



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	
1L_5M_TM1_B	61.38	59.57	Pass
1L_5M_TM1_M	61.09	60.95	Pass
1L_5M_TM1_T	59.98	60.39	Pass
1L_10M_TM1_B	60.67	59.98	Pass
1L_10M_TM1_M	60.81	60.26	Pass
1L_10M_TM1_T	60.39	59.57	Pass
1L_15M_TM1_B	60.81	58.88	Pass
1L_15M_TM1_M	60.81	59.98	Pass
1L_15M_TM1_T	60.00	59.57	Pass
2L_5M+5M_TM1_B	62.02	61.45	Pass
2L_5M+5M_TM1_T	61.88	61.81	Pass
2L_5M_+10M_TM1_B	60.65	58.99	Pass
2L_5M_+10M_TM1_T	60.27	59.27	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/MHz]	Verdict
1L_5M_TM1_B	42.07	Pass
1L_5M_TM1_M	42.03	Pass
1L_5M_TM1_T	42.01	Pass
1L_10M_TM1_B	39.16	Pass
1L_10M_TM1_M	39.15	Pass
1L_10M_TM1_T	39.26	Pass



EUT Conf.	Power Spectral Density [dBm/MHz]	Verdict
1L_15M_TM1_B	37.07	Pass
1L_15M_TM1_M	36.95	Pass
1L_15M_TM1_T	36.91	Pass

1.3 Peak-to-Average Ratio

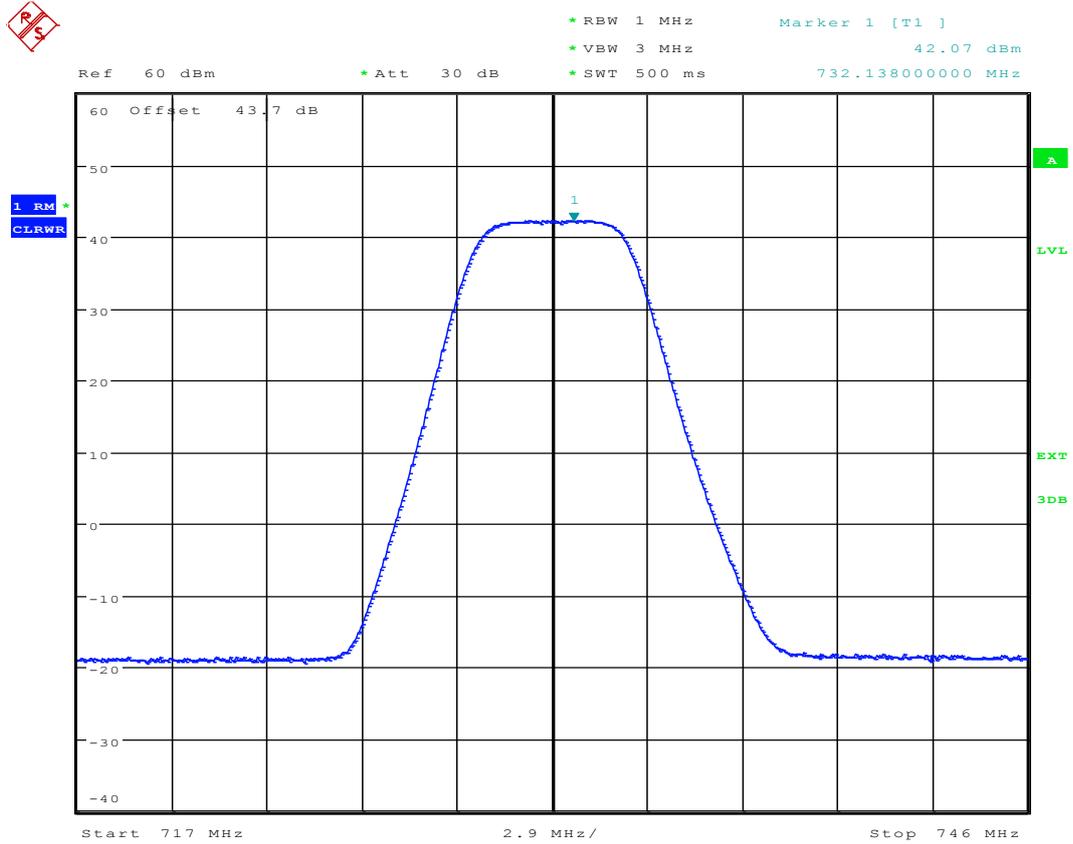
EUT Conf.	Peak-to-Average Ratio@0.1% [dB]	Verdict
1L_5M_TM1_B	6.83	Pass
1L_5M_TM1_M	6.79	Pass
1L_5M_TM1_T	6.86	Pass
1L_10M_TM1_B	7.12	Pass
1L_10M_TM1_M	6.96	Pass
1L_10M_TM1_T	6.99	Pass
1L_15M_TM1_B	7.08	Pass
1L_15M_TM1_M	6.96	Pass
1L_15M_TM1_T	6.89	Pass

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

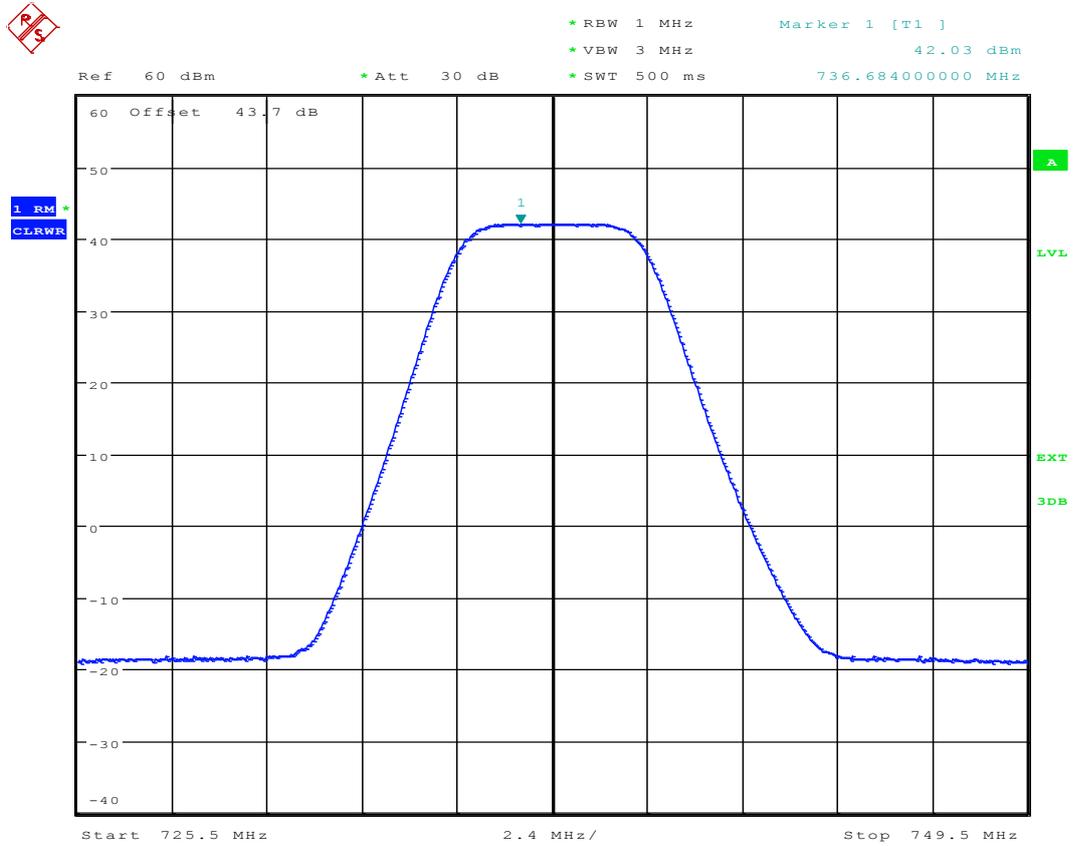
2.1.1 1L_5M_TM1_B



Date: 29.APR.2015 11:41:55

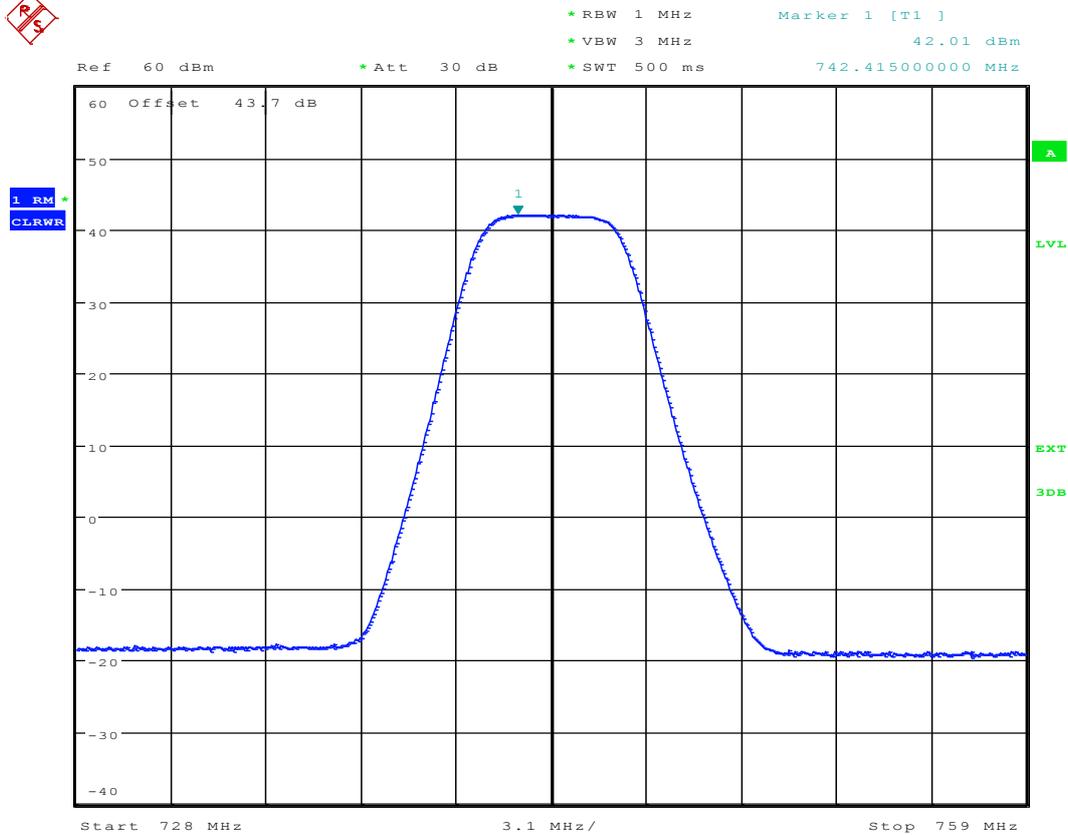


2.1.2 1L_5M_TM1_M



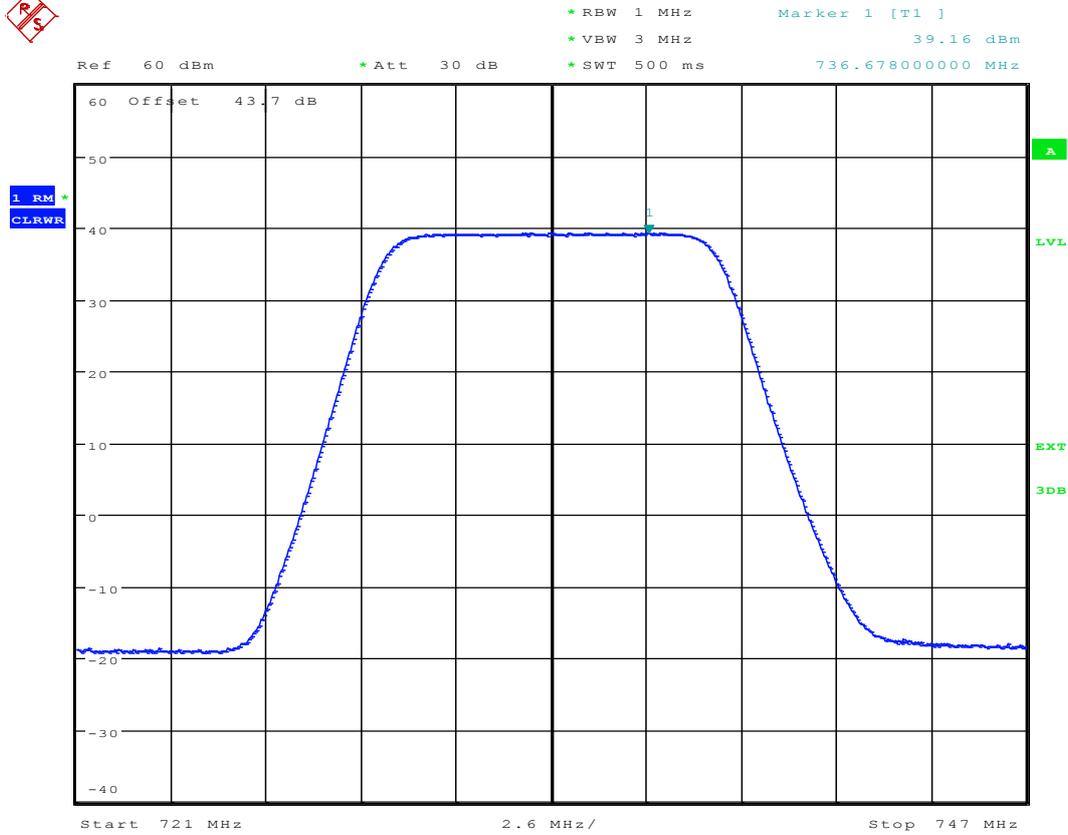
Date: 29.APR.2015 11:42:56

2.1.3 1L_5M_TM1_T



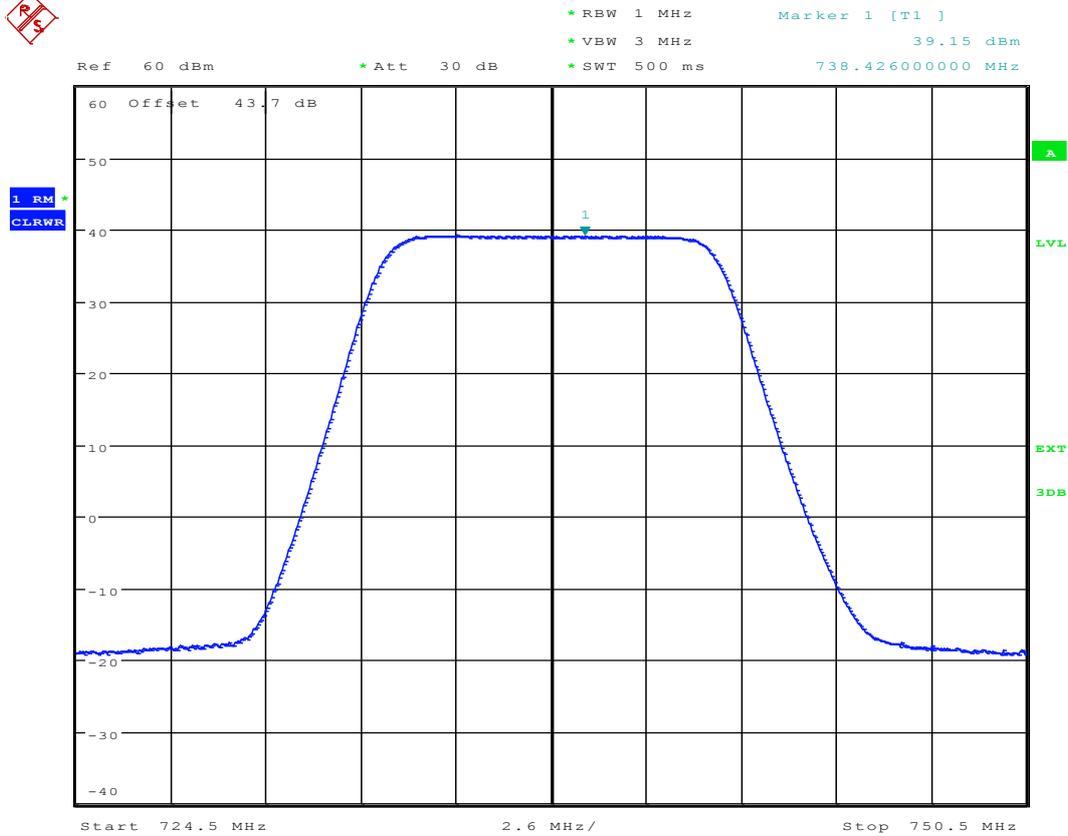
Date: 29.APR.2015 11:43:59

2.1.4 1L_10M_TM1_B



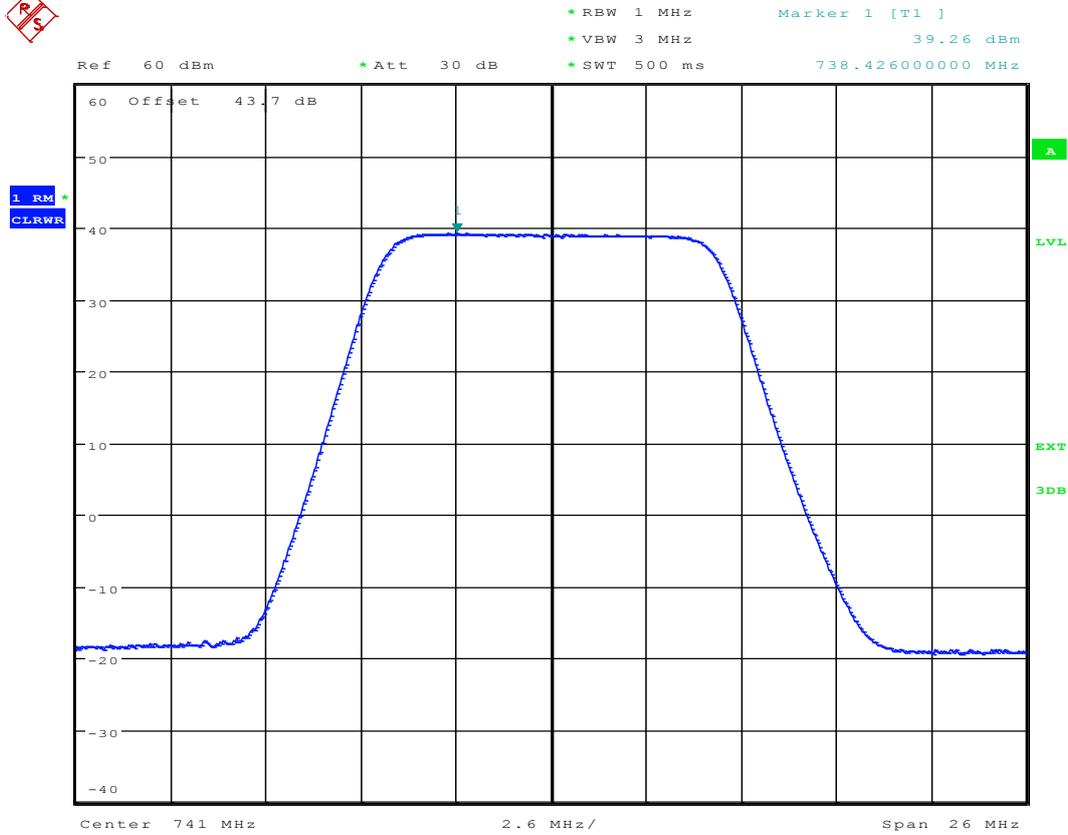
Date: 29.APR.2015 11:40:39

2.1.5 1L_10M_TM1_M



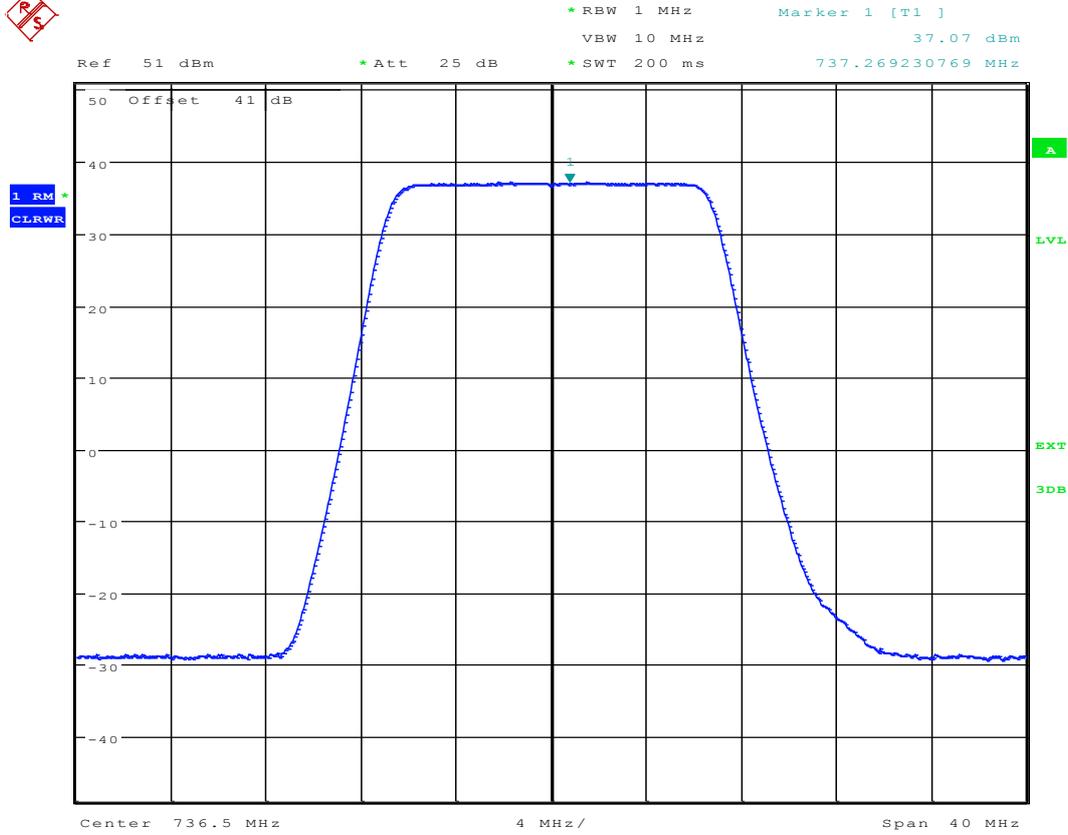
Date: 29.APR.2015 11:39:42

2.1.6 1L_10M_TM1_T



Date: 29.APR.2015 11:38:31

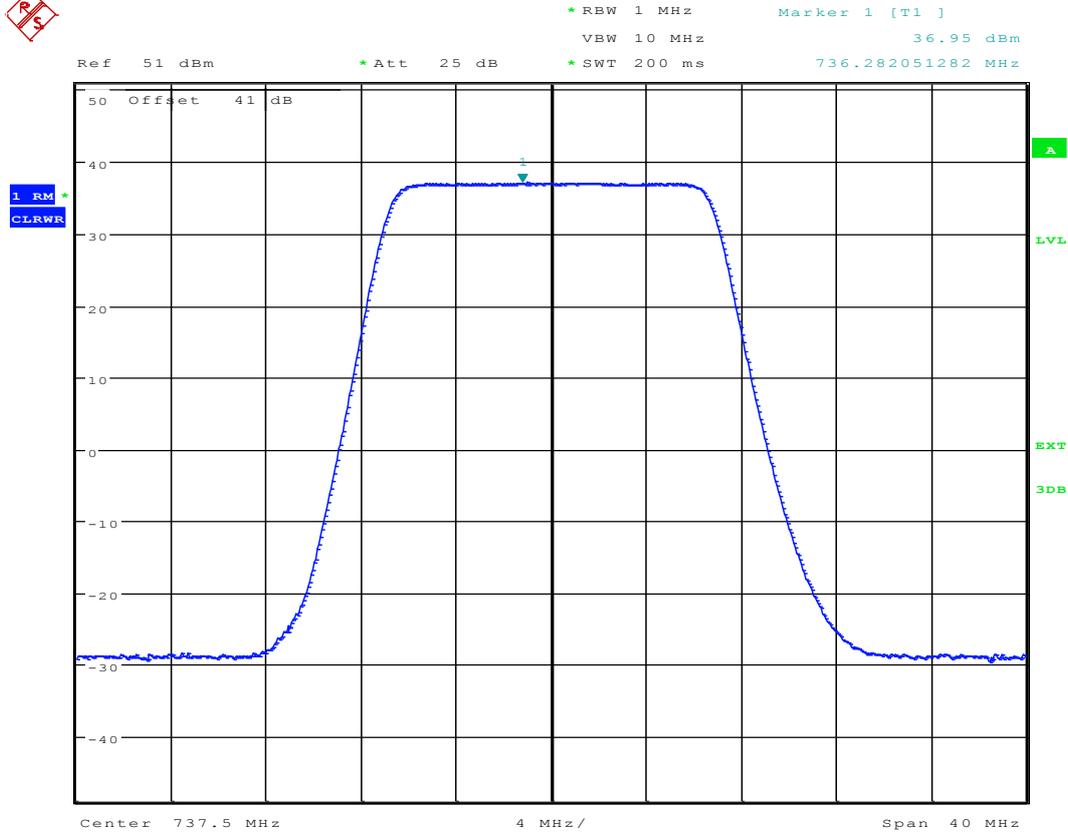
2.1.7 1L_15M_TM1_B



Date: 6.MAY.2015 04:33:24



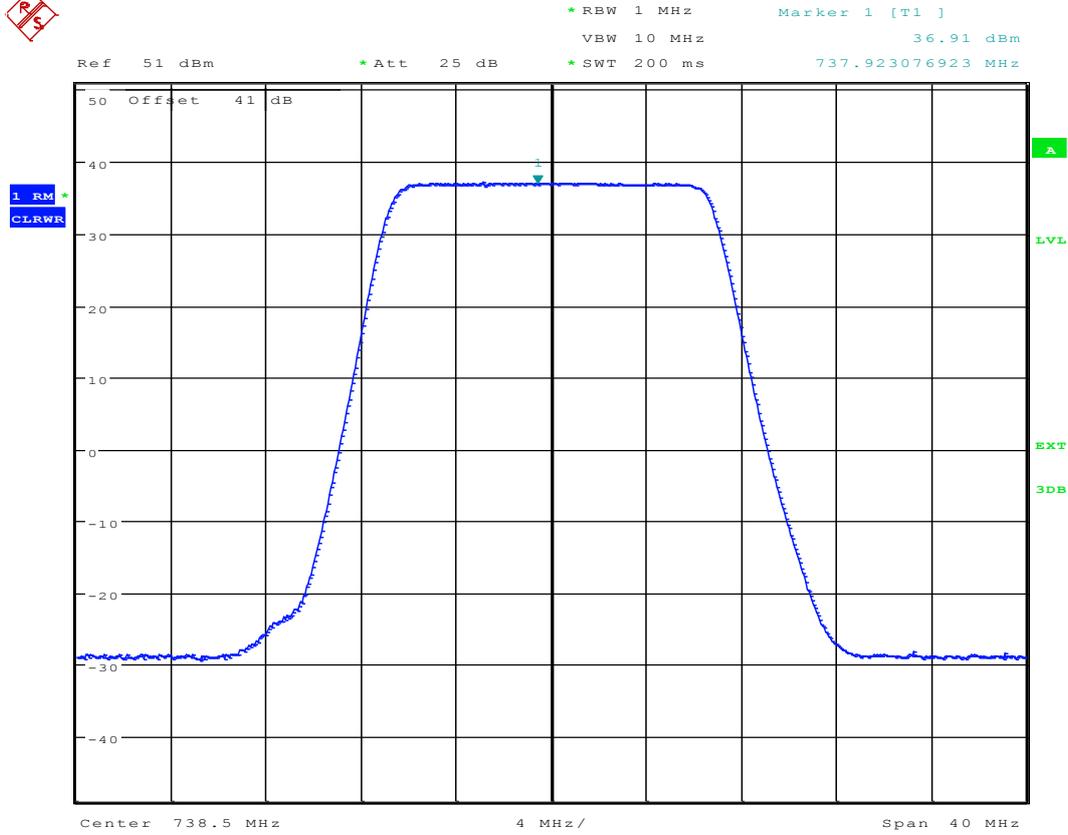
2.1.8 1L_15M_TM1_M



Date: 6.MAY.2015 04:34:46



2.1.9 1L_15M_TM1_T



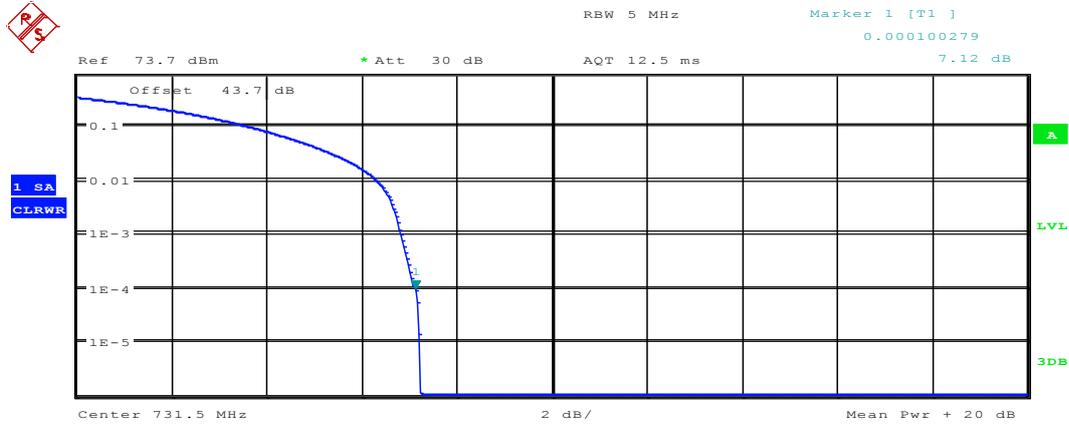
Date: 6.MAY.2015 04:36:13





2.2 Peak-to-Average Ratio

2.2.1 1 L_5M_TM1_B

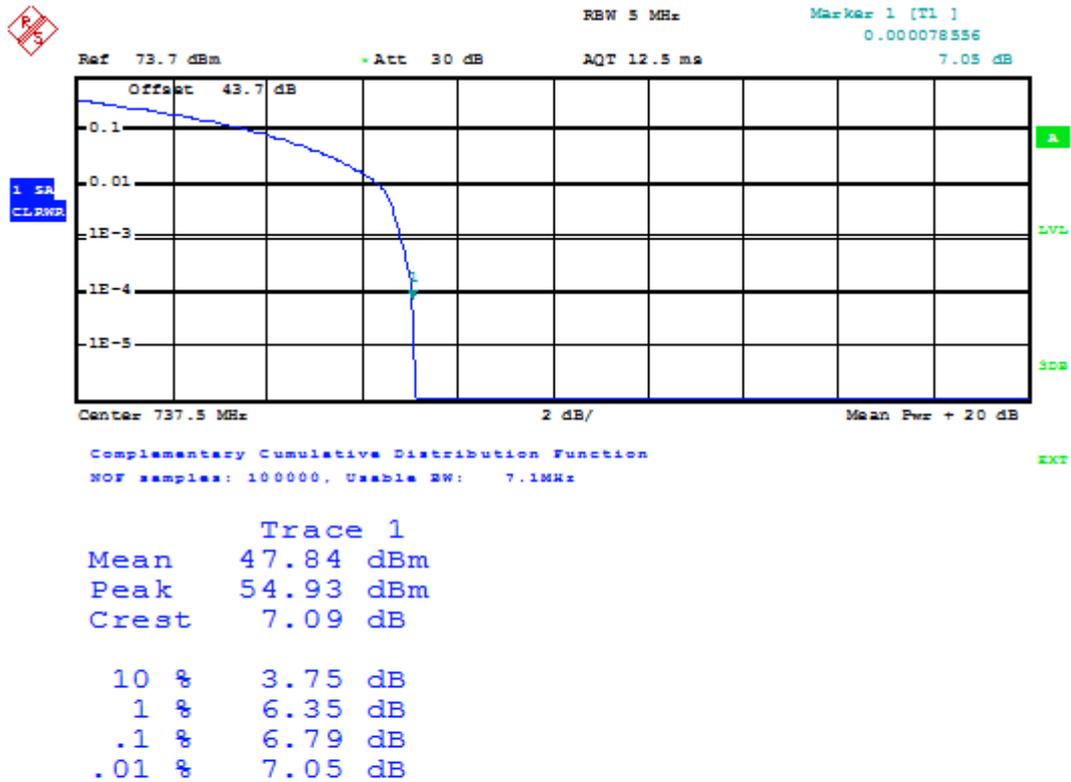


Complementary Cumulative Distribution Function
 NOF samples: 100000, Usable BW: 7.1MHz

Trace 1	
Mean	47.93 dBm
Peak	55.14 dBm
Crest	7.21 dB
10 %	3.72 dB
1 %	6.31 dB
.1 %	6.83 dB
.01 %	7.12 dB

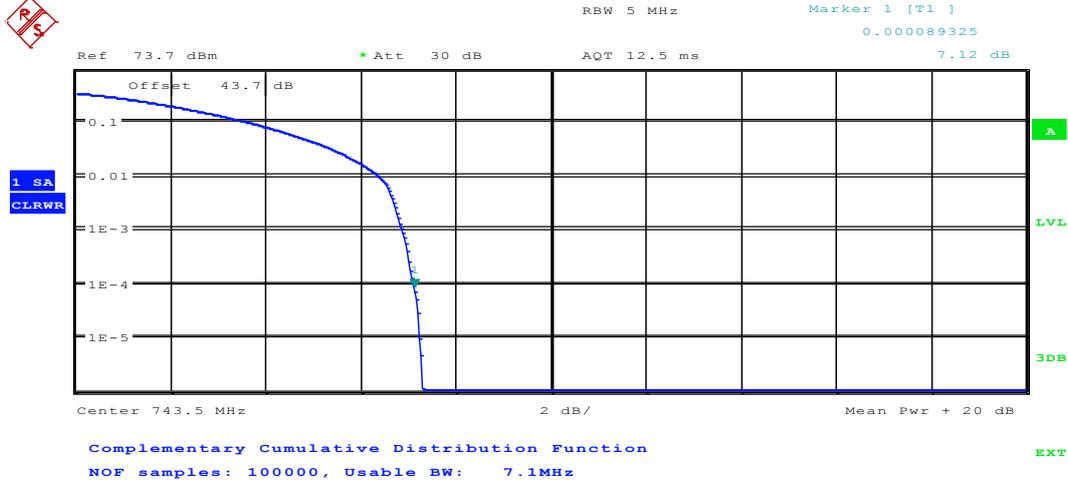
Date: 28.APR.2015 16:41:45

2.2.2 1L_5M_TM1_M



Date: 28.APR.2015 16:42:48

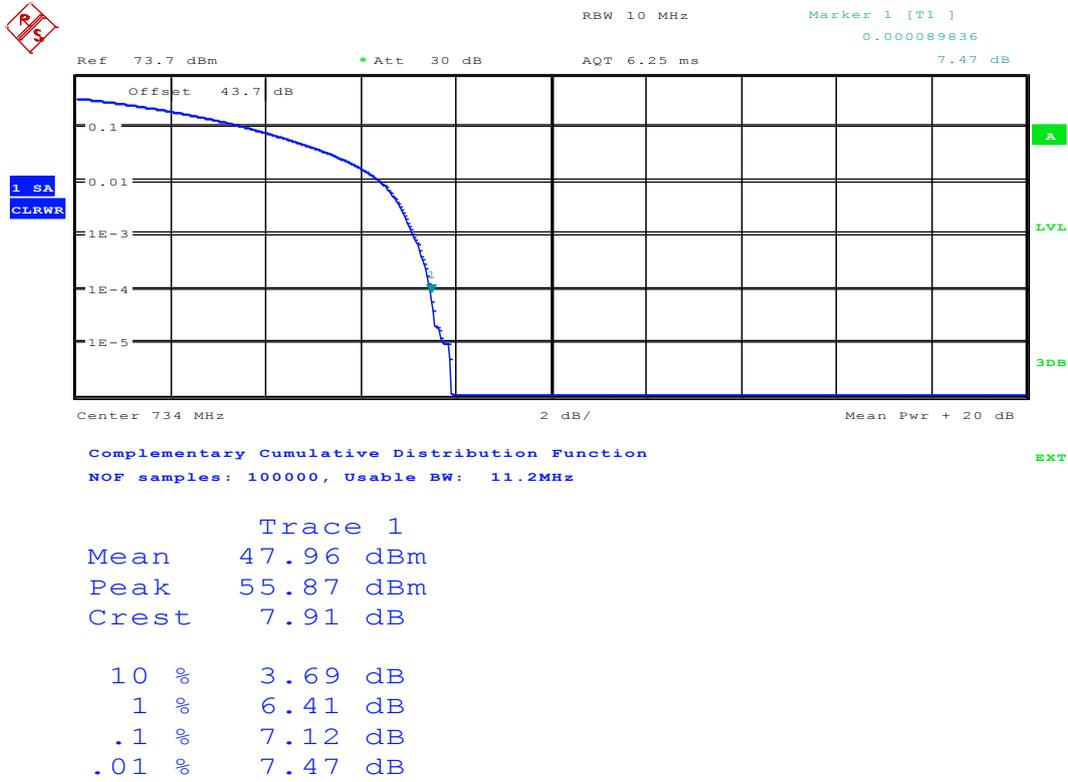
2.2.3 1 L_5M_TM1_T



Trace 1	
Mean	47.84 dBm
Peak	55.14 dBm
Crest	7.30 dB
10 %	3.72 dB
1 %	6.38 dB
.1 %	6.86 dB
.01 %	7.12 dB

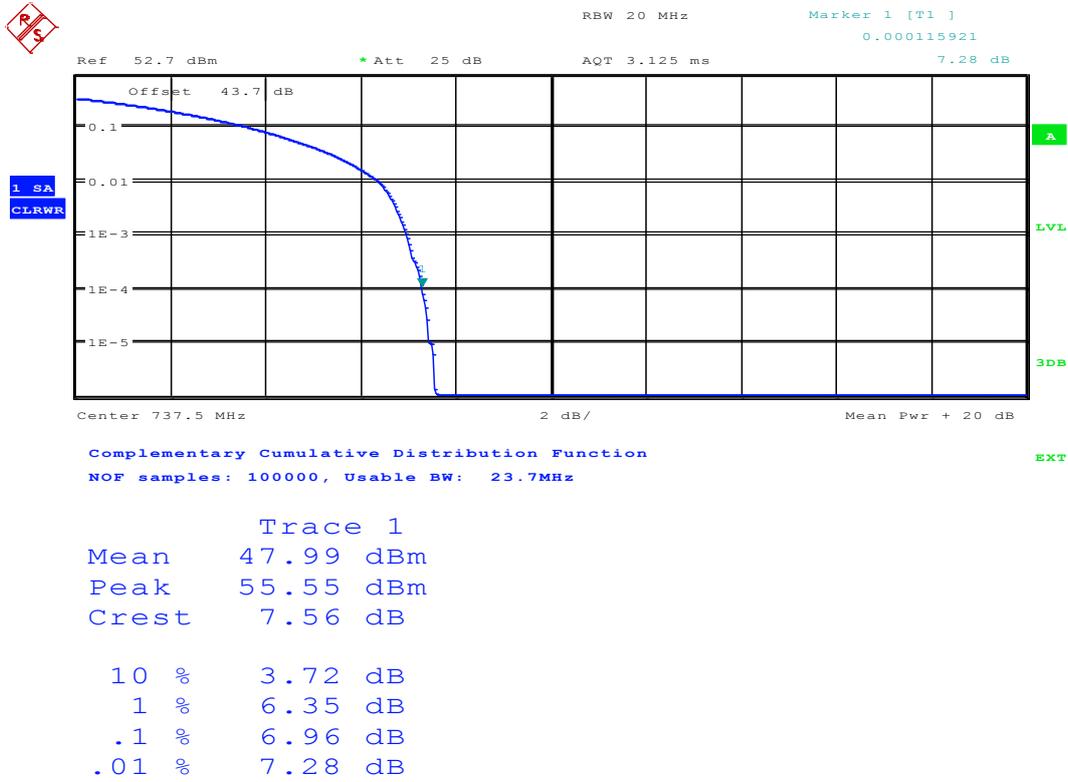
Date: 28.APR.2015 16:43:49

2.2.4 1 L_10M_TM1_B



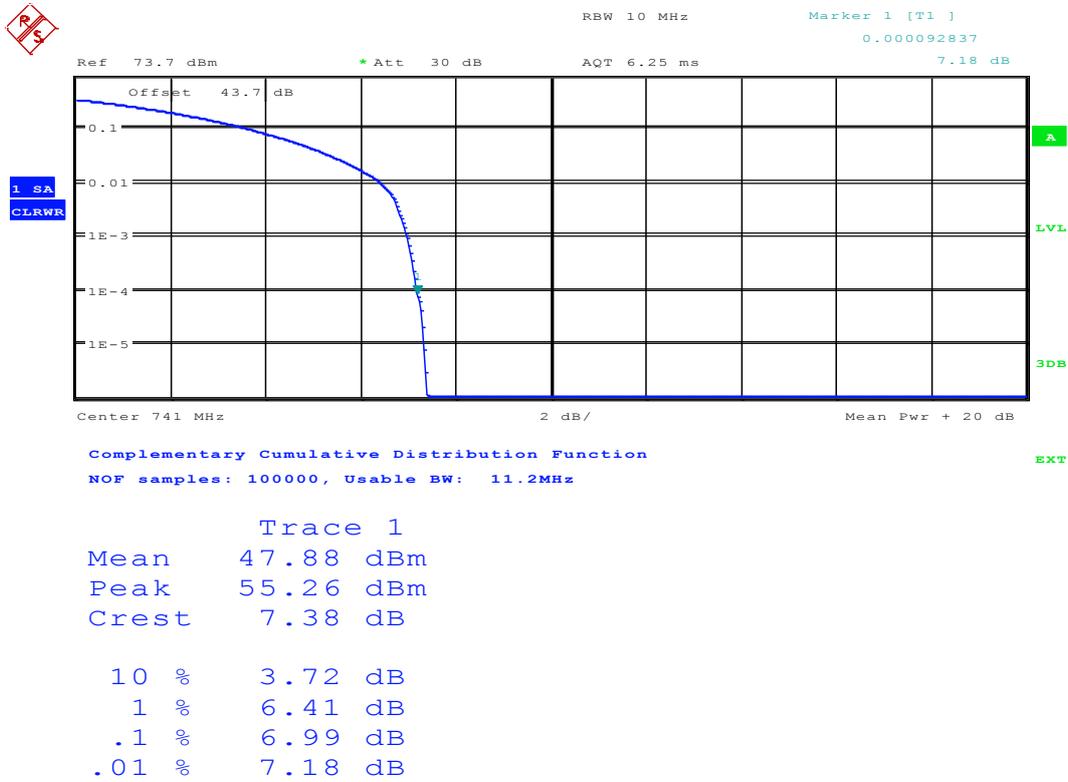
Date: 28.APR.2015 16:28:17

2.2.5 1 L_10M_TM1_M



Date: 28.APR.2015 13:33:19

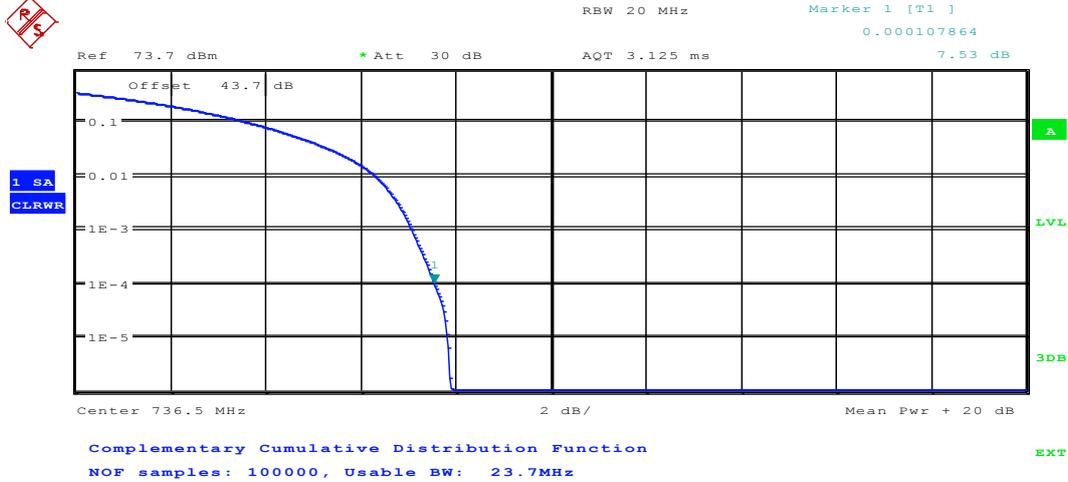
2.2.6 1 L_10M_TM1_T



Date: 28.APR.2015 16:14:42



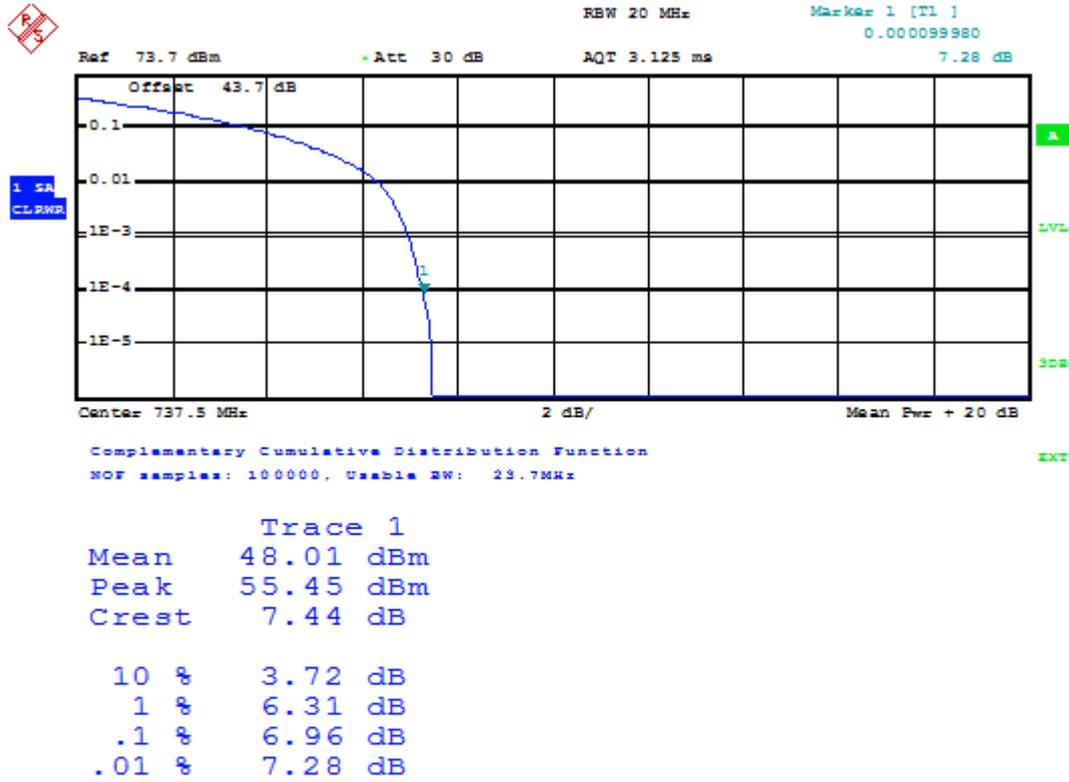
2.2.7 1 L_15M_TM1_B



Trace 1	
Mean	48.00 dBm
Peak	55.88 dBm
Crest	7.88 dB
10 %	3.72 dB
1 %	6.31 dB
.1 %	7.08 dB
.01 %	7.53 dB

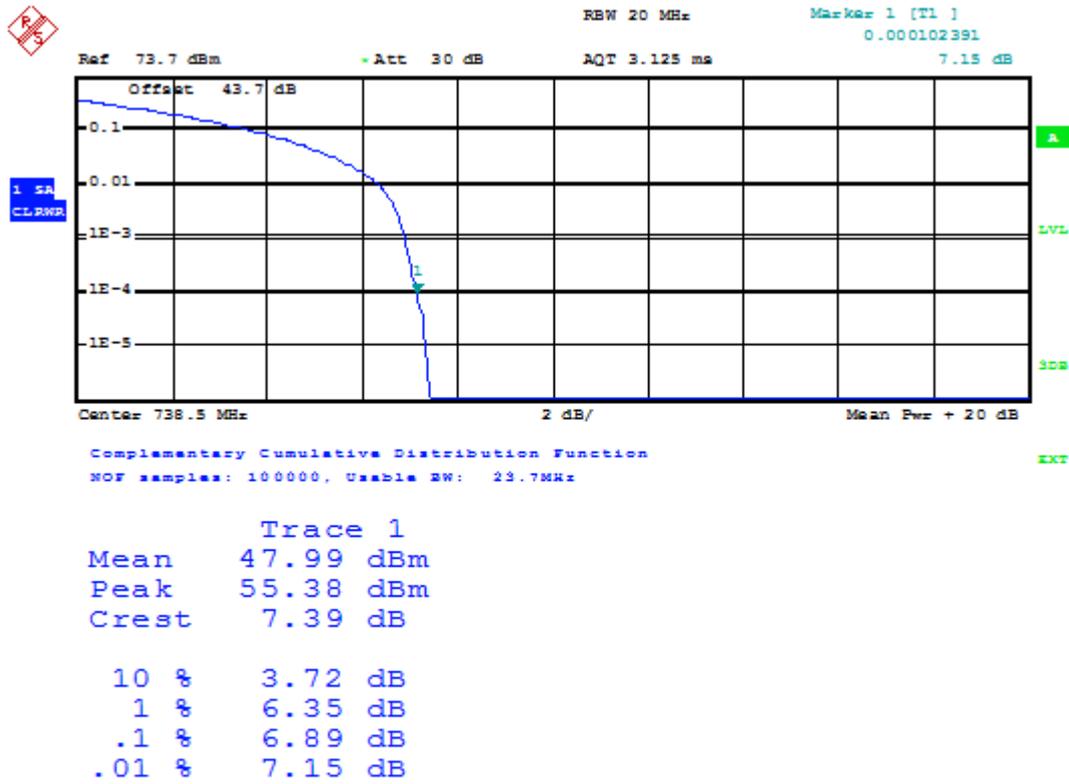
Date: 28.APR.2015 16:36:39

2.2.8 1 L_15M_TM1_M



Date: 28.APR.2015 16:37:12

2.2.9 1 L_15M_TM1_T



Date: 28.APR.2015 16:37:43



Appendix B: Bandwidth



1 Result Table

1.1 Occupied Bandwidth

EUT Conf.	Occupied Bandwidth [MHz]	Verdict
1L_5M_TM1_B	4.503	Pass
1L_5M_TM1_M	4.519	Pass
1L_5M_TM1_T	4.503	Pass
1L_10M_TM1_B	8.942	Pass
1L_10M_TM1_M	8.943	Pass
1L_10M_TM1_T	8.974	Pass
1L_15M_TM1_B	13.365	Pass
1L_15M_TM1_M	13.365	Pass
1L_15M_TM1_T	13.365	Pass

1.2 26dB Emission Bandwidth

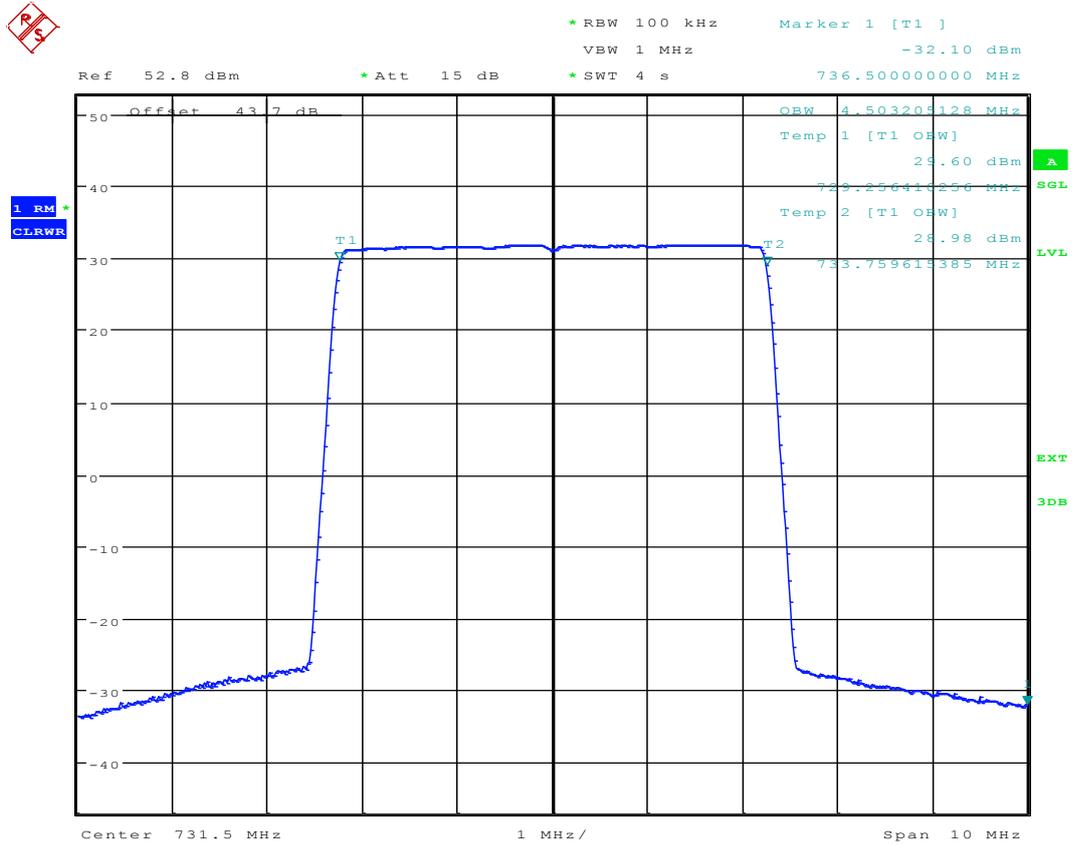
EUT Conf.	Emission Bandwidth, -26 dBc [MHz]	Verdict
1L_5M_TM1_B	4.785	Pass
1L_5M_TM1_M	4.8	Pass
1L_5M_TM1_T	4.795	Pass
1L_10M_TM1_B	9.4	Pass
1L_10M_TM1_M	9.4	Pass
1L_10M_TM1_T	9.4	Pass
1L_15M_TM1_B	14.02	Pass
1L_15M_TM1_M	14.02	Pass
1L_15M_TM1_T	14	Pass



2 Test Plot

2.1 Occupied Bandwidth

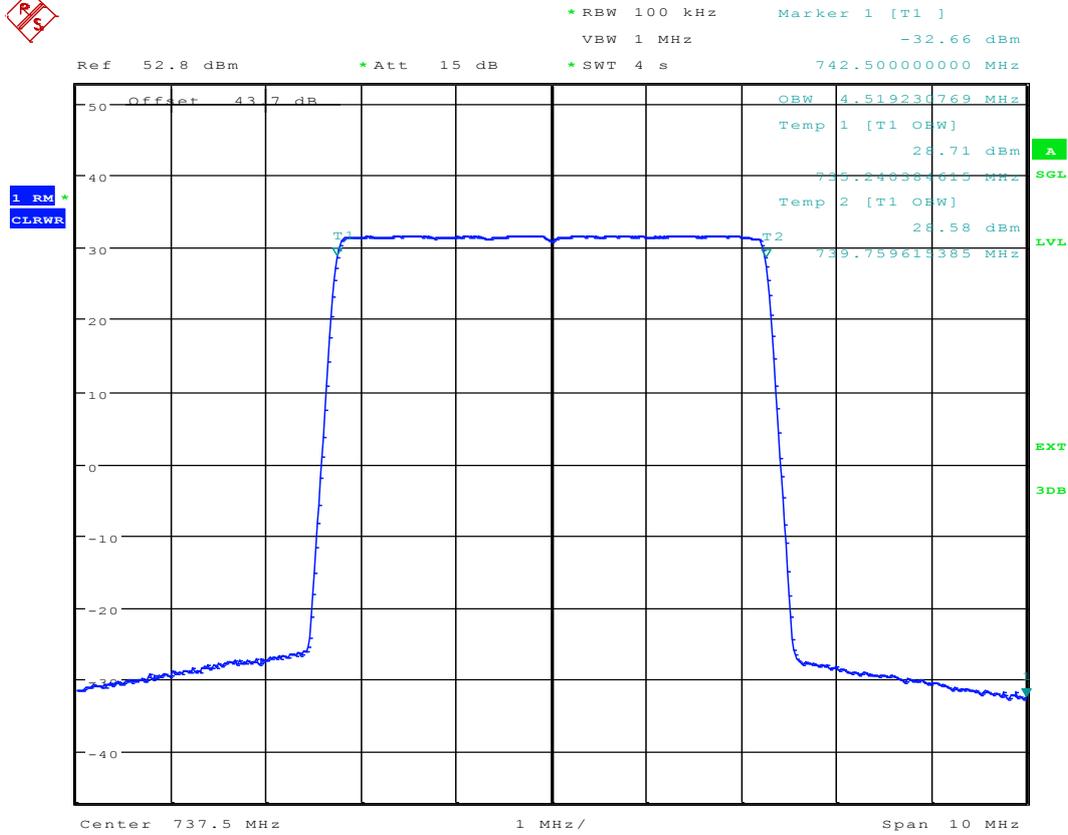
2.1.1 1 L_5M_TM1_B



Date: 28.APR.2015 13:01:40



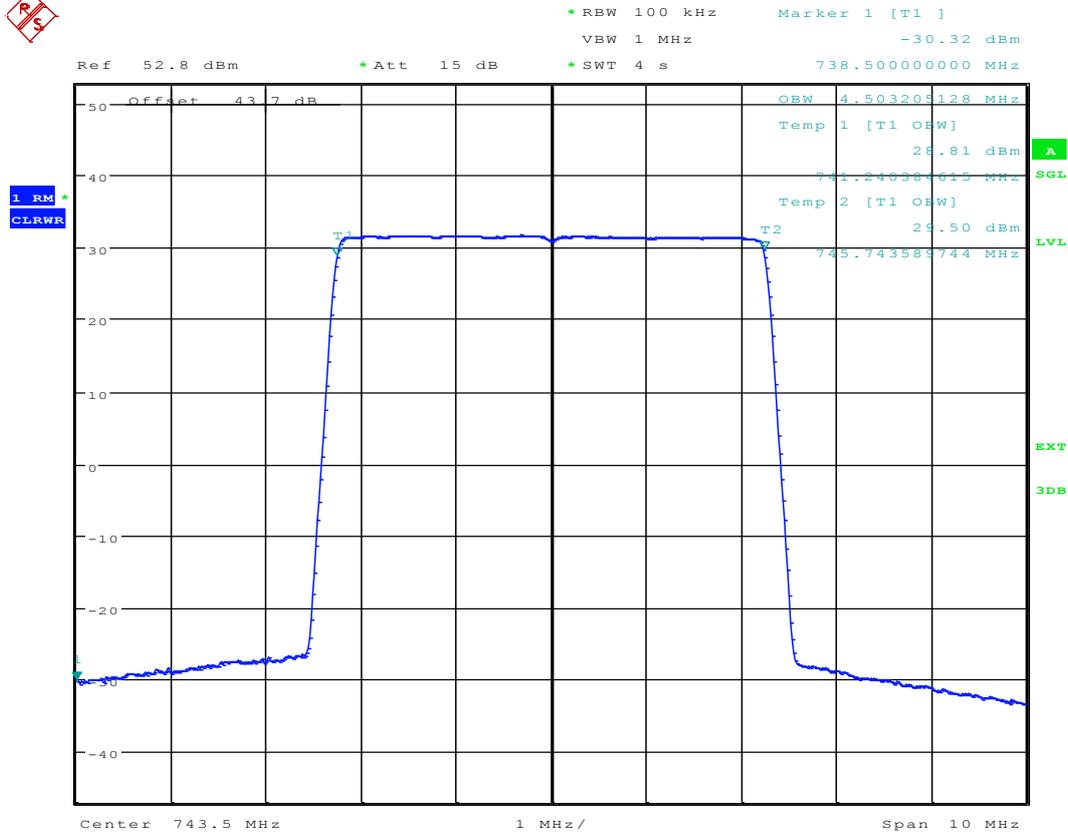
2.1.2 1 L_5M_TM1_M



Date: 28.APR.2015 13:03:04



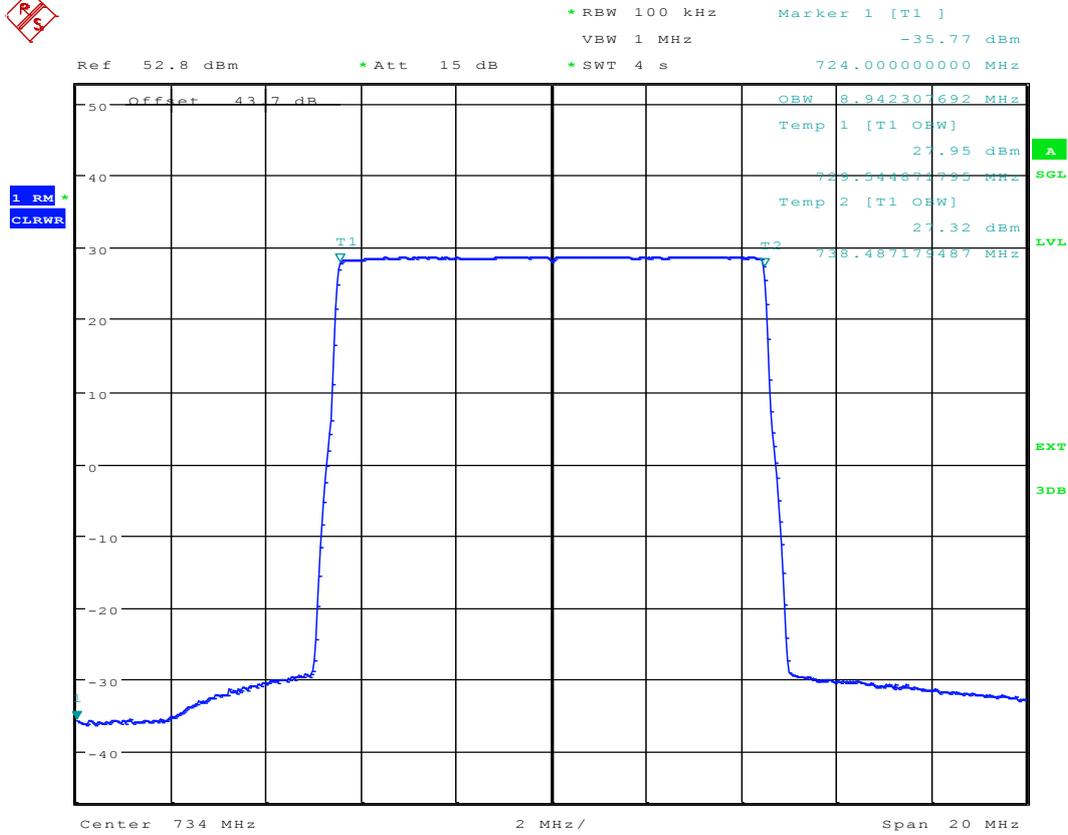
2.1.3 1 L_5M_TM1_T



Date: 28.APR.2015 13:04:28



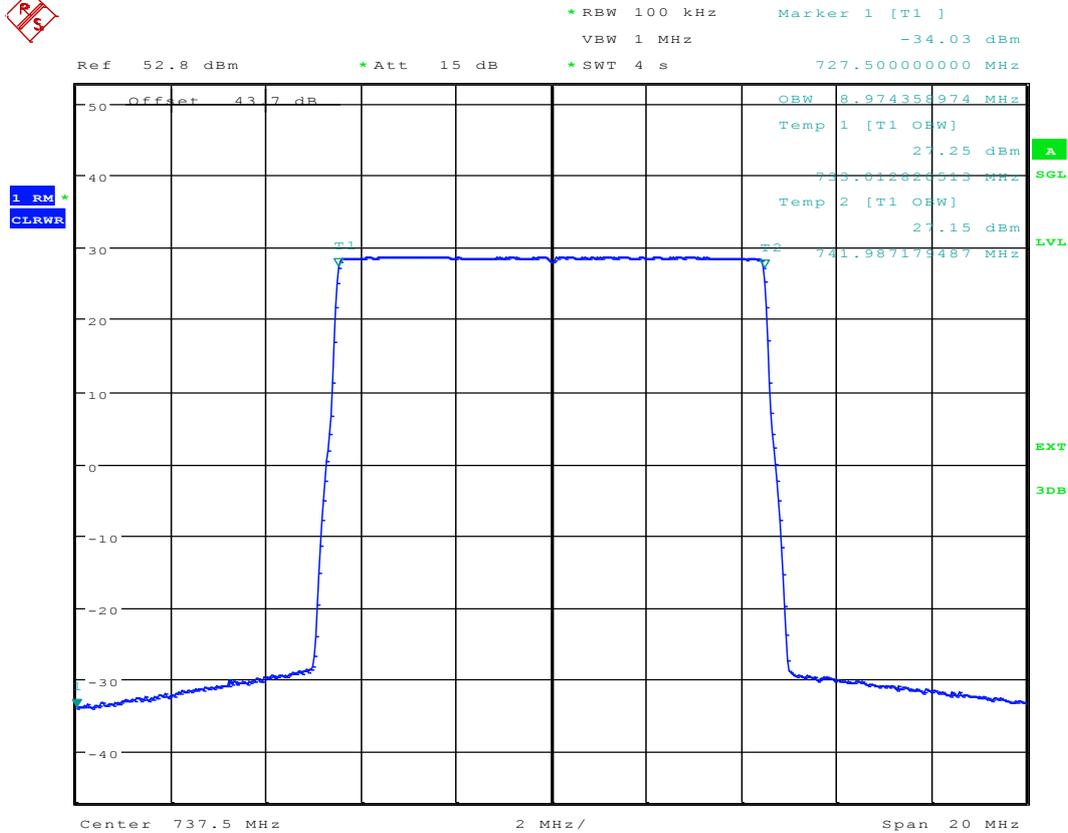
2.1.4 1 L_10M_TM1_B



Date: 28.APR.2015 13:06:09



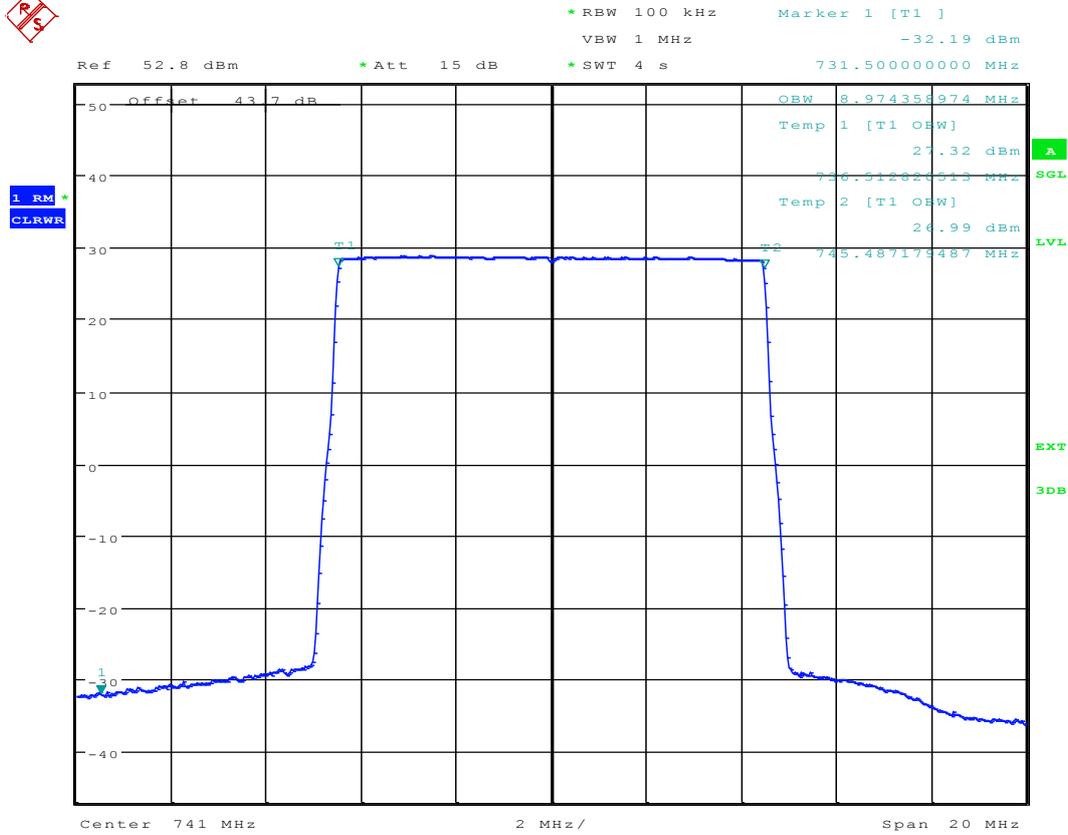
2.1.5 1 L_10M_TM1_M



Date: 28.APR.2015 13:07:32



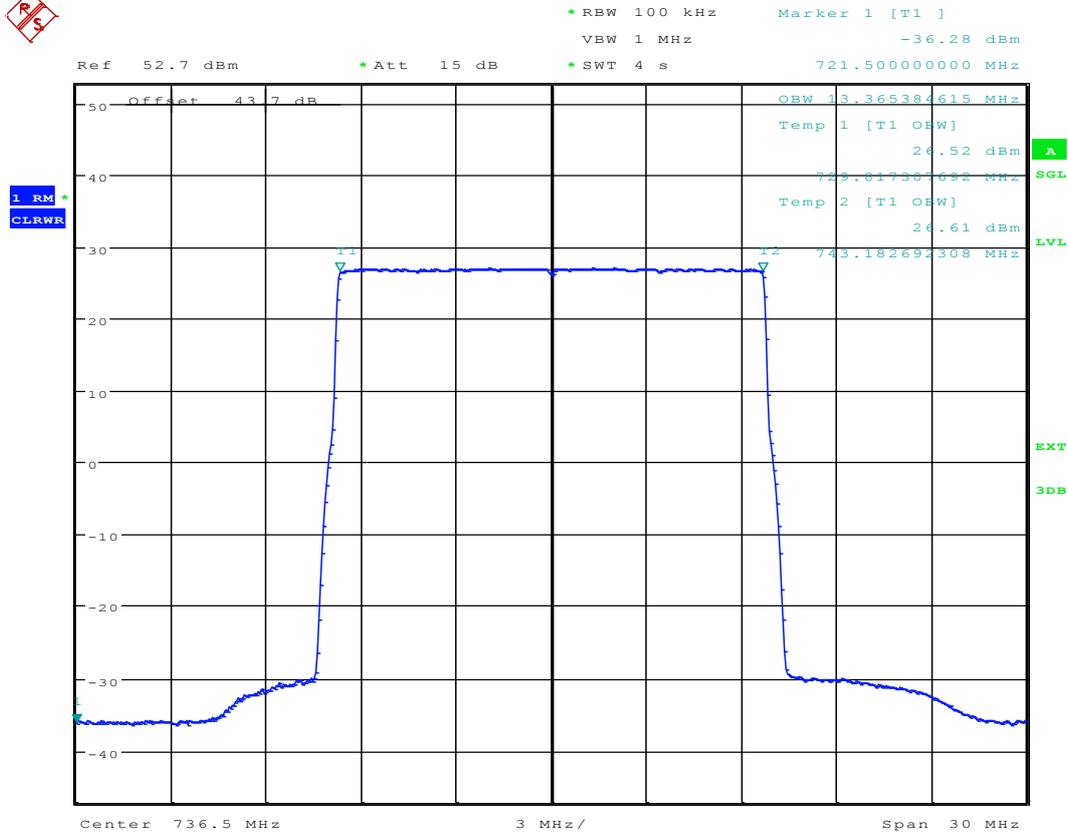
2.1.6 1 L_10M_TM1_T



Date: 28.APR.2015 13:08:54



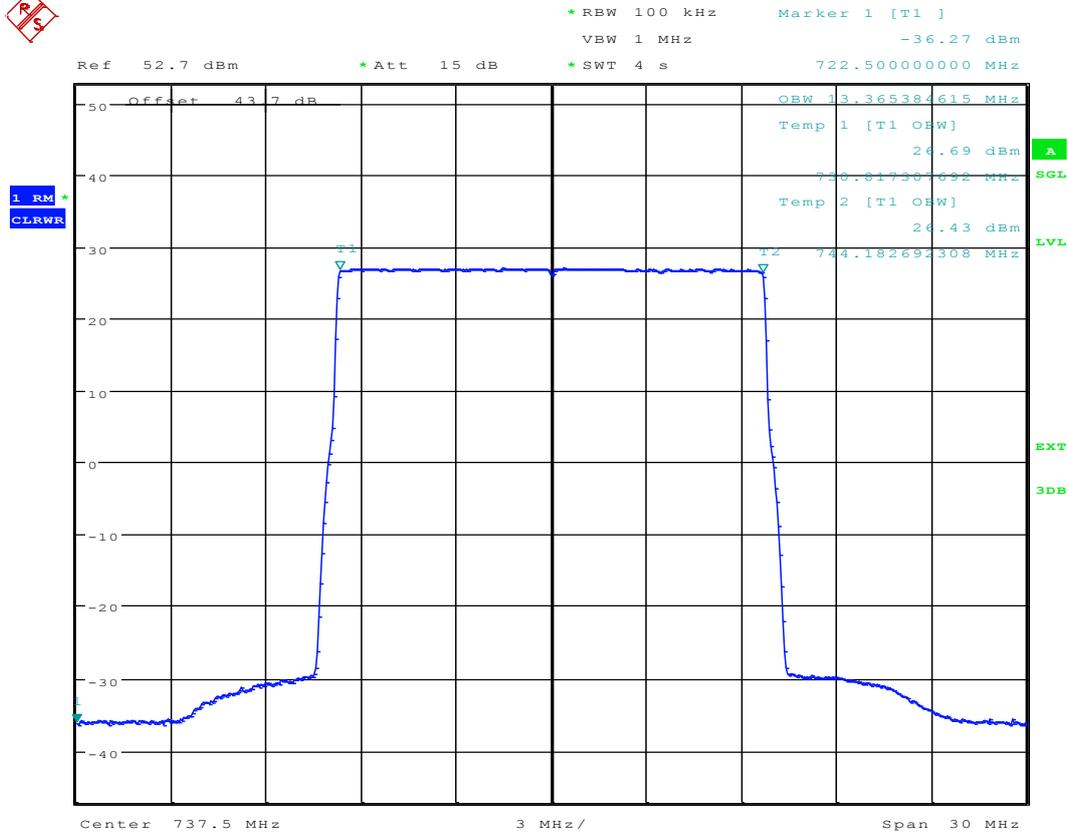
2.1.7 1 L_15M_TM1_B



Date: 28.APR.2015 13:10:36



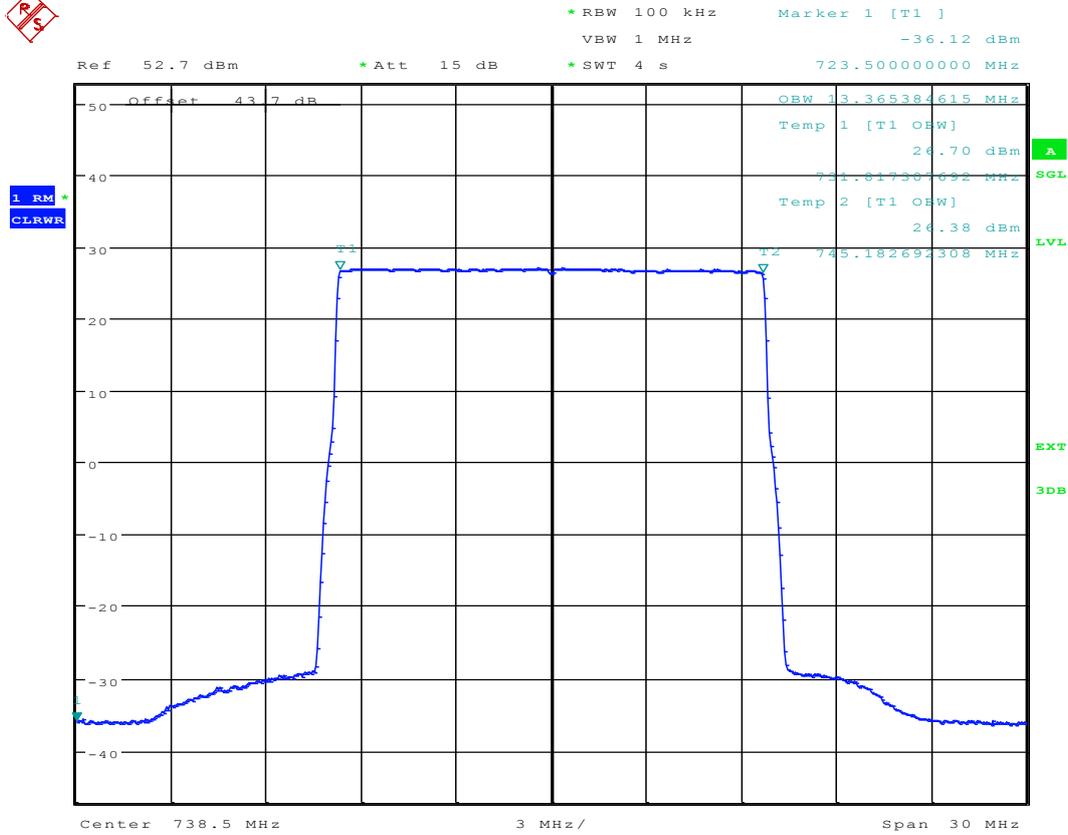
2.1.8 1 L_15M_TM1_M



Date: 28.APR.2015 13:12:01



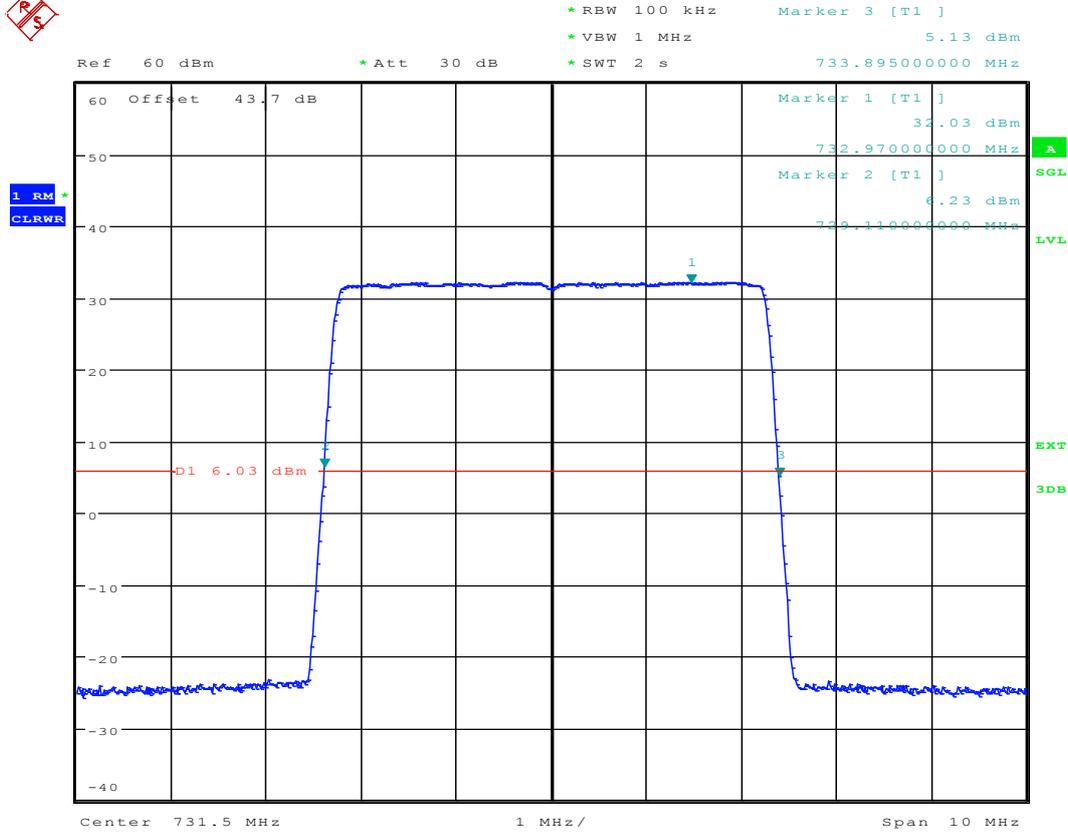
2.1.9 1 L_15M_TM1_T



Date: 28.APR.2015 13:13:25

2.2 26dB Emission Bandwidth

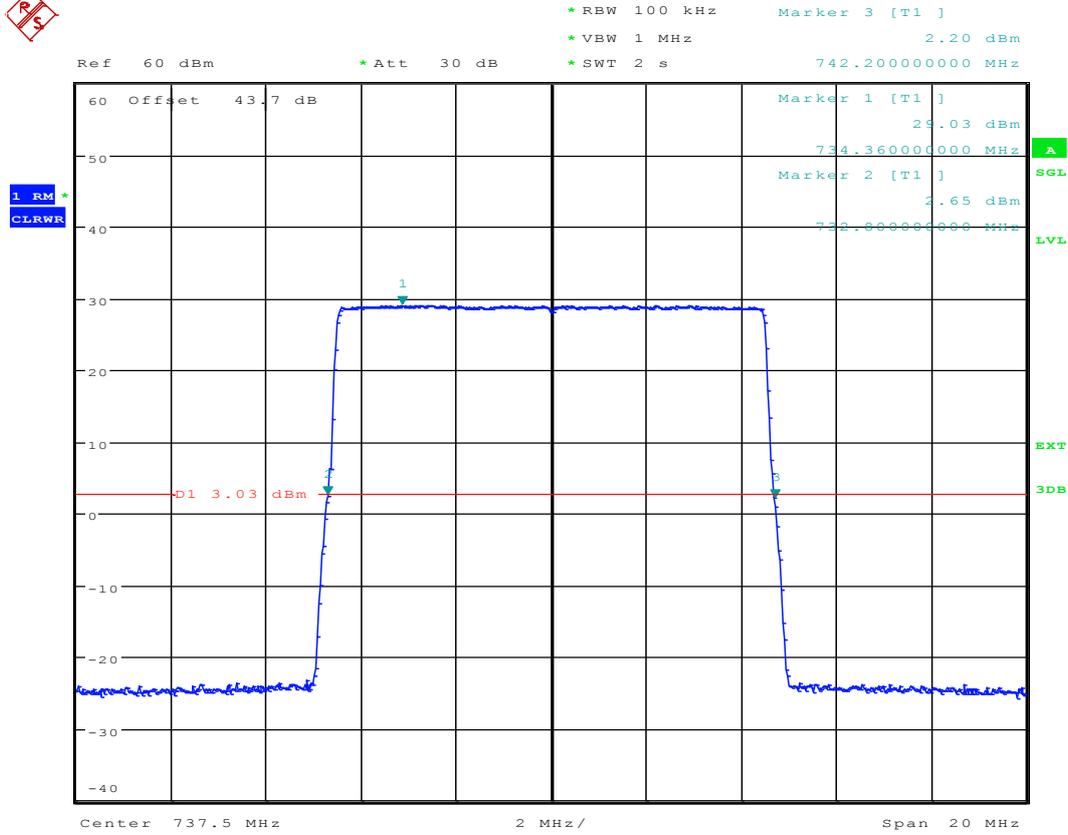
2.2.1 1 L_5M_TM1_B



Date: 28.APR.2015 17:26:41

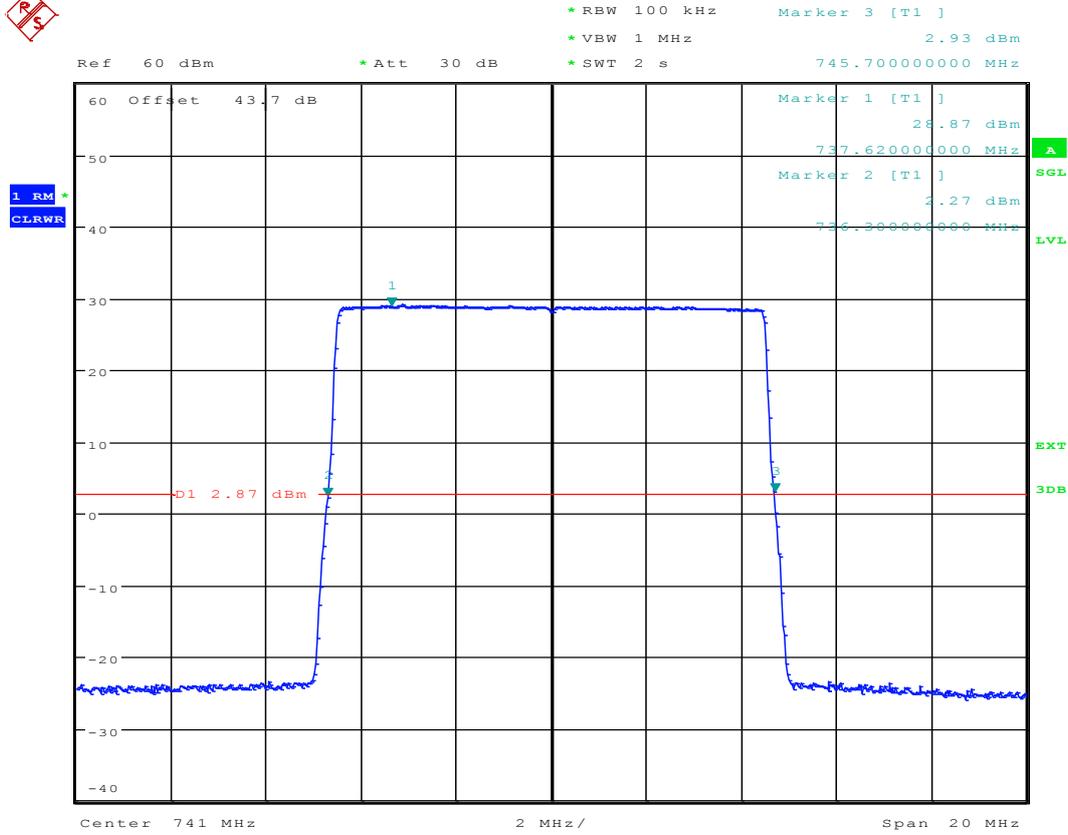


2.2.5 1 L_10M_TM1_M



Date: 28.APR.2015 17:33:02

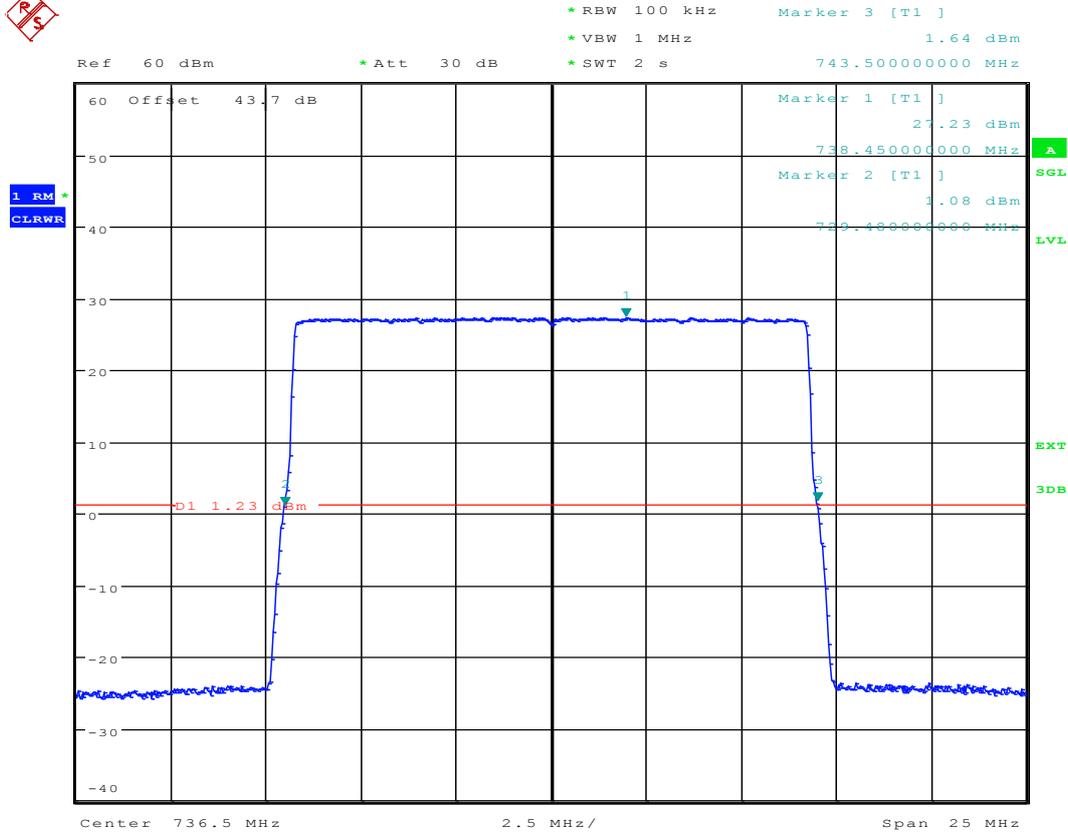
2.2.6 1 L_10M_TM1_T



Date: 28.APR.2015 17:34:57

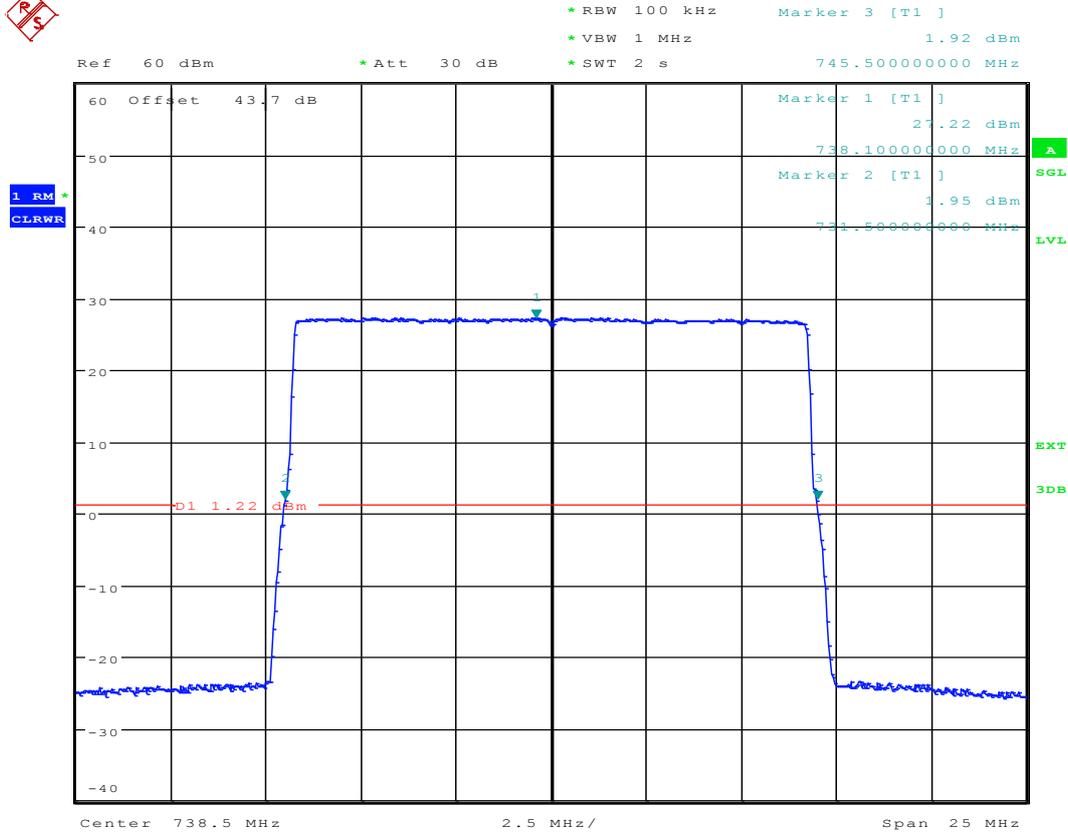


2.2.7 1 L_15M_TM1_B



Date: 28.APR.2015 17:38:35

2.2.9 1 L_15M_TM1_T



Date: 28.APR.2015 17:44:42



Appendix C: Band Edges Compliance / Emission Mask



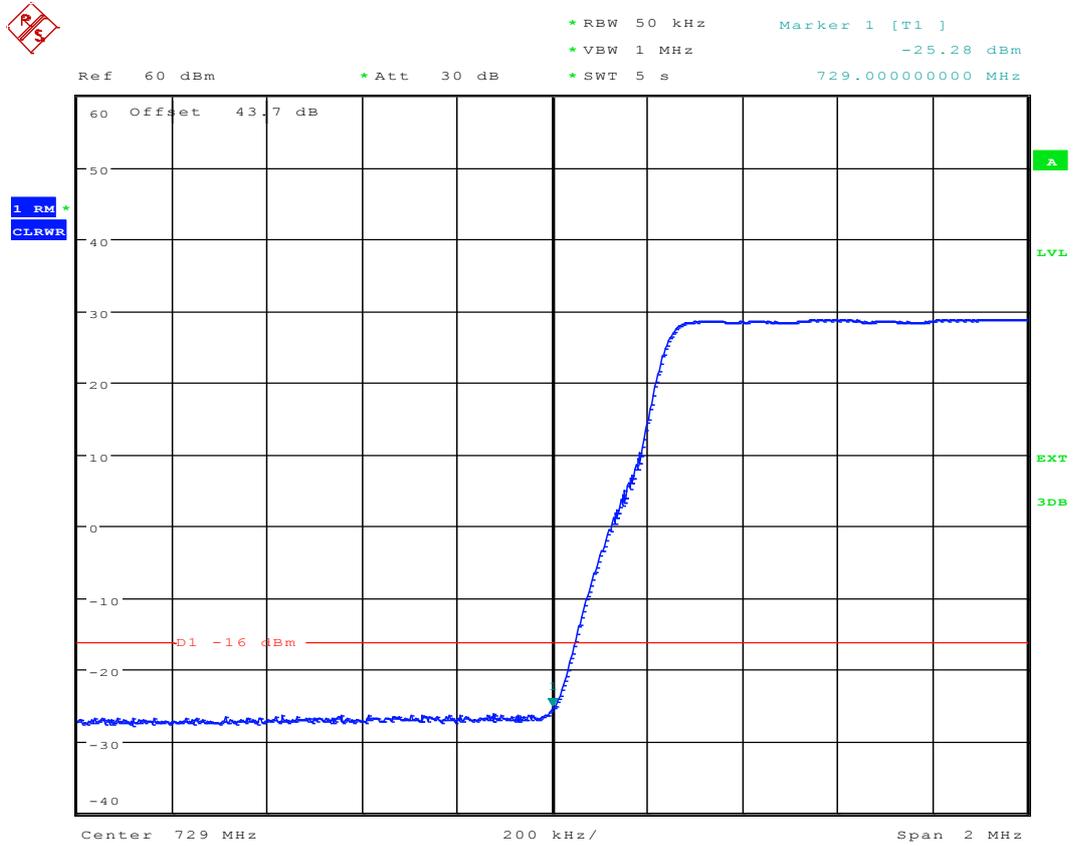
1 Result Table

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_B	<-16	Pass
1L_5M_TM1_T	<-16	Pass
1L_10M_TM1_B	<-16	Pass
1L_10M_TM1_T	<-16	Pass
1L_15M_TM1_B	<-16	Pass
1L_15M_TM1_T	<-16	Pass
2L_5M+5M_TM1_B	<-16	Pass
2L_5M+5M_TM1_T	<-16	Pass
2L_5M+10M_TM1_B	<-16	Pass
2L_5M+10M_TM1_B	<-16	Pass

2 Test Plot

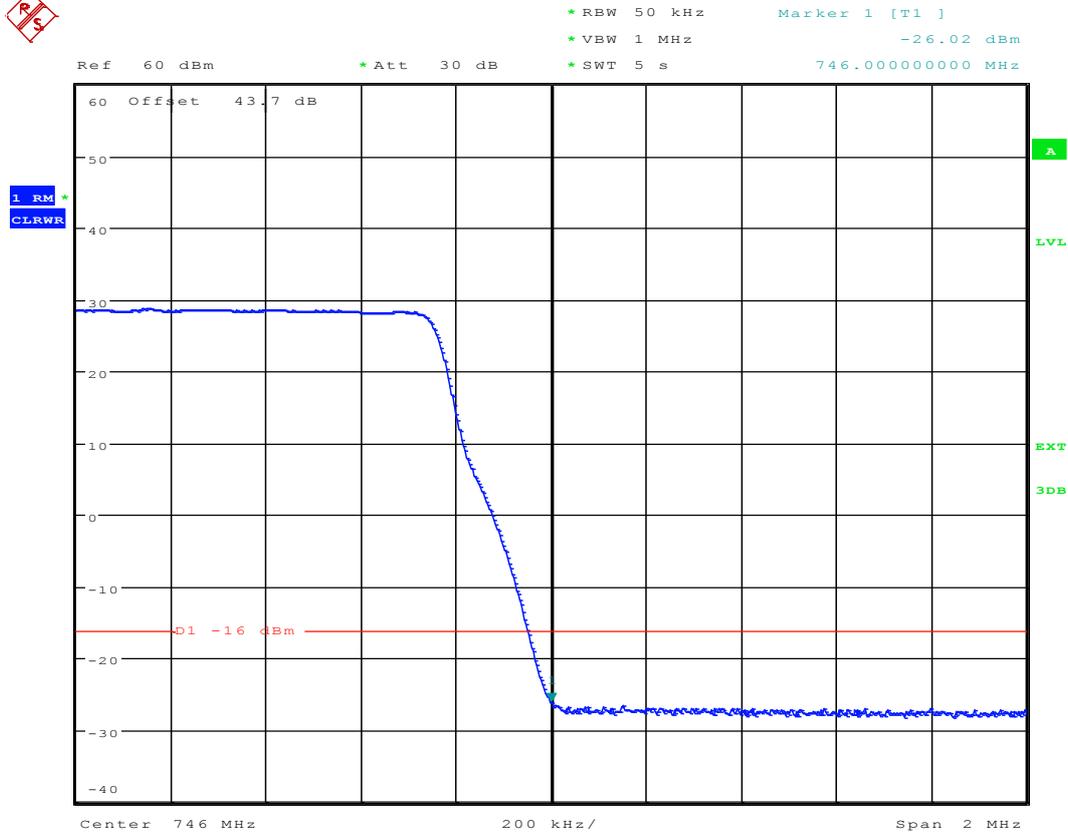
2.1 1 L_5M_TM1_B



Date: 29.APR.2015 12:42:54



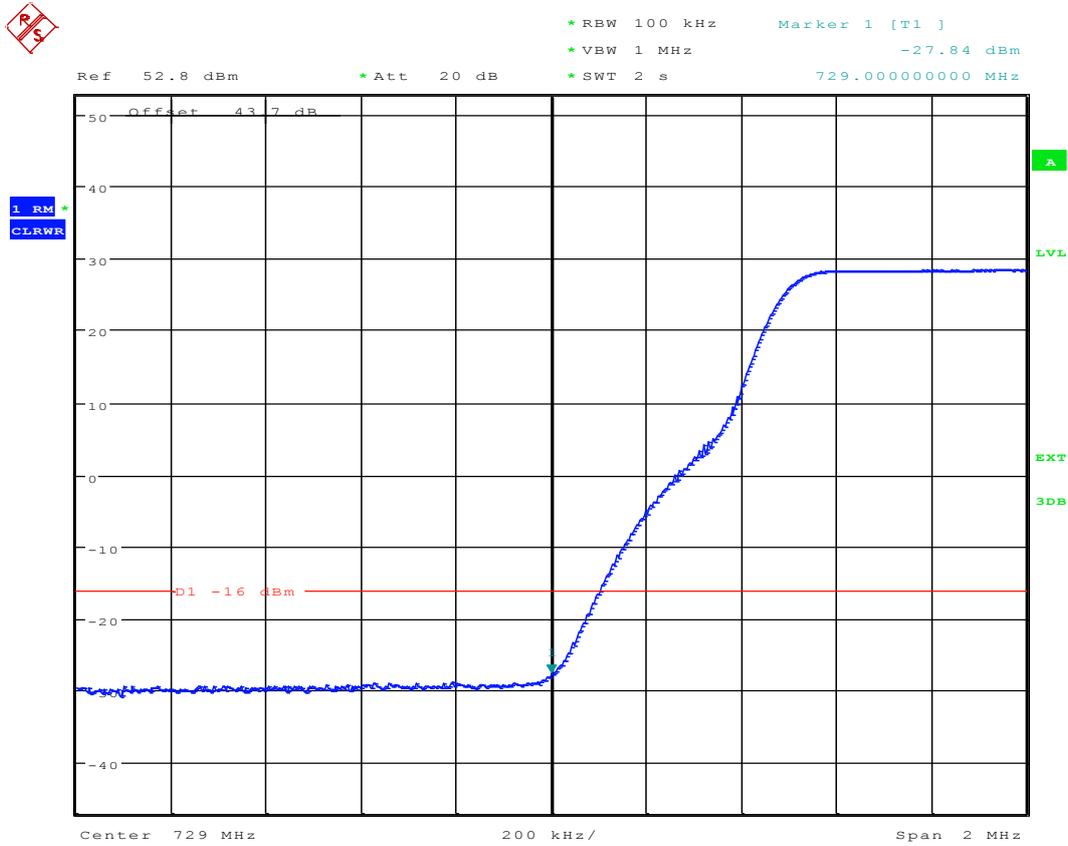
2.2 1 L_5M_TM1_T



Date: 29.APR.2015 12:40:48



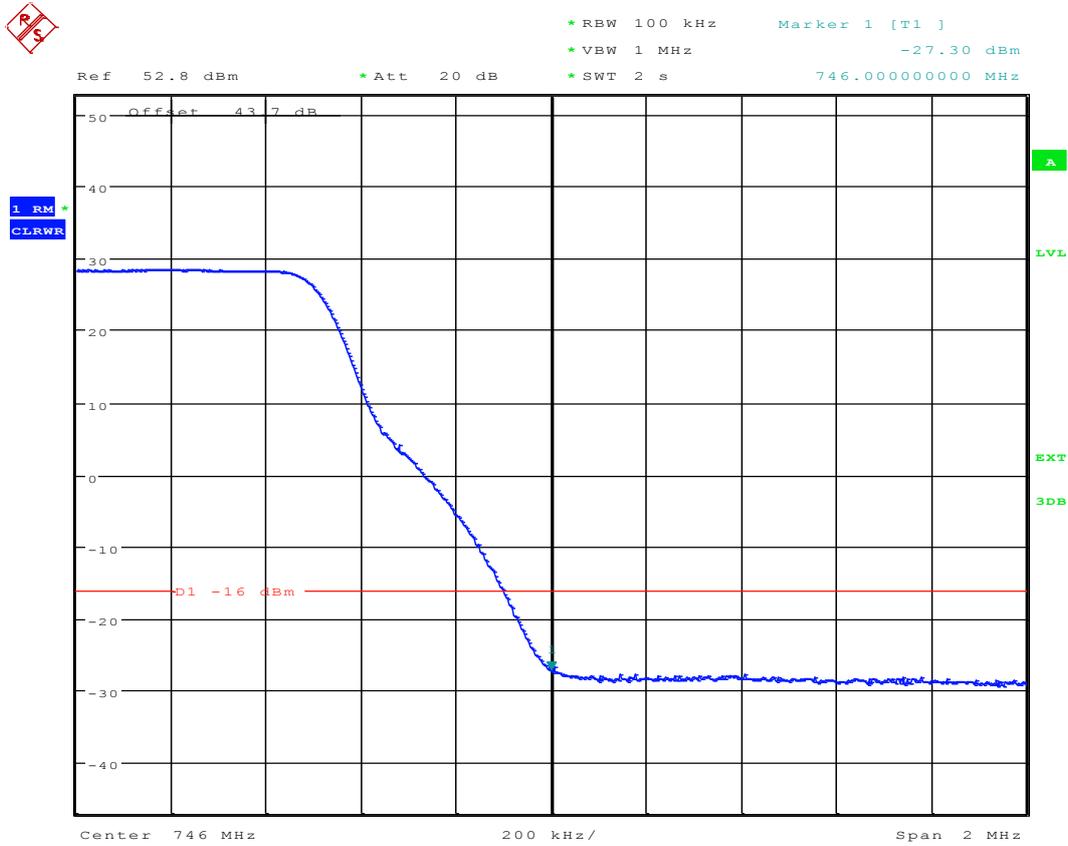
2.3 1 L_10M_TM1_B



Date: 29.APR.2015 13:18:05

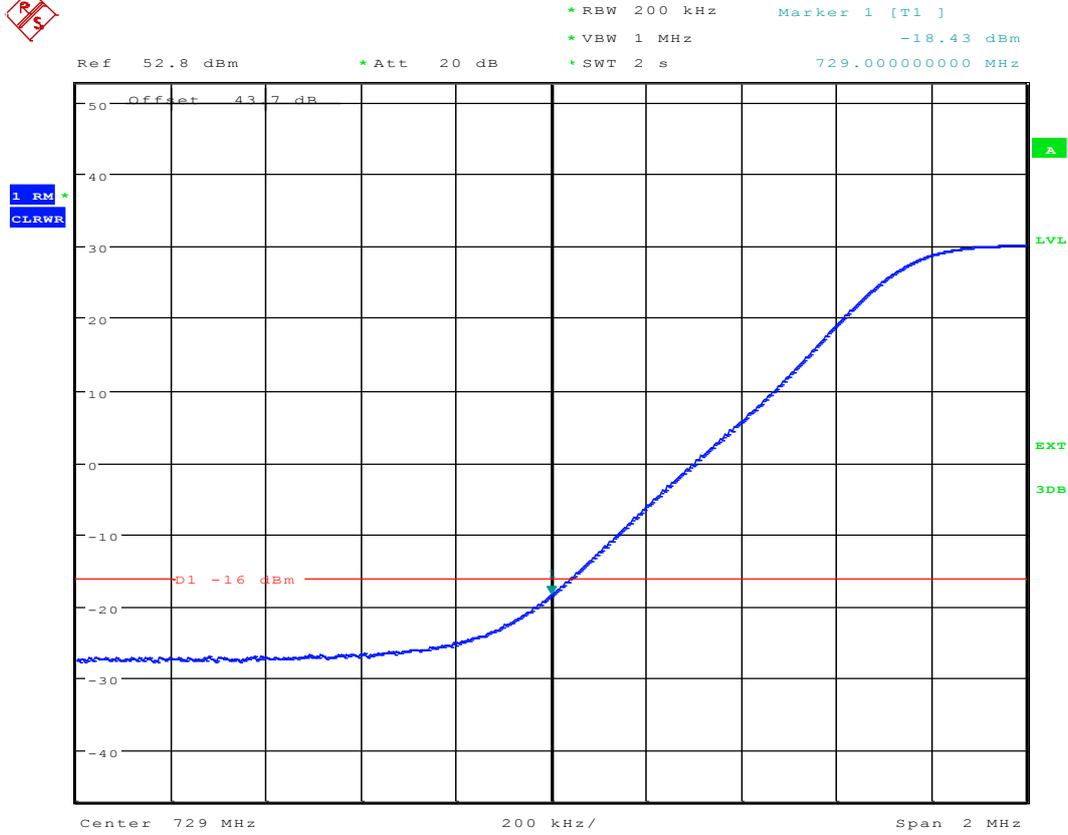


2.4 1 L_10M_TM1_T



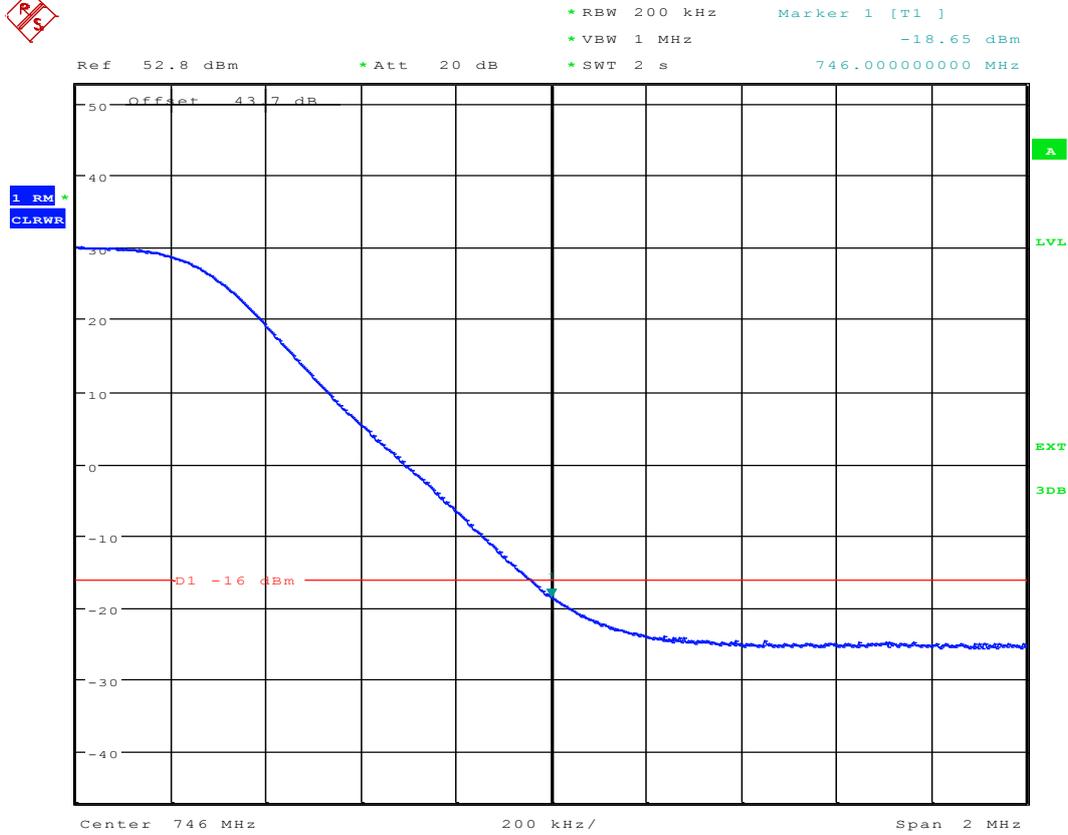
Date: 29.APR.2015 13:19:25

2.5 1 L_15M_TM1_B



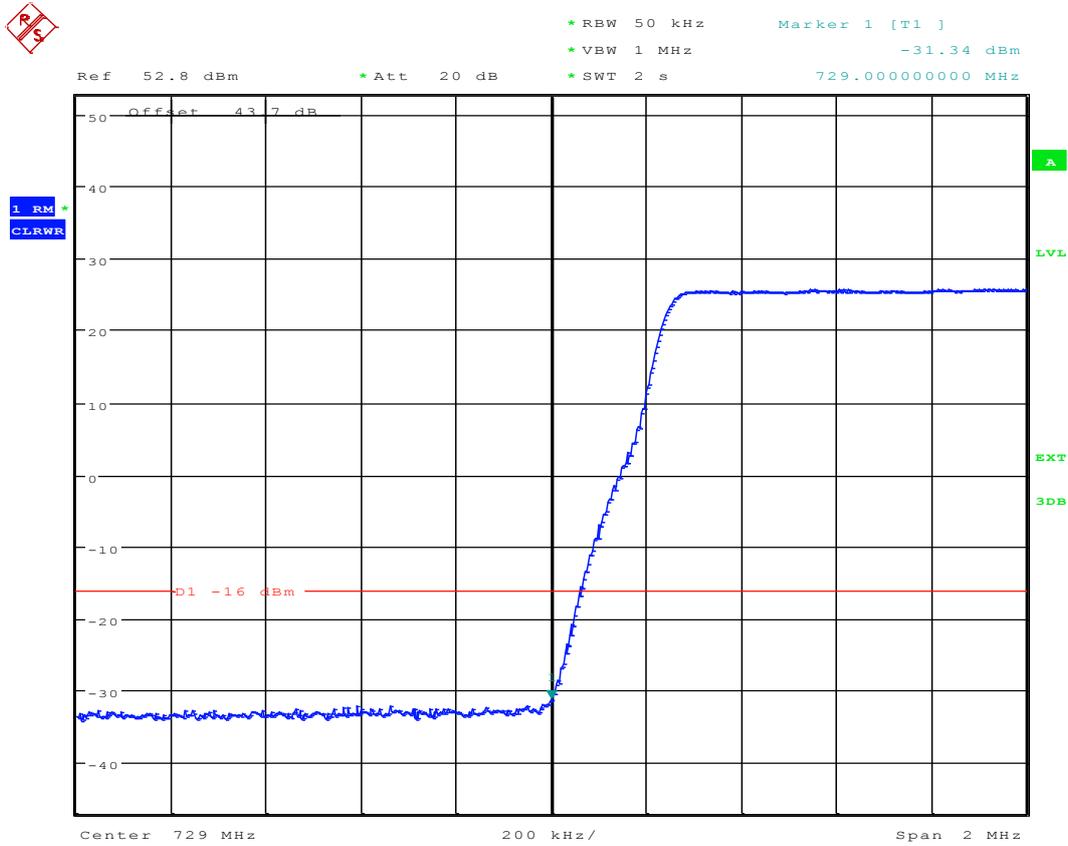
Date: 29.APR.2015 13:21:09

2.6 1 L_15M_TM1_T

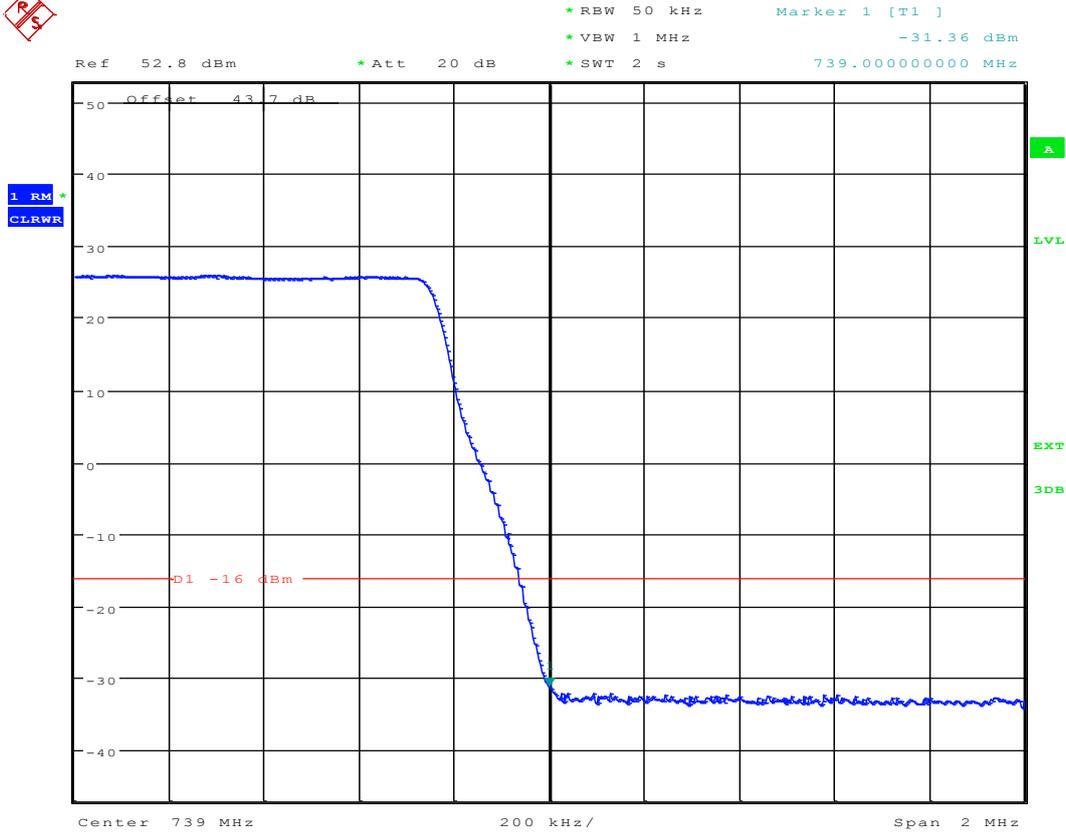


Date: 29.APR.2015 13:22:03

2.7 2 L_5M+5M_TM1_B



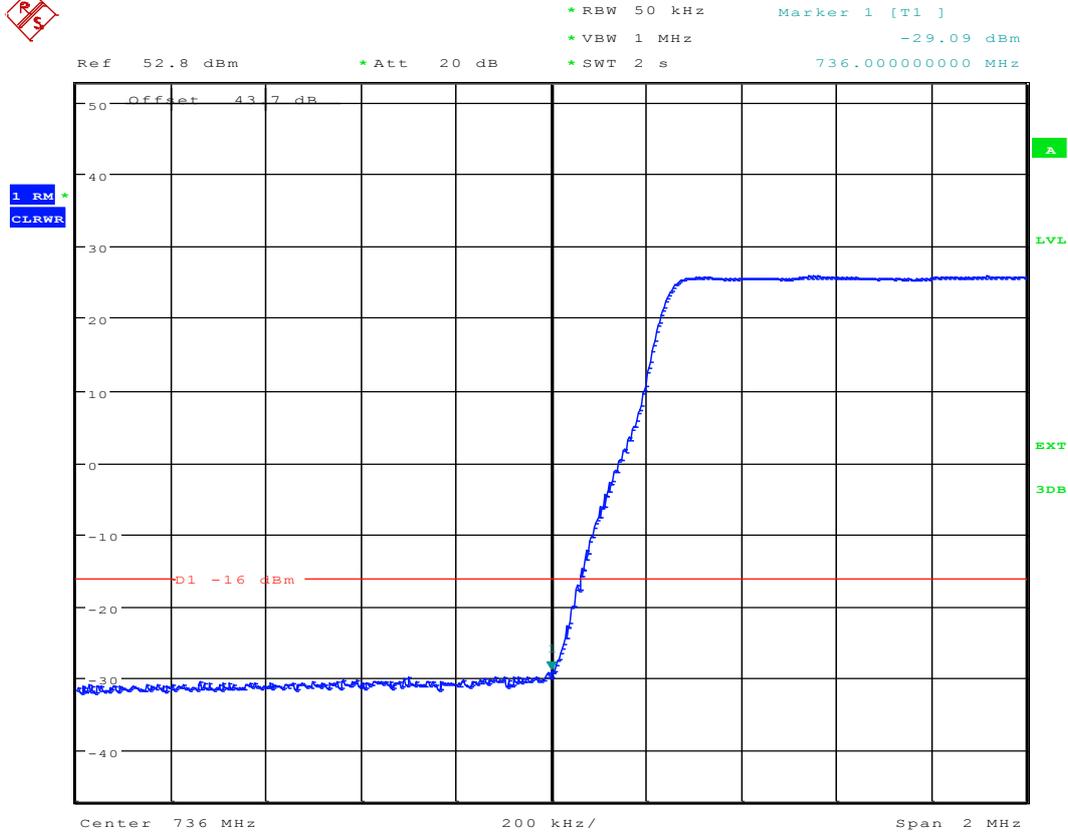
Date: 29.APR.2015 13:04:54



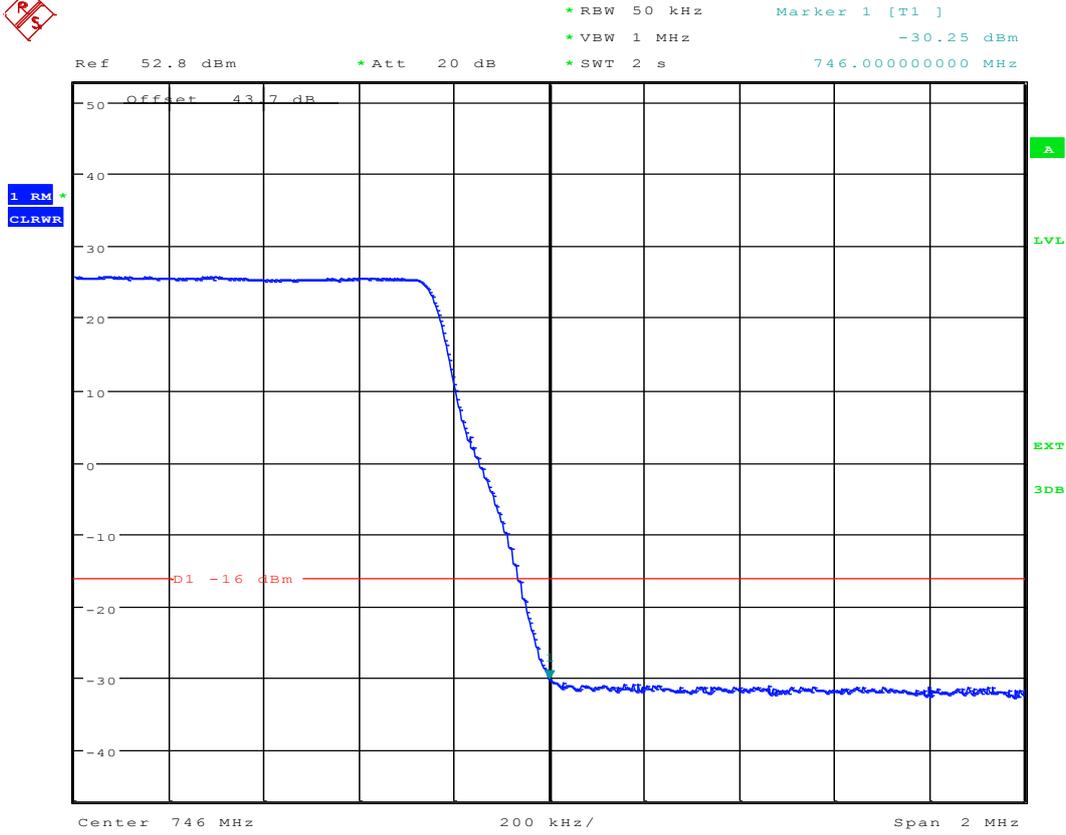
Date: 29.APR.2015 13:05:17



2.8 2L_5M+5M_TM1_T

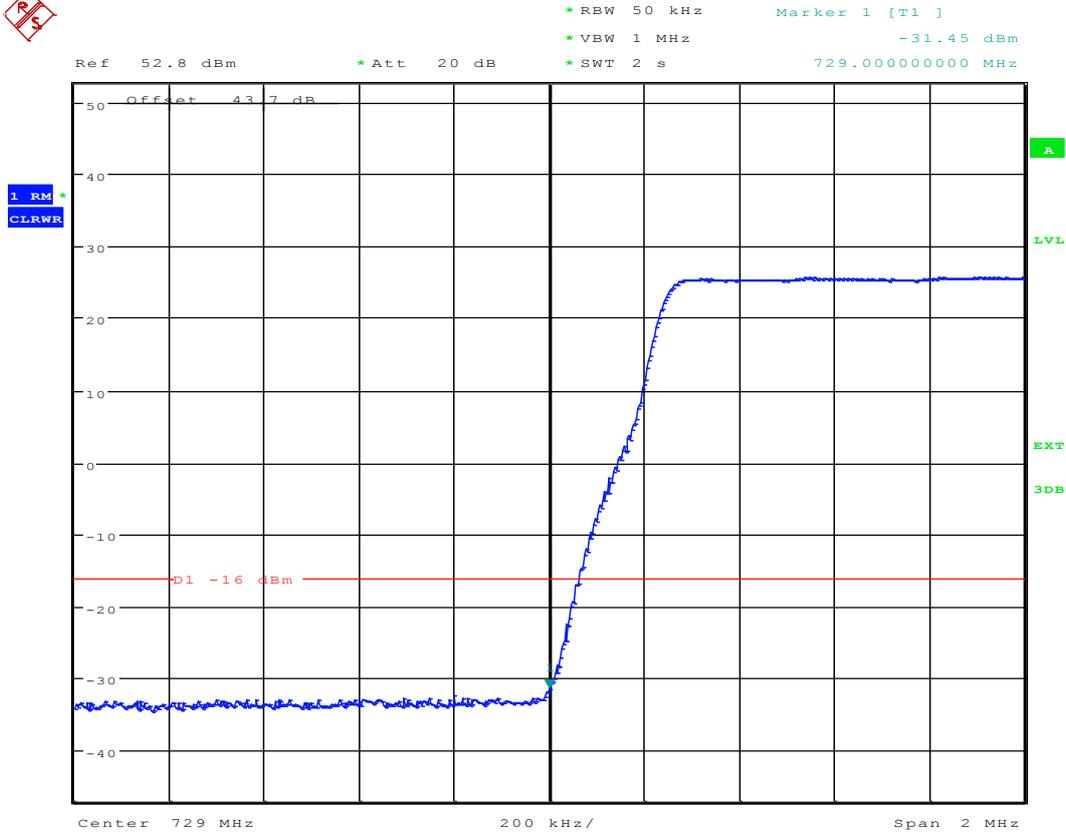


Date: 29.APR.2015 13:08:27

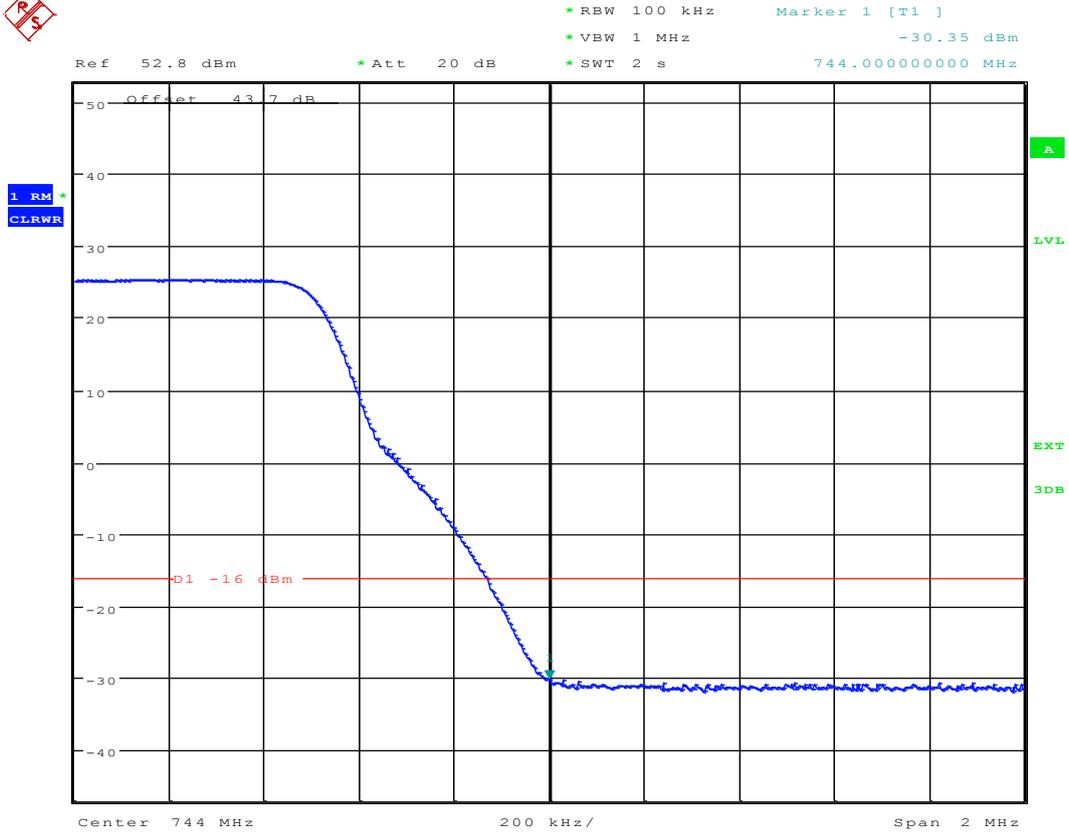


Date: 29.APR.2015 13:08:43

2.9 2 L_5M+10M_TM1_B



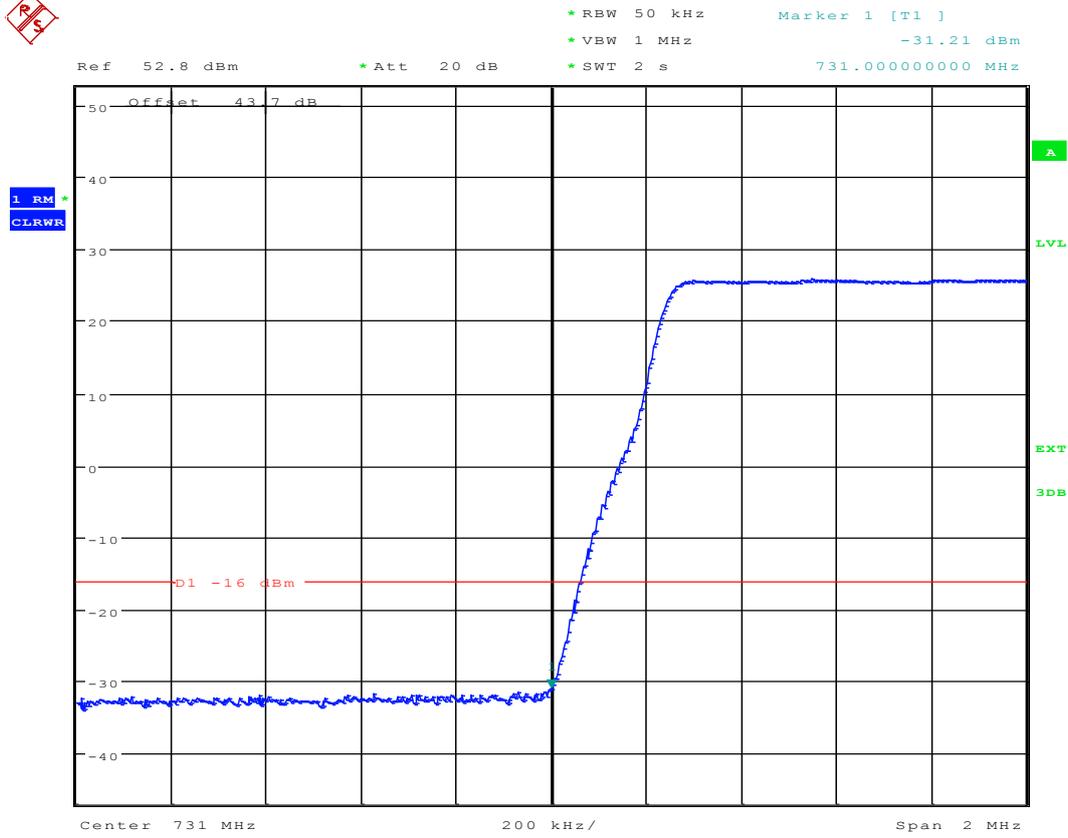
Date: 29.APR.2015 13:12:25



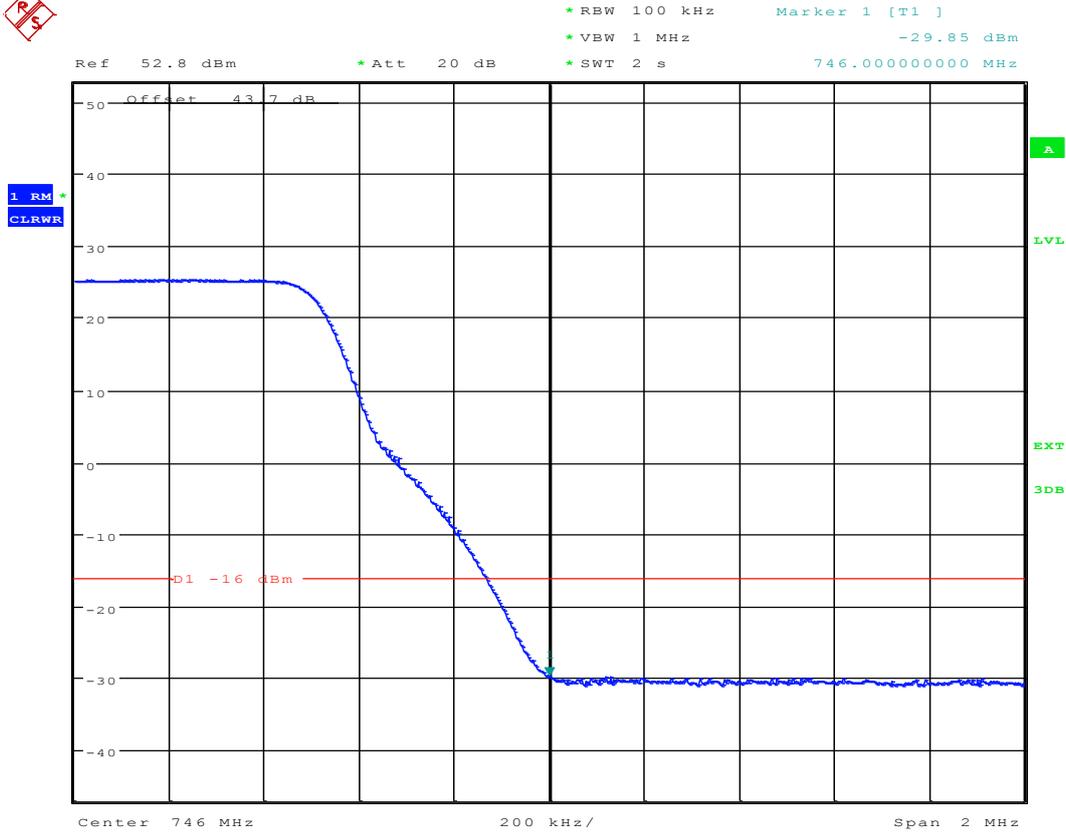
Date: 29.APR.2015 13:12:49



2.10 2L_5M+10M_TM1_T



Date: 29.APR.2015 13:15:14



Date: 29.APR.2015 13:14:43



Appendix D: Spurious Emission at Antenna Terminals



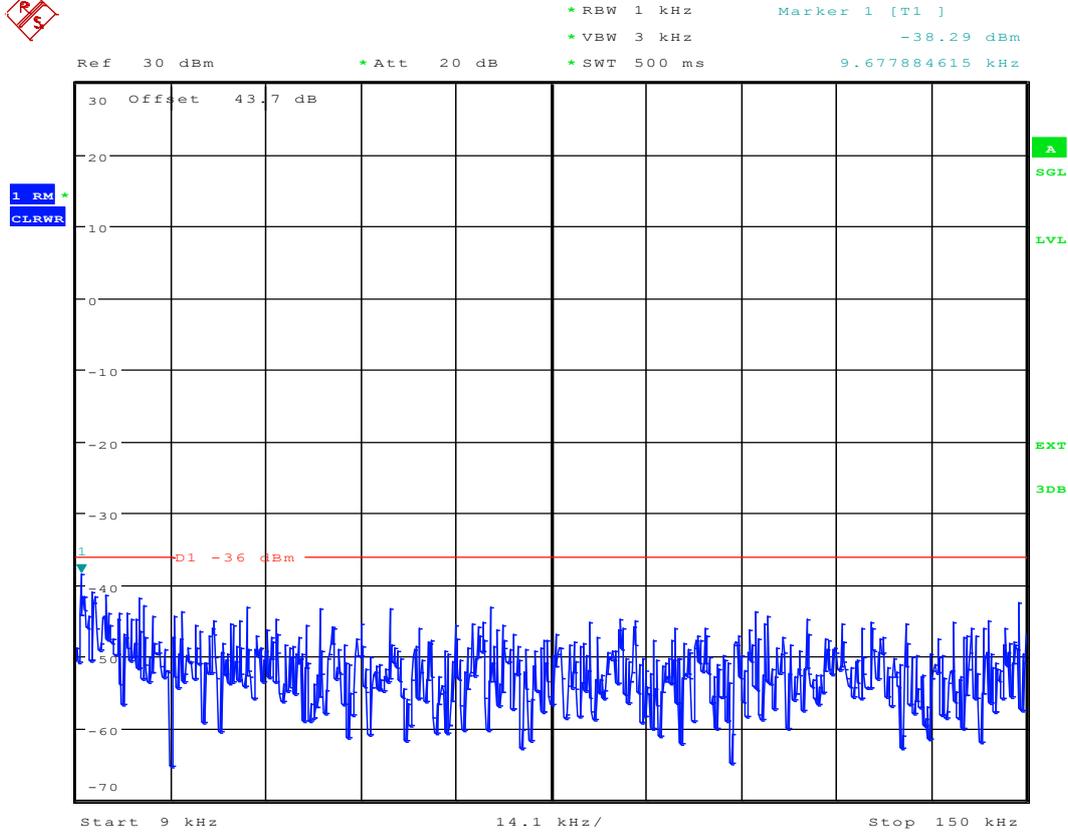
1 Result Table

EUT Conf.	Maximum Emission [dBm]	Verdict
1L_5M_TM1_B	<-16	Pass
1L_5M_TM1_M	<-16	Pass
1L_5M_TM1_T	<-16	Pass
1L_10M_TM1_B	<-16	Pass
1L_10M_TM1_M	<-16	Pass
1L_10M_TM1_T	<-16	Pass
1L_15M_TM1_B	<-16	Pass
1L_15M_TM1_M	<-16	Pass
1L_15M_TM1_T	<-16	Pass
2L_5M+5M_TM1_B	<-16	Pass
2L_5M+5M_TM1_T	<-16	Pass
2L_5M+10M_TM1_B	<-16	Pass
2L_5M+10M_TM1_T	<-16	Pass

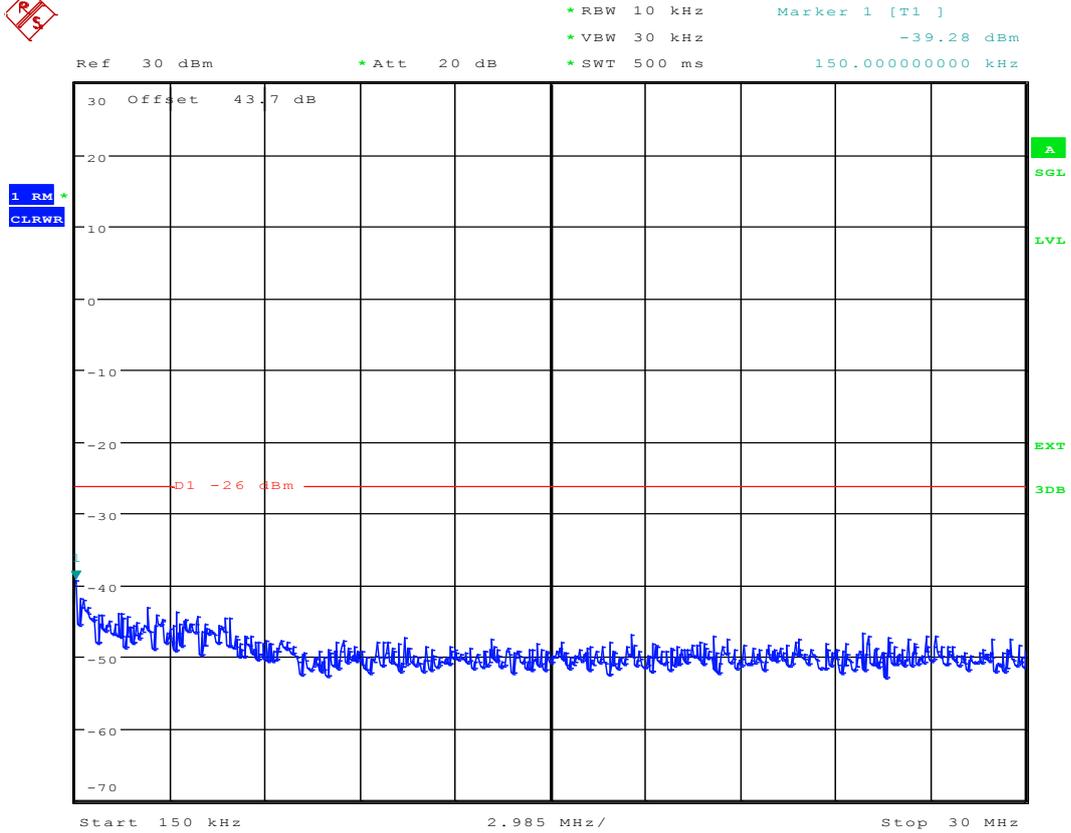


2 Test Plot

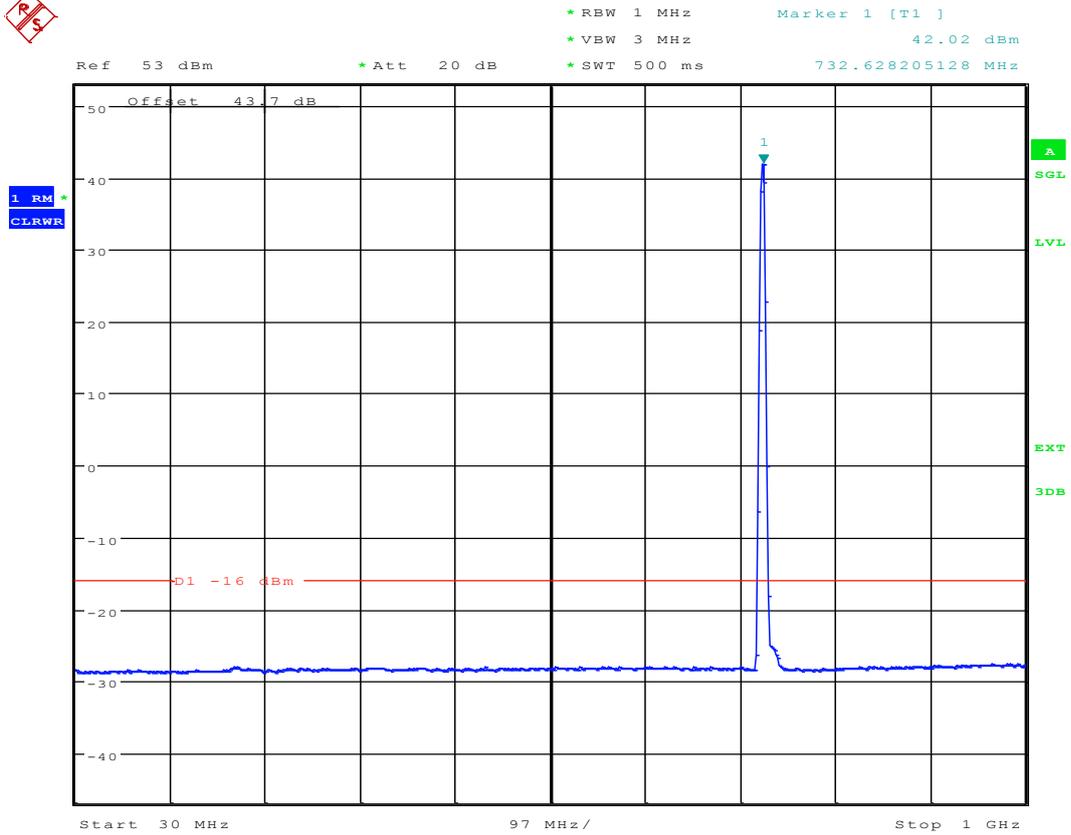
2.1 1 L_5M_TM1_B



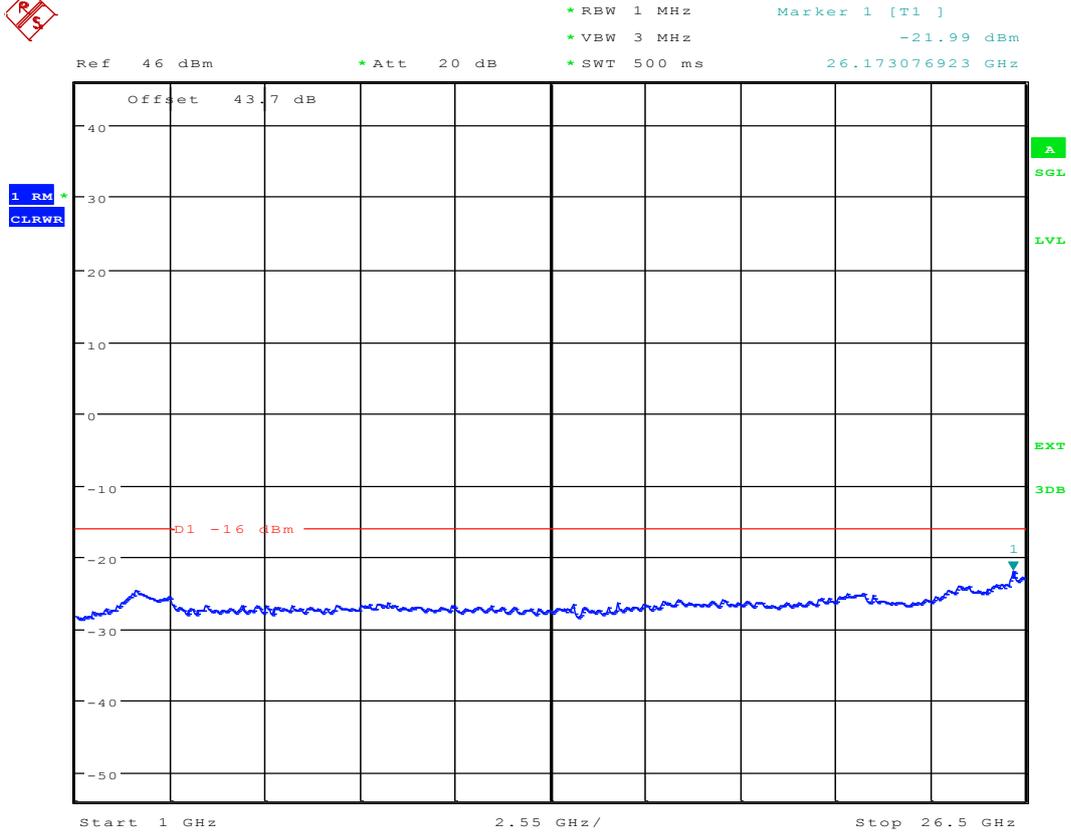
Date: 29.APR.2015 16:33:26



Date: 29.APR.2015 16:32:23



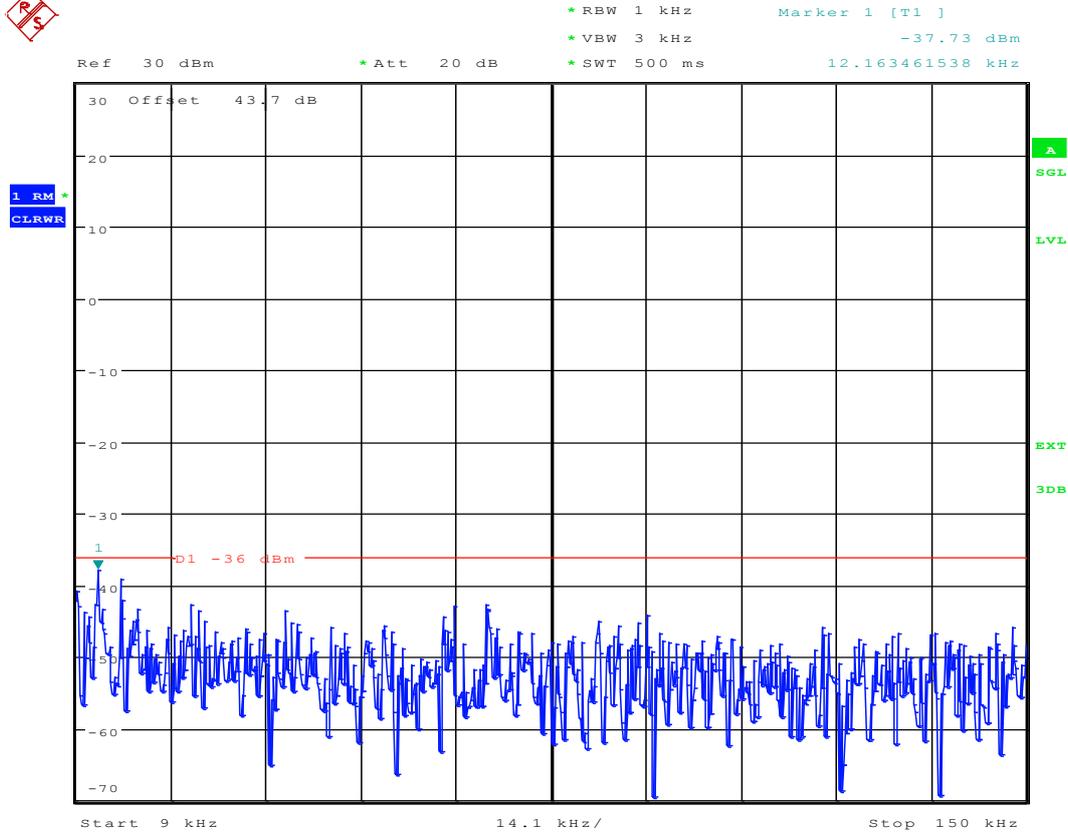
Date: 29.APR.2015 16:32:44



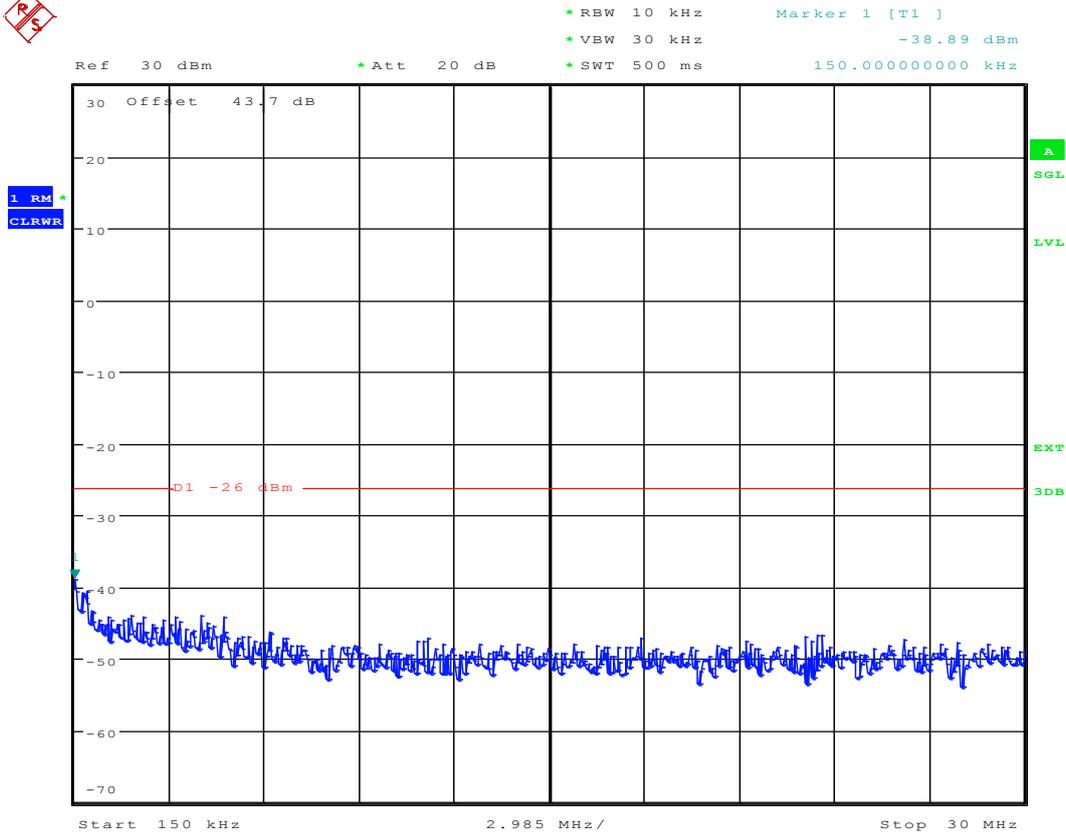
Date: 29.APR.2015 16:33:05



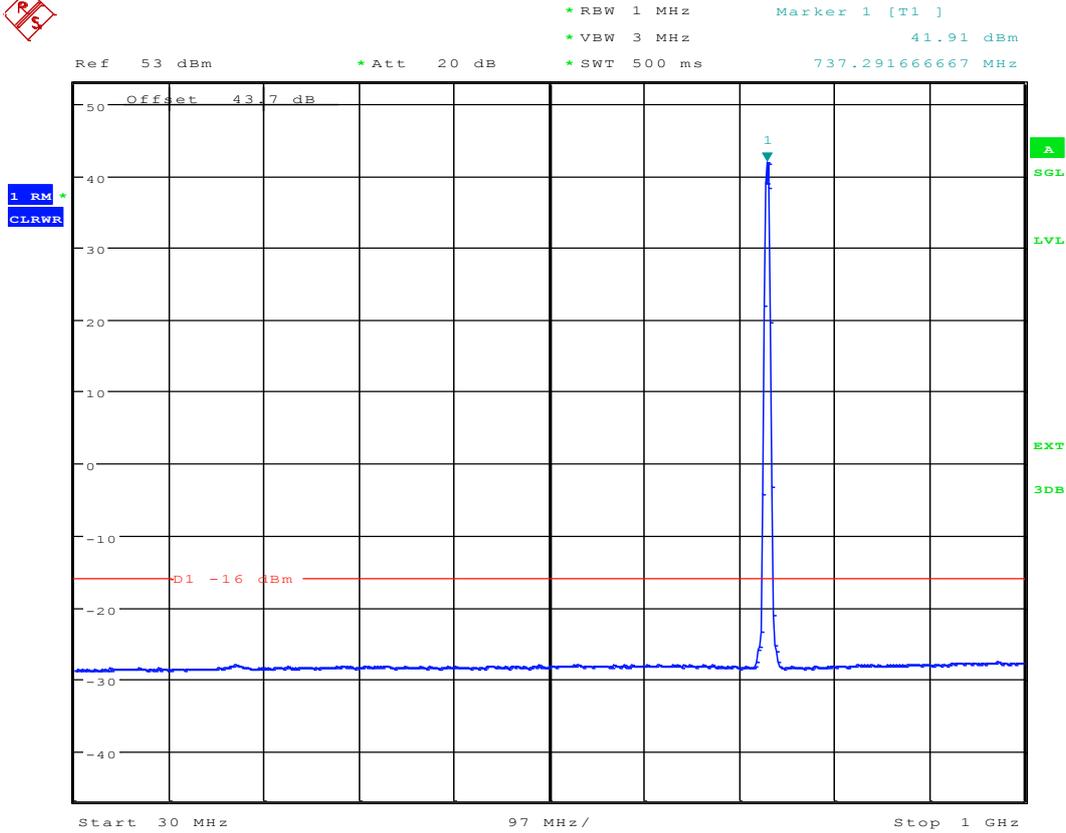
2.2 1 L_5M_TM1_M



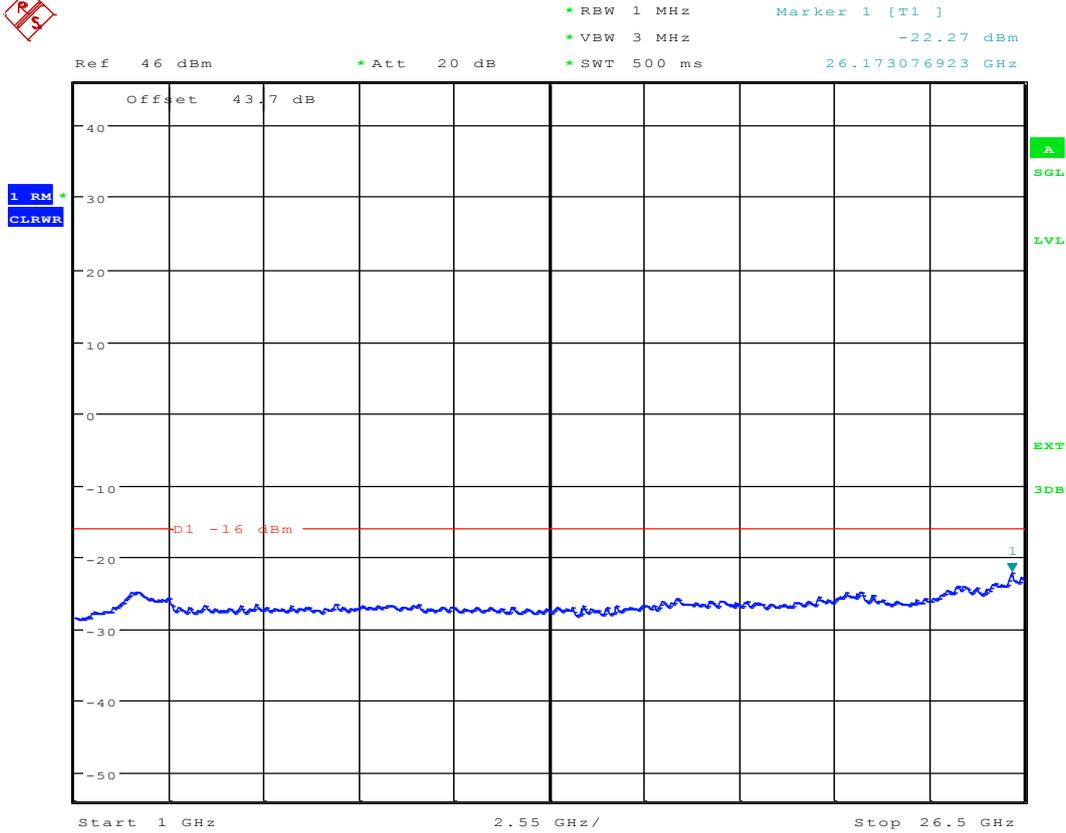
Date: 29.APR.2015 16:36:05



Date: 29.APR.2015 16:35:02



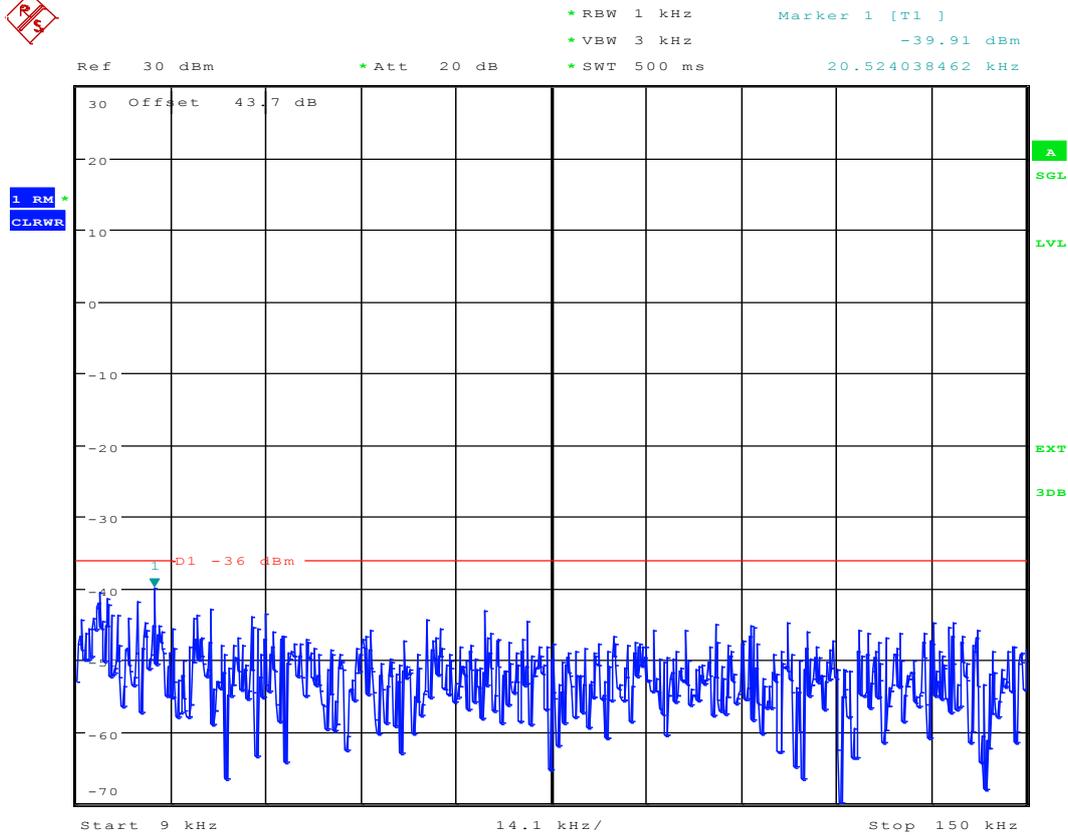
Date: 29.APR.2015 16:35:23



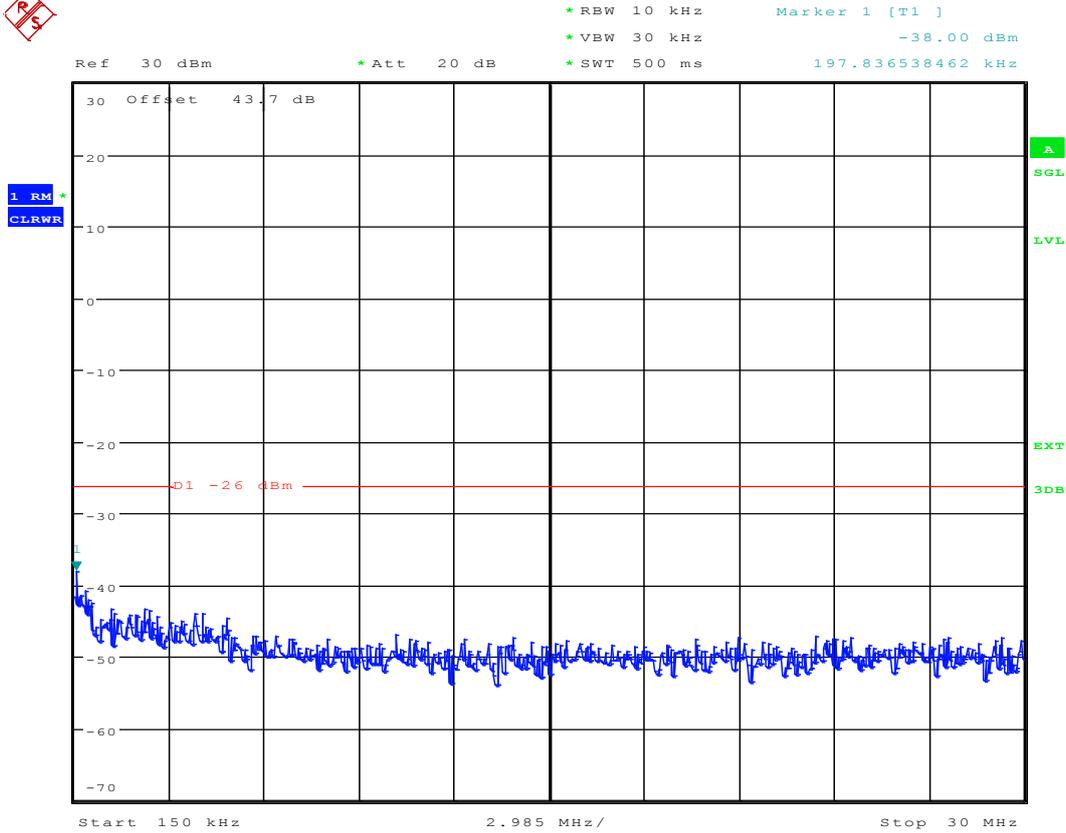
Date: 29.APR.2015 16:35:44



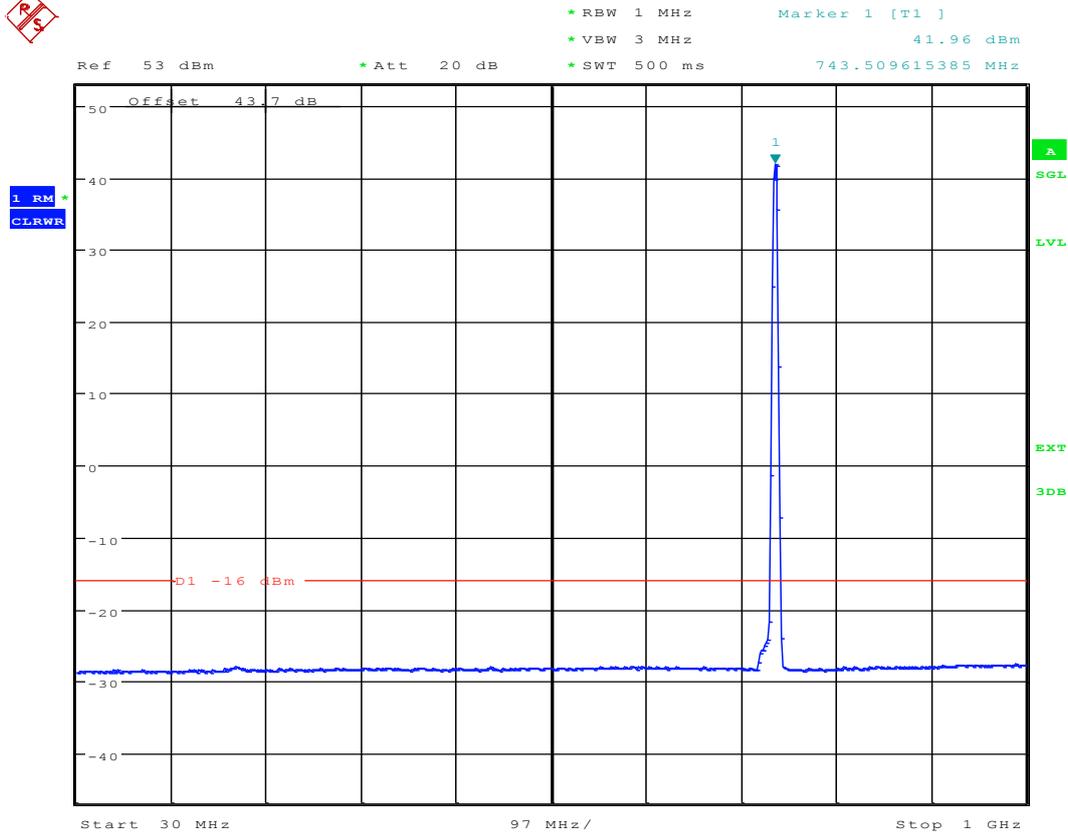
2.3 1 L_5M_TM1_T



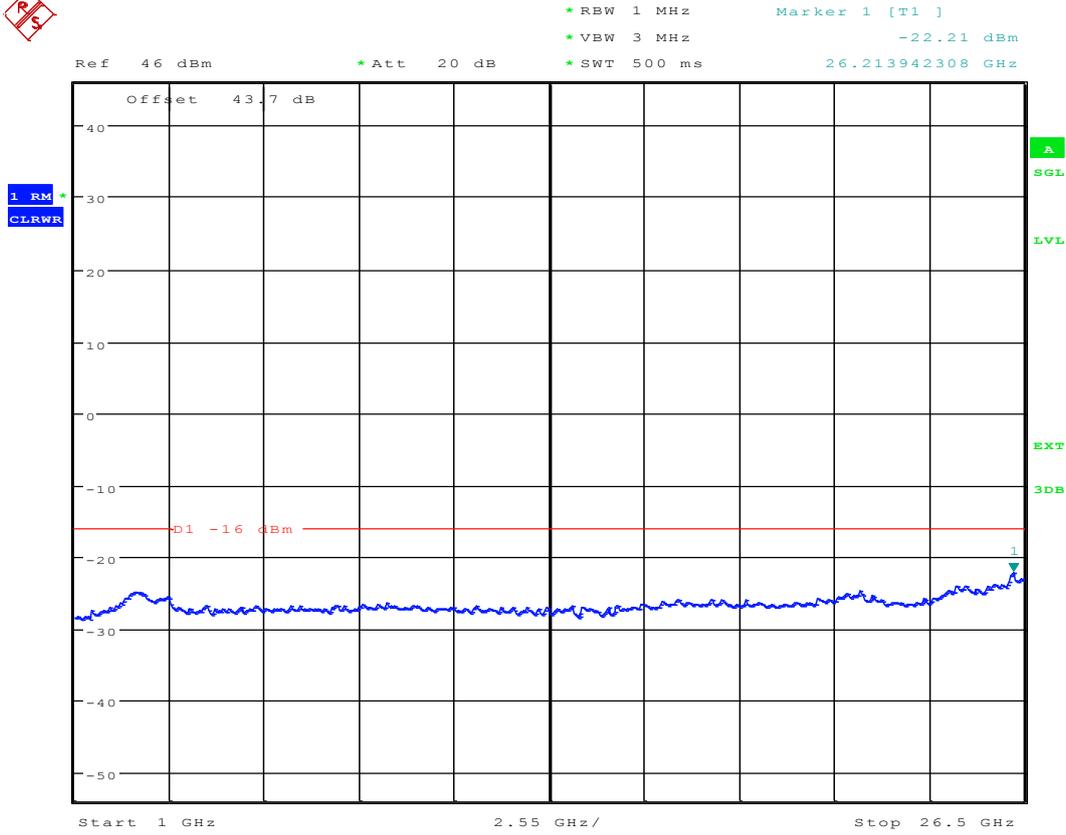
Date: 29.APR.2015 16:38:43



Date: 29.APR.2015 16:37:40



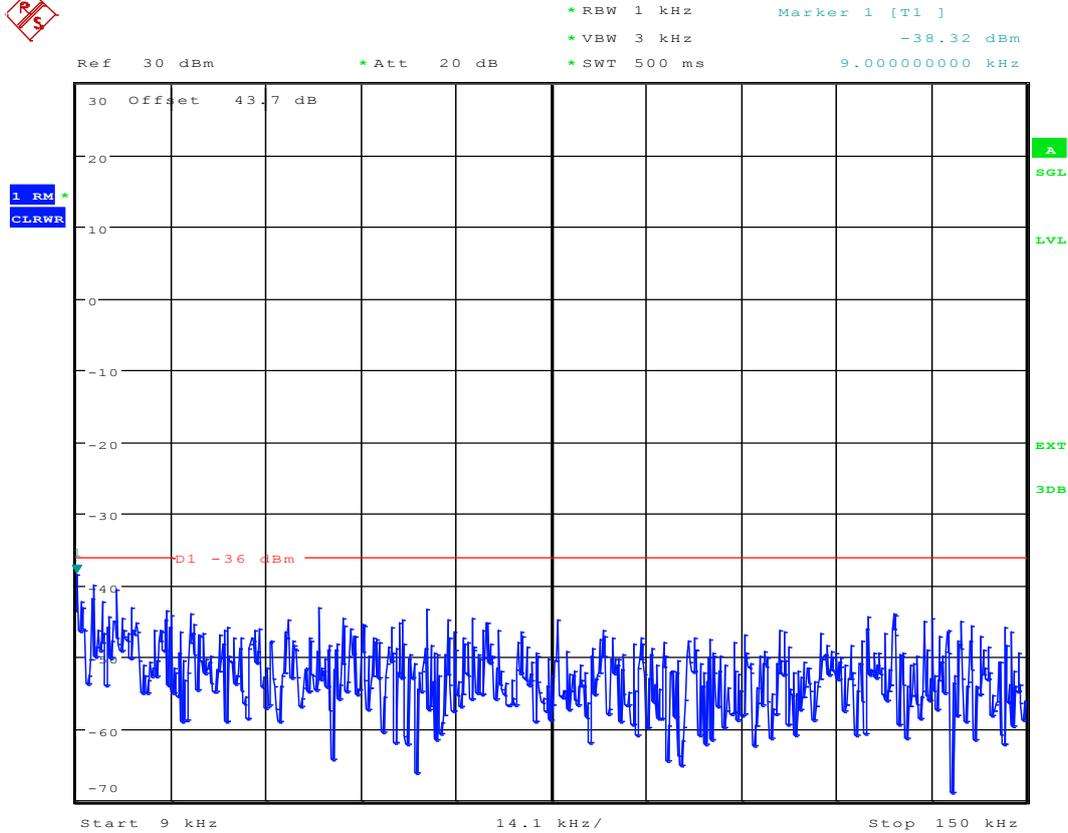
Date: 29.APR.2015 16:38:01



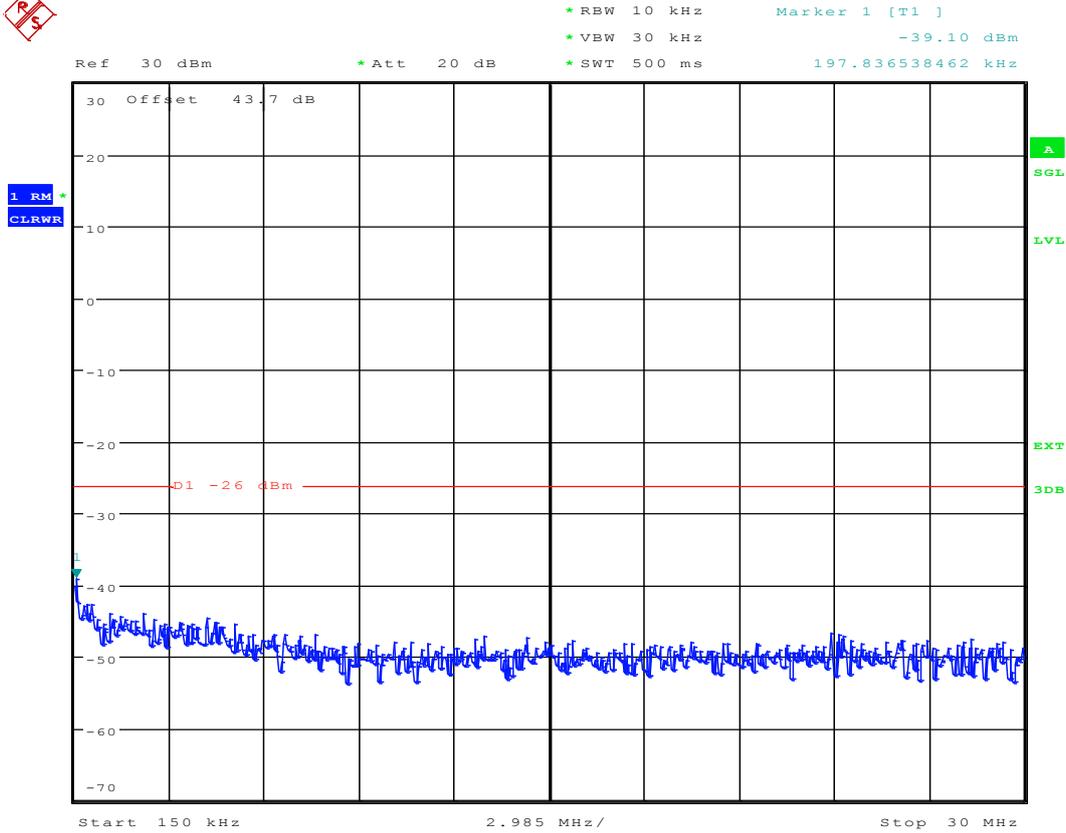
Date: 29.APR.2015 16:38:22



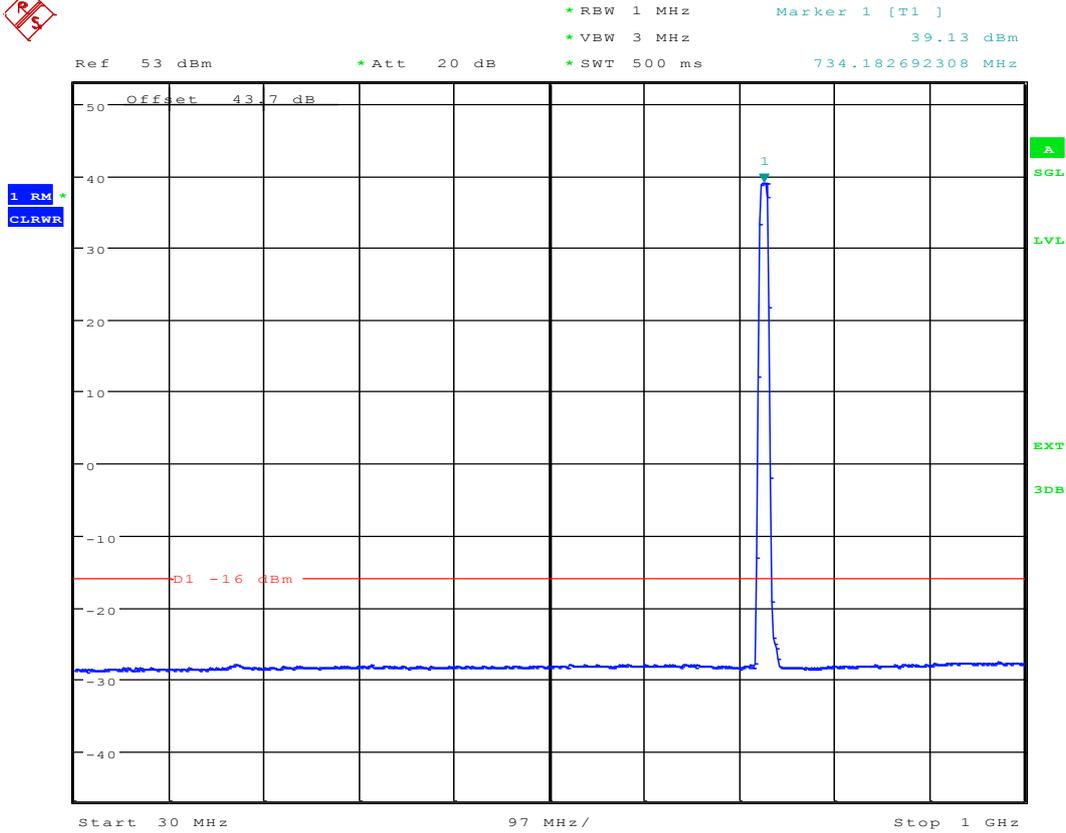
2.4 1 L_10M_TM1_B



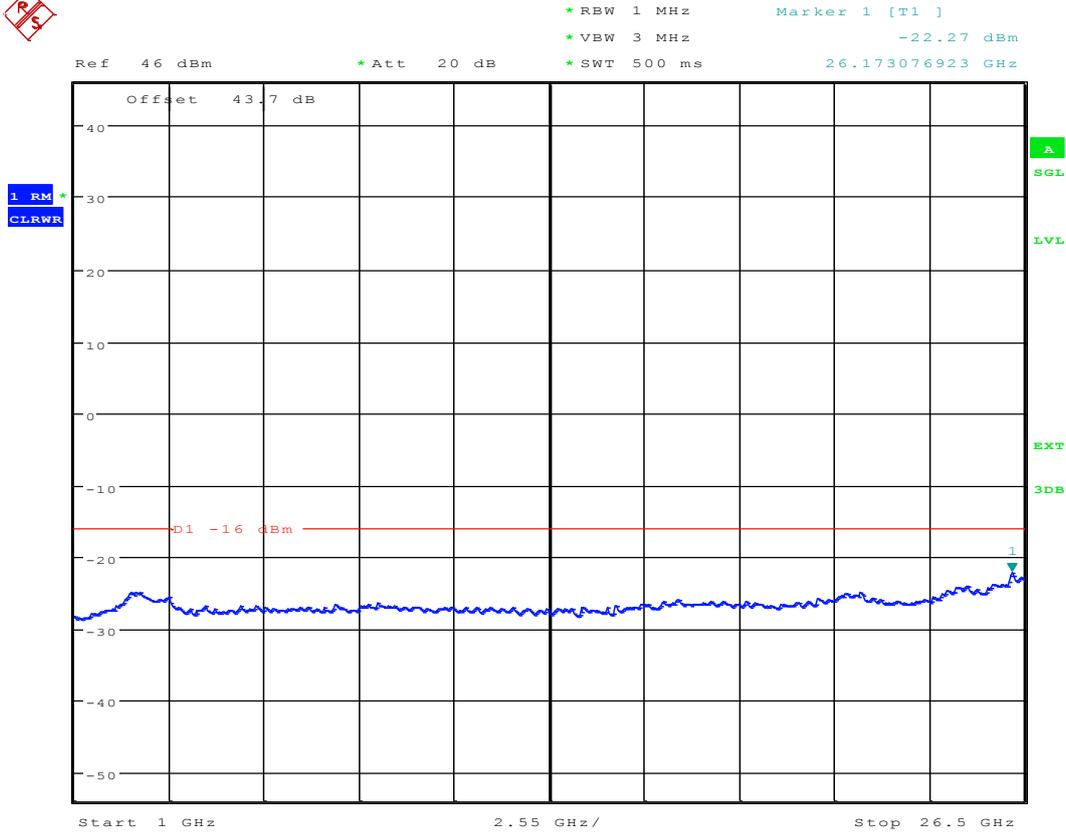
Date: 29.APR.2015 16:41:39



Date: 29.APR.2015 16:40:36



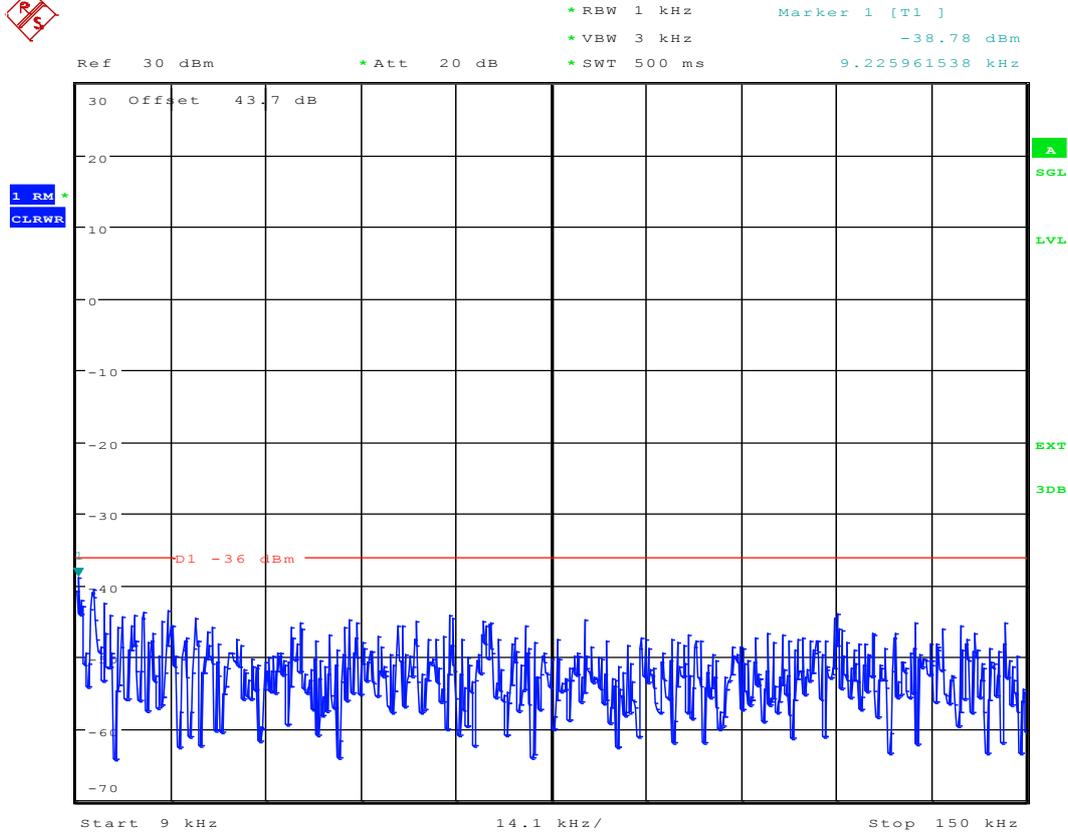
Date: 29.APR.2015 16:40:57



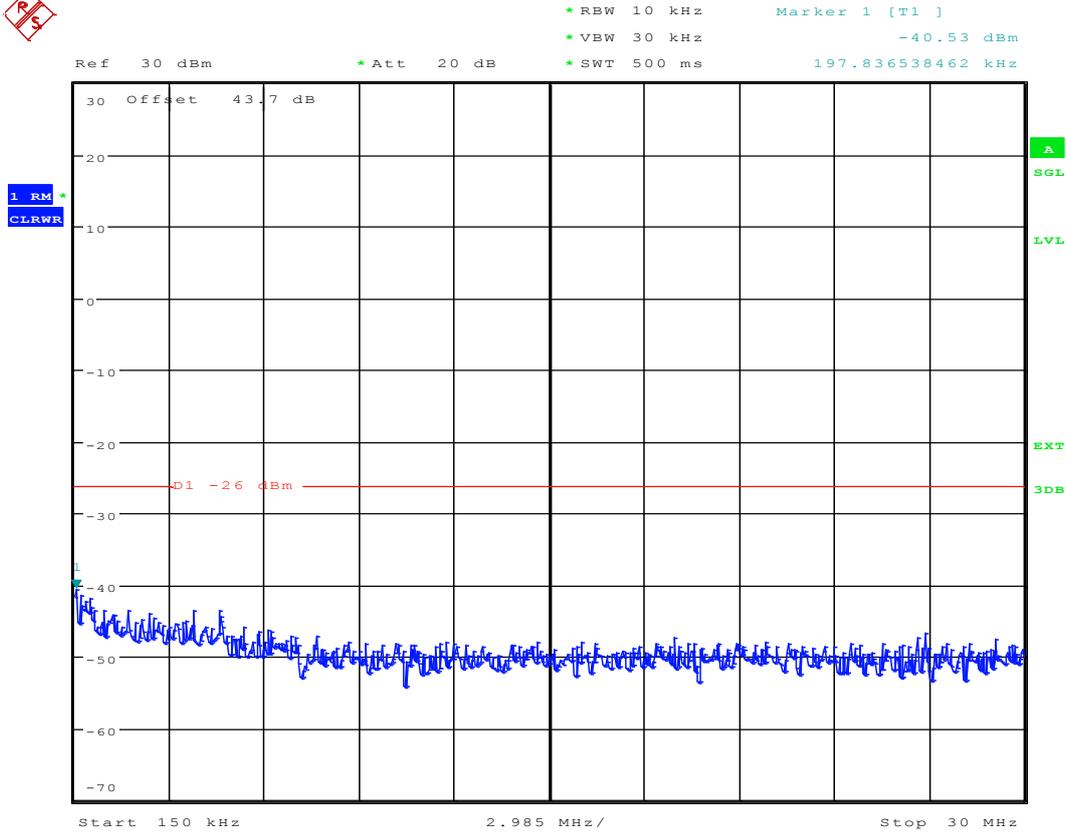
Date: 29.APR.2015 16:41:18



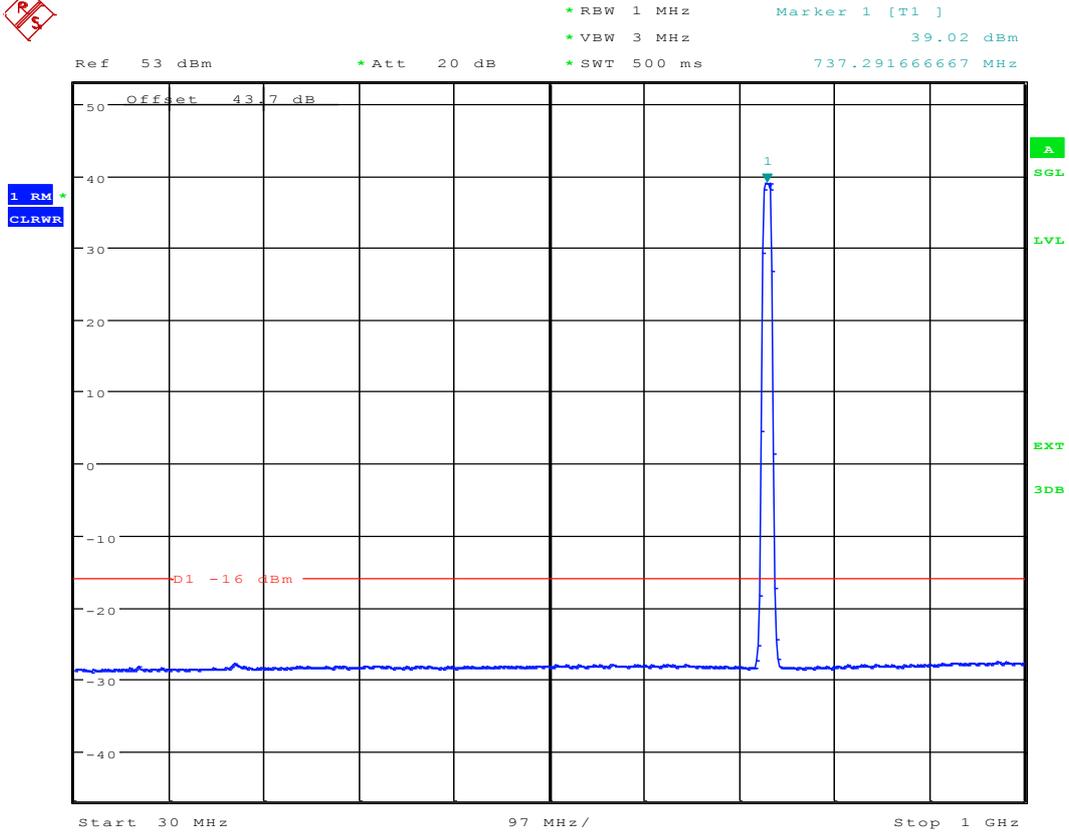
2.5 1 L_10M_TM1_M



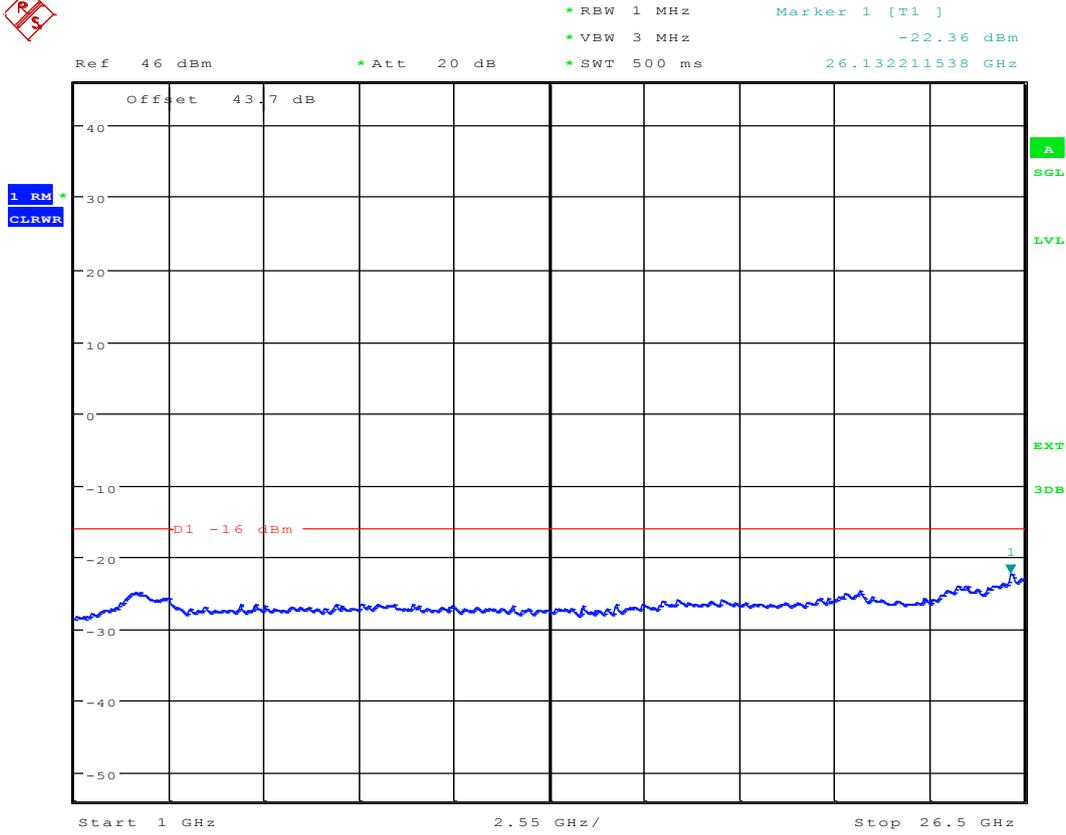
Date: 29.APR.2015 16:44:17



Date: 29.APR.2015 16:43:14

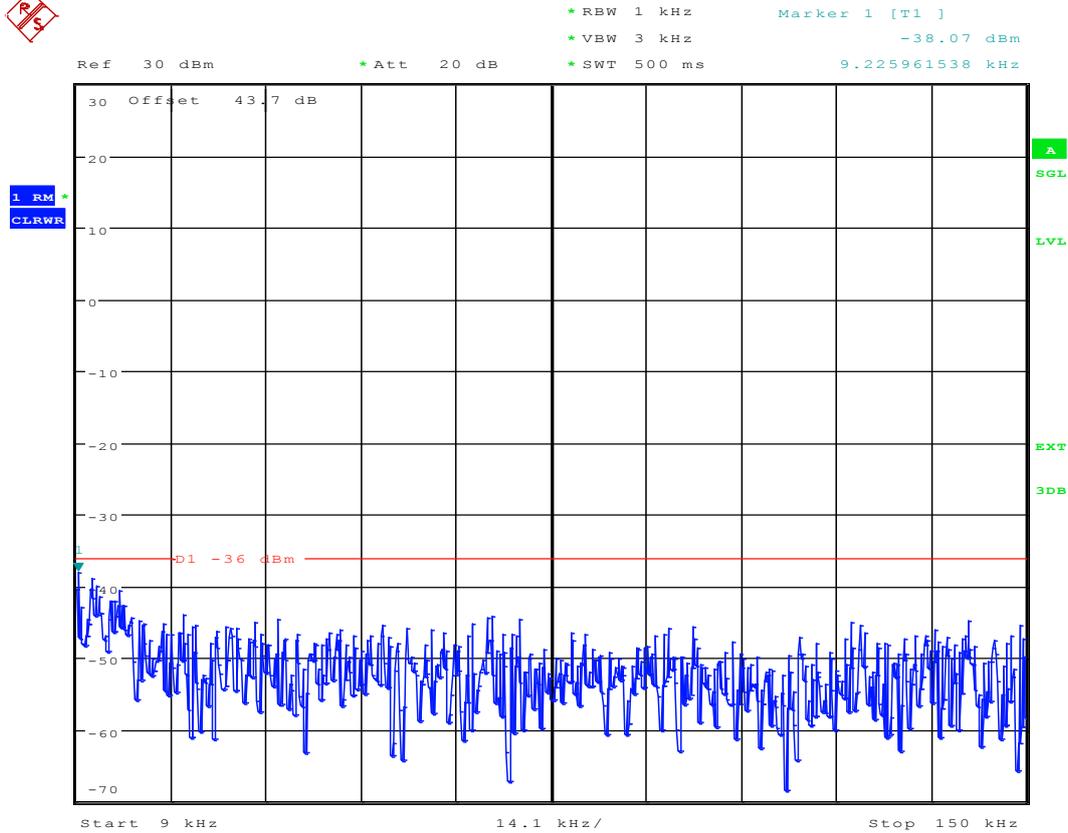


Date: 29.APR.2015 16:43:35

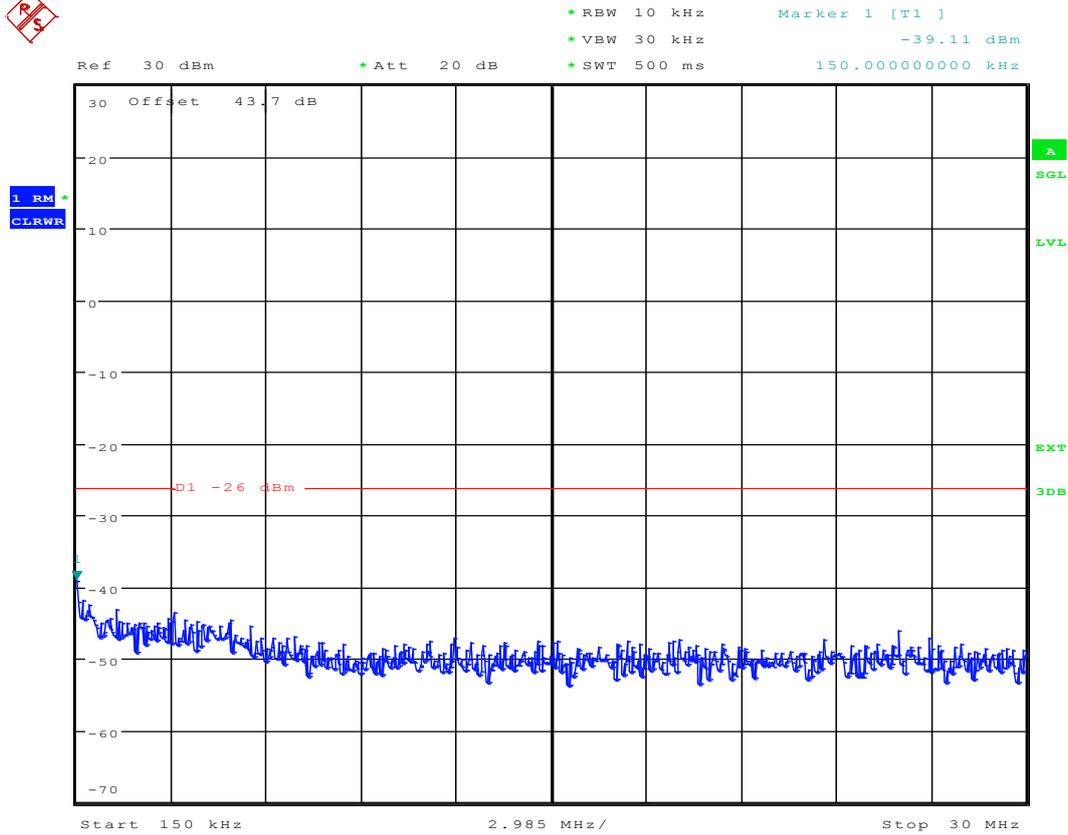


Date: 29.APR.2015 16:43:56

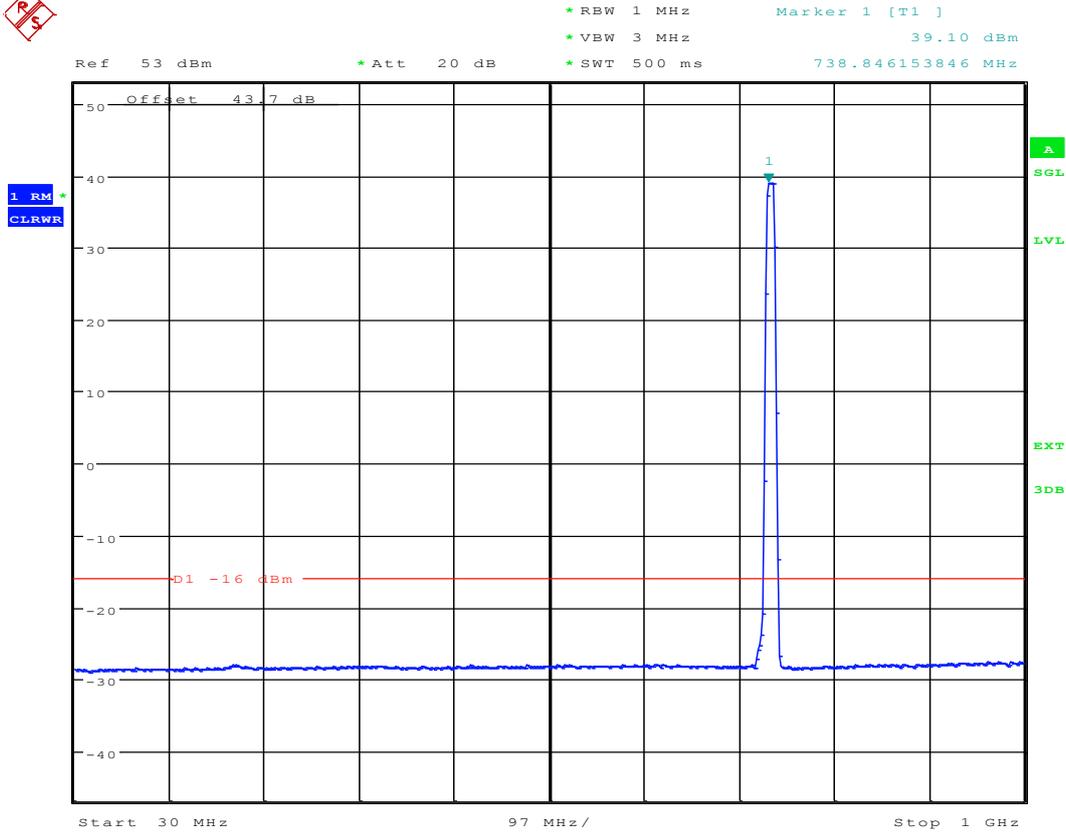
2.6 1 L_10M_TM1_T



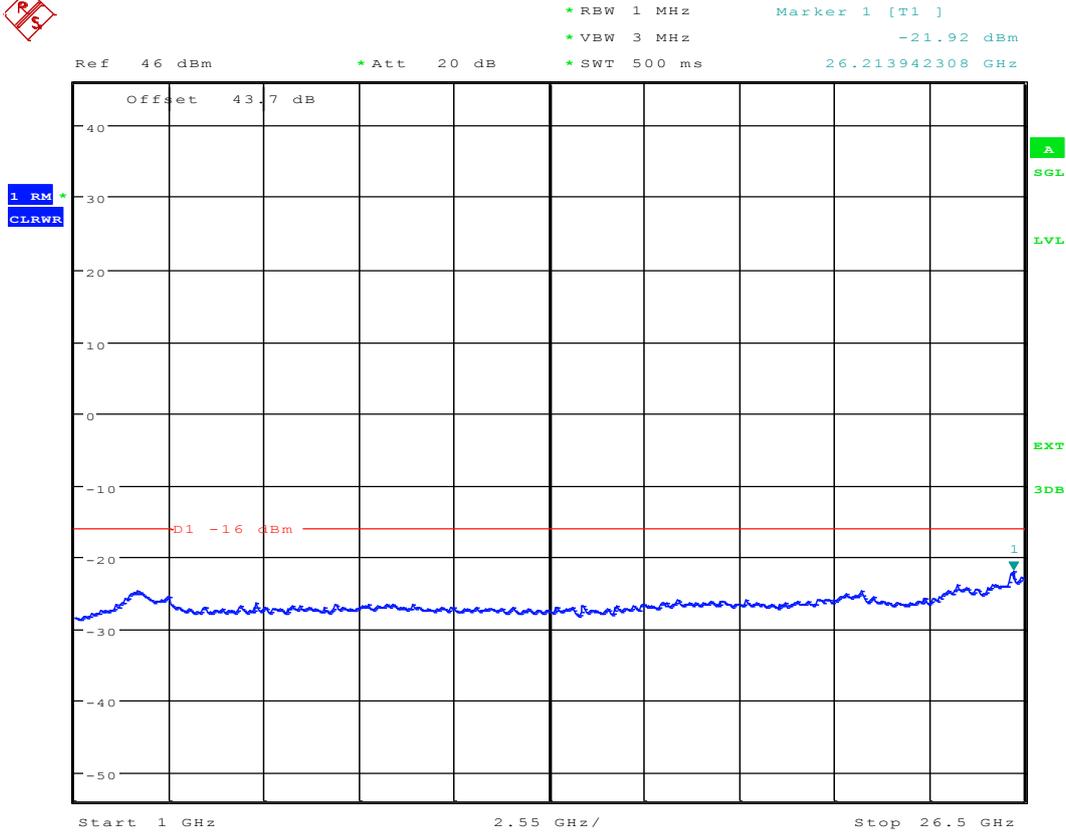
Date: 29.APR.2015 16:46:56



Date: 29.APR.2015 16:45:53



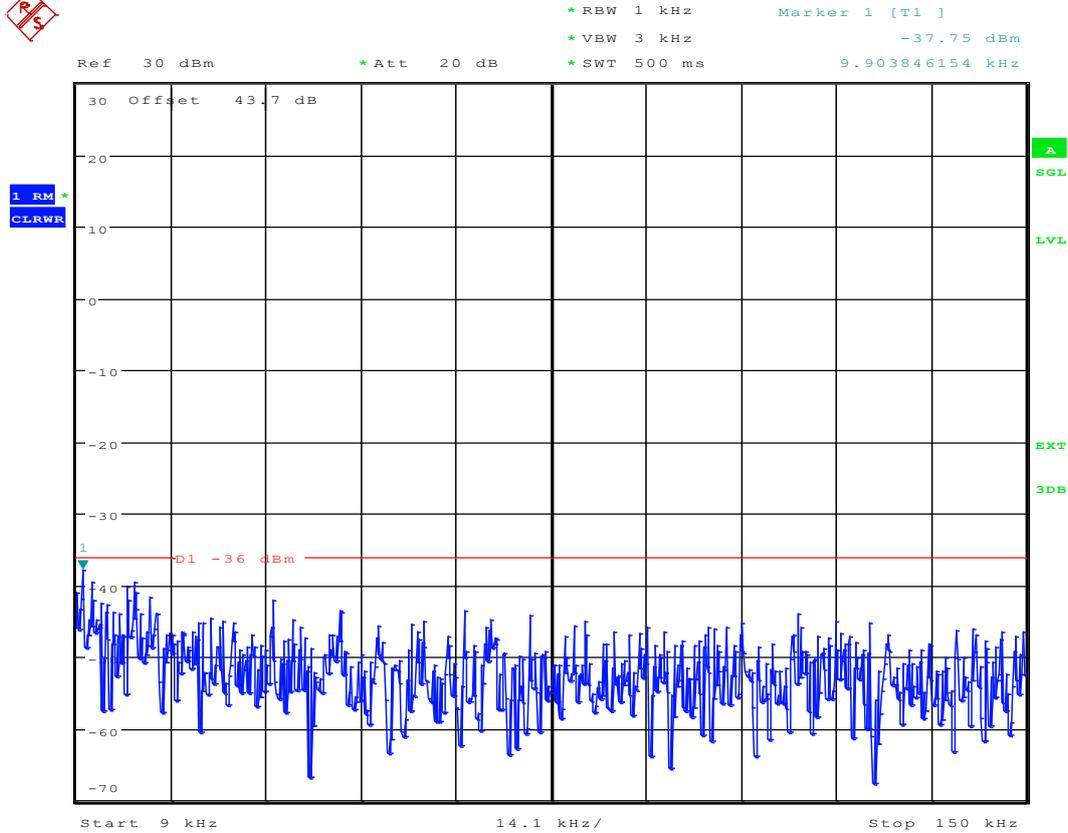
Date: 29.APR.2015 16:46:14



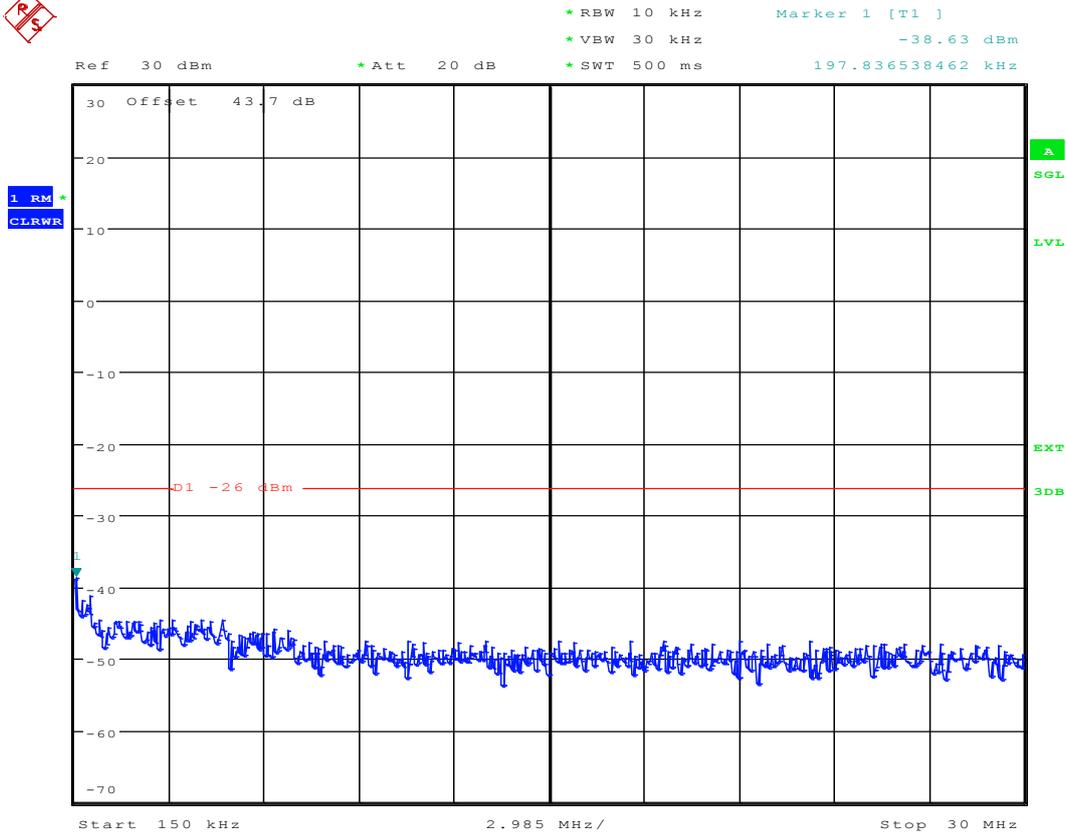
Date: 29.APR.2015 16:46:35



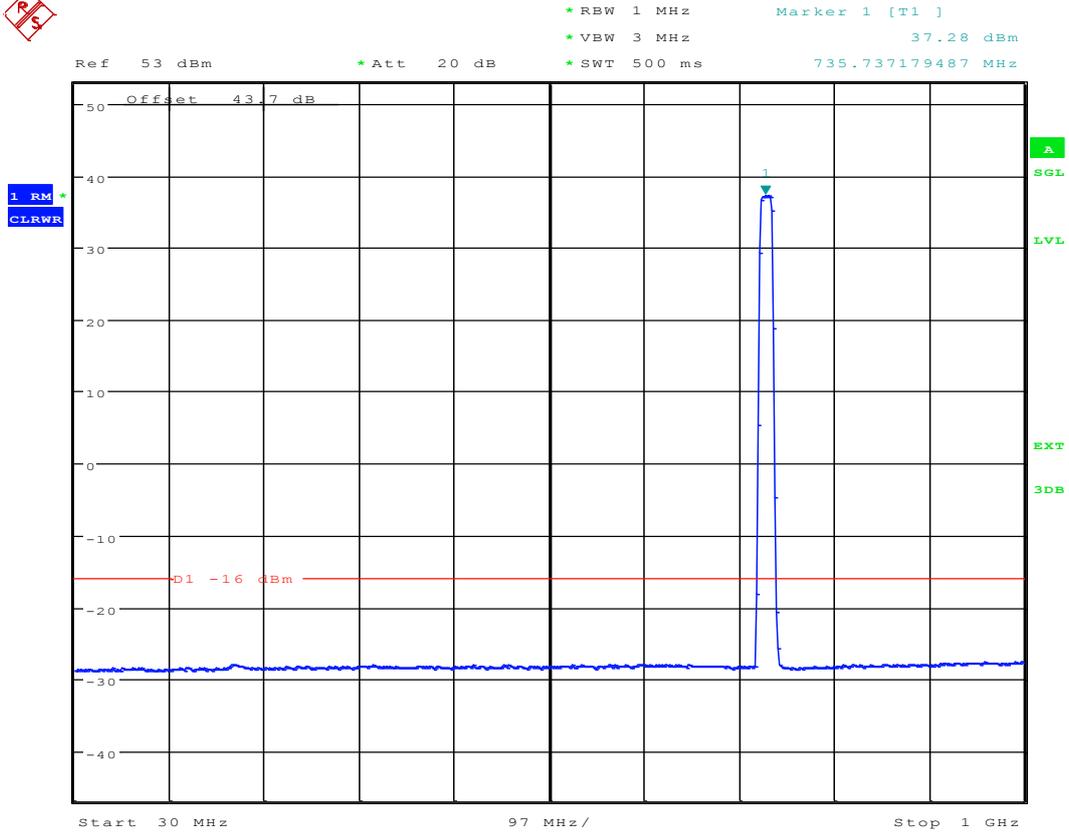
2.7 1L_15M_TM1_B



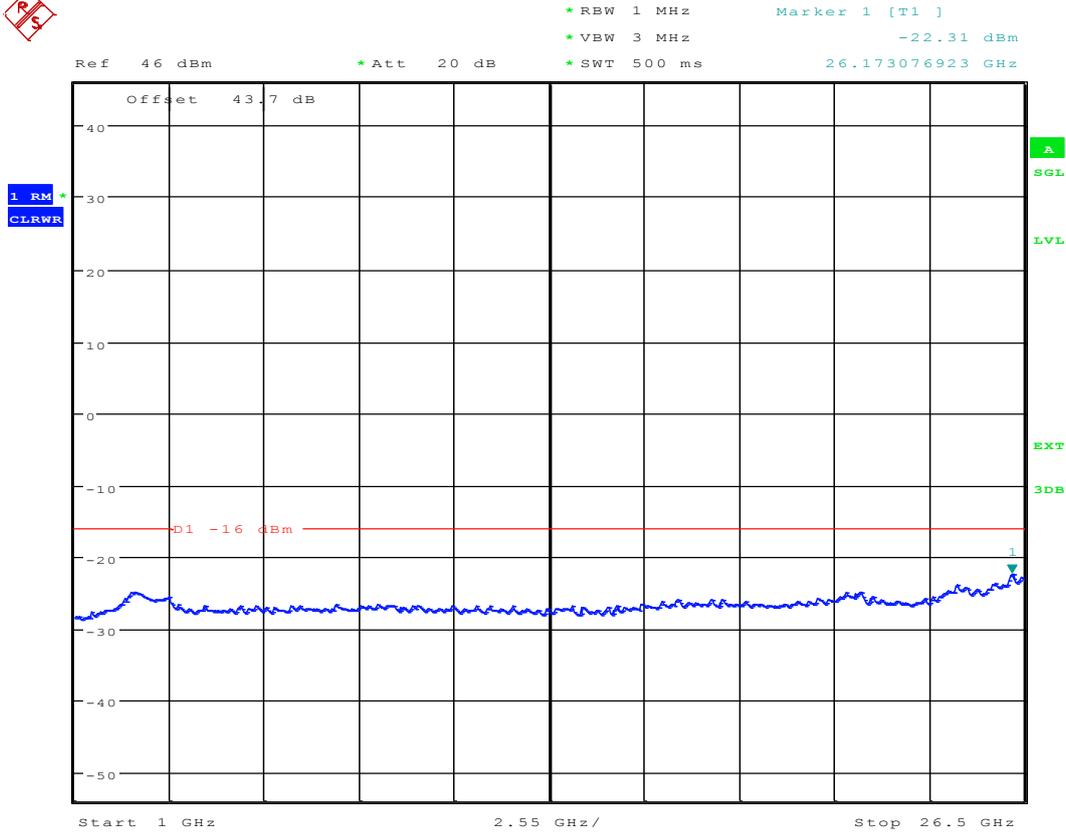
Date: 29.APR.2015 16:49:48



Date: 29.APR.2015 16:48:47

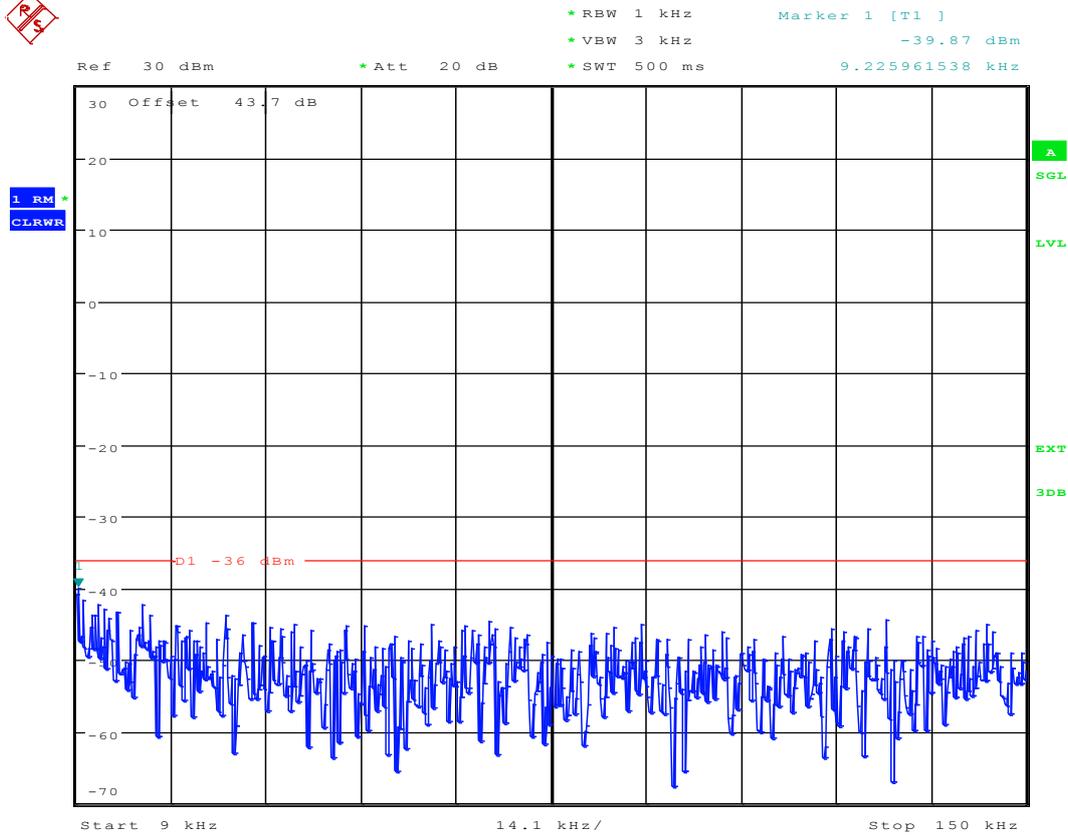


Date: 29.APR.2015 16:49:07

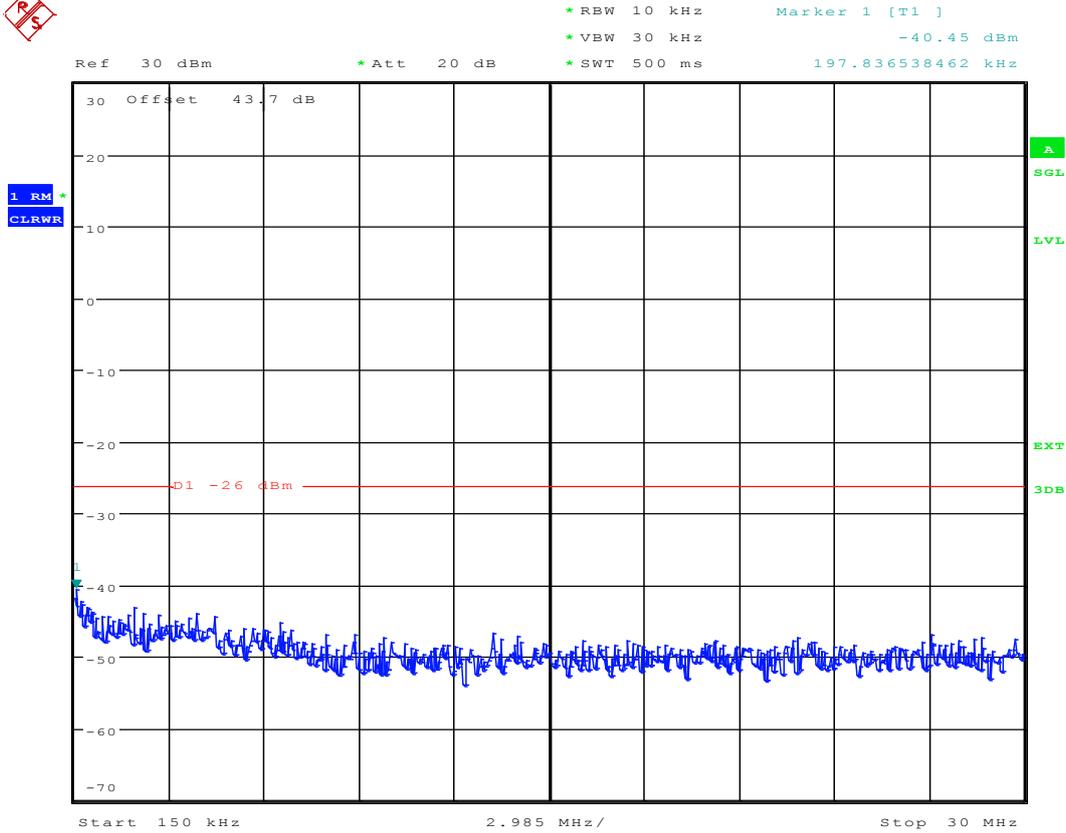


Date: 29.APR.2015 16:49:28

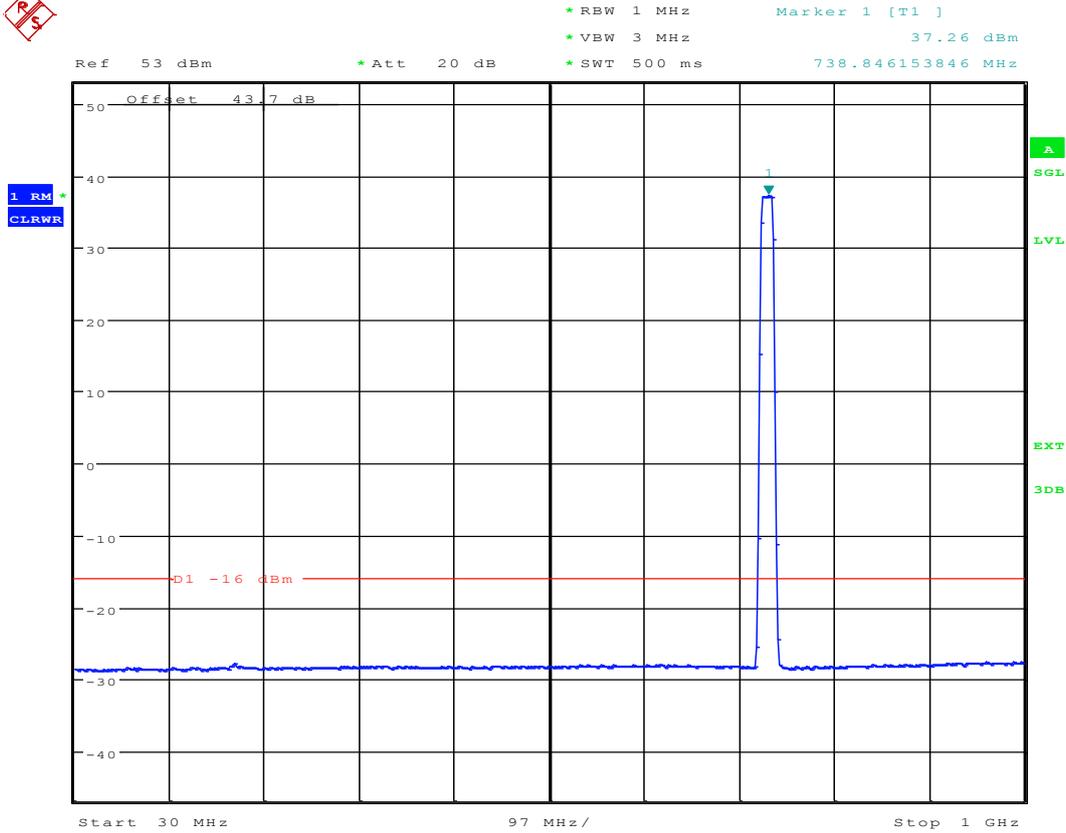
2.8 1 L_15M_TM1_M



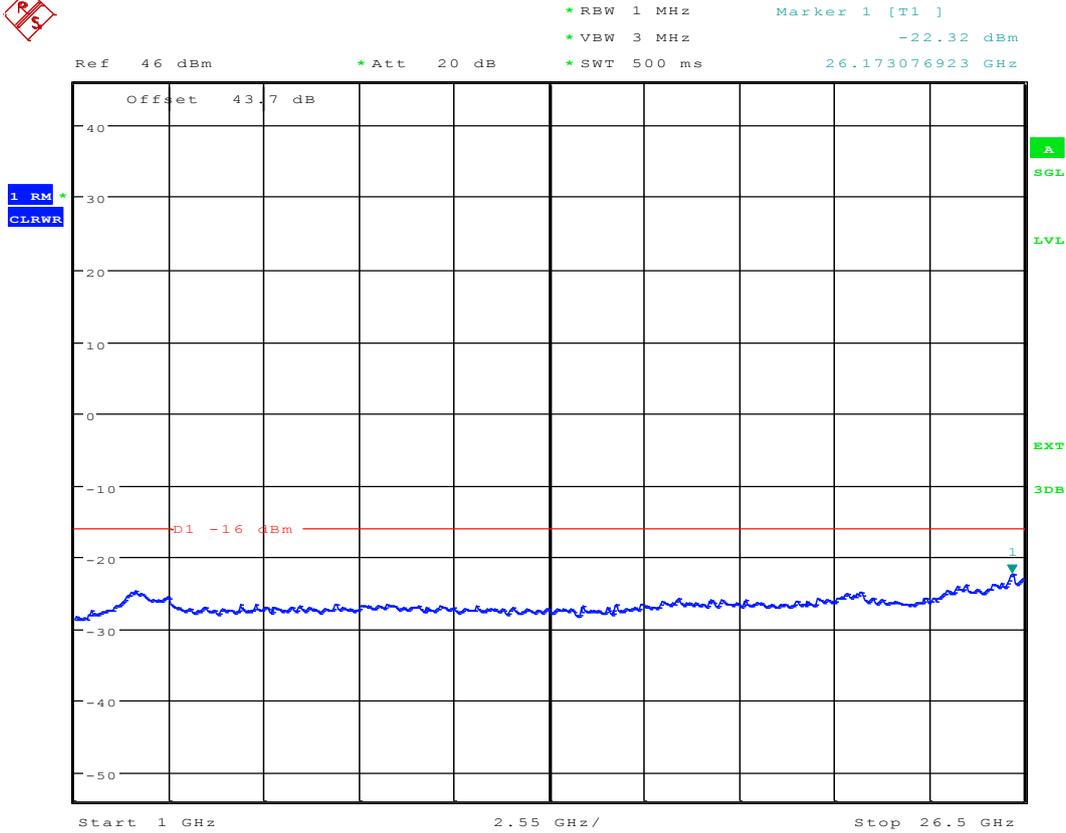
Date: 29.APR.2015 16:52:24



Date: 29.APR.2015 16:51:21



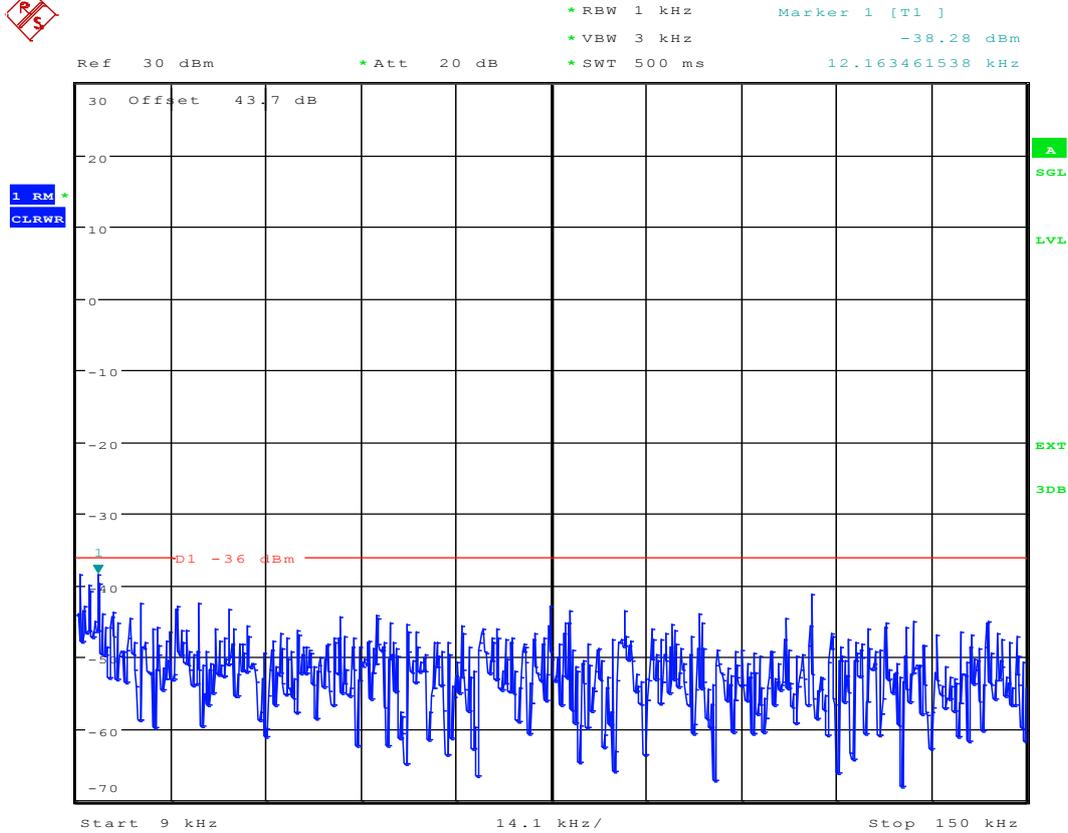
Date: 29.APR.2015 16:51:43



Date: 29.APR.2015 16:52:04



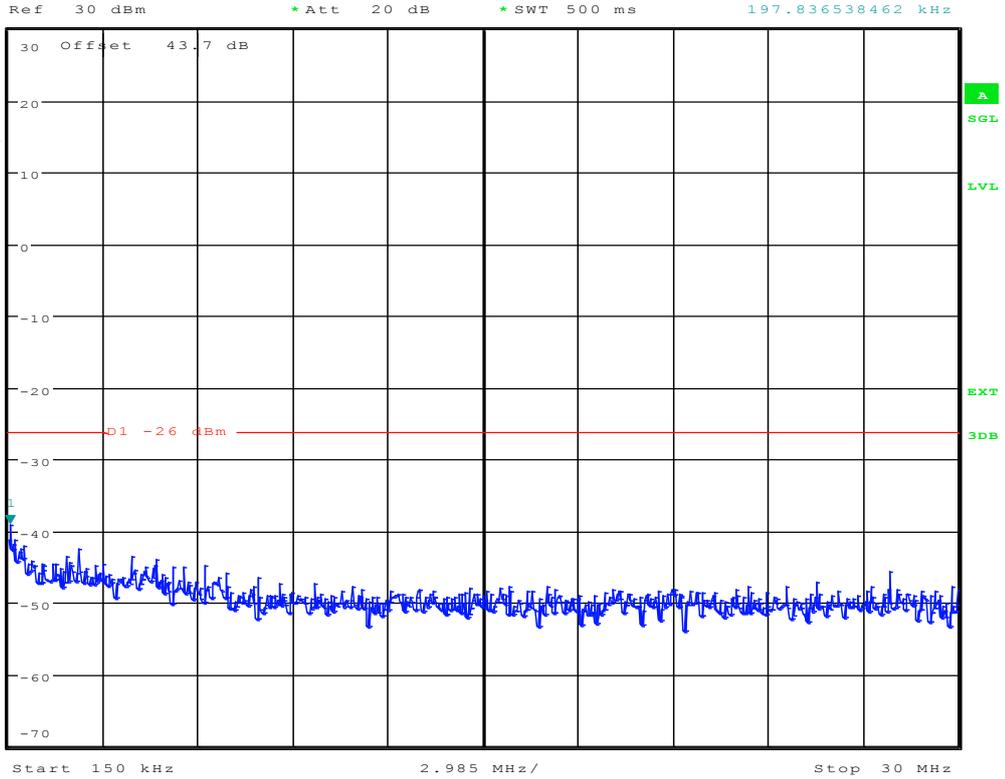
2.9 1 L_15M_TM1_T



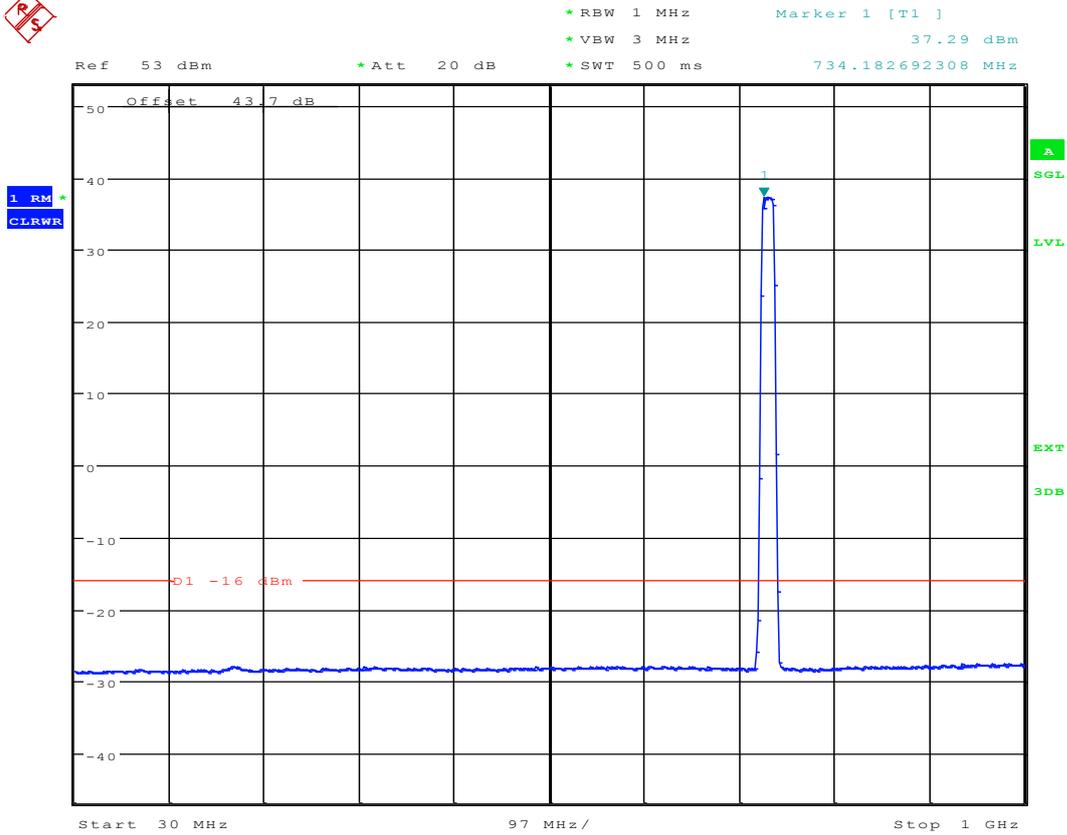
Date: 29.APR.2015 16:55:02



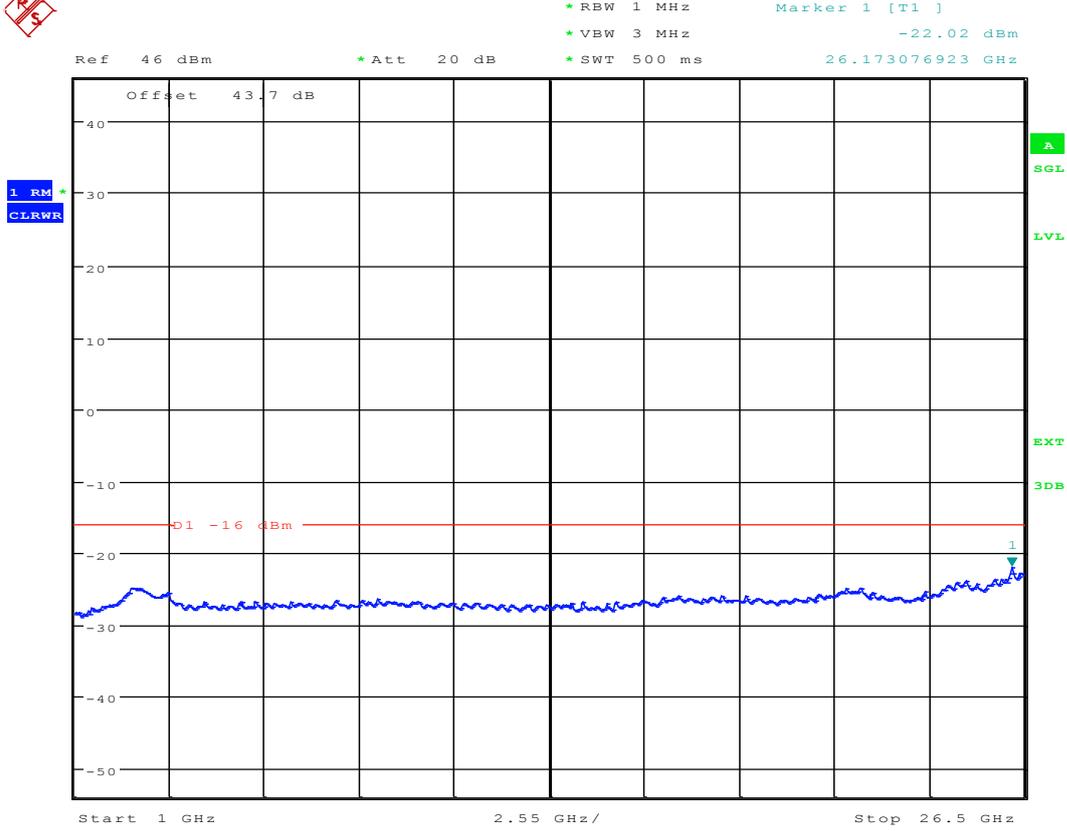
* RBW 10 kHz Marker 1 [T1]
* VBW 30 kHz -38.93 dBm
* SWT 500 ms 197.836538462 kHz



Date: 29.APR.2015 16:53:59



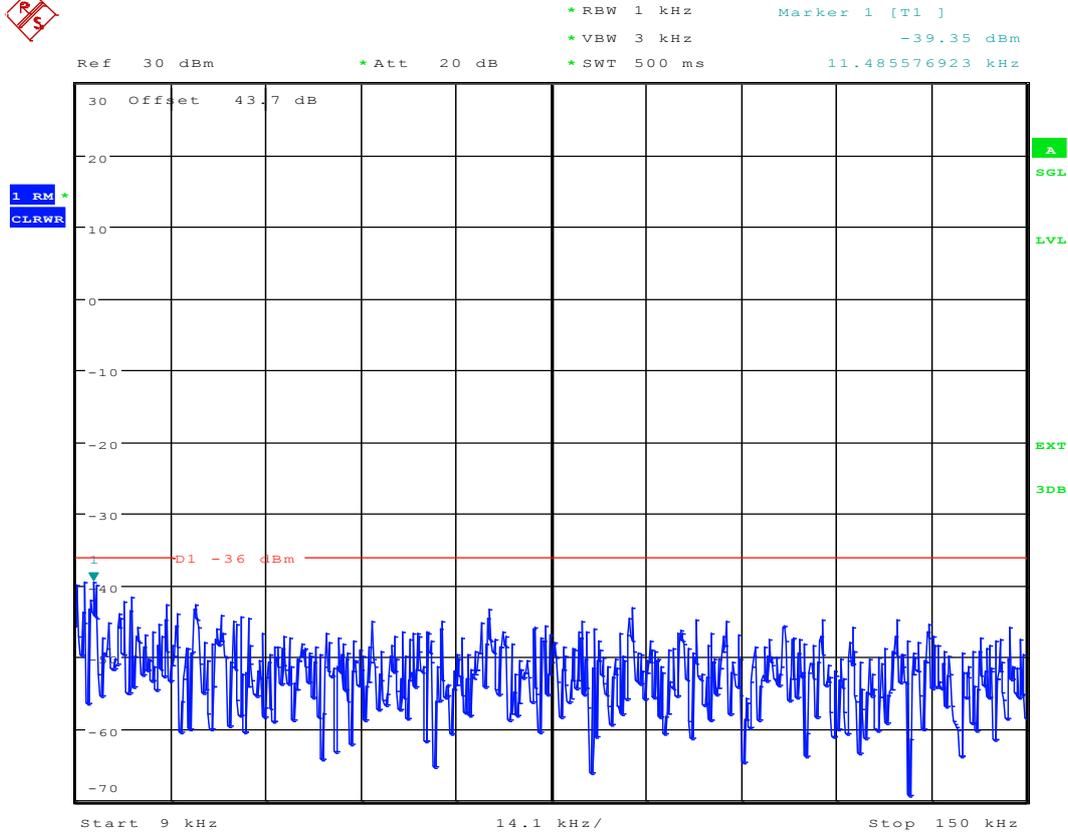
Date: 29.APR.2015 16:54:20



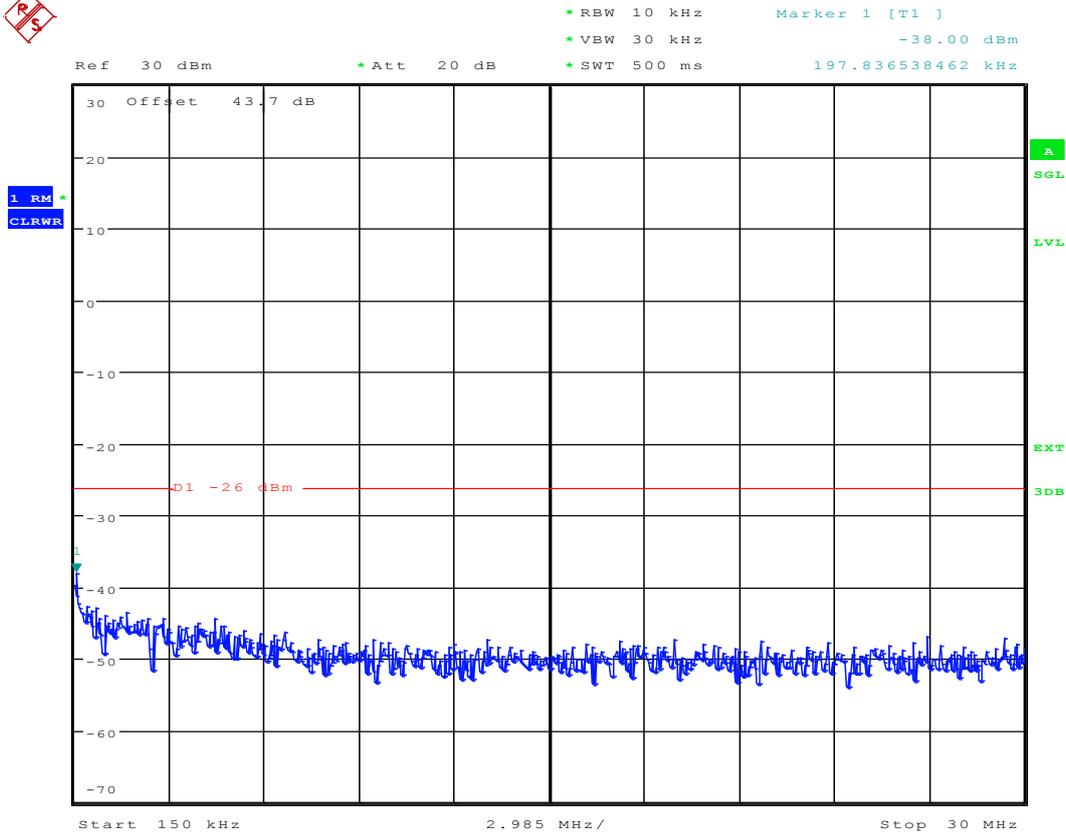
Date: 29.APR.2015 16:54:41



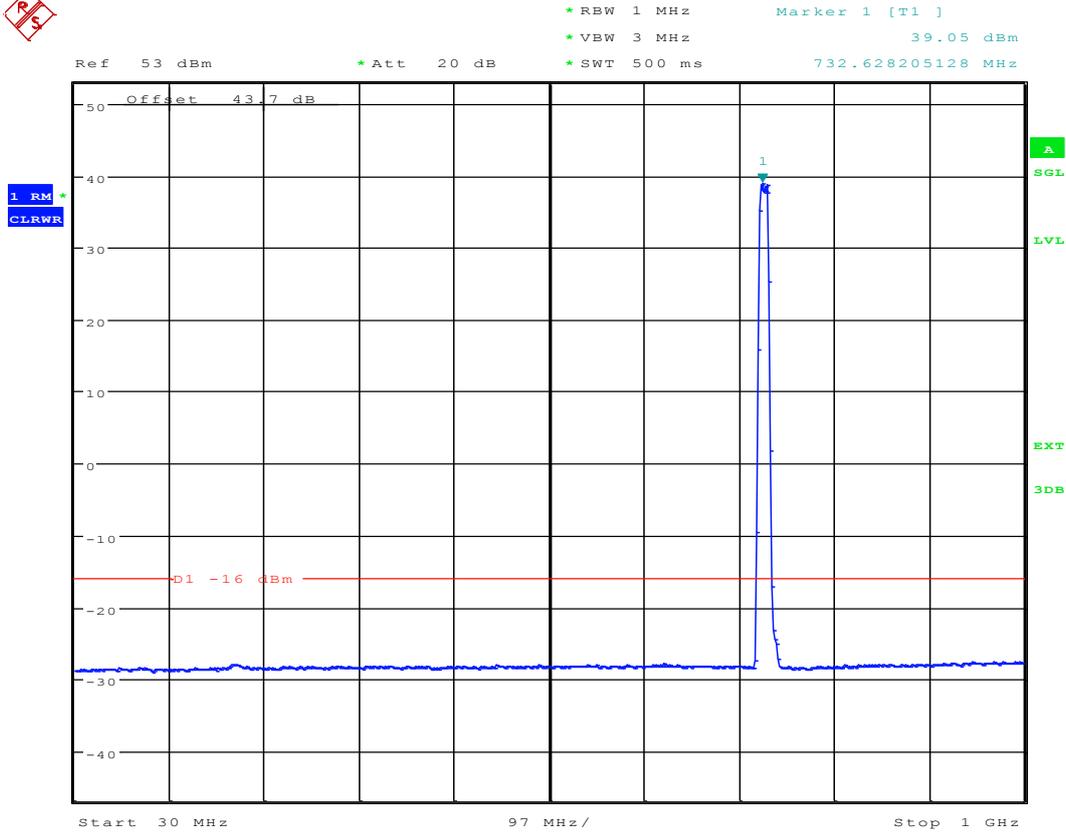
2.10 2 L_5M+5M_TM1_B



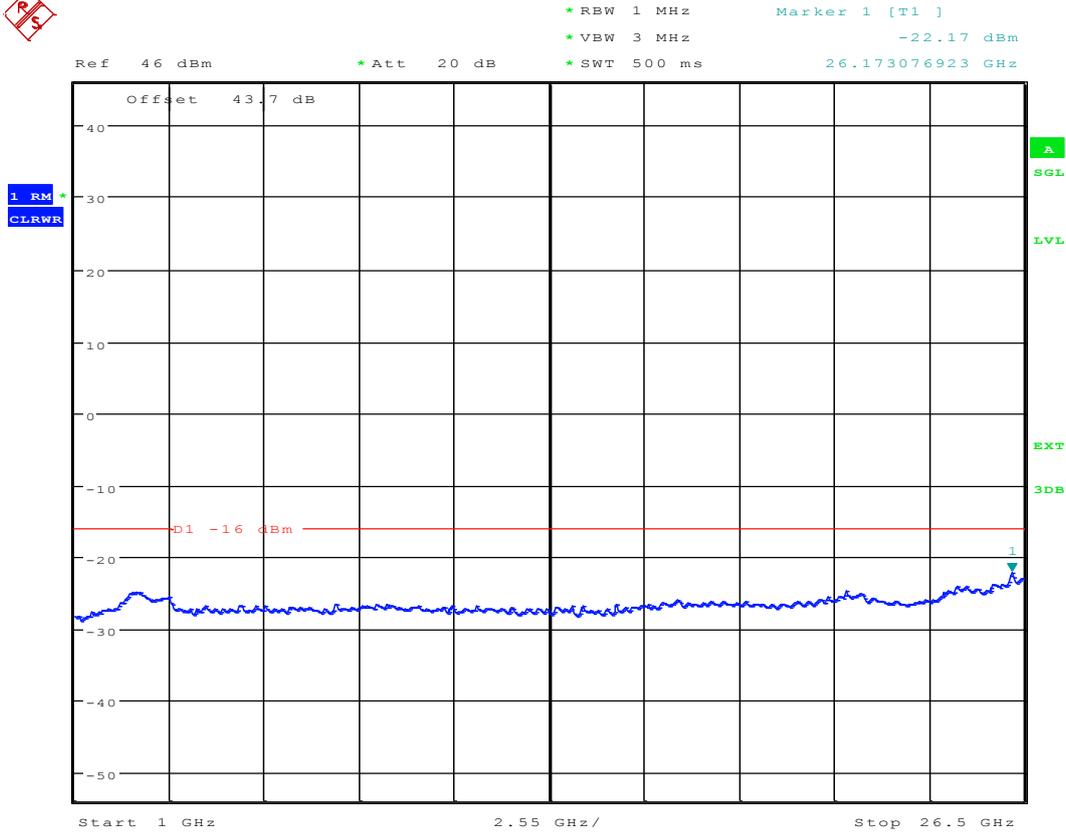
Date: 29.APR.2015 16:58:15



Date: 29.APR.2015 16:57:12



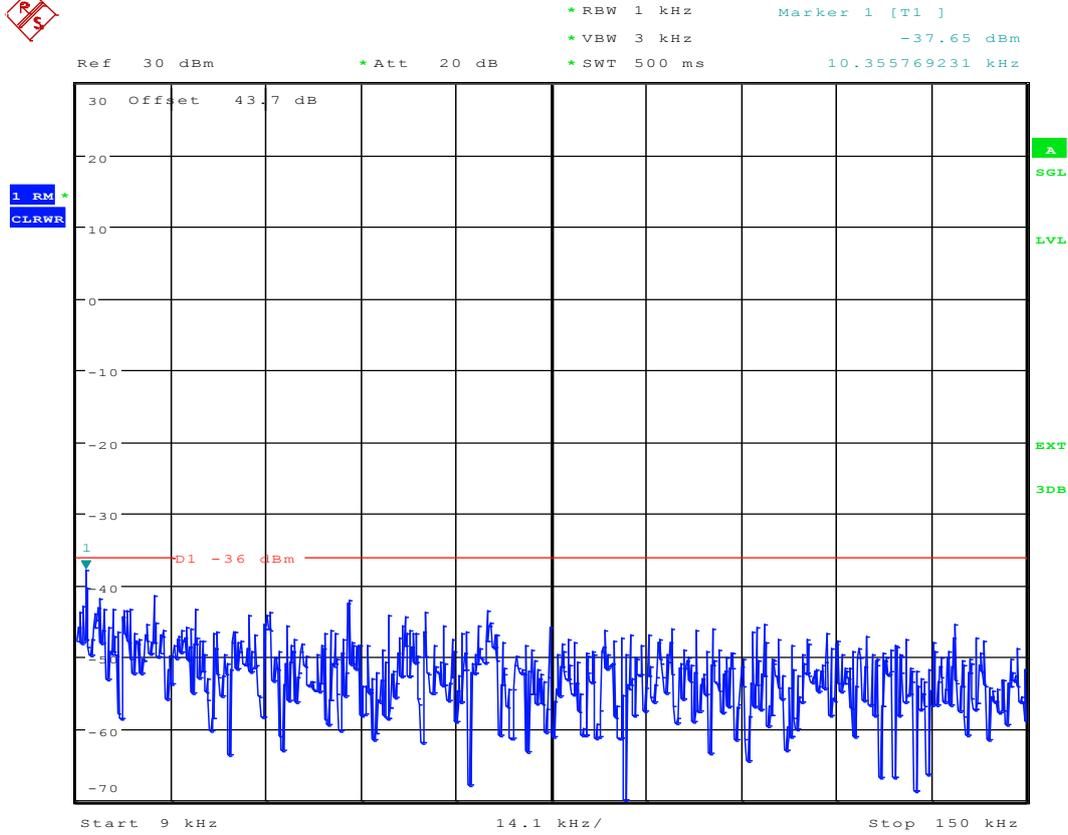
Date: 29.APR.2015 16:57:33



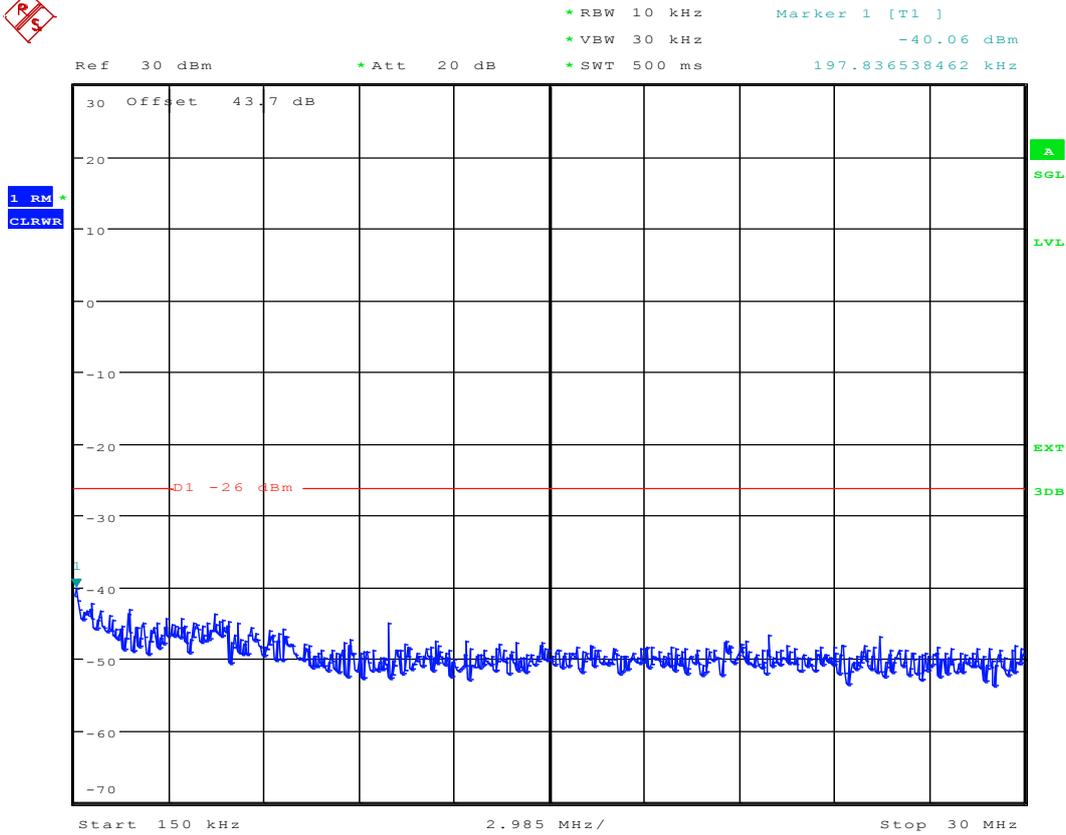
Date: 29.APR.2015 16:57:54



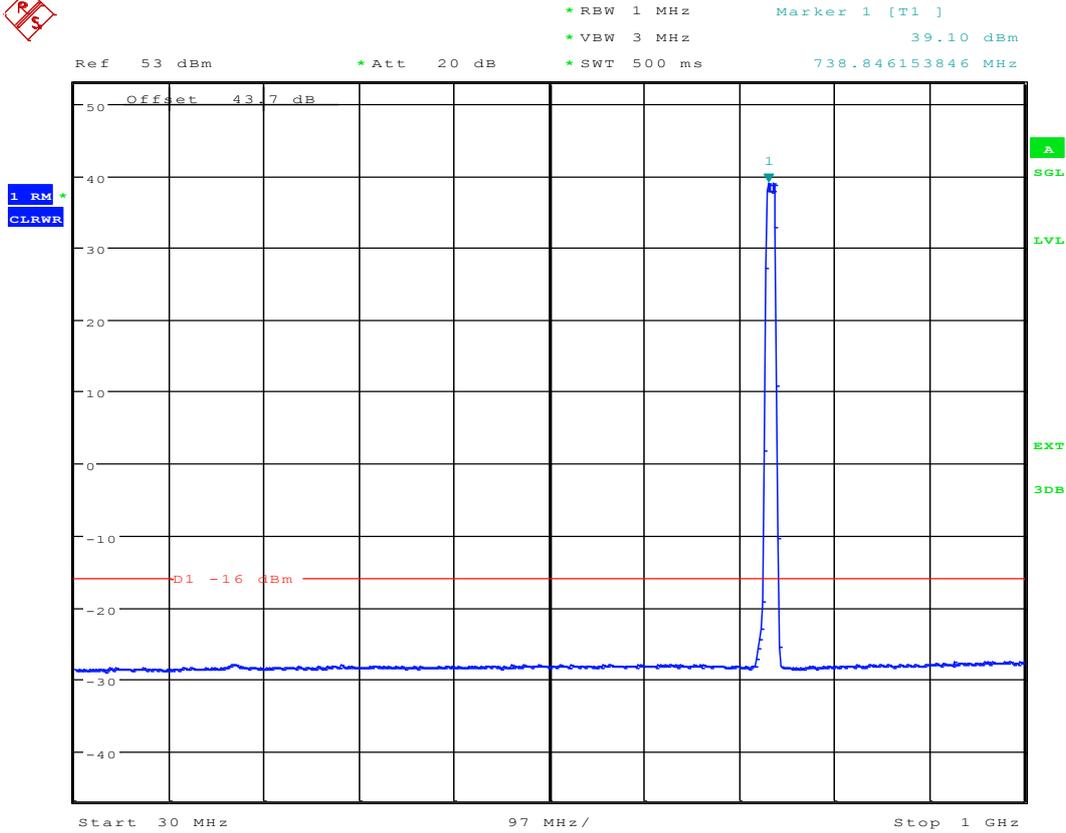
2.11 2 L_5M+5M_TM1_T



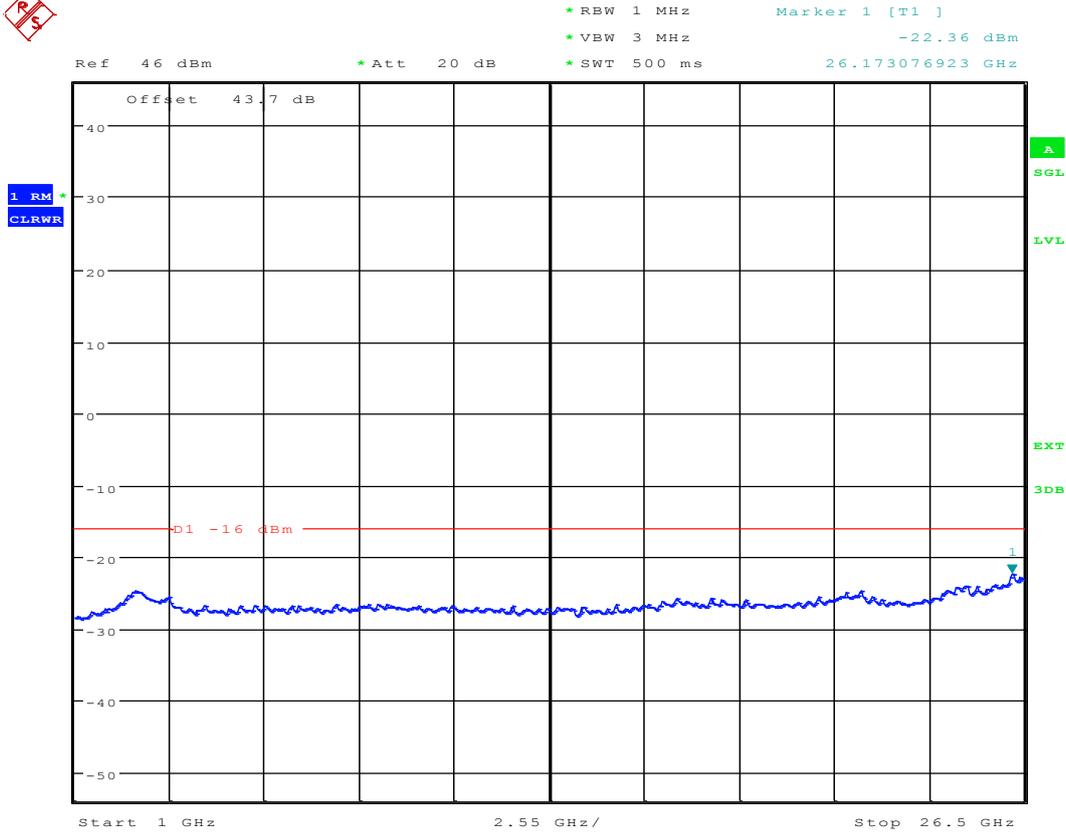
Date: 29.APR.2015 17:01:05



Date: 29.APR.2015 17:00:02



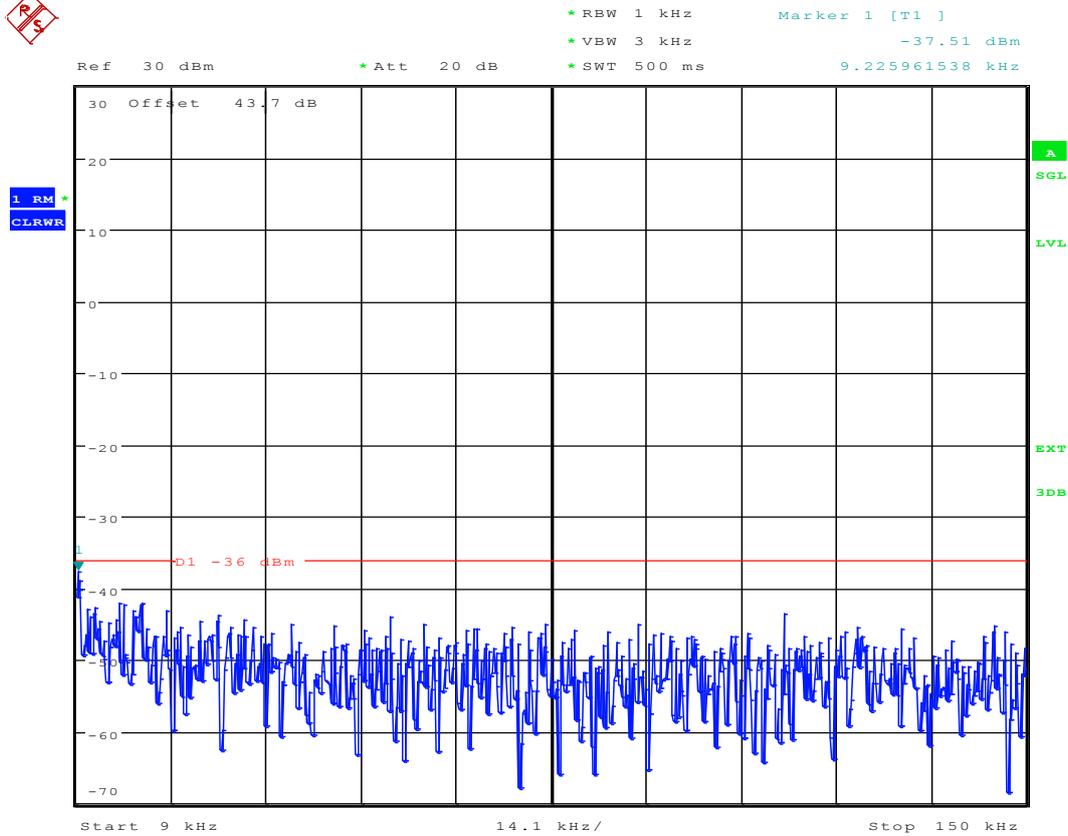
Date: 29.APR.2015 17:00:23



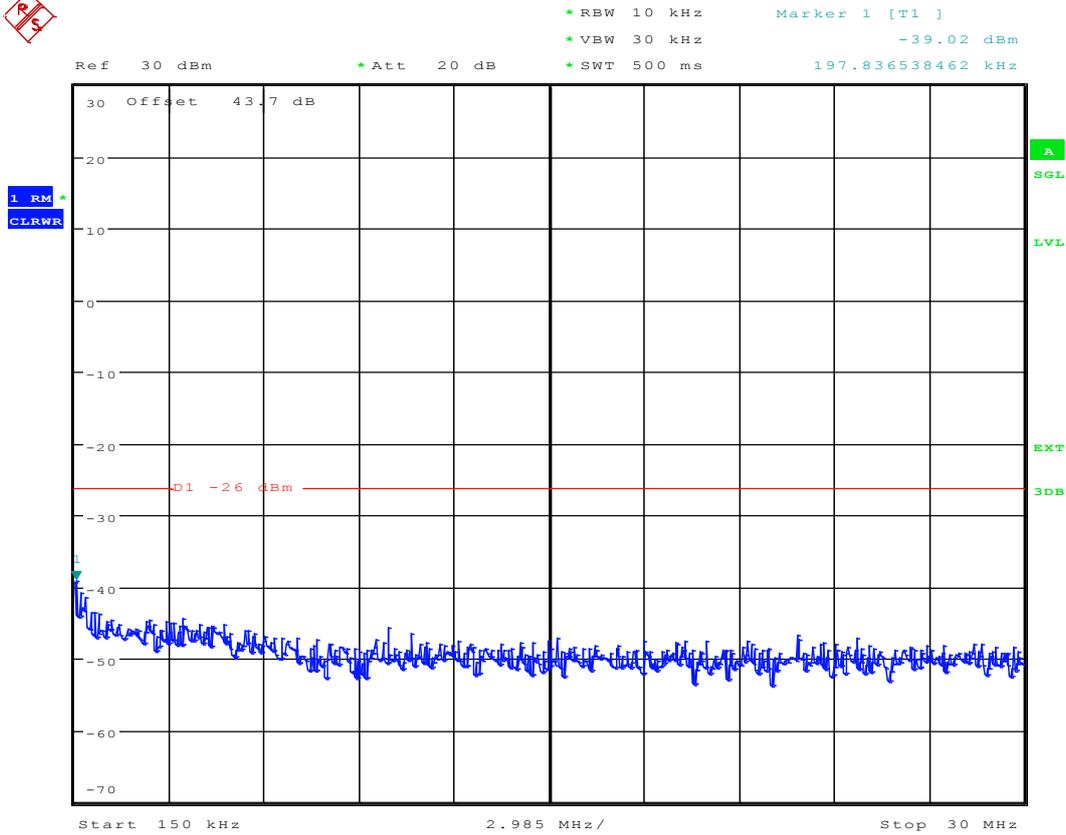
Date: 29.APR.2015 17:00:44



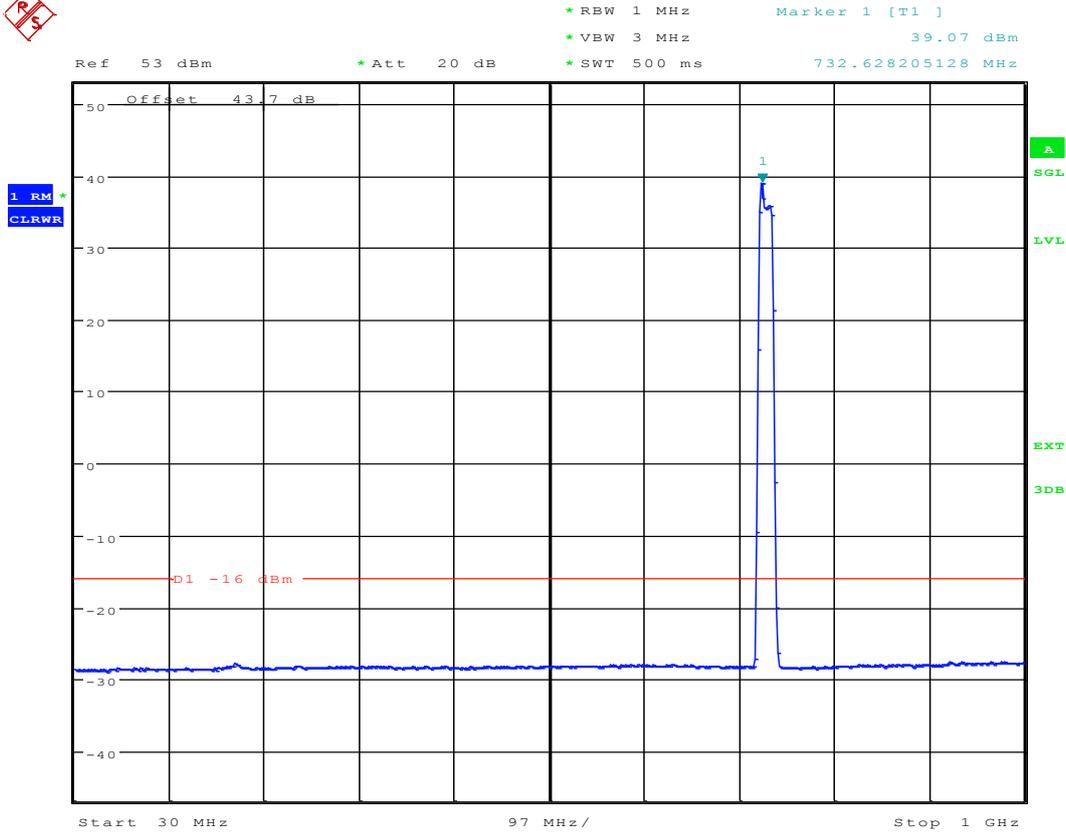
2.12 2 L_5M+10M_TM1_B



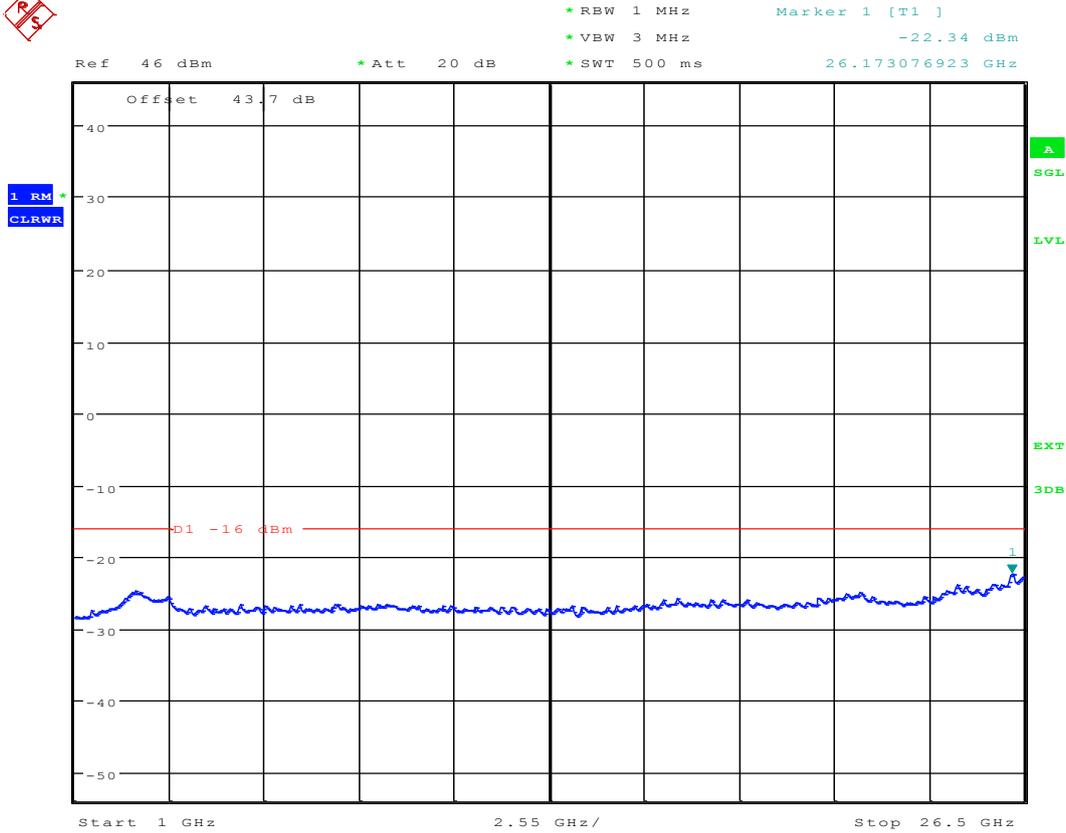
Date: 29.APR.2015 17:04:25



Date: 29.APR.2015 17:03:21



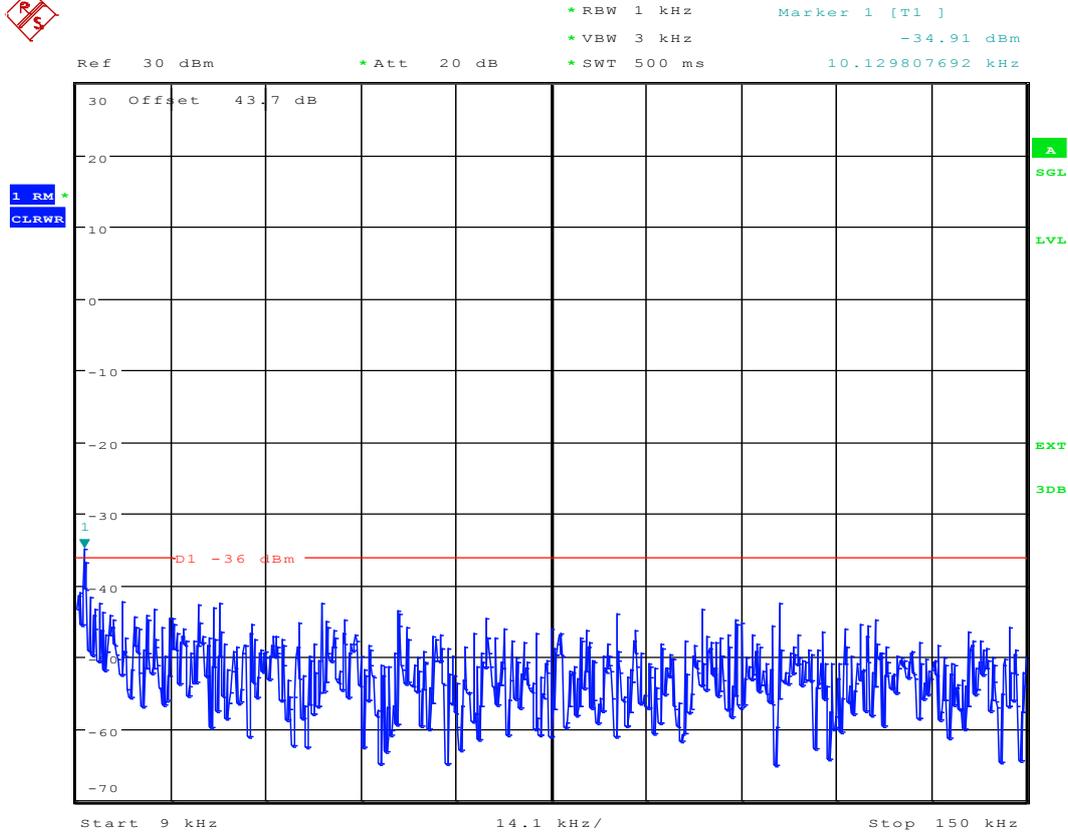
Date: 29.APR.2015 17:03:43



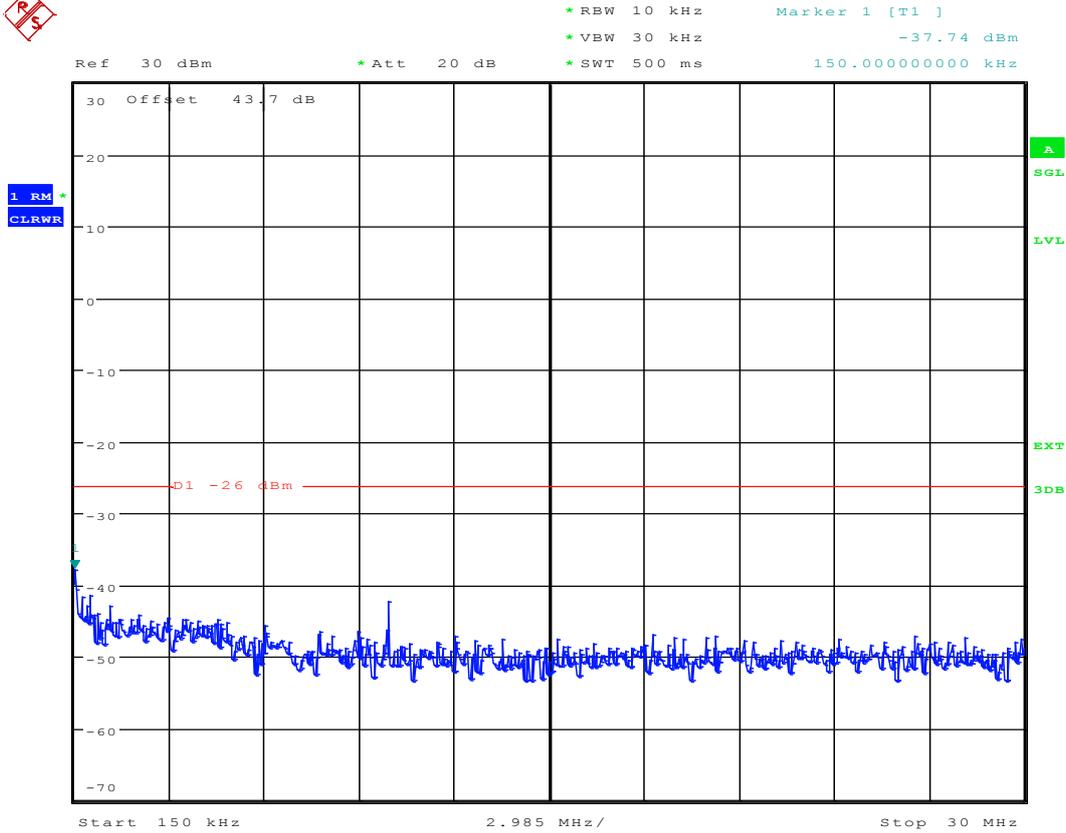
Date: 29.APR.2015 17:04:04



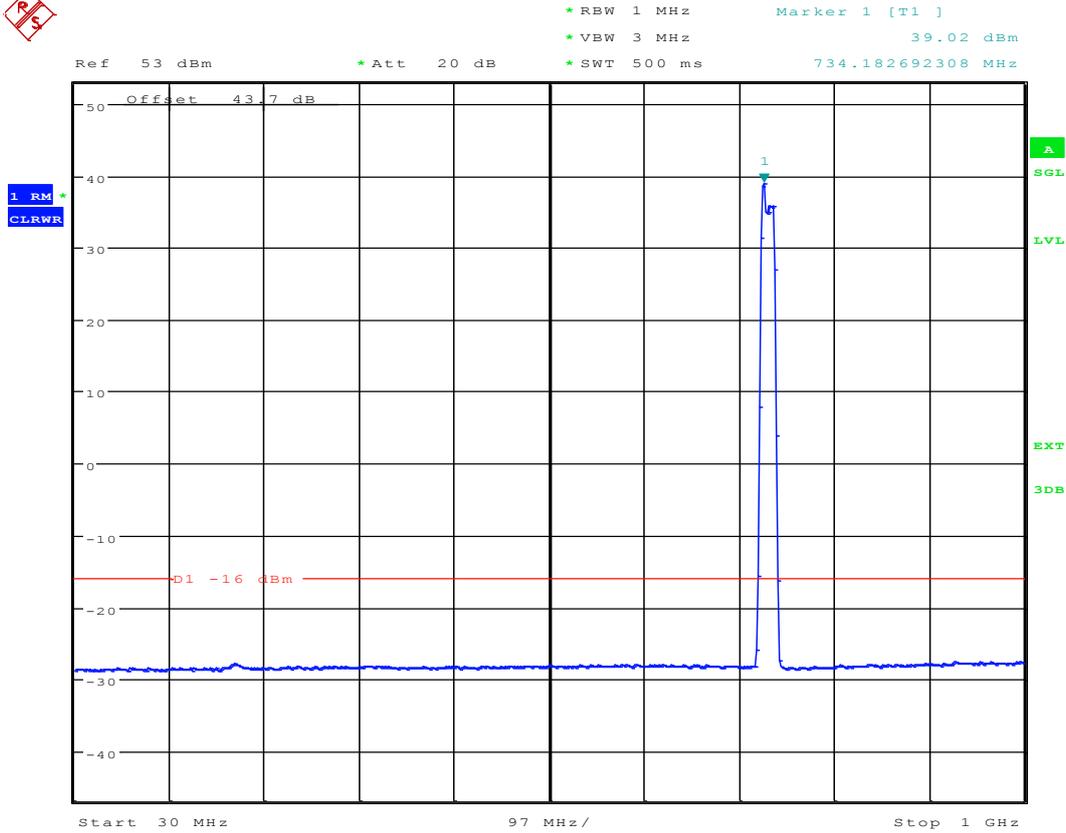
2.13 2 L_5M+10M_TM1_T



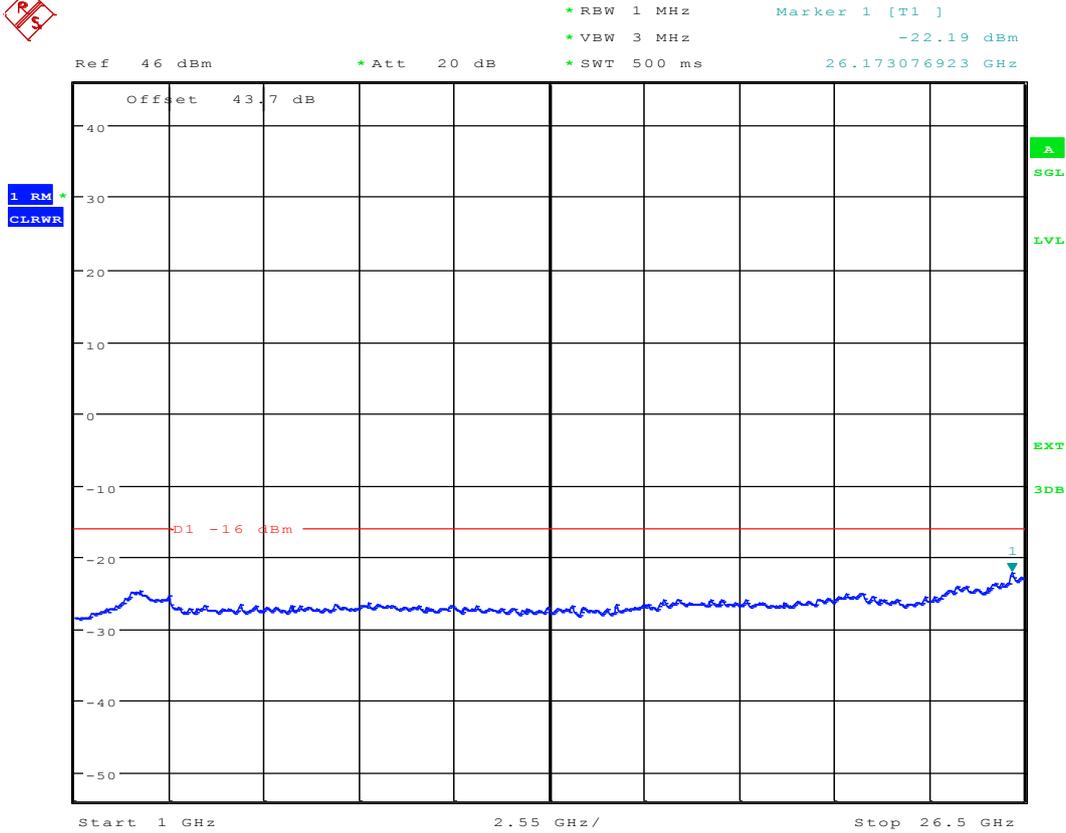
Date: 29.APR.2015 17:07:16



Date: 29.APR.2015 17:06:13



Date: 29.APR.2015 17:06:34



Date: 29.APR.2015 17:06:56



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.)

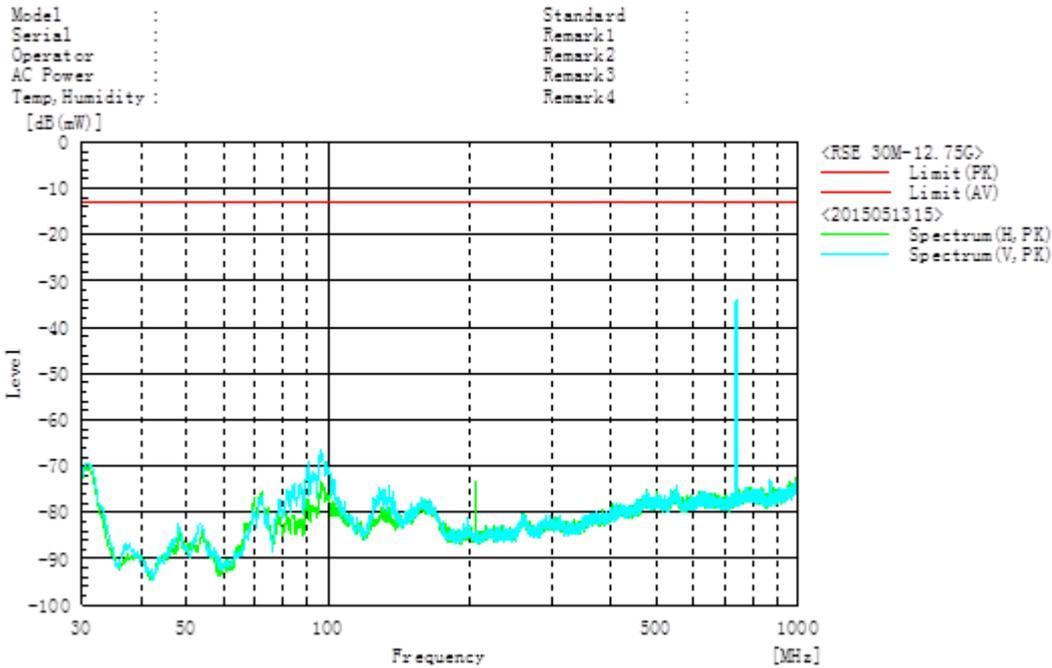
EUT Conf.	Test Range	Maximum Emission	Verdict
1L_5M_TM1_M	30 MHz to 1 GHz	<-13	Pass
	1 GHz to 18 GHz	<-13	Pass
	18 GHz to 26.5 GHz	<-13	Pass



2 Test Plot

2.1 Test range of “30 MHz to 1 GHz”

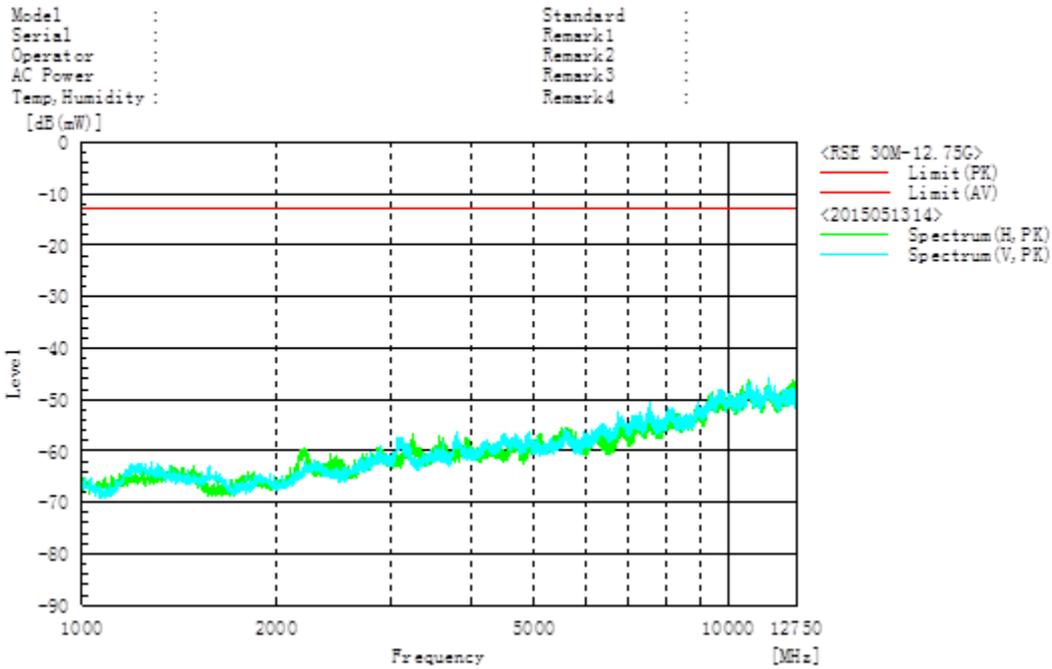
Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
30	1000	0.1	peak	<-13	-13	Pass





2.2 Test range of “1 GHz to 12.75 GHz”

Start Frequency [MHz]	Stop Frequency [MHz]	RBW [MHz]	Detector	Emission [dBm]	Limit [dBm]	Verdict
1000	12750	1	peak	<-13	-13	Pass





Appendix F: Frequency Stability



1 Result Table

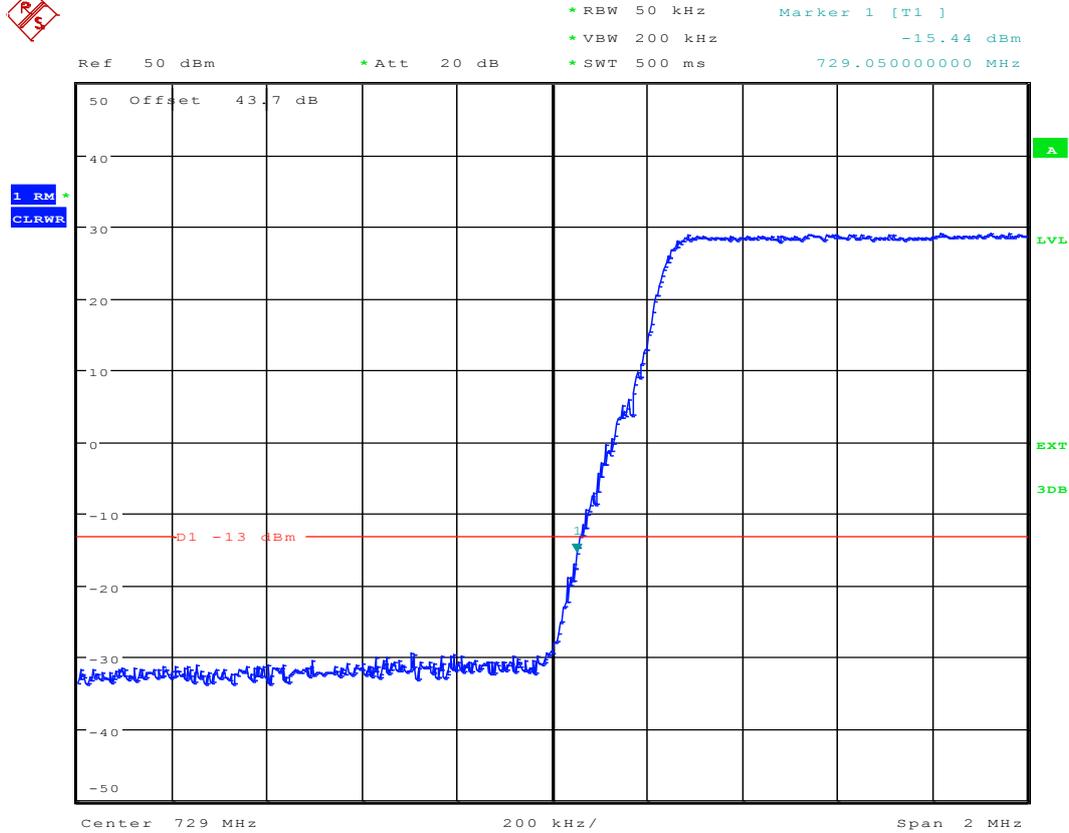
1.1 1Frequency Error

EUT Conf.	Temperature	Voltage	Freq. Error, f(offset) [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Verdict
1L_5M_TM1_M	-30 °C	100%	1.70	0.002305	0.000501	Pass
	-20 °C	100%	0.99	0.001342	0.001259	Pass
	-10 °C	100%	1.66	0.002251	0.000544	Pass
	0 °C	100%	1.39	0.001885	0.000832	Pass
	+10 °C	100%	1.08	0.001464	0.001163	Pass
	+20 °C	85 %	1.35	0.001831	0.000875	Pass
	+20 °C	100 %	2.17	0.002942	---	Pass
	+20 °C	115 %	1.29	0.001749	0.000939	Pass
	+30 °C	100%	1.90	0.002576	0.000288	Pass
	+40 °C	100%	0.68	0.000922	0.001589	Pass
	+50 °C	100%	0.94	0.001275	0.001312	Pass



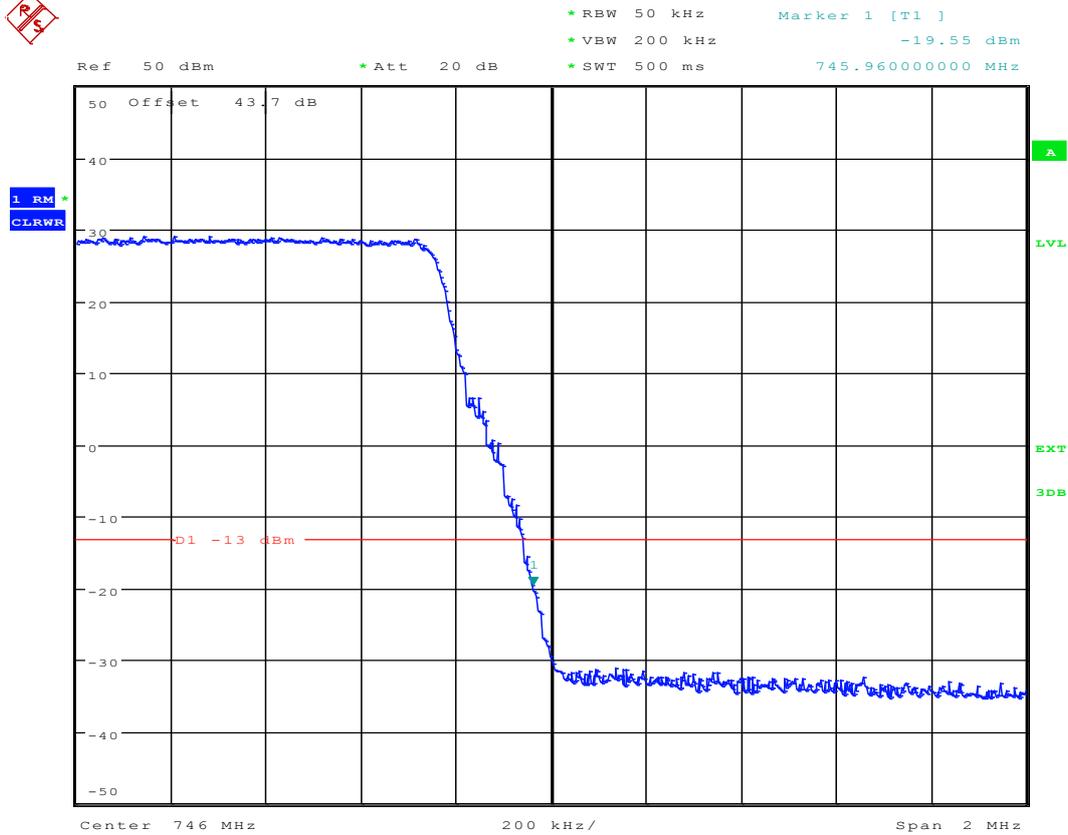
1.2 Frequency Range

1.2.1 1L_5M_TM1_B



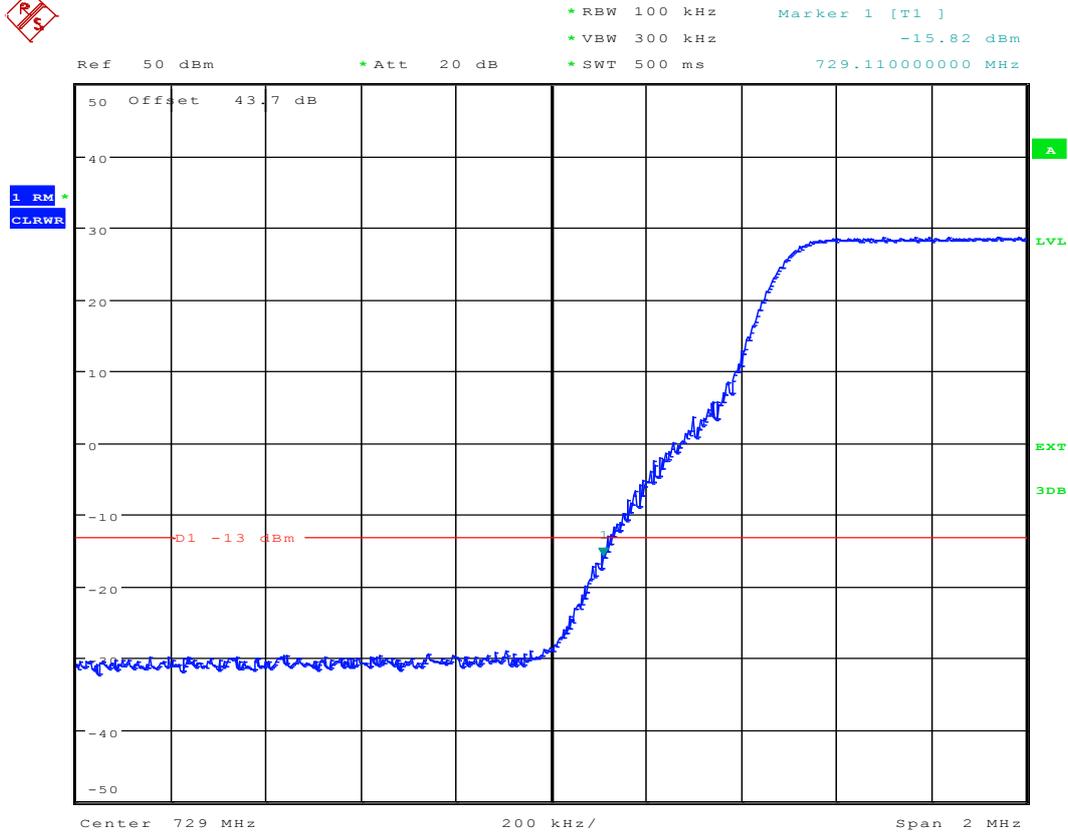
Date: 1.MAY.2015 10:37:42

1.2.2 1L_5M_TM1_T



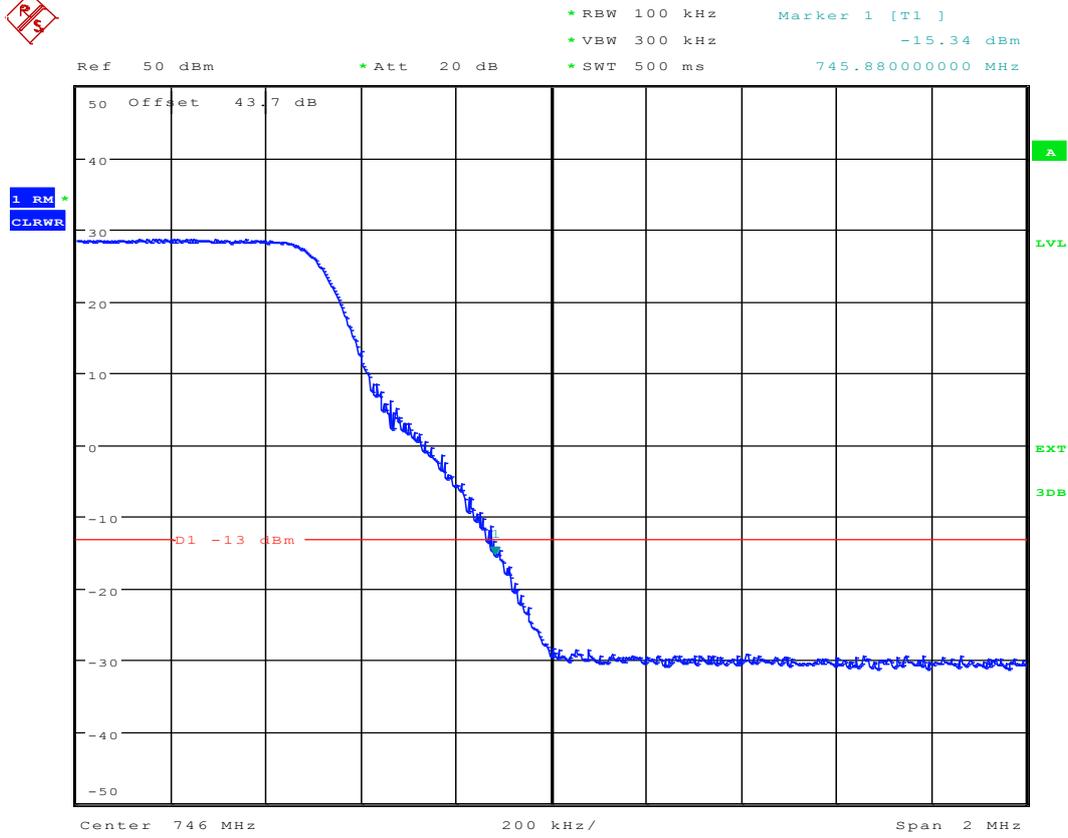
Date: 1.MAY.2015 10:35:38

1.2.3 1L_10M_TM1_B



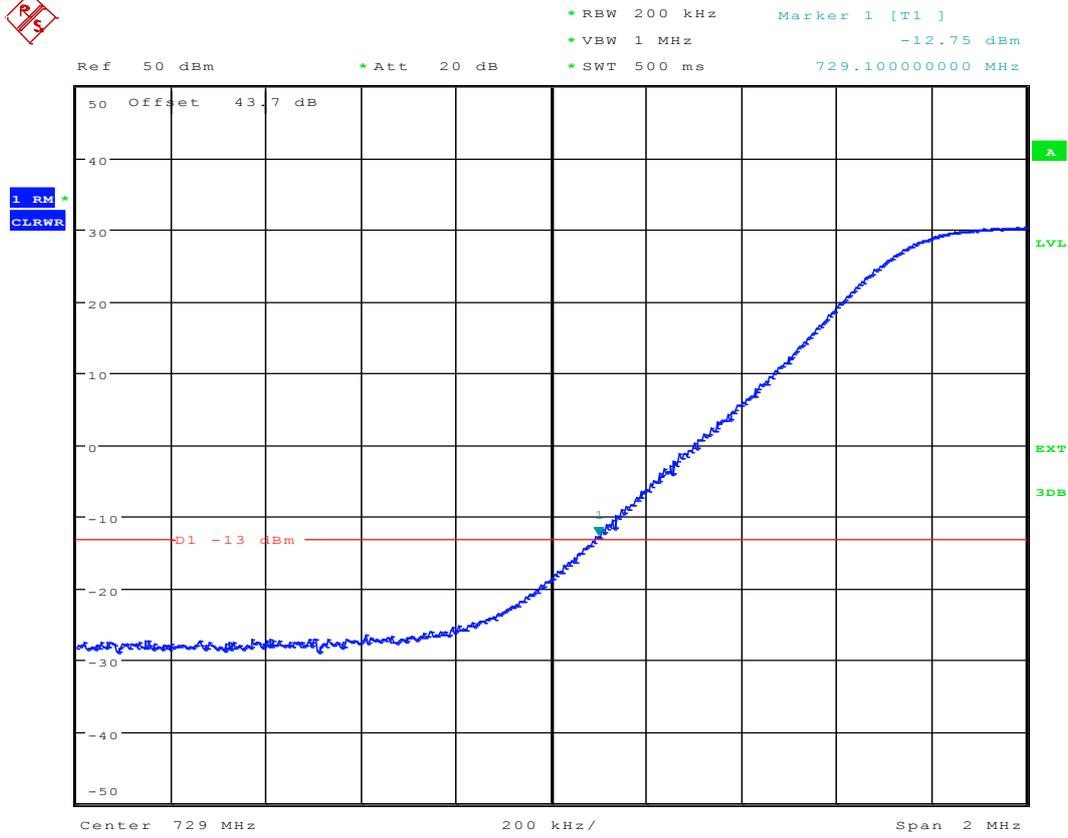
Date: 1.MAY.2015 10:40:12

1.2.4 1L_10M_TM1_T



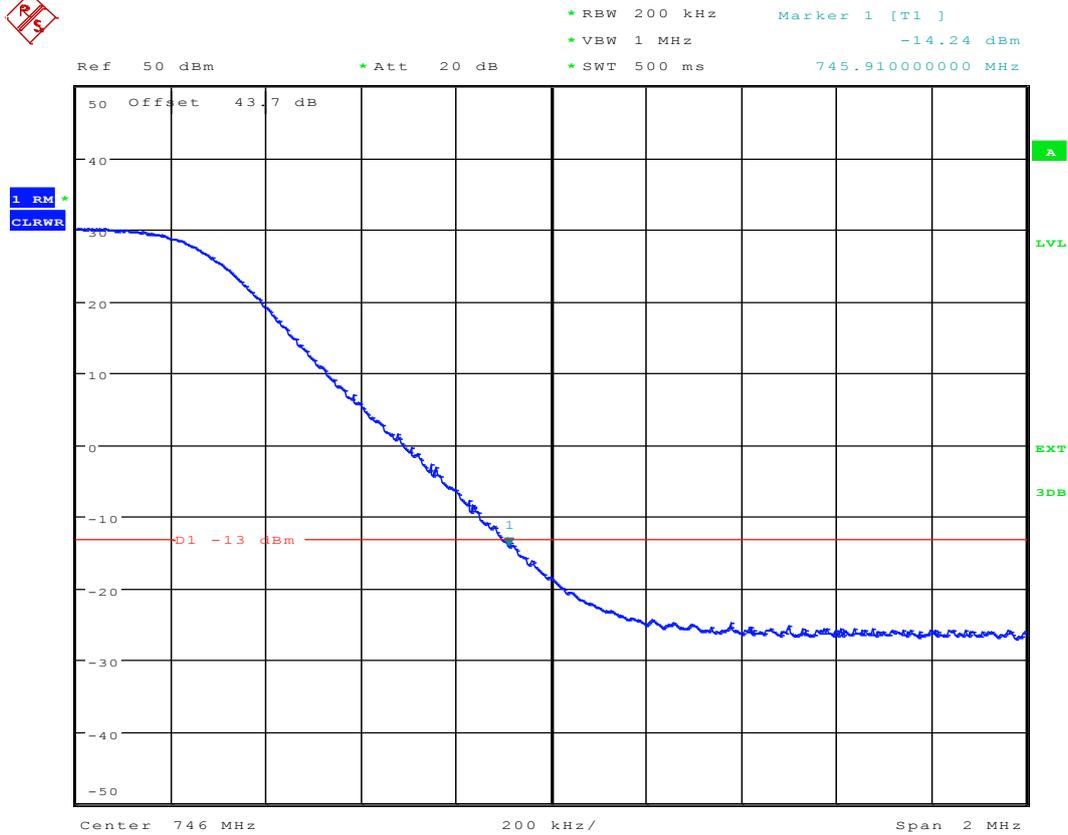
Date: 1.MAY.2015 10:42:22

1.2.5 1L_15M_TM1_B



Date: 1.MAY.2015 10:46:44

1.2.6 1L_15M_TM1_T



Date: 1.MAY.2015 10:49:03



Appendix G: Receiver Spurious Emissions



Not applicable.

END