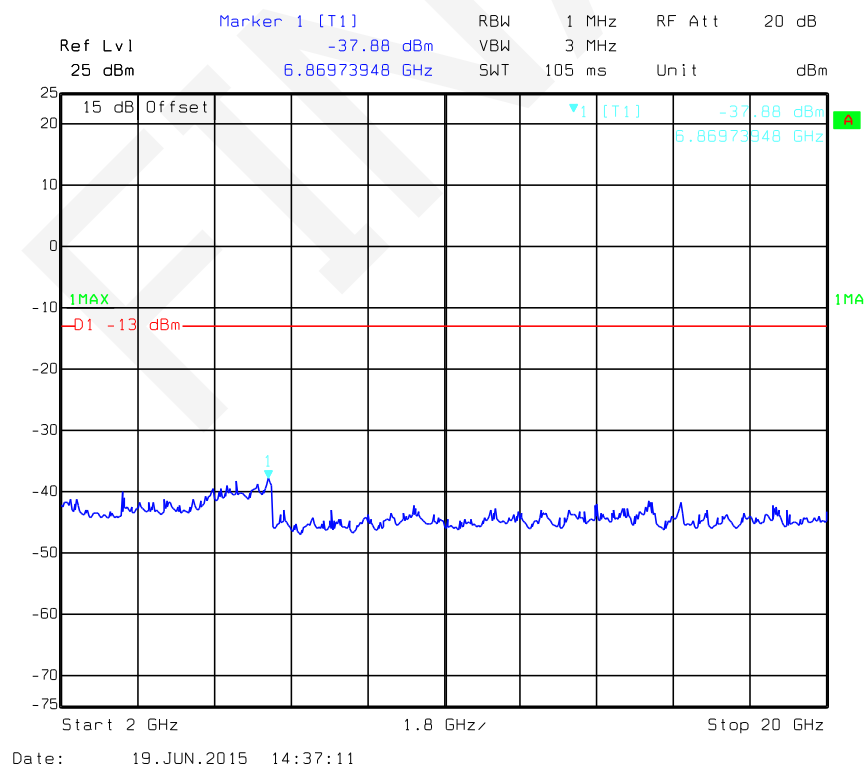
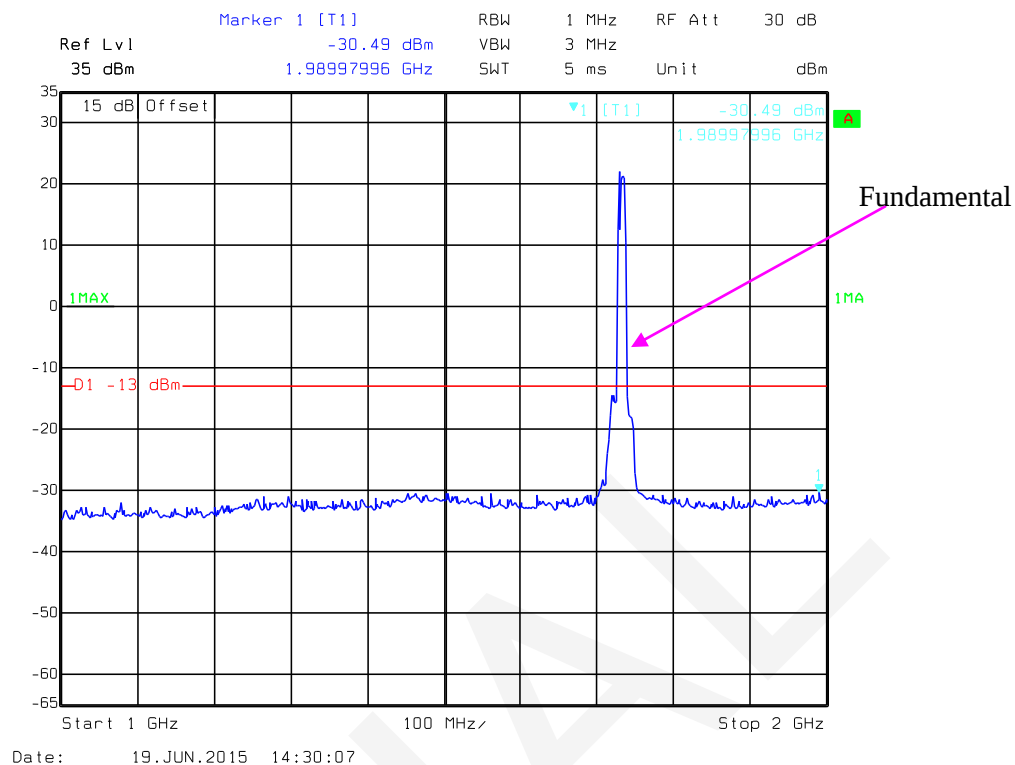
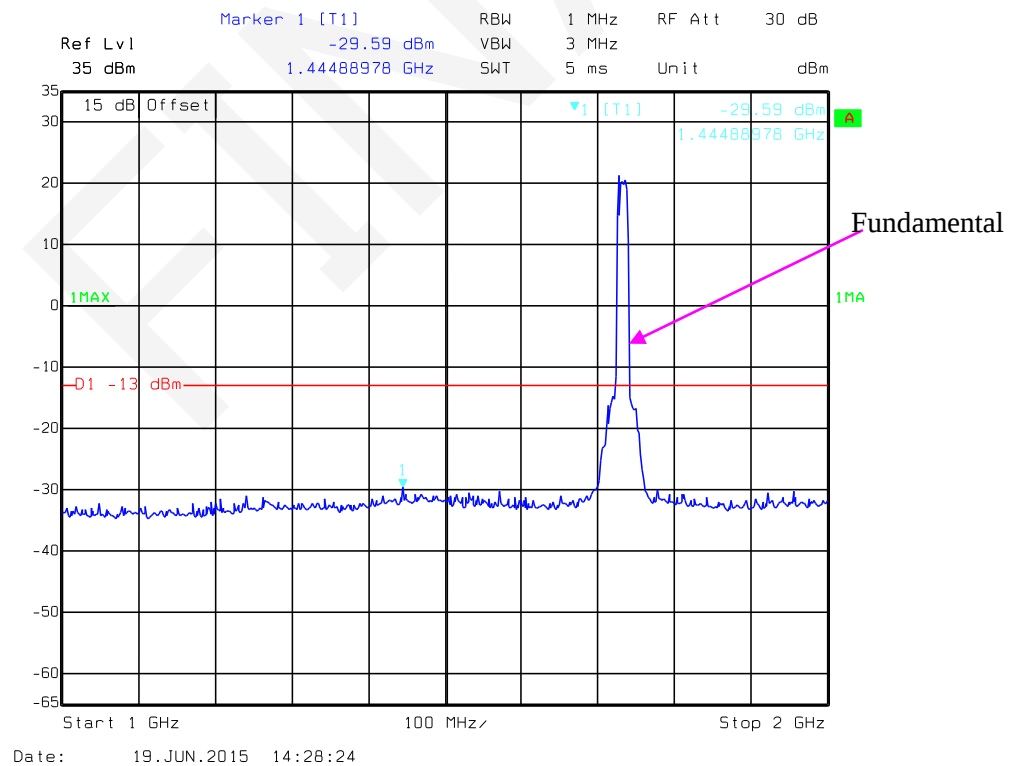
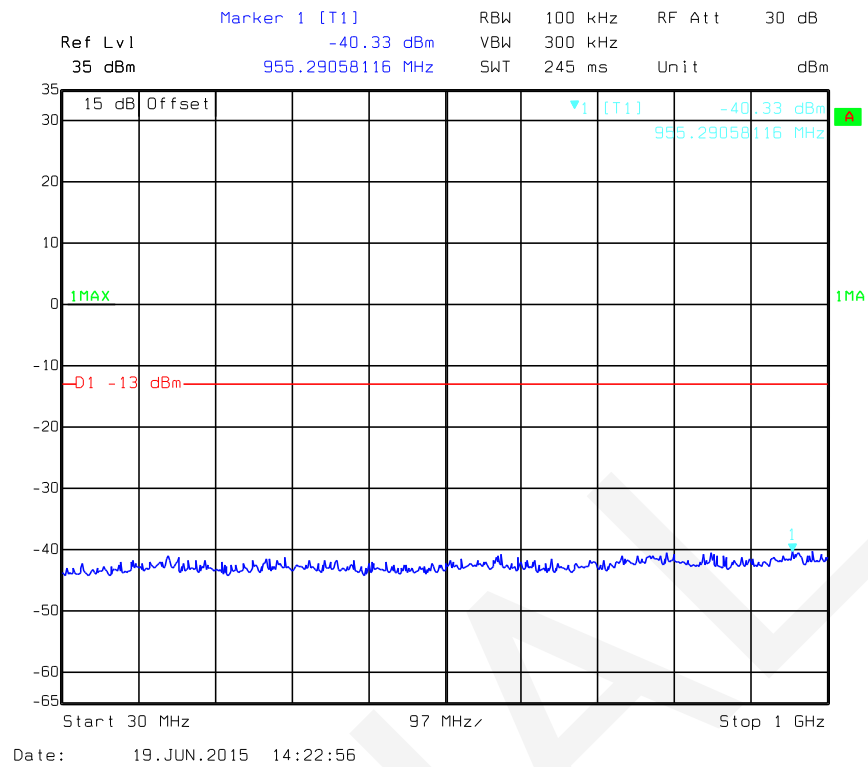
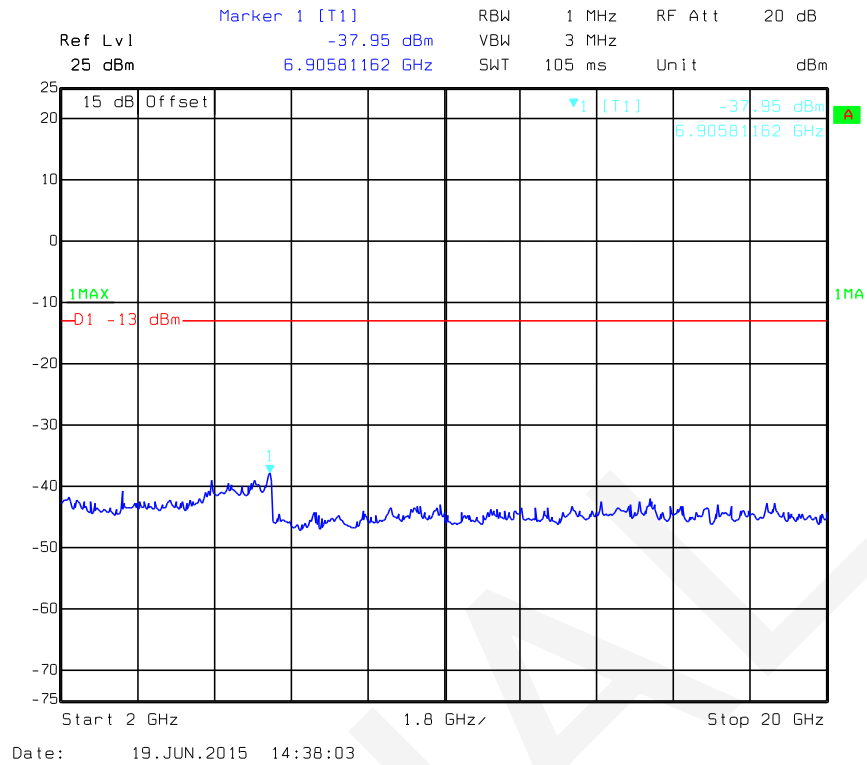


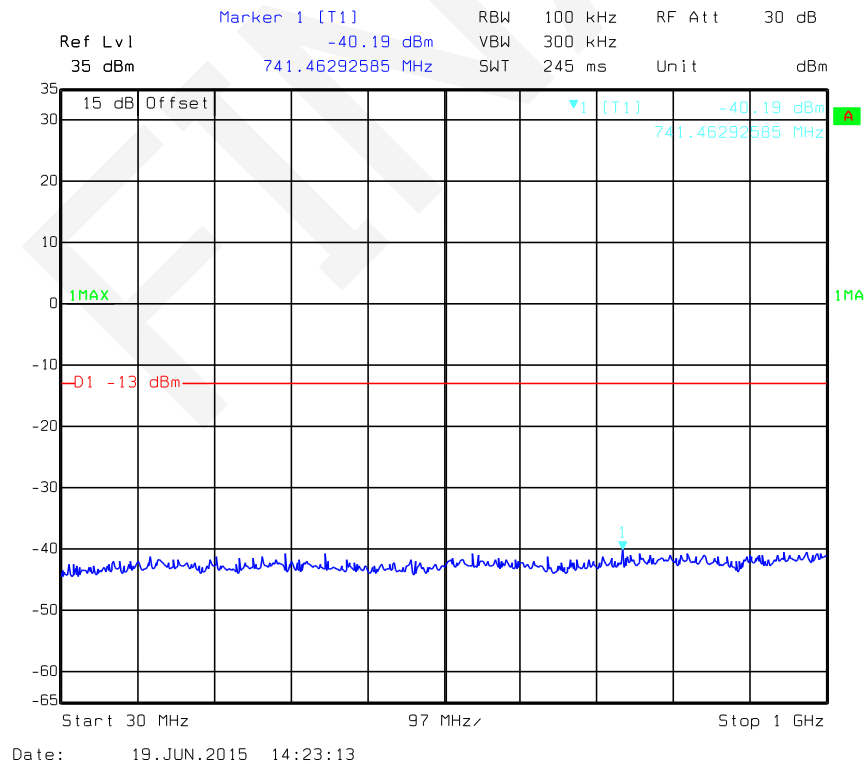


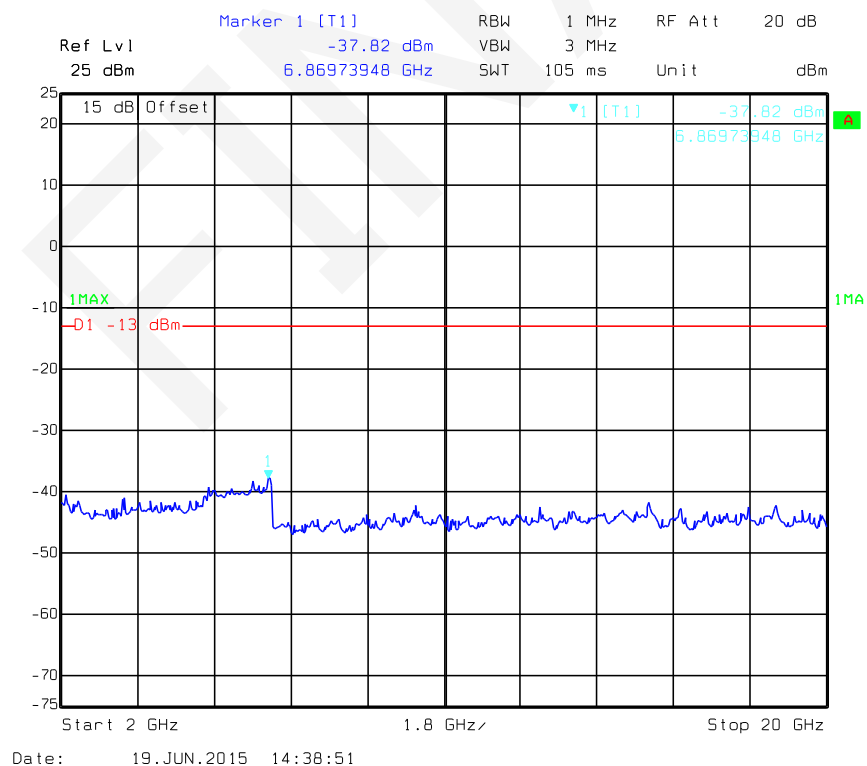
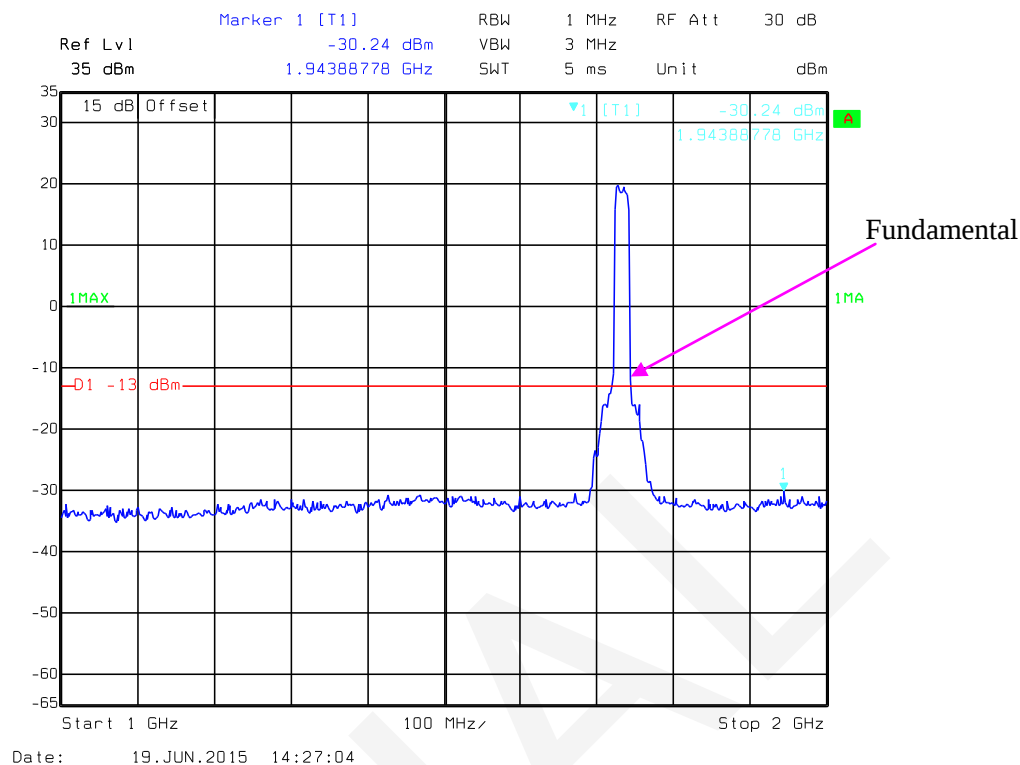
16QAM_15 MHz





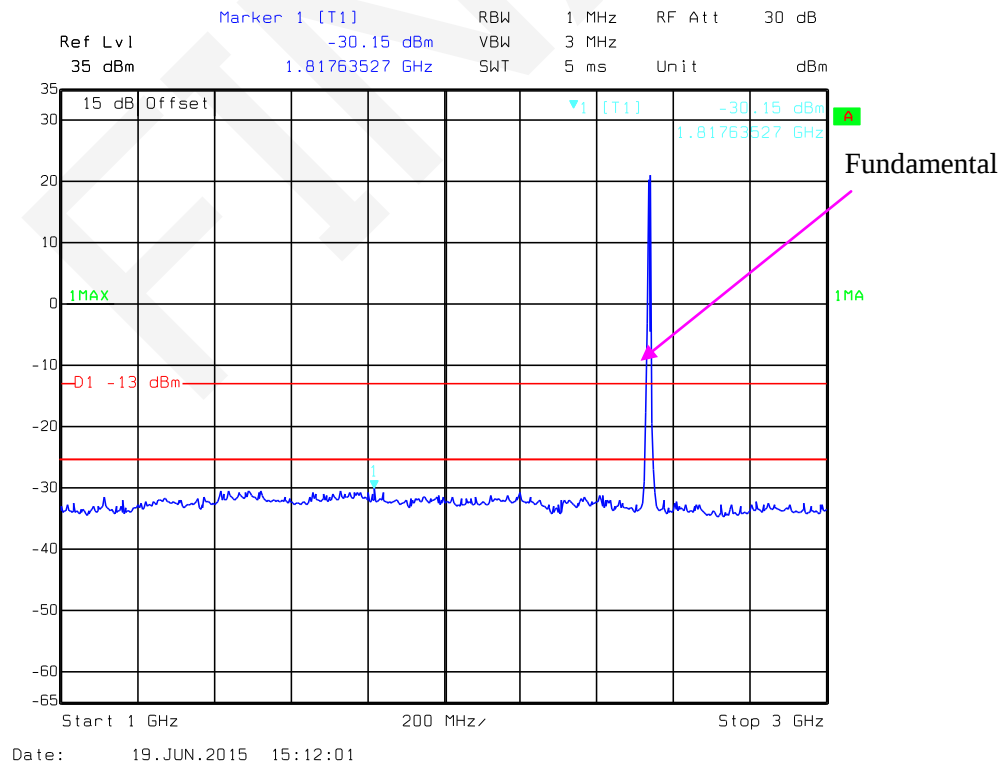
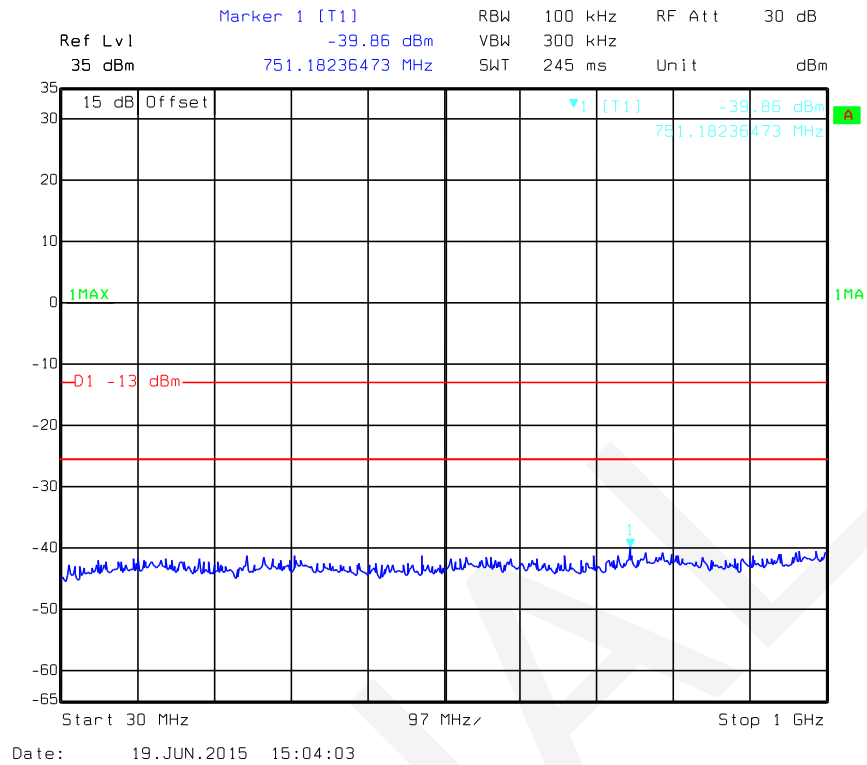
16QAM_20 MHz

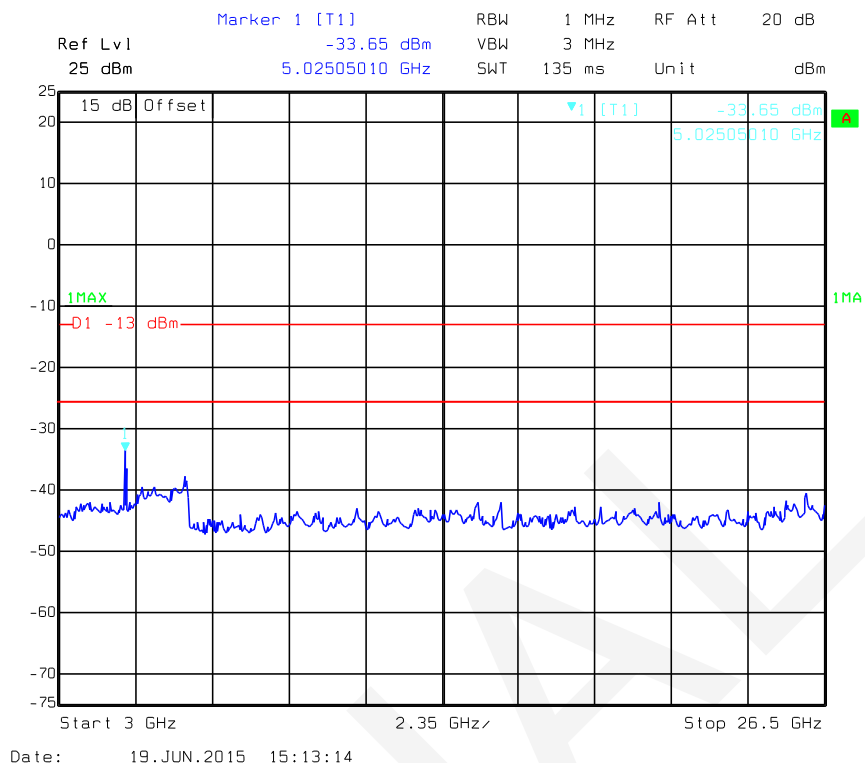




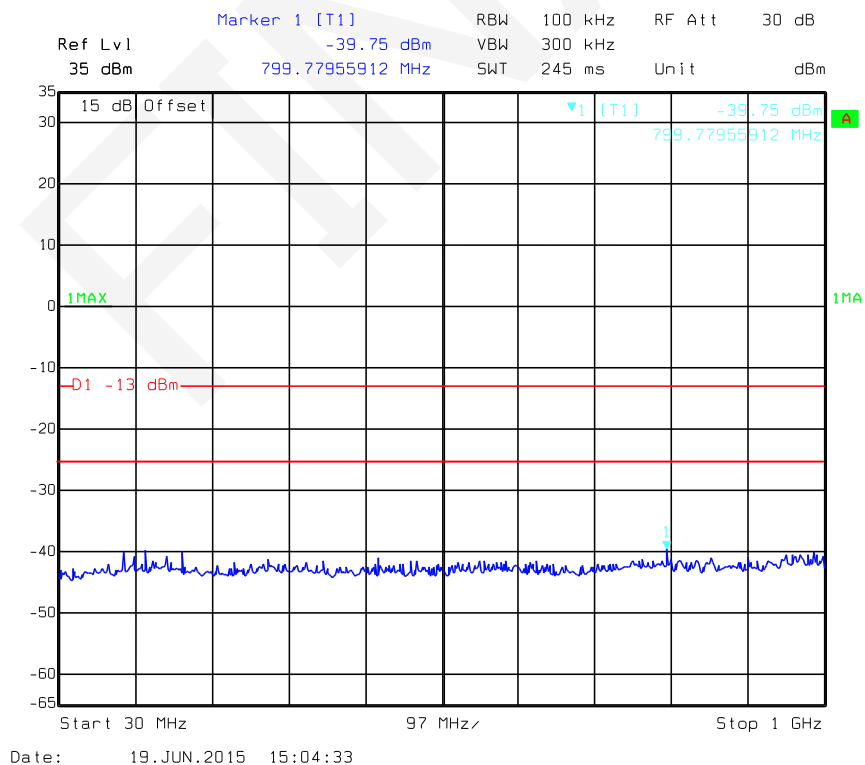
PART 27
LTE Band 7 (Middle Channel)

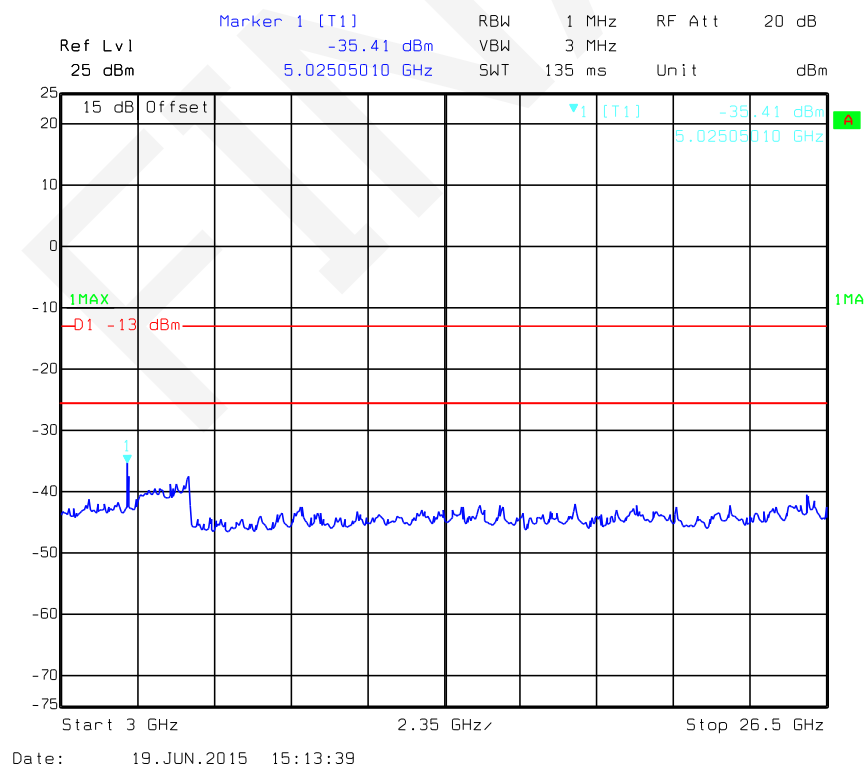
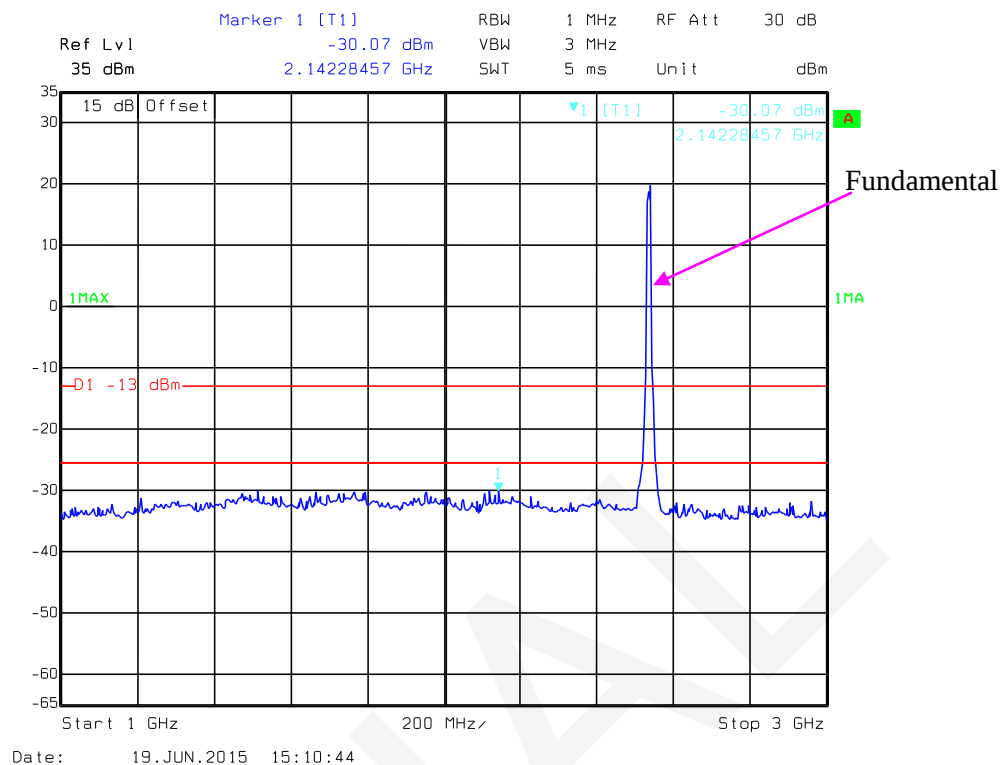
QPSK_5MHz



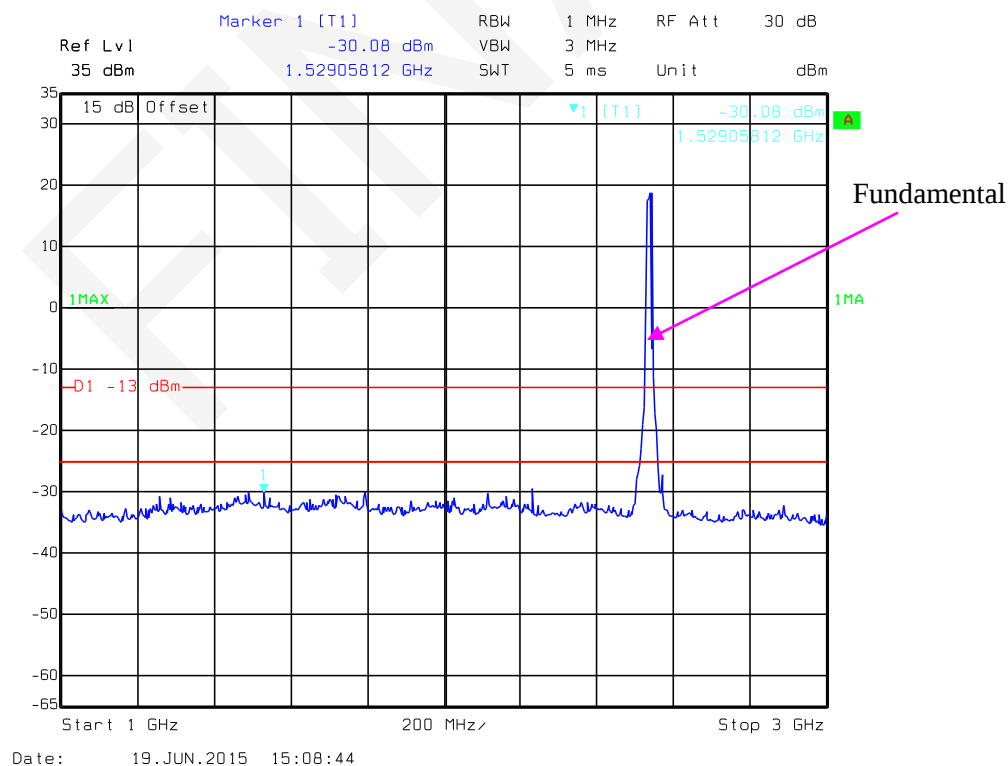
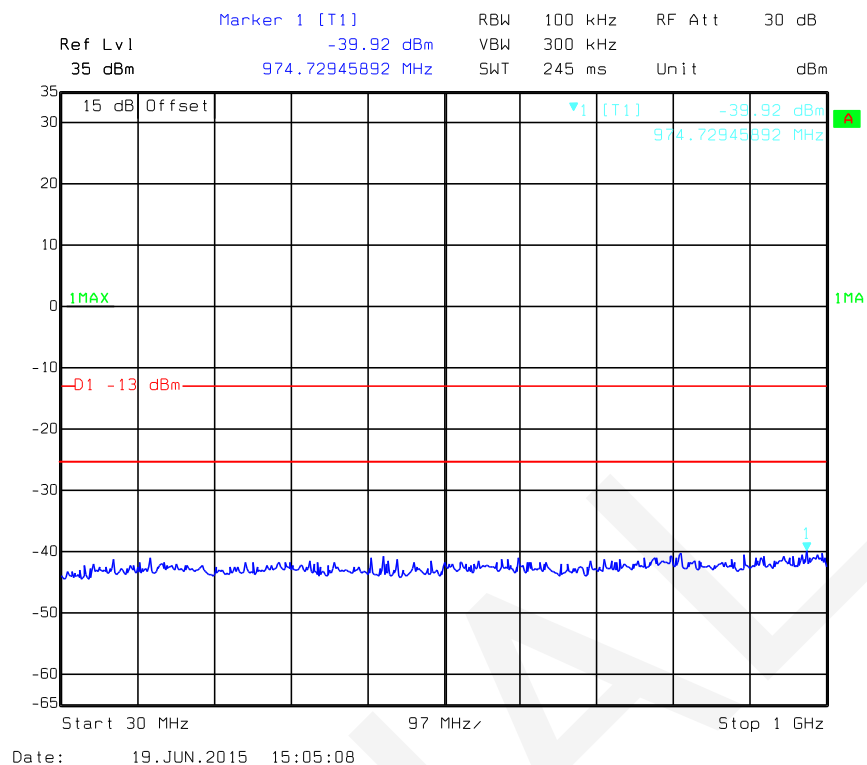


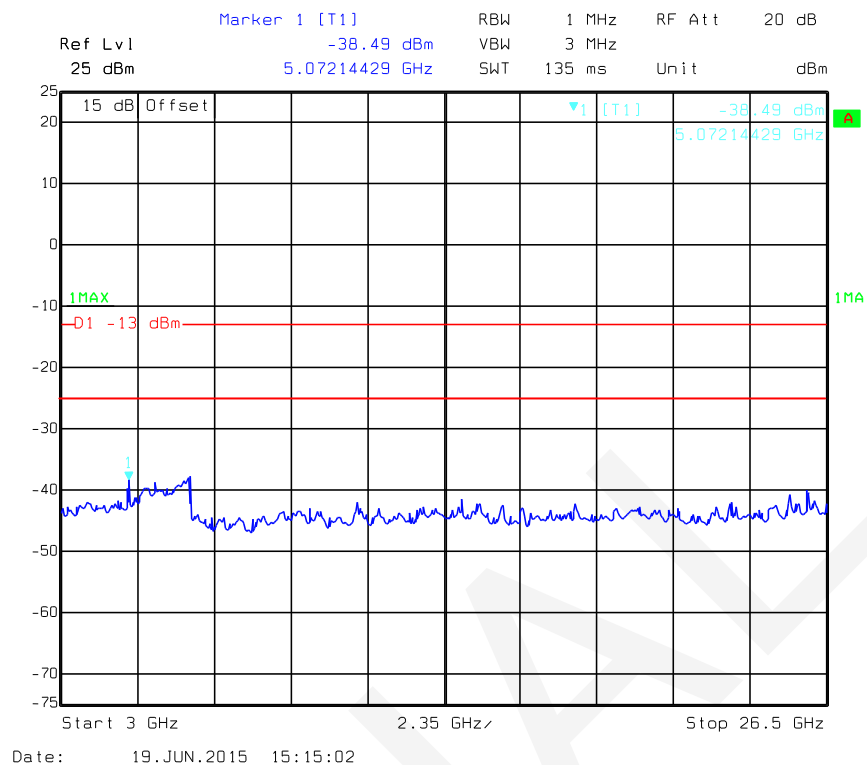
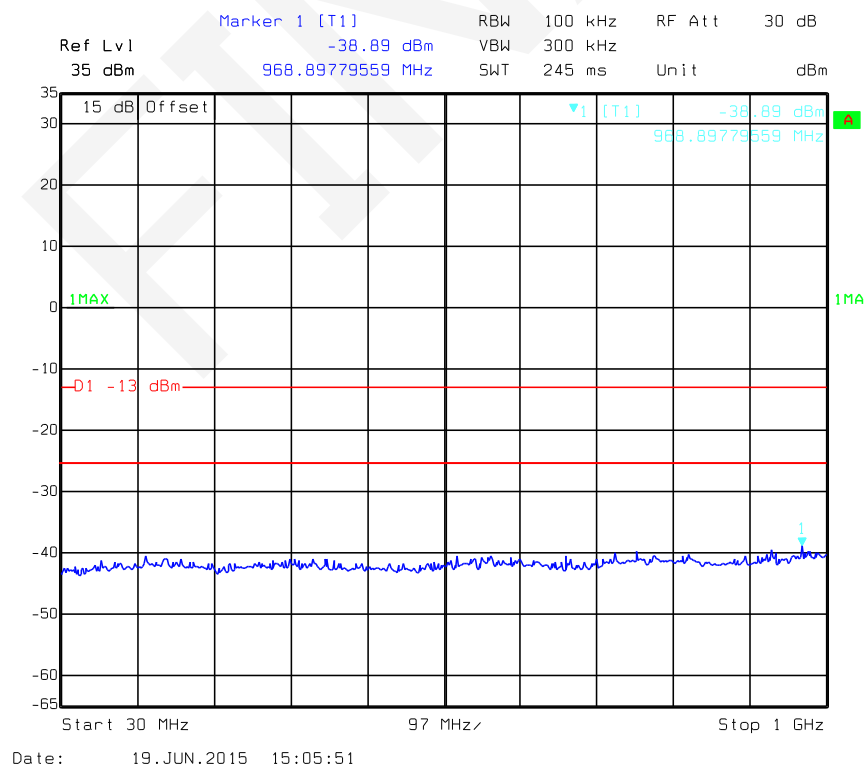
QPSK_10MHz

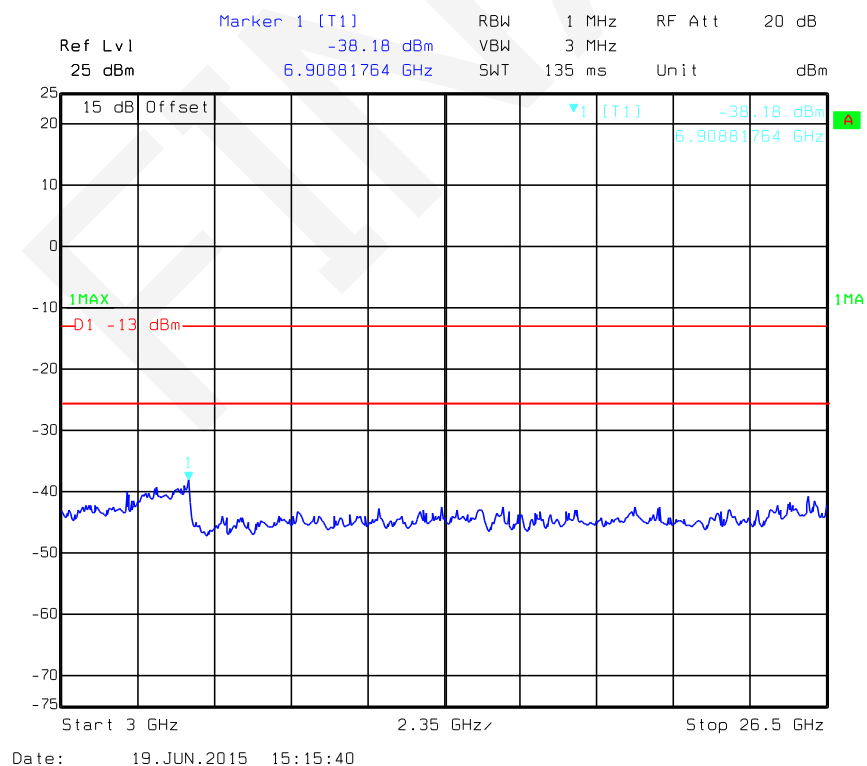
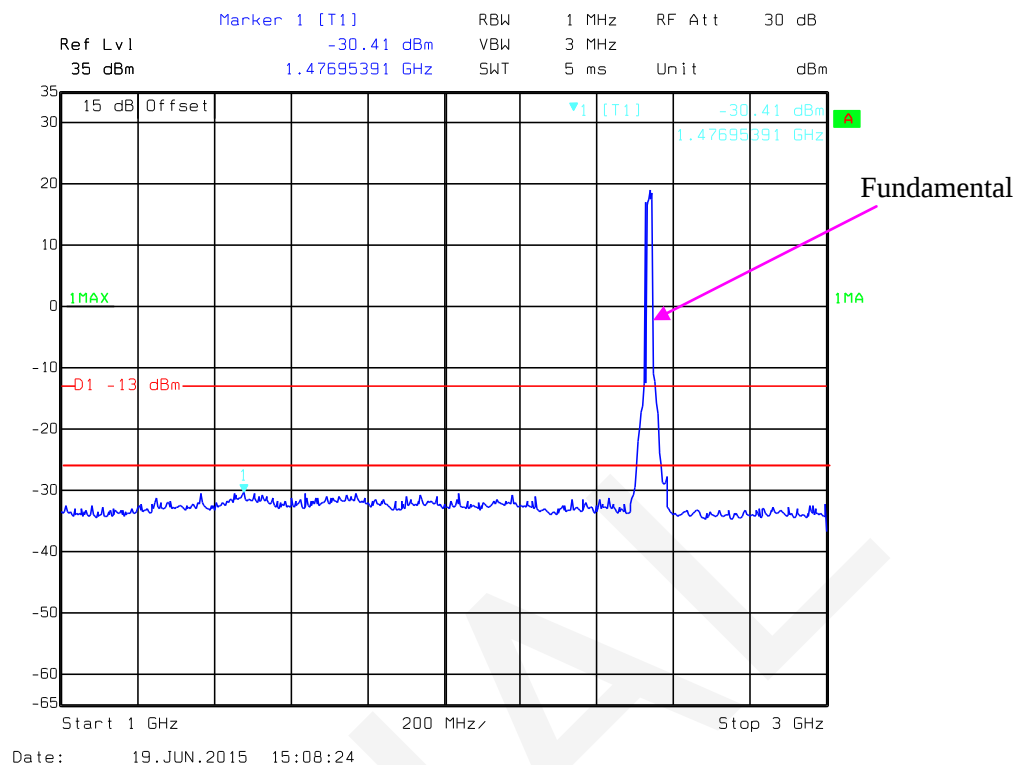




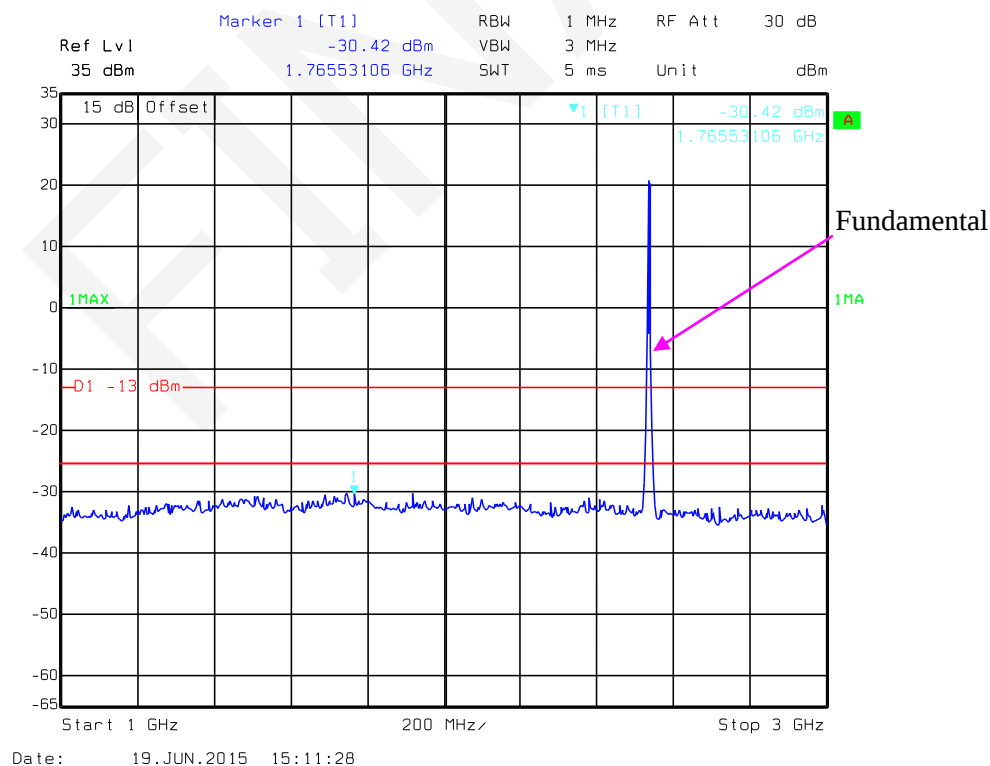
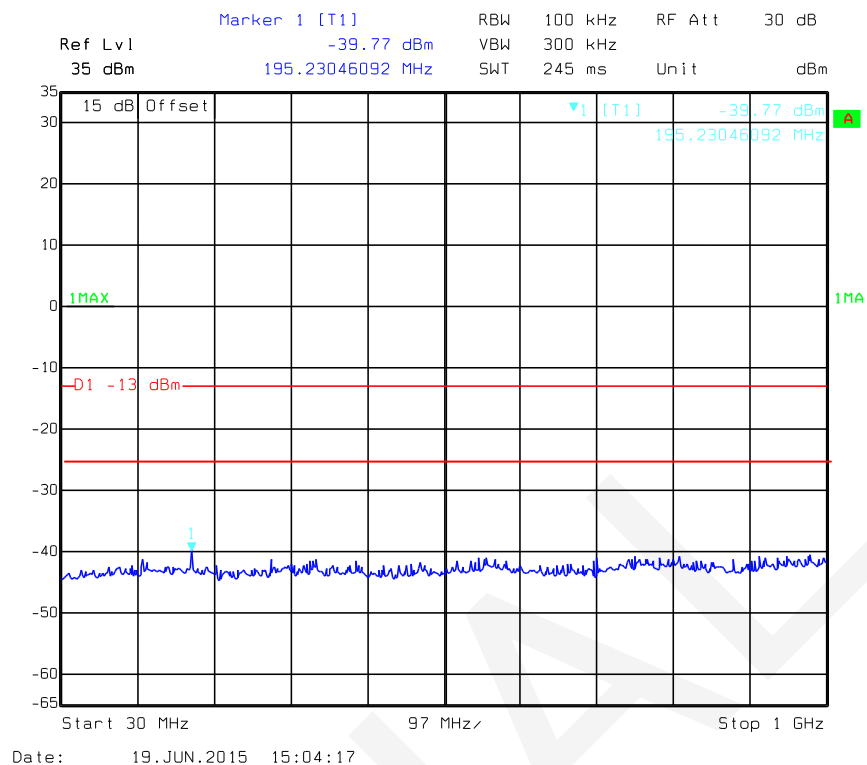
QPSK_15MHz

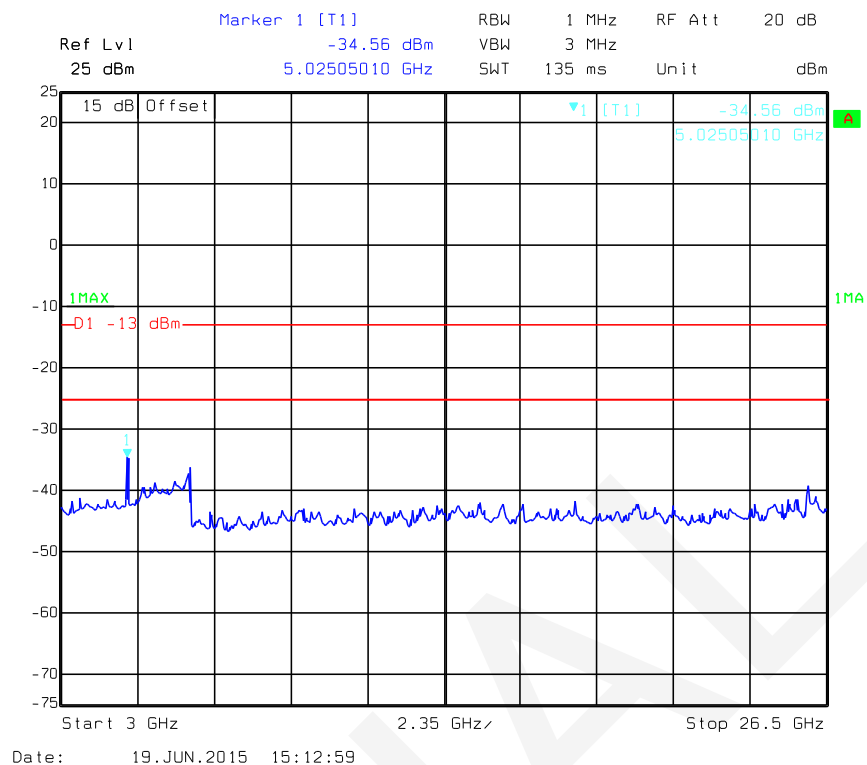
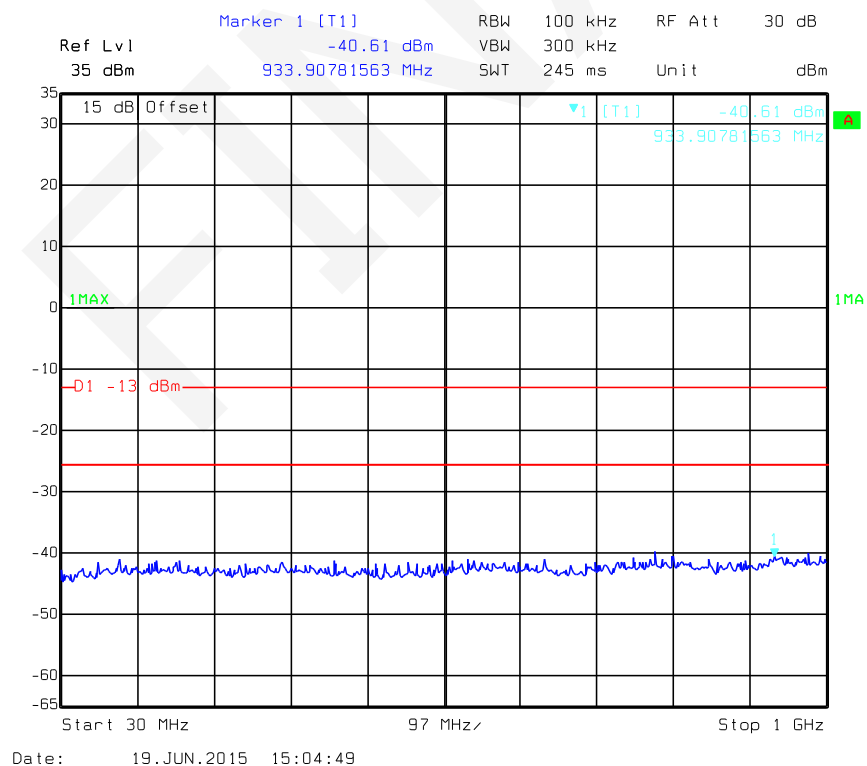


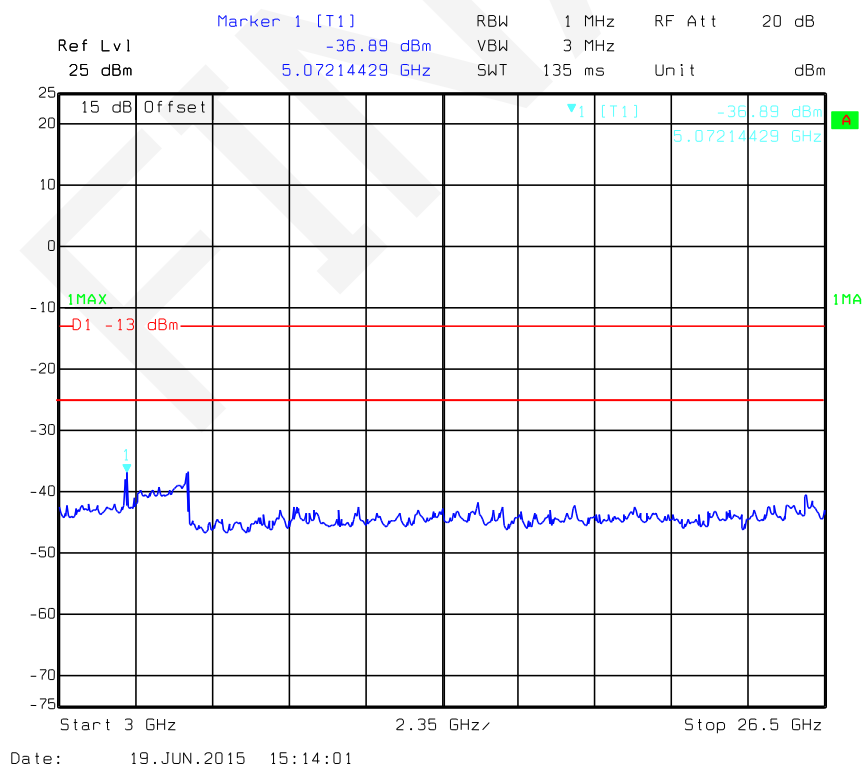
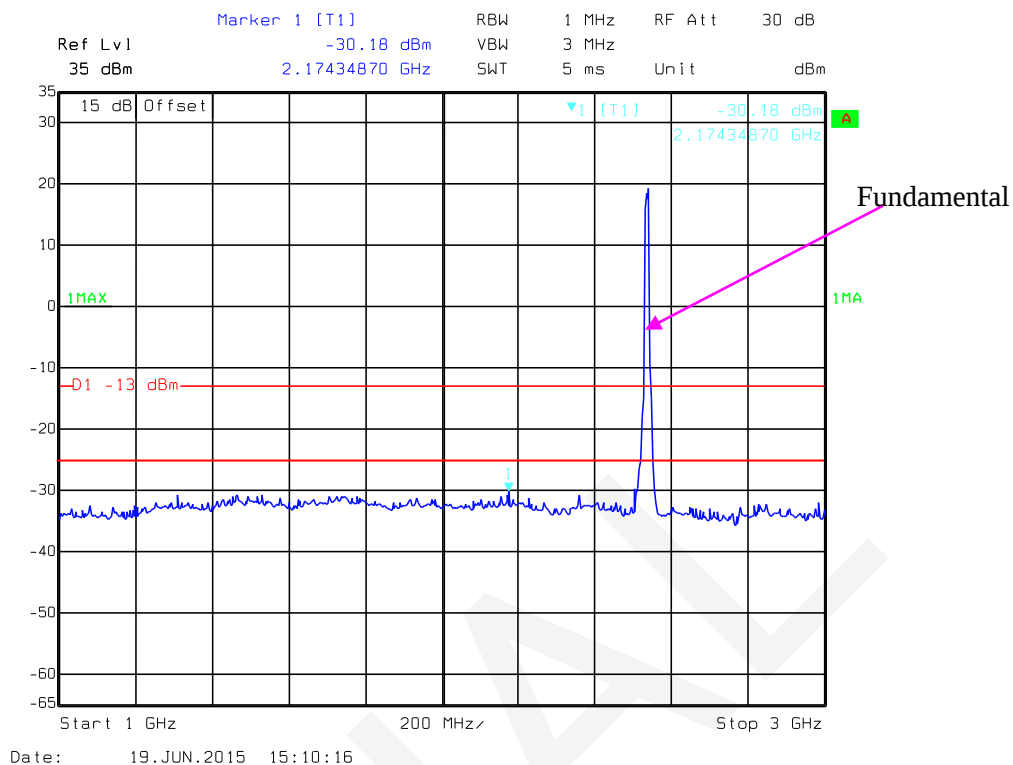
**QPSK_20MHz**



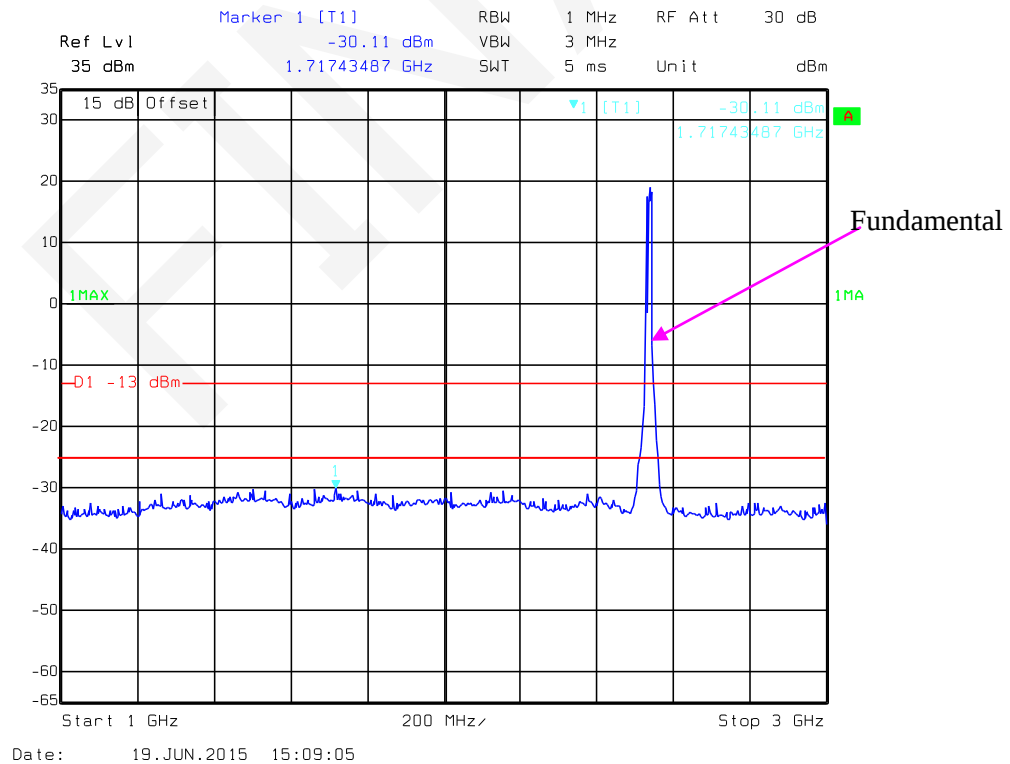
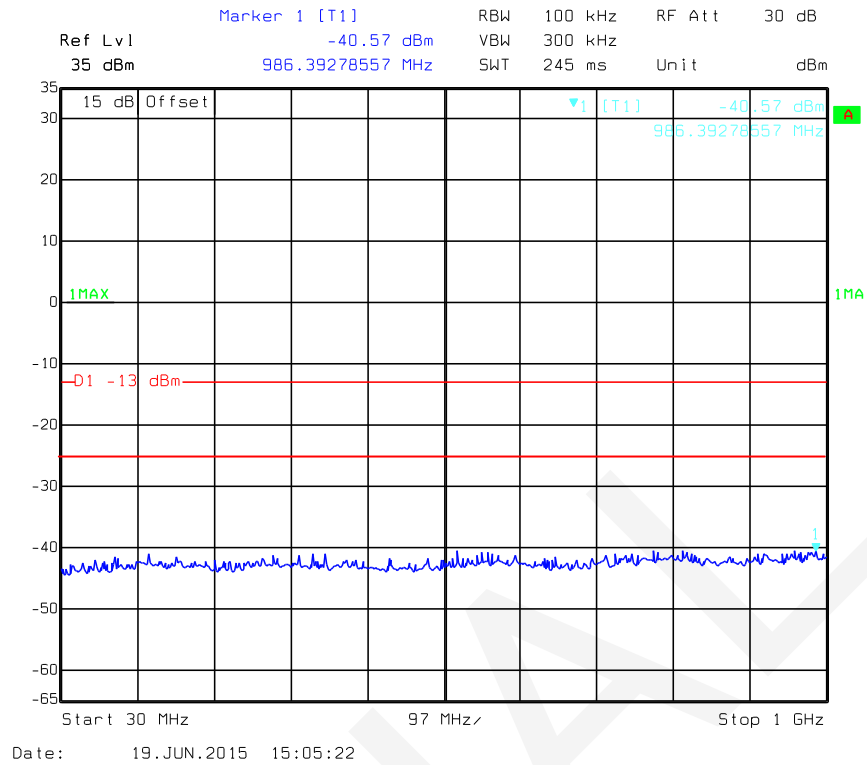
16QAM_5MHz

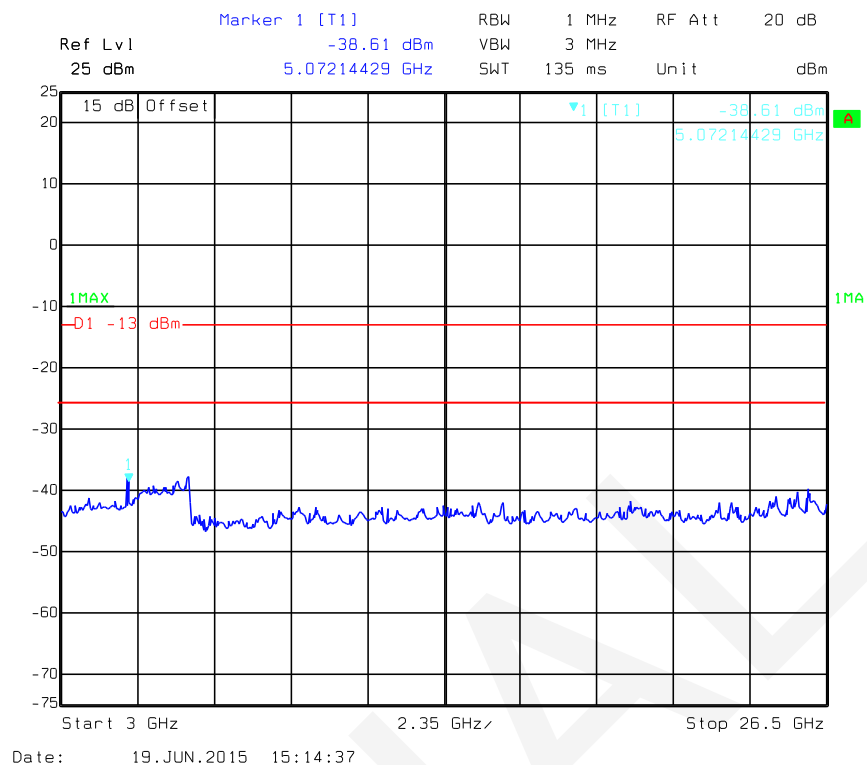


**16QAM_10MHz**

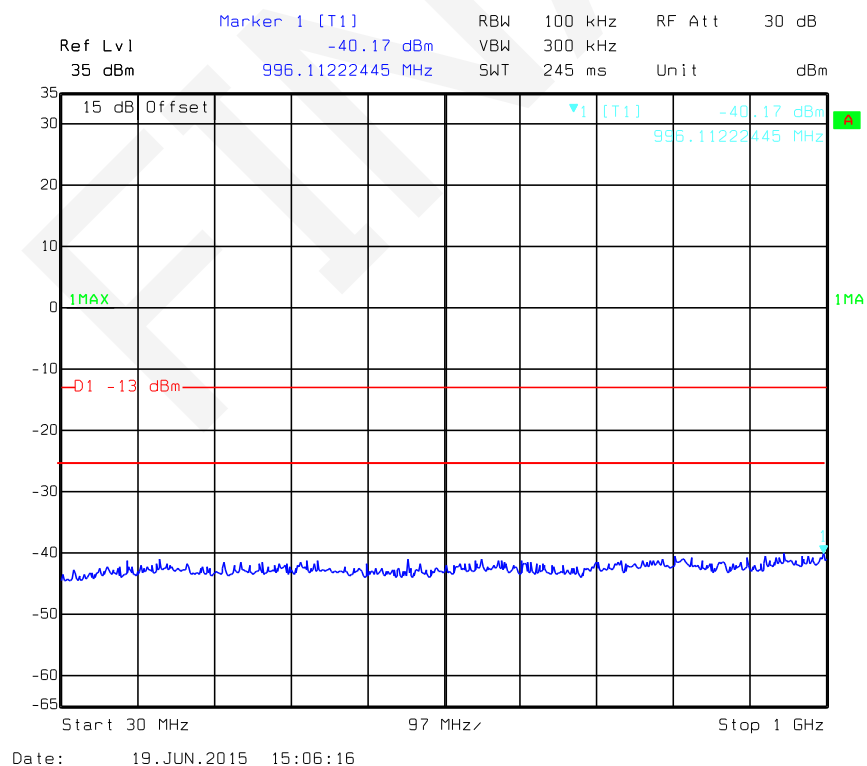


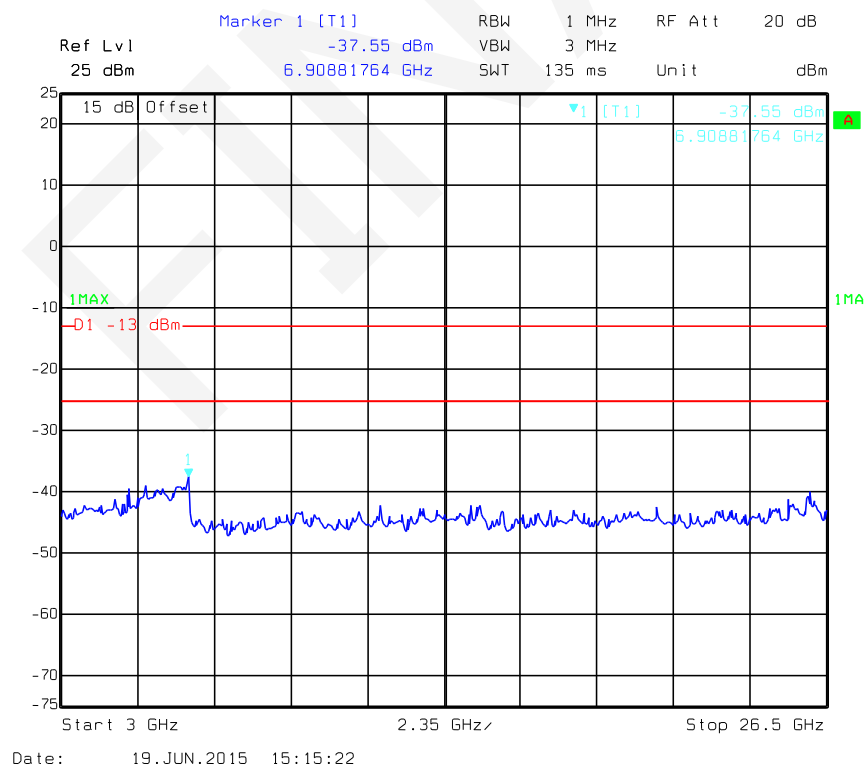
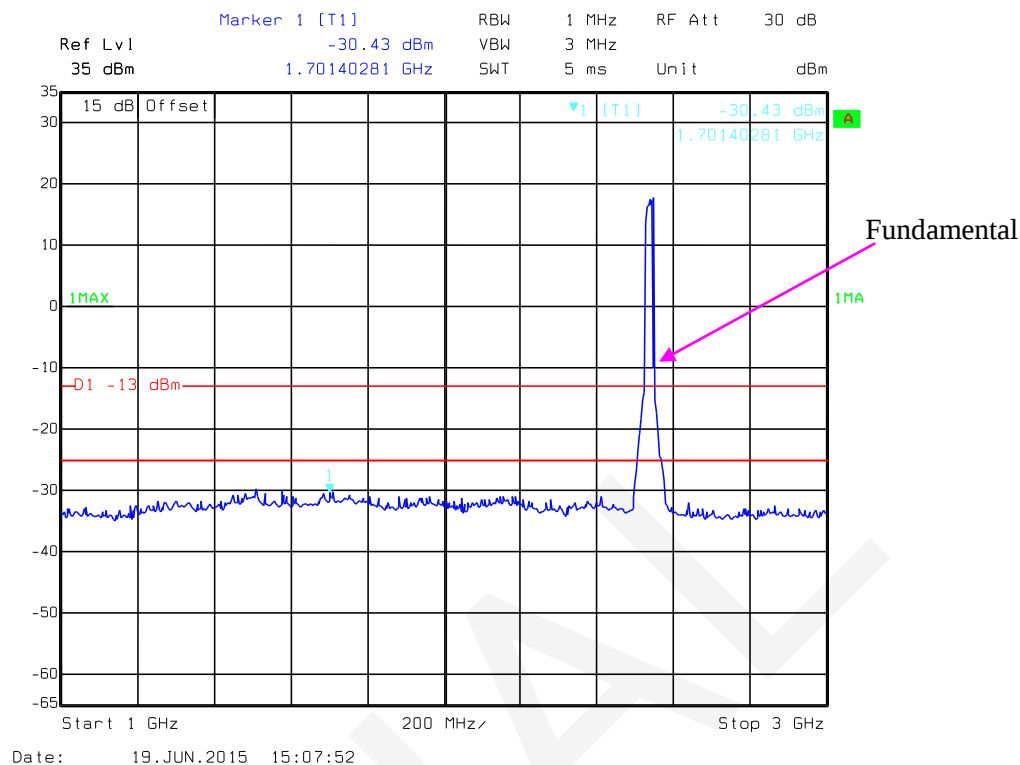
16QAM_15 MHz



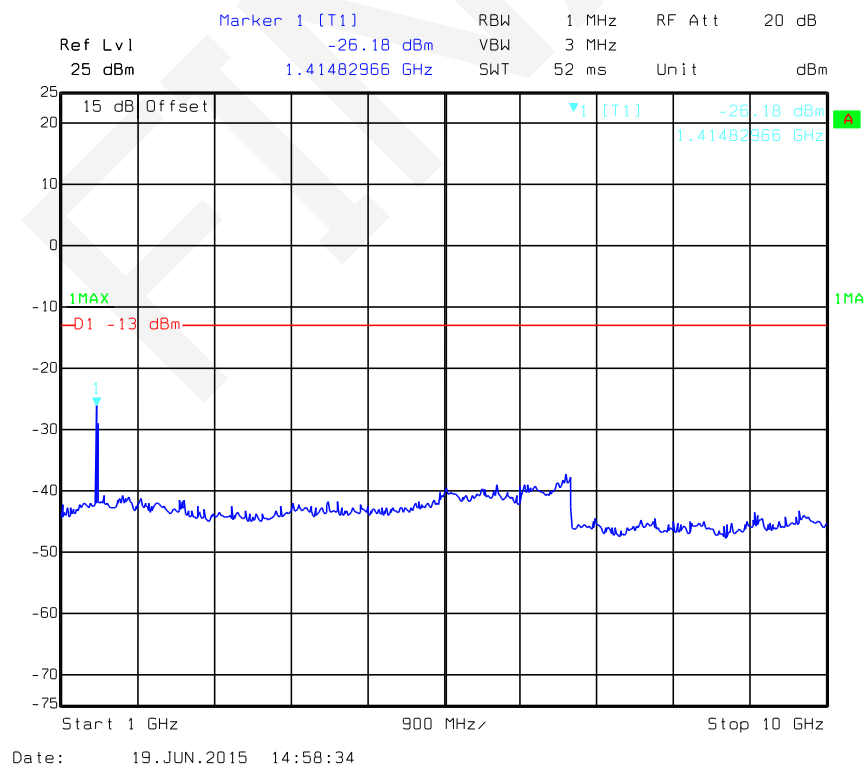
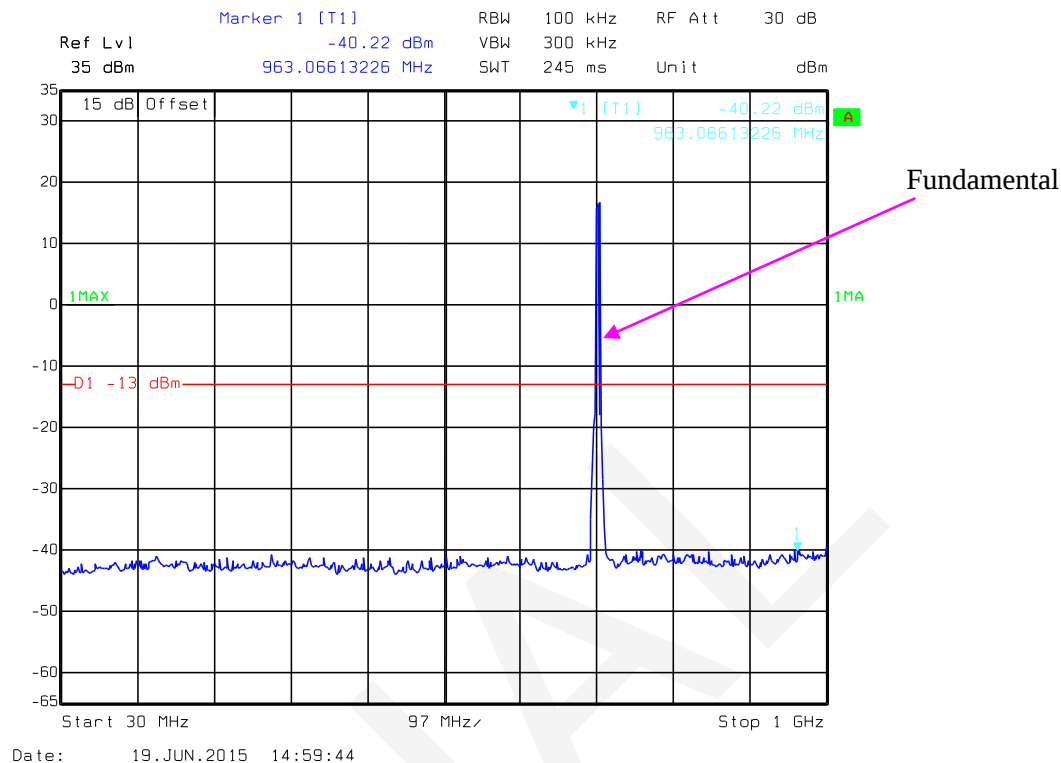


16QAM_20 MHz

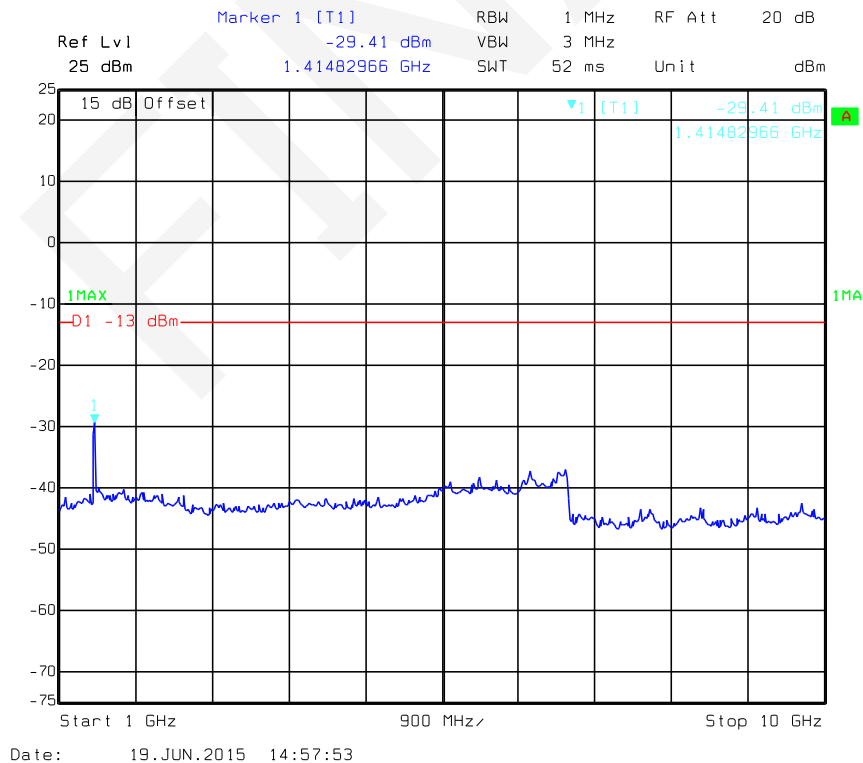
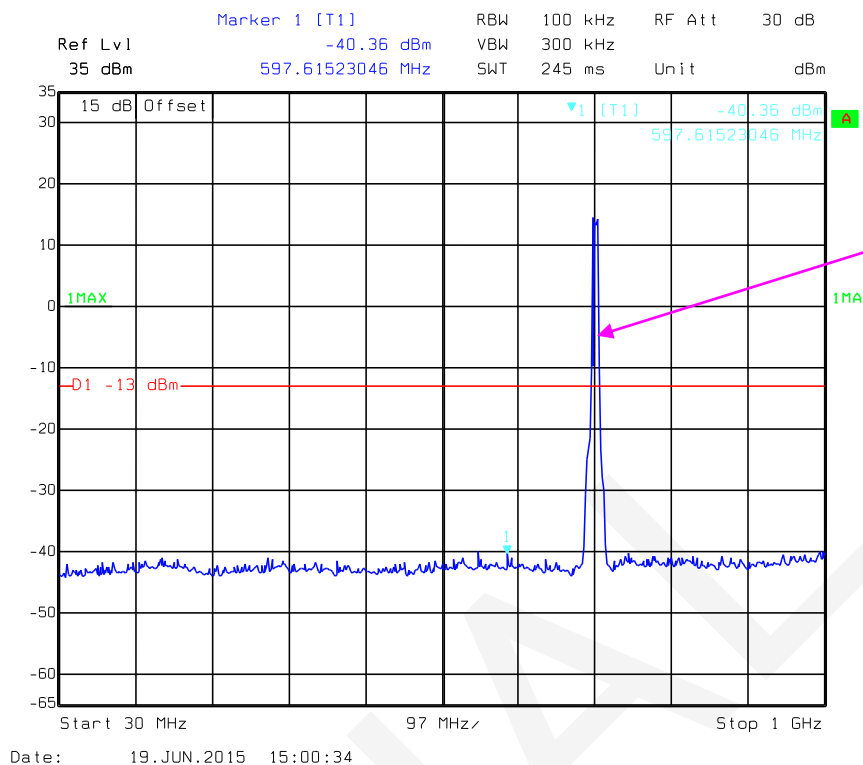




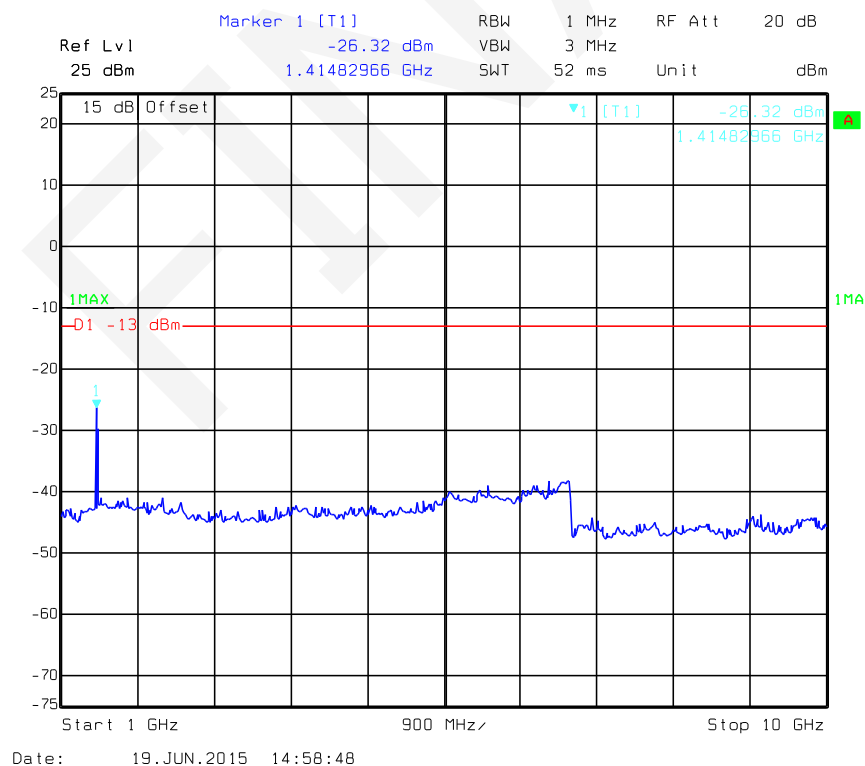
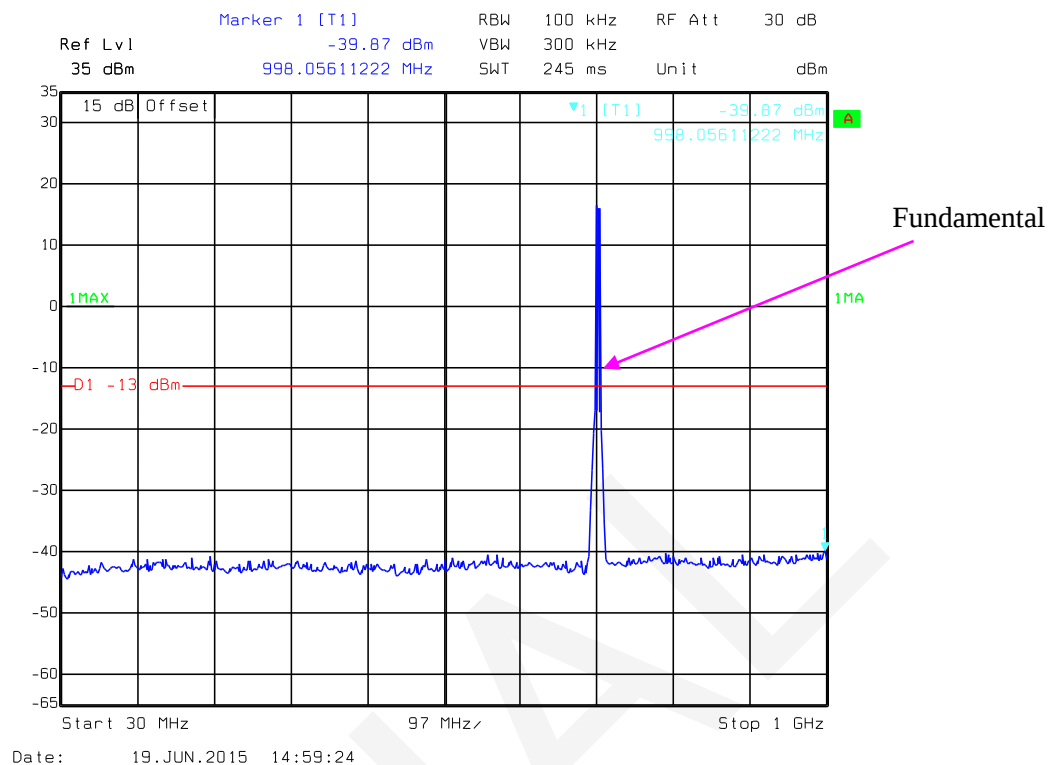
PART 27
LTE Band 17 (Middle Channel)
QPSK_5MHz



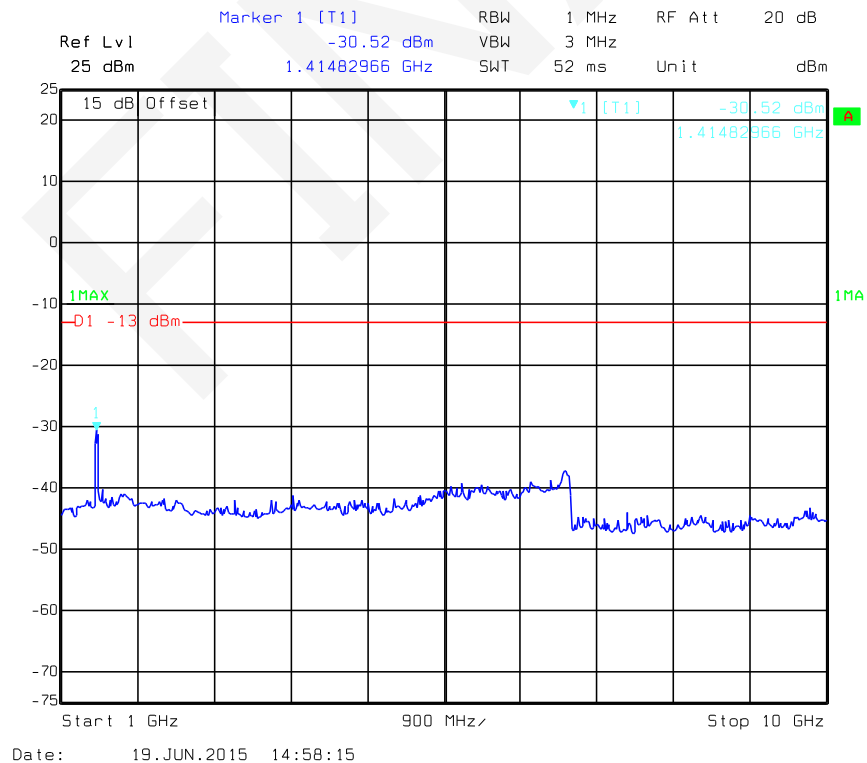
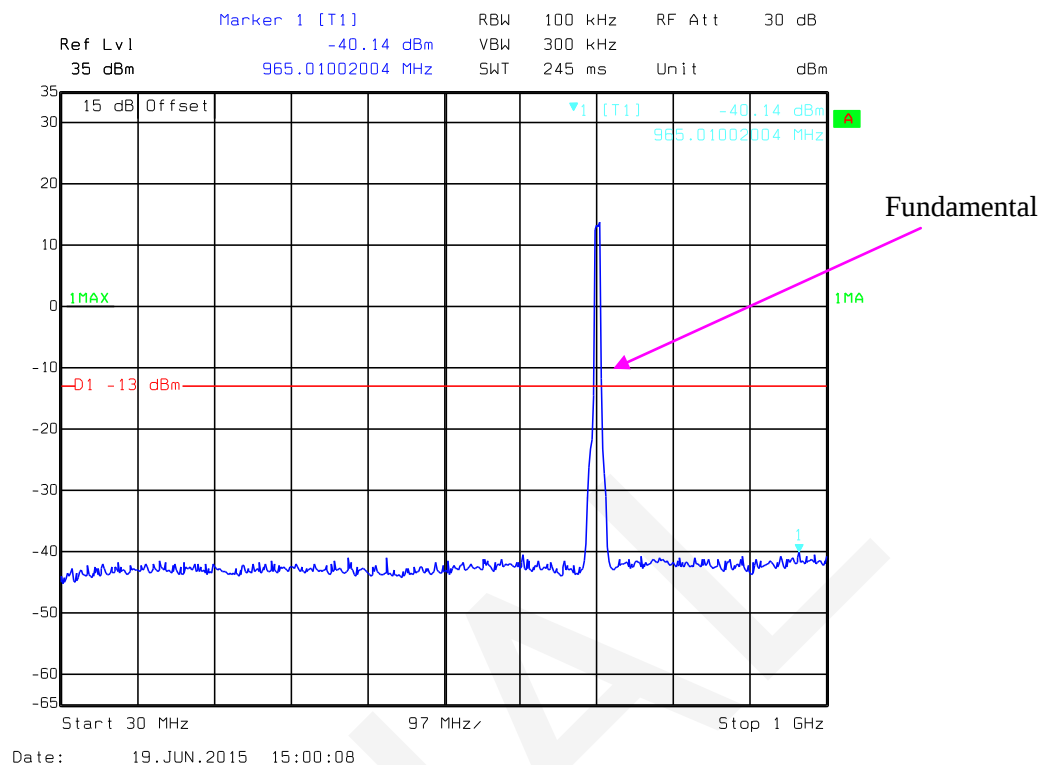
QPSK_10MHz



16QAM_5MHz



16QAM_10MHz



FCC §2.1053, §22.917 & §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \log_{10} (\text{power out in Watts})$

Spurious attenuation limit in dB = $55 + 10 \log_{10} (\text{power out in Watts})$ for band 7

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-05-09	2016-05-09
Sunol Sciences	Antenna	JB3	A060611-3	2014-07-28	2017-07-27
HP	Amplifier	8447E	2434A02181	2014-09-01	2015-09-01
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09
ETS LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
Giga	Signal Generator	1026	320408	2015-05-09	2016-05-09
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2012-09-06	2015-09-06

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	28.8 °C
Relative Humidity:	48 %
ATM Pressure:	99.9kPa

The testing was performed by Lion Xiao on 2015-06-16.

EUT Operation Mode: Transmitting

PART 22H
Cellular Band (GMSK)

30MHz-10 GHz

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:836.600 MHz								
1673.200	H	40.05	-61.0	10.6	1.5	-51.9	-13.0	38.9
1673.200	V	47.45	-53.9	10.6	1.5	-44.8	-13.0	31.8
2509.800	H	40.64	-57.4	13.1	2.8	-47.1	-13.0	34.1
2509.800	V	42.39	-54.7	13.1	2.8	-44.4	-13.0	31.4

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

WCDMA Band V

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:836.600 MHz								
1673.200	H	40.96	-60.1	10.6	1.5	-51.0	-13.0	38.0
1673.200	V	43.90	-57.5	10.6	1.5	-48.4	-13.0	35.4

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

**PART 24E
PCS Band (GMSK)**

30MHz-20GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:1880.000 MHz								
3760.000	H	43.27	-51	13.8	2.9	-40.1	-13.0	27.1
3760.000	V	45.76	-47.3	13.8	2.9	-36.4	-13.0	23.4

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

WCDMA Band II

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency:1880.000 MHz								
3760.000	H	40.13	-54.2	13.8	2.9	-43.3	-13.0	30.3
3760.000	V	44.54	-48.5	13.8	2.9	-37.6	-13.0	24.6

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

PART 27
LTE Band 2

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency: 1880 MHz (QPSK)								
3760.000	H	34.17	-60.1	13.8	2.9	-49.2	-13.0	36.2
3760.000	V	33.48	-59.6	13.8	2.9	-48.7	-13.0	35.7
5640.000	H	32.06	-59.6	14.0	2.1	-47.7	-13.0	34.7
5640.000	V	31.17	-60.5	14.0	2.1	-48.6	-13.0	35.6
Frequency:1880 MHz (16QAM)								
3760.000	H	34.56	-59.7	13.8	2.9	-48.8	-13.0	35.8
3760.000	V	33.74	-59.3	13.8	2.9	-48.4	-13.0	35.4
5640.000	H	32.31	-59.4	14.0	2.1	-47.5	-13.0	34.5
5640.000	V	31.19	-60.5	14.0	2.1	-48.6	-13.0	35.6

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

LTE Band 4

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency: 1732.5 MHz (QPSK)								
3465.000	H	42.50	-54.4	13.9	1.9	-42.4	-13.0	29.4
3465.000	V	37.65	-58.5	13.9	1.9	-46.5	-13.0	33.5
5197.500	H	37.87	-53.1	14.0	2.3	-41.4	-13.0	28.4
5197.500	V	35.67	-56.9	14.0	2.3	-45.2	-13.0	32.2
Frequency: 1732.5 MHz (16QAM)								
3465.000	H	38.96	-58	13.9	1.9	-46.0	-13.0	33.0
3465.000	V	37.46	-58.7	13.9	1.9	-46.7	-13.0	33.7
5197.500	H	42.31	-48.7	14.0	2.3	-37.0	-13.0	24.0
5197.500	V	39.50	-53	14.0	2.3	-41.3	-13.0	28.3

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

LTE Band 7

30 MHz-26 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency: 2535 MHz (QPSK)								
5070.000	H	50.04	-41.3	13.9	2.4	-29.8	-25	4.8
5070.000	V	47.32	-44.8	13.9	2.4	-33.3	-25	8.3
7605.000	H	36.79	-50.7	13.2	3.1	-40.6	-25	15.6
7605.000	V	32.57	-54.9	13.2	3.1	-44.8	-25	19.8
Frequency: 2535 MHz (16QAM)								
5070.000	H	49.61	-41.7	13.9	2.4	-30.2	-25	5.2
5070.000	V	46.73	-45.4	13.9	2.4	-33.9	-25	8.9
7605.000	H	32.85	-54.6	13.2	3.1	-44.5	-25	19.5
7605.000	V	32.26	-55.2	13.2	3.1	-45.1	-25	20.1

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

LTE Band 17

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
Frequency: 710 MHz (QPSK)								
1420.000	H	37.14	-63.7	9.1	1.3	-55.9	-13.0	42.9
1420.000	V	36.46	-64.2	9.1	1.3	-56.4	-13.0	43.4
2130.000	H	34.76	-61.2	11.2	1.4	-51.4	-13.0	38.4
2130.000	V	32.64	-62.1	11.2	1.4	-52.3	-13.0	39.3
Frequency: 710MHz (16QAM)								
1420.000	H	36.64	-64.2	9.1	1.3	-56.4	-13.0	43.4
1420.000	V	35.72	-64.9	9.1	1.3	-57.1	-13.0	44.1
2130.000	H	35.27	-60.7	11.2	1.4	-50.9	-13.0	37.9
2130.000	V	34.69	-60.1	11.2	1.4	-50.3	-13.0	37.3

For below 1GHz, all spurious emissions are 20dB below the limit or are on the system noise floor level.

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = SG Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

FCC §22.917(a) & §24.238(a) & §27.53(g) §27.53(h) §27.53(m) - BAND EDGES**Applicable Standard**

According to §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to §27.53 (g), For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log(P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

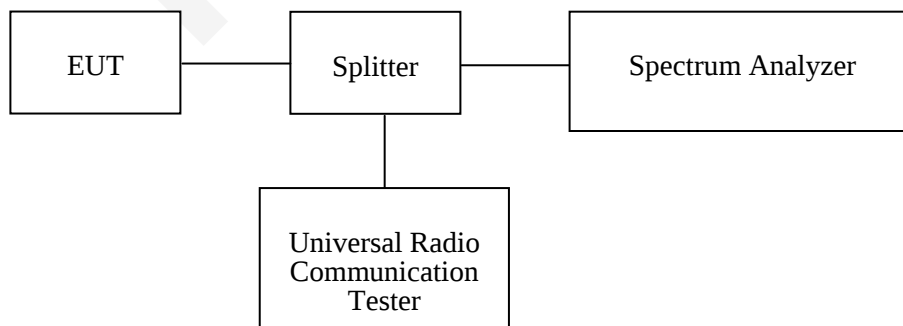
According to §27.53 (h), AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB.

According to §27.53 (m), (4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log(P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

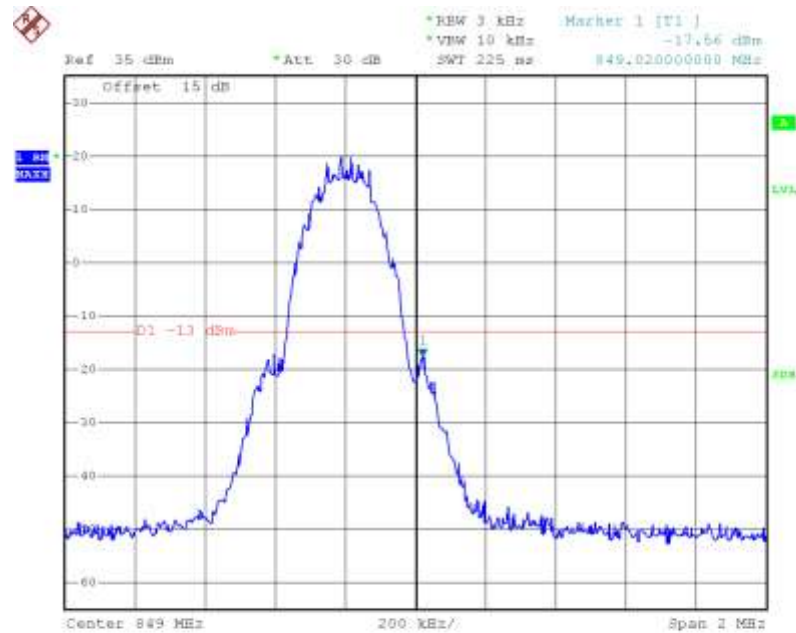
Temperature:	25.4-25.7 °C
Relative Humidity:	53-57%
ATM Pressure:	100kPa

The testing was performed by Lion Xiao on 2015-06-12 and 2015-06-26

Test Mode: Transmitting

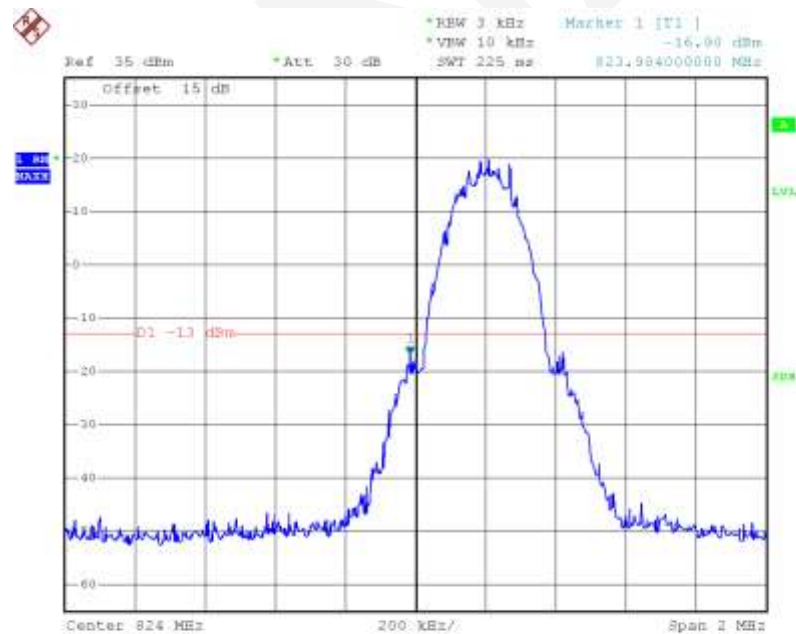
Test Result: Compliant. Please refer to the following plots.

PART 22H
GSM 850, Left Band Edge



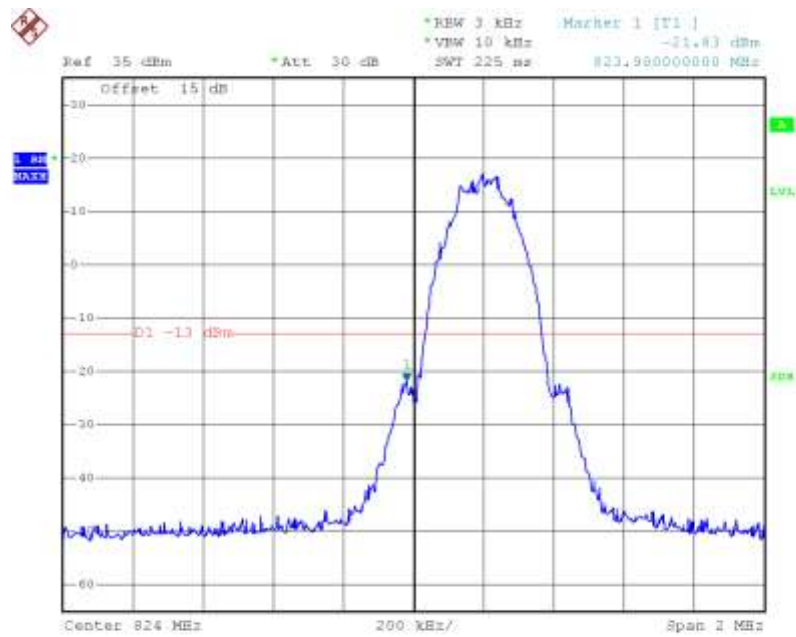
Date: 12.JUN.2015 17:26:04

GSM 850, Right Band Edge



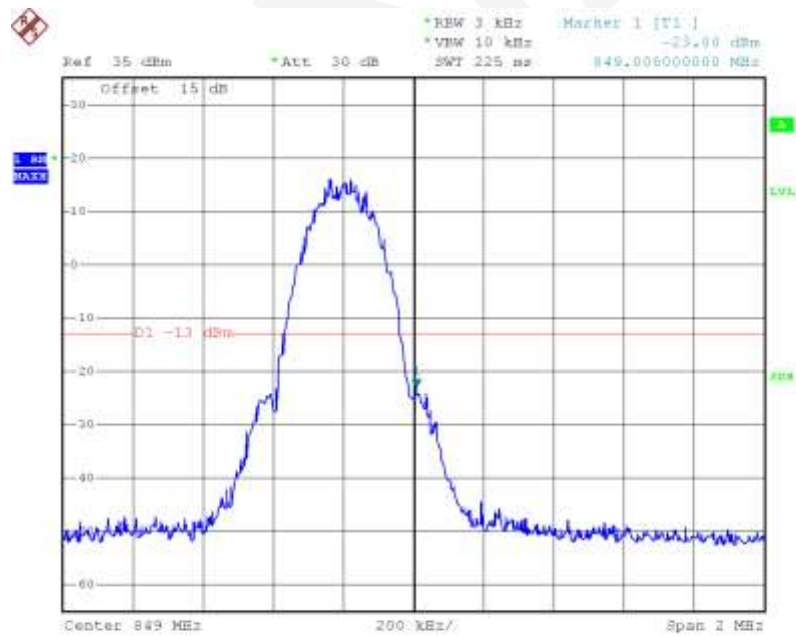
Date: 12.JUN.2015 17:26:50

PART 22H EDGE 850, Left Band Edge



Date: 12.JUN.2015 17:46:00

EDGE850, Right Band Edge



Date: 12.JUN.2015 17:43:27

Ref 35 dBm *Att 30 dB *BW 3 kHz *View 10 kHz *Span 2 MHz *Center 1.85 GHz

Marker 1 [T1] -17.40 dBm 1.849996000 GHz

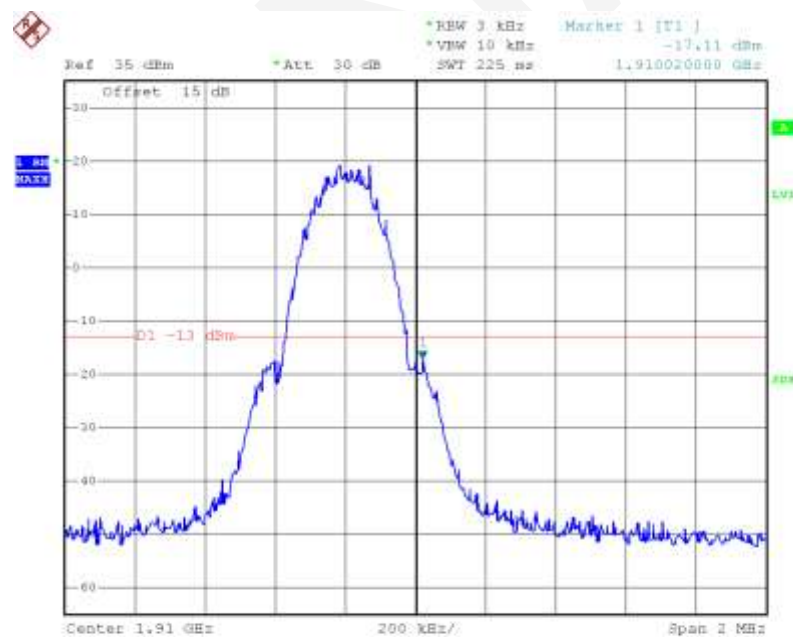
Offset 15 dB

1.85 MHz

01 -13 dBm

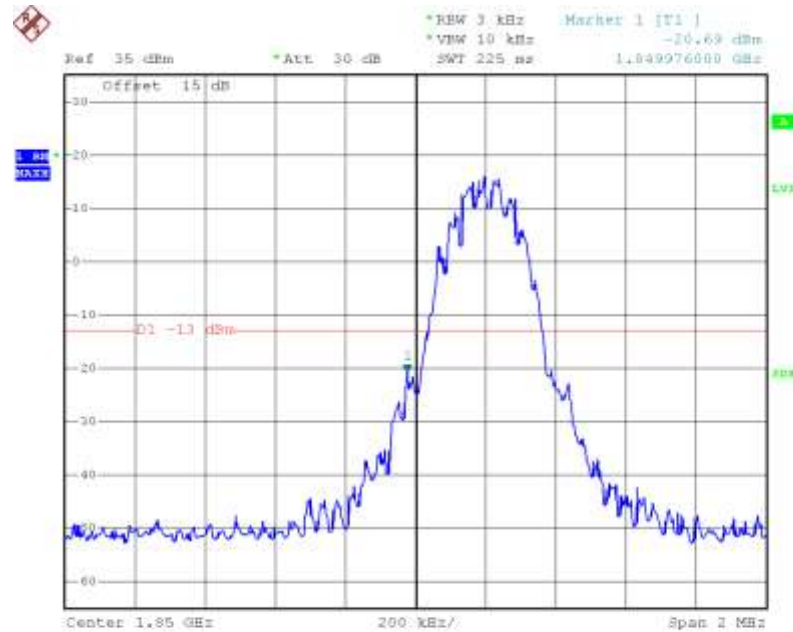
Center 1.85 GHz 200 kHz/ Span 2 MHz

GSM 1900, Right Band Edge



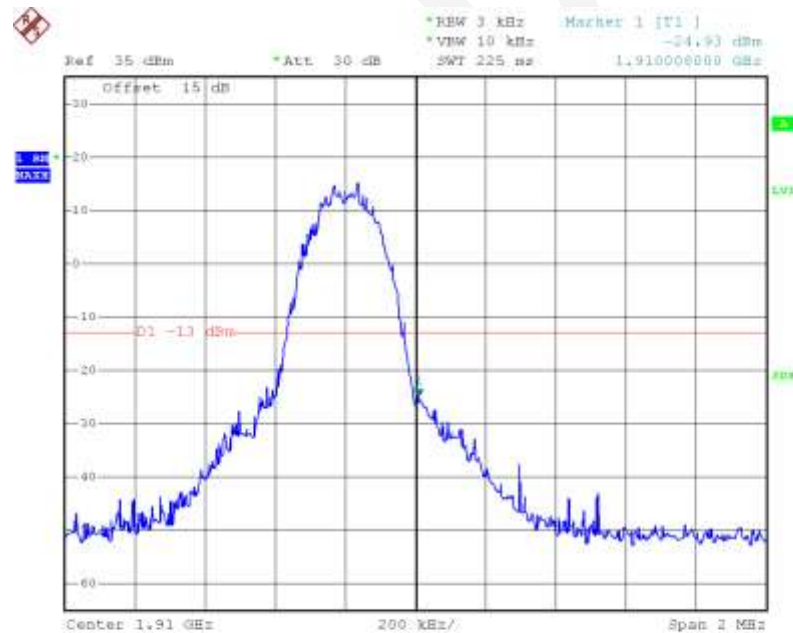
PART 24E

EDGE 1900, Left Band Edge



Date: 12 JUN 2015 17:59:06

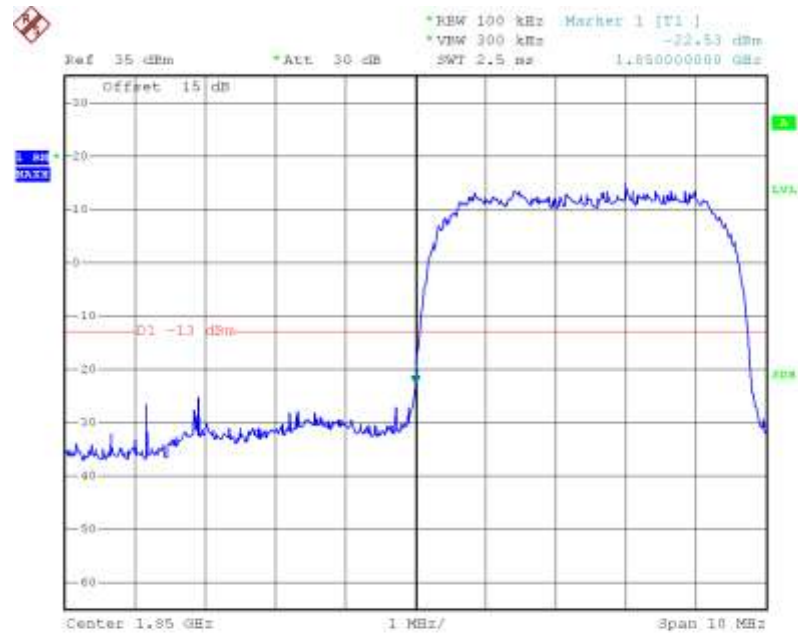
EDGE1900, Right Band Edge



Date: 12 JUN 2015 17:58:08

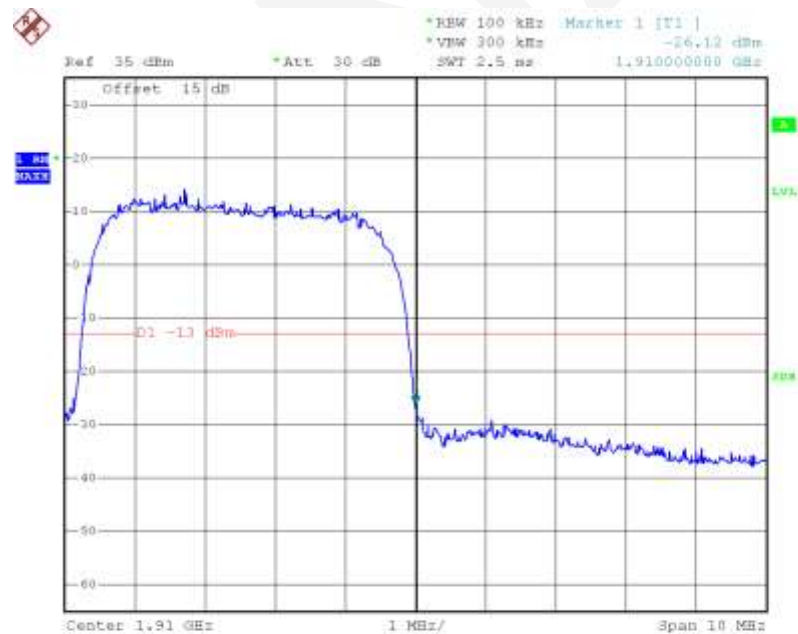
PART 24E

REL99 Band II, Left Band Edge



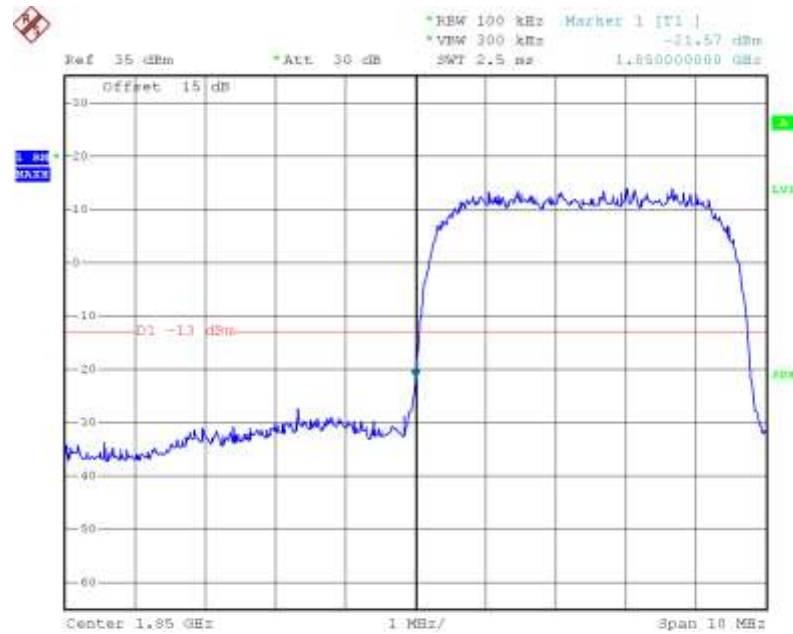
Date: 12.JUN.2015 19:32:28

REL99 Band II, Right Band Edge



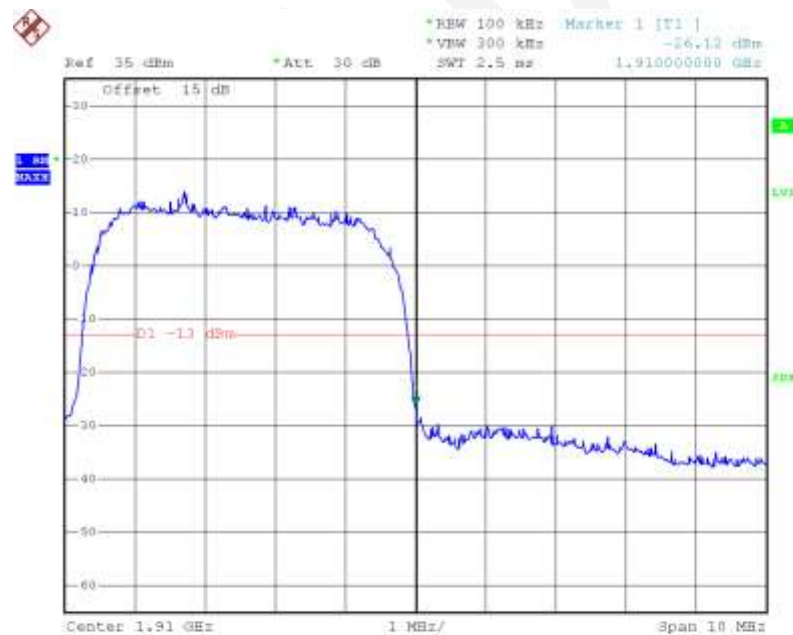
Date: 12.JUN.2015 19:20:09

HSDPA Band II, Left Band Edge



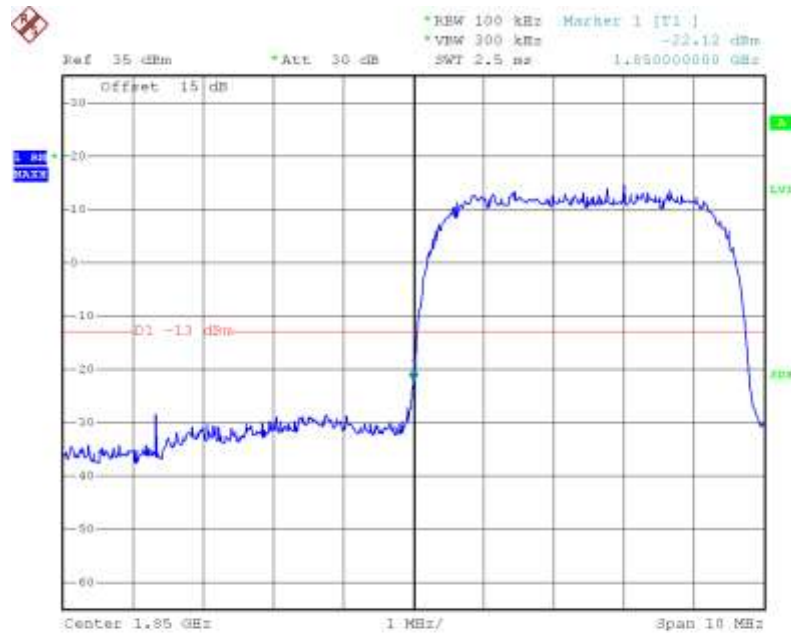
Date: 12.JUN.2015 19:37:45

HSDPA Band II, Right Band Edge



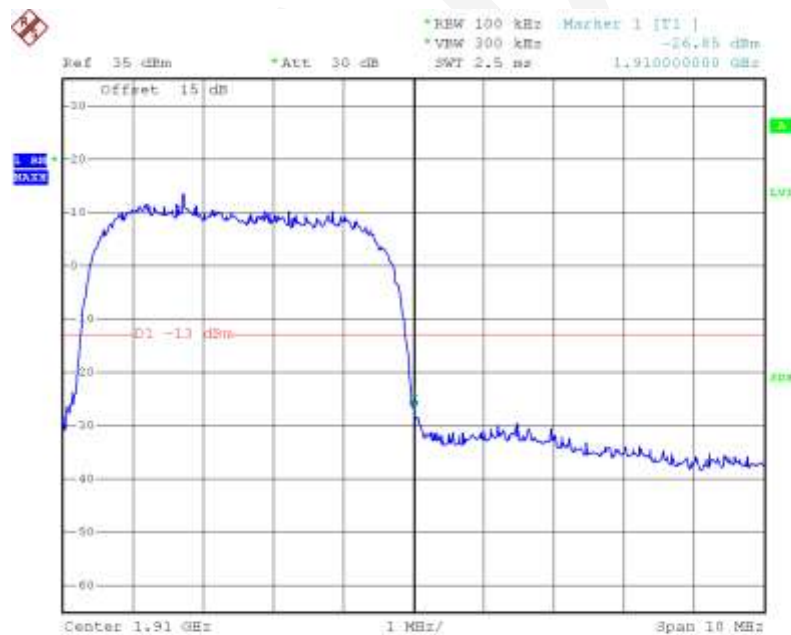
Date: 12.JUN.2015 19:25:42

HSUPA Band II, Left Band Edge



Date: 12.JUN.2015 19:42:04

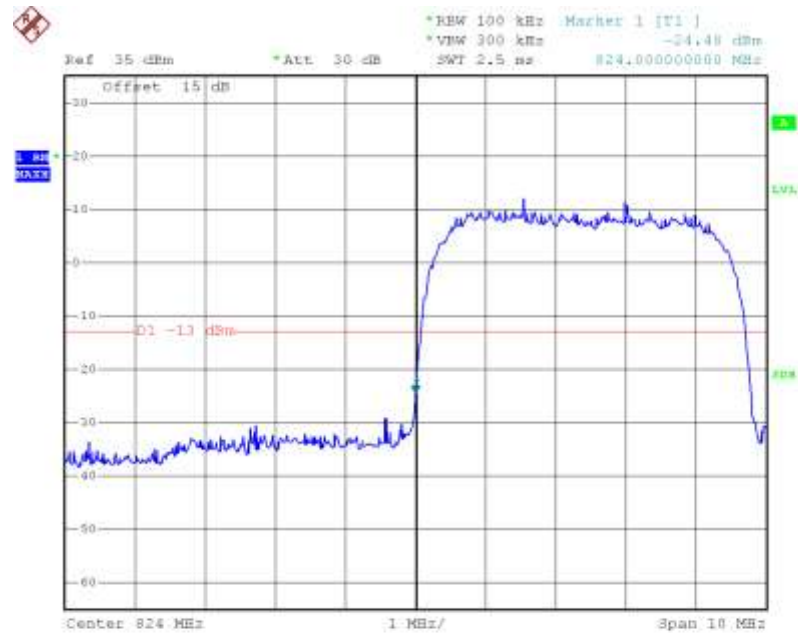
HSUPA Band II, Right Band Edge



Date: 12.JUN.2015 19:32:04

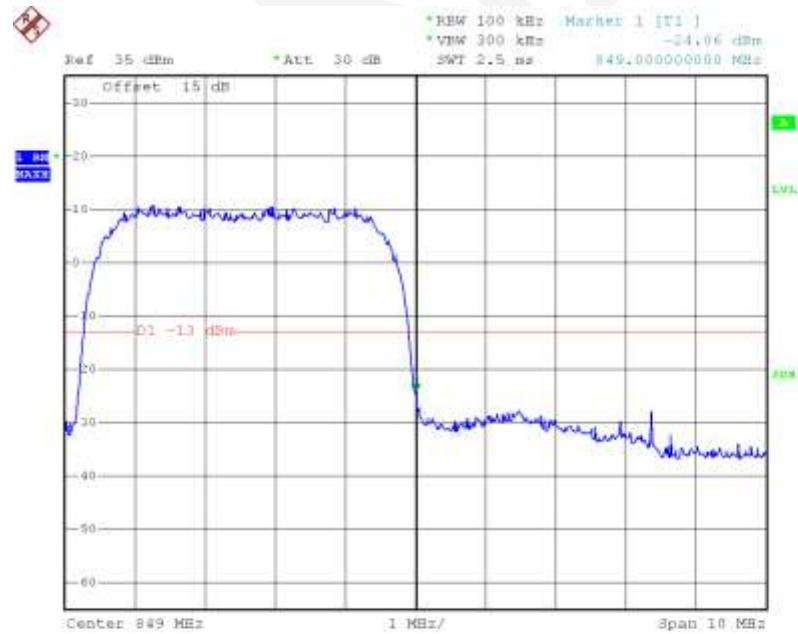
WCDMA Band V(PART 22H)

REL99 Band V, Left Band Edge



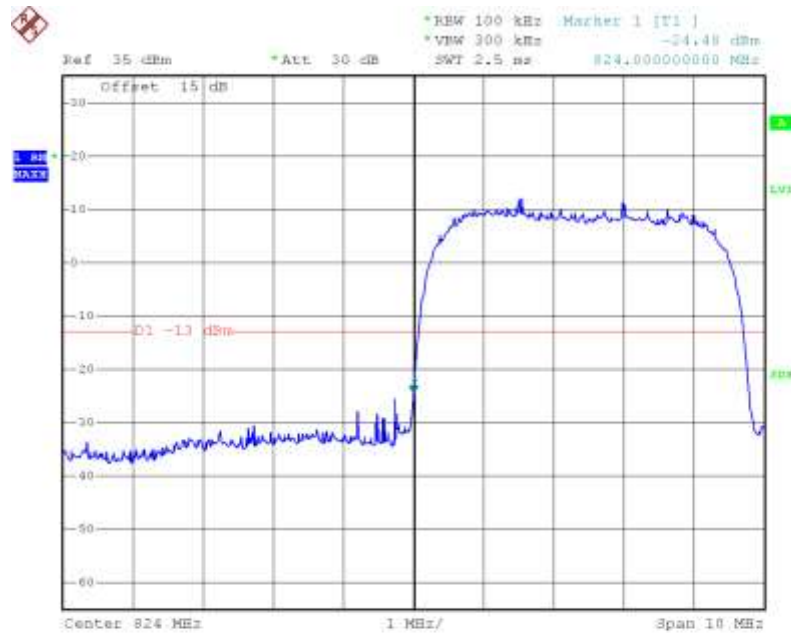
Date: 12.JUN.2015 19:59:02

REL99 Band V Right Band Edge



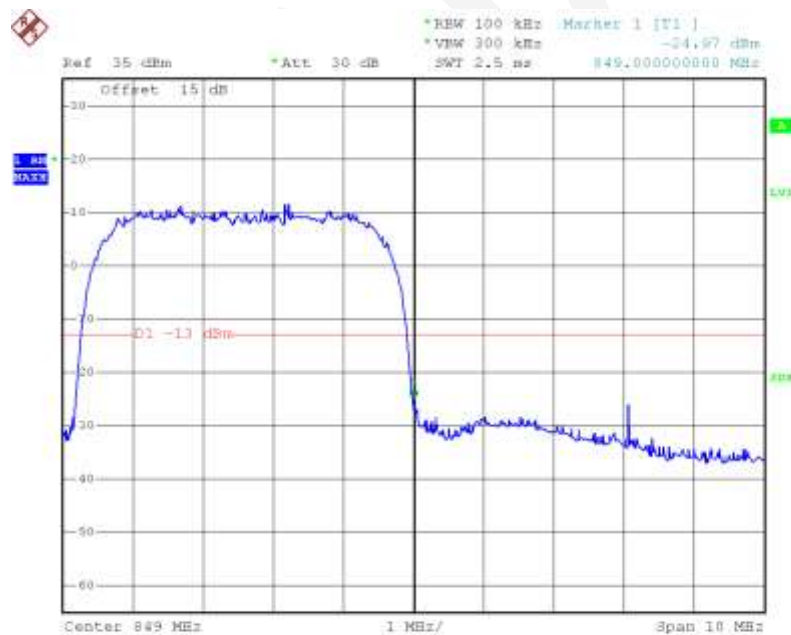
Date: 12.JUN.2015 19:46:01

HSDPA Band V, Left Band Edge



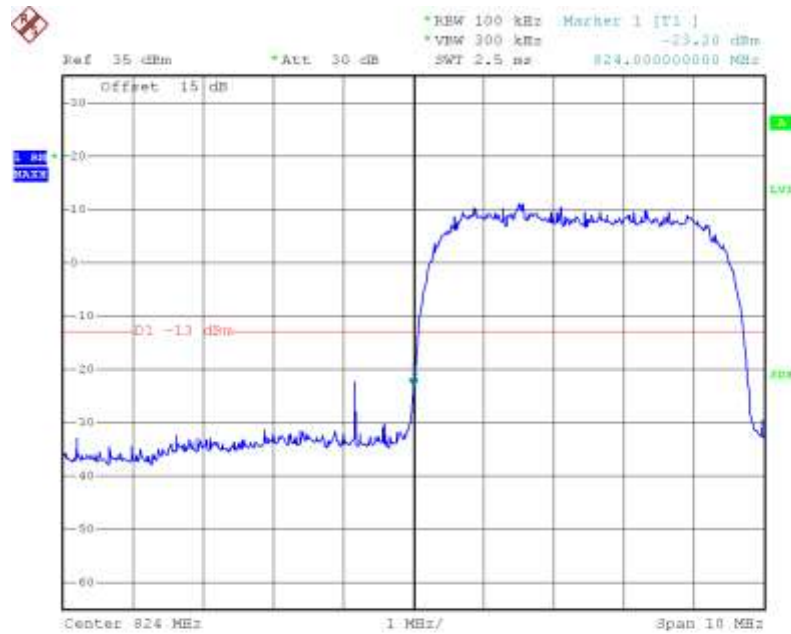
Date: 12 JUN 2015 20:01:30

HSDPA Band V, Right Band Edge



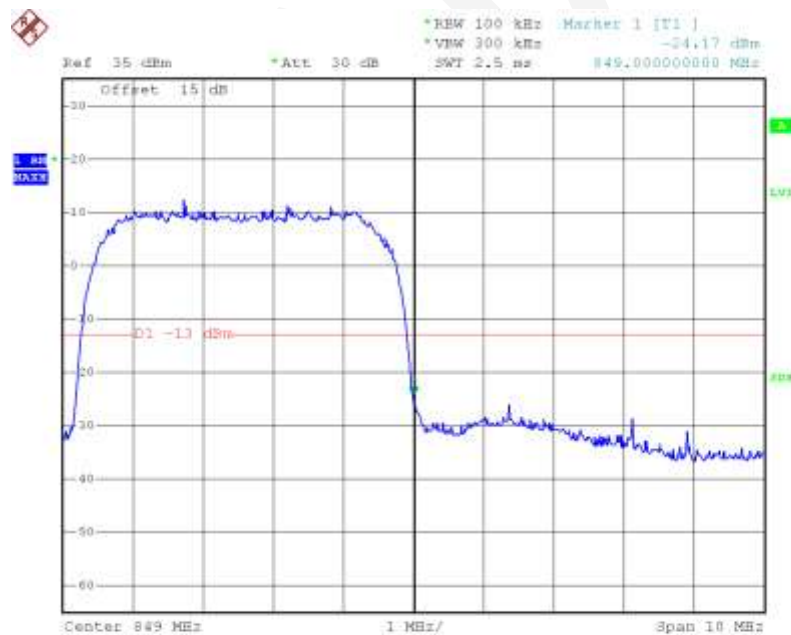
Date: 12 JUN 2015 19:52:40

HSUPA Band V, Left Band Edge

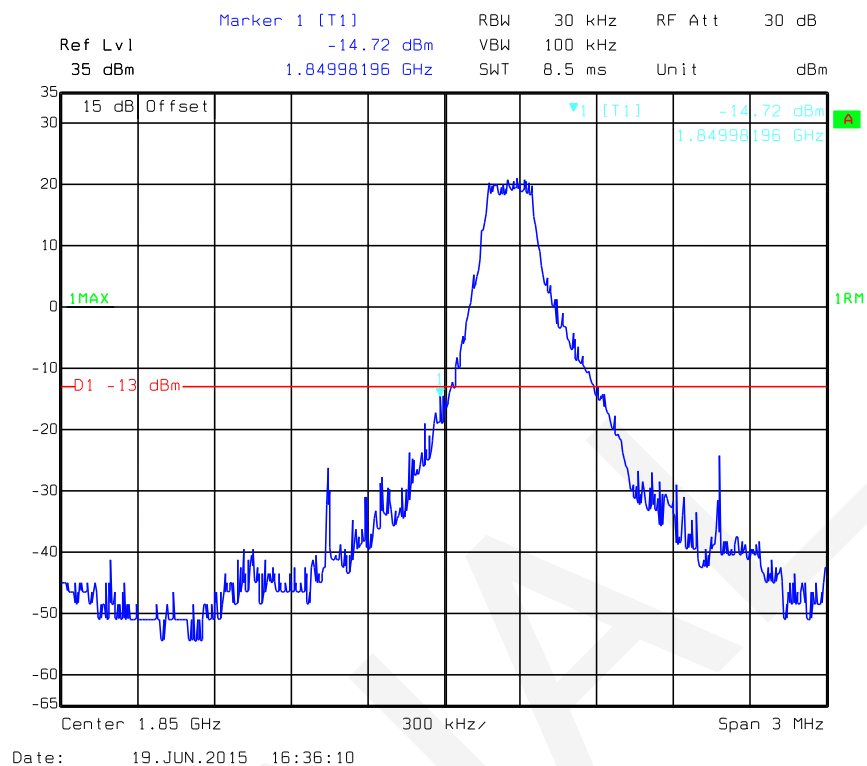
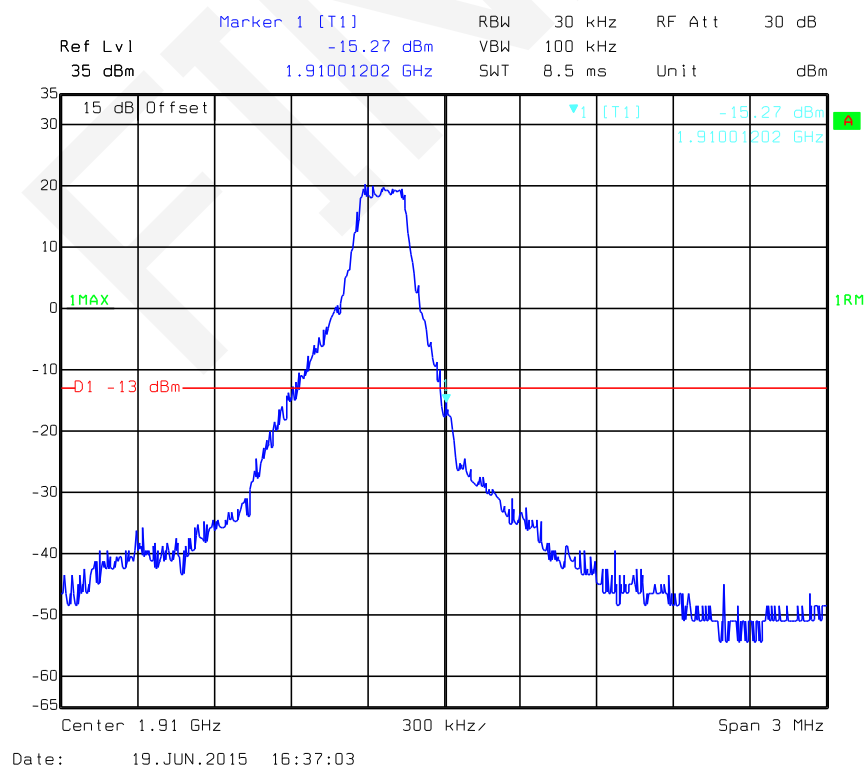


Date: 12 JUN 2015 20:07:58

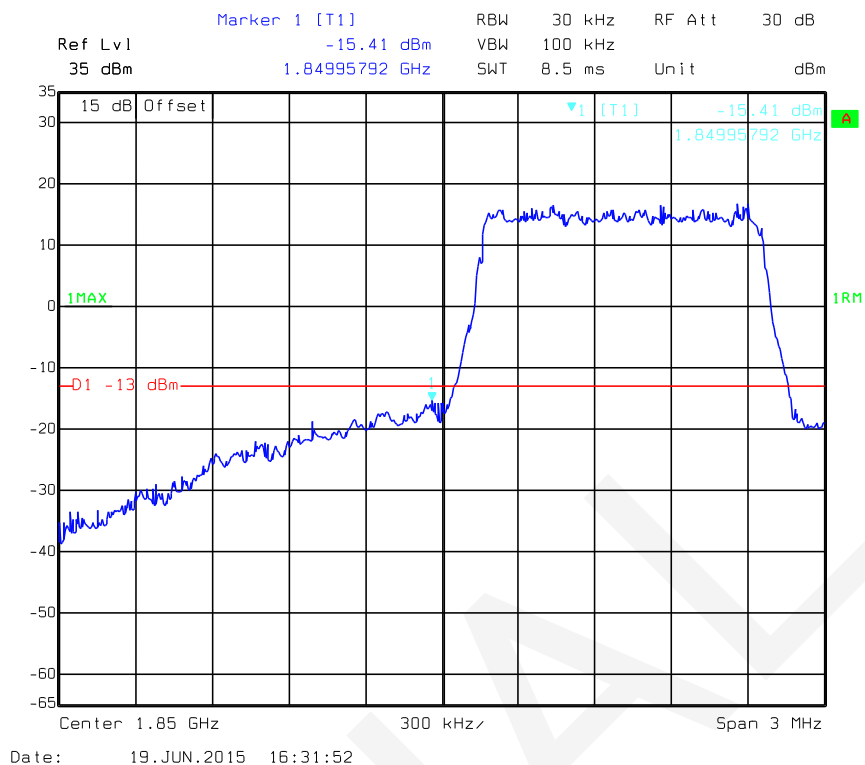
HSUPA Band V, Right Band Edge



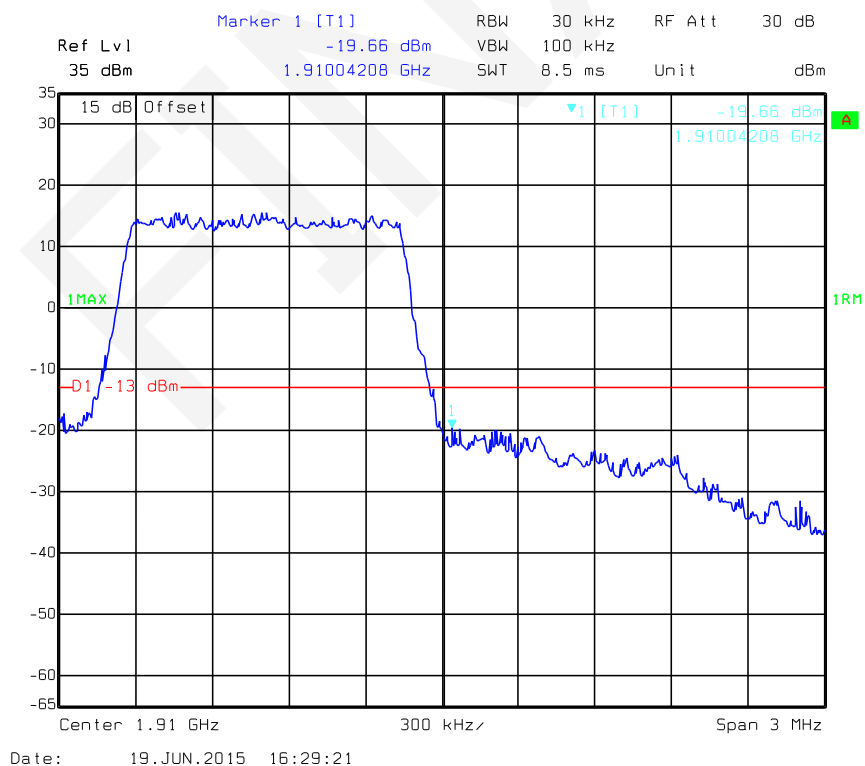
Date: 12 JUN 2015 19:58:40

PART 27
LTE Band 2**QPSK_1.4MHz_1RB_Left****QPSK_1.4MHz_1RB_Right**

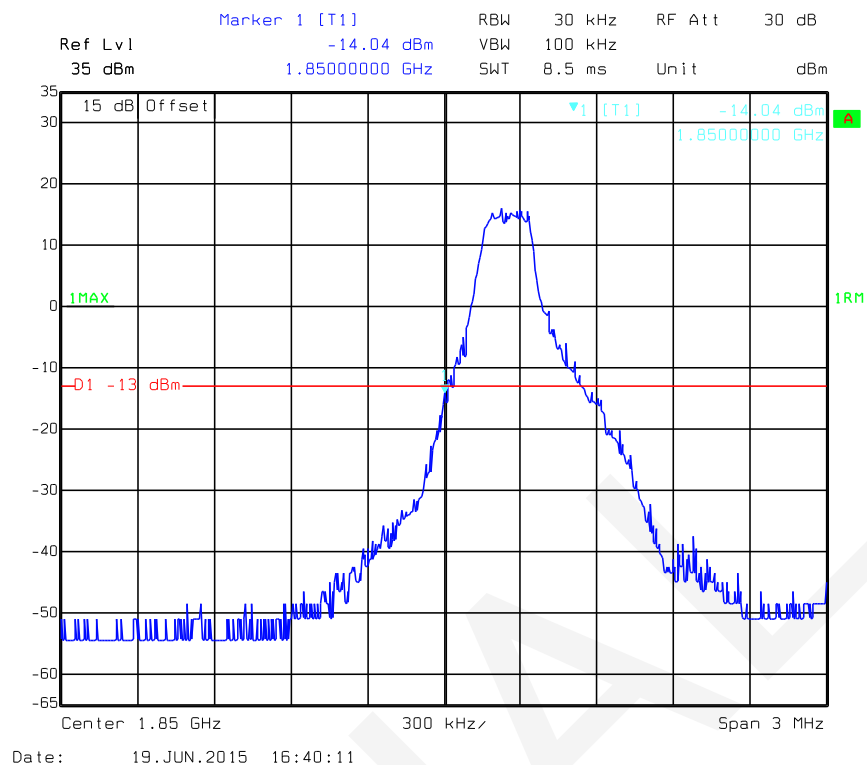
QPSK_1.4MHz_FULL RB_Left



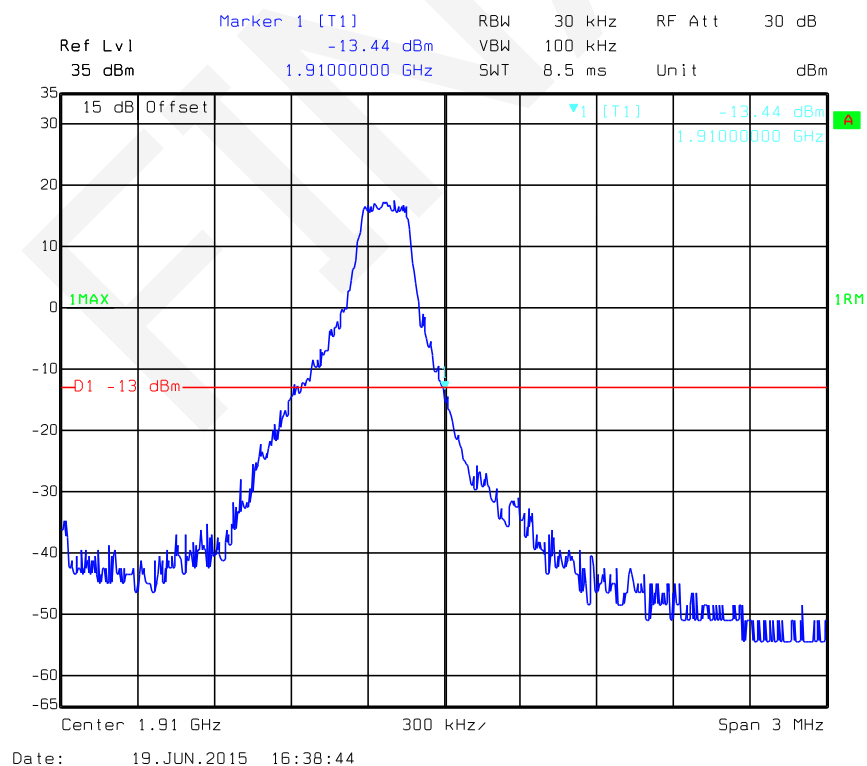
QPSK_1.4MHz_FULL RB_Right



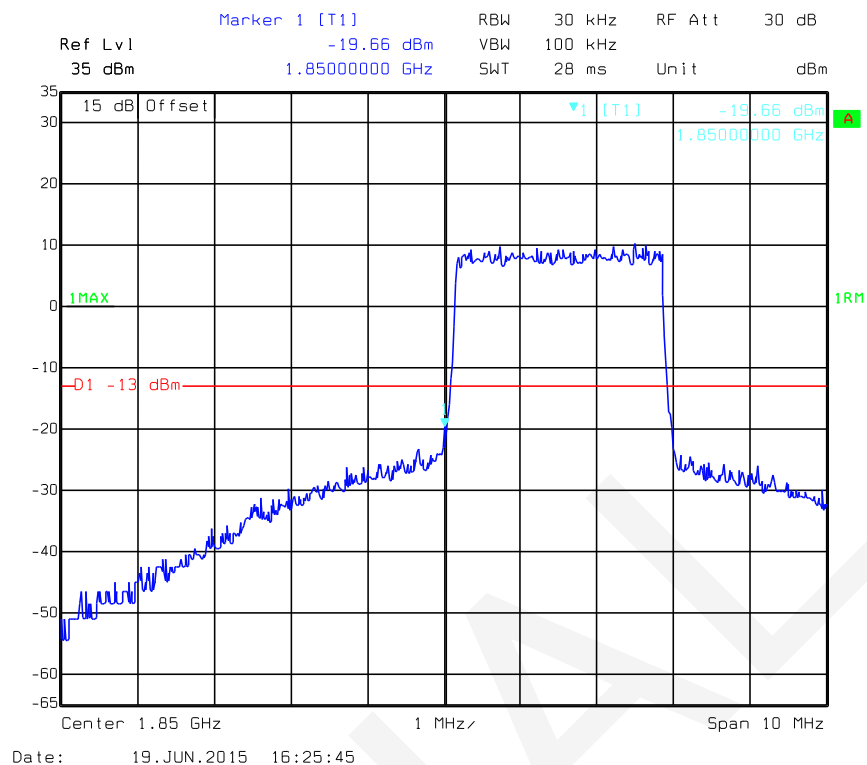
QPSK_3MHz_1RB_Left



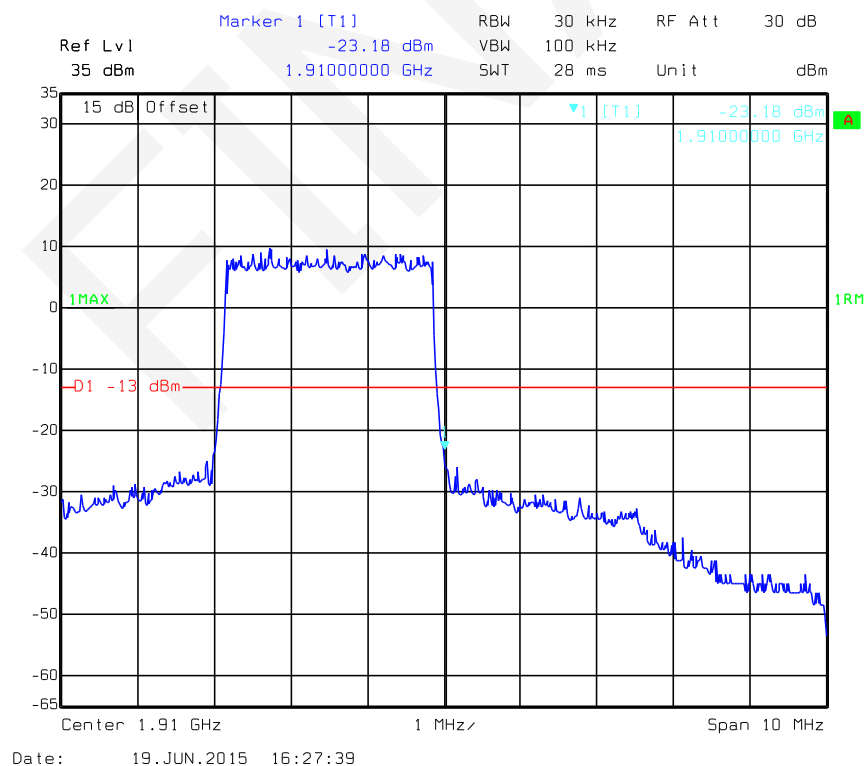
QPSK_3MHz_1RB_Right



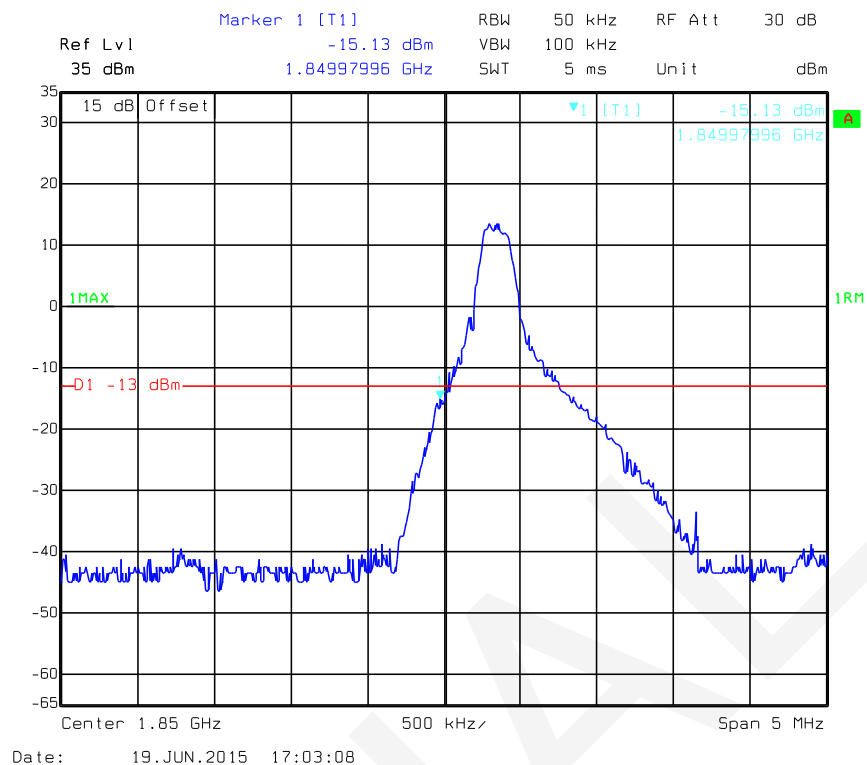
QPSK_3MHz_FULL RB_Left



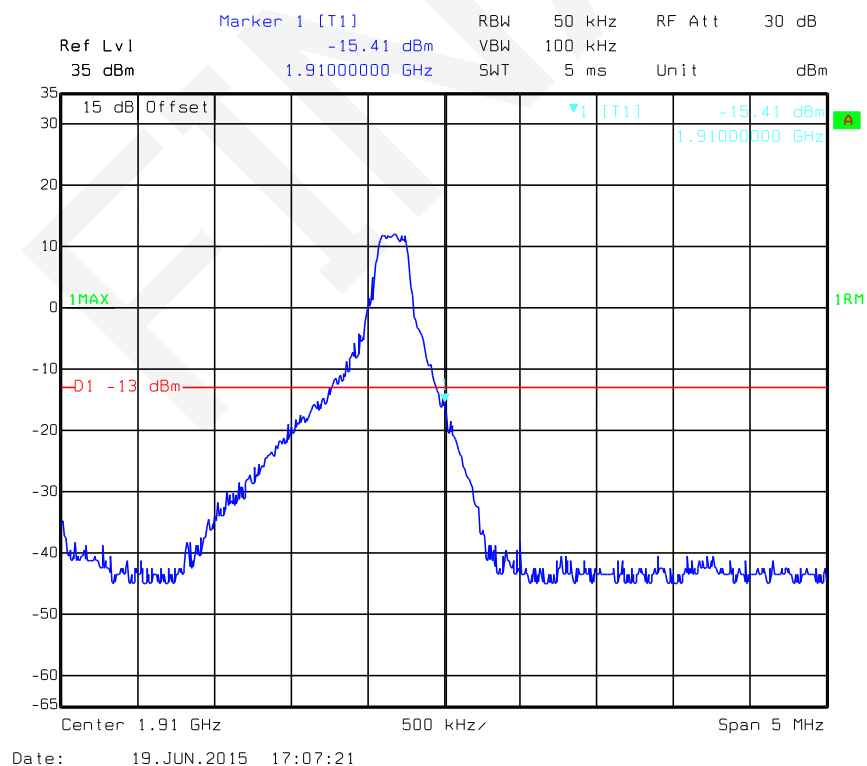
QPSK_3MHz_FULL RB_Right



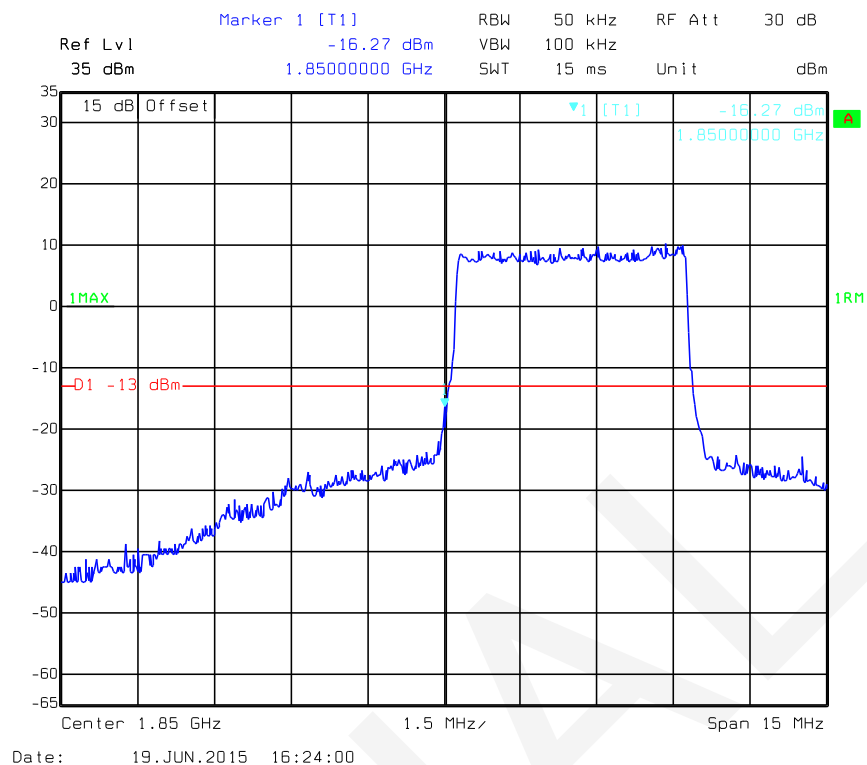
QPSK_5MHz_1RB_Left



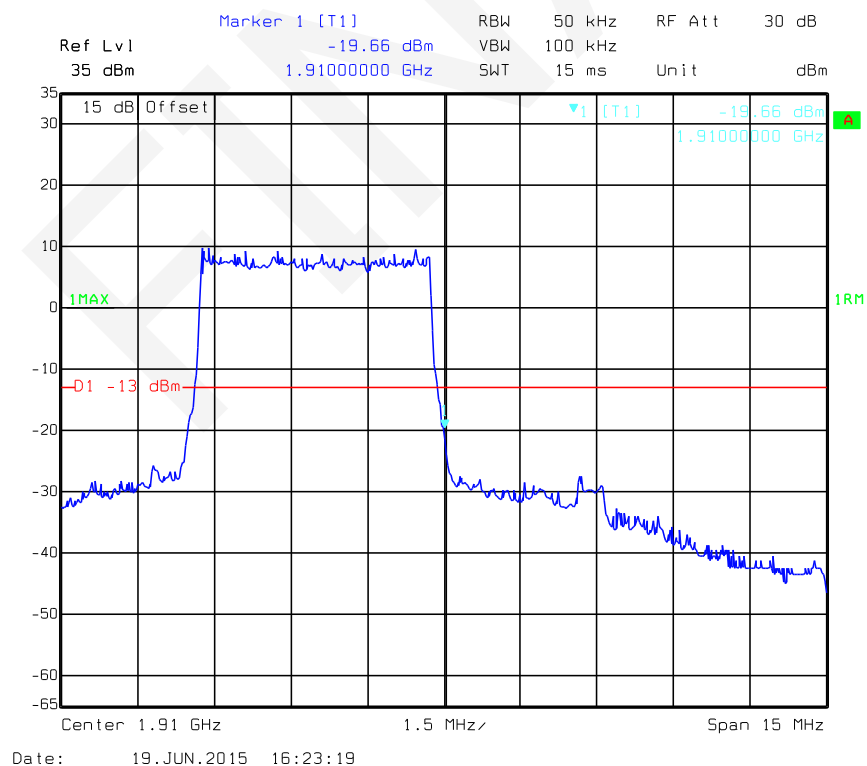
QPSK_5MHz_1RB_Right



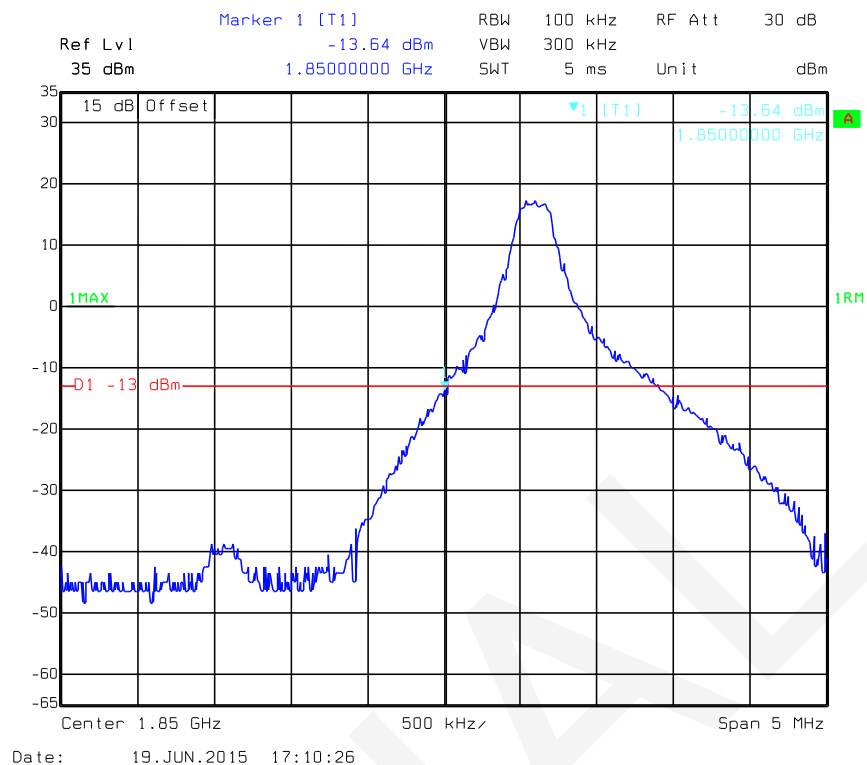
QPSK_5MHz_FULL RB_Left



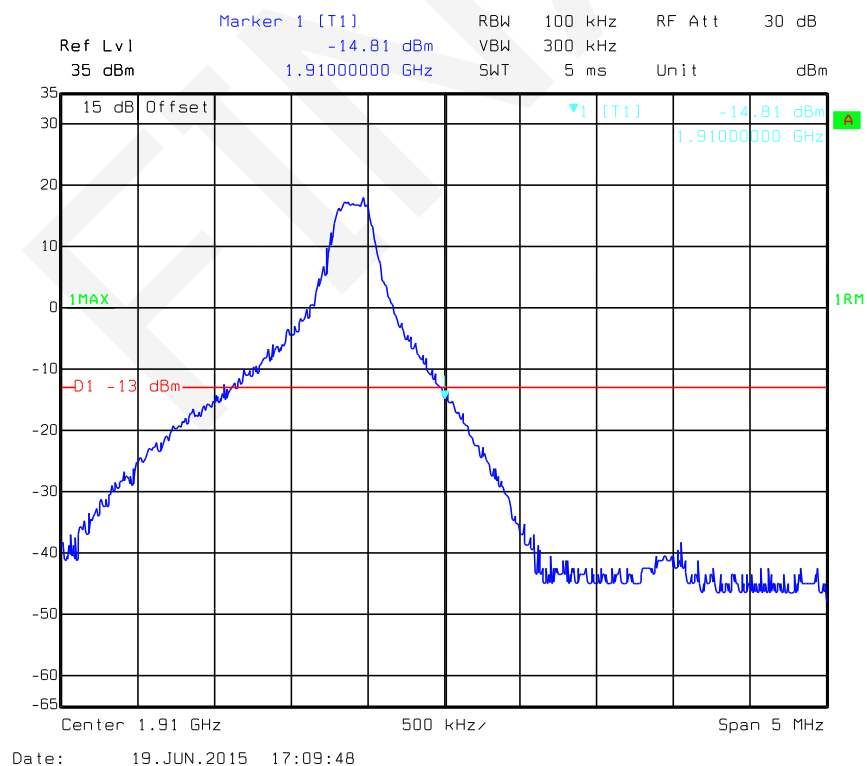
QPSK_5MHz_FULL RB_Right



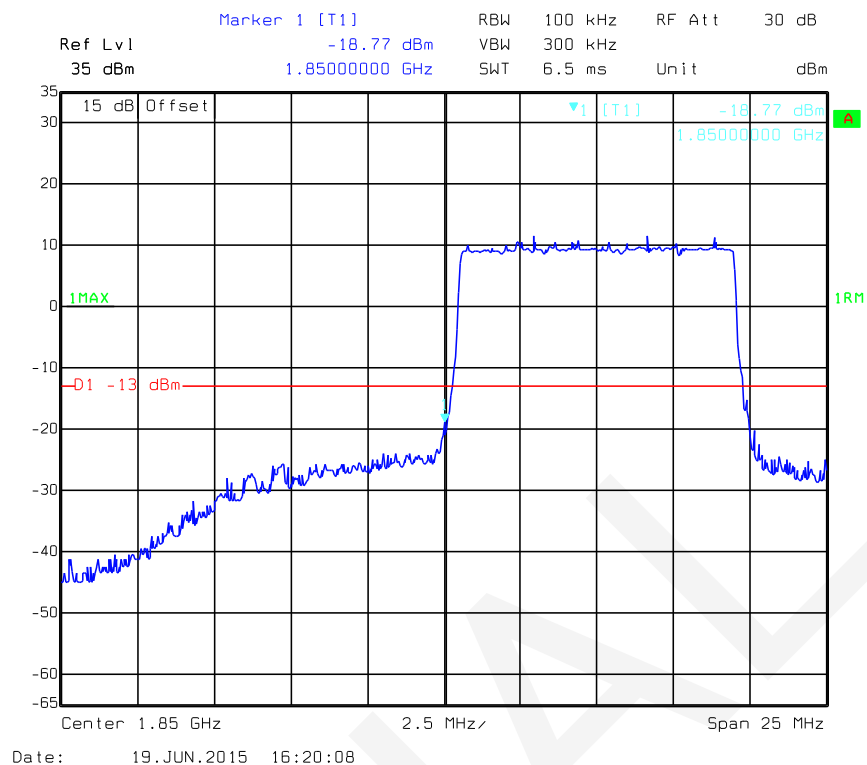
QPSK_10MHz_1RB_Left



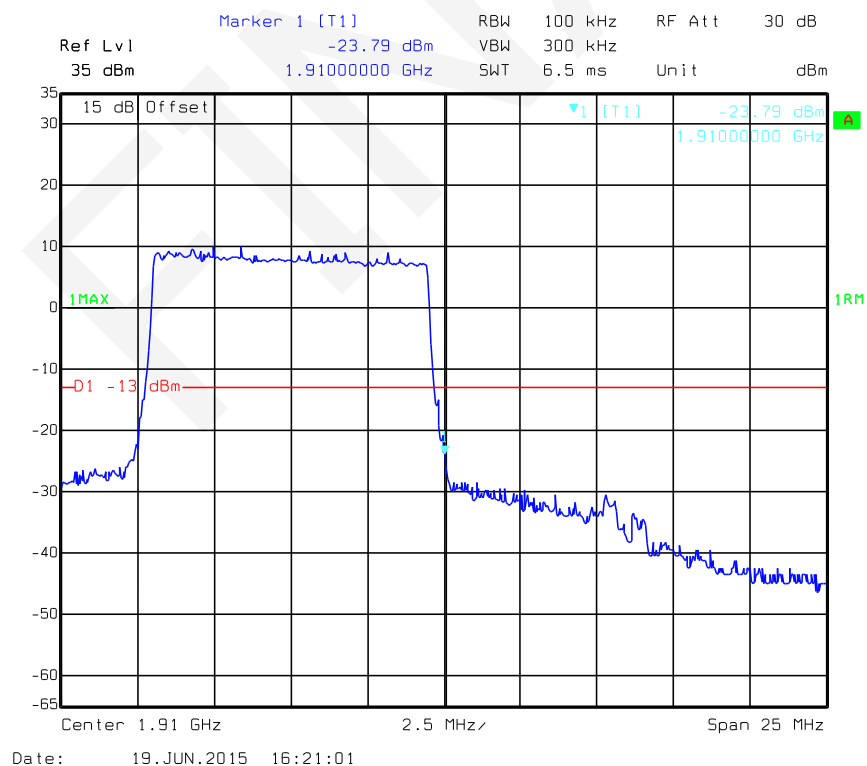
QPSK_10MHz_1RB_Right



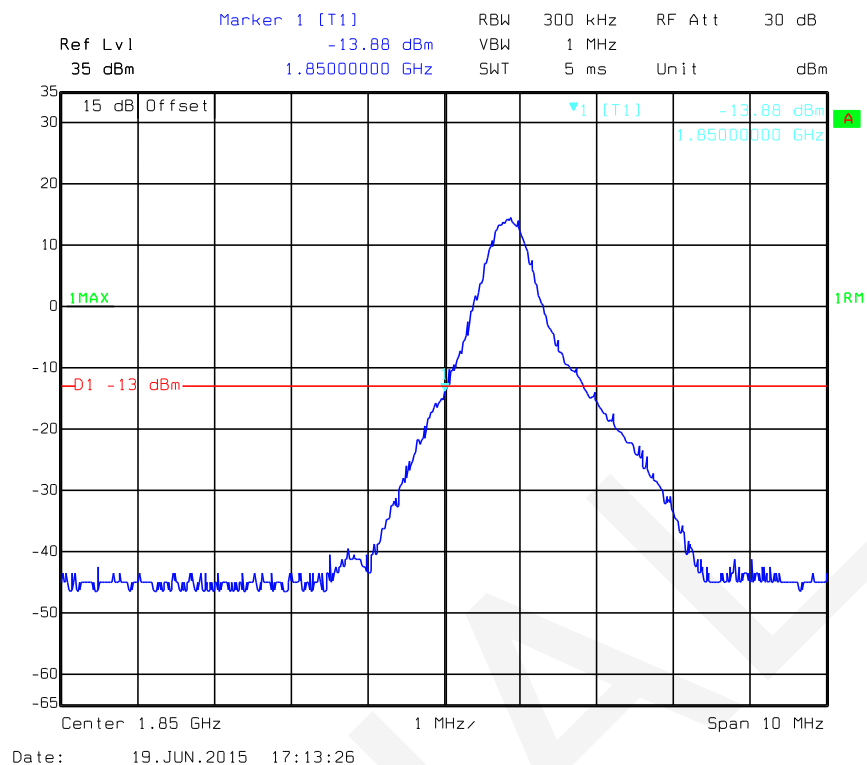
QPSK_10MHz_FULL RB_Left



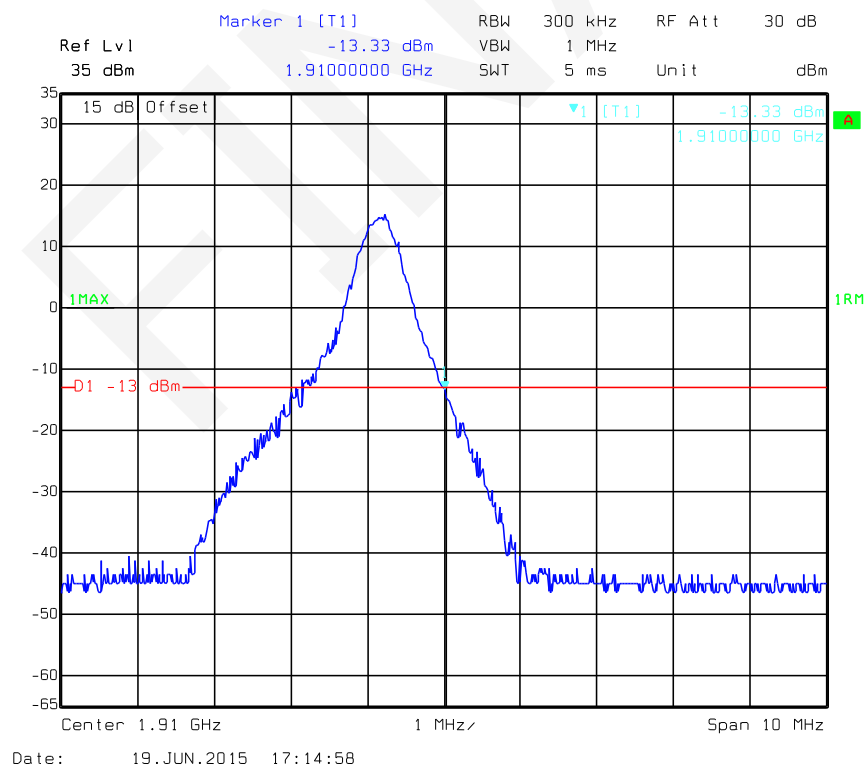
QPSK_10MHz_FULL RB_Right



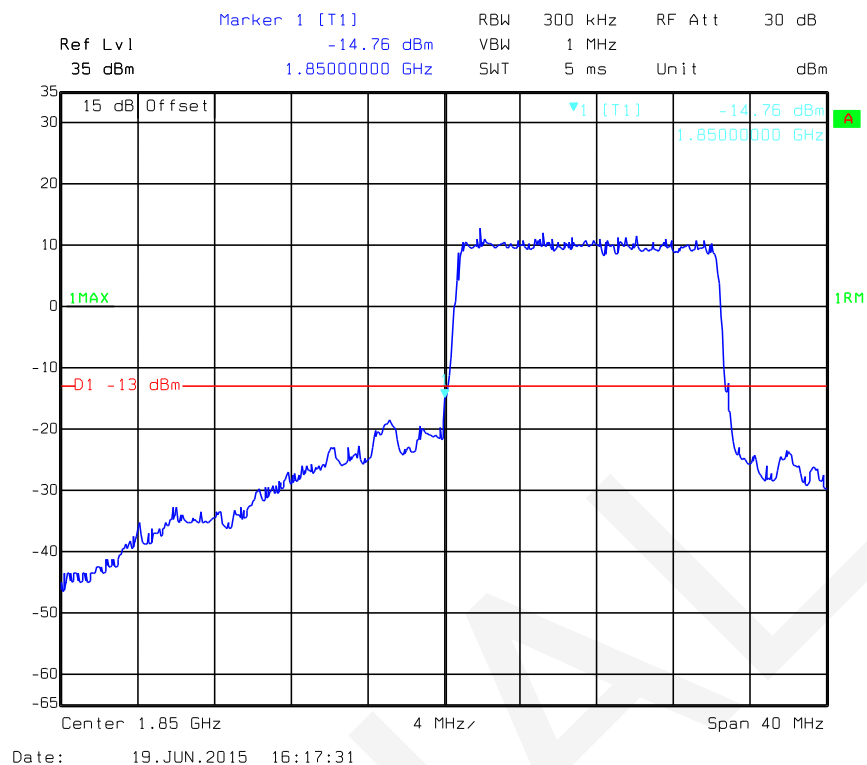
QPSK_15MHz_1RB_Left



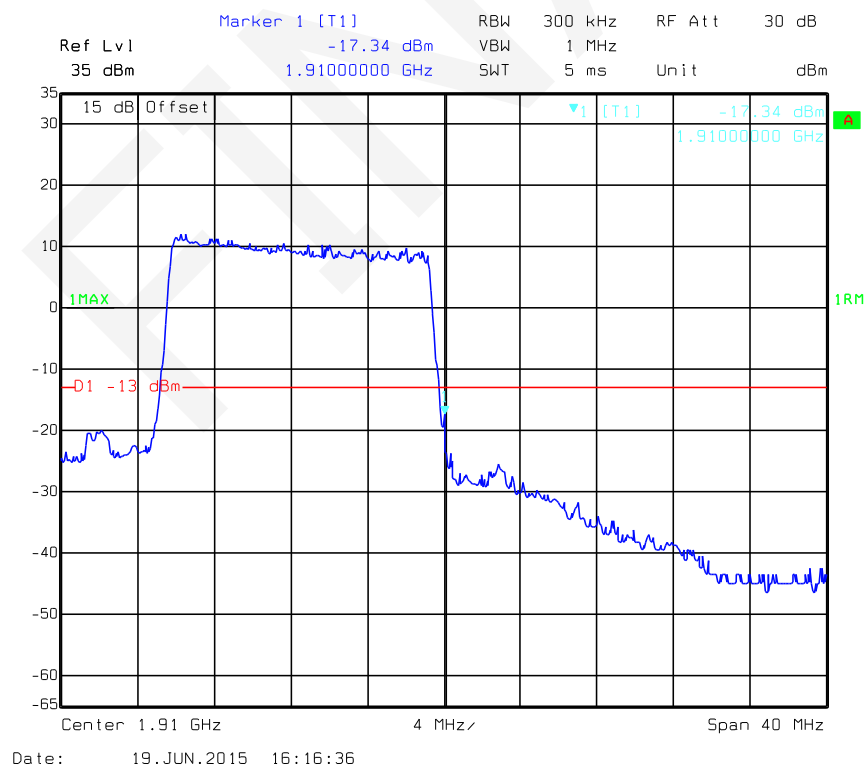
QPSK_15MHz_1RB_Right



QPSK_15MHz_FULL RB_Left



QPSK_15MHz_FULL RB_Right



Marker 1 [T1]

Ref Lvl 35 dBm

RBW 300 kHz

VBW 1 MHz

SWT 5 ms

RF Att 30 dB

Unit dBm

15 dB Offset

▼1 [T1] -13.92 dBm

1.84997996 GHz

1MAX

01 -13.92 dBm

Center 1.85 GHz

1 MHz

Span 10 MHz

Date: 19.JUN.2015 17:18:32

Marker 1 [T1]
 Ref Lvl 35 dBm
 -14.00 dBm
 1.91004008 GHz
 RBW 300 kHz
 VBW 1 MHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

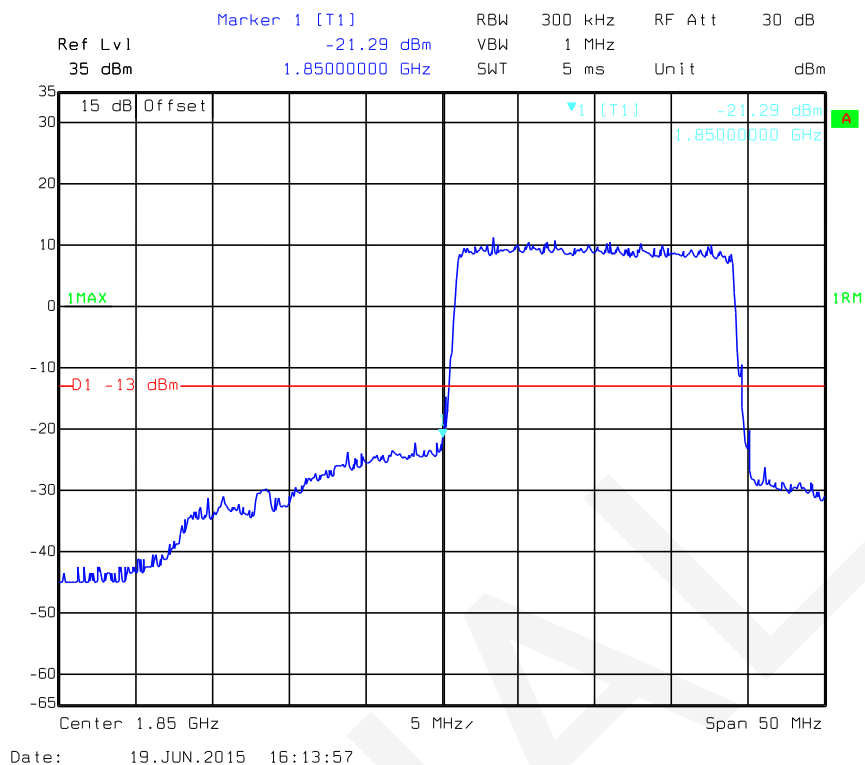
15 dB Offset
 ▼1 [T1]
 -14.00 dBm
 1.91004008 GHz

1MAX
 -01 -13 dBm
 1RM

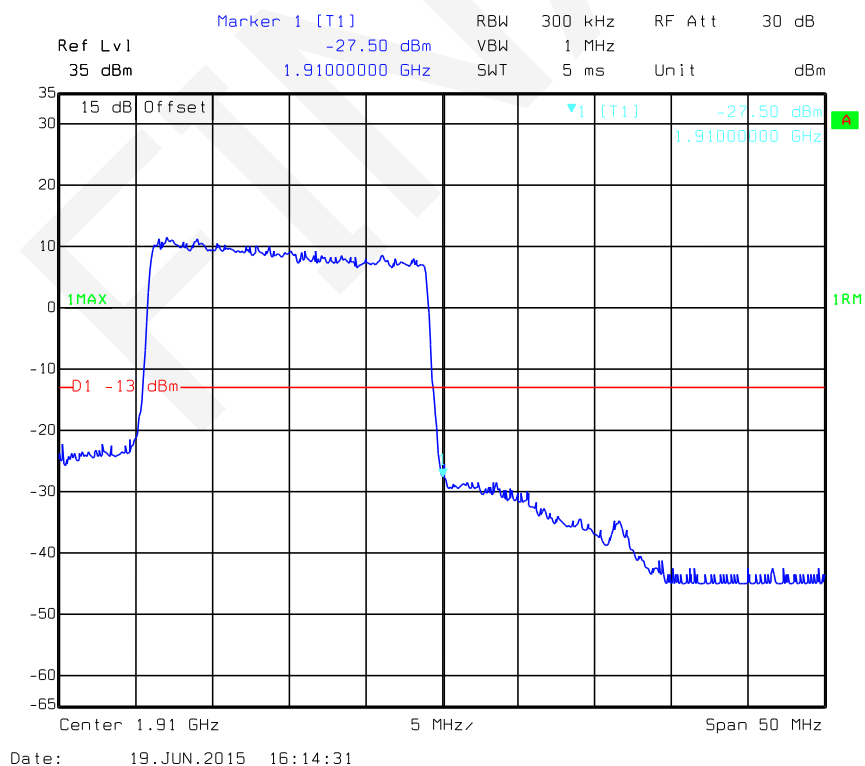
Center 1.91 GHz
 1 MHz
 Span 10 MHz

Date: 19.JUN.2015 17:16:18

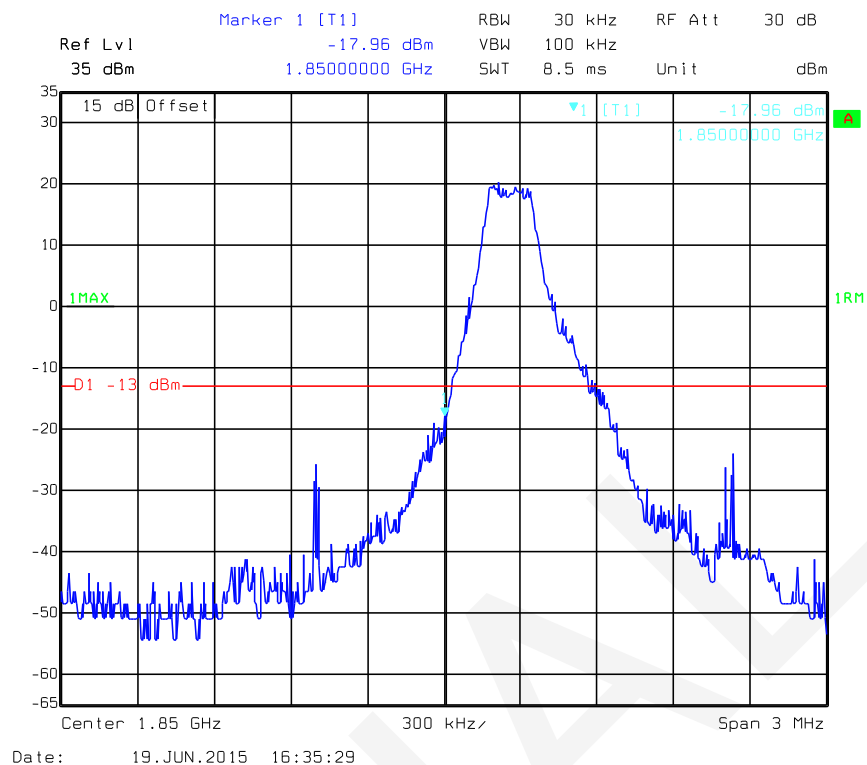
QPSK_20MHz_FULL RB_Left



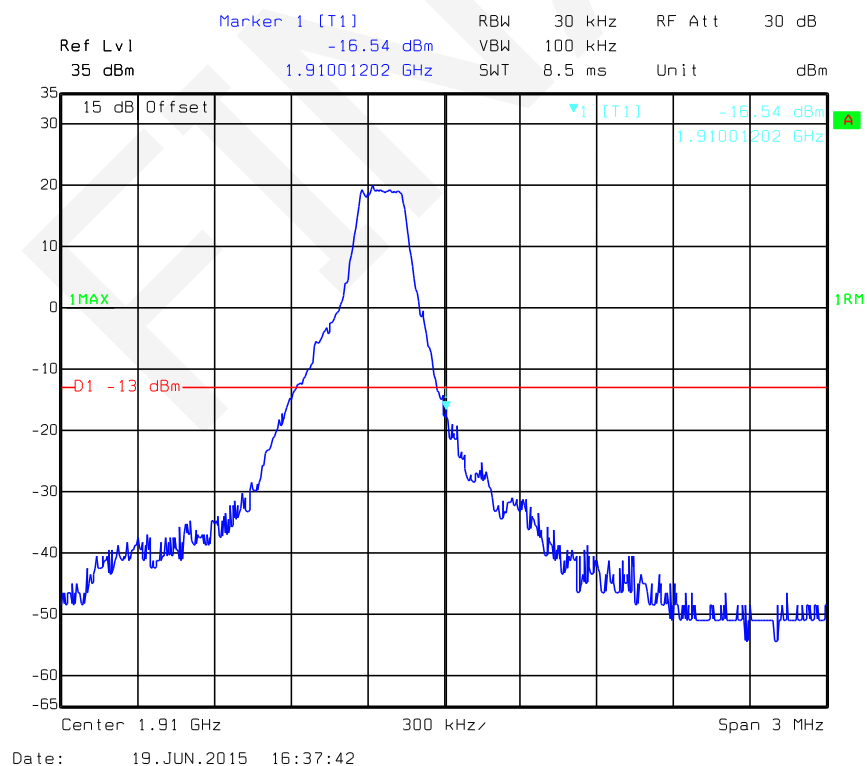
QPSK_20MHz_FULL RB_Right



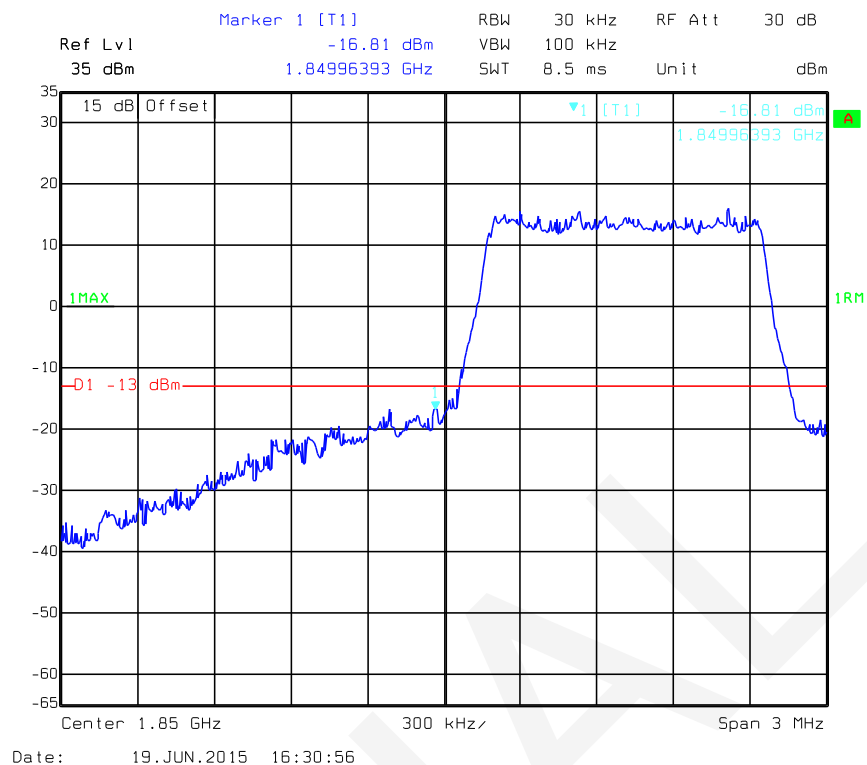
16QAM_1.4MHz_1RB_Left



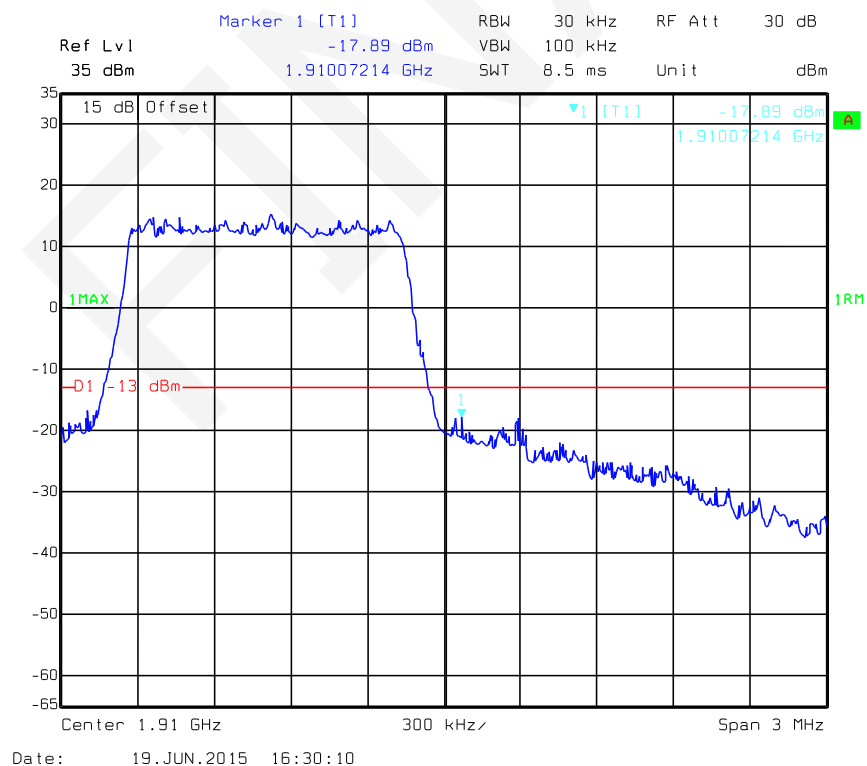
16QAM_1.4MHz_1RB_Right



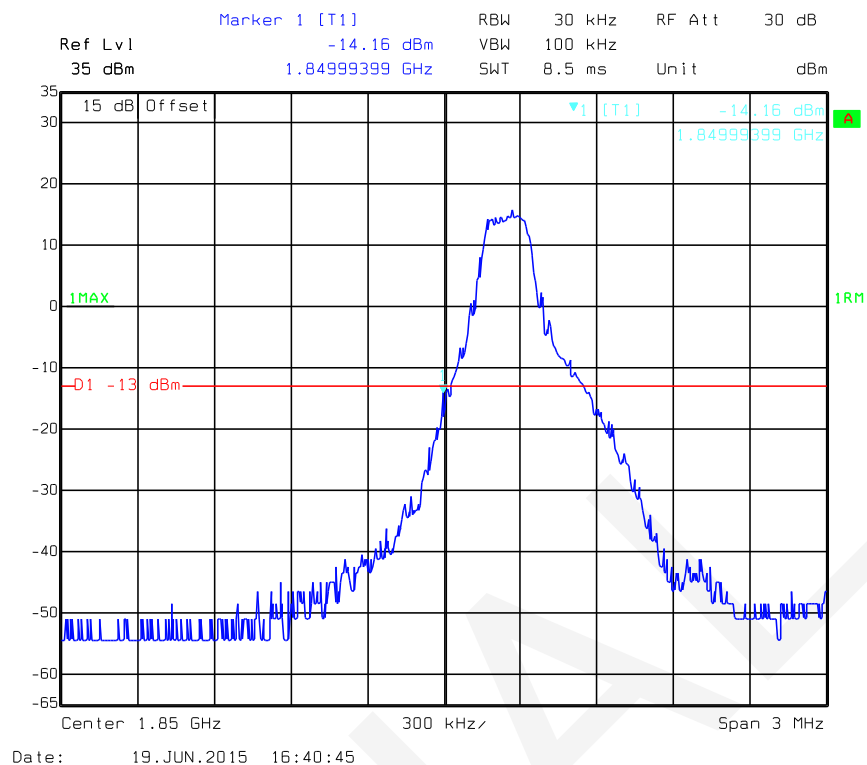
16QAM_1.4MHz_FULL RB_Left



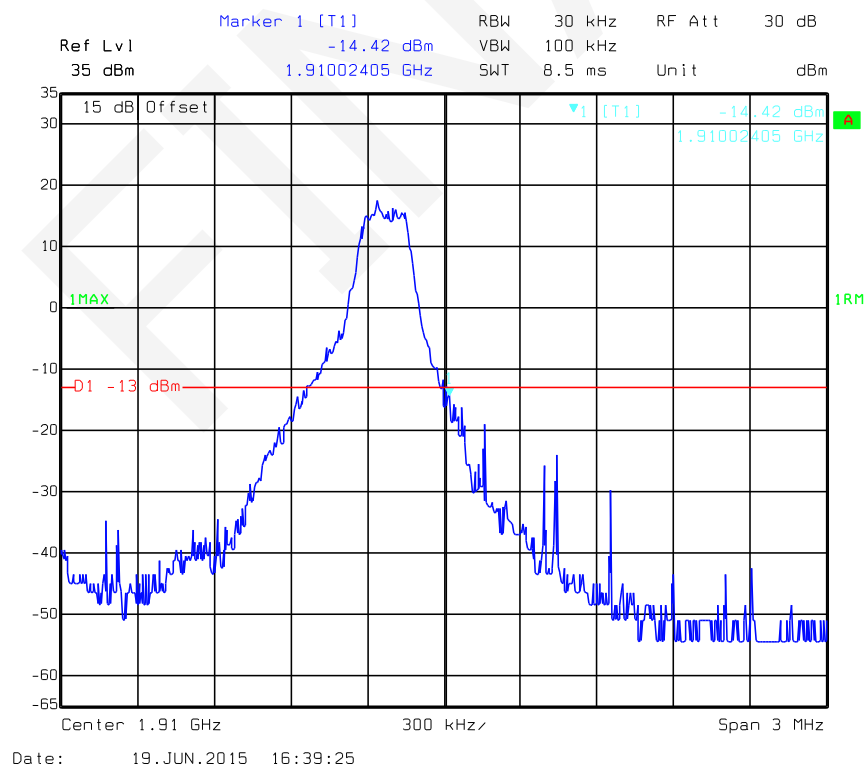
16QAM_1.4MHz_FULL RB_Right



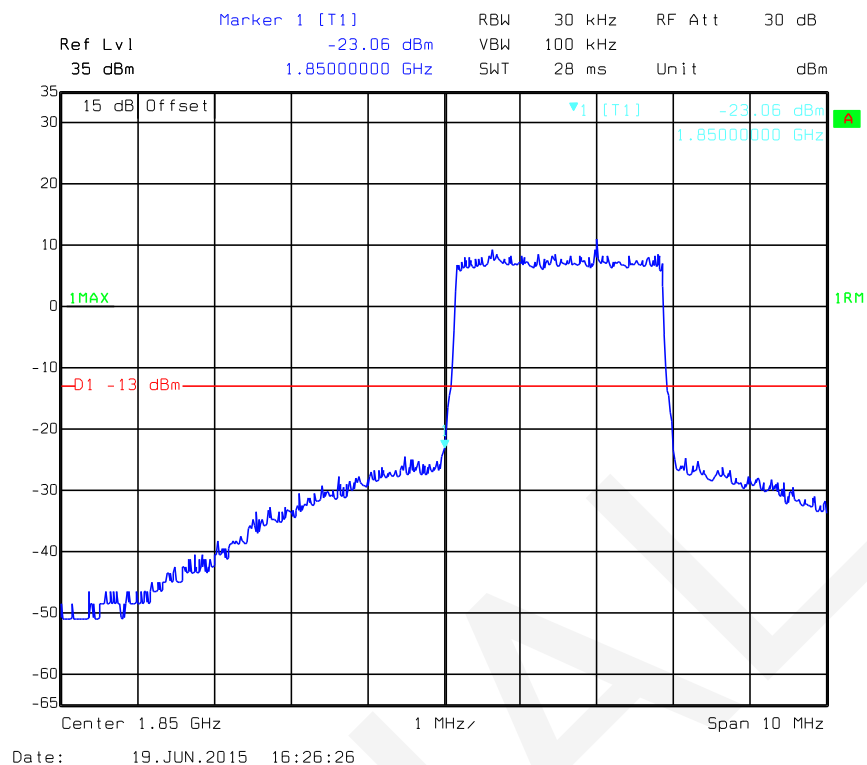
16QAMHz_3MHz_RB_Left



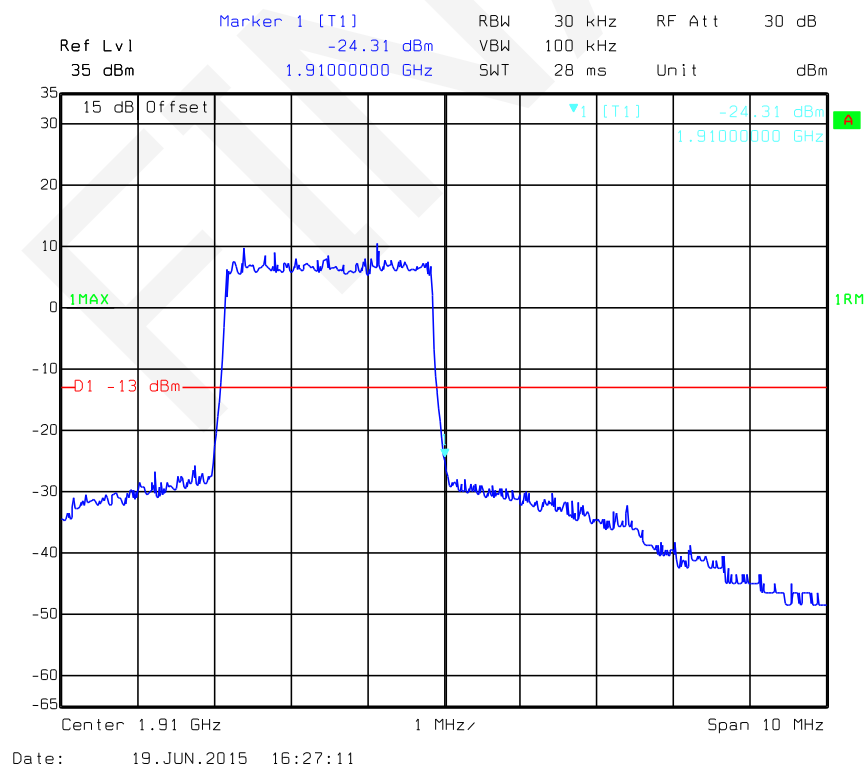
16QAMHz_3MHz_RB_Right



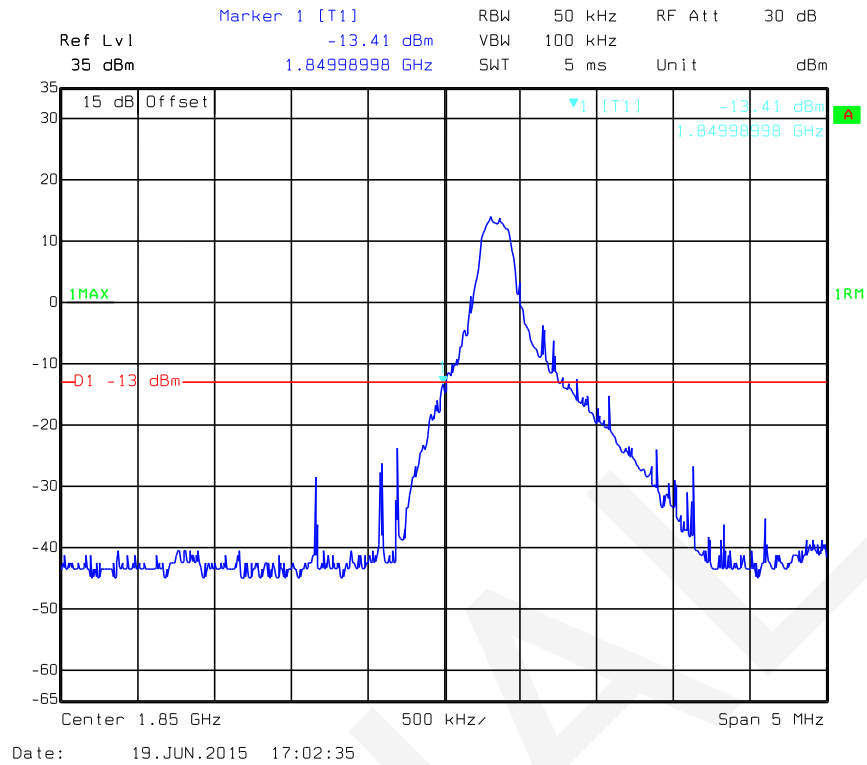
16QAM_3MHz_FULL RB_Left



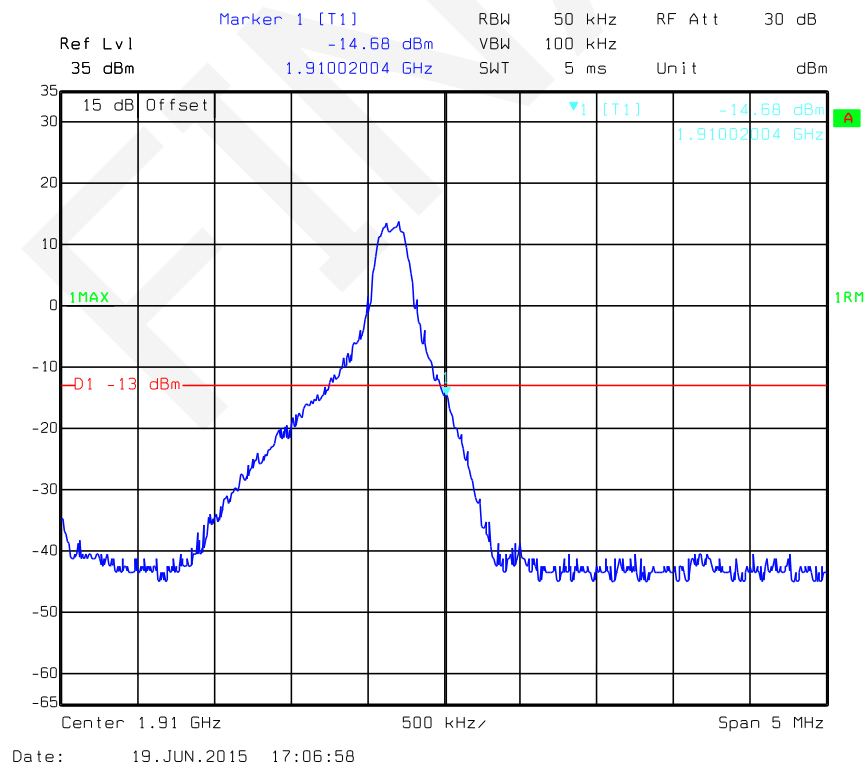
16QAM_3M_FULL RB_Right



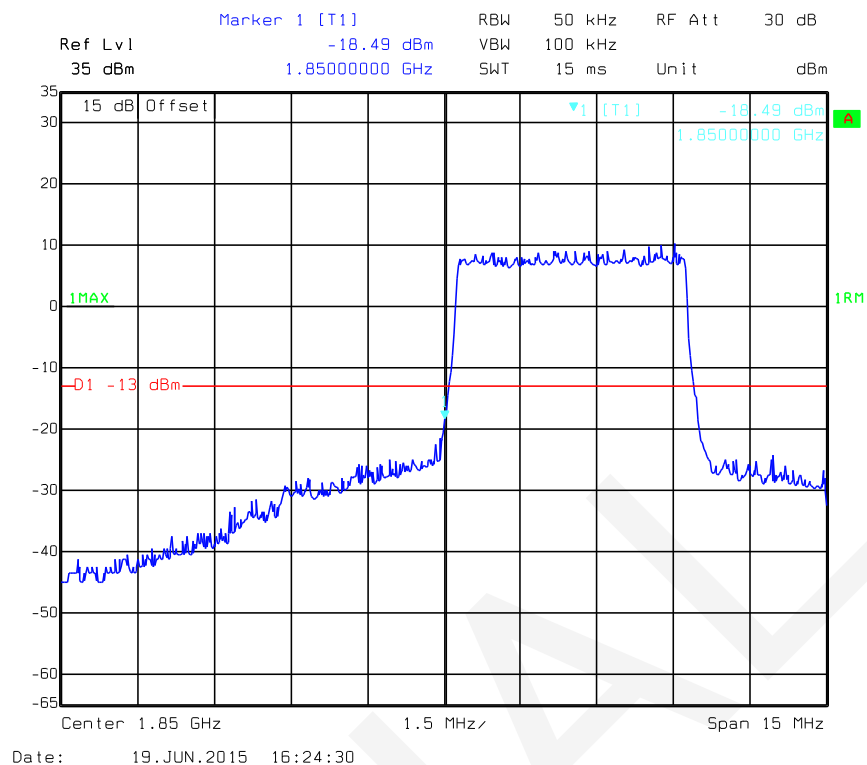
16QAM_5MHz_RB_Left



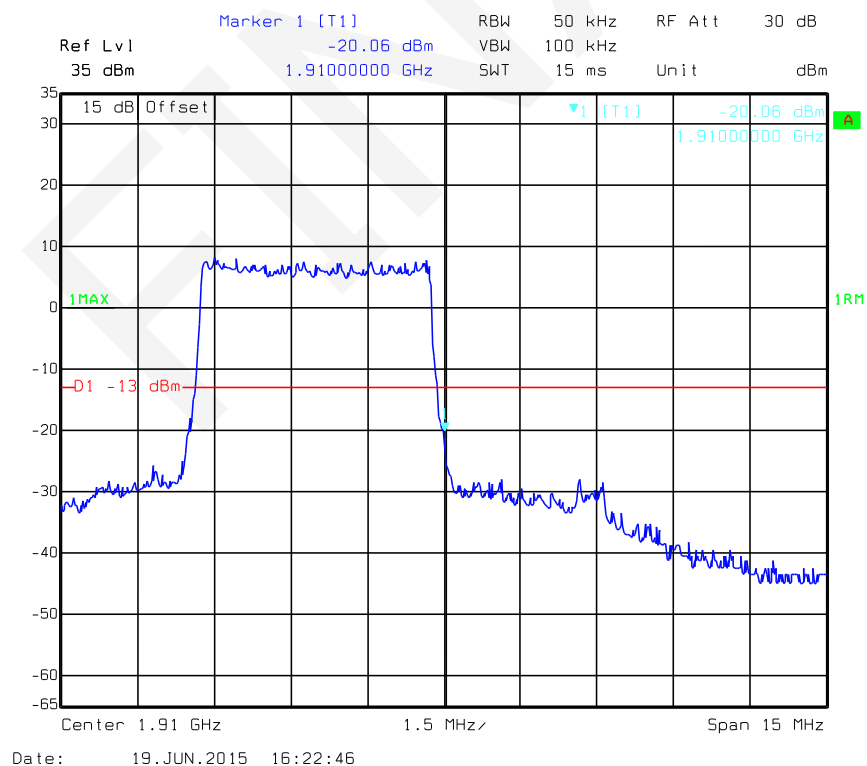
16QAM_5MHz_RB_Right



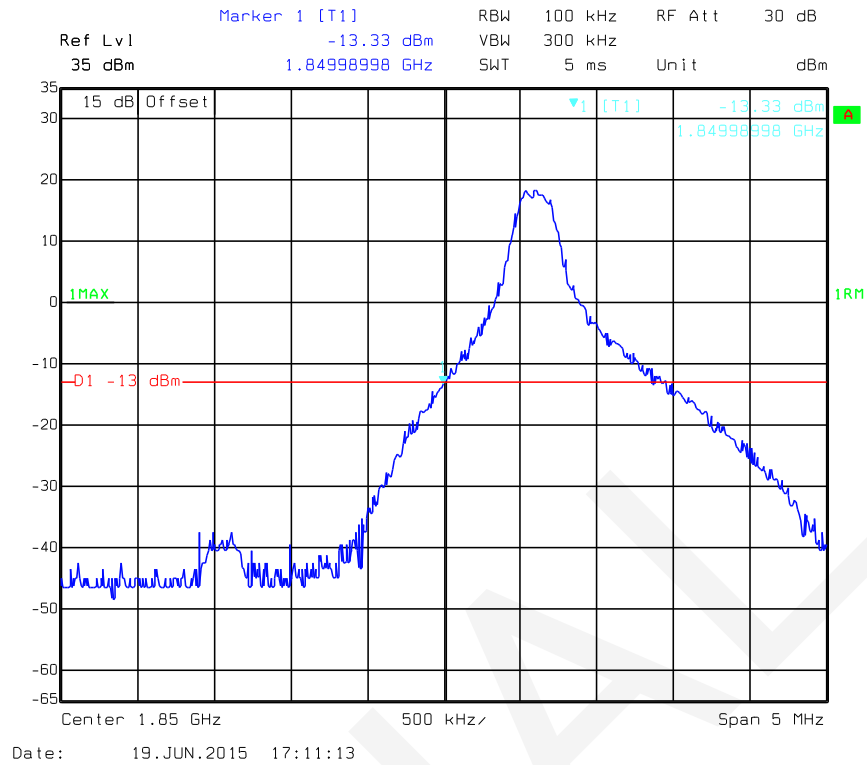
16QAM_5MHz_FULL RB_Left



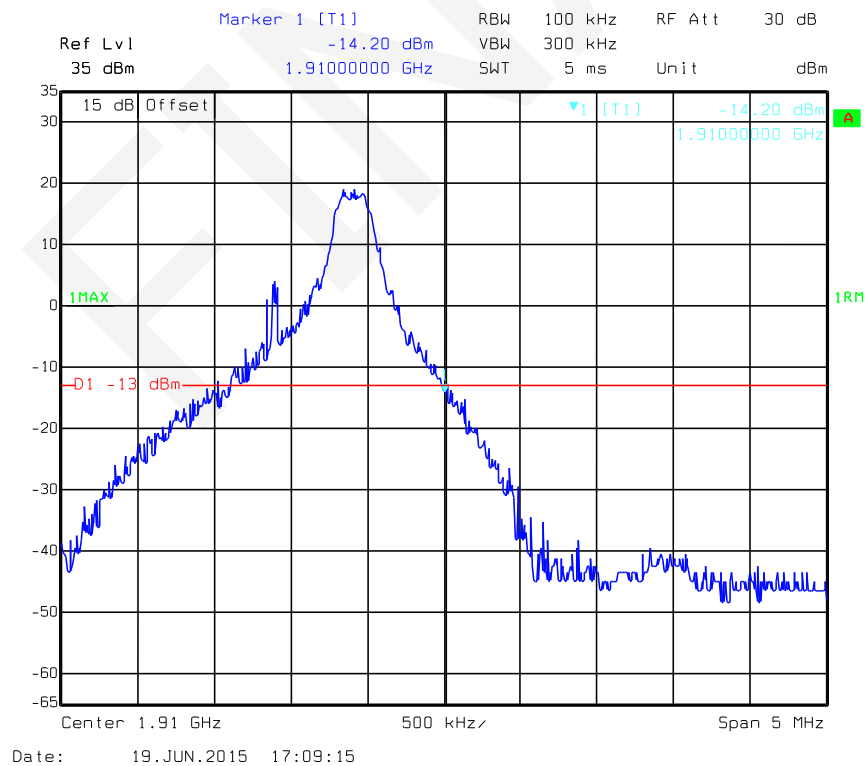
16QAM_5MHz_FULL RB_Right



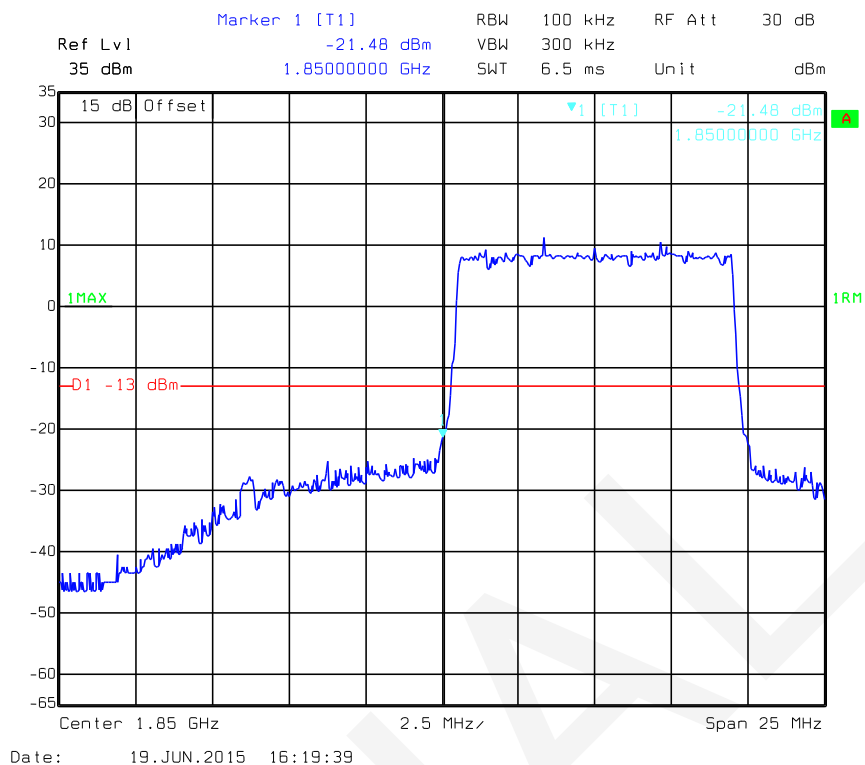
16QAM_10MHz_RB_Left



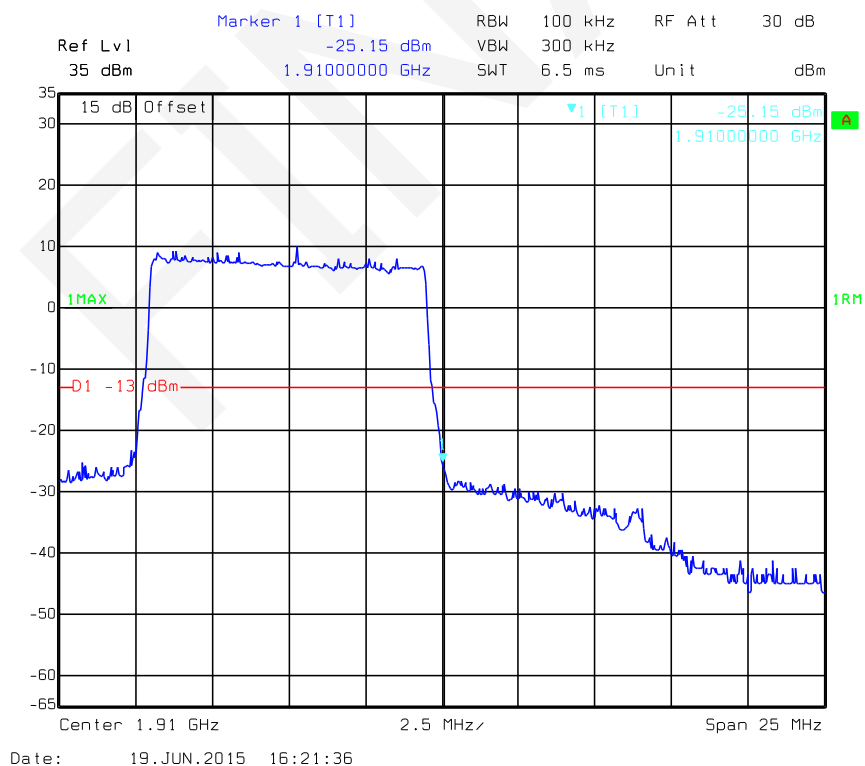
16QAM_10MHz_RB_Right



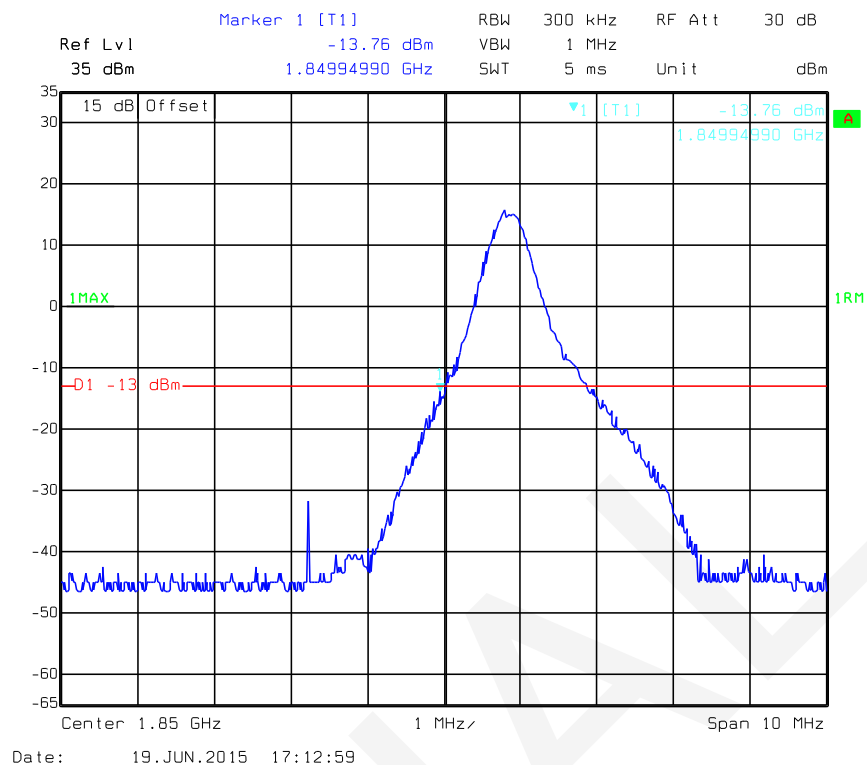
16QAM_10MHz_FULL RB_Left



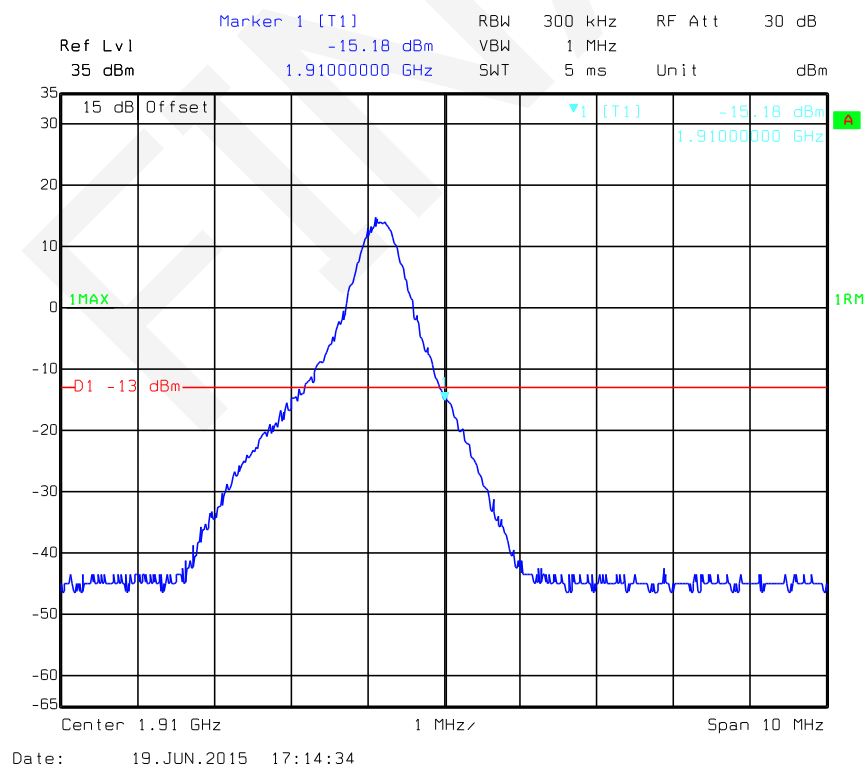
16QAM_10MHz_FULL RB_Right



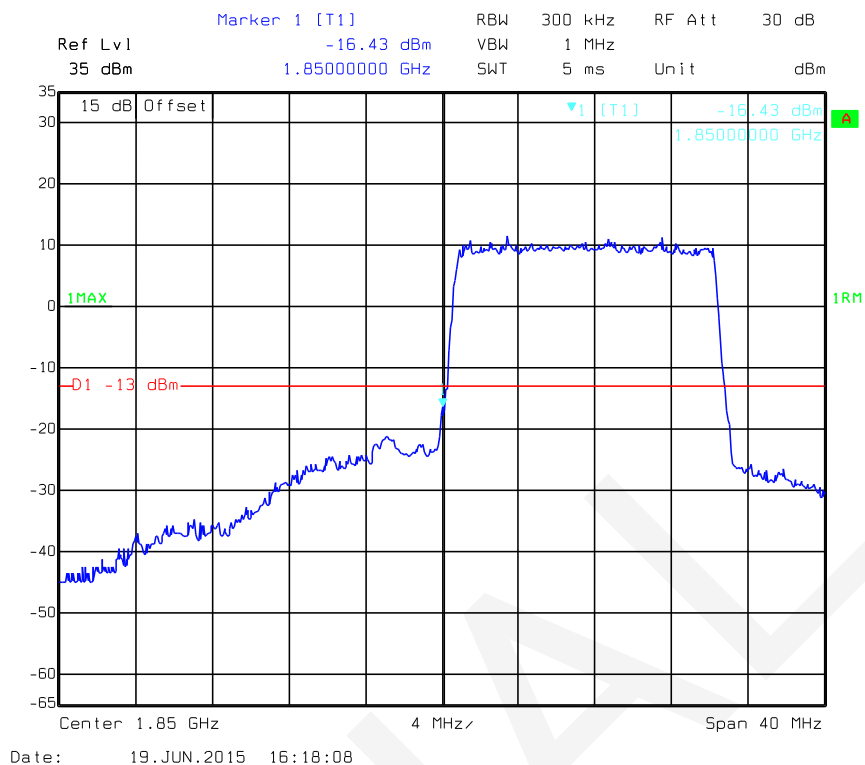
16QAM_15MHz_RB_Left



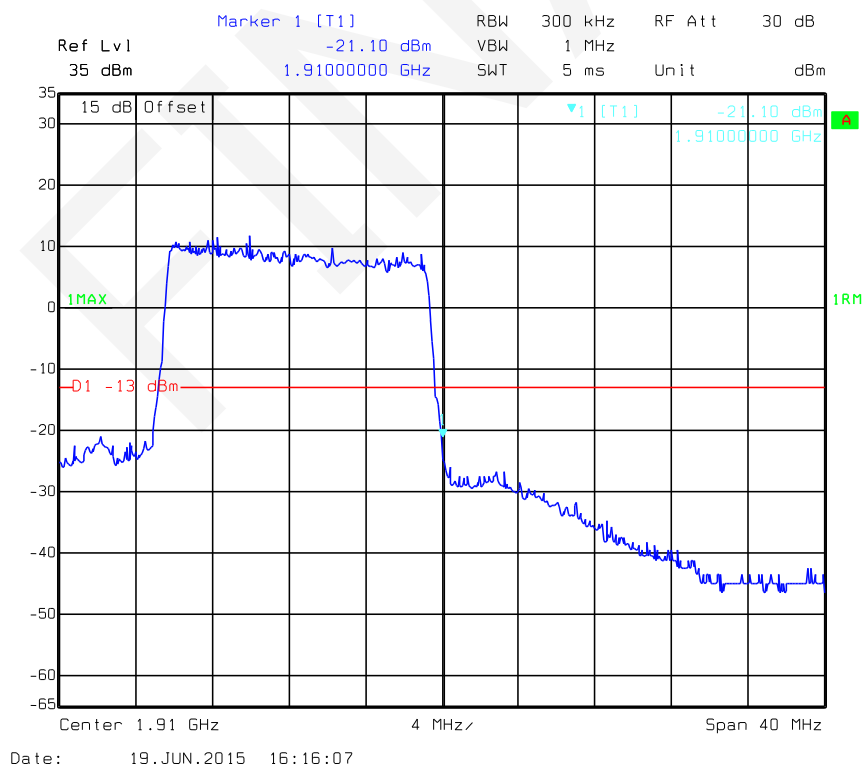
16QAM_15MHz_RB_Right



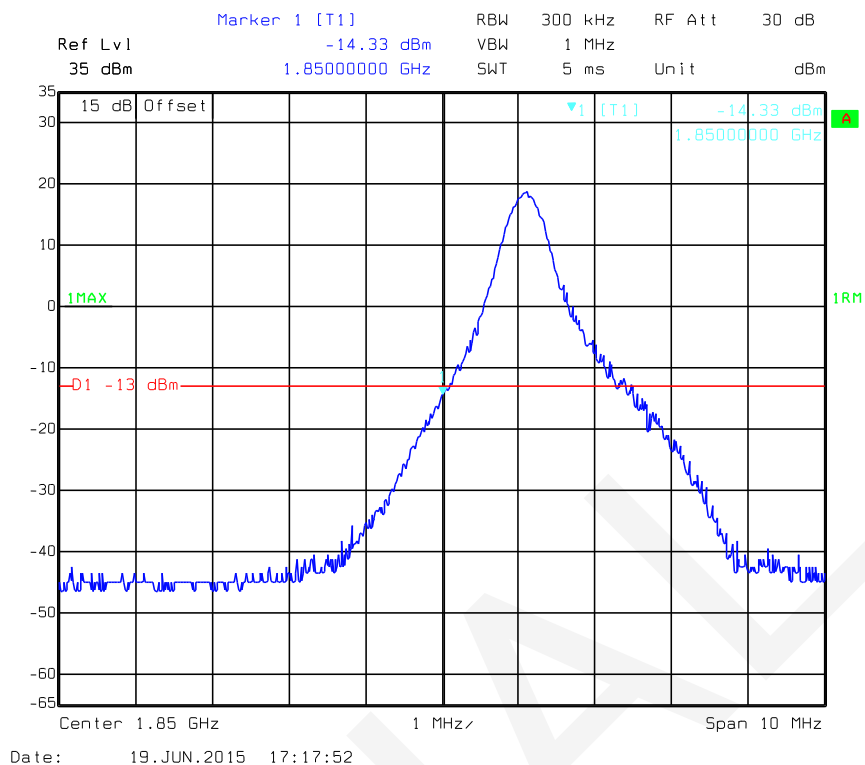
16QAM_15MHz_FULL RB_Left



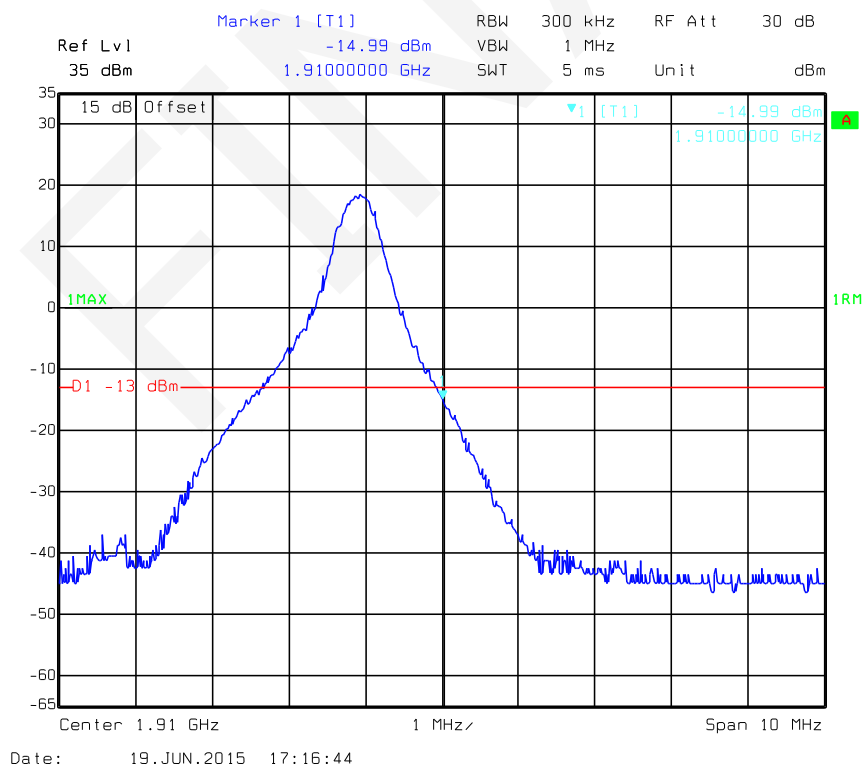
16QAM_15MHz_FULL RB_Right



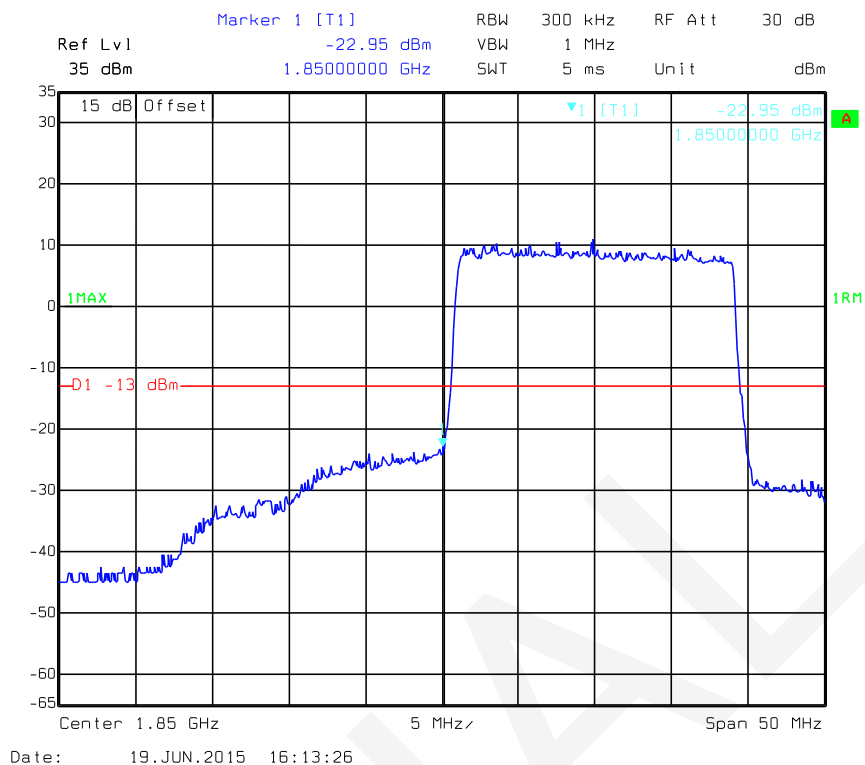
16QAM_20MHz_RB_Left



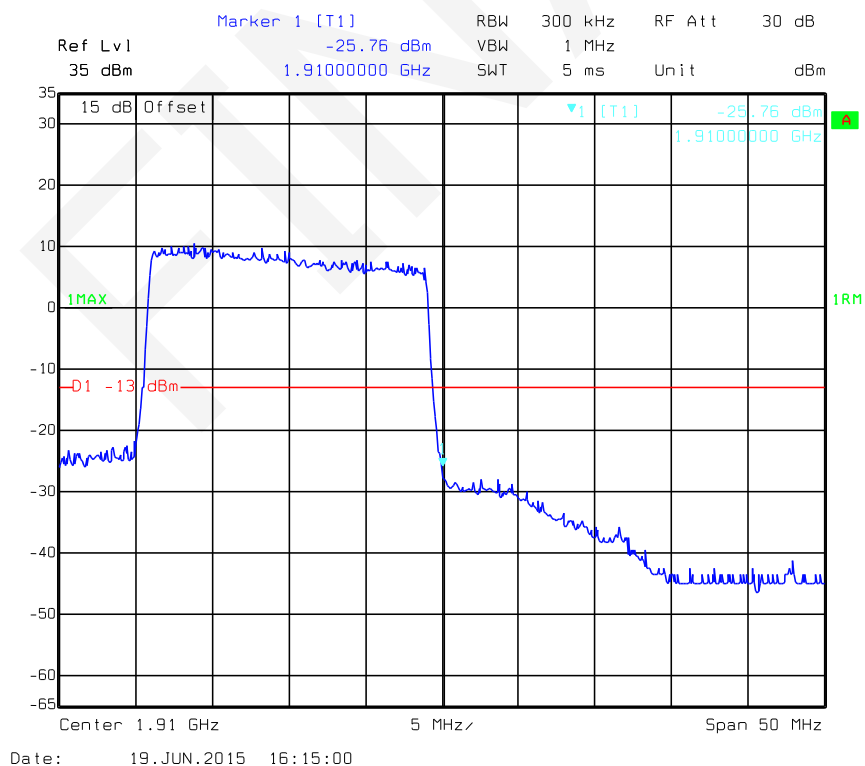
16QAM_20M_RB_Right

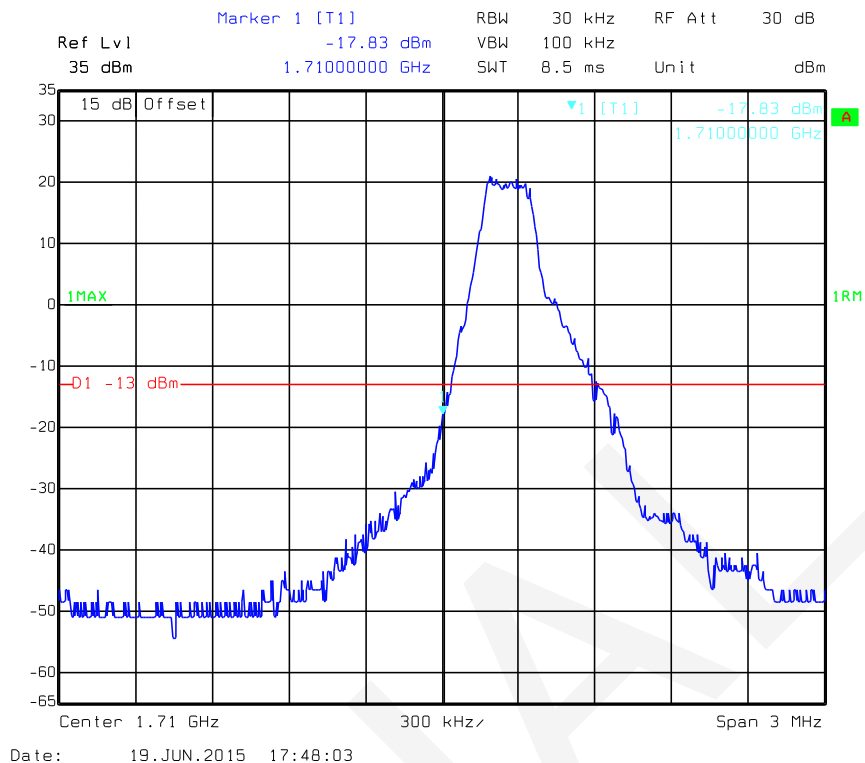
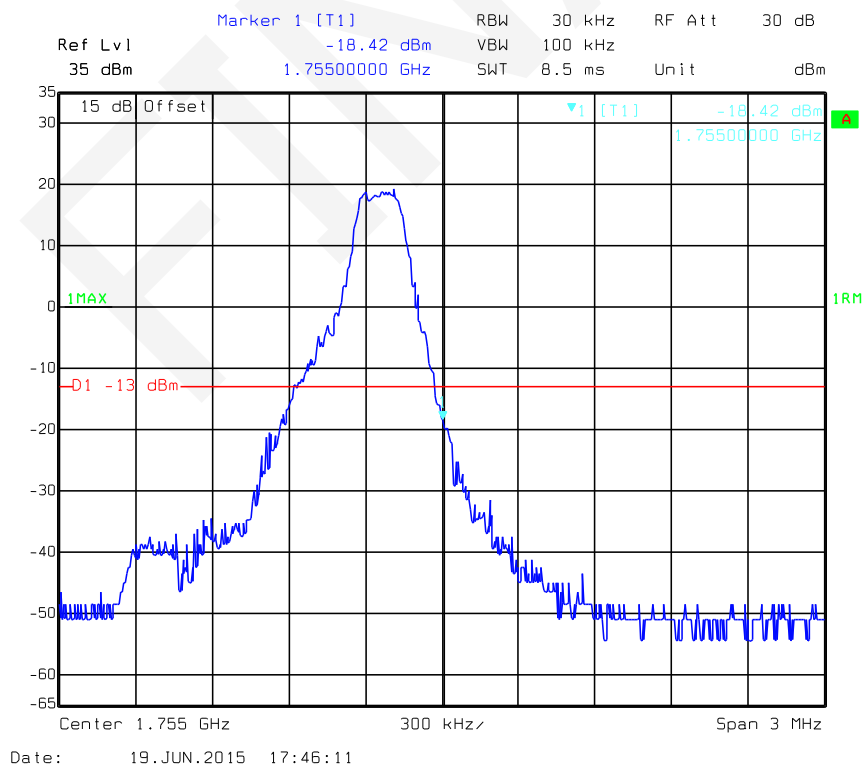


16QAM_20MHz_FULL RB_Left

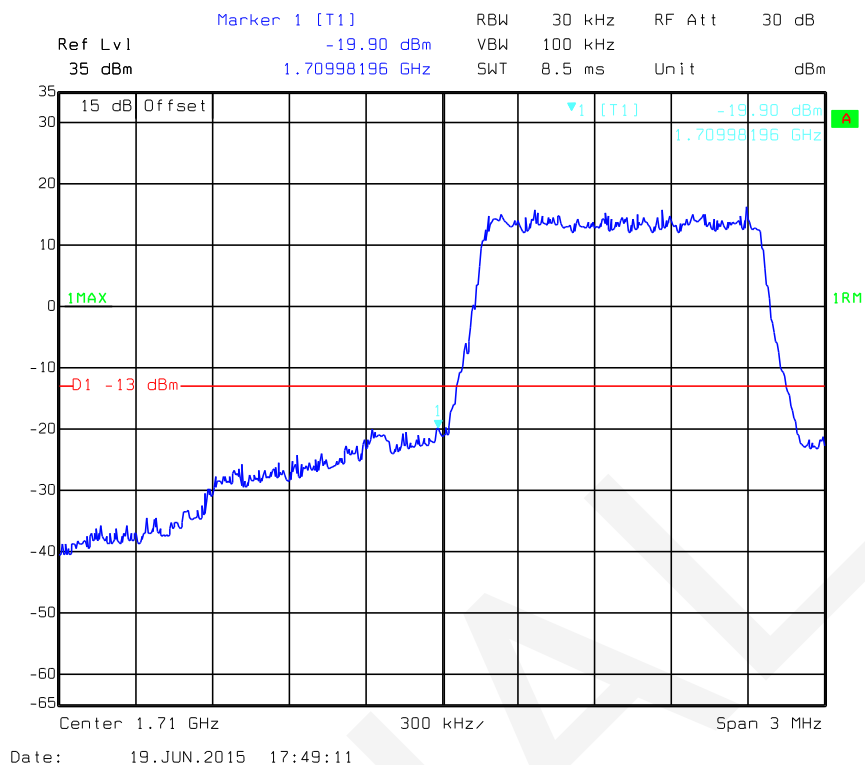


16QAM_20MHz_FULL RB_Right

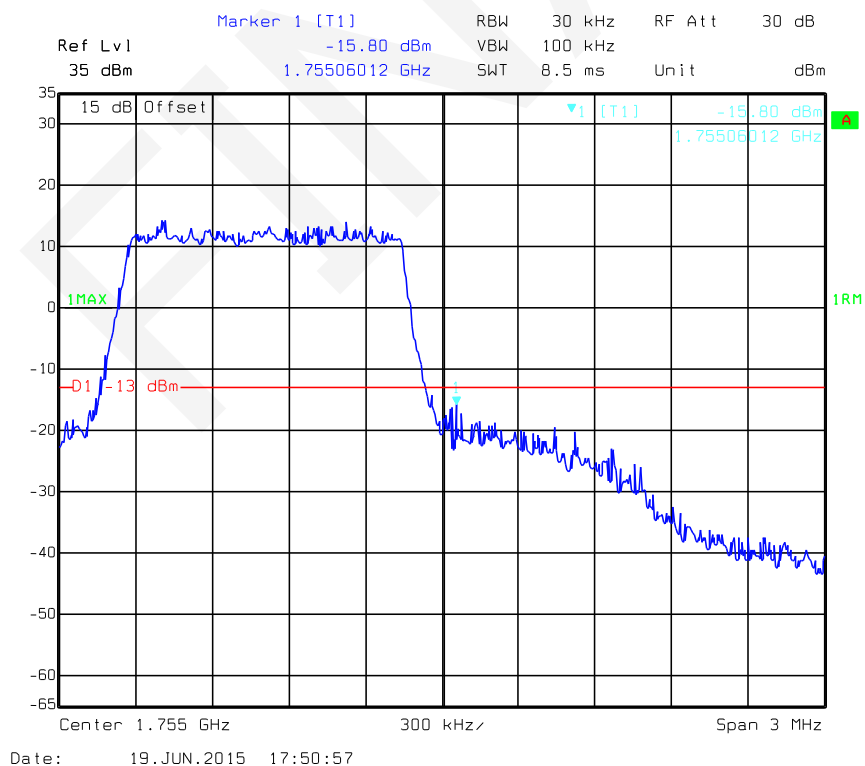


PART 27
LTE Band 4**QPSK_1.4MHz_1RB_Left****QPSK_1.4MHz_1RB_Right**

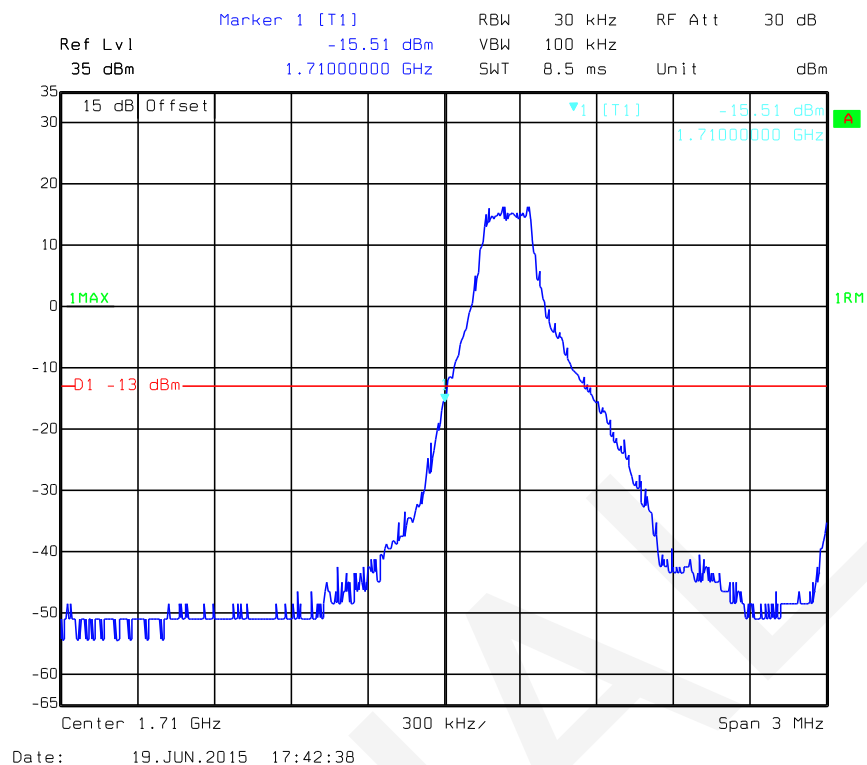
QPSK_1.4MHz_FULL RB_Left



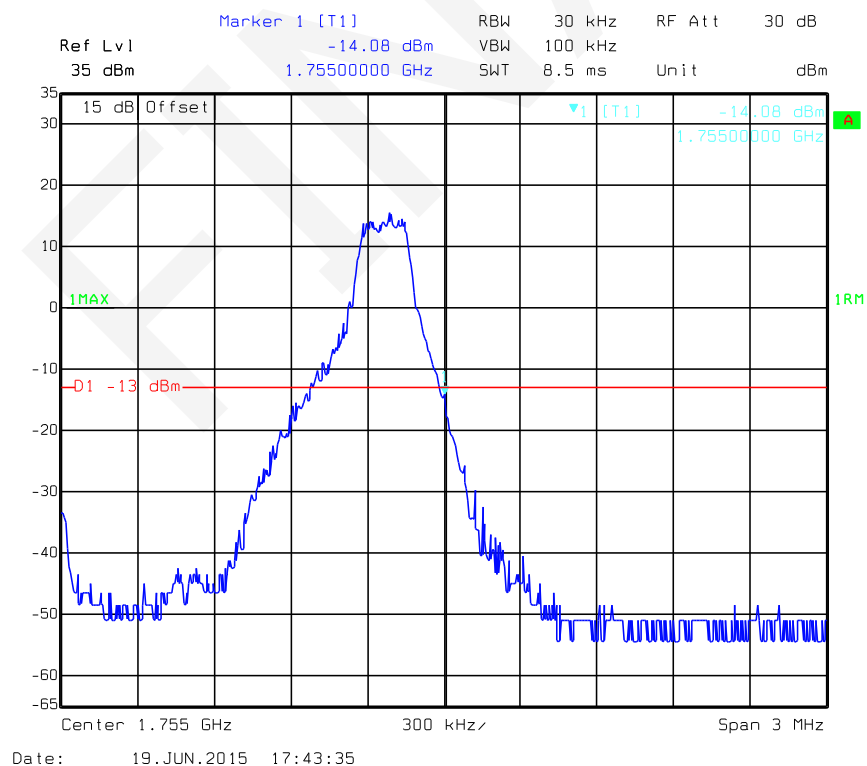
QPSK_1.4MHz_FULL RB_Right



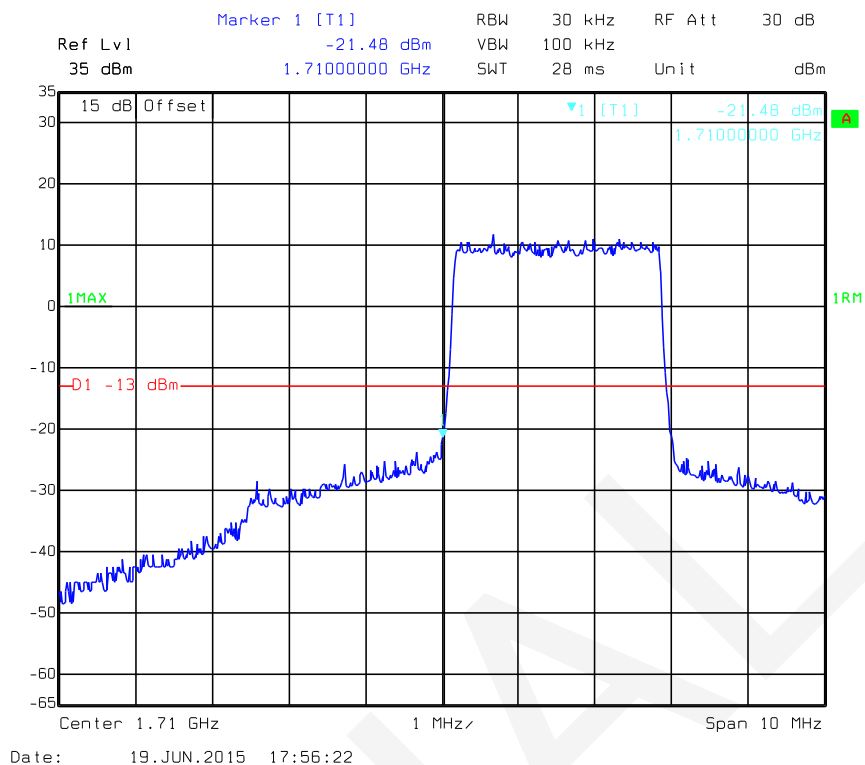
QPSK_3MHz_1RB_Left



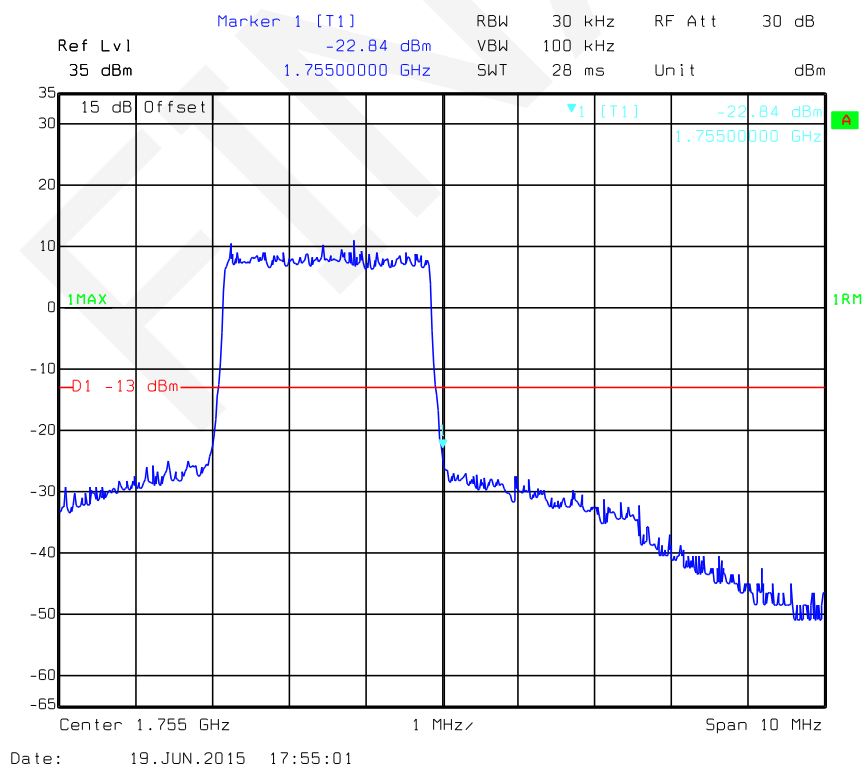
QPSK_3MHz_1RB_Right



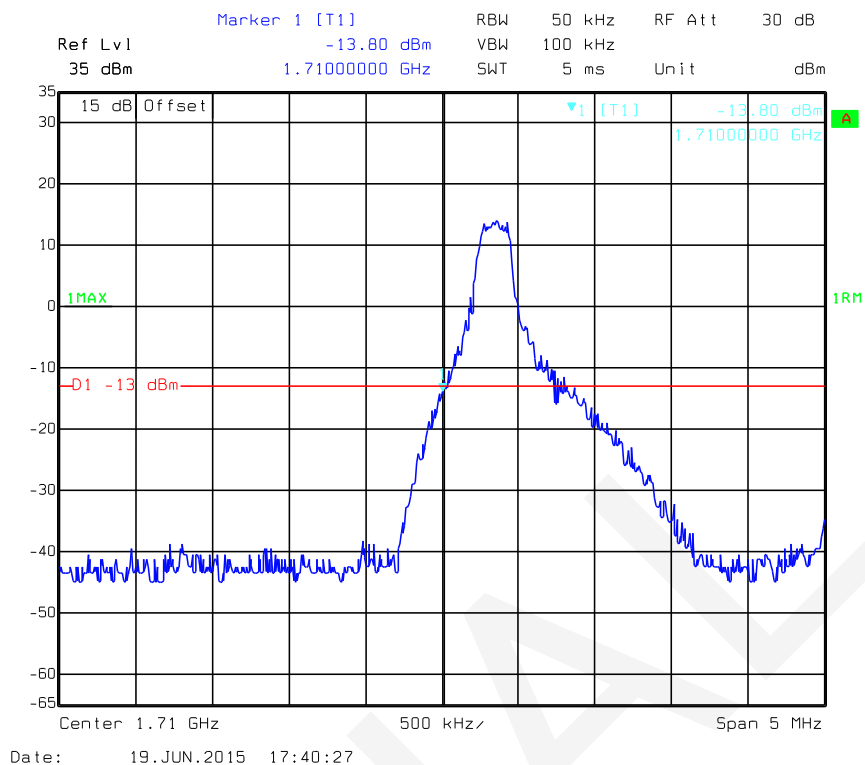
QPSK_3MHz_FULL RB_Left



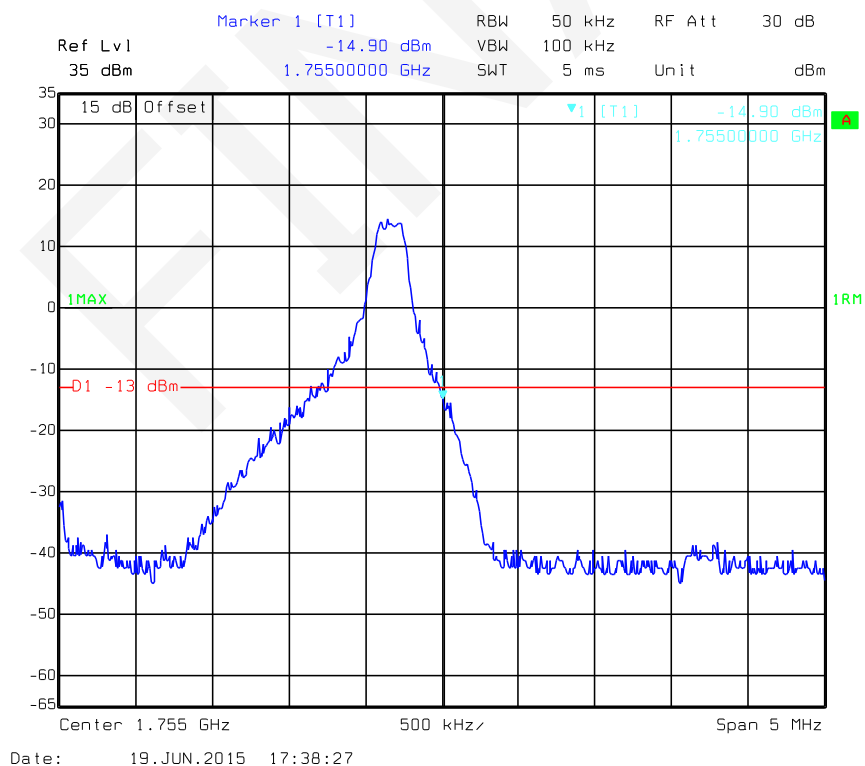
QPSK_3MHz_FULL RB_Right



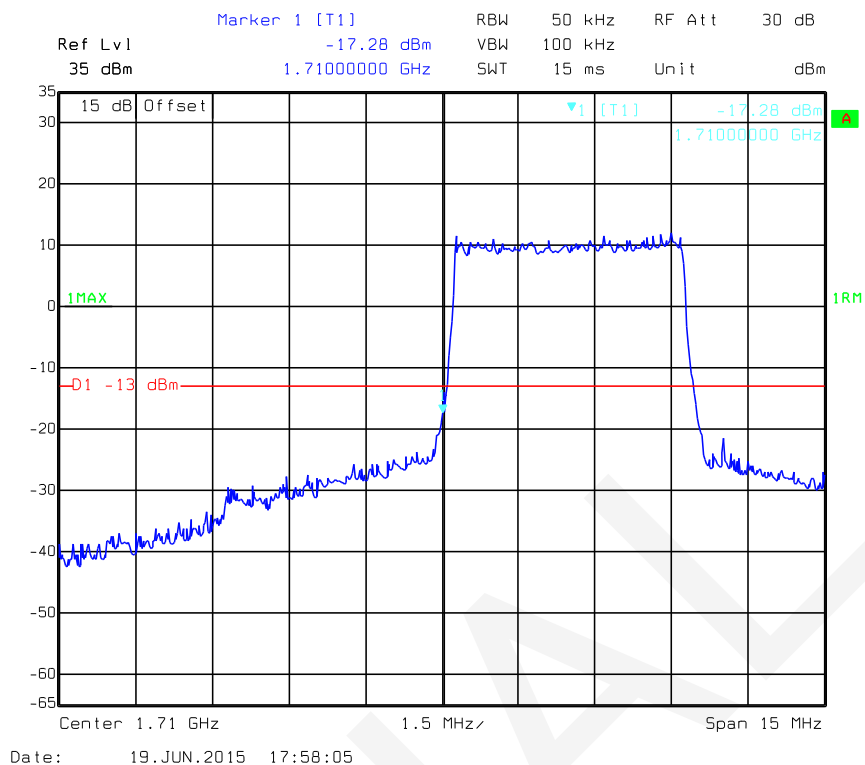
QPSK_5MHz_1RB_Left



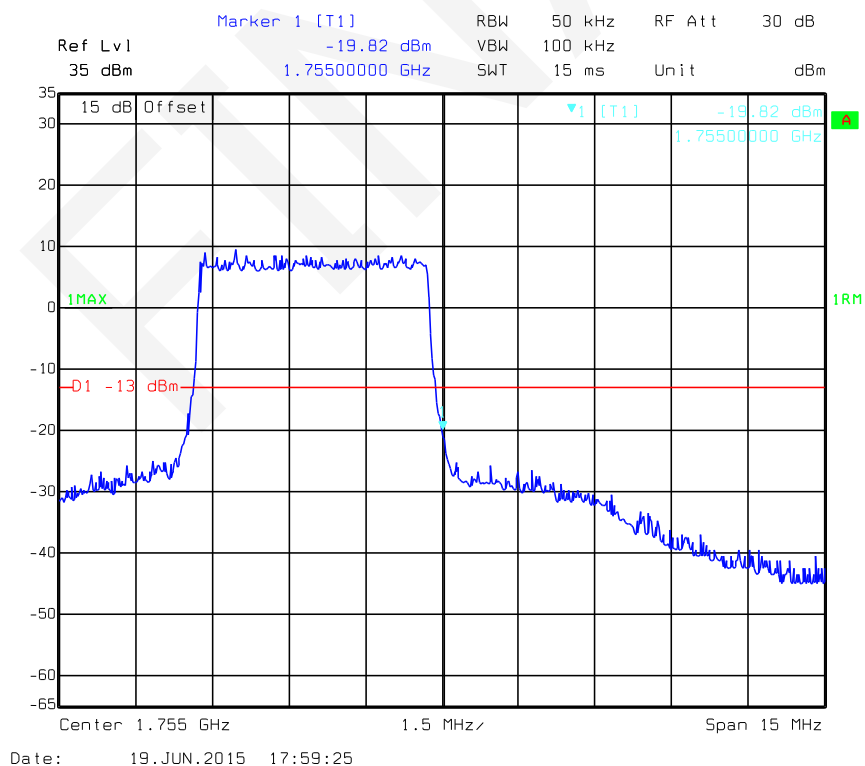
QPSK_5MHz_1RB_Right



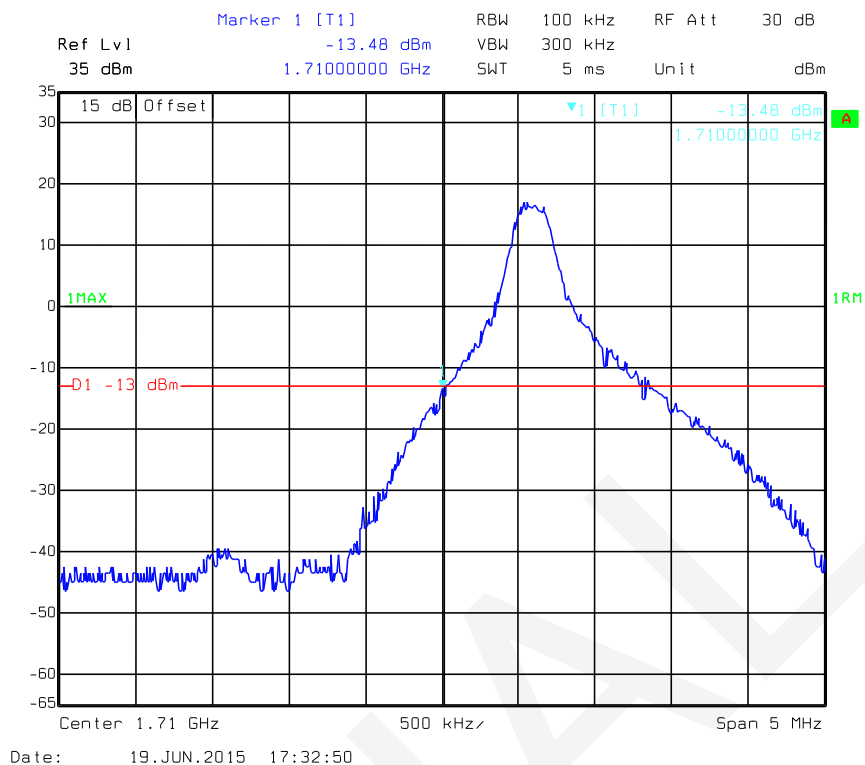
QPSK_5MHz_FULL RB_Left



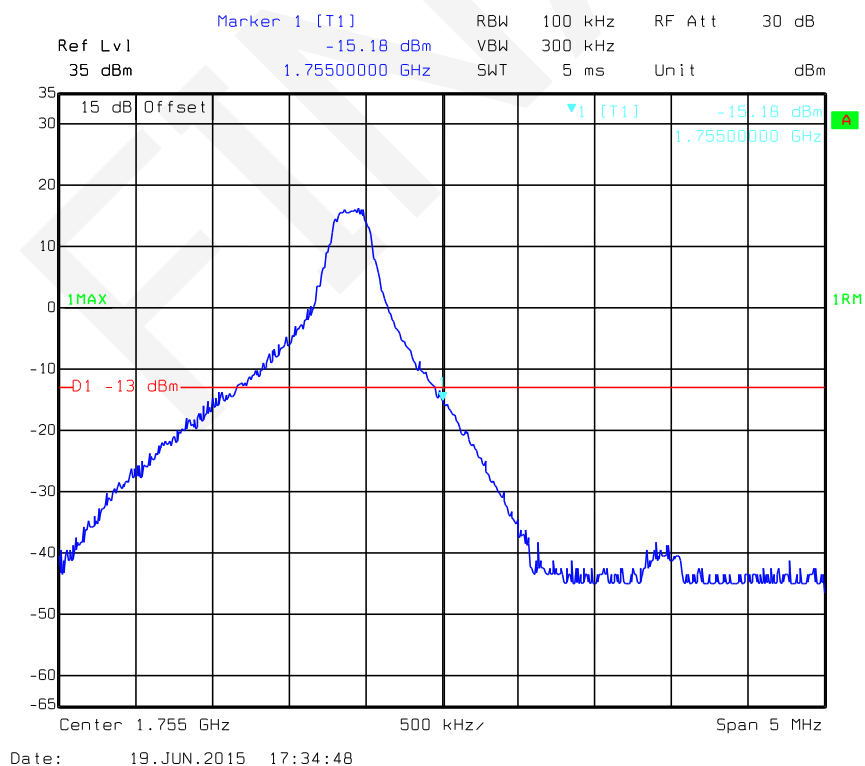
QPSK_5MHz_FULL RB_Right



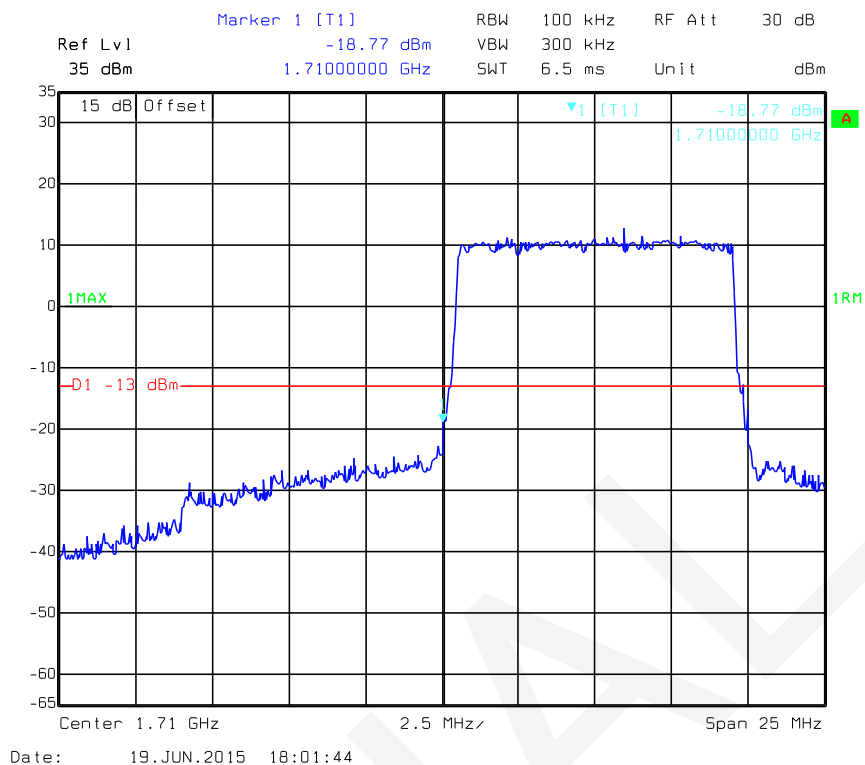
QPSK_10MHz_1RB_Left



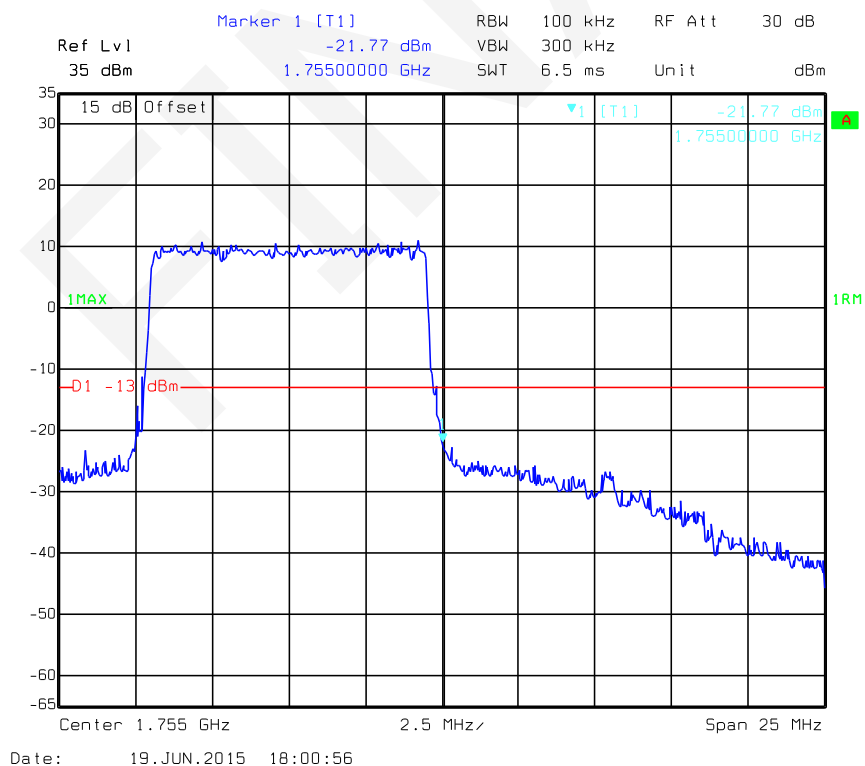
QPSK_10MHz_1RB_Right



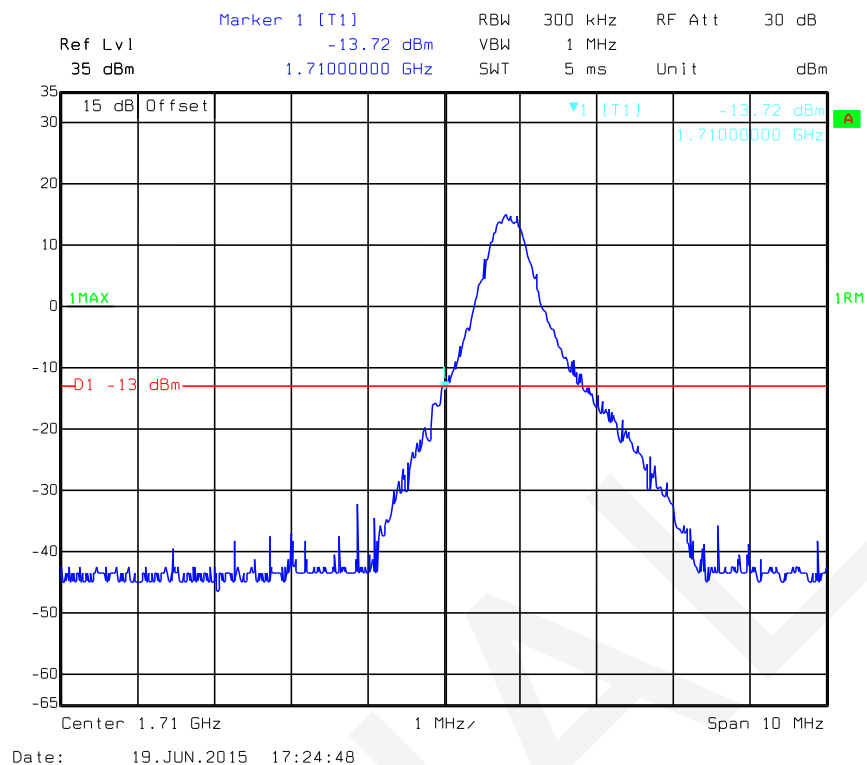
QPSK_10MHz_FULL RB_Left



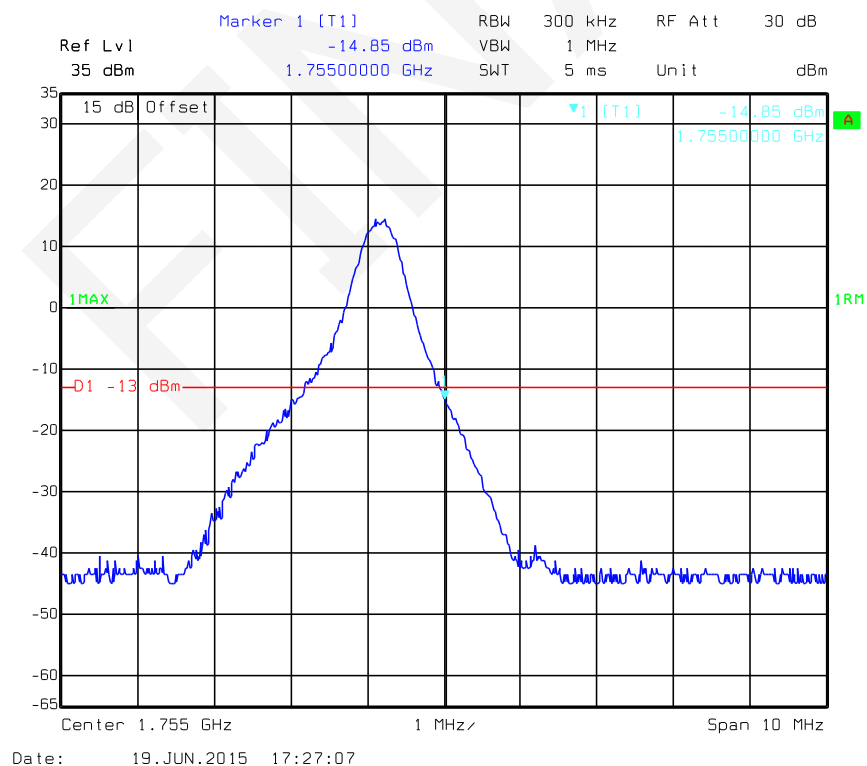
QPSK_10MHz_FULL RB_Right



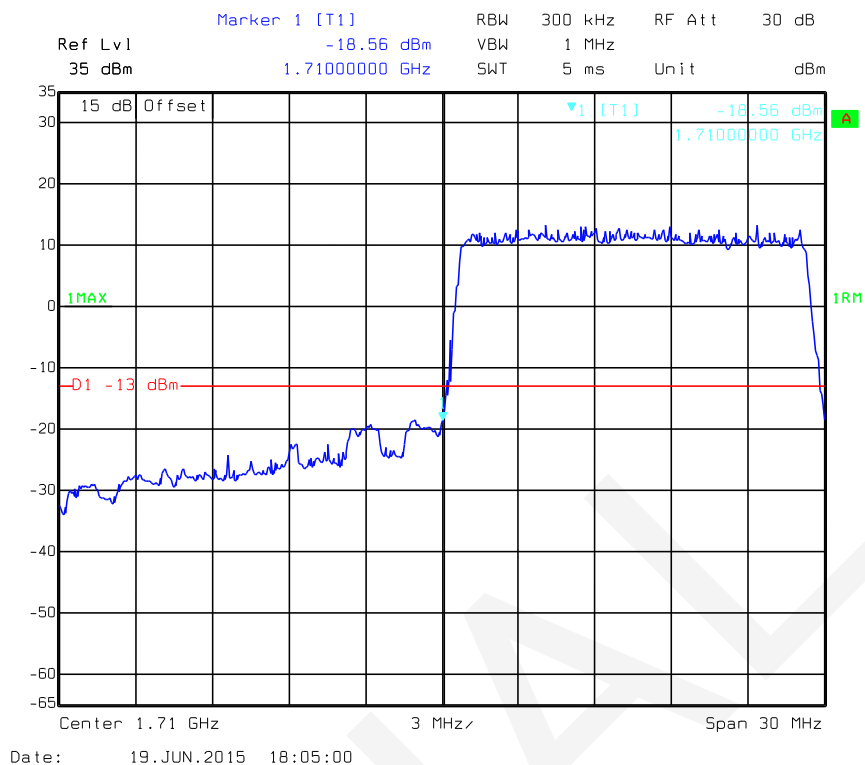
QPSK_15MHz_1RB_Left



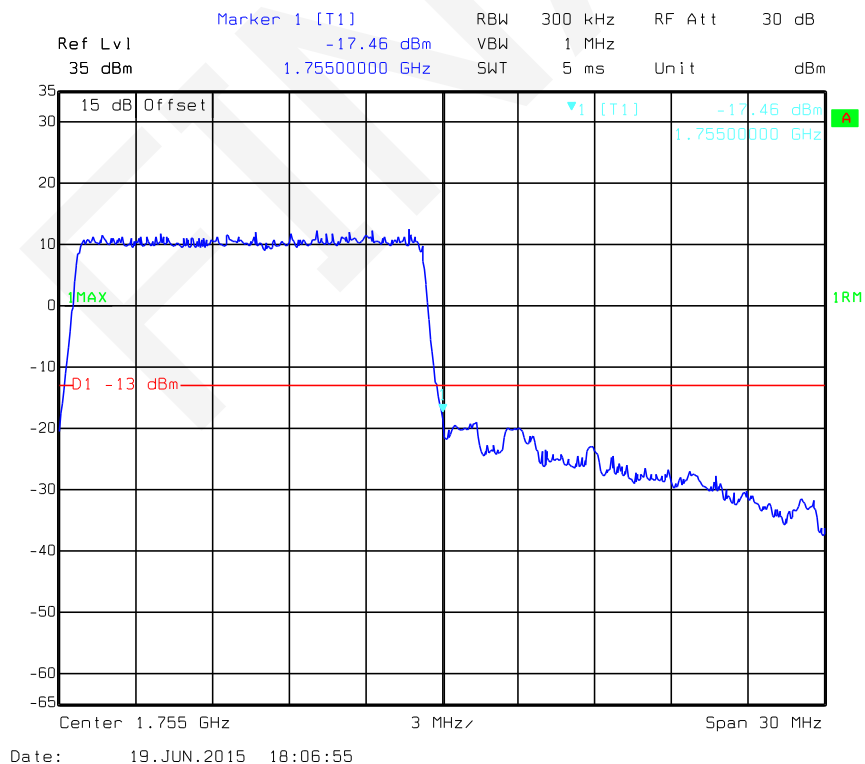
QPSK_15MHz_1RB_Right



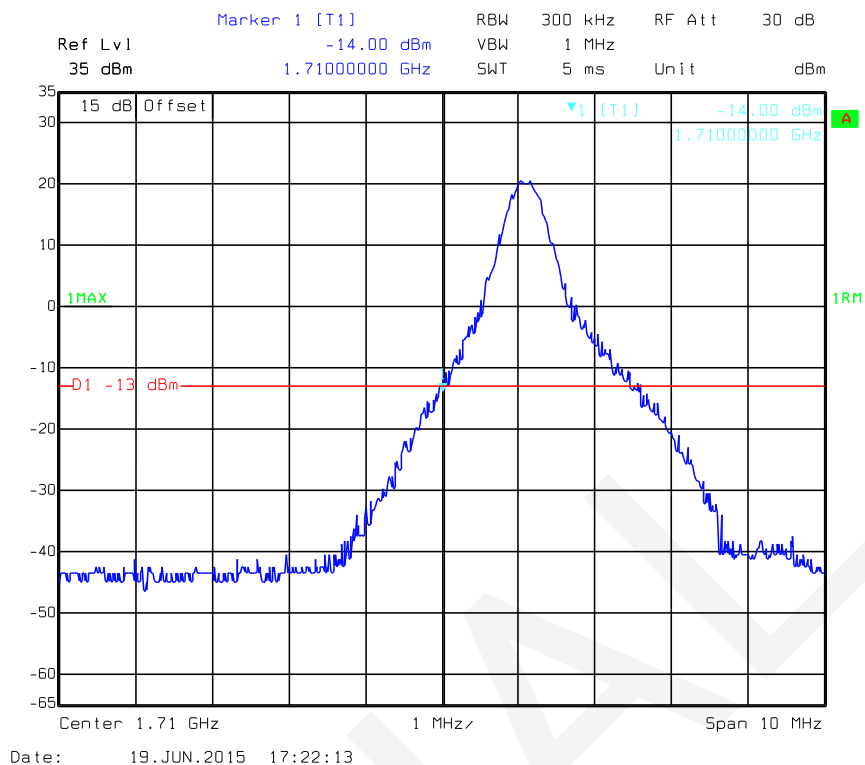
QPSK_15MHz_FULL RB_Left



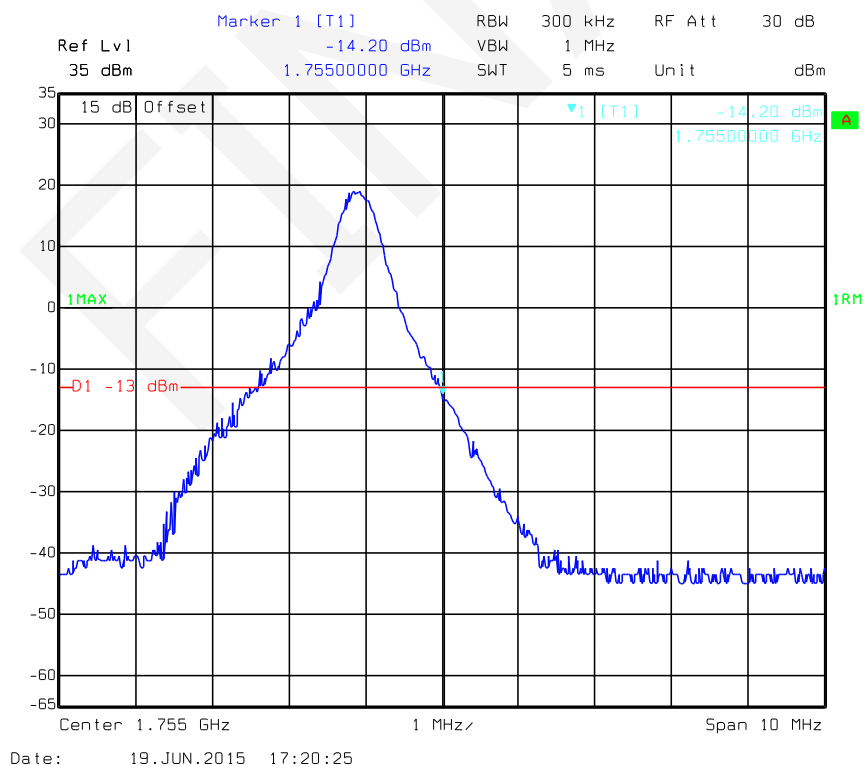
QPSK_15MHz_FULL RB_Right



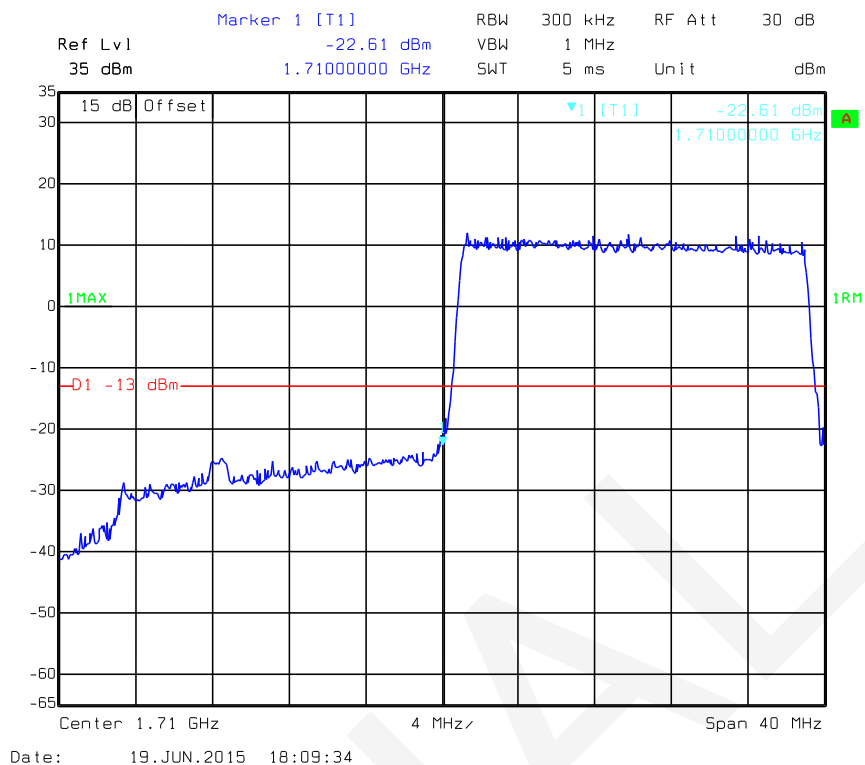
QPSK_20MHz_1RB_Left



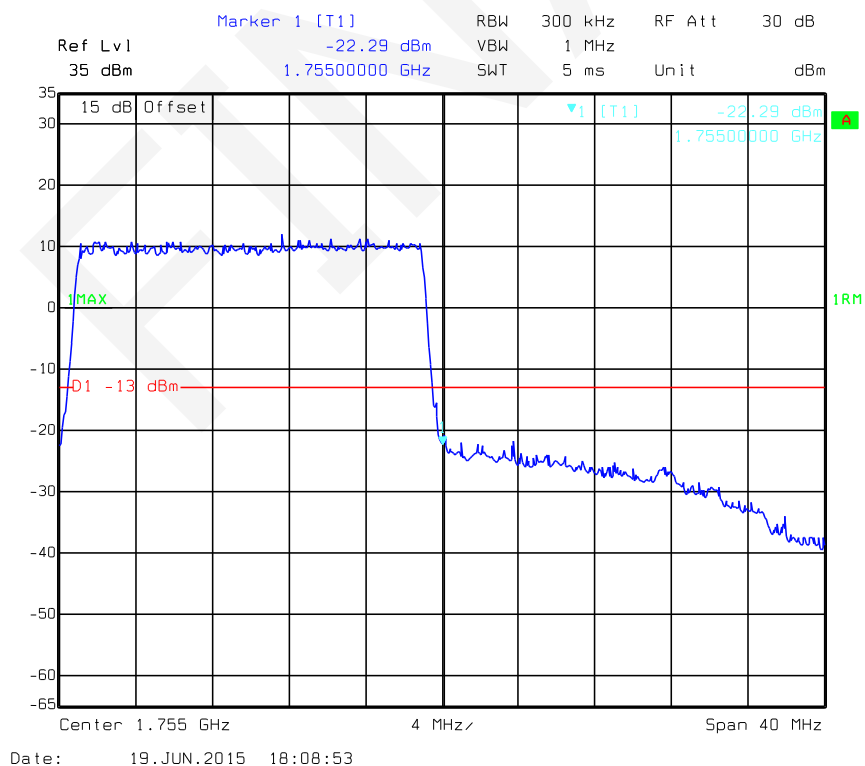
QPSK_10MHz_1RB_Right



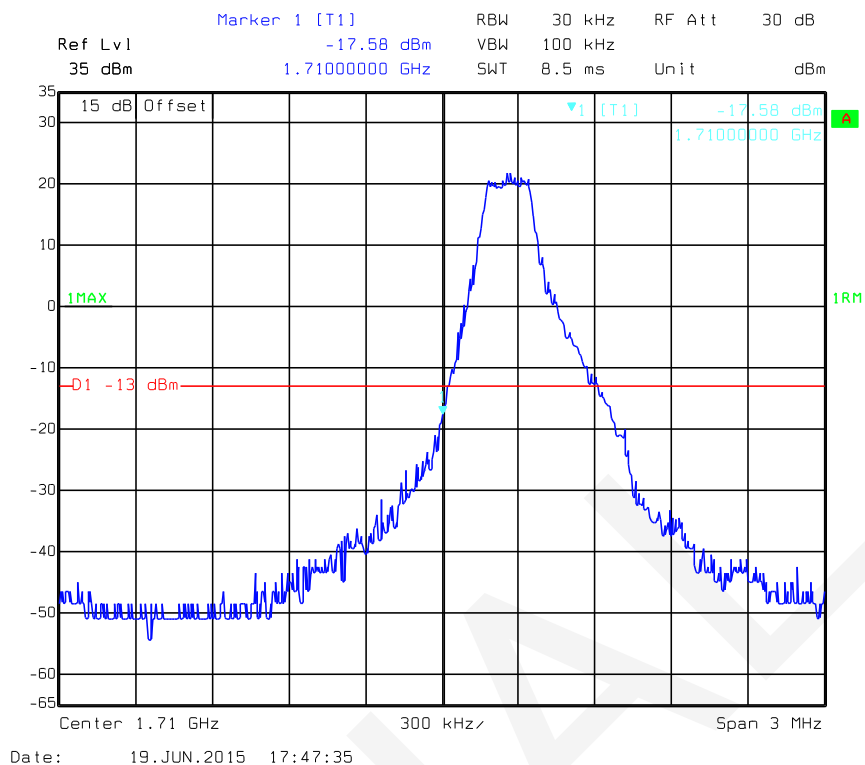
QPSK_20MHz_FULL RB_Left



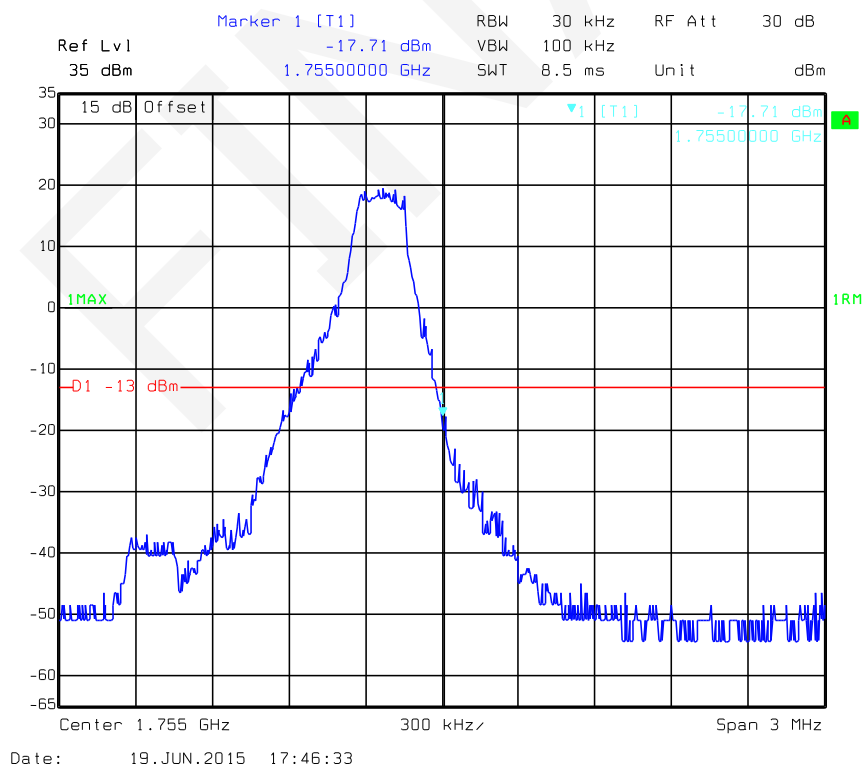
QPSK_20MHz_FULL RB_Right



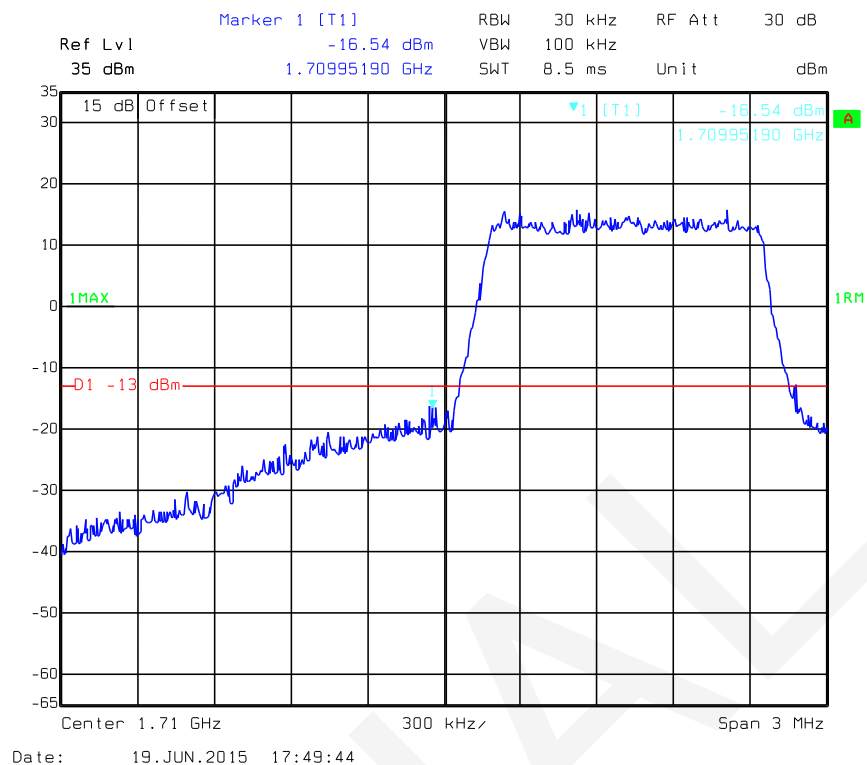
16QAM_1.4MHz_1RB_Left



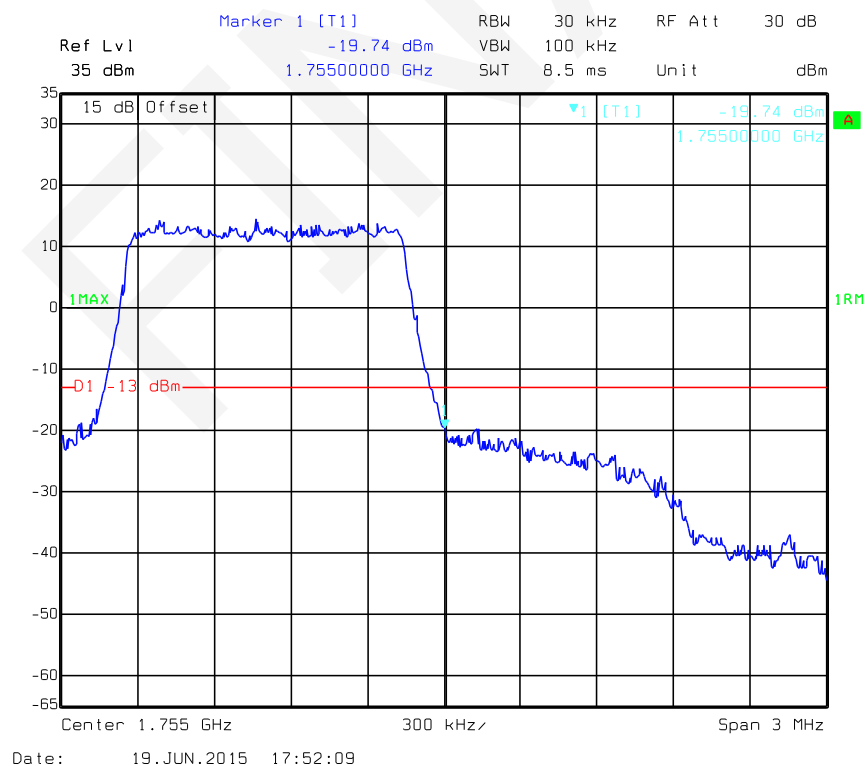
16QAM_1.4MHz_1RB_Right



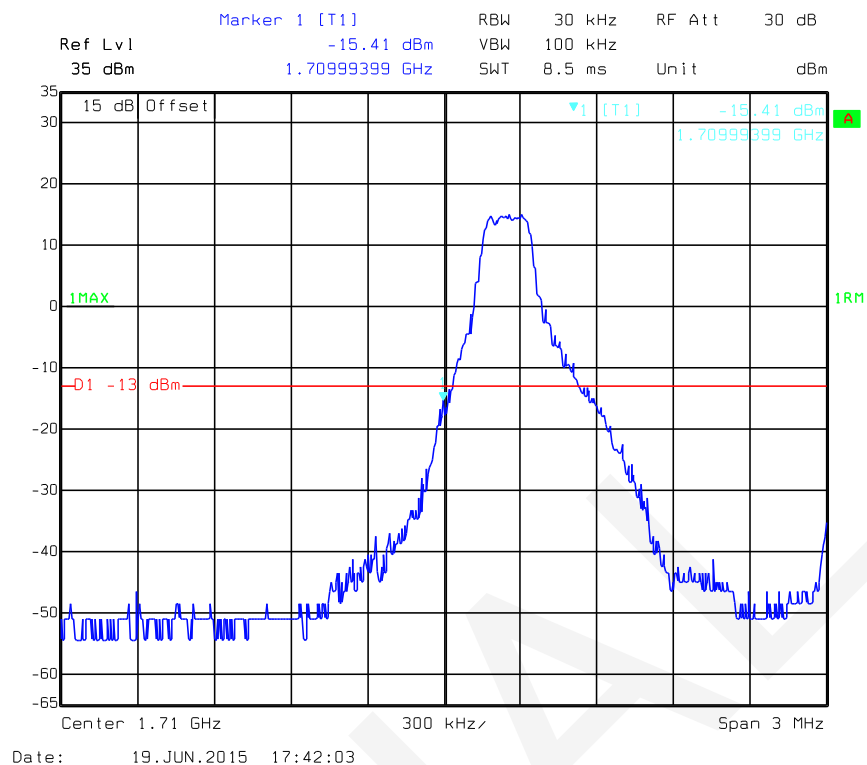
16QAM_1.4MHz_FULL RB_Left



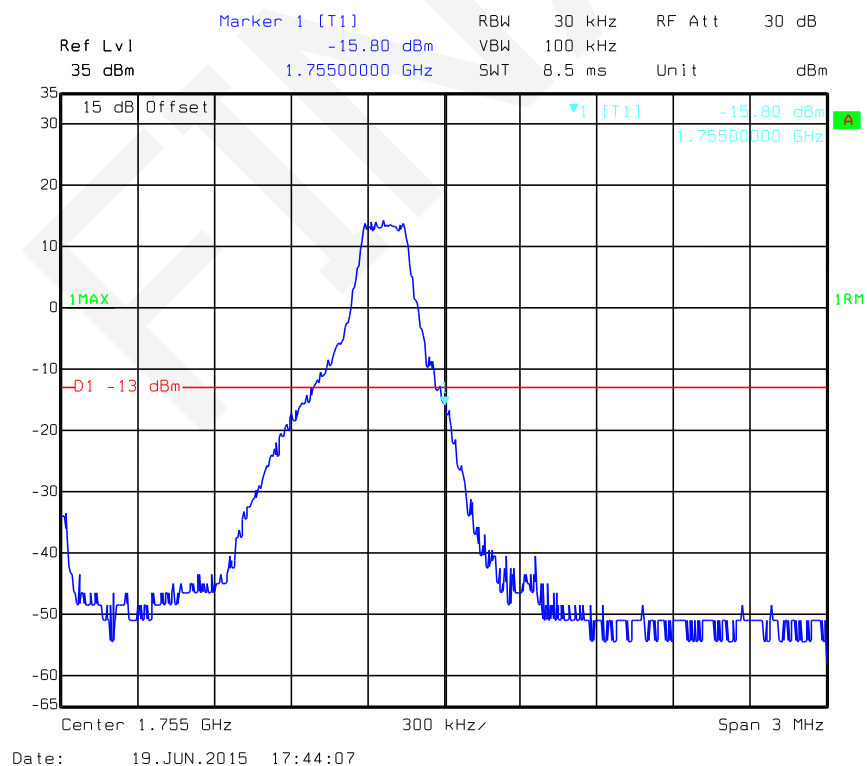
16QAM_1.4MHz_FULL RB_Right



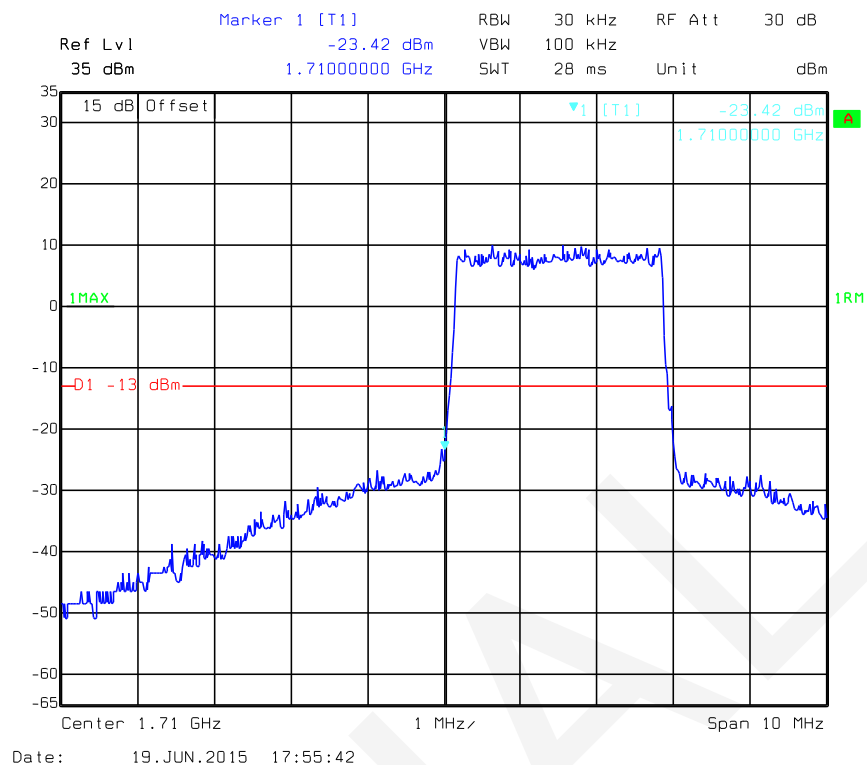
16QAMHz_3MHz_RB_Left



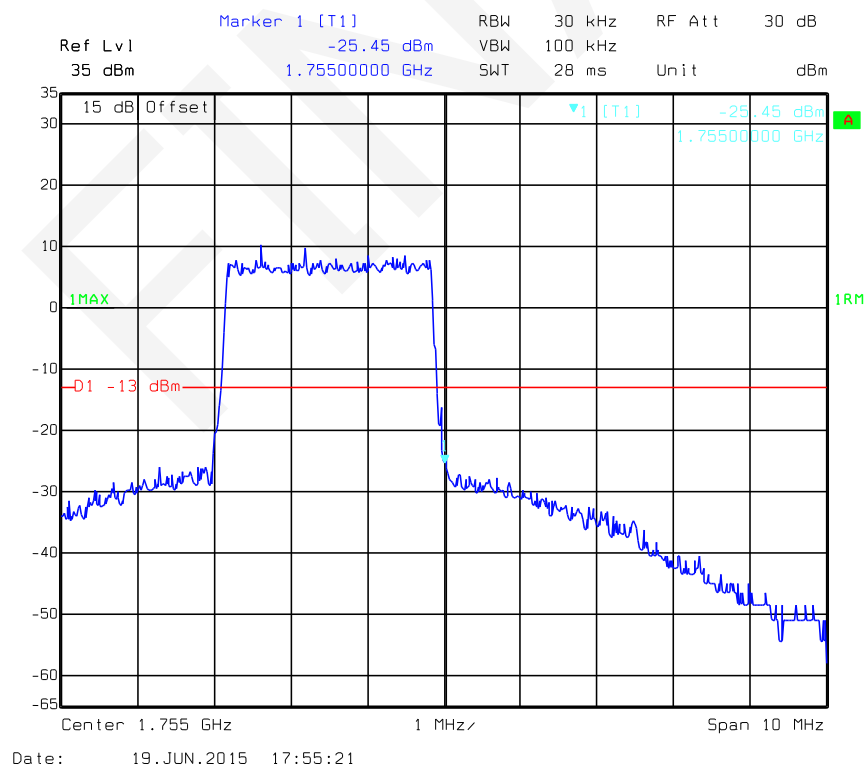
16QAMHz_3MHz_RB_Right



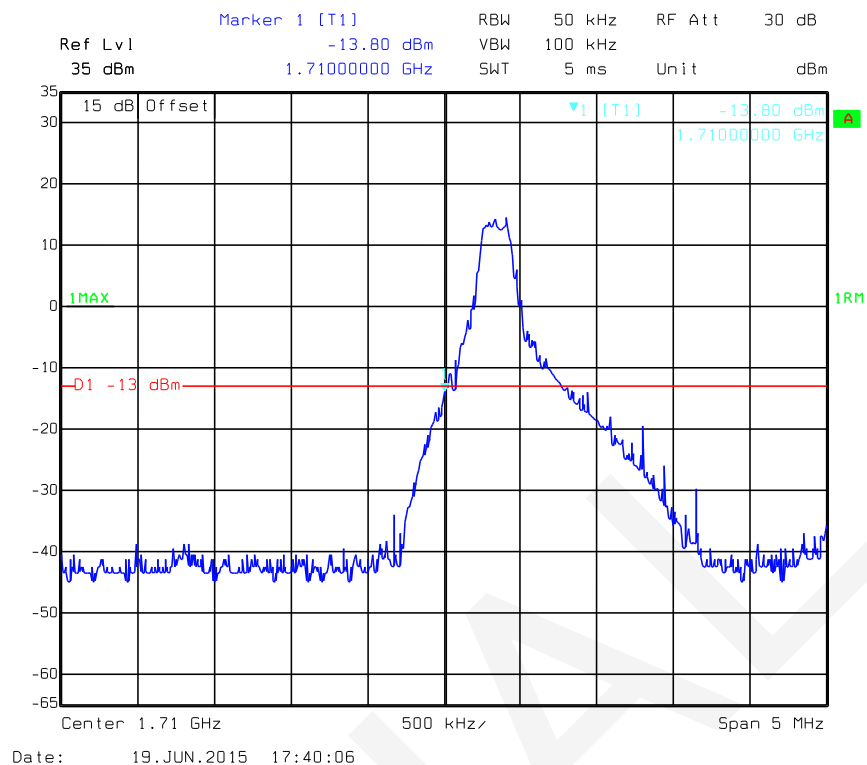
16QAM_3MHz_FULL RB_Left



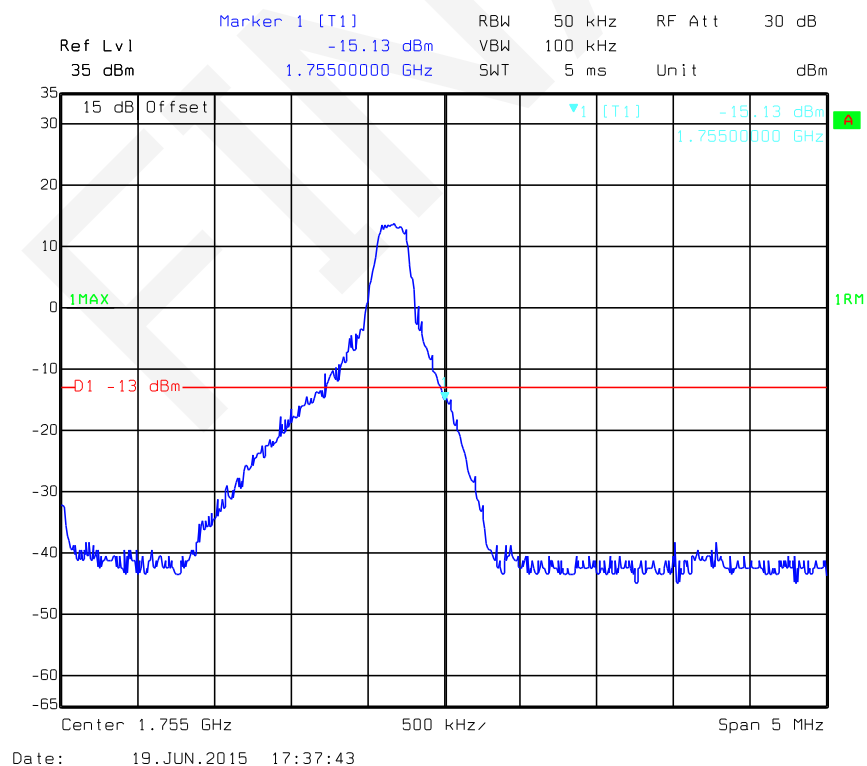
16QAM_3M_FULL RB_Right



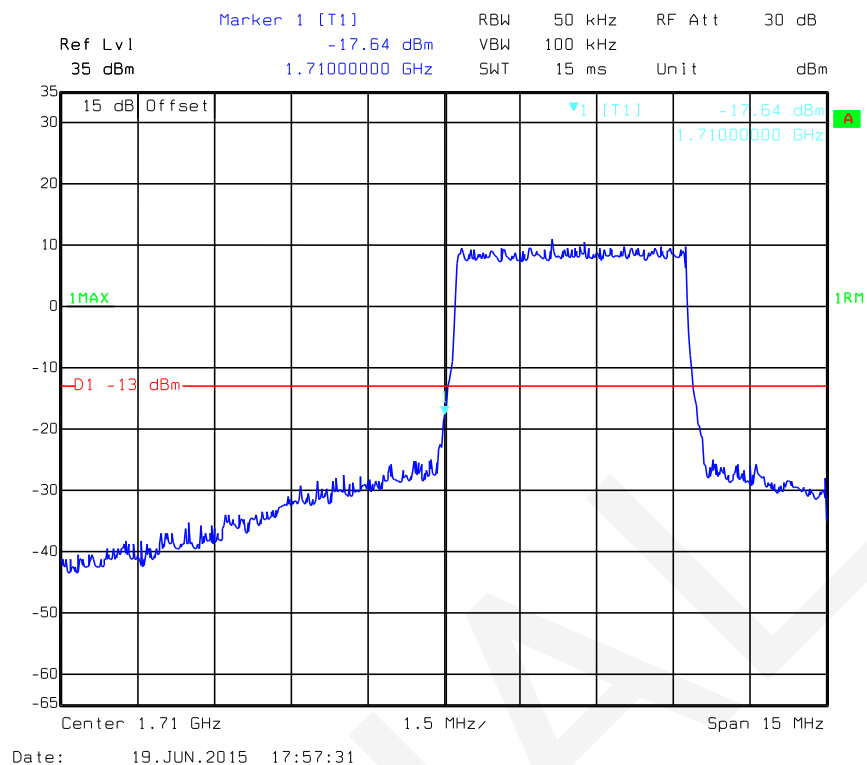
16QAM_5MHz_RB_Left



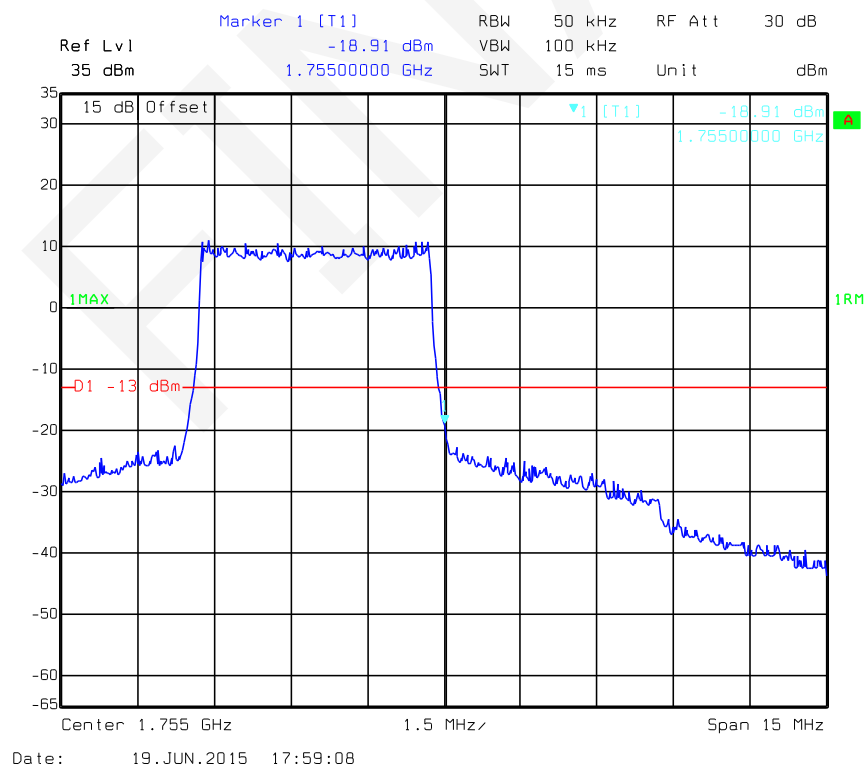
16QAM_5MHz_RB_Right



16QAM_5MHz_FULL RB_Left



16QAM_5MHz_FULL RB_Right



Marker 1 [T1]

Ref Lvl 35 dBm

-15.27 dBm

1.71000000 GHz

RBW 100 kHz

VBW 300 kHz

SWT 5 ms

RF Att 30 dB

Unit dBm

15 dB Offset

1MAX

D1 -13 dBm

1RM

Center 1.71 GHz

500 kHz

Span 5 MHz

Date: 19.JUN.2015 17:33:28

Marker 1 [T1]
 Ref Lvl 35 dBm
 -13.80 dBm
 1.75500000 GHz
 RBW 100 kHz
 VBW 300 kHz
 SWT 5 ms
 RF Att 30 dB
 Unit dBm

15 dB Offset

▼1 [T1] -13.80 dBm
 1.75500000 GHz

1MAX

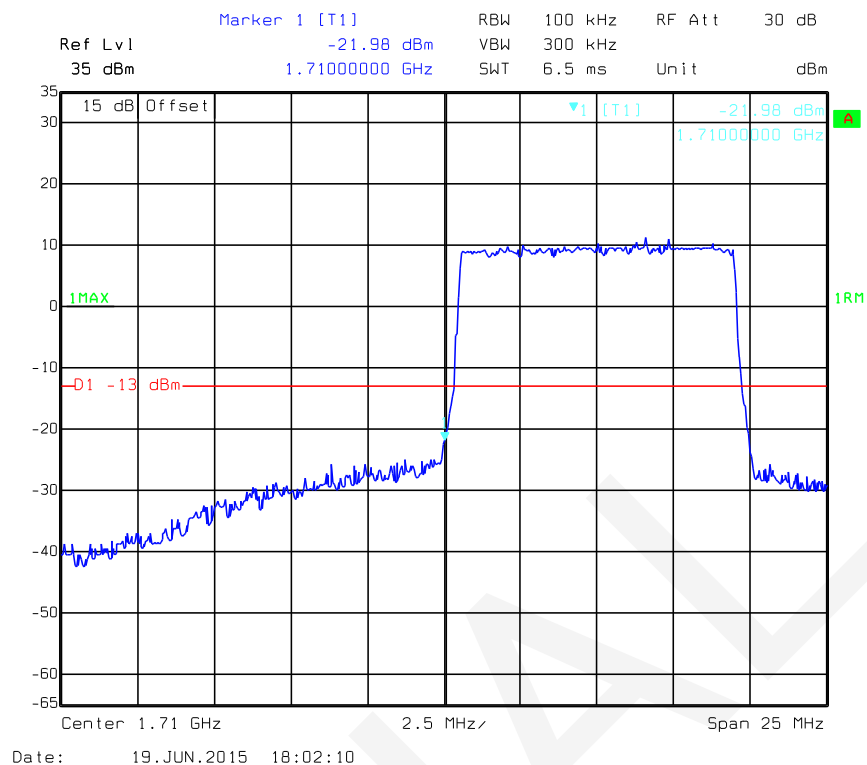
D1 -13.80 dBm

1RM

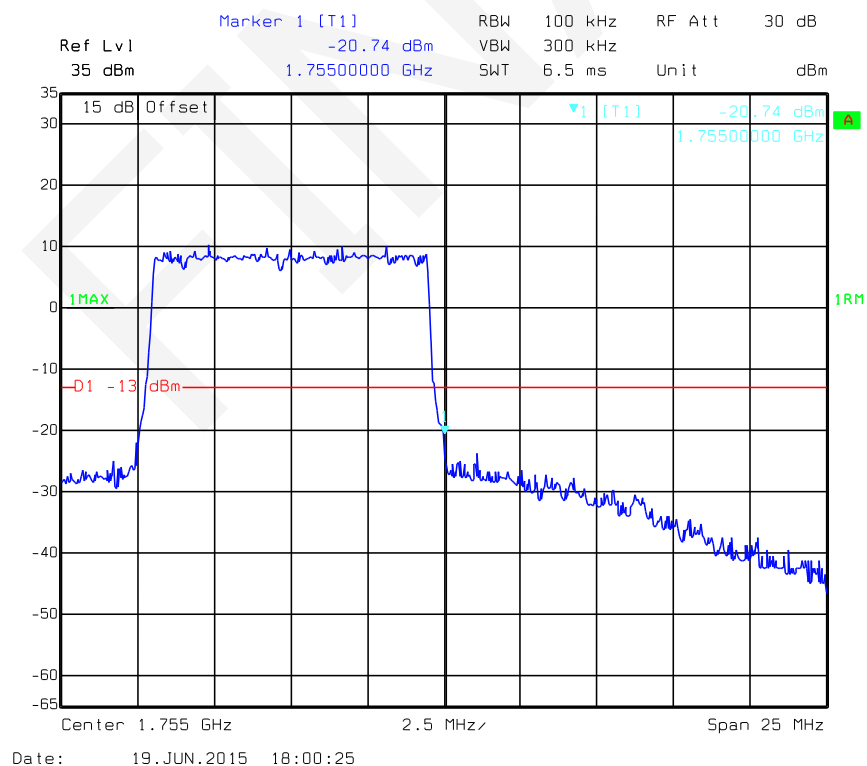
Center 1.755 GHz
 500 kHz
 Span 5 MHz

Date: 19.JUN.2015 17:35:37

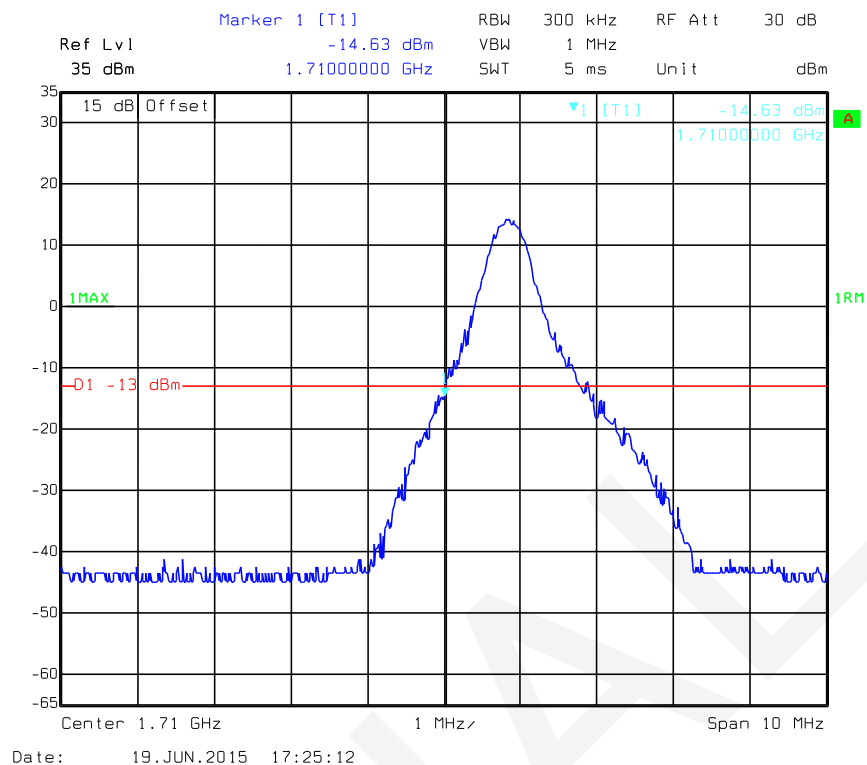
16QAM_10MHz_FULL RB_Left



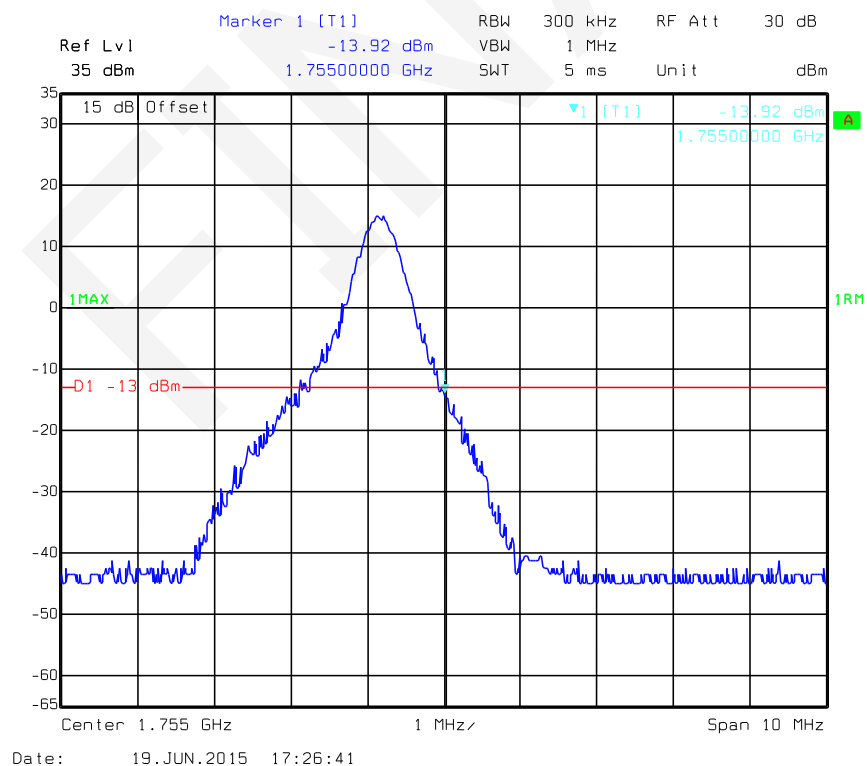
16QAM_10MHz_FULL RB_Right



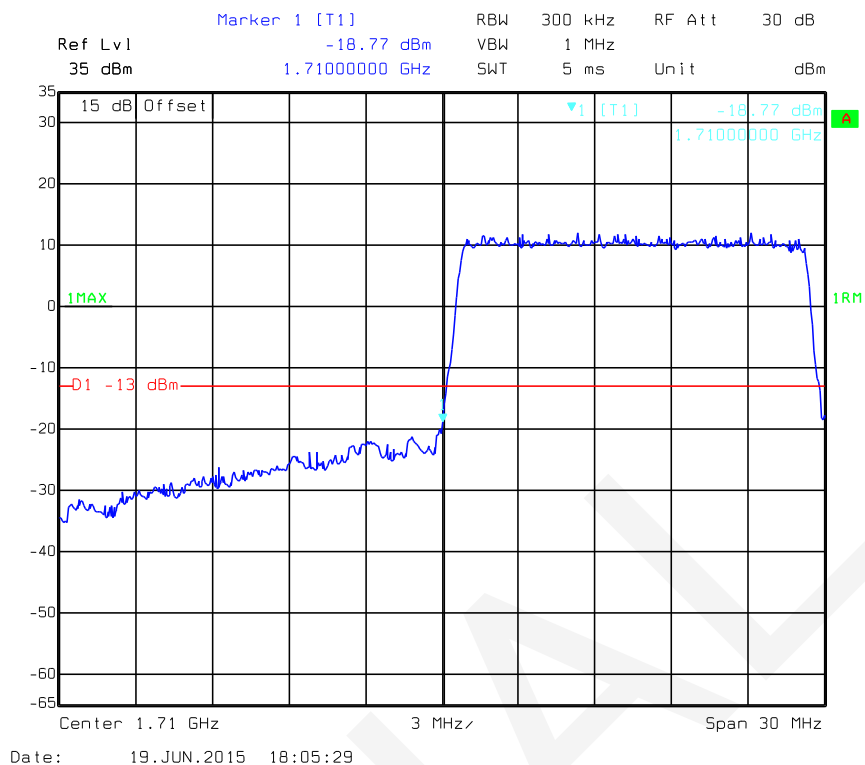
16QAM_15MHz_RB_Left



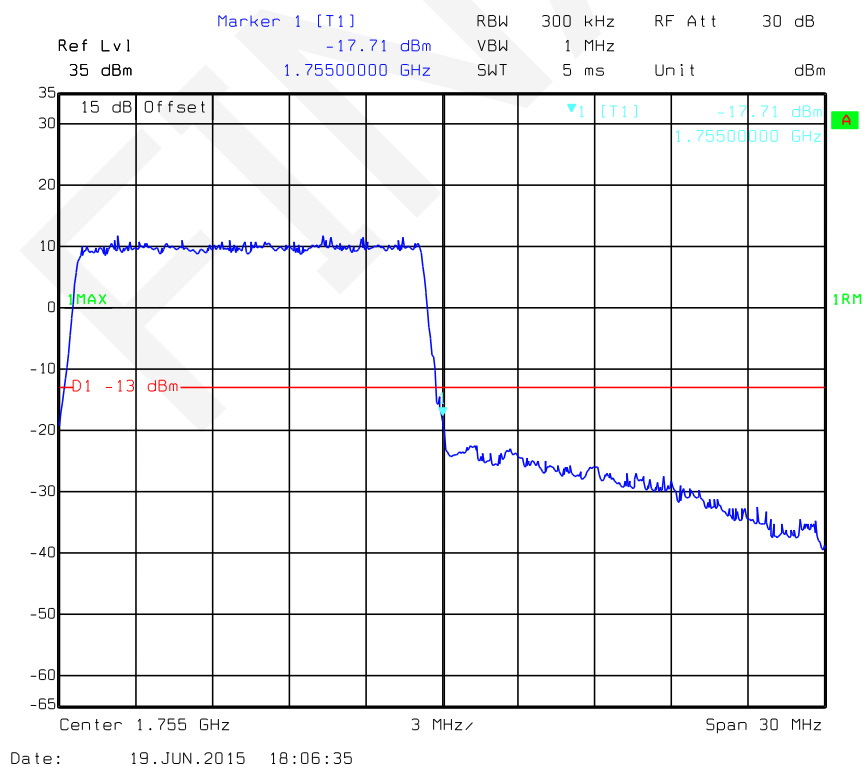
16QAM_15MHz_RB_Right



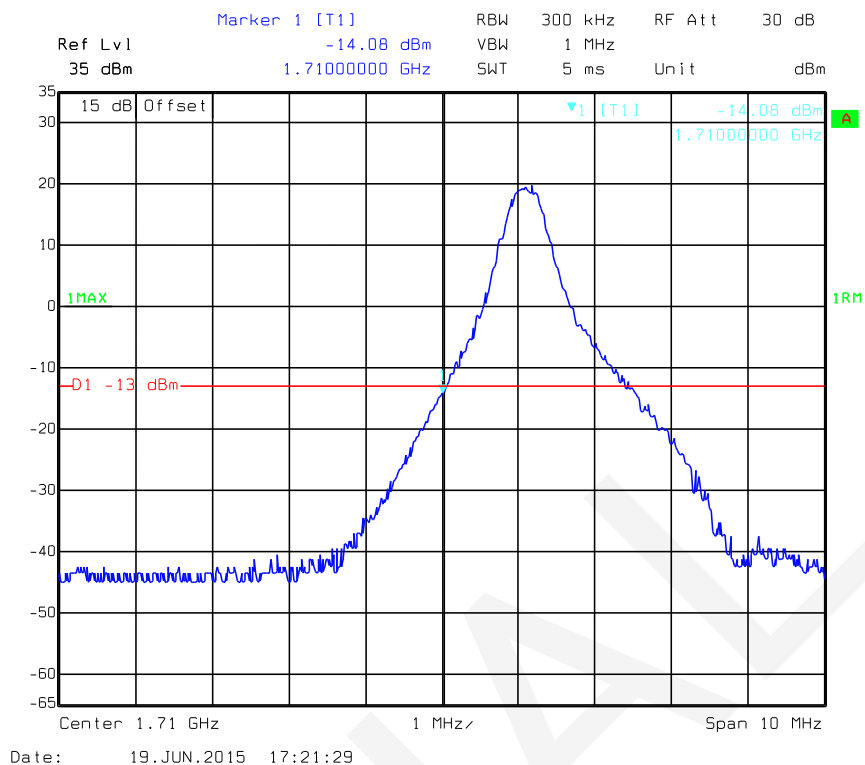
16QAM_15MHz_FULL RB_Left



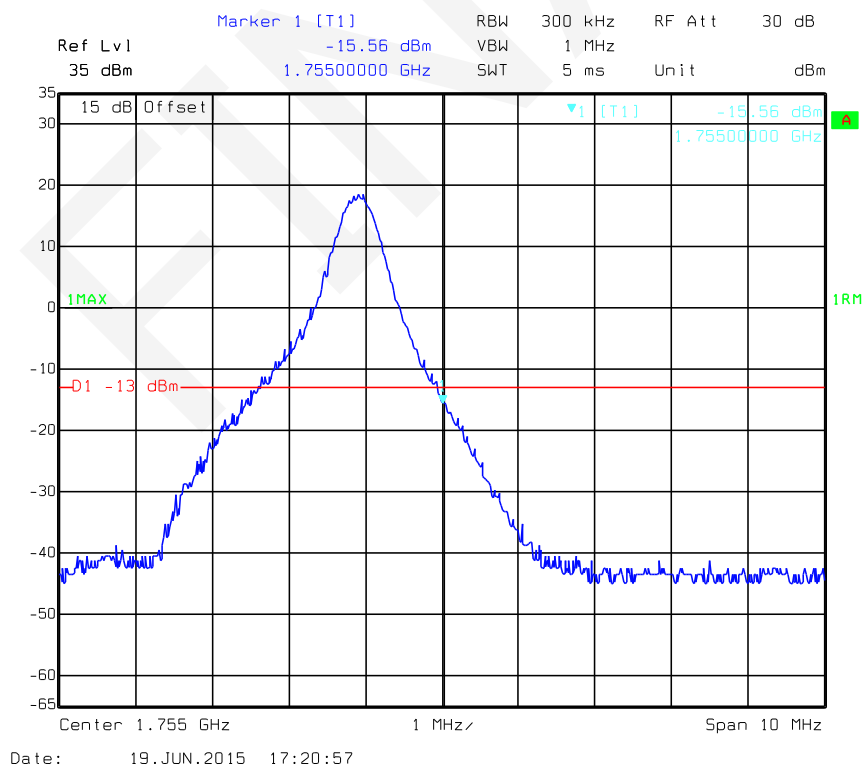
16QAM_15MHz_FULL RB_Right



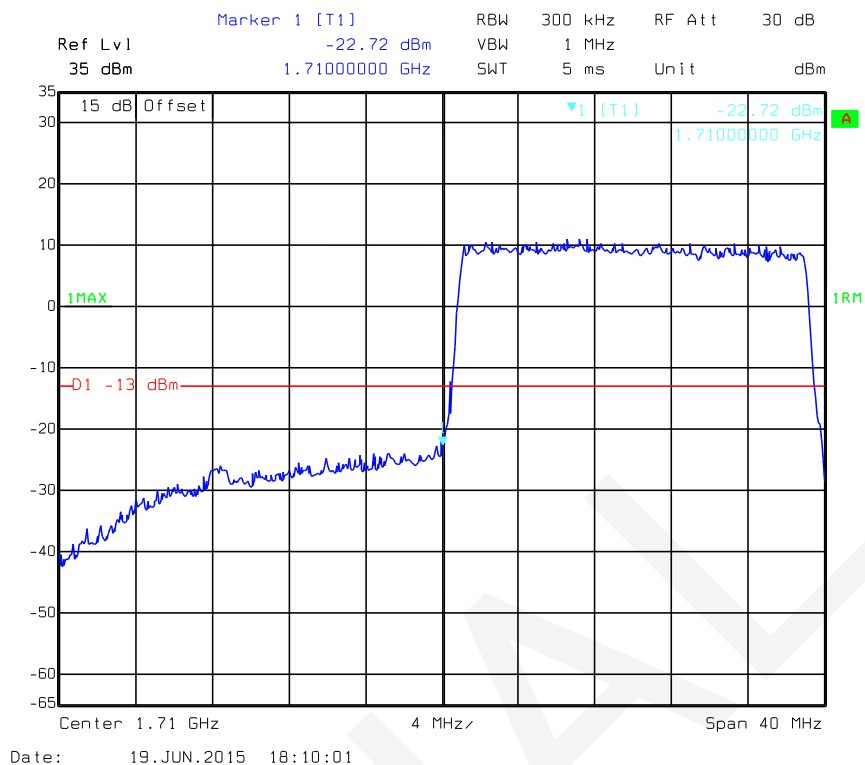
16QAM_20MHz_RB_Left



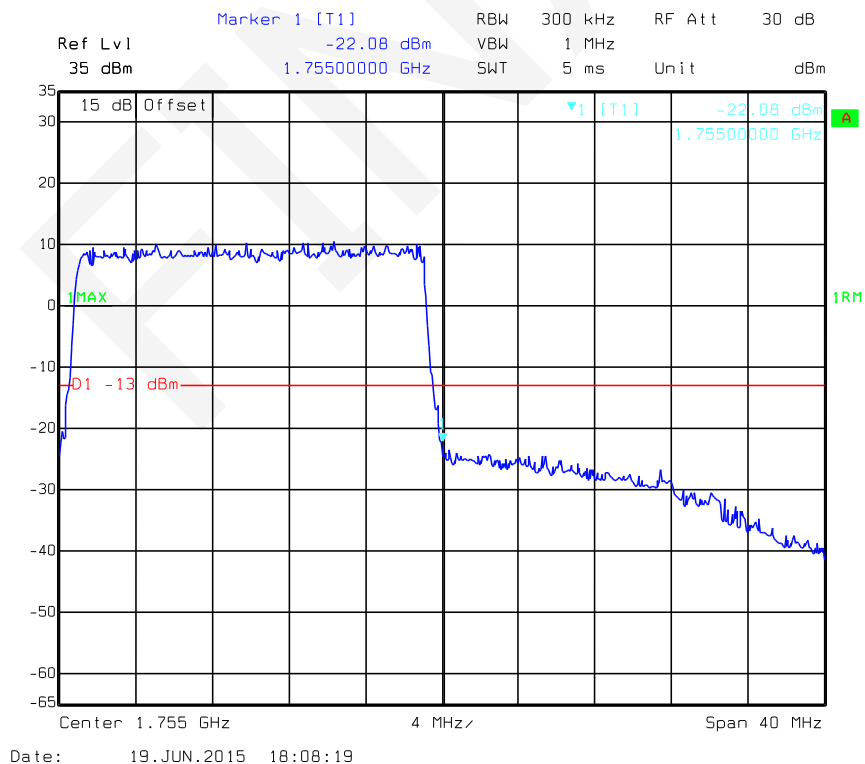
16QAM_20M_RB_Right



16QAM_20MHz_FULL RB_Left

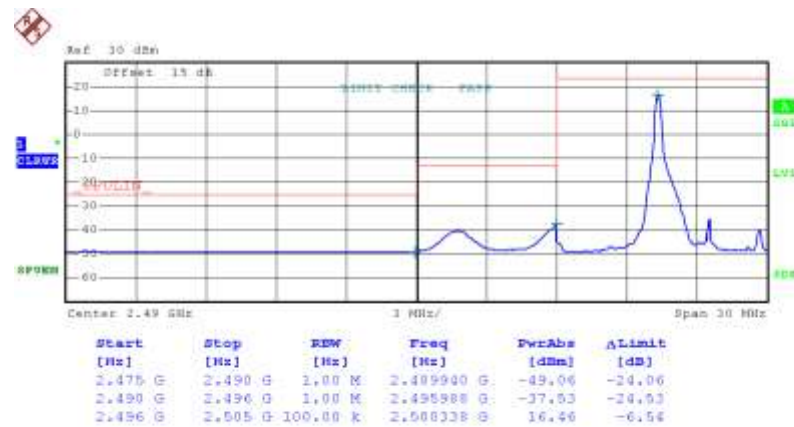


16QAM_20MHz_FULL RB_Right



LTE Band 7 (PART 27)

QPSK_5MHz_1RB_Left



Date: 26.JUN.2015 18:43:44

QPSK_5MHz_1RB_Right



Date: 26.JUN.2015 19:34:49

QPSK_5MHz_FULL RB_Left



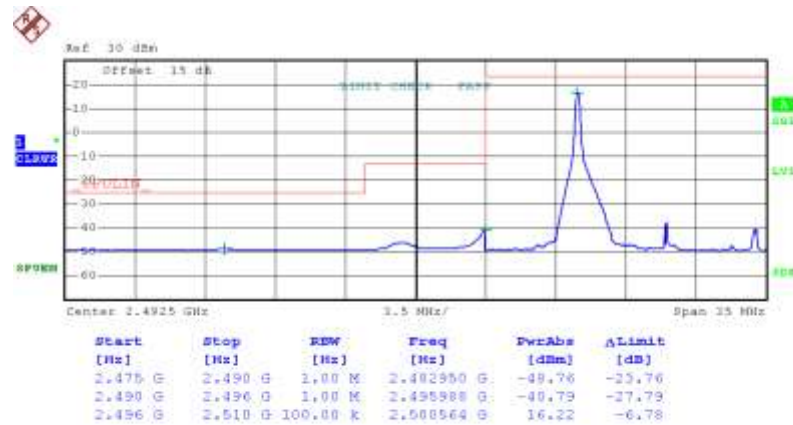
Date: 26.JUN.2015 18:44:21

QPSK_5MHz_FULL RB_Right



Date: 26.JUN.2015 19:33:17

QPSK_10MHz_1RB_Left



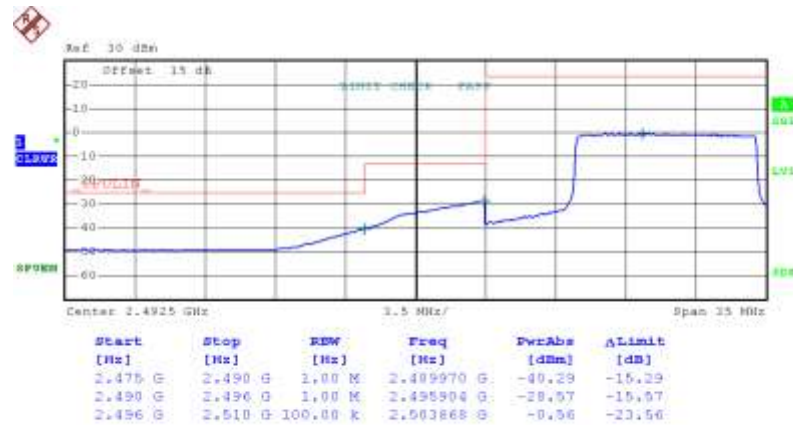
Date: 26.JUN.2015 18:40:58

QPSK_10MHz_1RB_Right



Date: 26.JUN.2015 19:30:06

QPSK_10MHz_FULL RB_Left



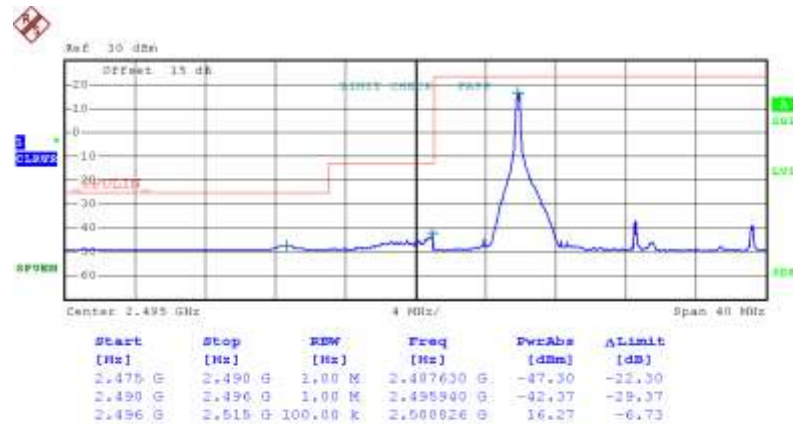
Date: 26.JUN.2015 18:40:32

QPSK_10MHz_FULL RB_Right



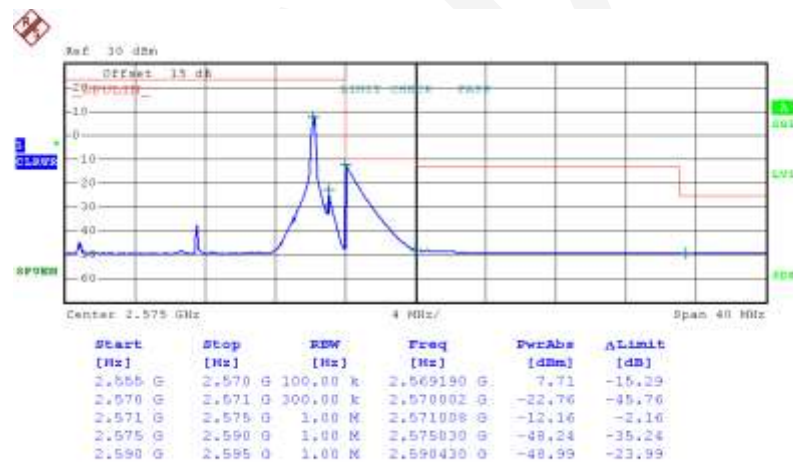
Date: 26.JUN.2015 19:28:50

QPSK_15MHz_1RB_Left



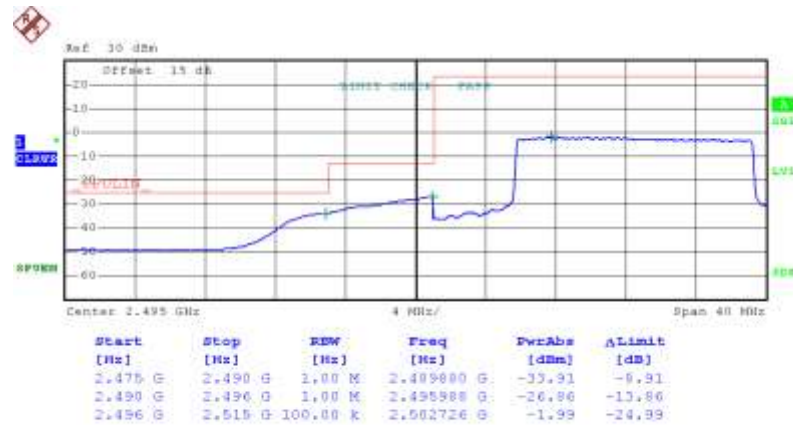
Date: 26.JUN.2015 18:50:17

QPSK_15MHz_1RB_Right



Date: 26.JUN.2015 19:15:03

QPSK_15MHz_FULL RB_Left



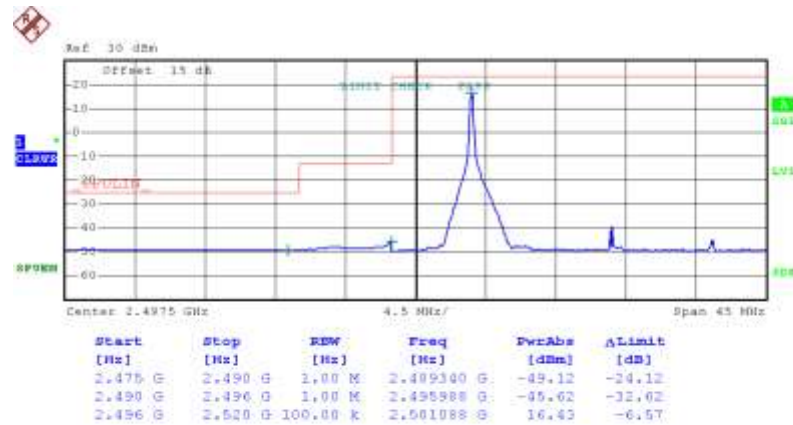
Date: 26.JUN.2015 18:48:37

QPSK_15MHz_FULL RB_Right



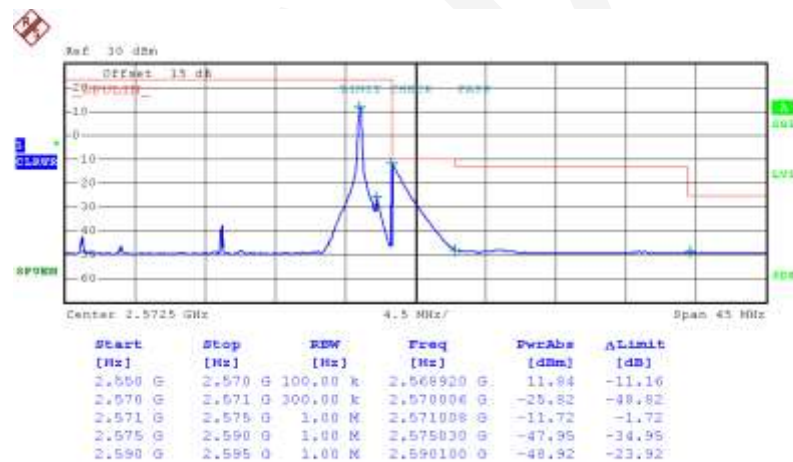
Date: 26.JUN.2015 19:21:06

QPSK_20MHz_1RB_Left



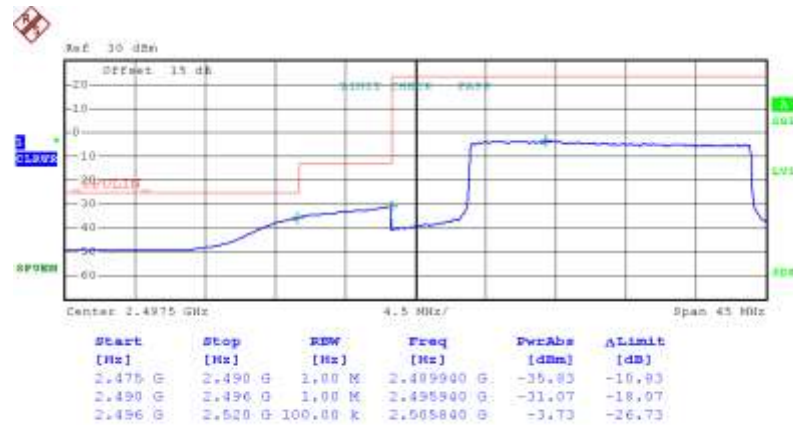
Date: 26.JUN.2015 18:52:24

QPSK_10MHz_1RB_Right



Date: 26.JUN.2015 19:10:31

QPSK_20MHz_FULL RB_Left



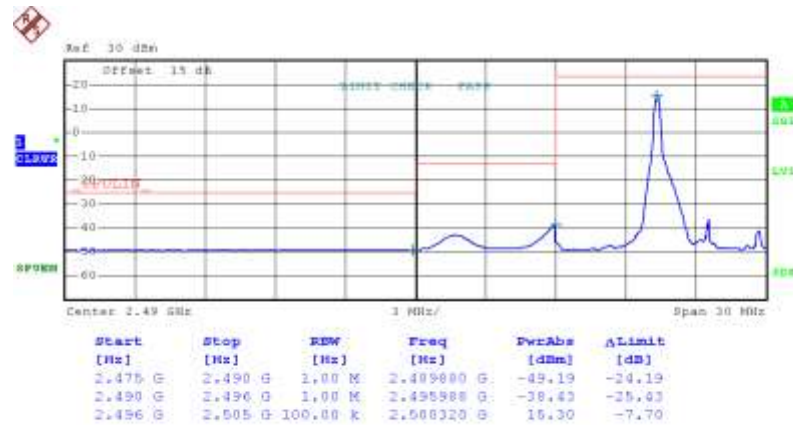
Date: 26.JUN.2015 18:53:32

QPSK_20MHz_FULL RB_Right



Date: 26.JUN.2015 19:04:16

16QAM_5MHz_RB_Left



Date: 26.JUN.2015 18:43:26

16QAM_5MHz_RB_Right



Date: 26.JUN.2015 19:35:14

16QAM_5MHz_FULL RB_Left



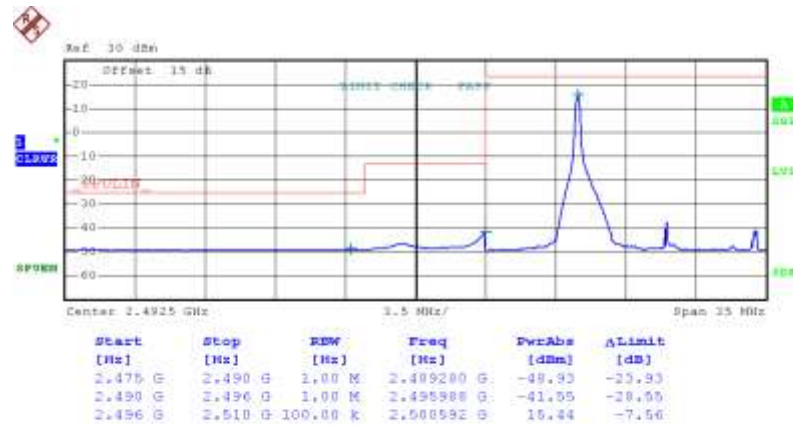
Date: 26.JUN.2015 18:44:43

16QAM_5MHz_FULL RB_Right



Date: 26.JUN.2015 19:32:56

16QAM_10MHz_RB_Left



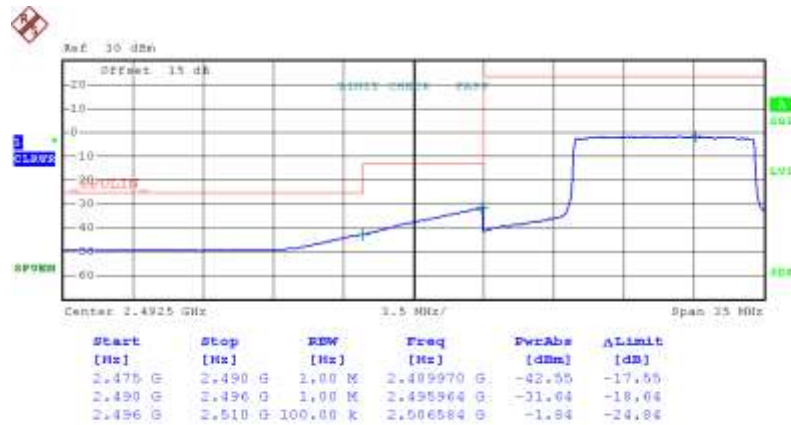
Date: 26.JUN.2015 18:41:22

16QAM_10MHz_RB_Right



Date: 26.JUN.2015 19:30:29

16QAM_10MHz_FULL RB_Left



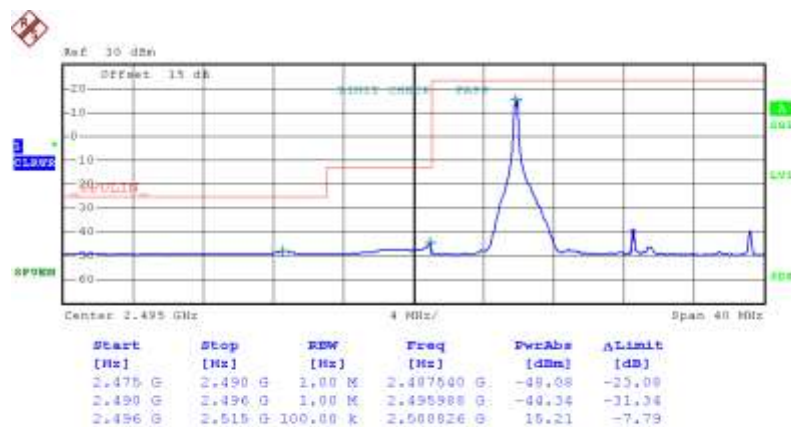
Date: 26.JUN.2015 18:40:08

16QAM_10MHz_FULL RB_Right



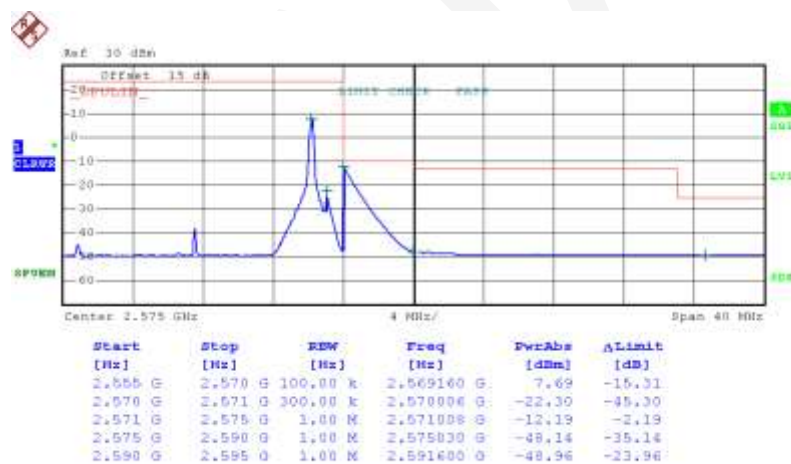
Date: 26.JUN.2015 19:28:31

16QAM_15MHz_RB_Left



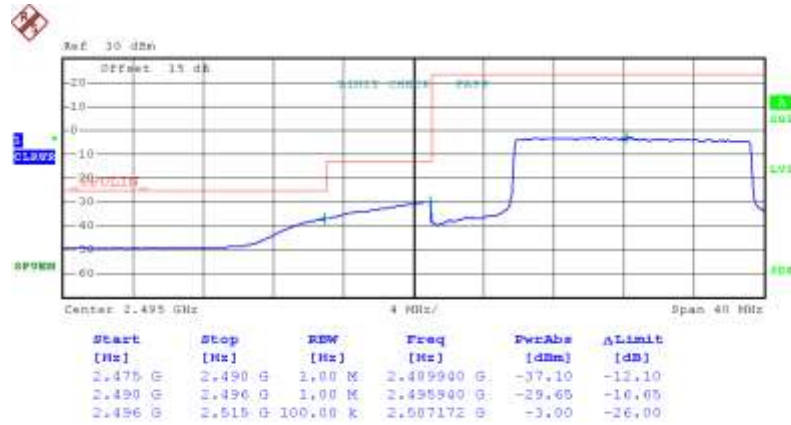
Date: 26.JUN.2015 18:49:54

16QAM_15MHz_RB_Right



Date: 26.JUN.2015 19:15:43

16QAM_15MHz_FULL RB_Left



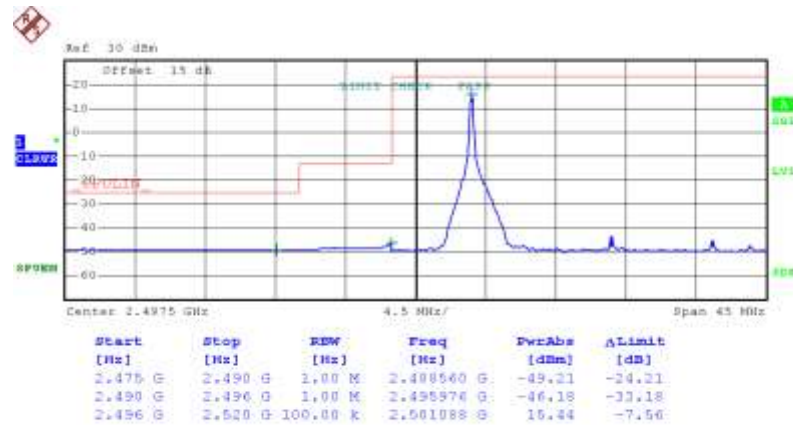
Date: 26.JUN.2015 18:49:04

16QAM_15MHz_FULL RB_Right



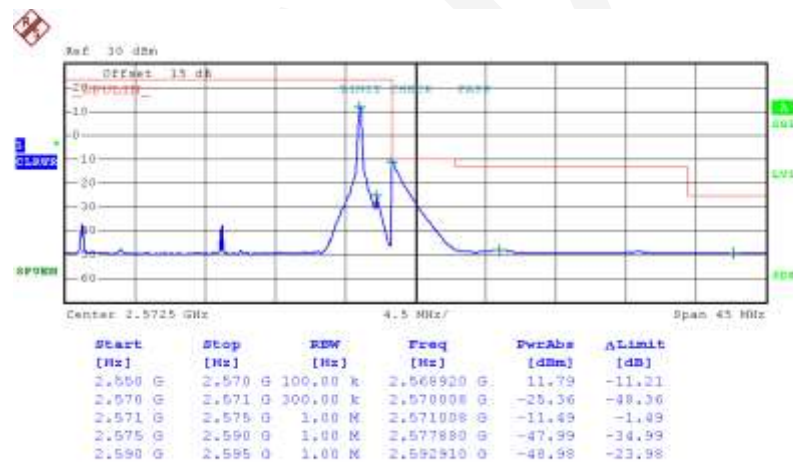
Date: 26.JUN.2015 19:21:20

16QAM_20MHz_RB_Left



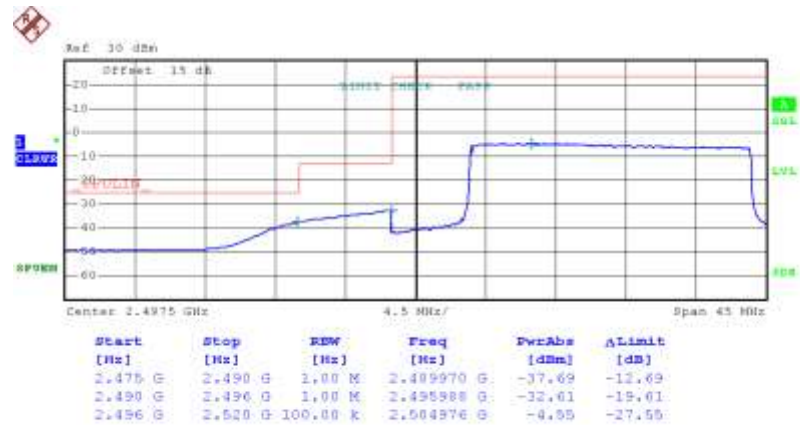
Date: 26.JUN.2015 18:52:45

16QAM_20M_RB_Right



Date: 26.JUN.2015 19:10:05

16QAM_20MHz_FULL RB_Left



Date: 26.JUN.2015 18:53:14

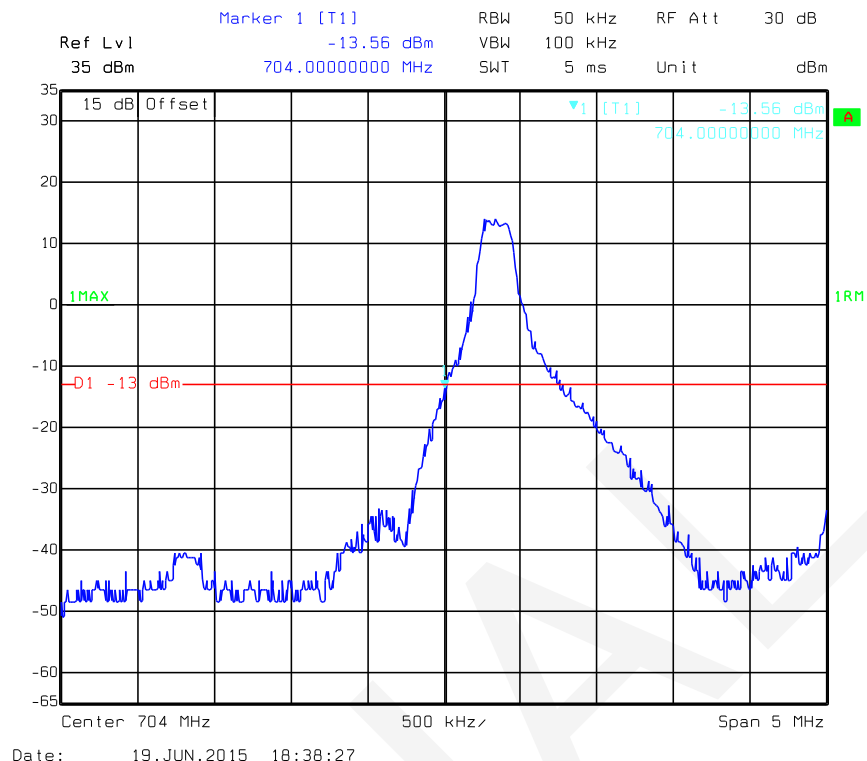
16QAM_20MHz_FULL RB_Right



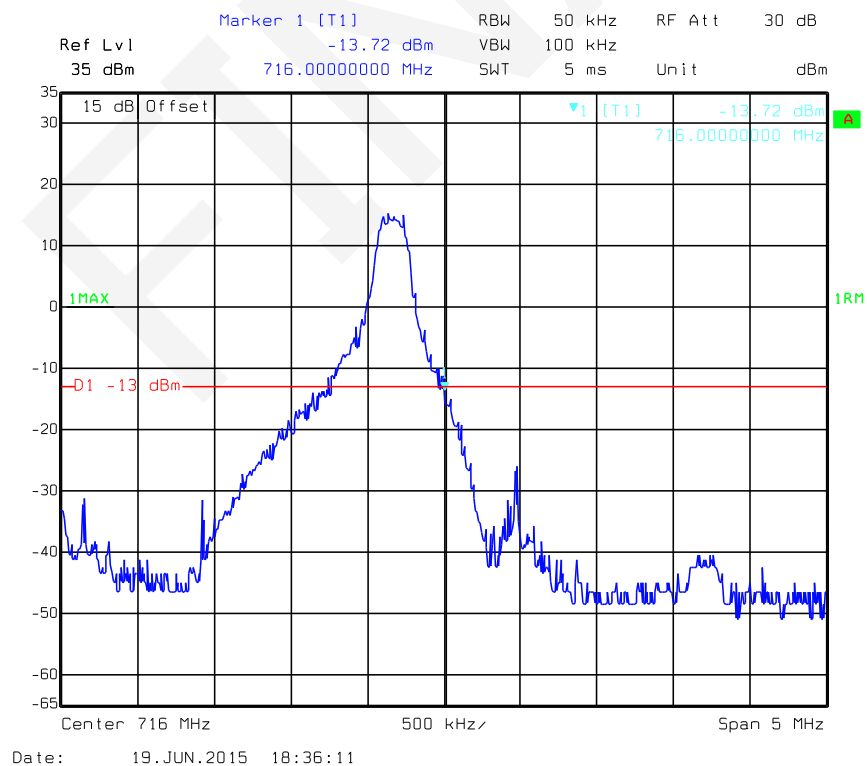
Date: 26.JUN.2015 19:07:40

LTE Band 17(PART 27)

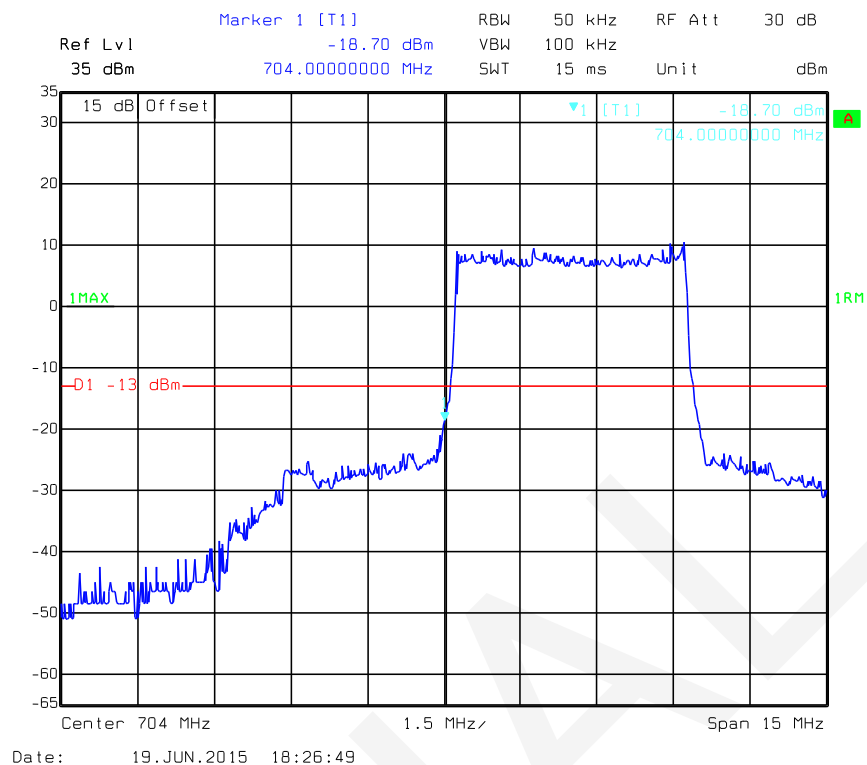
QPSK_5MHz_1RB_Left



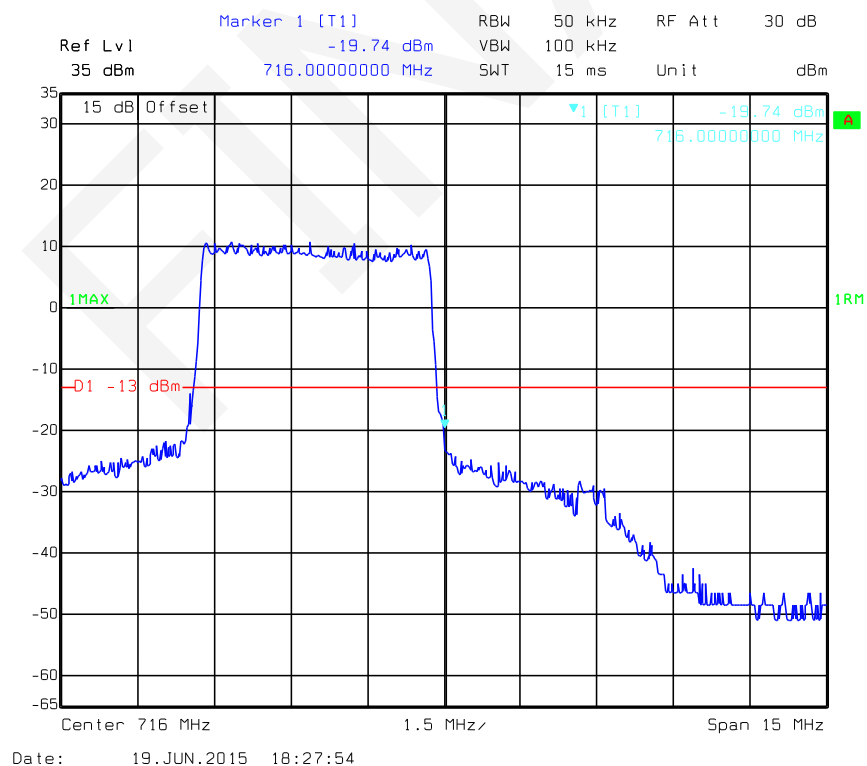
QPSK_5MHz_1RB_Right



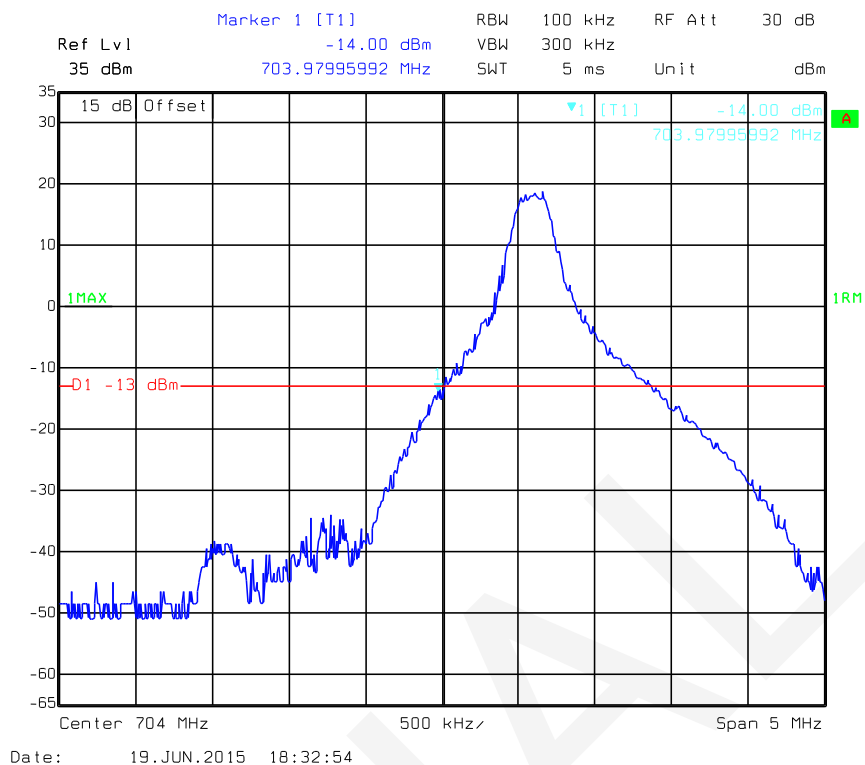
QPSK_5MHz_FULL RB_Left



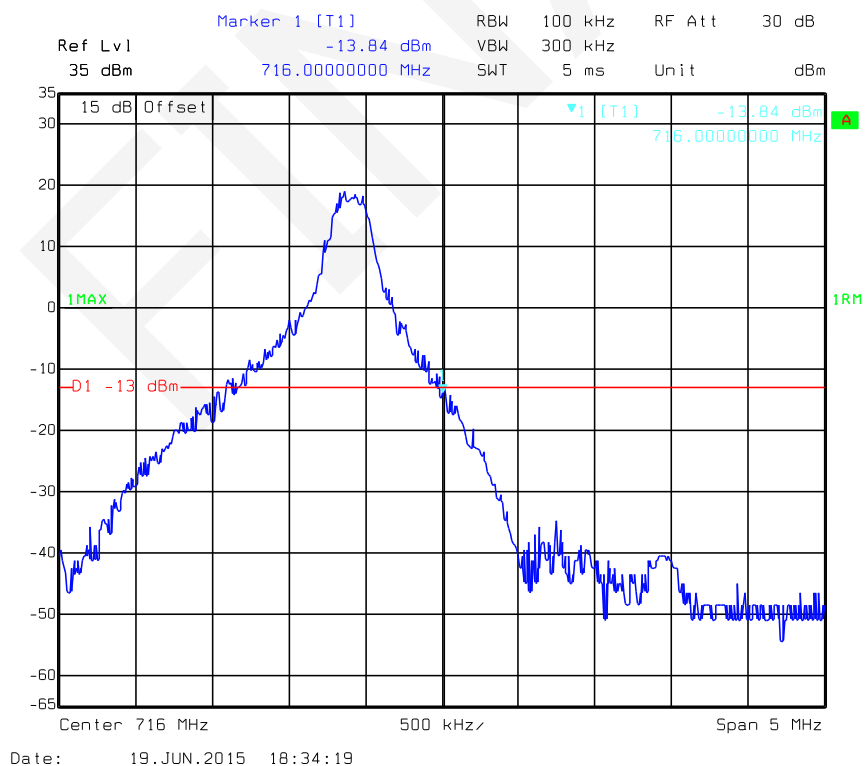
QPSK_5MHz_FULL RB_Right



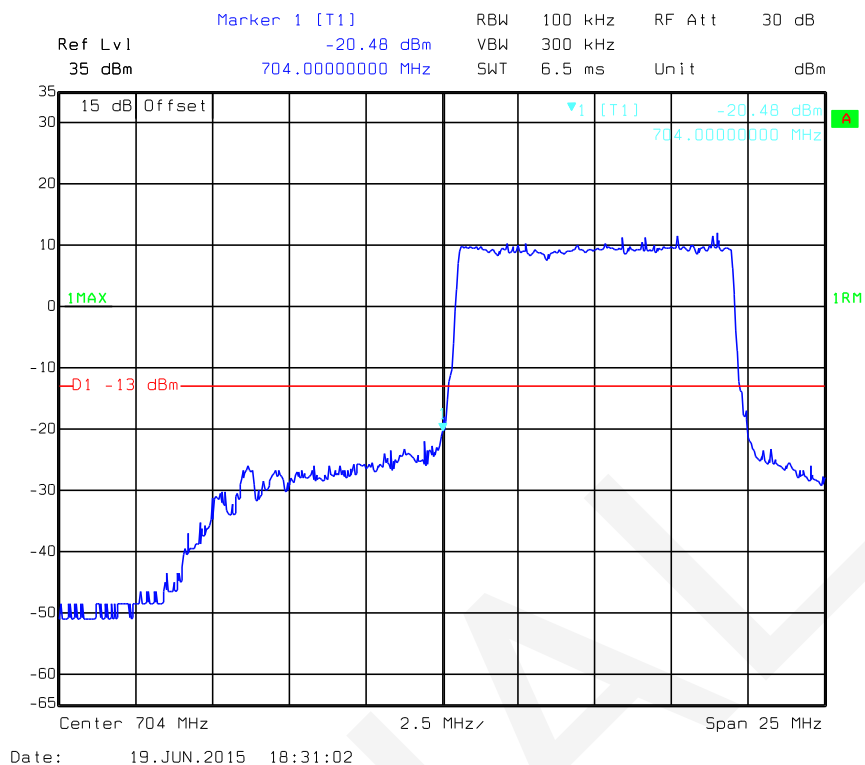
QPSK_10MHz_1RB_Left



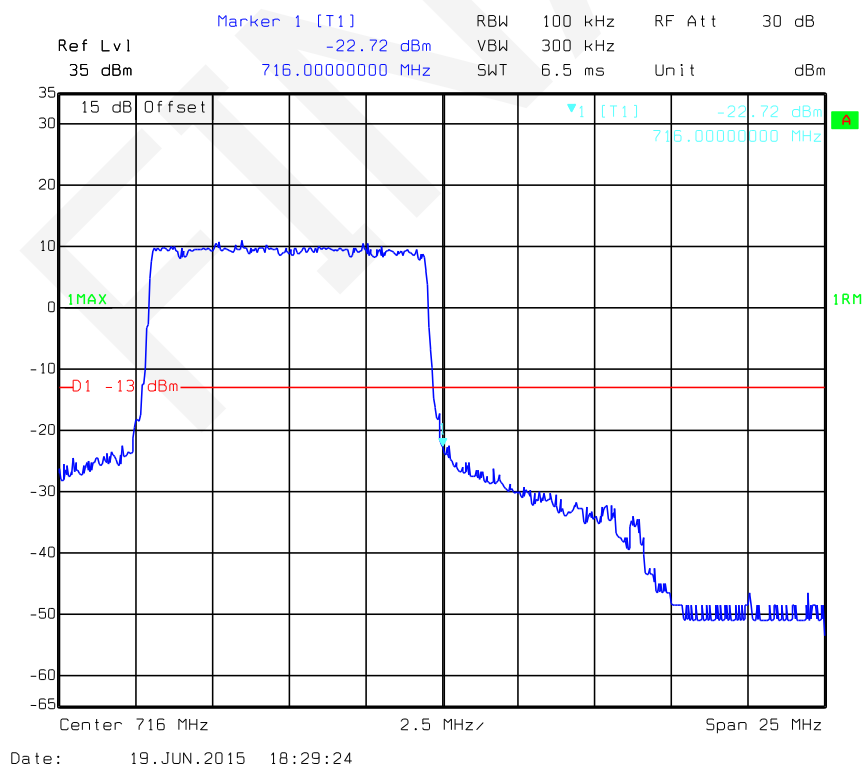
QPSK_10MHz_1RB_Right



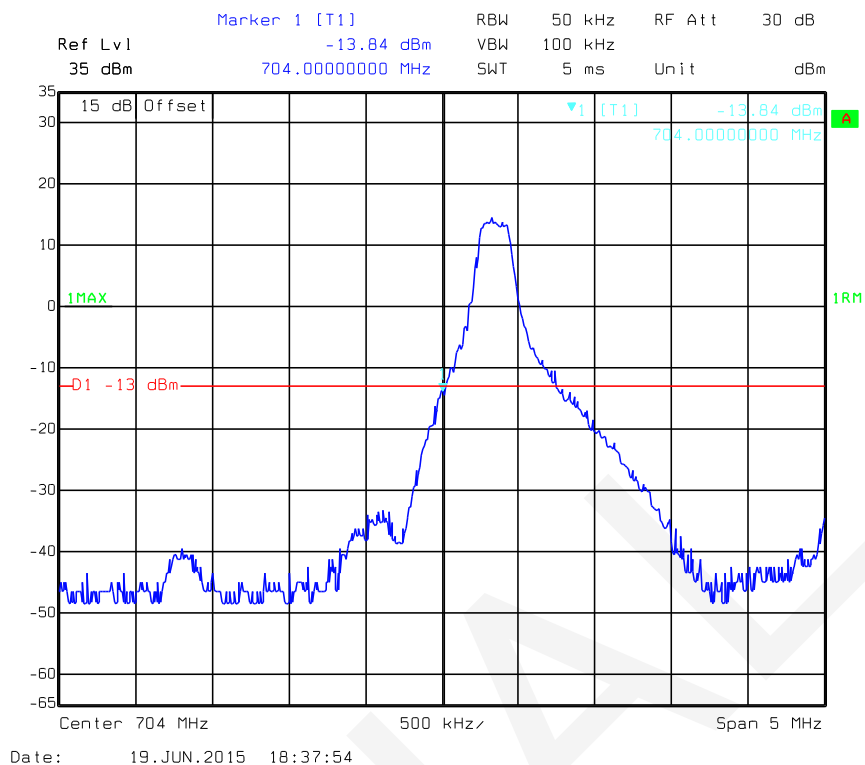
QPSK_10MHz_FULL RB_Left



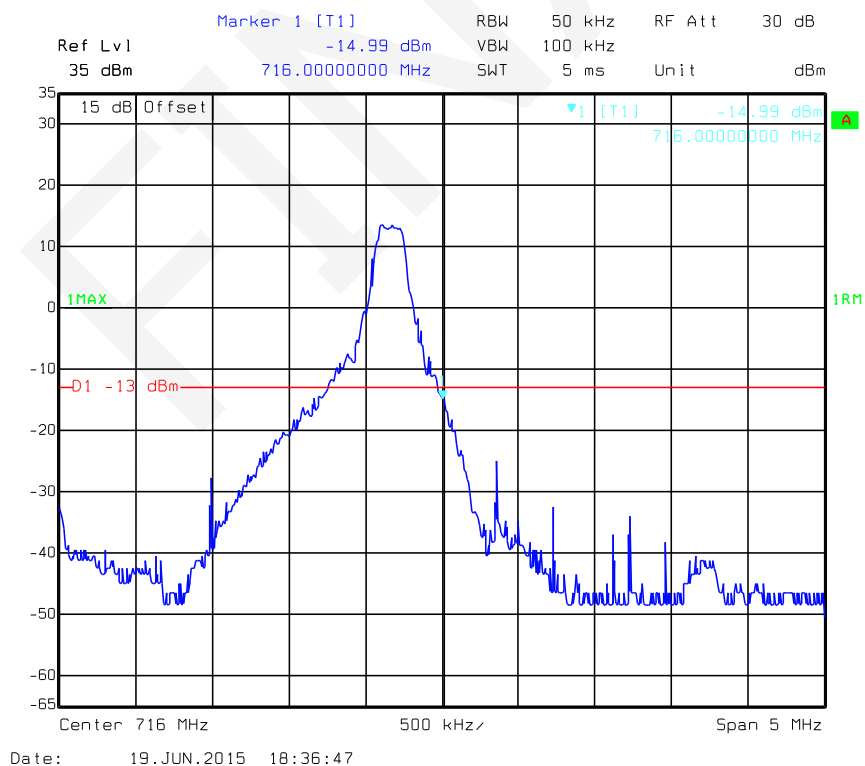
QPSK_10MHz_FULL RB_Right



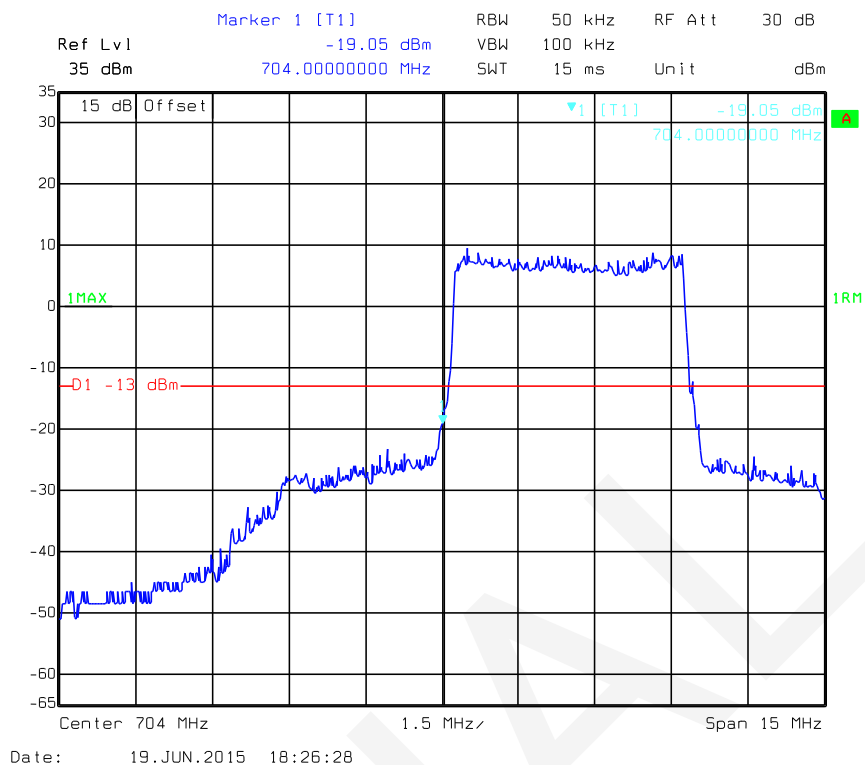
16QAM_5MHz_RB_Left



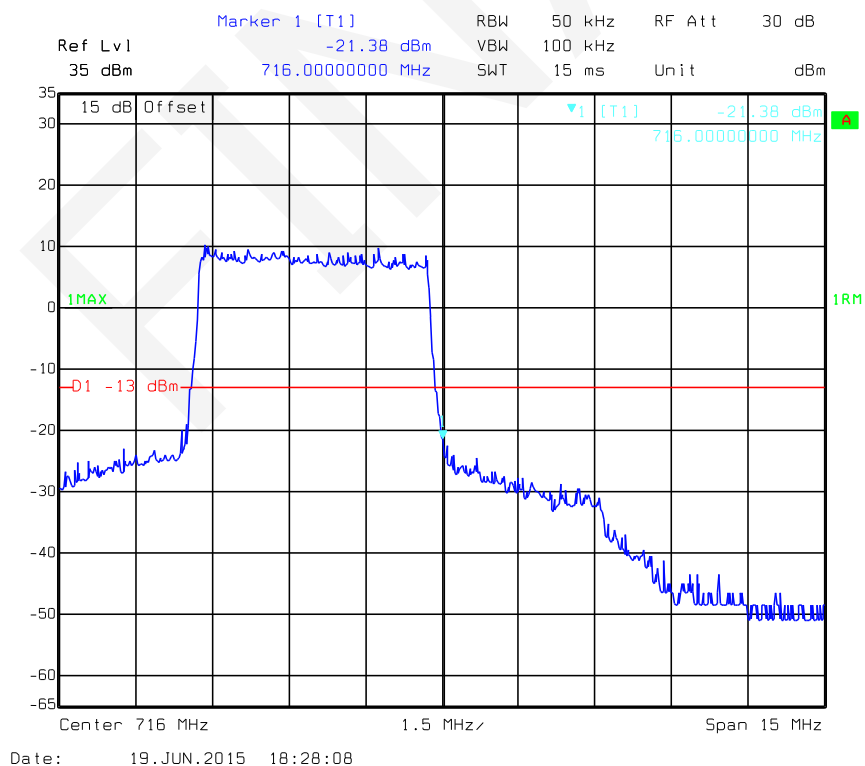
16QAM_5MHz_RB_Right



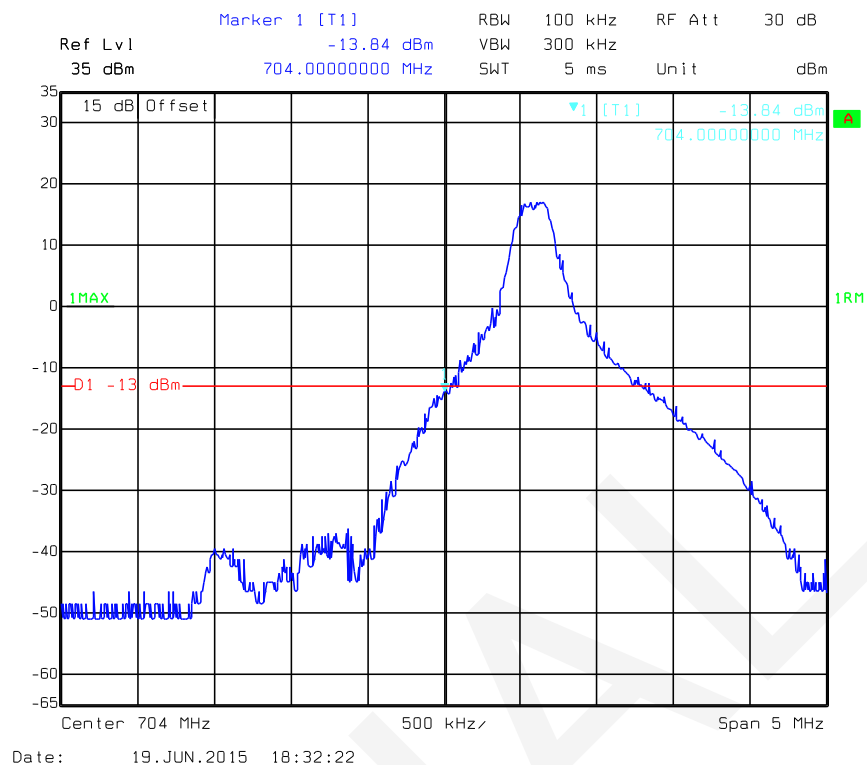
16QAM_5MHz_FULL RB_Left



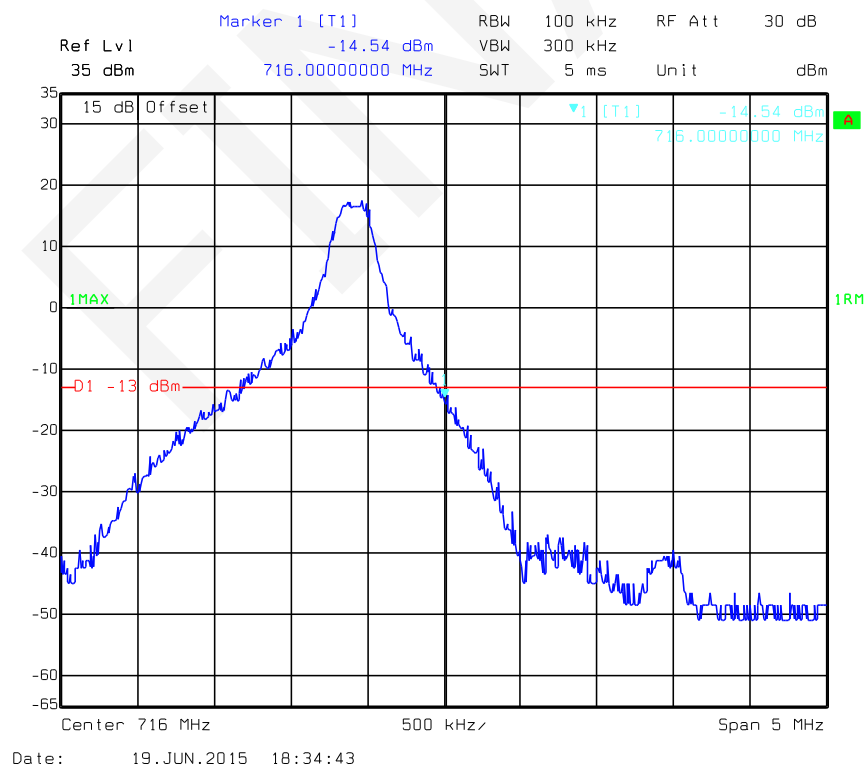
16QAM_5MHz_FULL RB_Right



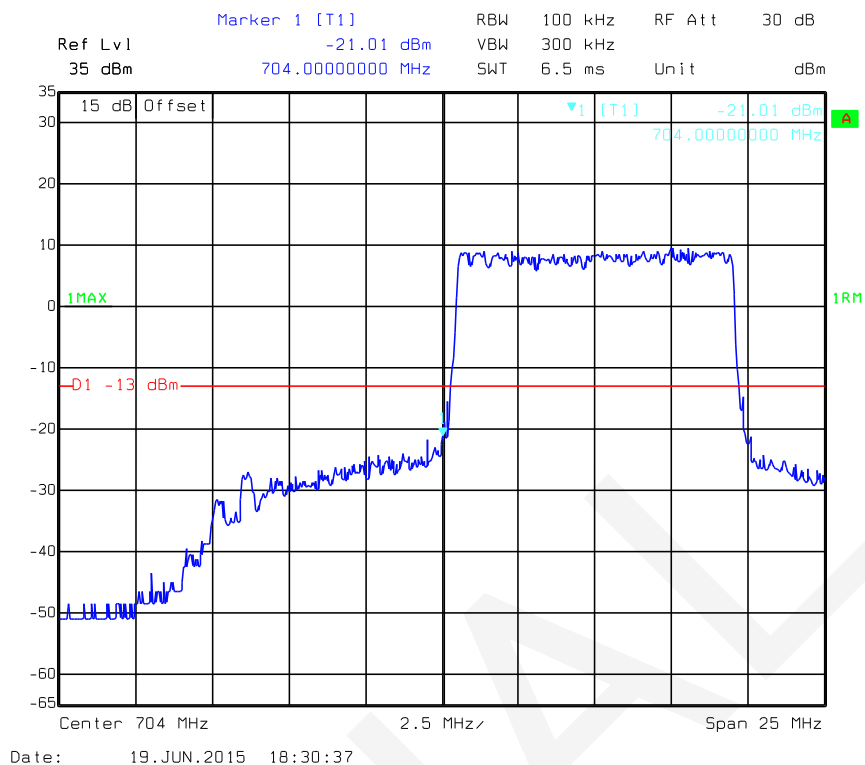
16QAM_10MHz_RB_Left



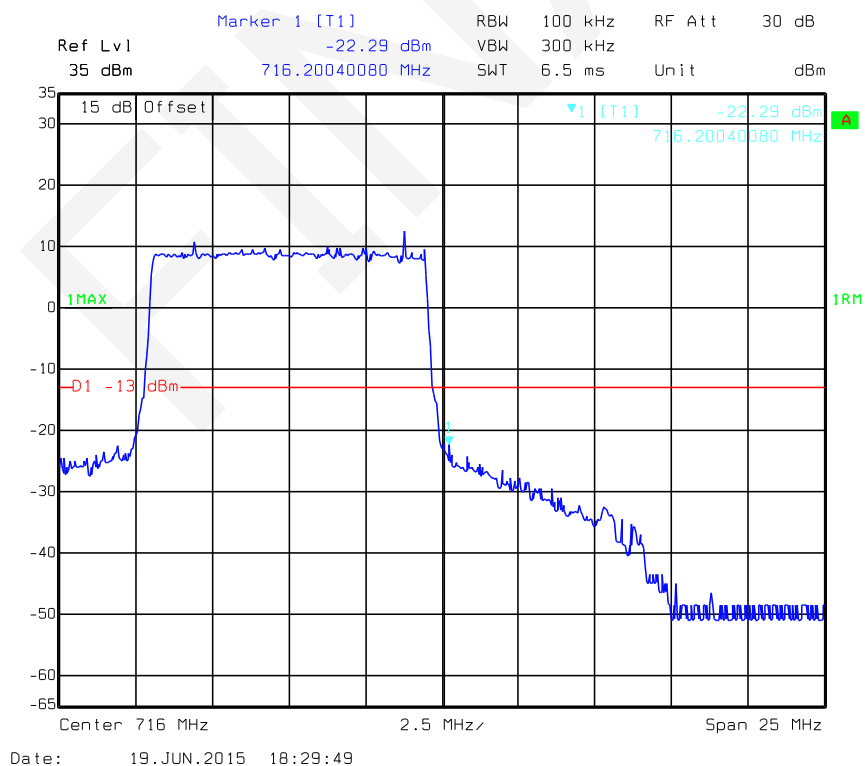
16QAM_10MHz_RB_Right



16QAM_10MHz_FULL RB_Left



16QAM_10MHz_FULL RB_Right



FCC §2.1055, §22.355 & §24.235 & §27.54 - FREQUENCY STABILITY**Applicable Standard**

FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

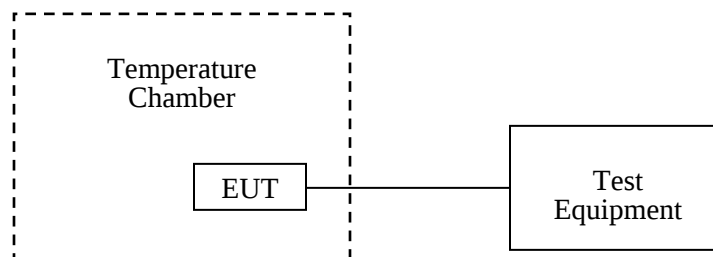
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Dongzhixu	High Temperature Test Chamber	DP1000	201105083-3	2014-08-01	2015-08-01
R&S	Universal Radio Communication Tester	CMU200	109 038	2015-05-09	2016-05-09
R&S	Wideband Radio Communication Tester	CMW500	106891	2014-11-23	2015-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data**Environmental Conditions**

Temperature:	25.4 °C
Relative Humidity:	53%
ATM Pressure:	100kPa

The testing was performed by Lion Xiao on 2015-06-19.

Cellular Band (Part 22H)

GMSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.7	11	0.013	2.5
-20	3.7	16	0.019	2.5
-10	3.7	12	0.014	2.5
0	3.7	14	0.017	2.5
10	3.7	18	0.022	2.5
20	3.7	10	0.012	2.5
30	3.7	17	0.020	2.5
40	3.7	19	0.023	2.5
50	3.7	16	0.019	2.5
20	3.5	14	0.017	2.5
20	4.2	10	0.012	2.5

8PSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.7	-22	-0.026	2.5
-20	3.7	-25	-0.030	2.5
-10	3.7	-20	-0.024	2.5
0	3.7	-18	-0.022	2.5
10	3.7	-27	-0.032	2.5
20	3.7	-29	-0.035	2.5
30	3.7	-25	-0.030	2.5
40	3.7	-21	-0.025	2.5
50	3.7	-24	-0.029	2.5
20	3.5	-28	-0.033	2.5
20	4.2	-23	-0.027	2.5

WCDMA Band V: Re199

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	-15	-0.018	2.5
-20	3.7	-19	-0.023	2.5
-10	3.7	-11	-0.013	2.5
0	3.7	-17	-0.020	2.5
10	3.7	-19	-0.023	2.5
20	3.7	-12	-0.014	2.5
30	3.7	-14	-0.017	2.5
40	3.7	-17	-0.020	2.5
50	3.7	-12	-0.014	2.5
20	3.5	-18	-0.022	2.5
20	4.2	-16	-0.019	2.5

WCDMA Band V: HSDPA

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	-18	-0.022	2.5
-20	3.7	-14	-0.017	2.5
-10	3.7	-20	-0.024	2.5
0	3.7	-23	-0.027	2.5
10	3.7	-16	-0.019	2.5
20	3.7	-12	-0.014	2.5
30	3.7	-19	-0.023	2.5
40	3.7	-15	-0.018	2.5
50	3.7	-21	-0.025	2.5
20	3.5	-17	-0.020	2.5
20	4.2	-13	-0.016	2.5

WCDMA Band V: HSUPA

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	16	0.019	2.5
-20	3.7	19	0.023	2.5
-10	3.7	23	0.027	2.5
0	3.7	14	0.017	2.5
10	3.7	18	0.022	2.5
20	3.7	15	0.018	2.5
30	3.7	19	0.023	2.5
40	3.7	22	0.026	2.5
50	3.7	20	0.024	2.5
20	3.5	17	0.020	2.5
20	4.2	21	0.025	2.5

PCS Band (Part 24E)

GMSK, Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	-13	-0.007	Pass
-20	3.7	-19	-0.010	Pass
-10	3.7	-11	-0.006	Pass
0	3.7	-14	-0.007	Pass
10	3.7	-18	-0.010	Pass
20	3.7	-12	-0.006	Pass
30	3.7	-17	-0.009	Pass
40	3.7	-20	-0.011	Pass
50	3.7	-23	-0.012	Pass
20	3.5	-15	-0.008	Pass
20	4.2	-21	-0.011	Pass

8PSK, Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	23	0.012	Pass
-20	3.7	27	0.014	Pass
-10	3.7	22	0.012	Pass
0	3.7	29	0.015	Pass
10	3.7	24	0.013	Pass
20	3.7	26	0.014	Pass
30	3.7	20	0.011	Pass
40	3.7	23	0.012	Pass
50	3.7	21	0.011	Pass
20	3.5	30	0.016	Pass
20	4.2	25	0.013	Pass

WCDMA Band II: Re199

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	-27	-0.014	Pass
-20	3.7	-29	-0.015	Pass
-10	3.7	-22	-0.012	Pass
0	3.7	-28	-0.015	Pass
10	3.7	-24	-0.013	Pass
20	3.7	-21	-0.011	Pass
30	3.7	-25	-0.013	Pass
40	3.7	-20	-0.011	Pass
50	3.7	-23	-0.012	Pass
20	3.5	-30	-0.016	Pass
20	4.2	-26	-0.014	Pass

WCDMA Band II: HSDPA

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	-34	-0.018	Pass
-20	3.7	-30	-0.016	Pass
-10	3.7	-29	-0.015	Pass
0	3.7	-37	-0.020	Pass
10	3.7	-31	-0.016	Pass
20	3.7	-28	-0.015	Pass
30	3.7	-36	-0.019	Pass
40	3.7	-39	-0.021	Pass
50	3.7	-33	-0.018	Pass
20	3.5	-27	-0.014	Pass
20	4.2	-32	-0.017	Pass

WCDMA Band II: HSUPA

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	28	0.015	Pass
-20	3.7	24	0.013	Pass
-10	3.7	31	0.016	Pass
0	3.7	29	0.015	Pass
10	3.7	25	0.013	Pass
20	3.7	32	0.017	Pass
30	3.7	27	0.014	Pass
40	3.7	30	0.016	Pass
50	3.7	28	0.015	Pass
20	3.5	22	0.012	Pass
20	4.2	25	0.013	Pass

LTE Band 2:(PART 27)

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	9.72	0.0052	Pass
-20		9.16	0.0049	Pass
-10		9.79	0.0052	Pass
0		10.04	0.0053	Pass
10		9.57	0.0051	Pass
20		9.36	0.0050	Pass
30		9.28	0.0049	Pass
40		9.77	0.0052	Pass
50		9.49	0.0050	Pass
20	3.5	9.01	0.0048	Pass
20	4.2	9.33	0.0050	Pass

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	13.73	0.0073	Pass
-20		13.79	0.0073	Pass
-10		13.61	0.0072	Pass
0		13.53	0.0072	Pass
10		13.94	0.0074	Pass
20		13.77	0.0073	Pass
30		13.40	0.0071	Pass
40		13.82	0.0074	Pass
50		13.29	0.0071	Pass
20	3.5	13.15	0.0070	Pass
20	4.2	13.28	0.0071	Pass

LTE Band 4:(PART 27)

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 1732.5$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	-23.26	-0.0134	Pass
-20		-23.12	-0.0133	Pass
-10		-23.98	-0.0138	Pass
0		-23.9	-0.0138	Pass
10		-23.48	-0.0136	Pass
20		-23.64	-0.0136	Pass
30		-23.81	-0.0137	Pass
40		-23.87	-0.0138	Pass
50		-23.12	-0.0133	Pass
20	3.5	-23.59	-0.0136	Pass
20	4.2	-23.33	-0.0135	Pass

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 1732.5$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	32.43	0.0187	Pass
-20		32.57	0.0188	Pass
-10		32.19	0.0186	Pass
0		32.27	0.0186	Pass
10		32.04	0.0185	Pass
20		32.66	0.0189	Pass
30		32.15	0.0186	Pass
40		32.34	0.0187	Pass
50		32.28	0.0186	Pass
20	3.5	32.33	0.0187	Pass
20	4.2	32.73	0.0189	Pass

LTE Band 7: (PART 27)

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 2535$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	21.13	0.0083	Pass
-20		21.37	0.0084	Pass
-10		21.19	0.0084	Pass
0		21.46	0.0085	Pass
10		21.78	0.0086	Pass
20		21.65	0.0085	Pass
30		21.53	0.0085	Pass
40		21.97	0.0087	Pass
50		21.6	0.0085	Pass
20	3.5	21.28	0.0084	Pass
20	4.2	21.04	0.0083	Pass

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 2535$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	19.82	0.0078	Pass
-20		19.74	0.0078	Pass
-10		19.95	0.0079	Pass
0		19.5	0.0077	Pass
10		19.67	0.0078	Pass
20		19.41	0.0077	Pass
30		19.06	0.0075	Pass
40		19.28	0.0076	Pass
50		19.11	0.0075	Pass
20	3.5	19.56	0.0077	Pass
20	4.2	19.17	0.0076	Pass

LTE Band 17: (PART 27)

QPSK, Channel Bandwidth:10MHz Middle Channel, $f_c = 710$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	-19.38	-0.0273	Pass
-20		-19.04	-0.0268	Pass
-10		-19.77	-0.0278	Pass
0		-19.25	-0.0271	Pass
10		-19.83	-0.0279	Pass
20		-19.3	-0.0272	Pass
30		-19.69	-0.0277	Pass
40		-19.2	-0.0270	Pass
50		-19.73	-0.0278	Pass
20	3.5	-19.28	-0.0272	Pass
20	4.2	-19.11	-0.0269	Pass

16QAM, Channel Bandwidth:10MHz Middle Channel, $f_c = 710$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	-15.96	-0.0225	Pass
-20		-15.47	-0.0218	Pass
-10		-15.71	-0.0221	Pass
0		-15.08	-0.0212	Pass
10		-15.34	-0.0216	Pass
20		-15.79	-0.0222	Pass
30		-15.85	-0.0223	Pass
40		-15.16	-0.0214	Pass
50		-15.22	-0.0214	Pass
20	3.5	-15.49	-0.0218	Pass
20	4.2	-15.52	-0.0219	Pass

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small.

******* END OF REPORT *******