### Page 41 of 60

	Agilent Spectrum Analyzer - Swept SA												
COD		RF 50 eq 515.0		14-7	SE	NSE:INT	Avg Type	ALIGN OFF		CE 1 2 3 4 5 6	Frequency		
Gen		eq 515.0	00000 1	PNO: Fast IFGain:Low	Trig: Free #Atten: 30		Avg Hold:	>100/100	TY		Auto Tune		
10 dE Log r	3/div	Ref Offset						N	/lkr2 68 -45.9	7.3 MHz 77 dBm	Auto Tune		
18.9 -					-						Center Freq 515.000000 MHz		
8.90 -			J								Start Freq 30.000000 MHz		
-11.1 -21.1										-13:00 dBm	<b>Stop Freq</b> 1.000000000 GHz		
-31.1 ·							2				CF Step 97.000000 MHz <u>Auto</u> Man		
-51.1	higger Her and	w.W.M.M.	ghdytllamhr	nndranagerinadanasth	yerneter and a	Inselfedre Marinder	unnunun	fologethemest	un ham	Nortanyahadi	Freq Offset 0 Hz		
-61.1													
	t 30.0 s BW 1	MHz 1.0 MHz		#VBW	3.0 MHz	*		Sweep	Stop 1. 1.20 ms	0000 GHz (1000 pts)			
MSG								STATU	s 🐼 Align N	low, All requi	red		

#### (Plot 4.5.2 B3: Channel 4183: 836.60 MHz @ WCDMA Band V)



(Plot 4.5.2 B4: Channel 4183: 836.60 MHz @ WCDMA Band V)

### Page 42 of 60

	Agilent Spectrum Analyzer - Swept SA												
LXI R					SE	NSE:INT	Avg Type			M Sep 06, 2015	F	requency	
Cen		eq 79.500	U KHZ	PNO: Close 🖵 IFGain:Low	) Trig: Free #Atten: 46		Avg Hold:	24/100	tyf De			Auto Tuno	
10 di Log	B/div	Ref Offset 8 Ref 30.00							Vkr1 19 -59.2	.73 kHz 43 dBm		Auto Tune	
20.0				14								Center Freq	
10.0												79.500 kHz	
0.00												Start Freq	
												0.000 KH 12	
-10.0												Stop Freq 150.000 kHz	
-20.0													
-30.0										-33.00 dBm	Auto	CF Step 14.100 kHz Man	
-40.0													
-50.0		<b>↓</b> 1										Freq Offset 0 Hz	
-60.0	MM Joon	www.	volu yvan Mu	when when	r Multiple	hardarande	MaryAnamil	WWWWWWWW	NUMANA	www.			
	t 9.00 s BW ′	kHz 1.0 kHz		#VBW	10 kHz*			Sweep	Stop 15 168 ms (	0.00 kHz 1000 pts)			
MSG								STATUS	🛛 Align N	ow, All requi	red		

# (Plot 4.5.2 C1: Channel 4233: 846.60 MHz @ WCDMA Band V)

			lyzer - Sv											
Con		RF	50 s		ᄱ		SE	NSE:INT	Avg Type	ALIGN OFF		M Sep 06, 2015	Frequency	
GG		GQ	5.075	000 1	PNC	): Wide 🕞 nin:Low	Trig: Fre #Atten: 4		Avg Hold:	12/100	TY D		Auto Tu	
10 dl Log	B/div		Offset 8. <b>30.00</b>							M	kr1 22.0 -62.2	22 MHz 33 dBm	Auto Tu	ne
20.0													Center Fr	
10.0													15.075000 M	ΗZ
0.00				2	14								Start Fro 150.000 ki	
-10.0														
-20.0				5	.4								Stop Fr 30.000000 M	1.0
-30.0												-23.00 dBm	CF Ste	en
-40.0													2.985000 M	
-40.0													Freq Offs	set
										1				Hz
-60.0	hurrow	haranitan	han hall	Welling	pportably	rphalmetha	u/kayaannanyih/h	hur and the second second	h all all all all all all all all all al	41.4pr + www.ryum	wanty hai yanad	+ht-,44,10404+0141-1		
	t 150 s BW		lz			#VBV	/ 30 kHz*			Sweep		0.00 MHz (1000 pts)		
MSG										STATU	S 🕄 Align N	ow, All requi	red	

(Plot 4.5.2 C2: Channel 4233: 846.60 MHz @ WCDMA Band V)

### Page 43 of 60

	gilent Spectrum Analyzer - Swept SA												
LXI RL		<sub>RF</sub> eq 515	50 Ω				SENSE:INT	Avg Typ	ALIGN OFF	06:0		M Sep 06, 2015	Frequency
Cen		Ref Offs			PNO: Fast IFGain:Low	· ·	Free Run n: 30 dB		l:>100/100	Akr2	TYP DE 867	.9 MHz	Auto Tune
10 dE Log r	3/div	Ref 28								-4	6.20	02 dBm	
18.9					8						1		Center Freq 515.000000 MHz
8.90 -1.10													Start Freq 30.000000 MHz
-11.1 -21.1												-13:00 dBm	<b>Stop Freq</b> 1.000000000 GHz
-31.1 -											2-		CF Step 97.000000 MHz <u>Auto</u> Man
-51.1	readenast	hanna ha Afrika	han ya la sa la	#Andyndy-1	موريد المراه المرادين الموريد. مرادي المرادي المرادي المرادي المرادي المرادي المرادي المرادي المرادي المرادي الم	÷เปลกให้แปลหาะส่ว	rhallaplynknys fulwydd	niduumiterritural	agen, and the survey	hapen	Yhopharts	hanneren lindate	Freq Offset 0 Hz
-61.1	t 30.0	MHz								Stor	n 1 (	000 GHz	
		1.0 MHz	z		#VI	BW 3.0 M	Hz*		Sweep			1000 pts)	
MSG									STATUS	S 🕄 Ali	gn No	ow, All requi	red

#### (Plot 4.5.2 C3: Channel 4233: 846.60 MHz @ WCDMA Band V)



(Plot 4.5.2 C4: Channel 4233: 846.60 MHz @ WCDMA Band V)

# 4.5.3 For UMTS/TM1/WCDMA Band IV Test Results

A. Test Verdict

Test Mode/ Channel	Frequency (MHz)	Frequency Range	Refer to Plot	Limit (dBm)	Verdict
		9KHz-150KHz	Plot 4.5.3 A1	-13.00	PASS
		150KHz-30MHz	Plot 4.5.3 A2	-13.00	PASS
UMTS/TM1/WCDMA	1712.4	30MHz-1GHz	Plot 4.5.3 A3	-13.00	PASS
Band IV /1312	1712.4	1GHz-7GHz	Plot 4.5.3 A4	-13.00	PASS
		7GHz-13.6GHz	Plot 4.5.3 A5	-13.00	PASS
		13.6GHz-20GHz	Plot 4.5.3 A6	-13.00	PASS
		9KHz-150KHz	Plot 4.5.3 B1	-13.00	PASS
		150KHz-30MHz	Plot 4.5.3 B2	-13.00	PASS
UMTS/TM1/WCDMA	1732.6	30MHz-1GHz	Plot 4.5.3 B3	-13.00	PASS
Band IV /1413	1732.0	1GHz-7GHz	Plot 4.5.3 B4	-13.00	PASS
		7GHz-13.6GHz	Plot 4.5.3 B5	-13.00	PASS
		13.6GHz-20GHz	Plot 4.5.3 B6	-13.00	PASS
		9KHz-150KHz	Plot 4.5.3 C1	-13.00	PASS
		150KHz-30MHz	Plot 4.5.3 C2	-13.00	PASS
UMTS/TM1/WCDMA	1752.6	30MHz-1GHz	Plot 4.5.3 C3	-13.00	PASS
Band IV /1513	1752.0	1GHz-7GHz	Plot 4.5.3 C4	-13.00	PASS
		7GHz-13.6GHz	Plot 4.5.3 C5	-13.00	PASS
		13.6GHz-20GHz	Plot 4.5.3 C6	-13.00	PASS

Note:

- 1. In general, the worse case attenuation requirement shown above was applied.
- 2. \*\*\* means that the emission level is too low to be measured or at least 20 dB down than the limit.
- B. Test Plots

XI RL	rum Analyzer - Swept RF 50Ω▲ reg 79.500 kH	DC .		SEN	SE:INT	Avg Type	ALIGN OFF	TRAC	M Sep 06, 2015 E <b>1 2 3 4 5 6</b>	F	requency
		PNO: C IFGain	JUSC L	ig: Free tten: 46		Avg Hold:		DE	.76 kHz		Auto Tune
10 dB/div Log	Ref Offset 8.7 d Ref 30.00 dB								79 dBm		
20.0											Center Free 79.500 kH
0.00											Start Free 9.000 kH
20.0											<b>Stop Fre</b> 150.000 kH
30.0									-43.00 dBm	<u>Auto</u>	CF Ste 14.100 k⊢ Ma
50.0				↓ <sup>1</sup>					-43.00 0011	2	Freq Offse 0 H
	whereas MAR and the	WWWWWW	mannanalala	white	www.hwww.	Walny varya	norman/m	Murphin	Mananan		
Start 9.00 ≇Res BW			#VBW 10	kHz*			Sweep		0.00 kHz 1000 pts)		
💾 start	an 🏉 🕼 🐚	Agilent S							🖮 🛛 🗘		9, 10 🔃 6:34 PM

(Plot 4.5.3 A1: Channel 1312: 1712.4MHz @ Traffic WCDMA Band IV)

### Page 45 of 60

		m Analyze	r - Swept SA										
COD		RF	50 Ω <u>A</u> DC 075000 N	MLI-7		SE	ENSE:INT	Avg Typ	ALIGN OFF		M Sep 06, 2015	Fre	equency
Gen		eq 15.0	07 3000 N	PNO: IFGair	Wide 🖵 n:Low	Trig: Fre #Atten: 4		Avg Hold	I: 12/100	TY D			A
10 dE Log	3/div		et 8.7 dB .00 dBm							4 vikr1 5.8 -60.6	57 MHz 77 dBm		Auto Tune
20.0				08		2						1.000	enter Freq 075000 MHz
10.0 0.00										5			<b>Start Freq</b> 150.000 kHz
-10.0 -20.0										2		30.	Stop Freq .000000 MHz
-30.0											-33.00 dBm	2. <u>Auto</u>	<b>CF Step</b> 985000 MHz Man
-50.0			1			2						F	F <b>req Offset</b> 0 Hz
	uh <sub>keh</sub> hh t 150 k s BIA( 1		MM	Mohant		//////////////////////////////////////		upper and the state of the second			0.00 MHz		
n Si	-	∞ <i>(</i> ) Ø		Agilent	Spectrum An	_			owcep	500 ms (	i i i i i i i i i i i i i i i i i i i	2 <b>4</b> 9,	10 💽 6:34 PM

# (Plot 4.5.3 A2: Channel 1312: 1712.4MHz @ Traffic WCDMA Band IV)

and the second second			alyzer - Sv												
Cen		RF	50 s 515.00	2 AC	MHz		-	SEN	NSE:INT	Avg Type	ALIGN OFF	TRA	M Sep 06, 2015	Frequency	/
			010.00	0000	PNO	): Fast 🕞 iin:Low		g: Free ten: 30		Avg Hold		C		Auto T	une
10 dE	B/div		Offset 8. f 28.90								l	45.3 Wkr1	4.5 MHz 54 dBm	Adtor	une
Log														Center F	req
18.9												2		515.000000	MHz
8.90														Start F	req
-1.10				30 								2	9	30.000000	MHz
-11.1													-13.00 dBm	Stop F	req
-21.1				9) 			8					s)-		1.000000000	
-31.1														CF S	
-41.1														97.000000 <u>Auto</u>	MHz Man
	La INN. A	al hourse	MARLI LANS	-	والدوار والم	ablecteral	Mand	rha.	or white dies	en harden and	hore the state	how when the second	- Anna Martha	Freq Of	feat
-51.1															0 Hz
-61.1															
Star	t 30.0	МН	z									Stop 1.	0000 GHz		
	s BW					#VBW	3.0	MHz*	*		Sweep		(1000 pts)		
🛃 s	tart	0:1	6 6 😋		D Agilei		na						iii 🛛 🗐	P 🍕 🧶 TO 🛄 6:3	84 PM

(Plot 4.5.3 A3: Channel 1312: 1712.4MHz @ Traffic WCDMA Band IV)

### Page 46 of 60

		m Analyzer - Sv	vept SA								
COD		RF 50 G eq 4.0000		1-7	SE	NSE:INT	Avg Type			M Sep 06, 2015	Frequency
Ger		eq 4.0000	Р	NO: Fast 😱	Trig: Free #Atten: 30		Avg Hold:		TY		
	-		IFO	Gain:Low	#Atten: 30	a B					Auto Tune
		Ref Offset 8.						IVI	kr2 3.67	82 dBm	
10 di Log	3/div	Ref 28.90	авт	1		1	1				
		-   Ŷ'									Center Freq
18.9			92	<u>(</u> 6						<u> </u>	4.000000000 GHz
8.90			( <sup>1</sup>	-							Start Freq
4.40											1.000000000 GHz
-1.10											1.0000000000000
-11.1										-13.00 dBm	
										-13.00 dBm	Stop Freq
-21.1				3					2	9	7.00000000 GHz
-31.1			5	2						2	CF Step
					2						600.000000 MHz Auto Man
-41.1					Nu.	1.0					
		والمعاللة لي المراسين									Eren Offent
-51.1	all and the state of the last	dies if and mostly of the local									Freq Offset 0 Hz
. 64.4											0112
-61.1											
	t 1.000				0.0 MIL-			0		.000 GHz	
#Re	SBW	.0 MHz		#VBW	3.0 MHz			sweep	10.3 ms (	ozou prs)	
🛃 s	tart	🚥 🏉 🕑 😂	A CO	ilent Spectrum And	a					🖮 🛛 🏅	🔎 🍕 🧶 🔟 🛄 6:34 PM

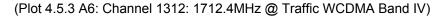
#### (Plot 4.5.3 A4: Channel 1312: 1712.4MHz @ Traffic WCDMA Band IV)

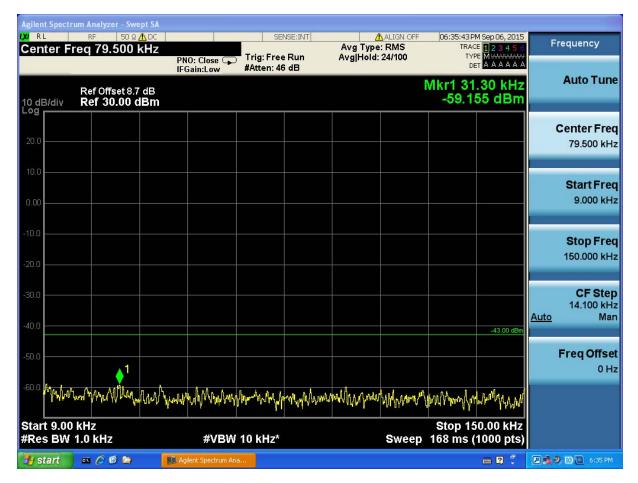


(Plot 4.5.3 A5: Channel 1312: 1712.4MHz @ Traffic WCDMA Band IV)

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	t Spectru	n Analyzer - Sw	vept SA								
LXI RL		RF 50 S			SE	NSE:INT		ALIGN OFF		Ч Sep 06, 2015	Frequency
Cen	ter Fre	eq 16.800		HZ NO: Fast 🗔	Trig: Free	Run	Avg Type Avg Hold:		TYF	E 1 2 3 4 5 6 E M <del>WWWWW</del>	
				Gain:Low	#Atten: 30				DE	TAAAAAA	
								Mki	1 18.294	7 GHz	Auto Tune
10 dE		Ref Offset 8. Ref 28.90	9 dB dBm						-36.5	11 dBm	
Log	57019	NCI 20.30		1							
											Center Freq
18.9			5	3					9		16.80000000 GHz
8.90				-							
											Start Freq
-1.10			5						9		13.60000000 GHz
-11.1										40.00 10	
										-13:00 dBm	Stop Freq
-04-4				ц.							20.00000000 GHz
-21.1											
											CF Step
-31.1				2.					5		640.000000 MHz
			and a	1 20 10			Las rachtern de au	W Here and the	unit district a set		Auto Man
-41.1							And in the second second	Nasili Matana da	in the state of the last		
	a shape and bit a late	A distance of the line of the			A bally reprint the second						
-51.1			×	2							Freq Offset
											0 Hz
-61.1				2							7
<b>0</b>	40.00								Oton 00		
	t 13.60	U GHZ .0 MHZ		#\/B\M	3.0 MHz	*		Swoon	5top 20 16.2 ms (	.000 GHz	
white			_	#VDVV	5.0 10112			oweep	10.2 1115 (		
🛃 st	lart	🚥 🏉 🚱 😂		ilent Spectrum An	a					🖮 🎗 🏅	🔎 🍕 🧶 🔟 🛄 6:35 PM





(Plot 4.5.3 B1: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)

### Page 48 of 60

		n Analyzer - Sw										
LXI RI			2 🛕 DC		SEI	NSE:INT	Avg Type			M Sep 06, 2015	F	requency
Gen	ter Fre	q 79.500	KHZ	PNO: Close 😱 IFGain:Low	Trig: Free #Atten: 46		Avg Hold:		TYF	E M WWWWW T A A A A A A		
10 dE Log		Ref Offset 8. Ref 30.00							Mkr1 31 -59.1	.30 kHz 55 dBm		Auto Tune
20.0			0									<b>Center Freq</b> 79.500 kHz
10.0 0.00			9 									Start Freq 9.000 kHz
-10.0 -20.0			3									Stop Freq 150.000 kHz
-30.0 -40.0										-43.00 dBm	Auto	<b>CF Step</b> 14.100 kHz Man
-50.0												Freq Offset 0 Hz
	19.00 k		manyy	www.hyWnahaay	Marand Vo. Mary M	munalism	www.www.	WMywww.		₩ <sup>М</sup> ₩₩М		
	s BW 1			#VBW	10 kHz*			Sweep	168 ms (			
🛃 si	tart	🚥 🏉 🕑 😂	Ð	Agilent Spectrum An	a					🖮 🛛 🗘		9, 🔟 🛄 6:35 PM

### (Plot 4.5.3 B2: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)

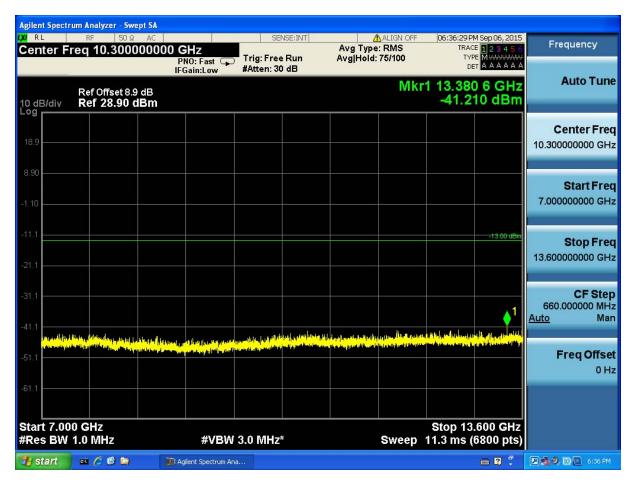


(Plot 4.5.3 B3: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)

### Page 49 of 60

	Agilent Spectrum Analyzer - Swept SA												
	RF 50 Ω req 4.00000			SEI	NSE:INT	Avg Type	ALIGN OFF		M Sep 06, 2015	Frequency			
Center F	eq 4.00000		I dat L	Trig: Free #Atten: 30		Avg Hold:		TYF					
10 dB/div Log	Ref Offset 8.9 <b>Ref 28.90 d</b>						M	(r2 3.63) -41.8	27 GHz 52 dBm	Auto Tune			
18.9 ———									3	Center Freq 4.000000000 GHz			
8.90 -1.10										<b>Start Freq</b> 1.000000000 GHz			
-11.1									-13.00 dBm	<b>Stop Freq</b> 7.000000000 GHz			
-31.1				2				d - 2142 d -		CF Step 600.000000 MHz <u>Auto</u> Man			
-51.1 <b>(1) - 19</b>	Jagdalar statestelste					a kiri ayi yi kiray				Freq Offset 0 Hz			
-61.1													
Start 1.00 #Res BW			#VBW 3	.0 MHz	*		Sweep	Stop 7 10.3 ms (	.000 GHz 6200 pts)				
🏄 start	🚥 🏉 🙆 😂	🗊 Agilent	Spectrum Ana	a I					🖮 🛛 🗘	🗵 🍓 🧶 🔟 🛄 6:36 PM			

#### (Plot 4.5.3 B4: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)

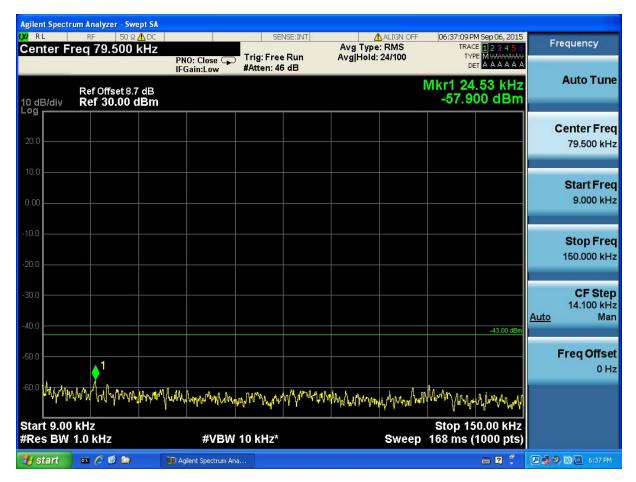


(Plot 4.5.3 B5: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)

#### Page 50 of 60

		Analyzer - Sw	ept SA								
LXI RL					SE	NSE:INT	Avg Type			M Sep 06, 2015	Frequency
Cent	er Fred	q 16.8000	PI	NO: Fast 😱 Sain:Low	Trig: Free #Atten: 30		Avg Hold:		TYF		
10 dB Log r		ef Offset 8.9 ef 28.90 (						Mkr	1 18.38 -37.7	3 7 GHz 77 dBm	Auto Tune
18.9 -		3								<u></u>	Center Freq 16.80000000 GHz
8.90 - -1.10 -											<b>Start Freq</b> 13.60000000 GHz
-11.1 -21.1										-13.00 dBm	<b>Stop Freq</b> 20.000000000 GHz
-31.1 - -41.1 -	4.14	ika na sikala ka da ka ka ka			a linear an shine a subscription		nad da kali dinansi di dinkati Kana menjadi na kali di kali di	1 Angeleike belag	il de state de la companya de la com		<b>CF Step</b> 640.000000 MHz <u>Auto</u> Man
-51.1 -					ng bil dag ng dang ng ng bin dag n						<b>Freq Offset</b> 0 Hz
	: 13.600 BW 1.0			#VBW	3.0 MHz	*		Sweep	Stop 20 16.2 ms (	.000 GHz 6400 pts)	
🐮 st	art 🔹	66	D Ag	ilent Spectrum An	ia					i 🛛	🖉 🍓 🧶 🔟 🛄 6:36 PM

### (Plot 4.5.3 B6: Channel 1413:1732.6MHz @ Traffic WCDMA Band IV)



(Plot 4.5.3 C1: Channel 1513: 1752.6MHz @ Traffic WCDMA Band IV)

### Page 51 of 60

	ım Analyzer - Swep	t SA					
LXI RL	RF 50 Ω 🧥		SENSE:INT	ALIGN Avg Type: RMS		Sep 06, 2015	Frequency
Center Fr	eq 15.07500	PNO: Wide 😱 IFGain:Low	Trig: Free Run #Atten: 40 dB	Avg Hold: 12/100	TYPE	1 2 3 4 5 5 M <del>waaaa</del> A A A A A A A	
10 dB/div Log	Ref Offset 8.7 c Ref 30.00 dE				Mkr1 1 -61.84	80 kHz 2 dBm	Auto Tune
20.0							Center Freq 15.075000 MHz
0.00							Start Freq 150.000 kHz
-10.0 -20.0							Stop Freq 30.000000 MHz
-30.0						-33.00 dBm	<b>CF Step</b> 2.985000 MHz <u>Auto</u> Man
-50.0							Freq Offset 0 Hz
Whentpolitethat		ndafter overlige version of the second s	huddwyddwratraffelaird, dlythynddd	d m.			
Start 150 #Res BW		#VBW	30 kHz*	Swe	Stop 30. ep 368 ms (1	00 MHz 000 pts)	
🏄 start	aa 🌔 🕑 😂	🗊 Agilent Spectrum An	a			iii 🕄 🏅	🖉 🍓 🧶 🔟 🛄 6:37 PM

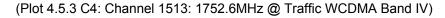
# (Plot 4.5.3 C2: Channel 1513: 1752.6MHz @ Traffic WCDMA Band IV)

-1		um Analyzer -									
Cen		RF 5 req 515.0	000000	MHz		SENSE;INT	Avg Type		TRAG	M Sep 06, 2015	Frequency
				PNO: Fast C IFGain:Low		: Free Run en: 30 dB	Avg Hold	> 100/100	TY D		
10 dl	B/div	Ref Offset Ref 28.9							Mkr1 910 -45.3	).7 MHz 18 dBm	Auto Tune
Log 18.9			3	2				-	3		Center Freq 515.000000 MHz
N 9694											515.000000 MH2
8.90									-		Start Freq
-1.10			90-	. e						се <u>.</u>	30.000000 MHz
-11.1										-13.00 dBm	
											Stop Freq 1.00000000 GHz
-21.1											
-31.1											CF Step 97.000000 MHz
-41.1										<b>1</b>	<u>Auto</u> Man
-51.1	unin	phalanter with	www.				shahanahart	whent	www.	nternet and an and	Freq Offset
-01.1											0 Hz
-61.1											2
Star	1 30.0								Stop 4.0	0000 GHz	
		1.0 MHz		#VB	W 3.0 N	/Hz*		Sweep	1.20 ms (		
📲 s	tart	■ <i>(</i>		🗊 Agilent Spectrun	Ana					in 19 🗘	🔎 🍓 🧶 🔟 🔯 6:37 PM

(Plot 4.5.3 C3: Channel 1513: 1752.6MHz @ Traffic WCDMA Band IV)

### Page 52 of 60

		m Analyzer - Sv	vept SA								
LXI RI		RF 50 S		1-	SE	NSE:INT	Avg Type			M Sep 06, 2015 E <b>1 2 3 4 5 6</b>	Frequency
Cen		eq 4.0000	Р	1Z NO: Fast 😱 Gain:Low	Trig: Free #Atten: 3		Avg Hold:		TYF		
10 dE Log		Ref Offset 8. Ref 28.90						M	kr2 3.630 -41.0	6 6 GHz 14 dBm	Auto Tune
18.9		\oldsymbol{c}^1								c	Center Freq 4.000000000 GHz
8.90 -1.10			5 5	-					-		<b>Start Freq</b> 1.000000000 GHz
-11.1 -21.1			5 							-13.00 dBm	<b>Stop Freq</b> 7.000000000 GHz
-31.1 -41.1					2			no nhài si sha		-	CF Step 600.000000 MHz <u>Auto</u> Man
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(Plot 4.5.3 C5: Channel 1513: 1752.6MHz @ Traffic WCDMA Band IV)

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		Ref Offset 8.	P IF	NO: Fast 😱 Gain:Low	Trig: Free #Atten: 30		Avg Hold:			68 GHz	Auto Tune
10 di Log	3/div	Ref 28.90		,					-36.6	33 dBm	
18.9			5								Center Freq 16.800000000 GHz
8.90 -1.10											<b>Start Freq</b> 13.600000000 GHz
-11.1 -21.1										-13:00 dBm	<b>Stop Freq</b> 20.000000000 GHz
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Star	+ 12 6/	00 GHz							Stop 20	.000 GHz	
		I.0 MHz		#VBW	3.0 MHz*	¥		Sweep	510p 20 16.2 ms (	6400 GH2	
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(Plot 4.5.3 C6: Channel 1513: 1752.6MHz @ Traffic WCDMA Band IV)

# 4.6 Frequency Stability Test

# TEST APPLICABLE

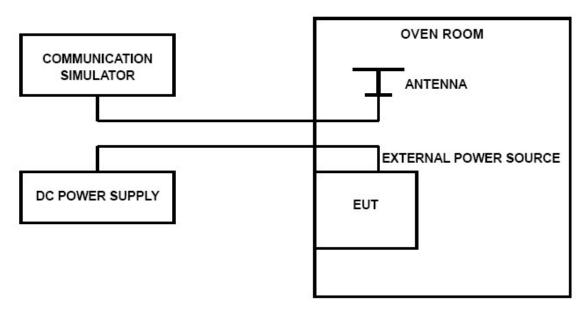
- 1. According to FCC Part 2 Section 2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30°C to +50°C centigrade.
- 2. According to FCC Part 2 Section 2.1055 (E) (2), for battery powered equipment, the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point, which is specified by the manufacture.
- 3. Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried voltage equipment and the end voltage point was 3.40V.

## TEST PROCEDURE

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.

- 1. Measure the carrier frequency at room temperature;
- 2. Subject the EUT to overnight soak at -30℃;
- 3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel of WCDMA Band II/IV/V, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming;
- 4. Repeat the above measurements at 10<sup>°</sup>C increments from -30<sup>°</sup>C to +50<sup>°</sup>C. Allow at least 0.5 hours at each temperature, unpowered, before making measurements;
- Remeasure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments remeasuring carrier frequency at each voltage. Pause at nominal voltage for 0.5 hours unpowered, to allow any self-heating to stabilize, before continuing;
- 6. Subject the EUT to overnight soak at +50℃;
- 7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming;
- Repeat the above measurements at 10<sup>°</sup>C increments from +50<sup>°</sup>C to -30<sup>°</sup>C. Allow at least 0.5 hours at each temperature, unpowered, before making measurements;
- 9. At all temperature levels hold the temperature to +/-  $0.5^{\circ}$ C during the measurement procedure;

# TEST CONFIGURATION



### TEST LIMITS

### For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section

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2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.40VDC and 4.20VDC, with a nominal voltage of 3.70DC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

### For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

### TEST RESULTS

	UMTS/TM1/WCDMA Band II								
DC Power	Temperature (℃)	Frequency error(Hz)	Frequency error(ppm)	Limit (ppm)	Verdict				
3.40	20	-6.61	0.00	2.50	PASS				
3.80	20	-5.45	0.00	2.50	PASS				
4.20	20	-5.23	0.00	2.50	PASS				
3.80	-30	0.78	0.00	2.50	PASS				
3.80	-20	-8.47	0.00	2.50	PASS				
3.80	-10	-4.39	0.00	2.50	PASS				
3.80	0	-8.47	0.00	2.50	PASS				
3.80	10	-3.56	0.00	2.50	PASS				
3.80	20	-0.55	0.00	2.50	PASS				
3.80	30	-1.83	0.00	2.50	PASS				
3.80	40	-2.91	0.00	2.50	PASS				
3.80	50	-3.69	0.00	2.50	PASS				

	UMTS/TM1/WCDMA Band IV								
DC Power	Temperature (℃)	Frequency error(Hz)	Frequency error(ppm)	Limit (ppm)	Verdict				
3.40	20	-0.05	0.00	2.50	PASS				
3.80	20	5.74	0.00	2.50	PASS				
4.20	20	1.57	0.00	2.50	PASS				
3.80	-30	2.85	0.00	2.50	PASS				
3.80	-20	1.24	0.00	2.50	PASS				
3.80	-10	0.69	0.00	2.50	PASS				
3.80	0	-0.60	0.00	2.50	PASS				
3.80	10	-0.84	0.00	2.50	PASS				
3.80	20	1.19	0.00	2.50	PASS				
3.80	30	1.16	0.00	2.50	PASS				
3.80	40	4.64	0.00	2.50	PASS				
3.80	50	2.73	0.00	2.50	PASS				

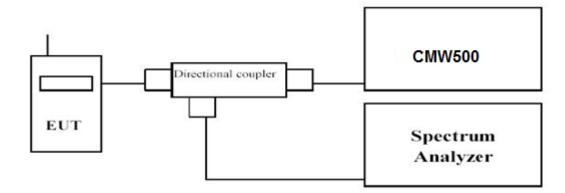
	UMTS/TM1/WCDMA Band V								
DC Power	Temperature (℃)	Frequency error(Hz)	Frequency error(ppm)	Limit (ppm)	Verdict				
3.40	20	-5.05	-0.01	2.50	PASS				
3.80	20	-0.87	0.00	2.50	PASS				
4.20	20	-3.81	0.00	2.50	PASS				
3.80	-30	-5.16	-0.01	2.50	PASS				
3.80	-20	-3.23	0.00	2.50	PASS				
3.80	-10	-4.59	-0.01	2.50	PASS				
3.80	0	-2.06	0.00	2.50	PASS				
3.80	10	-3.74	0.00	2.50	PASS				
3.80	20	-4.67	-0.01	2.50	PASS				
3.80	30	-2.87	0.00	2.50	PASS				
3.80	40	-6.06	-0.01	2.50	PASS				
3.80	50	-2.67	0.00	2.50	PASS				

# 4.7 Peak-to-Average Ratio (PAR)

# LIMIT

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

# **TEST CONFIGURATION**



### TEST PROCEDURE

- 1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
- 2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 3. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 4. Set the measurement interval as follows:
  1). for continuous transmissions, set to 1 ms,
  2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
- 5. Record the maximum PAPR level associated with a probability of 0.1%.

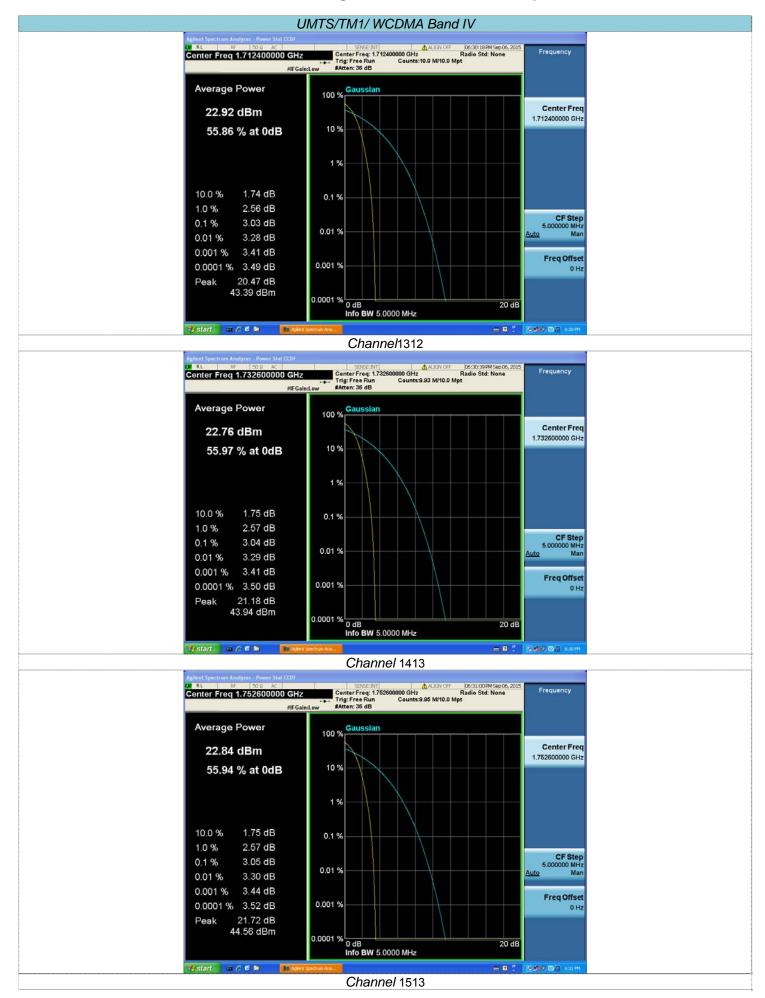
# TEST RESULTS

	UMTS/TM1/ WCDMA Band II							
Channel	Frequency	Measured						
Number	(MHz)	(dB)						
9262	1852.4	3.06						
9400	1880.0	3.03						
9538	1907.6	3.01						

	UMTS/TM1/ WCDMA Band IV							
Channel Number	Frequency (MHz)	Measured (dB)						
1312	1712.4	3.03						
1413	1732.6	3.04						
1513	1752.6	3.05						

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# 5 Test Setup Photos of the EUT

Please refer to separated files for Test Setup Photos of the EUT.

# 6 External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

# 7 Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.

.....End of Report.....