



FCC&IC RADIO TEST REPORT
FCC ID: N73-MP10-G2
IC:7449B-MP10-G2

Product : Mine Phone

Trade Name : Mine Site Technologies

Model Name : MP10-G2

Serial Model : N/A

Report No. : NTEK- 2013NT0203041F

Prepared for

Mine Site Technologies Pty Ltd.

113, Wicks Road, Macquarie Park, NSW 2113, AUSTRALIA

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Mine Site Technologies Pty Ltd.
Address : 113, Wicks Road, Macquarie Park, NSW 2113, AUSTRALIA.
Manufacturer's Name..... : Mine Site Technologies China Co., Ltd.
Address : 4F Building-1 1413 Moganshan Road, Hangzhou, CHINA

Product description

Product name : Mine Phone
Model and/or type reference : MP10-G2
Serial Model : N/A

Standards : FCC Part15.247& RSS-210 Issue 8

Test procedure..... ANSI C63.4-2003,RSS-Gen

This device described above has been tested by NTEK, 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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Date of Test :
Date (s) of performance of tests : 20 Jan. 2013 ~27 Jan. 2013
Date of Issue..... : 28 Jan. 2013
Test Result..... : **Pass**

Testing Engineer : Apple Huang
(Apple Huang)

Technical Manager : Tom Zhang
(Tom Zhang)

Authorized Signatory : Bovey Yang
(Bovey Yang)

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C&IC RSS-210			
Standard Section	Test Item	Judgment	Remark
FCC §15.207 & IC RSS-GEN Clause 7.2.4	Conducted Emission	PASS	
FCC §15.247(a) & IC RSS-210 A8.2 (a)	6dB Bandwidth	PASS	
FCC §15.247(b) & IC RSS-210 A8.4	Peak Output Power	PASS	
FCC §15.205 and §15.209 & IC RSS-210 Clause 2.5 (Transmitter)	Radiated Spurious Emission	PASS	
FCC §15.247(e) & IC RSS-210 A8.2 (b)	Power Spectral Density	PASS	
FCC §15.205 and §15.209 & IC RSS-210 Clause 2.5 (Transmitter)	Band Edge Emission	PASS	
FCC §15.203/15.247(b)/(c) & IC RSS-GEN Clause 7.1.2	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 Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516


1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Mine Phone	
Trade Name	Mine Site Technologies	
Model Name	MP10-G2	
Serial Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Mine Phone	
	Operation Frequency:	802.11b/g:2412~2462 MHz
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6 Mbps
	Number Of Channel	802.11b/g: 11CH
	Antenna Designation:	Please see Note 3.
	PK Output Power(Conducted):	802.11b: 12.85 dBm (Max.) 802.11g: 11.69 dBm (Max.)
	Antenna Gain (dBi)	2.0dbi
		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.
Channel List	Please refer to the Note 2.	
Ratings	DC 6V from Adapter	
Adapter	Model:S12A02-060A150-06, AC Power Input: 100-240V~, 50/60Hz, 0.5A Max. Output: 6.0V  1.5A	
Battery	Rated Voltage: 3.7V Charge Limit: 4.2V Capacity :1200mAh	

Note:

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

2.

Channel List for 802.11b/g							
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
A	N/A	N/A	PIFA Antenna	N/A	2.0	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	Link Mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

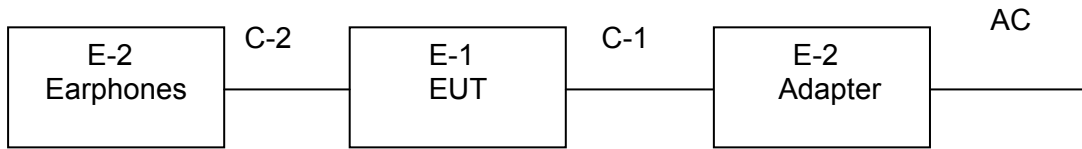
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11

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 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



2.4 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	Mine Phone	Mine Site Technologies	MP10-G2	N/A	EUT
E-2	Earphone	N/A	2558	N/A	
E-3	Adapter	N/A	S12A02-060A150-06	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8M	
C-2	NO	NO	1.0M	

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.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2012.07.06	2013.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2012.06.07	2013.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2012.07.06	2013.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2012.06.07	2013.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2012.06.07	2013.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2012.07.06	2013.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2012.07.06	2013.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2011.12.22	2012.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2012.06.08	2013.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2012.07.06	2013.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2012.07.06	2013.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2012.06.06	2013.06.05	1 year
2	LISN	R&S	ENV216	101313	2012.08.24	2013.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2012.08.24	2013.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2012.06.07	2013.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2012.06.07	2013.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2012.06.08	2013.06.07	1 year

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

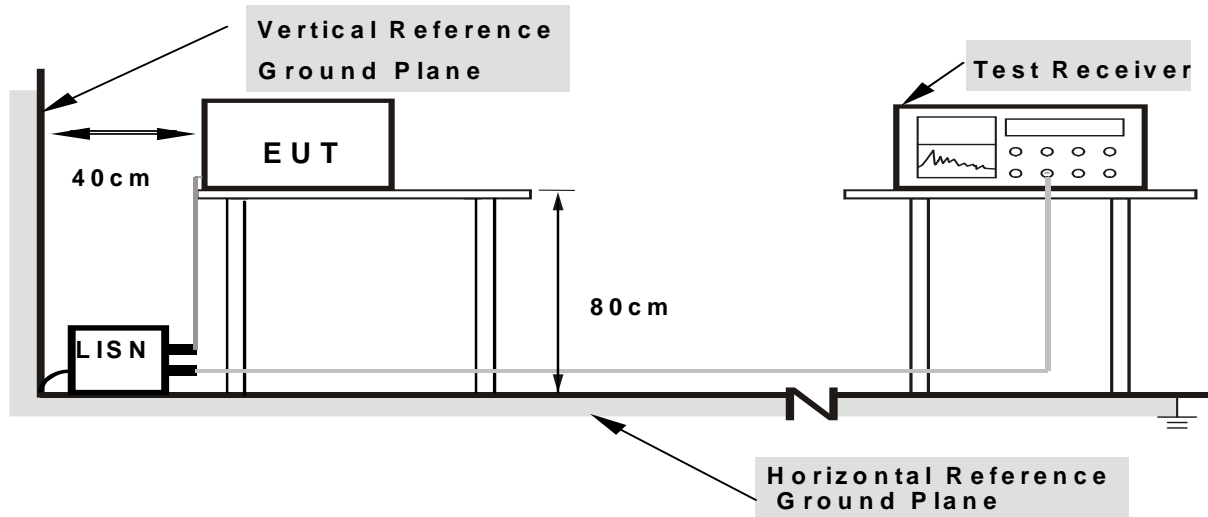
3.1.2 TEST PROCEDURE

- 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.

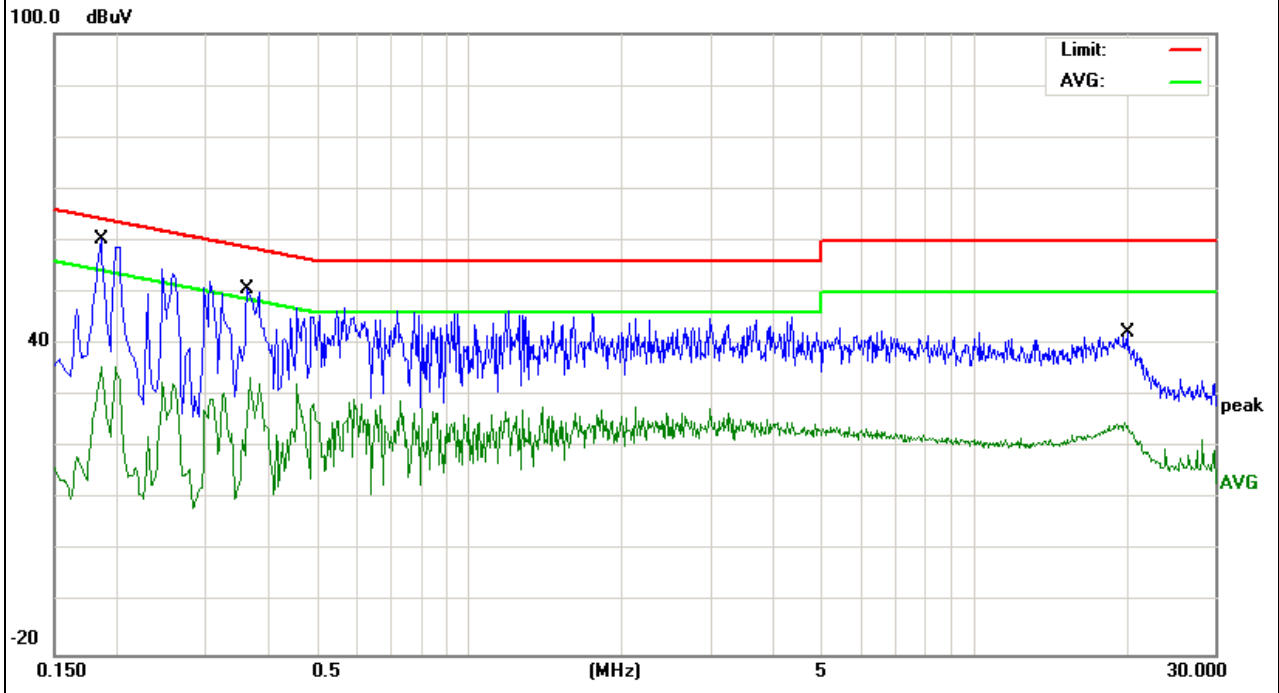
3.1.6 TEST RESULTS

EUT :	Mine Phone	Model Name. :	MP10-G2
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 6.0V from adapter AC120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.186	50.24	10.1	60.34	64.21	-3.87	QP
0.186	25.69	10.1	35.79	54.21	-18.42	AVG
0.362	40.49	10.2	50.69	58.68	-7.99	QP
0.366	23.39	10.2	33.59	48.59	-15	AVG
19.9259	14.1	10.65	24.75	50	-25.25	AVG
20.094	31.54	10.65	42.19	60	-17.81	QP

Remark:

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

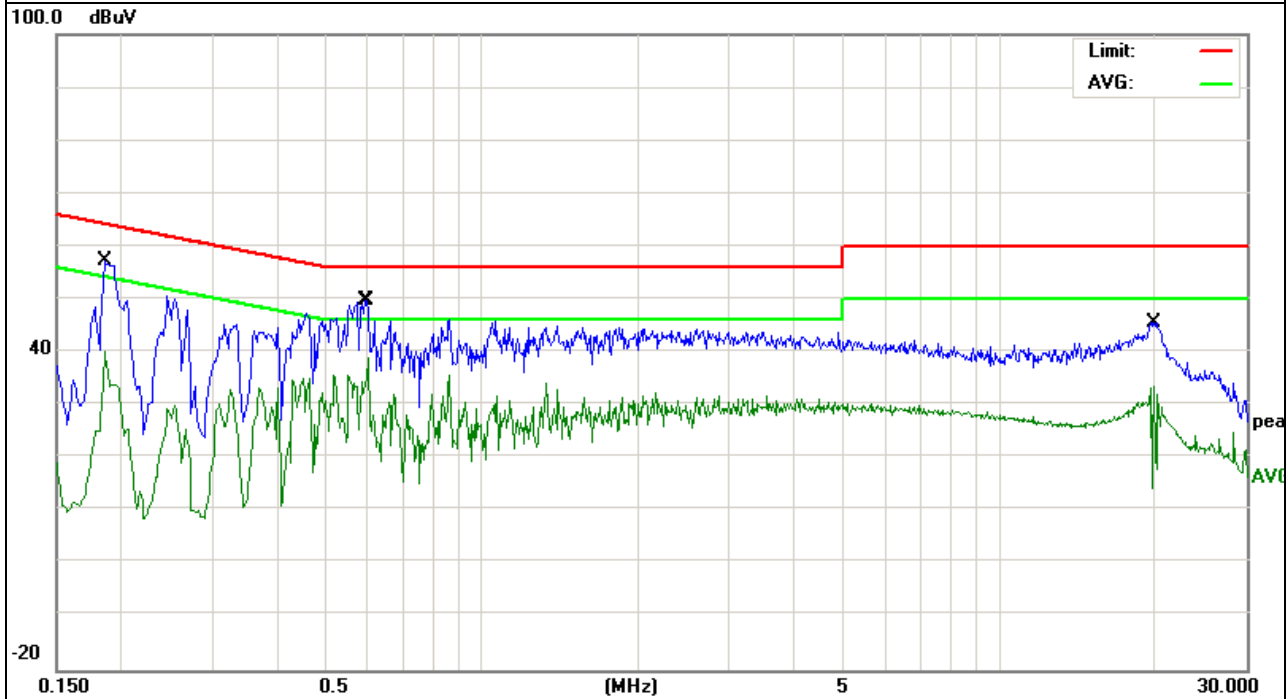


EUT :	Mine Phone	Model Name. :	MP10-G2
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 6.0V from adapter AC120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.186	47.22	10.1	57.32	64.21	-6.89	QP
0.186	29.97	10.1	40.07	54.21	-14.14	AVG
0.594	39.48	10.22	49.7	56	-6.3	QP
0.602	28.83	10.22	39.05	46	-6.95	AVG
19.942	34.95	10.65	45.6	60	-14.4	QP
19.942	23.04	10.65	33.69	50	-16.31	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 (microrvolts/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:

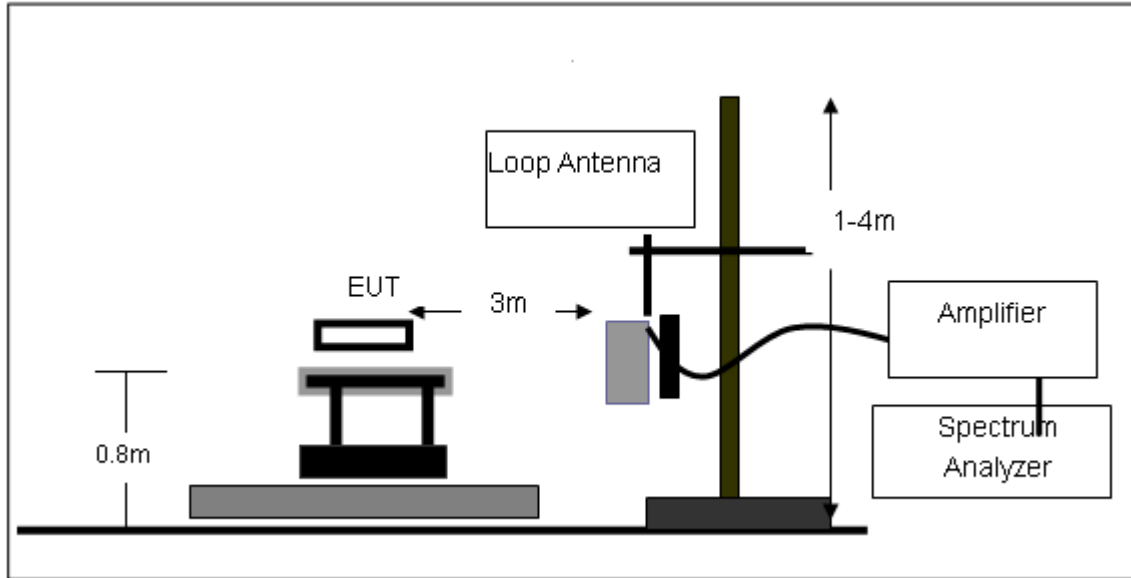
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

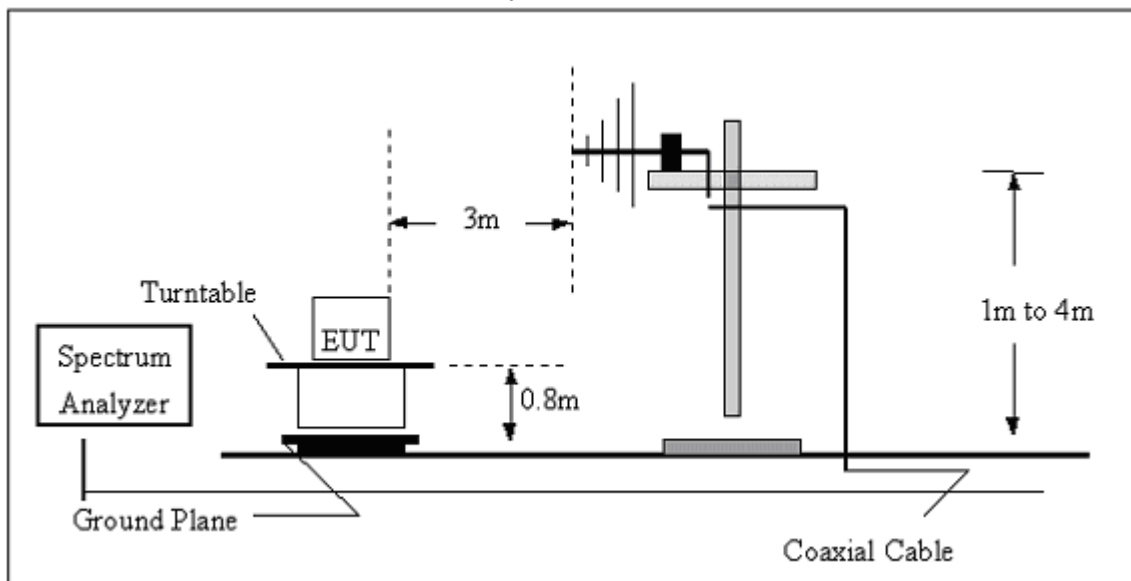
No deviation

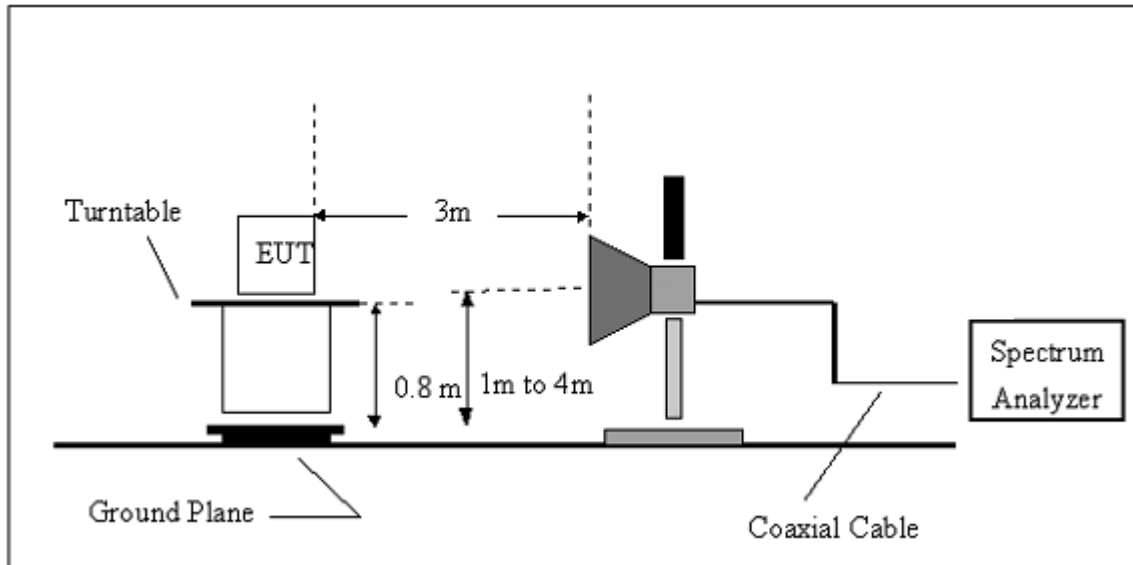
3.2.4 TEST SETUP

(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 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT:	Mine Phone	Model Name. :	MP10-G2
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 6.0V
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 = $40 \log (\text{specific distance}/\text{test distance})(\text{dB})$;

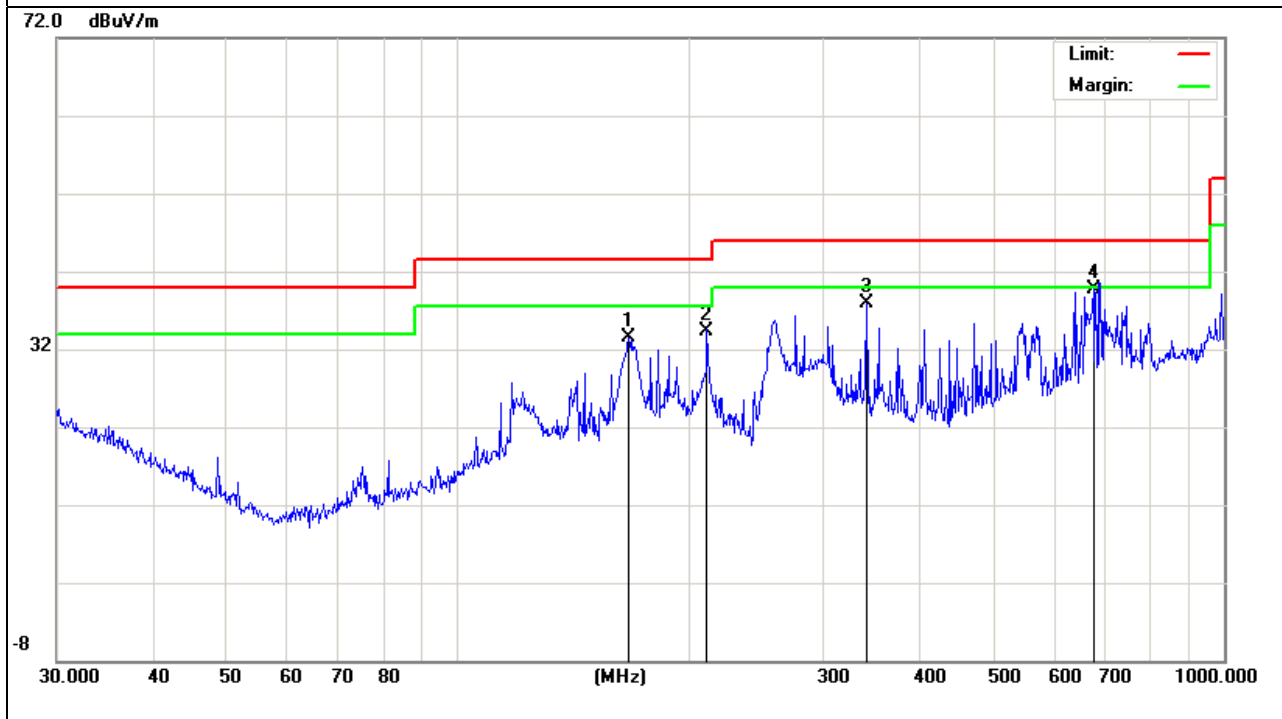
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
167.2366	23.18	10.26	33.44	43.5	-10.06	QP
211.5264	25.04	9.36	34.4	43.5	-9.1	QP
341.9786	22.8	15.15	37.95	46	-8.05	QP
675.2078	17.54	22.15	39.69	46	-6.31	QP

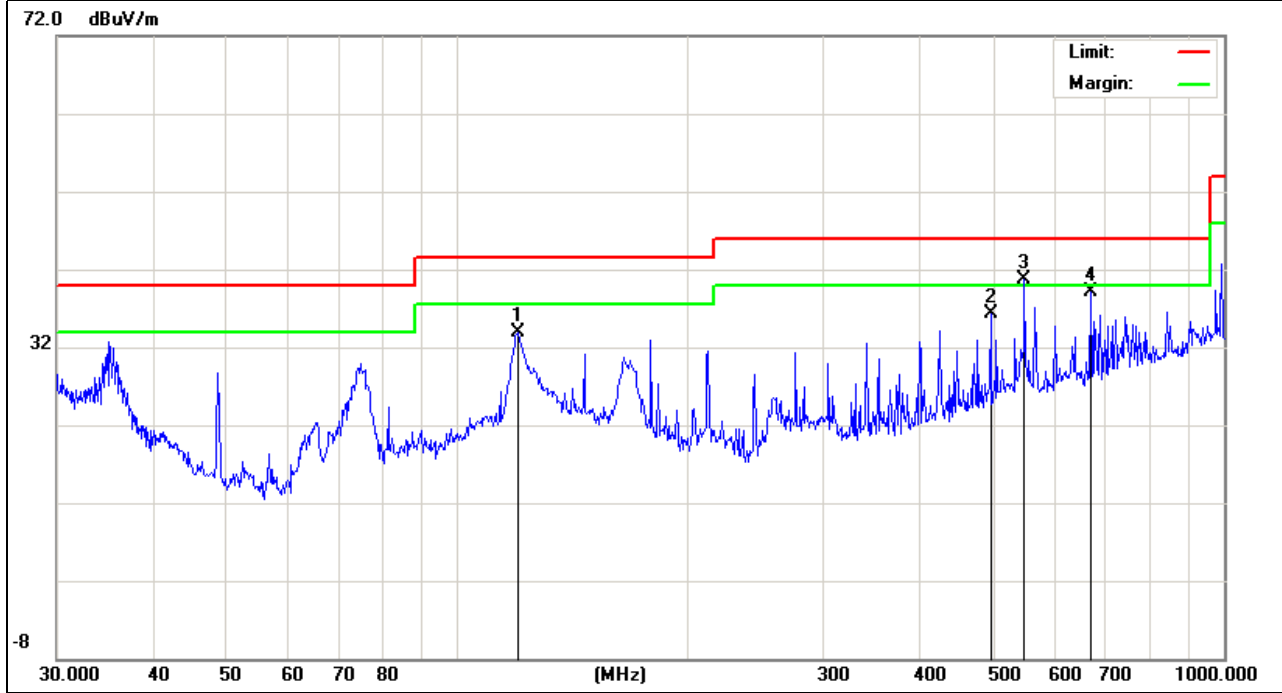
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
119.8555	22.06	11.77	33.83	43.5	-9.67	QP
495.9343	17.03	19.3	36.33	46	-9.67	QP
549.0193	18.83	21.83	40.66	46	-5.34	QP
670.4892	17.07	22.08	39.15	46	-6.85	QP

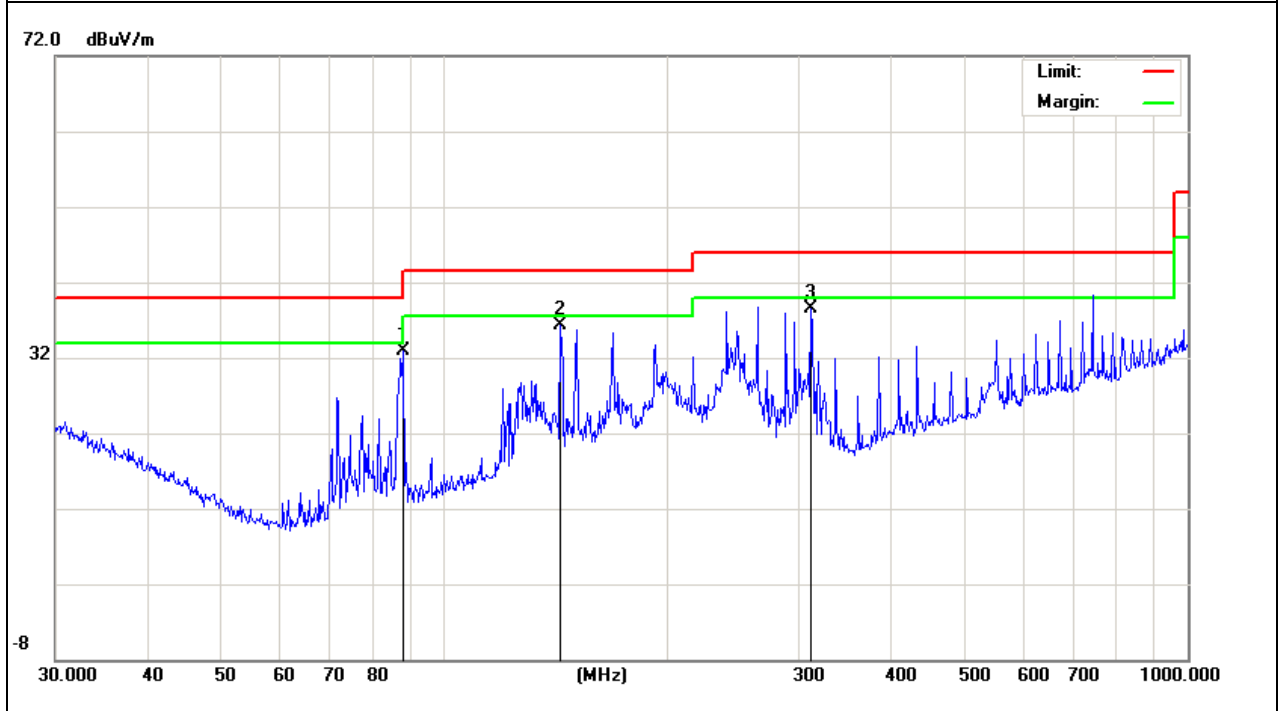
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	RX	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
88.0327	23.92	9.08	33	43.5	-10.5	QP
143.3258	24.47	11.93	36.4	43.5	-7.1	QP
311.0867	23.89	14.61	38.5	46	-7.5	QP
88.0327	23.92	9.08	33	43.5	-10.5	QP

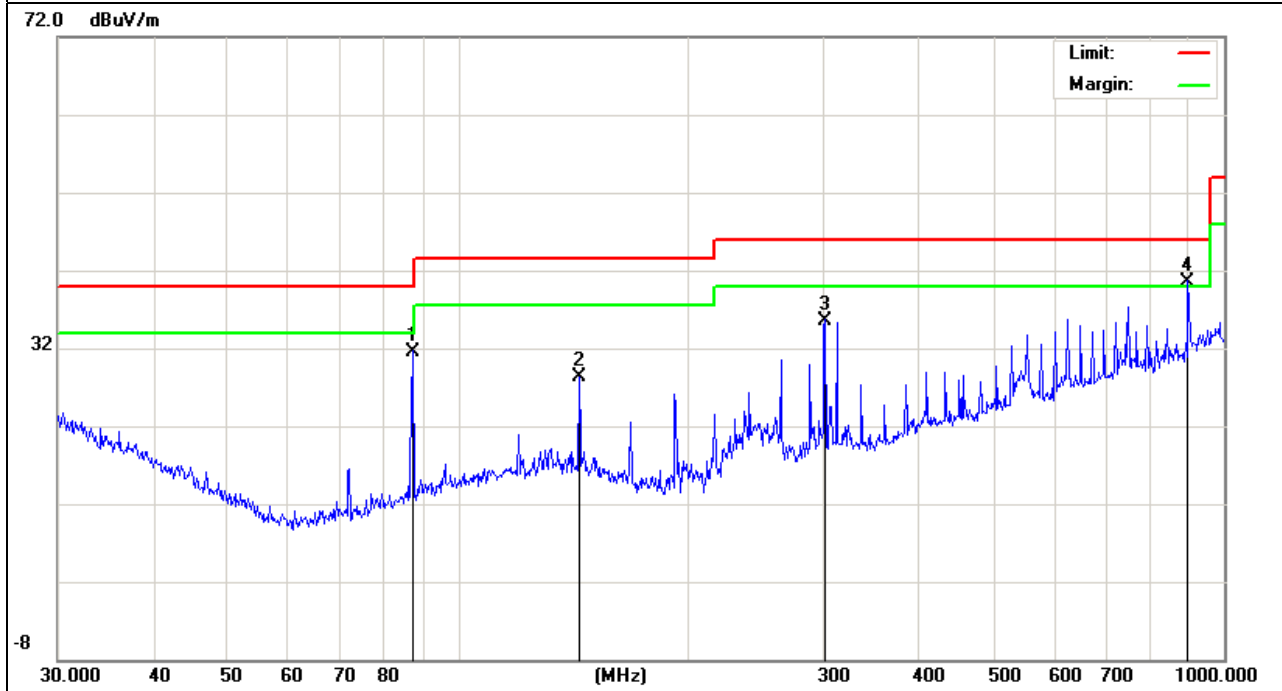
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 All interfaces was connected, and BT TX mode was link.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	RX	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
87.4175	22.57	9.03	31.6	40	-8.4	QP
143.8292	16.41	11.93	28.34	43.5	-15.16	QP
301.4223	21.02	14.58	35.6	46	-10.4	QP
896.9963	15.01	25.59	40.6	46	-5.4	QP

Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 All interfaces was connected, and BT TX mode was link.

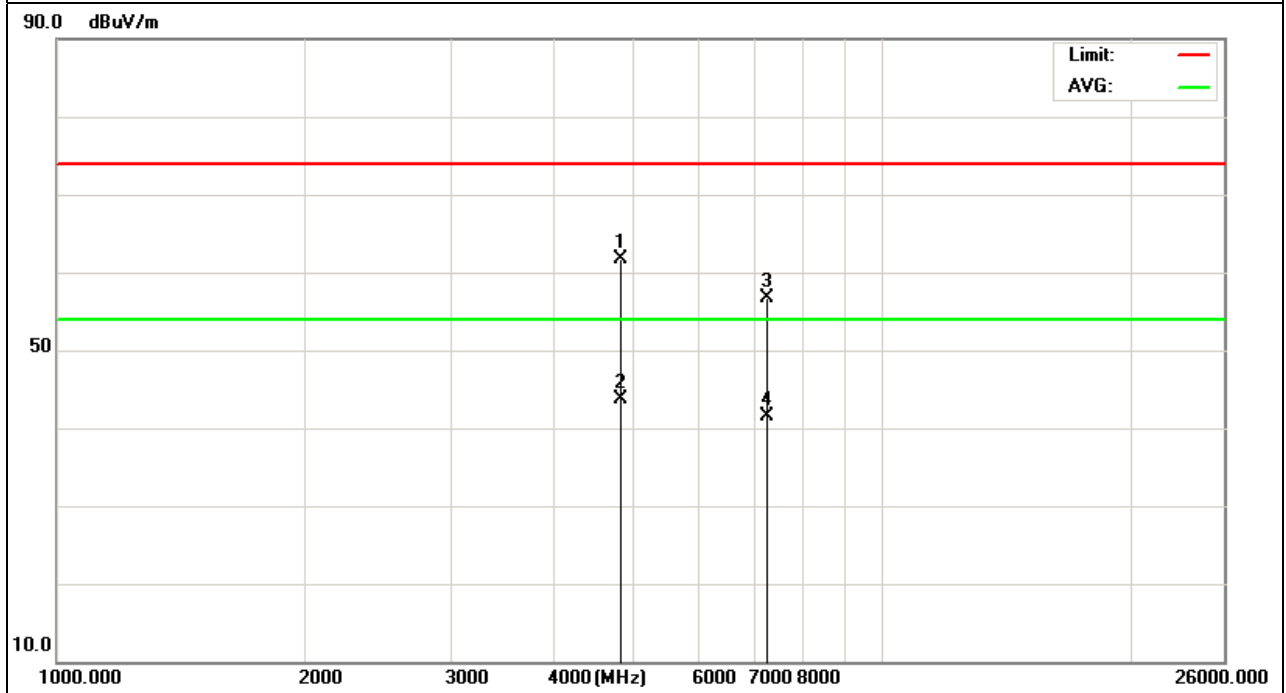


3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1 (802.11b Mode)/2412	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4824.15	51.21	10.44	61.65	74	-12.35	peak
4824.15	33.3	10.44	43.74	54	-10.26	AVG
7236.142	44.28	12.39	56.67	74	-17.33	peak
7236.142	29.16	12.39	41.55	54	-12.45	AVG

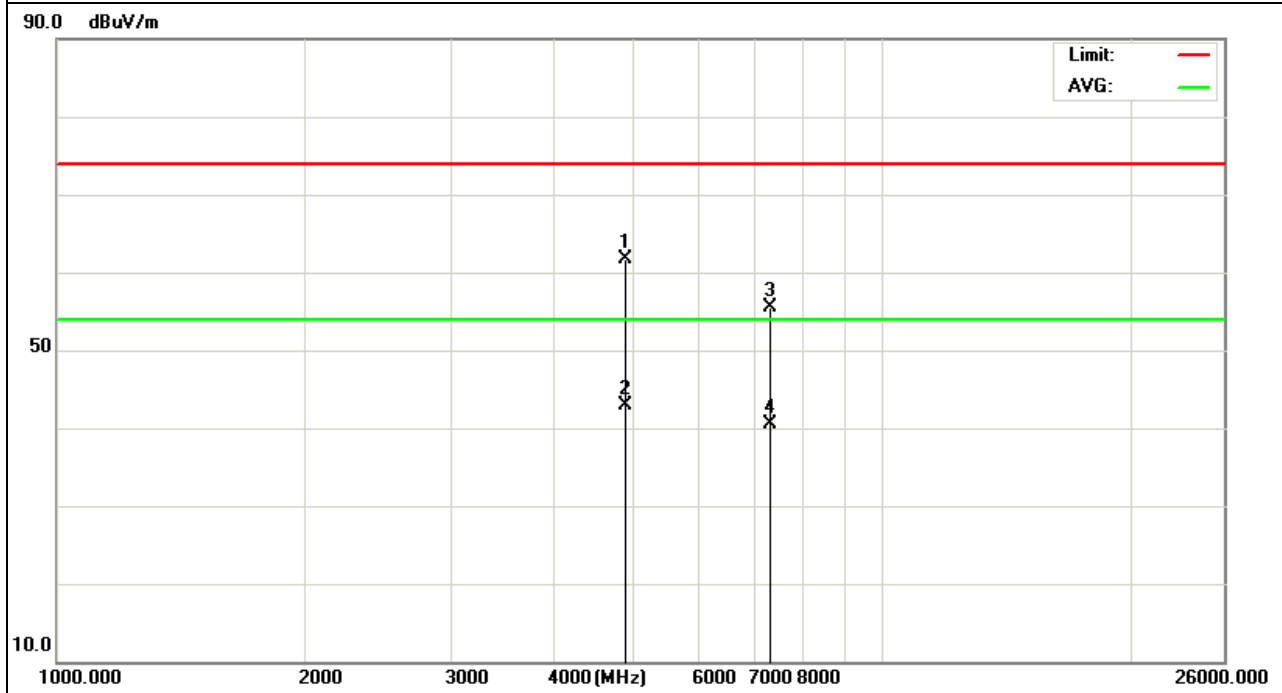
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1 (802.11b Mode)/2412	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.138	51.28	10.4	61.68	74	-12.32	peak
4874.138	32.42	10.4	42.82	54	-11.18	AVG
7311.161	42.84	12.75	55.59	74	-18.41	peak
7311.161	27.66	12.75	40.41	54	-13.59	AVG

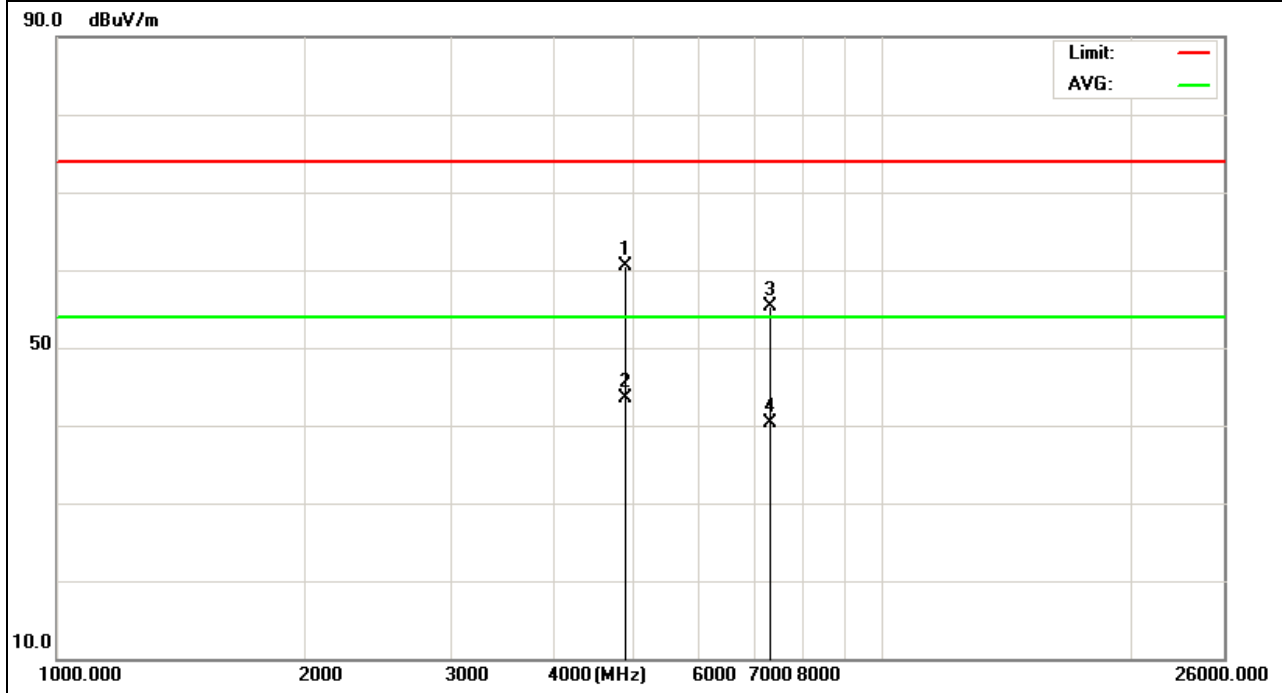
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH6 (802.11b Mode)/2437	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.149	50.18	10.4	60.58	74	-13.42	peak
4874.149	33.12	10.4	43.52	54	-10.48	AVG
7311.134	42.49	12.75	55.24	74	-18.76	peak
7311.134	27.6	12.75	40.35	54	-13.65	AVG

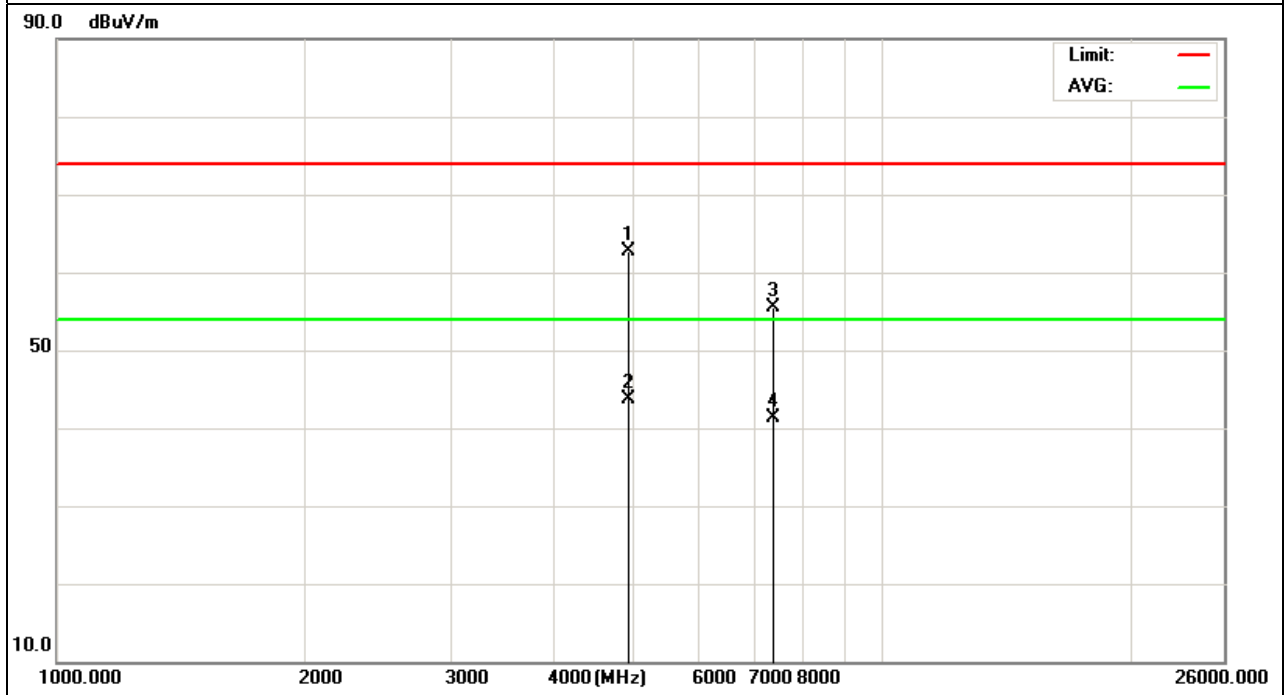
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH6 (802.11b Mode)/2437	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.151	52.28	10.39	62.67	74	-11.33	peak
4934.151	33.18	10.44	43.62	54	-10.38	AVG
7386.131	42.85	12.68	55.53	74	-18.47	peak
7386.131	28.72	12.68	41.4	54	-12.6	AVG

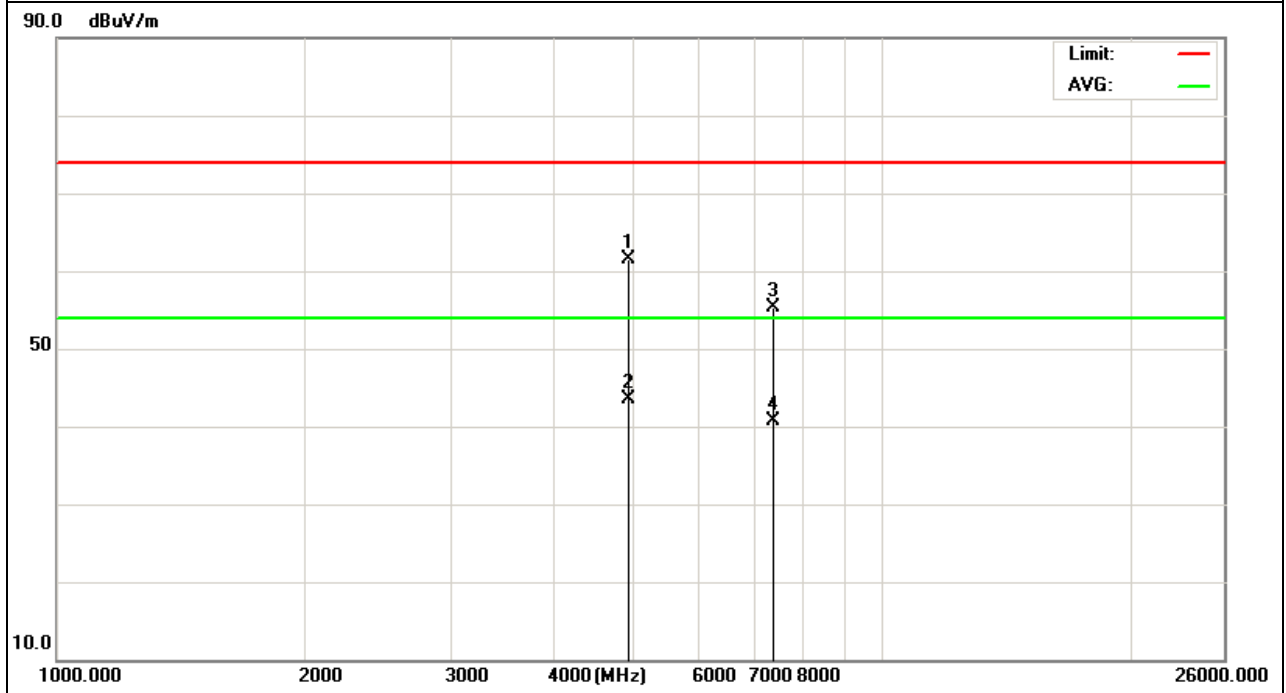
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH11 (802.11b Mode)/2462	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.143	51.2	10.39	61.59	74	-12.41	peak
4924.143	33.03	10.39	43.42	54	-10.58	AVG
7386.139	42.59	12.68	55.27	74	-18.73	peak
7386.139	28.02	12.68	40.7	54	-13.3	AVG

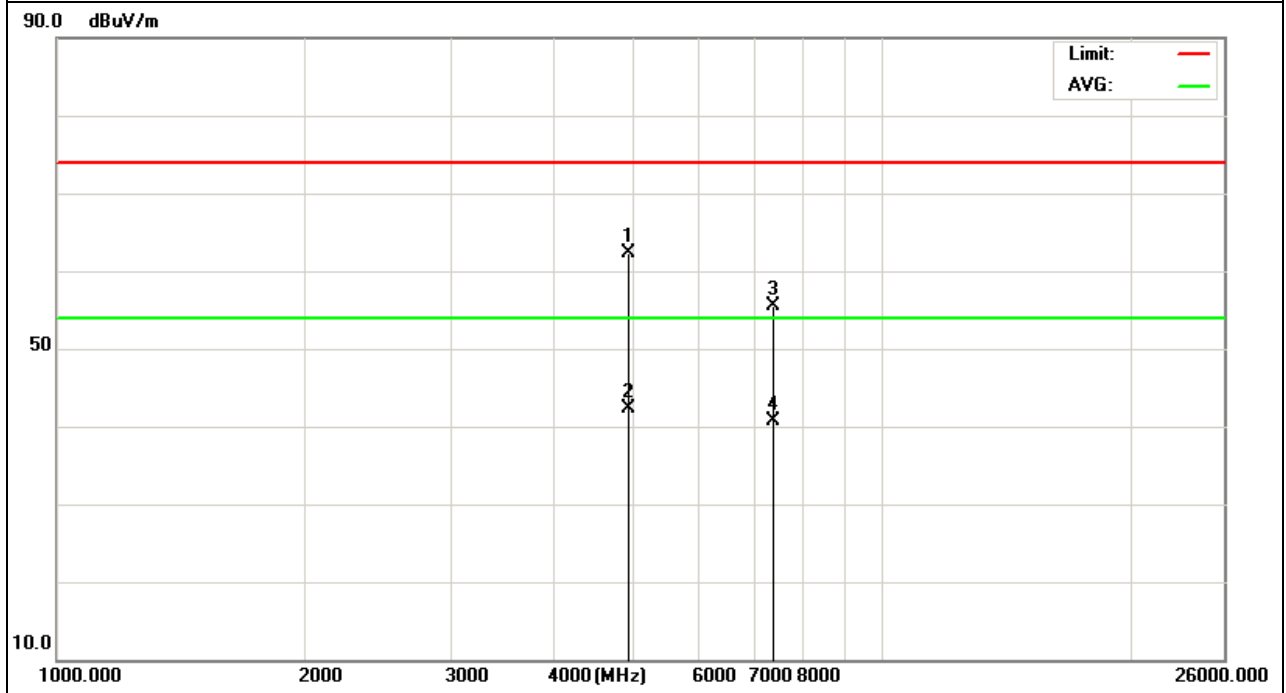
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH11 (802.11b Mode)/2462	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4924.119	51.82	10.39	62.21	74	-11.79	peak
4924.119	32.01	10.39	42.4	54	-11.6	AVG
7386.141	42.81	12.68	55.49	74	-18.51	peak
7386.141	28.09	12.68	40.77	54	-13.23	AVG

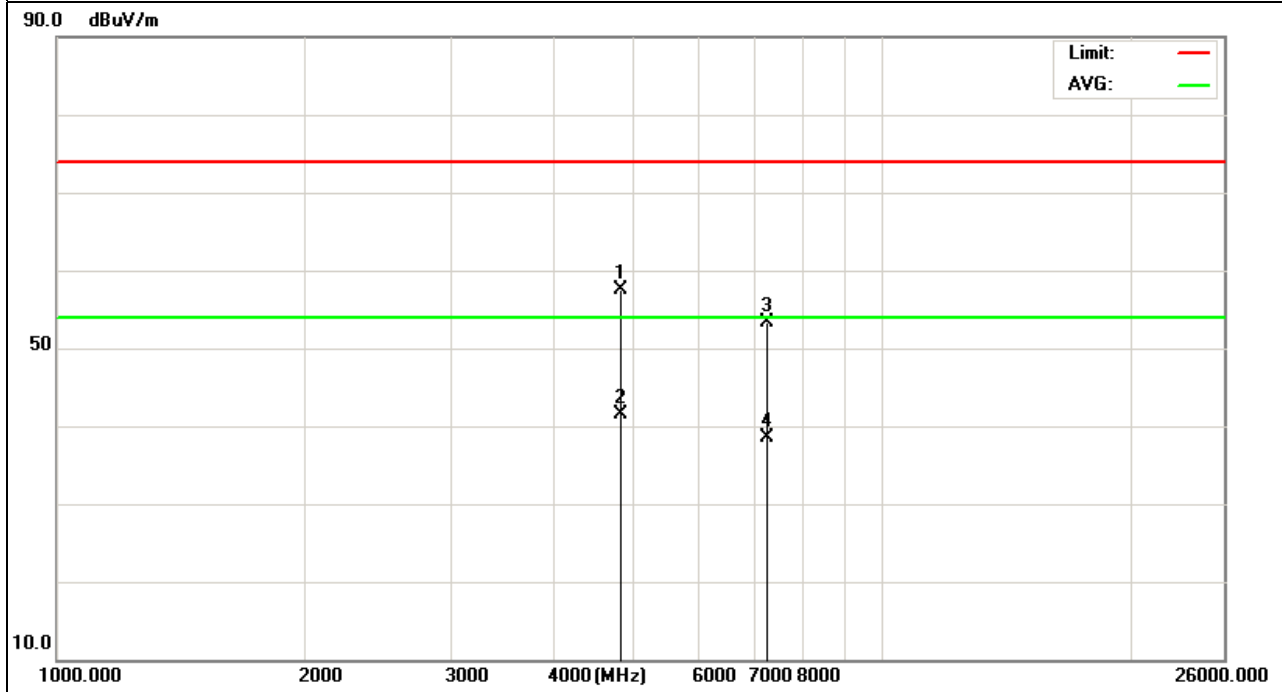
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1 (802.11g Mode)/2412	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4824.166	46.97	10.44	57.41	74	-16.59	peak
4824.166	31.15	10.44	41.59	54	-12.41	AVG
7236.22	40.89	12.39	53.28	74	-20.72	peak
7236.22	26.11	12.39	38.5	54	-15.5	AVG

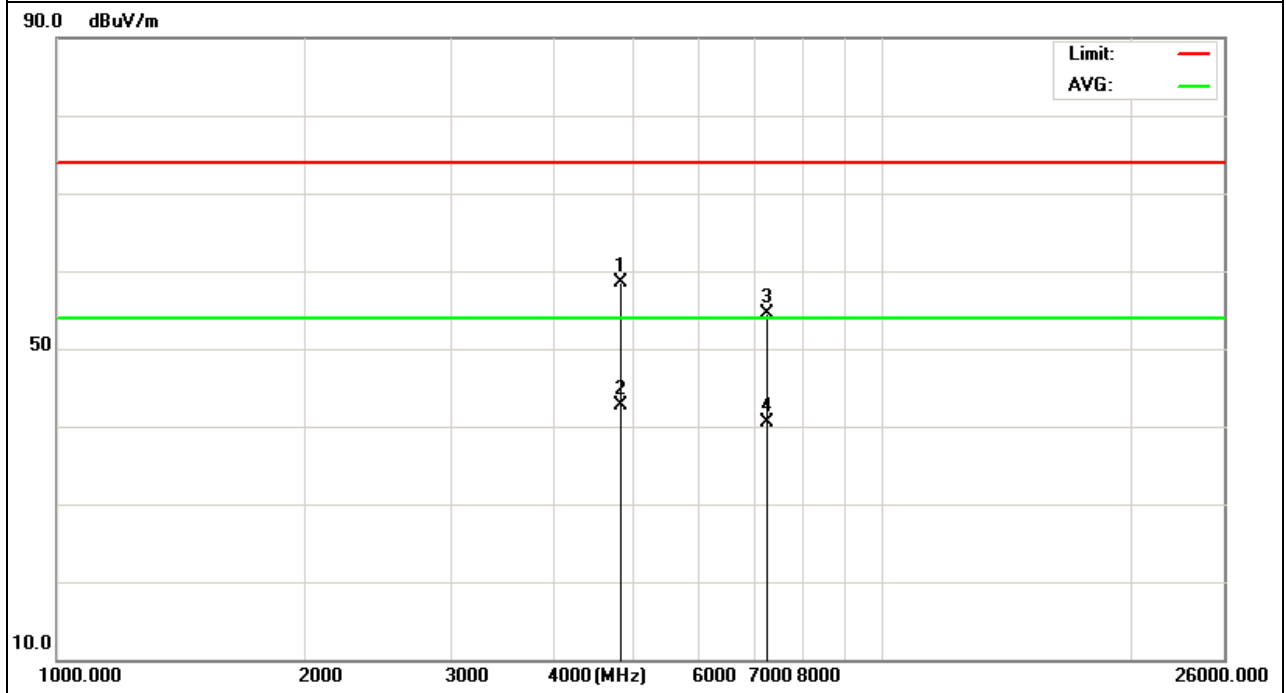
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1 (802.11g Mode)/2412	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4824.152	48.15	10.44	58.59	74	-15.41	peak
4824.152	32.22	10.44	42.66	54	-11.34	AVG
7236.136	42.07	12.39	54.46	74	-19.54	peak
7236.136	28.09	12.39	40.48	54	-13.52	AVG

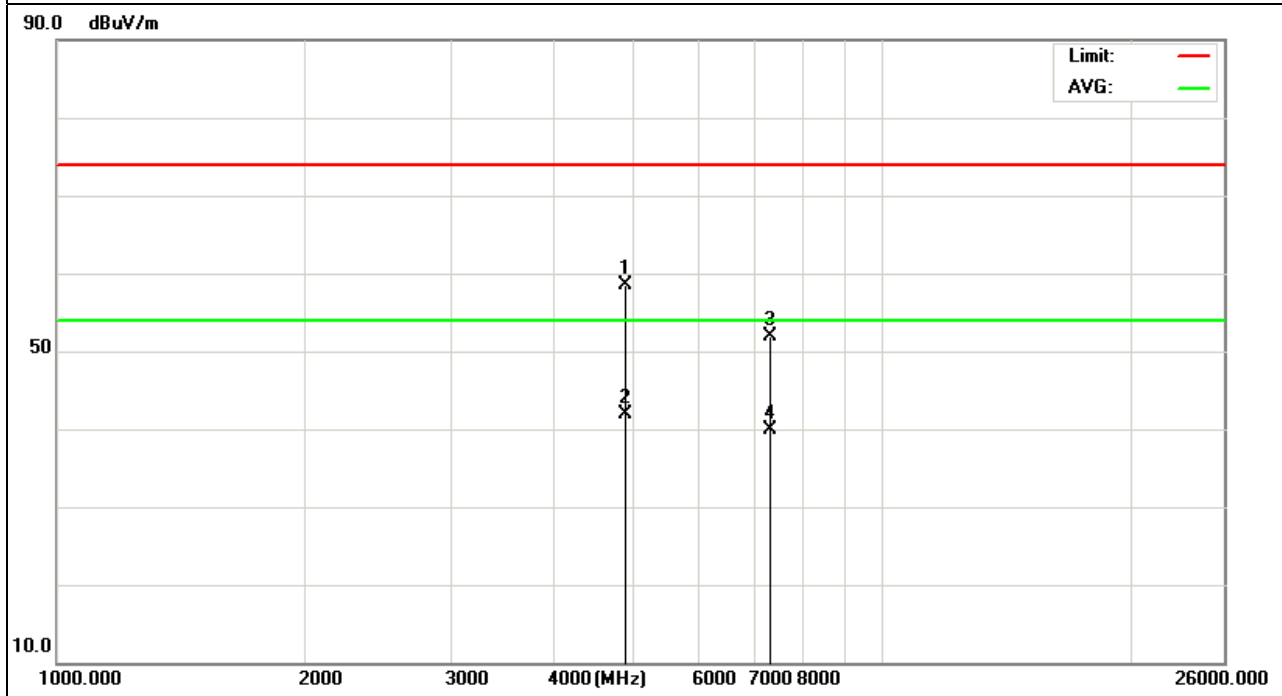
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH6 (802.11g Mode)/2437	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
4874.131	48.2	10.4	58.6	74	-15.4	peak
4874.131	31.41	10.4	41.81	54	-12.19	AVG
7311.169	39.13	12.75	51.88	74	-22.12	peak
7311.169	27.15	12.75	39.9	54	-14.1	AVG

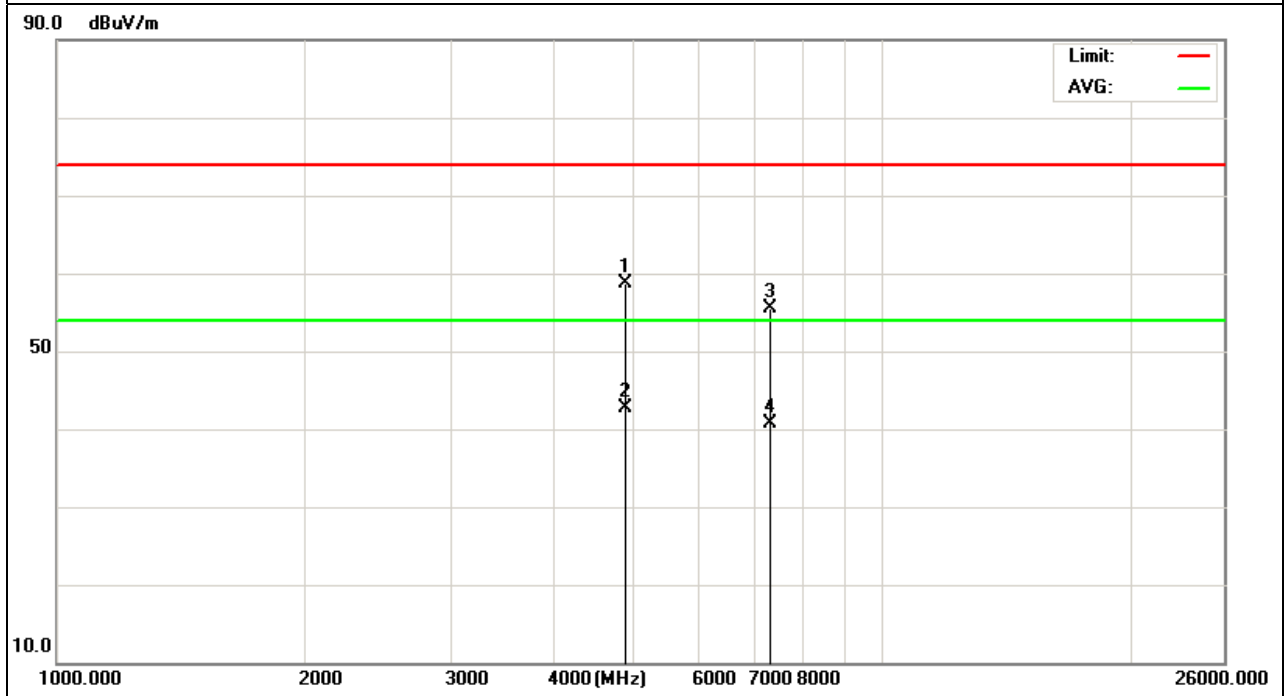
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH6 (802.11g Mode)/2437	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4874.165	48.36	10.4	58.76	74	-15.24	peak
4874.165	32.24	10.4	42.64	54	-11.36	AVG
7311.126	42.85	12.75	55.6	74	-18.4	peak
7311.126	27.91	12.75	40.66	54	-13.34	AVG

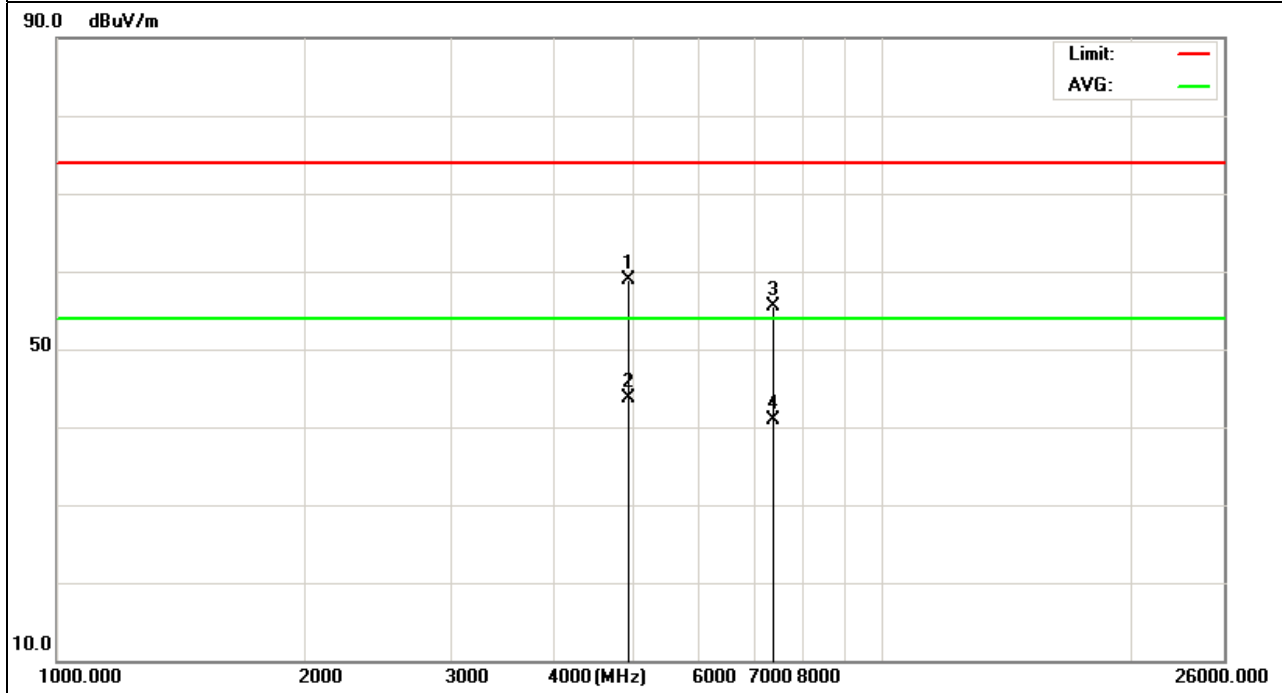
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH11 (802.11g Mode)/2462	Polarization :	Horizontal

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4924.135	48.45	10.39	58.84	74	-15.16	peak
4924.135	33.3	10.39	43.69	54	-10.31	AVG
7386.143	42.83	12.68	55.51	74	-18.49	peak
7386.143	28.2	12.68	40.88	54	-13.12	AVG

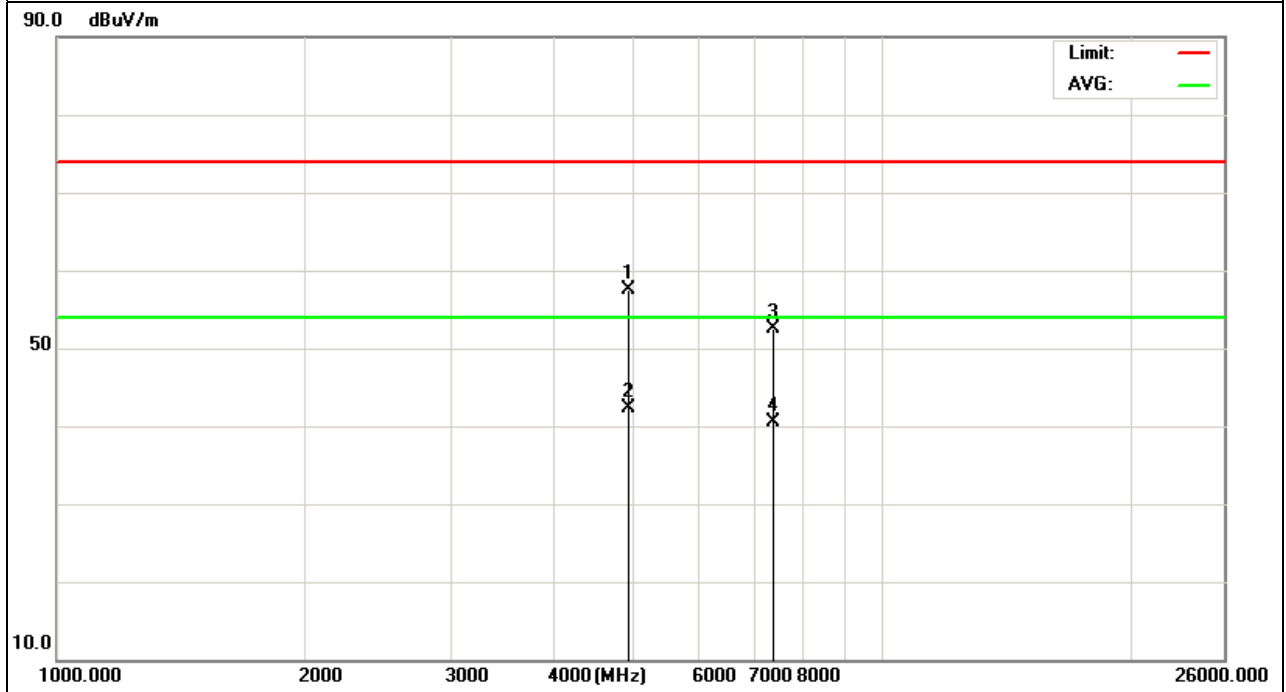
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH11(802.11g Mode)/2462	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Margin (dB)	Detector Type
4924.147	47.15	10.39	57.54	74	-16.46	peak
4924.147	32.01	10.39	42.4	54	-11.6	AVG
7386.126	39.87	12.68	52.55	74	-21.45	peak
7386.126	27.9	12.68	40.58	54	-13.42	AVG

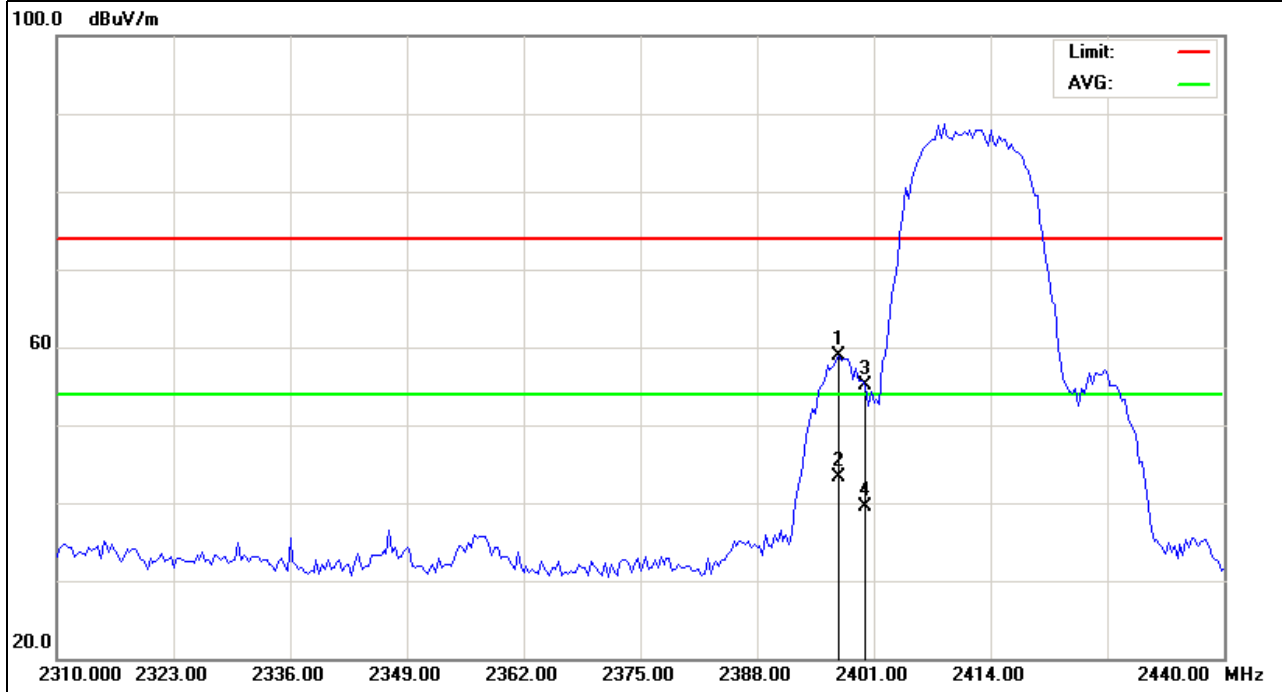
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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
2397.1	71.92	-13.02	58.9	74	-15.1	peak
2397.1	56.29	-13.02	43.27	54	-10.73	AV
2400	68.02	-12.99	55.03	74	-18.97	peak
2400	52.48	-12.99	39.49	54	-14.51	AV

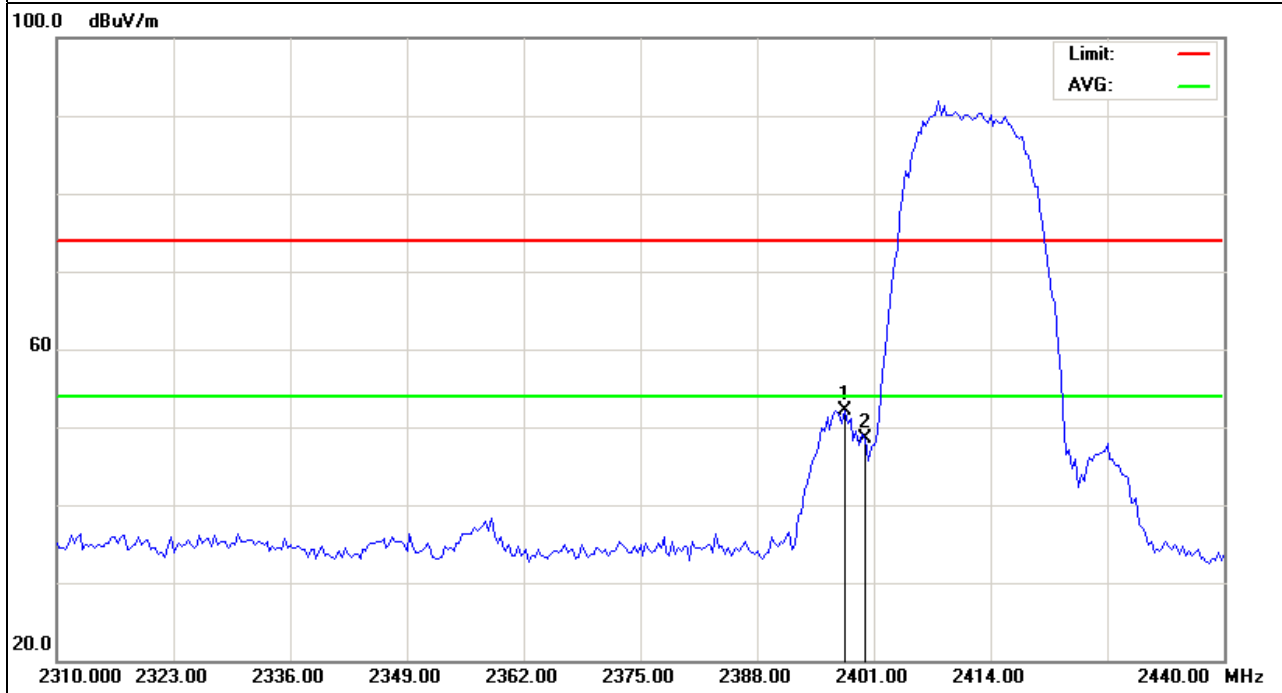
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1(802.11b Mode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2397.75	65.17	-13	52.17	74	-21.83	peak
2400	61.48	-12.99	48.49	74	-25.51	peak
2400	51.48	-12.99	38.49	54	-15.51	AV

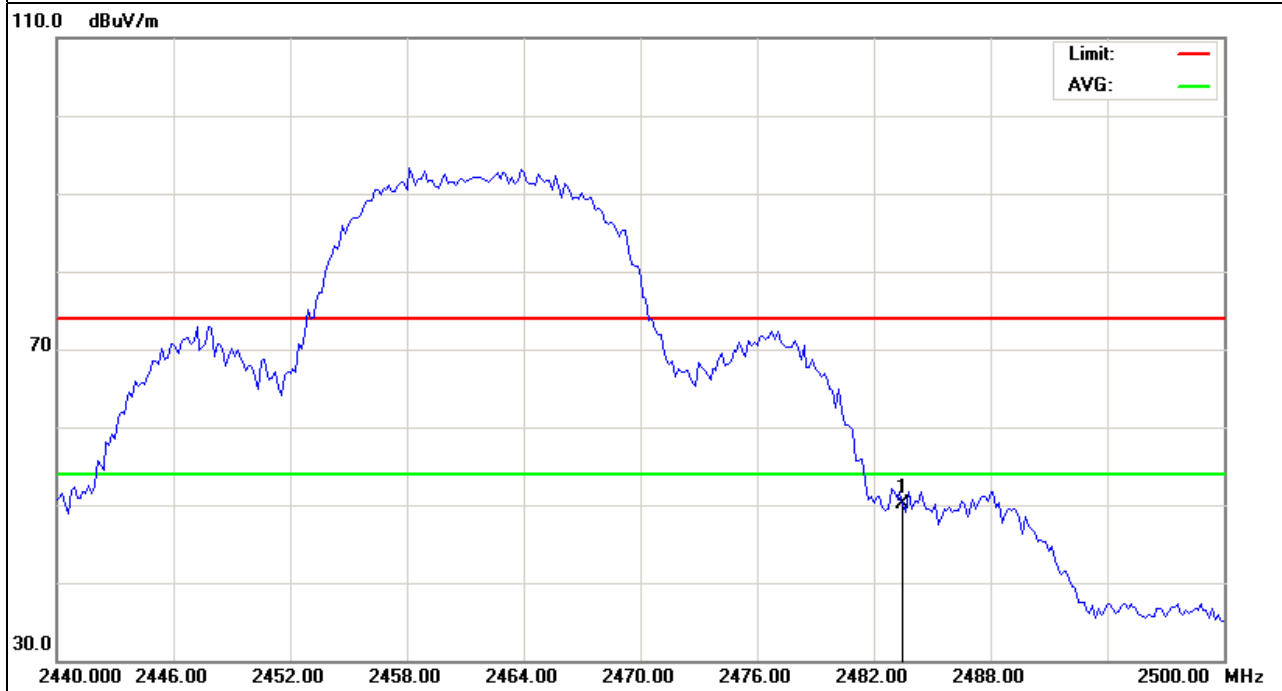
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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	62.79	-12.78	50.01	74	-23.99	peak

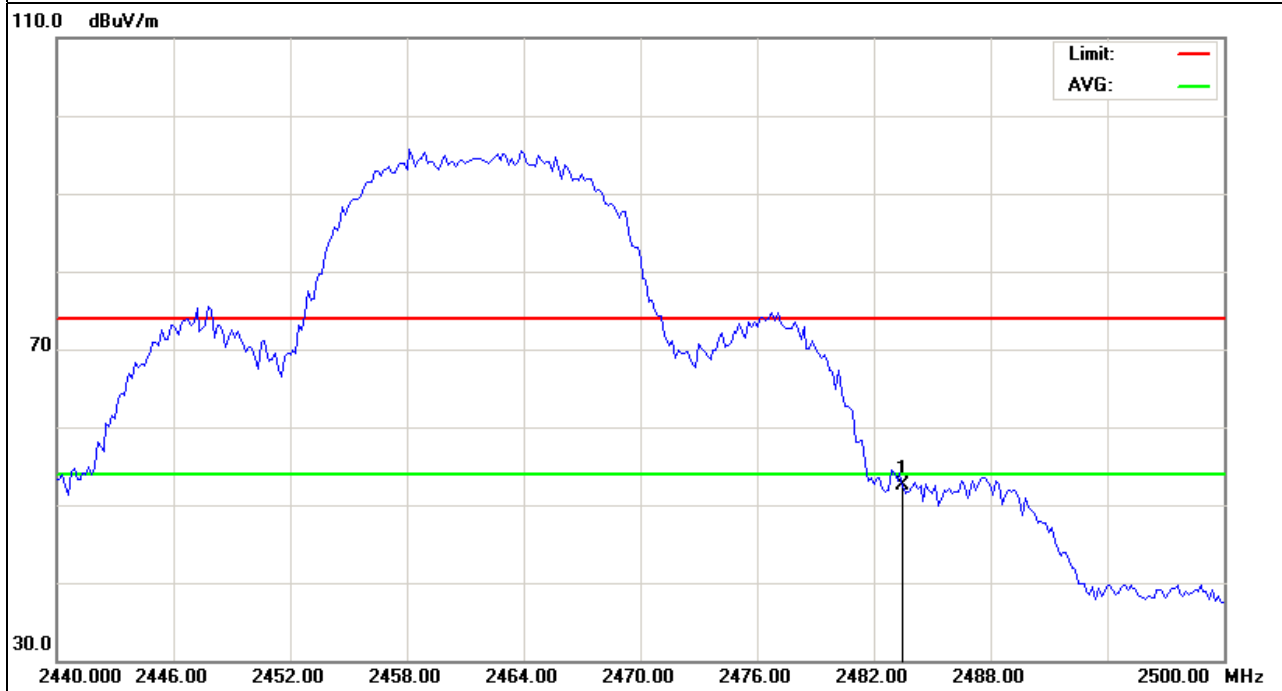
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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	65.2	-12.78	52.42	74	-21.58	peak

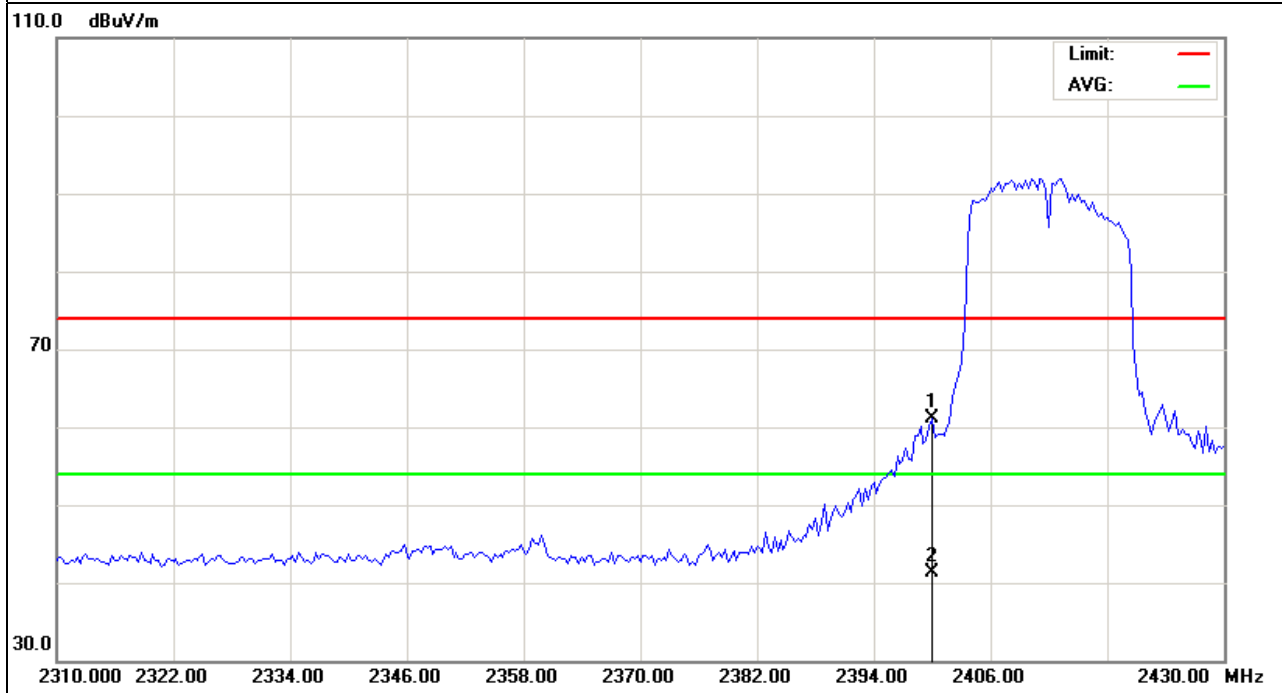
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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	74.13	-12.99	61.14	74	-12.86	peak
2400	54.26	-12.99	41.27	54	-12.73	AVG

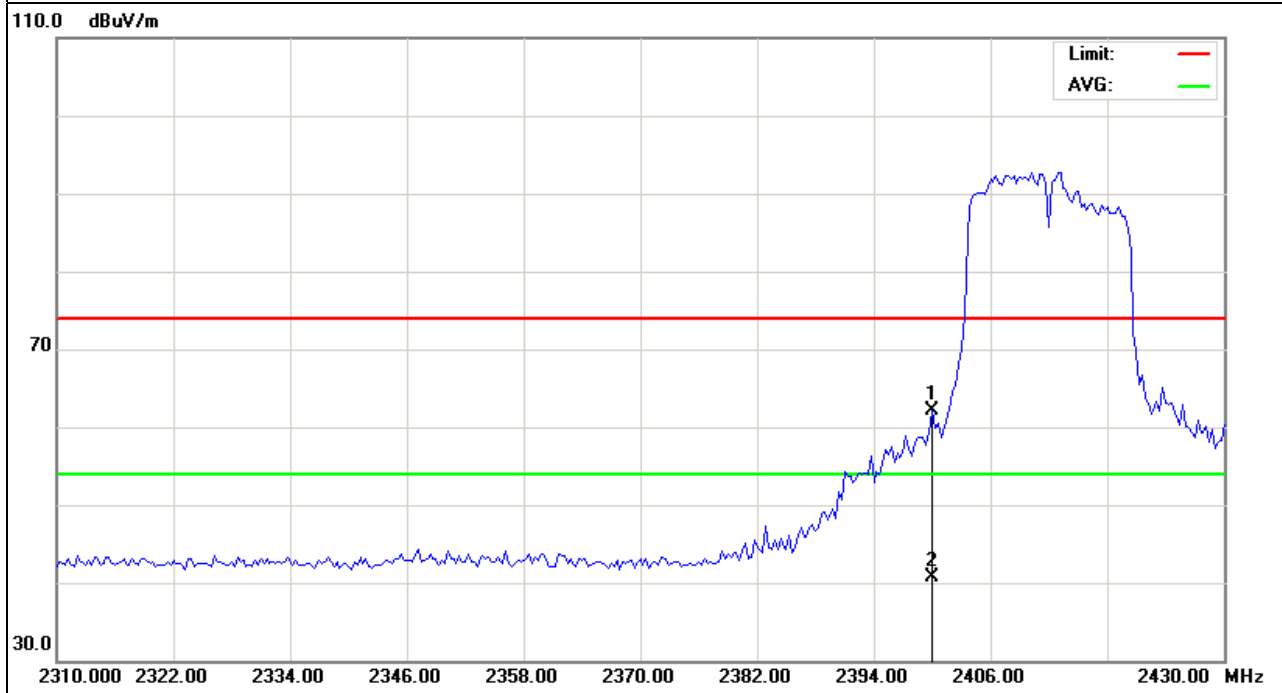
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
Test Mode :	CH1(802.11gMode)	Polarization :	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2400	75.06	-12.99	62.07	74	-11.93	peak
2400	53.74	-12.99	40.75	54	-13.25	AVG

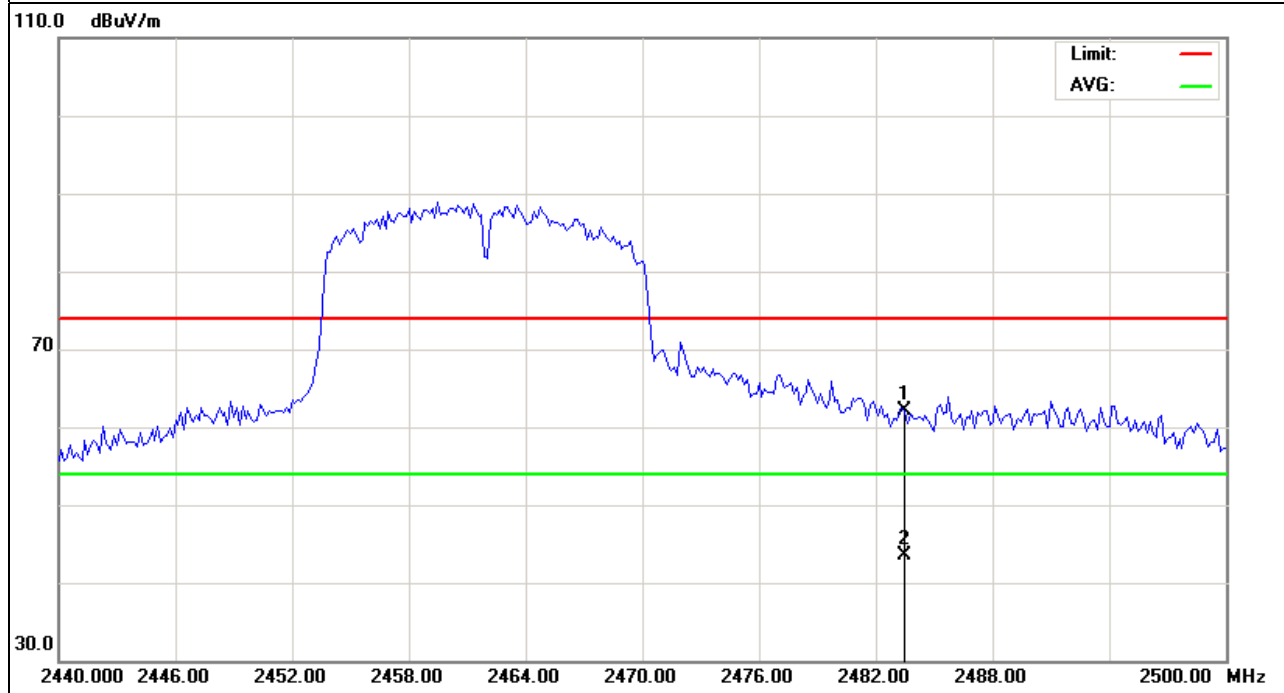
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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	74.96	-12.78	62.18	74	-11.82	peak
2483.5	56.3	-12.78	43.52	54	-10.48	AVG

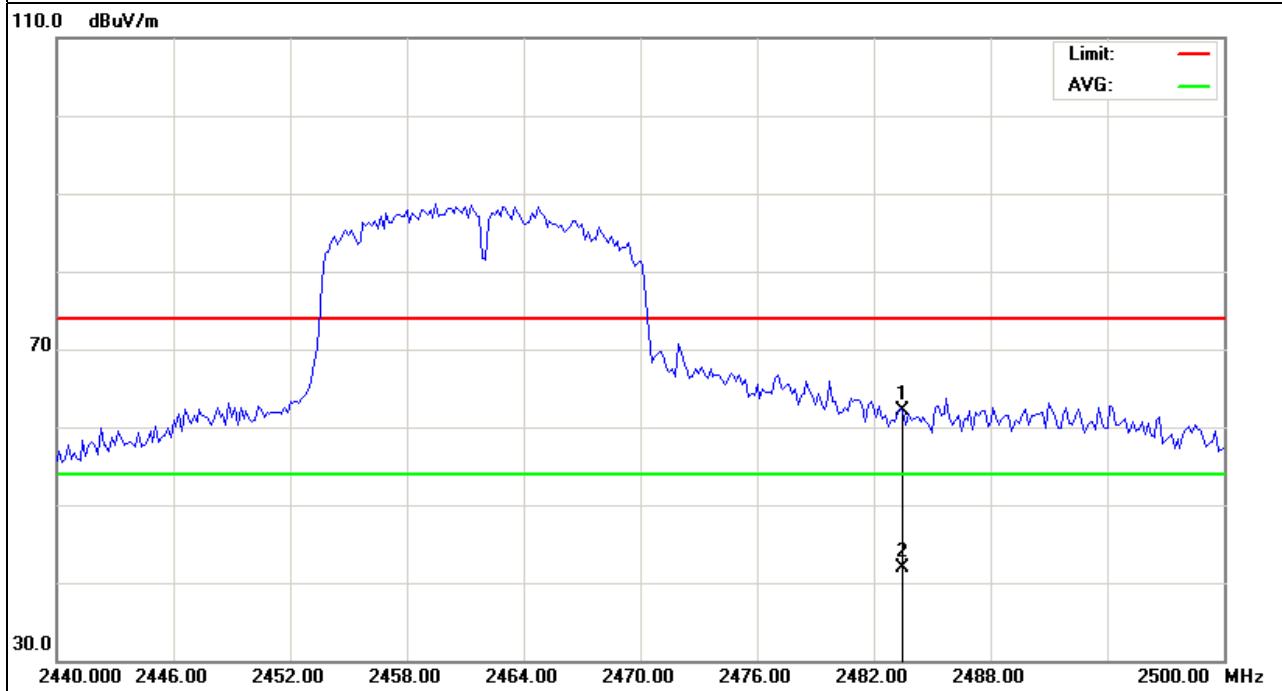
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 6.0V
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	74.85	-12.78	62.07	74	-11.93	peak
2483.5	54.69	-12.78	41.91	54	-12.09	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

4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW \geq 3 kHz.
4. Set the VBW \geq 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



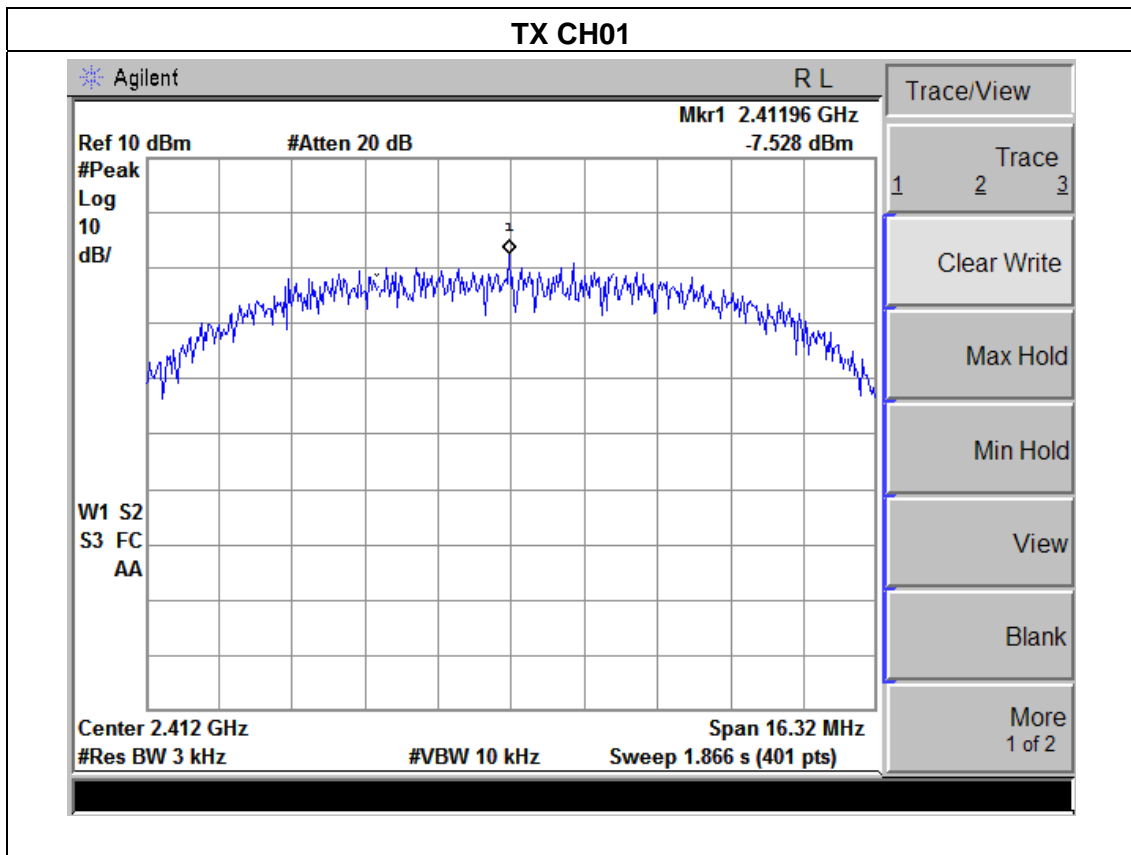
4.1.4 EUT OPERATION CONDITIONS

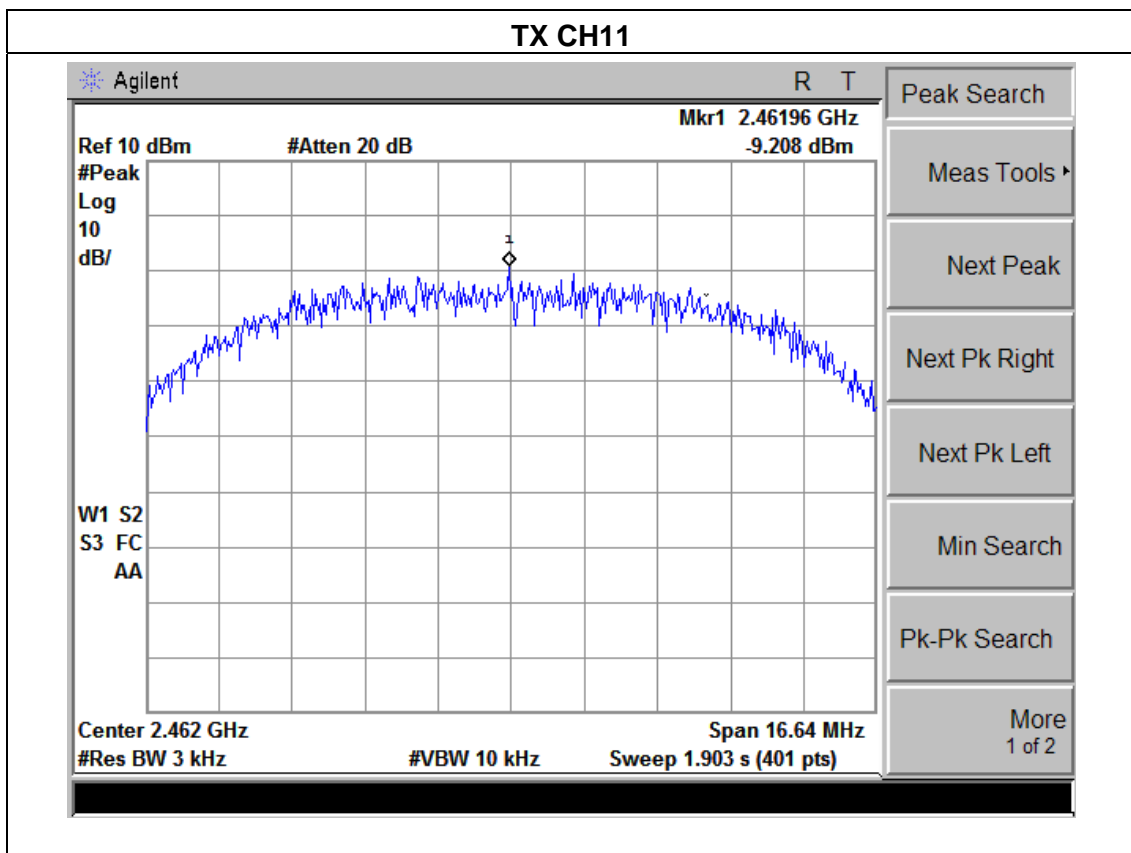
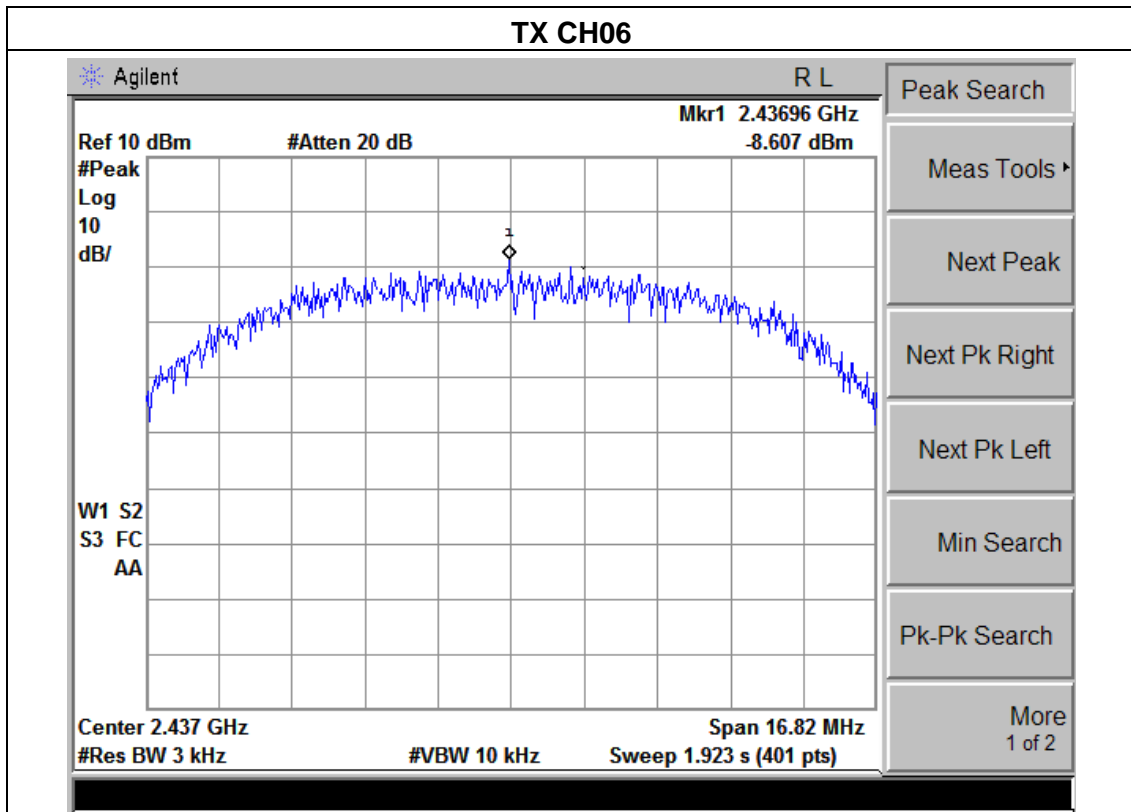
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX b Mode /CH01, CH06, CH11		

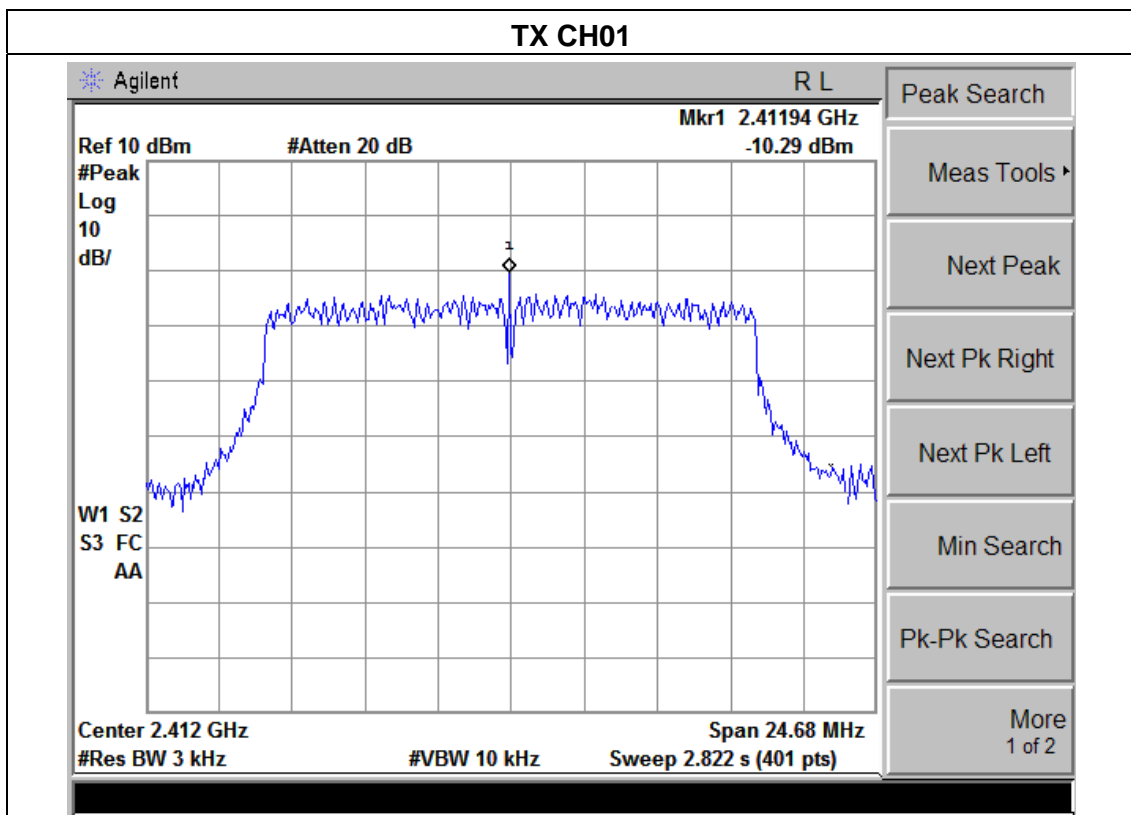
Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-7.53	8	PASS
2437 MHz	-8.61	8	PASS
2462 MHz	-9.21	8	PASS

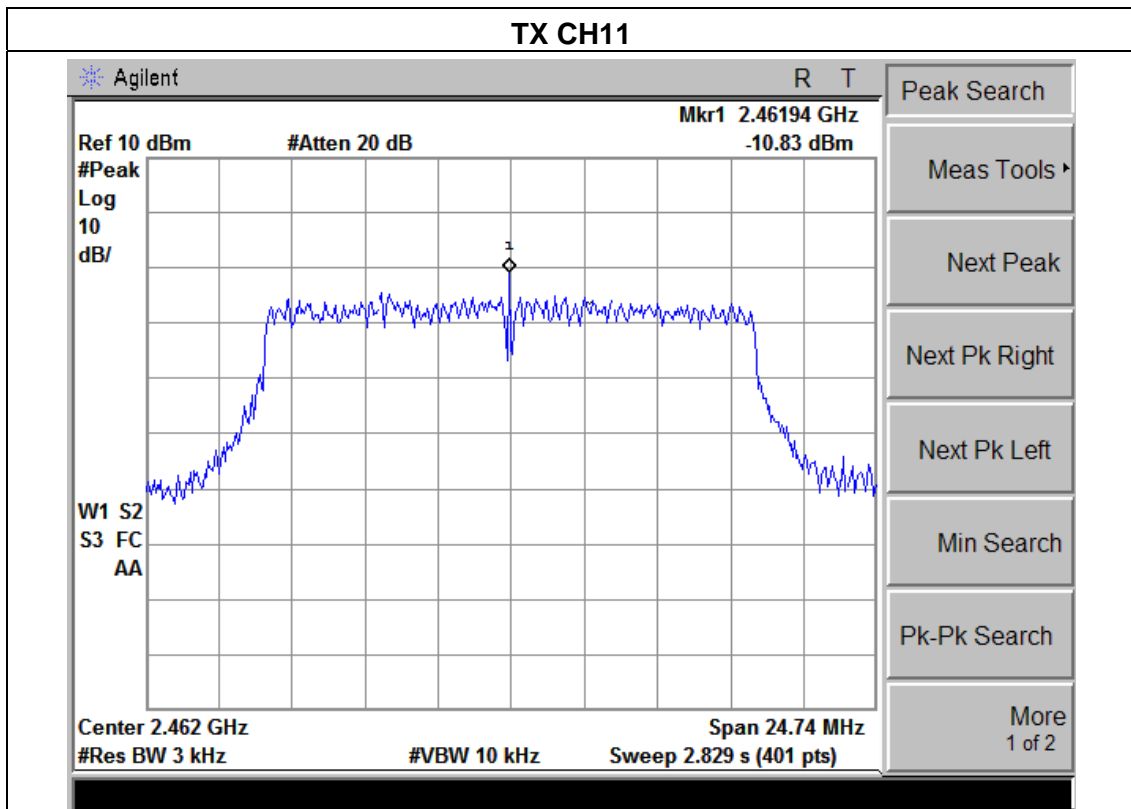
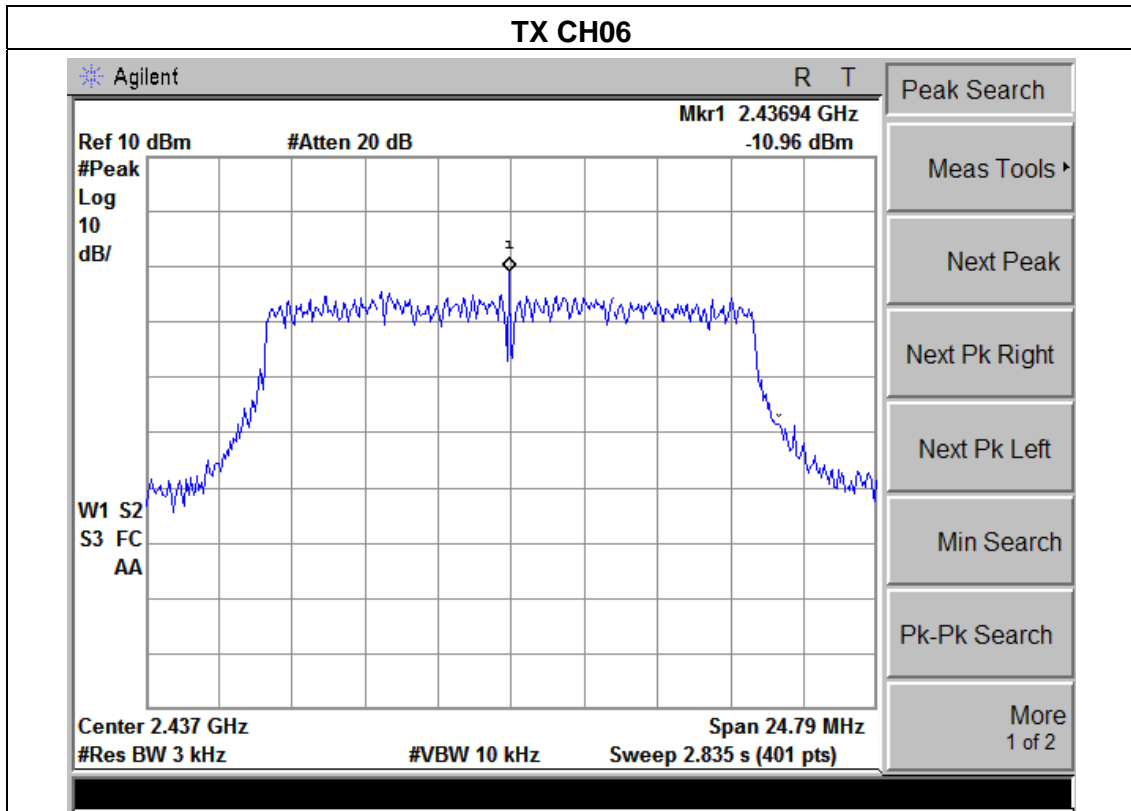




EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-10.29	8	PASS
2437 MHz	-10.96	8	PASS
2462 MHz	-10.83	8	PASS





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	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

5.1.1 TEST PROCEDURE

a.

1. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



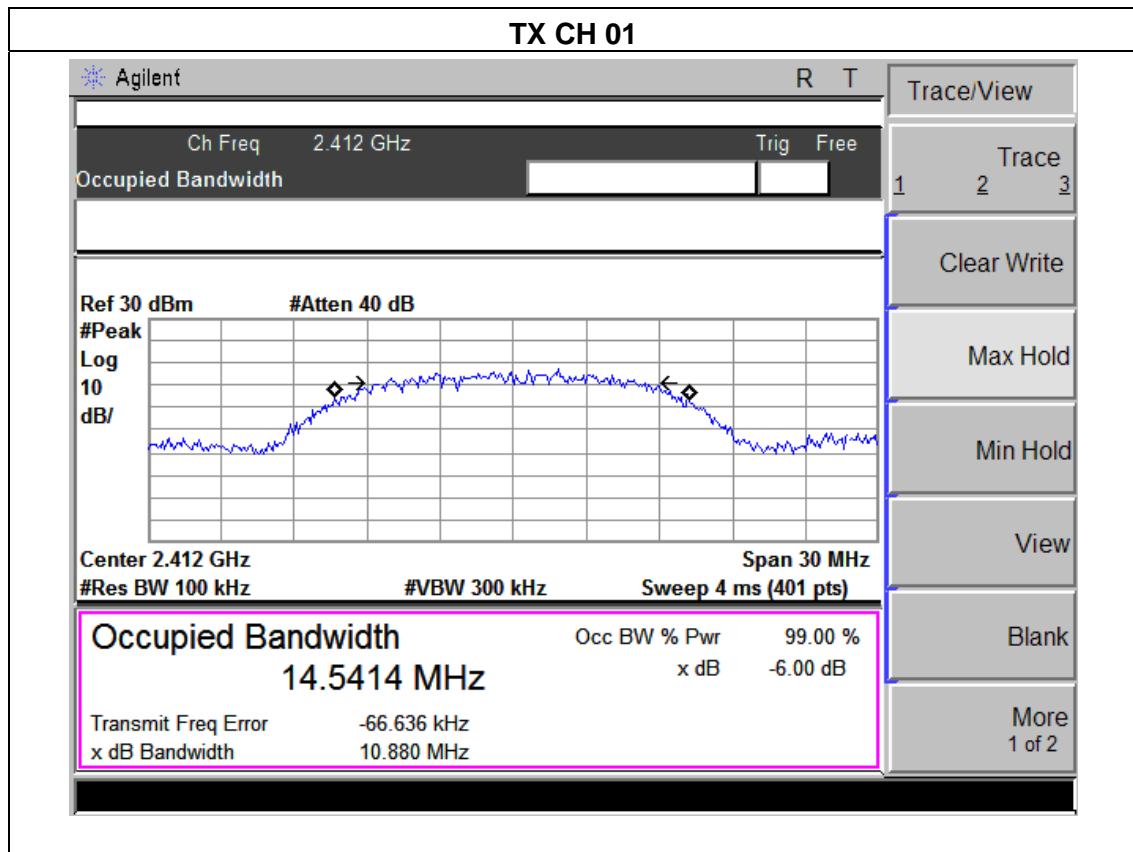
5.1.4 EUT OPERATION CONDITIONS

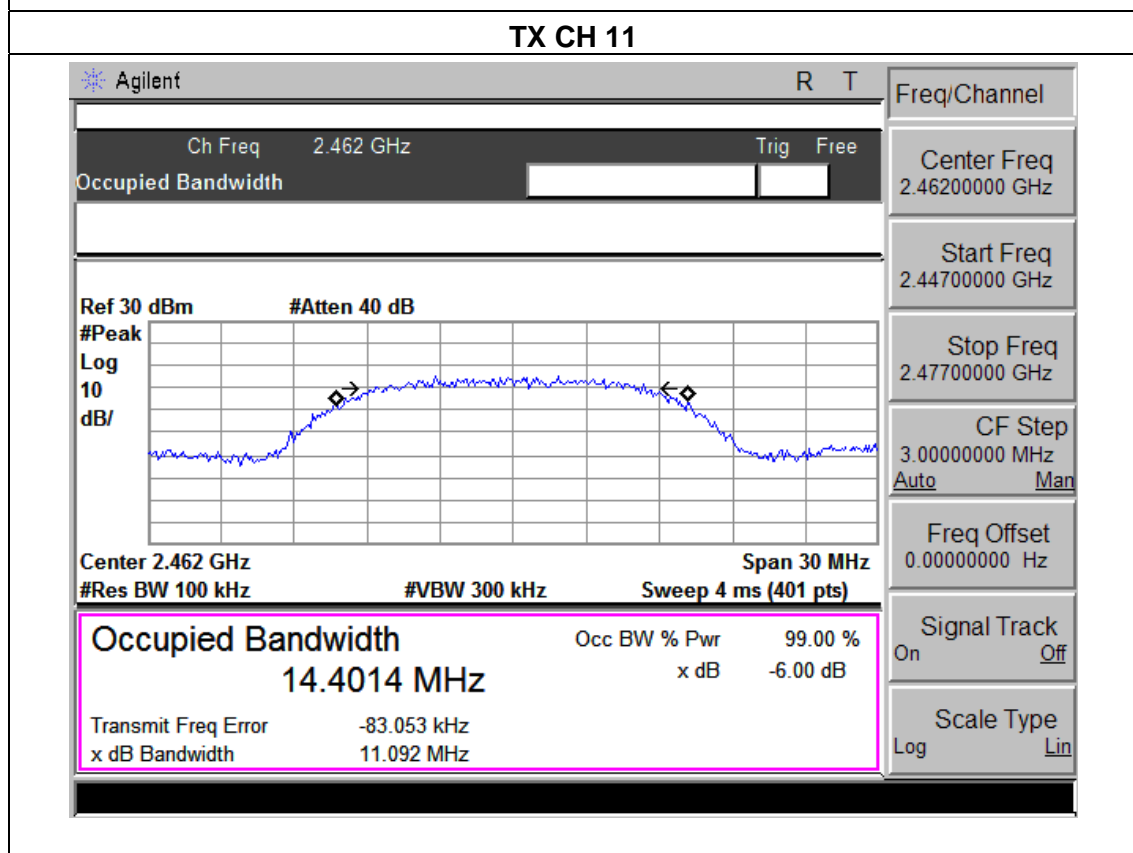
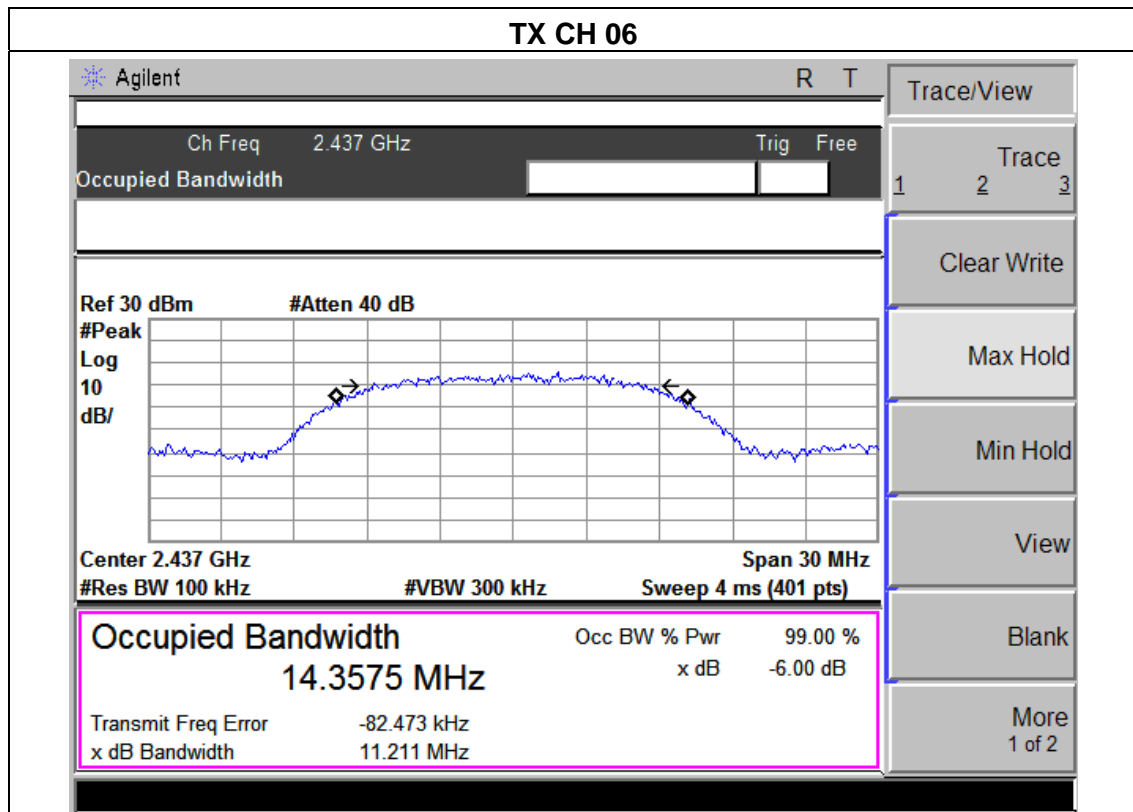
The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX b Mode /CH01, CH06, CH11		

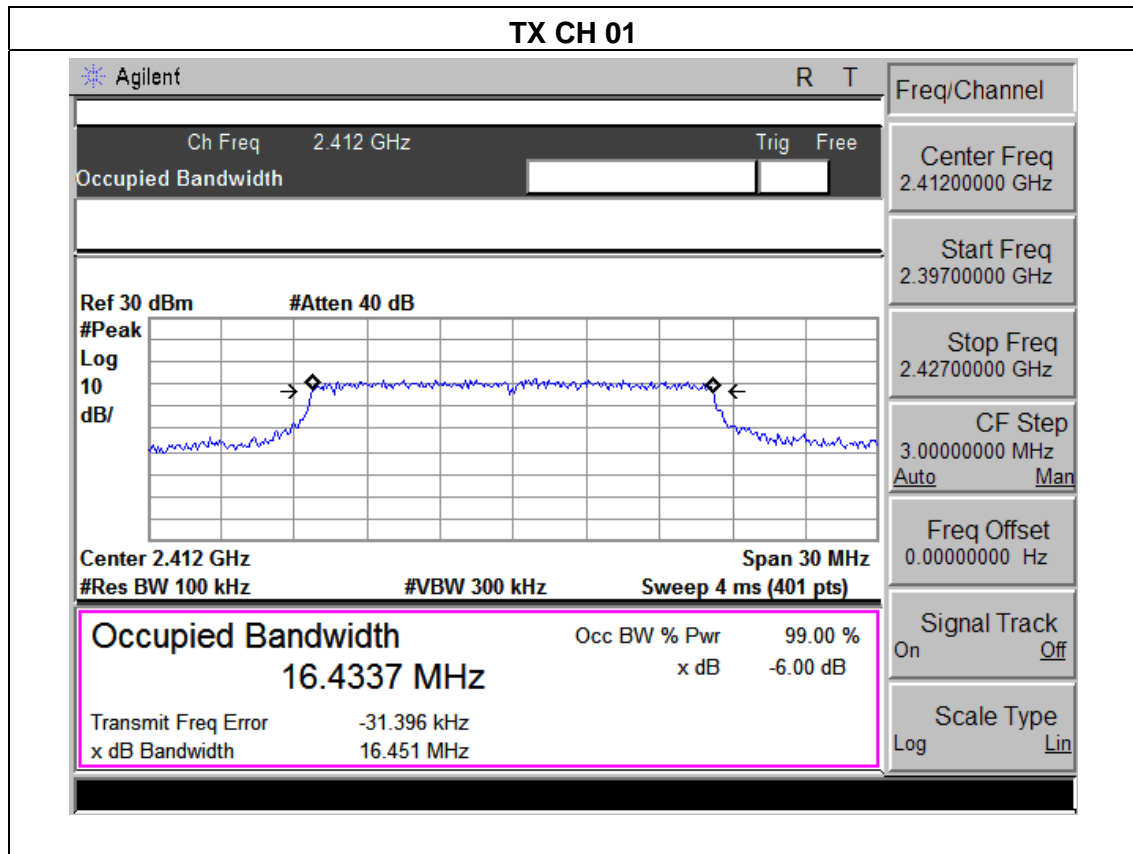
Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	10.88	14.54	>=500KHz	PASS
2437 MHz	11.21	14.36	>=500KHz	PASS
2462 MHz	11.09	14.40	>=500KHz	PASS

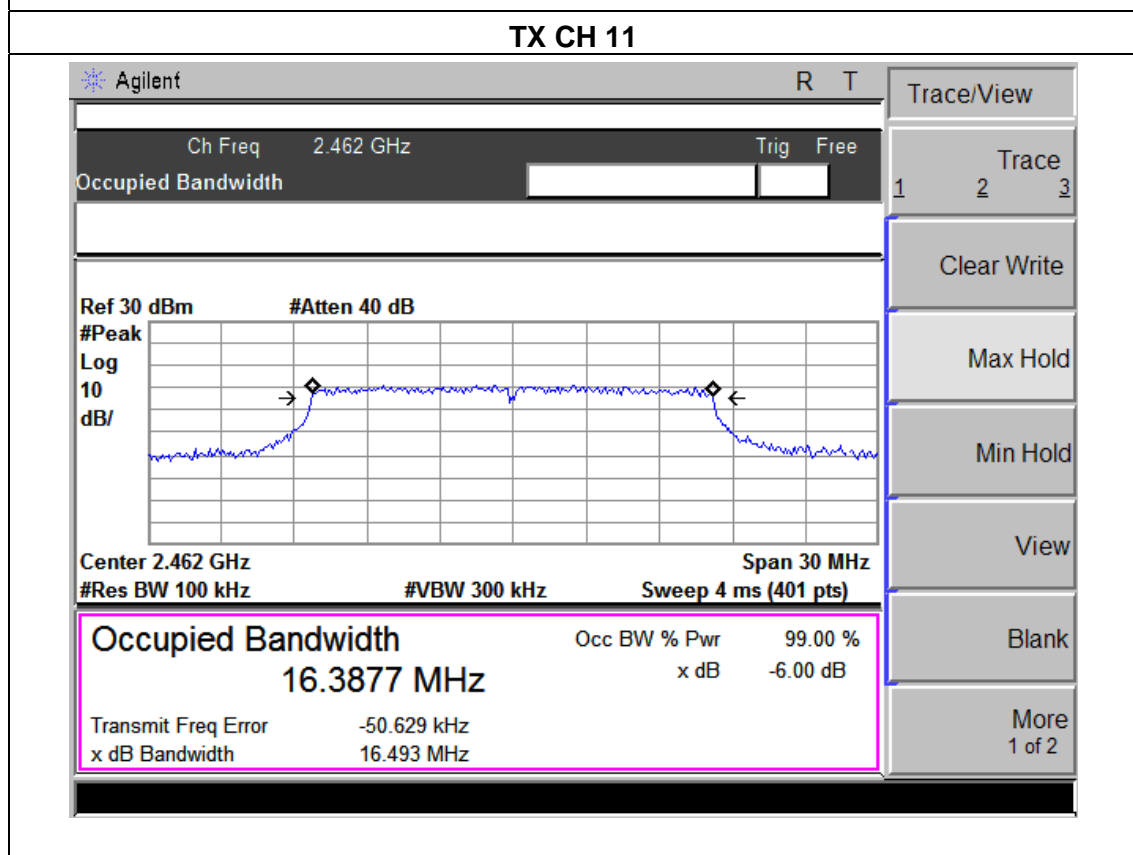
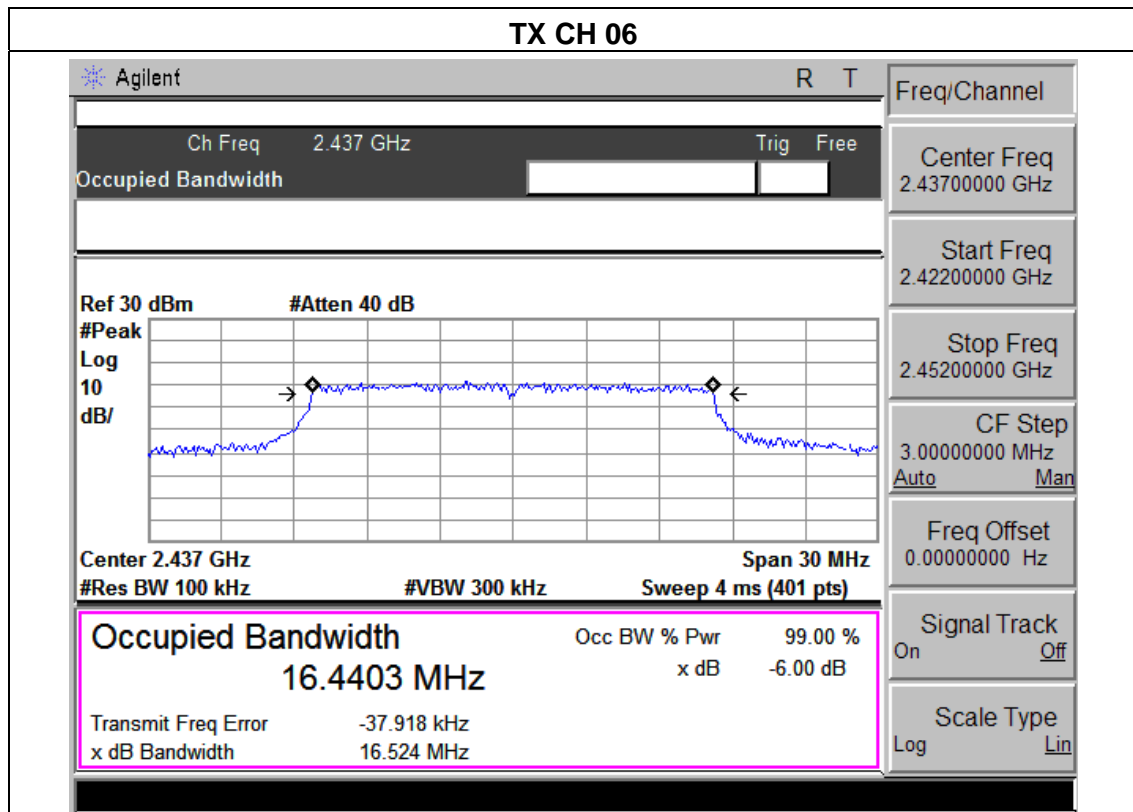




EUT :	Mine Phone	Model Name :	MP10-G2
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	6dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2412 MHz	16.45	16.43	>=500KHz	PASS
2437 MHz	16.52	16.44	>=500KHz	PASS
2462 MHz	16.49	16.39	>=500KHz	PASS





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)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter
Refer to 558074 D01 DTS Meas Guidance v02 Section 8.1.3 and 8.2.3

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 :	Mine Phone	Model Name :	MP10-G2
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 6.0V
Test Mode :	TX b/g (20M) Mode /CH01, CH06, CH11		

TX 802.11b Mode				
Test Channel	Frequency	Maximum Peak Conducted Output Power	Maximum Conducted Output Power(AV)	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH01	2412	12.85	9.71	30
CH06	2437	12.76	9.46	30
CH11	2462	12.68	9.52	30
TX 802.11g Mode				
CH01	2412	11.69	7.41	30
CH06	2437	11.54	7.35	30
CH11	2462	11.63	7.29	30

7. ANTENNA REQUIREMENT

7.1 STANDARD REQUIREMENT

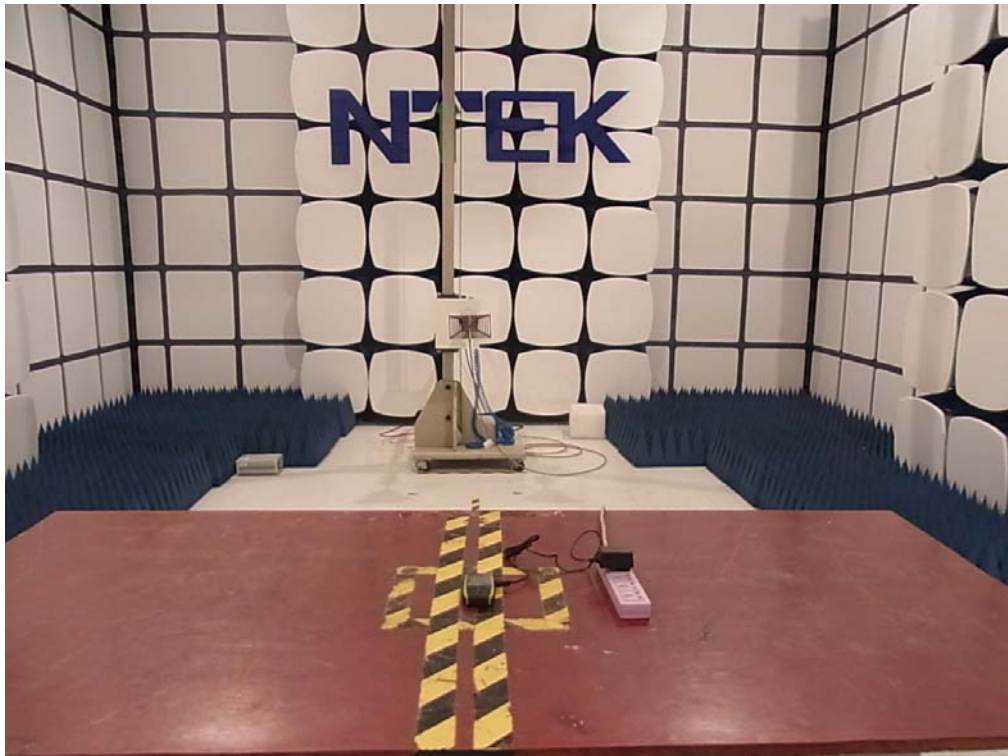
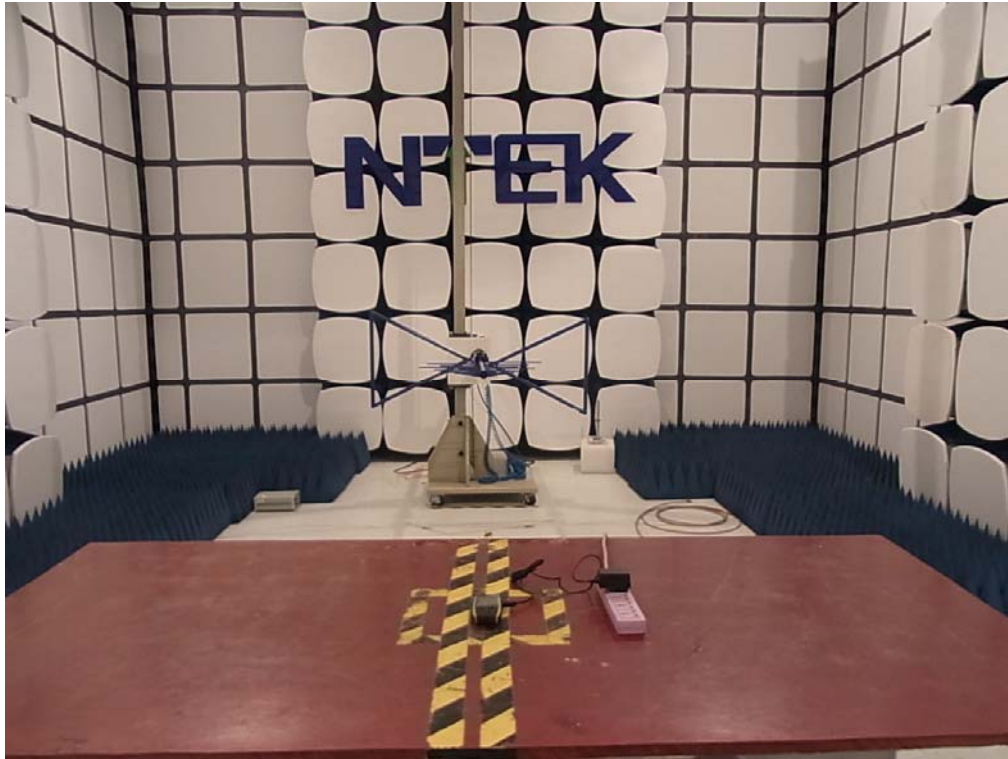
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2 EUT ANTENNA

The EUT antenna is Integrated antenna. It comply with the standard requirement.

8. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos

