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# **TEST REPORT**

ACCORDING TO: FCC CFR47 part 27

FOR:

Airspan Networks Inc. Subscriber Unit Model: EasyST 2.5G

This report is in conformity with ISO/ IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested. This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.



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# **1** Applicant information

Client name:	Airspan Networks Inc.
Address:	777 Yamato Rd, Suite 310, Boca Raton 33431, Florida, USA
Telephone:	+1 561 893 8686
Fax:	+1 561 893 8671
E-mail:	zlevi@airspan.com
Contact name:	Mr. Levi Zion

## 2 Equipment under test attributes

Product name:	Subscriber Unit 2.5 GHz
Product type:	Transceiver
Model(s):	EasyST 2.5G
Receipt date	6/4/2009

## 3 Manufacturer information

Manufacturer name:	Airspan Networks Inc.
Address:	777 Yamato Rd, Suite 310, Boca Raton 33431, Florida, USA
Telephone:	+1 561 893 8686
Fax:	+1 561 893 8671
E-Mail:	zlevi@airspan.com
Contact name:	Mr. Levi Zion

## 4 Test details

Project ID:	19694
Location:	Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started:	6/4/2009
Test completed:	7/6/2009
Test specification(s):	FCC part 27



#### Tests summary 5

Test	Status
Transmitter characteristics	
Section 27.50(h)(2), Peak output power at RF antenna connector	Pass
Section 2.1091, 27.52, RF safety	Pass, exhibit provided in Application for certification
Section 27.53(m)(4), Spurious emissions at RF antenna connector	Pass
Section 27.53(m)(4), Band edge emissions at RF antenna connector	Pass
Section 27.53(m)(4), Radiated spurious emissions	Pass
Section 27.54, Frequency stability	Pass
Section 2.1049, Occupied bandwidth	Pass
Unintentional emissions	
Section 15.107, Conducted emission at AC power port	Pass
Section 15.109, Radiated emission	Pass
Section 15.111, Conducted emission at receiver antenna port	Not required

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

This test report replaces the previously issued test report identified by Doc ID "AIRRAD\_FCC.19694\_EasyST".

	Name and Title	Date	Signature
Tested by:	Mr. L. Markel, test engineer	June 30, 2009	R
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	August 24, 2009	Chur
Approved by:	Mr. M. Nikishin, EMC and Radio group manager	August 24, 2009	545



## 6 EUT description

### 6.1 General information

A subscriber premises radio, EasyST 2.5G TDD, is part of a WiMAX broadband fixed cellular wireless access system. The system provides a radio link between an end-user (a subscriber) and a network to give high-speed data access. The EasyST's transceiver/receiver (Up to 64 QAM modulation, data rate up to 37 Mbps) uses OFDM and operating in TDD duplexing mode, equipped with a 9 dBi external antenna.

The EasyST is a safe-install unit and located indoor. The EasyST transmits and receives traffic to and from the base station (i.e. BSR) respectively. The transceiver provides subscribers with "always-on" Internet, high speed data only, or data and voice (VoIP) services and is configured with a unique BSR reference number, preventing the EasyST from relocating to another subscriber premises without authorization.

### 6.2 Ports and lines

Port type	Port description	Connected from	Connected to	Qty.	Cable type	Cable length	Indoor / outdoor
Power	DC Power	EUT	AC/DC adaptor	1	Unshielded	1.5 m	Indoor
Signal	Ethernet	EUT	Laptop	1	Unshielded	1 m	Indoor
RF	Antenna	EUT	50 Ohm termination	1	Shielded	NA	NA

## 6.3 Support and test equipment

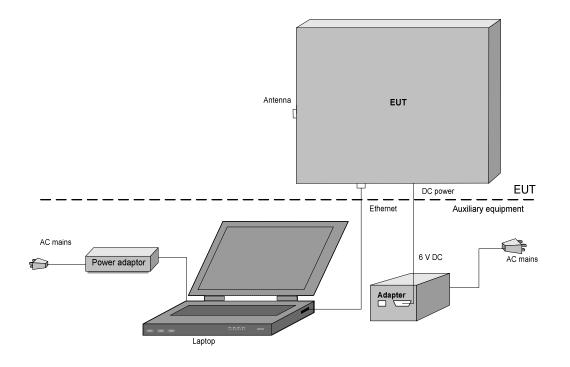
Description	Manufacturer	Model number	Serial number
AC/DC adaptor	Fuhua	UE15WCP- 060200SPA	UE050112HKIW1
Laptop (RE)	IBM	T43	L3-AFKW5 05/09
Laptop adaptor (RE)	IBM	NA	11S08K8202Z1ZA PW5940EL
Laptop (CE)	DELL Inspirion 6400	PP20L	FR413 A03
Laptop adaptor (CE)	DELL	LA65NS0-00	CN-ODF263- 71615-79F-E85D

## 6.4 Changes made in the EUT

No changes were implemented.



# 6.5 Test configuration





## 6.6 Transmitter characteristics

Type	of equipment									
	V Stand-alone (Equipment with or without its own control provisions)									
v				ere the radio part is fully integrated within another type of equipment)						
				a variety of host systems)						
Interne	led use	Condition			yotonno					
Intend	fixed			se tance more than 2 m from all people						
v	mobile					rom all people				
v	portable					) cm to human body	1			
Accia	ned frequency range			0 – 2690.0						
0	ting frequency	Je		0 – 2090.0 5 - 2688.5 I						
	annel spacing									
				Hz, 5 MHz,						
waxin	num rated output p	ower	At tra		$\Omega$ RF 0	utput connector			22.5 dBm	
				No						
lo +	omittor output					continuous varia				
is tran	nsmitter output pov	ver variable?	v	Yes	V	stepped variable	with s	tepsize	0.5 dB	
					minimu	m RF power			-30 dBm	
					maxim	um RF power			22.5 dBm	
Anten	na connection									
	unique coupling	V st	andard o	onnoctor		Integral	V	with tem	orary RF connector	
	unique coupiing	¥ 50		ndard connector		integrai			emporary RF connecto	or
Anten	na/s technical cha	racteristics								
Туре		Manufa	acturer	turer Model number		Gain				
Extern	al	MARS	Antennas MA-WA25-9		9 dBi					
Tra	ansmitter 99% pow	er bandwidth	Trans	mitter aggr	egate c	ata rate/s, MBps		Тур	e of modulation	
					1.0475				BPSK	
	2.5 MHz				2.095			QPSK		
				6.2825					16QAM	
					9.425		64QAM			
					2.095				BPSK	
	5 MHz		4.19 12.565 18.85			QPSK 16QAM				
							64QAM			
					4.19		BPSK			
			8.38					QPSK		
	10 MHz			25.13					16QAM	
				37.7				64QAM		
Туре	of multiplexing			OFD	M					
Modu	lating test signal (b	aseband)		PRE	S					
Maximum transmitter duty cycle in normal use			90%							
Trans	mitter power sourc	e								
		Nominal rated vo	oltage			Battery type				
۷	DC	Nominal rated vo	oltage			C/DC adaptor				
	AC mains	Nominal rated vo	oltage	120	V	Frequency	60	) Hz		
Comm	on nower source f	or transmitter a	nd receiv	/er		V	/es		no	
201111	ion ponor ocaroo i									



Test specification:	Section 2.1049, Occupied	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33			
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

## 7 Transmitter tests according to 47CFR part 27 requirements

## 7.1 Occupied bandwidth test

#### 7.1.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.1.1.

#### Table 7.1.1 Occupied bandwidth limits

Assigned frequency, Modulation envelope reference points*, dBc		Maximum allowed bandwidth, kHz
2496.00 - 2690.0	26	NA

dBc - Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

#### 7.1.2 Test procedure

- **7.1.2.1** The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.
- 7.1.2.2 The EUT was set to transmit the unmodulated carrier and the reference peak power level was measured.
- **7.1.2.3** The EUT was set to transmit the normally modulated carrier.
- **7.1.2.4** The transmitter occupied bandwidth was measured with spectrum analyzer as a frequency delta between the reference points on modulation envelope and provided in Table 7.1.2 and the associated plots.

#### Figure 7.1.1 Occupied bandwidth test setup





Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			-	

#### Table 7.1.2 Occupied bandwidth test results

DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: MODULATION ENVELOPE REI MODULATING SIGNAL: EBW:	Peak 30 kł 300 k FERENCE POINTS: 26 dE PRB3 2.5	Hz KHz Bc		
Carrier frequency, MHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
BPSK 1.0475 Mbps				
2497.50	2422.50	NA	NA	Pass
2593.00	2437.50	NA	NA	Pass
2688.50	2430.00	NA	NA	Pass
QPSK 2.095 Mbps				
2497.50	2422.50	NA	NA	Pass
2593.00	2437.50	NA	NA	Pass
2688.50	2430.00	NA	NA	Pass
16QAM 6.2825 Mbps				
2497.50	2422.50	NA	NA	Pass
2593.00	2437.50	NA	NA	Pass
2688.50	2430.00	NA	NA	Pass
64QAM 9.425 Mbps			- · · ·	-
2497.50	2422.50	NA	NA	Pass
2593.00 2688.50	2445.00 2430.00	NA NA	NA NA	Pass Pass
VIDEO BANDWIDTH: MODULATION ENVELOPE REI MODULATING SIGNAL: EBW:				
	PRB 5 MH	S		
Carrier frequency, MHz	5 MH	S z	Margin, kHz	Verdict
Carrier frequency, MHz BPSK 2.095 Mbps		S	Margin, kHz	Verdict
Carrier frequency, MHz BPSK 2.095 Mbps 2498.75	5 MH	S z	Margin, kHz	<b>Verdict</b> Pass
BPSK 2.095 Mbps	5 MH Occupied bandwidth, kHz	S Iz Limit, kHz		
BPSK 2.095 Mbps 2498.75	5 MH Occupied bandwidth, kHz 4655.00	S z Limit, kHz NA	NA	Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25	5 MH Occupied bandwidth, kHz 4655.00 4672.50	S z Limit, kHz NA NA	NA NA	Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00	5 MH Occupied bandwidth, kHz 4655.00 4672.50	S z Limit, kHz NA NA	NA NA	Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00	5 MH Occupied bandwidth, kHz 4655.00 4672.50 4655.00 4655.00 4672.50	S z Limit, kHz NA NA NA NA NA	NA NA NA NA NA	Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75	5 MH Occupied bandwidth, kHz 4655.00 4672.50 4655.00 4655.00	S z Limit, kHz NA NA NA	NA NA NA NA	Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00	5 MH Occupied bandwidth, kHz 4655.00 4672.50 4655.00 4655.00 4672.50	S z Limit, kHz NA NA NA NA NA NA NA	NA NA NA NA NA NA	Pass Pass Pass Pass Pass
BPSK 2.095 Mbps           2498.75           2593.00           2687.25           QPSK 4.19 Mbps           2498.75           2593.00           2687.25           16QAM 12.565 Mbps           2498.75	5 MH Occupied bandwidth, kHz 4655.00 4672.50 4655.00 4655.00 4655.00 4655.00	S z Limit, kHz NA NA NA NA NA NA	NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00 2687.25 16QAM 12.565 Mbps 2498.75 2593.00	5 MH Occupied bandwidth, kHz  4655.00 4672.50 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00	S z Limit, kHz NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00 2687.25 16QAM 12.565 Mbps 2498.75 2593.00 2687.25	5 MH Occupied bandwidth, kHz 4655.00 4672.50 4655.00 4655.00 4655.00 4655.00	S z Limit, kHz NA NA NA NA NA NA	NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00 2687.25 16QAM 12.565 Mbps 2498.75 2593.00 2687.25 64QAM 18.85 Mbps	5 MH Occupied bandwidth, kHz  4655.00 4672.50 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00	S z Limit, kHz NA NA NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00 2687.25 16QAM 12.565 Mbps 2498.75 2593.00 2687.25 64QAM 18.85 Mbps 2498.75	5 MH Occupied bandwidth, kHz  4655.00 4672.50 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00	S Z Limit, kHz NA NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass Pass
BPSK 2.095 Mbps 2498.75 2593.00 2687.25 QPSK 4.19 Mbps 2498.75 2593.00 2687.25 16QAM 12.565 Mbps 2498.75 2593.00 2687.25 64QAM 18.85 Mbps	5 MH Occupied bandwidth, kHz  4655.00 4672.50 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00 4655.00	S z Limit, kHz NA NA NA NA NA NA NA NA NA NA NA	NA NA NA NA NA NA NA NA	Pass Pass Pass Pass Pass Pass Pass Pass



Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:		-		

#### Table 7.1.2 Occupied bandwidth test results (continued)

DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: MODULATION ENVELOPE REF MODULATING SIGNAL: EBW:	1 1 FERENCE POINTS: 2 P	Power Average 00 kHz 000 kHz 6 dBc PRBS 0 MHz		
Carrier frequency, MHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
BPSK 4.19 Mbps				
2501.75	9690.00	NA	NA	Pass
2596.00	9720.00	NA	NA	Pass
2684.50	9720.00	NA	NA	Pass
QPSK 8.38 Mbps				
2501.75	9690.00	NA	NA	Pass
2596.00	9720.00	NA	NA	Pass
2684.50	9720.00	NA	NA	Pass
16QAM 25.13 Mbps				
2501.75	9630.00	NA	NA	Pass
2596.00	9720.00	NA	NA	Pass
2684.50	9720.00	NA	NA	Pass
64QAM 37.7 Mbps				
2501.75	9630.00	NA	NA	Pass
2596.00	9720.00	NA	NA	Pass
2684.50	9720.00	NA	NA	Pass

#### Reference numbers of test equipment used

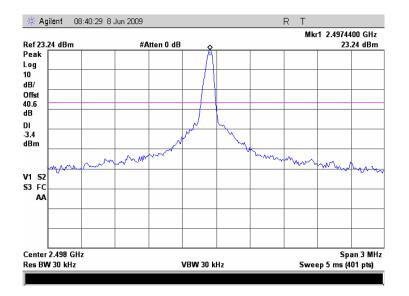
Γ	HL 2780	HL 2953	HL 3439	HL 3442			
						•	

Full description is given in Appendix A.

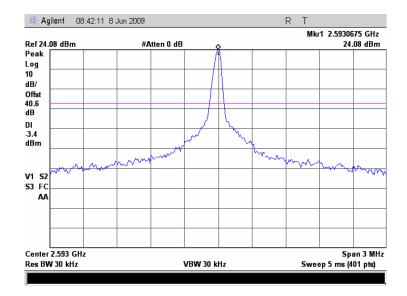


Test specification:	Section 2.1049, Occupie	ed bandwidth	
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC
Remarks:			

#### Plot 7.1.1 Occupied bandwidth test result at 2497.5 MHz, reference level unmodulated, 2.5 MHz EBW



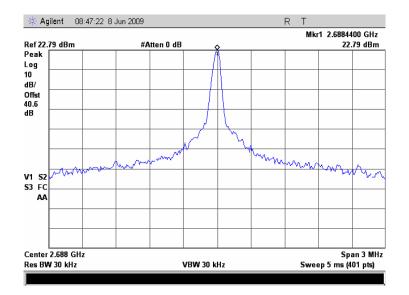
#### Plot 7.1.2 Occupied bandwidth test result at 2593.0 MHz, reference level unmodulated, 2.5 MHz EBW





Test specification:	Section 2.1049, Occupie	ed bandwidth	
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC
Remarks:			

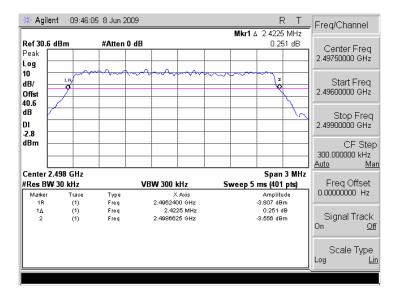
#### Plot 7.1.3 Occupied bandwidth test result at 2688.5 MHz, reference level unmodulated, 2.5 MHz EBW



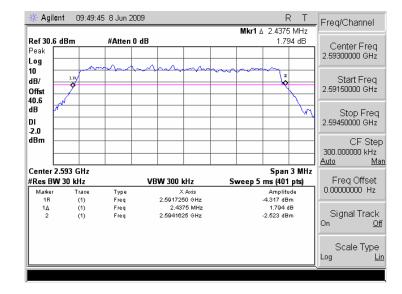


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.1.4 Occupied bandwidth test results at low frequency, BPSK, 2.5 MHz EBW



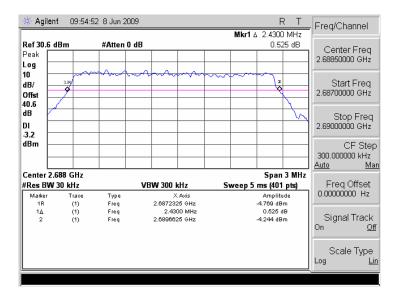
Plot 7.1.5 Occupied bandwidth test results at mid frequency, BPSK, 2.5 MHz EBW



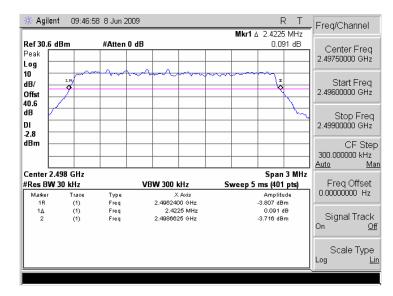


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PASS	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.1.6 Occupied bandwidth test results at high frequency, BPSK, 2.5 MHz EBW



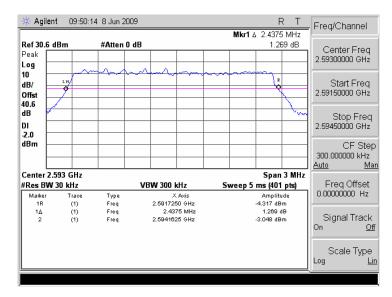
Plot 7.1.7 Occupied bandwidth test results at low frequency, QPSK, 2.5 MHz EBW



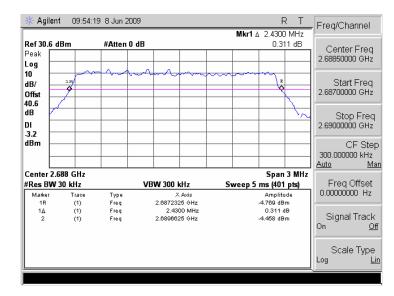


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.1.8 Occupied bandwidth test results at mid frequency, QPSK, 2.5 MHz EBW



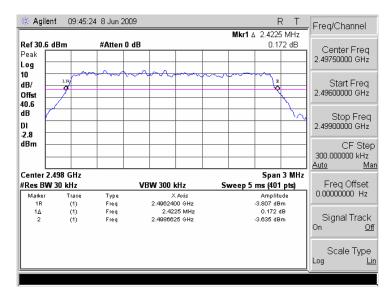
Plot 7.1.9 Occupied bandwidth test results at high frequency, QPSK, 2.5 MHz EBW



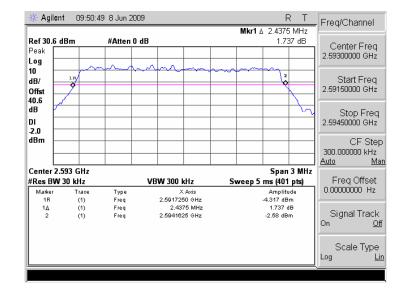


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

Plot 7.1.10 Occupied bandwidth test results at low frequency, 16QAM, 2.5 MHz EBW



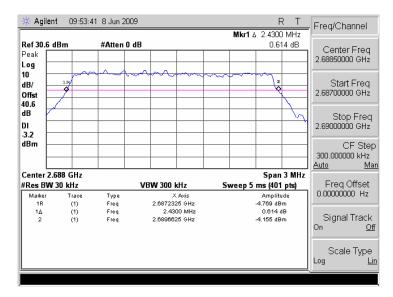
Plot 7.1.11 Occupied bandwidth test results at mid frequency, 16QAM, 2.5 MHz EBW



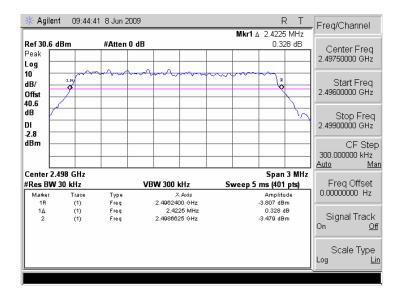


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

Plot 7.1.12 Occupied bandwidth test results at high frequency, 16QAM, 2.5 MHz EBW



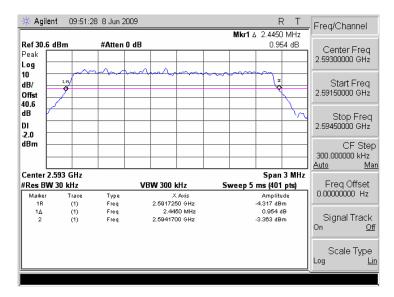
Plot 7.1.13 Occupied bandwidth test results at low frequency, 64QAM, 2.5 MHz EBW



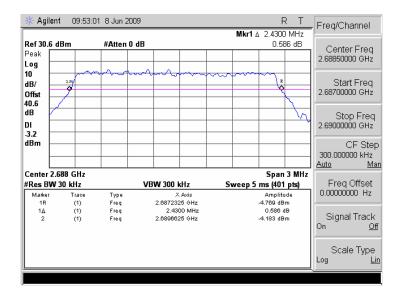


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			· · · · · · ·	

#### Plot 7.1.14 Occupied bandwidth test results at mid frequency, 64QAM, 2.5 MHz EBW



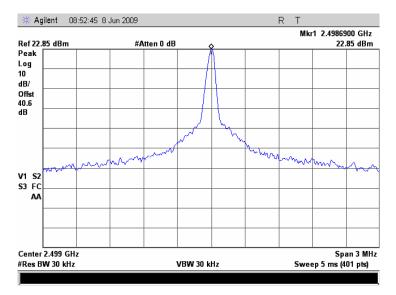
Plot 7.1.15 Occupied bandwidth test results at high frequency, 64QAM, 2.5 MHz EBW



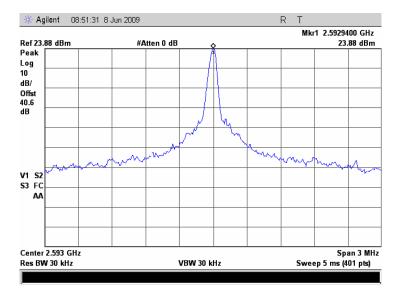


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			-	

#### Plot 7.1.16 Occupied bandwidth test result at 2498.75 MHz, reference level unmodulated, 5 MHz EBW



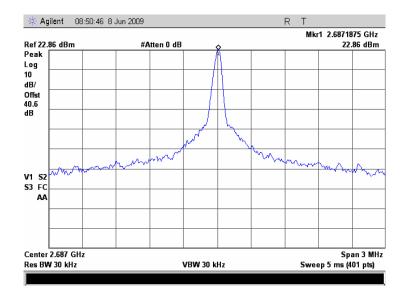
#### Plot 7.1.17 Occupied bandwidth test result at 2593.0 MHz, reference level unmodulated, 5 MHz EBW





Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

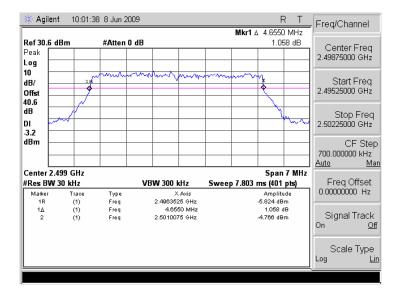
#### Plot 7.1.18 Occupied bandwidth test result at 2687.25 MHz, reference level unmodulated, 5 MHz EBW



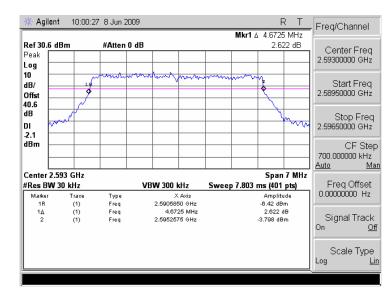


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			-	

#### Plot 7.1.19 Occupied bandwidth test results at low frequency, BPSK, 5 MHz EBW



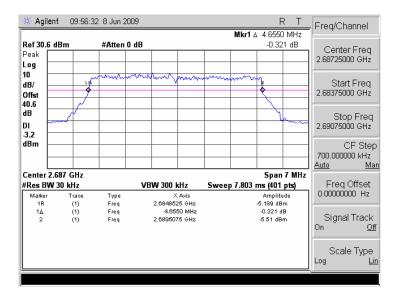
Plot 7.1.20 Occupied bandwidth test results at mid frequency, BPSK, 5 MHz EBW



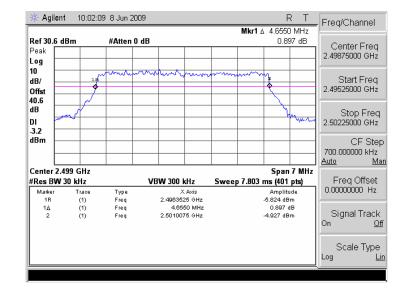


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			-	

#### Plot 7.1.21 Occupied bandwidth test results at high frequency, BPSK, 5 MHz EBW



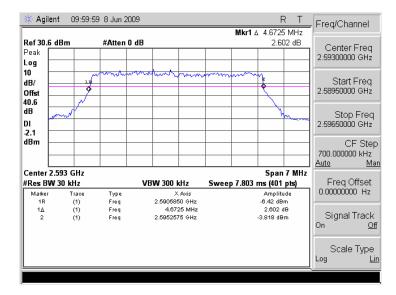
Plot 7.1.22 Occupied bandwidth test results at low frequency, QPSK, 5 MHz EBW



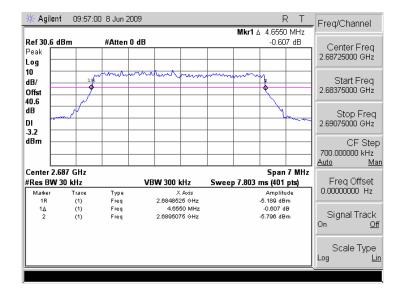


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:		•		

#### Plot 7.1.23 Occupied bandwidth test results at mid frequency, QPSK, 5 MHz EBW



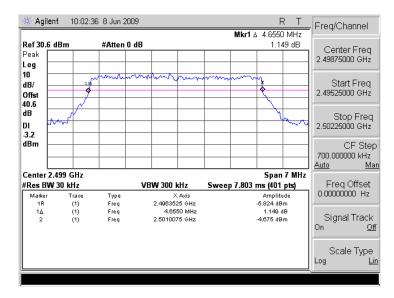
Plot 7.1.24 Occupied bandwidth test results at high frequency, QPSK, 5 MHz EBW



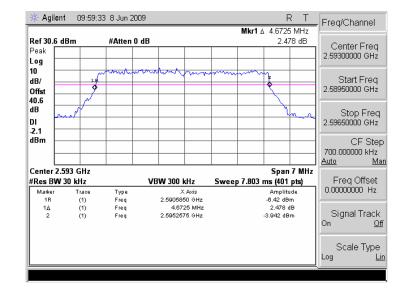


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC
Remarks:			

#### Plot 7.1.25 Occupied bandwidth test results at low frequency, 16QAM, 5 MHz EBW



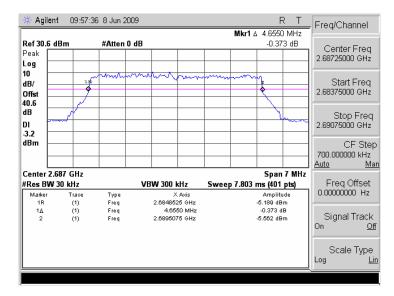
Plot 7.1.26 Occupied bandwidth test results at mid frequency, 16QAM, 5 MHz EBW



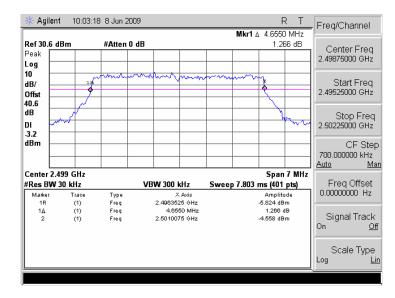


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.1.27 Occupied bandwidth test results at high frequency, 16QAM, 5 MHz EBW



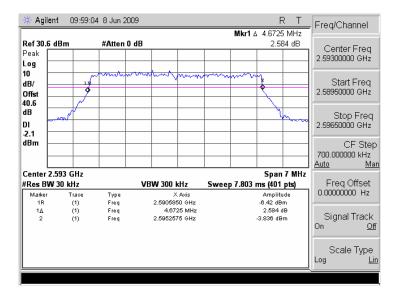
Plot 7.1.28 Occupied bandwidth test results at low frequency, 64QAM, 5 MHz EBW



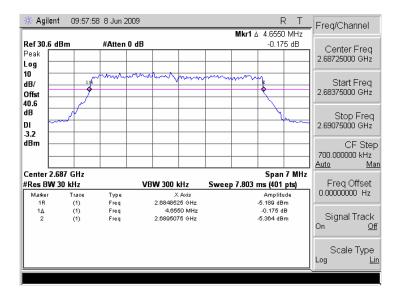


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC
Remarks:			

#### Plot 7.1.29 Occupied bandwidth test results at mid frequency, 64QAM, 5 MHz EBW



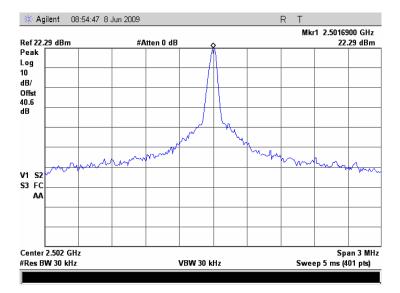
Plot 7.1.30 Occupied bandwidth test results at high frequency, 64QAM, 5 MHz EBW



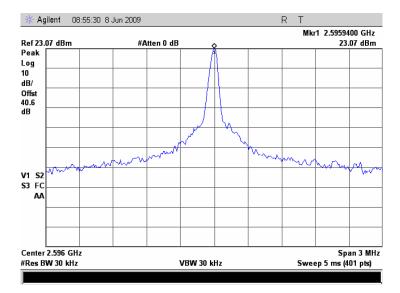


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.1.31 Occupied bandwidth test result at 2501.75 MHz, reference level unmodulated, 10 MHz EBW



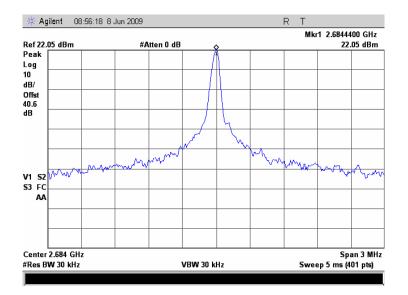
#### Plot 7.1.32 Occupied bandwidth test result at 2596.0 MHz, reference level unmodulated, 10 MHz EBW





Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	FA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:				

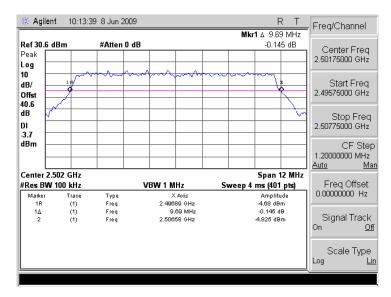
#### Plot 7.1.33 Occupied bandwidth test result at 2684.5 MHz, reference level unmodulated, 10 MHz EBW



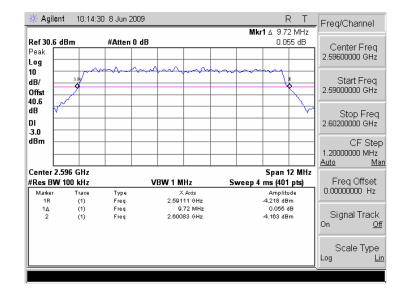


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC	
Remarks:			-	

#### Plot 7.1.34 Occupied bandwidth test results at low frequency, BPSK, 10 MHz EBW



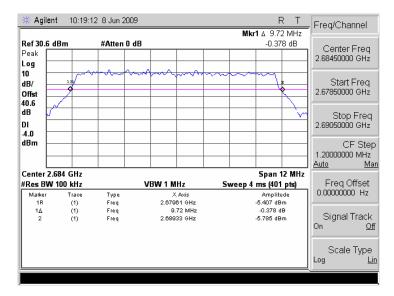
Plot 7.1.35 Occupied bandwidth test results at mid frequency, BPSK, 10 MHz EBW



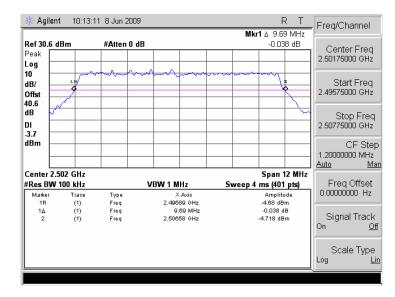


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.1.36 Occupied bandwidth test results at high frequency, BPSK, 10 MHz EBW



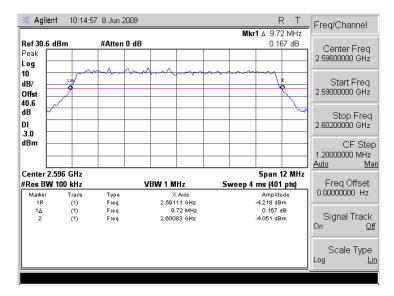
Plot 7.1.37 Occupied bandwidth test results at low frequency, QPSK, 10 MHz EBW



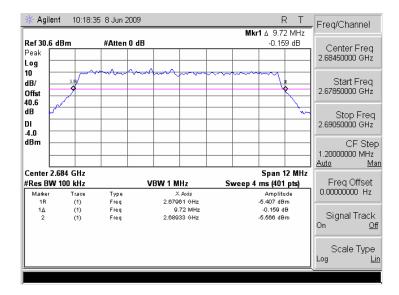


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.1.38 Occupied bandwidth test results at mid frequency, QPSK, 10 MHz EBW



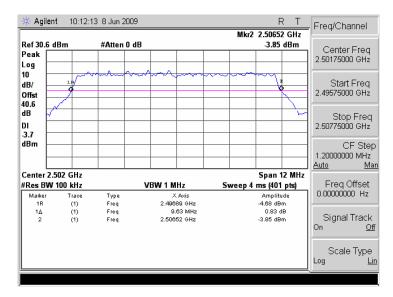
Plot 7.1.39 Occupied bandwidth test results at high frequency, QPSK, 10 MHz EBW



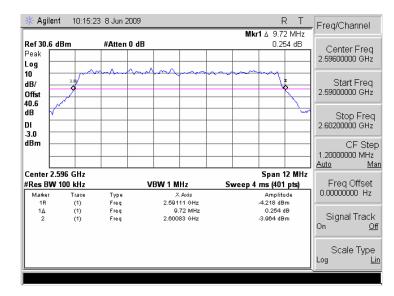


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.1.40 Occupied bandwidth test results at low frequency, 16QAM, 10 MHz EBW



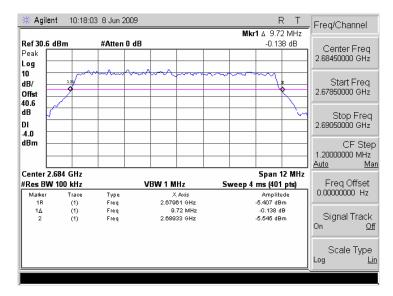
Plot 7.1.41 Occupied bandwidth test results at mid frequency, 16QAM, 10 MHz EBW



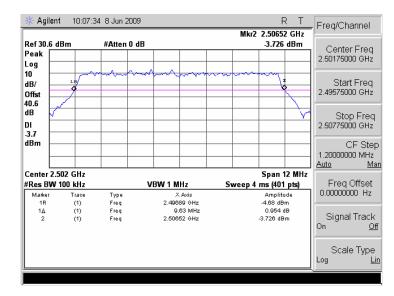


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:13:40 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.1.42 Occupied bandwidth test results at high frequency, 16QAM, 10 MHz EBW



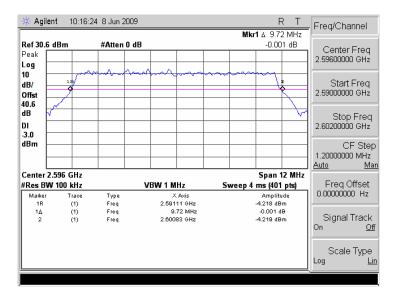
Plot 7.1.43 Occupied bandwidth test results at low frequency, 64QAM, 10 MHz EBW



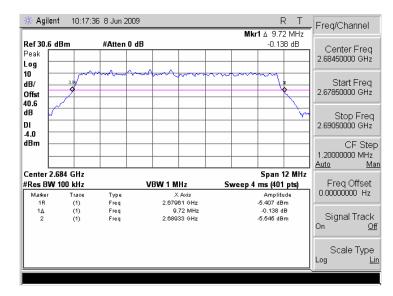


Test specification:	Section 2.1049, Occupie	Section 2.1049, Occupied bandwidth				
Test procedure:	47 CFR, Section 2.1049					
Test mode:	Compliance	Verdict:	DASS			
Date & Time:	6/22/2009 5:13:40 PM	- Verdict: PASS				
Temperature: 24.3 °C	Air Pressure: 1007 hPa	Relative Humidity: 41 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.1.44 Occupied bandwidth test results at mid frequency, 64QAM, 10 MHz EBW



Plot 7.1.45 Occupied bandwidth test results at high frequency, 64QAM, 10 MHz EBW





Test specification:	Section 27.50(h)(2), Peak o	Section 27.50(h)(2), Peak output power				
Test procedure:	Section 27.50(h)					
Test mode:	Compliance	Verdict: PASS				
Date & Time:	6/24/2009 3:09:06 PM	- Verdict: PASS				
Temperature: 24.1 °C	Air Pressure: 1008 hPa	Relative Humidity: 38 %	Power Supply: 120VAC			
Remarks:						

## 7.2 Peak output power test

#### 7.2.1 General

This test was performed to measure the peak output power at RF antenna connector. Specification test limits are given in Table 7.2.1.

#### Table 7.2.1 Peak output power limits

Assigned frequency range, MHz	Maximum peak output power (EIRP)		
Assigned nequency range, whiz	mW	dBm	
2496.0 - 2690.0	2000	33.0	

#### 7.2.2 Test procedure

- 7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.
- 7.2.2.2 The EUT was adjusted to produce maximum available to the end user RF output power.
- 7.2.2.3 The peak output power was measured with spectrum analyzer as provided in Table 7.2.2 and the associated plots.

#### Figure 7.2.1 Peak output power test setup





Test specification:	Section 27.50(h)(2), Peak c	Section 27.50(h)(2), Peak output power				
Test procedure:	Section 27.50(h)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/24/2009 3:09:06 PM	veruict.	FA33			
Temperature: 24.1 °C	Air Pressure: 1008 hPa	Relative Humidity: 38 %	Power Supply: 120VAC			
Remarks:						

#### Table 7.2.2 Peak output power test results

ASSIGNED FREQUENCY RANGE:
DETECTOR USED:
RESOLUTION BANDWIDTH:
VIDEO BANDWIDTH:
MODULATING SIGNAL:
TRANSMITTER OUTPUT POWER SETTINGS:
MAXIMUM ANTENNA GAIN:

2496.0 – 2690.0 MHz Power meter (Power Average during the burst) NA NA PRBS Maximum 9 dBi

EBW:			2.5 N	ЛНz			
Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	RF output power, dBm	Limit, dBm	Margin, dB	Verdict
BPSK 1.0475	Mbps						
2497.50	21.00	Included	Included	30.00	33.0	-3.00	Pass
2593.00	22.43	Included	Included	31.43	33.0	-1.57	Pass
2688.50	21.16	Included	Included	30.16	33.0	-2.84	Pass
QPSK 2.095 N	lbps						
2497.50	20.99	Included	Included	29.99	33.0	-3.01	Pass
2593.00	22.43	Included	Included	31.43	33.0	-1.57	Pass
2688.50	21.19	Included	Included	30.19	33.0	-2.81	Pass
16QAM 6.282	5 Mbps						
2497.50	21.00	Included	Included	30.00	33.0	-3.00	Pass
2593.00	22.43	Included	Included	31.43	33.0	-1.57	Pass
2688.50	21.20	Included	Included	30.20	33.0	-2.80	Pass
64QAM 9.425	Mbps						
2497.50	21.01	Included	Included	30.01	33.0	-2.99	Pass
2593.00	22.41	Included	Included	31.41	33.0	-1.59	Pass
2688.50	21.17	Included	Included	30.17	33.0	-2.83	Pass

\* - RF output power, dBm = Spectrum analyzer reading, dBm + antenna gain, dBi

EBW:			5 MH	łz			
Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	RF output power, dBm	Limit, dBm	Margin, dB	Verdict
BPSK 2.095 N	/lbps						
2498.75	21.24	Included	Included	30.24	33.0	-3.76	Pass
2593.00	22.48	Included	Included	31.48	33.0	-2.52	Pass
2687.25	21.29	Included	Included	30.29	33.0	-2.71	Pass
QPSK 4.19 M	bps						
2498.75	21.08	Included	Included	30.08	33.0	-3.92	Pass
2593.00	22.47	Included	Included	31.47	33.0	-2.53	Pass
2687.25	21.26	Included	Included	30.26	33.0	-2.74	Pass
16QAM 12.56	5 Mbps						
2498.75	21.10	Included	Included	30.10	33.0	-3.80	Pass
2593.00	22.50	Included	Included	31.50	33.0	-2.50	Pass
2687.25	21.28	Included	Included	30.28	33.0	-2.72	Pass
64QAM 18.85	Mbps						
2498.75	21.11	Included	Included	30.11	33.0	-3.89	Pass
2593.00	22.49	Included	Included	31.49	33.0	-2.51	Pass
2687.25	21.27	Included	Included	30.27	33.0	-2.73	Pass

\* - RF output power, dBm = Spectrum analyzer reading, dBm + antenna gain, dBi



Test specification:	Section 27.50(h)(2), Peak o	Section 27.50(h)(2), Peak output power				
Test procedure:	Section 27.50(h)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/24/2009 3:09:06 PM	verdict.	FA33			
Temperature: 24.1 °C	Air Pressure: 1008 hPa	Relative Humidity: 38 %	Power Supply: 120VAC			
Remarks:						

# Table 7.2.2 Peak output power test results (continued)

ASSIGNED FREQUENCY RANGE:	2496.0 – 2690.0 MHz
DETECTOR USED:	Power meter (Power Average during the burst)
RESOLUTION BANDWIDTH:	NA
VIDEO BANDWIDTH:	NA
MODULATING SIGNAL:	PRBS
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
MAXIMUM ANTENNA GAIN:	9 dBi

EBW:	10 MHz						
Carrier frequency, MHz	Spectrum analyzer reading, dBm	External attenuation, dB	Cable loss, dB	RF output power, dBm	Limit, dBm	Margin, dB	Verdict
BPSK 4.19 M	bps						
2501.75	20.66	Included	Included	29.66	33.0	-3.34	Pass
2596.00	21.83	Included	Included	30.83	33.0	-2.17	Pass
2684.50	20.66	Included	Included	29.66	33.0	-3.34	Pass
QPSK 8.38 M	QPSK 8.38 Mbps						
2501.75	20.68	Included	Included	29.68	33.0	-3.32	Pass
2596.00	21.84	Included	Included	30.84	33.0	-2.16	Pass
2684.50	20.67	Included	Included	29.67	33.0	-3.33	Pass
16QAM 25.13	Mbps						
2501.75	20.70	Included	Included	29.70	33.0	-3.30	Pass
2596.00	21.82	Included	Included	30.82	33.0	-2.18	Pass
2684.50	20.63	Included	Included	29.63	33.0	-3.37	Pass
64QAM 37.7 I	Vibps						
2501.75	20.69	Included	Included	29.69	33.0	-3.31	Pass
2596.00	21.80	Included	Included	30.80	33.0	-2.20	Pass
2684.50	20.68	Included	Included	39.68	33.0	-3.32	Pass

\* - RF output power, dBm = Spectrum analyzer reading, dBm + antenna gain, dBi

# Reference numbers of test equipment used

					1	
HL 3301	HL 3302	HL 3439	HL 3442			

Full description is given in Appendix A.



Test specification:	Section 27.53(m)(4), Cor	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

# 7.3 Conducted spurious emissions at the band edges (emission mask)

# 7.3.1 General

This test was performed to measure spurious emissions at RF antenna connector at the band edges. Specification test limits are given in Table 7.3.1.

Channel, MHz	Frequency range, MHz	Attenuation below carrier, dBc
	Channel bandwidth 2.5 MHz	
2497.50	2491.0 - 2496.0 & 2499.0 - 2504.0	
2593.00	2586.5 - 2591.5 & 2594.5 - 2599.5	43 + 10*Log (P*)
2688.50	2682.0 - 2687.0 & 2690.0 - 2695.0	
	Channel bandwidth 5 MHz	
2498.75	2490.0 - 2491.0 & 2506.0 - 2507.0	55 + 10*Log (P*)
2498.75	2491.0 - 2496.0 & 2502.0 - 2506.0	43 + 10*Log (P*)
2593.00	2584.0 - 2585.0 & 2601.0 - 2602.0	55 + 10*Log (P*)
2393.00	2585.0 - 2590.0 & 2596.0 - 2601.0	43 + 10*Log (P*)
2687.25	2678.5 - 2679.5 & 2695.0 - 2696.0	55 + 10*Log (P*)
2087.25	2679.5 - 2684.5 & 2690.0 - 2695.0	43 + 10*Log (P*)
	Channel bandwidth 10 MHz	
2501.75	2490.0 – 2491.0 & 2512.5 – 2513.5	55 + 10*Log (P*)
2501.75	24910.0 – 2496.0 & 2507.5 – 2512.5	43 + 10*Log (P*)
2596.00	2584.0 - 2585.0 & 2607.0 - 2608.0	55 + 10*Log (P*)
2596.00	2585.0 - 2590.0 & 2602.0 - 2607.0	43 + 10*Log (P*)
2684.50	2673.0 - 2674.0 & 2695.0 - 2696.0	55 + 10*Log (P*)
2004.00	2674.0 - 2679.0 & 2690.0 - 2695.0	43 + 10*Log (P*)

#### Table 7.3.1 Spurious emission limits

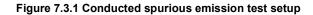
\* - P is transmitter output power in Watts

#### 7.3.2 Test procedure

**7.3.2.1** The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

7.3.2.2 The spurious emissions were measured with spectrum analyzer as provided in the associated plots.

**7.3.2.3** The worst case results are were provided in Table 7.3.2 and in the associated plots.







Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges					
Test procedure:	Section 27.53(m)(4)						
Test mode:	Compliance	Verdict:	PASS				
Date & Time:	6/30/2009 5:24:16 PM	verdict.	FA33				
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC				
Remarks:							

#### Table 7.3.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: INVESTIGATED FREQUENCY RANGE: RBW: DETECTOR USED: VIDEO BANDWIDTH: MODULATING SIGNAL: TRANSMITTER OUTPUT POWER SETTINGS: MODULATION: 2496.0 – 2690.0 MHz See Table 7.3.3 and Table 7.3.4 1 % of EBW Average ≥ Resolution bandwidth PRBS The EUT was configured to produce 24 dBm output power BPSK, QPSK, 16QAM, 64QAM The worst case results provided in the following table.

Frequency offset, ± MHz	SA reading, dBc low range	SA reading, dBc high range	RBW, kHz	Integration BW, kHz	Limit, dBc	Verdict
		2.	5 EBW			
Low carrier fr	equency 2497.5 MHz QP	SK (Output power = 22.	87 dBm)			
2	41.61	45.11				
3	49.22	48.90				
4	57.21	56.93	30	1000	35.87	Pass
5	58.73	59.10				
6	59.43	59.15				
Mid carrier fre	equency 2593.0 MHz QPS	K (Output power = 23.1	6 dBm)			
2	41.42	44.75		1000	36.16	
3	48.80	49.19				
4	57.52	57.26	30			Pass
5	59.86	59.66				
6	60.37	60.48				
Mid carrier fre	equency 2688.5 MHz QPS	SK (Output power = 21.9	2 dBm)			
2	43.67	47.13				
3	50.77	51.92				
4	57.39	57.58	30	1000	34.92	Pass
5	58.81	58.59				
6	58.83	59.12				

Note: Output power measured with the same settings as band edge emissions.



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges					
Test procedure:	Section 27.53(m)(4)						
Test mode:	Compliance	Verdict:	PASS				
Date & Time:	6/30/2009 5:24:16 PM	verdict.	FA33				
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC				
Remarks:							

#### Table 7.3.2. Spurious emission test results (continued)

ASSIGNED FREQUENCY RANGE: INVESTIGATED FREQUENCY RANGE: RBW: DETECTOR USED: VIDEO BANDWIDTH: MODULATING SIGNAL: TRANSMITTER OUTPUT POWER SETTINGS: MODULATION: 2496.0 – 2690.0 MHz See Table 7.3.3 and Table 7.3.4 1 % of EBW Average ≥ Resolution bandwidth PRBS The EUT was configured to produce 24 dBm output power BPSK, QPSK, 16QAM, 64QAM The worst case results provided in the following table.

Frequency offset, ± MHz	SA reading, dBc low range	SA reading, dBc high range	RBW, kHz	Integration BW, kHz	Limit, dBc	Verdict
			Hz EBW			
Low carrier f	requency 2498.75 MHz 6	4QAM (Output power = 2	1.80 dBm)	-	-	
3.25	42.15	47.27				
4.25	47.69	50.78				
5.25	51.62	50.01	100	1000	34.8	Pass
6.25	58.70	58.68	100	1000		F 855
7.25	58.47	59.75	-			
8.25	59.30	59.81			46.8	
Mid carrier fr	equency 2593.0 MHz QP	SK (Output power = 22.5	4 dBm)			
3.5	44.43	46.74				
4.5	49.40	51.85		1000	35.54	
5.5	56.27	52.78	100			Pass
6.5	57.19	58.51	100	1000		Pass
7.5	59.46	59.74				
8.5	59.84	60.41			47.54	
Mid carrier fr	equency 2687.25 MHz Q	PSK (Output power = 21.	49 dBm)			
3.25	45.59	48.84				
4.25	51.50	51.28				
5.25	55.43	54.76	100	1000	34.49	Pass
6.25	57.72	59.20	100 1000	1000		1 000
7.25	59.31	59.39				
8.25	59.60	60.06			46.49	



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	FA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

### Table 7.3.2. Spurious emission test results (continued)

Frequency offset, ± MHz	SA reading, dBc low range	SA reading, dBc high range	RBW, kHz	Integration BW, kHz	Limit, dBc	Verdict
		10 MH	z EBW			
Low carrier free	quency 2501.75 MHz QP	SK (Output power = 22.98	8 dBm)			
6.25	43.74	45.49				
7.25	46.26	46.84				
8.25	47.74	49.30	100	1000	35.98	Pass
9.25	48.18	49.96	100	1000		rass
10.25	51.57	49.34				
11.25	53.67	51.87			47.98	
Mid carrier freq	uency 2596.0 MHz QPSI	K (Output power = 23.51 c	dBm)			
6.5	42.37	44.21				
7.5	45.18	46.62		1000 36.51	36.51	
8.5	46.17	47.88	100			Pass
9.5	48.45	47.84	100			Fass
10.5	51.30	47.90				
11.5	52.29	52.32			48.51	
Mid carrier freq	uency 2684. 5 MHz BPS	K (Output power = 22.96	dBm)			
6.0	42.66	46.93				
7.0	48.98	49.37				
8.0	49.84	50.83	100	1000	35.96	Pass
9.0	51.28	52.67		1000		Pass
10.0	52.29	51.79				
11.0	54.75	56.05			47.96	

Note: Output power measured with the same settings as band edge emissions NOTE: For the rest test results please see Plots 7.3.1 - Plot 7.3.36

Reference numbers of test equipment used

HL 2909	HL 3437	HL 3442	HL 3559					
Full description is given in Appendix A.								



Test specification:	Section 27.53(m)(4), Cor	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	FA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Table 7.3.3 Frequency offsets and corresponding frequency bands

Frequency offset, ± MHz	Reference BW, MHz	Frequency Bands, Low	Frequency Band, High
		2.5 MHz EBW	
Low carrier f	requency 2497. 5 MHz		
2	1	2495 - 2496	2499 - 2500
3	1	2494 - 2495	2500 - 2501
4	1	2493 - 2494	2501 - 2502
5	1	2492 - 2493	2502 - 2503
6	1	2491 - 2492	2503 - 2504
Mid carrier fr	equency 2593.00 MHz		
2	1	2590.5 - 2591.5	2594.5 - 2595.5
3	1	2589.5 - 2590.5	2595.5 - 2596.5
4	1	2588.5 - 2589.5	2596.5 - 2597.5
5	1	2587.5 - 2588.5	2597.5 - 2598.5
6	1	2586.5 - 2587.5	2598.5 -2599.5
High carrier f	frequency 2688.50 MHz		
2	1	2686 - 2687	2690 - 2691
3	1	2685 - 2686	2691 - 2692
4	1	2684 - 2685	2692 - 2693
5	1	2683 - 2684	2693 -2694
6	1	2682 - 2683	2694 - 2695
		5 MHz EBW	
	requency 2498.75 MHz		
3.25	1	2495 - 2496	2501.5 - 2502.5
4.25	1	2494 - 2495	2502.5 - 2503.5
5.25	1	2493 - 2494	2503.5 - 2504.5
6.25	1	2492 - 2493	2504.5 - 2505.5
7.25	1	2491 - 2492	2505.5 - 2506.5
8.25	1	2490 - 2491	2506.5 - 2507.5
	equency 2593.00 MHz		
3.5	1	2589 - 2590	2596 - 2597
4.5	1	2588 - 2589	2597 - 2598
5.5	1	2587 - 2588	2598 - 2599
6.5	1	2586 - 2587	2599 - 2600
7.5	1	2585 - 2586	2600 - 2601
8.5		2584 - 2585	2601 - 2602
•	frequency 2687.25 MHz		0000 0001
3.25	1	2683.5 - 2684.5	2690 - 2691
4.25	1	2682.5 - 2683.5	2691 - 2692
5.25	1	2681.5 - 2682.5	2692 - 2693
6.25	1	2680.5 - 2681.5	2693 - 2694
7.25	1	2679.5 - 2680.5	2694 - 2695
8.25	1	2678.5 - 2679.5	2695 - 2696



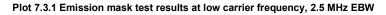
Test specification:	Section 27.53(m)(4), Con	Section 27.53(m)(4), Conducted spurious emissions at the band edges			
Test procedure:	Section 27.53(m)(4)				
Test mode:	Compliance	Verdict:	PASS		
Date & Time:	6/30/2009 5:24:16 PM	verdict.	FA33		
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC		
Remarks:					

#### Table 7.3.4 Frequency offsets and corresponding frequency bands

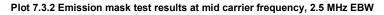
		10 MHz EBW	
Low carrier freq	uency 2501.75 MHz		
6.25	1	2495 - 2496	2507.5 - 2508.5
7.25	1	2494 - 2495	2508.5 - 2509.5
8.25	1	2493 - 2494	2509.5 - 2510.5
9.25	1	2492 - 2493	2510.5 - 2511.5
10.25	1	2491 -2492	2511.5 - 2512.5
11.25	1	2490 - 2491	2512.5 - 2513.5
Mid carrier freq	uency 2596.00 MHz		
6.5	1	2589 - 2590	2602 - 2603
7.5	1	2588 - 2589	2603 - 2604
8.5	1	2587 - 2588	2604 - 2605
9.5	1	2586 - 2587	2605 - 2606
10.5	1	2585 - 2586	2606 - 2607
11.5	1	2584 - 2585	2607 - 2608
High carrier free	quency 2684. 5 MHz		
6	1	2678 - 2679	2690 - 2691
7	1	2677 - 2678	2691 - 2692
8	1	2676 - 2677	2692 - 2693
9	1	2675 - 2676	2693 - 2694
10	1	2674 - 2675	2694 - 2695
11	1	2673 - 2674	2695 - 2696



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		2496.0 – 2690.0 MHz Peak BPSK PRBS Maximum	:
7	🔆 Agilent 13:45:49 7 Jun 2009	RT	Freq/Channel
	Ch Freq 2.4975 GHz Adj Channel Power Av	Trig RF B	Center Freq 2.49750000 GHz
	Ref 30.6 dBm #Atten 5 dB		Start Freq 2.48750000 GHz
	HAVg Log 10		Stop Freq 2.50750000 GHz
	dB/ Offst A 40.6 dB		CF Step 2.0000000 MHz <u>Auto Mar</u>
	ab www.www.www.www.www.uka Center 2.498 GHz #Res BW 30 kHz VBW 300 kHz	Span 20 MHz Sweep 35.36 ms (401 pts)	Freq Offset 0.00000000 Hz
		-wer dBm dBc Upper dBm -20.08 -48.10 -23.42 -27.23 -49.47 -26.80	Signal Track On <u>Off</u>
	2.50000 MHz 4.000 MHz 1.000 MHz -57.43 5.000 MHz 1.000 MHz -59.34 6.000 MHz 1.000 MHz -59.74	-34.75 -57.81 -35.13 -36.67 -59.25 -36.67 -37.06 -59.64 -36.96	Scale Type Log <u>Lin</u>



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		TINGS:			2496.0 – 2 Peak BPSK PRBS Maximum	2690.0 MHz	
	🔆 Agilent	13:50:20 7 Ju	n 2009			RT	Freq/Channel
	Cł Adj Channel		93 GHz	Ave	rages: 10	Trig RF B	Center Freq 2.59300000 GHz
	Ref 30.6 dBm	n #Atto	en 5 dB				Start Freq 2.58300000 GHz
	#Avg Log 10 dB/			mm			Stop Freq 2.60300000 GHz
	Offst 40.6	Mayoper Vale Mar	Man Marina		What when when	hulloomood ways Voor	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.593 #Res BW 30	GHz		300 kHz	Sweep 35.36	Span 20 MHz	Freq Offset 0.00000000 Hz
	RMS Results Carrier Power 23.14 dBm /	2.000 MHz 3.000 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lowe -42.73 -49.45	-19.59 -45.97 -26.31 -49.64	Upper dBm -22.83 -26.50	Signal Track On <u>Off</u>
	2.50000 MHz	4.000 MHz 5.000 MHz 6.000 MHz	1.000 MHz 1.000 MHz 1.000 MHz	-57.23 -59.49 -60.19	-34.09 -57.42 -36.34 -59.70 -37.05 -60.11	-34.28 -36.56 -36.97	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.3 Emission mask test results at high carrier frequency, 2.5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		2496.0 – 2690.0 MHz Peak BPSK PRBS Maximum	
	₩ Agilent 13:55:35 7 Jun 2009	R T	Freq/Channel
	Ch Freq 2.6885 GHz Adj Channel Power	Trig RF B Averages: 10	Center Freq 2.68850000 GHz
	Ref 30.6 dBm #Atten 5 dB		Start Freq 2.67850000 GHz
	#Avg Log 10	VIPM	Stop Freq 2.69850000 GHz
	dB/ Offst 40.6 dB	- V	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.688 GHz #Res BW 30 kHz VBW 300	Span 20 MHz	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Ref BW d	IBc Lower dBm dBc Upper dBm .30 -23.35 -48.66 -26.71	Signal Track On <u>Off</u>
	2.50000 MHz 4.000 MHz 1.000 MHz -57 5.000 MHz 1.000 MHz -58 6.000 MHz 1.000 MHz -58	.72 -36.77 -58.78 -36.83	Scale Type Log <u>Lin</u>

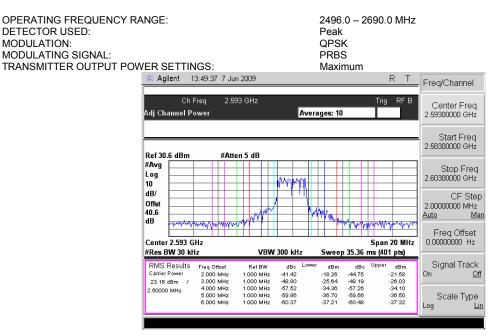
#### Plot 7.3.4 Emission mask test results at low carrier frequency, 2.5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MHz Peak QPSK PRBS Maximum	<u>.</u>
	* Agilent 13:42:20 7 Ju	un 2009	RT	Freq/Channel
	Ch Freq 2.4 Adj Channel Power	1975 GHz Aver	Trig RF B ages: 10	Center Freq 2.49750000 GHz
	 Ref 30.6 dBm #Att	ten 5 dB		Start Freq 2.48750000 GHz
	#Avg	A A A A A A A A A A A A A A A A A A A		Stop Freq 2.50750000 GHz
	dB/ Offst 40.6 dB		WWW WWWWWWWWWWWWWWWWWW	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.498 GHz #Res BW 30 kHz	VBW 300 kHz	Span 20 MHz Sweep 35.36 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 2.000 MHz 22.87 dBm / 3.000 MHz	Ref BW dBc Lower 1.000 MHz -41.61 1.000 MHz -49.22	r dBm dBc Upper dBm -18.74 -45.11 -22.24 -26.35 -48.90 -26.03	Signal Track On <u>Off</u>
	2.50000 MHz 4.000 MHz 5.000 MHz 6.000 MHz	1.000 MHz -57.21 1.000 MHz -58.73 1.000 MHz -59.43	-34.34 -56.93 -34.06 -35.85 -59.10 -36.22 -36.55 -59.15 -36.27	Scale Type Log <u>Lin</u>

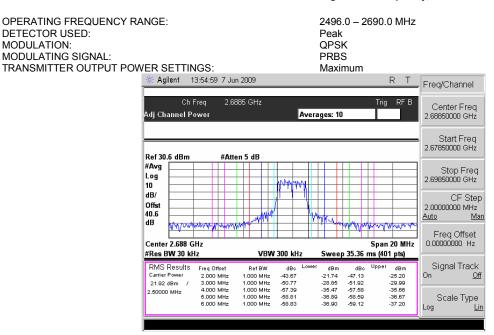


Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.5 Emission mask test results at mid carrier frequency, 2.5 MHz EBW

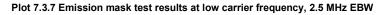


Plot 7.3.6 Emission mask test results at high carrier frequency, 2.5 MHz EBW

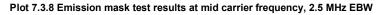




Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 l Peak 16QAM PRBS Maximum	MHz
	🔆 Agilent 13:46:53 7 Ju	ın 2009	R	TFreq/Channel
	Ch Freq 2.4 Adj Channel Power	975 GHz Aver	Trig rages: 10	Center Freq 2.49750000 GHz
		en 5 dB		Start Freq 2.48750000 GHz
	#Avg Log 10			Stop Freq 2.50750000 GHz
	dB/ Offst 40.6 dB		974 Mas	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.498 GHz #Res BW 30 kHz	VBW 300 kHz	Span 20 Sweep 35.36 ms (401 p	MHz 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 2,000 MHz 22.01 dBm / 3.000 MHz	Ref BW dBc Lowe 1.000 MHz -41.85 1.000 MHz -49.05	r dBm dBo Upper o -19.85 -44.89 -22	dBm Signal Track 2.89 On <u>Off</u>
	2.50000 MHz 4.000 MHz 5.000 MHz 6.000 MHz	1.000 MHz -57.19 1.000 MHz -59.25 1.000 MHz -59.21	-37.24 -58.85 -36	5.22 5.84 Scale Type 7.22 Log <u>Lin</u>



OPERATING FREQUENCY RANG DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POWER		IGS:			2496.0 – 26 Peak 16QAM PRBS Maximum	690.0 MHz	
	🔆 Agilent	13:51:12 7	Jun 2009			RT	Freq/Channel
	C Adj Channel		2.593 GHz	Ave	rages: 10	Trig RFB	Center Freq 2.59300000 GHz
	Ref 30.6 dB	m #	Atten 5 dB				Start Freq 2.58300000 GHz
	#Avg Log 10			ANNONA .			Stop Freq 2.60300000 GHz
	dB/ Offst 40.6 dB	MANNAN	ANN MAN		AMM TOWARD	an adaption at the s	CF Step 2.0000000 MHz <u>Auto Man</u>
	Center 2.593 #Res BW 30	3 GHz		/ 300 kHz		Span 20 MHz	Freq Offset 0.00000000 Hz
	RMS Resul Carrier Power 22.45 dBm	ts Freq Offset 2.000 MH / 3.000 MH	Ref BW z 1.000 MHz z 1.000 MHz	dBc Lowe -41.65 -48.38	er dBm dBc -19.20 -44.36 -25.92 -48.75	Upper dBm -21.91 -26.30	Signal Track On <u>Off</u>
	2.50000 MHz	4.000 MH 5.000 MH 6.000 MH	z 1.000 MHz	-56.79 -59.42 -59.89	-34.33 -56.94 -36.97 -59.33 -37.43 -59.84	-34,49 -36,87 -37,39	Scale Type Log <u>Lin</u>

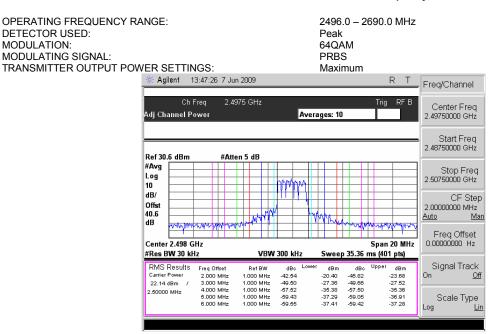


Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	veruict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.9 Emission mask test results at high carrier frequency, 2.5 MHz EBW

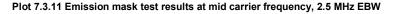
OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MHz Peak 16QAM PRBS Maximum	:
	<u>* Agilent</u> 13:54:05 7 Ju	n 2009	RT	Freq/Channel
	Ch Freq 2.68 Adj Channel Power	385 GHz Avera	Trig RF B ages: 10	Center Freq 2.68850000 GHz
	Ref 30.6 dBm #Atte	en 5 dB		Start Freq 2.67850000 GHz
	#Avg			Stop Freq 2.69850000 GHz
	dB/ Offst 40.6 dB		Minute a survey many	CF Step 2.0000000 MHz <u>Auto Man</u>
	Center 2.688 GHz		Span 20 MHz	Freq Offset
	#Res BW 30 kHz	VBW 300 kHz	Sweep 35.36 ms (401 pts)	Circul Treats
	RMS Results Freq Offset Carrier Power 2.000 MHz 21.87 dBm / 3.000 MHz	Ref BW dBc Lower 1.000 MHz -44.11 1.000 MHz -50.57	-22.23 -47.09 -25.22 -28.70 -51.33 -29.45	Signal Track On <u>Off</u>
	2.50000 MHz 4.000 MHz 5.000 MHz 6.000 MHz	1.000 MHz -56.86 1.000 MHz -58.87 1.000 MHz -58.88	-34,99 -57,26 -35,39 -37,00 -58,54 -36,66 -37,00 -58,86 -36,98	Scale Type Log <u>Lin</u>

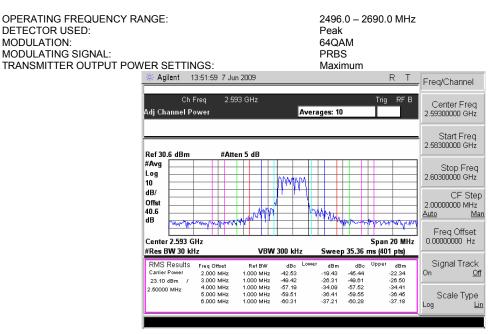
Plot 7.3.10 Emission mask test results at low carrier frequency, 2.5 MHz EBW



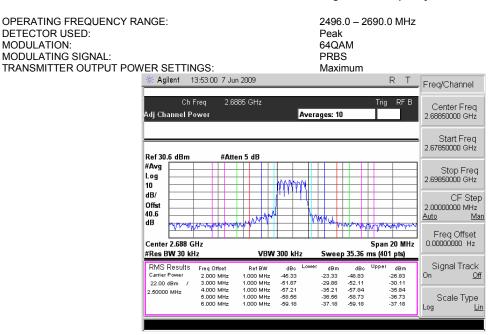


Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	veruict.	PA33			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						





Plot 7.3.12 Emission mask test results at high carrier frequency, 2.5 MHz EBW





Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.13 Emission mask test results at low carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		SS:			2496.0 Averag BPSK PRBS Maxim	ge	00.0 MHz	
	🔆 Agilent 14:	25:33 7 Jun	2009				RT	Freq/Channel
	Ch Fre Adj Channel Pow		875 GHz				Trig RFB	Center Freq 2.49875000 GHz
	Ref 30.6 dBm	#0#0	n 0 dB					Start Freq 2.48875000 GHz
	#Avg Log 10			www.www				Stop Freq 2.50875000 GHz
	dB/ Offst 40.6 dB				-		****	CF Step 2.0000000 MHz <u>Auto Man</u>
	Center 2.499 GHz #Res BW 100 kHz		VBW	V 1 MHz	Sw	Sj eep 4 ms	pan 20 MHz ; (401 pts)	Freq Offset 0.00000000 Hz
	Carrier Power 21.64 dBm /	req Offset 3.250 MHz 4.250 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lowe -44.96 -50.69	<sup>er</sup> dBm -23.32 -29.05	dBo Up -49.93 -50.21	<sup>oper</sup> dBm -28.29 -28.56	Signal Track On <u>Off</u>
	0.00000 MH2	5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-55.29 -57.13 -58.54 -58.61	-35.49 -36.89	-50.88 -59.23 -58.46 -58.66	-29.23 -37.59 -36.82 -37.02	Scale Type Log <u>Lin</u>



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 Average BPSK PRBS Maximum	MHz
	* Agilent 14:34:07 7	Jun 2009	F	RT Freq/Channel
	Ch Freq 2 Adj Channel Power	2.593 GHz	Trig	RF B Center Freq 2.59300000 GHz
		Atten 0 dB		Start Freq 2.58400000 GHz
	#Avg Log 10			Stop Freq 2.60200000 GHz
	dB/ Offst 40.6 dB	www.w	Manna	CF Step 1.80000000 MHz <u>Auto Man</u>
	Center 2.593 GHz		Span 1	
	#Res BW 100 kHz RMS Results Freq Offset	VBW 1 MHz Ref BW dBc Low	Sweep 4 ms (401	рts) <sub>dBm</sub> Signal Track
	Carrier Power 3,500 MH 22.87 dBm / 4,500 MH	z 1.000 MHz -49.10 z 1.000 MHz -50.28	-26.23 -49.44 -2 -27.41 -53.83 -3	26.57 On <u>Off</u> 30.97
	5.00000 MHz 5.500 MH 6.500 MH 7.500 MH 8.500 MH	z 1.000 MHz -58.01 z 1.000 MHz -60.50	-35.14 -59.40 -3 -37.63 -61.12 -3	00.61 96.53 98.25 97.78 Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.15 Emission mask test results at high carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MH Average BPSK PRBS Maximum	z
	₩ Agilent 14:24:37 7	Jun 2009	RT	Freq/Channel
	Ch Freq 2 Adj Channel Power	.68725 GHz	Trig RF E	Center Freq 2.68725000 GHz
	Ref 30.6 dBm #A	Atten 0 dB		Start Freq 2.67725000 GHz
	#Avg Log 10			Stop Freq 2.69725000 GHz
	dB/ Offst 40.6 dB	wm A		CF Step 2.00000000 MHz Auto Man
	Center 2.687 GHz #Res BW 100 kHz	VBW 1 MHz	Span 20 MH Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 3.250 MHz 21.55 dBm / 4.250 MHz	Ref BW dBc Low+ : 1.000 MHz -48.43 : 1.000 MHz -53.66		Signal Track On <u>Off</u>
	5.00000 MHz 5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	: 1.000 MHz -58.59 : 1.000 MHz -59.81	-36.49         -55.28         -33.73           -37.04         -60.64         -38.99           -38.26         -58.83         -37.28           -38.12         -59.98         -38.43	Scale Type Log <u>Lin</u>

Plot 7.3.16 Emission mask test results at low carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		GS:			2496.0 – 2 Average QPSK PRBS Maximum	2690.0 MHz	
	₩ Agilent 14	4:26:11 7 Ju	n 2009			RT	Freq/Channel
	Ch F Adj Channel Po		9875 GHz			Trig RF B	Center Freq 2.49875000 GHz
	Ref 30.6 dBm	#Atte	en 0 dB				Start Freq 2.48875000 GHz
	#Avg Log 10			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*		Stop Freq 2.50875000 GHz
	dB/ Offst 40.6 dB		wand		howard	Marana and	CF Step 2.0000000 MHz <u>Auto Man</u>
	Center 2.499 GI #Res BW 100 kl		VBV	V 1 MHz	Sweep 4	Span 20 MHz I ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Carrier Power 21.54 dBm /	Freq Offset 3.250 MHz 4.250 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lowe -43.69 -49.74	<sup>r</sup> dBm dBo -22.15 -47.98 -28.20 -49.30	, <sup>Upper</sup> dBm -26.45 -27.76	Signal Track On <u>Off</u>
	5.00000 MHz	5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-54.19 -56.84 -57.88 -59.18	-32.65 -51.19 -35.30 -57.39 -36.35 -58.51 -37.64 -58.62	-35.85 -36.98	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Conducted spurious emissions at the band edges			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:24:16 PM	veruict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.3.17 Emission mask test results at mid carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 M Average QPSK PRBS Maximum	IHz
	₩ Agilent 14:33:19 7 Jun	2009	R	T_Freq/Channel
	Ch Freq 2.593 Adj Channel Power	3 GHz	Trig R	F B Center Freq 2.59300000 GHz
	Ref 30.6 dBm #Atte	n 0 dB		Start Freq 2.58400000 GHz
	#Avg Log 10		***	Stop Freq 2.60200000 GHz
	dB/ Offst 40.6 dB			CF Step 1.80000000 MHz <u>Auto Man</u>
	Center 2.593 GHz #Res BW 100 kHz	VBW 1 MHz	Span 18 / Sweep 4 ms (401 pt	
	RMS Results Freq Offset Carrier Power 3.500 MHz 22.54 dBm / 4.500 MHz	Ref BW dBc Lower 1.000 MHz -44.43 1.000 MHz -49.40	dBm dBc Upper dB -21.89 -46.74 -24.2 -26.87 -51.85 -29.3	m Signal Track o On <u>Off</u>
	5.00000 MHz 6.600 MHz 7.500 MHz 8.600 MHz 8.600 MHz	1.000 MHz -56.27 1.000 MHz -57.19 1.000 MHz -59.46 1.000 MHz -59.84	-33.73 -62.78 -30.2 -34.66 -68.51 -35.9 -36.92 -69.74 -37.2 -37.30 -60.41 -37.8	7 Scale Type

#### Plot 7.3.18 Emission mask test results at high carrier frequency, 5 MHz EBW

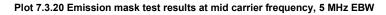
OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		NGS:			2496.0 - Average QPSK PRBS Maximu		2
	🔆 Agilent 🛛 1	4:23:27 7 Ju	n 2009			RT	Freq/Channel
	Ch I Adj Channel P		3725 GHz			Trig RF B	Center Freq 2.68725000 GHz
							Charle Even
	Ref 30.6 dBm	#Att	en 0 dB				<ul> <li>Start Freq</li> <li>2.67725000 GHz</li> </ul>
	#Avg Log 10		- m	****	-		Stop Freq 2.69725000 GHz
	dB/ Offst		New		Annina Anni		CF Step 2.0000000 MHz Auto Man
	dB						Freq Offset
	Center 2.687 G #Res BW 100 k		VD	V 1 MHz	<b>5</b>	Span 20 MHz p 4 ms (401 pts)	0.00000000 Hz
	RMS Results	Freq Offset 3.250 MHz	Ref BW 1.000 MHz	dBc Low	<sup>er</sup> dBm	dBc <sup>Upper</sup> dBm	Signal Track On Off
	21.49 dBm /	4.250 MHz	1.000 MHz	-51.50	-30.01 -51	.28 -29.79	
	5.00000 MHz	5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-55.43 -57.72 -59.31 -59.60	-36.23 -59 -37.82 -59	1.76 -33.26 0.20 -37.71 0.39 -37.90 0.06 -38.57	Scale Type Log <u>Lin</u>
		0.200 10112					4



Test specification:	Section 27.53(m)(4), Conducted spurious emissions at the band edges			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS	
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.3.19 Emission mask test results at low carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MH Average 16QAM PRBS Maximum	Ηz
	₩ Agilent 14:27:21 7 Ju	ın 2009	R	T Freq/Channel
	Ch Freq 2.4 Adj Channel Power	9875 GHz	Trig RF	B Center Freq 2.49875000 GHz
	Ref 30.6 dBm #Att	en 0 dB		Start Freq 2.48875000 GHz
	#Avg			Stop Freq 2.50875000 GHz
	dB/ Offst 40.6 dB	ment -	Mary Mary	CF Step 2.0000000 MHz <u>Auto Man</u>
	Center 2.499 GHz #Res BW 100 kHz	VBW 1 MHz	Span 20 M Sweep 4 ms (401 pts)	
	RMS Results Freq Offset Carrier Power 3.250 MHz 21.83 dBm / 4.250 MHz	Ref BW dBo Lower 1.000 MHz -44.83 1.000 MHz -51.23	dBm dBc Upper dBm -23.64 -47.40 -25.58 -27.69 -48.73 -26.90	Ciencel Tready
	5.00000 MHz 5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	1.000 MHz -55.35 1.000 MHz -58.13 1.000 MHz -58.61 1.000 MHz -59.02	-32.74         -51.14         -29.32           -36.45         -58.61         -36.79           -37.50         -58.76         -36.94           -38.26         -59.48         -37.65	Scale Type Log <u>Lin</u>



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MHz Average 16QAM PRBS Maximum	<u>.</u>
	🔆 Agilent 14:31:28 7 J	un 2009	RT	- Freq/Channel
	Ch Freq 2.: Adj Channel Power	593 GHz	Trig RF B	Center Freq 2.59300000 GHz
	Ref 30.6 dBm #At	tten 0 dB		Start Freq 2.58400000 GHz
	#Avg Log 10			Stop Freq 2.6020000 GHz
	dB/ Offst 40.6 dB		Munimum	CF Step 1.80000000 MHz Auto <u>Man</u>
	Center 2.593 GHz #Res BW 100 kHz	VBW 1 MHz	Span 18 MHz Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 3,500 MHz 22.47 dBm / 4,500 MHz	Ref BW dBc Lower 1.000 MHz -48.65 1.000 MHz -48.10	-24.18 -47.34 -24.87 -25.64 -50.95 -28.49	Signal Track On <u>Off</u>
	5.00000 MHz 5.000 MHz 6.000 MHz 7.500 MHz 8.500 MHz	1.000 MHz -51.15 1.000 MHz -57.59 1.000 MHz -59.54 1.000 MHz -59.37	-28.68 -51.30 -28.84 -35.12 -59.18 -36.72 -37.07 -58.66 -36.20 -36.91 -60.72 -38.25	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges			
Test procedure:	Section 27.53(m)(4)				
Test mode:	Compliance	Verdict:	PASS		
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PA33		
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC		
Remarks:					

#### Plot 7.3.21 Emission mask test results at high carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		2496.0 – 2690.0 MHz Average 16QAM PRBS Maximum	
	* Agilent 14:22:38 7 Jun 2009	R T	Freq/Channel
	Ch Freq 2.68725 GHz Adj Channel Power	Trig RF B	Center Freq 2.68725000 GHz
	D (200 LD (44) 0 LD		Start Freq 2.67725000 GHz
	Ref 30.6 dBm #Atten 0 dB #Avg Log 10		Stop Freq 2.69725000 GHz
	dB/ Offst 40.6 dB	<sup>22</sup> 10.40 × 64	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.687 GHz	Span 20 MHz 1 MHz Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Ref BW Carrier Power 3.250 MHz 1.000 MHz	dBc Lower dBm dBc Upper dBm	Signal Track On <u>Off</u>
	5.00000 MHz 5.250 MHz 1.000 MHz 6.250 MHz 1.000 MHz 7.250 MHz 1.000 MHz 7.250 MHz 1.000 MHz	-56.79 -35.42 -55.70 -34.33 -57.37 -36.00 -58.78 -37.41	Scale Type Log <u>Lin</u>

Plot 7.3.22 Emission mask test results at low carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RAN DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POWE			2496.0 – 2690. Average 64QAM PRBS Maximum	0 MHz
	Agilent 14:28:25 7 July	un 2009		R T Freq/Channel
	Ch Freq 2.4 dj Channel Power	19875 GHz	Trig	Center Freq 2.49875000 GHz
=	Ref 30.6 dBm #At	ten 0 dB		Start Freq 2.48875000 GHz
L 1	Avg .og 0			Stop Freq 2.50875000 GHz
4	IB/ Offst 0.6		- Marine	CF Step 2.00000000 MHz Auto Ma
	Center 2.499 GHz Res BW 100 kHz	VBW 1 MHz	Spar Sweep 4 ms (4)	Freq Offset 0.00000000 Hz
Ī	RMS Results Freq Offset Carrier Power 3.250 MHz 21.80 dBm / 4.250 MHz	Ref BW dBc Lot 1.000 MHz -42.15 1.000 MHz -47.69		
	5.00000 MHz 5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz 8.250 MHz	1.000 MHz -51.62 1.000 MHz -58.70 1.000 MHz -58.47 1.000 MHz -59.30	-29.82 -50.01 -36.89 -58.68 -36.66 -59.75 -37.50 -59.81	-28.20 -36.88 -37.94 -38.01



Test specification:	Section 27.53(m)(4), Conducted spurious emissions at the band edges			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:24:16 PM	veruict.	PA33	
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

#### Plot 7.3.23 Emission mask test results at mid carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		2496.0 – 2 Average 64QAM PRBS Maximum	2690.0 MHz	
	* Agilent 14:30:25 7 Jun 2009		R T	Freq/Channel
	Ch Freq 2.593 GHz Adj Channel Power		Trig RF B	Center Freq 2.59300000 GHz
				Start Freq 2.58400000 GHz
	#Avg Log 10			Stop Freq 2.60200000 GHz
	dB/ Offst 40.6 dB	- Anna		CF Step 1.8000000 MHz <u>Auto Man</u>
	Center 2.593 GHz #Res BW 100 kHz	/BW 1 MHz Sweep 4	Span 18 MHz I ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results         Freq Offset         Ref BV           Carrier Power         3,500 MHz         1,000 M           22.69 dBm         /         4,500 MHz         1,000 M	lz -46.67 -23.97 -48.90 lz -47.49 -24.79 -50.98	-26.20 -28.28	Signal Track On <u>Off</u>
	5.00000 MHz 5.500 MHz 1.000 M 6.500 MHz 1.000 M 7.500 MHz 1.000 M 8.500 MHz 1.000 M	Hz -56.49 -33.80 -57.85 Hz -60.79 -38.09 -59.01	-35.16 -36.31	Scale Type Log <u>Lin</u>

#### Plot 7.3.24 Emission mask test results at high carrier frequency, 5 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MHz Average 64QAM PRBS Maximum	
	🔆 Agilent 🛛 14:21:29 7 Ju	un 2009	R T	Freq/Channel
	Ch Freq 2.6 Adj Channel Power	68725 GHz	Trig RF B	Center Freq 2.68725000 GHz
	Ref 30.6 dBm #Att	ten 0 dB		Start Freq 2.67725000 GHz
	#Avg	- power		Stop Freq 2.69725000 GHz
	dB/ Offst 40.6 dB	www.	Munnanan	CF Step 2.00000000 MHz <u>Auto Man</u>
	Center 2.687 GHz #Res BW 100 kHz	VBW 1 MHz	Span 20 MHz Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 3.250 MHz 21.79 dBm / 4.250 MHz	Ref BW dBc Lower 1.000 MHz -47.63 1.000 MHz -55.90		Signal Track On <u>Off</u>
	5.00000 MHz 5.250 MHz 6.250 MHz 7.250 MHz 8.250 MHz	1.000 MHz -56.71 1.000 MHz -58.63 1.000 MHz -59.67 1.000 MHz -59.11	-34.92         -54.94         -33.15           -36.83         -59.88         -38.08           -37.88         -59.62         -37.83           -37.32         -59.04         -37.26	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges						
Test procedure:	Section 27.53(m)(4)							
Test mode:	Compliance	Verdict:	PASS					
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS					
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC					
Remarks:								

#### Plot 7.3.25 Emission mask test results at low carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 Average BPSK PRBS Maximum	MHz
	₩ Agilent 15:23:26 7 Ju	un 2009	R	TFreq/Channel
	Ch Freq 2.5 Adj Channel Power	50175 GHz	Trig	Free Center Freq 2.50175000 GHz
	Ref 30.6 dBm #At	ten 0 dB		Start Freq 2.49000000 GHz
	#Avg Log 10			Stop Freq 2.51350000 GHz
	dB/ Offst 40.6 dB			CF Step 2.35000000 MHz <u>Auto Man</u>
	Center 2.502 GHz #Res BW 100 kHz	VBW 1 MHz	Span 23.5 Sweep 4 ms (401	
	RMS Results Freq Offset Carrier Power 6.250 MHz 22.67 dBm / 7.250 MHz	Ref BW dBc Lowe 1.000 MHz -45.14 1.000 MHz -47.17	r dBm dBc Upper ( -22.47 -45.05 -22 -24.51 -48.53 -25	dBm Signal Track 2.38 On <u>Off</u> 5.86
	10.0000 MHz 8.250 MHz 9.250 MHz 10.25 MHz 11.25 MHz	1.000 MHz -46.89 1.000 MHz -49.11 1.000 MHz -52.92 1.000 MHz -54.08	-26.44 -48.47 -25 -30.25 -47.07 -24	8.32 5.80 Scale Type 4.41 Log Lin

# Plot 7.3.26 Emission mask test results at mid carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		S:		2496.0 – 26 Average BPSK PRBS Maximum	890.0 MHz	
	🔆 Agilent 15:07	7:10 7 Jun 2009			RT	Freq/Channel
	Ch Freq Adj Channel Powe				Trig Free	Center Freq 2.59600000 GHz
	Ref 30.6 dBm	#Atten 0 dB				Start Freq 2.58400000 GHz
	#Avg Log 10					Stop Freq 2.60800000 GHz
	dB/ Offst					CF Step 2.4000000 MHz <u>Auto Man</u>
	Center 2.596 GHz #Res BW 300 kHz	<u>      </u>	/BW 3 MHz		Span 24 MHz ns (401 pts)	Freq Offset 0.00000000 Hz
	Carrier Power 6. 23.55 dBm / 7.	q Offset Ref B 500 MHz 1.000 M 500 MHz 1.000 M	Hz -44.81 Hz -47.92	-21.25 -45.26 -24.37 -47.48	Upper dBm -21.71 -23.90	Signal Track On <u>Off</u>
	9. 10	500 MHz 1.000 M 500 MHz 1.000 M 0.50 MHz 1.000 M 1.50 MHz 1.000 M	Hz -48.96 Hz -51.86	-22.97 -48.47 -25.41 -47.58 -28.31 -46.74 -28.61 -49.78	-24.92 -24.03 -23.19 -26.23	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges						
Test procedure:	Section 27.53(m)(4)							
Test mode:	Compliance	Verdict:	PASS					
Date & Time:	6/30/2009 5:24:16 PM	veruict.	PA33					
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC					
Remarks:								

#### Plot 7.3.27 Emission mask test results at high carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		IGS:			2496.0 Avera BPSK PRBS Maxin	ge	0.0 MHz	
	₩ Agilent 1	5:14:55 7 Ju	un 2009				RT	Freq/Channel
	Ch F Adj Channel Po		6845 GHz			T	rig Free	Center Freq 2.68450000 GHz
	Ref 30.6 dBm	"^"	ten 0 dB					Start Freq 2.67300000 GHz
	#Avg Log 10			·	-			Stop Freq 2.69600000 GHz
	dB/ Offst 40.6 dB	mand	<u>л</u>			h Marina da	MAMIN	CF Step 2.3000000 MHz <u>Auto Man</u>
	Center 2.684 G						an 23 MHz	Freq Offset 0.00000000 Hz
	#Res BW 100 kl RMS Results	Hz Freg Offset	VBV Ref BW	dBc Low		dBo Upp		Signal Track
	Carrier Power 22.96 dBm /	6.000 MHz 7.000 MHz	1.000 MHz 1.000 MHz	-42.66 -48.98	-19.69 -26.02	-46.93 -49.37	-23.97 -26.41	On <u>Off</u>
	10.0000 MHz	8.000 MHz 9.000 MHz 10.00 MHz 11.00 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-49.84 -51.28 -52.29 -54.75	-26.88 -28.32 -29.32 -31.79	-50.83 -52.67 -51.79 -56.05	-27.86 -29.71 -28.83 -33.09	Scale Type Log <u>Lin</u>

Plot 7.3.28 Emission mask test results at low carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RAI DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MHz Average QPSK PRBS Maximum	
-	In Agilent 15:22:05 7 June	in 2009	R T	Freq/Channel
	Ch Freq 2.5 Adj Channel Power	0175 GHz	Trig Free	Center Freq 2.50175000 GHz
	Ref 30.6 dBm #Att	en 0 dB		Start Freq 2.49000000 GHz
	#Avg Log 10			Stop Freq 2.51350000 GHz
	dB/ Offst 40.6 dB			CF Step 2.3500000 MHz <u>Auto Man</u>
	Center 2.502 GHz #Res BW 100 kHz	VBW 1 MHz	Span 23.5 MHz Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 6.250 MHz 22.98 dBm / 7.250 MHz	Ref BW dBc Lower 1.000 MHz -43.74 1.000 MHz -46.26		Signal Track On <u>Off</u>
	10.0000 MHz 8.250 MHz 9.250 MHz 10.25 MHz 11.25 MHz	1.000 MHz -47.74 1.000 MHz -48.18 1.000 MHz -51.57 1.000 MHz -53.67	-24.76         -49.30         -26.32           -26.20         -49.96         -26.98           -28.59         -49.34         -26.36           -30.69         -51.87         -28.89	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges						
Test procedure:	Section 27.53(m)(4)							
Test mode:	Compliance	Verdict:	PASS					
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS					
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC					
Remarks:								

#### Plot 7.3.29 Emission mask test results at mid carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		IGS:			2496. Avera QPSk PRBS Maxin	ige (	90.0 MHz	
	🔆 Agilent 🛛 18	5:07:44 7 Jun	2009				RT	Freq/Channel
	Ch F Adj Channel Po		6 GHz				Trig Free	Center Freq 2.59600000 GHz
								Start Freq 2.58400000 GHz
	Ref 30.6 dBm #Avg Log 10		n 0 dB	~~~~~				Stop Freq 2.60800000 GHz
	dB/ Offst 40.6 dB					h	w	CF Step 2.40000000 MHz <u>Auto Man</u>
	Center 2.596 GI						pan 24 MHz	Freq Offset 0.00000000 Hz
	#Res BW 300 kl	Hz Freg Offset	NBV Ref BW	dBc Lowe			<b>s (401 pts)</b> <sup>pper</sup> dBm	Signal Track
	Carrier Power 23.51 dBm /	6.500 MHz 7.500 MHz	1.000 MHz 1.000 MHz	-42.73 -45.18	-19.22 -21.67	-44.21 -46.62	-20.69 -23.11	On <u>Off</u>
	10.0000 MHz	8.500 MHz 9.500 MHz 10.50 MHz 11.50 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-46.17 -48.45 -51.30 -52.29	-22.65 -24.94 -27.79 -28.78	-47.88 -47.84 -47.90 -52.32	-24.37 -24.33 -24.39 -28.81	Scale Type Log <u>Lin</u>

Plot 7.3.30 Emission mask test results at high carrier frequency, 10 MHz EBW

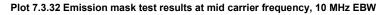
OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MH Average QPSK PRBS Maximum	z
	🔆 Agilent 🛛 15:14:05 7 J	un 2009	R T	Freq/Channel
	Ch Freq 2.6 Adj Channel Power	6845 GHz	Trig Free	Center Freq 2.68450000 GHz
	Ref 30.6 dBm #At	ten 0 dB		Start Freq 2.67300000 GHz
	#Avg Log 10			Stop Freq 2.69600000 GHz
	dB/ Offst 40.6 dB			CF Step 2.30000000 MHz Auto Man
	Center 2.684 GHz #Res BW 100 kHz	VBW 1 MHz	Span 23 MH Sweep 4 ms (401 pts)	Freq Offset z 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 6.000 MHz 22.89 dBm / 7.000 MHz	Ref BW dBc Lowe 1.000 MHz -43.83 1.000 MHz -47.29	er dBm dBc Upper dBm -20.89 -45.06 -22.17 -24.36 -48.24 -25.35	Signal Track On <u>Off</u>
	10.0000 MHz 8.000 MHz 9.000 MHz 10.00 MHz 11.00 MHz	1.000 MHz -46.75 1.000 MHz -50.42 1.000 MHz -52.73 1.000 MHz -54.57	-23.81         -50.86         -27.97           -27.49         -50.88         -27.99           -29.79         -51.88         -28.98           -31.64         -51.89         -28.99	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges						
Test procedure:	Section 27.53(m)(4)							
Test mode:	Compliance	Verdict:	PASS					
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS					
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC					
Remarks:								

#### Plot 7.3.31 Emission mask test results at low carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		:	2496.0 Avera 16QA PRBS Maxim	M	
	<b>* Agilent</b> 15:24:3	38 7 Jun 2009		RT	Freq/Channel
	Ch Freq Adj Channel Power	2.50175 GHz		Trig Free	Center Freq 2.50175000 GHz
	Ref 30.6 dBm	#Atten 0 dB			Start Freq 2.49000000 GHz
	#Avg Log 10		Jumming		Stop Freq 2.51350000 GHz
	dB/ Offst 40.6 dB	- And -		Man Marka	CF Step 2.35000000 MHz <u>Auto Man</u>
	Center 2.502 GHz #Res BW 100 kHz	VBW 1	MHz Sw	Span 23.5 MHz reep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Carrier Power 6.25	Offset Ref BW 0 MHz 1.000 MHz -4	dBc <sup>Lower</sup> dBm	dBc <sup>Upper</sup> dBm -45.52 -22.98 -46.62 -24.08	Signal Track On <u>Off</u>
	9.25 10.2	0 MHz 1.000 MHz -5 5 MHz 1.000 MHz -5	1.06 -28.52 2.67 -30.13	-48.31 -25.77 -48.50 -25.98 -50.05 -27.51 -52.45 -29.91	Scale Type Log <u>Lin</u>



OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		IGS:			2496. Avera 16QA PRBS Maxin	ige M	90.0 MHz	
	🔆 Agilent 🛛 1	5:08:43 7 Jur	2009				RT	Freq/Channel
	Ch F Adj Channel Pe		6 GHz				Trig Free	Center Freq 2.59600000 GHz
	Ref 30.6 dBm	#Atte	n 0 dB					Start Freq 2.58400000 GHz
	#Avg Log 10	Image: Second		~~~				Stop Freq 2.60800000 GHz
	dB/ Offst 40.6 dB						 	CF Step 2.40000000 MHz <u>Auto Man</u>
	Center 2.596 G	:Un				-	pan 24 MHz	Freq Offset 0.00000000 Hz
	#Res BW 300 k		VBV	N 3 MHz	Sw	veep 4 ms		0.0000000 112
	RMS Results Carrier Power 24.11 dBm /	Freq Offset 6.500 MHz 7.500 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lowe -43.97 -46.51	-19.86 -22.40	-44.67 -46.49	<sup>oper</sup> dBm -20.56 -22.38	Signal Track On <u>Off</u>
	10.0000 MHz	8.500 MHz 9.500 MHz 10.50 MHz 11.50 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-46.01 -47.76 -51.18 -51.34	-21.89 -23.65 -27.06 -27.23	-47.16 -47.53 -47.62 -50.70	-23.05 -23.41 -23.50 -26.58	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.33 Emission mask test results at high carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		S:		2496.0 – 269 Average 16QAM PRBS Maximum	00.0 MHz	
	🔆 Agilent 15:1	13:03 7 Jun 2009			RT	Freq/Channel
	Ch Frei Adj Channel Powe				Trig Free	Center Freq 2.68450000 GHz
	Ref 30.6 dBm	#Atten 0 dB				Start Freq 2.67300000 GHz
	#Avg Log 10		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Stop Freq 2.69600000 GHz
	dB/ Offst 40.6 dB			- hav	mm	CF Step 2.3000000 MHz <u>Auto Man</u>
	Center 2.684 GHz				pan 23 MHz	Freq Offset 0.00000000 Hz
		req Offset Ref BW 3.000 MHz 1.000 MHz	<b>W 1 MHz</b> dBc Lower -44.61	dBm dBc Up -21.85 -45.52	( <b>401 pts)</b> <sup>oper</sup> dBm -22.69	Signal Track On <u>Off</u>
	22.84 dBm / 7 10.0000 MHz 8 9 1	7.000 MHz 1.000 MHz 8.000 MHz 1.000 MHz 9.000 MHz 1.000 MHz 10.00 MHz 1.000 MHz 10.00 MHz 1.000 MHz	-44.01 -47.96 -47.78 -51.01 -52.51 -54.03	-21.00 -49.17 -24.82 -50.38 -28.05 -51.61 -29.56 -50.52 -31.07 -51.13	-22.09 -26.33 -27.55 -28.78 -27.69 -28.29	Scale Type Log <u>Lin</u>
	j'	1000 MHz	54.00	01.57 01.15	.20.20	

Plot 7.3.34 Emission mask test results at low carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		GS:			2496.0 – 2 Average 64QAM PRBS Maximum	2690.0 MHz	
	🔆 Agilent 15	5:25:35 7 Jun	2009			RT	Freq/Channel
	Ch F Adj Channel Po		175 GHz			Trig Free	Center Freq 2.50175000 GHz
	Ref 30.6 dBm	#Atte	n 0 dB				Start Freq 2.49000000 GHz
	#Avg Log 10			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	menny		Stop Freq 2.51350000 GHz
	dB/ Offst 40.6 dB	and the second				man	CF Step 2.3500000 MHz Auto Man
	Center 2.502 GH #Res BW 100 kH		VBW	V 1 MHz		Span 23.5 MHz 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Carrier Power 22.77 dBm /	Freq Offset 6.250 MHz 7.250 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lower -44.16 -49.82		Upper dBm -24.99	Signal Track On <u>Off</u>
	10.0000 MHz	8.250 MHz 9.250 MHz 10.25 MHz 11.25 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-49.70 -52.77 -55.33 -53.60	-28.93 -51.47 -30.00 -52.99 -32.56 -51.90 -30.83 -54.08	-30.22 -29.13	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions at the band edges				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:24:16 PM	verdict.	PASS			
Temperature: 24.3 °C	Air Pressure: 1008 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:						

#### Plot 7.3.35 Emission mask test results at mid carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW		IGS:			2496.0 – Average 64QAM PRBS Maximum	2690.0 MHz	
	₩ Agilent 1	5:10:24 7 Jur	2009			RT	Freq/Channel
	Ch F Adj Channel Po		6 GHz			Trig Free	Center Freq 2.59600000 GHz
	Ref 30.6 dBm	484	- 0 40				Start Freq 2.58400000 GHz
	#Avg Log 10		n 0 dB				Stop Freq 2.60800000 GHz
	dB/ Offst 40.6 dB						CF Step 2.40000000 MHz <u>Auto Man</u>
	Center 2.596 G					Span 24 MHz	Freq Offset 0.00000000 Hz
	#Res BW 300 k RMS Results Carrier Power 23.99 dBm /	Freq Offset 6.500 MHz 7.500 MHz	Ref BW 1.000 MHz 1.000 MHz	dBc Lower -44.83 -46.79		7 -22.18	Signal Track On <u>Off</u>
	10.0000 MHz	8.500 MHz 9.500 MHz 10.50 MHz 11.50 MHz	1.000 MHz 1.000 MHz 1.000 MHz 1.000 MHz	-47.55 -50.18 -51.91 -52.45	-23.56 -49.4 -26.19 -48.4 -27.92 -48.1 -28.45 -52.7	9 -25.50 9 -24.50 6 -24.17	Scale Type Log <u>Lin</u>

Plot 7.3.36 Emission mask test results at high carrier frequency, 10 MHz EBW

OPERATING FREQUENCY RA DETECTOR USED: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POW			2496.0 – 2690.0 MH Average 64QAM PRBS Maximum	z
	* Agilent 15:12:19 7 Ju	n 2009	RT	Freq/Channel
	Ch Freq 2.6 Adj Channel Power	845 GHz	Trig Free	Center Freq 2.68450000 GHz
	Ref 30.6 dBm #Att	en 0 dB		Start Freq 2.67300000 GHz
	#Avg Log 10			Stop Freq 2.6960000 GHz
	dB/ Offst 40.6 dB		Market	CF Step 2.30000000 MHz <u>Auto Man</u>
	Center 2.684 GHz #Res BW 100 kHz	VBW 1 MHz	Span 23 MH Sweep 4 ms (401 pts)	Freq Offset 0.00000000 Hz
	RMS Results Freq Offset Carrier Power 6.000 MHz 23.34 dBm / 7.000 MHz	Ref BW dBc Lower 1.000 MHz -45.70 1.000 MHz -50.26	-22.37 -48.16 -24.83 -26.92 -51.37 -28.03	Signal Track On <u>Off</u>
	10.0000 MHz 8.000 MHz 9.000 MHz 10.00 MHz 11.00 MHz	1.000 MHz -50.32 1.000 MHz -52.40 1.000 MHz -54.83 1.000 MHz -55.12	-26.98         -50.44         -27.10           -29.07         -52.10         -28.76           -31.49         -52.29         -28.96           -31.79         -54.10         -30.76	Scale Type Log <u>Lin</u>



Test specification:	Section 27.53(m)(4), Cor	nducted spurious emissions	
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	FA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

# 7.4 Spurious emissions at RF antenna connector test

# 7.4.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.4.1.

#### Table 7.4.1 Spurious emission limits

Frequency, MHz	Attenuation below carrier, dBc	ERP of spurious, dBm
0.009 – 10th harmonic*	55+10logP**	-25.0

\* - spurious emission limits do not apply to the in band emission within ± 5.5 MHz (for mobile subscriber unit) of the authorized bandwidth from the carrier; investigated in course of emission mask testing

\*\* - P is transmitter output power in Watts

#### 7.4.2 Test procedure

7.4.2.1 The EUT was set up as shown in Figure 7.4.1, energized and its proper operation was checked.

- 7.4.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
- **7.4.2.3** The spurious emission was measured with spectrum analyzer as provided in Table 7.4.2 and the associated plots.

## Figure 7.4.1 Spurious emission test setup





Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions				
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33			
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC			
Remarks:			-			

#### Table 7.4.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 2496.0 - 2690.0 MHz INVESTIGATED FREQUENCY RANGE: 0.009 - 27000 MHz except: 2491.5 - 2504.0 MHz for low channel 2586.5 - 2599.5 for mid channel 2682.0 - 2696.0 MHz for high channel) See NOTE 2 DETECTOR USED: Peak VIDEO BANDWIDTH: ≥ Resolution bandwidth MODULATION: 16QAM PRBS MODULATING SIGNAL: BIT RATE: 6.2825 Mbps TRANSMITTER OUTPUT POWER SETTINGS: Maximum TRANSMITTER OUTPUT POWER: 21.00 dBm at low frequency 22.43 dBm at mid frequency 21.20 dBm at high frequency

				=== a=.	n at high hequency				
Frequency, MHz	SA reading, dBm	Attenuator, dB	Cable loss, dB	RBW, kHz	Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict	
Low carrier free	quency								
494.700	-45.92	Included	Included	1000	-45.92	-25.0	-20.92	Pass	
7492.000	-30.36	Included	Included	1000	-30.36	-25.0	-5.36	Pass	
Mid carrier freq	Mid carrier frequency								
5185.525	-46.99	Included	Included	1000	-46.99	-25.0	-21.99	Pass	
7778.835	-25.39	Included	Included	1000	-25.39	-25.0	-0.39	Pass	
High carrier fre	High carrier frequency								
73.625	-49.91	Included	Included	1000	-49.91	-25.0	-24.91	Pass	
5376.50	-52.95	Included	Included	1000	-52.95	-25.0	-27.95	Pass	
8064.650	-34.10	Included	Included	1000	-34.10	-25.0	-9.10	Pass	

\*- Margin = Spurious emission – specification limit.

**NOTE 1:** Spurious emissions test was performed at 2.5 MHz EBW with 16QAM modulation as configuration that produces maximum output power spectral density.

NOTE 2: For band edge emissions please see "Emission at the band edges" test results.

#### Reference numbers of test equipment used

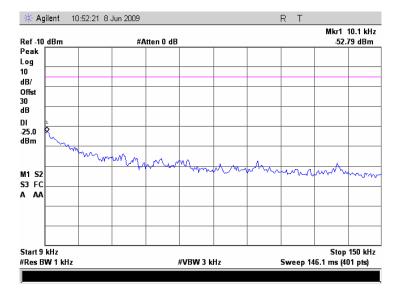
	HL 2909	HL 2953	HL 3439	HL 3442				
--	---------	---------	---------	---------	--	--	--	--

Full description is given in Appendix A.

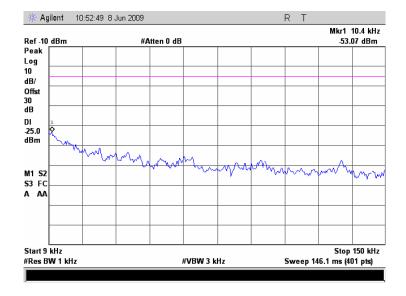


Test specification:	Section 27.53(m)(4), Co	Section 27.53(m)(4), Conducted spurious emissions					
Test procedure:	Section 27.53(m)(4)						
Test mode:	Compliance	Verdict:	PASS				
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33				
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC				
Remarks:			· · · · · ·				

#### Plot 7.4.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency



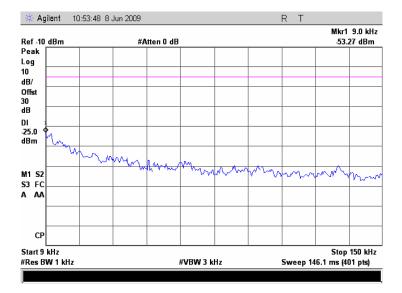
# Plot 7.4.2 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency



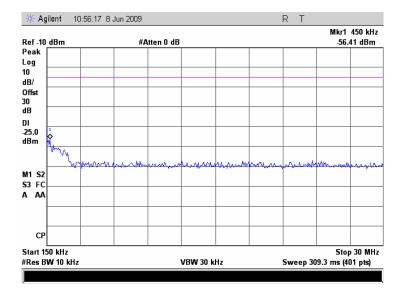


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			· · · · ·

# Plot 7.4.3 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency



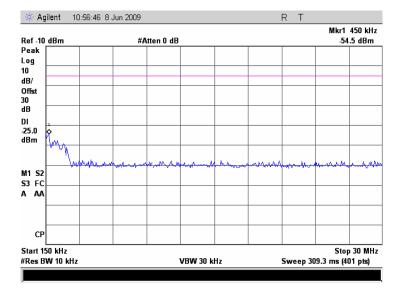
# Plot 7.4.4 Spurious emission measurements in 0.15 - 30.0 MHz range at low carrier frequency



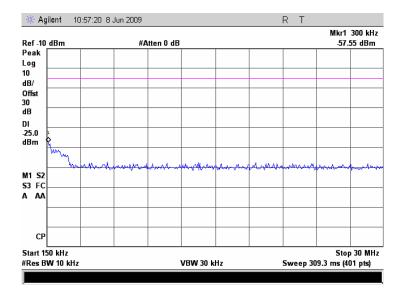


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

# Plot 7.4.5 Spurious emission measurements in 0.15 - 30.0 MHz range at mid carrier frequency



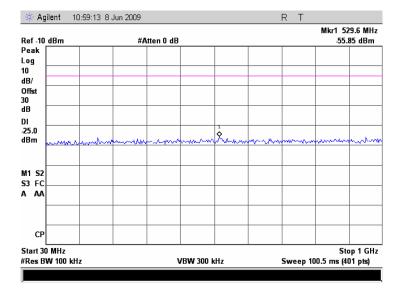
# Plot 7.4.6 Spurious emission measurements in 0.15 – 30.0 MHz range at high carrier frequency



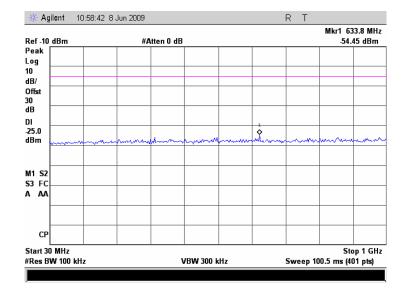


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			· · · · ·

## Plot 7.4.7 Spurious emission measurements in 30.0 - 1000 MHz range at low carrier frequency



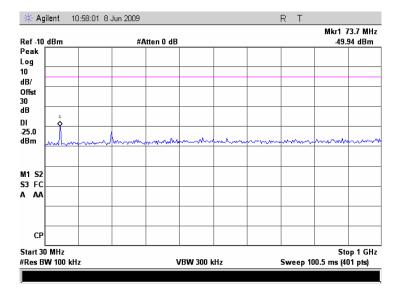
# Plot 7.4.8 Spurious emission measurements in 30.0 - 1000 MHz range at mid carrier frequency



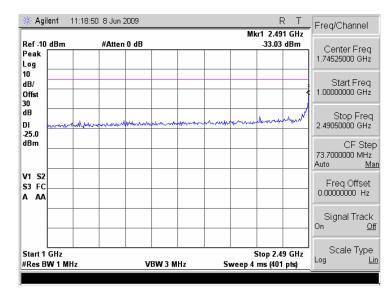


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

## Plot 7.4.9 Spurious emission measurements in 30.0 - 1000 MHz range at high carrier frequency



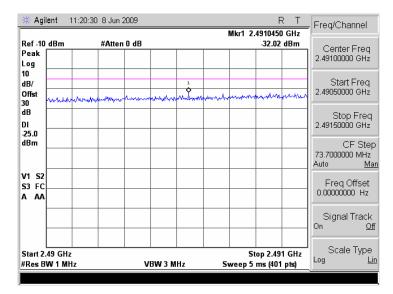
#### Plot 7.4.10 Spurious emission measurements in 1000 – 2490.5 MHz range at low carrier frequency



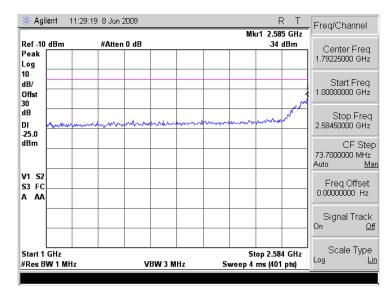


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			· · · · ·

## Plot 7.4.11 Spurious emission measurements in 2490.5 - 2491.5 MHz range at low carrier frequency



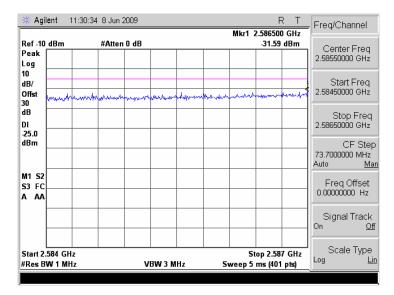
#### Plot 7.4.12 Spurious emission measurements in 1000 - 2584.5 MHz at mid carrier frequency



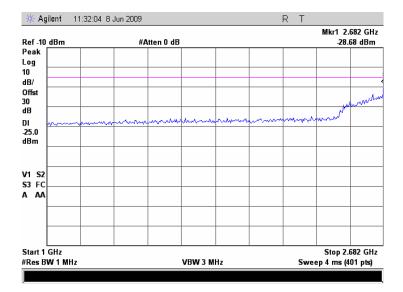


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PASS
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			-

## Plot 7.4.13 Spurious emission measurements in 2584.5 – 2586.5 MHz at mid carrier frequency



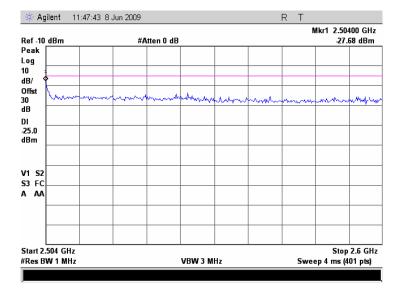
#### Plot 7.4.14 Spurious emission measurements in 1000 - 2682.0 MHz at high carrier frequency



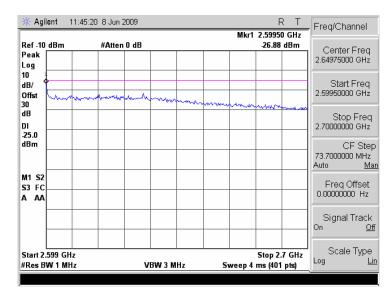


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

#### Plot 7.4.15 Spurious emission measurements in 2504 – 2600 MHz range at low carrier frequency



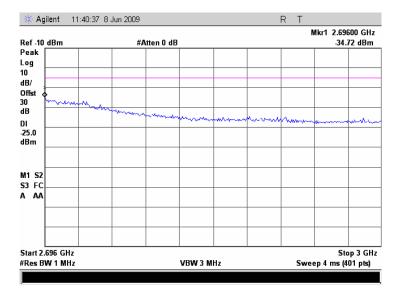
## Plot 7.4.16 Spurious emission measurements in 2599.5 - 2700 MHz at mid carrier frequency



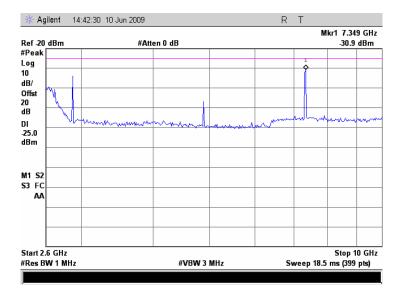


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

Plot 7.4.17 Spurious emission measurements in 2696 – 3000.0 MHz at high carrier frequency



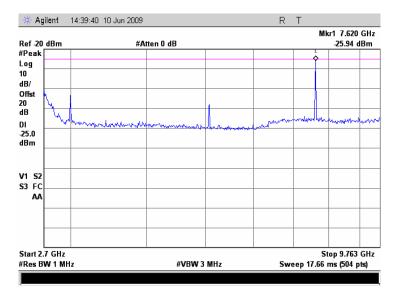
# Plot 7.4.18 Spurious emission measurements in 2600 – 10000 MHz range at low carrier frequency



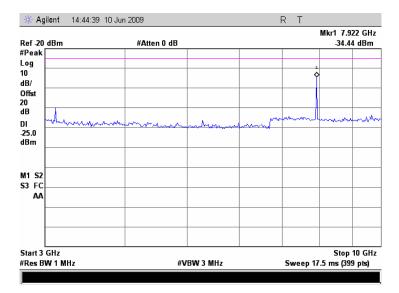


Test specification:	Section 27.53(m)(4), Conducted spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33	
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

### Plot 7.4.19 Spurious emission measurements in 2700 - 10000 MHz at mid carrier frequency



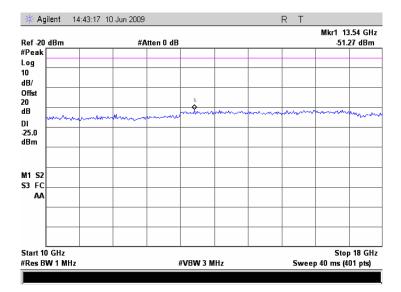
#### Plot 7.4.20 Spurious emission measurements in 3000 - 10000 MHz at high carrier frequency



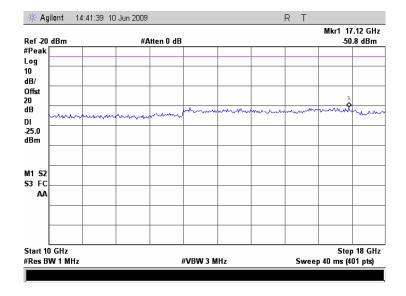


Test specification:	Section 27.53(m)(4), Conducted spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33	
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

### Plot 7.4.21 Spurious emission measurements in 10000 – 18000 MHz range at low carrier frequency



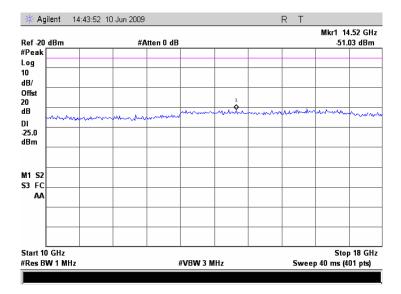
## Plot 7.4.22 Spurious emission measurements in 10000 - 18000 MHz at mid carrier frequency



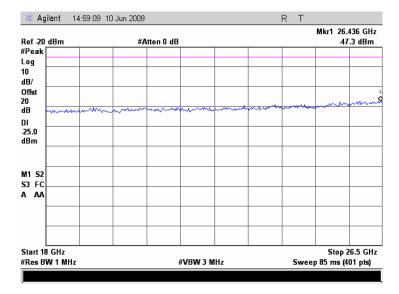


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			· · · · ·

### Plot 7.4.23 Spurious emission measurements in 10000 - 18000 MHz at high carrier frequency



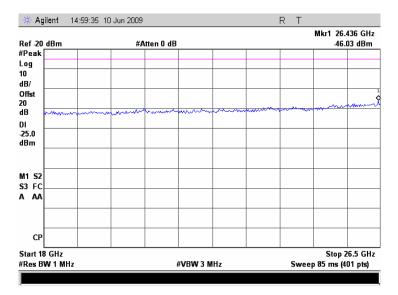
# Plot 7.4.24 Spurious emission measurements in 18000 - 26500 MHz range at low carrier frequency



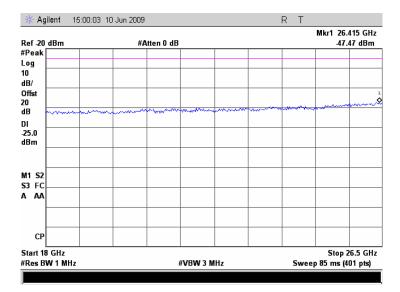


Test specification:	Section 27.53(m)(4), Conducted spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33	
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

Plot 7.4.25 Spurious emission measurements in 18000 - 26500 MHz at mid carrier frequency



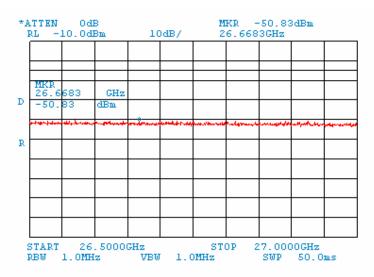
Plot 7.4.26 Spurious emission measurements in 18000 - 26500 MHz at high carrier frequency



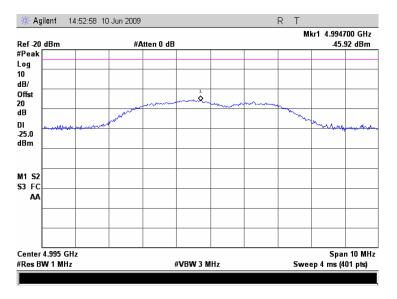


Test specification:	Section 27.53(m)(4), Conducted spurious emissions			
Test procedure:	Section 27.53(m)(4)	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33	
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

## Plot 7.4.27 Spurious emission measurements in 26.5 - 27 GHz at high carrier frequency



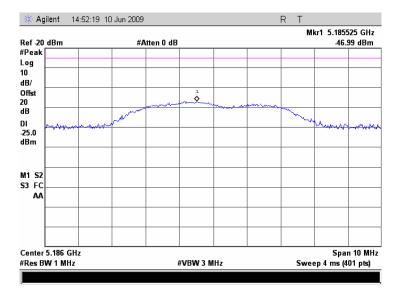




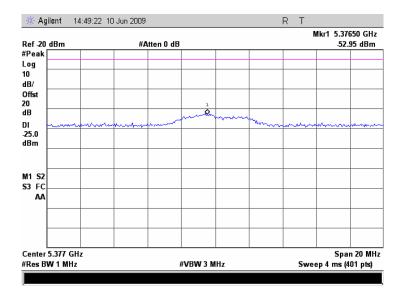


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

# Plot 7.4.29 Conducted spurious emission measurements at the 2<sup>nd</sup> harmonic of mid carrier frequency



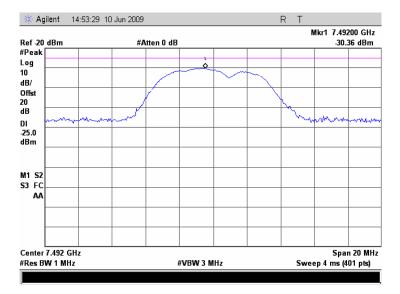
# Plot 7.4.30 Conducted spurious emission measurements at the 2<sup>nd</sup> harmonic of high carrier frequency



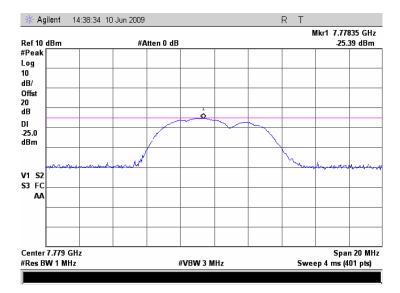


Test specification:	Section 27.53(m)(4), Conducted spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/30/2009 5:33:58 PM	verdict.	PA33
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC
Remarks:			

# Plot 7.4.31 Conducted spurious emission measurements at the 3<sup>rd</sup> harmonic of low carrier frequency



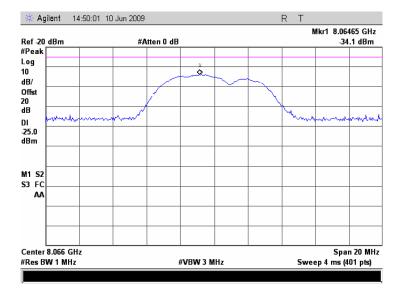
# Plot 7.4.32 Conducted spurious emission measurements at the 3<sup>rd</sup> harmonic of mid carrier frequency





Test specification:	Section 27.53(m)(4), Conducted spurious emissions			
Test procedure:	Section 27.53(m)(4)	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/30/2009 5:33:58 PM	verdict.	FA33	
Temperature: 25.4 °C	Air Pressure: 1007 hPa	Relative Humidity: 40 %	Power Supply: 120VAC	
Remarks:				

# Plot 7.4.33 Conducted spurious emission measurements at the 3<sup>rd</sup> harmonic of high carrier frequency





Test specification:	Section 27.53(m)(4), Radiated spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC
Remarks:			

# 7.5 Radiated spurious emission measurements

#### 7.5.1 General

This test was performed to measure radiated spurious emissions from the EUT. Specification test limits are given in Table 7.5.1.

#### Table 7.5.1 Radiated spurious emission test limits

Frequency,	Attenuation below carrier,	ERP of spurious,	Equivalent field strength limit @ 3m,
MHz	dBc	dBm	dB(µV/m)***
0.009 – 10th harmonic*	55+10logP**	-25	72.4

\* - Excluding the in band emission within ± 250 % of the authorized bandwidth from the carrier

\*\* - P is transmitter output power in Watts

\*\*\* - Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30×P×1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters

#### 7.5.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

- 7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and the performance check was conducted.
- **7.5.2.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360<sup>0</sup> and the measuring antenna was rotated around its vertical axis.
- 7.5.2.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

#### 7.5.3 Test procedure for spurious emission field strength measurements above 30 MHz

- 7.5.3.1 The EUT was set up as shown in Figure 7.5.2, energized and the performance check was conducted.
- **7.5.3.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360<sup>0</sup> and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal, polarizations.
- 7.5.3.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

#### 7.5.4 Test procedure for substitution ERP measurements of spurious

- **7.5.4.1** The test equipment was set up as shown in Figure 7.5.3 and energized.
- **7.5.4.2** RF signal generator was set to the frequency of investigated spurious emission and the RF output level was preliminary adjusted to produce the same field strength as it was measured from the EUT.
- **7.5.4.3** The test antenna height was swept from 1 to 4 m to find maximum emission from substitution antenna and RF signal generator output was fine adjusted to produce the same field strength as it was measured from the EUT.
- 7.5.4.4 The above procedure was performed in both, horizontal and vertical, polarizations of the test and substitution antennas.
- **7.5.4.5** The ERP of spurious emissions was calculated as a sum of signal generator output power in dBm and antenna gain in dBd reduced by cable loss in dB.
- 7.5.4.6 The above procedure was repeated at the rest of investigated frequencies.
- 7.5.4.7 The worst test results (the lowest margins) were recorded in Table 7.5.3 and shown in the associated plots.



Test specification:	Section 27.53(m)(4), Radiated spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC
Remarks:		-	

Figure 7.5.1 Setup for spurious emission field strength measurements in 9 kHz to 30 MHz band

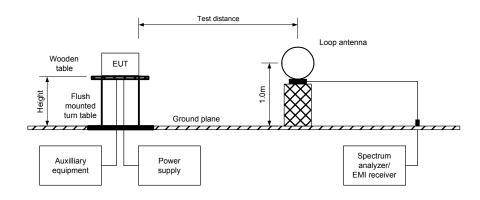
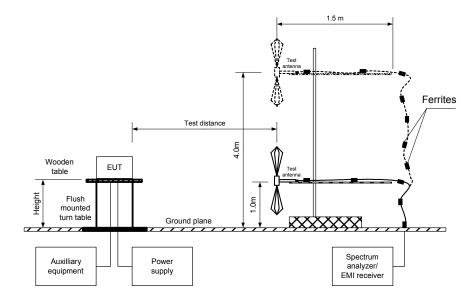


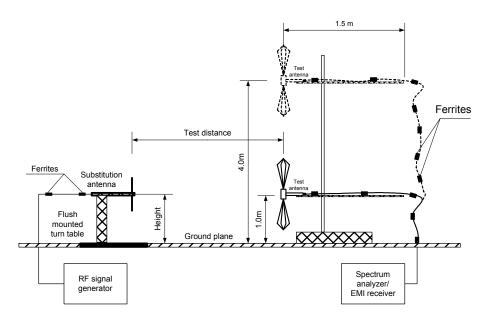
Figure 7.5.2 Setup for spurious emission field strength measurements above 30 MHz





Test specification:	Section 27.53(m)(4), Radiated spurious emissions		
Test procedure:	Section 27.53(m)(4)		
Test mode:	Compliance	Verdict:	PASS
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC
Remarks:			

## Figure 7.5.3 Setup for substitution ERP measurements of spurious



Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	FA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				

## Table 7.5.2 Spurious emission field strength test results

TEST DISTANC TEST SITE: EUT HEIGHT: INVESTIGATED DETECTOR US VIDEO BANDW TEST ANTENN MODULATION: MODULATION: BIT RATE:	D FREQUENCY RAN GED: HDTH: A TYPE:			3 m Anechoic 0.8 m 0.009 – 2 Peak > Resolut Active loo Biconilog		ИНz) 0 MHz)	)
Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(µV/m)	Margin, dB*	RBW, kHz	Antenna polarization	Antenna height, m	Turn-table position**, degrees
Low carrier free	quency 2497.5 MHz				•		Ŭ
4995.0	59.82	72.35	-12.53	1000	V	1.3	020
7492.0	67.05	72.35	-5.30	1000	Н	1.4	050
Mid carrier frequency 2593.0 MHz							
5186.0	58.30	72.35	-14.05	1000	V	1.2	020
7779.0	66.78	72.35	-5.57	1000	Н	1.5	030
High carrier fre	quency 2688.5 MHz						
5377.0	55.09	72.35	-17.26	1000	V	1.1	020

\*- Margin = Field strength of spurious – calculated field strength limit.

\*\*- EUT front panel refers to 0 degrees position of turntable.



Test specification:	Section 27.53(m)(4), Ra	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)				
Test mode:	Compliance	Verdict:	PASS		
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33		
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC		
Remarks:					

## Table 7.5.3 Substitution ERP of spurious test results

ASSIGNED TRANSMIT TEST SITE: TEST DIST/ SUBSTITUT DETECTOR VIDEO BAN SUBSTITUT	TER CARF ANCE: TION ANTE USED: DWIDTH:	RIER ER	eight:	M Ai 3 0. Pe > Tu	496.0 – 26 aximum nechoic ch m 8 m eak Resolutior unable dip ouble ridge	amber / ( n bandwic ole (30 M	DATS Ith Hz – 10	00 MHz) 000 MHz)		
Frequency, MHz	Field strength, dB(μV/m)	RBW, kHz	Antenna polarization	RF generator output, dBm	Ant gain, dBd	Cable loss, dB	ERP, dBm	Limit, dBm	Margin, dB*	Verdict
Low carrier	frequency		-	-						
4995.00	59.82	1000	V	-42.91	3.56	0.91	-40.26	-25.0	-15.26	Pass
7492.00	67.05	1000	Н	-38.12	8.38	2.07	-31.81	-25.0	-6.81	Pass
Mid carrier	Mid carrier frequency									
5186.00	58.30	1000	V	-46.49	8.19	1.71	-40.01	-25.00	-15.01	Pass
7779.00	66.78	1000	Н	-32.96	4.41	1.18	-29.73	-25.00	-4.73	Pass
High carrier	High carrier frequency									
5377.00	55.09	1000	V	-49.89	8.10	1.75	-43.54	-25.00	-18.54	Pass
	Vargin = Spurious emission – specification limit.									

Margin = Spurious emission – specification limit.

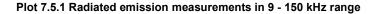
## Reference numbers of test equipment used

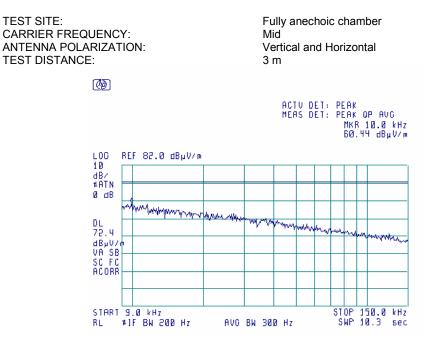
HL 0446	HL 0521	HL 0604	HL 0661	HL 1116	HL 1425	HL 1984	HL 2254
HL 2432	HL 2909	HL 3120	HL 3207	HL 3533	HL 3534	HL 3535	

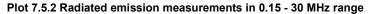
Full description is given in Appendix A.

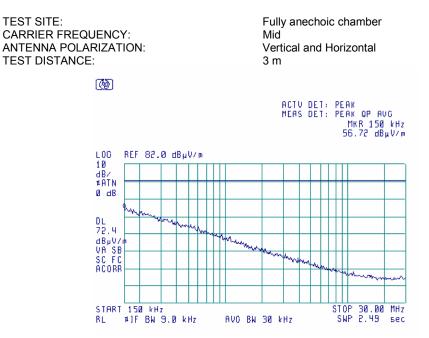


Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				



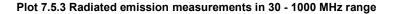


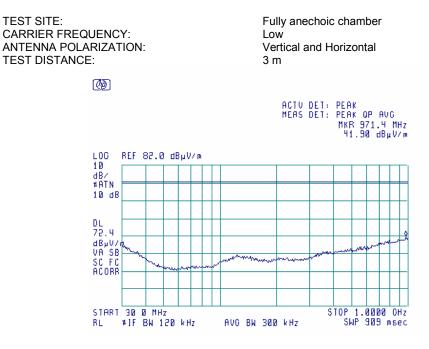


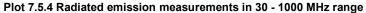


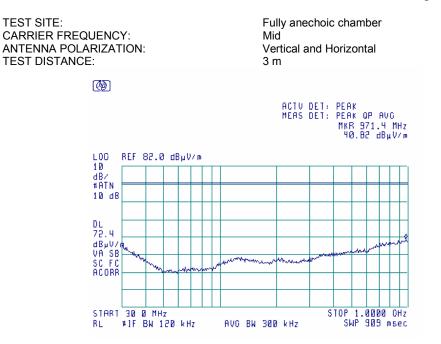


Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				



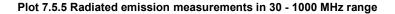


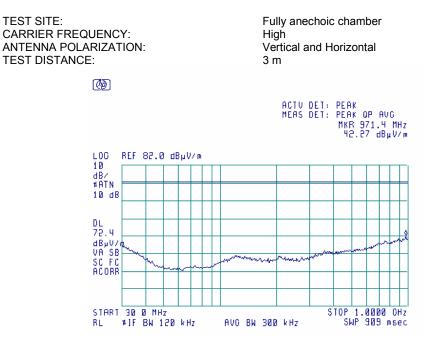




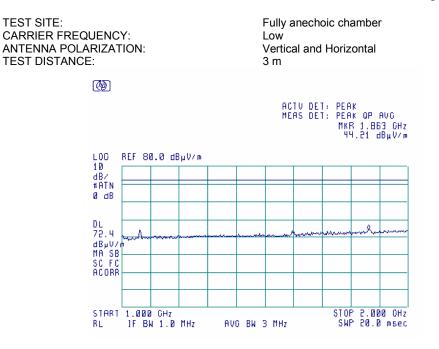


Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				





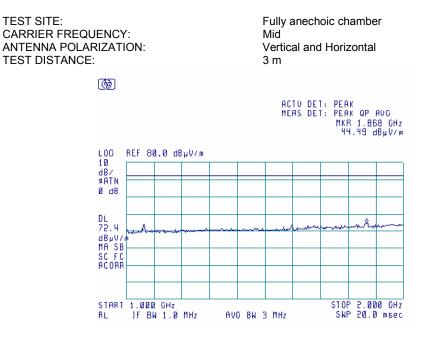






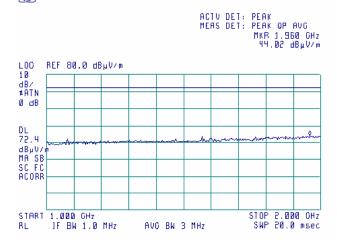
Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				







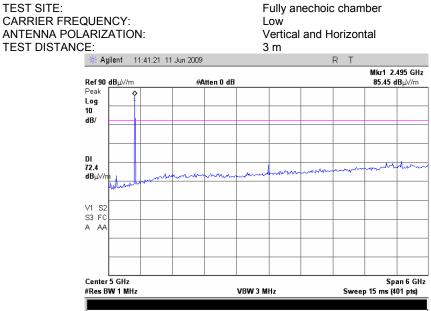




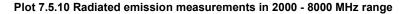


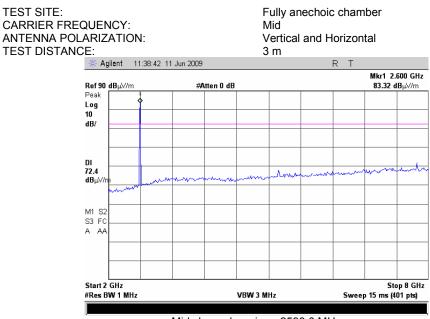
Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				

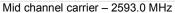




Low channel carrier - 2497.5 MHz



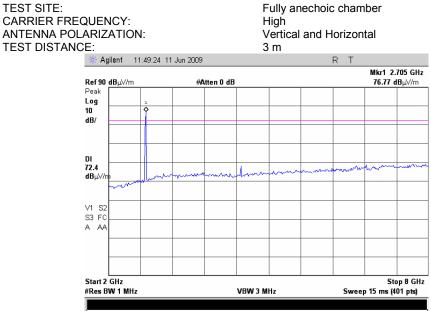






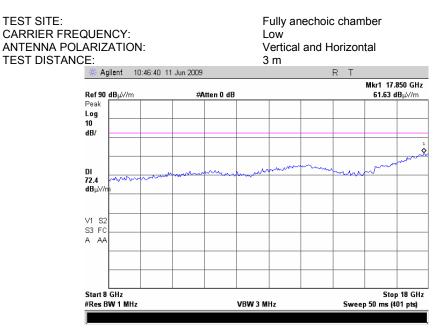
Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				





High channel carrier - 2688.5 MHz

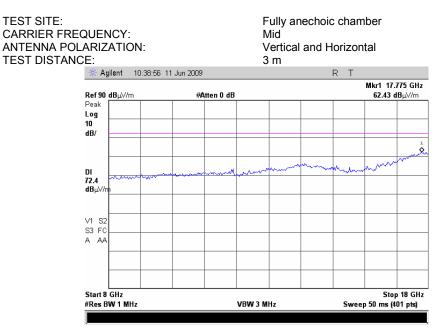




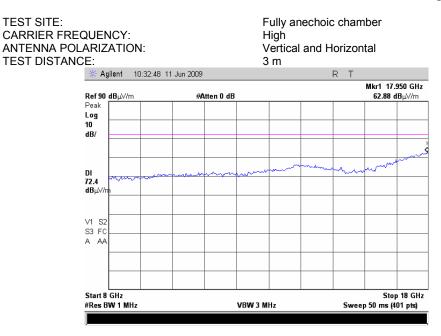


Test specification:	Section 27.53(m)(4), Radiated spurious emissions			
Test procedure:	Section 27.53(m)(4)			
Test mode:	Compliance	Verdict:	PASS	
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33	
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC	
Remarks:				





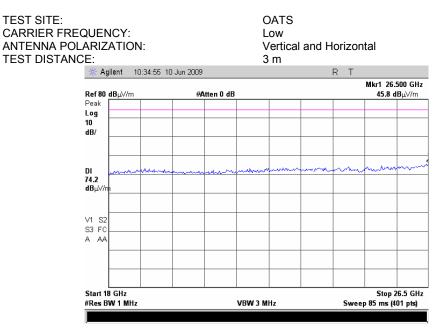
Plot 7.5.14 Radiated emission measurements in 8000 - 18000 MHz range



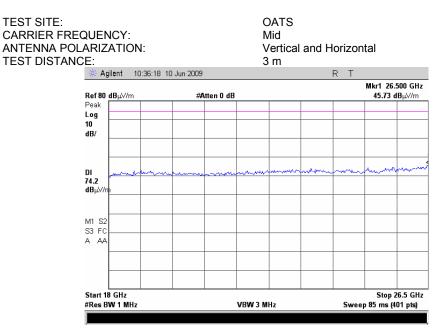


Test specification:	Section 27.53(m)(4), Radiated spurious emissions				
Test procedure:	Section 27.53(m)(4)				
Test mode:	Compliance	Verdict:	PASS		
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33		
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC		
Remarks:			· · · · ·		





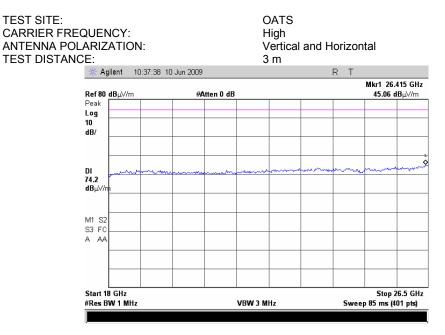
Plot 7.5.16 Radiated emission measurements in 18000 - 26500 MHz range





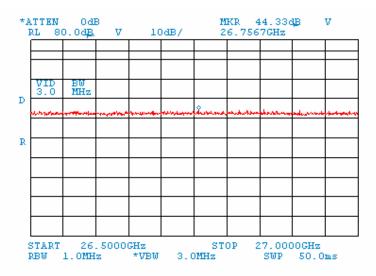
Test specification:	Section 27.53(m)(4), Radiated spurious emissions					
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:58:34 PM	Verdict: PASS				
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC			
Remarks:						





Plot 7.5.18 Radiated emission measurements in 26500 - 27000 MHz range

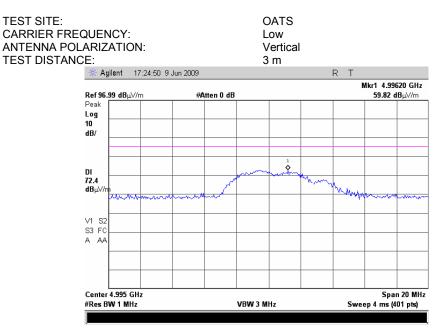
TEST SITE: CARRIER FREQUENCY: ANTENNA POLARIZATION: TEST DISTANCE: OATS Low Vertical and Horizontal 3 m

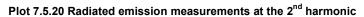


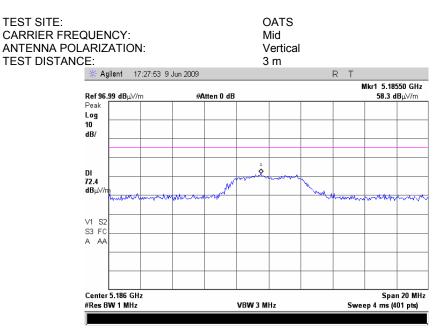


Test specification:	Section 27.53(m)(4), Radiated spurious emissions					
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:58:34 PM	Verdict: PASS				
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC			
Remarks:						

# Plot 7.5.19 Radiated emission measurements at the 2<sup>nd</sup> harmonic



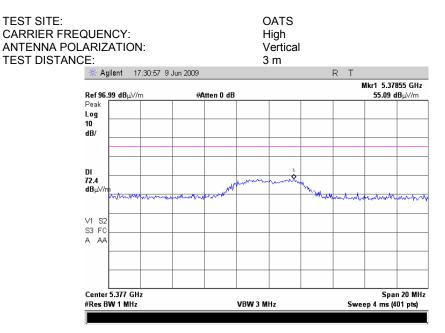


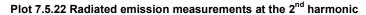


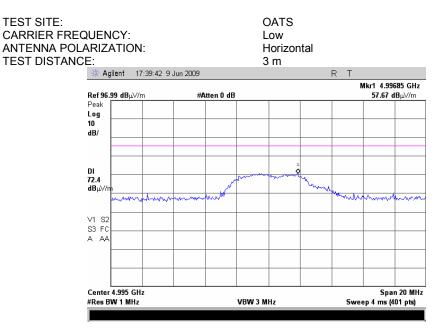


Test specification:	Section 27.53(m)(4), Radiated spurious emissions				
Test procedure:	Section 27.53(m)(4)				
Test mode:	Compliance	Verdict:	PASS		
Date & Time:	6/22/2009 5:58:34 PM	verdict.	PA33		
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC		
Remarks:			· · · · ·		

# Plot 7.5.21 Radiated emission measurements at the 2<sup>nd</sup> harmonic



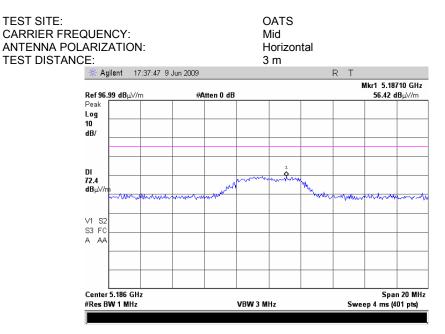


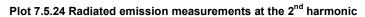


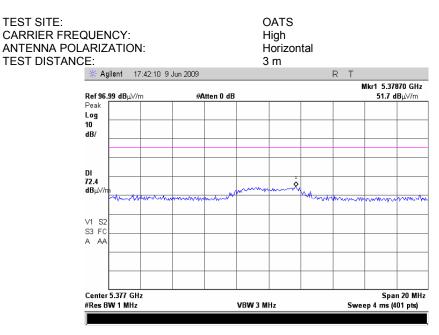


Test specification:	Section 27.53(m)(4), Radiated spurious emissions					
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:58:34 PM	Verdict: PASS				
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC			
Remarks:						

# Plot 7.5.23 Radiated emission measurements at the 2<sup>nd</sup> harmonic



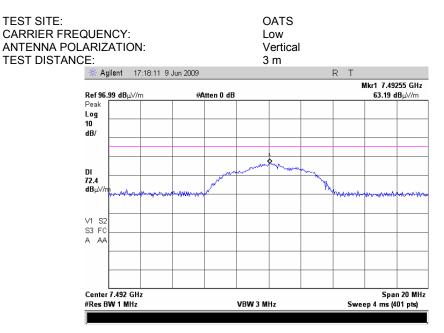




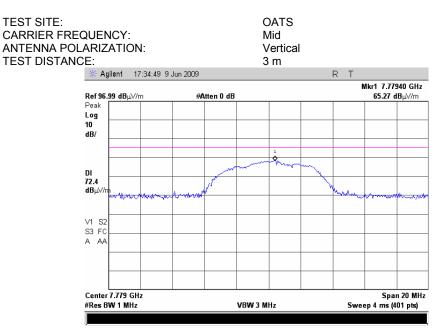


Test specification:	Section 27.53(m)(4), Radiated spurious emissions					
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	DACC			
Date & Time:	6/22/2009 5:58:34 PM	Verdict: PASS				
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC			
Remarks:			· · · · ·			

# Plot 7.5.25 Radiated emission measurements at the 3<sup>rd</sup> harmonic



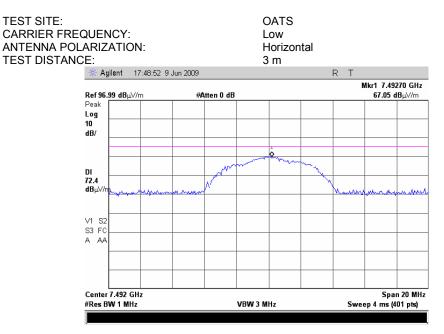
Plot 7.5.26 Radiated emission measurements at the 3<sup>rd</sup> harmonic



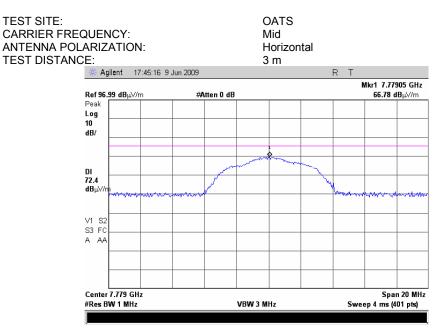


Test specification:	Section 27.53(m)(4), Radiated spurious emissions					
Test procedure:	Section 27.53(m)(4)					
Test mode:	Compliance	Verdict:	PASS			
Date & Time:	6/22/2009 5:58:34 PM	Verdict: PASS				
Temperature: 26 °C	Air Pressure: 1007 hPa	Relative Humidity: 60 %	Power Supply: 120VAC			
Remarks:						

# Plot 7.5.27 Radiated emission measurements at the 3<sup>rd</sup> harmonic









Test specification:	Section 27.54, Frequency	Section 27.54, Frequency stability					
Test procedure:	47 CFR, Section 2.1055; TIA/	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2					
Test mode:	Compliance	Verdict: PASS					
Date & Time:	6/22/2009 5:12:49 PM	- Verdict. PASS					
Temperature: 25.8 °C	Air Pressure: 1010 hPa	Relative Humidity: 38 %	Power Supply: 120VAC				
Remarks:		·					

# 7.6 Frequency stability test

## 7.6.1 General

This test was performed to measure frequency stability of transmitter RF carrier. Specification test limits are given in Table 7.6.1.

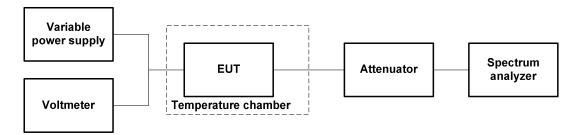
#### Table 7.6.1 Frequency stability limits

Assigned frequency, MHz	Maximum allowed frequency displacement
2496.0 - 2690.0	The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

## 7.6.2 Test procedure

- 7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.
- **7.6.2.2** The EUT power was turned off. Temperature within test chamber was set to +30°C and a period of time sufficient to stabilize all of the oscillator circuit components was allowed.
- **7.6.2.3** The EUT was powered on and carrier frequency was measured at start up moment and then every minute until frequency had been stabilized or 10 minutes elapsed whichever reached the last. The EUT was powered off.
- 7.6.2.4 The above procedure was repeated at 0°C and at the lowest test temperature.
- **7.6.2.5** The EUT was powered on and carrier frequency was measured at start up moment and at the end of stabilization period at the rest of test temperatures and voltages. The EUT was powered off.
- 7.6.2.6 Frequency displacement was calculated and compared with the limit as provided in Table 7.6.2.

## Figure 7.6.1 Frequency stability test setup





Test specification:	Section 27.54, Frequenc	Section 27.54, Frequency stability					
Test procedure:	47 CFR, Section 2.1055; TIA	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2					
Test mode:	Compliance	Verdict: PASS					
Date & Time:	6/22/2009 5:12:49 PM	- verdict: PASS					
Temperature: 25.8 °C	Air Pressure: 1010 hPa	Relative Humidity: 38 %	Power Supply: 120VAC				
Remarks:							

## Table 7.6.2 Frequency stability test results

ASSIGNED FREQUENCY RANGE: NOMINAL POWER VOLTAGE: TEMPERATURE STABILIZATION PERIOD: POWER DURING TEMPERATURE TRANSITION: SPECTRUM ANALYZER MODE: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH:					12 20 01 Pe	496 – 2690 M 20 VAC ) min ff eak Hold kHz kHz kHz	IHz			
т, ⁰С	Voltage, V			F	Frequency, MI	Hz				iency drift, Iz
		Start up	1 <sup>st</sup> min	2 <sup>nd</sup> min	3 <sup>rd</sup> min	4 <sup>th</sup> min	5 <sup>th</sup> min	10 <sup>th</sup> min	Positive	Negative
Low car	rier frequency	2497.50 MHz								
-30	nominal	2497.442465	2497.442753	2497.442744	2497.442743	2497.442746	2497.442752	2497.442768	3102.0000	0.00
-20	nominal	2497.442970	NA	NA	NA	NA	NA	2497.442676	3304.0000	0.00
-10	nominal	2497.443061	NA	NA	NA	NA	NA	2497.443033	3395.0000	0.00
0	nominal	2497.442379	2497.442354	2497.442348	2497.442345	2497.442342	2497.442342	2497.442340	2713.0000	0.00
10	nominal	2497.442048	NA	NA	NA	NA	NA	2497.442052	2386.0000	0.00
20	15%	2497.439655	NA	NA	NA	NA	NA	2497.439388	0.000000	-278.00
20	nominal	2497.439701	NA	NA	NA	NA	NA	2497.439666*	35.000000	0.00
20	-15%	2497.439476	NA	NA	NA	NA	NA	2497.439512	0.000000	-190.00
30	nominal	2497.441040	2497.441067	2497.441071	2497.441075	2497.441000	2497.441080	2497.441102	1436.0000	0.00
40	nominal	2497.440590	NA	NA	NA	NA	NA	2497.440506	924.00000	0.00
50	nominal	2497.439883	2497.439892	2497.439880	2497.439869	2497.439861	2497.439864	2497.439867	226.00000	0.00
Mid car	rier frequency	2593.00 MHz								
-30	nominal	2592.940952	2592.941018	2592.941019	2592.941021	2592.941025	2592.941028	2592.941030	3185.00	0.00
-20	nominal	2592.940953	NA	NA	NA	NA	NA	2592,940943	3108.00	0.00
-10	nominal	2592.941339	NA	NA	NA	NA	NA	2592.941315	3494.00	0.00
0	nominal	2592.940561	2592.940556	2592.940554	2592.940550	2592.940548	2592.940547	2592.940546	2716.00	0.00
10	nominal	2592.940275	NA	NA	NA	NA	NA	2592.940261	2430.00	0.00
20	15%	2592.937873	NA	NA	NA	NA	NA	2592.937789	28.00	-56.00
20	nominal	2592.937871	NA	NA	NA	NA	NA	2592.937845*	26.00	0.00
20	-15%	2592.937293	NA	NA	NA	NA	NA	2592.937199	0.00	-646.00
30	nominal	2592.939178	2592.939186	2592.939192	2592.939197	2592.939201	2592.939207	2592.939230	1385.00	0.00
40	nominal	2592.938660	NA	NA	NA	NA	NA	2592.938662	817.00	0.00
50	nominal	2592.938917	2592.938008	2592.938008	2592.938000	2592.937982	2592.937964	2592.937880	1072.00	0.00
High ca	rrier frequency	equency 2688.50 MHz								
-30	nominal	2688.439128	2688.439269	2688.439263	2688.439261	2688.439262	2688.439262	2688.439263	2266.00	0.00
-20	nominal	2688.439263	NA	NA	NA	NA	NA	2688.439203	2260.00	0.00
-10	nominal	2688.438704	NA	NA	NA	NA	NA	2688.439595	2592.00	0.00
0	nominal	2688.438769	2688.438767	2688.438767	2688.438466	2688.438766	2688.438767	2688.438768	1766.00	0.00
10	nominal	2688.438744	NA	NA	NA	NA	NA	2688.438487	1741.00	0.00
20	15%	2688.436651	NA	NA	NA	NA	NA	2688.436012	0.00	-991.00
20	nominal	2688.438707	NA	NA	NA	NA	NA	2688.437003*	1704.00	0.00
20	-15%	2688.436710	NA	NA	NA	NA	NA	2688.436286	0.00	-717.00
30	nominal	2688.437851	2688.437591	2688.437508	2688.437449	2688.437403	2688.437376	2688.437349	848.00	0.00
40	nominal	2688.436810	NA	NA	NA	NA	NA	2688.436810	0.00	-193.00
50	nominal	2688.435995	2688.435979	2688.435970	2688.435960	2688.435946	2688.435947	2688.435959	0.00	-1057.00

\* - Reference frequency (T, °C = 20°C, V = nominal, after 10<sup>t</sup> minutes)

## Table 7.6.3 Maximum frequency displacement

	Maximum frequency displacement				
Channel	ppm Negative Positive		Hz		
			Negative	Positive	
Low (2497.5 MHz)	-0.1113	1.3594	-278.00	3395.0000	
Mid (2593.0 MHz)	-0.2491	1.3475	-646.00	3494.00	
High (2688.5 MHz)	-0.3932	0.9641	-1057.00	2592.00	



Test specification:	Section 27.54, Frequency	Section 27.54, Frequency stability			
Test procedure:	47 CFR, Section 2.1055; TIA/	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2			
Test mode:	Compliance	Verdict: PASS			
Date & Time:	6/22/2009 5:12:49 PM	verdict.	FA33		
Temperature: 25.8 °C	Air Pressure: 1010 hPa	Relative Humidity: 38 %	Power Supply: 120VAC		
Remarks:					

## Table 7.6.4 Transmission occupied bandwidth with frequency drift test results

Lower measured* band edge, MHz	Upper measured* band edge, MHz	Lower calculated** band edge, MHz	Upper calculated** band edge, MHz	Lower specified band edge, MHz	Upper specified band edge, MHz	Lower Margin***, MHz	Upper Margin***, MHz	Verdict
			2.5 M	Hz BW				
BPSK	1				<b>r</b>		r	
2496.24	2498.6625	2496.239722	2498.665895	2496	2502	-0.23972	-3.33411	Pass
2591.725	2594.1625	2591.724354	2594.165994	2590	2596	-1.72435	-1.83401	Pass
2687.2325	2689.6625	2687.231443	2689.665092	2684.5	2690	-2.73144	-0.33491	Pass
QPSK								
2496.24	2498.6625	2496.239722	2498.665895	2496	2502	-0.23972	-3.33411	Pass
2591.725	2594.1625	2591.724354	2594.165994	2590	2596	-1.72435	-1.83401	Pass
2687.2325	2689.6625	2687.231443	2689.665092	2684.5	2690	-2.73144	-0.33491	Pass
16QAM	•							
2496.24	2498.6625	2496.239722	2498.665895	2496	2502	-0.23972	-3.33411	Pass
2591.725	2594.1625	2591.724354	2594.165994	2590	2596	-1.72435	-1.83401	Pass
2687.2325	2689.6625	2687.231443	2689.665092	2684.5	2690	-2.73144	-0.33491	Pass
64QAM	•		•	•	•	•		
2496.24	2498.6625	2496.239722	2498.665895	2496	2502	-0.23972	-3.33411	Pass
2591.725	2594.17	2591.724354	2594.173494	2590	2596	-1.72435	-1.82651	Pass
2687.2325	2689.6625	2687.231443	2689.665092	2684.5	2690	-2.73144	-0.33491	Pass
	•		5 MH	z BW	•	•		
BPSK								
2496.3525	2501.0075	2496.352222	2501.010895	2496	2502	-0.35222	-0.98911	Pass
2590.585	2595.2575	2590.584354	2595.260994	2590	2596	-0.58435	-0.73901	Pass
2684.8525	2689.5075	2684.851443	2689.510092	2684.5	2690	-0.35144	-0.48991	Pass
QPSK		•	•				1	
2496.3525	2501.0075	2496.352222	2501.010895	2496	2502	-0.35222	-0.98911	Pass
2590.585	2595.2575	2590.584354	2595.260994	2590	2596	-0.58435	-0.73901	Pass
2684.8525	2689.5075	2684.851443	2689.510092	2684.5	2690	-0.35144	-0.48991	Pass
16QAM	•	•	•	·	•	•		
2496.3525	2501.0075	2496.352222	2501.010895	2496	2502	-0.35222	-0.98911	Pass
2590.585	2595.2575	2590.584354	2595.260994	2590	2596	-0.58435	-0.73901	Pass
2684.8525	2689.5075	2684.851443	2689.510092	2684.5	2690	-0.35144	-0.48991	Pass
64QAM		•			•			
2496.3525	2501.0075	2496.352222	2501.010895	2496	2502	-0.35222	-0.98911	Pass
2590.585	2595.2575	2590.584354	2595.260994	2590	2596	-0.58435	-0.73901	Pass
2684.8525	2689.5075	2684.851443	2689.510092	2679	2690	-5.85144	-0.48991	Pass
monourodun	dor normal toot	conditions at 26	dDo pointo					

\* - measured under normal test conditions at 26 dBc points
 \*\*\* - Measured band edge with proper drift addition (maximum measured drift)
 \*\*\* - Margin = Calculated band edge – specified band edge



Test specification:	Section 27.54, Frequency stability			
Test procedure:	47 CFR, Section 2.1055; TIA	47 CFR, Section 2.1055; TIA/EIA-603-C Section 2.2.2		
Test mode:	Compliance	Verdict: PASS		
Date & Time:	6/22/2009 5:12:49 PM	veruict.	FA33	
Temperature: 25.8 °C	Air Pressure: 1010 hPa	Relative Humidity: 38 %	Power Supply: 120VAC	
Remarks:		-		

## Table 7.6.4 Transmission occupied bandwidth with frequency drift test results (continued)

Lower measured* band edge, MHz	Upper measured* band edge, MHz	Lower calculated** band edge, MHz	Upper calculated** band edge, MHz	Lower specified band edge, MHz	Upper specified band edge, MHz	Lower Margin***, MHz	Upper Margin***, MHz	Verdict
	·		10 MI	Iz BW				
BPSK								
2496.89	2506.58	2496.889722	2506.583395	2496	2507.5	-0.88972	-0.91661	Pass
2591.11	2600.83	2591.109354	2600.833494	2590	2602	-1.10935	-1.16651	Pass
2679.61	2689.33	2679.608943	2689.332592	2679	2690	-0.60894	-0.66741	Pass
QPSK				•	•	•		
2496.89	2506.58	2496.889722	2506.583395	2496	2507.5	-0.88972	-0.91661	Pass
2591.11	2600.83	2591.109354	2600.833494	2590	2602	-1.10935	-1.16651	Pass
2679.61	2689.33	2679.608943	2689.332592	2679	2690	-0.60894	-0.66741	Pass
16QAM	•	•	•					
2496.89	2506.52	2496.889722	2506.523395	2496	2507.5	-0.88972	-0.97661	Pass
2591.11	2600.83	2591.109354	2600.833494	2590	2602	-1.10935	-1.16651	Pass
2679.61	2689.33	2679.608943	2689.332592	2679	2690	-0.60894	-0.66741	Pass
64QAM	•	•	•	•	•	•		•
2496.89	2506.52	2496.889722	2506.523395	2496	2507.5	-0.88972	-0.97661	Pass
2591.11	2600.83	2591.109354	2600.833494	2590	2602	-1.10935	-1.16651	Pass
2679.61	2689.33	2679.608943	2689.332592	2679	2690	-0.60894	-0.66741	Pass

\* - measured under normal test conditions at 26 dBc points

\*\* - Measured band edge with proper drift addition

\*\*\* - Margin = Calculated band edge - specified band edge

## Reference numbers of test equipment used

HL 3001	HL 3286	HL 3386				
Full description is given in Appendix A						

Full description is given in Appendix A.

Date of Issue: 7/6/2009



# 8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.*	Due Cal.*
0446	Antenna, Loop, Active, 10 kHz - 30 MHz	EMCO	6502	2857	29-Jun-09	29-Jun-10
0521	EMI Receiver (Spectrum Analyzer) with RF filter section 9 kHz-6.5 GHz	Hewlett Packard Co	8546A	3617A 00319, 3448A002 53	29-Aug-08	29-Aug-09
0604	Antenna BiconiLog Log-Periodic/T Bow- TIE, 26 - 2000 MHz	EMCO	3141	9611-1011	11-Jan-09	11-Jan-10
0661	Generator Swept Signal, 10 MHz to 40 GHz, + 10 dBm	HP	83640B	3614A002 66	17-Sep-08	17-Sep-09
1116	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz	Hermon Laboratories	A1-18	186	23-Jan-09	23-Jan-10
1425	EMI Receiver, 9 kHz - 2.9 GHz, System: HL1426, HL1427	Agilent Technologies	8542E	3710A002 22, 3705A002 04	03-Sep-08	03-Sep-09
1984	Antenna, Double-Ridged Waveguide Horn, 1-18 GHz, 300 W	EMC Test Systems	3115	9911-5964	23-Jan-09	23-Jan-10
2254	Cable 40 GHz, 0.8 m, blue	Rhophase Microwave Limited	KPS- 1503A- 800-KPS	W4907	11-Jun-09	11-Jun-10
2432	Antenna, Double-Ridged Waveguide Horn 1-18 GHz	EMC Test Systems	3115	00027177	23-Jan-09	23-Jan-10
2780	EMC analyzer, 100 Hz to 26.5 GHz	Agilent Technologies	E7405A	MY451024 6	05-Jul-09	05-Jul-11
2909	Spectrum analyzer, ESA-E, 100 Hz to 26.5 GHz	Agilent Technologies	E4407B	MY414447 62	07-May-08	07-May-10
2953	Cable, RF, 18 GHz, 1.2 m, SMA-SMA	Gore	10020014	NA	05-Oct-08	05-Oct-09
3001	EMC Analyzer, 9 kHz to 3 GHz	Agilent Technologies	E7402A	US394401 80	23-Nov-08	23-Nov-09
3120	Microwave Cable Assembly, 18 GHz, 6.4 m, SMA - SMA	Huber-Suhner	198-9155- 00	3120	01-Jan-09	01-Jan-10
3207	Cable 40 GHz, 1.2 m	Gore	GOR245	05118337	11-Jun-09	11-Jun-10
3286	Temperature Chamber, (-40 to +170) °C	Thermotron	EL-8-CH- 1-1-CO2	21-9048	09-Sep-08	09-Sep-09
3301	Power Meter, P-series, 50 MHz to 40 GHz	Agilent Technologies	N1911A	MY451010 57	03-Dec-08	03-Dec-09
3302	Power sensor, P-Series, 50 MHz to 40 GHz, -35/30 to 20 dBm	Agilent Technologies	N1922A	MY452405 86	05-Dec-08	05-Dec-09
3386	Microwave Cable Assembly, 26.5 GHz, 1.0 m, N type/N type	Suhner Sucoflex	104EA	3386	04-Feb-09	04-Feb-10
3437	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini-Circuits	BW- S10W5+	NA	08-Mar-09	08-Mar-10
3439	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini-Circuits	BW- S20W5+	NA	08-Mar-09	08-Mar-10
3442	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini-Circuits	BW- S20W5+	NA	08-Mar-09	08-Mar-10
3533	Amplifier, low noise, 6 to 18 GHz	Quinstar Technology	QLJ- 06184040 -J0	111590010 01	07-Dec-08	07-Dec-09
3534	Amplifier, low noise, 6 to 18 GHz	Quinstar Technology	QLJ- 06184040 -J0	111590010 02	07-Dec-08	07-Dec-09



HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.*	Due Cal.*
3535	Amplifier, low noise, 18 to 40 GHz	Quinstar Technology	QLJ- 18404537 -J0	111590030 01	07-Dec-08	07-Dec-09
3559	Cable 40 GHz, SMA-SMA, 0.95 m, Blue	Gore	PHASEFL EX	03771245	10-Aug-08	10-Aug-09

\* Above mentioned equipment calibration was valid at the moment of the testing.



# 9 APPENDIX B Measurement uncertainties

### Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Transmitter tests	
Carrier power conducted at antenna connector	± 1.7 dB
Carrier power radiated (substitution method)	± 4.5 dB
Occupied bandwidth	±8%
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB
	2.9 GHz to 6.46 GHz: ± 3.5 dB
	6.46 GHz to 13.2 GHz: ± 4.3 dB
	13.2 GHz to 22.0 GHz: ± 5.0 dB
	22.0 GHz to 26.8 GHz: ± 5.5 dB
	26.8 GHz to 40.0 GHz: ± 4.8 dB
Spurious emissions radiated 30 MHz – 40 GHz (substitution method)	± 4.5 dB
Frequency error	30 – 300 MHz: ± 50.5 Hz (1.68 ppm)
	300 – 1000 MHz: ± 168 Hz (0.56 ppm)
Transient frequency behaviour	187 Hz
	± 13.9 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.



# 10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility.

Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file numbers IC 2186A-1 for OATS and IC 2186A-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01).

 Address:
 P.O. Box 23, Binyamina 30500, Israel.

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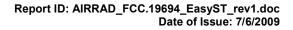
 e-mail:
 mail@hermonlabs.com

 website:
 www.hermonlabs.com

Person for contact: Mr. Alex Usoskin, CEO.

# 11 APPENDIX D Specification references

FCC 47CFR part 27: 2008	Miscellaneous wireless communications services
FCC 47CFR part 1: 2008	Practice and procedure
FCC 47CFR part 2: 2008	Frequency allocations and radio treaty matters; general rules and regulations
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
ANSI/TIA/EIA-603-C:2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards



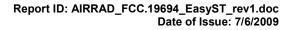


# 12 APPENDIX E Test equipment correction factors

# Antenna Factor Active Loop Antenna EMC Test Systems, model 6502, S/N 2857, HL 0446

Frequency, MHz	Magnetic Antenna Factor, dB(S/m)	Electric Antenna Factor, dB(1/m)
0.009	-32.8	18.7
0.010	-33.8	17.7
0.020	-38.3	13.2
0.050	-41.1	10.4
0.075	-41.3	10.2
0.100	-41.6	9.9
0.150	-41.7	9.8
0.250	-41.6	9.9
0.500	-41.8	9.7
0.750	-41.9	9.6
1.000	-41.4	10.1
2.000	-41.5	10.0
3.000	-41.4	10.1
4.000	-41.4	10.1
5.000	-41.5	10.0
10.000	-41.9	9.6
15.000	-41.9	9.6
20.000	-42.2	9.3
25.000	-42.8	8.7
30.000	-44.0	7.5

Antenna factor in dB(S/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ A/m). Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).





Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)	Frequency, MHz	Antenna factor, dB(1/m)
26	7.8	560	19.8	1300	27.0
28	7.8	580	20.6	1320	27.8
30	7.8	600	21.3	1340	28.3
40	7.2	620	21.5	1360	28.2
60	7.1	640	21.2	1380	27.9
70	8.5	660	21.4	1400	27.9
80	9.4	680	21.9	1420	27.9
90	9.8	700	22.2	1440	27.8
100	9.7	720	22.2	1460	27.8
110	9.3	740	22.1	1480	28.0
120	8.8	760	22.3	1500	28.5
130	8.7	780	22.6	1520	28.9
140	9.2	800	22.7	1540	29.6
150	9.8	820	22.9	1560	29.8
160	10.2	840	23.1	1580	29.6
170	10.4	860	23.4	1600	29.5
180	10.4	880	23.8	1620	29.3
190	10.3	900	24.1	1640	29.2
200	10.6	920	24.1	1660	29.4
220	11.6	940	24.0	1680	29.6
240	12.4	960	24.1	1700	29.8
260	12.8	980	24.5	1720	30.3
280	13.7	1000	24.9	1740	30.8
300	14.7	1020	25.0	1760	31.1
320	15.2	1040	25.2	1780	31.0
340	15.4	1060	25.4	1800	30.9
360	16.1	1080	25.6	1820	30.7
380	16.4	1100	25.7	1840	30.6
400	16.6	1120	26.0	1860	30.6
420	16.7	1140	26.4	1880	30.6
440	17.0	1160	27.0	1900	30.6
460	17.7	1180	27.0	1920	30.7
480	18.1	1200	26.7	1940	30.9
500	18.5	1220	26.5	1960	31.2
520	19.1	1240	26.5	1980	31.6
		1260	26.5		
540	19.5	1280	26.6	2000	32.0

Antenna factor Biconilog antenna EMCO, model 3141, serial number 1011, HL 0604

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



#### Antenna factor Double-ridged wave guide horn antenna Model 3115, S/N 9911-5964, HL 1984

Frequency, MHz	Antenna factor, dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.6
2500.0	28.9
3000.0	31.2
3500.0	32.0
4000.0	32.5
4500.0	32.7
5000.0	33.6
5500.0	35.1
6000.0	35.4
6500.0	34.9
7000.0	36.1
7500.0	37.8
8000.0	38.0
8500.0	38.1
9000.0	39.1
9500.0	38.3
10000.0	38.6
10500.0	38.2
11000.0	38.7
11500.0	39.5
12000.0	40.0
12500.0	40.4
13000.0	40.5
13500.0	41.1
14000.0	41.6
14500.0	41.7
15000.0	38.7
15500.0	38.2
16000.0	38.8
16500.0	40.5
17000.0	42.5
17500.0	45.9
18000.0	49.4

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



#### Antenna factor Double-ridged guide horn antenna Model 3115, serial number: 00027177, HL 2432

Frequency, MHz	Antenna factor. dB(1/m)
1000.0	24.7
1500.0	25.7
2000.0	27.8
2500.0	28.9
3000.0	30.7
3500.0	31.8
4000.0	33.0
4500.0	32.8
5000.0	34.2
5500.0	34.9
6000.0	35.2
6500.0	35.4
7000.0	36.3
7500.0	37.3
8000.0	37.5
8500.0	38.0
9000.0	38.3
9500.0	38.3
10000.0	38.7
10500.0	38.7
11000.0	38.9
11500.0	39.5
12000.0	39.5
12500.0	39.4
13000.0	40.5
13500.0	40.8
14000.0	41.5
14500.0	41.3
15000.0	40.2
15500.0	38.7
16000.0	38.5
16500.0	39.8
17000.0	41.9
17500.0	45.8
18000.0	49.1

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB	Frequency, GHz	Cable loss, dB
0.03	0.04	5.10	0.80	15.00	1.49
0.05	0.07	5.30	0.83	15.50	1.49
0.10	0.09	5.50	0.83	16.00	1.46
0.20	0.15	5.70	0.84	16.50	1.47
0.30	0.19	5.90	0.87	17.00	1.50
0.40	0.25	6.10	0.86	17.50	1.57
0.50	0.29	6.30	0.89	18.00	1.63
0.60	0.33	6.50	0.90	18.50	1.57
0.70	0.37	6.70	0.89	19.00	1.63
0.80	0.41	6.90	0.93	19.50	1.65
0.90	0.44	7.10	0.92	20.00	1.64
1.00	0.45	7.30	0.95	20.50	1.75
1.10	0.48	7.50	0.96	21.00	1.72
1.20	0.51	7.70	0.97	21.50	1.78
1.30	0.53	7.90	1.01	22.00	1.76
1.40	0.54	8.10	1.00	22.50	1.72
1.50	0.57	8.30	1.05	23.00	1.83
1.60	0.59	8.50	1.04	23.50	1.80
1.70	0.04	8.70	1.07	24.00	1.90
1.80	0.07	8.90	1.11	24.50	1.81
1.90	0.09	9.10	1.09	25.00	1.98
2.00	0.15	9.30	1.14	25.50	1.91
2.10	0.19	9.50	1.12	26.00	2.02
2.20	0.25	9.70	1.15	26.50	1.92
2.30	0.29	9.90	1.16	27.00	1.97
2.40	0.33	10.10	1.16	28.00	2.02
2.50	0.37	10.30	1.19	29.00	1.95
2.60	0.41	10.50	1.14	30.00	1.94
2.70	0.44	10.70	1.19	31.00	2.11
2.80	0.45	10.90	1.17	32.00	2.17
2.90	0.48	11.10	1.13	33.00	2.27
3.10	0.61	11.30	1.20	34.00	2.27
3.30	0.64	11.50	1.13	35.00	2.29
3.50	0.65	11.70	1.20	36.00	2.35
3.70	0.68	11.90	1.18	37.00	2.37
3.90	0.69	12.10	1.14	38.00	2.40
4.10	0.71	12.10	1.19	39.00	2.57
4.30	0.73	13.00	1.34	40.00	2.36
4.50	0.75	13.50	1.33		
4.70	0.77	14.00	1.48		+
4.90	0.79	14.50	1.45		+

#### Cable loss Cable 40 GHz, 0.8 m, blue, model: KPS-1503A-800-KPS, S/N W4907, HL 2254



Cable loss
Cable coaxial, Gore, 25.5 GHz, 1.2 m, SMA-SMA, S/N 10020014
HL 2953

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.06	8750	1.28	18000	1.84
30	0.06	9000	1.30	18250	1.91
100	0.12	9250	1.35	18500	1.94
250	0.19	9500	1.34	18750	1.92
500	0.27	9750	1.36	19000	1.95
750	0.34	10000	1.33	19250	2.00
1000	0.40	10250	1.38	19500	1.96
1250	0.45	10500	1.39	19750	2.02
1500	0.50	10750	1.39	20000	1.92
1750	0.54	11000	1.43	20250	2.04
2000	0.57	11250	1.42	20500	2.00
2250	0.60	11500	1.48	20750	2.09
2500	0.64	11750	1.49	21000	2.01
2750	0.67	12000	1.59	21250	2.07
3000	0.70	12250	1.50	21500	2.20
3250	0.74	12500	1.55	21750	2.10
3500	0.76	12750	1.55	22000	2.24
3750	0.80	13000	1.61	22250	2.25
4000	0.83	13250	1.62	22500	2.12
4250	0.85	13500	1.56	22750	2.05
4500	0.87	13750	1.61	23000	2.10
4750	0.91	14000	1.57	23250	2.03
5000	0.92	14250	1.66	23500	2.08
5250	0.96	14500	1.58	23750	2.14
5500	0.99	14750	1.69	24000	2.16
5750	0.99	15000	1.71	24250	2.25
6000	1.03	15250	1.74	24500	2.17
6250	1.05	15500	1.75	24750	2.32
6500	1.07	15750	1.72	25000	2.32
6750	1.08	16000	1.89	25250	2.32
7000	1.12	16250	1.79	25500	2.41
7250	1.13	16500	1.84	25750	2.31
7500	1.15	16750	1.82	26000	2.28
7750	1.20	17000	1.79	26250	2.32
8000	1.20	17250	1.78	26500	2.29
8250	1.23	17500	1.85		
8500	1.27	17750	1.83		



Frequency, MHz	Cable loss, dB								
10	0.09	3600	2.13	7400	3.14	11200	3.93	15100	4.64
30	0.19	3700	2.19	7500	3.17	11300	3.93	15200	4.63
50	0.27	3800	2.21	7600	3.20	11400	3.94	15300	4.65
100	0.35	3900	2.22	7700	3.26	11500	3.92	15400	4.66
200	0.49	4000	2.28	7800	3.25	11600	3.92	15500	4.71
300	0.61	4100	2.28	7900	3.27	11700	3.89	15600	4.70
400	0.68	4200	2.31	8000	3.28	11800	3.94	15700	4.71
500	0.77	4300	2.37	8100	3.29	11900	3.95	15800	4.72
600	0.85	4400	2.38	8200	3.37	12000	3.96	15900	4.71
700	0.91	4500	2.40	8300	3.34	12100	4.06	16000	4.77
800	0.98	4600	2.45	8400	3.35	12200	4.01	16100	4.75
900	1.04	4700	2.45	8500	3.36	12300	4.11	16200	4.76
1000	1.09	4800	2.48	8600	3.38	12400	4.11	16300	4.81
1100	1.14	4900	2.53	8700	3.40	12500	4.17	16400	4.80
1200	1.16	5000	2.57	8800	3.42	12600	4.19	16500	4.84
1300	1.24	5100	2.56	8900	3.46	12700	4.27	16600	4.85
1400	1.29	5200	2.59	9000	3.47	12800	4.35	16700	4.88
1500	1.30	5300	2.61	9100	3.48	12900	4.22	16800	4.88
1600	1.38	5400	2.64	9200	3.52	13000	4.33	16900	4.86
1700	1.43	5500	2.68	9300	3.54	13100	4.30	17000	4.88
1800	1.47	5600	2.74	9400	3.58	13200	4.38	17100	4.85
1900	1.54	5700	2.71	9500	3.59	13300	4.34	17200	4.89
2000	1.52	5800	2.74	9600	3.67	13400	4.36	17300	4.91
2100	1.58	5900	2.78	9700	3.65	13500	4.32	17400	4.92
2200	1.61	6000	2.79	9800	3.72	13600	4.32	17500	4.91
2300	1.71	6100	2.82	9900	3.71	13700	4.39	17600	4.91
2400	1.75	6200	2.84	10000	3.80	13800	4.37	17700	4.97
2500	1.76	6300	2.86	10100	3.76	13900	4.41	17800	5.00
2600	1.80	6400	2.89	10200	3.84	14000	4.39	17900	5.00
2700	1.86	6500	2.90	10300	3.81	14100	4.38	18000	5.04
2800	1.86	6600	2.92	10400	3.84	14200	4.39		
2900	1.93	6700	2.95	10500	3.85	14300	4.43		
3000	1.93	6800	2.98	10600	3.86	14400	4.46		
3100	2.00	6900	3.01	10700	3.88	14600	4.53		
3200	2.03	7000	3.02	10800	3.89	14700	4.51		
3300	2.03	7100	3.06	10900	3.95	14800	4.64		
3400	2.09	7200	3.08	11000	3.89	14900	4.61		
3500	2.13	7300	3.10	11100	3.93	15000	4.65		

#### Cable loss Microwave Cable Assembly, 18 GHz, 6.4 m, SMA – SMA, Huber-Suhner, model 198-9155-00 HL 3120



Cable loss
Cable coaxial, GORE-TEX, GOR245, 40 GHz, 1.2 m, SMA-SMA, S/N 05118337
HL 3207

Frequency,	Cable	Frequency,	Cable	Frequency,	Cable	Frequency,	Cable	Frequency,	Cable
MHz	loss, dB	MHz	loss, dB	MHz	loss, dB	MHz	loss,dB	MHz	loss,dB
10	0.17	5000	1.54	10200	2.26	15500	2.77	31500	4.07
30	0.14	5100	1.54	10300	2.26	15600	2.78	32000	4.03
50	0.16	5200	1.56	10400	2.24	15700	2.81	32500	3.93
100	0.22	5300	1.59	10500	2.23	15800	2.81	33000	4.00
200	0.30	5400	1.60	10600	2.25	15900	2.84	33500	4.09
300	0.38	5500	1.61	10700	2.31	16000	2.91	34000	4.08
400	0.44	5600	1.63	10800	2.34	16100	2.92	34500	4.13
500	0.48	5700	1.66	10900	2.38	16200	2.88	35000	4.15
600	0.54	5800	1.68	11000	2.38	16300	2.90	35500	4.18
700	0.58	5900	1.68	11100	2.38	16400	2.93	36000	4.22
800	0.62	6000	1.71	11200	2.37	16500	2.92	36500	4.25
900	0.65	6100	1.71	11300	2.38	16600	2.97	37000	4.26
1000	0.69	6200	1.73	11400	2.40	16700	3.02	37500	4.40
1100	0.73	6300	1.75	11500	2.41	16800	3.02	38000	4.40
1200	0.76	6400	1.76	11600	2.44	16900	3.01	38500	4.52
1300	0.78	6500	1.78	11700	2.44	17000	3.04	39000	4.54
1400	0.81	6600	1.77	11800	2.44	17100	3.08	39500	4.36
1500	0.85	6700	1.79	11900	2.45	17200	3.05	40000	4.48
1600	0.87	6800	1.80	12000	2.46	17300	3.06		
1700	0.90	6900	1.83	12100	2.45	17400	3.06		
1800	0.93	7000	1.84	12200	2.45	17500	3.07		
1900	0.96	7100	1.86	12300	2.48	17600	3.08		
2000	0.95	7200	1.88	12400	2.49	17700	3.09		
2100	0.98	7300	1.86	12500	2.51	17800	3.12		
2200	1.00	7400	1.87	12600	2.53	17900	3.09		
2300	1.02	7500	1.90	12700	2.51	18000	3.08		
2400	1.04	7600	1.91	12800	2.52	18500	3.11		
2500	1.06	7700	1.95	12900	2.54	19000	3.14		
2600	1.08	7800	1.98	13000	2.56	19500	3.20		
2700	1.11	7900	1.99	13100	2.56	20000	3.24		
2800	1.14	8000	1.98	13200	2.59	20500	3.31		
2900	1.15	8100	1.98	13300	2.59	21000	3.38		
3000	1.17	8200	2.00	13400	2.60	21500	3.44		
3100	1.19	8300	2.01	13500	2.65	22000	3.45		
3200	1.20	8400	2.05	13600	2.71	22500	3.45		
3300	1.24	8500	2.07	13700	2.71	23000	3.47		
3400	1.26	8600	2.08	13800	2.69	23500	3.47		
3500	1.27	8700	2.09	13900	2.67	24000	3.54		
3600	1.28	8800	2.09	14000	2.68	24500	3.62		
3700	1.32	8900	2.10	14100	2.68	25000	3.73		
3800	1.32	9000	2.12	14200	2.74	25500	3.77		
3900	1.35	9100	2.12	14300	2.77	26000	3.71		
4000	1.36	9200	2.15	14400	2.80	26500	3.73		
4100	1.39	9300	2.13	14600	2.74	27000	3.73		
4200	1.40	9400	2.16	14700	2.73	27500	3.78		
4300	1.41	9500	2.17	14800	2.75	28000	3.81		
4400	1.43	9600	2.17	14900	2.75	28500	3.81		
4500	1.47	9700	2.18	15000	2.77	29000	3.80		
4600	1.46	9800	2.16	15100	2.76	29500	3.81		
4700	1.49	9900	2.17	15200	2.76	30000	3.89		
4800	1.50	10000	2.20	15300	2.77	30500	4.03	ļ	
4900	1.52	10100	2.22	15400	2.79	31000	4.01		



## Cable loss Cable coaxial, Microwave Cable Assembly, 104EA, 18 GHz, 1.0 m Suhner Sucoflex, HL 3386

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.05	5750	1.01	12000	1.29
30	0.07	6000	1.02	12250	1.33
100	0.12	6250	1.02	12500	1.36
250	0.18	6500	0.95	12750	1.35
500	0.26	6750	0.96	13000	1.36
750	0.32	7000	1.01	13250	1.39
1000	0.35	7250	1.04	13500	1.37
1250	0.41	7500	1.09	13750	1.43
1500	0.45	7750	1.12	14000	1.46
1750	0.50	8000	1.13	14250	1.39
2000	0.54	8250	1.15	14500	1.36
2250	0.57	8500	1.15	14750	1.47
2500	0.61	8750	1.15	15000	1.47
2750	0.64	9000	1.16	15250	1.41
3000	0.67	9250	1.14	15500	1.52
3250	0.70	9500	1.14	15750	1.54
3500	0.71	9750	1.19	16000	1.49
3750	0.74	10000	1.20	16250	1.48
4000	0.77	10250	1.22	16500	1.52
4250	0.80	10500	1.23	16750	1.56
4500	0.84	10750	1.22	17000	1.57
4750	0.85	11000	1.21	17250	1.53
5000	0.84	11250	1.24	17500	1.55
5250	0.85	11500	1.26	17750	1.55
5500	0.92	11750	1.28	18000	1.54



Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss,dB
30	0.08	10000	0.96	20500	1.59	31000	2.24
100	0.10	10500	0.99	21000	1.63	31500	2.71
500	0.22	11000	1.02	21500	1.70	32000	2.47
1000	0.32	11500	1.07	22000	1.71	32500	2.37
1500	0.40	12000	1.13	22500	1.60	33000	2.35
2000	0.41	12500	1.16	23000	1.58	33500	2.34
2500	0.44	13000	1.26	23500	1.64	34000	2.31
3000	0.53	13500	1.26	24000	1.68	34500	2.43
3500	0.54	14000	1.22	24500	1.79	35000	2.45
4000	0.62	14500	1.26	25000	1.86	35500	2.48
4500	0.62	15000	1.27	25500	1.77	36000	3.60
5000	0.67	15500	1.29	26000	1.78	36500	2.62
5500	0.70	16000	1.39	26500	1.83	37000	2.45
6000	0.72	16500	1.50	27000	1.87	37500	2.47
6500	0.76	17000	1.49	27500	1.97	38000	2.38
7000	0.83	17500	1.37	28000	2.69	38500	2.41
7500	0.85	18000	1.40	28500	1.94	39000	2.56
8000	0.89	18500	1.41	29000	2.02	39500	2.71
8500	0.91	19000	1.48	29500	2.05	40000	2.69
9000	0.95	19500	1.61	30000	2.11		
9500	0.96	20000	1.59	30500	2.11		

#### Cable loss Cable coaxial, GORE, PHASEFLEX, 40 GHz, 0.95 m, SMA-SMA, S/N 03771245 HL 3559



# 13 APPENDIX F Abbreviations and acronyms

A AC A/m AM AVRG CBW cm dB dBm dB( $\mu$ V) dB( $\mu$ V) dB( $\mu$ V) dB( $\mu$ A) dB( $\mu$ A	ampere alternating current ampere per meter amplitude modulation average (detector) channel bandwidth centimeter decibel decibel referred to one milliwatt decibel referred to one microvolt decibel referred to one microvolt per meter decibel referred to one microvampere decibel referred to one Microvampere decibel referred to one Ohm direct current emission bandwidth equivalent isotropically radiated power effective radiated power equipment under test frequency gigahertz ground height Hermon laboratories
Hz	hertz
k k	kilo kilohatta
kHz LO	kilohertz local oscillator
m Mula	meter
MHz min	megahertz minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NB NT	narrow band not tested
OATS	open area test site
Ω	Ohm
QP	quasi-peak
PM	pulse modulation
PS	power supply
RE	radiated emission
RF rms	radio frequency
Rx	root mean square receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere

# END OF DOCUMENT