MOST TECHNOLOGY SERVICE CO., LTD.
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Test Report

Product Name: 2.4G RF CHALKBOARD

FCC ID: UEOTZTCB0701V
MODEL NO. : CB-07-01V

Applicant:

TZT USA INDUSTRIES INC.
17526 VON KARMAN AVE. IRVINE CA 92614 U.S.A.

Date Received: 7/04/2007

Date Tested: 7/07/2007

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FCC ID: UEOTZTCB0701V

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EMC Equipment List

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100492	Apr 06,2007	1 Year
LISN	ROHDE&SCHWARZ	ENV216	100093	Apr 06,2007	1Year
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101202	Apr 06,2007	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2007	1 Year
Spectrum Analyzer	ANRITSU	MS2651B	6200238316	Apr 06,2007	1 Year
Horn Antenna	ROHDE&SCHWARZ	HF906	1000031	Apr 06,2007	1 Year
Bilog Antenna	Sunol	JB3	A121206	Apr 06,2007	1 Year
50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200283933	Apr 06,2007	1 Year
Cable	Resenberger	N/A	NO.1	Apr 06,2007	1 Year
Cable	SCHWARZBECK	N/A	NO.2	Apr 06,2007	1 Year
Cable	SCHWARZBECK	N/A	NO.3	Apr 06,2007	1 Year
Single Phase Power Line Filter	Kikusui	LIN40MA-PCR-L	LM002352	Apr 06,2007	1Year
AC Power Source	Kikusui	AC40MA	LM003232	Apr 06,2007	1Year
Test analyzer	Kikusui	KHA1000	LM003720	Apr 06,2007	1Year
ESD Tester	Kikusui	KES4021	LM003537	Apr 08,2007	1 Year
Signal Generator	IFR	2032	203002/100	Apr 08,2007	1 Year
Amplifier	A&R	150W1000	301584	NCR	NCR
Dual Directional Coupler	A&R	DC6080	301508	Apr 06,2007	1 Year
Power Head	A&R	PH2000	301193	Apr 06,2007	1 Year
Power Meter	A&R	PM2002	302799	Apr 06,2007	1 Year
Field Monitor	A&R	FM5004	300329	Apr 06,2007	1 Year
Field Probe	A&R	FP5000	300221	Apr 06,2007	1 Year
EMCPRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2007	1 Year
EMCPRO System	EM Test	UCS-500-M4	V0648102026	Apr 06,2007	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

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 50uH 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. The antenna correction factors 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 = FS
33 20 dBuV + 10.36 dB = 30.36 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.

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: TZT USA INDUSTRIES INC.

FCC ID: UEOTZTCB0701V

NAME OF TEST: POWER LINE CONDUCTED INTERFERENCE

RULES PART NUMBER: 15.107

MINIMUM REQUIREMENTS:

FREQUENCY MHz	LEVEL uV
0.150-30	250

TEST PROCEDURE: ANSI STANDARD C63.4-2003

THE HIGHEST EMISSION READ FOR LINE 1 WAS 55.0dBuV @ 0.170MHz.

THE HIGHEST EMISSION READ FOR LINE 2 WAS 51.9dBuV @ 0.170MHz.

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

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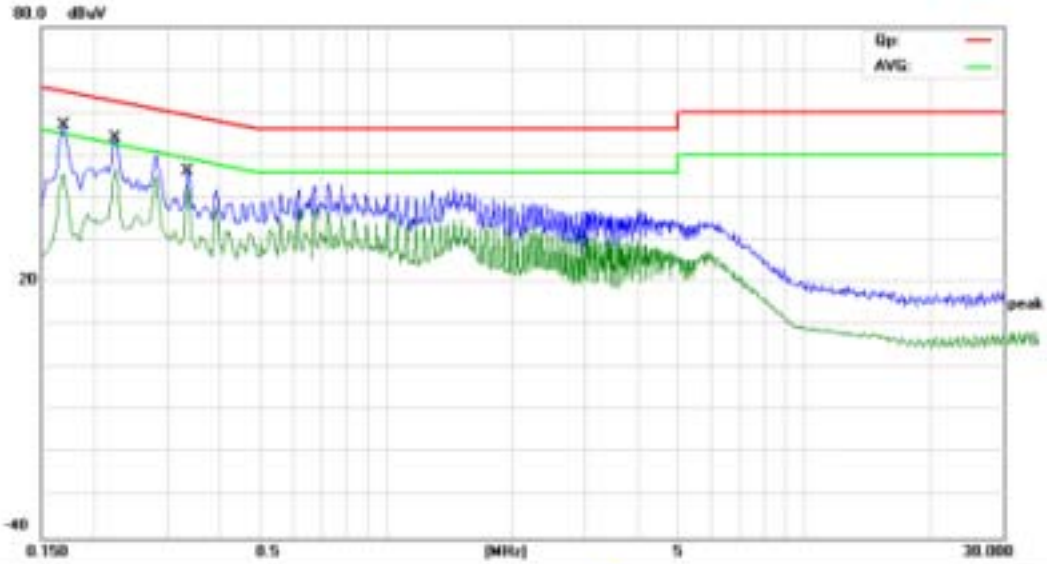
Conducted Emission Measurement

File :cabing Data :#6 Date: 07/07/04/ Time: 10:32:31



Site: site #1 Phase: L1 Temperature: 26
Limit: FCC Part 15B(QP) Power: 120Vac, 60Hz Humidity: 60 %
EUT: 2.4G RF CHALKBOARD
M/N: CB-07-01V
Mode:ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1700	44.80	10.20	55.00	64.96	-9.96	QP	
2		0.1700	35.70	10.20	45.90	54.96	-9.06	AVG	
3		0.2260	39.80	11.83	51.63	62.60	-10.97	QP	
4	*	0.2260	35.50	11.83	47.33	52.60	-5.27	AVG	
5		0.3380	33.10	11.08	44.18	59.25	-15.07	QP	
6		0.3380	31.60	11.08	42.68	49.25	-6.57	AVG	

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

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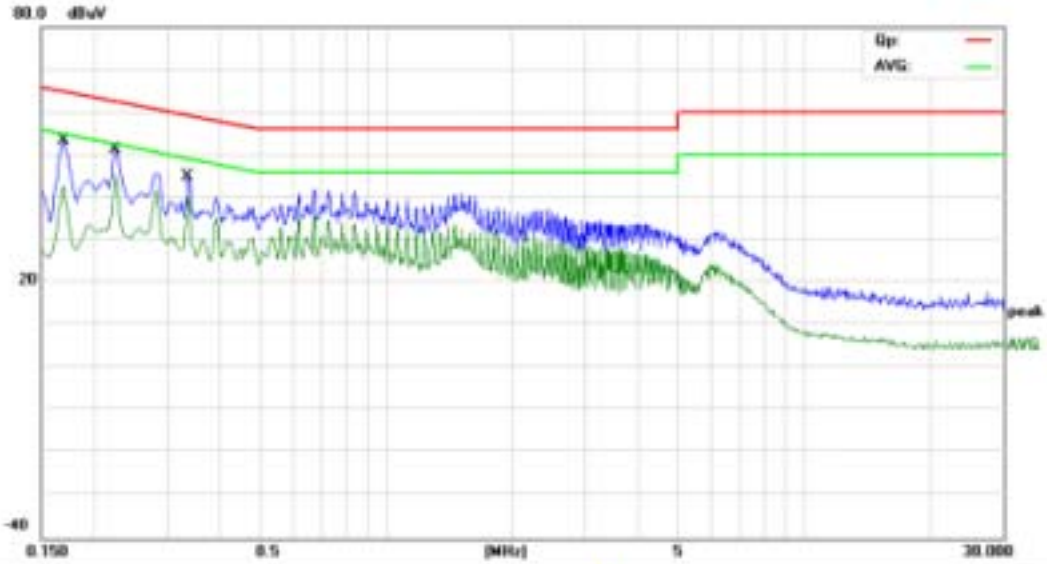
Conducted Emission Measurement

File :casing Data :#4 Date: 07/07/04/ Time: 10/24/59



Site: site #1 Phase: N Temperature: 26
Limit: FCC Part 15B(QP) Power: 120Vac, 60Hz Humidity: 60 %
EUT: 2.4G RF CHALKBOARD
M/N: CB-07-01V
Mode:ON
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1700	41.70	10.20	51.90	64.96	-13.06	QP	
2		0.1700	32.10	10.20	42.30	54.96	-12.66	AVG	
3		0.2260	37.70	11.83	49.53	62.59	-13.06	QP	
4	*	0.2260	32.90	11.83	44.73	52.59	-7.86	AVG	
5		0.3379	31.50	11.08	42.58	59.25	-16.67	QP	
6		0.3379	29.50	11.08	40.58	49.25	-8.67	AVG	

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

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APPLICANT: TZT USA INDUSTRIES INC.

FCC ID: UEOTZTCB0701V

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.

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	FCC 15 Subpart C Limit (dBuV/m)
Low frequency(2408.020 MHz)			
151.10	Vertical	31.05	43.5
413.23	Vertical	31.22	46.0
2408.00	Vertical	70.35	94.0
4816.10	Vertical	32.10	54.0
7224.25	Vertical	32.35	54.0
12040.10	Vertical	32.55	54.0
151.30	Horizontal	32.73	43.5
415.60	Horizontal	31.16	46.0
2408.00	Horizontal	69.70	94.0
4816.10	Horizontal	30.10	54.0
7224.25	Horizontal	30.18	54.0
12040.10	Horizontal	30.20	54.0
Middle frequency(2441.00 MHz)			
158.50	Vertical	31.50	43.5
2441.00	Vertical	72.05	94.0
4882.25	Vertical	34.15	54.0
7323.50	Vertical	36.40	54.0
159.00	Horizontal	34.70	43.5
2441.00	Horizontal	71.75	94.0
7323.36	Horizontal	32.10	54.0
12205.00	Horizontal	31.51	54.0

APPLICANT: TZT USA INDUSTRIES INC.

FCC ID: UEOTZTCB0701V

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 54 dBuV/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.

Continued:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	FCC 15 Subpart C Limit (dBuV/m)
High frequency(2474.0 MHz)			
157.30	Vertical	30.75	43.5
2474.00	Vertical	72.90	94.0
4948.10	Vertical	32.55	54.0
7422.15	Vertical	32.30	54.0
12370.20	Vertical	32.10	54.0
158. 60	Horizontal	33.05	43.5
2474.00	Horizontal	71.95	94.0
4948.10	Horizontal	31.41	54.0
7422.20	Horizontal	31.10	54.0
12370.20	Horizontal	31.23	54.0

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.

APPLICANT: TZT USA INDUSTRIES INC.

FCC ID: UEOTZTCB0701V

NAME OF TEST: Occupied Bandwidth and Band Edge Compliance

RULES PART NUMBER: 15.249

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 15.249.

Band edge emissions plots are included on the following pages

METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dB per division.

TEST RESULTS: The unit DOES meet the FCC requirements.

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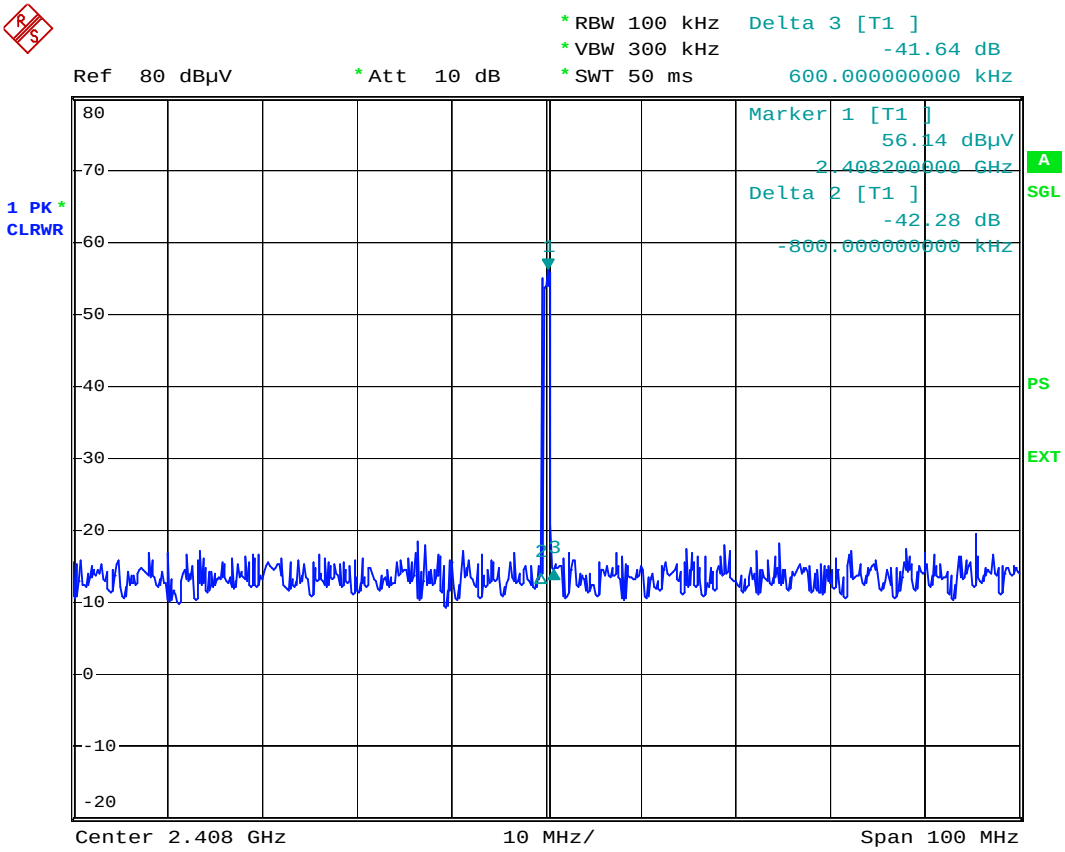
Low



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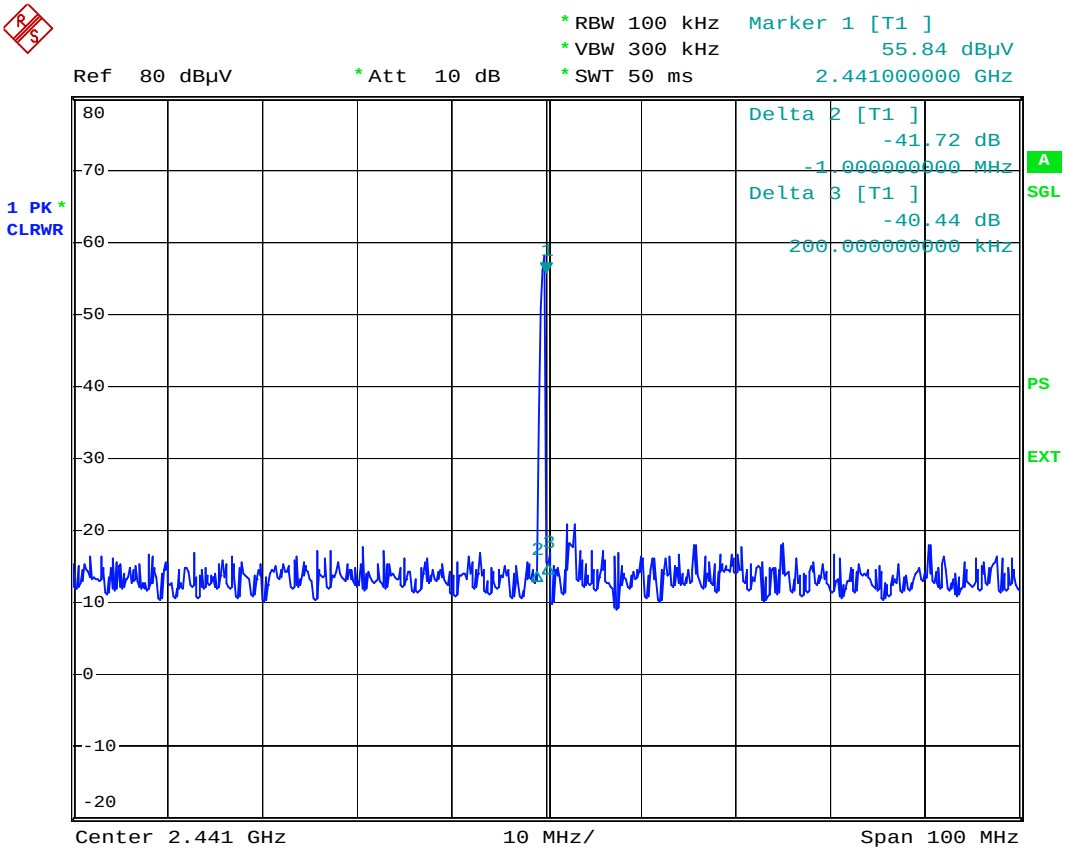
Middle



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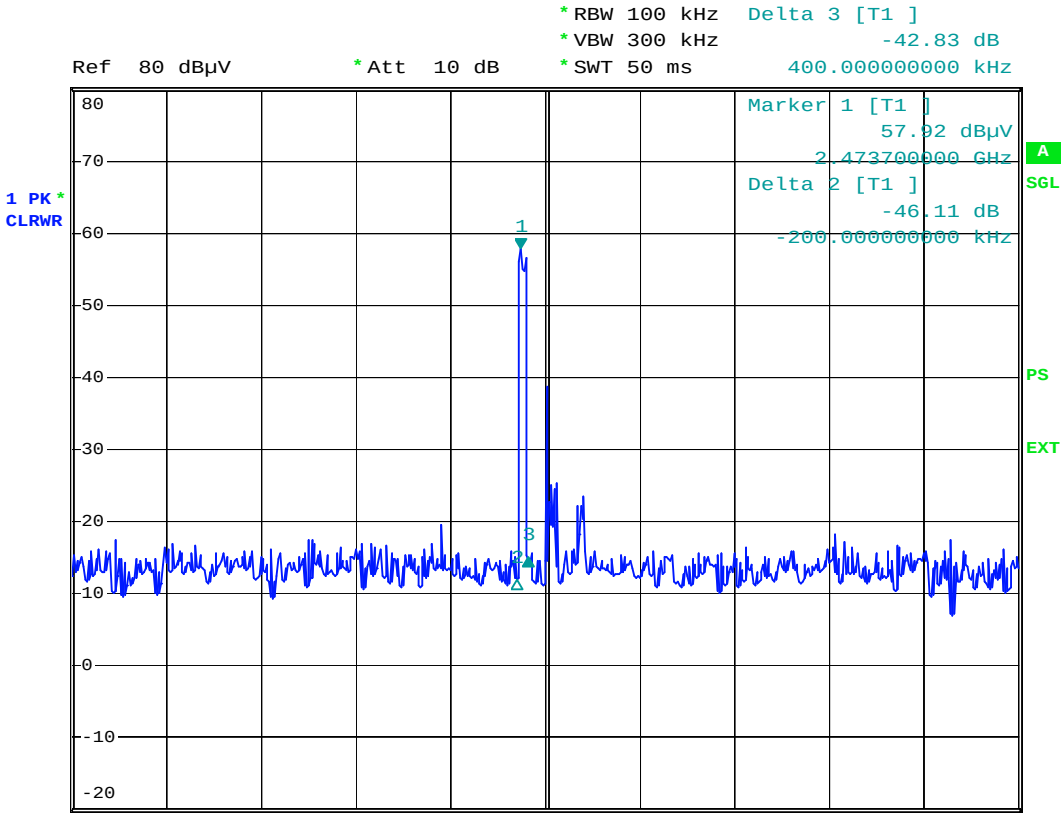
High



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