

7. BAND EDGES

7.1. Applicable Standard

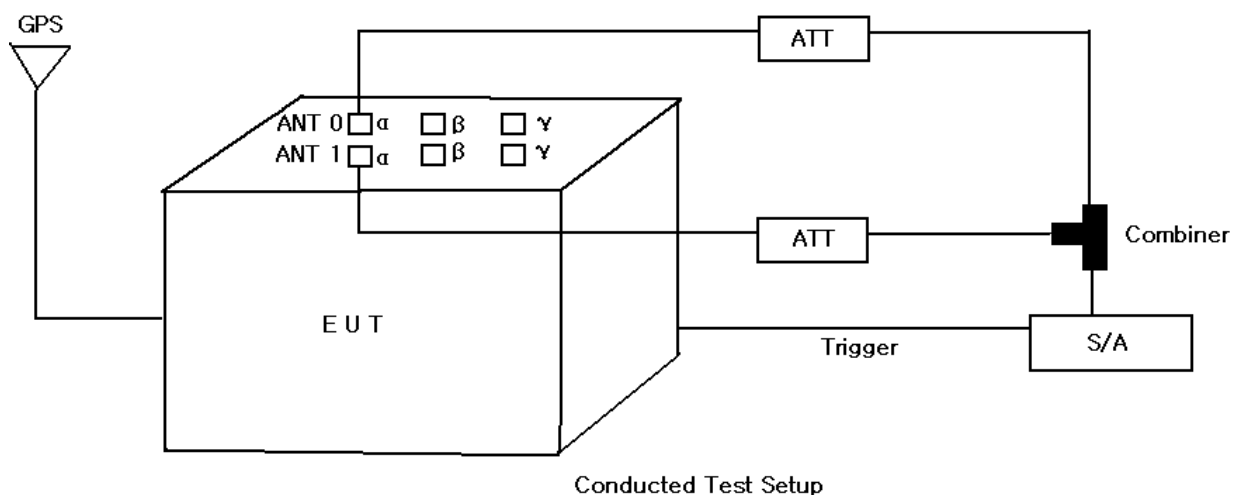
According to §27.53(m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (p) by a factor of at least $43 + 10 \log (p)$ dB.

7.2. Test Equipment List and Details

Manufacturer	Model / Equipment	Serial No.	Calibration Due
Agilent	87302C / Power Divider	3239A01051	03/19/2011
Agilent	6674A / DC Power Supply	3501A00901	05/14/2011
WEINSCHEL	67-30-33 / Attenuator	BU5347	12/29/2011
WEINSCHEL	67-30-33 / Attenuator	BR0530	12/29/2011
WEINSCHEL	AF9003-69-31 / STEP ATTENUATOR	11787	11/12/2011
WEINSCHEL	AF9003-69-31 / STEP ATTENUATOR	639	11/12/2011
Agilent	N9020A / MXA Signal Analyzer	US46220219	03/03/2011

7.3. Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.



The center of the spectrum analyzer was set to block edge frequency.

The EUT provides the MIMO function which is able to transmit on the same channel with same data simultaneously

FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 116 of 240

therefore a combiner is used to sum the individual transmitter output power.

The test data is shown as a combined output in the report.

7.3.1. Environmental Conditions

Temperature:	23 °C
Relative Humidity:	19 %

7.4. Test Result

: PASS

7.4.1. Test data at Output Alpha 1

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2499.00	-33.344	-13.0
	High	2593.00	-31.547	
16QAM	Low	2499.00	-33.285	
	High	2593.00	-31.053	
64QAM	Low	2499.00	-33.819	
	High	2593.00	-31.130	

7.4.2. Test data at Output Alpha 2

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2499.00	-32.647	-13.0
	High	2593.00	-31.739	
16QAM	Low	2499.00	-32.769	
	High	2593.00	-31.794	
64QAM	Low	2499.00	-33.312	
	High	2593.00	-31.575	

FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 117 of 240

7.4.3. Combined Test data at Output

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2499.00	-34.475	-13.0
	High	2593.00	-26.255	
16QAM	Low	2499.00	-34.193	
	High	2593.00	-26.343	
64QAM	Low	2499.00	-34.256	
	High	2593.00	-26.181	

7.4.4. Test data at Output Beta 1

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2627.25	-31.740	-13.0
	High	2660.25	-35.844	
16QAM	Low	2686.75	-32.075	
	High	2627.25	-35.650	
64QAM	Low	2660.25	-31.634	
	High	2686.75	-36.073	

7.4.5. Test data at Output Beta 2

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2627.25	-32.322	-13.0
	High	2660.25	-38.342	
16QAM	Low	2686.75	-31.921	
	High	2627.25	-38.380	
64QAM	Low	2660.25	-32.275	
	High	2686.75	-38.302	

FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 118 of 240

7.4.6. Combined Test data at Output

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2627.25	-35.608	-13.0
	High	2660.25	-35.696	
16QAM	Low	2686.75	-34.935	
	High	2627.25	-35.800	
64QAM	Low	2660.25	-34.951	
	High	2686.75	-35.782	

7.4.7. Test data at Output Gamma 1

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2648.75	-41.908	-13.0
	High	2653.75	-39.848	
16QAM	Low	2665.25	-42.238	
	High	2648.75	-41.049	
64QAM	Low	2653.75	-42.104	
	High	2665.25	-39.409	

7.4.8. Test data at Output Gamma 2

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2648.75	-41.867	-13.0
	High	2653.75	-41.133	
16QAM	Low	2665.25	-41.949	
	High	2648.75	-41.724	
64QAM	Low	2653.75	-41.650	
	High	2665.25	-40.869	

FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 119 of 240

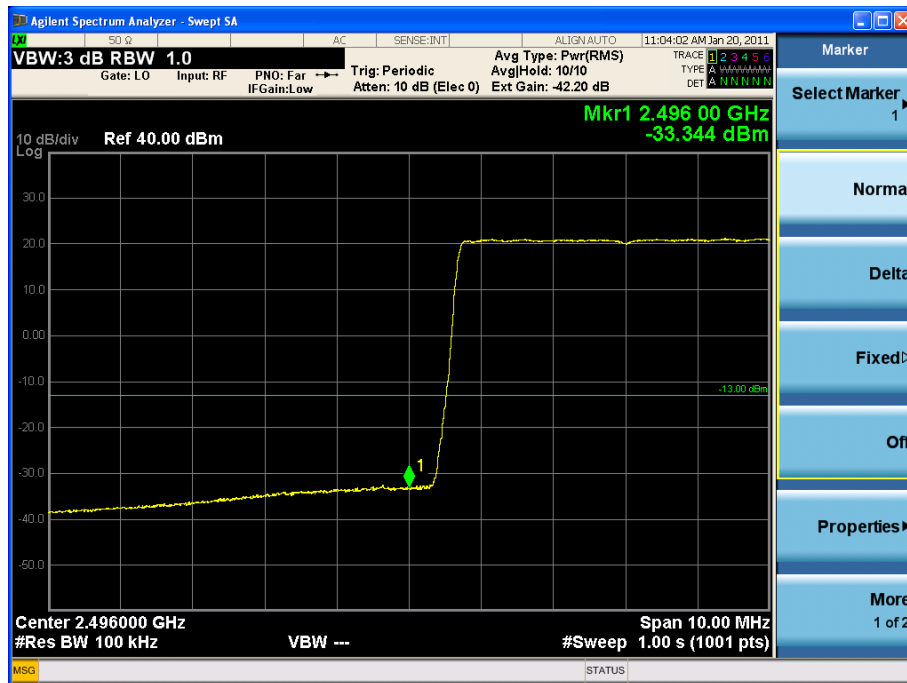
7.4.9. Combined Test data at Output

Modulation	Channel	Measured Frequency (MHz)	Max. Measured Value (dBm)	Limit (dBm)
QPSK	Low	2648.75	-36.637	-13.0
	High	2653.75	-33.674	
16QAM	Low	2665.25	-36.864	
	High	2648.75	-40.721	
64QAM	Low	2653.75	-36.422	
	High	2665.25	-41.180	

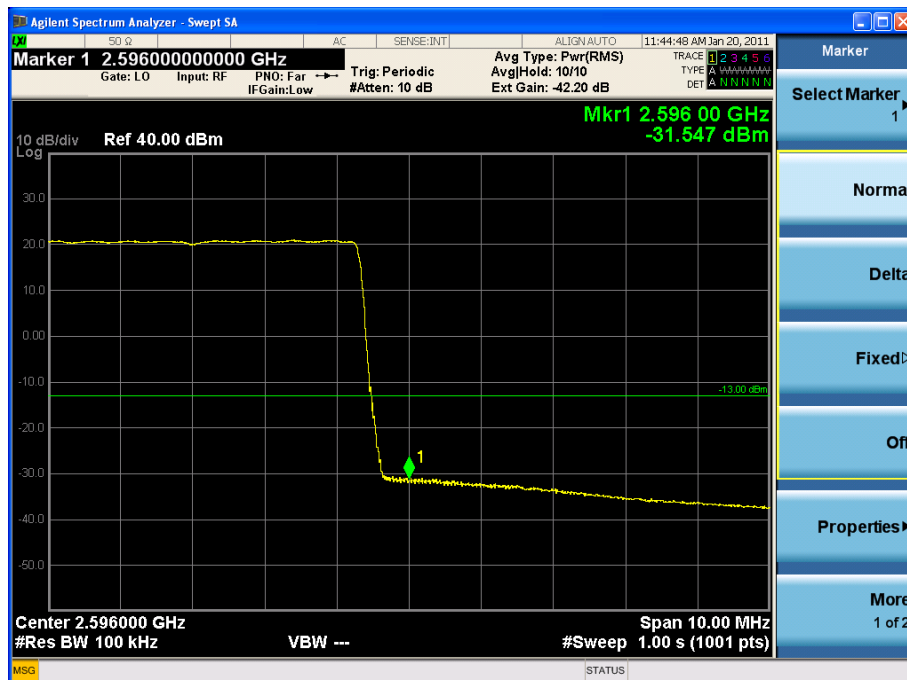
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 120 of 240

7.4.10. Plot Data at Output Alpha 1

(QPSK Low Channel)

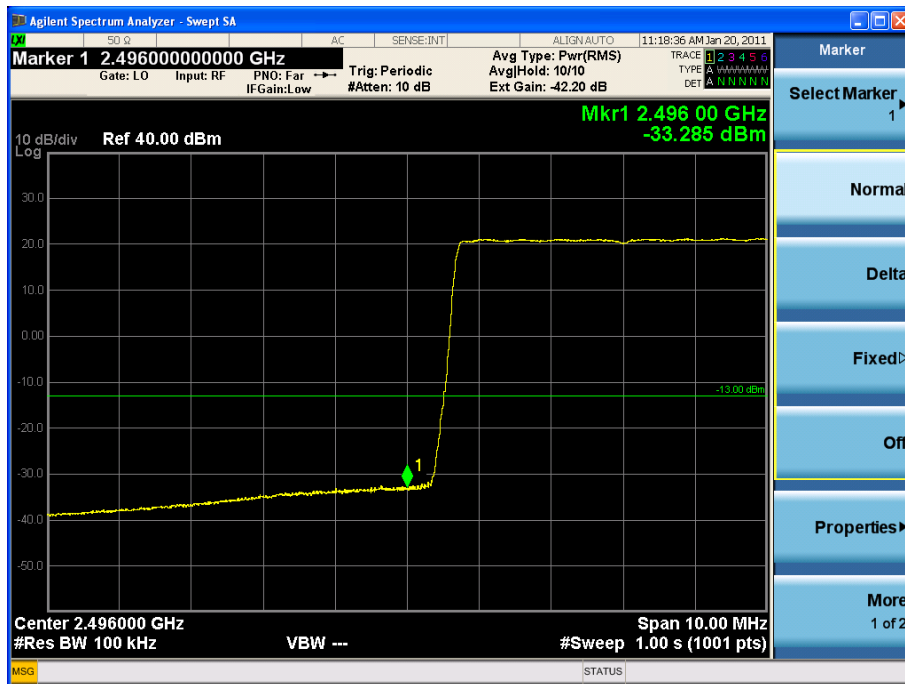


(QPSK High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 121 of 240

(16QAM Low Channel)

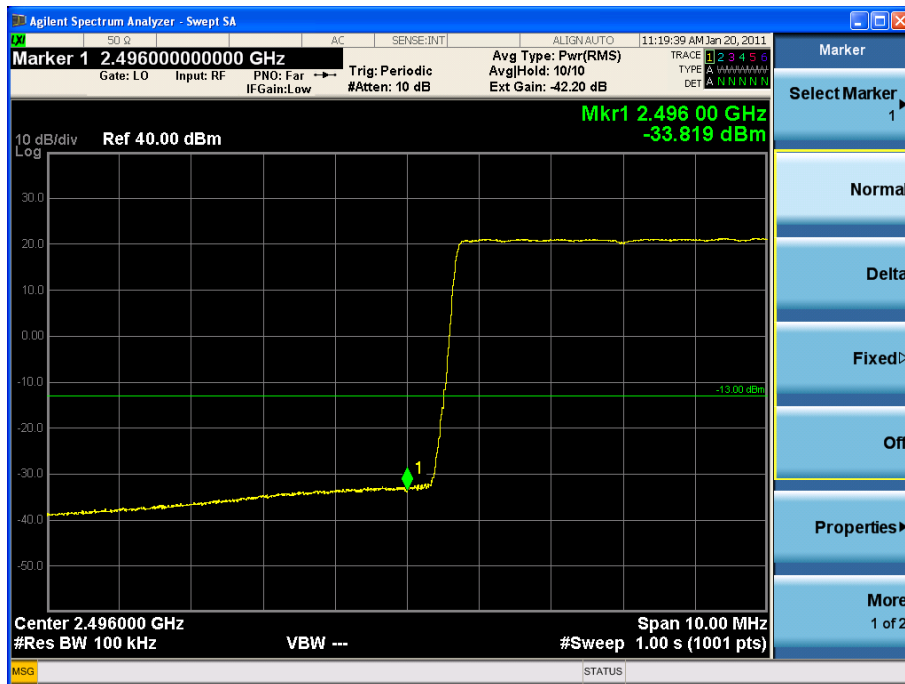


(16QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 122 of 240

(64QAM Low Channel)



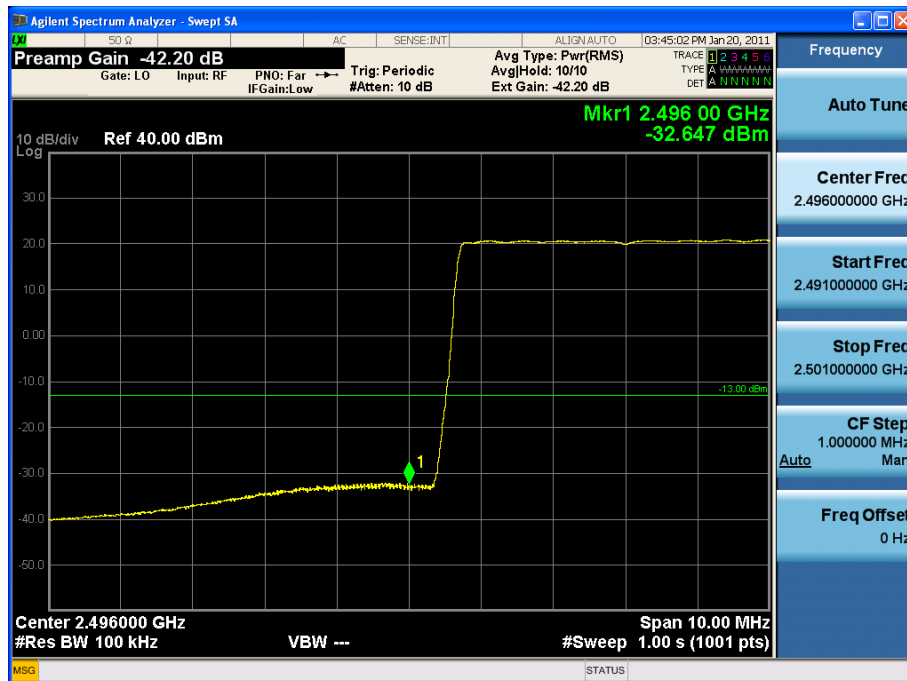
(64QAM High Channel)



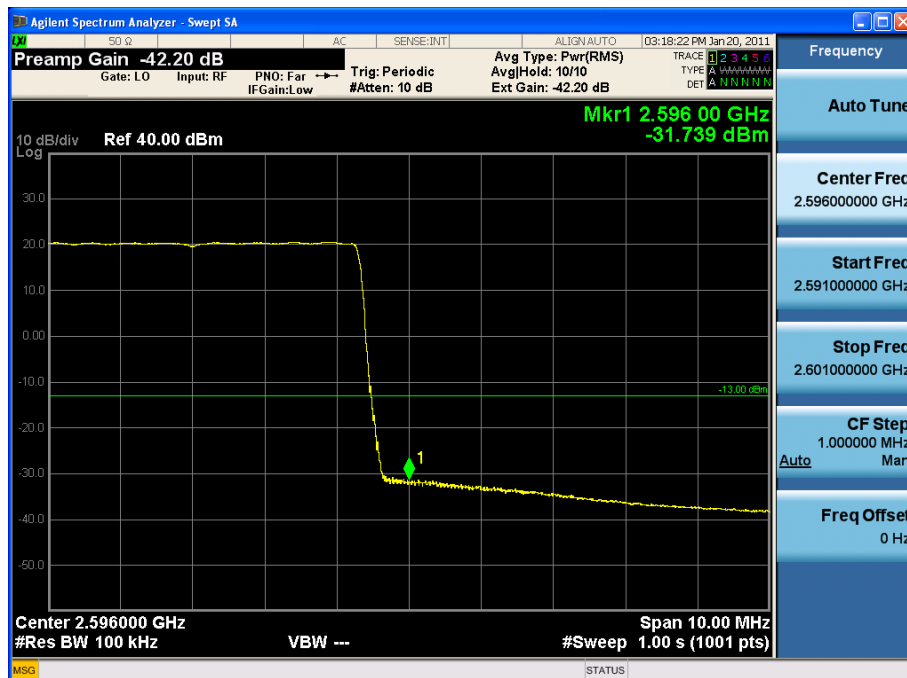
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 123 of 240

7.4.11. Plot Data at Output Alpha 2

(QPSK Low Channel)

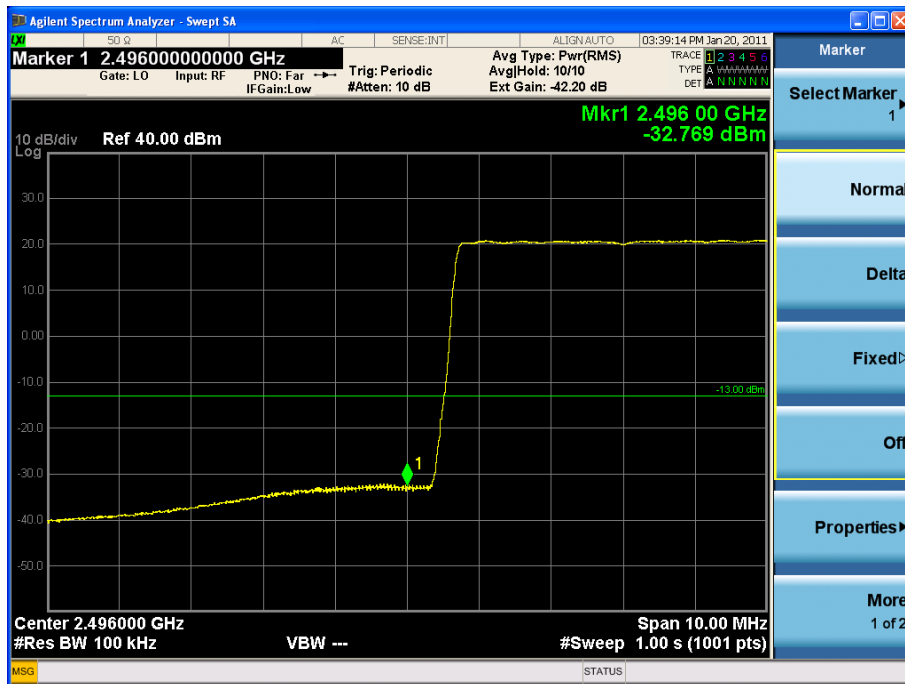


(QPSK High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 124 of 240

(16QAM Low Channel)

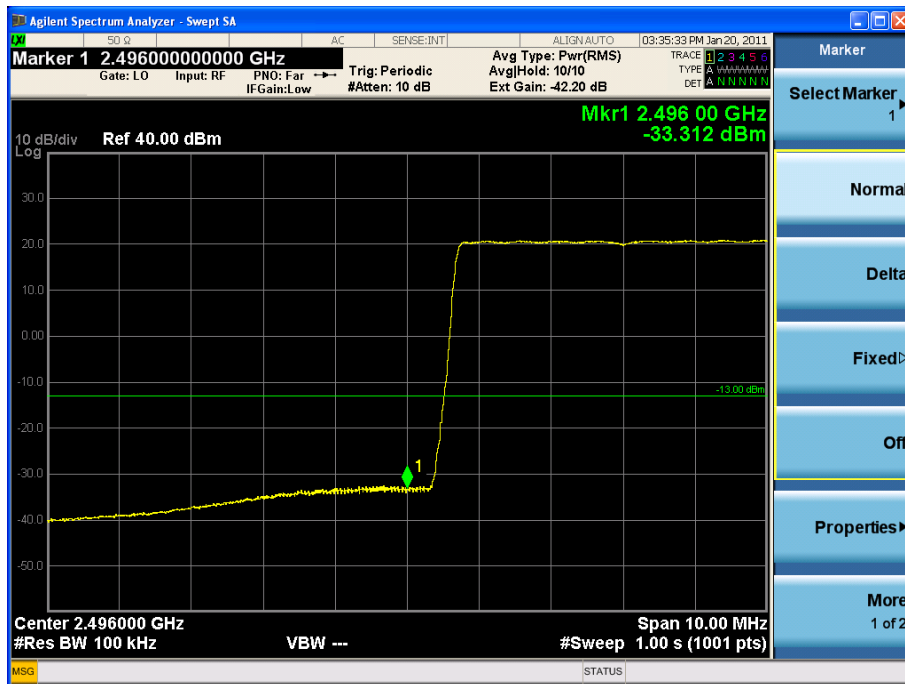


(16QAM High Channel)

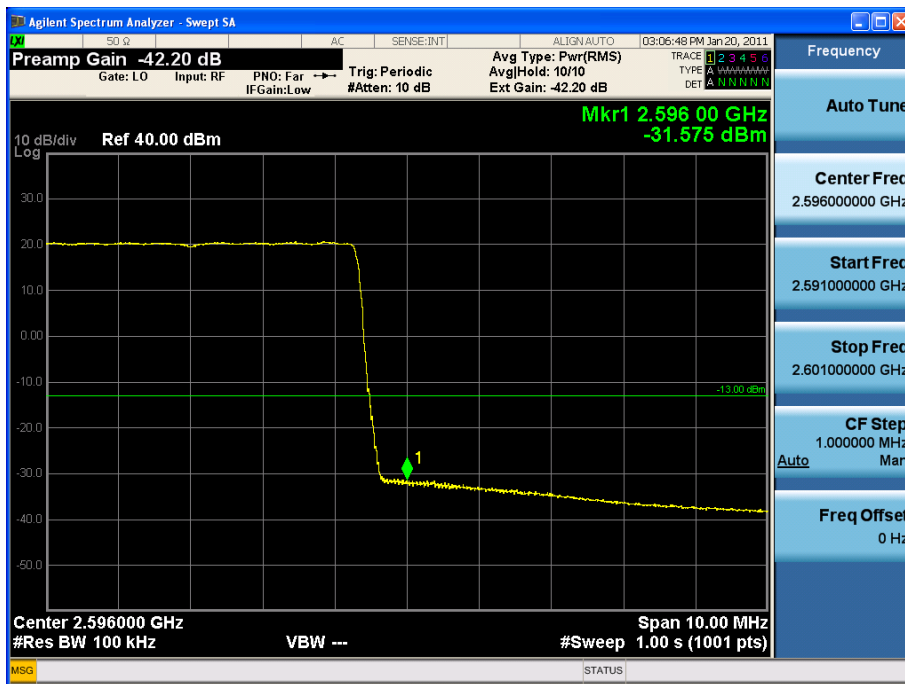


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 125 of 240

(64QAM Low Channel)



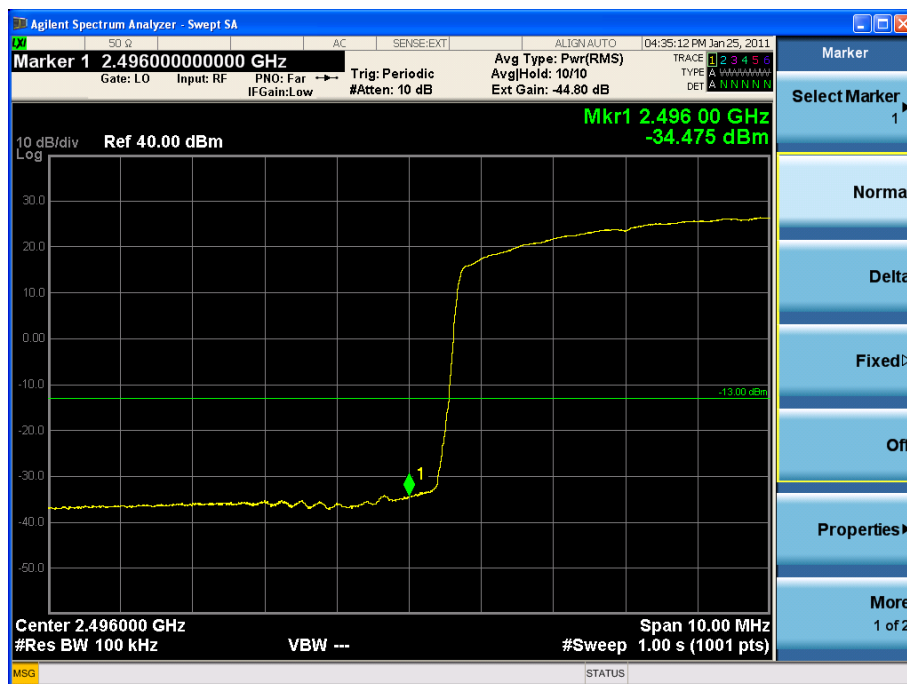
(64QAM High Channel)



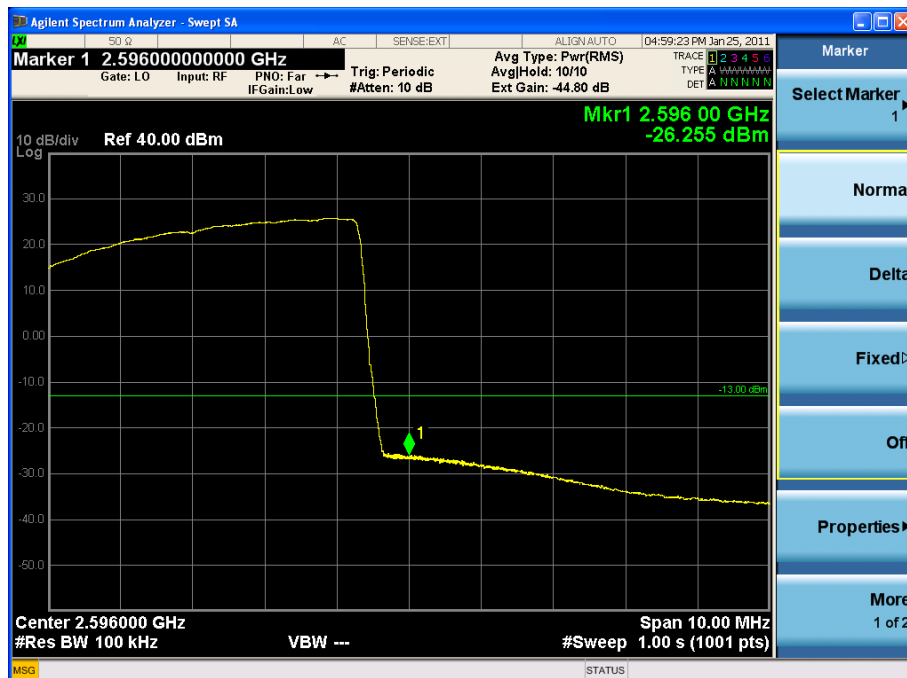
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 126 of 240

7.4.12. Combined Plot Data at Output

(QPSK Low Channel)

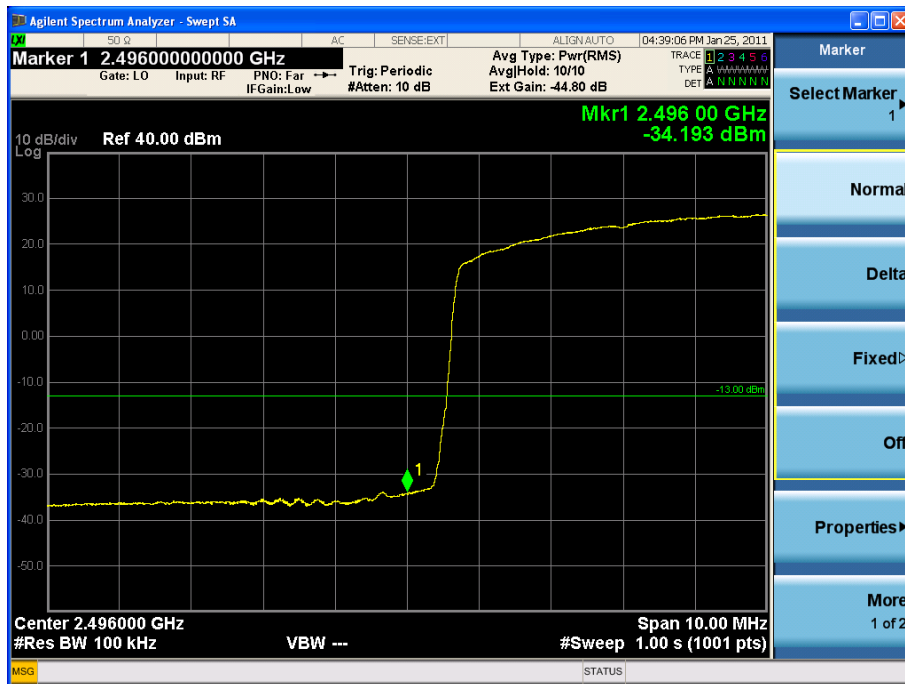


(QPSK High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 127 of 240

(16QAM Low Channel)

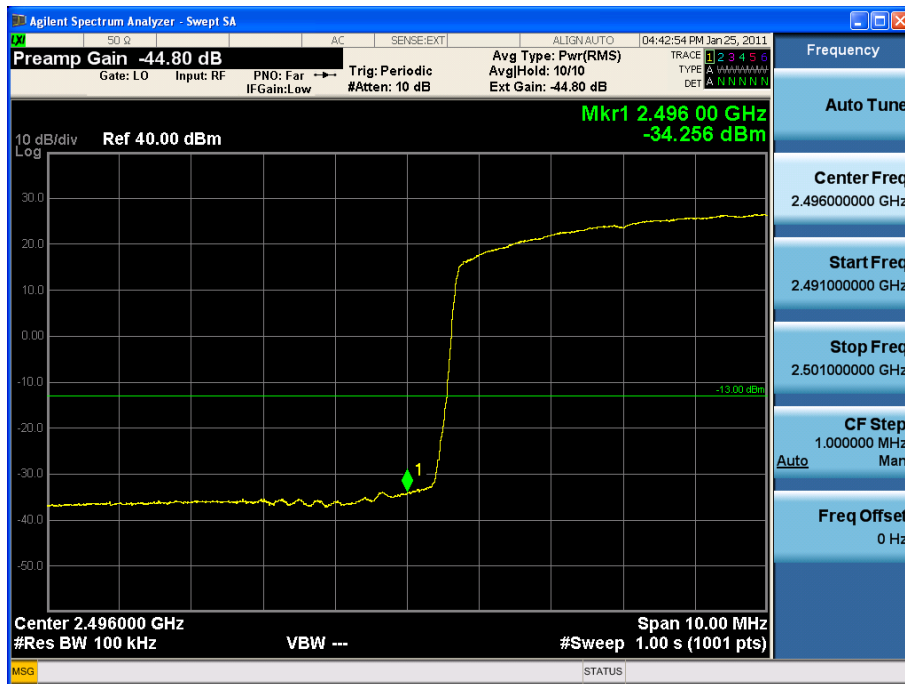


(16QAM High Channel)

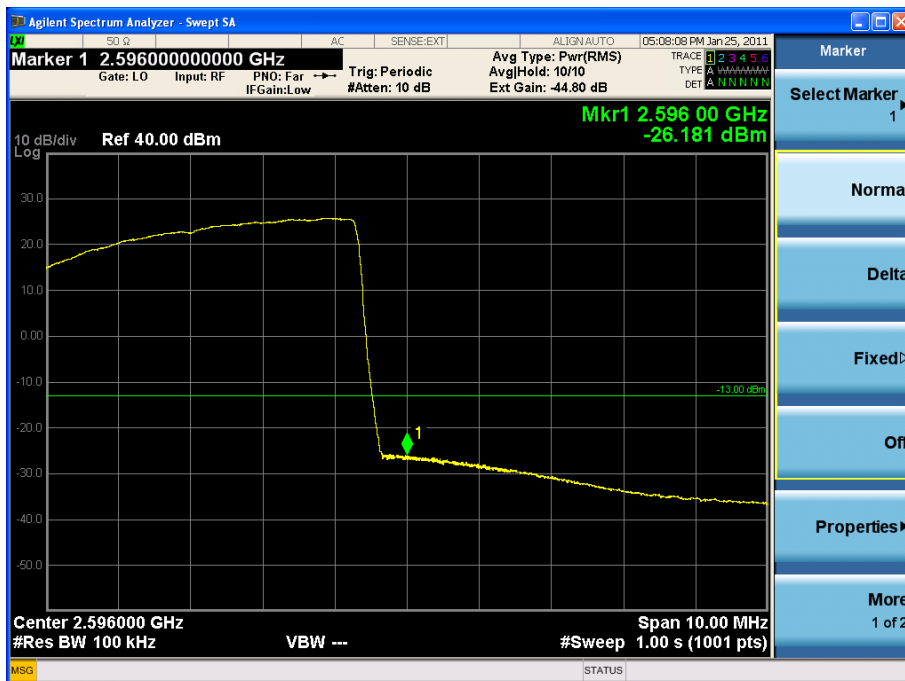


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 128 of 240

(64QAM Low Channel)



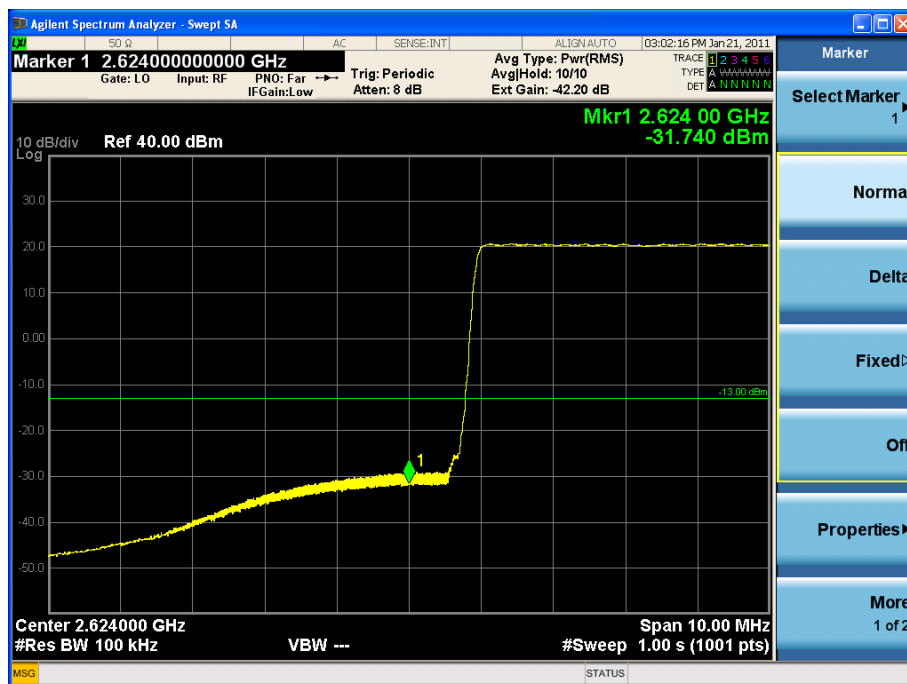
(64QAM High Channel)



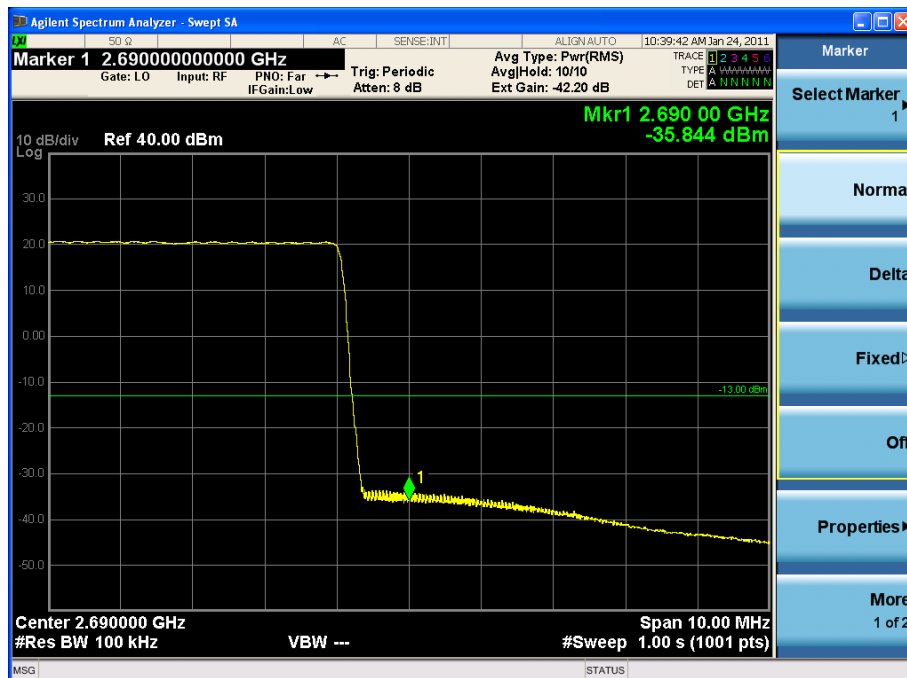
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 129 of 240

7.4.13. Plot Data at Output Beta 1

(QPSK Low Channel)

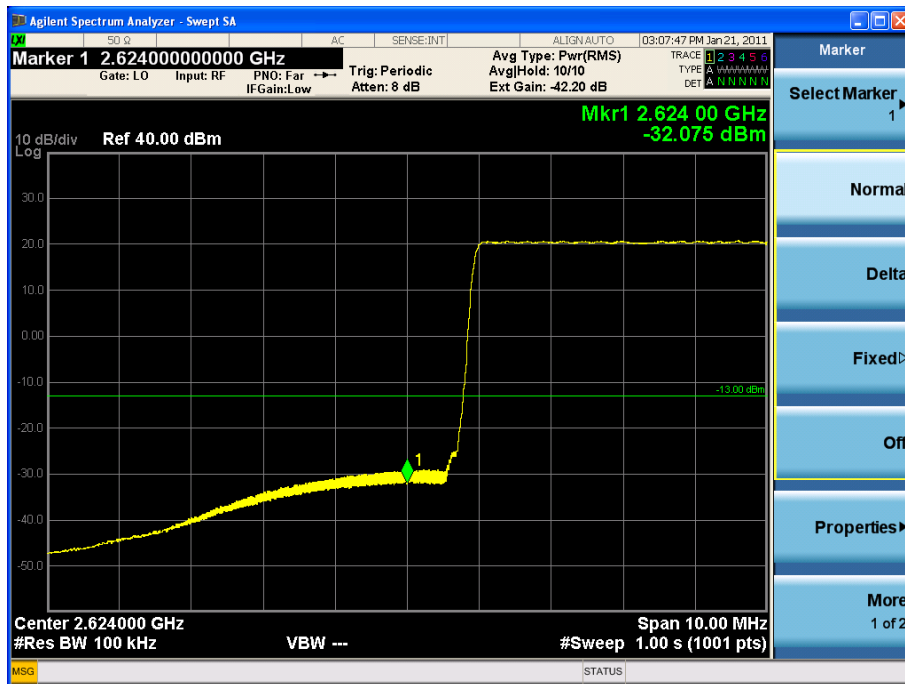


(QPSK High Channel)

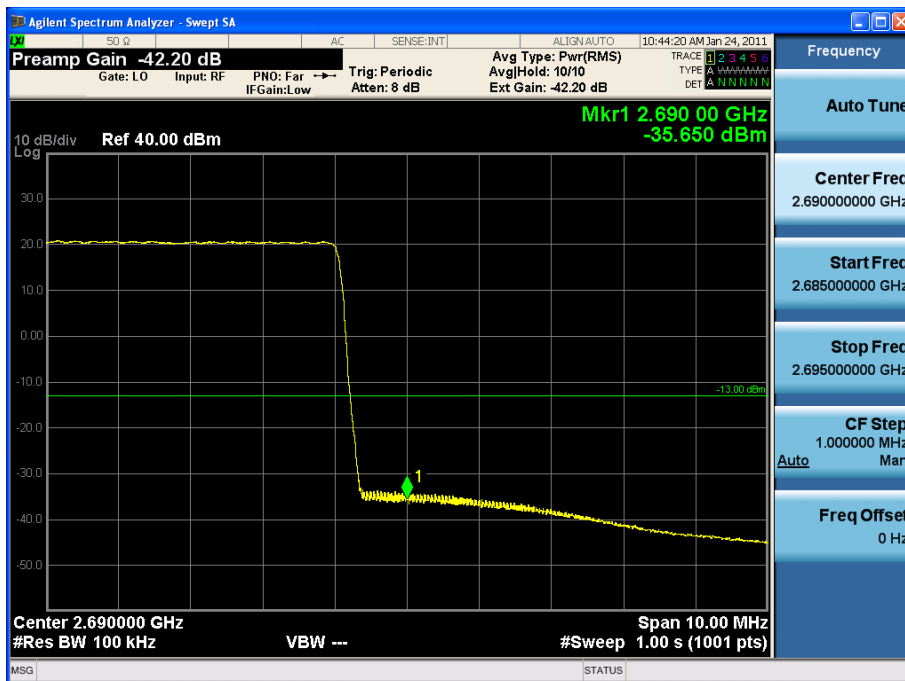


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 130 of 240

(16QAM Low Channel)

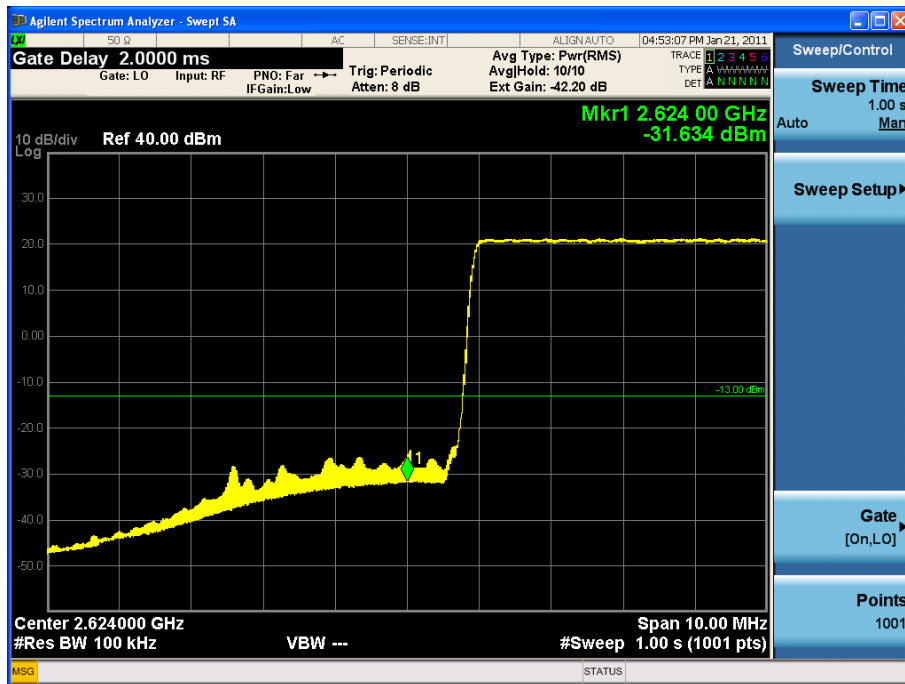


(16QAM High Channel)

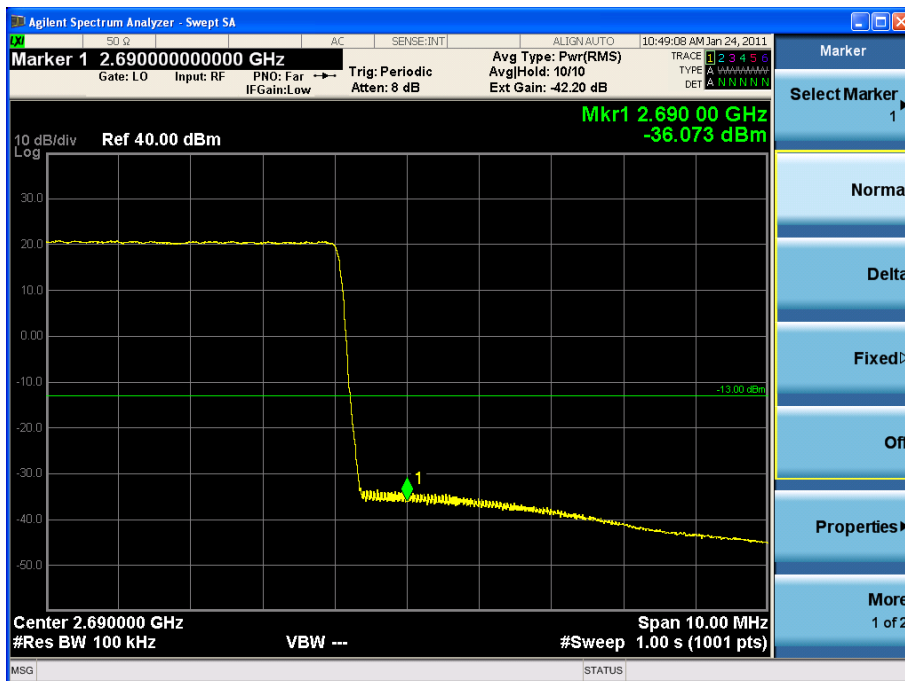


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 131 of 240

(64QAM Low Channel)



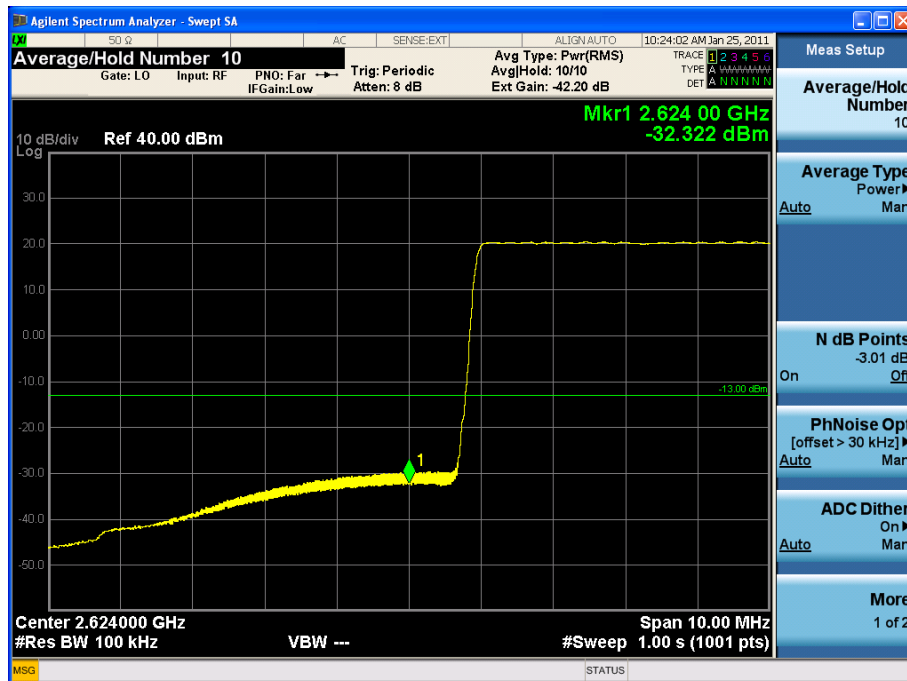
(64QAM High Channel)



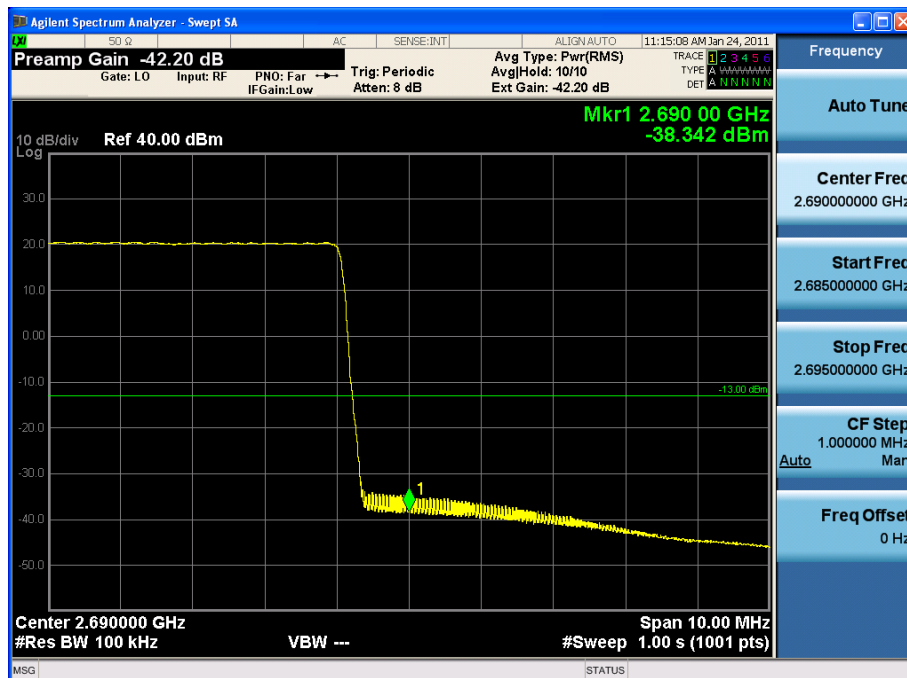
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 132 of 240

7.4.14. Plot Data at Output Beta 2

(QPSK Low Channel)

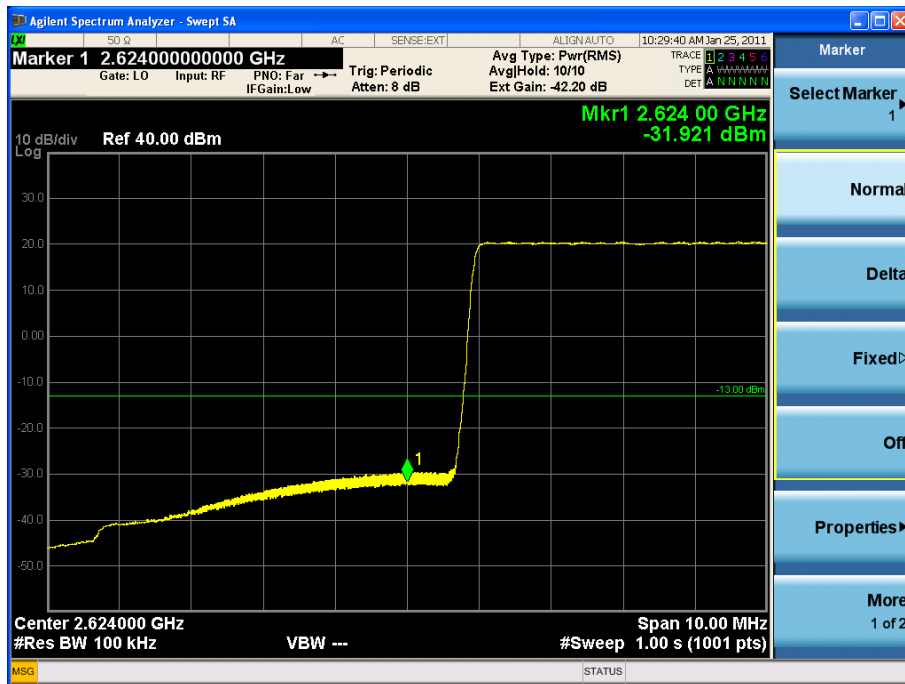


(QPSK High Channel)

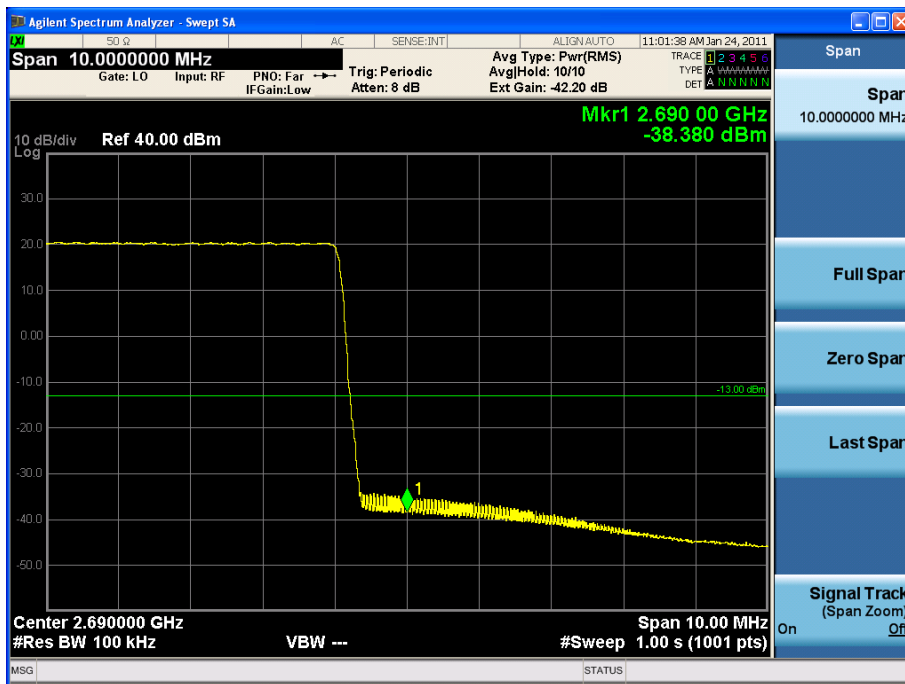


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 133 of 240

(16QAM Low Channel)

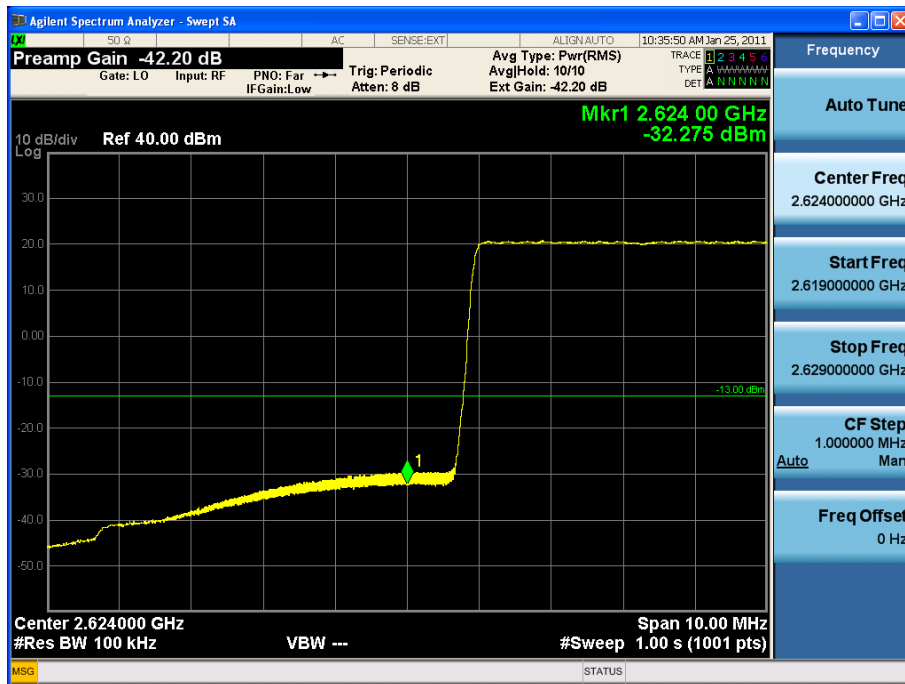


(16QAM High Channel)

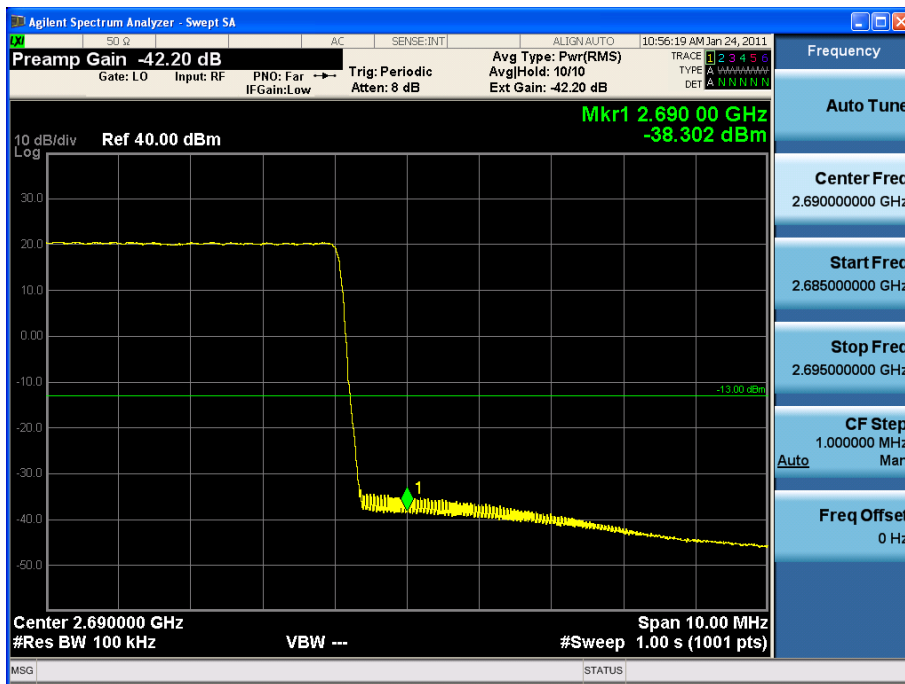


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 134 of 240

(64QAM Low Channel)



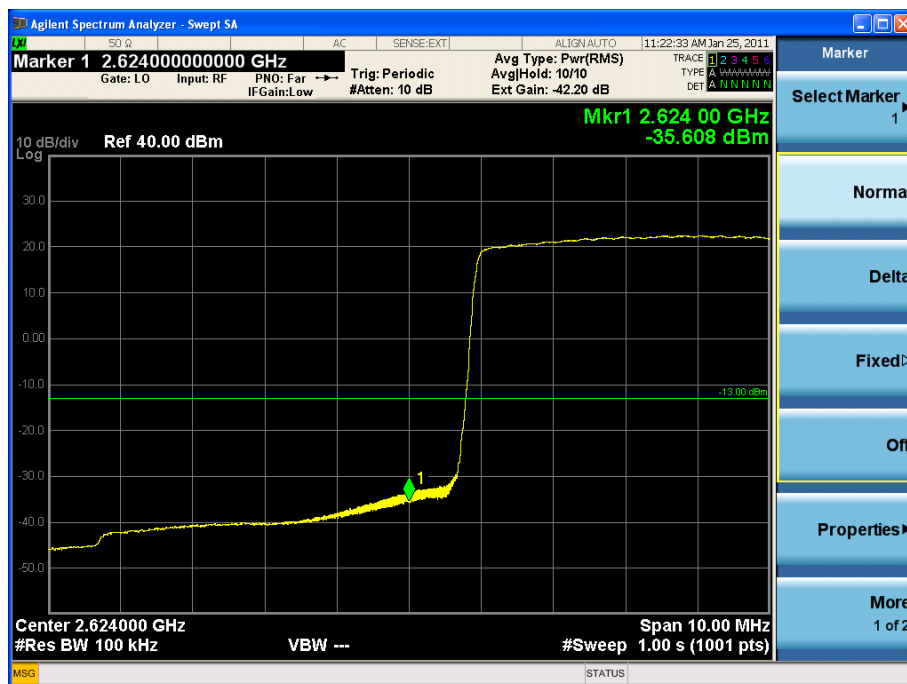
(64QAM High Channel)



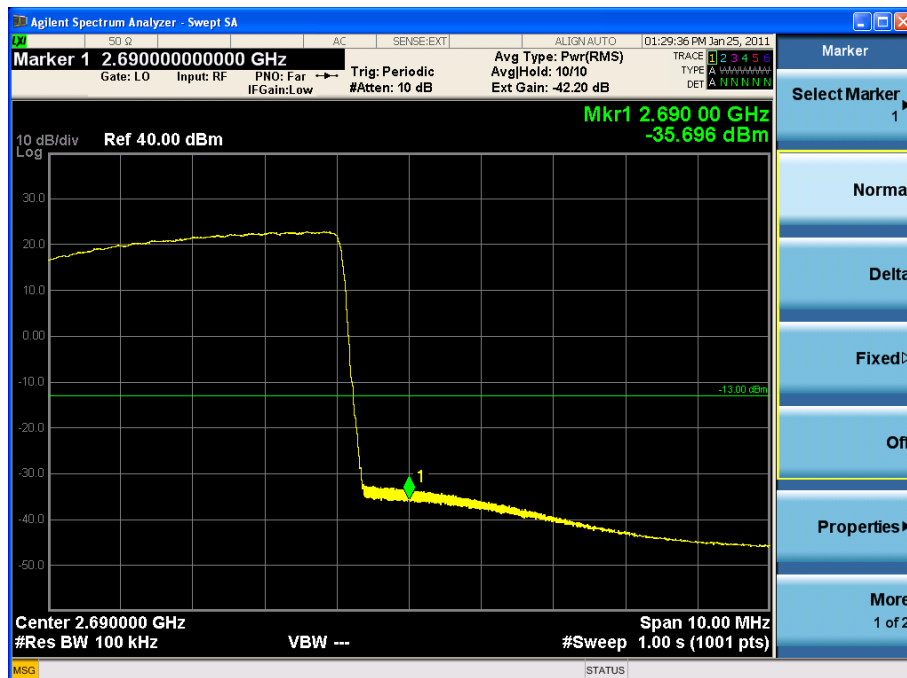
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 135 of 240

7.4.15. Combined Plot Data at Output

(QPSK Low Channel)

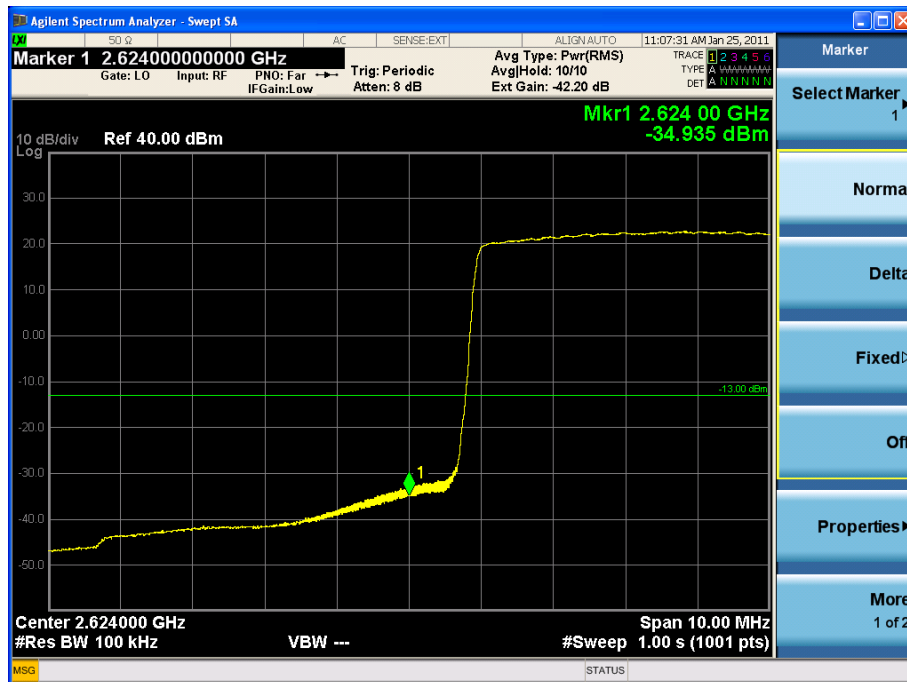


(QPSK High Channel)

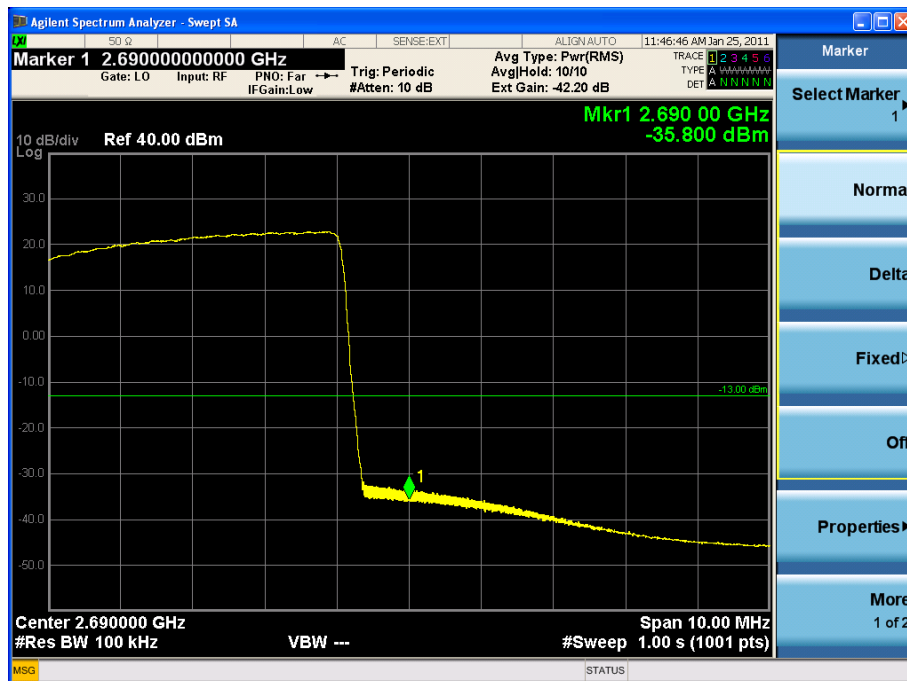


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 136 of 240

(16QAM Low Channel)

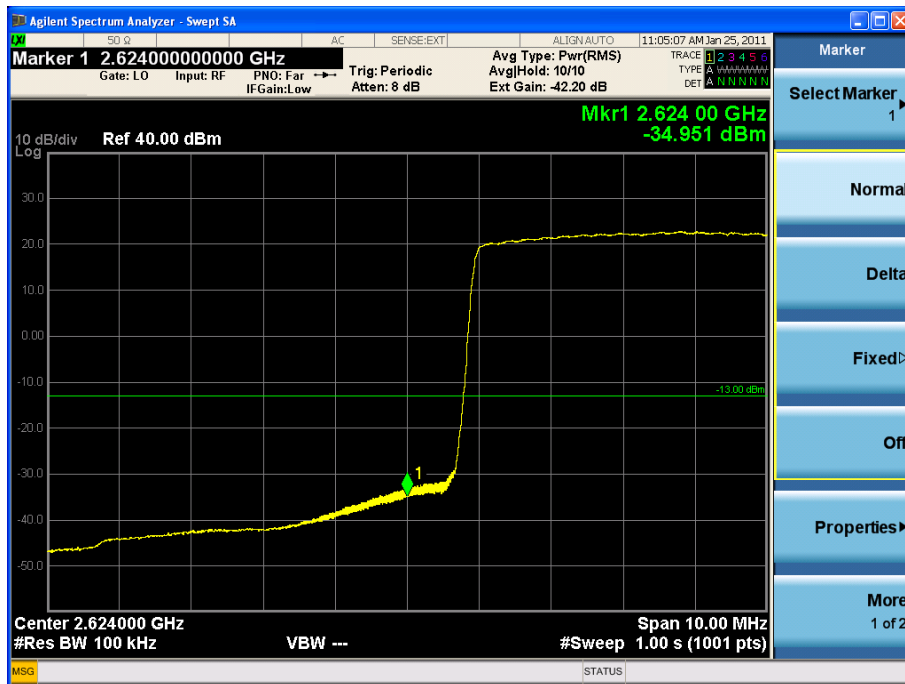


(16QAM High Channel)

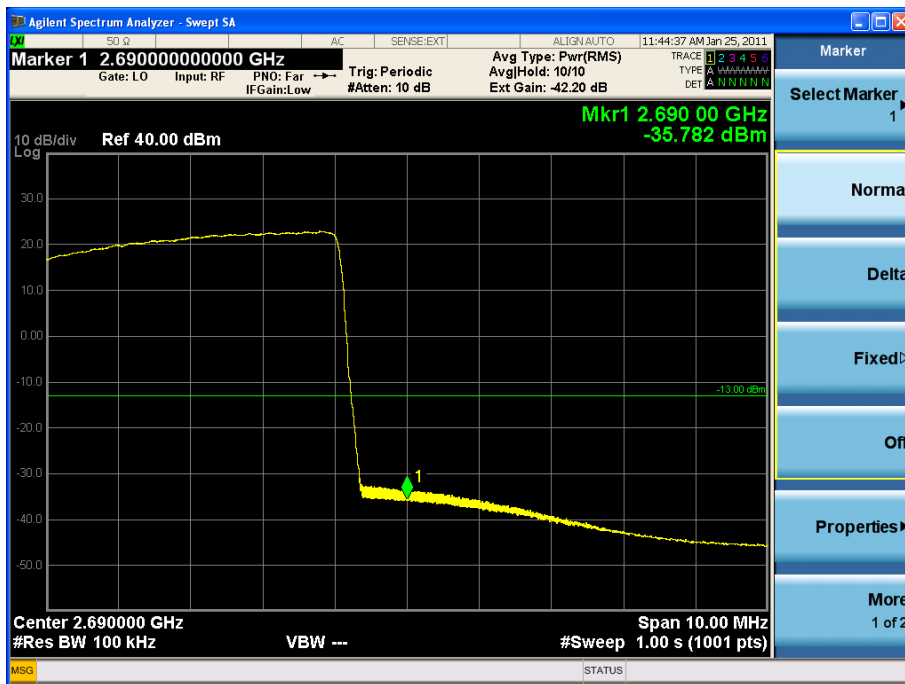


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 137 of 240

(64QAM Low Channel)



(64QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 138 of 240

7.4.16. Plot Data at Output Gamma 1

(QPSK Low Channel)



(QPSK High Channel)

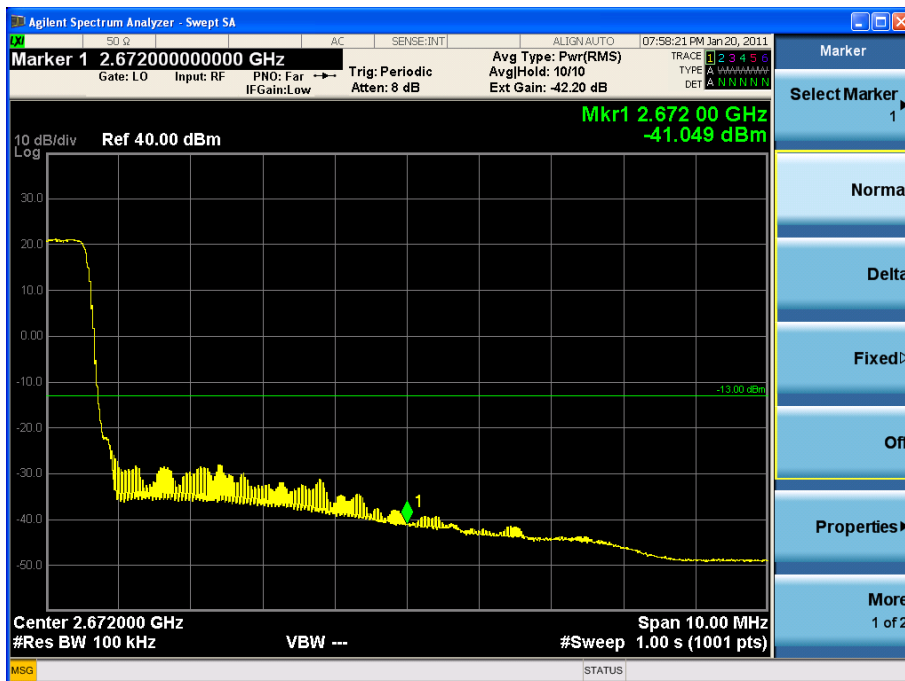


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 139 of 240

(16QAM Low Channel)



(16QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 140 of 240

(64QAM Low Channel)



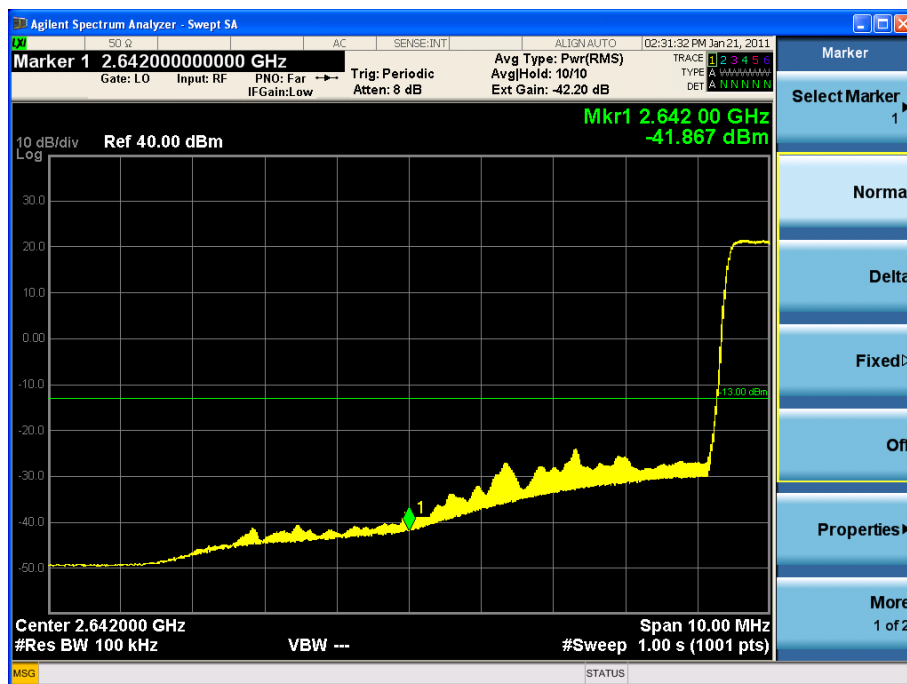
(64QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 141 of 240

7.4.17. Plot Data at Output Gamma 2

(QPSK Low Channel)

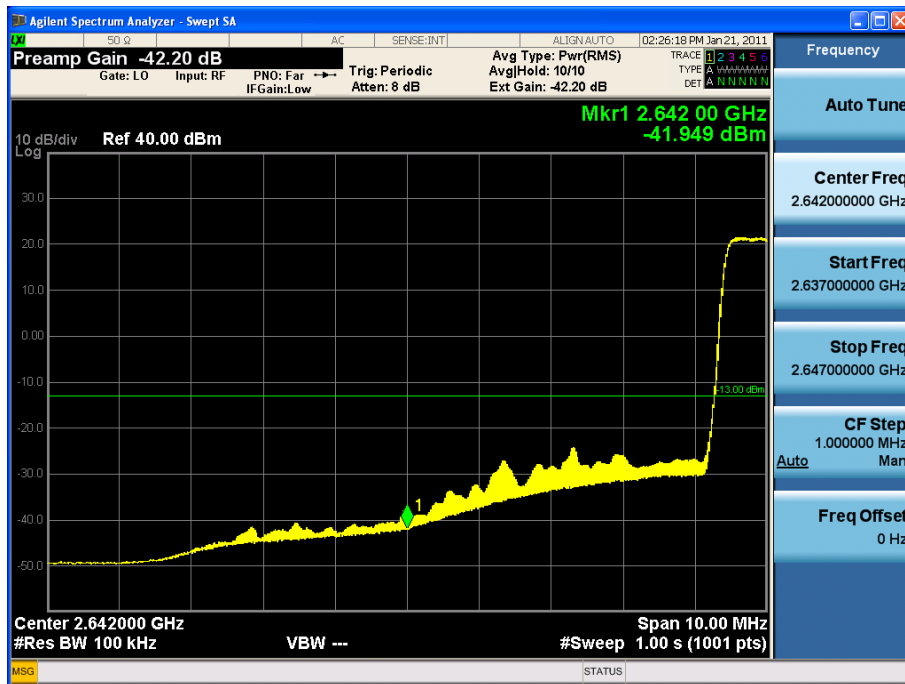


(QPSK High Channel)

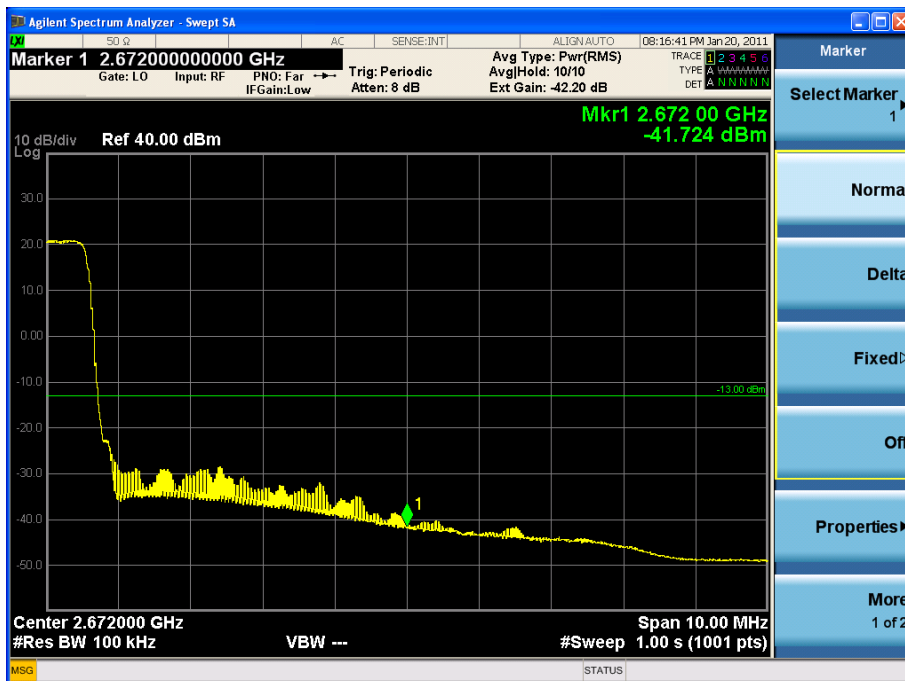


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 142 of 240

(16QAM Low Channel)

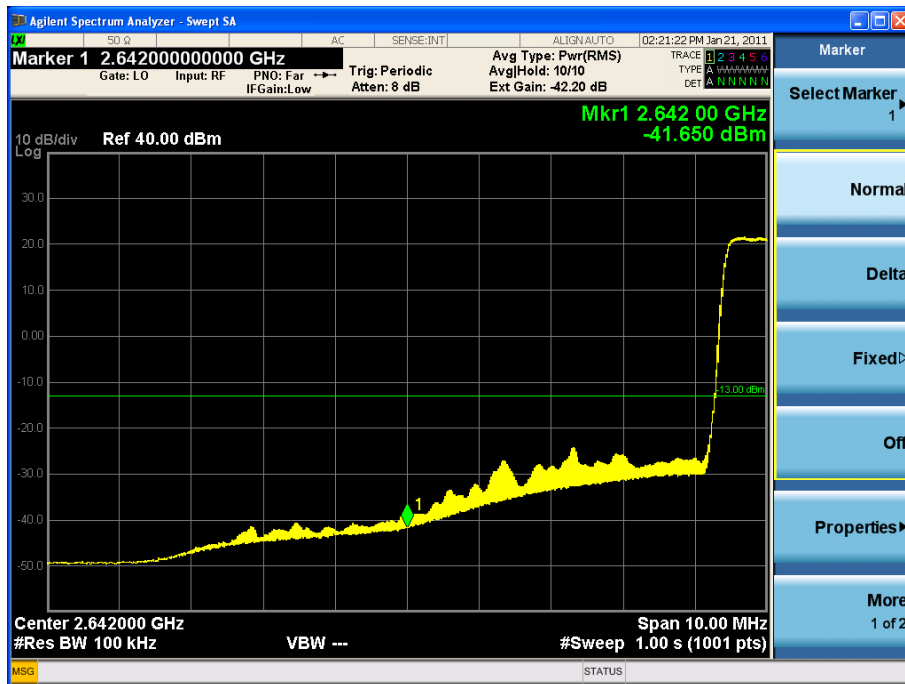


(16QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 143 of 240

(64QAM Low Channel)



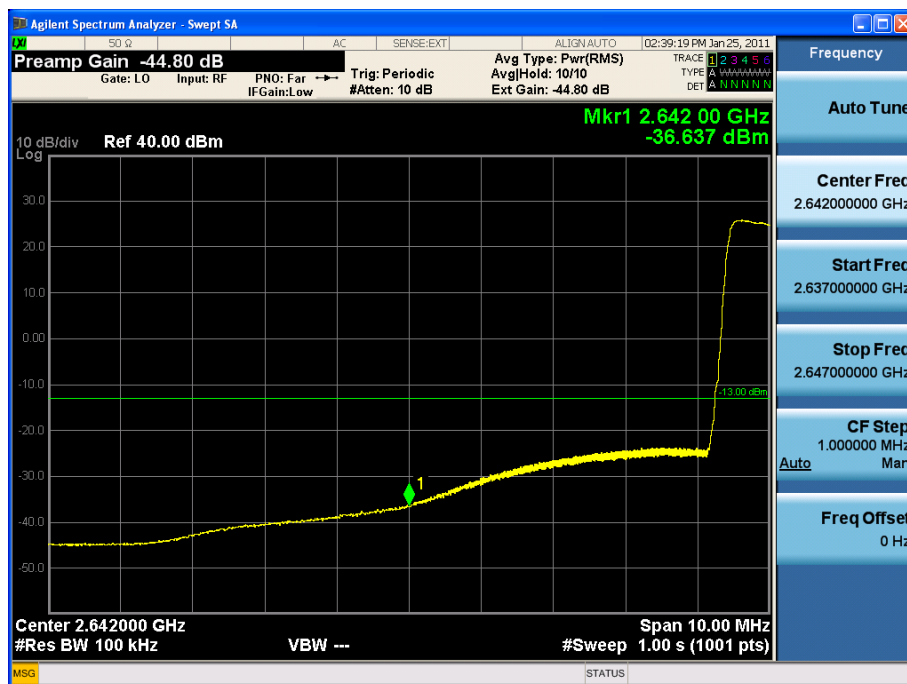
(64QAM High Channel)



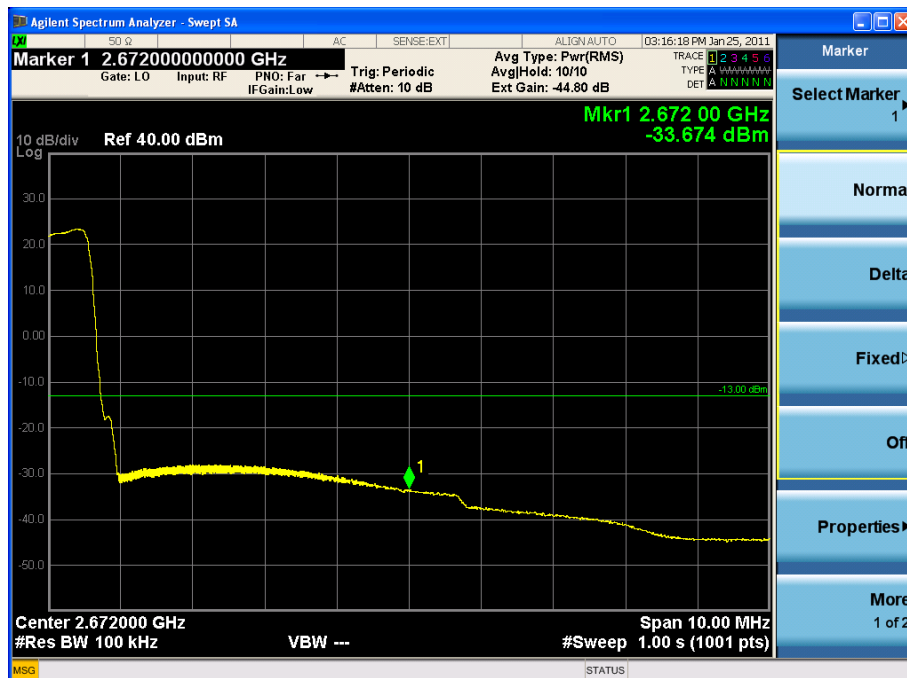
FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 144 of 240

7.4.18. Combined Plot Data at Output

(QPSK Low Channel)

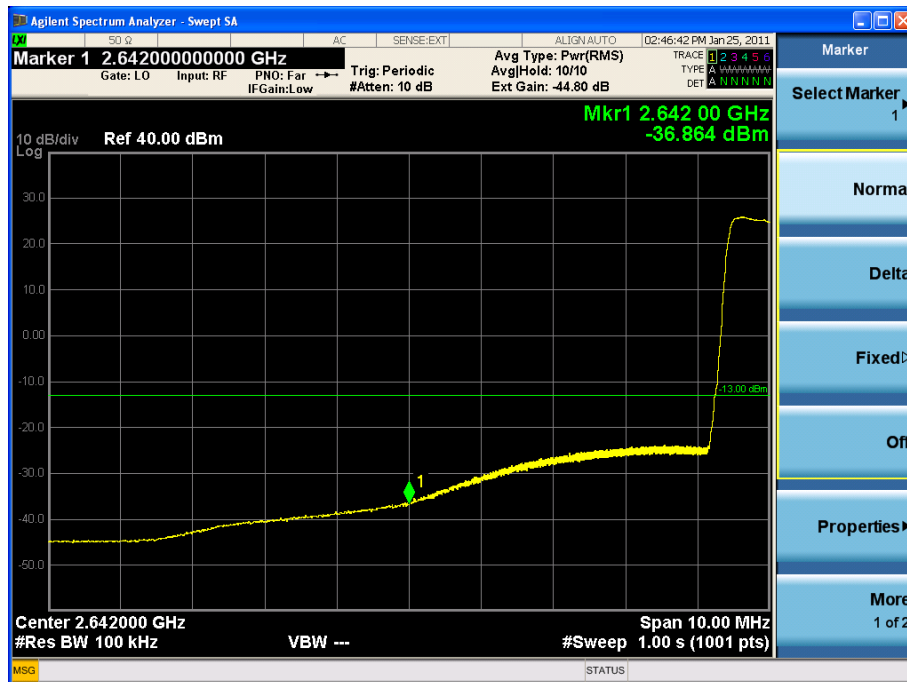


(QPSK High Channel)

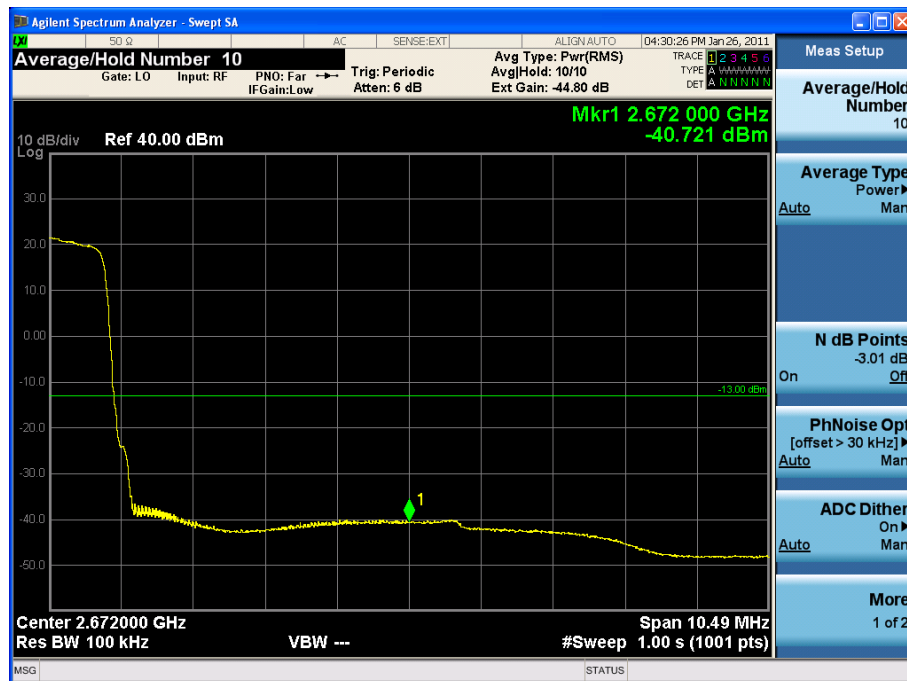


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 145 of 240

(16QAM Low Channel)

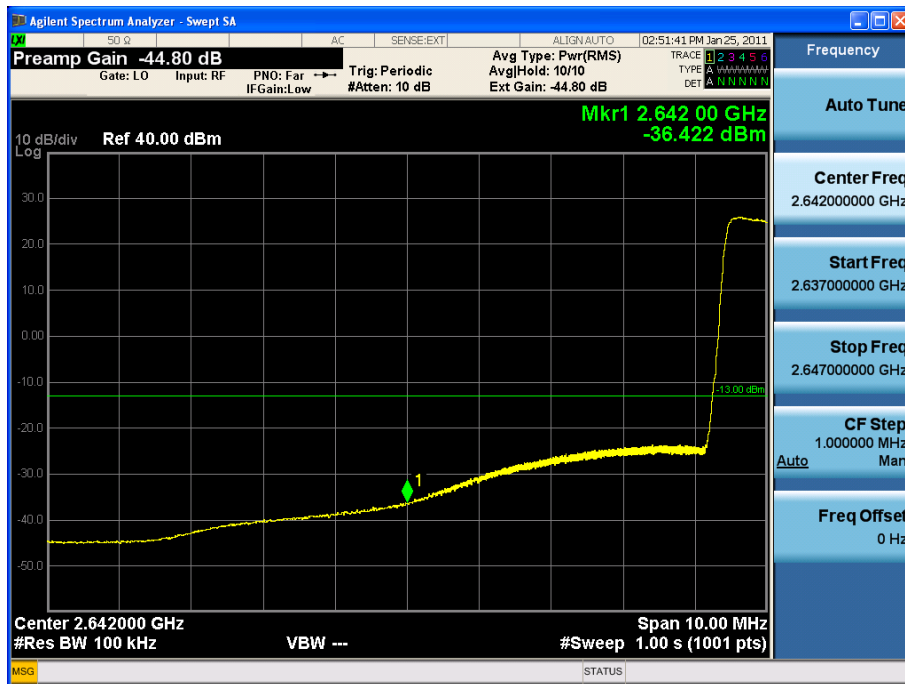


(16QAM High Channel)

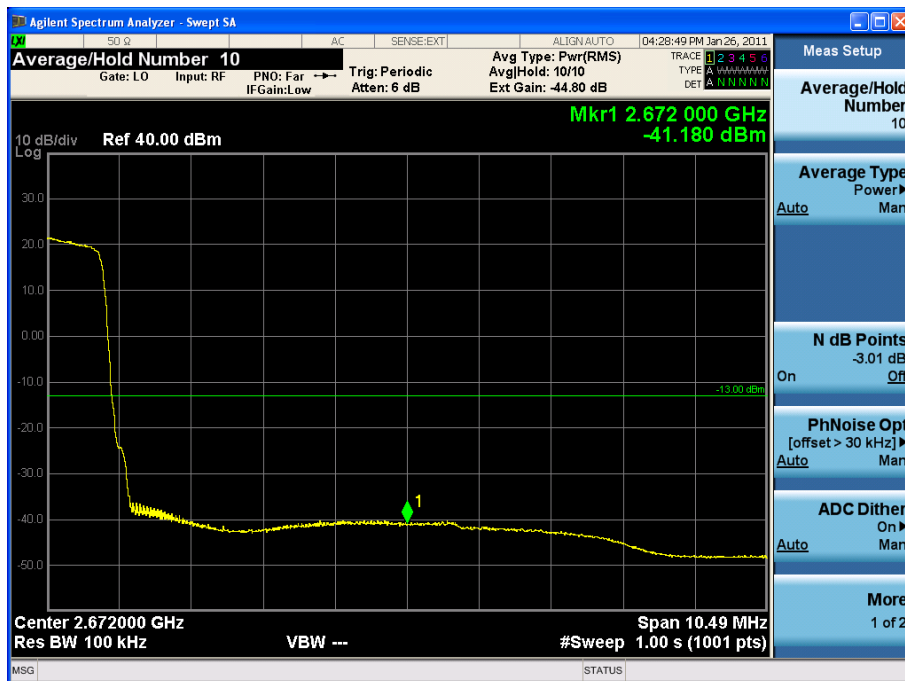


FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 146 of 240

(64QAM Low Channel)



(64QAM High Channel)



FCC PT.27 TEST REPORT	FCC CERTIFICATION REPORT			HCT PT.27 TEST REPORT
Test Report No. HCTR1102FR01	Date of Issue: February 11, 2011	EUT Type: Mobile WiMAX Outdoor RAS	FCC ID: A3LSPI-2210022502	Page 147 of 240