FCC RF Test Report

APPLICANT	:	Nextivity, Inc.
EQUIPMENT	:	SHIELD MegaFi 2
BRAND NAME	:	Nextivity
MODEL NAME	:	M4D-UC
FCC ID	:	YETM4D-UC
STANDARD	:	47 CFR Part 22(H), 24(E), 27(L)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)
TEST DATE(S)	:	Dec. 25, 2024 ~ Jan. 14, 2025

This product installed a RF module (Brand Name: Telit, Model Name: FN990A40, FCC ID: RI7FN990A40) during the test, only Conducted Power, ERP/EIRP and RSE test items are tested in this report, all the other test results are leveraged from module RF report.

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown 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

ACCREDITED Cert #5145.02

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG492317A	Rev. 01	Initial issue of report	Feb. 10, 2025

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§22.913(a)(5)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
-	§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	1
-	§2.1049	Occupied Bandwidth	Reporting Only	PASS	1
-	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	1
-	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Emission	< 43+10log10(P[Watts])	PASS	1
-	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22	PASS	1
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§2.1053; §22.917(a); §24.238(a); §27.53(h)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 47.68 dB at 7515.00 MHz

Remark 1: The conducted test results were leveraged from module RF report which can refer to Report No. "FG270608A".

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/manufacturer 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

Nextivity, Inc.
16550 West Bernardo Drive, Building 5, Suite 550, San Diego, CA 92127 USA

1.2 Manufacturer

Asiatelco Technologies Co.
#68 HuaTuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201204, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	SHIELD MegaFi 2
Brand Name	Nextivity
Model Name	M4D-UC
FCC ID	YETM4D-UC
SN Code	Conducted : 243902000029, 243902000034 Radiation: 243902000026
HW Version	1.0
SW Version	1.2.0.0
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	**WCDMA:** Band V: 824 MHz ~ 849 MHz Band II: 1850 MHz ~ 1910 MHz Band IV: 1710 MHz ~ 1755 MHz
Rx Frequency	**WCDMA:** Band V: 869 MHz ~ 894 MHz Band II: 1930 MHz ~ 1990 MHz Band IV: 2110 MHz ~ 2155 MHz
Maximum Output Power to Antenna	**WCDMA:** Band V: 23.30 dBm Band II: 22.59 dBm Band IV: 22.63 dBm
Antenna Type	Dipole Antenna
Antenna Gain	<Ant.0> **Paddle antenna:** Cellular Band: 0.2 dBi PCS Band: 3.0 dBi AWS Band: 3.0 dBi **Sharkfin antenna:** Cellular Band: 2.7 dBi PCS Band: 3.5 dBi AWS Band: 3.5 dBi
Type of Modulation	WCDMA: BPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+ : 16QAM

Note: There are two type of EUT, which only differ in antenna. Sample 1 with paddle antenna and sample 2 with sharkfin antenna. Based on the max antenna gain, we chose sample 2 for RF testing.

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power

FCC Rule	Frequency Band	Frequency Range (MHz)	Type of Modulation	Maximum ERP/EIRP (W)
Part 22	WCDMA Band V	826.4 ~ 846.6	BPSK	0.2427
Part 24	WCDMA Band II	1852.4 ~ 1907.6	BPSK	0.4064
Part 27	WCDMA Band IV	1712.4 ~ 1752.6	BPSK	0.4102

1.7 Testing Location

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.**
	03CH03-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	Part2224_Ver5.0 200330	5.0
2.	03CH03-KS	AUDIX	E3	210616

1.9 Applicable Standards

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

- 47 CFR Part 22(H), 24(E), 27(L)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

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

Radiated emissions were investigated as following frequency range:

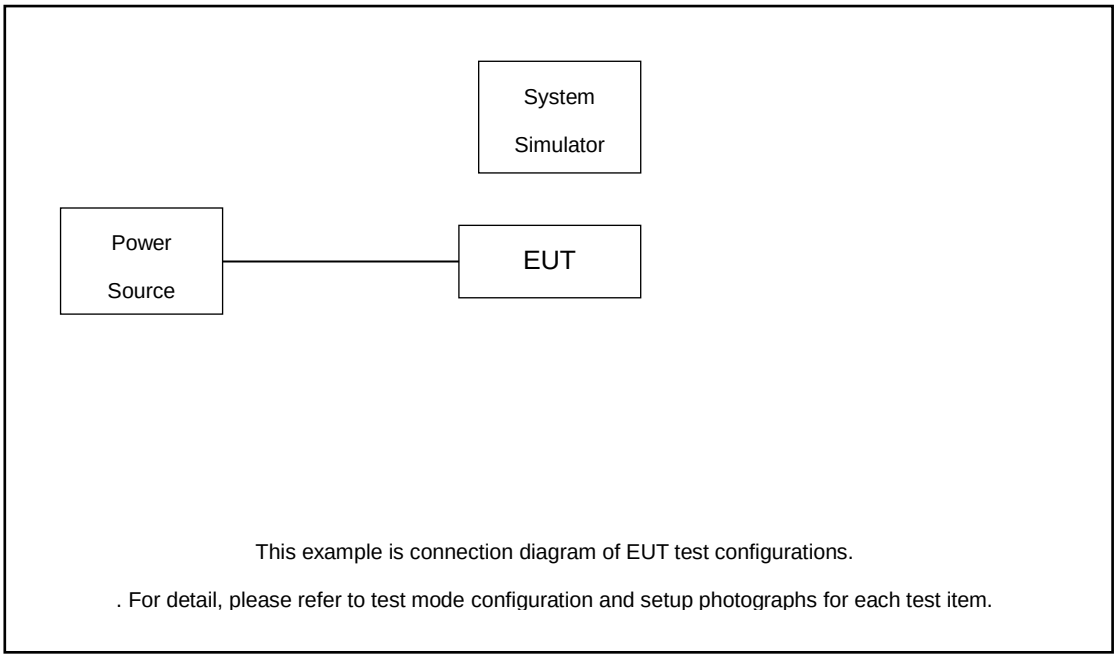
1. 30 MHz to 9000 MHz for WCDMA Band V.
2. 30 MHz to 18000 MHz for WCDMA Band IV.
3. 30 MHz to 19100 MHz for WCDMA Band II.

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**	**Conducted TCs**
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

2.2 Connection Diagram of Test System



The EUT has been configuration operated in a manner tended to maximize its emission characteristics in a typical application.

2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
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

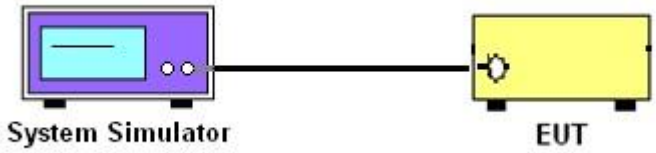
3 Conducted Test Result

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V.

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II.

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

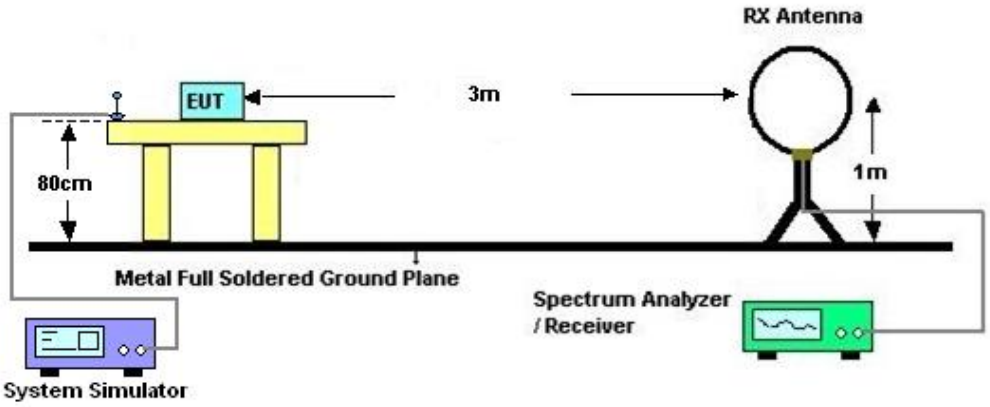
4 Radiated Test Items

4.1 Measuring Instruments

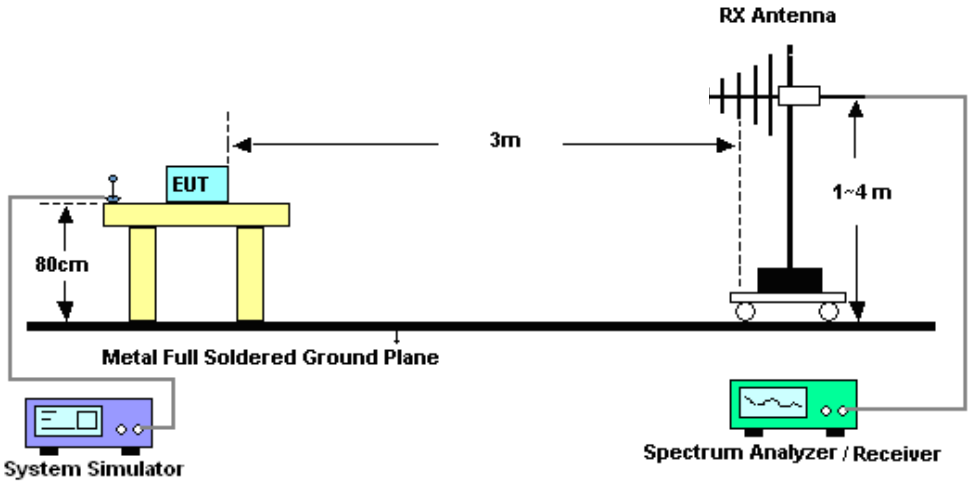
See list of measuring instruments of this test report.

4.2 Test Setup

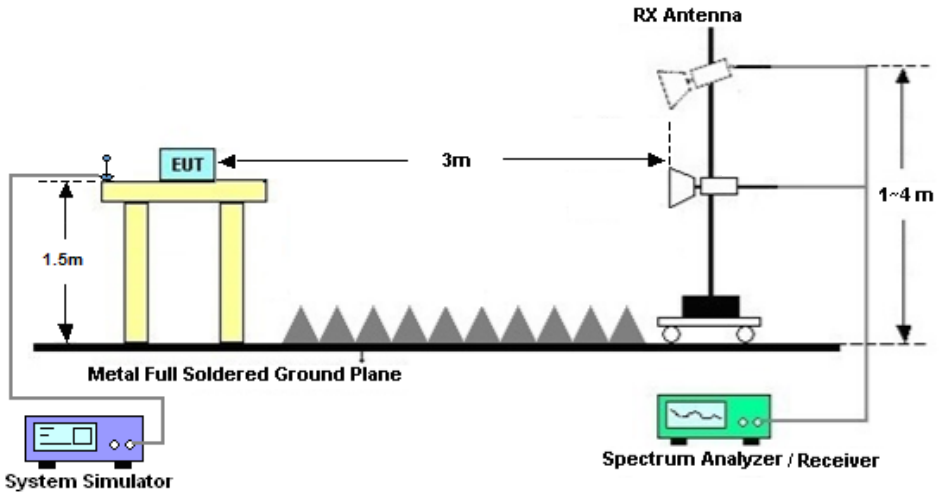
4.2.1 For radiated test below 30MHz



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 B.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

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. 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 rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was 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 one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(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. 10, 2024	Jan. 14, 2025	Oct. 09, 2025	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Jan. 14, 2025	NCR	Conducted (TH01-KS)
Temperature & humidity	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 04, 2024	Jan. 14, 2025	Jul. 03, 2025	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 11, 2024	Dec. 25, 2024	Oct. 10, 2025	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 18, 2024	Dec. 25, 2024	Apr. 13, 2025	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2024	Dec. 25, 2024	Sep. 07, 2025	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	30MHz-1GHz	Dec. 05, 2024	Dec. 25, 2024	Dec. 04, 2025	Radiation (03CH03-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251982	1GHz~18GHz	Aug. 16, 2024	Dec. 25, 2024	Aug. 15, 2025	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101116	18GHz~40GHz	Oct. 22, 2024	Dec. 25, 2024	Oct. 21, 2025	Radiation (03CH03-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 03, 2024	Dec. 25, 2024	Jul. 02, 2025	Radiation (03CH03-KS)
Amplifier	EM	EM18G40GA	060851	18~40GHz	Jan. 03, 2024	Dec. 25, 2024	Jan. 02, 2025	Radiation (03CH03-KS)
high gain Amplifier	EM	EM01G18GA	060834	1Ghz-18Ghz	Dec. 02, 2024	Dec. 25, 2024	Dec. 01, 2025	Radiation (03CH03-KS)
Amplifier	EM	EM01G18GA	EM	1GHz~26.5GHz	Oct. 09, 2024	Dec. 25, 2024	Oct. 08, 2025	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 25, 2024	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 25, 2024	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 25, 2024	NCR	Radiation (03CH03-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

Conducted Power	**±0.50 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.84 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.84 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.83 dB**

---------- THE END ----------

Appendix A. Test Results of Conducted Test

Test Engineer :	Smile Wang	Temperature :	22~23℃
		Relative Humidity :	40~42%

Conducted Output Power(Average power) and ERP/EIRP

Band		WCDMA V			ERP(W)		
TX Channel		4132	4182	4233			
Rx Channel		4357	4407	4458			
Frequency (MHz)		826.4	836.4	846.6	L	M	H
3GPP Rel 99	RMC 12.2Kbps	23.25	23.30	23.12	0.2399	0.2427	0.2328
3GPP Rel 6	HSDPA Subtest-1	22.08	22.14	22.05	0.1832	0.1858	0.1820
3GPP Rel 6	HSDPA Subtest-2	22.02	22.08	21.96	0.1807	0.1832	0.1782
3GPP Rel 6	HSDPA Subtest-3	21.49	21.54	21.43	0.1600	0.1618	0.1578
3GPP Rel 6	HSDPA Subtest-4	21.42	21.49	21.38	0.1574	0.1600	0.1560
3GPP Rel 6	HSUPA Subtest-1	21.96	22.03	21.92	0.1782	0.1811	0.1766
3GPP Rel 6	HSUPA Subtest-2	19.98	20.01	19.95	0.1130	0.1138	0.1122
3GPP Rel 6	HSUPA Subtest-3	21.03	21.06	20.97	0.1439	0.1449	0.1419
3GPP Rel 6	HSUPA Subtest-4	19.99	20.04	19.94	0.1132	0.1146	0.1119
3GPP Rel 6	HSUPA Subtest-5	21.92	21.98	21.88	0.1766	0.1791	0.1750

Band		WCDMA II			EIRP(W)		
TX Channel		9262	9400	9538			
Rx Channel		9662	9800	9938			
Frequency (MHz)		1852.4	1880	1907.6	L	M	H
3GPP Rel 99	RMC 12.2Kbps	22.59	22.23	22.05	0.4064	0.3741	0.3589
3GPP Rel 6	HSDPA Subtest-1	22.01	21.96	21.93	0.3556	0.3516	0.3491
3GPP Rel 6	HSDPA Subtest-2	21.95	21.90	21.84	0.3508	0.3467	0.3420
3GPP Rel 6	HSDPA Subtest-3	21.37	21.32	21.29	0.3069	0.3034	0.3013
3GPP Rel 6	HSDPA Subtest-4	21.35	21.32	21.29	0.3055	0.3034	0.3013
3GPP Rel 6	HSUPA Subtest-1	21.93	21.91	21.86	0.3491	0.3475	0.3436
3GPP Rel 6	HSUPA Subtest-2	19.82	19.75	19.71	0.2148	0.2113	0.2094
3GPP Rel 6	HSUPA Subtest-3	20.83	20.78	20.75	0.2710	0.2679	0.2661
3GPP Rel 6	HSUPA Subtest-4	19.95	19.92	19.85	0.2213	0.2198	0.2163
3GPP Rel 6	HSUPA Subtest-5	21.58	21.54	21.52	0.3221	0.3192	0.3177

Band		WCDMA IV			EIRP(W)		
TX Channel		1312	1413	1513			
Rx Channel		1537	1638	1738			
Frequency (MHz)		1712.4	1732.6	1752.6	L	M	H
3GPP Rel 99	RMC 12.2Kbps	22.63	22.41	22.49	0.4102	0.3899	0.3972
3GPP Rel 6	HSDPA Subtest-1	21.96	21.92	21.95	0.3516	0.3483	0.3508
3GPP Rel 6	HSDPA Subtest-2	21.93	21.88	21.90	0.3491	0.3451	0.3467
3GPP Rel 6	HSDPA Subtest-3	21.35	21.28	21.31	0.3055	0.3006	0.3027
3GPP Rel 6	HSDPA Subtest-4	21.38	21.32	21.34	0.3076	0.3034	0.3048
3GPP Rel 6	HSUPA Subtest-1	21.73	21.67	21.69	0.3334	0.3289	0.3304
3GPP Rel 6	HSUPA Subtest-2	19.83	19.75	19.78	0.2153	0.2113	0.2128
3GPP Rel 6	HSUPA Subtest-3	20.82	20.74	20.76	0.2704	0.2655	0.2667
3GPP Rel 6	HSUPA Subtest-4	19.79	19.71	19.75	0.2133	0.2094	0.2113
3GPP Rel 6	HSUPA Subtest-5	21.83	21.70	21.72	0.3412	0.3311	0.3327

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Jake zhou	Temperature :	23~25℃
		Relative Humidity :	52~58%

WCDMA Band V(RMC 12.2Kbps)								
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	-69.58	-13	-56.58	-76.55	1.58	10.70	H
	2512	-65.16	-13	-52.16	-73.41	2.102	12.50	H
	3344	-65.86	-13	-52.86	-74.75	2.856	13.90	H
	1672	-69.44	-13	-56.44	-76.41	1.58	10.70	V
	2512	-65.28	-13	-52.28	-73.53	2.10	12.50	V
	3344	-65.67	-13	-52.67	-74.56	2.86	13.90	V

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

WCDMA Band II(RMC 12.2Kbps)								
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	-64.43	-13	-51.43	-76.69	2.64	14.90	H
	5640	-63.29	-13	-50.29	-75.15	2.94	14.80	H
	7515	-60.70	-13	-47.70	-70.47	3.39	13.16	H
	3765	-64.39	-13	-51.39	-76.65	2.64	14.90	V
	5640	-63.44	-13	-50.44	-75.30	2.94	14.80	V
	7515	-60.68	-13	-47.68	-70.45	3.39	13.16	V

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

WCDMA Band IV(RMC 12.2Kbps)								
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	-65.08	-13	-52.08	-75.82	2.604	13.34	H
	5190	-62.37	-13	-49.37	-72.88	3.011	13.52	H
	6930	-62.44	-13	-49.44	-72.64	3.271	13.47	H
	3465	-63.99	-13	-50.99	-74.73	2.604	13.34	V
	5190	-61.13	-13	-48.13	-71.64	3.011	13.52	V
	6930	-62.43	-13	-49.43	-72.63	3.271	13.47	V

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