

Measurements of Shure AXT100/200 for FCC and ETSI Regulatory Approval.

Conducted Zigbee-UHF IMDs for FCC Part15.

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6/2/2011

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1. Introduction

Axient AXT100 Body Pack (BP) Transmitter (TX), AXT200 HandHeld (HH) Transmitter Wireless measurements for FCC and ETSI regulatory approval.

1.1 Test Equipment used:

- Spectrum Analyzer – Agilent E4407B (SN: MY45116757, Cal Date: 04/14/2011, Cal due:04/30/2012, Cal#46410-103. Calibration performed by SIMCO)
- Shure Axient System: AXT200, AXT100.

1.2 Review and Approval

This document must be reviewed and approved by Axient project manager(s).

1.3 Revision History

The most current version of this document can be found in Stellent ID:

Revision	Date	Author	Comments
1	03/17/2011	Mohit Shringi	

1.4 References

1.5 Acronyms and Definitions

AXT	Axient
BP	Body pack
HH	Hand held
IMD	Intermodulation distortion
Pwr	Power
RF	Radio frequency
TX	Transmitter
UHF	Ultra High Frequeuncy

3. AXT200 (HH TX) UHF-Zigbee IMD Measurements

Typical power settings:

UHF Section settings (one carrier):

UHF Power mode setting	UHF Power at Antenna SMA (dBm)
10 mW (low power)	9.5
50 mW (high power for EU bands)	16.5

Zigbee Section settings:

Zigbee Frequency (MHz)	Zigbee Power at Antenna SMA (dBm)
2405 (ZB Ch: 11, Low Frequency)	7
2445 (ZB Ch: 19, Mid Frequency)	7
2480 (ZB Ch: 26, High Frequency)	7

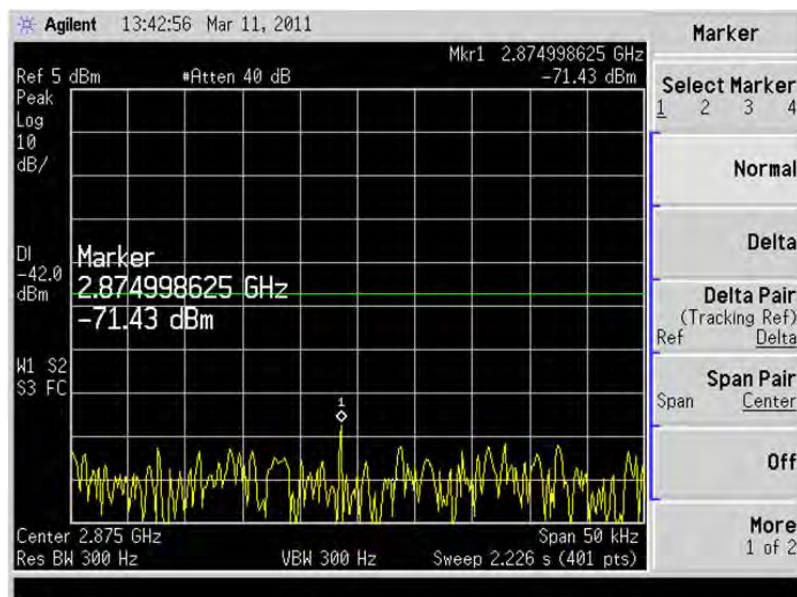
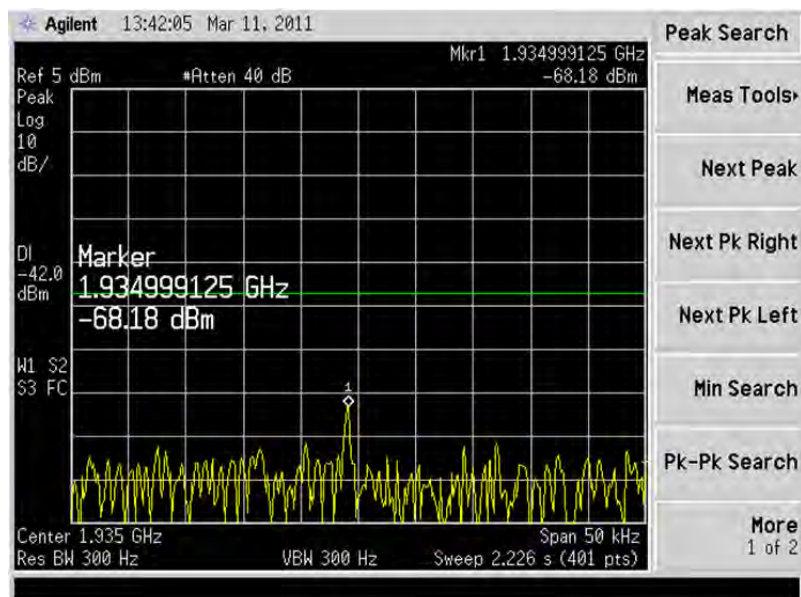
3.1 G1 band 470-530 MHz UHF-Zigbee IMD

	UHF Freq (MHz)	Zb freq (MHz)	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
Zigbee Low band	470	2405	1935	-68.2	2875	-71
	500	2405	1905	-72.9	2905	-75
	530	2405	1875	-71	2935	-74
Zigbee Mid band	470	2445	1975	-70.8	2915	-72
	500	2445	1945	-70.8	2945	-73.9
	530	2445	1915	-73.5	2975	-73.6
Zigbee high band	470	2480	2010	-74	2950	-71
	500	2480	1980	-71.4	2980	-74
	530	2480	1950	-73.4	3010	-80
Zigbee Low band	470	2405	1935	-74	2875	-71
	500	2405	1905	-67	2905	-72
	530	2405	1875	-69	2935	-75
Zigbee mid band	470	2445	1975	-70.3	2915	-67
	500	2445	1945	-66.2	2945	-70.2
	530	2445	1915	-67	2975	-73.2
Zigbee high band	470	2480	2010	-67.2	2950	-70
	500	2480	1980	-67.8	2980	-72.9
	530	2480	1950	-68.2	3010	-74

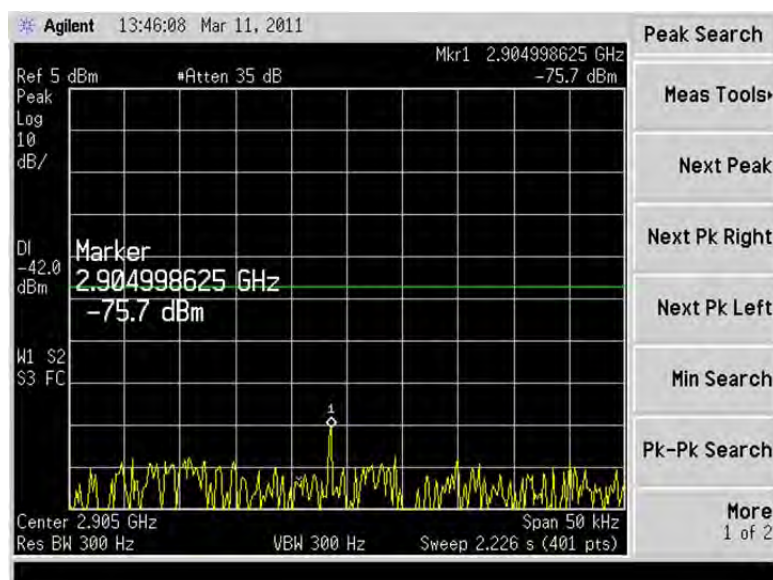
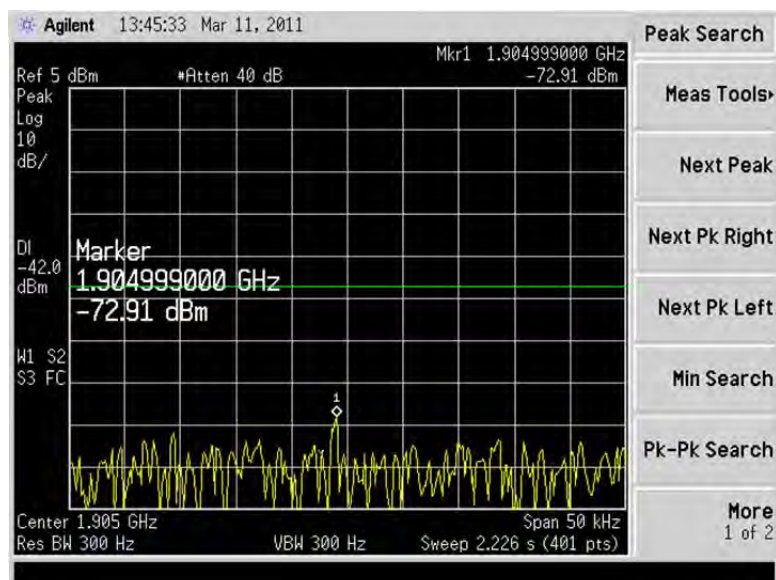
3.1.1 Zigbee low band (channel 11) 2405MHz

3.1.1.1 UHF power low 10mW

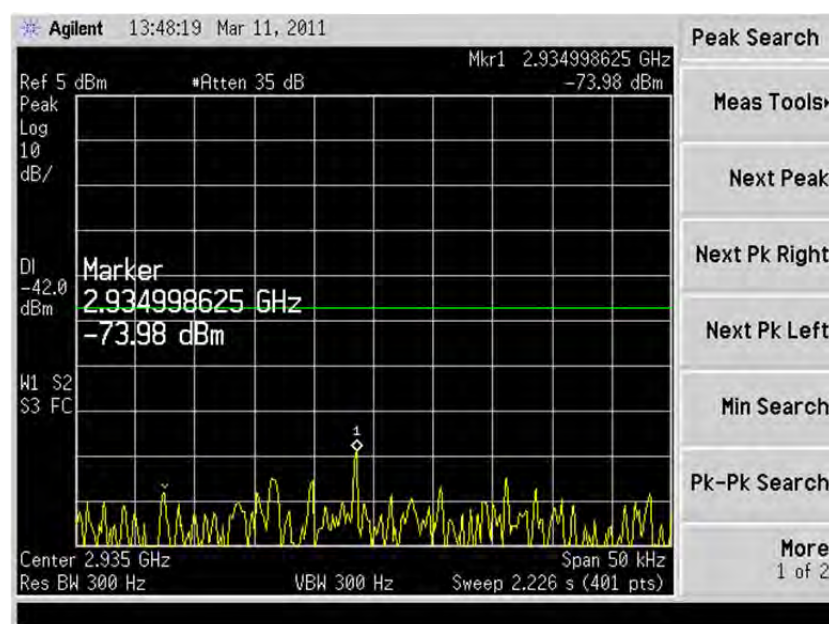
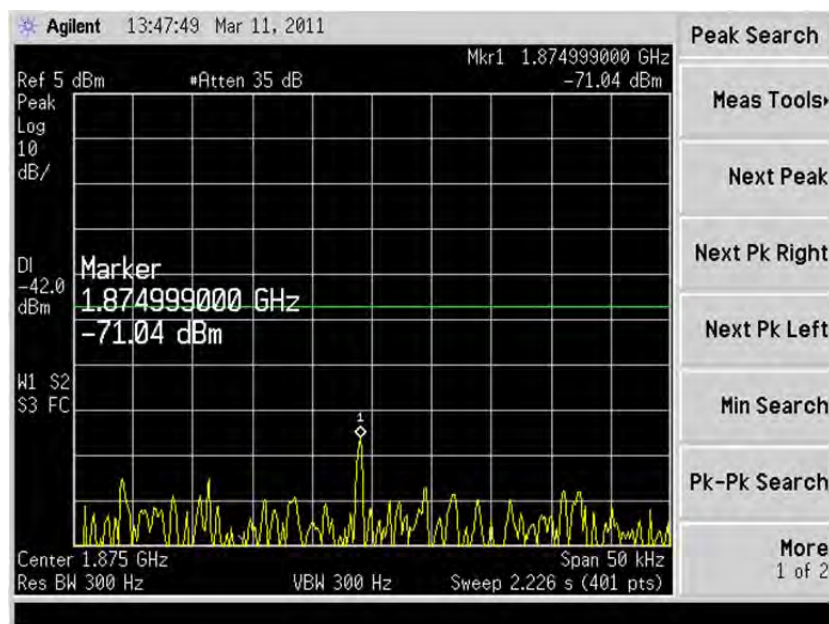
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	10mw	1935	-68.2	2875	-71.4



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	10mw	1905	-72.9	2905	-75.7

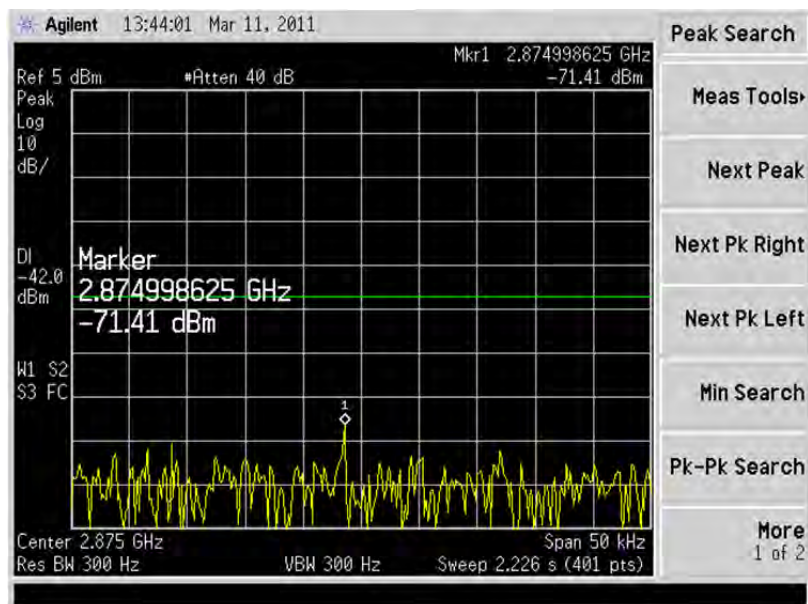
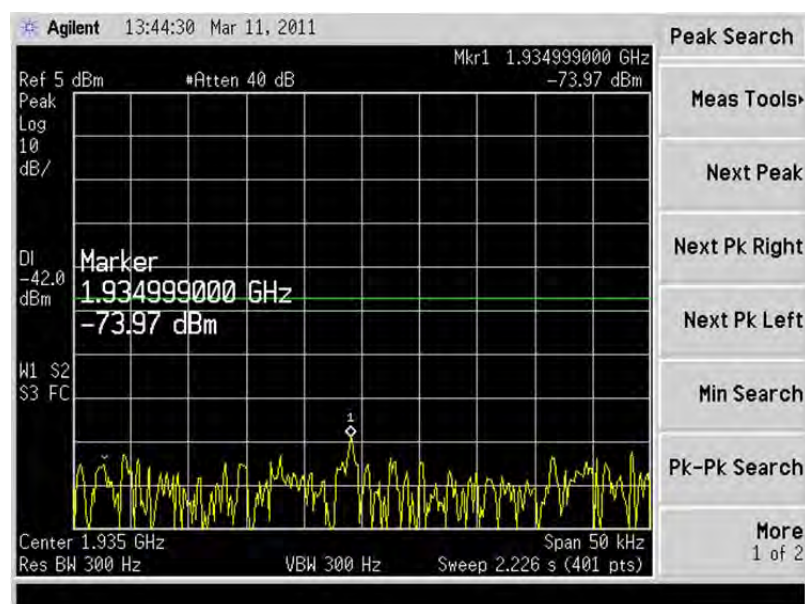


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	10mw	1875	-71	2935	-74

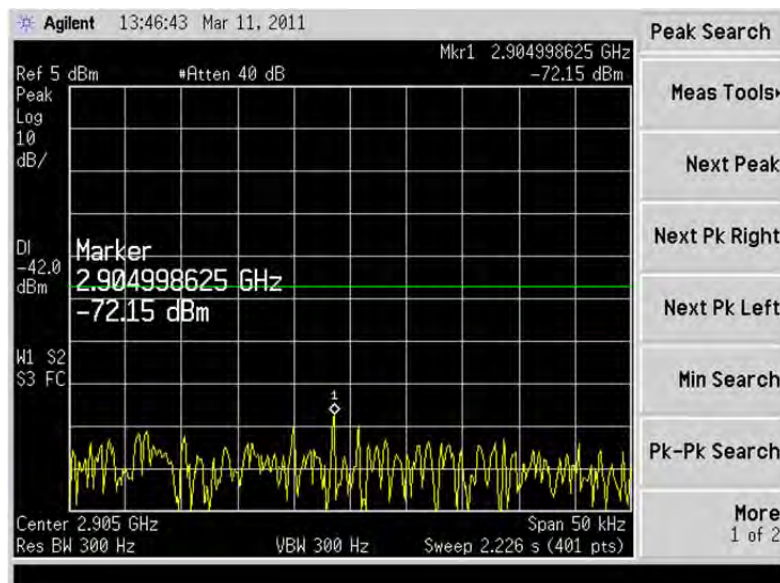
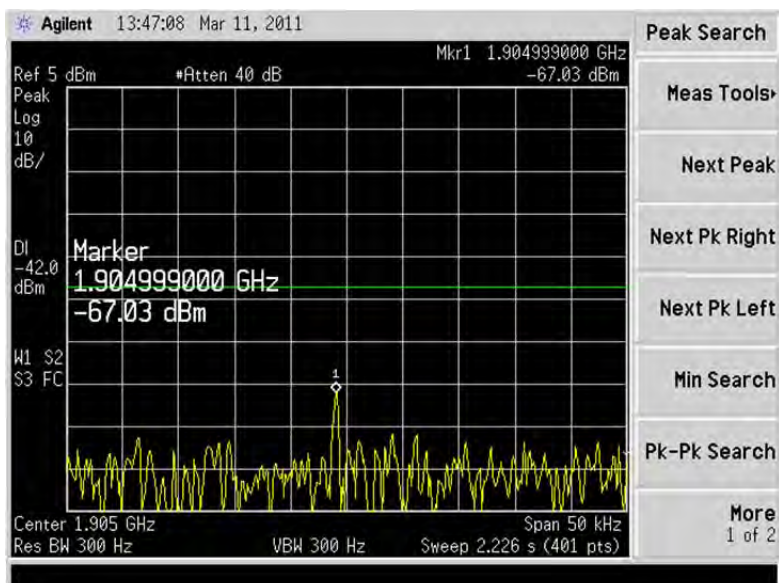


3.1.1.2 UHF power high 50mW

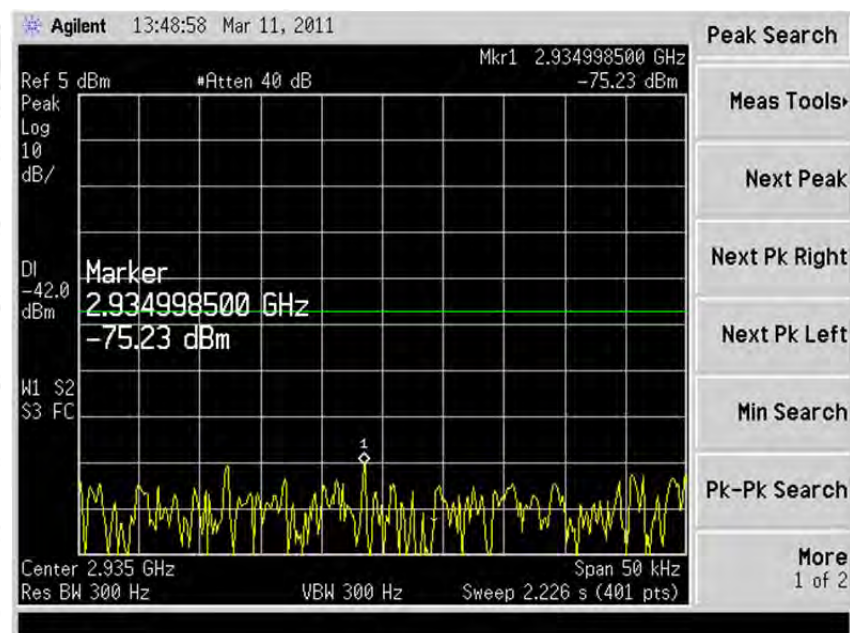
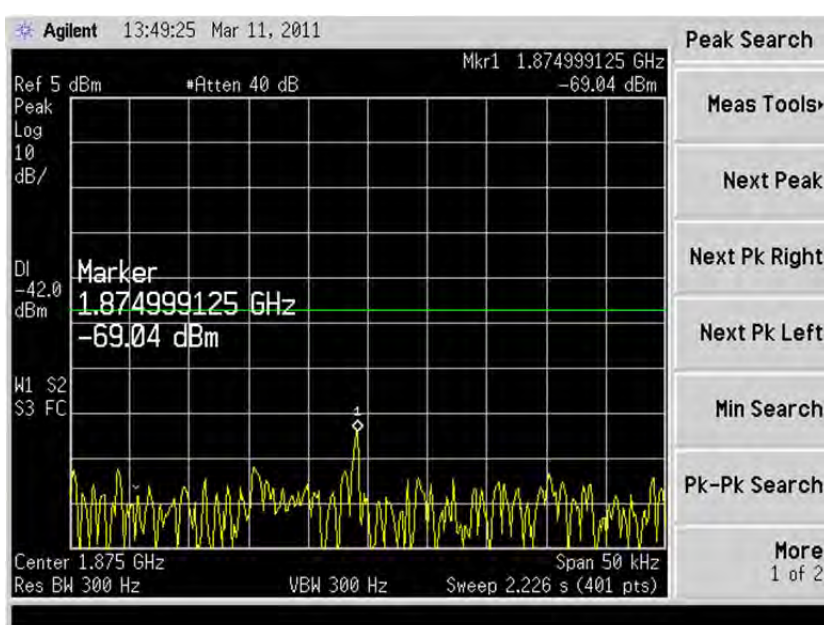
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	50mw	1935	-73.9	2875	-71.4



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	50mw	1905	-67	2905	-72



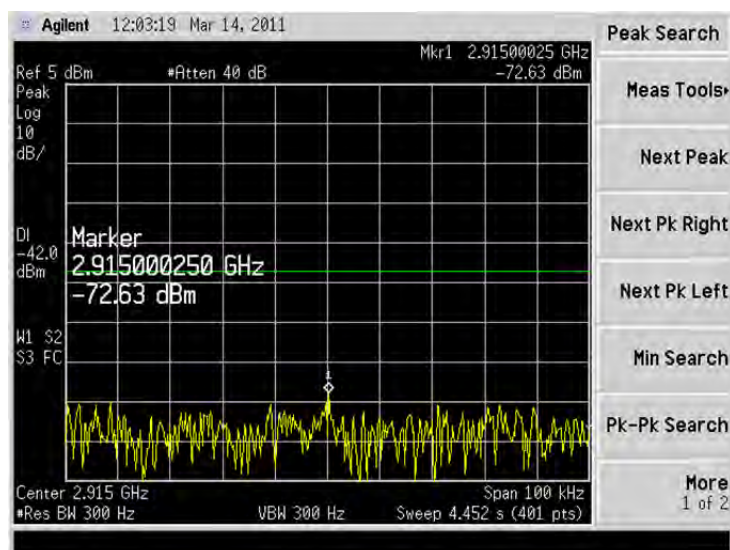
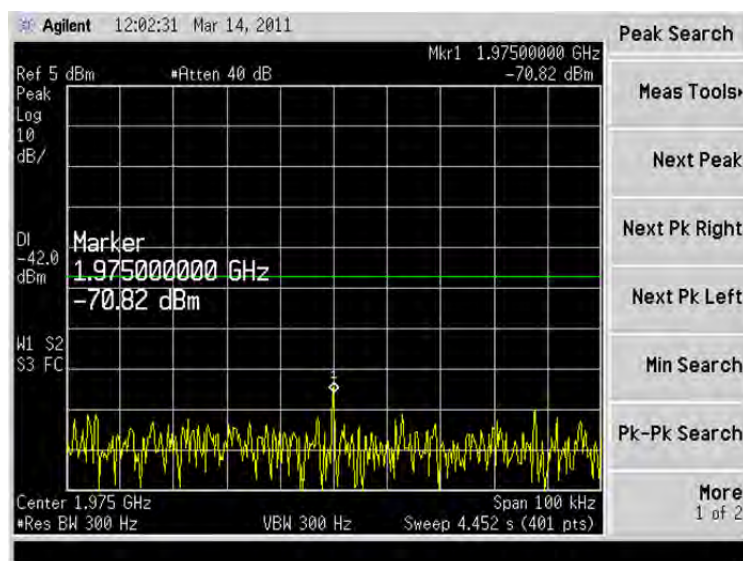
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	50mw	1875	-69	2935	-75



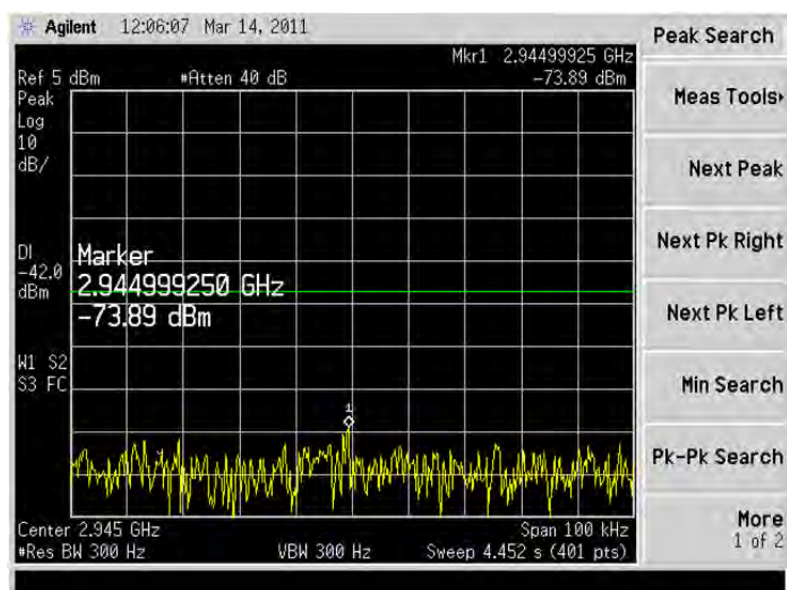
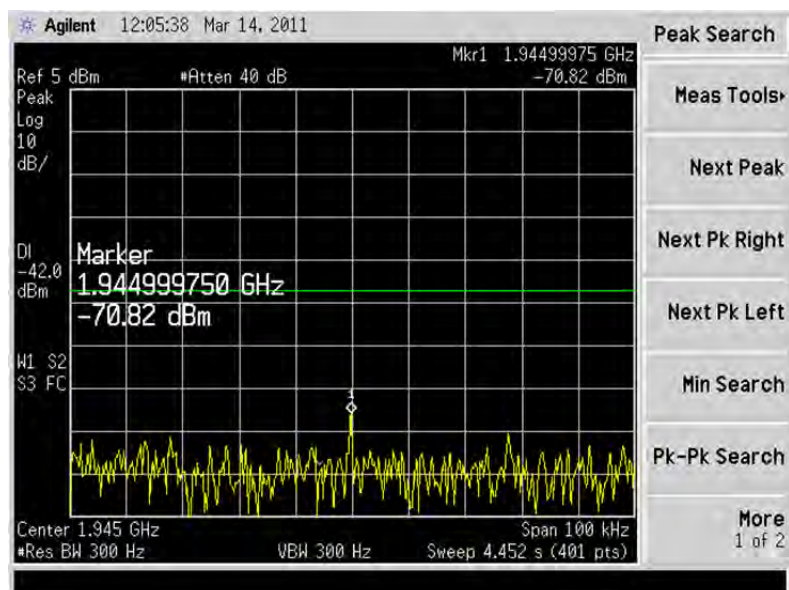
3.1.2 Zigbee mid frequency (channel 19) 2445 MHz

3.1.2.1 UHF power low 10mW

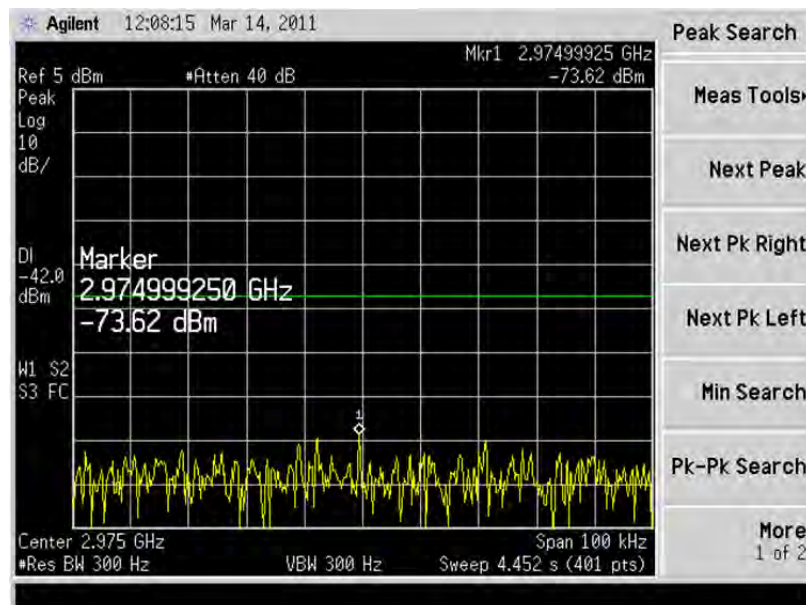
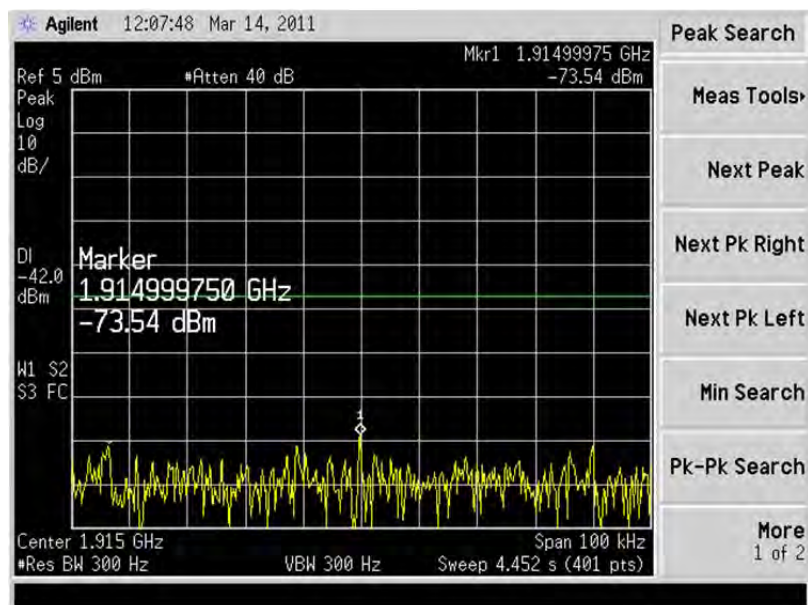
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	10mw	1975	-70.6	2915	-72



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	10mw	1945	-70.8	2945	-73

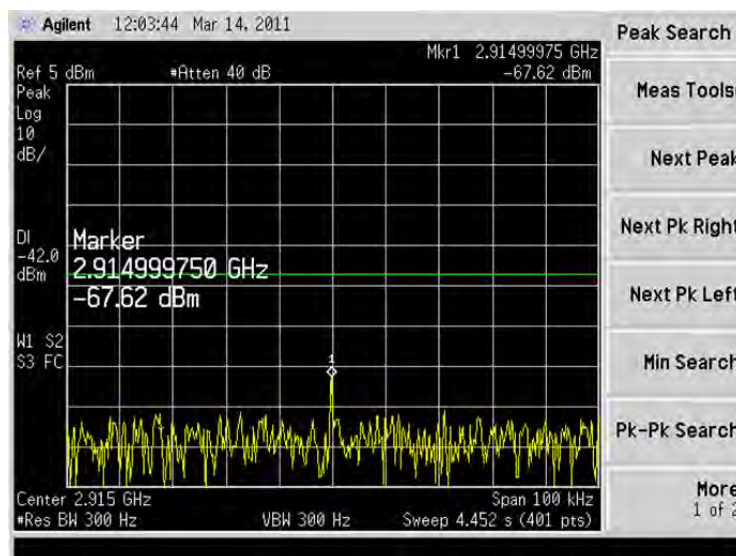
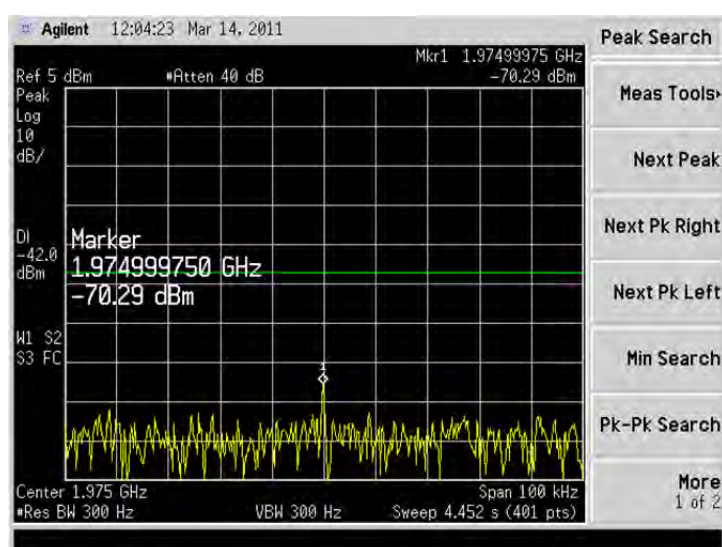


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	10mw	1915	-73.5	2975	-73.6

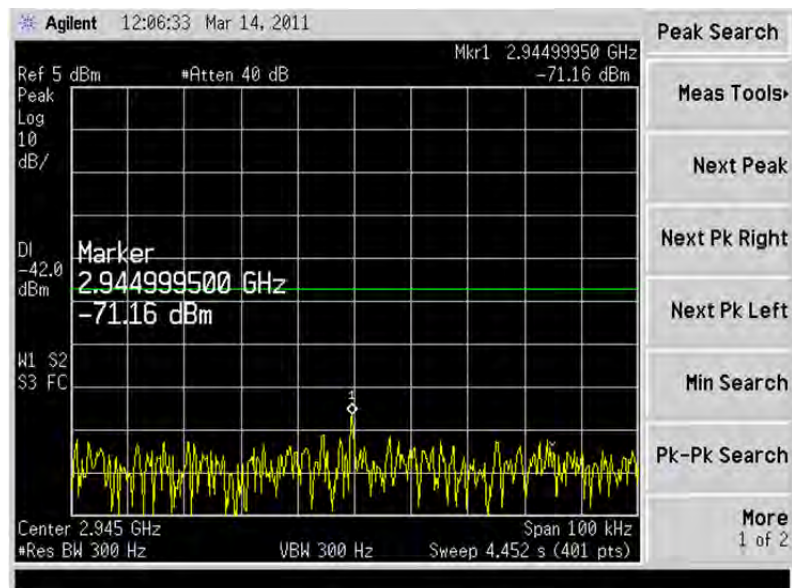
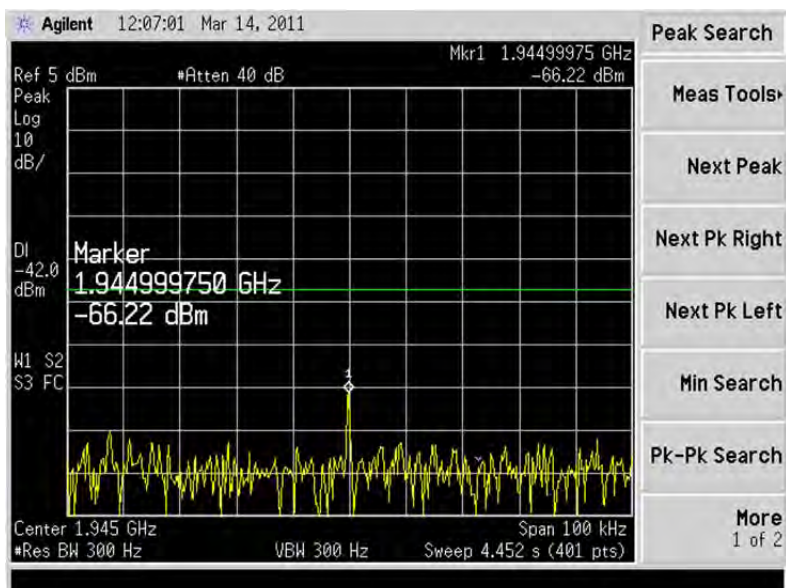


3.1.2.2 UHF power high 50mW

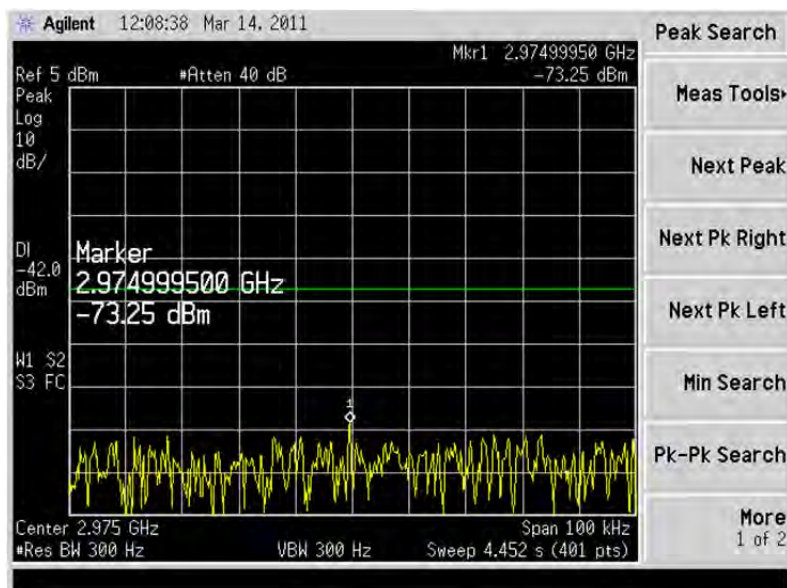
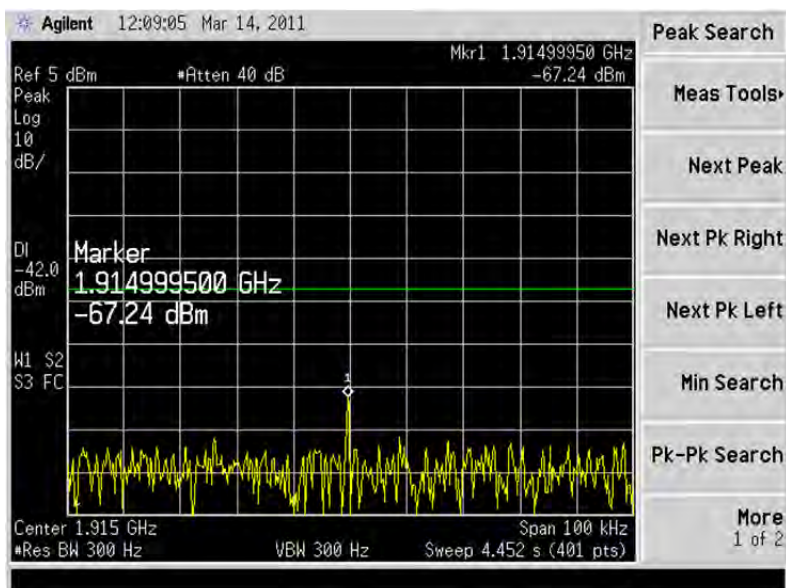
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	50mw	1975	-70.3	2915	-67.6



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	50mw	1945	-66.2	2945	-71.1



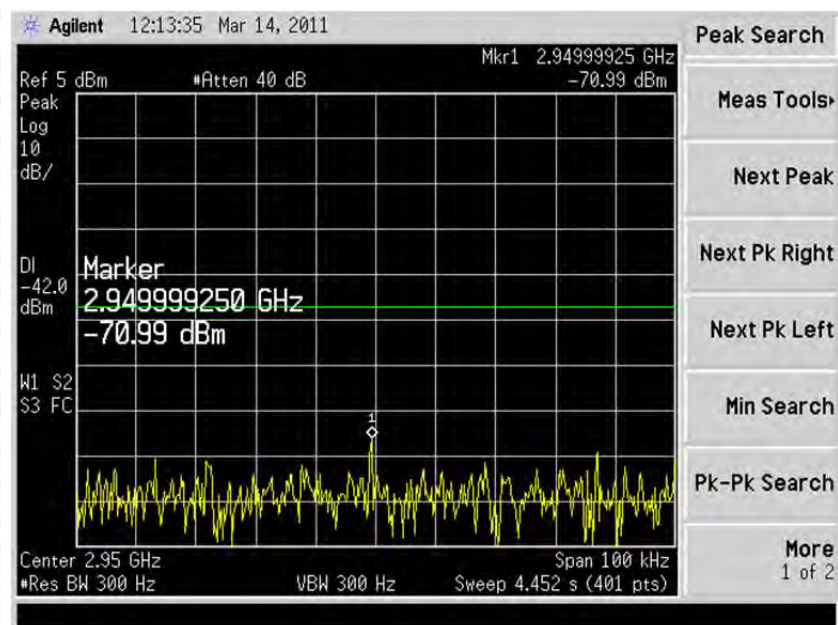
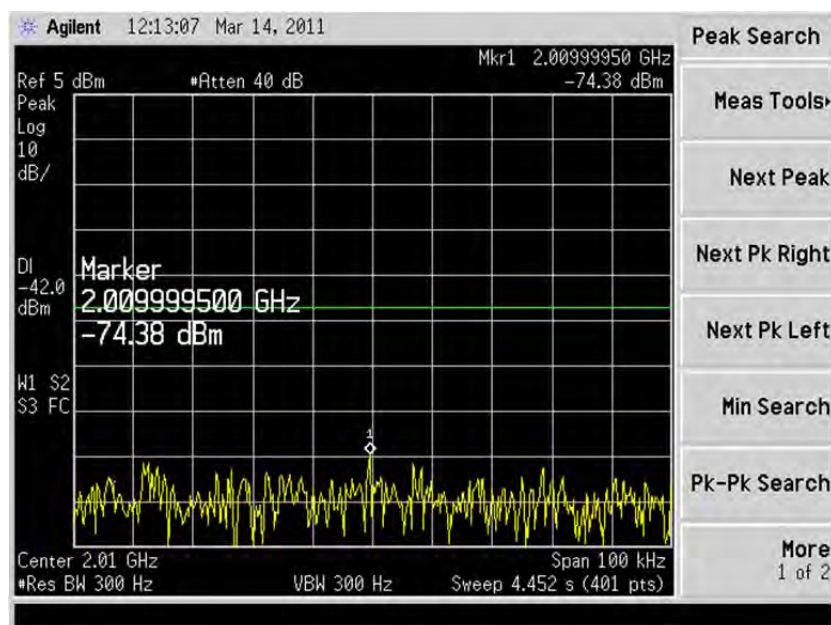
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	50mw	1915	-67.2	2975	-73.2



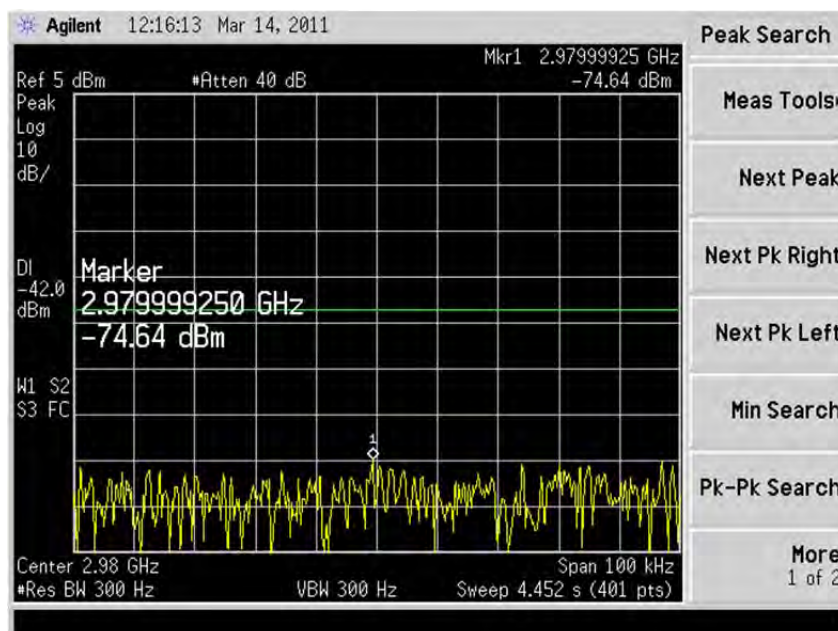
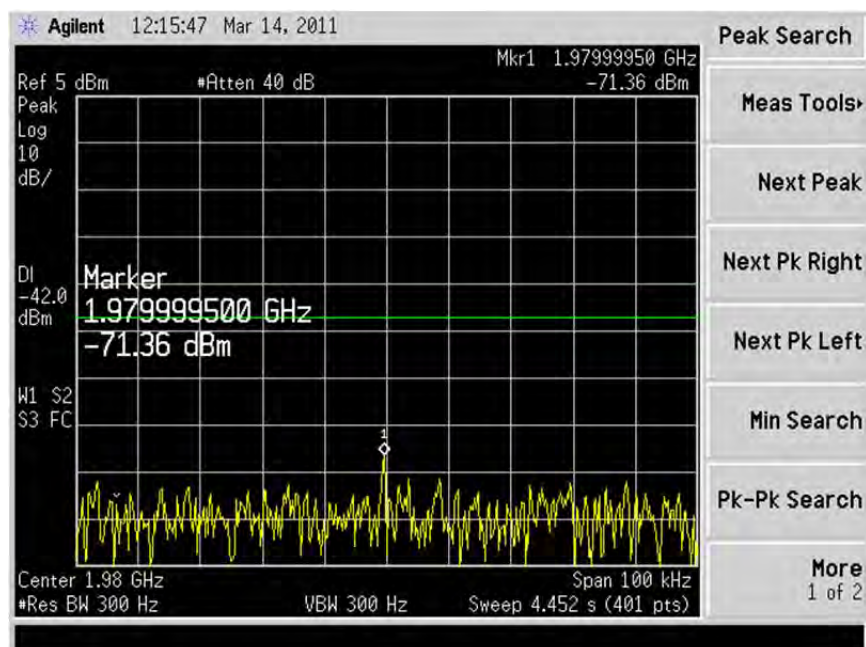
3.1.3 Zigbee high frequency (channel 26) 2480 MHz

3.1.3.1 UHF power low 10mW

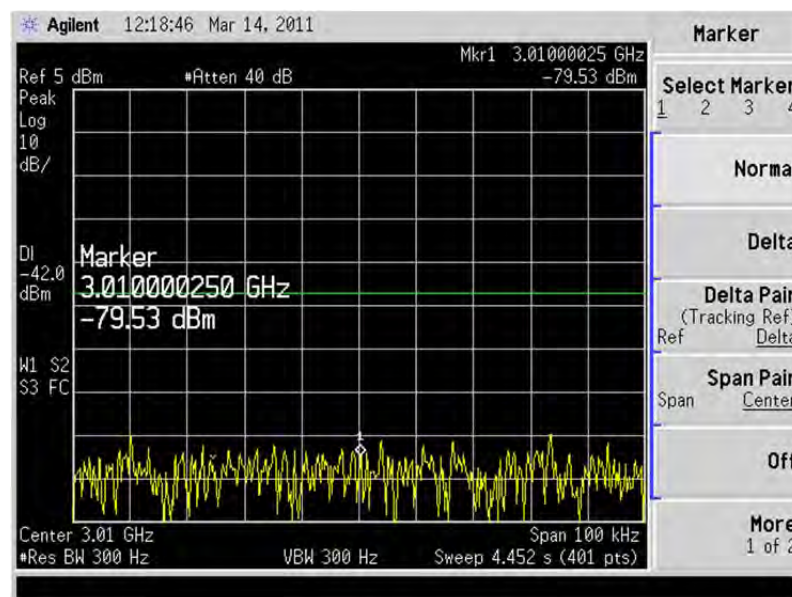
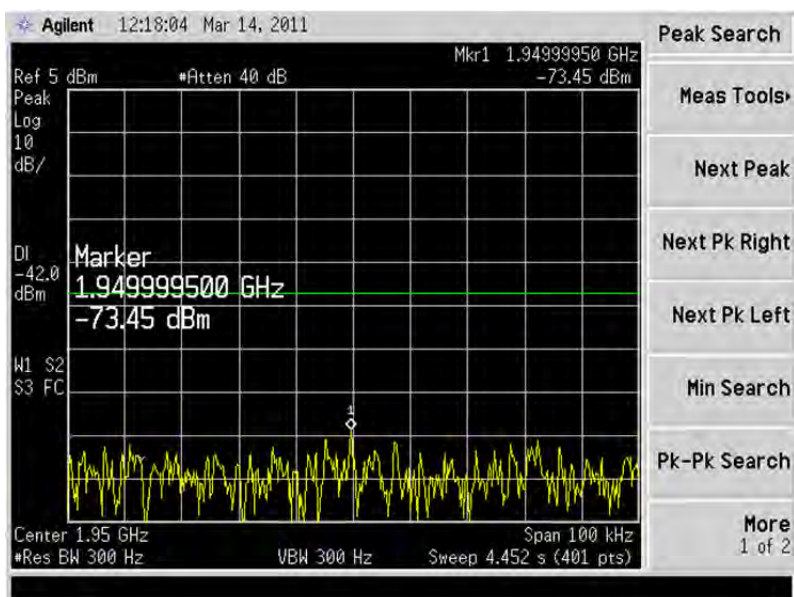
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	10mw	2010	-74.4	2950	-71



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	10mw	1980	-71.4	2980	-74.6

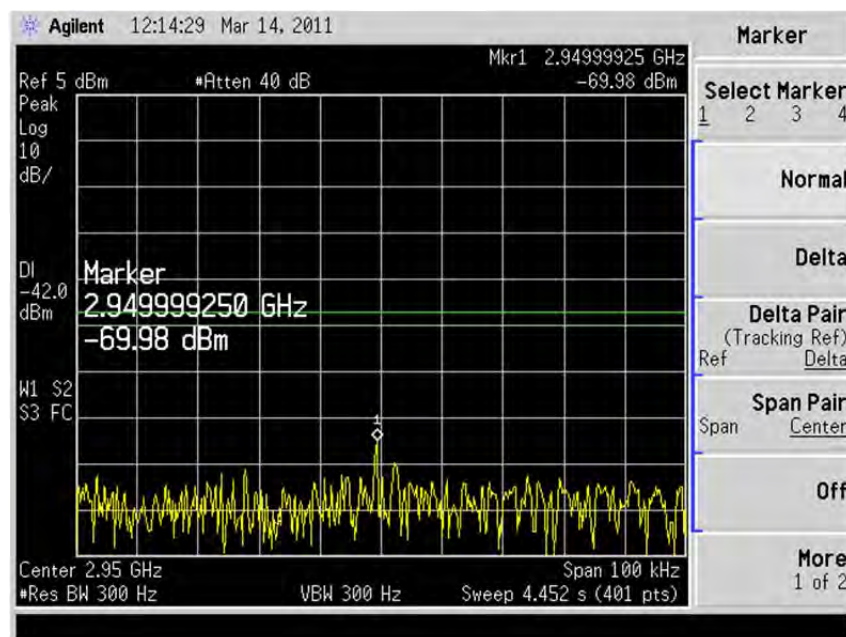
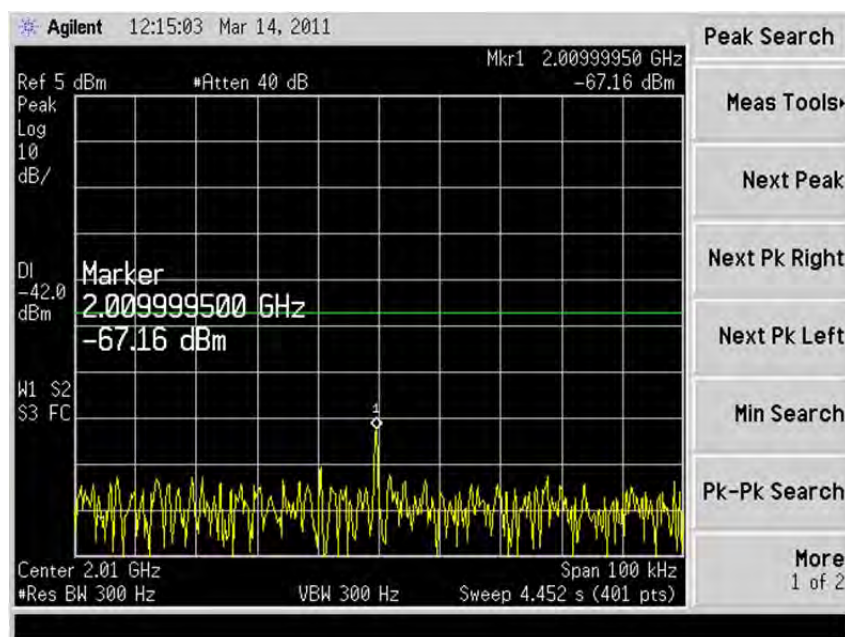


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	10mw	1950	73.4	3010	-79.5

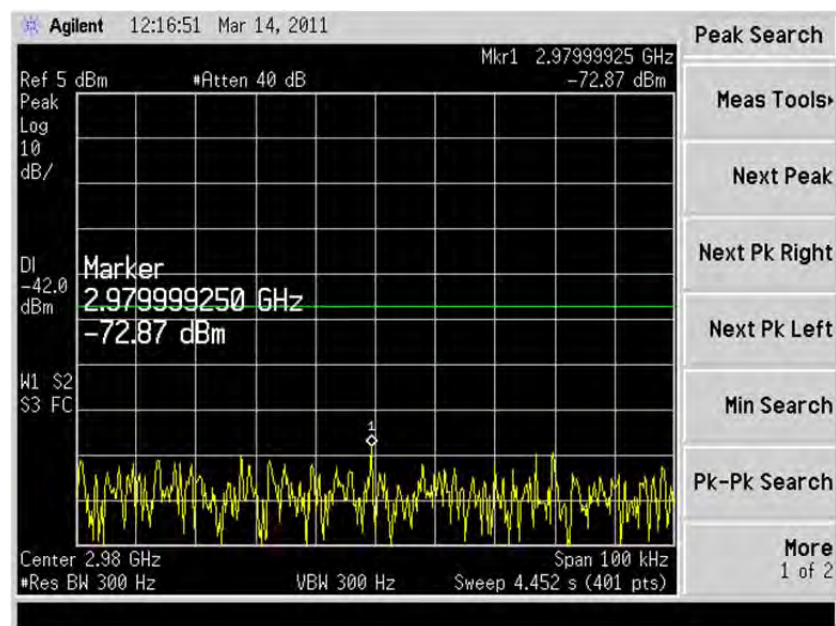
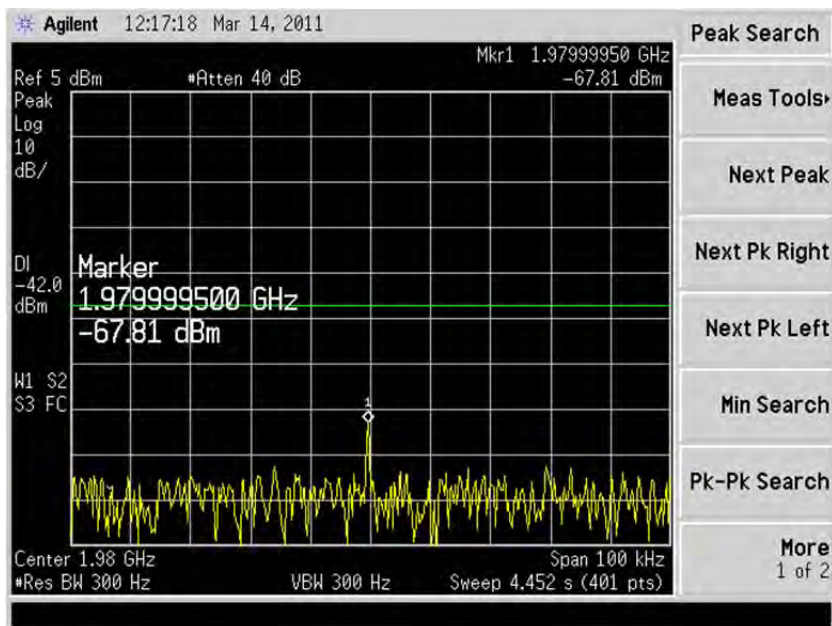


3.1.3.2 UHF power high 50mW

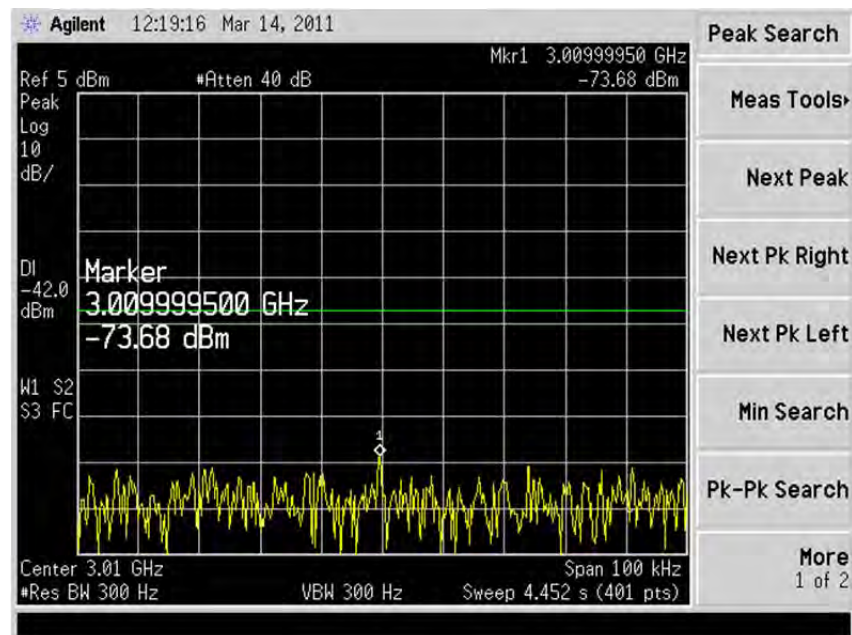
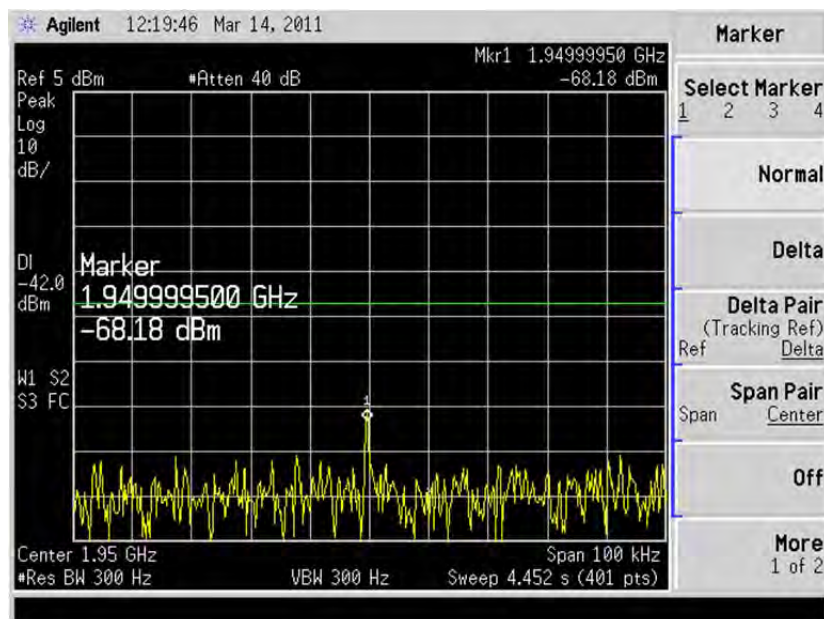
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
470	50mw	2010	-67.2	2950	-70



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
500	50mw	1980	-67.8	2980	-72.8



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
530	50mw	1950	-68.2	3010	-73.7



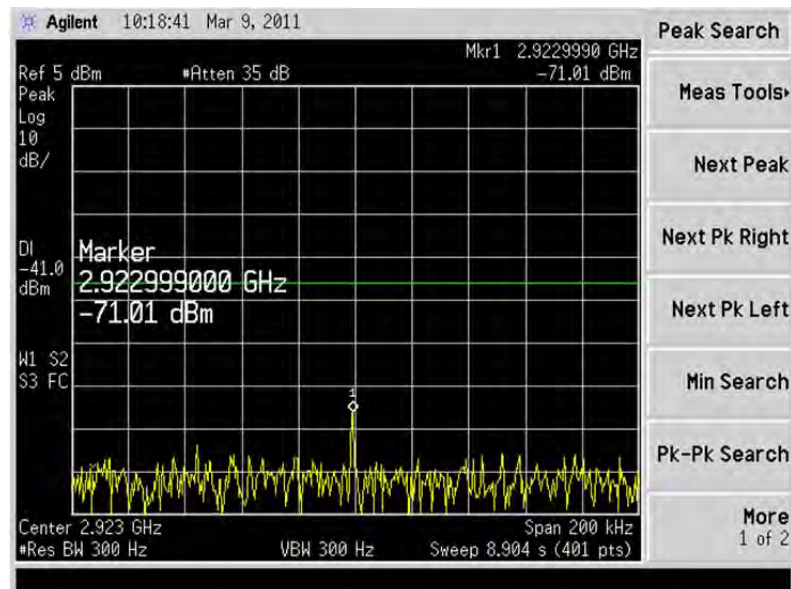
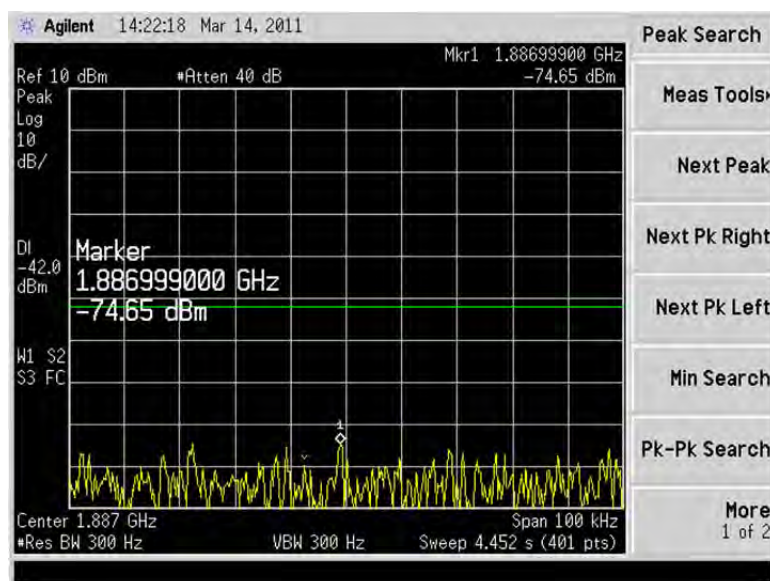
3.2 H4 band 518-578 MHz UHF-Zigbee IMD

	UHF Freq (MHz)	Zb freq (MHz)	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
Zigbee Low band	518	2405	1887	-74.6	2923	-75.4
	548	2405	1857	-74.6	2953	-82
	578	2405	1827	-74.8	2983	-85
Zigbee mid band	518	2445	1927	-74.5	2963	-79
	548	2445	1897	-78.9	2993	-78.9
	578	2445	1867	-75.2	3023	-82.4
Zigbee high band	518	2480	1962	-75.7	2998	-78.5
	548	2480	1932	-75.6	3028	-82.6
	578	2480	1902	-75	3058	-82
Zigbee Low band	518	2405	1887	-66.5	2923	-80
	548	2405	1857	-68.1	2953	-77.3
	578	2405	1827	-70	2983	-70
Zigbee mid band	518	2445	1927	-67.5	2963	-81
	548	2445	1897	-68.7	2993	-72.6
	578	2445	1867	-76	3023	-82
Zigbee high band	518	2480	1962	-69	2998	-69.3
	548	2480	1932	-71	3028	-82
	578	2480	1902	-68.5	3058	-80

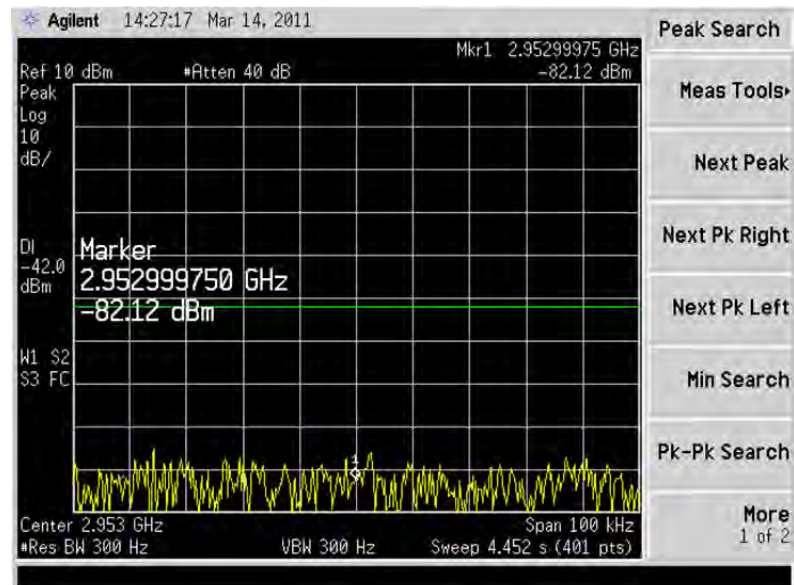
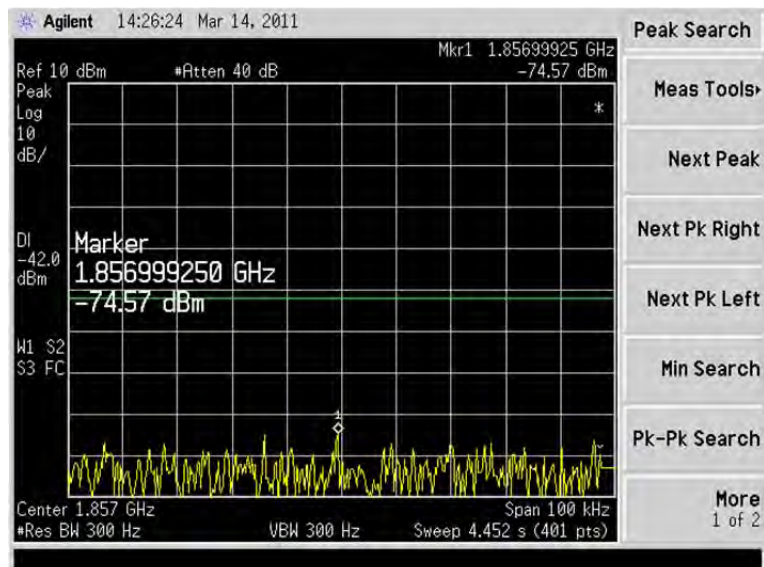
3.2.1 Zigbee low frequency (Channel 11) 2405 MHz

3.2.1.1 UHF power low 10mW

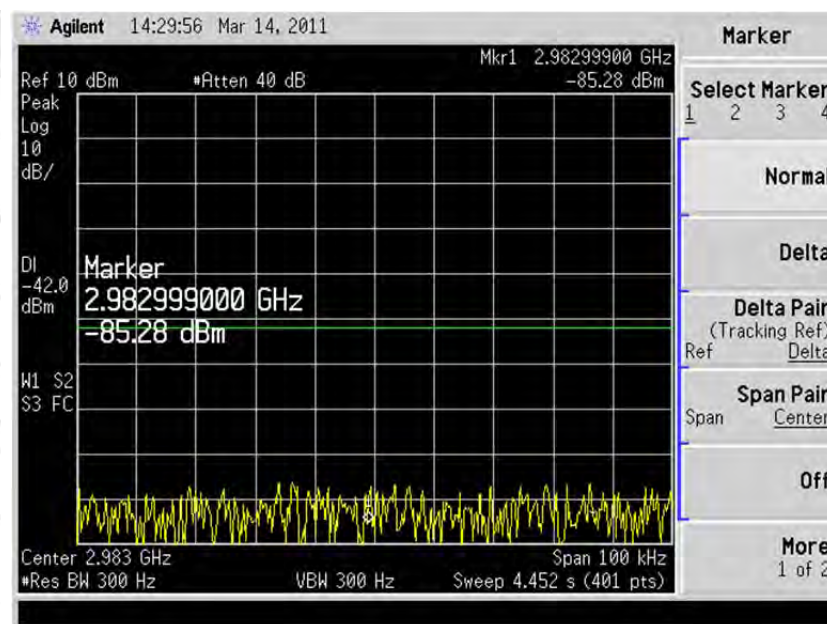
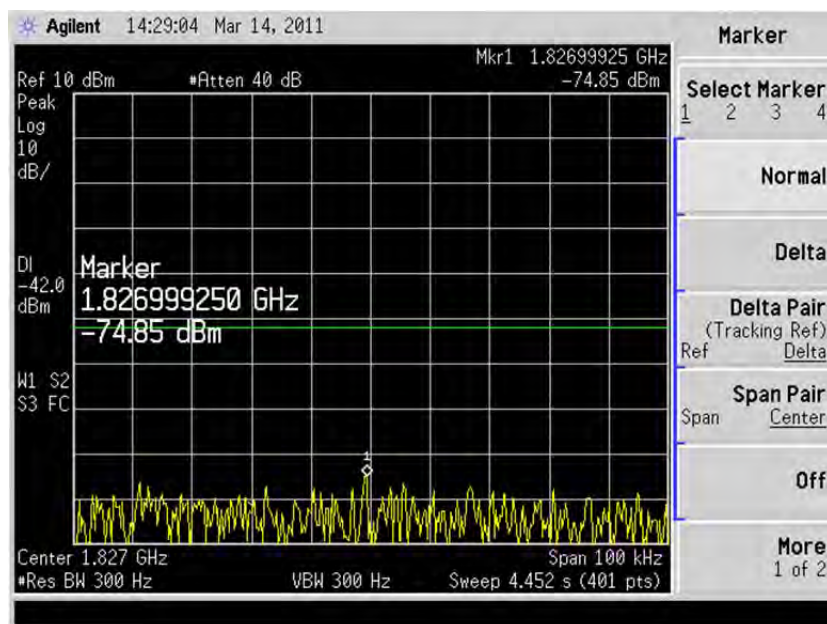
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	10mw	1887	-74.6	2923	-71



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	10mw	1857	-74.6	2953	-82

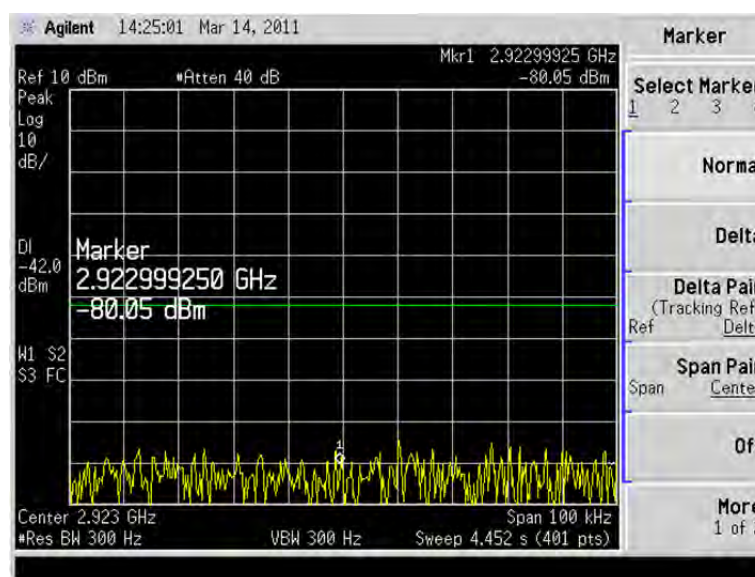
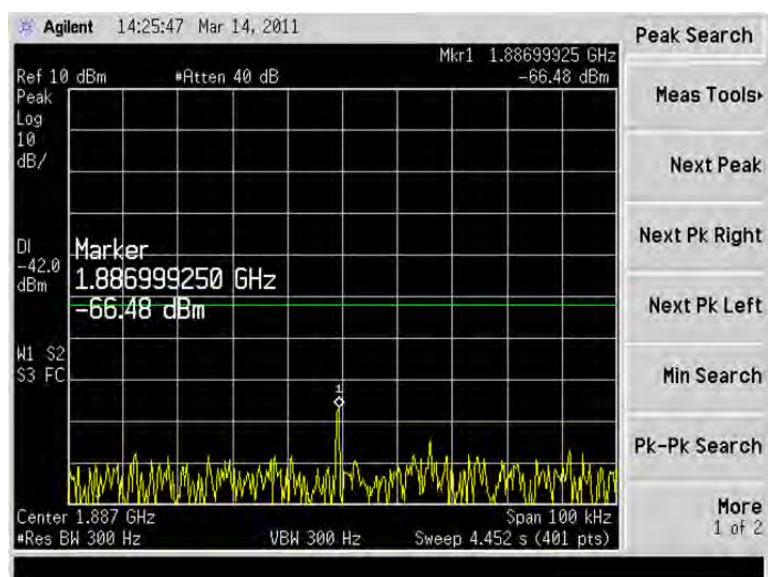


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1827	-74.8	2983	-85.3

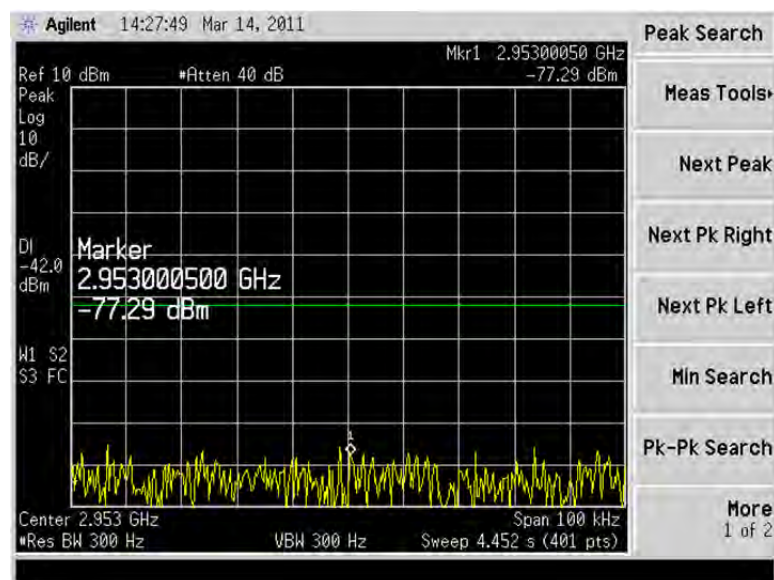
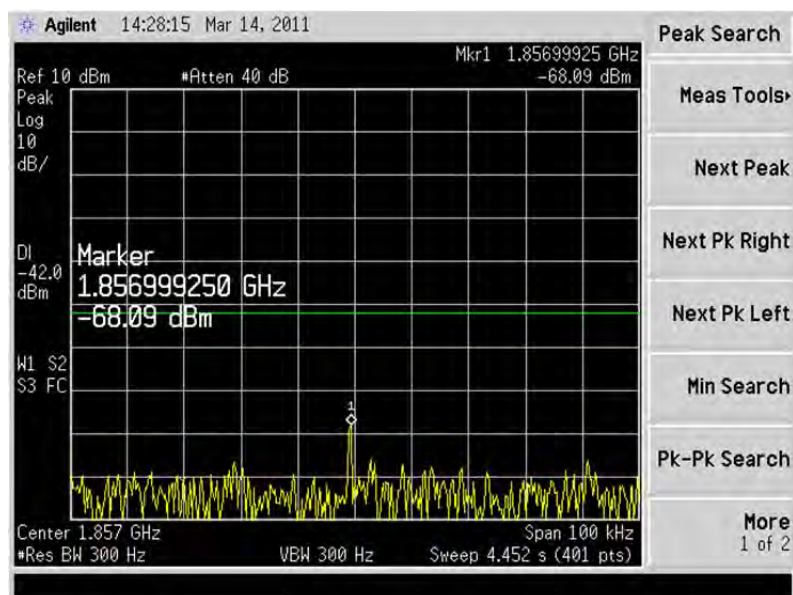


3.2.1.2 UHF power high 50mW

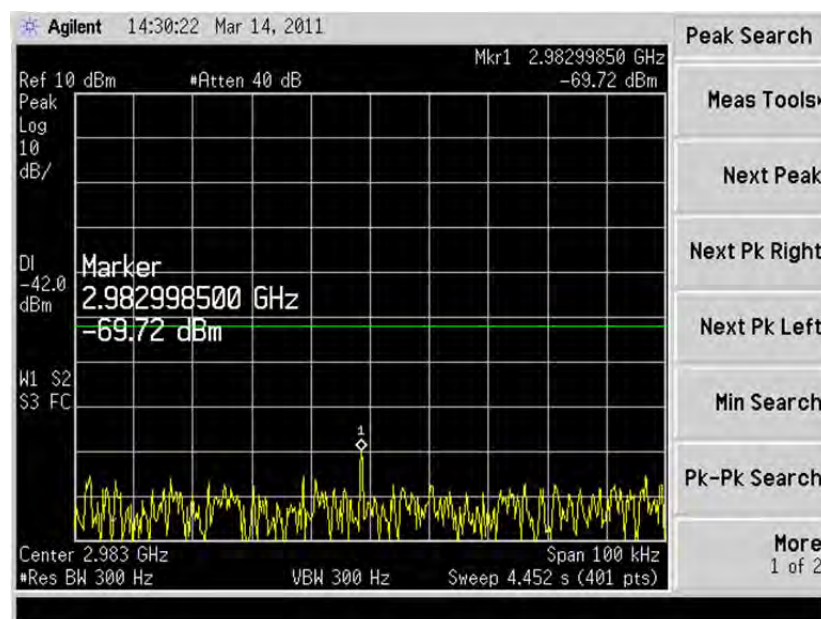
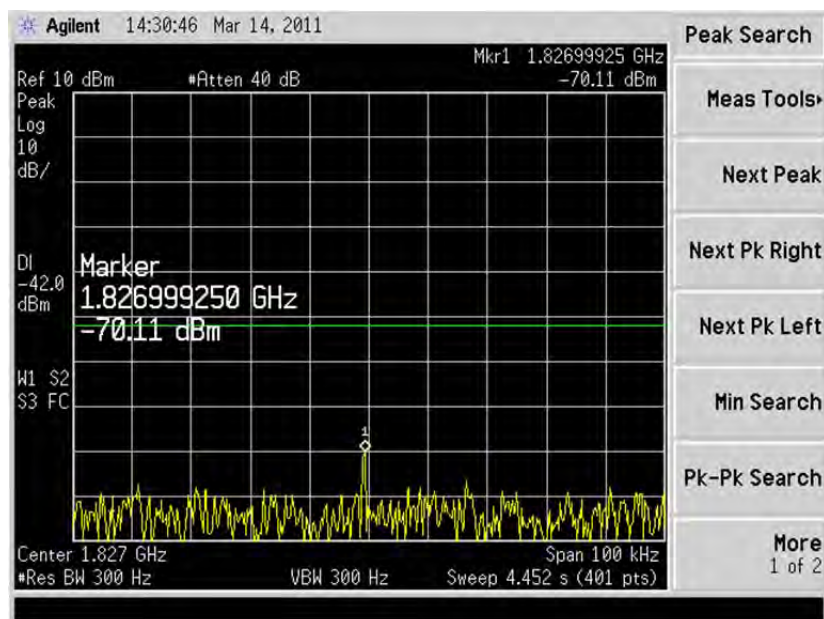
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	50mw	1887	-66.5	2923	-80



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	50mw	1857	-68	2953	-77



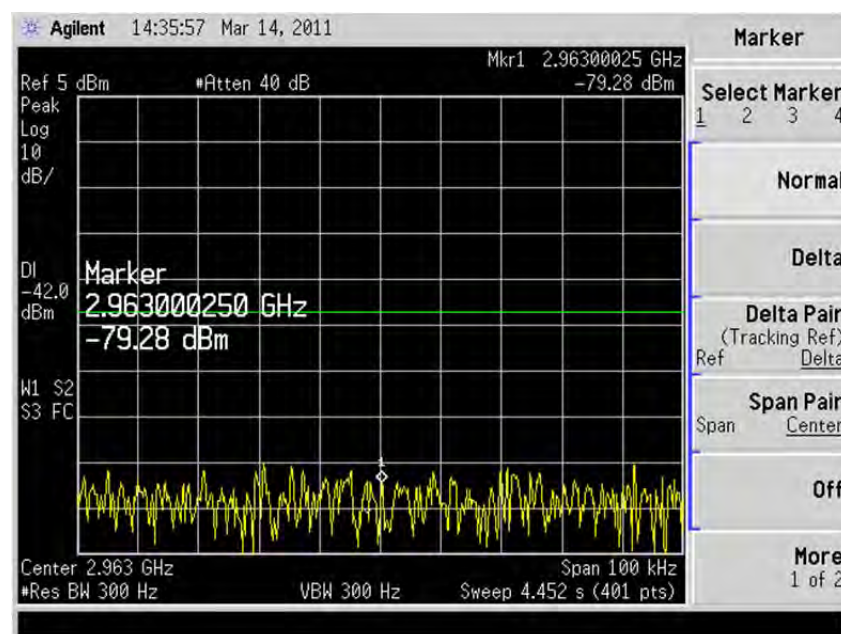
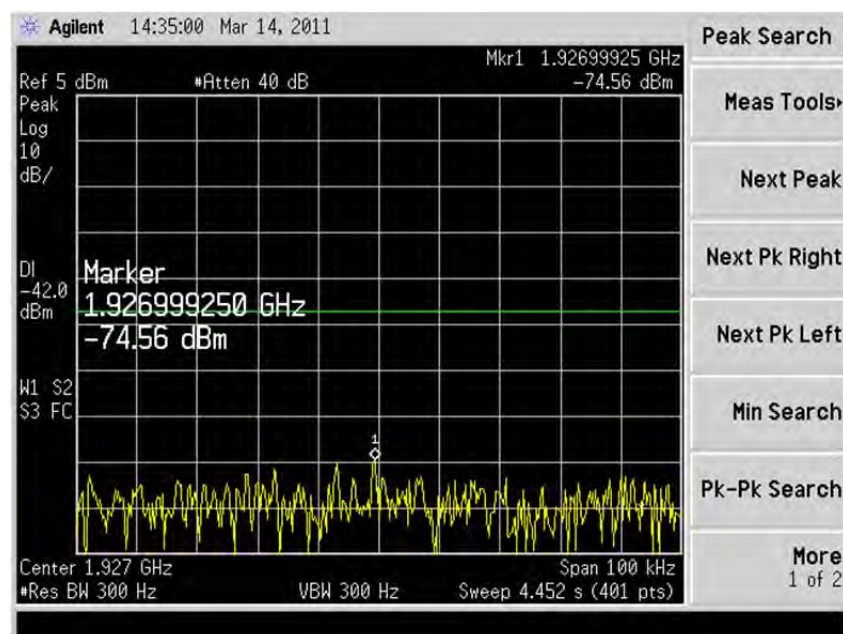
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	100mw	1827	-70	2983	-69.7



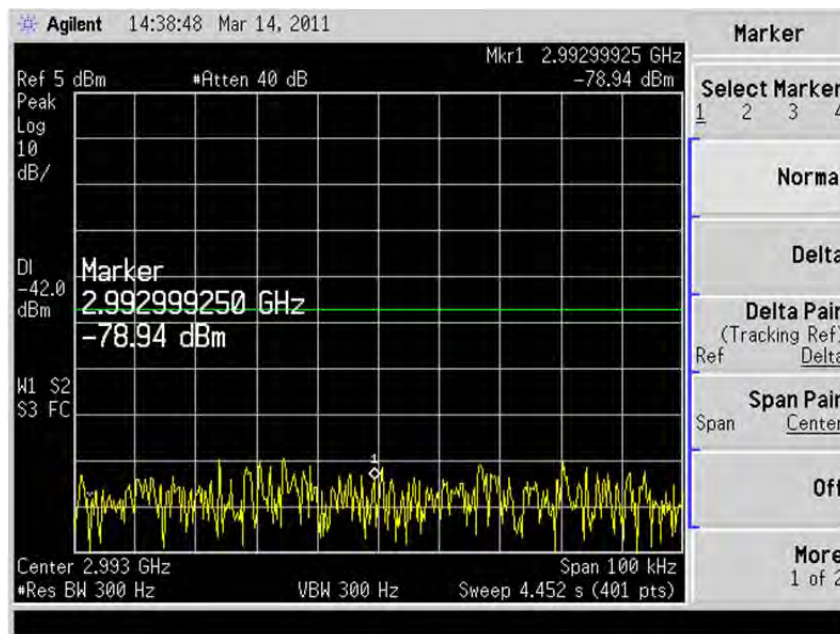
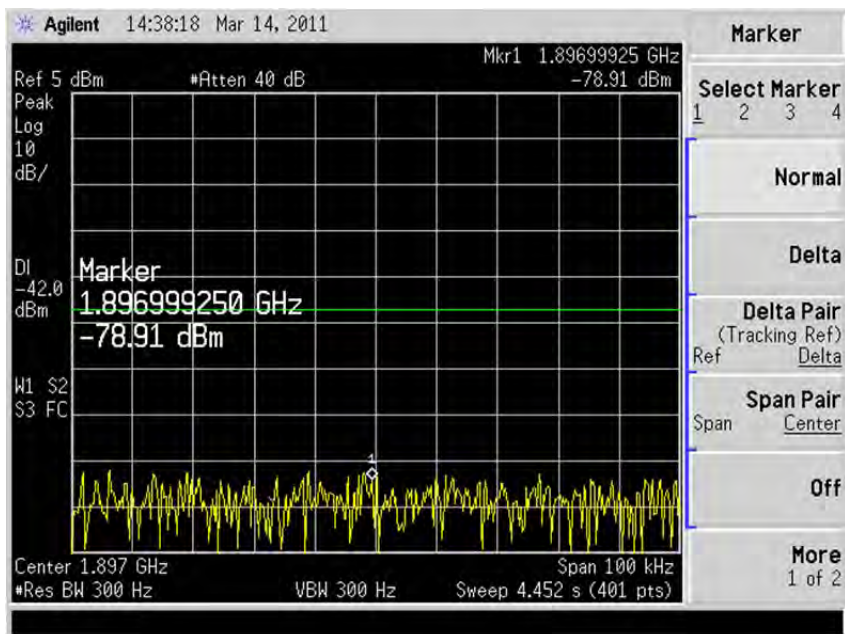
3.2.2 Zigbee mid frequency (channel 19) 2445 MHz

3.2.2.1 UHF power low 10mW

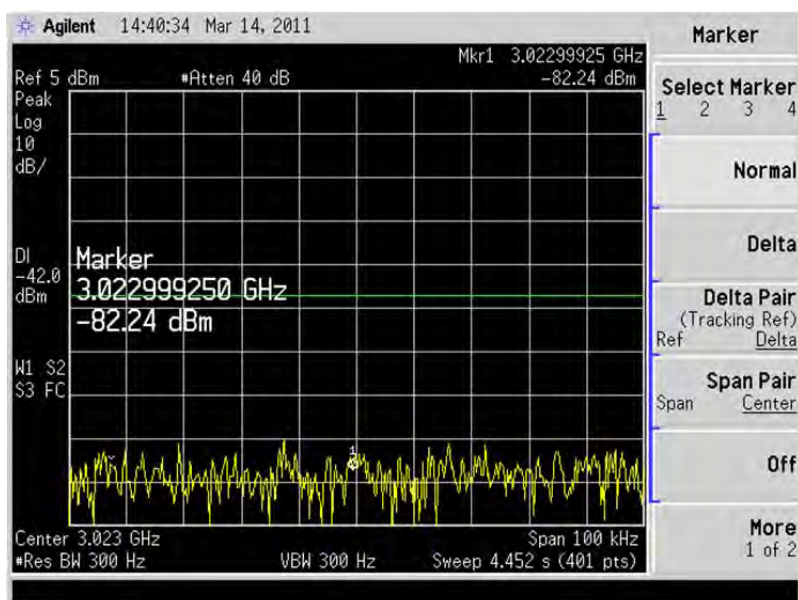
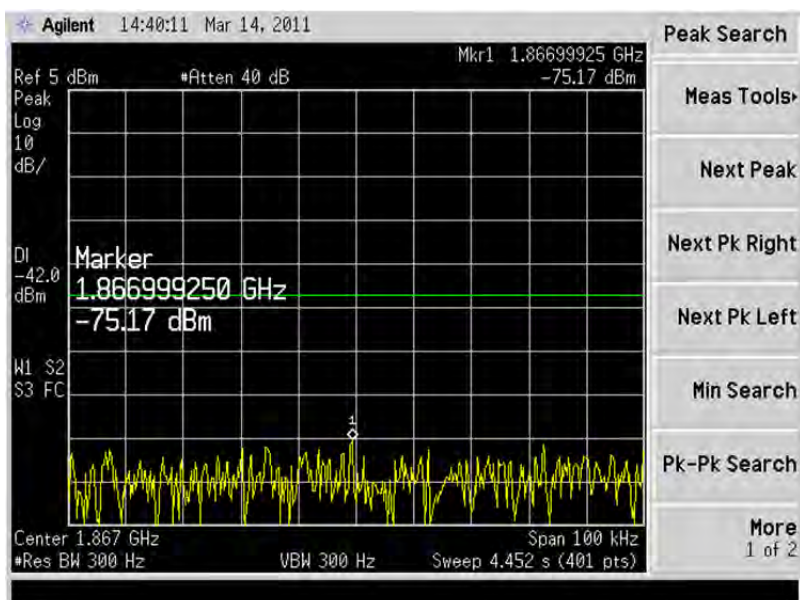
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	10mw	1927	-74	2963	-79



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	10mw	1897	-79.9	2993	-78.9

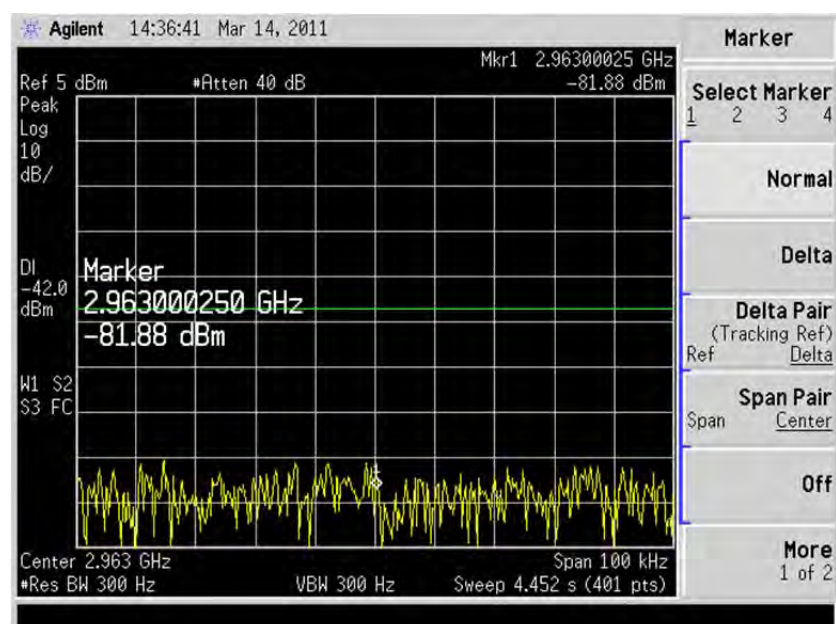
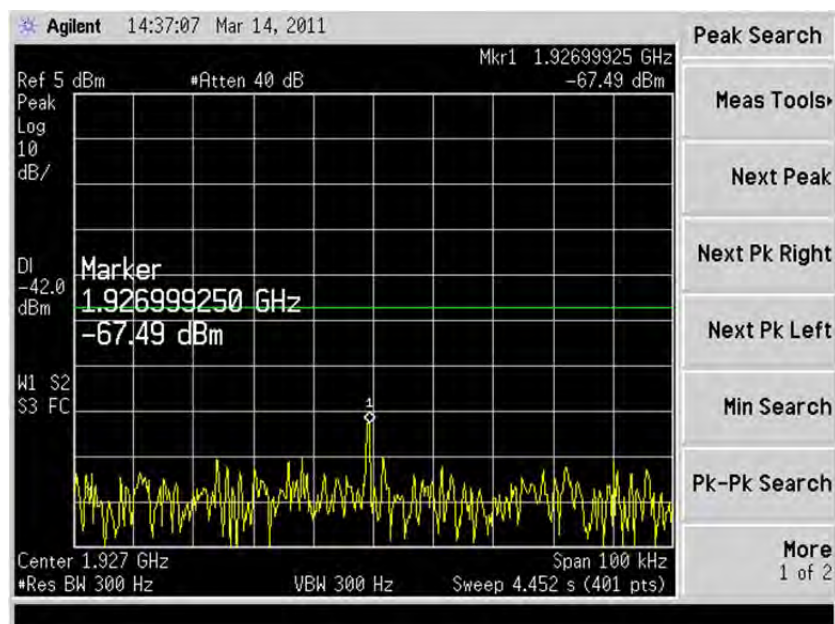


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1867	-75.2	3023	-82.2

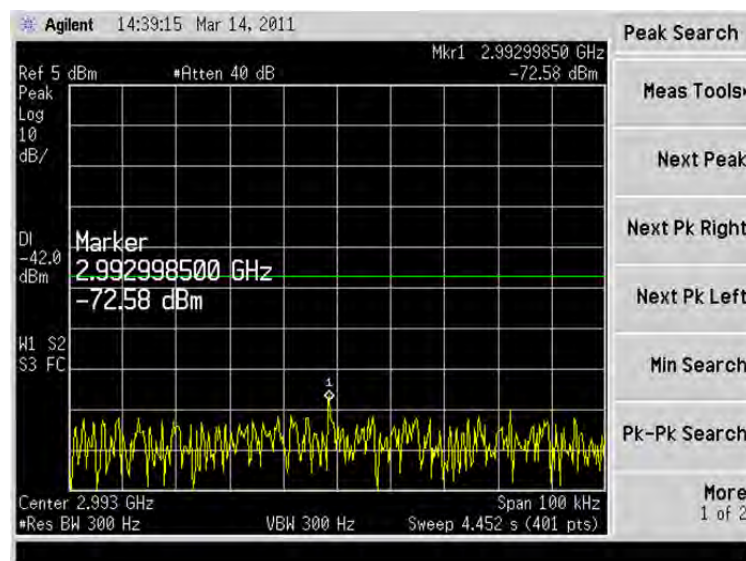
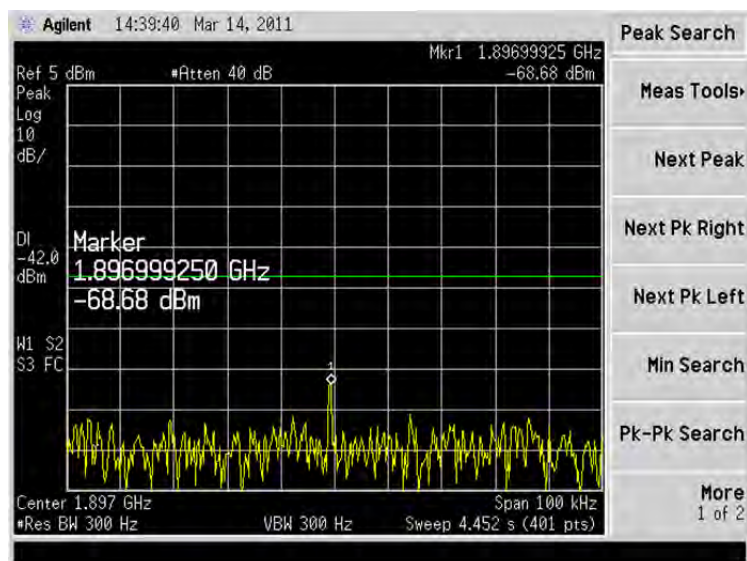


3.2.2.2 UHF power high 50mW

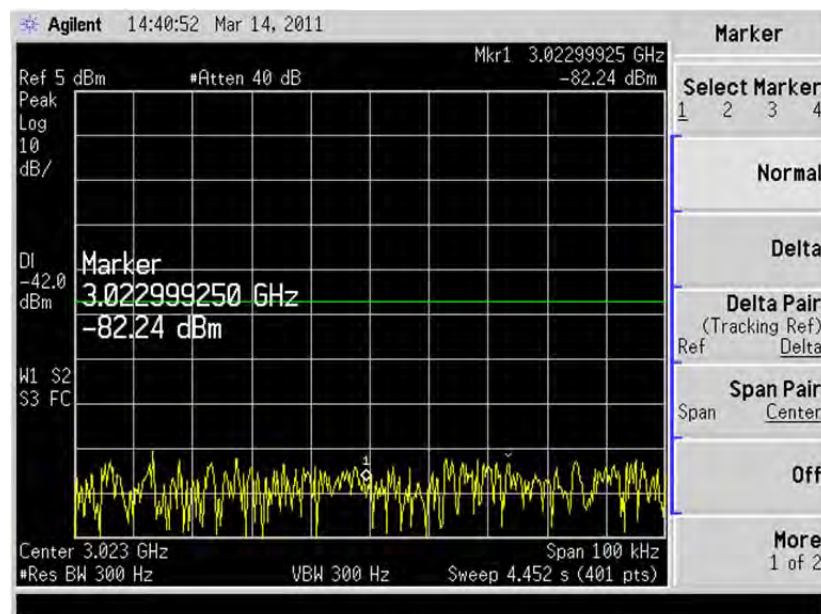
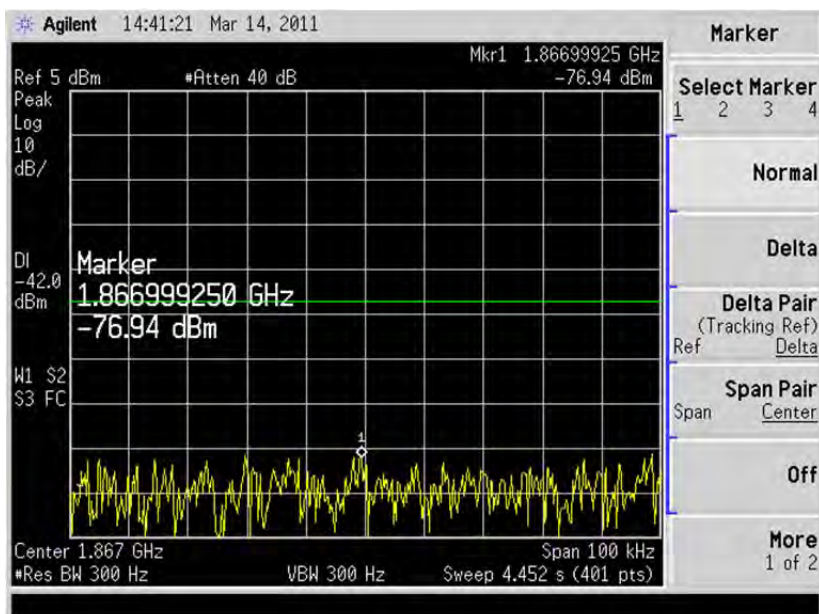
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	50mw	1927	-67.4	2963	-81



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	50mw	1897	-68.6	2993	-72.6



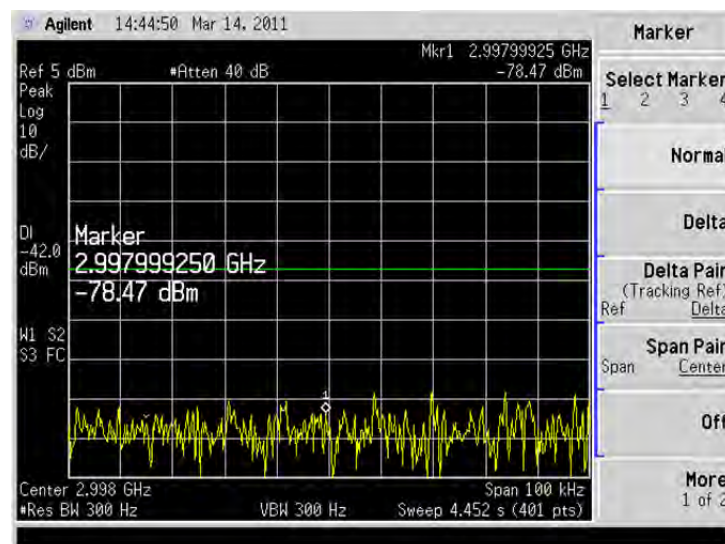
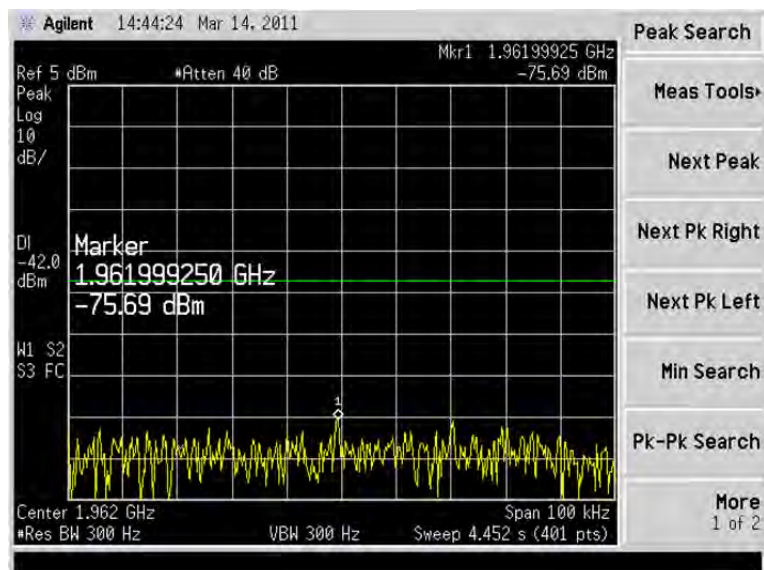
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	50mw	1867	-76.9	3023	-82.2



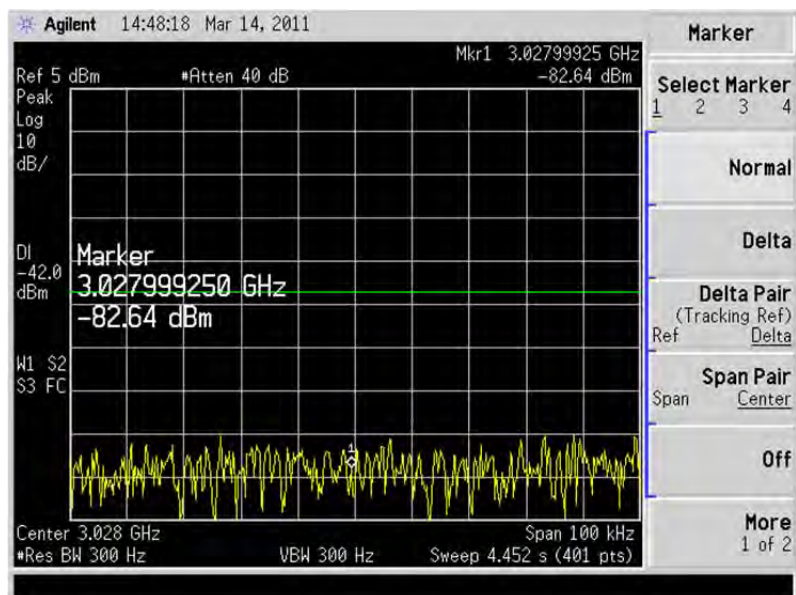
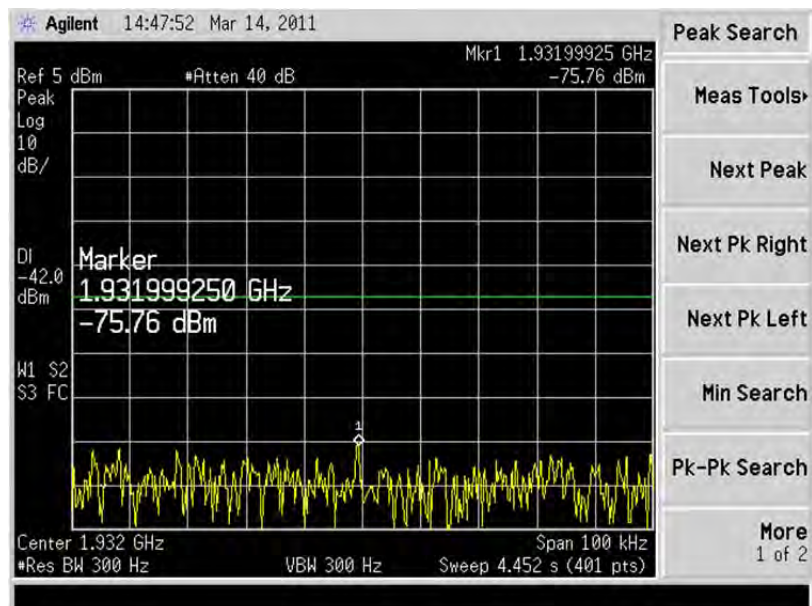
3.2.3 Zigbee high frequency (channel 26) 2480 MHz

3.2.3.1 UHF power low 10mW

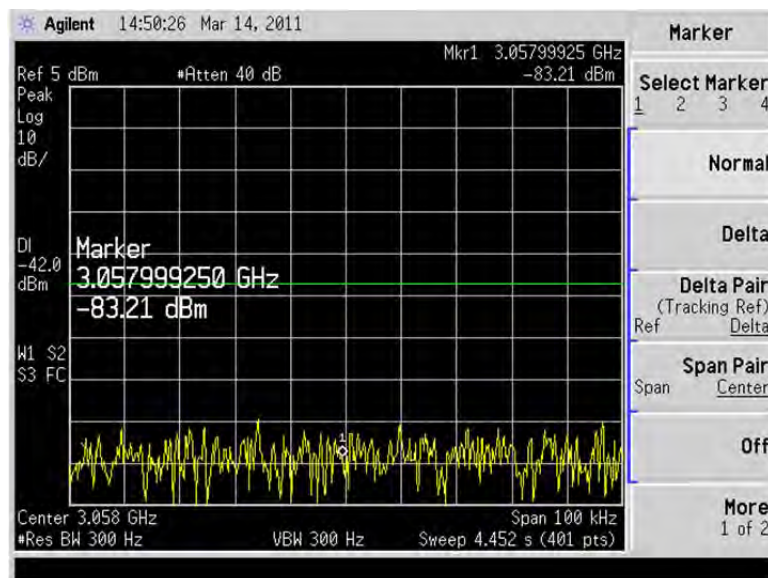
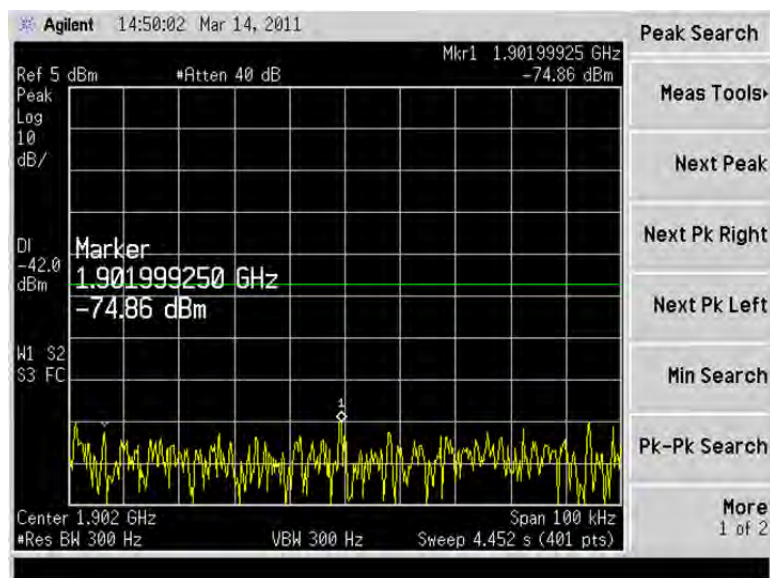
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	10mw	1962	-75.7	2998	-78.5



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	10mw	1932	-75.7	3027	-82.6

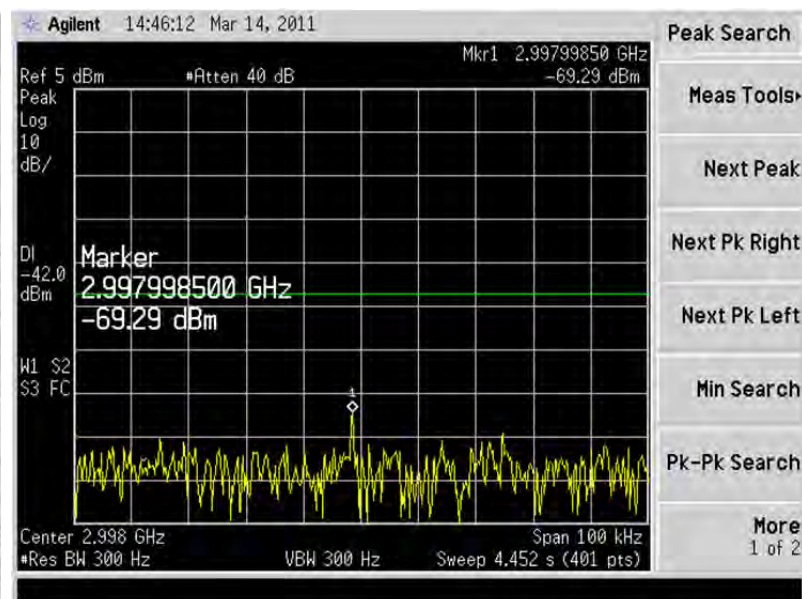
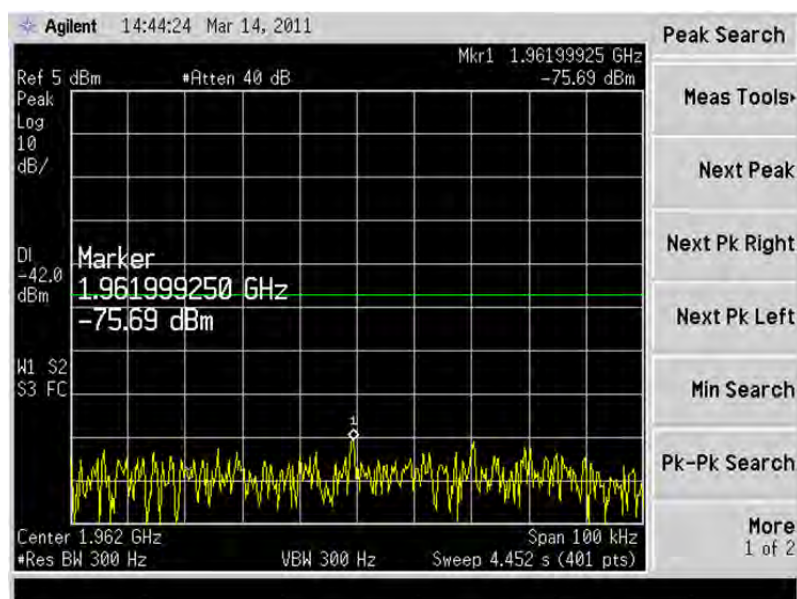


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1902	--74.8	-3056	-83.2

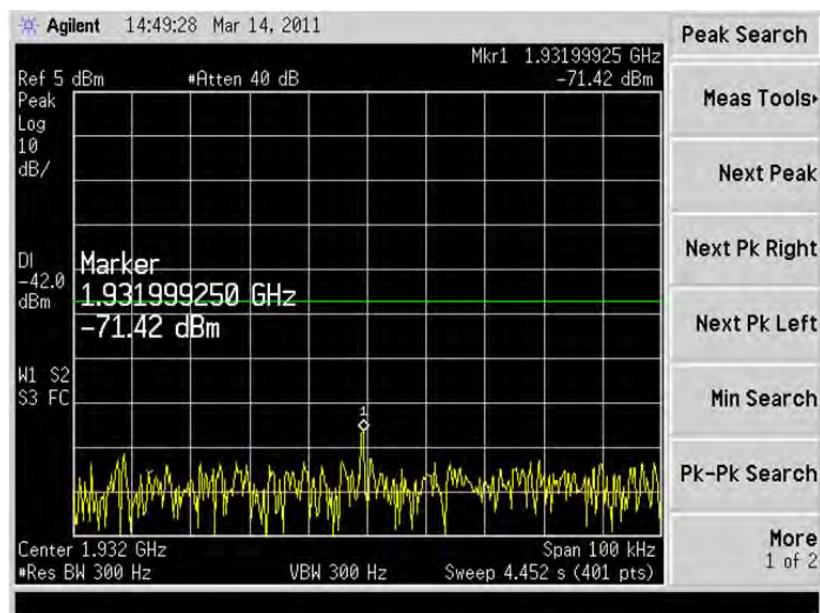
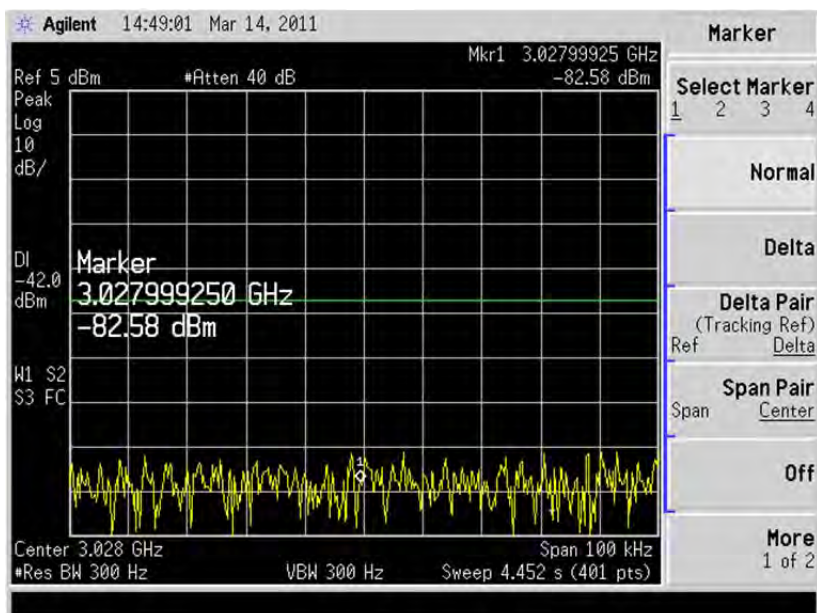


3.2.3.2 UHF power high 50mW

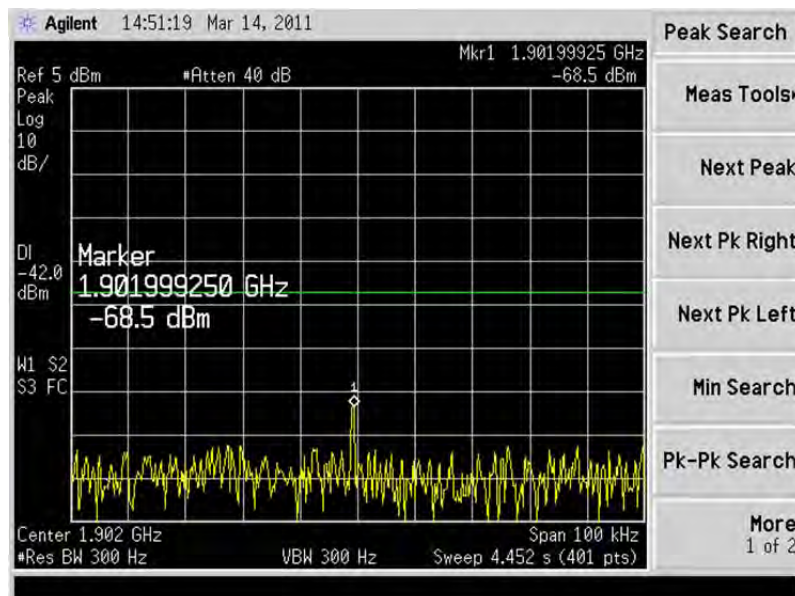
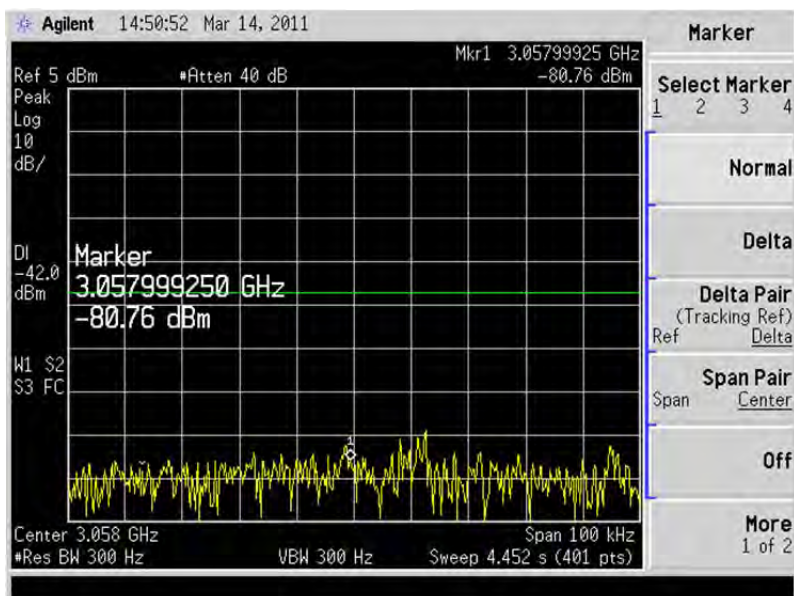
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
518	50mW	1962	-75	2998	-69.2



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
548	50mW	19.2	-71.4	3028	-82.6



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	50mW	1901	-68.5	3057	-80.7



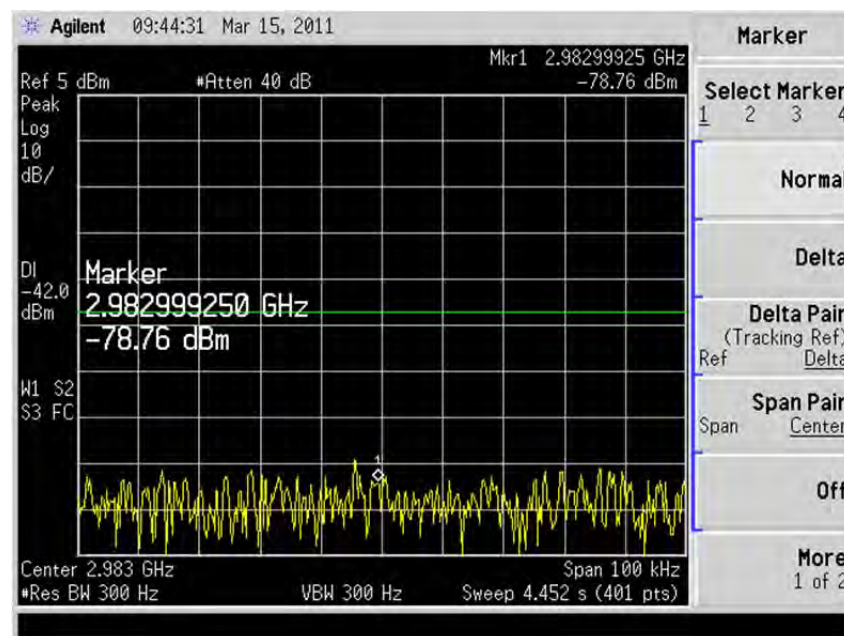
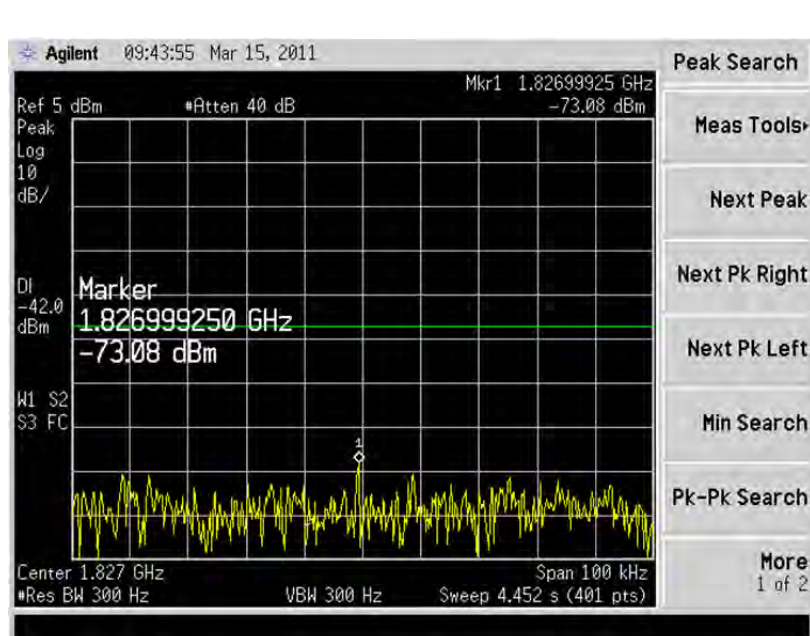
3.3 J5 band 578-638 MHz UHF-Zigbee IMD

	UHF Freq (MHz)	Zb freq (MHz)	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
Zigbee Low band	578	2405	1827	-73.1	2983	-78
	607	2405	1798	-75.8	3012	-77.8
	638	2405	1767	-77	3043	-81
Zigbee mid band	578	2445	1867	-81	3023	-82
	607	2445	1838	-79	3052	-86
	638	2445	1807	-76	3083	-84
Zigbee high band	578	2480	1902	-74	3058	-76
	607	2480	1873	-75.4	3087	-86
	638	2480	1842	-75.3	3118	-83
Zigbee Low band	578	2405	1827	-69.7	2983	-69.5
	607	2405	1798	-73	3012	-80
	638	2405	1767	-69.3	3043	-81
Zigbee mid band	578	2445	1867	-70	3023	-81
	607	2445	1838	-70	3052	-78.8
	638	2445	1807	-71	3083	-82
Zigbee high band	578	2480	1902	-72	3058	-78
	607	2480	1873	-70.6	3087	-81
	638	2480	1842	-74	3118	-81

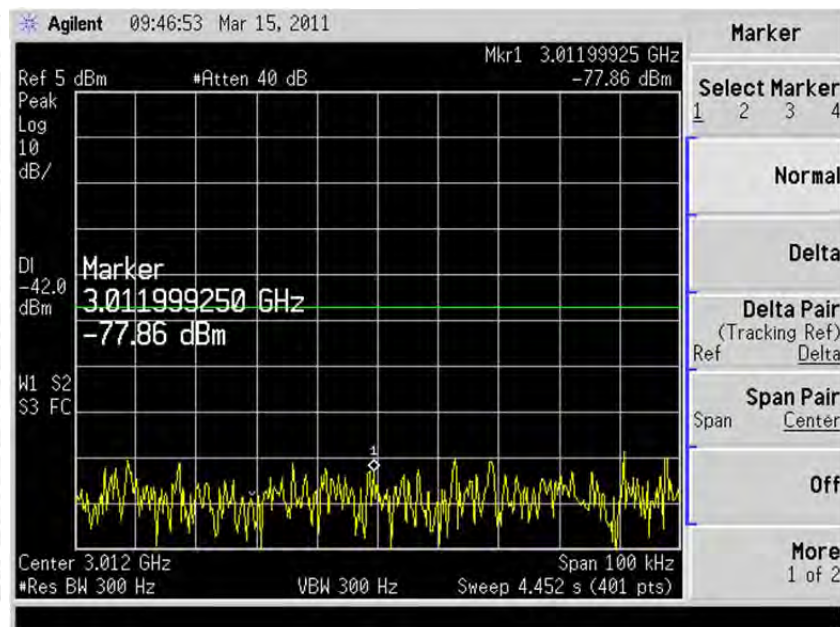
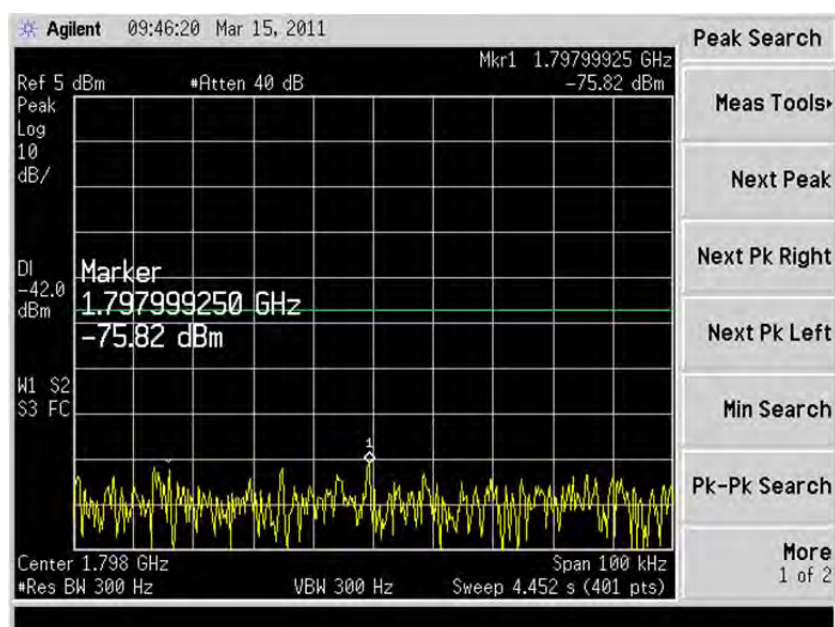
3.3.1 Zigbee low frequency (Channel 11) 2405 MHz

3.3.1.1 UHF low power 10mW

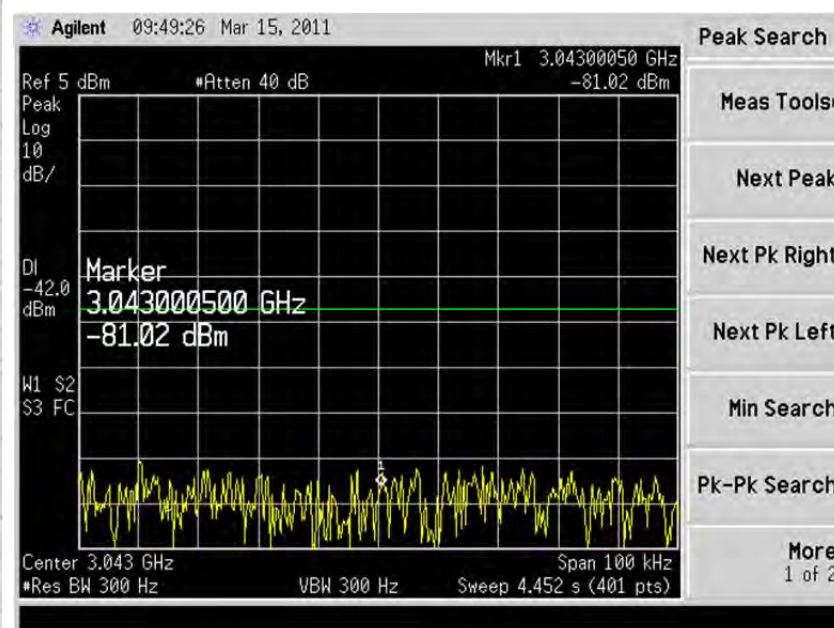
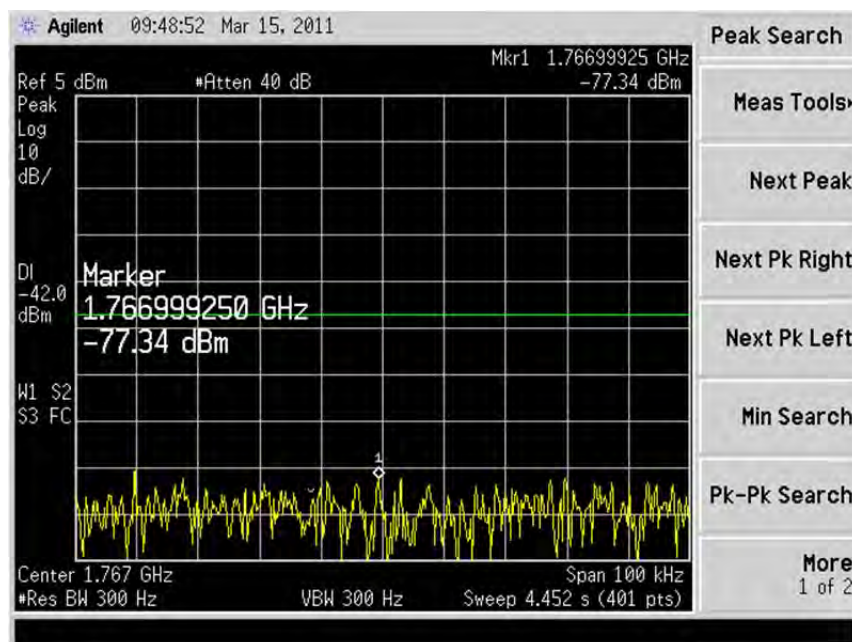
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1827	-73	2983	-78.7



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	10mw	1978	-75.8	3012	-77.8

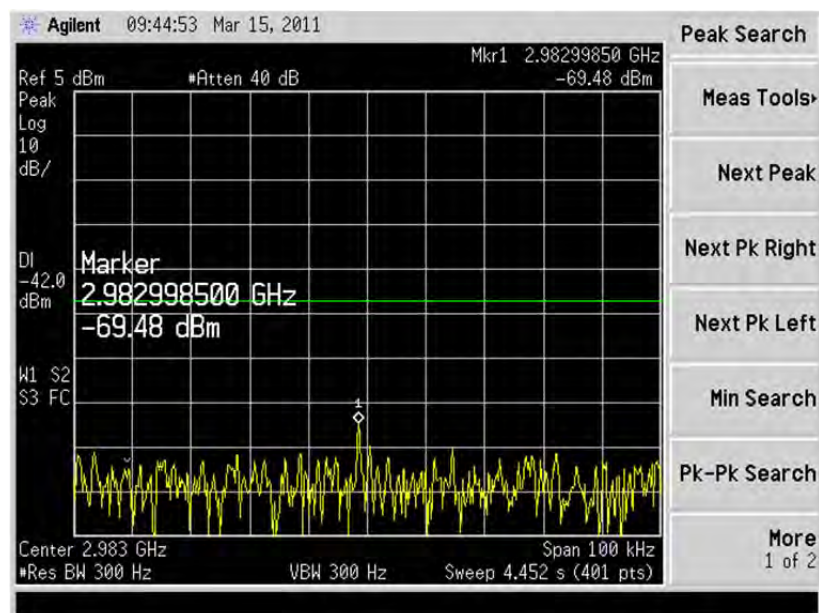
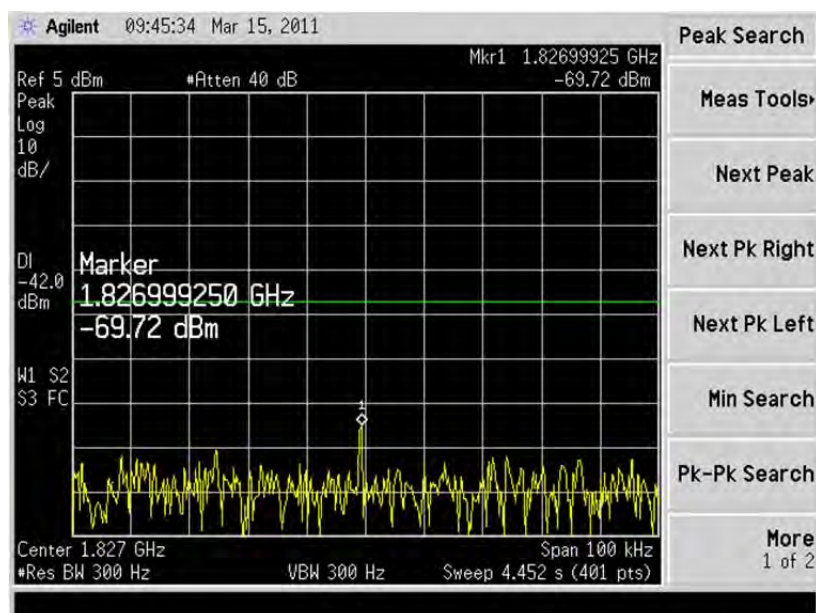


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1767	-77.2	3043	-81

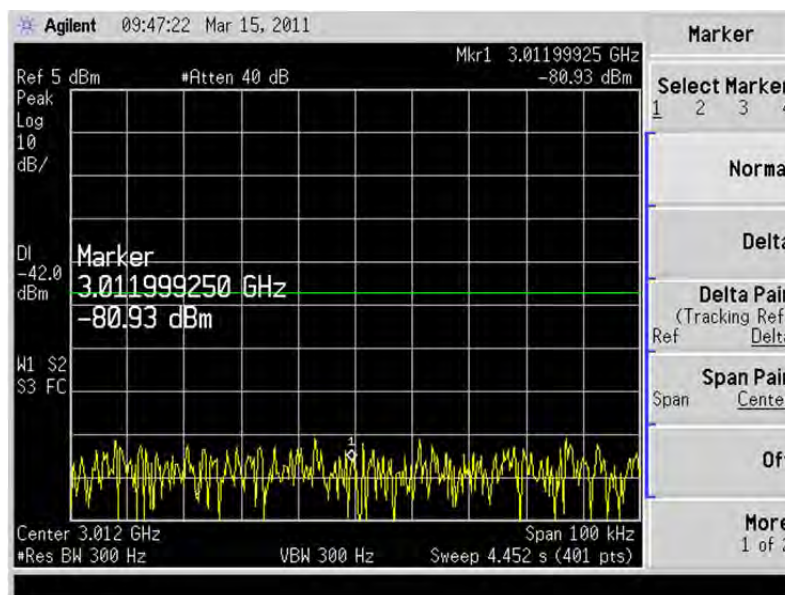
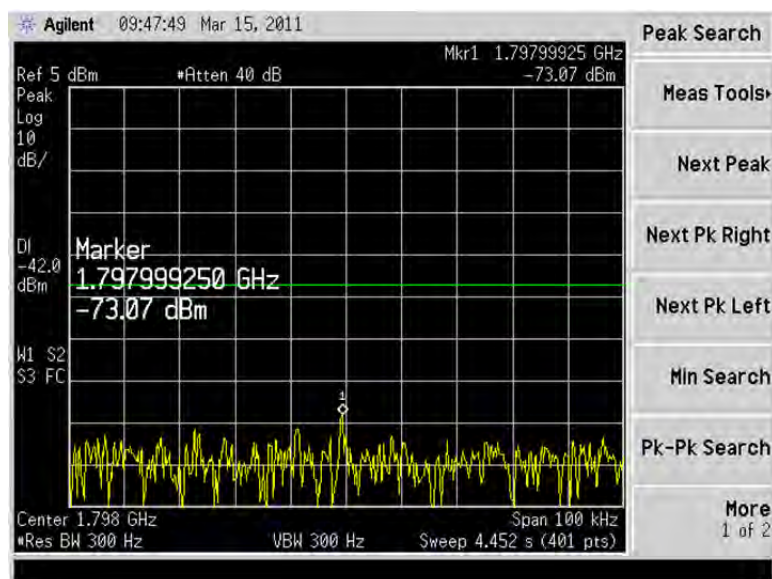


3.3.1.2 UHF power high 50mW

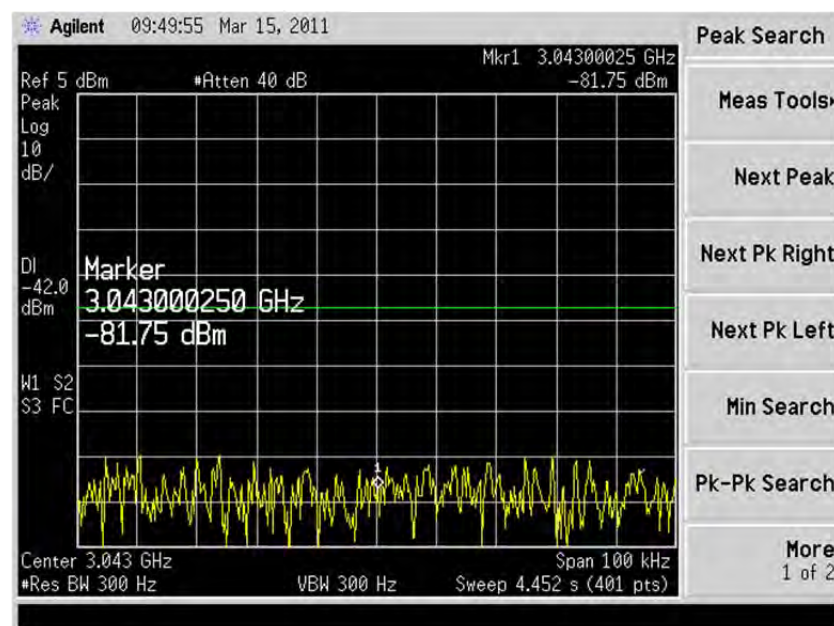
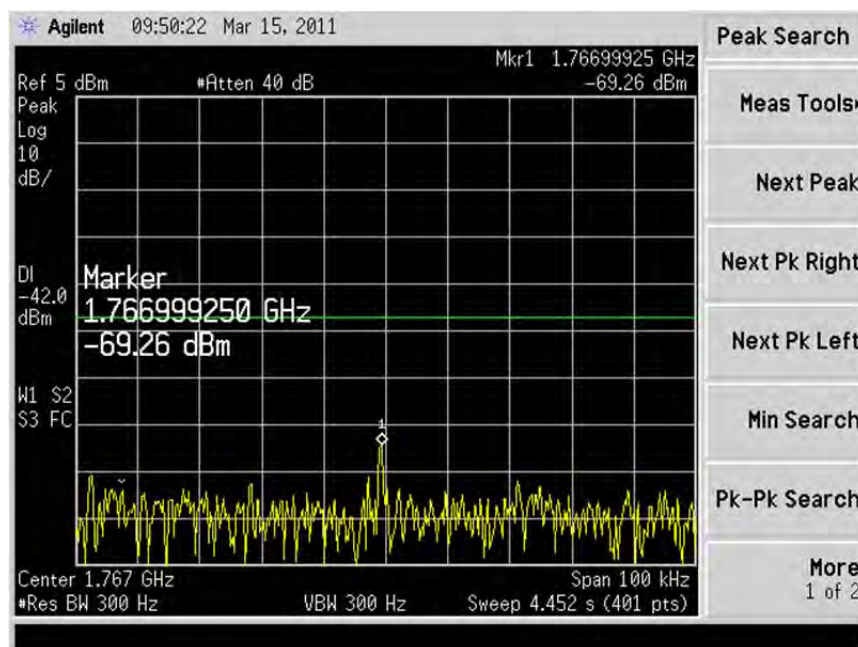
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	50mW	1827	-69.7	2983	-69.5



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	50mW	1798	-73.1	3012	-80.9



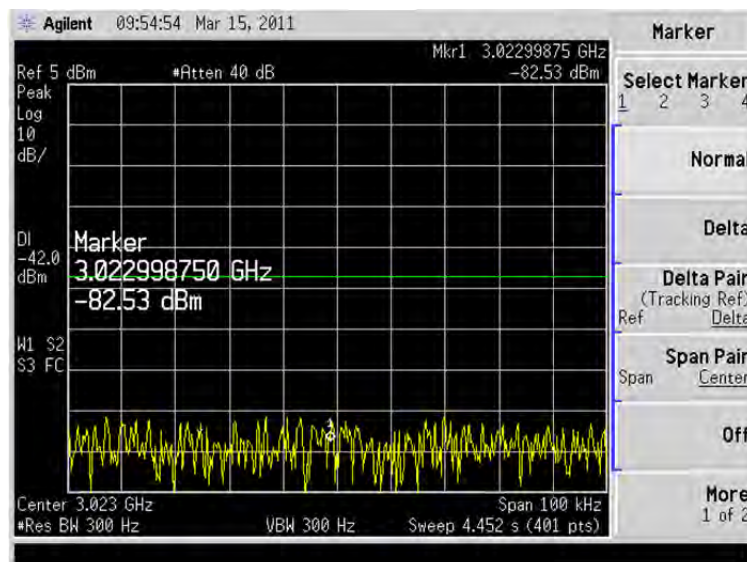
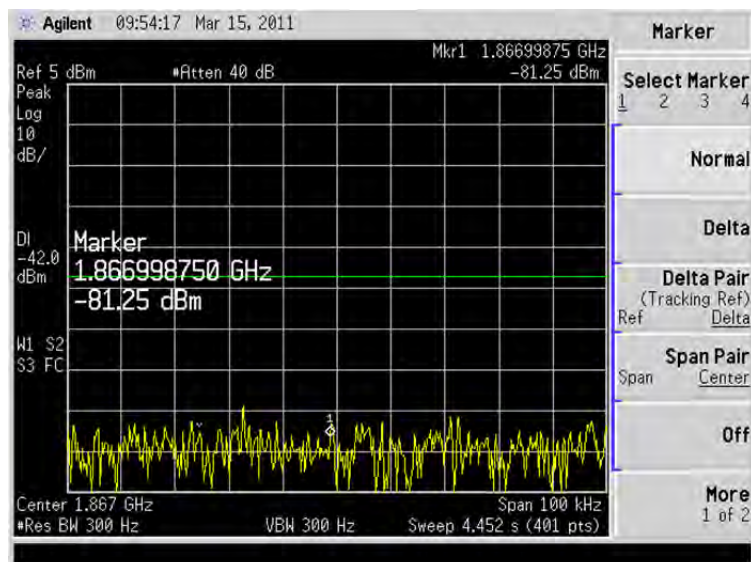
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1767	-69.2	3024	-81



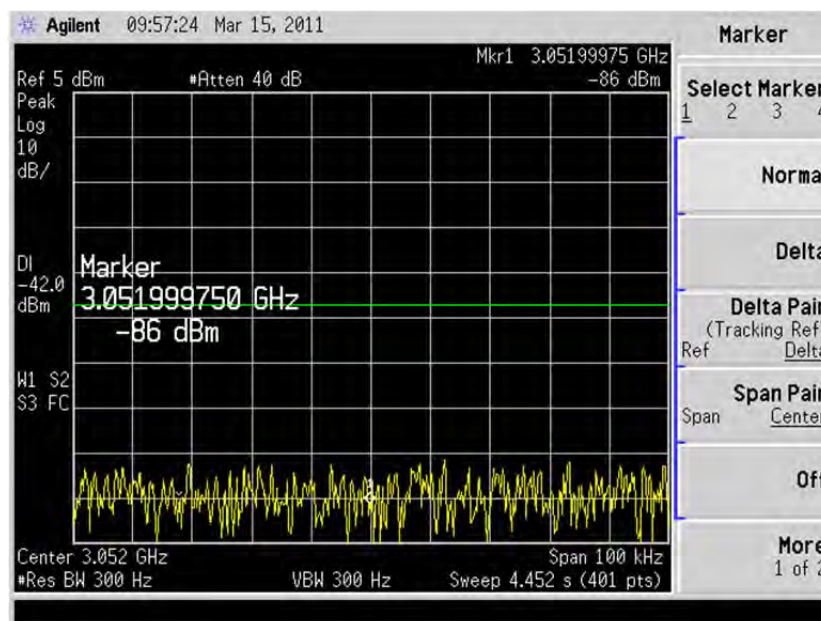
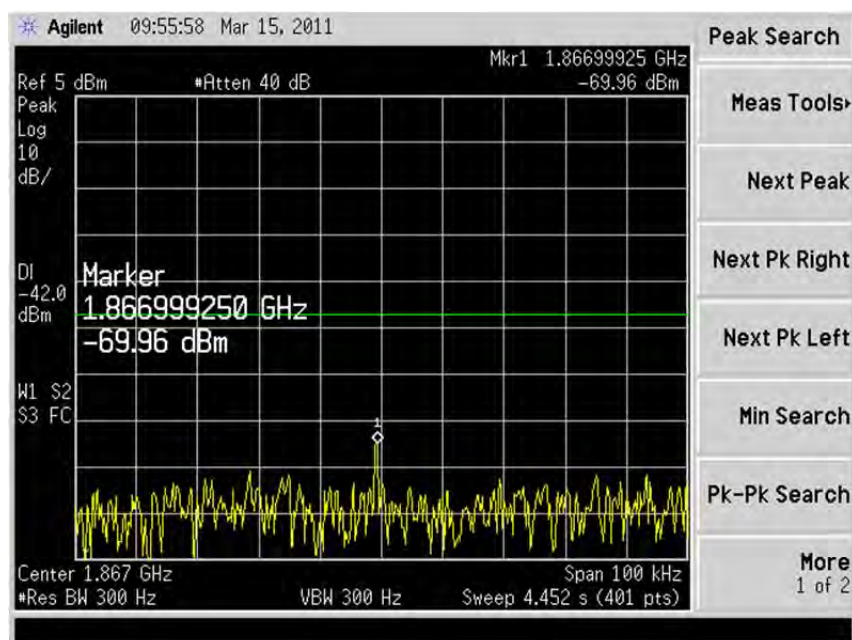
3.3.2 Zigbee mid frequency (Channel 19) 2445 MHz

3.3.2.1 UHF power low 10mW

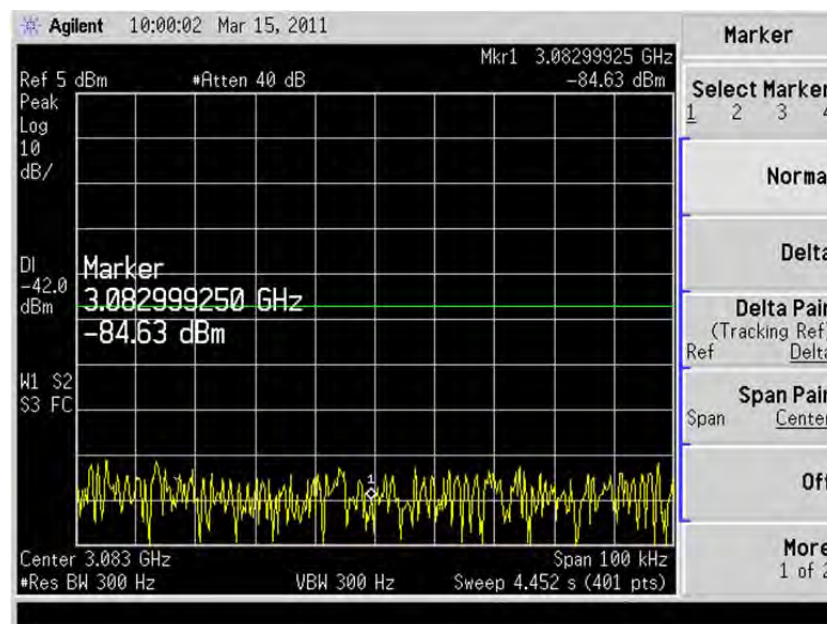
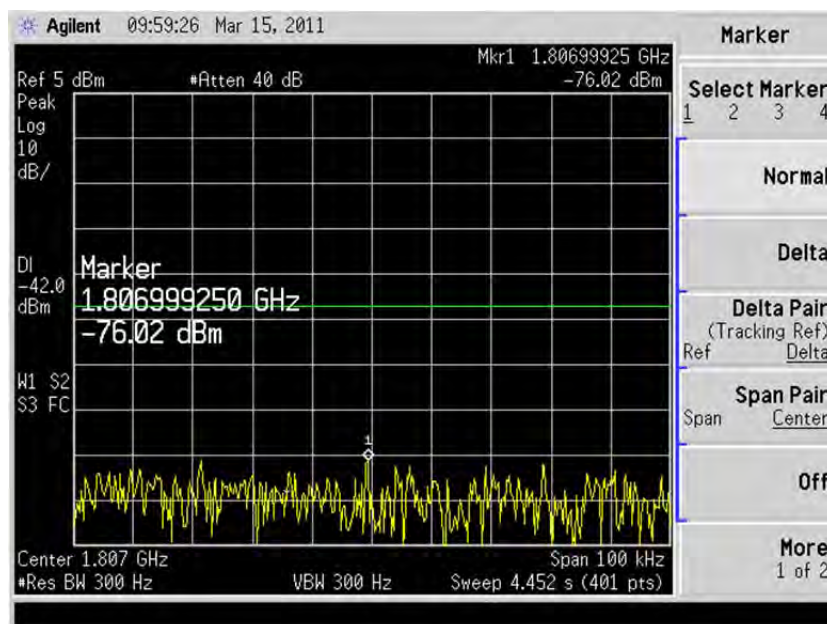
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1867	-81.2	3023	-82.5



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	10mw	1838	-69.9	3052	-86

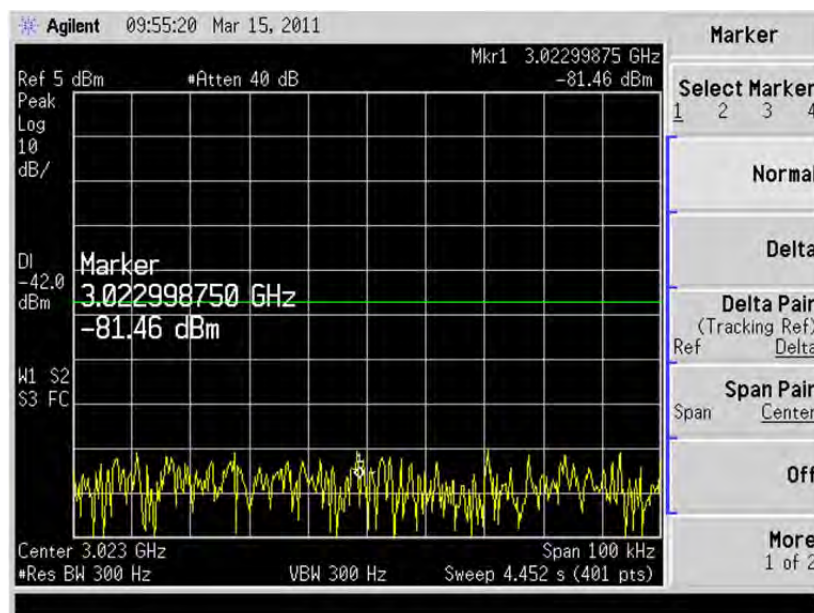
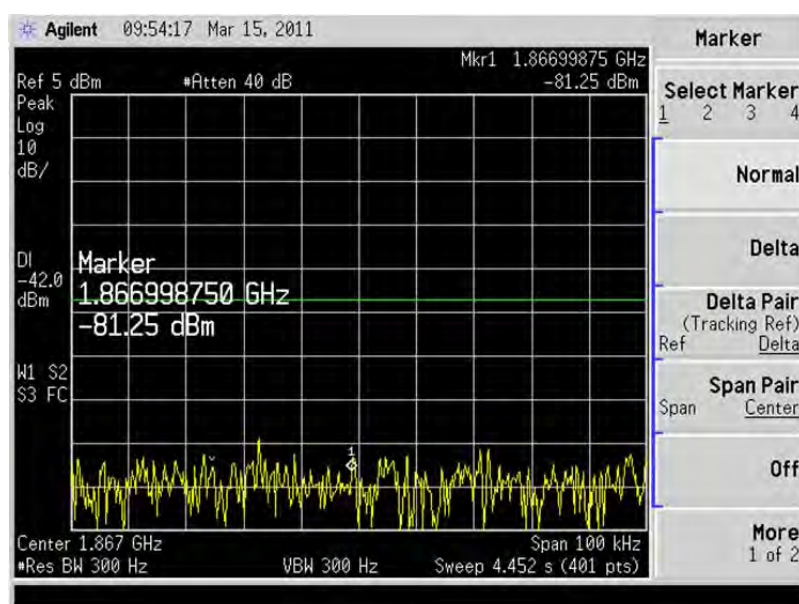


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1807	-76	3083	-84

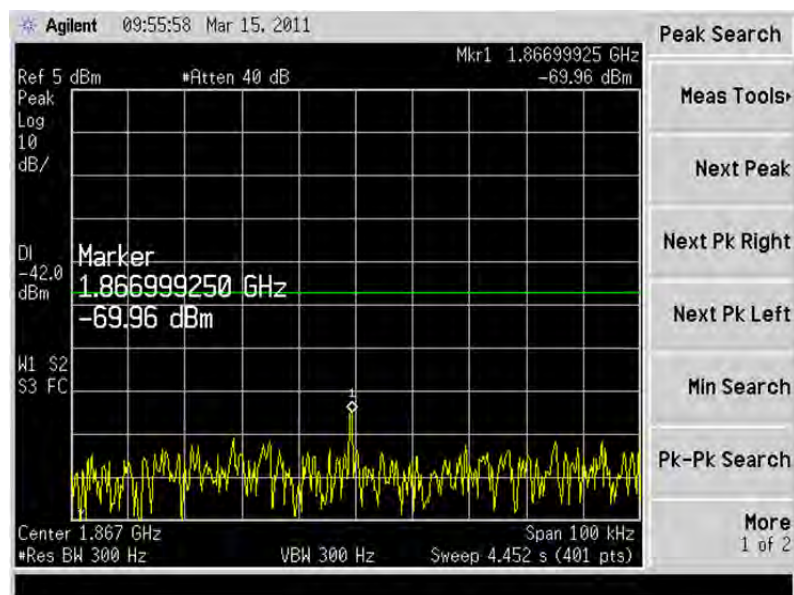
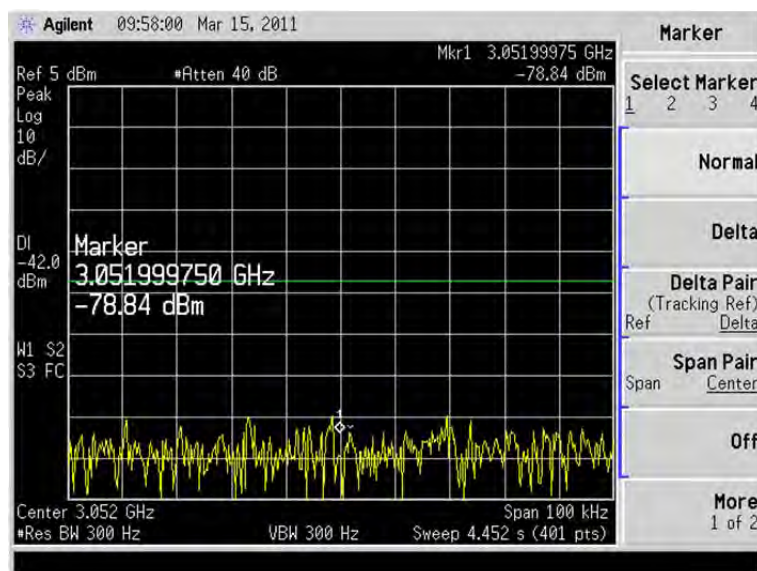


3.3.2.2 UHF power high 50mW

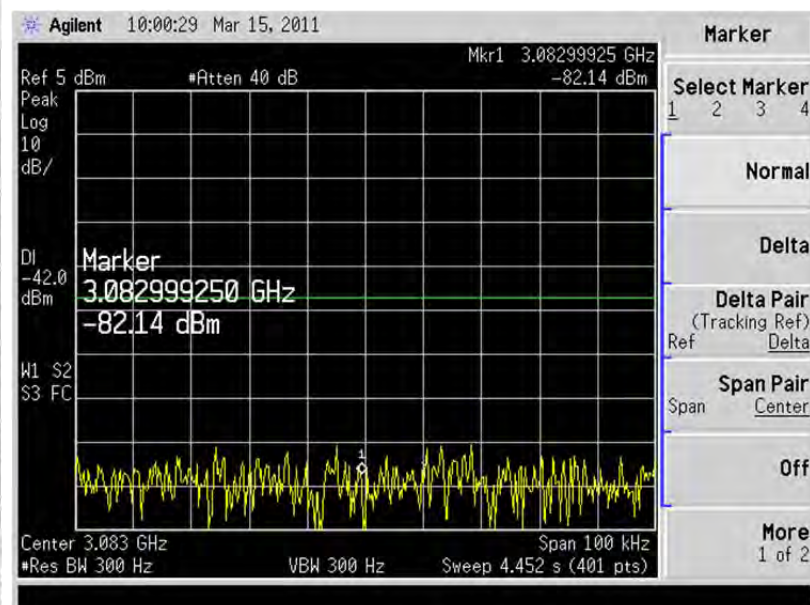
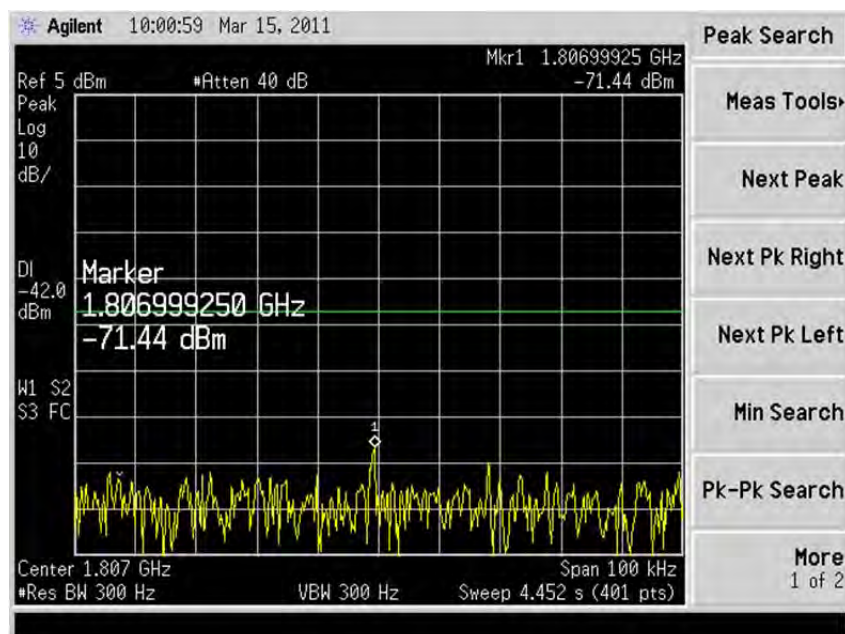
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	50mW	1867	-81	3023	-81



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	50mW	1838	-69	3052	-78



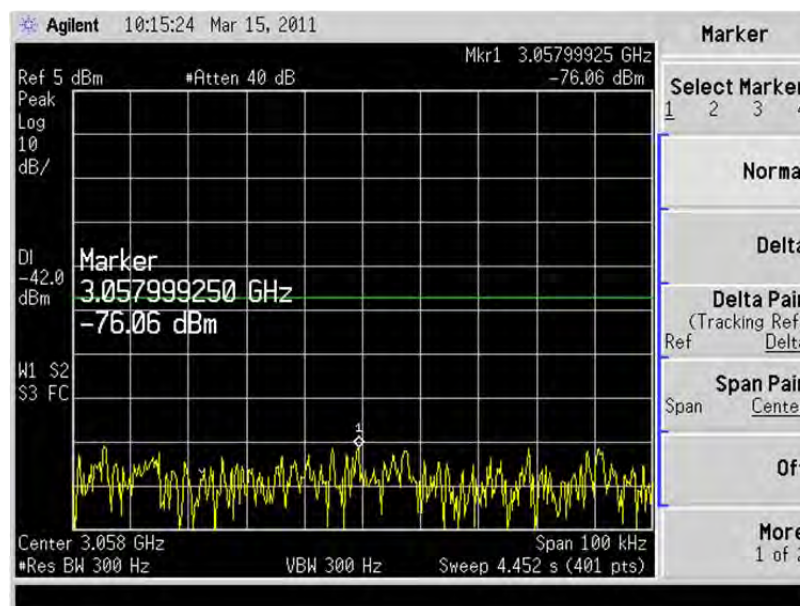
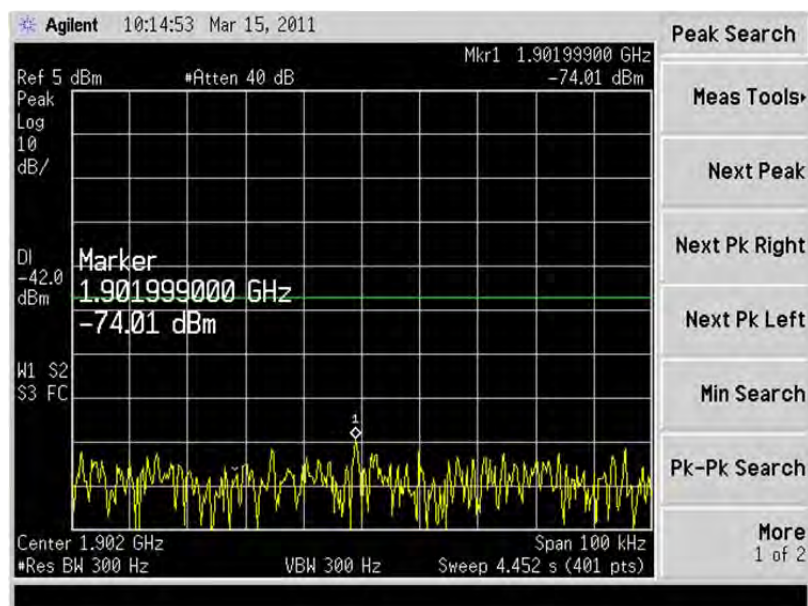
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1807	-71.4	3083	-82.1



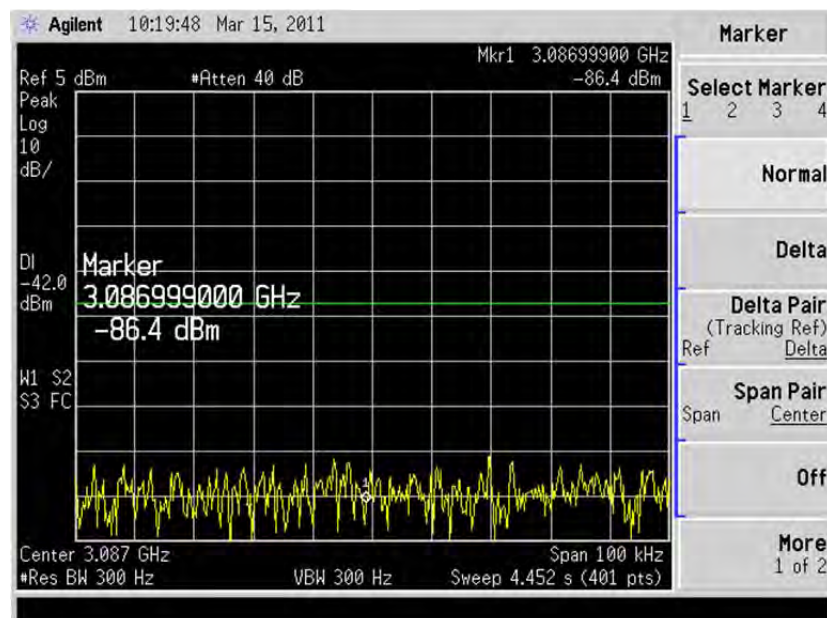
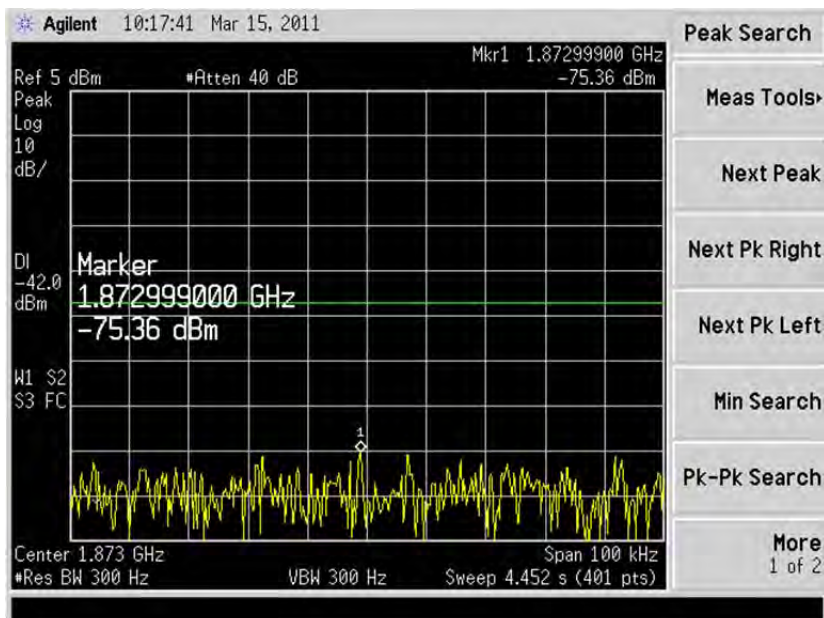
3.3.3 Zigbee high frequency (Channel 26) 2480 MHz

3.3.3.1 UHF power low 10mW

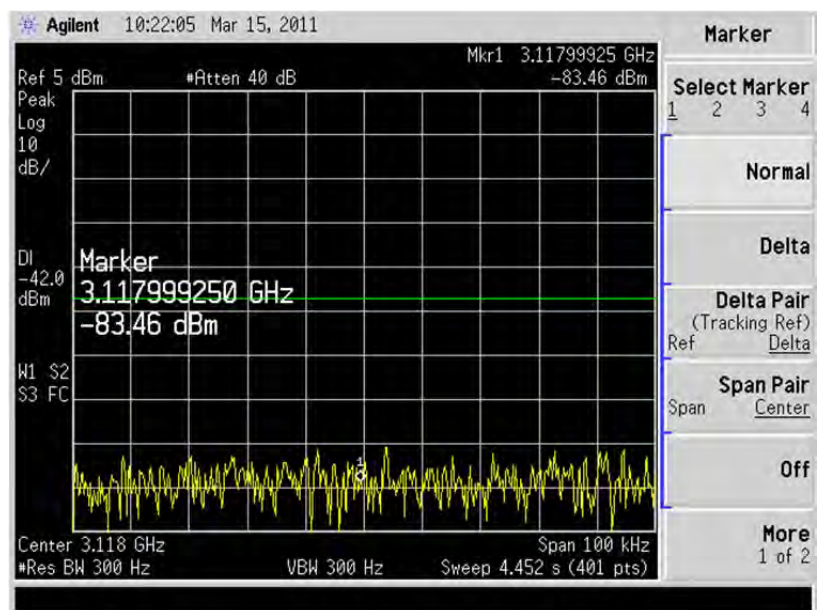
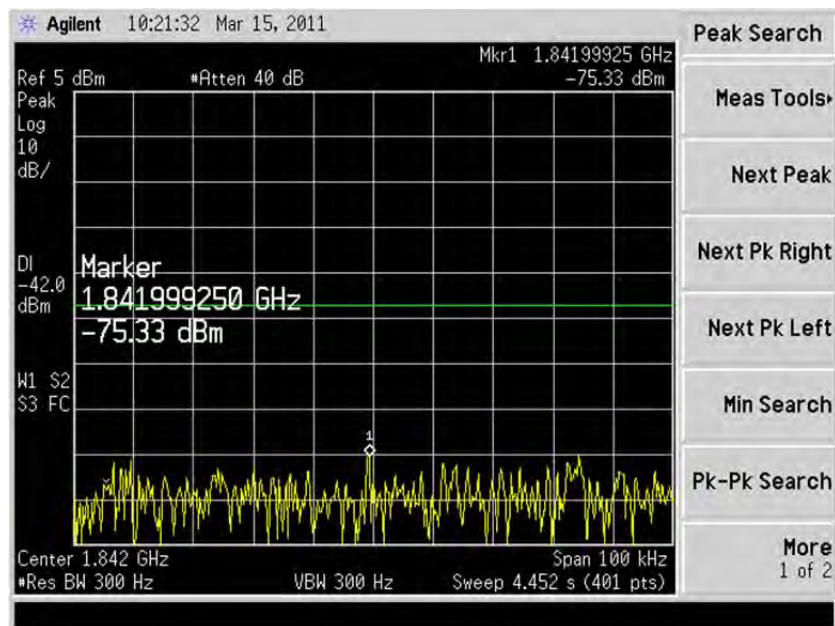
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	10mw	1902	-74	3058	-76



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	10mw	1873	-75	3087	-86

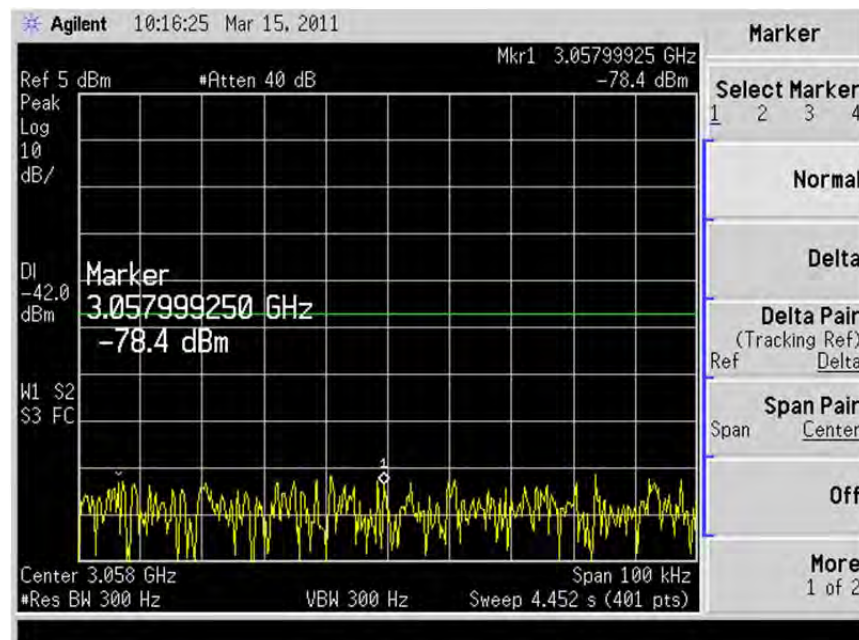
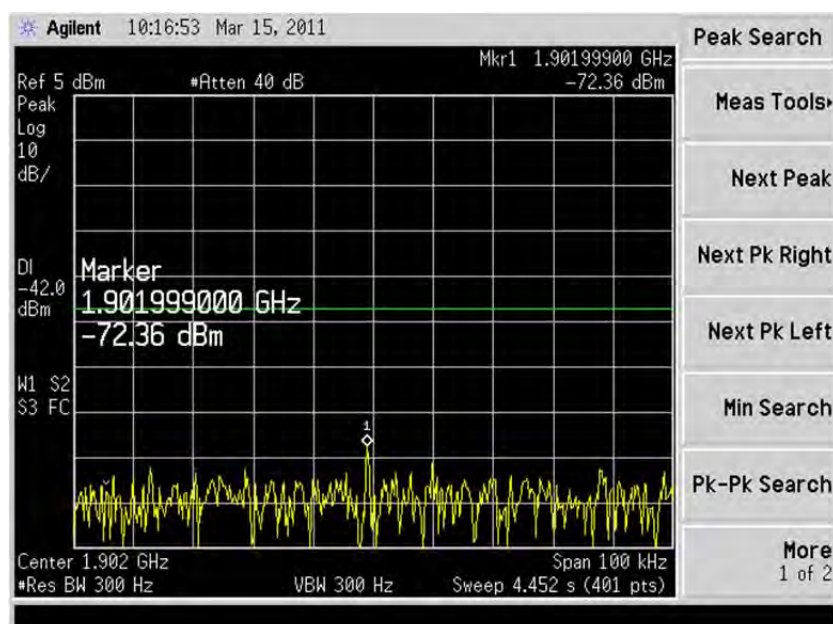


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1842	-75.5	3118	-83

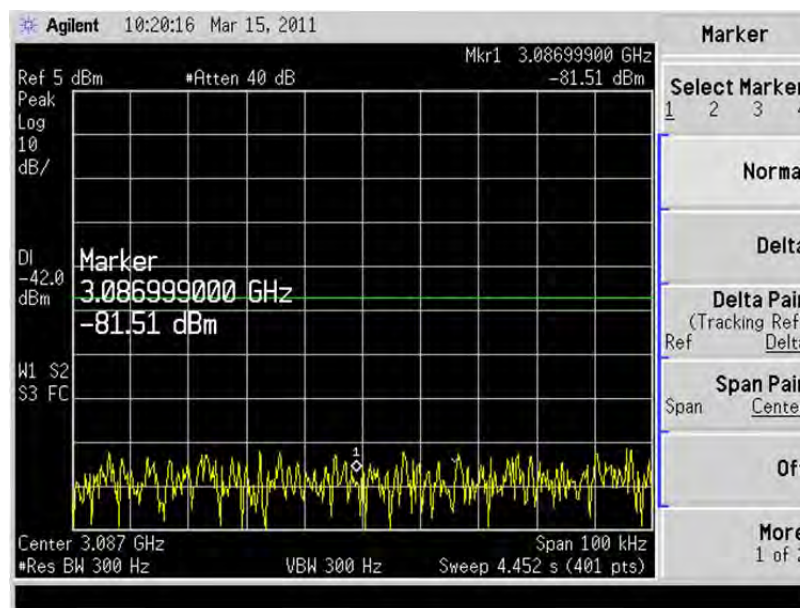
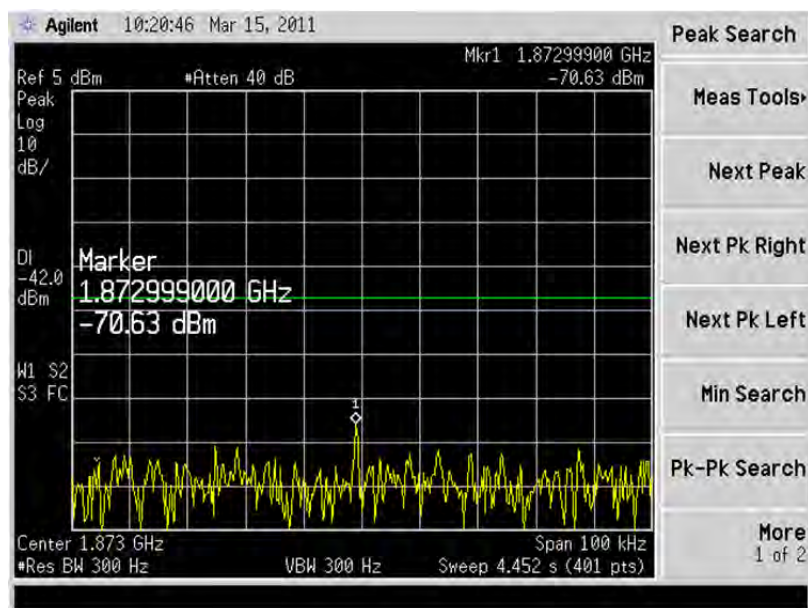


3.3.3.2 UHF power high 50mW

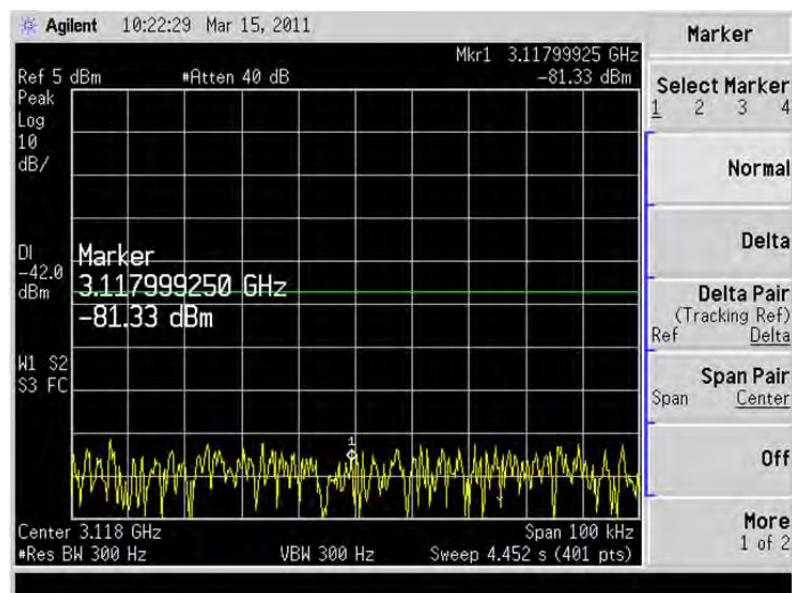
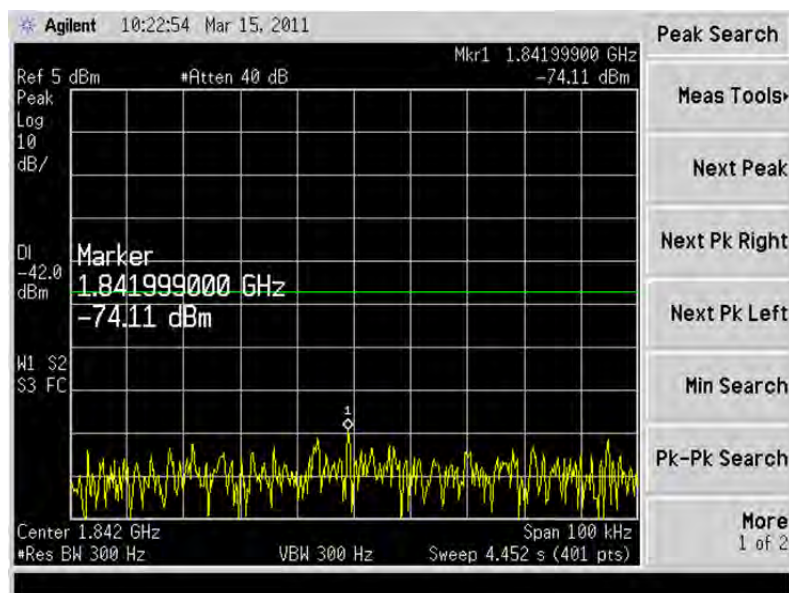
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
578	50mW	1902	-72.4	3058	-78



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
607	50mW	1873	-70.6	3087	-81.5



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1842	-74.11	3118	-81.3



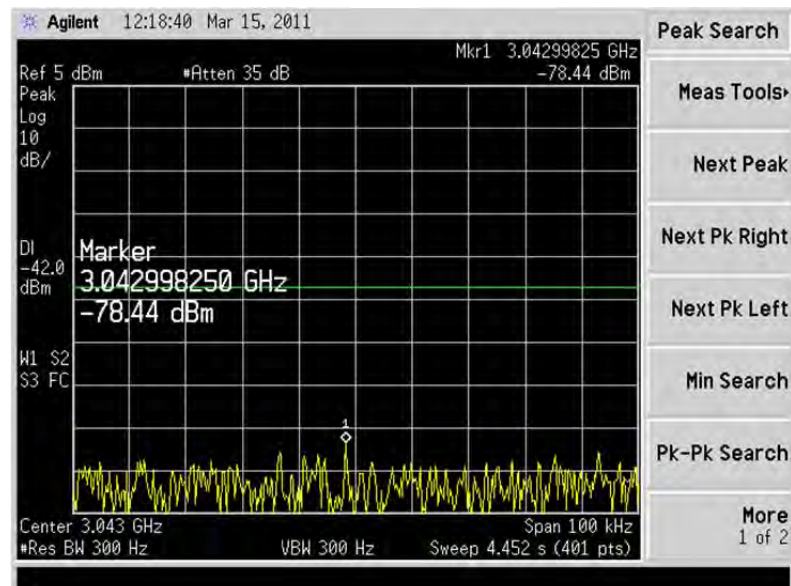
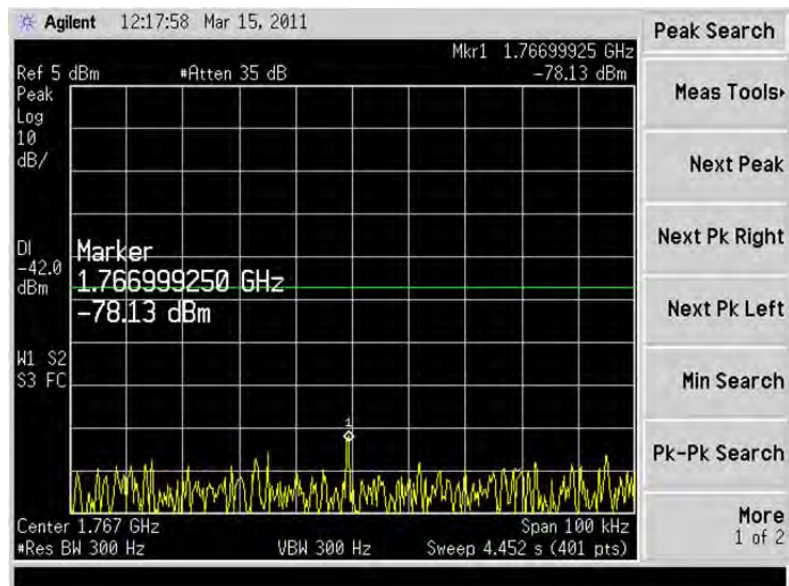
3.4 L3 band 638-698 MHz UHF-Zigbee IMD

	UHF Freq	Zb freq	UHF-ZB IMD Freq low	IMD Pwr	UHF-ZB IMD Freq high	IMD Pwr
Zigbee Low band	638	2405	1767	-78	3043	-78
	668	2405	1737	-75	3073	-85
	698	2405	1707	-74.8	3103	-85.1
Zigbee mid band	638	2445	1807	-73.6	3083	-89
	668	2445	1777	-77.4	3113	-89
	698	2445	1747	-76.8	3143	-90.7
Zigbee high band	638	2480	1842	-74	3118	-90
	668	2480	1812	-79	3148	-83
	698	2480	1782	-74.8	3178	-87
Zigbee Low band	638	2405	1767	-76	3043	-79
	668	2405	1737	-73	3073	-87
	698	2405	1707	-71.8	3103	-87
Zigbee mid band	638	2445	1807	-72	3083	-84
	668	2445	1777	-75.7	3113	-83
	698	2445	1747	-73.3	3143	-88
Zigbee high band	638	2480	1842	-70	3118	-88
	668	2480	1812	-73	3148	-84
	698	2480	1782	-77	3178	-88

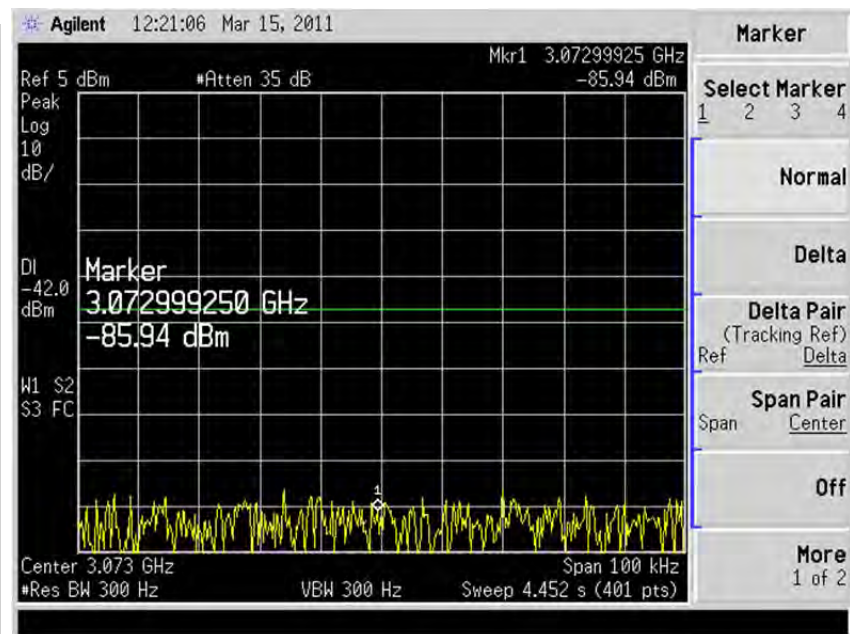
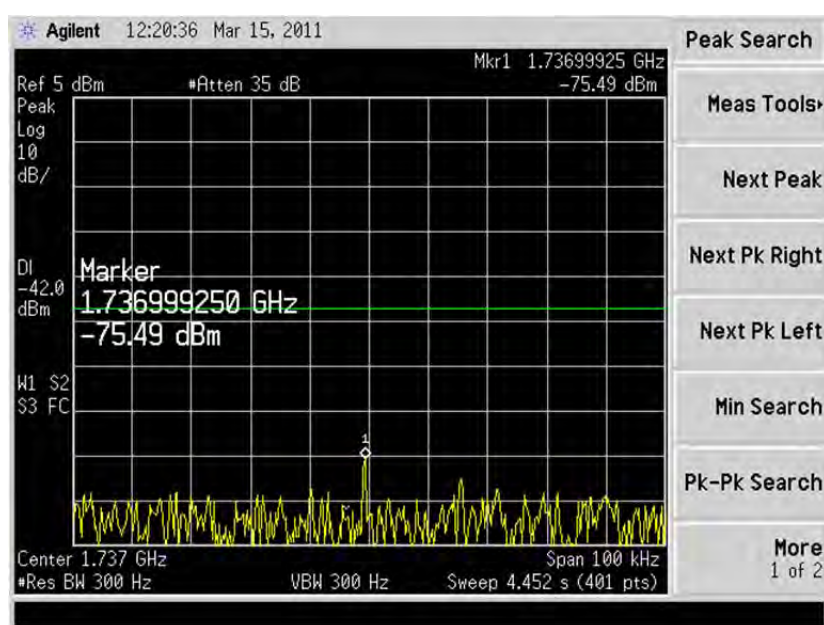
3.4.1 Zigbee low frequency (Channel 11) 2405 MHz

3.4.1.1 UHF power low 10mW

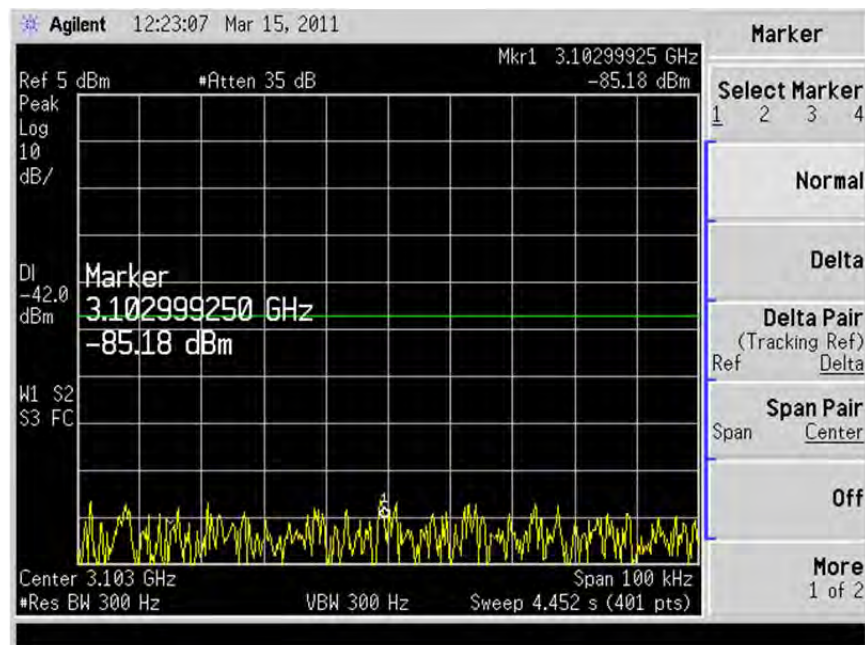
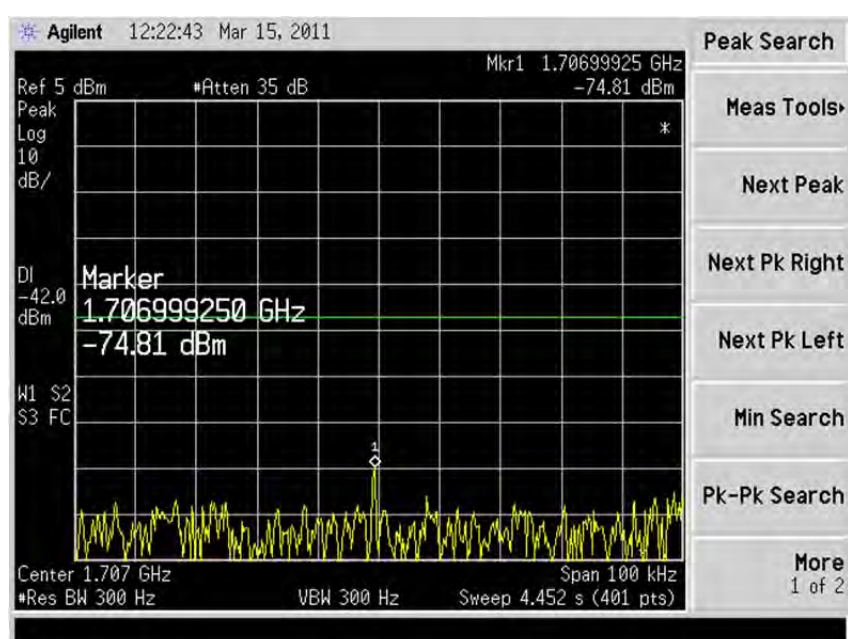
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1767	-78.1	3043	-78.4



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	10mw	1737	-75	3073	-85

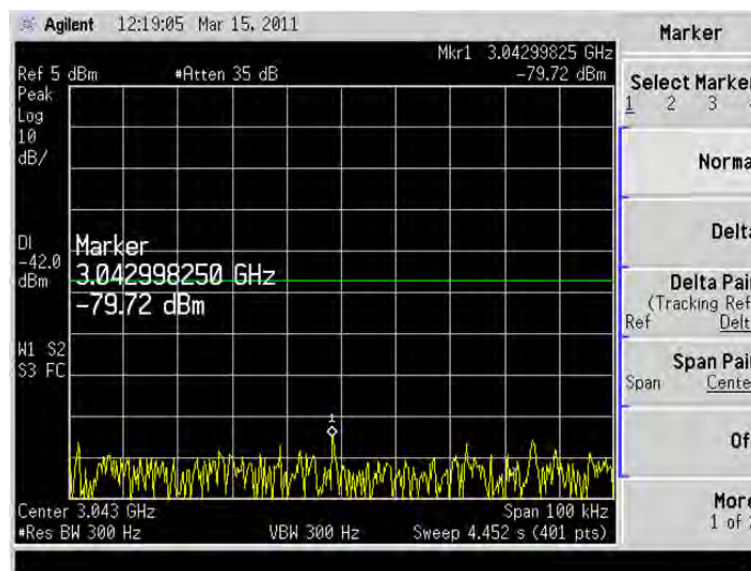
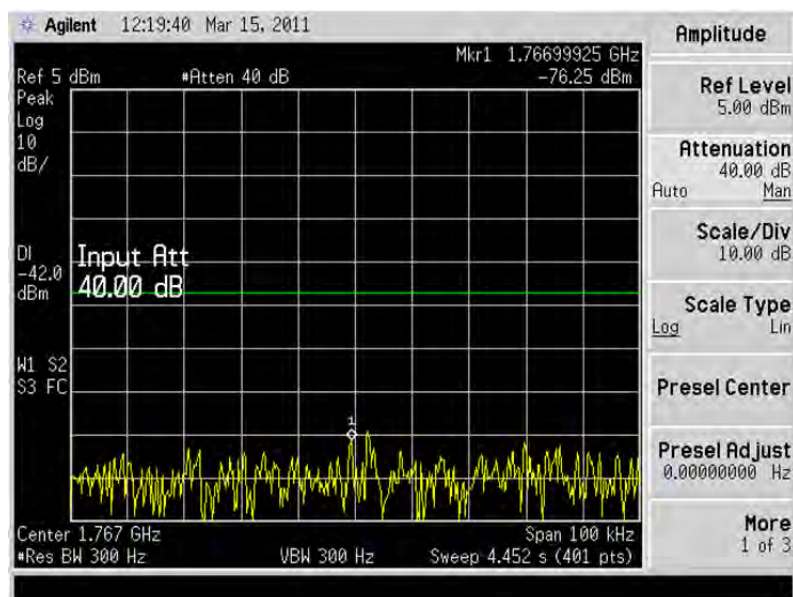


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
698	10mw	1707	-74.8	3103	-85

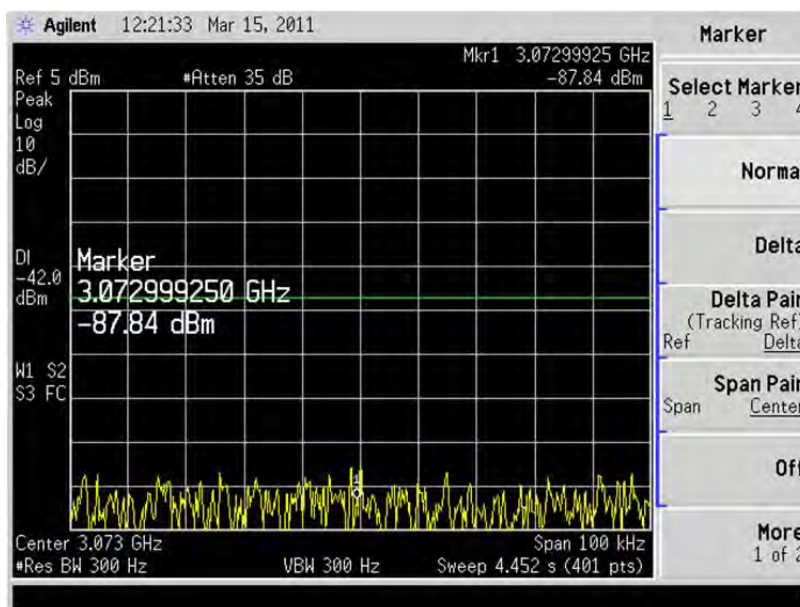
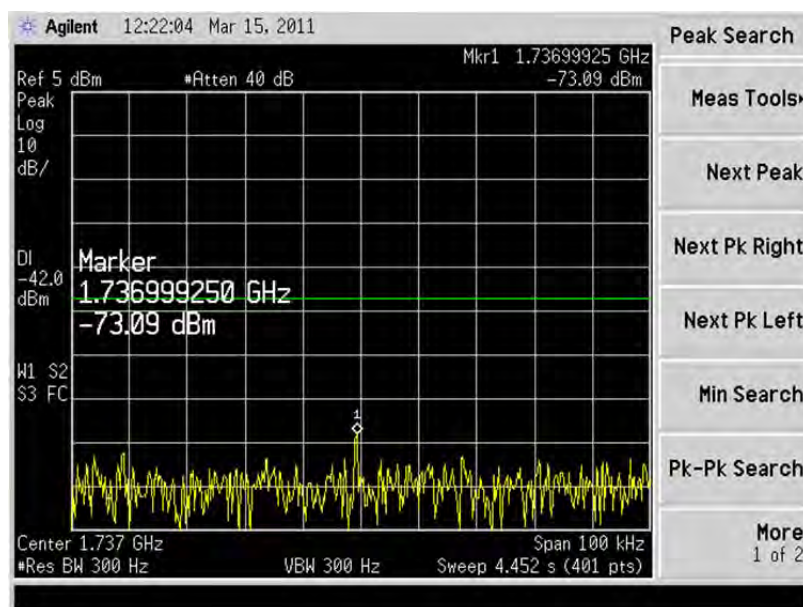


3.4.1.2 UHF power high 50mW

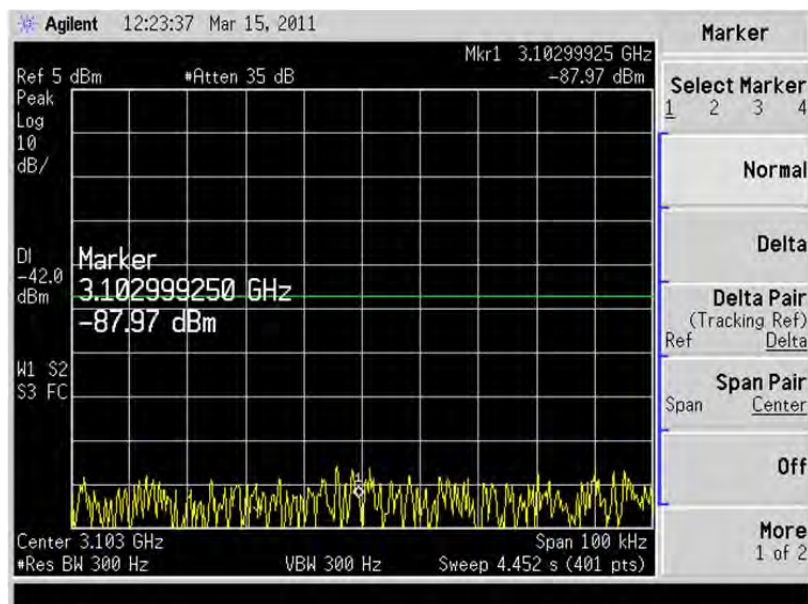
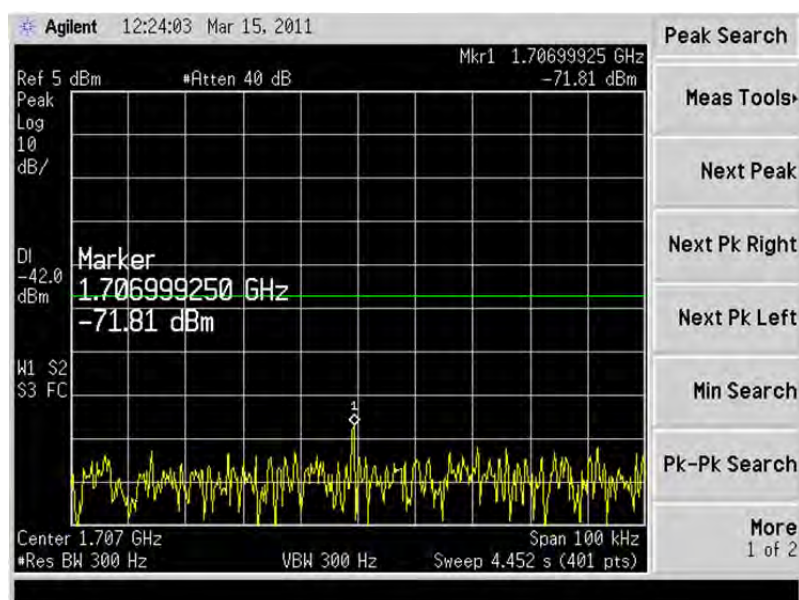
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1767	-76	3043	-79



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	50mW	1737	-73.1	3073	-84.8



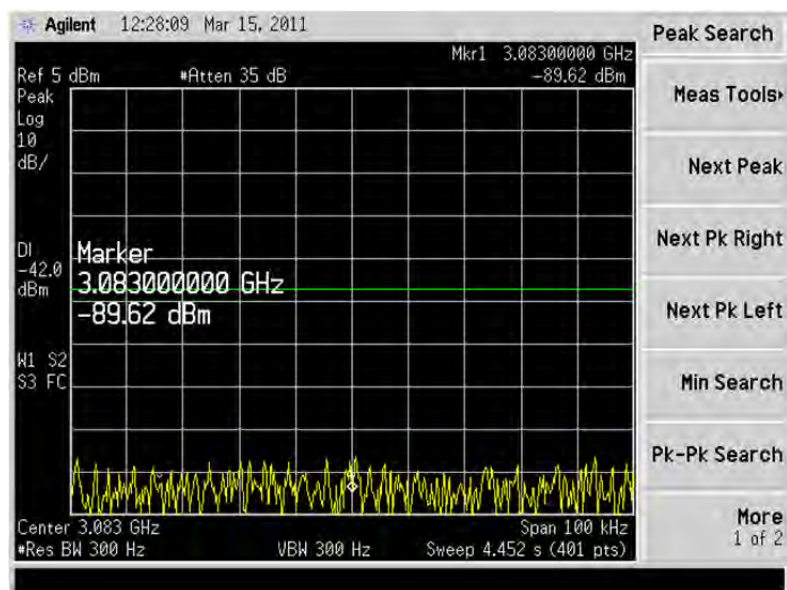
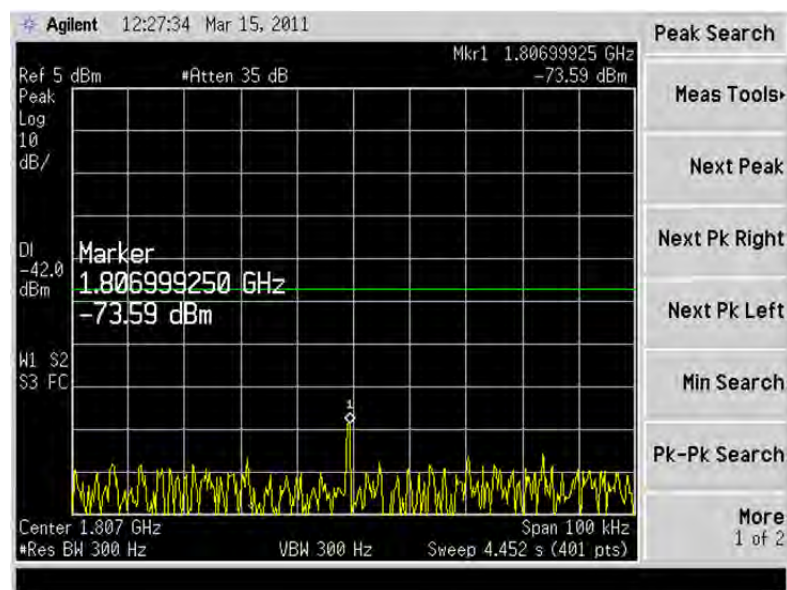
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	50mW	1707	-71.8	3103	-87.9



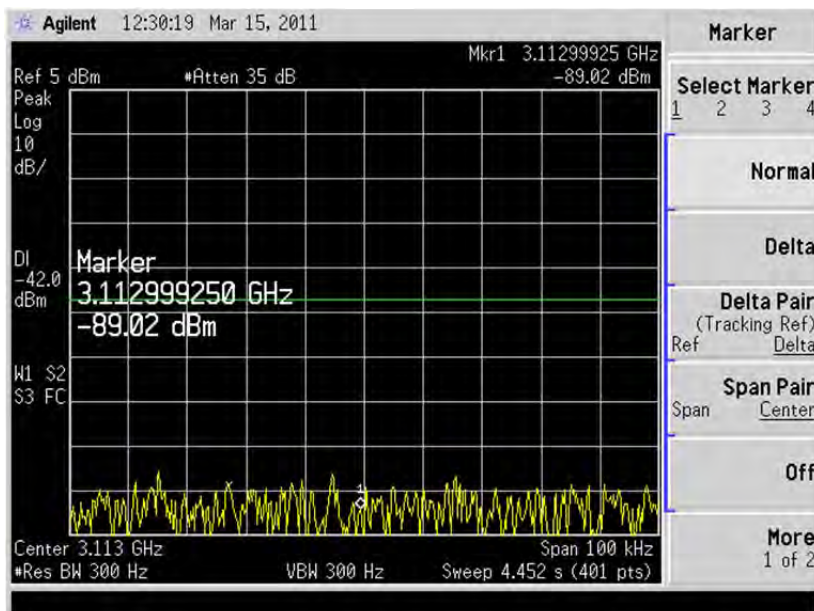
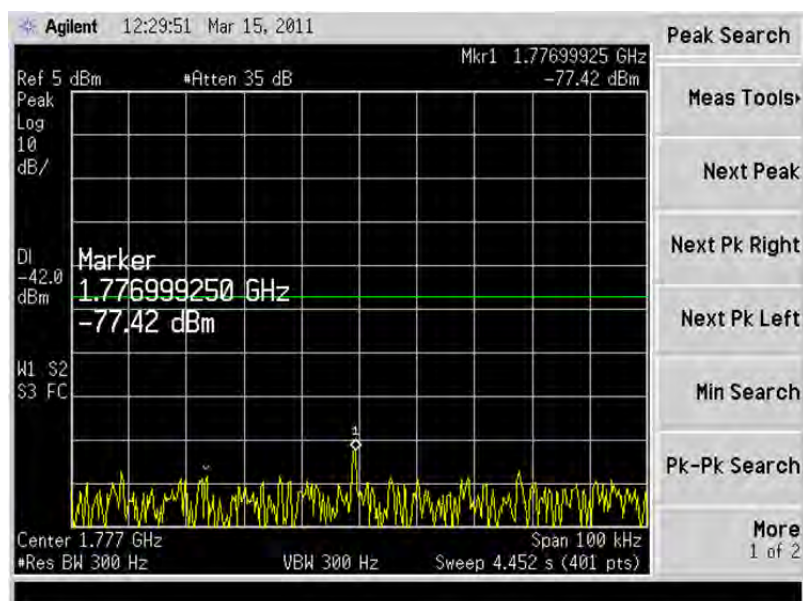
3.4.2 Zigbee mid frequency (Channel 19) 2445 MHz

3.4.2.1 UHF power low 10mW

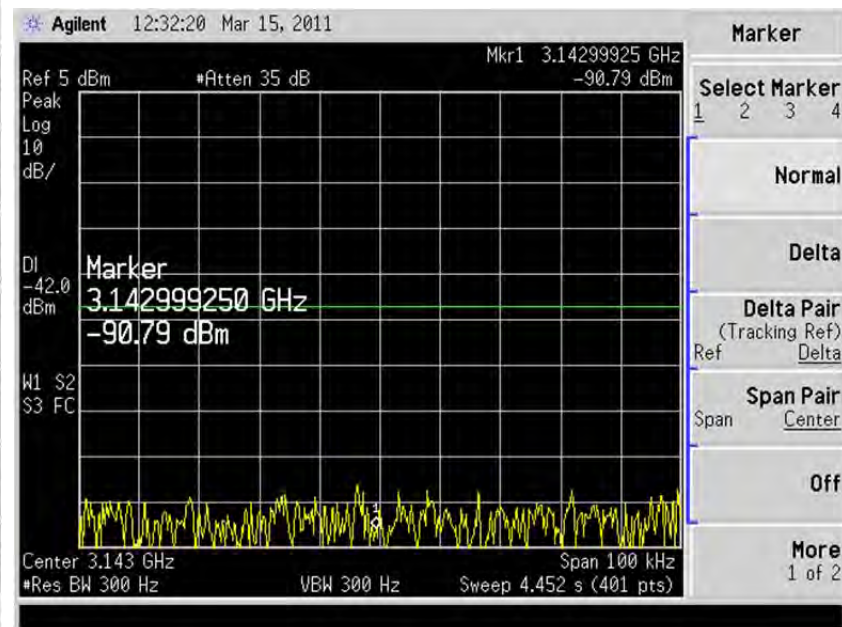
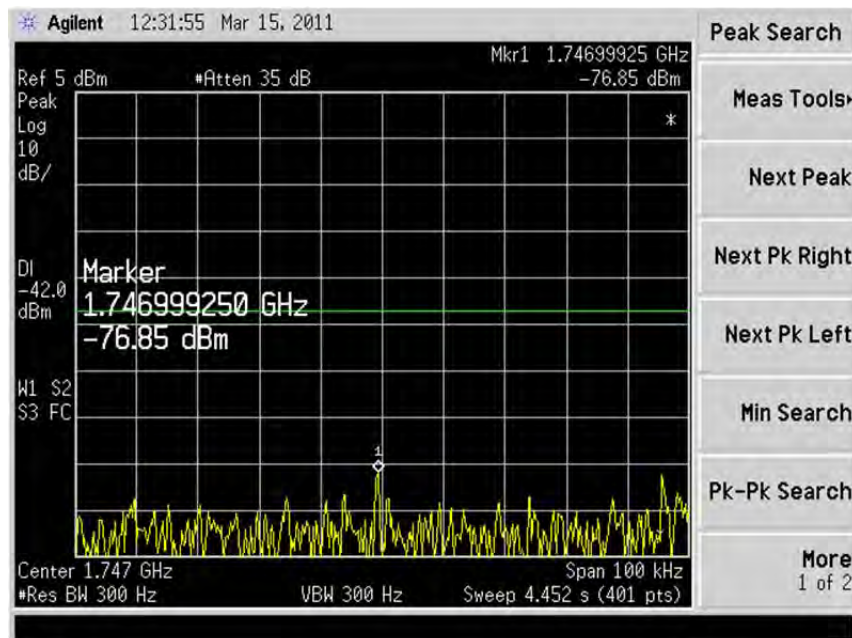
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1807	-73.6	3083	-89.6



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	10mw	1777	-77	3113	-89.0

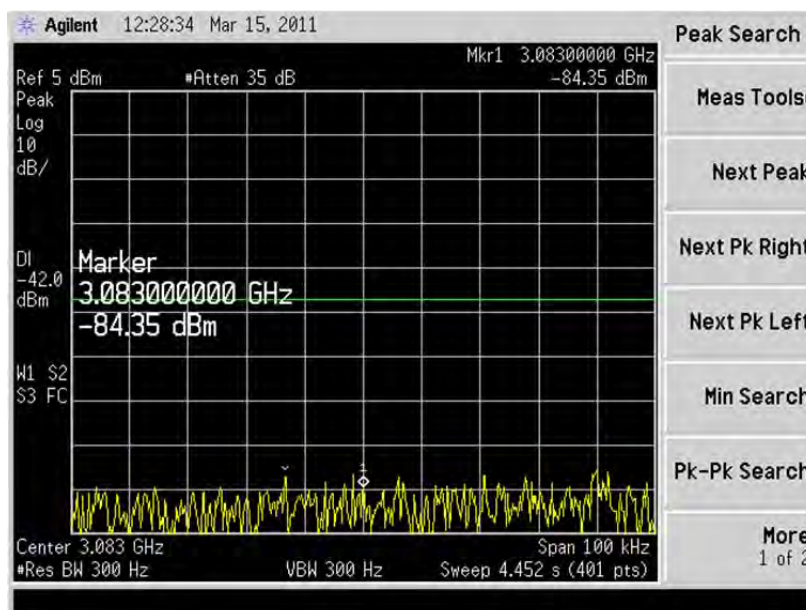
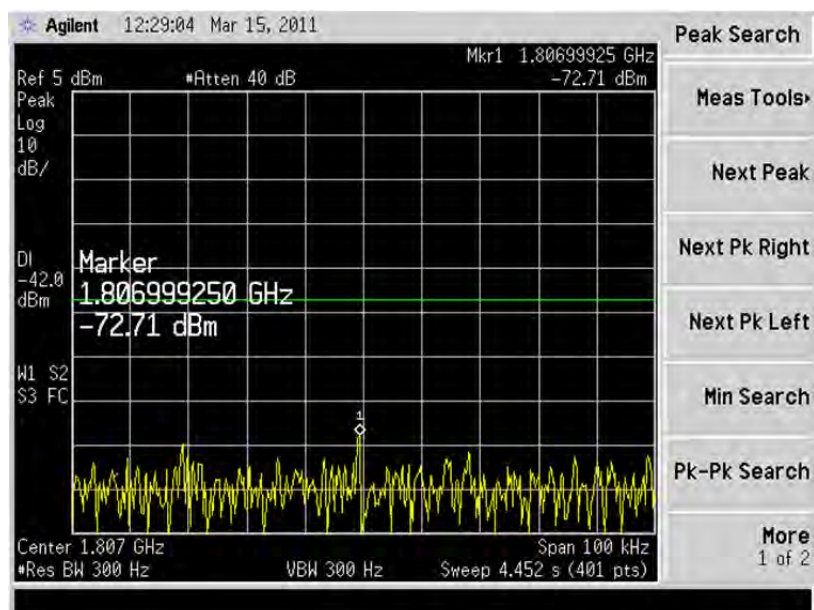


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
698	10mw	1747	-76.8	3143	-90

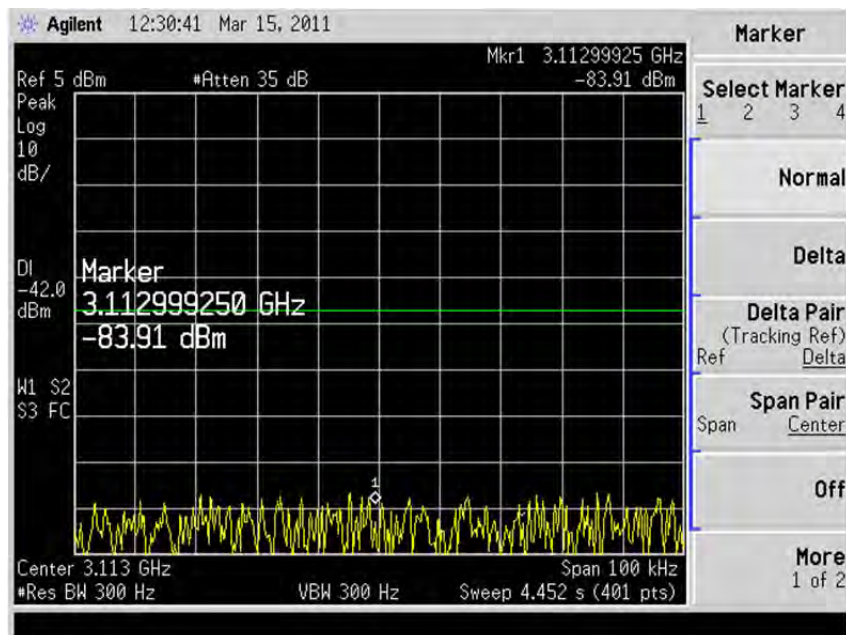
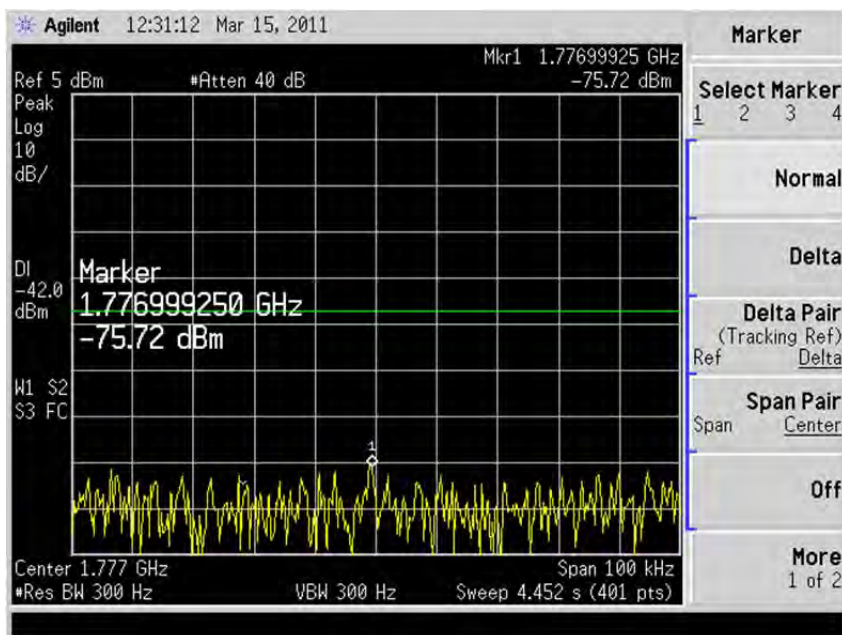


3.4.2.2 UHF power high 50mW

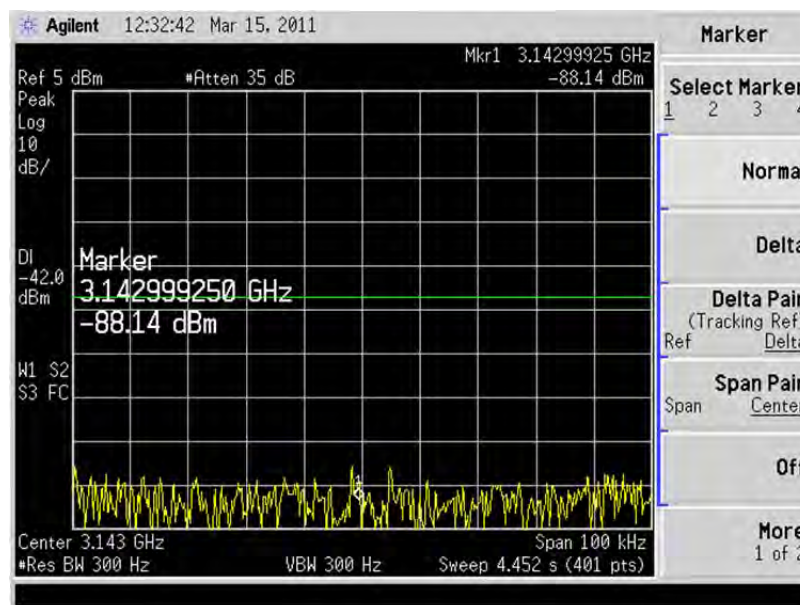
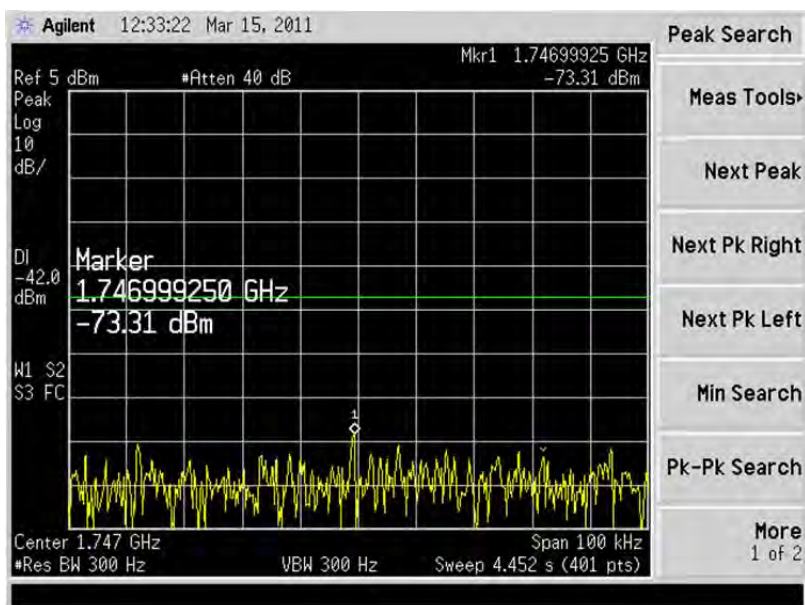
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1807	-72.1	3083	-84



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	50mW	1747	-75.7	3113	-83.9



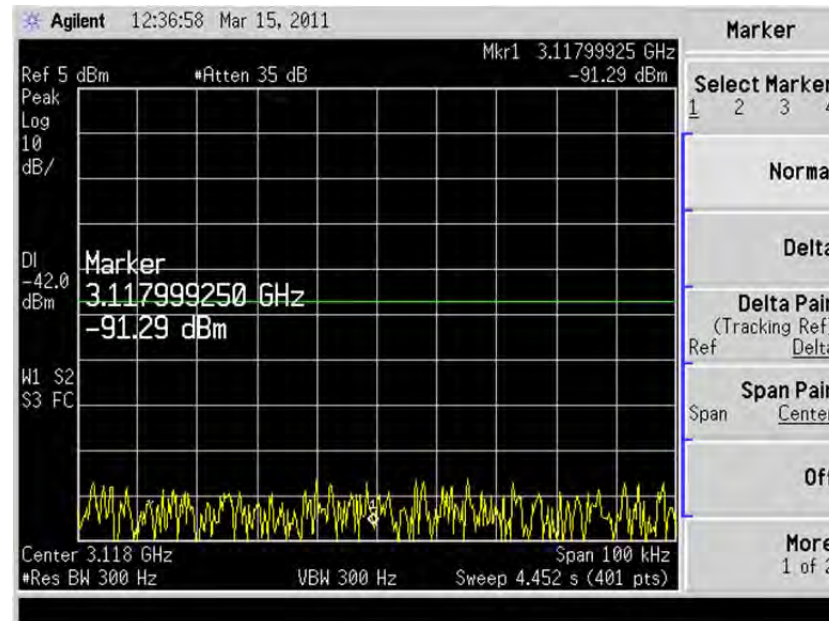
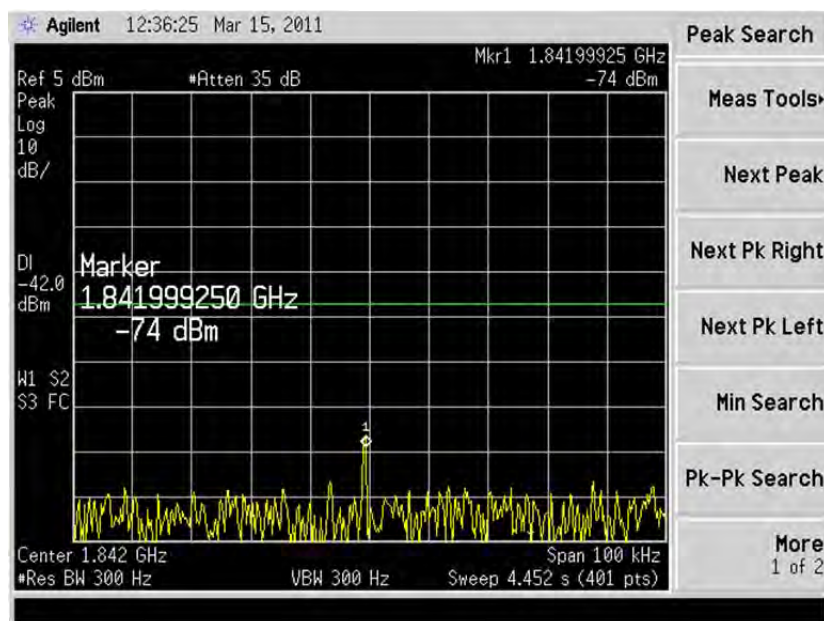
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
698	50mW	1747	-73.3	3143	-88



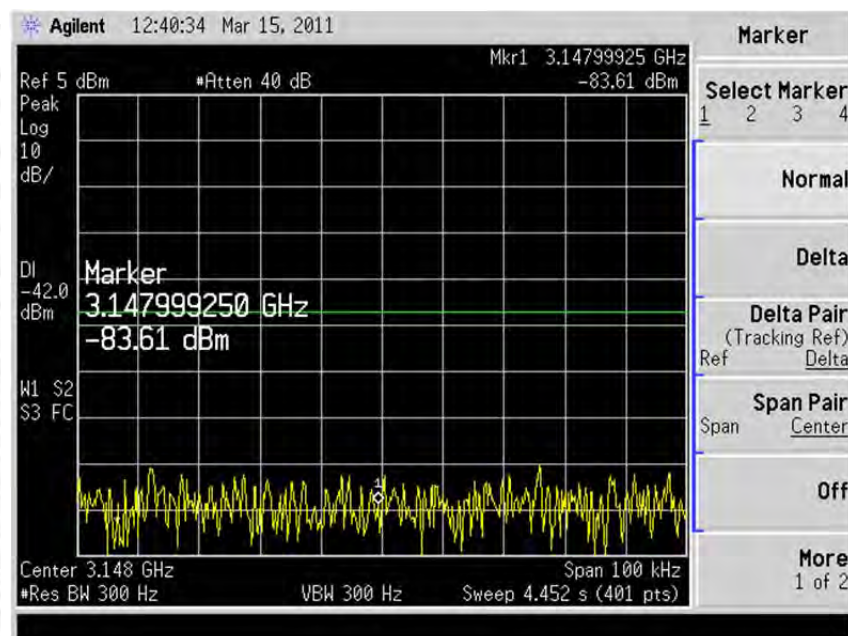
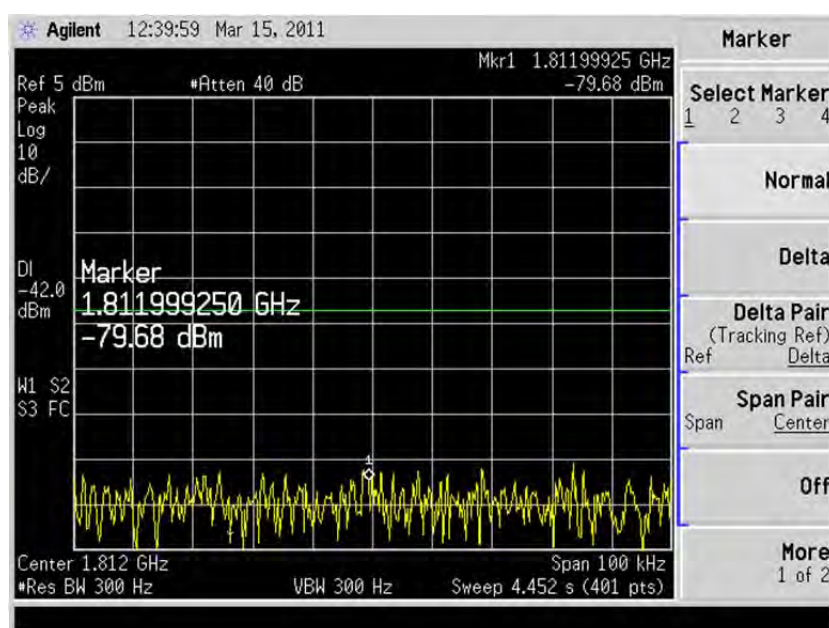
3.4.3 Zigbee high frequency (Channel 26) 2480 MHz

3.4.3.1 UHF power low 10mW

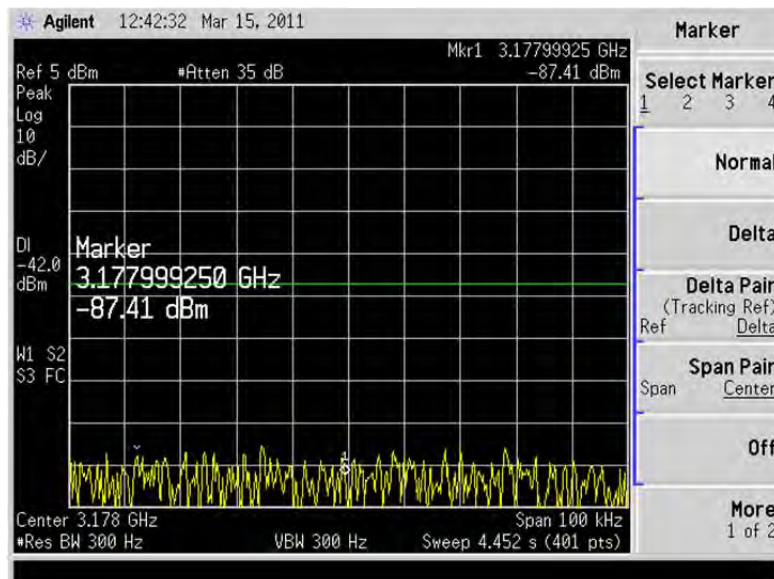
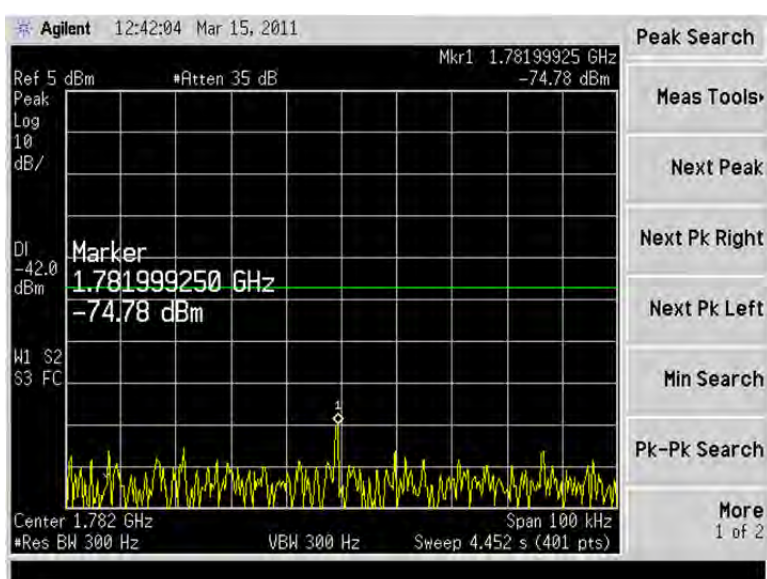
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	10mw	1842	-74	3118	-91



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	10mw	1812	-89.7	3148	-83.6

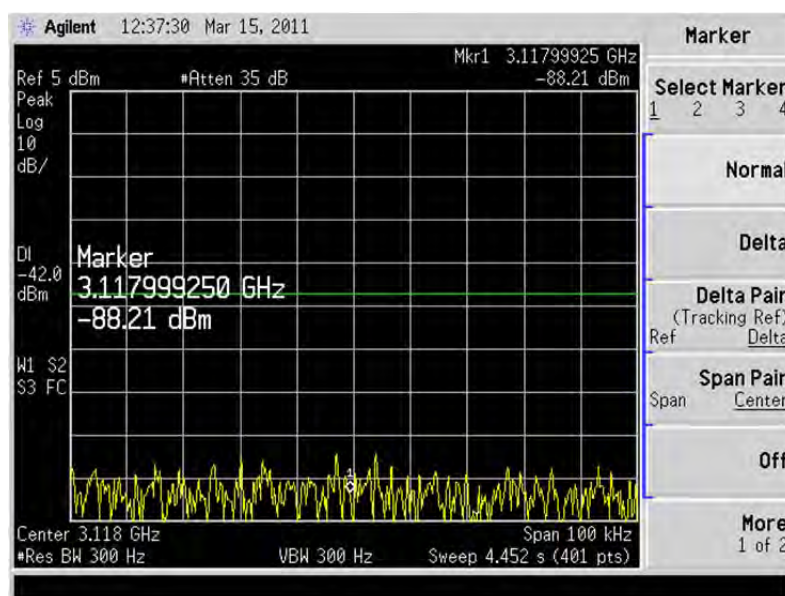
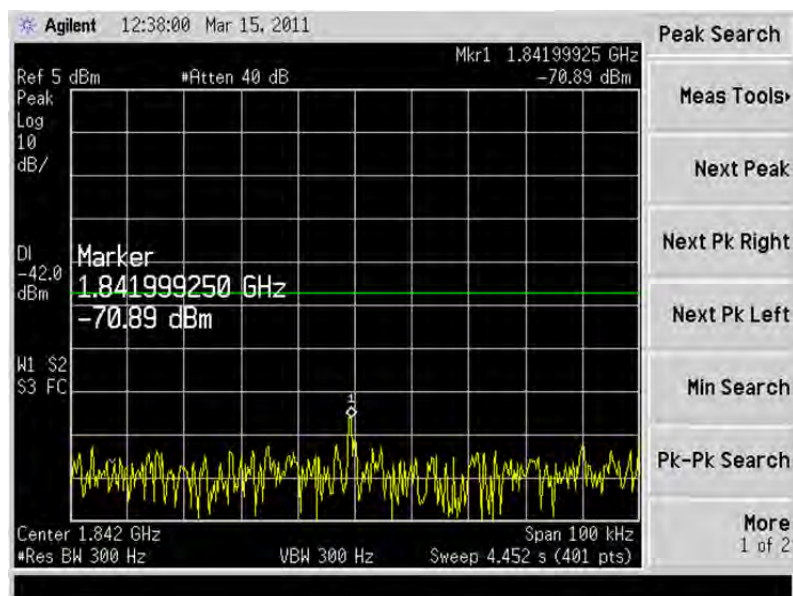


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
698	10mw	1782	-74.8	3178	-87.4

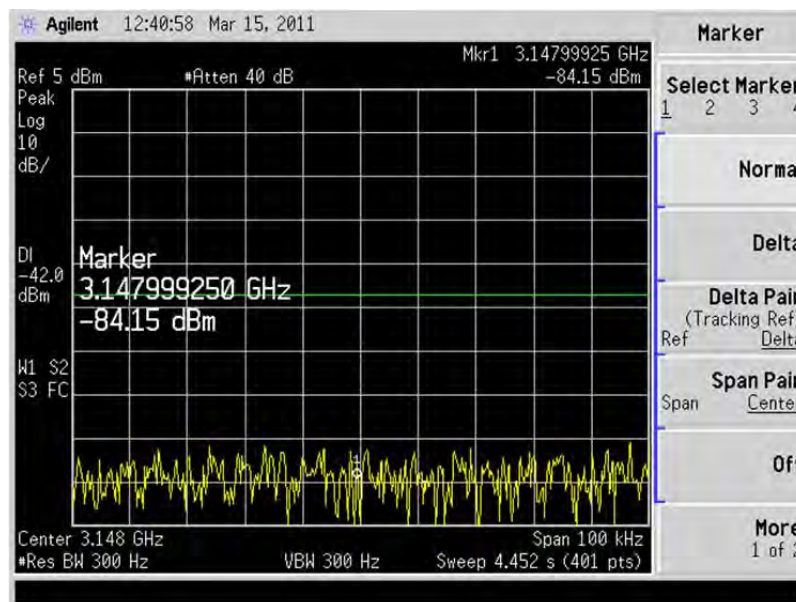
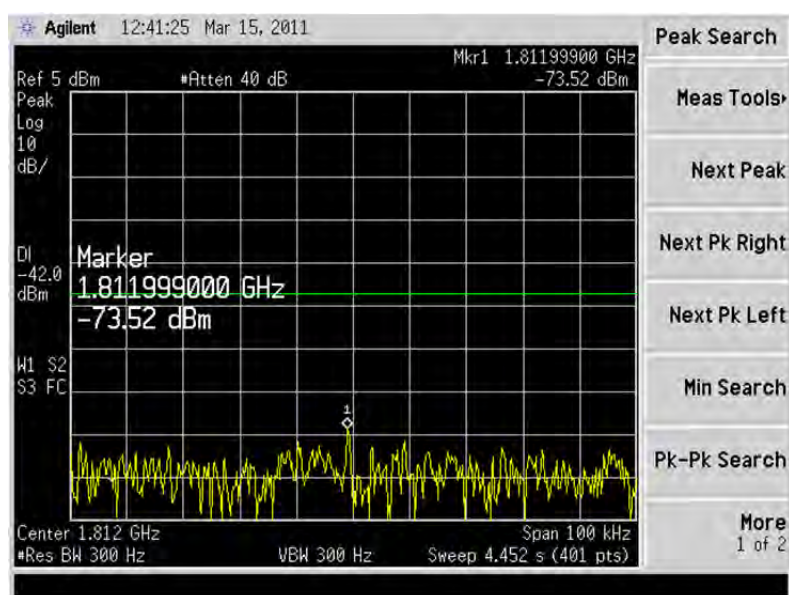


3.4.3.2 UHF power high 50mW

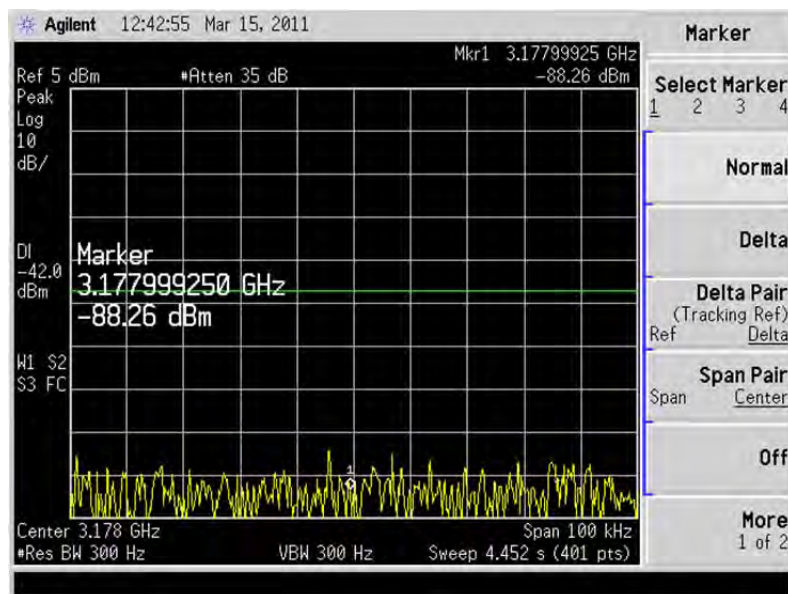
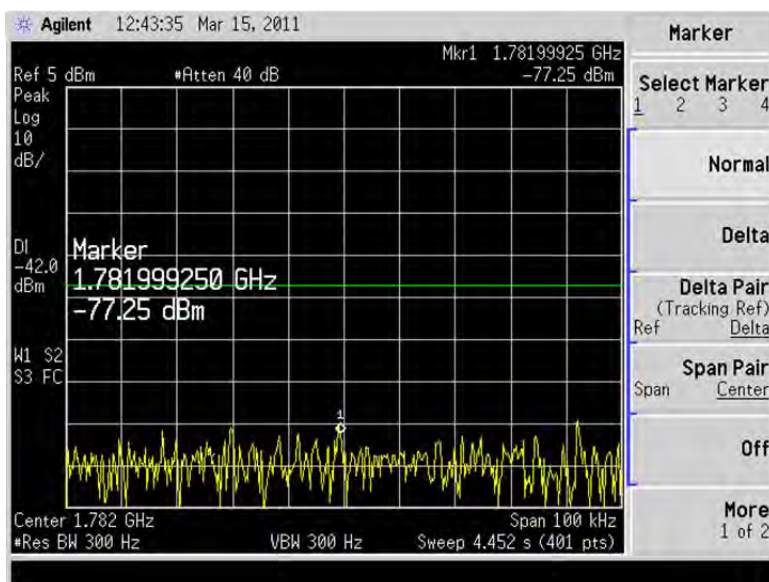
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
638	50mW	1842	-70.8	3118	-88.2



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
668	50mW	1812	-73.5	3148	-84.2



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
698	50mW	1782	-77.2	3178	-88.2



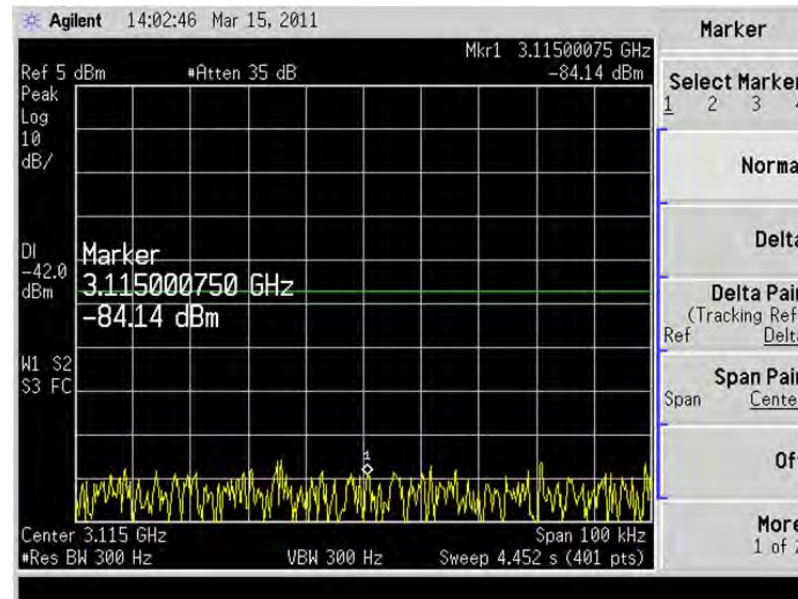
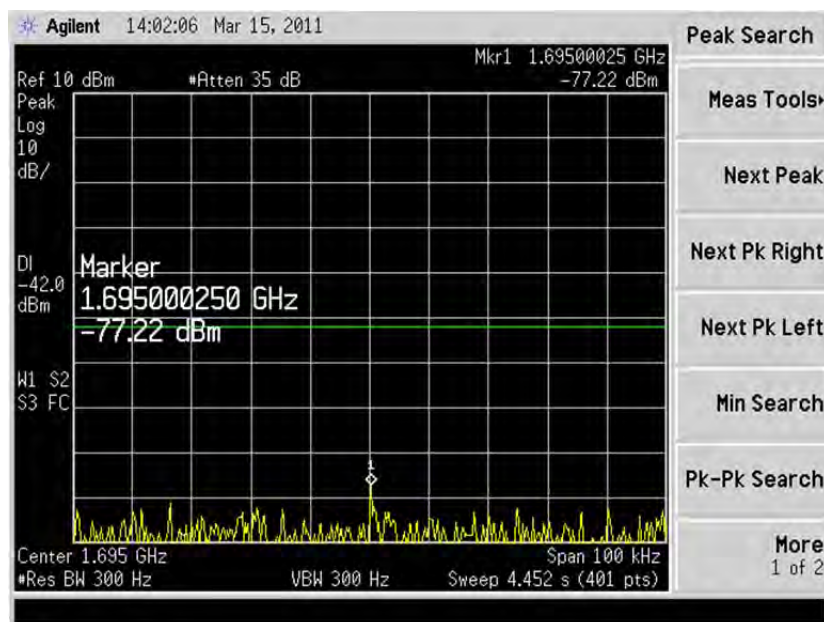
3.5 P8 band 710-790MHz UHF-Zigbee IMD

	UHF Freq (MHz)	Zb freq (MHz)	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
Zigbee Low band	710	2405	1695	-77	3115	-84
	750	2405	1655	-73.5	3155	-79
	790	2405	1615	-80	3195	-83.3
Zigbee mid band	710	2445	1735	-77	3155	-90
	750	2445	1695	-77.6	3195	-82
	790	2445	1655	-76	3235	-83.8
Zigbee high band	710	2480	1770	-79.4	3190	-86.1
	750	2480	1730	75	3230	-87.8
	790	2480	1690	-77.3	3270	-88
Zigbee Low band	710	2405	1695	-72.5	3115	-85
	750	2405	1655	-72.5	3155	-81
	790	2405	1615	-72.7	3195	-78.1
Zigbee mid band	710	2445	1735	-76	3155	-83
	750	2445	1695	-77.7	3195	-78
	790	2445	1655	-73.9	3235	-90
Zigbee high band	710	2480	1770	-72.4	3190	-89
	750	2480	1730	-82	3230	-82.5
	790	2480	1690	-75.7	3270	-81.1

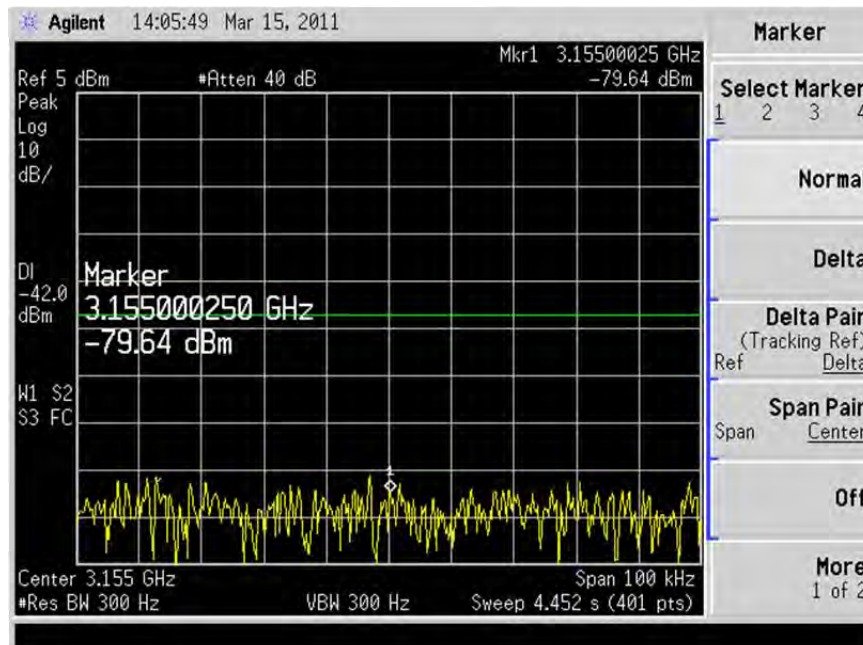
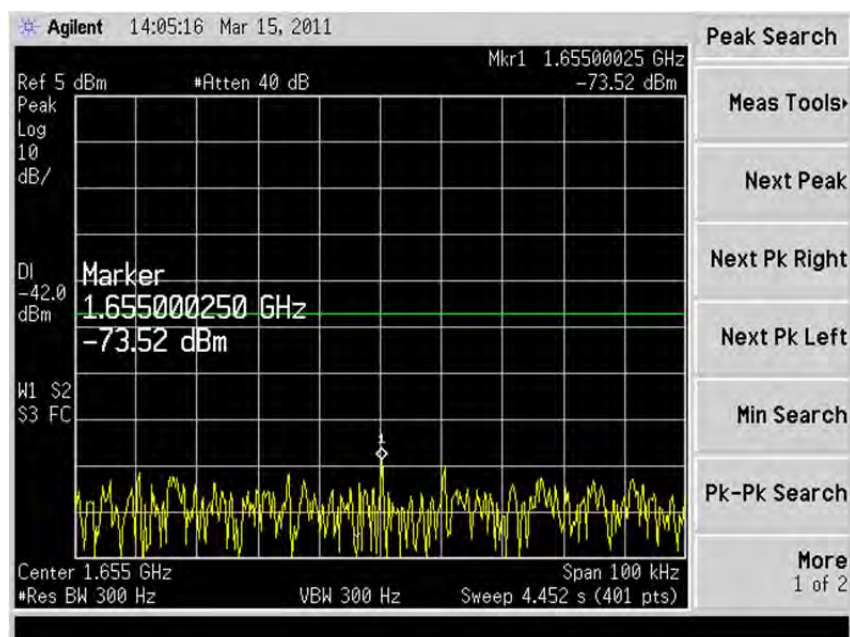
3.5.1 Zigbee low frequency (Channel 11) 2405 MHz

3.5.1.1 UHF power low 10mW

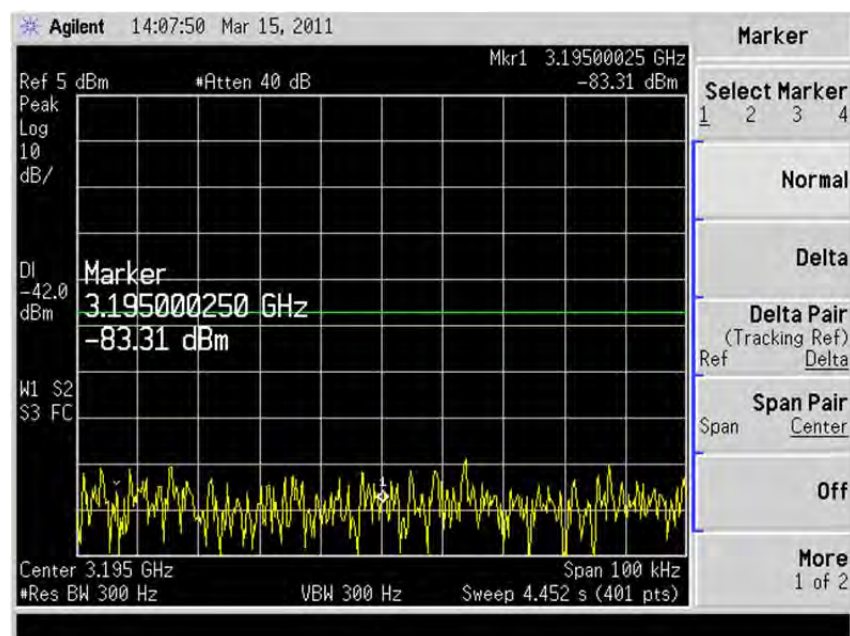
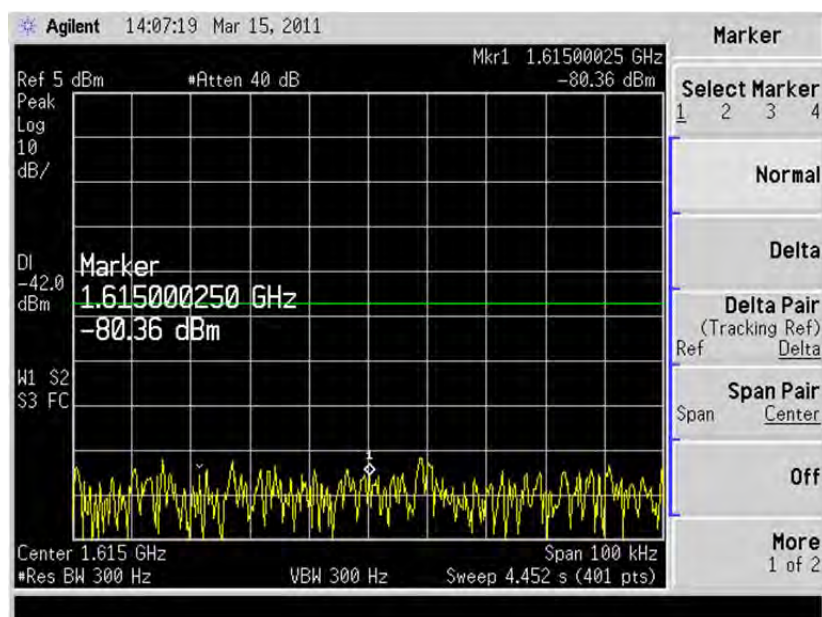
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
710	10mw	1695	-77	3115	-84.1



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	10mw	1655	-73.2	3155	-79.6

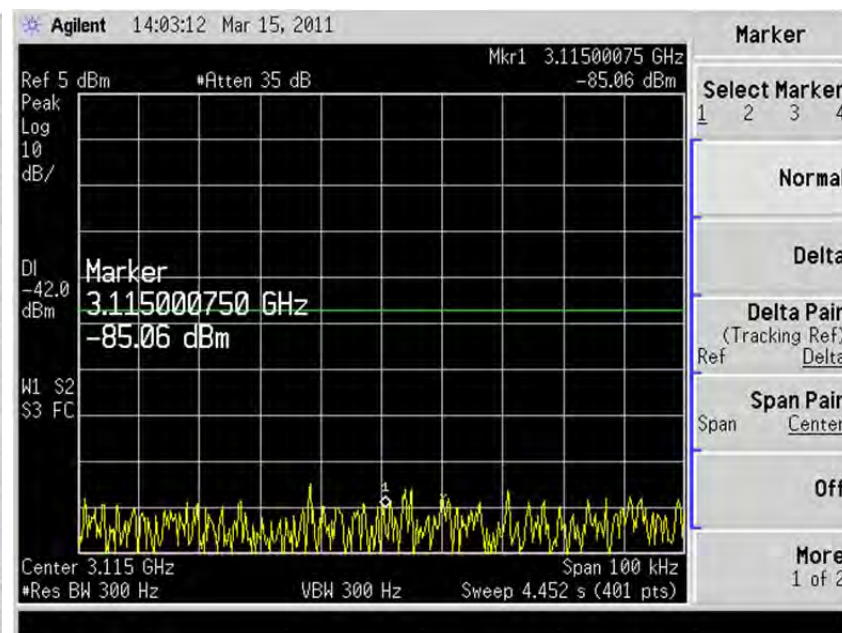
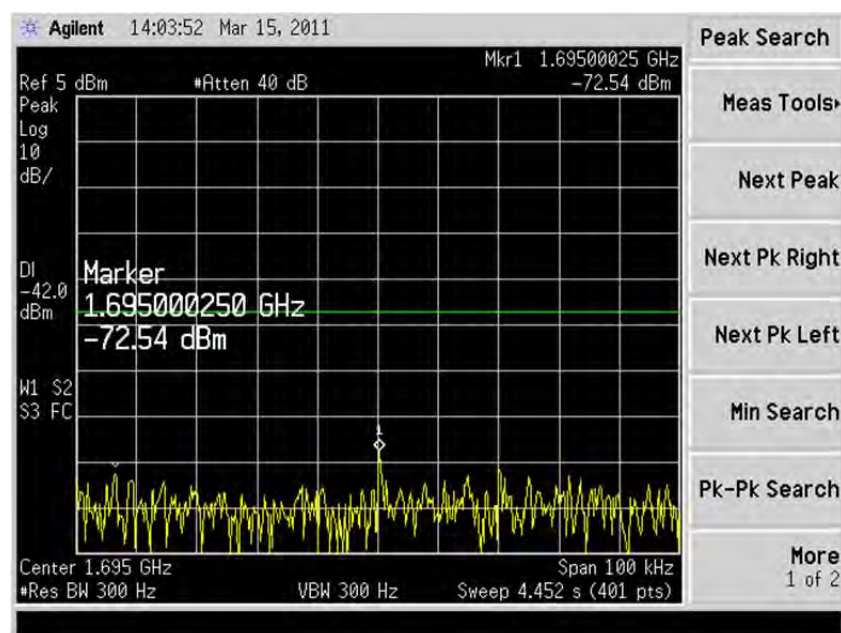


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	10mw	1615	-80	3195	-83

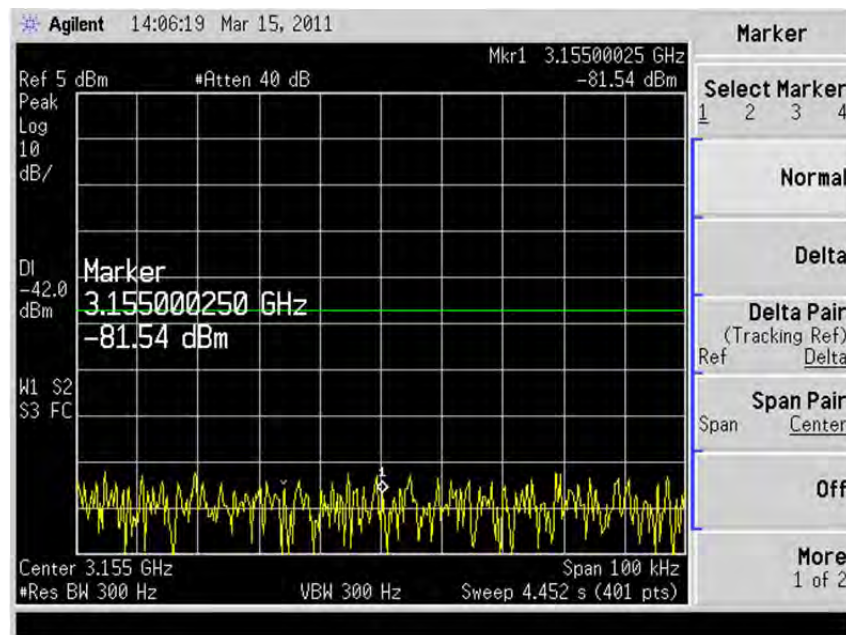
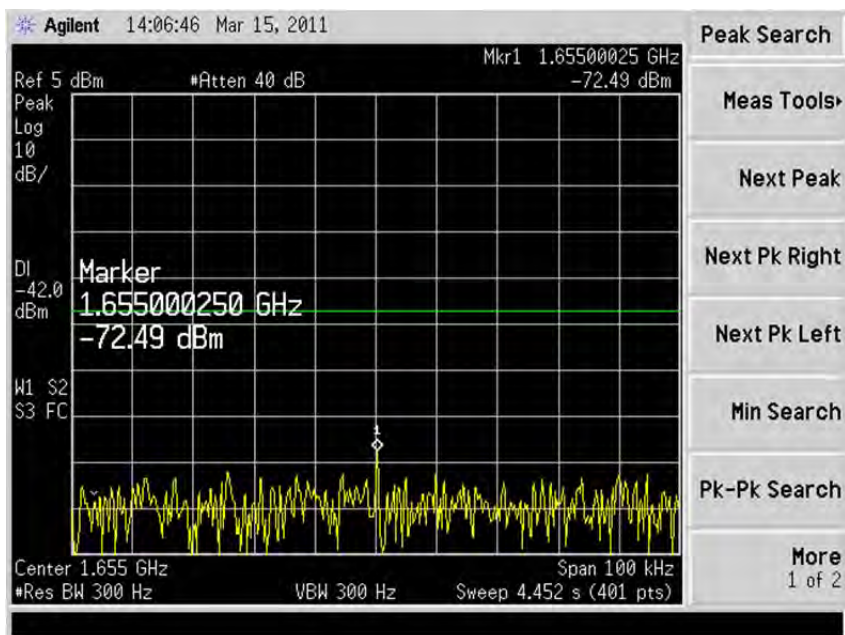


3.5.1.2 UHF power high 50mW

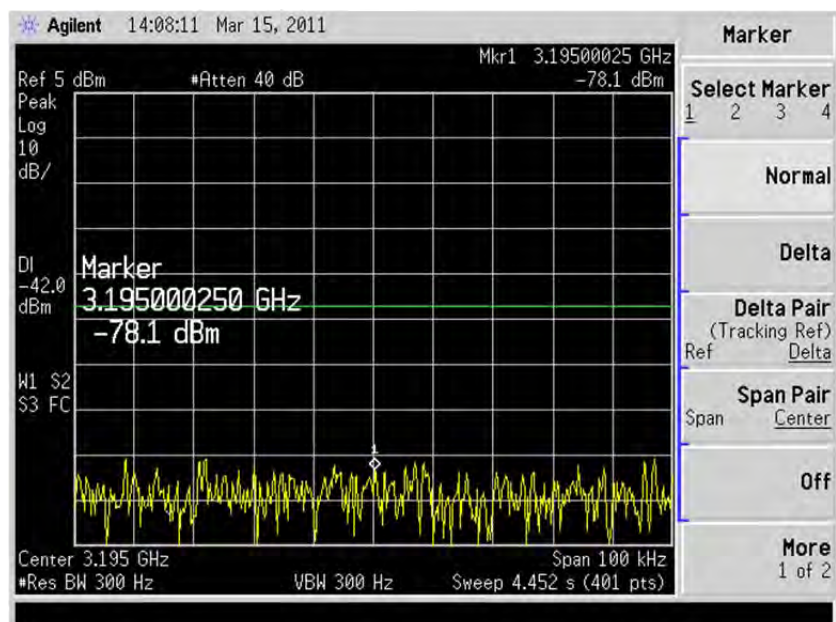
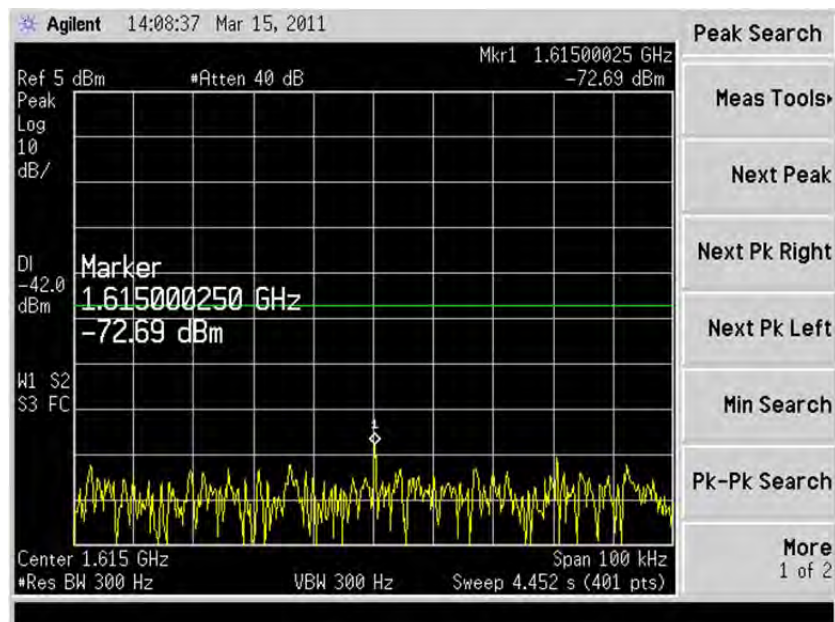
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
710	50mW	1695	-72.5	3115	-85.1



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	50mW	1655	-72	3155	-81



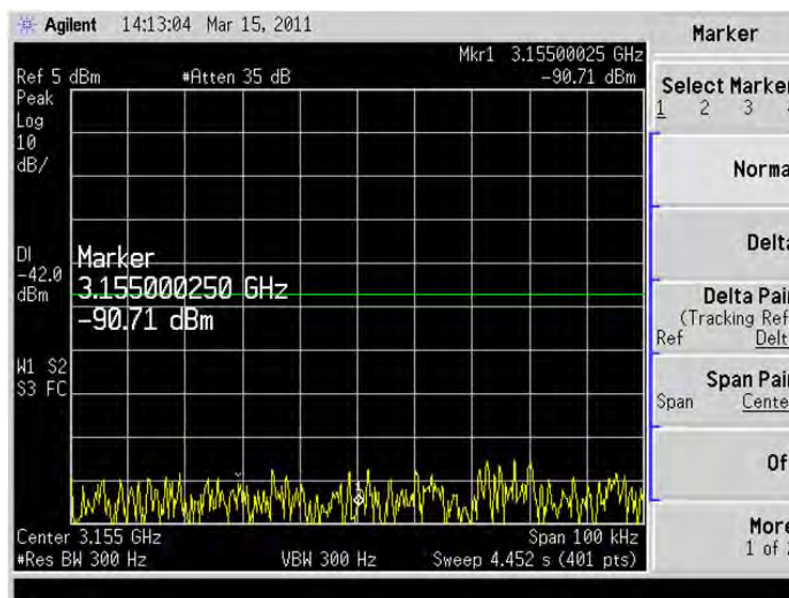
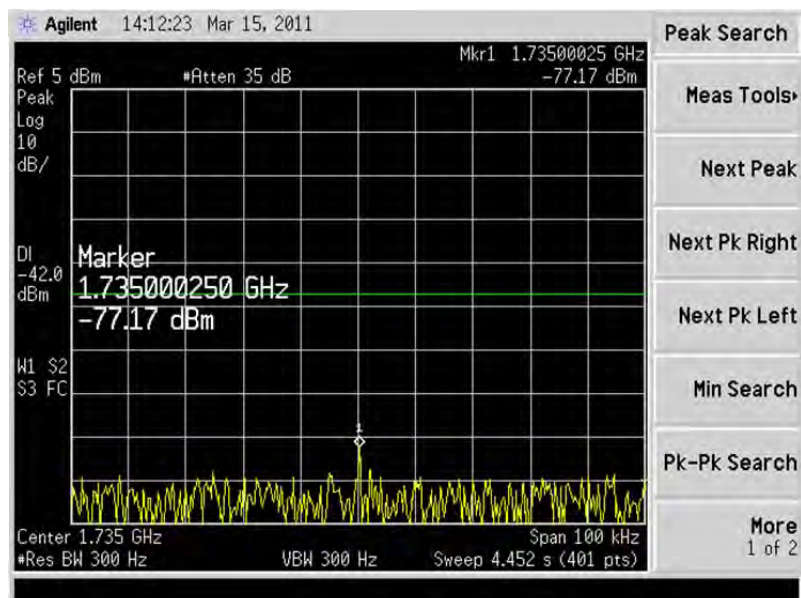
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	50mW	1615	-72	3195	-78



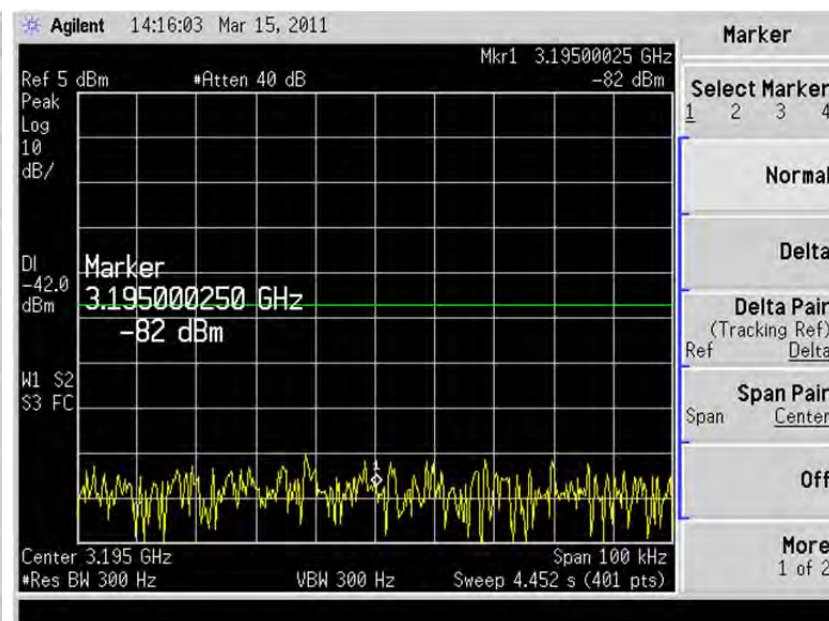
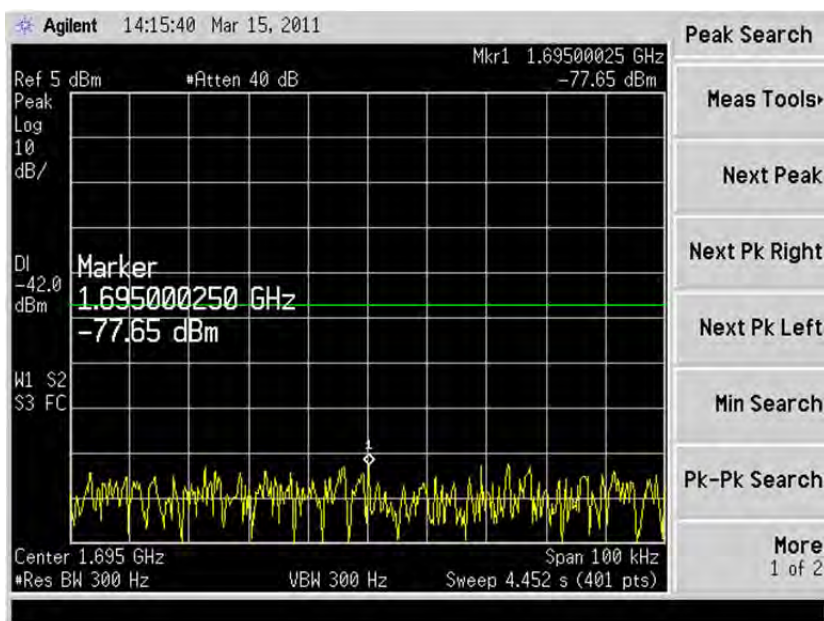
3.5.2 Zigbee mid frequency (Channel 19) 2445 MHz

3.5.2.1 UHF power low 10mW

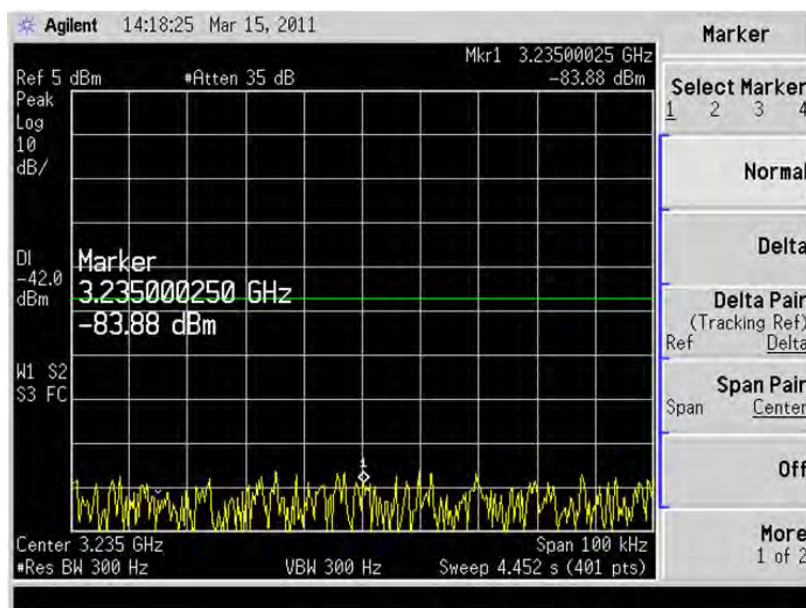
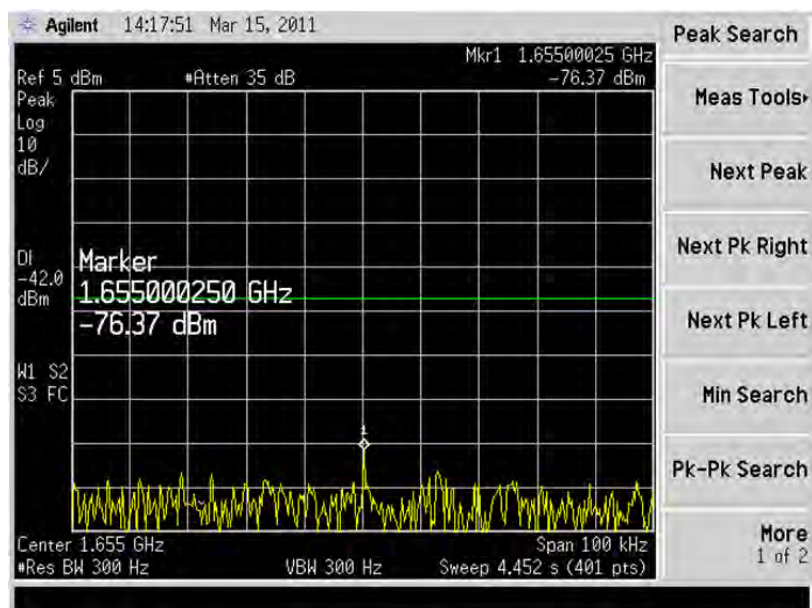
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
710	10mw	1735	-77	3155	-90



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	10mw	1695	-77	3195	-82

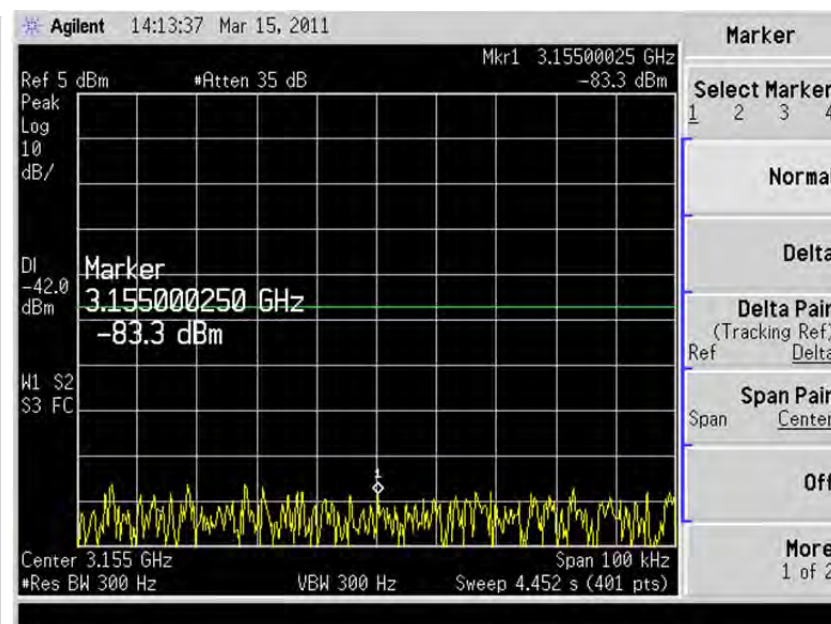
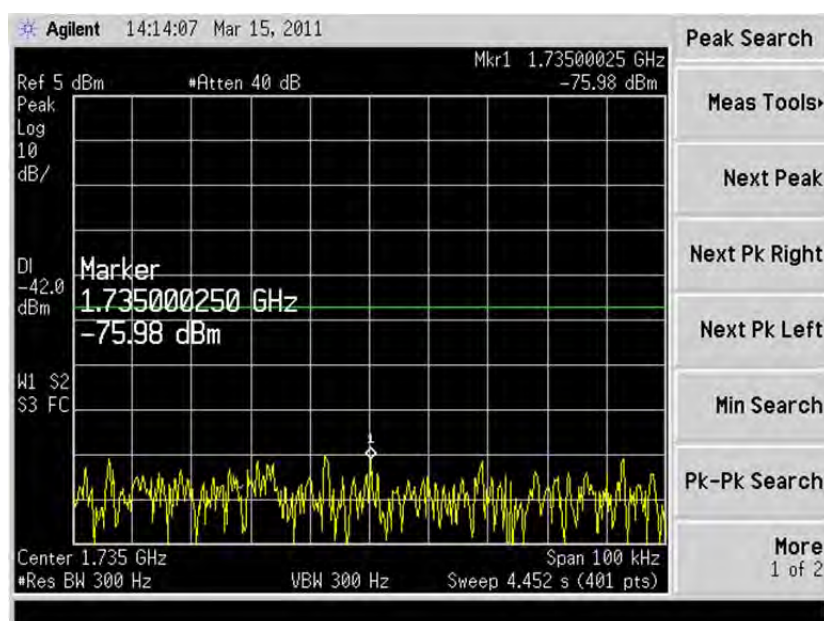


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	10mw	1655	-76.4	3238	-83.9

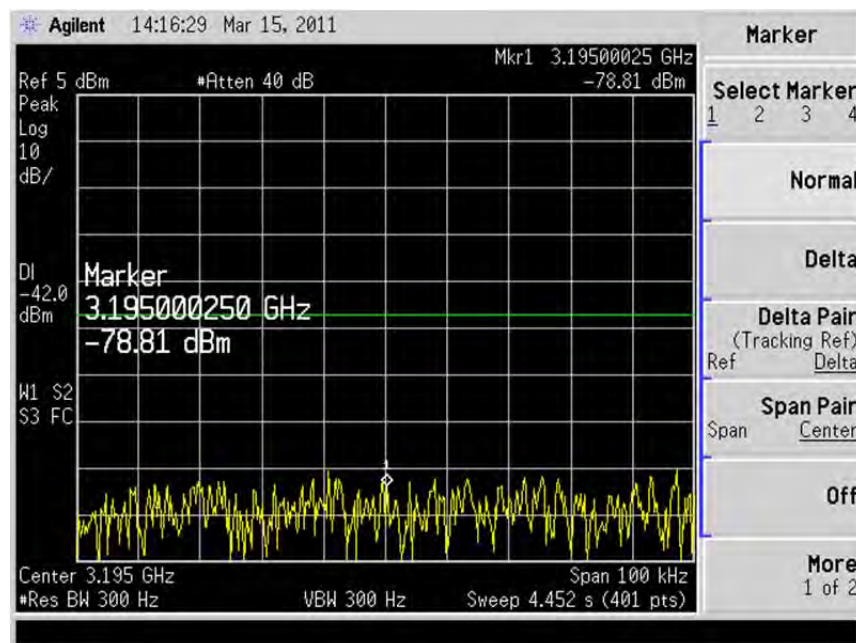
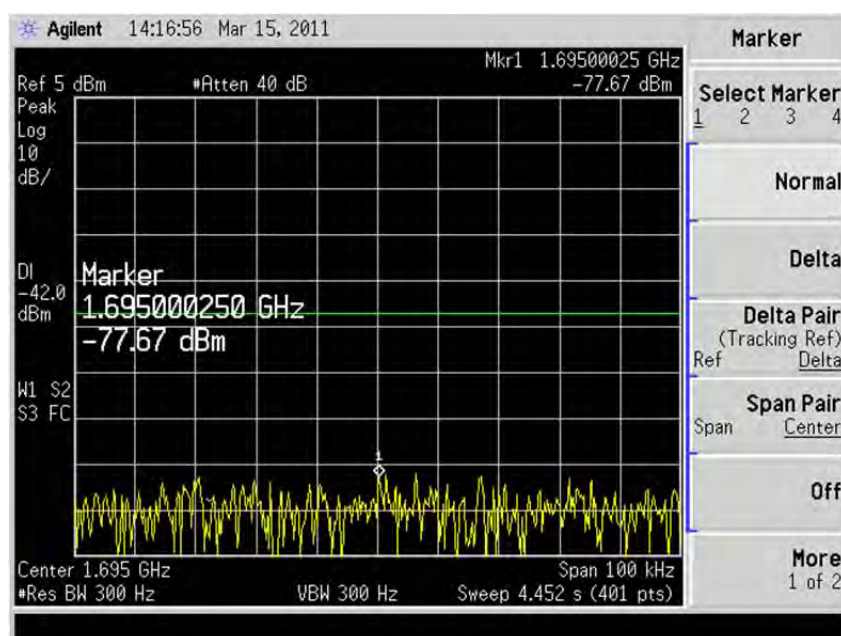


3.5.2.2 UHF power high 50mW

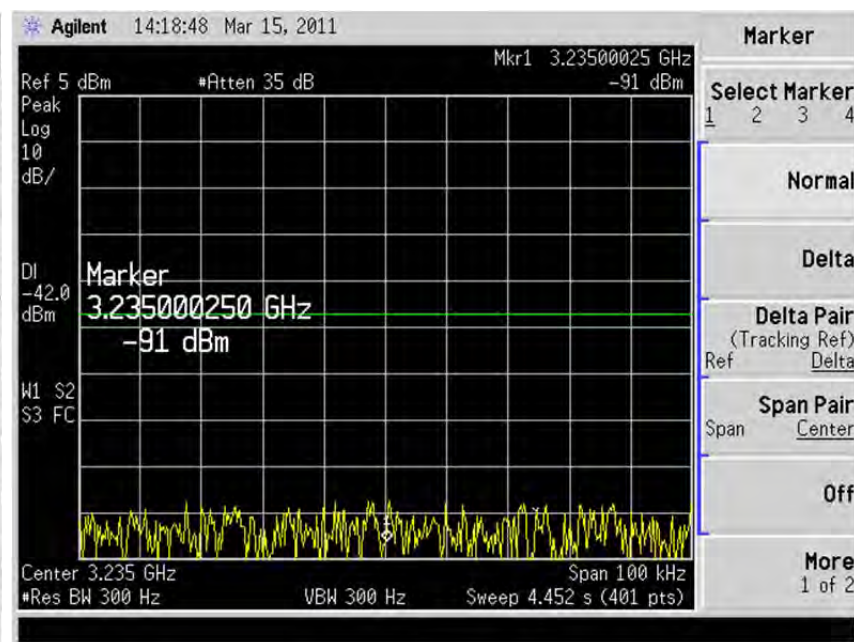
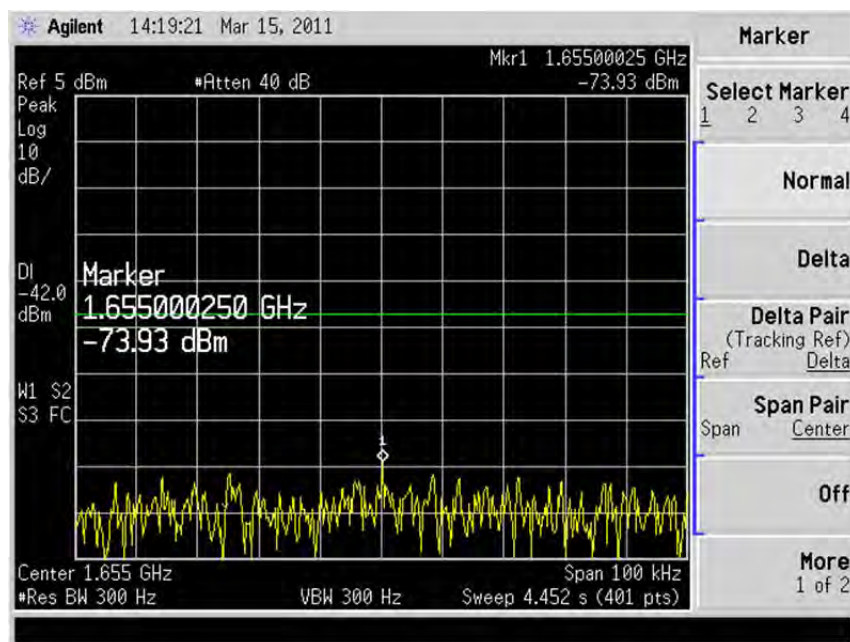
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
710	50mW	1735	-76	3155	-83



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	50mW	1695	-77	3195	-78



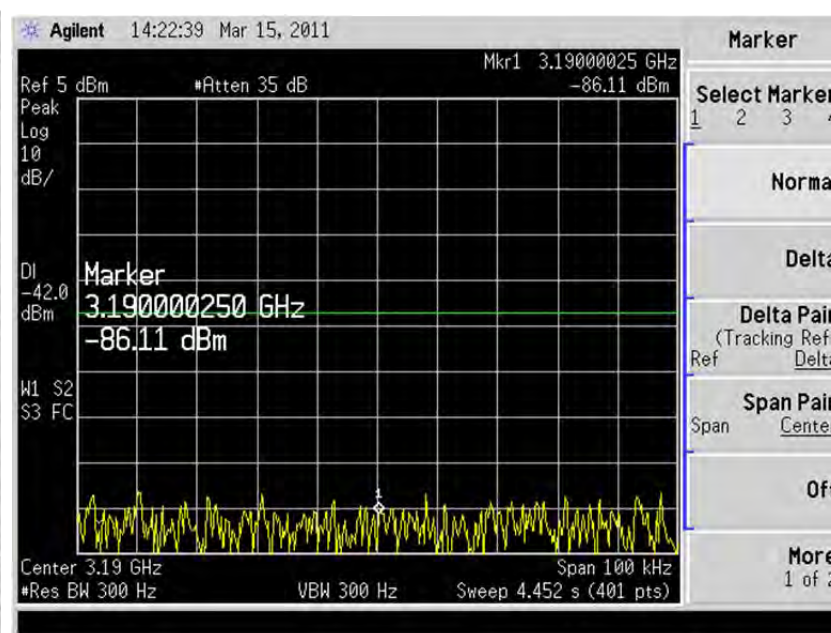
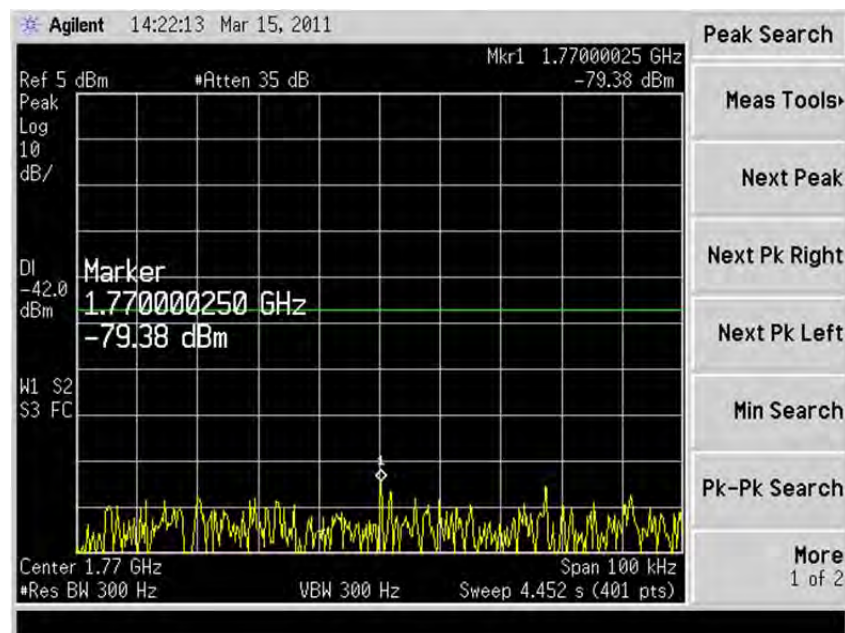
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	50mW	1655	-73.9	3235	-91



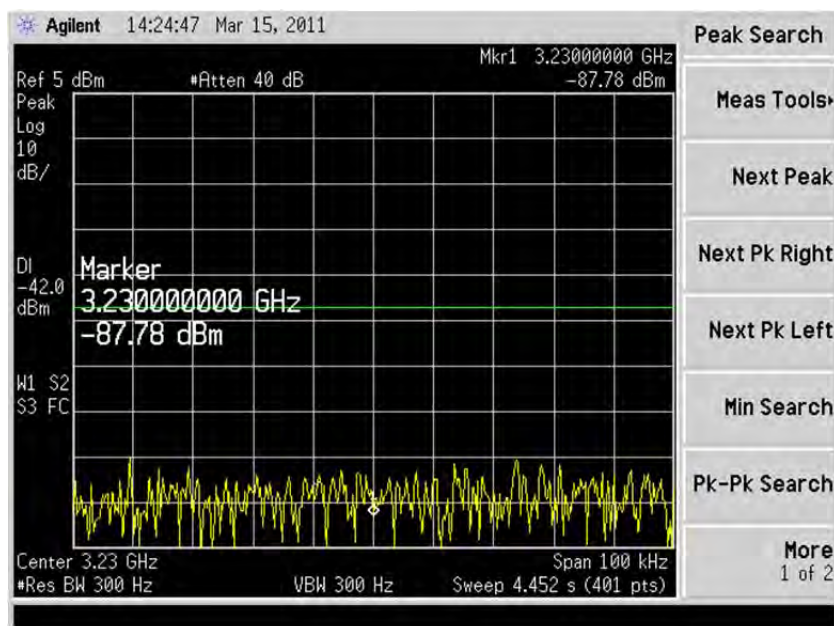
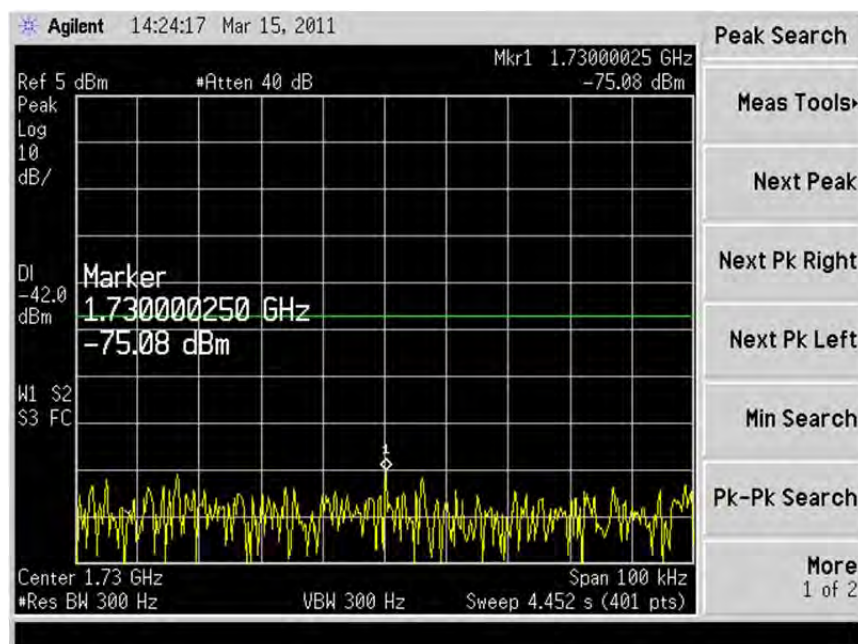
3.5.3 Zigbee high frequency (Channel 26) 2480 MHz

3.5.3.1 UHF power low 10mW

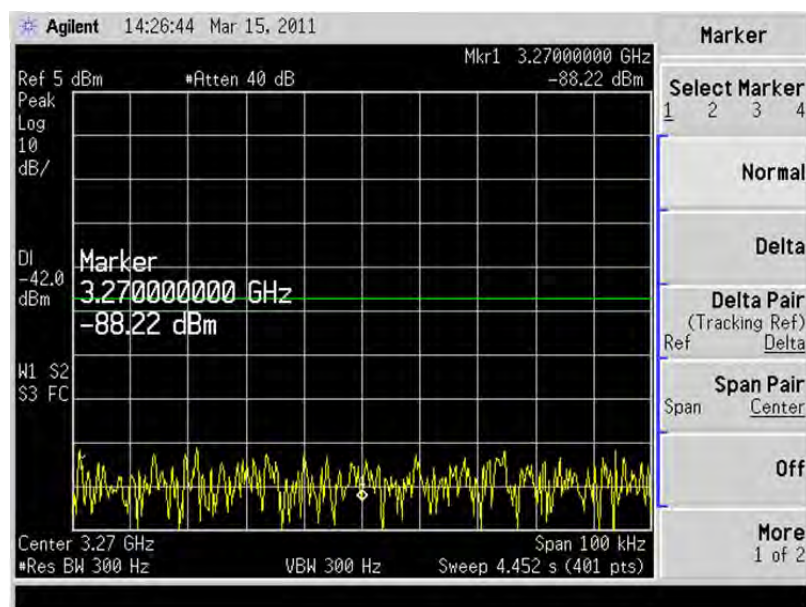
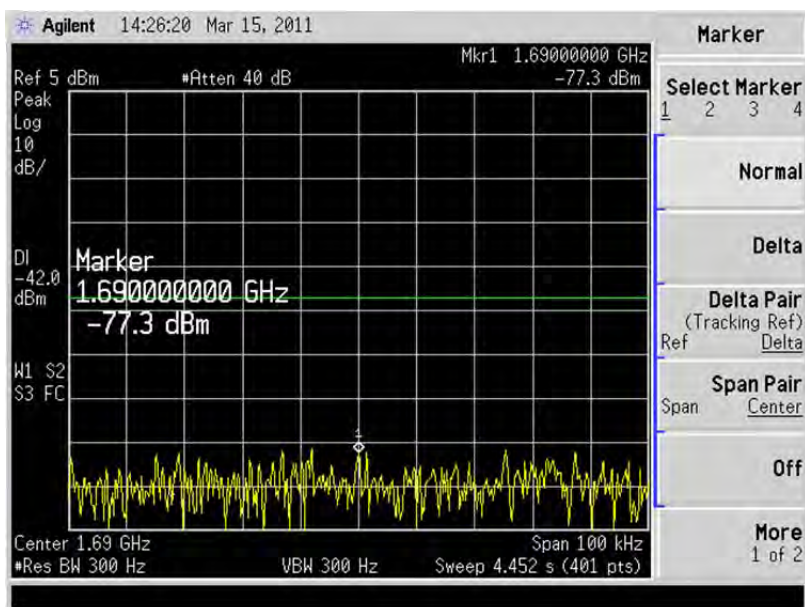
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
710	10mw	1770	-79.0	3190	-86



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	10mw	1730	-75	3230	-87

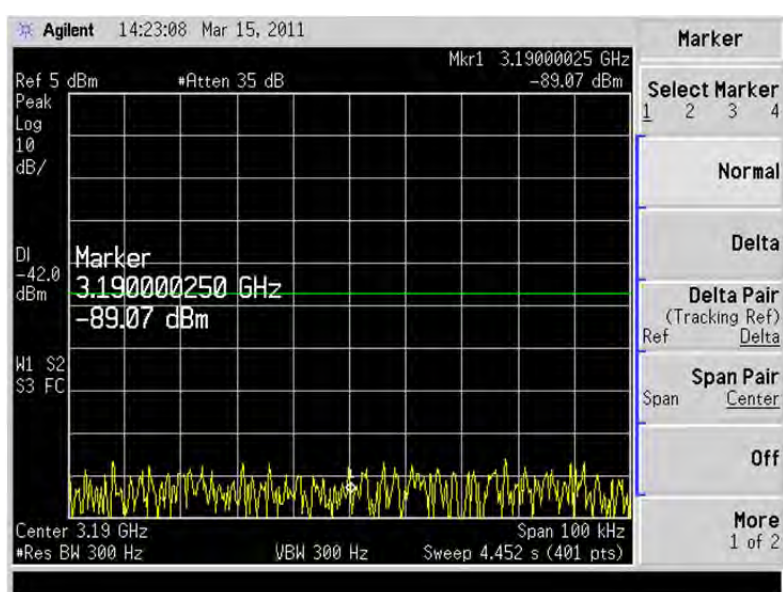
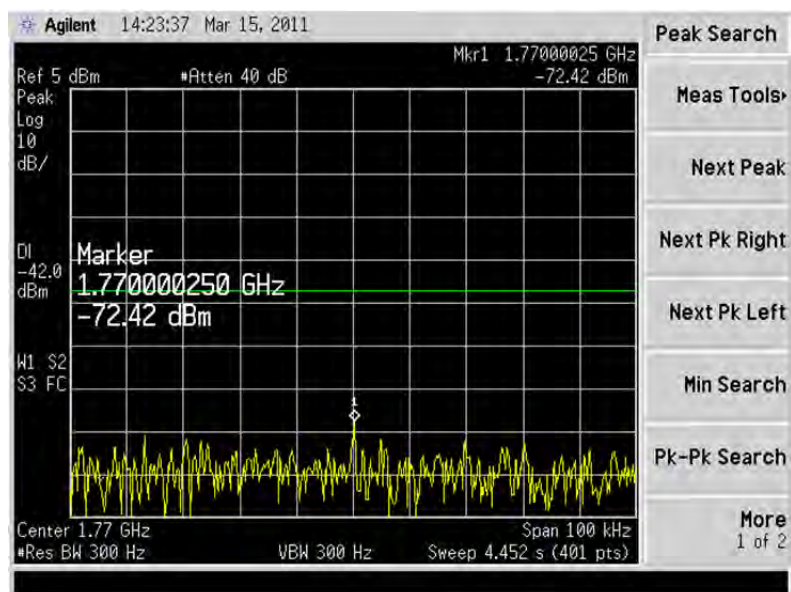


UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	10mw	1690	-77	3270	-88

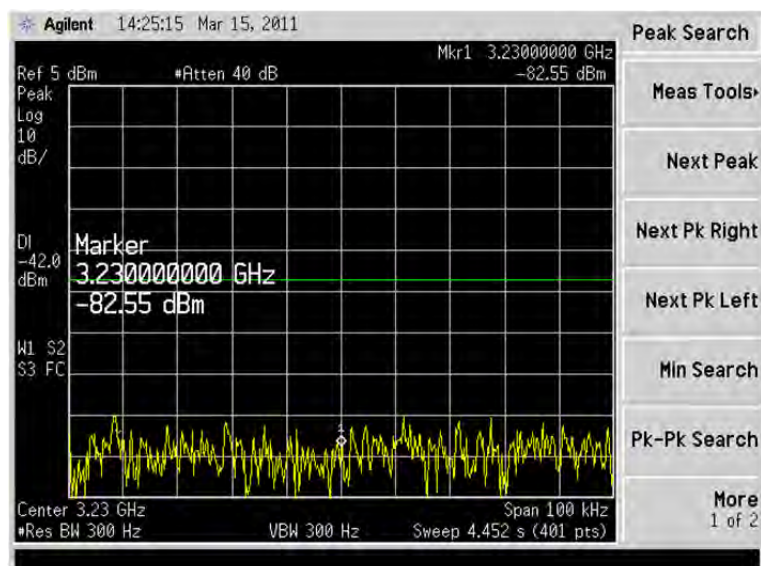
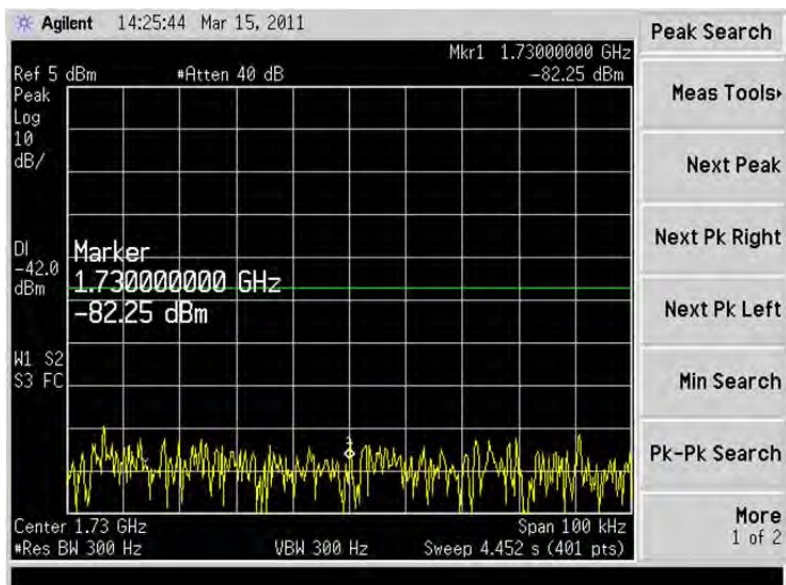


3.5.3.2 UHF power high 50mW

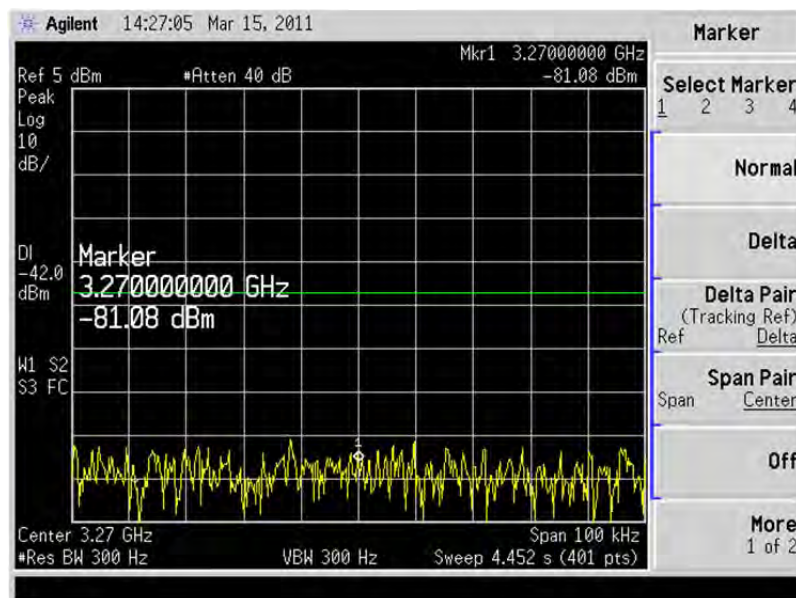
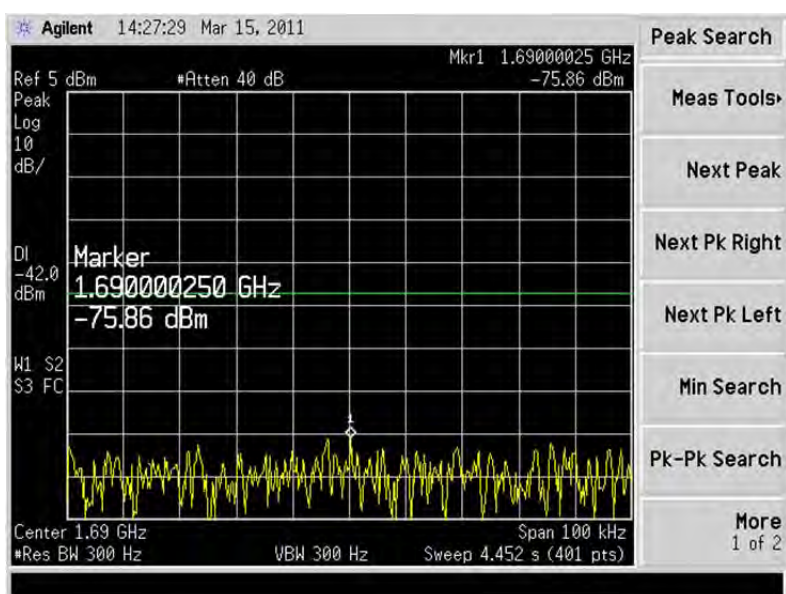
UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	10mw	1690	-72	3270	-89



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
750	50mW	1730	-82	3230	-82



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
790	50mW	1690	-75	3270	-81



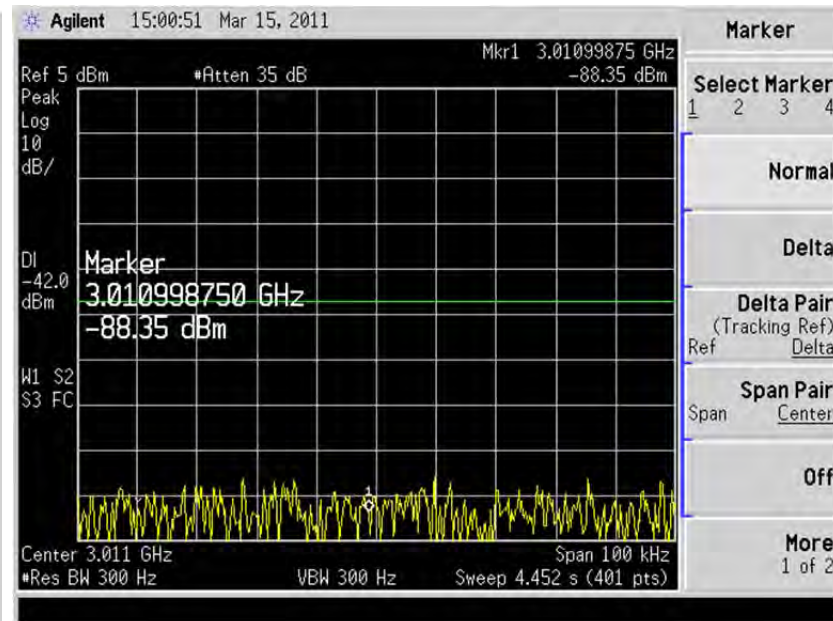
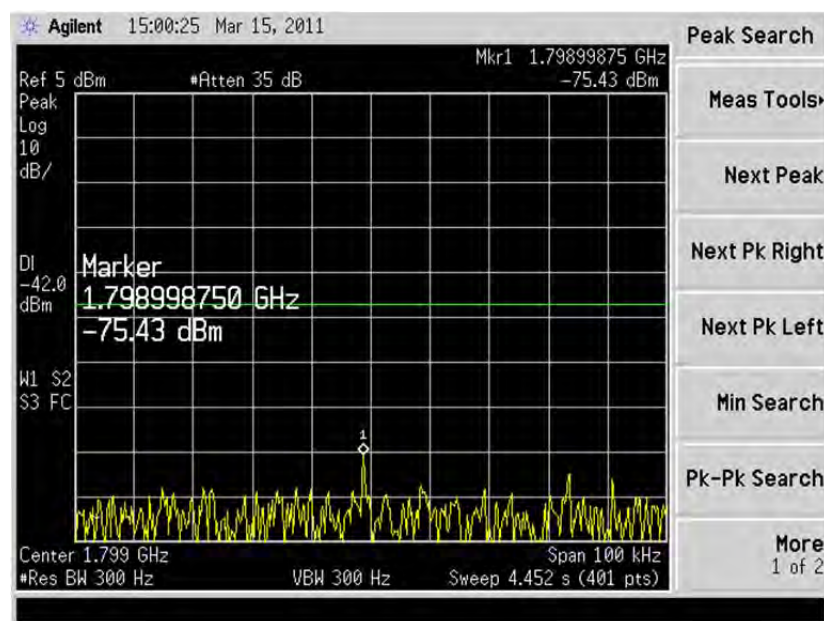
3.6 K4E band 606-666MHz UHF-Zigbee IMD

	UHF Freq (MHz)	Zb freq (MHz)	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
Zigbee Low band	606	2405	1799	-75.4	3011	-88.3
	636	2405	1769	-75.7	3041	-85.7
	666	2405	1739	-77.6	3071	-89.6
Zigbee mid band	606	2445	1839	-72.6	3051	-90
	636	2445	1809	-76.8	3081	-80.2
	666	2445	1779	-79.6	3111	-81
Zigbee high band	606	2480	1874	-72.6	3086	-90.8
	636	2480	1844	-75	3116	-86
	666	2480	1814	-73	3146	-80
Zigbee Low band	606	2405	1799	-72.7	3011	-85
	636	2405	1769	-86	3041	-76
	666	2405	1739	-76	3071	-80.1
Zigbee mid band	606	2445	1839	-70.7	3051	-80
	636	2445	1809	-73	3081	-80
	666	2445	1779	-76.7	3111	-85
Zigbee high band	606	2480	1874	-71	3086	-87
	636	2480	1844	-72.1	3116	-82
	666	2480	1814	-73.1	3146	-81

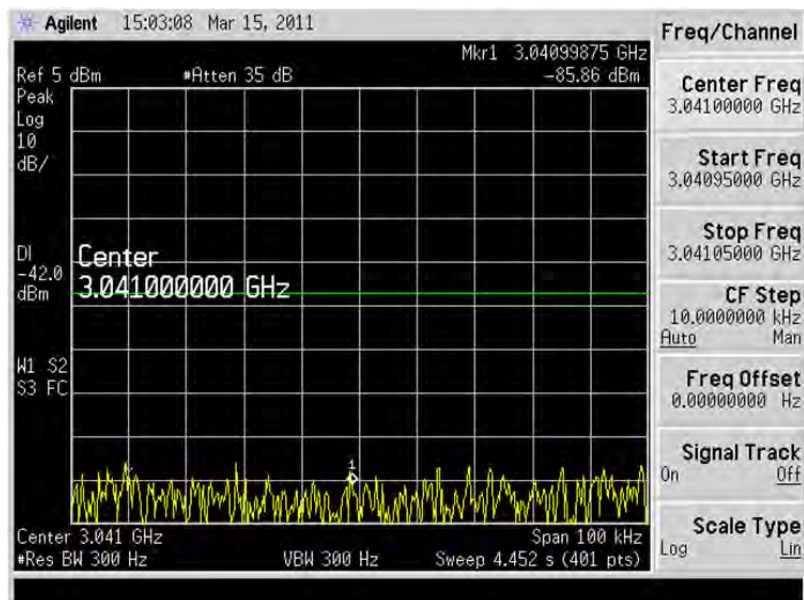
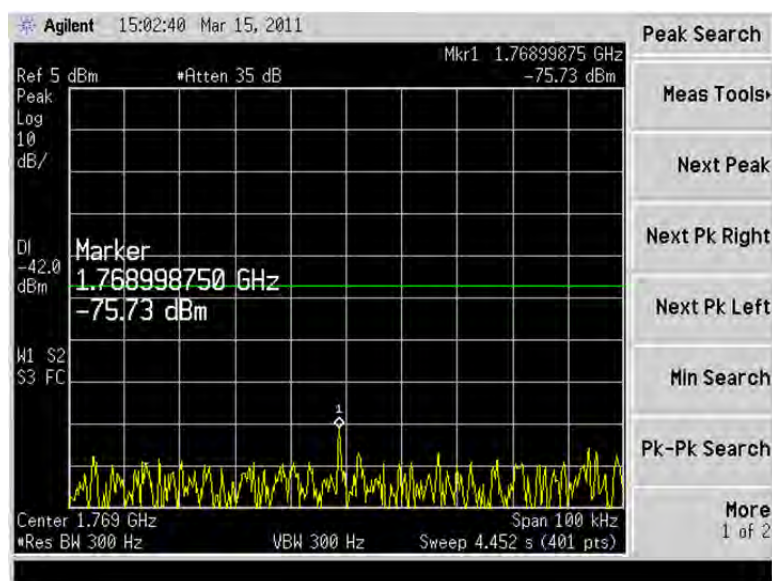
3.6.1 Zigbee low frequency (Channel 11) 2405 MHz

3.6.1.1 UHF power low 10mW

UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
606	10mw	1799	-75	3011	-88



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
636	10mw	1769	-75	3041	-85



UHF Freq (MHz)	UHF Pwr	UHF-ZB IMD Freq low (MHz)	IMD Pwr (dBm)	UHF-ZB IMD Freq high (MHz)	IMD Pwr (dBm)
666	10mw	1739	-77	3071	-89

