



FCC RF Test Report

APPLICANT : Essential Products Inc.
EQUIPMENT : Smartphone
BRAND NAME : Essential
MODEL NAME : A11
FCC ID : 2ALBB-A11
STANDARD : 47 CFR Part 2, 27M
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jul. 06, 2017 and completely tested on Jul. 08, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.
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REVISION HISTORY



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 7) (Band 38) (Band 41)	EIRP < 2Watt		
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7) (Band 38) (Band 41)	§27.53(m)(4)	PASS	-
3.8	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log ₁₀ (P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log ₁₀ (P[Watts])	PASS	Under limit 17.06 dB at 12654.000 MHz



1 General Description

1.1 Applicant

Essential Products Inc.

380 Portage Ave., Palo Alto, CA 94306, USA

1.2 Manufacturer

FIH Mobile Limited

No. 4, Mingsheng St., Tu-Cheng Dist., New Taipei City 23679, Taiwan

1.3 Product Feature of Equipment Under Test

GSM/WCDMA/CDMA2000/LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n, Wi-Fi 5GHz 802.11a/n/ac, NFC, GPS, and WiGig.

Product Specification subjective to this standard	
Antenna Type	WWAN: PIFA Antenna WLAN: Monopole Antenna Bluetooth: Monopole Antenna GPS/Glonass/Galileo/Beidou : Monopole Antenna NFC: Loop Antenna WiGig : Built in Antenna

Remark: This is a variant report which can be referred Product Equality Declaration. All the test cases were performed on original report which can be referred to Sporton Report Number FG740822. Based on the original report, only worst case was verified.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.



1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No.
	TH05-HY

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	Sporton Site No.
	03CH11-HY

1.6 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 2, 27M
- ♦ ANSI / TIA / EIA-603-D-2010
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

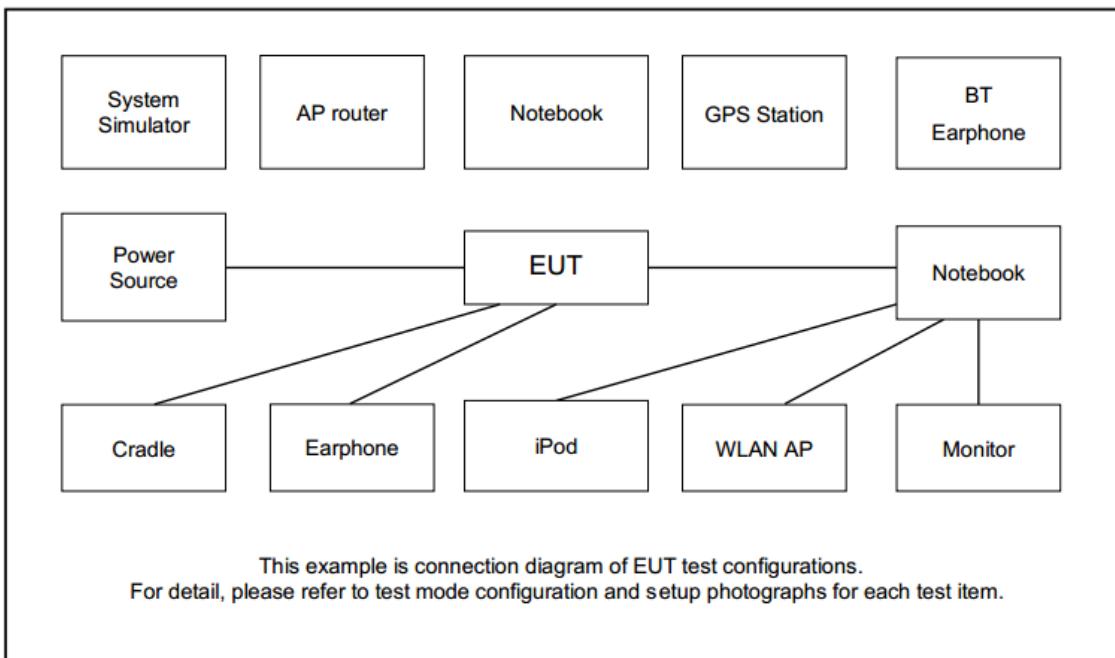
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)										Modulation			RB #			Test Channel		
		20+20	20+15	15+20	20+10	10+20	20+5	5+20	15+15	QPSK	16QAM	64QAM	1	Half	Full	L	M	H		
Max. Output Power	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
26dB and 99% Bandwidth	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Conducted Band Edge	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Conducted Spurious Emission	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
E.I.R.P.	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Radiated Spurious Emission	7_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	38_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
	41_CA	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v		
Note	1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.																			

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\text{Offset(dB)} = \text{RF cable loss(dB)} + \text{attenuator factor(dB)}.$$

$$= 4.2 + 10 = 14.2 \text{ (dB)}$$



2.5 Frequency List of Low/Middle/High Channels

LTE Band 7 Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	20850	21001	21152
		Frequency	2510.0	2525.1	2540.2
	SCC	Channel	21048	21199	21350
		Frequency	2529.8	2544.9	2560.0
20 + 15	PCC	Channel	20850	21026	21201
		Frequency	2510.0	2527.6	2545.1
	SCC	Channel	21021	21197	21372
		Frequency	2527.1	2544.7	2562.2
15 + 20	PCC	Channel	20828	21003	21179
		Frequency	2507.8	2525.3	2542.9
	SCC	Channel	20999	21174	21350
		Frequency	2524.9	2542.4	2560.0
20 + 10	PCC	Channel	20850	21051	21251
		Frequency	2510.0	2530.1	2550.1
	SCC	Channel	20994	21195	21395
		Frequency	2524.4	2544.5	2564.5
10 + 20	PCC	Channel	20805	21006	21206
		Frequency	2505.5	2525.6	2545.6
	SCC	Channel	20949	21150	21350
		Frequency	2519.9	2540.0	2560.0
15 + 15	PCC	Channel	20825	21025	21225
		Frequency	2507.5	2527.5	2547.5
	SCC	Channel	20975	21175	21375
		Frequency	2522.5	2542.5	2562.5
15 + 10	PCC	Channel	20825	21051	21277
		Frequency	2507.5	2530.1	2552.7
	SCC	Channel	20945	21171	21397
		Frequency	2519.5	2542.1	2564.7



LTE Band 38 Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	37850	37901	37952
		Frequency	2580	2585.1	2590.2
	SCC	Channel	38048	38099	38150
		Frequency	2599.8	2604.9	2610
15+ 15	PCC	Channel	37825	37925	38025
		Frequency	2577.5	2587.5	2597.5
	SCC	Channel	37975	38075	38175
		Frequency	2592.5	2602.5	2612.5



LTE Band 41 Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
20 + 20	PCC	Channel	39750	40521	41292
		Frequency	2506	2583.1	2660.2
	SCC	Channel	39948	40719	41490
		Frequency	2525.8	2602.9	2680
20 + 15	PCC	Channel	39750	40546	41341
		Frequency	2506	2585.6	2665.1
	SCC	Channel	39921	40717	41512
		Frequency	2523.1	2602.7	2682.2
15 + 20	PCC	Channel	39728	40523	41319
		Frequency	2503.8	2583.3	2662.9
	SCC	Channel	39899	40694	41490
		Frequency	2520.9	2600.4	2680
20 + 10	PCC	Channel	39750	40571	41391
		Frequency	2506	2588.1	2670.1
	SCC	Channel	39894	40715	41535
		Frequency	2520.4	2602.5	2684.5
10 + 20	PCC	Channel	39705	40526	41346
		Frequency	2501.5	2583.6	2665.6
	SCC	Channel	39849	40670	41490
		Frequency	2515.9	2598	2680
15+ 15	PCC	Channel	39725	40545	41365
		Frequency	2503.5	2585.5	2667.5
	SCC	Channel	39875	40695	41515
		Frequency	2518.5	2600.5	2682.5
5 + 20	PCC	Channel	39683	40528	41373
		Frequency	2499.3	2583.8	2668.3
	SCC	Channel	39800	40645	41490
		Frequency	2511	2595.5	2680
20 + 5	PCC	Channel	39750	40595	41440
		Frequency	2506	2590.5	2675
	SCC	Channel	39867	40712	41557
		Frequency	2517.7	2602.2	2686.7

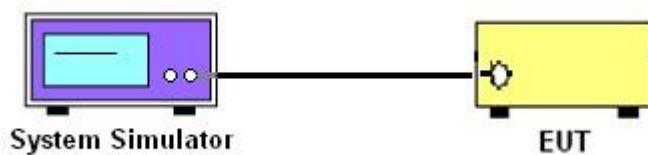
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.



3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 7 and Band 38 and Band 41.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



3.5 Occupied Bandwidth

3.5.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.



3.6 Conducted Band Edge

3.6.1 Description of Conducted Band Edge Measurement

27.53(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.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

The limit line is derived from $43 + 10\log(P)\text{dB}$ below the transmitter power P(Watts)

9. For LTE Band 7, 38, 41, the other 40 dB, and 55 dB have additionally applied same calculation above.



3.7 Conducted Spurious Emission

3.7.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log(P)$ dB.

For Band 7,38,41:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $55 + 10 \log(P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 6.0.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
11. For Band 7, 38, 41
The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)

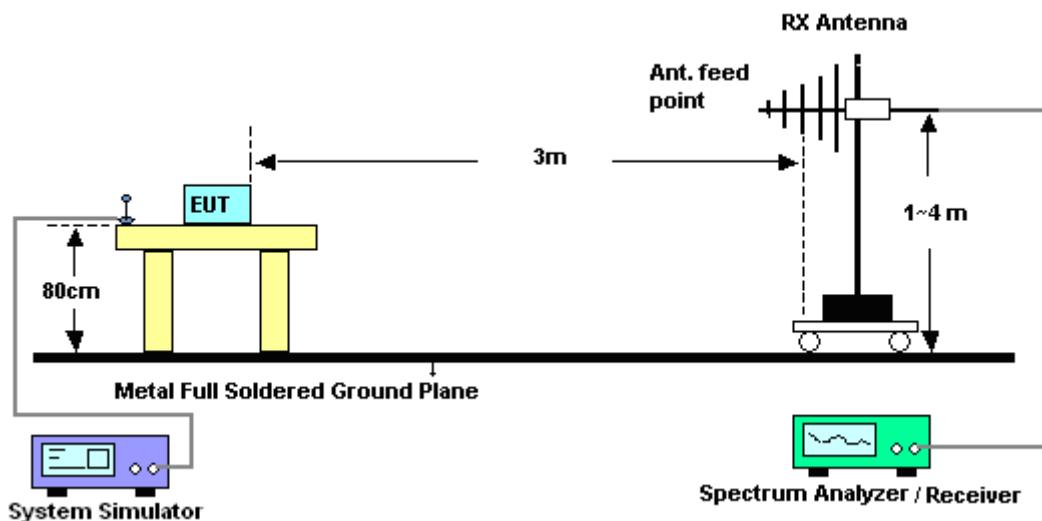
4 Radiated Test Items

4.1 Measuring Instruments

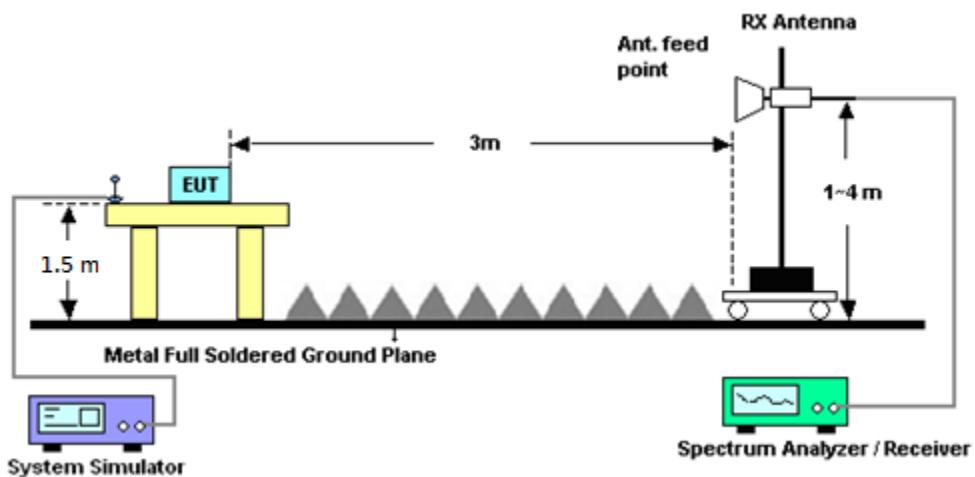
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.



4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-D-2010. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For Band 7, 38, 41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $55 + 10 \log (P)$ dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
12. For Band 7, 38, 41:
The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
 $EIRP (\text{dBm}) = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
 $ERP (\text{dBm}) = EIRP - 2.15$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	6201432821	GSM/GPRS /WCDMA/LTE	Oct. 11, 2016	Apr. 08, 2017 ~ Jun. 01, 2017	Oct. 10, 2017	Conducted (TH05-HY)
Base Station (Measure)	Anritsu	MT8821C	6201664755	GSM / GPRS /WCDMA / LTE FDD/TDD with 44) /LTE-3CC DLCA,2CC ULCA	Mar. 23, 2017	Apr. 08, 2017 ~ Jun. 01, 2017	Mar. 22, 2018	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 04, 2016	Apr. 08, 2017 ~ Jun. 01, 2017	Nov. 03, 2017	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SH-641	92013720	-30°C ~70°C	Sep. 01, 2016	Apr. 08, 2017 ~ Jun. 01, 2017	Aug. 31, 2017	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890001	1V~20V 0.5A~5A	Oct. 03, 2016	Apr. 08, 2017 ~ Jun. 01, 2017	Oct. 02, 2017	Conducted (TH05-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Jul. 08, 2017	Nov. 09, 2017	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D&N-6-06	35414&AT-N0 602	30MHz~1GHz	Oct. 15, 2016	Jul. 08, 2017	Oct. 14, 2017	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 07, 2016	Jul. 08, 2017	Oct. 06, 2017	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 10, 2016	Jul. 08, 2017	Nov. 09, 2017	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHz	Oct. 12, 2016	Jul. 08, 2017	Oct. 11, 2017	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jul. 08, 2017	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jul. 08, 2017	N/A	Radiation (03CH11-HY)
Preamplifier	MITEQ	TTA 1840-35-HG	1887435	18GHz ~ 40GHz	Oct. 13, 2016	Jul. 08, 2017	Oct. 12, 2017	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917058 4	18GHz- 40GHz	Nov. 08, 2016	Jul. 08, 2017	Nov. 07, 2017	Radiation (03CH11-HY)



6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{\text{C}}(y)$)	5.20
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{\text{C}}(y)$)	5.50
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_{\text{C}}(y)$)	5.20
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 7_CA Maximum Average Power [dBm]								
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest
	RB Size	RB Offset	RB Size	RB Offset				
20+20	0	0	1	99	QPSK	24.37	24.37	24.47
20+20	1	0	0	0		24.96	24.90	24.99
20+20	100	0	0	0		23.85	23.75	23.87
20+20	100	0	100	0		22.79	23.21	24.15
20+20	1	0	1	99		19.41	19.58	19.44
20+20	1	0	1	0		19.96	20.00	19.94
20+20	1	99	1	0		24.23	24.41	24.18
20+20	100	0	1	99		20.95	20.98	20.88
20+20	0	0	1	99	16-QAM	23.85	23.80	23.85
20+20	1	0	0	0		24.36	24.42	24.29
20+20	100	0	0	0		22.83	22.92	22.90
20+20	100	0	100	0		22.34	22.40	23.65
20+20	1	0	1	99		19.61	19.58	19.42
20+20	1	0	1	0		19.99	19.97	19.89
20+20	1	99	1	0		23.94	23.76	23.68
20+20	100	0	1	99		20.77	20.85	20.70
20+20	0	0	1	99	64-QAM	22.79	22.70	22.77
20+20	1	0	0	0		23.27	23.22	23.28
20+20	100	0	0	0		21.91	21.88	21.94
20+20	100	0	100	0		21.20	21.37	20.30
20+20	1	0	1	99		18.16	18.27	18.34
20+20	1	0	1	0		18.68	18.69	18.59
20+20	1	99	1	0		20.21	20.52	20.32
20+20	100	0	1	99		20.90	20.97	20.97
20+15	100	0	75	0	QPSK	22.75	22.66	22.67
20+15	1	0	1	74		19.45	19.35	19.44
20+15	1	99	1	0		24.30	24.26	24.28
20+15	100	0	75	0	16-QAM	22.30	22.22	22.23
20+15	1	0	1	74		19.60	19.55	19.56
20+15	1	99	1	0		23.90	23.88	23.80
20+15	100	0	75	0	64-QAM	21.20	21.15	21.15
20+15	1	0	1	74		18.26	18.25	18.16
20+15	1	99	1	0		20.21	20.50	20.31



LTE Band 7_CA Maximum Average Power [dBm]								
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest
	RB Size	RB Offset	RB Size	RB Offset				
15+20	75	0	100	0	QPSK	22.72	22.59	22.58
15+20	1	0	1	99		19.41	19.28	19.36
15+20	1	74	1	0		24.27	24.20	24.19
15+20	75	0	100	0	16-QAM	22.25	22.13	22.23
15+20	1	0	1	99		19.54	19.46	19.50
15+20	1	74	1	0		23.80	23.80	23.71
15+20	75	0	100	0	64-QAM	21.20	21.15	21.09
15+20	1	0	1	99		18.19	18.24	18.09
15+20	1	74	1	0		20.22	20.45	20.36
20+10	100	0	50	0	QPSK	22.69	22.65	22.61
20+10	1	0	1	49		19.41	19.35	19.35
20+10	1	99	1	0		24.29	24.21	24.28
20+10	100	0	50	0	16-QAM	22.29	22.19	22.16
20+10	1	0	1	49		19.54	19.46	19.47
20+10	1	99	1	0		23.87	23.87	23.70
20+10	100	0	50	0	64-QAM	21.14	21.14	21.08
20+10	1	0	1	49		18.26	18.21	18.12
20+10	1	99	1	0		20.19	20.43	20.33
10+20	50	0	100	0	QPSK	22.65	22.58	22.64
10+20	1	0	1	99		19.45	19.29	19.44
10+20	1	49	1	0		24.24	24.18	24.24
10+20	50	0	100	0	16-QAM	22.28	22.22	22.13
10+20	1	0	1	99		19.55	19.52	19.54
10+20	1	49	1	0		23.86	23.79	23.72
10+20	50	0	100	0	64-QAM	21.14	21.07	21.13
10+20	1	0	1	99		18.23	18.23	18.16
10+20	1	49	1	0		20.22	20.49	20.29
15+15	75	0	75	0	QPSK	22.66	22.62	22.62
15+15	1	0	1	74		19.41	19.29	19.44
15+15	1	74	1	0		24.28	24.23	24.23
15+15	75	0	75	0	16-QAM	22.27	22.16	22.14
15+15	1	0	1	74		19.58	19.53	19.51
15+15	1	74	1	0		23.90	23.83	23.74
15+15	75	0	75	0	64-QAM	21.15	21.11	21.10
15+15	1	0	1	74		18.17	18.15	18.12
15+15	1	74	1	0		20.23	20.31	20.36
15+10	75	0	50	0	QPSK	22.69	22.60	22.63
15+10	1	0	1	49		19.37	19.27	19.42
15+10	1	74	1	0		24.23	24.19	24.20
15+10	75	0	50	0	16-QAM	22.24	22.22	22.20
15+10	1	0	1	49		19.57	19.55	19.55
15+10	1	74	1	0		23.88	23.84	23.77
15+10	75	0	50	0	64-QAM	21.10	21.14	21.11
15+10	1	0	1	49		18.21	18.15	18.15
15+10	1	74	1	0		20.36	20.33	20.26



LTE Band 38_CA Maximum Average Power [dBm]								
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest
	RB Size	RB Offset	RB Size	RB Offset				
20+20	0	0	1	99	QPSK	23.99	24.08	24.09
20+20	1	0	0	0		24.90	24.91	24.90
20+20	100	0	0	0		24.13	24.18	24.22
20+20	100	0	100	0		23.53	23.63	23.46
20+20	1	0	1	99		19.43	19.77	19.53
20+20	1	0	1	0		20.47	20.51	20.47
20+20	1	99	1	0		24.90	24.90	24.88
20+20	100	0	1	99		21.20	21.15	21.16
20+20	0	0	1	99	16-QAM	23.10	23.17	23.10
20+20	1	0	0	0		24.87	24.78	24.88
20+20	100	0	0	0		23.18	23.28	23.24
20+20	100	0	100	0		22.77	22.77	22.61
20+20	1	0	1	99		19.44	19.83	19.60
20+20	1	0	1	0		20.52	20.43	20.48
20+20	1	99	1	0		24.32	24.42	24.41
20+20	100	0	1	99		21.10	21.17	21.19
20+20	0	0	1	99	64-QAM	21.69	21.74	21.71
20+20	1	0	0	0		23.59	23.55	23.61
20+20	100	0	0	0		22.16	22.17	22.13
20+20	100	0	100	0		21.82	21.56	21.43
20+20	1	0	1	99		17.98	18.36	18.19
20+20	1	0	1	0		19.11	19.04	19.06
20+20	1	99	1	0		21.87	21.69	21.67
20+20	100	0	1	99		21.05	21.09	21.07
15+15	75	0	75	0	QPSK	23.50	23.41	23.42
15+15	1	0	1	74		19.40	19.35	19.37
15+15	1	74	1	0		24.88	24.88	24.83
15+15	75	0	75	0	16QAM	22.71	22.66	22.71
15+15	1	0	1	74		19.41	19.38	19.37
15+15	1	74	1	0		24.36	24.31	24.34
15+15	75	0	75	0	64QAM	21.80	21.76	21.73
15+15	1	0	1	74		17.99	17.94	17.95
15+15	1	74	1	0		21.82	21.82	21.75



LTE Band 41_CA Maximum Average Power [dBm]								
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest
	RB Size	RB Offset	RB Size	RB Offset				
20+20	0	0	1	99	QPSK	25.48	25.54	25.38
20+20	1	0	0	0		25.70	25.70	25.75
20+20	100	0	0	0		24.84	24.78	24.92
20+20	100	0	100	0		23.83	23.80	23.81
20+20	1	0	1	99		20.98	20.81	20.70
20+20	1	0	1	0		21.22	21.32	21.12
20+20	1	99	1	0		25.50	25.40	25.39
20+20	100	0	1	99		21.86	21.82	21.81
20+20	0	0	1	99	16-QAM	25.03	25.06	25.04
20+20	1	0	0	0		25.48	25.53	25.45
20+20	100	0	0	0		23.84	23.78	23.82
20+20	100	0	100	0		23.28	23.21	23.05
20+20	1	0	1	99		20.99	20.85	20.80
20+20	1	0	1	0		21.27	21.37	21.24
20+20	1	99	1	0		25.49	25.50	25.46
20+20	100	0	1	99		22.04	22.12	22.02
20+20	0	0	1	99	64-QAM	23.78	23.68	23.83
20+20	1	0	0	0		24.28	24.27	24.33
20+20	100	0	0	0		22.84	22.94	22.94
20+20	100	0	100	0		22.44	22.31	22.22
20+20	1	0	1	99		19.63	19.41	19.38
20+20	1	0	1	0		19.90	19.81	19.85
20+20	1	99	1	0		21.00	21.00	21.01
20+20	100	0	1	99		21.98	22.04	21.92
20+15	100	0	75	0	QPSK	23.83	23.79	23.73
20+15	1	0	1	74		21.02	20.97	20.99
20+15	1	99	1	0		25.43	25.33	25.33
20+15	100	0	75	0	16QAM	23.21	23.21	23.16
20+15	1	0	1	74		20.98	20.96	20.92
20+15	1	99	1	0		25.41	25.34	25.40
20+15	100	0	75	0	64QAM	22.41	22.31	22.33
20+15	1	0	1	74		19.61	19.51	19.55
20+15	1	99	1	0		21.00	21.02	21.06
15+20	75	0	100	0	QPSK	23.73	23.72	23.65
15+20	1	0	1	99		20.94	20.93	20.98
15+20	1	74	1	0		25.33	25.23	25.30
15+20	75	0	100	0	16QAM	23.12	23.18	23.16
15+20	1	0	1	99		20.89	20.90	20.92
15+20	1	74	1	0		25.32	25.34	25.36
15+20	75	0	100	0	64QAM	22.38	22.22	22.26
15+20	1	0	1	99		19.58	19.50	19.47
15+20	1	74	1	0		21.06	21.03	21.01



LTE Band 41_CA Maximum Average Power [dBm]								
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest
	RB Size	RB Offset	RB Size	RB Offset				
20+10	100	0	50	0	QPSK	23.78	23.70	23.64
20+10	1	0	1	49		20.97	20.95	20.94
20+10	1	99	1	0		25.34	25.23	25.24
20+10	100	0	50	0	16QAM	23.18	23.17	23.10
20+10	1	0	1	49		20.88	20.90	20.89
20+10	1	99	1	0		25.34	25.34	25.34
20+10	100	0	50	0	64QAM	22.39	22.28	22.31
20+10	1	0	1	49		19.59	19.42	19.46
20+10	1	99	1	0		21.03	21.05	21.08
10+20	50	0	100	0	QPSK	23.81	23.72	23.72
10+20	1	0	1	99		20.99	20.89	20.93
10+20	1	49	1	0		25.33	25.29	25.27
10+20	50	0	100	0	16QAM	23.18	23.11	23.11
10+20	1	0	1	99		20.88	20.96	20.92
10+20	1	49	1	0		25.32	25.33	25.35
10+20	50	0	100	0	64QAM	22.33	22.25	22.27
10+20	1	0	1	99		19.54	19.41	19.50
10+20	1	49	1	0		21.09	21.06	21.04
20+5	100	0	25	0	QPSK	23.83	23.77	23.66
20+5	1	0	1	24		21.02	20.93	20.93
20+5	1	99	1	0		25.41	25.24	25.30
20+5	100	0	25	0	16QAM	23.14	23.15	23.13
20+5	1	0	1	24		20.98	20.88	20.88
20+5	1	99	1	0		25.40	25.29	25.40
20+5	100	0	25	0	64QAM	22.41	22.25	22.25
20+5	1	0	1	24		19.53	19.46	19.49
20+5	1	99	1	0		21.05	21.06	21.04
5+20	25	0	100	0	QPSK	23.77	23.77	23.65
5+20	1	0	1	99		20.97	20.94	20.94
5+20	1	24	1	0		25.36	25.24	25.26
5+20	25	0	100	0	16QAM	23.17	23.21	23.10
5+20	1	0	1	99		20.95	20.87	20.84
5+20	1	24	1	0		25.38	25.30	25.31
5+20	25	0	100	0	64QAM	22.35	22.21	22.29
5+20	1	0	1	99		19.61	19.47	19.53
5+20	1	24	1	0		21.09	21.08	21.07
15+15	75	0	75	0	QPSK	23.73	23.79	23.64
15+15	1	0	1	74		20.93	20.87	20.91
15+15	1	74	1	0		25.39	25.25	25.25
15+15	75	0	75	0	16QAM	23.16	23.21	23.11
15+15	1	0	1	74		20.93	20.87	20.82
15+15	1	74	1	0		25.37	25.30	25.35
15+15	75	0	75	0	64QAM	22.35	22.22	22.27
15+15	1	0	1	74		19.60	19.43	19.52
15+15	1	74	1	0		21.05	21.06	21.07



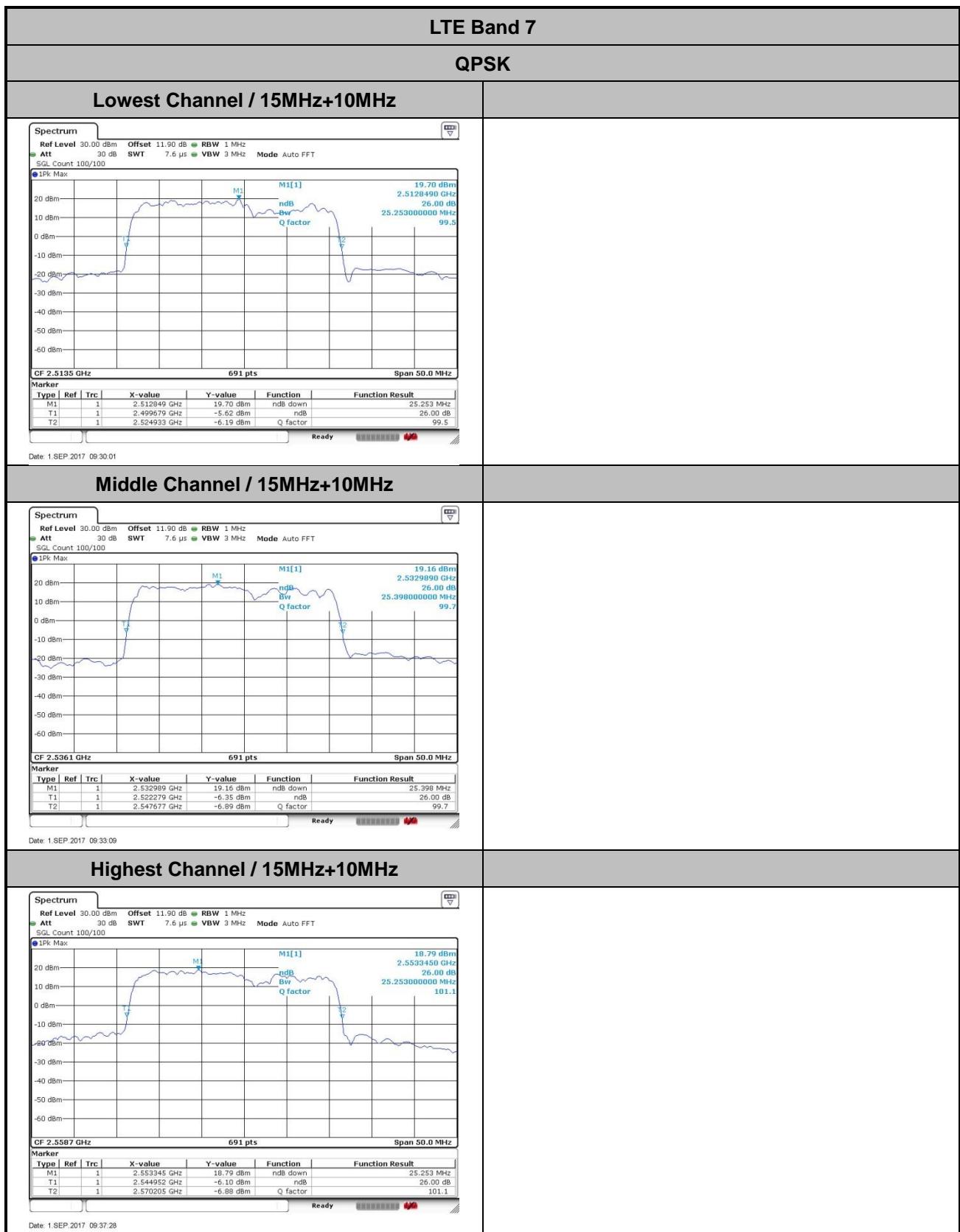
LTE Band 7

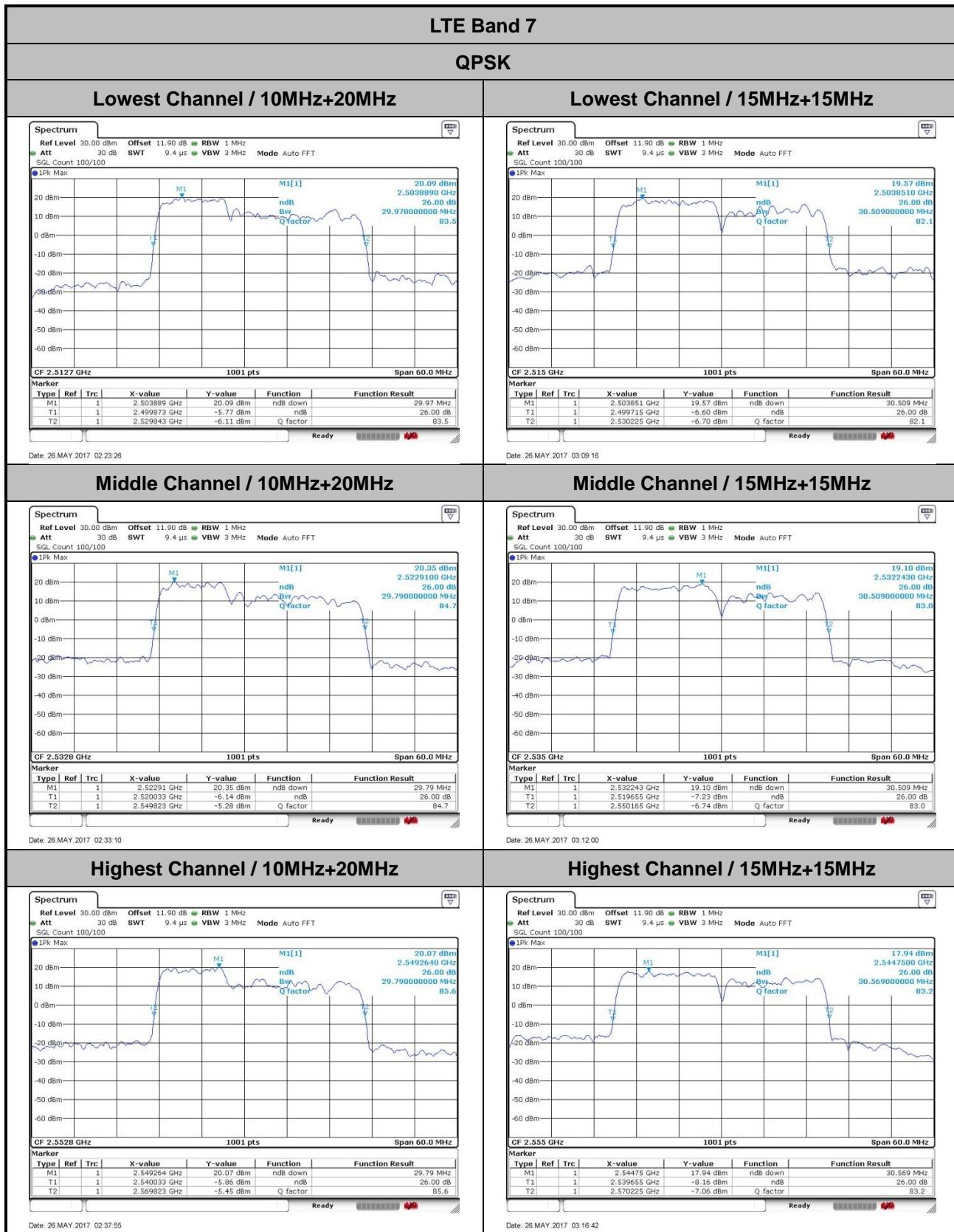
26dB Bandwidth

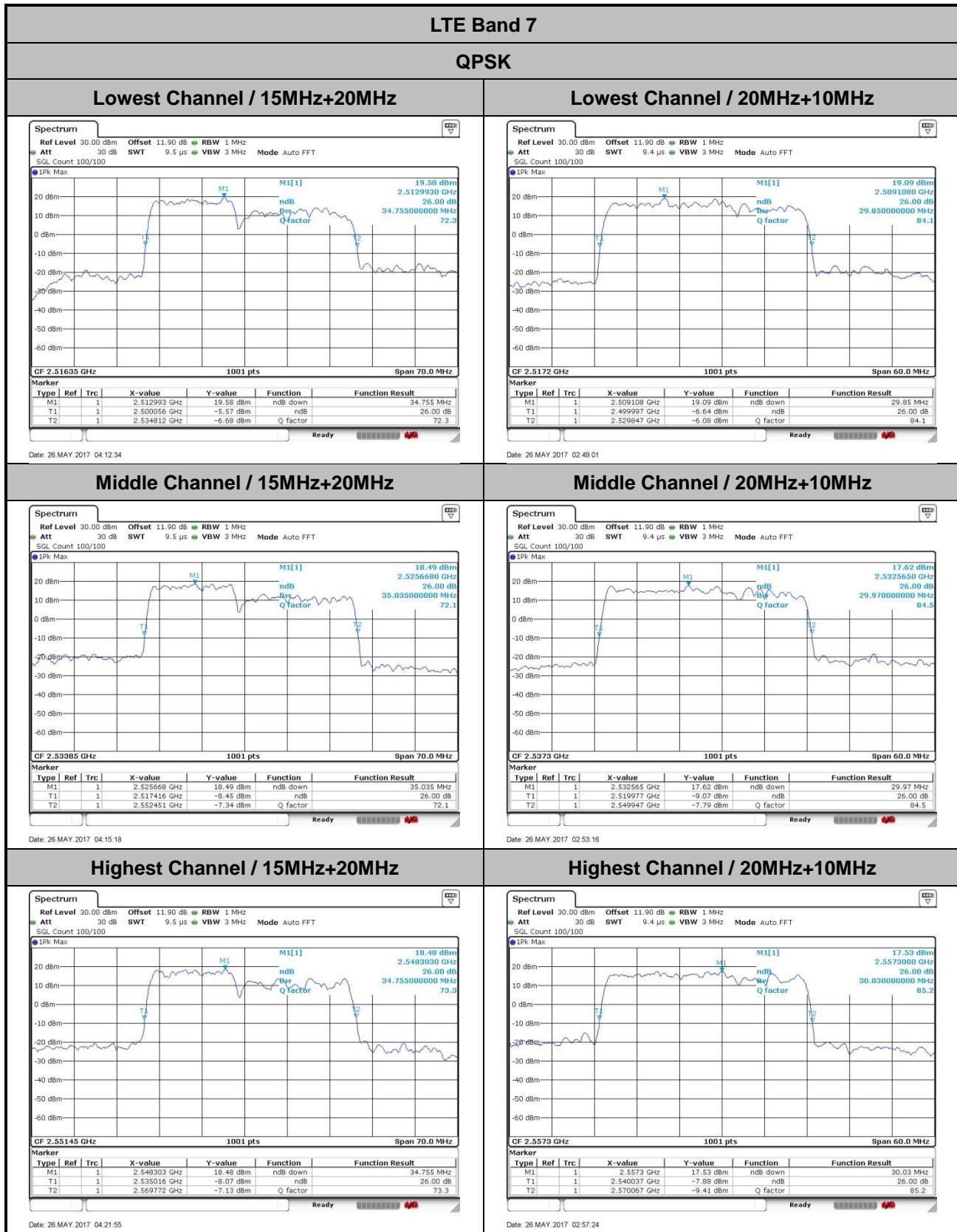
Mode	LTE Band 7 : 26dB BW(MHz)			
QPSK				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	25.25	29.97	30.51	34.76
Middle CH	25.4	29.79	30.51	35.04
Highest CH	25.25	29.79	30.57	34.76
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		29.85	34.83	39.8
Middle CH		29.97	34.9	39.72
Highest CH		30.03	35.25	39.72

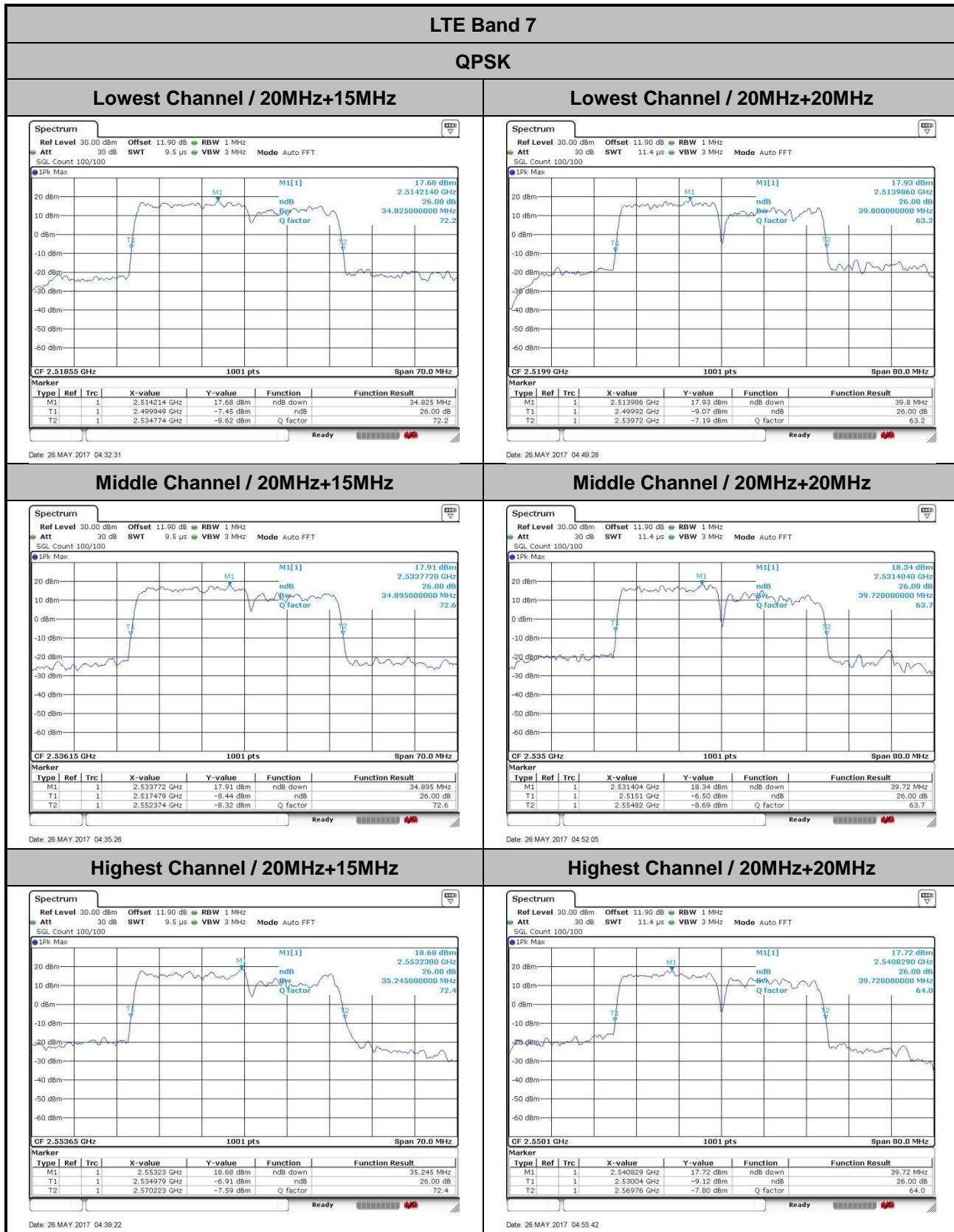
Mode	LTE Band 7 : 26dB BW (MHz)			
16QAM				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	25.33	29.91	30.33	34.83
Middle CH	25.4	29.85	30.51	34.69
Highest CH	25.33	29.97	30.57	34.97
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		29.97	34.97	39.8
Middle CH		30.15	34.83	39.88
Highest CH		29.97	35.04	39.72

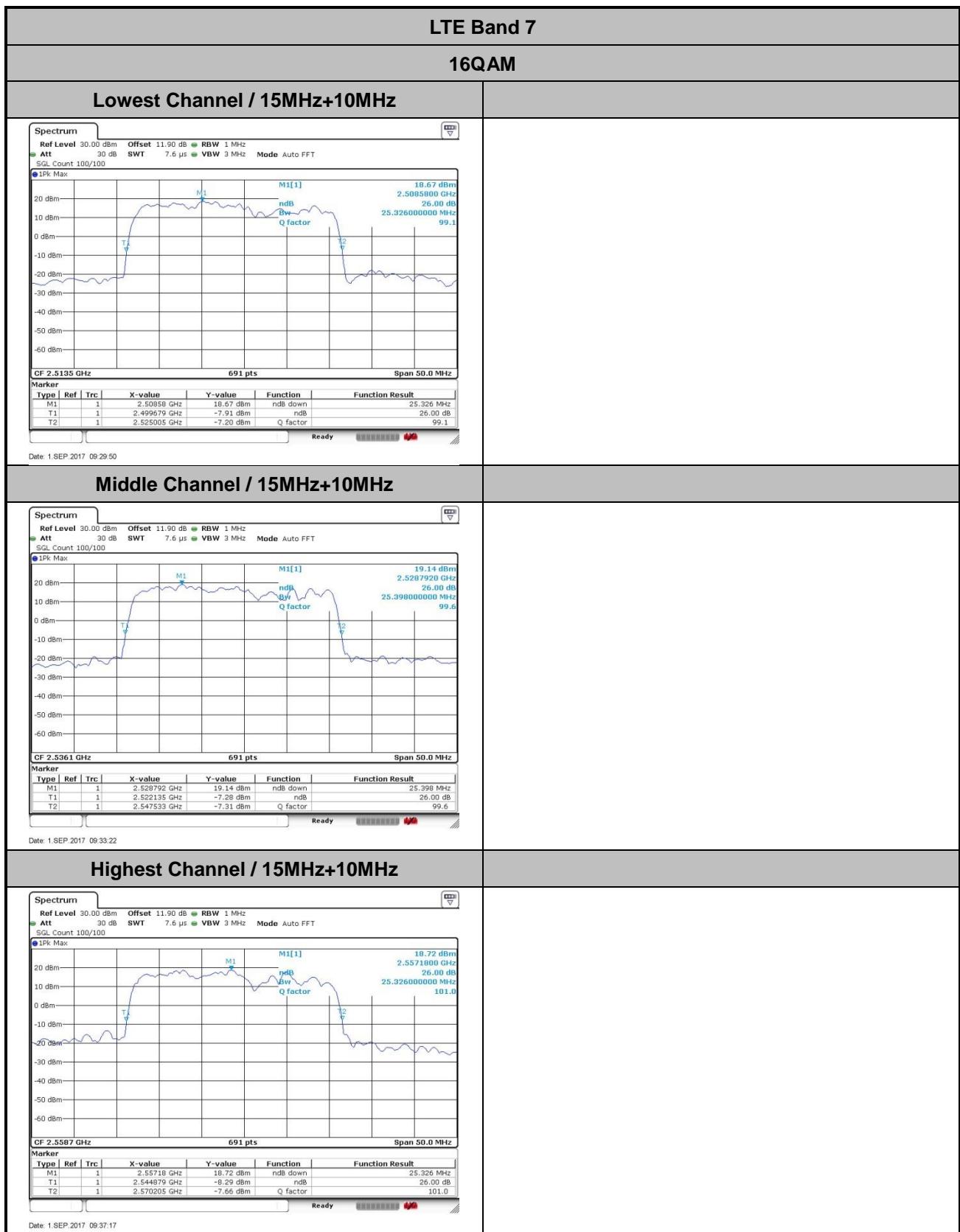
Mode	LTE Band 7 : 26dB BW (MHz)			
64QAM				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	25.4	29.91	30.63	34.9
Middle CH	25.33	29.79	30.51	34.83
Highest CH	25.47	29.79	30.63	34.83
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		30.21	34.83	39.8
Middle CH		29.91	34.9	39.8
Highest CH		29.97	34.97	39.96

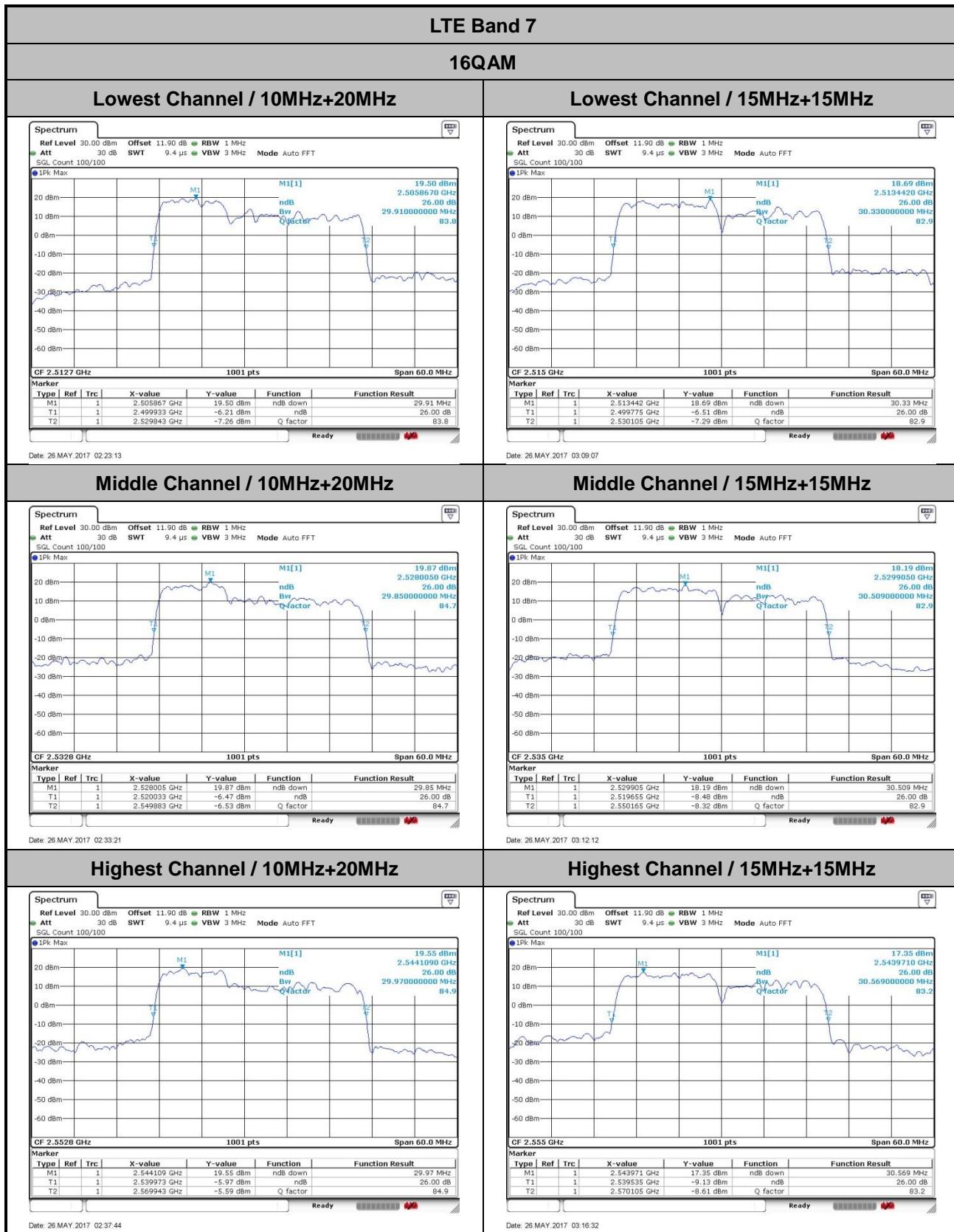


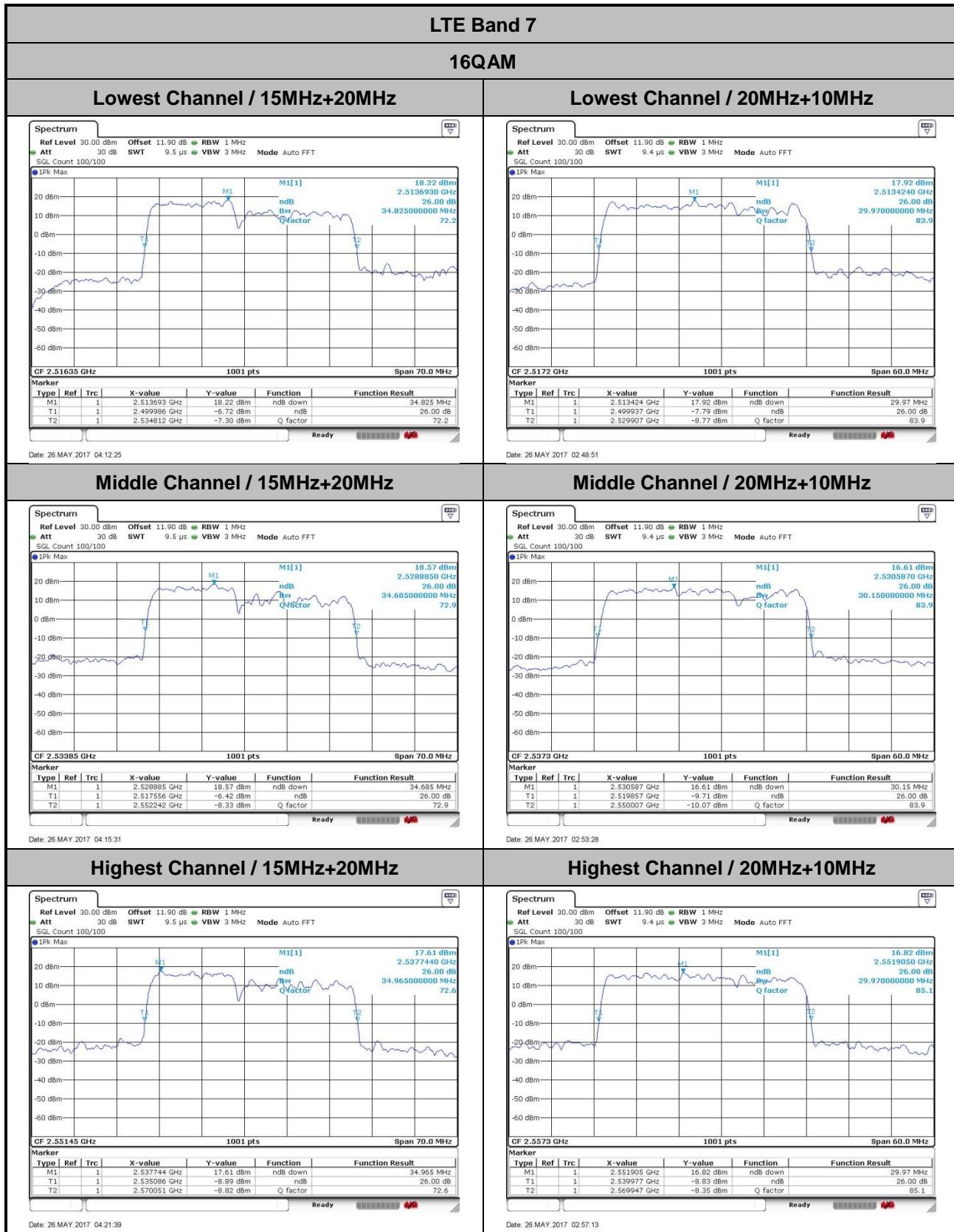


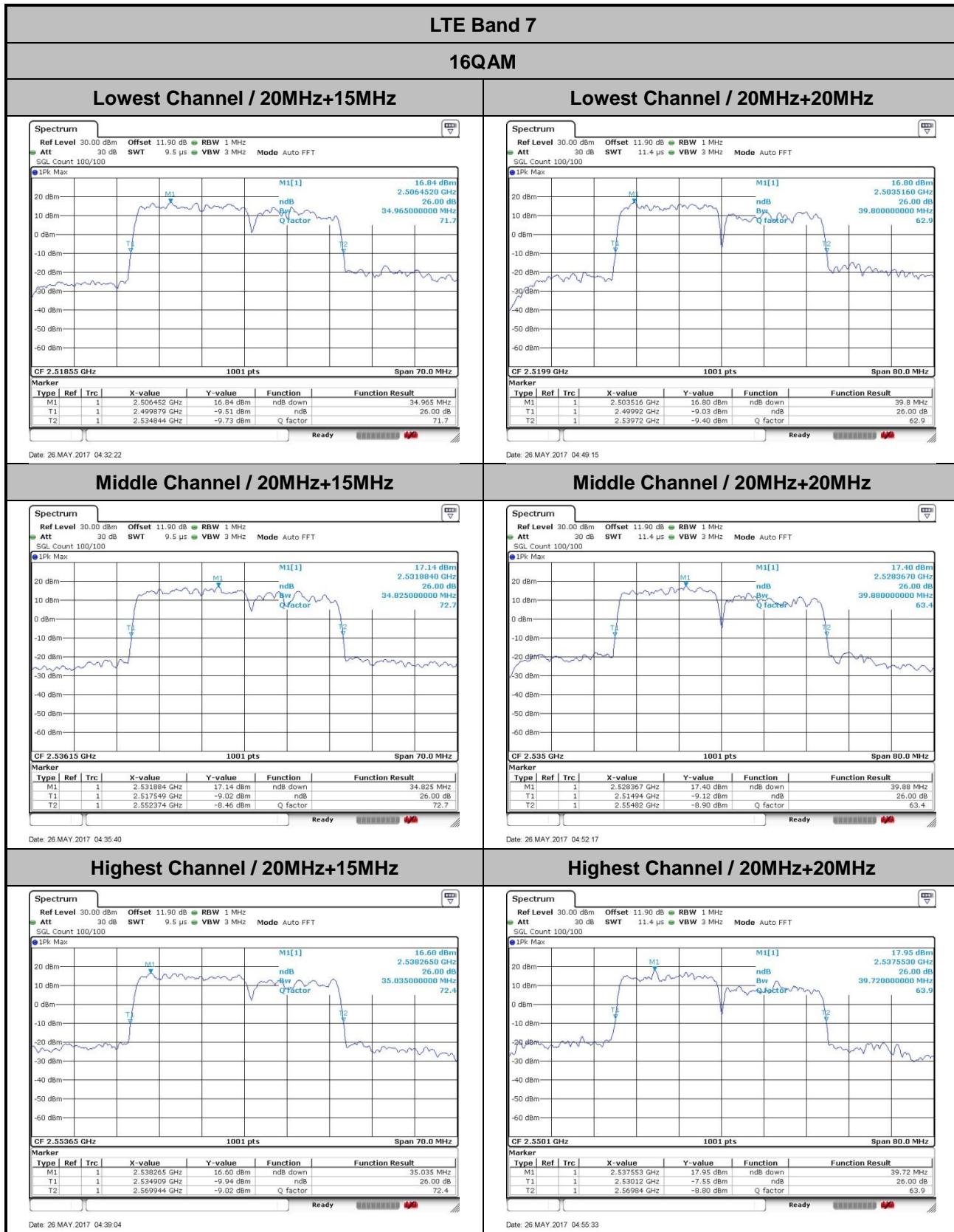


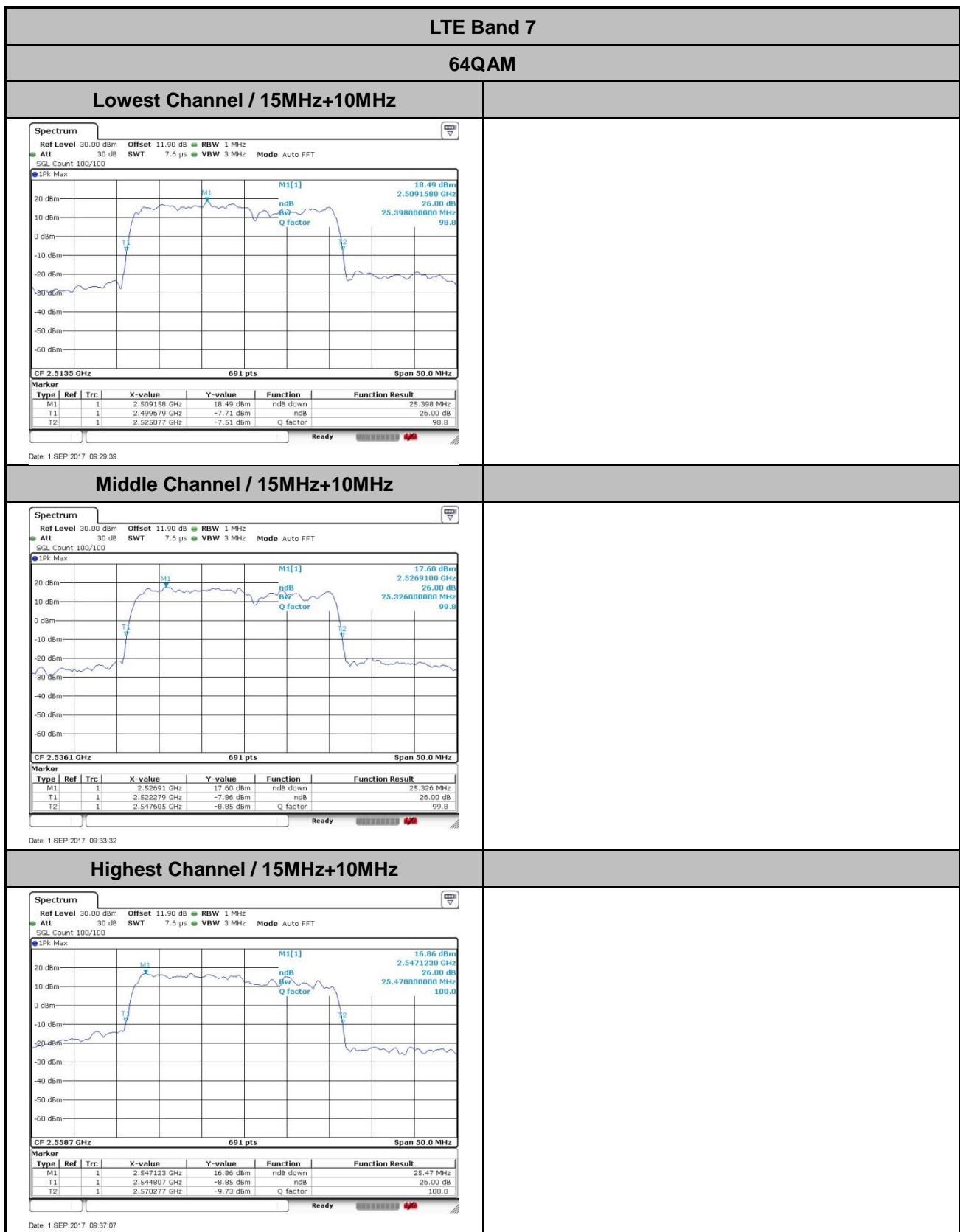


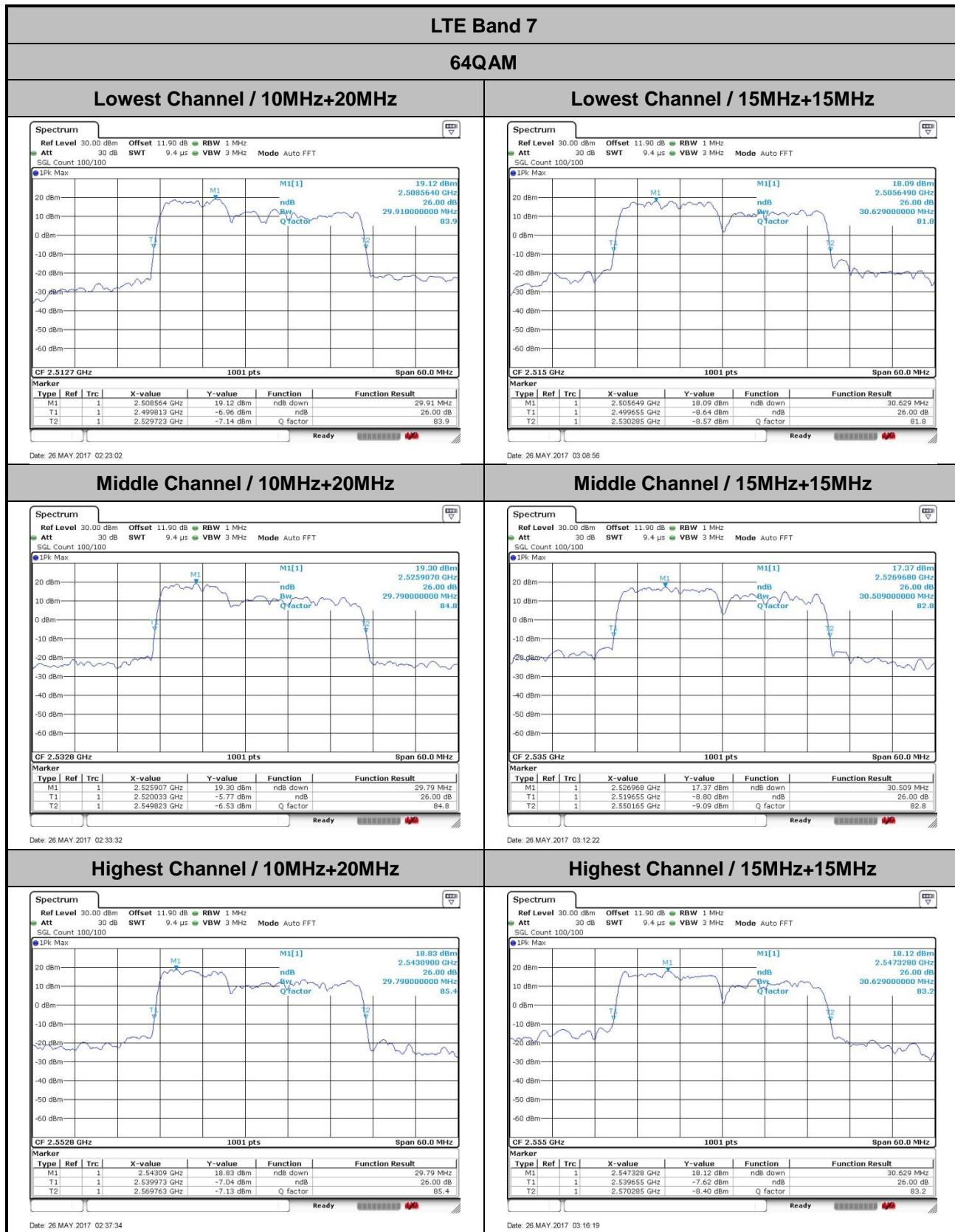


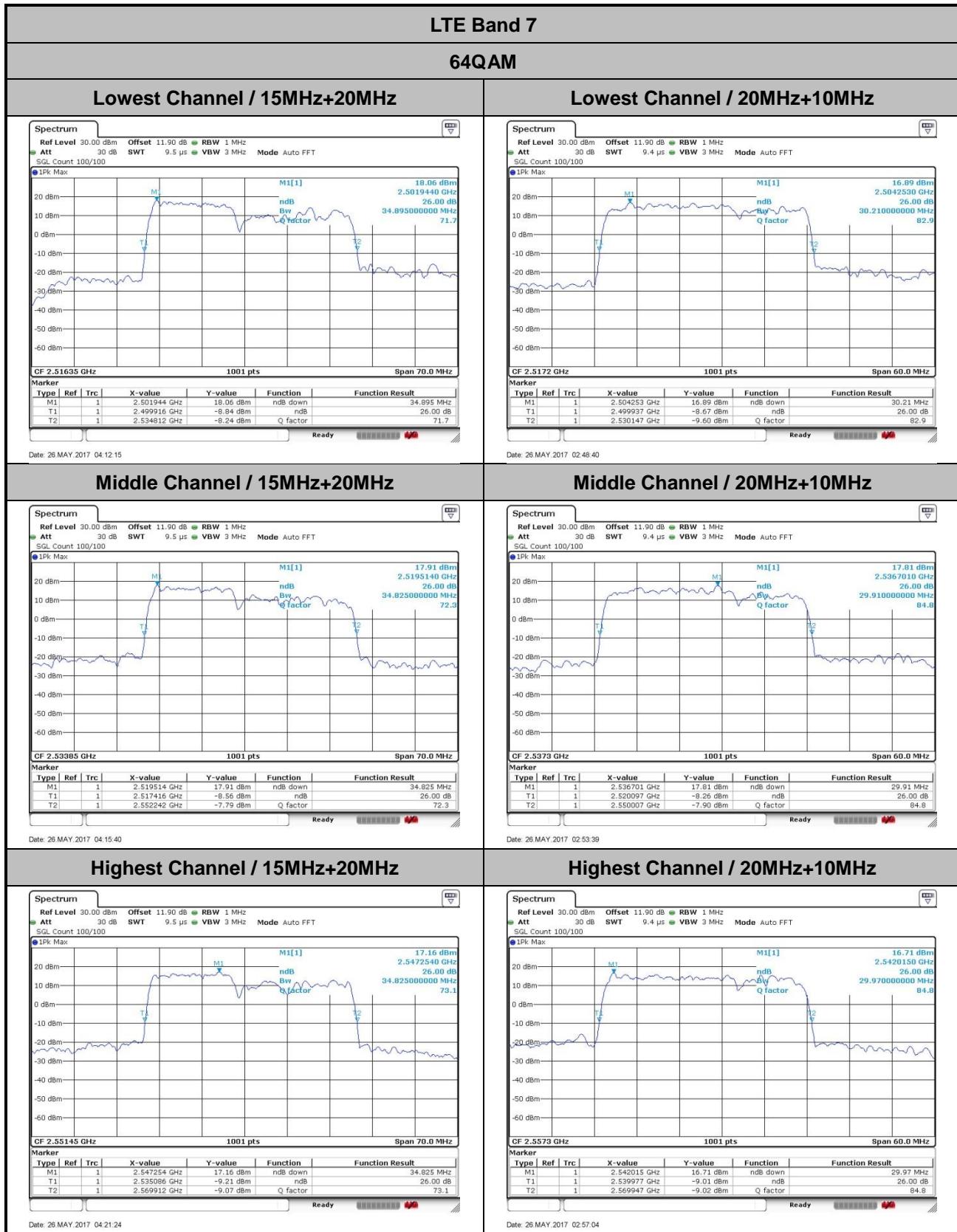


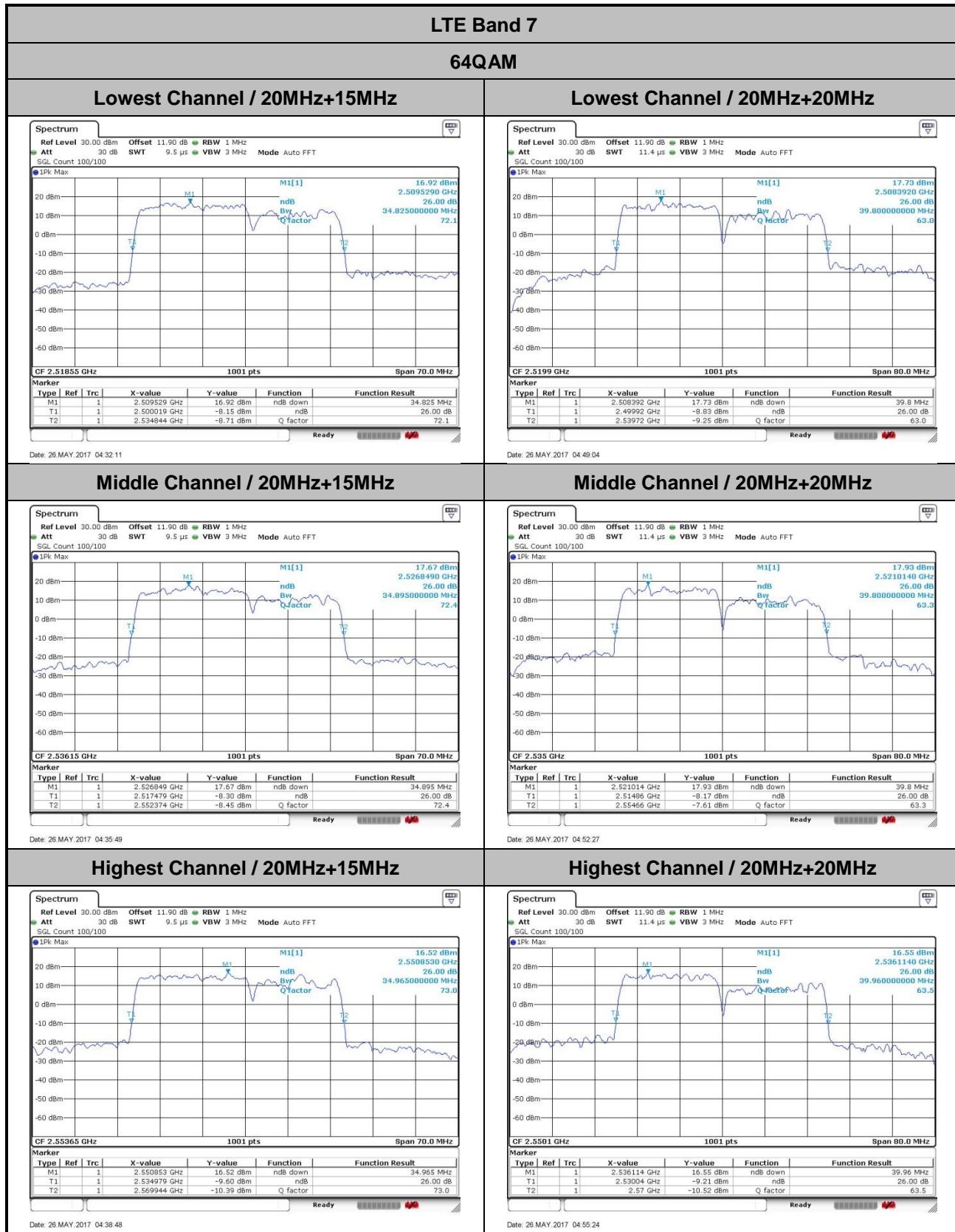














Occupied Bandwidth

Mode	LTE Band 7 : 99%OBW(MHz)			
QPSK				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	23.44	27.93	28.29	32.8
Middle CH	23.3	27.99	28.17	32.52
Highest CH	23.23	27.63	28.53	32.8
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		28.05	32.66	37.48
Middle CH		27.93	32.52	37.4
Highest CH		27.63	32.52	37.8

Mode	LTE Band 7 : 99%OBW(MHz)			
16QAM				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	23.59	27.75	28.11	32.59
Middle CH	23.52	27.69	28.35	32.59
Highest CH	23.52	28.11	28.35	32.66
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		27.93	32.8	37.32
Middle CH		27.93	32.38	37.8
Highest CH		27.93	32.94	37.88

Mode	LTE Band 7 : 99%OBW(MHz)			
64QAM				
BW	15MHz+10MHz	10MHz+20MHz	15MHz+15MHz	15MHz+20MHz
Lowest CH	23.44	27.81	28.53	32.73
Middle CH	23.37	27.75	28.53	32.66
Highest CH	23.3	27.58	28.47	32.73
BW	20MHz+10MHz		20MHz+15MHz	20MHz+20MHz
Lowest CH		27.69	32.66	37.08
Middle CH		27.99	32.8	37.72
Highest CH		27.99	32.45	37.4

