

TEST REPORT NO: RU1068/4828

COPY NO:

ISSUE NO:

FCC ID:

NEO60-0561series

1

REPORT ON THE CERTIFICATION TESTING OF A Aerial Facilities Limited BI-DIRECTIONAL AMPLIFIER SYSTEM (800MHz) WITH RESPECT TO THE FCC RULES CFR 47, PART 90 Subpart S PRIVATE LAND MOBLIE REPEATER.

TEST DATE: 10th - 15th OCTOBER 2003

TESTED BY:			J CHARTERS
APPROVED I	3Y: _		P GREEN PRODUCT MANAGER
DATE:	-		EMC
Distribution:			
Copy Nos:	1.	Aerial Facilities Limited	
	2.	TCB: TRL Compliance Services Limited	

3. TRL EMC

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CONTENTS

PAGE
3
4
5
5
6-65

	ANNEX
PHOTOGRAPHS	А
PHOTOGRAPH No. 1: Test setup	
PHOTOGRAPH No. 2: Test setup	
APPLICANT'S SUBMISSION OF DOCUMENTATION LIST	В

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:	NEO60-0561series			
PURPOSE OF TEST:	CERTIFICATION			
TEST SPECIFICATION:	FCC RULES CFR 47, Part 90 Subpart S			
TEST RESULT:	Compliant to Specification			
EQUIPMENT UNDER TEST:	BI-DIRECTIONAL AMPLIFIER SYSTEM (800MHz)			
EQUIPMENT TYPE:	Private Land Mobile Repeater			
MAXIMIUM GAIN	95dBm			
MAXIMUM INPUT	-77dBm			
MAXIMUM OUTPUT	19.67dBm			
ANTENNA TYPE:	Not applicable			
CHANNEL SPACING:	25kHz			
NUMBER OF CHANNELS:	Channel No. Uplink Downlink 1 812.7625MHz 857.7625MHz 2 814.9375MHz 859.9375MHz 3 814.7625MHz 859.7625MHz 4 812.9375MHz 857.9375MHz 5 813.2375MHz 858.2375MHz 6 815.4375MHz 860.4375MHz 7 814.4375MHz 859.4375MHz 8 813.7625MHz 858.7625MHz			
FREQUENCY GENERATION:	N/A			
MODULATION TYPE:	F3E			
POWER SOURCE(s):	115V ac			
TEST DATE(s):	10 th - 15 th OCTOBER 2003			
ORDER No(s):	20424			
APPLICANT:	Aerial Facilities Limited			
ADDRESS:	Aerial House Latimer Park, Latimer Chesham Buckinghamshire HP5 1TU United Kingdom			
TESTED BY:	J CHARTERS			
APPROVED BY:	P GREEN PRODUCT MANAGER EMC			

RU1068/4828

APPLICANT'S SUMMARY

EQUIPMENT UNDER TEST (EUT):	BI-DIRECTIONAL AMPLIFIER SYSTEM (800MHz)
EQUIPMENT TYPE:	55-056104
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):	19801
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)149477020
MANUFACTURER:	Aerial Facilities Limited
EUT(s) COUNTRY OF ORIGIN:	United Kingdom
TEST LABORATORY:	TRL EMC
UKAS ACCREDITATION No:	0728
TEST DATE(s)	10 th - 15 th OCTOBER 2003
TEST REPORT No:	RU1068/4828

EQUIPMENT TEST / EXAMINATIONS REQUIRED

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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 modulation 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		Repeater
3.	Emission Designator:	F3E	
4.	Temperatures:	Ambient (Tnom)	24°C
5.	Supply Voltages:	Vnom	115V ac

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

6.	Equipment Category:	Single channel Two channel Multi-channel	[] [] [X]	
7.	Channel spacing:	Narrowband Wideband	[X] []	25kHz
8.	Test Location:	TRL Compliance Services Up Holland Long Green	[X] []	

9. Modifications made during test program:

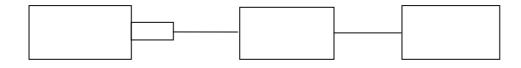
No modifications were performed.

COMPLIANCE TESTS

AMPLIFIER GAIN - CONDUCTED - PART 2.1046 - UPLINK

Ambient temperature	
Relative humidity	
Supply voltage	
Channel number	

- 23°C = =
- 45%
- Channel number
- = 115V ac
- = See test results



Spectrum Signal Generator TRL179 Attenuator TRL220 Cable TRL279 EUT Analyser TRL479

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
812.7625MHz	-77.3	26.62	-6.5	97.42	97.42
814.4375MHz	-77.5	26.62	-7.3	96.82	96.82
815.4375MHz	-77.4	26.62	-7.3	96.72	96.72

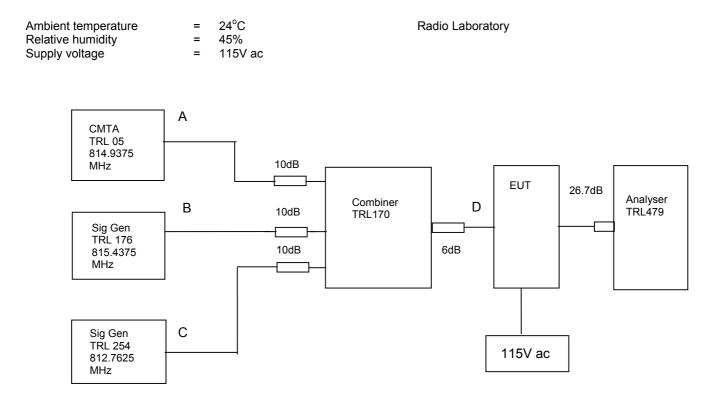
Radio Laboratory

Notes:

The level of the signal generator takes into consideration the loss from the cable.
 The signal generator input was increased by 20dBs and the level of the output signal re-measured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

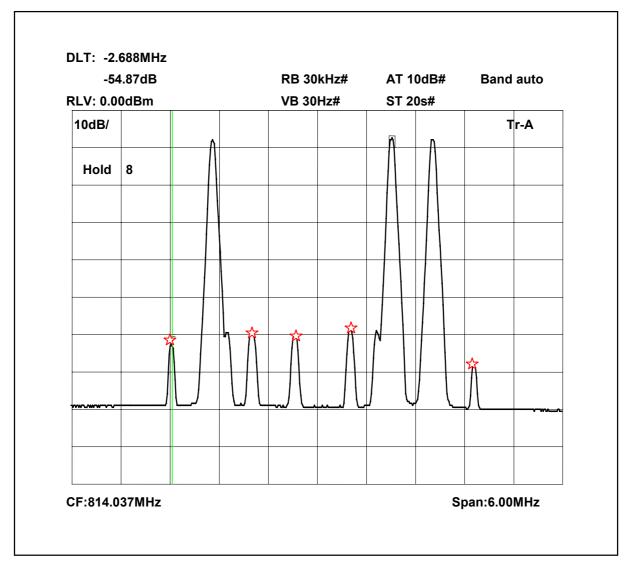
AMPIFIER INTERMAODULATION SPURIOUS EMISSIONS - CONDUCTED - PART 2.1053- UPLINK



The Intermodualation 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 –77.3dBm The cable and attenuator loss between the EUT and the spectrum analyser was 26.62dB.

Sweep data is shown on the next page:

Intermodulaion Inband



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

Intermodulation Wideband

-73	3.16dB		RB	100kHz#	AT 1	0dB#	Band	auto
LV: 0.0	0dBm		VB	3kHz#	ST 2	0s#		
10dB/			n				Т	r-A
Hold	17							
	****	<u></u>				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	www.	1_~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
L					ww			
T:0Hz		 •••				SP:2.0	00GHz	

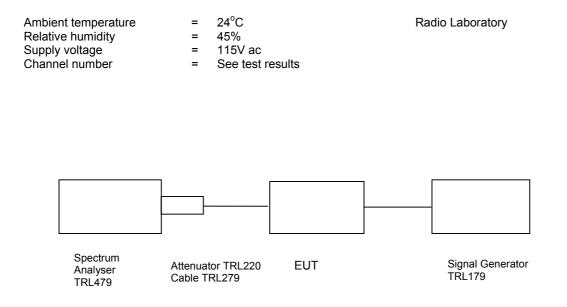
The above plot shows that there are no products outside the bands.

Test equipment used for intermodulation test

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
SIGNAL GENERATOR	MARCON	2042	119562/02	254	x
СМТА	ROHDE & SCHWARZ	CMTA52	894715/033	05	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x
COMBINER	ELCOM	RC-4-50	N/A	170	x

TRANSMITTER TESTS

AMPLIFER MODULATED CHANNEL TEST - CONDUCTED - Part 2.1049- UPLINK

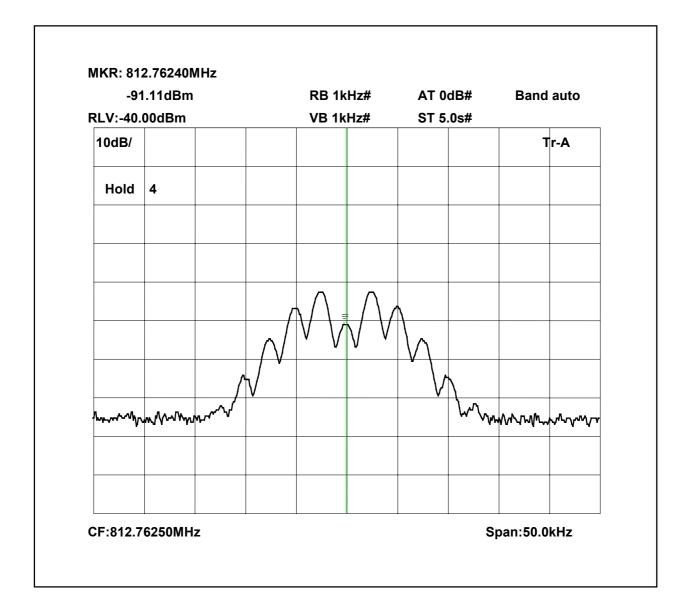


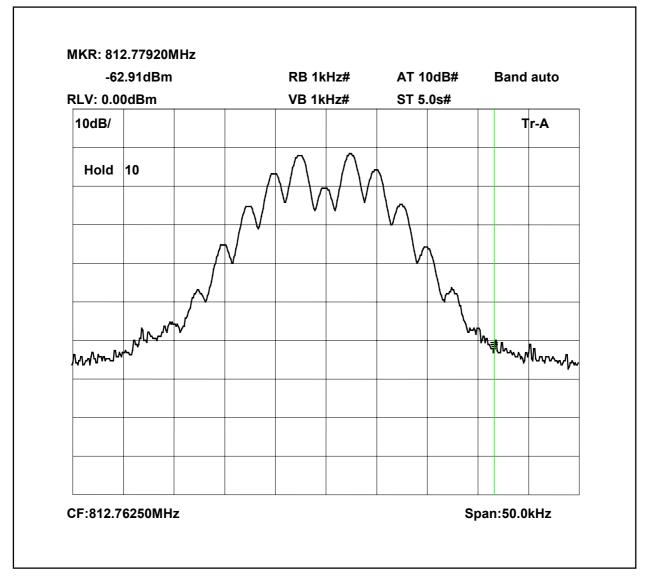
This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-73.1dBm) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

Note: The cables and attenuators had the following losses.

- 1. Cable TRL279 and attenuator TRL220 26.62dB
- 2. Cable between signal generator and EUT 0.4dB

812.7625MHz Signal Generator deviation set to 5kHz

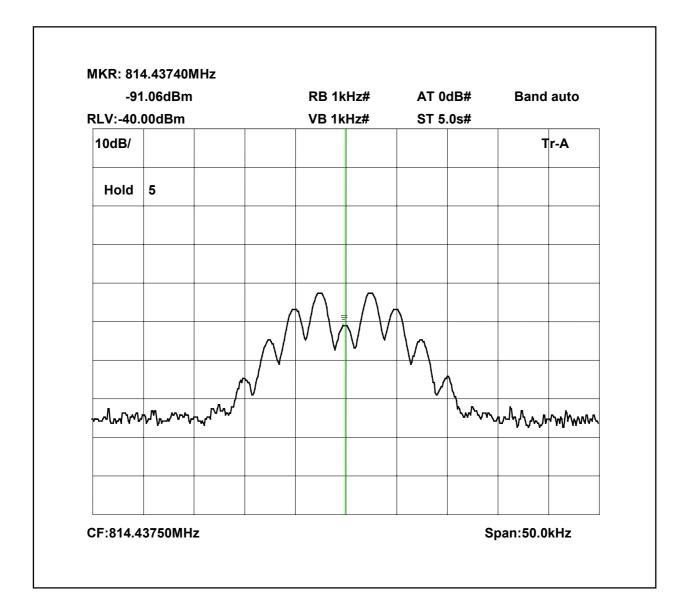


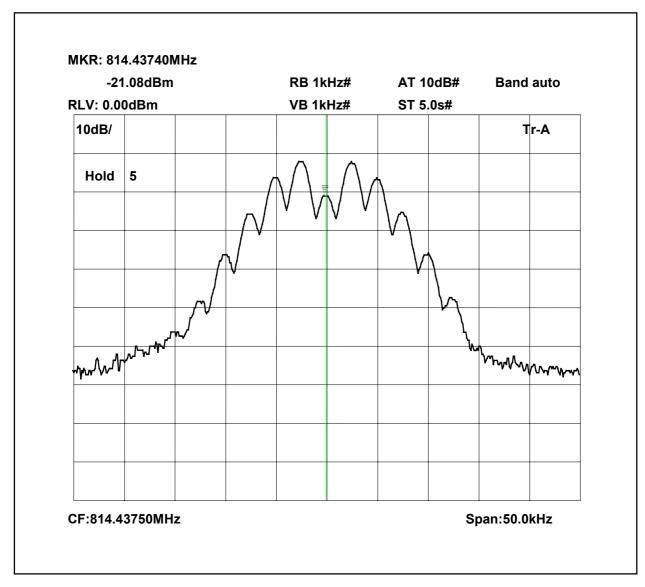


812.7625MHz Signal Generator and EUT deviation set to 5kHz

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

814.4375MHz Signal Generator deviation set to 5kHz

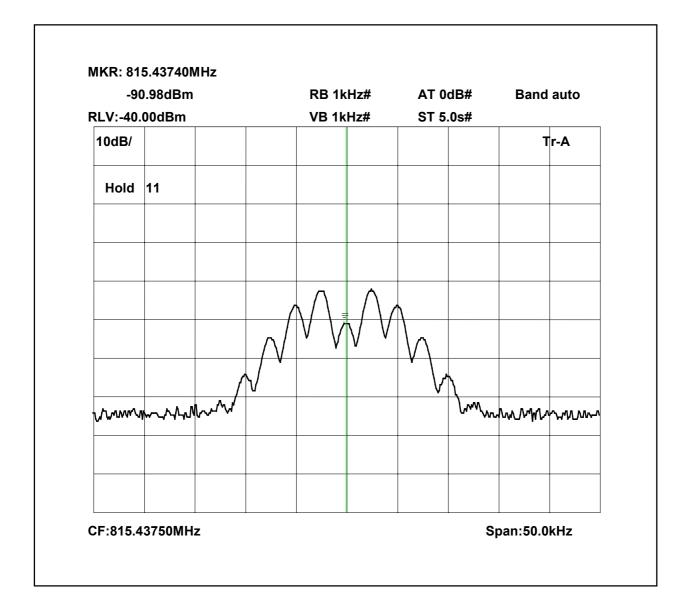


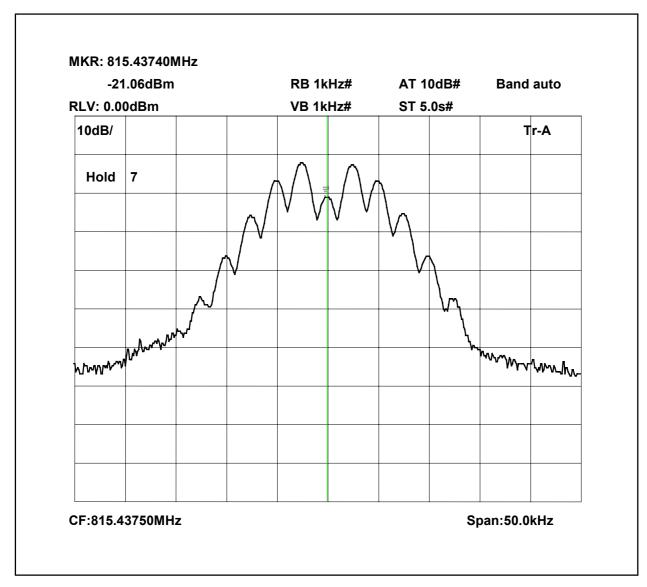


814.4375MHz Signal Generator and amplifier deviation set to 5kHz

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

815.4375MHz Signal Generator deviation set to 5kHz





815.4375MHz Signal Generator deviation set to 5kHz

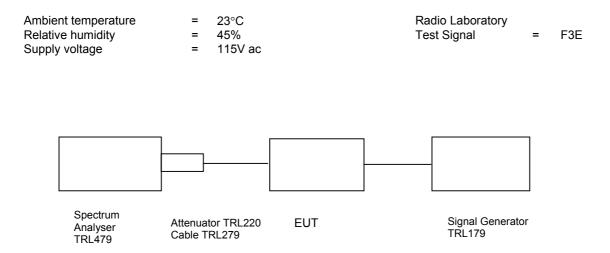
The above plots depicting the output waveshape show no measurable distortion visible when compared to the input signal.

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

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – CONDUCTED – Part 2.1051– UPLINK



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

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

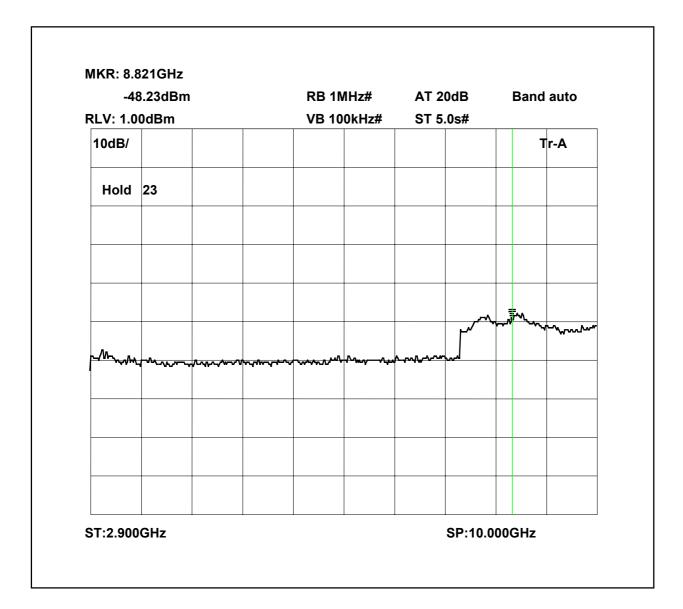
The test equipment used for the Transmitter Conducted Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

Conducted emissions 812.7625MHz 0 - 3GHz

-7.	22dBm			RB 1	MHz#	AT 2	0dB	Band	auto	
RLV: 1.0	0dBm			VB 10	0kHz#	ST 5	.0s#	;#		
10dB/								т	r-A	
Hold	6									
					A04 .			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	ሎሊ ሎ.∿	
h	ᠰᠬᠬ᠇᠕ᠰ	mm	WI-where	V.	Anne Marke	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			
ST:0Hz							SP:3.00			

Conducted emissions 812.7625MHz 2.9 - 10GHz



Conducted emissions 814.4375MHz 0 - 3GHz

-7.	49dBm				RB 1M	/IHz#	AT 2	0dB	Band	l auto
RLV: 1.0	0dBm		_		VB 10	0kHz#	ST 5	.0s#		
10dB/		3							۲	ſr-A
Hold	8									
L			L.	<u>~~~</u> ~~~^~~~^~~~~^~~~~~~~~~~~~~~~~~~~~~	᠕᠆᠕᠕᠕	~ <i>~~~</i> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	᠂᠊ᠬ᠇ᠯᠮ	ᡧᡟᢦᠰᢦ᠆ᢧᠵ᠇	_┢ ┅≁┉ _┛ ╟╌ _╍	-www-&~~

Conducted emissions 814.4375MHz 2.9 - 10GHz

-48	8.06dBn	n		RB 1N	/Hz#	AT 2	0dB	Band auto		
RLV: 1.0	0dBm			VB 10	0kHz#	ST 5	.0s#			
10dB/									Tr-A	
Hold	10									
	+							\	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
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Conducted emissions 815.4375MHz 0 - 3GHz

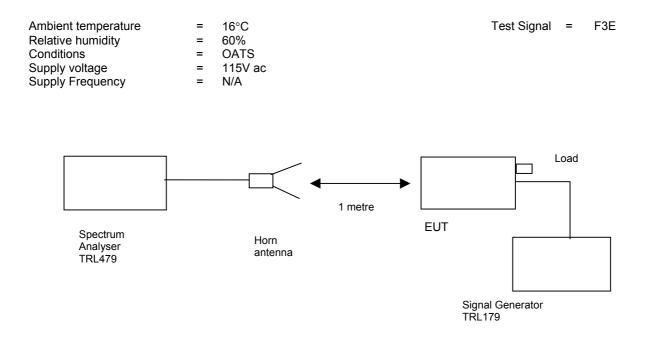
-7.	72dBm				RB 1	/Hz#	AT 20	0dB	Band	auto
RLV: 1.0	0dBm				VB 10	0kHz#	ST 5.	0s#		
10dB/		1	=						Т	r-A
Hold	10									
	-									
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Conducted emissions 815.4375MHz 2.9 - 10GHz

-4	7.64dBm			RB 1M	MHz#	AT 2	0dB	Band	l auto
RLV: 1.0	0dBm			VB 10	0kHz#	ST 5	.0s#		
10dB/								ר I	ſr-A
Hold	10			-					
							m	www.	-hw
4-2-A	www.ra	nn-mm	<u></u>	~~~~~		᠆᠆᠕ᠰᠰᢇ			

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– UPLINK



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 50 ohm 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

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

Radiated emissions 812.7625MHz 0-3GHz

-

-7	4.04dBm	ı		RB 10	0kHz#	AT 1	0dB#	Band auto		
RLV:-10	.00dBm			VB 10	VB 100kHz# ST 10s#					
10dB/								1	r-A	
Hold	13									
	hankow	4~~~~~~^^	hand	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	manne	mmm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	manna	
L.V. V										
ST:0Hz							SP:3.00			

Radiated emissions 812.7625MHz 2.9-10GHz

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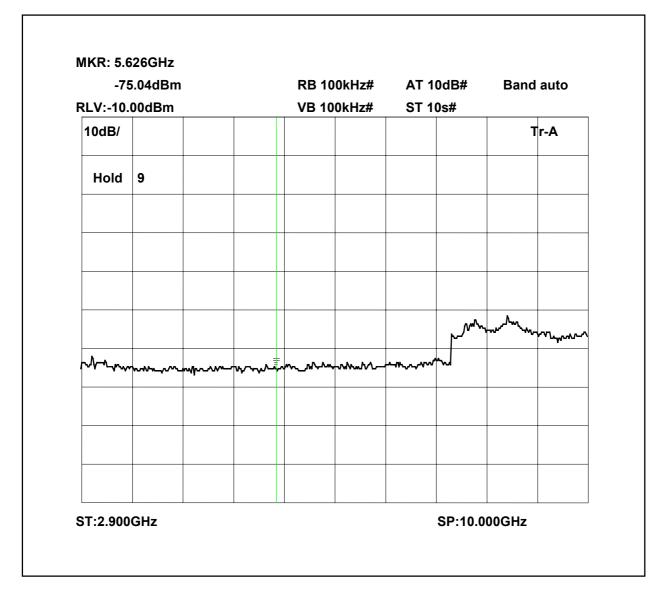
-75	5.38dBm	1		RB 1	00kHz#	AT 1	0dB#	Band	auto	
RLV:-10.	00dBm			VB 100kHz# ST 10s			0s#			
10dB/								Т	r-A	
Hold	7									
							Merth	M.	᠆ᠰᢧᠬᡒᡅᠩ	
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ST:2.900							SP:10.0	00011-		

Radiated emissions 814.4375MHz 0-3GHz

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-74	4.04dBm	1			RB 10	0kHz#	AT 1	0dB#	Band	auto
RLV:-10.00dBm				VB 100kHz#		ST 10s#				
10dB/									Т	r-A
Hold	5									
				-						
			=	=						
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	hard and a state of the second s	mann	h	ᢣ᠕ᠰᠬ᠆ᡘᢇ	mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$\sim \sim $	phone and the second	᠃᠆ᠬᡁ᠉᠆ᠬᡟᠰ
ST:0Hz								SP:3.00		

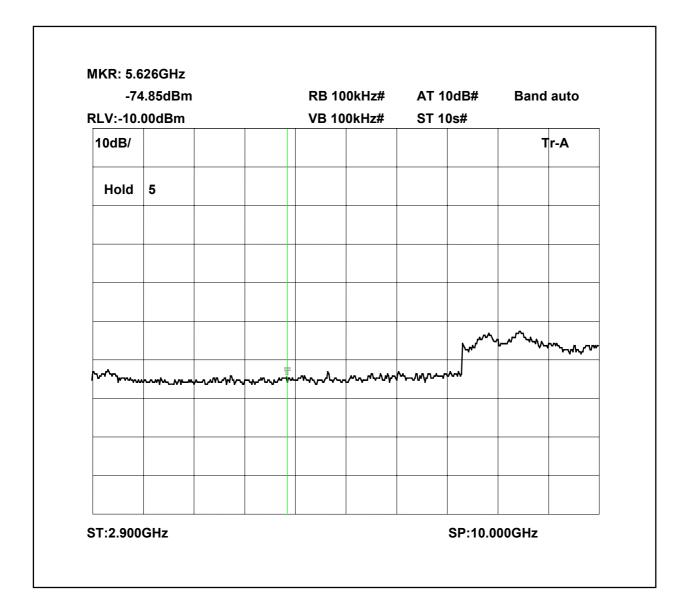
Radiated emissions 814.4375MHz 2.9-10GHz



Radiated emissions 815.4375MHz 0-3GHz

-7	3.99dBn	-73.99dBm			RB 100kHz# AT 1		0dB#	Band	d auto	
RLV:-10.00dBm				VB 100kHz#		ST 10s#				
10dB/									-	Tr-A
Hold	9									
			- Mar	Ī.	W	m	~~~^\\w^1	~~~~~~~~~~	""I	mm
		∿w _w n_ _t ,.^w	<b>~~</b> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							

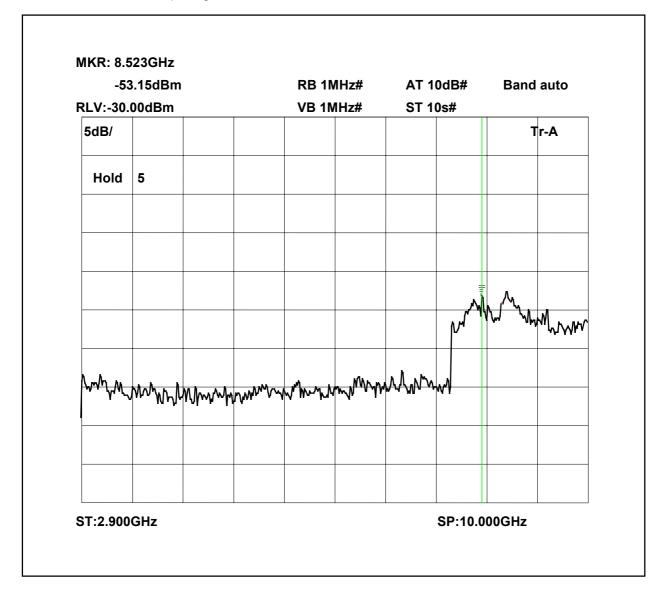
Radiated emissions 815.4375MHz 2.9-10GHz



Radiated emissions no input signal 0-3GHz

-7	1.83dBm	ı	RB 10	0kHz#	AT 1	0dB#	Ban	d auto	
RLV: 0.0	0dBm		VB 100kHz#		ST 20s#				
10dB/								Tr-A	
Hold	25								
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			how	~~~~~	
	www								
ST:0Hz	•	•				6D·3	000GHz	·	

Radiated emissions no input signal 2.9-10GHz



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I he test equipment used for the	Transmitter Spurious Emissions:

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
HORN	EMCO	3115	9010-3581	139	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

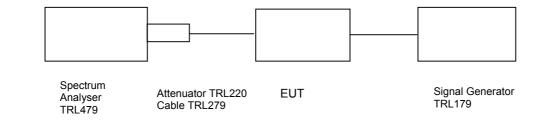
AMPLIFIER GAIN - CONDUCTED - PART 2.1046 - DOWNLINK

Ambient temperature Relative humidity Supply voltage Channel number

21°C =

Radio Laboratory

- = 61%
- = 115V ac
- = See test results



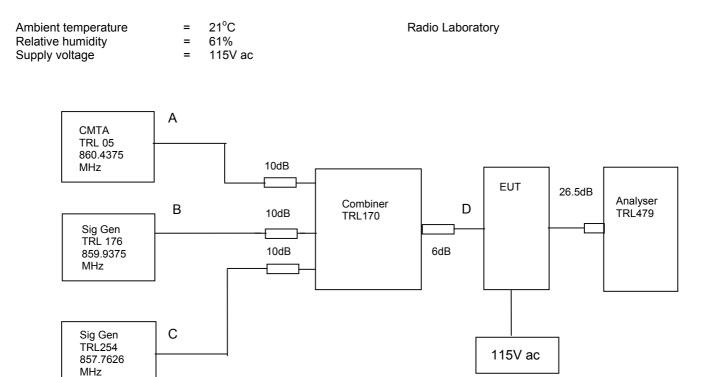
Frequency MHz	Signal Generator input level dBm	Cable & Attenuator loss dB	Level at Spectrum Analyser dBm	Gain dB	Gain after 20dB input level increase dBm
857.7625MHz	-77.79	26.57	-7.36	96.7	96.7
859.4375MHz	-77.4	26.57	-6.9	97.07	97.07
860.4375MHz	-77.4	26.57	-736	96.61	96.61

Notes:

The level of the signal generator takes into consideration the loss from the cable.
 The signal generator input was increased by 20dBs and the level of the output signal re-measured

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-200	N/A	103	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

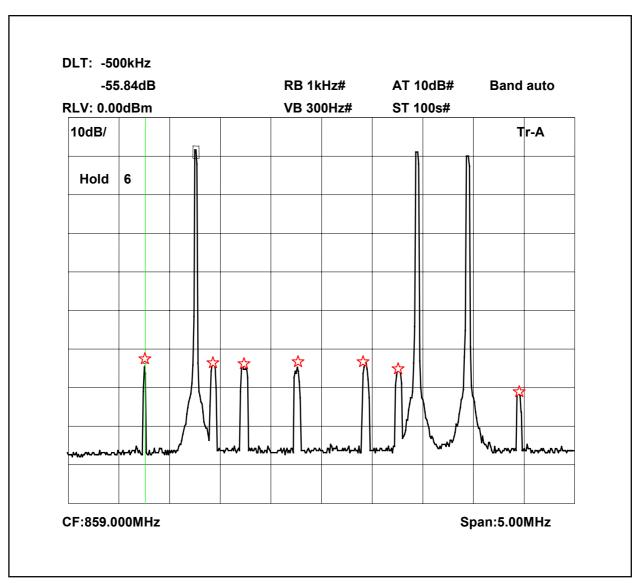
AMPIFIER INTERMAODULATION SPURIOUS EMISSIONS - CONDUCTED - PART 2.1053- DOWNLINK



The Intermodualation 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 –77.4dBm. The cable and attenuator loss between the EUT and the spectrum analyser was 26.57dB.

Sweep data is shown on the next page:

Intermodulaion Inband



The above plot shows that all products (designated by $\stackrel{\star}{\succ}$) are at least 50dB below the fundamentals.

Intermodulation Wideband

0.12dB RLV: 0.00dBm					/IHz#	AT 10dB#		Band	auto	
		1	VB 3kHz#		ST 20s#			1		
10dB/					-				۲	r-A
Hold	11									
			w					^		
w										
ST:0Hz								SP:2.0		

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	ANRITSU	MS2665C	MT26089	479	x
SIGNAL GENERATOR	MARCON	2042	119562/02	254	x
СМТА	ROHDE & SCHWARZ	CMTA52	894715/033	05	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x
COMBINER	ELCOM	RC-4-50	N/A	170	x

TRANSMITTER TESTS

AMPLIFER MODULATED CHANNEL TEST - CONDUCTED - Part 2.1049- DOWNLINK

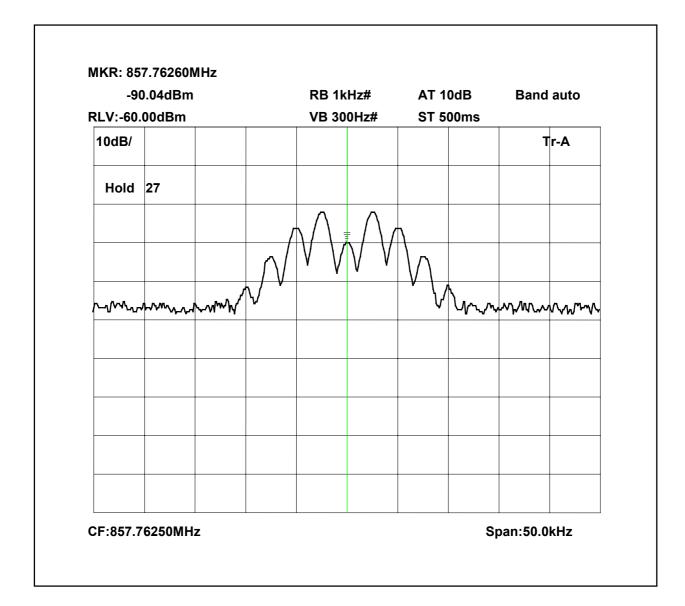
Ambient temperature Relative humidity Supply voltage Channel number	= 21°C = 61% = 115V ac = See test		Radio Laboratory	
]			
Spectrum Analyser TRL479	Attenuator TRL220 Cable TRL279	EUT	Signal Generator TRL179	r

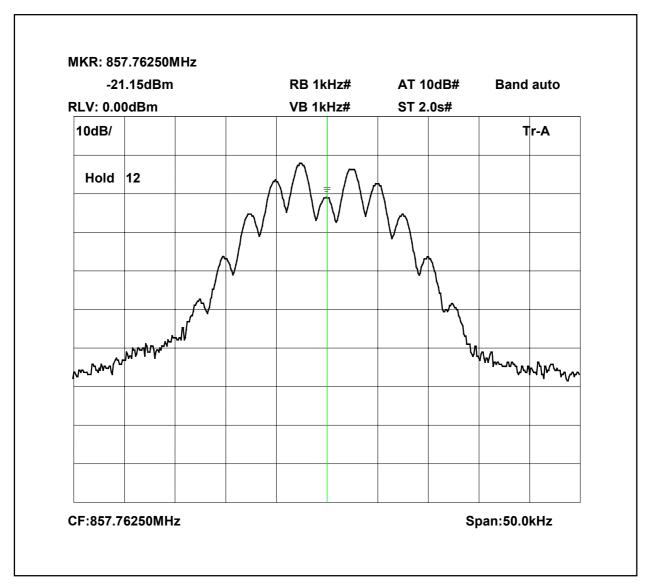
This test was performed to show that the amplifier does not alter the input signal in any way. The input signal was set to the maximum input level (-77.4dBm) and modulated with a 2500Hz tone. The plots show the signal measured at the signal generator and the signal measured at the output of the EUT.

Note: The cables and attenuators had the following losses.

- 1. Cable TRL279 and attenuators TRL220 = 26.62dB
- 2. Cable between signal generator and EUT = 0.4B

857.7625MHz Signal Generator deviation set to 5kHz

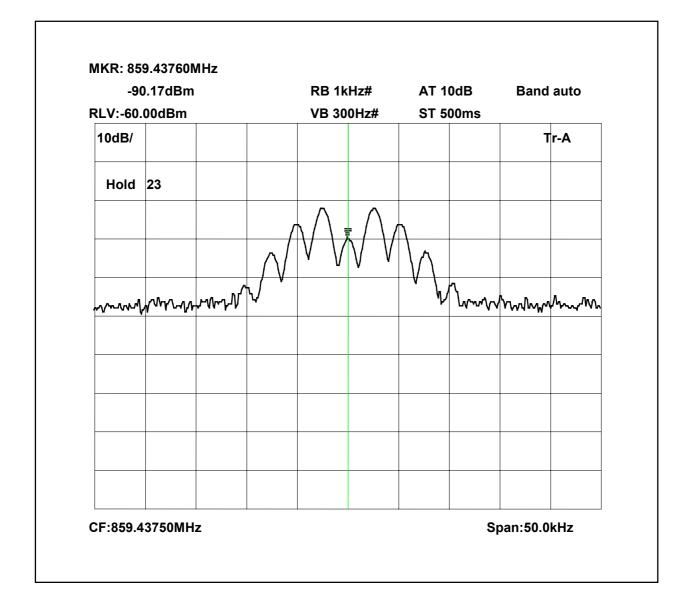


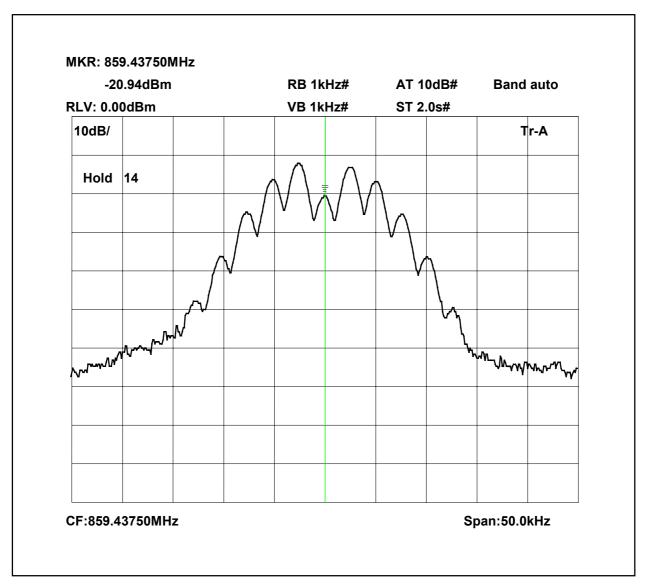


857.7625MHz Signal Generator and EUT deviation set to 5kHz

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

859.4375MHz Signal Generator deviation set to 5kHz

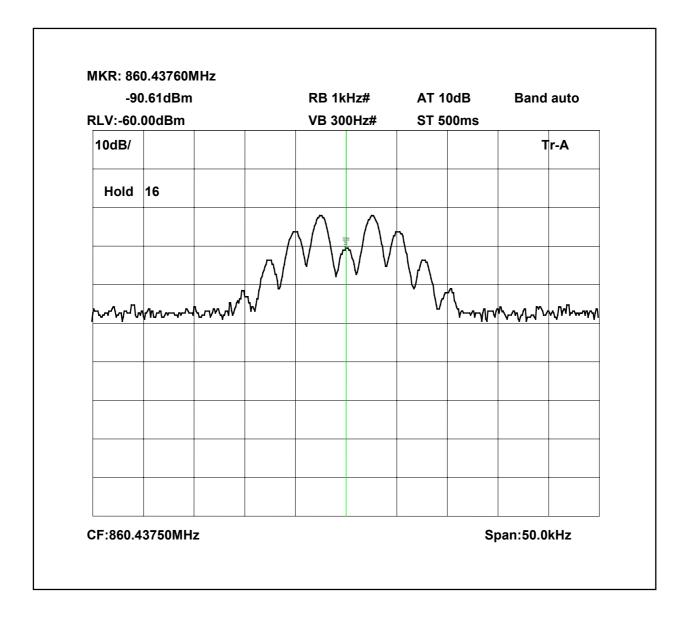




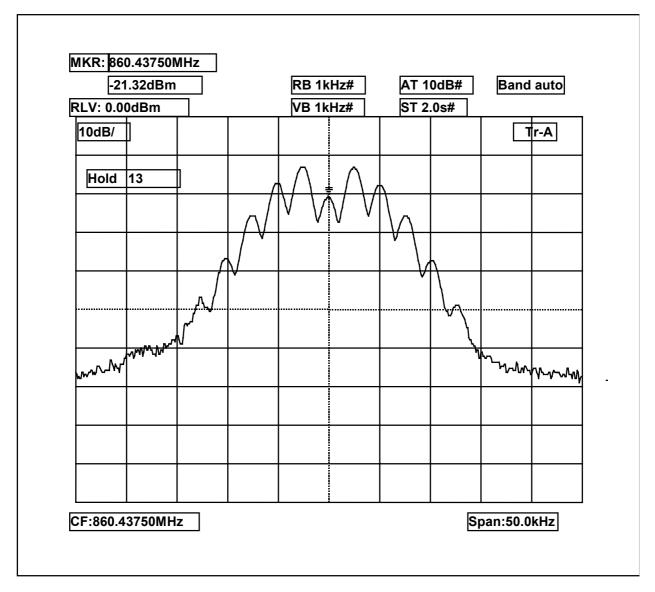
859.4375MHz Signal Generator and amplifier deviation set to 5kHz

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

860.4375MHz Signal Generator deviation set to 5kHz



860.4375MHz Signal Generator deviation set to 5kHz



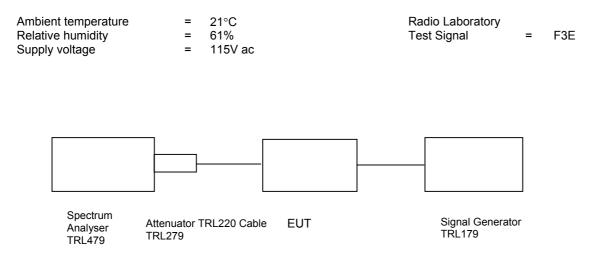
The above plots depicting the output wave shape show no measurable distortion visible. When compared to the input signal.

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

TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-200	N/A	103	
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS - CONDUCTED - Part 2.1051- DOWNLINK



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

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

The test equipment used for the Transmitter Conducted Emissions:

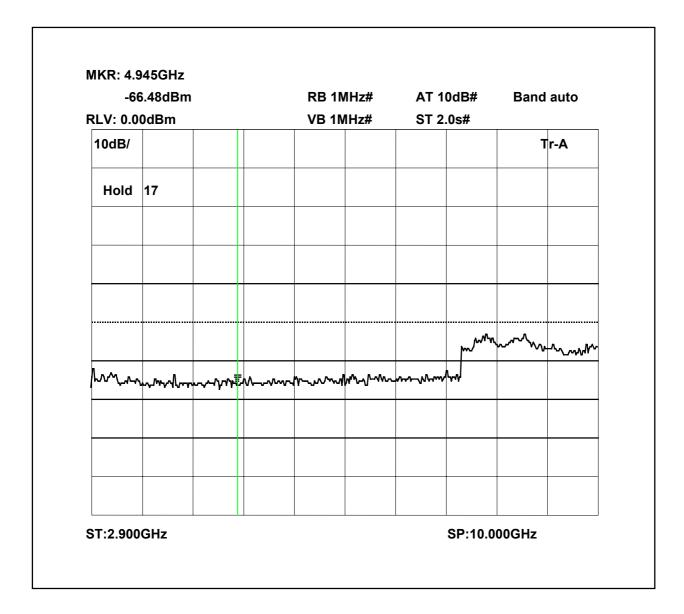
TYPE OF EQUIPMENT	MAKER/ SUPPLIER	MODEL No	SERIAL No	TRL No	ACTUAL EQUIPMENT USED
SPECTRUM ANALYSER	ANRITSU	MS2665C	MT26089	479	x
ATTENUATOR	BIRD	8304-200	N/A	103	
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

Conducted emissions 857.7625MHz 0-3GHz

r.

	97dBm			RB 1M			0dB#	Band	auto
RLV: 0.00	DdBm h			VB 1N	/IHz#	ST 2	.0s#		
10dB/]		-					נ	r-A
Hold	14								
		-							
<u> </u>									
	_					A	ᠬᠰ᠋᠕ᢣ᠋ᠺ᠕	www.whw	᠕ᢆᠰᠰ
mmh	╩╍ᠧᠵ᠕᠆ᢇ	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u>↓</u> ~~~~^^^	_┲ ┎┙┶┓ <mark>╖┍┙</mark> ┿	<u> </u>				

Conducted emissions 857.7625MHz 2.9-10GHz

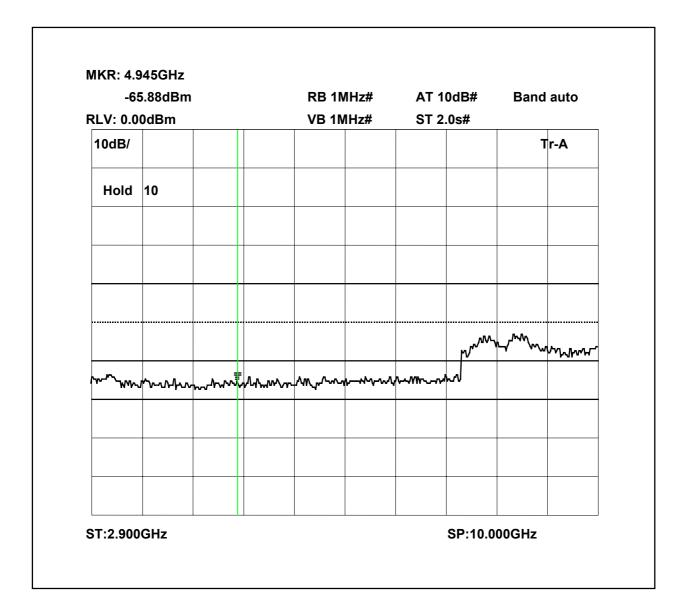


Conducted emissions 859.4375MHz 0-3GHz

r.

-6.98dBm	RB 1MHz#	AT 10dB#	Band auto
RLV: 0.00dBm	VB 1MHz#	ST 2.0s#	
10dB/			Tr-A
Hold 13			
Lawson - whow with	www.m.m.	how when how	hhmmm humm

Conducted emissions 859.4375MHz 2.9-10GHz



Conducted emissions 860.4375MHz 0-3GHz

r.

T 2.0s#	Tr-A
	Tr-A
when when	have have a second
~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

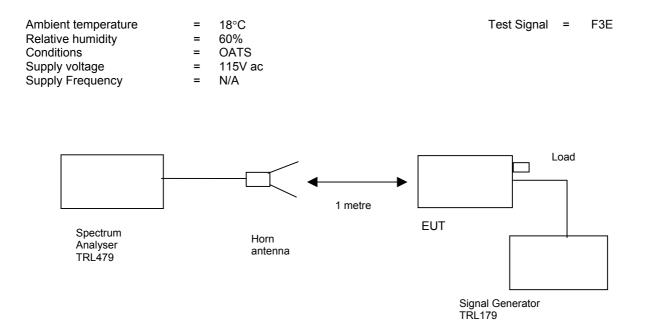
Conducted emissions 860.4375MHz 2.9-10GHz

r.

-66.61dBm RLV: 0.00dBm			RB 1M	/Hz#	AT 1	0dB#	Band	auto	
				VB 1MHz#		ST 2.0s#			
10dB/								ר	r-A
Hold	8								
							marth	www	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
www.	Amm	ᠬ᠕᠕᠕	ӯ _ѡ ҧѡѵѵѵѡ	hono-hoo	NAM	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	w		
ST:2.900	сu-						SP:10.0	00CU-	

TRANSMITTER TESTS

AMPLIFIER SPURIOUS EMISSIONS – RADIATED – Part 2.1053– DOWNLINK



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 50 ohm load.

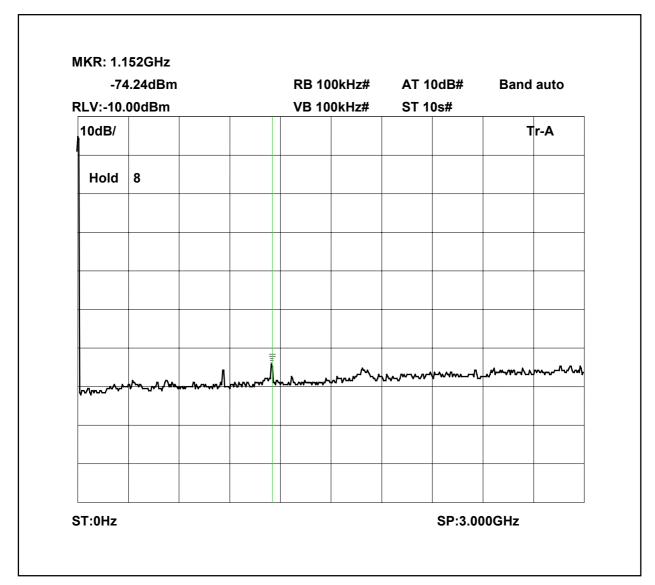
The Spurious limit was calculated as follows:

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

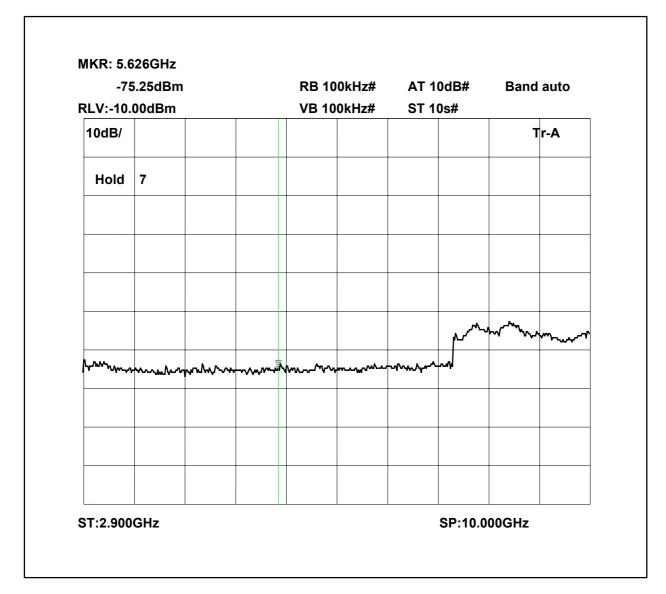
At least 43 + 10 log PdB

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

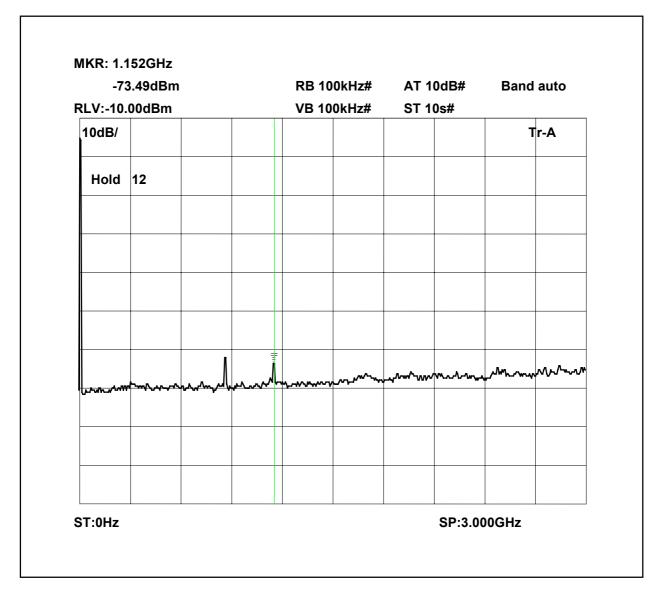
Radiated emissions 857.7625MHz 0-3GHz



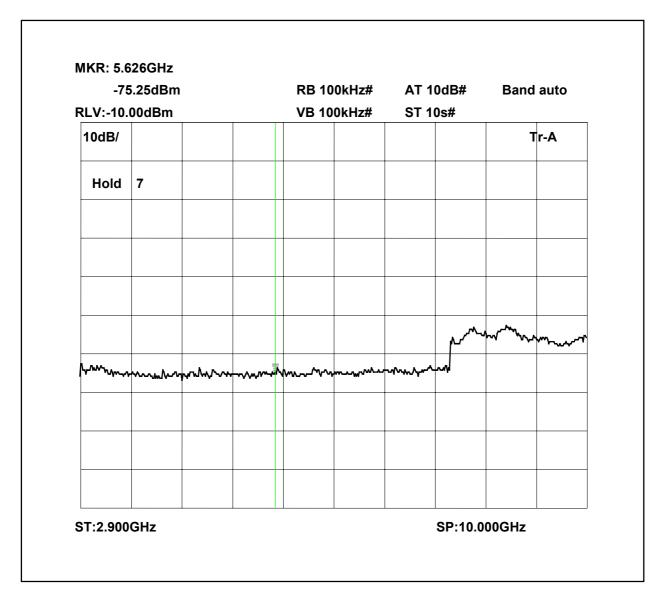
Radiated emissions 857.7625MHz 2.9-10GHz



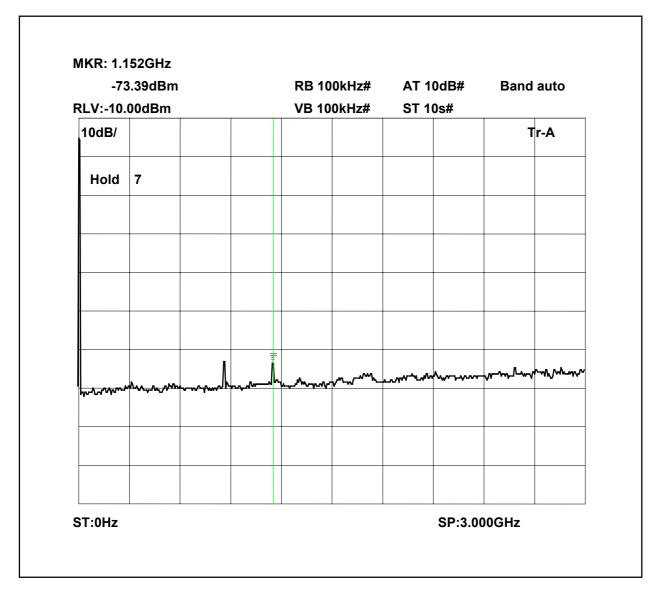
Radiated emissions 859.4375MHz 0-3GHz



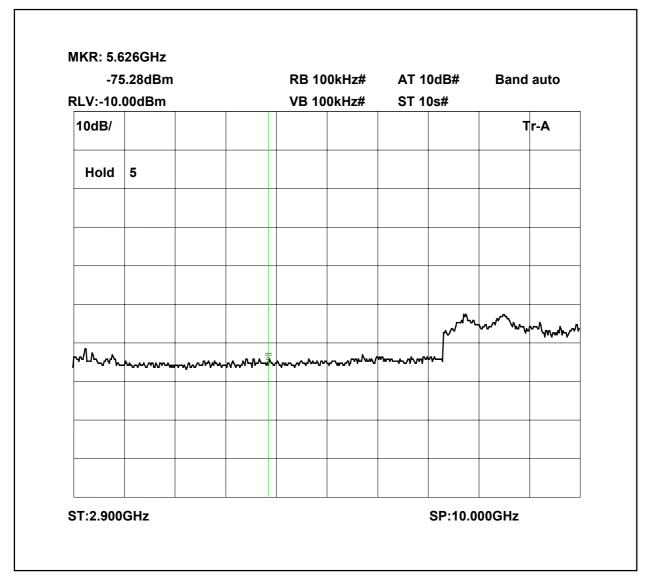
Radiated emissions 859.4375MHz 2.9-10GHz



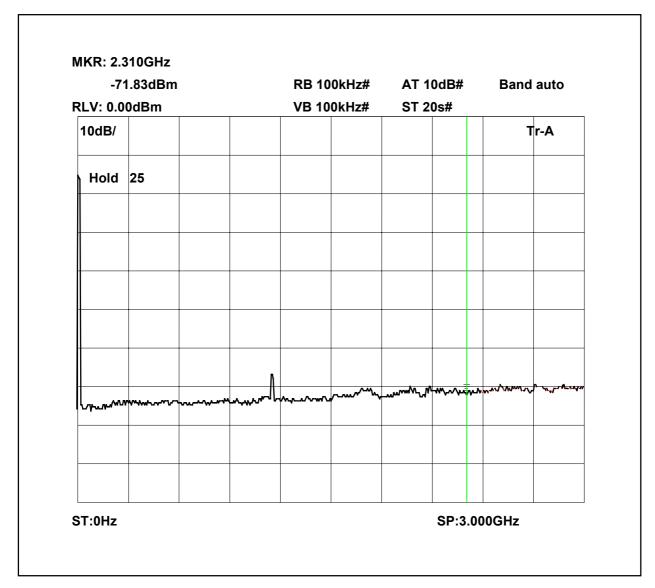
Radiated emissions 860.4375MHz 0-3GHz



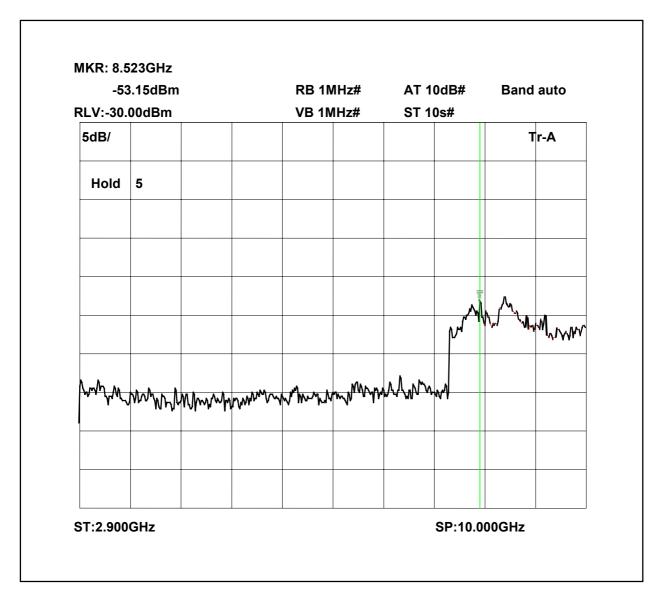
Radiated emissions 860.4375MHz 2.9-10GHz



Radiated emissions no input signal 0-3GHz



Radiated emissions no input signal 2.9-10GHz



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	ANRITSU	MS2665C	MT26089	479	x
HORN	EMCO	3115	9010-3581	139	x
ATTENUATOR	BIRD	8304-300-N	N/A	220	x
ATTENUATOR	BIRD	8308-100	N/A	112	х
CABLE	ROSENBERGER	MICRO COAX	N/A	279	x
SIGNAL GENERATOR	MARCON	2042	119388/080	179	x

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.	ТСВ	-	APPLICATION FEE	[X] [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 Rx PSU AUX	[X] [] [] []
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	[] [] []
I.	USER INSTALLATION / OPERATING INSTRUCTIONS	-		[X]

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