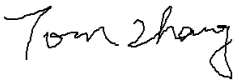
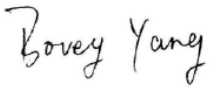
FCC RADIO TEST REPORT

Report Reference No. ..... :	NTEK-2011NT1118680F3	
Compiled by (+ signature)	Tom Zhang	
Approved by (+ signature)	Bovey Yang	

Applicant's name ..... :	Shenzhen Jie Yu Shi Ji Electronic Technology Co., Ltd.
Address..... :	Rm 8B/F, C Tower Electronic technology Building, Shennan Road(M),Futian District,Shenzhen.
Manufacture's Name ..... :	Shenzhen Jie Yu Shi Ji Electronic Technology Co., Ltd.
Address..... :	Rm 8B/F, C Tower Electronic technology Building, Shennan Road(M),Futian District,Shenzhen.

Test specification:

Standard ..... :	FCC Part15.247
Test procedure ..... :	ANSI C63.4-2003

Test item description

Product name ..... :	Mobile Phone
FCC ID	**A3CJYM830905**
Trademark ..... :	Android
Model and/or type reference :	STAR A3 , STAR A3+, WENTTO A3, STARA2, STARA1
Rating(s) ..... :	DC 3.7V by battery

Testing Laboratory information:

Testing Laboratory Name ..... :	NTEK Testing Technology Co., Ltd
Address ..... :	1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao ' an District, Shenzhen P.R. China.

This device described above has been tested by NTEK Testing Technology Co., Ltd, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Testing ..... :	
Date of receipt of test item ..... :	17 Nov. 2011
Date (s) of performance of tests ..... :	17 Nov. 2011 ~28 Nov. 2011
Date of Issue..... :	28 Nov. 2011
Test Result..... :	**Pass**

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (c)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)” N/A” denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd
Add. : 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.
FCC FRN Registration Nombre:238937; IC Registration Nombre:9270A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	Radiated Emission Test	±3.17dB
3	RF power,conducted	±0.16dB
4	Spurious emissions,conducted	±0.21dB
5	All emissions,radiated(<1G)	±4.68dB
6	All emissions,radiated(>1G)	±4.89dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Mobile Phone</td></tr>
<tr><td>Trade Name</td><td>ANDROID</td></tr>
<tr><td>Model Name</td><td>STAR A3 , STAR A3+, WENTTO A3, STARA2, STARA1</td></tr>
<tr><td>OEM Brand/Model Name</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>All model are the same circuit and RF module, except the appearance and colour. All test base on STR A3</td></tr>
<tr><td>Product Description</td><td>The EUT is a Mobile Phone
<table>
<tr><td>Operation Frequency:</td><td>2412~2462 MHz</td></tr>
<tr><td>Modulation Type:</td><td>802.11b:CCK, DQPSK, DBPSK
802.11g:OFDM</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>802.11b:11/5.5/2/1 Mbps
802.11g:54/48/36/24/18/12/9/6 Mbps</td></tr>
<tr><td>Number Of Channel</td><td>11 CH, Please see Note 2.</td></tr>
<tr><td>Antenna Designation:</td><td>Please see Note 3.</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>Please see Note 3.</td></tr>
<tr><td>Output Power(Conducted):</td><td>802.11b 16.29 dBm (Max.)
802.11g 12.26 dBm (Max.)</td></tr>
<tr><td>Antenna Gain (dBi)</td><td>0.8</td></tr>
<tr><td>EIRP</td><td>802.11b 17.19 dBm (Max.)
802.11g 13.06 dBm (Max.)</td></tr>
</table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Channel List</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Power Source</td><td>DC Voltage supplied from Adapter</td></tr>
<tr><td>Power Rating</td><td>DC3.7V by battery</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>Products Covered</td><td>N/A</td></tr>
<tr><td>EUT Modification(s)</td><td>N/A</td></tr>
</table>

Note :

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.

Channel List							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3.

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	Built-in Antenna	N/A	0.8	N/A

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	NORMAL LINK

For Conducted Emission	
Final Test Mode	Description
Mode 3	NORMAL LINK

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

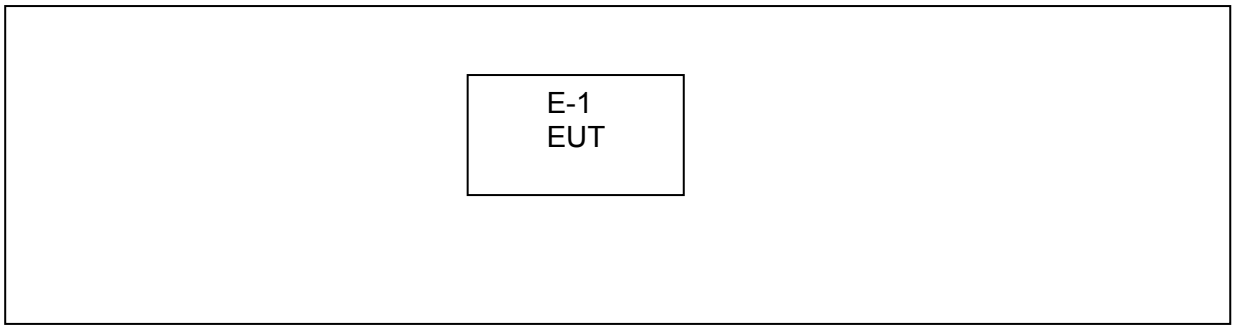
(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of WLAN

Test software Version	RF Engineering mode command: *#20110101#		
Frequency	2412 MHz	2437 MHz	2462 MHz
802.11b	CH1	CH6	CH11
802.11g	CH1	CH6	CH11

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Mobile Phone	N/A	STAR A3	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	Agilent	E4407B	160400005	Jul. 06. 2012
2	Test Receiver	R&S	ESPI	101318	Jul. 06. 2012
3	Bilog Antenna	TESEQ	CBL6111D	31216	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	Jul. 06. 2012
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	Jul. 06. 2012
6	Horn Antenna	EM	EM-AH-10180	2011071402	Jul. 06. 2012
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	Jul. 06. 2012
8	Amplifier	EM	EM-30180	060538	Jul. 06. 2012
9	Loop Antenna	ARA	PLA-1030/B	1029	Jul. 06. 2012
10	Power Meter	R&S	NRVS	100696	Jul. 06. 2012

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Test Receiver	R&S	ESCI	101160	Jul. 06. 2012
2	LISN	R&S	ENV216	101313	Jul. 06. 2012
3	LISN	EMCO	3816/2	00042990	Jul. 06. 2012
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	Jul. 06. 2012
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	Jul. 06. 2012
6	Absorbing clamp	R&S	MOS-21	100423	Jul. 06. 2012

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

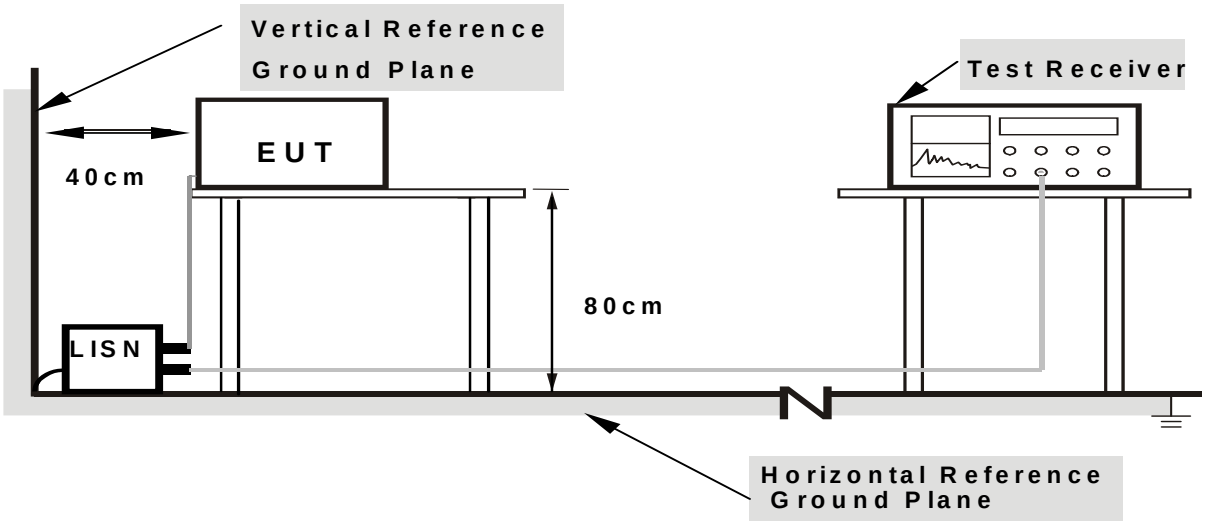
3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

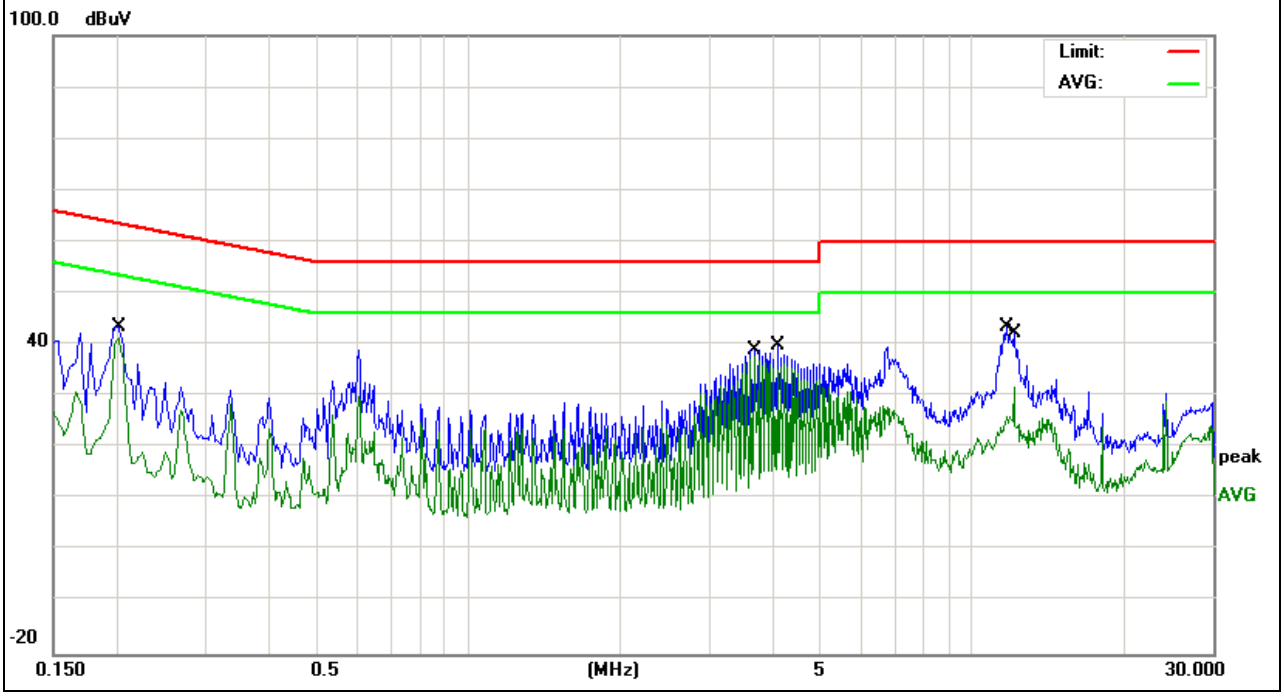
3.1.6 TEST RESULTS

EUT：	Mobile Phone	Model Name. ：	STAR A3
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2011-10-11
Test Mode：	Normal Link	Phase：	L
Test Voltage ：	DC3.7V		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.202	33.1	10.44	43.54	63.52	-19.98	QP
0.202	31.03	10.44	41.47	53.52	-12.05	AVG
3.698	27.24	10.62	37.86	46	-8.14	AVG
4.1019	29.13	10.62	39.75	56	-16.25	QP
11.7099	32.83	10.69	43.52	60	-16.48	QP
12.0819	21.05	10.69	31.74	50	-18.26	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

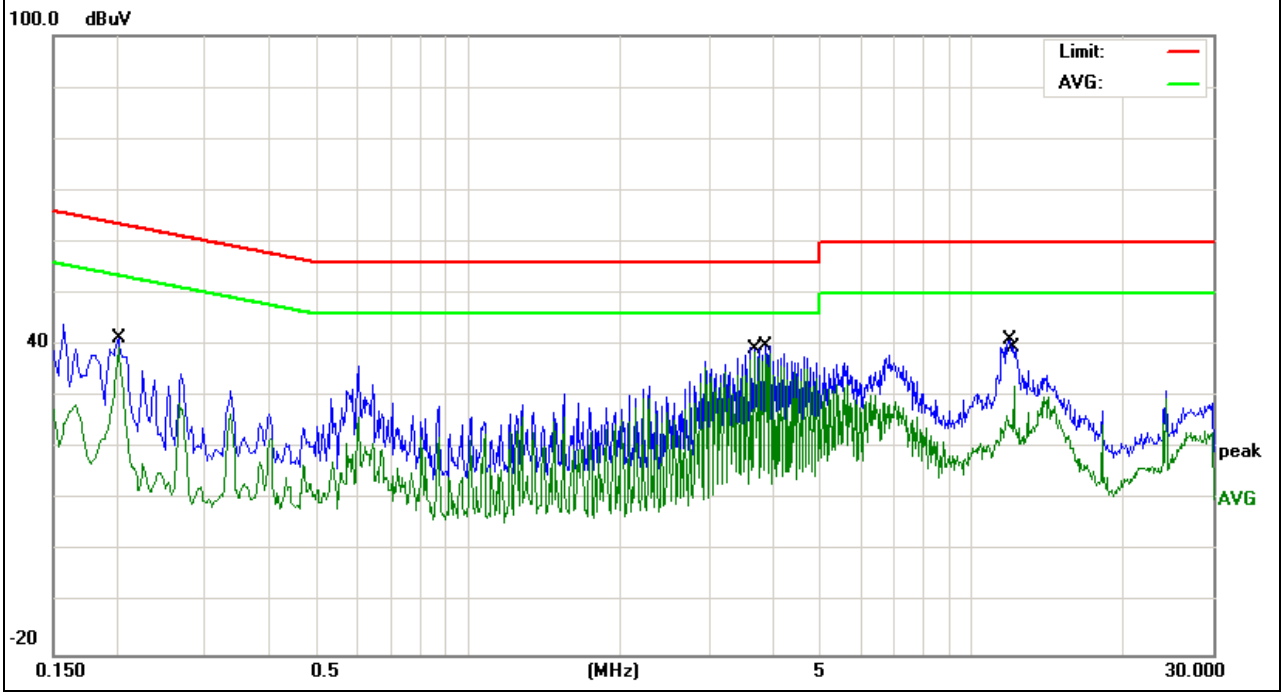


EUT：	Mobile Phone	Model Name. ：	STAR A3
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Test Date：	2011-10-11
Test Mode：	Normal Link	Phase：	N
Test Voltage ：	DC3.7V		

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.202	31.07	10.43	41.5	63.52	-22.02	QP
0.202	29.13	10.43	39.56	53.52	-13.96	AVG
3.6979	27.93	10.65	38.58	46	-7.42	AVG
3.898	29.17	10.66	39.83	56	-16.17	QP
11.8899	30.47	10.71	41.18	60	-18.82	QP
12.0818	21.36	10.71	32.07	50	-17.93	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

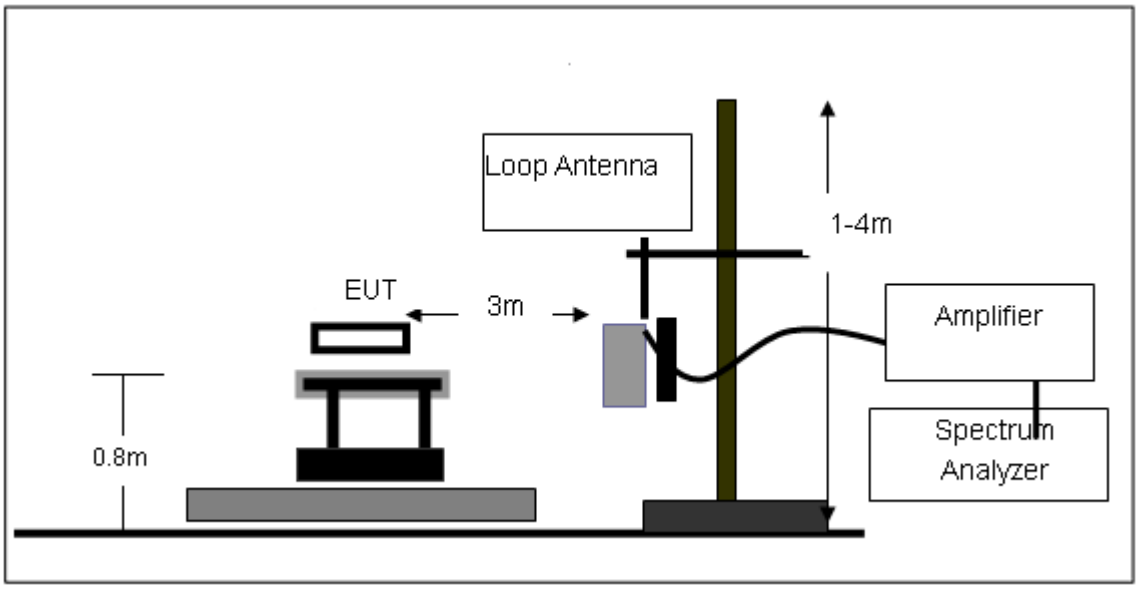
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

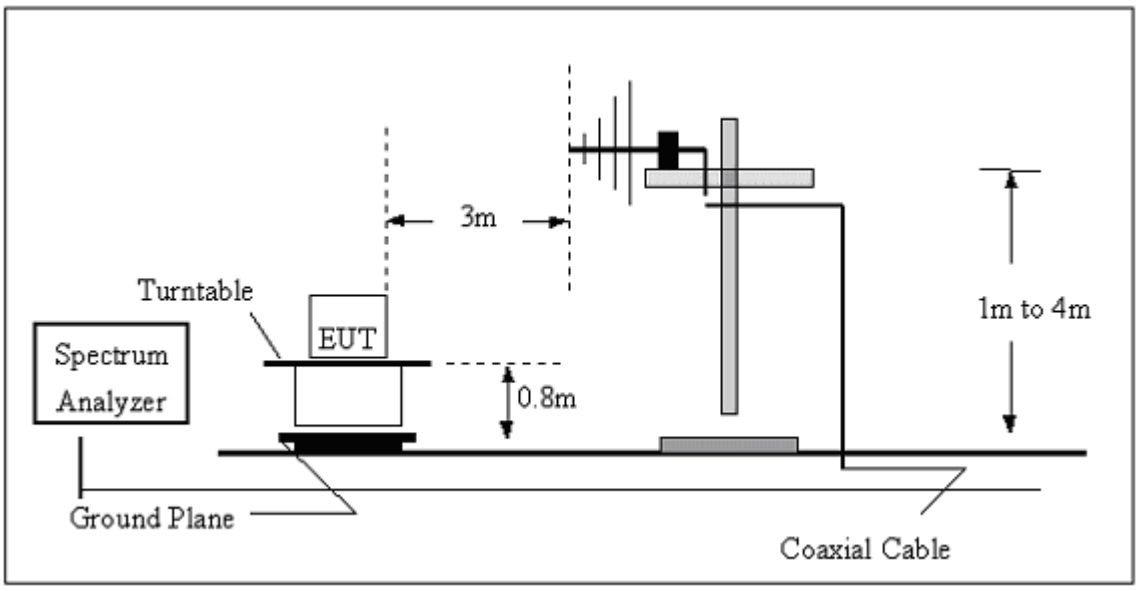
No deviation

3.2.4 TEST SETUP

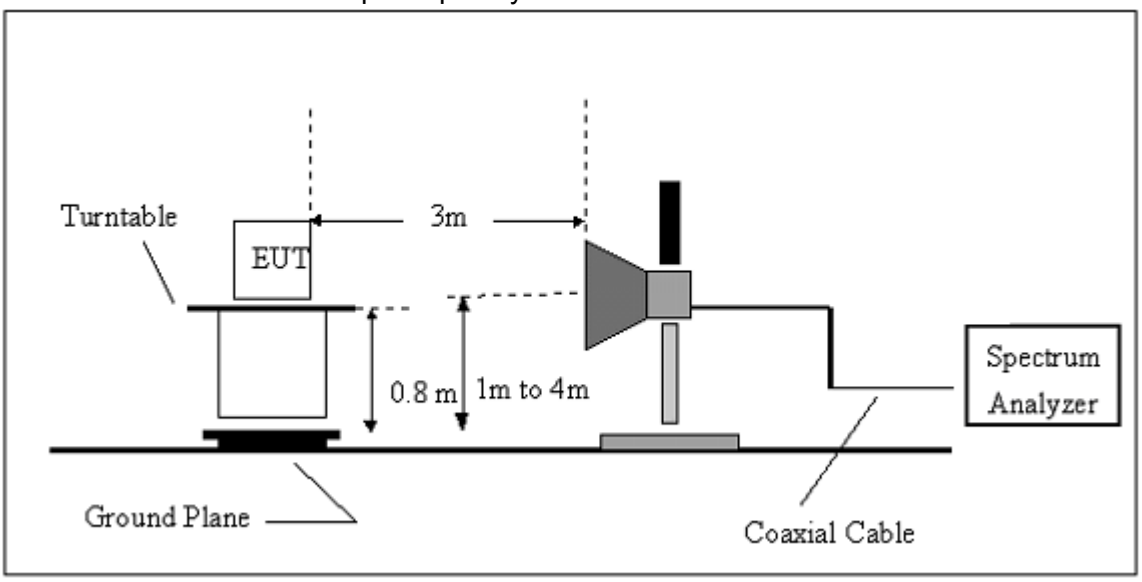
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT：	Mobile Phone	Model Name. ：	STAR A3
Temperature：	20 ℃	Relative HuMaylong Mobility Tabletity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

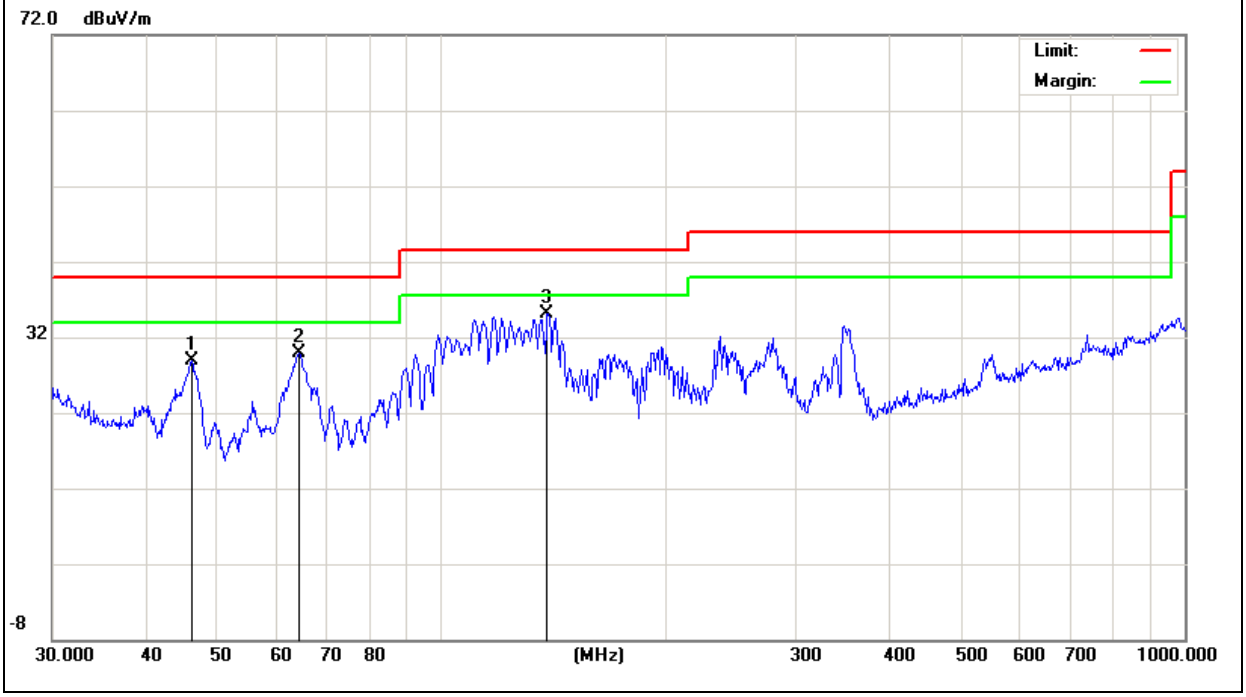
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =20 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
46.1779	18.93	10	28.93	40	-11.07	Quasi-Peak
64.4331	24.62	5.33	29.95	40	-10.05	Quasi-Peak
138.8735	23.25	11.94	35.19	43.5	-8.31	Quasi-Peak

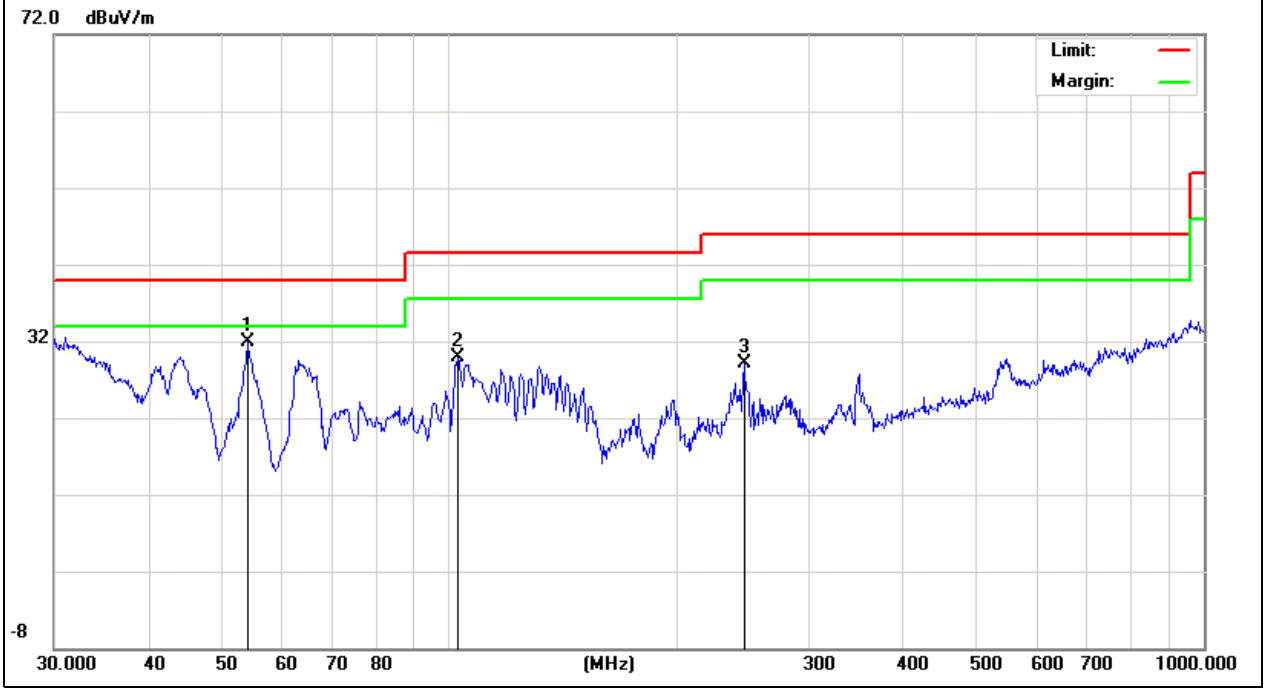
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
54.0711	25.51	6.38	31.89	40	-8.11	Quasi-Peak
102.7192	19.03	10.8	29.83	43.5	-13.67	Quasi-Peak
245.9509	16.73	12.44	29.17	46	-16.83	Quasi-Peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

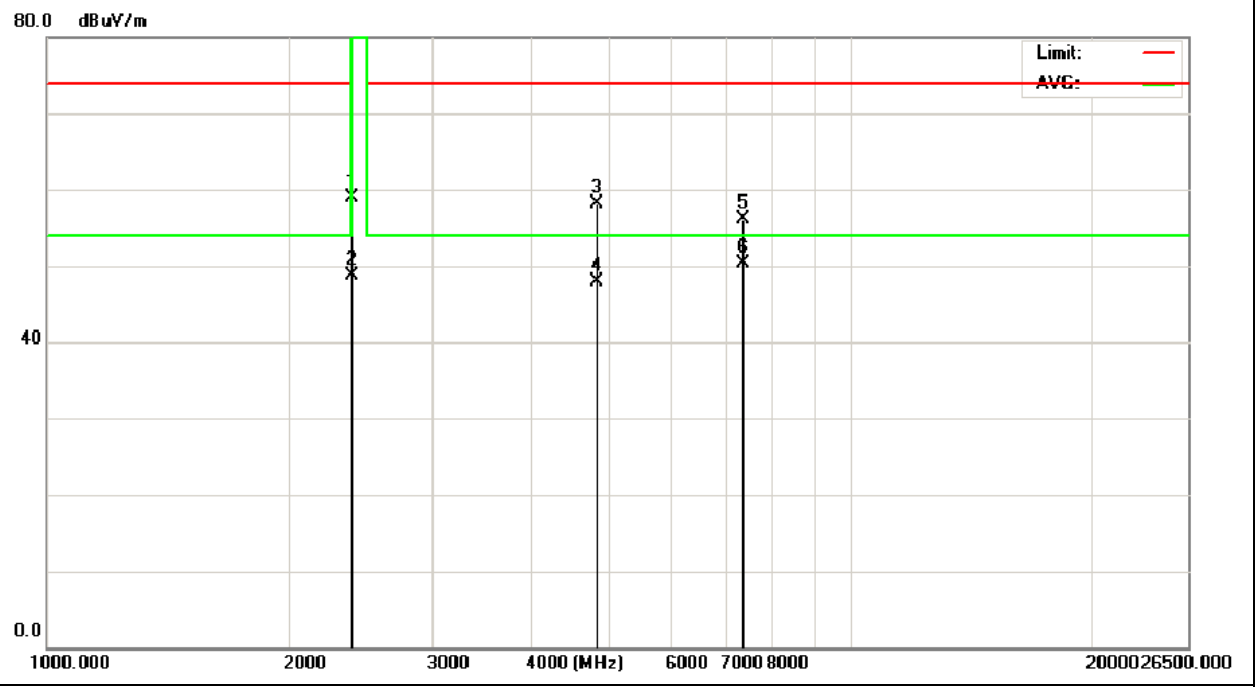


3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH1 (802.11b Mode)	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400.00	36.31	22.65	58.96	74.00	-15.04	peak
2400.00	26.12	22.65	48.77	54.00	-5.23	AVG
4824.00	24.14	34.04	58.18	74.00	-15.82	peak
4824.00	13.77	34.04	47.81	54.00	-6.19	AVG
7236.00	18.10	38.03	56.13	74.00	-17.87	peak
7236.00	12.31	38.03	50.34	54.00	-3.66	AVG

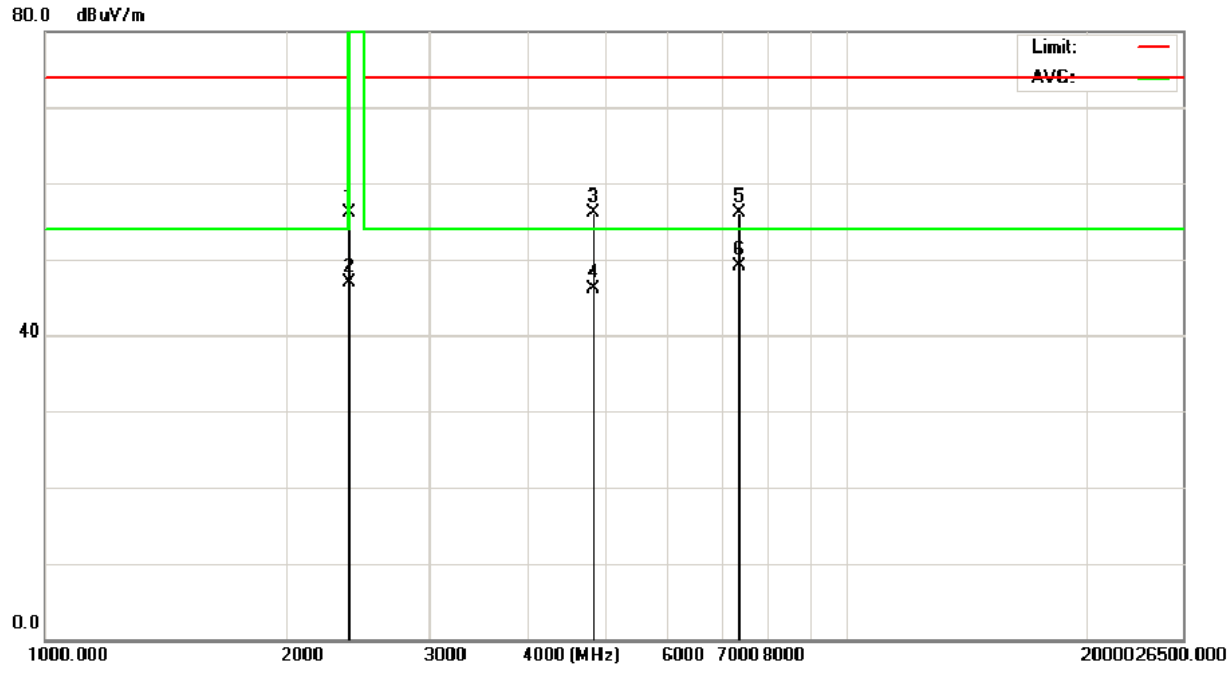
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH1 (802.11b Mode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	33.45	22.65	56.10	74.00	-17.90	peak
2400.00	24.35	22.65	47.00	54.00	-7.00	AVG
4824.00	22.11	34.04	56.15	74.00	-17.85	peak
4824.00	12.12	34.04	46.16	54.00	-7.84	AVG
7326.00	18.10	38.03	56.13	74.00	-17.87	peak
7326.00	11.11	38.03	49.14	54.00	-4.86	AVG

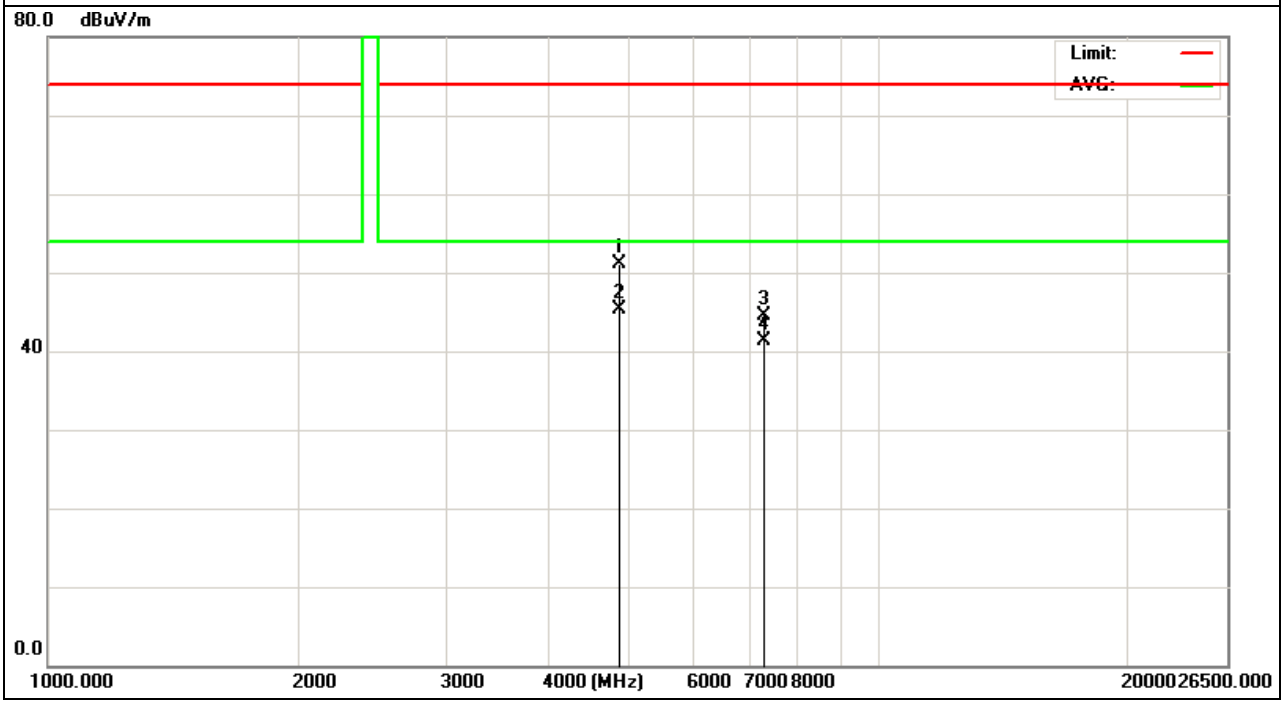
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH6 (802.11b Mode)	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.00	23.31	34.07	57.38	74.00	-16.62	peak
4874.00	14.41	34.07	48.48	54.00	-5.52	AVG
7311.00	13.30	37.97	51.27	74.00	-22.73	peak
7311.00	11.38	37.97	49.35	54.00	-4.65	AVG

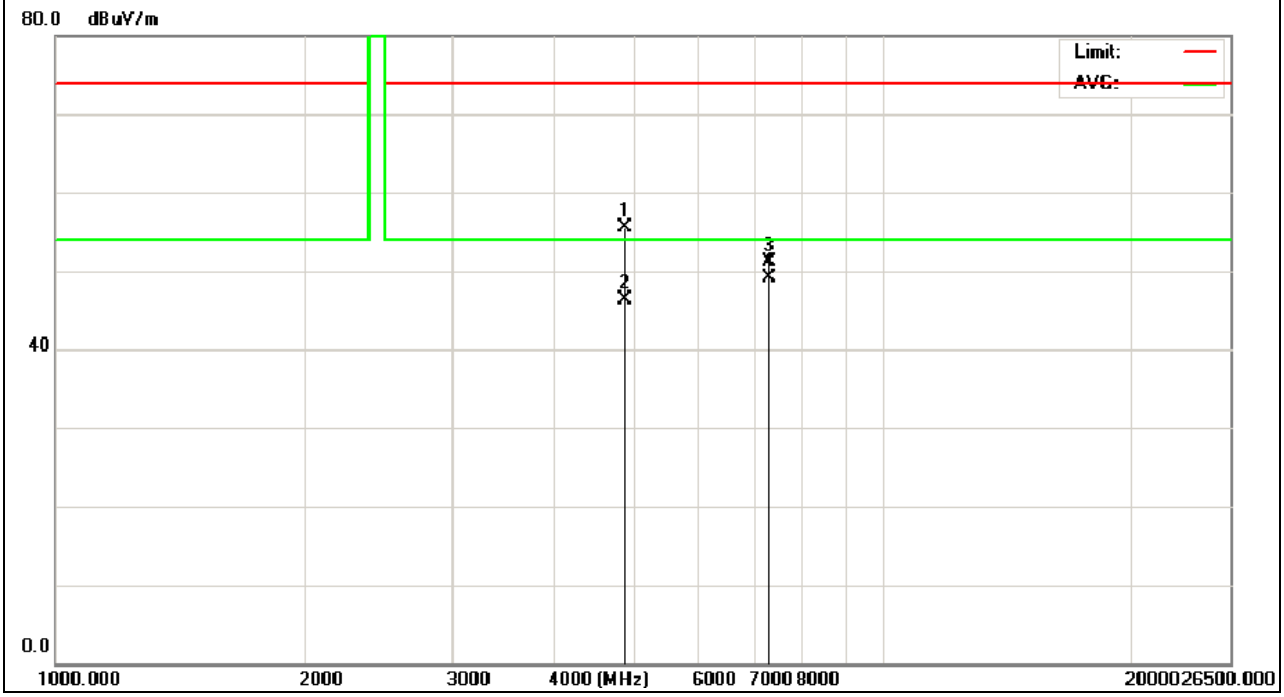
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH6 (802.11b Mode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.00	21.45	34.07	55.52	74.00	-18.48	peak
4874.00	12.15	34.07	46.22	54.00	-7.78	AVG
7311.00	13.11	37.97	51.08	74.00	-22.92	peak
7311.00	11.09	37.97	49.06	54.00	-4.94	AVG

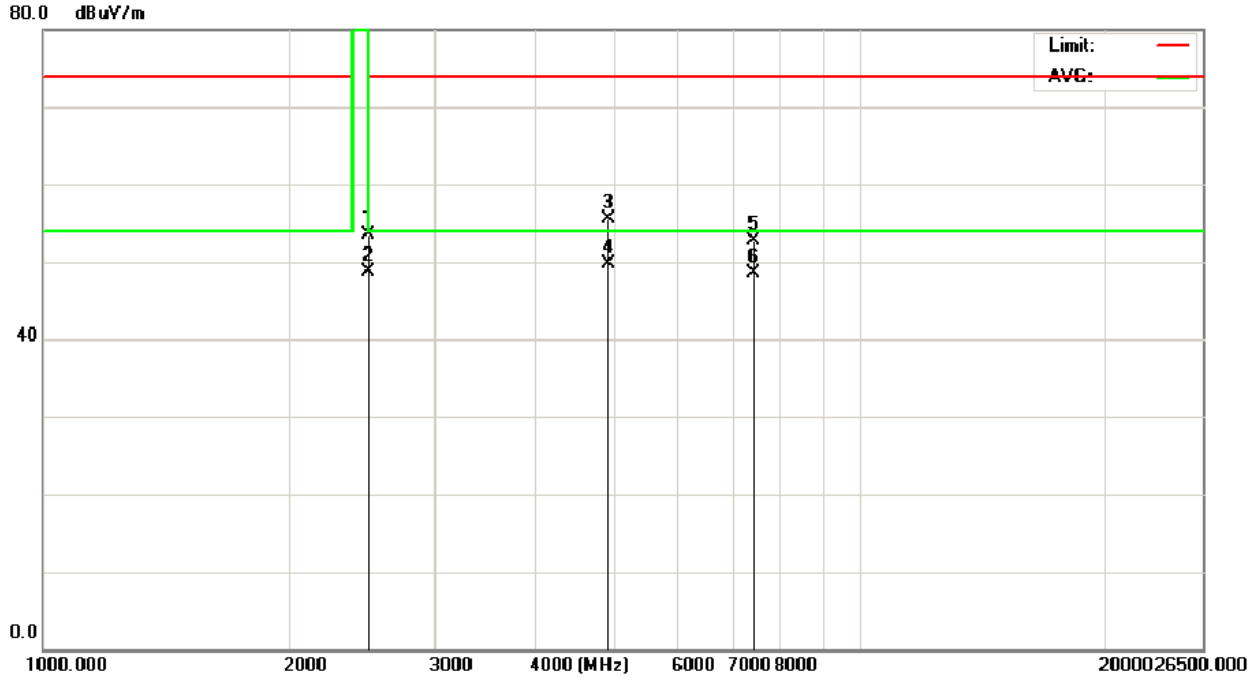
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH11 (802.11b Mode)	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG
4924.00	21.43	34.10	55.53	74.00	-18.47	peak
4924.00	15.66	34.10	49.76	54.00	-4.24	AVG
7386.00	14.44	38.31	52.75	74.00	-21.25	peak
7386.00	10.23	38.31	48.54	54.00	-5.46	AVG

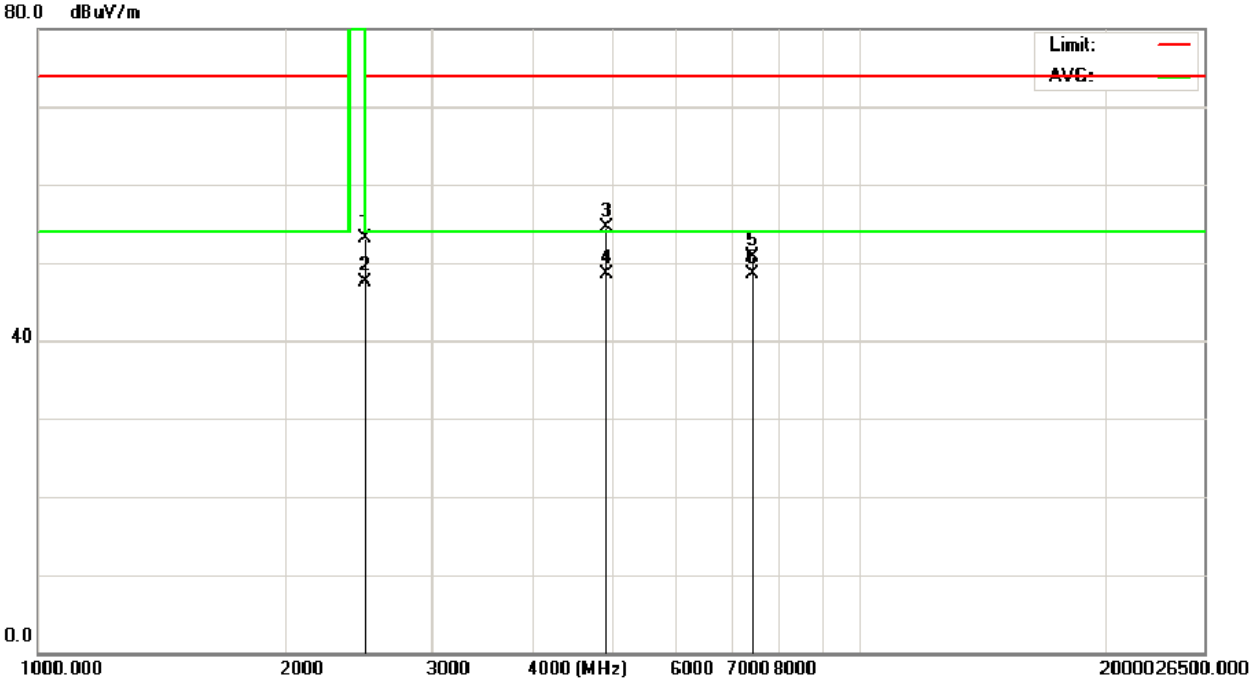
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH11 (802.11b Mode)	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	29.91	23.27	53.18	74.00	-20.82	peak
2483.5	24.21	23.27	47.48	54.00	-6.52	AVG
4924.00	20.43	34.10	54.53	74.00	-19.47	peak
4924.00	14.34	34.10	48.44	54.00	-5.56	AVG
7386.00	12.44	38.31	50.75	74.00	-23.25	peak
7386.00	10.21	38.31	48.52	54.00	-5.48	AVG

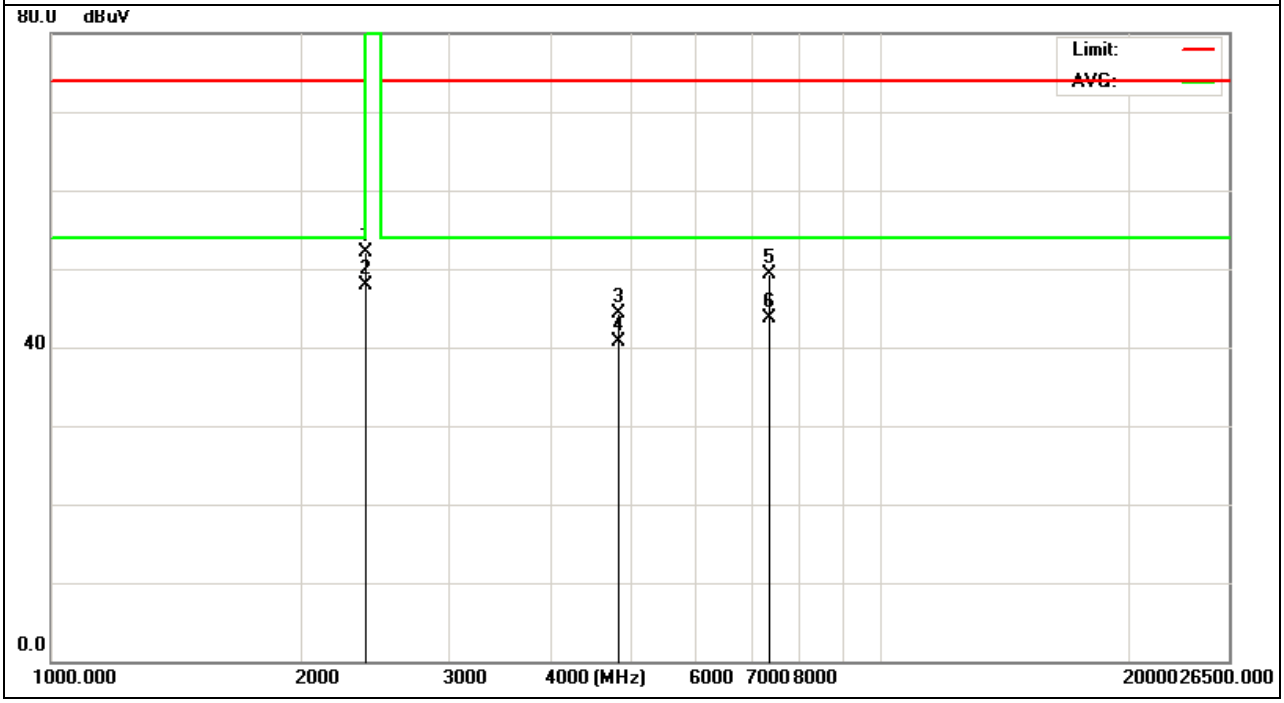
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH1 (802.11g Mode)	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400.00	30.09	22.65	52.74	74.00	-21.26	peak
2400.00	25.98	22.65	48.63	54.00	-5.37	AVG
4824.00	21.11	34.04	45.15	74.00	-28.85	peak
4824.00	2.55	34.04	36.59	54.00	-17.41	AVG
7236.00	6.73	37.63	44.30	74.00	-29.70	peak
7236.00	4.57	37.63	42.20	54.00	-11.80	AVG

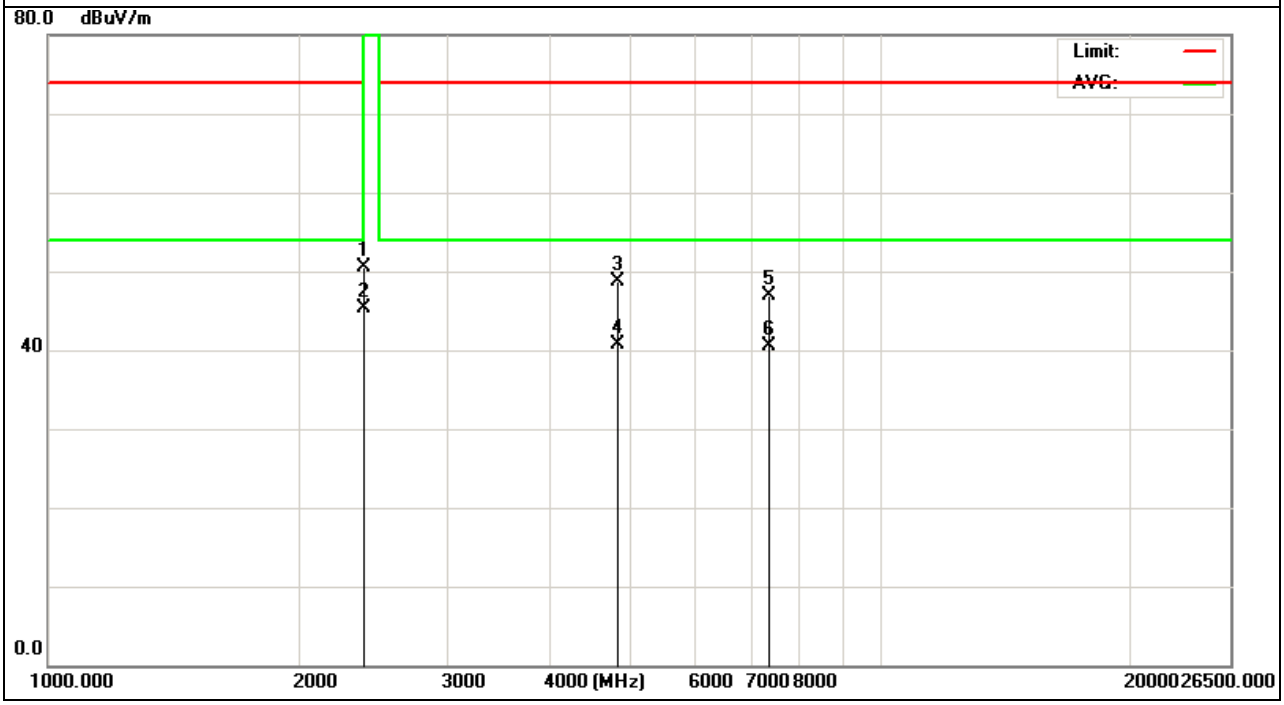
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH1 (802.11g Mode)	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400.00	29.50	22.65	52.15	74.00	-21.85	peak
2400.00	25.23	22.65	47.88	54.00	-6.12	AVG
4824.00	10.23	34.04	44.27	74.00	-29.73	peak
4824.00	6.57	34.04	40.61	54.00	-13.39	AVG
7236.00	11.21	37.63	49.24	74.00	-24.76	peak
7236.00	5.77	37.63	43.80	54.00	-10.20	AVG

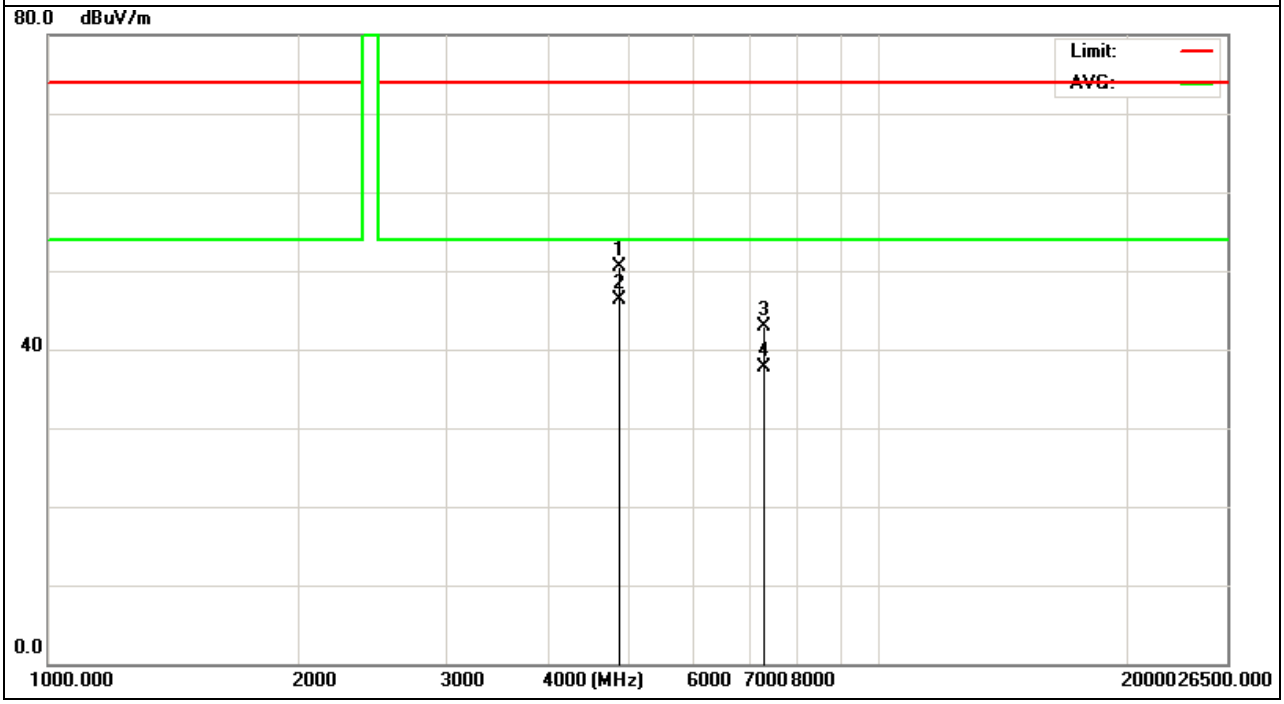
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH6 (802.11g Mode)	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.00	16.37	34.07	50.44	74.00	-23.56	peak
4874.00	12.19	34.07	46.26	54.00	-7.74	AVG
7311.00	4.86	37.97	42.83	74.00	-31.17	peak
7311.00	-0.24	37.97	37.73	54.00	-16.27	AVG

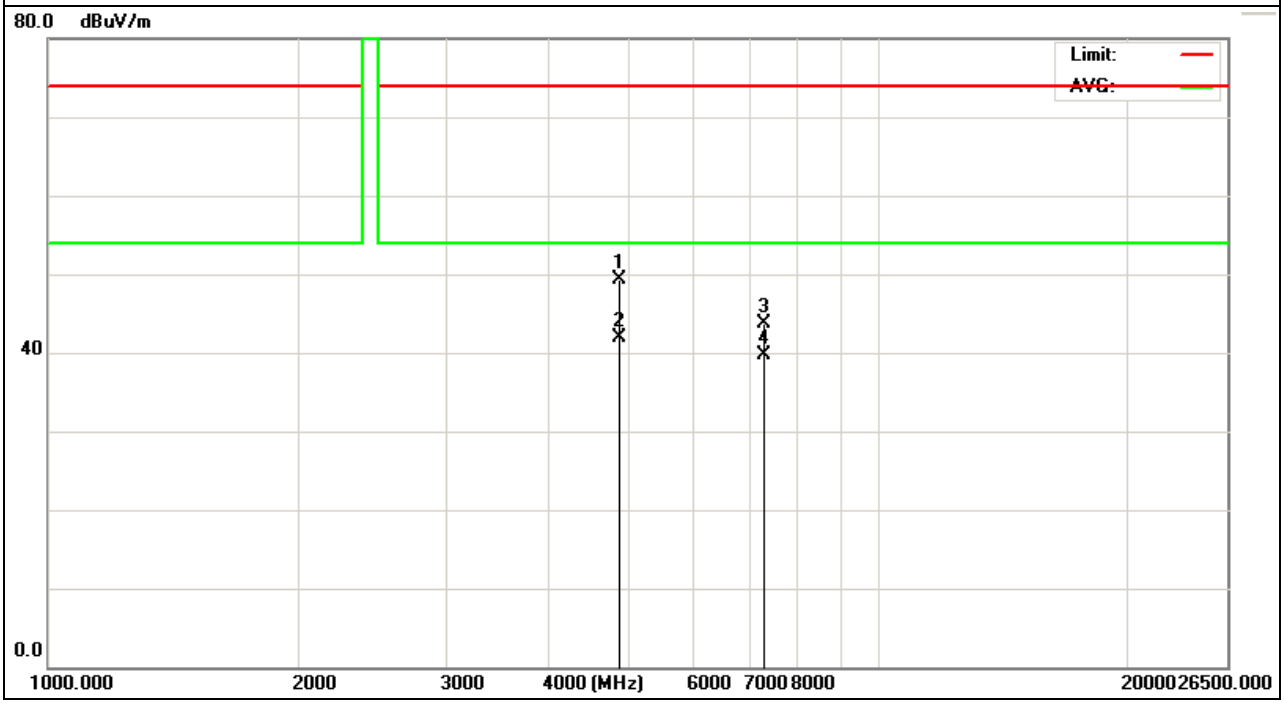
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH6 (802.11g Mode)	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4874.00	15.32	34.07	49.39	74.00	-24.61	peak
4874.00	7.87	34.07	41.94	54.00	-12.06	AVG
7311.00	5.74	37.97	43.71	74.00	-30.29	peak
7311.00	1.74	37.97	39.71	54.00	-14.29	AVG

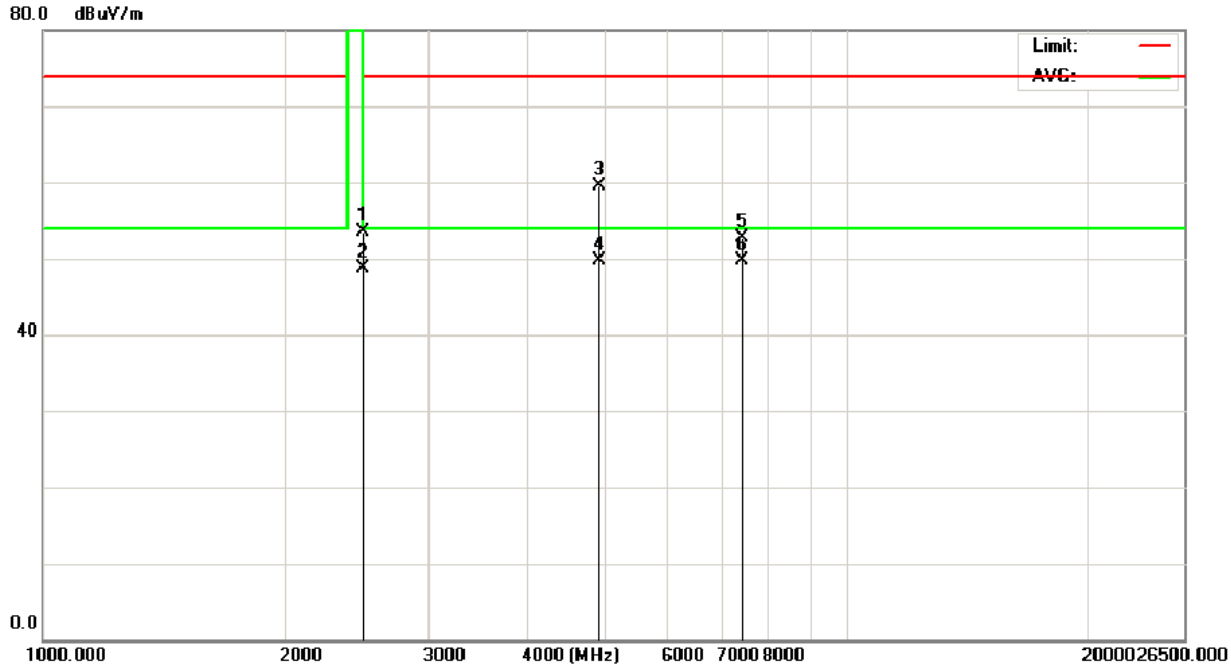
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH11 (802.11g Mode)	Polarization：	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG
4924.00	25.43	34.10	59.53	74.00	-14.47	peak
4924.00	15.66	34.10	49.76	54.00	-4.24	AVG
7386.00	14.44	38.31	52.75	74.00	-21.25	peak
7386.00	11.44	38.31	49.75	54.00	-4.25	AVG

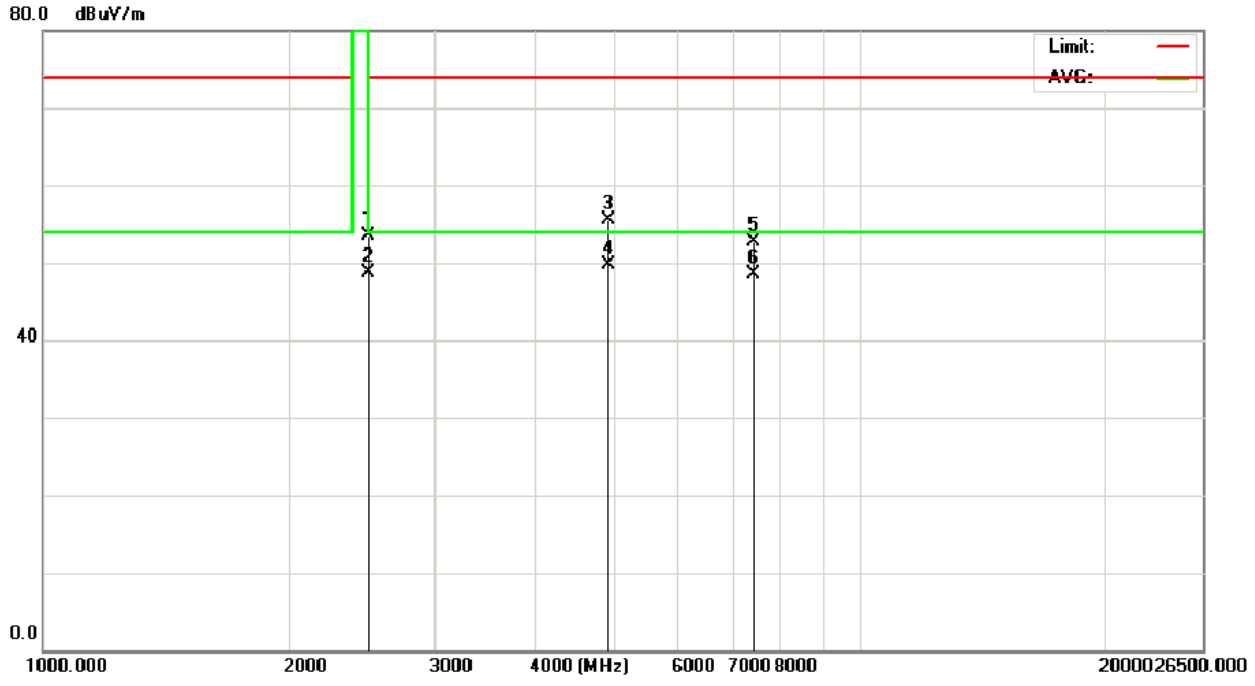
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC3.7V
Test Mode ：	CH11(802.11g Mode)	Polarization：	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG
4924.00	21.43	34.10	55.53	74.00	-18.47	peak
4924.00	15.66	34.10	49.76	54.00	-4.24	AVG
7386.00	14.44	38.31	52.75	74.00	-21.25	peak
7386.00	10.23	38.31	48.54	54.00	-5.46	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	3 kHz
VB	30 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	500s

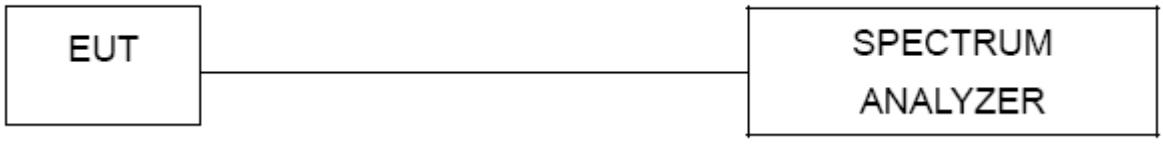
4.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 3KHz, VBW=30KHz, Sweep time = 500s.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

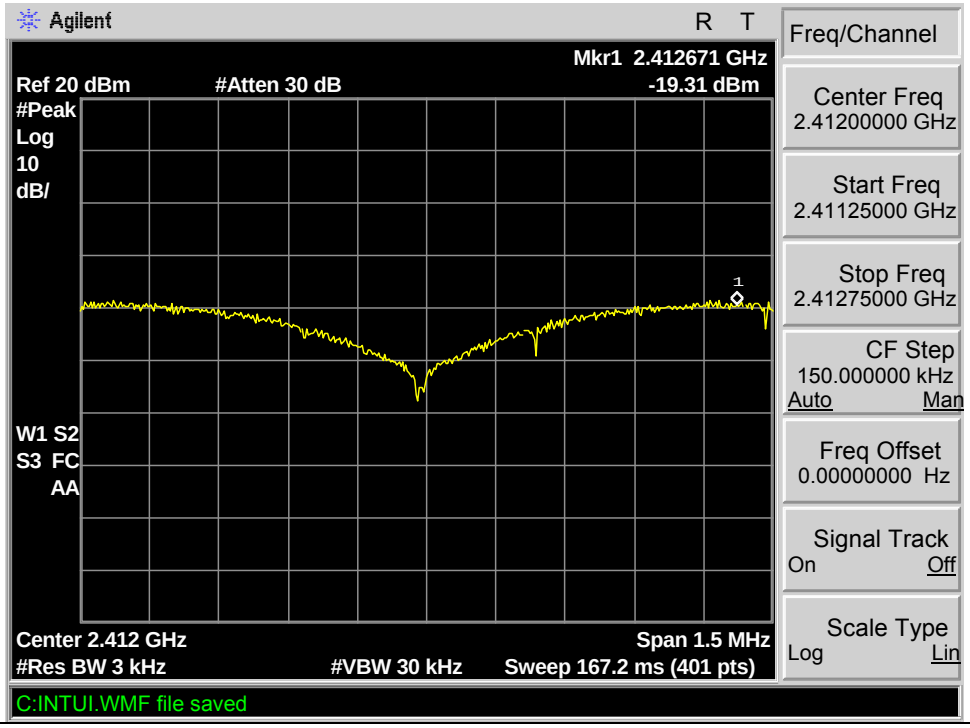
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

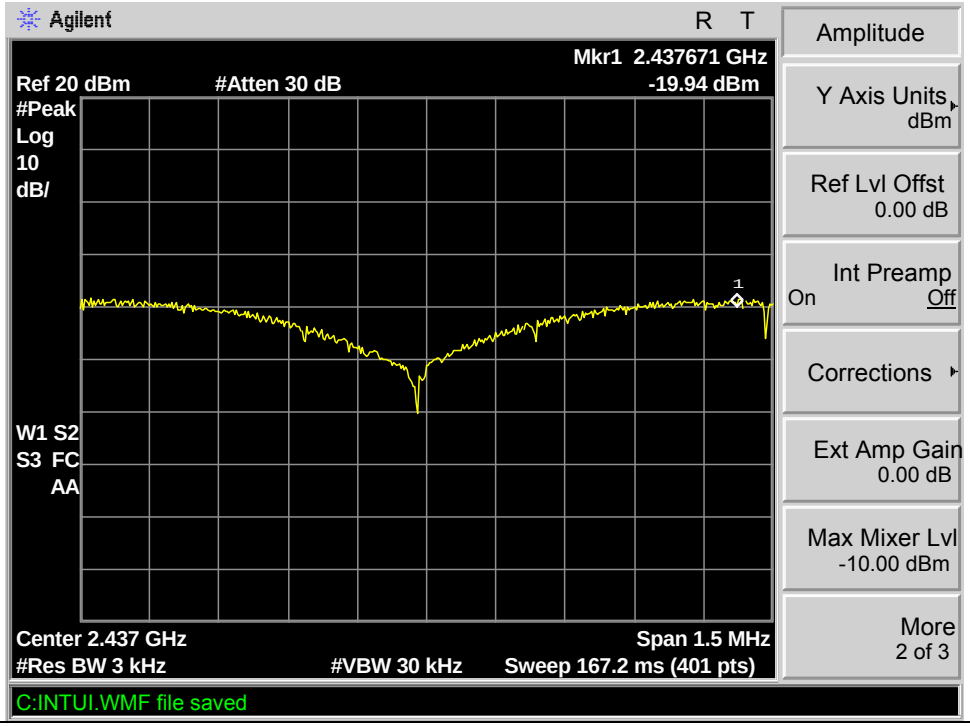
EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-19.31	8	**PASS**
2437 MHz	-19.41	8	**PASS**
2462 MHz	-18.67	8	**PASS**

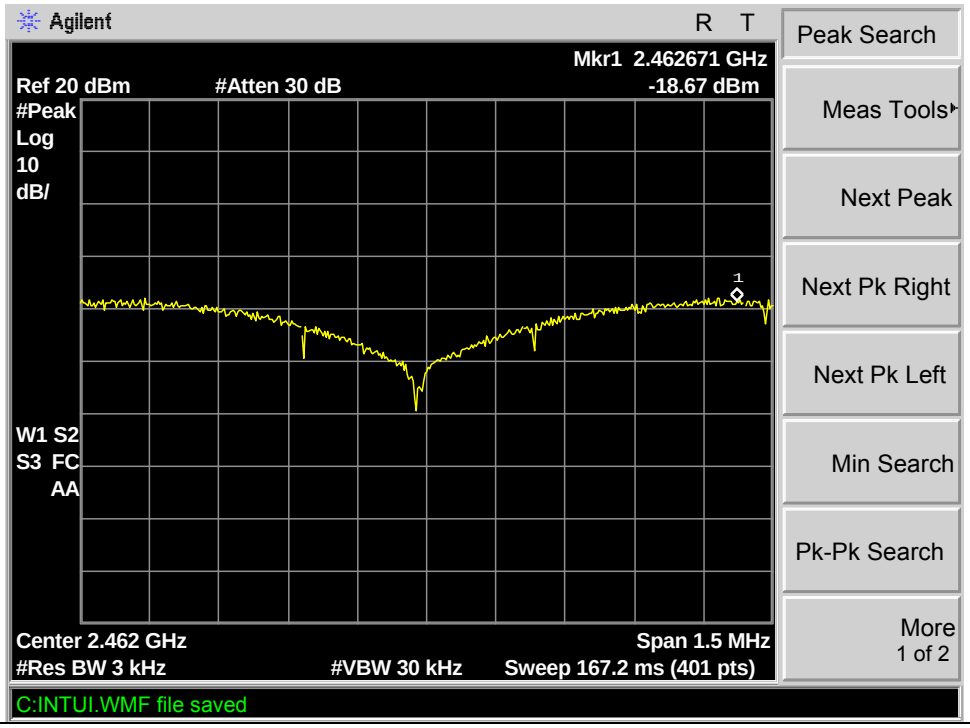
TX CH01



TX CH06



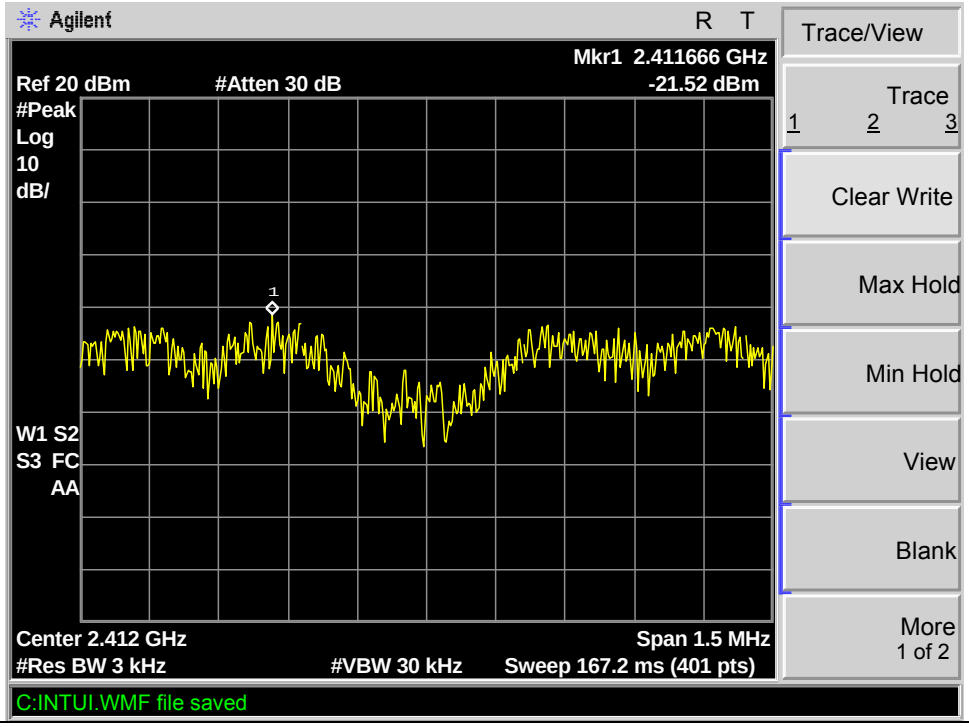
TX CH11



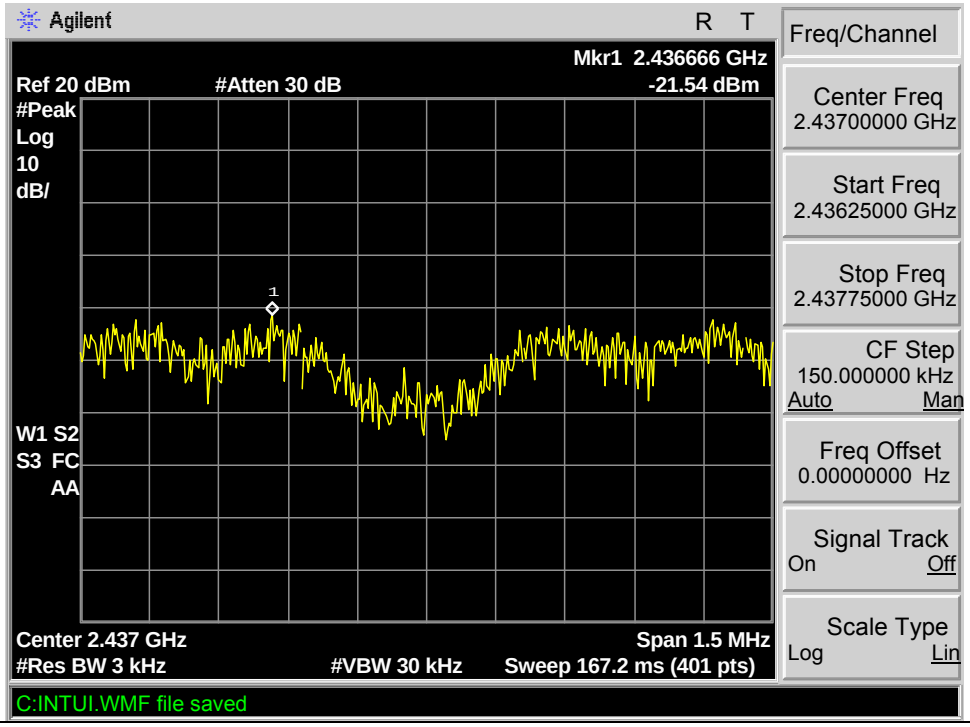
EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1015 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-21.52	8	**PASS**
2437MHz	-21.54	8	**PASS**
2462 MHz	-22.9	8	**PASS**

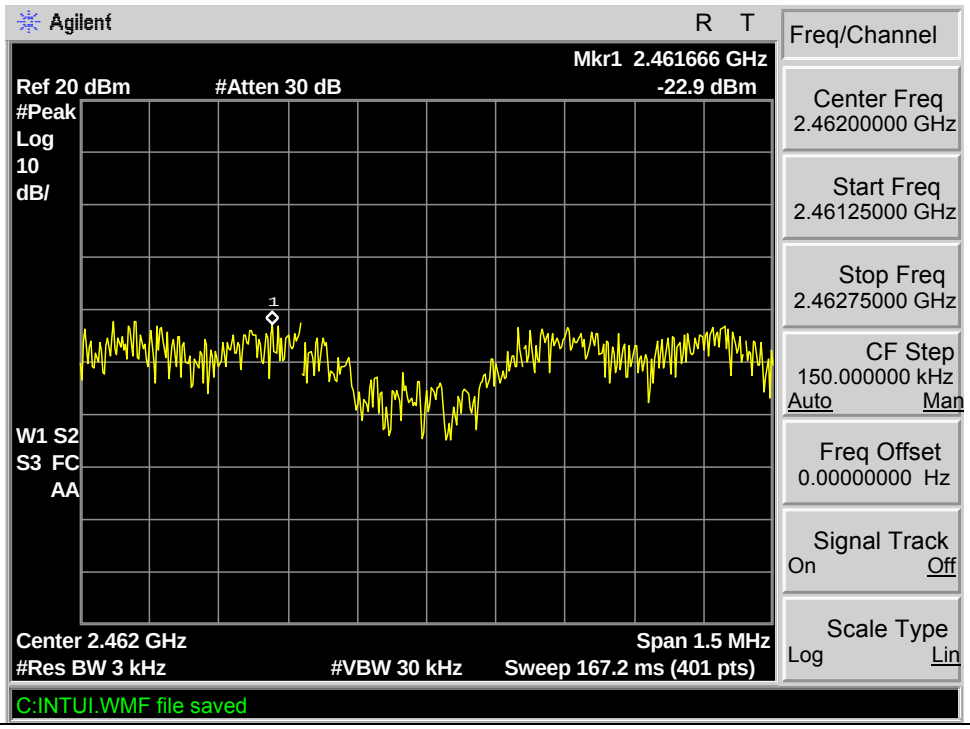
TX CH01



TX CH06



TX CH11



5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

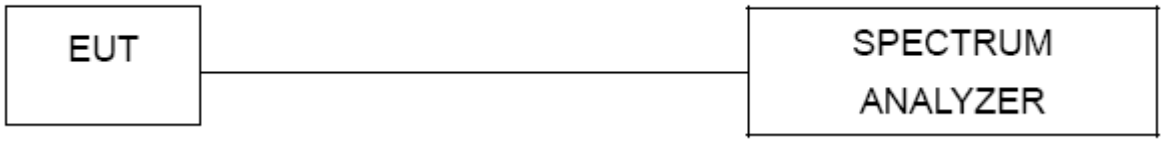
5.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

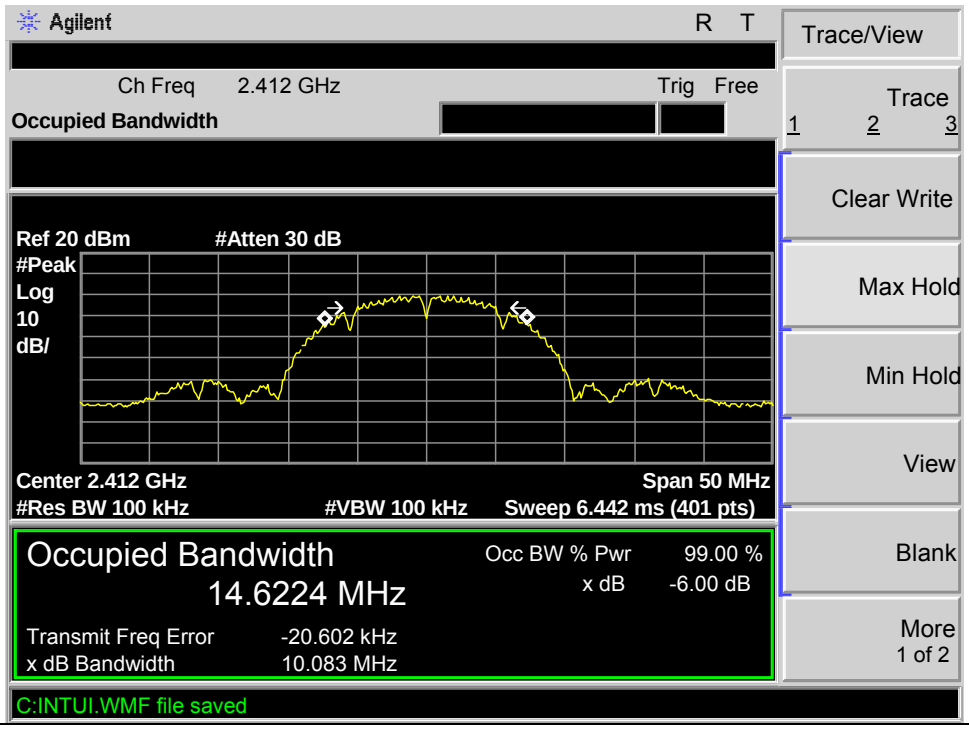
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

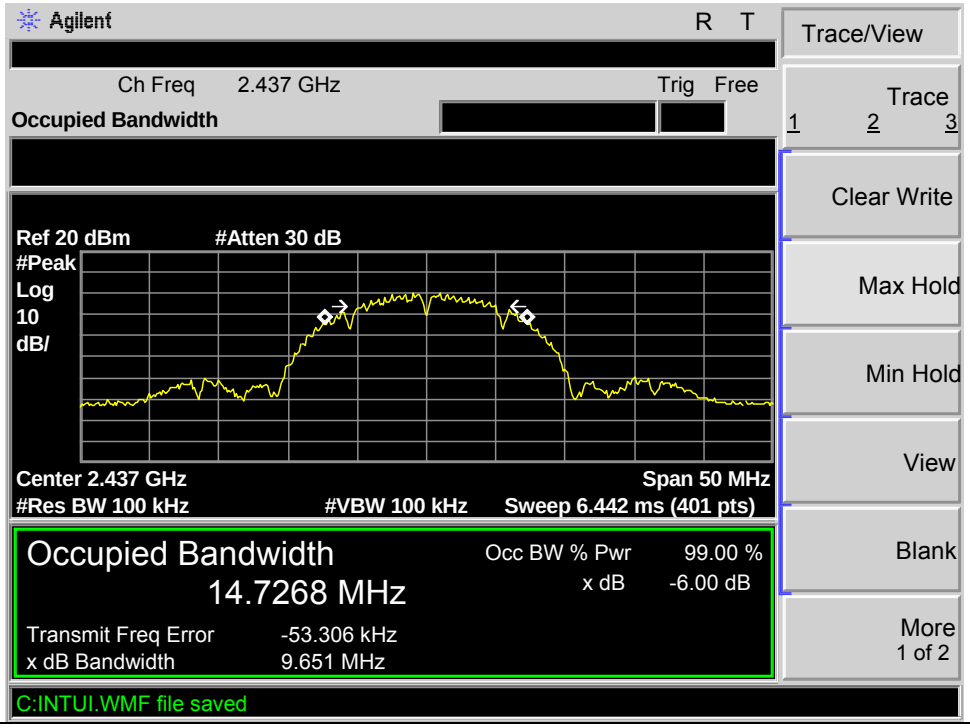
EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	10.08	14.62	>=500KHz	**PASS**
2437 MHz	9.65	14.72	>=500KHz	**PASS**
2462 MHz	10.11	14.73	>=500KHz	**PASS**

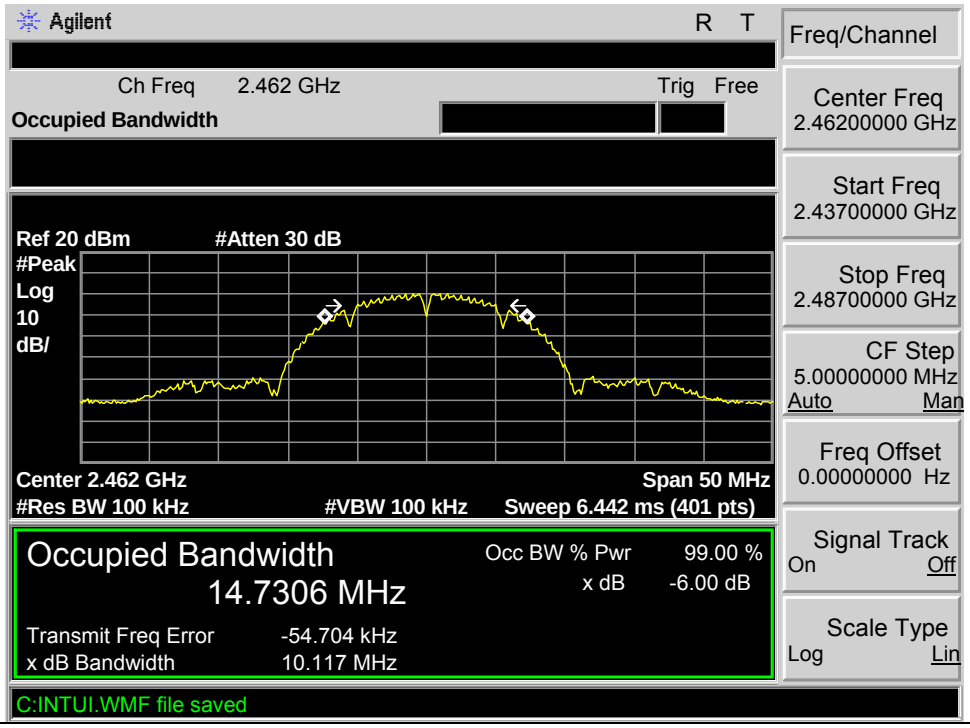
TX CH 01



TX CH 06



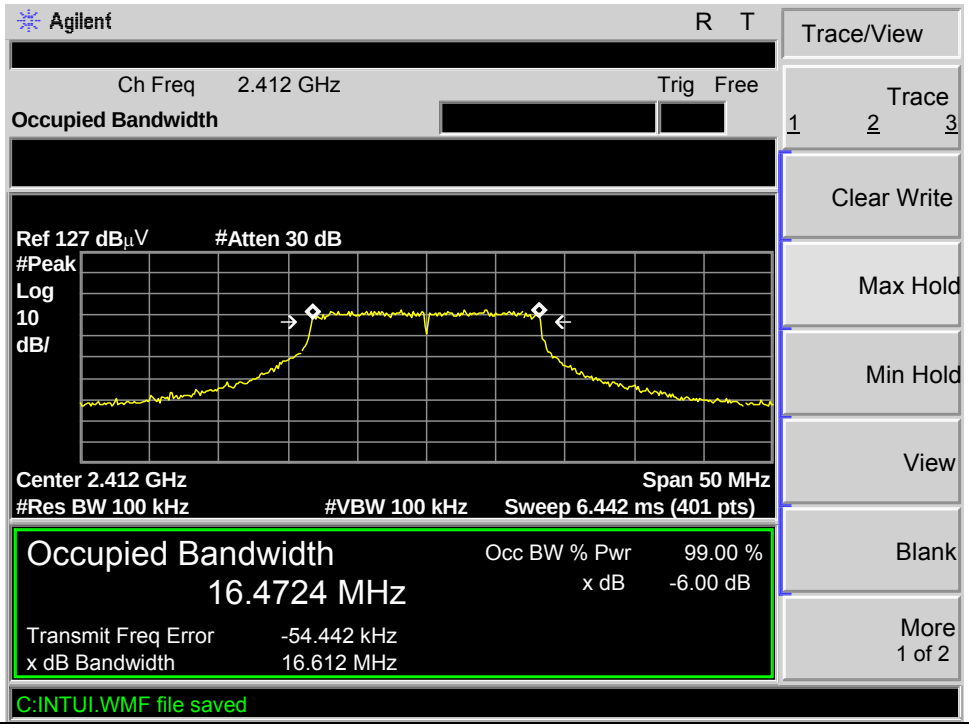
TX CH 11



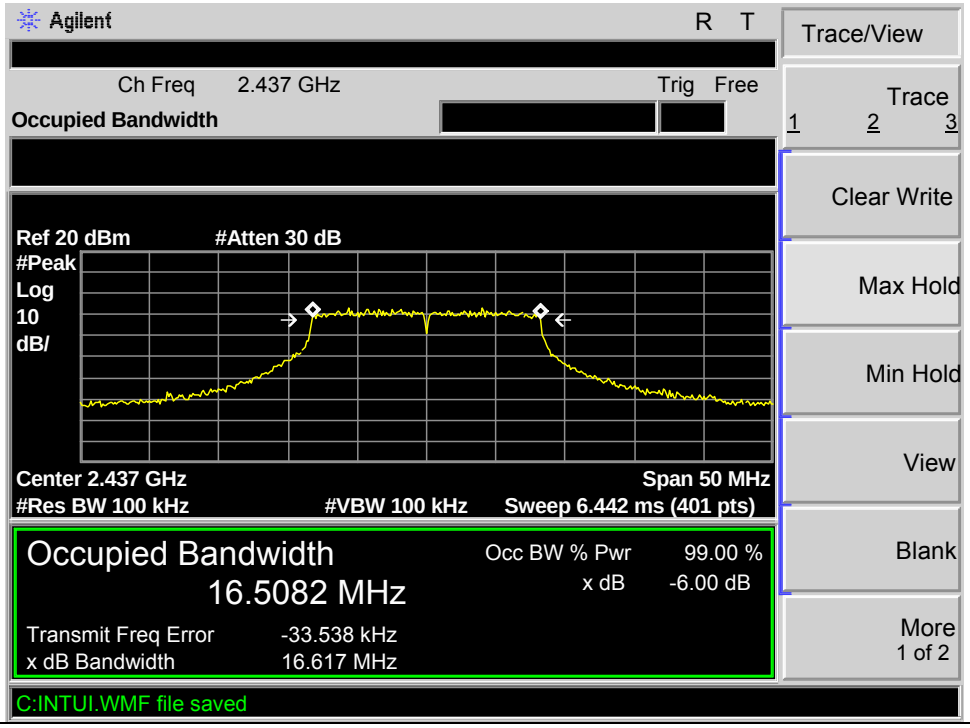
EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.61	16.47	>=500KHz	**PASS**
2437 MHz	16.61	16.50	>=500KHz	**PASS**
2462 MHz	16.65	16.51	>=500KHz	**PASS**

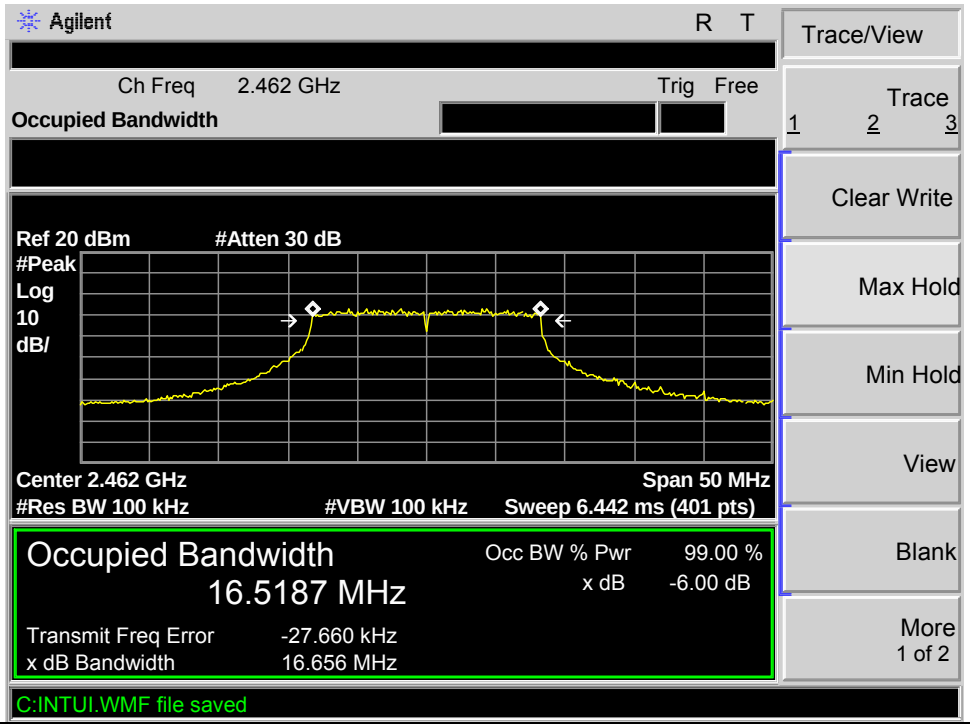
TX CH 01



TX CH 06



TX CH 11



6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(1)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

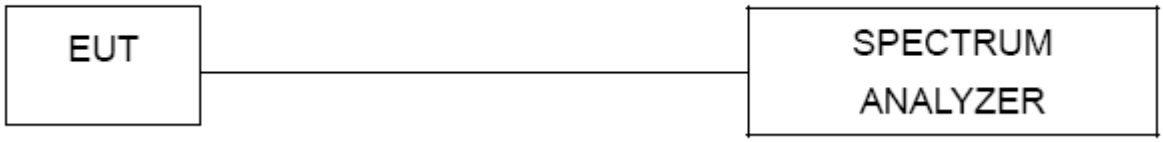
6.1.1 TEST PROCEDURE

The EUT was directly connected to the spectrum analyzer.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

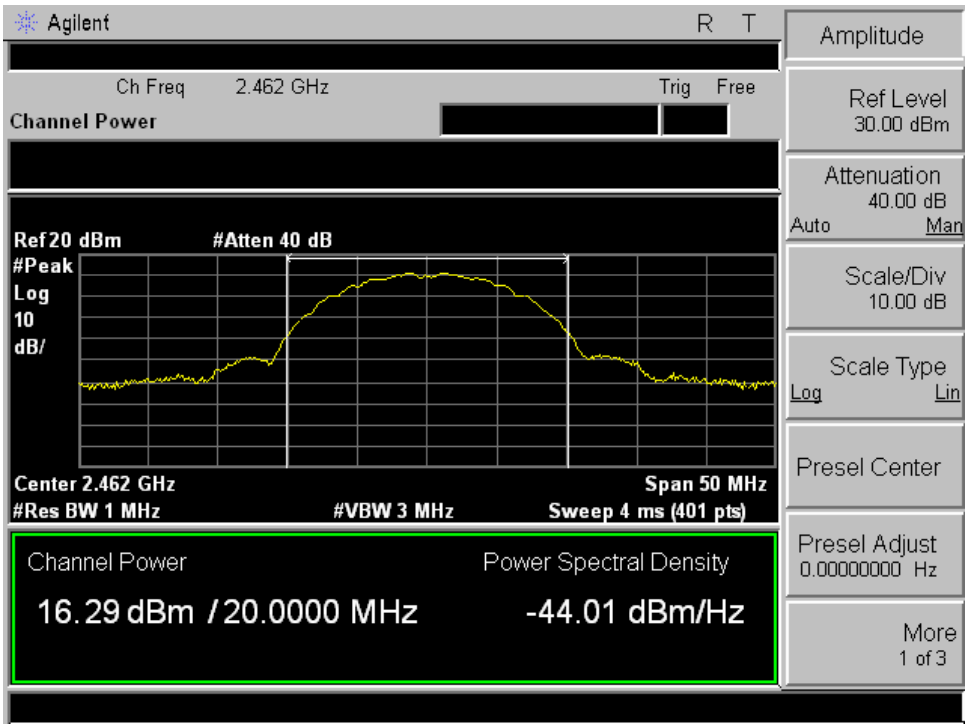
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX B MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Peak output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412	16.21	30	1
CH06	2437	16.07	30	1
CH11	2462	16.29	30	1

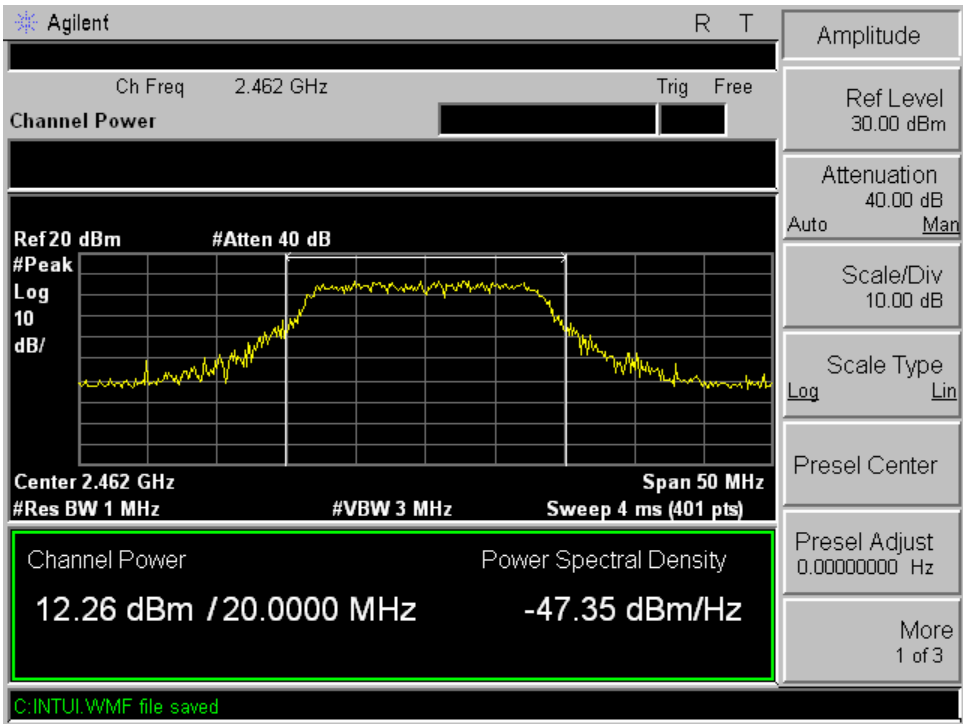
Max Peak power plot.



EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX G MODE /CH01, CH06, CH11		

Test Channel	Frequency (MHz)	Peak output power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2412	12.13	30	1
CH06	2437	12.07	30	1
CH11	2462	12.26	30	1

Max Peak power plot.



7. OUT OF BAND EMISSION

7.1 APPLIED PROCEDURES / LIMIT

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

7.1.1 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP

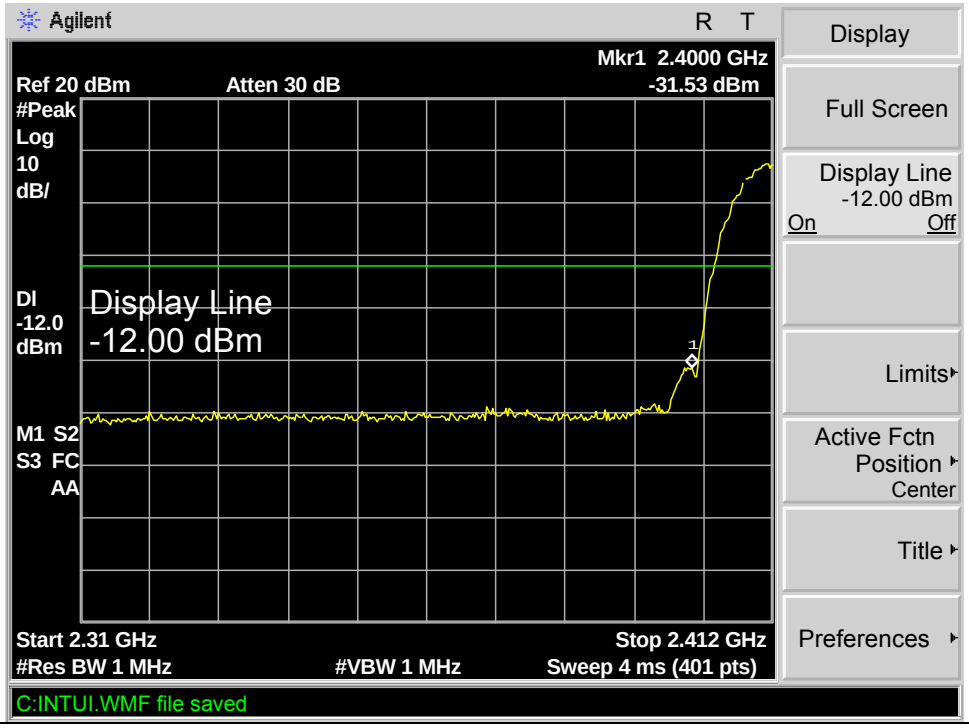
7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

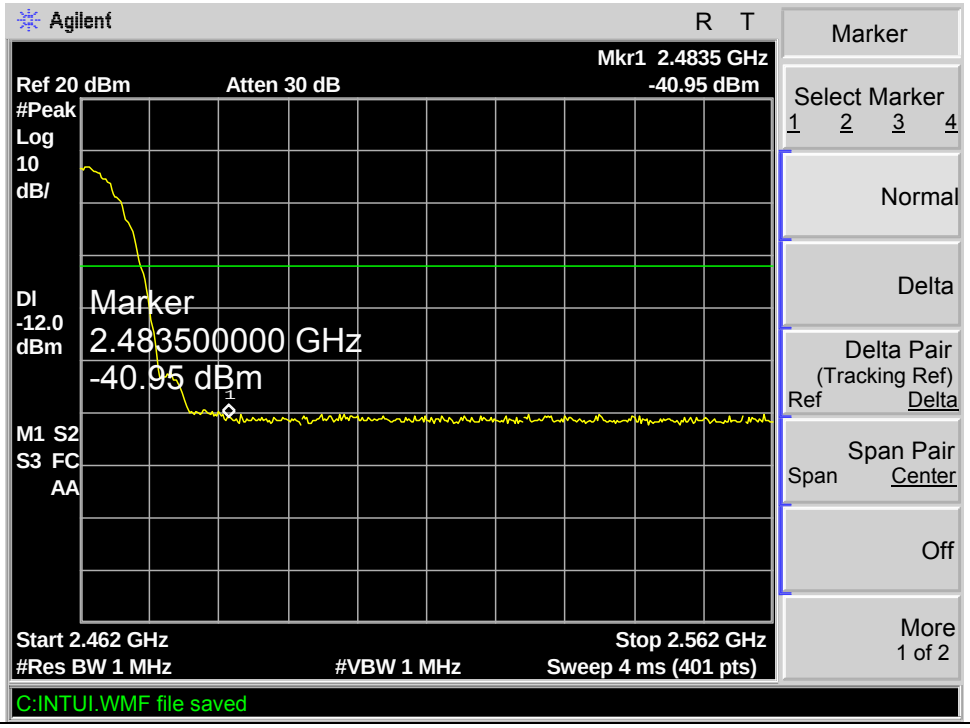
7.1.5 TEST RESULTS

EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX B MODE /CH01, CH11		

TX CH01

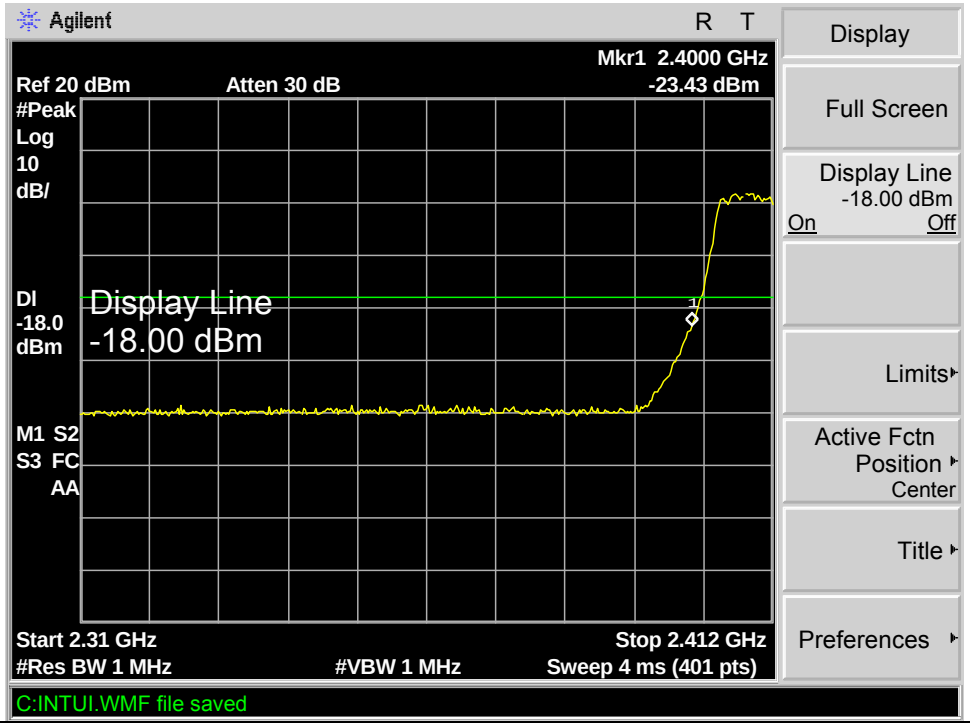


TX CH11

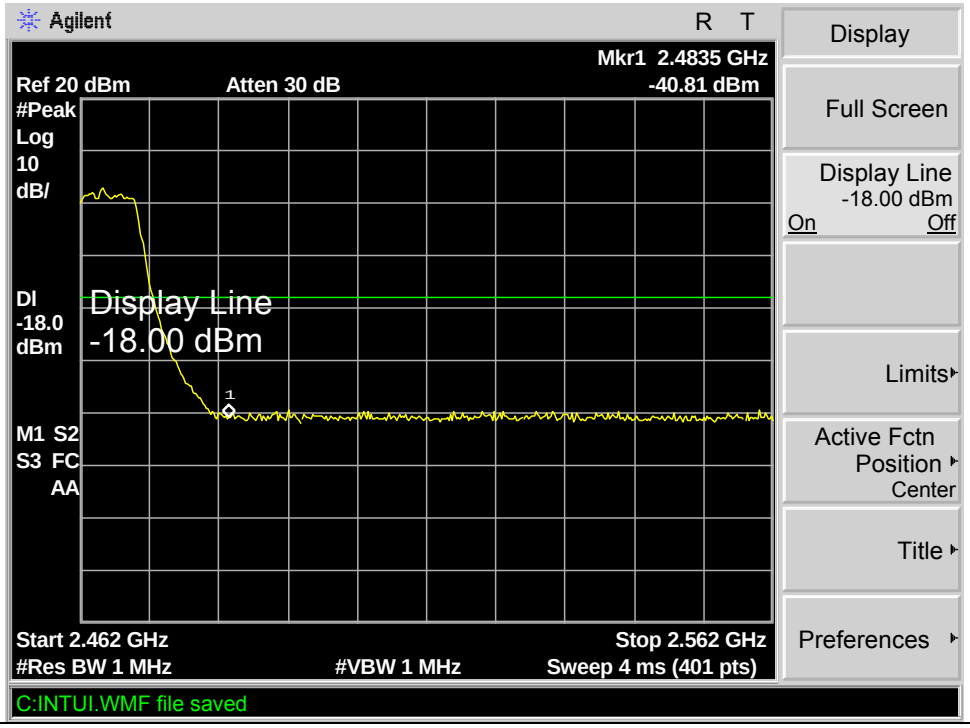

Agilent
R T
Mkr1 2.4835 GHz
-40.95 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Dl
-12.0
dBm
Marker
2.483500000 GHz
-40.95 dBm
M1 S2
S3 FC
AA
Start 2.462 GHz
#Res BW 1 MHz
#VBW 1 MHz
Stop 2.562 GHz
Sweep 4 ms (401 pts)
C:INTUI.WMF file saved
Marker
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref Delta
Span Pair
Span Center
Off
More
1 of 2

EUT：	Mobile Phone	Model Name ：	STAR A3
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7V
Test Mode ：	TX G MODE /CH01, CH11		

TX CH01



TX CH11


Agilent
R T
Mkr1 2.4835 GHz
-40.81 dBm
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Dl
-18.0
dBm
Display Line
-18.00 dBm
M1 S2
S3 FC
AA
Start 2.462 GHz
#Res BW 1 MHz
#VBW 1 MHz
Stop 2.562 GHz
Sweep 4 ms (401 pts)
C:INTUI.WMF file saved
Display
Full Screen
Display Line
-18.00 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

7.1.6 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

EUT：	MOBILE PHONE	Model Name ：	TX1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7v
Test Mode ：	CH1/ CH18 B MODE		
Note：	1. The transmitter was setup to transmit at the lowest channel. Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel. Then the field strength was measured at 2483.5-2500 MHz.		

H:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	29.50	22.65	52.15	74.00	-21.85	peak
2400.00	25.23	22.65	47.88	54.00	-6.12	AVG

V:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	33.45	22.65	56.10	74.00	-17.90	peak
2400.00	24.35	22.65	47.00	54.00	-7.00	AVG

H:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG

V:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	29.91	23.27	53.18	74.00	-20.82	peak
2483.5	24.21	23.27	47.48	54.00	-6.52	AVG

Remark：

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode

(2) EUT Orthogonal Axis：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(4) Corr.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	MOBILE PHONE	Model Name ：	TX1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC3.7v
Test Mode ：	CH1/ CH11 G MODE		
Note：	1. The transmitter was setup to transmit at the lowest channel. Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel. Then the field strength was measured at 2483.5-2500 MHz.		

H:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	29.50	22.65	52.15	74.00	-21.85	peak
2400.00	25.23	22.65	47.88	54.00	-6.12	AVG

V:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2400.00	29.50	22.65	52.15	74.00	-21.85	peak
2400.00	25.23	22.65	47.88	54.00	-6.12	AVG

H:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG

V:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2483.5	30.15	23.27	53.42	74.00	-20.58	peak
2483.5	25.43	23.27	48.70	54.00	-5.30	AVG

Remark：

(1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode

(2) EUT Orthogonal Axis：

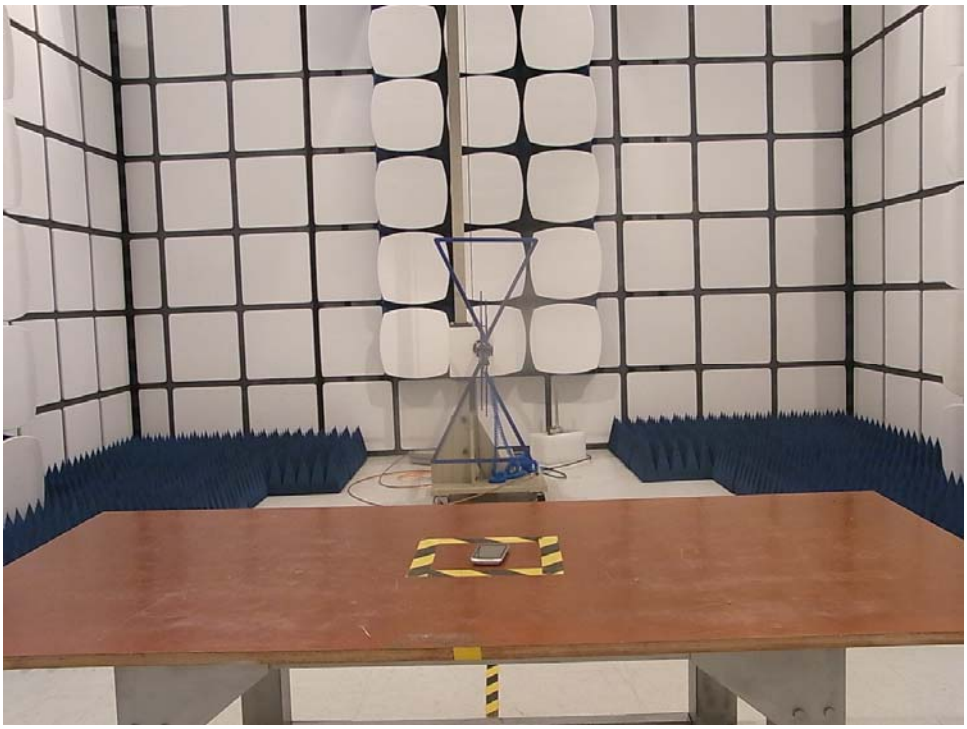
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

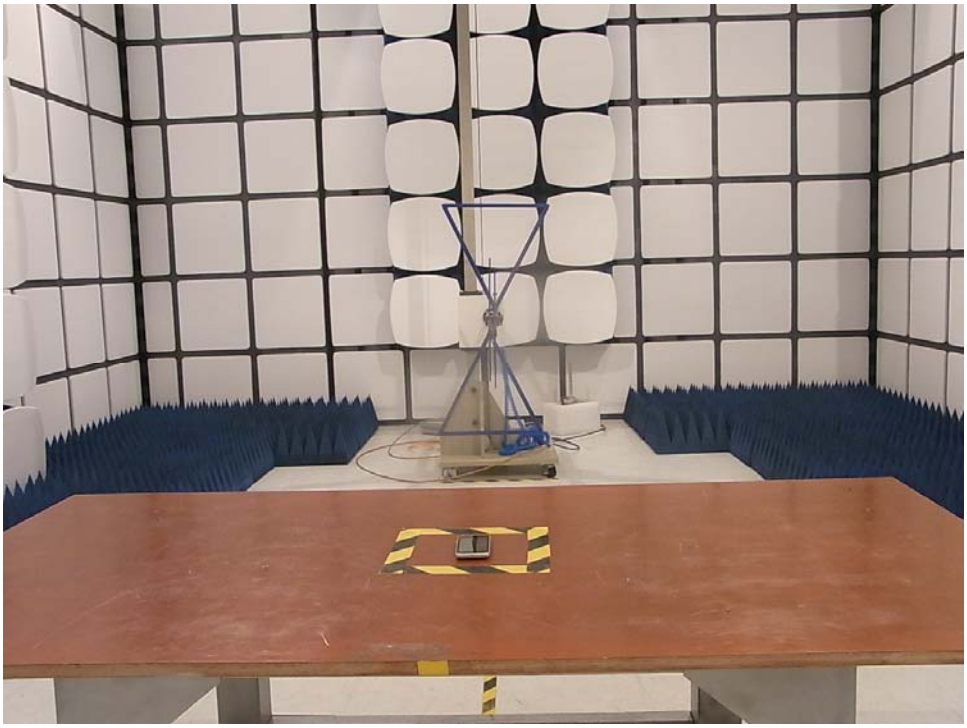
(3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(4) Corr.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

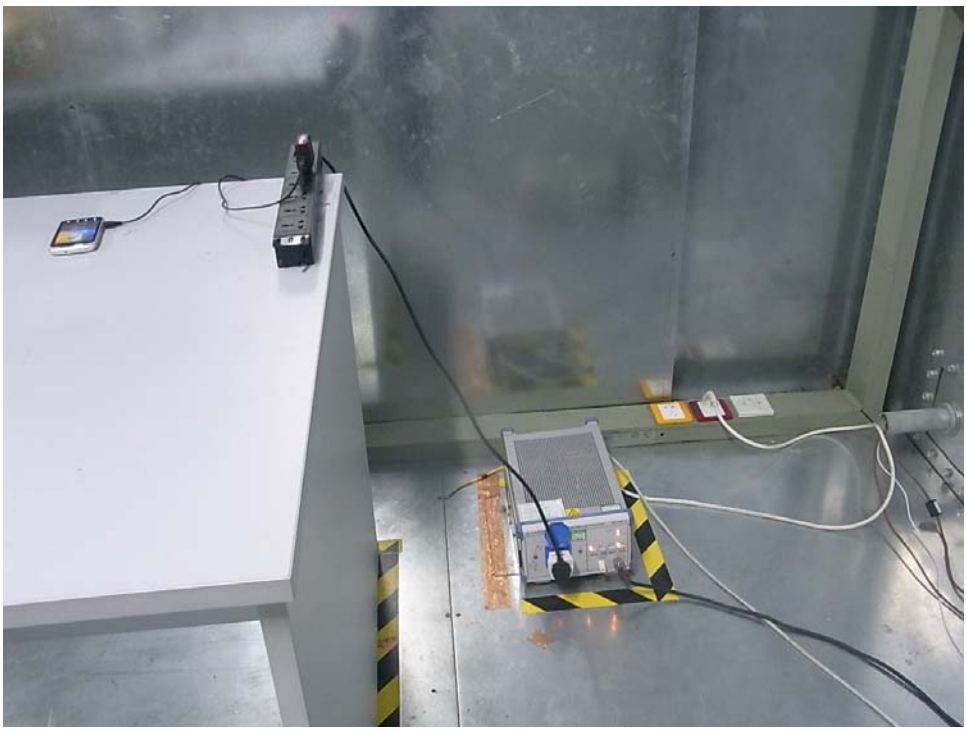
8. EUT TEST PHOTO

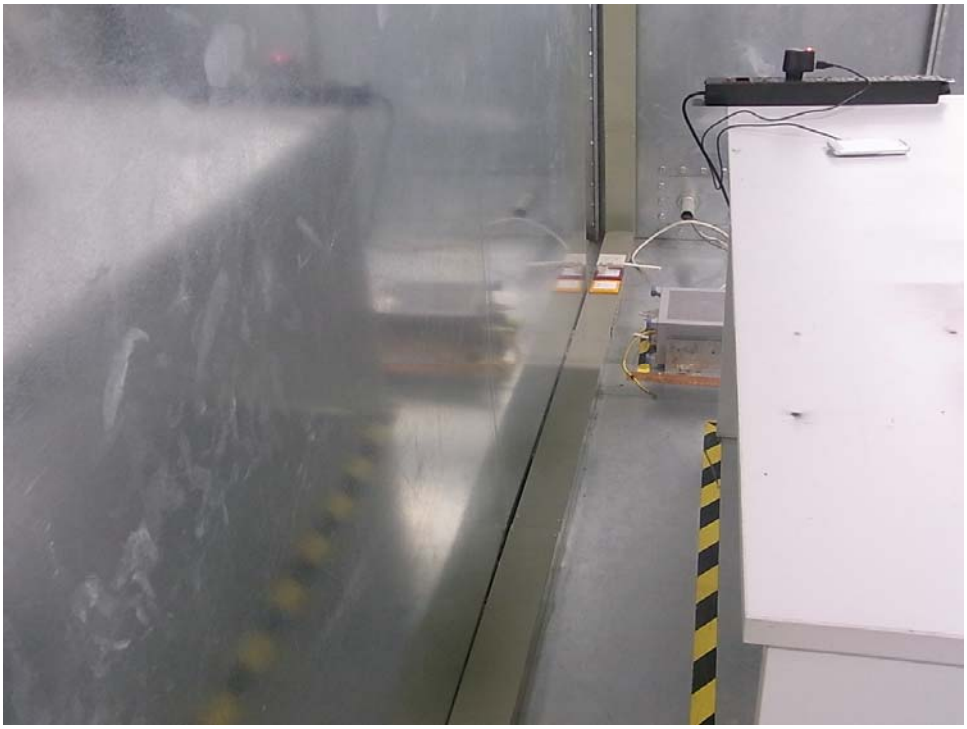
Radiated Measurement Photos





Conducted Measurement Photos





conducted output power