

## 8 6dB EMISSION BANDWIDTH

### 8.1 Applicable Standard: FCC §15.247(a)

Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands, The minimum 6dB bandwidth shall be at least 500kHz

### 8.2 Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2012-6-17	2013-6-17

**\*statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

### 8.3 Test Procedure

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum with the power of which is lower than peak power for 6dB.

Detector = Peak, Trace mode = max hold, Sweep = auto couple.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 8.4 Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

### 8.5 Test Result: pass

Mode	Channel	Antenna Port	6dB bandwidth(MHz)	Limit (kHz)	Test Data	Result
802.11.a	CH LOW	Port 1	16.51	500	Diagram 8-1	Pass
		Port 2	16.51	500		Pass
	CH MID	Port 1	16.52	500	Diagram 8-2	Pass
		Port 2	16.49	500		Pass
	CH HIGH	Port 1	16.44	500	Diagram 8-3	Pass
		Port 2	16.51	500		Pass
802.11.n-HT20	CH LOW	Port 1	17.77	500	Diagram 8-4	Pass
		Port 2	17.76	500		Pass
	CH MID	Port 1	17.73	500	Diagram 8-5	Pass
		Port 2	17.74	500		Pass
	CH HIGH	Port 1	17.78	500	Diagram 8-6	Pass
		Port 2	17.73	500		Pass
802.11.n-HT40	CH LOW	Port 1	36.56	500	Diagram 8-7	Pass
		Port 2	36.51	500		Pass
	CH HIGH	Port 1	36.44	500	Diagram 8-8	Pass
		Port 2	36.53	500		Pass

Diagram 8-1

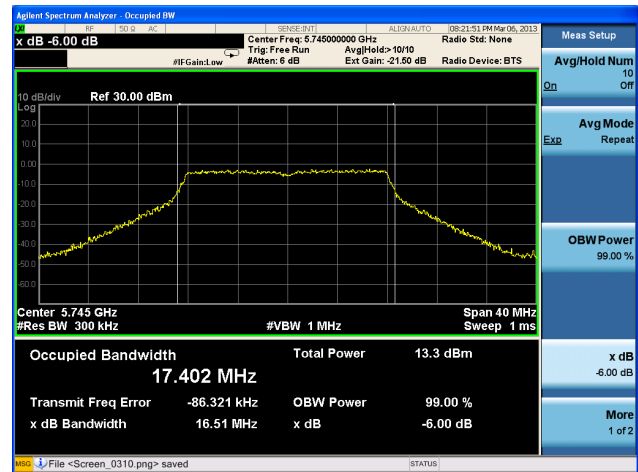
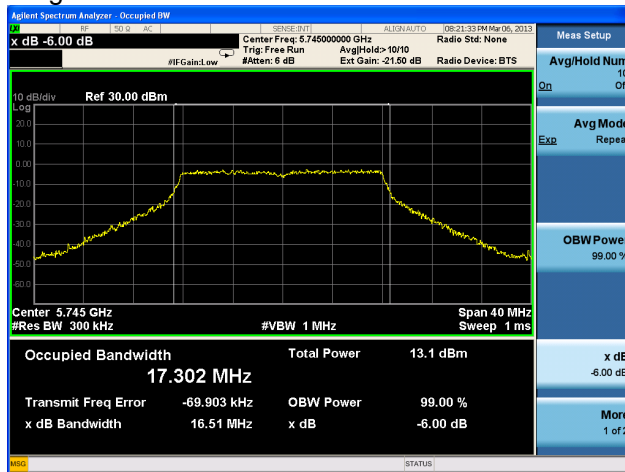


Diagram 8-2

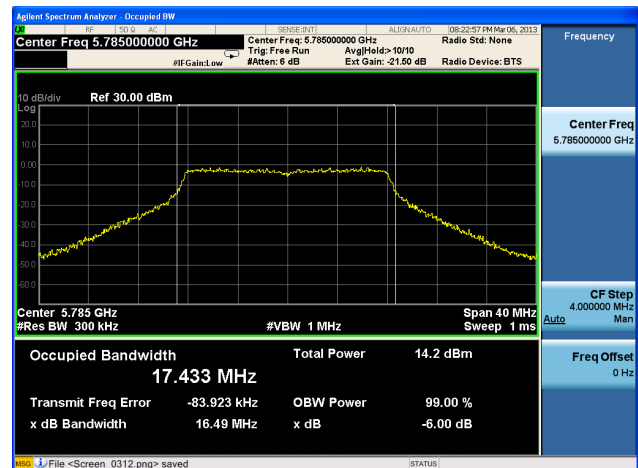
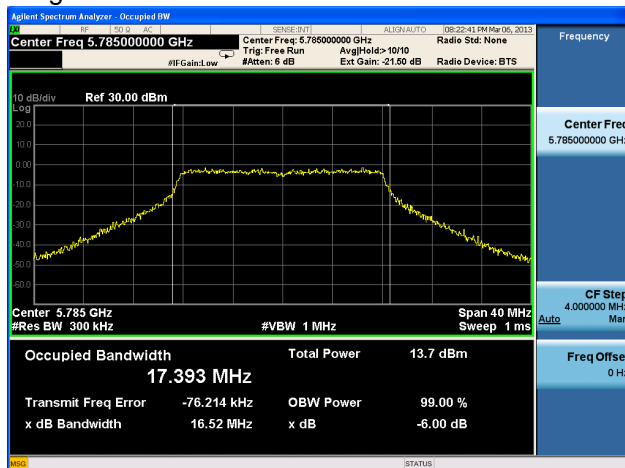


Diagram 8-3

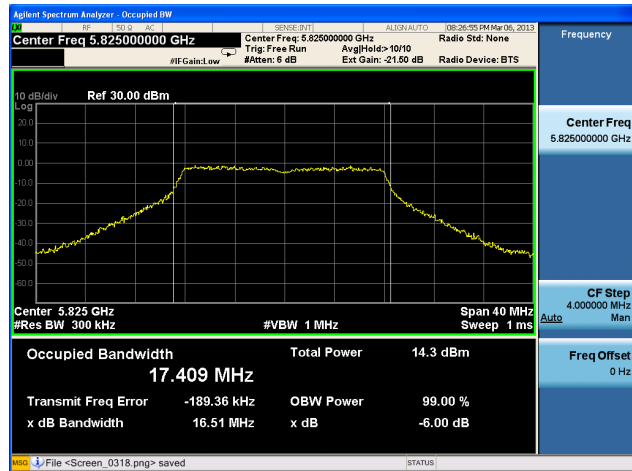
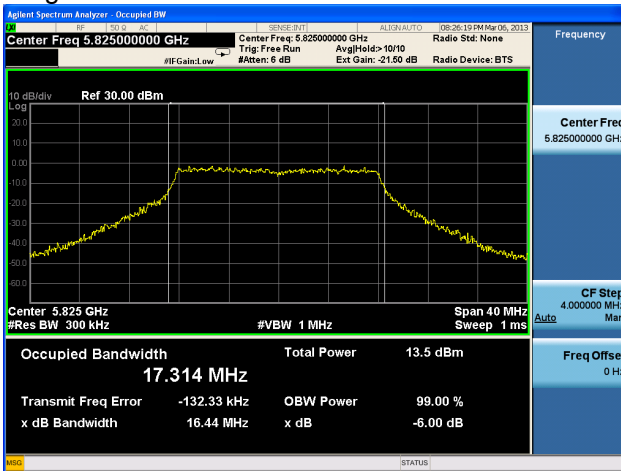


Diagram 8-4

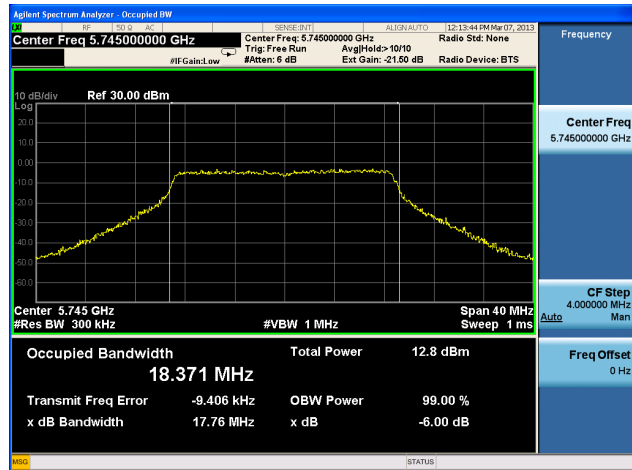
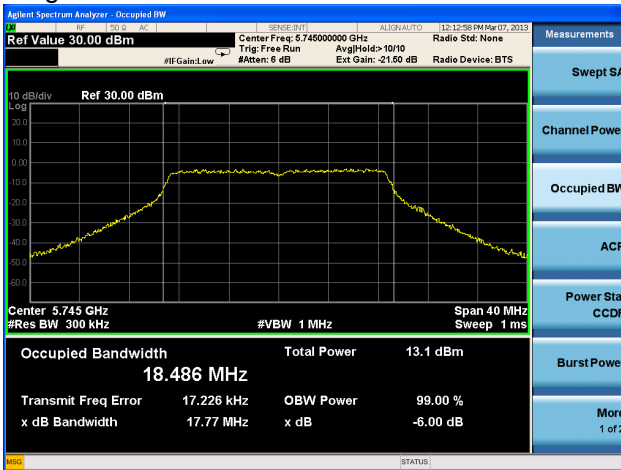


Diagram 8-5

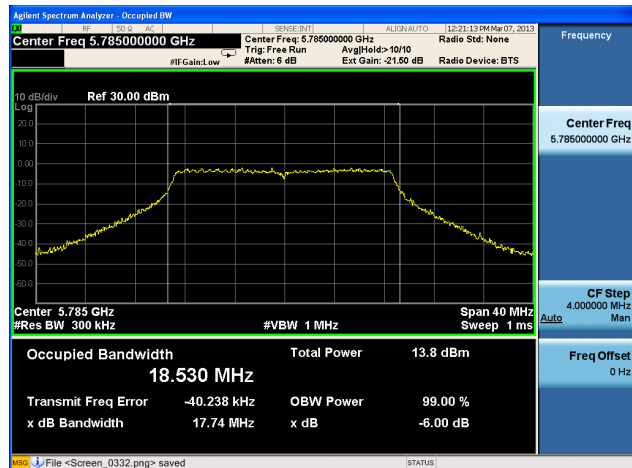
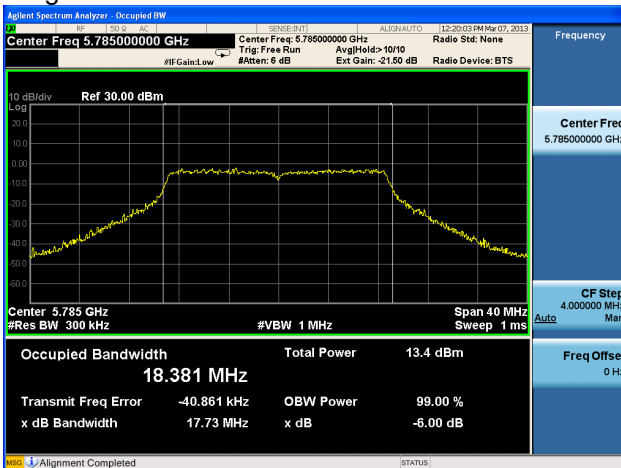


Diagram 8-6

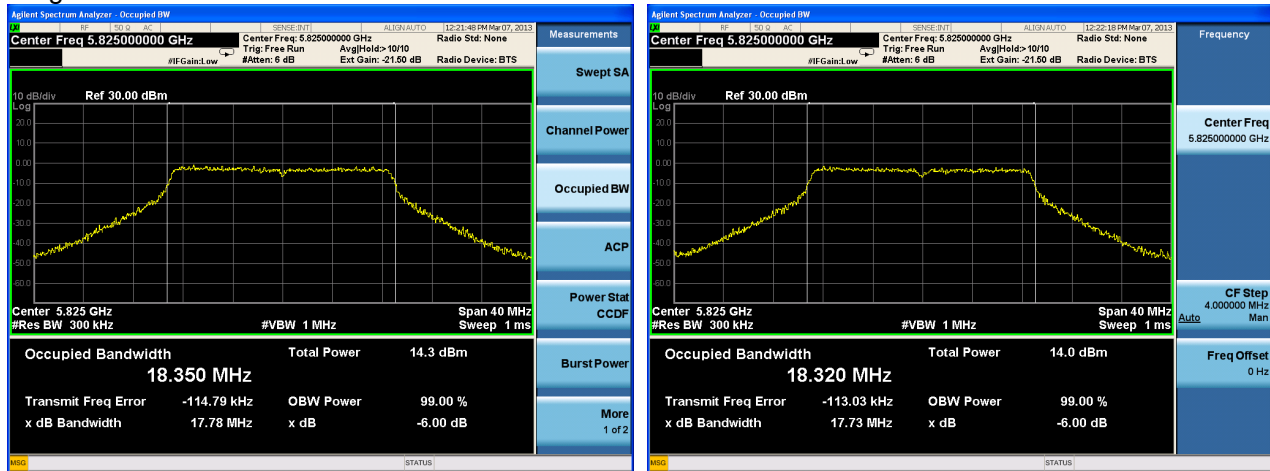


Diagram 8-7

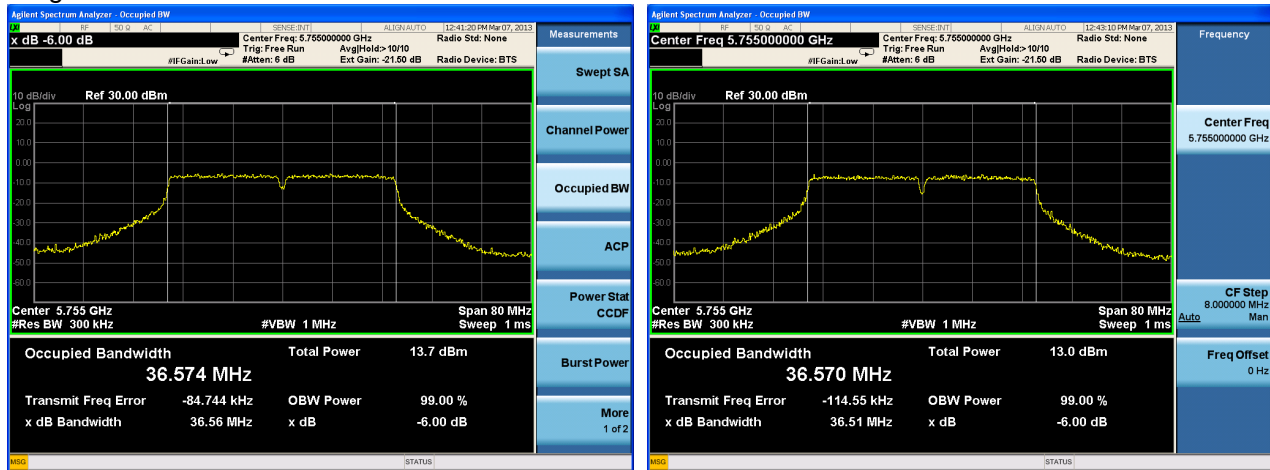
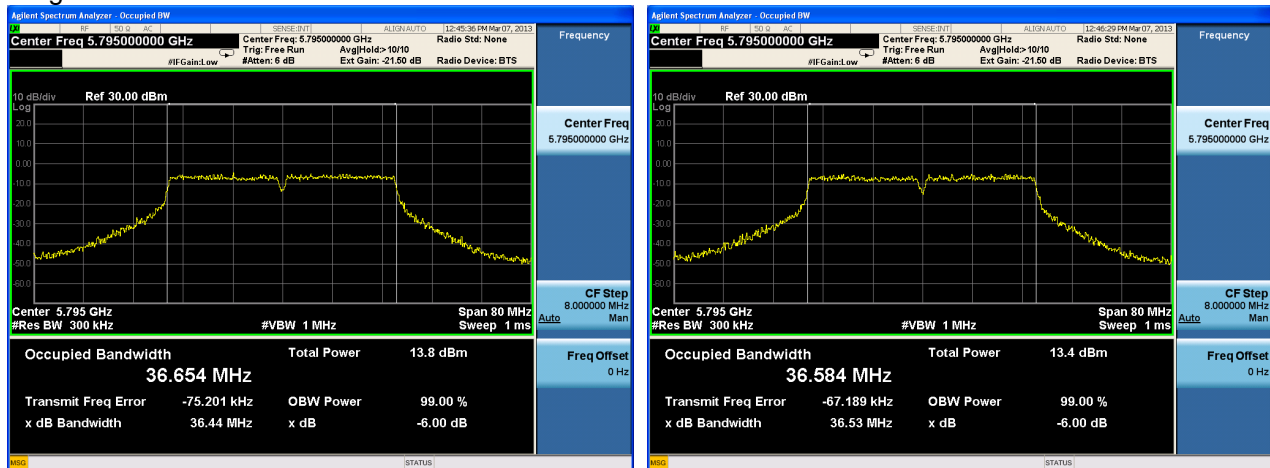


Diagram 8-8



## 9 MAXIMUM PEAK OUTPUT POWER

### 9.1 Applicable Standard: FCC §15.247

According to FCC§15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g. alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

### 9.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2012-6-17	2013-6-17

**\*statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

### 9.3 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, and video bandwidth was set at 3MHz. Set the span to fully encompass the DTS bandwidth. Detector = peak, Sweep time = auto couple, Trace mode = max hold.

### 9.4 Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53%
ATM Pressure:	1009mbar

### 9.5 Test Result: Pass

According to§15.247(c), systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power. The applicable output power limit shall be calculated as follows:

$$P_{\text{Out}} = 30 - \text{Floor}[(G_{\text{Tx}} - 6)] = 30 - [(17-6)] = 19 \quad \text{where:}$$

$P_{Out}$  = maximum conducted output power in dBm,

$G_{Tx}$  = the maximum transmitting antenna directional gain in dBi.

Mode	Channel	Antenna Port	Power (dBm)	Total Power (dBm)	Limit (dBm)	Test Data	Result
802.11.a	CH LOW	Port 1	14.61	17.635	19	Diagram 9-1	Pass
		Port 2	14.64				Pass
	CH MID	Port 1	14.84	17.890	19	Diagram 9-2	Pass
		Port 2	14.92				Pass
	CH HIGH	Port 1	14.68	17.780	19	Diagram 9-3	Pass
		Port 2	14.85				Pass
802.11.n. HT20	CH LOW	Port 1	14.12	17.186	19	Diagram 9-4	Pass
		Port 2	14.23				Pass
	CH MID	Port 1	14.50	17.581	19	Diagram 9-5	Pass
		Port 2	14.64				Pass
	CH HIGH	Port 1	14.42	17.687	19	Diagram 9-6	Pass
		Port 2	14.92				Pass
802.11.n. HT40	CH LOW	Port 1	14.18	17.251	19	Diagram 9-7	Pass
		Port 2	14.30				Pass
	CH HIGH	Port 1	14.71	17.755	19	Diagram 9-8	Pass
		Port 2	14.78				Pass

Diagram 9-1



Diagram 9-2

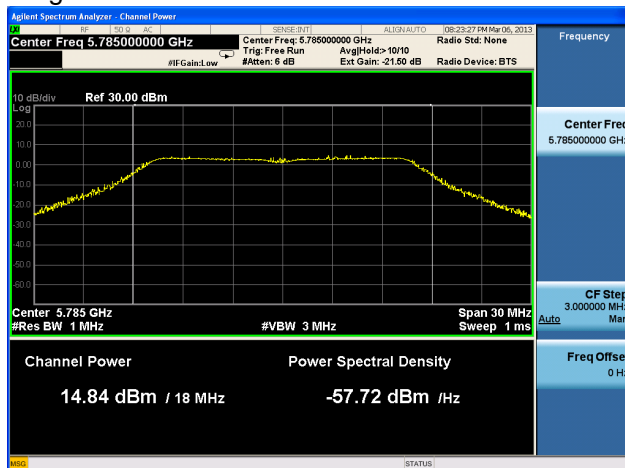


Diagram 9-3

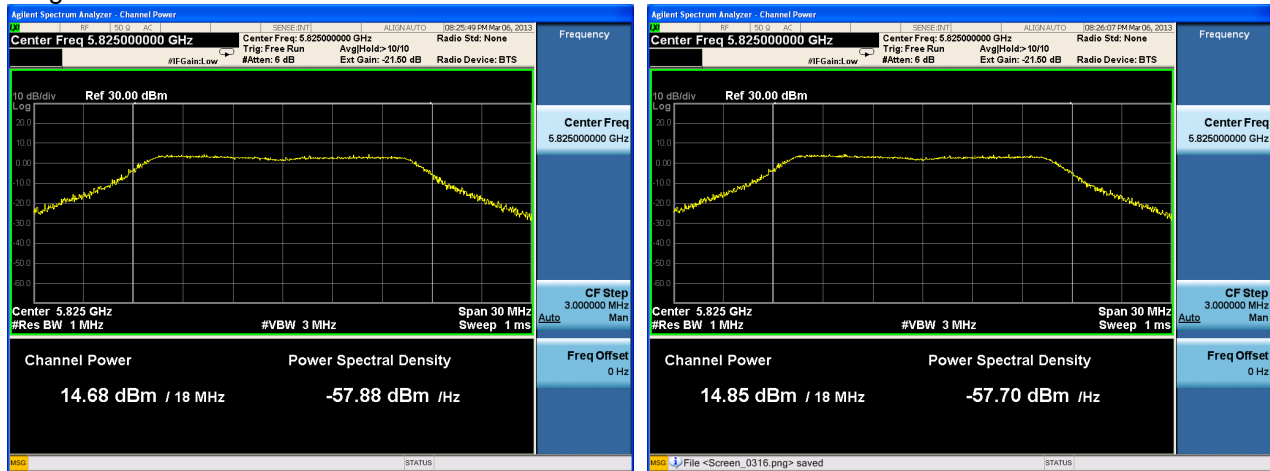


Diagram 9-4

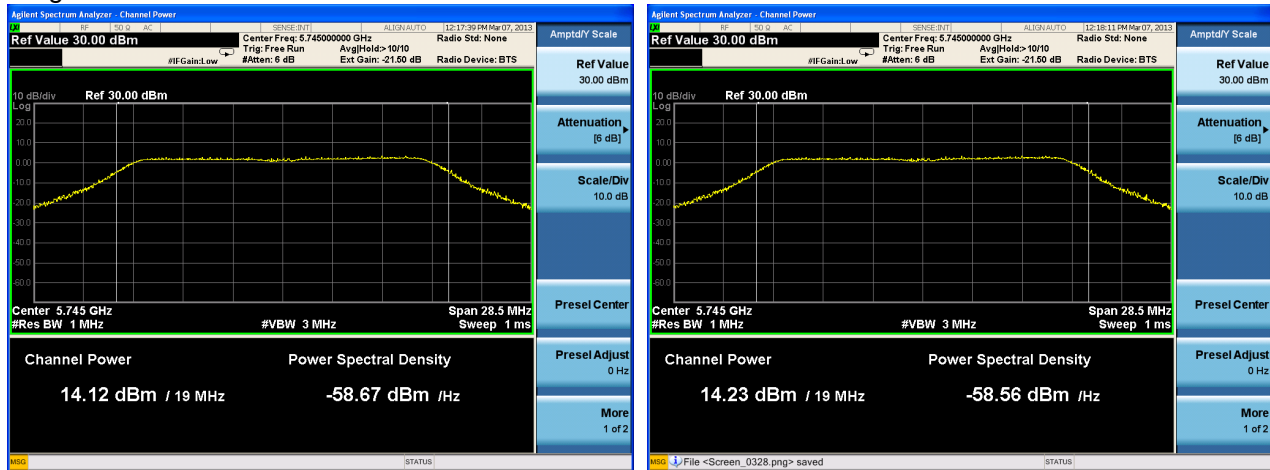


Diagram 9-5

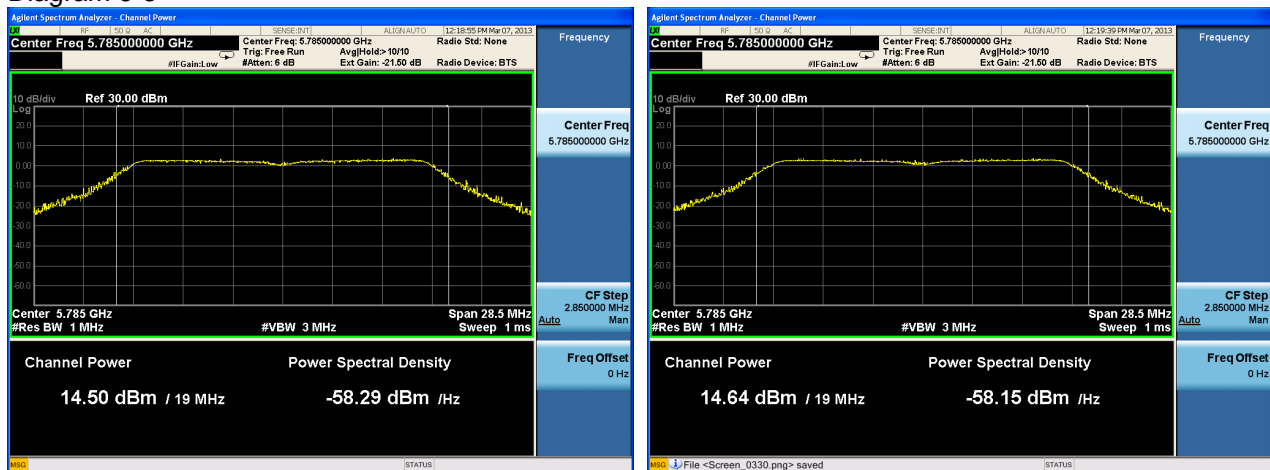


Diagram 9-6

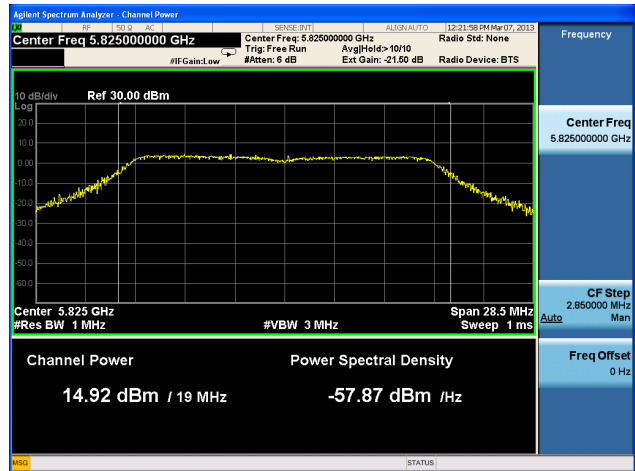
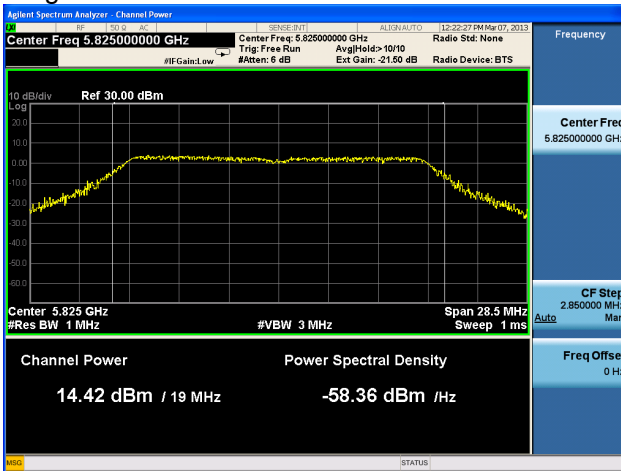


Diagram 9-7

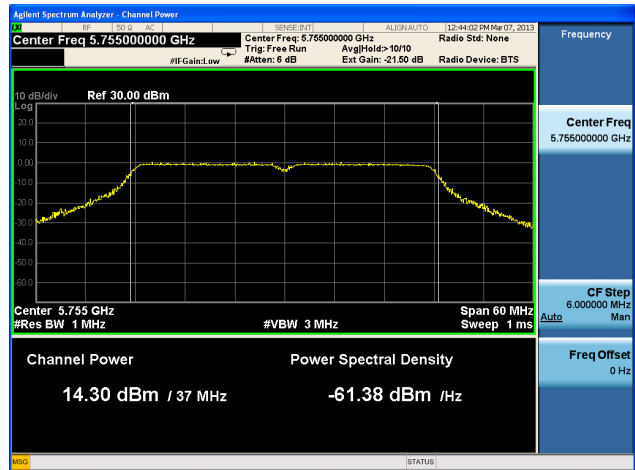
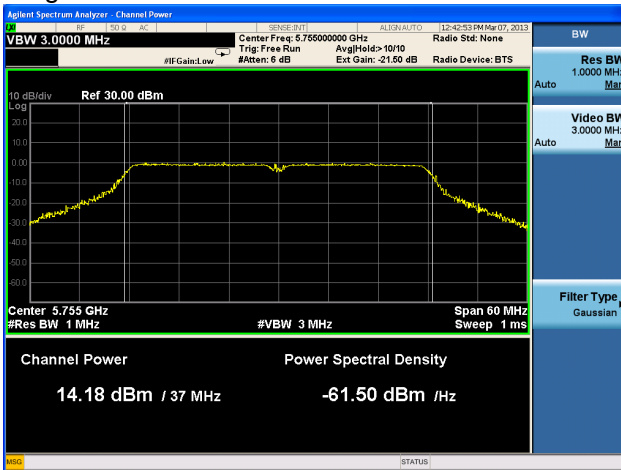
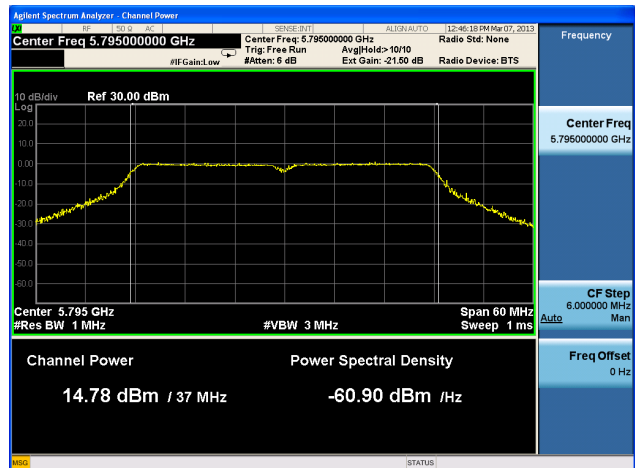
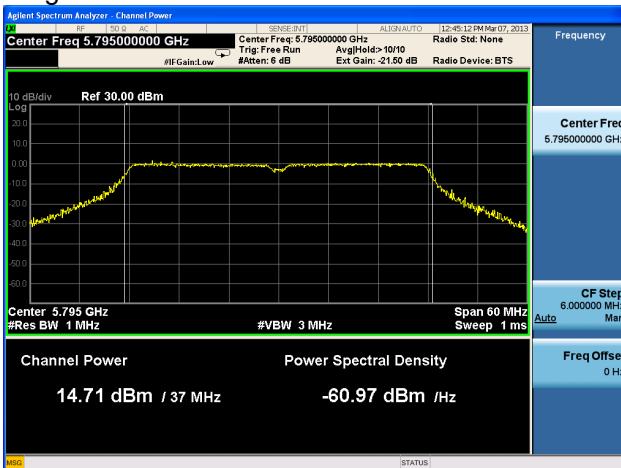


Diagram 9-8





## 10 100kHz BANDWIDTH OF FREQUENCY BAND EDGE

### 10.1 Applicable Standard: FCC § 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

### 10.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2012-6-17	2013-6-17

**\*statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

### 10.3 Test Procedure

Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range. The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to 40GHz, the spurious emissions more than 20 dB below the permissible value are not reported.

RBW =100kHz, VBW=300kHz; Detector = Peak, Trace mode = max hold

### 10.4 Environmental Conditions

Normal condition:	25° C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

### 10.5 Test Result: pass

Mode	Port	Channel	Test Data	Test Result
802.11.a	Port 1	CH LOW	Diagram 10-1	Pass
		CH MID	Diagram 10-2	Pass
		CH HIGH	Diagram 10-3	Pass
	Port 2	CH LOW	Diagram 10-4	Pass
		CH MID	Diagram 10-5	Pass
		CH HIGH	Diagram 10-6	Pass
802.11.n-HT20	Port 1	CH LOW	Diagram 10-7	Pass
		CH MID	Diagram 10-8	Pass
		CH HIGH	Diagram 10-9	Pass
	Port 2	CH LOW	Diagram 10-10	Pass
		CH MID	Diagram 10-11	Pass
		CH HIGH	Diagram 10-12	Pass
802.11.n-HT40	Port 1	CH LOW	Diagram 10-13	Pass
		CH HIGH	Diagram 10-14	Pass
	Port 2	CH LOW	Diagram 10-15	Pass
		CH HIGH	Diagram 10-16	Pass

Diagram 10-1

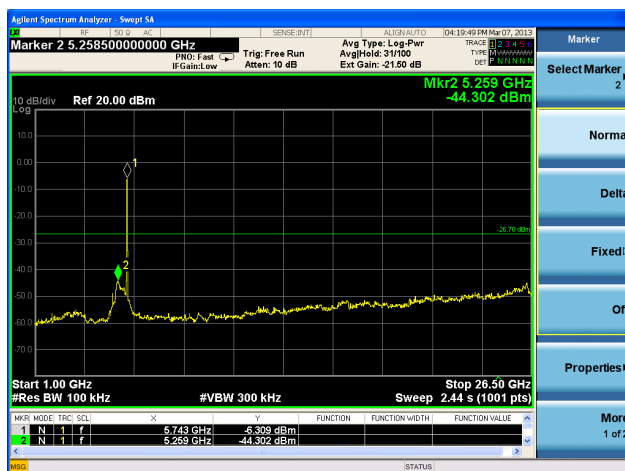
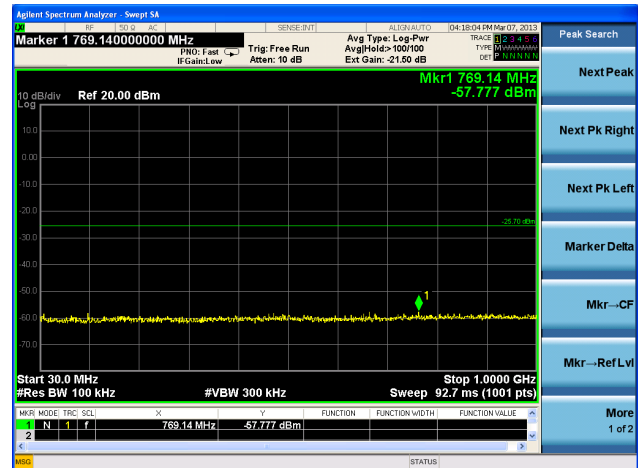
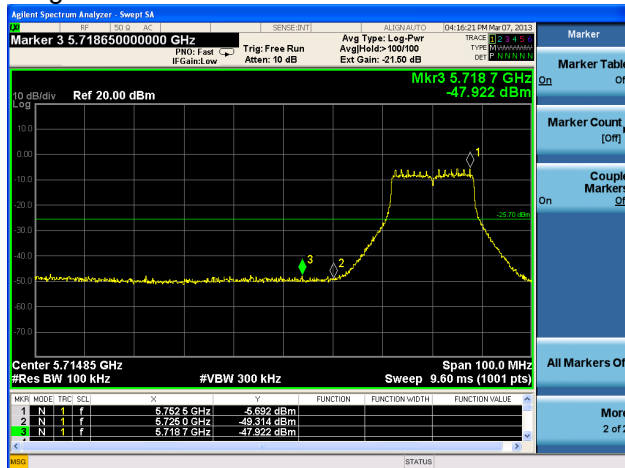


Diagram 10-2

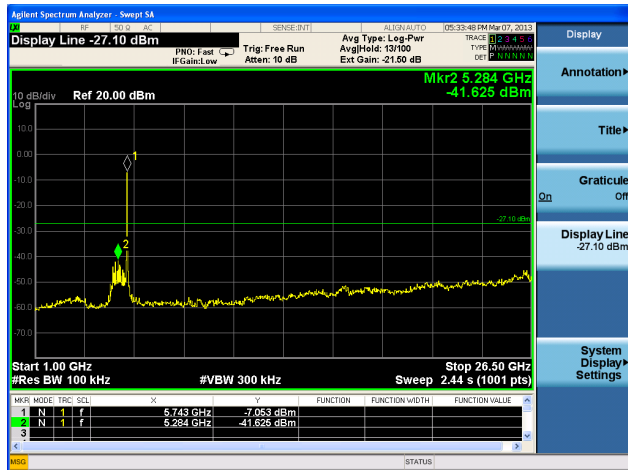
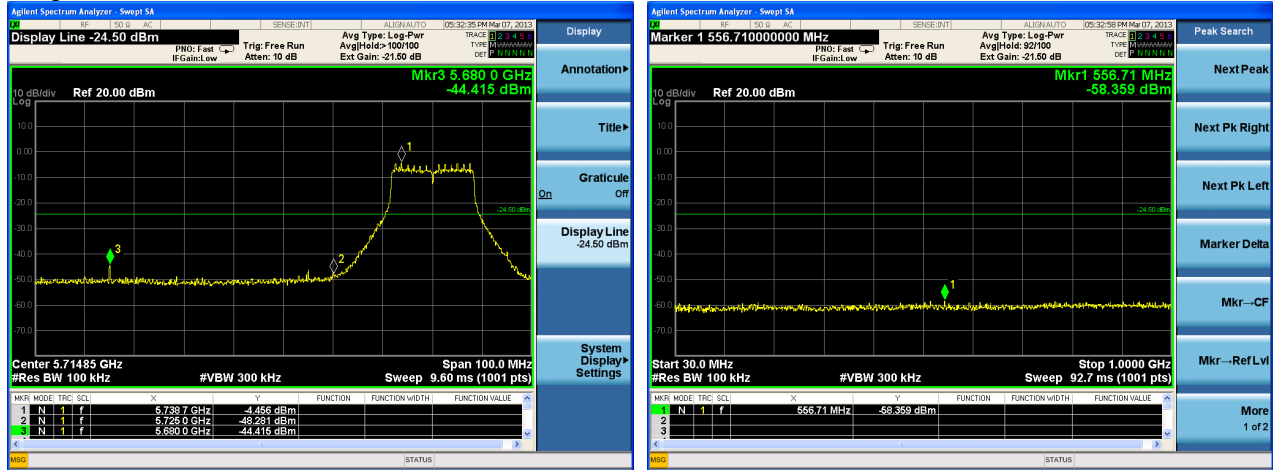


Diagram 10-3



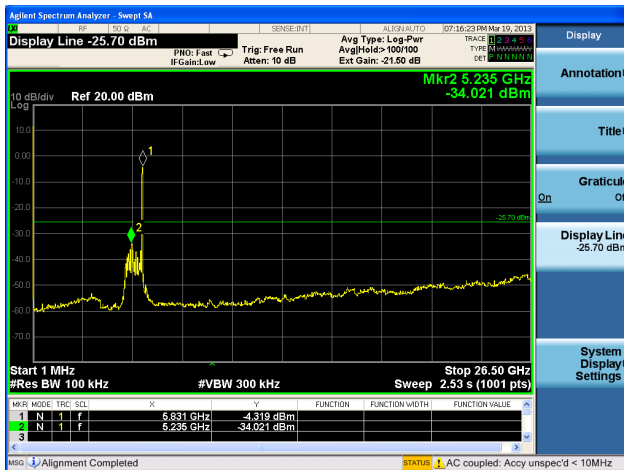


Diagram 10-4

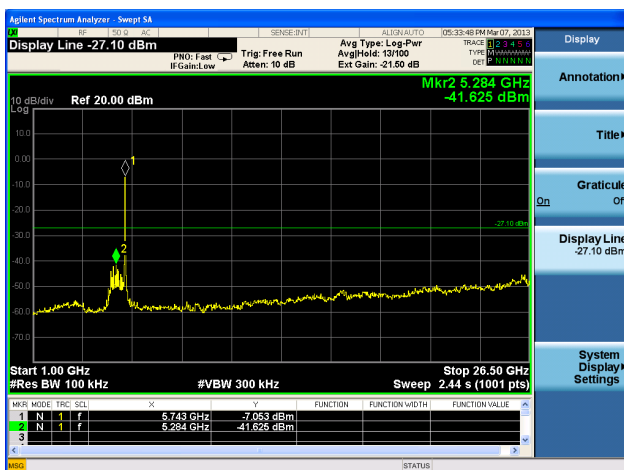
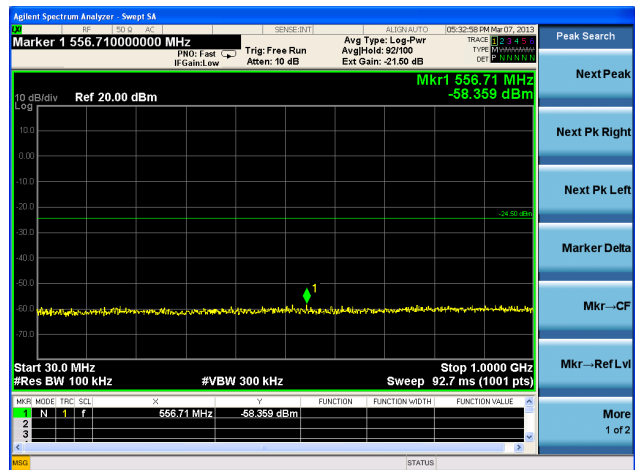
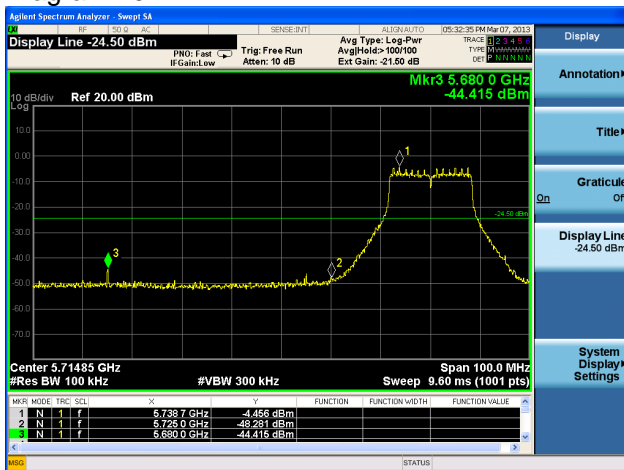


Diagram 10-5

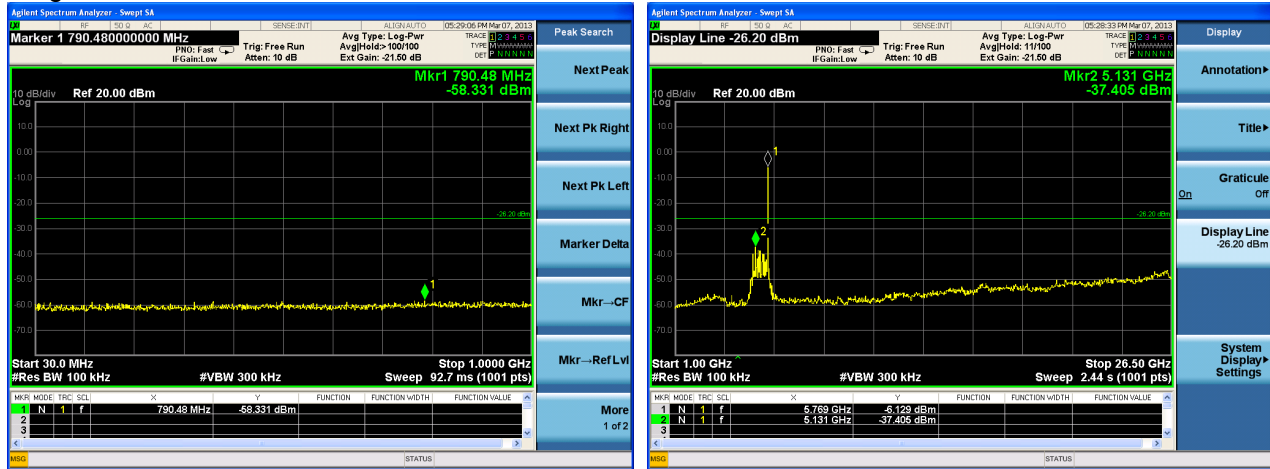


Diagram 10-6

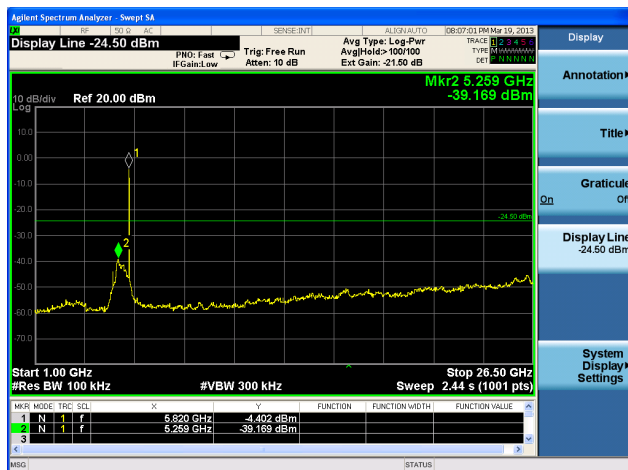


Diagram 10-7

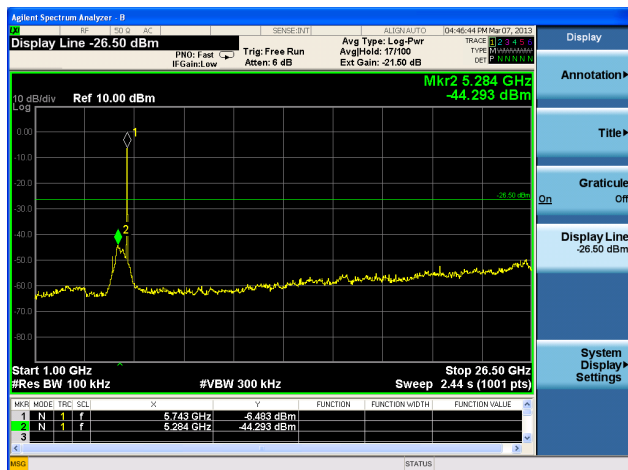
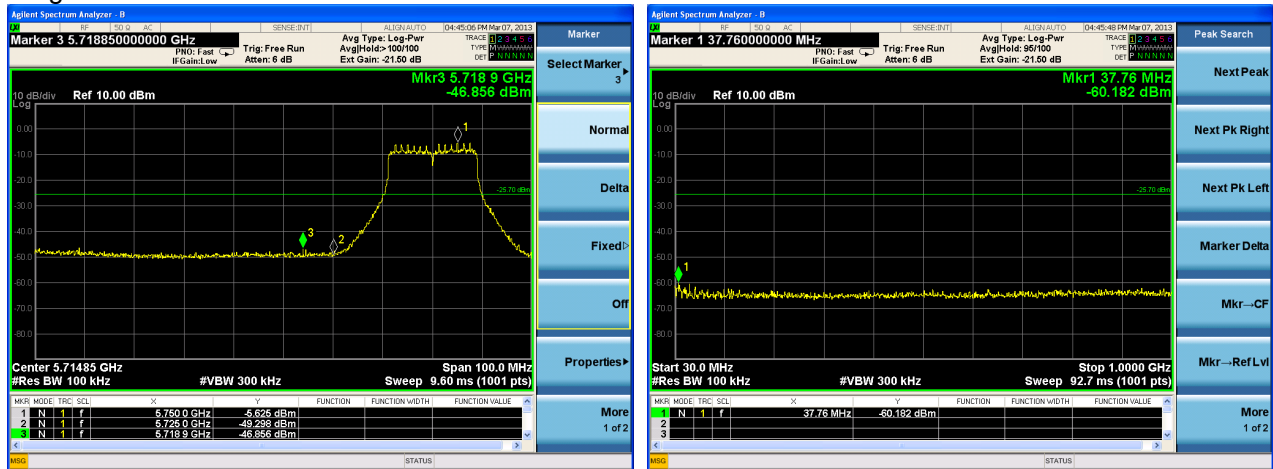


Diagram 10-8

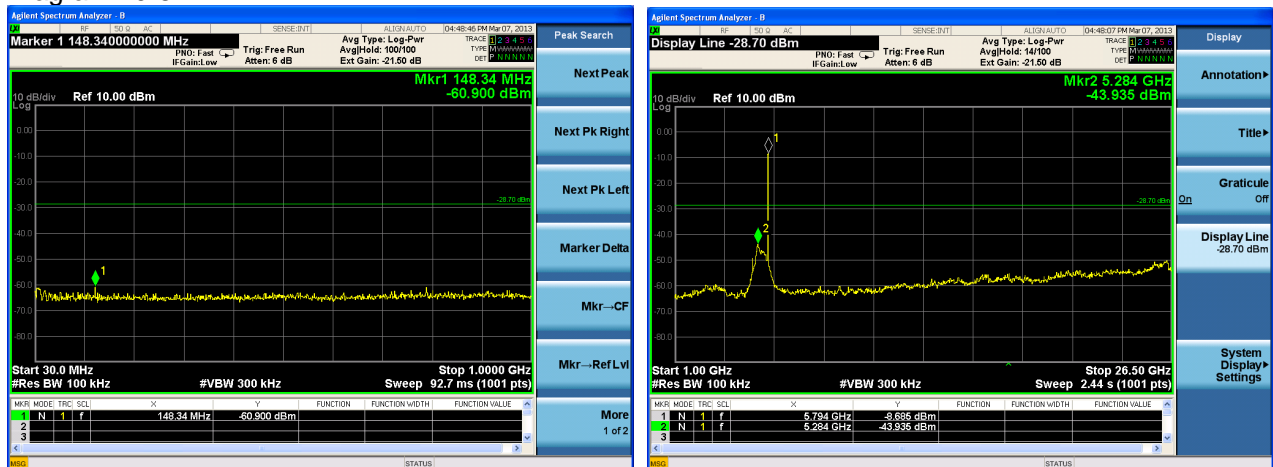


Diagram 10-9

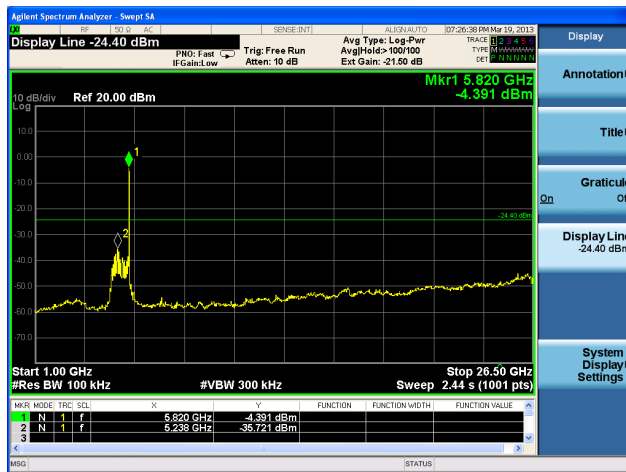
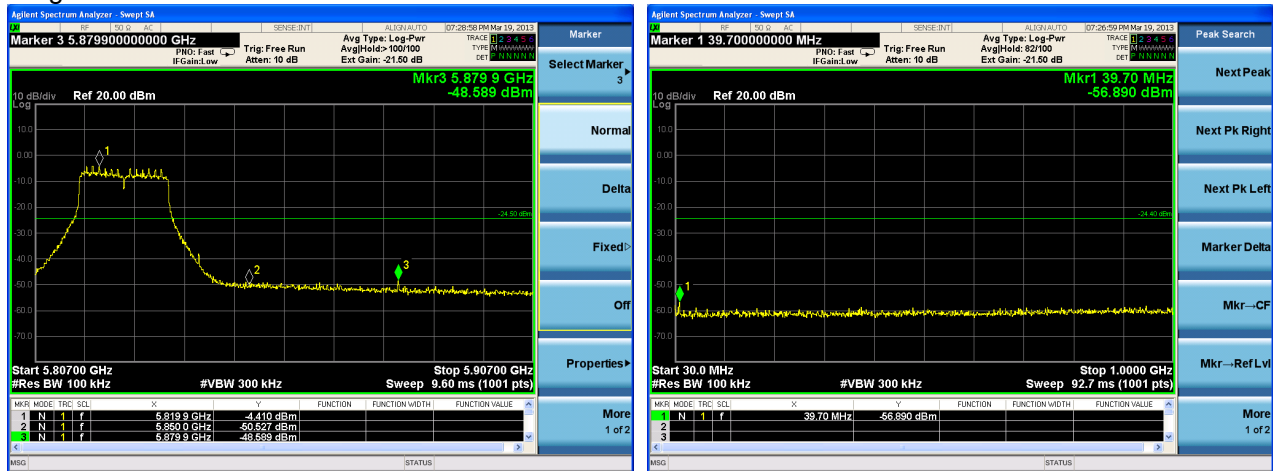
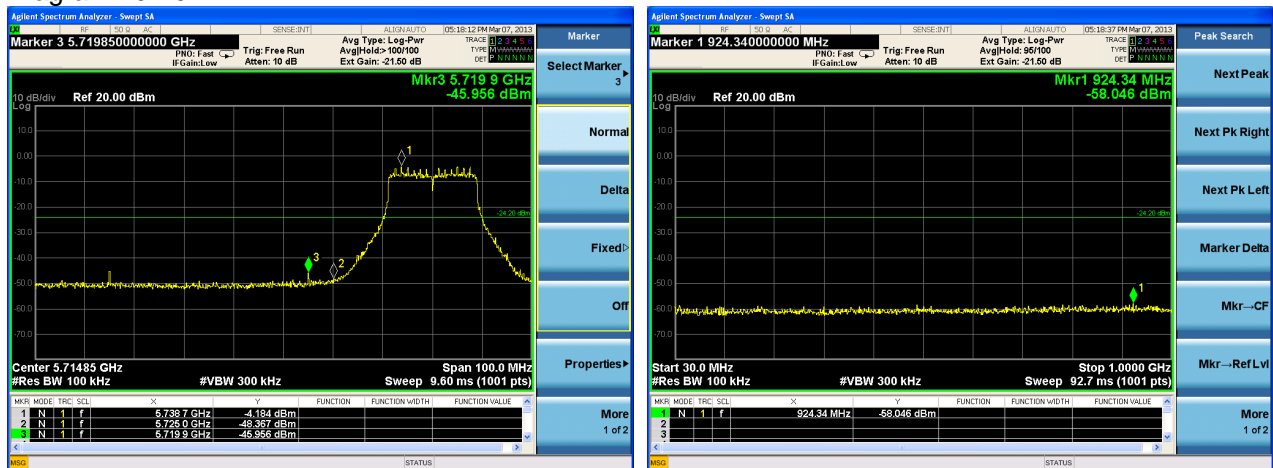


Diagram 10-10



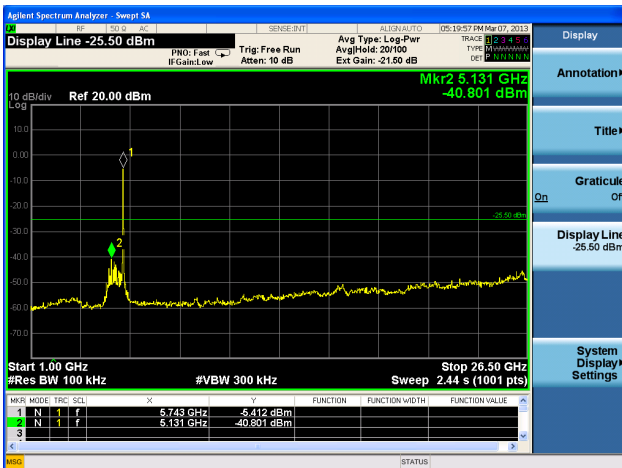


Diagram 10-11

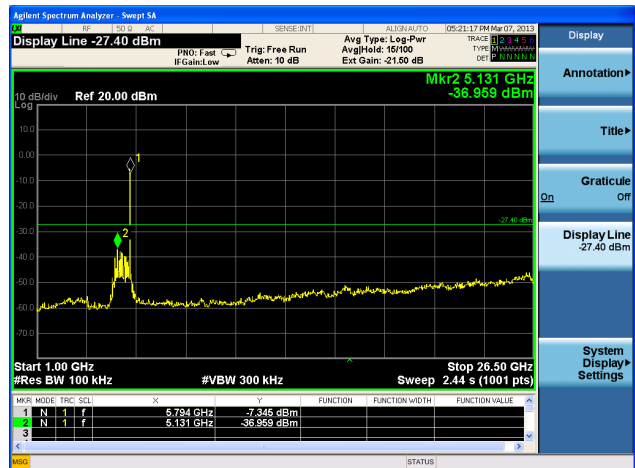
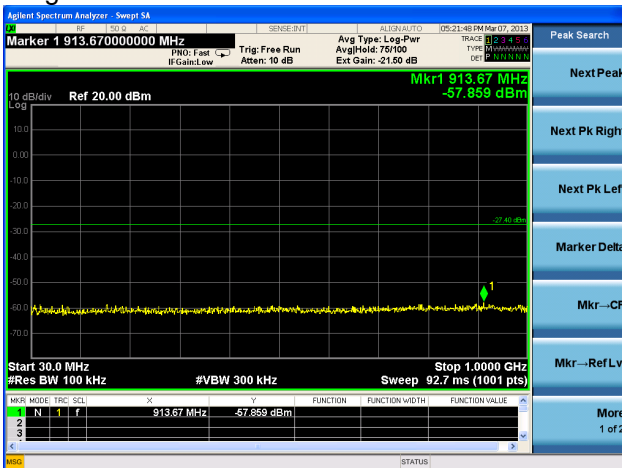
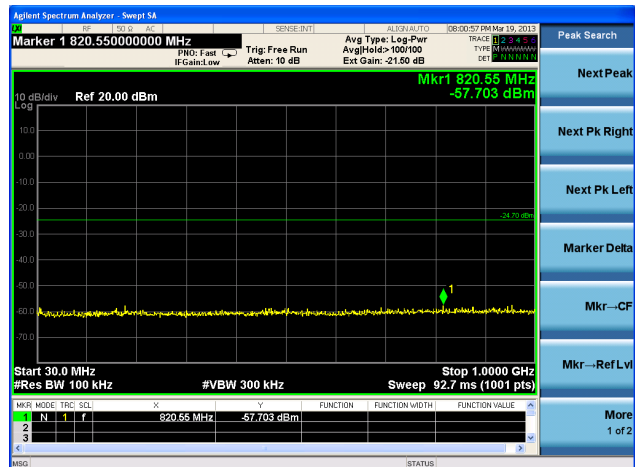
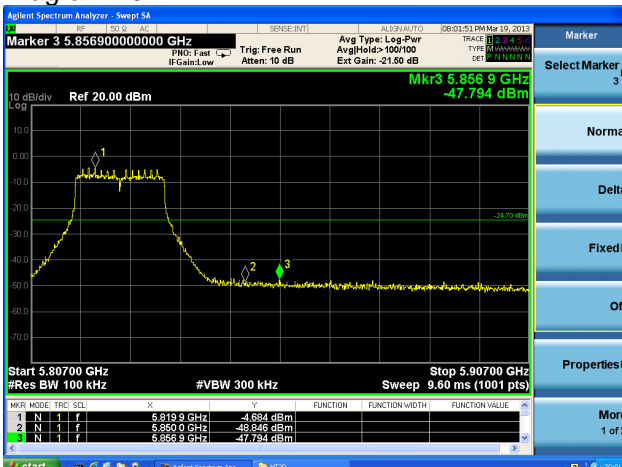


Diagram 10-12





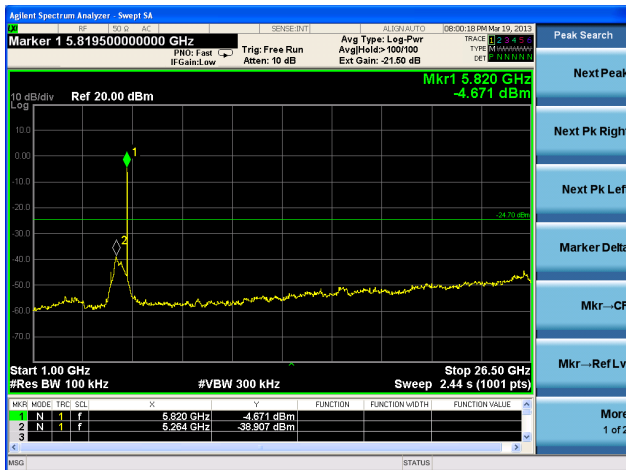


Diagram 10-13

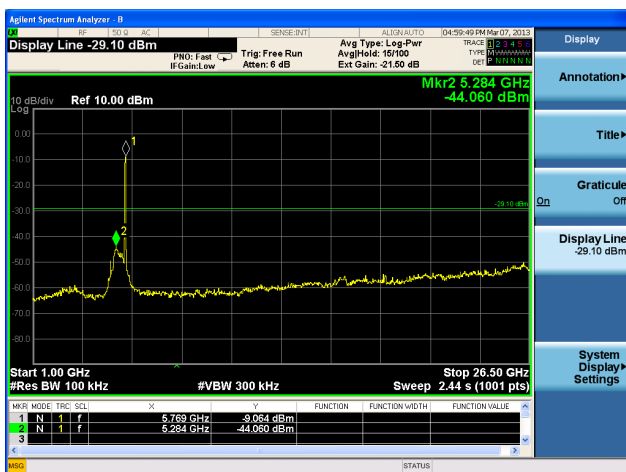
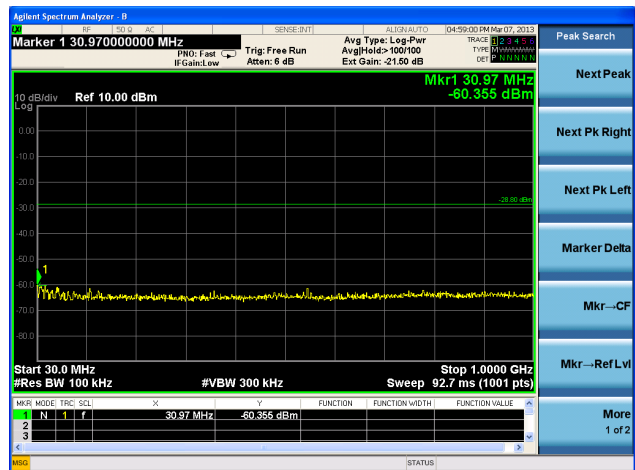
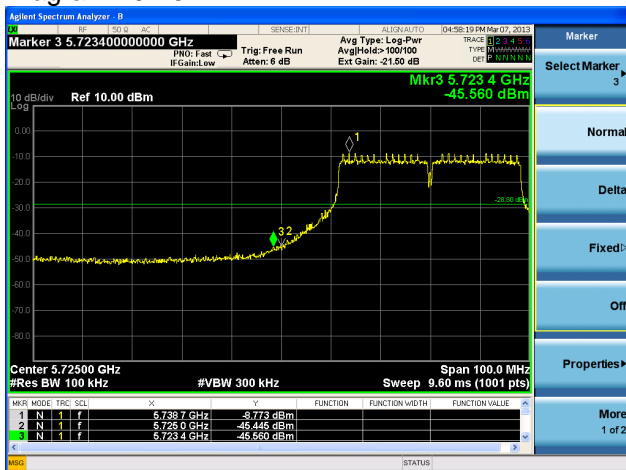


Diagram 10-14

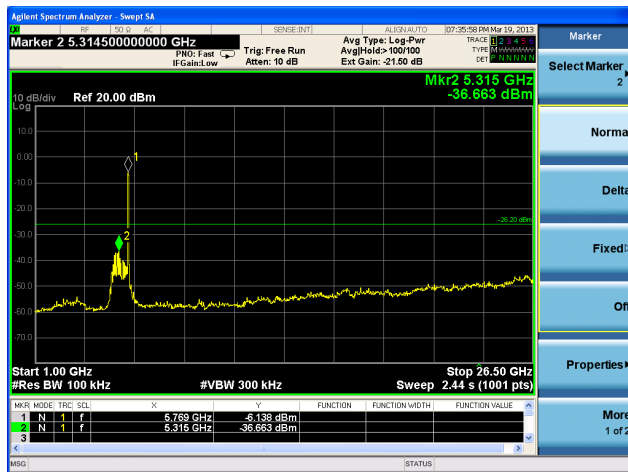
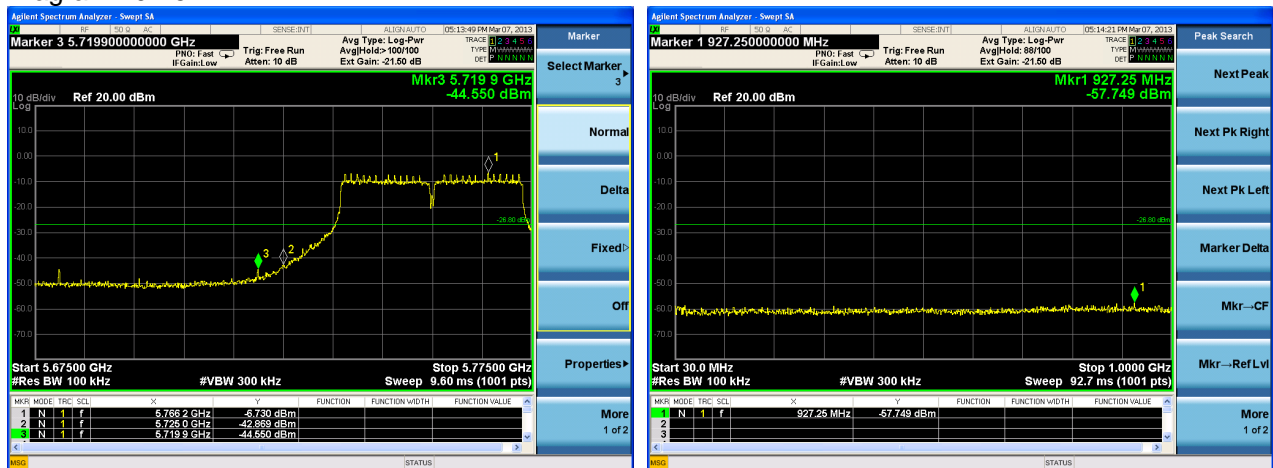


Diagram 10-15



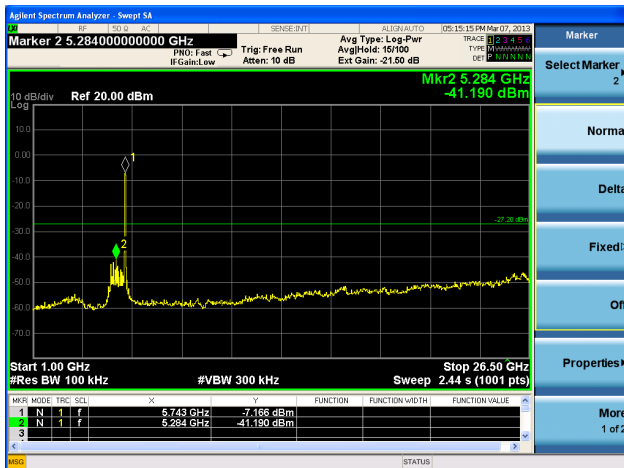
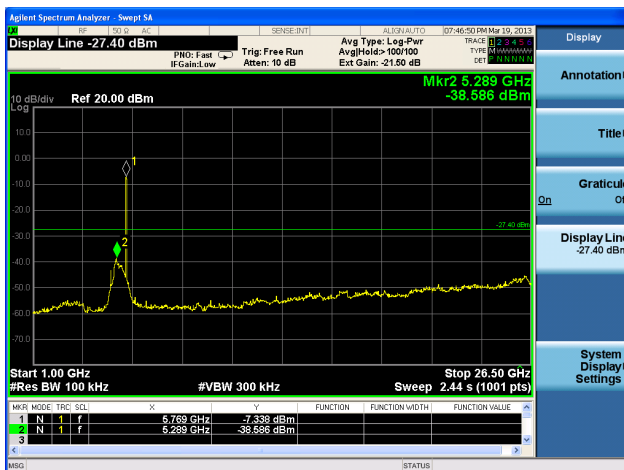
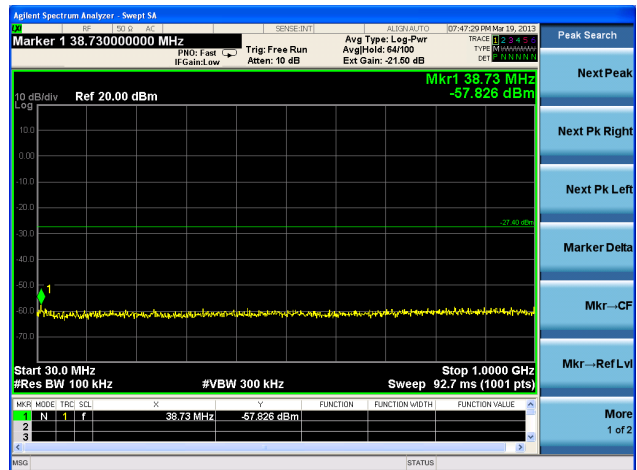
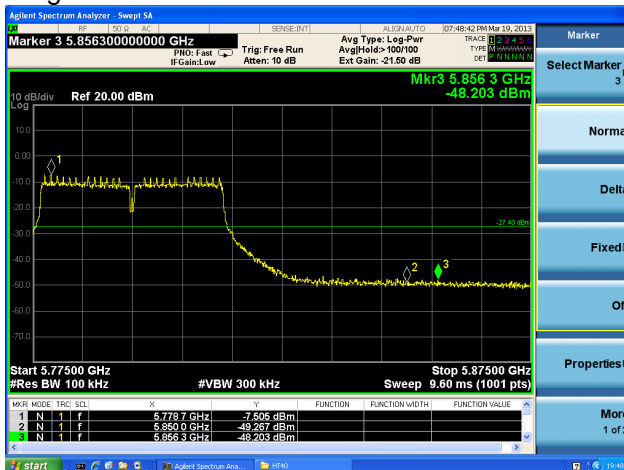


Diagram 10-16



## 11 POWER SPECTRAL DENSITY

### 11.1 Applicable Standard: FCC § 15.247(e)

For digitally modulated systems, the power spectral density conducted from the intentional Radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 11.2 Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	MXA Series Spectrum Analyzer	N9020A	MY48011941	2012-6-17	2013-6-17

**\*statement of traceability:** ZTE Corporation Reliability Testing Center attest that all calibration have been performed per the NVLAP requirements, traceable to NIST.

### 11.3 Test Procedure

Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range. Adjust the center frequency of SA on any frequency be measured and set the span to 1.5 times the channel bandwidth. And then, set RBW=3kHz, and VBW=10kHz.

### 11.4 Test Data Environmental Conditions

Temperature:	20 °C
Relative Humidity:	53 %
ATM Pressure:	1009 mbar

### 11.5 Test Result: Pass

Mode	Channel	Antenna Port	Power Spectral Density(dBm)	Total Power Spectral Density(dBm)	Limit (dBm)	Test Data	Result
802.11.a	CH LOW	Port 1	-16.226	-13.216	8	Diagram 11-1	Pass
		Port 2	-16.433				Pass
	CH MID	Port 1	-15.831	-12.821	8	Diagram 11-2	Pass
		Port 2	-16.027				Pass
	CH HIGH	Port 1	-16.436	-13.426	8	Diagram 11-3	Pass
		Port 2	-16.759				Pass
802.11.n. HT20	CH LOW	Port 1	-17.887	-14.877	8	Diagram 11-4	Pass
		Port 2	-17.887				Pass
	CH MID	Port 1	-16.397	-13.387	8	Diagram 11-5	Pass
		Port 2	-18.616				Pass
	CH HIGH	Port 1	-17.586	-14.576	8	Diagram 11-6	Pass
		Port 2	-18.444				Pass
802.11.n. HT40	CH LOW	Port 1	-20.945	-17.935	8	Diagram 11-7	Pass
		Port 2	-22.380				Pass
	CH HIGH	Port 1	-21.377	-18.367	8	Diagram 11-8	Pass
		Port 2	-21.460				Pass

Diagram 11-1

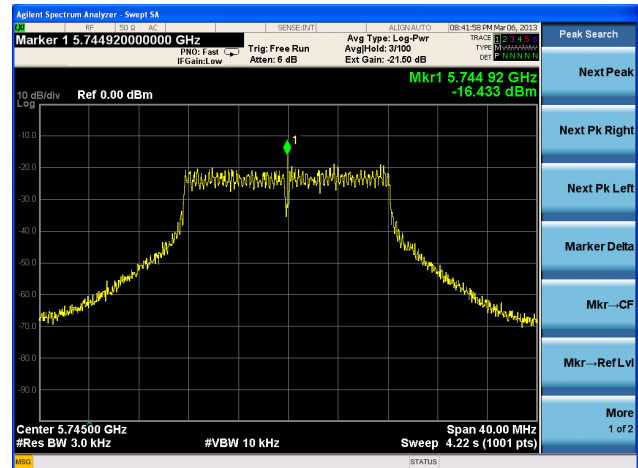
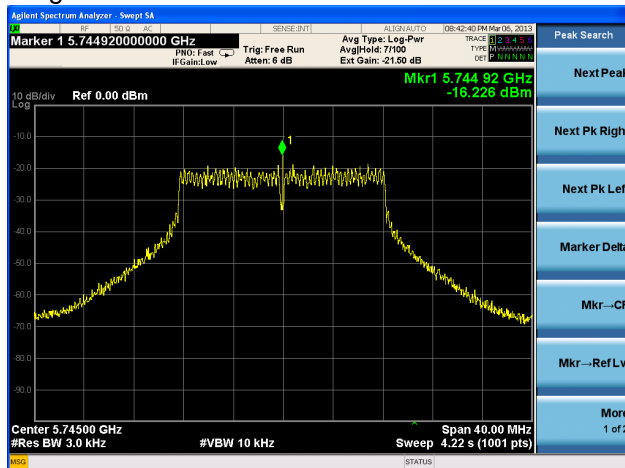


Diagram 11-2

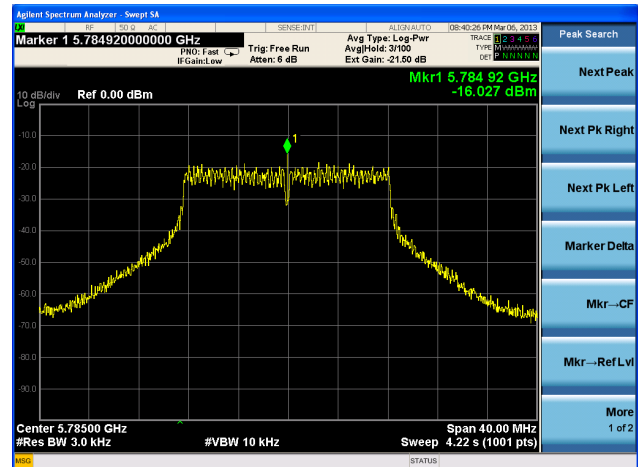
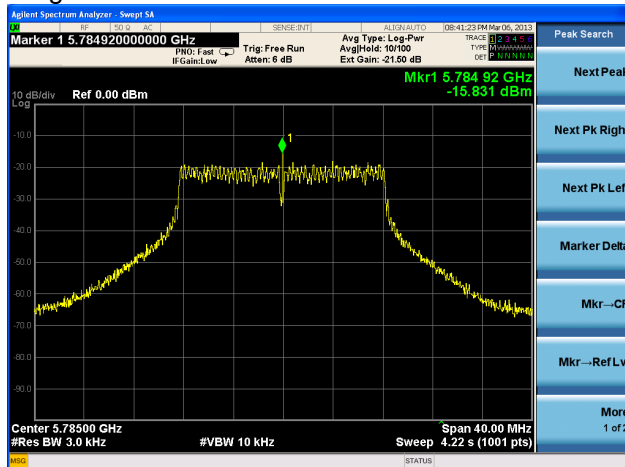


Diagram 11-3

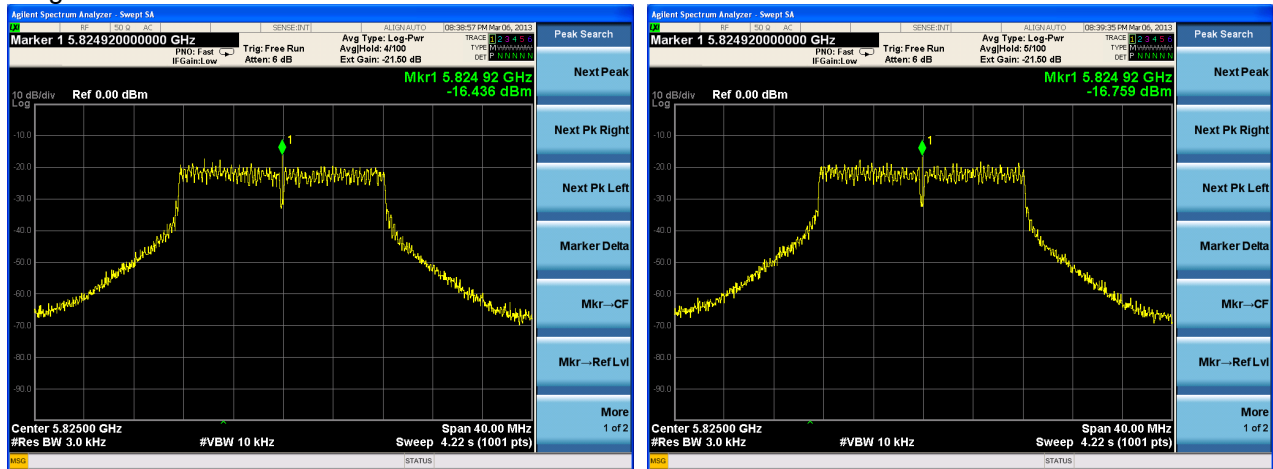


Diagram 11-4

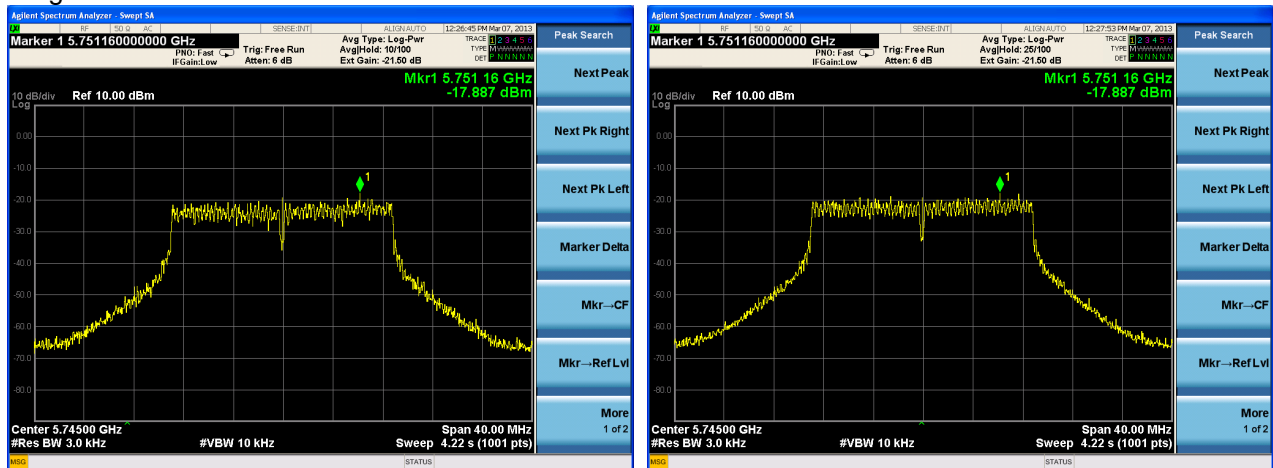


Diagram 11-5

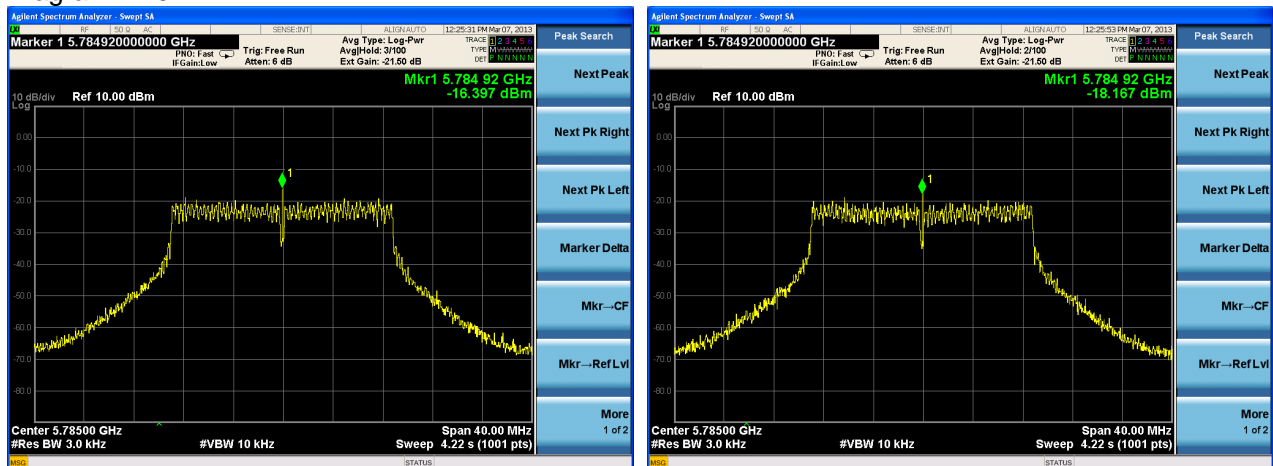


Diagram 11-6

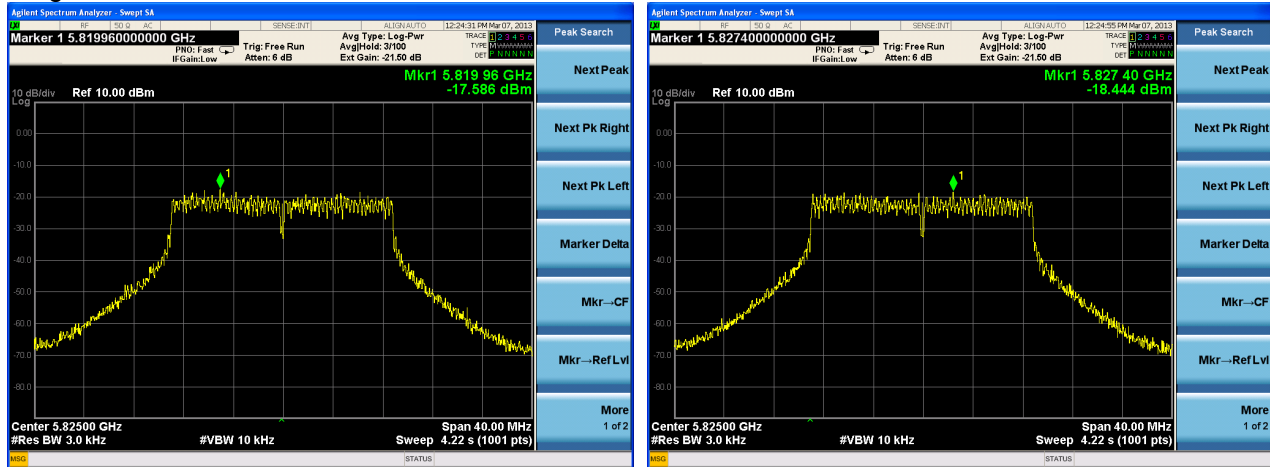


Diagram 11-7

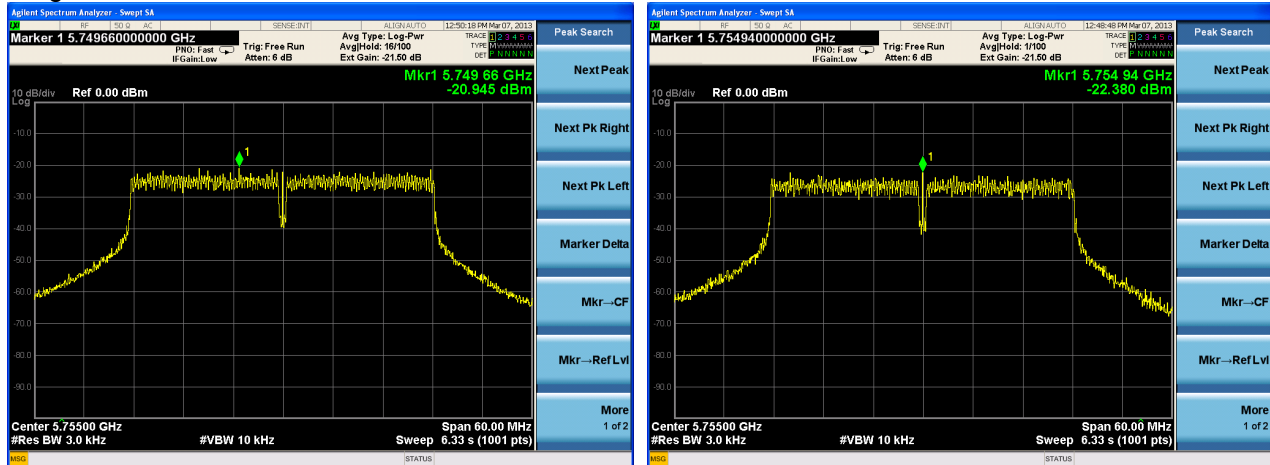


Diagram 11-8

