

TEST REPORT

Application No: SUCR2602000109WM
FCC ID: IHDT56AX3
Applicant: Motorola Mobility LLC
Address of Applicant: 222 W Merchandise Mart Plaza, Chicago, IL 60654 USA
Manufacturer: Motorola Mobility LLC
Address of Manufacturer: 222 W Merchandise Mart Plaza, Chicago, IL 60654 USA
EUT Description: Mobile Cellular Phone
Model No.: XT2625-8 (SB) / XT2625-9 (Retail) ♣
♣ Please refer to summary of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: Motorola
Standards: 47 CFR Part 2
47 CFR Part 27
Date of Receipt: 2026-02-03
Date of Test: 2026-02-26 to 2026-03-09
Date of Issue: 2026-03-10

Test Result:	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

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Version

Revision Record			
Version	Description	Date	Remark
00	Original	2026-03-10	/

Authorized for issue by:			
Tested By		<i>Nature Shen</i>	
		Nature Shen/Project Engineer	
Approved By		<i>Cedar cheng</i>	
		Cedar Cheng /Reviewer	

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1 Test Summary

1.1 NR Band n77/NR Band n78

3700-3980MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(j)(3)	EIRP $\leq$ 1W	Section 1 of Appendix A	Pass
Peak-Average Ratio	---	$\leq$ 13 dB	Section 4 of Appendix A	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix A	Pass
Band Edges Compliance	§2.1051, §27.53(l)(2)	(2) For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz. Compliance with this paragraph (l)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.	Section 5 of Appendix A	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.53(l)(2)	not exceed -13 dBm/MHz.	Section 5 of Appendix A	Pass
Field Strength of Spurious Radiation	§2.1053, §27.53(l)(2)	not exceed -13 dBm/MHz	Appendix B	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1)(2) §27.54	Within authorized bands of operation/frequency block.	Section 2 of Appendix A	Pass

3450-3550MHz:

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §27.50(k)(3)	EIRP ≤ 30dBm	Section 1 of Appendix A	Pass
Peak-Average Ratio	§27.50(k)(4)	FCC: Limit≤13 dB	Section 4 of Appendix A	Pass
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Section 3 of Appendix A	Pass
Band Edges Compliance	§2.1051, §27.50(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 5 of Appendix A	Pass
Spurious Emission at Antenna Terminals	§2.1051, §27.50(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Section 5 of Appendix A	Pass
Field Strength of Spurious Radiation	§2.1053, §27.50(n)(2)	For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed -13 dBm/MHz.	Appendix B	Pass
Frequency Stability	§2.1055(a)(1)(b) §2.1055(d)(1)(2) §27.54	Within authorized bands of operation/ frequency block.	Section 2 of Appendix A	Pass

Declaration of EUT Family Grouping:

Note: XT2625-8 (SB) and XT2625-9 (Retail) are the same product with identical prototypes. Only different model names are used for adaptation to different operators.

This test involves three samples. Prototype differences are referenced in the separately submitted Product Difference Declaration.

Based on the aforementioned differences, comprehensive testing is only performed on Sample 1 as documented in this report.

2 General Information

2.1 Client Information

Applicant:	Motorola Mobility LLC
Address of Applicant:	222 W Merchandise Mart Plaza, Chicago, IL 60654 USA
Manufacturer:	Motorola Mobility LLC
Address of Manufacturer:	222 W Merchandise Mart Plaza, Chicago, IL 60654 USA

2.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test engineer:	Levi Li

2.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6336.01)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA).

• **FCC (Designation Number: CN1312)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory. Test Firm Registration Number: 717327

• **ISED (CAB Identifier: CN0120)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594

2.4 General Description of EUT

Hardware Version:	DVT2		
Software Version:	sydney_ap_sys_userdebug_16_W3WYA36.52_43dc2-ad9539_intcfg-test-keys_global_US		
IMEI:	RF Conducted:	355777680015017,355777680015116	
	RSE:	355777680014515	
HPUE Power Class:	n77/n78		
Antenna Type:	Fixed internal Antenna		
Antenna Gain*:	NR Band n77:	-2.0	
	NR Band n78:	-2.0	
	Note: The antenna gain are derived from the gain information report provided by the manufacturer.		
RF Cable:	☒ Provided by client		
	0.3dB (9kHz ~ 30MHz)	0.6dB (30MHz ~ 1000MHz)	0.8dB (1000MHz ~ 2000MHz)
	1.1dB (2000MHz ~ 4000MHz)	1.8dB (4000MHz ~ 6000MHz)	2.6dB (6000MHz ~ 12750MHz)
	3.5dB(Above 12750MHz)		
Remark: Conduction Power & EIRP of all antennas are tested, and only the worst data is presented			

2.5 Test Mode

Test Mode	Test Modes Description
NR/TM1	NR system, DFT-s-OFDM PI/2 BPSK modulation
NR/TM2	NR system, DFT-s-QPSK modulation
NR/TM3	NR system, DFT-s-16QAM modulation
NR/TM4	NR system, DFT-s-64QAM modulation
NR/TM5	NR system, DFT-s-256QAM modulation
NR/TM6	NR system, CP-QPSK modulation
NR/TM7	NR system, CP-16QAM modulation
NR/TM8	NR system, CP-64QAM modulation
NR/TM9	NR system, CP-256QAM modulation
Remark: The test mode(s) are selected according to relevant radio technology specifications.	

2.6 Test Environment

Environment Parameter	101.0~101.30 kPa Selected Values During Tests	
Relative Humidity	45-56 % RH Ambient	
Value	Temperature(°C)	Voltage(V)
NTNV	25	3.8
LTLV	-20	3.2
HTLV	60	3.2
LTHV	-20	4.2
HTHV	60	4.2
Remark:		
NV: Normal Voltage	LV: Low Extreme Test Voltage	HV: High Extreme Test Voltage
NT: Normal Temperature	LT: Low Extreme Test Temperature	HT: High Extreme Test Temperature

2.7 Description of Support Units

The EUT has been tested as an independent unit.

2.8 Technical Specification

Characteristics	Description		
Radio System Type	☒ SA ☒ NSA		
Supported Frequency Range	Band	TX	RX
	NR Band n77*	3700 to 3980 MHz	3700 to 3980 MHz
		3450 to 3550 MHz	3450 to 3550 MHz
	NR Band n78*	3700 to 3800 MHz	3700 to 3800 MHz
		3450 to 3550 MHz	3450 to 3550 MHz
	ENDC:DC_7A_n78A;		
	NR Band n77	SCS 30kHz:	
		☒ 10 MHz	☒ 15 MHz ☒ 20 MHz ☒ 25 MHz
		☒ 30 MHz	☒ 40 MHz ☒ 50 MHz ☒ 60 MHz
		☒ 70 MHz	☒ 80 MHz ☒ 90 MHz ☒ 100 MHz
	NR Band n78	SCS 30kHz:	
		☒ 10 MHz	☒ 15 MHz ☒ 20 MHz ☒ 25 MHz
		☒ 30 MHz	☒ 40 MHz ☒ 50 MHz ☒ 60 MHz
		☒ 70 MHz	☒ 80 MHz ☒ 90 MHz ☒ 100 MHz
	Remark: The SCS 30kHz of all NR band are tested, but only showed the worst case in this report.		

2.9 Test Frequencies

2.9.1 Reference test frequencies for NR operating band n77

2.9.1.1 Test frequencies for NR operating band n48 and SCS 30 kHz

3700-3980:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
10	Downlink & Uplink	Low	3705	647000	30
		Mid	3840	656000	
		High	3975	665000	
15	Downlink & Uplink	Low	3707.52	647168	30
		Mid	3840	656000	
		High	3972.48	664832	
20	Downlink & Uplink	Low	3710.01	647334	30
		Mid	3840	656000	
		High	3969.99	664666	
25	Downlink & Uplink	Low	3712.515	647501	30
		Mid	3840	656000	
		High	3967.485	664499	
30	Downlink & Uplink	Low	3714.99	647666	30
		Mid	3840	656000	
		High	3965.01	664334	
40	Downlink & Uplink	Low	3720	648000	30
		Mid	3840	656000	
		High	3960	664000	
50	Downlink & Uplink	Low	3725.01	648334	30
		Mid	3840	656000	
		High	3954.99	663666	
60	Downlink & Uplink	Low	3730.02	648668	30
		Mid	3840	656000	
		High	3949.98	663332	
70	Downlink & Uplink	Low	3735	649000	30
		Mid	3840	656000	
		High	3945	663000	
80	Downlink & Uplink	Low	3740.01	649334	30
		Mid	3840	656000	
		High	3939.99	662666	
90	Downlink & Uplink	Low	3745.02	649668	30
		Mid	3840	656000	
		High	3934.98	662332	
100	Downlink & Uplink	Low	3750	650000	30
		Mid	3840	656000	
		High	3930	662000	

3450-3550:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
10	Downlink & Uplink	Low	3455.01	630334	30
		Mid	3500.01	633334	
		High	3545.01	636334	
15	Downlink & Uplink	Low	3457.5	630500	30
		Mid	3500.01	633334	
		High	3542.49	636166	
20	Downlink & Uplink	Low	3460.02	630668	30
		Mid	3500.01	633334	
		High	3540	636000	
25	Downlink & Uplink	Low	3462.51	630834	30
		Mid	3500.01	633334	
		High	3537.51	635834	
30	Downlink & Uplink	Low	3465	631000	30
		Mid	3500.01	633334	
		High	3534.99	635666	
40	Downlink & Uplink	Low	3470.01	631334	30
		Mid	3500.01	633334	
		High	3530.01	635334	
50	Downlink & Uplink	Low	3475.02	631668	30
		Mid	3500.01	633334	
		High	3525	635000	
60	Downlink & Uplink	Low	3480	632000	30
		Mid	3500.01	633334	
		High	3519.99	634666	
70	Downlink & Uplink	Low	3485.01	632334	30
		Mid	3500.01	633334	
		High	3515.01	634334	
80	Downlink & Uplink	Low	3490.02	632668	30
		Mid	3500.01	633334	
		High	3510	634000	
90	Downlink & Uplink	Low	3495	633000	30
		Mid	3500.01	633334	
		High	3504.99	633666	
100	Downlink & Uplink	Low	\	\	30
		Mid	3500.01	633334	
		High	\	\	

2.9.2 Reference test frequencies for NR operating band n78

2.9.2.1 Test frequencies for NR operating band n66 and SCS 30 kHz

3700-3800:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
10	Downlink & Uplink	Low	3705	647000	30
		Mid	3750	650000	
		High	3795	653000	
15	Downlink & Uplink	Low	3707.52	647168	30
		Mid	3750	650000	
		High	3792.48	652832	
20	Downlink & Uplink	Low	3710.01	647334	30
		Mid	3750	650000	
		High	3789.99	652666	
25	Downlink & Uplink	Low	3712.5	647500	30
		Mid	3750	650000	
		High	3787.5	652500	
30	Downlink & Uplink	Low	3715.02	647668	30
		Mid	3750	650000	
		High	3785.01	652334	
40	Downlink & Uplink	Low	3720	648000	30
		Mid	3750	650000	
		High	3780	652000	
50	Downlink & Uplink	Low	3725.01	648334	30
		Mid	3750	650000	
		High	3774.99	651666	
60	Downlink & Uplink	Low	3730.02	648668	30
		Mid	3750	650000	
		High	3769.98	651332	
70	Downlink & Uplink	Low	3735	649000	30
		Mid	3750	650000	
		High	3765	651000	
80	Downlink & Uplink	Low	3740.01	649334	30
		Mid	3750	650000	
		High	3759.99	650666	
90	Downlink & Uplink	Low	3745.02	649668	30
		Mid	3750	650000	
		High	3754.98	650332	
100	Downlink & Uplink	Low	/	/	30
		Mid	3750	650000	
		High	/	/	

3450-3550:

CBW [MHz]	Range		Carrier centre [MHz]	Carrier centre [ARFCN]	SS block SCS [kHz]
10	Downlink & Uplink	Low	3455.01	630334	30
		Mid	3500.01	633334	
		High	3545.01	636334	
15	Downlink & Uplink	Low	3457.5	630500	30
		Mid	3500.01	633334	
		High	3542.49	636166	
20	Downlink & Uplink	Low	3460.02	630668	30
		Mid	3500.01	633334	
		High	3540	636000	
25	Downlink & Uplink	Low	3462.52	630835	30
		Mid	3500.01	633334	
		High	3537.50	635833	
30	Downlink & Uplink	Low	3465	631000	30
		Mid	3500.01	633334	
		High	3534.99	635666	
40	Downlink & Uplink	Low	3470.01	631334	30
		Mid	3500.01	633334	
		High	3530.01	635334	
50	Downlink & Uplink	Low	3475.02	631668	30
		Mid	3500.01	633334	
		High	3525	635000	
60	Downlink & Uplink	Low	3480	632000	30
		Mid	3500.01	633334	
		High	3519.99	634666	
70	Downlink & Uplink	Low	3485.01	632334	30
		Mid	3500.01	633334	
		High	3515.01	634334	
80	Downlink & Uplink	Low	3490.02	632668	30
		Mid	3500.01	633334	
		High	3510	634000	
90	Downlink & Uplink	Low	3495	633000	30
		Mid	3500.01	633334	
		High	3504.99	633666	
100	Downlink & Uplink	Low	\	\	30
		Mid	3500.01	633334	
		High	\	\	

3 Main Test Instruments

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals						
1	EMI Test Receive	R&S	ESR7	SUWI-01-10-01	1/14/2026	1/13/2027
2	LISN	R&S	ENV216	SUWI-01-19-03	5/8/2025	5/7/2026
3	LISN	Schwarzbeck	ENV216	SUWI-01-19-04	5/8/2025	5/7/2026
4	Test Software	Tonscend	JS32-CE 4.0.0.2	SUWI-02-09-05	N.C.R	N.C.R
RF Conducted Test						
1	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/14/2026	1/13/2027
2	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-15	11/21/2025	11/20/2026
3	MXG Vector signal genitor	KEYSIGHT	N5182B	SUWI-01-38-01	1/14/2026	1/13/2027
4	Signal Generator	ROHDE&SCHWARZ	SMW200A	SUWI-01-07-08	1/14/2026	1/13/2027
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-08-01	1/14/2026	1/13/2027
6	MXG Vector Signal Generator	ROHDE&SCHWARZ	SMR20	SUWI-01-33-01	11/21/2025	11/20/2026
7	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-13	5/8/2025	5/7/2026
8	Wideband Radio Communication Test Station	Anritsu	MT8000A	SUWI-01-34-02	11/21/2025	11/20/2026
9	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	11/21/2025	11/20/2026
10	Power meter	Anritsu	ML2495A	SUWI-01-31-01	11/21/2025	11/20/2026
11	Pulse power sensor	Anritsu	MA2411B	SUWI-01-32-01	11/21/2025	11/20/2026
12	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/14/2026	1/13/2027
13	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-07	2/11/2026	2/10/2027
14	Temperature Chamber	GIANT FORCE	ICT-017-40-SP-SD	SUWI-01-13-02	5/7/2025	5/6/2026
15	Measurement Software	TST	TST 272 V2.02	SUWI-03-55-03	NCR	NCR
16	RF Control unit	TST	TSCB3023R2	SUWI-02-20-01	NCR	NCR
17	RFCables	Tonscend	NA	SUWI-01-03-01	NCR	NCR
RF Radiated Test						
1	Semi-Anechoic Chamber	Brilliant-emc	N/A	SUWI-04-02-01	6/3/2023	6/2/2026
2	Signal Analyzer	ROHDE&SCHWARZ	FSW43	SUWI-01-02-04	1/14/2026	1/13/2027
3	Signal Analyzer	KEYSIGHT	N9020A	SUWI-01-02-09	11/21/2025	11/20/2026
4	Test receiver	ROHDE&SCHWARZ	ESR7	SUWI-01-10-01	1/14/2026	1/13/2027
5	Signal Generator	ROHDE&SCHWARZ	SMW100A	SUWI-01-18-01	1/14/2026	1/13/2027
6	Receiving antenna	SCHWRZBECK MESS-ELEKTRONIK	VULB 9168	SUWI-01-11-04	9/10/2025	9/9/2027

7	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9120D	SUWI-01-11-02	5/7/2025	5/6/2027
8	Receiving antenna	SCHWRZBECK MESS- ELEKTRONIK	BBHA 9170	SUWI-01-11-03	5/7/2025	5/6/2027
9	Active Loop Antenna	SCHWRZBECK MESS- ELEKTRONIK	FMZB 1519B	SUWI-01-21-01	5/7/2025	5/6/2027
10	Amplifier	Tonscend	TAP9K3G40	SUWI-01-14-01	1/14/2026	1/13/2027
11	Amplifier	Tonscend	TAP01018050	SUWI-01-14-02	1/14/2026	1/13/2027
12	Amplifier	Tonscend	TAP18040048	SUWI-01-14-03	1/14/2026	1/13/2027
13	Wideband Radio Communication Tester	Anritsu	MT8820C	SUWI-01-26-01	11/21/2025	11/20/2026
14	Wideband Radio Communication Tester	Anritsu	MT8821C	SUWI-01-26-03	8/25/2025	8/24/2026
15	Wideband Radio Communication Tester	ROHDE&SCHWARZ	CMW500	SUWI-01-16-09	8/26/2025	8/25/2026
16	Radio Communication Analyzer	StarPoint	SP9500E	SUWI-01-28-02	11/21/2025	11/20/2026
17	Signal Generator	ROHDE&SCHWARZ	SMB100A	SUWI-01-08-01	1/14/2026	1/13/2027
18	DC Power Supply	HYELEC	HY3005B	SUWI-01-18-01	1/14/2026	1/13/2027
19	Temperature and humidity meter	MingGao	TH101B	SUWI-01-01-05	2/11/2026	2/10/2027
20	Measurement Software	Tonscend	JS32-RE 4.0.0.0	SUWI-02-09-06	NCR	NCR
21	RF Control unit	Tonscend	JS0806-1	SUWI-02-20-01	NCR	NCR
22	RFCables	Tonscend	NA	SUWI-01-03-02	NCR	NCR

4 Measurement Uncertainty

For a 95% confidence level ($k = 2$), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

No.	Item	Measurement Uncertainty
1	Total RF power, conducted	$\pm 0.41\text{dB}$
2	RF power density, conducted	$\pm 1.96\text{dB}$
3	Spurious emissions, conducted	$\pm 0.41\text{dB}$
4	Radio Frequency	$\pm 1.0\%$
5	Duty Cycle	$\pm 0.49\%$
6	Occupied Bandwidth	$\pm 1.0\%$

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

5 Description of Tests

5.1 Conducted Output Power

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.2.1

The transmitter output was connected to a calibrated coaxial cable and power meter, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The power output at the transmitter antenna port was determined by adding the value of the cable insertion loss to the power reading. The tests were performed at three frequencies (low channel, middle channel and high channel) and on the highest power levels, which can be setup on the transmitters.

Remark: Reference test setup 1

5.2 Effective (Isotropic) Radiated Power of Transmitter

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8.4

Calculate power in dBm by the following formula:

ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP(dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

5.3 Occupied Bandwidth

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 4.2 & 4.3

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. $RBW = 1 - 5\%$ of the expected OBW
3. $VBW \geq 3 \times RBW$
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within $1 - 5\%$ of the 99% occupied bandwidth observed in Step 7

5.4 Band Edge at Antenna Terminals

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emission are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyzer was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

Remark: Reference test setup 1

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. $RBW \geq 1\%$ of the emission bandwidth
4. $VBW \geq 3 \times RBW$
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span}/RBW$
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

5.5 Spurious And Harmonic Emissions at Antenna Terminal

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 6.0

The transmitter output was connected to a calibrated coaxial cable and Spectrum analyzer, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Remark: Reference test setup 1

Test Settings

1. Start frequency was set to 9kHz and stop frequency was set to at least 10* the fundamental frequency (Separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

5.6 Peak-Average Ratio

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.7.2

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Remark: Reference test setup 1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

5.7 Field Strength of Spurious Radiation

Measurement Procedure: FCC KDB 971168 D01 V03r01 Section 5.8

Below 1GHz test procedure as below:

- 1). The EUT was powered ON and placed on a 80cm high table in the chamber. The antenna of the transmitter was extended to its maximum length.
- 2). The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 3). Steps 1) and 2) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 4). Test the EUT in the lowest channel, the middle channel ,the Highest channel.
- 5). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 6). Repeat above procedures until all frequencies measured was complete.

$$E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$$

$$\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8; \text{ where D is the measurement distance in meters}$$

Above 1GHz test procedure as below:

- 1) Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber
- 2) Calculate power in dBm by the following formula:

$$E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + (\text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)} - \text{AMP(dB)})$$

$$\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20 \log D - 104.8; \text{ where D is the measurement distance in meters}$$
- 3). Test the EUT in the lowest channel, the middle channel the Highest channel
- 4). The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report.
- 5). Repeat above procedures until all frequencies measured was complete

Remark1: Reference test setup 2

Remark2: The emission below 18G were measured at a 3m test distance, while emissions above 18GHz were measured at a 1m test distance. At a measurement distance of 1 meter the limit line was increased by $20 \cdot \log(3/1) = 9.54 \text{ dB}$.

Remark: Reference test setup 2

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & AMP. The basic equation with a sample calculation is as follows:

AF = Antenna Factor(dB/m)

Factor = Cable Factor(dB) - Preamplifier (dB)

Level = Reading Level + AF + Factor -95.26

Margin = Limit – Level

2) Scan from 9kHz to 40GHz, The disturbance between 9KHz to 30MHz and 18GHz to 40GHz was very low, and the harmonics were the highest point could be found when testing, so only the harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) All modes have been tested, but only the worst case data displayed in this report.

5.8 Frequency Stability / Temperature Variation

Measurement Procedure:

Frequency stability testing is performed in accordance with the guidelines of FCC KDB 971168 D01 V03r01 Section 9

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

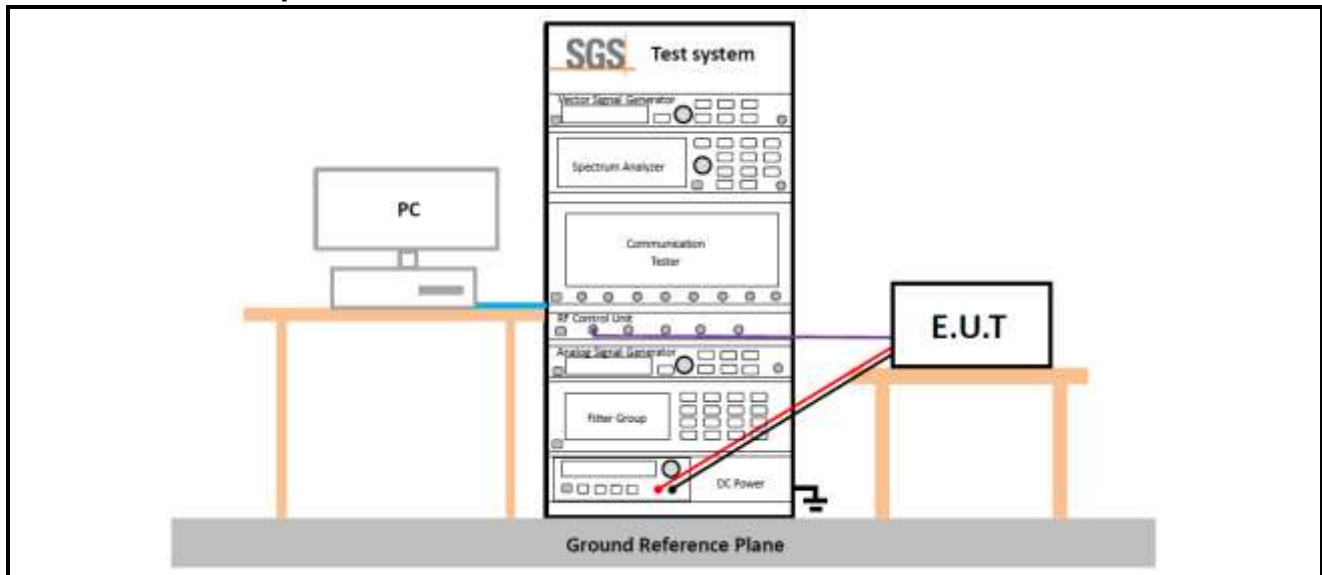
Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Remark: Reference test setup 3

5.9 Test Setups

5.9.1 Test Setup 1



5.9.2 Test Setup 2

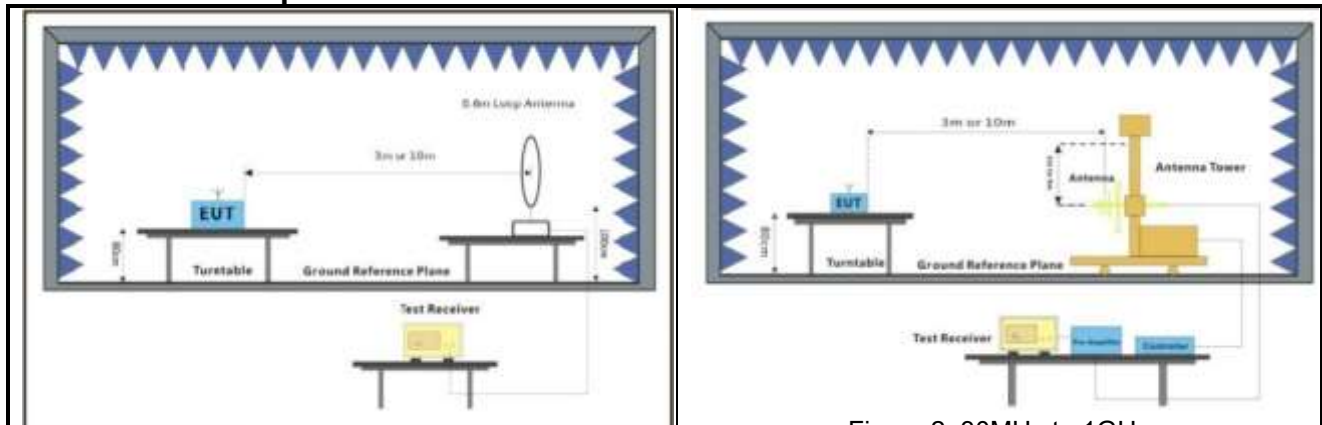


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

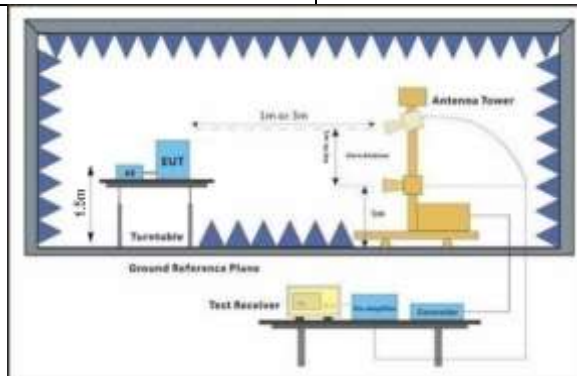
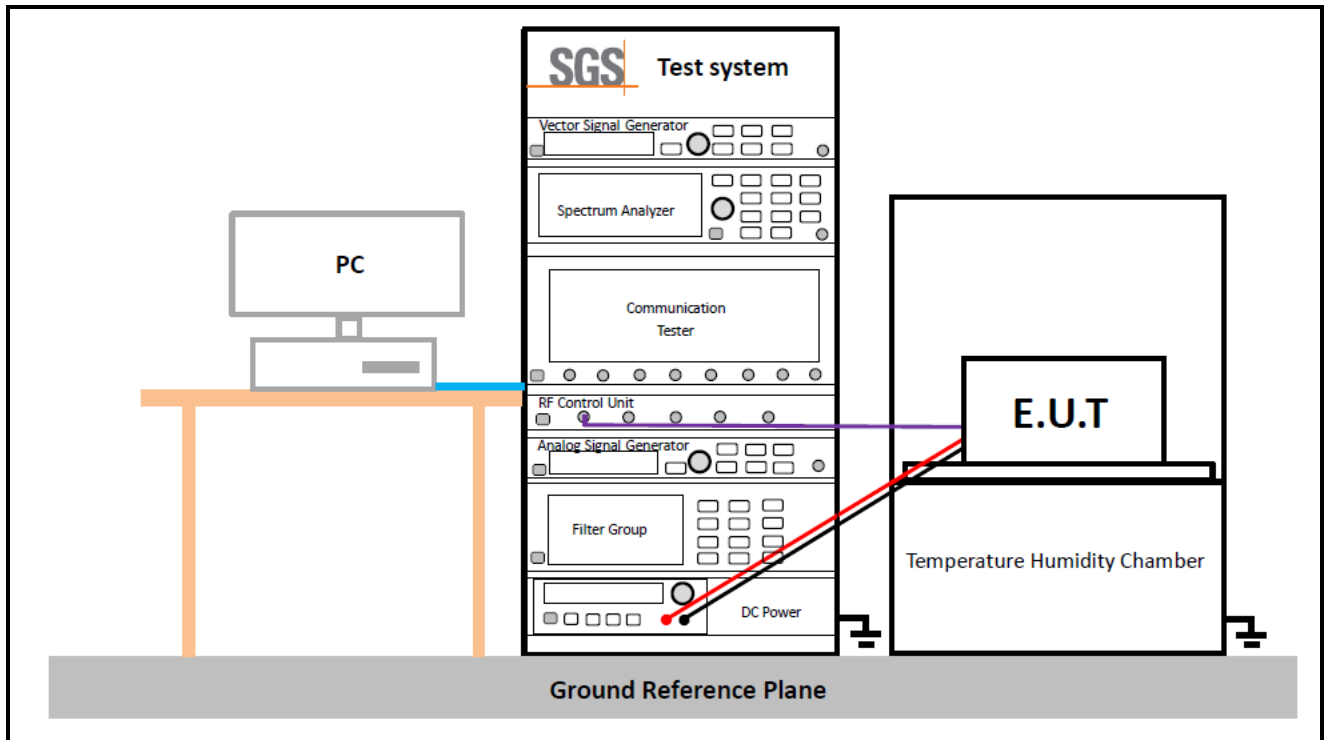


Figure 3. above 1GHz

5.9.3 Test Setup 3



5.10 Test Conditions

Transmit Output Power Data - Average Power, Total	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1; NR/TM2; NR/TM3; NR/TM4; NR/TM5; NR/TM6; NR/TM7; NR/TM8; NR/TM9
Peak-to-Average Ratio	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1; NR/TM6
Bandwidth - Occupied Bandwidth	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1; NR/TM2; NR/TM3; NR/TM4; NR/TM5; NR/TM6; NR/TM7; NR/TM8; NR/TM9
Bandwidth - Emission Bandwidth	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1; NR/TM2; NR/TM3; NR/TM4; NR/TM5; NR/TM6; NR/TM7; NR/TM8; NR/TM9
Band Edges Compliance	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, H (L= low channel, H= high channel)
Test Mode	NR/TM1; NR/TM6
Spurious Emission at Antenna Terminals	
Test Case	Test Conditions

Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 1
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1
Field Strength of Spurious Radiation	
Test Case	Test Conditions
Test Environment	Ambient Climate & Rated Voltage
Test Setup	Test Setup 2
RF Channels (TX)	L, M, H (L= low channel, M= middle channel, H= high channel)
Test Mode	NR/TM1 Remark: All bandwidth and modulation of NR have been pre tested, and only the worst results are reflected in the report.
Frequency Stability	
Test Case	Test Conditions
Test Environment	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage (2) VL, VN and VH of Rated Voltage at Ambient Climate.
Test Setup	Test Setup 3
RF Channels (TX)	M (M= middle channel)
Test Mode	NR/TM1; NR/TM6 The report only show the bandwidth with the worst case.



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6 Appendixes

Appendix A.17	NR Band n77 (3450-3550)
Appendix A.18	NR Band n77 (3700-3980)
Appendix A.19	NR Band n78 (3450-3550)
Appendix A.20	NR Band n78 (3700-3800)
Appendix B.5	Field Strength of Spurious Radiation for SA
Appendix B.6	Field Strength of Spurious Radiation for NSA

---End of Report---