TEST REPORT

FCC ID: 2AIZN-X6857

Product: Mobile Phone

Model No.: X6857

Trade Mark: Infinix

Report No.: WSCT-ANAB-R&E250100002A-RF

Issued Date: 14 February 2025

Issued for:

INFINIX MOBILITY LIMITED
FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

Issued By:

World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.
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1. GENERAL INFORMATION

Product:	Mobile Phone
Model No.:	X6857
Additional Model:	Infinix
Applicant:	**INFINIX MOBILITY LIMITED** FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	**INFINIX MOBILITY LIMITED** FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Date of Test:	10 December 2024 to 13 February 2025
Applicable Standards:	FCC CFR Title 47 Part 2, 22, 24 ,27, 90 ANSI C63.26-2015

The above equipment has been tested by World Standardization Certification& Testing Group (Shenzhen) Co., Ltd. And found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Wang Xiang ***(Wang Xiang)***

Checked By: Qin Shuiquan ***(Qin Shuiquan)***

Approved By: Li Huaibi ***(Li Huaibi)***

Date: 14 February 2025

2. GENERAL DESCRIPTION OF EUT

Equipment Type:	Mobile Phone
Model	X6857
Trade Mark	Infinix
Operating Bands	GSM/GPRS/EGPRS 850/1900 MHz WCDMA/HSDPA/HSUPA Band 2/4/5 FDD LTE Band 2/4/5/7/12/17/66 TDD LTE Band 38/41/42 FDD NR Band 5/7/12/66/71 TDD NR Band 38/41/77/78
Antenna Type:	Integral Antenna
Antenna gain:	GSM 850/WCDMA B5/LTE B5/NR N5：-6.17dbi PCS 1900/WCDMA B2/LTE B2: -0.81dbi WCDMA B4/LTE B4/ LTE B66/NR N66: -0.81dbi LTE B7/ LTE B38/ LTE B41/ NR N7/ NR N38/ NR N41:-0.3dbi LTE B12/LTE B17/NR N12: -5.49dbi NR N71:-6.07dbi LTE B42/NR 77/NR 78: -1.84dBi
Radiated Power (EIRP/ERP) Limit	GSM 850/WCDMA B5/LTE B5/NR N5：7.00W(38.45dBm) PCS 1900/WCDMA B2/LTE B2:2.00W(33.01dBm) WCDMA B4/LTE B4/ LTE B66/NR N66: 1.00W(30.00dBm) LTE B7/LTE B38/LTE B41/NR N7/NR N38/NR N41: 2.00W(33.01dBm) LTE B12/B17/NR N12/NR N71: 3.00W(34.77dBm) LTE B42/NR 77/NR 78: 1.00W(30.00dBm)
Operation Frequency Range:	GSM850: 824-849MHz (TX), 869-894MHz (RX) PCS1900: 1850-1910MHz (TX), 1930-1990MHz (RX) WCDMA Band2: 1850-1910MHz (TX), 1930-1990MHz (RX); WCDMA Band4: 1710-1755MHz (TX), 2110-2155MHz (RX); WCDMA Band5: 824-849MHz (TX), 869-894MHz (RX); LTE Band2: 1850-1910MHz (TX), 1930-1990MHz (RX); LTE Band4: 1710-1755MHz (TX), 2110-2155MHz (RX); LTE Band5: 824-849MHz (TX), 869-894MHz (RX); LTE Band7: 2500-2570MHz (TX), 2620-2690MHz (RX); LTE Band12: 699-716MHz (TX), 729-746MHz (RX); LTE Band17: 704-716MHz (TX), 734-746MHz (RX); LTE Band38: 2570-2620MHz(TX), 2570-2620MHz(RX); LTE Band41: 2496-2690 MHz(TX), 2496-2690 MHz(RX); LTE Band42: 3450-3550 MHz(TX), 3450-3550 MHz(RX); LTE Band66:1710-1780 MHz(TX), 2110-2200 MHz(RX); LTE UL CA: CA_B2A-B4A, CA_B2A-B5A, CA_B2A-B7A, CA_B4A-B5A, CA _B4A-B7A, CA_ B4A-B17A, CA_ B7A-B5A, CA_7C, CA_ 38C, CA _41C, CA_66C NR Band5: 824-849MHz (TX), 869-894MHz (RX); NR Band7: 2500-2570MHz (TX), 2620-2690MHz (RX); NR Band12: 699-716MHz (TX), 729-746MHz (RX); NR Band38:2570-2620MHz(TX), 2570-2620MHz(RX); NR Band41:2496-2690 MHz(TX), 2496-2690 MHz(RX); NR Band66:1710-1780 MHz(TX), 2110-2200 MHz(RX); NR Band71:663-698 MHz(TX), 617-652 MHz(RX); NR Band77:3450-3550 MHz(TX), 3450-3550 MHz(RX); NR Band77:3700-3980 MHz(TX), 3700-3980 MHz(RX);

	NR Band78:3450-3550 MHz(TX), 3450-3550 MHz(RX); NR Band78:3700-3800 MHz(TX), 3700-3800 MHz(RX); NSA(EN-DC): 2-n7/2-n66/2-n78 4-n7/4-n41/4-n78 5-n7/5-n38/5-n41/5-n66/5-n77/5-n78 7-n7/7-n66/7-n77/7-n78 38-n78 41-n41/41-n77/41-n78 66-n7/66-n38/66-n41/66-n66/66-n77/66-n78
Modulation Type	GSM/GPRS: GMSK EGPRS: 8PSK WCDMA: QPSK HSDPA/HSUPA: QPSK /16QAM LTE: QPSK/16QAM NR: BPSK/ QPSK/16QAM/64QAM/256QAM
Operating Voltage:	Adapter: U450XSB Input: 100-240V~50/60Hz 1.8A Output: 5.0V⎓3.0A 15W or 5.0-10.0V⎓4.5A or 11.0V⎓4.1A 45.0W MAX Rechargeable Li-ion Polymer Battery Model: BL-54BX Rated Voltage: 3.91V Rated Capacity: 5100mAh Nominal Energy: 19.95Wh Typical Capacity: 5200mAh Limited Charge Voltage: 4.50V
Max power:	See Table 2.1
Remark:	N/A.

Note：
1. The EUT is a Mobile Phone, supporting dual SIM card slots under the same transceiver. Both SIM card slots support GSM, WCDMA, LTE, NR and both SIM card slots share the same transceiver, so only SIM1 is tested in this report.
2. The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.
3. N/A stands for no applicable.
4. Antenna gain provided by the customer.

Table 2.1 Maximum power in the operating frequency band.

Operation Band (s)	Power Class	Modulation Type	Maximum conducted output power (dBm)	ERP/EIRP (dBm)
GSM 850	Class 4	GMSK	32.48	24.16
EGPRS 850	Class 4	8PSK	28.20	19.88
GSM 1900	Class 1	GMSK	30.01	29.20
EGPRS 1900	Class 1	8PSK	25.80	24.99
WCDMA Band 2	Class 3	QPSK	23.16	22.35
WCDMA Band 4	Class 3	QPSK	24.03	23.22
WCDMA Band 5	Class 3	QPSK	23.22	14.90
E-UTRA Band 2	Class 3	QPSK	22.39	21.58
E-UTRA Band 2	Class 3	16QAM	21.66	20.85
E-UTRA Band 4	Class 3	QPSK	22.73	21.92
E-UTRA Band 4	Class 3	16QAM	22.12	21.31
E-UTRA Band 5	Class 3	QPSK	22.57	14.25
E-UTRA Band 5	Class 3	16QAM	22.09	13.77
E-UTRA Band 7	Class 3	QPSK	22.52	22.22
E-UTRA Band 7	Class 3	16QAM	21.99	21.69
E-UTRA Band 12	Class 3	QPSK	23.28	15.64
E-UTRA Band 12	Class 3	16QAM	22.69	15.05
E-UTRA Band 17	Class 3	QPSK	23.33	15.69
E-UTRA Band 17	Class 3	16QAM	22.67	15.03
E-UTRA Band 38	Class 3	QPSK	22.45	22.15
E-UTRA Band 38	Class 3	16QAM	21.74	21.44
E-UTRA Band 41	Class 3	QPSK	22.36	22.06
E-UTRA Band 41	Class 3	16QAM	21.85	21.55
E-UTRA Band 42 (3450-3550Mhz)	Class 3	QPSK	20.43	18.59
	Class 3	16QAM	19.89	18.05
E-UTRA Band 66	Class 3	QPSK	22.75	21.94
E-UTRA Band 66	Class 3	16QAM	22.11	21.30
NR n5	Class 3	BPSK	22.71	14.39
	Class 3	QPSK	22.78	14.46
	Class 3	16QAM	21.89	13.57

	Class 3	64QAM	20.72	12.40
	Class 3	256QAM	18.65	10.33
NR n7	Class 3	BPSK	22.31	22.01
	Class 3	QPSK	22.37	22.07
	Class 3	16QAM	21.36	21.06
	Class 3	64QAM	20.04	19.74
	Class 3	256QAM	17.96	17.66
NR n12	Class 3	BPSK	22.86	15.22
	Class 3	QPSK	22.96	15.32
	Class 3	16QAM	22.27	14.63
	Class 3	64QAM	20.40	12.76
	Class 3	256QAM	18.26	10.62
NR n38	Class 3	BPSK	22.38	22.08
	Class 3	QPSK	22.64	22.34
	Class 3	16QAM	21.60	21.30
	Class 3	64QAM	20.16	19.86
	Class 3	256QAM	18.10	17.80
NR n41	Class 3	BPSK	22.34	22.04
	Class 3	QPSK	22.46	22.16
	Class 3	16QAM	21.60	21.30
	Class 3	64QAM	19.94	19.64
	Class 3	256QAM	17.94	17.64
NR n66	Class 3	BPSK	22.48	21.67
	Class 3	QPSK	22.50	21.69
	Class 3	16QAM	21.87	21.06
	Class 3	64QAM	20.14	19.33
	Class 3	256QAM	18.14	17.33
NR n71	Class 3	BPSK	23.33	15.11
	Class 3	QPSK	23.38	15.16
	Class 3	16QAM	22.22	14.00
	Class 3	64QAM	21.09	12.87
	Class 3	256QAM	18.81	10.59
	Class 3	BPSK	25.46	23.62

NR n77 (3450-3550Mhz)	Class 3	QPSK	25.65	23.81
	Class 3	16QAM	24.63	22.79
	Class 3	64QAM	23.59	21.75
	Class 3	256QAM	21.23	19.39
NR n77 (3700-3980 Mhz)	Class 3	BPSK	25.26	23.42
	Class 3	QPSK	25.45	23.61
	Class 3	16QAM	24.44	22.60
	Class 3	64QAM	23.11	21.27
	Class 3	256QAM	21.12	19.28
NR n78 (3450-3550 Mhz)	Class 3	BPSK	25.38	23.54
	Class 3	QPSK	25.56	23.72
	Class 3	16QAM	24.58	22.74
	Class 3	64QAM	23.50	21.66
	Class 3	256QAM	21.13	19.29
NR n78 (3700-3800 Mhz)	Class 3	BPSK	25.26	23.42
	Class 3	QPSK	25.35	23.51
	Class 3	16QAM	24.49	22.65
	Class 3	64QAM	23.02	21.18
	Class 3	256QAM	20.88	19.04

3. FACILITIES AND ACCREDITATIONS

3.1. Facilities

All measurement facilities used to collect the measurement data are located at **Building A-B,Baoli'an Industrial Park,No.58 and 60,Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China of the World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3.2. ACCREDITATIONS

ANAB - Certificate Number: AT-3951

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (ANAB).Certification Number: AT-3951

3.3. EUT System Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

Fig. 3.2-1 Configuration of EUT System

(EUT: Mobile Phone)

Table 3.2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Adapter	U450XSB		Accessories

***Note: All the accessories have been used during the test. The following "EUT" in setup diagram means EUT system.

3.4. Description Of Test Channels And Test Modes

Test channels:

Test Mode	UL Channel	UL Channel No.	UL Frequency (MHz)
GSM/GPRS/EGPRS 850	Low Channel	128	824.2
	Middle Channel	190	836.6
	High Channel	251	848.8
GSM/GPRS/EGPRS 1900	Low Channel	512	1850.2
	Middle Channel	661	1880.0
	High Channel	810	1909.8
WCDMA Band 2	Low Channel	9262	1852.4
	Middle Channel	9400	1880.0
	High Channel	9538	1907.6
WCDMA Band 4	Low Channel	1312	1712.4
	Middle Channel	1412	1732.6
	High Channel	1513	1752.6
WCDMA Band 5	Low Channel	4132	826.4
	Middle Channel	4182	836.4
	High Channel	4233	846.6

LTE Band2			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	1.4	18607	1850.7
	3	18615	1851.5
	5	18625	1852.5
	10	18650	1855
	15	18675	1857.5
	20	18700	1860
Mid Range	1.4/3/5/10/15/20	18900	1880
High Range	1.4	19193	1909.3
	3	19185	1908.5
	5	19175	1907.5
	10	19150	1905
	15	19125	1902.5
	20	19100	1900

LTE Band4			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	1.4	19957	1710.7
	3	19965	1711.5
	5	19975	1712.5
	10	20000	1715
	15	20025	1717.5
	20	20050	1720
Mid Range	1.4/3/5/10/15/20	20175	1732.5
High Range	1.4	20393	1754.3
	3	20385	1753.5
	5	20375	1752.5
	10	20350	1750
	15	20325	1747.5
	20	20300	1745

LTE Band 5			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	1.4	20407	824.7
	3	20415	825.5
	5	20425	826.5
	10	20450	829
Mid Range	1.4/3/5/10	20525	836.5
High Range	1.4	20643	848.3
	3	20635	847.5
	5	20625	846.5
	10	20600	844

LTE Band 7			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	20775	2502.5
	10	20800	2505
	15	20825	2507.5
	20	20850	2510
Mid Range	5/10/15/20	21100	2535
High Range	5	21425	2567.5
	10	21400	2565
	15	21375	2562.5
	20	21350	2560

LTE Band 12			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	1.4	23017	699.7
	3	23025	700.5
	5	23035	701.5
	10	23060	704
Mid Range	1.4/3/5/10	23095	707.5
High Range	1.4	23173	715.3
	3	23165	714.5
	5	23155	713.5
	10	23130	711

LTE Band 17			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	23755	706.5
	10	23780	709
Mid Range	5/10	23790	710
High Range	5	23825	713.5
	10	23800	711

LTE Band 38			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	37775	2572.5
	10	37800	2575
	15	37825	2577.5
	20	37850	2580
Mid Range	5/10/15/20	38000	2595
High Range	5	38225	2617.5
	10	38200	2615
	15	38175	2612.5
	20	38150	2610

LTE Band 41			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	39675	2498.5
	10	39700	2501
	15	39725	2503.5
	20	39750	2506
Mid Range	5/10/15/20	40620	2593
High Range	5	41565	2687.5
	10	41540	2685
	15	41515	2682.5
	20	41490	2680

LTE Band 42(3450-3550Mhz)			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	42115	3452.5
	10	42140	3455
	15	42165	3457.5
	20	42190	3460
Mid Range	5/10/15/20	42590	3500
High Range	5	43065	3547.5
	10	43040	3545
	15	43015	3542.5
	20	42990	3540

LTE Band66			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	1.4	131979	1710.7
	3	131987	1711.5
	5	131997	1712.5
	10	132022	1715
	15	132047	1717.5
	20	132322	1720
Mid Range	1.4/3/5/10/15/20	132322	1745
High Range	1.4	132665	1779.3
	3	132657	1778.5
	5	132647	1777.5
	10	132622	1775
	15	132597	1772.5
	20	132572	1770

NR n5			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	165800	829
	15	166300	831.5
	20	166800	834
Mid Range	10/15/20	167300	836.5
High Range	10	168800	844
	15	168300	841.5
	20	167800	839

NR n7			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	501000	2505
	15	501500	2507.5
	20	502000	2510
Mid Range	10/15/20	507000	2535
High Range	10	513000	2565
	15	512500	2562.5
	20	512000	2560

NR n12			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	140800	704
	15	141300	706.5
Mid Range	10/15	141500	707.5
High Range	10	142200	711
	15	141700	708.5

NR n38			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	515000	2575
	15	515500	2577.5
	20	522500	2580
Mid Range	10/15/20	519000	2595
High Range	10	523000	2615
	15	522500	2612.5
	20	522000	2610

NR n41			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	20	501204	2506
	50	504204	2521
	100	509202	2546
Mid Range	20/50/100	518598	2593
High Range	20	535998	2680
	50	532998	2665
	100	528000	2640

NR n66			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	343000	1715
	20	344000	1720
	40	346000	1730
Mid Range	10/20/40	349000	1745
High Range	10	355000	1775
	20	354000	1770
	40	349000	1760

NR n71			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	5	133100	665.5
	10	133600	668
	20	134600	673
Mid Range	5/15/20	136100	680.5
High Range	5	139100	695.5
	10	138600	693
	20	137600	688

NR n77(3450-3550Mhz)			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	630334	3455
	50	631668	3475
Mid Range	10/50/100	633334	3500
High Range	10	636332	3545
	50	635000	3525

NR n77(3700-3980Mhz)			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	647000	3705
	50	648334	3725
	100	650000	3750
Mid Range	10/50/100	656000	3840
High Range	10	665000	3975
	50	663666	3955
	100	662000	3930

NR n78(3450-3550Mhz)			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	630334	3455
	50	631668	3475
Mid Range	10/50/100	633334	3500
High Range	10	636332	3545
	50	635000	3525

NR n78(3700-3800Mhz)			
Test Channel	BW(MHz)	UL Channel	Frequency(MHz)
Low Range	10	647000	3705
	50	648334	3725
Mid Range	10/50/100	650000	3750
High Range	10	653000	3795
	50	651666	3775

Note 1: BPSK&QPSK&16QAM&QAM64&QAM256 modulation has been measured;
Note 2: The worst condition was recorded in the test report if no other modes test data.

3.5. Equipment Modifications

Not available for this EUT intended for grant.

4. SUMMARY OF TEST REQUIREMENTS AND RESULTS

No.	Description	FCC Part No.	Test Verdict	Remark
1	Conducted RF Output Power	2.1046	Pass	--
2	Effective (Isotropic) Radiated Power	2.1046 22.913(a) 24.232(c) 27.50 90.635(b) 90.542(a) §90.1321(a)	Pass	--
3	Peak to Average Radio	2.1046 22.913(d) 24.232(d) 27.50(d)	Pass	--
4	Occupied Bandwidth	2.1049 22.917(b) 24.238(b) 27.53 90.209	Pass	--
5	Frequency Stability	2.1055 22.355 24.235 27.54 90.213	Pass	--
6	Spurious Emission at Antenna Terminals	2.1051 22.917 24.238 27.53 90.691 90.543	Pass	--
7	Band Edge	2.1051 22.917 24.238 27.53 90.691 90.543	Pass	--
8	Field Strength of Spurious Radiation	2.1053 22.917 24.238 27.53 90.691 90.543	Pass	--

5. MEASUREMENT INSTRUMENTS

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.
EMI Test Receiver	R&S	ESCI	100005	11/05/2024	11/04/2025
LISN	AFJ	LS16	16010222119	11/05/2024	11/04/2025
LISN(EUT)	Mestec	AN3016	04/10040	11/05/2024	11/04/2025
Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	11/05/2024	11/04/2025
Coaxial cable	Megalon	LMR400	N/A	11/05/2024	11/04/2025
GPIB cable	Megalon	GPIB	N/A	11/05/2024	11/04/2025
Spectrum Analyzer	R&S	FSU	100114	11/05/2024	11/04/2025
Pre Amplifier	H.P.	HP8447E	2945A02715	11/05/2024	11/04/2025
Pre-Amplifier	CDSI	PAP-1G18-38	--	11/05/2024	11/04/2025
Loop Antenna	R&S	HFH2-Z2	100296	11/05/2024	11/04/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	01488	7/29/2024	7/28/2025
9*6*6 Anechoic	--	--	--	11/05/2024	11/04/2025
Horn Antenna	COMPLIANCE ENGINEERING	CE18000	--	11/05/2024	11/04/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	11/05/2024	11/04/2025
Power meter	Anritsu	ML2487A	6K00003613	11/05/2024	11/04/2025
Power meter	Anritsu	MA2491A	32263	11/05/2024	11/04/2025
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	11/05/2024	11/04/2025
System-Controller	CCS	N/A	N/A	N.C.R	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R	N.C.R
RF cable	Murata	MXHQ87WA3000	-	11/05/2024	11/04/2025
Loop Antenna	EMCO	6502	00042960	11/05/2024	11/04/2025
Wideband Radio Communication Tester	R&S	CMW 500	103974	11/05/2024	11/04/2025
Horn Antenna	SCHWARZBECK	BBHA 9170	1123	11/05/2024	11/04/2025
H & T Chamber	Guangzhou gongwen	GDJS-500-40	0329	11/05/2024	11/04/2025
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY60192341	11/05/2024	11/04/2025
Anechoic chamber	SAEMC	966	-	11/05/2024	11/04/2025
Spectrum Analyzer	KEYSIGHT	N9010B	MY60241089	11/05/2024	11/04/2025

6. Transmitter Radiated Power (EIRP/ERP)

Test limit:

FCC § 2.1046 & 22.913(a) & 24.232(c) & 27.50(a) & 27.50(b) & 27.50(c) & 27.50(d) & 27.50(h) & 27.50(j) & 27.50(k) & 90.635(b) & 90.542(a)

According to FCC section 22.913(a) (5), the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC section 24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to FCC section 27.50(a) (3), for mobile and portable stations transmitting in the 2305-2315MHz band or the 2350-2360MHz band, the average EIRP must not exceed 50 mill watts within any 1 megahertz of authorized bandwidth, except that for mobile and portable stations compliant with 3GPP LTE standards. For mobile and portable stations using time division depleting (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands.

FCC section 27.50(b) (10), portable stations (hand-held devices) transmitting in the 746-757MHz, 776-788MHz, and 805-806MHz bands are limited to 3 watts ERP.

FCC section 27.50(c) (10), portable stations (hand-held devices) in the 600MHz uplink band and the 698-746MHz band, and fixed and mobile stations in the 600MHz uplink band are limited to 3 watts ERP.

FCC section 27.50(d) (4), fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

(7) Fixed, mobile, and portable (hand-held) stations operating in the 2000-2020 MHz band are limited to 2 watts EIRP.

And FCC section 27.50(h) (2), for mobile and other user stations, mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

FCC section 27.50(j) (3), for mobile, and portable (hand-held) stations operating in the 3700-3980 MHz band are limited to 1 watt EIRP.

FCC section 27.50(k) (3), Mobile devices are limited to 1Watt (30 dBm) EIRP in the 3450-3550 MHz band.

Test procedure:

Description of the Conducted Output Power Measurement

The EUT is coupled to the SS with attenuator through power splitter; the RF load attached to EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. A system simulator is used to establish communication with the EUT, and its parameters are 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 relevant equation for determining the conducted measured value is:

Conducted Output Power Value (dBm) = Measured Value (dBm) + Path Loss (dB)

where:
Conducted Output Power Value = final conducted measured value in the conducted power test, in dBm;
Measured Value = measured conducted power received by spectrum analyzer or power meter, in dBm;
Path Loss = signal attenuation in the connecting cable between the transmitter and spectrum analyzer or power meter, including external cable loss, in dB;

During the test, the data of Path Loss (dB) is added in the spectrum analyzer or power meter, so Measured Value (dBm) is the final values which contains the data of Path Loss (dB).

Description of the Transmitter Radiated Power Measurement
In many cases, the RF output power limits for licensed digital transmission devices is specified in terms of effective radiated power (ERP) or equivalent isotropic radiated power (EIRP). Typically, ERP is specified when the operating frequency is less than or equal to 1 GHz and EIRP is specified when the operating frequency is greater than 1 GHz. Both are determined by adding the transmit antenna gain to the conducted RF output power with the primary difference between the two being that when determining the ERP, the transmit antenna gain is referenced to a dipole antenna (i.e., dBd) whereas when determining the EIRP, the transmit antenna gain is referenced to an isotropic antenna (dBi).

Final measurement calculation as below
The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$ERP/EIRP = P_{Meas} + GT - LC$$

where:
ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
dBd (ERP)=dBi (EIRP) -2.15 dB
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

The relevant equation for determining the ERP/EIRP from the radiated RF output power is:
ERP/EIRP (dBm) = SA Read Value (dBm) + Correction Factor (dB)

where:
ERP/EIRP = effective or equivalent radiated power, in dBm;
SA Read Value = measured transmitter power received by EMI receiver or spectrum analyzer, in dBm;
Correction Factor = total correction factor including cable loss, in dB;

During the test, the data of Correction Factor (dB) is added in the EMI receiver or spectrum analyzer, so SA Read Value (dBm) is the final values which contains the data of Correction Factor (dB).

Test Result

GSM Mode Test Data:

Mode		Frequency (MHz)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limt (dBm)	Verdict
GSM850		824.2	32.47	-6.17	-8.32	24.15	38.45	Pass
		836.6	32.38	-6.17	-8.32	24.06	38.45	Pass
		848.8	**32.48**	-6.17	-8.32	**24.16**	38.45	Pass
GPRS850	1 Tx Slots	824.2	30.22	-6.17	-8.32	21.90	38.45	Pass
		836.6	30.46	-6.17	-8.32	22.14	38.45	Pass
		848.8	30.02	-6.17	-8.32	21.70	38.45	Pass
	2 Tx Slots	824.2	30.00	-6.17	-8.32	21.68	38.45	Pass
		836.6	30.90	-6.17	-8.32	22.58	38.45	Pass
		848.8	30.26	-6.17	-8.32	21.94	38.45	Pass
	3 Tx Slots	824.2	30.55	-6.17	-8.32	22.23	38.45	Pass
		836.6	30.50	-6.17	-8.32	22.18	38.45	Pass
		848.8	30.86	-6.17	-8.32	22.54	38.45	Pass
	4 Tx Slots	824.2	30.78	-6.17	-8.32	22.46	38.45	Pass
		836.6	30.72	-6.17	-8.32	22.40	38.45	Pass
		848.8	30.53	-6.17	-8.32	22.21	38.45	Pass
EPRS850	1 Tx Slots	824.2	27.53	-6.17	-8.32	19.21	38.45	Pass
		836.6	27.37	-6.17	-8.32	19.05	38.45	Pass
		848.8	**28.20**	-6.17	-8.32	**19.88**	38.45	Pass
	2 Tx Slots	824.2	27.36	-6.17	-8.32	19.04	38.45	Pass
		836.6	26.97	-6.17	-8.32	18.65	38.45	Pass
		848.8	26.74	-6.17	-8.32	18.42	38.45	Pass
	3 Tx Slots	824.2	27.50	-6.17	-8.32	19.18	38.45	Pass
		836.6	27.46	-6.17	-8.32	19.14	38.45	Pass
		848.8	27.27	-6.17	-8.32	18.95	38.45	Pass
	4 Tx Slots	824.2	27.47	-6.17	-8.32	19.15	38.45	Pass
		836.6	27.88	-6.17	-8.32	19.56	38.45	Pass
		848.8	27.59	-6.17	-8.32	19.27	38.45	Pass

Mode		Frequency (MHz)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limt (dBm)	Verdict
GSM1900		1850.2	29.77	-0.81	28.96	33.01	Pass
		1880	29.21	-0.81	28.40	33.01	Pass
		1909.8	**30.01**	-0.81	**29.20**	33.01	Pass
GPRS1900	1 Tx Slots	1850.2	27.37	-0.81	26.56	33.01	Pass
		1880	26.54	-0.81	25.73	33.01	Pass
		1909.8	26.54	-0.81	25.73	33.01	Pass
	2 Tx Slots	1850.2	26.88	-0.81	26.07	33.01	Pass
		1880	27.54	-0.81	26.73	33.01	Pass
		1909.8	26.70	-0.81	25.89	33.01	Pass
	3 Tx Slots	1850.2	26.73	-0.81	25.92	33.01	Pass
		1880	26.57	-0.81	25.76	33.01	Pass
		1909.8	26.69	-0.81	25.88	33.01	Pass
	4 Tx Slots	1850.2	26.83	-0.81	26.02	33.01	Pass
		1880	27.50	-0.81	26.69	33.01	Pass
		1909.8	27.40	-0.81	26.59	33.01	Pass
EGPRS1900	1 Tx Slots	1850.2	25.24	-0.81	24.43	33.01	Pass
		1880	24.83	-0.81	24.02	33.01	Pass
		1909.8	24.89	-0.81	24.08	33.01	Pass
	2 Tx Slots	1850.2	24.69	-0.81	23.88	33.01	Pass
		1880	25.01	-0.81	24.20	33.01	Pass
		1909.8	**25.80**	-0.81	**24.99**	33.01	Pass
	3 Tx Slots	1850.2	24.64	-0.81	23.83	33.01	Pass
		1880	24.74	-0.81	23.93	33.01	Pass
		1909.8	24.66	-0.81	23.85	33.01	Pass
	4 Tx Slots	1850.2	24.81	-0.81	24.00	33.01	Pass
		1880	25.14	-0.81	24.33	33.01	Pass
		1909.8	25.12	-0.81	24.31	33.01	Pass

Note 1: For the GPRS and EGPRS mode, all slots were tested and just the worst data were recorded in this table.

Note 2: ERP/EIRP = PMeas + GT − LC
ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.
ERP = EIRP – 2.15; where ERP and EIRP are expressed in consistent units.

Note 3: Set PCL to 5 for GSM/GPRS 850 (power class 4) and 0 for GSM/GPRS 1900 (power class 1).Set PCL to 8 for EGPRS850 (power class E2) and 2 for EGPRS1900 (power class E2)

WCDMA Mode Test Data:

Band	Mode		Frequency (MHz)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limt (dBm)	Verdict
Band 2	RMC 12.2K		1852.4	21.30	-0.81	20.49	33.01	Pass
			1880	22.82	-0.81	22.01	33.01	Pass
			1907.6	22.17	-0.81	21.36	33.01	Pass
	HSDPA	1 Tx Slots	1852.4	21.75	-0.81	20.94	33.01	Pass
			1880	21.85	-0.81	21.04	33.01	Pass
			1907.6	21.94	-0.81	21.13	33.01	Pass
		2 Tx Slots	1852.4	23.00	-0.81	22.19	33.01	Pass
			1880	22.46	-0.81	21.65	33.01	Pass
			1907.6	20.68	-0.81	19.87	33.01	Pass
		3 Tx Slots	1852.4	21.87	-0.81	21.06	33.01	Pass
			1880	21.64	-0.81	20.83	33.01	Pass
			1907.6	21.77	-0.81	20.96	33.01	Pass
		4 Tx Slots	1852.4	21.78	-0.81	20.97	33.01	Pass
			1880	21.07	-0.81	20.26	33.01	Pass
			1907.6	21.09	-0.81	20.28	33.01	Pass
	HSUPA	1 Tx Slots	1852.4	20.76	-0.81	19.95	33.01	Pass
			1880	**23.16**	-0.81	**22.35**	33.01	Pass
			1907.6	21.93	-0.81	21.12	33.01	Pass
		2 Tx Slots	1852.4	22.18	-0.81	21.37	33.01	Pass
			1880	21.95	-0.81	21.14	33.01	Pass
			1907.6	22.60	-0.81	21.79	33.01	Pass
		3 Tx Slots	1852.4	22.29	-0.81	21.48	33.01	Pass
			1880	22.48	-0.81	21.67	33.01	Pass
			1907.6	22.06	-0.81	21.25	33.01	Pass
		4 Tx Slots	1852.4	20.62	-0.81	19.81	33.01	Pass
			1880	22.12	-0.81	21.31	33.01	Pass
			1907.6	21.59	-0.81	20.78	33.01	Pass
		5 Tx Slots	1852.4	21.26	-0.81	20.45	33.01	Pass
			1880	21.86	-0.81	21.05	33.01	Pass
			1907.6	22.26	-0.81	21.45	33.01	Pass

Band	Mode		Frequency (MHz)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limt (dBm)	Verdict
Band 4	RMC 12.2K		1712.4	22.43	-0.81	21.62	30.00	Pass
			1732.6	22.88	-0.81	22.07	30.00	Pass
			1752.6	23.48	-0.81	22.67	30.00	Pass
	HSDPA	1 Tx Slots	1712.4	23.60	-0.81	22.79	30.00	Pass
			1732.6	23.61	-0.81	22.80	30.00	Pass
			1752.6	**24.03**	-0.81	**23.22**	30.00	Pass
		2 Tx Slots	1712.4	22.63	-0.81	21.82	30.00	Pass
			1732.6	23.07	-0.81	22.26	30.00	Pass
			1752.6	23.10	-0.81	22.29	30.00	Pass
		3 Tx Slots	1712.4	23.81	-0.81	23.00	30.00	Pass
			1732.6	22.25	-0.81	21.44	30.00	Pass
			1752.6	23.60	-0.81	22.79	30.00	Pass
		4 Tx Slots	1712.4	23.22	-0.81	22.41	30.00	Pass
			1732.6	22.39	-0.81	21.58	30.00	Pass
			1752.6	23.51	-0.81	22.70	30.00	Pass
	HSUPA	1 Tx Slots	1712.4	23.27	-0.81	22.46	30.00	Pass
			1732.6	22.75	-0.81	21.94	30.00	Pass
			1752.6	22.28	-0.81	21.47	30.00	Pass
		2 Tx Slots	1712.4	22.83	-0.81	22.02	30.00	Pass
			1732.6	22.80	-0.81	21.99	30.00	Pass
			1752.6	22.27	-0.81	21.46	30.00	Pass
		3 Tx Slots	1712.4	23.41	-0.81	22.60	30.00	Pass
			1732.6	22.98	-0.81	22.17	30.00	Pass
			1752.6	21.91	-0.81	21.10	30.00	Pass
		4 Tx Slots	1712.4	22.64	-0.81	21.83	30.00	Pass
			1732.6	21.75	-0.81	20.94	30.00	Pass
			1752.6	22.75	-0.81	21.94	30.00	Pass
		5 Tx Slots	1712.4	22.42	-0.81	21.61	30.00	Pass
			1732.6	23.29	-0.81	22.48	30.00	Pass
			1752.6	22.08	-0.81	21.27	30.00	Pass

Band	Mode		Frequency (MHz)	Conducted Output AV Power (dBm)	Antenna Gain (dBi)	Antenna Gain (dBd)	ERP (dBm)	Limt (dBm)	Verdict
Band 5	RMC 12.2K		826.4	22.50	-6.17	-8.32	14.18	38.45	Pass
			836.4	**23.22**	-6.17	-8.32	**14.90**	38.45	Pass
			846.6	22.69	-6.17	-8.32	14.37	38.45	Pass
	HSDPA	1 Tx Slots	826.4	22.30	-6.17	-8.32	13.98	38.45	Pass
			836.4	21.86	-6.17	-8.32	13.54	38.45	Pass
			846.6	22.19	-6.17	-8.32	13.87	38.45	Pass
		2 Tx Slots	826.4	22.08	-6.17	-8.32	13.76	38.45	Pass
			836.4	22.53	-6.17	-8.32	14.21	38.45	Pass
			846.6	22.16	-6.17	-8.32	13.84	38.45	Pass
		3 Tx Slots	826.4	22.05	-6.17	-8.32	13.73	38.45	Pass
			836.4	22.45	-6.17	-8.32	14.13	38.45	Pass
			846.6	21.52	-6.17	-8.32	13.20	38.45	Pass
		4 Tx Slots	826.4	22.24	-6.17	-8.32	13.92	38.45	Pass
			836.4	21.71	-6.17	-8.32	13.39	38.45	Pass
			846.6	22.90	-6.17	-8.32	14.58	38.45	Pass
	HSUPA	1 Tx Slots	826.4	21.92	-6.17	-8.32	13.60	38.45	Pass
			836.4	22.04	-6.17	-8.32	13.72	38.45	Pass
			846.6	22.12	-6.17	-8.32	13.80	38.45	Pass
		2 Tx Slots	826.4	21.80	-6.17	-8.32	13.48	38.45	Pass
			836.4	22.79	-6.17	-8.32	14.47	38.45	Pass
			846.6	22.23	-6.17	-8.32	13.91	38.45	Pass
		3 Tx Slots	826.4	22.18	-6.17	-8.32	13.86	38.45	Pass
			836.4	21.33	-6.17	-8.32	13.01	38.45	Pass
			846.6	22.05	-6.17	-8.32	13.73	38.45	Pass
		4 Tx Slots	826.4	22.90	-6.17	-8.32	14.58	38.45	Pass
			836.4	21.50	-6.17	-8.32	13.18	38.45	Pass
			846.6	22.60	-6.17	-8.32	14.28	38.45	Pass
		5 Tx Slots	826.4	22.69	-6.17	-8.32	14.37	38.45	Pass
			836.4	22.60	-6.17	-8.32	14.28	38.45	Pass
			846.6	22.05	-6.17	-8.32	13.73	38.45	Pass

Note 1: For the HSDPA and HSUPA mode, all subtests were tested and just the worst data wererecorded in this table.

Note 2: ERP/EIRP = PMeas + GT − LC
ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.
ERP = EIRP – 2.15; where ERP and EIRP are expressed in consistent units.

Note: Please refer to Annex（LTE&NR Chapter 1 Transmitter Radiated Power） *for more test data*

7. Peak to Average Ratio

7.1.1. Limit

FCC § 2.1046 & 24.232(d) & 27.50(d) & 27.50(j) & 27.50(k)

In addition, when the transmitter power is measured in terms of average value, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

According to FCC section 24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with 24.232 (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of § 24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

FCC section 24.232(e), peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

According to FCC section 27.50(d) (5) & 27.50(j) & 27.50(k), in measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

7.1.2. Test Procedure

Here the lowest, middle and highest channels are selected to perform testing to verify the peak-to-average ratio.

According to KDB 971168 D01, there is CCDF procedure for PAPR:
a) Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;

b) Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
c) Set the number of counts to a value that stabilizes the measured CCDF curve;
d) Set the measurement interval as follows:
1) for continuous transmissions, set to 1 ms,

2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.

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

7.2. Test Result

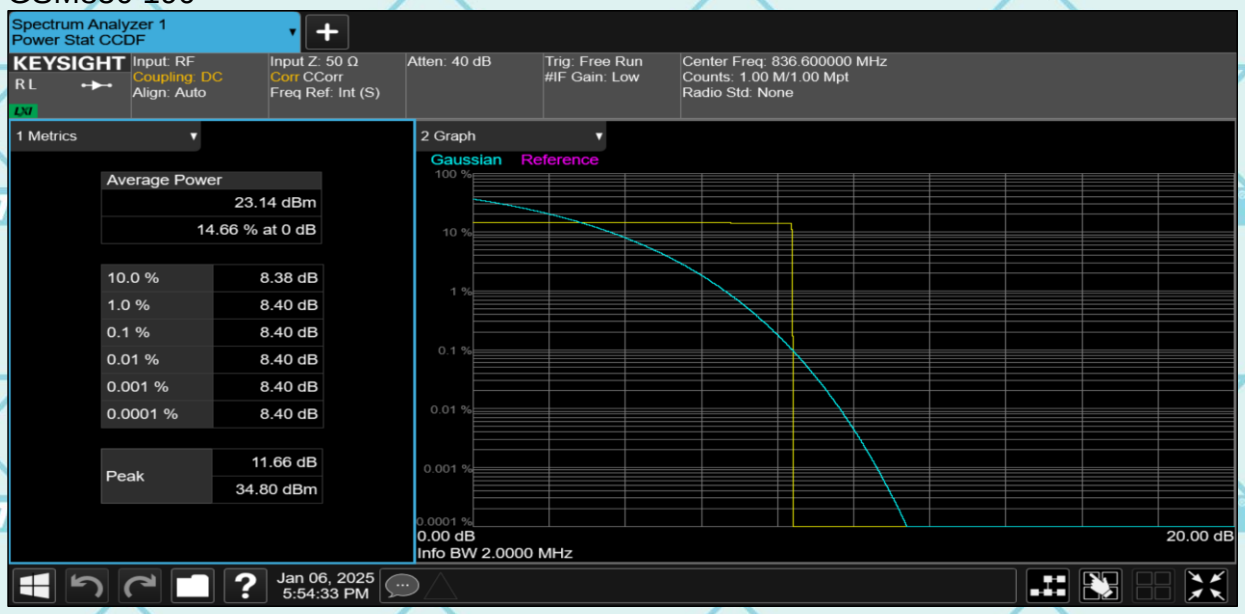
Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
GSM850	128	10.66	13	Pass
	190	8.40	13	Pass
	251	10.41	13	Pass
GPRS850	128	9.79	13	Pass
	190	9.51	13	Pass
	251	9.95	13	Pass
EPRS850	128	9.59	13	Pass
	190	8.66	13	Pass
	251	10.36	13	Pass
GSM1900	512	9.33	13	Pass
	661	9.39	13	Pass
	810	10.52	13	Pass
GPRS1900	512	11.15	13	Pass
	661	8.72	13	Pass
	810	10.61	13	Pass
EPRS1900	512	11.56	13	Pass
	661	9.27	13	Pass
	810	11.78	13	Pass

WCDMA Band	Channel	Peak-to-Average Ratio(dB)	Limit(dBm)	Verdict
Band 2	9262	3.52	13	Pass
	9400	3.52	13	Pass
	9538	3.52	13	Pass
Band 4	1312	3.53	13	Pass
	1413	3.54	13	Pass
	1513	3.50	13	Pass
Band 5	4132	3.49	13	Pass
	4182	3.50	13	Pass
	4233	3.51	13	Pass

Test diagram

GSM850 128

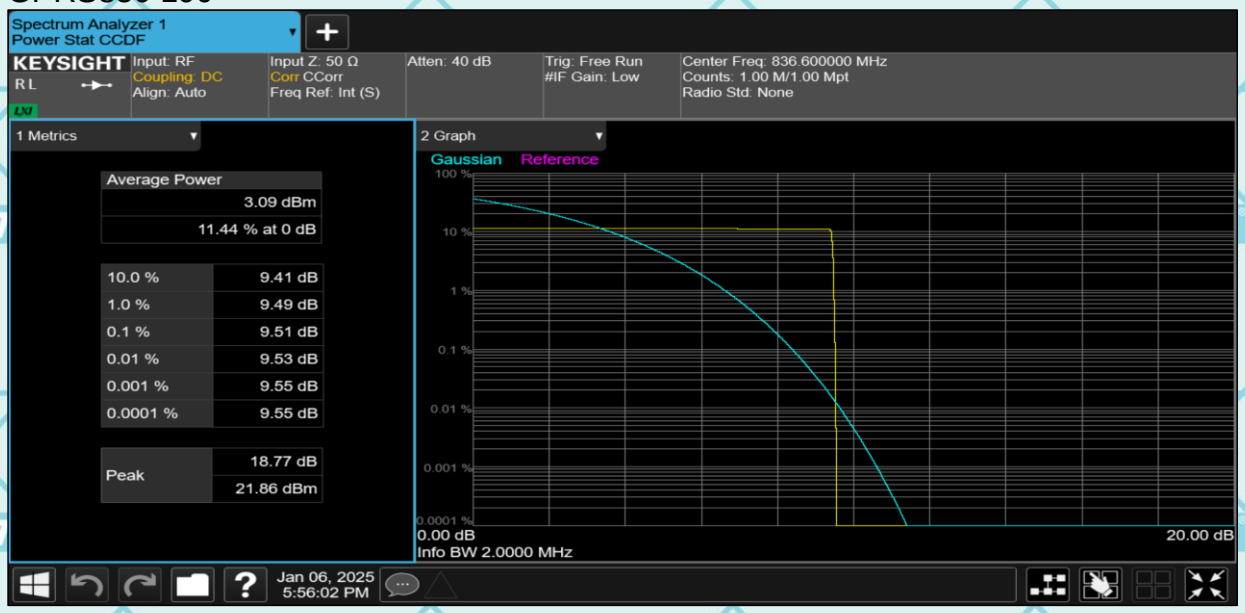
GSM850 190



GSM850 251

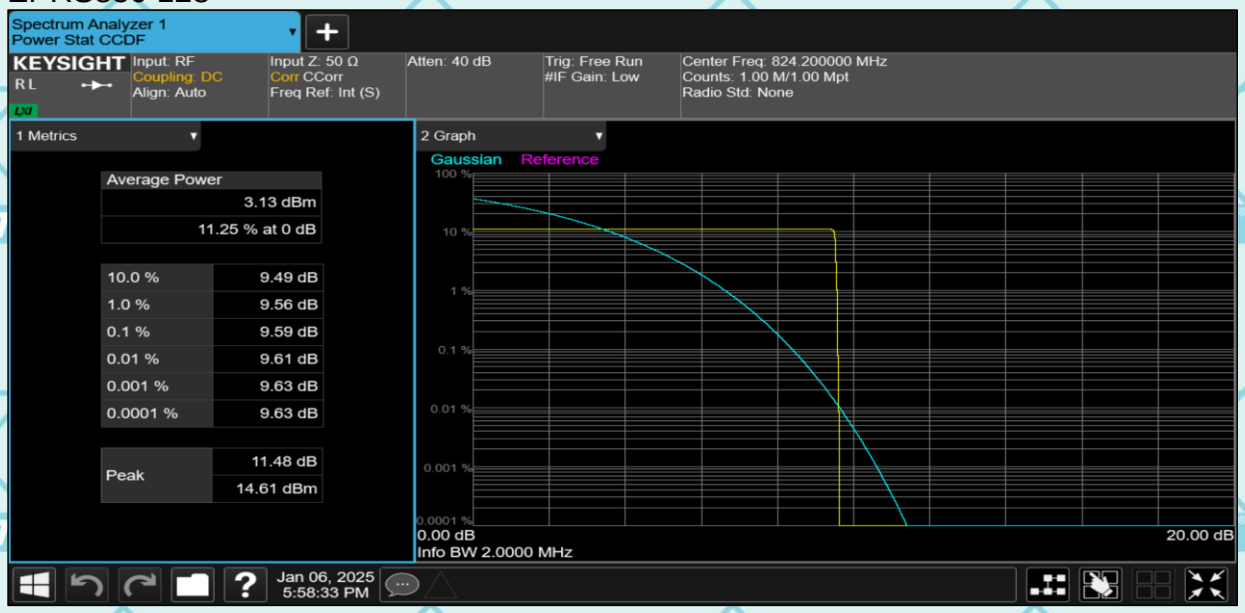
GPRS850 128

GPRS850 190



GPRS850 251

EPRS850 128



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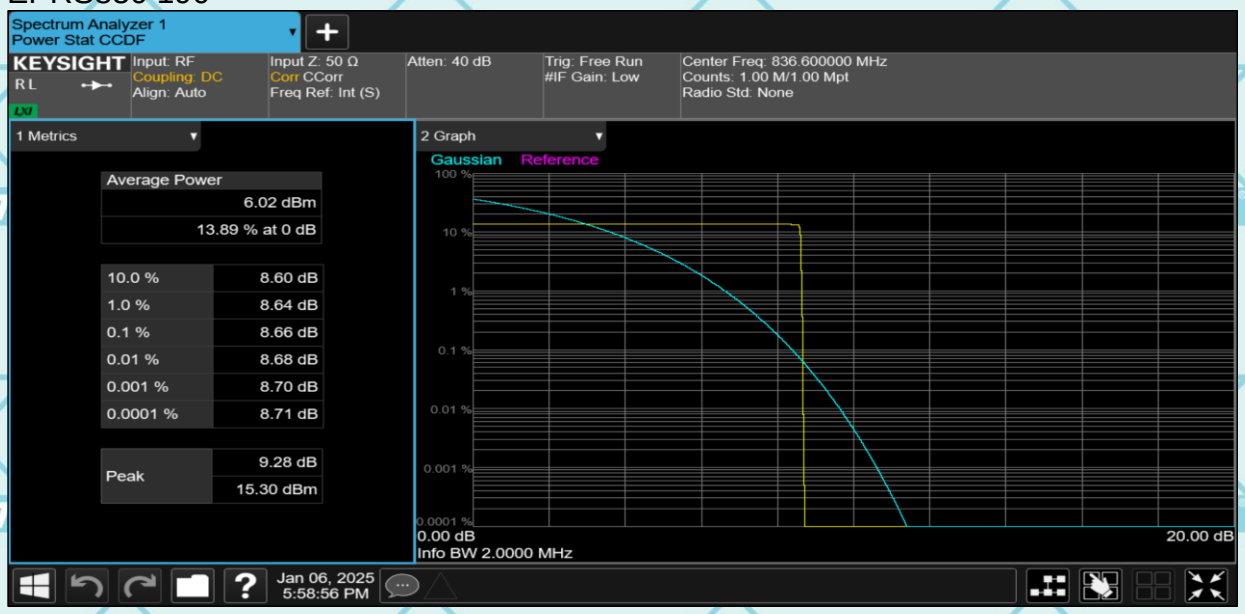

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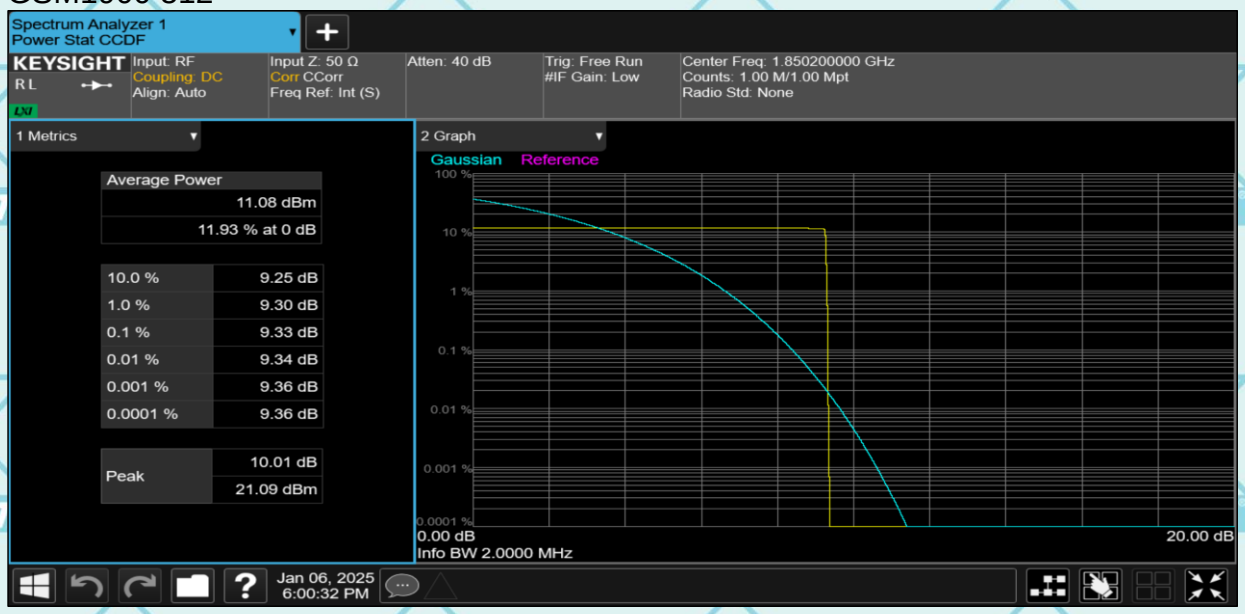

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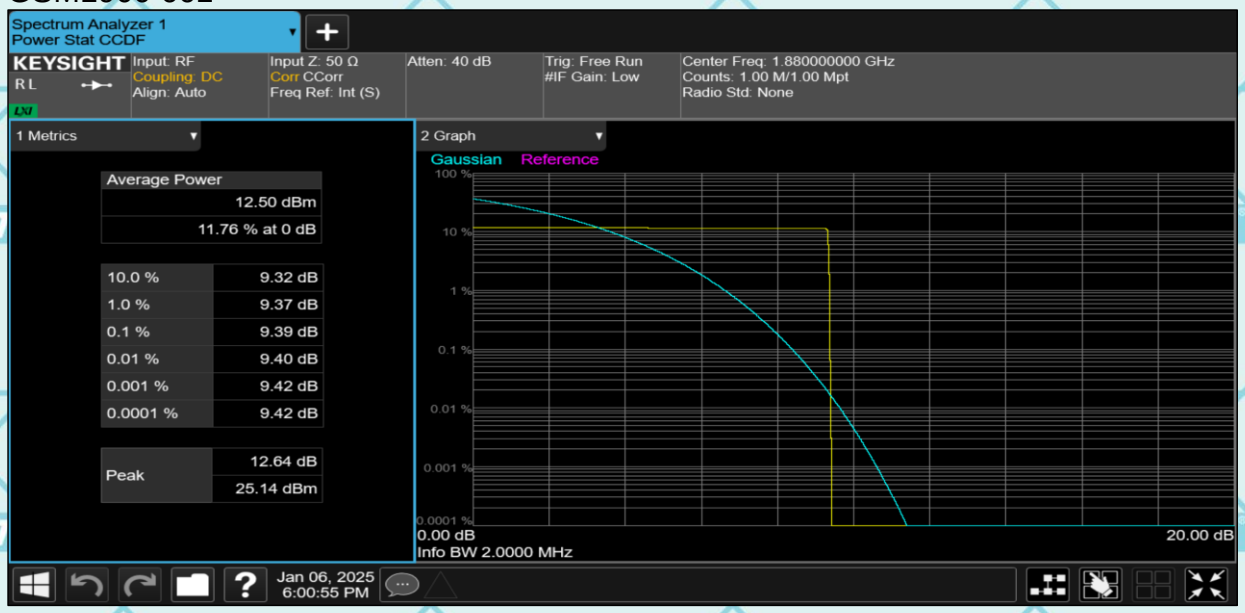

GSM1900 810