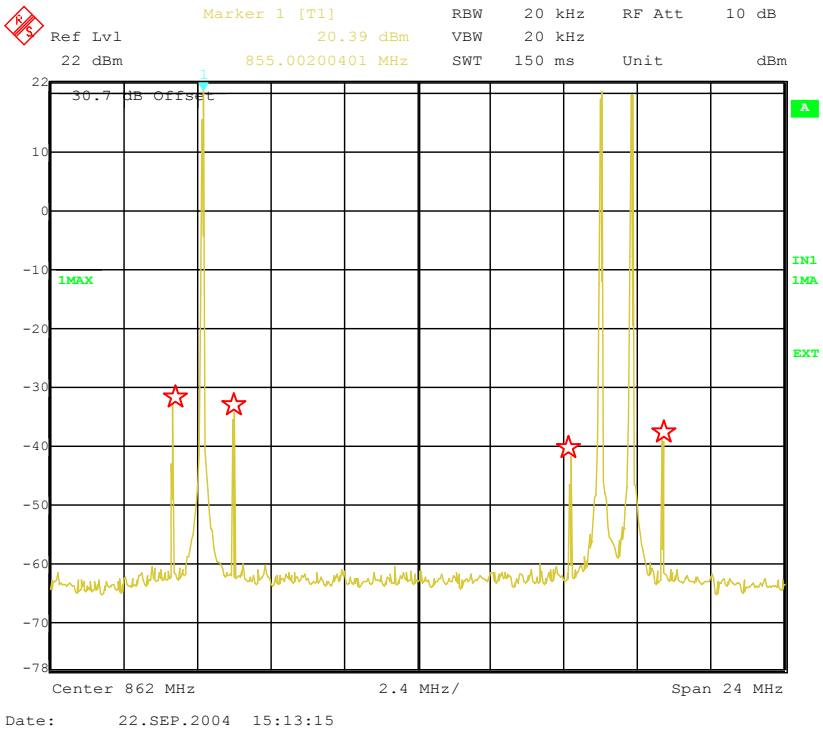
Ambient temperature	=	24°C	Radio Laboratory
Relative humidity	=	55%	
Supply voltage	=	+24 Vdc	



The intermodulation and spurious products were measured with the amplifier operating at maximum gain. A three tone test was conducted using the equipment as above. The input power level was adjusted so the level at point D was the maximum input of -7.63dBm. The cable and attenuators loss between the EUT and the spectrum analyser was 30.68 dB.

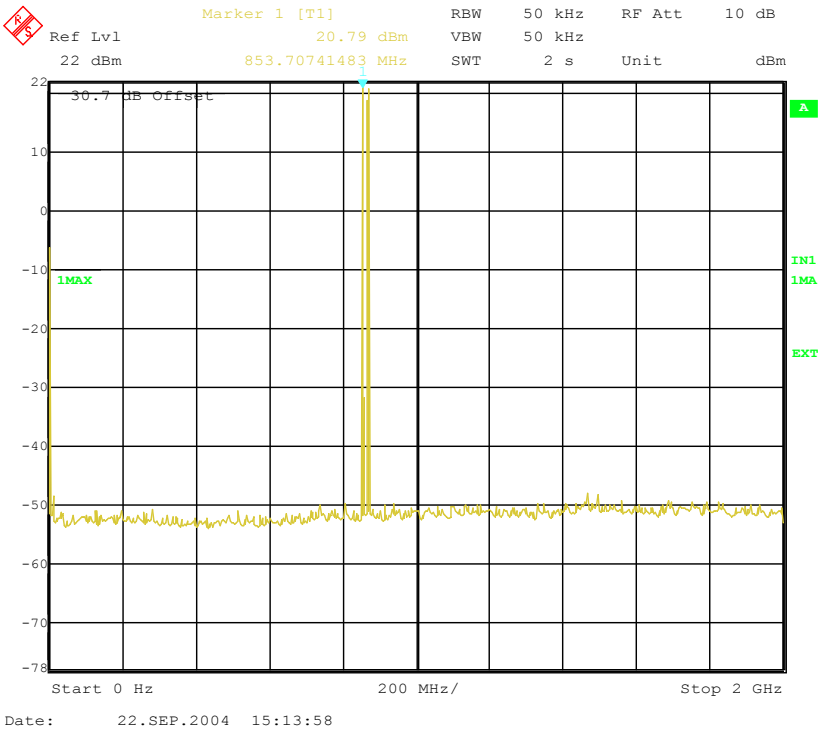
Sweep data is shown on the next page:

Intermodulation Inband



The above plot shows that all products (designated by ☆) are at least 40dB below the fundamentals.

Intermodulation Wideband



The above plot shows that there are no products outside the bands.

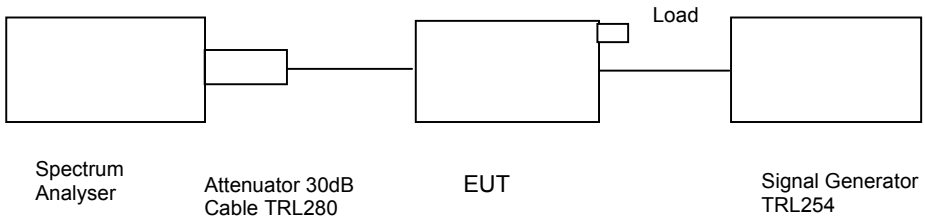
Test equipment used for intermodulation test

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
SIGNAL GENERATOR	MARCON	2042	119562/021	254	**X**
SIGNAL GENERATOR	ROHDE & SCHWARZ	SMR 20	834671/003	478	**X**
SIGNAL GENERATOR	MARCONI	2023	112224/040	105	**X**
COMBINER	ELCOM	RC-4-50	N/A	170	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

TRANSMITTER TESTS

AMPLIFER MODULATED CHANNEL TEST – CONDUCTED – Part 2.1049– DOWNLINK

Ambient temperature	=	24°C	Radio Laboratory
Relative humidity	=	55%	
Supply voltage	=	+24 Vdc	
Channel number	=	See test results	



This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-7.63) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

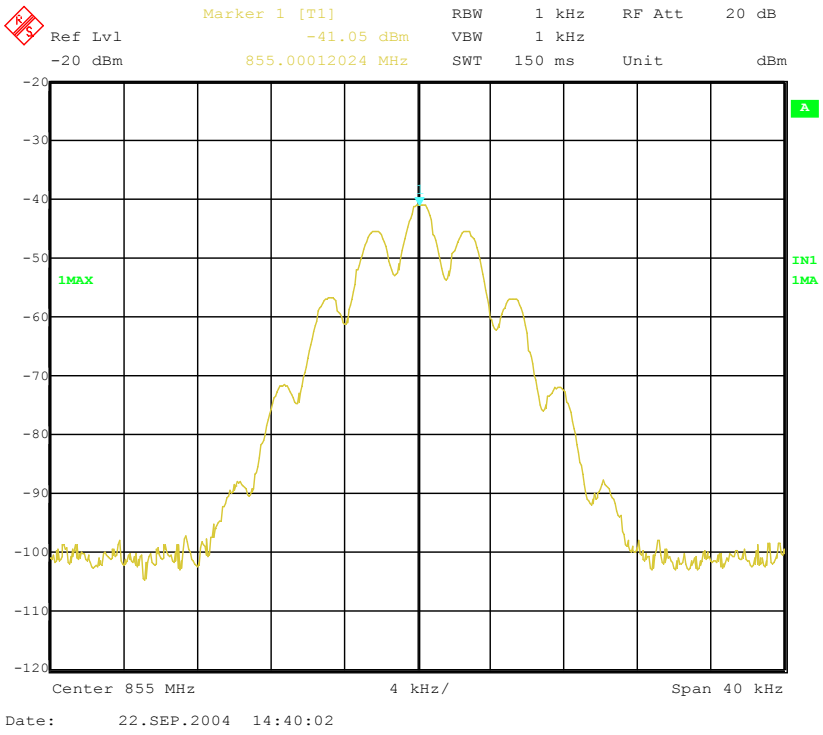
Note: The cables and attenuators had the following losses.

1. Cable TRL280 and 30dB attenuator = 30.68dB
2. Cable between signal generator and EUT = 1.72dB

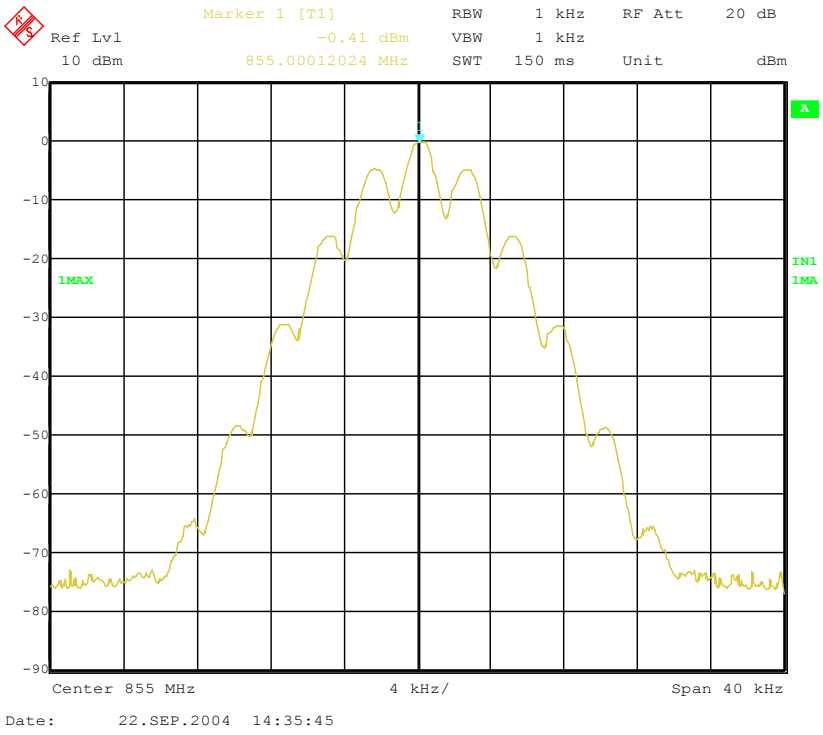
The test equipment used for the Transmitter modulated channel tests is shown below:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119388/021	254	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**

855.0 MHz Signal generator deviation set to 2.5kHz

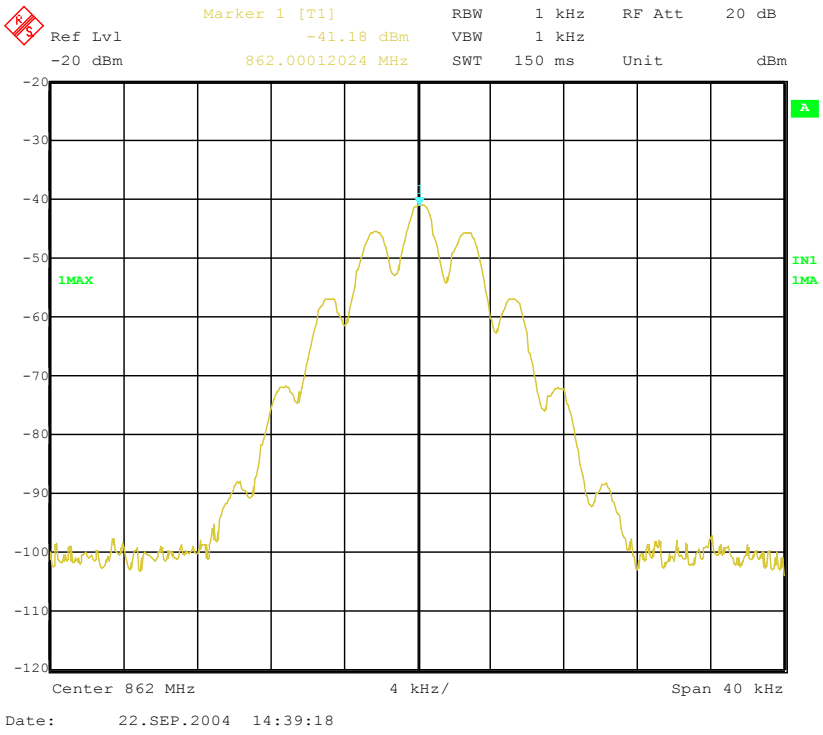


855.0 MHz Signal generator and EUT deviation set to 2.5kHz

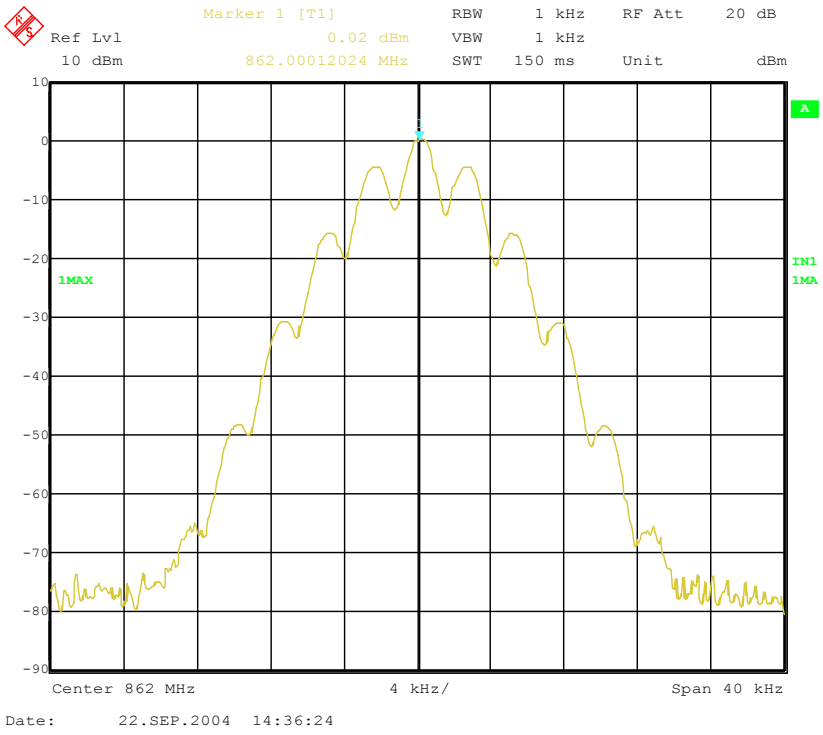


The above plots depicting the output wave shape show no measurable distortion visible. When compared to the input signal.

862.0 MHz Signal generator deviation set to 2.5kHz

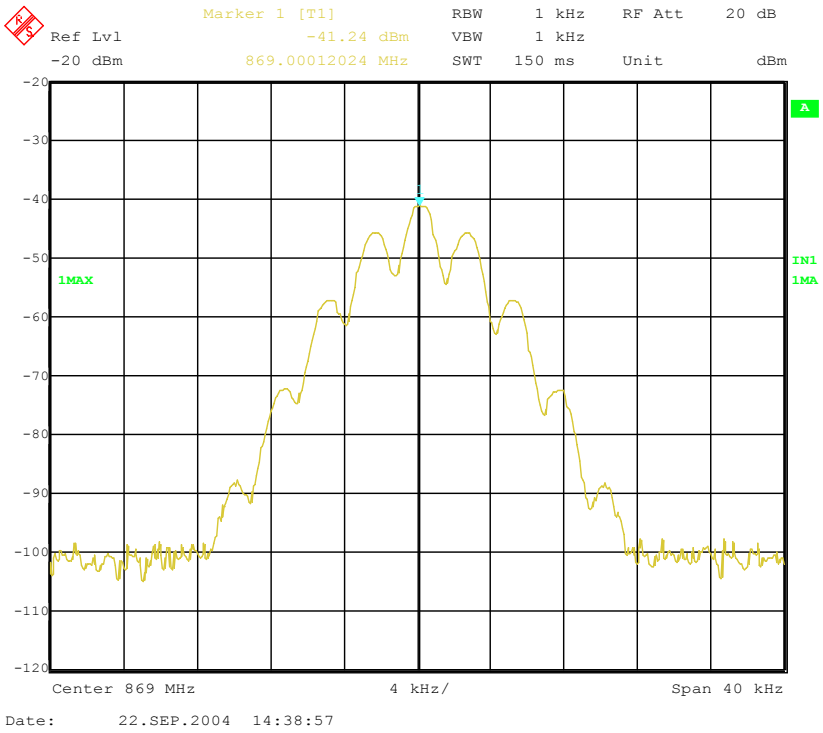


862.0 MHz Signal generator and amplifier deviation set to 2.5kHz

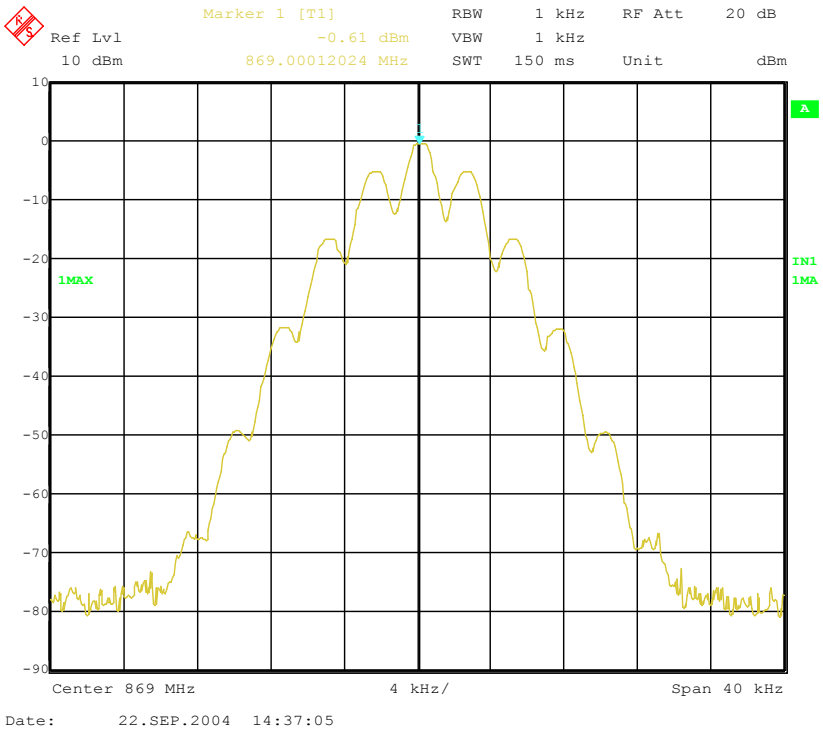


The above plots depicting the output wave shape show no measurable distortion visible. When compared to the input signal.

869.0MHz Signal generator deviation set to 2.5kHz



869.0MHz Signal generator deviation set to 2.5kHz

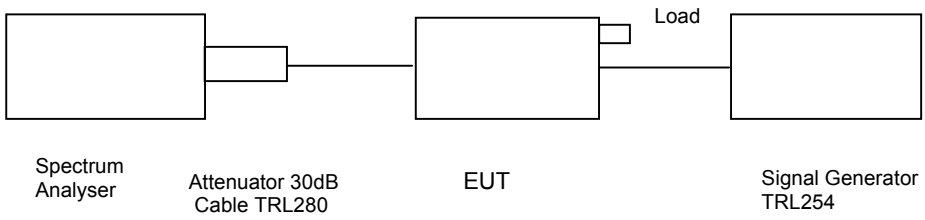


The above plots depicting the output wave shape show no measurable distortion visible. When compared to the input signal.

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – CONDUCTED – Part 2.1051– DOWNLINK

Ambient temperature	=	24°C	Radio Laboratory		
Relative humidity	=	55%	Test Signal	=	F3E
Supply voltage	=	+24 Vdc			



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating at maximum power and on three test frequencies.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

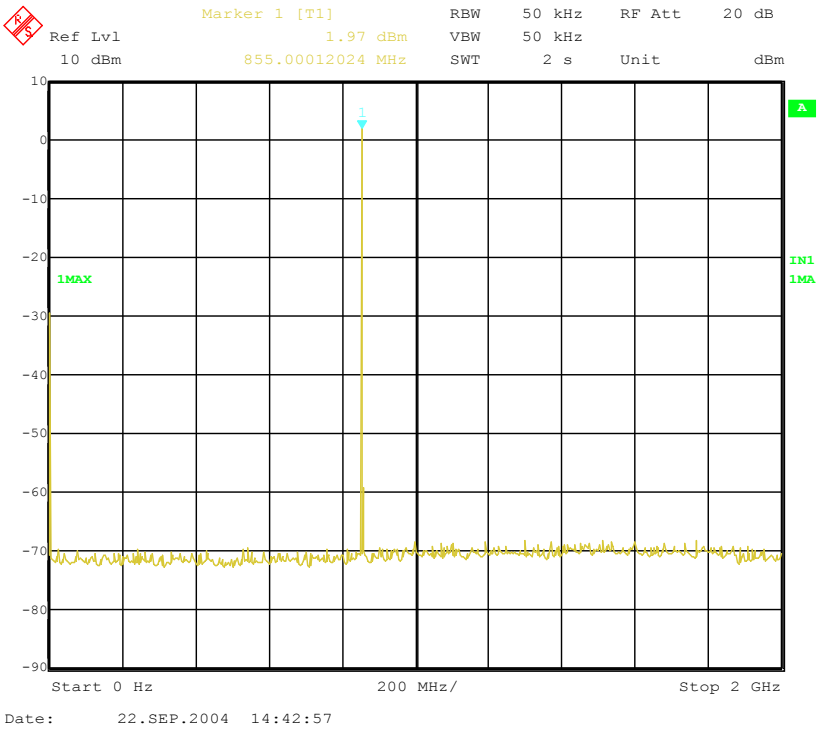
At least 43 + 10 log PdB

$(10\log P_{watts}) – (43+10\log (P_{watts} * 1000)) =$ LIMIT =-13 dBm

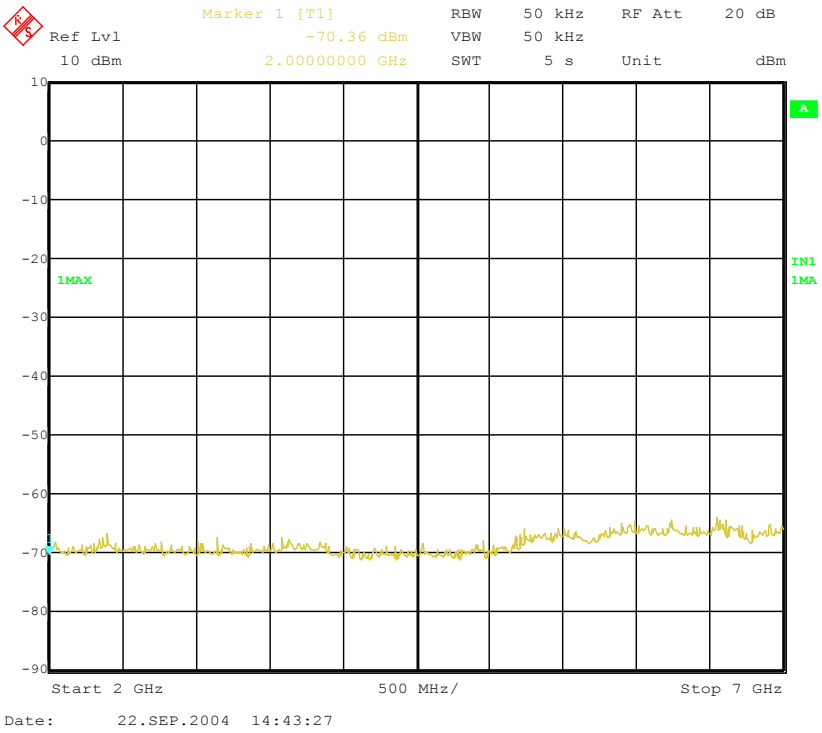
The test equipment used for the Transmitter Conducted Emissions:

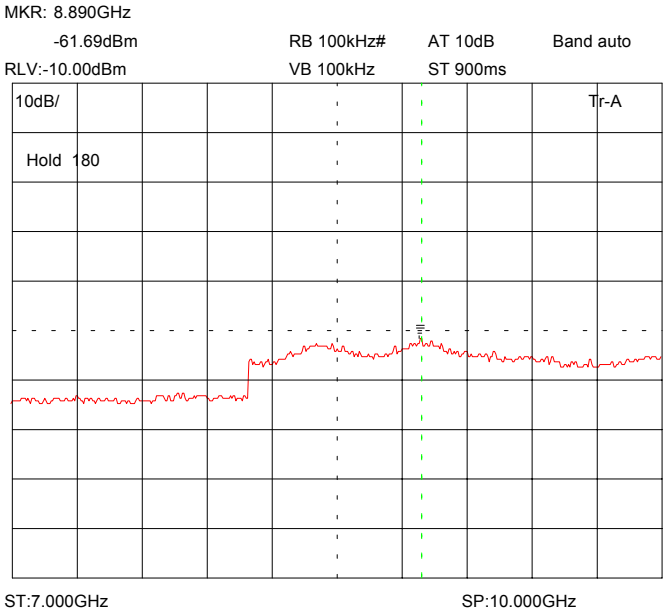
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
ATTENUATOR	AFL	10-002530	8616	N/A	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119388/021	254	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	**X**

Conducted emissions 855.0 MHz 0 - 2GHz

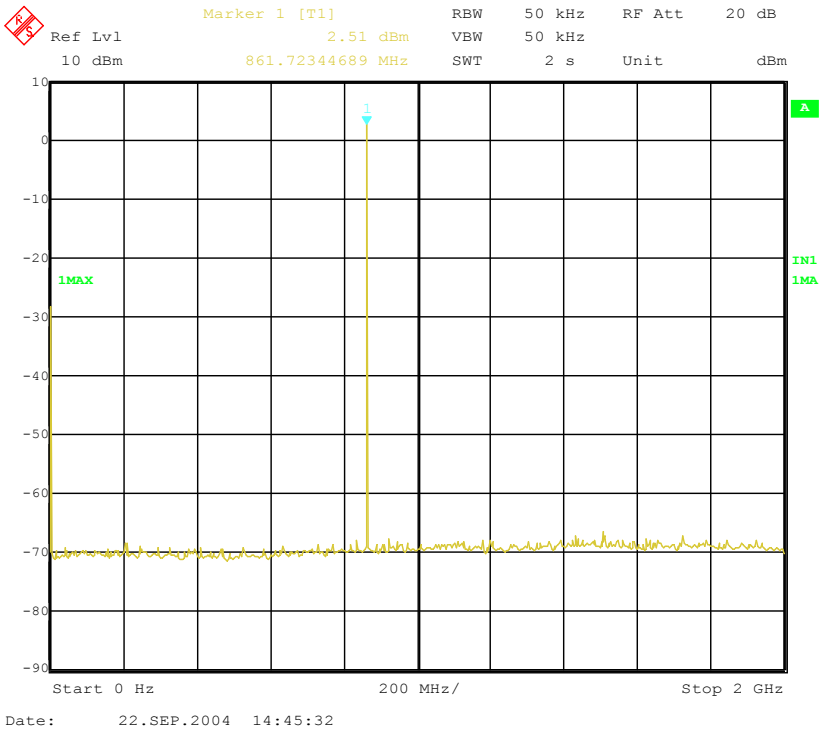


Conducted emissions 855.0 MHz 2 - 7GHz

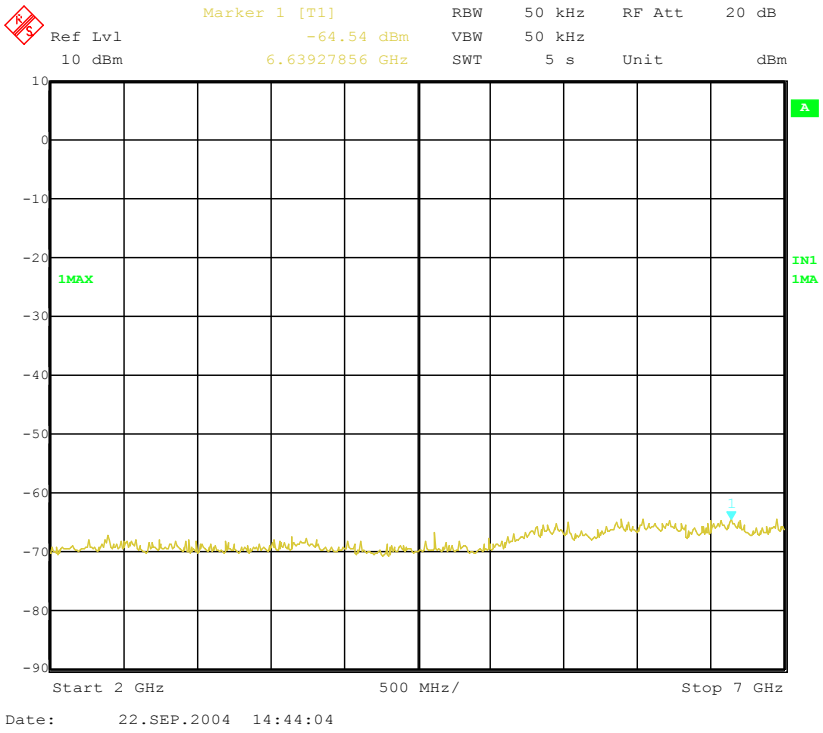


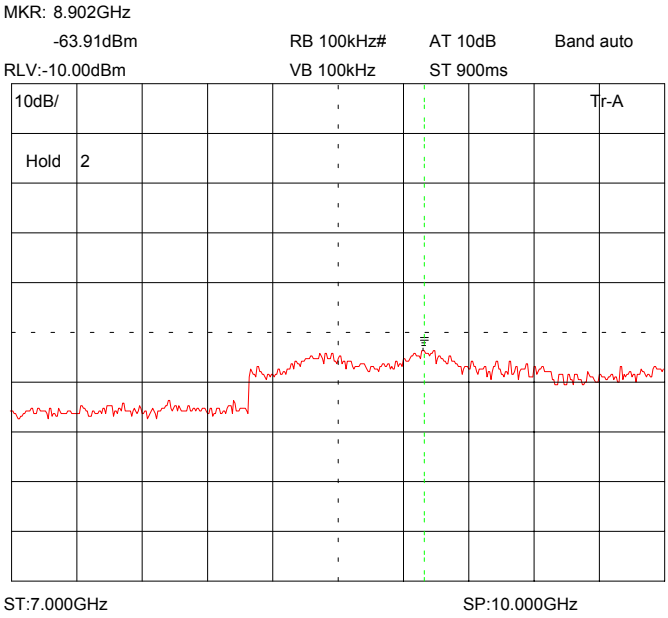

MKR: 8.890GHz
-61.69dBm
RB 100kHz#
AT 10dB
Band auto
RLV:-10.00dBm
VB 100kHz
ST 900ms
10dB/
Tr-A
Hold 180
ST:7.000GHz
SP:10.000GHz

Conducted emissions 862.0 MHz 0 - 2GHz

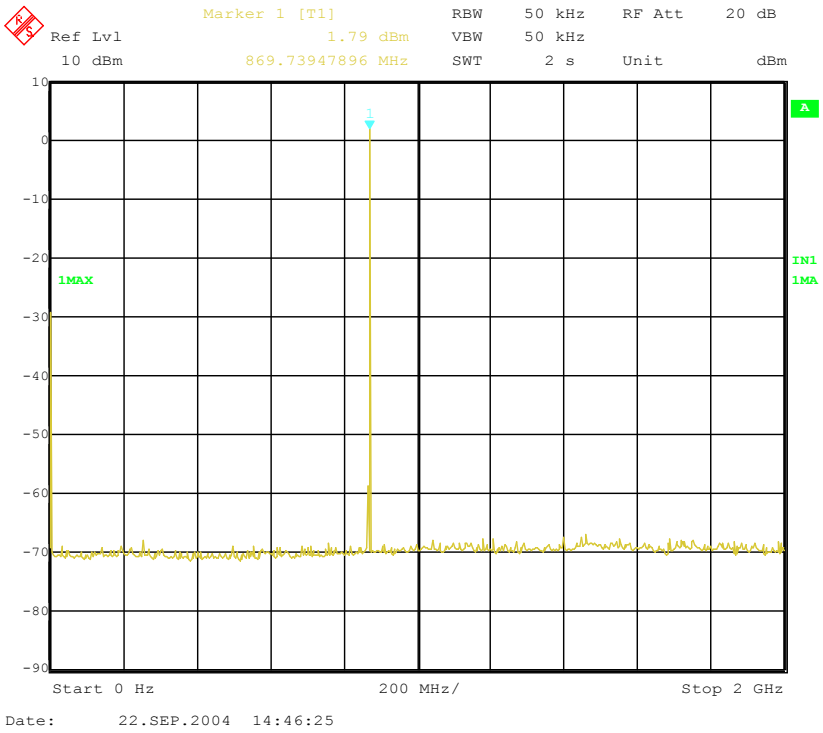


Conducted emissions 862.0 MHz 2 - 7GHz

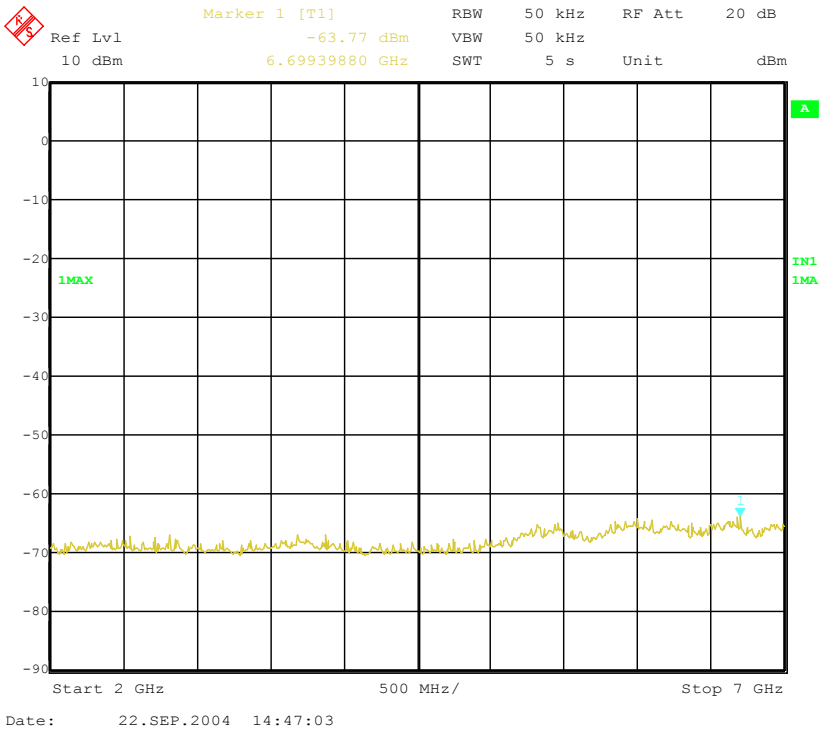



MKR: 8.902GHz
-63.91dBm
RB 100kHz#
AT 10dB
Band auto
RLV:-10.00dBm
VB 100kHz
ST 900ms
10dB/
Tr-A
Hold
2
ST:7.000GHz
SP:10.000GHz

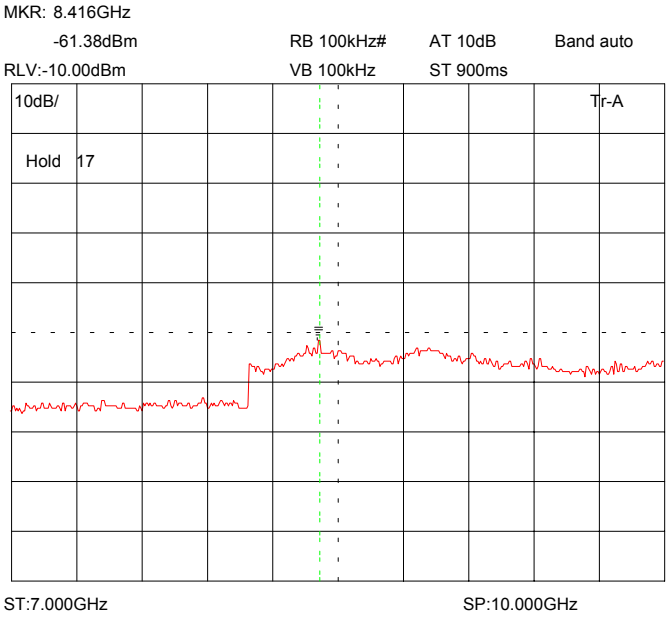
Conducted emissions 869.0MHz 0 - 2GHz



Conducted emissions 869.0MHz 2 - 7GHz



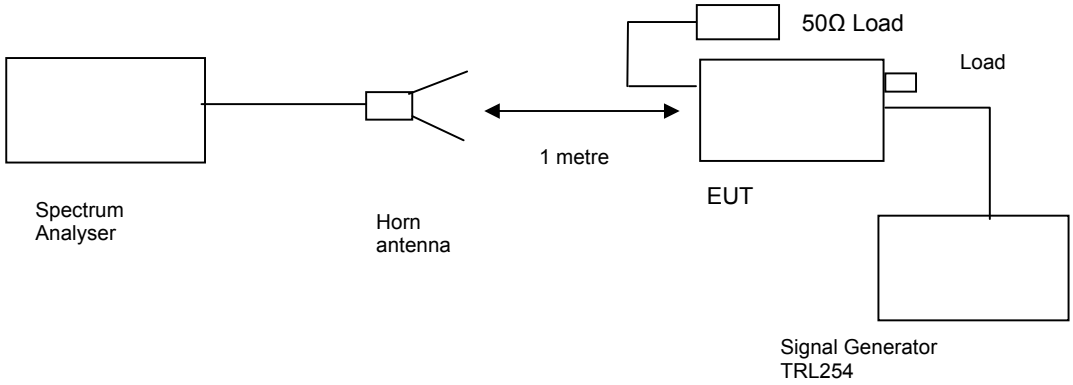
Conducted emissions 869.0MHz 7 - 10GHz



TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– DOWNLINK

Ambient temperature	=	24°C	Test Signal	=	F3E
Relative humidity	=	55%			
Conditions	=	OATS			
Supply voltage	=	+24 Vdc			
Supply Frequency	=	N/A			



The test was set up as per the diagram. The level at the input was adjusted to compensate for the loss of the interconnecting cable. The unit was tested operating maximum power on three test frequencies with a 50 ohm load on the output. The unit was also tested with the signal generator replaced by another 50ohm load.

The Spurious limit was calculated as follows:

On any frequency removed from the assigned frequency by more that 250% of the authorised bandwidth

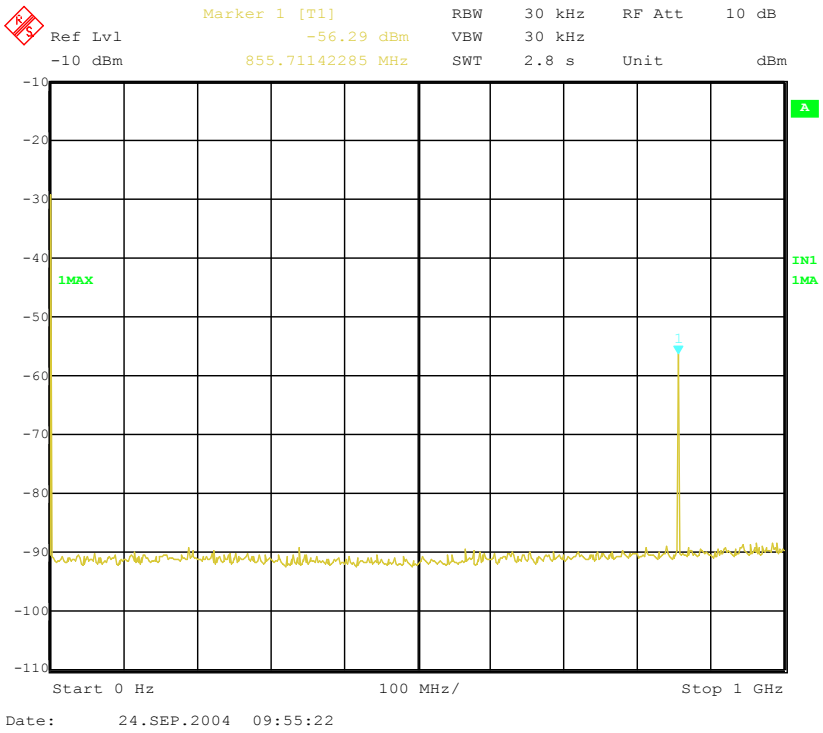
At least 43 + 10 log PdB

$(10\log P_{watts}) – (43+10\log (P_{watts} * 1000)) =$ LIMIT =-13 dBm

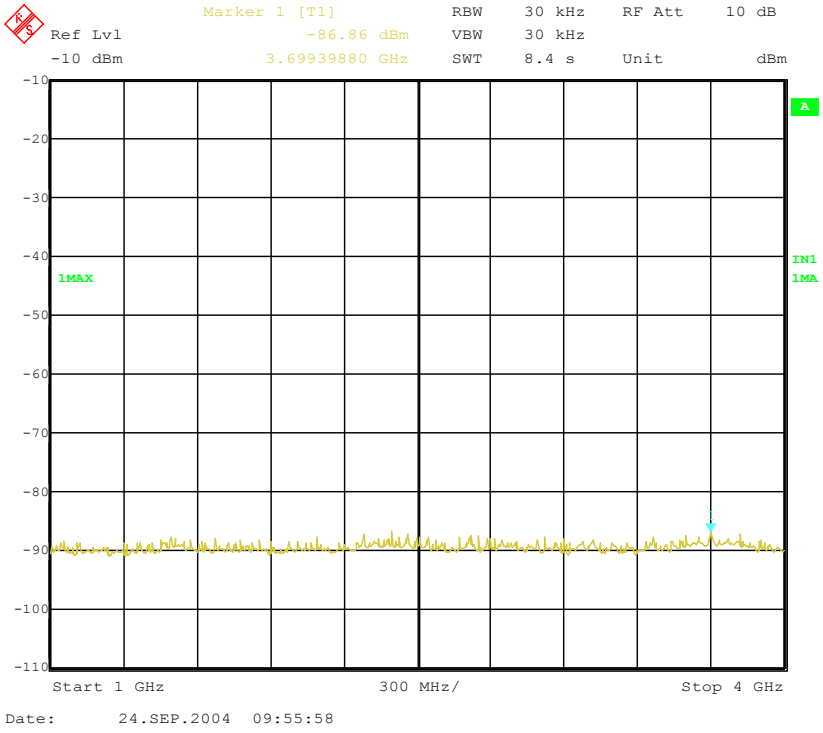
The test equipment used for the Transmitter Spurious Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	RHODE & SCHWARZ	ESIB 7	100 182	630	**X**
HORN	EMCO	3115	9010-3581	139	**X**
50Ω LOAD	RHODE & SCHWARZ	200.0019.55	300804/32	UH227	**X**
CABLE	ROSENBERGER	MICRO COAX	N/A	280	**X**
SIGNAL GENERATOR	MARCONI	2042	119388/021	254	**X**
50Ω LOAD	PHILCO	60B-300	1643	UH139	**X**
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	**X**

Radiated emissions 855.0 MHz 0 - 1GHz

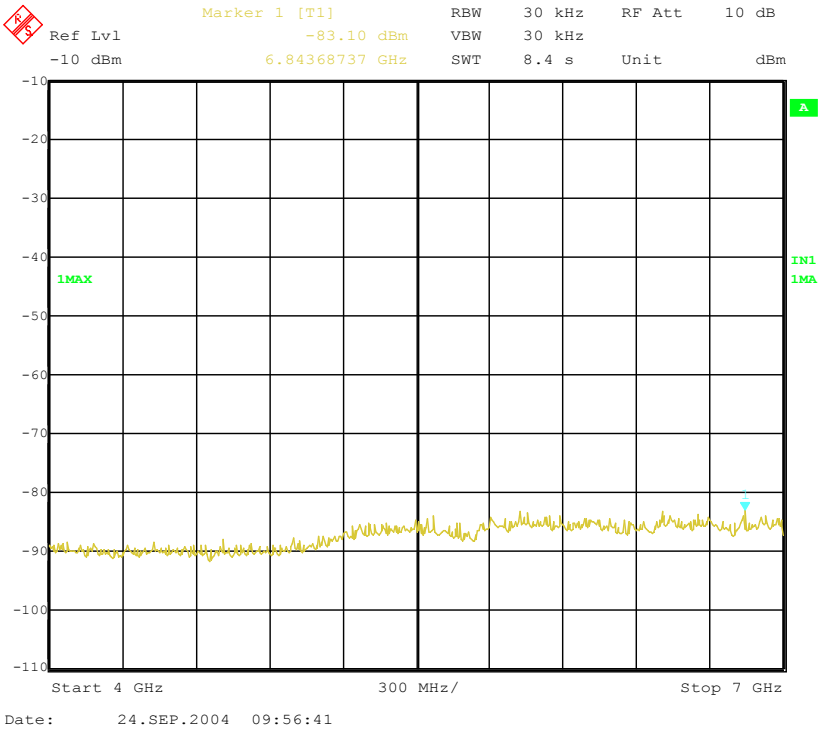


Radiated emissions 855.0 MHz 1-4GHz

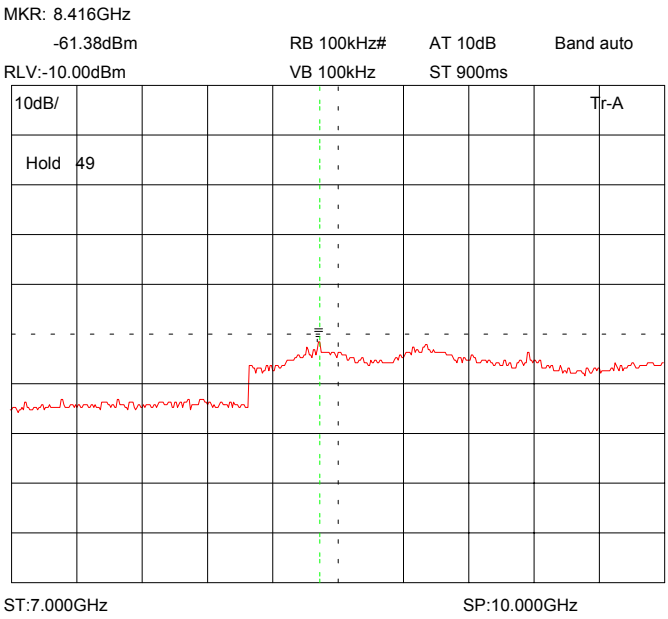


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 855.0 MHz 4-7GHz

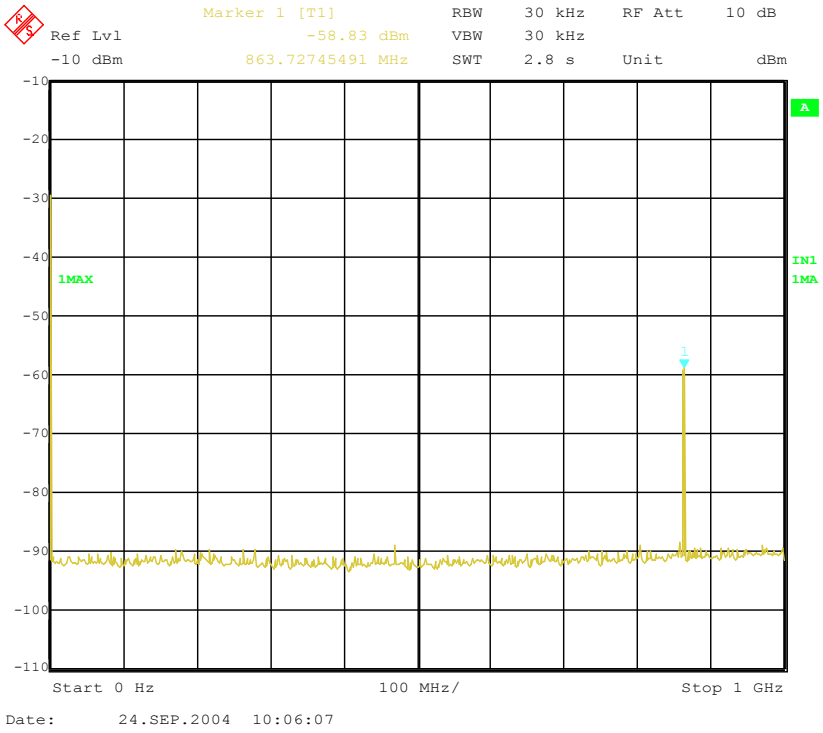


Radiated emissions 855.0 MHz 7-10GHz

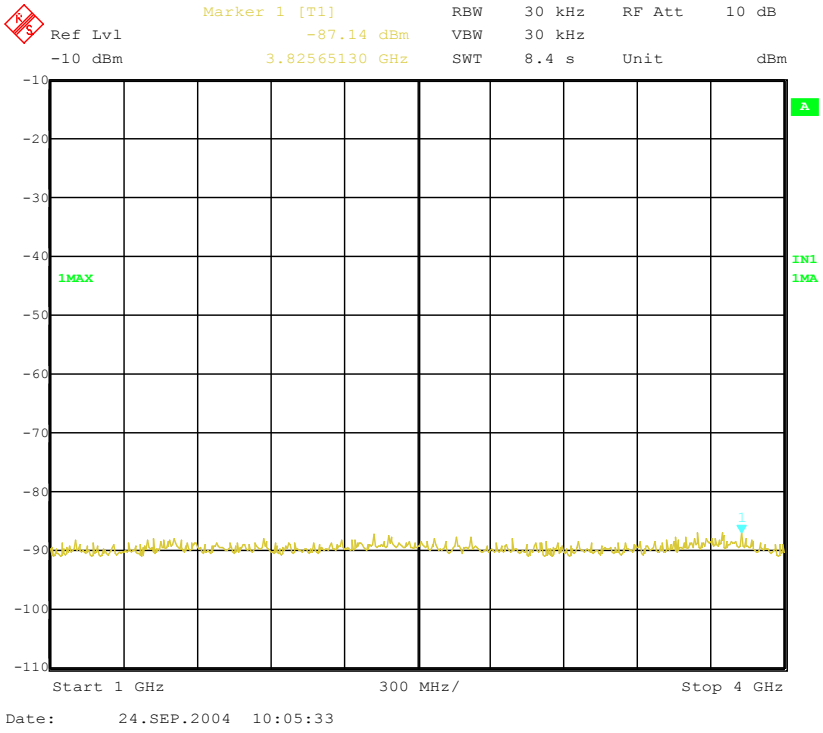


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 862.0 MHz 0 - 1GHz

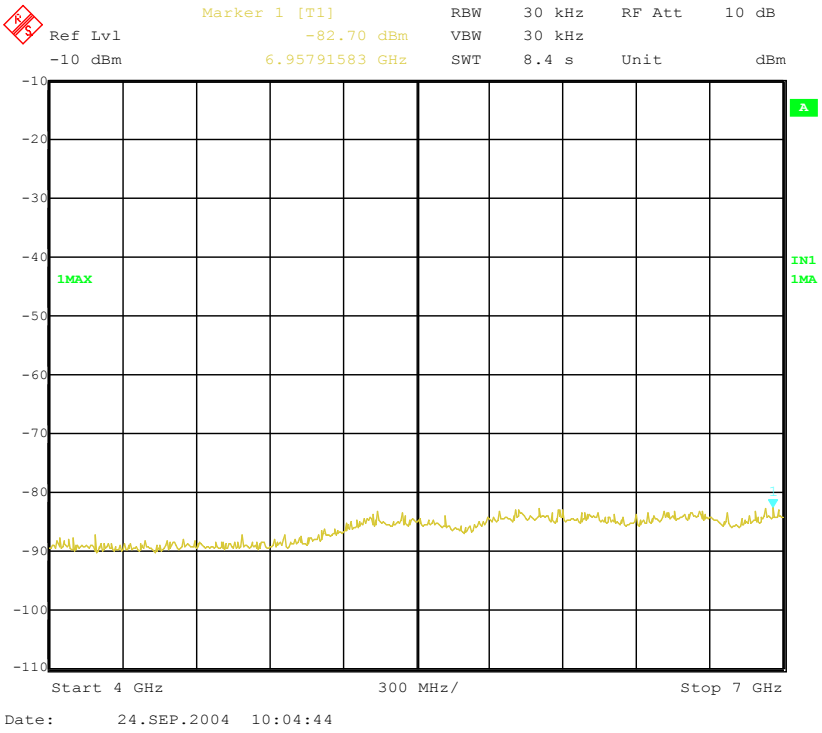


Radiated emissions 862.0 MHz 1-4GHz

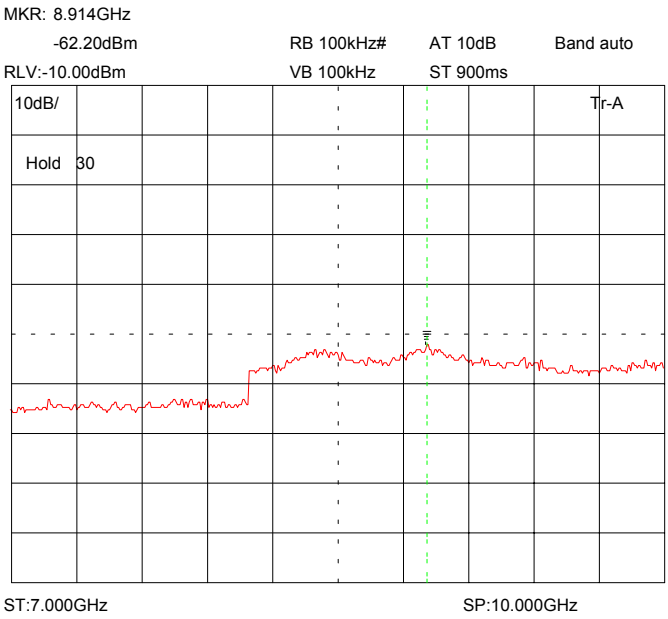


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 862.0 MHz 3-7GHz

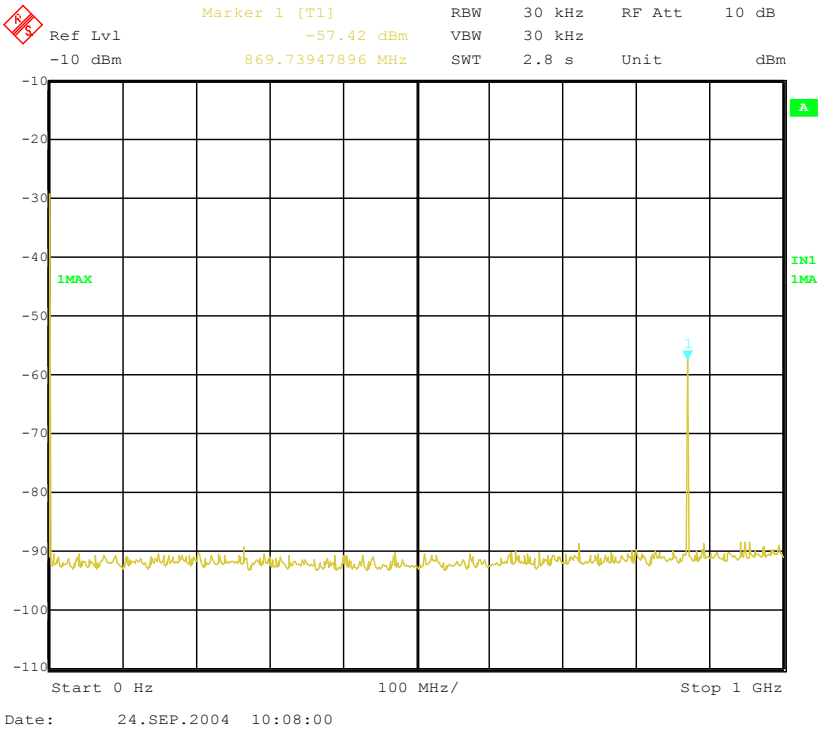


Radiated emissions 862.0 MHz 7-10GHz

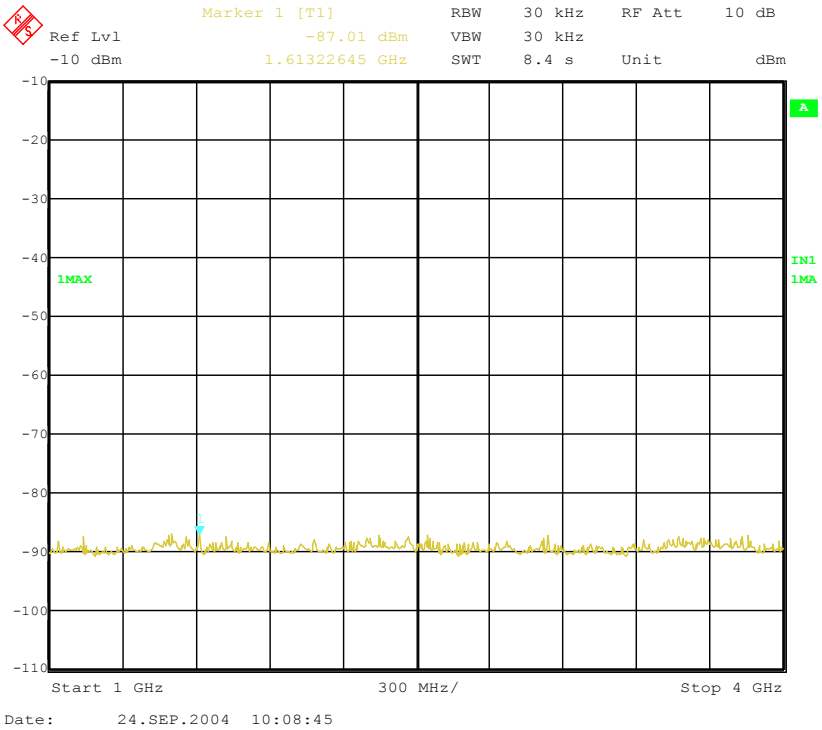


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 869.0MHz 0 - 1GHz

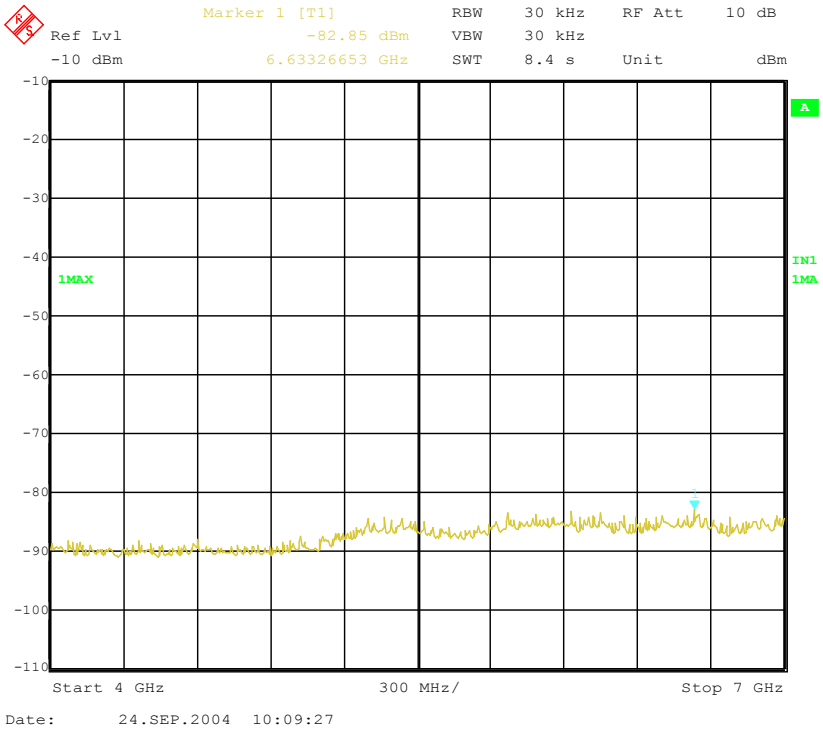


Radiated emissions 869.0MHz 1 - 4GHz

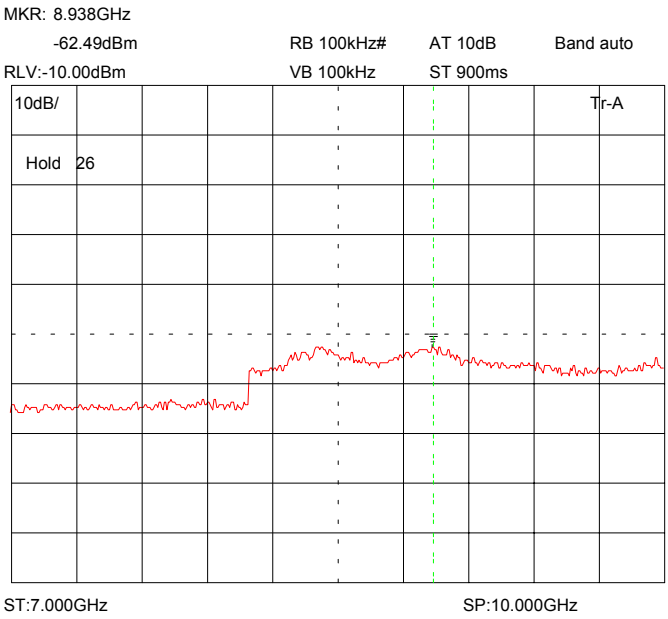


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions 869.0MHz 4 - 7GHz

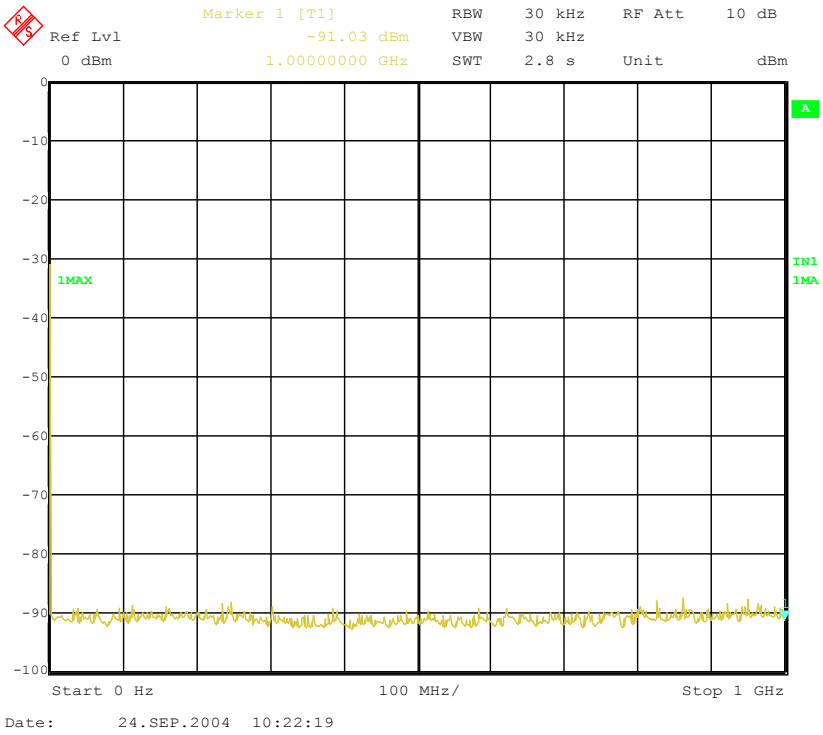


Radiated emissions 869.0MHz 7 - 10GHz

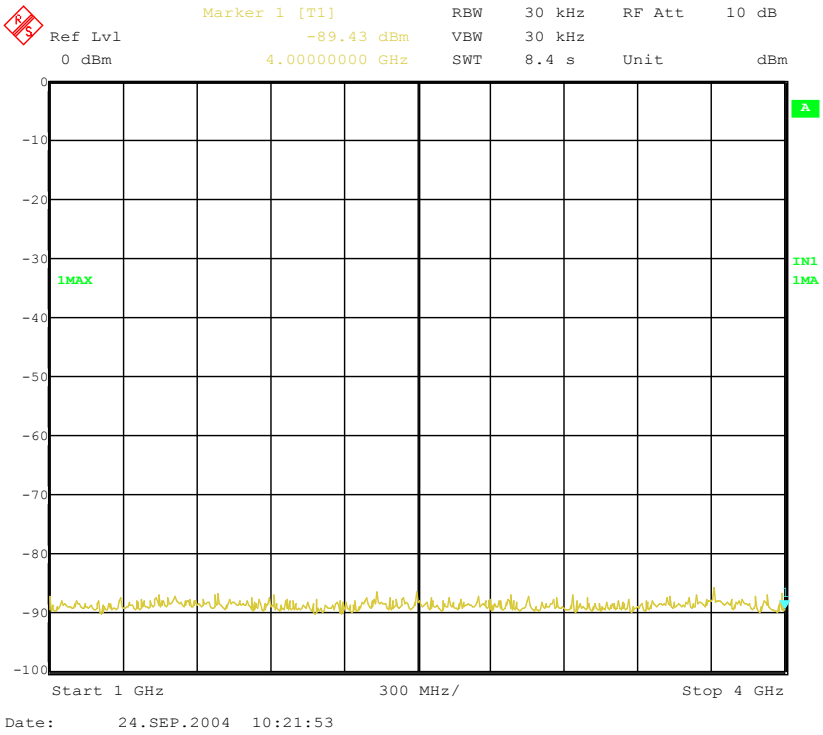


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 0 - 1GHz

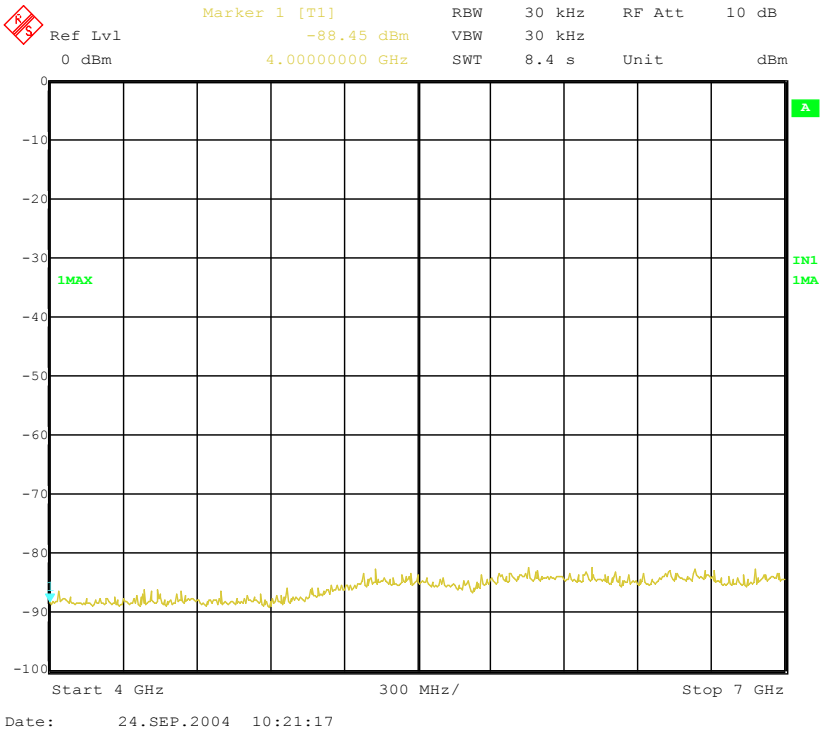


Radiated emissions no input signal 1 - 4GHz

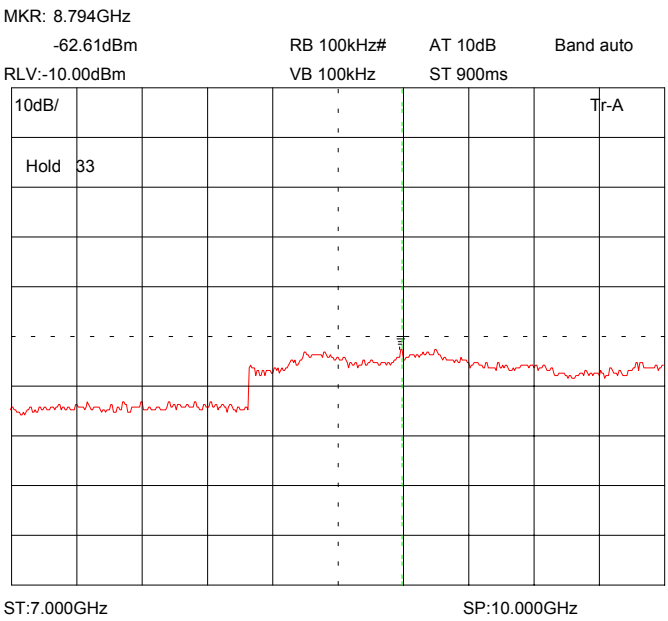


The above test results show that there were no emissions within 20dBs of the –13dBm limit.

Radiated emissions no input signal 4-7GHz



Radiated emissions no input signal 7-10GHz



The above test results show that there were no emissions within 20dBs of the –13dBm limit.

ANNEX A

PHOTOGRAPHS

PHOTOGRAPH No. 1 **TEST SETUP**

PHOTOGRAPH No. 2 **TEST SETUP**

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	[ ]
		-	DECLARATION	[ ]
		-	DRAWINGS	[ ]
f.	TECHNICAL DESCRIPTION	-		[X]
g.	BLOCK DIAGRAMS	-	Tx	[X]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
h.	CIRCUIT DIAGRAMS	-	Tx	[ ]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
i.	COMPONENT LOCATION	-	Tx	[ ]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
j.	PCB TRACK LAYOUT	-	Tx	[ ]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
k.	BILL OF MATERIALS	-	Tx	[ ]
		-	Rx	[ ]
		-	PSU	[ ]
		-	AUX	[ ]
l.	USER INSTALLATION / OPERATING INSTRUCTIONS	-		[X]