



Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2431-2, XT2431-3
FCC ID : IHDT56AM6
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(L), 27(H), 27(Q), 90(S)
47 CFR Part 15 Subpart C §15.247
47 CFR Part 15 Subpart E §15.407
TEST DATE(S) : Nov. 30, 2023 ~ Jan. 03, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Product Feature of Equipment Under Test	5
1.4 Specification of Accessory	5
1.5 Modification of EUT	5
1.6 Testing Site	6
1.7 Test Software	6
1.8 Applicable Standards	6
2 RE-USE OF MEASURED DATA	7
2.1 Introduction Section	7
2.2 Model Difference Information	7
2.3 Reference detail Section:	8
2.4 Spot Check Verification Data Section	9
3 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	11
3.1 Test Mode	11
3.2 Connection Diagram of Test System	12
3.3 Support Unit used in test configuration and system	12
3.4 Frequency List of Low/Middle/High Channels	13
4 RADIATED TEST ITEMS	17
4.1 Measuring Instruments	17
4.2 Test Setup	17
4.3 Test Result of Radiated Test	18
4.4 Radiated Spurious Emission	19
5 LIST OF MEASURING EQUIPMENT	20
6 MEASUREMENT UNCERTAINTY	21
APPENDIX A. TEST RESULTS OF RADIATED TEST	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
352916-13	Rev. 01	Initial issue of report	Jan. 04, 2024



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(h) §90.691	Radiated Spurious Emission (GSM 850) (GSM 1900) (WCDMA Band II) (WCDMA Band IV) (WCDMA Band V) (LTE Band 2) (LTE Band 4) (LTE Band 12) (LTE Band 17) (LTE Band 26)	$< 43 + 10 \log_{10}(P[\text{Watts}])$	PASS	Under limit 32.11 dB at 3765.00 MHz
	§27.53 (n)(2)	Radiated Spurious Emission (LTE Band 42)	-13dBm/MHz		

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Motorola Mobility LLC

222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC

222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2431-2, XT2431-3
FCC ID	IHDT56AM6
IMEI Code	Conducted: 355221240002132/355221240002140 Radiation: 355221240002157
HW Version	DVT
SW Version	U1TD34.37
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The two models XT2431-2, XT2431-3 are only for market differentiation, all the others are the same.

1.4 Specification of Accessory

Specification of Accessory				
Battery 1	Brand Name	Motorola(ATL)	Model Name	QA50
Battery 2	Brand Name	Motorola (Jiade)	Model Name	QA50

1.5 Modification of EUT

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

1.6 Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH04-KS 03CH08KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	FCC 15C-15E Test Tools Ver10.0_210607	10.0
2.	03CH04-KS	AUDIX	E3	210616
3.	03CH08-KS	AUDIX	E3	210616

1.8 Applicable Standards

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

- ♦ FCC KDB 484596 D01 Referencing Test Data v02r02
- ♦ 47 CFR Part 2, 22(H), 24(E), 27(L), 27(H), 27(Q), 90(S)
- ♦ 47 CFR Part 15 Subpart C §15.247
- ♦ 47 CFR Part 15 Subpart E §15.407
- ♦ ANSI C63.10-2013
- ♦ ANSI C63.26-2015



2 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2431-2, XT2431-3, FCC ID: IHDT56AM6) is electrically identical to the reference device (Model: XT2343-1, FCC ID: IHDT56AM4) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS) and FCC Part 15E (equipment class: NII) and FCC Part 22, 24, 27, 90 (equipment class: PCE) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 Referencing Test Data v02r02.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AM6 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AM4 and FCC ID: IHDT56AM6 is as below:

- Remove LTE Band 5/7/13/25/40/66 and 5G NR n2/n5/n7/n26/n40/n66.
- Add LTE Band 11/18/19 and 5G NR n41/n77.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2431-2, XT2431-3_Operational Description of Product Equality Declaration).



2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
15C	DSS (BR/EDR)	2400~2483.5	IHDT56AM4	Original Grant	FR352916A	IHDT56AM6	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AM4	Original Grant	FR352916C	IHDT56AM6	All sections applicable
15E	U-NII	5180~5240	IHDT56AM4	Original Grant	FR352916E	IHDT56AM6	All sections applicable
		5260~5320	IHDT56AM4	Original Grant	FR352916E	IHDT56AM6	All sections applicable
		5500~5720	IHDT56AM4	Original Grant	FR352916E FZ352916	IHDT56AM6	All sections applicable
		5745~5825	IHDT56AM4	Original Grant	FR352916E	IHDT56AM6	All sections applicable
22, 24, 27, 90	PCE (GSM)	GSM 850/1900	IHDT56AM4	Original Grant	FG352916A	IHDT56AM6	All sections applicable except for RSE
	PCE (WCDMA)	Band II, IV, V	IHDT56AM4	Original Grant	FG352916A	IHDT56AM6	All sections applicable except for RSE
	PCE (LTE)	B2/4/26	IHDT56AM4	Original Grant	FG352916B	IHDT56AM6	All sections applicable except for RSE
	PCE (LTE)	B12/17	IHDT56AM4	Original Grant	FG352916C	IHDT56AM6	All sections applicable except for RSE
	PCE (LTE)	B26 (90S)	IHDT56AM4	Original Grant	FG352916D	IHDT56AM6	All sections applicable except for RSE
	CBE (LTE)	B42 (Part27Q)	IHDT56AM4	Original Grant	FG352916E	IHDT56AM6	All sections applicable except for RSE

2.4 Spot Check Verification Data Section

Conducted power test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

All test procedures follow the related section of parent report.

Spot-check measurements, while being always compliant with the applicable rule part(s) for the test under consideration, show a deviation d_{dB} from the reference data no larger than 3 dB:

$$d_{dB} = |V_{dB} - R_{dB}| \leq 3 \text{ dB} \quad (1)$$

V_{dB} , the variant spot-check level

R_{dB} , the corresponding measurement level for the reference model

An alternative to the limit of eq. (1) is available, and is based on considering how far the reference data R_{dB} is from the compliance threshold C_{dB} (also expressed in dB), for the particular test under consideration. In this case, if $M_{dB} = |C_{dB} - R_{dB}|$ is the margin in dB from the compliance limit, a spot check may be considered acceptable when the deviation d_{dB} from the reference data satisfies the following condition:

$$d_{dB} = |V_{dB} - R_{dB}| \leq (3 + M_{dB} / 20) \text{ dB}, \text{ for } 0 \leq M_{dB} \leq 60 \text{ dB} \quad (2)$$

where “| |” is the absolute value of the measured quantity.

When using the option in eq. (2), d_{dB} increases linearly from 3 dB to 6 dB.

Summary for power spot check for each rule entry and technology is listed as below:

Test Item	Mode	IHDT56AM4 Parent Worst mode Test Result	IHDT56AM6 Variant Check Test Result	Deviation (dB)	Limit (dB)
Conducted Power (dBm)	BT BR/EDR	15.33	14.17	1.16	3
	WLAN11b 2.4G	21.39	20.82	0.57	3
	WLAN11g 2.4G	24.63	24.56	0.07	3
	WLAN11n20 2.4G	25.01	24.80	0.21	3
	WLAN11a U NII-1	17.96	17.85	0.11	3
	WLAN11a U NII-2A	18.45	18.37	0.08	3
	WLAN11a U NII-2C	17.63	17.51	0.12	3
	WLAN11a U NII-3	17.59	17.50	0.09	3
	WLAN11n20 U NII-1	17.82	17.59	0.23	3
	WLAN11n20 U NII-2A	18.37	18.08	0.29	3
	WLAN11n20 U NII-2C	17.40	17.31	0.09	3
	WLAN11n20 U NII-3	17.25	17.12	0.13	3
	WLAN11ac20 U NII-1	17.88	17.73	0.15	3
	WLAN11ac20 U NII-2A	18.41	18.17	0.24	3
	WLAN11ac20 U NII-2C	17.46	17.35	0.11	3
	WLAN11ac20 U NII-3	17.29	17.22	0.07	3
	WLAN11n40 U NII-1	15.72	15.52	0.20	3
	WLAN11n40 U NII-2A	16.23	16.16	0.07	3
	WLAN11n40 U NII-2C	15.43	15.24	0.19	3
	WLAN11n40 U NII-3	15.31	15.14	0.17	3
	WLAN11ac40 U NII-1	15.77	15.61	0.16	3
	WLAN11ac40 U NII-2A	16.29	16.22	0.07	3

	WLAN11ac40 U NII-2C	15.48	15.30	0.18	3
	WLAN11ac40 U NII-3	15.37	15.27	0.10	3
	WLAN11ac80 U NII-1	13.89	13.86	0.03	3
	WLAN11ac80 U NII-2A	14.72	14.45	0.27	3
	WLAN11ac80 U NII-2C	14.28	14.22	0.06	3
	WLAN11ac80 U NII-3	14.25	14.13	0.12	3
	GSM 850	33.19	32.20	0.99	3
	GSM 1900	29.58	29.56	0.02	3
	WCDMA Band II	22.65	22.61	0.04	3
	WCDMA Band IV	22.77	22.76	0.01	3
	WCDMA Band V	22.93	22.90	0.03	3
	LTE B2	22.66	22.16	0.50	3
	LTE B4	22.43	21.69	0.74	3
	LTE B26(22H)	23.03	22.80	0.23	3
	LTE B26(90S)	23.01	22.72	0.29	3
	LTE B12	22.68	22.67	0.01	3
	LTE B17	22.62	22.60	0.02	3
	LTE B42	22.33	22.28	0.05	3

Test Item	Mode	IHDT56AM4 Parent Worst Result	IHDT56AM6 Variant Check Result	Deviation (dB)	Limit (dB)
Radiated Spurious Emission (dBuV/m)	BT BR/EDR	56.25	55.75	0.5	3
	WLAN11g 2.4G	50.92	48.27	2.65	3
	WLAN11a U NII-2A	50.61	47.83	2.78	3
	WLAN11ac80 U NII-3	60.95	58.32	2.63	3

Conclusion:

Conducted Power test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level spot check are shown within expected level compliant to limit line.

We are using power and ERP/EIRP measurements from the original parent model reports to list on the grant.

The same DFS detection mechanism/software is used in the variant. Hence, there is no spot check data for DFS.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v02r02 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.

3 Test Configuration of Equipment Under Test

3.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

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

For GSM&WCDMA:

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19100 MHz for GSM1900 and WCDMA Band II

All modes and data rates and positions were investigated.

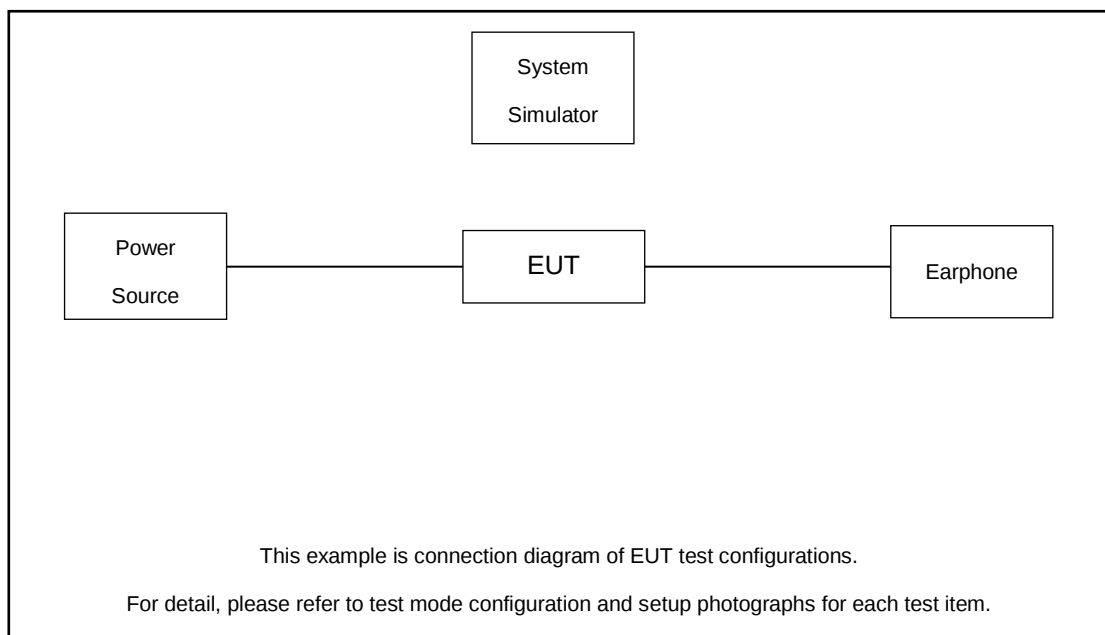
Test modes are chosen to be reported as the worst case configuration below:

Test Modes	
Band	Radiated TCs
GSM 850	■ GSM Link ■ EDGE 1 Tx slots Link
GSM 1900	■ GSM Link ■ EDGE 1 Tx slots Link
WCDMA Band V	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link

For LTE:

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Radiated Spurious Emission	2	Worst Case												v		
	4	Worst Case												v		
	12	Worst Case												v		
	26	Worst Case												v		
	42	Worst Case												v		
Note	1. The mark “v” means that this configuration is chosen for testing 2. The mark “-” means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. LTE Band 12 overlaps the entire frequency range of LTE Band 17. Therefore, the test results provided in this report covers Band 12 as well as Band 17.															

3.2 Connection Diagram of Test System



3.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Adapter	N/A	N/A	N/A	N/A	N/A
2.	USB Cable	N/A	N/A	N/A	N/A	N/A
3.	Earphone	N/A	N/A	N/A	N/A	N/A

3.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
GSM850	Channel	128	189	251
	Frequency	824.2	836.4	848.8
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
GSM1900	Channel	512	661	810
	Frequency	1850.2	1880.0	1909.8
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3



LTE Band 4 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 12 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

LTE Band 17 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23780	23790	23800
	Frequency	709	710	711
5	Channel	23755	23790	23825
	Frequency	706.5	710	713.5



LTE Band 26 Channel and Frequency List (Part 22H)				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 26 Channel and Frequency List (Part 90S)				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	26740	-
	Frequency	-	819	-
5	Channel	26715	26740	26765
	Frequency	816.5	819	821.5
3	Channel	26705	26740	26775
	Frequency	815.5	819	822.5
1.4	Channel	26697	26740	26783
	Frequency	814.7	819	823.3

LTE Band 26 Cross-rule Channel and Frequency List (Part 90S)				
BW [MHz]	Channel/Frequency(MHz)	-	Middle	-
15	Channel	-	26790	-
	Frequency	-	824	-
10	Channel	-	26790	-
	Frequency	-	824	-
5	Channel	-	26790	-
	Frequency	-	824	-
3	Channel	-	26790	-
	Frequency	-	824	-
1.4	Channel	-	26790	-
	Frequency	-	824	-



LTE Band 42 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	42190	42590	42990
	Frequency	3460	3500	3540
15	Channel	42165	42590	43015
	Frequency	3457.5	3500	3542.5
10	Channel	42140	42590	43040
	Frequency	3455	3500	3545
5	Channel	42115	42590	43065
	Frequency	3452.5	3500	3547.5

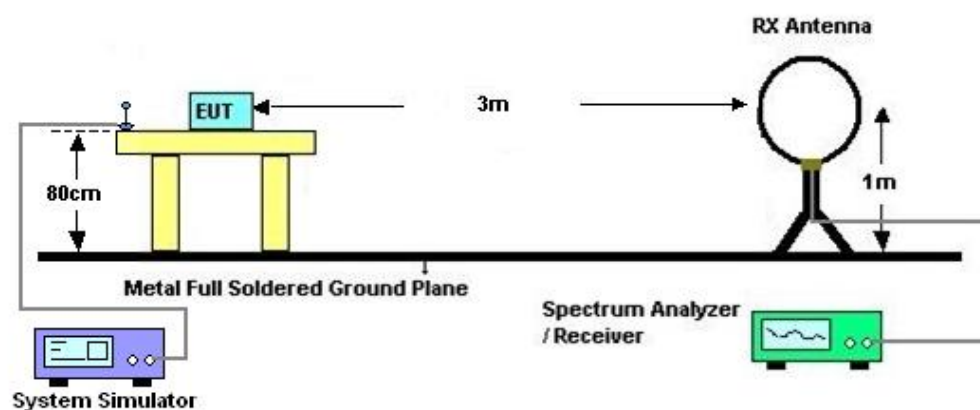
4 Radiated Test Items

4.1 Measuring Instruments

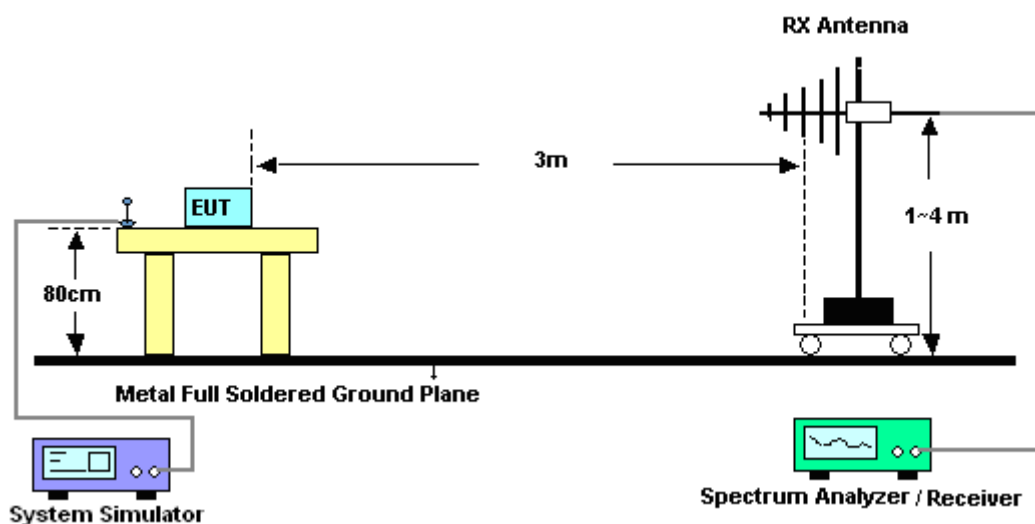
See list of measuring instruments of this test report.

4.2 Test Setup

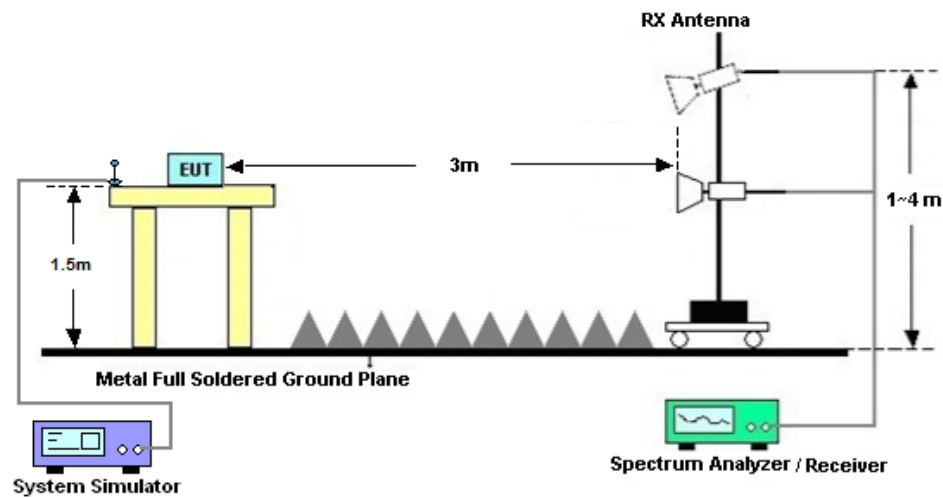
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix A.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For LTE Band 42:

The power of any emission outside of the authorized operating frequency ranges shall not exceed -13 dBm/MHz.

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

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023	Dec. 14, 2023	Oct. 10, 2024	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Dec. 14, 2023	NCR	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2023	Dec. 14, 2023	Jan. 04, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2023	Dec. 14, 2023	Jan. 04, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz~44G, MAX 30dB	Oct. 10, 2023	Nov. 30, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11 2023	Nov. 30, 2023	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	Apr. 09, 2023	Nov. 30, 2023	Apr. 08, 2024	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Oct. 10, 2023	Nov. 30, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	Nov. 30, 2023	Jan. 07, 2024	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz~1GHz	Jul. 06, 2023	Nov. 30, 2023	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2023	Nov. 30, 2023	Jan. 04, 2024	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz~18Ghz	Oct. 10, 2023	Nov. 30, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz~18Ghz	Oct. 10, 2023	Nov. 30, 2023	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Nov. 30, 2023	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Nov. 30, 2023	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Nov. 30, 2023	NCR	Radiation (03CH04-KS)
EMI Test Receiver	Keysight	N9038A	MY56400023	3Hz~8.5GHz; Max 30dBm	Jan. 05, 2023	Jan. 03, 2024	Jan. 04, 2024	Radiation (03CH08-KS)
Spectrum Analyzer	R&S	FSV40	101932	10kHz~40GHz; Max 30dBm	Oct. 10, 2023	Jan. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Oct. 10, 2023	Jan. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Bilog Antenna	TESEQ& VGT	CBL 61110	59915	30MHz~1GHz	Aug. 12, 2023	Jan. 03, 2024	Aug. 11, 2024	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Mar. 18, 2023	Jan. 03, 2024	Mar. 17, 2024	Radiation (03CH08-KS)
high gain Amplifier	EM	EM01G18GA	060845	1Ghz~18Ghz	Jan. 05, 2023	Jan. 03, 2024	Jan. 04, 2024	Radiation (03CH08-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	Jan. 03, 2024	Jan. 07, 2024	Radiation (03CH08-KS)
Amplifier	SONOMA	310N	413741	9KHz~1GHz	Jan. 05, 2023	Jan. 03, 2024	Jan. 04, 2024	Radiation (03CH08-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz~18Ghz	Oct. 10, 2023	Jan. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2023	Jan. 03, 2024	Jan. 04, 2024	Radiation (03CH08-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Jan. 03, 2024	NCR	Radiation (03CH08-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Jan. 03, 2024	NCR	Radiation (03CH08-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Jan. 03, 2024	NCR	Radiation (03CH08-KS)

NCR: No Calibration Required.

6 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage $K=2$ to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	± 0.46 dB

03CH04-KS

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.82dB
---	--------

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.56dB
---	--------

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.54dB
---	--------

03CH08-KS

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.28dB
---	--------

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.90dB
---	--------

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.26dB
---	--------

-THE END-

Appendix A. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Carl Ni	Temperature :	23~25°C
		Relative Humidity :	41~42%

Note: Pre-scanned harmonic for the different antennas, we choose the worst antenna mode to test.

GSM850 (GSM) - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672	-48.87	-13	-35.87	-55.84	1.58	10.70	H
	2512	-46.70	-13	-33.70	-54.95	2.102	12.50	H
	3344	-57.25	-13	-44.25	-66.14	2.856	13.90	H
	1672	-50.39	-13	-37.39	-57.36	1.58	10.70	V
	2512	-51.52	-13	-38.52	-59.77	2.10	12.50	V
	3344	-60.17	-13	-47.17	-69.06	2.86	13.90	V

GSM850 (EDGE 1 Tx slots) - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672	-74.13	-13	-61.13	-81.10	1.58	10.70	H
	2512	-65.06	-13	-52.06	-73.31	2.102	12.50	H
	3344	-66.32	-13	-53.32	-75.21	2.856	13.90	H
	1672	-73.31	-13	-60.31	-80.28	1.58	10.70	V
	2512	-62.42	-13	-49.42	-70.67	2.10	12.50	V
	3344	-66.08	-13	-53.08	-74.97	2.86	13.90	V

GSM1900 (GSM) - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3765	-47.99	-13	-34.99	-60.25	2.64	14.90	H
	5640	-55.73	-13	-42.73	-67.59	2.94	14.80	H
	7520	-54.38	-13	-41.38	-64.15	3.39	13.16	H
	3765	-45.11	-13	-32.11	-57.37	2.64	14.90	V
	5640	-52.16	-13	-39.16	-64.02	2.94	14.80	V
	7520	-54.20	-13	-41.20	-63.97	3.39	13.16	V

GSM1900 (EDGE 1 Tx slots) - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3765	-55.93	-13	-42.93	-68.19	2.64	14.90	H
	5640	-55.30	-13	-42.30	-67.16	2.94	14.80	H
	7515	-51.70	-13	-38.70	-61.47	3.39	13.16	H
	3765	-52.58	-13	-39.58	-64.84	2.64	14.90	V
	5640	-55.84	-13	-42.84	-67.70	2.94	14.80	V
	7515	-51.50	-13	-38.50	-61.27	3.39	13.16	V

WCDMA Band V(RMC 12.2Kbps) - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672	-62.61	-13	-49.61	-69.58	1.58	10.70	H
	2512	-58.52	-13	-45.52	-66.77	2.102	12.50	H
	3344	-58.52	-13	-45.52	-67.41	2.856	13.90	H
	1672	-61.89	-13	-48.89	-68.86	1.58	10.70	V
	2512	-58.13	-13	-45.13	-66.38	2.10	12.50	V
	3344	-58.81	-13	-45.81	-67.70	2.86	13.90	V

WCDMA Band II(RMC 12.2Kbps) - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3765	-58.15	-13	-45.15	-70.41	2.64	14.90	H
	5640	-56.06	-13	-43.06	-67.92	2.94	14.80	H
	7520	-53.89	-13	-40.89	-63.66	3.39	13.16	H
	3765	-58.15	-13	-45.15	-70.41	2.64	14.90	V
	5640	-56.75	-13	-43.75	-68.61	2.94	14.80	V
	7520	-53.85	-13	-40.85	-63.62	3.39	13.16	V

WCDMA Band IV(RMC 12.2Kbps) - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3465	-58.06	-13	-45.06	-68.80	2.604	13.34	H
	5205	-56.71	-13	-43.71	-67.22	3.011	13.52	H
	6930	-55.63	-13	-42.63	-65.83	3.271	13.47	H
	3465	-58.44	-13	-45.44	-69.18	2.604	13.34	V
	5205	-56.72	-13	-43.72	-67.23	3.011	13.52	V
	6930	-55.47	-13	-42.47	-65.67	3.271	13.47	V



LTE Band 2 / 20MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3735	-55.48	-13	-42.48	-67.74	2.64	14.90	H
	5610	-56.40	-13	-43.40	-68.26	2.94	14.80	H
	7485	-53.83	-13	-40.83	-63.60	3.39	13.16	H
	3735	-51.63	-13	-38.63	-63.89	2.64	14.90	V
	5610	-56.54	-13	-43.54	-68.40	2.94	14.80	V
	7485	-53.93	-13	-40.93	-63.70	3.39	13.16	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 4 / 20MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3450	-58.19	-13	-45.19	-68.93	2.604	13.34	H
	5175	-57.19	-13	-44.19	-67.70	3.011	13.52	H
	6900	-55.19	-13	-42.19	-65.39	3.271	13.47	H
	3450	-58.95	-13	-45.95	-69.69	2.604	13.34	V
	5175	-56.86	-13	-43.86	-67.37	3.011	13.52	V
	6900	-55.72	-13	-42.72	-65.92	3.271	13.47	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 12 / 10MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1408	-75.19	-13	-62.19	-82.16	1.58	10.70	H
	2112	-66.56	-13	-53.56	-74.81	2.102	12.50	H
	2816	-63.51	-13	-50.51	-72.40	2.856	13.90	H
	1408	-74.62	-13	-61.62	-81.59	1.58	10.70	V
	2112	-65.26	-13	-52.26	-73.51	2.10	12.50	V
	2816	-62.85	-13	-49.85	-71.74	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 26(22H) / 15MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1656	-64.79	-13	-51.79	-71.76	1.58	10.70	H
	2488	-61.48	-13	-48.48	-69.73	2.102	12.50	H
	3320	-60.96	-13	-47.96	-69.85	2.856	13.90	H
	1656	-64.70	-13	-51.70	-71.67	1.58	10.70	V
	2488	-59.46	-13	-46.46	-67.71	2.10	12.50	V
	3320	-60.89	-13	-47.89	-69.78	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 26(90S) / 10MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1632	-66.19	-13	-53.19	-73.16	1.58	10.70	H
	2440	-61.60	-13	-48.60	-69.85	2.102	12.50	H
	3256	-61.00	-13	-48.00	-69.89	2.856	13.90	H
	1632	-65.27	-13	-52.27	-72.24	1.58	10.70	V
	2440	-60.25	-13	-47.25	-68.50	2.10	12.50	V
	3256	-61.02	-13	-48.02	-69.91	2.86	13.90	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 42 / 20MHz / QPSK - Ant.0								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6984	-58.93	-13	-45.93	-69.14	3.03	13.24	H
	10476	-58.16	-13	-45.16	-67.61	3.56	13.01	H
	13968	-61.25	-13	-48.25	-70.77	3.92	13.44	H
	6984	-57.39	-13	-44.39	-67.60	3.03	13.24	V
	10476	-57.66	-13	-44.66	-67.11	3.56	13.01	V
	13968	-59.48	-13	-46.48	-69.00	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.