

Spectrun									
Ref Leve Att TDF	l 15.00 dBn 15 dB	3 SWT 1	● RB' 5 ms ● VB	W 100 kHz W 300 kHz	Mode Au	to Sweep			1400000
😐 1Pk Max	10	545	×:	68	w.				
10 dBm					M1[1] -59.87 d 15.0000 (
0 dBm				5	2				
-10 dBm	01 -12 730	dBm							
-20 dBm			12	1		r.		1	
-30 dBm				ŀ		2			
-40.dBm			**	- P-	1				
-50 dBm					•				
60 dBm	theterolistic	w-www.walkaba	An Harden Market	get with more	puter dention	Murrin	un alonged and	huminatrada	Marinekylinekhai
-70 d8m	5	¢					*		s
-80 dBm									3
Start 15.0	GHz			691	pts			Stop	26.5 GHz
)()) Mea	isuring	an at at most in the	4/4	6.05.2013 10:49:49

Date: 6.MAY.2013 10:49:48

Figure 70. High channel conductive emission 15 GHz to 26.5 GHz (2 Mbps).



Data rate 3 Mbps

Spectru	m l								
Ref Lev Att	el 15.00 dBn 15 dE	SWT (Ri 🖷 😽 V 🖷 V 148.1 (BW 100 kHz BW 300 kHz	Mode A	uto FFT			
10F 1Pk Max	1						10.		
10 dBm		2) 2)			4 <u></u>	2			
0 dBm									
-10 dBm—								-	
-20 dBm—	D1 -16/250	dBm		1/2			-		
-30 dBm—	<u>.</u>	<u>.</u>		k	-				-
-40 dBm—	3.	1. 	-	2÷	is) is		8		
-50 dBm—		÷			e,				
-60 dBm—			-			-		26	9001
-70 dBm	Jonton Mandberger	whichma	n n n n n n n n n n n n n n n n n n n	Lapensherver	unausputnikkeni	Je ture under hilled	an glack about	Lindy Manderson	-unidelitrisezie
-80 dBm—			15				-1.		
Start 30.	0 MHz	1		691	pts			Sto	p 1.0 GHz
)() Mea	asuring		W	16.05.2013 11:00:44

Date: 6.MAY.2013 11:00:43

Figure 71. Low channel conductive emission 30 MHz to 1000 MHz (3 Mbps).



Spectrur	n								
Ref Leve	15.00 dBm 15 dB	SWT 9	🥯 R 148.1 µs 🎍 V	28W 100 kHz 28W 300 kHz	Mode /	Auto FFT			
●1Pk Max	w: :::::::::::::::::::::::::::::::::::		20	54	9. V			S	
10 dBm	-	÷			+ <u>i</u>	e	5		
0 dBm				13	2 i				
-10 dBm—	-01 -12-000	dbee		<u> </u>					
-20 dBm—	D1 -13.900	(april	d.	ta:					
-30 dBm					£	-			
-40 dBm	92		-	1-	1				
-50 dBm		-	-		è	ii			
-60 dBm				1=				923	2
₩thebath	Mapanahin	Alternational	in which where	quilin Moder	uuhuMartinan	-utrilimitation	flynnorennedt	providencial	how which
-80 dBm			2						
Start 30.0	MHz	•		691	pts		•	Sto	pp 1.0 GHz
)() Mea	asuring	an in the second second	444	06.05.2013 11:07:38

Date: 6.MAY.2013 11:07:37



Ref Leve	el 15.00 d 15	Bm dB SWT	🥯 R 948.1 µs 堇 V	BW 100 kHz BW 300 kHz	Mode A	uto FFT			
10F 1Pk Max	6.2			ER					
10 dBm					ti i			-	-
0 dBm				2					
-10 dBm—		90 dBm		*					-
-20 dBm—	e		1	a de la companya de la					-
-30 dBm—	14 F			<u>.</u>	<u> </u>				
-40 dBm—	84		-	1-	5				
-50 dBm—	*	-			è				2
-60 d8m—	5x.		-	2:	5				
-90 dBm-	1 marshar and	attornation	happensition	mutionalistic	uthid program	ary with much	murre De Allandar	www.ll.Mirallywaw	wateria
-80 dBm	8	_							3
Start 30.0	MHz			691	pts			Sto	p 1.0 GHz

Date: 6.MAY.2013 11:14:34

Figure 73. High channel conductive emission 30 MHz to 1000 MHz (3 Mbps).



Spectrur Ref Leve	n 1 15.00 dBm	15		🖷 RBW	' 200 kHz					
TDF	15 dB	SW	Г 9.5 µs	S 🥌 ABM	4 300 KHz	Mode Aut	O FFT			
🔵 1Pk Max		s – 10			0	<u>17.</u>				
10 dBm						D	2[1]		-14	-63.77 dB
0 dBm					8		(H 11	1	2.40	21670 GNZ
-10 dBm—		-								1
-20 dBm—	D1 -16/250	dBm			2					
-30 dBm		-					-		. jerred	1
-40 dBm		A	_		-	1				
-50 dBm						e			N	
e60 dBrores	D2				withour o	nanna-		and a second of the		
-70 dBm	- 					1				ç
-80 dBm					,	12				
CF 2.3942	7 GHz				691	pts		1	Span	17.0 MHz
)() Mea	suring	E lectron The Inter	W	16.05.2013 10:55:41

Date: 6.MAY.2013 10:55:40





Date: 6.MAY.2013 11:09:56

Figure 75. High channel conductive emission at high band edge (3 Mbps).



Spect Ref L	rum evel	15.00 dBm		RBW 100 kHz	de Auto Succi	a:	
TDF		23,66			ue Adia Sweet		
🔵 1Pk M	ах			5.V (V.			
10 dBm					M6[1]	-58	.65 dBm
2013 - 1875-187 1821 - 1875-187			- 7		27.2020 (20.00 (20.00	2.61	220 GHz
0 dBm-	-				M1[1]	-47	.59 dBm
-10 dBn	<u></u>				73	2.50	640 GHZ
2000 State		1 -16.250	dBm				
-20 dBn	n — —				1		
-30 dBn	n			-	17		
-40 dBn	ñ de			A AND IN COMPANY			
				MIN 2			
-50 dBn	n-†-		1014	WW6			
-60.d8n	n						Concession
himmer	inner	Hacking	mantenanterallite	With Minune newschild with	wareher in the war		
-70 dBn	0	6.96	· · · · · ·		1		
on dan	5						
-00 001		10.5		10 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	1		
Start 1	.0 Gł	Z		691 pts		Stop :	5.0 GHz
Marker		11225000	1014000000000 V	- Martine Marti			
Type	Ref	Irc	Stimulus	Response	Function	Function Result	
MO		248	2,5004 GHZ	-47.59 UBM			
M2 M3	t.	543 St	2,5015 GHZ	-90.10 UBM	-		
M4	1	100	2,2996 GHz	-56.58 dBm			
M5	1	1	2.5832 GHz	-57,58 dBm			
M6	Į.,	1	2.6122 GHz	-58.65 dBm			
		M) Measuring	(1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19	5.2013 :58:24

Date: 6.MAY.2013 10:58:23



Ref Le Att TDF	vel	15.00 dBm 15 dB	● RE SWT 40 ms ● VI	3W 100 kHz 3W 300 kHz Mo	de Auto Sweep	
<mark>o</mark> 1Pk Ma	88		e x	5. <u>0</u>		
0 dBm—	22	o - Hardy Marketon			M10[1]	-55.84 dBr 2.49060 GH -49.61 dBr 2.54270 GH
-20 dBm	D	1 -13:900	dBm			
-40 dBm	_		tin Bitte	1We		
-60 dBm	minina		mar and a second	Midenson francis	muneral and the states	
-80 dBm				12 E	10	
Start 1.	0 GH	Z	e de	691 pts	10	Stop 5.0 GHz
larker						
Type	Ref	Trc	Stimulus	Response	Function	Function Result
Mi		1	2.5427 GHz	-49.61 dBm		
M2		1	2.5948 GHz	-51,63 dBm		
MЗ			2.5716 GHz	-53.09 dBm		
M4		1	2.3401 GHz	-55,45 dBm		
M5		1	2.3343 GHz	-54.87 dBm		
M6		- 1	2.2822 GHz	-56.92 dBm		
		31	2.288 GHz	-56,74 dBm		
M7		1	2.3111 GHz	-57.86 dBm		
M7 M8		ACCRUTE ACCRUTE	Control to the American State of the State o	TT AC AD		
M7 M8 M9		1	2.5195 GHZ	-55,40 aBm		

Date: 6.MAY.2013 11:04:57

Figure 77. Mid channel conductive emission 1 GHz to 5 GHz (3 Mbps).



Spect	rum	Ì				
Ref L Att TDF	evel	15.00 dBm 15 dB	SWT 40 ms 9	BW 100 kHz BW 300 kHz Mo	de Auto Sweep	92 9 9
●1Pk M	ах					
0 dBm-					M10[1] M1[1]	-59,44 dBn 2.29960 GH -52,21 dBn 2.50120 CH
-20 dBn	n	01 -12,690	dBm		20	2,36400 GR
-40 dBn	n			Me		
-60 dBn	n	مىلىرىلى بەلارلىرىيەن.	minimum	Mu	uncin 4-600	
-80 dBn	n—		1		10	
Start 1	0 Gł	Ηz	n de	691 pts	24	Stop 5.0 GHz
Marker						
Type	Ref	Trc	Stimulus	Response	Function	Function Result
M1		1	2.584 GHz	-52,21 dBm		
M2		1	2.634 GHz	-54.07 dBm		
MЗ		1	2.6122 GHz	-55.37 dBm		
M4	<u> </u>	1	2.3748 GHz	-54.53 dBm		
M5		1	2.3227 GHz	-55.95 dBm		
M6	ų		2.508 GHz	-55.95 dBm		
M7	1	1	2.3517 GHz	-57,51 dBm		
M8		1	2.5311 GHz	-57.38 dBm		
M9		1	2.5601 GHz	-57.27 dBm		
M10		<u> </u>	2.2996 GHz	-59,44 dBm		
	- IL.,)[Measuring	CANADARAN MA 06.05.2013 11:12:18

Date: 6.MAY.2013 11:12:17





Date: 6.MAY.2013 10:59:30

Figure 79. Low channel conductive emission 5 GHz to 15 GHz (3 Mbps).



Spectru	m								
Ref Lev Att TDF	el 15.00 dBm 15 dB	SWT 1	● RB 00 ms ● VB	₩ 100 kHz ₩ 300 kHz	Mode A	uto Sweep			
😐 1Pk Max	6c		×.	5.					
10 dBm		i.	-		0	a	-56.77 dBm 6.9460 GHz		
0 dBm				v	2.1 VE				
-10 dBm—	-01 12000	dBm				1) 12		1	- 1
-20 dBm—	01 -13.300			6		1		2	
-30 dBm—	*			H	Ē	5 (- 17 -		1. 1 1. 1	->!
-40.dBm—	31.				1	12	8		
-50 dBm—	M	-			c	10	<i>a</i>	×	
, isq, dbraw	- ware burned	minumbalia	newsbyrettonedur	permetership	- and and the second	workstragen	an all and a second	-	They adversering
-70 dBm—	:s:				20 20				-12
-80 dBm—				8		-0			
Start 5.0	GHz			691	pts			Sto	p 15.0 GHz
)() Me	asuring		- 4/4	06.05.2013 11:06:16

Date: 6.MAY.2013 11:06:15





Date: 6.MAY.2013 11:13:15

Figure 81. High channel conductive emission 5 GHz to 15 GHz (3 Mbps).



Spectrun	n)								
Ref Leve Att TDF	l 15.00 dBm 15 dB	SWT 1	● RB 15 ms ● VB	W 100 kHz W 300 kHz	Mode. Au	to Sweep			
🔵 1 Pk Max			A-	54			9		
10 dBm	-	<i>5</i>			41				
0 dBm				i)					
-10 dBm		9 <u>8.</u>		k		-	194 1		1. 5 7
-20 dBm	-D1 -16/250	dBm	1. 1.				-		
-30 dBm		1			Þ				
-40 dBm		1. 			2			33	
-50 dBm					6 ² .		2	4	
wo ashiel	hourse and the second	nyahindra	one hold and for	and a sub-	rigitation	human	Jahren er Ander	iden-relationation	and new work
-70 dBm	5		2		-			M	
-80 dBm				7					
Start 15.0	GHz			691	pts			Stop	26.5 GHz
)[) Mea	isuring	🗑 șe ani nei nei mi nei mi	6/0	06.05.2013 11:01:30

Date: 6.MAY.2013 11:01:29



Ref Lev	el 15.00 dBn 15 dE	SWT 11	5 ms	W 100 kHz W 300 kHz	Mode: Au	to Sweep			
101 1Pk Max	\$4: 	44.	20	54	0. 48	i. 11	4		
10 dBm	-	÷			1				
0 dBm				i:	1/				
-10 dBm—	D.1 (10,000			×.					
-20 dBm—	101 -13,900	, GEN II		lai					-
-30 dBm—	¥.	-							
-40 dBm—	51.		12	1=					r
-50 dBm—					4 <u>7.</u>				2
ied demail	ofmenuitie	and the starter	an in with with man	o minter and have the	anningration	uhnemark	Mundulum	dornandand	philaneous
-70 dBm—	ia:	5							5
-80 dBm—									3
Start 15.) GHz			691	pts		1	Stop	26.5 GHz

Date: 6.MAY.2013 11:06:55



Ref Level 15:00 dBm	RBW 100) kHz		
Att 15 dB TDF	SWT 115 ms 🖷 VBW 300	C kHz Mode Auto	Sweep	
1Pk Max		10. 953 10. 10.	2	4 1
0 dBm		12 20		
dBm-		1		
LD dBm	ñ			
O dBm				
30 dBm				
40.dBm		14)		
50.dBm		e. ir		
BBR Marthan Marth	or dunput print have been a superior	addulation to have a series of the	dumentication and explored	time and the second particular the second
70 dBm		#		
30 dBm				
tart 15.0 GHz	1	691 pts		Stop 26.5 GHz

Date: 6.MAY.2013 11:15:00

Figure 84. High channel conductive emission 15 GHz to 26.5 GHz (3 Mbps).



20 dB Bandwidth of the Hopping Channel

Standard:	ANSI C63.10	(2009)
Tested by:	RRE	
Date:	3.5.2013	
Temperature:	21 °C	
Humidity:	13 % RH	

FCC Rule: 15.247(a)(1)

Results:

1 Mbps

 Table 35. 20 dB bandwidth test results 1 Mbps.

Channel	20 dB BW [kHz]
Low	1111.4
Mid	1111.4
High	1117.2

2 Mbps

Table 36. 20 dB bandwidth test results 2 Mbps

Channel	20 dB BW [kHz]
Low	1377.7
Mid	1377.7
High	1389.3

3 Mbps

Table 37. 20 dB bandwidth test results 3 Mbps

Channel	20 dB BW [kHz]
Low	1377.7
Mid	1383.5
High	1406.7





Date: 3.MAY.2013 07:58:48





Date: 3.MAY.2013 08:12:57

Figure 86. 20 dB channel BW. 1 Mbps Channel MID.





Date: 3.MAY.2013 08:14:09





Date: 3.MAY.2013 12:08:57

Figure 88. 20 dB channel BW. 2 Mbps Channel LOW.





Date: 3.MAY.2013 12:10:22



Spect	rum							
Ref L	evel	15.00 dl	3m:		RBW 100 kHz			
Att		15	dB 🖷 SWT 2	.5 ms 🥯	VBW 300 kHz N	lode Auto FFT		
10F	ах							
10 40			1	Î	I MMI	M1[1]		7.29 dBn
TO ODIU					nt	<u> </u>		2.48000000 GH
0 dBm-				1	~~~~	Btnr		20.00 di
						BW		1.389300000 MH
-10 dBm	i		-	11	-	Q factor	12	1785.
56075880775929	·			1			1	
-20 dBri	i – L	<u></u>		<u> </u>	19 C	17	-	han
X030 NC	V	a waxaa wa						
-30 dBn	17			÷	- 14	10	10	
10-20-							~	
чо авп	j.							1
-50 dBr	<u> </u>							
00.0011				ľ	17 (A)	-		
-60 dBm					-	1	10	
	2							
-70 dBrr	i—†		-		10 U	.0	3	
100200 D0234								
80 dBn	P		*	h		12	6.)	4
CF 2.4	B GHz	0	38	<u></u>	691 pts	18		Span 4.0 MHz
1arker								
Type	Ref	Trc	Stimulu	s	Response	Function	Fu	Inction Result
M1		1	2.	48 GHz	7,29 dBm	ndB down		1.3893 MHz
T1		1	2,47930	54 GHz	-12.44 dBm	ndB.		20.00 dB
T2		<u>1</u>	2.48069	46 GHZ	-12,58 dBm	Q factor		1785.1
		N.C.				Measuring	en im int no 💷 ter	03.05.2013

Date: 3.MAY.2013 12:11:04

Figure 90. 20 dB channel BW. 2 Mbps Channel HIGH.





Date: 3.MAY.2013 12:13:21





Date: 3.MAY.2013 12:14:35

Figure 92. 20 dB channel BW. 3 Mbps Channel MID.



Spect	rum)								E
Ref L Att TDF	evel	15.00 dBr 15 d	n B 🥃 SWT 2.5 m	🥯 F	(BW 100 kHz /BW 300 kHz	Mode Auto FF	P ²			a <u>a</u> gene
<mark>)</mark> 1Pk M	ах				50. 00					
10 dBm					M1	M1[1]			2.47	7.45 dBn 983790 GHa
0 dBm-			k	1	×	-NDB			1,405	20.00 dE
-10 dBn	j—ł-			7	-	Q facto	AT2		1.700	1762.9
-20 dBn		\sim				r;	Ĵ		~~~	
-30 dBn	À		-			1 (5) 1 (1) 1 (1)				K
-40 dBn	1		-		E E					1
-50 dBn	i .		-		19 53	1	-		5	
-60 dBn	<u> </u>					10				
-70 dBn	1				2) - 2) 4	13				
-80 dBn	p									
CF 2.4	8 GHz	8	30 :/2		691 pt	s		. 2	Sp	an 4.0 MHz
larker		n - 100	10 V.							w
Туре	Ref	Trc	Stimulus		Response	Function		Function Result		lt
M1		1	2.4798379 (aHz	7,45 dBm	ndB down	ndB down 1.4		1.4067 MHz	
11 T2		1	2.4807062 (SHZ	-12.83 dBm	Q factor				1762.9
		M				Measuring	J (nimimint in a state point in a state poi	1.10	03.05.2013

Date: 3.MAY.2013 12:16:10

Figure 93. 20 dB channel BW. 3 Mbps Channel HIGH.



Hopping Channel Carrier Frequencies Separation

Hopping Channel Carrier Frequencies Separation

Standard:	ANSI C63.10	(2009)
Tested by:	RRE	
Date:	3.5.2013	
Temperature:	21 °C	
Humidity:	13 % RH	

FCC Rule: 15.247(a)(1)

Frequency hopping systems with an output power less than 125mW shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 2/3 of the 20 dB bandwidth of the hopping channel, whichever is greater.

Test result

Data rate	Measured separation	Measured 20 dB BW	Limit	Result		
1 Mbps	1.00030 MHz	1.1114 MHz	741 kHz	PASS		
2 Mbps	1.00030 MHz	1.3777 MHz	918 kHz	PASS		
3 Mbps	1.00030 MHz	1.3835 MHz	922 kHz	PASS		
Limit:	25 kHz or 2/3 or the 20 dB bandwidth of the hopping channel whichever is greater					

Hopping Channel Carrier Frequencies Separation



Ref Level 15.0	0 dBm 15 dB a sw r	e RB	V 100 kHz N 200 kHz M			in the second
TDF	10 00 0 011	213 113 5 101	* 999 mile in	IOUS ACCOUNT		
1Pk Max	245					
10 dBm	~		4 <u>1</u>	D2[1]		-0.02 dE 1.00030 MHz 8.09 dBn
I dBm	<u></u>				a a 3	2.44216740 GHz
10 dBm						
20 dBm				10		
30 dBm						
40 dBm			-			
50 dBm						
60 dBm		10	2	ii.	8	
70 dBm			d.			
80 dBm					-i	
F 2.44248 GHz	(1	691 pts			Span 2.4 MHz

Date: 3.MAY.2013 12:45:30





Date: 3.MAY.2013 12:54:22

Figure 95. Measured hopping channels carrier frequency separation 2 Mbps.



Hopping Channel Carrier Frequencies Separation

Spectrum									(The second seco
Ref Level	15.00 dBm 15 dB	e swt	🥶 F 2.5 ms 📟 N	RBW 100 kH: /BW 300 kH:	? ! Mode /	Auto FFT			in Cost of
🛛 1Pk Max				5.8	10				
10 dBm						D2[1] M1[1]	02	i	-0.01 d8 .00030 MHz 6.24 dBm
0 dBm			6 Y			iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	1	2.44	209420 GHZ
-10 dBm		÷		-	F.	1			
-20 dBm		r.	12	1	8	- fy	9	1	-
-30 dBm		<u>e</u>				10			
-40 dBm	-	1			12	t and on t			*
-50 dBm			-						
-60 d8m		1	-	17	12	5 a.d. 1 m		5	* *
-70 dBm					-+				
-80 dBm				-					
CF 2.44248	GHz			69	1 pts			Spi	an 2.4 MHz
)[) Me	easuring	an na matal marin 🕽		03.05.2013 13:01:57

Date: 3.MAY.2013 13:01:57





Standard:	ANSI C63.10	(2009)
Tested by:	RRE	
Date:	3.5.2013	
Temperature:	21 °C	
Humidity:	13 % RH	

FCC Rule: 15.247(a)(1)(iii)

For frequency hopping systems operating in the 2400 – 2483.5 MHz band shall use at least 15 channels.

									L V
Att	15.00 dBi 15 d	n B 👜 SWT	2.5 ms 😐 VB	WIMHZ WI3MHZ	Mode Auto) Sweep			
TDF									
CALLYN OF CALL		1	Ť.				1	ľ	Ĩ
0 dBm	~~~~	-	-	~~~~	· · · · · ·	~~~ ` ~		~~~~	
dBm				2	2				
(L0 dBm				×					
20 dBm		1	- C	6					
30 dBm				×	-				
40 d8m									
50 d8m									
i0.dBm			1	27 27	12				i.
70 d8m		-			21				
30 dBm				8			,,		
tart 2.4 GH	z			691	pts			Stop 2	.4405 GHz

Date: 3.MAY.2013 13:09:55

Figure 97. First 39 channels 1 Mbps.

Spectrum	n j								
Ref Level Att TDF	15.00 dBr 15 dl	n 3 🖷 SWT 2	🥯 RB 5 ms 🥯 VB	₩ 1 MHz ₩ 3 MHz	Mode Aut	o Sweep			
🛛 1Pk Max		50. T		54	<u></u>	1	29	4	
10 dBm	$\sim \sim \sim \sim$	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						~
0 dBm			~	ic.	li -	1			
-10 dBm					F	1	10		
-20 dBm		-1.	12	C.	5-1 ×	17		il i	
-30 dBm			·			17			
-40 dBm				-	1	ul .			
-50 dBm			5		÷.				
-60 dBm			×	17	52		8		
-70 dBm					44 1	n			
-80 dBm			5						3 1
Start 2.440)5 GHz			691	. pts			Stop 2.	4835 GHz
	X) Me	asuring	in na m tot tot m tot til	6	3.05.2013 13:08:26

Date: 3.MAY.2013 13:08:26





Figure 99. First 39 channels 2 Mbps.

-	
-	
	G

Spectrum	n D								
Ref Level Att TDF	l 15.00 dBm 15 dB) 💩 SWT 2.	😁 RB 5 ms 🐵 VB	₩ 1 MHz ₩ 3 MHz	Mode Aut	o Sweep			<u> </u>
●1Pk Max							9		
10 dBm	~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~	~~~~~	~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~	\sim
0 dBm					1.1				
-10 dBm		ve		K	2				
-20 dBm	,	ſ		th-	ή s		5		
-30 dBm		17			1. 1.				
-40 dBm	A			27			8		
-50 dBm	2				4. [.]				
-60 dBm									
-70 0801									
Start 2.44	05 GHz			691	pts			Stop 2.	.4835 GHz
][]) Mea	ısuring	🖉 ini na mi na mi na mi	W	13.05.2013 13:12:36

Date: 3.MAY.2013 13:12:35





Figure 101. First 39 channels 3 Mbps.



10 dBm 10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -50 dBm -50 dBm -70 dBm	
10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -30 dBm -70 dB	
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -40 dBm -50 dBm -50 dBm -70 dBm	$\tilde{}$
-10 dBm	1
20 dBm	
30.dBm 40.dBm 50.dBm 50	
40.dBm	
50'dBm 60'dBm 70'dBm 70'dBm	
60 dBm	
70 d8m	
80.dBm	
Start 2.4405 GHz 691 pts Stop 2.4	835 GHz

Date: 3.MAY.2013 13:07:10

Figure 102. Second 40 channels 3 Mbps.

Average Time of Occupancy of Hopping Frequency

Average Time of Occupancy of Hopping Frequency

Standard:	ANSI C63.10	(2009)
Tested by:	RRE	
Date:	3.5.2013	
Temperature:	21 °C	
Humidity:	13 % RH	

FCC Rule: 15.247(a)(1)(iii)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Test was performed in each data rate mode to insure that the all modes are identical.

Time of occupancy calculation: Number of channels = 79 Measurement period = $0.4 \text{ s} \times 79 = 31.6 \text{ s}$ One channel occupancy time = 296.7 ms Number of transmission cycles in measurement period = 31.6 / 0.2967 = 106.5Time of occupancy = (single duration) x (repetition) = $2.91667 \text{ ms} \times 106.5 \text{ times} = 311 \text{ ms}$

g Frequency

Spectrum			
Att 15 dB e	SWT 3.5 ms 🐱 VBW 3 MHz		
1Pk Max		2222422	
10 dBm		M1[1]	-31,23 (B) -14,49 (
D dBm		D2[1]	6.48 d 2.91667 n
10 dBm			
20 dBm			
40:dBm	2		
50 dBm			him
60 dBm	2		
70 dBm		<	
80 dBm-	2		
CF 2.442 GHz	69	L pts	350.0 µs/

Date: 3.MAY.2013 13:33:38

SG





Date: 3.MAY.2013 14:33:33

Figure 104. Measured repetition of the channel occupancy



99% Occupied Power Bandwidth

Standard:	RSS-GEN	(2010)
Tested by:	RRE	, , , , , , , , , , , , , , , , , , ,
Date:	3.5.2013	
Temperature:	21 °C	
Humidity:	13 % RH	

RSS-GEN 4.7.

Table 39. Data rate 1 Mbps

Channel	99% BW [MHz]	Limit	Result
Low	0.955137481910	-	PASS
Mid	0.955137481911	-	PASS
High	0.955137481911	-	PASS

Table 40. Data rate 2 Mbps

Channel	99% BW [MHz]	Limit	Result
Low	1.215629522	-	PASS
Mid	1.230101302	-	PASS
High	1.259044863	-	PASS

Table 41. Data rate 3 Mbps

Channel	99% BW [MHz]	Limit	Result
Low	1.230101302	-	PASS
Mid	1.230101302	-	PASS
High	1.244573082	-	PASS



Date: 3.MAY.2013 12:24:12

Figure 105. Low channel 99% Occupied Power Bandwidth (1 Mbps).





Date: 3.MAY.2013 12:25:47





Date: 3.MAY.2013 12:27:14

Figure 107. High channel 99% Occupied Power Bandwidth (1 Mbps).



1Pk Max	12	X-	V					
10 dBm		M1[1]			3.60 dBm 2.4020000 GHz			
1 dBm				1	CC BW		1.2156	29522 MH:
10 dBm		-	4	12				
20 dBm	-			<u></u>	(
30 dBm					ins			-
40 dBm		- June						
50 dBm	the st	₩				- hype	~	
50 dBm	out the set		÷				Mully?	Low duriding
70 dBm			: E		-			

Date: 3.MAY.2013 12:29:59





Date: 3.MAY.2013 12:31:00

Figure 109. Mid channel 99% Occupied Power Bandwidth (2 Mbps).





Date: 3.MAY.2013 12:32:01





Date: 3.MAY.2013 12:34:03

Figure 111. Low channel 99% Occupied Power Bandwidth (3 Mbps).





Date: 3.MAY.2013 12:35:00





Date: 3.MAY.2013 12:35:54

Figure 113. High channel 99% Occupied Power Bandwidth (3 Mbps).



List of Test Equipment

LIST OF TEST EQUIPMENT

Manufacturer		Туре	Serial no	lnv. no			
ROHDE & SCHWARZ							
	Signal Analyzer EMI Test receiver Test software	FSV40 ESU 26 EMC32	101068 100185 -	9093 8453 -			
DAVI	S						
	Weather station	Vantage Pro	-	5297			
EMC	0						
	Antenna (1 - 18 GHz)	3117	29617	7293			
ETS-LINDGREN							
	Antenna (18 GHz – 26 GHz)	3160-09	28535	7294			
SCHWARZBECK							
	Antenna (30 MHz - 1 GHz)	VULB 9168	9168-503	8911			
HEWLETT- PACKARD							
	Microwave amplifier	83017A	-	5226			
HUBE	ER-SUHNER						
	Attenuator 10dB	6810.17B	-	-			
DEIS	EL						
	Antenna mast Turntable	MA 240 DS 430	240/455 -	7896 -			
WAIN	WAINWRIGHT						
	High Pass Filter	WHKX	10	8267			

All used measurement equipment was calibrated (if required).