



Partial Spot Check Evaluation

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2403-4, XT2403-5
FCC ID : IHDT56AQ6
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(L), 27(M), 27(H), 27(O),
27(Q), 90(S)
47 CFR Part 15 Subpart C §15.209
47 CFR Part 15 Subpart C §15.247
47 CFR Part 15 Subpart E §15.407
TEST DATE(S) : Jan. 15, 2024 ~ Jan. 25, 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

1 GENERAL DESCRIPTION..... 4

1.1 Applicant 4

1.2 Manufacturer..... 4

1.3 Product Feature of Equipment Under Test..... 4

1.4 Product Specification of Equipment Under Test..... 4

1.5 Modification of EUT 4

1.6 Testing Site 5

1.7 Test Software..... 5

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..... 13

3.1 Test Mode..... 13

3.2 Connection Diagram of Test System..... 13

3.3 Support Unit used in test configuration and system 13

3.4 Frequency List of Low/Middle/High Channels 14

4 RADIATED TEST ITEMS 16

4.1 Measuring Instruments 16

4.2 Test Setup 16

4.3 Test Result of Radiated Test 17

4.4 Radiated Spurious Emission 18

5 LIST OF MEASURING EQUIPMENT..... 19

6 MEASUREMENT UNCERTAINTY 21

APPENDIX A. TEST RESULTS OF RADIATED TEST

APPENDIX B. SETUP PHOTOGRAPHS



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	XT2403-4, XT2403-5
FCC ID	IHDT56AQ6
IMEI Code	Conducted/Radiation: 350950830009272/350950830009280 CBP: 350950830008811/350950830008829
HW Version	DVT2
SW Version	U2UM34.9
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 different model name is different for market purpose.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 26 : 824 MHz ~ 849 MHz
Rx Frequency	LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 7 : 2620 MHz ~ 2690 MHz LTE Band 26 : 824 MHz ~ 849 MHz
Uplink CA Bands	2A-7A, 7A-26A
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

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 03CH06-KS TH01-KS	CN1257	314309

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-SZ	CN1256	421272

Test data subcontracted: WWAN conducted Power test case in section 2.4 of this report

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	FCC 15C-15E Test Tools Ver10.0_210607	10.0
2.	TH01-KS	SPORTON	FCC BT2.0 Ver3.0_For_CHINA_190111	3.0
3.	TH01-SZ	SPORTON	FCC LTE_Ver2.0 Auto_china_210503	2.0
4.	TH01-SZ	SPORTON	Part2224_Ver5.0 200330	5.0
5.	TH01-SZ	SPORTON	FCC_5GNR_China_201027	1.0
6.	03CH04-KS	AUDIX	E3	210616
7.	03CH06-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(M), 27(H), 27(O), 27(Q), 90(S)
- ♦ 47 CFR Part 15 Subpart C §15.209
- ♦ 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: XT2403-4, XT2403-5, FCC ID: IHDT56AQ6) is electrically identical to the reference device (Model: XT2403-1, XT2403-2, FCC ID: IHDT56AQ5) 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, DCD) and FCC Part 15E (equipment class: NII, 6XD) and FCC Part 22, 24, 27, 90 (equipment class: PCE) referencing 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: IHDT56AQ6 .

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AQ5 and FCC ID: IHDT56AQ6 is as below:

- Remove LTE B13/20/32/43/48 and 5G NR n2/n7/n20/n26/n38/n40.
- Add LTE B11.

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2403-4, XT2403-5_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	IHDT56AQ5	Original Grant	FR3D1818A	IHDT56AQ6	All sections applicable
	DTS (BLE)	2400~2483.5	IHDT56AQ5	Original Grant	FR3D1818B	IHDT56AQ6	All sections applicable
	DTS (WLAN)	2400~2483.5	IHDT56AQ5	Original Grant	FR3D1818C	IHDT56AQ6	All sections applicable
	DCD (WPT)	0.11~0.148	IHDT56AQ5	Original Grant	FR3D1818E	IHDT56AQ6	All sections applicable
15E	U-NII	5180~5240	IHDT56AQ5	Original Grant	FR3D1818F	IHDT56AQ6	All sections applicable
		5260~5320	IHDT56AQ5	Original Grant	FR3D1818F FZ3D1818	IHDT56AQ6	All sections applicable
		5500~5720	IHDT56AQ5	Original Grant	FR3D1818F FZ3D1818	IHDT56AQ6	All sections applicable
		5745~5825	IHDT56AQ5	Original Grant	FR3D1818F	IHDT56AQ6	All sections applicable
	6XD	5925~7125	IHDT56AQ5	Original Grant	FR3D1818G	IHDT56AQ6	All sections applicable
22, 24, 27, 90,	PCE (GSM)	GSM 850/1900	IHDT56AQ5	Original Grant	FG3D1818A	IHDT56AQ6	All sections applicable
	PCE (WCDMA)	Band II, IV, V	IHDT56AQ5	Original Grant	FG3D1818A	IHDT56AQ6	All sections applicable
	PCE (LTE)	B4/5/7/12/17/26/38/41/42/66 ULCA 7C/38C/41C/42C /66B	IHDT56AQ5	Original Grant	FG3D1818B FG3D1818C FG3D1818E	IHDT56AQ6	All sections applicable
	PCE (LTE)	Inter Band CA	IHDT56AQ5	Original Grant	FG3D1818H	IHDT56AQ6	All sections applicable
	PCE (LTE)	B26 (90S)	IHDT56AQ5	Original Grant	FG3D1818D	IHDT56AQ6	All sections applicable
	PCE (NR)	n5/n41/n66/n77/n78	IHDT56AQ5	Original Grant	FG3D1818I	IHDT56AQ6	All sections applicable



2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission 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:

$$d_{dB} = |V_{dB} - R_{dB}| \leq 3 \text{ dB} \tag{1}$$

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:

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

$$d_{dB} = |V_{dB} - R_{dB}| = 6 \text{ dB} , \text{ for } M_{dB} > 60 \text{ dB}$$

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

Test Item	Mode	IHDT56AQ5 Parent Worst mode Test Result	IHDT56AQ6 Variant Check Test Result	Deviation (dB)	Limit (dB)
Conducted Power (dBm)	BT2.0 ANT6	18.13	17.76	0.37	3
	BT2.0 ANT3	19.27	19.15	0.12	3
	BLE 1M ANT6	14.43	14.02	0.41	3
	BLE 1M ANT3	13.93	13.74	0.19	3
	BLE 2M ANT6	14.53	14.21	0.32	3
	BLE 2M ANT3	14.07	13.76	0.31	3
	11B	24.82	24.55	0.27	3
	11G	28.50	28.26	0.24	3
	11N20	28.56	28.23	0.33	3
	11N40	21.96	21.92	0.04	3
	11AX20	28.64	28.24	0.4	3
	11AX40	22.06	21.99	0.07	3
	11A UNII-1	21.48	21.42	0.06	3
	11A UNII-2A	21.66	21.33	0.33	3
	11A UNII-2C	21.82	21.18	0.64	3
	11A UNII-3	22.88	22.74	0.14	3
	11N20 UNII-1	21.88	21.86	0.02	3
	11N20 UNII-2A	22.01	21.63	0.38	3
	11N20 UNII-2C	22.11	21.73	0.38	3
	11N20 UNII-3	22.42	22.41	0.01	3



11AC20 UNII-1	21.92	21.83	0.09	3
11AC20 UNII-2A	22.06	21.62	0.44	3
11AC20 UNII-2C	22.16	21.71	0.45	3
11AC20 UNII-3	22.53	22.14	0.39	3
11AX20 UNII-1	21.96	21.72	0.24	3
11AX20 UNII-2A	22.10	21.59	0.51	3
11AX20 UNII-2C	22.20	21.76	0.44	3
11AX20 UNII-3	22.63	22.07	0.56	3
11N40 UNII-1	21.25	21.07	0.18	3
11N40 UNII-2A	21.37	21.11	0.26	3
11N40 UNII-2C	22.42	21.75	0.67	3
11N40 UNII-3	21.65	21.42	0.23	3
11AC40 UNII-1	21.31	21.05	0.26	3
11AC40 UNII-2A	21.42	21.39	0.03	3
11AC40 UNII-2C	22.52	22.42	0.1	3
11AC40 UNII-3	21.72	21.57	0.15	3
11AX40 UNII-1	21.38	21.02	0.36	3
11AX40 UNII-2A	21.50	21.18	0.32	3
11AX40 UNII-2C	22.59	22.09	0.5	3
11AX40 UNII-3	21.81	21.46	0.35	3
11AC80 UNII-1	18.15	18.01	0.14	3
11AC80 UNII-2A	18.38	18.18	0.2	3
11AC80 UNII-2C	22.05	21.89	0.16	3
11AC80 UNII-3	20.08	19.87	0.21	3
11AX80 UNII-1	18.21	17.95	0.26	3
11AX80 UNII-2A	18.47	18.13	0.34	3
11AX80 UNII-2C	22.07	21.75	0.32	3
11AX80 UNII-3	20.13	19.73	0.4	3
11AC160 UNII-2A	17.20	16.95	0.25	3
11AC160 UNII-2C	19.21	18.82	0.39	3
11AX160 UNII-2A	17.26	16.96	0.3	3
11AX160 UNII-2C	19.25	18.87	0.38	3
6E 11A UNII-5	10.61	10.42	0.19	3
6E 11A UNII-6	11.28	11.02	0.26	3
6E 11A UNII-7	10.65	10.39	0.26	3
6E 11A UNII-8	12.13	11.82	0.31	3
6E 11AX20 UNII-5	10.31	10.04	0.27	3
6E 11AX20 UNII-6	11.08	10.7	0.38	3
6E 11AX20 UNII-7	10.42	10.01	0.41	3
6E 11AX20 UNII-8	11.91	11.74	0.17	3
6E 11AX40 UNII-5	10.08	9.64	0.44	3
6E 11AX40 UNII-6	10.91	10.64	0.27	3
6E 11AX40 UNII-7	10.25	9.922	0.328	3
6E 11AX40 UNII-8	11.66	11.35	0.31	3
6E 11AX80 UNII-5	10.84	10.52	0.32	3
6E 11AX80 UNII-6	11.75	11.47	0.28	3
6E 11AX80 UNII-7	11.07	10.75	0.32	3
6E 11AX80 UNII-8	12.49	12.27	0.22	3
6E 11AX160 UNII-5	11.51	11.33	0.18	3
6E 11AX160 UNII-6	12.21	11.92	0.29	3
6E 11AX160 UNII-7	11.65	11.38	0.27	3
6E 11AX160 UNII-8	12.88	12.54	0.34	3
GSM850	32.52	32.51	0.01	3
GSM1900	28.99	28.98	0.01	3
WCDMA II	22.15	22.09	0.06	3



	WCDMA IV	22.07	21.96	0.11	3
	WCDMA V	22.71	22.64	0.07	3
	LTE Band 4	22.55	22.40	0.15	3
	LTE Band 5	22.70	22.66	0.04	3
	LTE Band 7	22.95	22.90	0.05	3
	LTE Band 12	22.50	22.41	0.09	3
	LTE Band 17	22.46	22.40	0.06	3
	LTE Band 26	22.82	22.75	0.07	3
	LTE Band 38	25.84	25.76	0.08	3
	LTE Band 41	25.89	25.82	0.07	3
	LTE Band 42	22.80	22.72	0.08	3
	LTE Band 66	22.64	22.59	0.05	3
	LTE Band 7C	22.81	22.76	0.05	3
	LTE Band 38C	25.66	25.59	0.07	3
	LTE Band 41C	25.66	25.65	0.01	3
	LTE Band 42C	22.69	22.59	0.10	3

Note: Conducted Power of 5G NR Bands will be issued by separate test report.

Test Item	Mode	IHDT56AQ5 Parent Worst Result	IHDT56AQ6 Variant Check Result	Deviation (dB)	Limit (dB)
Radiated Spurious Emission (dBuV/m /dBm)	BT BR/EDR	55.99	56.67	0.68	3
	BLE 2M	49.22	47.83	1.39	3
	802.11ax HE40 CH03	50.94	48.86	2.08	3
	802.11a CH64	50.83	50.87	0.04	3
	802.11a CH233	64.83	63.29	1.54	3
	WPC(120KHZ)	30.45	30.32	0.13	3
	WPC(146KHZ)	32.55	31.18	1.37	3
	Part 22H EDGE 850	-39.83	-38.86	0.97	3
	Part 24E WCDMA1900	-53.58	-53.74	0.16	3
	Part 27M LTE B7 BW=20M	-47.14	-48.23	1.09	3
	Part 27M N41	-50.53	-49.73	0.8	3

Test Item	Mode	IHDT56AQ5 Parent Worst Result	IHDT56AQ6 Variant Check Result	Deviation (dB)	Limit (dB)
CBP(dBm)	UNII-8 BW160M CH Freq. 6985MHz	-72.44	-72.56	0.12	3

Conclusion:

Radiated spurious emission 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 and RSE 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 mechanism.

The same CBP detection mechanism/software/antenna gain is used in the variant. Hence, all test cases refer to parent report for CBP.

We confirm that the test data referencing 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

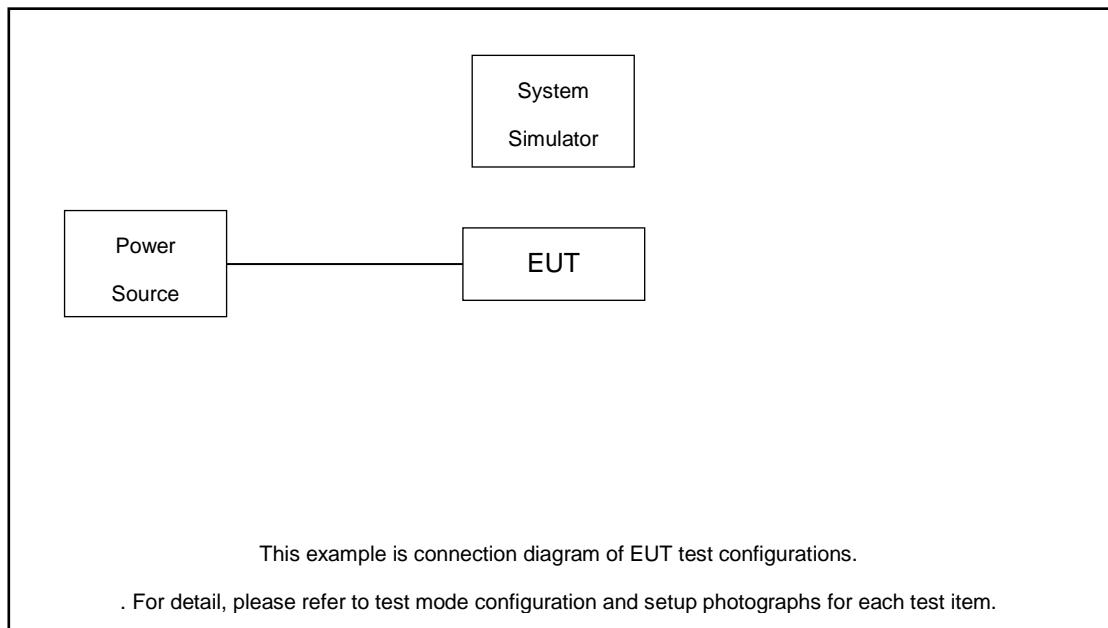
3.1 Test Mode

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. (Z-Plane)

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel				
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H		
Radiated Spurious Emission	2A-7A	Worst Case																v	
	7A-26A	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.																		

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.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m



3.4 Frequency List of Low/Middle/High Channels

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 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5



LTE Band 26 Channel and Frequency List				
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

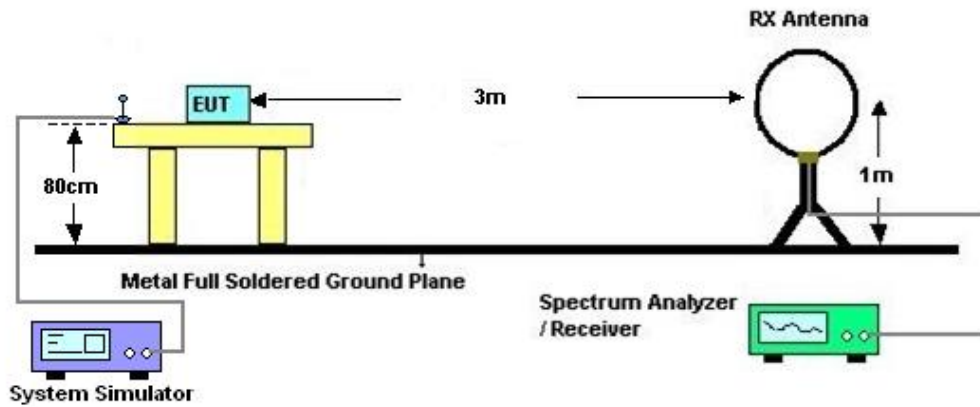
4 Radiated Test Items

4.1 Measuring Instruments

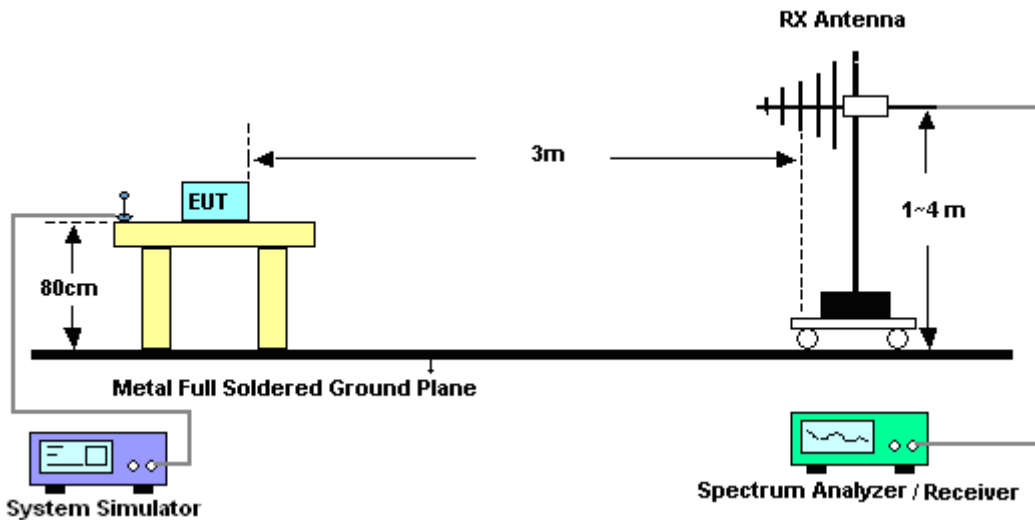
See list of measuring instruments of this test report.

4.2 Test Setup

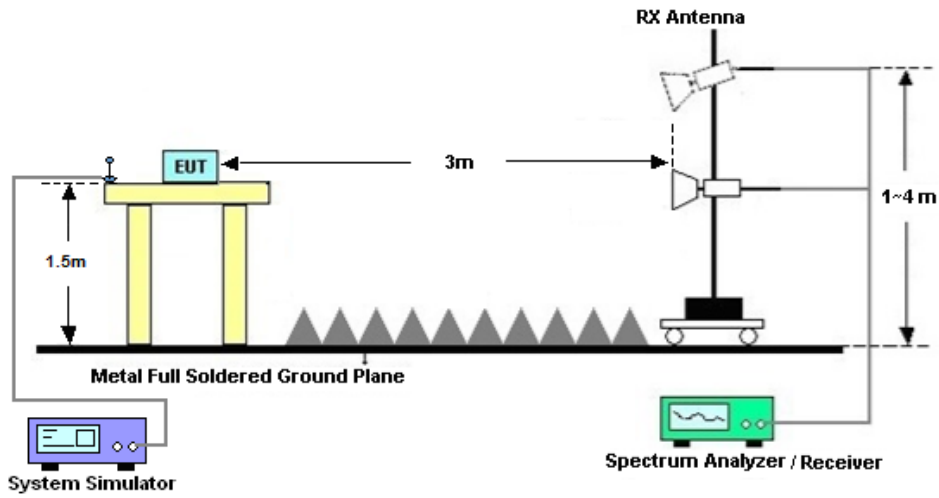
4.2.1 For radiated test below 30MHz



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.

For LTE Band 2, 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 Band 7

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 $55 + 10 \log (P)$ dB.

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.

For Band 2, 26:

$$\begin{aligned} &\text{The limit line is derived from } 43 + 10\log(P)\text{dB below the transmitter power } P(\text{Watts}) \\ &= P(\text{W}) - [43 + 10\log(P)] \text{ (dB)} \\ &= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} \\ &= -13\text{dBm}. \end{aligned}$$

For Band 7:

$$\text{The limit line is derived from } 55 + 10\log(P)\text{dB below the transmitter power } P(\text{Watts})$$



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	Jan. 23, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	Jan. 23, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	Jan. 23, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Jan. 23, 2024	NCR	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 06, 2023	Jan. 25, 2024	Apr. 05, 2024	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 24, 2023	Jan. 25, 2024	Dec. 23, 2024	Conducted (TH01-SZ)
Pulse Power Sensor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 29, 2023	Jan. 25, 2024	Dec. 28, 2024	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1542004	50MHz Bandwidth	Dec. 26, 2023	Jan. 25, 2024	Dec. 25, 2024	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Apr. 09, 2023	Jan. 16, 2024	Apr. 08, 2024	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2024	Jan. 16, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 06, 2023	Jan. 16, 2024	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GG A	060728	18~40GHz	Jan. 05, 2024	Jan. 16, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz-18Ghz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 16, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 16, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 16, 2024	NCR	Radiation (03CH04-KS)



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY60242126	10Hz-44GHz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	49921	30MHz-1GHz	Apr. 09, 2023	Jan. 16, 2024	Apr. 08, 2024	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 06, 2023	Jan. 16, 2024	Apr. 05, 2024	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Jan. 16, 2024	Jan. 04, 2025	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 06, 2023	Jan. 16, 2024	Jul. 05, 2024	Radiation (03CH06-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 04, 2024	Jan. 16, 2024	Jan. 03, 2025	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2082395	1Ghz-18Ghz	Jan. 04, 2024	Jan. 16, 2024	Jan. 03, 2025	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270319	500MHz~26.5GHz	Oct. 10, 2023	Jan. 16, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 16, 2024	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 16, 2024	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 16, 2024	NCR	Radiation (03CH06-KS)
Signal Analyzer	R&S	FSV7	101472	10Hz~7GHz	Jan. 02, 2024	Jan. 15, 2024	Jan. 01, 2025	CBP (DFS01-KS)
MXG-B RF Vector Signal Genertor	Keysight	5182B /5182BX07	MY56200417 /MY59360210	9kHz~7.2GHz	May 16, 2023	Jan. 15, 2024	May 15, 2024	CBP (DFS01-KS)
Vector Signal Generator	R&S	SMBV100A	258305	9kHz~6GHz	Jan. 02, 2024	Jan. 15, 2024	Jan. 01, 2025	CBP (DFS01-KS)
Combiner	MTJ Cooperation	MTJ7112	N/A	0.4-6GHz	NCR	Jan. 15, 2024	NCR	CBP (DFS01-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 –TH01-KS

Test Item	Uncertainty
Conducted Power	±0.46 dB

Uncertainty of Conducted Measurement –TH01-SZ

Test Item	Uncertainty
Conducted Power	±1.34 dB

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)- 03CH04-KS

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

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)- 03CH04-KS

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

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz) - 03CH04-KS

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

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)- 03CH06-KS

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.26dB
---	--------

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz) - 03CH06-KS

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.02dB
---	--------

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz) - 03CH06-KS

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 :	Carry Xu	Temperature :	23~25°C
		Relative Humidity :	41~42%

Pre-scanned harmonic for the different antenna combinations, we choose the worst antenna mode to perform final test and record in the report.

ULCA_2A-7A (ANT2+1)								
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)
LTE B2 BW 20MHz Middle 1RB0,QPSK	3735	-58.18	-13	-45.18	-70.44	2.64	14.90	H
	5610	-56.83	-13	-43.83	-68.69	2.94	14.80	H
	7485	-54.25	-13	-41.25	-64.02	3.39	13.16	H
	3735	-58.05	-13	-45.05	-70.31	2.64	14.90	V
	5610	-57.16	-13	-44.16	-69.02	2.94	14.80	V
	7485	-54.04	-13	-41.04	-63.81	3.39	13.16	V
LTE B7 BW 20MHz Middle 1RB0,QPSK	5055	-57.04	-25	-32.04	-67.25	3.03	13.24	H
	7575	-54.30	-25	-29.30	-63.75	3.56	13.01	H
	10110	-51.08	-25	-26.08	-60.60	3.92	13.44	H
	5055	-56.76	-25	-31.76	-66.97	3.03	13.24	V
	7575	-54.06	-25	-29.06	-63.51	3.56	13.01	V
	10110	-50.87	-25	-25.87	-60.39	3.92	13.44	V

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

ULCA_7A-26A (ANT2+1)								
Channel	Frequency (MHz)	EIRP/ERP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
LTE B7 BW 20MHz Middle 1RB0,QPSK	5055	-64.60	-25	-39.60	-74.81	3.03	13.24	H
	7575	-63.11	-25	-38.11	-72.56	3.56	13.01	H
	10110	-59.25	-25	-34.25	-68.77	3.92	13.44	H
	12630	-53.31	-25	-28.31	-63.23	4.44	14.36	H
	5055	-63.44	-25	-38.44	-73.65	3.03	13.24	V
	7575	-62.46	-25	-37.46	-71.91	3.56	13.01	V
	10110	-60.25	-25	-35.25	-69.77	3.92	13.44	V
	12630	-49.17	-25	-24.17	-59.09	4.44	14.36	V
LTE B26 BW 10MHz Middle 1RB0,QPSK	1660	-62.21	-13	-49.21	-69.18	1.58	10.70	H
	2490	-46.64	-13	-33.64	-54.89	2.102	12.50	H
	3315	-65.62	-13	-52.62	-74.51	2.856	13.90	H
	1660	-61.22	-13	-48.22	-68.19	1.58	10.70	V
	2490	-45.96	-13	-32.96	-54.21	2.10	12.50	V
	3315	-65.35	-13	-52.35	-74.24	2.86	13.90	V

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