



# Bluetooth Radio Test Report

## FCC ID: XHM-P2230000

This report concerns (check one) :  Original Grant  Class I Change

Issued Date : Sep. 03, 2010  
Project No. : R1003005  
Equipment : Handheld Terminal  
Model Name : P223

Applicant : FLYTECH TECHNOLOGY CO., LTD.  
Address : 1F, No. 168, Sing-Ai Rd., NeiHu District  
114, Taipei, Taiwan

Tested by: Neutron Engineering Inc. EMC Laboratory  
Date of Receipt: Mar. 31, 2010  
Date of Test: Mar. 31, 2010 ~ Jun. 23, 2010

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For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.



<b>Table of Contents</b>	<b>Page</b>
<b>1 . CERTIFICATION</b>	<b>6</b>
<b>2 . SUMMARY OF TEST RESULTS</b>	<b>7</b>
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
<b>3 . GENERAL INFORMATION</b>	<b>9</b>
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	12
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	13
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	14
3.5 DESCRIPTION OF SUPPORT UNITS	15
<b>4 . EMC EMISSION TEST</b>	<b>16</b>
4.1 CONDUCTED EMISSION MEASUREMENT	16
4.1.1 POWER LINE CONDUCTED EMISSION	16
4.1.2 MEASUREMENT INSTRUMENTS LIST	16
4.1.3 TEST PROCEDURE	17
4.1.4 DEVIATION FROM TEST STANDARD	17
4.1.5 TEST SETUP	17
4.1.6 EUT OPERATING CONDITIONS	18
4.1.7 TEST RESULTS	19
4.2 RADIATED EMISSION MEASUREMENT	21
4.2.1 RADIATED EMISSION LIMITS	21
4.2.2 MEASUREMENT INSTRUMENTS LIST AND SETTING	22
4.2.3 TEST PROCEDURE	23
4.2.4 DEVIATION FROM TEST STANDARD	23
4.2.5 TEST SETUP	24
4.2.6 EUT OPERATING CONDITIONS	24
4.2.7 TEST RESULTS-BETWEEN 30MHZ - 1000MHZ	25
4.2.8 TEST RESULTS-ABOVE 1000 MHZ	29
4.2.9 TEST RESULTS-RESTRICTED BANDS REQUIREMENTS	77
<b>5 . NUMBER OF HOPPING CHANNEL</b>	<b>93</b>
5.1 APPLIED PROCEDURES / LIMIT	93
5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	93
5.1.2 TEST PROCEDURE	93
5.1.3 DEVIATION FROM STANDARD	93
5.1.4 TEST SETUP	93
5.1.5 EUT OPERATION CONDITIONS	93



<b>Table of Contents</b>	<b>Page</b>
5.1.6 TEST RESULTS	94
<b>6 . AVERAGE TIME OF OCCUPANCY</b>	<b>98</b>
6.1 APPLIED PROCEDURES / LIMIT	98
6.1.1 MEASUREMENT INSTRUMENTS LIST	98
6.1.2 TEST PROCEDURE	98
6.1.3 DEVIATION FROM STANDARD	98
6.1.4 TEST SETUP	99
6.1.5 EUT OPERATION CONDITIONS	99
6.1.6 TEST RESULTS	100
<b>7 . HOPPING CHANNEL SEPARATION MEASUREMENT</b>	<b>124</b>
7.1 APPLIED PROCEDURES / LIMIT	124
7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	124
7.1.2 TEST PROCEDURE	124
7.1.3 DEVIATION FROM STANDARD	124
7.1.4 TEST SETUP	124
7.1.5 EUT OPERATION CONDITIONS	124
7.1.6 TEST RESULTS	125
<b>8 . BANDWITH TEST</b>	<b>133</b>
8.1 APPLIED PROCEDURES / LIMIT	133
8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	133
8.1.2 TEST PROCEDURE	133
8.1.3 DEVIATION FROM STANDARD	133
8.1.4 TEST SETUP	133
8.1.5 EUT OPERATION CONDITIONS	133
8.1.6 TEST RESULTS	134
<b>9 . PEAK OUTPUT POWER TEST</b>	<b>142</b>
9.1 APPLIED PROCEDURES / LIMIT	142
9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	142
9.1.2 TEST PROCEDURE	142
9.1.3 DEVIATION FROM STANDARD	142
9.1.4 TEST SETUP	142
9.1.5 EUT OPERATION CONDITIONS	142
9.1.6 TEST RESULTS	143
<b>10 . ANTENNA CONDUCTED SPURIOUS EMISSION</b>	<b>151</b>
10.1 APPLIED PROCEDURES / LIMIT	151
10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	151
10.1.2 TEST PROCEDURE	151
10.1.3 DEVIATION FROM STANDARD	151
10.1.4 TEST SETUP	152



<b>Table of Contents</b>	<b>Page</b>
10.1.5 EUT OPERATION CONDITIONS	152
10.1.6 TEST RESULTS	153
11 . EUT TEST PHOTO	169



## 1. CERTIFICATION

Equipment : Handheld Terminal  
Brand Name : FLYTECH  
Model Name : P223  
Applicant : FLYTECH TECHNOLOGY CO., LTD.  
Date of Test : Mar. 31, 2010 ~ Jun. 23, 2010  
Standards : FCC Part15, Subpart C / ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-R1003005) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).



**2. SUMMARY OF TEST RESULTS**

Test procedures according to the technical standards:

<b>FCC Part15, Subpart C</b>			
<b>Standard Section</b>	<b>Test Item</b>	<b>Judgment</b>	<b>Remark</b>
<b>15.207</b>	Conducted Emission	PASS	
<b>15.247 (c)</b>	Antenna conducted Spurious Emission	PASS	
<b>15.247 (a)(1)</b>	Hopping Channel Separation	PASS	
<b>15.247 (b)</b>	Peak Output Power	PASS	
<b>15.247 (c)</b>	Radiated Spurious Emission	PASS	
<b>15.247 (b)(1)</b>	Number of Hopping Frequency	PASS	
<b>15.247 (a)(1)</b>	Dwell Time	PASS	
<b>15.205</b>	Restricted Bands	PASS	
<b>15.203</b>	Antenna Requirement	PASS	
<b>1.1307 1.1310 2.1091 2.1093</b>	RF Exposure Compliance	N/A	<b>NOTE(2)</b>

**NOTE:**

- (1) "N/A" denotes test is not applicable in this Test Report.
- (2) Portable device; SAR report is required.



**2.1 TEST FACILITY**

The test facilities used to collect the test data in this report is(are):

C01(EMI) - at the location of No.132-1, Lane 329, Sec. 2, Palian Road, Shijr City, Taipei, Taiwan.

CB08(FCC R.N.: 614388) - at the location of 1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

**2.2 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 %**.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Other Measurement :

Test Site	Item	Measurement Frequency Range	Uncertainty	NOTE
CB08	Conducted Emission	Power Cable	< 30MHz	2.59 dB
	Radiated Emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB
			200 - 1000MHz	3.11 dB
			1 - 18GHz	3.97 dB
			18 - 40GHz	4.01 dB
		Vertical Polarization	30 - 200MHz	3.22 dB
			200 - 1000MHz	3.24 dB
			1 - 18GHz	4.05 dB
			18 - 40GHz	4.04 dB
	Frequency Error Measurement	1	2.412GHz	290.00 Hz
		2	5.805GHz	724.30 Hz
	Output Power (Conducted)	-	2.412GHz	1.3 dB
		-	5.805GHz	1.55 dB
	Output Power (Radiated)	Horizontal Polarization	2.412GHz	4.21 dB
			5.805GHz	4.62 dB
		Vertical Polarization	2.412GHz	4.42 dB
			5.805GHz	4.74 dB
	Power Spectral Density	Conducted	2.412GHz	1.3 dB
			5.805GHz	1.67 dB
	Adjacent Channel Power Measurement (Radiated)	Horizontal Polarization	30 - 167MHz	4.22 dB
167 - 500MHz			3.44 dB	
500 - 1000MHz			3.39 dB	
Vertical Polarization		30 - 180MHz	3.37 dB	
		180 - 417MHz	3.19 dB	
		417 - 1000MHz	3.19 dB	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our  $U_{lab}$  values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called  $U_{CISPR}$ , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our  $U_{lab}$  values are smaller than  $U_{CISPR}$ .





**3. GENERAL INFORMATION**

**3.1 GENERAL DESCRIPTION OF EUT**

Equipment	Handheld Terminal															
Brand Name	FLYTECH															
Model Name	P223															
OEM Brand/Model Name	N/A															
<b>Model Difference</b>	The EUT has two kinds of samples. Both samples are based on similar electrical circuit except the difference of list below:															
	Sample	Bluetooth Antenna Type														
	Sample 1	Antenna is built inside an External Card Reader.														
	Sample 2	Antenna is built in the main part without an External Card Reader.														
	*Details please refer to the User's Manual.															
Both samples were used for final testing and collecting test data included in this report.																
<b>Product Description</b>	The EUT is a Handheld Terminal.															
	Bluetooth:															
	Operation Frequency:	2402~2480 MHz														
	Modulation Type:	GFSK/DQPSK/8DPSK														
	Bit Rate of Transmitter:	721K/1Mbps/3Mbps														
	Number Of Channel:	79 please refer to Note 2.														
	Output Power:	<table border="1"> <thead> <tr> <th>Sample</th> <th>Bit Rate</th> <th>dBm (Max.)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">1</td> <td>1Mbps</td> <td>-1.43</td> </tr> <tr> <td>3Mbps</td> <td>1.54</td> </tr> <tr> <td rowspan="2">2</td> <td>1Mbps</td> <td>-1.43</td> </tr> <tr> <td>3Mbps</td> <td>1.54</td> </tr> </tbody> </table>		Sample	Bit Rate	dBm (Max.)	1	1Mbps	-1.43	3Mbps	1.54	2	1Mbps	-1.43	3Mbps	1.54
	Sample	Bit Rate	dBm (Max.)													
	1	1Mbps	-1.43													
		3Mbps	1.54													
2	1Mbps	-1.43														
	3Mbps	1.54														
Antenna Designation:	Please see Note 3.															
Antenna Gain(Peak):	Please see Note 3.															
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.																



Power Source	Rechargeable battery supplied. (Charged by AC ADAPTER.)
Power Rating	Please refer to <b>Products Covered</b> .
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	1* Motherboard: FLYTECH B24 1 * CPU: Marvell XScale270 1 * Main Display (3.5" LCD PANEL): SHARP LQ035Q1DG04 1 * Bluetooth Module: DELTA DFBM-CS320 1 * Wireless LAN Module (b/g): USI WM-G-MR-09 1 * Rechargeable battery: FORMOSA 1 * Cradle 1 * AC ADAPTER (optional): (1) EDAC EA1015A-2E; EDAC EA1015A-2L; EDAC EA1015A-2U I/P: AC 100-240V 1.0A 50-60Hz / O/P: DC 5.0V 2.0A (2) CWT CAP011051 I/P: AC 100-240V 47-63Hz 0.35A / O/P: DC 5.0V 2.2A
EUT Modification(s)	N/A

Note:

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2422	40	2442	60	2462
01	2403	21	2423	41	2443	61	2463
02	2404	22	2424	42	2444	62	2464
03	2405	23	2425	43	2445	63	2465
04	2406	24	2426	44	2446	64	2466
05	2407	25	2427	45	2447	65	2467
06	2408	26	2428	46	2448	66	2468
07	2409	27	2429	47	2449	67	2469
08	2410	28	2430	48	2450	68	2470
09	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		



3. Antenna List:

Antenna	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
Wireless LAN	foxconn	N/A	PIFA	I-PEX	2.05
Bluetooth (Sample 1)	foxconn	N/A	PCB	I-PEX	3.60
Bluetooth (Sample 2)	foxconn	N/A	PIFA	I-PEX	-0.03



**3.2 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 Test Mode	Description
Mode 1	Sample 1_1Mbps_CH00/CH39/CH78
Mode 2	Sample 1_3Mbps_CH00/CH39/CH78
Mode 3	Sample 2_1Mbps_CH00/CH39/CH78
Mode 4	Sample 2_3Mbps_CH00/CH39/CH78

<b>For Conducted Test</b>	
Final Test Mode	Description
Mode 1	POS223 (WITH CARD READER) / CHARGE (ADAPTER : EA1015A-2U)

<b>For Radiated Emission</b>	
Final Test Mode	Description
Mode 1	Sample 1_1Mbps_CH00/CH39/CH78
Mode 2	Sample 1_3Mbps_CH00/CH39/CH78
Mode 3	Sample 2_1Mbps_CH00/CH39/CH78
Mode 4	Sample 2_3Mbps_CH00/CH39/CH78

**Note:**

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis. The worst case was found positioned on Y-plane. Therefore only the test data of this Y-plane was used for radiated emission measurement test.  
Test data of Charge mode was used for conduction emission measurement test.



**3.3 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 FHSS

EUT	Sample 1		
Data Rate	1 Mbps		
Test software Version	Bluetooth_test		
Frequency (MHz)	2402 MHz	2441 MHz	2480 MHz
Power Parameters	50	50	50

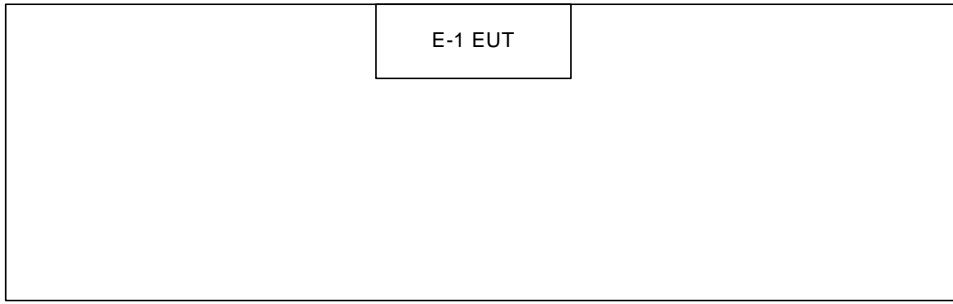
EUT	Sample 1		
Data Rate	3 Mbps		
Test software Version	Bluetooth_test		
Frequency (MHz)	2402 MHz	2441 MHz	2480 MHz
Power Parameters	120	120	120

EUT	Sample 2		
Data Rate	1 Mbps		
Test software Version	Bluetooth_test		
Frequency (MHz)	2402 MHz	2441 MHz	2480 MHz
Power Parameters	50	50	50

EUT	Sample 2		
Data Rate	3 Mbps		
Test software Version	Bluetooth_test		
Frequency (MHz)	2402 MHz	2441 MHz	2480 MHz
Power Parameters	120	120	120



**3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED**





**3.5 DESCRIPTION OF SUPPORT UNITS**

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.	FCC ID	Series No.	Note
E-1	Handheld Terminal	FLYTECH	P223	XHM-P2230000	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	-	-	-	

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.



**4. EMC EMISSION TEST**

**4.1 CONDUCTED EMISSION MEASUREMENT**

**4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)**

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

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.

**4.1.2 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00042991	Feb. 7, 2011
2	Test Cable	TIMES	LMR-400	SR03_C_01&02	Aug. 19, 2010
3	Pulse Limiter	Electro-Metrics	EM-7600	112644	Dec. 27, 2010
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 16, 2011

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.



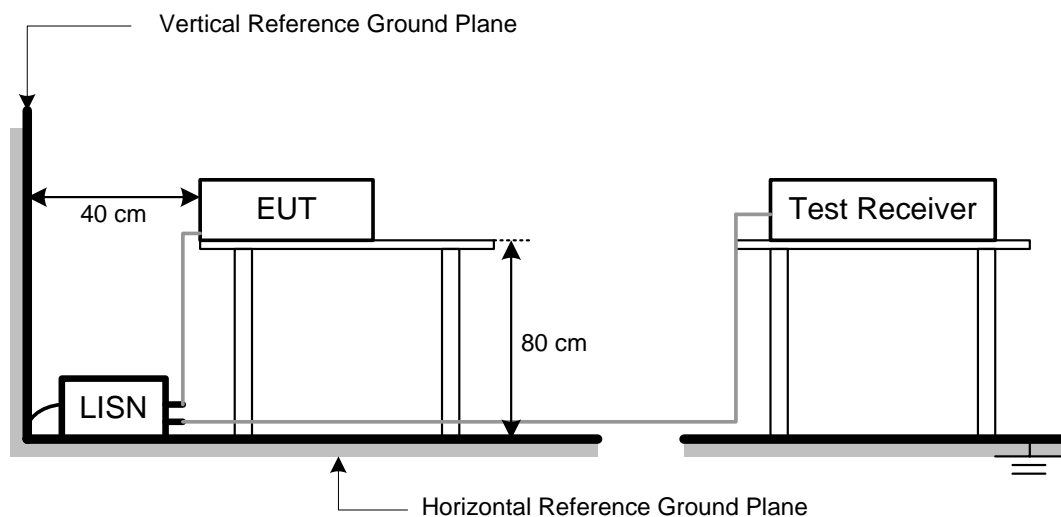
#### 4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 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.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP





#### **4.1.6 EUT OPERATING CONDITIONS**

The EUT exercise program (EMC.exe) used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The program contained on a PC hard disk and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read (write) from (to) mass storage device (Disk).
2. Send "H" pattern to video port device (Monitor).
3. Send " H " pattern to parallel port device (Printer).
4. Send " H " pattern to serial port device (Modem).
5. Repeated from 2 to 4 continuously.

As the keyboard and mouse are strictly input devices, no data is transmitted to (from) them during test. They are, however, continuously scanned for data input activity.



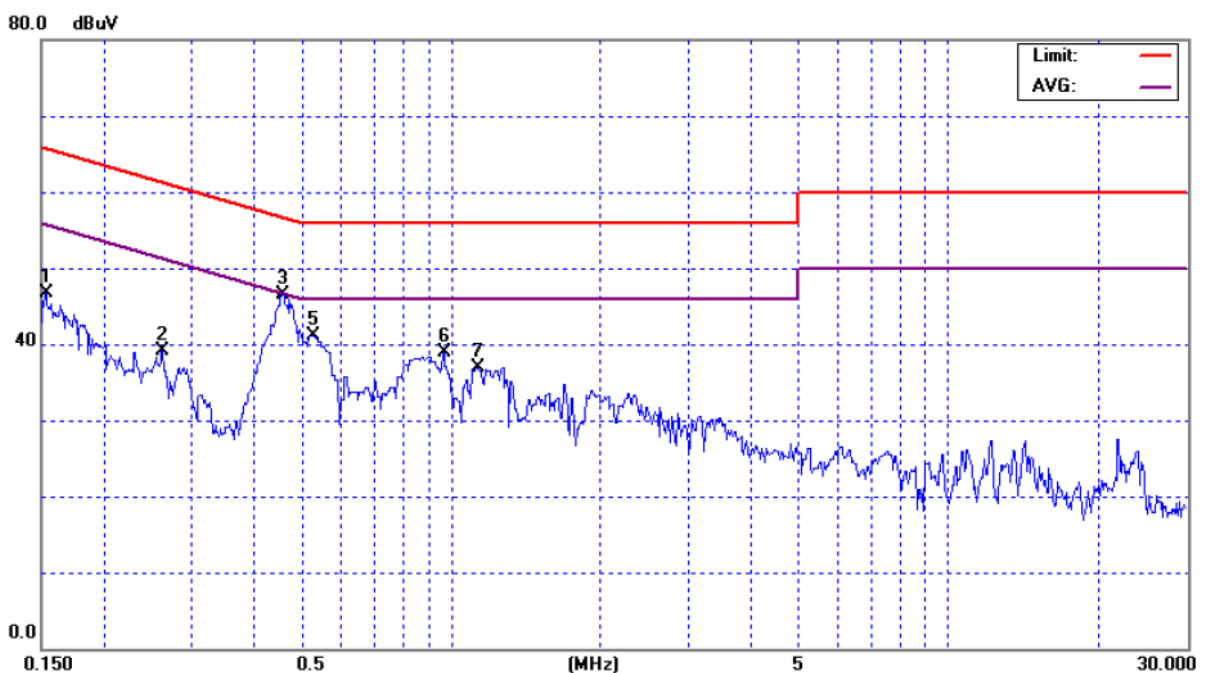
4.1.7 TEST RESULTS

E.U.T :	Handheld Terminal	Model Name :	P223
Temperature :	24 ° C	Relative Humidity :	48%
Test Voltage :	AC 120V/60Hz		
Test Mode :	POS223 (WITH CARD READER) / CHARGE (ADAPTER : EA1015A-2U)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Line	46.61	*	65.85	55.85	-19.24	(QP)
0.26	Line	39.09	*	61.37	51.37	-22.28	(QP)
0.46	Line	46.60	29.61	56.74	46.74	-10.14	(QP)
0.53	Line	41.04	*	56.00	46.00	-14.96	(QP)
0.97	Line	39.00	*	56.00	46.00	-17.00	(QP)
1.13	Line	36.83	*	56.00	46.00	-19.17	(QP)

Remark

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.2 sec./MHz ◦ Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.2 sec./MHz ◦
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured ◦
- (3) Measuring frequency range from 150KHz to 30MHz ◦



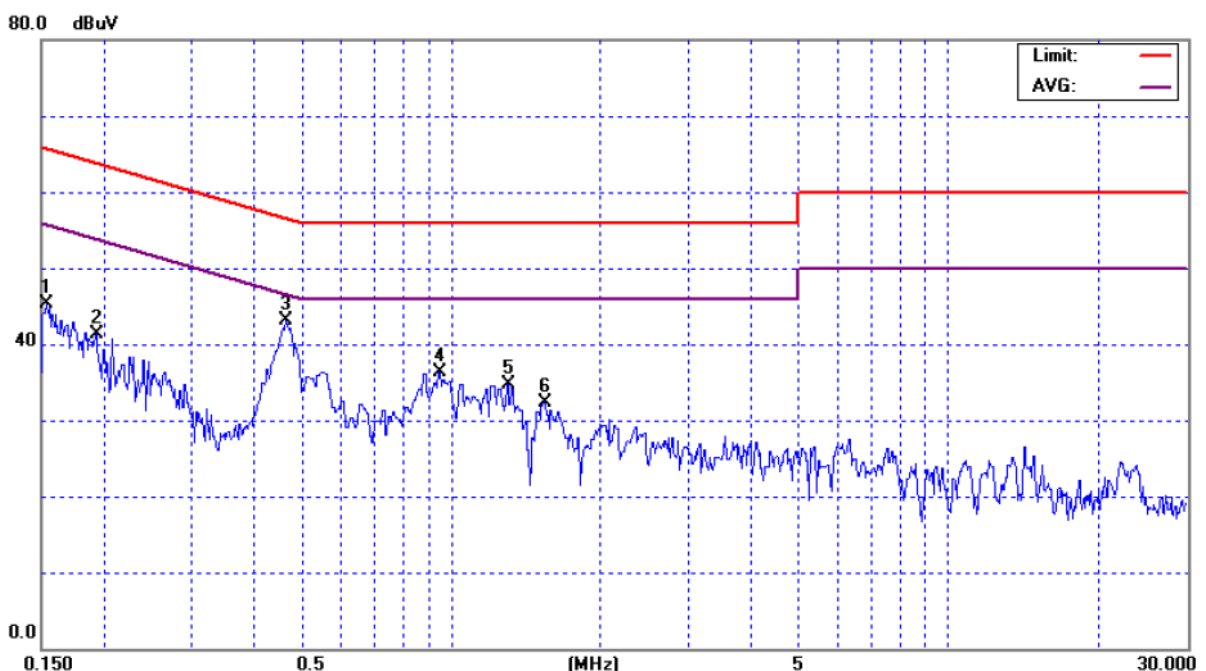


E.U.T :	Handheld Terminal	Model Name :	P223
Temperature :	24 ° C	Relative Humidity :	48%
Test Voltage :	AC 120V/60Hz		
Test Mode :	POS223 (WITH CARD READER) / CHARGE (ADAPTER : EA1015A-2U)		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Neutral	45.28	*	65.81	55.81	-20.53	(QP)
0.19	Neutral	41.31	*	63.92	53.92	-22.61	(QP)
0.47	Neutral	43.08	*	56.59	46.59	-13.51	(QP)
0.95	Neutral	36.31	*	56.00	46.00	-19.69	(QP)
1.30	Neutral	34.73	*	56.00	46.00	-21.27	(QP)
1.54	Neutral	32.34	*	56.00	46.00	-23.66	(QP)

Remark

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz ; SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.2 sec./MHz ◦ Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.2 sec./MHz ◦
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform ◦ In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured ◦
- (3) Measuring frequency range from 150KHz to 30MHz ◦





**4.2 RADIATED EMISSION MEASUREMENT**

**4.2.1 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 15B.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).



**4.2.2 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3176	Jul. 24, 2009
2	Test Cable	N/A	10M_OS01	N/A	Oct. 20, 2009
3	Test Cable	N/A	OS01-1/-2	N/A	Oct. 08, 2009
4	Pre-Amplifier	Anritsu	MH648A(OS01)	M09961	Dec. 29, 2009
5	Spectrum Analyzer	HP	8591EM	3536A006810 10	Mar. 13, 2010
6	EMI Measuring Receiver	SHCAFFNER	SCR 3501	408	Nov. 24, 2009
7	Spectrum Analyzer	R&S	FSP-30	100854	Apr. 14, 2009
8	Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-546	May 27, 2009
9	Microwave Pre-amplifier	Agilent	8449B	3008A02331	Jan. 19, 2010
10	Microflex Cable	NA	NA	1m	Sep. 15, 2009
11	Microflex Cable	NA	NA	10M	Feb. 19, 2010

Remark: " N/A" denotes No Model Name / Serial No. and No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100KHz / 100KHz for peak

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



**4.2.3 TEST PROCEDURE**

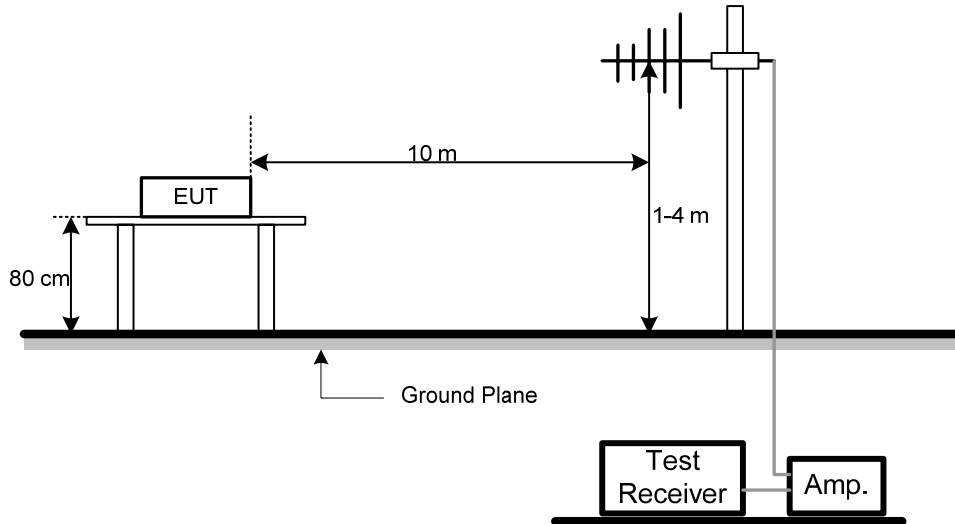
- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 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.

**4.2.4 DEVIATION FROM TEST STANDARD**

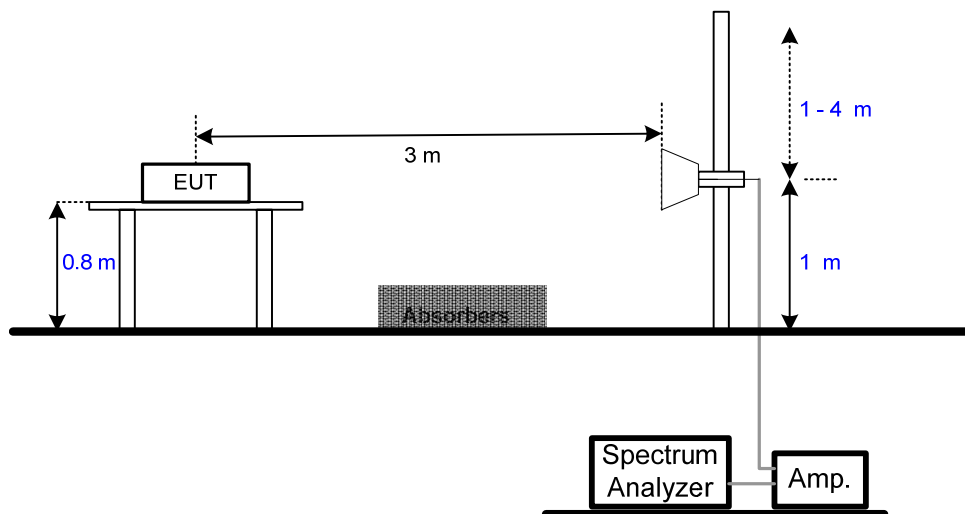
No deviation

**4.2.5 TEST SETUP**

**Radiated Emission Test Set-Up Frequency 30 - 1000MHz**



**Radiated Emission Test Set-Up Frequency Above 1 GHz**



**4.2.6 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.





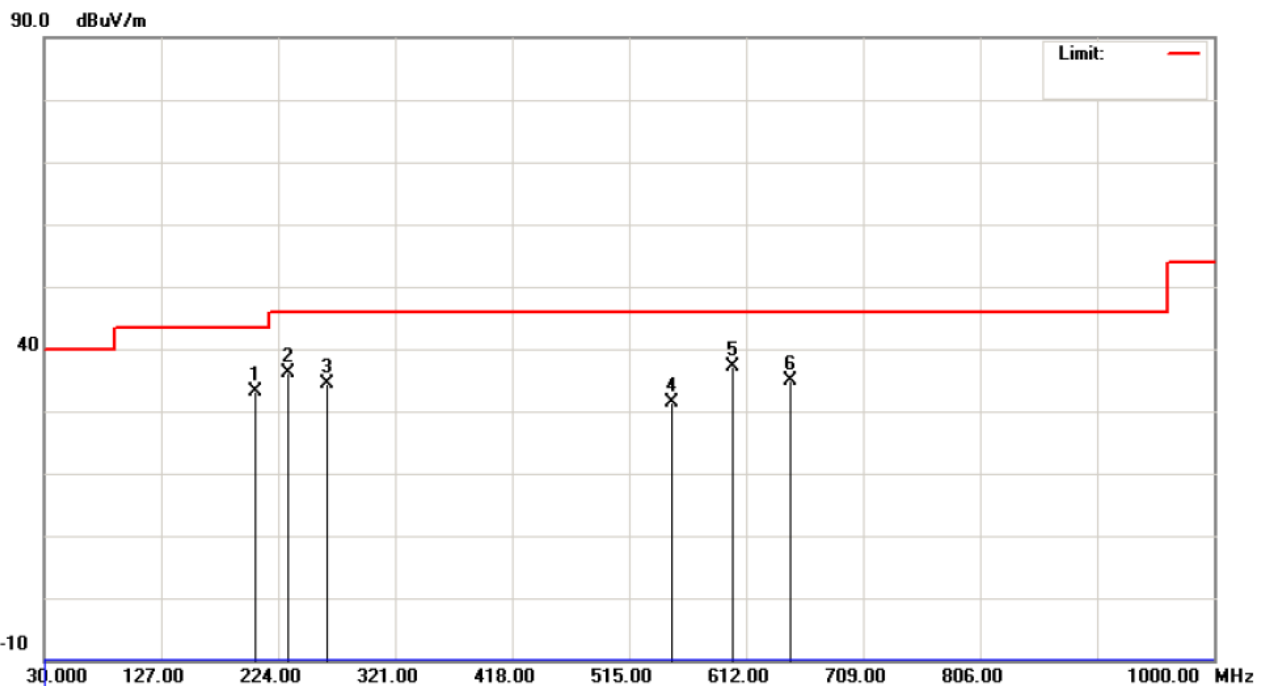
**4.2.7 TEST RESULTS-BETWEEN 30MHZ - 1000MHZ**

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
204.60	V	53.36	-20.20	33.16	43.50	- 10.34	
231.76	V	54.91	-18.88	36.03	46.00	- 9.97	
264.74	V	52.44	-18.02	34.42	46.00	- 11.58	
549.92	V	42.99	-11.64	31.35	46.00	- 14.65	
600.36	V	47.53	-10.48	37.05	46.00	- 8.95	
648.86	V	44.66	-9.75	34.91	46.00	- 11.09	

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission ◦
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



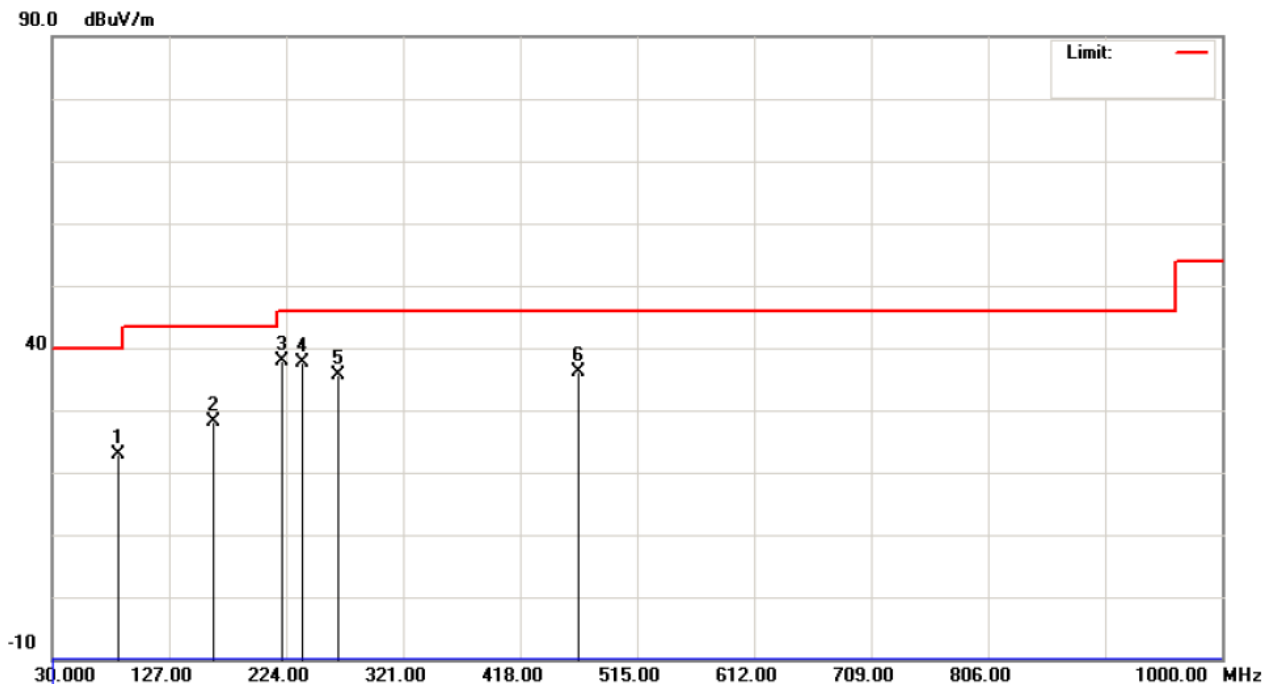


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
84.32	H	44.30	-21.43	22.87	40.00	- 17.13	
163.86	H	44.59	-16.56	28.03	43.50	- 15.47	
220.12	H	57.42	-19.50	37.92	46.00	- 8.08	
237.58	H	56.29	-18.74	37.55	46.00	- 8.45	
266.68	H	53.55	-17.94	35.61	46.00	- 10.39	
466.50	H	49.31	-13.14	36.17	46.00	- 9.83	

Remark :

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission ◦
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



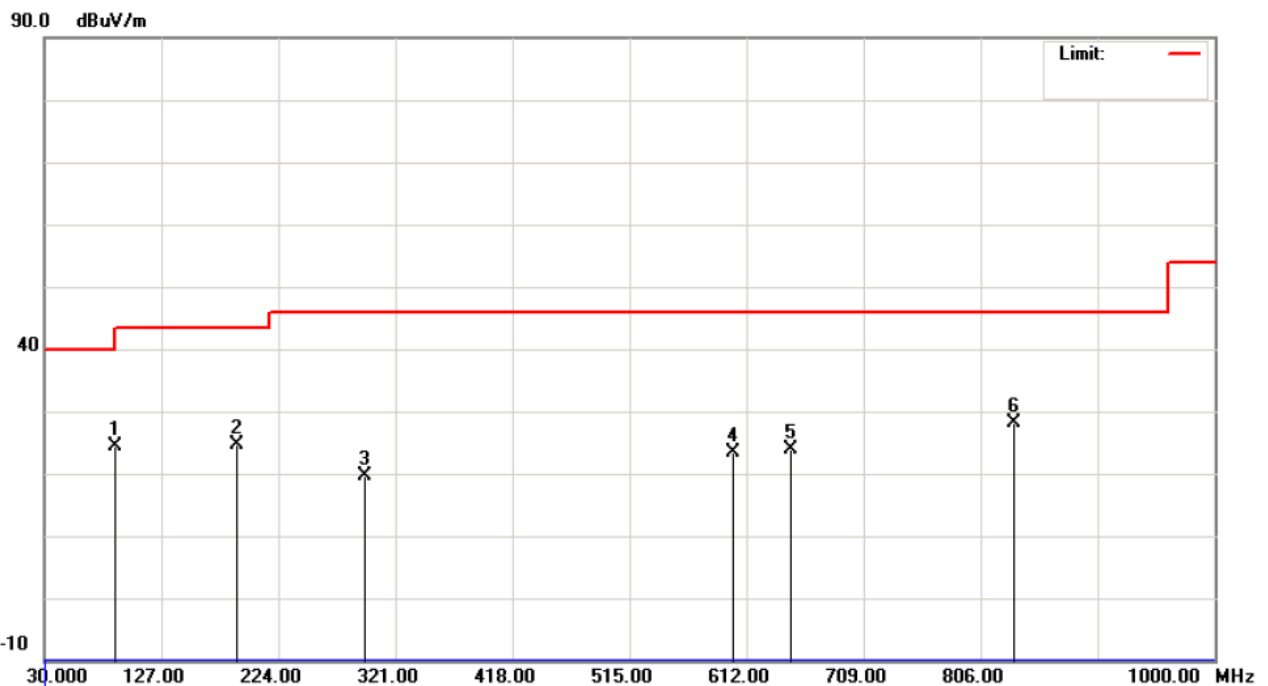


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
88.20	V	49.18	-24.79	24.39	43.50	- 19.11	
189.08	V	47.75	-23.14	24.61	43.50	- 18.89	
295.78	V	40.39	-20.64	19.75	46.00	- 26.25	
600.36	V	37.57	-14.17	23.40	46.00	- 22.60	
648.86	V	37.23	-13.37	23.86	46.00	- 22.14	
833.16	V	39.03	-11.01	28.02	46.00	- 17.98	

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission ◦
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



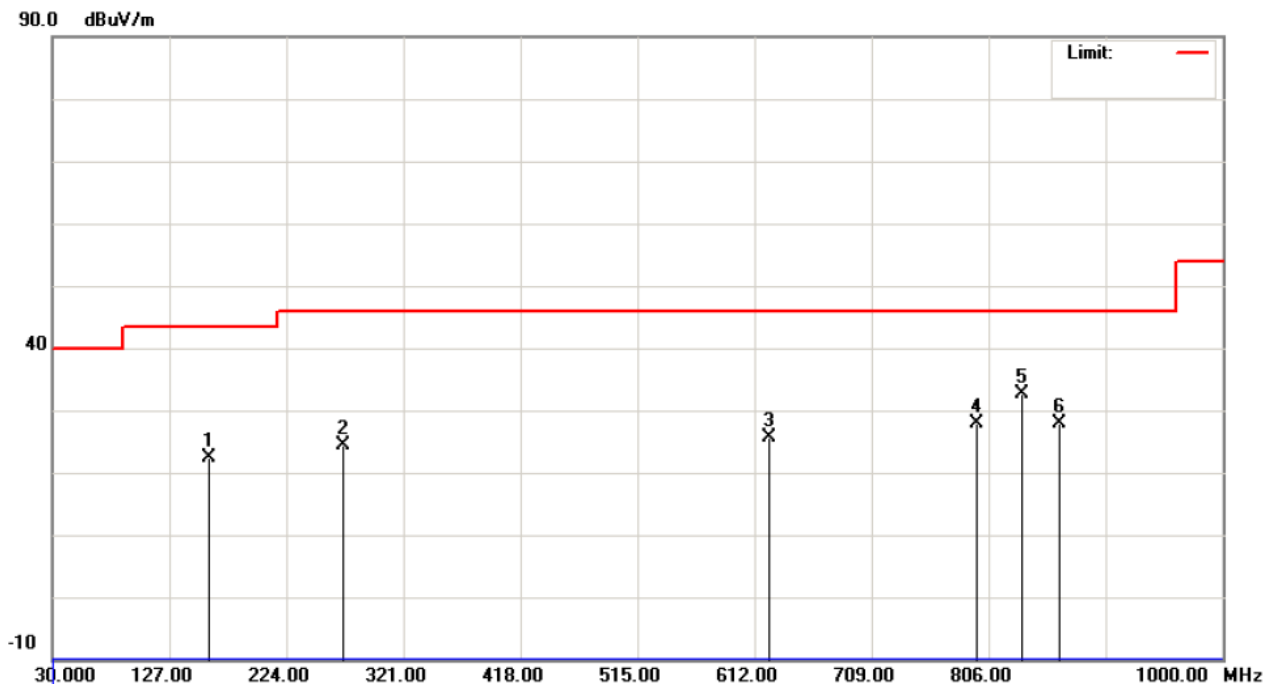


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_CH39		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
159.98	H	42.18	-19.70	22.48	43.50	- 21.02	
270.56	H	45.69	-21.32	24.37	46.00	- 21.63	
623.64	H	39.46	-13.79	25.67	46.00	- 20.33	
796.30	H	39.25	-11.34	27.91	46.00	- 18.09	
833.16	H	43.75	-11.01	32.74	46.00	- 13.26	
864.20	H	38.51	-10.63	27.88	46.00	- 18.12	

**Remark :**

- (1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = Auto
- (2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “ H” denotes spurious frequency. “E” denotes band edge frequency.
- (4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission ◦
- (5) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.





**4.2.8 TEST RESULTS-ABOVE 1000 MHZ**

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH00		

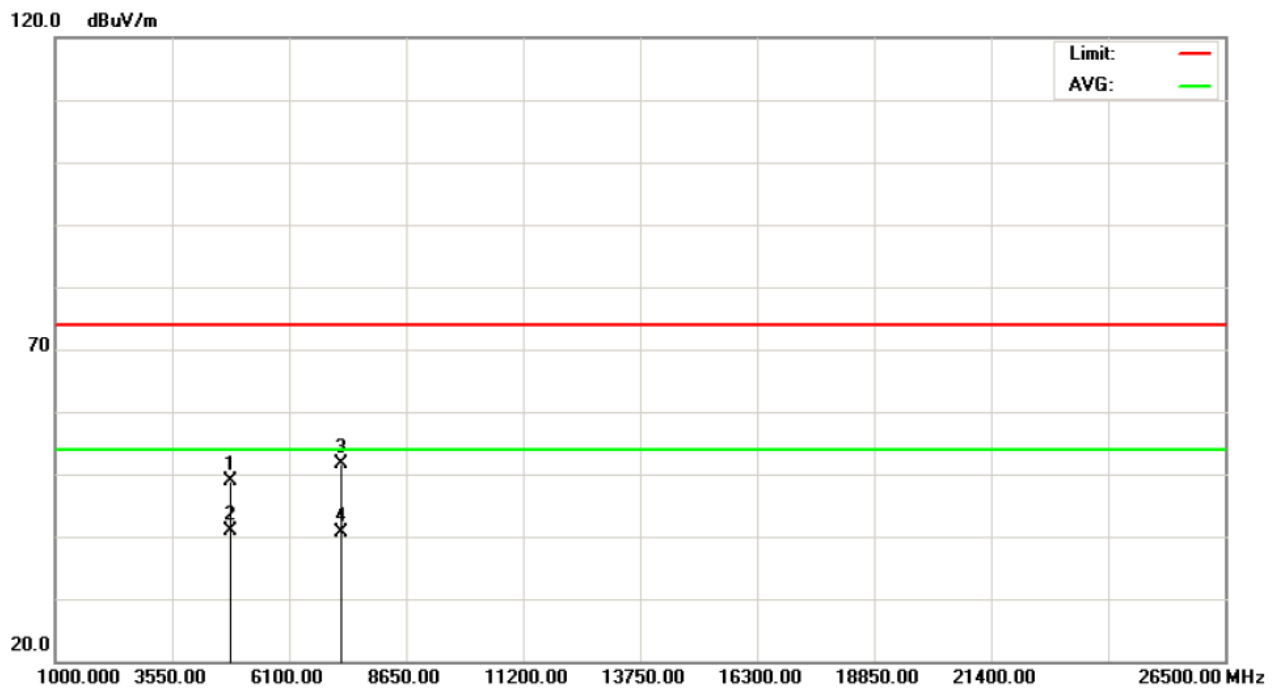
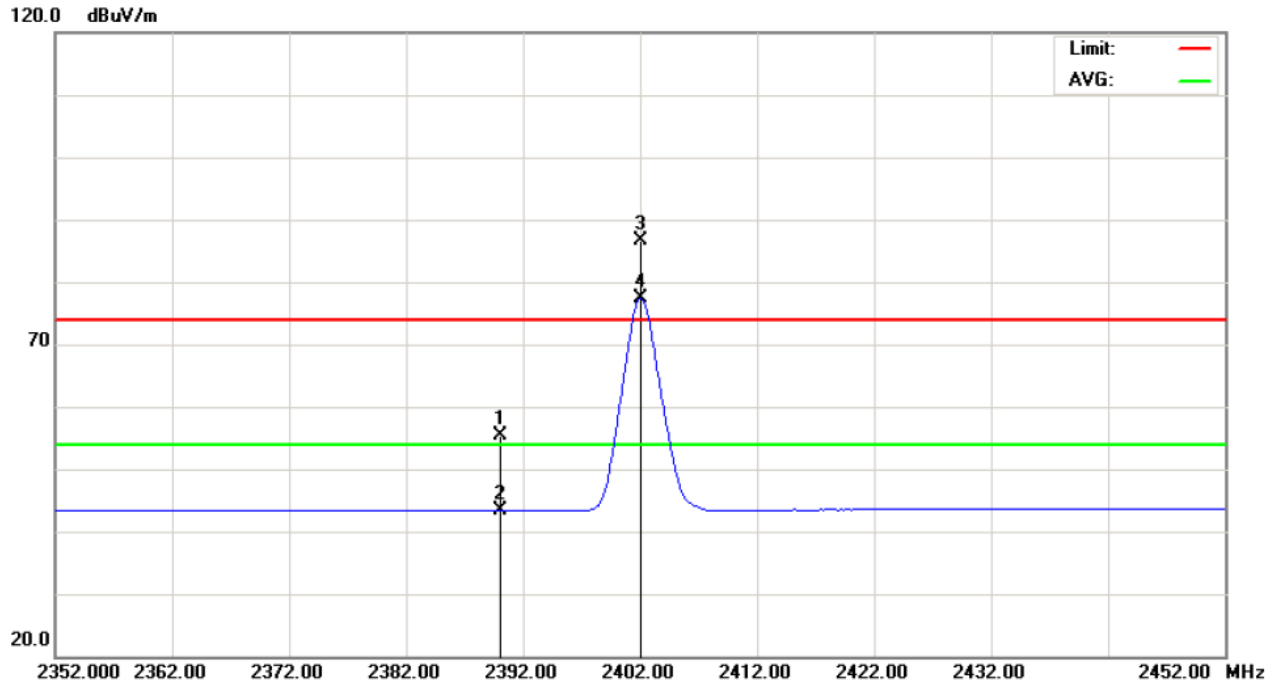
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	23.45	11.41	31.94	55.39	43.35	74.00	54.00	Y/E
2402.00	V	54.67	45.31	32.00	86.67	77.31			Y/F
4804.32	V	45.19	37.02	3.74	48.93	40.76	74.00	54.00	Y/H
7206.01	V	42.12	30.98	9.61	51.73	40.59	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦“F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH00(Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH00		

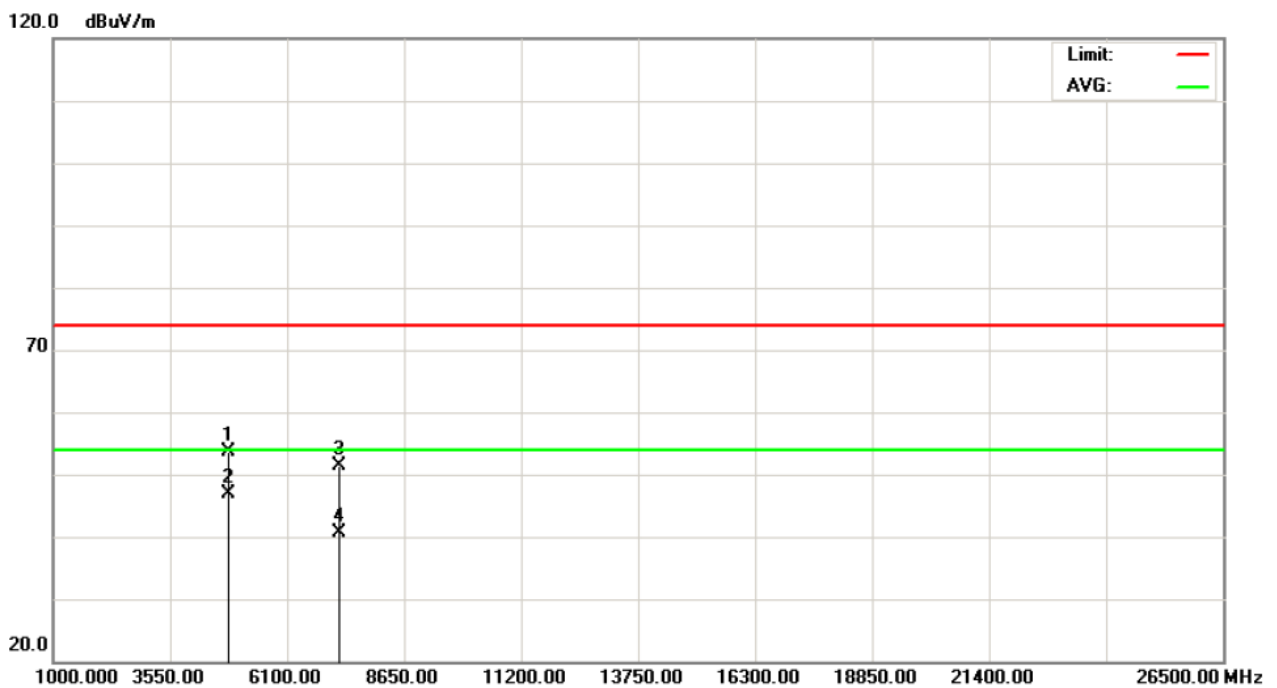
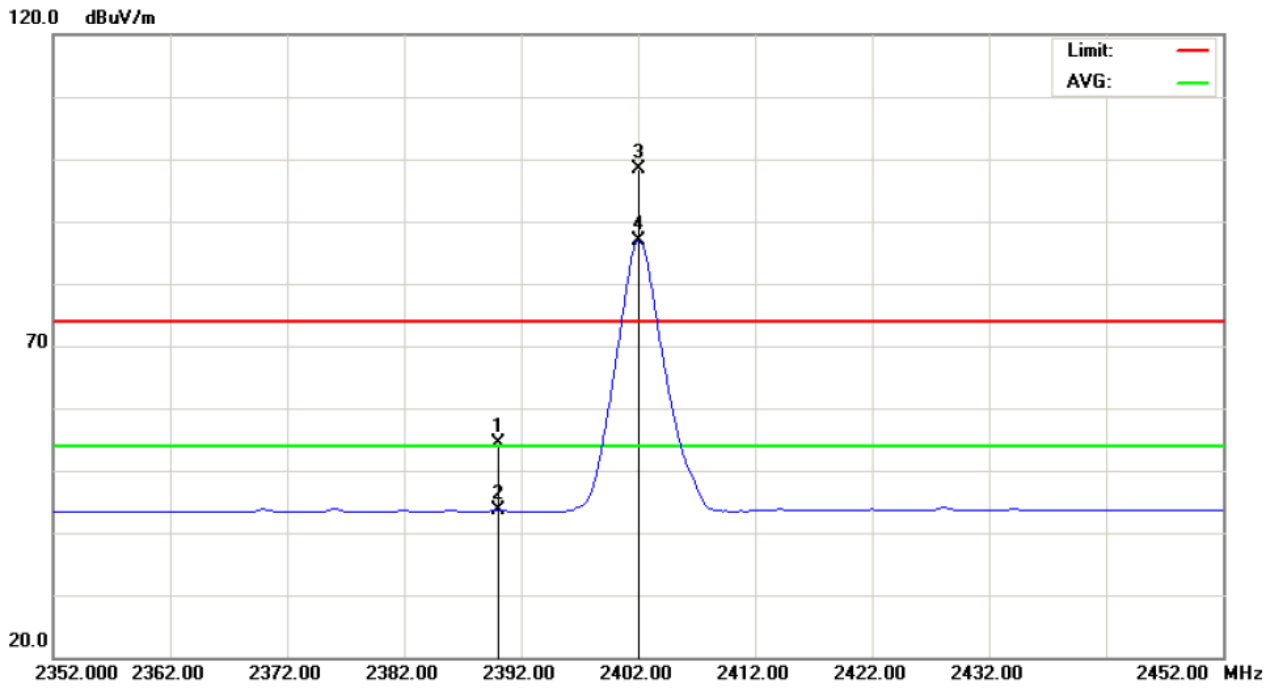
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	22.43	11.78	31.94	54.37	43.72	74.00	54.00	Y/E
2402.00	H	66.40	54.81	32.00	98.40	86.81			Y/F
4804.01	H	49.99	43.12	3.74	53.73	46.86	74.00	54.00	Y/H
7205.98	H	41.75	30.97	9.61	51.36	40.58	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH00(Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH39		

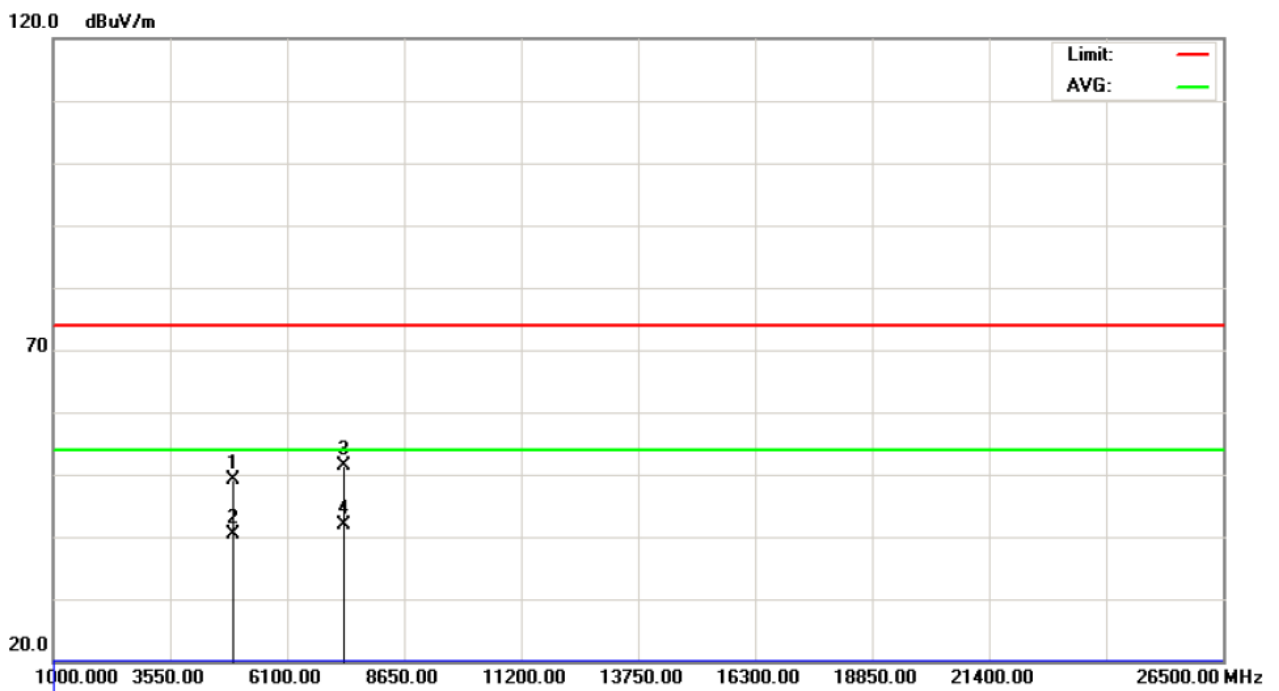
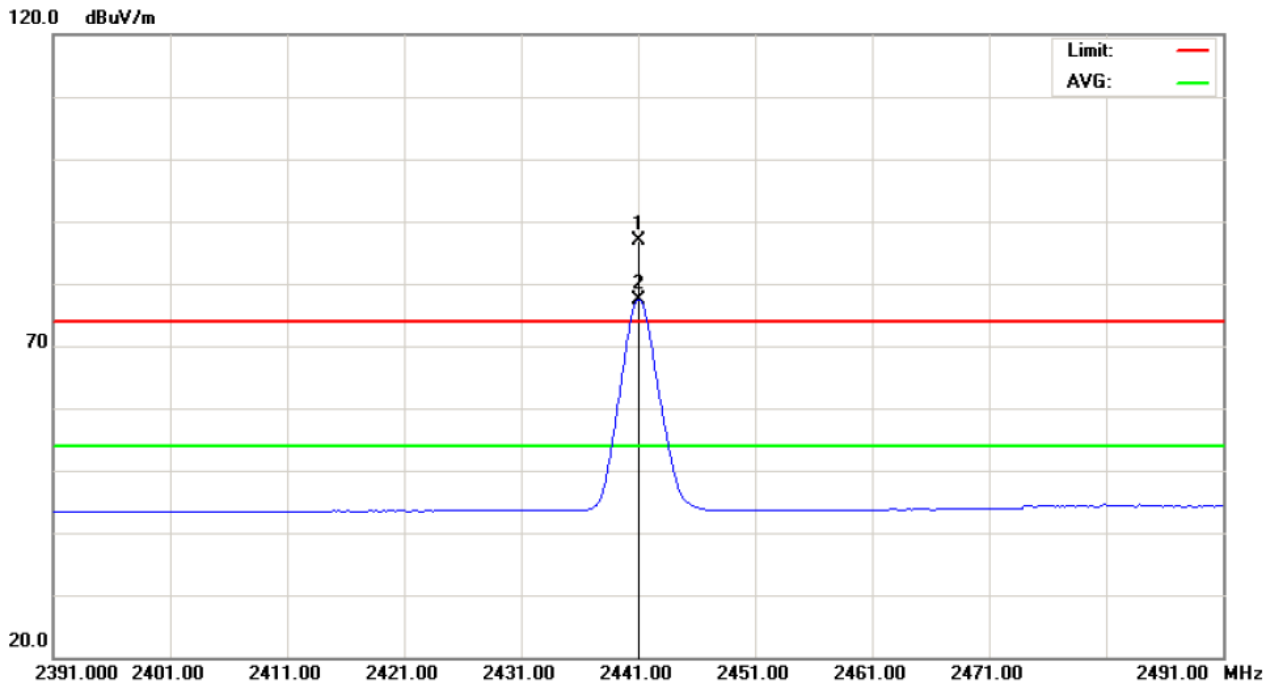
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	V	54.64	45.21	32.18	86.82	77.39			Y/F
4882.03	V	45.18	36.28	3.98	49.16	40.26	74.00	54.00	Y/H
7323.09	V	41.48	31.94	9.82	51.30	41.76	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH39 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH39		

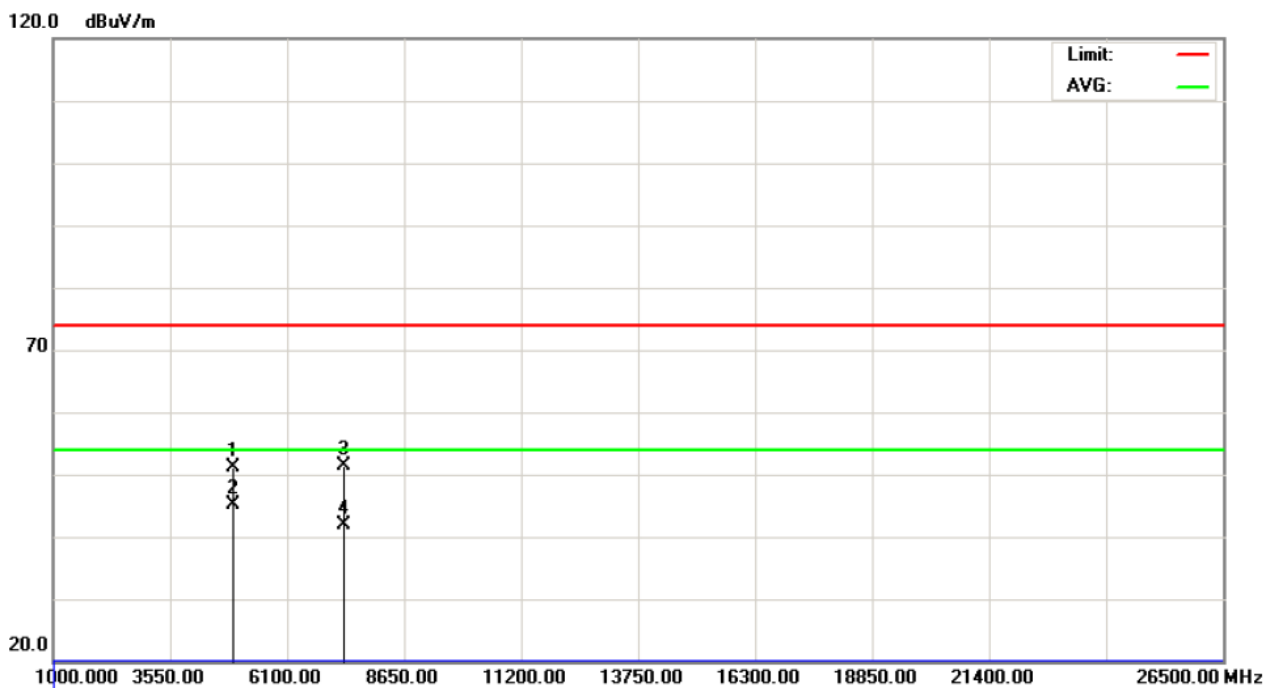
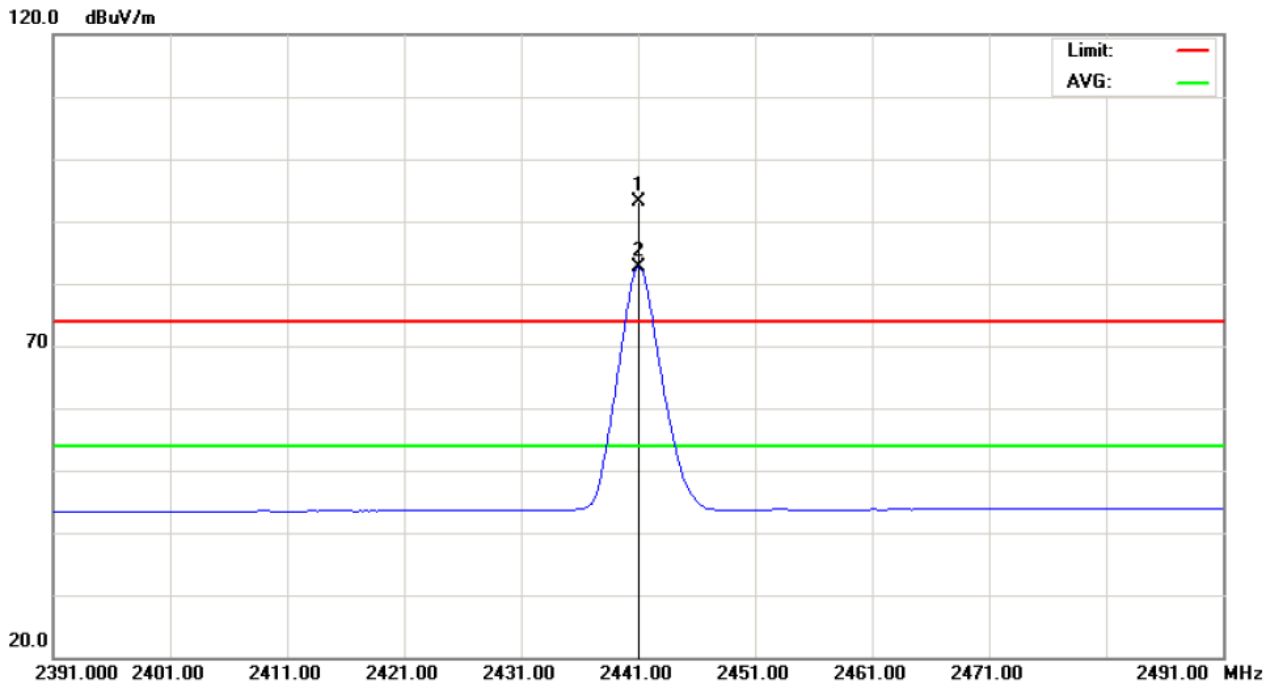
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	H	60.99	50.35	32.18	93.17	82.53			Y/F
4882.03	H	47.04	41.06	3.98	51.02	45.04	74.00	54.00	Y/H
7323.03	H	41.58	32.18	9.82	51.40	42.00	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH39 (Above 1000 MHz, Horizontal)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH78		

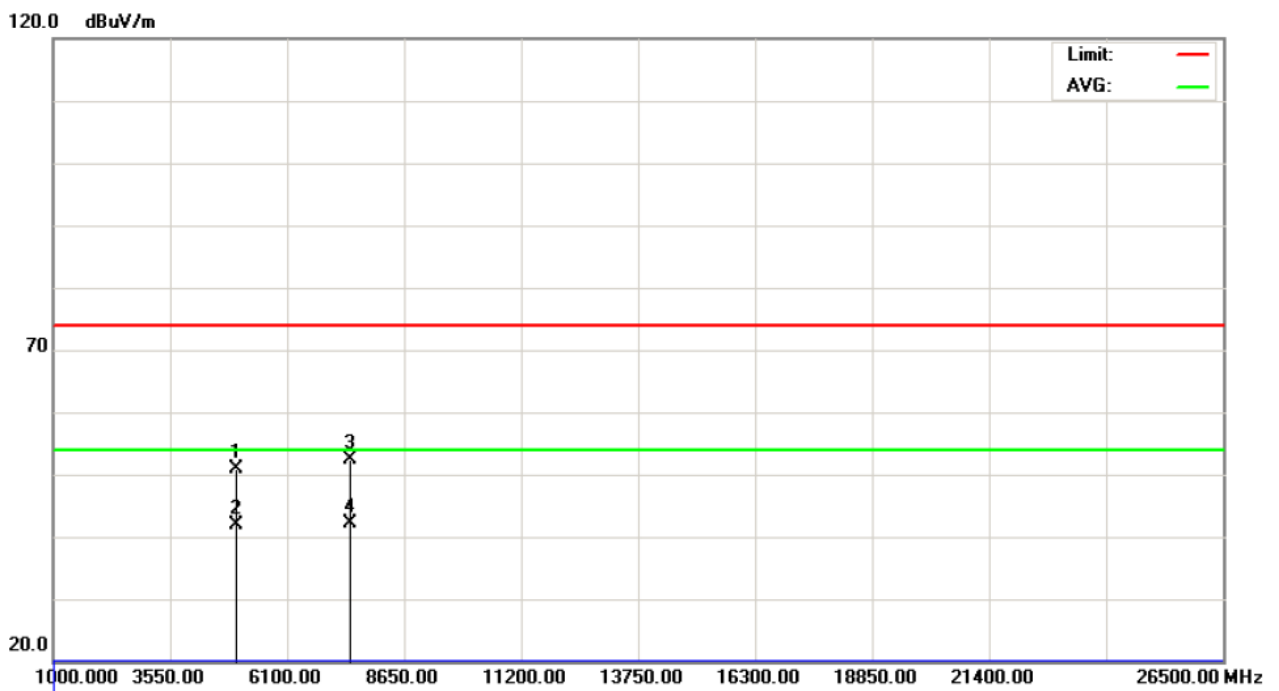
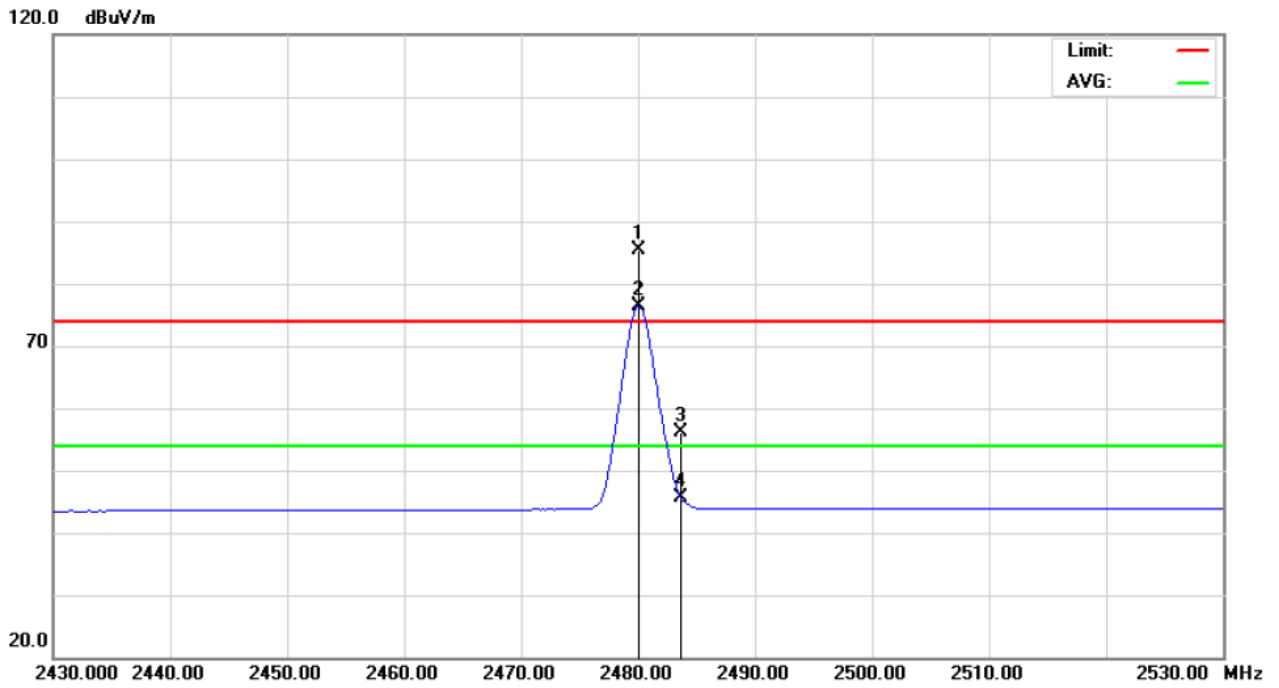
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	V	53.05	43.95	32.26	85.31	76.21			Y/F
2483.50	V	23.67	13.32	32.37	56.04	45.69	74.00	54.00	Y/E
4960.03	V	46.54	37.64	4.22	50.76	41.86	74.00	54.00	Y/H
7440.09	V	42.31	32.05	10.04	52.35	42.09	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH78 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_1Mbps_CH78		

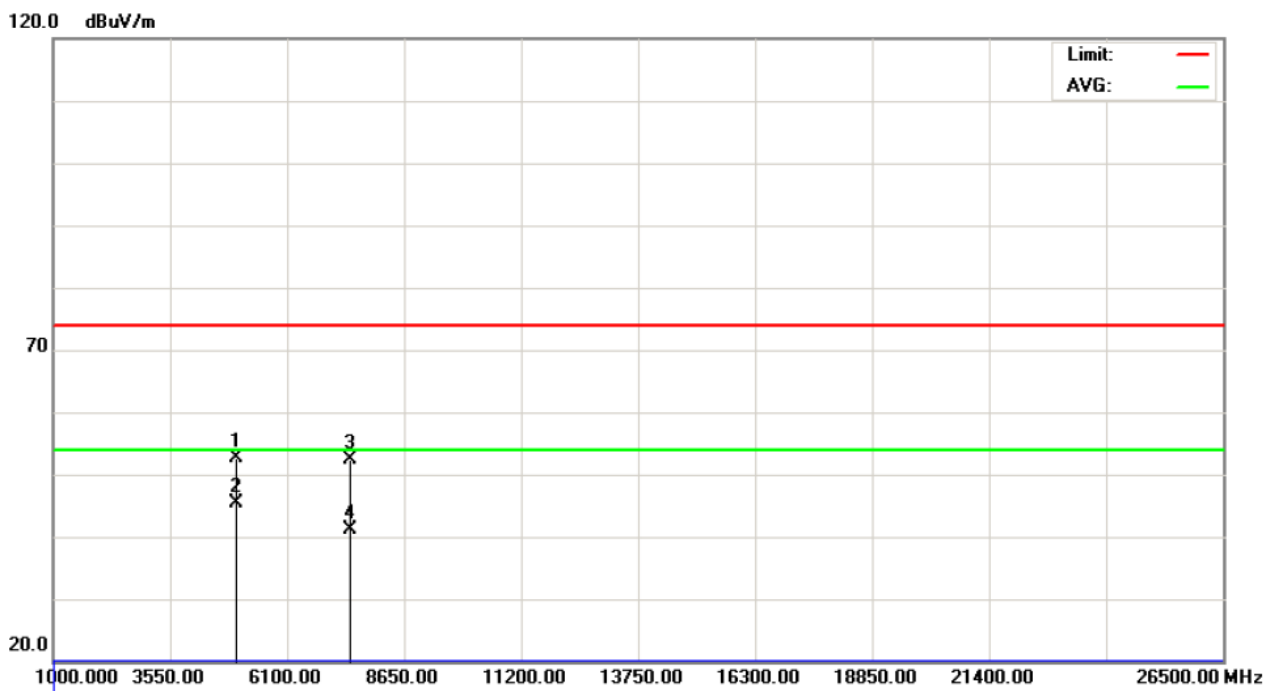
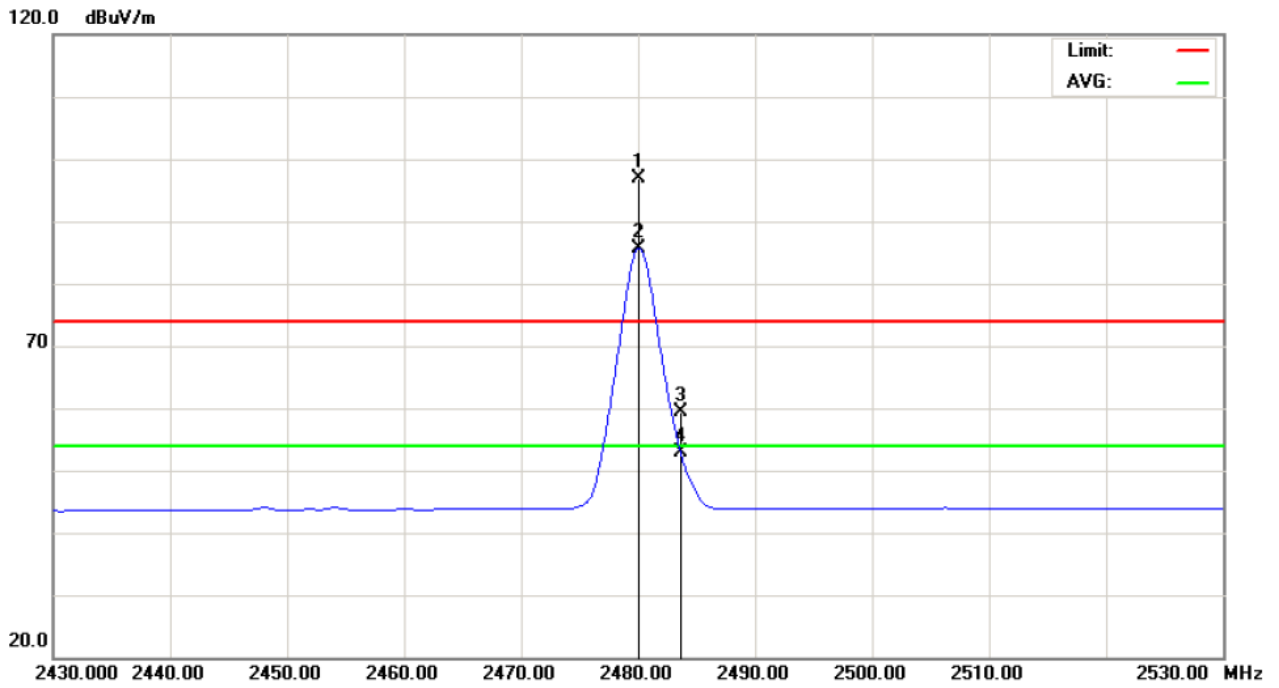
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	H	64.48	53.28	32.36	96.84	85.64			Y/F
2483.50	H	27.03	20.58	32.37	59.40	52.95	74.00	54.00	Y/E
4960.03	H	48.39	41.17	4.22	52.61	45.39	74.00	54.00	Y/H
7440.03	H	42.25	31.12	10.04	52.29	41.16	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦“F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; ”Y” - denotes Vertical Stand ; ”Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_1Mbps\_CH78 (Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH00		

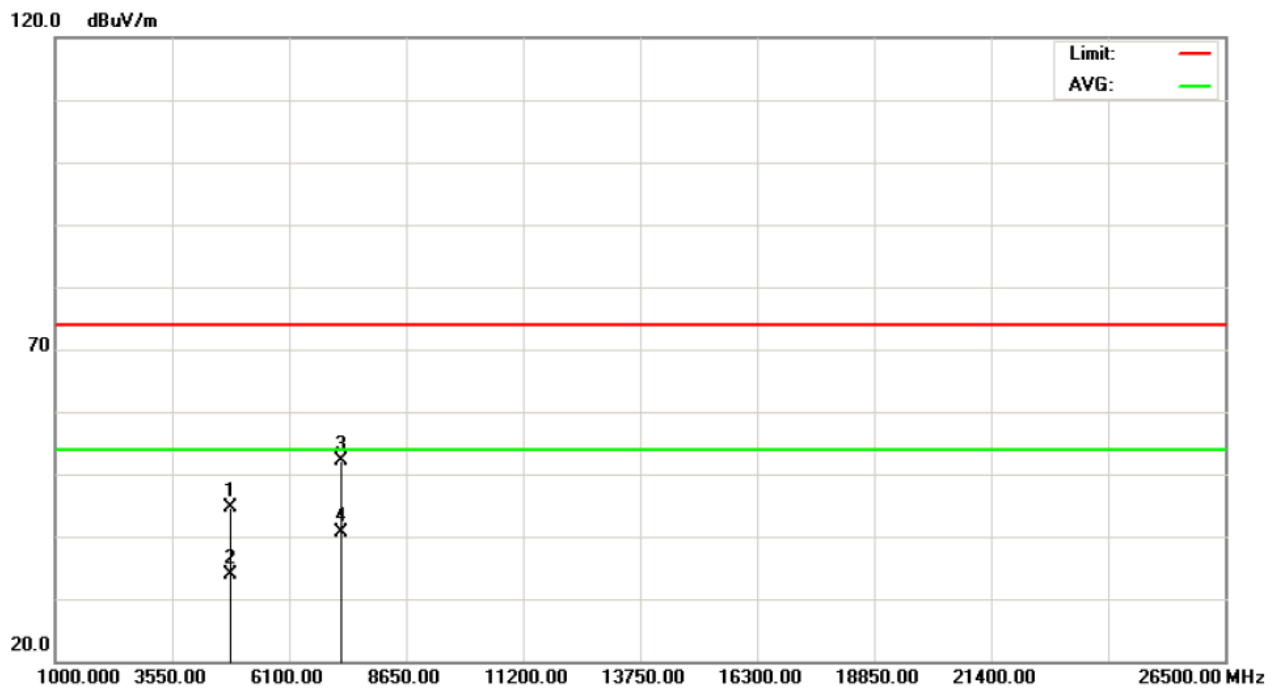
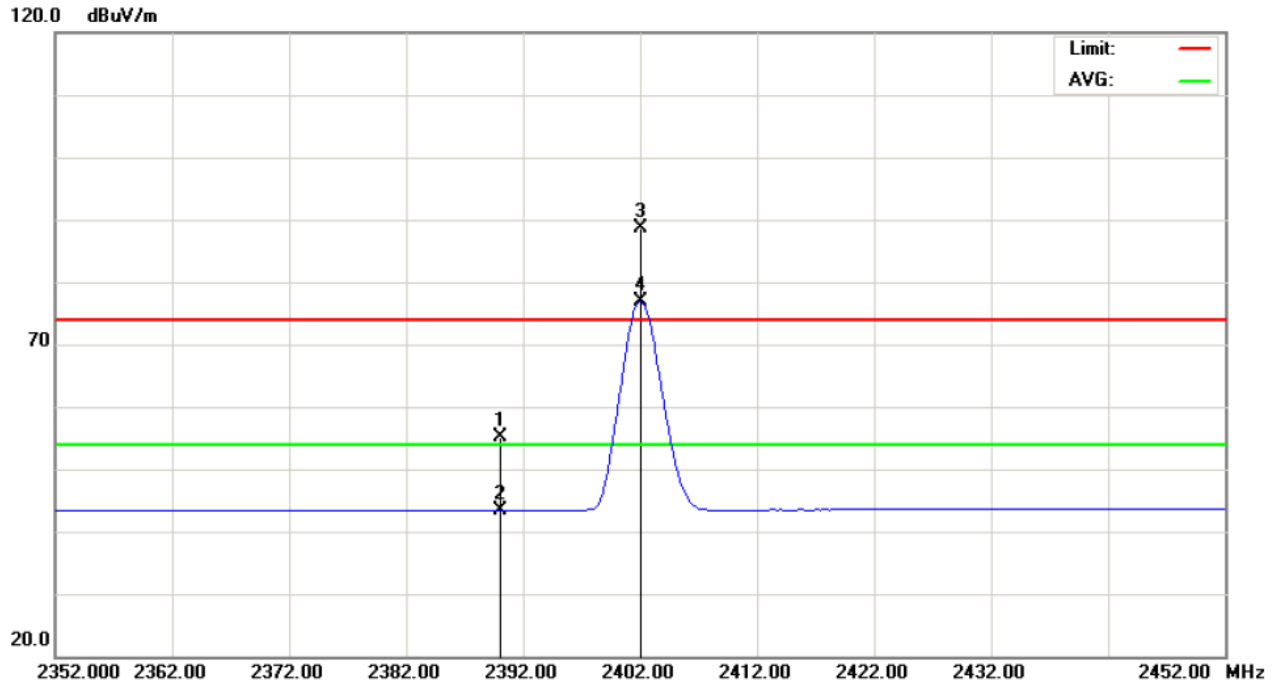
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	23.14	11.41	31.94	55.08	43.35	74.00	54.00	Y/E
2402.00	V	56.73	44.78	32.00	88.73	76.78			Y/F
4803.92	V	40.89	30.14	3.74	44.63	33.88	74.00	54.00	Y/H
7206.16	V	42.43	31.06	9.61	52.04	40.67	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH00(Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH00		

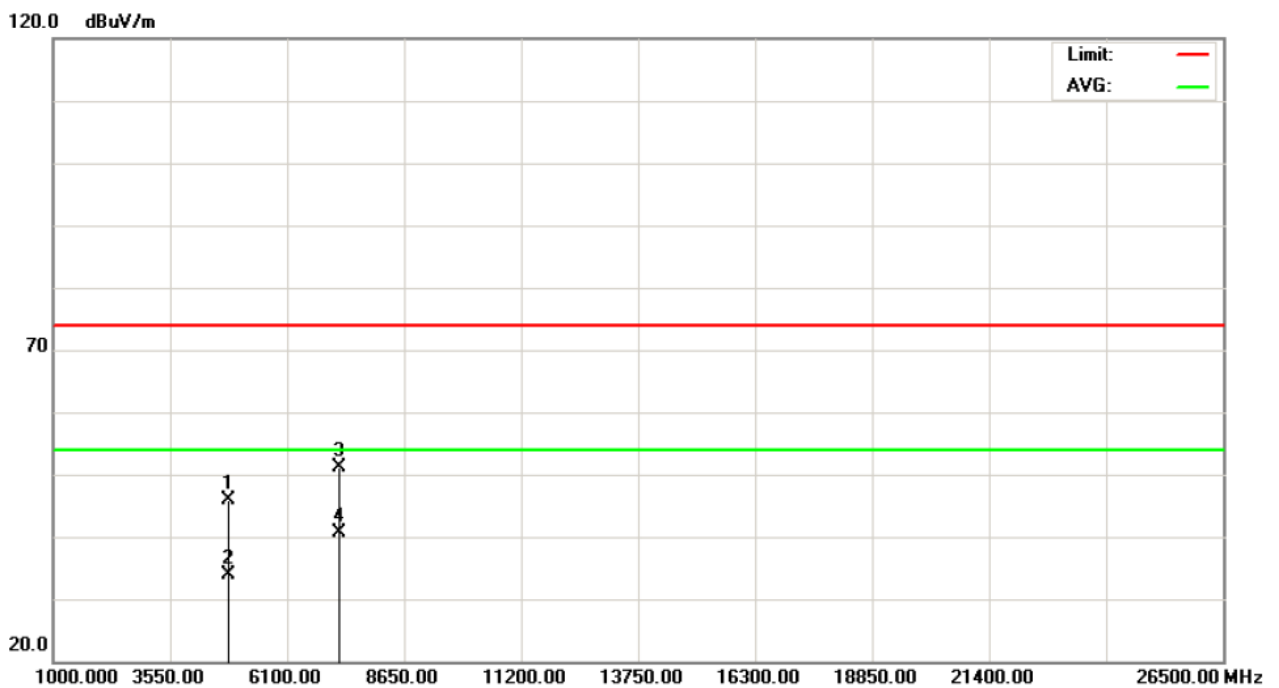
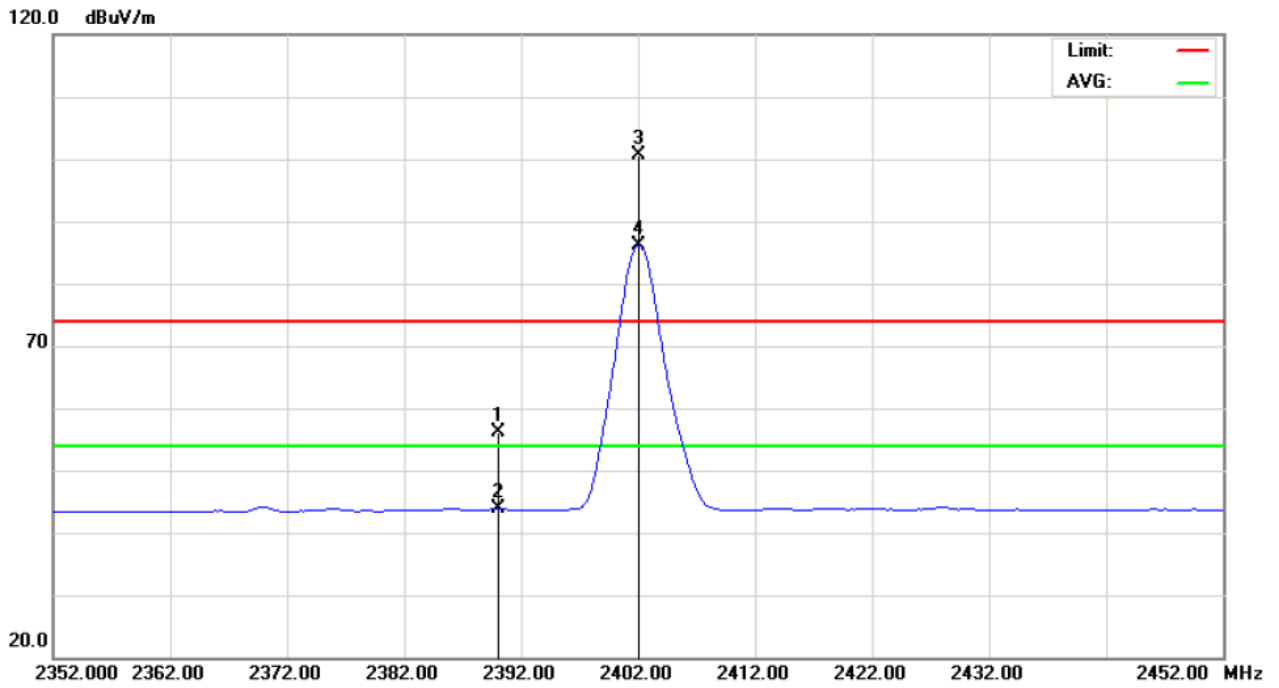
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	24.24	11.93	31.94	56.18	43.87	74.00	54.00	Y/E
2402.00	H	68.62	54.14	32.00	100.62	86.14			Y/F
4804.00	H	42.10	30.20	3.74	45.84	33.94	74.00	54.00	Y/H
7206.28	H	41.51	31.05	9.61	51.12	40.66	74.00	54.00	Y/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH00(Above 1000 MHz, Horizontal)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH39		

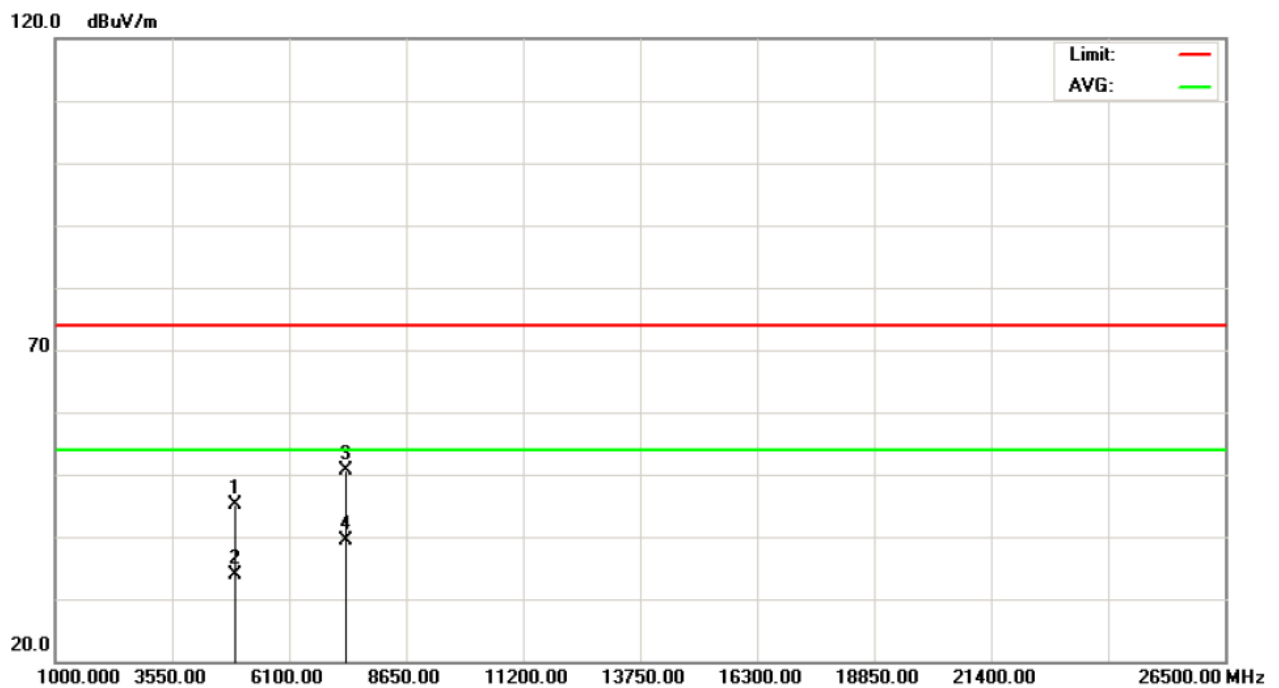
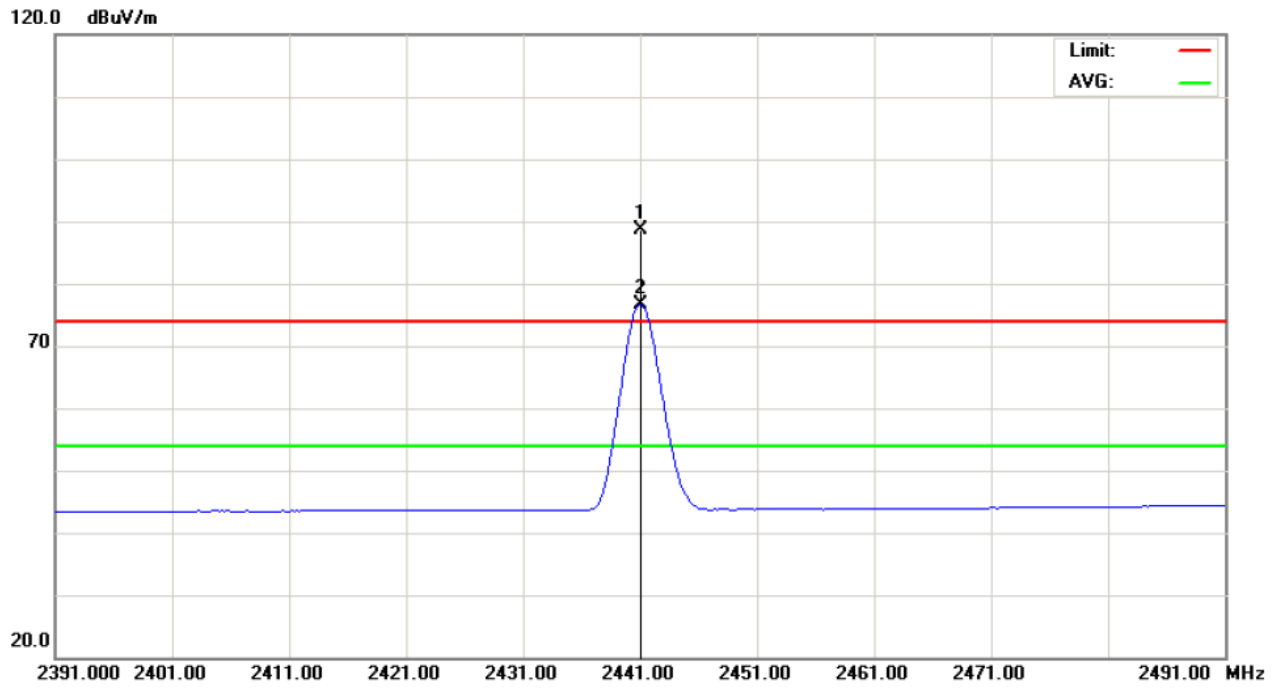
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	V	56.56	44.40	32.18	88.74	76.58			Y/F
4882.07	V	41.16	29.89	3.98	45.14	33.87	74.00	54.00	Y/H
7323.05	V	40.72	29.47	9.82	50.54	39.29	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH39 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH39		

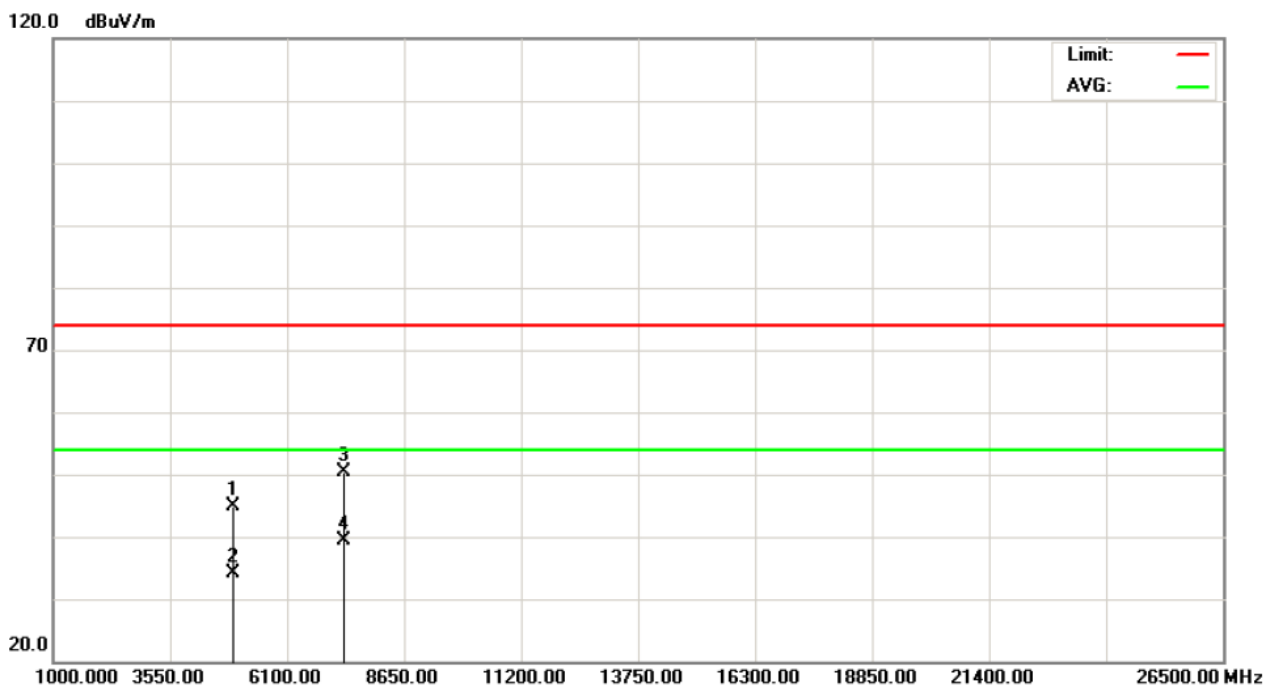
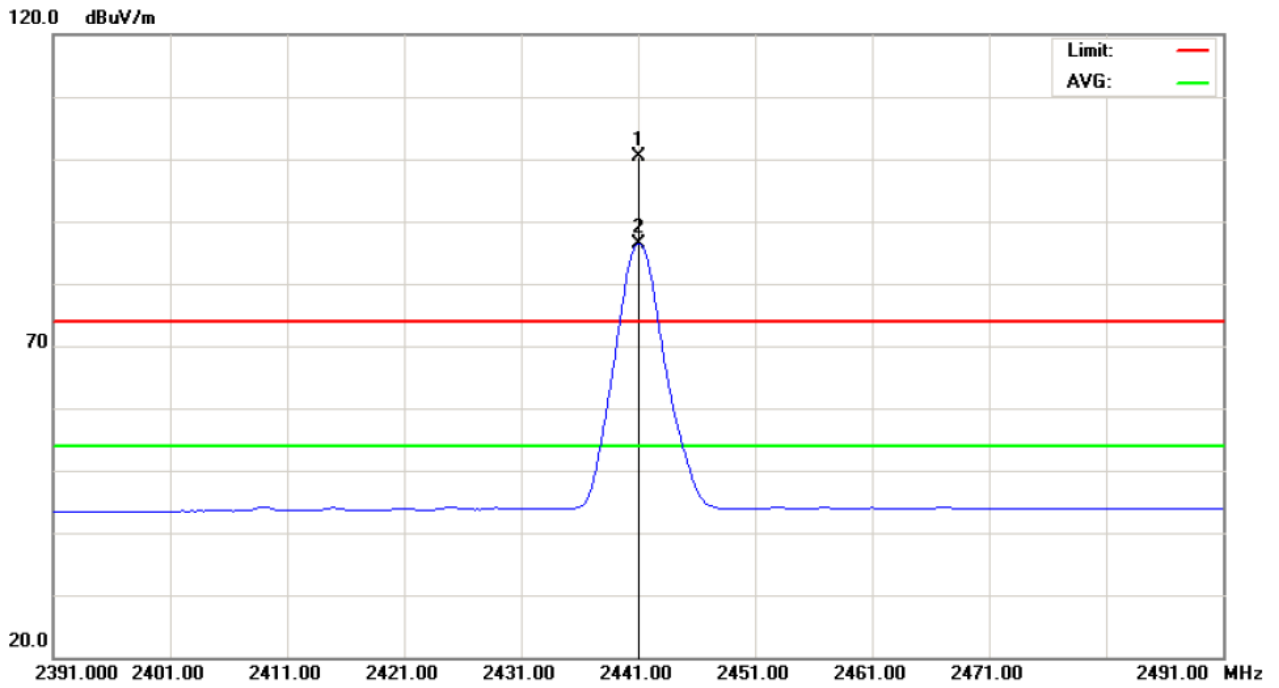
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	H	68.32	54.16	32.18	100.50	86.34			Y/F
4881.97	H	40.80	30.13	3.98	44.78	34.11	74.00	54.00	Y/H
7322.98	H	40.54	29.49	9.82	50.36	39.31	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH39 (Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH78		

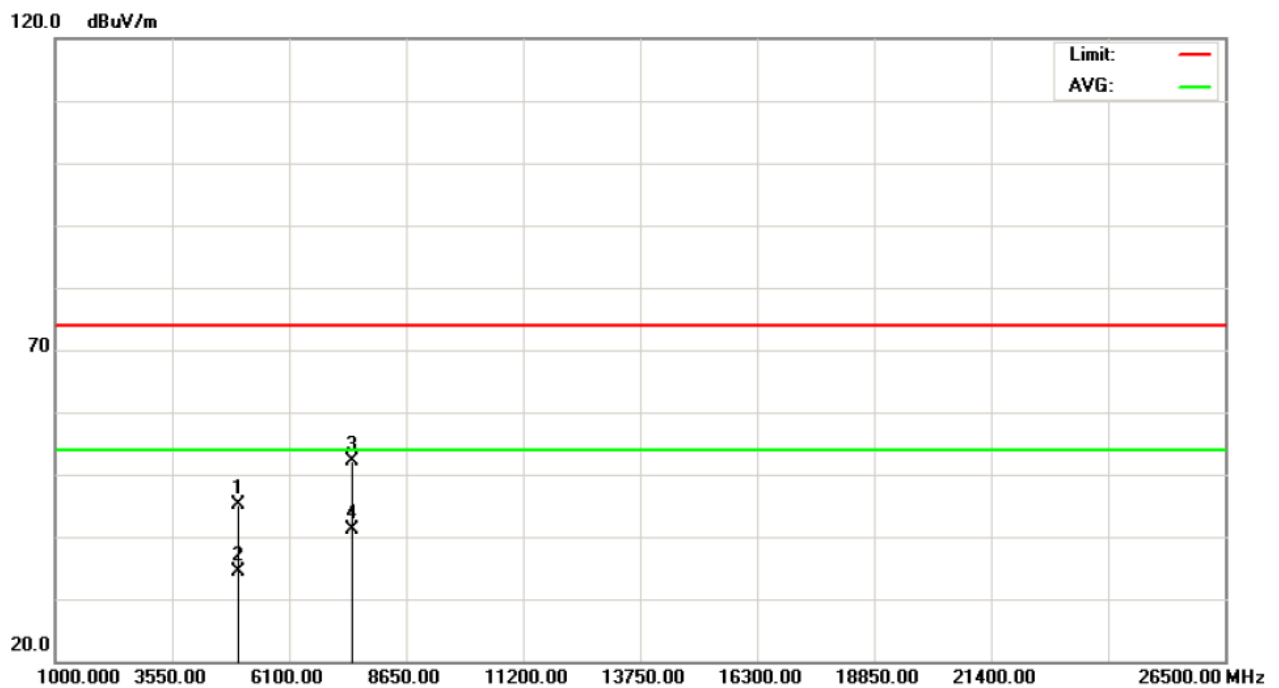
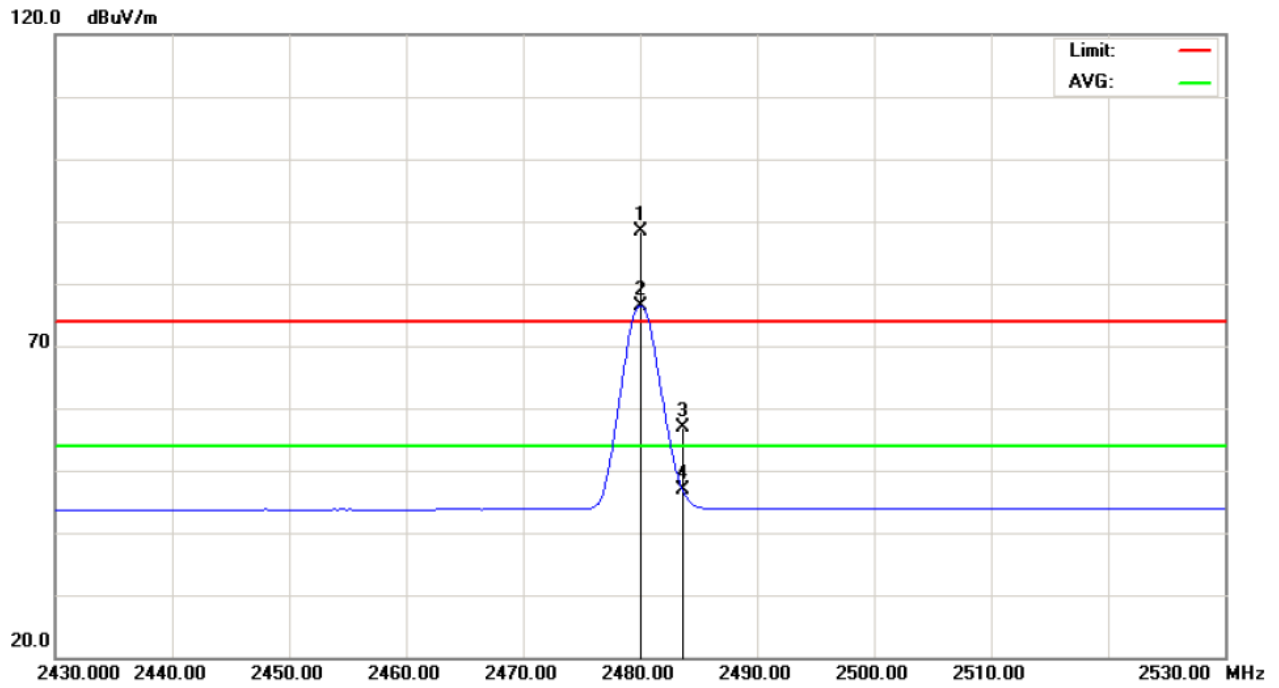
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	V	55.94	43.99	32.36	88.30	76.35			Y/F
2483.50	V	24.45	14.57	32.37	56.82	46.94	74.00	54.00	Y/E
4959.95	V	41.03	30.17	4.22	45.25	34.39	74.00	54.00	Y/H
7440.07	V	42.18	31.03	10.04	52.22	41.07	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH78 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 1_3Mbps_CH78		

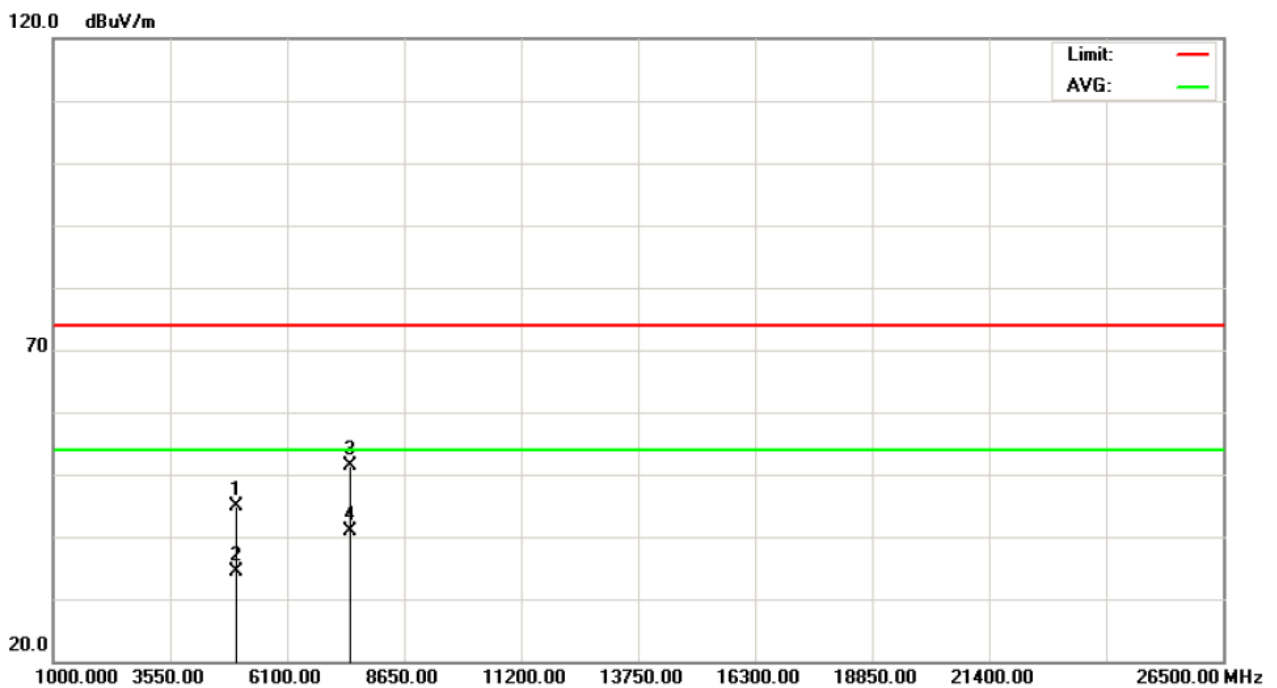
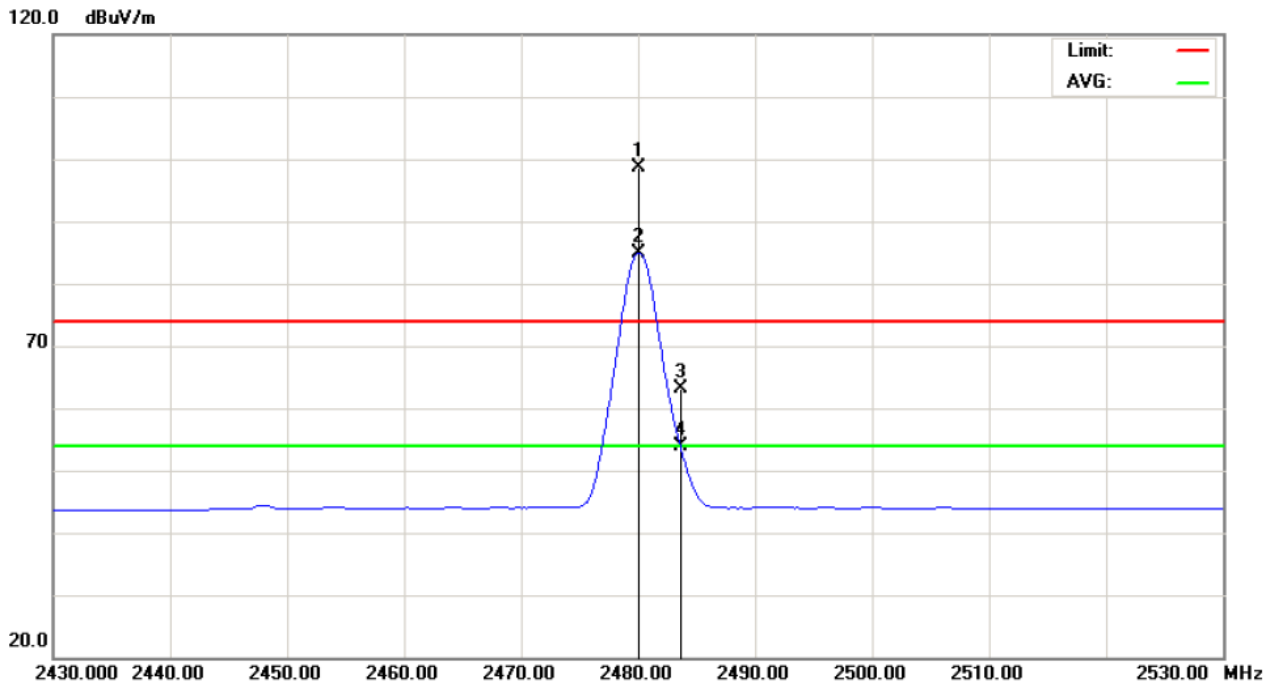
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	H	66.29	52.44	32.36	98.65	84.80			Y/F
2483.50	H	30.82	21.40	32.37	63.19	53.77	74.00	54.00	Y/E
4959.96	H	40.70	30.06	4.22	44.92	34.28	74.00	54.00	Y/H
7439.96	H	41.35	30.90	10.04	51.39	40.94	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 1\_3Mbps\_CH78 (Above 1000 MHz, Horizontal)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH00		

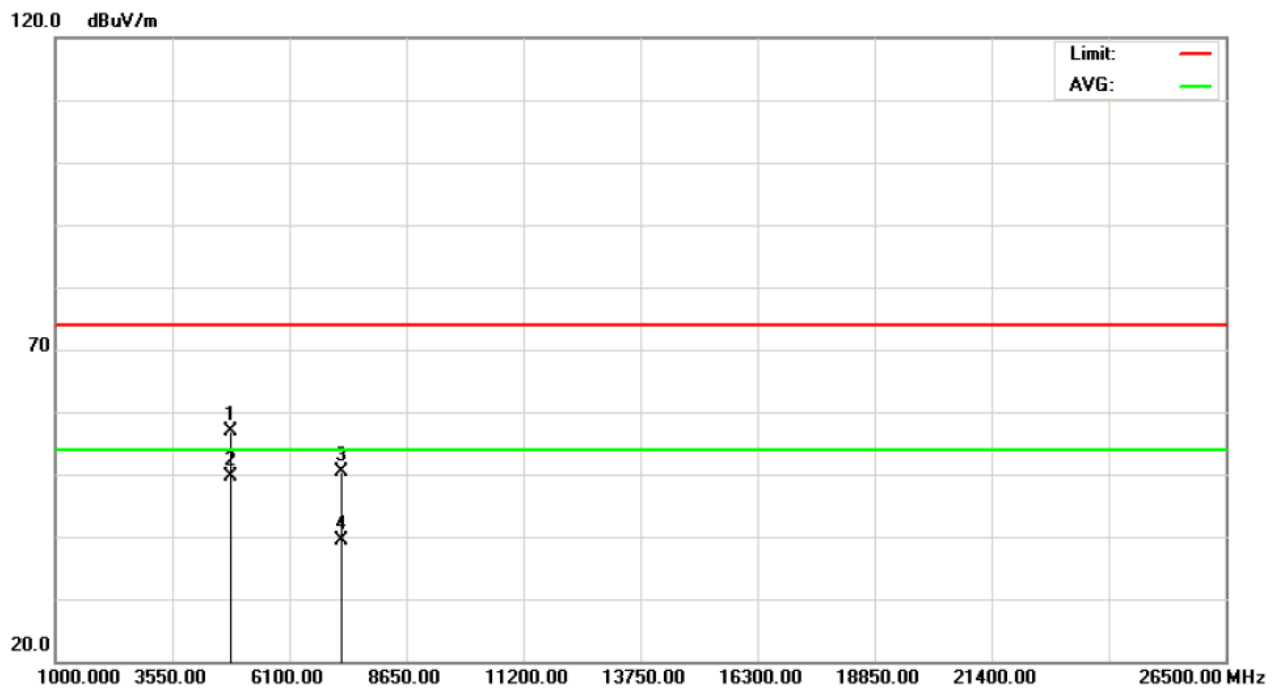
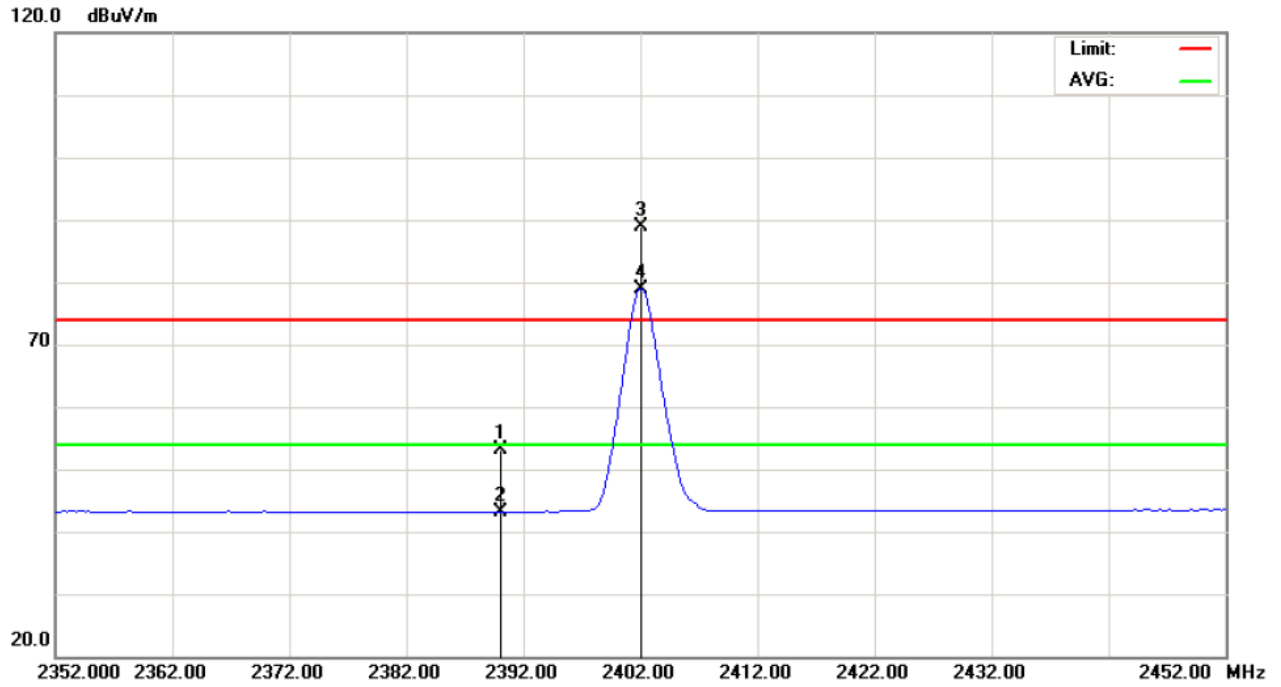
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	21.18	11.27	31.93	53.11	43.20	74.00	54.00	Y/E
2402.00	V	56.81	47.01	31.97	88.78	78.98			Y/F
4804.03	V	53.10	46.00	3.68	56.78	49.68	74.00	54.00	Y/H
7206.08	V	41.43	30.38	8.97	50.40	39.35	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH00(Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH00		

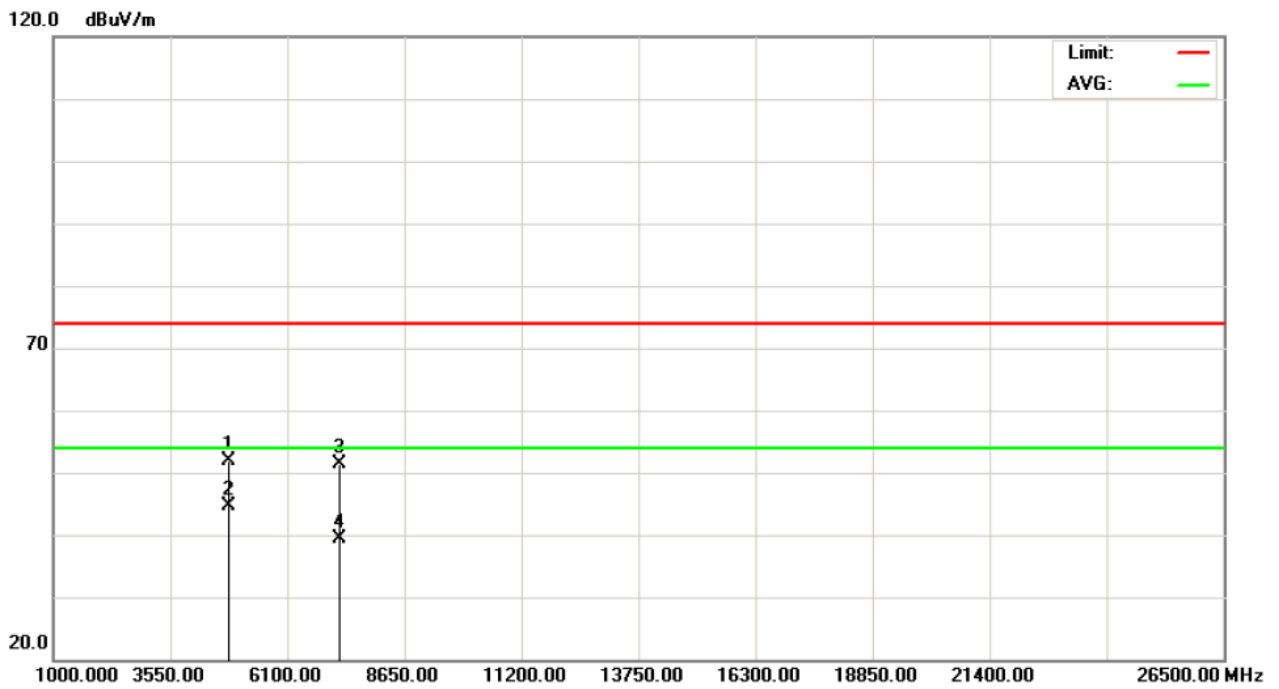
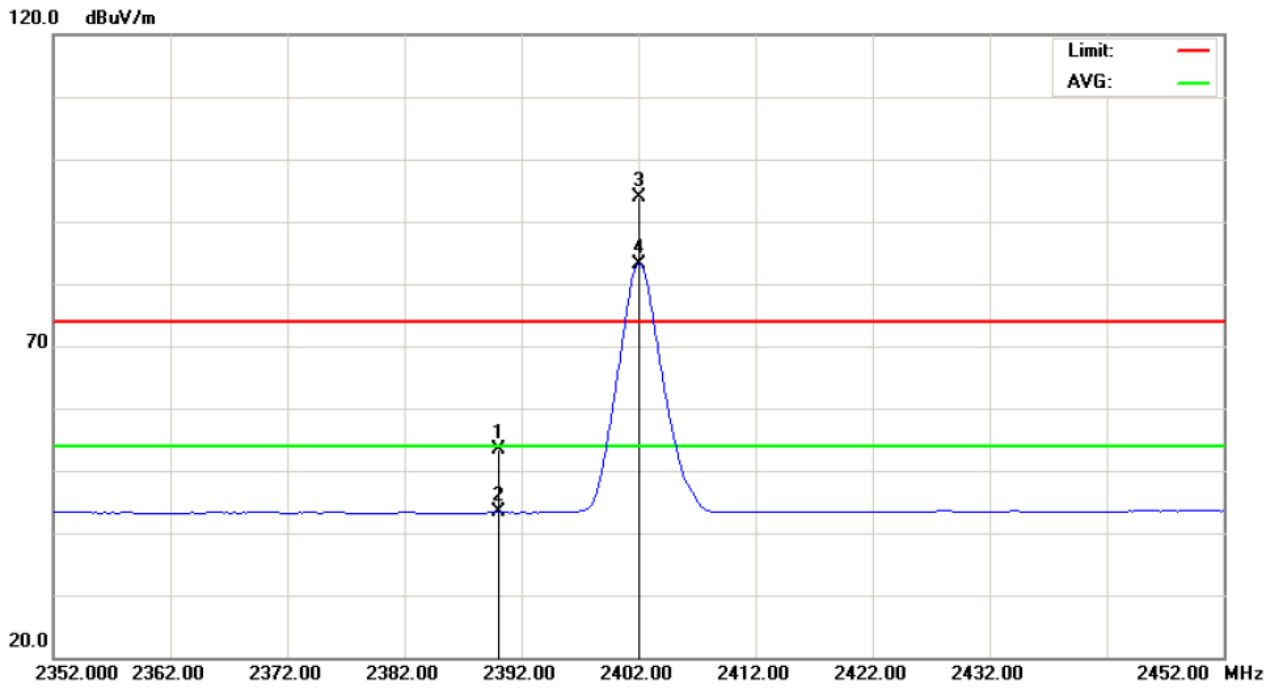
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	21.37	11.43	31.93	53.30	43.36	74.00	54.00	Y/E
2402.00	H	62.03	51.22	31.97	94.00	83.19			Y/F
4804.03	H	48.31	40.92	3.68	51.99	44.60	74.00	54.00	Y/H
7206.02	H	42.30	30.43	8.97	51.27	39.40	74.00	54.00	Y/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH00(Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH39		

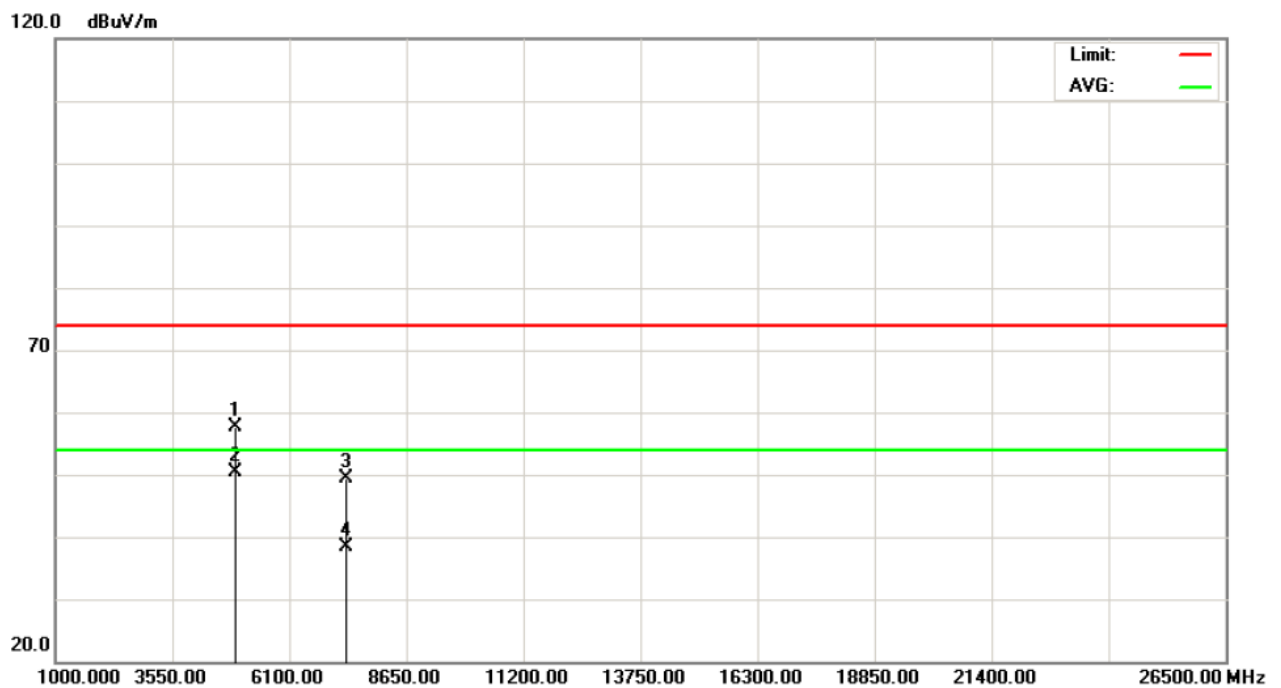
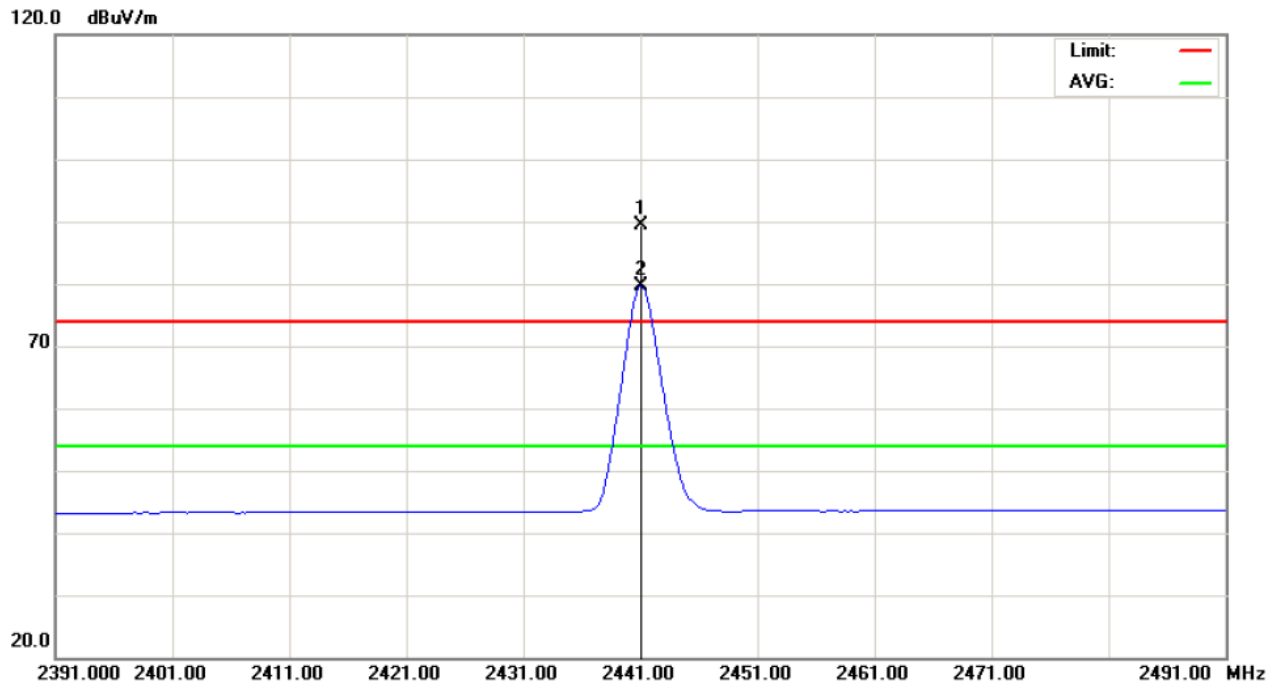
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	V	57.29	47.41	32.12	89.41	79.53			Y/F
4882.00	V	53.74	46.47	3.93	57.67	50.40	74.00	54.00	Y/H
7323.10	V	40.30	29.26	9.16	49.46	38.42	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH39 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH39		

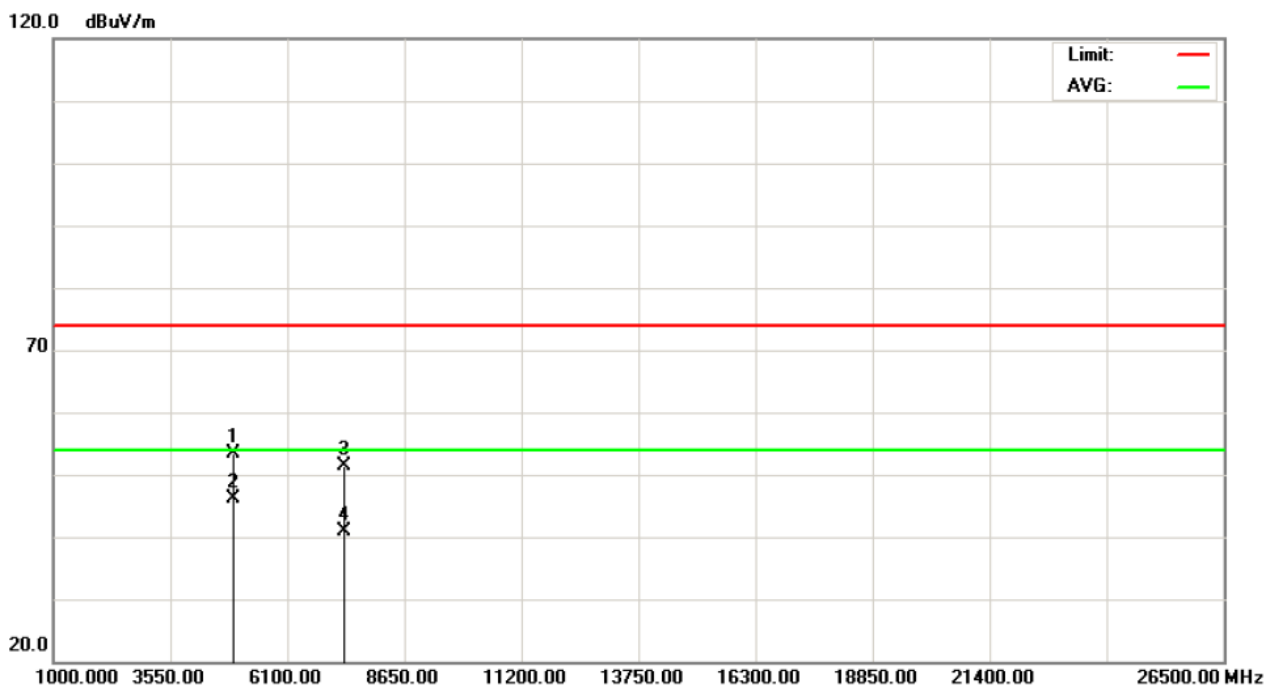
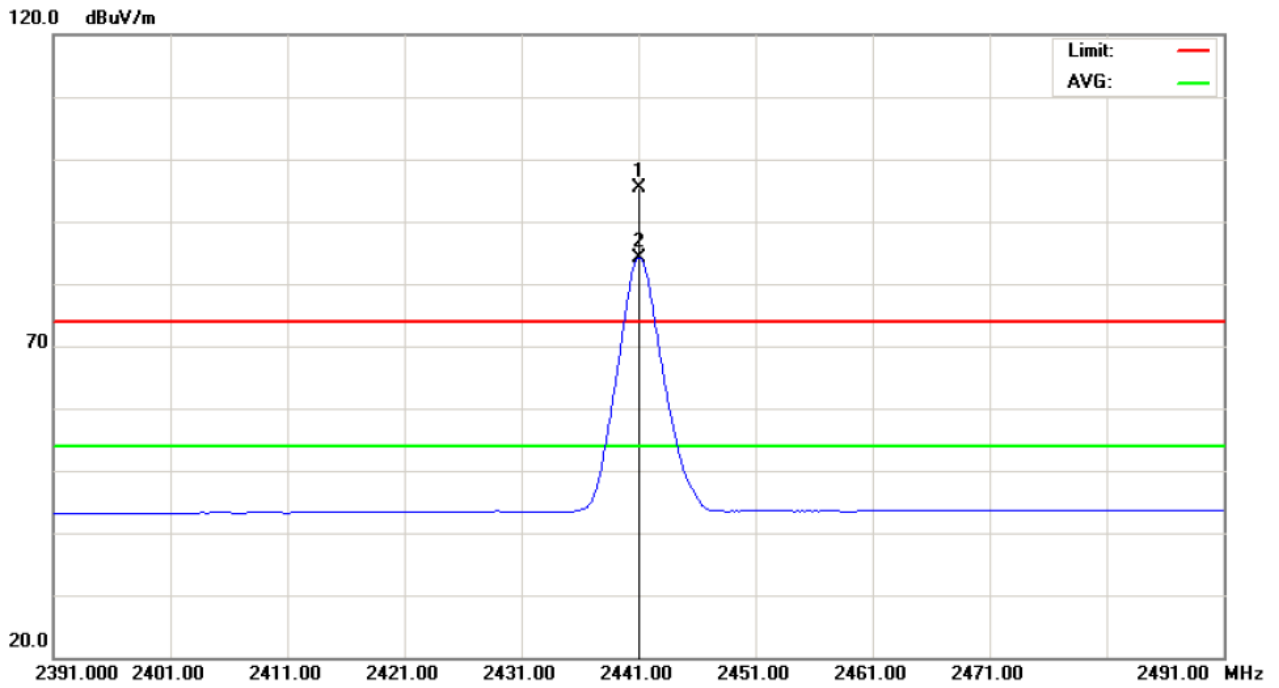
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	H	63.34	52.09	32.12	95.46	84.21			Y/F
4882.03	H	49.38	42.19	3.93	53.31	46.12	74.00	54.00	Y/H
7323.05	H	42.11	31.60	9.16	51.27	40.76	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH39 (Above 1000 MHz, Horizontal)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH78		

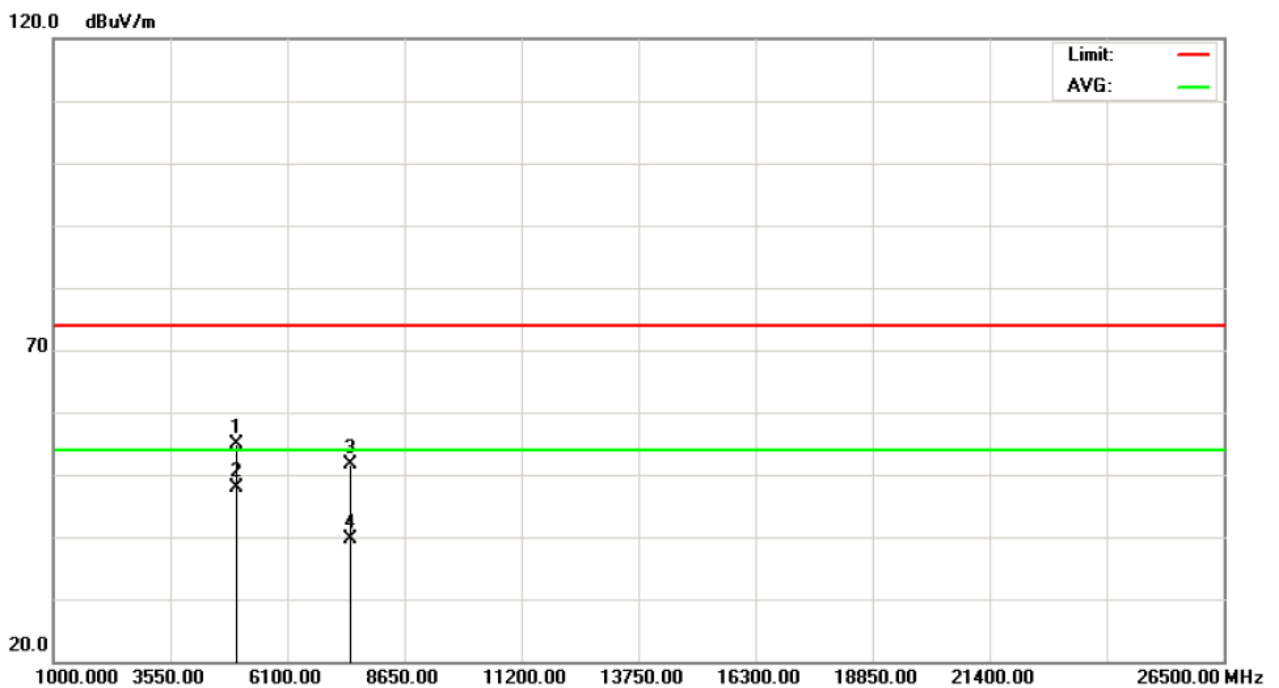
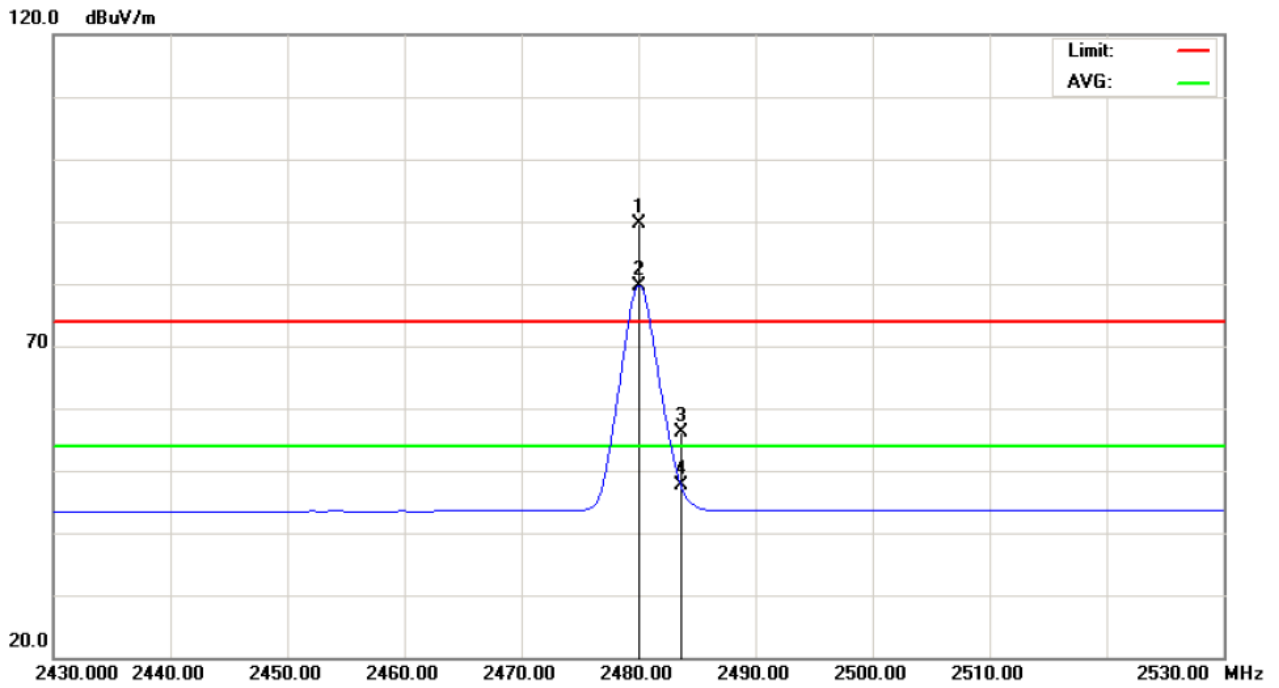
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	V	57.37	47.32	32.27	89.64	79.59			Y/F
2483.50	V	23.87	15.24	32.29	56.16	47.53	74.00	54.00	Y/E
4960.03	V	50.70	43.72	4.22	54.92	47.94	74.00	54.00	Y/H
7439.90	V	42.20	30.24	9.35	51.55	39.59	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦“F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH78 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_1Mbps_CH78		

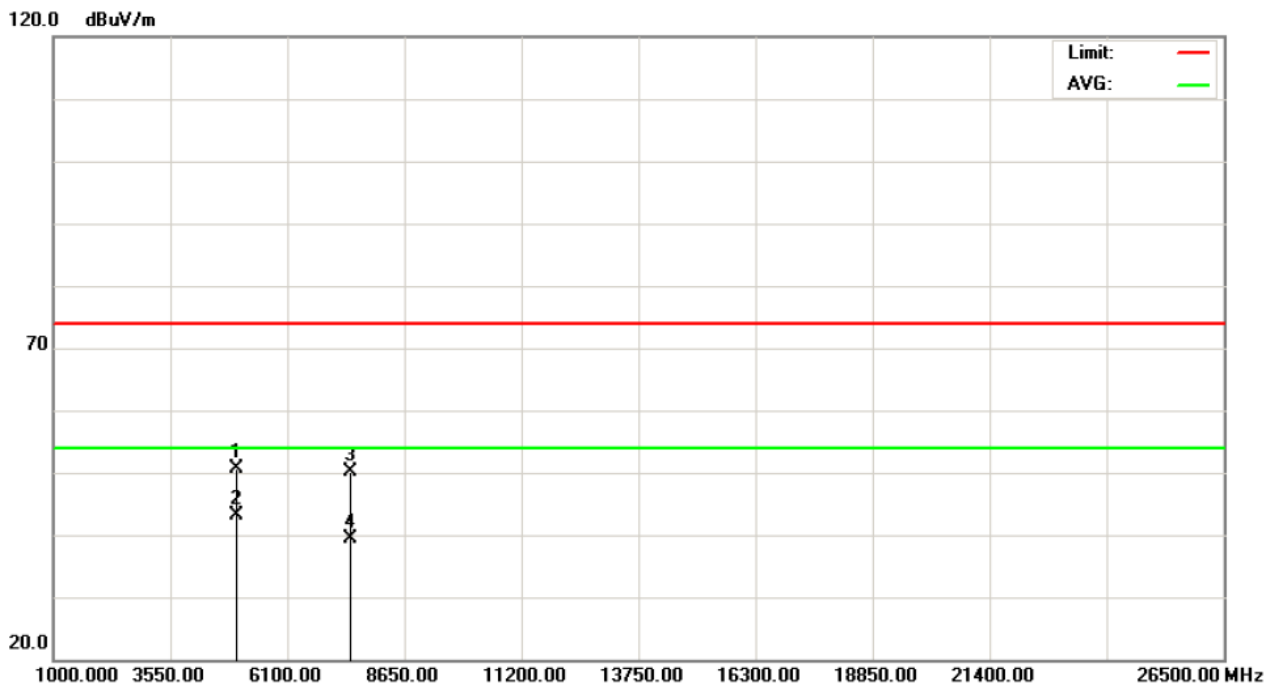
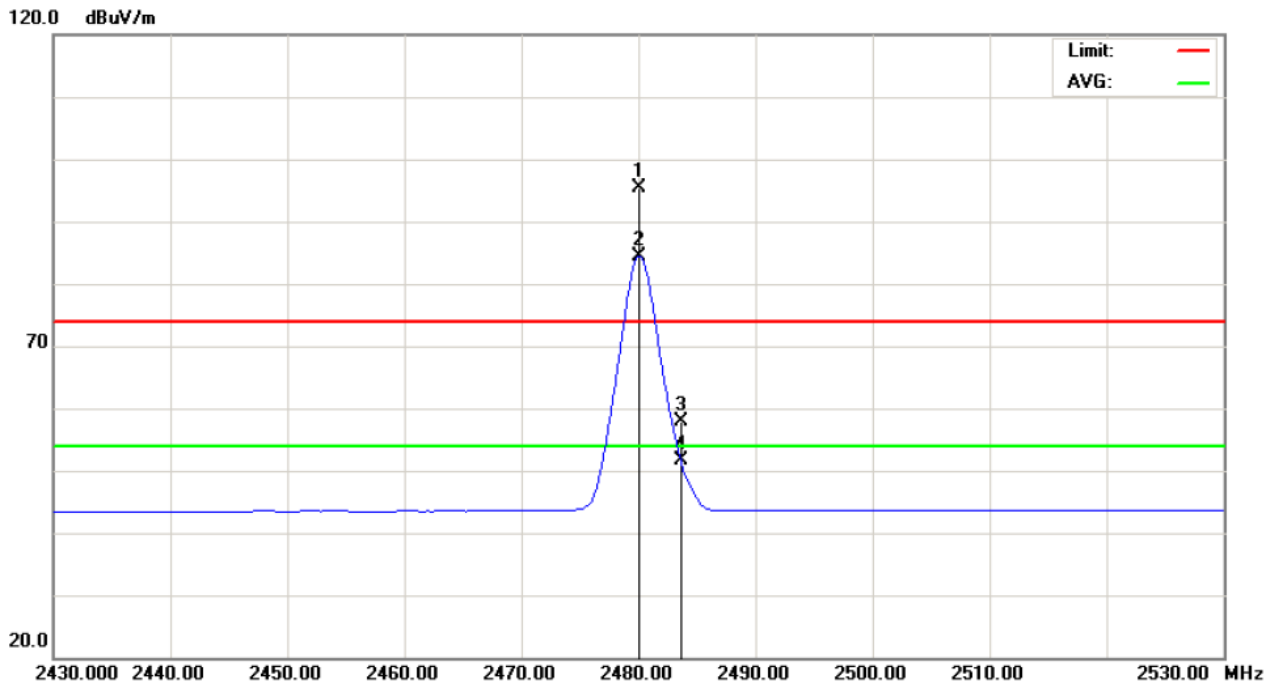
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	H	63.19	52.22	32.27	95.46	84.49			Y/F
2483.50	H	25.57	19.36	32.29	57.86	51.65	74.00	54.00	Y/E
4960.03	H	46.49	39.00	4.17	50.66	43.17	74.00	54.00	Y/H
7440.08	H	40.83	30.11	9.35	50.18	39.46	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_1Mbps\_CH78 (Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH00		

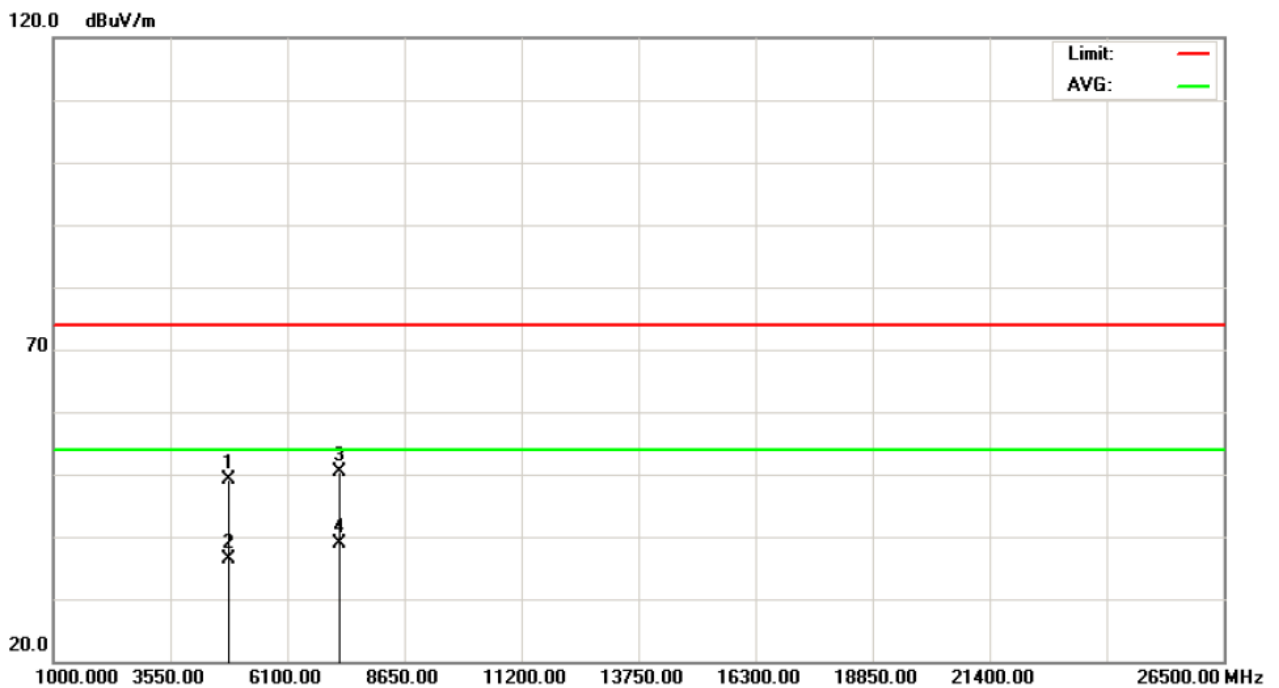
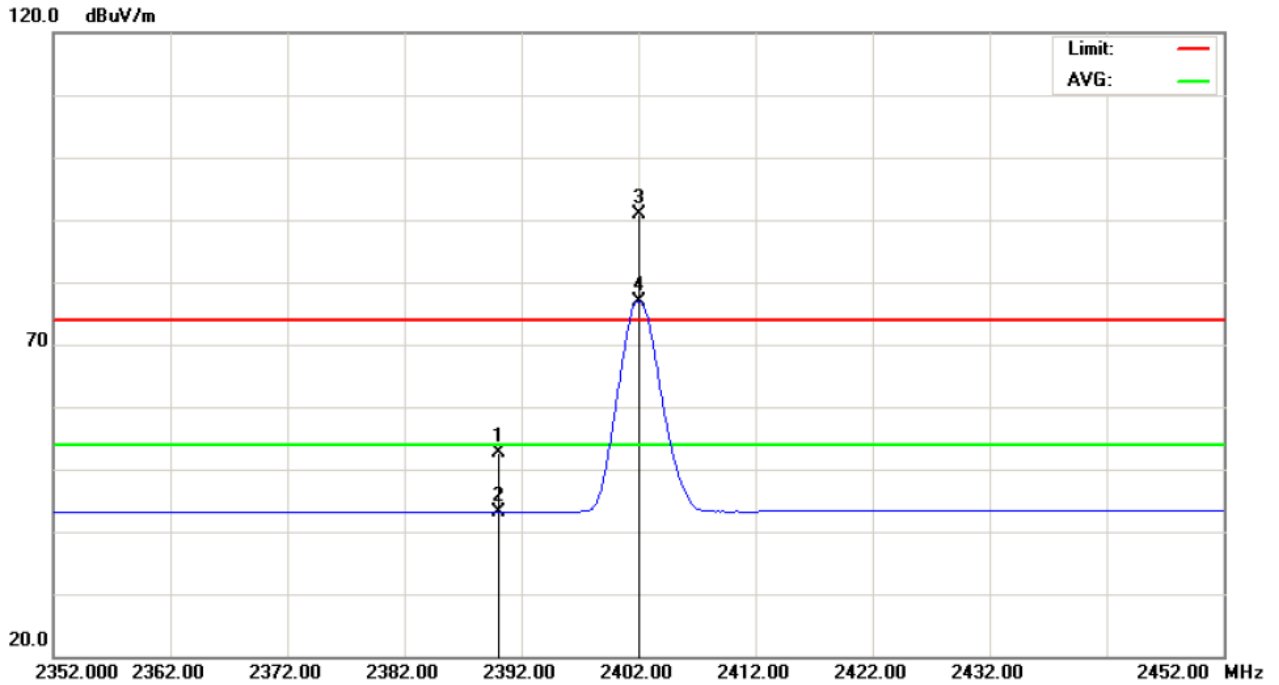
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	20.59	11.22	31.93	52.52	43.15	74.00	54.00	Y/E
2402.00	V	58.87	44.99	31.97	90.84	76.96			Y/F
4804.03	V	45.48	32.80	3.68	49.16	36.48	74.00	54.00	Y/H
7206.10	V	41.31	30.01	8.97	50.28	38.98	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH00(Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH00		

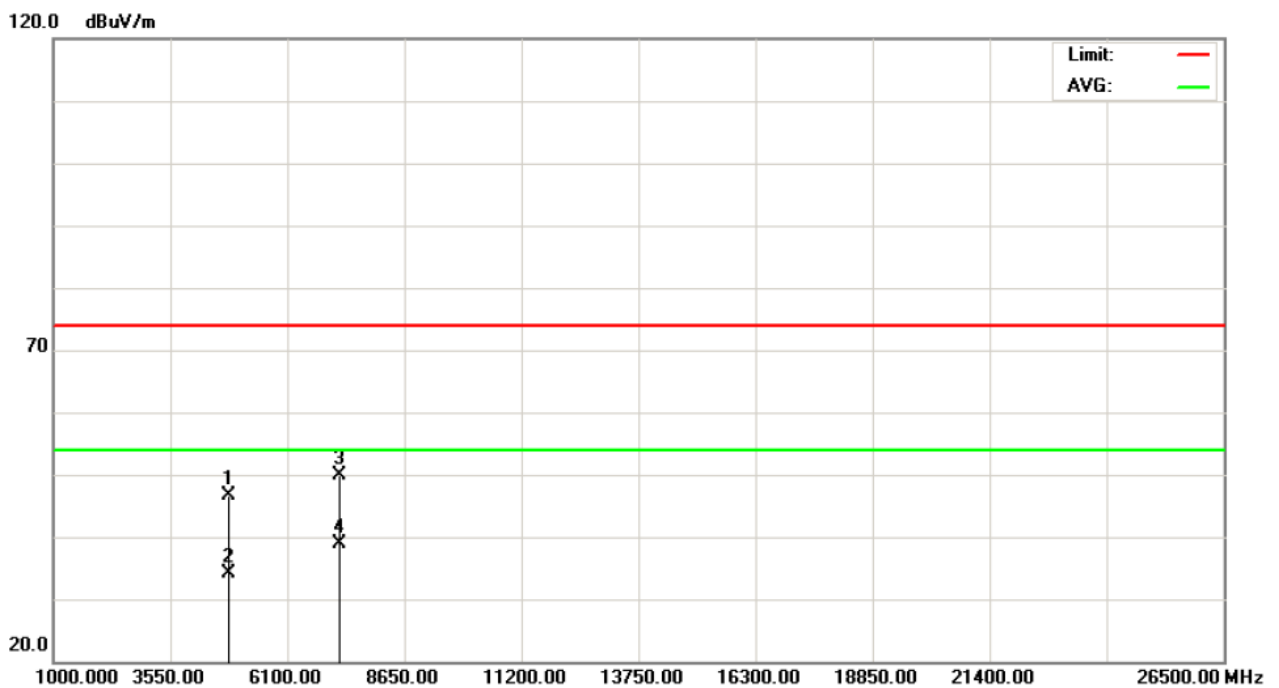
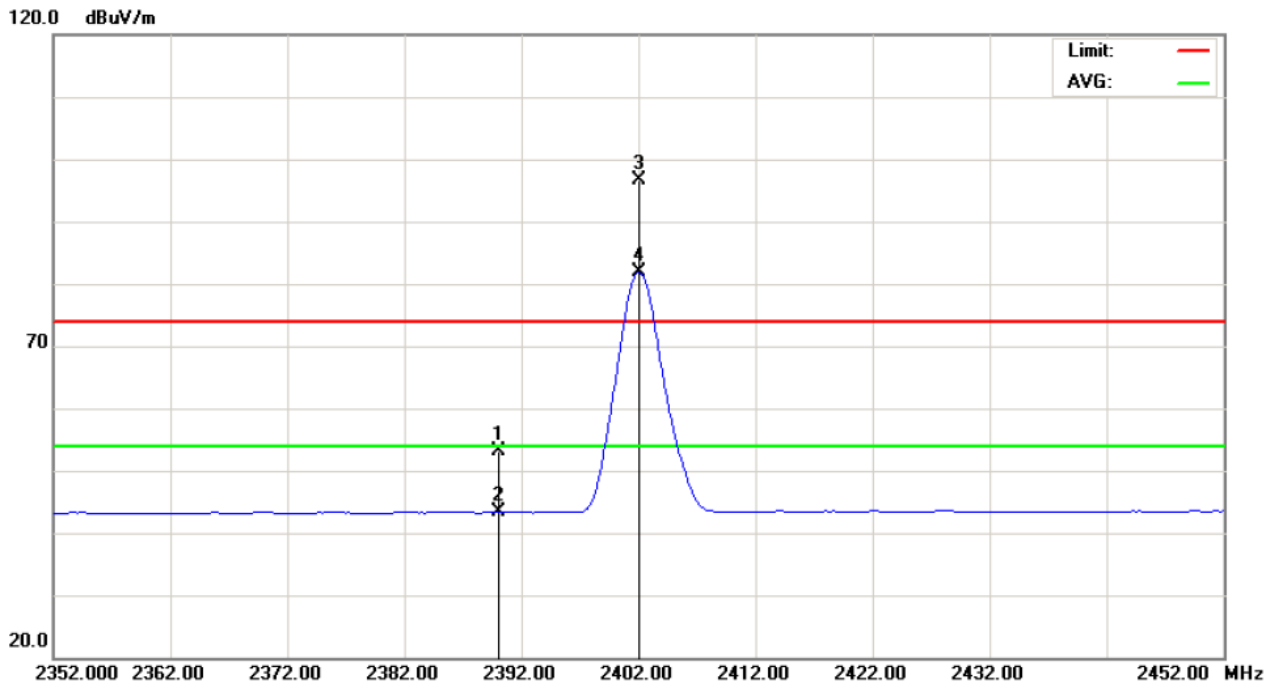
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	21.30	11.49	31.93	53.23	43.42	74.00	54.00	Y/E
2402.00	H	64.69	49.87	31.97	96.66	81.84			Y/F
4804.01	H	42.84	30.55	3.68	46.52	34.23	74.00	54.00	Y/H
206.11	H	40.90	29.98	8.97	49.87	38.95	63.50	43.50	Y/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH00(Above 1000 MHz, Horizontal)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH39		

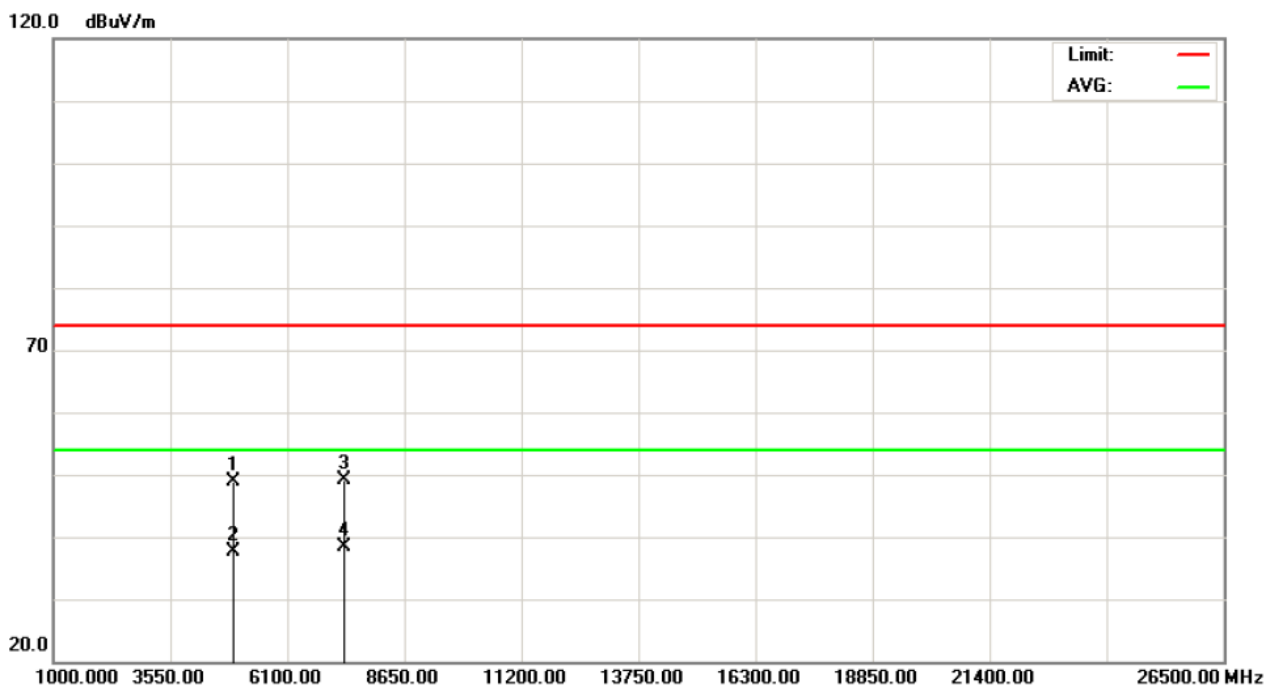
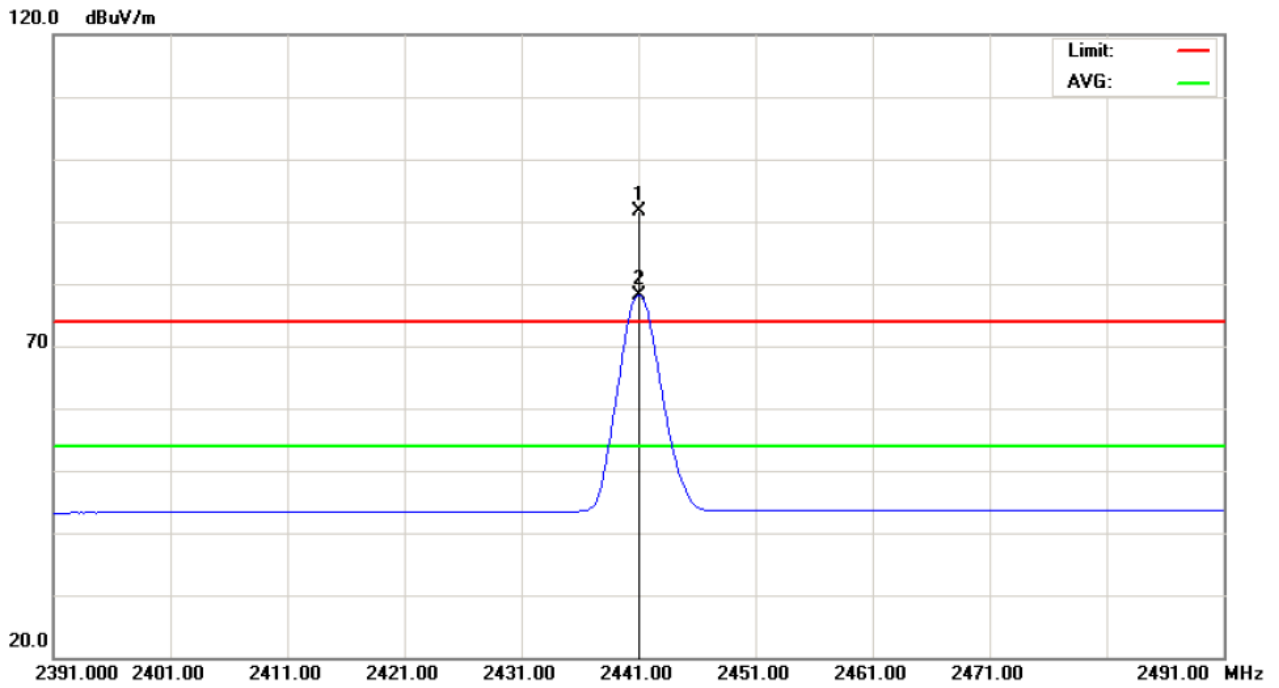
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	V	59.63	45.95	32.12	91.75	78.07			Y/F
4882.03	V	44.86	33.67	3.93	48.79	37.60	74.00	54.00	Y/H
7323.08	V	39.87	29.10	9.16	49.03	38.26	74.00	54.00	Y/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH39 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH39		

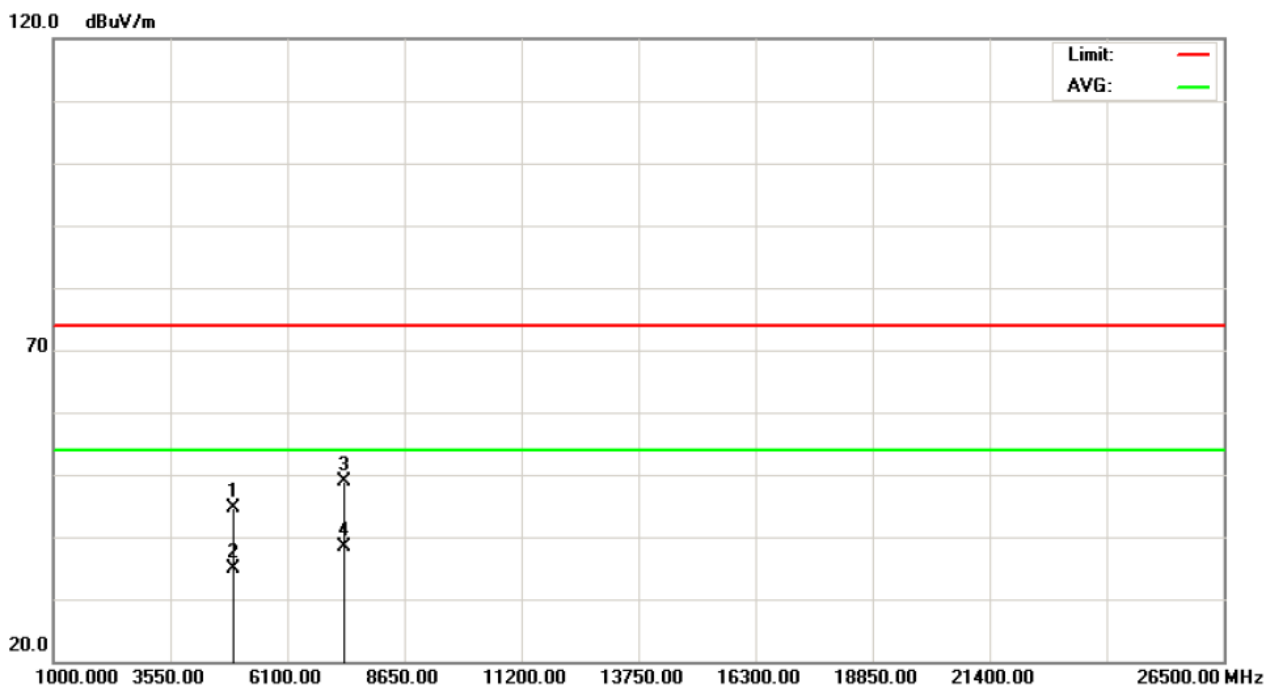
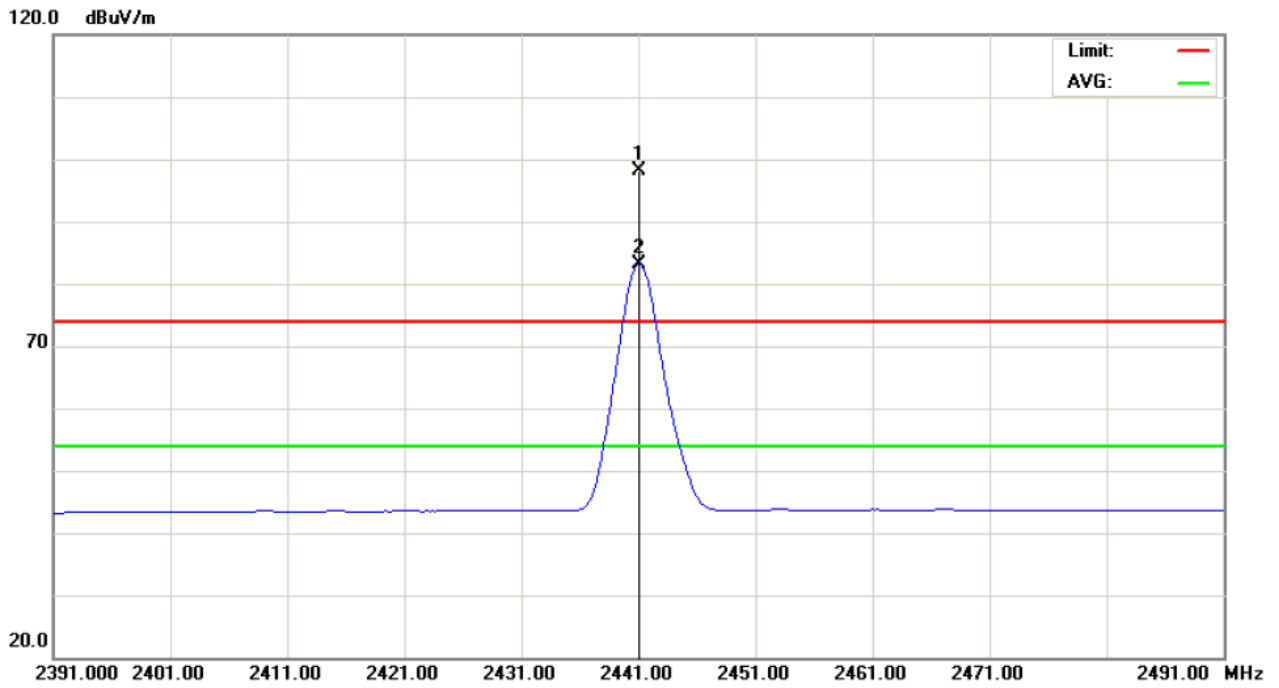
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2441.00	H	65.91	50.94	32.12	98.03	83.06			Y/F
4882.05	H	40.73	30.97	3.93	44.66	34.90	74.00	54.00	Y/H
7322.91	H	39.68	29.11	9.16	48.84	38.27	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH39 (Above 1000 MHz, Horizontal)







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH78		

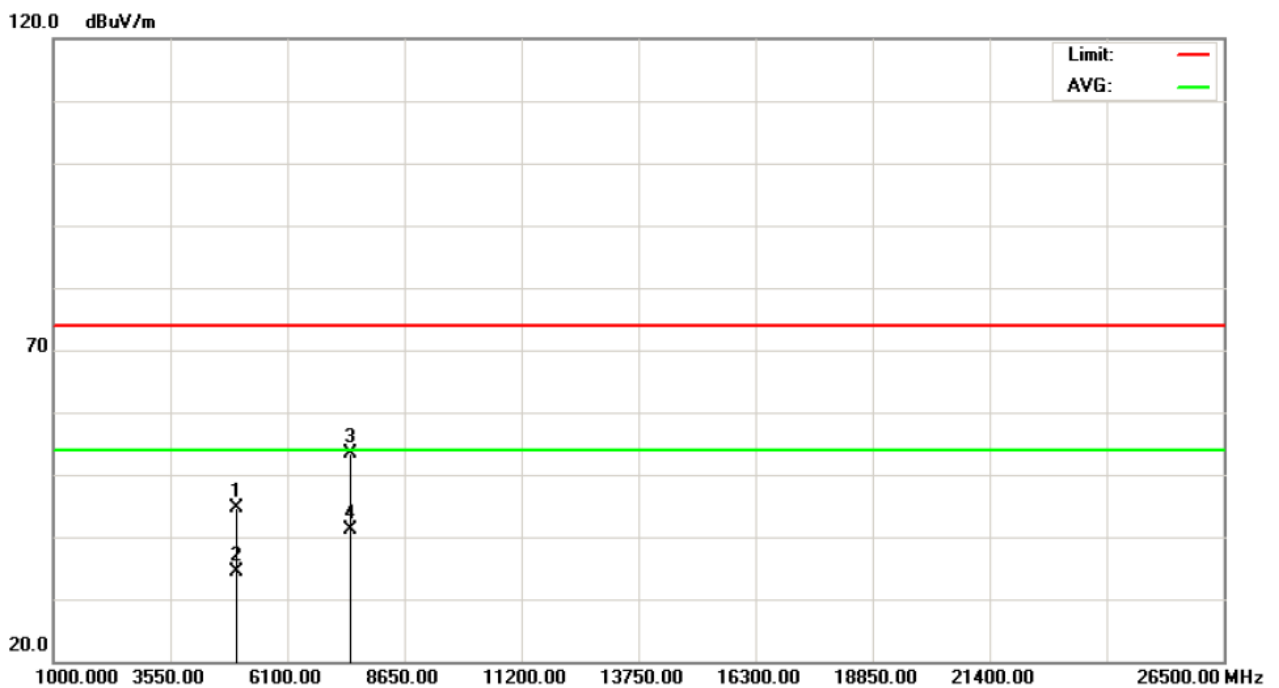
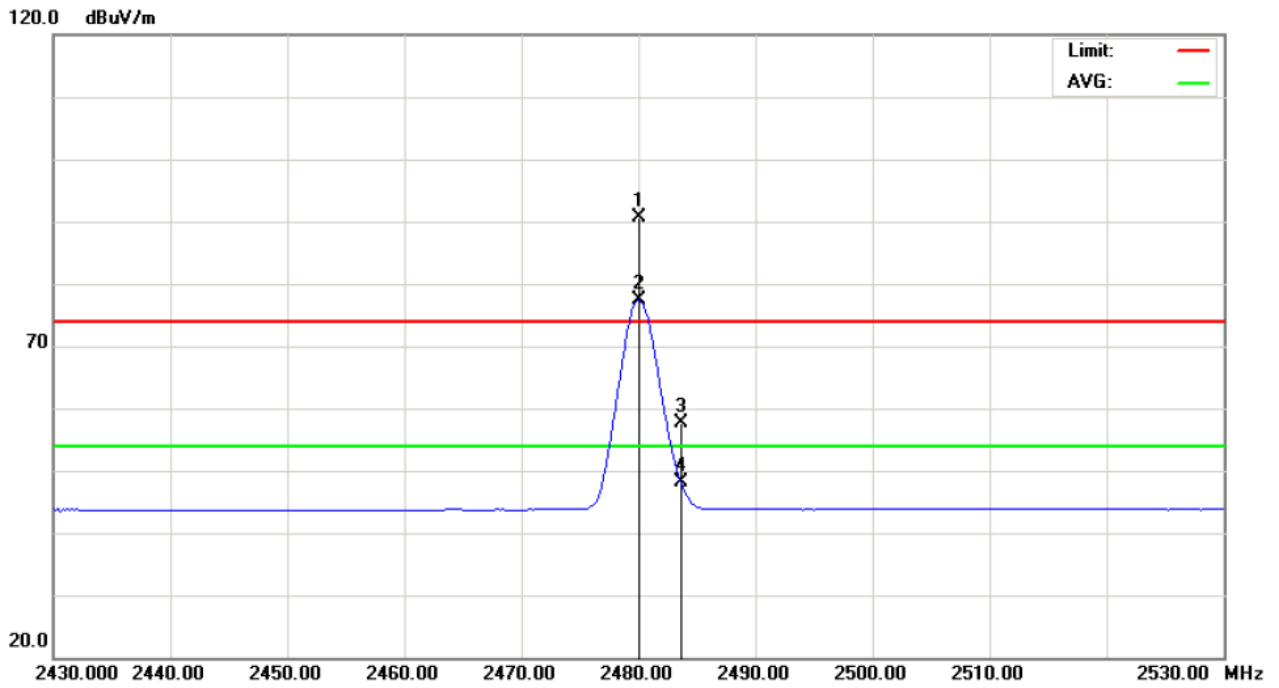
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	V	58.42	45.00	32.27	90.69	77.27			Y/F
2483.50	V	25.39	15.93	32.29	57.68	48.22	74.00	54.00	Y/E
4960.08	V	40.55	30.18	4.17	44.72	34.35	74.00	54.00	Y/H
7437.48	V	44.00	31.72	9.35	53.35	41.07	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH78 (Above 1000 MHz, Vertical)





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz	EUT Orthogonal Axis :	Y
Test Mode :	Sample 2_3Mbps_CH78		

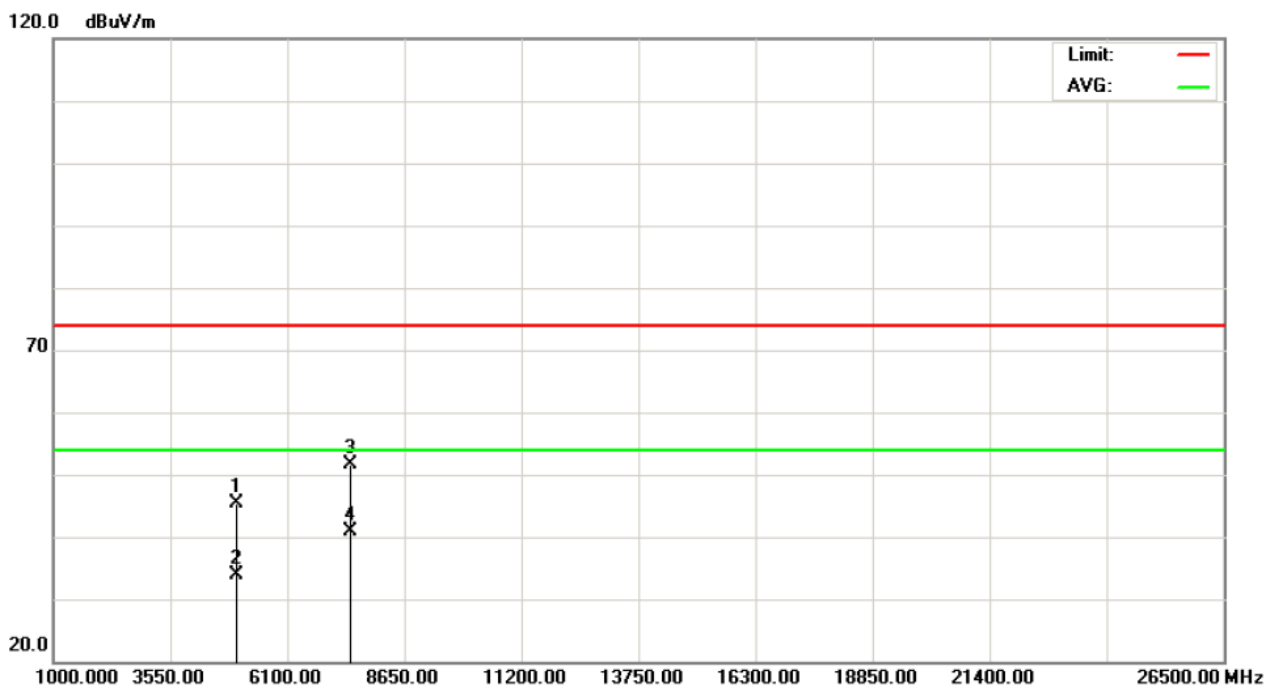
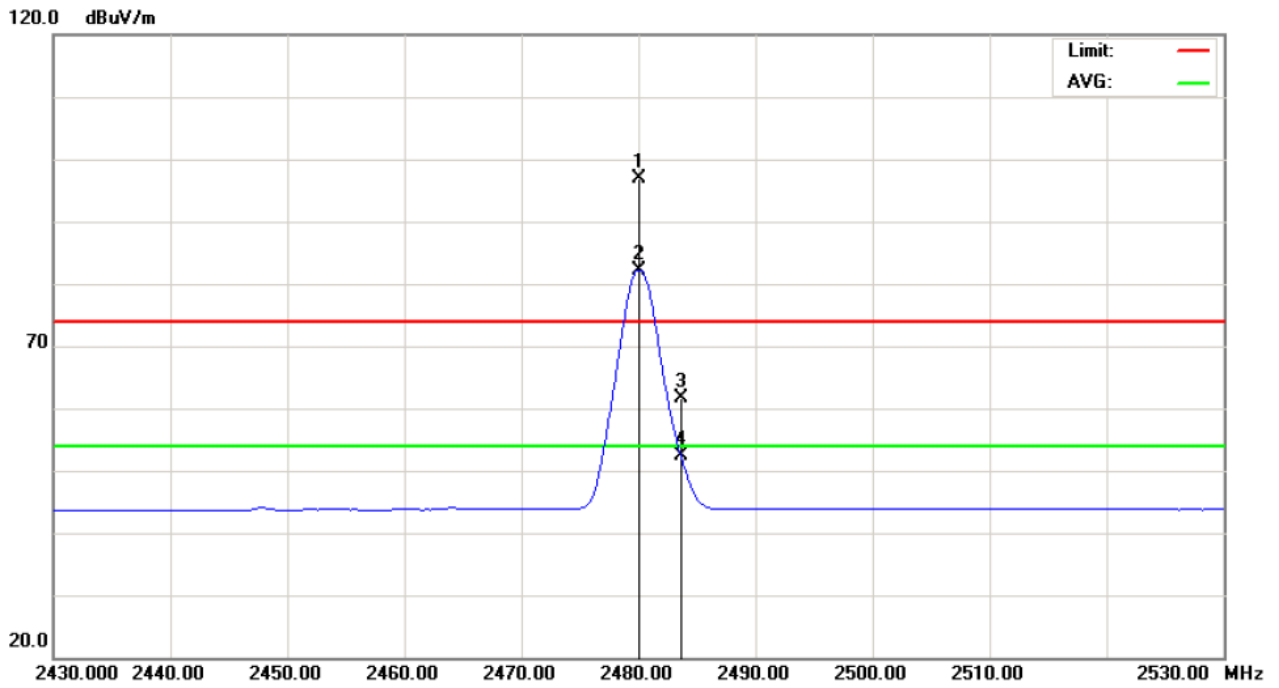
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2480.00	H	64.69	49.96	32.27	96.96	82.23			Y/F
2483.50	H	29.41	20.17	32.29	61.70	52.46	74.00	54.00	Y/E
4958.74	H	41.31	29.72	4.17	45.48	33.89	74.00	54.00	Y/H
7440.32	H	42.39	31.64	9.35	51.74	40.99	74.00	54.00	Y/H

**Remark :**

- (1) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency ◦ “F” denotes fundamental frequency; “H” denotes spurious frequency. “E” denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (4) Data of measurement within this frequency range shown “ \* ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis :  
“X” - denotes Laid on Table ; “Y” - denotes Vertical Stand ; “Z” - denotes Side Stand
- (7) 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



Orthogonal Axis : Y  
Sample 2\_3Mbps\_CH78 (Above 1000 MHz, Horizontal)





**4.2.9 TEST RESULTS-RESTRICTED BANDS REQUIREMENTS**

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

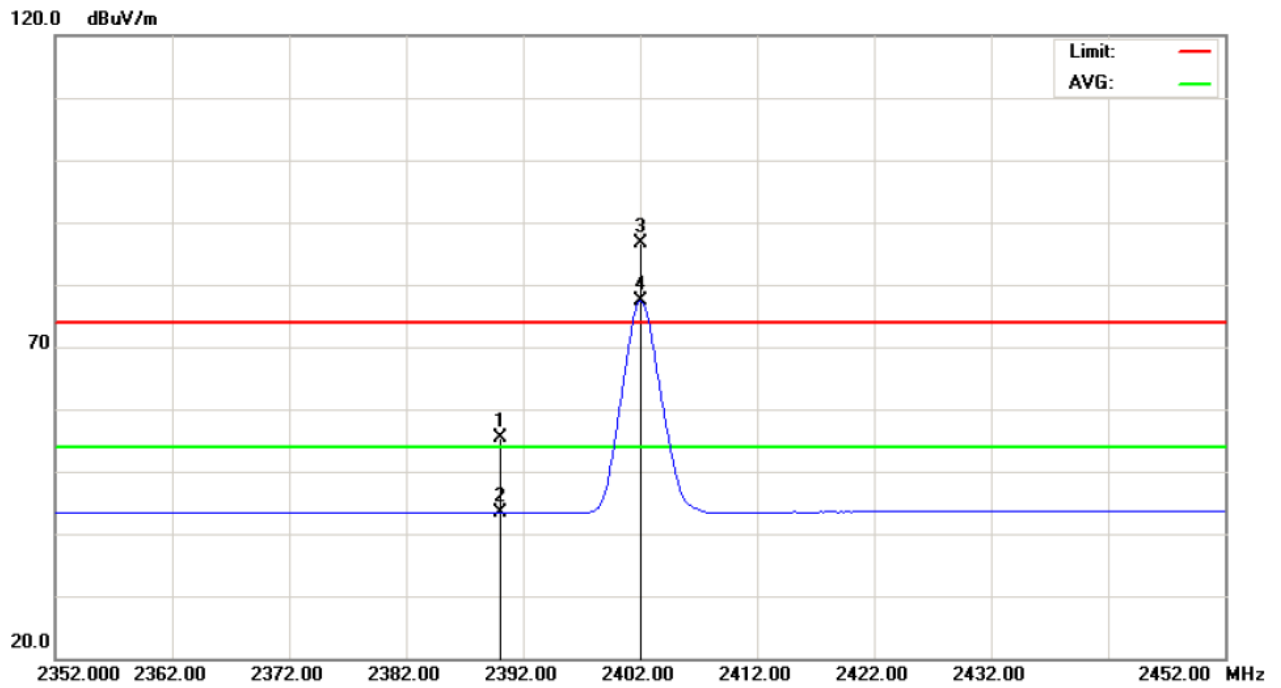
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	23.45	11.41	31.94	55.39	43.35	74.00	54.00	CH00
2483.50	V	23.67	13.32	32.37	56.04	45.69	74.00	54.00	CH78

Remark :

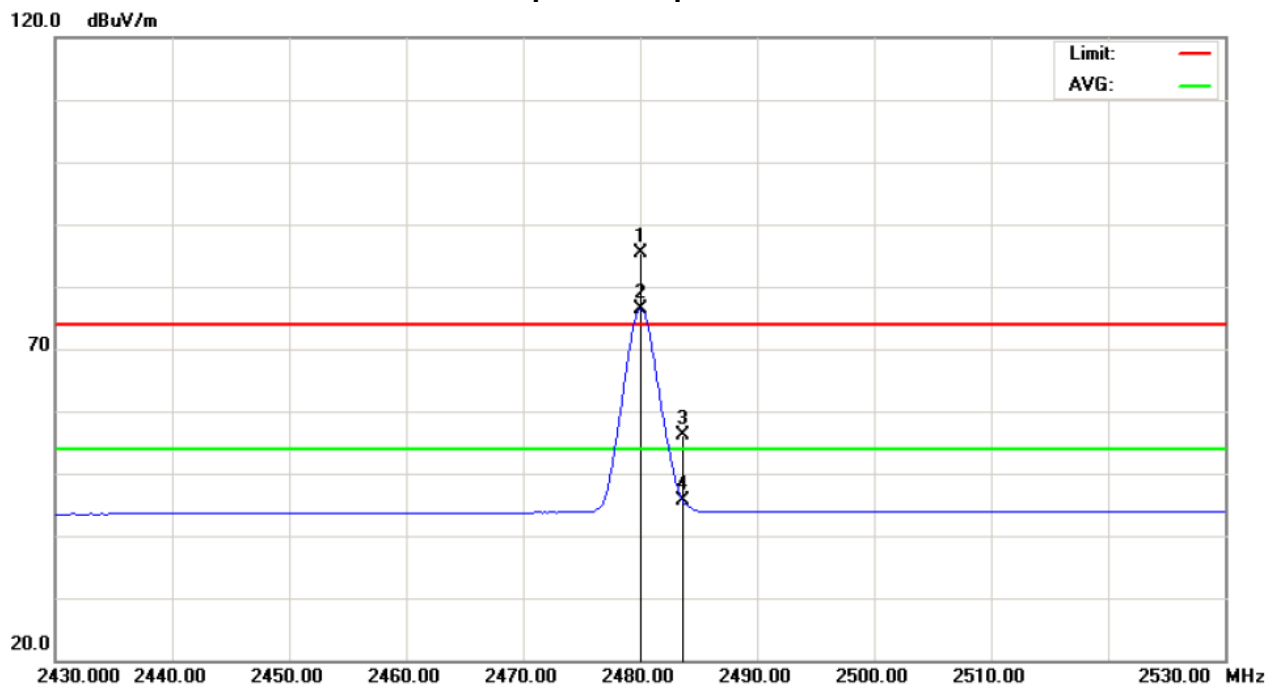
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



### Restricted Bands Requirements, Vertical Sample 1\_1Mbps\_CH00



### Sample 1\_1Mbps\_CH78





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

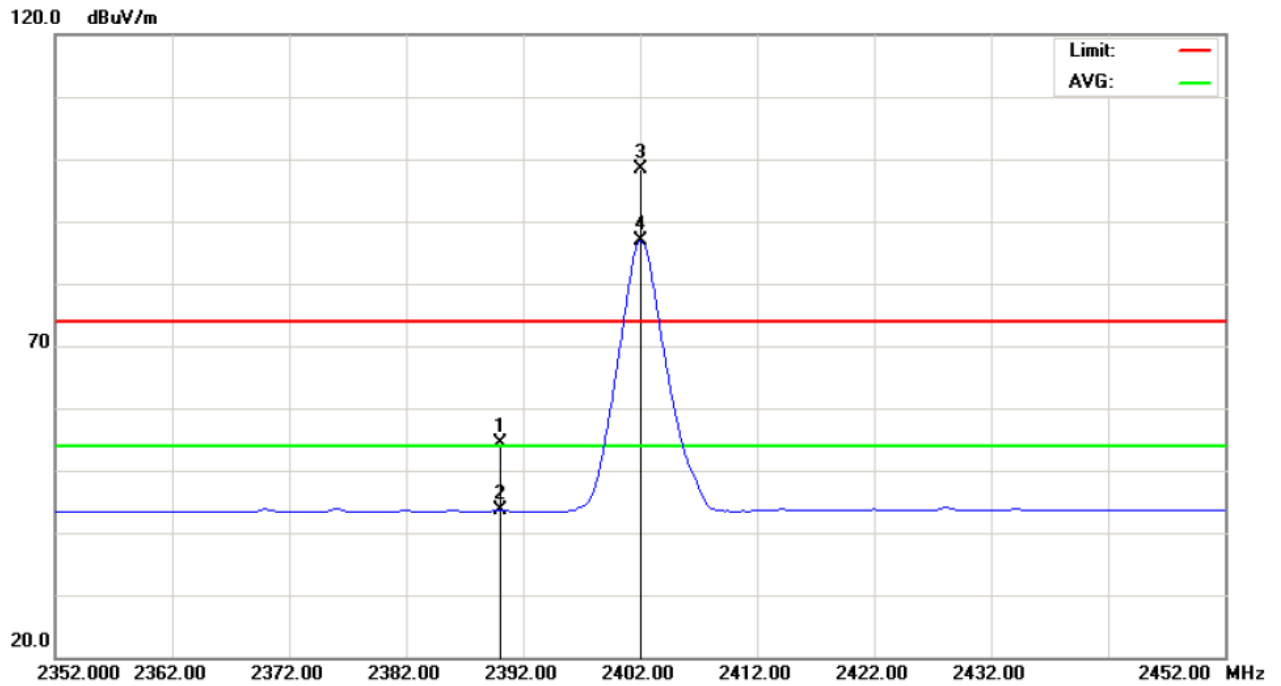
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	22.43	11.78	31.94	54.37	43.72	74.00	54.00	CH00
2483.50	H	27.03	20.58	32.37	59.40	52.95	74.00	54.00	CH78

Remark :

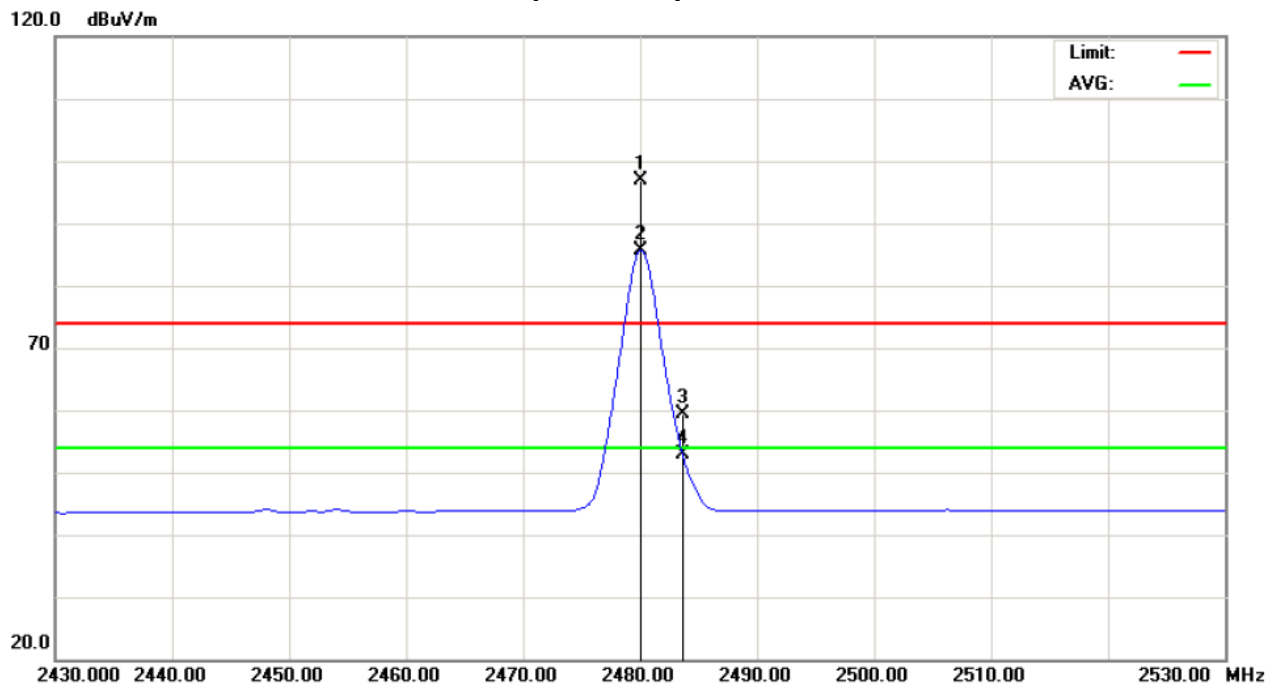
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



### Restricted Bands Requirements, Horizontal Sample 1\_1Mbps\_CH00



### Sample 1\_1Mbps\_CH78







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

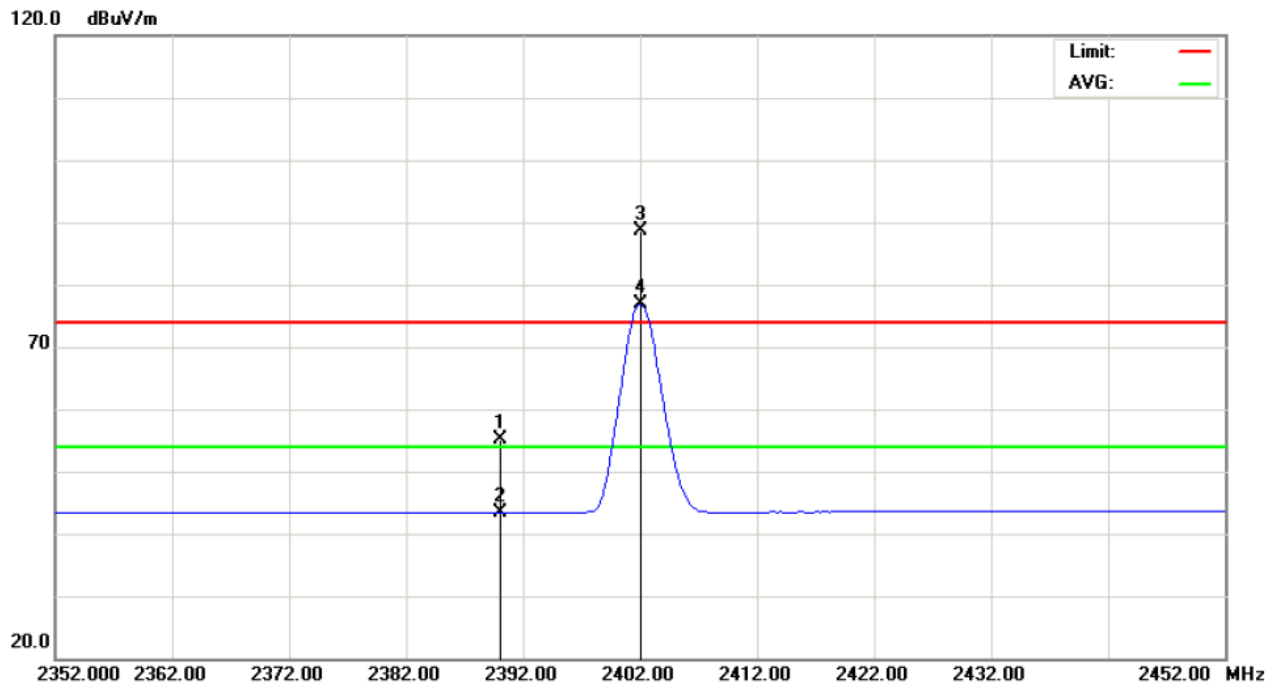
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	23.14	11.41	31.94	55.08	43.35	74.00	54.00	CH00
2483.50	V	24.45	14.57	32.37	56.82	46.94	74.00	54.00	CH78

Remark :

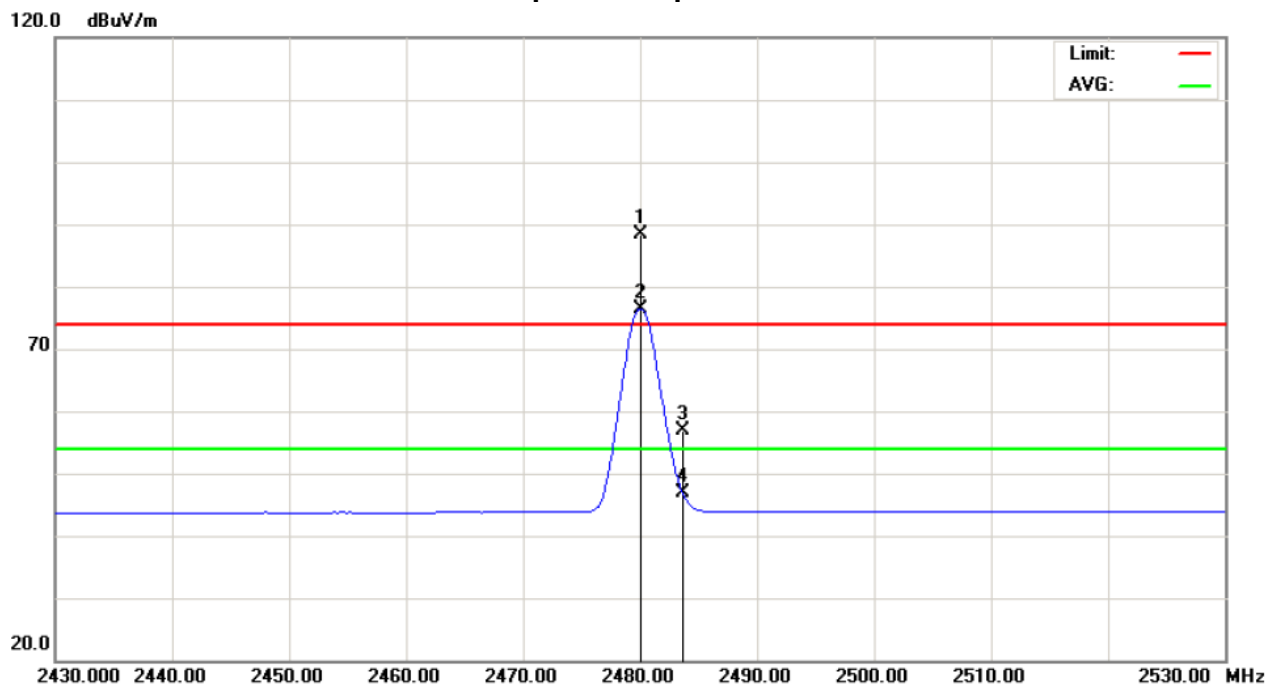
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



### Restricted Bands Requirements, Vertical Sample 1\_3Mbps\_CH00



### Sample 1\_3Mbps\_CH78





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

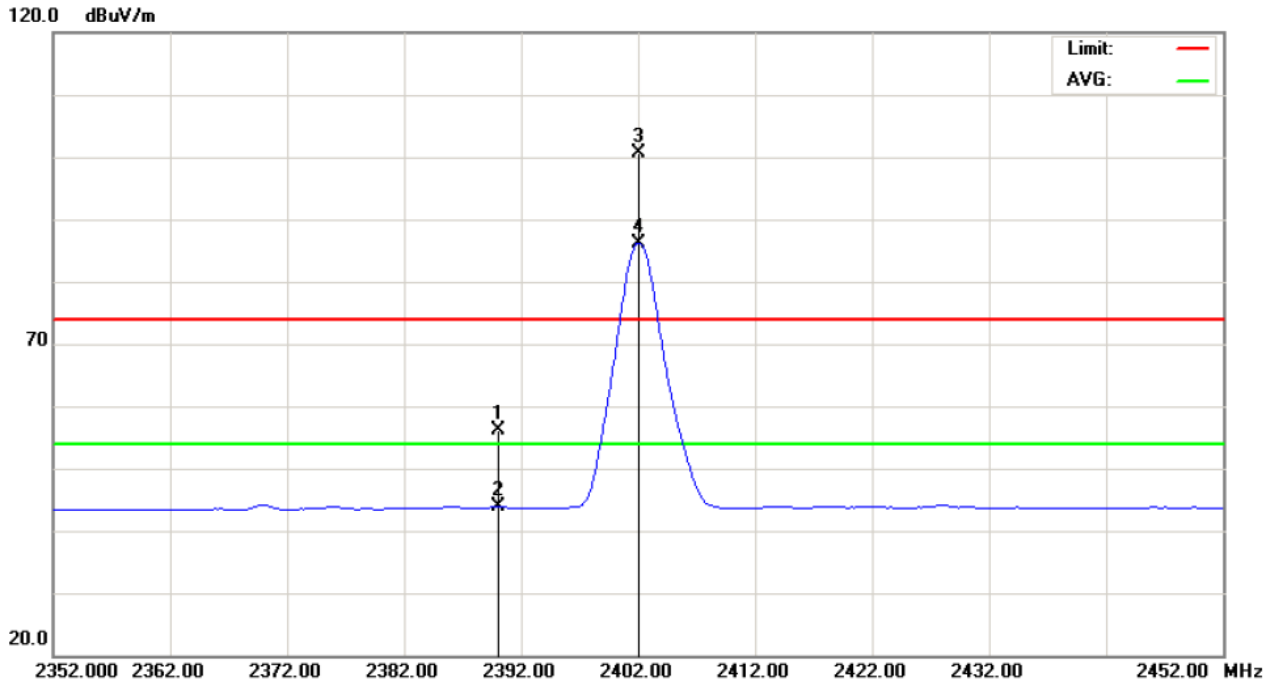
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	24.24	11.93	31.94	56.18	43.87	74.00	54.00	CH00
2483.50	H	30.82	21.40	32.37	63.19	53.77	74.00	54.00	CH78

**Remark :**

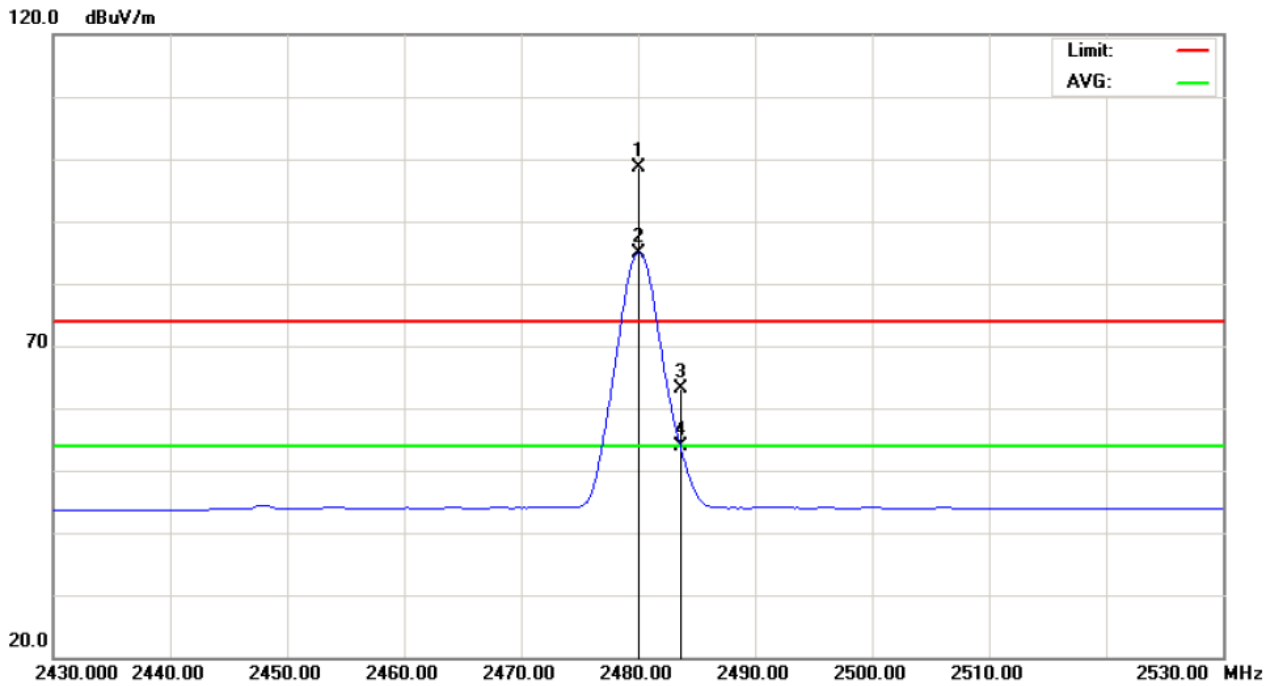
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



Restricted Bands Requirements, Horizontal  
Sample 1\_3Mbps\_CH00



Sample 1\_3Mbps\_CH78





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

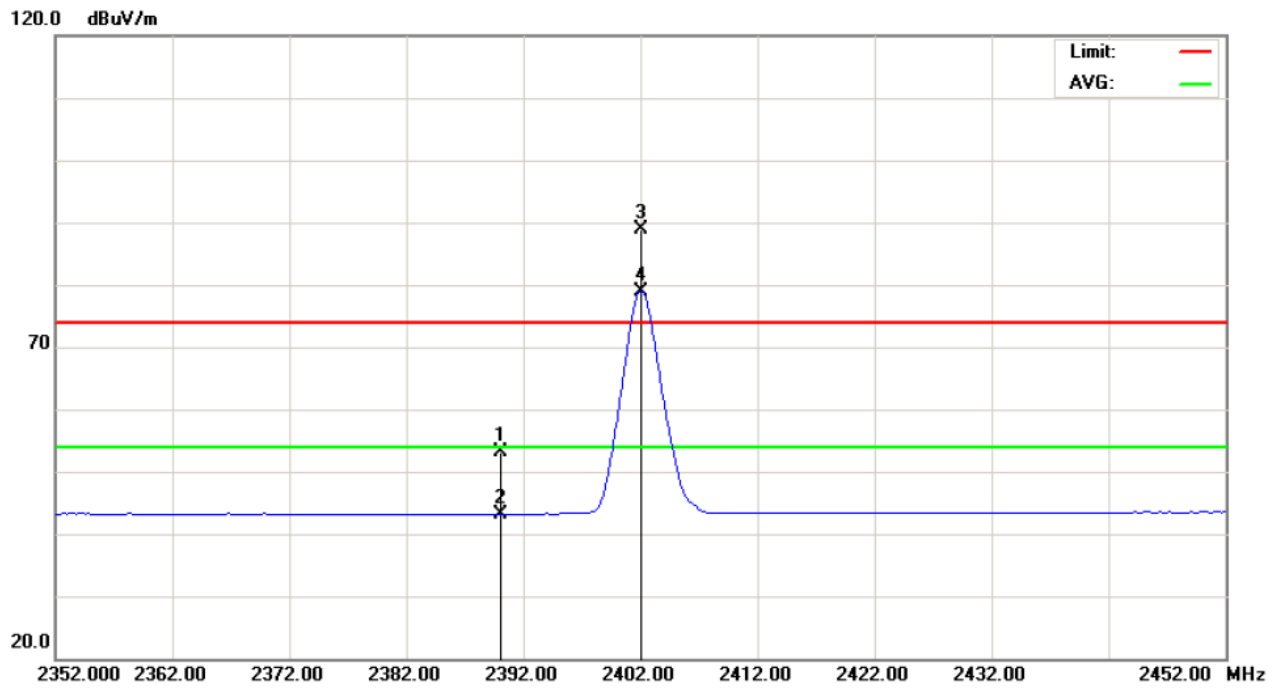
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	21.18	11.27	31.93	53.11	43.20	74.00	54.00	CH00
2483.50	V	23.87	15.24	32.29	56.16	47.53	74.00	54.00	CH78

Remark :

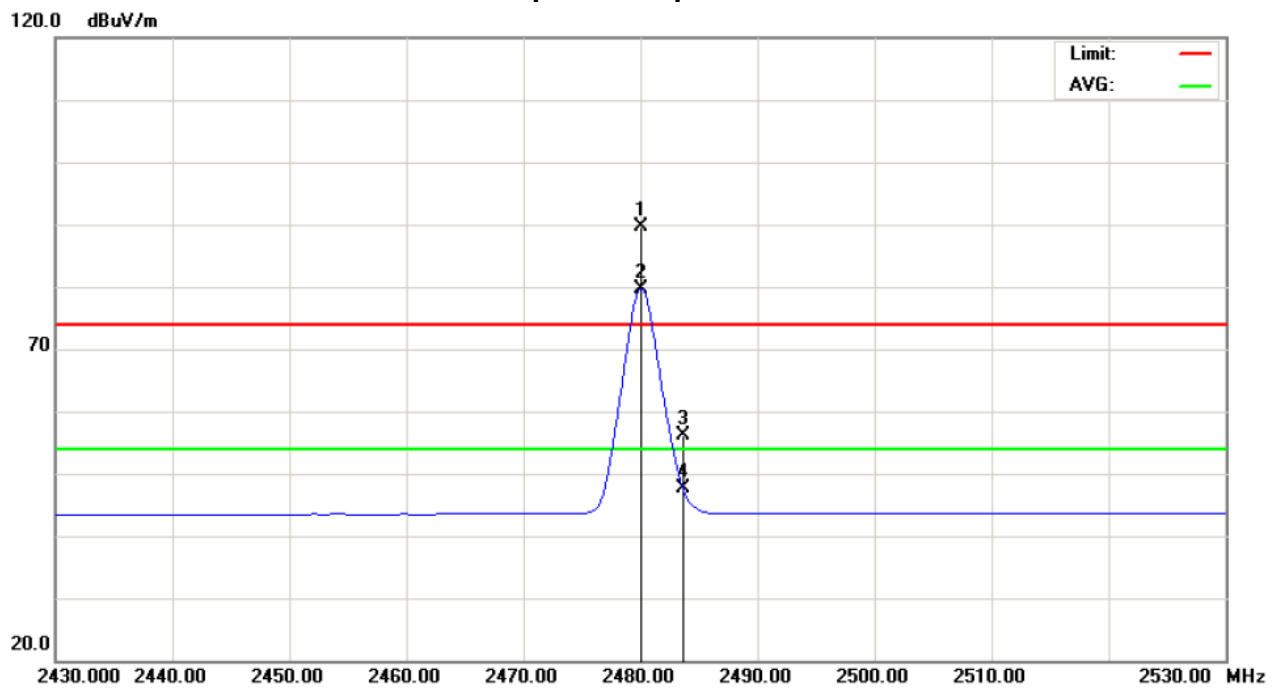
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



### Restricted Bands Requirements, Vertical Sample 2\_1Mbps\_CH00



### Sample 2\_1Mbps\_CH78





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

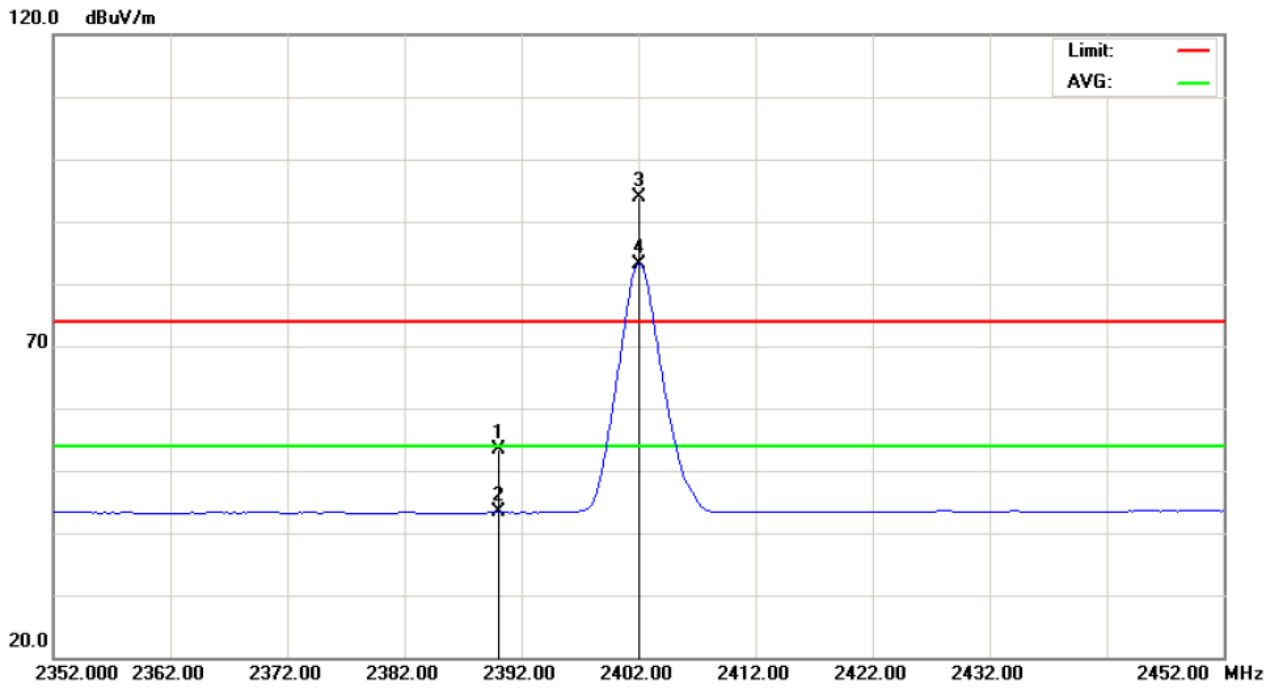
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	21.37	11.43	31.93	53.30	43.36	74.00	54.00	CH00
2483.50	H	25.57	19.36	32.29	57.86	51.65	74.00	54.00	CH78

Remark :

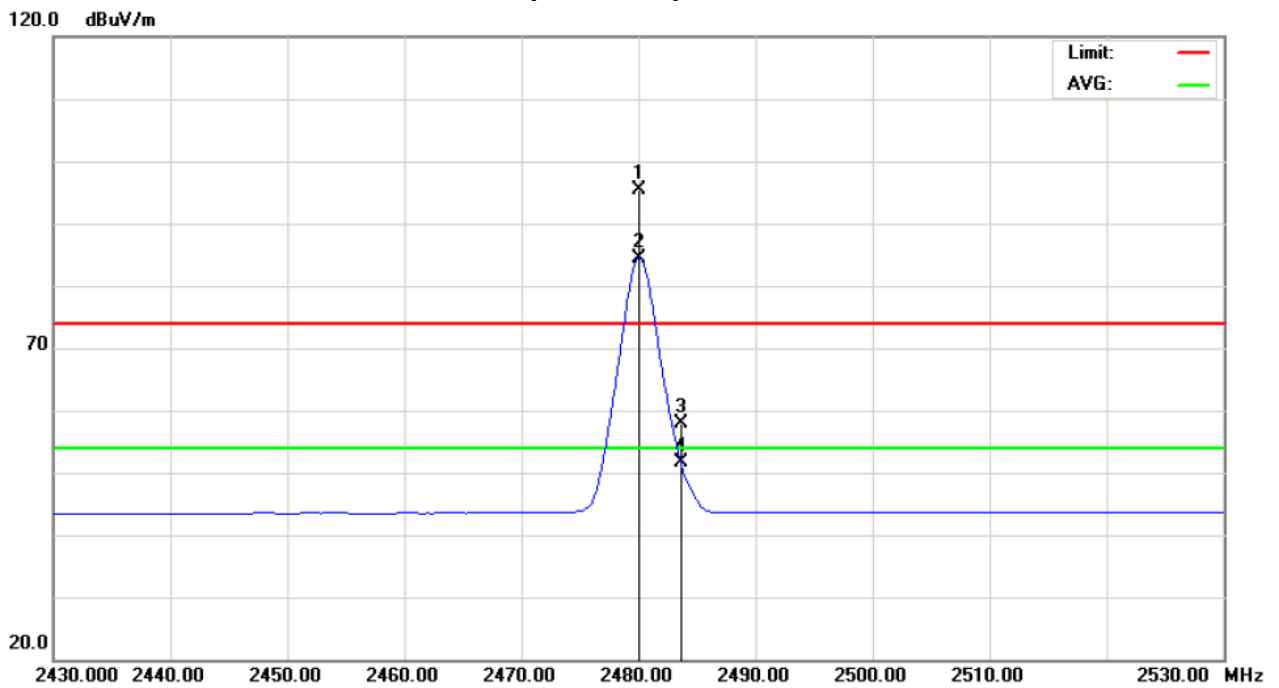
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



Restricted Bands Requirements, Horizontal  
Sample 2\_1Mbps\_CH00



Sample 2\_1Mbps\_CH78







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

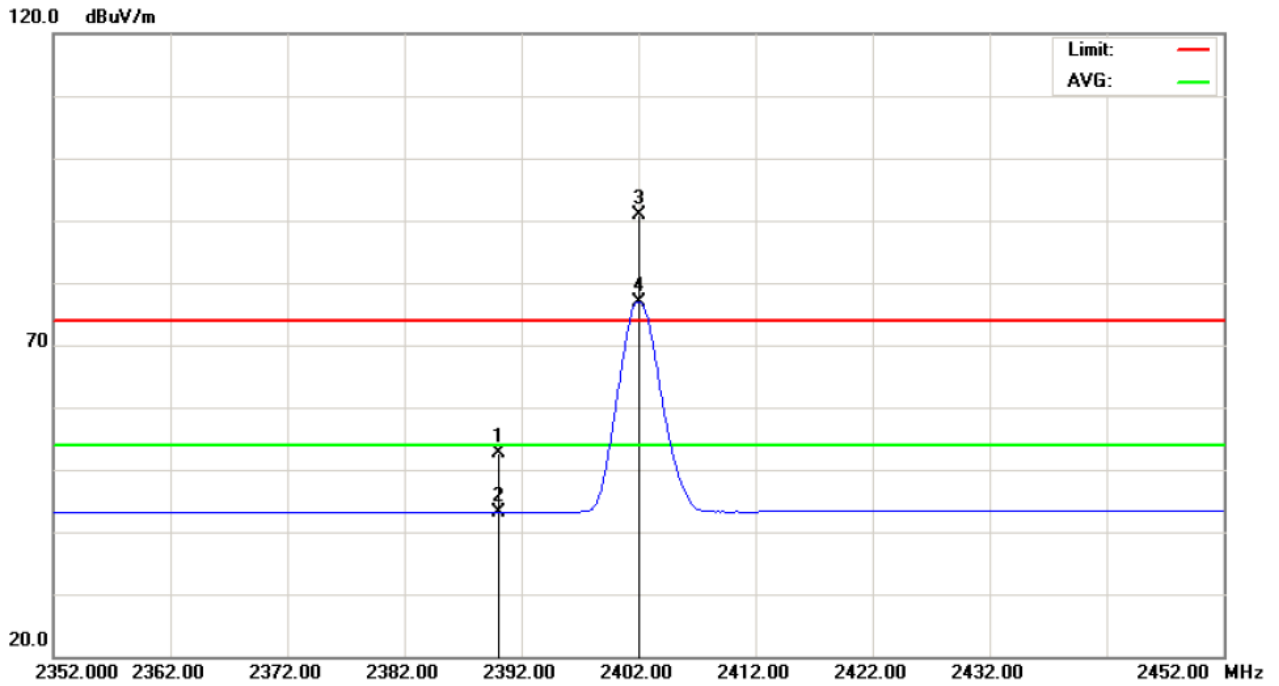
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	V	20.59	11.22	31.93	52.52	43.15	74.00	54.00	CH00
2483.50	V	25.39	15.93	32.29	57.68	48.22	74.00	54.00	CH78

Remark :

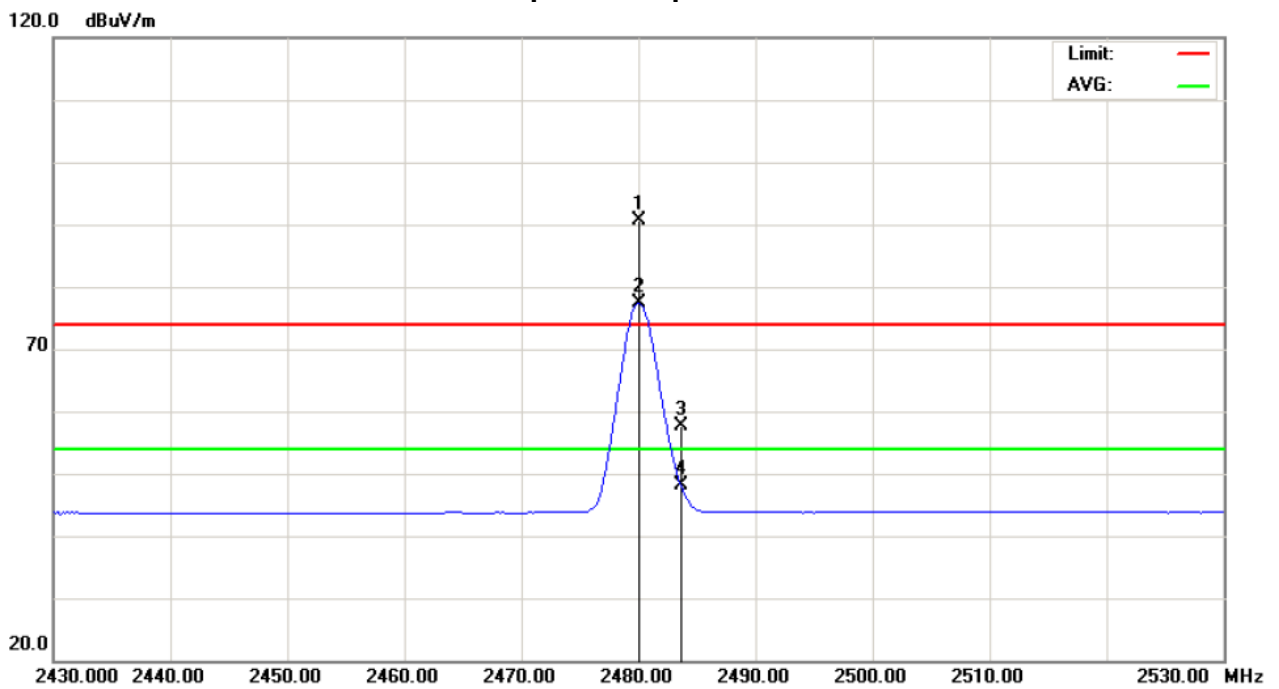
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



Restricted Bands Requirements, Vertical  
Sample 2\_3Mbps\_CH00



Sample 2\_3Mbps\_CH78





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23 °C	Relative Humidity :	43%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH78		
Note :	1. The transmitter was setup to transmit at the lowest channel (CH00). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel (CH78). Then the field strength was measured at 2483.5-2500 MHz.		

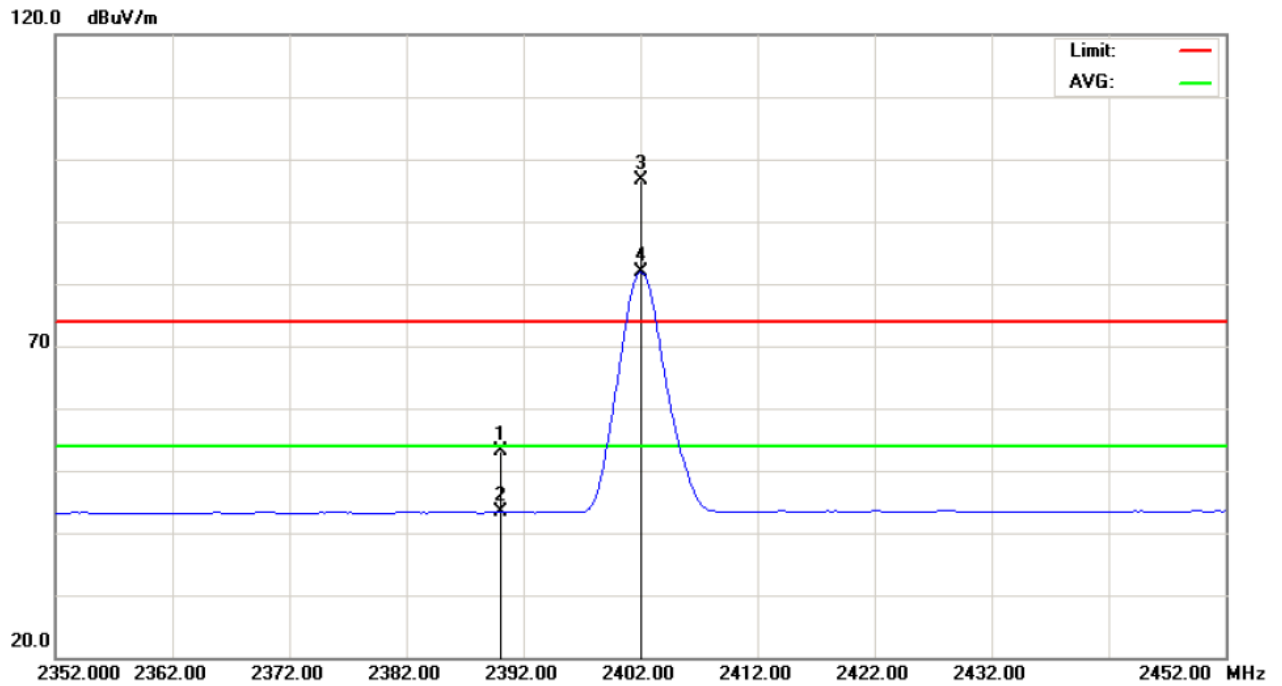
Freq. (MHz)	Ant.Pol. H/V	Reading		Ant./CF CF(dB)	Act.		Limit		Note
		Peak (dBuV)	AV (dBuV)		Peak (dBuV/m)	AV (dBuV/m)	Peak (dBuV/m)	AV (dBuV/m)	
2390.00	H	21.30	11.49	31.93	53.23	43.42	74.00	54.00	CH00
2483.50	H	29.41	20.17	32.29	61.70	52.46	74.00	54.00	CH78

Remark :

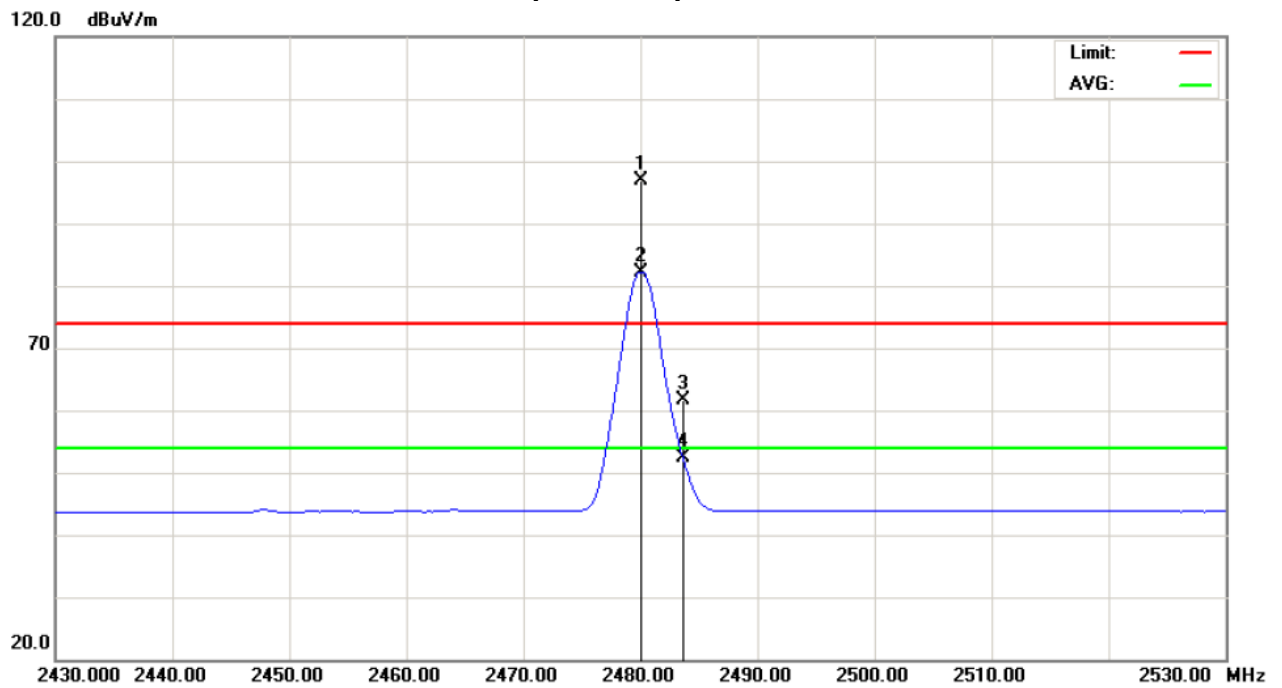
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦
- (2) EUT Orthogonal Axis :  
 "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand



### Restricted Bands Requirements, Horizontal Sample 2\_3Mbps\_CH00



### Sample 2\_3Mbps\_CH78





**5. NUMBER OF HOPPING CHANNEL**

**5.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(ii)	Number of Hopping Channel	2400-2483.5	PASS

**5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

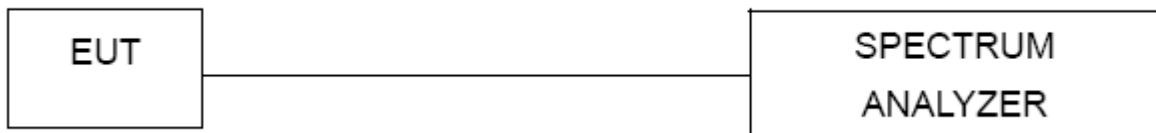
**5.1.2 TEST PROCEDURE**

- 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.

**5.1.3 DEVIATION FROM STANDARD**

No deviation.

**5.1.4 TEST SETUP**



**5.1.5 EUT OPERATION CONDITIONS**

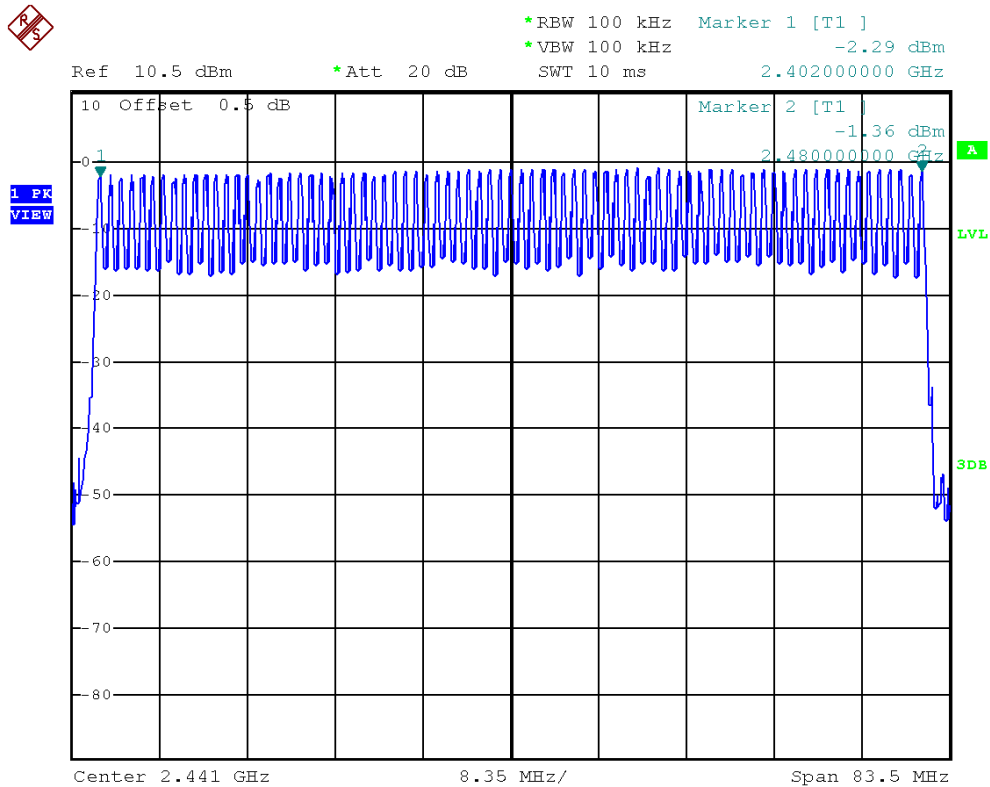
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



5.1.6 TEST RESULTS

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps		

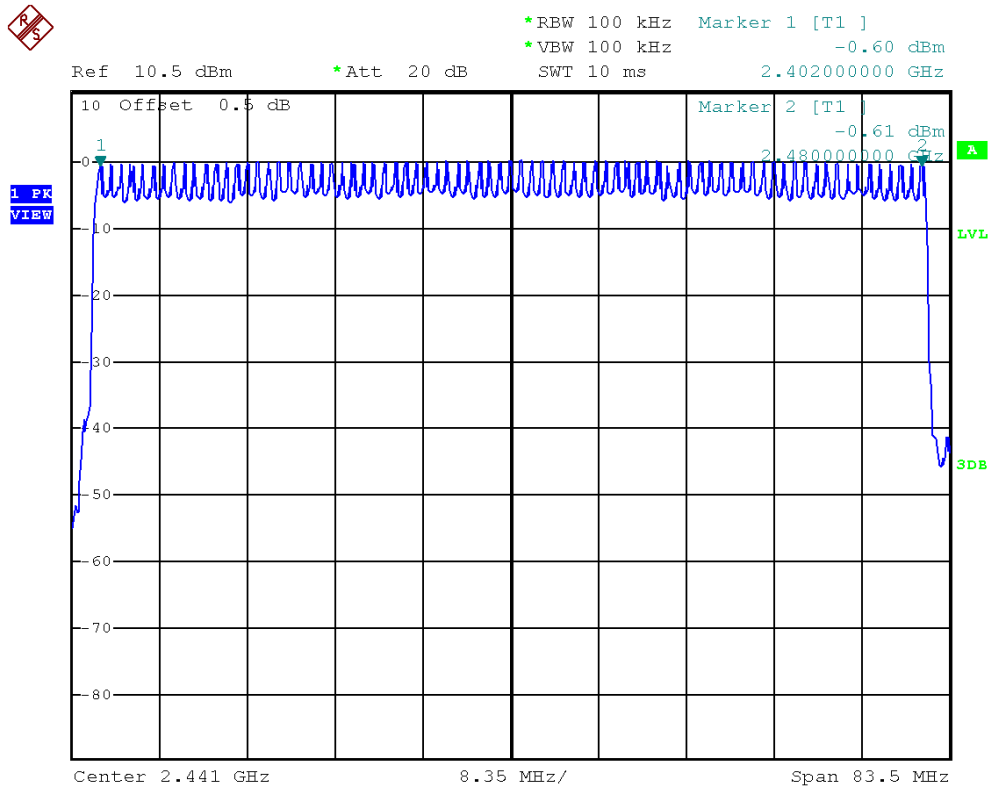
Number of Hopping Channel	79
---------------------------	----





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps		

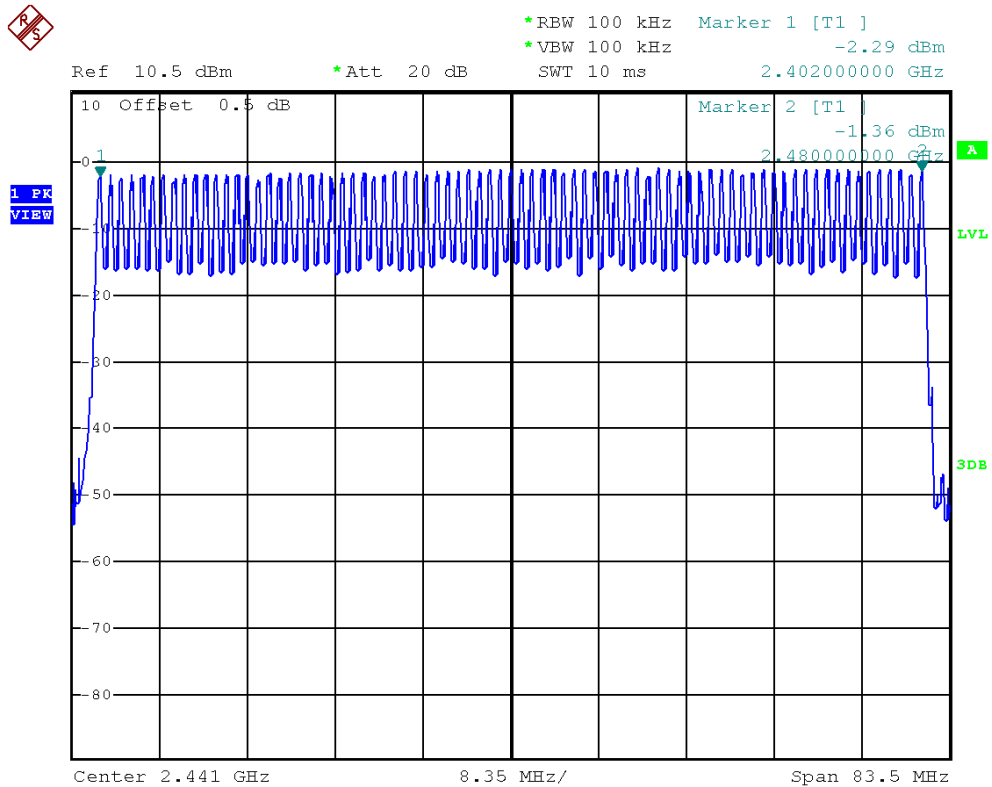
Number of Hopping Channel	79
---------------------------	----





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps		

Number of Hopping Channel	79
---------------------------	----

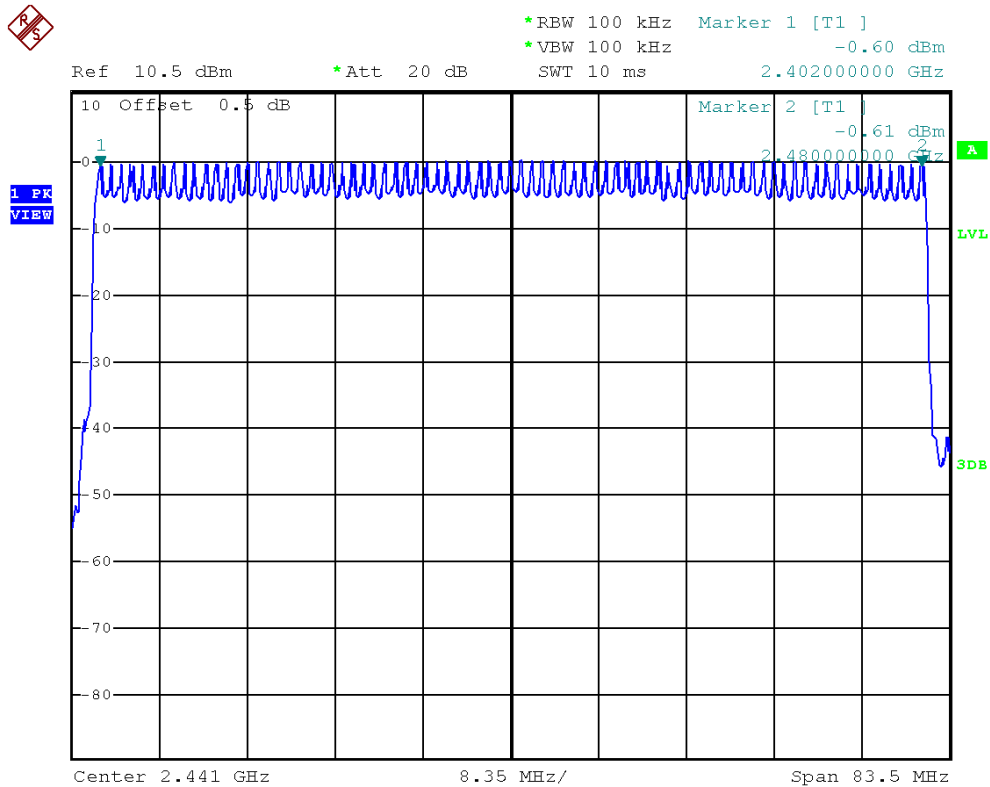






EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps		

Number of Hopping Channel	79
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**6. AVERAGE TIME OF OCCUPANCY**

**6.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(ii)	Average Time of Occupancy	< = 0.4 sec (a 30 second period)	2400-2483.5	PASS

**6.1.1 MEASUREMENT INSTRUMENTS LIST**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

**6.1.2 TEST PROCEDURE**

- a. The transmitter output (antenna port) was connected to the spectrum analyser
- b. Set RBW of spectrum analyzer to 100kHz and VBW to 100kHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- h. Measure the maximum time duration of one single pulse.
- i. DH5 Packet permit maximum  $1600 / 79 / 6 = 3.37$  hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $3.37 \times 31.6 = 106.6$  within 31.6 seconds.
- j. DH3 Packet permit maximum  $1600 / 79 / 4 = 5.06$  hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $5.06 \times 31.6 = 160$  within 31.6 seconds.
- k. DH1 Packet permit maximum  $1600 / 79 / 2 = 10.12$  hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times  $10.12 \times 31.6 = 320$  within 31.6 seconds.

**6.1.3 DEVIATION FROM STANDARD**

No deviation.



**6.1.4 TEST SETUP**



**6.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

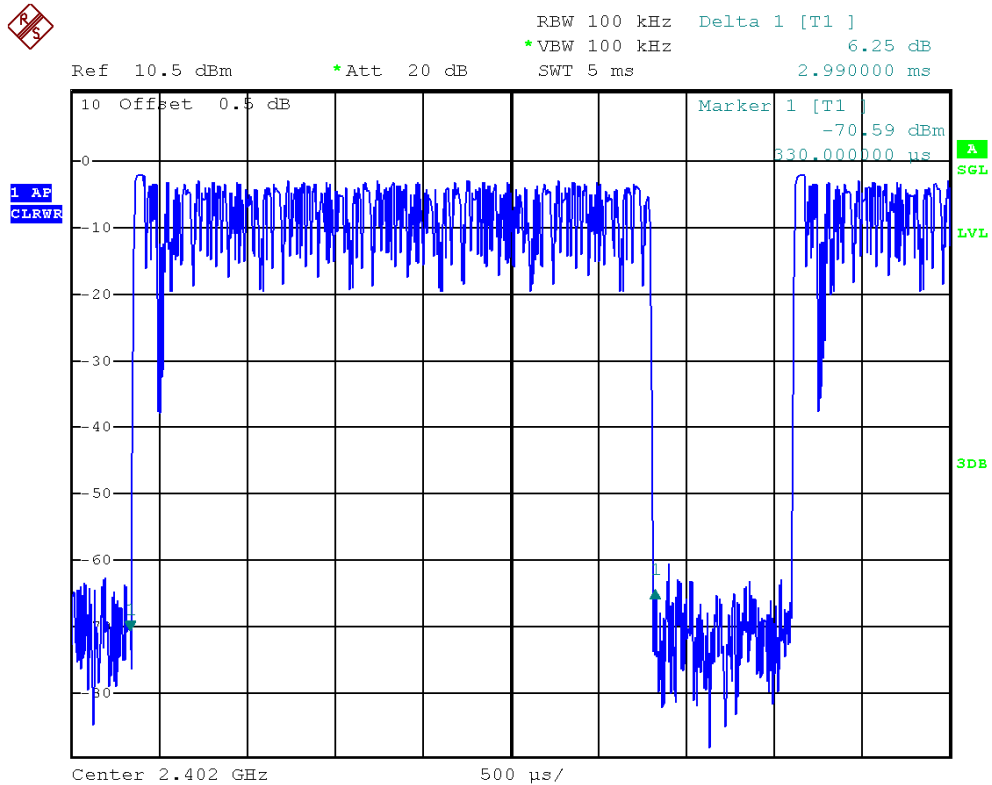


6.1.6 TEST RESULTS

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	2.9900	0.3189	0.4000
DH3	2402 MHz	1.7400	0.2784	0.4000
DH1	2402 MHz	0.4800	0.1536	0.4000

Sample 1\_1Mbps\_CH00-DH5



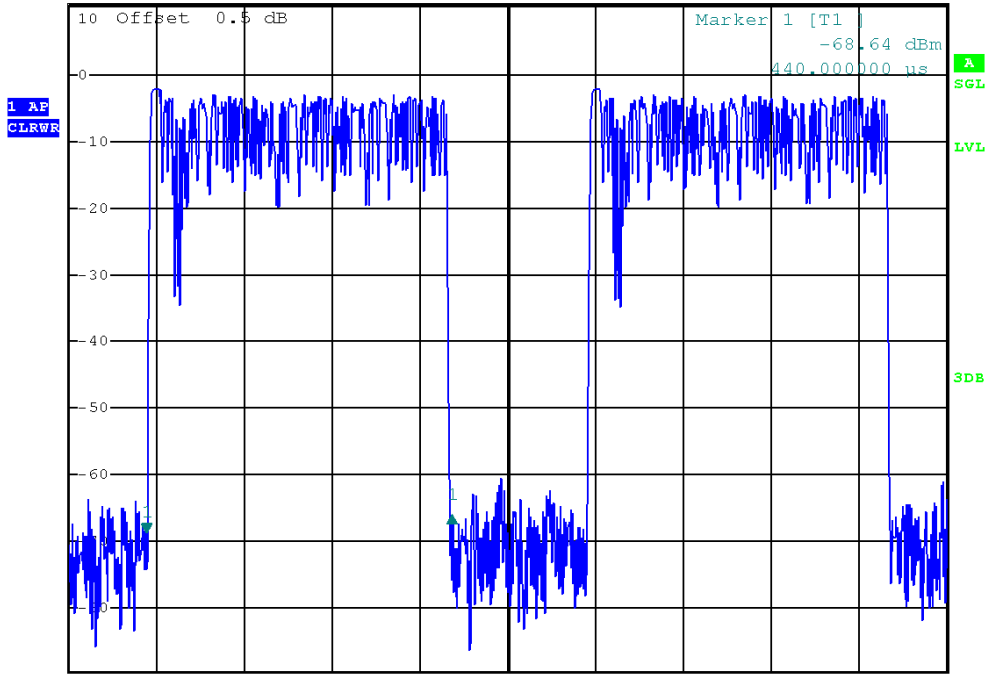


Sample 1\_1Mbps\_CH00-DH3



RBW 100 kHz Delta 1 [T1 ]
\*VBW 100 kHz 2.74 dB
SWT 5 ms 1.740000 ms

Ref 10.5 dBm \*Att 20 dB



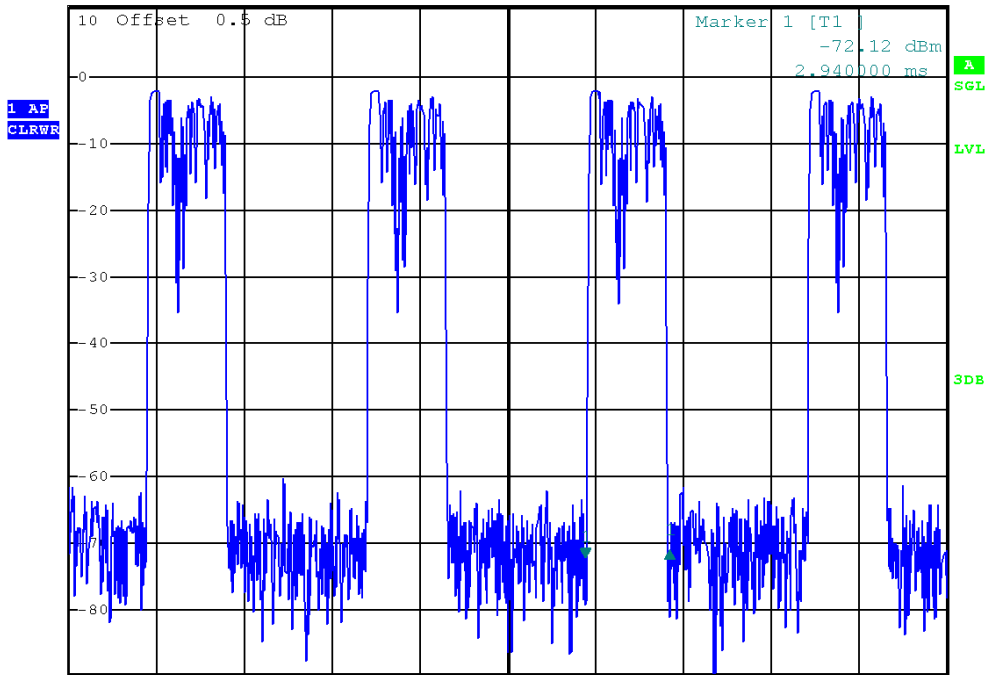
Center 2.402 GHz 500 us/

Sample 1\_1Mbps\_CH00-DH1



RBW 100 kHz Delta 1 [T1 ]
\*VBW 100 kHz 1.14 dB
SWT 5 ms 480.000000 us

Ref 10.5 dBm \*Att 20 dB



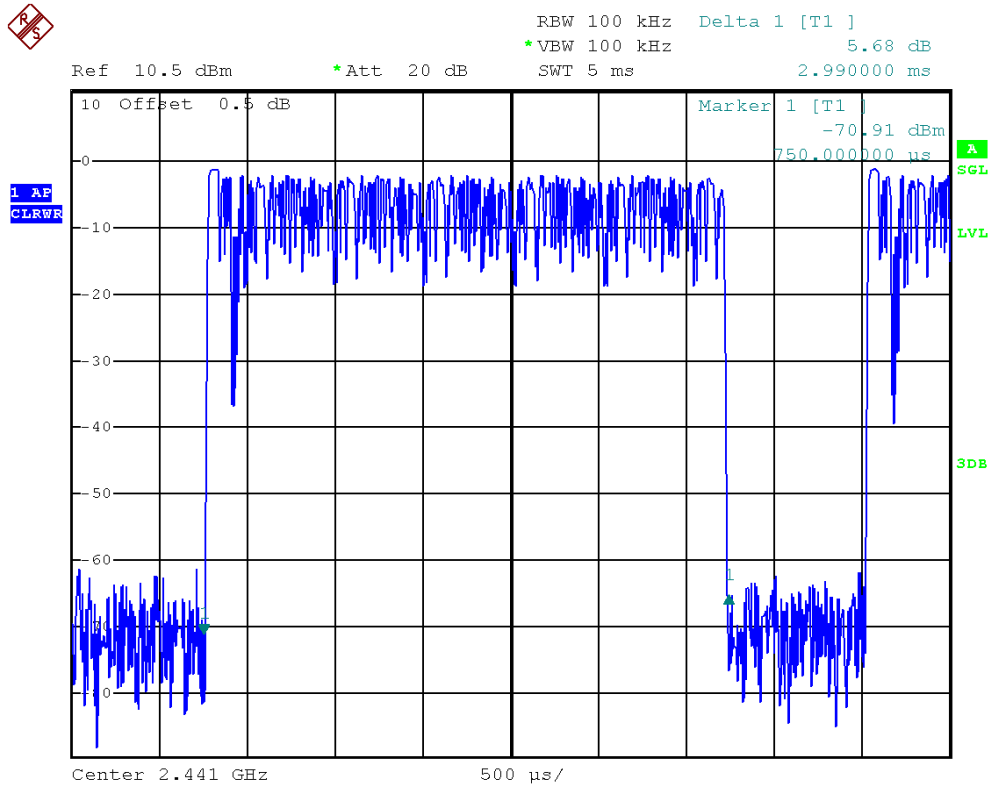
Center 2.402 GHz 500 us/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH39		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	2.9900	0.3189	0.4000
DH3	2441 MHz	1.7400	0.2784	0.4000
DH1	2441 MHz	0.4700	0.1504	0.4000

Sample 1\_1Mbps\_CH39-DH5

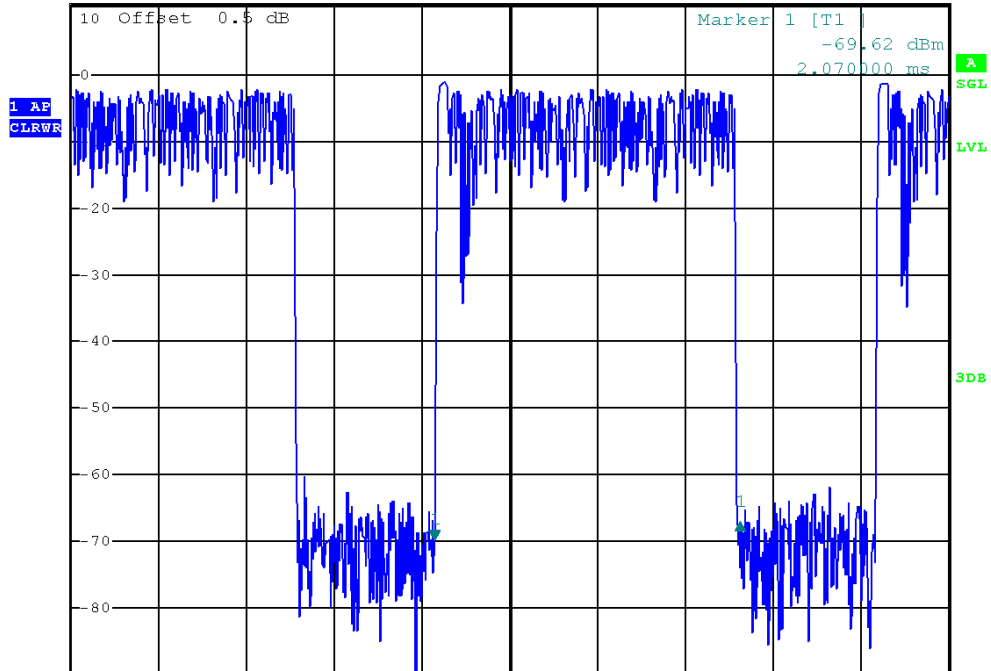




### Sample 1\_1Mbps\_CH39-DH3



Ref 10.5 dBm      \*Att 20 dB      RBW 100 kHz      Delta 1 [T1 ]  
\*VBW 100 kHz      2.65 dB  
SWT 5 ms      1.740000 ms

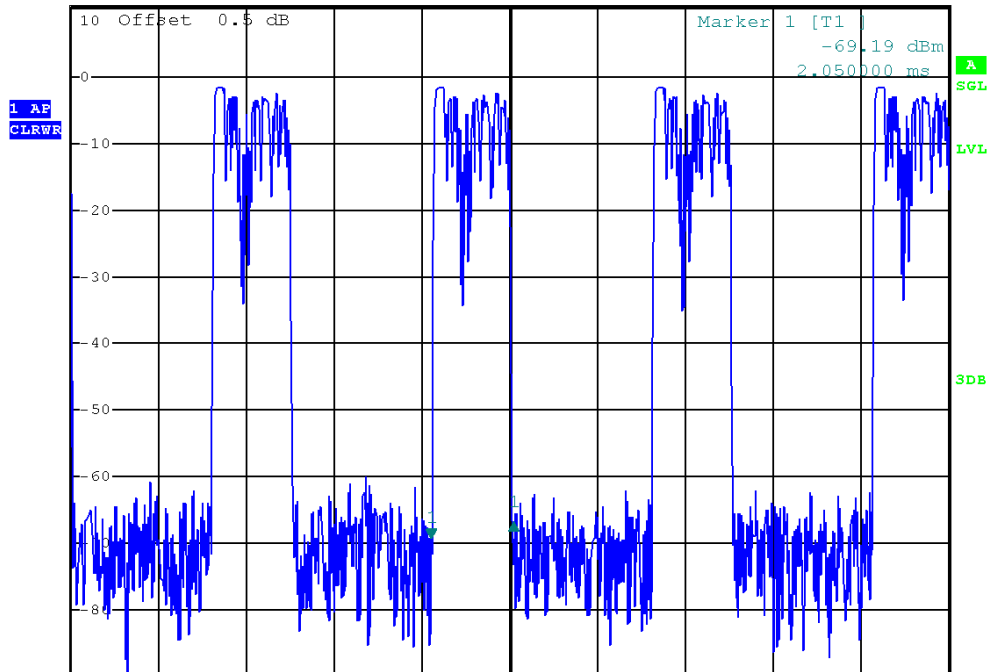


Center 2.441 GHz      500  $\mu$ s/

### Sample 1\_1Mbps\_CH39-DH1



Ref 10.5 dBm      \*Att 20 dB      RBW 100 kHz      Delta 1 [T1 ]  
\*VBW 100 kHz      2.28 dB  
SWT 5 ms      470.000000  $\mu$ s



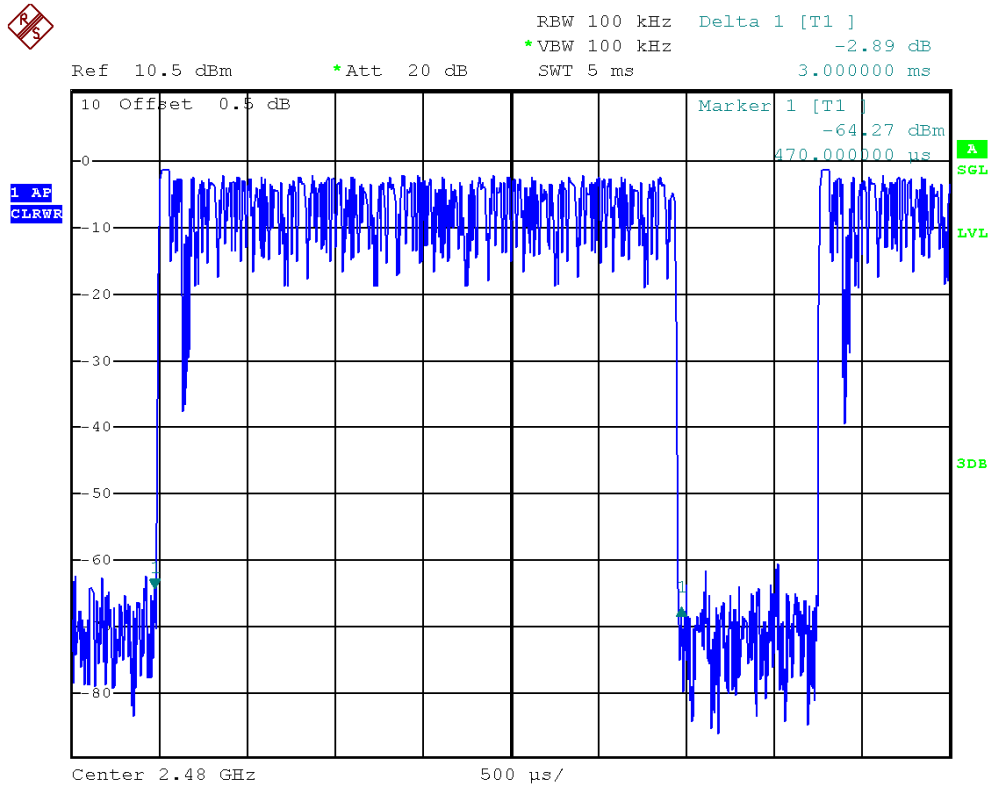
Center 2.441 GHz      500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH78		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.0000	0.3200	0.4000
DH3	2480 MHz	1.7400	0.2784	0.4000
DH1	2480 MHz	0.4800	0.1536	0.4000

Sample 1\_1Mbps\_CH78-DH5



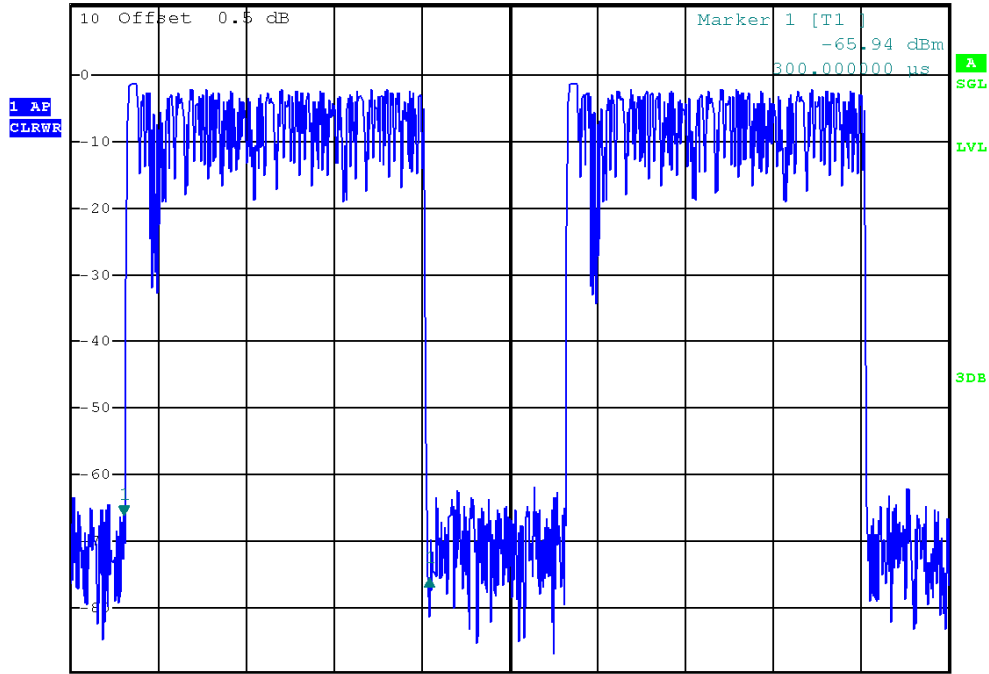




### Sample 1\_1Mbps\_CH78-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -9.43 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.740000 ms

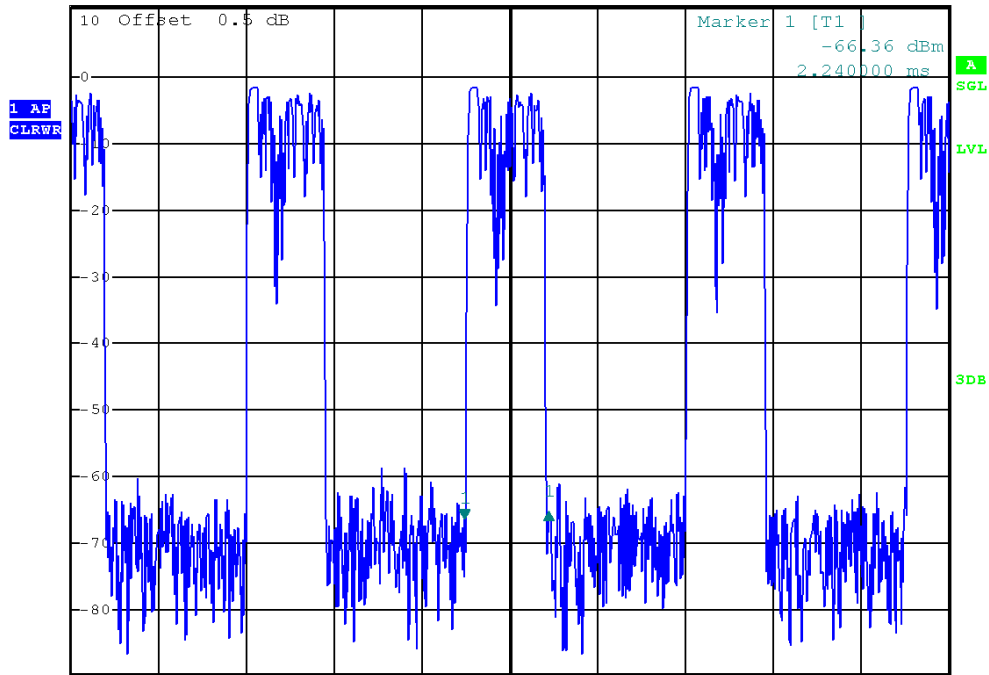


Center 2.48 GHz 500 us/

### Sample 1\_1Mbps\_CH78-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 1.13 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 480.000000 ms



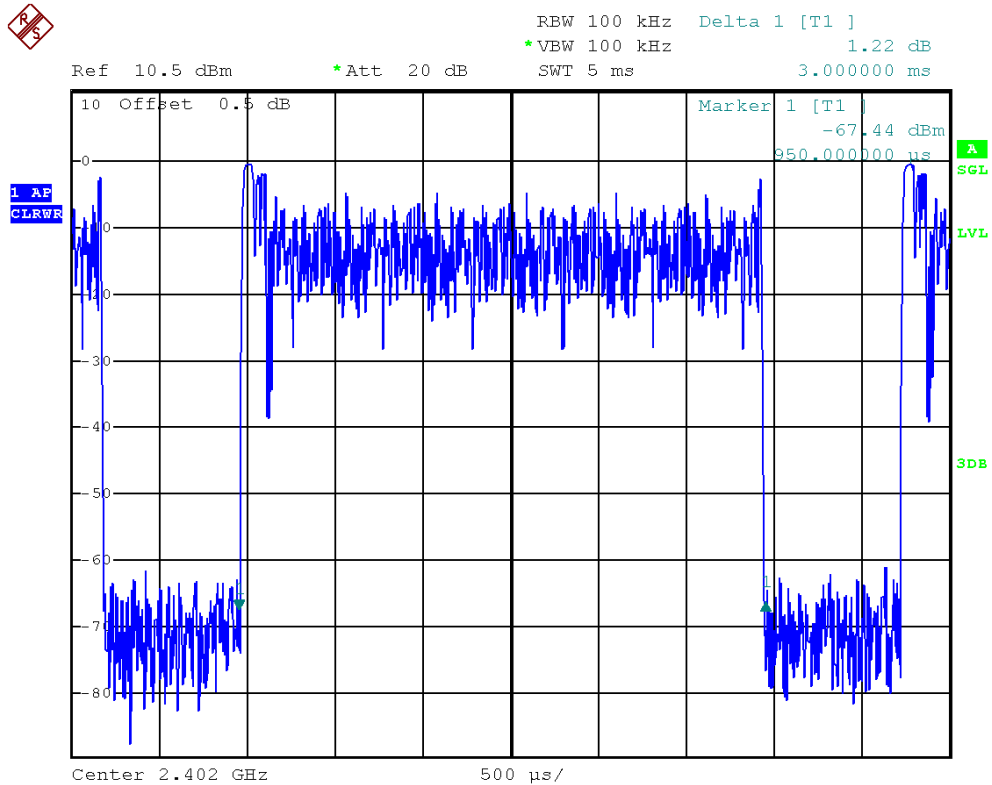
Center 2.48 GHz 500 us/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.0000	0.3200	0.4000
DH3	2402 MHz	1.7600	0.2816	0.4000
DH1	2402 MHz	0.5000	0.1600	0.4000

Sample 1\_3Mbps\_CH00-DH5

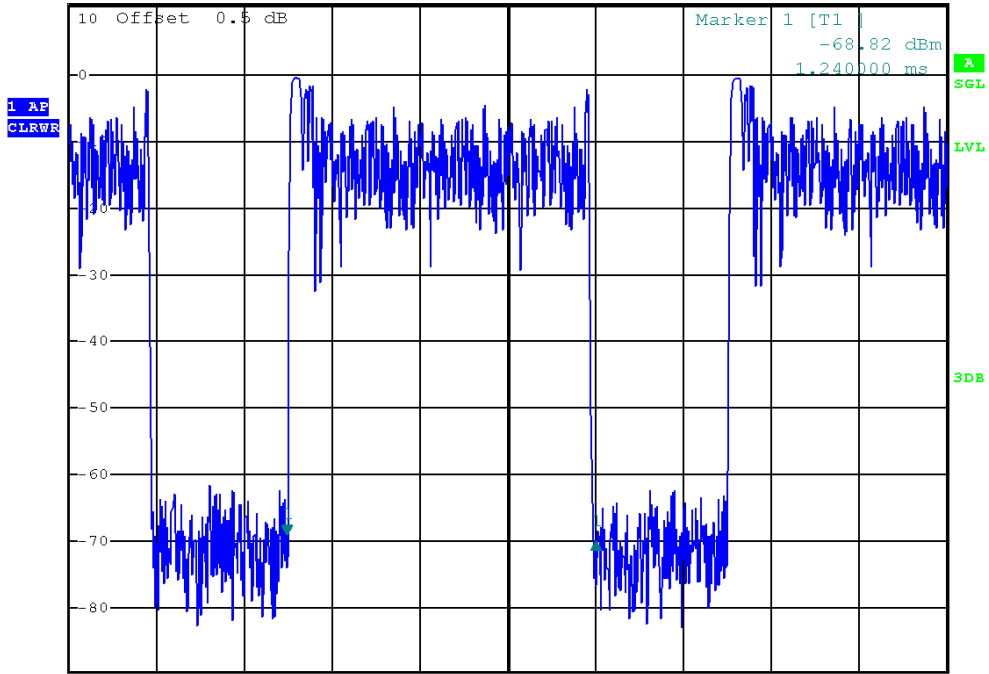




Sample 1\_3Mbps\_CH00-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -1.24 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.760000 ms

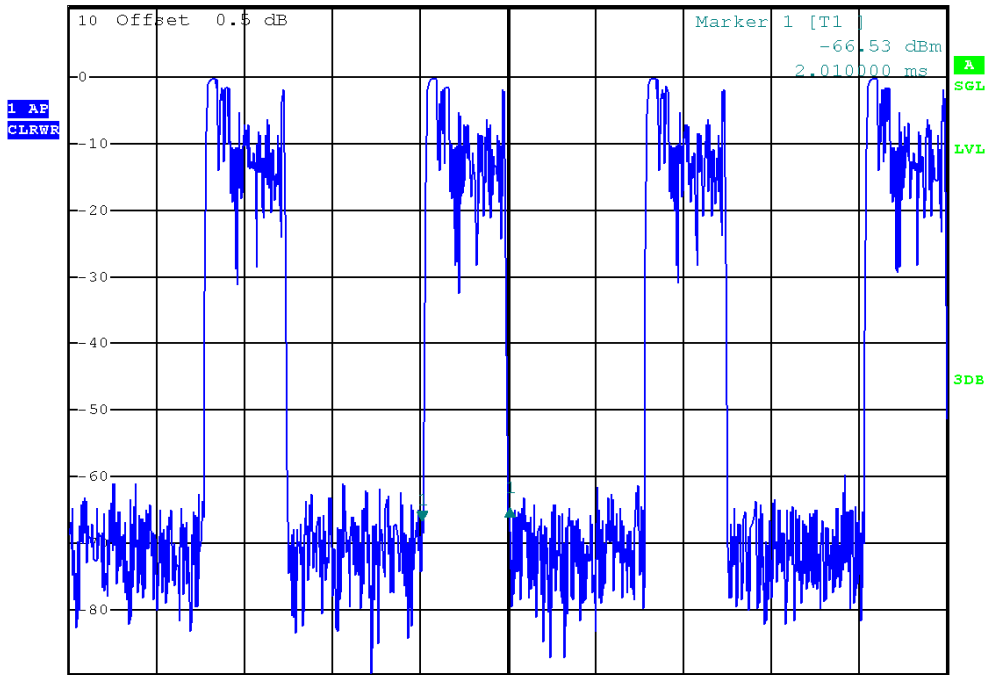


Center 2.402 GHz 500 μs/

Sample 1\_3Mbps\_CH00-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 1.95 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 500.000000 μs



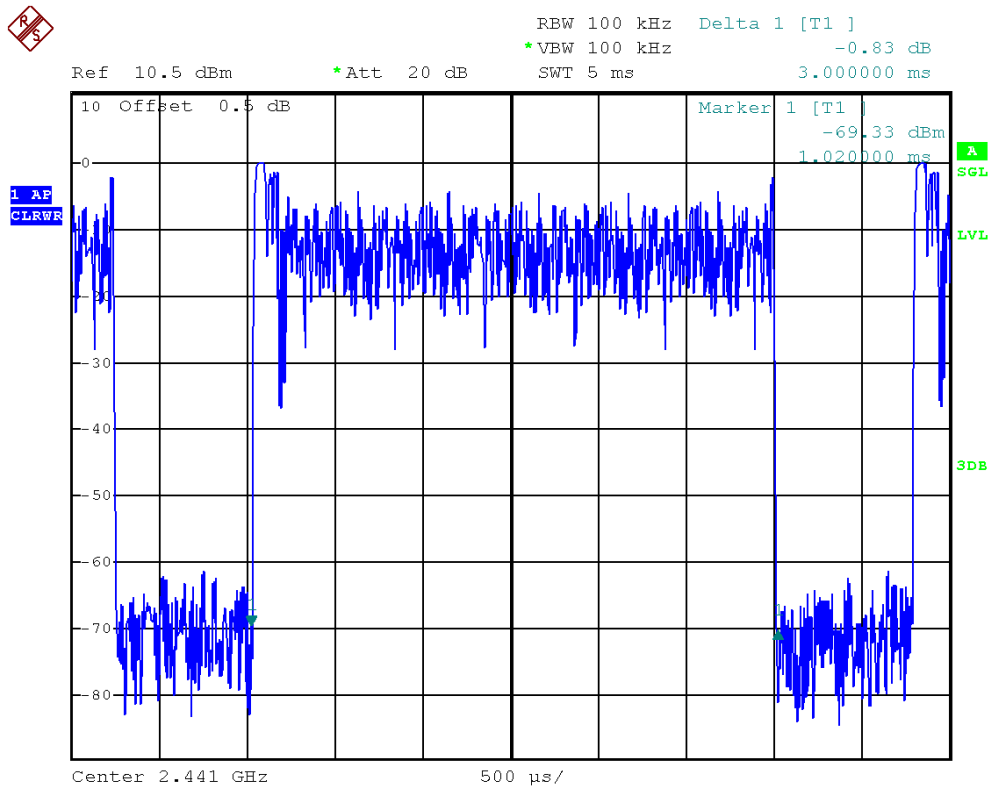
Center 2.402 GHz 500 μs/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH39		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	3.0000	0.3200	0.4000
DH3	2441 MHz	1.7500	0.2800	0.4000
DH1	2441 MHz	0.5000	0.1600	0.4000

Sample 1\_3Mbps\_CH39-DH5

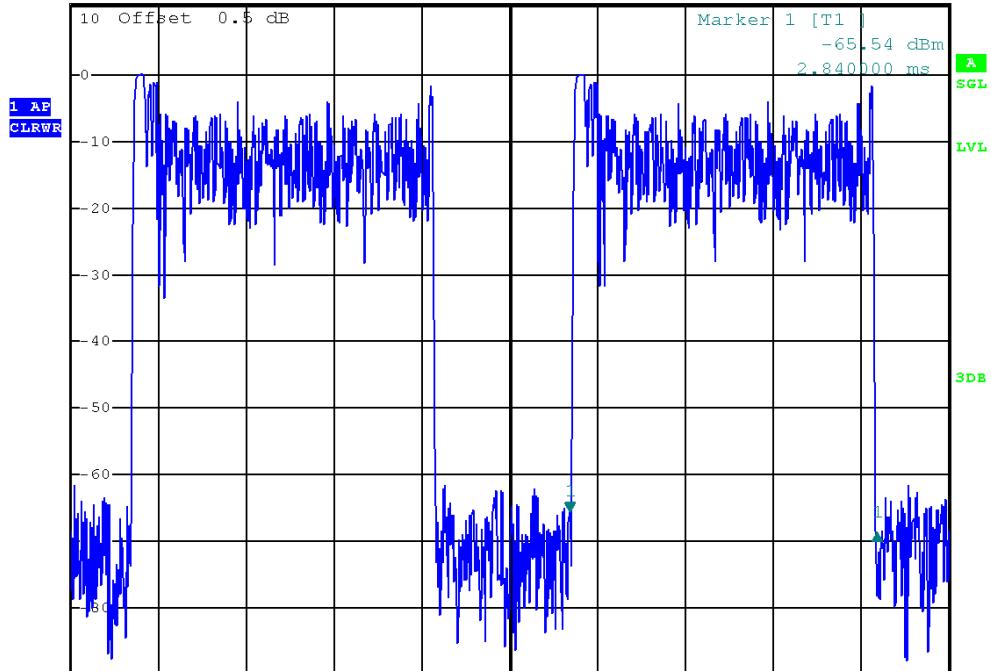




### Sample 1\_3Mbps\_CH39-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -3.00 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.750000 ms

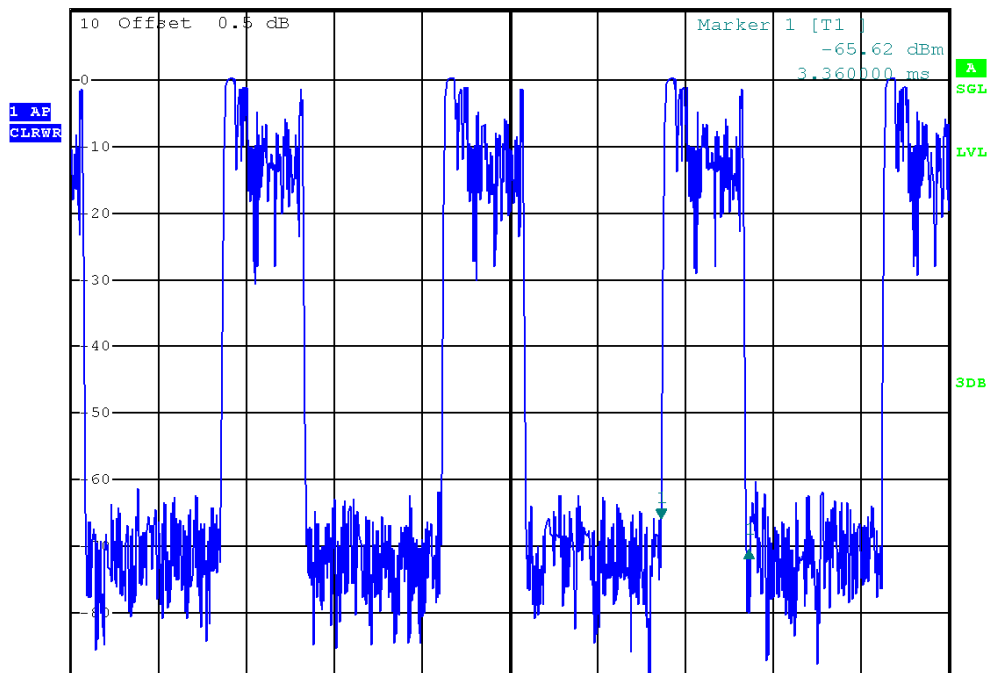


Center 2.441 GHz 500  $\mu$ s/

### Sample 1\_3Mbps\_CH39-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -4.72 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 500.000000  $\mu$ s



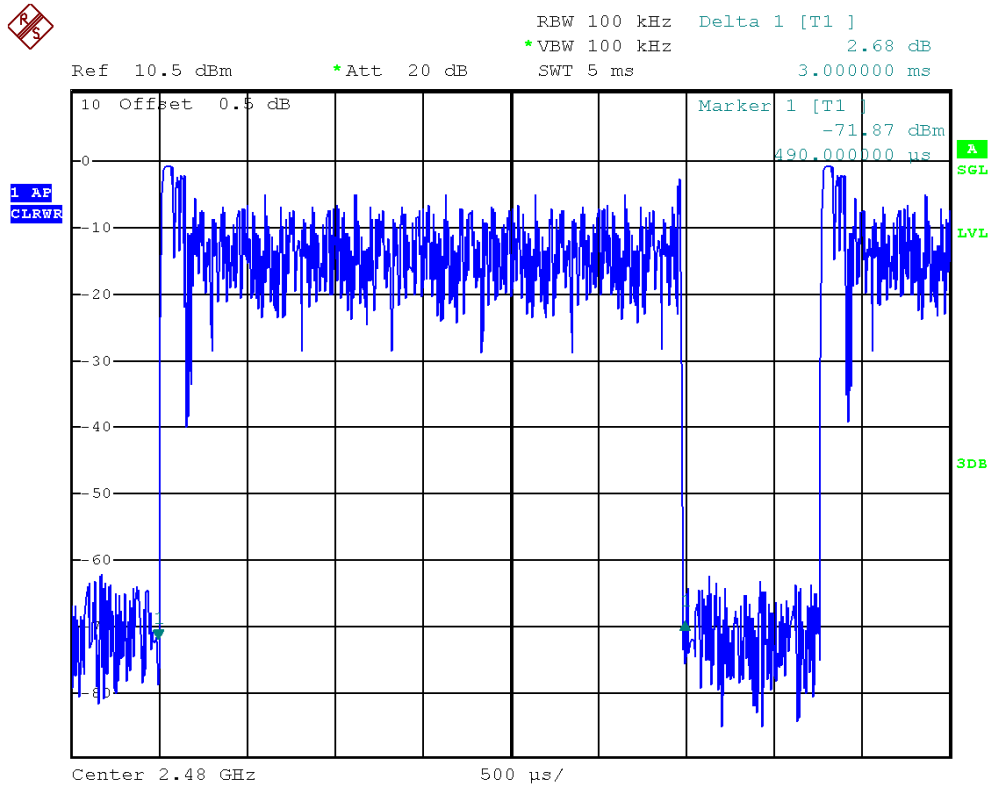
Center 2.441 GHz 500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH78		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.0000	0.3200	0.4000
DH3	2480 MHz	1.7500	0.2800	0.4000
DH1	2480 MHz	0.5000	0.1600	0.4000

Sample 1\_3Mbps\_CH78-DH5

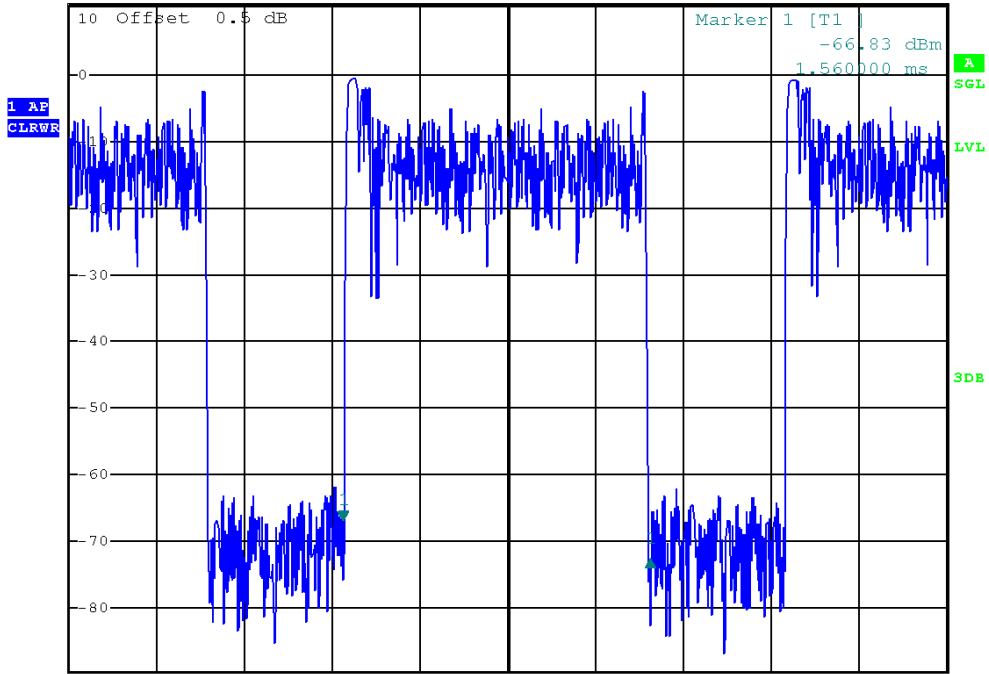




### Sample 1\_3Mbps\_CH78-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -5.82 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.750000 ms

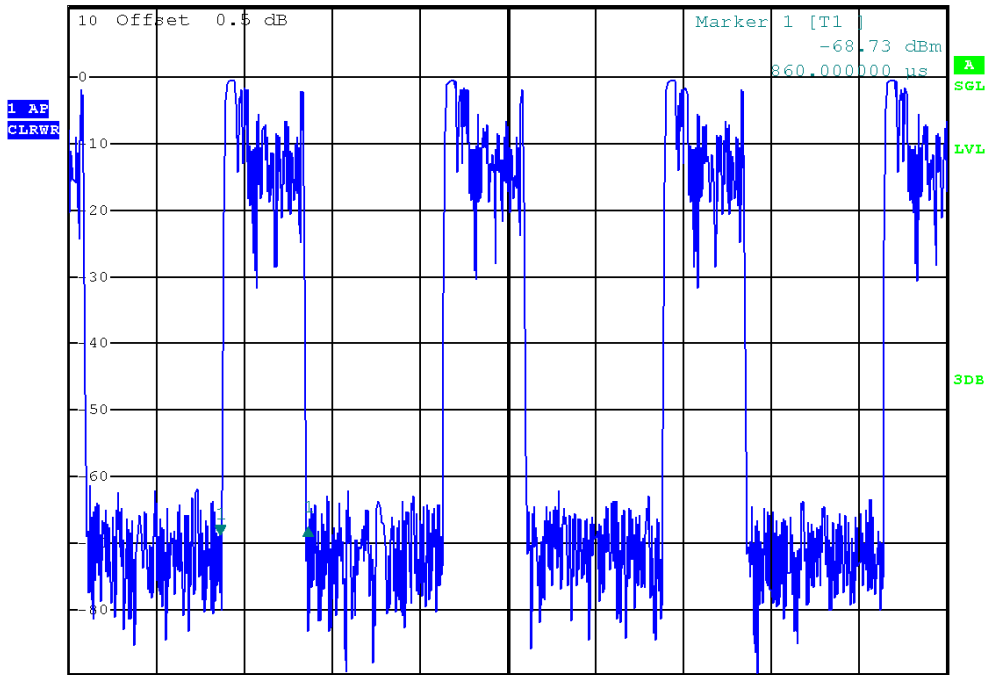


Center 2.48 GHz 500  $\mu$ s/

### Sample 1\_3Mbps\_CH78-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 1.11 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 500.000000  $\mu$ s



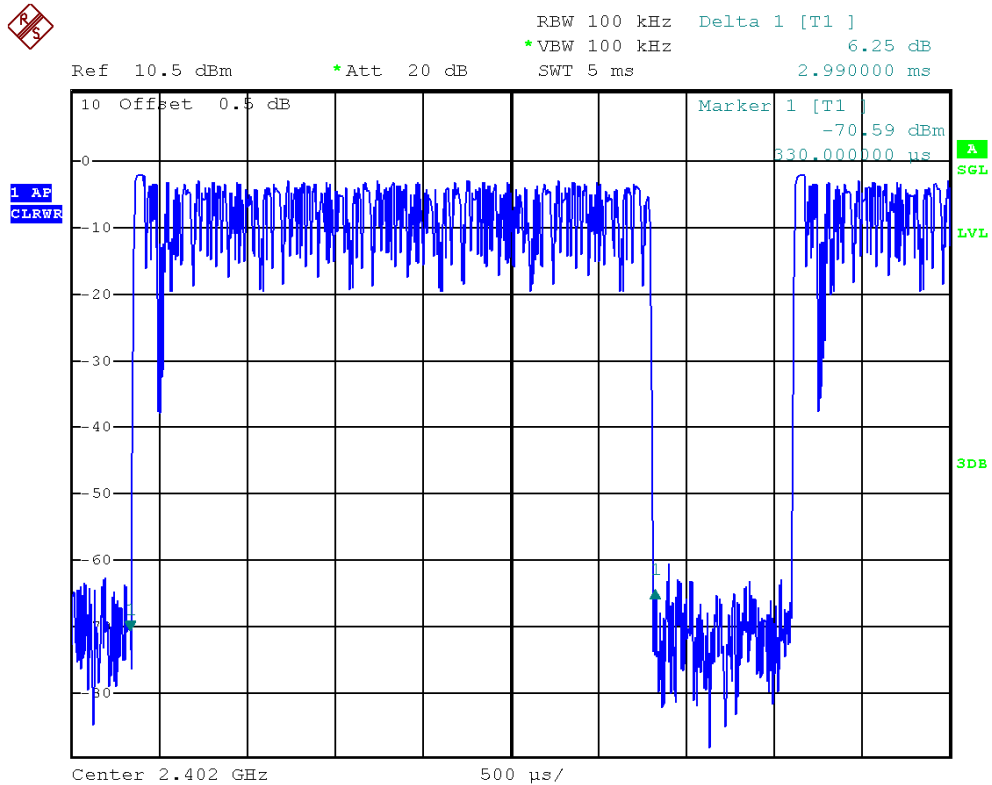
Center 2.48 GHz 500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	2.9900	0.3189	0.4000
DH3	2402 MHz	1.7400	0.2784	0.4000
DH1	2402 MHz	0.4800	0.1536	0.4000

Sample 2\_1Mbps\_CH00-DH5







### Sample 2\_1Mbps\_CH00-DH3

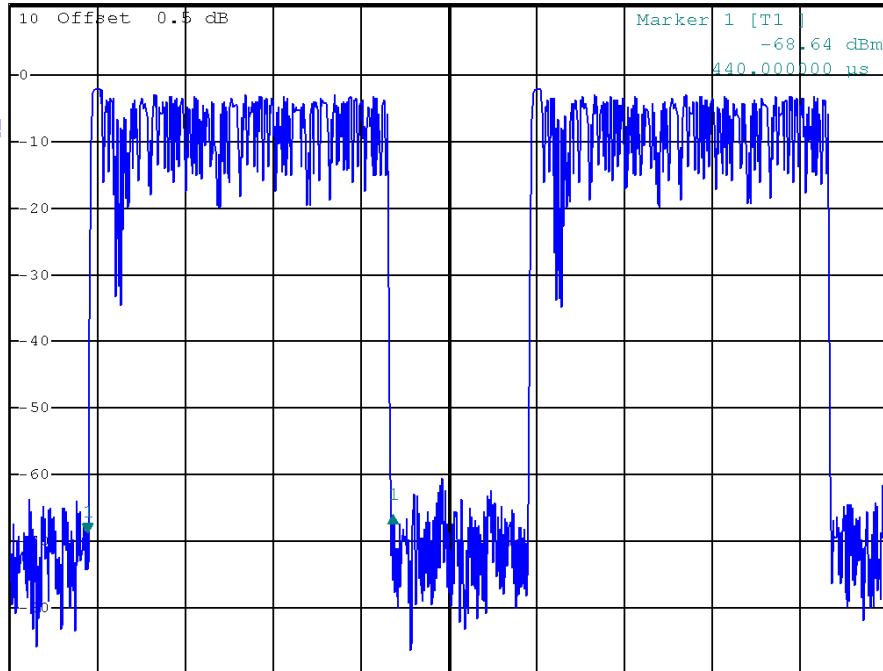


RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz 2.74 dB  
SWT 5 ms 1.740000 ms

Ref 10.5 dBm

\*Att 20 dB

I AB  
CLRWR



Center 2.402 GHz

500 us/

### Sample 2\_1Mbps\_CH00-DH1

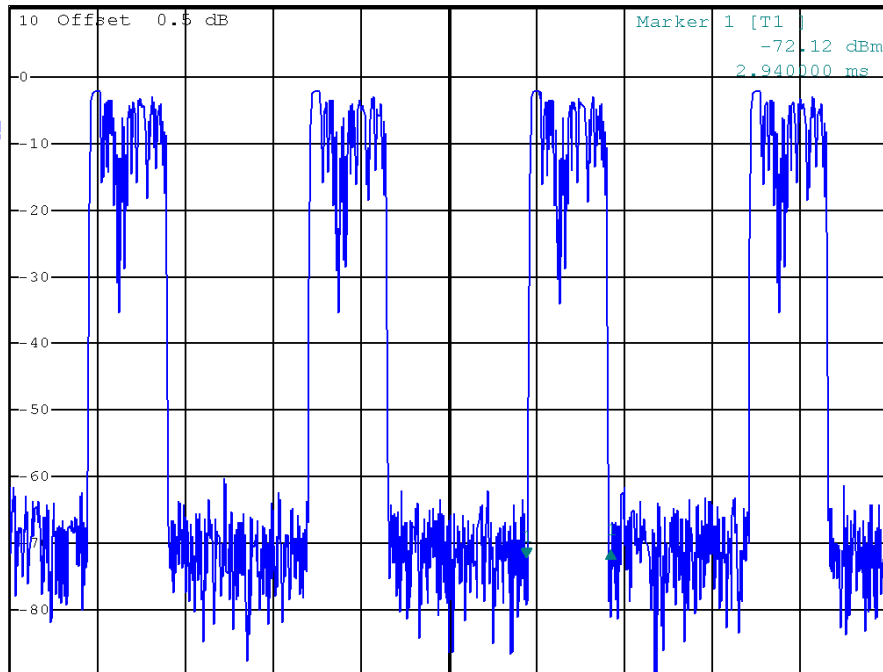


RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz 1.14 dB  
SWT 5 ms 480.000000 us

Ref 10.5 dBm

\*Att 20 dB

I AB  
CLRWR



Center 2.402 GHz

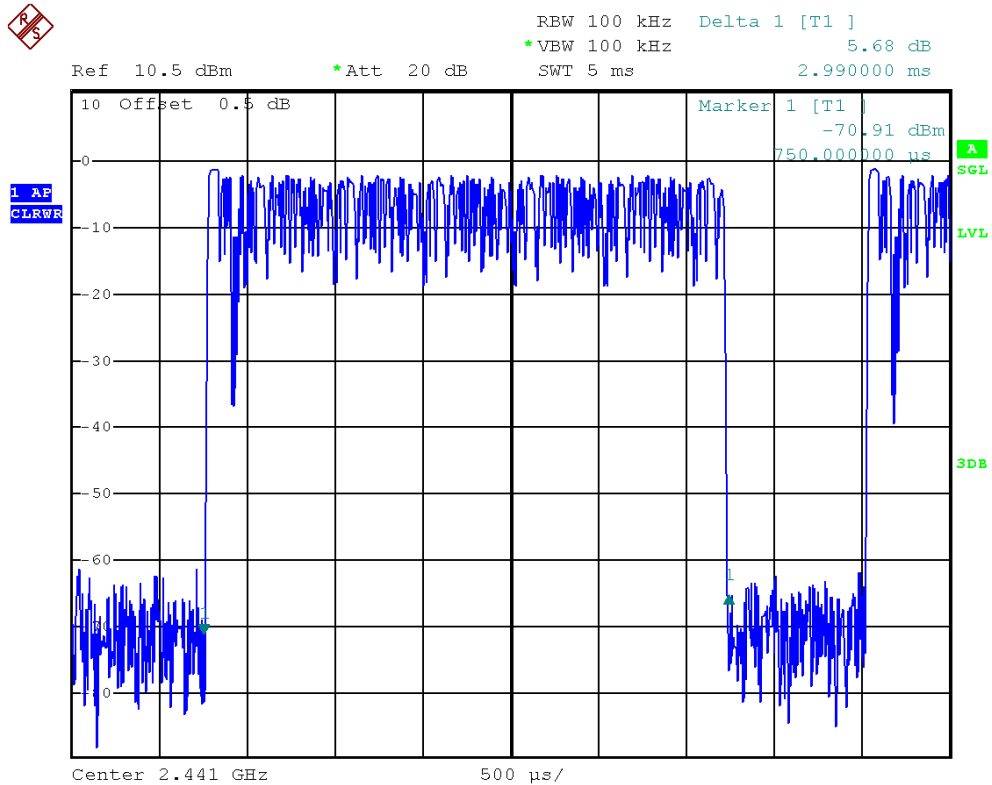
500 us/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH39		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	2.9900	0.3189	0.4000
DH3	2441 MHz	1.7400	0.2784	0.4000
DH1	2441 MHz	0.4700	0.1504	0.4000

Sample 2\_1Mbps\_CH39-DH5

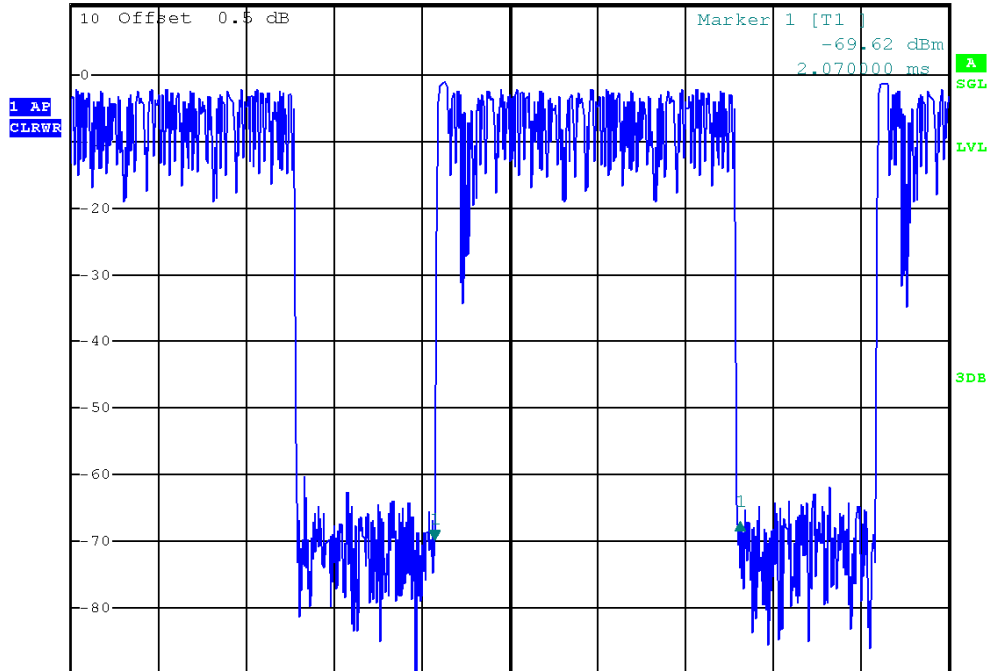




### Sample 2\_1Mbps\_CH39-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 2.65 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.740000 ms

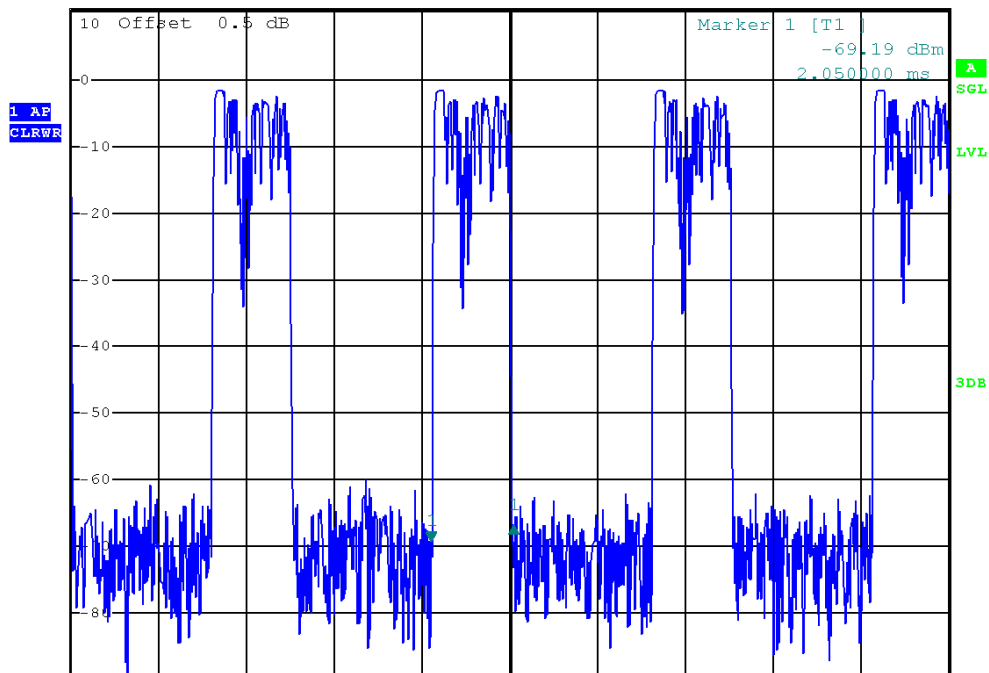


Center 2.441 GHz 500  $\mu$ s/

### Sample 2\_1Mbps\_CH39-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 2.28 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 470.000000  $\mu$ s



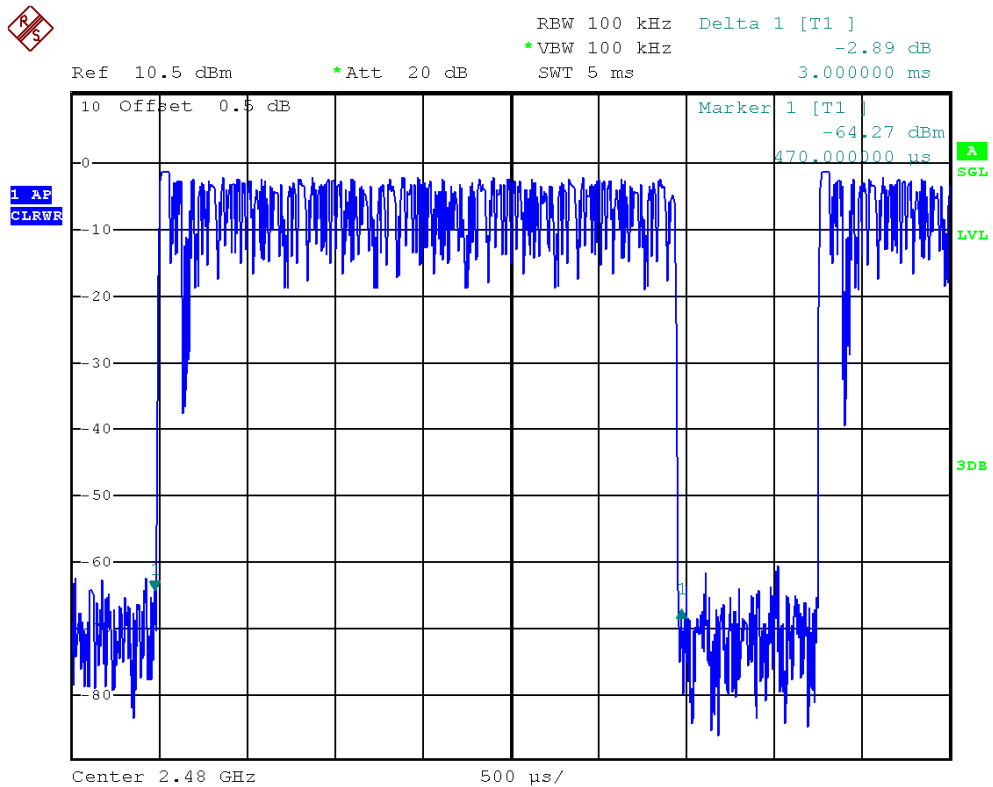
Center 2.441 GHz 500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH78		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.0000	0.3200	0.4000
DH3	2480 MHz	1.7400	0.2784	0.4000
DH1	2480 MHz	0.4800	0.1536	0.4000

Sample 2\_1Mbps\_CH78-DH5

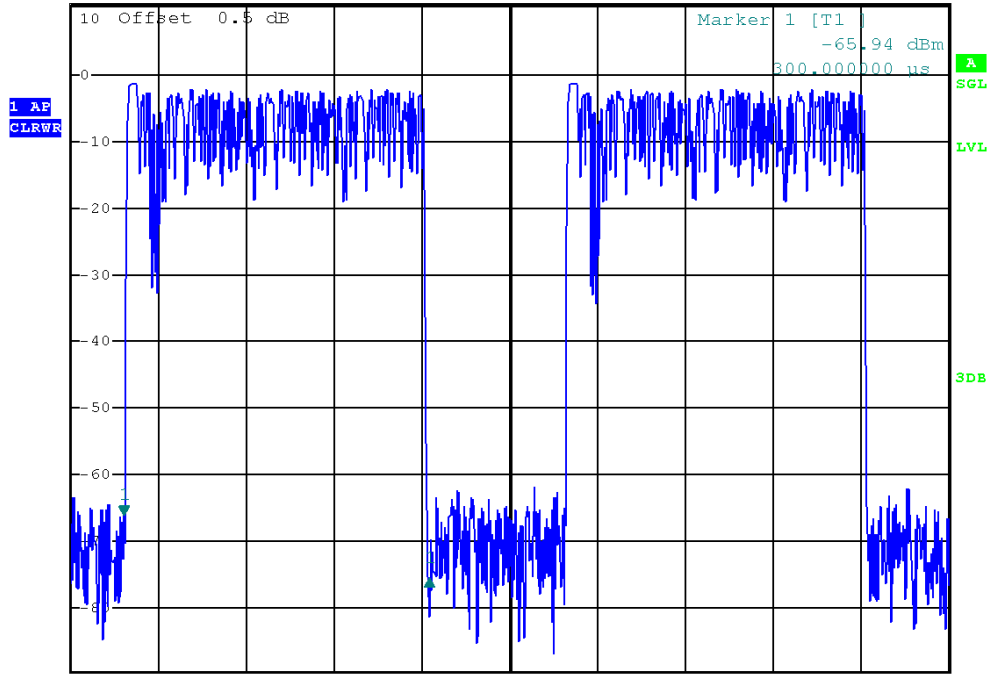




### Sample 2\_1Mbps\_CH78-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -9.43 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.740000 ms

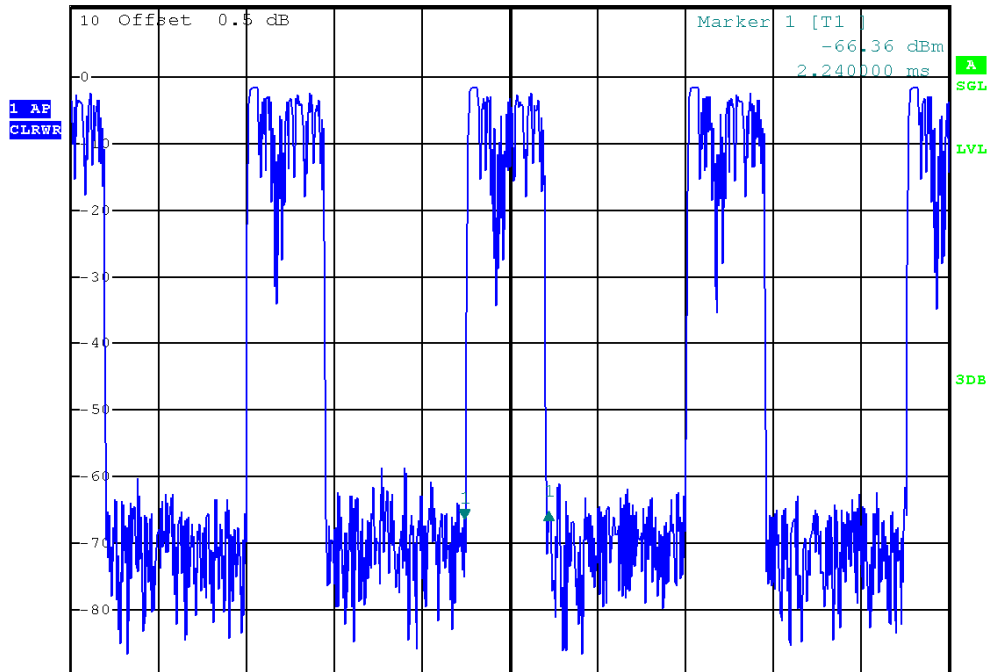


Center 2.48 GHz 500 us/

### Sample 2\_1Mbps\_CH78-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 1.13 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 480.000000 us



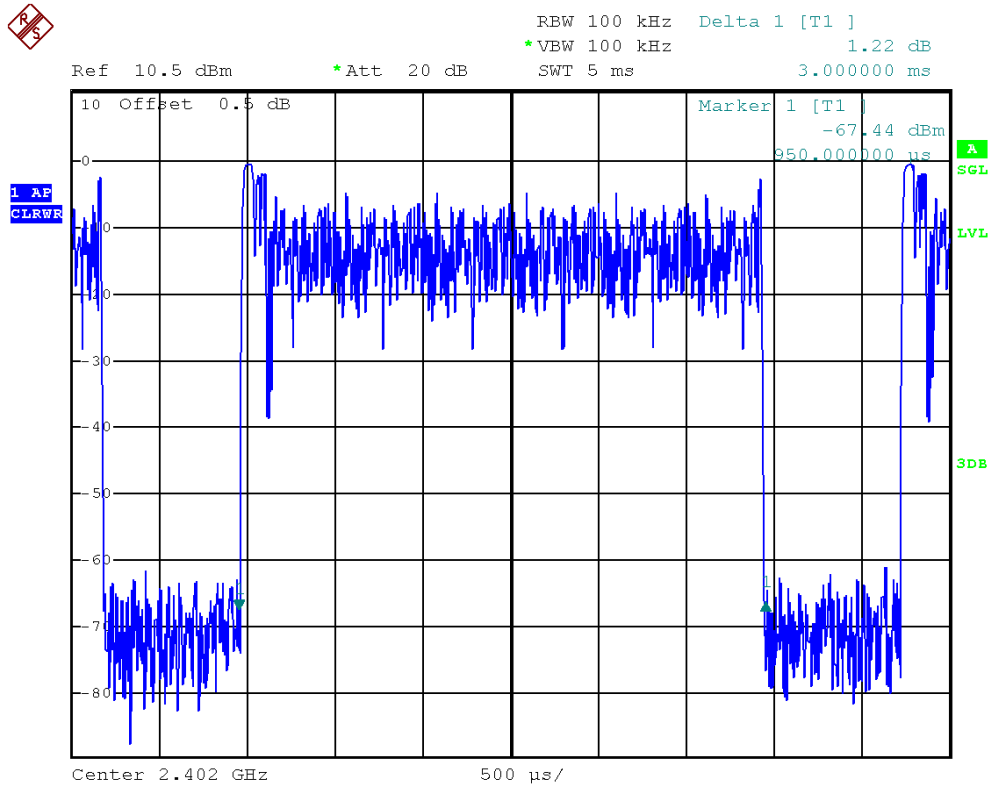
Center 2.48 GHz 500 us/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.0000	0.3200	0.4000
DH3	2402 MHz	1.7600	0.2816	0.4000
DH1	2402 MHz	0.5000	0.1600	0.4000

Sample 2\_3Mbps\_CH00-DH5

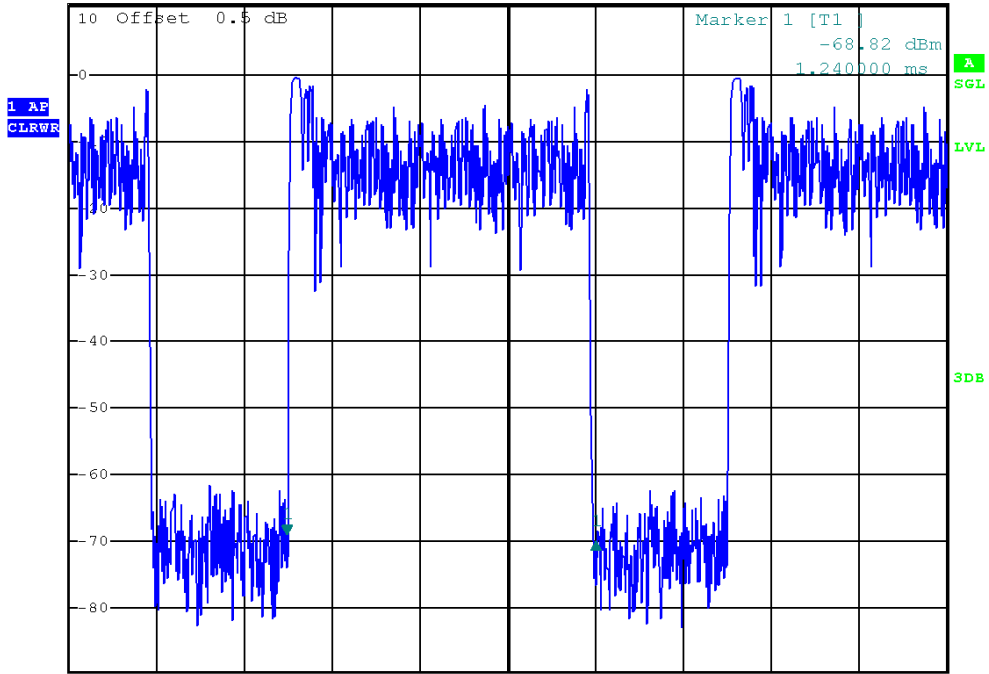




### Sample 2\_3Mbps\_CH00-DH3



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz -1.24 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.760000 ms

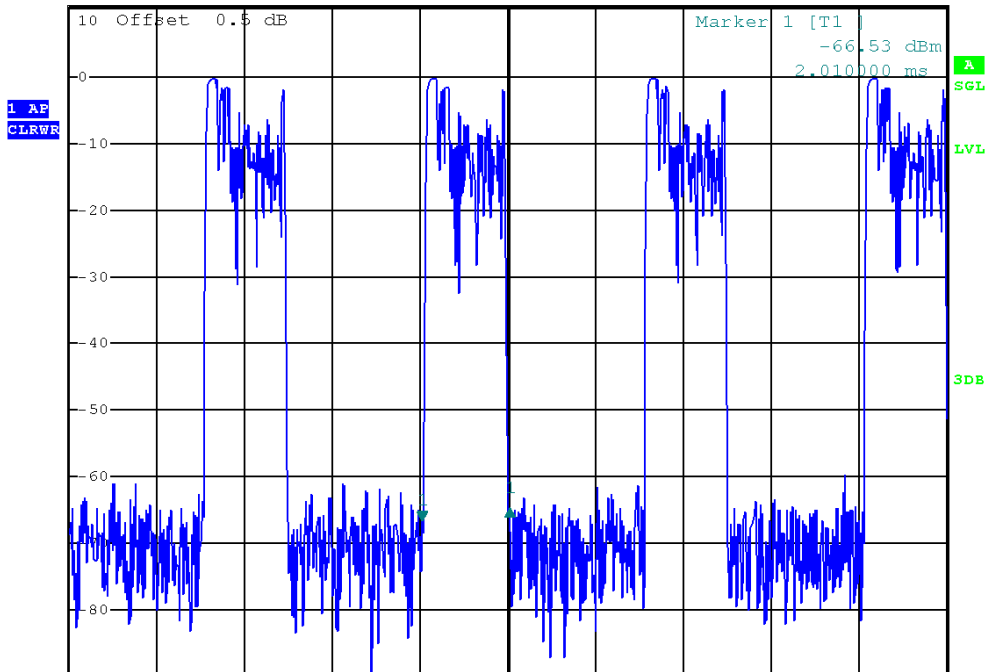


Center 2.402 GHz 500  $\mu$ s/

### Sample 2\_3Mbps\_CH00-DH1



RBW 100 kHz Delta 1 [T1 ]  
 \*VBW 100 kHz 1.95 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 500.000000  $\mu$ s



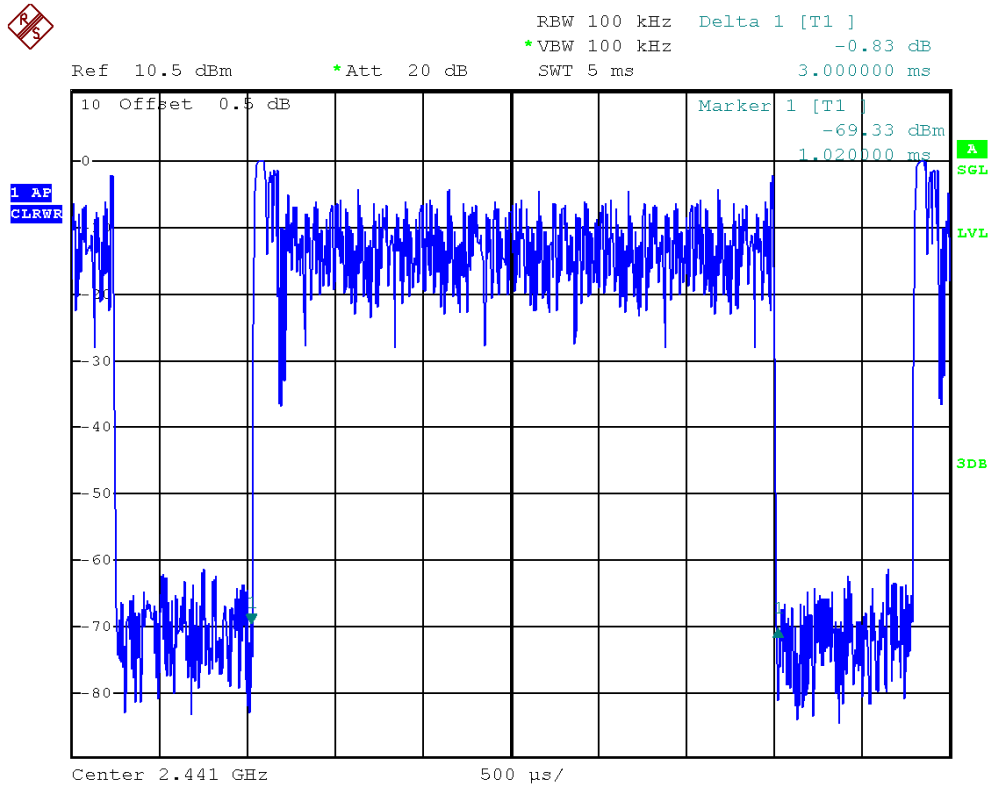
Center 2.402 GHz 500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH39		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	3.0000	0.3200	0.4000
DH3	2441 MHz	1.7500	0.2800	0.4000
DH1	2441 MHz	0.5000	0.1600	0.4000

Sample 2\_3Mbps\_CH39-DH5







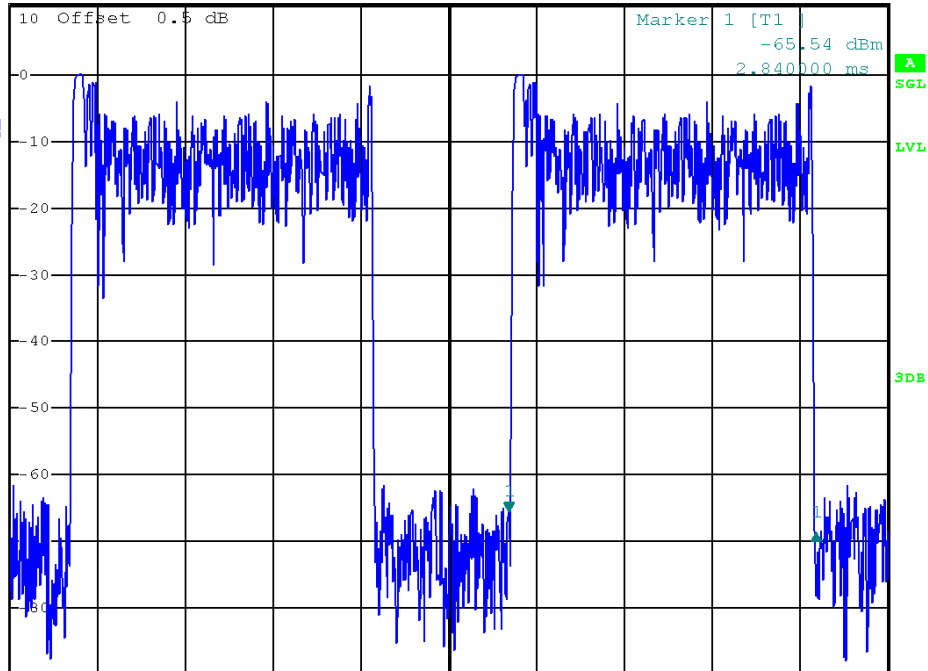
### Sample 2\_3Mbps\_CH39-DH3



RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz -3.00 dB  
SWT 5 ms 1.750000 ms

Ref 10.5 dBm \*Att 20 dB

I AB  
CLRWR



Center 2.441 GHz 500  $\mu$ s/

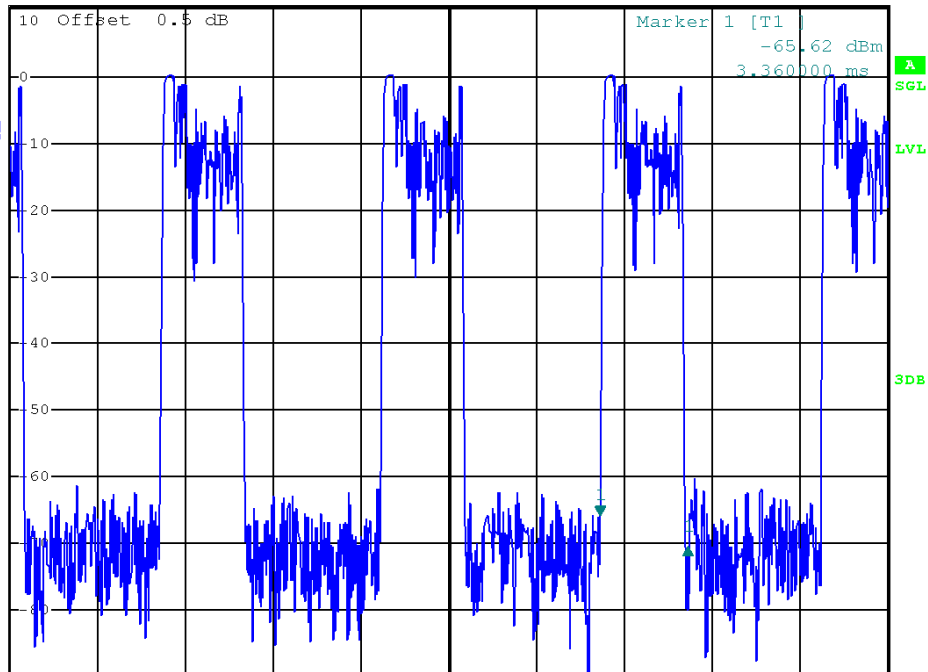
### Sample 2\_3Mbps\_CH39-DH1



RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz -4.72 dB  
SWT 5 ms 500.000000  $\mu$ s

Ref 10.5 dBm \*Att 20 dB

I AB  
CLRWR



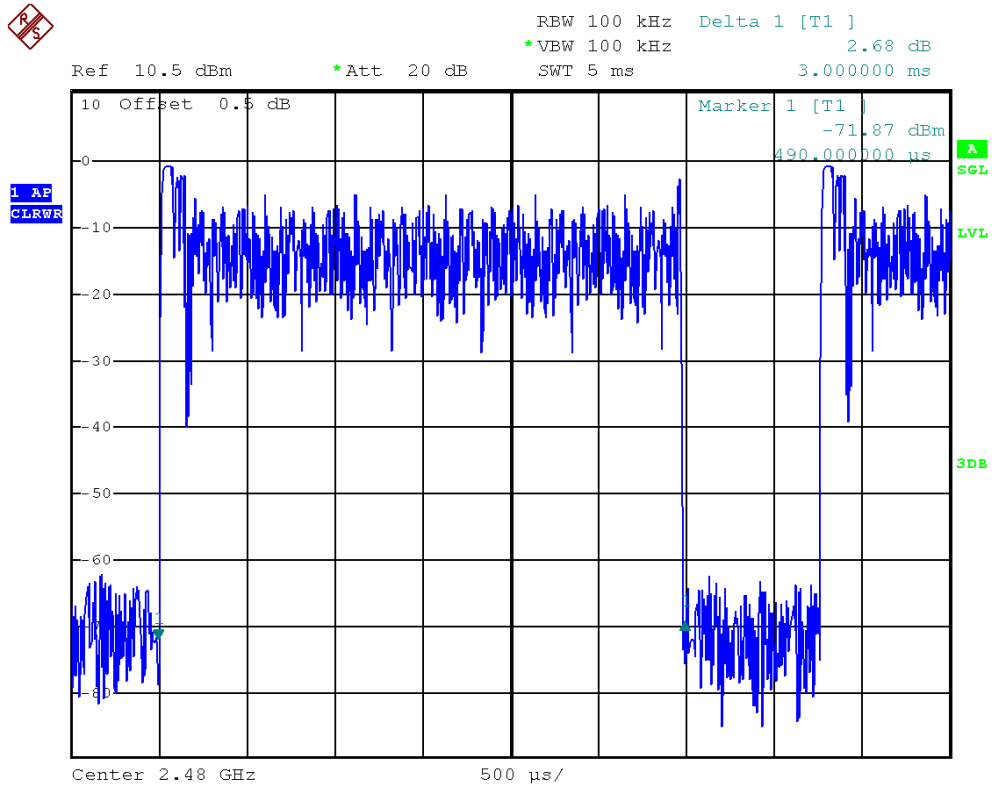
Center 2.441 GHz 500  $\mu$ s/



EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH78		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.0000	0.3200	0.4000
DH3	2480 MHz	1.7500	0.2800	0.4000
DH1	2480 MHz	0.5000	0.1600	0.4000

Sample 2\_3Mbps\_CH78-DH5





### Sample 2\_3Mbps\_CH78-DH3



RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz -5.82 dB  
SWT 5 ms 1.750000 ms

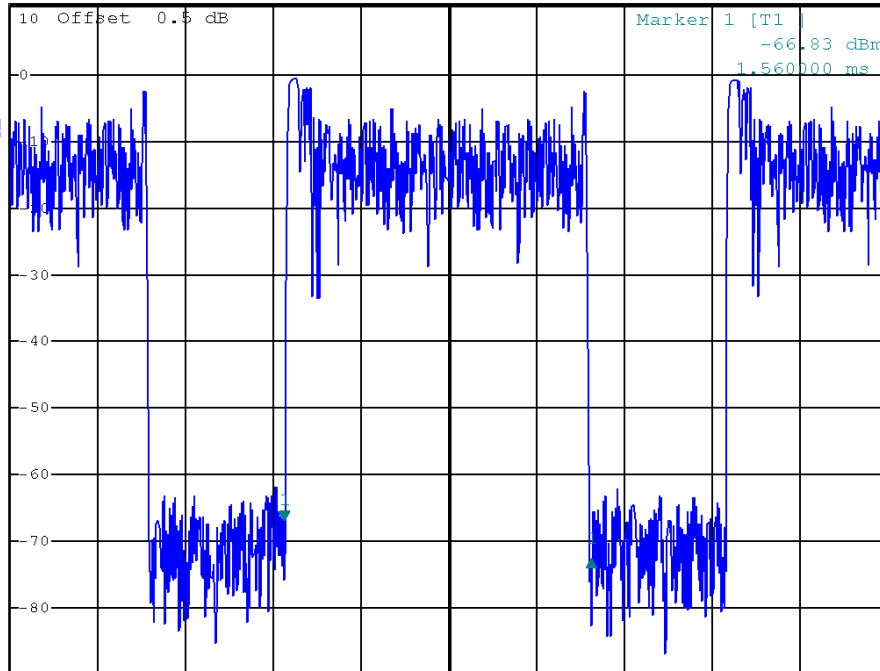
Ref 10.5 dBm

\*Att 20 dB

SWT 5 ms

1.750000 ms

I AB  
CLRWR



Center 2.48 GHz

500  $\mu$ s/

### Sample 2\_3Mbps\_CH78-DH1



RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz 1.11 dB  
SWT 5 ms 500.000000  $\mu$ s

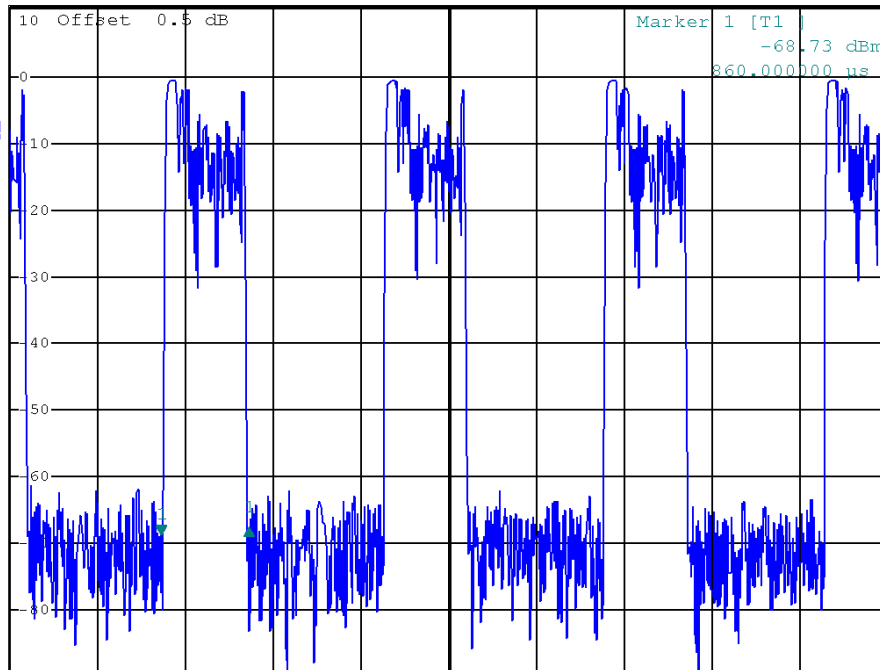
Ref 10.5 dBm

\*Att 20 dB

SWT 5 ms

500.000000  $\mu$ s

I AB  
CLRWR



Center 2.48 GHz

500  $\mu$ s/



**7. HOPPING CHANNEL SEPARATION MEASUREMENT**

**7.1 APPLIED PROCEDURES / LIMIT**

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

**7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

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

**7.1.2 TEST PROCEDURE**

- a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- c. The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised for channel separation measurement.

**7.1.3 DEVIATION FROM STANDARD**

No deviation.

**7.1.4 TEST SETUP**



**7.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



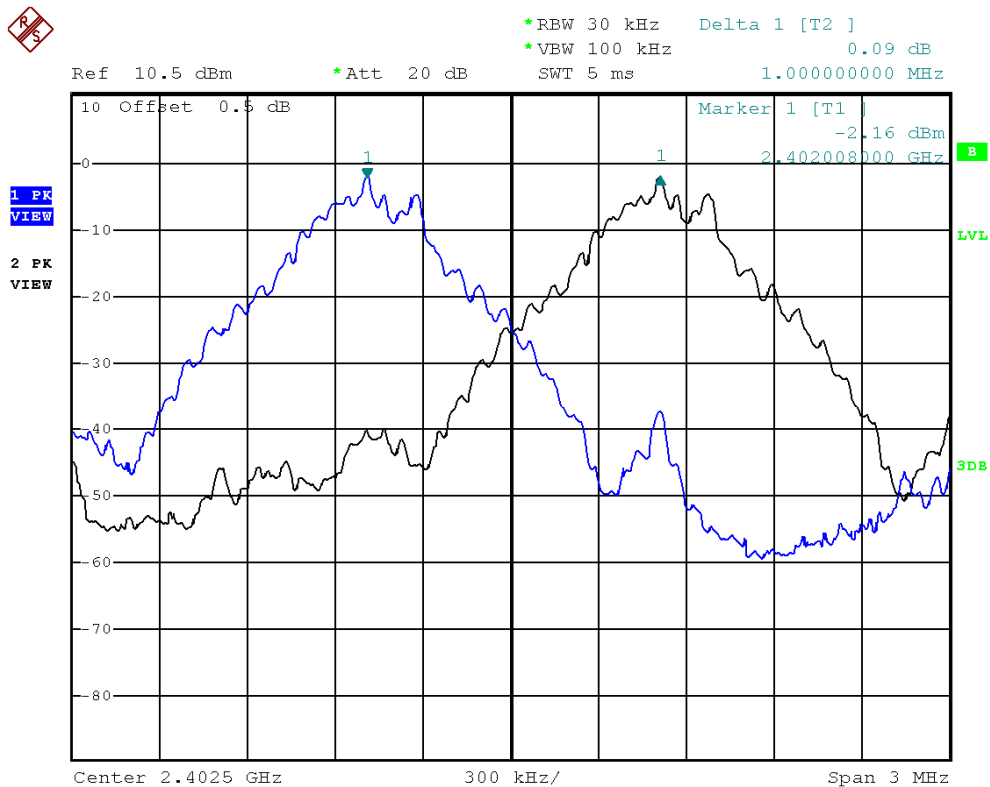
7.1.6 TEST RESULTS

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH39/CH78		

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	1	940.000	PASS
2441 MHz	1	936.000	PASS
2480 MHz	1	936.000	PASS

Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth

Sample 1\_1Mbps\_CH00



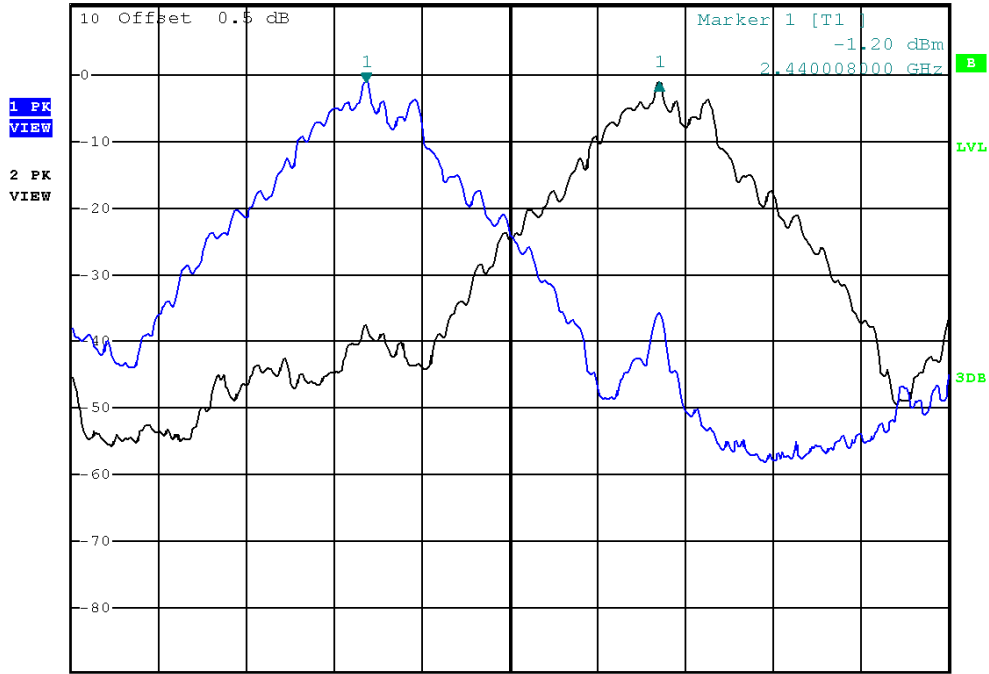


### Sample 1\_1Mbps\_CH39



\*RBW 30 kHz Delta 1 [T2 ]  
\*VBW 100 kHz 0.03 dB  
SWT 5 ms 1.000000000 MHz

Ref 10.5 dBm \*Att 20 dB



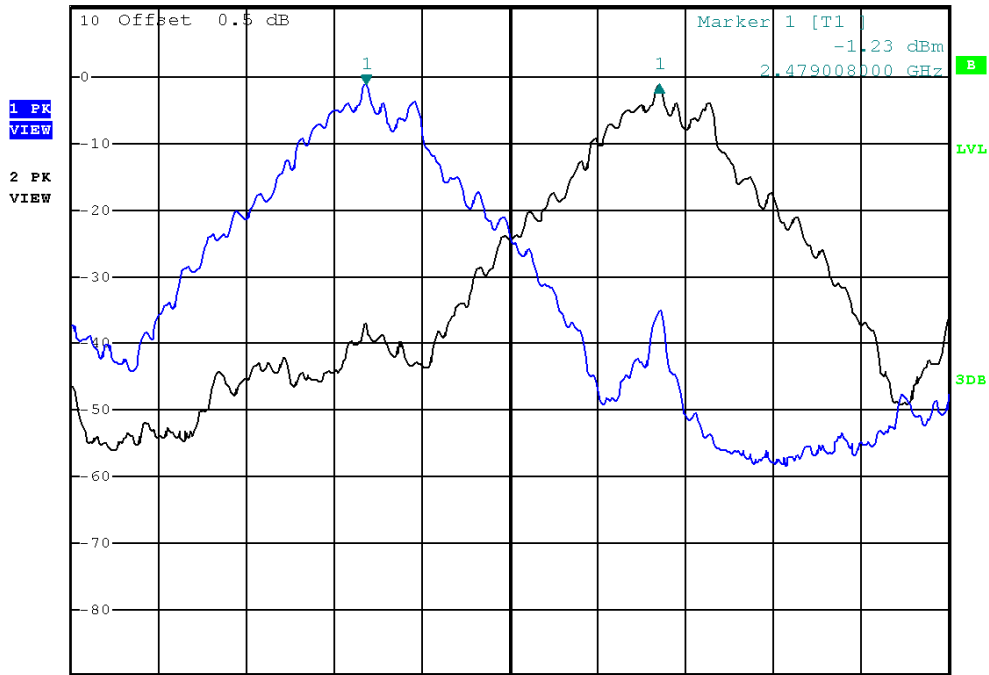
Center 2.4405 GHz 300 kHz/ Span 3 MHz

### Sample 1\_1Mbps\_CH78



\*RBW 30 kHz Delta 1 [T2 ]  
\*VBW 100 kHz -0.04 dB  
SWT 5 ms 1.000000000 MHz

Ref 10.5 dBm \*Att 20 dB



Center 2.4795 GHz 300 kHz/ Span 3 MHz

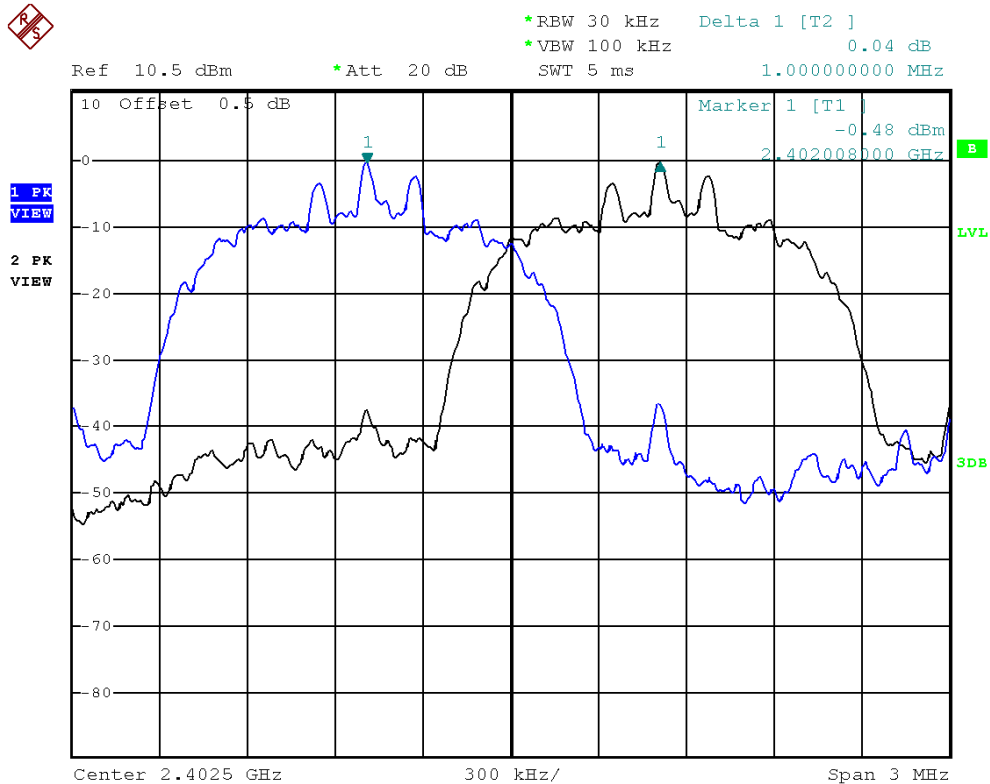


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH39/CH78		

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	1	1.264	PASS
2441 MHz	1	1.268	PASS
2480 MHz	1	1.268	PASS

Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth

Sample 1\_3Mbps\_CH00

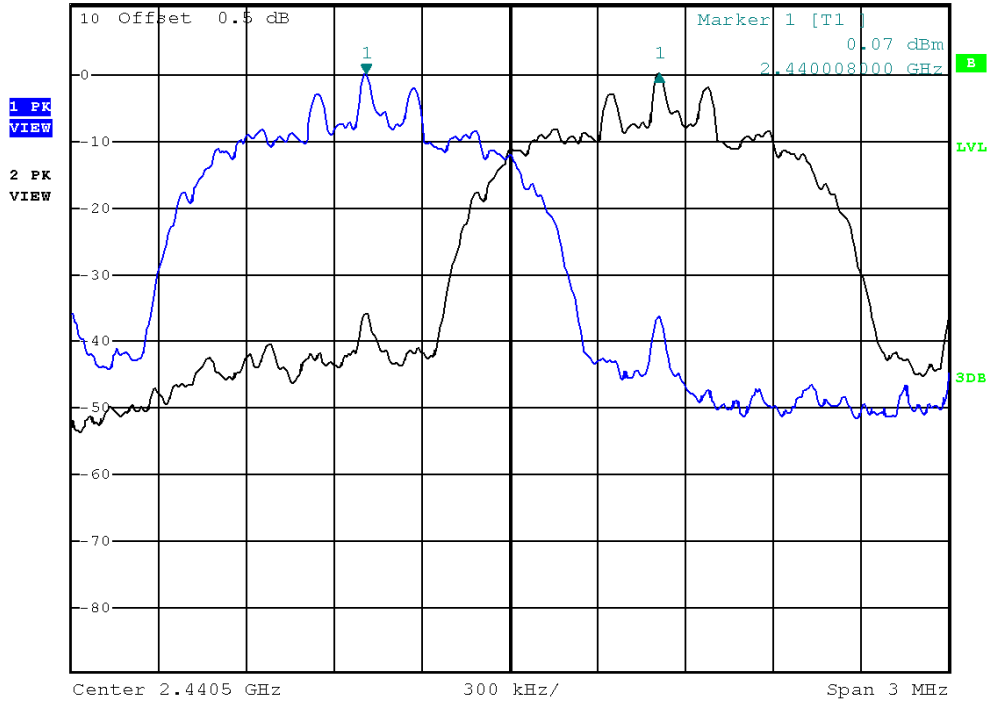




### Sample 1\_3Mbps\_CH39



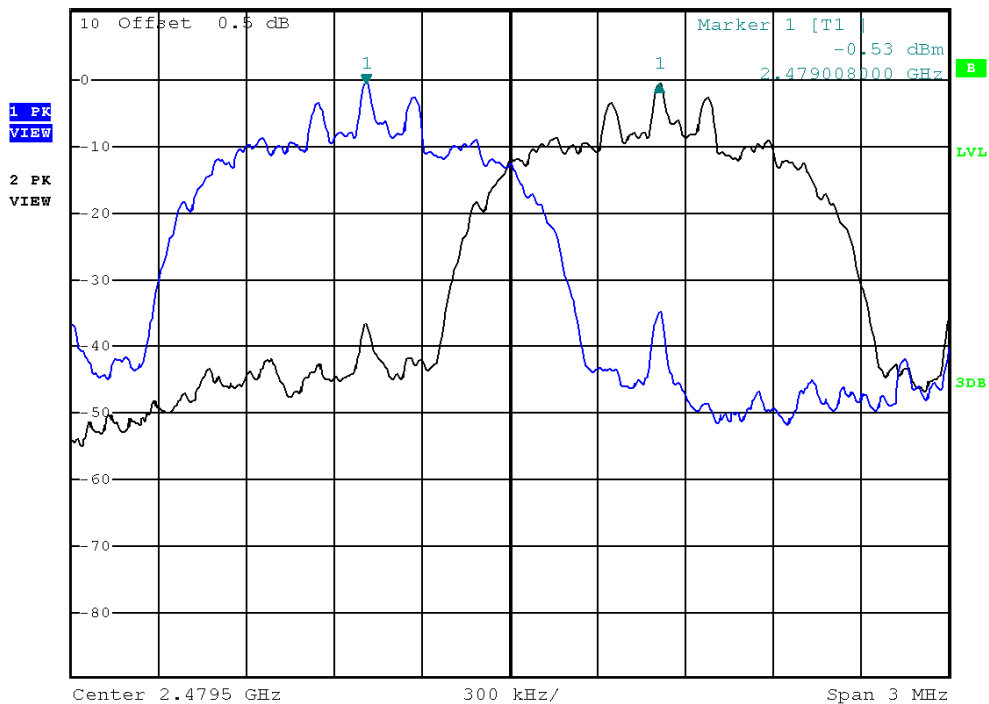
\*RBW 30 kHz Delta 1 [T2 ]  
 \*VBW 100 kHz 0.02 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.000000000 MHz



### Sample 1\_3Mbps\_CH78



\*RBW 30 kHz Delta 1 [T2 ]  
 \*VBW 100 kHz -0.07 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.000000000 MHz





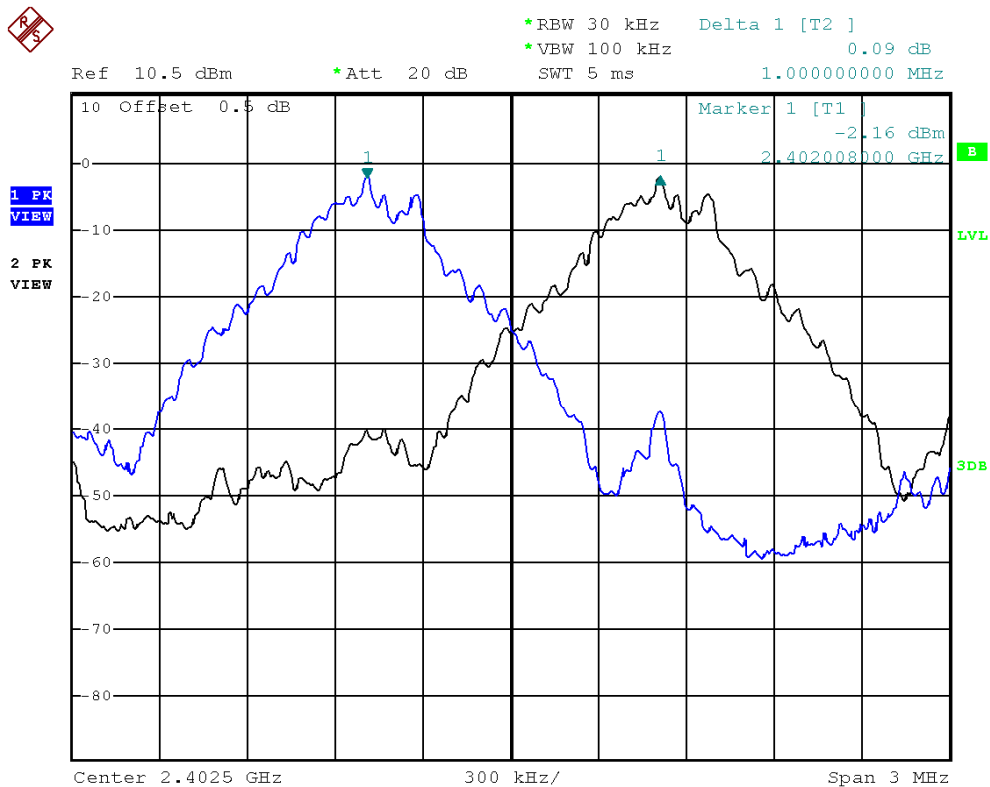


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH39/CH78		

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	1	940.000	PASS
2441 MHz	1	936.000	PASS
2480 MHz	1	936.000	PASS

Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth

Sample 2\_1Mbps\_CH00

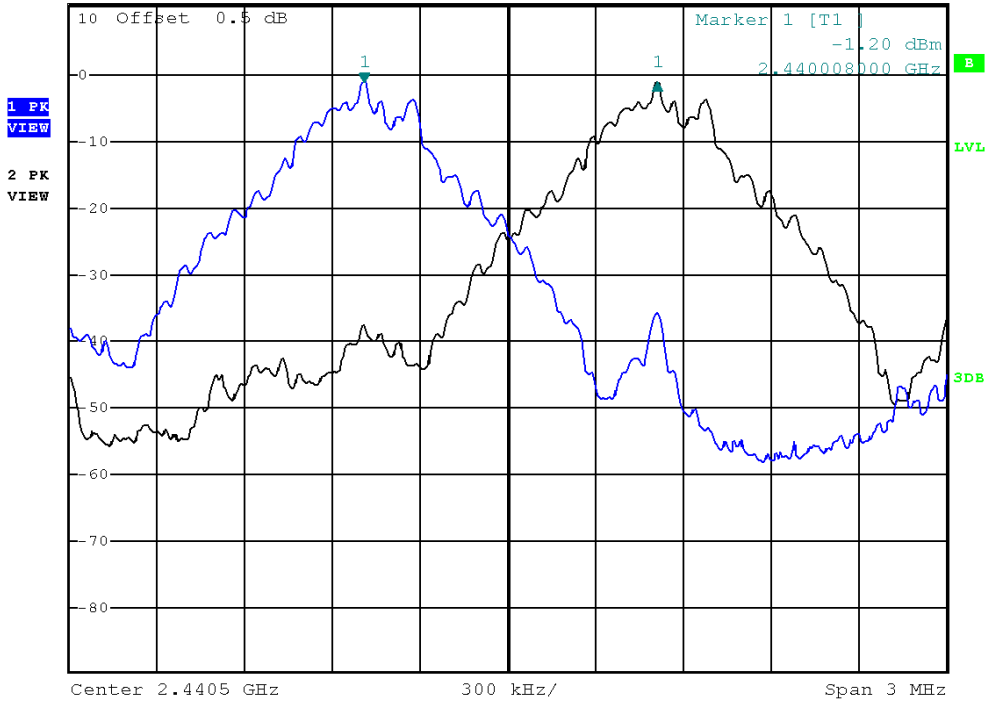




### Sample 2\_1Mbps\_CH39



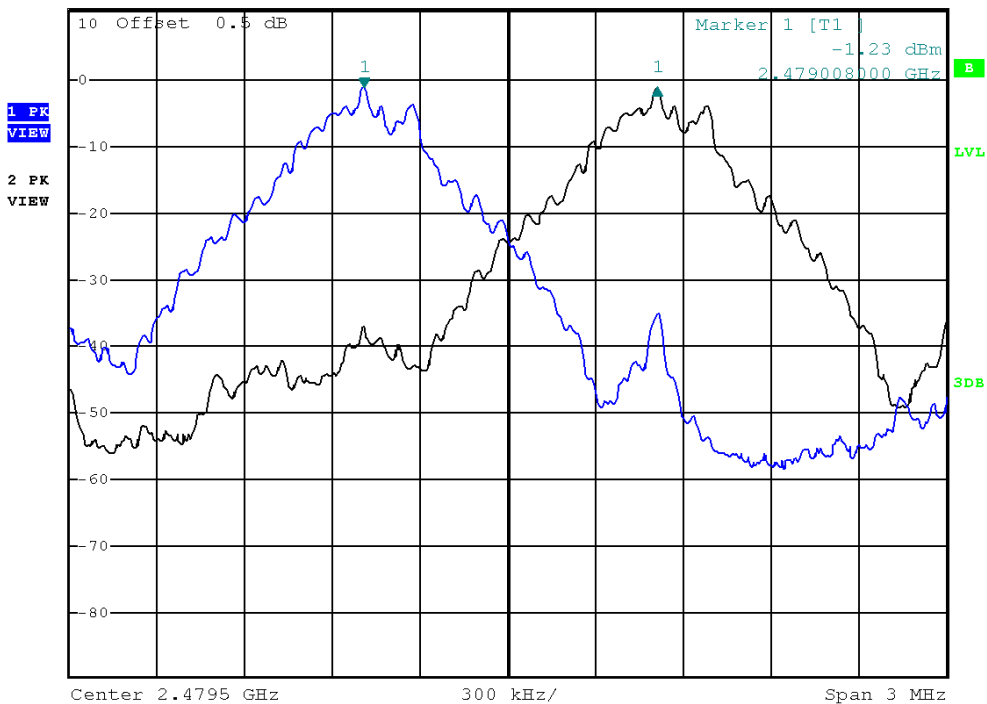
\*RBW 30 kHz Delta 1 [T2 ]  
 \*VBW 100 kHz 0.03 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.000000000 MHz



### Sample 2\_1Mbps\_CH78



\*RBW 30 kHz Delta 1 [T2 ]  
 \*VBW 100 kHz -0.04 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 5 ms 1.000000000 MHz



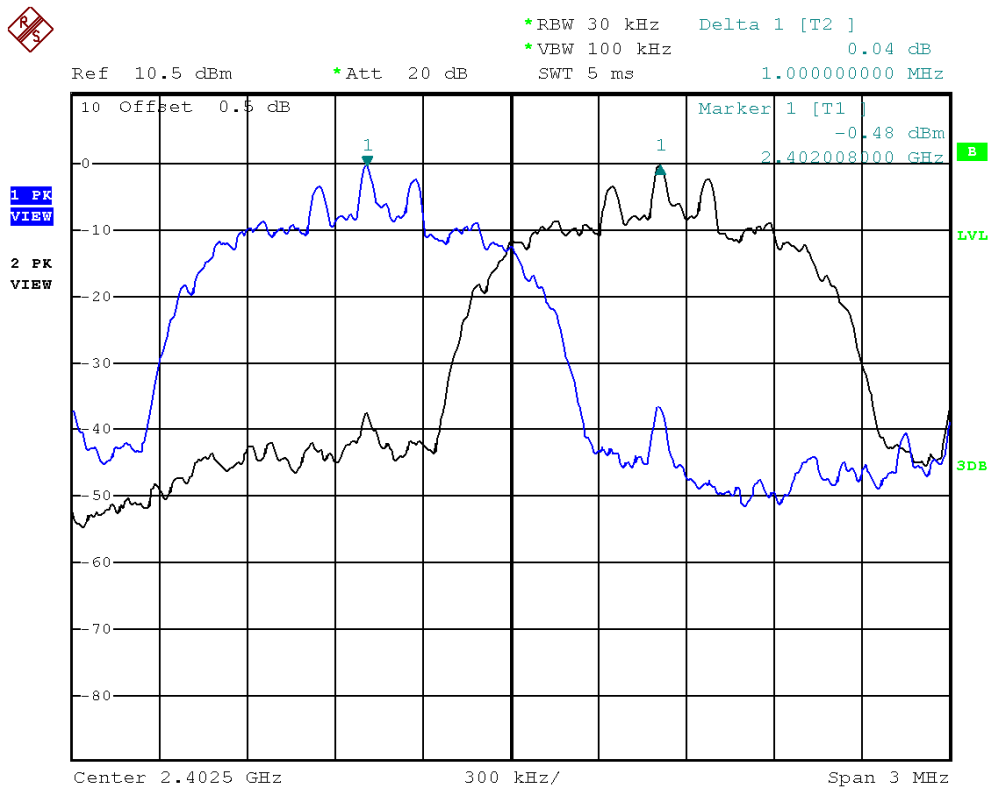


EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH39/CH78		

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	1	1.264	PASS
2441 MHz	1	1.268	PASS
2480 MHz	1	1.268	PASS

Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth

Sample 2\_3Mbps\_CH00



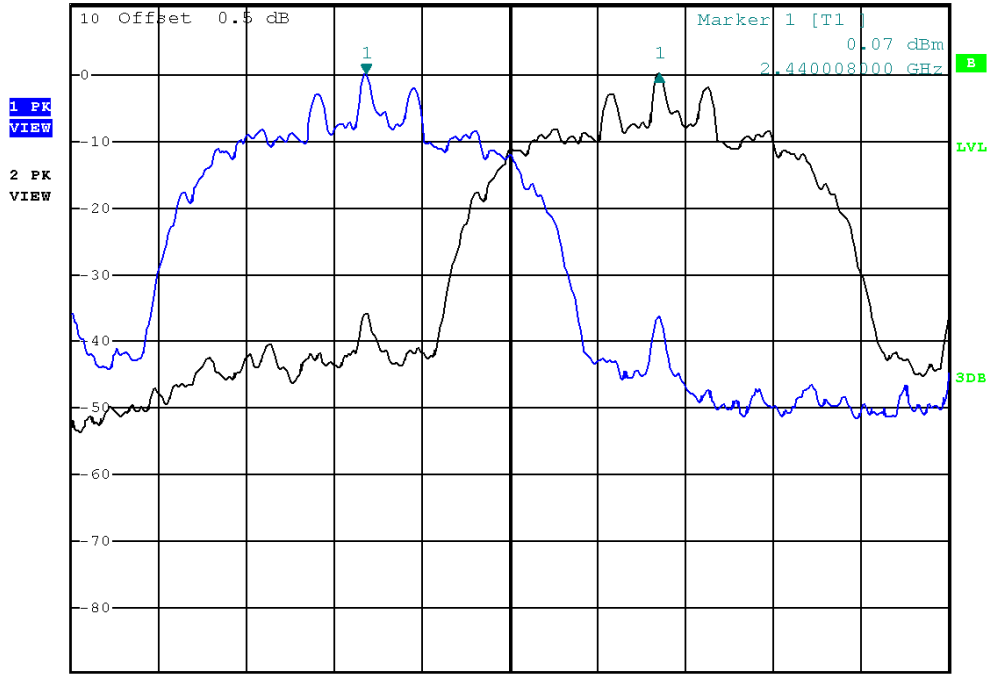


### Sample 2\_3Mbps\_CH39



\*RBW 30 kHz Delta 1 [T2 ]  
\*VBW 100 kHz 0.02 dB  
SWT 5 ms 1.000000000 MHz

Ref 10.5 dBm \*Att 20 dB



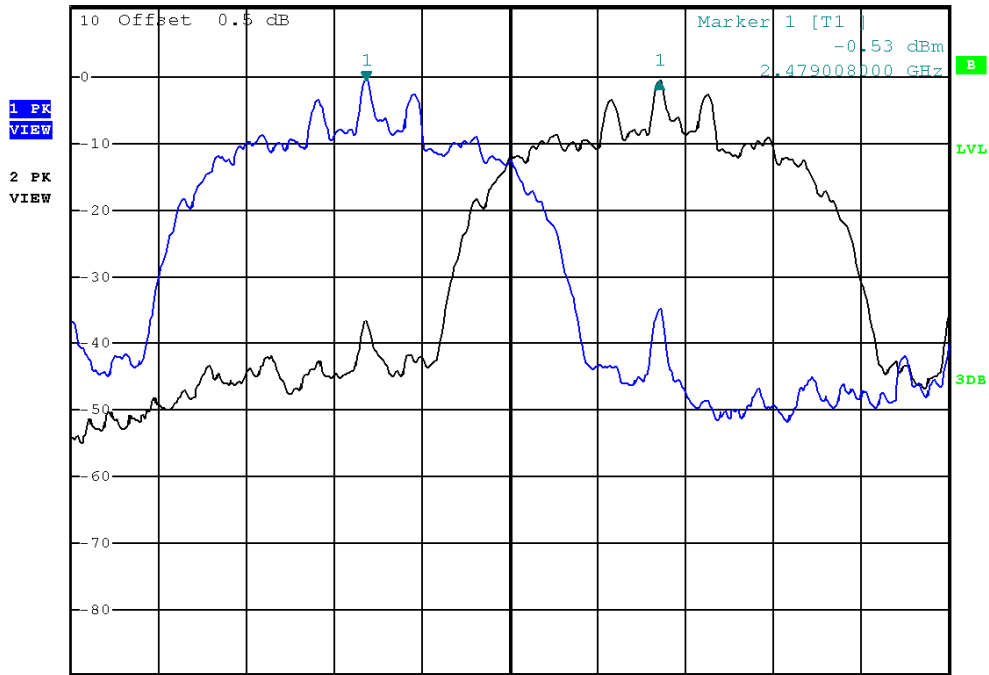
Center 2.4405 GHz 300 kHz/ Span 3 MHz

### Sample 2\_3Mbps\_CH78



\*RBW 30 kHz Delta 1 [T2 ]  
\*VBW 100 kHz -0.07 dB  
SWT 5 ms 1.000000000 MHz

Ref 10.5 dBm \*Att 20 dB



Center 2.4795 GHz 300 kHz/ Span 3 MHz



**8. BANDWITH TEST**

**8.1 APPLIED PROCEDURES / LIMIT**

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(2)	Bandwidth	$\leq 1$ MHz (20dB bandwidth)	2400-2483.5	PASS

**8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

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

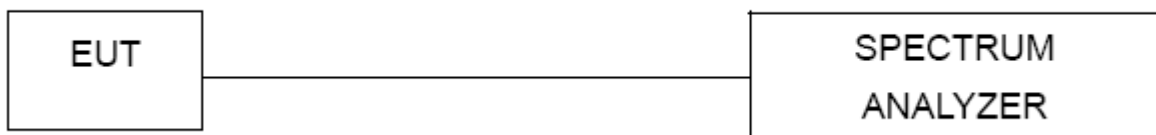
**8.1.2 TEST PROCEDURE**

- 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.

**8.1.3 DEVIATION FROM STANDARD**

No deviation.

**8.1.4 TEST SETUP**



**8.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

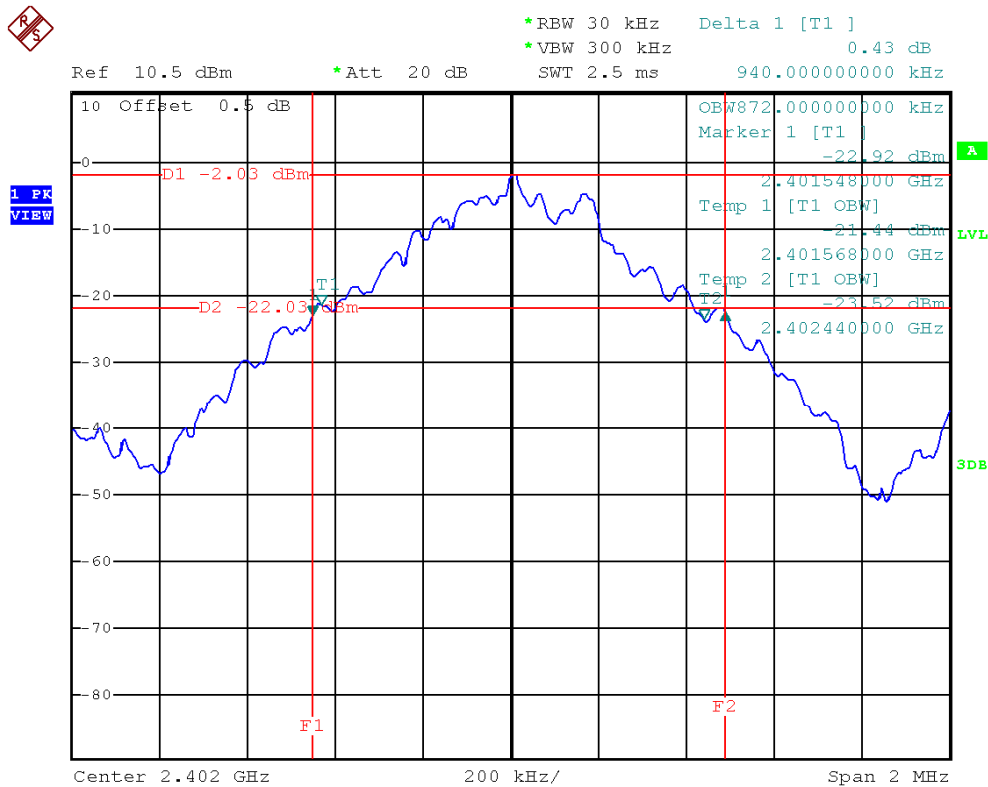


8.1.6 TEST RESULTS

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH39/CH78		

Frequency	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2402 MHz	940.000	872.000	<= 1MHz	PASS
2441 MHz	936.000	872.000	<= 1MHz	PASS
2480 MHz	936.000	868.000	<= 1MHz	PASS

Sample 1\_1Mbps\_CH00

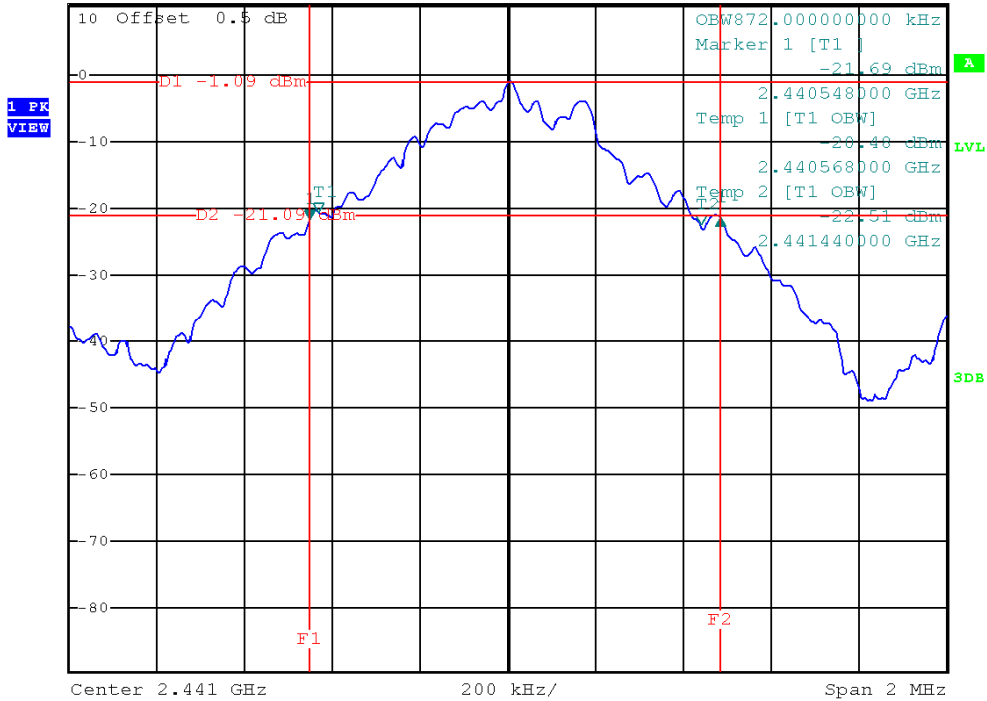




### Sample 1\_1Mbps\_CH39



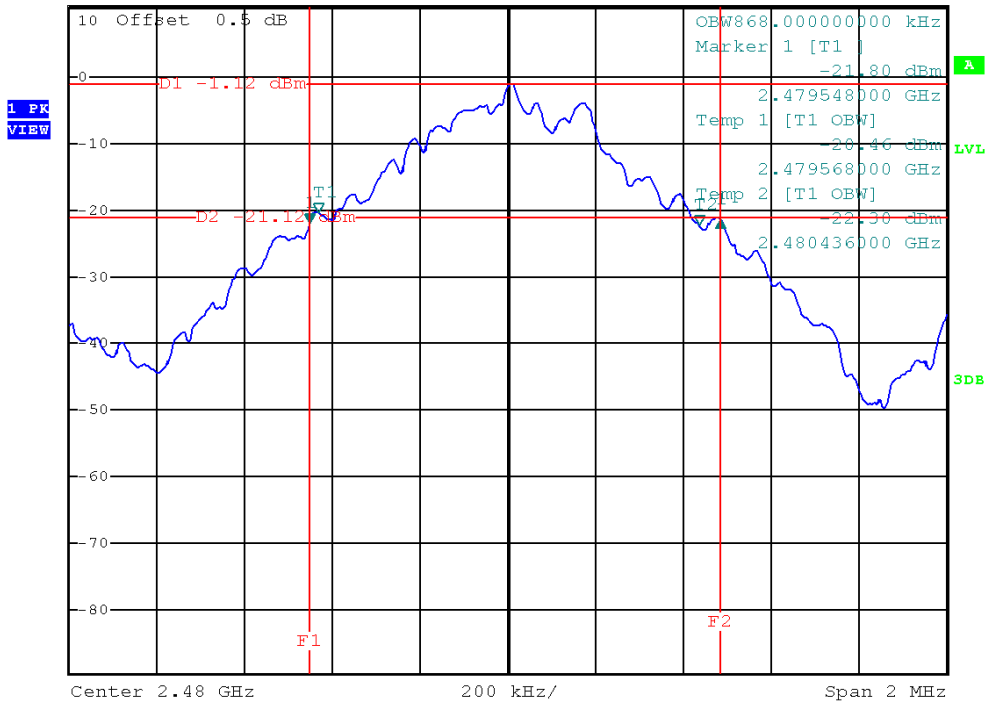
\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 0.39 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 936.000000000 kHz



### Sample 1\_1Mbps\_CH78



\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 0.42 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 936.000000000 kHz

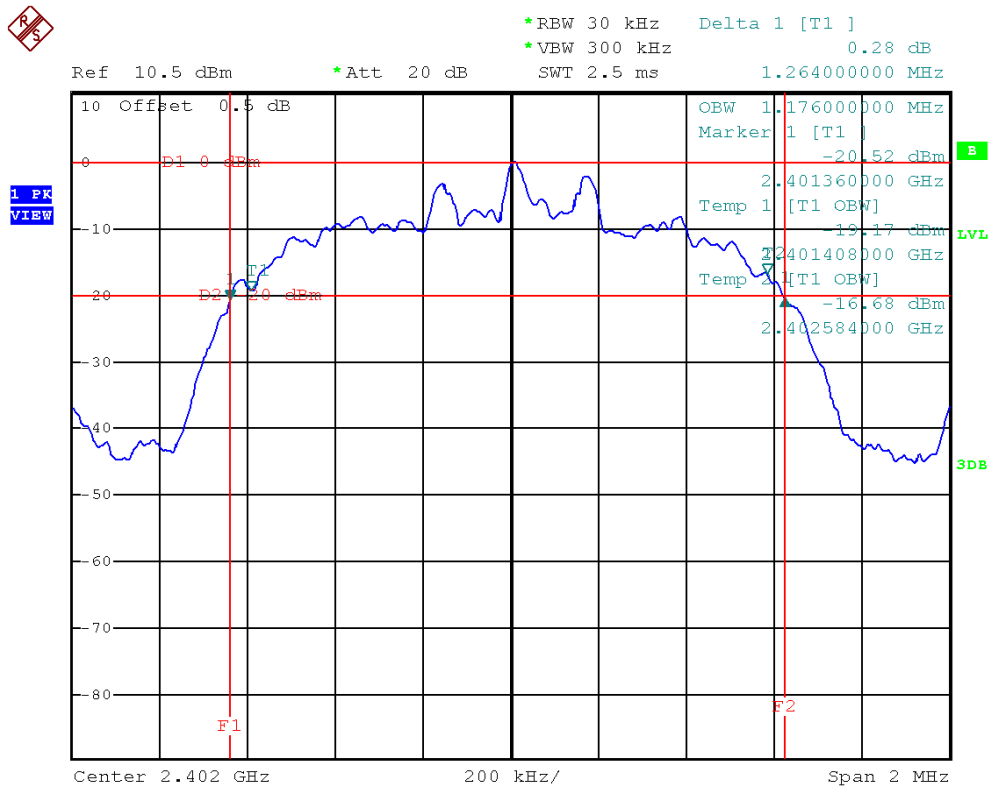




EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH39/CH78		

Frequency	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2402 MHz	1.264	1.176	<= 1MHz	PASS
2441 MHz	1.268	1.172	<= 1MHz	PASS
2480 MHz	1.268	1.176	<= 1MHz	PASS

Sample 1\_3Mbps\_CH00



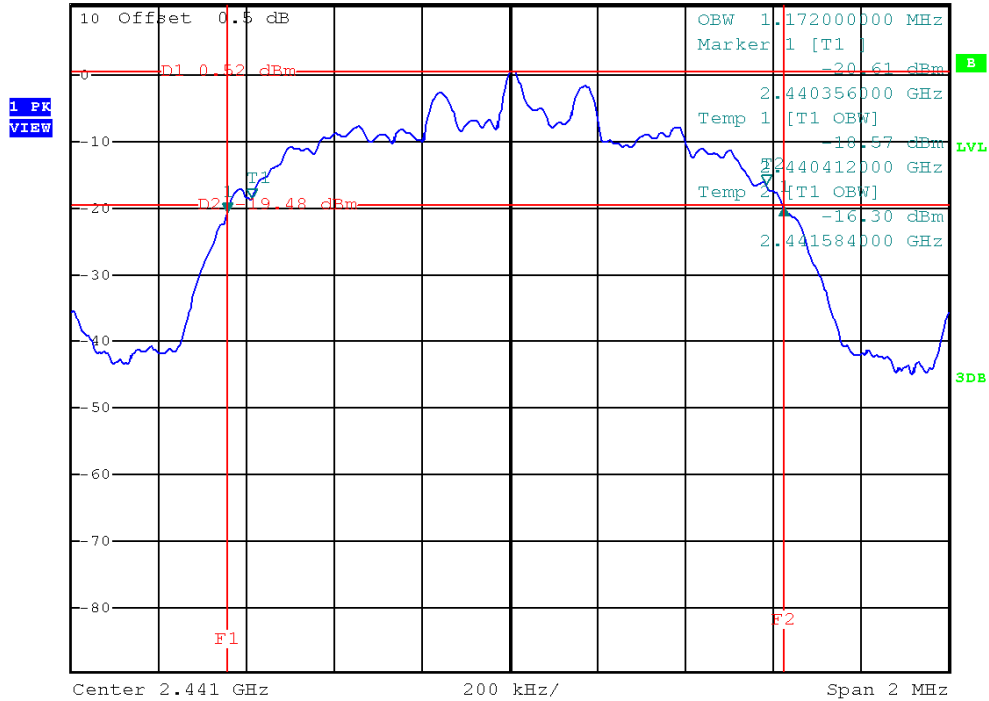




### Sample 1\_3Mbps\_CH39



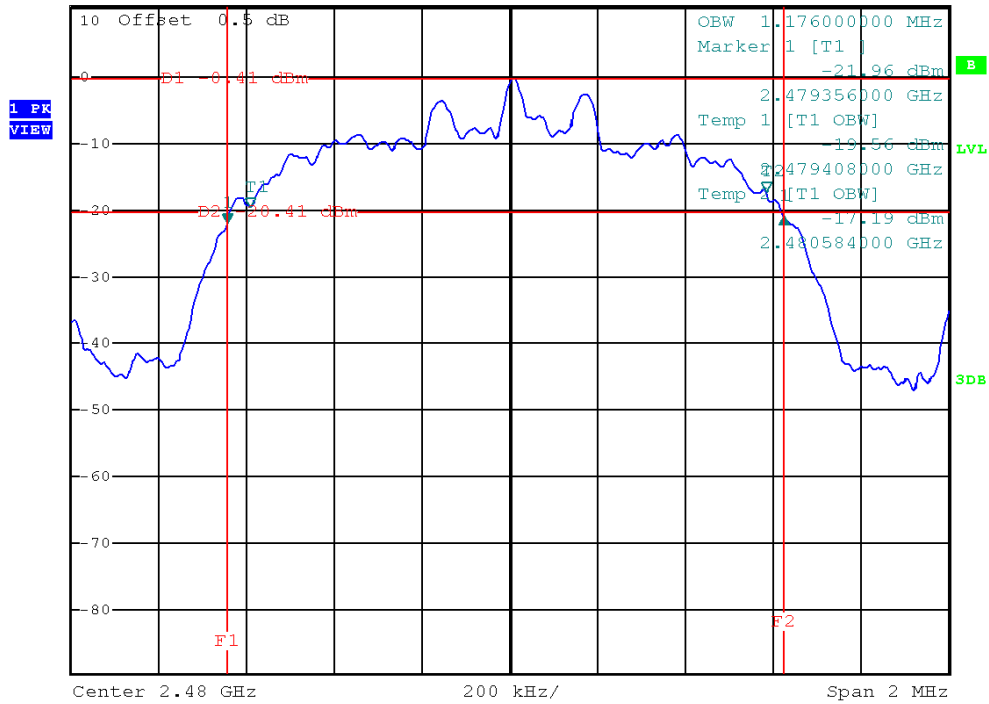
\*RBW 30 kHz Delta 1 [T1 ]  
\*VBW 300 kHz 0.83 dB  
Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 1.268000000 MHz



### Sample 1\_3Mbps\_CH78



\*RBW 30 kHz Delta 1 [T1 ]  
\*VBW 300 kHz 1.01 dB  
Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 1.268000000 MHz

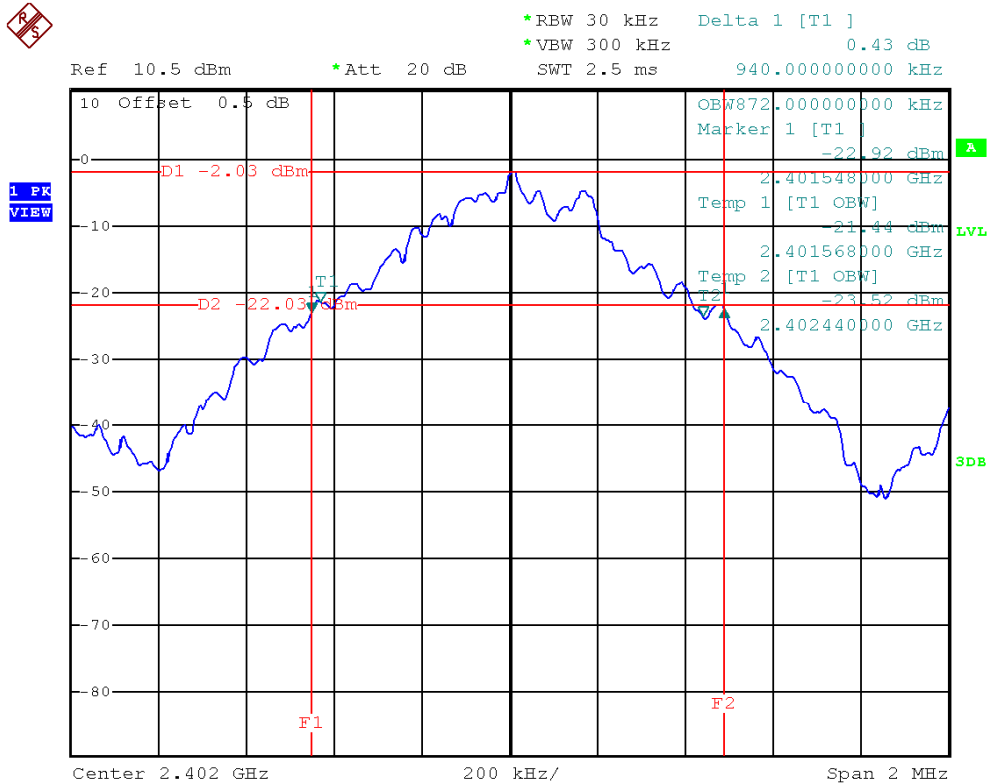




EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00/CH39/CH78		

Frequency	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2402 MHz	940.000	872.000	<= 1MHz	PASS
2441 MHz	936.000	872.000	<= 1MHz	PASS
2480 MHz	936.000	868.000	<= 1MHz	PASS

Sample 2\_1Mbps\_CH00

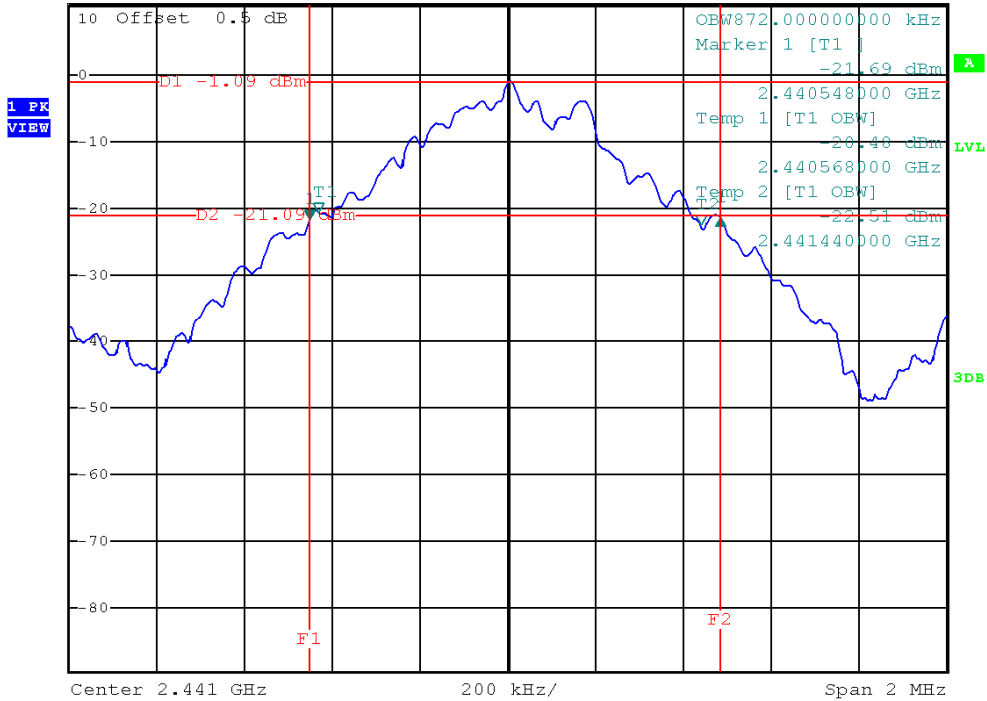




### Sample 2\_1Mbps\_CH39



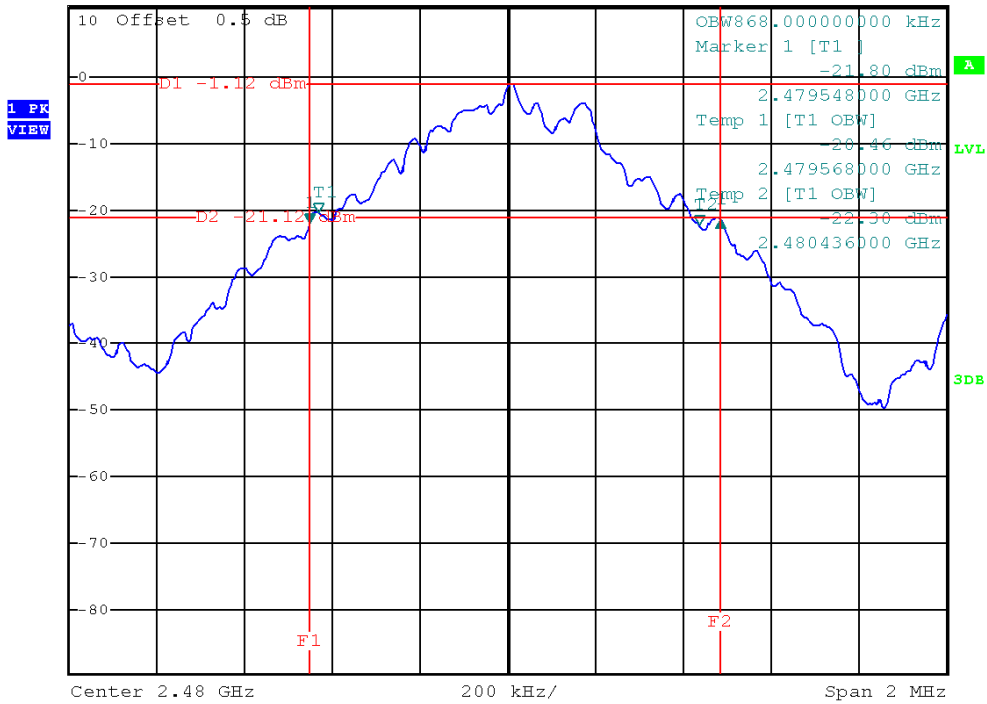
\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 0.39 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 936.000000000 kHz



### Sample 2\_1Mbps\_CH78



\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 0.42 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 936.000000000 kHz

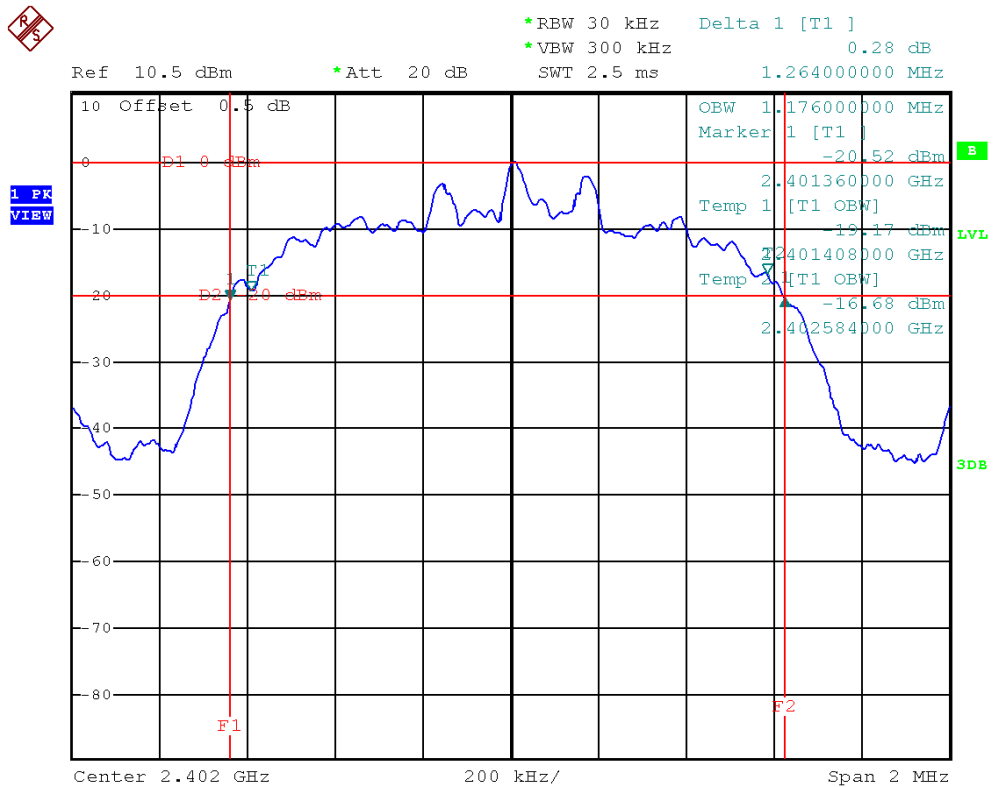




EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH39/CH78		

Frequency	20dB Bandwidth (MHz)	99% Occupied BW (MHz)	Channel Separation (MHz)	Result
2402 MHz	1.264	1.176	<= 1MHz	PASS
2441 MHz	1.268	1.172	<= 1MHz	PASS
2480 MHz	1.268	1.176	<= 1MHz	PASS

Sample 2\_3Mbps\_CH00

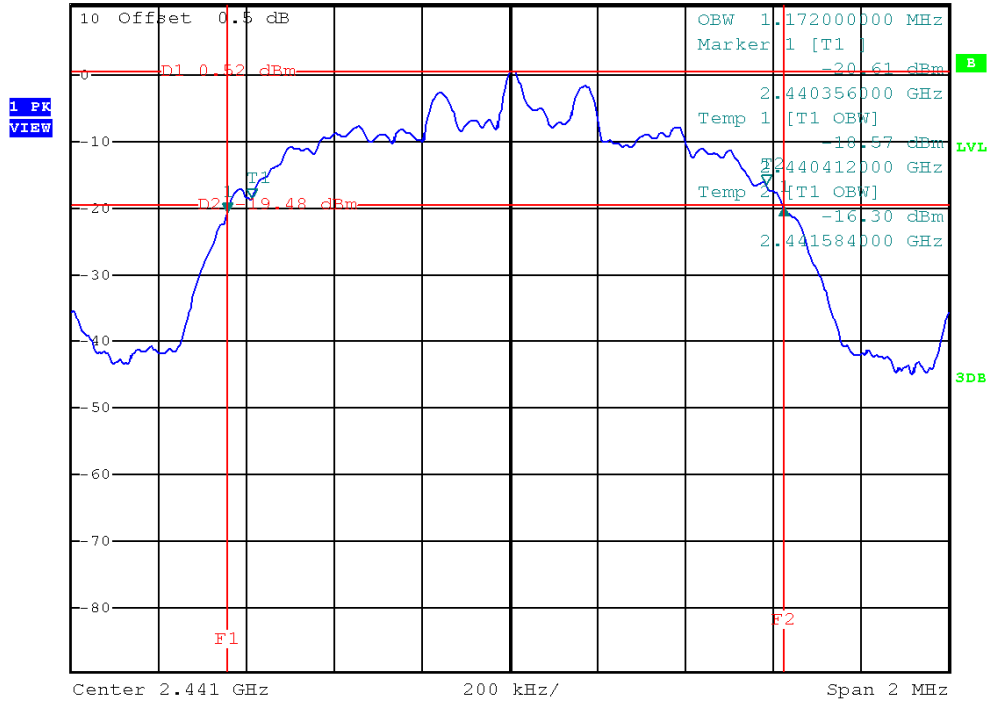




### Sample 2\_3Mbps\_CH39



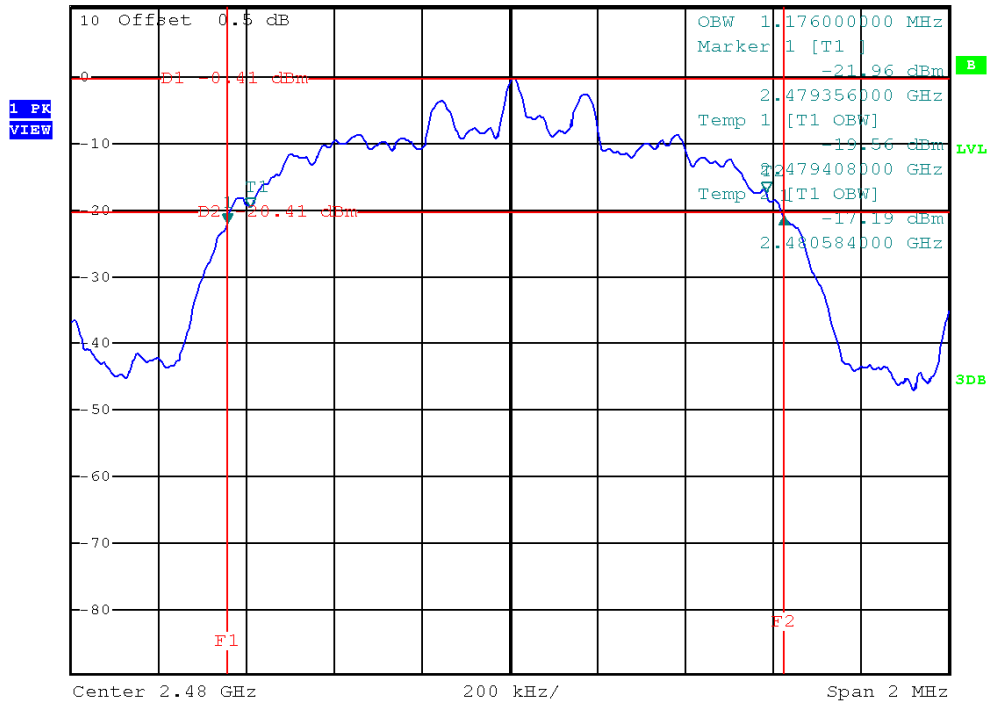
\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 0.83 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 1.268000000 MHz



### Sample 2\_3Mbps\_CH78



\*RBW 30 kHz Delta 1 [T1 ]  
 \*VBW 300 kHz 1.01 dB  
 Ref 10.5 dBm \*Att 20 dB SWT 2.5 ms 1.268000000 MHz





**9. PEAK OUTPUT POWER TEST**

**9.1 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

**9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

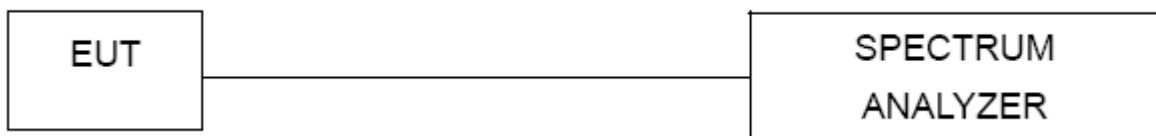
**9.1.2 TEST PROCEDURE**

- 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= 3MHz, VBW= 3MHz, Sweep time = Auto.

**9.1.3 DEVIATION FROM STANDARD**

No deviation.

**9.1.4 TEST SETUP**



**9.1.5 EUT OPERATION CONDITIONS**

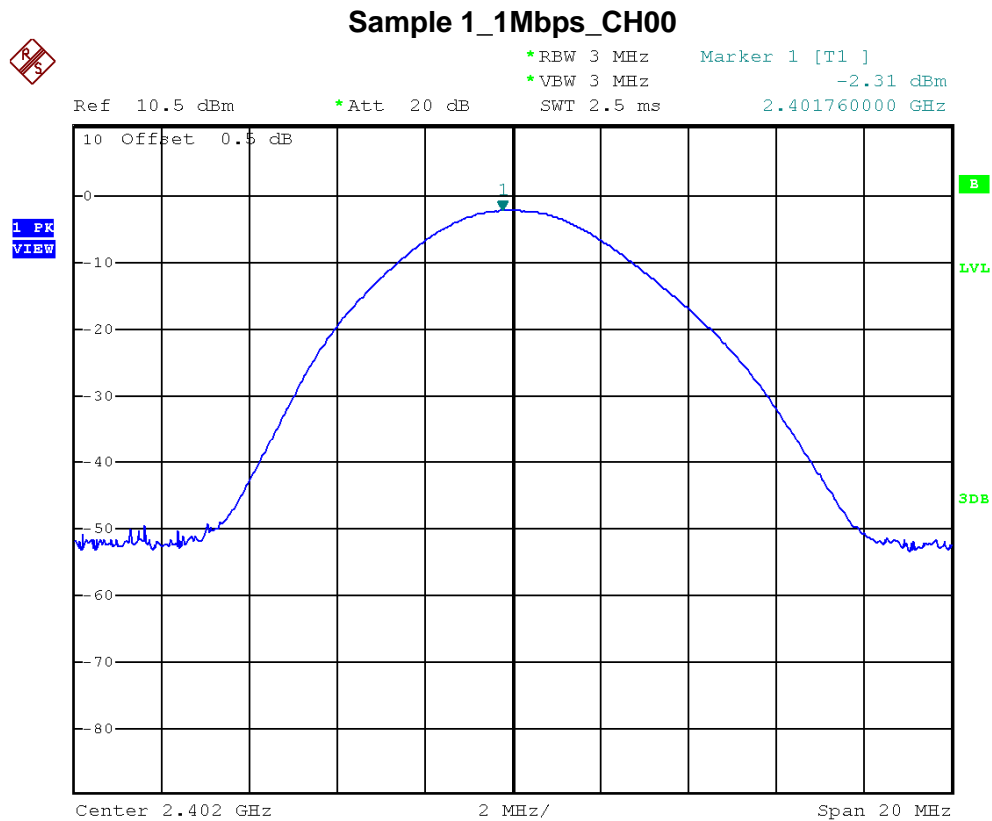
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



9.1.6 TEST RESULTS

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH39/CH78		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402 MHz	-2.31	30	1
2441 MHz	-1.43	30	1
2480 MHz	-1.45	30	1

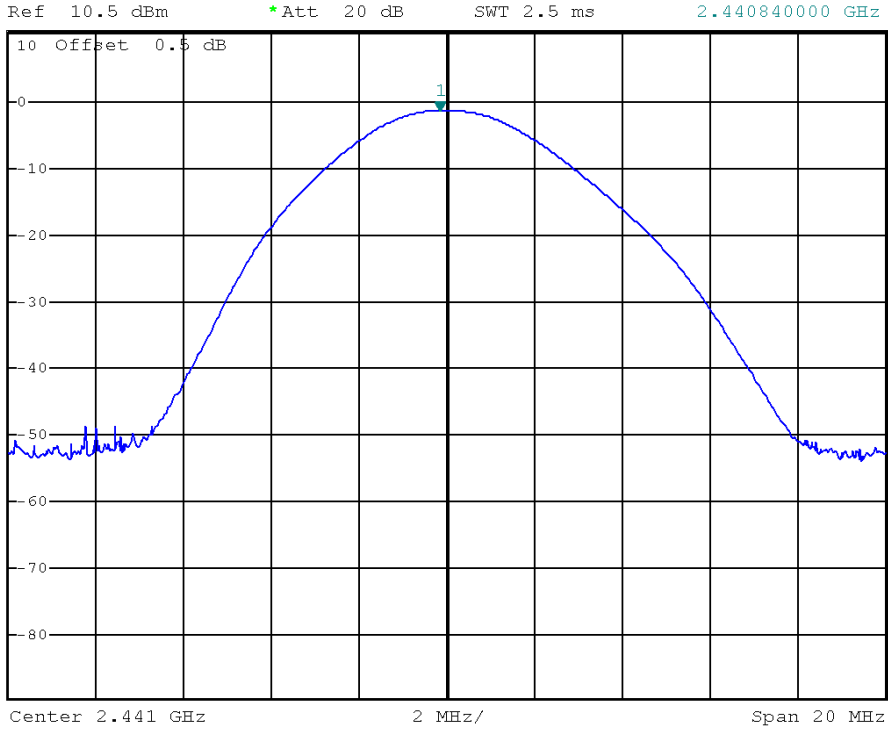




### Sample 1\_1Mbps\_CH39



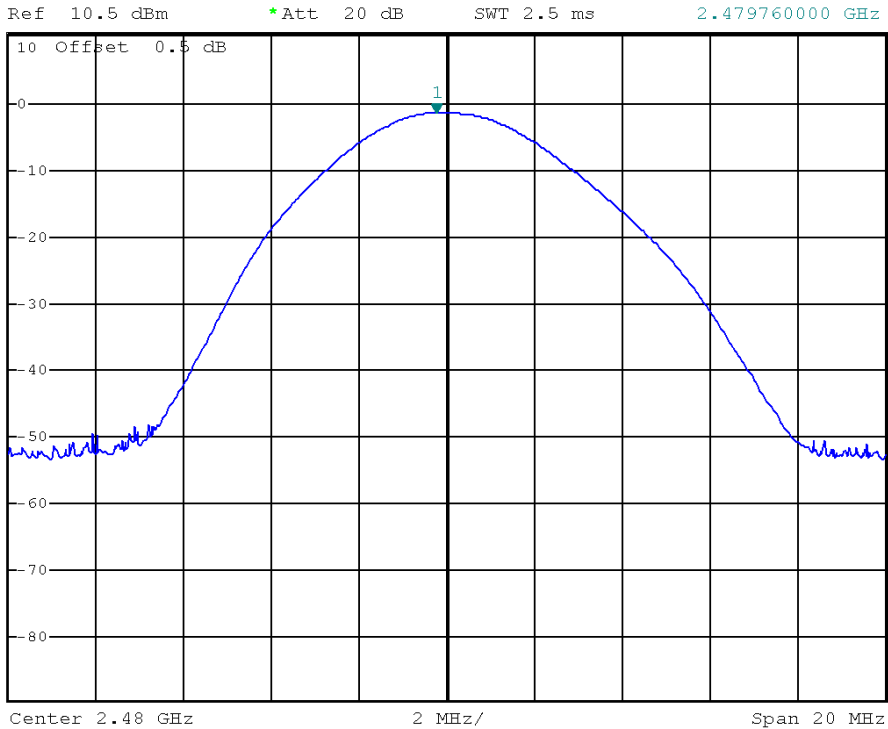
\*RBW 3 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -1.43 dBm  
SWT 2.5 ms      2.440840000 GHz



### Sample 1\_1Mbps\_CH78



\*RBW 3 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -1.45 dBm  
SWT 2.5 ms      2.479760000 GHz



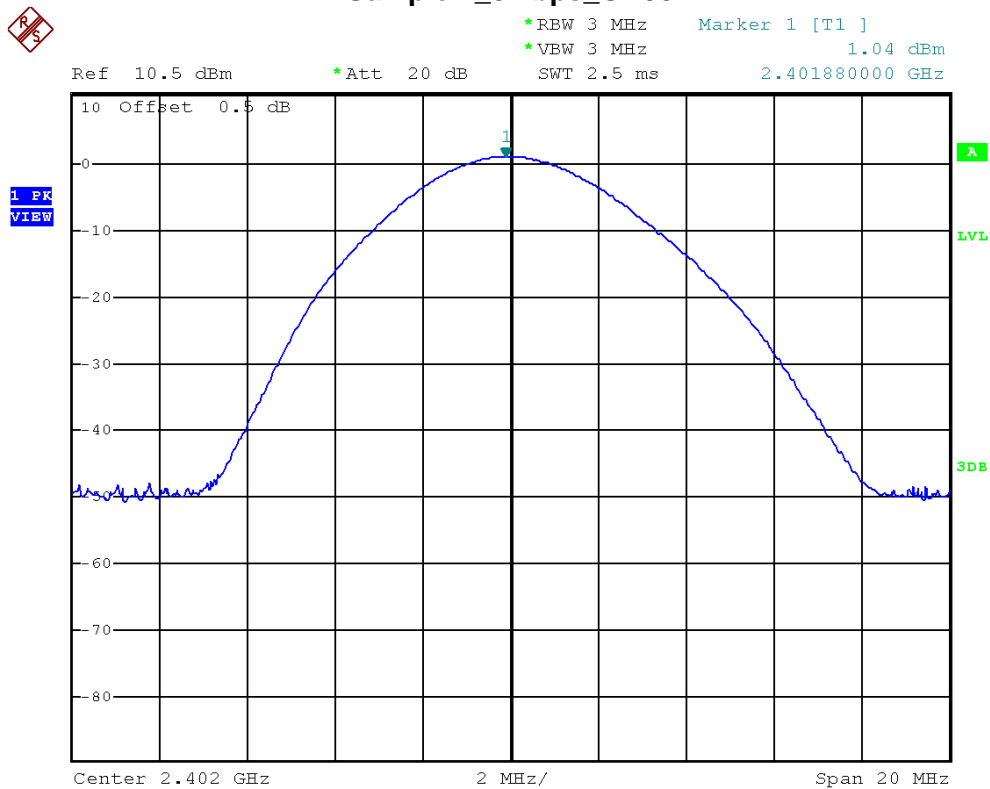




EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH39/CH78		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402 MHz	1.04	30	1
2441 MHz	1.54	30	1
2480 MHz	1.03	30	1

Sample 1\_3Mbps\_CH00

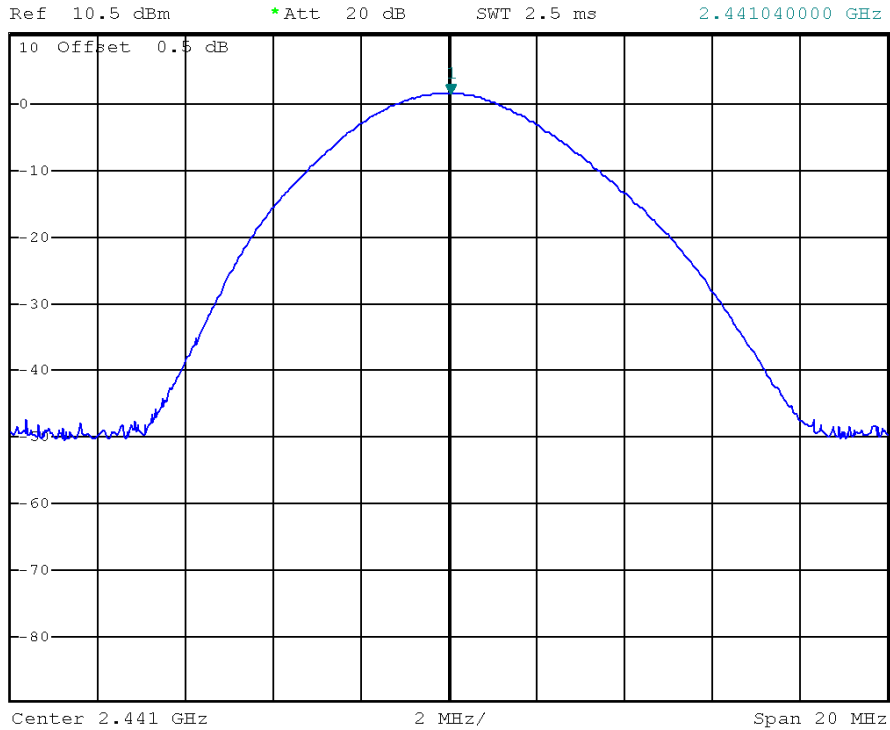




### Sample 1\_3Mbps\_CH39



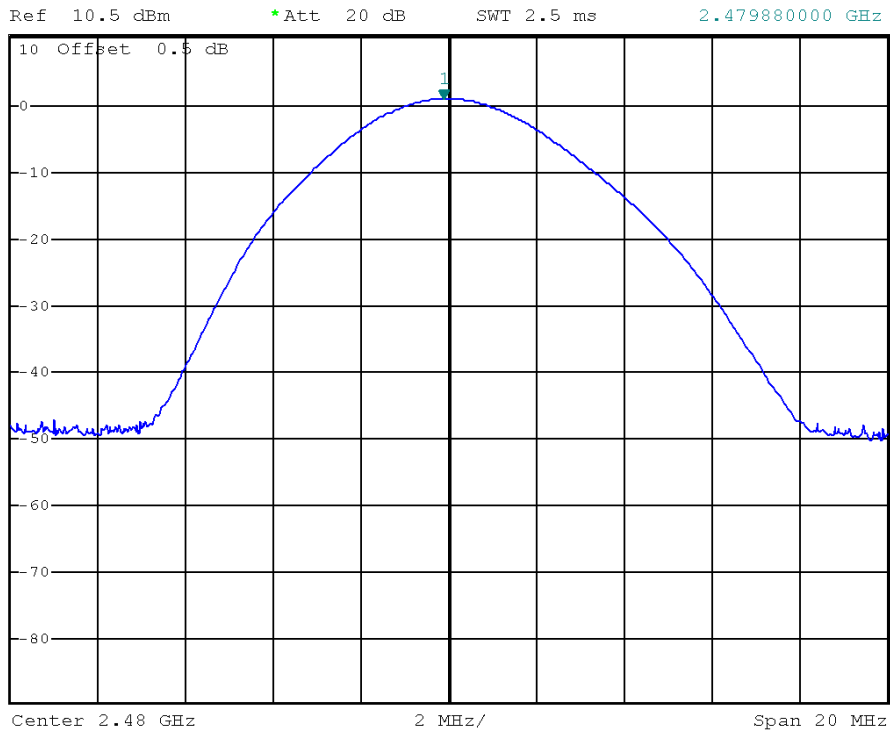
\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    1.54 dBm  
SWT 2.5 ms    2.441040000 GHz



### Sample 1\_3Mbps\_CH78



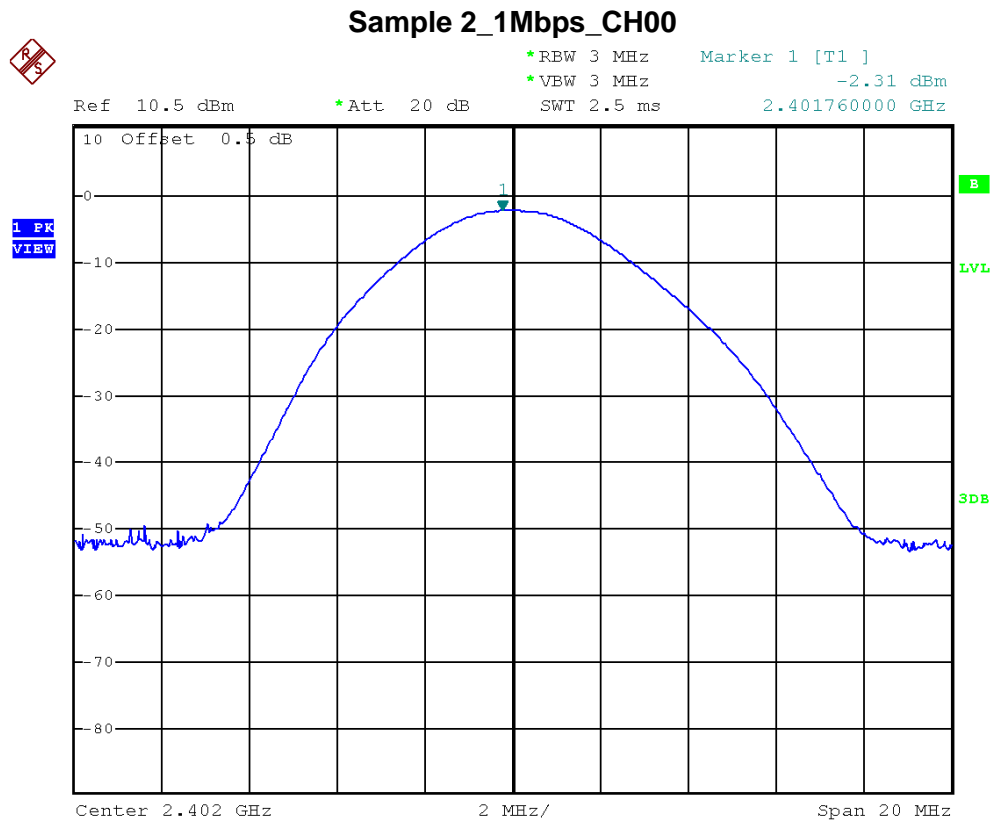
\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    1.03 dBm  
SWT 2.5 ms    2.479880000 GHz





EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00/CH39/CH78		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402 MHz	-2.31	30	1
2441 MHz	-1.43	30	1
2480 MHz	-1.45	30	1

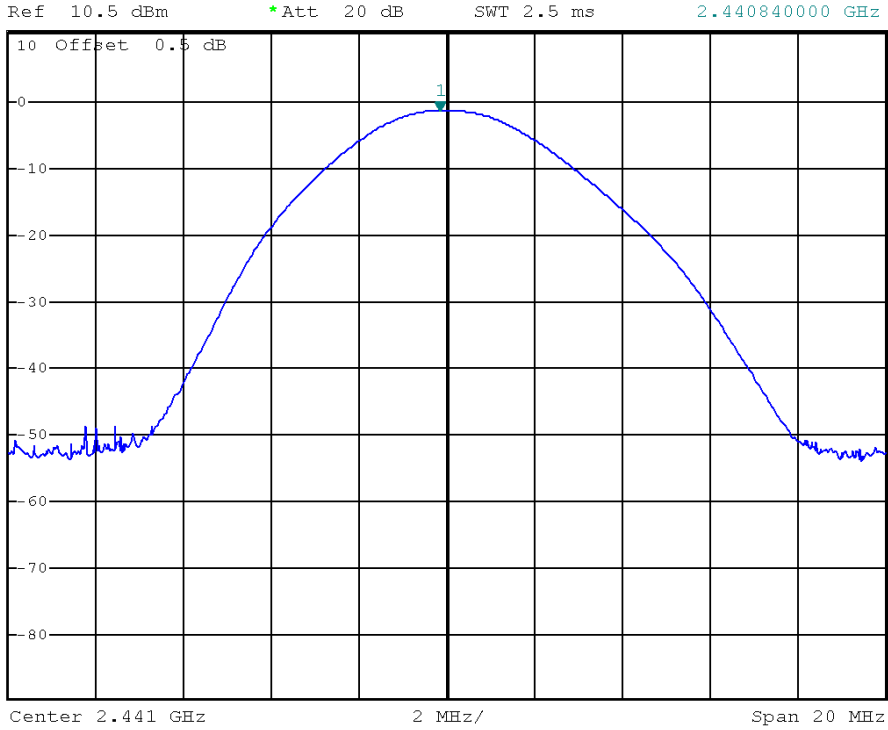




### Sample 2\_1Mbps\_CH39



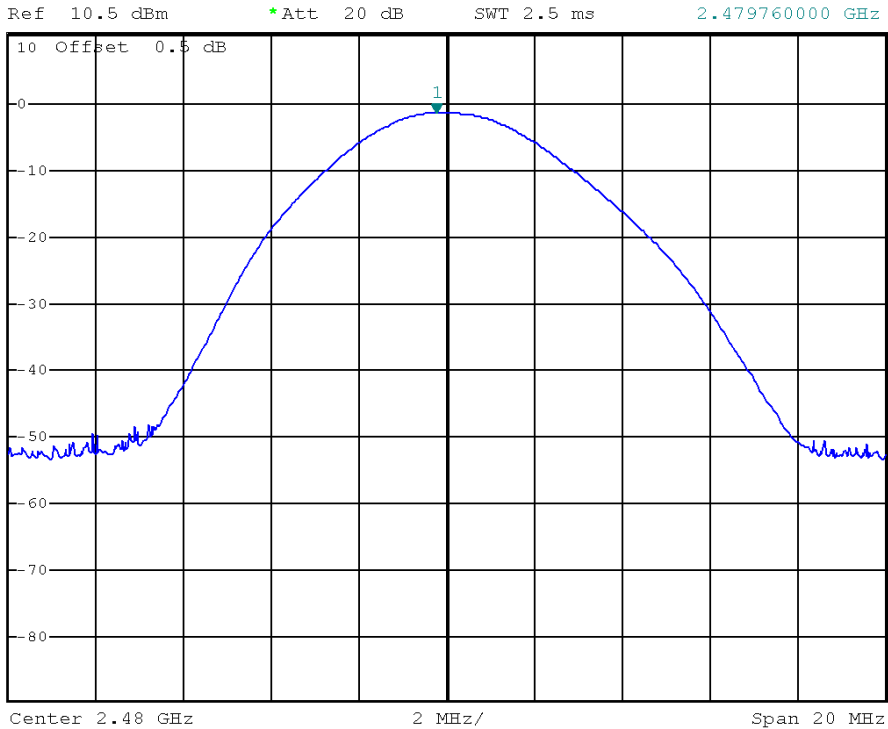
\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    -1.43 dBm  
SWT 2.5 ms    2.440840000 GHz



### Sample 2\_1Mbps\_CH78



\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    -1.45 dBm  
SWT 2.5 ms    2.479760000 GHz

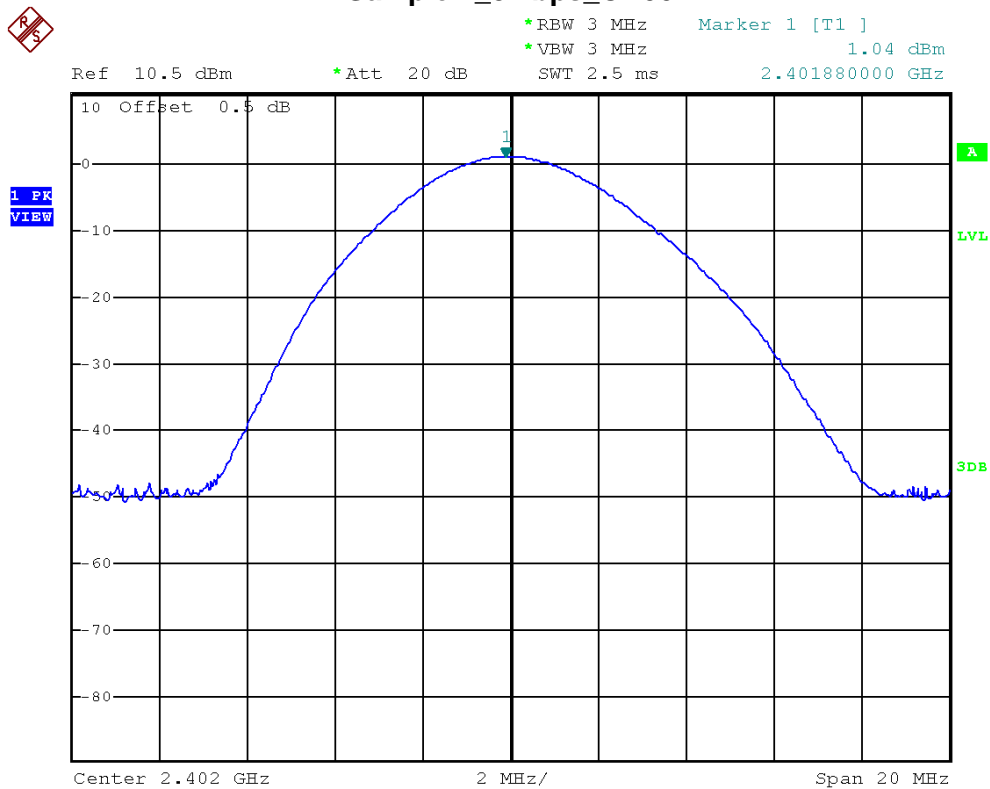




EUT :	Handheld Terminal	Model Name :	P223
Temperature :	23.5 °C	Relative Humidity :	75 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH39/CH78		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402 MHz	1.04	30	1
2441 MHz	1.54	30	1
2480 MHz	1.03	30	1

Sample 2\_3Mbps\_CH00

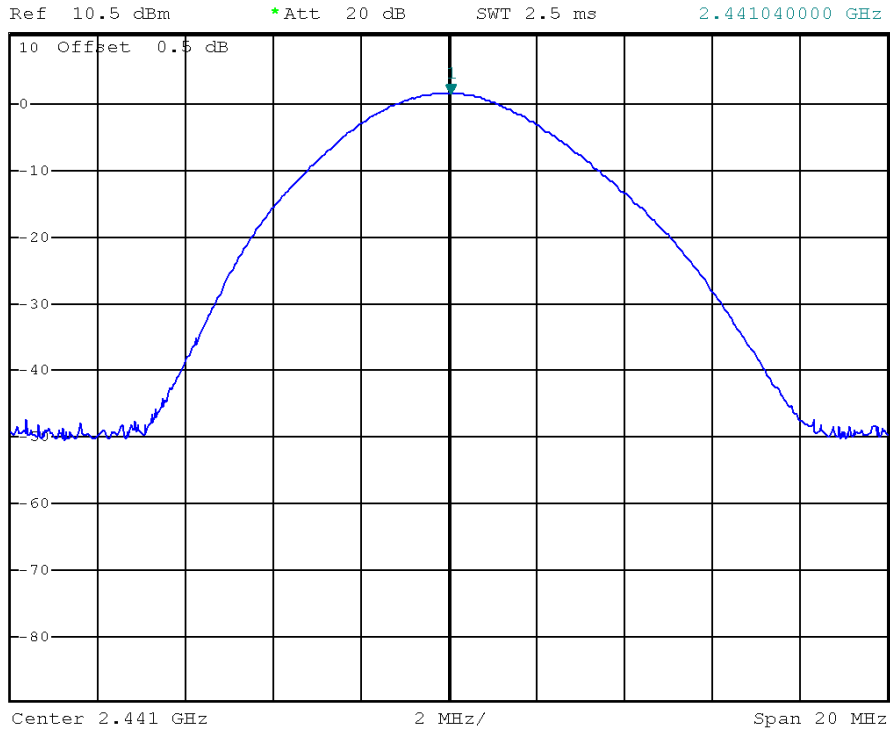




### Sample 2\_3Mbps\_CH39



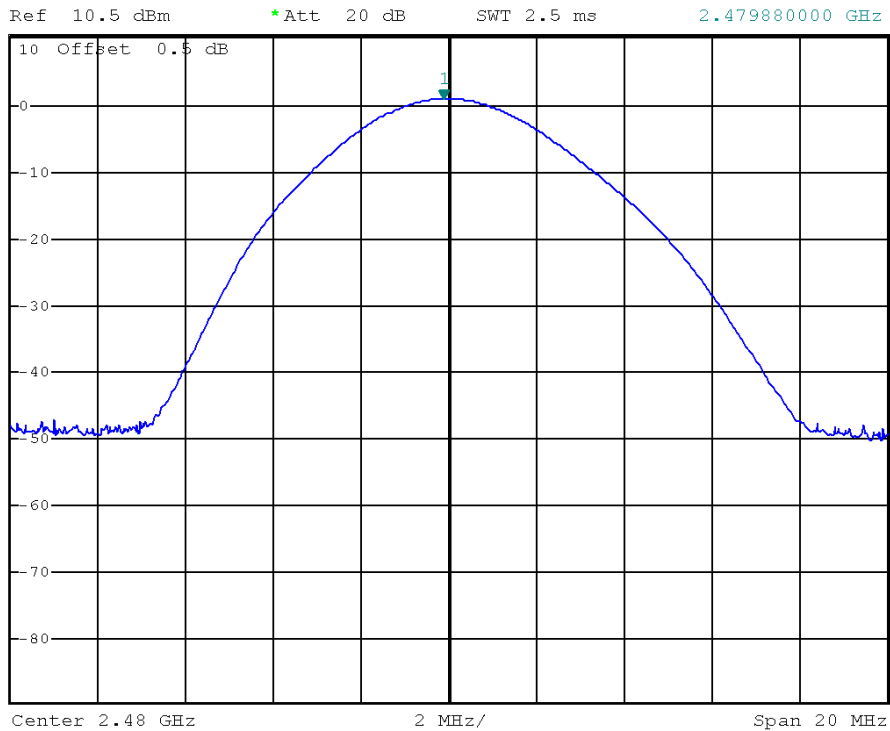
\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    1.54 dBm  
SWT 2.5 ms    2.441040000 GHz



### Sample 2\_3Mbps\_CH78



\*RBW 3 MHz    Marker 1 [T1 ]  
\*VBW 3 MHz    1.03 dBm  
SWT 2.5 ms    2.479880000 GHz





**10. ANTENNA CONDUCTED SPURIOUS EMISSION**

**10.1 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

**10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING**

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Sep. 10, 2010

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

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

**10.1.2 TEST PROCEDURE**

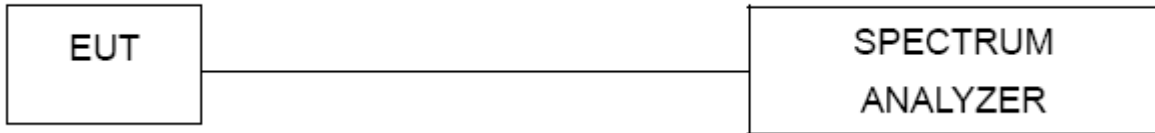
- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

**10.1.3 DEVIATION FROM STANDARD**

No deviation.



**10.1.4 TEST SETUP**



**10.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.





**10.1.6 TEST RESULTS**

EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_1Mbps_CH00/CH78		

The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2369.96	-56.37	2484.001	-47.86

**Result**

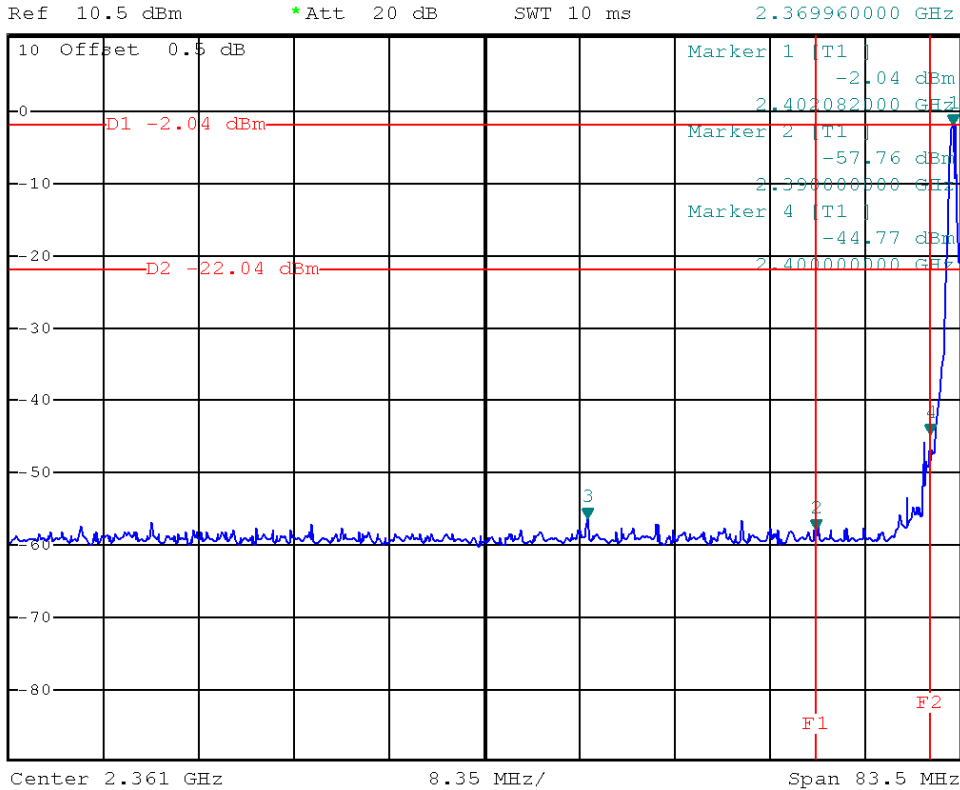
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.



Sample 1\_1Mbps\_CH00 (Lower)



\*RBW 100 kHz Marker 3 [T1] -56.37 dBm
\*VBW 100 kHz
SWT 10 ms 2.369960000 GHz

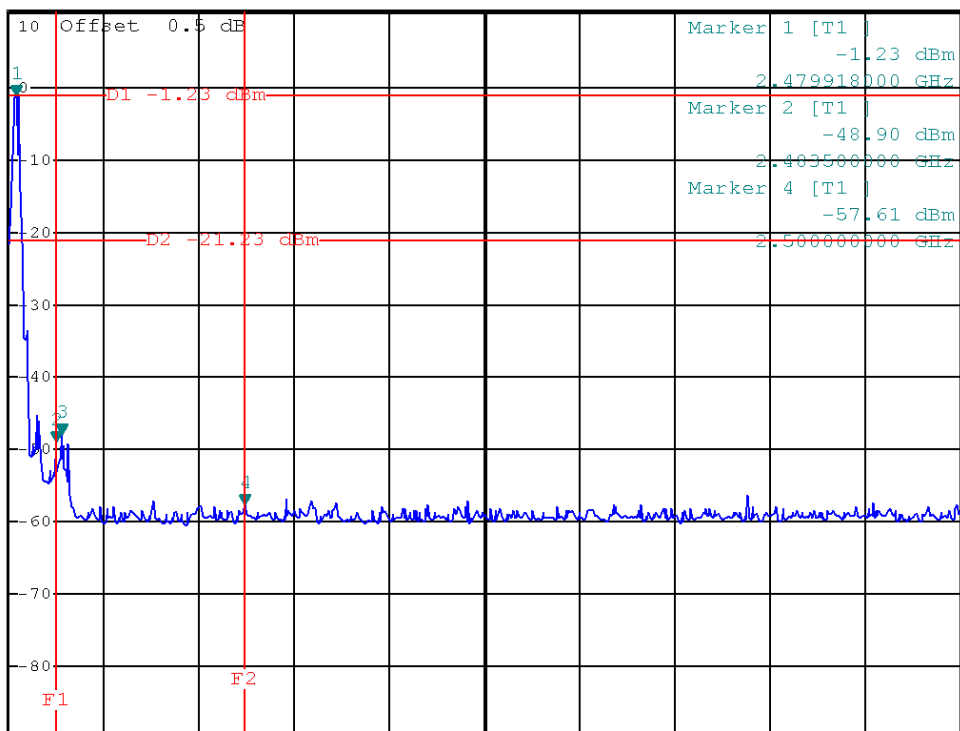


Center 2.361 GHz 8.35 MHz/ Span 83.5 MHz

Sample 1\_1Mbps\_CH 78 (Upper)



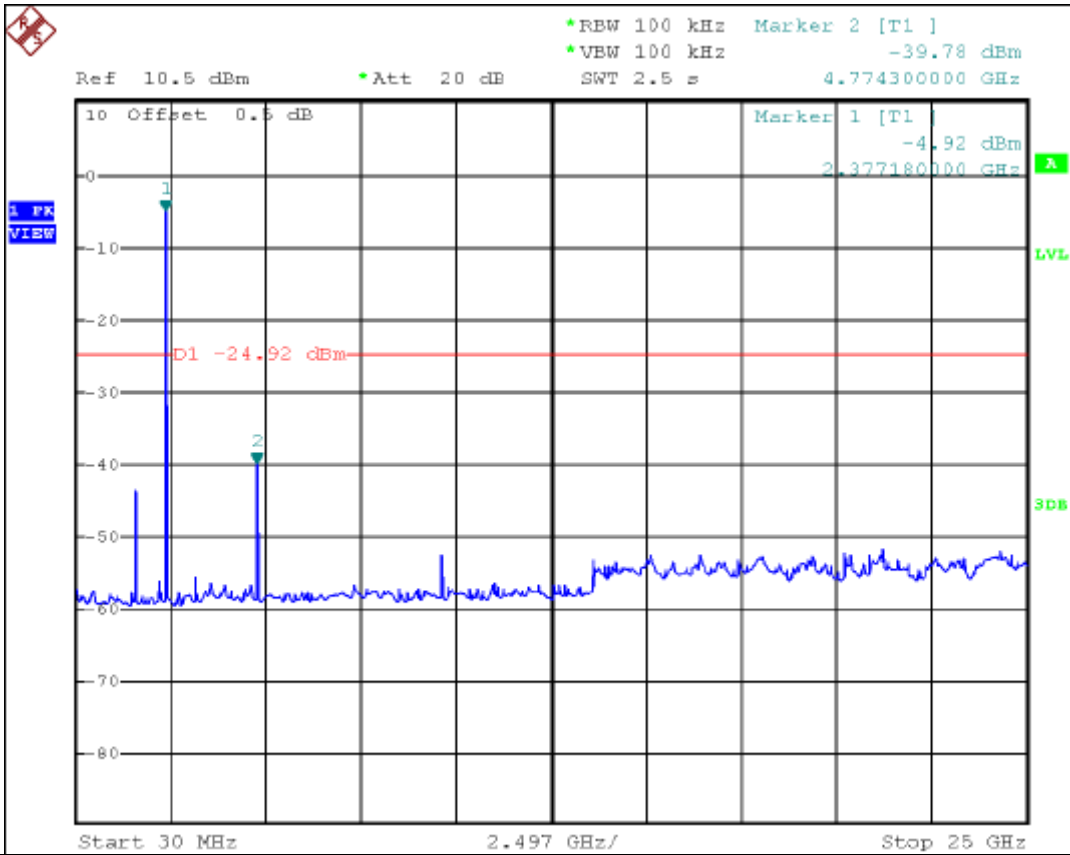
\*RBW 100 kHz Marker 3 [T1] -47.86 dBm
\*VBW 100 kHz
SWT 10 ms 2.484001000 GHz



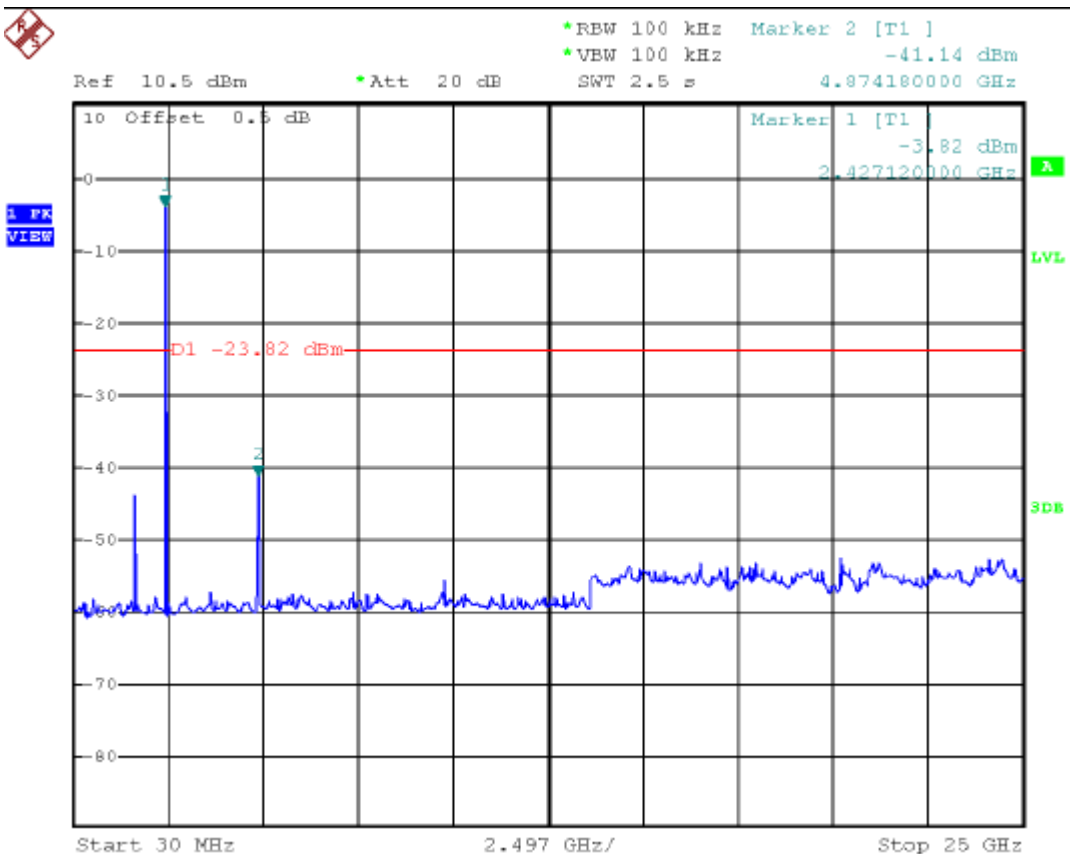
Center 2.521 GHz 8.35 MHz/ Span 83.5 MHz

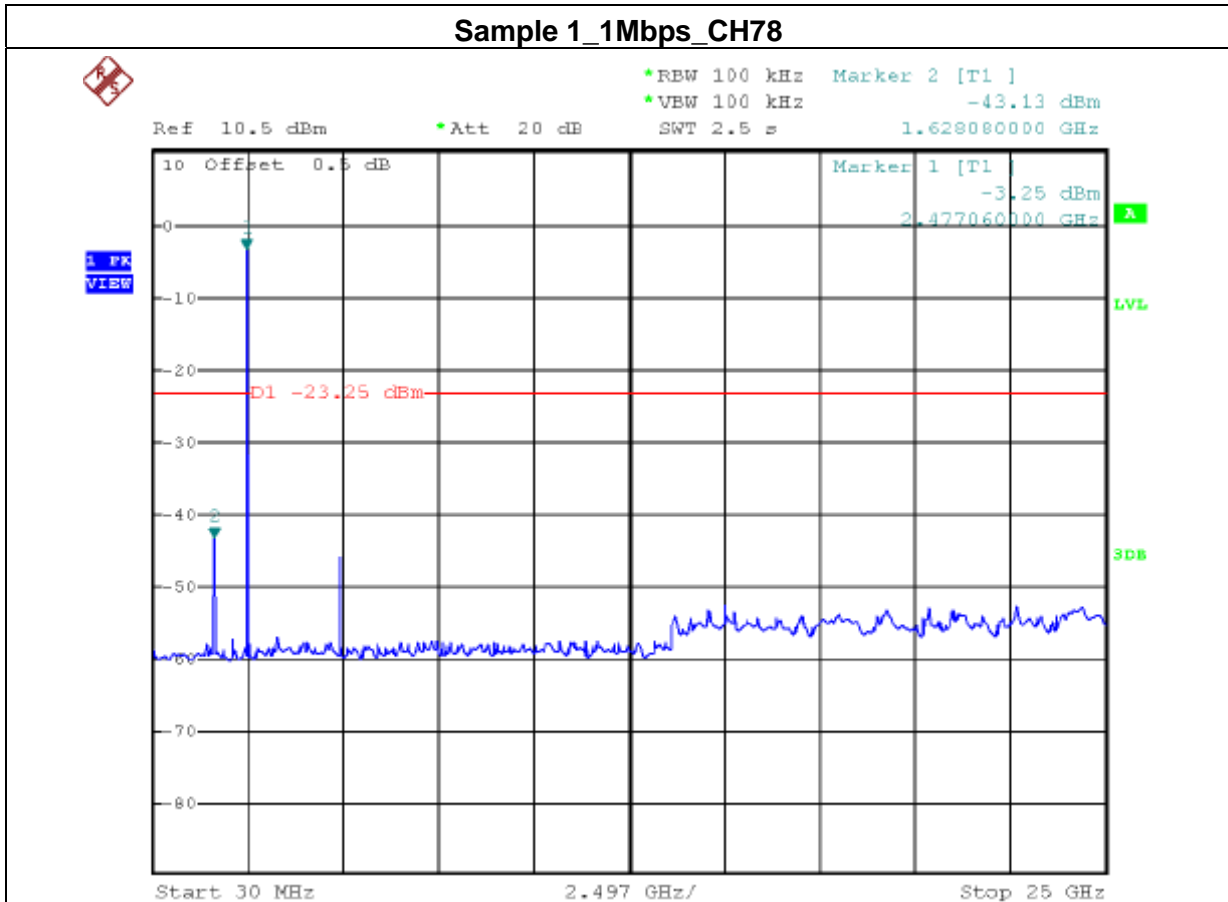


Sample 1\_1Mbps\_CH00



Sample 1\_1Mbps\_CH39







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 1_3Mbps_CH00/CH78		

The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2386.159	-55.87	2483.5	-43.82

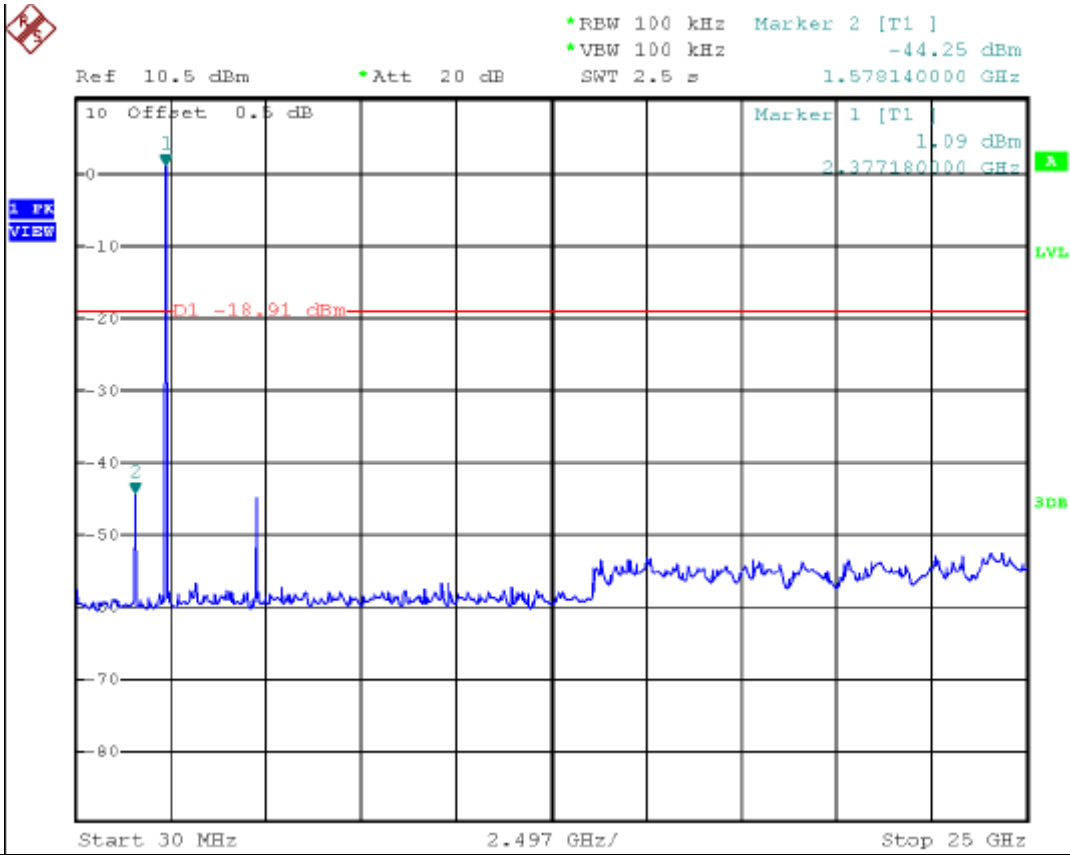
Result

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

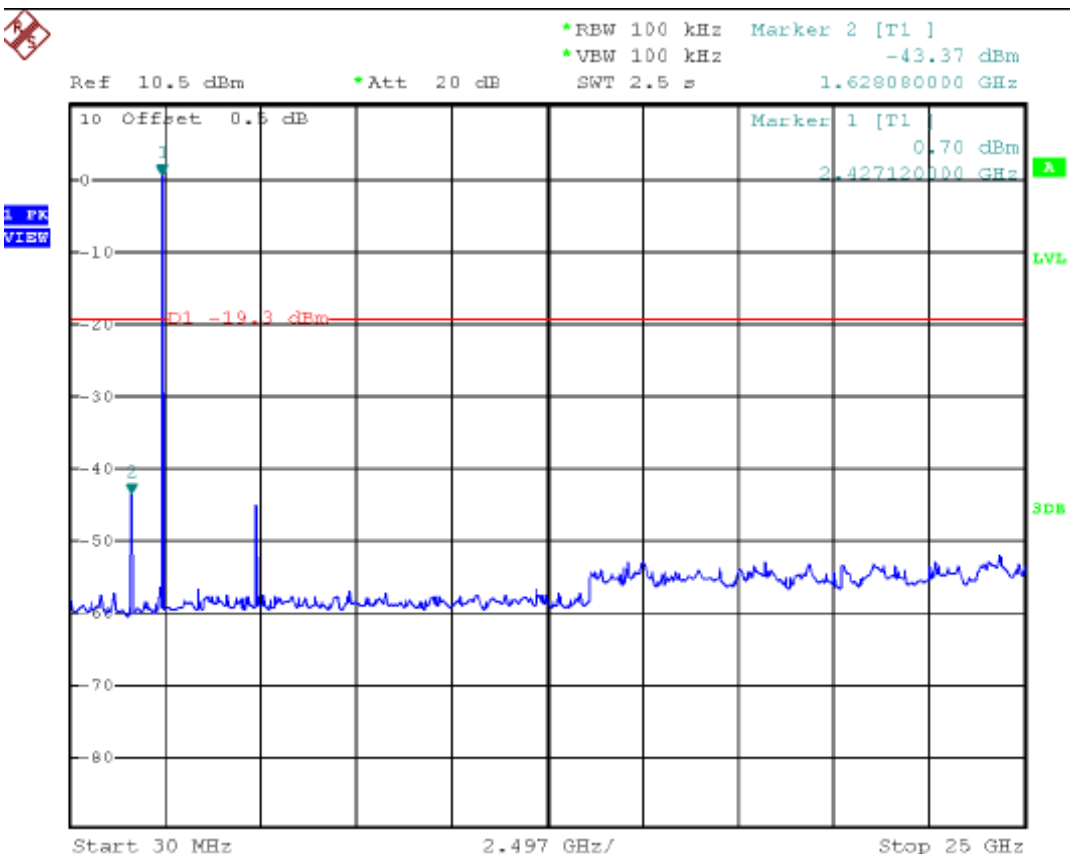


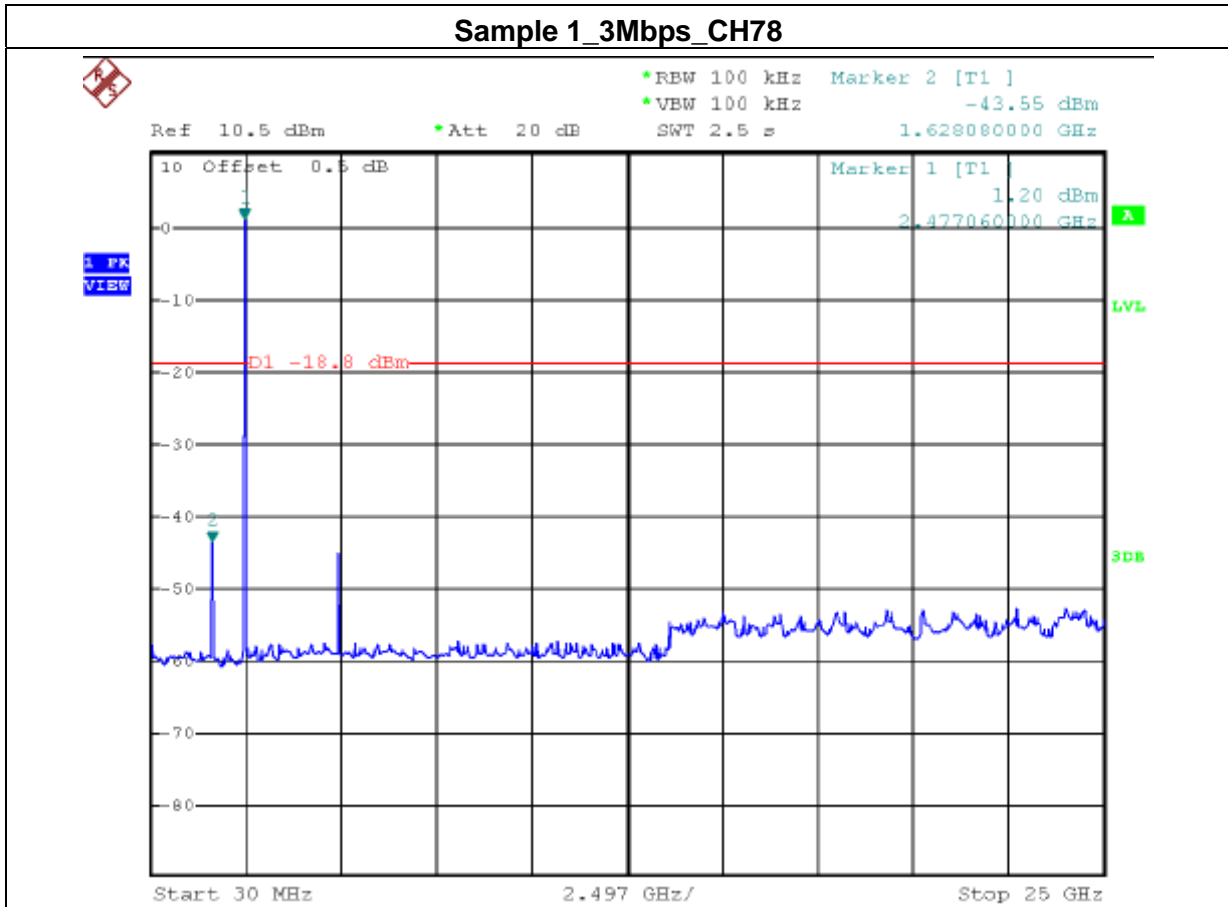


### Sample 1\_3Mbps\_CH00



### Sample 1\_3Mbps\_CH39









EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_1Mbps_CH00/CH78		

The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2369.96	-56.37	2484.001	-47.86

Result

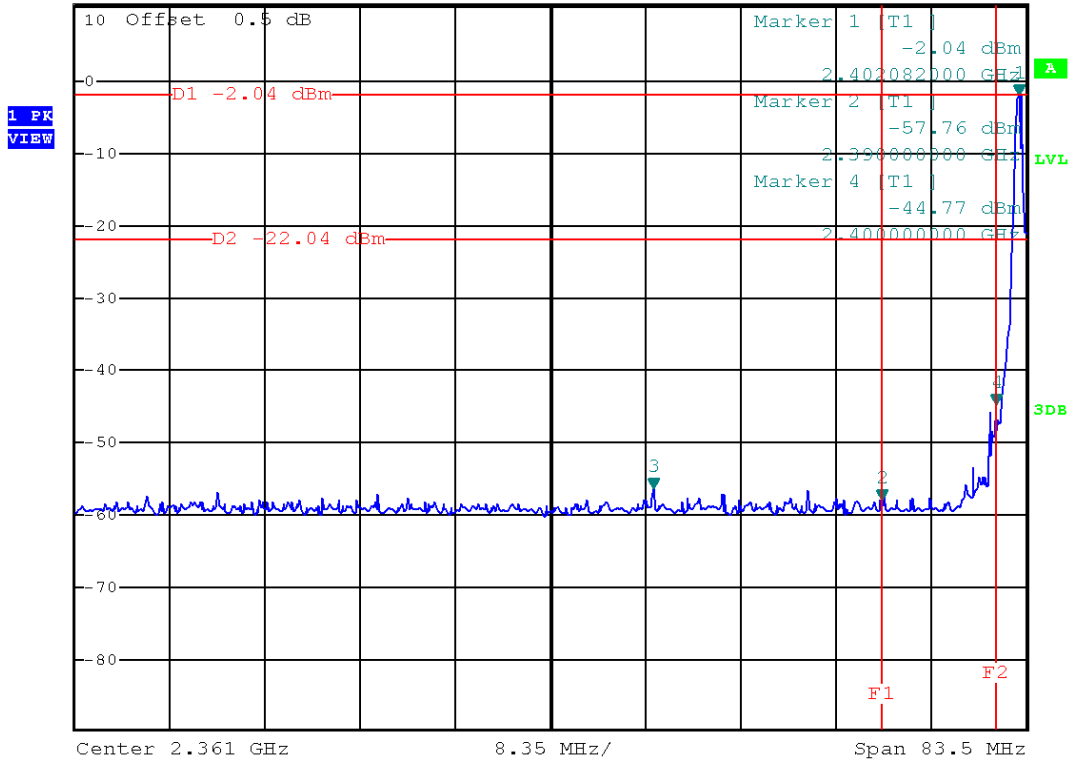
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.



### Sample 2\_1Mbps\_CH00 (Lower)



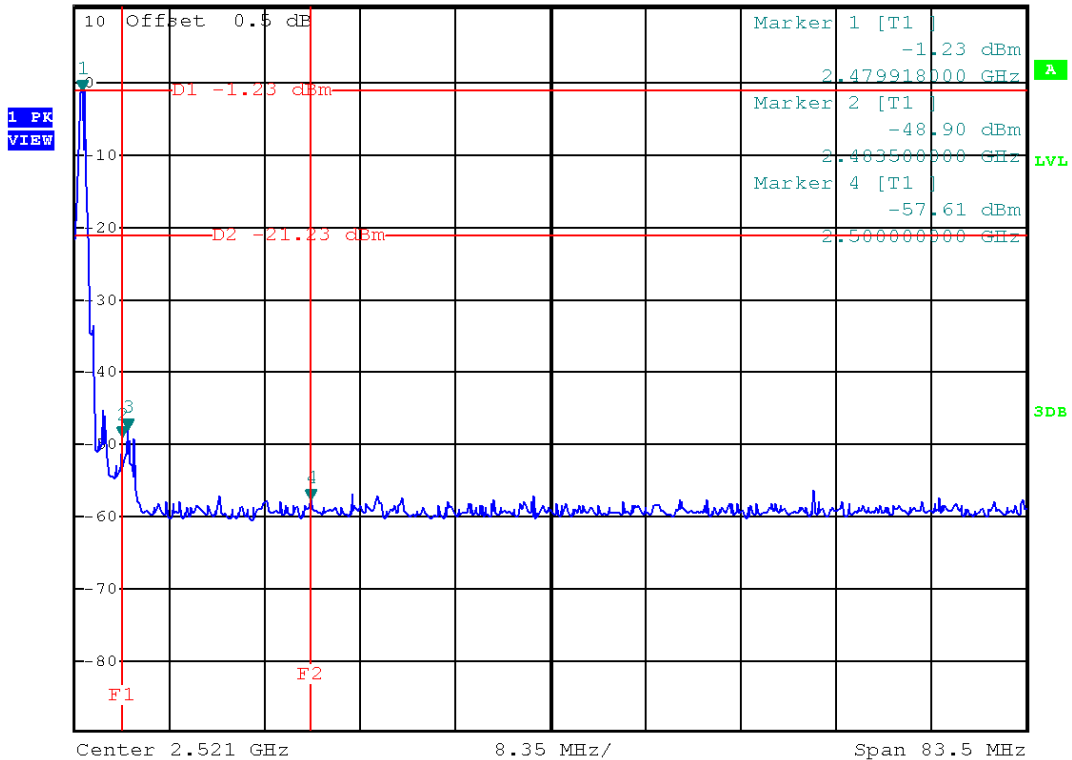
\*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 100 kHz -56.37 dBm  
 Ref 10.5 dBm \*Att 20 dB SWT 10 ms 2.369960000 GHz



### Sample 2\_1Mbps\_CH 78 (Upper)

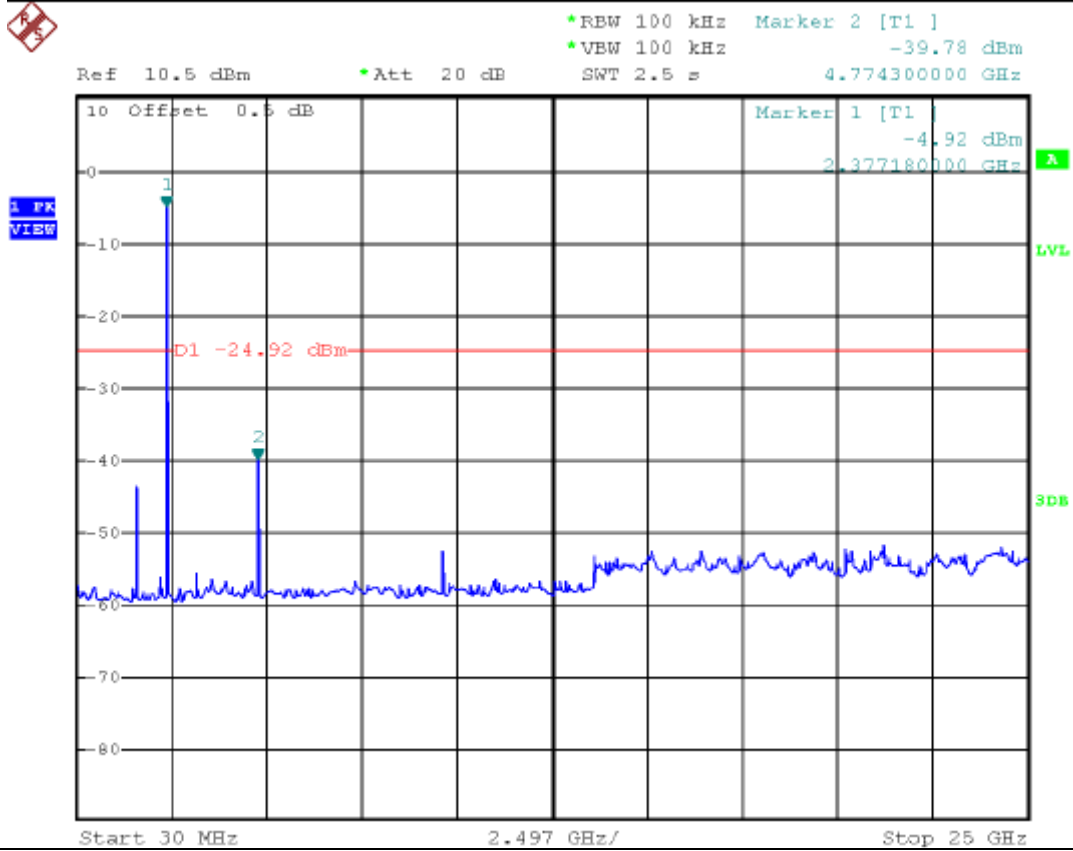


\*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 100 kHz -47.86 dBm  
 Ref 10.5 dBm \*Att 20 dB SWT 10 ms 2.484001000 GHz

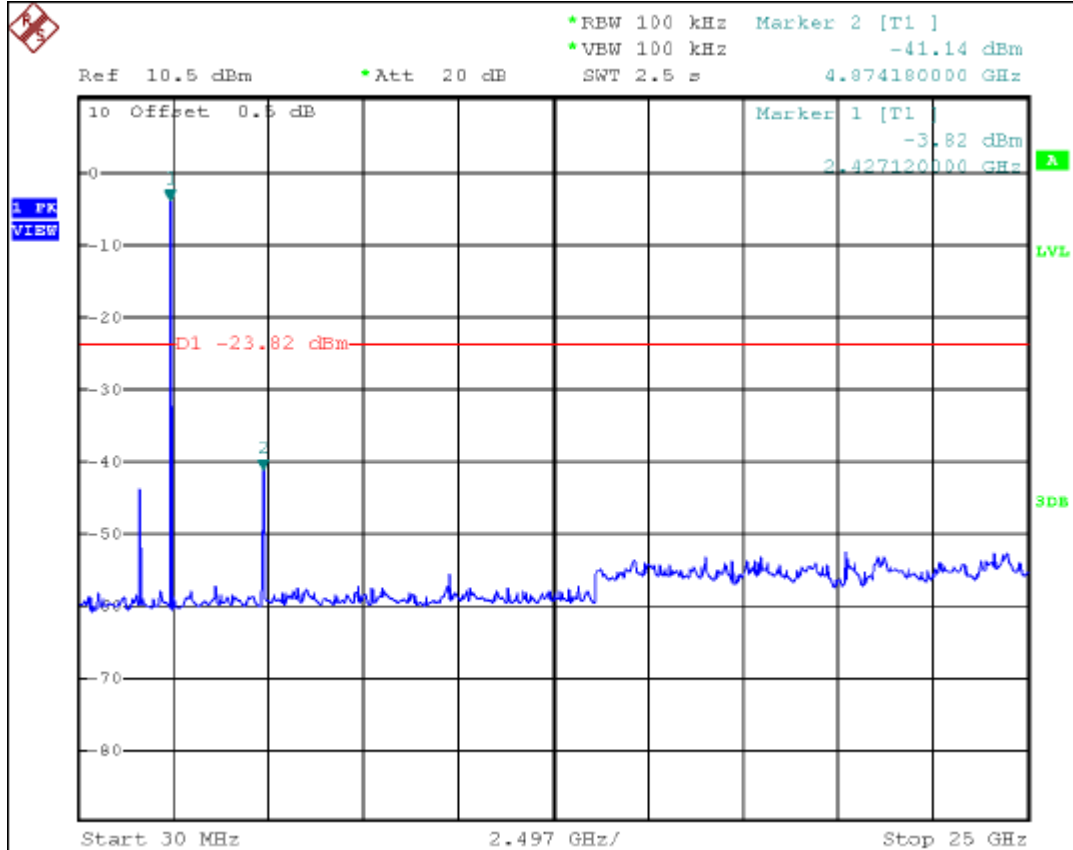


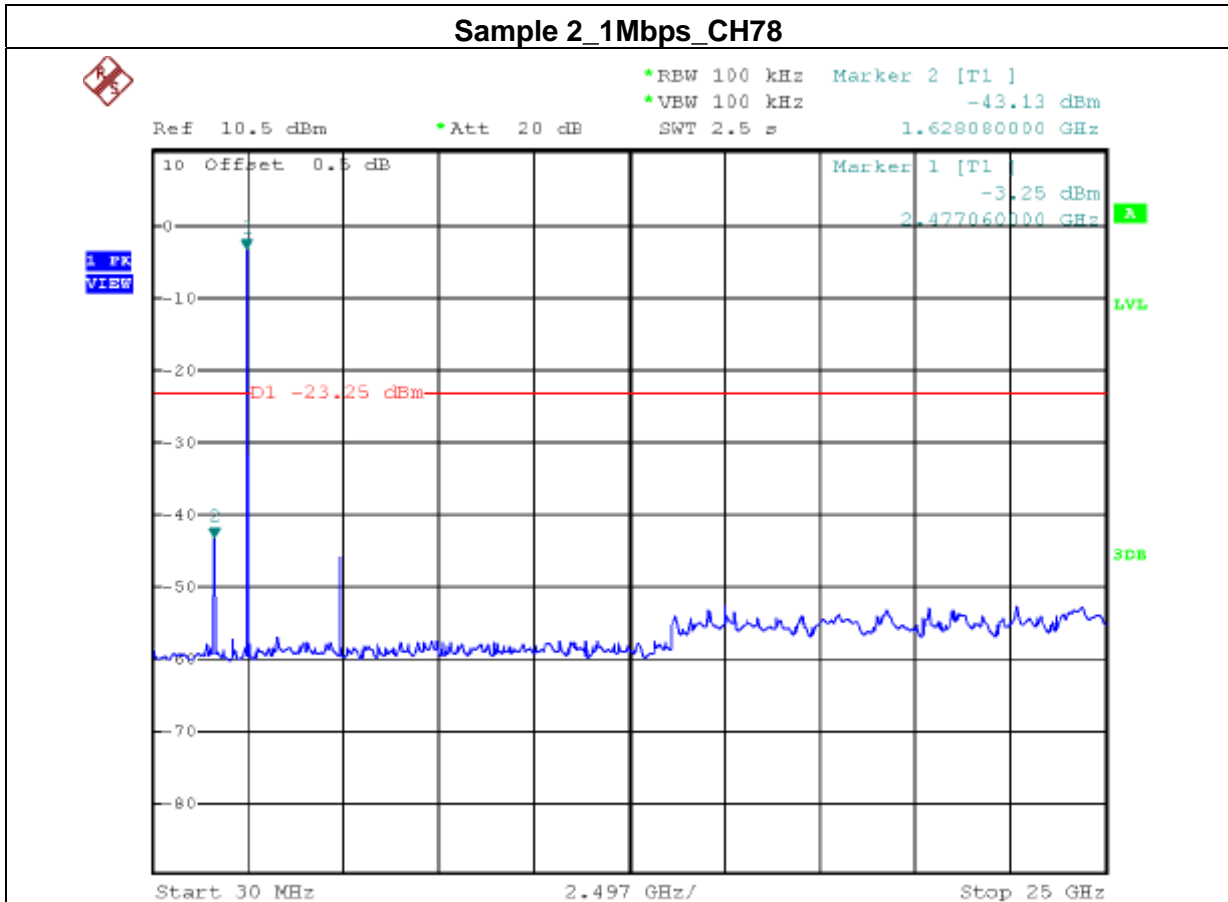


### Sample 2\_1Mbps\_CH00



### Sample 2\_1Mbps\_CH39







EUT :	Handheld Terminal	Model Name :	P223
Temperature :	25 °C	Relative Humidity :	68 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	Sample 2_3Mbps_CH00/CH78		

The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2386.159	-55.87	2483.5	-43.82

Result

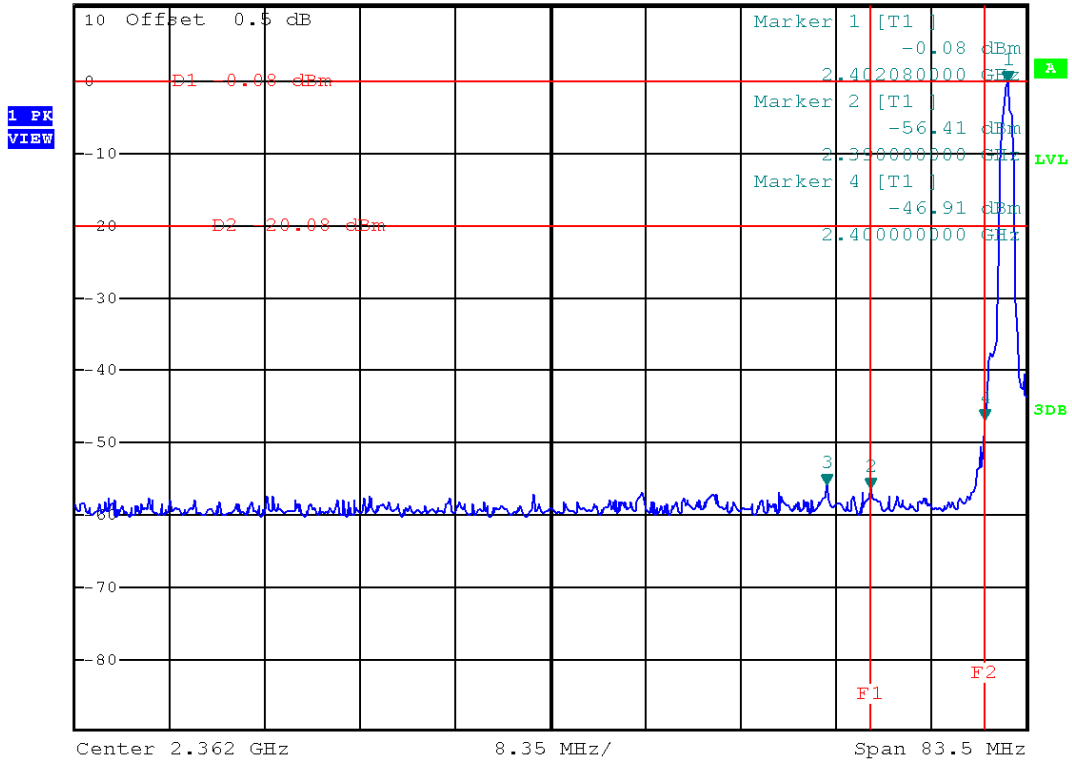
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.



Sample 2\_3Mbps\_CH00 (Lower)



\*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 100 kHz -55.87 dBm  
 Ref 10.5 dBm \*Att 20 dB SWT 10 ms 2.386159000 GHz

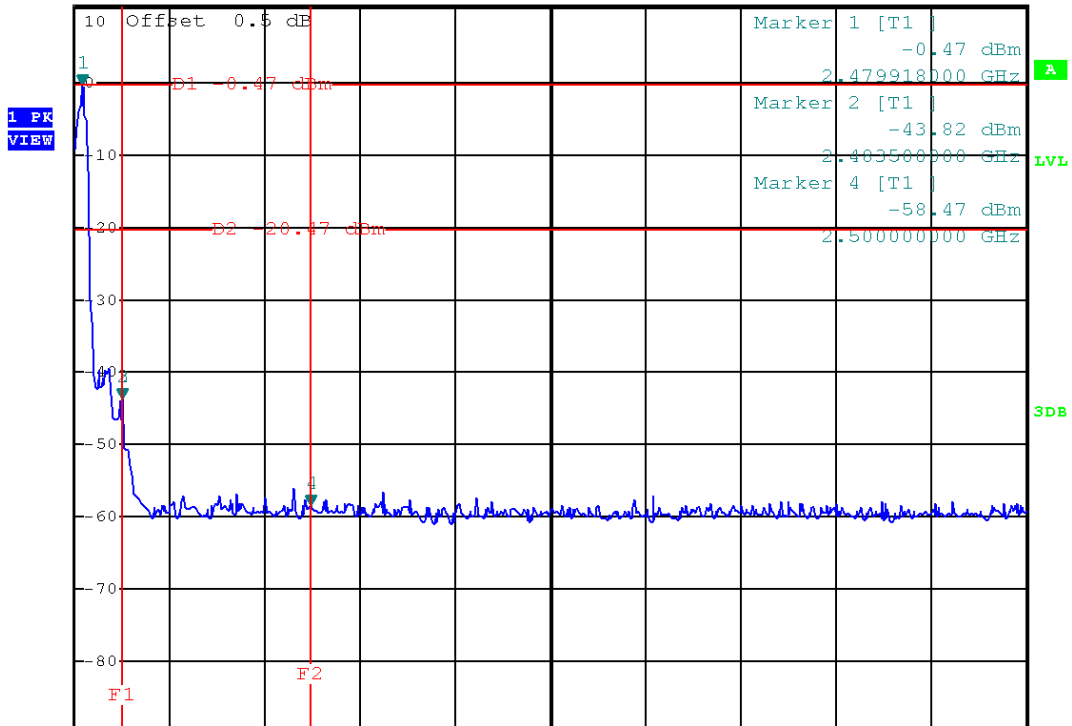


Center 2.362 GHz 8.35 MHz/ Span 83.5 MHz

Sample 2\_3Mbps\_CH 78 (Upper)



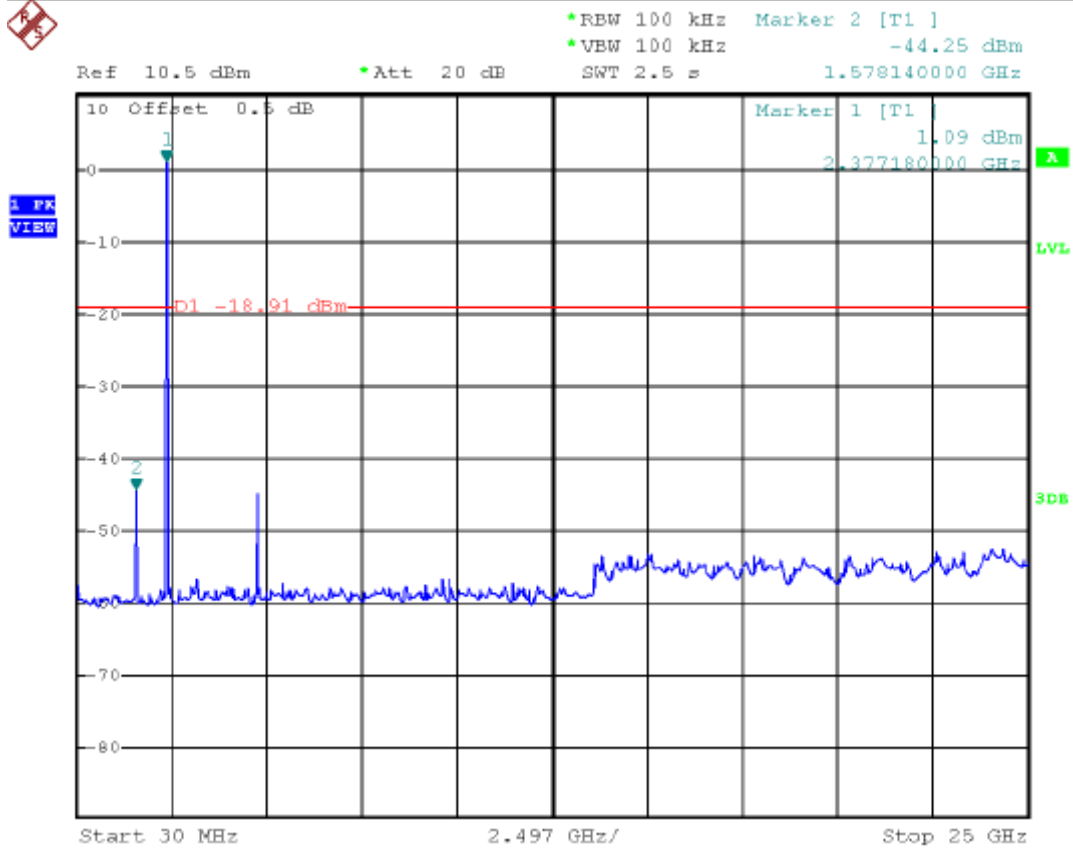
\*RBW 100 kHz Marker 3 [T1 ]  
 \*VBW 100 kHz -43.82 dBm  
 Ref 10.5 dBm \*Att 20 dB SWT 10 ms 2.483500000 GHz



Center 2.521 GHz 8.35 MHz/ Span 83.5 MHz



Sample 2\_3Mbps\_CH00



Sample 2\_3Mbps\_CH39

