



# CERTIFICATION TEST REPORT

**Report Number.** : 4789467590-E2V2

**Applicant** : SAMSUNG ELECTRONICS CO., LTD.  
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,  
GYEONGGI-DO, 16677, KOREA

**Model** : SM-F707B, SCG04

**FCC ID** : A3LSMF707B

**EUT Description** : GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC  
and WPT

**Test Standard(s)** : 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  
FCC CFR47 PART 27 SUBPART M  
FCC CFR47 PART 90 SUBPART S

**Date Of Issue:**

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ACCREDITED

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TL-637

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	06/05/20	Initial issue	Jaejin Lee
V2	06/15/20	Updated to address manufacturer's request	Robby, Lee

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SAMSUNG ELECTRONICS CO., LTD.

**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC and WPT

**MODEL NUMBER:** SM-F707B, SCG04

**SERIAL NUMBER:** 4393b319881f7ece, 4393b900551f7ece (CONDUCTED)  
43420b68ff1f7ece, 4393c00da71f7ece, R3CN40D0ECK (RADIATED);

**DATE TESTED:** May 10, 2020 – June 04, 2020;

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27L, 27F, 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  
UL Korea, Ltd. By:



Junwhan Lee  
Suwon Lab Engineer  
UL Korea, Ltd.

Tested By:



Jaejin Lee  
Suwon Lab Engineer  
UL Korea, Ltd.

## 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. FCC CFR 47 Part 90.
6. ANSI TIA-603-E, 2016
7. ANSI C63.26, 2015
8. 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	
<input type="checkbox"/>	Chamber 1
<input checked="" type="checkbox"/>	Chamber 2
<input type="checkbox"/>	Chamber 3
<input checked="" type="checkbox"/>	10m Chamber

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.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:

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

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

(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	2.35 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.49 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.82 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.49 dB

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

### 4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 1, Clause 4.4.2 in IEC Guide 115:2007.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac/ax, NFC and WPT. 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:

Note : Conducted output power results were excerpted from RF exposure test report.(4789467590-S1 FCC Report SAR)

#### GSM

FCC Part 22/24						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
GSM850	824~849	GPRS	<b>32.07</b>	<b>1608.89</b>	27.07	508.82
		EGPRS	26.90	489.49	22.66	184.32
GSM1900	1850~1910	GPRS	29.91	980.13	<b>29.84</b>	<b>963.00</b>
		EGPRS	27.20	525.25	29.78	949.79

#### WCDMA

FCC Part 22/24/27						
Band	Frequency Range [MHz]	Modulation	Conducted		Radiated	
			Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 5	824~849	Rel. 99	25.04	319.32	20.07	101.52
		HSDPA	24.06	254.82	18.05	63.79
Band 4	1710~1755	Rel. 99	24.94	311.74	26.60	456.58
		HSDPA	24.00	251.09	26.30	426.57
Band 2	1850~1910	Rel. 99	<b>25.23</b>	<b>333.21</b>	<b>27.26</b>	<b>532.59</b>
		HSDPA	24.27	267.28	25.75	376.18

**LTE Band 12**

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 12	699 ~ 716	10	QPSK	24.72	296.61	<b>16.43</b>	<b>43.94</b>
			16QAM	23.99	250.52	15.50	35.47
			64QAM	22.90	195.14		
			256QAM	20.06	101.37		
		5	QPSK	<b>24.81</b>	<b>302.48</b>	16.14	41.12
			16QAM	24.17	260.97	15.64	36.63
			64QAM	23.07	202.89		
			256QAM	19.98	99.64		
		3	QPSK	24.65	291.44	15.84	38.40
			16QAM	24.08	255.61	14.38	27.45
			64QAM	22.94	196.63		
			256QAM	20.36	108.61		
		1.4	QPSK	24.70	294.79	15.74	37.50
			16QAM	24.06	254.47	15.57	36.06
			64QAM	23.63	230.55		
			256QAM	20.12	102.87		

**LTE Band 13**

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 13	777 ~ 787	10	QPSK	24.76	299.36	<b>17.52</b>	<b>56.49</b>
			16QAM	24.21	263.50	16.17	41.40
			64QAM	23.28	213.02		
			256QAM	20.04	100.93		
		5	QPSK	<b>24.82</b>	<b>303.74</b>	17.44	55.51
			16QAM	24.34	271.66	16.36	43.25
			64QAM	22.92	195.77		
			256QAM	20.07	101.60		



**LTE Band 25**

FCC Part 24							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 25	1850 ~ 1915	20	QPSK	<b>24.92</b>	<b>310.31</b>	<b>25.74</b>	<b>374.59</b>
			16QAM	24.32	270.41	24.71	295.50
			64QAM	23.33	215.34		
			256QAM	19.88	97.38		
		15	QPSK	24.68	293.46	25.43	348.79
			16QAM	24.21	263.60	24.54	284.16
			64QAM	22.75	188.18		
			256QAM	19.89	97.42		
		10	QPSK	24.68	293.88	25.06	320.90
			16QAM	24.07	255.11	24.25	266.30
			64QAM	22.06	160.62		
			256QAM	20.22	105.21		
		5	QPSK	24.58	286.87	24.88	307.30
			16QAM	24.02	252.31	23.90	245.22
			64QAM	21.76	149.90		
			256QAM	20.05	101.23		
		3	QPSK	24.51	282.68	24.94	311.57
			16QAM	23.90	245.46	24.66	292.12
			64QAM	21.95	156.58		
			256QAM	20.24	105.64		
1.4	QPSK	24.51	282.65	24.66	292.12		
	16QAM	24.23	264.61	23.39	218.05		
	64QAM	21.91	155.19				
	256QAM	19.82	95.94				

**LTE Band 26 (Part90)**

FCC Part 90							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	814 ~ 824	15	QPSK	25.18	329.95	18.28	67.22
			16QAM	24.61	289.09	16.88	48.70
			64QAM	23.34	215.72		
			256QAM	20.51	112.43		
		10	QPSK	<b>25.40</b>	<b>346.50</b>	18.16	65.51
			16QAM	24.47	280.17	16.99	50.04
			64QAM	23.11	204.83		
			256QAM	20.32	107.74		
		5	QPSK	25.17	328.68	<b>19.09</b>	<b>81.04</b>
			16QAM	24.73	297.50	18.46	70.12
			64QAM	22.37	172.52		
			256QAM	20.46	111.05		
		3	QPSK	25.33	340.82	18.70	74.09
			16QAM	24.74	297.74	17.66	58.31
			64QAM	22.49	177.39		
			256QAM	20.47	111.33		
		1.4	QPSK	25.37	344.69	18.80	75.80
			16QAM	24.65	291.79	17.88	61.33
			64QAM	23.39	218.47		
			256QAM	20.60	114.84		

**LTE Band 26 (Part22)**

FCC Part 22							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 26	824 ~ 849	15	QPSK	24.94	312.08	18.77	75.32
			16QAM	24.51	282.73	17.72	59.14
			64QAM	23.42	219.96		
			256QAM	20.34	108.21		
		10	QPSK	<b>25.03</b>	<b>318.62</b>	<b>19.55</b>	<b>90.24</b>
			16QAM	24.41	276.22	17.90	61.71
			64QAM	23.31	214.38		
			256QAM	20.06	101.48		
		5	QPSK	25.02	317.62	18.94	78.33
			16QAM	24.21	263.42	17.85	60.94
			64QAM	22.92	195.82		
			256QAM	20.09	102.03		
		3	QPSK	24.90	308.70	18.82	76.25
			16QAM	24.03	253.03	17.57	57.18
			64QAM	23.20	208.98		
			256QAM	20.53	113.07		
		1.4	QPSK	24.91	310.05	18.60	72.38
			16QAM	24.13	258.77	17.89	61.46
			64QAM	23.37	217.47		
			256QAM	20.21	105.06		

**LTE Band 41(PC3)**

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 41	2496 ~ 2690	20	QPSK	<b>25.20</b>	<b>330.99</b>	27.52	565.15
			16QAM	24.35	272.13	26.97	497.92
			64QAM	23.12	205.01		
			256QAM	20.27	106.49		
		15	QPSK	25.10	323.78	<b>28.00</b>	<b>630.59</b>
			16QAM	24.23	264.82	26.31	427.31
			64QAM	23.42	220.04		
			256QAM	20.30	107.16		
		10	QPSK	25.15	327.29	26.86	485.23
			16QAM	24.22	264.15	25.98	396.23
			64QAM	23.27	212.11		
			256QAM	20.23	105.38		
		5	QPSK	25.16	327.74	26.60	456.82
			16QAM	24.18	261.72	26.26	422.42
			64QAM	23.25	211.27		
			256QAM	20.27	106.39		

**LTE Band 66**

FCC Part 27							
Band	Frequency Range [MHz]	BandWidth [MHz]	Modulation	Conducted		Radiated	
				Avg [dBm]	Avg [mW]	Avg [dBm]	Avg [mW]
Band 66	1710 ~ 1780	20	QPSK	24.99	315.55	<b>27.10</b>	<b>512.27</b>
			16QAM	24.48	280.62	26.48	444.12
			64QAM	22.31	170.36		
			256QAM	20.29	106.91		
		15	QPSK	24.96	313.23	26.76	473.70
			16QAM	24.04	253.24	25.75	375.41
			64QAM	22.34	171.31		
			256QAM	20.36	108.56		
		10	QPSK	24.85	305.36	25.39	345.54
			16QAM	23.97	249.57	24.24	265.16
			64QAM	22.21	166.34		
			256QAM	20.25	105.91		
		5	QPSK	<b>25.02</b>	<b>317.79</b>	26.89	488.09
			16QAM	24.23	264.95	25.62	364.34
			64QAM	22.67	184.81		
			256QAM	20.18	104.31		
		3	QPSK	24.96	313.11	26.65	461.85
			16QAM	24.32	270.55	24.28	267.61
			64QAM	22.25	167.86		
			256QAM	20.29	106.81		
1.4	QPSK	24.81	302.87	26.97	497.17		
	16QAM	24.50	281.54	25.15	326.96		
	64QAM	22.95	197.30				
	256QAM	20.09	102.18				

**LTE Band 2**

LTE Band 2(Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 4**

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 5**

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**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.

### 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)
GSM1900 / WCDMA Band 2 / LTE Band 2 / LTE Band 25 1850 ~ 1915 MHz	-0.79
WCDMA Band 4 / LTE Band 4 / LTE Band 66 1710 ~ 1780 MHz	-0.60
GSM850 / WCDMA Band 5 / LTE Band 5 / LTE Band 26 814 ~ 849 MHz	-2.27
LTE Band 12 / LTE Band 17 699 ~ 716 MHz	-4.55
LTE Band 41 2496 ~ 2690 MHz	-0.53
LTE Band 13 777 ~ 787 MHz	-3.94

## 5.4. WORST-CASE ORIENTATION

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

- GSM GPRS/EGPRS
- UMTS REL 99/HSDPA

For all LTE Bands, the worst-case scenario for all measurements is based on the average conducted output power measurement investigation results. Output power measurements were measured on QPSK, 16QAM, 64QAM and 256QAM modulations. It was found that QPSK and 16QAM results were worst case. 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.

Highest power setting for each bands				
LTE Band	Frequency (MHz)	Bandwidth (MHz)	RB size	RB offset
12	701.5	5	1	12
	707.5		1	12
	713.5		1	24
13	779.5	5	1	24
	782.0		1	24
	784.5		1	0
25	1857.5	15	1	74
	1882.5		1	74
	1907.5		1	0
26 (Part 90)	819	10	1	0
26 (Part 22)	829.0	10	1	0
	831.5		1	0
	844.0		1	0
41(PC3)	2503.5	15	1	0
	2593.0		1	37
	2682.5		1	74
66	1712.5	5	1	0
	1745.0		1	0
	1777.5		1	0



The status of EUT was considered in three conditions(Open, Fully folded and Half folded).  
 (Please refer to setup photo)

The fundamental and radiated spurious emission were investigated in three orthogonal orientations X, Y and Z, it was determined that below orientation was worst-case orientation for each band.

Band	ERP/EIRP			RSE		
	X	Y	Z	X	Y	Z
GSM850	Open	-	-	Open	-	-
GSM1900	-	Half	-	-	Half	-
WCDMA B5	Open	-	-	Open	-	-
WCDMA B4	Half	-	-	Half	-	-
WCDMA B2	Half	-	-	Half	-	-
LTE B12	-	Half	-	-	Full	-
LTE B13	Half	-	-	Half	-	-
LTE B25	Half	-	-	Half	-	-
LTE B26	Open	-	-	Open	-	-
LTE B41(PC3)	Half	-	-	Half	-	-
LTE B66	Half	-	-	Half	-	-

Note : For ERP/EIRP testing, the EUT didn't attached with travel adapter. But radiated spurious testing, the EUT attached with travel adapter for the worst case condition. The EUT is continuously communicated with the call box during the tests.

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA200	R37M7QS0NL1DK3	N/A
Data Cable	SAMSUNG	EP-DF700	N/A	N/A
Earphone	SAMSUNG	GH59-15252A	N/A	N/A

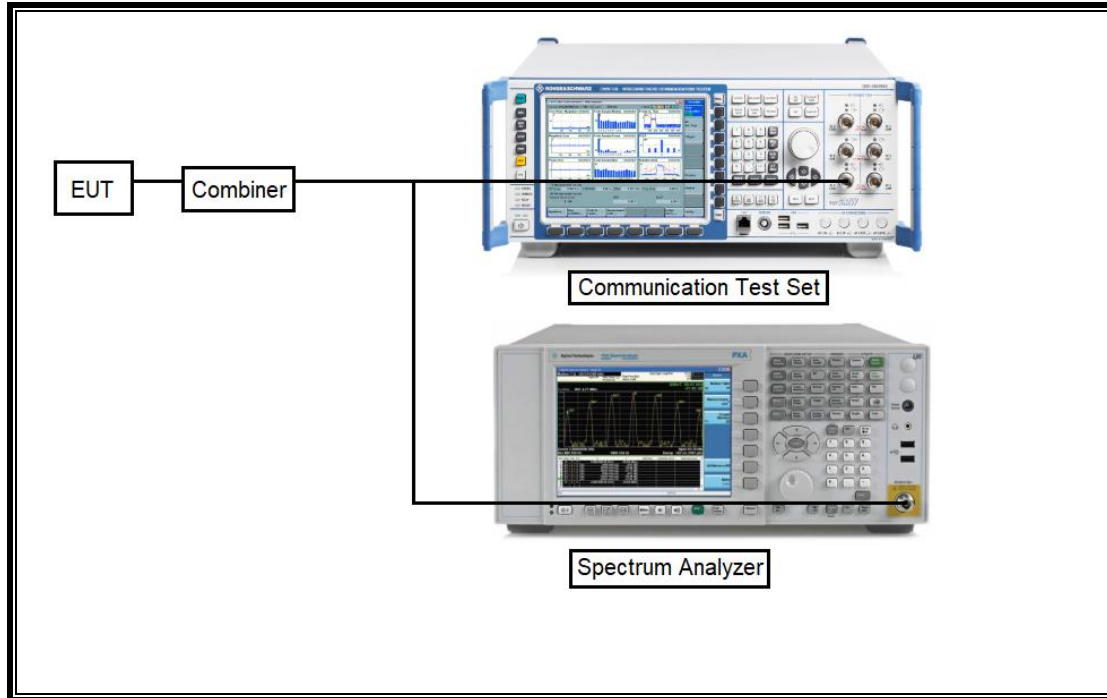
### I/O CABLE

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	1.0m	N/A

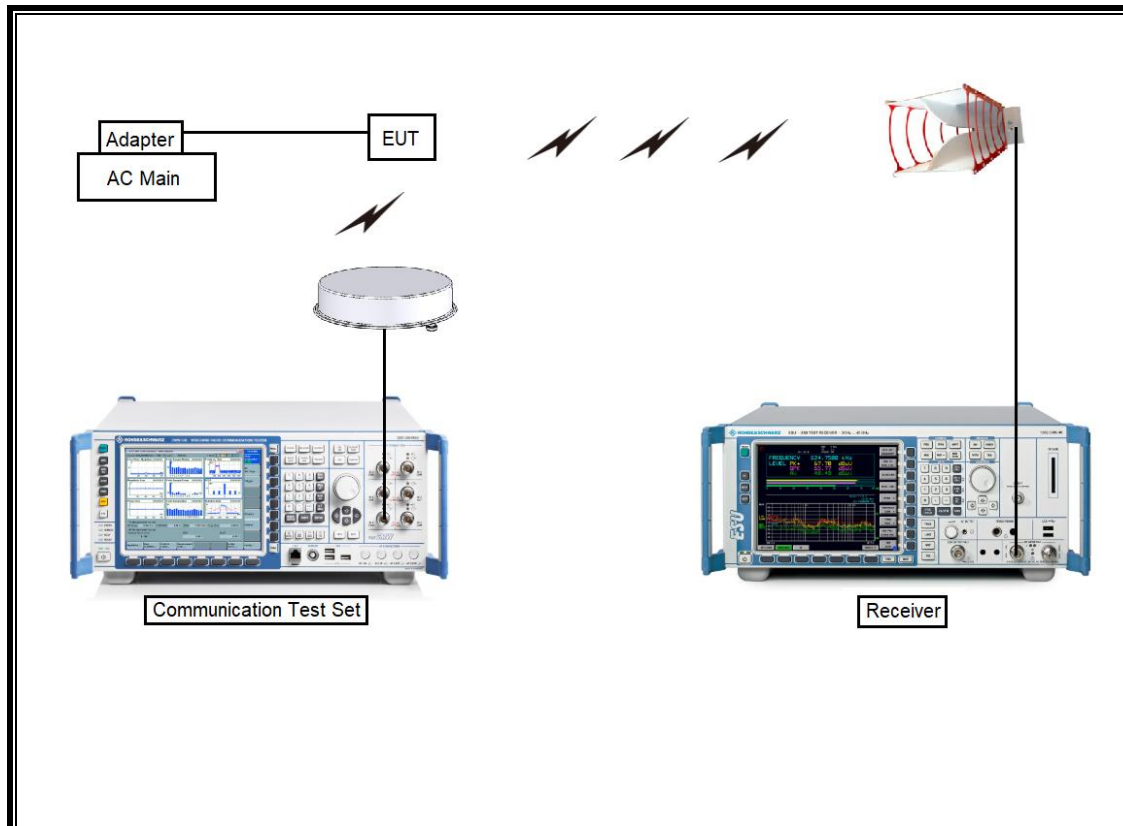
### TEST SETUP

The EUT is continuously communicated with 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	Cal Due
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121D DB4	00164753	01-30-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-13-20
Preamplifier	ETS	3116C-PA	00168841	08-08-20
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	1241	09-30-21
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	227048	09-18-21
Power Divider	WEINSCHTEL	1580	SQ373	08-08-20
Attenuator	WEINSCHTEL	54A-10	74560	08-08-20
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-06-20
Communications Test Set	R&S	CMW500	115331	08-05-20
DC Power Supply	KEYSIGHT	N5747A	MY57300040	08-06-20
Preamplifier, 1000 MHz	R&S	SCU08F2	100725	09-16-20
Preamplifier, 18 GHz	R&S	SCU18F	100721	09-16-20
Open Switch and Control	R&S	OSP220	101456	N/A
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-20
EMI Test Receive, 44 GHz	R&S	ESW44	101848	06-05-20
Directional Antenna	Cobham	FPA3-0.8-6.0R/1329	80108-0004	N/A
High Pass Filter 1.2GHz	Micro-Tronics	HPM50108-02	G005	08-05-20
High Pass Filter 2.8GHz	Micro-Tronics	HPM50111-02	010	08-05-20
High Pass Filter 4GHz	Micro-Tronics	HPM50118-02	G001	08-05-20
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-02-21
Temperature Chamber	ESPEC	PL-3J	15011850	08-06-20
UL Software				
Description	Manufacturer	Model	Version	
Antenna port test software	UL	CLT	Ver 2.5	

## 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) 90.691	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)	Conducted Spurious Emission	-25dBm		Pass
27.53(m) 90.691	Emission mask	Section 9.2.2		Pass
2.1046	Conducted output power	N/A		Pass
22.355 24.235 27.54 90.213	Frequency Stability	2.5PPM		Pass
22.913(a)(5)	Effective Radiated Power	38.5dBm	Radiated	Pass
90.635(b)		50 dBm		Pass
27.50(c)(10) 27.50(b)(10)		34.77dBm		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) 90.691	Radiated Spurious Emission	-13dBm		Pass
27.53 (m)		-25dBm	Pass	

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## 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

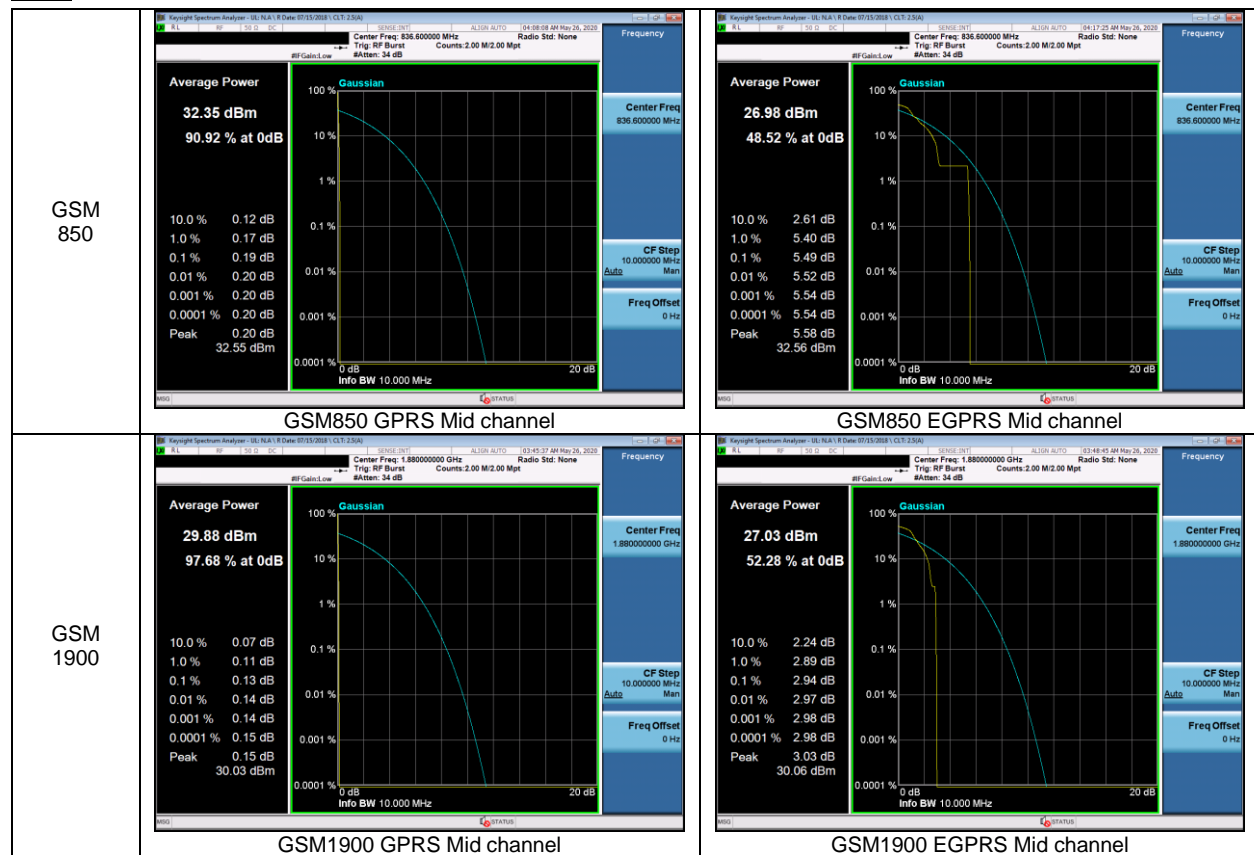
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

### RESULTS

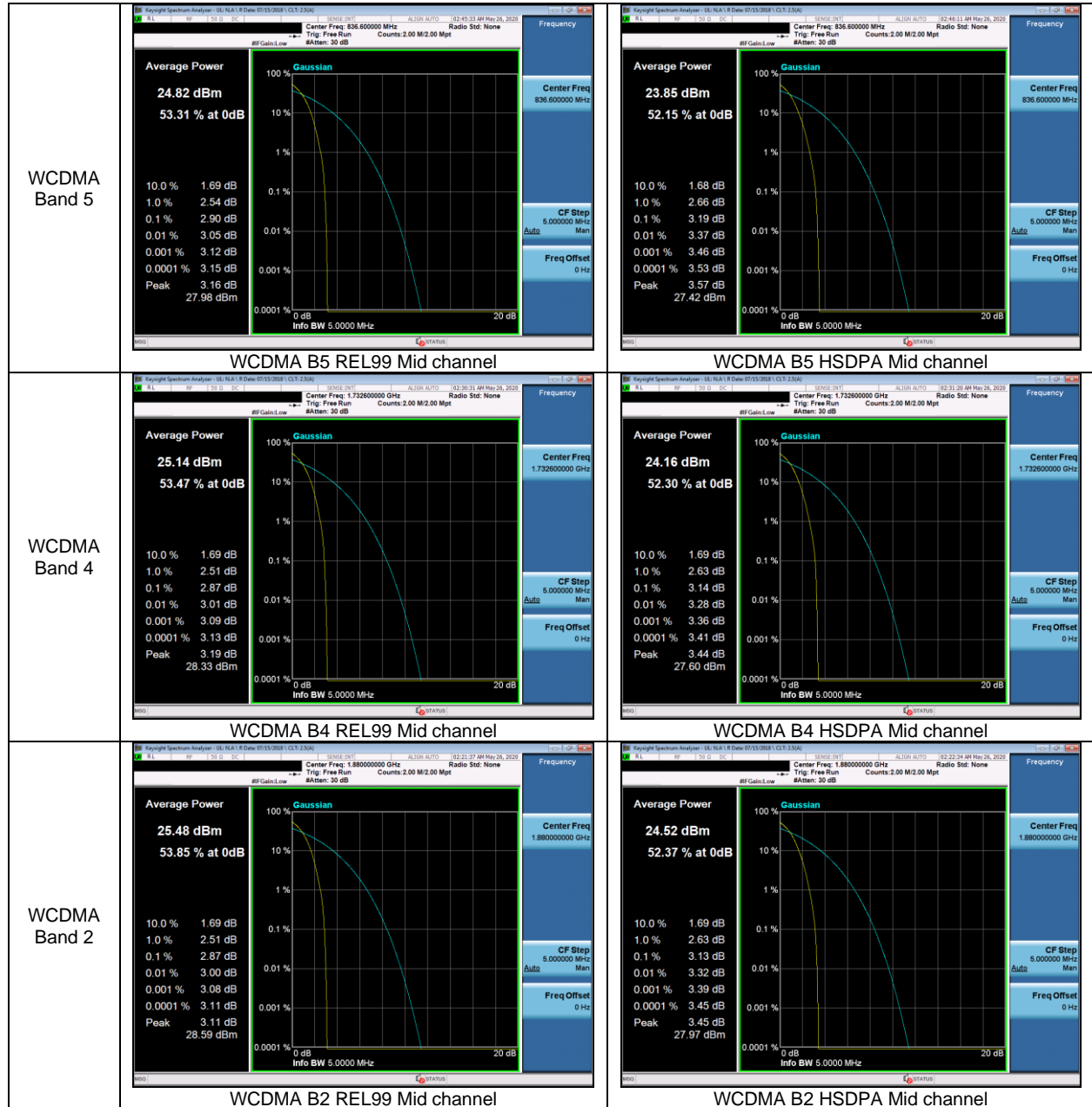
See the following pages.

## 8.1. CONDUCTED PEAK TO AVERAGE RESULT

### GSM

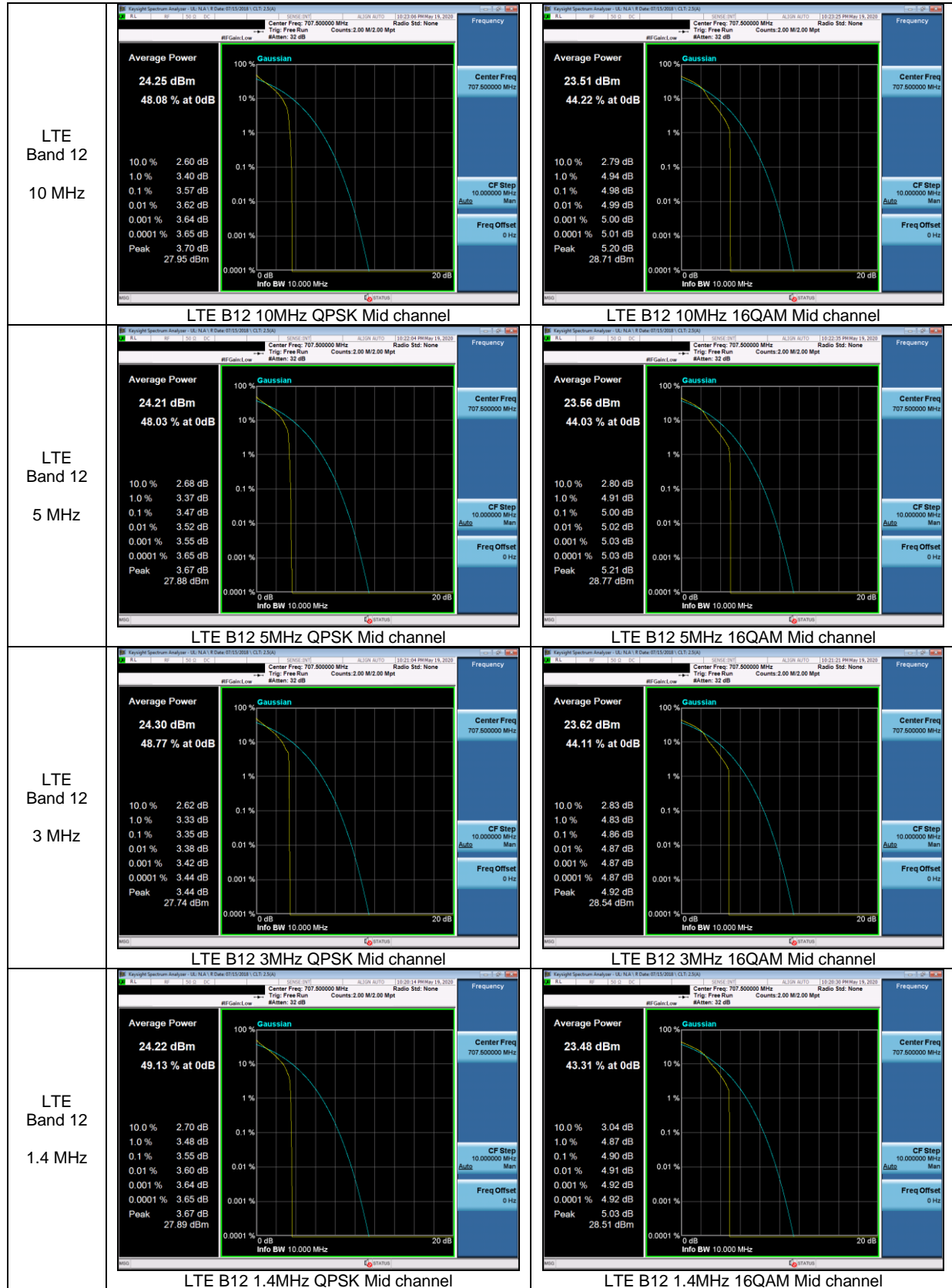


**WCDMA**

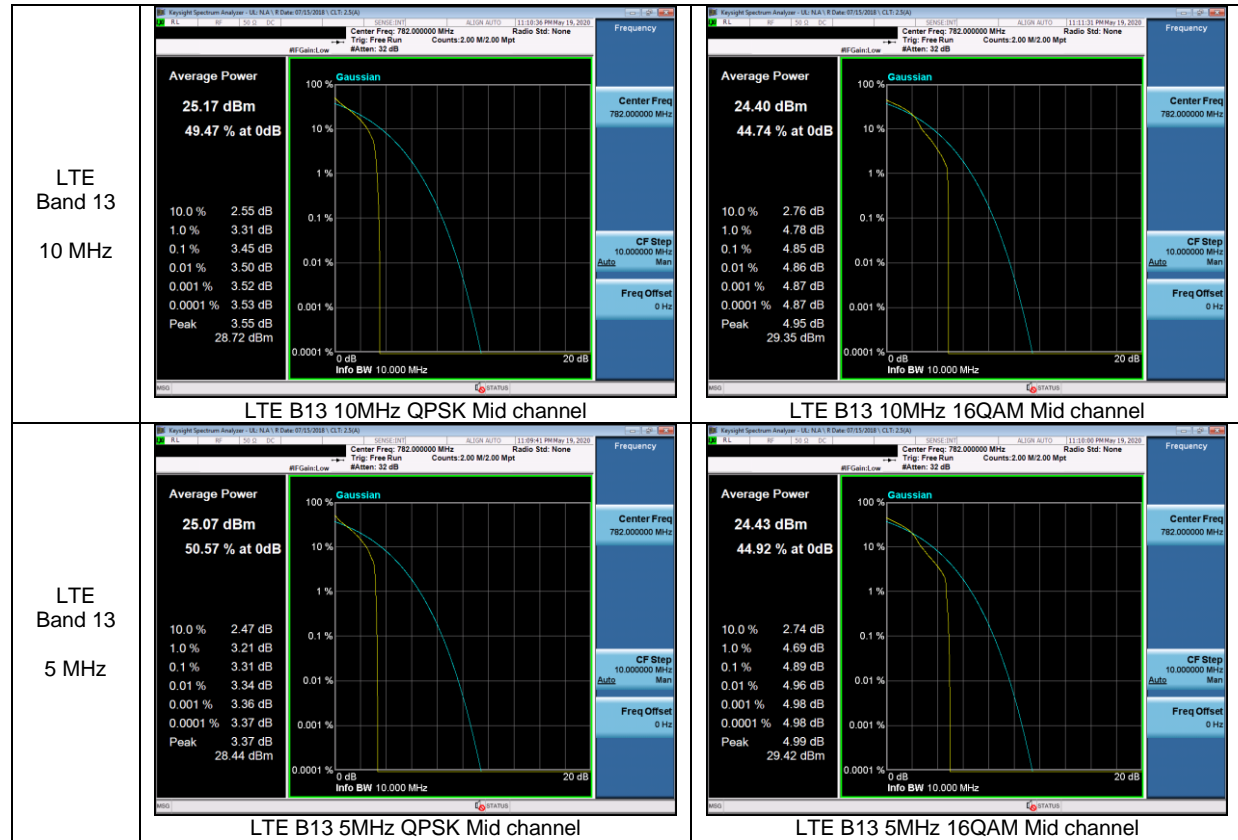




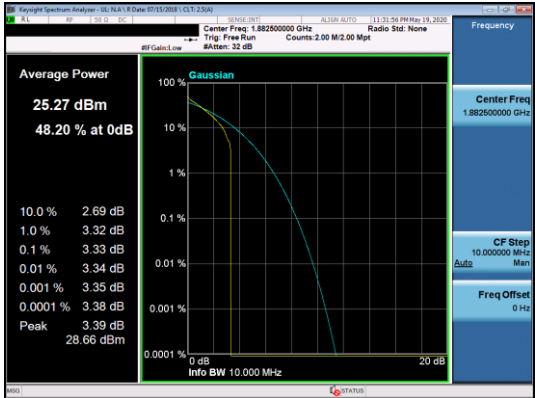
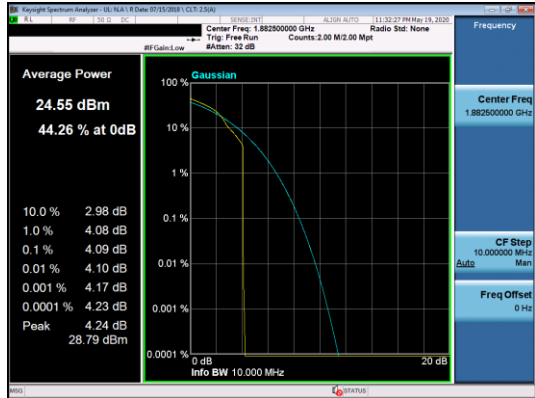
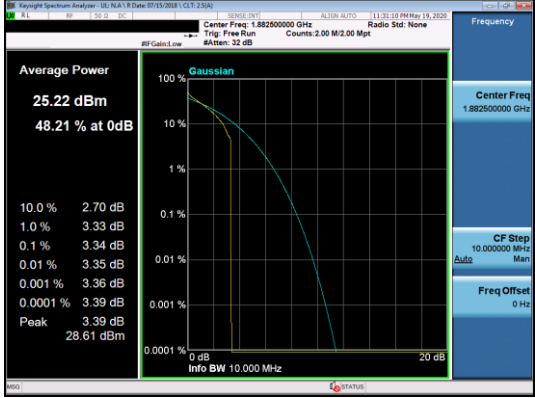
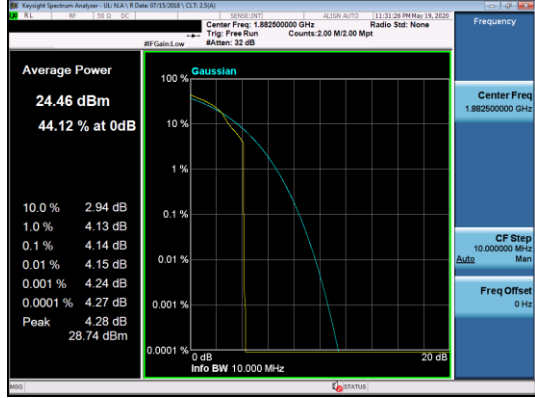
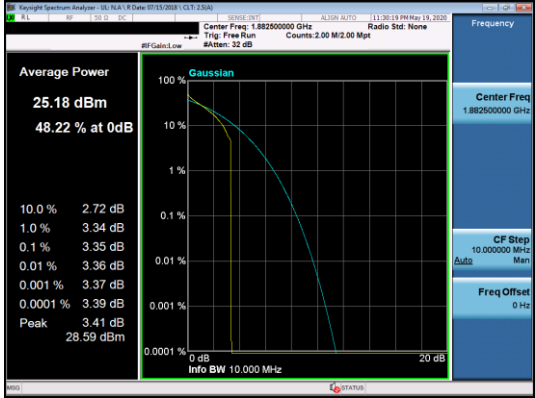
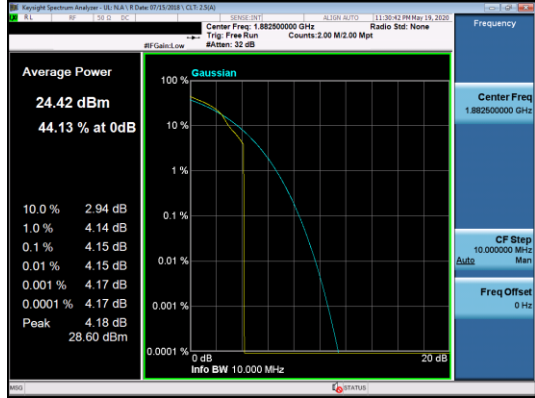
**LTE Band 12**

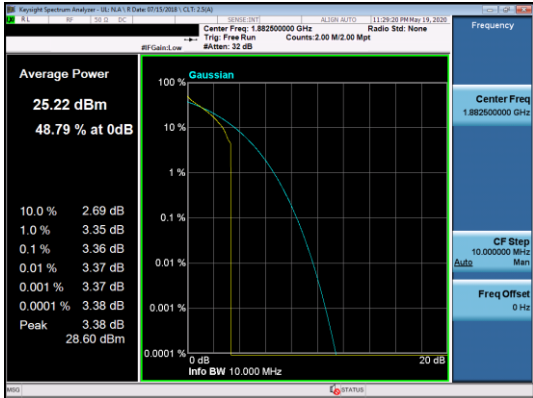
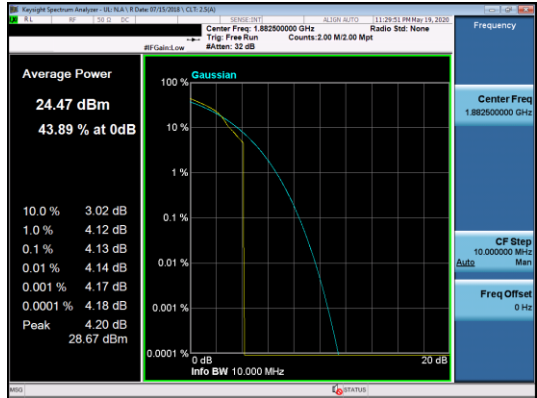
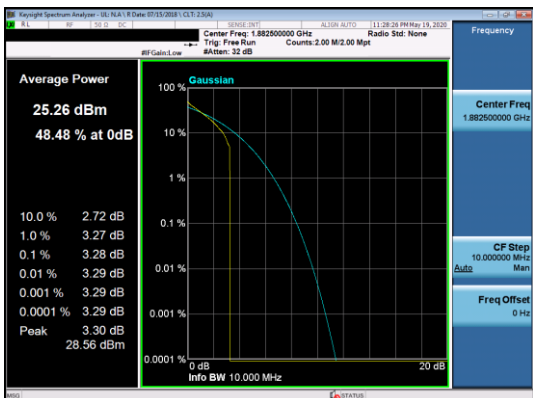
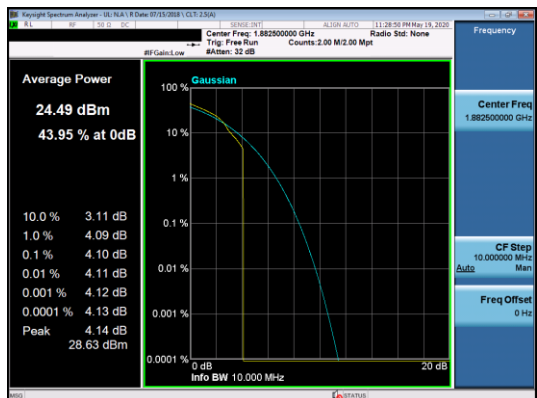
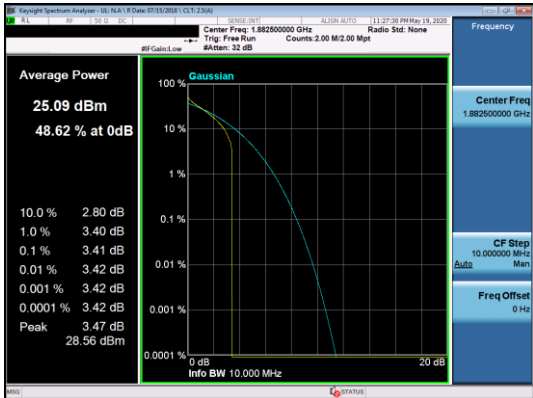
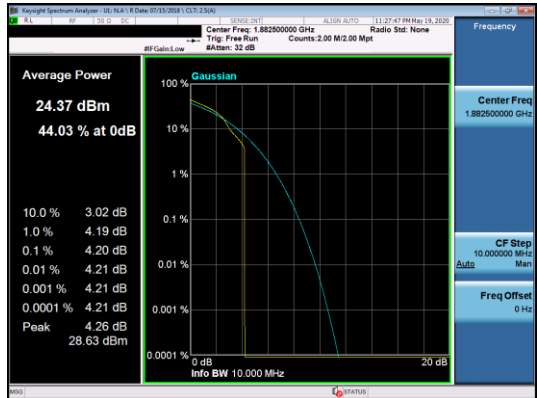


**LTE Band 13**

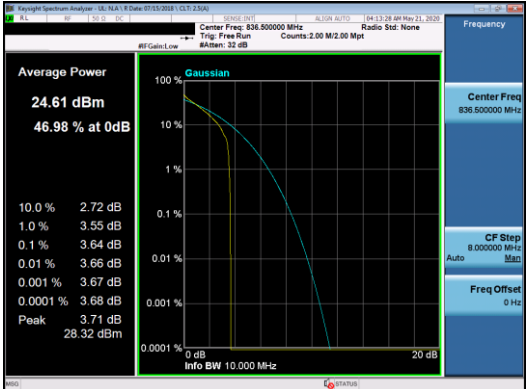
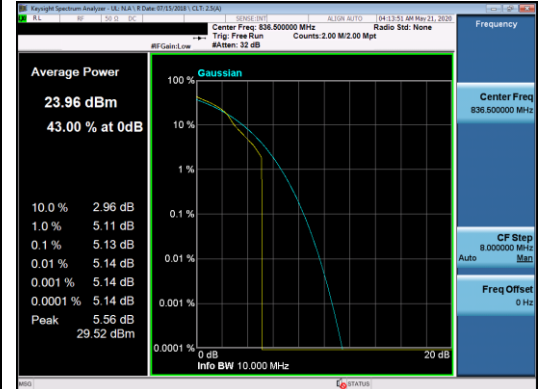
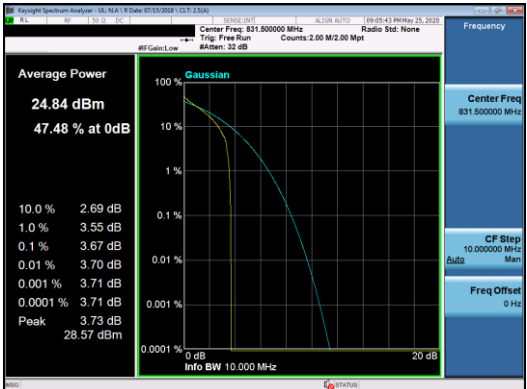
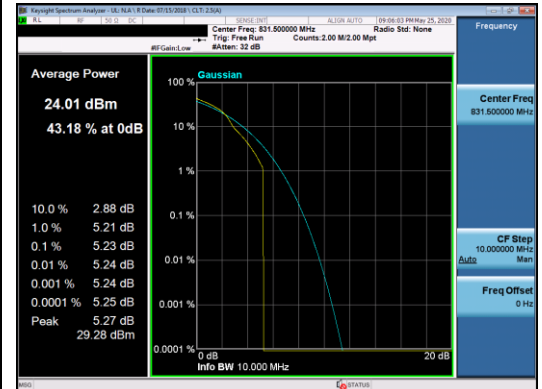
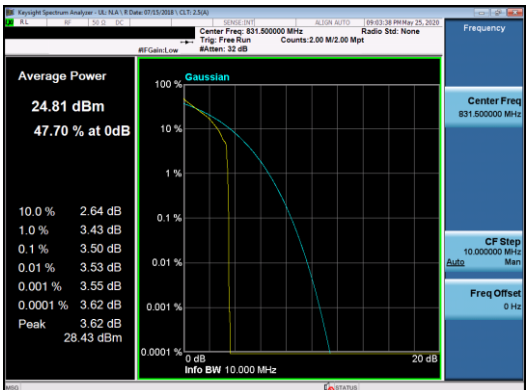
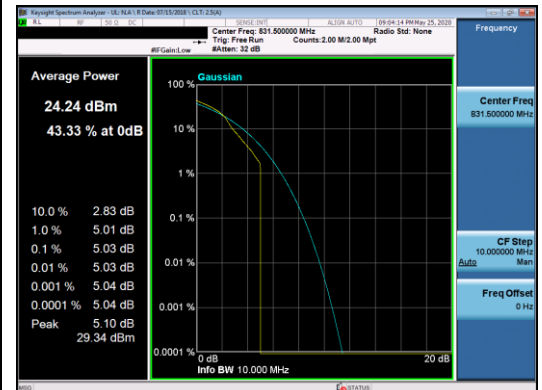


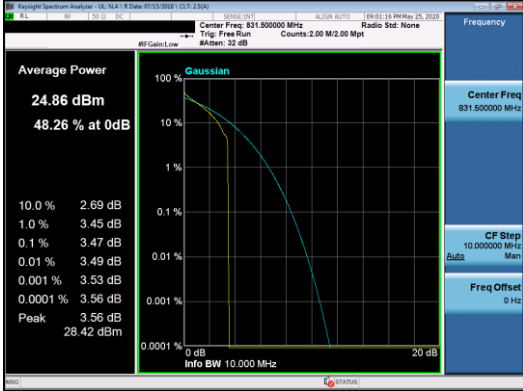
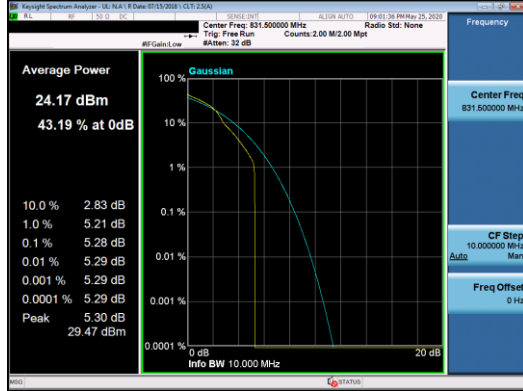
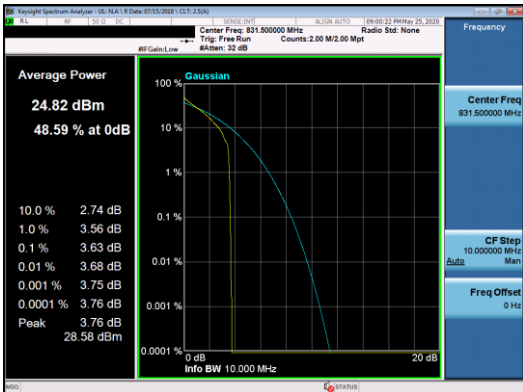
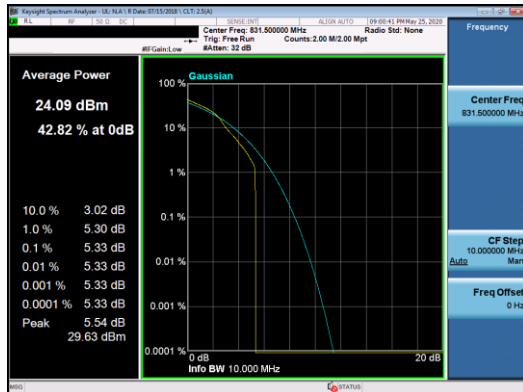
**LTE Band 25**

<p>LTE Band 25 20 MHz</p>	 <p>LTE B25 20MHz QPSK Mid channel</p>	 <p>LTE B25 20MHz 16QAM Mid channel</p>
<p>LTE Band 25 15 MHz</p>	 <p>LTE B25 15MHz QPSK Mid channel</p>	 <p>LTE B25 15MHz 16QAM Mid channel</p>
<p>LTE Band 25 10 MHz</p>	 <p>LTE B25 10MHz QPSK Mid channel</p>	 <p>LTE B25 10MHz 16QAM Mid channel</p>

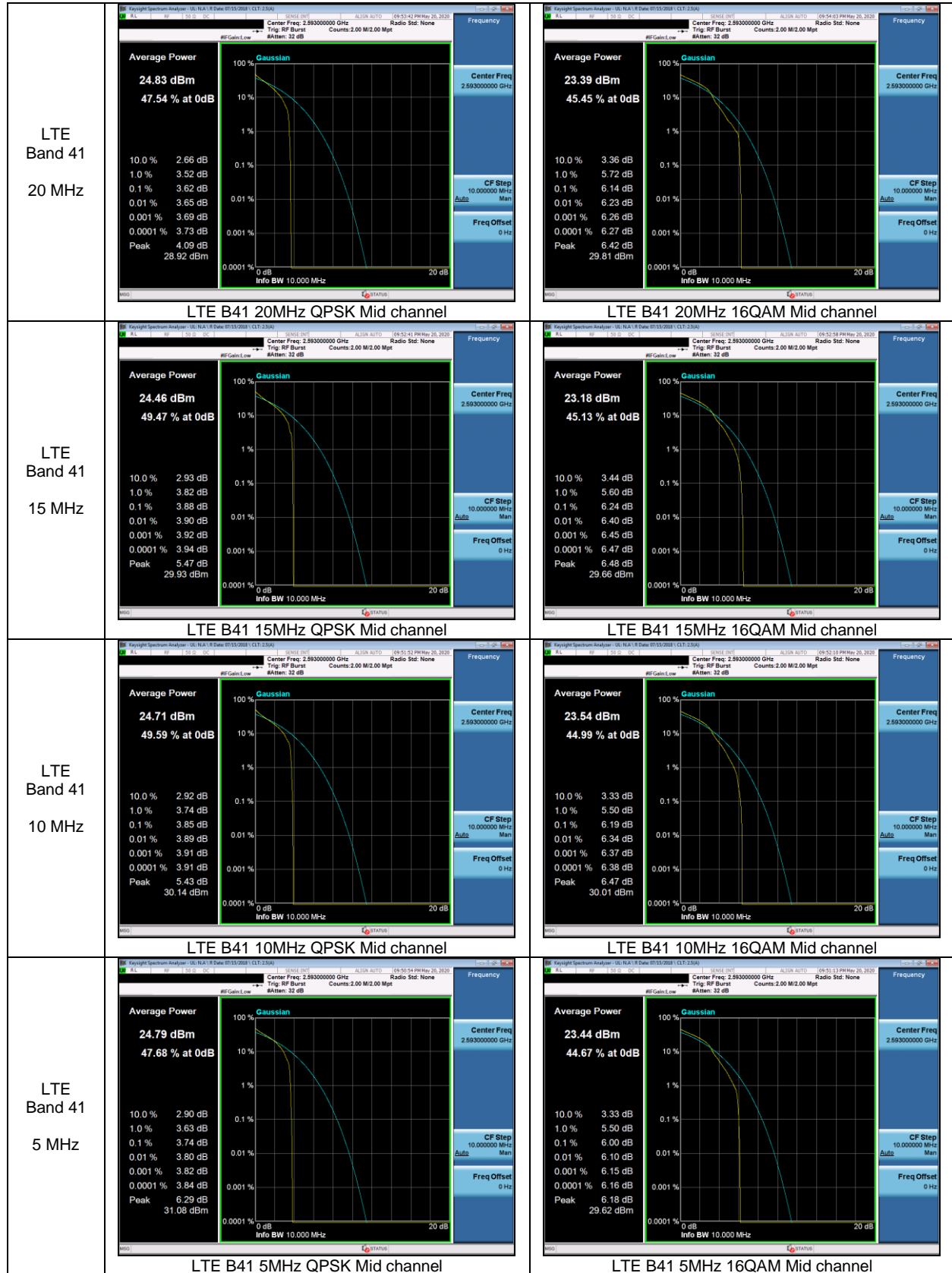
<p>LTE Band 25 5 MHz</p>	 <p>LTE B25 5MHz QPSK Mid channel</p>	 <p>LTE B25 5MHz 16QAM Mid channel</p>
<p>LTE Band 25 3 MHz</p>	 <p>LTE B25 3MHz QPSK Mid channel</p>	 <p>LTE B25 3MHz 16QAM Mid channel</p>
<p>LTE Band 25 1.4 MHz</p>	 <p>LTE B25 1.4MHz QPSK Mid channel</p>	 <p>LTE B25 1.4MHz 16QAM Mid channel</p>

**LTE Band 26**

<p>LTE Band 26 15 MHz</p>	 <p>LTE B26 15MHz QPSK Mid channel</p>	 <p>LTE B26 15MHz 16QAM Mid channel</p>
<p>LTE Band 26 10 MHz</p>	 <p>LTE B26 10MHz QPSK Mid channel</p>	 <p>LTE B26 10MHz 16QAM Mid channel</p>
<p>LTE Band 26 5 MHz</p>	 <p>LTE B26 5MHz QPSK Mid channel</p>	 <p>LTE B26 5MHz 16QAM Mid channel</p>

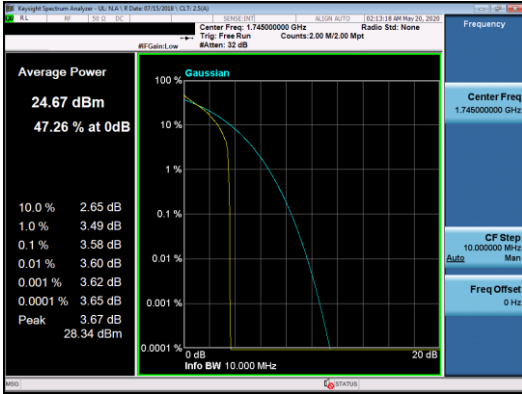
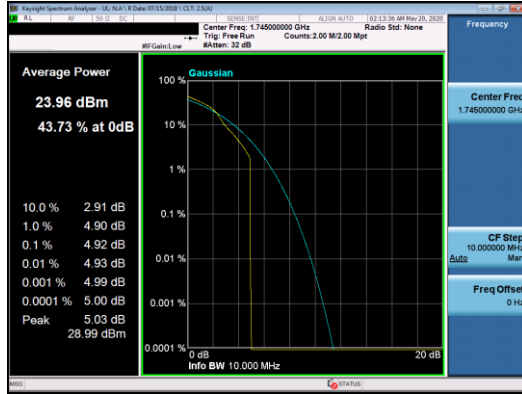
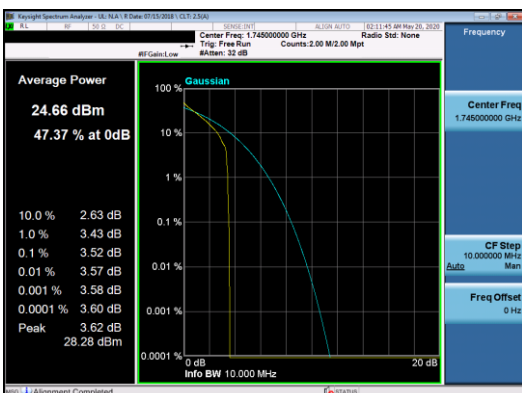
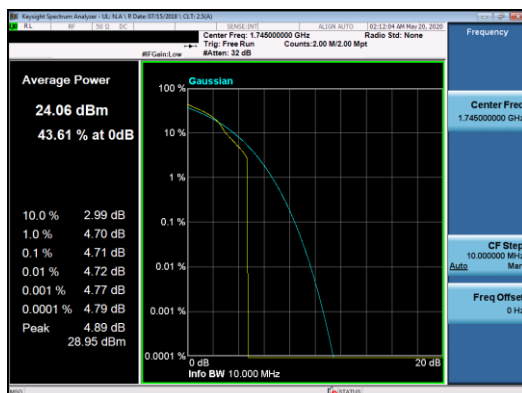
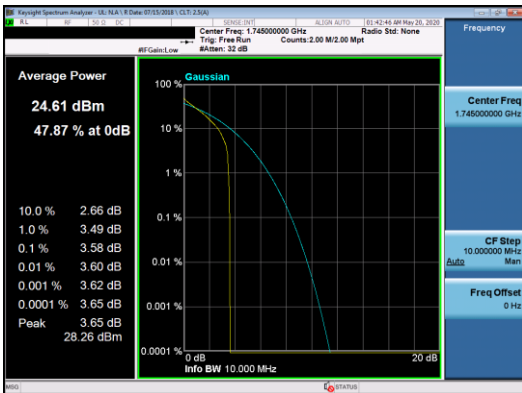
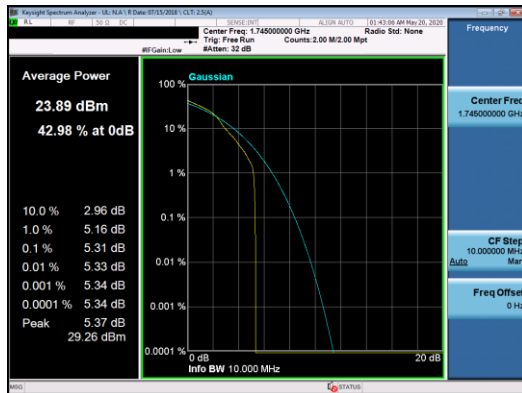
<p>LTE Band 26  3 MHz</p>	 <p>LTE B26 3MHz QPSK Mid channel</p>	 <p>LTE B26 3MHz 16QAM Mid channel</p>
<p>LTE Band 26  1.4 MHz</p>	 <p>LTE B26 1.4MHz QPSK Mid channel</p>	 <p>LTE B26 1.4MHz 16QAM Mid channel</p>

**LTE Band 41(PC3)**

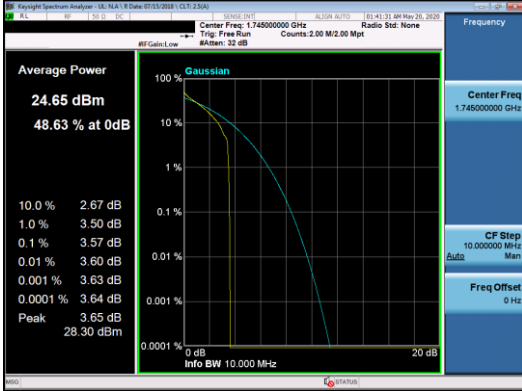
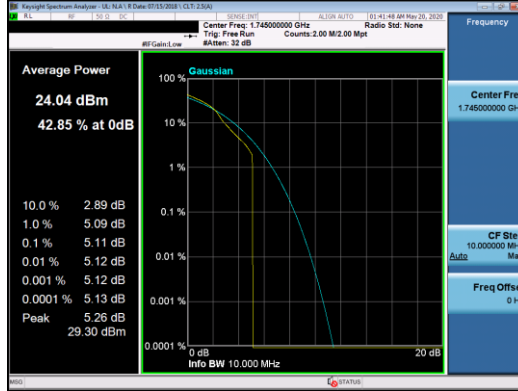
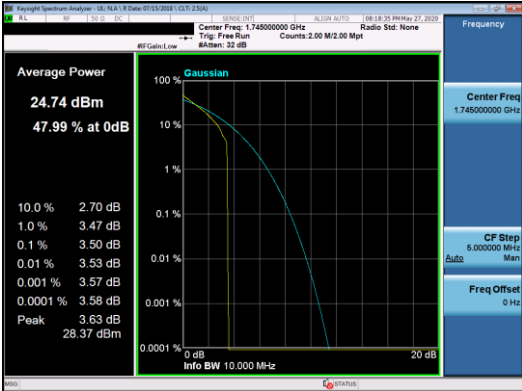
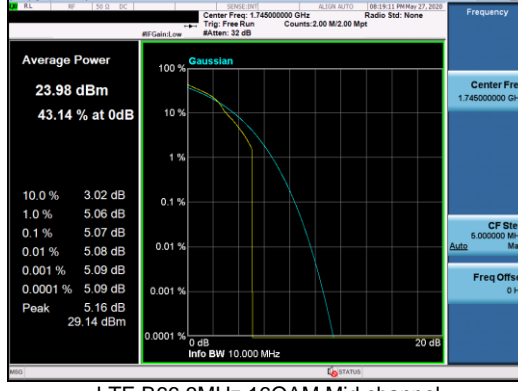
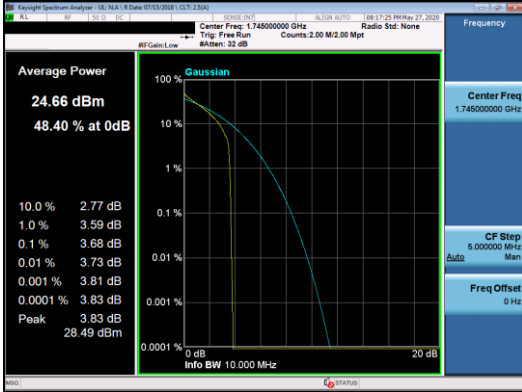
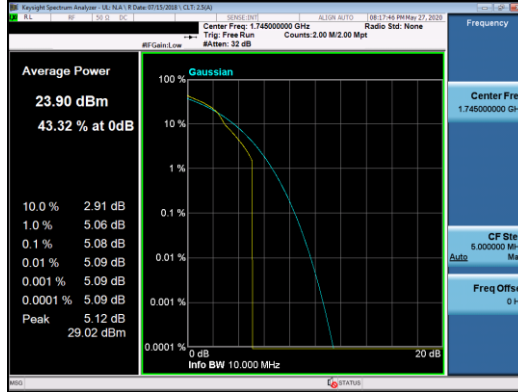




**LTE Band 66**

<p>LTE Band 66 20 MHz</p>	 <p>LTE B66 20MHz QPSK Mid channel</p>	 <p>LTE B66 20MHz 16QAM Mid channel</p>
<p>LTE Band 66 15 MHz</p>	 <p>LTE B66 15MHz QPSK Mid channel</p>	 <p>LTE B66 15MHz 16QAM Mid channel</p>
<p>LTE Band 66 10 MHz</p>	 <p>LTE B66 10MHz QPSK Mid channel</p>	 <p>LTE B66 10MHz 16QAM Mid channel</p>



<p>LTE Band 66  5 MHz</p>	 <p>LTE B66 5MHz QPSK Mid channel</p>	 <p>LTE B66 5MHz 16QAM Mid channel</p>
<p>LTE Band 66  3 MHz</p>	 <p>LTE B66 3MHz QPSK Mid channel</p>	 <p>LTE B66 3MHz 16QAM Mid channel</p>
<p>LTE Band 66  1.4 MHz</p>	 <p>LTE B66 1.4MHz QPSK Mid channel</p>	 <p>LTE B66 1.4MHz 16QAM Mid channel</p>

**LTE Band 2**

LTE Band 2(Frequency range: 1850-1910 MHz) is covered by LTE Band 25 (Frequency range: 1850-1915 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 4**

LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**LTE Band 5**

LTE Band 5 (Frequency range: 824-849 MHz) is covered by LTE Band 26 (Frequency range: 814-849 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

**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.

## 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.

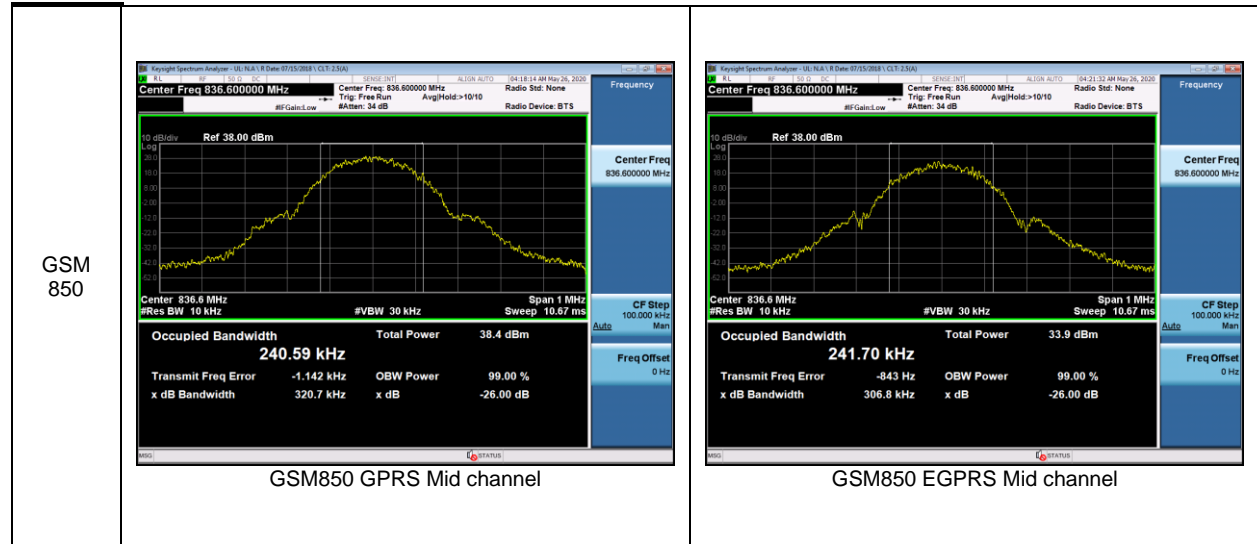
(KDB 971168 D01 Power Meas License Digital Systems v03r01)

#### RESULTS

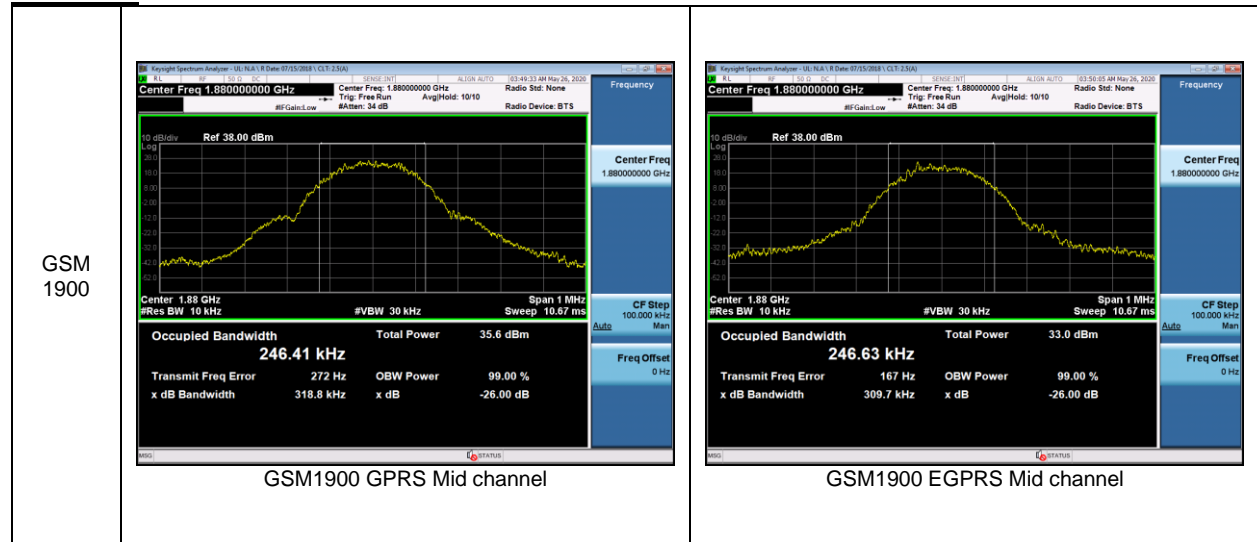
See the following pages.

### 9.1.1. OCCUPIED BANDWIDTH RESULTS

#### GSM 850



#### GSM 1900



**WCDMA Band 5**



**WCDMA Band 4**



**WCDMA Band 2**

