



2.3.3 Test Verdict

The nominal, highest and lowest extreme voltages are separately 12VDC, 27VDC and 9VDC, which are specified by the applicant; the normal temperature here used is 20°C. The frequency deviation limit is $\pm 2.5\text{ppm}$.

The testing was performed using one RB and Bandwidth setting for each band.

LTE Band 25 – QPSK - Channel 26365 – Frequency 1882.5MHz – RB 6/0				
Limit: 1882.5MHz*1ppm=1882.5Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	12	-30	10.77	PASS
100		-20	18.01	
100		-10	11.72	
100		0	10.67	
100		+10	11.41	
100		+20	7.38	
100		+30	-12.99	
100		+40	9.22	
100		+50	9.33	
115	27	+20	6.99	
85	9	+20	8.61	

LTE Band 26 – QPSK - Channel 26915 – Frequency 836.5MHz – RB 6/0				
Limit: 836.5MHz*2.5ppm=2091.25Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	12	-30	11.62	PASS
100		-20	-10.6	
100		-10	8.89	
100		0	10.8	
100		+10	9.62	
100		+20	8.54	
100		+30	-11.83	
100		+40	9.89	
100		+50	8.84	
115	27	+20	10.62	
85	9	+20	11.97	



REPORT No.: SZ15080082W02

LTE Band 26 – QPSK - Channel 26740 – Frequency 819MHz – RB 6/0				
Limit: 819 MHz*2.5ppm=2047.25Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	12	-30	8.17	PASS
100		-20	-2.88	
100		-10	-2.92	
100		0	6.54	
100		+10	0.45	
100		+20	8.41	
100		+30	5.27	
100		+40	7.46	
100		+50	-3.32	
115		+20	-0.61	
85	9	+20	-2.73	

TE Band 41 – QPSK - Channel 40620 – Frequency 2593MHz – RB 25/0				
Limit: 2593MHz*2.5ppm=6482.5Hz				
Voltage (%)	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Result
100	12	-30	13.25	<u>PASS</u>
100		-20	-8.97	
100		-10	10.52	
100		0	12.43	
100		+10	11.25	
100		+20	10.17	
100		+30	-10.2	
100		+40	11.52	
100		+50	10.47	
115	27	+20	12.25	
85	9	+20	13.6	



2.4 Peak to Average Ratio

2.4.1 Requirement

According to FCC section 24.235, the peak to average ratio (PAR) of the transmission may not exceed 13dB.

2.4.2 Test Description

See section 2.1.2 of this report.

2.4.3 Test Result

Record the maximum PAPR level associated with a probability of 0.1%.

**LTE Band 25 Low channel**

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26407	1850.7	4.36	5.28	26055	1851.5	4.65	5.51

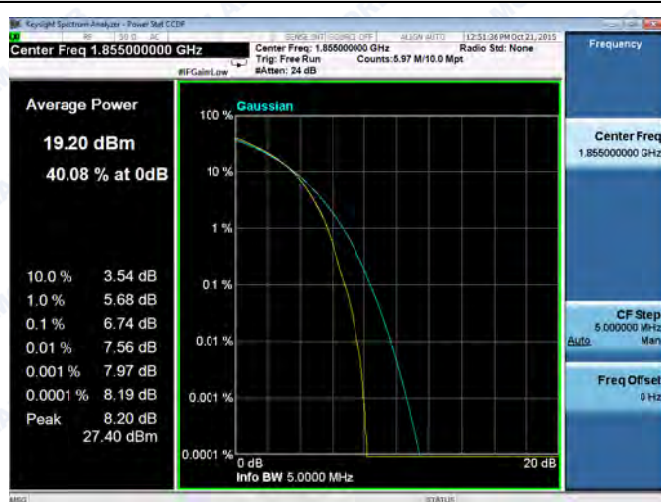
Spectrum Plot of Worst Value (Low channel)**1.4MHz/QPSK****1.4MHz/16QAM****Spectrum Plot of Worst Value****3MHz/QPSK****3MHz/16QAM**



REPORT No.: SZ15080082W02

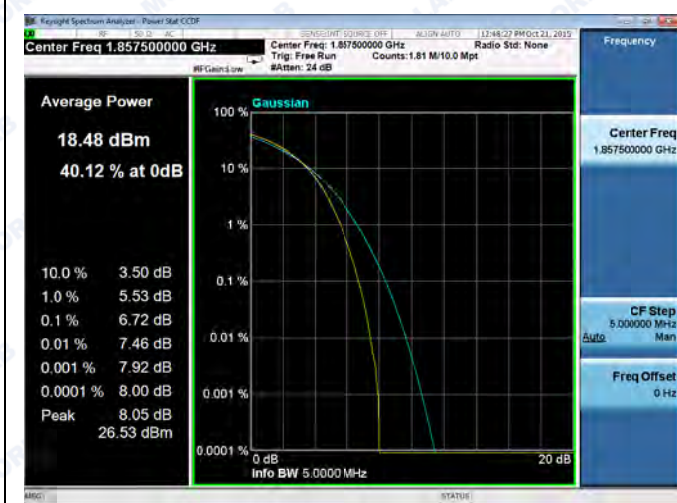
LTE Band 25 Low channel

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26065	1852.5	4.72	5.47	26090	1855.0	6.10	6.74

Spectrum Plot of Worst Value**5MHz/QPSK****5MHz/16QAM****Spectrum Plot of Worst Value****10MHz/QPSK****10MHz/16QAM**

**LTE Band 25 Low channel**

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26115	1857.5	6.72	7.33	26140	1860.0	7.28	7.57

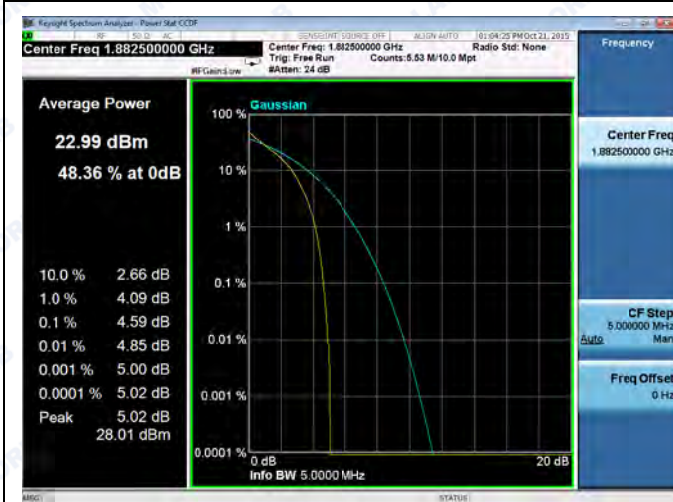
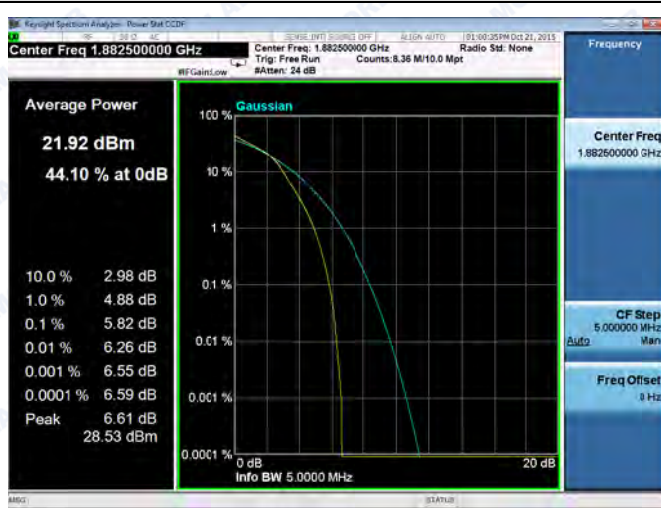
Spectrum Plot of Worst Value**15MHz/QPSK****15MHz/16QAM****Spectrum Plot of Worst Value****20MHz/QPSK****20MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 Middle channel

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26365	1882.5	4.59	5.54	26365	1882.5	4.95	5.82

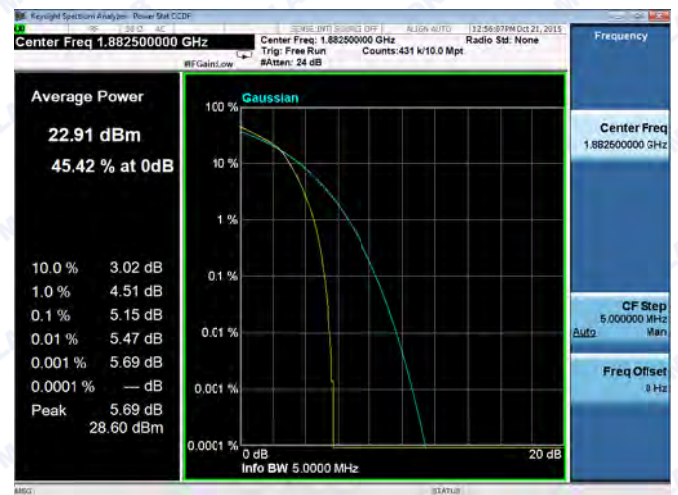
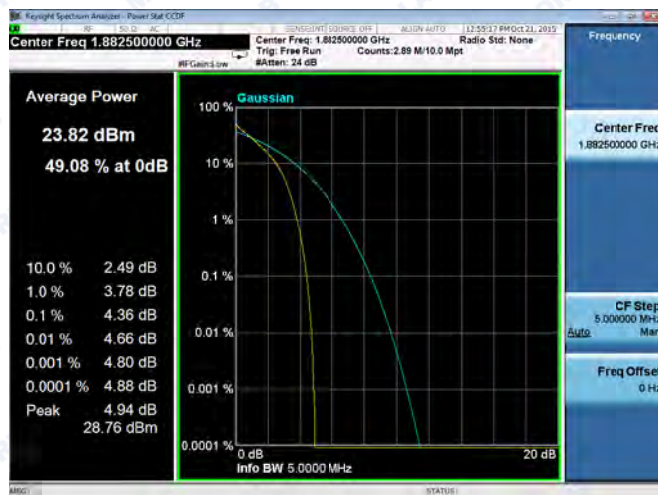
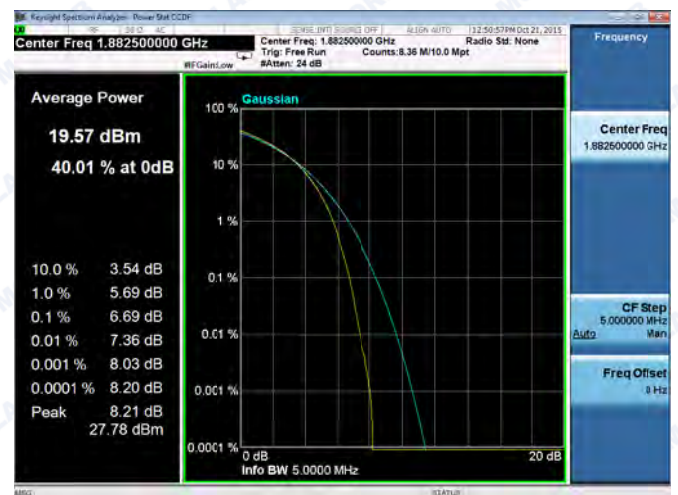
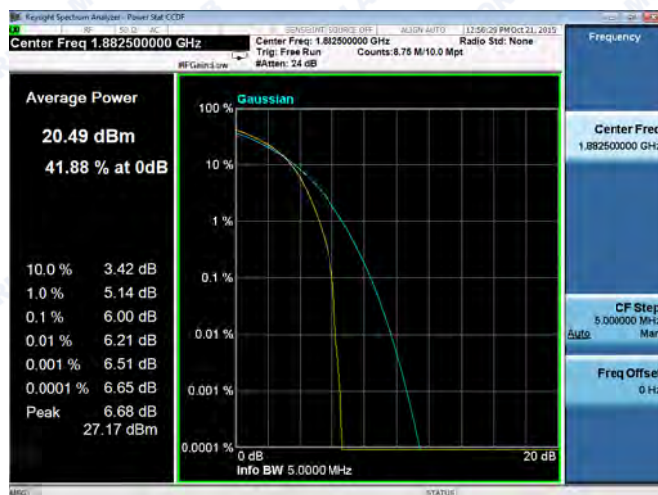
Spectrum Plot of Worst Value**1.4MHz/QPSK****1.4MHz/16QAM****Spectrum Plot of Worst Value****3MHz/QPSK****3MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 Middle channel

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26365	1882.5	4.36	5.15	26365	1882.5	6.00	6.69

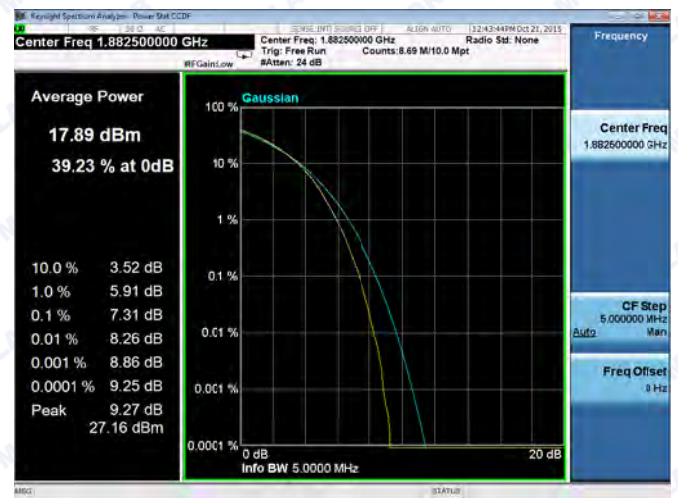
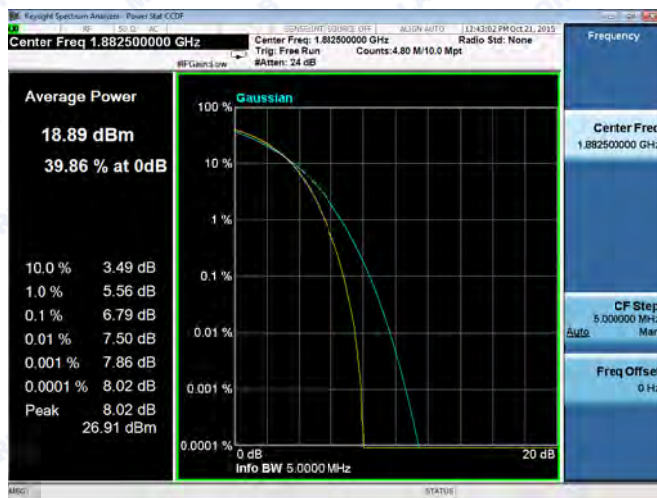
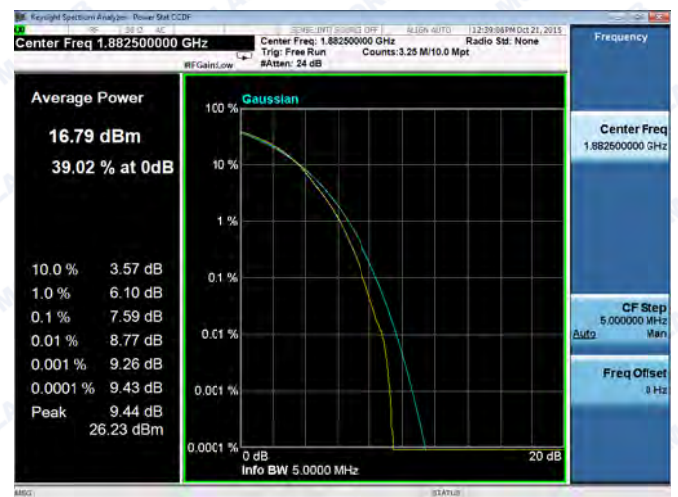
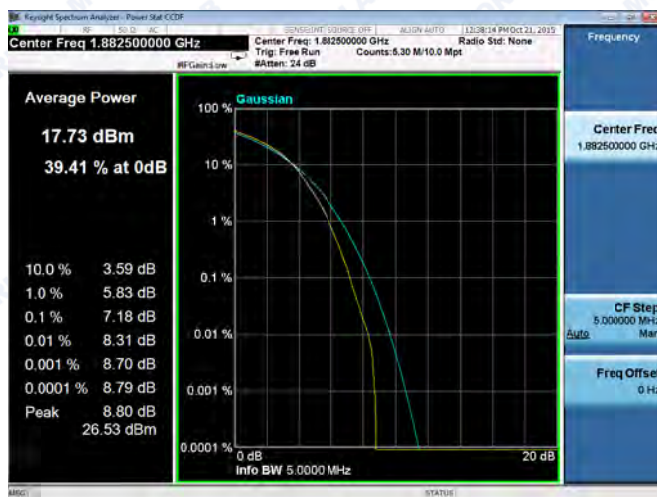
Spectrum Plot of Worst Value**5MHz/QPSK****5MHz/16QAM****Spectrum Plot of Worst Value****10MHz/QPSK****10MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 Middle channel

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26365	1882.5	6.79	7.31	26365	1882.5	7.18	7.59

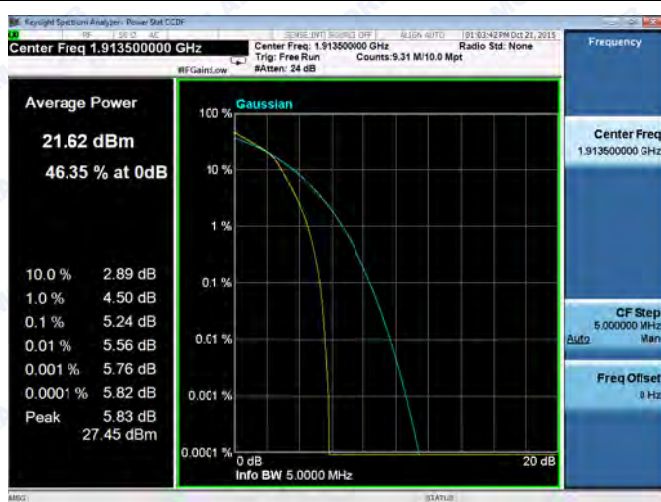
Spectrum Plot of Worst Value**15MHz/QPSK****15MHz/16QAM****Spectrum Plot of Worst Value****20MHz/QPSK****20MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 High channel

Channel Bandwidth: 1.4MHz				Channel Bandwidth: 3MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26683	1914.3	3.95	4.84	26675	1913.5	4.43	5.24

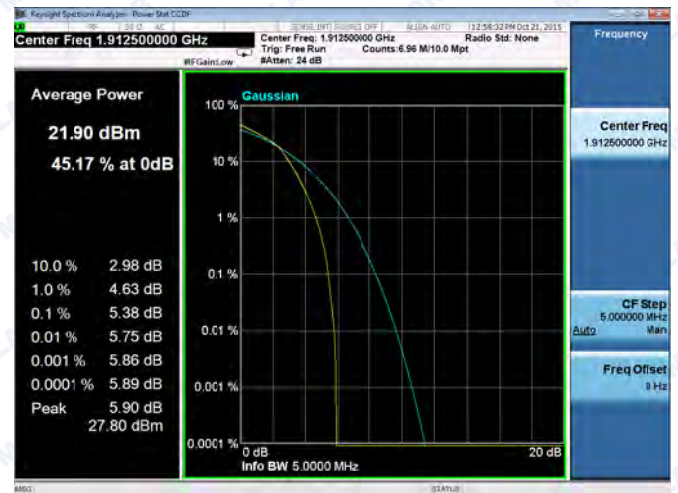
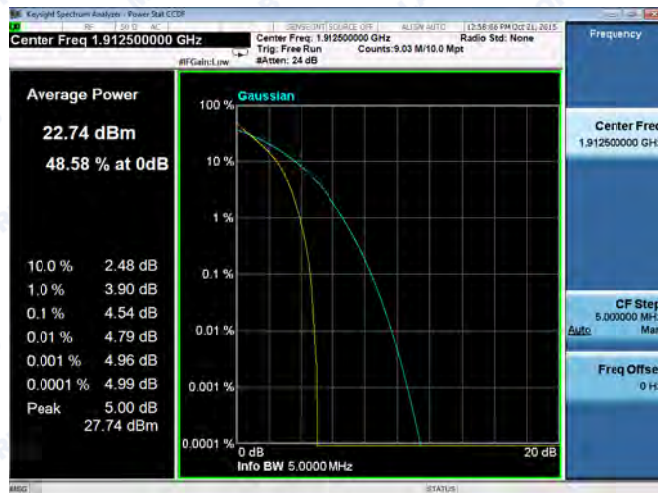
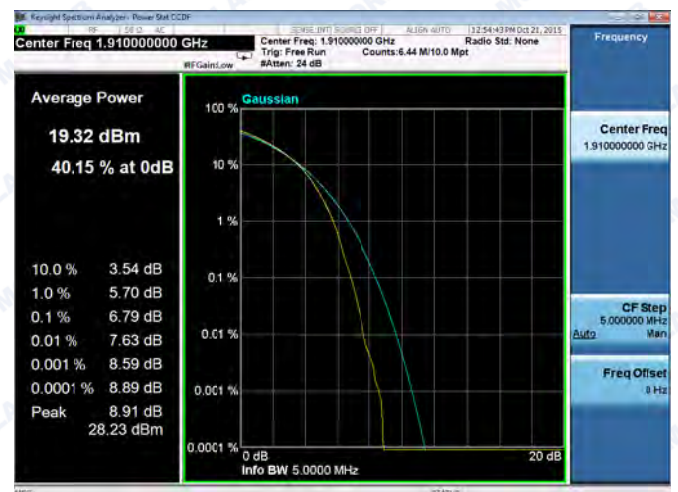
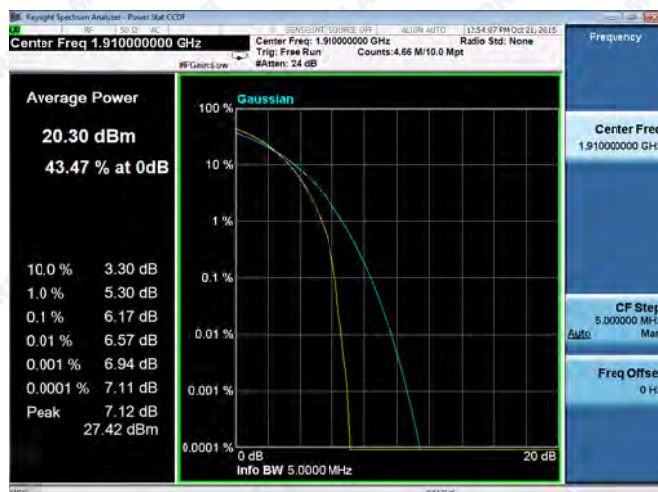
Spectrum Plot of Worst Value**1.4MHz/QPSK****1.4MHz/16QAM****Spectrum Plot of Worst Value****3MHz/QPSK****3MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 High channel

Channel Bandwidth: 5MHz				Channel Bandwidth: 10MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26665	1912.5	4.54	5.38	26640	1910	6.17	6.79

Spectrum Plot of Worst Value**5MHz/QPSK****5MHz/16QAM****Spectrum Plot of Worst Value****10MHz/QPSK****10MHz/16QAM**



REPORT No.: SZ15080082W02

LTE Band 25 High channel

Channel Bandwidth: 15MHz				Channel Bandwidth: 20MHz			
Channel	Frequency (MHz)	Peak to Average Ratio (dB)		Channel	Frequency (MHz)	Peak to Average Ratio (dB)	
		QPSK	16QAM			QPSK	16QAM
26615	1907.5	6.76	7.30	26590	1905	7.05	7.46

Spectrum Plot of Worst Value**15MHz/QPSK****15MHz/16QAM****Spectrum Plot of Worst Value****20MHz/QPSK****20MHz/16QAM**



2.5 Conducted Spurious Emissions

2.5.1 Test Requirement

According to FCC section 2.1051 and 27.53(g), 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. This calculated to be -13dBm.

2.5.2 Test Procedure

See section 2.1.2 of this report.

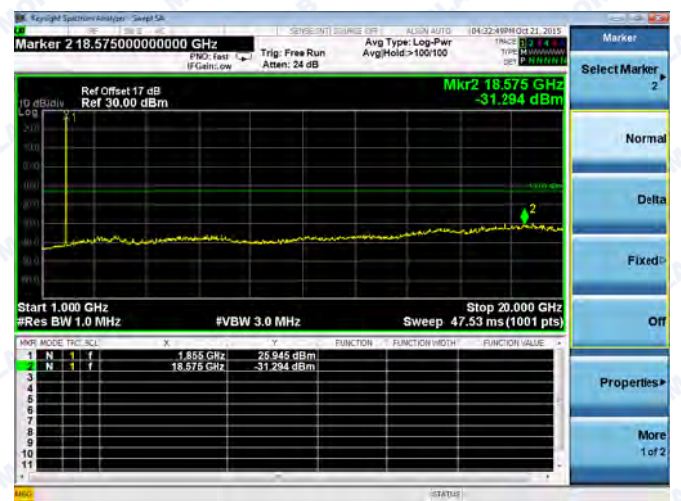
Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

2.5.3 Test Result

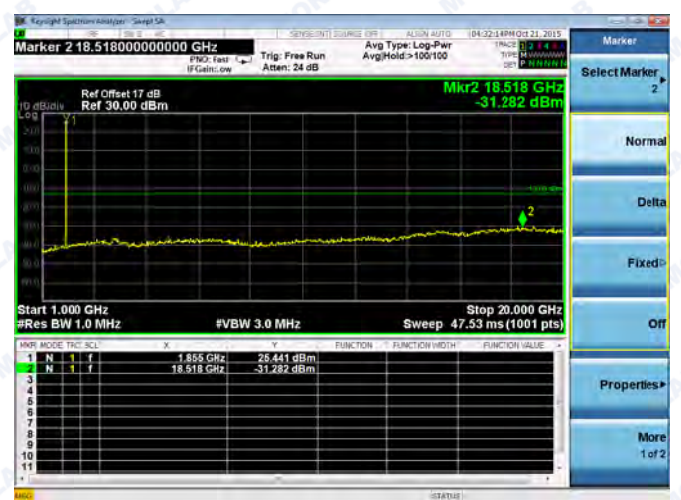
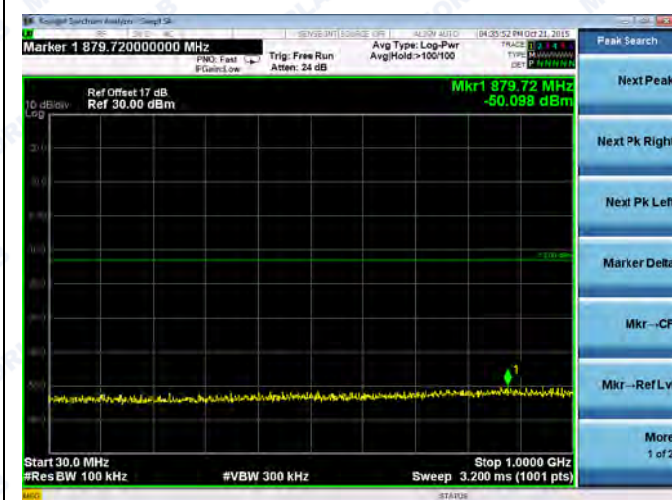
Compliant. See attached pots.

LTE Band 25 1.4MHz BW Low Channel

QPSK



16QAM

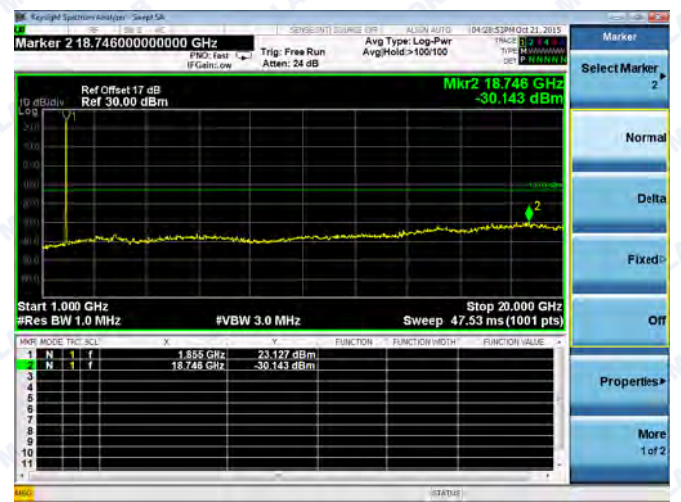
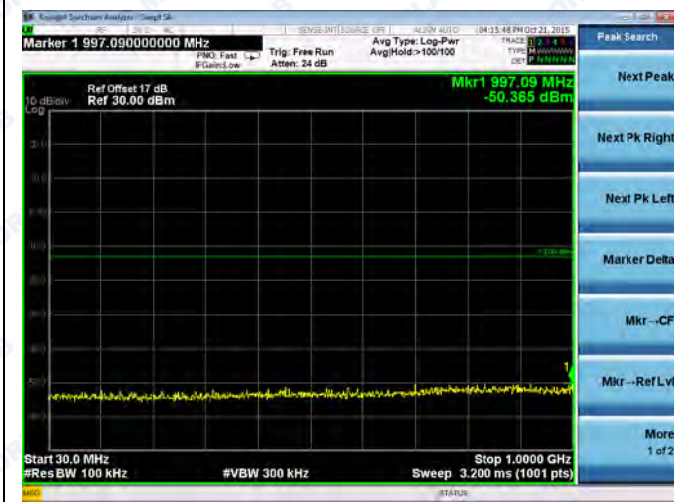




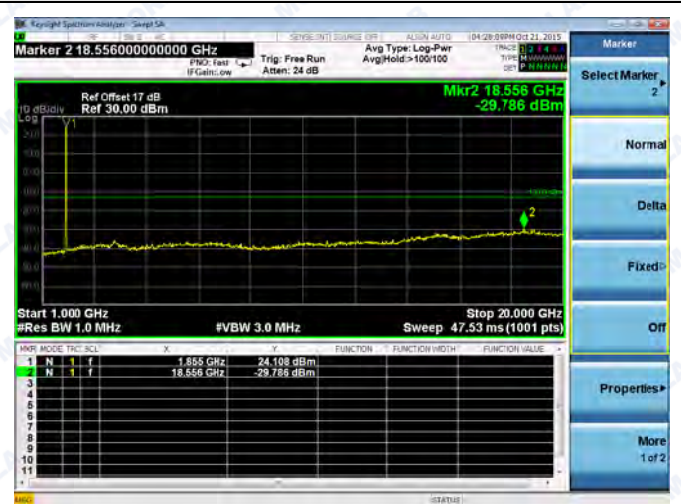
REPORT No.: SZ15080082W02

LTE Band 25 3MHz BW Low Channel

QPSK



16QAM

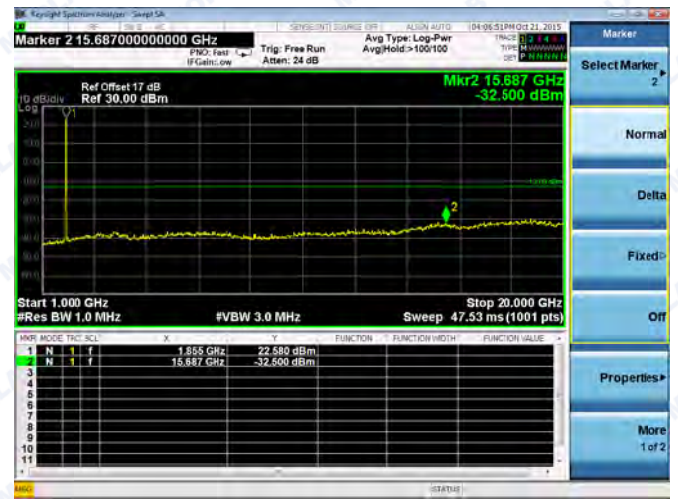




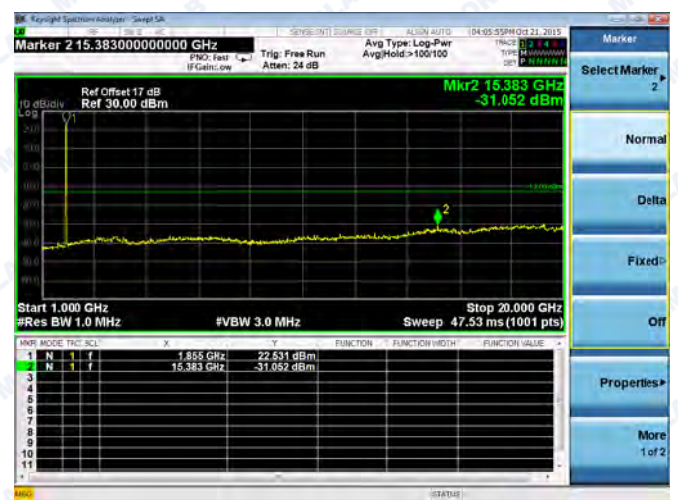
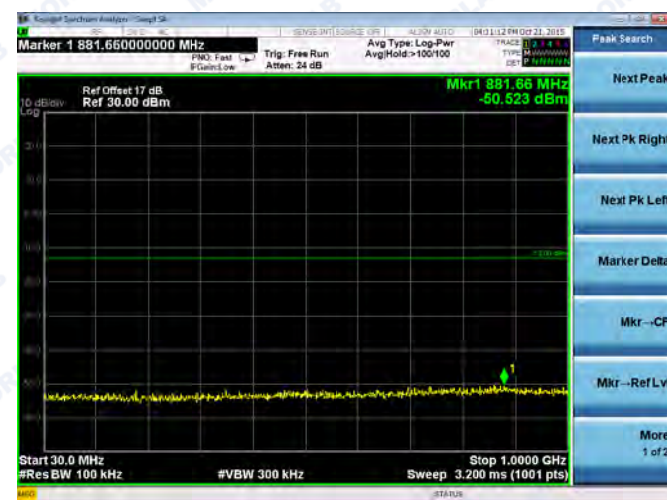
REPORT No.: SZ15080082W02

LTE Band 25 5MHz BW Low Channel

QPSK



16QAM

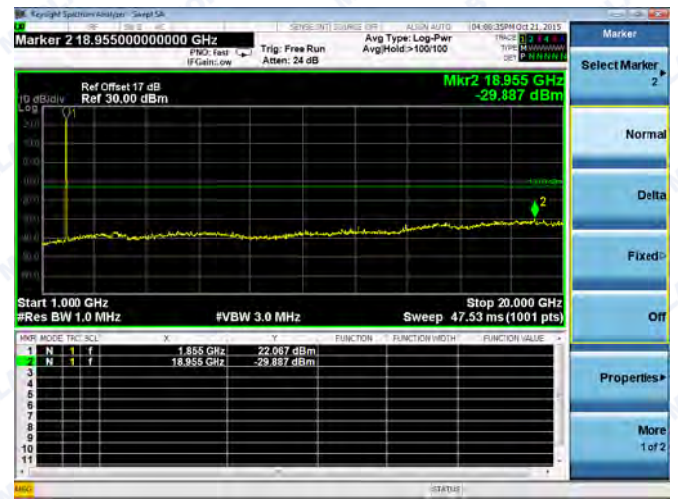
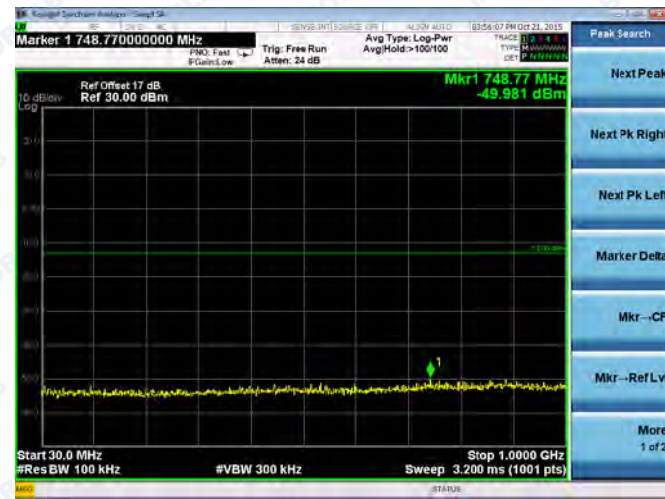




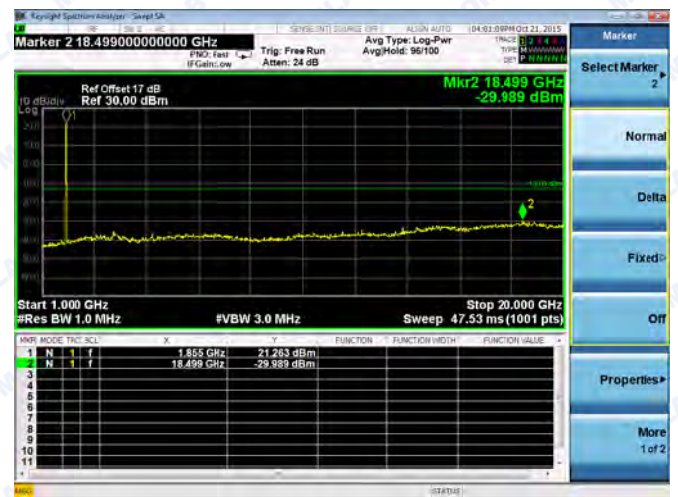
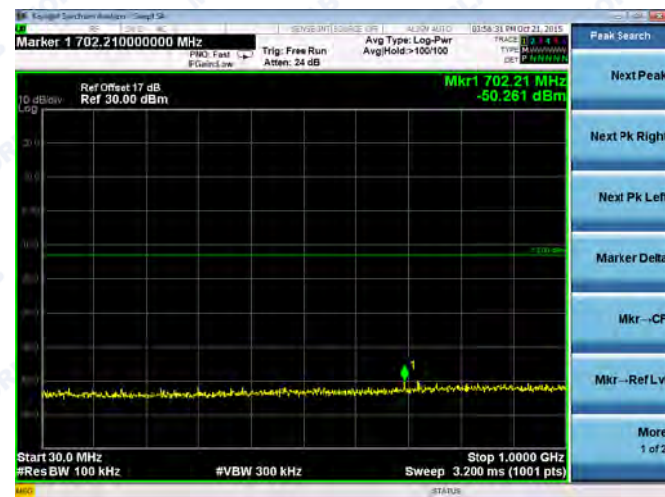
REPORT No.: SZ15080082W02

LTE Band 25 10MHz BW Low Channel

QPSK



16QAM

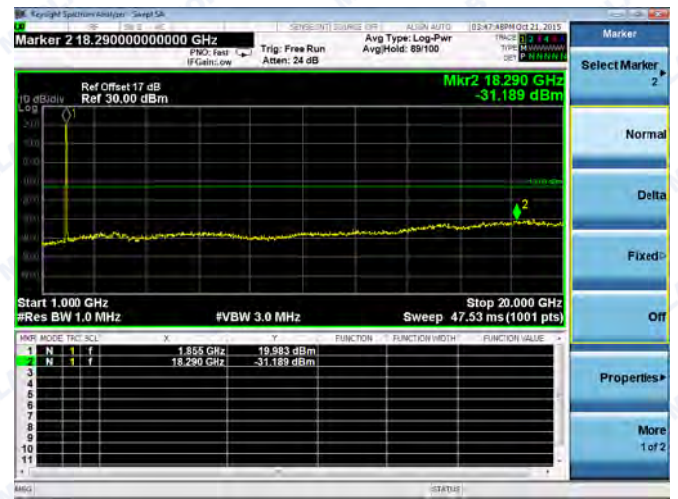




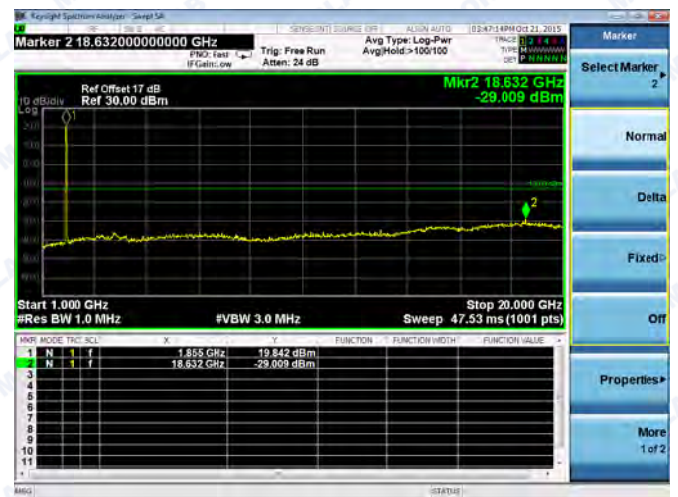
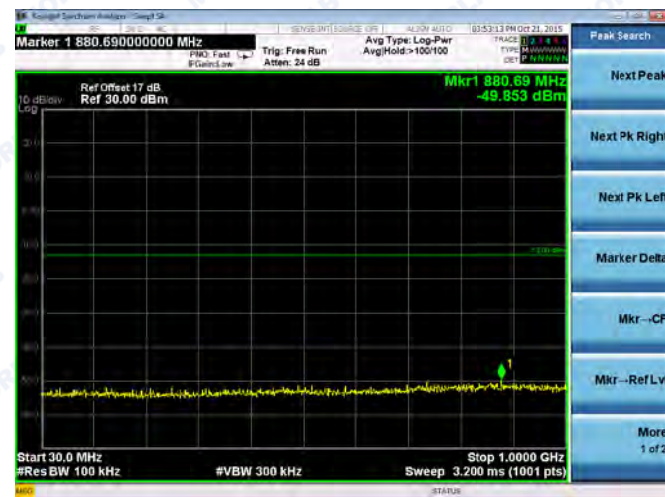
REPORT No.: SZ15080082W02

LTE Band 25 15MHz BW Low Channel

QPSK



16QAM

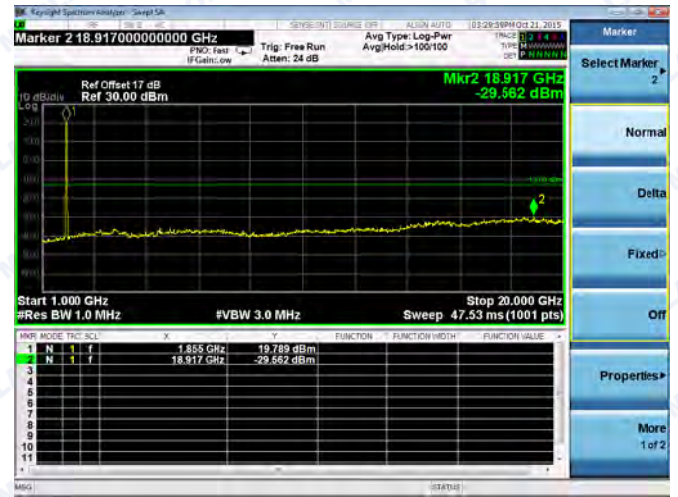
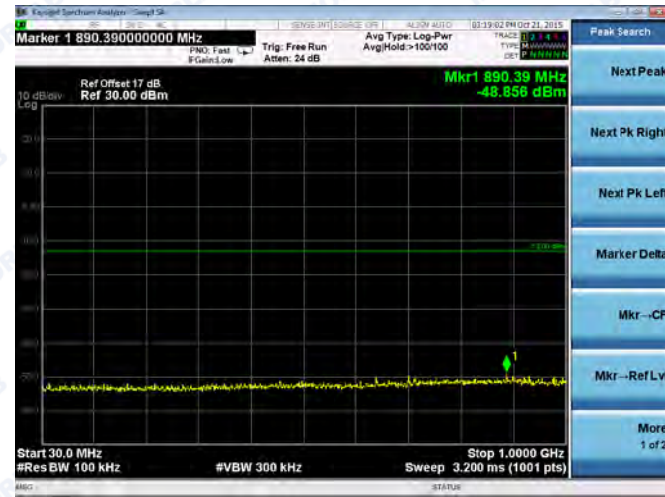




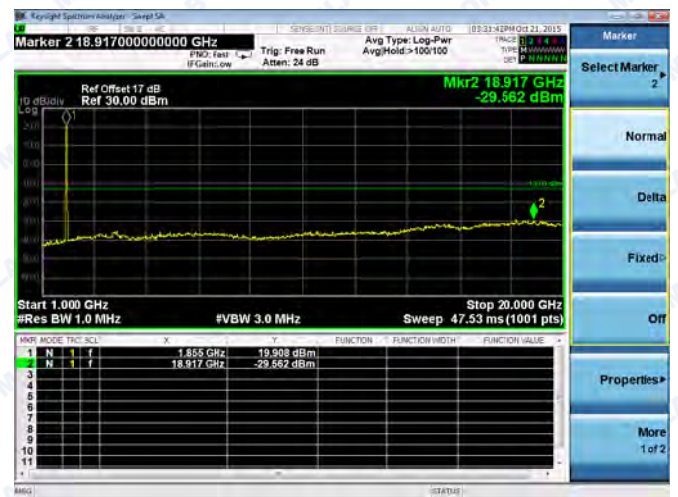
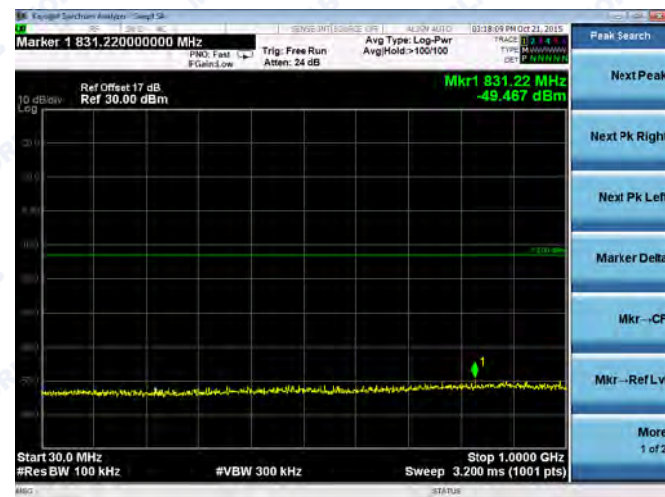
REPORT No.: SZ15080082W02

LTE Band 25 20MHz BW Low Channel

QPSK



16QAM



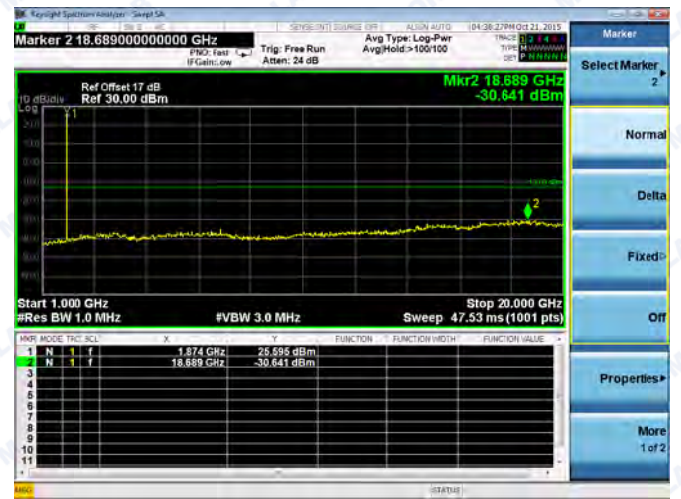
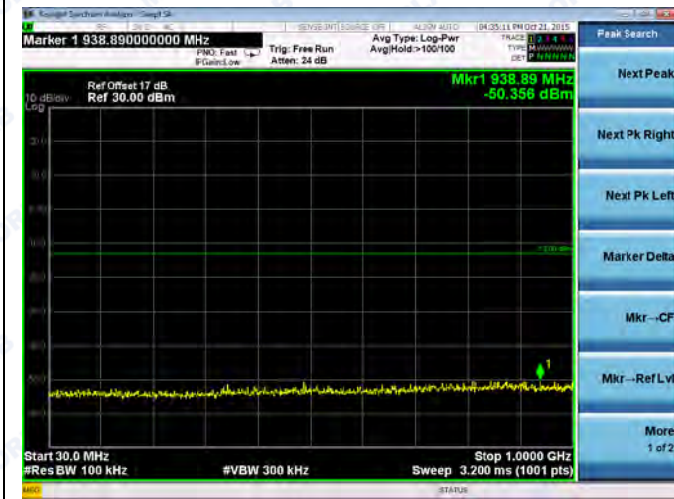


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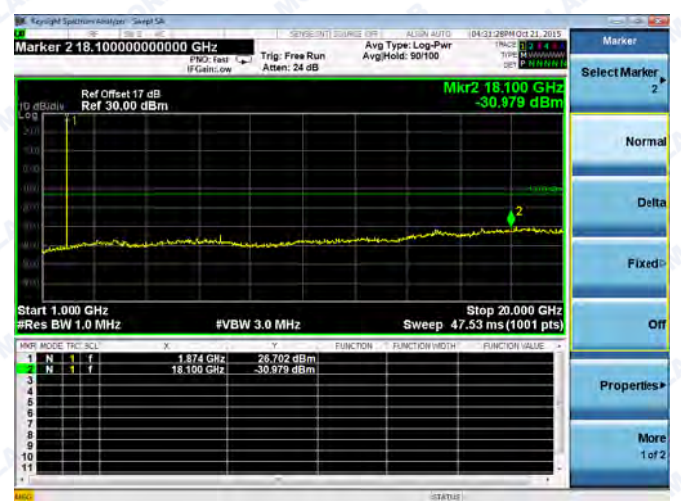
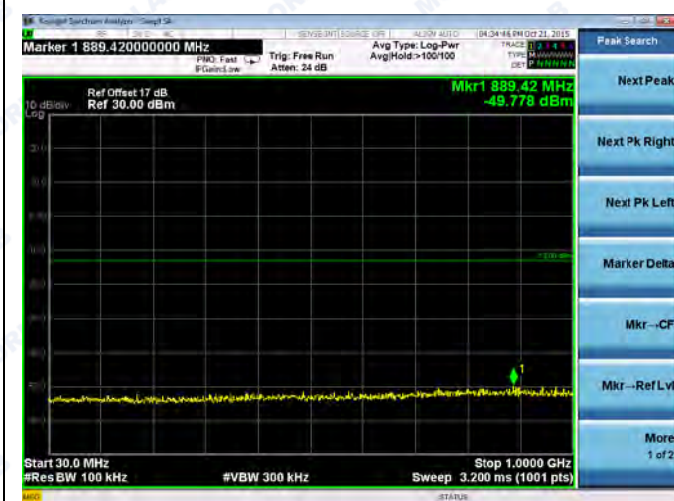
Middle channel:

LTE Band 25 1.4MHz BW Mid Channel

QPSK



16QAM

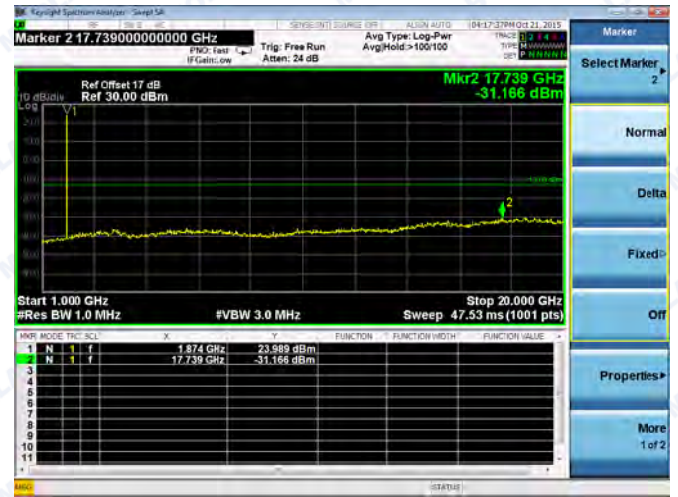




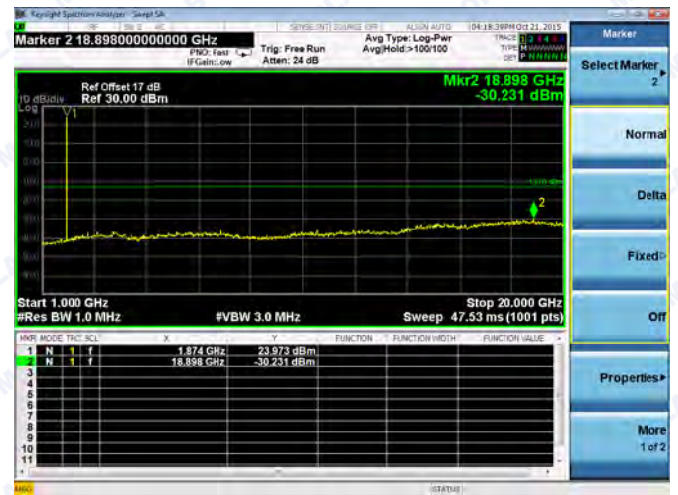
REPORT No.: SZ15080082W02

LTE Band 25 3MHz BW Mid Channel

QPSK



16QAM

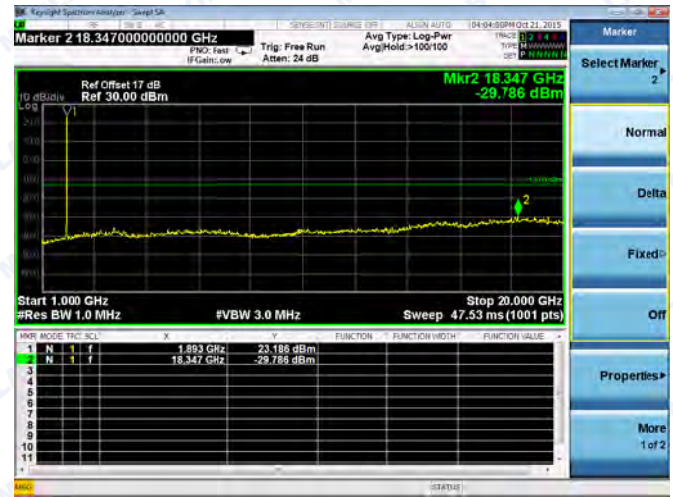
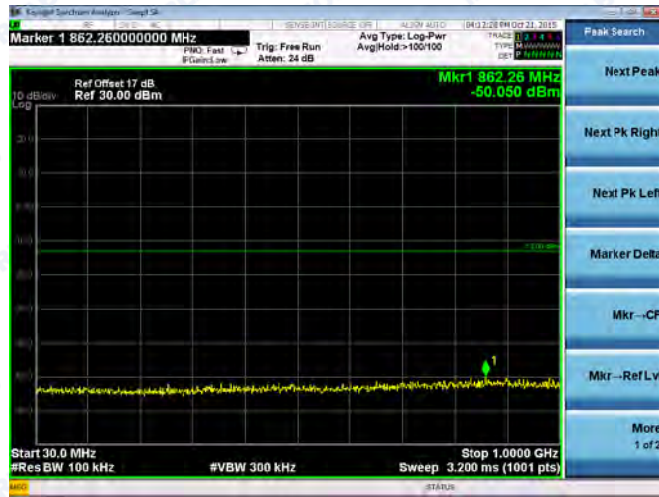




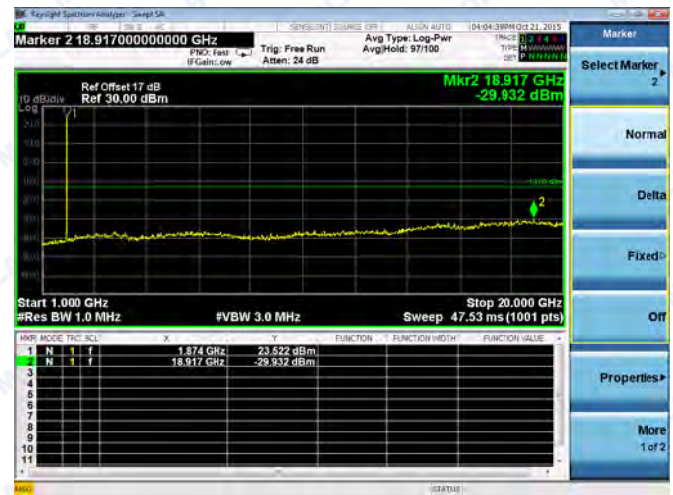
REPORT No.: SZ15080082W02

LTE Band 25 5MHz BW Mid Channel

QPSK



16QAM

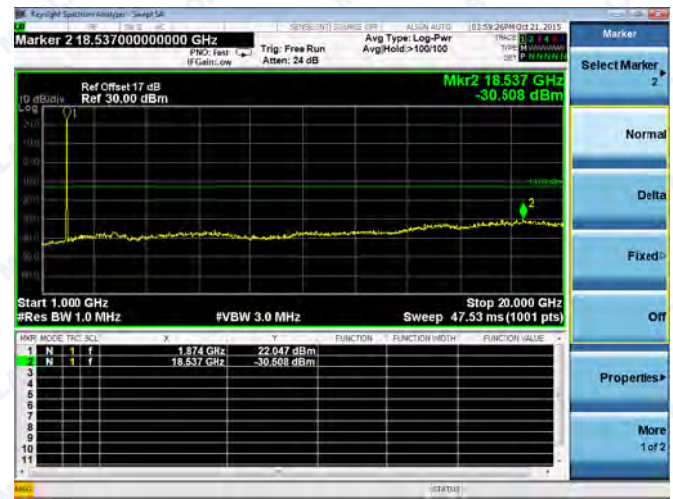




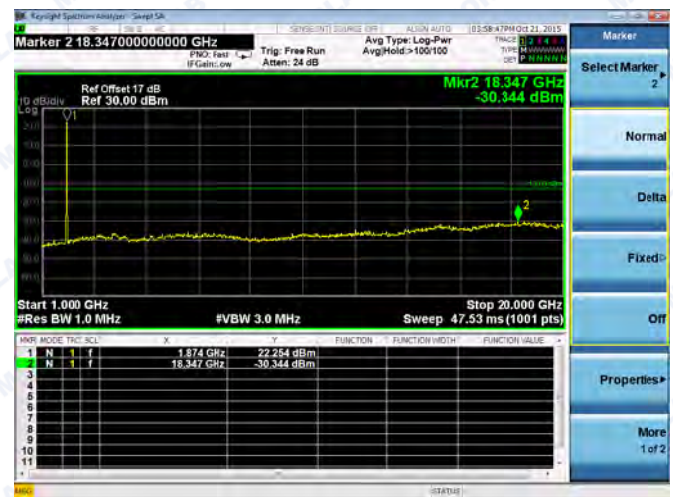
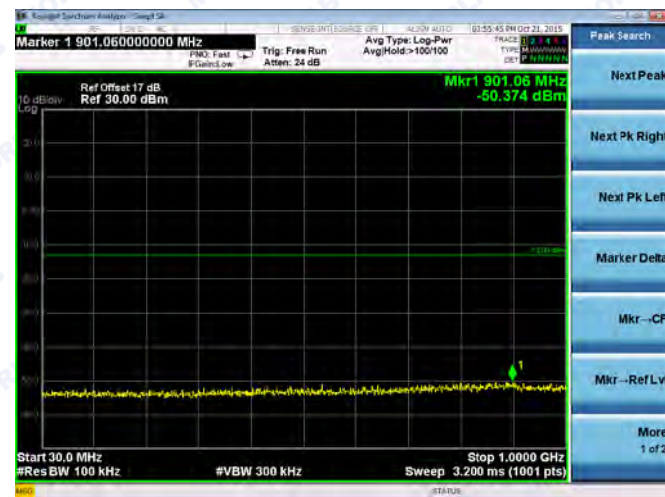
REPORT No.: SZ15080082W02

LTE Band 25 10MHz BW Mid Channel

QPSK



16QAM

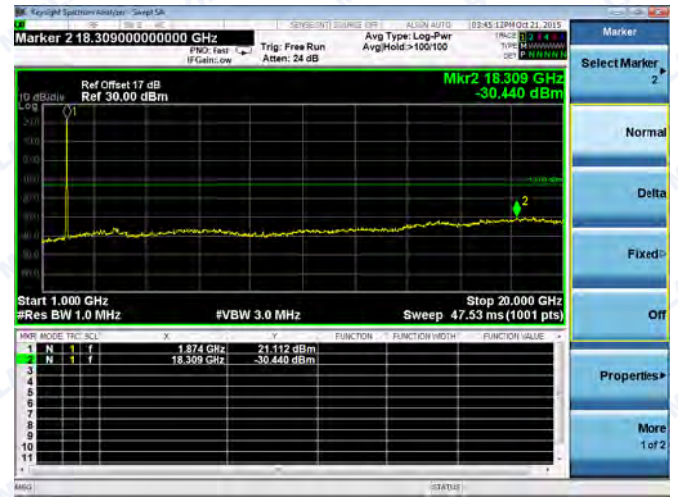




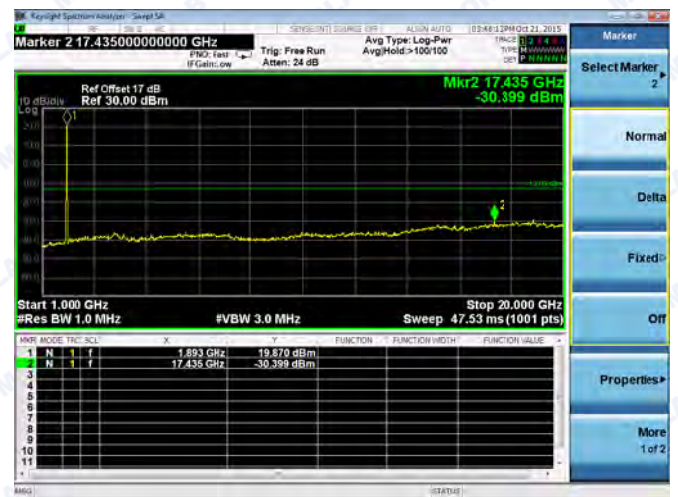
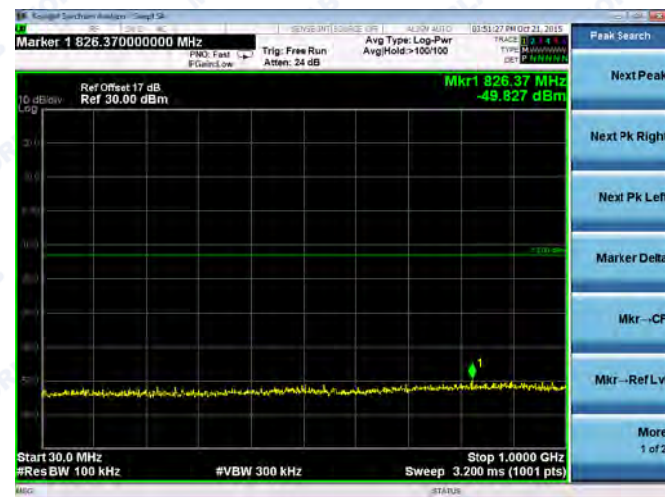
REPORT No.: SZ15080082W02

LTE Band 25 15MHz BW Mid Channel

QPSK



16QAM

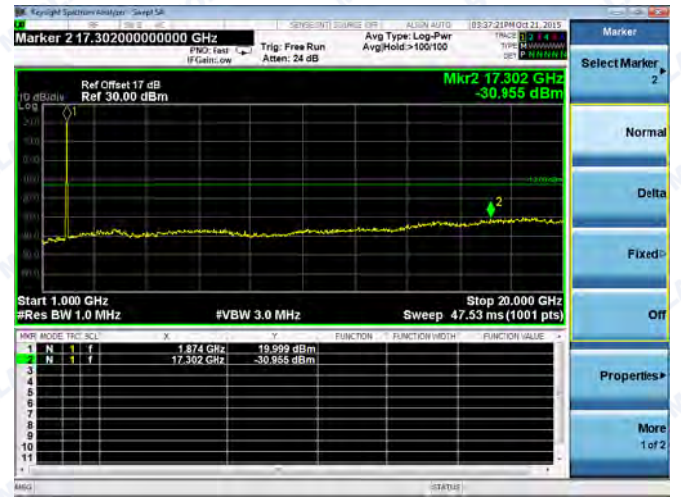
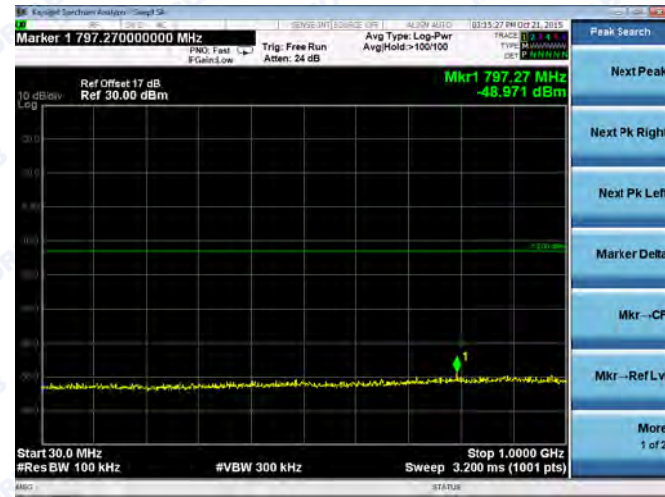




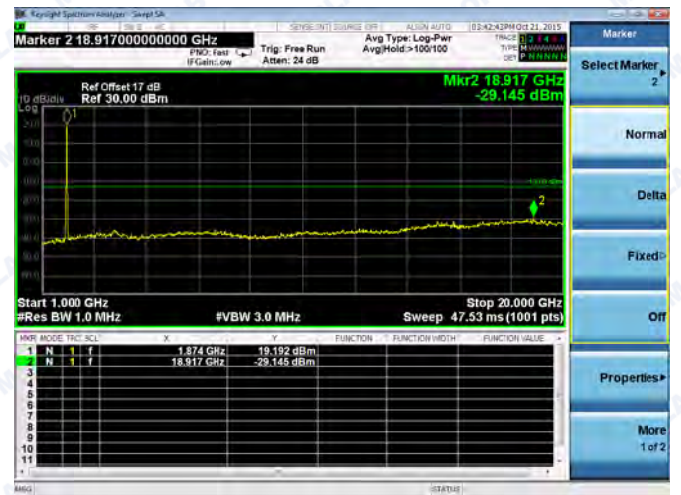
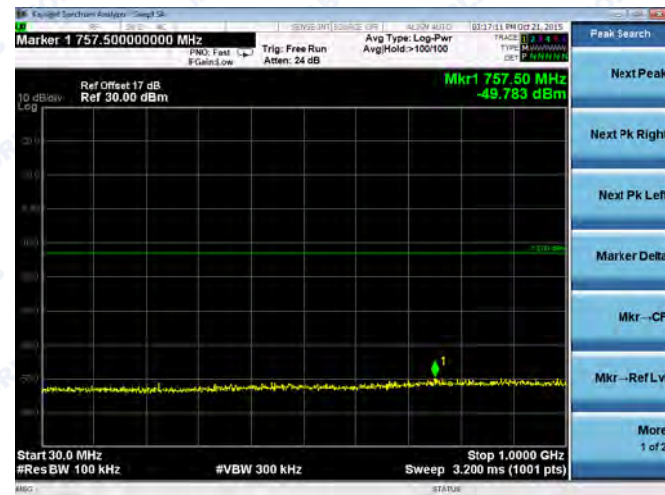
REPORT No.: SZ15080082W02

LTE Band 25 20MHz BW Mid Channel

QPSK



16QAM

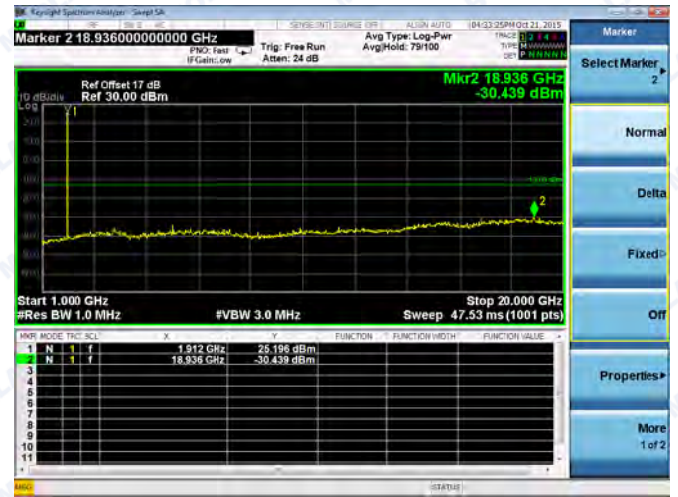
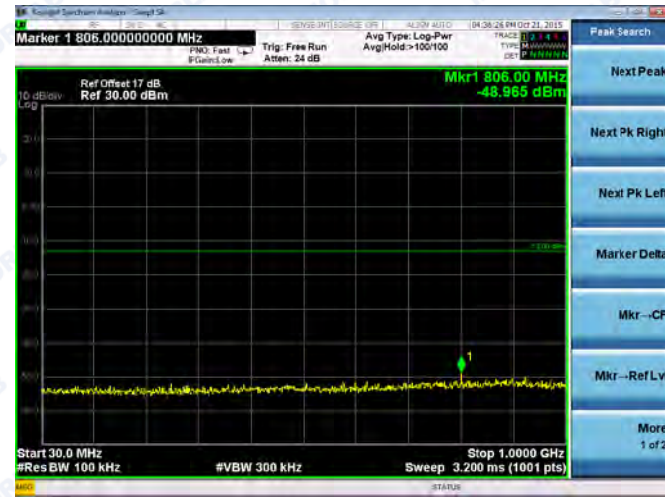




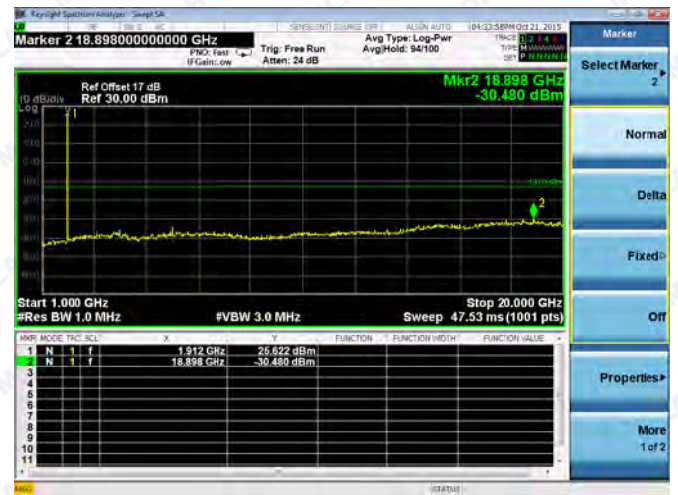
REPORT No.: SZ15080082W02

LTE Band 25 1.4MHz BW High Channel

QPSK



16QAM

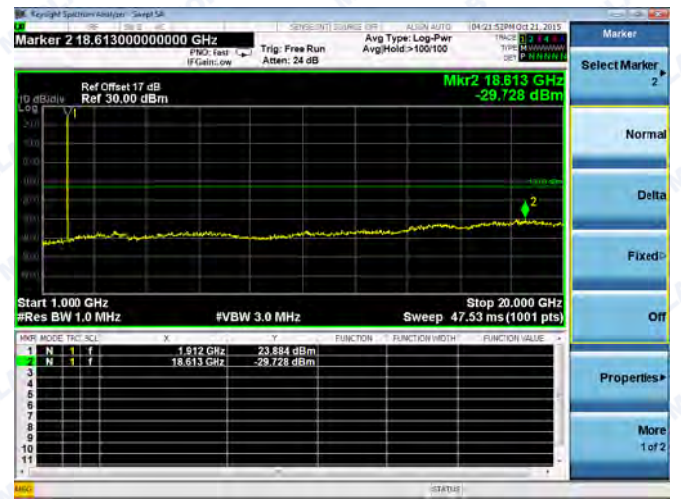
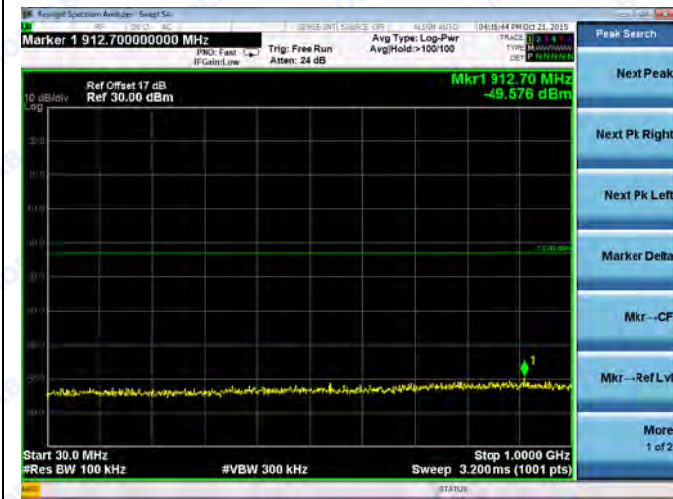




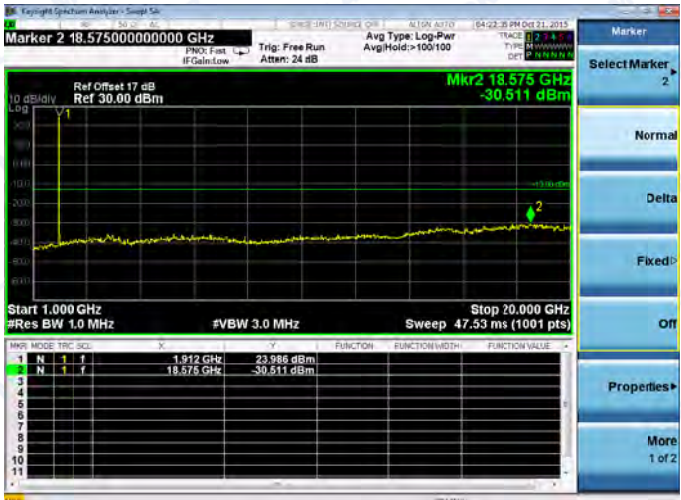
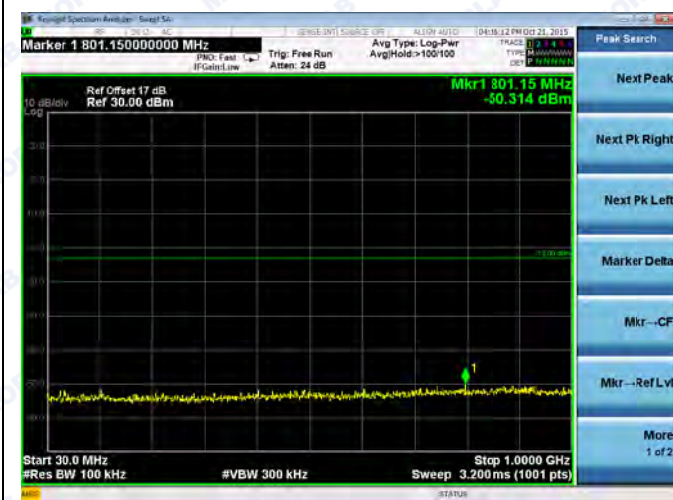
REPORT No.: SZ15080082W02

LTE Band 25 3MHz BW High Channel

QPSK



16QAM

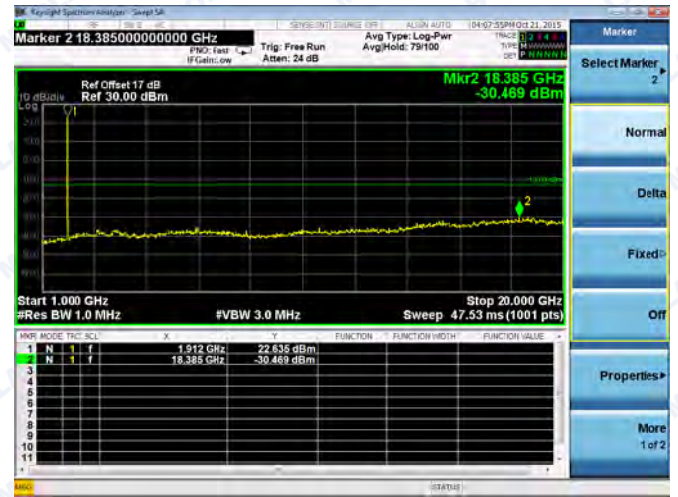




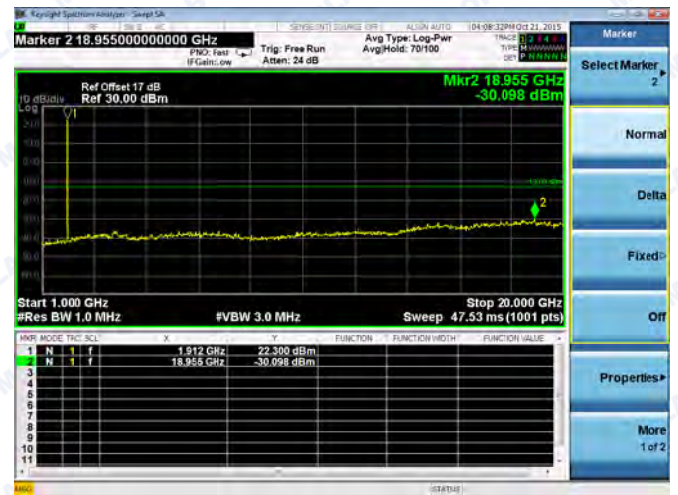
REPORT No.: SZ15080082W02

LTE Band 25 5MHz BW High Channel

QPSK



16QAM

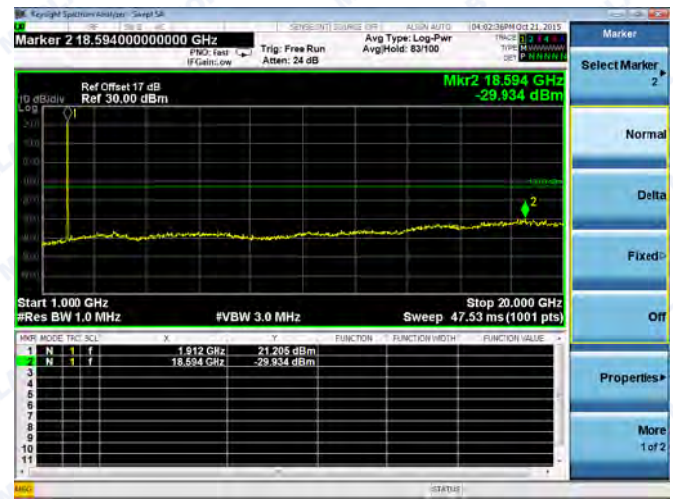




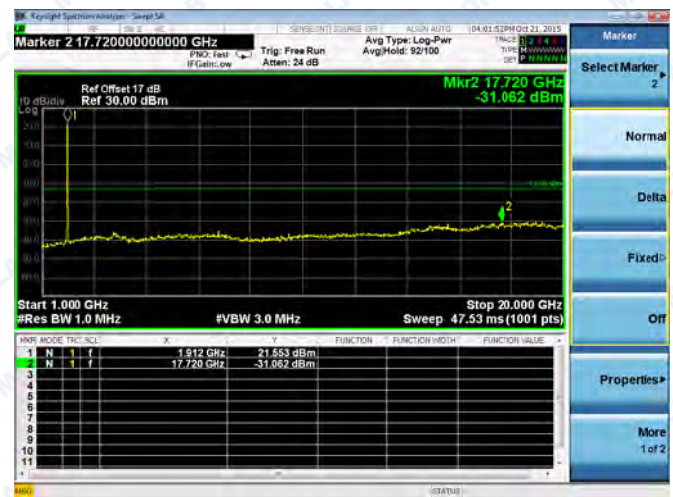
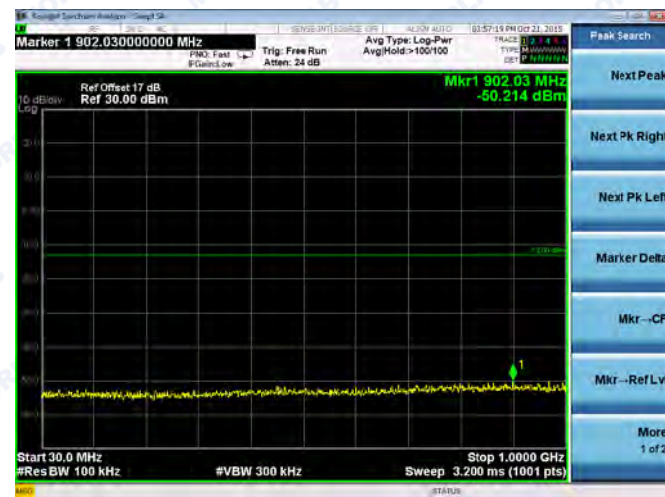
REPORT No.: SZ15080082W02

LTE Band 25 10MHz BW High Channel

QPSK



16QAM

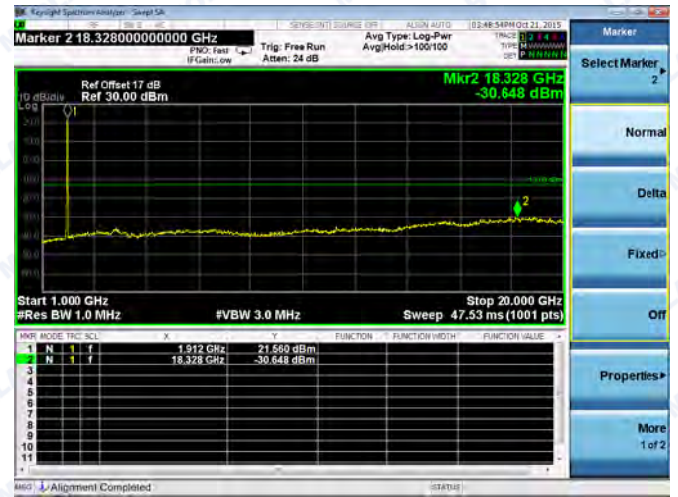
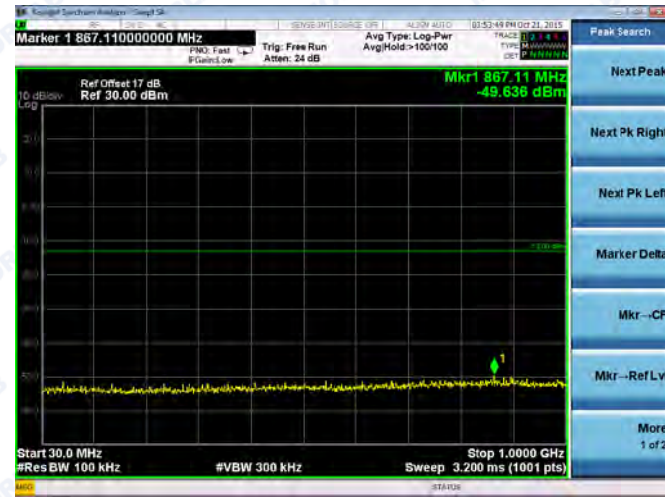




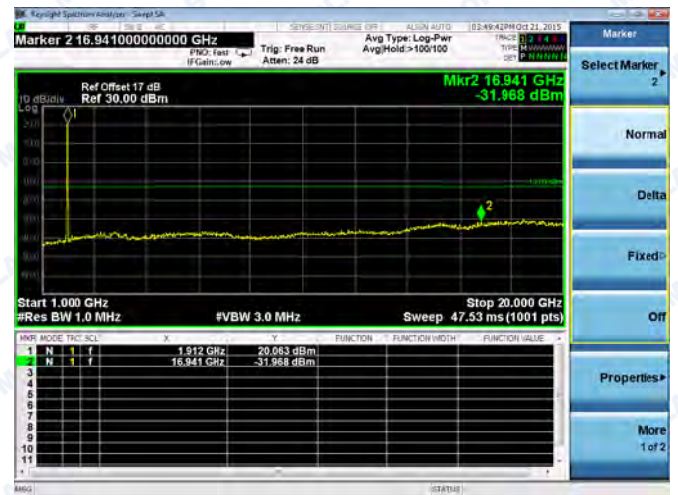
REPORT No.: SZ15080082W02

LTE Band 25 15MHz BW High Channel

QPSK



16QAM

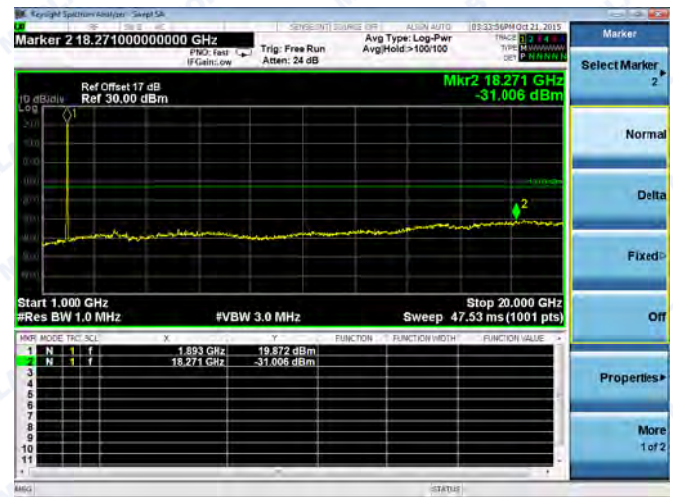
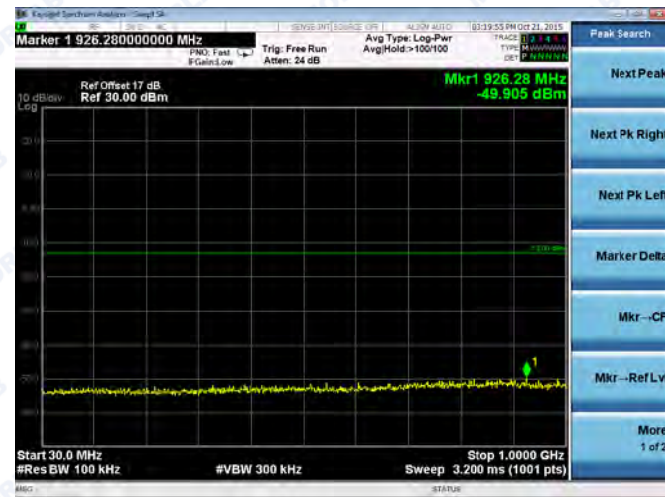




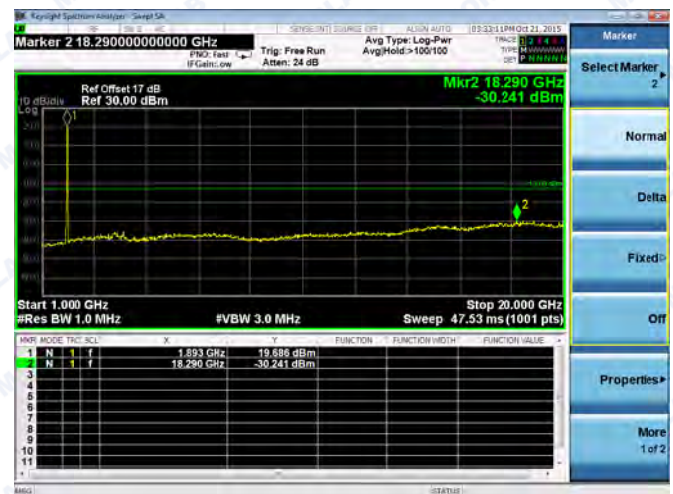
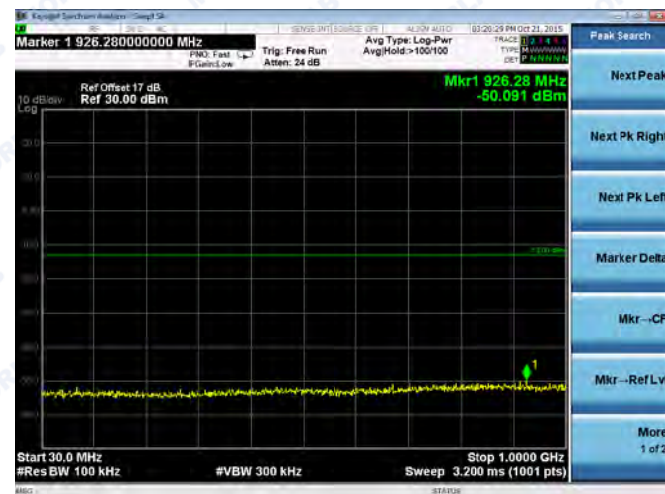
REPORT No.: SZ15080082W02

LTE Band 25 20MHz BW High Channel

QPSK



16QAM

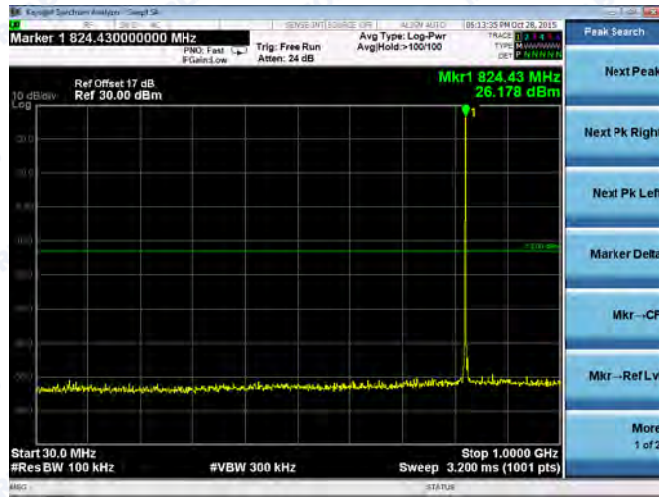




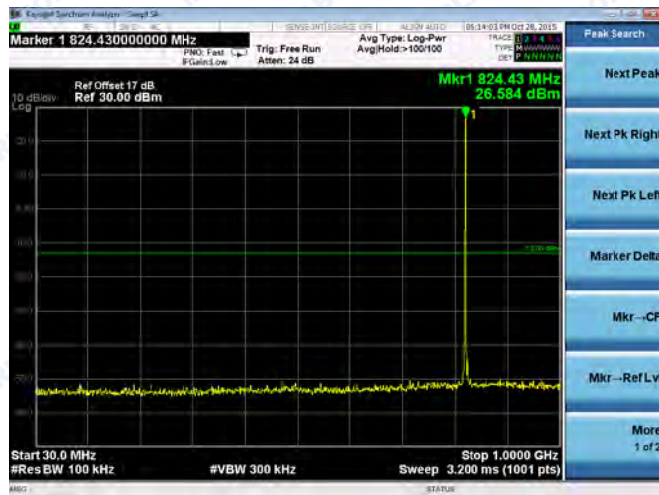
REPORT No.: SZ15080082W02

LTE Band 26 1.4MHz BW Low Channel

QPSK



16QAM

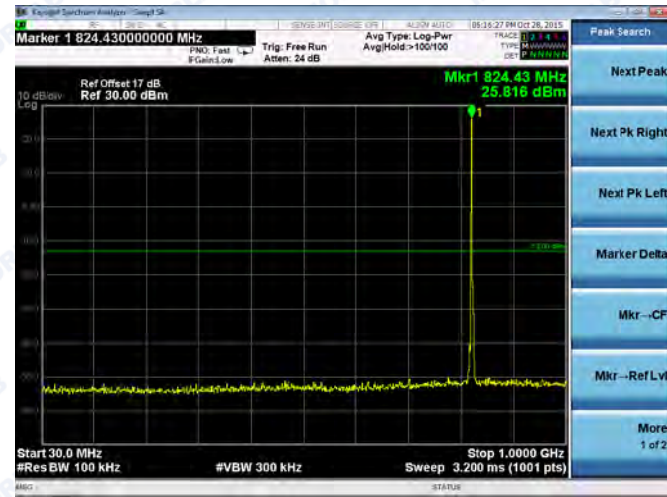




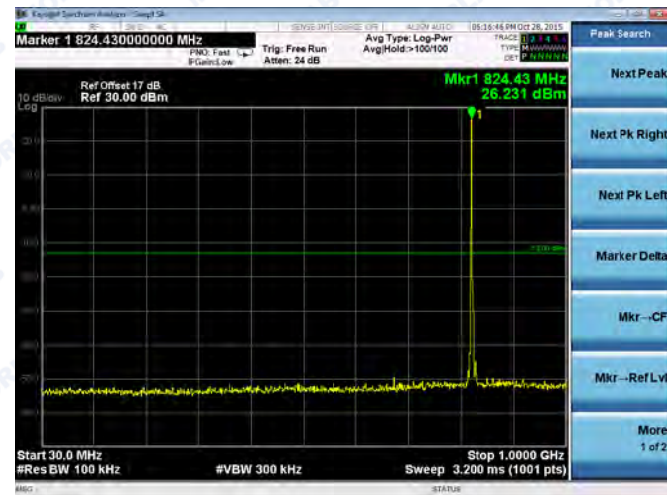
REPORT No.: SZ15080082W02

LTE Band 26 3MHz BW Low Channel

QPSK



16QAM

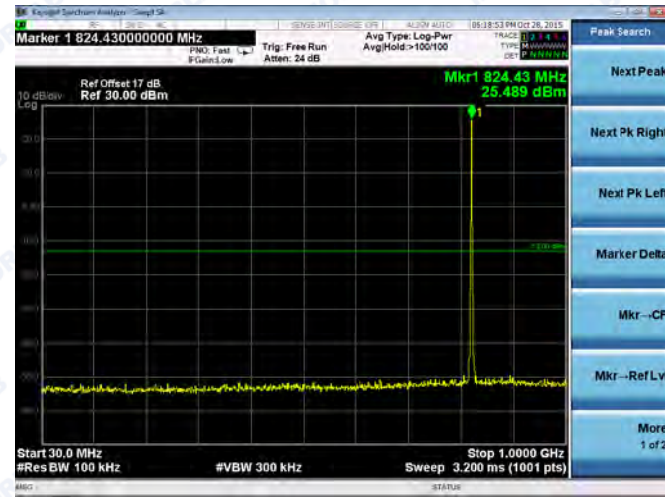




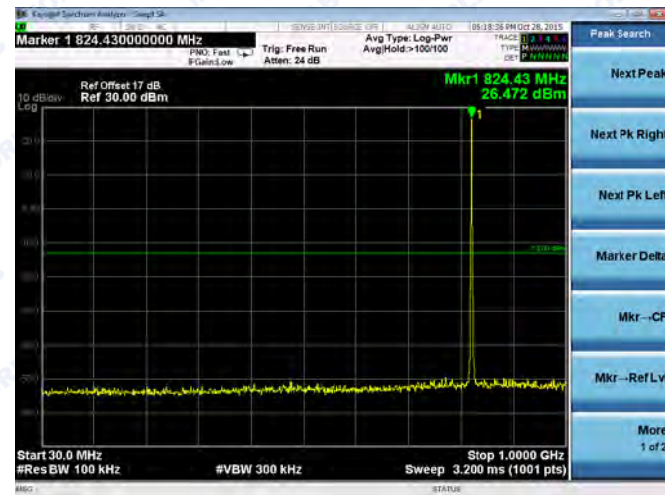
REPORT No.: SZ15080082W02

LTE Band 26 5MHz BW Low Channel

QPSK



16QAM

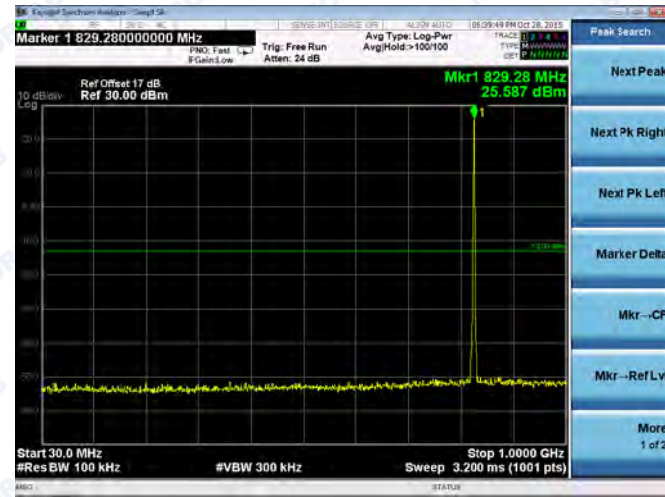




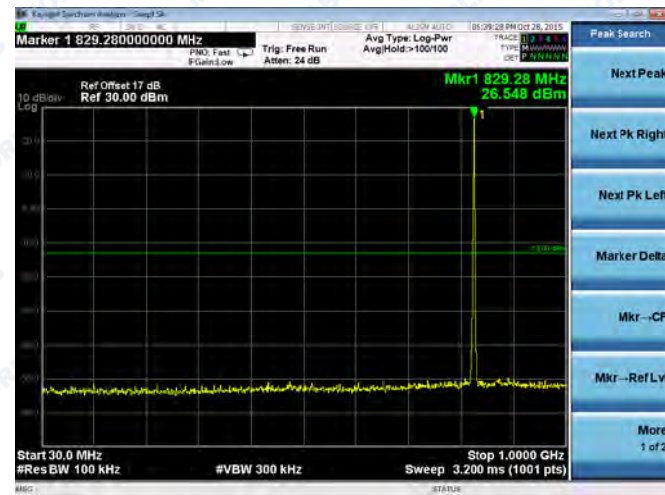
REPORT No.: SZ15080082W02

LTE Band 26 10MHz BW Low Channel

QPSK



16QAM

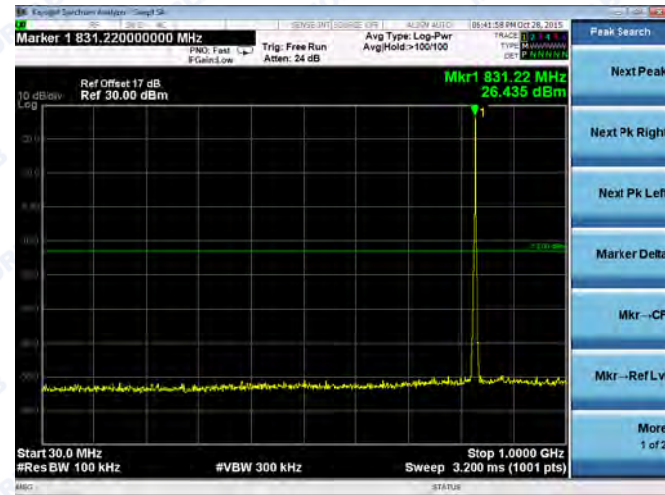




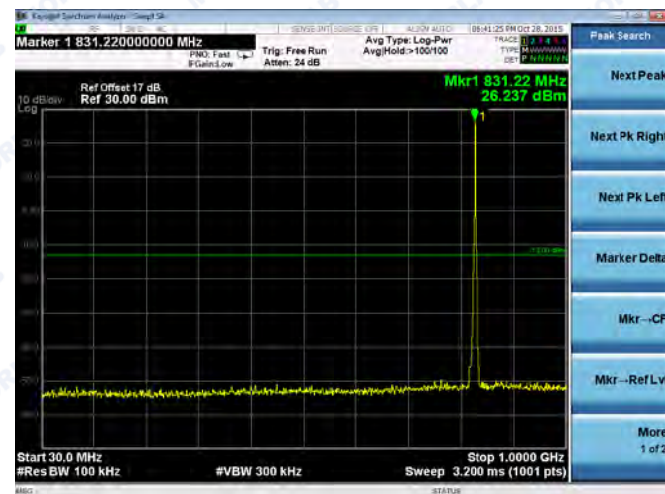
REPORT No.: SZ15080082W02

LTE Band 26 15MHz BW Low Channel

QPSK



16QAM



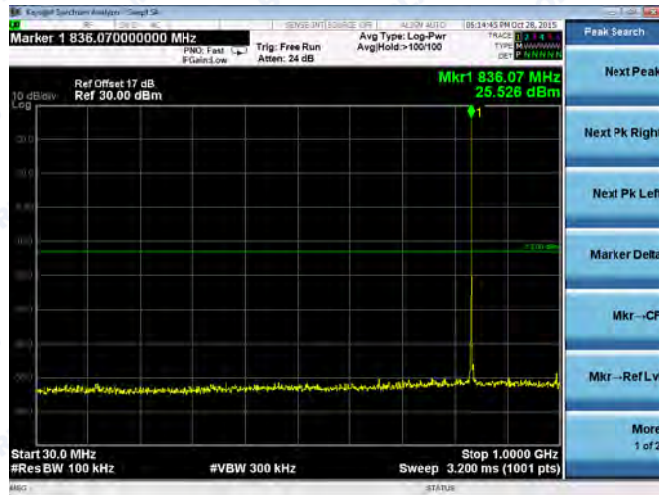


REPORT No.: SZ15080082W02

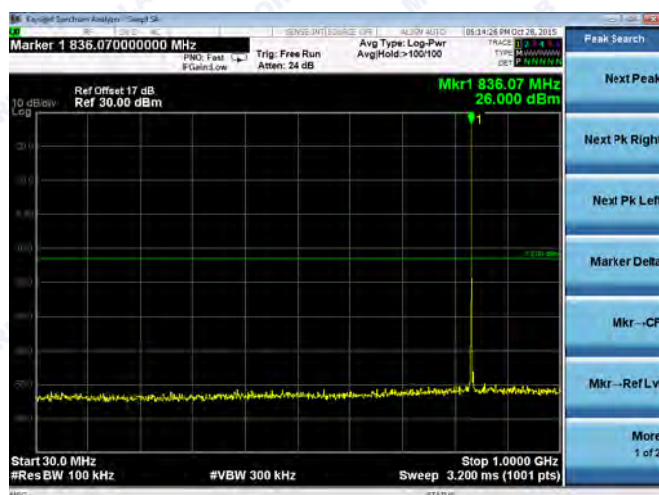
Middle channel:

LTE Band 26 1.4MHz BW Mid Channel

QPSK



16QAM

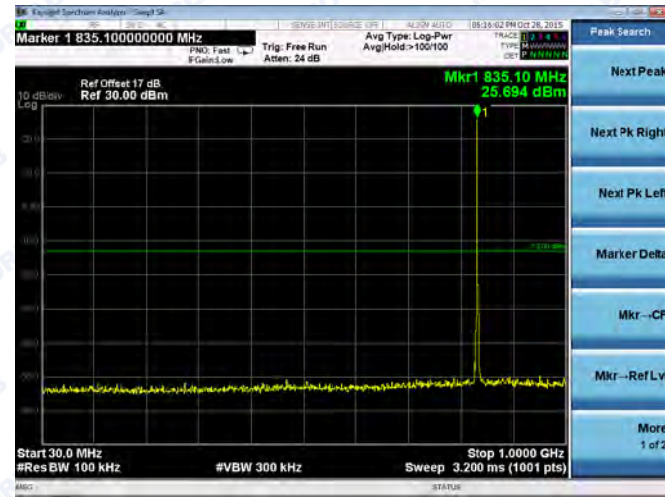




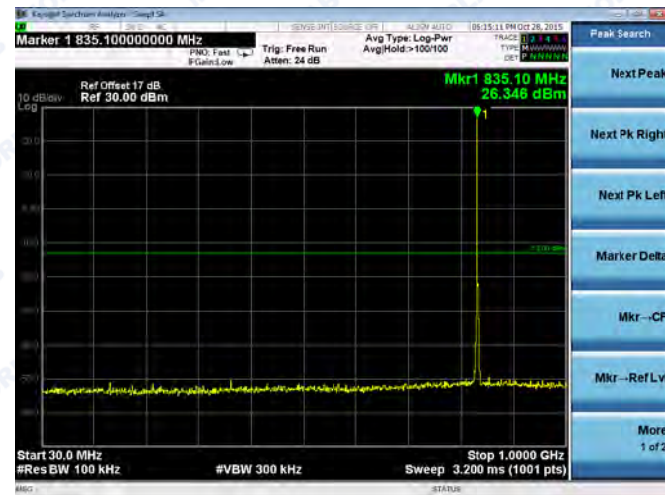
REPORT No.: SZ15080082W02

LTE Band 26 3MHz BW Mid Channel

QPSK



16QAM

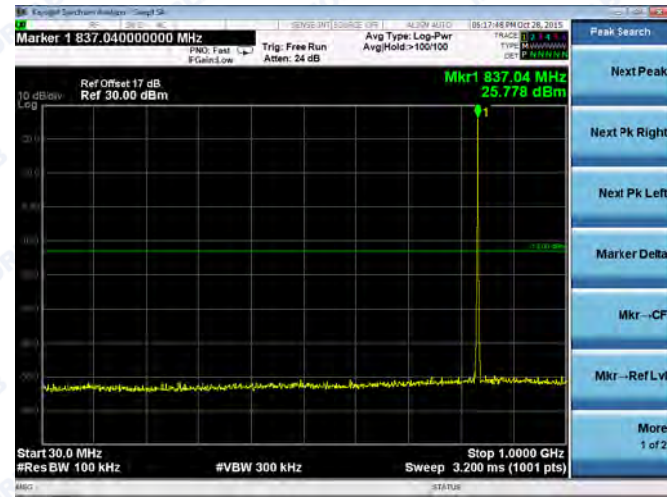




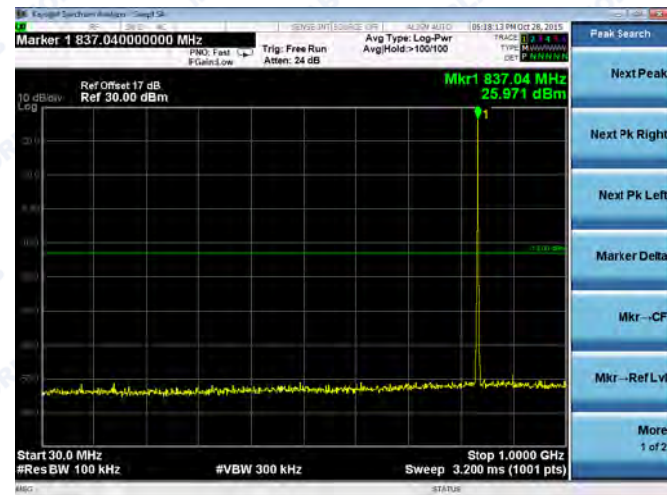
REPORT No.: SZ15080082W02

LTE Band 26 5MHz BW Mid Channel

QPSK



16QAM

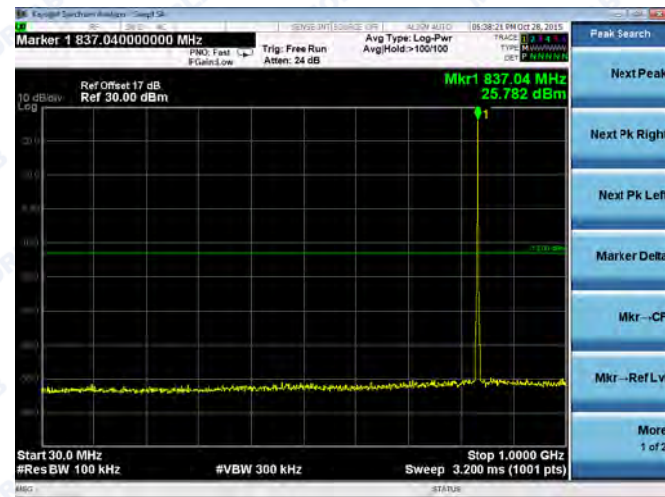




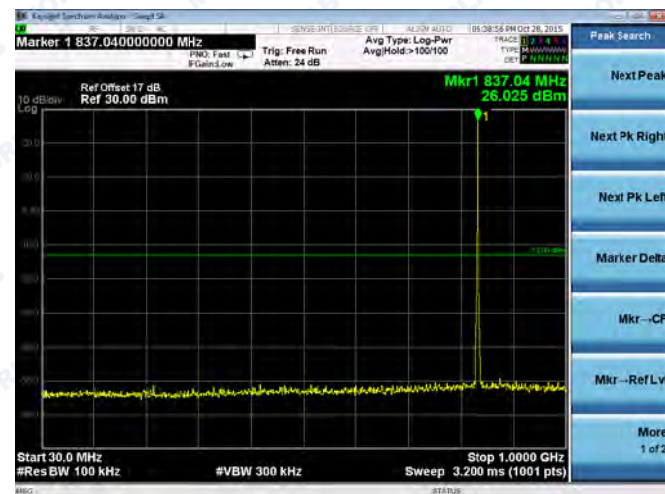
REPORT No.: SZ15080082W02

LTE Band 26 10MHz BW Mid Channel

QPSK



16QAM

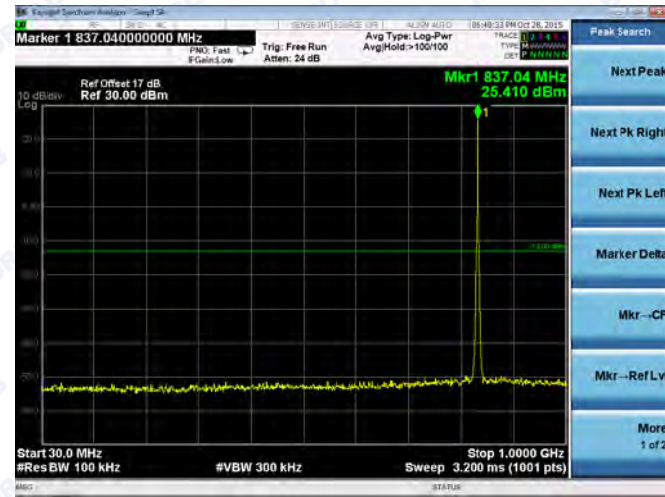




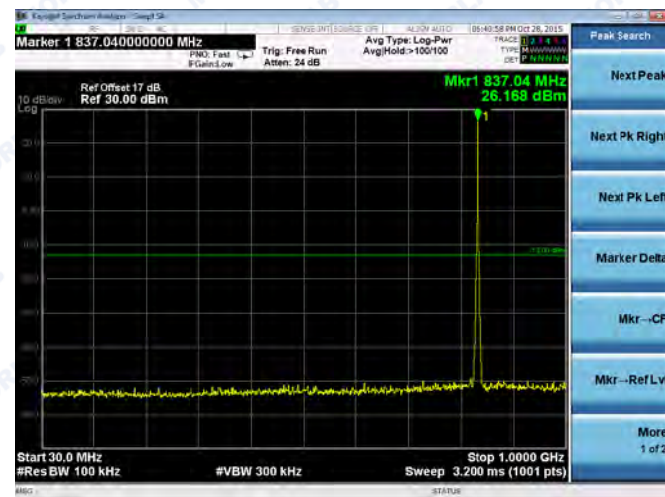
REPORT No.: SZ15080082W02

LTE Band 26 15MHz BW Mid Channel

QPSK



16QAM

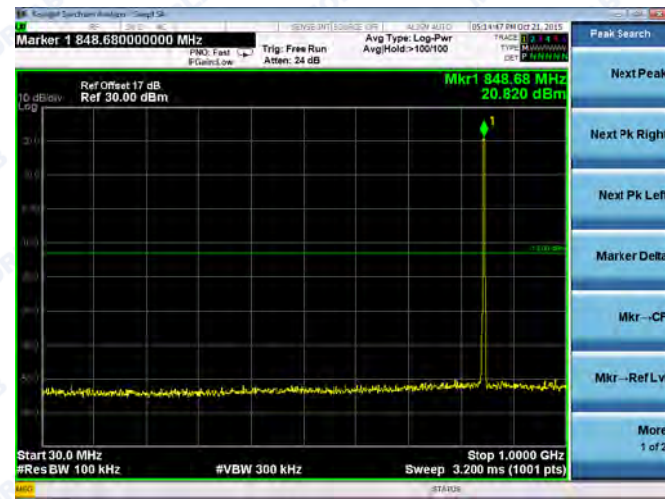




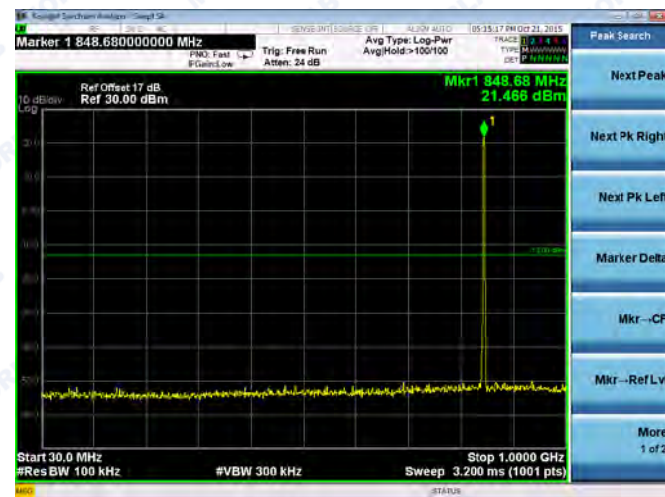
REPORT No.: SZ15080082W02

LTE Band 26 1.4MHz BW High Channel

QPSK



16QAM





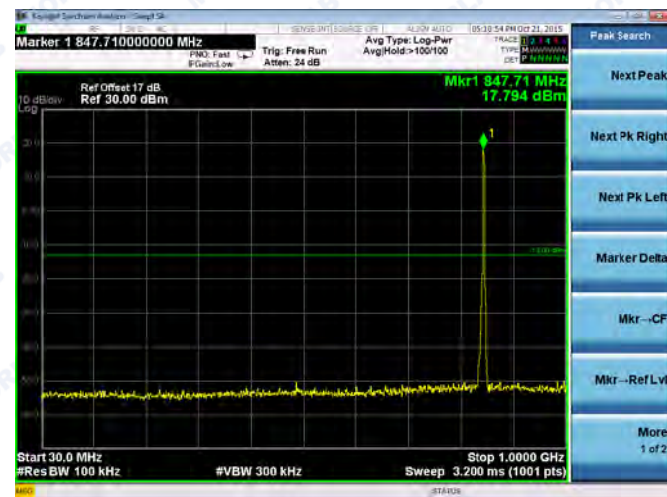
REPORT No.: SZ15080082W02

LTE Band 26 3MHz BW High Channel

QPSK



16QAM

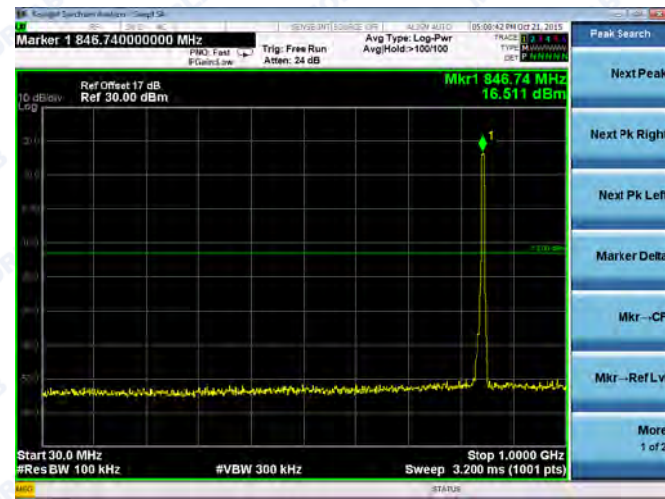




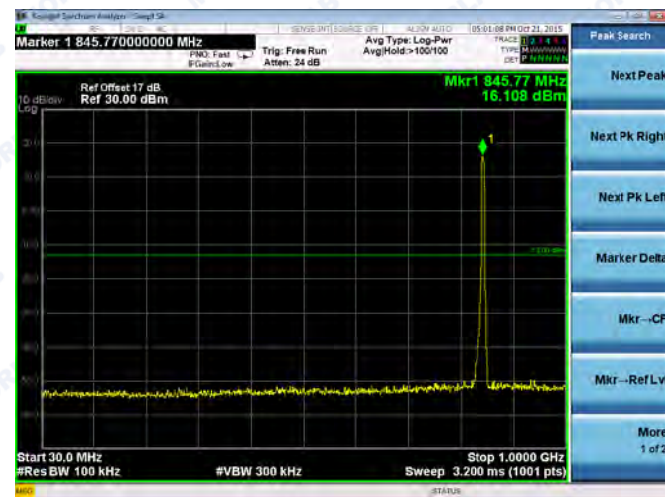
REPORT No.: SZ15080082W02

LTE Band 26 5MHz BW High Channel

QPSK



16QAM

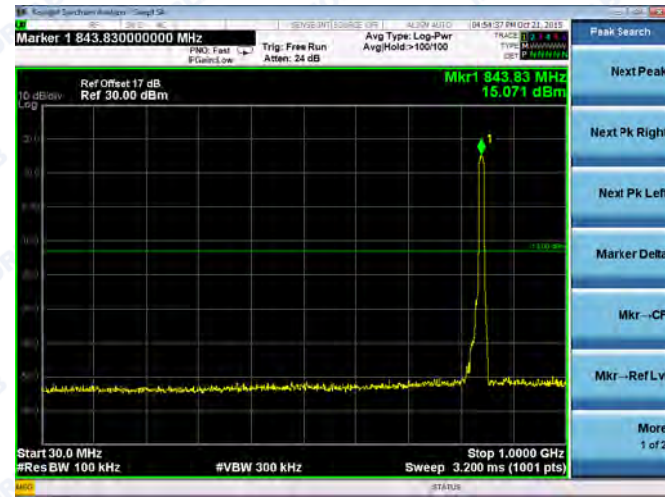




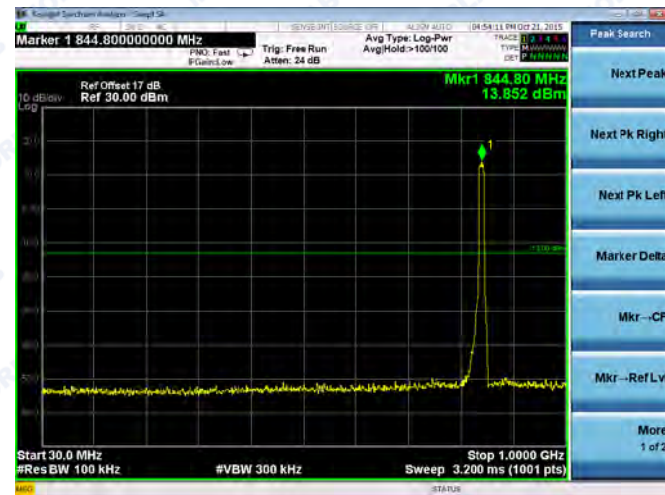
REPORT No.: SZ15080082W02

LTE Band 26 10MHz BW High Channel

QPSK



16QAM





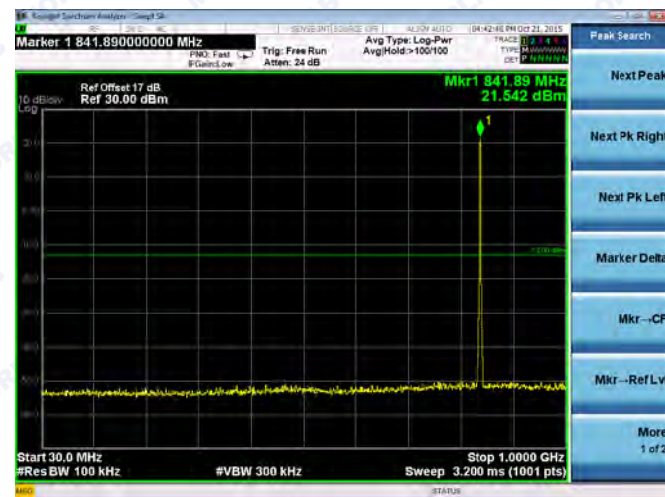
REPORT No.: SZ15080082W02

LTE Band 26 15MHz BW High Channel

QPSK



16QAM

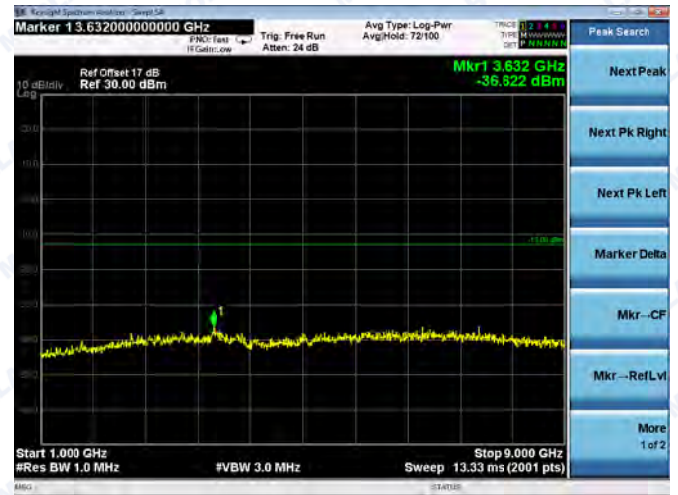
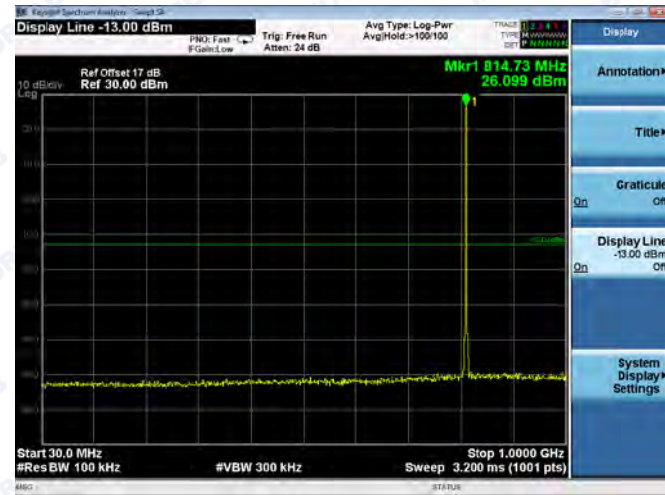




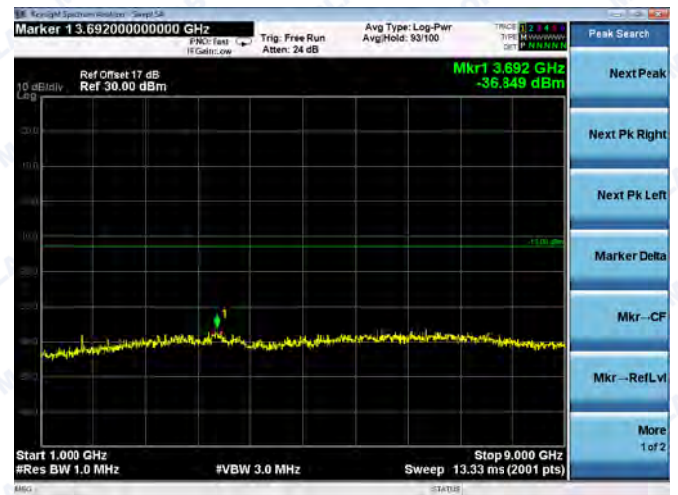
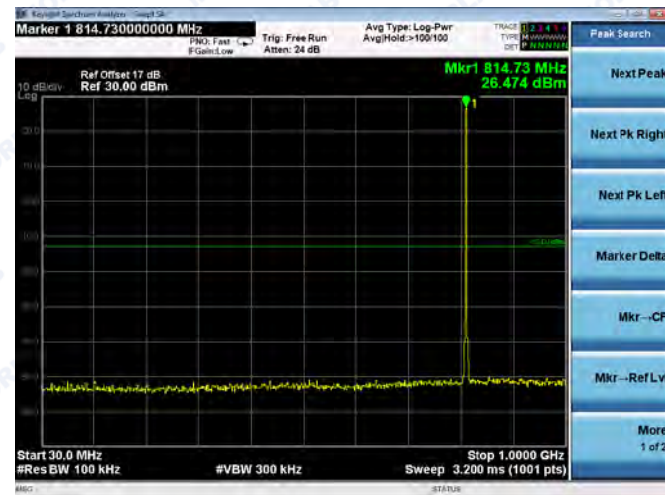
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 1.4MHz BW Low Channel

QPSK



16QAM

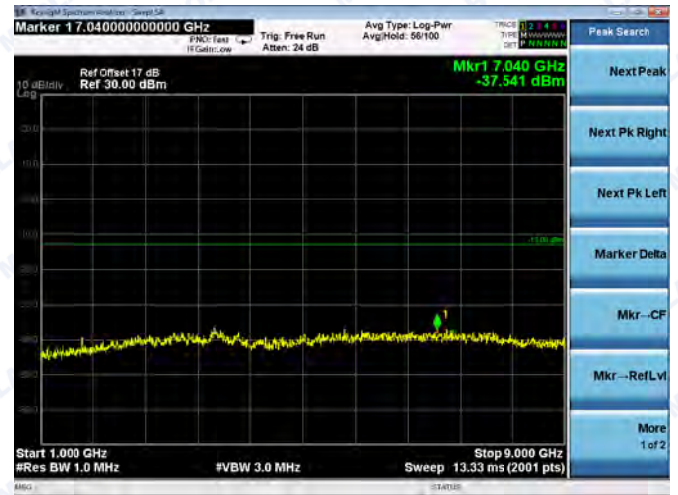
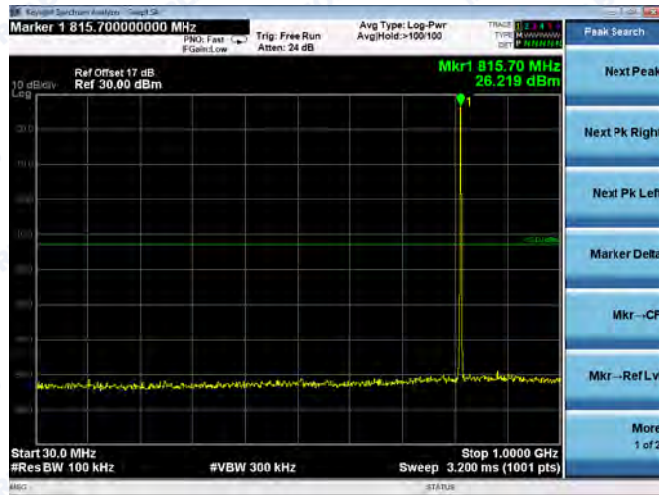




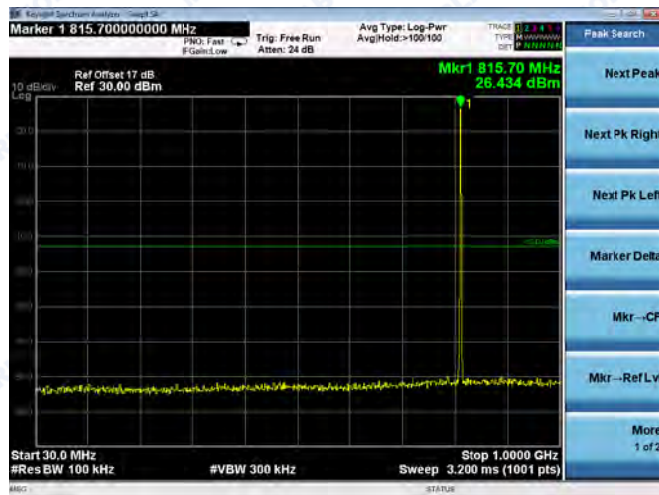
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 3MHz BW Low Channel

QPSK



16QAM

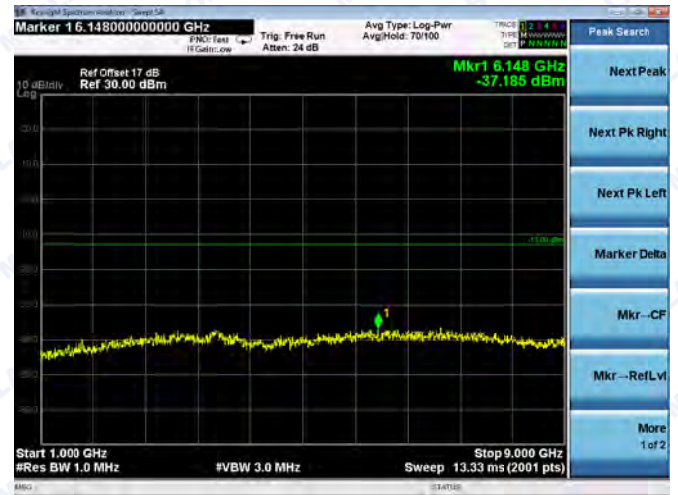
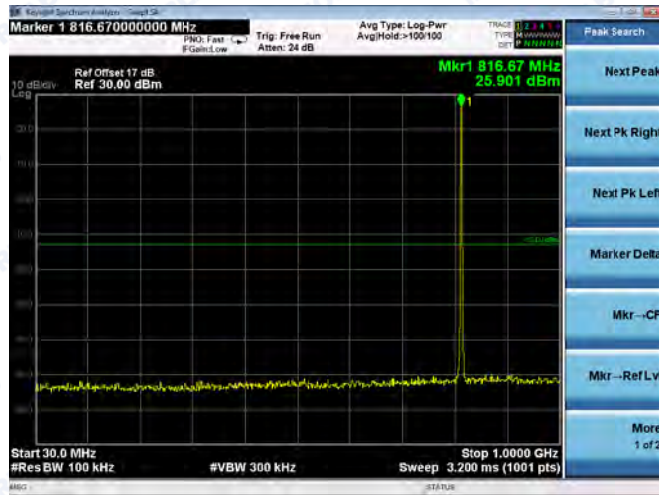




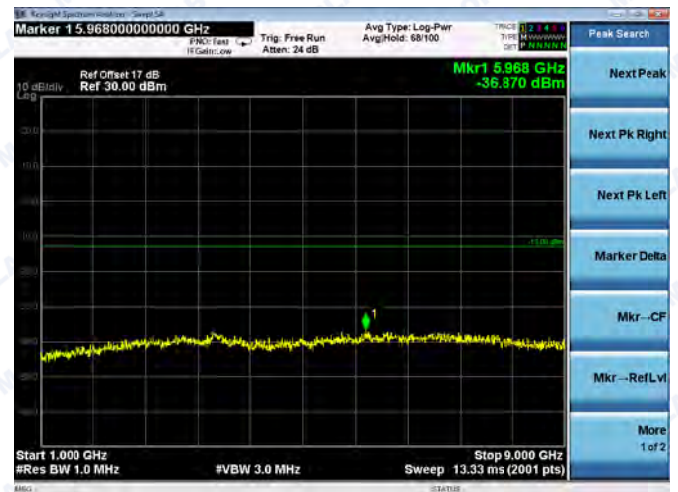
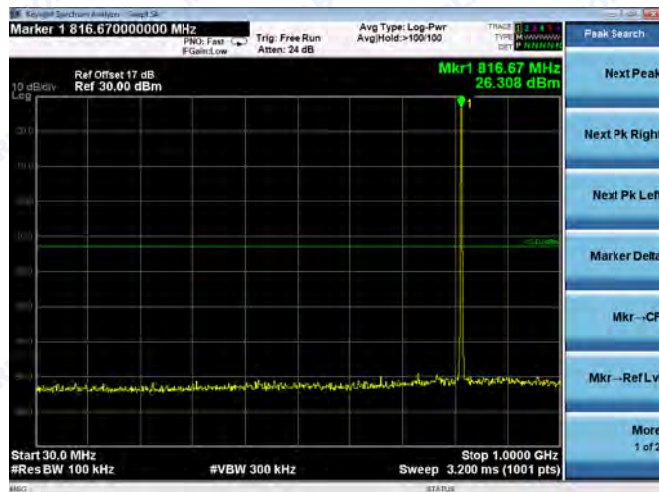
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 5MHz BW Low Channel

QPSK



16QAM



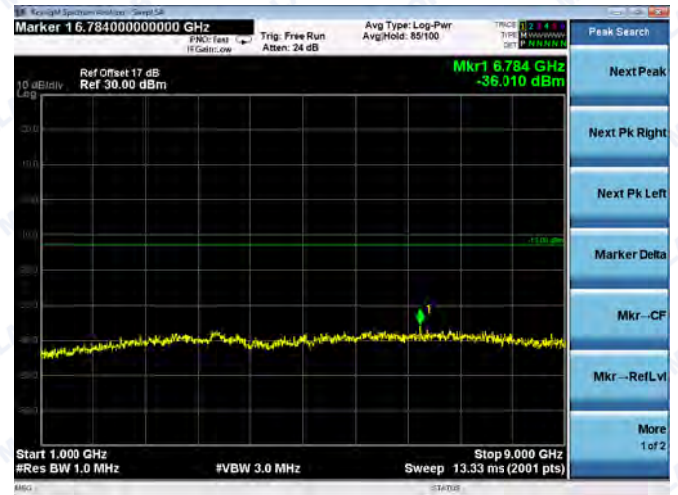
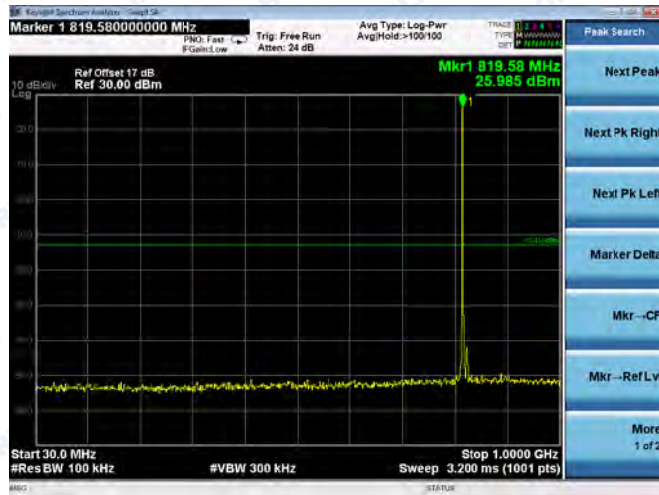


REPORT No.: SZ15080082W02

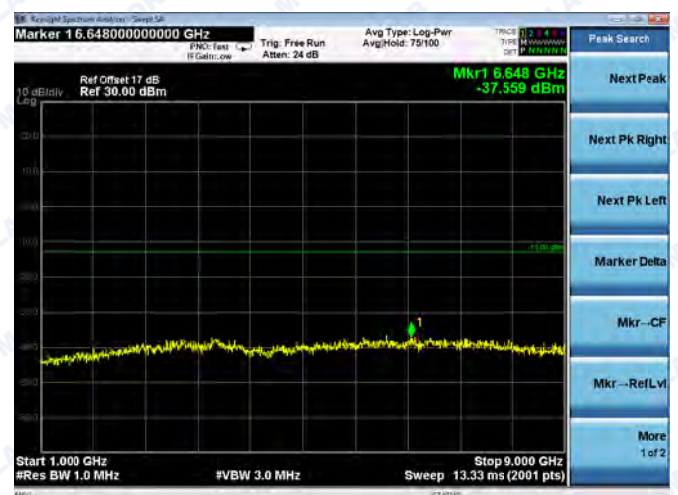
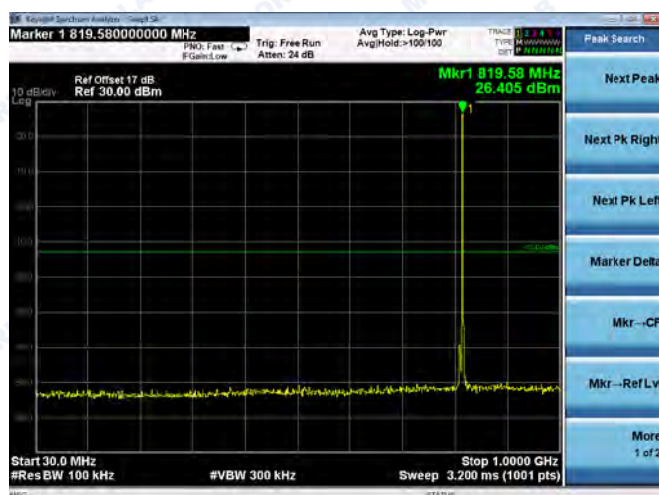
Middle channel:

LTE Band 26 (Part 90s) 1.4MHz BW Mid Channel

QPSK



16QAM

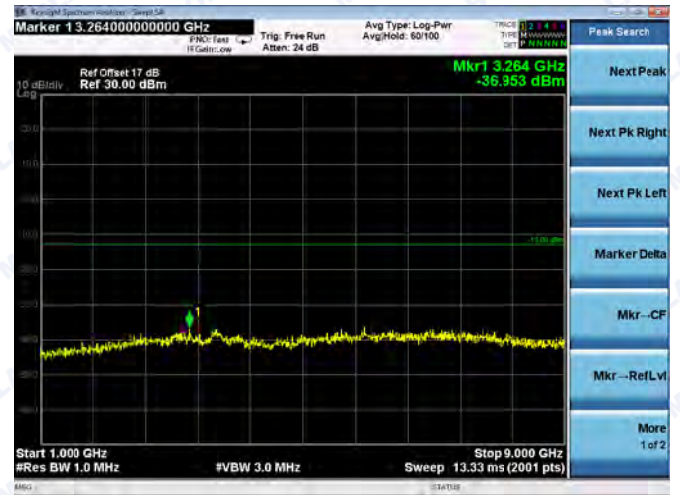
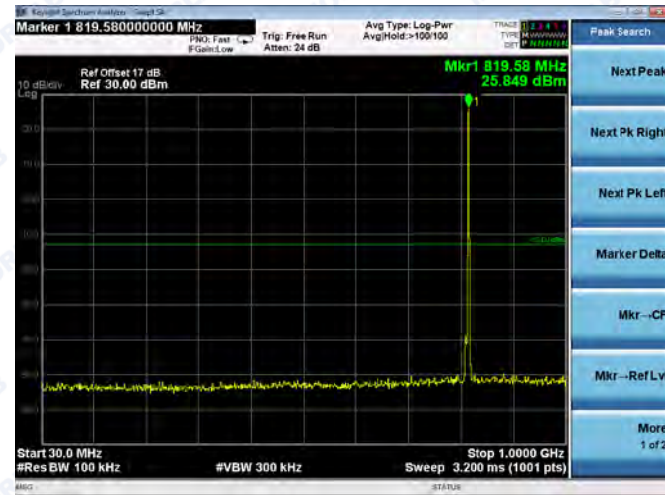




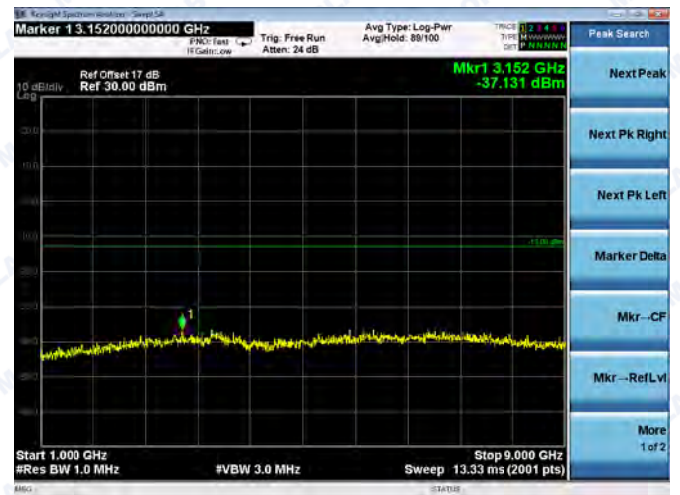
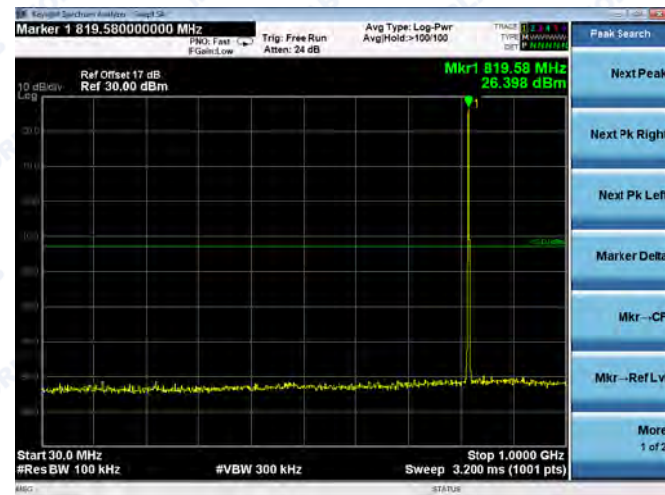
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 3MHz BW Mid Channel

QPSK



16QAM

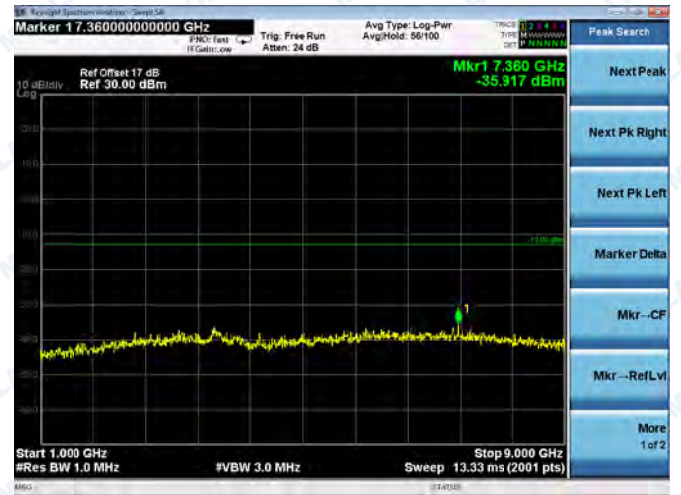
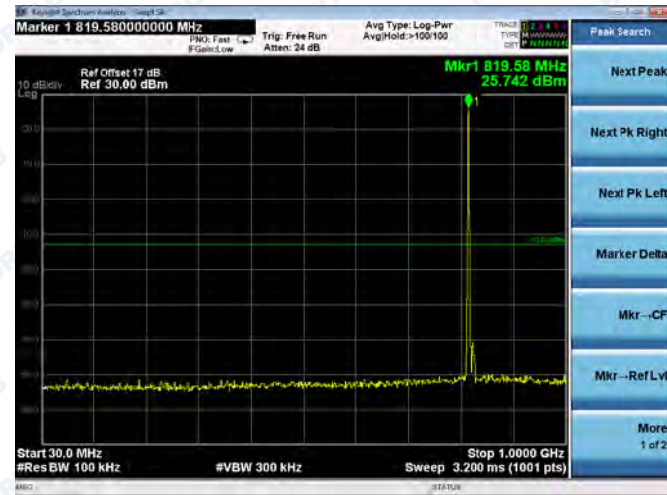




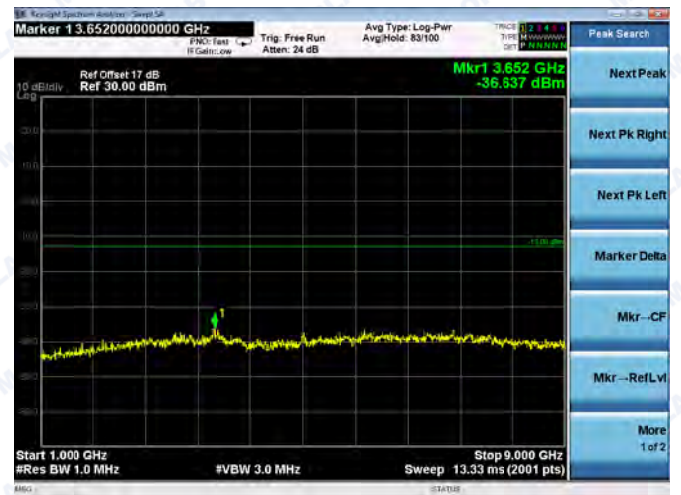
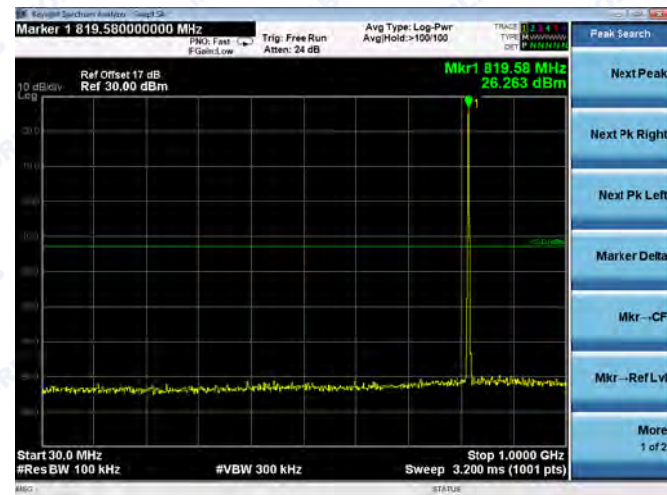
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 5MHz BW Mid Channel

QPSK



16QAM

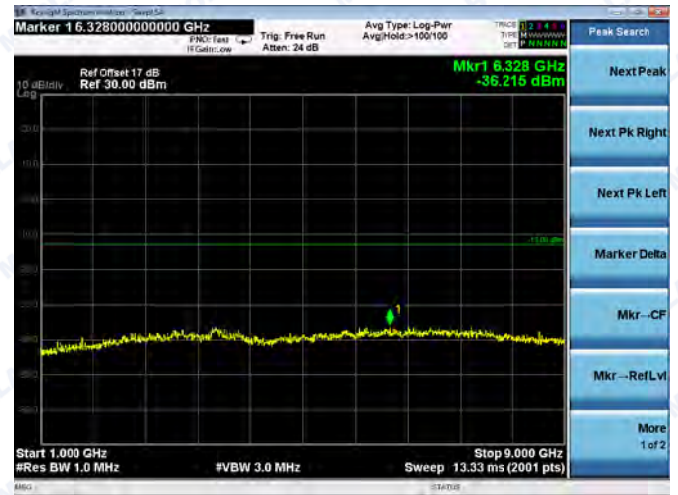
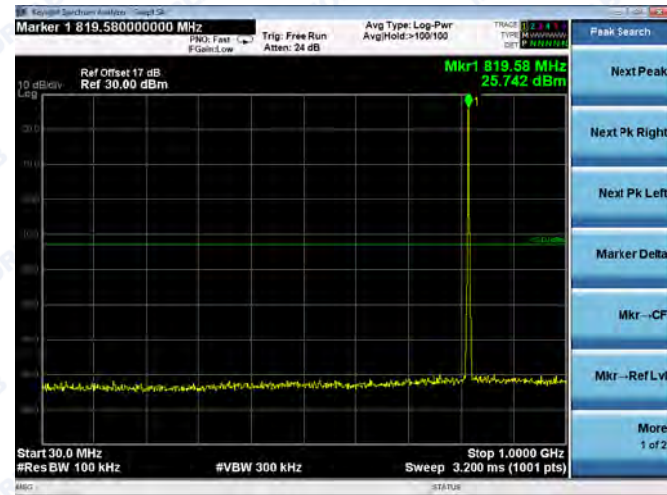




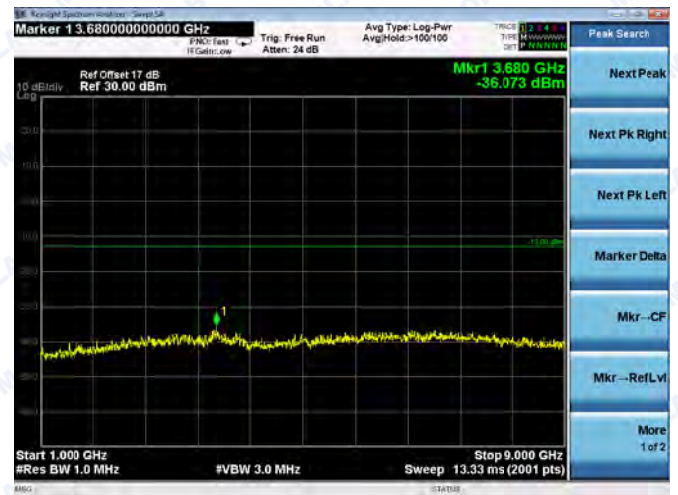
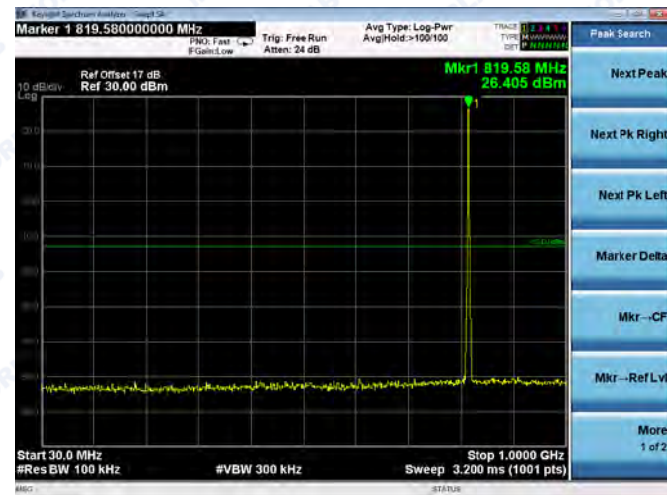
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 10MHz BW Mid Channel

QPSK



16QAM

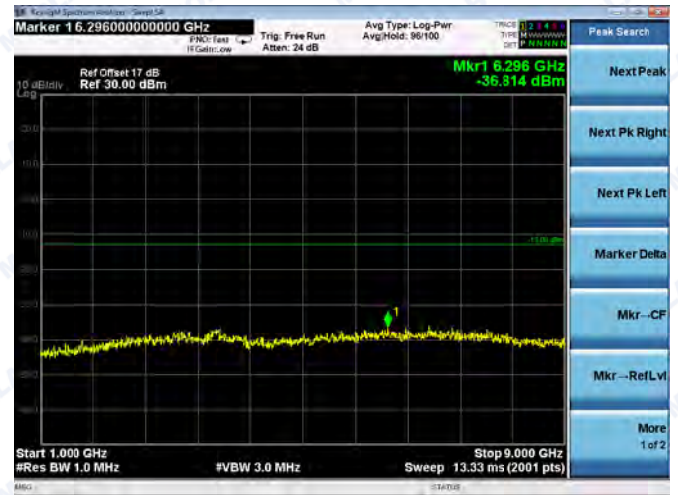
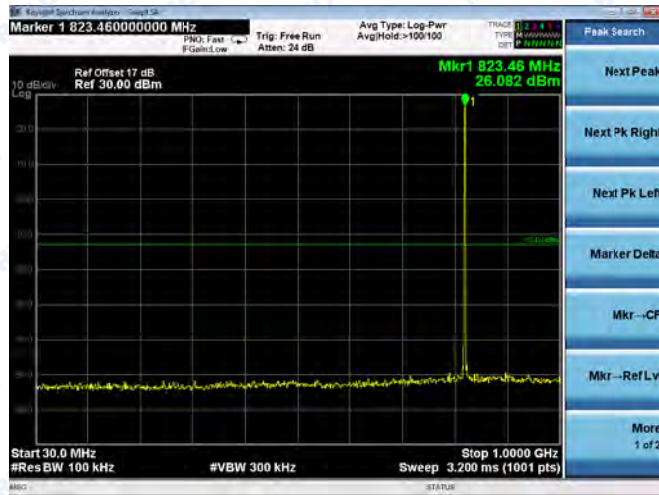




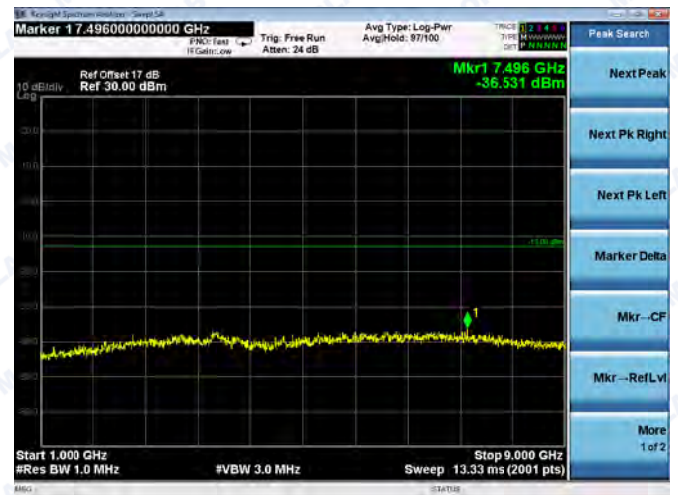
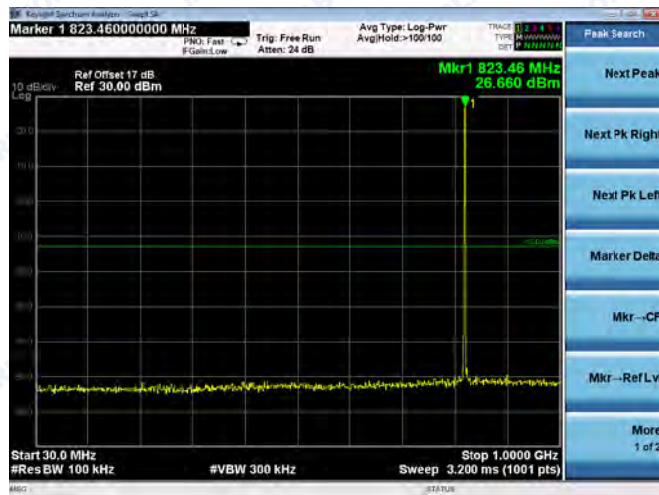
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 1.4MHz BW High Channel

QPSK



16QAM

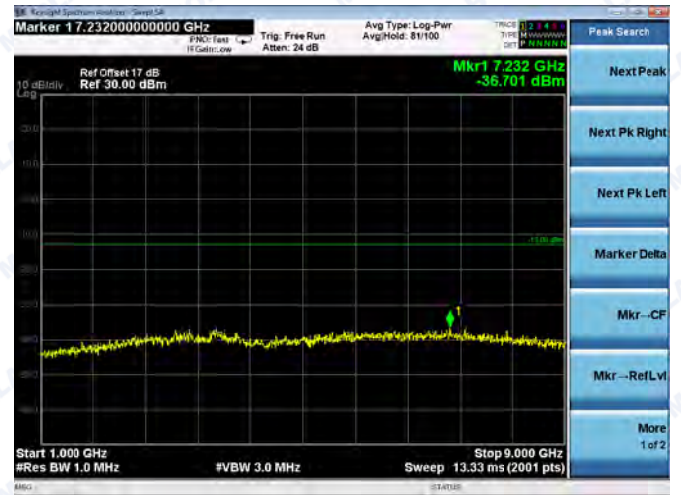
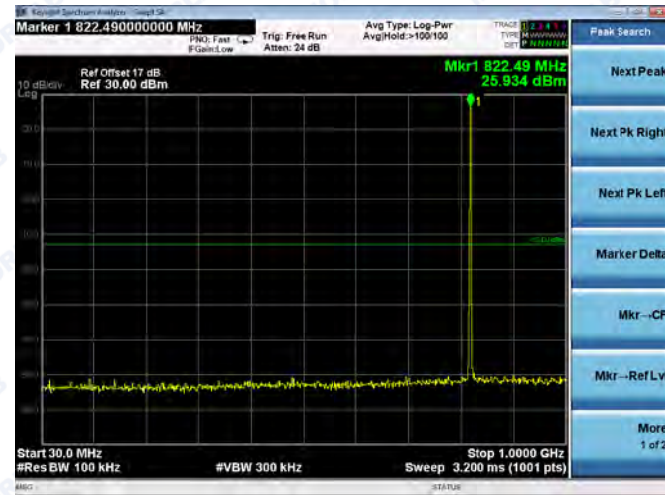




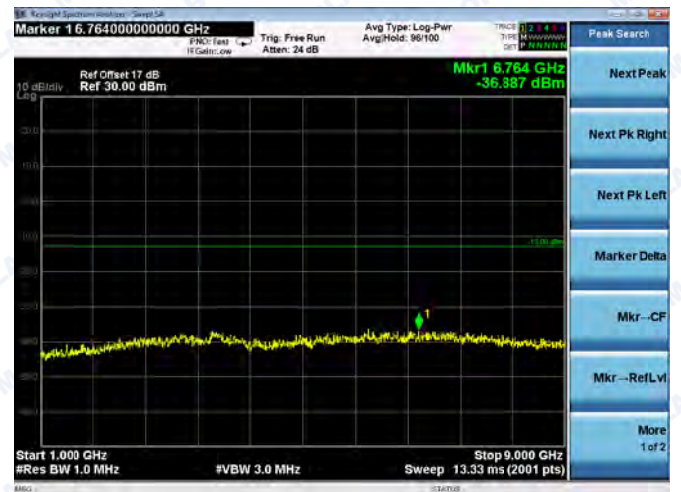
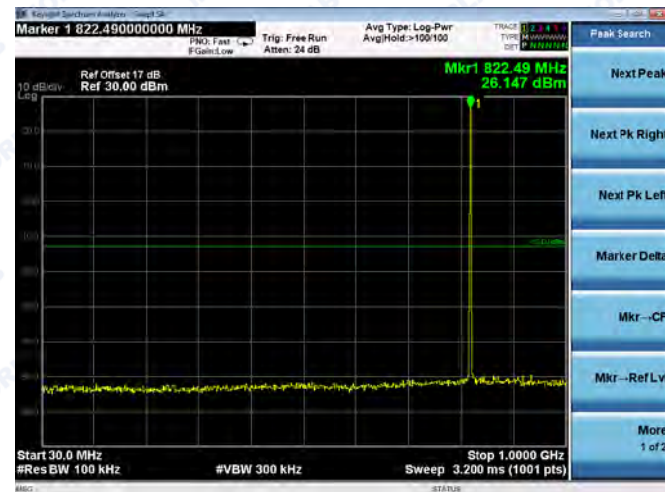
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 3MHz BW High Channel

QPSK



16QAM

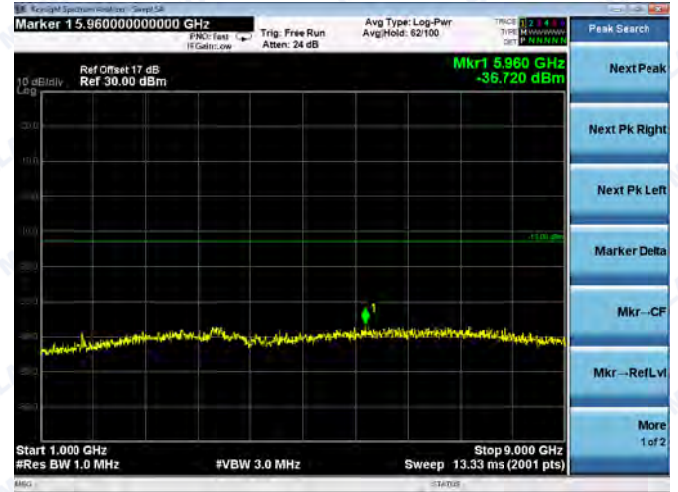
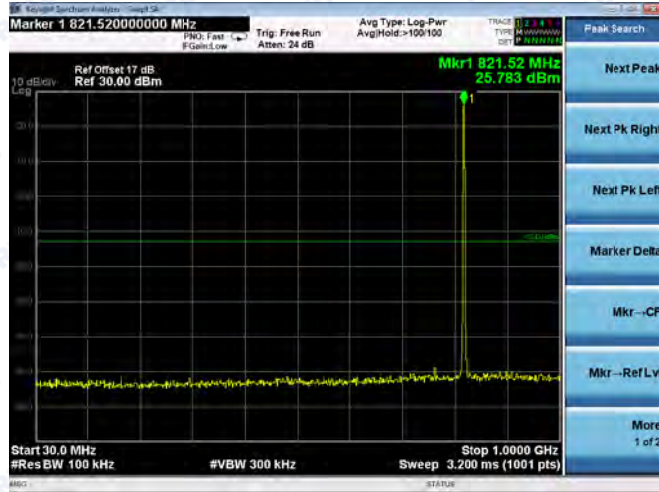




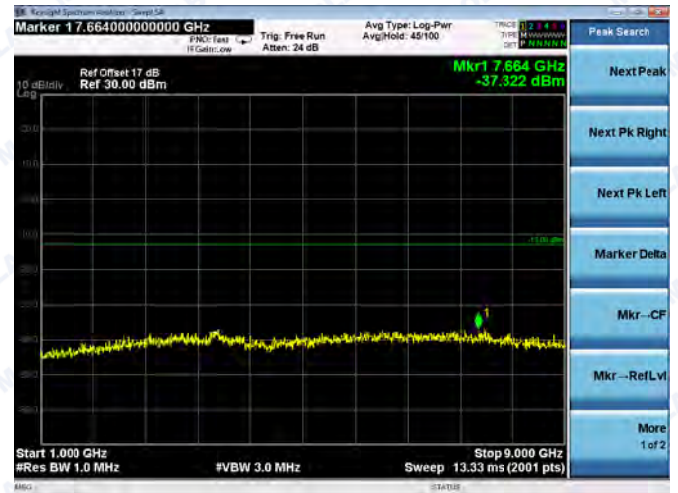
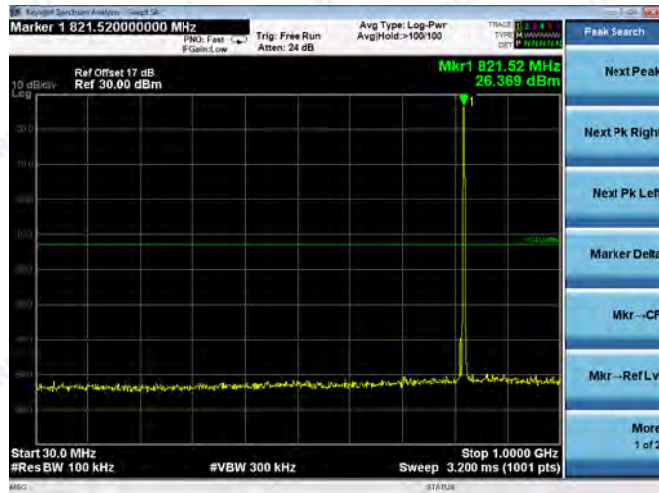
REPORT No.: SZ15080082W02

LTE Band 26 (Part 90s) 5MHz BW High Channel

QPSK



16QAM

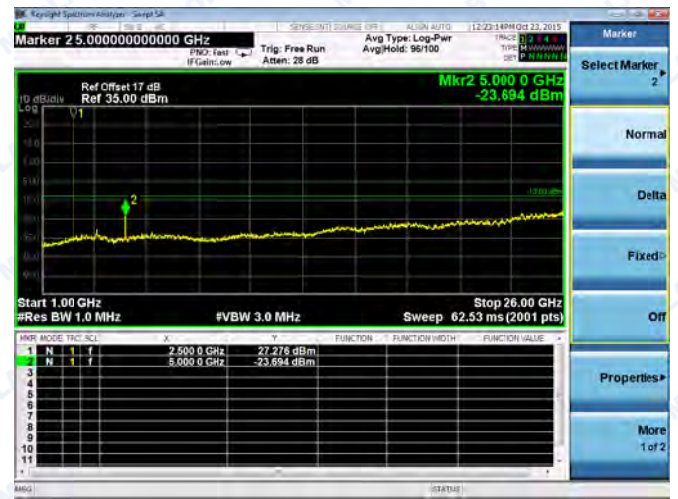




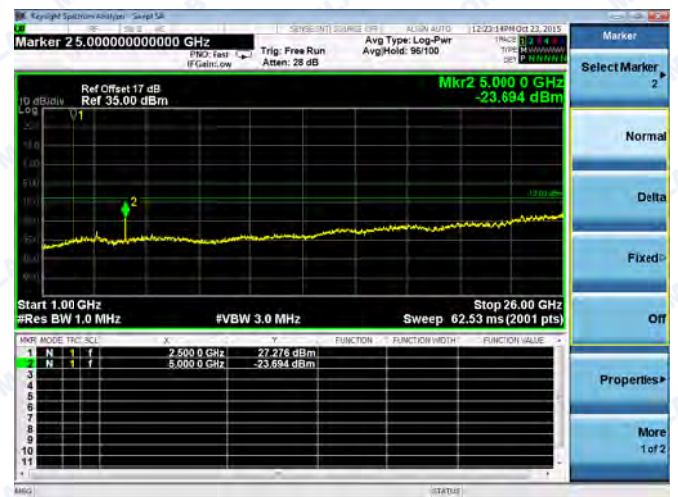
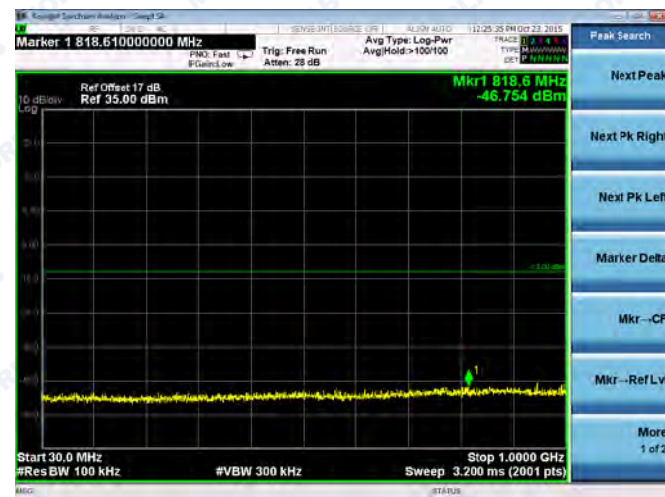
REPORT No.: SZ15080082W02

LTE Band 41 5MHz BW Low Channel

QPSK



16QAM

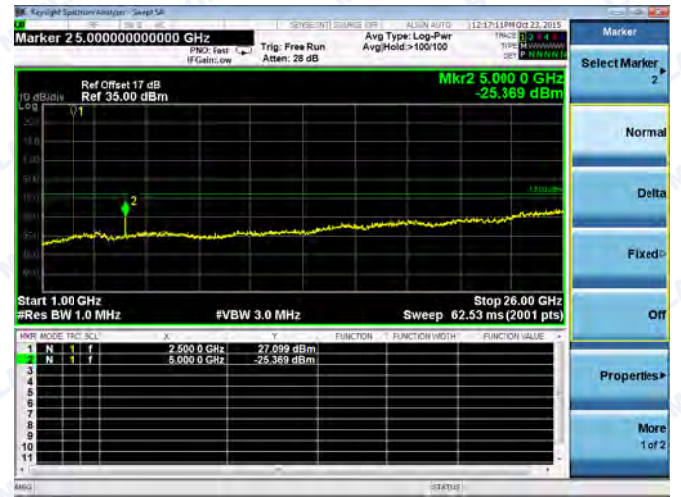




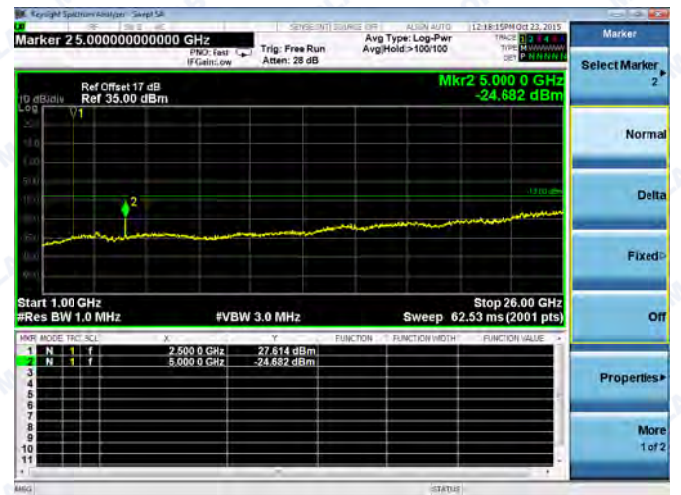
REPORT No.: SZ15080082W02

LTE Band 41 10MHz BW Low Channel

QPSK



16QAM

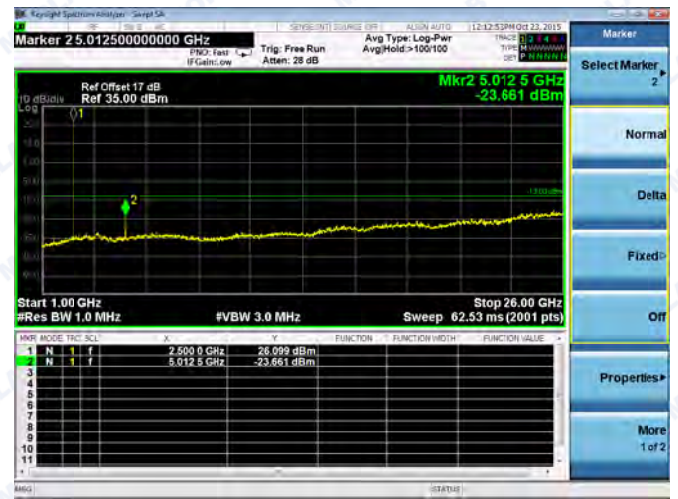




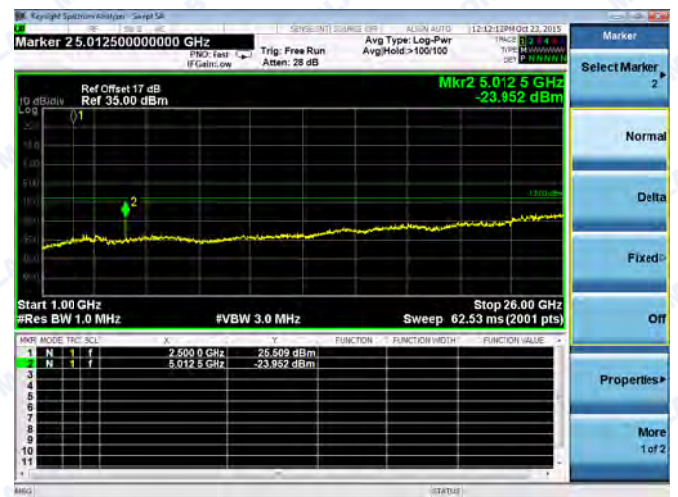
REPORT No.: SZ15080082W02

LTE Band 41 15MHz BW Low Channel

QPSK



16QAM

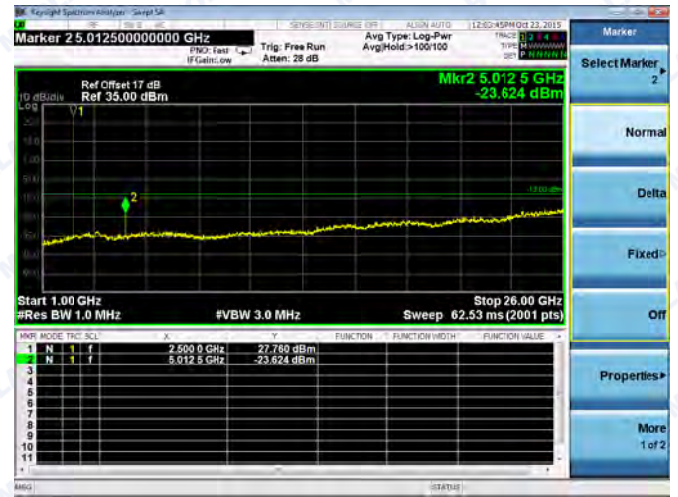
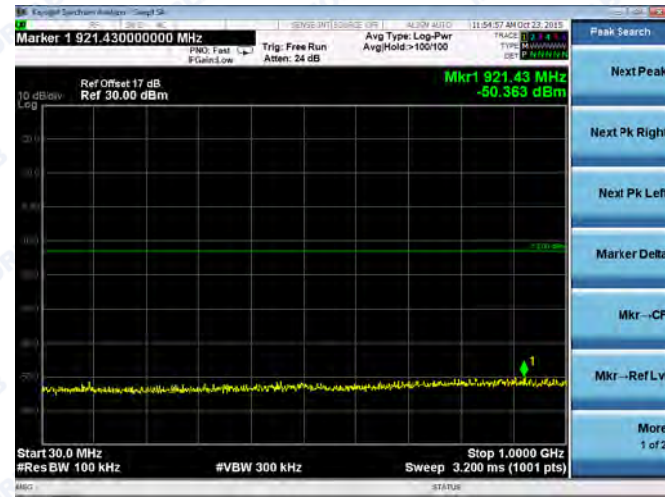




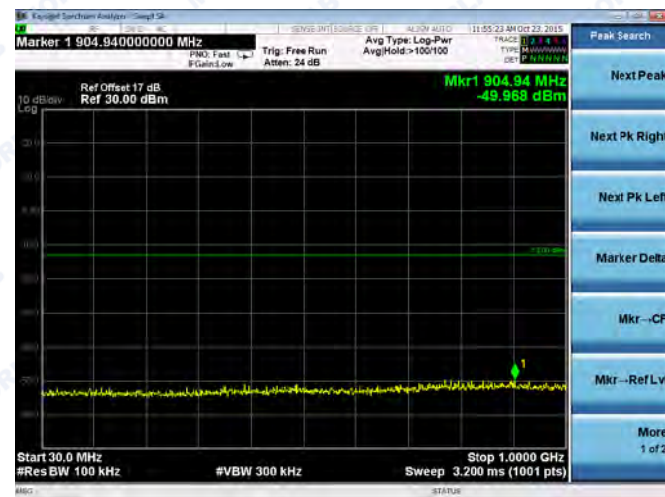
REPORT No.: SZ15080082W02

LTE Band 41 20MHz BW Low Channel

QPSK



16QAM



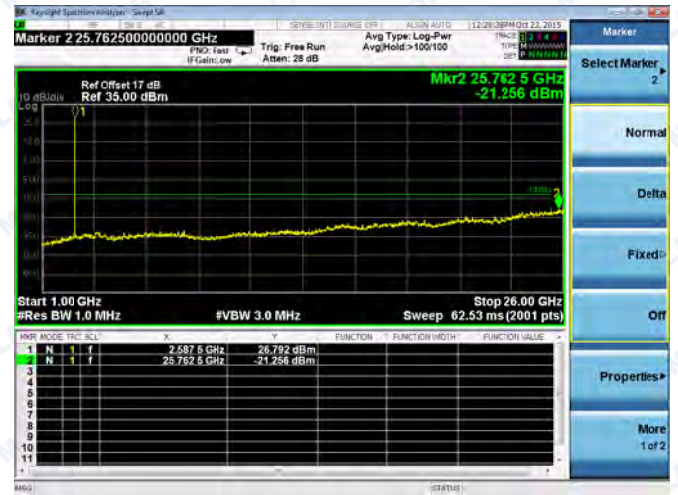


REPORT No.: SZ15080082W02

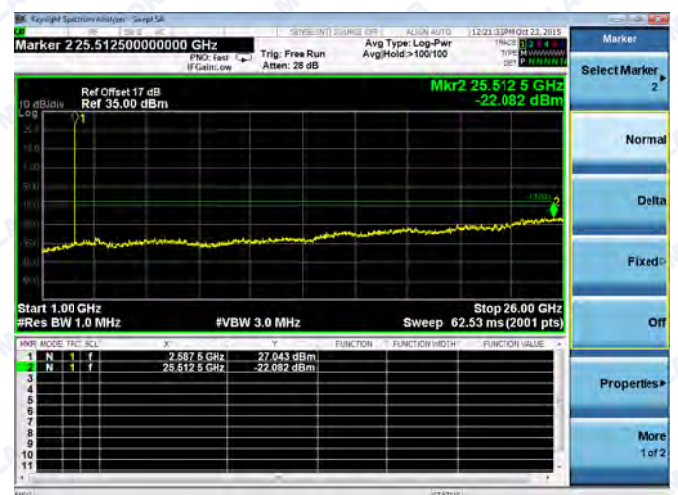
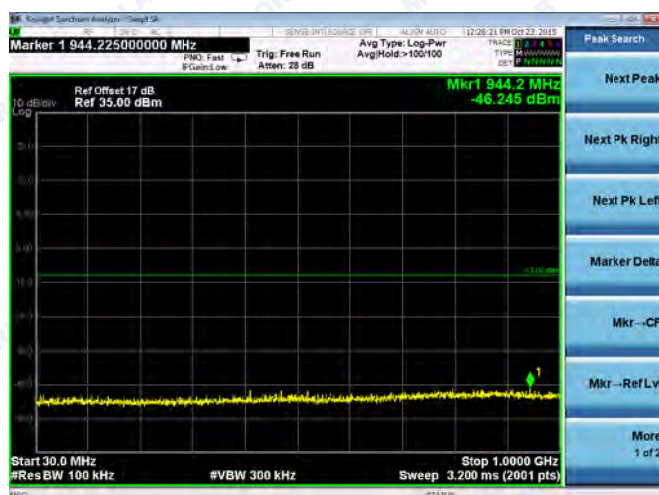
Middle channel:

LTE Band 41 5MHz BW Mid Channel

QPSK



16QAM

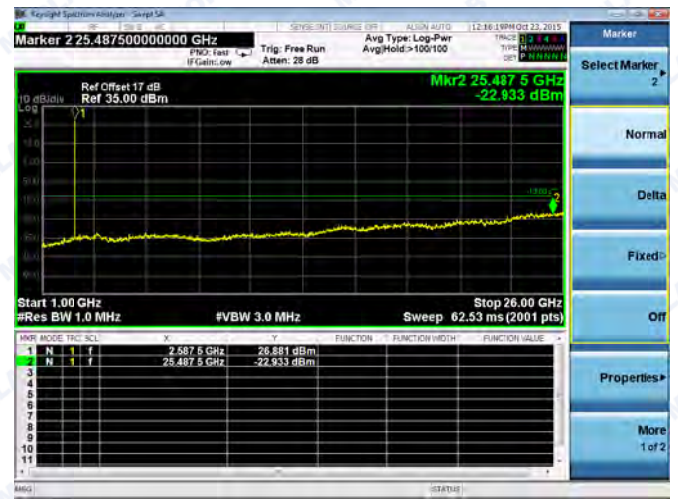




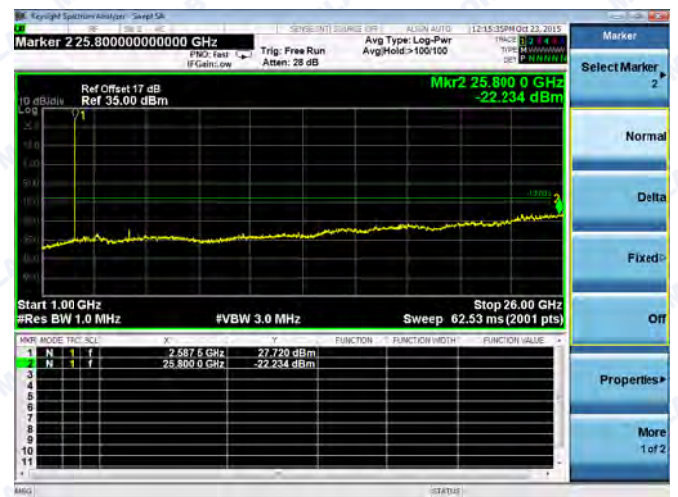
REPORT No.: SZ15080082W02

LTE Band 41 10MHz BW Mid Channel

QPSK



16QAM

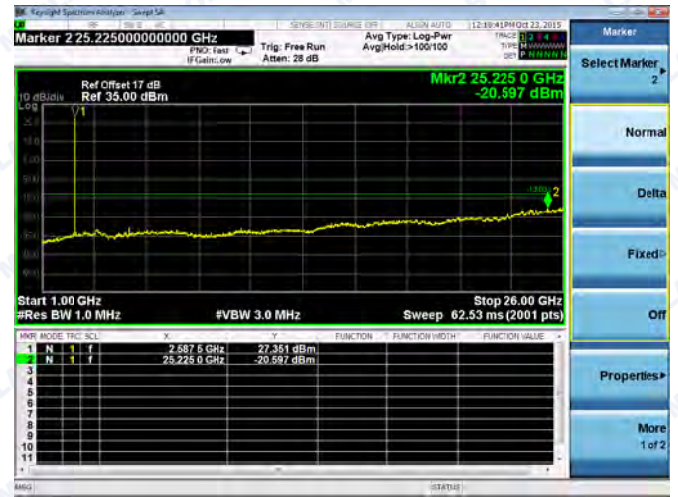
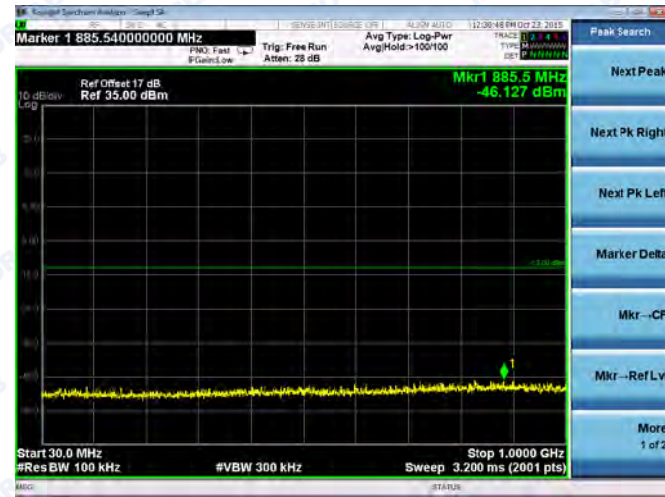




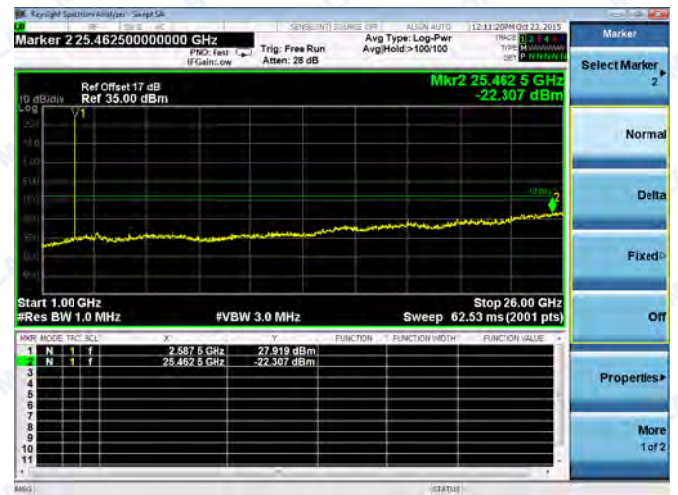
REPORT No.: SZ15080082W02

LTE Band 41 15MHz BW Mid Channel

QPSK



16QAM

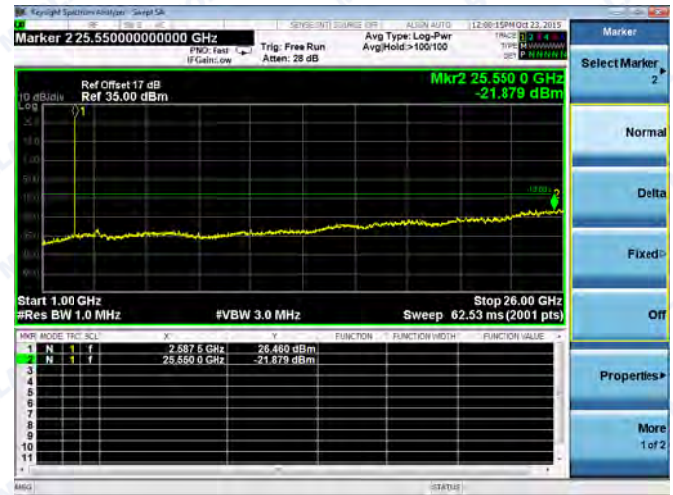
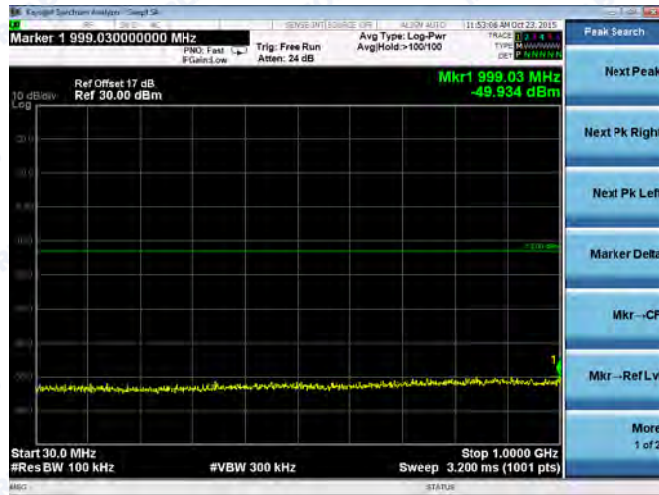




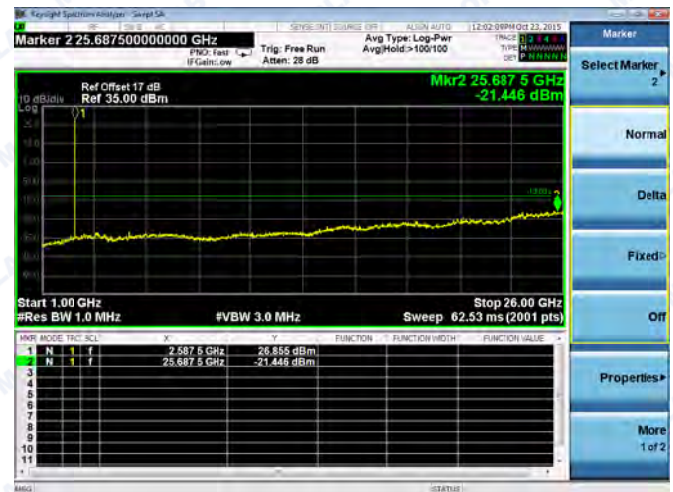
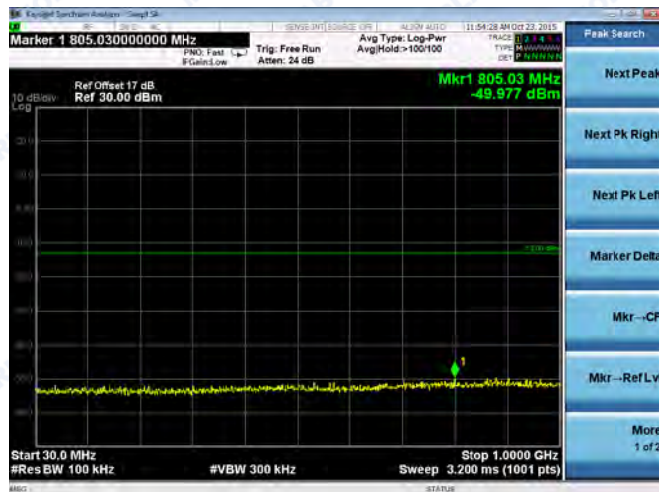
REPORT No.: SZ15080082W02

LTE Band 41 20MHz BW Mid Channel

QPSK



16QAM

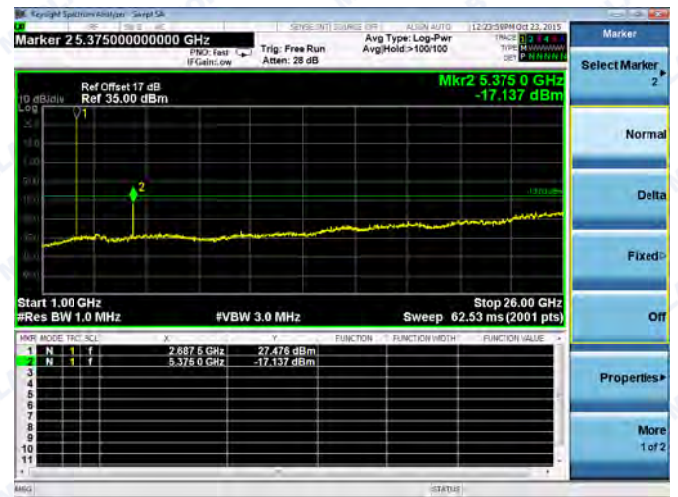
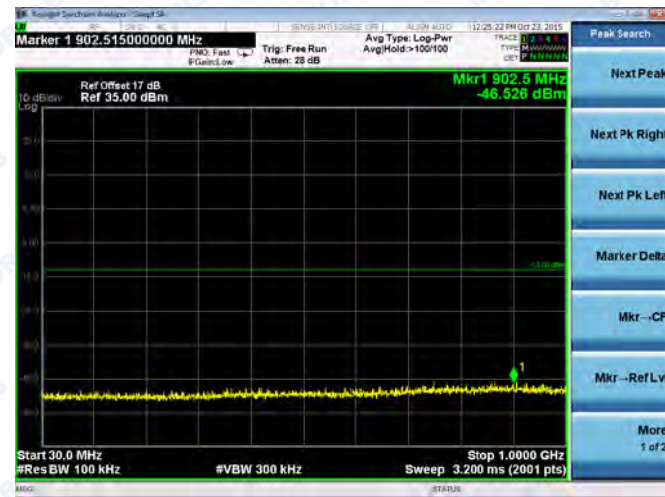




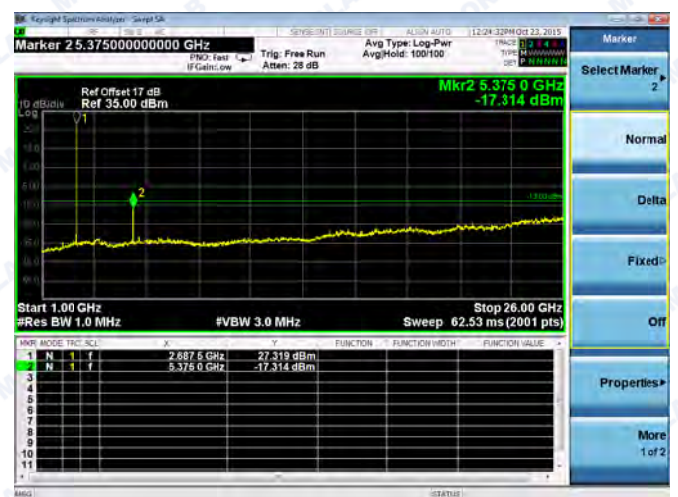
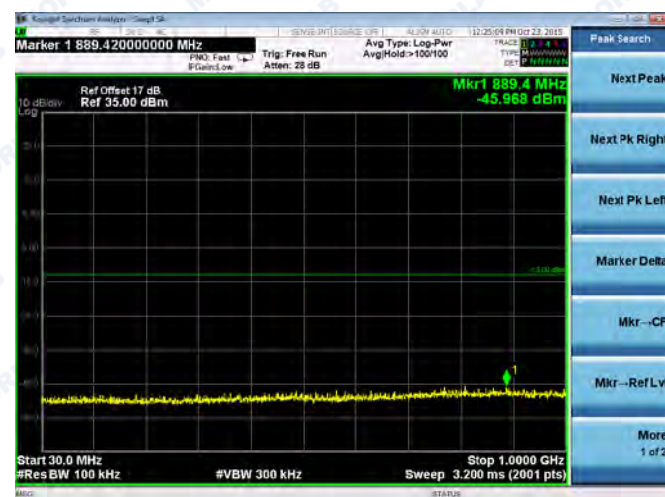
REPORT No.: SZ15080082W02

LTE Band 41 5MHz BW High Channel

QPSK



16QAM

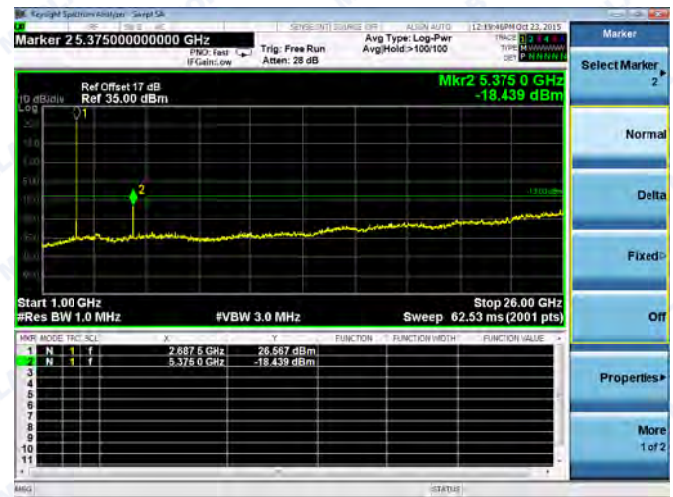




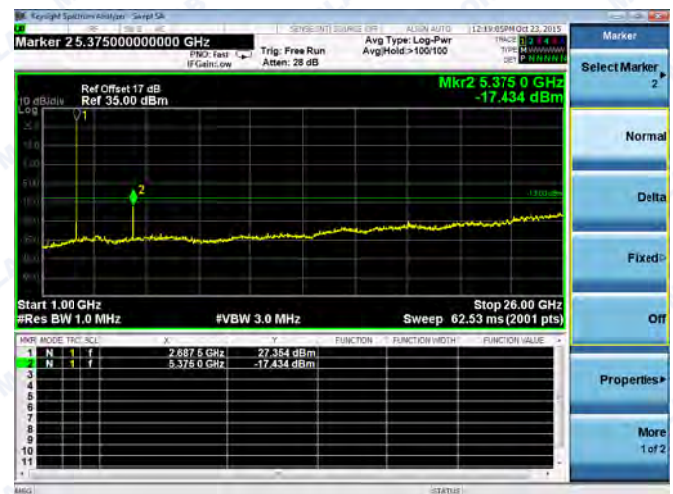
REPORT No.: SZ15080082W02

LTE Band 41 10MHz BW High Channel

QPSK



16QAM

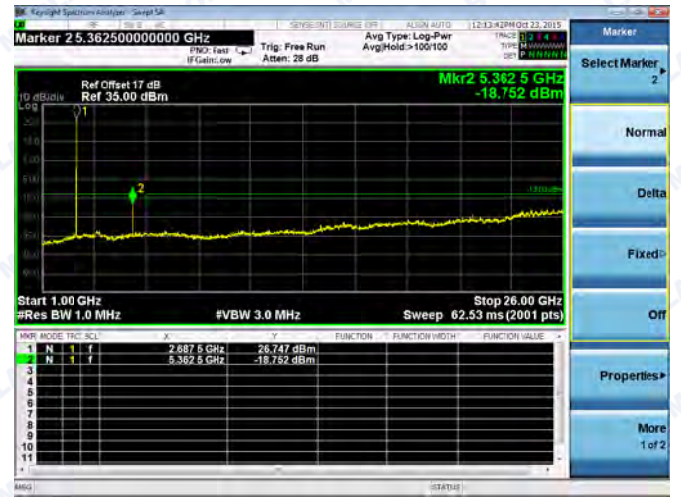
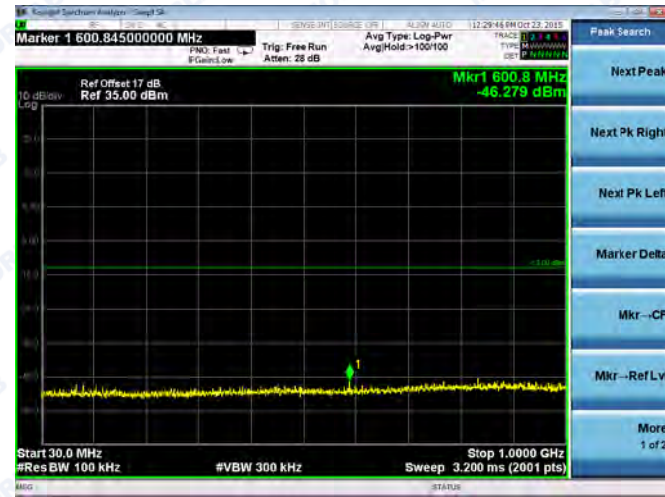




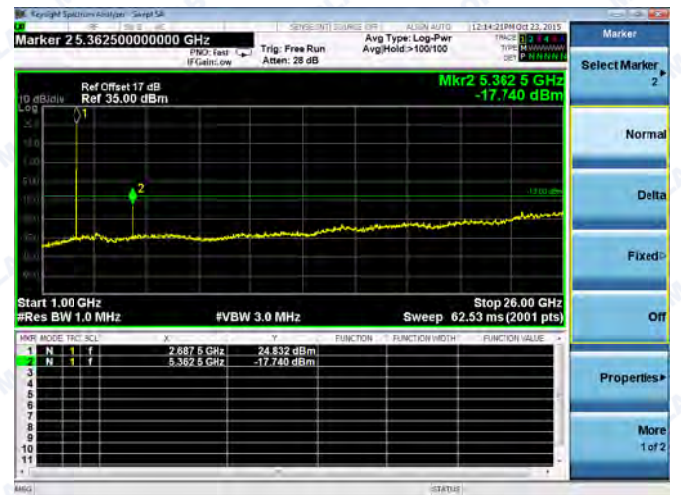
REPORT No.: SZ15080082W02

LTE Band 41 15MHz BW High Channel

QPSK



16QAM

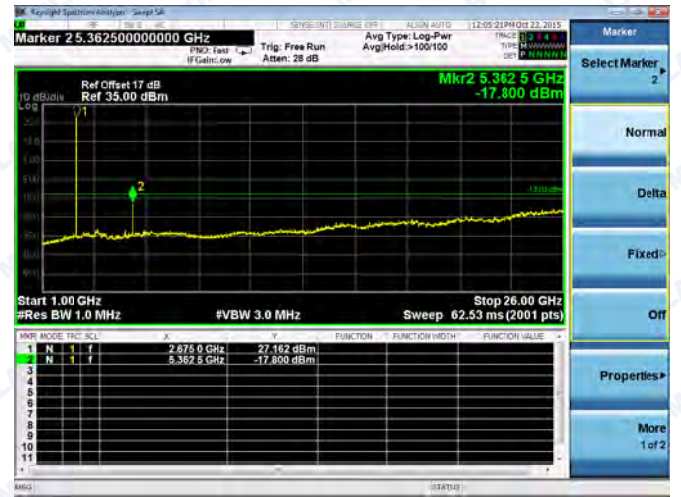
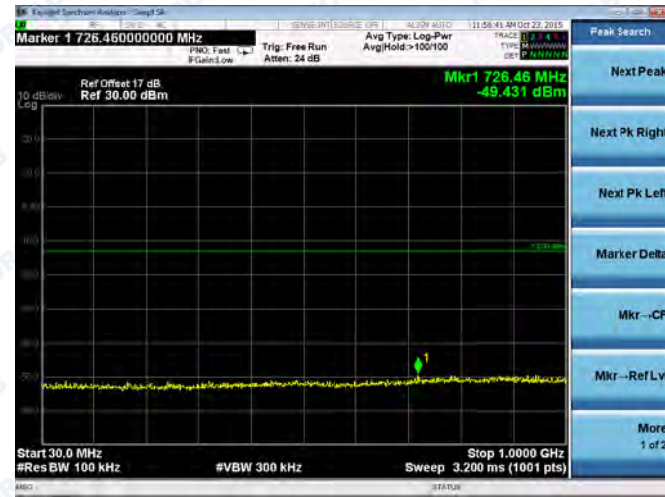




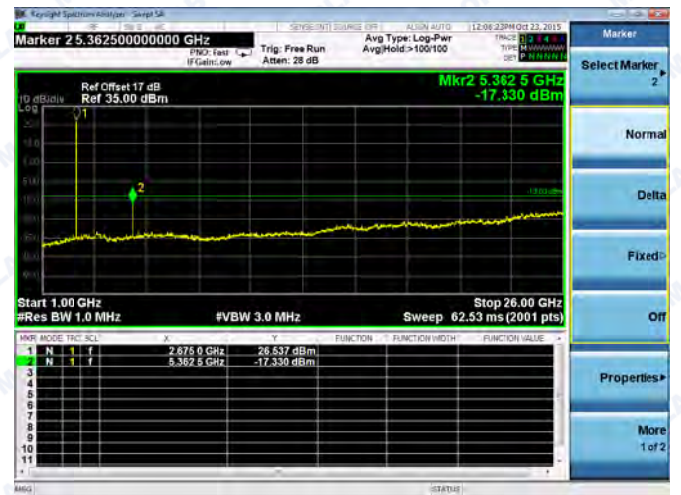
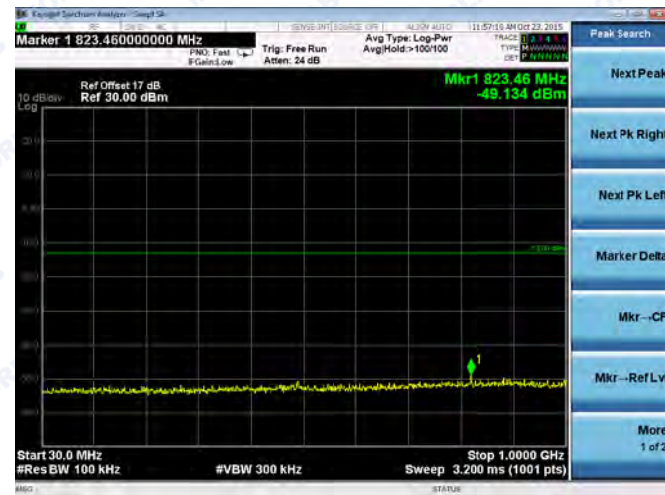
REPORT No.: SZ15080082W02

LTE Band 41 20MHz BW High Channel

QPSK



16QAM





2.6 Band Edge

2.6.1 Requirement

According to FCC section 27.53(g) (h), (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) For operations in the 1710–1755 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

According to FCC section 27.53(m) (4), (m) (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

2.6.2 Test Description

See section 2.1.2 of this report.

2.6.3 Test Result

The center frequency of spectrum is the band edge frequency and span is 2MHz, Record the max trace into the test report.

PASS. See the attached plots.

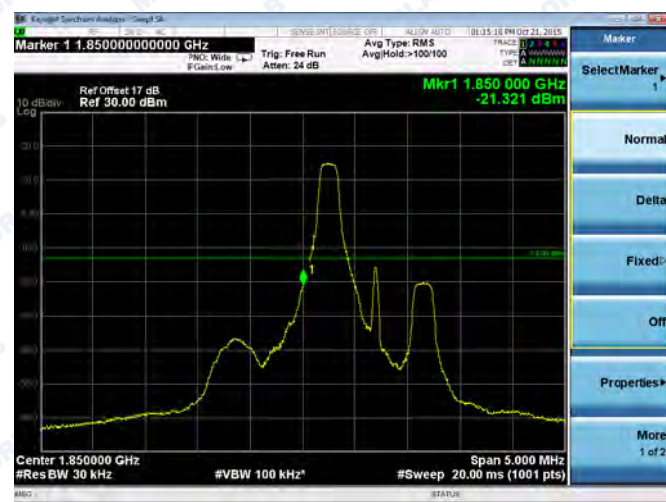


REPORT No.: SZ15080082W02

LTE Band 25

Channel Bandwidth: 1.4MHz

Channel	26407	RB Size 1	RB Offset 0	Channel	26407	RB Size 6	RB Offset 0
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Channel Bandwidth: 1.4MHz

Channel	26683	RB Size 1	RB Offset 5	Channel	26683	RB Size 6	RB Offset 0
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