



Most Technology Service Co., Ltd.  
Tel:(86) 755-26825180 Fax:(86) 755-86170310  
Http:// www. szmost.com Email: szmost@szmost.com

## **Test Report**

Product Name: Bluetooth Stereo Speaker

FCC ID: VL5-PS938M02

MODEL NO. : PS938M, WS-4010

Applicant:

Plastoform Industries Ltd.

Units 6A-12, 15 Floor, Mita Centre, 552-556 Castle Peak Road,  
Kwai Chung, Hong Kong

**Date Received: 09/05/2009**

**Date Tested: 09/04/2009**

APPLICANT: Plastoform Industries Ltd.  
FCC ID: VL5-PS938M02

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## EMC Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100492	Mar.10, 2009	1 Year
LISN	ROHDE&SCHWARZ	ENV216	100093	Mar.10, 2009	1Year
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101202	Mar.10, 2009	1 Year
Spectrum Analyzer	ANRITSU	MS2651B	6200238316	Mar.10, 2009	1 Year
50 Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar.10, 2009	1 Year
Bilog Antenna	Sunol	JB3	A121206	Mar.10, 2009	1 Year
Horn Antenna	EMCO	3115	640201028-06	Mar.10, 2009	1 Year
50 Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Mar.10, 2009	1 Year
Cable	Resenberger	N/A	NO.1	Mar.10, 2009	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Mar.10, 2009	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Mar.10, 2009	1 Year
Single Phase Power Line Filter	Kikusui	LIN40MA-PC R-L	LM002352	Mar.10, 2009	1Year
AC Power Source	Kikusui	AC40MA	LM003232	Mar.10, 2009	1Year
Test analyzer	Kikusui	KHA1000	LM003720	Mar.10, 2009	1Year
ESD Tester	Kikusui	KES4021	LM003537	Mar.10, 2009	1 Year
Signal Generator	IFR	2032	203002/100	Mar.10, 2009	1 Year
Amplifier	A&R	150W1000	301584	NCR	NCR
Dual Directional Coupler	A&R	DC6080	301508	Mar.10, 2009	1 Year
Power Head	A&R	PH2000	301193	Mar.10, 2009	1 Year
Power Meter	A&R	PM2002	302799	Mar.10, 2009	1 Year
Field Monitor	A&R	FM5004	300329	Mar.10, 2009	1 Year
Field Probe	A&R	FP5000	300221	Mar.10, 2009	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Mar.10, 2009	1 Year
EMC PRO System	EM Test	UCS-500-M4	V0648102026	Mar.10, 2009	1 Year

Remark:

Test Firm Name: Most Technology Service Co., Ltd.

Test Firm Address:

No. 5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

FCC Registered Test Site Number: 490827

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## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50 UH LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25 with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. The ambient temperature of the EUT was 25 with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS  
33                      20 dBuV + 10.36 dB + 0.9 dB= 31.26 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.



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**APPLICANT:** Plastoform Industries Ltd.  
**FCC ID:** VL5-PS938M02  
**NAME OF TEST:** POWER LINE CONDUCTED INTERFERENCE  
**RULES PART NUMBER:** 15.207

**REQUIREMENTS:**

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

\* Decreases with the logarithm of the frequency.

**TEST PROCEDURE:** ANSI STANDARD C63.4-2003

THE HIGHEST EMISSION READ FOR LINE 1 WAS 50.76dBuV @ 0.359MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 47.79dBuV @ 0.320MHz.

THE PLOTS ON THE NEXT PAGE REPRESENT THE EMISSIONS READ FOR POWER LINE CONDUCTED FOR THIS DEVICE.

## Conducted Emission Measurement

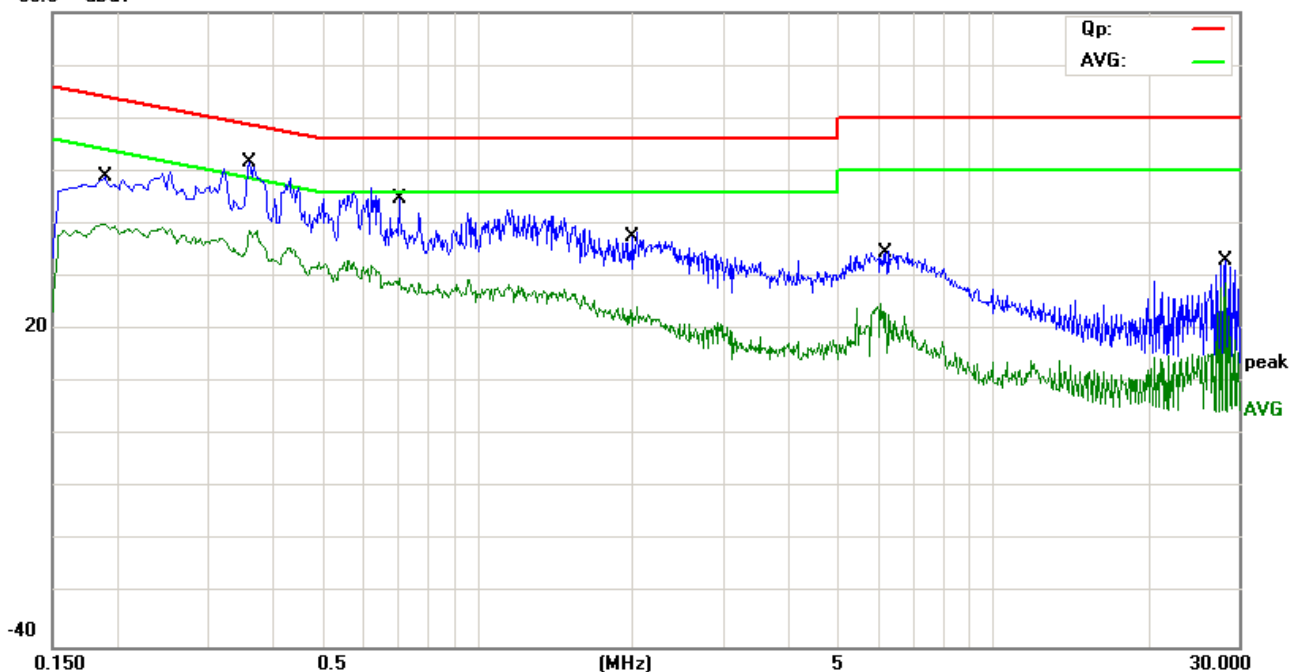
File: PS938M

Data: #5

Date: 09/09/04/

Time: 15/16/12

80.0 dBuV



Site site #1

Phase: **N**

Temperature: 26

Limit: FCC Part15 C QP

Power: DC 5V Adaptor AC 120V/60Hz Humidity: 60 %

EUT: Bluetooth Stereo Speaker

M/N: PS938M

Mode: Running

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1913	36.45	11.48	47.93	63.98	-16.05	QP	
2		0.1913	28.15	11.48	39.63	53.98	-14.35	AVG	
3	*	0.3595	39.82	10.94	50.76	58.74	-7.98	QP	
4		0.3595	26.13	10.94	37.07	48.74	-11.67	AVG	
5		0.7100	31.98	10.00	41.98	56.00	-14.02	QP	
6		0.7100	19.49	10.00	29.49	46.00	-16.51	AVG	
7		1.9860	25.85	9.01	34.86	56.00	-21.14	QP	
8		1.9860	14.59	9.01	23.60	46.00	-22.40	AVG	
9		6.1140	20.89	11.33	32.22	60.00	-27.78	QP	
10		6.1140	11.03	11.33	22.36	50.00	-27.64	AVG	
11		28.3340	23.91	9.00	32.91	60.00	-27.09	QP	
12		28.3340	19.85	9.00	28.85	50.00	-21.15	AVG	

\*:Maximum data x:Over limit !:over margin

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## Conducted Emission Measurement

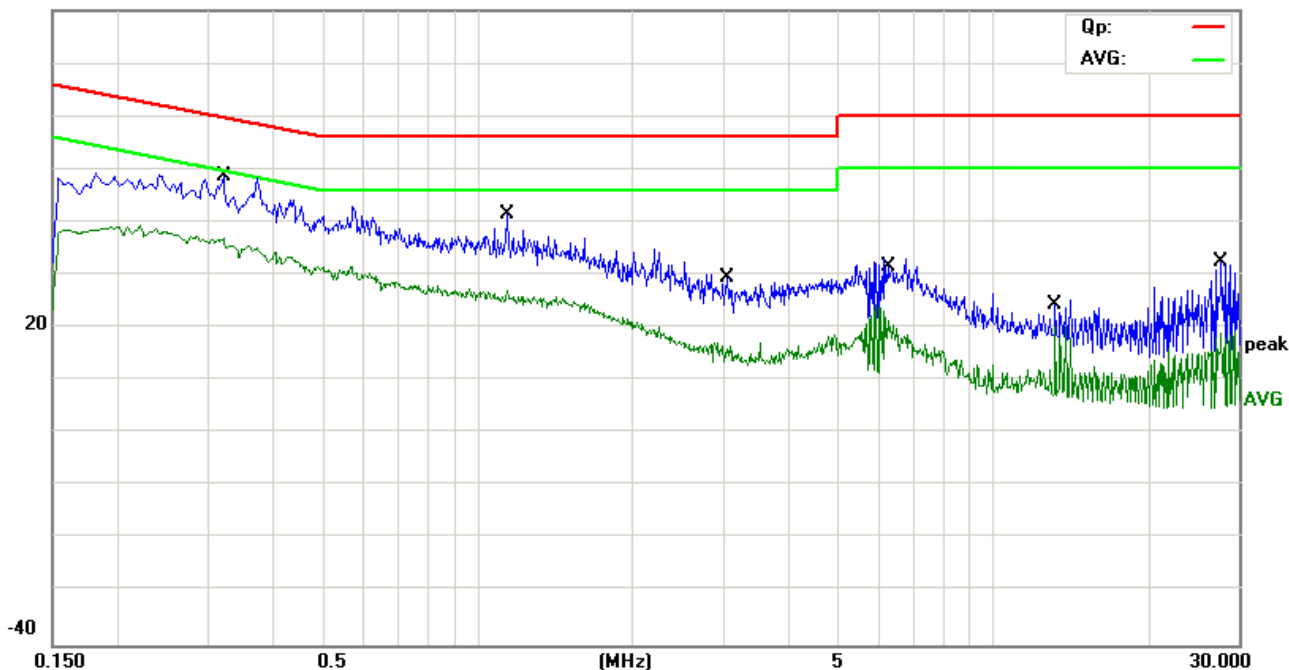
File: PS938M

Data: #6

Date: 09/09/04/

Time: 15/21/50

80.0 dBuV



Site site #1

Phase: **L1**

Temperature: 26

Limit: FCC Part15 C QP

Power: DC 5V Adaptor AC 120V/60Hz Humidity: 60 %

EUT: Bluetooth Stereo Speaker

M/N: PS938M

Mode: Running

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.3200	36.59	11.20	47.79	59.71	-11.92	QP	
2		0.3200	25.56	11.20	36.76	49.71	-12.95	AVG	
3		1.1420	31.64	9.86	41.50	56.00	-14.50	QP	
4		1.1420	17.18	9.86	27.04	46.00	-18.96	AVG	
5		3.0180	14.34	10.02	24.36	56.00	-31.64	QP	
6		3.0180	3.51	10.02	13.53	46.00	-32.47	AVG	
7		6.1980	19.97	11.28	31.25	60.00	-28.75	QP	
8		6.1980	10.53	11.28	21.81	50.00	-28.19	AVG	
9		13.2060	15.46	9.00	24.46	60.00	-35.54	QP	
10		13.2060	11.04	9.00	20.04	50.00	-29.96	AVG	
11		27.7420	23.41	9.00	32.41	60.00	-27.59	QP	
12		27.7420	9.82	9.00	18.82	50.00	-31.18	AVG	

\*:Maximum data x:Over limit !:over margin

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**APPLICANT:** Plastoform Industries Ltd.

**FCC ID:** VL5-PS938M02

**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:**

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209
902-928 MHz		30-88 MHz 40 dBuV/m @3m
2.4-2.4835 GHz		88-216 MHz 43.5
		216-960 MHz 46
94 dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 Db BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**REMARK: Emissions attenuated more than 20 dB below the permissible value are not reported.**

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)			FCC 15 Subpart C Limit(dBuV/m)
		Avg	QP	Peak	
Low frequency (2402.00MHz)					
41.07	Vertical	---	---	32.09	40.0
2402.01	Vertical	---	---	83.59	94.0
4804.04	Vertical	---	---	33.21	54.0
7206.12	Vertical	---	---	31.80	54.0
9608.20	Vertical	---	---	31.79	54.0
39.40	Horizontal	---	---	30.05	40.0
2402.00	Horizontal	---	---	83.23	94.0
4804.01	Horizontal	---	---	32.17	54.0
7206.00	Horizontal	---	---	30.34	54.0
9608.04	Horizontal	---	---	30.12	54.0
Middle frequency (2441.00MHz)					
41.10	Vertical	---	---	30.23	40.0
2441.02	Vertical	---	---	83.47	94.0
4882.10	Vertical	---	---	32.34	54.0
7323.03	Vertical	---	---	32.19	54.0
9764.30	Vertical	---	---	30.51	54.0
39.13	Horizontal	---	---	31.42	40.0
2441.00	Horizontal	---	---	83.31	94.0
4882.10	Horizontal	---	---	31.60	54.0
7323.20	Horizontal	---	---	30.23	54.0
9764.04	Horizontal	---	---	29.34	54.0

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**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:**

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209
902-928 MHz		30-88 MHz 40 dBuV/m @3m
2.4-2.4835 GHz		88-216 MHz 43.5
		216-960 MHz 46
94 dBuV/m @3m	54 dBuV/m @3m	ABOVE 960 MHz 54dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 Db BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**REMARK:** Emissions attenuated more than 20 dB below the permissible value are not reported.

**Continued:**

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)			FCC 15 Subpart C Limit(dBuV/m)
		Avg	QP	Peak	
High frequency (2480.00MHz)					
40.24	Vertical	---	---	31.19	40.0
2480.01	Vertical	---	---	83.35	94.0
4960.10	Vertical	---	---	32.41	54.0
7440.01	Vertical	---	---	31.29	54.0
9920.00	Vertical	---	---	30.21	54.0
39.17	Horizontal	---	---	31.25	40.0
2480.00	Horizontal	---	---	83.24	94.0
4960.10	Horizontal	---	---	31.36	54.0
7440.20	Horizontal	---	---	31.25	54.0
9920.04	Horizontal	---	---	30.42	54.0

Emissions attenuated more than 20 dB below the permissible value are not reported.

TEST PROCEDURE: ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector and an appropriate antenna. The resolution bandwidth of spectrum analyzer was 100 kHz below 1 GHz and 1 MHz above 1 GHz. An appropriate sweep speed was used. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

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**APPLICANT:** Plastoform Industries Ltd.

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**NAME OF TEST:** Band Edge Compliance

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:** The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.209.

Band edge emissions plots are included on the following pages

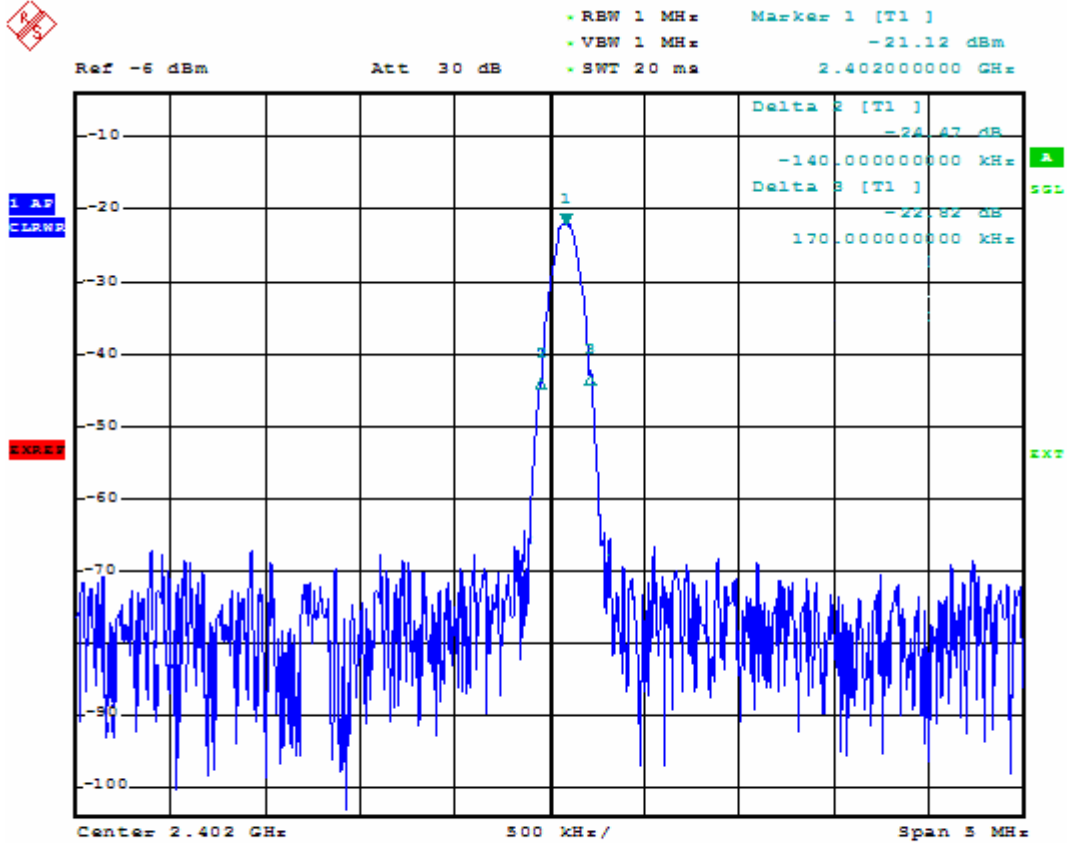
**TEST RESULTS:** The unit does meet the FCC requirements.

Band Edge Compliance Test						
Band Edge Frequency	Antenna Polarization	AV dBuV/m	QP dBuV/m	Peak dBuV/m	Limit (Peak) dBuV/m	Limit (AV) dBuV/m
2390.0 MHz	H	44.08	---	60.03	74.00	54.00
2390.0 MHz	V	42.53	---	55.09	74.00	54.00
2483.5 MHz	H	44.20	---	59.92	74.00	54.00
2483.5 MHz	V	41.16	---	54.67	74.00	54.00



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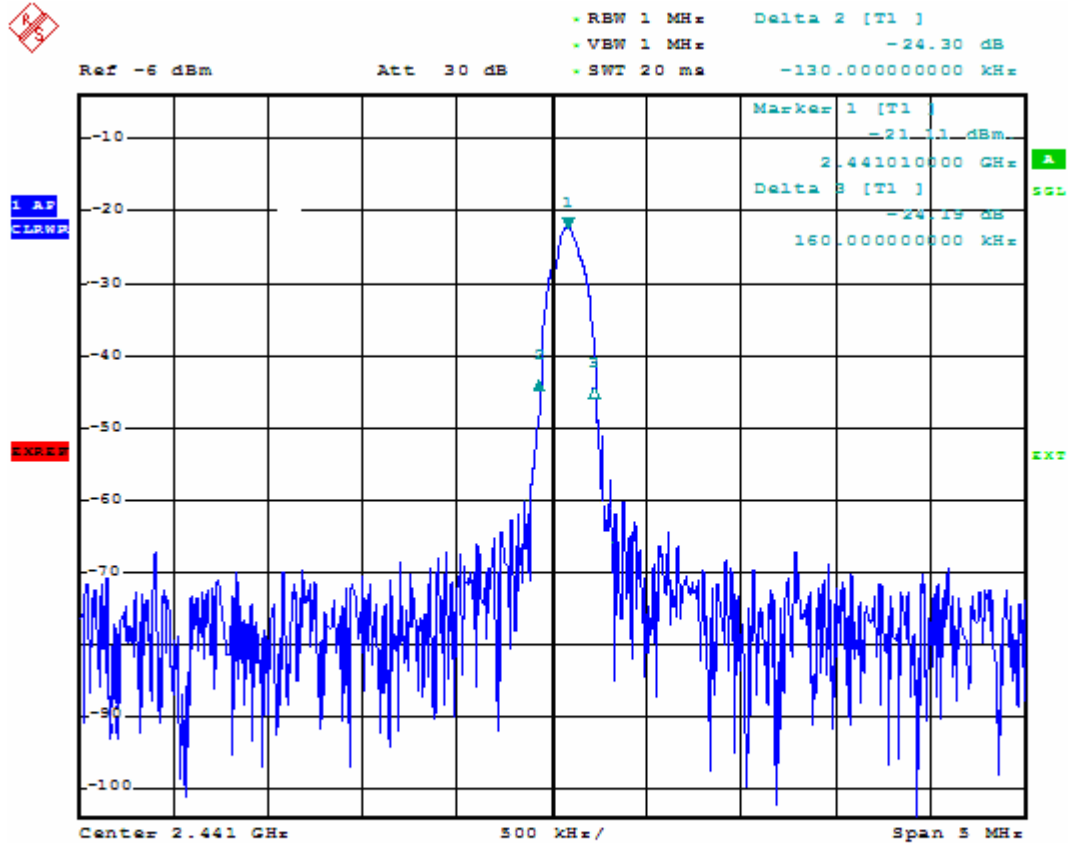
Low





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## Middle





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High

