

Port J2, 1559-1610MHz

#VBW 3 MHz



#Res BW 1 MHz

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Sweep 80 ms (8001 pts)

FCC 27.53(f) Discrete Emission Limit, Port

J1:

Agilent 21:05:33 Dec 25, 55

D	т
ĸ	- I

	30 dBm		#A	Mkr1 1.56368 #Atten 0 dB						
Peak Log										
10 dB/										
					light have distilled					
S3 FC A AA		al and dealers of the	. 11) 10 11 11 11 11 11 11 1		n dan padi padi cilinan, pia			all	lay takana ya	┙╨╵┑
	r 1.565 Gl 3W 1 kHz	Hz		Span 4 MH #VBW 3 kHz Sweep 4.144 s (8001 pts						
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Ref -3	30 dBm		#A	ltten 0 dE	3		Mkr1 1.5678815 GH —90.14 dBm			
Peak										
Log 10										
dB/										
				n tele and an						
S3 FC A AA	a a faile a fai	and an or a list of		lin <mark>ali</mark> alianti	<u>1. (1.)</u>	^{▲╏} ┙┥╌╶╛┷┥╕╡┙╕╡╡	lerini en el filititi		<mark>♪_ੑੑਖ਼¦ਖ਼ਗ਼ੑਸ਼ੑਸ਼ਸ਼ੑਸ਼ਸ਼ੑ</mark>	
	∙1.569 GH 3W 1 kHz	Hz		₩VBW 3 kHz				Sweep 4.	Spa 144 s (80	n 4 MHz)01 pts)
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page 267 of 396

🔆 Agilent 21:07:10 Dec 25, 55

Ref -3	30 dBm		#A	itten 0 di	3		Mkr1 1.5723885 G –89.03 dB			
Peak										
Log 10										
dB/										
M1 S2	here have been	n hugha han a hat	del contendence i	aller teleter	he hide a		n particular l'ar	internation and a	all and the local	
		n de la falland in de la	in defendent for	and a strategy of the state of	a an	ant the pair of a	all a state of the		and the second second	in an
A AA										
	• 1.573 G 3W 1 kHz	Hz			#VBW 3 k∣	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
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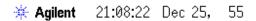
page 268 of 396



Ref -3	0 dBm		#A	tten 0 df	3	Mkr1 1.5783325 GHz –91.05 dBm				
Peak										
Log 10										
dB/										
									1	
M1 S2	ulii botetete	a da ang katala kat	in pri ti ti co	lansa ard	elever (ball bear	and the second	and y and dis par	llas dipe	nt û renati	
S3 FC	h hina, helennika	net date nette det	<u>ud, Mangad</u> M	لي <u>الطنية الإرا</u> لة م	the help the play	يور مكروا والله ال	بليراد ولطيري	al caratel from	مرغوه والعجام فراهيه	
A AA									· ·	
Center	1.577 G	Hz				I			Spa	n 4 MHz
#Res B	3W 1 kHz			#VBW 3 kHz Sweep 4.144 s (8001 pts)						
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Ref -3	0 dBm		#A	tten 0 df	3	Mkr1 1.5826170 GH 				
Peak										
Log 10										
dB/										
·										
										1
M1 S2	dard selections	til er gjat fil di	statt _e ust a	laspithia) in	the later line	tan kashka kiri	-the second at		Alleholl	Leteradolad
S3 FC	handhi Maraka d	A A BARANA	an kadalan ya sin ka	وملاقا وبالمأوسات	فروفته مترعان	بالمحليكة إناء بليم	رار مأنة أخرائه بالله	Hill & and Allen (the part of the	distributed and
A AA										
Center	1.581 G	Hz			1	1	1	1	Spa	n 4 MHz
#Res B	3W 1 kHz			#VBW 3 kHz Sweep 4.144 s (8001 pts)						
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page 270 of 396



Ref -3	30 dBm		#A	#Atten 0 dB -89						195 GHz 9.4 dBm
Peak										
Log 10										
dB/										
		1								
M1 S2	datashaki	१०१० हर्म चर्म	districted and	weight for the state		- Hoselft al	ound as prive			
	hand the second second	ster Majoritan	kaha, makanta si	الأحق _{ا ال} قد أنا	<mark>taken kurak, ki</mark>	<u>a a philippe</u>	and the set of the set	ارتابه أناؤا المتعاد	headige (Cherry Press)	al di sida, lis d
A AA									· ·	
	1.585 G 3W 1 kHz	Hz		Spa #VBW 3 kHz Sweep 4.144 s (80						n 4 MHz)01 pts)
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page 271 of 396

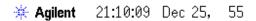


Ref -3	30_dBm		#A	Mkr	Mkr1 1.5878425 GH 89.96 dBi					
Peak										
Log 10										
dB/										
M1 S2	he have been	hing the late of		auto a constanta	A REAL PROPERTY.	telenties and th	Anthe Mitches	alta hugu All	l de staat beerde	A. Antopulat
	بمراجا والمقاولية	dia ang si si si sa si	Lid the pill of the	inter ter tig seen	n <mark>de la de se se s</mark> e	(Ling), and the	مينا فليطابعهم بأبا	e la parta politica de	nd a la participa da participa da	and the gradest
A AA										
	• 1.589 GI 3W 1 kHz	Hz		 ∗VBW 3 kHz				Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
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page 272 of 396





Ref -3	30 dBm		#A	tten 0 df	3		Mkr1 1.5914365 GHz 89.34 dBm			
Peak										
Log 10										
dB/										
		1								
M1 S2	le nă a dent	r belmu duri yer	a tel distriction de la com		a tradition of the		معروبا المعرورا	والملاور والمسالموه	a ministration to	ala ki taki,
\$3 FC	يروابق والقا فغوا	وتقريبكوا والأنغي وردار	data yan diti karikan		<u>(15 auto 100 din 1800)</u>	والالاول أليتم فرور وار	فريطة ولروح روريك	م الأبر إعادة أنه بلدة	بريا للابعة والمراجع	<u>يەت خانى بەت</u>
A AA				1					· · · · ·	
	•1.593 G 3W 1 kHz	Hz		#VBW 3 kHz Sweep 4.1					Spa 144 s (80	in 4 MHz 101 pts)
	ip.gif fil	o savod						i		
C.C.	iki Siri Ti	c auveu								







	30 dBm		#A	Mkr1 1.59 +Atten 0 dB -							
Peak	ľ										
Log 10											
dB/											
	ļ!										
S3 FC	May all the stand	أسعدوال واللاعار أسأنا	فالبر الطفل والطلة	United and the set of	la stale a shfuld	di alianta per pipela per	عديدريون وألاعد	بالجباره والالإستانات	الرباط والمطار المراد	فلعو للإسر أحصرتم	
A AA											
Center	r 1.597 G	Hz							Spa	an 4 MHz	
#Res B	3W 1 kHz			;	#VBW 3 kł	Hz		Sweep 4.	144 s (80	001 pts)	
C:tem	Ctemp.gif file saved										





page 274 of 396



Ref -3	0 dBm		#A	tten 0 df	3		Mkr1 1.6015270 GHz _90.15 dBm			
Peak										
Log 10										
dB/										
M1 S2	doptilability	Condination (Condination)	alu aha kuu	n data a dia 60	la faul de la défini	different state	and the food	- Man had		laliter autor
S3 FC	<u>ەر بەراھىيە خىر</u>	<mark>, And Allian we ald</mark>	Anilla () - (d. d.)	in procession	<u>halphal</u> dipaki (with the production in a	واعليه ورفطو	والبرقي وفلقون ليرقل	فيستعربني بالل	
A AA									l	, but at a
Contor	1.601 G								Spc	an 4 MHz
	3W 1 kHz	12		#VBW 3 kHz Sweep 4.144 s (8001 pts)						
C:tem	p.gif fil	e saved								





page 275 of 396



Ref -3	30 dBm		#A	tten 0 di	3		Mkr1 1.6041825 GH 			
Peak										
Log 10										
dB/										
			1							
M1 \$2	na kinis dalam	بالمعالية فتحقا أع	al Lange and the	رويا هما ها در در ا	lat, benefities	an tracilation	والالترام المراجع	kun kata dan lata a	المعالة المعالية	النامد. هن إيا الله و
	the states of th									
A AA				r						
Center	1.605 G	Hz							Spa	in 4 MHz
#Res B	3W 1 kHz				₩VBW 3 kl	Hz		Sweep 4.	144 s (80	01 pts)
C:tem	np.gif fil	C:temp.gif file saved								







Ref -3	30 dBm		#A	tten 0 di	3			Mkr	1 1.6070 -8)515 GHz 9.7 dBm
Peak										
Log 10										
dB/										
	1 \$									
M1 S2	a the ball of all a	dischelig ikur	a to Websertune	land hada	s dista Plat Code	Malphice	Wasantakin	nsig linada	en de la temperat	de alabe
S3 FC	Landstand (July)	de entre préside sons	alishi Velaya	data data data data data data data data	ارمار بريغباقته	مدرملتهم إداأة إفس	<u>pá, és ellek bi</u> r	<mark>ek led, , é a cela</mark> r é,	ALLEN BALLEN	<u>مدالة الدين أم</u>
A AA			'							
	1.609 G 3W 1 kHz	Hz			#VBW 3 k∣	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
C:tem	temp.gif file saved									





page 277 of 396

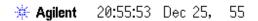
FCC 27.53(f) Discrete Emission Limit, Port J2:

Agilent 20:52:46 Dec 25, 55

Mkr1 1.5595455 Ref -30 dBm #Atten 0 dB -88.99 d Peak I											
Peak											
Log 10											
dB/											
		inini finganapaga Mata na kitang bas	an a	and the trapped		a na an	anten interviewen.	erlene lijngen Gestaar van de	an a		
S3 FC	-	A call in the same		4 4 18 1 18 1 19 1 19 1 19 1 19 1 19 1 19		a de la la deservación de la deser	այլու իստուս	a dia mangana	and the second second	d ta sa ta sala na t	
A AA											
	.559 GHz	2								563 GHz	
#Res B	SW 1 kHz				#VBW 3 kI	Hz		Sweep 4.	144 s (80	01 pts)	
RBW I	BW limited to 1kHz when Span > 5MHz										









Ref -3	30 dBm		#A	ltten 0 dE	3			Mkr	1 1.5669 -87	9680 GHz .54 dBm
Peak										
Log 10										
dB/										
										1
M1 S2				al minimum		alerterator ^a des		THE REPORT	al near the set of	a in itration
\$3 FC		د ارو بلد بلد و بور	and a second second	و والد بسبيان بر العوا	ג גע איז	سالات استيناءك راهي	la de la seconda.	an an air an	a de la constante de la constan La constante de la constante de	يروفرنه الروا والمعطا
A AA										
	• 1.565 GI 3W 1 kHz	Hz			#VBW 3 kł	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
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page 279 of 396

Ref -3	0 dBm		#A	tten 0 df	3			Mkr)275 GHz .99 dBm
Peak										
Log 10										
dB/										
ч <i>ь</i> ,										
						1 ¢				
M1 S2	Mar Market yr	a daga kining kini	adapter and		with a standard in	in the second		New Joseph Party		a all aige of
S3 FC	adada sejabili	s paleonius paleonius paleon	al philosophile	used at the state of the second	antes de la ser	a da da basa da da seri	and the property last	disponsion	dista a data di	uh thi ha
A AA										
Center	1.569 G	Hz					1	1	Sna	ın 4 MHz
	W 1 kHz			1	#VBW 3 kl	Hz		Sweep 4.	144 s (80	
C:tem	C:temp.gif file saved									





page 280 of 396



	30 dBm		#A	itten 0 dE	B			Mkr	1 1.5716 -89	6005 GHz .37 dBm
Peak										
Log 10			├ ──── [!]		'	'	ļ'			
dB/										
M1 S2	the second second		dia de parte de las	Phys ¹ (Constant)	dashat he khall	ana se la bin ilea	and a line line	and dependent		de la contra de la c
	(cilportitule			Phys. a result	n a bailt, anns			<u> 1999 - Angelander Barter</u> Barter Barter B Barter Barter Ba	a mala a mana a f	n ganga Bayaha ke
A AA										
	r 1.573 GI 3W 1 kHz	Hz			#VBW 3 kł	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
C:ter	:temp.gif file saved									







Ref -3	0 dBm		#A	tten 0 dE	3			Mkr	1 1.5756 -96	005 GHz .08 dBm
Peak										
Log 10										
dB/										
M1 S2	dad da andra	11114-00	a plan fr	and a stability of	and the distant		No. of Lun	di dina anila	Heleforder Hereit	
S3 FC	البعل ممارخته باعات	والمراجعة والمراجع	d h hitse and a h	بالارتكار بالمراجع المراجع	and the first bally a	لدرج العربي بالأر	the production of the state of the	بمنعين يلينك	n sin han basil	المحادثة والمحادثة
A AA								1 1 1 1	n yr fayr	
	1.577 G	Hz								in 4 MHz
#Res B	SW 1 kHz			:	₩VBW 3 kł	Hz		Sweep 4.	144 s (80	01 pts)
C:tem	Ctemp.gif file saved									





page 282 of 396

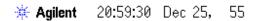


Ref -3	30 dBm		#Ĥ	tten 0 df	3			Mkr		3260 GHz .21 dBm
Peak										
Log 10										
dB/										
-										
					1					
M1 S2	أصال أنه الطام	al n Install	Unitatete.	and all history	and all products	alle de mantali	Man (A) Salamah	and see here h	na shirin da sa	
									المؤلى مرديك ألك	
A AA										
Center	1.581 G	Hz				1	1	1	Spa	ın 4 MHz
#Res B	3W 1 kHz				#VBW 3 kl	Hz		Sweep 4.	144 s (80	
C:tem	temp.gif file saved									





page 283 of 396



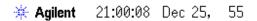


Ref -3	0 dBm		#A	tten 0 df	3			Mkr	1 1.5832 -89	2470 GHz .08 dBm
Peak										
Log										
10 dB/										
M1 S2									ali (chi deni di de	
A AA				h-1-1				╎	haller Herlik er	*****
	1.585 GI W 1 kHz	Hz			#VBW 3 k∣	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
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page 284 of 396





	30 dBm		#A	Atten 0 dE	B			Mkr	1 1.5905 -89	5735 GHz .15 dBm
Peak Log										
10 10										
dB/				ļ	'					
	lippiska a davad	reison entit	[4] [] [] [] [] [] [] [] [] []	1 11 11 11 11 11 11 11 11 11 11 11 11 1	t const for the other stages	ter diversite	t in <mark>staten aut</mark> suit	hill for helping	, <mark>namila adar bija</mark>	, al has a part of the part of
A AA										
	r 1.589 GI 3W 1 kHz	Hz			#VBW 3 kł	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz 001 pts)
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Ref -3	0 dBm		#A	ltten 0 df	3			Mkr	1 1.5924 -88	1680 GHz .93 dBm
Peak										
Log										
10 dB/										
									(pri Nulling) Alexandra	
A AA	o l Kostana oda	n litter o t de	to open series of the series o	ad. 100. d.d.			dellos dag confid e	<mark>╊╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋╋</mark>	ardiant'n frita	<mark>╷┲┈┎╻╻╖╢┥╖</mark> ╢
	1.593 G W 1 kHz	Hz			#VBW 3 kI	Hz		Sweep 4.	Spa 144 s (80	an 4 MHz)01 pts)
C:tem	Ctemp.gif file saved									





page 286 of 396



Ref -3	0 dBm		#A	tten 0 df	3			Mkr	1 1.5970 -90)970 GHz .03 dBm
Peak										
Log 10										
dB/										
						1				
M1 S2	uk (kal-tersh	l, ellerene	till tell of liter	line, distanti in	and the second		الدولان علاوه أور	a de la calenda de	a delate study	القدر إعطاره
S3 FC	أحدر وبعا للطاركي	إفاده وخطابته	and the state	ليعاول بالتاريخ	ulaun di	بايقينا هاوره فاصرت	a state and the second	Links and Links	عايناتين بطرول الر	يبية إرتجب فإقساء
A AA					a chu a	1	1 .			. La de cata
	1.597 G	Hz								an 4 MHz
#Res B	SW 1 kHz			:	₩VBW 3 kł	Hz		Sweep 4.	144 s (80)01 pts)
C:tem	:temp.gif file saved									





page 287 of 396

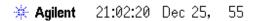


Ref -3	0 dBm		#A	tten 0 di	3			Mkr	1 1.5999 -90	9810 GHz .12 dBm
Peak										
Log										
10 dB/										
									adami Tanud da	
S3 FC	and the state of the state of the	(Marine Section	physical and	ل الله، وطلي السب	عاور الكميانا ولا	al addition of	ilse listenen ha	وأحرصك فالتقاوي	addada a biyin ba	ورقوانيكم فارتاويهم
A AA										
Center	1.601 G	Hz							Spa	an 4 MHz
#Res B	SW 1 kHz				#VBW 3 kI	Hz		Sweep 4.	144 s (80	001 pts)
C:tem	temp.gif file saved									





page 288 of 396





Ref -3	0 dBm		#A	tten 0 df	3			Mkr		5050 GHz .01 dBm
Peak										
Log 10										
dB/										
M1 S2	La Habilita		della de la la la la		a sella plantari	ater from the first of		altru platur	dep. Hillington	
S3 FC	يون _{ال} مناديكي ويساو	والأراك والمركزة والأكر	<u>مرباغ ماريد المربع</u>	ad <u>an etaq</u> ad	line Millipping and ad	<u>, hay synthese shad</u>	<mark>papa apatén ini k</mark>	بلعم إني روابها	Lundhan die	Ա <mark>ններ հային</mark> ներ
A AA										
	1.605 G	Hz							•	an 4 MHz
#Res B	SW 1 kHz			;	#VBW 3 kl	Hz		Sweep 4.	144 s (80)01 pts)
C:tem	ıp.gif fil	e saved								





🔆 Agilent 21:02:54 Dec 25, 55

Ref -3	0 dBm		#Ĥ	tten 0 df	3			Mkr	1 1.6100 -88	6365 GHz .93 dBm
Peak										
Log										
10 dB/										
										1 ¢
					a sulfai					
S3 FC	بفاقير إعرقه يتفاقه	السائر إحاركم أحمارها	finiting thread	a subla baya ba s	والمتعدما الاربياني	<u>n alban bhailte all a dh</u>	nden bledt hit den jage stil	رقر الاردار أرقار وأرديه	والألب المعام المالي	و حقور و الارتاق ا
A AA										
Center	1.609 G	Hz							Spa	an 4 MHz
#Res B	SW 1 kHz				#VBW 3 kI	Hz		Sweep 4.	144 s (80	001 pts)
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:										





page 290 of 396

Radiated Spurious Emissions Measurements

MEASUREMENTS / RESULTS

Note that the EUT passes the FCC Class B limit, which is much lower than the -13dBm limit (82.158dBuV/m at 3 meters) for licensed transmitter spurious emissions. Only worst-case radiated spurious data is presented.

Date:	19-Mar-15		Company:	Airvana				V	Vork Order:	P0152
Engineer:	Tuyen Truong		EUT Desc:	Switched I	Q Radio F	Point Domestic	EUT O	perating Voltage/	Frequency:	POE
Temp:	27°C		Humidity:	2%		Pressure: 1005 n	nBar			
	Freque	ncy Range	: 30-1000MH	Ηz			Measu	rement Distance:	3 m	
Notes:	BW = 5MHz, B	Band 13, 16	QAM , Low	Channel (74	8.5MHz)			EUT Max Freq:	200MHz	
• .									FCC Class I	В
Antenna Polarization	Frequency	Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Reading		Limit	Margin	Result
(H/V)	(MHz)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)		(dBµV/m)	(dB)	(Pass/Fai
(11/V) V	59.93	(dBµV) 48.4	25.3	7.4	1.5	32.0		40.0	-8.0	Pass
v	60.4	49.6	25.3	7.4	1.5	33.2		40.0	-6.8	Pass
v	200.0	50.0	25.5	12.6	2.7	39.8		43.5	-3.7	Pass
h	200.0	44.7	25.5	12.6	2.7	34.5		43.5	-9.0	Pass
v	333.3	50.9	25.6	14.0	3.0	42.3		46.0	-3.7	Pass
h	333.3	51.5	25.6	14.0	3.0	42.9		46.0	-3.1	Pass
v	375.0	41.8	25.5	15.1	3.1	34.5		46.0	-11.5	Pass
v	466.6	39.2	25.8	17.3	3.7	34.4		46.0	-11.6	Pass
v	500.0	48.0	25.7	18.0	2.7	43.0		46.0	-3.0	Pass
h	500.0	48.8	25.7	18.0	2.7	43.8		46.0	-2.2	Pass
v	625.0	41.4	25.6	19.3	3.0	38.1		46.0	-7.9	Pass
v	875.0	35.9	25.9	22.1	3.5	35.6		46.0	-10.4	Pass
Tabl	e Result:	Pass	by	-2.2	dB			Worst Freq:	500.0	MHz





Temp: 2°C Humidity: 2% Pressure: 1005 mBar Measurement Distance: Solution: S	•	Tuyen Truong					Q Radio I	Point Domestic				EUT Operat	ing Voltage/I	Frequency:	POE
Notes: BW = 5MHz, Band 13, 16QAM, Low Channel (748.5MHz) EUT Max Freq: 200MHz Antenna (H) V) Peak Average Peak Average FCC Class B High Frequency - Peak V PEak Planting GEO Class B High Frequency - Peak FCC Class B High Frequency - Peak V PEak Planting FCC Class B High Frequency - Peak V PEak FCC Class B High Frequency - Peak V PEak V FCC Cl	Temp:	27°C			Humidity:	2%			Pressure:	1005 mBar					
Antenna Polarization Peakt Reading (HzV) Average Reading (HzV) Preamp Reading (HzV) Antenna Reading (HzV) Cable Fector (HzV) Adjusted Peak Reading (HzV) Adjusted Augested (HzV) FCC Class B High Frequency - Result FCC Class B High Frequency - Peak Cable Peak Adjusted Augested (HzV) High Frequency - Peak FCC Class B High Frequency - Peak FCC Class B High Frequency - Peak Cable Peak Adjusted Augested (HzV) W = 5MHz, Band 13, 160AM, Low Channel (748.5MHz)			•	, ,								Measureme	nt Distance:	3 m (1-6GHz	z) and 1m (6
Anternal Polarization Presuper (H2V) (H2V) Presuper (H2V) (H2V) Anternal (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal Factor (H2V) Anternal (H2V) Anternal (H2V)	Notes:	BW = 5MHz,	Band 13, 16	QAM , Low C	Channel (74	8.5MHz)						EUT Max Freq: 200MHz			
(H/V) (M+2) (dB)/V	Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted							
SW = 5MH2, Band 13, 16OAM, Low Channel (748,5MH2)	Polarization	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result
v 1500.0 34.9 22.7 20.8 25.4 2.4 41.9 29.7 74.0 -32.1 Pass 54.0 -24.3 Pass v 1915.0 43.14 23.8 20.7 27.3 2.7 52.4 33.1 74.0 -91.6 Pass 54.0 -20.9 Pass v 2260.0 41.8 36.5 21.8 28.3 3.3 51.6 46.3 74.0 -92.4 Pass 54.0 -7.7 Pass v 3000.0 49.42 34.7 21.4 30.2 3.7 61.9 47.2 74.0 -12.1 Pass 54.0 -7.7 Pass 3W = 10M+iz, Band 13, 16CAM. Only Channet (751M+iz)	(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)
v 1915.0 43.14 23.8 20.7 27.3 2.7 52.4 33.1 74.0 -21.6 Pass 54.0 -20.9 Pass v 2260.0 45.3 32.9 21.6 27.7 3.1 54.5 42.1 74.0 -19.5 Pass 54.0 -11.9 Pass v 3000.0 49.42 34.7 21.4 30.2 3.7 61.9 47.2 74.0 -12.1 Pass 54.0 -6.8 Pass v 3004.0 49.42 34.7 21.4 30.2 3.7 61.9 47.2 74.0 -12.1 Pass 54.0 -6.8 Pass w 3757.0 35.68 24.2 20.7 32.4 4.1 51.5 40.0 74.0 -22.5 Pass 54.0 -6.8 Pass 54.0 -8.4 Pass 54.0 -8.4 Pass 54.0 -8.4 Pass 54.0 -25.0 Pass 54.0 -25.0 Pass 54.0 -25.0 Pass 54.0 -26.0 Pass 54.0	W = 5MHz, Bar	d 13, 16QAM , I	ow Channel	(748.5MHz)											
v 2260.0 45.3 32.9 21.6 27.7 3.1 54.5 42.1 74.0 -19.5 Pass 54.0 -11.9 Pass v 2460.0 41.8 36.5 21.8 28.3 3.3 51.6 46.3 74.0 -12.1 Pass 54.0 -7.7 Pass v 3000.0 49.42 24.7 21.4 30.2 3.7 61.9 47.0 -12.1 Pass 54.0 -1.4.0 Pass v 307.0 35.68 24.2 20.7 32.4 4.1 51.5 40.0 74.0 -12.1 Pass 54.0 -14.0 Pass W 3004.0 38.98 33.1 21.4 30.2 3.7 51.5 45.6 74.0 -22.5 Pass 54.0 -8.4 Pass v 2260.0 42.67 29.9 21.6 27.7 3.1 51.9 39.1 74.0 -21.0 Pass 54.0 -8.4	v	1500.0	34.9	22.7	20.8	25.4	2.4	41.9	29.7	74.0	-32.1	Pass	54.0	-24.3	Pass
v 2460.0 41.8 36.5 21.8 28.3 3.3 51.6 46.3 74.0 -22.4 Pass 54.0 -7.7 Pass v 3000.0 49.42 34.7 21.4 30.2 3.7 61.9 47.2 74.0 -12.1 Pass 54.0 -6.8 Pass W 3000.0 35.68 24.2 20.7 32.4 4.1 51.5 40.0 74.0 -22.5 Pass 54.0 -6.8 Pass W 3004.0 38.98 33.1 21.4 30.2 3.7 51.5 45.6 74.0 -22.5 Pass 54.0 -8.4 Pass v 1500.0 30.39 22.0 20.8 25.4 2.4 37.4 29.0 74.0 -36.6 Pass 54.0 -8.4 Pass 54.0 -8.4 Pass v 2260.0 42.67 29.9 21.6 27.7 3.1 51.9 39.1 74.0 -21.0 Pass 54.0 -8.7 Pass v 2994.0 47.	v	1915.0	43.14			27.3		52.4	33.1		-21.6	Pass	54.0	-20.9	Pass
v 3000.0 49.42 34.7 21.4 30.2 3.7 61.9 47.2 74.0 -12.1 Pass 54.0 -6.8 Pass v 3757.0 35.68 24.2 20.7 32.4 4.1 51.5 40.0 74.0 -22.5 Pass 54.0 -1.4.0 Pass W = 10MHz, Band 13, 16QAM, Only Channel (751MHz) <	v				-		-			-					
v 3757.0 35.68 24.2 20.7 32.4 4.1 51.5 40.0 74.0 -22.5 Pass 54.0 -14.0 Pass W= 10MHz, Band 13, 16QAM, Only Channel (751MHz)	-		-												
WH = 10MHz, Band 13, 16QAM, Only Channel (751MHz) <td></td> <td></td> <td>-</td> <td>-</td> <td></td>			-	-											
WHIZ, Band 13, 16QAM, Only Channel (751MHz) <t< td=""><td>v</td><td>3757.0</td><td>35.68</td><td>24.2</td><td></td><td>-</td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td></t<>	v	3757.0	35.68	24.2		-				-					
v 3004.0 38.98 33.1 21.4 30.2 3.7 51.5 45.6 74.0 -22.5 Pass 54.0 -8.4 Pass v 1500.0 30.39 22.0 20.8 25.4 2.4 37.4 29.0 74.0 -36.6 Pass 54.0 -25.0 Pass v 2260.0 42.67 29.9 21.6 27.7 3.1 51.9 39.1 74.0 -22.1 Pass 54.0 -14.9 Pass v 2465.0 43.22 36.2 21.8 28.3 3.3 53.0 46.0 74.0 -21.0 Pass 54.0 -8.0 Pass v 2994.0 47.93 32.8 21.4 30.2 3.7 60.4 45.3 74.0 -13.6 Pass 54.0 -8.7 Pass v 2994.0 47.93 32.8 21.4 30.2 3.7 51.3 40.1 74.0 -34.3 Pass 54.0			Only Ohana												
v 1500.0 30.39 22.0 20.8 25.4 2.4 37.4 29.0 74.0 -36.6 Pass 54.0 -25.0 Pass v 2260.0 42.67 29.9 21.6 27.7 3.1 51.9 39.1 74.0 -22.1 Pass 54.0 -14.9 Pass v 2465.0 43.22 36.2 21.8 28.3 3.3 53.0 46.0 74.0 -21.0 Pass 54.0 -14.9 Pass v 2940.0 47.93 32.8 21.4 30.2 3.7 60.4 45.3 74.0 -13.6 Pass 54.0 -8.7 Pass v 2242.0 42.0 30.8 21.5 27.7 3.1 51.3 40.1 74.0 -22.7 Pass 54.0 -13.9 Pass v 2242.0 42.0 30.8 21.5 27.7 3.1 51.3 40.1 74.0 -34.3 Pass 54.0 -24.1 Pass v 299.0 43.66 34.9 21.4 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>															
v 2260.0 42.67 29.9 21.6 27.7 3.1 51.9 39.1 74.0 -22.1 Pass 54.0 -14.9 Pass v 2465.0 43.22 36.2 21.8 28.3 3.3 53.0 46.0 74.0 -21.0 Pass 54.0 -8.0 Pass W = 5MHz, Band 13, 64QAM, Low Channel (748.5MHz) <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td></td<>							-			-					
v 2465.0 43.22 36.2 21.8 28.3 3.3 53.0 46.0 74.0 -21.0 Pass 54.0 -8.0 Pass W = 5MHz, Band 13, 64QAW, Low Channel (748.5MHz)	-							• • • • •							
v 2994.0 47.93 32.8 21.4 30.2 3.7 60.4 45.3 74.0 -13.6 Pass 54.0 -8.7 Pass v 2242.0 42.0 30.8 21.5 27.7 3.1 51.3 40.1 74.0 -22.7 Pass 54.0 -13.9 Pass 54.0 -13.9 Pass 54.0 -13.9 Pass 54.0 -13.9 Pass 54.0 -24.1 Pass v 1500.0 32.74 22.9 20.8 25.4 2.4 39.7 29.9 74.0 -34.3 Pass 54.0 -24.1 Pass w 5MHz, Band 13, QPSK, Low Channel (748.5MHz)	v	2465.0	43.22	36.2	21.8	28.3	3.3	53.0	46.0	74.0	-21.0	Pass	54.0	-8.0	Pass
v 2242.0 42.0 30.8 21.5 27.7 3.1 51.3 40.1 74.0 -22.7 Pass 54.0 -13.9 Pass v 1500.0 32.74 22.9 20.8 25.4 2.4 39.7 29.9 74.0 -34.3 Pass 54.0 -24.1 Pass W = 5MHz, Band 13, QPSK, Low Channel (748.5MHz) -	SW = 5MHz, Bar	d 13, 64QAM , I	ow Channel	(748.5MHz)											
v 1500.0 32.74 22.9 20.8 25.4 2.4 39.7 29.9 74.0 -34.3 Pass 54.0 -24.1 Pass W = 5MHz, Band 13, QPSK, Low Channel (748.5MHz) -	v	2994.0	47.93	32.8	21.4	30.2	3.7	60.4	45.3	74.0	-13.6	Pass	54.0	-8.7	Pass
W = 5MHz, Band 13, QPSK, Low Channel (748.5MHz)	v	2242.0	42.0			27.7			40.1	74.0	-22.7	Pass	54.0	-13.9	Pass
WW = 5MHz, Band 13, QPSK, Low Channel (748.5MHz)	v	1500.0	32.74	22.9		-				-					
v 2995.0 43.66 34.9 21.4 30.2 3.7 56.2 47.4 74.0 -17.8 Pass 54.0 -6.6 Pass v 2247.7 43.12 32.9 21.5 27.7 3.1 52.4 42.2 74.0 -21.6 Pass 54.0 -11.8 Pass w 5MHz, Band 13, 16QAM, Md Channel (751MHz) <td>W = 5MHz Bar</td> <td>d 13 OPSK L</td> <td>ow Channel</td> <td>(748 5MHz)</td> <td></td>	W = 5MHz Bar	d 13 OPSK L	ow Channel	(748 5MHz)											
v 2247.7 43.12 32.9 21.5 27.7 3.1 52.4 42.2 74.0 -21.6 Pass 54.0 -11.8 Pass W = 5MHz, Band 13, 16QAW, Mid Channel (751 MHz)					21.4	30.2	3.7	56.2	47.4	74.0	-17.8	Pass	54.0	-6.6	Pass
WW = 5MHz, Band 13, 16QAW, Mid Channel (751MHz)	v	2247.7	43.12	32.9									••	-11.8	
v 2253.5 46.3 33.4 21.6 27.7 3.1 55.5 42.6 74.0 -18.5 Pass 54.0 -11.4 Pass W = 5MHz, Band 13, 16QAM, High Channel (753.5MHz)	W = 5MHz, Bar	d 13, 16QAM , I	Vid Channel	(751 MHz)											
W = 5MHz, Band 13, 16QAM, High Channel (753.5MHz)	v	3006.0	46.0	33.6	21.4	30.2	3.7	58.5	46.1	74.0	-15.5	Pass	54.0	-7.9	Pass
W = 5MHz, Band 13, 16QAM, High Channel (753.5MHz) <td>v</td> <td>2253.5</td> <td>46.3</td> <td>33.4</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	v	2253.5	46.3	33.4					-						
v 3012.5 44.63 35.2 21.4 30.3 3.7 57.2 47.8 74.0 -16.8 Pass 54.0 -6.2 Pass	W = 5MHz, Bar	d 13, 16QAM , I	High Channe	l (753.5MHz)											
	v				-		-			-					
			44.63		21.4			57.2	47.8	74.0	-16.8				





page 292 of 396

	: 06-Apr-15						Company:					v	/ork Order:	P0152
	: Tuyen Truong							Switched IQ	Radio Point D	omestic			Pressure:	1010m D
	: 21.0 °C : Tested AC sid	a of DC Power	Brick of supr	ort POF Link	eve Switch	(checked b	Humidity:		nd 230Vac/50	47)			Pressure:	TUT9mBar
1000	Peak readings		Briot of oupp			(011001100			10 200 1 00/00/					
	Frequency Range: 0.15-30MHz EUT Input Voltage/Frequency: POE													
	Quasi Read	-Peak lings		rage dings	LIS Fac		Cable	ATTN	FCC	CISPR Cla	iss B	F	CC/CISPR C	lass B
Frequency (MHz)	QP1 (dBµV)	QP2 (dBµV)	AVG1 (dBµV)	AVG2 (dBµV)	L1 (dB)	L2 (dB)	Factor (dB)	Factor (dB)	QP Limit (dBµV)	Margin (dB)	Result (Pass/Fail)	AVG Limit (dBµV)	Margin (dB)	Result (Pass/Fail
N = 5MHz, Band 13, 16QAN	1, Low Channel	(748.5MHz)												
0.22	11.6	11.7	11.6	11.7	-0.1	-0.1	0.0	-20.4	62.7	-30.6	Pass	52.7	-20.6	Pass
2.69	12.2	12.1	12.2	12.1	0.0	0.0	-0.1	-20.4	56.0	-23.4	Pass	46.0	-13.4	Pass
6.49	11.1	11.3	11.1	11.3	0.0	-0.1	-0.1	-20.4	60.0	-28.2	Pass	50.0	-18.2	Pass
11.12	12.0	13.3	12.0	13.3	-0.1	-0.1	-0.2	-20.3	60.0	-26.1	Pass	50.0	-16.1	Pass
16.42	11.7	12.3	11.7	12.3	-0.1	-0.1	-0.2	-20.4	60.0	-27.0	Pass	50.0	-17.0	Pass
22.61	10.6	9.7	10.6	9.7	-0.1	-0.1	-0.3	-20.4	60.0	-28.6	Pass	50.0	-18.6	Pass
Result:	Pass						Worst	Margin:	-13.4	dB	Freq	uency:	2.690	MHz
Measurement Device	LISN ASSE	T 1726(Line	1) LISN AS	SSET 1727	(Line 2)		Cable:	CEMI-09			Spectrum	Analyzer:	SA EMICH CEMI3	amber (132





Frequency Stability

REQUIREMENTS

From FCC Part 27:

§27.54 Frequency stability. The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

MEASUREMENTS / RESULTS

Measurements were done on port J1, since the same frequency-generating circuit is used for J1 and J2.



-30°C, Low Frequency Edge





Agilent Spec	trum Analyzer - Swe	ept SA								
×	RF PRESEL 50 Ω	AC CORRE	ic	SEN	ISE:INT		ALIGN AUTO		4 Apr 21, 2015	Marker
	1 755.906000		Wide 😱	Trig: Free	Run	Avg Type	: voitage	TYI	CE 123456 PE MWWWWWW	
PASS		IFGai	in:Low	Atten: 10				DI	T P NNNNN	Select Marker
							Mkr	1 755 9	06 MHz	
10 dB/div	Ref -1.00 dl	Bm						-13.	53 dBm	
00	ce 1 Pass									
			J.							
-11.0				[*] Yay						Normal
				W						
-21.0				۰h						
21.0					VL mu	ന റിപ്പം	ഷിം		n	
					"v" "vyi	איקאיין נעאייין	Mun		w mar	Delta
31.0										
41.0										
										Fixed▷
51.0										
51.0										
01.0										Off
71.0										
31.0										Properties ►
31.0										
										More
Center 7	56.000 MHz							Span 2	.000 MHz	1 of 2
	/ (-6dB) 30 kH	z	#VBW '	100 kHz			Sweep 4	.667 ms (1001 pts)	
SG							STATUS	1		
				<u> </u>						

-30°C, High Frequency Edge



-20°C, Low Frequency Edge



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	um Analyzer - Sw									
	RF PRESEL 50 S		CORREC	SEI	VSE:INT		ALIGN AUTO		M Apr 20, 2015	Marker
Marker 1	755.90200	00000 N	IHz	Tui ve Free		Avg Type	: Voltage	TRAG	CE 123456 PE MWWWWW	INIAINCI
PASS			PNO: Wide (IFGain:Low	Trig: Free Atten: 10					ET P N N N N N	
			IFGain:Luw	Aden. N			_			Select Marker
							MKI	r1 755.9	02 MHz	1
I0 dB/div	Ref -1.00 (1Bm						-13.	15 dBm	
_od										
Irac	e 1 Pass			h .						
-11.0				<u></u> 1						Norma
				کار ہو ۔						
-21.0				<u>`</u>						
					maria	man on	www.	mar a		D - 14-
									~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Delta
31.0										
41.0									I	
										Fixed□
										T IXOU
51.0										
61.0										
										Of
71.0										
31.0										Properties
										Figheines
31.0										
										More
enter 75	6.000 MHz							Span 2	.000 MHz	1 of 2
	(-6dB) 30 kl	Hz	#VB	W 100 kHz			Sweep_4	.667 ms	(1001 pts)	
								1		
SG							STATUS	6		

-20°C, High Frequency Edge



-10°C, Low Frequency Edge



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	um Analyzer -									
	RF PRESEL 5		CORREC	SE	ENSE:INT		ALIGN AUTO		M Apr 20, 2015	Marker
Marker 1	755.898	000000		Trig: Fre	o Dun	Avg Type	e: Voltage	TRAC TVI	CE 123456 PE MW WWW	Marker
PASS			PNO: Wide IFGain:Lov						ET P N N N N N	0.1
,			n Gam.cov		• •=					Select Marker
							IVIKI	ri 755.8	98 MHz	1
I0 dB/div	Ref -1.0) dBm						-13.	10 dBm	
	e 1 Pass									
				h 1						NI
11.0				<u>``</u>					I	Norma
				No.						
o4 0				°	0					
21.0					The second secon					
					. www.		᠕ᡗᠬᡳ᠕᠕	mmm	mars.	Delta
31.0										
41.0										
ŧ1.0										1
										Fixed
51.0									I	
61.0										
0.0										Of
1.0										
:1.0										Bronorfice
										Properties
1.0										
										More
enter 75	6.000 MH	z _						Span 2	.000 MHz	1 of 2
	(-6dB) 30		#\	/BW 100 kH:	2		Sweep 4	.667 ms ((1001 pts)	
SG	· · · ·						STATUS			
20				4000 11				·		

-10°C, High Frequency Edge



0°C, Low Frequency Edge





	um Analyzer - Swep								
	RF PRESEL 50 Ω		SEM	JSE:INT	Avg Type			Apr 20, 2015	Marker
PASS	755.890000	PNO: Wi	ide 🕞 Trig: Free ow Atten: 10		AND I MA	. voitage	TYP	E M WWWWW T P N N N N N	
Acc		IFGain:L	ow Attent To	40		Mki	r1 755.8	90 MHz	Select Marker
I0 dB/div	Ref -1.00 dB	m	<u></u>				-13.8	59 dBm	
11.0 Trace	e 1 Pass		1. http://www.						Norma
			a						
21.0			1	h Muranal	ann yn yn	\dots		Maria	Delta
31.0								<u>,</u> _	
41.0									Fixed
51.0									TIXCU
§1.0									
									Of
71.0									
81.0									Properties
91.0									
									More
	6.000 MHz						Span 2. .667 ms (′	000 MHz	1 of 2
	(-6dB) 30 kHz	#	VBW 100 kHz				-	1001 pts)	
SG						STATUS			

0°C, High Frequency Edge







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Agilent Spect	rum Analyzer - Sw	rept SA								
	RF PRESEL 50 Ω		ORREC	SEI	VSE:INT		ALIGN AUTO		4 Apr 21, 2015	Marker
Marker 1	755.88600				_	Avg Type	: Voltage	TRAC	E 123456	Widikei
PASS			PNO: Wide 🕞	Trig: Free				I YI		
FA33			FGain:Low	Atten: 10	dB					Select Marker
							Mki	r1 755.8	86 MHz	1
40.101.1	D.6.4.00 -	Des						-13	02 dBm	•
10 dB <u>/div</u> Log	Ref -1.00 c		, v		1					
Trac	e 1 Pass		1	x						
				X 1						Norma
11.0				 ∕ ∖ ∮'──						Norm
				had						
21.0				- Y						
					man -mm	www.N	1000 000		Λ .	Dali
						a de alte	the second of a second	han we want	me man me	Del
31.0										
41.0										
41.0										-
										Fixed
51.0										
G1.0										_
										c
71.0										
81.0										Deserve d'
01.0										Properties
91.0 										
										Mo
										1 of
	56.000 MHz							Span 2	.000 MHz	10
Res BW	(-6dB) 30 kł	IZ	#VBV	V 100 kHz			Sweep 4	.667 ms (1001 pts)	
	<u> </u>							-		
SG							STATUS			

10°C, High Frequency Edge



20°C, Low Frequency Edge, 120Vac



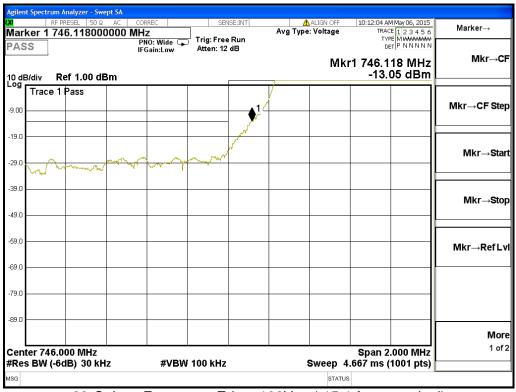


								Analyzer - Sw		gilen
Marker	03:35:28 PM Apr 21, 2015 TRACE 1 2 3 4 5 6	ALIGNAUTO e: Voltage	Avg Typ	VSE:INT		RREC		RESEL 50 ຜ 5.88600		a Vari
Select Marker	TYPE WWWWW DET PNNNN				Trig: Free Atten: 10	10: Wide 🕞 Gain:Low	P			PAS
	1 755.886 MHz -13.30 dBm	Mk					Bm	ef -1.00 c	3/div	IQ dE
Norma					1 I	۲. ۱		Pass	Trace 1	.og 11.0
					er vor vor vor					
Delta	mont	hmm	mmh	how he was a start where the s	۲. ۲					21.0 31.0
Fixed										41.0
										51.0
Of										61.0
										71.0
Properties										31.0
										4.0
More										91.0
1 of 2	Span 2.000 MHz 667 ms (1001 pts)	Sweep_4		<u> </u>	/ 100 kHz	#VBW	lz	 00 MHz 1B) 30 ki		
		STATUS								ISG

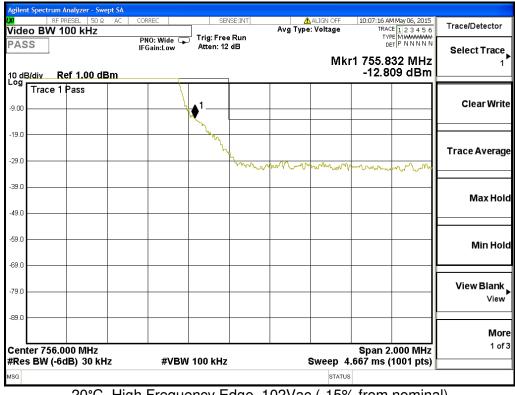
20°C, High Frequency Edge, 120Vac







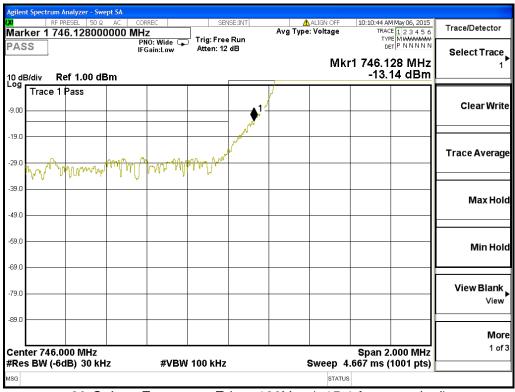
20°C, Low Frequency Edge, 102Vac (-15% from nominal)



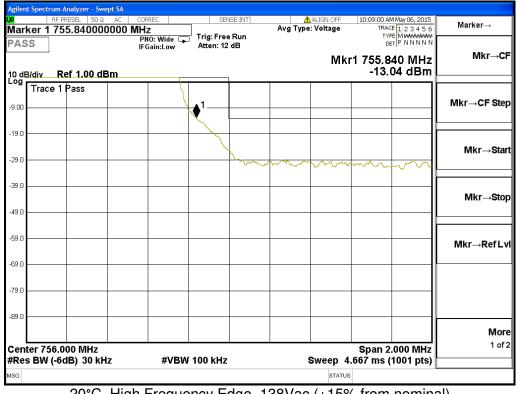
20°C, High Frequency Edge, 102Vac (-15% from nominal)

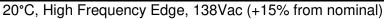


















30°C, Low Frequency Edge



30°C, High Frequency Edge



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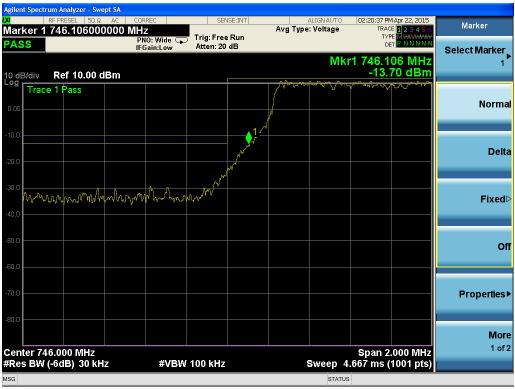
40°C, Low Frequency Edge



40°C, High Frequency Edge







50°C, Low Frequency Edge



50°C, High Frequency Edge





LTE Bands 10 & 4 (FCC Part 27)

Occupied Bandwidth

<u>LIMIT</u>

"The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power." [27.53(a)(5)]





page 306 of 396

MEASUREMENTS / RESULTS

	Oc	cupied Ba	Indw	idth	
Date:	17-Mar-15	Company	: Airvana		
Engineer:	Tuyen Truong			Q Radio Point	t Domestic (750748)
-		EUT Operating Voltage			(<i>, ,</i>
Temp:		Humidity		Pressure:	1005mBar
	FCC part 27.53(a)(5				
	Bandwidth			Frequency	
Modulation	Setting (MHz)	Band	Channel	(MHz)	26 dB BW (MHz)
QPSK	5	10	Low	2112.5	4.959
QPSK	5	10	Mid	2140	5.011
QPSK	5	10	High	2167.5	4.948
16QAM	5	10	Low	2112.5	4.994
16QAM	5	10	Mid	2140	4.994
16QAM	5	10	High	2140	4.993
64QAM	5	10	Low	2107.5	4.867
64QAM	5	10	Mid	2112.5	4.865
64QAM 64QAM	5	10		2140	4.85
	10		High		
QPSK		10	Low	2115	22.285
QPSK	10	10	Mid	2140	21.799
QPSK	10	10	High	2165	22.075
16QAM	10	10	Low	2115	20.143
16QAM	10	10	Mid	2140	20.564
16QAM	10	10	High	2165	17.129
64QAM	10	10	Low	2115	15.991
64QAM	10	10	Mid	2140	20.043
64QAM	10	10	High	2165	21.537
QPSK	5	4	Low	2112.5	See band 10
QPSK	5	4	Mid	2132.5	5.013
QPSK	5	4	High	2152.5	4.93
16QAM	5	4	Low	2112.5	See band 10
16QAM	5	4	Mid	2132.5	4.998
16QAM	5	4	High	2152.5	4.972
64QAM	5	4	Low	2112.5	See band 10
64QAM	5	4	Mid	2132.5	4.88
64QAM	5	4	High	2152.5	4.916
QPSK	10	4	Low	2112.5	See band 10
QPSK	10	4	Mid	2132.5	19.325
QPSK	10	4	High	2150	20.16
16QAM	10	4	Low	2112.5	See band 10
16QAM	10	4	Mid	2132.5	22.083
16QAM	10	4	High	2152.5	20.321
64QAM	10	4	Low	2130	See band 10
64QAM	10	4	Mid	2112.5	21.169
-					
64QAM	10	4	High	2150	20.126





Power and PAPR: 5MHz Operating Bandwidth

FCC 27.50(d)(2):

The power of each fixed or base station transmitting in the 1995-2000 MHz, the 2110-2155 MHz 2155-2180 MHz band, or 2180-2200 MHz band and situated in any geographic location other than that described in paragraph (d)(1) of this section is limited to:

(i) An equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;

(ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

Date	: Mar 16-17, 20	015	Company:	Ainana									Work Order:	P0152
Engineer	: Tuyen Truong		EUT Desc:	Switched IQ Ra	dio Point Domesti	с					EUT C	Operating Volta	ge/Frequency:	POE
Temp	: 22°C		Humidity:	33%			Pressure:	1005mBar						
	Frequ	ency Bange:	Low. Mid and Hi	ioh Channels										
Notes		,	- ,		er reading and th	is is divided by th	e operating band	width to calcula	te EIRP (dBm/MHz)				
									ted overall direction		10log(N)dB = 5.	0dBi + 3.0dB =	8.0dBi.	
											I)(2)(ii); Limit: 1		.1dBm/MH	
					Peak Power	Power	20dB	Cable	Adjusted Peak	Directional				
Band	Bandw idth	Modulation	Channel	Frequency	Reading	Combiner	Attenuator	Factor	Power Reading	Antenna Gain	Limit	EIRP	Margin	Resul
	(MHz)		(MHz)	(MHz)	(dBm)	(dB)	(dB)	dB)	(dBm)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dB)	(Pass/F
Band 10	5	QPSK	Low	2112.5	12.0	4.66	19.83	1.1	37.59	8.0	62.1	39.2	-24.5	Pass
Band 10	5	QPSK	Mid	2140.0	11.0	4.66	19.83	1.1	36.59	8.0	62.1	38.2	-25.5	Pass
Band 10	5	QPSK	High	2167.5	8.9	4.66	19.83	1.1	34.49	8.0	62.1	36.1	-27.6	Pass
Band 10	5	16QAM	Low	2112.5	12.6	4.66	19.83	1.1	38.19	8.0	62.1	39.8	-23.9	Pass
Band 10	5	16QAM	Mid	2140.0	11.3	4.66	19.83	1.1	36.89	8.0	62.1	38.5	-25.2	Pass
Band 10	5	16QAM	High	2167.5	9.5	4.66	19.83	1.1	35.09	8.0	62.1	36.7	-27.0	Pass
Band 10	5	64QAM	Low	2112.5	11.7	4.66	19.83	1.1	37.29	8.0	62.1	38.9	-24.8	Pass
Band 10	5	64QAM	Mid	2140.0	10.6	4.66	19.83	1.1	36.19	8.0	62.1	37.8	-25.9	Pas
Band 10	5	64QAM	High	2167.5	8.4	4.66	19.83	1.1	33.99	8.0	62.1	35.6	-28.1	Pass
Band 4	5	QPSK	Low	2112.5	See Band 10									
Band 4	5	QPSK	Mid	2132.5	11.1	4.66	19.83	1.1	36.69	8.0	62.1	38.3	-25.4	Pass
Band 4	5	QPSK	High	2152.5	11.1	4.66	19.83	1.1	36.69	8.0	62.1	38.3	-25.4	Pass
Band 4	5	16QAM	Low	2112.5	See Band 10									
Band 4	5	16QAM	Mid	2132.5	11.4	4.66	19.83	1.1	36.99	8.0	62.1	38.6	-25.1	Pass
Band 4	5	16QAM	High	2152.5	11.3	4.66	19.83	1.1	36.89	8.0	62.1	38.5	-25.2	Pas
Band 4	5	64QAM	Low	2112.5	See Band 10									
Band 4	5	64QAM	Mid	2132.5	10.7	4.66	19.83	1.1	36.29	8.0	62.1	37.9	-25.8	Pass
Band 4	5	64QAM	High	2152.5	10.3	4.66	19.83	1.1	35.89	8.0	62.1	37.5	-26.2	Pass

Analyzer: Rental SA#2 Power Combiner: Asset# 1/8/

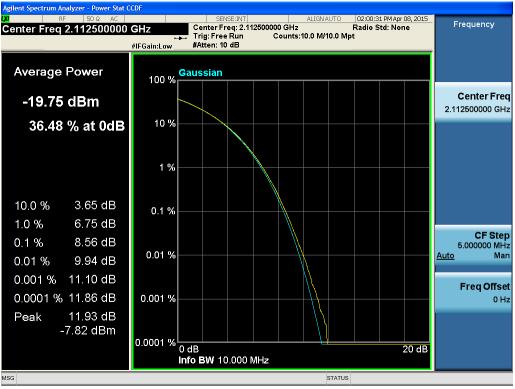
20dB Attenuator: Asset #2053 As

			F	PEAK TO AVER	RAGE RATIO									
Dat	te: March 20, 2	24, 2015	Company:	Airvana			W	ork Order:	P0152					
Enginee	er: Tuyen Truo	ng / Ryan Brown	EUT Desc:	EUT Desc: Switched IQ Radio Point Domestic					EUT Operating Voltage/Frequency: POE					
Tem	p: 22°C		Humidity:	33%	1005mBar									
(March 24) Tem	p: 24°C		Humidity:	10%		Pressure	1011mBar							
Test Equipmen	ts: Brown SA,	Cable (#1787), 20	dB Attenuation (#	791), Mini Circ	cuit (#1939),	3m Indoor								
Not	ie:													
Band		Channel (MHz)	Frequency	0.1% Peak to Average Ratio (dB)			Limit	ſ	Result					
Dallu			(MHz)	QPSK	16QAM	64QAM	(dB)	QPSK	16QAM	64QAM	Pass /			
10	5	Low	2112.5	8.56	8.58	8.48	13	-4.44	-4.42	-4.52	Pass			
10	5	Mid	2140	8.49	8.5	8.41	13	-4.51	-4.5	-4.59	Pass			
10	5	High	2167.5	8.48	8.48	8.42	13	-4.52	-4.52	-4.58	Pass			
							10				Pass			
4	5	Low	2112.5	na	na	na	13	na	na	na	PdSS			
-	5	Low Mid	2112.5 2132.5	na 8.47	na 8.48	na 8.4	13	na -4.53	na -4.52	-4.6	Pass			

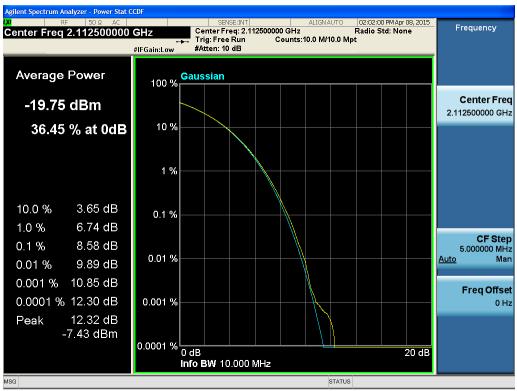




PLOTS



Band 10 - 5MHz BW - Low Channel - QPSK

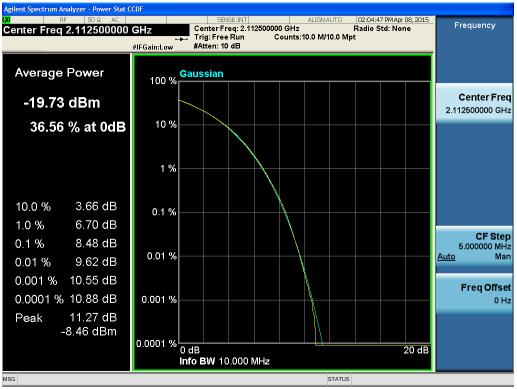


Band 10 - 5MHz BW - Low Channel - 16QAM

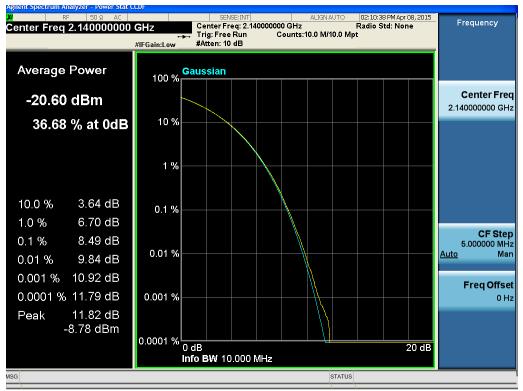


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Band 10 - 5MHz BW - Low Channel - 64QAM



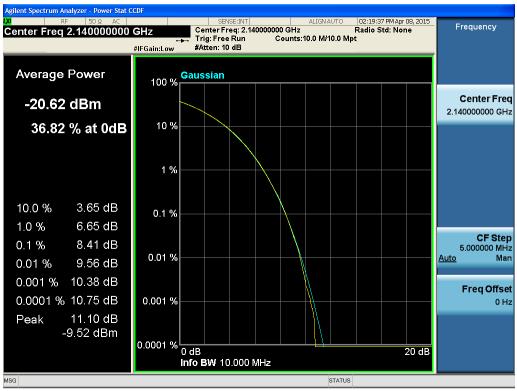
Band 10 - 5MHz BW - Mid Channel - QPSK







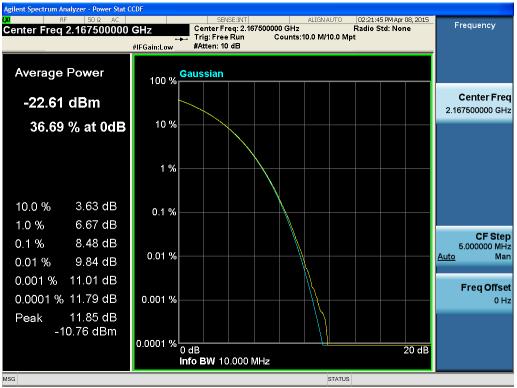
Band 10 - 5MHz BW - Mid Channel - 16QAM



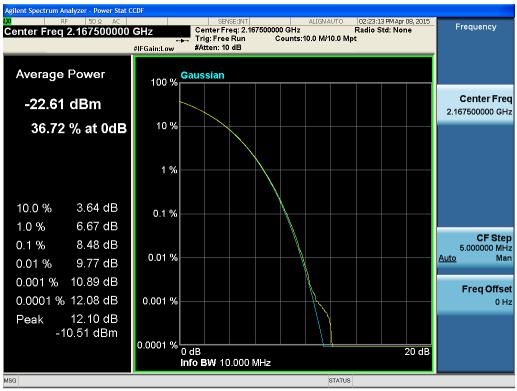
Band 10 - 5MHz BW - Mid Channel - 64QAM







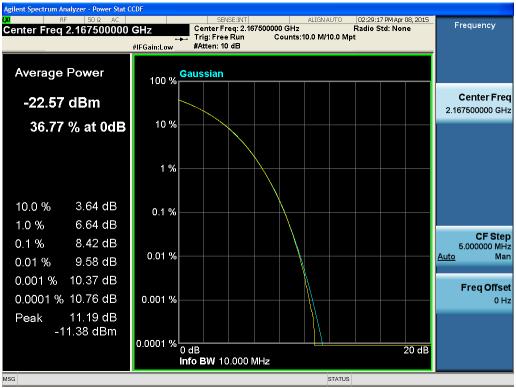
Band 10 - 5MHz BW - High Channel - QPSK



Band 10 - 5MHz BW - High Channel - 16QAM







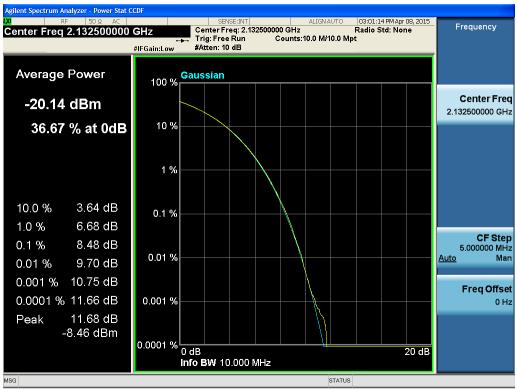
Band 10 - 5MHz BW - High Channel - 64QAM







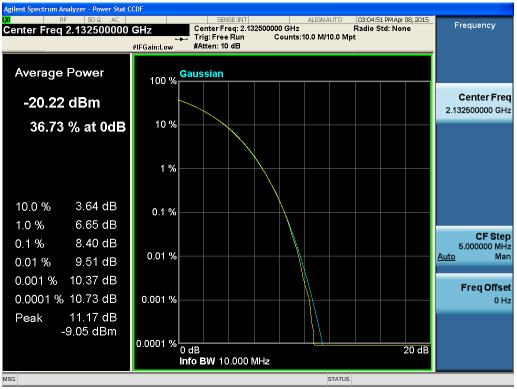
Band 4 - 5MHz BW - Mid Channel - QPSK



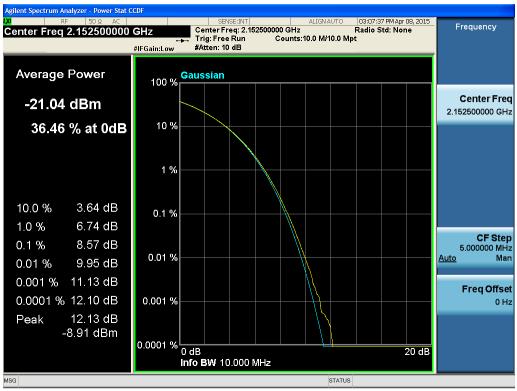
Band 4 - 5MHz BW - Mid Channel - 16QAM







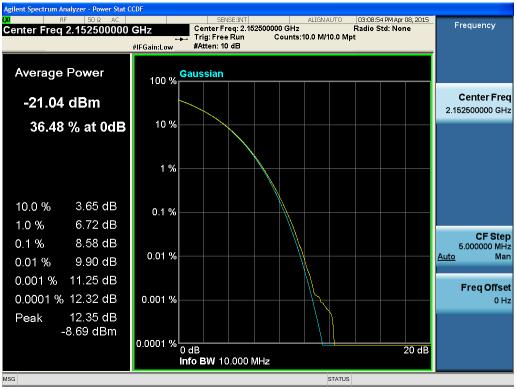
Band 4 - 5MHz BW - Mid Channel - 64QAM



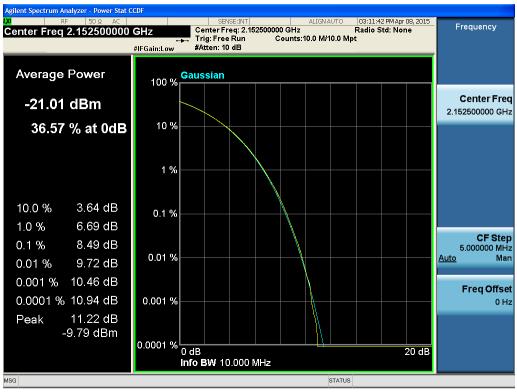
Band 4 - 5MHz BW - High Channel - QPSK







Band 4 - 5MHz BW - High Channel - 16QAM



Band 4 - 5MHz BW - High Channel - 64QAM





Power and PAPR: 10MHz Operating Bandwidth

FCC 27.50(d)(2):

The power of each fixed or base station transmitting in the 1995-2000 MHz, the 2110-2155 MHz 2155-2180 MHz band, or 2180-2200 MHz band and situated in any geographic location other than that described in paragraph (d)(1) of this section is limited to:

(i) An equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;

(ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

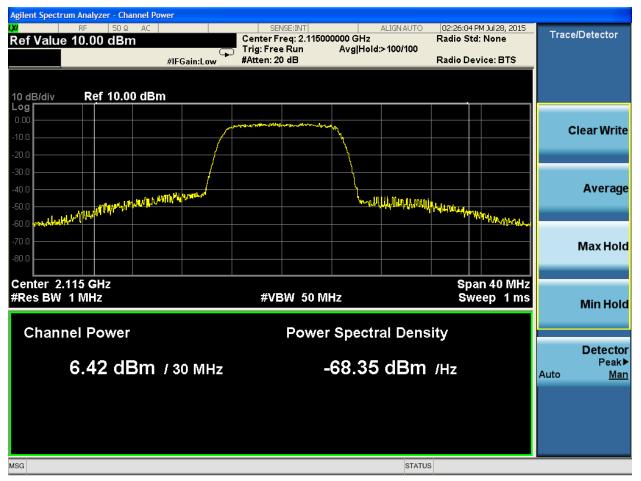
	Rvan Brown /	Arily Thirmor	Company:		dio Point Domesti								EUT (Operating Volta	Work Order:		
Temp:		Ank Zwitter	Humidity:		JIO POINT DOMESTI	5			Pressure:	1005 D			EUT	operating volta	ge/Frequency.	FUE	
Temp:									Pressure:	TUUSMBar							
		,	Low, Mid and Hi	J													
Note s:						s is divided by the											
	Two antennas	each with gair	n 5.0dBi in this r	ange are installe	d on the EUT. Fo	r MIMO calculatio	ns, N(ant.)=2 is i	used to calculate	d overall direction	al gain: 5.0dBi +	10log(N)dB = 5.00	lBi + 3.0dB = 8.					
													FCC 27.50(c	27.50(d)(2)(ii); Limit: 1640W/MHz = 62.1dBm/MHz			
					Peak Power	Average Power	PAPR	Power	20dB	Cable	Adjusted Peak	Directional					
Band	Bandwidth	Modulation	Channel	Frequency	Reading	Reading	Lim it: 13dB	Combiner	Attenuator	Factor	Power Reading	Antenna Gain	Limit	ERP	Margin	Result	
	(MHz)	0001	(MHz)	(MHz)	(dBm)	(dBm)	(dB)	(dB)	(dB)	dB)	(dBm)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dB)	(Pass/Fa	
Band 10	10	QPSK	Low	2115.0	6.4	-3.6	10.1	4.7	19.8	0.6	31.5	8.0	62.1	32.3	-30.6	Pass	
Band 10	10	QPSK	Mid	2140.0	4.8	-4.7	9.5	4.7	19.8	0.6	29.9	8.0	62.1	30.7	-32.2	Pase	
Band 10	10	QPSK	High	2165.0	4.2	-5.4	9.6	4.7	19.8	0.6	29.3	8.0	62.1	30.1	-32.8	Pass	
Band 10	10	16QAM	Low	2115.0	6.1	-3.7	9.8	4.7	19.8	0.6	31.2	8.0	62.1	32.0	-30.9	Pass	
Band 10	10	16QAM	Mid	2140.0	5.1	-4.7	9.9	4.7	19.8	0.6	30.2	8.0	62.1	31.0	-31.9	Pass	
Band 10	10	16QAM	High	2165.0	4.3	-5.5	9.8	4.7	19.8	0.6	29.4	8.0	62.1	30.2	-32.7	Pass	
Band 10	10	64QAM	Low	2115.0	6.4	-3.8	10.1	4.7	19.8	0.6	31.5	8.0	62.1	32.3	-30.6	Pass	
Band 10	10	64QAM	Mid	2140.0	5.5	-4.8	10.2	4.7	19.8	0.6	30.6	8.0	62.1	31.4	-31.5	Pass	
Band 10	10	64QAM	High	2165.0	5.0	-5.5	10.5	4.7	19.8	0.6	30.1	8.0	62.1	30.9	-32.0	Pass	
Band 4	10	QPSK	Low	2115.0	See Band 10												
Band 4 Band 4	10	QPSK	Mid	2132.5	5.4	-4.1	9.5	4.7	19.8 19.8	0.6	30.5 29.9	8.0	62.1 62.1	31.3 30.7	-31.6 -32.2	Pass	
Band 4 Band 4	10	QPSK 16QAM	High	2150.0 2115.0	4.8 See Band 10	-4.6	9.5	4.7	19.8	0.6	29.9	8.0	62.1	30.7	-32.2	Pass	
Band 4 Band 4	10	16QAM 16QAM	Low Mid	2115.0	See Band 10 5.7	-4.0	9.7	47	19.8	0.6	30.8	8.0	62.1	31.6	-31.3	Pass	
Band 4 Band 4	10	16QAM 16QAM	High	2132.5	5.7	-4.0	9.7	4.7	19.8	0.6	30.8	8.0	62.1	31.6	-31.3	Pass	
Band 4 Band 4	10	64QAM	High	2150.0	5.3 See Band 10	-4.0	9.9	4.7	19.8	0.6	30.4	8.0	62.1	31.2	-31.7	Pass	
Band 4 Band 4	10	64QAM 64QAM	Mid	2115.0	6.1	-4.0	10.1	4.7	19.8	0.6	31.2	8.0	62.1	32.0	-30.9	Pass	
Band 4 Band 4	10	64QAM 64QAM	High	2132.5	5.4	-4.0	10.1	4.7	19.8	0.6	31.2	8.0	62.1	32.0	-30.9	Pass	
Daliu 4	10	04QAW	niyii	2130.0	3.4	-4.0	10.0	4.7	19.0	0.0	30.5	0.0	02.1	31.3	-31.0	F dss	

Spectrum analyzer plots for peak and average are on the following pages.





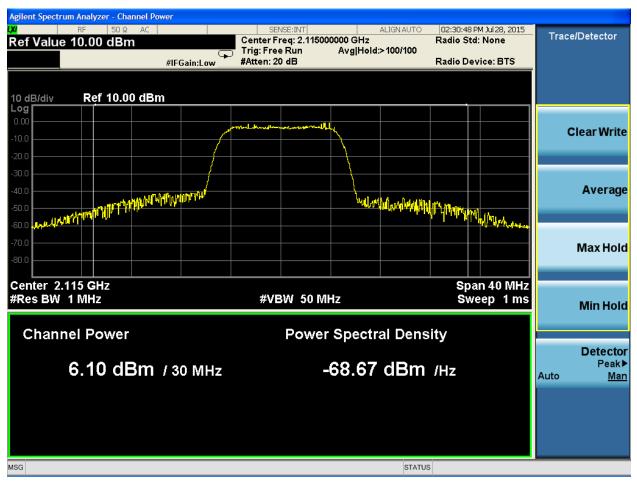
Band 10 Peak Readings:



Band 10, Low Channel, QPSK



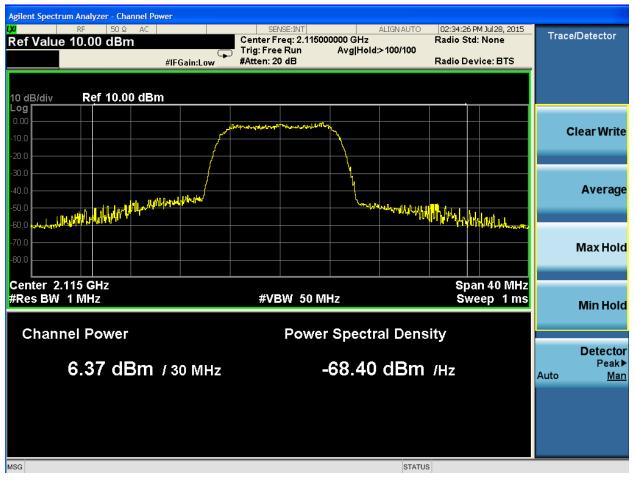




Band 10, Low Channel, 16QAM







Band 10, Low Channel, 64QAM







Band 10, Mid Channel, QPSK







Band 10, Mid Channel, 16QAM



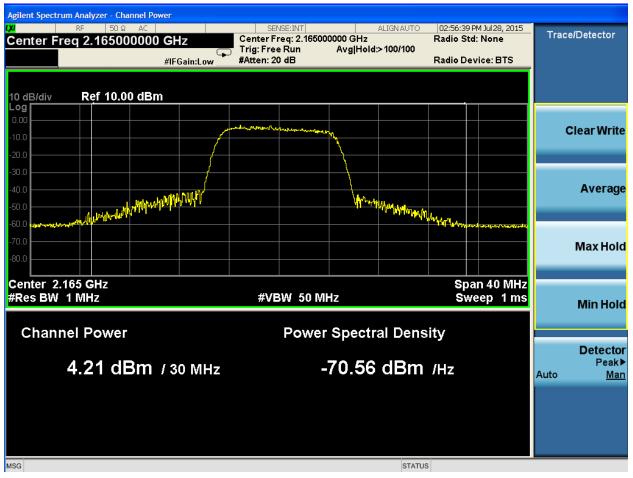




Band 10, Mid Channel, 64QAM



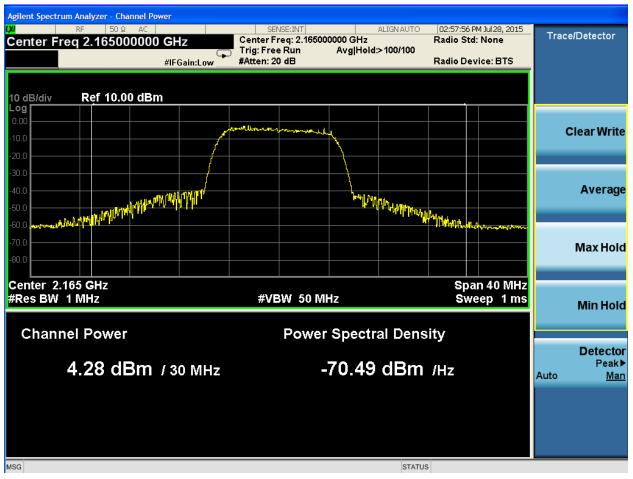




Band 10, High Channel, QPSK



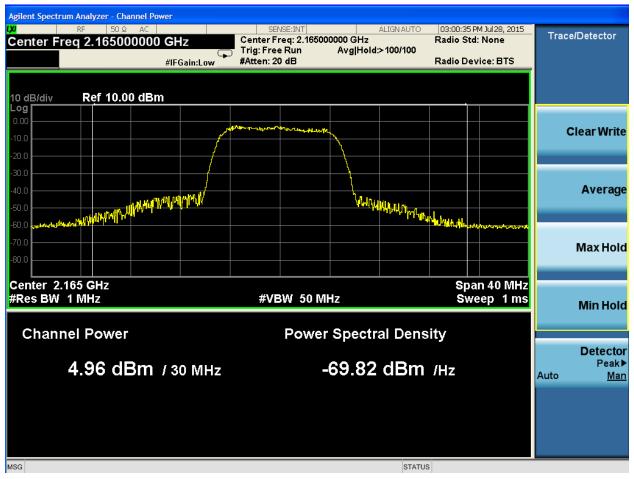




Band 10, High Channel, 16QAM





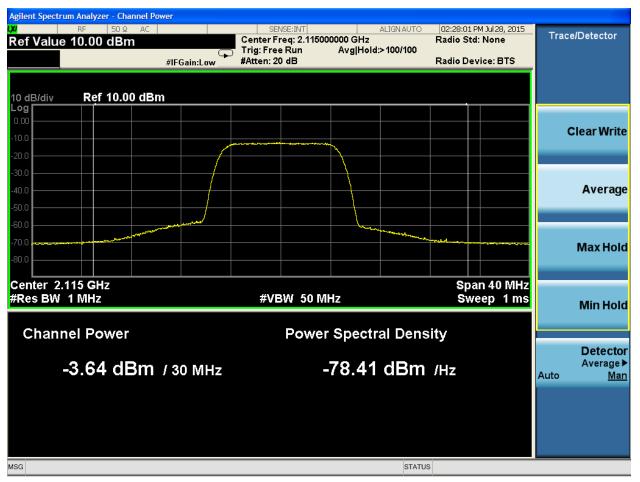


Band 10, High Channel, 64QAM





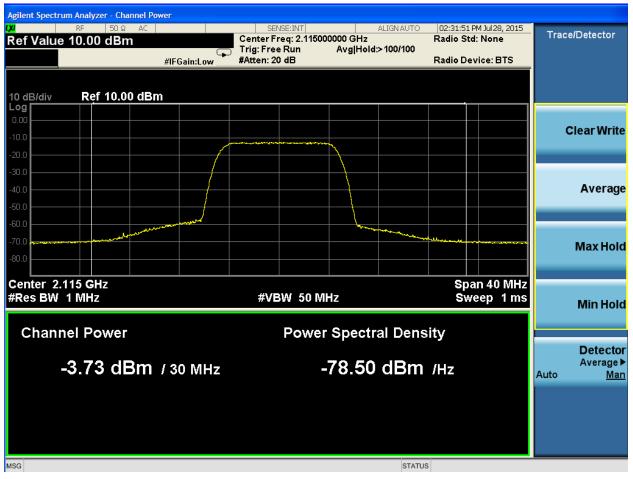
Band 10 Average Readings:



Band 10, Low Channel, QPSK



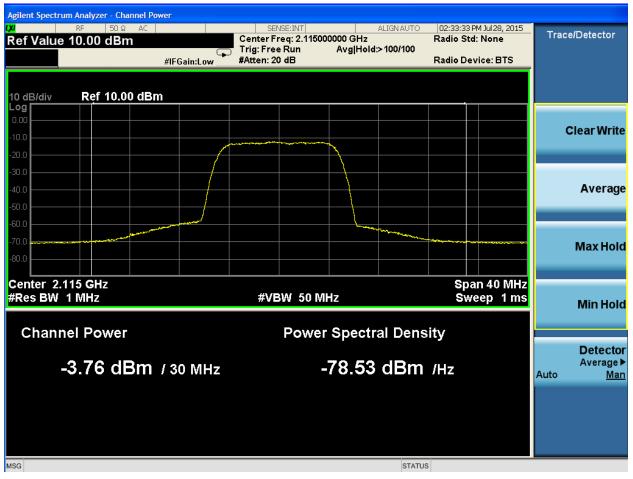




Band 10, Low Channel, 16QAM



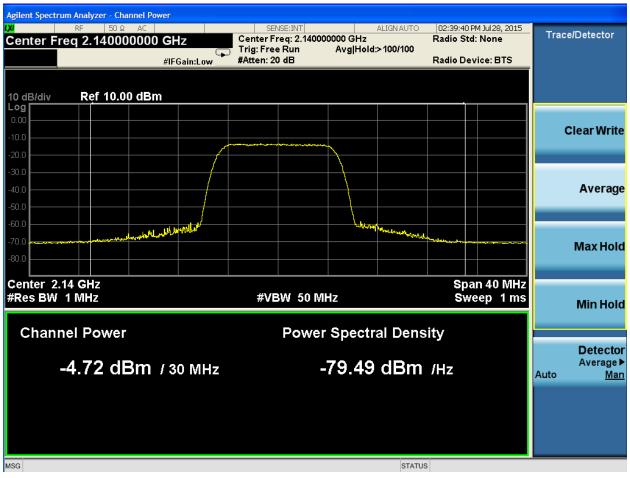




Band 10, Low Channel, 64QAM



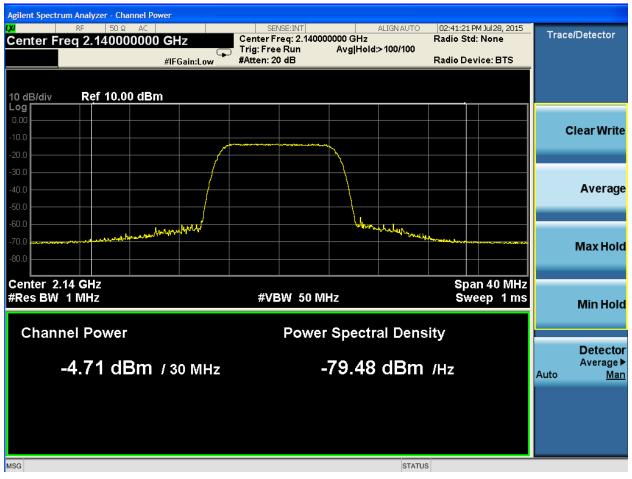




Band 10, Mid Channel, QPSK



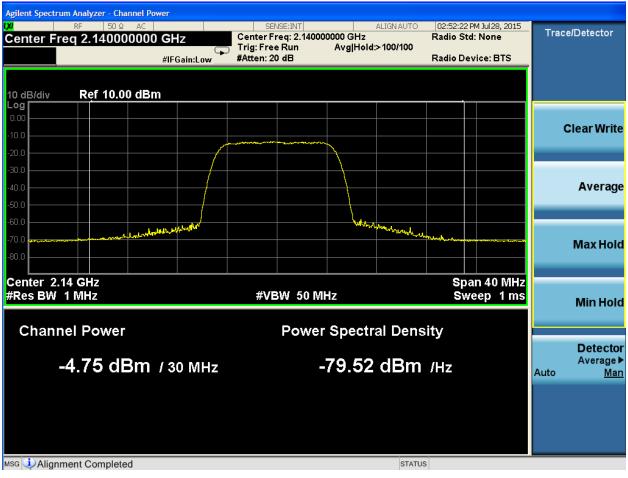




Band 10, Mid Channel, 16QAM



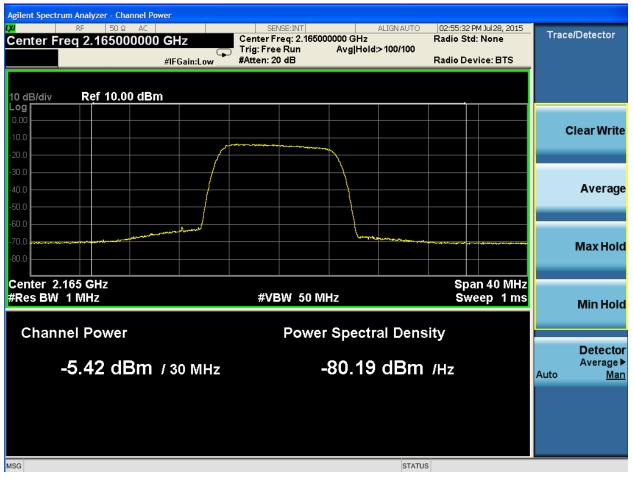




Band 10, Mid Channel, 64QAM



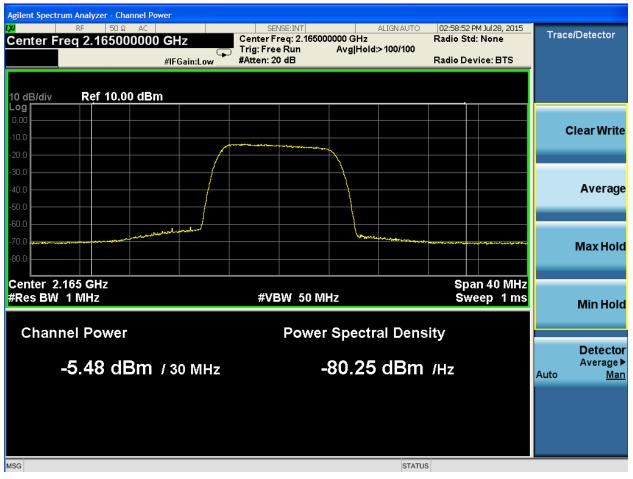




Band 10, High Channel, QPSK



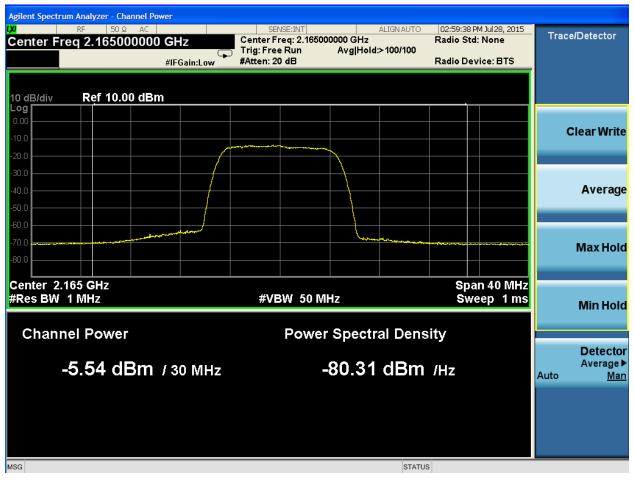




Band 10, High Channel, 16QAM





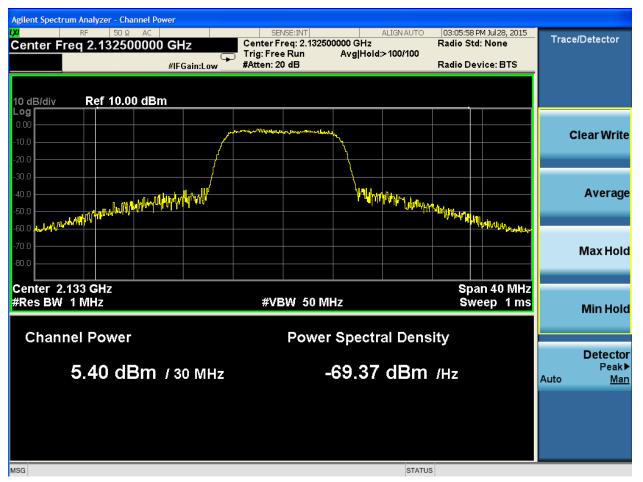


Band 10, High Channel, 64QAM





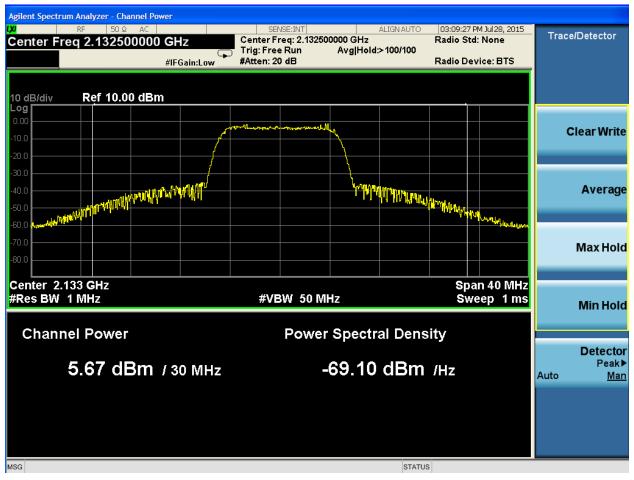
Band 4 Peak Readings:



Band 4, Mid Channel, QPSK







Band 4, Mid Channel, 16QAM







Band 4, Mid Channel, 64QAM







Band 4, High Channel, QPSK







Band 4, High Channel, 16QAM





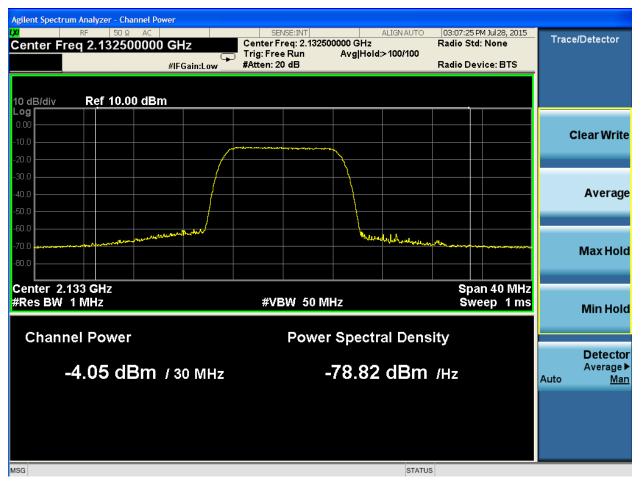


Band 4, High Channel, 64QAM





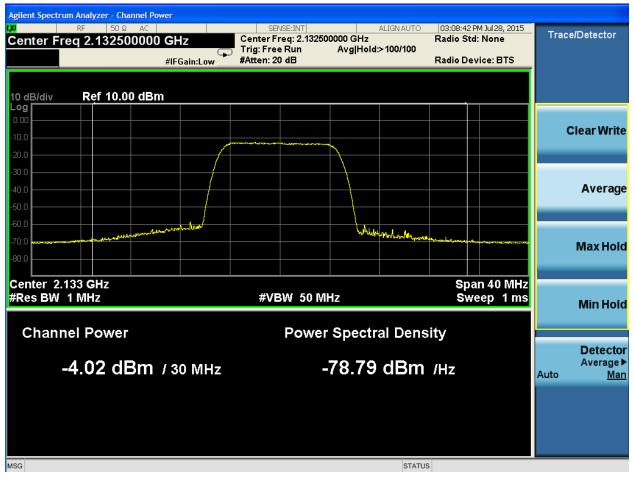
Band 4 Average Readings:



Band 4, Mid Channel, QPSK



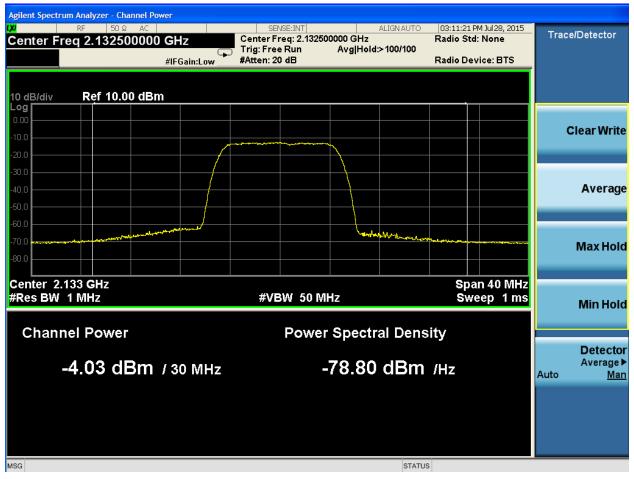




Band 4, Mid Channel, 16QAM



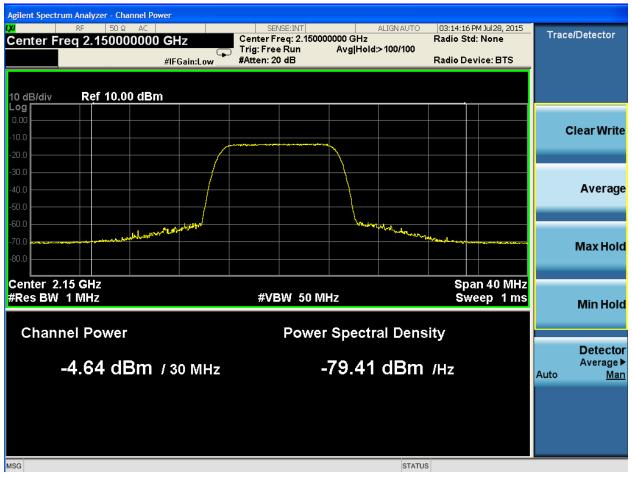




Band 4, Mid Channel, 64QAM



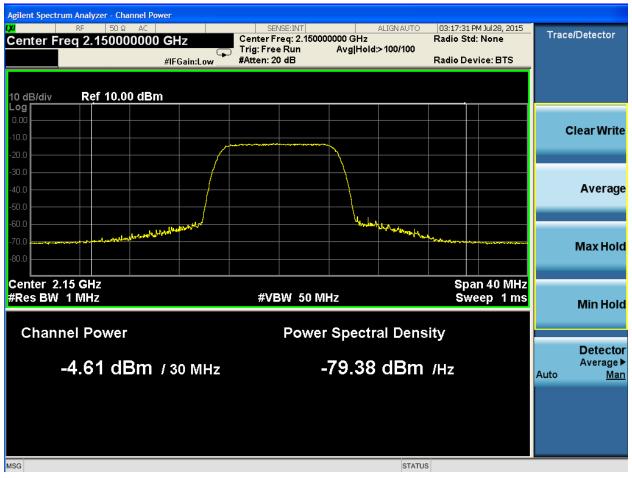




Band 4, High Channel, QPSK



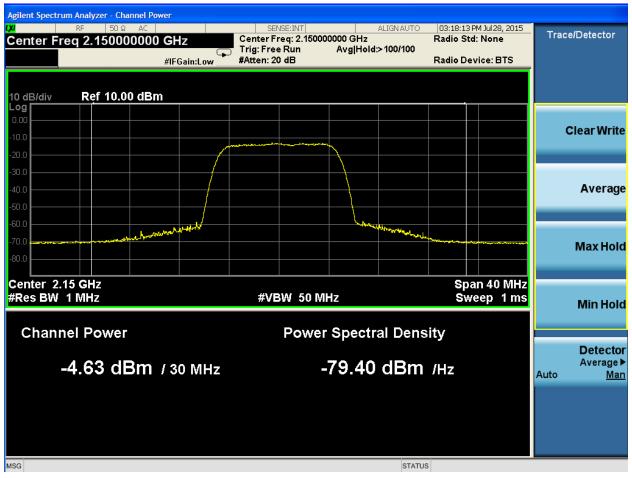




Band 4, High Channel, 16QAM







Band 4, High Channel, 64QAM





Band Edge Measurements

FCC 27.53(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log 10$ (P) dB.

MEASUREMENTS / RESULTS

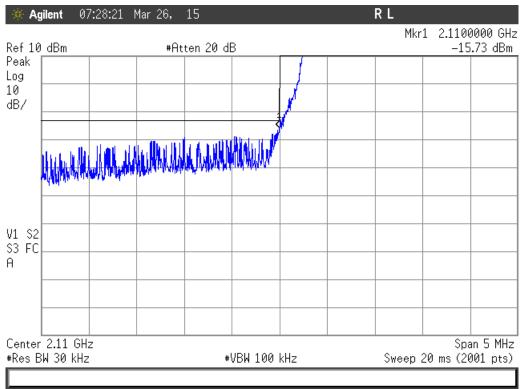
Note: Mask lines are set to -13dBm at 2100, 2155, and 2170MHz.

Spectrum analyzer screen plots are shown on the following pages.

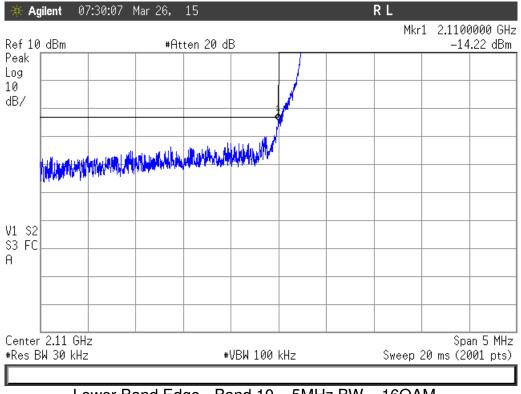




page 348 of 396



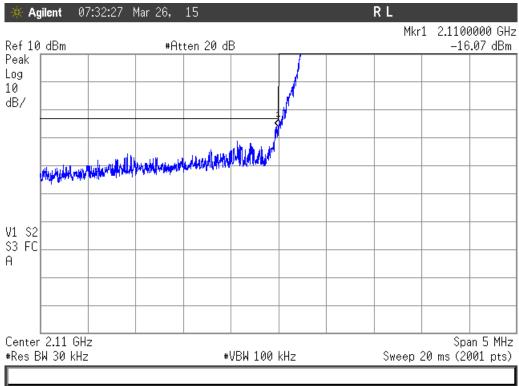
Lower Band Edge - Band 10 – 5MHz BW – QPSK –



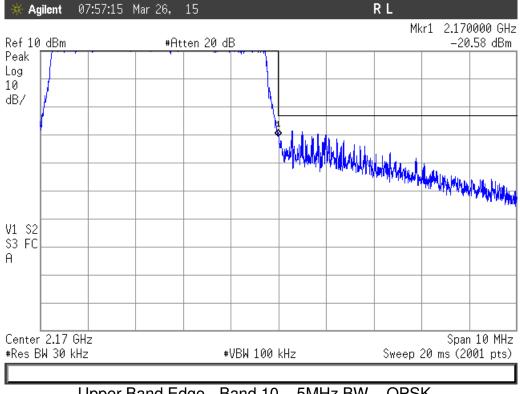


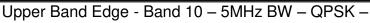






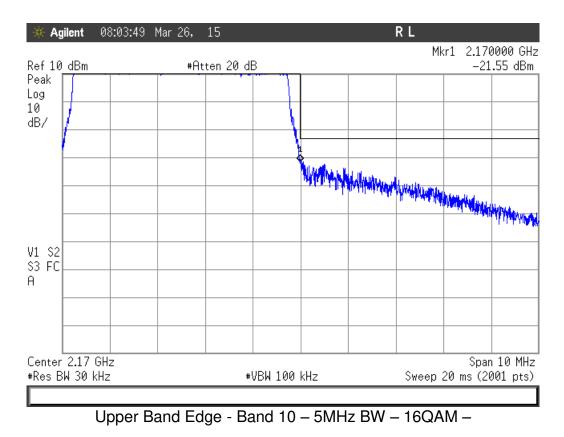
Lower Band Edge - Band 10 - 5MHz BW - 64QAM -

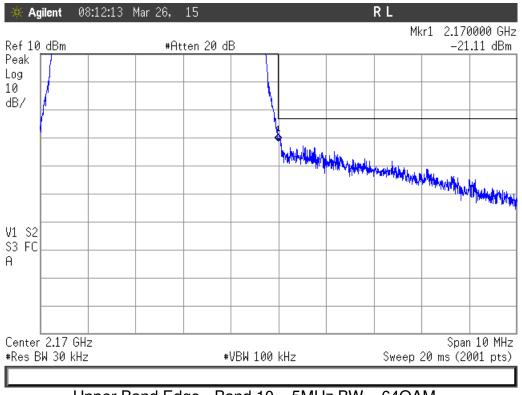








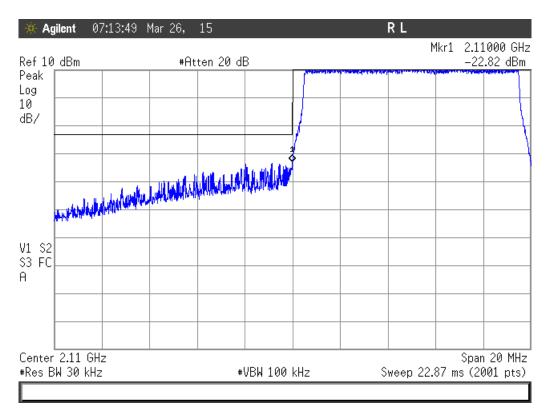




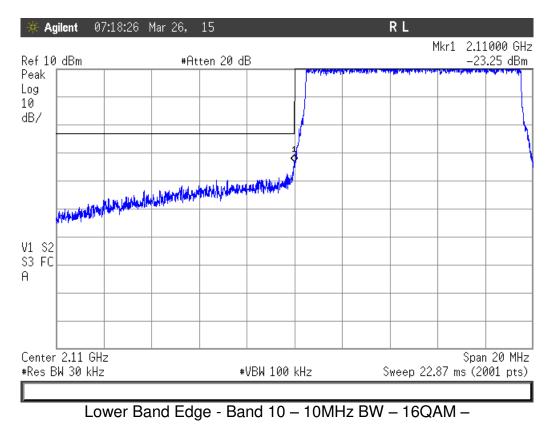
Upper Band Edge - Band 10 – 5MHz BW – 64QAM –





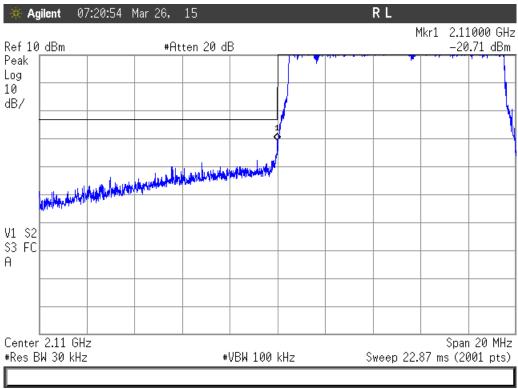


Lower Band Edge - Band 10 - 10MHz BW - QPSK -

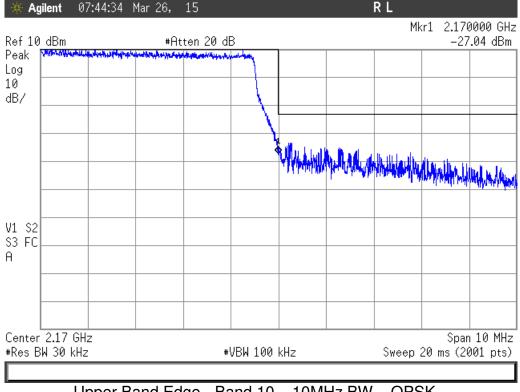


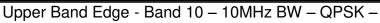






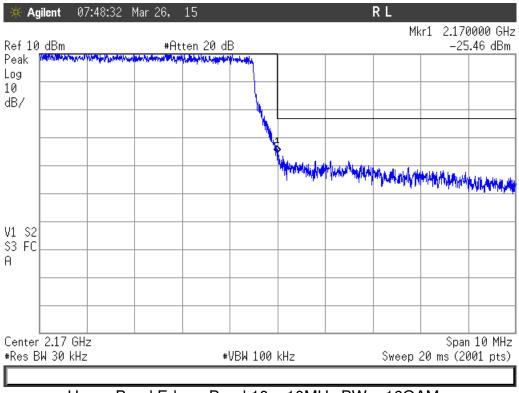
Lower Band Edge - Band 10 - 10MHz BW - 64QAM -



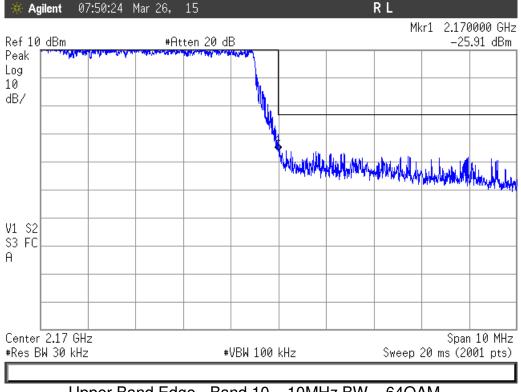








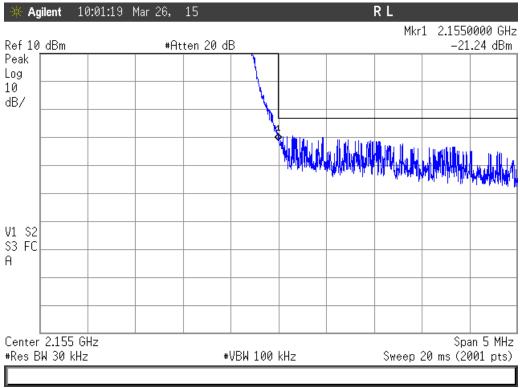


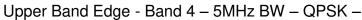


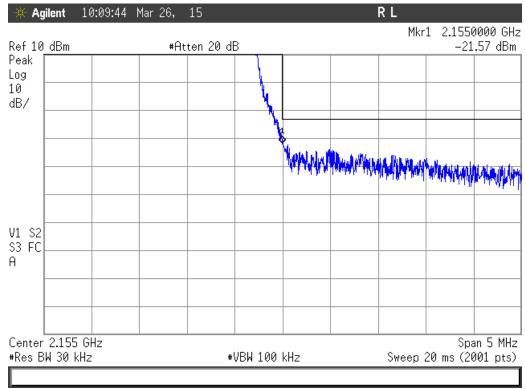
Upper Band Edge - Band 10 – 10MHz BW – 64QAM –







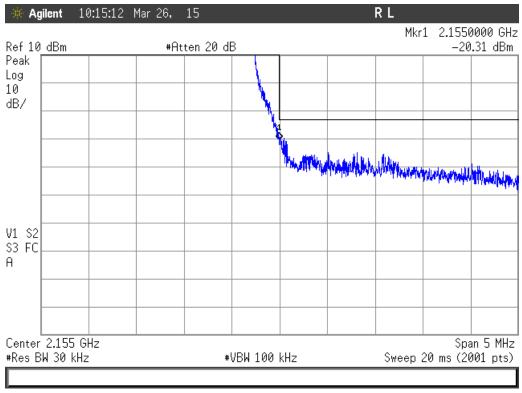




Upper Band Edge - Band 4 - 5MHz BW - 16QAM -



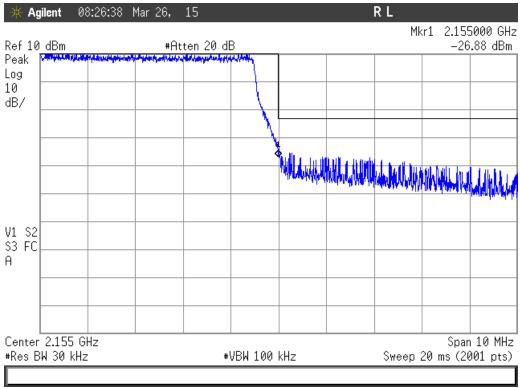


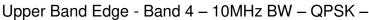


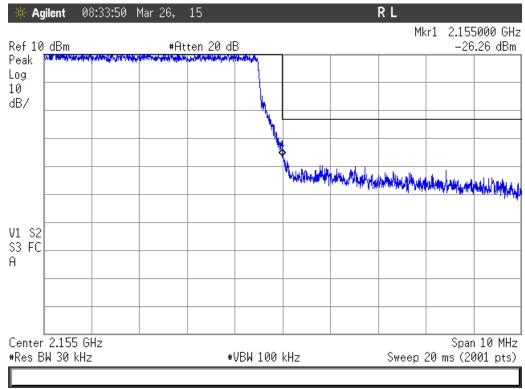
Upper Band Edge - Band 4 – 5MHz BW – 64QAM –







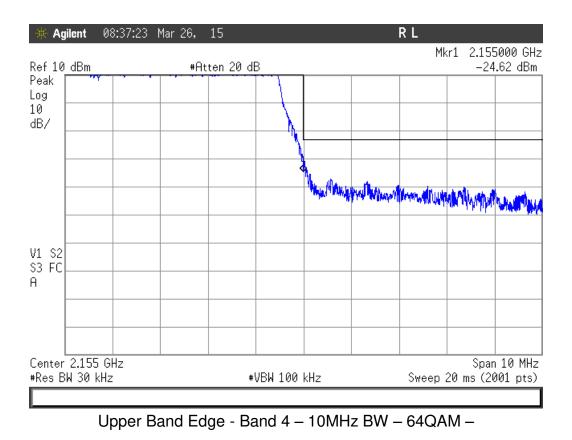




Upper Band Edge - Band 4 - 10MHz BW - 16QAM -







Note: Only Upper Band Edge – Band 4 plots were taken. For Lower Band Edge see Band 10





Conducted Spurious Emissions at Antenna Port

"The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P) dB$." [27.53(e)(8)]

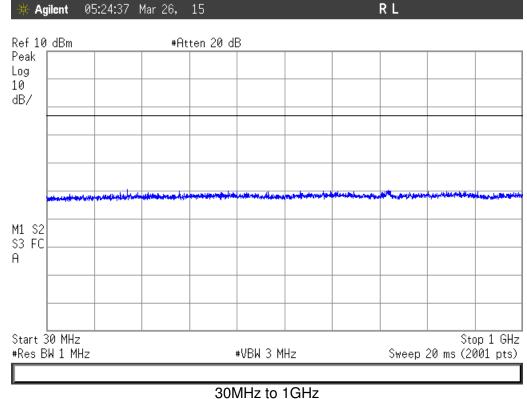
Limit = 10*log(P[mW]) - (43 + 10*log(P[W])) = -13dBm

Spectrum analyzer screen plots for LTE Bands 10 & 4 are shown on the following pages. The operating frequency was 2115MHz, which was taken to represent both bands as Band 4 is a subset of Band 10.





PLOTS

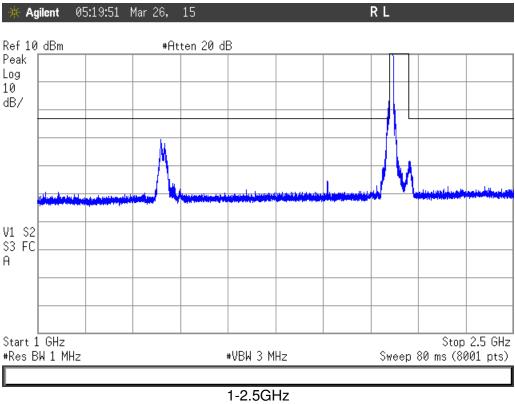


LTE Band 10 – Antenna Ports J1 & J2 combined by using coupler

[RBW 1MHz, VBW 3MHz, 2001 points, range 30-1000MHz]





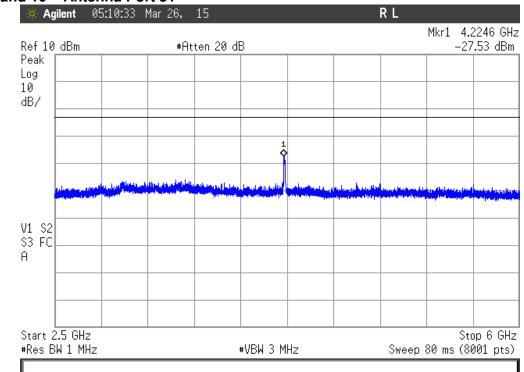


[RBW 1MHz, VBW 3MHz, 8001 points, range 1-2.5GHz]

Note: Correction factor was added to the plot (including the coupler, cable factor and 20dB attenuator.)

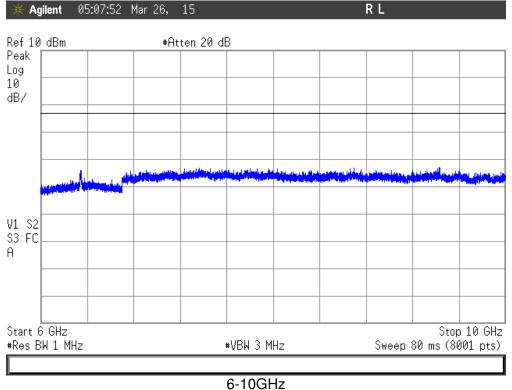






LTE Band 10 – Antenna Port J1

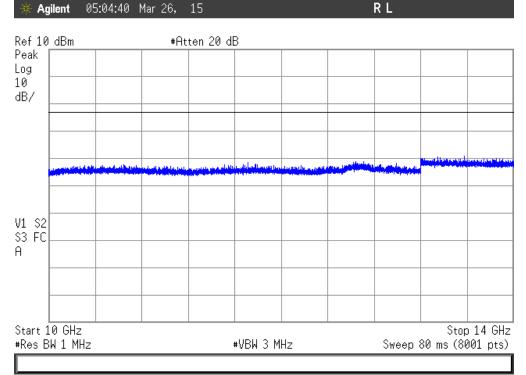
2.5-6GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 2.5-6GHz]



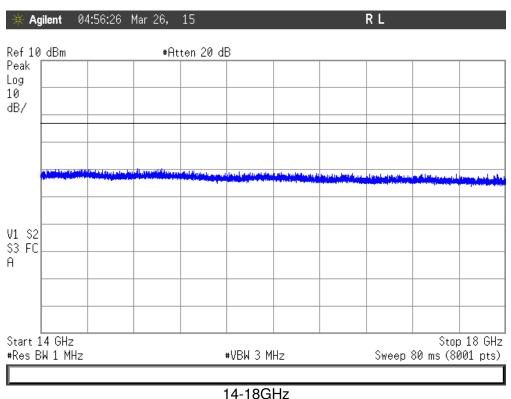
[RBW 1MHz, VBW 3MHz, 8001 points, range 6-10GHz]







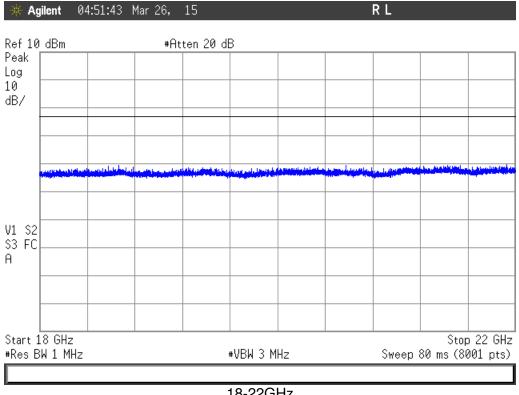
10-14GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 10-14GHz]



[RBW 1MHz, VBW 3MHz, 8001 points, range 14-18GHz]



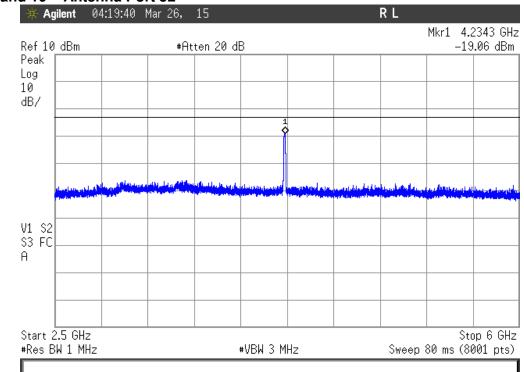




18-22GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 18-22GHz]

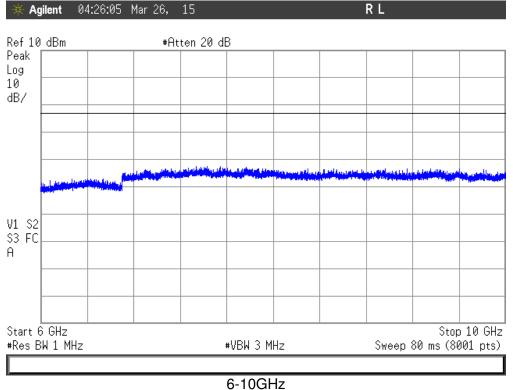






LTE Band 10 – Antenna Port J2

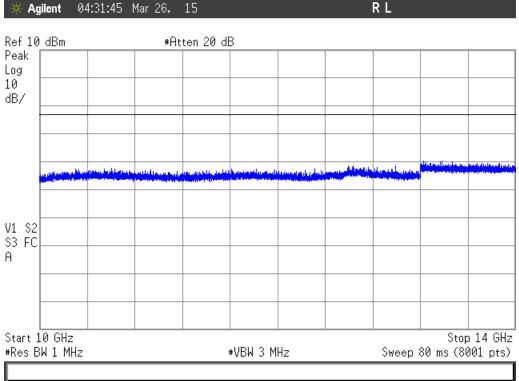
2.5-6GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 2.5-6GHz]



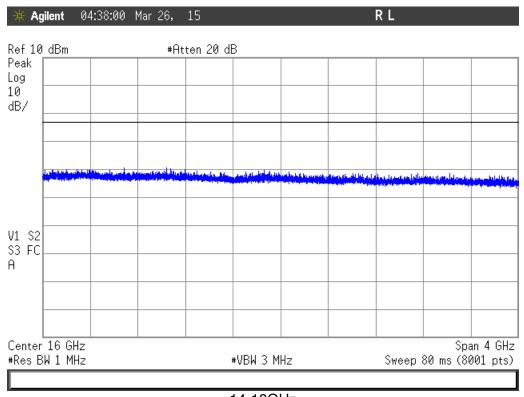
[RBW 1MHz, VBW 3MHz, 8001 points, range 6-10GHz]







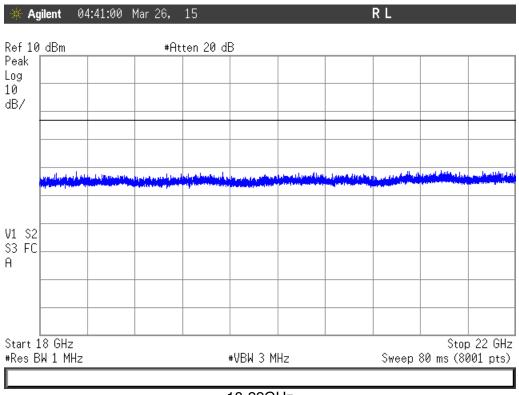
10-14GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 10-14GHz]



14-18GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 14-18GHz]







18-22GHz [RBW 1MHz, VBW 3MHz, 8001 points, range 18-22GHz]





Radiated Spurious Emissions Measurements

MEASUREMENTS / RESULTS

Note that the EUT passes the FCC Class B limit, which is much lower than the -13dBm limit (82.158dBuV/m at 3 meters) for licensed transmitter spurious emissions. Only worst-case radiated spurious data is presented.

Date: 01-Apr-15 Company: Airvana							Work Order: P0152						
Eugineer: Ryan Brown EUT Desc: Switched IQ Radio Point Domestic						EUT Operating Voltage/Frequency: POE							
Temp: 25.2°C Humidity: 2% Pressure: mBa					Pressure: mBar								
Frequency Range: 30-1000MHz						Measureme	nt Distance:	3 m					
Notes: Y-orientation Band 10 BW:10MHz Low CH:2115MHz 16QAM							EU	EUT Max Freq: 200MHz					
• •				• .					FCC Class I	В			
Antenna Polarization	Frequency	Reading	Preamp Factor	Antenna Factor	Cable Factor	Adjusted Reading		Limit	Margin	Result			
(H/V)	(MHz)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)		(dBµV/m)	(dB)	(Pass/Fail			
V	51.8	52.6	25.5	7.8	0.4	35.3		40.0	-4.7	Pass			
V	200.0	43.6	25.5	12.6	0.9	31.6		43.5	-11.9	Pass			
v	300.0	44.3	25.7	13.4	0.9	32.9		46.0	-13.1	Pass			
V	333.3	54.7	25.7	14.0	1.1	44.1		46.0	-1.9	Pass			
v	375.0	43.0	25.7	15.1	1.1	33.5		46.0	-12.5	Pass			
V	466.6	44.6	25.6	17.3	1.4	37.7		46.0	-8.3	Pass			
V	500.0	48.0	25.8	18.0	1.1	41.3		46.0	-4.7	Pass			
V	600.0	41.6	26.0	18.5	1.4	35.5		46.0	-10.5	Pass			
V	625.0	42.2	25.8	19.3	1.4	37.1		46.0	-8.9	Pass			
V	750.0	40.8	25.6	20.9	1.8	37.9		46.0	-8.1	Pass			
н	333.3	46.5	25.7	14.0	1.1	35.9		46.0	-10.1	Pass			
н	500.0	42.1	25.8	18.0	1.1	35.4		46.0	-10.6	Pass			
н	750.0	41.1	25.6	20.9	1.8	38.2		46.0	-7.8	Pass			
Н	875.0	42.4	25.6	22.1	1.8	40.7		46.0	-5.3	Pass			
Н	466.6	38.6	25.6	17.3	1.4	31.7		46.0	-14.3	Pass			
н	200.0	37.3	25.5	12.6	0.9	25.3		43.5	-18.2	Pass			
Н	625.0	37.7	25.8	19.3	1.4	32.6		46.0	-13.4	Pass			
н	600.0	39.9	26.0	18.5	1.4	33.8		46.0	-12.2	Pass			
н	50.8	37.7	25.5	8.0	0.4	20.6		40.0	-19.4	Pass			
Н	250.0	37.6	25.7	11.7	0.9	24.5		46.0	-21.5	Pass			
Table	e Result:	Pass	by	-1.9	dB		W	orst Freq:	333.3	MHz			
Test Site:	EMI Chamber	1	Cable 1: Preamp:	Asset #20	53		Cable 2: Asset #2051 Antenna: Red-Brown		Cable 3:				





Radiated E	mission	s Table	e												
	: 4/17/2015 & 4			Company:	: Airvana							W	ork Order: P0	152	
Engineer	: Tuyen Truong	1		EUT Desc: Switched IQ Radio Point Domestic							EUT Operating Voltage/Frequency: POE				
Temp	: 22°C			Humidity:	: 24%			Pressure:	1011mBar						
(April 23) Temp	: 23°C			Humidity:	: 23%			Pressure:	994mBar						
<u>, , , , , , , , , , , , , , , , , , , </u>		Freau	uency Range	: 1-18GHz							Veasuremer	nt Distance: 3	3m 91-6GHz) &	1m (6-18GHz)	
Notes	Client brought		, ,									Max Freq: 2		mi (0 100)	
110.00	. Ollon, brough	I LOT DUG.	With mounda								L	max ricy	0011112		
Antenna	Ī	Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted	FCC Clas	s B High Free Peak	quency -	FCC Class B	High Frequer	ncy - Average	
Polarization	Frequency	Reading	-	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result	
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)	(dBµV/m)	(dB)	(Pass/Fail)	
BW = 10MHz, Band		w Channel ((2115MHz)	T											
v	4230.0	47.5	34.6	20.3	33.8	4.8	65.8	52.9	74.0	-8.2	Pass	54.0	-1.1	Pass	
h	4230.0	40.32	25.9	20.3	33.8	4.8	58.6	44.2	74.0	-15.4	Pass	54.0	-9.8	Pass	
v, nf	6345.0	32.77	21.2	19.3	35.8	6.2	55.5	43.9	83.5	-28.0	Pass	63.5	-19.6	Pass	
h, nf	8460.0	35.03	23.5	19.1	36.1	7.9	59.9	48.4	83.5	-23.6	Pass	63.5	-15.1	Pass	
BW = 5MHz, Band 1	0 16OAM Low	Channel (2	2112 5MHz)						l						
V	4225.0	48.13	32.7	20.3	33.8	4.3	65.9	50.5	74.0	-8.1	Pass	54.0	-3.5	Pass	
ĥ	4225.0	44.35	30.7	20.3	33.8	4.3	62.2	48.5	74.0	-11.8	Pass	54.0	-5.5	Pass	
v, nf	6337.5	34.001	22.0	19.3	35.8	5.3	55.8	43.8	83.5	-27.7	Pass	63.5	-19.7	Pass	
BW = 10MHz, Band															
v	4280.0	41.83	27.5	20.2	33.8	4.3	59.7	45.4	74.0	-14.3	Pass	54.0	-8.6	Pass	
1															
BW = 10MHz, Band															
v	4330.0	43.05	26.4	20.1	33.9	4.4	61.3	44.6	74.0	-12.7	Pass	54.0	-9.4	Pass	
BW = 10MHz, Band		Channel (1													
BW = TUMHZ, Band	4230.0	47.23	2115IMHZ) 32.3	20.3	33.8	4.3	65.0	50.1	74.0	-9.0	Pass	54.0	-3.9	Pass	
h	4230.0	47.23	27.2	20.3	33.8	4.3	59.5	45.0	74.0	-9.0	Pass	54.0	-3.9	Pass	
	.200.0														
BW = 10MHz, Band	10, 64QAM , Lo	w Channel ((2115MHz)												
v	4230.0	46.99	32.2	20.3	33.8	4.3	64.8	50.0	74.0	-9.2	Pass	54.0	-4.0	Pass	
h	4230.0	40.3	26.4	20.3	33.8	4.3	58.1	44.2	74.0	-15.9	Pass	54.0	-9.8	Pass	
Tabl	le Result:	:	Pass	by	-1.1	dB				_	Wc	orst Freq:	4230.0 MH	łz	
Test Site	: 1DCC-OATS-	-3M-I		Cable 1	: EMIR-HIG	H-22				Cable 2:			Cable 3:		
Analyzer	: Rental SA#1			Preamp	: Asset #15	17				Antenna:	Blue Horn	Pr	reselector:		
Test Site	: EMI Chamber	r 2		Cable 1	: Asset #20	152				Cable 2:	Asset #2054		Cable 3:		
Analyzer	: Rental SA#1				: Asset #15					Antenna:			reselector:		
Radiated E	Emissior	ns Tab	le												
Date: 23	-Apr-15		(Company: /	Airvana	_							Work Order:	: P0152	
Engineer: Tu	Jyen Truong		F	EUT Desc:	Switched I	Q Radio I	Point Domestic				EUT Oper	ating Voltag	e/Frequency:	: POE	
Temp: 23				Humidity: 2	23%			Pressure	: 994mBar		-	-			
· · ·		Frequer	ncy Range:								Moseuron	nent Distance	•• 0.1 m		
Notes: B	W = 10MHz, B	-										UT Max Fred			
Notes. Di		anu z, roc	JAIVI, IVIIG OI	laffiner (130	UIVITIZ)							UT Wax Free			
Antenna		Peak	Average	Preamp	Antenna	Cable	Adjusted	Adjusted	FCC Cla	ass B High Fi Peak	requency -	FCC CI	lass B High Fi Average	requency -	
	Frequency	Reading	Reading	Factor	Factor	Factor	Peak Reading	Avg Reading	Limit	Margin	Result	Limit	Margin	Result	
(H / V)	(MHz)	(dBµV)	(dBµV)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(Pass/Fail)		(dB)	(Pass/Fail)	

N	O EMISSIONS FOU	JND WITHIN	10db of the limit		
Table Result:		by	dB	Worst Freq:	MHz
Test Site: EMI Chamber 2 Analyzer: Brown		Cable 1: A Preamp: A	sset #1507 sset #1517	Cable 2: Antenna: 18-26.5GHz Hom	Cable 3: Preselector:





Conducted Spurious Emissions on AC Mains

Temp: 21.0 Notes: Tes	0 °C													P0152			
Notes: Tes			Engineer: Tuyen Truong							EUT Desc: Switched IQ Radio Point Domestic							
	sted AC side	Temp: 21.0 °C						Humidity: 27%						Pressure: 1019mBar			
	ak readings.	of DC Power	Brick of supp	ort POE Link	sys Switch			20Vac/60Hz ar	d 230Vac/50	,							
							ency Range:	0.15-30MHz		EUT II	nput Voltage	Frequency:	POE				
	Quasi-l Readi		Ave Read		LIS Faci		Cable	ATTN	FCC	CISPR Cla	iss B	F	CC/CISPR C	lass B			
Frequency	QP1	QP2	AVG1	AVG2	L1	L2	Factor	Factor	QP Limit	Margin	Result	AVG Limit	Margin	Result			
(MHz)	(dBµV)	(dBµV)	(dBµV)	(dBµV)	(dB)	(dB)	(dB)	(dB)	(dBµV)	(dB)	(Pass/Fail)	(dBµV)	(dB)	(Pass/Fai			
= 10MHz, Band 10 16QAM, Lo	w Channel (2	2115MHz)															
0.86	11.1	11.9	11.1	11.9	0.0	0.0	0.0	-20.4	56.0	-23.6	Pass	46.0	-13.6	Pass			
1.65	9.9	11.2	9.9	11.2	0.0	0.0	0.0	-20.4	56.0	-24.4	Pass	46.0	-14.4	Pass			
6.29	10.3	10.8	10.3	10.8	0.0	-0.1	-0.1	-20.4	60.0	-28.7	Pass	50.0	-18.7	Pass			
10.64	11.4	12.1	11.4	12.1	-0.1	-0.1	-0.2	-20.3	60.0	-27.3	Pass	50.0	-17.3	Pass			
17.50	10.4	12.1	10.4	12.1	-0.1	-0.1	-0.2	-20.4	60.0	-27.2	Pass	50.0	-17.2	Pass			
24.90	8.5	10.1	8.5	10.1	-0.1	-0.1	-0.3	-20.4	60.0	-29.0	Pass	50.0	-19.0	Pass			
Result: Pass						Worst Margin: -13.6 dB			dB	Frequency: 0.860 MHz							





page 370 of 396

Frequency Stability

REQUIREMENTS

From FCC Part 27:

§27.54 Frequency stability. The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

MEASUREMENTS / RESULTS

Measurements were done on port J1, since the same frequency-generating circuit is used for J1 and J2.

Band 4:



-30°C, Low Frequency Edge





gilent Spectrum Analyzer - Swept SA					
RF PRESEL 50 Ω AC		NSE:INT AVG TYPE	ALIGNAUTO	09:27:16 AM Apr 21, 2015 TRACE 123456	Marker
PASS	PNO: Wide Trig: Free IFGain:Low Atten: 10	e Run		TYPE MWWWWWW DET PNNNN	
0 dB/div Ref -1.00 dBm			Mkr1 2	2.154 864 GHz -13.10 dBm	1
Trace 1 Pass	hu 1				Norma
31.0		hord Marine - Proven	ᡅᠥᢉ᠊ᡞᡁᡢᢛ᠇ᢩᠵᠰ	Murthman	Delta
41.0					Fixed
61.0					or
71.0					
91.0					Properties
Center 2.155000 GHz Res BW (-6dB) 30 kHz	#VBW 100 kHz	<u> </u>	Sweep 4.6	Span 2.000 MHz 67 ms (1001 pts)	Mor 1 of
sg			STATUS		

-30°C, High Frequency Edge



-20°C, Low Frequency Edge





Agilent Spect	rum Analyzer - Swe									
XI	RF PRESEL 50 Ω	AC CORF		SEN	ISE:INT	Avg Type	ALIGN AUTO		4 Apr 20, 2015 E 1 2 3 4 5 6	Marker
	2.15485800		Z O:Wide 🗔	Trig: Free	Run	Avgiype	. voitage	TYF	PE MWWWWW	
PASS		IFG	ain:Low	Atten: 10	dB			DE	T <u>P N N N N N</u>	Select Marker
							Mkr1	2.154 8	58 GHz	1
10 dB/div	Ref -1.00 dl	3m						-13.	00 dBm	
	e 1 Pass									
			5	1						Norma
11.0				74						Norme
				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
21.0				- Contraction of the second se						
					WW MAN	. N. <i>1</i>	www.	M AM	0	Delta
31.0						wy and	and shares	w hv i .	w march	2011
41.0										
										Fixed
51.0										
G1.0										
										Of
71.0										
/1.0										
										_
81.0										Properties
31.0										
										Mor
enter 2	155000 GHz							Snan 2	.000 MHz	1 of:
Res BW	(-6dB) 30 kH	z	#VBW	100 kHz			Sweep_4	.667 ms.(	1001 pts)	
sg							STATUS	1		
30				<u> </u>						

-20°C, High Frequency Edge



-10°C, Low Frequency Edge





Agilent Spectrum Analyzer - Swept SA					
XI RF PRESEL 50 Ω AC		SENSE:INT	ALIGN AUTO	11:10:56 AM Apr 20, 2015	Marker
Marker 1 2.1548560000		Trig: Free Run	Avg Type: Voltage	TRACE <b>1 2 3 4 5 6</b> TYPE M W <del>WWWWW</del>	maritor
PASS	PNO: Wide 😱 IFGain:Low	Atten: 10 dB		DET PNNNN	Coloct Morker
	in outlineout		Micud	0.454.056 CU-	Select Marker
			IVIKTI	2.154 856 GHz	1
10 dB/div Ref -1.00 dBm	<u> </u>			-13.38 dBm	
^{-og} Trace 1 Pass	\ \				
	×	<b>1</b>			Norma
11.0	k	∾ <b>Q</b> `			Norma
		John Contraction			
21.0		<u> </u>			
		and a second			
		W. Cand	Lannoralmalizaria	mm m	Delta
31.0		V4	All ablancial Carde	A A ANT MAR POWER AND A	
-41.0					
					Fixed
51.0					
31.0					
61.0					Of
					0,
71.0					
31.0					Duonoution
					Properties
91.0					
					More
					1 of 2
Center 2.155000 GHz				Span 2.000 MHz	1012
#Res BW (-6dB) 30 kHz	#VBW	100 kHz	Sweep 4	.667 ms (1001 pts)	
SG			STATUS	;	

-10°C, High Frequency Edge



0°C, Low Frequency Edge





Agilent Spectrum Analyzer - Swept S					
XI RF PRESEL 50 Ω A		SENSE:INT	ALIGNAUTO	09:56:00 AM Apr 20, 2015	Marker
Marker 1 2.1548440000		Trig: Free Run	Avg Type: Voltage	TRACE <b>1 2 3 4 5 6</b> TYPE MW <del>WWWW</del>	marker
PASS	PNO: Wide 🧔 IFGain:Low	Atten: 10 dB		DET PINNNN	Select Marker
	II Gain.cow		Milene	0.454.044.000-	Select Marker
			IVIKI	1 2.154 844 GHz	1
10 dB/div Ref -1.00 dBm	h			-13.87 dBm	
Trace 1 Pass					
	۱ ^۱	.1			Norma
11.0	<u> </u>	<mark>♦'</mark>			NOTING
		*			
21.0		N			
-1.0		N.			
		h ~			Delta
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			10 - 40 - 4 - W		
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					Fixed
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61.0					
					Of
71.0					
81.0					Properties
.91.0					
					More
Center 2.155000 GHz				Spap 2 000 MHz	1 of 2
	#\/P\//	100 kHz	Swoon	Span 2.000 MHz 4.667 ms (1001 pts)	
Res BW (-6dB) 30 kHz	#VBW	TVU KHZ	Sweep	nor ms (nor pis)	
G			STATL	IS	

0°C, High Frequency Edge



10°C, Low Frequency Edge





Agilent Spec	trum Analyzer - S									
XI	RF PRESEL 50		CORREC	SEN	NSE:INT		ALIGN AUTO		4 Apr 21, 2015	Marker
Marker	1 2.154852	000000		Trig: Free		Avg Type	e: Voltage	TRAC TVI	E 123456 MWW	marker
PASS			PNO: Wide ⊂ IFGain:Low	Atten: 10				DI	PNNNN	
			IFGall.LOW	Theorem To	40					Select Marker
							MKr1	2.154 8	52 GHz	1
10 dB/div	Ref -1.00	dBm						-13.	28 dBm	
	ce 1 Pass									
-11.0				<u>}</u>						Norma
-21.0										
					۲,					Delta
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01.0					1 1 V	My water	Mr. Marker	man	When the	
-41.0										
										Fixed▷
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61.0										Of
										UI UI
71.0										
31.0										Properties
31.0										
										More
	455000 011							On on 2		1 of 2
	.155000 GH		-43 (15)				<b></b>	span Z	.000 MHz	
Res BV	/ (-6dB) 30 k	HZ	#VB	N 100 kHz			sweep 4	.007 ms (	1001 pts)	
SG							STATUS	6		

10°C, High Frequency Edge



20°C, Low Frequency Edge, 120Vac





Agilent Spec	trum Analyzer - Swe	ept SA								
LXI	RF PRESEL 50 Ω		RREC	SEM	JSE:INT		ALIGN AUTO		4 Apr 21, 2015	Marker
Marker	1 2.1548520	00000 G	Hz			Avg Type	e: Voltage	TRAC	^E 123456	warker
PASS		PI IF	NO: Wide 🖙 Gain:Low	Trig: Free Atten: 10				TYI Di	PE MWWWWWW P N N N N N	Select Marker
							Mkr1	2 154 8	52 GHz	Selectiviarker
10 dB/div	Ref -1.00 d	Bm						-13.	01 dBm	1
	ce 1 Pass									
				<b>1</b>						Normal
-11.0				X						
				and the second s						
-21.0				h h						
					hun					Delta
-31.0					why	www	hord the second	man m	when a	
									a read of a local	
-41.0										
										Fixed⊵
-51.0										
-61.0										Off
										•
-71.0										
-81.0										Properties ►
-91.0										
										More
Center 2	.155000 GHz							Enan 2	000 MHz	1 of 2
	.155000 GH2 /(-6dB) 30 kH	z	#VBW	100 kHz			Sweep_4	.667 ms.(	.000 MHz 1001 pts)	
MSG							STATUS	-		
						= 1				

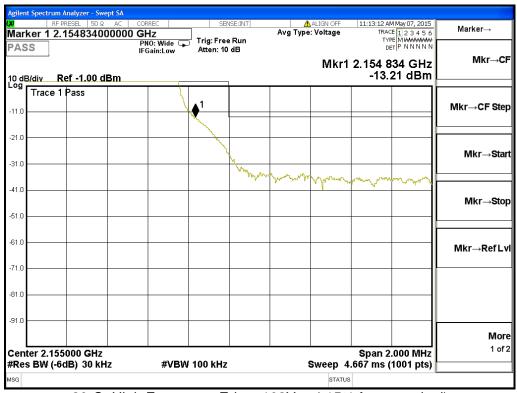
20°C, High Frequency Edge, 120Vac

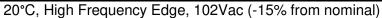


20°C, Low Frequency Edge, 102Vac (-15% from nominal)











20°C, Low Frequency Edge, 138Vac (+15% from nominal)





Trace/Detecto	L1:10:53 AM May 07, 2015 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	UIGN OFF	Avg Type			CORREC GHZ PNO: Wide IFGain:Low	50 Ω AC 36000000	RF PRESEL 2.1548	rker 1 SS
1	154 836 GHz -13.134 dBm	Mkr1				1	0 dBm	Ref -1.	dB/div
Clear Wr					1			e 1 Pass	Trac
Trace Avera				\ \					0
Max H	m hand and	ᡟᠬ᠕ᡙᠬᢦ	- harrowan	Www					0
Min H									0
									o
View Blar Vie									
<b>M</b> 1	Span 2.000 MHz 57 ms (1001 pts)				V 100 kHz			55000 ( (-6dB) 3	

20°C, High Frequency Edge, 138Vac (+15% from nominal)



30°C, Low Frequency Edge





	um Analyzer - Swep								
	RF PRESEL 50 Ω	AC CORREC	SEN	SE:INT	Avg Type			Apr 22, 2015	Marker
PASS	2.15484800	UUUU GHZ PNO: Wide ⊂ IFGain:Low	Trig: Free Atten: 20	Run dB	Avg type	. voitage	TYP	E M WWWWW F P N N N N N	Select Marker
10 d <u>B/div</u> Log	Ref 10.00 df	3m				Mkr1	2.154 8 -13.2	48 GHz 21 dBm	
	ê ¶ Paśs/~~~~								Normal
-10.0			h 1						Delta
-30.0				Ly wy way	www.	www.humman	mn.l.m	᠕ᡙᡵ᠕ᡁᠵᠬ	Fixed⊳
-50.0									Off
-60.0									Properties►
-80.0	155000 GHz						Span 2	000 MHz	More 1 of 2
	(-6dB) 30 kHz	#VB\	N 100 kHz			Sweep 4	.667 ms ('	1001 pts)	
				. =					

30°C, High Frequency Edge



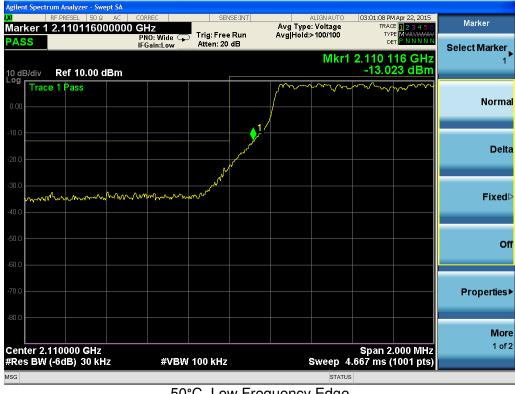








40°C, High Frequency Edge



50°C, Low Frequency Edge







50°C, High Frequency Edge





## Band 10:

rF PRESEL 50 Ω arker 1 2.155030000 ASS	0000 GHz PNO: Wide G	Trig: Free Run Atten: 10 dB	ALIGNAUTO Avg Type: Voltage	03:46:45 PM Apr 20, 2015 TRACE 1 2 3 4 5 6 TYPE MWWWWWW DFT P N N N N N	Marker
dB/div Ref -1.00 dB	IFGain:Low	Atten: 10 dB	Mkr1	2.155 030 GHz -13.21 dBm	Select Marker 1
Trace 1 Pass					Norm
.0 www.may	manna	how which			
					Deli
					Fixed
1,0					
1.0					C
					_
					Properties
1.0					Мо
enter 2.155000 GHz Res BW (-6dB) 30 kHz	#VBV	V 100 kHz	Sweep 4	Span 2.000 MHz I.667 ms (1001 pts)	1 of
a			STATU		





-30°C, High Frequency Edge





gilent Spectrum Analyzer - Swept SA					
RF PRESEL 50 Ω AC				M Apr 20, 2015	Marker
/larker 1 2.155032000000		_ Avg Type		^{CE} 123456	warker
PASS	PNO: Wide Trig: Free IFGain:Low Atten: 10		IY D		Select Marker
0 dB/div Ref -1.00 dBm		,	Mkr1 2.155 ( -13.		1
nog Trace 1 Pass		1			Norma
21.0 man white hard	man man han har	<i>Γ</i>			
31.0					Delta
41.0					Fixed
51.0					Fixed
61.0					Of
71.0					_
81.0					Properties
91.0					
Center 2.155000 GHz			Snan 2	.000 MHz	More 1 of 2
Res BW (-6dB) 30 kHz	#VBW 100 kHz	\$	Sweep 4.667 ms	(1001 pts)	
SG			STATUS		

-20°C, Low Frequency Edge



-20°C, High Frequency Edge





Agilent Spec	trum Analyzer - Swep	ot SA					
L <mark>XI</mark>	RF PRESEL 50 Ω	AC CORREC	SENSE:IN		ALIGN AUTO	10:19:25 AM Apr 20, 20	
Marker PASS	1 2.16984400	PNO: Wide	➡ Trig: Free Rur Atten: 10 dB		e: Voltage	TRACE 1234 TYPE MWWWW DET PININ	
T ACC		IFGain:Low_	Atten: 10 dB		b d land		Select Trace
10 dB/div	Ref -1.00 dE	3m			WIKFT	2.169 844 GH -13.36 dB	nz 1°
Log Tra	ce 1 Pass		^h h, 1 h.				Clear Write
-21.0			Mr. Mr.	.A.M. m. n.	5.0	م م رسم م	
-31.0				a funda for the former of the	ManyAnya		Trace Average
-41.0							Max Hole
-51.0							
·61.0							Min Hol
81.0							View Blank
91.0							View
Center-2	2.170000 GHz					Span 2.000 MI	More 1 of 3
	V (-6dB) 30 kHz	z #VB	W 100 kHz		Sweep 4	.667 ms (1001 pt	(S)
MSG					STATUS		
			a.o. 1	-			

-10°C, Low Frequency Edge



-10°C, High Frequency Edge







^{0°}C, Low Frequency Edge



0°C, High Frequency Edge







10°C, Low Frequency Edge



10°C, High Frequency Edge







20°C, Low Frequency Edge, 120Vac



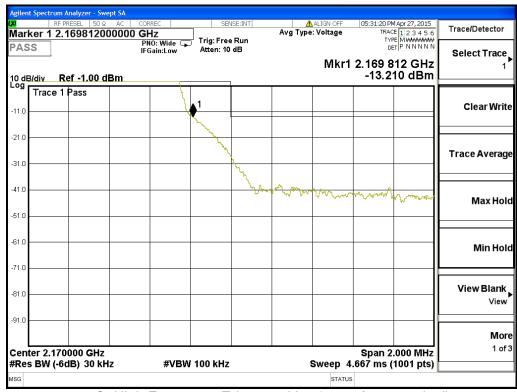
20°C, High Frequency Edge, 120Vac





arker 1 2. ASS	RESEL 50 Ω	00000 G	RREC HZ NO: Wide 😱 Gain:Low	1		Ауд Туре	ALIGN OFF	08:32:49 AM Apr 28, 2015 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N	Trace/Detector
dB/div R	ef -1.00 d	Bm				7	Mkr1	2.155 110 GHz -13.180 dBm	Select Hac
7 Trace 1	Pass				1./				Clear Wr
1.0					are and the second s				
.00.0	mp	- Alanna	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	- and a					Trace Avera
.0									MaxHo
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.0									Min Ho
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.0									Mo
enter 2.155 tes BW (-66		z	#VBW	100 kHz			Sweep 4	Span 2.000 MHz .667 ms (1001 pts)	1 0

20°C, Low Frequency Edge, 102Vac (-15% from nominal)



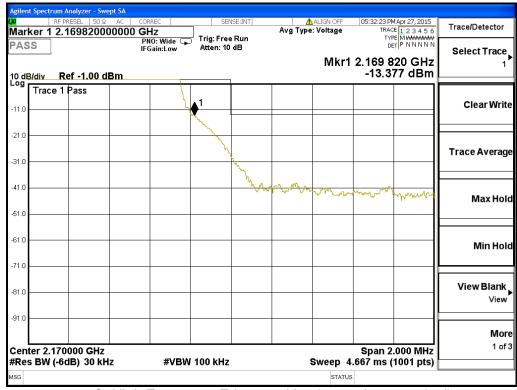
20°C, High Frequency Edge, 102Vac (-15% from nominal)





ark AS:	er 1 2.	RESEL 50 : 1551100	000000	DRREC GHZ PNO: Wide G FGain:Low	]			ALIGN OFF	08:31:15 AM Apr 2 TRACE 1 2 TYPE MV DET P N	3456	Trace/Detector
) dB	/div R	ef -1.00	dBm				,	Mkr1	2.155 110 -13.277		
1.0	Trace 1	Pass				1 /					Clear Wr
1.0 -					mound	Warner				_ <b> </b> F	
1.0	$\sim$									$-\ $	Trace Avera
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I.O -										F	
1.0											Min Ho
.0 -										-	<b>View Blan</b> Vie
.0											Mo
		000 GHz dB) 30 k		#VBW	100 kHz			Sweep 4	Span 2.000 .667 ms (100		1 0

20°C, Low Frequency Edge, 138Vac (+15% from nominal)



20°C, High Frequency Edge, 138Vac (+15% from nominal)





Agilent Spe	ctrum Analyzer									
L <mark>XI</mark>	RF PRESEL		CORREC	SEI	VSE:INT		ALIGN AUTO		M Apr 22, 2015	Marker
Marker	1 2.15508	600000	) GHz			Avg Typ	e: Voltage	TRA	^{CE} 123456	warker
PASS			PNO: Wide 🤇	Trig: Fre				TY	PE MWWWWWW ET P. N.N.N.N.N.	
PA33			IFGain:Low	Atten: 20	dB					Select Marker
							Mkr1	2 155 (	)86 GHz	
							IN IN I	42	22 dBm	I.
10 dB/div	Ref 10.	00 dBm				~~		-10.		
	ace 1 Pass					17		$\sim$	~~~	
						1				
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0.00						1				
-10.0					<b>⊢_</b> ]∠					
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					and a second					Delta
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		man and and and and and and and and and a	mmmm	mound						
	10 10 10 10 10 10 10 10 10 10 10 10 10 1									
-30.0										
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-50.0										Of
-60.0										
70.0										
-70.0										Properties
-80.0										
-00.0										
										More
Center 2	2.155000 G	Hz						Span 2	.000 MHz (1001 pts)	1 of 2
	N (-6dB) 30		#\/R	W 100 kHz			Sween 4	667 ms	(1001 nts)	
		2 14112	#¥B	A Rev MI12			oweeh -	in the second	reer pro/	
MSG							STATUS			
					_					

30°C, Low Frequency Edge



30°C, High Frequency Edge







40°C, Low Frequency Edge



40°C, High Frequency Edge







50°C, Low Frequency Edge



50°C, High Frequency Edge





## **Test Equipment**

/16/2015 Spectrum Analyzers / Receivers /Preselectors	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrate
Brown	9kHz-26.5GHz	E4407B	Agilent	SG44210511	1510	I.	5/12/2015	5/12/20
SA #2 (1860)	9kHz-26.5 GHz	E7405A	Agilent	MY45104916	1860	I.	6/4/2015	6/4/201
EMI Chamber Preselector	9kHz-1.8GHz	EM-2701	Electro-Metrics	539	1511	Ш	7/29/2015	7/29/20
SA EMI Chamber (1328)	9kHz-13.2 GHz	E4405B	Agilent	MY44210241	1328	Т	2/20/2016	2/20/20
Conducted Test Sites (Mains / Telco) CEMI 2	FCC Code 719150		VCCI Code A-0015			Cat Ⅲ	Calibration Due NA	Calibrated N/A
Radiated Emissions Sites	FCC Code	IC Code	VCCI Code	Range		Cat	Calibration Due	Calibrate
EMI Chamber 1	719150	2762A-6	A-0015	30-1000MHz		Ш	4/15/2015	3/15/20
EMI Chamber 2	719150	2762A-7	A-0015	30-1000MHz		Ш	3/22/2017	3/22/20
1DCC-OATS-3M-I	719150	2762A-8	A-0015	30-1000MHz		Ш	5/17/2015	5/17/20
Preamps / Couplers Attenuators / Filters	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrate
Red-White	0.009-2000MHz	ZFL-1000-LN	CS	N/A	1258	Ш	12/26/2015	12/26/2
1517 HF Preamp	1-20GHz	CS	CS	N/A	1517	Ш	9/9/2015	9/9/20
High Pass Filter	0.03-6.5 GHz	11SH10-1000/T3000-0/0	K&L	1	1310	Ш	1/13/2016	1/13/20
Blue-Black	0.009-2000MHz	ZFL-1000-LN	CS	N/A	800	Ш	12/26/2015	12/26/2
High Pass Filter	0.03-14.5 GHz	11SH10-3000/T9000-0/0	K&L	1	1311	Ш	1/13/2016	1/13/20
Green	0.009-2000MHz	ZFL-1000-LN	CS	N/A	802	Ш	9/14/2015	9/14/20
Antennas	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrate
Red-Brown Bilog	30-2000MHz	JB1	Sunol	A0032406	1218	1	12/4/2016	12/4/2
Yellow Horn	1-18GHz	3115	EMCO	9608-4898	37	1	7/28/2015	7/28/2
Red-White Bilog	30-2000MHz	JB1	Sunol	A091604-1	1105	1	7/24/2015	7/24/2
Blue Horn	1-18Ghz	3117	ETS	157647	1861	1	2/8/2017	2/8/20
HF (White) Horn	18-26.5GHz	801-WLM	Waveline	758	758	III	Verify before Use	date of
LISNs/Measurement Probes	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrat
LISN Asset 1726	150kHz-30MHz	LI-150A	Com-Power	201092	1726	1	1/23/2016	1/23/2
LISN Asset 1727	150kHz-30MHz	LI-150A	Com-Power	201093	1727	Т	1/23/2016	1/23/2
Attenuators	Range	MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrate
20dB Attenuator-04	9kHz-2GHz			N/A		Ш	6/30/2015	6/30/20
Conducted Test Sites (Mains / Telco)	FCC Code		VCCI Code			Cat	Calibration Due	Calibrate
CEMI-03	9kHz - 2GHz		C-S			11	9/14/2015	9/14/2
Cables	Range		Mfr			Cat	Calibration Due	Calibrat
Asset #1787	9kHz - 18GHz		Florida RF			11	4/14/2015	3/14/2
Asset #2051	9kHz - 18GHz		Florida RF			11	3/8/2016	3/8/20
Asset #2053	9kHz - 18GHz		Florida RF			Ш	3/8/2016	3/8/20
Asset #2052	9kHz - 18GHz		Florida RF			Ш	3/8/2016	3/8/20
Asset #2054	9kHz - 18GHz		Florida RF			Ш	3/8/2016	3/8/20
REMI-High-22	9kHz - 18GHz		C-S			Ш	2/7/2016	2/7/20
Asset #1507	9kHz - 18GHz		Florida RF			Ш	2/15/2016	2/15/2
CEMI-09	9kHz - 2GHz		C-S			Ш	5/3/2015	5/3/20
Meteorological Meters		MN	Mfr	SN	Asset	Cat	Calibration Due	Calibrat
Weather Clock (Pressure Only)		BA928	Oregon Scientific	C3166-1	831	1	3/19/2016	3/19/2
TH A#1831		35519-044	Control Company	130319991	1831	Ш	6/13/2015	6/13/2
TH A#1832		35519-044	Control Company	130318277	1832	Ш	6/13/2015	6/13/2
		35519-044	Control Company	130318278	1833	Ш	6/13/2015	6/13/2
TH A#1833								
TH A#1833 TH A#2079		HTC-1	HDE		2079	Ш	4/2/2016	4/2/20
		HTC-1 35519-044	HDE Control Company	130320003	2079 1830	 	4/2/2016 6/13/2015	4/2/20 6/13/2

All equipment is calibrated using standards traceable to NIST or other nationally recognized calibration standard.





## **Conditions Of Testing**

[Bureau Veritas Consumer Products Services, Inc., a Massachusetts corporation], and/or its affiliates (collectively, the "Company") will conduct, at the request of the Submitter ("Client"), the tests specified on the submitted Test Request Form or equivalent in accordance with, and subject to, the following terms and conditions (collectively, "Conditions"):

1. All orders for tests are subject to acceptance by the Company, and no order will constitute a binding commitment of the Company unless and until such order is accepted by it, as evidenced by the issuance of a written report ("**Test Report**") by the Company. The Test Report is issued solely by the Company, is intended for the exclusive use of Client and shall not be published, used for advertising purposes, copied or replicated for distribution to any other person or entity or otherwise publicly disclosed without the prior written consent of the Company. By submitting a request for services to the Company, Client consents to the disclosure to accreditation bodies of those records of Client relevant to the accreditation body's assessment of the Company's competence and compliance with relevant accreditation criteria. The Company shall not be liable for any loss or damage whatsoever resulting from the failure of the Company to provide its services within any time period for completion estimated by the Company. If Client anticipates using the Test Report in any legal proceeding, arbitration, dispute resolution forum or other proceeding, it shall so notify the Company prior to submitting the Test Report in such proceeding. The Company has no obligation to provide a fact or expert witness at such proceeding unless the Company agrees in advance to do so for a separate and additional fee.

2. The Test Report will set forth the findings of the Company solely with respect to the test samples identified therein. Unless specifically and expressly indicated in the Test Report, the results set forth in such Test Report are not intended to be indicative or representative of the quality or characteristics of the lot from which a test sample is taken, and Client shall not rely upon the Test Report as being so indicative or representative of the lot or of the tested product in general. The Test Report will reflect the findings of the Company at the time of testing only, and the Company shall have no obligation to update the Test Report after its issuance. The Test Report will set forth the results of the tests performed by the Company based upon the written information provided to the Company. The Test Report will be based solely on the samples and written information submitted to the Company by Client, and the Company shall not be obligated to conduct any independent investigation or inquiry with respect thereto.

3. The Company may, in its sole discretion, destroy samples which have been furnished to the Company for testing and which have not been destroyed in the course of testing. The Company may delegate the performance of all or a portion of the services contemplated hereunder to an affiliate, agent or subcontractor of the Company, and Client consents to such delegation.

4. These Conditions and the Test Report represent the entire understanding of the parties hereto with respect to the subject matter hereof and of the Test Report, and no modification, variance or extrapolation with respect thereto shall be permitted without the prior written consent of the Company.

5. The names, service marks, trademarks and copyrights of the Company and its affiliates, including the names "BUREAU VERITAS," "BUREAU VERITAS CONSUMER PRODUCTS SERVICES," "BVCPS", "MTL", "ACTS", "MTL-ACTS" and CURTIS-STRAUS (collectively, the "Marks") are and shall remain the sole property of the Company or its affiliates and shall not be used by Client except solely to the extent that Client obtains the prior written approval of the Company and then only in the manner prescribed by the Company. Client shall not contest the validity of the Marks or take any action that might impair the value or goodwill associated with the Marks or the image or reputation of the Company or its affiliates.

6. Payment in full shall be due 30 days after the date of invoice. Interest shall be due on overdue amounts from the due date until paid at an interest rate of 1.5% per month or, if less, the maximum rate permitted by law. The Company reserves the right, at any time and from time to time, to revoke any credit extended to Client. Client shall reimburse the Company for any costs it incurs in collecting past due amounts, including court costs and fees and expenses of attorneys and collection agencies. The Test Report may not be used or relied upon by Client if and for so long as Client fails to pay when due any invoice issued by the Company or any affiliate of it to Client or any affiliate or subsidiary of Client together with interest and penalties, if any, accrued thereon. 7. The Company disclaims any and all responsibility or liability arising out of or in connection with e-mail transmissions of such information.

8. Client understands and agrees that the Company is neither an insurer nor a guarantor, that the Company does not take the place of Client or any designer, manufacturer, agent, buyer, distributor or transportation or shipping company, and that the Company disclaims all liability in such capacities. Client further understands that if it seeks assurance against loss or damage, it should obtain appropriate insurance.

9. Client agrees that the Company, by providing the services, does not take the place of Client nor any third party, nor does the Company release them from any of their obligations, nor does the Company otherwise assume, abridge, abrogate or undertake to discharge any duty of any third party to Client or any duty of Client or any third party to any other third party, and Client will not release any third party from its obligations and duties with respect to the tested goods.

10. Client shall, on a timely basis, (a) provide adequate instructions to the Company in order to enable the Company to perform properly its services, (b) provide, or cause Client's suppliers and contractors to provide, the Company with all documents necessary to enable the Company to perform its services, (c) furnish the Company with all relevant information regarding Client's intended use and purposes of the tested goods, (d) advise the Company of essential dates and deadlines relevant to the tested goods and (e) fully exercise all rights and remedies available to Client against third parties in respect of the tested goods.

11. The Company shall undertake due care and ordinary skill in the performance of its services to Client, and the Company shall accept responsibility only were such skill has not been exercised and, even in such event, only to the extent of the limitation of liability set forth herein.

12. If Client desires to assert a claim arising from or relating to (i) the performance, purported performance or non-performance of any services by the Company or (ii) the sale, resale, manufacture, distribution or use of any tested goods, it must submit that claim to the Company in a writing that sets forth with particularity the basis for such claim within 60 days from discovery of the potential claim and not more than six months after the date of issuance of the Test Report to Client. Client waives any and all such claims including, without limitation, claims that the Test Report is inaccurate, incomplete or misleading or that additional or different testing is required, unless and then only to the extent that Client submits a written claim to the Company within both such time periods.



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page 395 of 396

13. CLIENT SHALL, EXCEPT TO THE EXTENT OF COMPANY'S LIABILITY TO CLIENT HEREUNDER (WHICH IN NO EVENT SHALL EXCEED THE LIMITATION OF LIABILITY HEREIN), HOLD HARMLESS AND INDEMNIFY THE COMPANY, ITS AFFILIATES AND THEIR RESPECTIVE DIRECTORS, OFFICERS, EMPLOYEES, AGENTS AND SUBCONTRACTORS AGAINST ALL ACTUAL OR ALLEGED THIRD PARTY CLAIMS FOR LOSS, DAMAGE OR EXPENSE OF WHATSOEVER NATURE AND HOWSOEVER ARISING FROM OR RELATING TO (i) THE PERFORMANCE, PURPORTED PERFORMANCE OR NON-PERFORMANCE OF ANY SERVICES BY THE COMPANY OR (ii) THE SALE, RESALE, MANUFACTURE, DISTRIBUTION OR USE OF ANY TESTED GOODS.

14. EXCEPT AS MAY OTHERWISE BE EXPRESSLY AGREED TO IN WRITING BY THE COMPANY AND NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN OR IN ANY TEST REPORT, NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, IS MADE.

15. (A) IN NO EVENT WHATSOEVER SHALL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE TEST REPORT OR THE SERVICES PROVIDED BY THE COMPANY HEREUNDER, INCLUDING WITHOUT LIMITATION LOSS OF OR DAMAGE TO PROPERTY; LOSS OF INCOME, PROFIT OR USE; OR ANY CLAIMS OR DEMANDS MADE AGAINST CLIENT OR ANY OTHER PERSON BY ANY THIRD PARTY IN CONNECTION WITH, RELATING TO OR ARISING OUT OF THE SERVICES PROVIDED BY THE COMPANY HEREUNDER.

(B)NOTWITHSTANDING ANY PROVISION TO THE CONTRARY CONTAINED HEREIN, AND IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS TO CLIENT AND THE COMPANY ASSOCIATED WITH THE TESTING SERVICES CONTEMPLATED HEREBY, THE RISKS HAVE BEEN ALLOCATED SUCH THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHALL THE LIABILITY OF THE COMPANY TO CLIENT OR ANY THIRD PARTY IN RESPECT OF ANY CLAIM FOR LOSS, DAMAGE OR EXPENSE, OF WHATSOEVER NATURE OR MAGNITUDE, AND HOWSOEVER ARISING, EXCEED AN AMOUNT EQUAL TO FIVE (5) TIMES THE AMOUNT OF THE FEES PAID TO THE COMPANY FOR THE SPECIFIC SERVICES WHICH GAVE RISE TO SUCH CLAIM OR U.S.\$10,000, WHICHEVER IS THE LESSER AMOUNT.

16. The Company shall not be liable for any loss or damage resulting from any delay or failure in performance of its obligations hereunder resulting directly or indirectly from any event of force majeure or any event outside the control of the Company. If any such event occurs, the Company may immediately cancel or suspend its performance hereunder without incurring any liability whatsoever to Client.

17. Company's services, including these Conditions, shall be governed by, and construed in accordance with, the local laws of the country where the Company performs the tests or, in the case of tests performed in the United States of America, the laws of Massachusetts without regard to conflicts of laws principles. If any aspect(s) of these Conditions is found to be illegal or unenforceable, the validity, legality and enforceability of all remaining aspects of these Conditions shall not in any way be affected or impaired thereby. Any proceeding related to the subject matter hereof shall be brought, if at all, in the courts of the country where the Company performs the tests or, in the case of tests performed in the United States of America, in the courts of Massachusetts. Client waives the right to interpose any counterclaim or setoffs of any nature in any litigation arising hereunder.

Rev.160009121(2)_#684340 v13CS





page 396 of 396