



FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F
FCC CFR47 PART 27 SUBPART H
FCC CFR47 PART 27 SUBPART L

WWAN

CERTIFICATION TEST REPORT

FOR

CDMA/LTE Tablet + BT/BLE, DTS/UNII a/b/g/n and ANT+

MODEL NUMBER : SM-T387R4

FCC ID: A3LSMT387R4

REPORT NUMBER: 4788658837-E6V2

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TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/16/18	Initial issue	Hoonpyo Lee
V2	10/18/18	Updated about the TCB's request	Hoonpyo Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: CDMA/LTE Tablet + BT/BLE, DTS/UNII a/b/g/n and ANT+

MODEL NUMBER: SM-T387R4

SERIAL NUMBER: R32K400HGXT, R32K500LY6E, R32K500LZSD,
357635090017346, 357635090017304 (RADIATED, Original);
R32K400HFNH (CONDUCTED, Original);
35832409000060, 35832409000056 (RADIATED, Spot check &
Additional test);
8556c022, 5653ecb9, 85764b75 (CONDUCTED, Additional test);

DATE TESTED: JUN 09, 2018 - JUN 22, 2018 / JUL 06, 2018 - JUL 20, 2018 (Original);
SEP 12, 2018 - SEP 18, 2018 (Spot check & Additional test)

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27L, 27M and 90S	Pass

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMT387P WWAN (FCC CFR 47 Part 22/24/27). And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMT387R4 shares the same enclosure and circuit board as FCC ID: A3LSMT387P. The WWAN antennas and surrounding circuitry and layout regarding test data re-used bands are identical between these two units. The FCC ID: A3LSMT387R4, some components for additional band newly mounted and additional bands enabled by SW. And some of the bands are not used. Difference for these two units, PED document described in details.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMT387P remains representative of FCC ID: A3LSMT387R4. The test data of FCC ID: A3LSMT387P being submitted for this application to cover WWAN re-used bands features.

- Reuse bands – CDMA BC 0, CDMA BC 1, LTE Band 2, LTE Band 4, LTE Band 5, LTE Band 12, LTE Band 25
- Additional test band for FCC ID : A3LSMT387R4
 - LTE Band 13, LTE Band 17(Covered by LTE Band 12)

1.3. SPOT CHECK VERIFICATION DATA (Worst case of the radiated spurious and band edge emissions)

Band	Test Item	Worst Mode	Frequency	Test Limit	Original model	Spot check model	Deviation	Remark
					SM-T387P Results	SM-T387R4 Results		
					FCC ID : A3LSMT387P	FCC ID : A3LSMT387R4		
LTE Band 2	EIRP	15M QPSK	1857.5	33.00 dBm	22.83 dBm	23.82 dBm	0.99 dB	
	RSE	3M QPSK	3817.0	-13.00 dBm	-38.80 dBm	-36.90 dBm	1.90 dB	
LTE Band 4	EIRP	1.4M QPSK	1754.3	30.00 dBm	25.91 dBm	25.72 dBm	-0.19 dB	
	RSE	20M QPSK	3440.0	-13.00 dBm	-37.30 dBm	-34.60 dBm	2.70 dB	
LTE Band 5	EIRP	5M QPSK	826.5	38.50 dBm	14.96 dBm	14.74 dBm	-0.22 dB	
	RSE	5M QPSK	4232.5	-13.00 dBm	-30.70 dBm	-31.50 dBm	-0.80 dB	
LTE Band 12	EIRP	3M QPSK	714.5	34.80 dBm	19.31 dBm	20.52 dBm	1.21 dB	
	RSE	3M QPSK	2143.5	-13.00 dBm	-52.40 dBm	-54.40 dBm	-2.00 dB	
LTE Band 25	EIRP	3M QPSK	1851.5	33.00 dBm	24.17 dBm	23.98 dBm	-0.19 dB	
	RSE	3M QPSK	7530	-13.00 dBm	-42.50 dBm	-43.30 dBm	-0.80 dB	
CDMA BC0	EIRP	EVDO BC_A	836.52	38.50 dBm	25.08 dBm	25.71 dBm	0.63 dB	
	RSE	EVDO BC_A	3393.24	-13.00 dBm	-35.30 dBm	-55.40 dBm	-20.10 dB	
CDMA BC1	EIRP	EVDO BC_A	1880	33.00 dBm	26.53 dBm	25.31 dBm	-1.22 dB	
	RSE	RTT	5726.25	-13.00 dBm	-16.80 dBm	-45.00 dBm	-28.20 dB	

Comparison of two models, upper deviation is within 3dB range and all test results are under FCC Technical Limits.

1.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Title / Section
DTS	A3LSMT387P	Grant	4788534503-E1V1	Test	FCC Report DTS WLAN / All sections
			4788534503-E2V1	Test	FCC Report BLE All sections
DSS	A3LSMT387P	Grant	4788534503-E3V2	Test	FCC Report BT / All sections
NII	A3LSMT387P	Grant	4788534503-E4V1	Test	FCC Report UNII WLAN / All sections
DXX	A3LSMT387P	Grant	4788534503-E5V1	Test	FCC Report ANT+ / All sections
PCE	A3LSMT387P	Grant	4788534503-E6V1	Test	FCC Report WWAN / All sections (Only the reuse bands)

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 22.
3. FCC CFR 47 Part 24.
4. FCC CFR 47 Part 27.
5. ANSI TIA-603-E, 2016
6. KDB 971168 D01 Power Meas License Digital Systems v03r01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
☒	Chamber 1
☒	Chamber 2
☐	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$$

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	3.86 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE Tablet + BT/BLE, DTS/UNII a/b/g/n and ANT+. This test report addresses the WWAN operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average radiated ERP / EIRP output powers as follows:

CDMA

FCC Part 22				
Band	Frequency Range	Modulation	Radiated	
	[MHz]		Avg [dBm]	Avg [mW]
BC0	824~849	1xRTT	23.63	230.67
		EVDO REL. 0	24.23	264.85
		EVDO REV. A	25.08	322.11

FCC Part 24				
Band	Frequency Range	Modulation	Radiated	
	[MHz]		Avg [dBm]	Avg [mW]
BC1	1850~1910	1xRTT	23.61	229.61
		EVDO REL. 0	25.04	319.15
		EVDO REV. A	26.53	449.78

LTE Band 2

FCC Part 24					
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Radiated	
				Avg [dBm]	Avg [mW]
Band 2	1850 ~ 1910	20	QPSK	22.68	185.35
			16QAM	21.69	147.57
		15	QPSK	22.83	191.87
			16QAM	21.96	157.04
		10	QPSK	22.55	179.89
			16QAM	21.46	139.96
		5	QPSK	22.37	172.58
			16QAM	21.48	140.60
		3	QPSK	21.89	154.53
			16QAM	21.34	136.14
		1.4	QPSK	22.09	161.81
			16QAM	21.23	132.74

LTE Band 4

FCC Part 27					
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation Peak	Radiated	
				Avg [dBm]	Avg [mW]
Band 4	1710 ~ 1755	20	QPSK	24.88	307.61
			16QAM	24.24	265.46
		15	QPSK	25.03	318.42
			16QAM	23.58	228.03
		10	QPSK	24.29	268.53
			16QAM	23.03	200.91
		5	QPSK	24.08	255.86
			16QAM	23.72	235.50
		3	QPSK	24.14	259.42
			16QAM	23.75	237.14
		1.4	QPSK	25.91	389.94
			16QAM	24.16	260.62

LTE Band 5

FCC Part 22					
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation Peak	Radiated	
				Avg [dBm]	Avg [mW]
Band 5	824 ~ 849	10	QPSK	23.16	207.01
			16QAM	22.37	172.58
		5	QPSK	23.84	242.10
			16QAM	22.41	174.18
		3	QPSK	23.79	239.33
			16QAM	22.54	179.47
		1.4	QPSK	24.12	258.23
			16QAM	23.21	209.41

LTE Band 12

FCC Part 27					
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Radiated	
				Avg [dBm]	Avg [mW]
Band 12	699 ~ 716	10	QPSK	19.18	82.79
			16QAM	16.96	49.66
		5	QPSK	18.76	75.16
			16QAM	17.66	58.34
		3	QPSK	19.31	85.31
			16QAM	17.97	62.66
		1.4	QPSK	18.86	76.91
			16QAM	17.78	59.98

LTE Band 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 13

FCC Part 27					
Band	Frequency Range	BandWidth	Modulation	Radiated	
	[MHz]			Avg [dBm]	Avg [mW]
Band 13	777 ~ 787	10	QPSK	21.47	140.28
			16QAM	20.65	116.14
		5	QPSK	21.51	141.58
			16QAM	20.44	110.66

LTE Band 25

FCC Part 24					
Band	Frequency Range	BandWidth	Modulation	Radiated	
	[MHz]			Avg [dBm]	Avg [mW]
Band 25	1850 ~ 1915	20	QPSK	23.63	230.67
			16QAM	22.72	187.07
		15	QPSK	23.60	229.09
			16QAM	22.69	185.78
		10	QPSK	24.02	252.35
			16QAM	23.32	214.78
		5	QPSK	23.90	245.47
			16QAM	22.84	192.31
		3	QPSK	24.17	261.22
			16QAM	23.23	210.38
		1.4	QPSK	24.07	255.27
			16QAM	23.26	211.84

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a internal antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
CDMA BC1 / LTE Band 2 / LTE Band 25 1850 ~ 1915 MHz	2.1
CDMA BC0 / LTE Band 5 814 ~ 849 MHz	-4.3
LTE Band 12 / LTE Band 17 699 ~ 716 MHz	-2.7
LTE Band 4 1710 ~ 1780 MHz	2.0
LTE Band 13 777 ~ 787 MHz	-4.6

5.4. WORST-CASE ORIENTATION

Following modes should be considered as worst-case scenario for all other measurements.

All LTE Bands (Except additional tested band 13), measurements were performed on each bandwidth for QPSK/16QAM modulations.

For LTE 13 Bands, the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. All testing was performed using QPSK and 16QAM modulations to represent the worst case. However, the out of band emissions and spurious radiation were only performed on bandwidth and RB offset(with RB size 1) with the highest power in QPSK.

For CDMA BC0 / BC1 / LTE Band 2 / LTE Band 4 / LTE Band 5 / LTE Band 12 / LTE Band 25, the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

For LTE Band 13, the fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

Note : All radiated spurious tests were performed connected with earphone and charger for evaluation of worst case mode.(For erp/eirp tests, the EUT didn't connected with earphone and charger)

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA50JWE	DK5K503VS/A-E	N/A
Data Cable	SAMSUNG	ECB-DU68WE	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

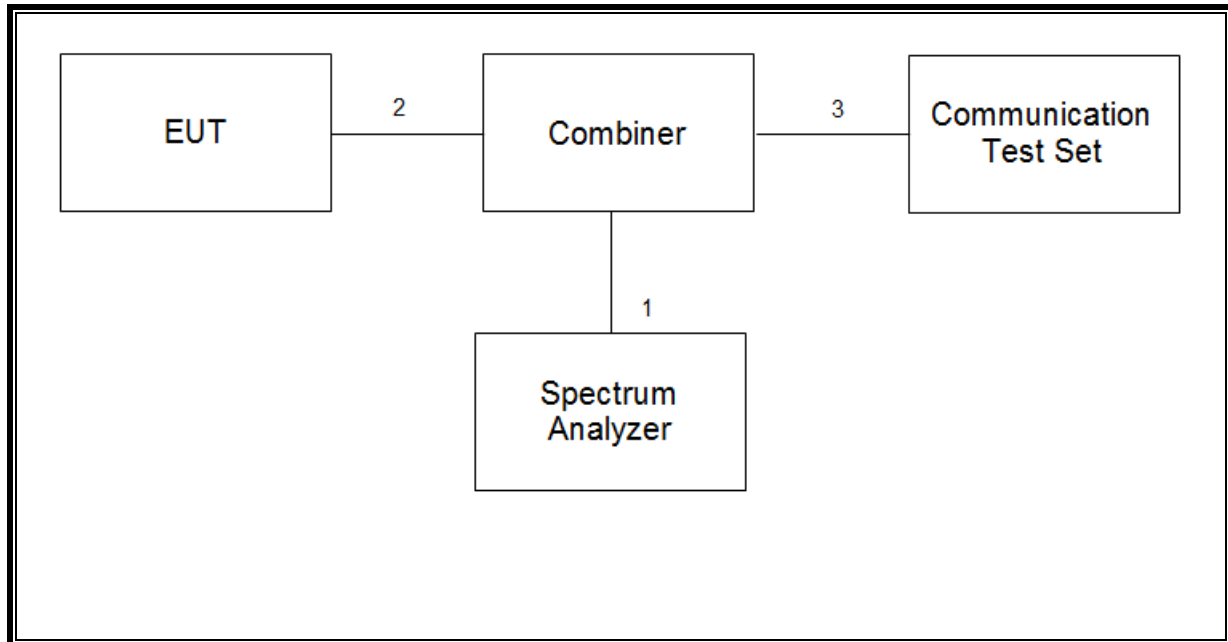
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	C Type	Shielded	1.1m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.2m	N/A

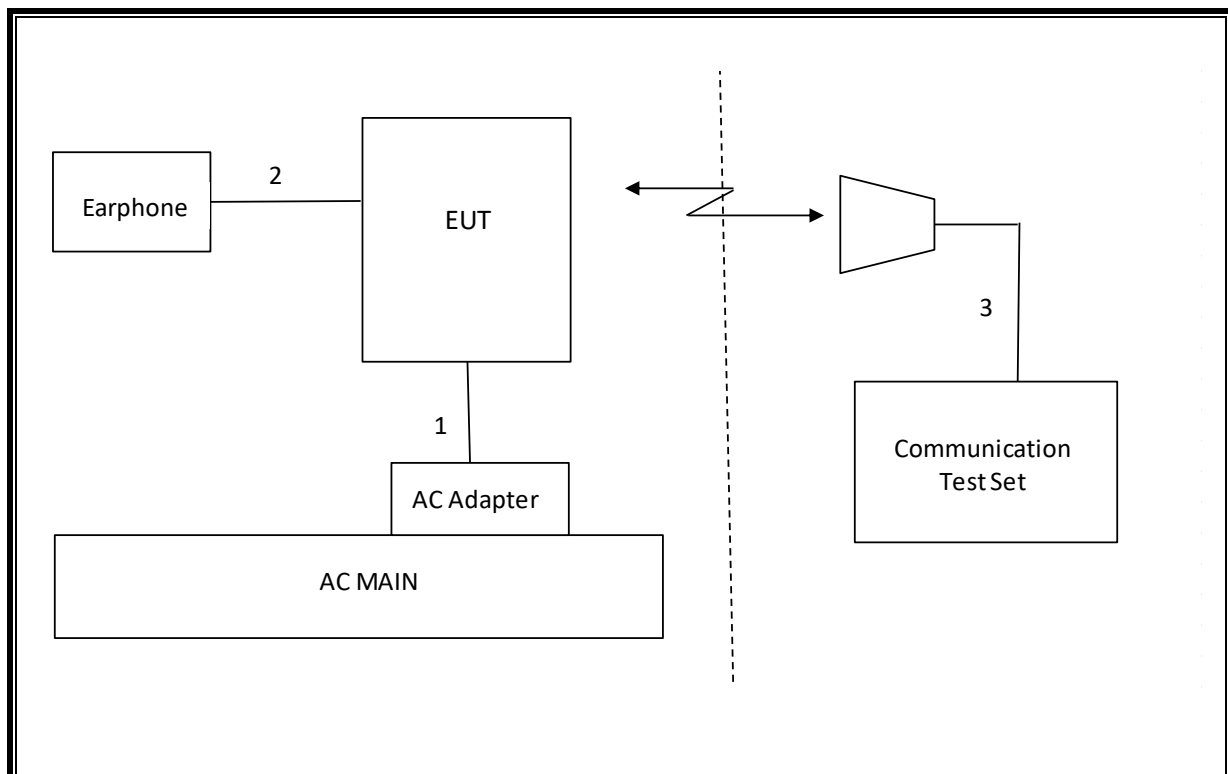
TEST SETUP

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List					
Description	Manufacturer	Model	S/N	Old Cal Due	New Cal Due
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121D DB4	00164753	06-30-19	
Antenna, Horn, 40 GHz	ETS	3116C	00166155	12-04-19	
Preamplifier	ETS	3116C-PA	00168841	08-09-19	
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19	
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	08-31-19	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-31-19	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	09-14-19	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	03-10-19	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	05-31-19	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	11-29-18	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	05-31-19	08-04-20
Combiner	WEINSCHEL	1575	2152	08-08-18	08-08-19
Communications Test Set	R&S	CMW500	115331	08-07-18	08-07-19
DC Power Supply	Agilent / HP	E3640A	MY54226395	08-07-18	08-06-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-09-18	08-07-19
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-10-18	08-06-19
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-18	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-08-18	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-11-18	08-07-19
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-08-18	08-07-19
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-08-18	08-06-19
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-08-18	08-06-19
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-08-18	08-06-19
EMI Test Receive, 44 GHz	R&S	ESW40	101590	08-09-18	08-06-19
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	08-09-18	08-08-19
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G006	08-08-18	08-08-19
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	08-09-18	08-08-19
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	011	08-08-18	08-08-19
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	08-09-18	08-08-19
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G002	08-08-18	08-08-19
Attenuator	PASTERNAK	PE7087-10	A009	08-08-18	08-08-19
Attenuator	PASTERNAK	PE7087-10	A001	08-08-18	08-08-19
Attenuator	PASTERNAK	PE7087-10	A008	08-08-18	08-08-19
Attenuator	PASTERNAK	PE7087-10	2	08-10-18	08-07-19
Attenuator	PASTERNAK	PE7395-10	A011	02-12-19	08-08-19
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-26-19	
Temperature Chamber	ESPEC	SH-642	93001109	08-08-18	08-06-19
UL Software					
Description	Manufacturer	Model	Version		
Antenna port test software	UL	CLT	Ver 2.4		

Note : Old Cal due (Previous calibration expiration day) is based on the original model test.
New Cal due (Recent calibration expiration day) is for the verification and additional test used.

7. Summary Table

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Band width (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(c),(g),(h)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
2.1046	Conducted output power	N/A		See the RF exposure test report. (4788658837-S1 FCC Report SAR)
22.355 24.235 27.54	Frequency Stability	2.5PPM		Pass
22.913(a)(5)	Effective Radiated Power	38.5 dBm	Radiated	Pass
27.50(b)(10)		34.77 dBm		Pass
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power	33dBm		Pass
27.50(d)(4)		30dBm		Pass
22.917(a) 24.238(a) 27.53(c),(g),(h)	Radiated Spurious Emission	-13dBm		Pass
27.53(f)		-40dBm		Pass

8. PEAK TO AVERAGE RATIO

Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v03r01;

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The PAR were measured on the Spectrum Analyzer.

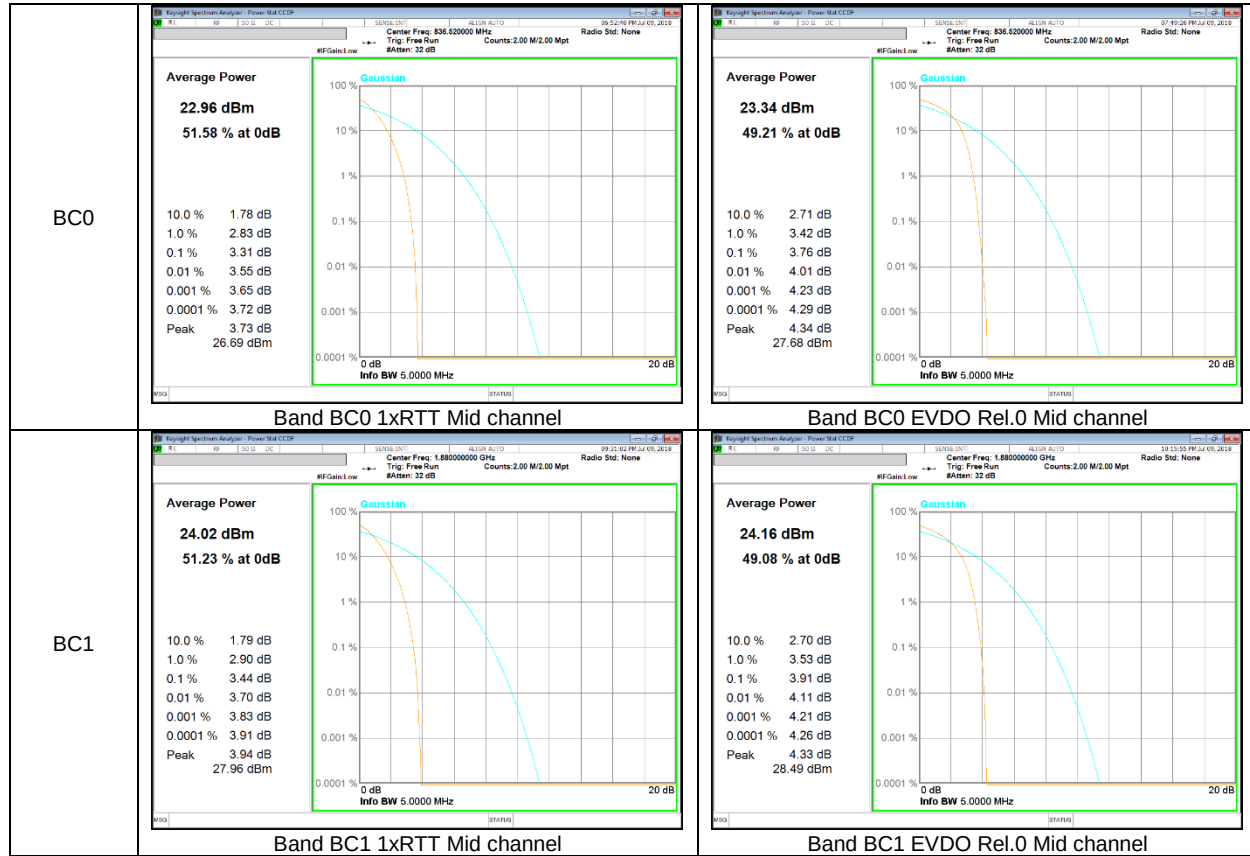
Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

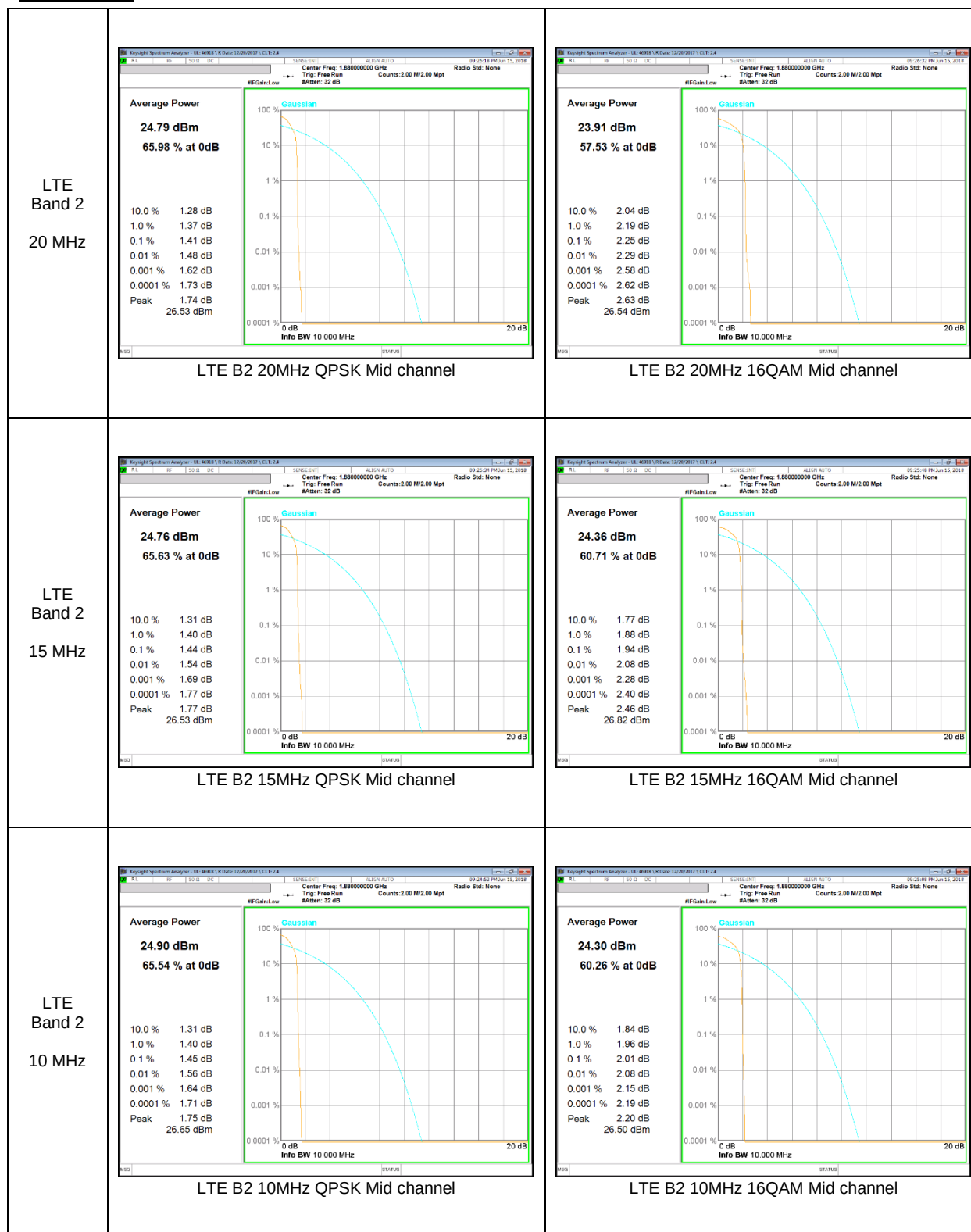
RESULTS

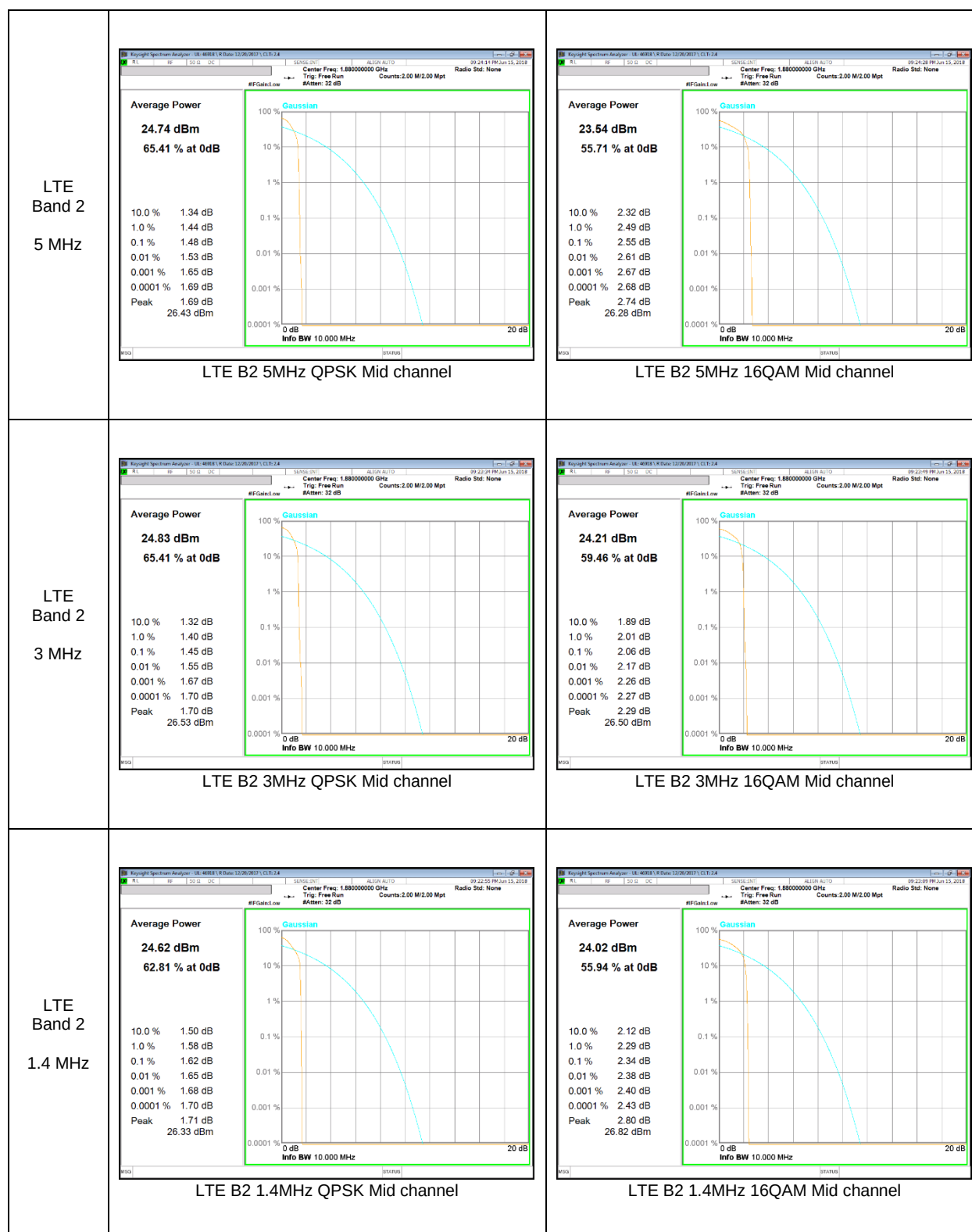
8.1. CONDUCTED PEAK TO AVERAGE RESULT

CDMA

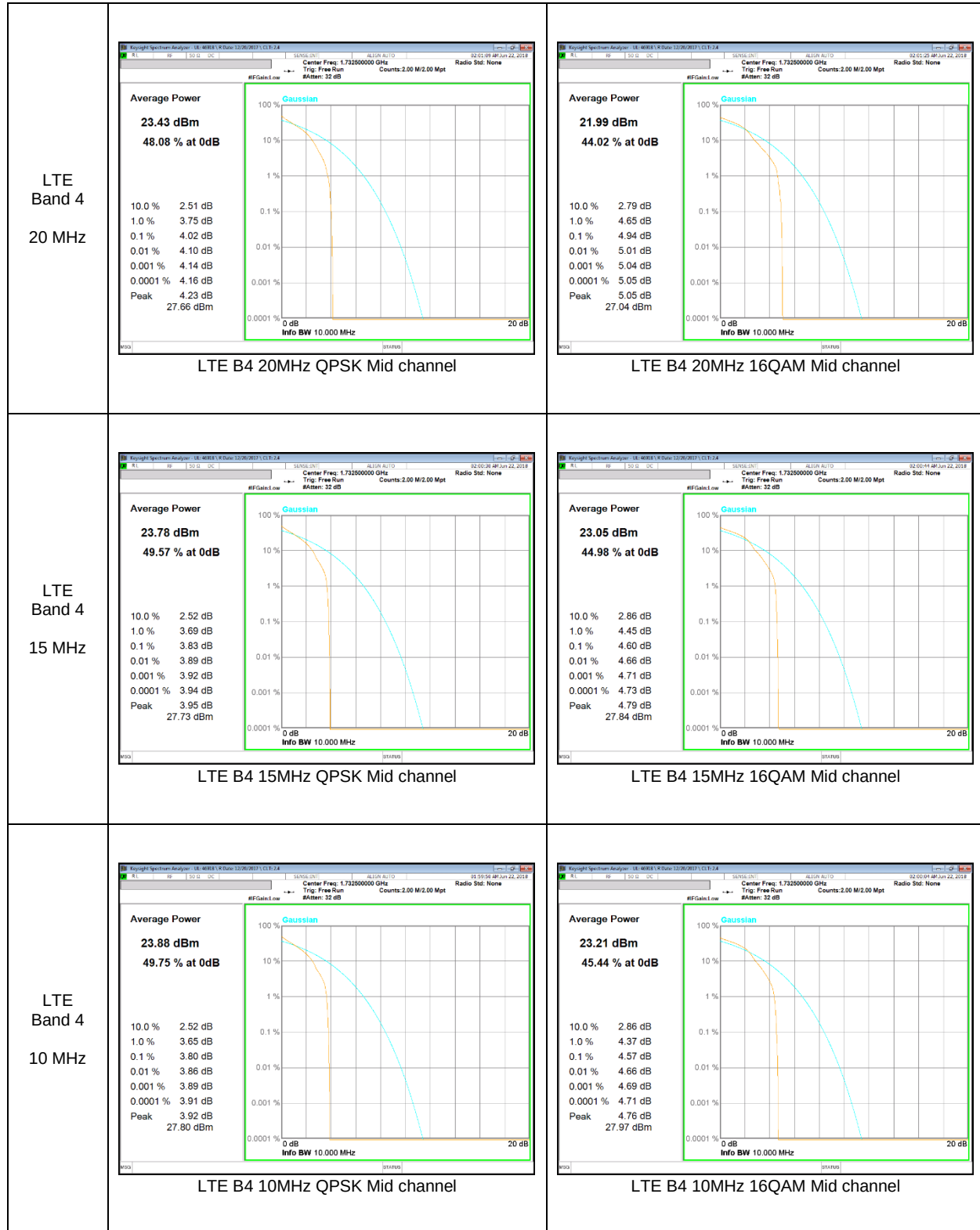


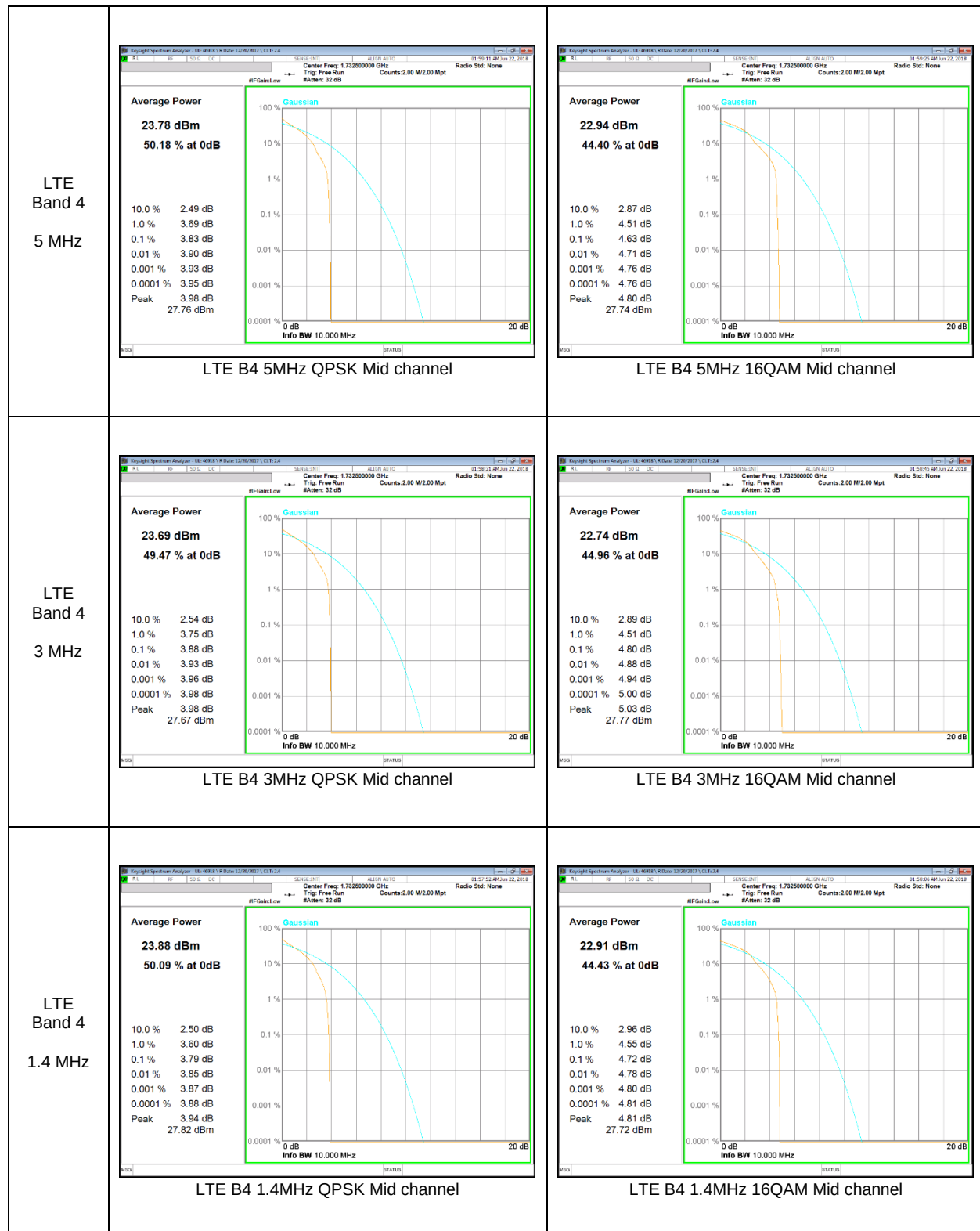
LTE Band 2



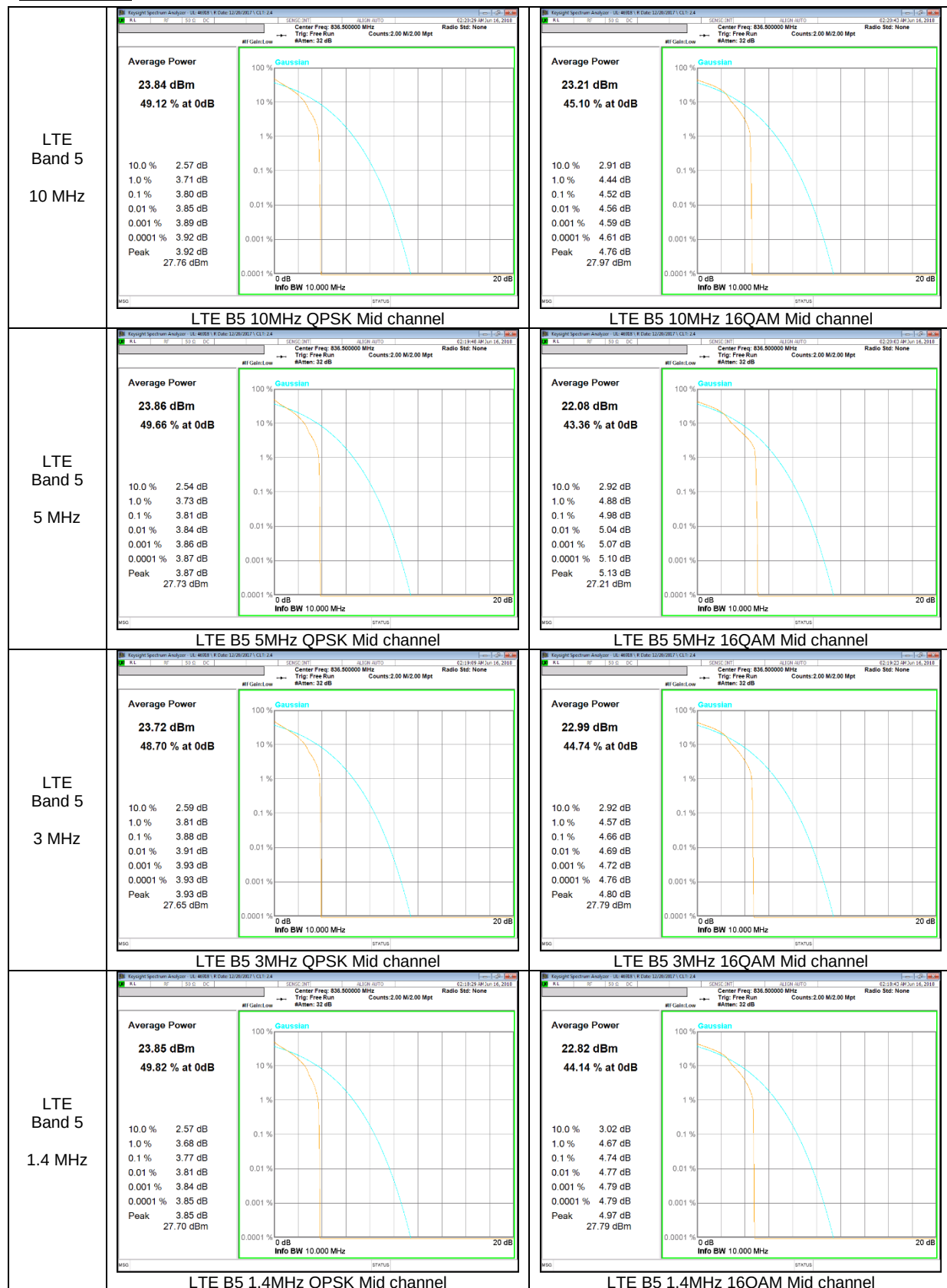


LTE Band 4

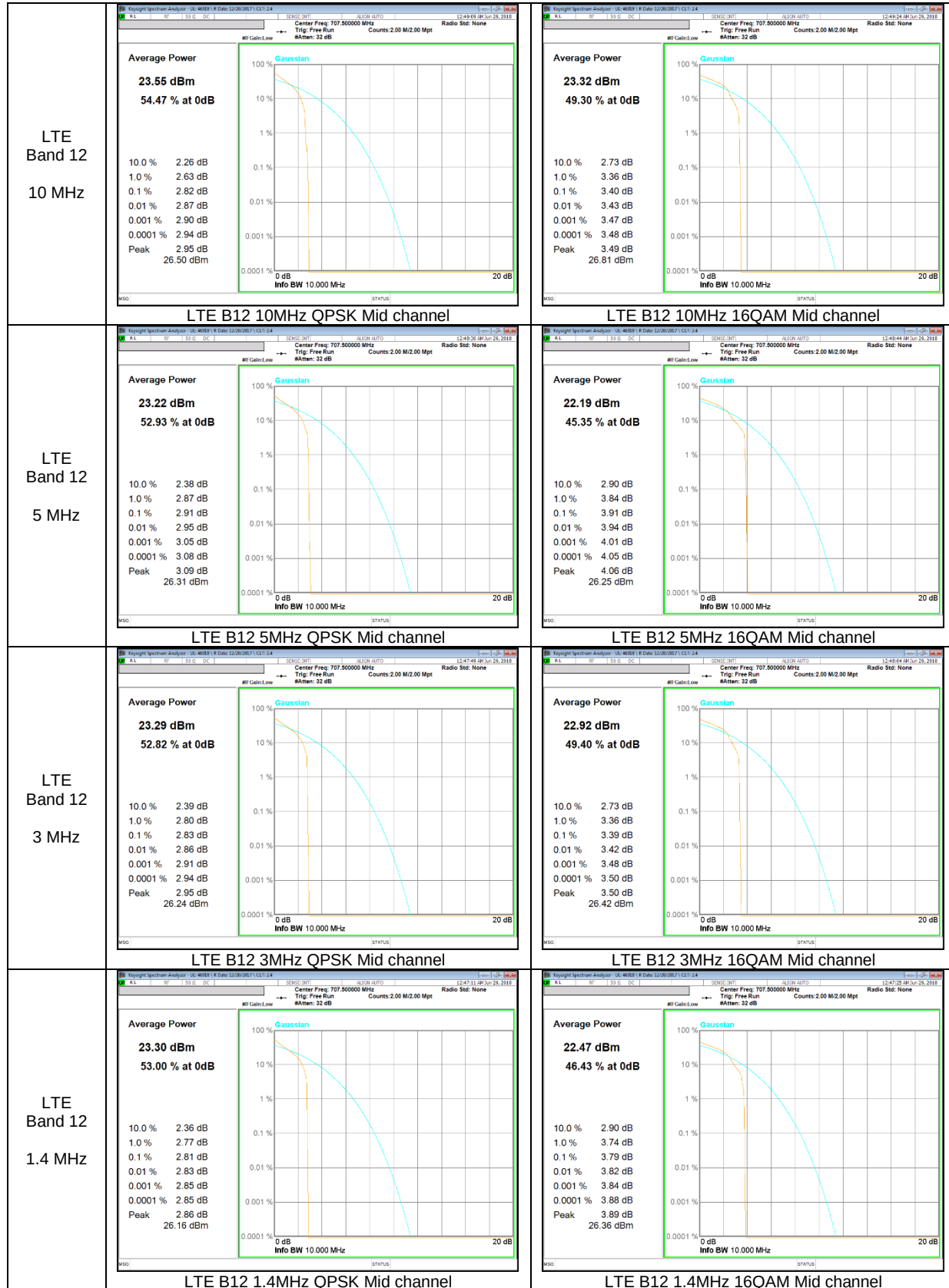




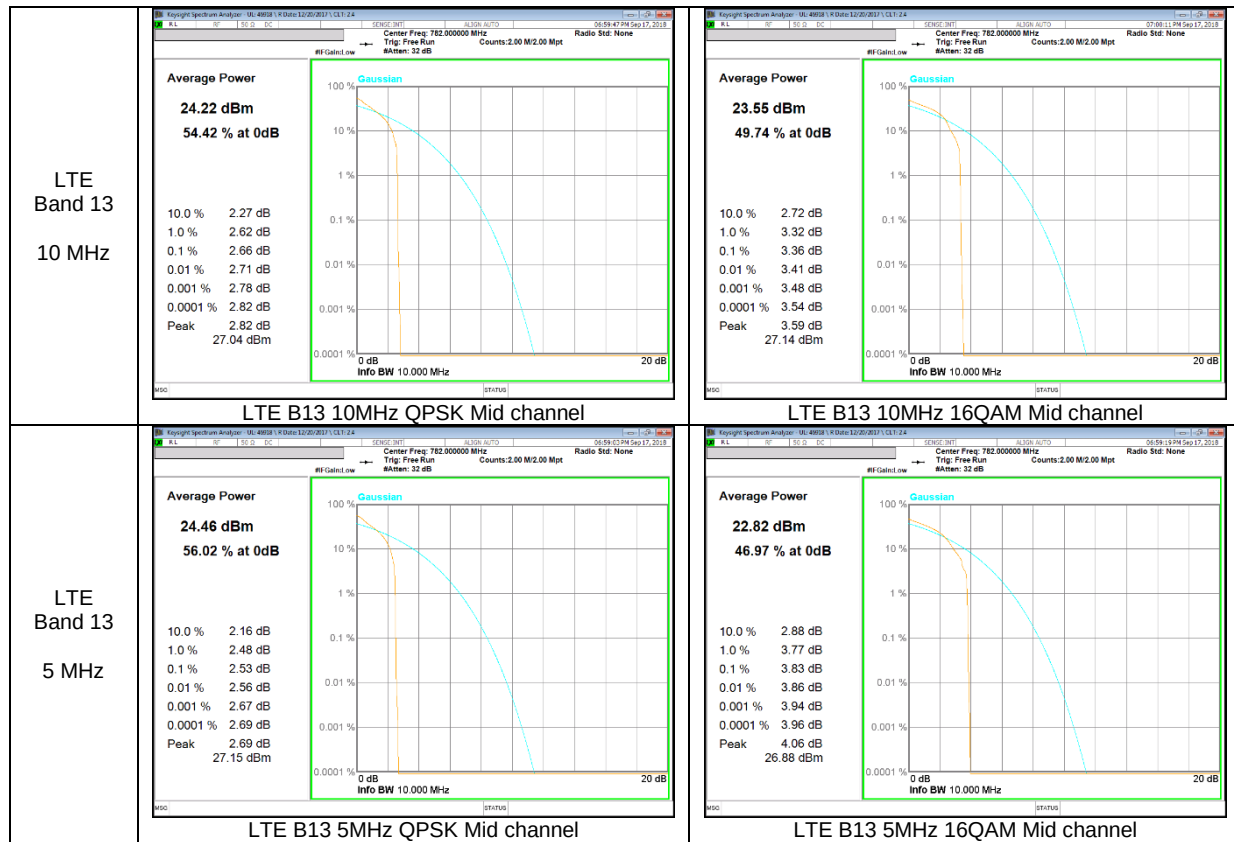
LTE Band 5



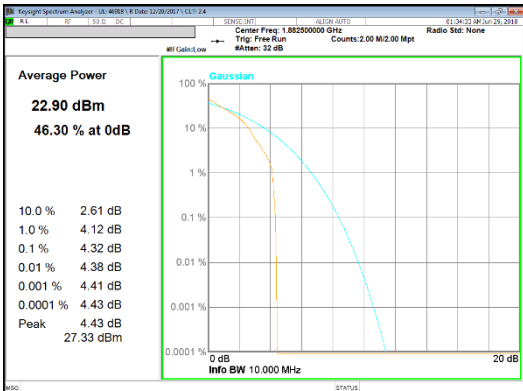
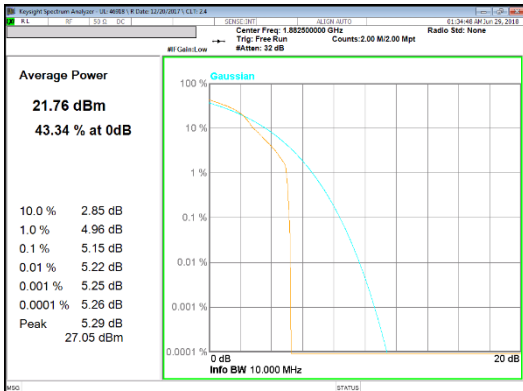
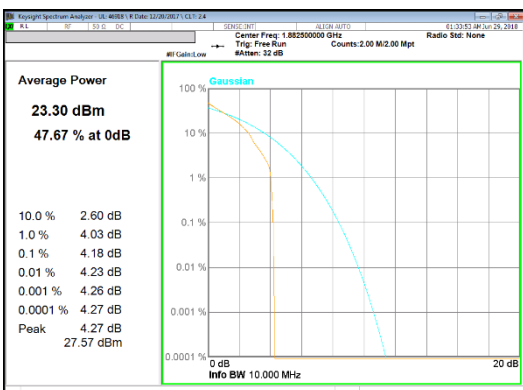
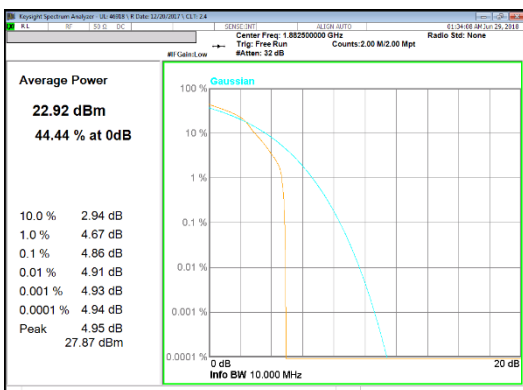
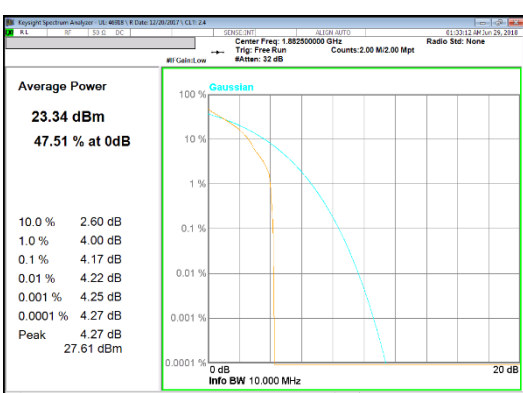
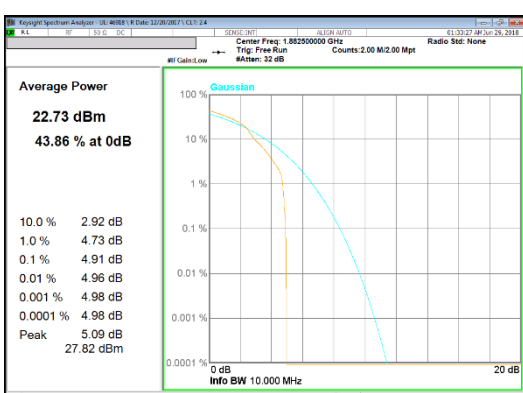
LTE Band 12

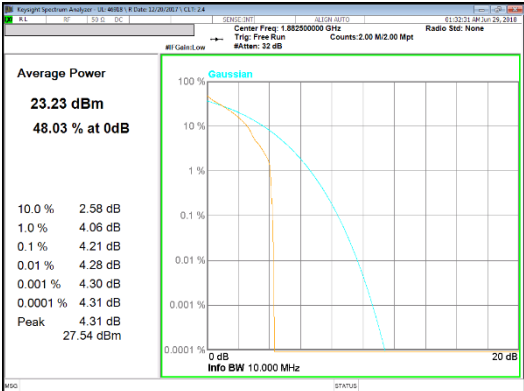
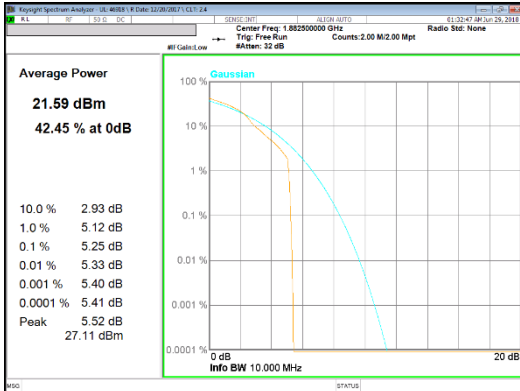
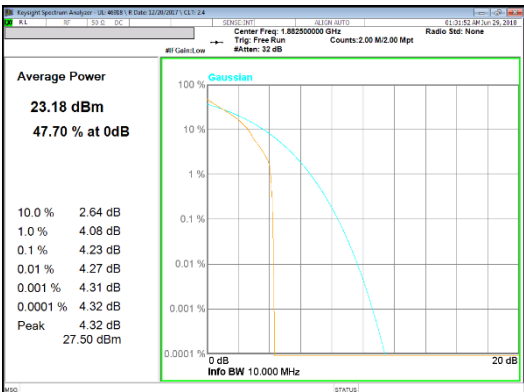
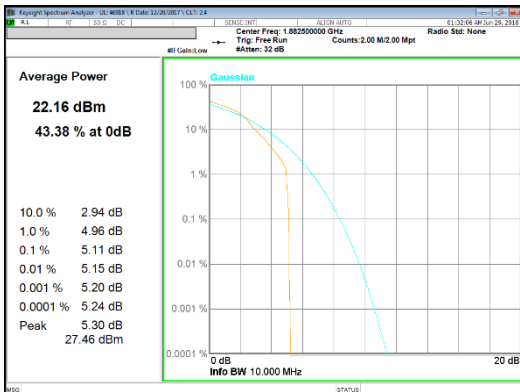
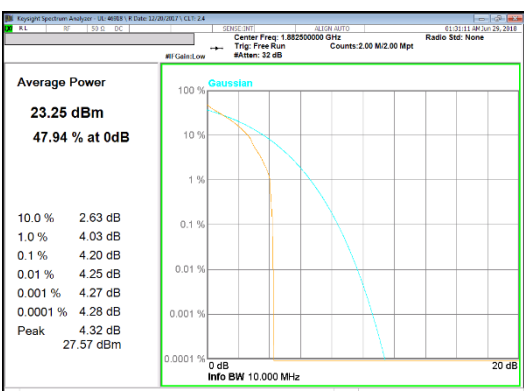
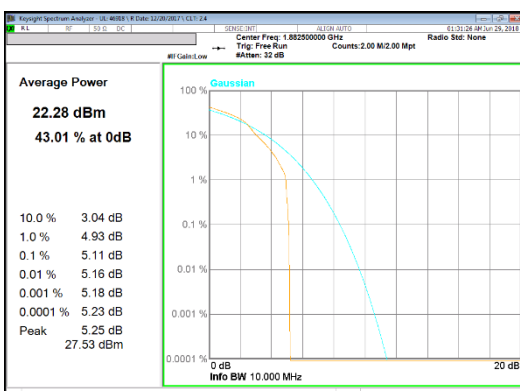


LTE Band 13



LTE Band 25

LTE Band 25 20 MHz	 Average Power 22.90 dBm 46.30 % at 0dB <table><tr><td>10.0 %</td><td>2.61 dB</td></tr><tr><td>1.0 %</td><td>4.12 dB</td></tr><tr><td>0.1 %</td><td>4.32 dB</td></tr><tr><td>0.01 %</td><td>4.38 dB</td></tr><tr><td>0.001 %</td><td>4.41 dB</td></tr><tr><td>0.0001 %</td><td>4.43 dB</td></tr><tr><td>Peak</td><td>4.43 dB</td></tr><tr><td>Peak</td><td>27.33 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 20MHz QPSK Mid channel	10.0 %	2.61 dB	1.0 %	4.12 dB	0.1 %	4.32 dB	0.01 %	4.38 dB	0.001 %	4.41 dB	0.0001 %	4.43 dB	Peak	4.43 dB	Peak	27.33 dBm	 Average Power 21.76 dBm 43.34 % at 0dB <table><tr><td>10.0 %</td><td>2.85 dB</td></tr><tr><td>1.0 %</td><td>4.96 dB</td></tr><tr><td>0.1 %</td><td>5.15 dB</td></tr><tr><td>0.01 %</td><td>5.22 dB</td></tr><tr><td>0.001 %</td><td>5.25 dB</td></tr><tr><td>0.0001 %</td><td>5.26 dB</td></tr><tr><td>Peak</td><td>5.29 dB</td></tr><tr><td>Peak</td><td>27.05 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 20MHz 16QAM Mid channel	10.0 %	2.85 dB	1.0 %	4.96 dB	0.1 %	5.15 dB	0.01 %	5.22 dB	0.001 %	5.25 dB	0.0001 %	5.26 dB	Peak	5.29 dB	Peak	27.05 dBm
10.0 %	2.61 dB																																	
1.0 %	4.12 dB																																	
0.1 %	4.32 dB																																	
0.01 %	4.38 dB																																	
0.001 %	4.41 dB																																	
0.0001 %	4.43 dB																																	
Peak	4.43 dB																																	
Peak	27.33 dBm																																	
10.0 %	2.85 dB																																	
1.0 %	4.96 dB																																	
0.1 %	5.15 dB																																	
0.01 %	5.22 dB																																	
0.001 %	5.25 dB																																	
0.0001 %	5.26 dB																																	
Peak	5.29 dB																																	
Peak	27.05 dBm																																	
LTE Band 25 15 MHz	 Average Power 23.30 dBm 47.67 % at 0dB <table><tr><td>10.0 %</td><td>2.60 dB</td></tr><tr><td>1.0 %</td><td>4.03 dB</td></tr><tr><td>0.1 %</td><td>4.18 dB</td></tr><tr><td>0.01 %</td><td>4.23 dB</td></tr><tr><td>0.001 %</td><td>4.26 dB</td></tr><tr><td>0.0001 %</td><td>4.27 dB</td></tr><tr><td>Peak</td><td>4.27 dB</td></tr><tr><td>Peak</td><td>27.57 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 15MHz QPSK Mid channel	10.0 %	2.60 dB	1.0 %	4.03 dB	0.1 %	4.18 dB	0.01 %	4.23 dB	0.001 %	4.26 dB	0.0001 %	4.27 dB	Peak	4.27 dB	Peak	27.57 dBm	 Average Power 22.92 dBm 44.44 % at 0dB <table><tr><td>10.0 %</td><td>2.94 dB</td></tr><tr><td>1.0 %</td><td>4.67 dB</td></tr><tr><td>0.1 %</td><td>4.86 dB</td></tr><tr><td>0.01 %</td><td>4.91 dB</td></tr><tr><td>0.001 %</td><td>4.93 dB</td></tr><tr><td>0.0001 %</td><td>4.94 dB</td></tr><tr><td>Peak</td><td>4.95 dB</td></tr><tr><td>Peak</td><td>27.87 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 15MHz 16QAM Mid channel	10.0 %	2.94 dB	1.0 %	4.67 dB	0.1 %	4.86 dB	0.01 %	4.91 dB	0.001 %	4.93 dB	0.0001 %	4.94 dB	Peak	4.95 dB	Peak	27.87 dBm
10.0 %	2.60 dB																																	
1.0 %	4.03 dB																																	
0.1 %	4.18 dB																																	
0.01 %	4.23 dB																																	
0.001 %	4.26 dB																																	
0.0001 %	4.27 dB																																	
Peak	4.27 dB																																	
Peak	27.57 dBm																																	
10.0 %	2.94 dB																																	
1.0 %	4.67 dB																																	
0.1 %	4.86 dB																																	
0.01 %	4.91 dB																																	
0.001 %	4.93 dB																																	
0.0001 %	4.94 dB																																	
Peak	4.95 dB																																	
Peak	27.87 dBm																																	
LTE Band 25 10 MHz	 Average Power 23.34 dBm 47.51 % at 0dB <table><tr><td>10.0 %</td><td>2.60 dB</td></tr><tr><td>1.0 %</td><td>4.00 dB</td></tr><tr><td>0.1 %</td><td>4.17 dB</td></tr><tr><td>0.01 %</td><td>4.22 dB</td></tr><tr><td>0.001 %</td><td>4.25 dB</td></tr><tr><td>0.0001 %</td><td>4.27 dB</td></tr><tr><td>Peak</td><td>4.27 dB</td></tr><tr><td>Peak</td><td>27.61 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 10MHz QPSK Mid channel	10.0 %	2.60 dB	1.0 %	4.00 dB	0.1 %	4.17 dB	0.01 %	4.22 dB	0.001 %	4.25 dB	0.0001 %	4.27 dB	Peak	4.27 dB	Peak	27.61 dBm	 Average Power 22.73 dBm 43.86 % at 0dB <table><tr><td>10.0 %</td><td>2.92 dB</td></tr><tr><td>1.0 %</td><td>4.73 dB</td></tr><tr><td>0.1 %</td><td>4.91 dB</td></tr><tr><td>0.01 %</td><td>4.96 dB</td></tr><tr><td>0.001 %</td><td>4.98 dB</td></tr><tr><td>0.0001 %</td><td>4.98 dB</td></tr><tr><td>Peak</td><td>5.09 dB</td></tr><tr><td>Peak</td><td>27.82 dBm</td></tr></table> Info BW 10.000 MHz LTE B25 10MHz 16QAM Mid channel	10.0 %	2.92 dB	1.0 %	4.73 dB	0.1 %	4.91 dB	0.01 %	4.96 dB	0.001 %	4.98 dB	0.0001 %	4.98 dB	Peak	5.09 dB	Peak	27.82 dBm
10.0 %	2.60 dB																																	
1.0 %	4.00 dB																																	
0.1 %	4.17 dB																																	
0.01 %	4.22 dB																																	
0.001 %	4.25 dB																																	
0.0001 %	4.27 dB																																	
Peak	4.27 dB																																	
Peak	27.61 dBm																																	
10.0 %	2.92 dB																																	
1.0 %	4.73 dB																																	
0.1 %	4.91 dB																																	
0.01 %	4.96 dB																																	
0.001 %	4.98 dB																																	
0.0001 %	4.98 dB																																	
Peak	5.09 dB																																	
Peak	27.82 dBm																																	

LTE Band 25 5 MHz	 LTE B25 5MHz QPSK Mid channel	 LTE B25 5MHz 16QAM Mid channel
LTE Band 25 3 MHz	 LTE B25 3MHz QPSK Mid channel	 LTE B25 3MHz 16QAM Mid channel
LTE Band 25 1.4 MHz	 LTE B25 1.4MHz QPSK Mid channel	 LTE B25 1.4MHz 16QAM Mid channel

9. LIMITS AND CONDUCTED RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v03r01)

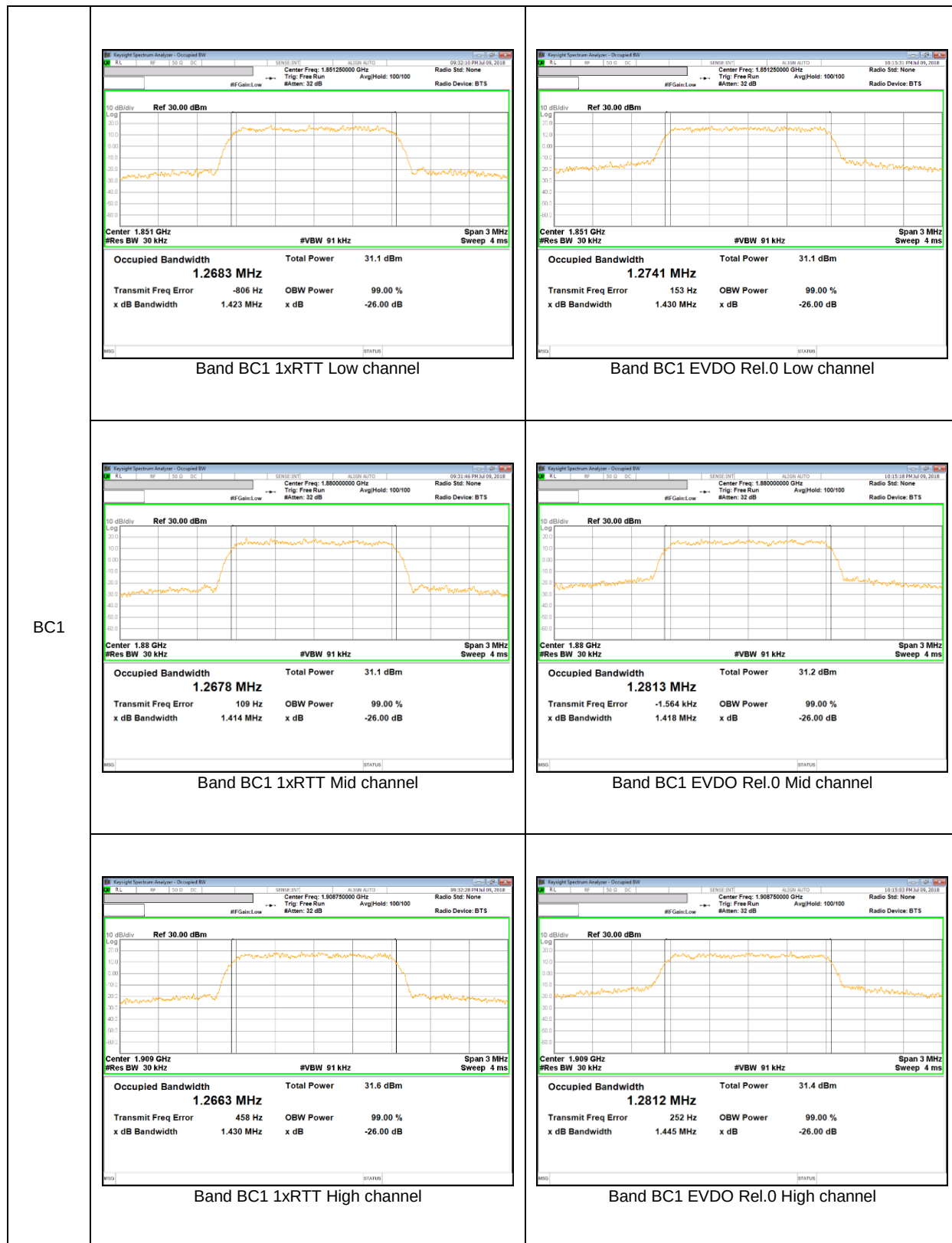
RESULTS

See the following pages.

9.1.1. OCCUPIED BANDWIDTH RESULTS

CDMA





LTE Band 2

