

# **Retlif Testing Laboratories**

101 New Boston Road, Goffstown, NH 03045 603-497-4600 - Fax: 603-497-5281 CORPORATE OFFICE 795 Marconi Avenue Ronkonkoma, NY 11779 631-737-1500 Fax 631-737-1497 (A NY Corporation)

BRANCH LABORATORIES 3131 Detwiler Road Harleysville, PA 19438 215-256-4133 Fax 215-256-4130

WASHINGTON REGULATORY OFFICE 703-533-1614 Fax 703-533-1612



Data Package on

1000 mW COFDM Video Transmitter Model Number: PD2-TX-1000-S

Customer Name:	DTC Communications, Inc.
Customer P.O.:	503324
Date of Data Package:	May 18, 2009
Data Package Number:	R-5174N
Test Start Date:	May 8, 2009
Test Finish Date:	May 12, 2009
Test Technician:	Matthew Seamans
Laboratory Supervisor:	Todd Hannemann
Branch Manager:	Scott Wentworth
<b>Results Prepared By:</b>	Jamie Ramsey

Our letters, procedures and reports are for the exclusive use of the customer to whom they are addressed and their communication or the use of the name of Retlif Testing Laboratories must receive our prior written approval. Our letters, procedures and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. The letters, procedures and reports and the name of Retlif Testing Laboratories or insignia are not to be used under any circumstances in advertising to the public. This report shall not be reproduced, except in full, without the prior written approval of Retlif Testing Laboratories.

# Table of Contents

Certification and Signatures	.3
Revision History	
Test Program Summary	
Spurious Radiated Emissions (ERP)	
Equipment List	
Test Photographs	



Retlif Testing Laboratories

#### **Certification and Signatures**

We certify that these Test Results are true results obtained from the tests of the equipment stated, and relates only to the equipment tested. We further certify that the measurements shown in this Test Results package were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.

Todd Hannemann Laboratory Supervisor NARTE Certified ATL-0255-T

Acot Went

Scott Wentworth Branch Manager NVLAP Approved Signatory

#### **Non-Warranty Provision**

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

#### Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report may not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.



**Retlif Testing Laboratories** 

# **Revision History**

Revisions to this document are listed below; the latest revised document supersedes all previous issues of this document.

Revision

**Date** May 18, 2009 Pages Affected Original Release



**Retlif Testing Laboratories** 

## **Test Program Summary**

Data Package Number:	R-5174N
Customer:	DTC Communications, Inc.
Address:	486 Amherst Street
	Nashua, NH 03063
Test Sample:	1000 mW COFDM Video Transmitter
Model Number:	PD2-TX-1000-S
Serial Number:	SB020378
Manufacturer:	DTC Communications

#### **Test Specification:**

FCC Part 2, TIA-603-C, Spurious Radiated Emissions (ERP)

#### Mode of Operation:

During the performance of all testing specified herein, the EUT was continuously transmitting into a 50 ohm load.

#### **Test Method:**

The following table depicts the test method that was performed on the EUT and the corresponding test results:

Testing Dates	Test Method	Test Results
5/8/09 to 5/12/09	Spurious Radiated Emissions (ERP), 30 MHz to 25 GHz	Complied

No modifications were made to the EUT during the course of this testing program in order to demonstrate compliance with the specified requirements.



**Retlif Testing Laboratories** 

Spurious Radiated Emissions (ERP) Equipment List, Test Photographs and Test Data



**Retlif Testing Laboratories** 

# Equipment List Spurious Radiated Emissions (ERP)

EN	Туре	Manufacturer	Description	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/21/2009	1/21/2010
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	1/31/2008	1/31/2010
3258	Double Ridge Guide	EMCO	1 - 18 GHz	3115	8/20/2008	8/20/2009
3430	Horn Antenna	MCS Corporation	18 GHz - 26.5 GHz	K-5039	1/12/2009	1/21/2010
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	7/21/2008	7/21/2009
4202	Biconilog	EMCO	26 MHz - 2.7 GHz	3142	8/20/2008	8/20/2009
5053	Biconilog	EMCO	26 MHz - 3 GHz	3142C	1/27/2009	1/27/2010
5070	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	1/14/2009	1/14/2010
5072	Preamplifier	Miteq	18 GHz-40 GHz	JS4-18004000-30	1/10/2009	1/10/2010
530A	AM/FM Signal Generator	Marconi Instru.	10 kHz - 1.2 GHz	2023	8/21/2008	8/21/2009

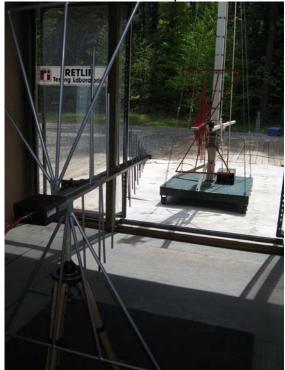


**Retlif Testing Laboratories** 

# Test Photographs Spurious Radiated Emissions (ERP)



Test Setup

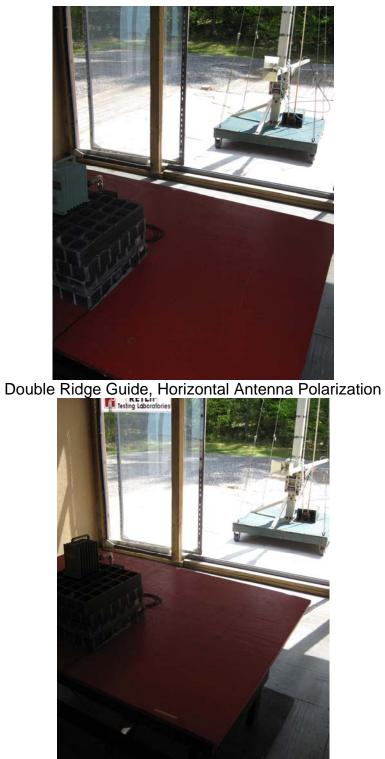


Test Setup



**Retlif Testing Laboratories** 

## Test Photographs Spurious Radiated Emissions (ERP)



Double Ridge Guide, Vertical Antenna Polarization



**Retlif Testing Laboratories** 

## Test Photographs Spurious Radiated Emissions (ERP)



Test Setup, High Gain Horn, Horizontal Antenna Polarization



Test Setup, High Gain Horn, Vertical Antenna Polarization



**Retlif Testing Laboratories** 

				EMISSIC	DNS DATA	<b>NSHEET</b>					
est Method		Spurious Radi	ated Emissior	is (ERP) 30 N	IHz to 25 GHz						
							Job Not R-5174N				
est Sample		1000 mW COI	an tea Konstructure and the second	ansmitter	976-978 978 498 200 9 10 10 10 10 10 10 10 10 10 10 10 10 10			12 (12 (12 )) (12 (12 )) (12 ) 13 (12 ) (1	n barran manan manan Manan manan mana		
odel No.		PD2-TX-1000-	S			Serial No:	SB020378				
est Specific	ation	FCC Part 2, T	A-603-C			an som te state at en en state of a name in an order to an on the state of a state of the					
		Continuouolu		ta = 50 Ohm		Paragraph: 2	.1053	NAMAGO NI INDI MANDA ANA MPANANANA ANA MANA	an a		
perating M	oue.	Continuously T	ransmitting ir	ito a 50 Onm	Load.						
echnician:		M. Seamans	a kizi karikan kati kana kara kara kara kara kara kara kara		2011/2019/11/2010/07/07/2011/2011/2011/2012/2012	Date:	5/12/2009				
otes		Transmit Freq	uency: 2.451 (	GHz	anarata na manarata ng papananana		9) An anna cannacainte linne comhlacaint a		en angelen fan Salaan te en angelen fan de fan de sener	10001000000000000000000000000000000000	
		Peak Detecto	ſ								
Test	Antenna	EUT	Referance	Signal Gen	Reference Ant	N GUUTE STATE I STATE S	an a		Corrected	Spurious	
Frequency	Position	Position	Reading	Level	Gain				Reading	Limit	
MHz	(H/V) - Height	Degrees\Axis	dBuV	dBm	dBd				dBm	dBm	
30.00	-	-	-	_	-				-	-13.00	
1	-	-	-		, -				-		
39.93	V-1m	0/Y	33.50	-61.50	-14.06		<u> </u>		-75.56	1	
40.25	V-1m	0/Y	32.50	-63.20	-13.82				-77.02	 	
43.34	V-1m	0/X	31.10	-70.50	-11.53		<u> </u>		-82.03	<u> </u>	
43.55	V-1m V-1m	0/Z 0/Y	29.60 32.40	-72.20 -72.50	-11.37	· · · · · · · · · · · · · · · · · · ·			-83.57	 	
79.10	V-1m V-1m	0/Y 0/Z	32.40	-72.50	-1.74				-74.24 -72.11		
79.81	V-1m	0/2. 0/X	33.90	-70.40	-1.71				-72.11		
81.10	V-1m	0/Y	35.60	-69.00	-1.70				-70.70	1	
82.16	V-1m	0/Y	35.70	-69.00	-1.70				-70.70	i	
83.90	V-1m	0/Y	31.20	-71.40	-1.70				-73.10		
	-	-	-	-	-				_	1	
	-	-	-	-	-				-	l	
		-	-	-	-				-		
	-	-	*						-	<u> </u>	
4902.00	-	-	*	-	-				-	<u> </u>	
7353.00 9804.00	-	-	*	-	-				-	<u> </u>	
12255.00	-		*	-	-	ļ			-		
14706.00	_	-	*	-					-	I	
17157.00	-	-	*	-	-				-		
19608.00			*	-	-				-	I	
22059.00	-	-	*		-				-	l	
24510.00	-	-	*		-				-	1	
1	-	-	-	P1	-				-		
25000.00	-	-	-	-					F.	-13.00	
wa											
							i				
	EUT Emission	s observed three	oughout the gi	ven frequency	spectrum were	e recorded & a	valuated				
·····					the noise floor			was a minimum	of		
	10dB below th	a limit				or the test eqt	aprilone which y	was a minimum	U.		

		RE	TLIF	TEST	ING LA	ABOR	ATORIE	S	
				27120-174-1-27-27-27-299-15-0927-1-7-27-2	DNS DAT/	<b>Notest</b>			
est Method	t graddy	Spurious Radi		ns (ERP) 30 N	IHz to 25 GHz				
Customer		DTC Commur	nications, Inc.			]Job No	R-5174N		
est Sample		1000 mW CO	FDM Video Tr	ansmitter	**********************	<u>, , , , , , , , , , , , , , , , , , , </u>		ET IN FREE NOT THE CONSTRUCTION OF THE INFORMATION OF THE INFORMATION OF THE	
lodel No:		PD2-TX-1000-	-S	****	*****	Serial No:	SB020378	KONTENENTIS I SIM OMOS AND PORTAGON A SIMULATINA DA SA	alan an a
est Specific	tation	FCC Part 2, T	IA-603-C		an a		1] Терниктикана корология корология и корол Терниктикана корология корология и корология	orner hande sin kan konstantiser fister her ander sin	
		1 001 alt 2, 1			Paragraph: 2	.1053			
perating M	ode:	Continuously <sup>-</sup>	Transmitting ir	nto a 50 Ohm	Load.		997 II. 1997 - B. 1997 II. 1997 - B	ANNA ANALY MANYA BILIMANA ANALANA AMAMPANA AMAMPANA AMAMPANA	and and a state of the second seco
echnician:		M. Seamans	****	geological de la constantia de la constante de		Date:	5/12/2009	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	****
otës:		Transmit Freq	uency: 2 466	GHz					
		Peak Detecto	•		HER BUSINESS CONTRACTOR DU LA DESCRITTORIA DA CONTRACTOR DE LA DESCRITTORIA DE LA	2010-03-04-02010-02010-02010-02010-02010-02-02010-02-02010-02-02010-02-02010-02-02010-02-02010-02-02010-02-020	an manage and a final point of the state of the	án a núðsu þegun í samur í samur í samur í sámur að kari sen sína sen sen sen sen sen sen sen sen se	14 y 1600 1602 16 2004 54 00 1600 1640 5500 1740 4500
Test	Antenna	EUT	Referance	Signal Gen	Reference Ant			Corrected	Spurious
Frequency	Position	Position	Reading	Level	Gain	<u> </u>	+	Reading	Limit
MHz	(H/V) - Height	Degrees\Axis	dBuV	dBm	dBd		┥───┤──	dBm	dBm
30.00	-	-	-	-				-	-13.00
40.05		- 0/X	- 28.70	-74.30	-13.97			-88.27	1
40.03	V-1m	0/X 0/Z	30,30	-69.30	-13.97		· · · · · · · · · · · · · · · · · · ·	-83.24	1
40.08	V-1m	0/2. 0/Y	29.80	-73.80	-13.94			-03.24 -87.71	
40.13	V-1m	0/1 0/X	30.20	-66.90	-12,35			-79.25	
43.02	V-1m	0/X 0/Z	30.40	-68.60	-11.77			-79.23	· · · · · · · · · · · · · · · · · · ·
43.38	V-1m	0/2. 0/Y	28.70	-74.80	-11.50			-86.30	I
79.65	V-1m	0/1 0/X	34.20	-69.10	-1.71			-70.81	
79.89	V-1m	0/X 0/Z	33.20	-70.90	-1.70			-70.81	
80.21	V-1m	0/2 0/Y	34.30	-69.30	-1.70			-71.00	
80.61	V-1m	0/X	35.40	-68.60	-1.70			-70.30	
80.69	V-1m	0/Z	34.10	-69.10	-1.70			-70.80	 
258.82	H-1m	0/Y	30.00	-75.60	3.74			-71.86	
269.37	H-1m	0/Y	35.80	-69.20	3.91			-65.29	
	-	-	*	-				-	
4932.00	-	-	*	-	-				1
7398.00	-	-	*	-	-			-	
9864.00	-	-	*	-	-		· · · · · · · · · · · · · · · · · · ·	-	
12330.00	-	-	*	-	-				I
14796.00	-	~	*	~	-			-	
17262.00	-	÷	*	-	-			-	<u> </u>
19728.00	-	-	*	-	-				
22194.00	-	-	*	-	-			-	
24660.00	-	-	*	-	-			-	1
	-	-	-	-	-			-	
25000.00	-	-	-	-	-				-13.00
					<u> </u>		<u> </u>		
							ł		
							<u> </u>		
	EUT Emission	s observed thr	oughout the g	iven frequency	I / spectrum wer	e recorded & e	valuated.		
							ipment which was	a minimum of	·
	10dB below th	e limit.				or the test equ	apment which was		
	1 of 1			· · · · · · · · · · · · · · · · · · ·					R-5174

	ar ling ar ta an ta	1			ONS DAT		ATORI		Maria ang ang ang ang ang ang ang ang ang an
est Method		Spurious Radi	ated Emission				Contraction of the second		
Softmen:	ALL AUDIO A PART	DTC Commun	CONTRACTOR OF AN ADDRESS STREET, MARKET			Job No:	R-5174N	an a periode terration de la construction de la construction de la de la construction de la construction de la	11 AN 2014 STATES OF LOW STATES
	the state of the second		NAMES AND A STRUCT AND A STRUCTURE OF S			DOD NO:	<u>1R-5174N</u>	an a	9 12 Mar 19 19 19 19 19 19 19 19 19 19 19 19 19
est Sample		1000 mW COI	-DIVI Video Tr	ansmitter					
• • • •						Serial No		Landara any amin'ny tanàna mandritry amin'ny tanàna dia mampika dia mangka dia mangka dia mangka dia mangka dia	1041401020184040404140100
							SB020378		78-24-300 TAXA 12-300 LE 140
est Specifit	lation:	FCC Part 2, T	IA-603-C			Dava sa sa bu O	1050		
						Paragraph: 2.	.1053	na katan 1870, kata maja pana kata kata kata kata kata kata kata k	
perating M	ode:	Continuously	ransmitting ir	nto a 50 Ohm	Load.				
			a an		NITE OF STREET,	1	5.4.2.2222	70/41094069205935955555555555555555555555555555555	
echnician:		M. Seamans				Date:	5/12/2009		
lotes:	na sinana na	Transmit Freq Peak Detecto	-	GHz					
Test	Antenna	EUT	an a	Signal Gen	Deference Ant	an a	44071 2023 14 16007 3091 1 16 22 42 42 42 41 22 016 4 17 51		Courious
Frequency	Position	Position	Referance Reading	Level	Reference Ant Gain			Corrected Reading	Spurious Limit
MHz	(H/V) - Height	Degrees\Axis	dBuV	dBm	dBd	I	<u> </u>	dBm	dBm
30.00		-	-		<u></u>				-13.00
	-		-	-	, <u>-</u>	***			1
40.29	V-1m	0/Y	29.00	-73.10	-13.79			-86.89	1
40.53	V-1m	0/Z	30.80	-69.40	-13.61			-83.01	1
40.81	V-1m	0/X	29.90	-71.10	-13.40			-84.50	
42.52	V-1m	0/Y	28.40	-74.00	-12.14			-86.14	<u> </u>
42.95	V-1m	0/Z	32.10	-67.20	-11.82			-79.02	
79.73 80.21	V-1m V-1m	0/Y 0/X	34.70	-68.70	-1.71			-70.41	
80.21	V-1m V-1m	0/X 0/Z	<u>33.60</u> 33.00	-70.80 -71.00	-1.70			-72.50	1
83.49	V-1m V-1m	0/Z 0/Y	30.70	-71.00	-1.70			-72.70	
	-	-	-			······		-10.00	
1	-	-		-	-				1
1	-	-	-	-	-			-	
4965.00	-	-	*	-	-			-	I
7447.50	-	-	*		-			-	1
9930.00	-	-	*	-	-			••••••••••••••••••••••••••••••••••••••	!
12412.50 14895.00	-	-	*	-	-			-	
17377.50	-	-	*	-	-				
19860.00	_	-	*		-		<u> </u>		
22342.50	-	-	*	-	-				1
24825.00	-	-	*	-	~			_	
1	-	-	-	-	-				
25000.00	-	-	-	-,	-				-13.00
			······		<u> </u>		ļļ		
				de Antonio e de constante de cons			-		
							<u>├</u>		
									<u> </u>
*******									
······									
					y spectrum wer				
	* These harmo	onic frequencie	s were not ob	served above	the noise floor	of the test equ	ipment which wa	as a minimum of	
	10dB below th 1 of 1	e limit.							R-5174