



Appendix A: Transmitter Output Power

1 Result Table

1.1 Channel Power, Total

NOTE 1: If applicable, the EIRP [W] = $10^{((\text{Channel Power [dBm]} + \text{Antenna Gain [dBi]}) / 10 - 3)}$, and the ERP [W] = EIRP [W] / 1.64.

NOTE 2: When the EUT is put into service, the practical maximum antenna gain may exceed the value as below, and if exceed, the combination of the practical output power and the practical antenna gain should NOT exceed the required ERP/EIRP limit.

EUT Conf.	Channel Power [W]				Verdict
	Antenna Port A	Antenna Port B	Antenna Port C	Antenna Port D	
1L_5M_TM1.1_B	20.46	20.28	20.42	20.46	Pass
1L_5M_TM1.1_T	19.68	20.04	20.04	20.00	Pass
1L_10M_TM1.1_M	20.37	19.86	20.18	20.04	Pass
2L_5M_TM1.1_M	18.54	18.49	18.75	18.37	Pass

1.2 Power Spectral Density

NOTE 1: If applicable, the EIRP [W/MHz] = $10^{((\text{Power Spectral Density [dBm/MHz]} + \text{Antenna Gain [dBi]}) / 10 - 3)}$, and the ERP [W/MHz] = EIRP [W/MHz] / 1.64.

NOTE 2: When the EUT is put into service, the practical maximum antenna gain may exceed the value as below, and if exceed, the combination of the practical output power and the practical antenna gain should NOT exceed the required ERP/EIRP limit.

EUT Conf.	Power Spectral Density [dBm/1MHz]	Verdict
1L_5M_TM1.1_B	37.34	Pass
1L_5M_TM1.1_T	37.09	Pass
1L_10M_TM1.1_M	34.23	Pass

EUT Conf.	Power Spectral Density [dBm/5MHz]	Verdict
1L_5M_TM1.1_B	41.75	Pass
1L_5M_TM1.1_T	41.59	Pass
1L_10M_TM1.1_M	39.86	Pass

1.3 Peak-to-Average Ratio

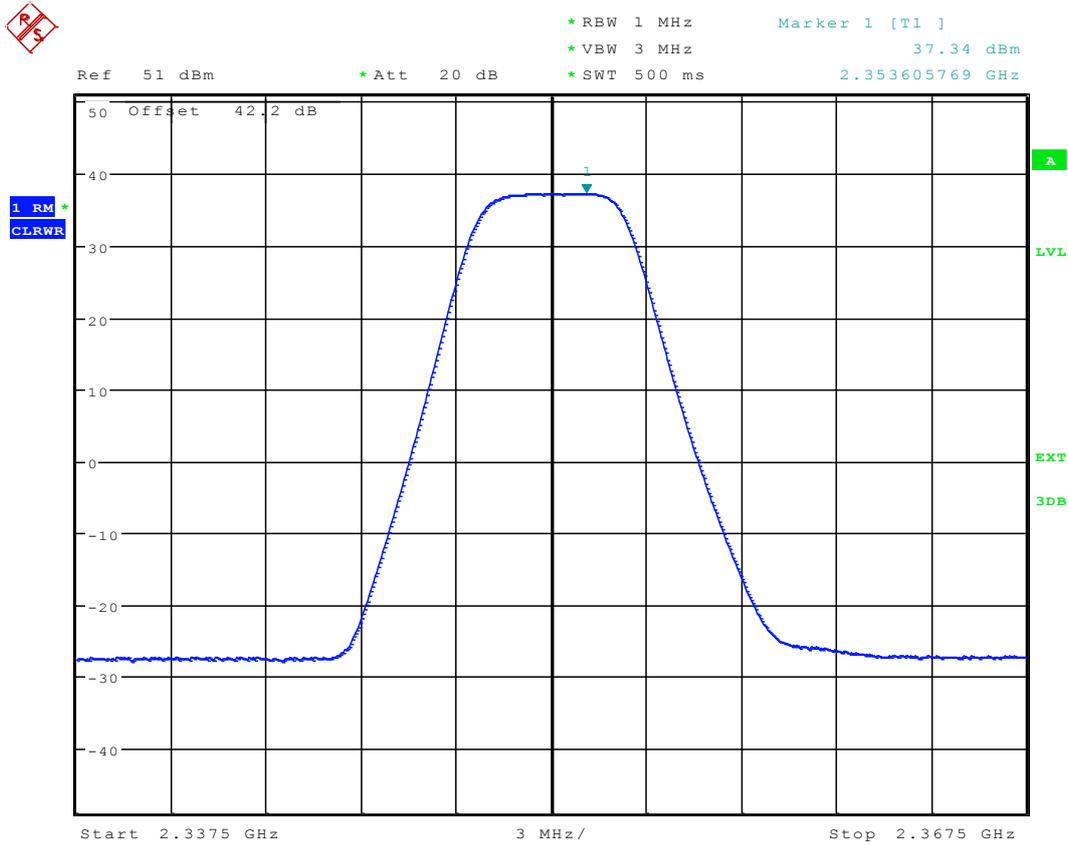
EUT Conf.	Peak-to-Average Ratio@0.1% [dB]	Verdict
1L_5M_TM1.1_B	6.86	Pass
1L_5M_TM1.1_T	6.86	Pass
1L_10M_TM1.1_M	6.96	Pass

2 Test Plot

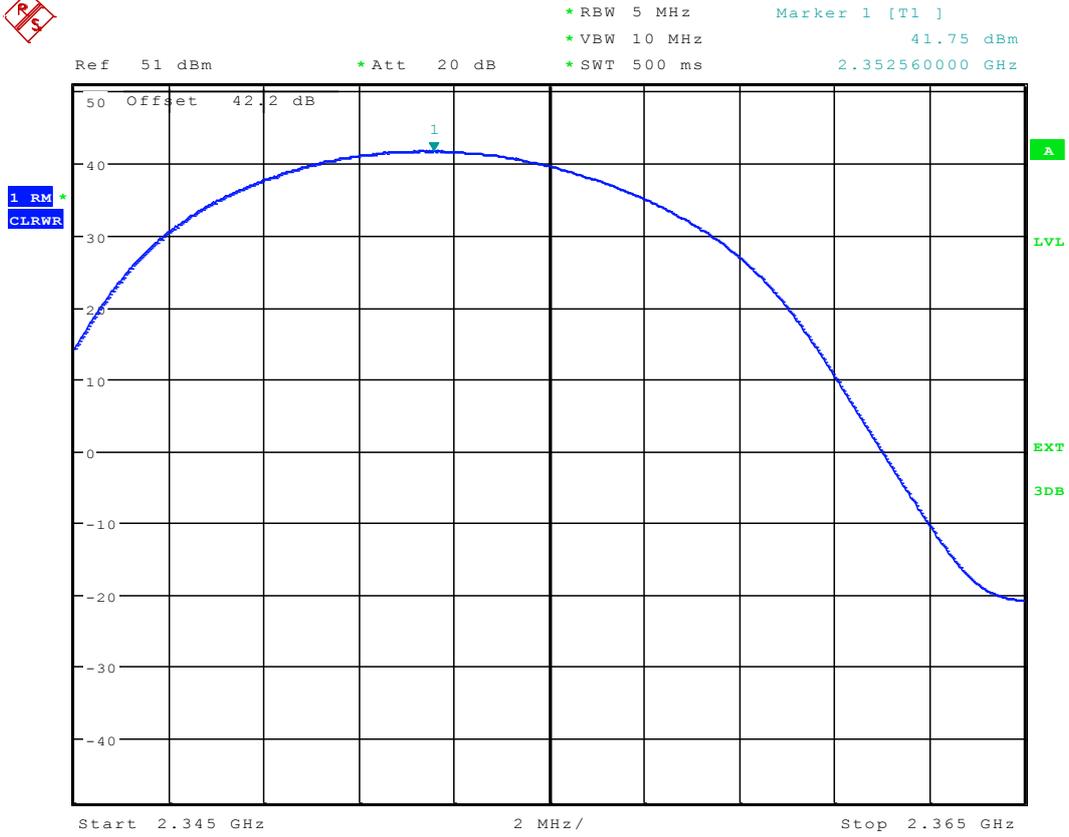
NOTE: Only the test plots for the measurements of Spectral Density and Peak-to-Average Ratio are supplied.

2.1 Power Spectral Density

2.1.1 1L_5M_TM1.1_B



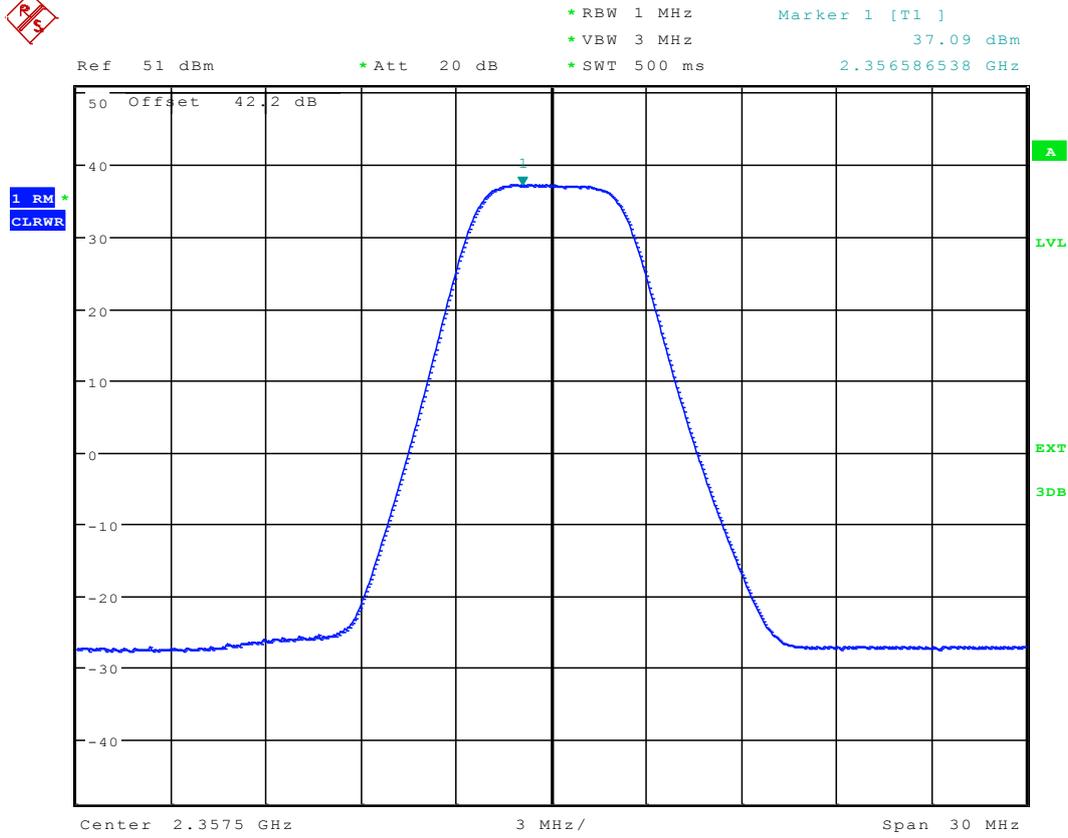
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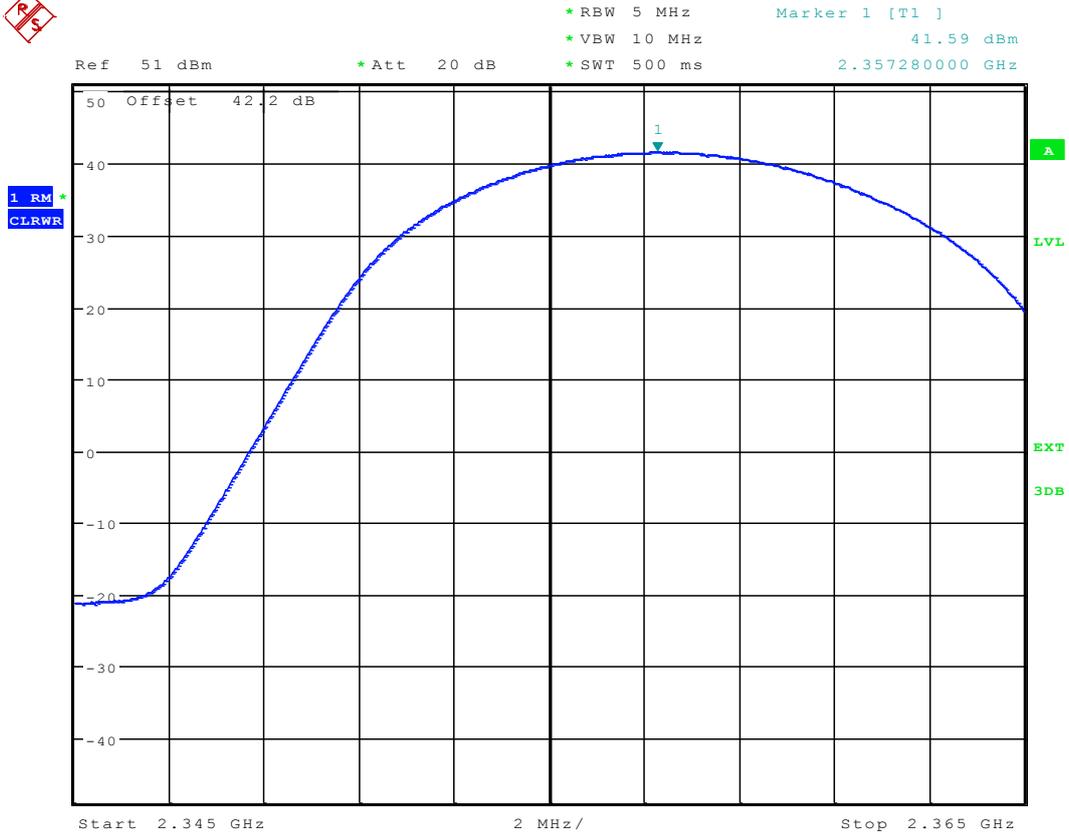
Date: 19.JUN.2015 15:46:14



2.1.2 1L_5M_TM1.1_T



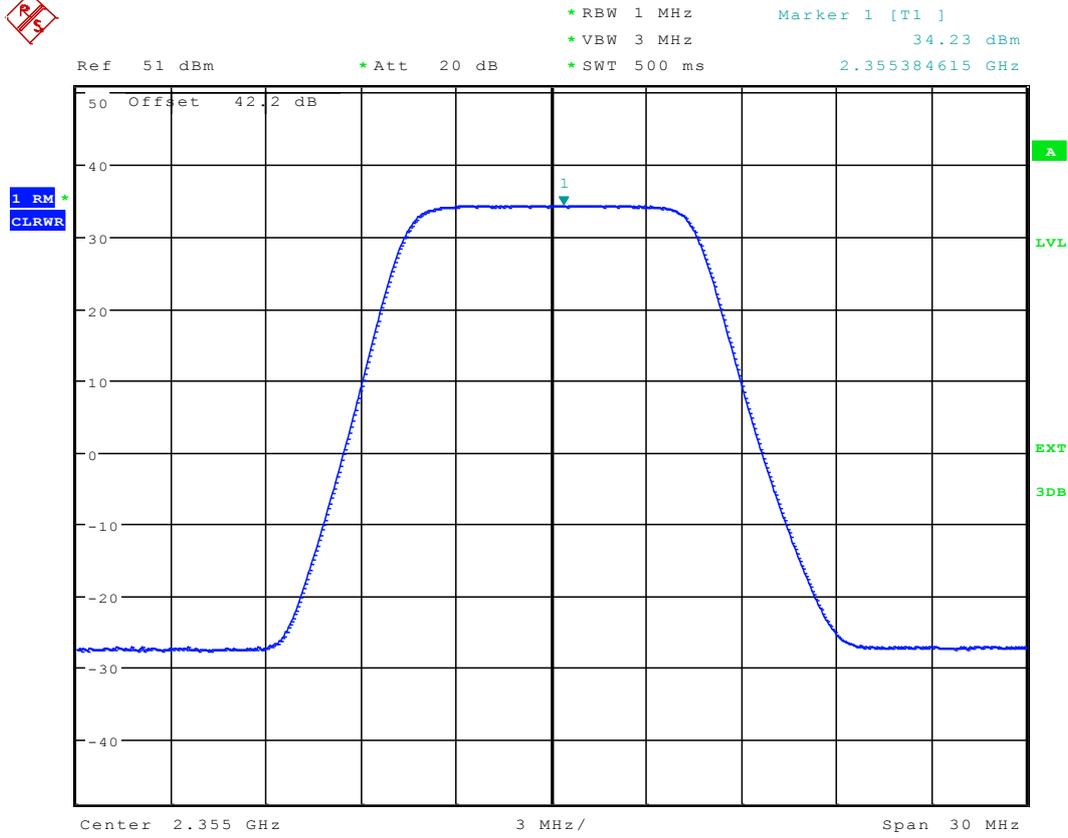
Date: 10.JUN.2015 12:02:14



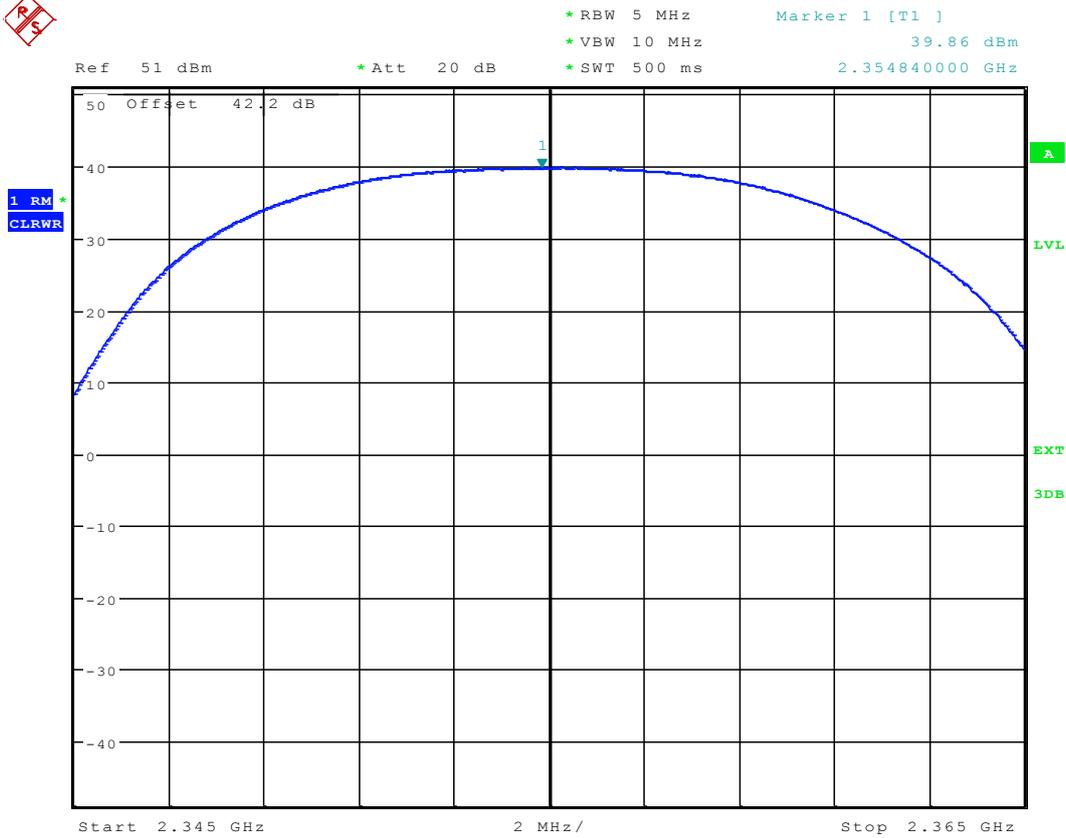
Date: 19.JUN.2015 15:44:57



2.1.3 1L_10M_TM1.1_M



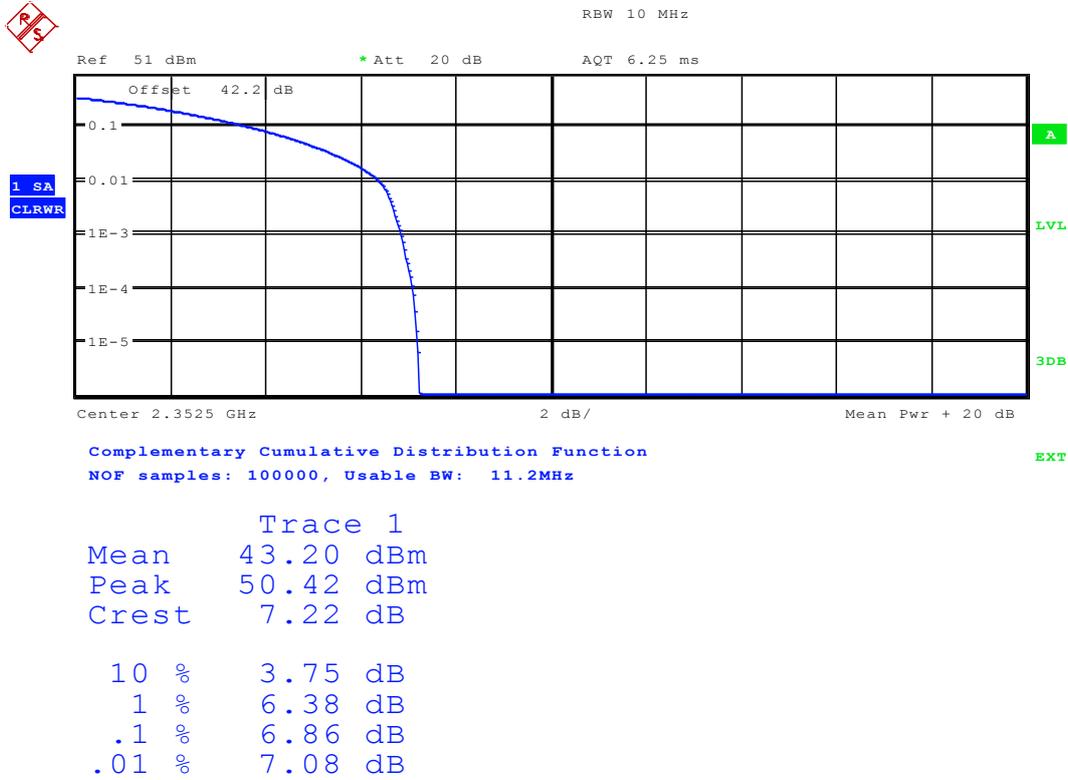
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Date: 19.JUN.2015 15:49:04

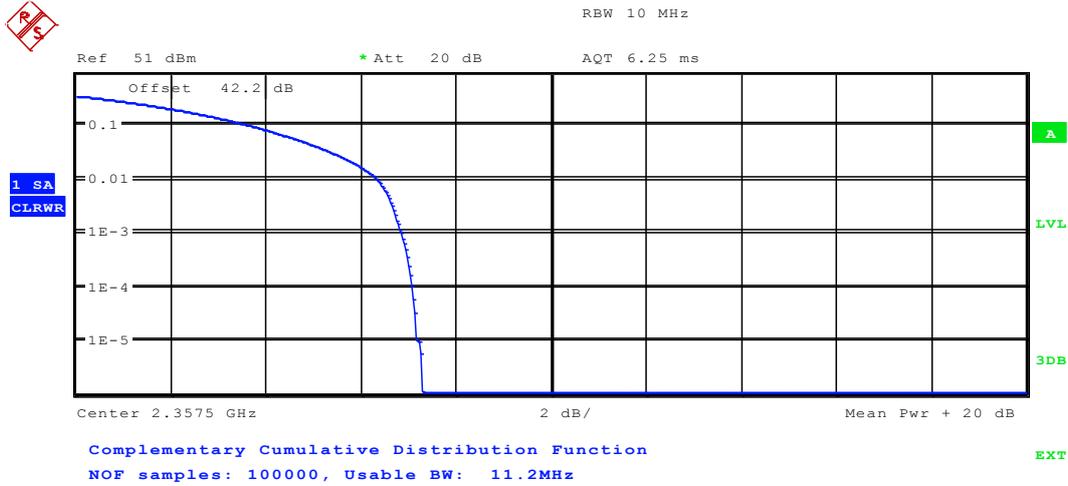
2.2 Peak-to-Average Ratio

2.2.1 1L_5M_TM1.1_B



Date: 10.JUN.2015 11:56:40

2.2.2 1L_5M_TM1.1_T



Trace 1	
Mean	43.09 dBm
Peak	50.39 dBm
Crest	7.30 dB
10 %	3.72 dB
1 %	6.35 dB
.1 %	6.86 dB
.01 %	7.08 dB

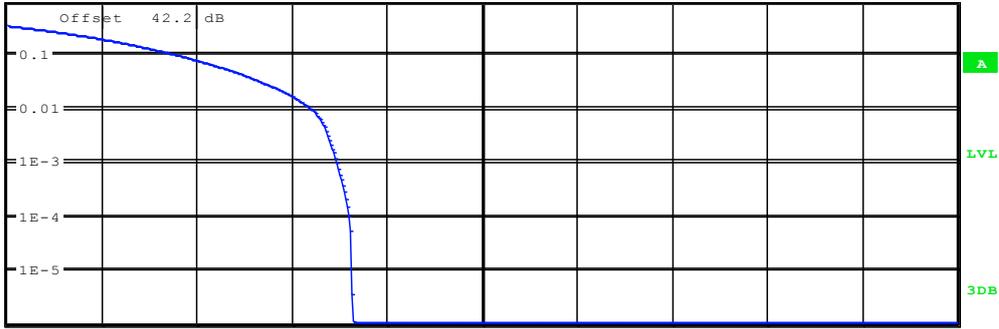
Date: 10.JUN.2015 12:03:01

2.2.3 1L_10M_TM1.1_M



RBW 20 MHz

Ref 51 dBm * Att 20 dB AQT 3.125 ms



Complementary Cumulative Distribution Function
 NOF samples: 100000, Usable BW: 23.7MHz

Trace 1	
Mean	43.10 dBm
Peak	50.37 dBm
Crest	7.27 dB
10 %	3.69 dB
1 %	6.41 dB
.1 %	6.96 dB
.01 %	7.21 dB

Date: 10.JUN.2015 12:07:50



Appendix B: Bandwidth



1 Result Table

1.1 Occupied Bandwidth

EUT Conf.	Occupied Bandwidth [MHz]	Verdict
1L_5M_TM1.1_B	4.503	Pass
1L_5M_TM1.1_T	4.503	Pass
1L_10M_TM1.1_M	8.910	Pass

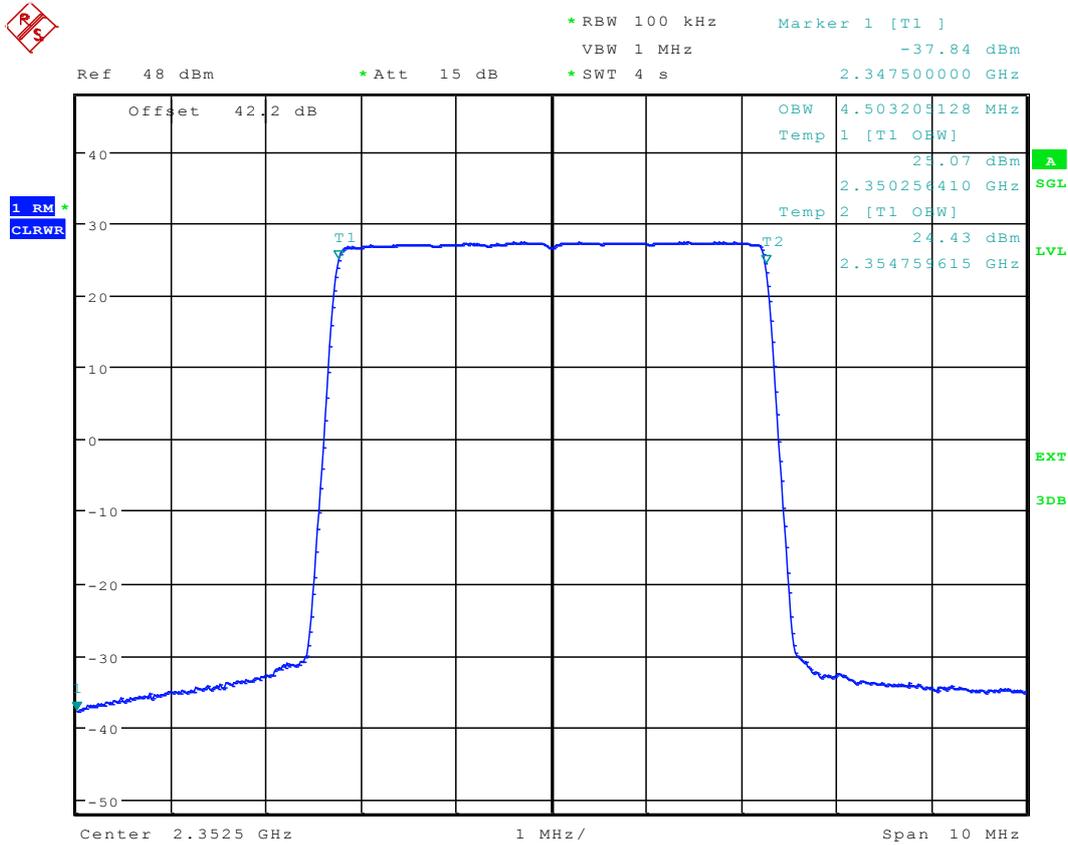
1.2 Emission Bandwidth

EUT Conf.	Emission Bandwidth, -26 dBc [MHz]	Verdict
1L_5M_TM1.1_B	4.808	Pass
1L_5M_TM1.1_T	4.808	Pass
1L_10M_TM1.1_M	9.423	Pass

2 Test Plot

2.1 Occupied Bandwidth

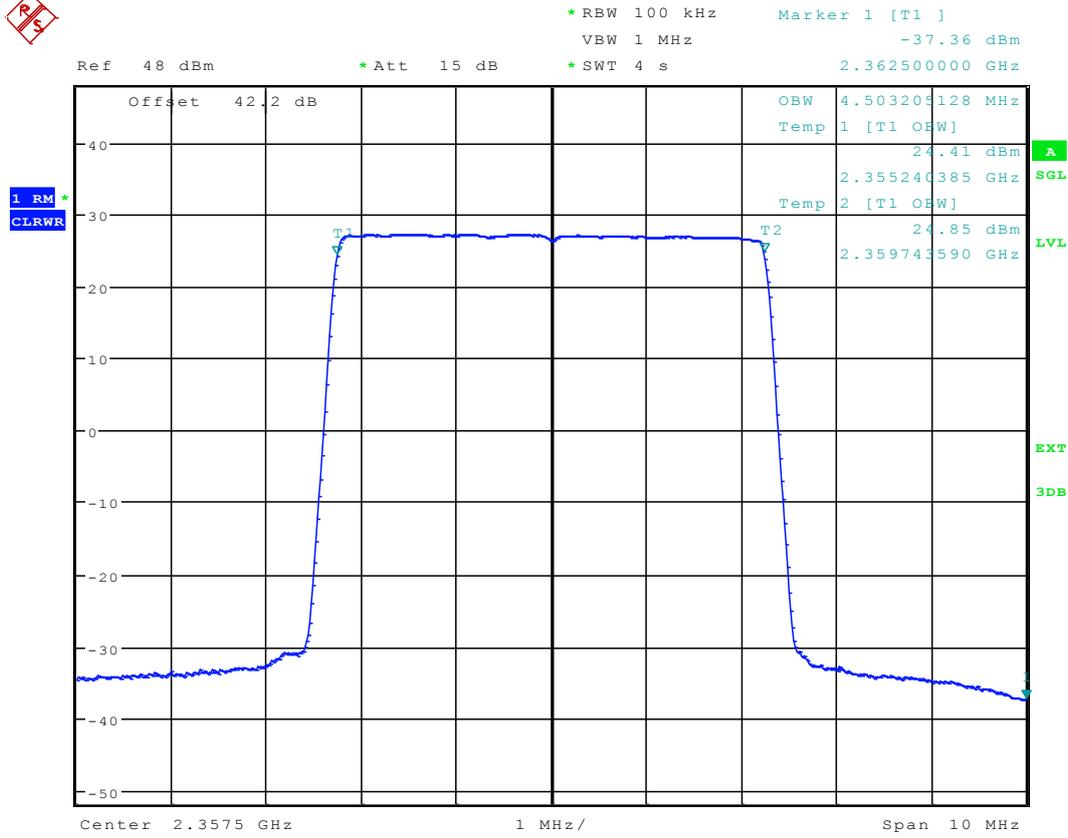
2.1.1 1L_5M_TM1.1_B



Date: 13.JUN.2015 11:52:51

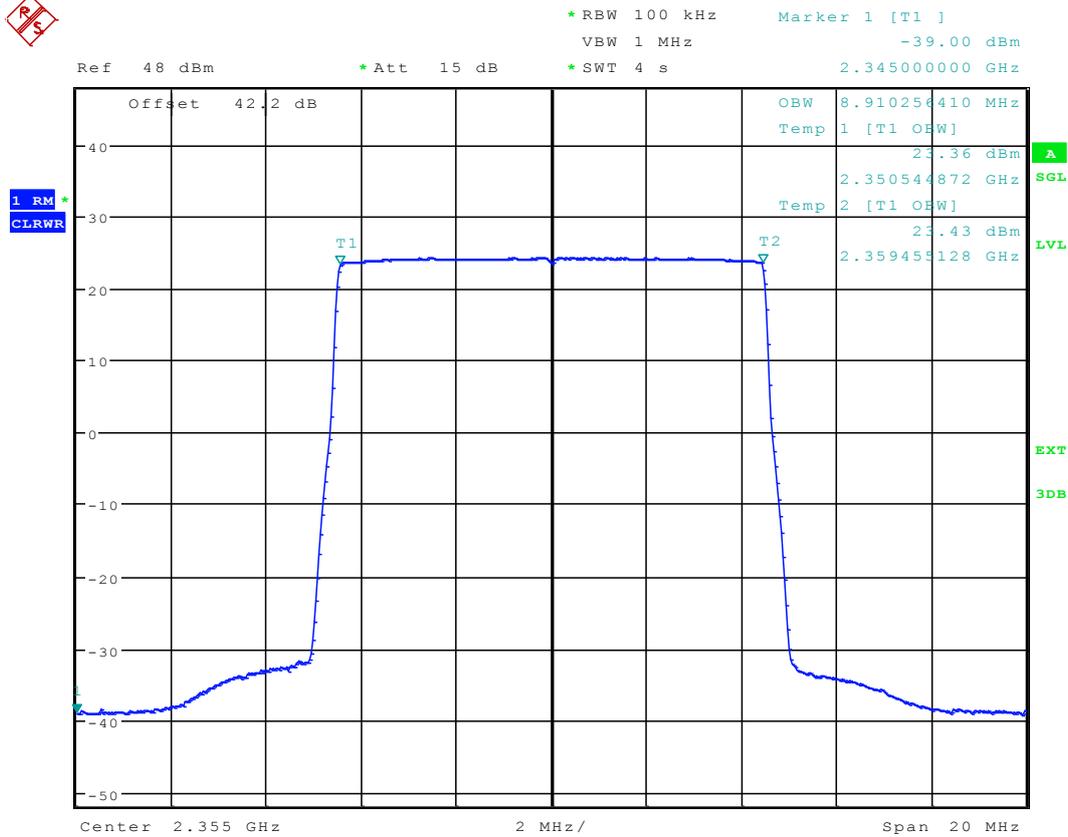


2.1.2 1L_5M_TM1.1_T



Date: 13.JUN.2015 11:54:16

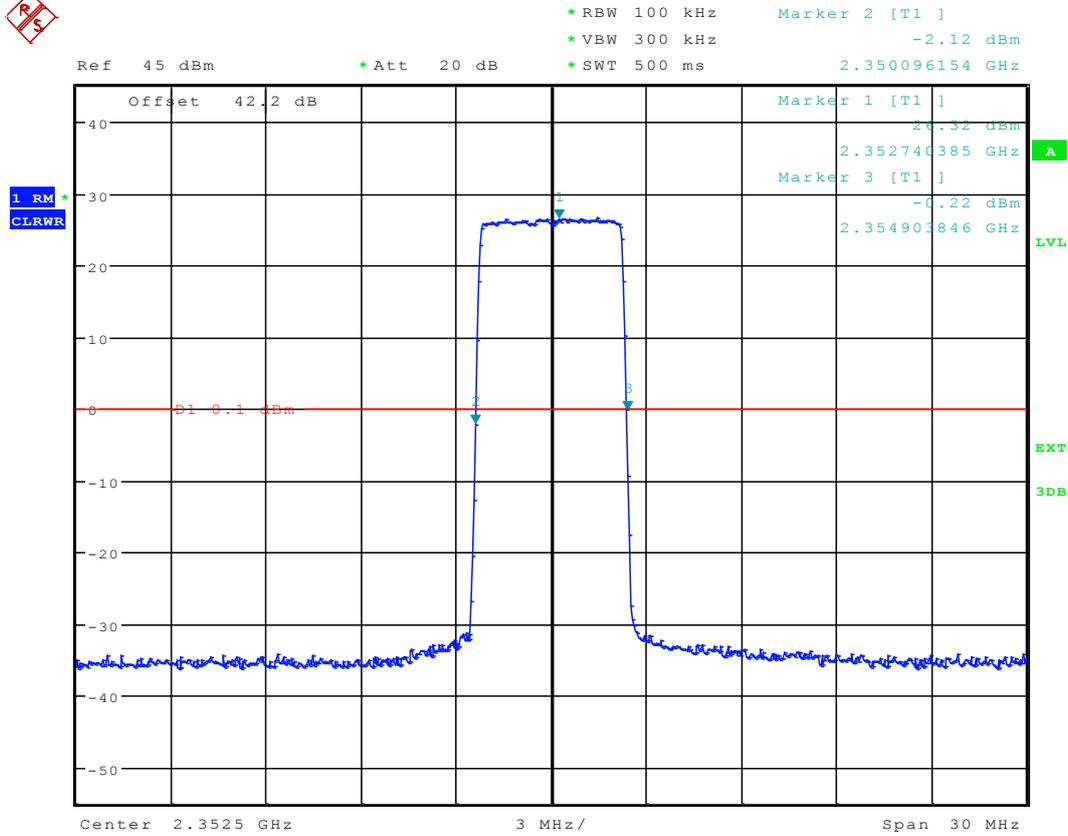
2.1.3 1L_10M_TM1.1_M



Date: 13.JUN.2015 11:55:06

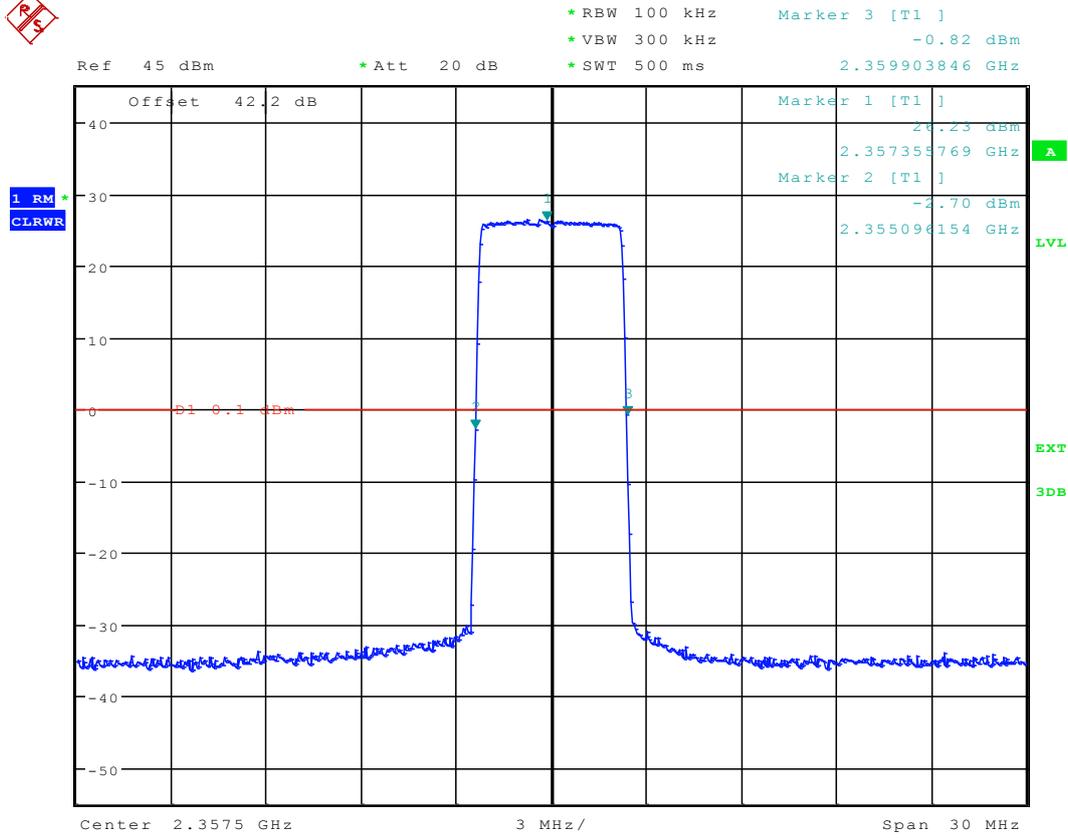
2.2 Emission Bandwidth

2.2.1 1L_5M_TM1.1_B



Date: 10.JUN.2015 14:37:26

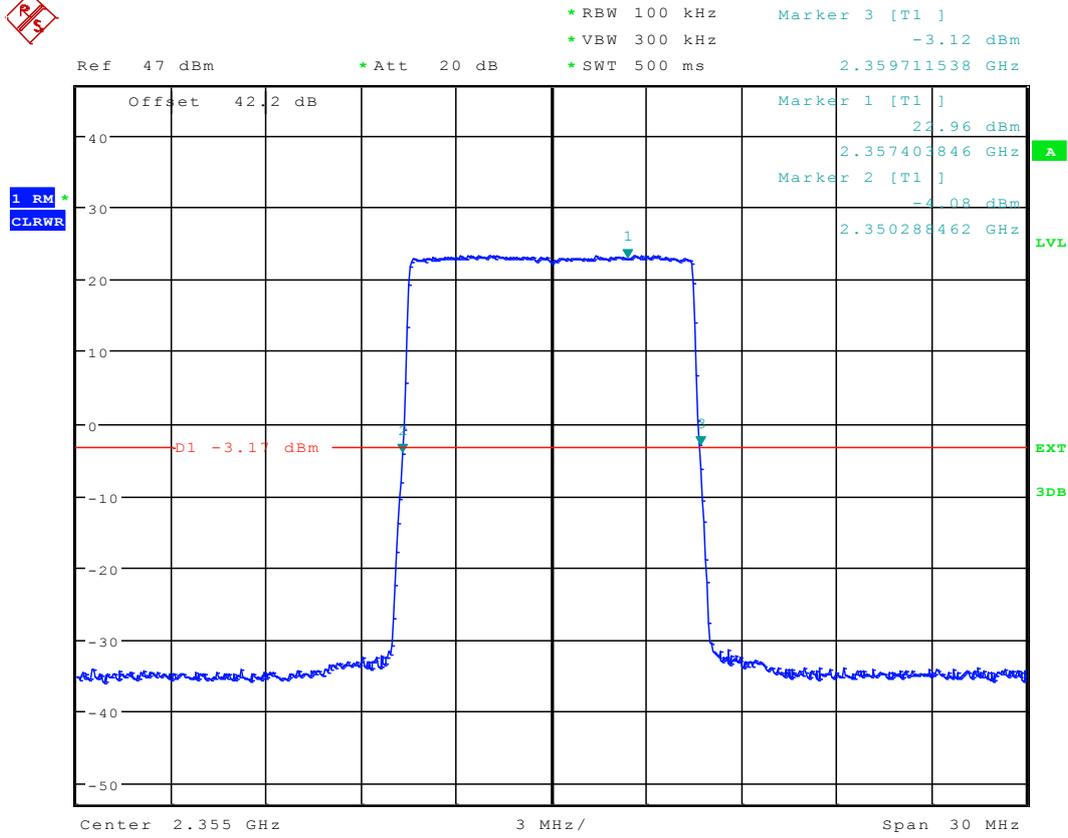
2.2.2 1L_5M_TM1.1_T



Date: 10.JUN.2015 14:48:21



2.2.3 1L_10M_TM1.1_M



Date: 10.JUN.2015 14:31:50



Appendix C: Band Edges Compliance / Emission Mask



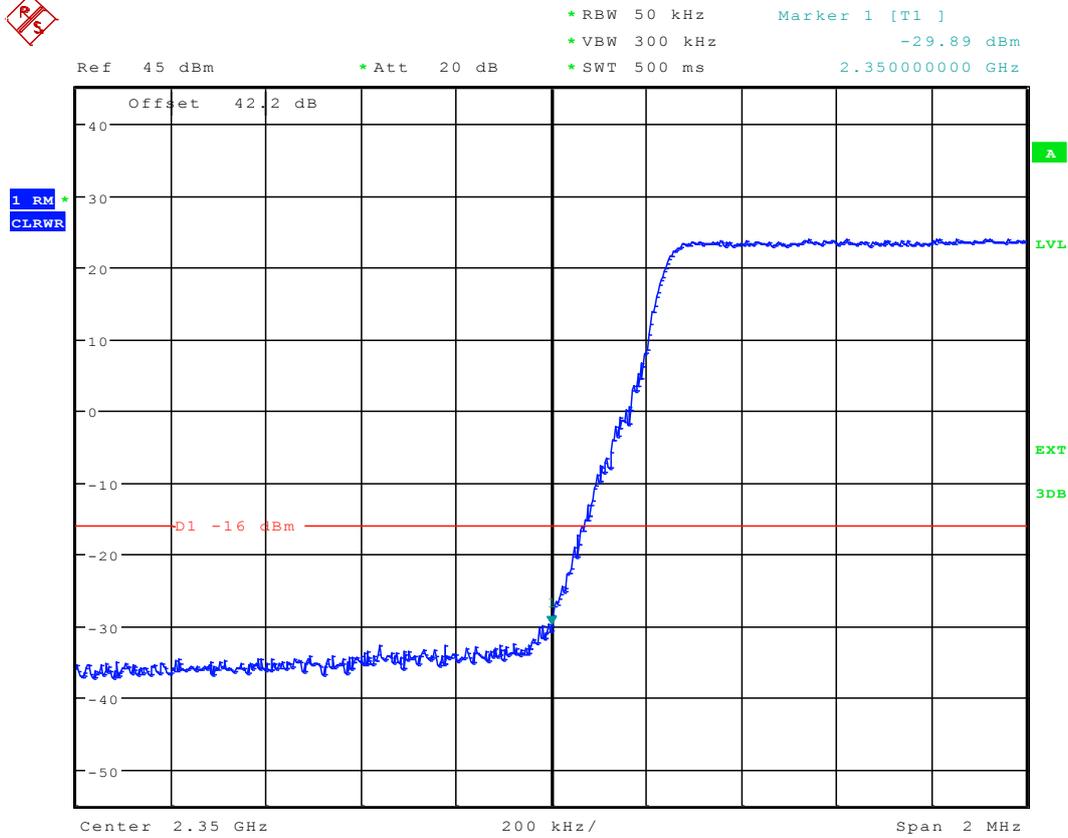
1 Result Table

NOTE: If applicable, the offset of measurement filter -3dB point may be considered when identifying the maximum emission for e.g. the CDMA, WCDMA, WiMAX, LTE systems.

EUT Conf.	Maximum Emission [dBm]	Verdict
1L_5M_TM1.1_B	<-13	Pass
1L_5M_TM1.1_T	<-13	Pass
1L_10M_TM1.1_M	<-13	Pass
2L_5M_TM1.1_M	<-13	Pass

2 Test Plot

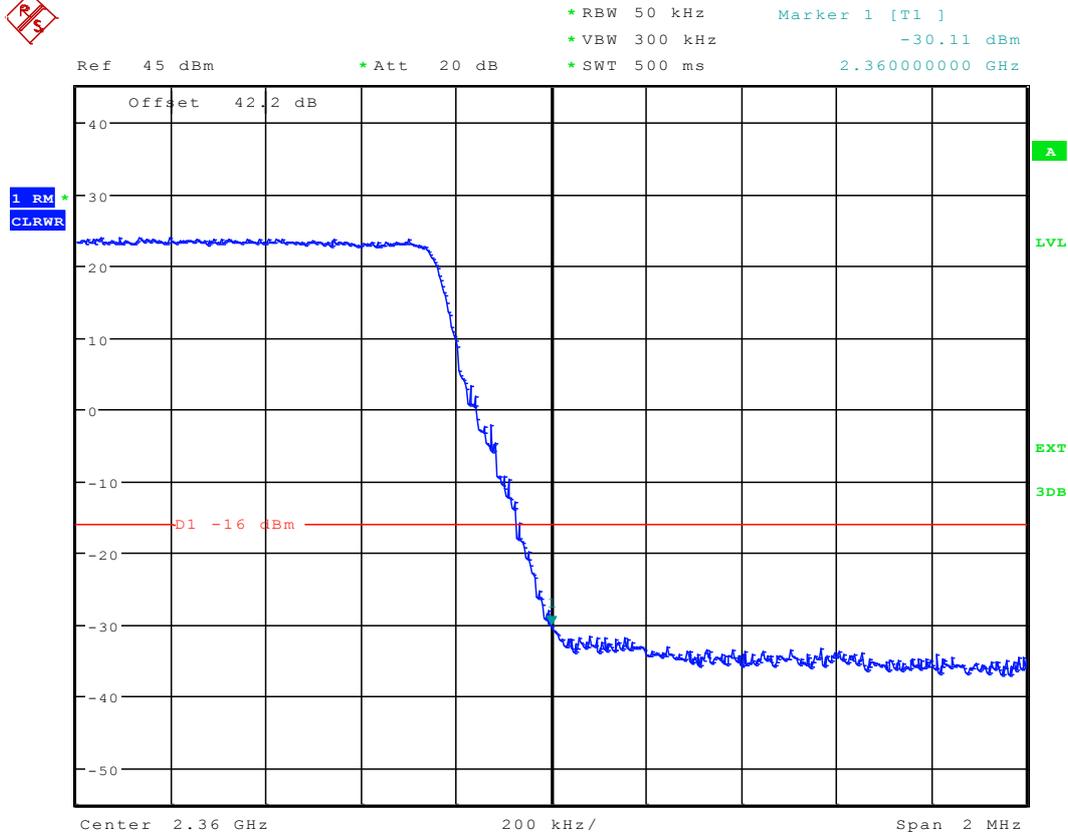
2.1 1L_5M_TM1.1_B



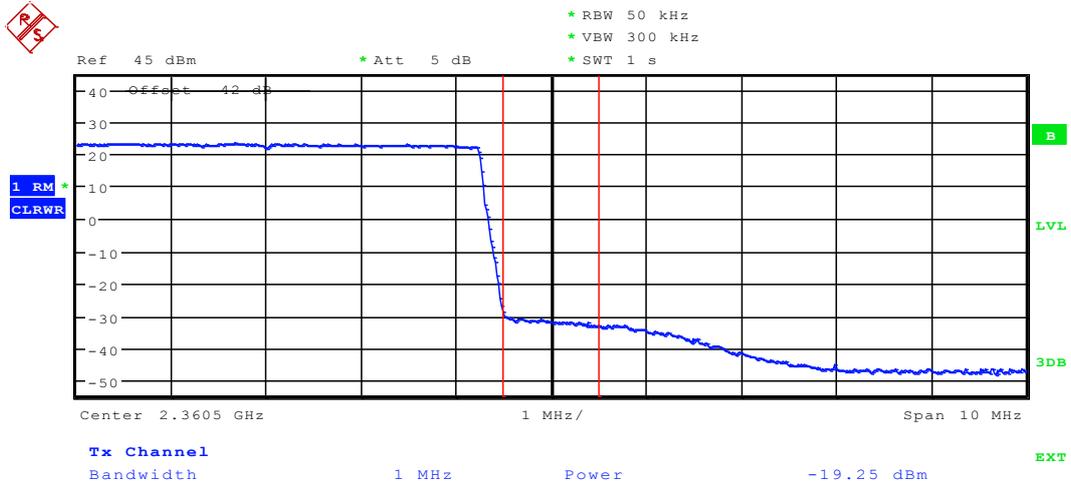
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2.2 1L_5M_TM1.1_T



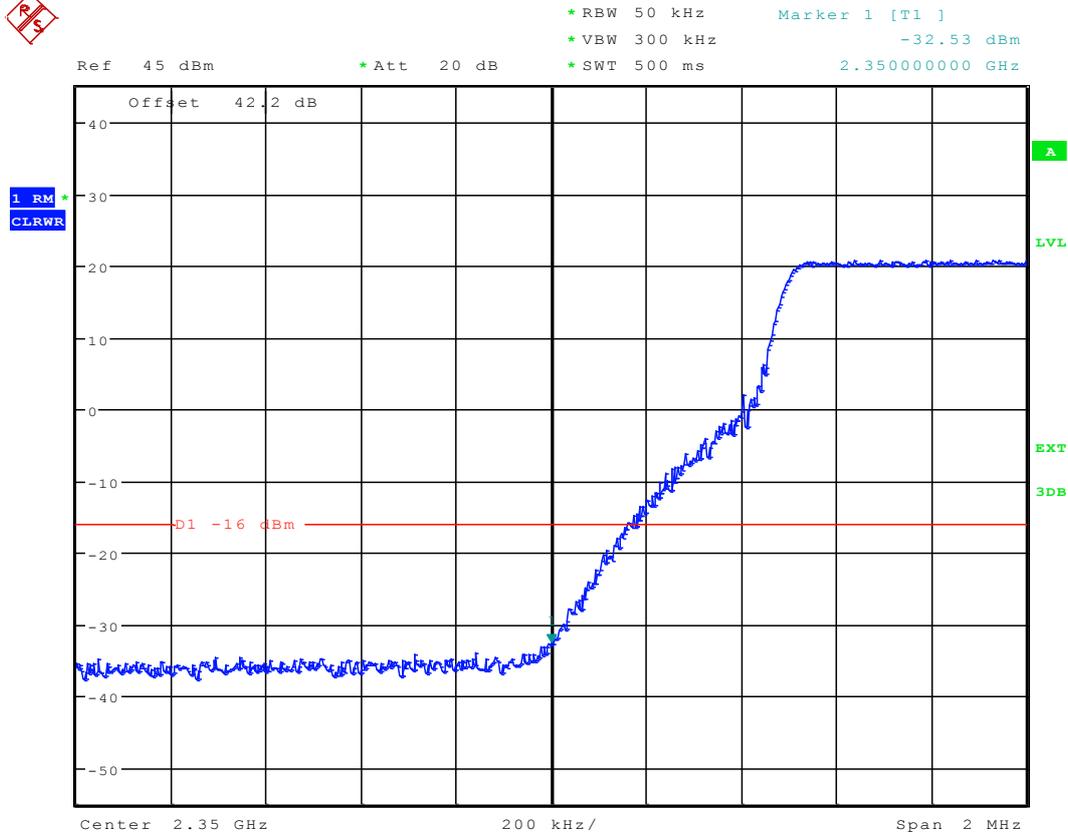
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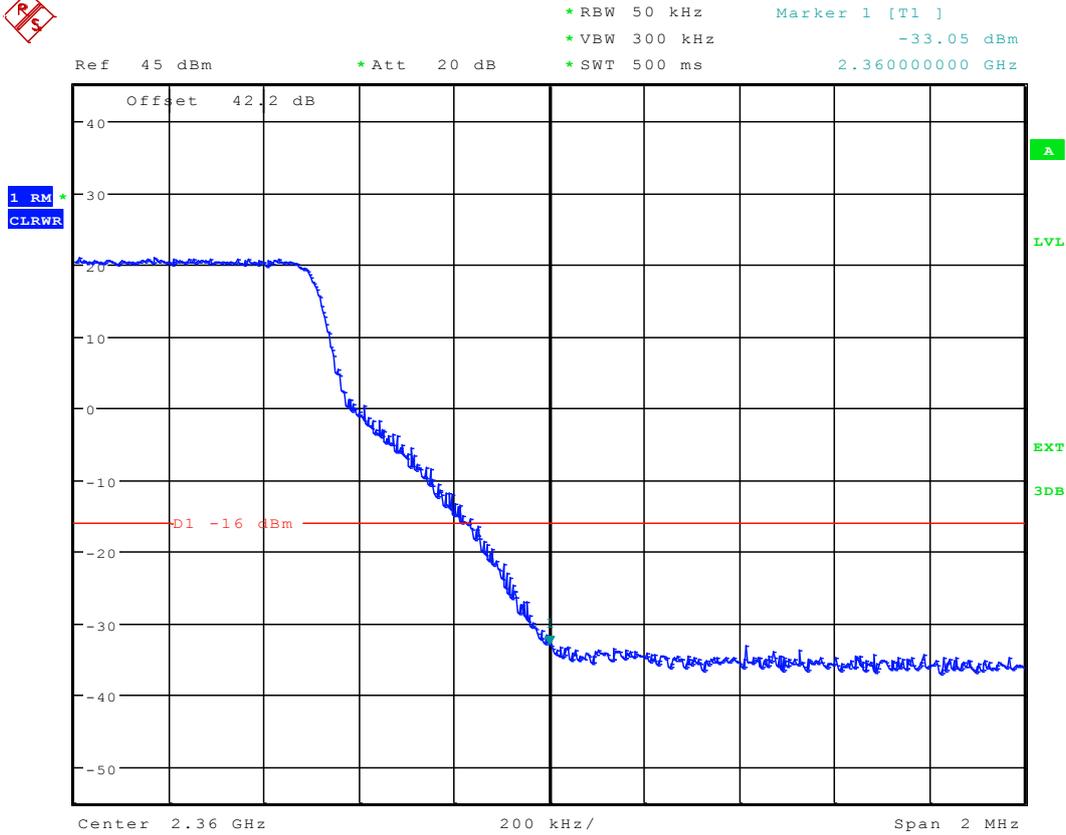
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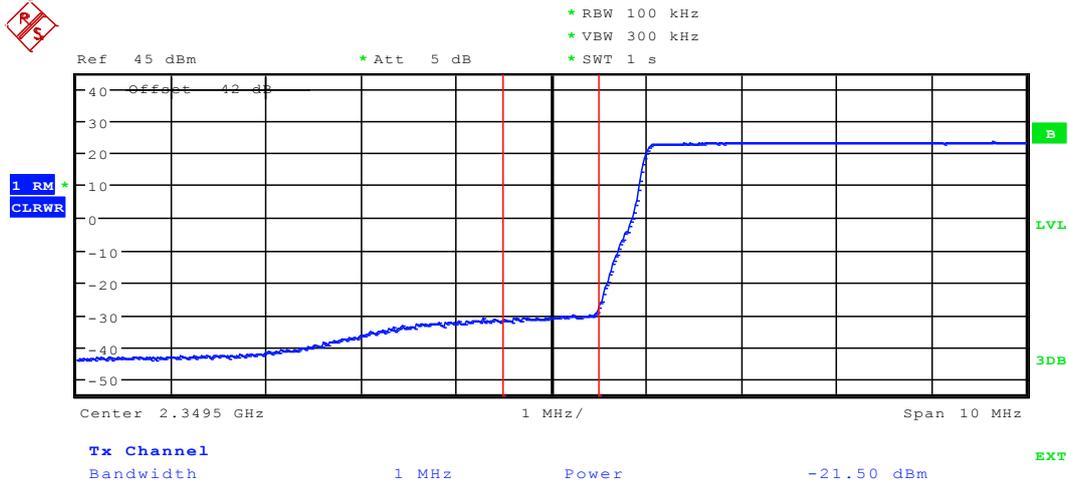
2.3 1L_10M_TM1.1_M



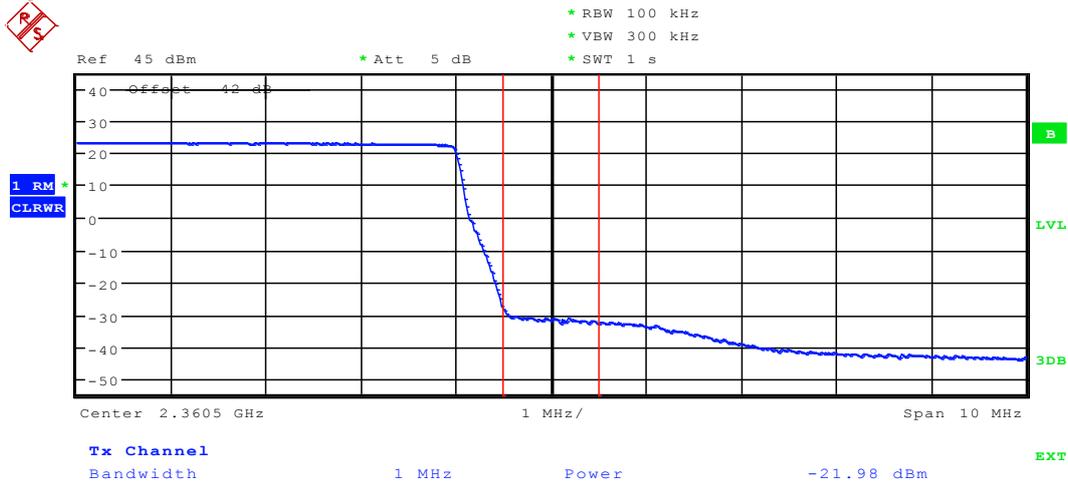
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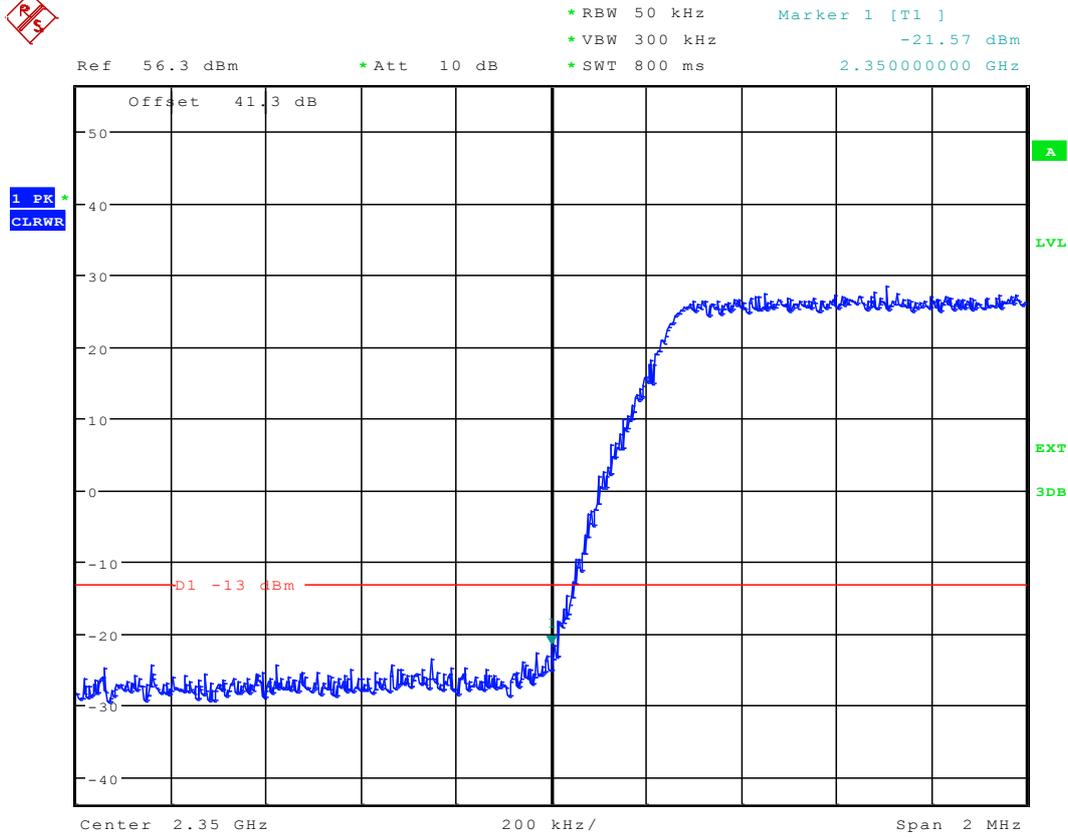
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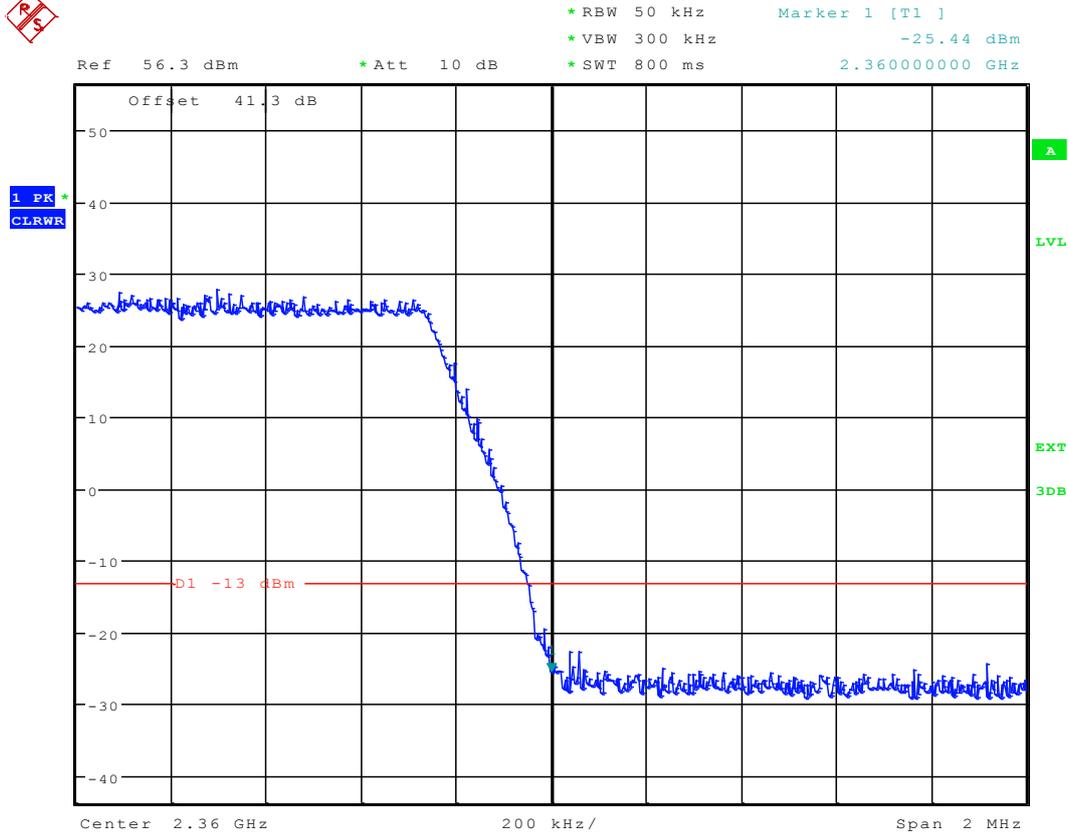
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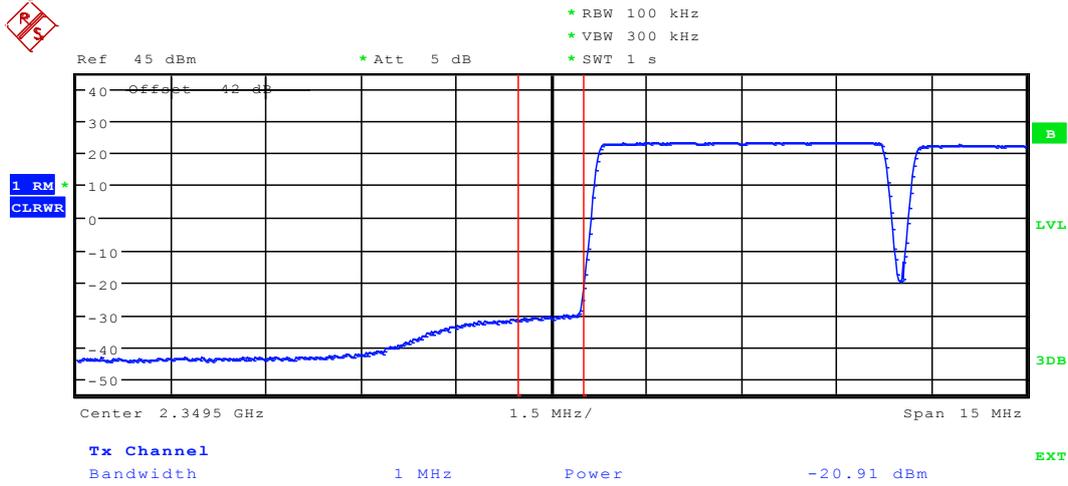
2.4 2L_5M_TM1.1_M



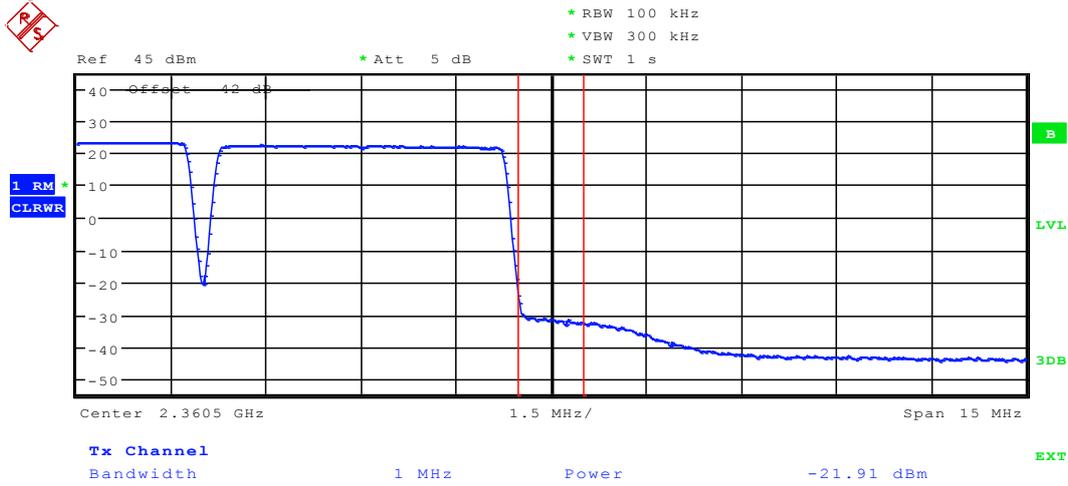
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Date: 19.JUN.2015 16:06:52



Date: 21.JUL.2015 18:48:58



Date: 21.JUL.2015 18:49:19





Appendix D: Spurious Emission at Antenna Terminals



1 Result Table

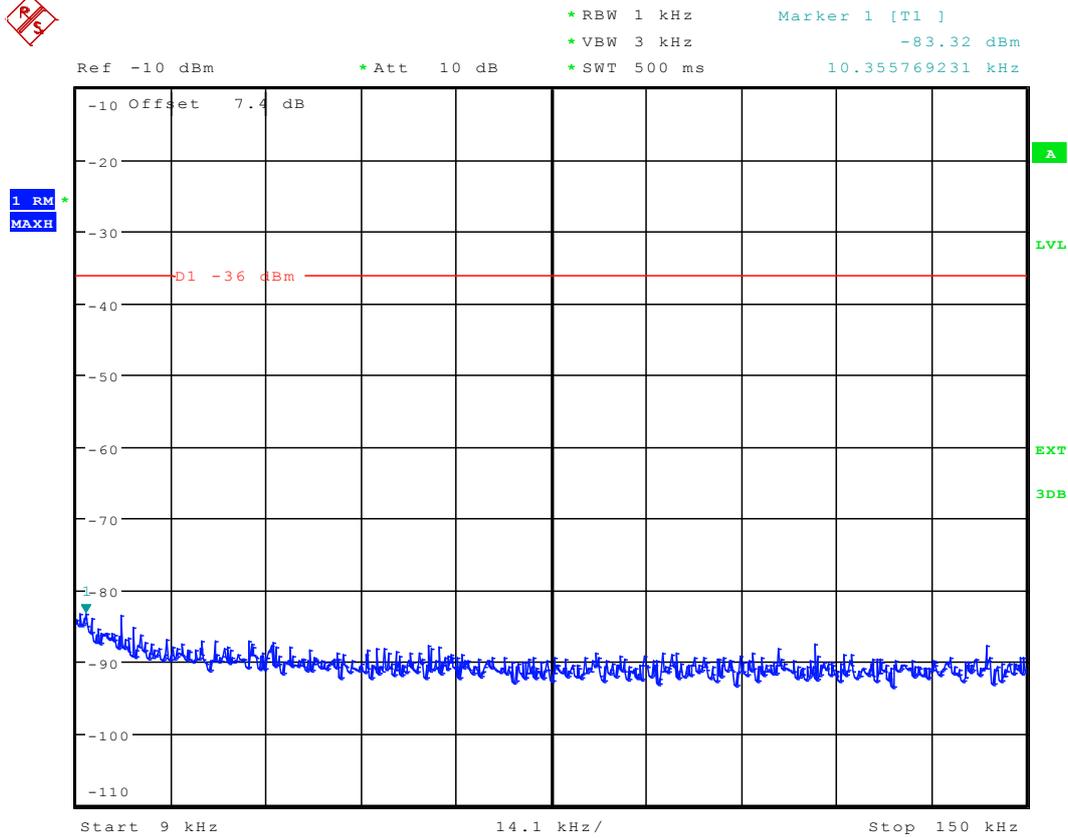
EUT Conf.	Verdict
1L_5M_TM1.1_B	Pass
1L_5M_TM1.1_T	Pass
1L_10M_TM1.1_M	Pass
2L_5M_TM1.1_M	Pass



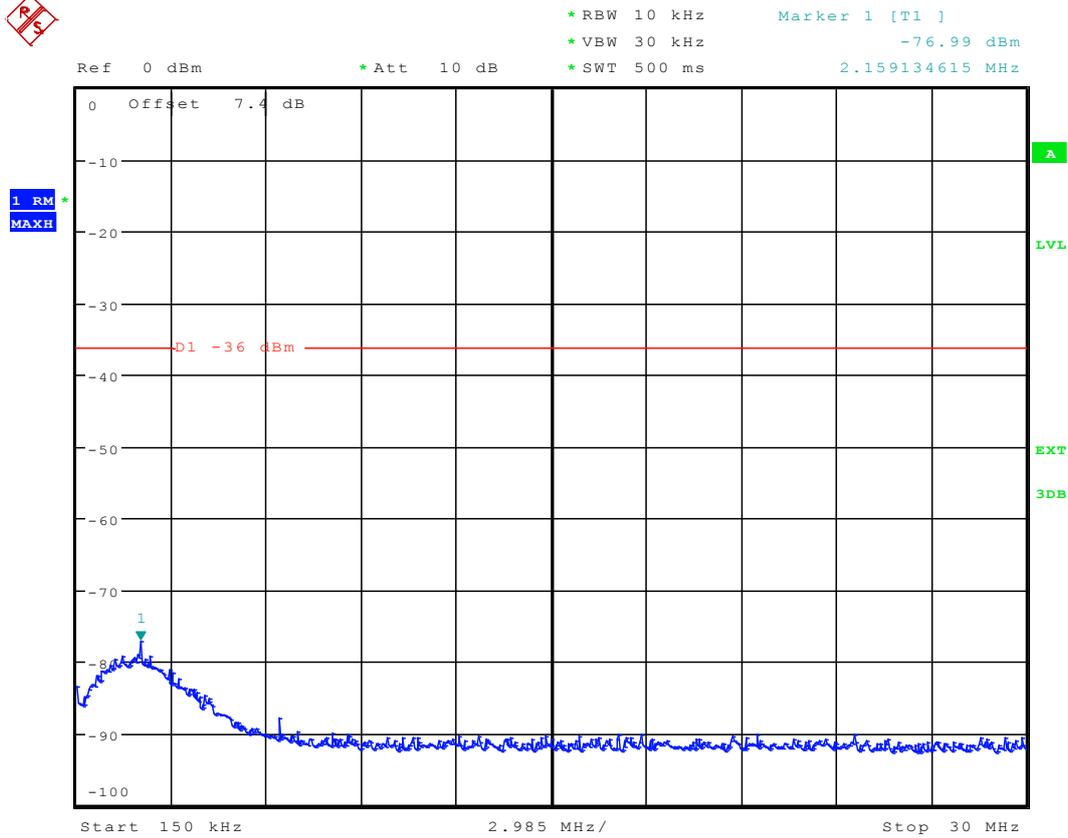
2 Test Plot

2.1 1L_5M_TM1.1_B

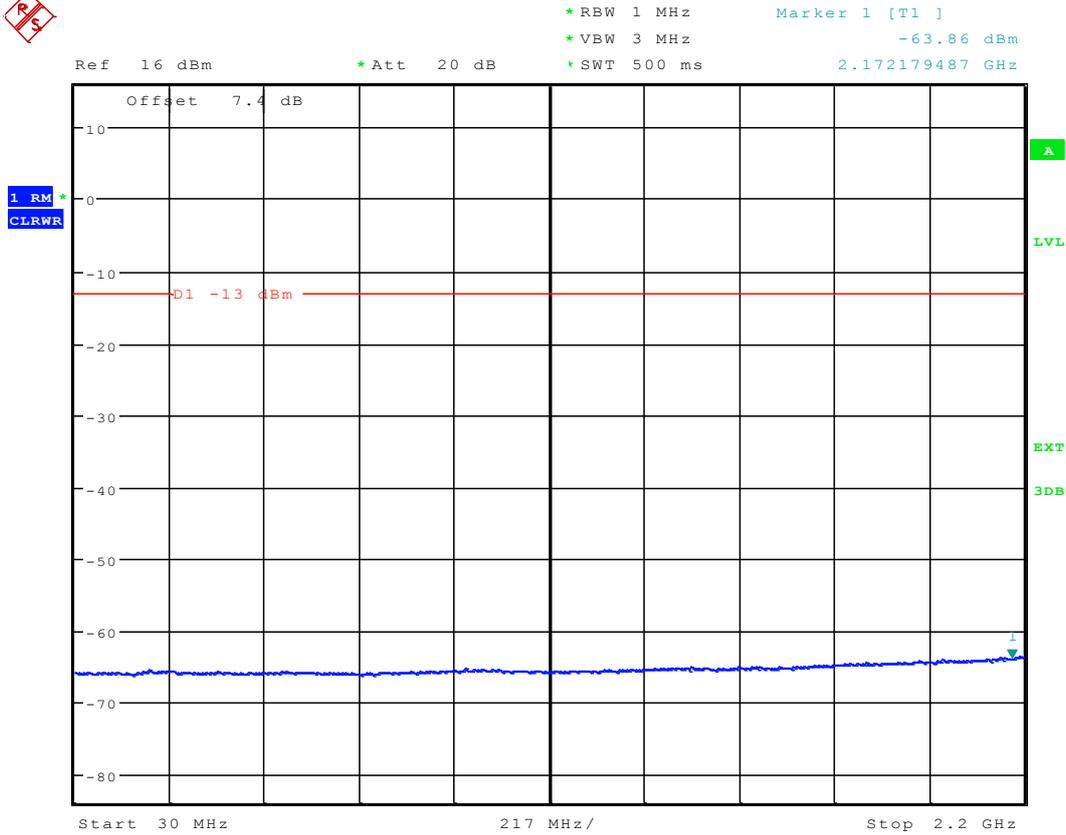
Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
0.009	0.15	0.001	RMS	<-36	-36	Pass
0.15	30	0.01	RMS	<-36	-36	Pass
30	2200	1	RMS	<-13	-13	Pass
2200	2285	1	RMS	<-45	-45	Pass
2285	2287.5	1	RMS	<-42	-42	Pass
2287.5	2300	1	RMS	<-40	-40	Pass
2300	2305	1	RMS	<-13	-13	Pass
2305	2320	1	RMS	<-13	-13	Pass
2320	2345	1	RMS	<-45	-45	Pass
2345	2350	1	RMS	<-13	-13	Pass
2360	2362.5	1	RMS	<-13	-13	Pass
2362.5	2365	1	RMS	<-25	-25	Pass
2365	2367.5	1	RMS	<-40	-40	Pass
2367.5	2370	1	RMS	<-42	-42	Pass
2370	2395	1	RMS	<-45	-45	Pass
2395	24000	1	RMS	<-13	-13	Pass



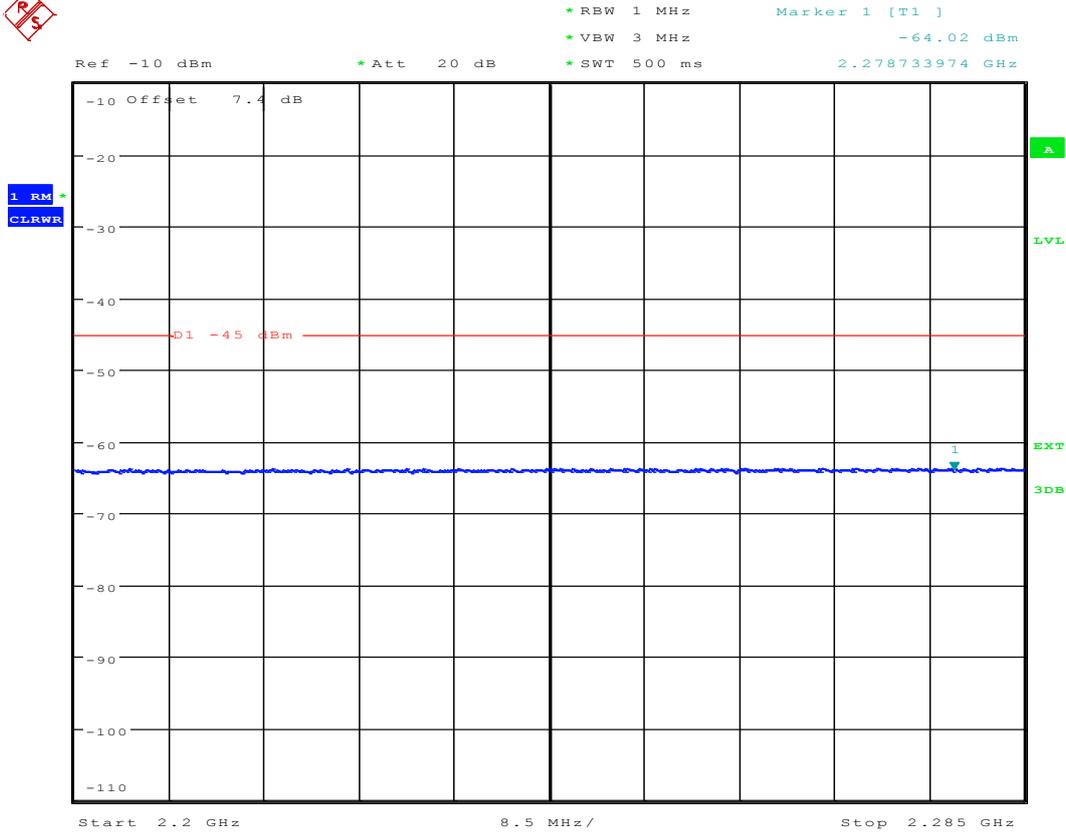
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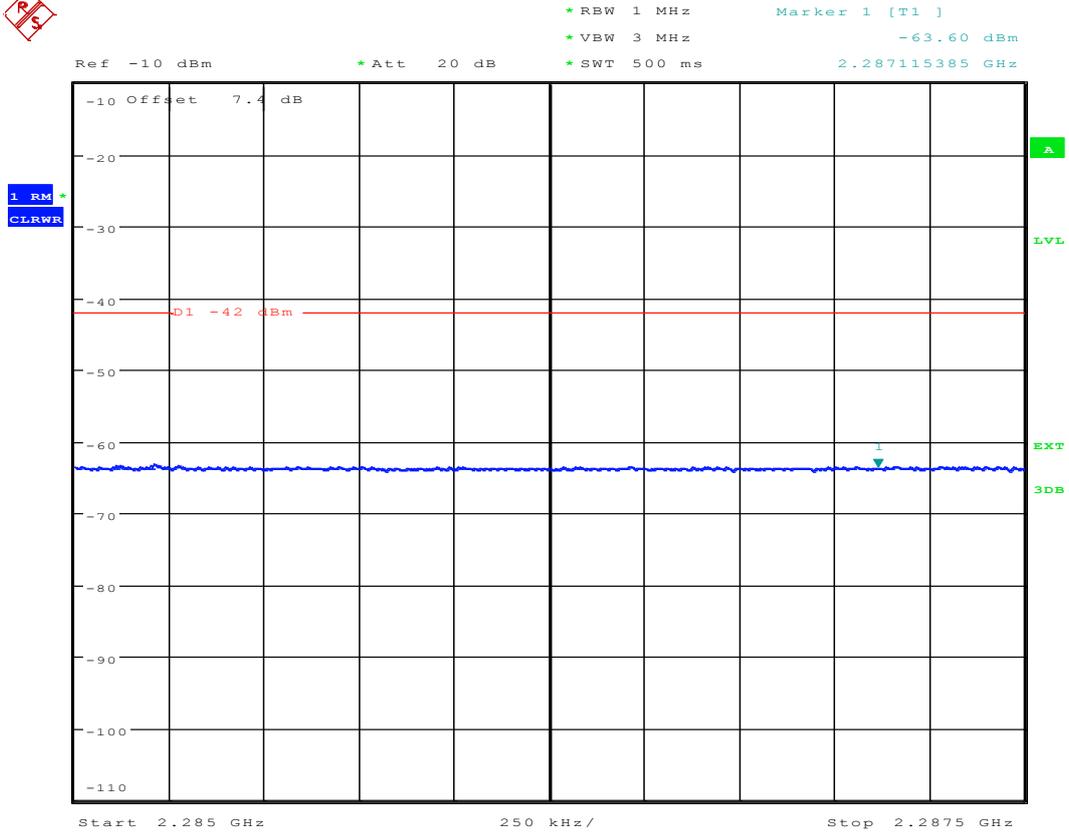
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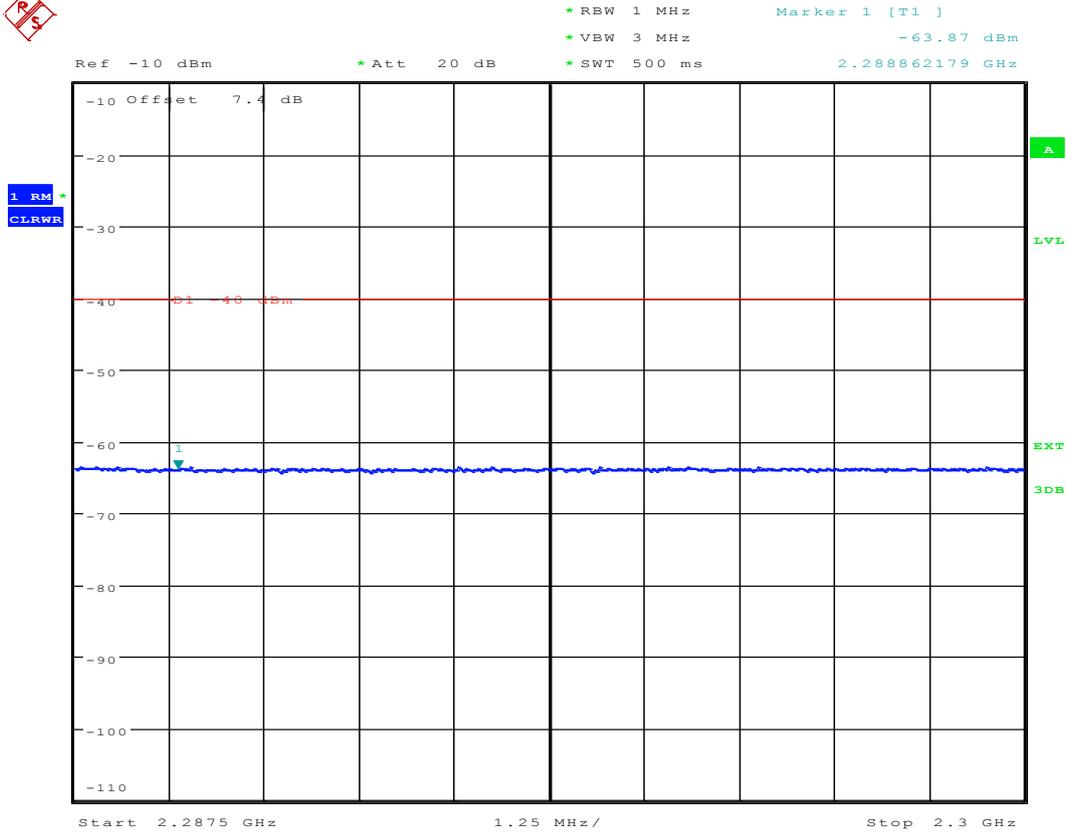
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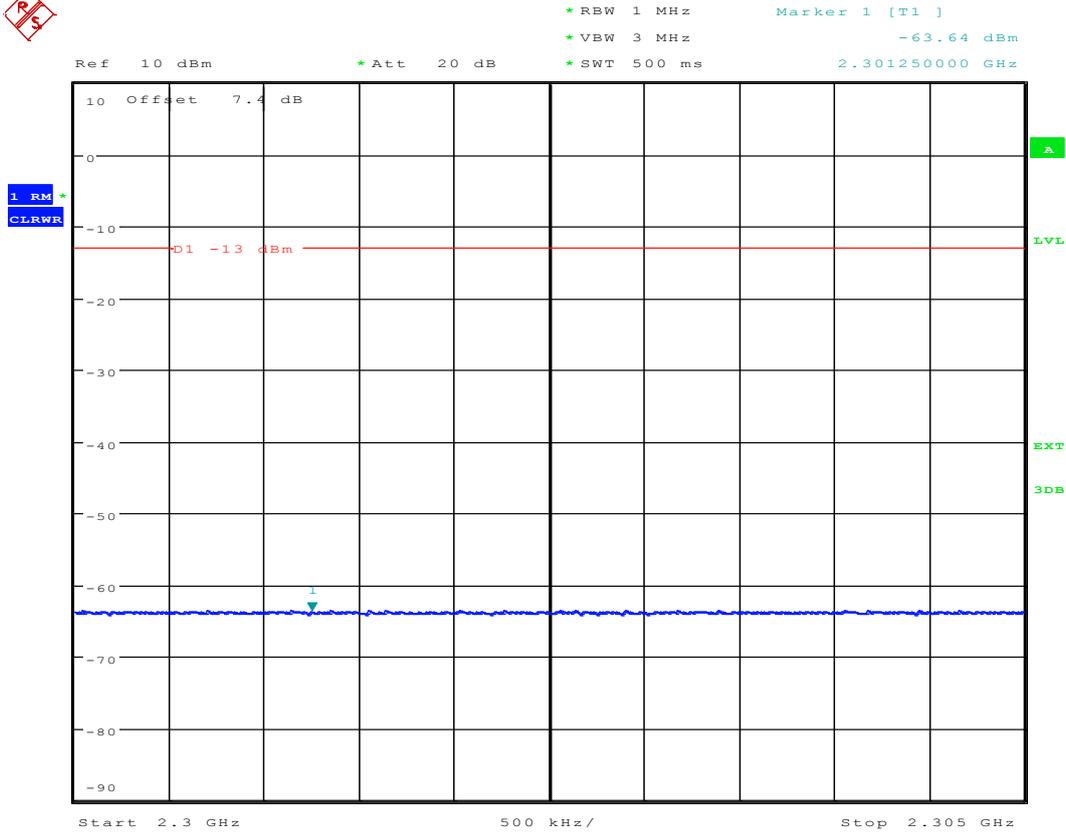
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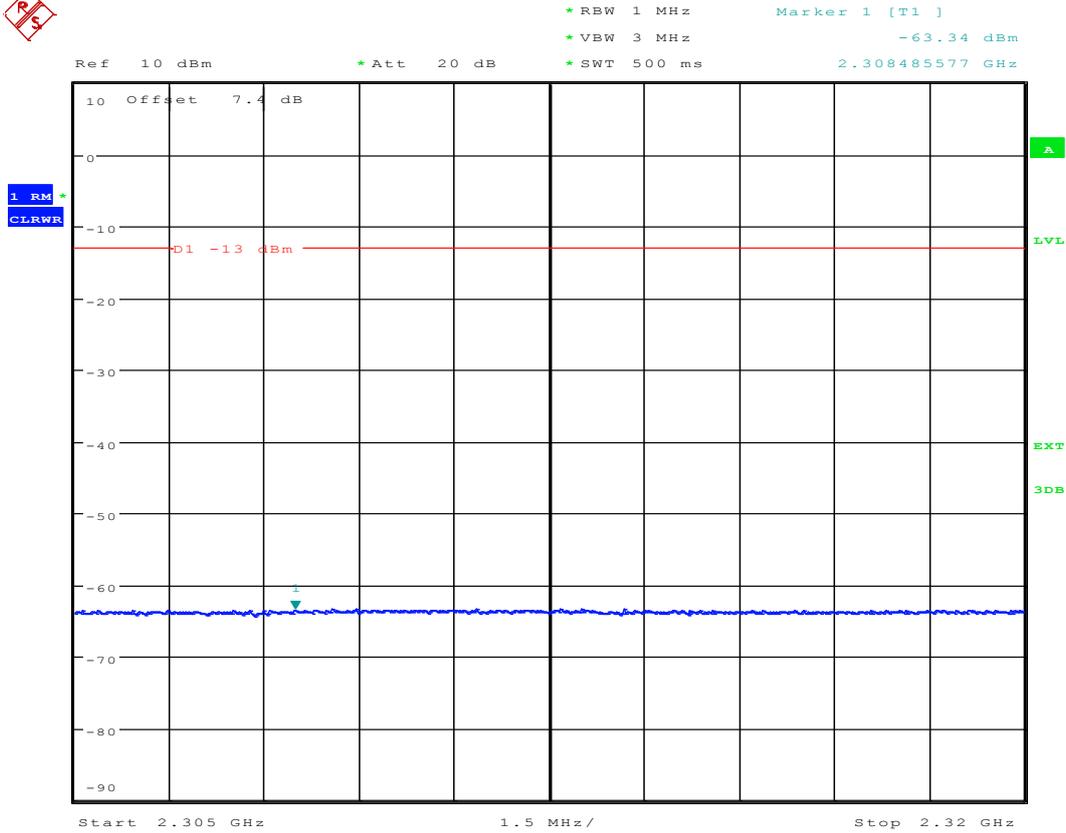
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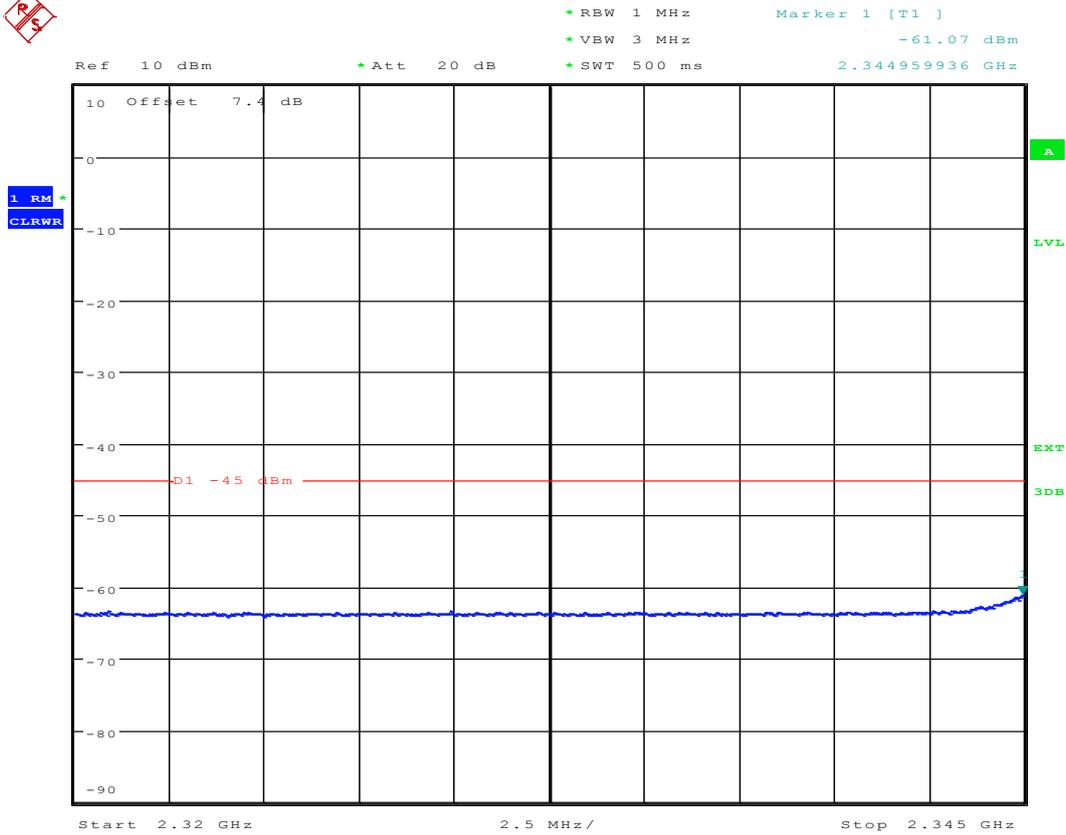
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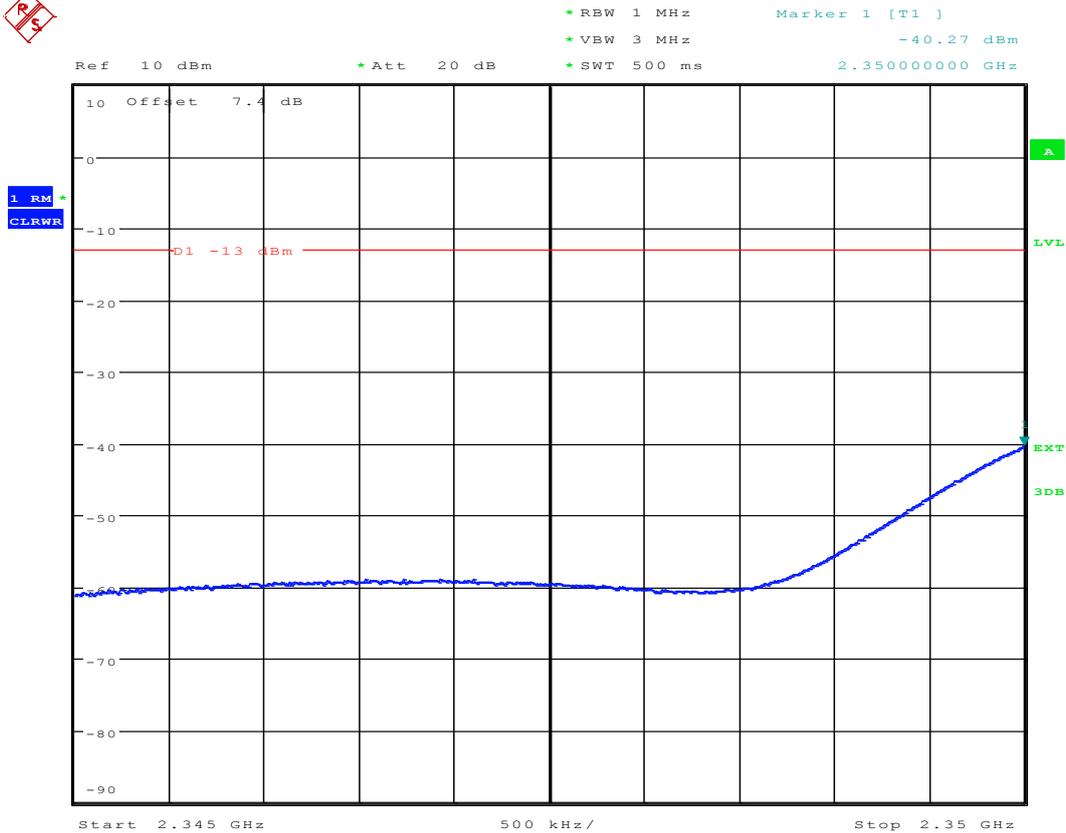
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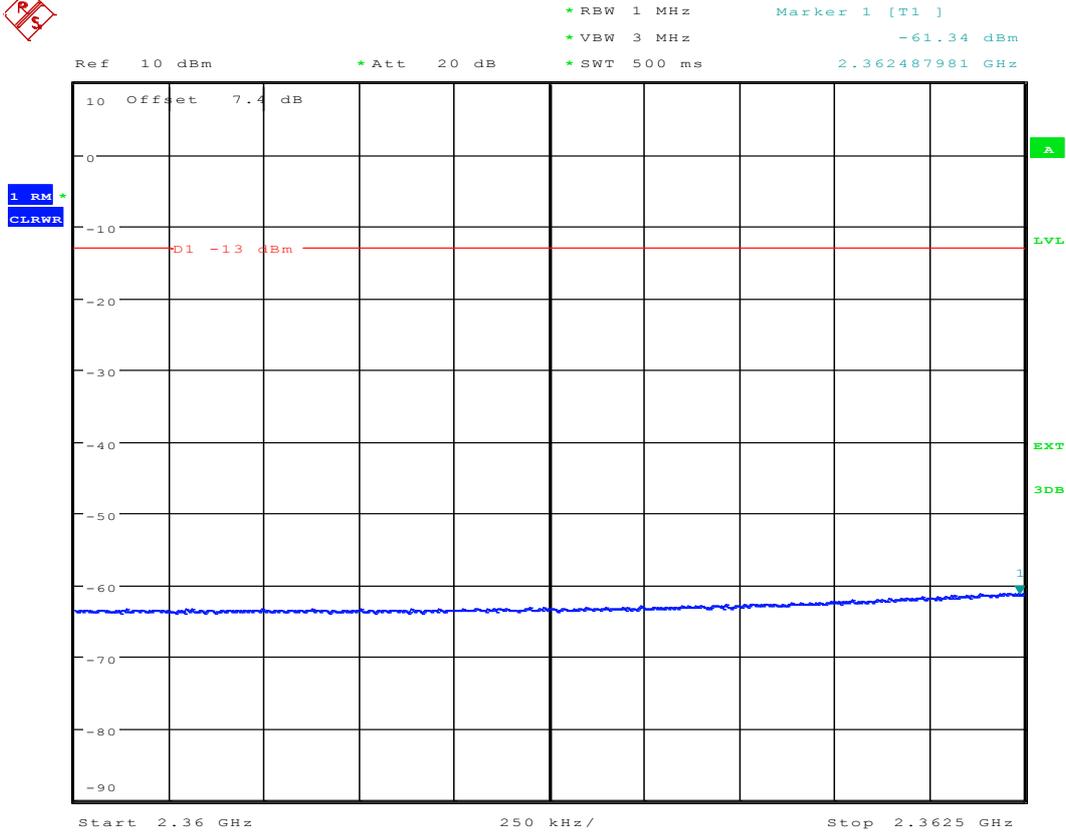
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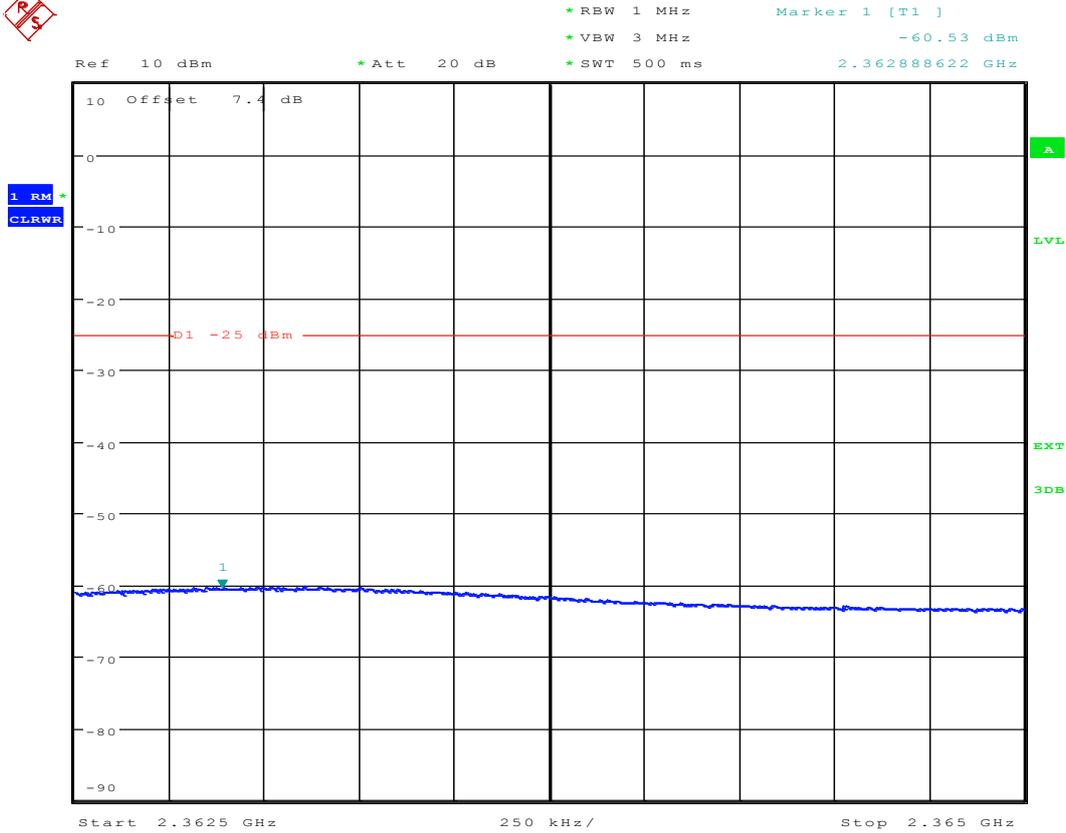
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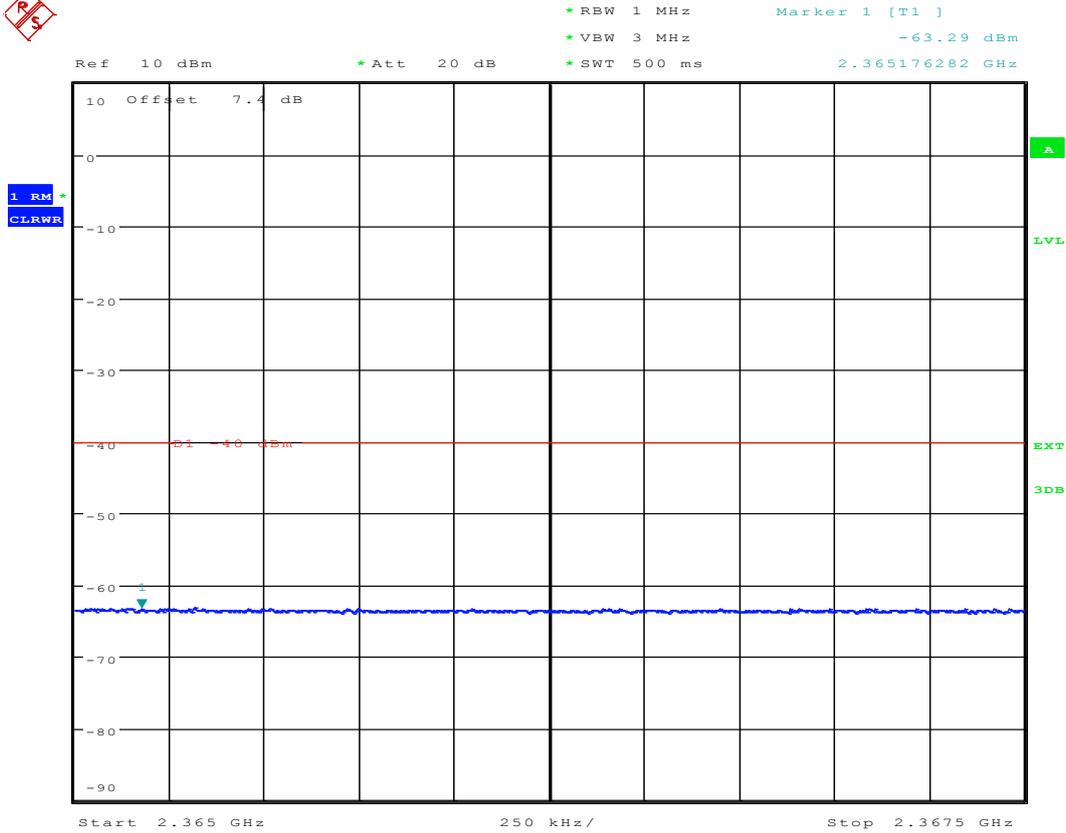
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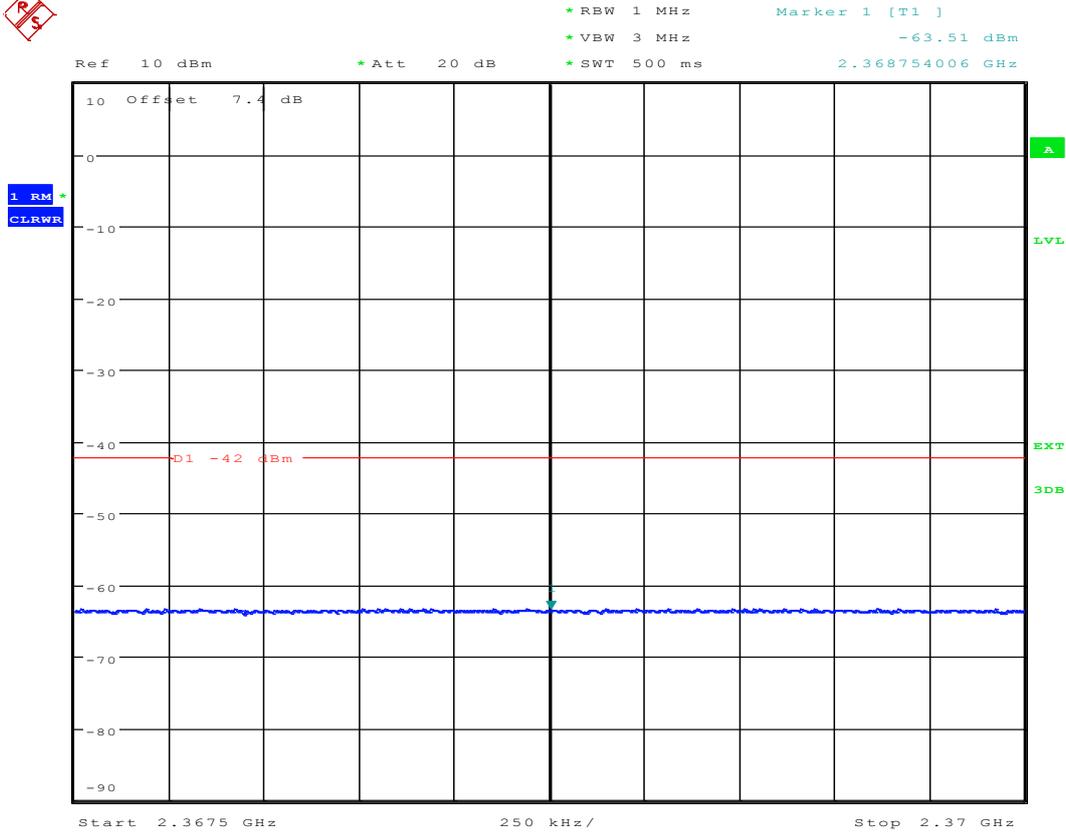
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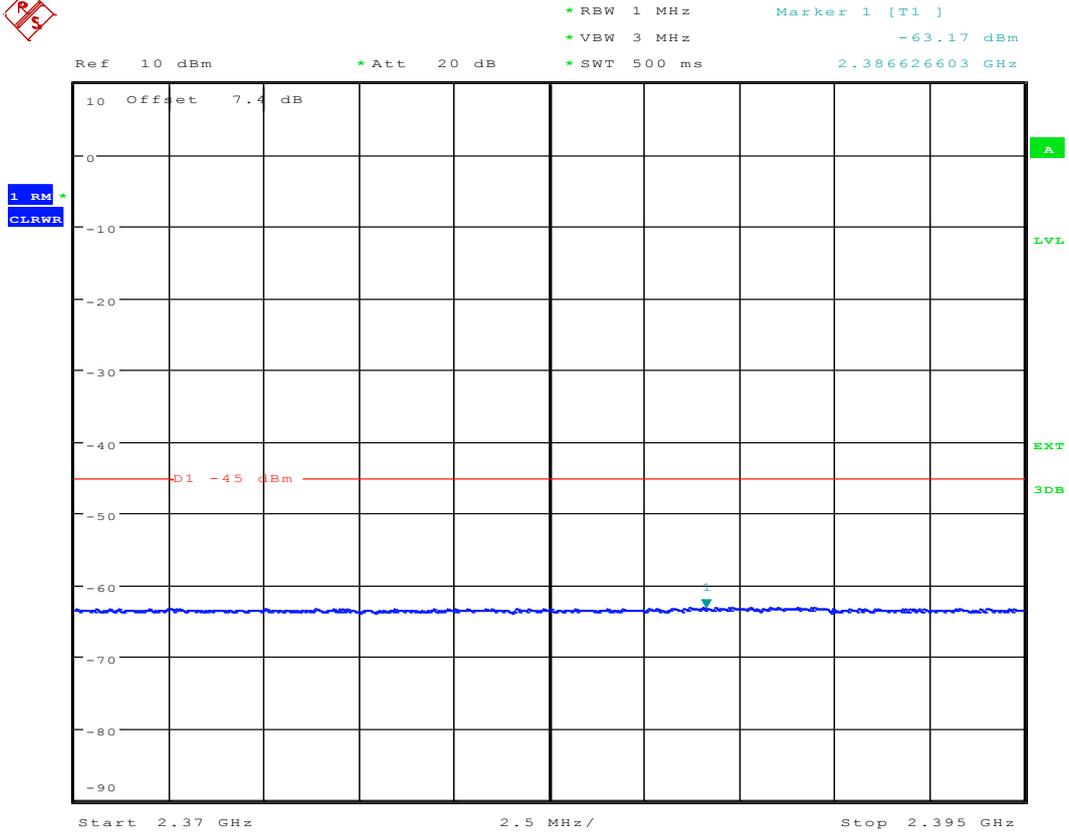
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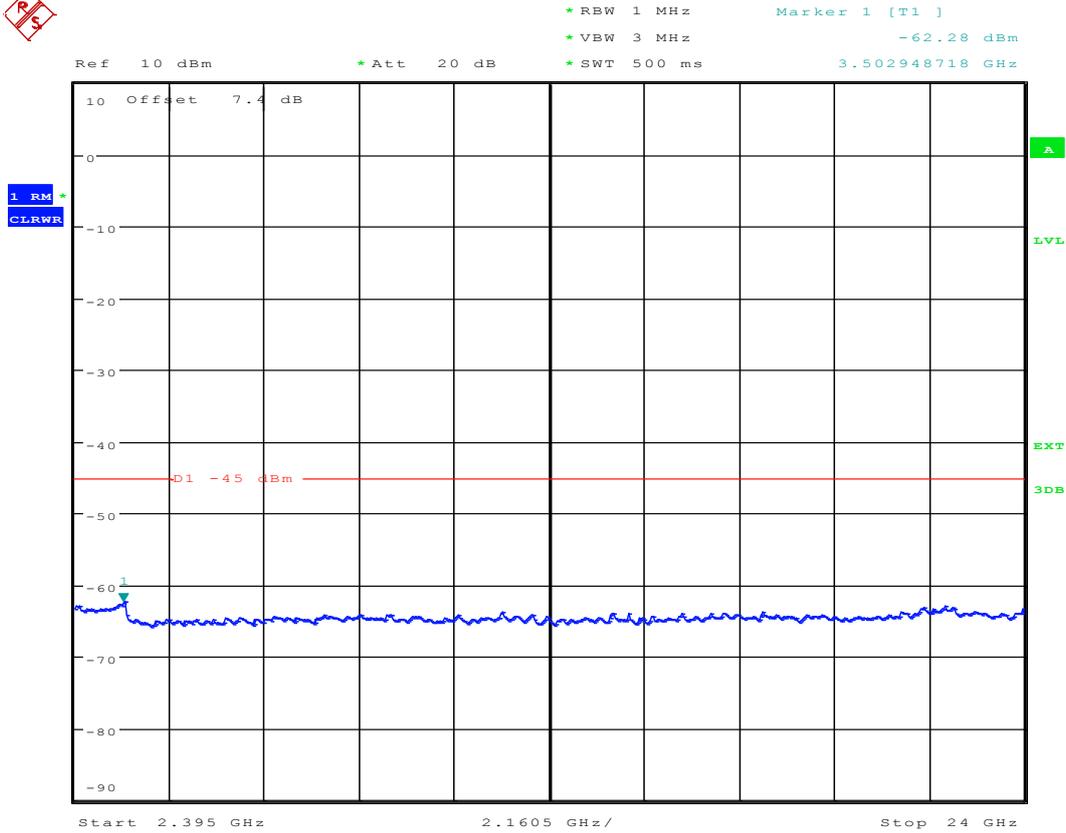
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Date: 24.JUN.2015 19:48:33



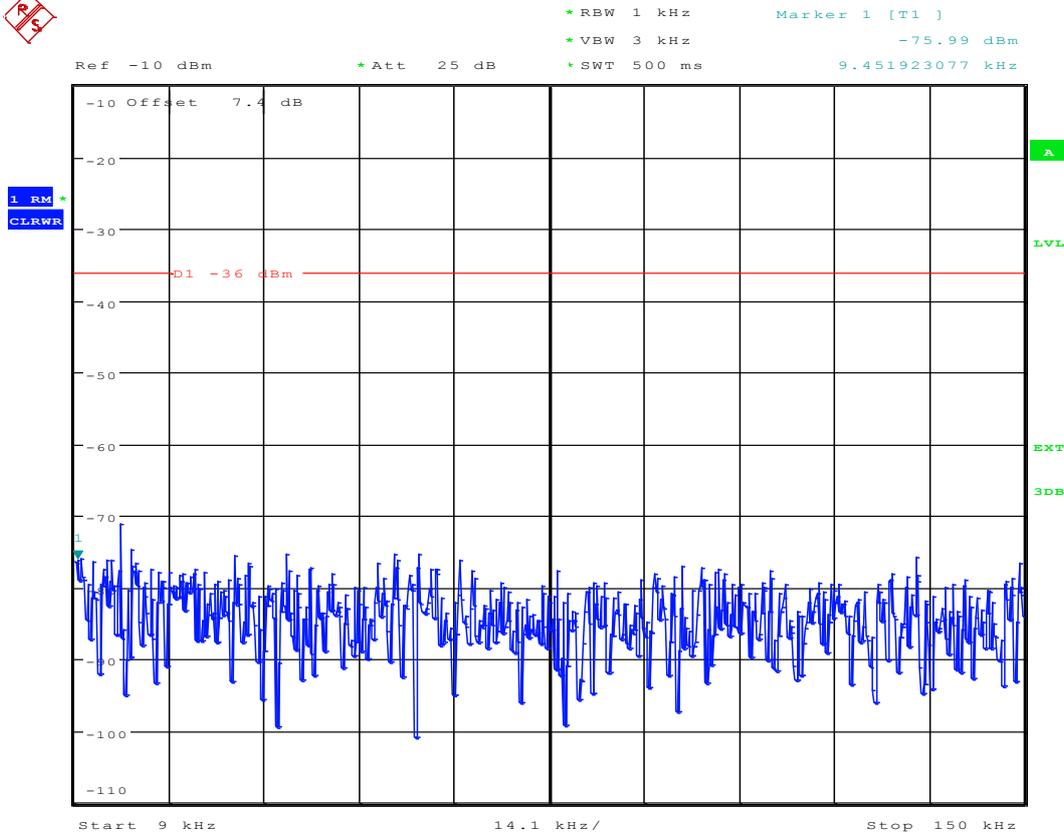
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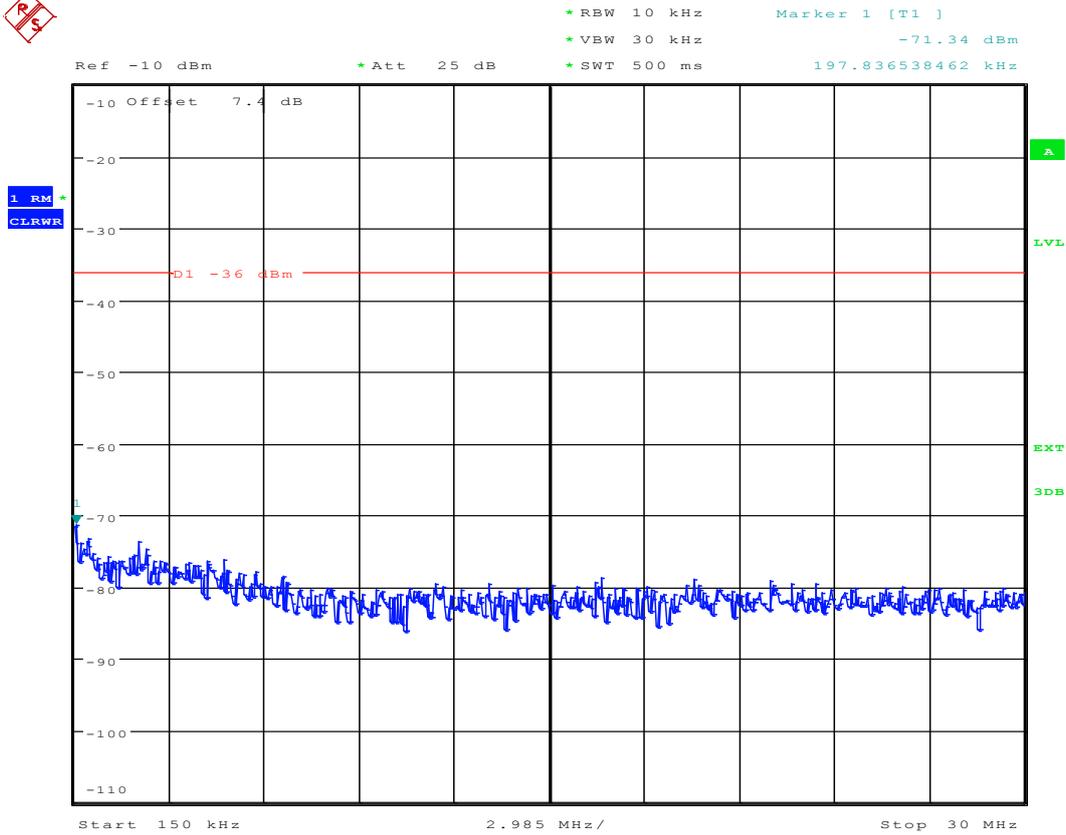
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2.2 1L_5M_TM1.1_T

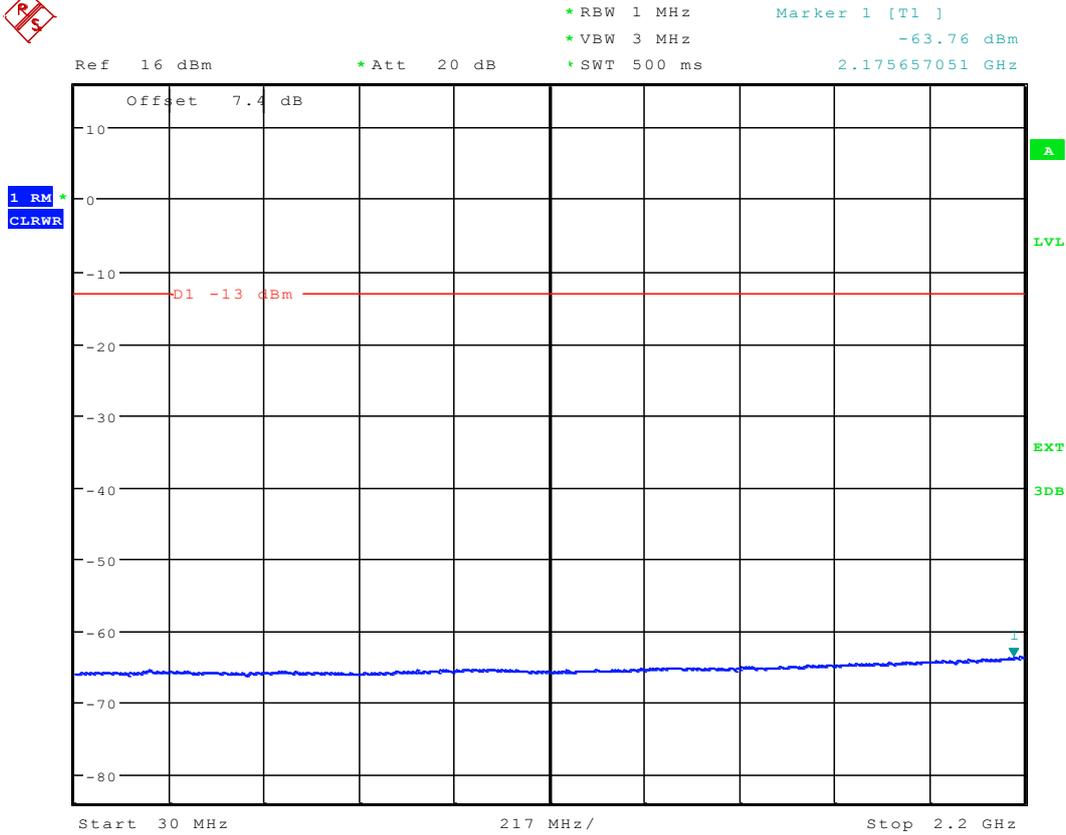
Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
0.009	0.15	0.001	RMS	<-36	-36	Pass
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2200	2285	1	RMS	<-45	-45	Pass
2285	2287.5	1	RMS	<-42	-42	Pass
2287.5	2300	1	RMS	<-40	-40	Pass
2300	2305	1	RMS	<-13	-13	Pass
2305	2320	1	RMS	<-13	-13	Pass
2320	2345	1	RMS	<-45	-45	Pass
2345	2350	1	RMS	<-13	-13	Pass
2360	2362.5	1	RMS	<-13	-13	Pass
2362.5	2365	1	RMS	<-25	-25	Pass
2365	2367.5	1	RMS	<-40	-40	Pass
2367.5	2370	1	RMS	<-42	-42	Pass
2370	2395	1	RMS	<-45	-45	Pass
2395	24000	1	RMS	<-13	-13	Pass



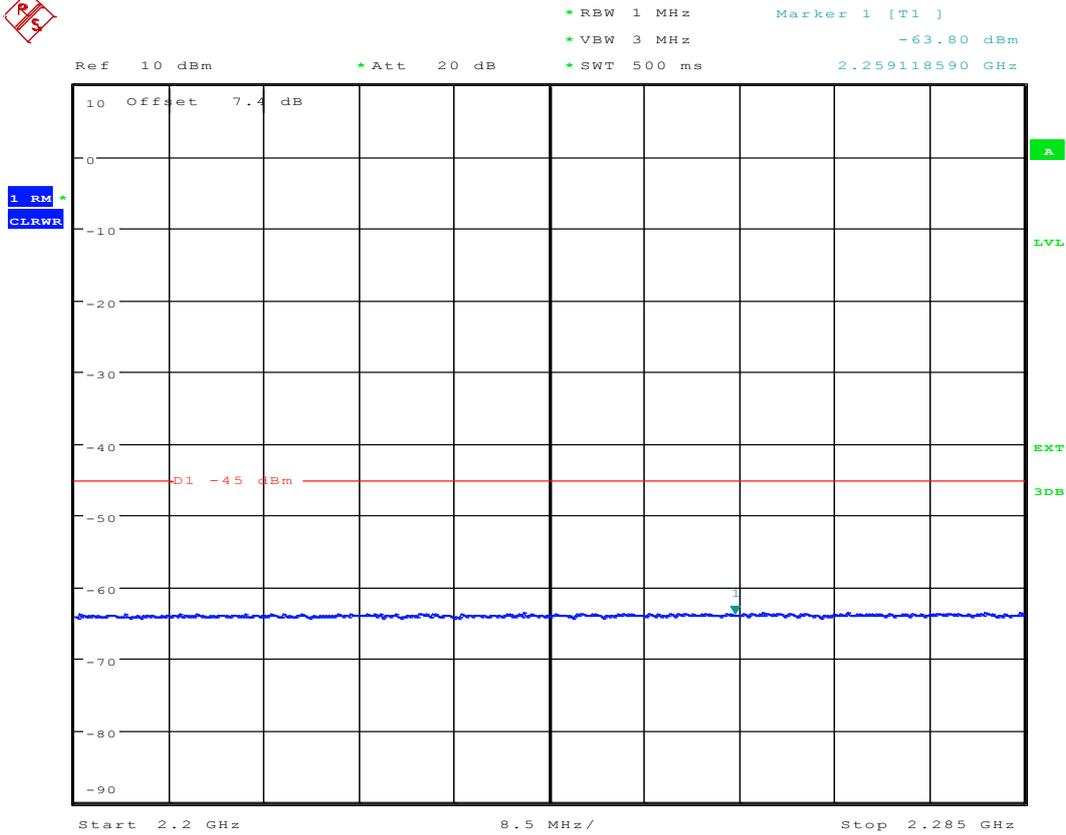
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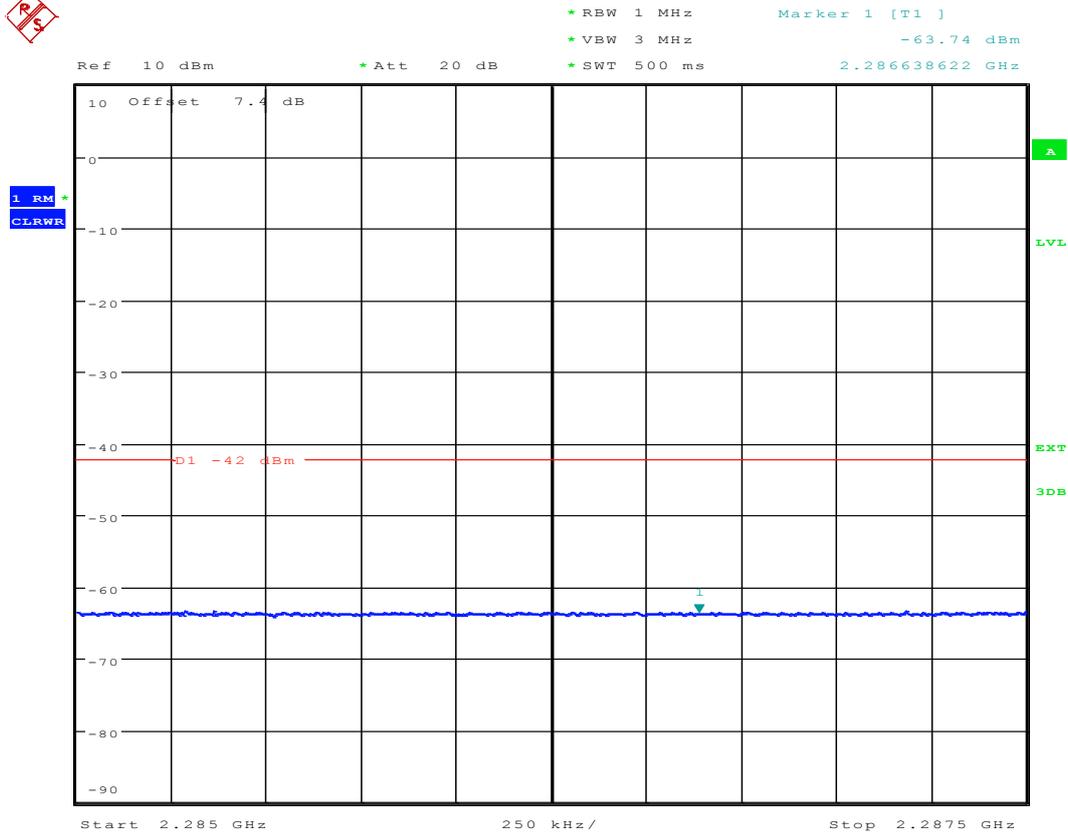
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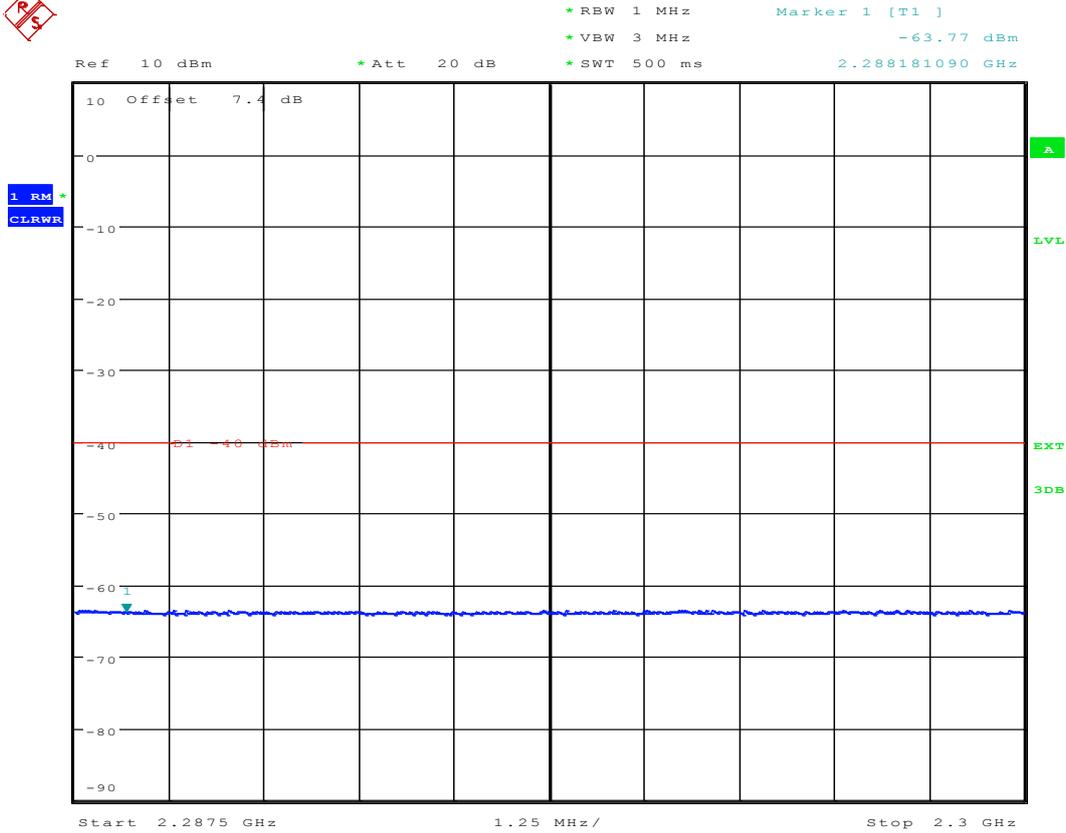
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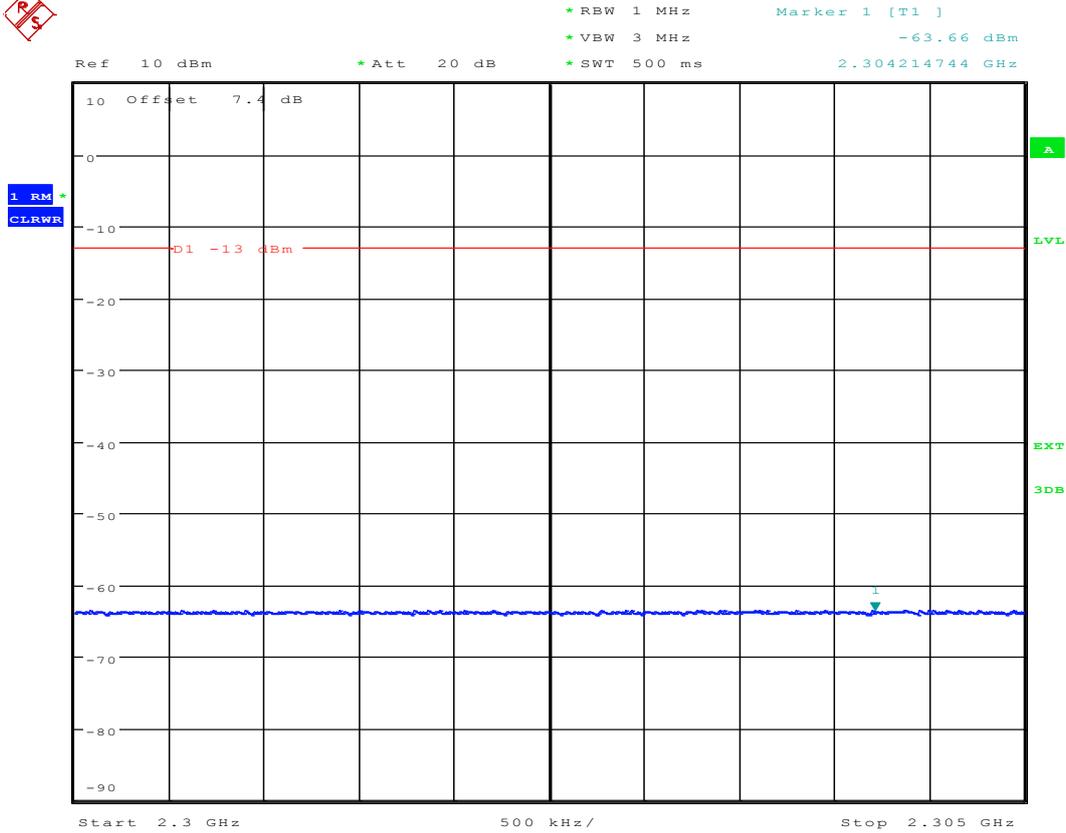
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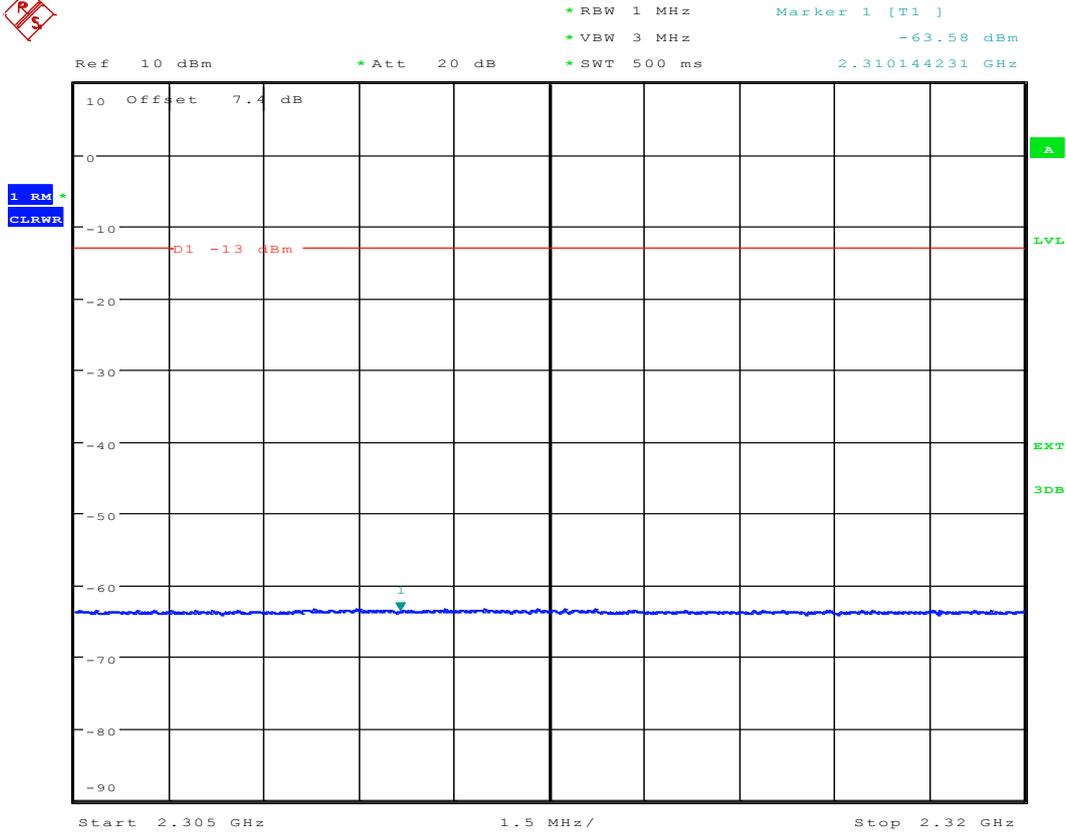
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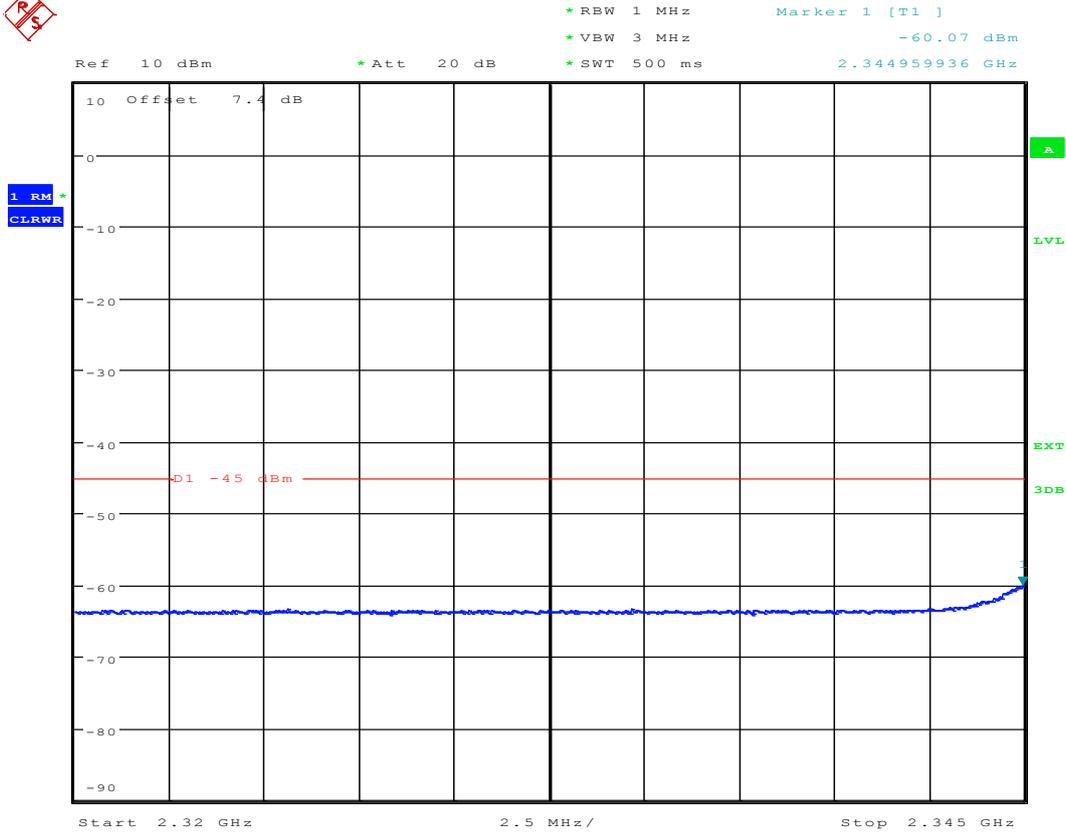
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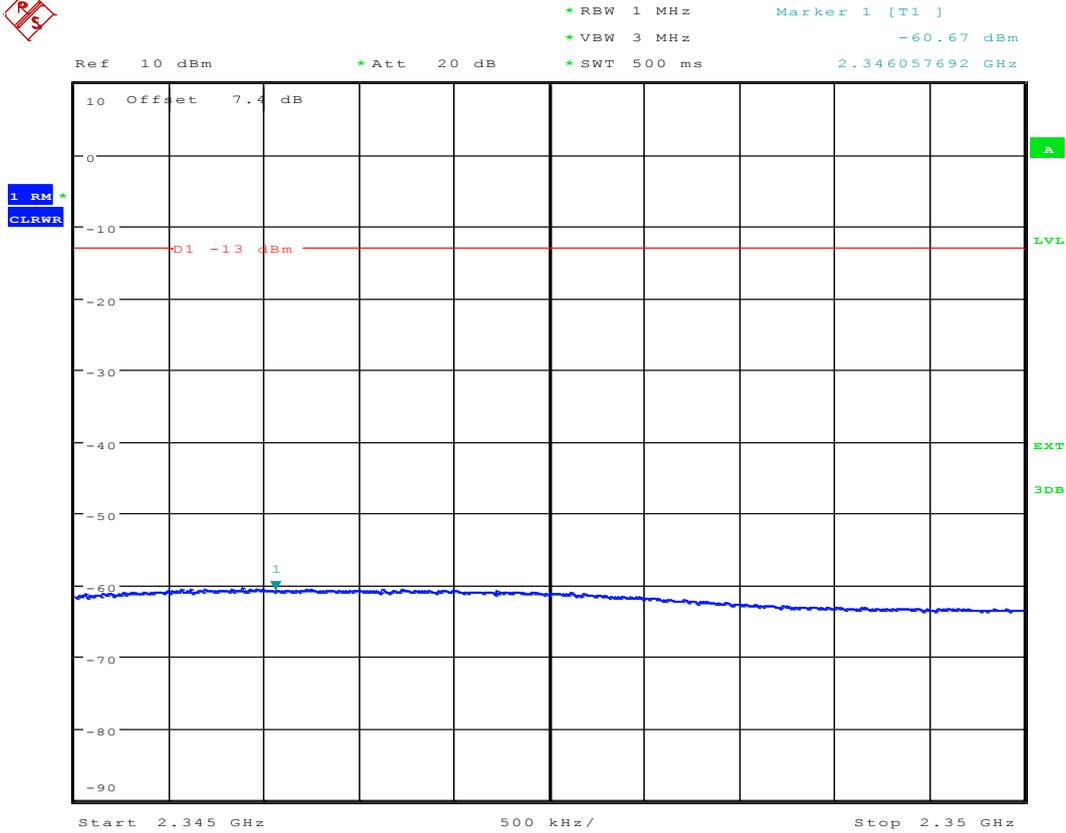
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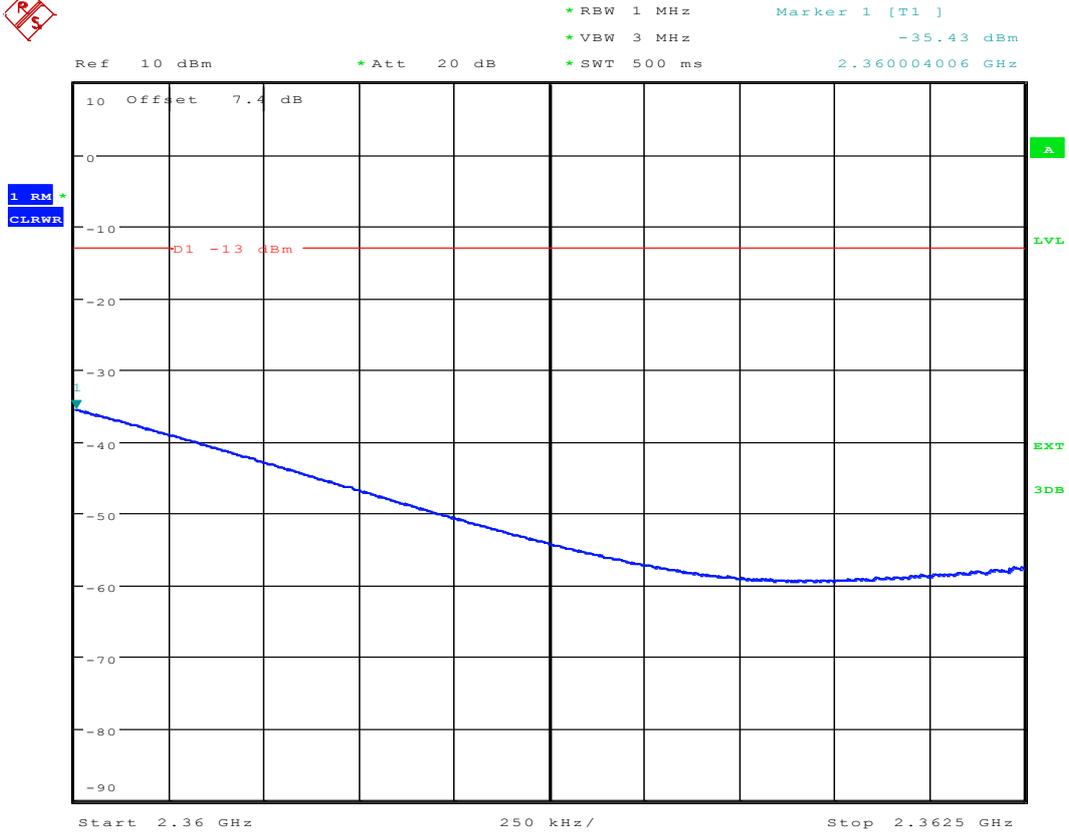
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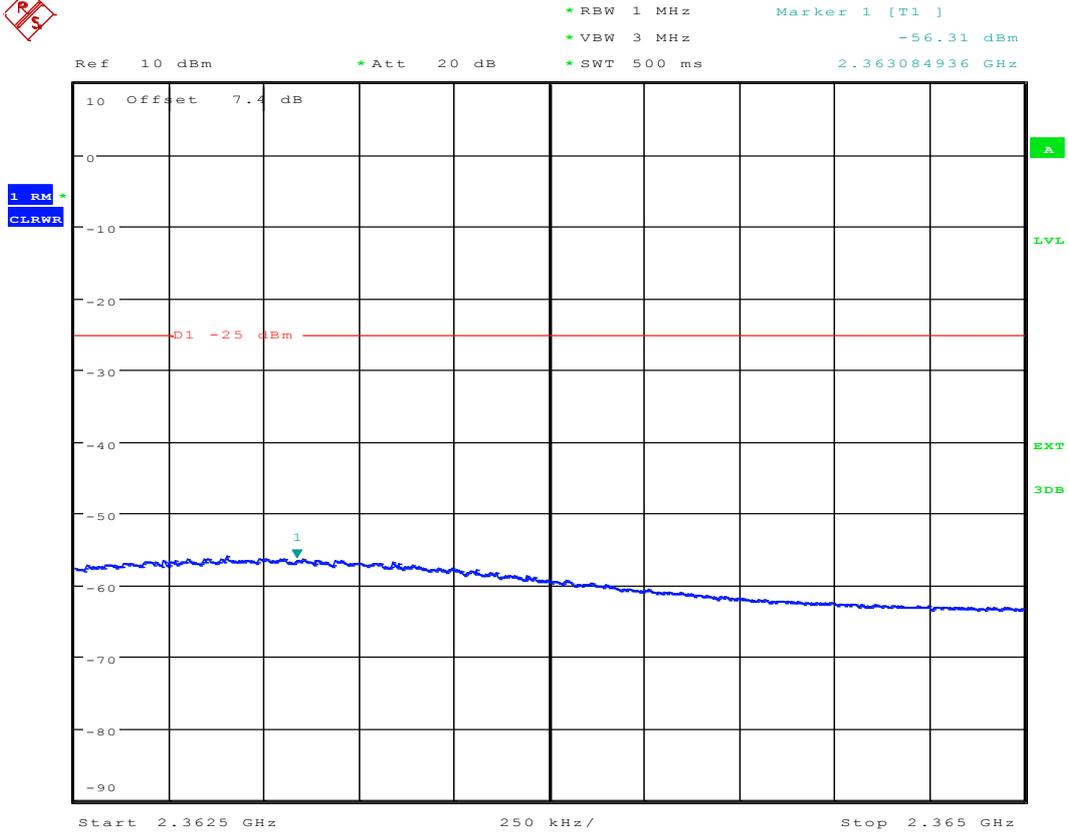
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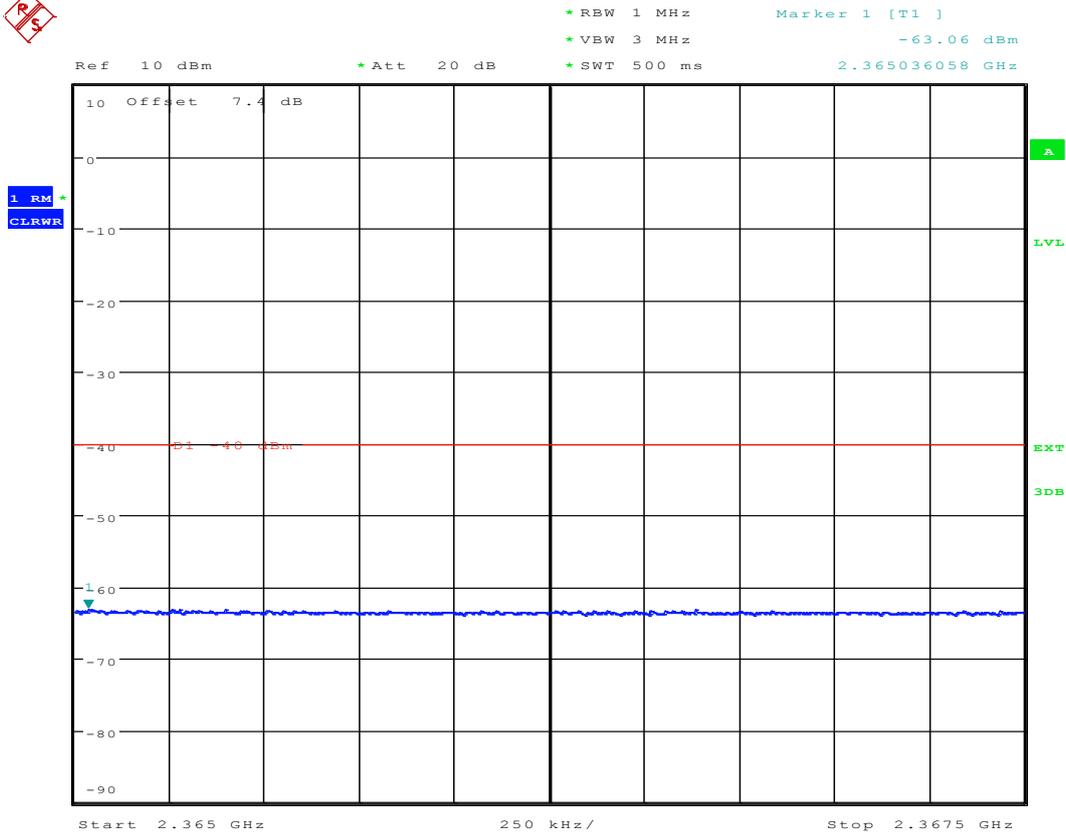
Date: 24.JUN.2015 19:56:00



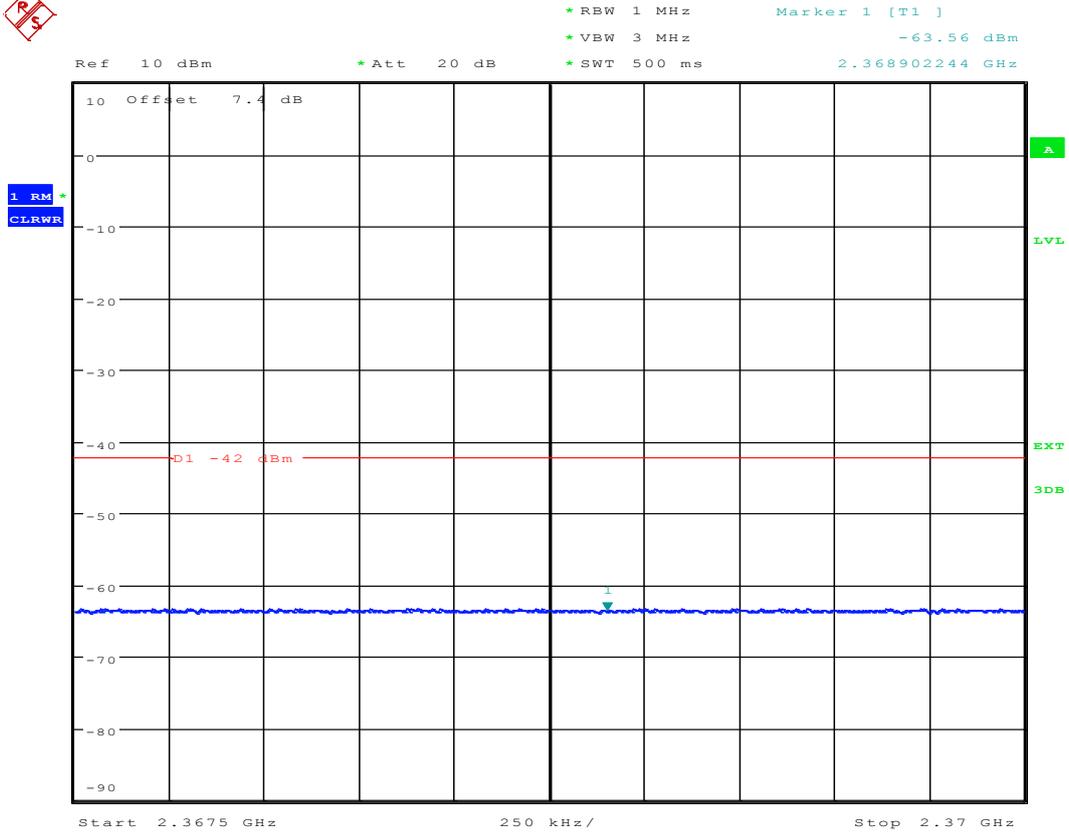
Date: 24.JUN.2015 19:56:34



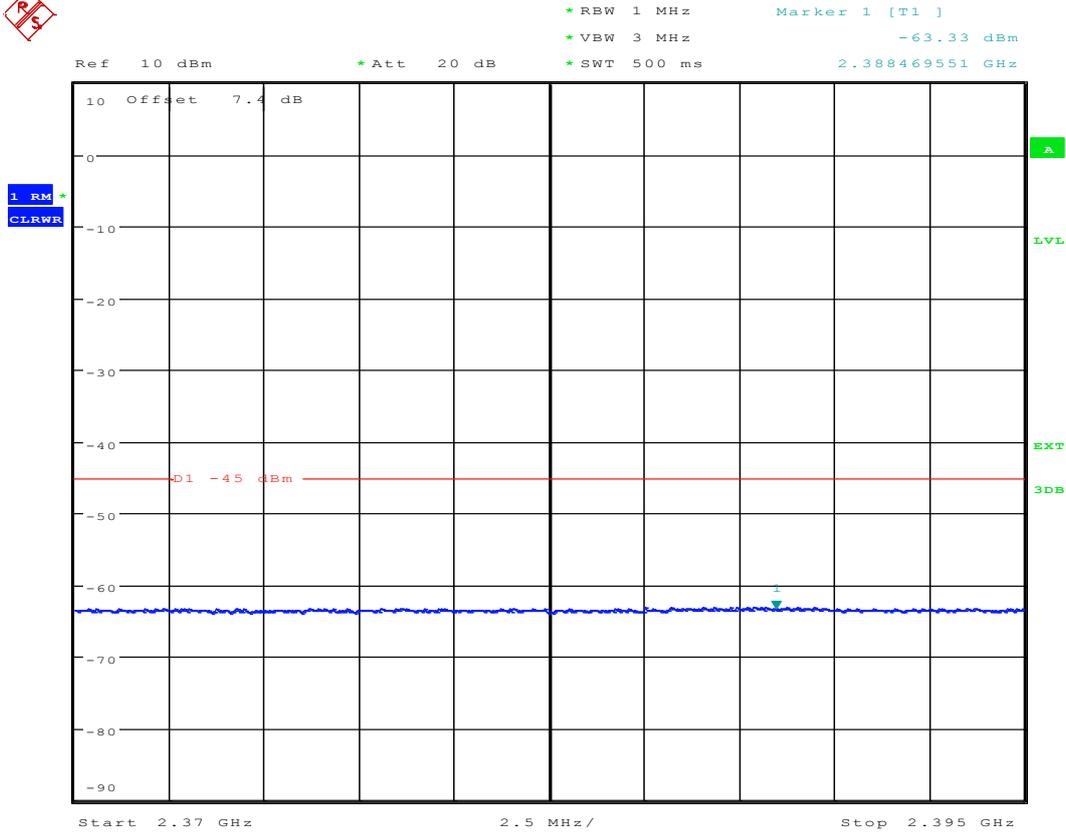
Date: 24.JUN.2015 20:02:50



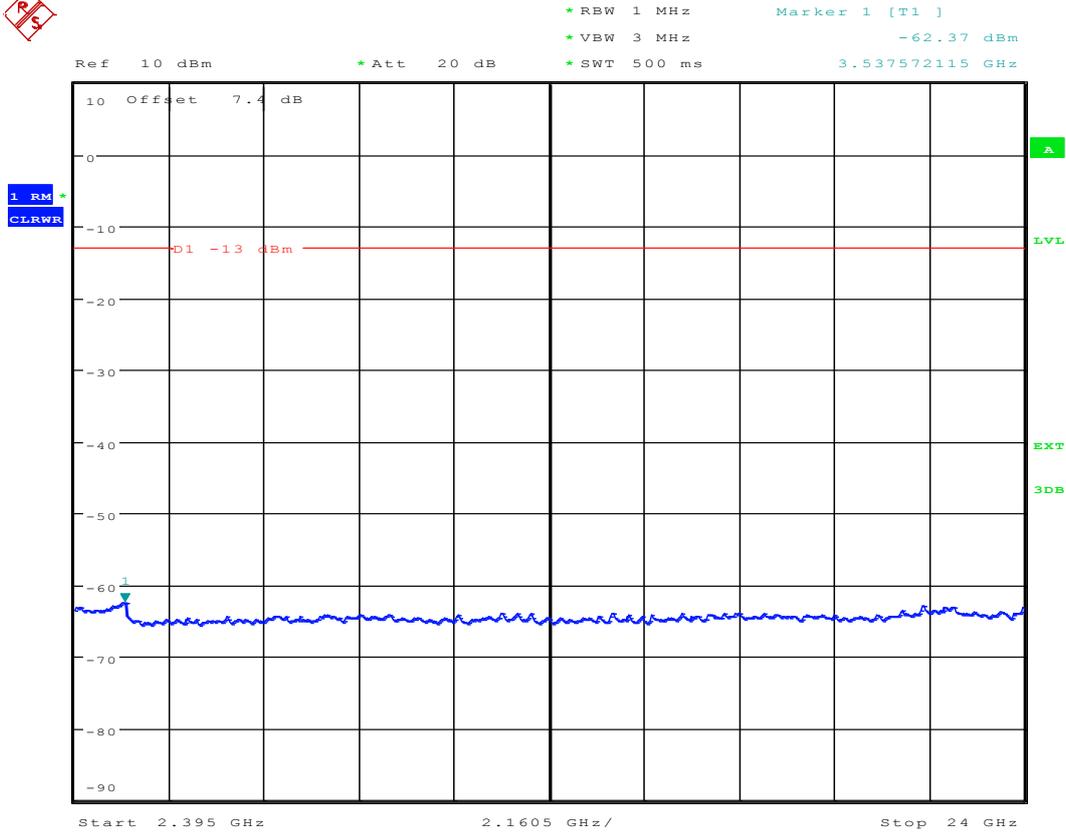
Date: 24.JUN.2015 20:02:13



Date: 24.JUN.2015 20:01:02



Date: 24.JUN.2015 19:59:27

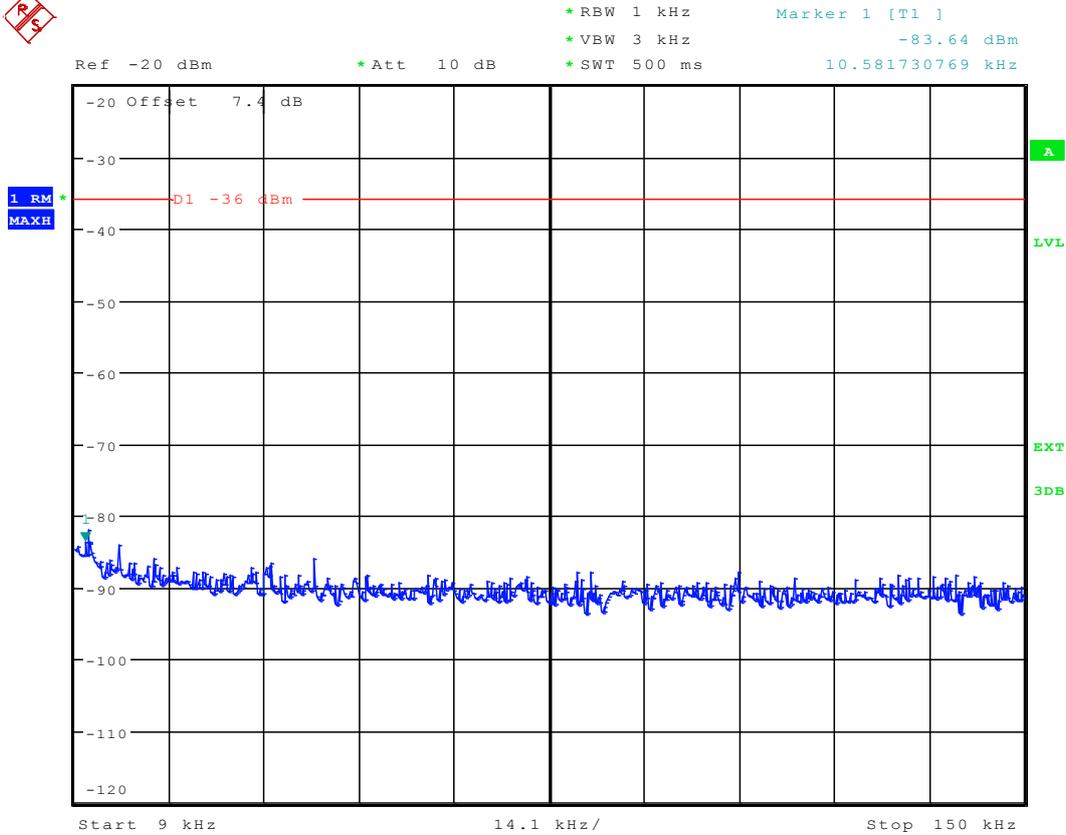


Date: 24.JUN.2015 19:57:14

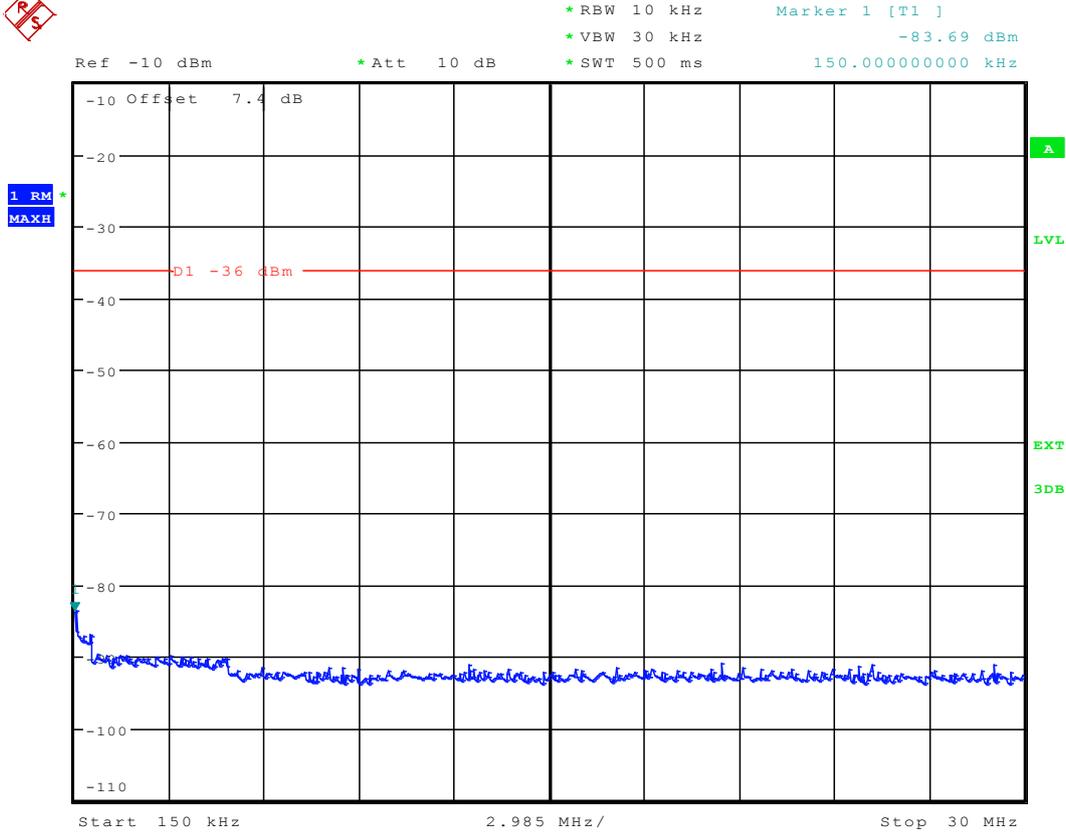


2.3 1L_10M_TM1.1_M

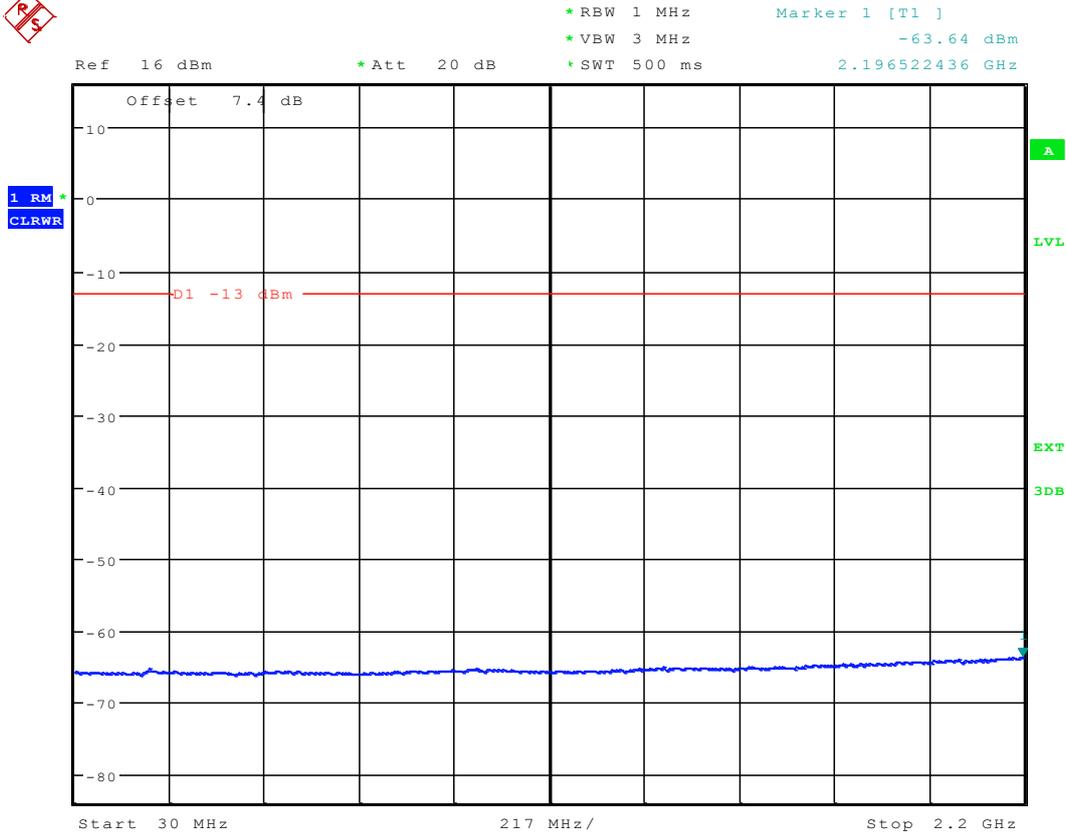
Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
0.009	0.15	0.001	RMS	<-36	-36	Pass
0.15	30	0.01	RMS	<-36	-36	Pass
30	2200	1	RMS	<-13	-13	Pass
2200	2285	1	RMS	<-45	-45	Pass
2285	2287.5	1	RMS	<-42	-42	Pass
2287.5	2300	1	RMS	<-40	-40	Pass
2300	2305	1	RMS	<-13	-13	Pass
2305	2320	1	RMS	<-13	-13	Pass
2320	2345	1	RMS	<-45	-45	Pass
2345	2350	1	RMS	<-13	-13	Pass
2360	2362.5	1	RMS	<-13	-13	Pass
2362.5	2365	1	RMS	<-25	-25	Pass
2365	2367.5	1	RMS	<-40	-40	Pass
2367.5	2370	1	RMS	<-42	-42	Pass
2370	2395	1	RMS	<-45	-45	Pass
2395	24000	1	RMS	<-13	-13	Pass



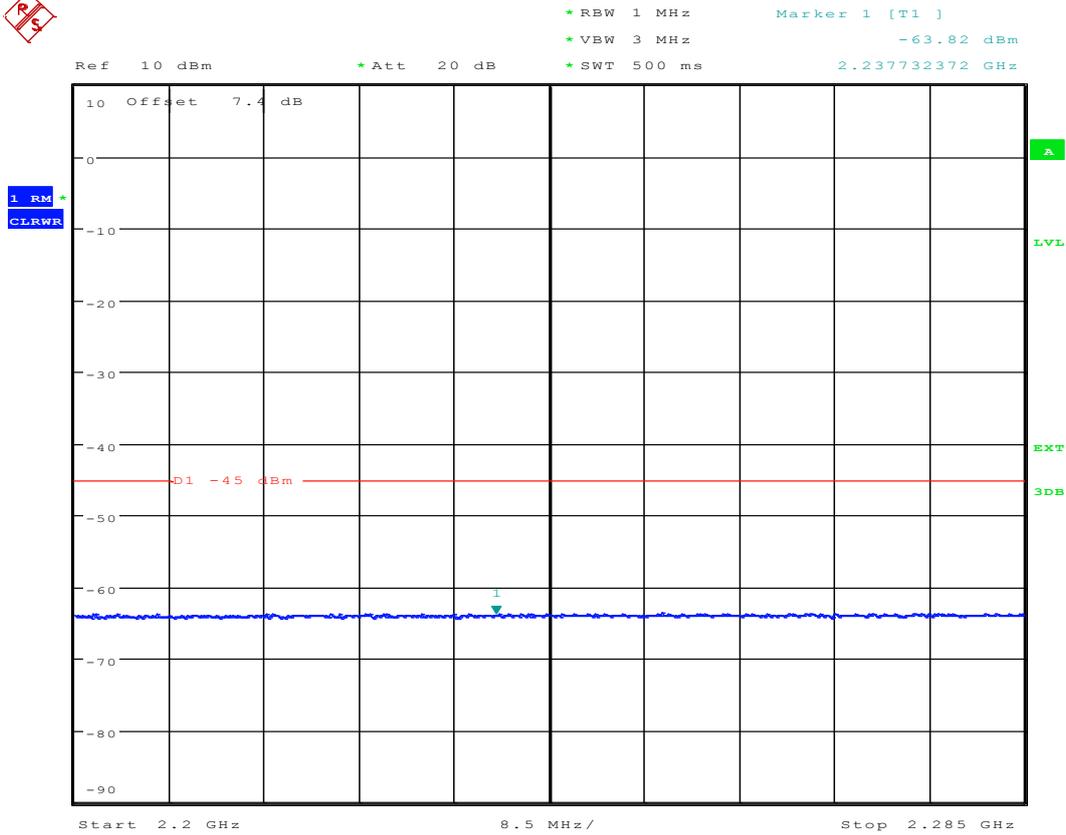
Date: 24.JUN.2015 17:11:59



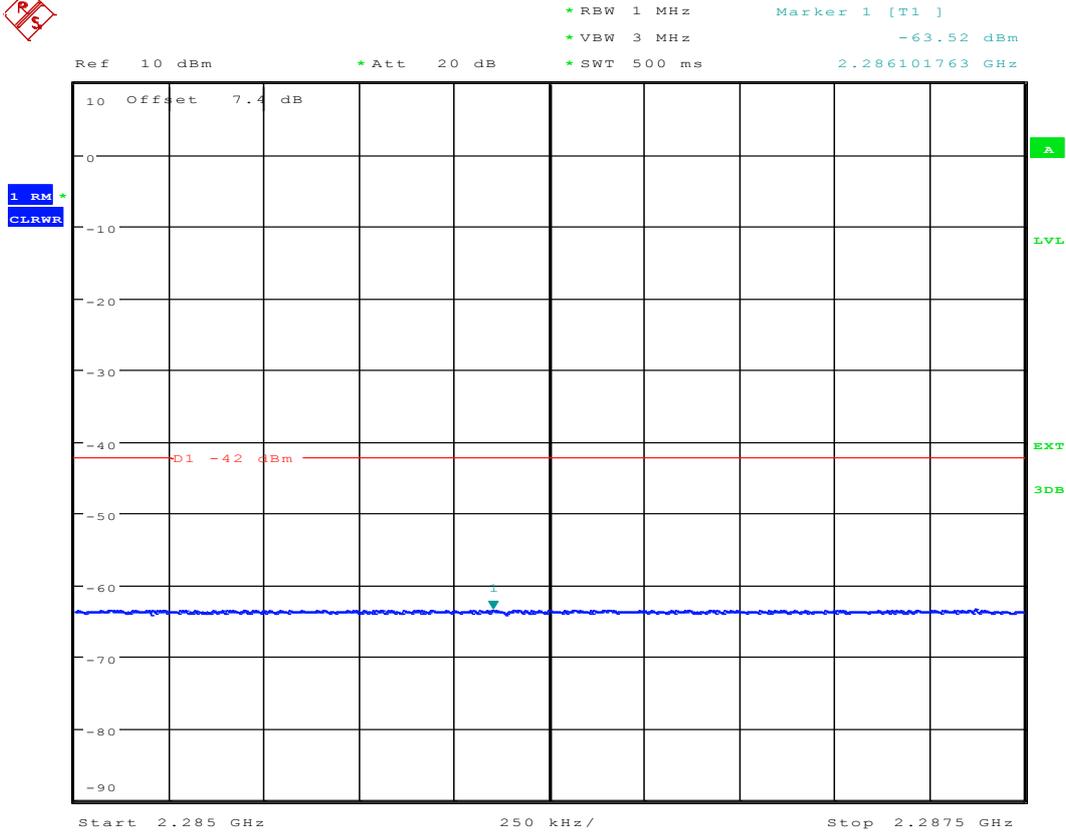
Date: 24.JUN.2015 17:04:01



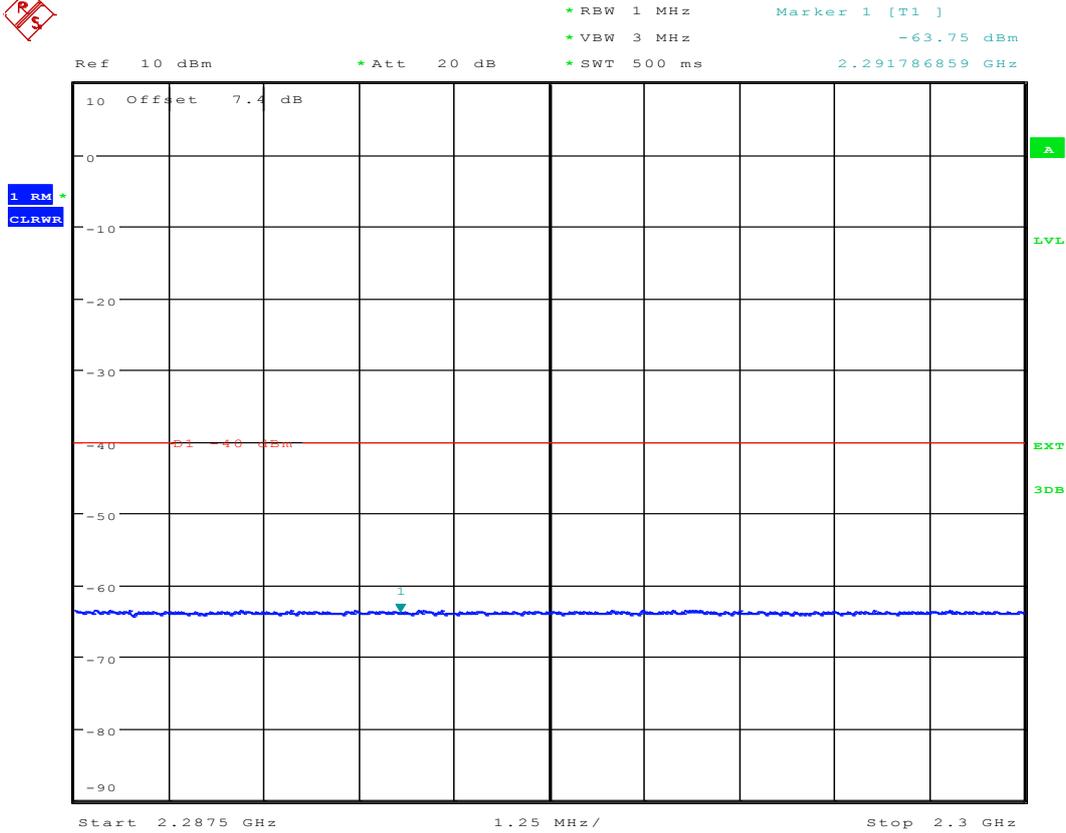
Date: 27.JUN.2015 17:11:15



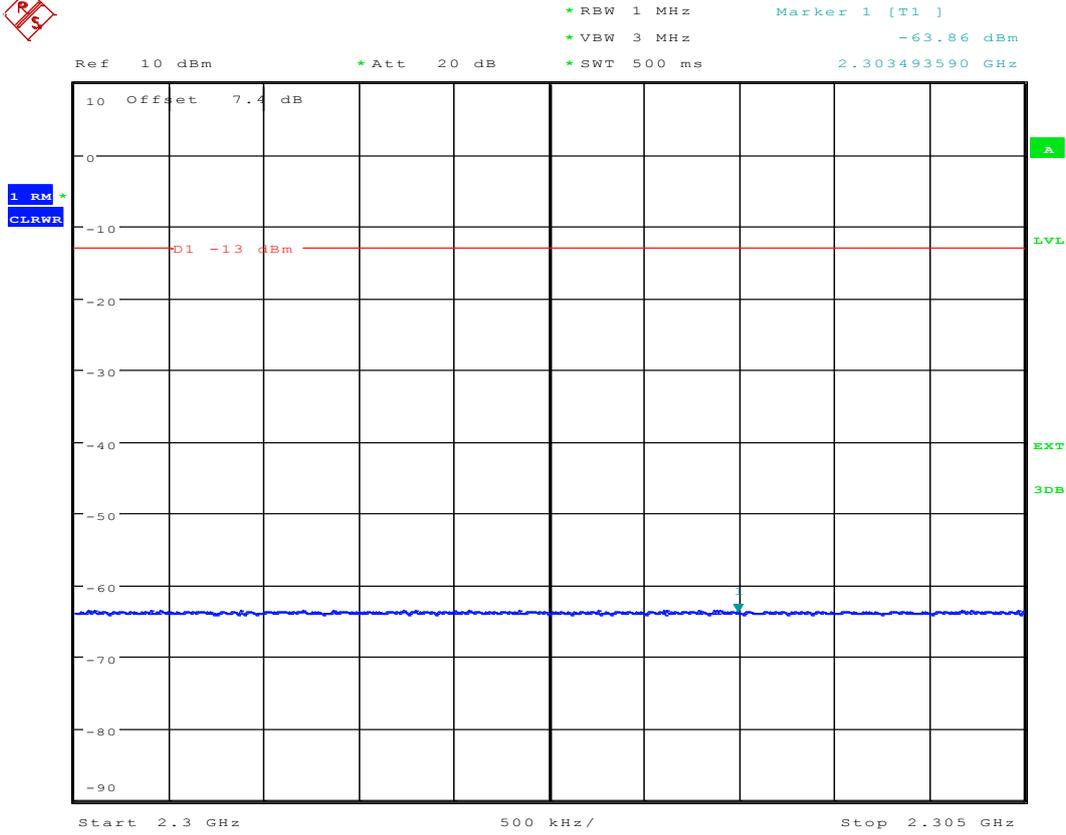
Date: 24.JUN.2015 20:10:28



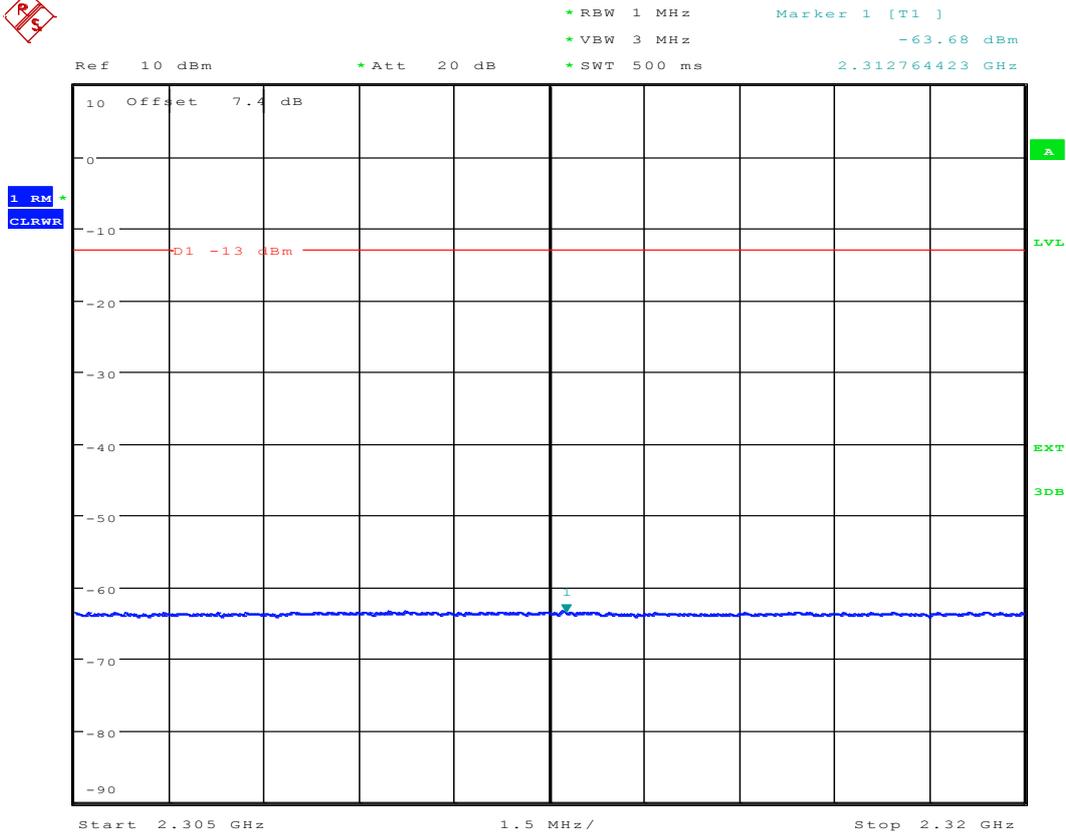
Date: 24.JUN.2015 20:08:47



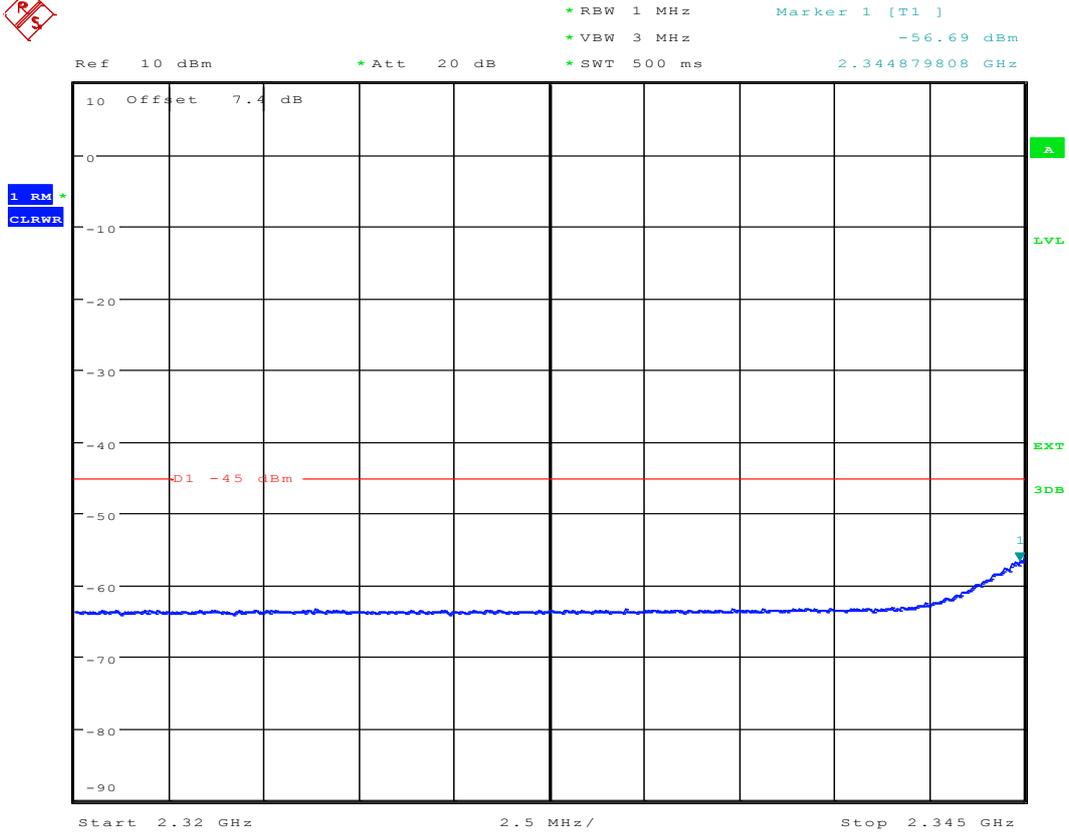
Date: 24.JUN.2015 20:07:35



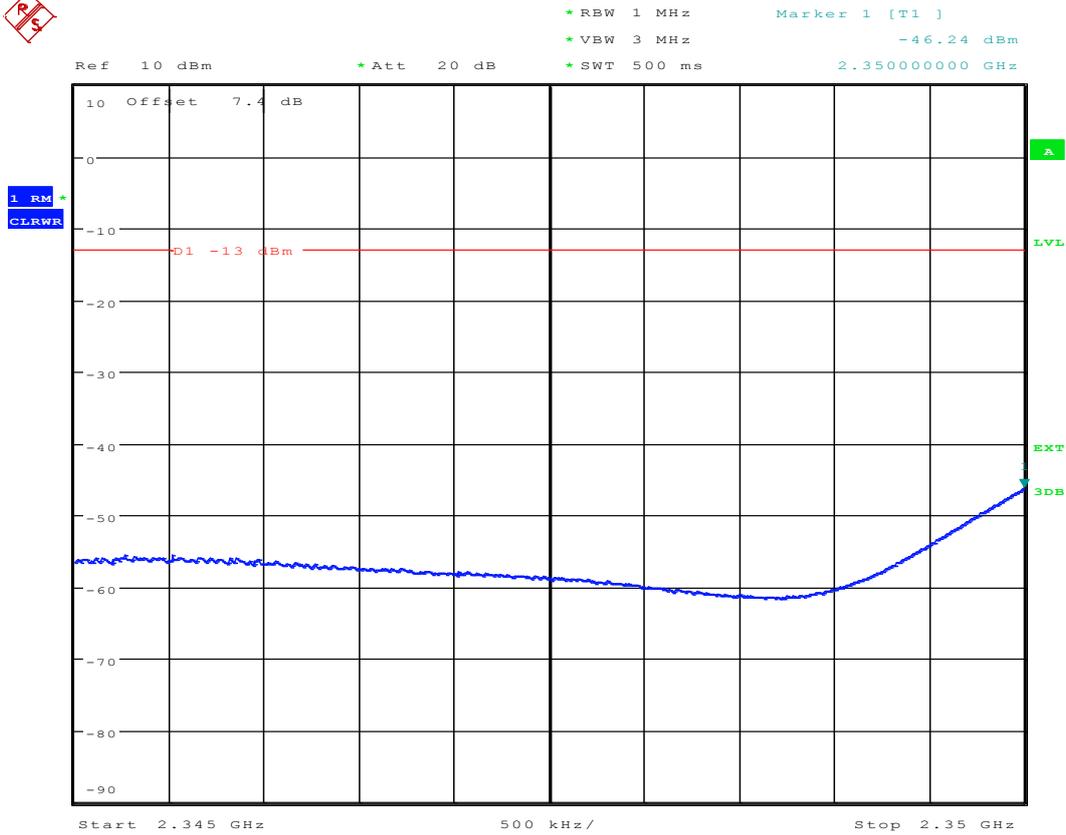
Date: 24.JUN.2015 20:12:34



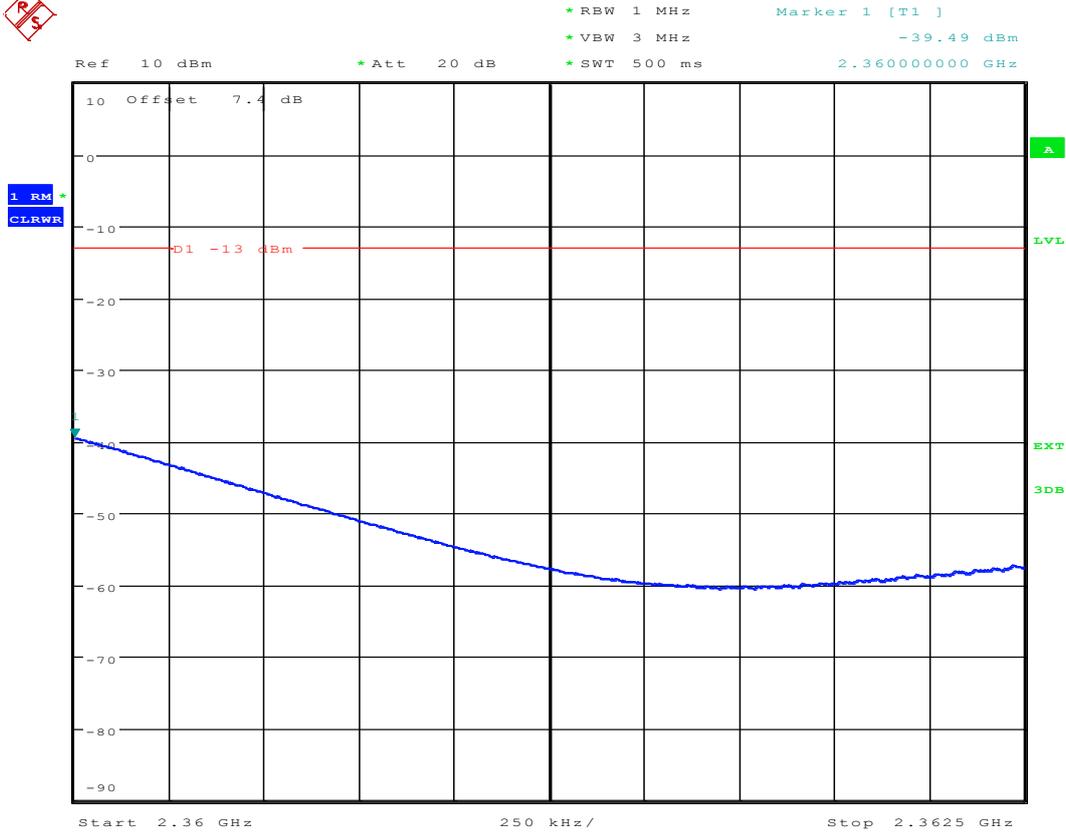
Date: 24.JUN.2015 20:12:59



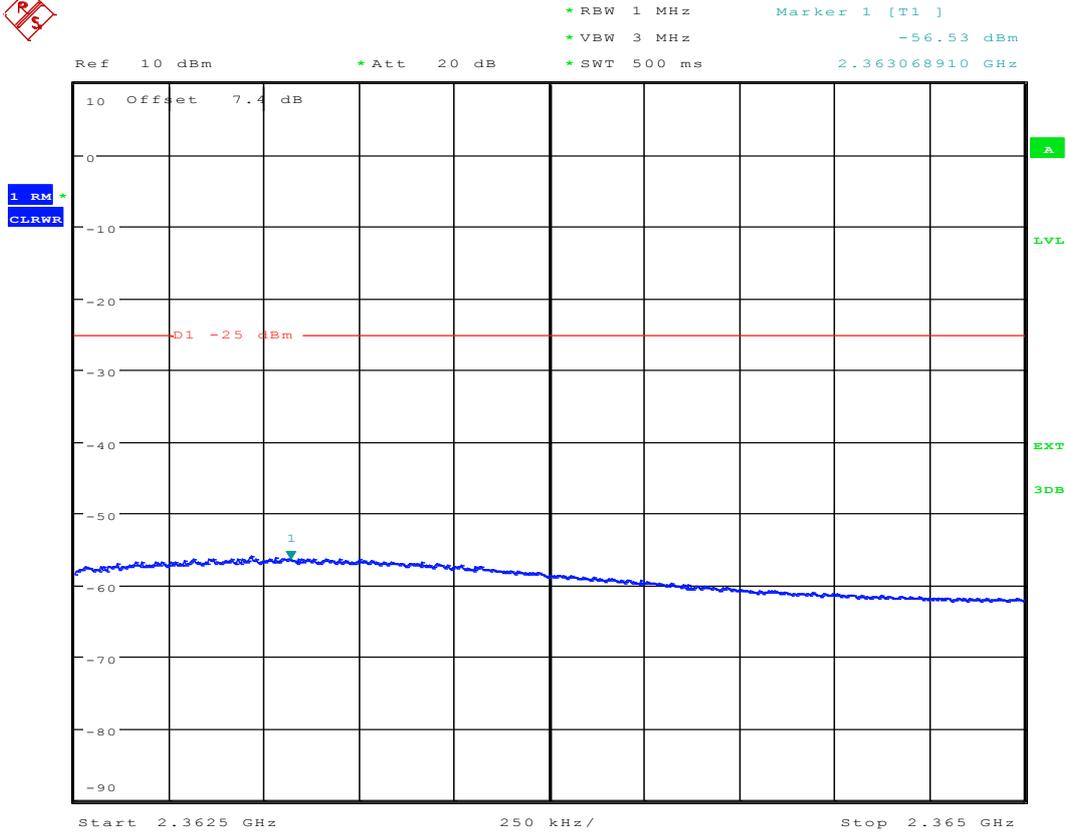
Date: 24.JUN.2015 20:11:03



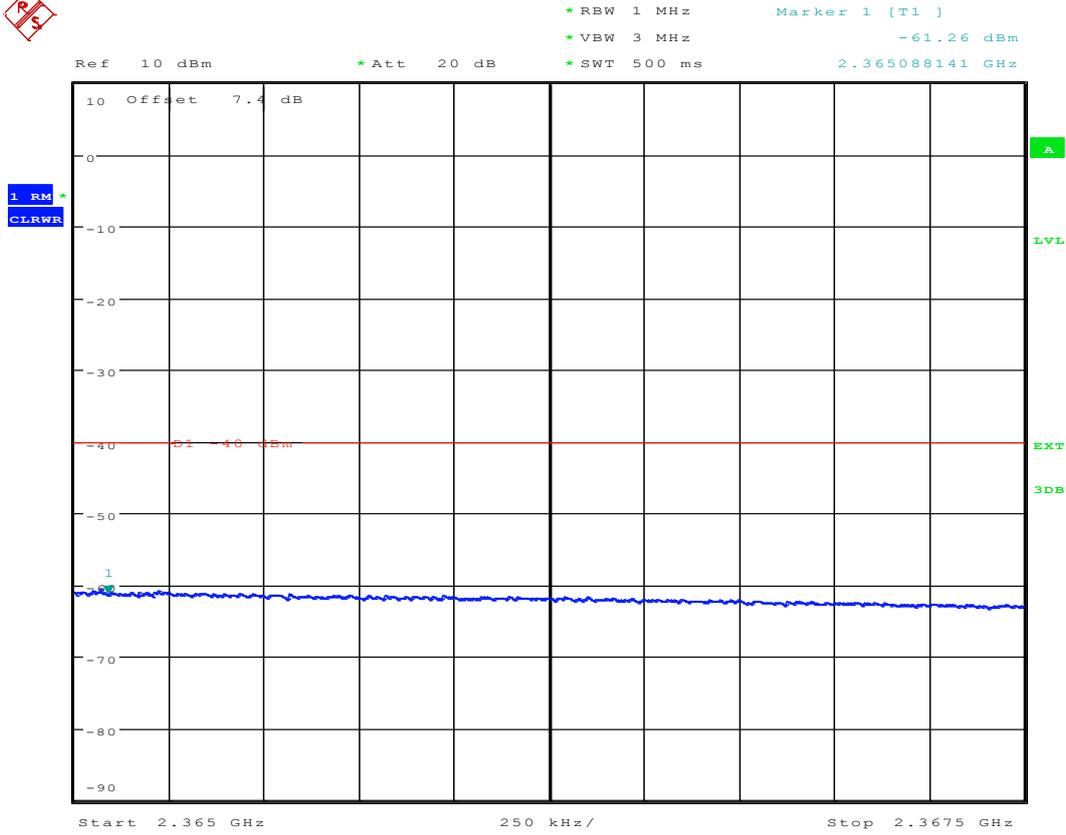
Date: 24.JUN.2015 20:13:38



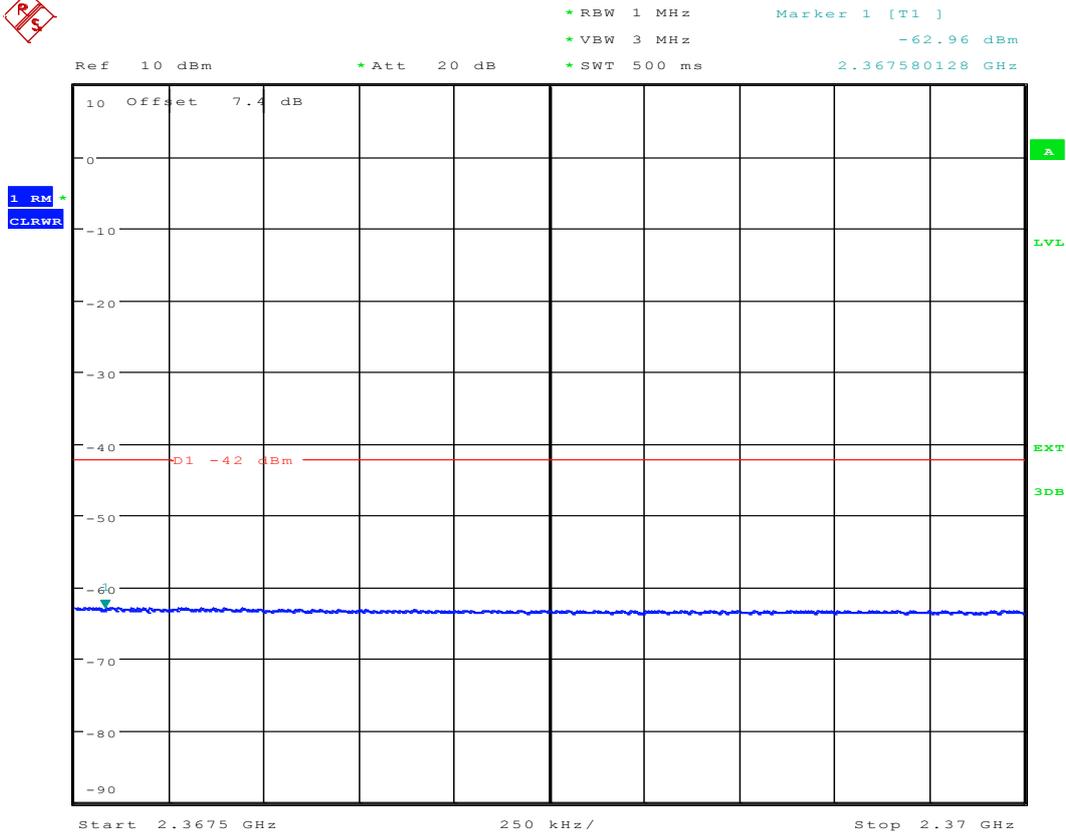
Date: 24.JUN.2015 20:14:02



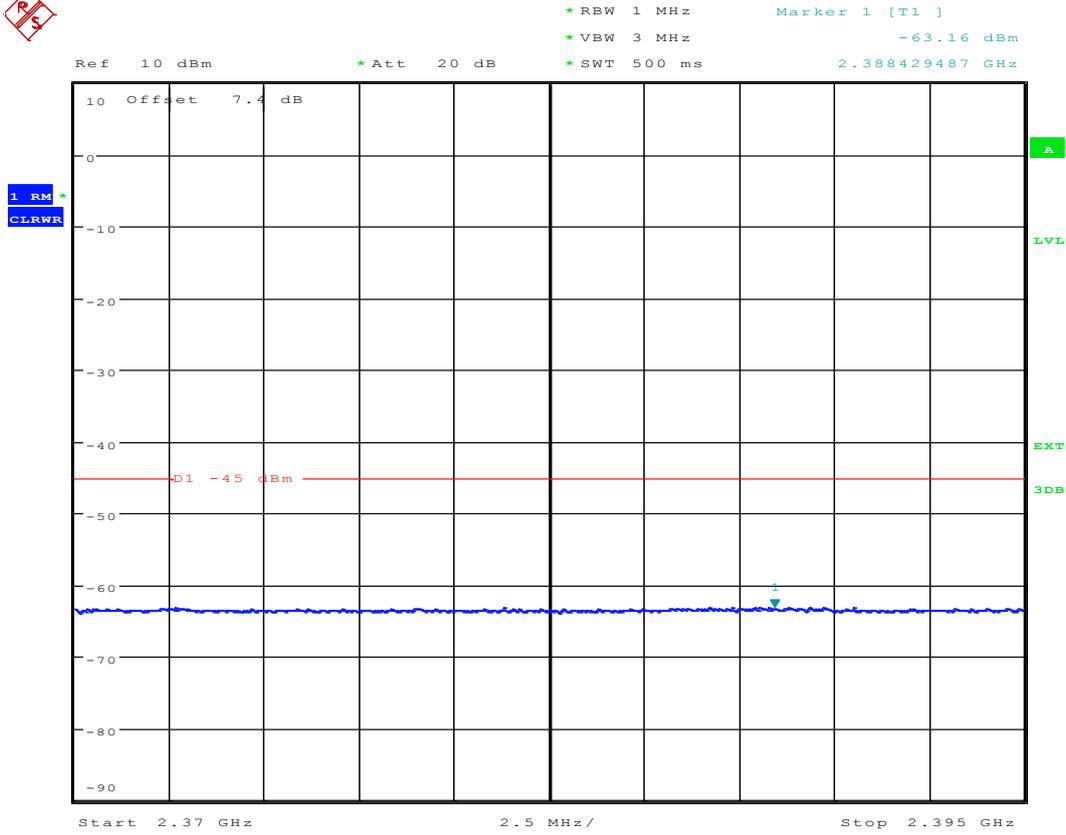
Date: 24.JUN.2015 20:06:13



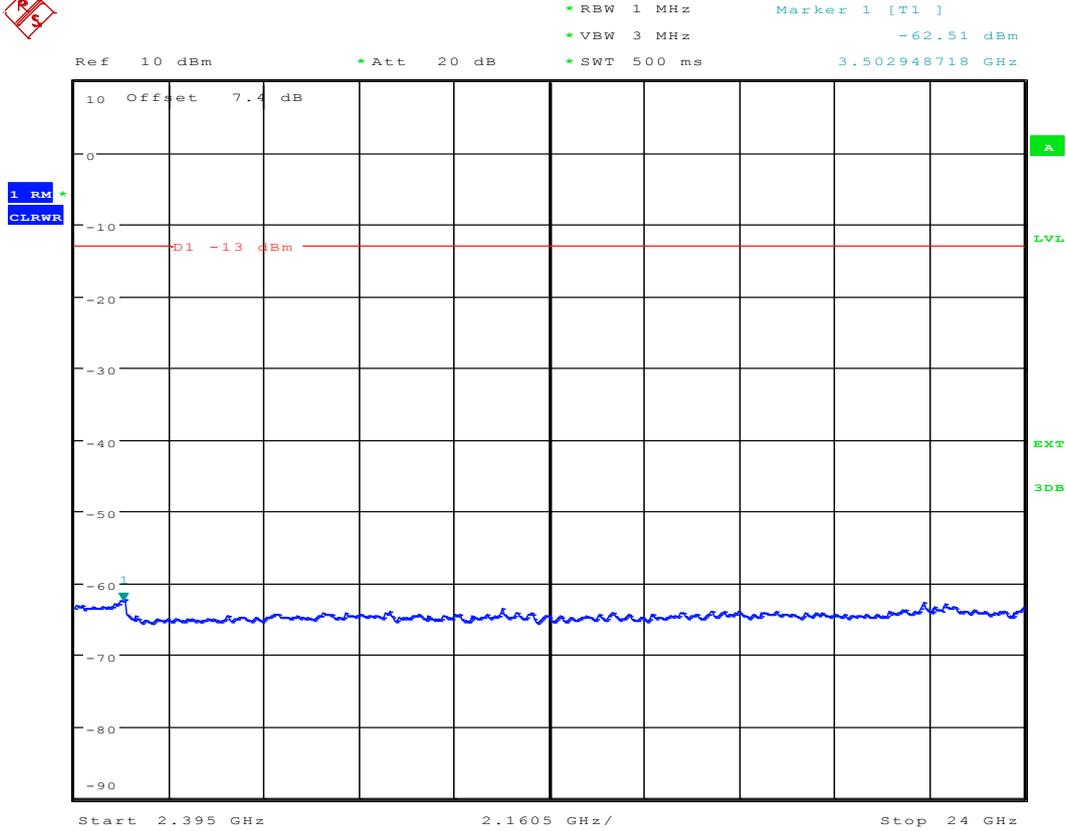
Date: 24.JUN.2015 20:08:10



Date: 24.JUN.2015 20:09:42



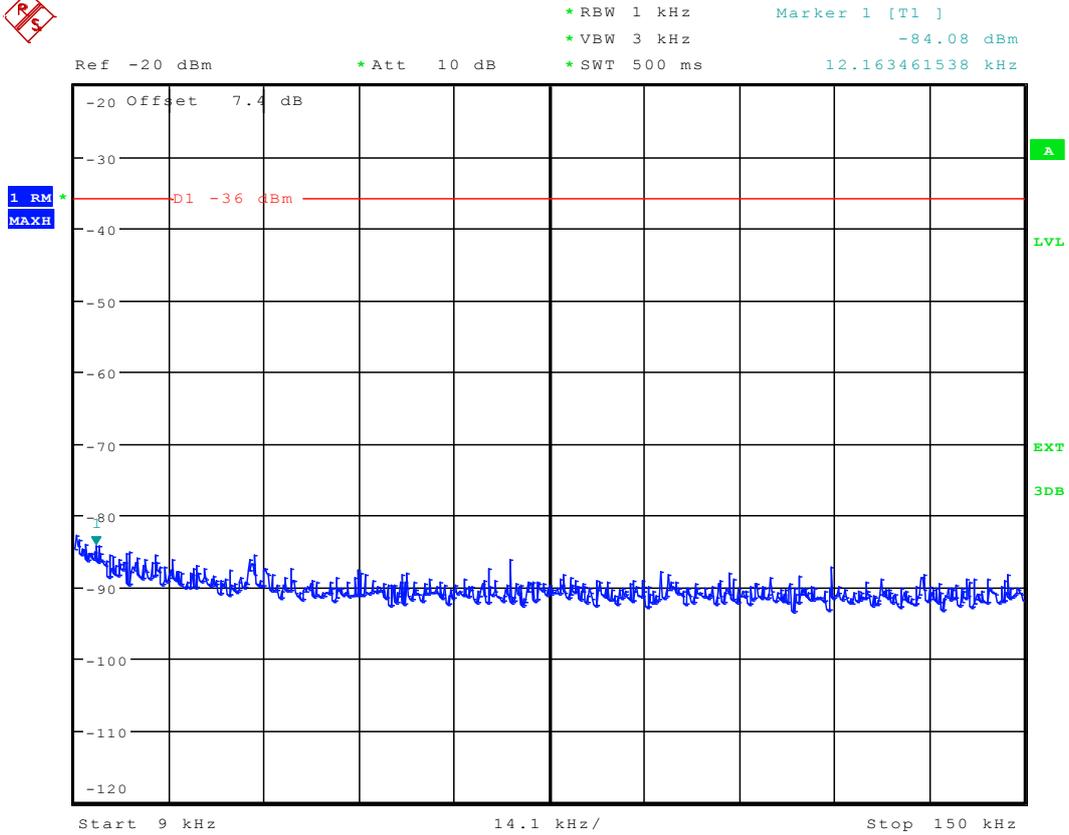
Date: 24.JUN.2015 20:11:26



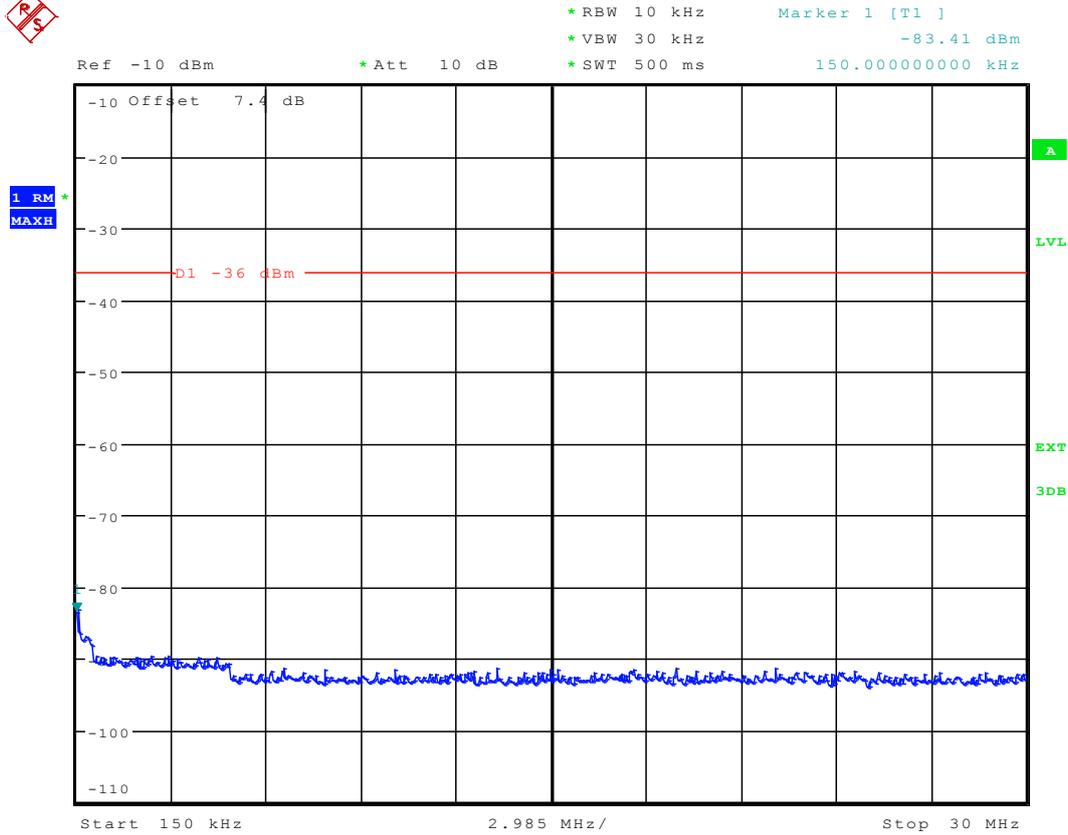
Date: 24.JUN.2015 20:14:23

2.4 2L_5M_TM1.1_M

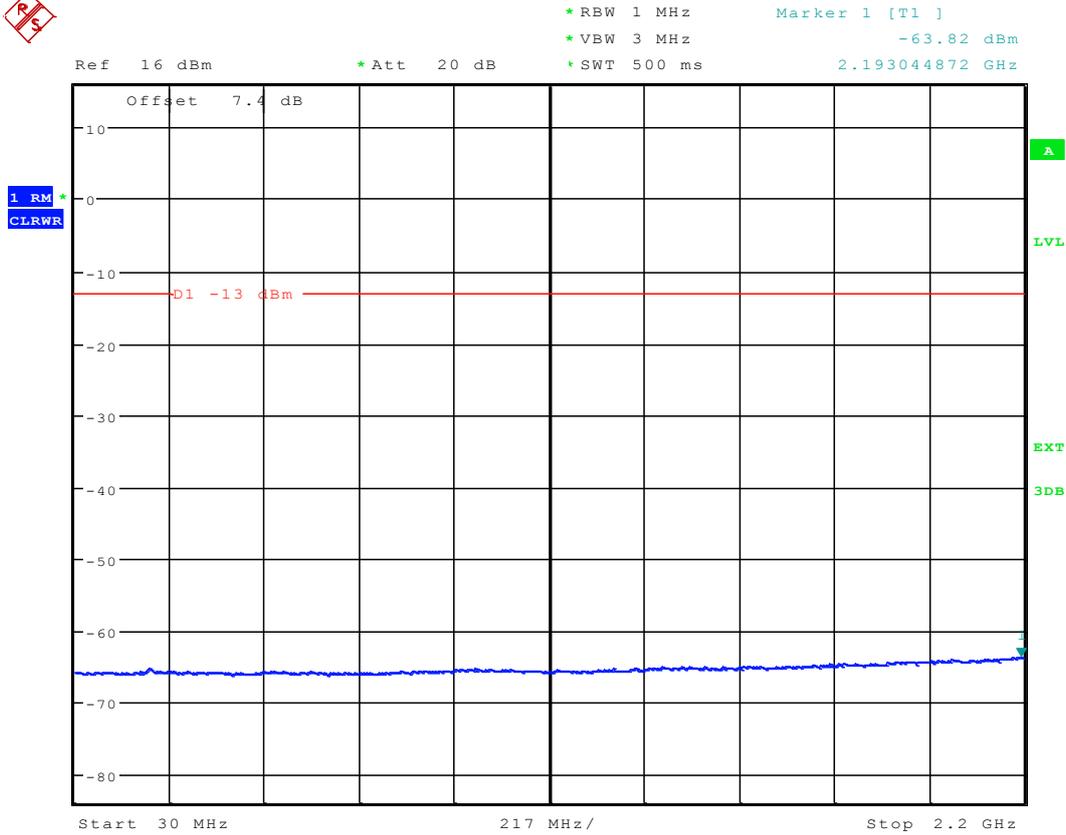
Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
0.009	0.15	0.001	RMS	<-36	-36	Pass
0.15	30	0.01	RMS	<-36	-36	Pass
30	2200	1	RMS	<-13	-13	Pass
2200	2285	1	RMS	<-45	-45	Pass
2285	2287.5	1	RMS	<-42	-42	Pass
2287.5	2300	1	RMS	<-40	-40	Pass
2300	2305	1	RMS	<-13	-13	Pass
2305	2320	1	RMS	<-13	-13	Pass
2320	2345	1	RMS	<-45	-45	Pass
2345	2350	1	RMS	<-13	-13	Pass
2360	2362.5	1	RMS	<-13	-13	Pass
2362.5	2365	1	RMS	<-25	-25	Pass
2365	2367.5	1	RMS	<-40	-40	Pass
2367.5	2370	1	RMS	<-42	-42	Pass
2370	2395	1	RMS	<-45	-45	Pass
2395	24000	1	RMS	<-13	-13	Pass



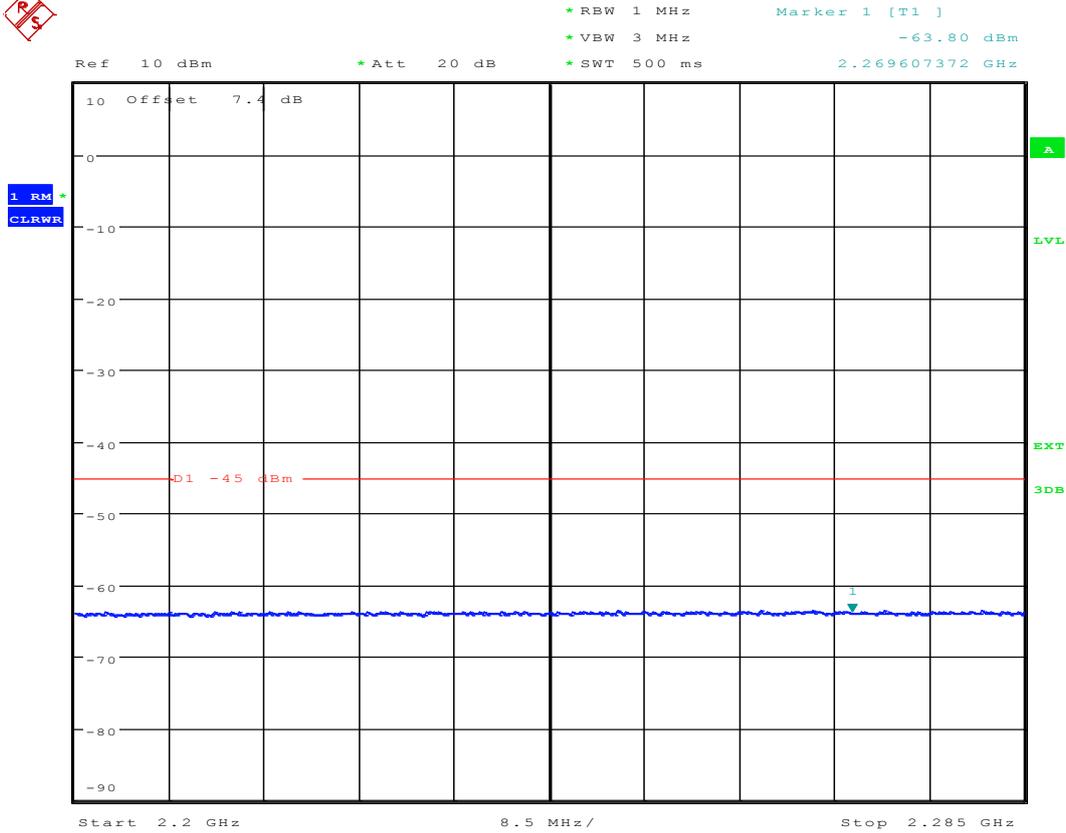
Date: 24.JUN.2015 17:33:55



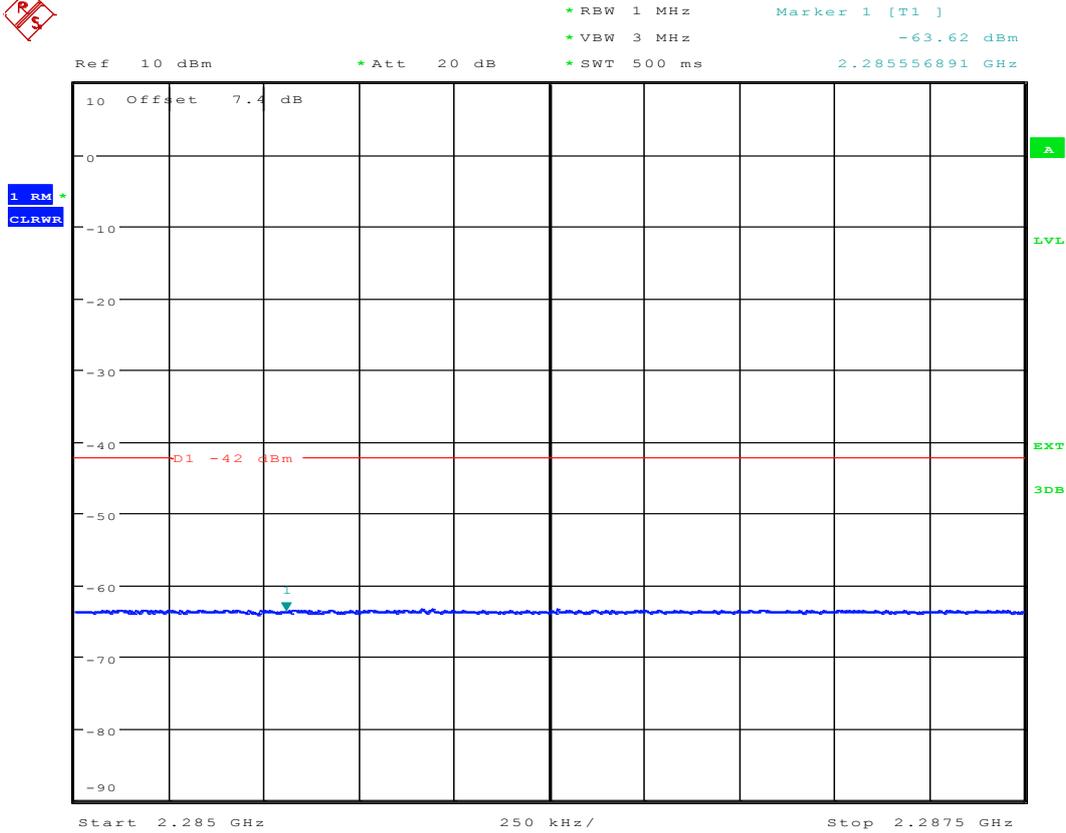
Date: 24.JUN.2015 17:25:57



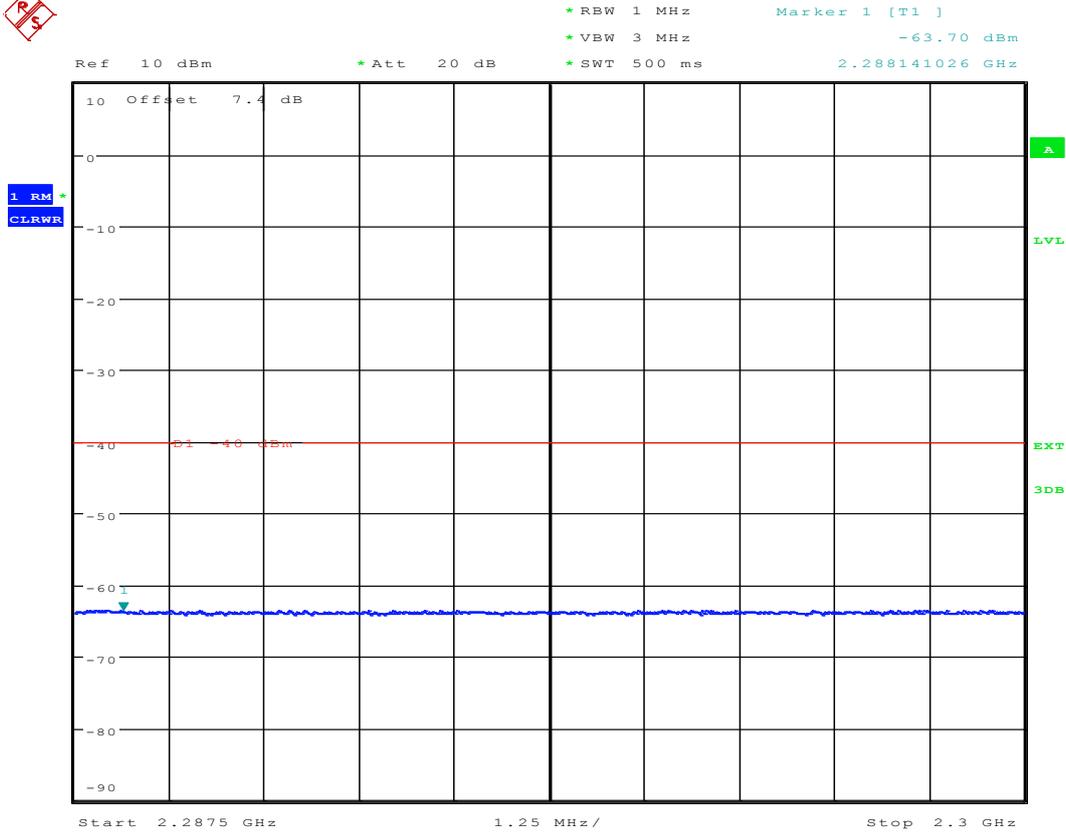
Date: 27.JUN.2015 17:29:08



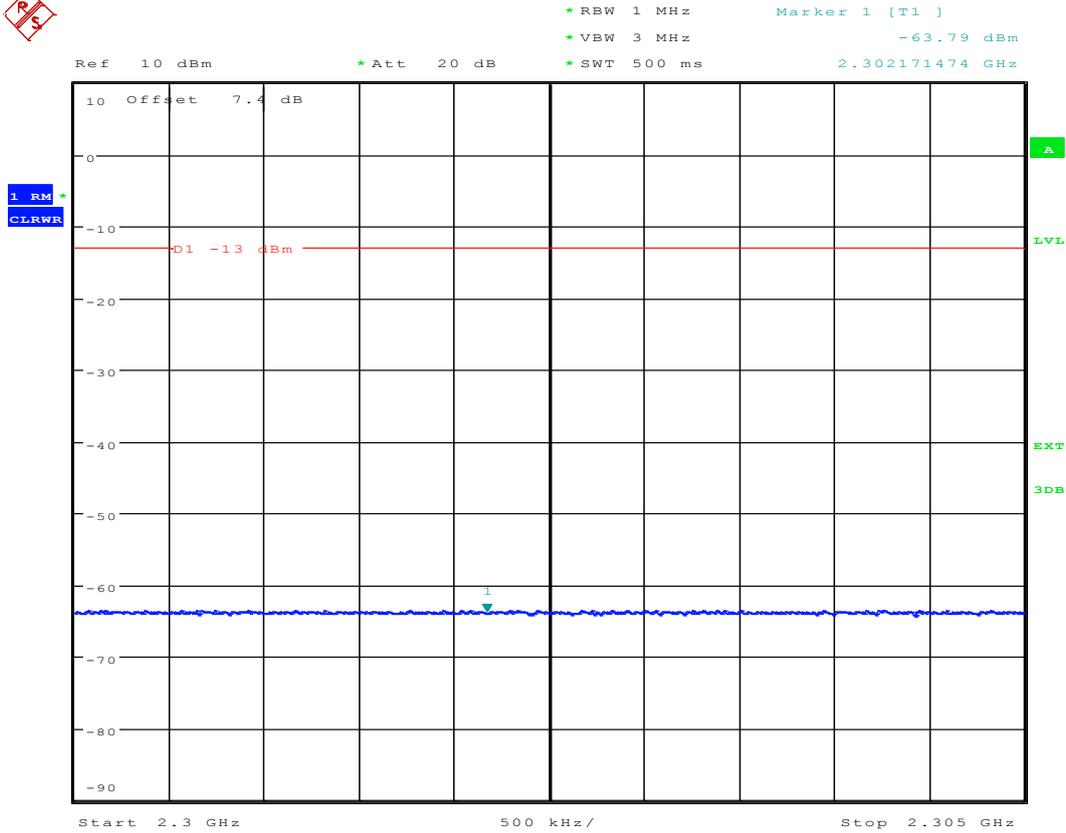
Date: 24.JUN.2015 20:20:15



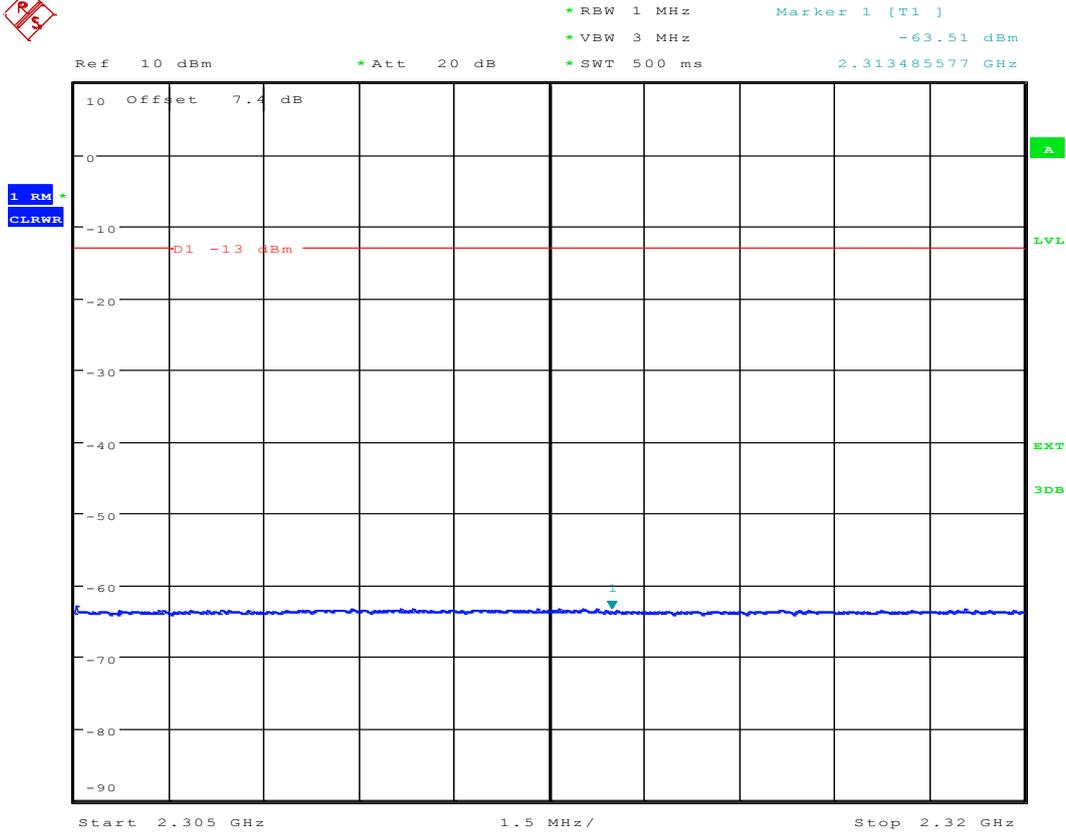
Date: 24.JUN.2015 20:21:38



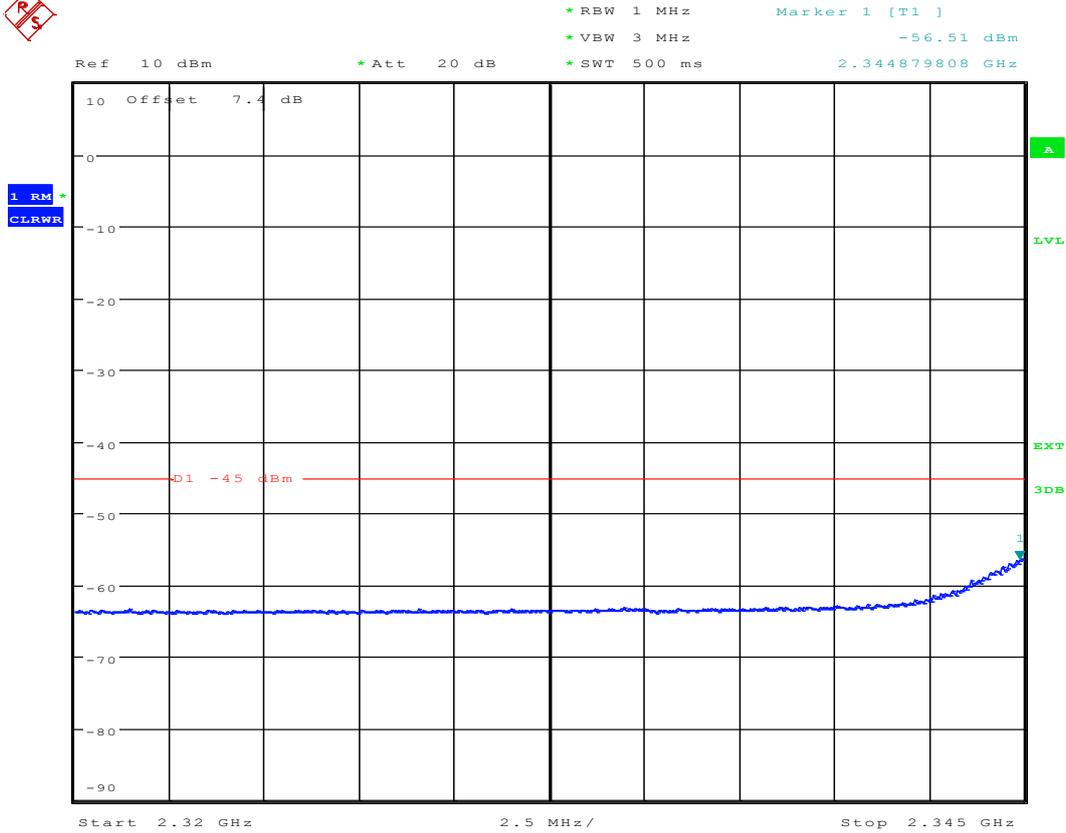
Date: 24.JUN.2015 20:22:47



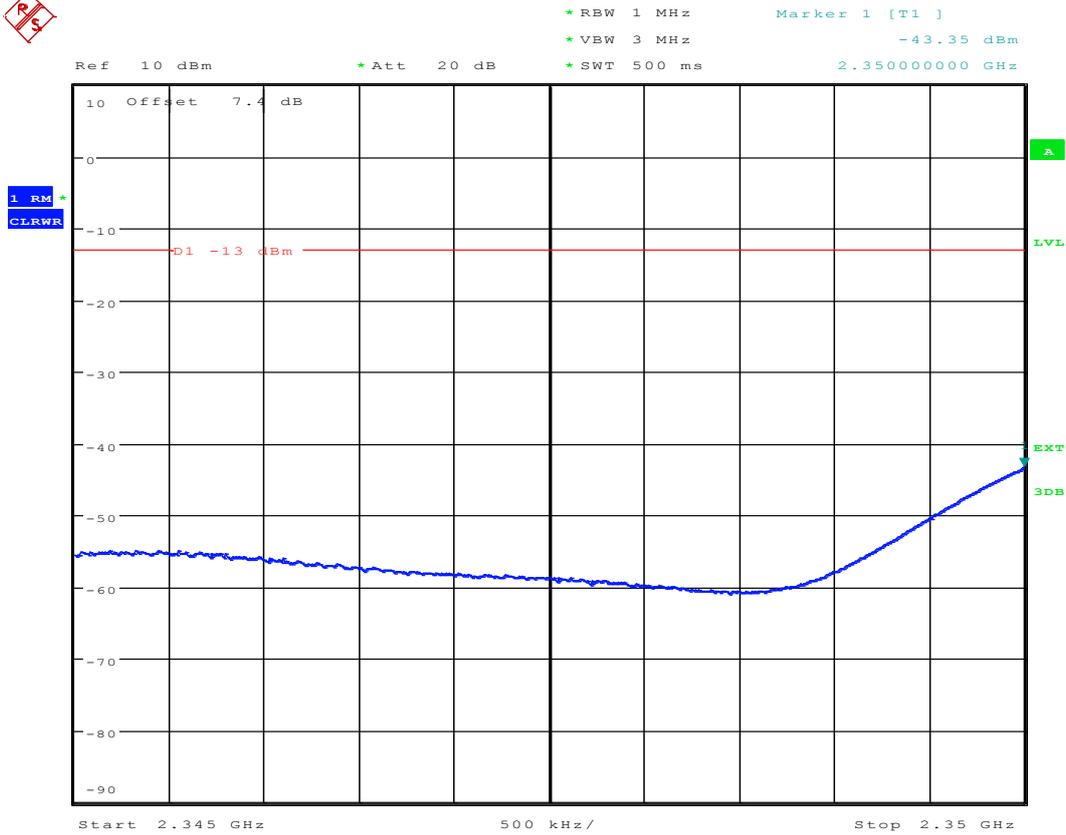
Date: 24.JUN.2015 20:18:31



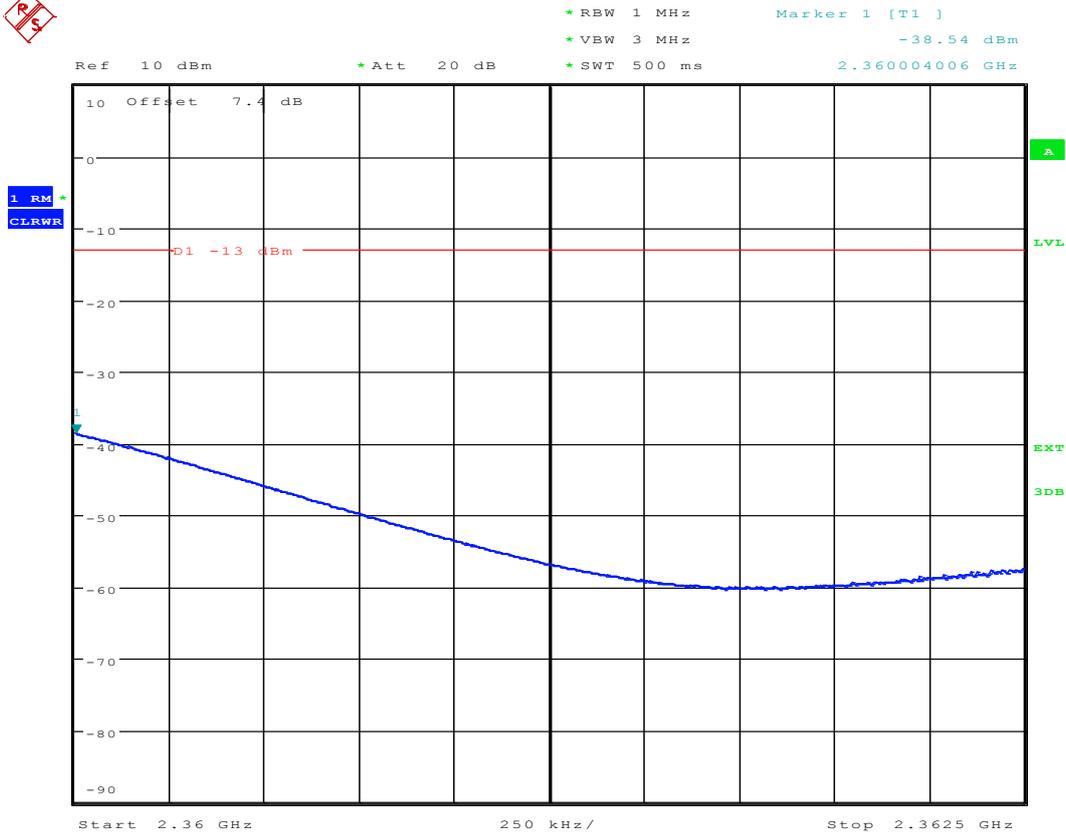
Date: 24.JUN.2015 20:18:55



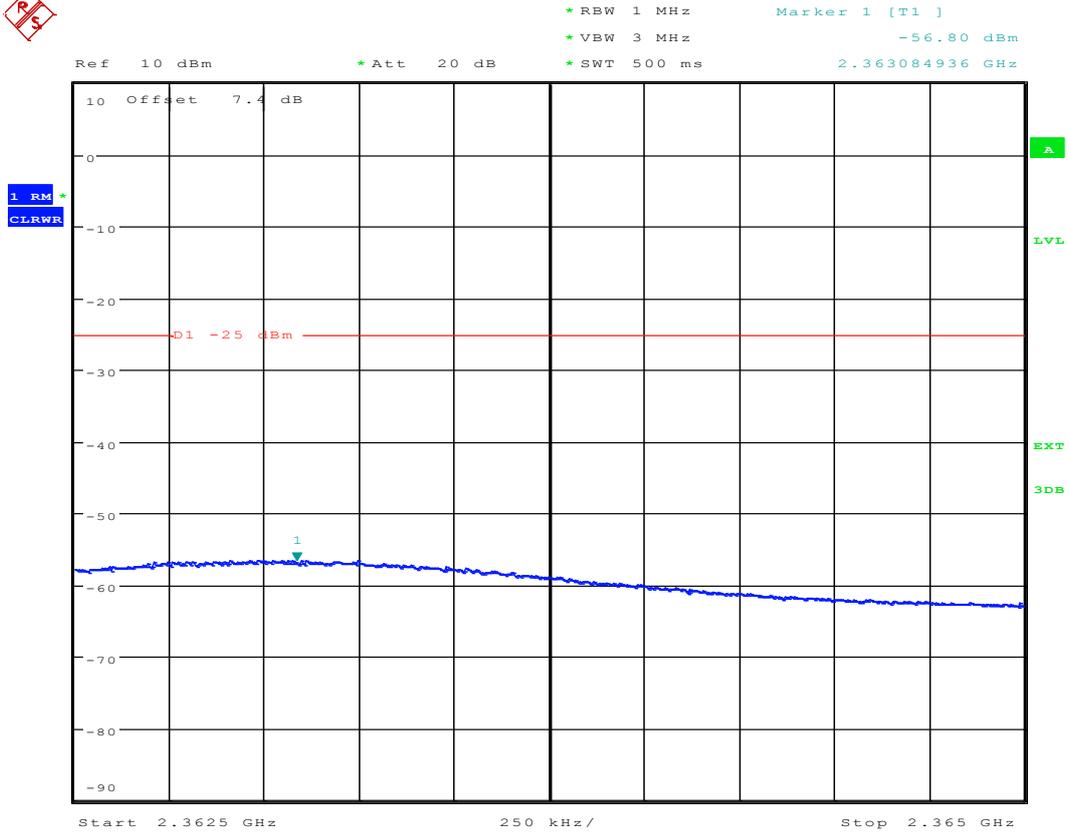
Date: 24.JUN.2015 20:20:40



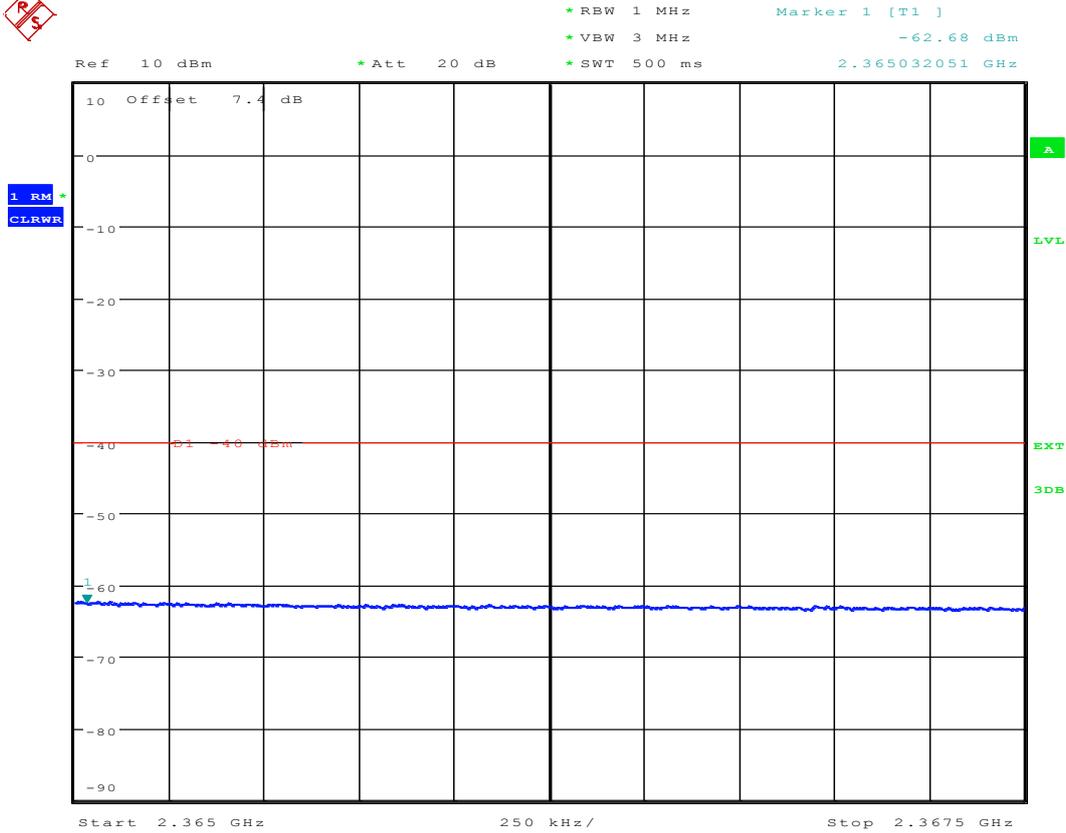
Date: 24.JUN.2015 20:19:21



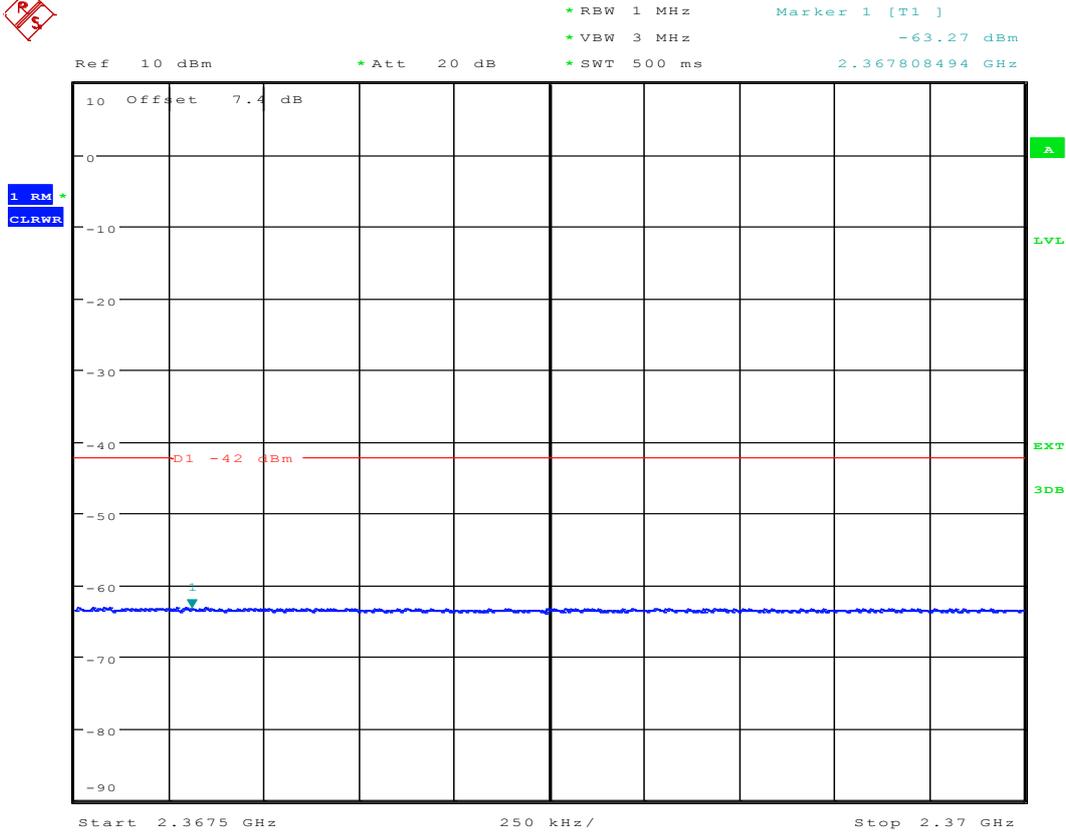
Date: 24.JUN.2015 20:19:44



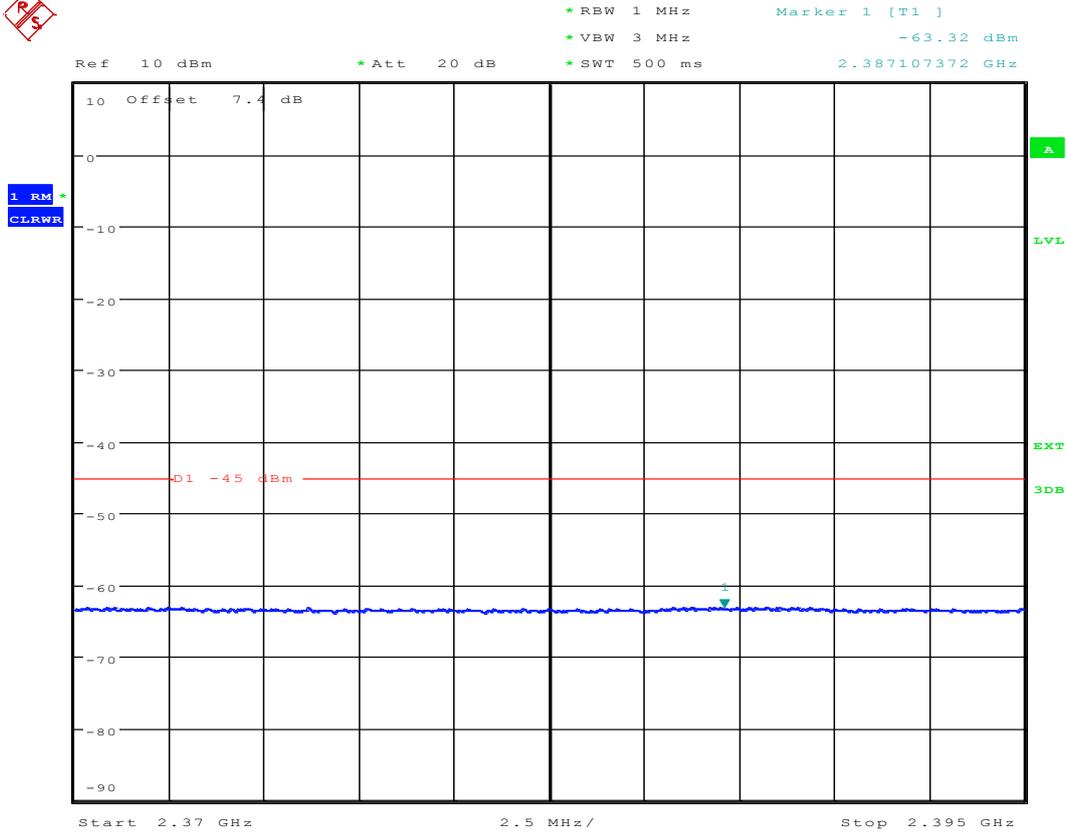
Date: 24.JUN.2015 20:23:58



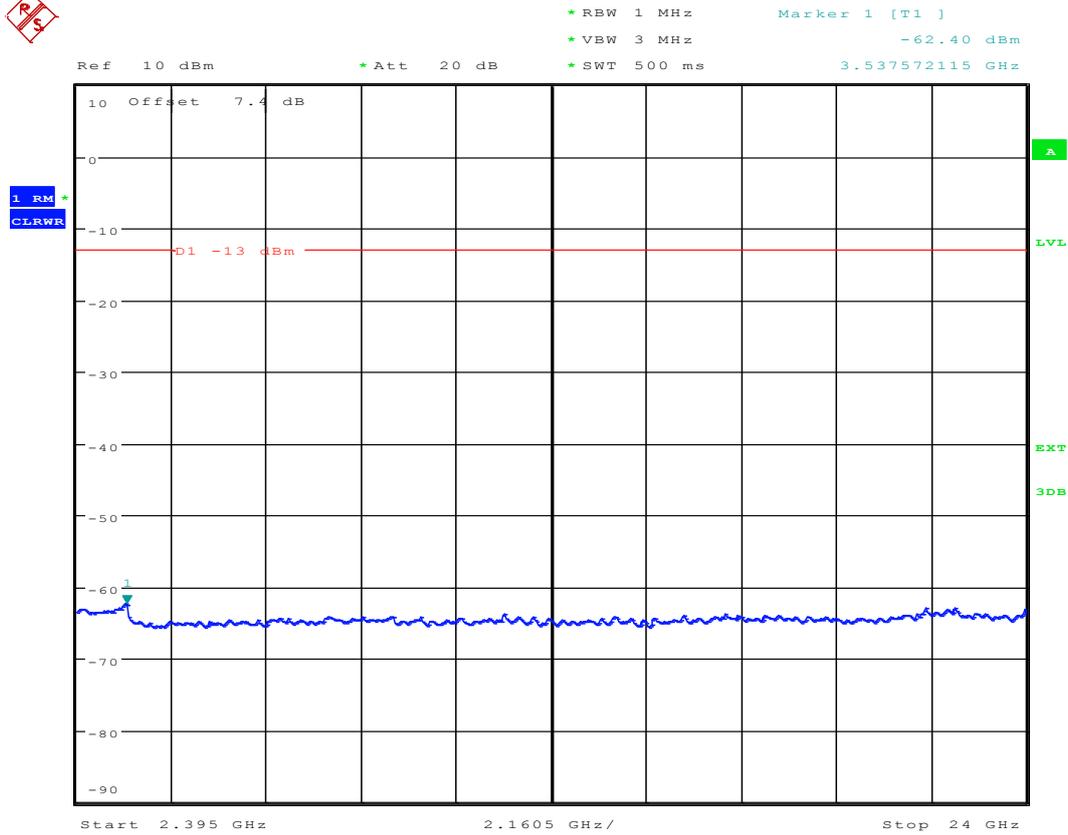
Date: 24.JUN.2015 20:23:25



Date: 24.JUN.2015 20:22:16



Date: 24.JUN.2015 20:21:02



Date: 24.JUN.2015 20:17:38



Appendix E: Field Strength of Spurious Radiation / Radiated Spurious Emissions



1 Result Table

NOTE: If applicable, according to FCC KDB 971168 §5.8.3, for the requirement of a fixed limit (e.g. -13 dBm), the power limit can be mathematically converted to an equivalent field strength limit. The relationship is:

(1) $E \text{ [dB}\mu\text{V/m]} = \text{EIRP [dBm]} - 20 \cdot \lg(D) + 104.8$; where D is the measurement distance in meters.

(2) $\text{EIRP [dBm]} = \text{ERP [dBm]} + 2.15$.

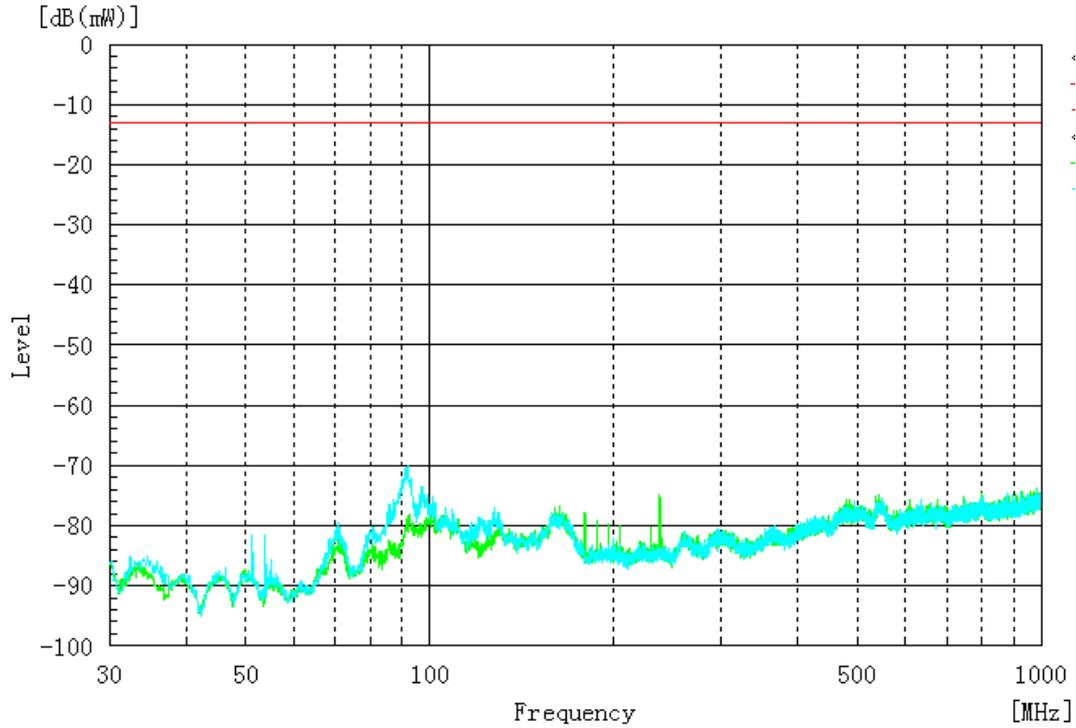
Also according to FCC §2.1053(a), emissions are assumed radiated from halfwave dipole antennas, so the power limit refer to the ERP.

(For example, the fixed power limit -13 dBm can be converted to the field strength limit 84.4 dB μ V/m at 3 m measurement distance, and to 93.95 dB μ V/m at 1 m measurement distance assuming in the far-field region of both the transmit and receive antennas.)

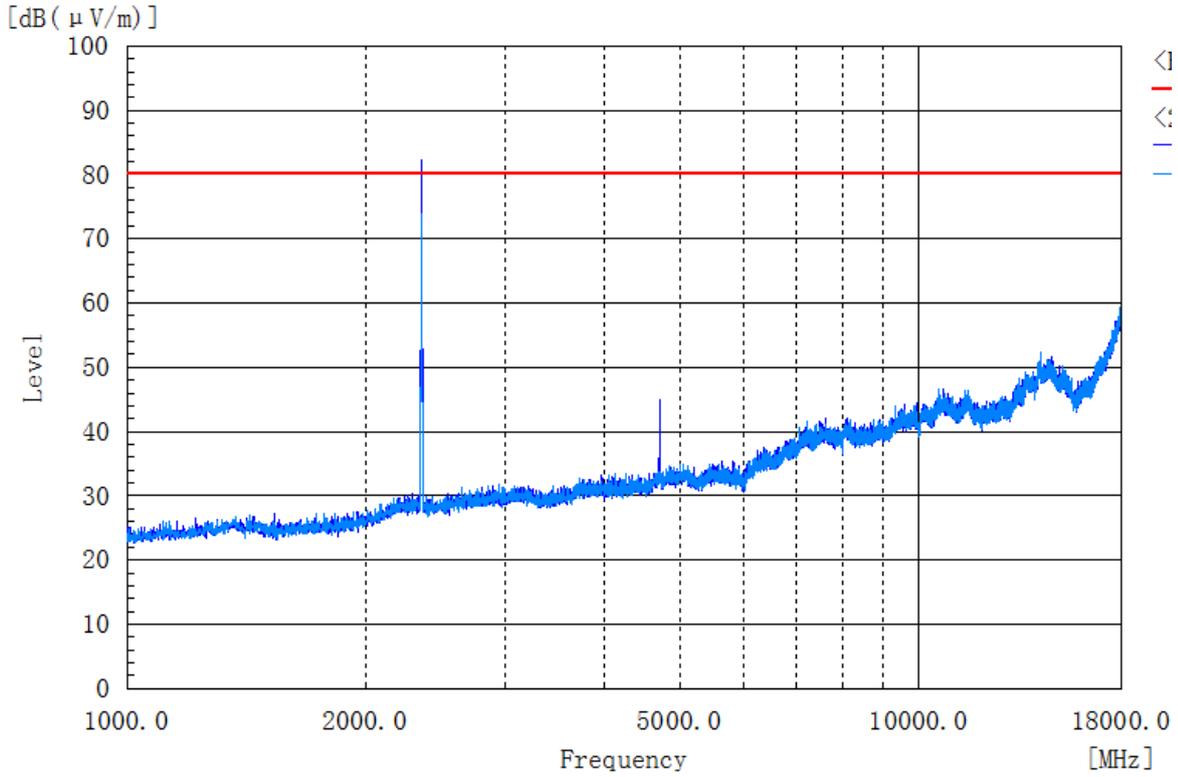
Test Range	EUT Conf.	Maximum Emission	Verdict
30 MHz to 1 GHz	1L_5M_TM1.1_B	< -13 (dBm)	Pass
1 GHz to 18 GHz	1L_5M_TM1.1_B	< -13 (dBm)	Pass
18 GHz to 26.5 GHz	1L_5M_TM1.1_B	< -13 (dBm)	Pass

2 Test Plot

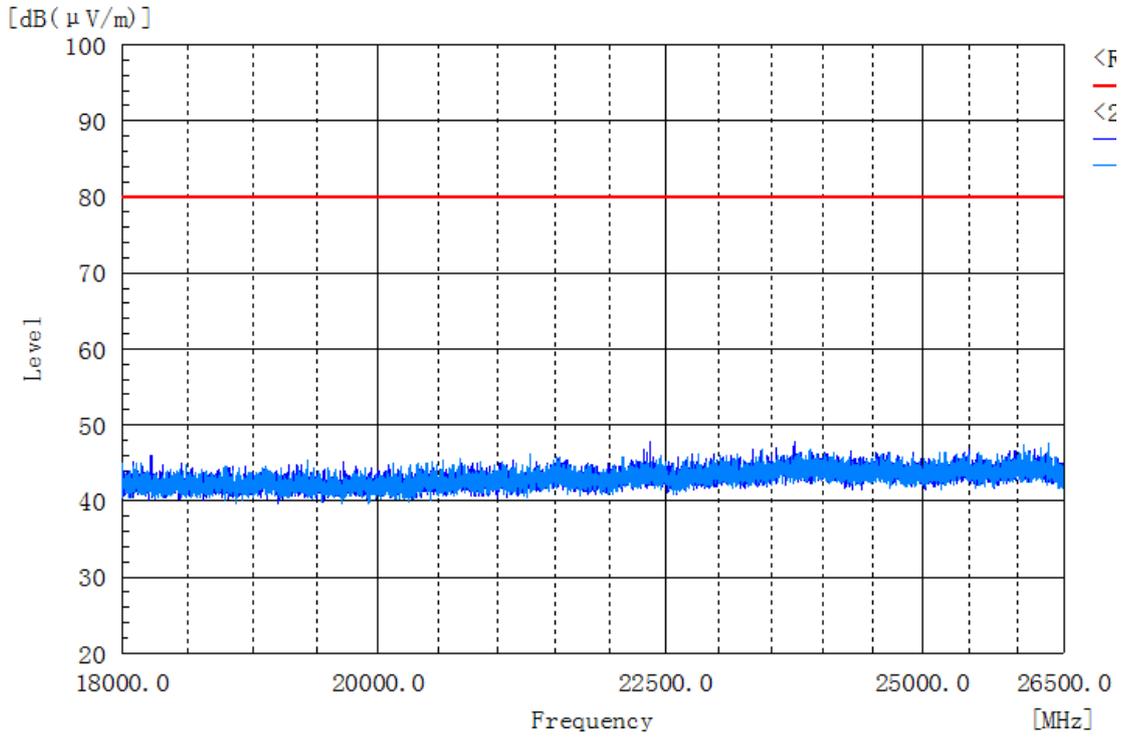
2.1 Test range of "30 MHz to 1 GHz"



2.2 Test range of "1 GHz to 18 GHz"



2.3 Test range of “18 GHz to 26.5 GHz”





Appendix F: Frequency Stability



1 Result Table

1.1 Frequency Error

EUT Conf.	Temperature	Voltage	Freq. Error, f(offset) [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Verdict
1L_5M_TM1.1_B	-30 °C	100%	2.72	0.0011562	0.0002593	Pass
	-20 °C	100%	2.51	0.0010670	0.0001700	Pass
	-10 °C	100%	2.82	0.0011987	0.0003018	Pass
	0 °C	100%	2.53	0.0010755	0.0001785	Pass
	+10 °C	100%	2.71	0.0011520	0.0002550	Pass
	+20 °C	85 %	1.72	0.0007311	-0.0001658	Pass
	+20 °C	100 %	2.11	0.0008969	---	Pass
	+20 °C	115 %	2.22	0.0009437	0.0000468	Pass
	+30 °C	100%	1.72	0.0007311	-0.0001658	Pass
	+40 °C	100%	1.91	0.0008119	-0.0000850	Pass
	+50 °C	100%	2.40	0.0010202	0.0001232	Pass

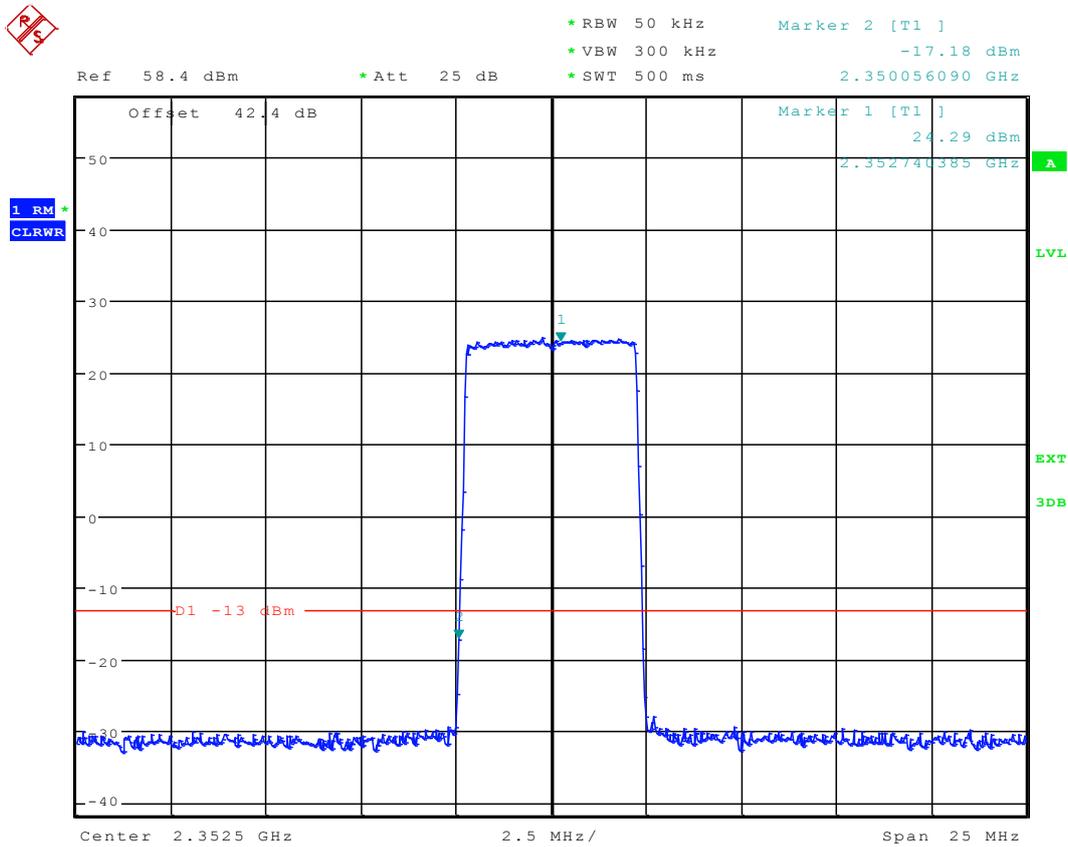
1.2 Frequency Range

EUT Conf.	Reference Point, fL/fH [MHz]	Frequency Range, fL – f(offset) / fH + f(offset) [MHz]	Verdict
1L_5M_TM1.1_B	2350	2350.056090	Pass
1L_5M_TM1.1_T	2360	2359.943910	Pass
1L_10M_TM1.1_M	2350	2350.152244	Pass
	2360	2359.847756	Pass

2 Test Plot

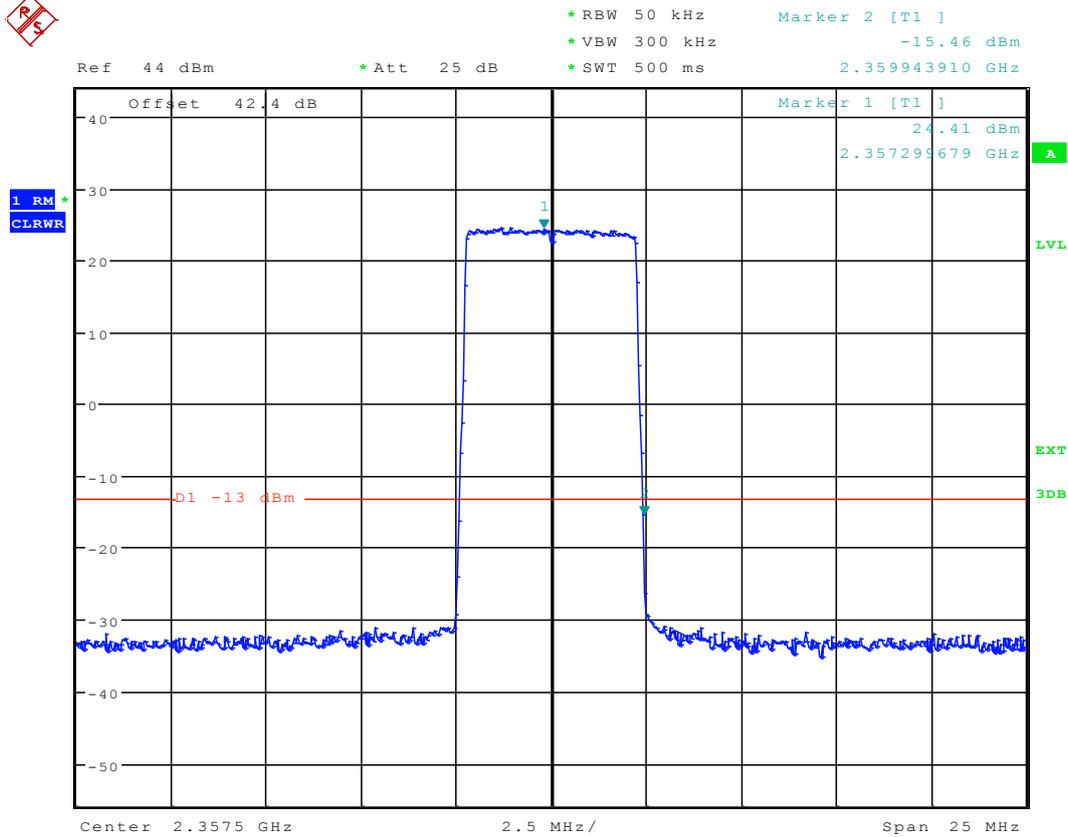
NOTE: Only the test plots for the measurements of Frequency Range are supplied.

2.1 1L_5M_TM1.1_B



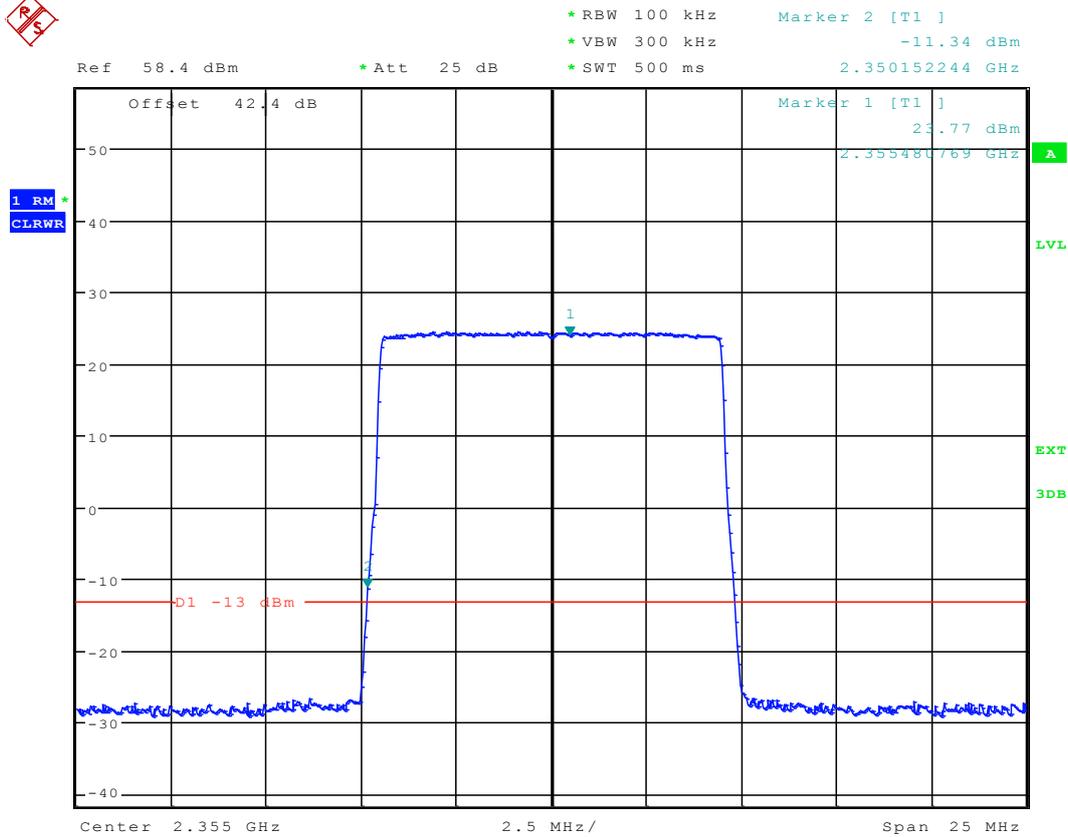
Date: 10.JUN.2015 16:28:04

2.2 1L_5M_TM1.1_T

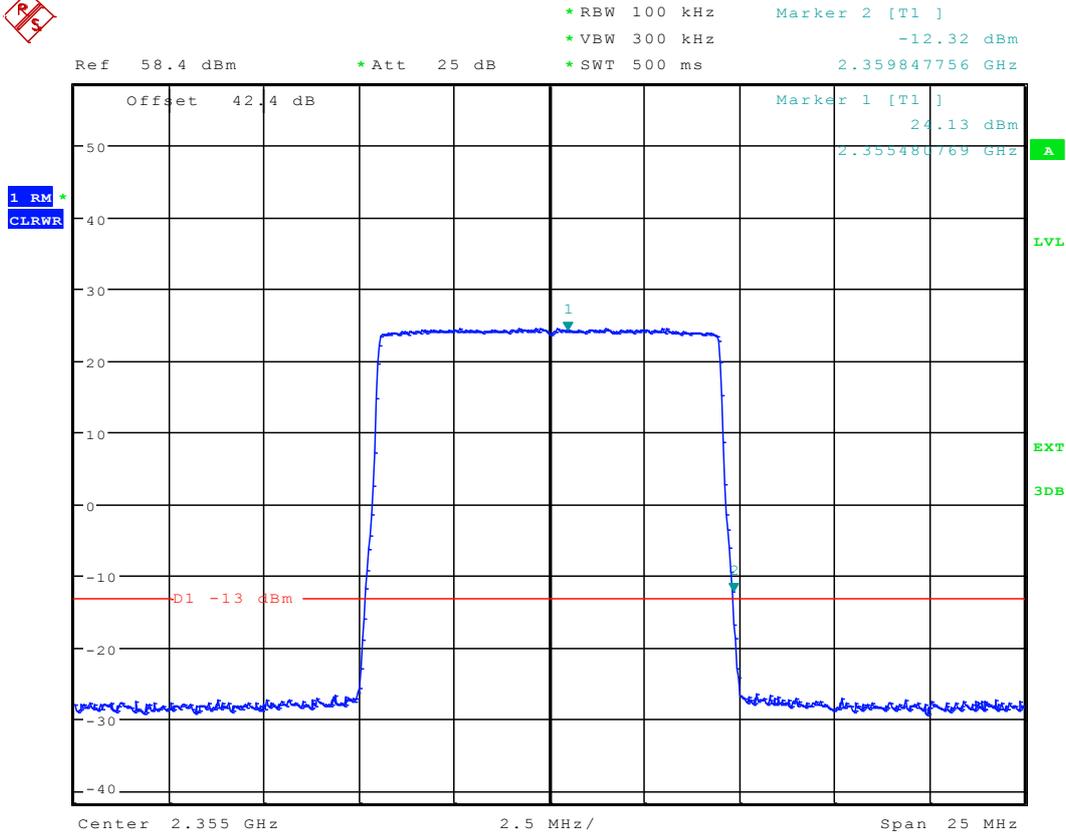


Date: 10.JUN.2015 16:30:23

2.3 1L_10M_TM1.1_M



Date: 10.JUN.2015 16:23:06



Date: 10.JUN.2015 16:24:06



Appendix G: Receiver Spurious Emissions



Not applicable.

END