FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

TEST REPORT

For

Xerox TMS

Trade Name: xerox

Model: IVU-4000

Issued to

Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: June 2, 2016

Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		June 2, 2016		Initial Issue	ALL	Doris Chu
01		July 18, 2016		1. Added 1.4MHz data. 2. Modify Peak and Average power	ALL	Doris Chu

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1. TEST RESULT CERTIFICATION

Applicant:	Advantech Co.Ltd. No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Manufacturer:	Advantech Co.Ltd. No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Equipment Under Test:	Xerox TMS
Trade Name:	xerox
Model:	IVU-4000
Date of Test:	April 30 ~ July 14, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E	No non-compliance noted

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 22 Subpart H, PART 24 Subpart E.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Miller Lee
Manager
Compliance Certification Services Inc.

Tested by:

Dennis Li
Engineer
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Xerox TMS	
Trade Name	xerox	
Model:	IVU-4000	
Model Discrepancy	N/A	
Received Date	May 15, 2016	
Power Supply	Power form host device	
Frequency Range	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~1909.2MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855MHz ~1905MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860MHz ~1900MHz
	LTE Band 5 Channel Bandwidth: 1.4MHz	824.7MHz ~848.2MHz
	LTE Band 5 Channel Bandwidth: 5MHz	826.5MHz ~846.5MHz
	LTE Band 5 Channel Bandwidth: 10MHz	829MHz ~844MHz
	LTE Band 25 Channel Bandwidth: 1.4MHz	1850.7 MHz ~1914.3 MHz
	LTE Band 25 Channel Bandwidth: 5MHz	1852.5 MHz ~1912.5 MHz
	LTE Band 25 Channel Bandwidth: 10MHz	1855.0 MHz ~1910.0 MHz
	LTE Band 25 Channel Bandwidth: 20MHz	1860.0 MHz ~1905.0 MHz
Modulation Technique	LTE Band 2	QPSK, 16QAM
	LTE Band 5	QPSK, 16QAM
	LTE Band 25	QPSK, 16QAM

Maximum ERP Power	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK: 24.65dBm 16QAM: 26.20dBm
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK: 22.03dBm 16QAM: 23.51dBm
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK : 24.93dBm 16QAM: 21.46dBm
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK: 18.80dBm 16QAM: 20.24dBm
Maximum ERP Power	LTE Band 5 Channel Bandwidth: 1.4MHz	QPSK: 24.28dBm 16QAM: 24.18dBm
	LTE Band 5 Channel Bandwidth: 5MHz	QPSK: 21.86dBm 16QAM: 21.84dBm
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK: 22.18dBm 16QAM: 20.87dBm
Maximum ERP Power	LTE Band 25 Channel Bandwidth: 1.4MHz	QPSK: 26.89dBm 16QAM: 26.38dBm
	LTE Band 25 Channel Bandwidth: 5MHz	QPSK: 26.34dBm 16QAM: 23.35dBm
	LTE Band 25 Channel Bandwidth: 10MHz	QPSK: 22.75dBm 16QAM: 22.32dBm
	LTE Band 25 Channel Bandwidth: 20MHz	QPSK : 21.11dBm 16QAM: 20.23dBm
Antenna Specification	1. GSA.8822.B.301111 / DIPOLE Antenna LTE Band 2: Gain: -0.86dBi LTE Band 5: Gain: 2.53dBi LTE Band 25: Gain: -0.86dBi 2. MA230.LBC.002 / MONOPOLE Antenna LTE Band 2: Gain: 0.42dBi LTE Band 5: Gain: 2.16dBi LTE Band 25: Gain: 0.42dBi	

Remark: *The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.*

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of ANSI C63.10: 2013, TIA/EIA-603-C: 2004 and FCC CFR 47, Part 2 and Part 22 Subpart H & Part 24 Subpart E.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

According to the requirements in ANSI C63.10: 2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in ANSI C63.10: 2013.

3.4 DESCRIPTION OF TEST MODES

The EUT (Model: IVU-4000) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting mode was programmed.

LTE Band 2: 1850MHz ~ 1910MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		5MHz		10MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	18607	1850.7	18625	1852.5	18650	1855	18700	1860
Middle channel (M)	18900	1880	18900	1880	18900	1880	18900	1880
High channel (H)	19193	1909.3	19175	1907.5	19150	1905	19100	1900

LTE Band 5: 824MHz ~ 849MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		5MHz		10MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	20407	824.7	20425	826.5	20450	829
Middle channel (M)	20525	836.5	20525	836.5	20525	836.5
High channel (H)	20643	848.3	20625	846.5	20600	844

LTE Band 25: 1850 MHz ~ 1915MHz

Three channels had been tested for each channel bandwidth.

Channel Bandwidth	1.4MHz		5MHz		10MHz		20MHz	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
Low channel (L)	26047	1850.7	26065	1852.5	26090	1855.0	26140	1860.0
Middle channel (M)	26365	1882.5	26365	1882.5	26365	1882.5	26365	1882.5
High channel (H)	26683	1914.3	26665	1912.5	26640	1910.0	26590	1905.0

For LTE Band 2

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

For LTE Band 5, LTE Band 25

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (Y axis)and the worst case was recorded.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year and Loop Antenna is scheduled for calibration once three years.*

Conducted Emissions Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
DC Power Supplies	GW Instek	SPS-3610	GPE880163	01/19/2016	01/18/2017
Power Meter	Anritsu	ML2495A	1012009	07/04/2016	07/03/2017
Power Sensor	Anritsu	MA2411B	917072	07/04/2016	07/03/2017
Signal Analyzer	R&S	FSV 40	101073	07/20/2015	07/19/2016
Spectrum Analyzer	Agilent	E4446A	US42510268	02/15/2016	02/14/2017
Thermostatic/Hrgrosatic Chamber	TAICHY	MHG-150LF	930619	10/08/2015	10/07/2016
Vector Signal Generator	R&S	SMU 200A	102239	03/10/2016	03/09/2017
AC Power Source	EXTECH	6205	1140845	N.C.R	N.C.R

Wugu 966 Chamber A					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Bilog Antenna	Sunol Sciences	JB3	A030105	08/06/2015	08/05/2016
EMI Test Receiver	R&S	ESCI	100064	05/31/2016	05/30/2017
Horn Antenna	EMCO	3117	55165	02/24/2016	02/23/2017
Horn Antenna	EMCO	3116	26370	01/15/2016	01/14/2017
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	01/12/2016	01/11/2017
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	01/12/2016	01/11/2017
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	01/14/2016	01/13/2017
Pre-Amplifier	EMCI	EMC 012635	980151	06/23/2016	06/22/2017
Pre-Amplifier	EMCI	EM330	N/A	06/08/2016	06/07/2017
Spectrum Analyzer	Agilent	E4446A	US42510252	12/08/2015	12/07/2016
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	EZ-EMC (CCS-3A1RE)				

4.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
3M Semi Anechoic Chamber / 30M~200M	+/- 4.0138
3M Semi Anechoic Chamber / 200M~1000M	+/- 3.9483
3M Semi Anechoic Chamber / 1G~8G	+/- 2.5975
3M Semi Anechoic Chamber / 8G~18G	+/- 2.6112
3M Semi Anechoic Chamber / 18G~26G	+/- 2.7389
3M Semi Anechoic Chamber / 26G~40G	+/- 2.9683

***Remark**: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☐ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, TAIWAN, R.O.C.
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	FCC	3M Semi Anechoic Chamber (FCC MRA: TW1039) to perform FCC Part 15 measurements	FCC MRA: TW1039
Taiwan	TAF	LP0002, RTTE01, FCC Method-47 CFR Part 15 Subpart C, D, E, RSS-210, RSS-310 IDA TS SRD, AS/NZS 4268, AS/NZS 4771, TS 12.1 & 12,2, ETSI EN 300 440-1, ETSI EN 300 440-2, ETSI EN 300 328, ETSI EN 300 220-1, ETSI EN 300 220-2, ETSI EN 301 893, ETSI EN 301 489-1/3/7/17 FCC OET Bulletin 65 + Supplement C, EN 50360, EN 50361, EN 50371, RSS 102, EN 50383, EN 50385, EN 50392, IEC 62209, CNS 14958-1, CNS 14959 FCC Method –47 CFR Part 15 Subpart B IEC / EN 61000-3-2, IEC / EN 61000-3-3, IEC / EN 61000-4-2/3/4/5/6/8/11	TAF Testing Laboratory 1309
Canada	Industry Canada	3M Semi Anechoic Chamber (IC 2324G-1 / IC 2324G-2) to perform	Canada IC 2324G-1 IC 2324G-2

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID	Data Cable	Power Cord
	N/A						

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

7. FCC PART 22 & 24 REQUIREMENTS

7.1 OUTPUT POWER MEASUREMENT

Test Procedures

CONDUCTED POWER MEASUREMENT:

1. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
2. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

TEST RESULTS

LTE Band 25

Channel Bandwidth: 1.4MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	21.15	0.13032
1882.5	26365	21.12	0.12942
1914.3	26683	21.29	0.13459

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	21.24	0.13305
1882.5	26365	21.31	0.13521
1914.3	26683	21.28	0.13428

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.63	0.11561
1882.5	26365	20.75	0.11885
1914.3	26683	20.70	0.11749

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.62	0.11535
1882.5	26365	20.72	0.11803
1914.3	26683	20.66	0.11641

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 1.4MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.62	0.11535
1882.5	26365	20.22	0.10520
1914.3	26683	20.69	0.11722

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.45	0.11092
1882.5	26365	20.74	0.11858
1914.3	26683	20.85	0.12162

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.13	0.10304
1882.5	26365	20.09	0.10209
1914.3	26683	20.14	0.10328

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	26047	20.03	0.10069
1882.5	26365	20.07	0.10162
1914.3	26683	20.11	0.10257

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	21.23	0.13274
1882.50	26365	21.26	0.13366
1912.50	26665	21.37	0.13709

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	21.39	0.13772
1882.50	26365	21.49	0.14093
1912.50	26665	21.43	0.13900

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.79	0.11995
1882.50	26365	20.87	0.12218
1912.50	26665	20.81	0.12050

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.76	0.11912
1882.50	26365	20.83	0.12106
1912.50	26665	20.80	0.12023

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.25	0.10593
1882.50	26365	20.23	0.10544
1912.50	26665	20.48	0.11169

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.31	0.10740
1882.50	26365	20.11	0.10257
1912.50	26665	20.44	0.11066

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.29	0.10691
1882.50	26365	20.25	0.10593
1912.50	26665	20.28	0.10666

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	26065	20.23	0.10544
1882.50	26365	20.19	0.10447
1912.50	26665	20.25	0.10593

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 25

Channel Bandwidth: 10MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	21.44	0.13932
1882.50	26365	21.53	0.14223
1910.00	26640	21.59	0.14421

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	21.51	0.14158
1882.50	26365	21.60	0.14454
1910.00	26640	21.63	0.14555

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.97	0.12503
1882.50	26365	21.03	0.12677
1910.00	26640	21.08	0.12823

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.94	0.12417
1882.50	26365	20.97	0.12503
1910.00	26640	20.91	0.12331

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 10MHz

Conducted Output Power (16QAM RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.81	0.12050
1882.50	26365	20.78	0.11967
1910.00	26640	20.77	0.11940

Conducted Output Power (16QAM RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.79	0.11995
1882.50	26365	20.73	0.11830
1910.00	26640	20.70	0.11749

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.53	0.11298
1882.50	26365	20.41	0.10990
1910.00	26640	20.44	0.11066

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	26090	20.49	0.11194
1882.50	26365	20.37	0.10889
1910.00	26640	20.39	0.10940

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 25

Channel Bandwidth: 20MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	21.68	0.14723
1882.50	26365	21.63	0.14555
1905.00	26590	21.71	0.14825

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	21.66	0.14655
1882.50	26365	21.72	0.14859
1905.00	26590	21.71	0.14825

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	21.17	0.13092
1882.50	26365	21.24	0.13305
1905.00	26590	21.22	0.13243

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	21.11	0.12912
1882.50	26365	21.21	0.13213
1905.00	26590	21.16	0.13062

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 20MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	20.97	0.12503
1882.50	26365	20.92	0.12359
1905.00	26590	20.85	0.12162

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	20.91	0.12331
1882.50	26365	20.88	0.12246
1905.00	26590	20.81	0.12050

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	20.63	0.11561
1882.50	26365	20.55	0.11350
1905.00	26590	20.57	0.11402

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	26140	20.61	0.11508
1882.50	26365	20.51	0.11246
1905.00	26590	20.54	0.11324

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 5

Channel Bandwidth: 1.4MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	21.86	0.15346
836.5	20525	22.04	0.15996
848.3	20643	22.25	0.16788

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	22.16	0.16444
836.5	20525	22.25	0.16788
848.3	20643	22.25	0.16788

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	21.20	0.13183
836.5	20525	21.45	0.13964
848.3	20643	21.38	0.13740

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	20.98	0.12531
836.5	20525	21.06	0.12764
848.3	20643	21.26	0.13366

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 1.4MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	20.91	0.12331
836.5	20525	21.05	0.12735
848.3	20643	21.26	0.13366

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	21.23	0.13274
836.5	20525	21.26	0.13366
848.3	20643	21.26	0.13366

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	20.35	0.10839
836.5	20525	20.36	0.10864
848.3	20643	20.34	0.10814

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
824.7	20407	20.06	0.10139
836.5	20525	20.09	0.10209
848.3	20643	20.36	0.10864

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	21.90	0.15488
836.50	20525	22.09	0.16181
846.50	20625	22.30	0.16982

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	22.21	0.16634
836.50	20525	22.30	0.16982
846.50	20625	22.30	0.16982

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	21.25	0.13335
836.50	20525	21.32	0.13552
846.50	20625	21.38	0.13740

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	21.03	0.12677
836.50	20525	21.11	0.12912
846.50	20625	21.31	0.13521

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	20.96	0.12474
836.50	20525	21.10	0.12882
846.50	20625	21.31	0.13521

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	21.28	0.13428
836.50	20525	21.30	0.13490
846.50	20625	21.31	0.13521

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	20.38	0.10914
836.50	20525	20.46	0.11117
846.50	20625	20.46	0.11117

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
826.50	20425	20.15	0.10351
836.50	20525	20.15	0.10351
846.50	20625	20.45	0.11092

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 5

Channel Bandwidth: 10MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	21.95	0.15668
836.50	20525	22.14	0.16368
844.00	20600	22.34	0.17140

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	22.26	0.16827
836.50	20525	22.34	0.17140
844.00	20600	22.35	0.17179

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	21.28	0.13428
836.50	20525	21.36	0.13677
844.00	20600	21.40	0.13804

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	21.06	0.12764
836.50	20525	21.18	0.13122
844.00	20600	21.37	0.13709

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 10MHz

Conducted Output Power (16QAM RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	21.01	0.12618
836.50	20525	21.15	0.13032
844.00	20600	21.36	0.13677

Conducted Output Power (16QAM RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	21.33	0.13583
836.50	20525	21.35	0.13646
844.00	20600	21.44	0.13932

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	20.46	0.11117
836.50	20525	20.54	0.11324
844.00	20600	20.57	0.11402

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
829.00	20450	20.10	0.10233
836.50	20525	20.34	0.10814
844.00	20600	20.42	0.11015

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 2

Channel Bandwidth: 1.4MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	21.47	0.14028
1880	18900	21.64	0.14588
1909.3	19193	21.59	0.14421

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	21.38	0.13740
1880	18900	21.61	0.14488
1909.3	19193	21.58	0.14388

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	21.01	0.12618
1880	18900	21.03	0.12677
1909.3	19193	21.05	0.12735

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	20.90	0.12303
1880	18900	20.93	0.12388
1909.3	19193	21.01	0.12618

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 1.4MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	20.74	0.11858
1880	18900	20.79	0.11995
1909.3	19193	20.84	0.12134

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	20.69	0.11722
1880	18900	20.79	0.11995
1909.3	19193	20.73	0.11830

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	20.06	0.10139
1880	18900	20.19	0.10447
1909.3	19193	20.23	0.10544

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1850.7	18607	20.16	0.10375
1880	18900	20.18	0.10423
1909.3	19193	20.18	0.10423

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	21.53	0.14223
1880.00	18900	21.72	0.14859
1907.50	19175	21.63	0.14555

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	21.42	0.13868
1880.00	18900	21.65	0.14622
1907.50	19175	21.61	0.14488

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	21.07	0.12794
1880.00	18900	21.11	0.12912
1907.50	19175	21.11	0.12912

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	21.01	0.12618
1880.00	18900	21.04	0.12706
1907.50	19175	21.02	0.12647

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 5MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	20.81	0.12050
1880.00	18900	20.89	0.12274
1907.50	19175	20.93	0.12388

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	20.72	0.11803
1880.00	18900	20.85	0.12162
1907.50	19175	20.81	0.12050

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	20.10	0.10233
1880.00	18900	20.21	0.10495
1907.50	19175	20.18	0.10423

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1852.50	18625	20.18	0.10423
1880.00	18900	20.21	0.10495
1907.50	19175	20.22	0.10520

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 2

Channel Bandwidth: 10MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	21.59	0.14421
1880.00	18900	21.74	0.14928
1905.00	19150	21.69	0.14757

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	21.54	0.14256
1880.00	18900	21.72	0.14859
1905.00	19150	21.67	0.14689

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	21.11	0.12912
1880.00	18900	21.16	0.13062
1905.00	19150	21.19	0.13152

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	21.02	0.12647
1880.00	18900	21.09	0.12853
1905.00	19150	21.08	0.12823

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 10MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	20.86	0.12190
1880.00	18900	20.96	0.12474
1905.00	19150	21.00	0.12589

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	20.81	0.12050
1880.00	18900	20.91	0.12331
1905.00	19150	20.89	0.12274

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	20.11	0.10257
1880.00	18900	20.21	0.10495
1905.00	19150	20.24	0.10568

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1855.00	18650	20.21	0.10495
1880.00	18900	20.25	0.10593
1905.00	19150	20.28	0.10666

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

LTE Band 2

Channel Bandwidth: 20MHz

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	21.67	0.14689
1880.00	18900	21.84	0.15276
1900.00	19100	21.78	0.15066

Conducted Output Power (QPSK 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	21.62	0.14521
1880.00	18900	21.79	0.15101
1900.00	19100	21.74	0.14928

Conducted Output Power (QPSK 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	21.16	0.13062
1880.00	18900	21.21	0.13213
1900.00	19100	21.25	0.13335

Conducted Output Power (QPSK 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	21.09	0.12853
1880.00	18900	21.12	0.12942
1900.00	19100	21.11	0.12912

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

Channel Bandwidth: 20MHz

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE LOWER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	20.94	0.12417
1880.00	18900	21.02	0.12647
1900.00	19100	21.08	0.12823

Conducted Output Power (16QAM 1 RB ALLOCATED AT THE UPPER EDGE)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	20.88	0.12246
1880.00	18900	20.97	0.12503
1900.00	19100	20.94	0.12417

Conducted Output Power (16QAM 50% RB ALLOCATION CENTERED)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	20.21	0.10495
1880.00	18900	20.21	0.10495
1900.00	19100	20.24	0.10568

Conducted Output Power (16QAM 100% RB ALLOCATION)			
Frequency (MHz)	Channel	Output Power	
		(dBm)	(W)
1860.00	18700	20.28	0.10666
1880.00	18900	20.36	0.10864
1900.00	19100	20.39	0.10940

Remarks:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB) + 20dB Attenuator.
3. The value in bold is the worst.

7.2 ERP & EIRP MEASUREMENT

LIMIT

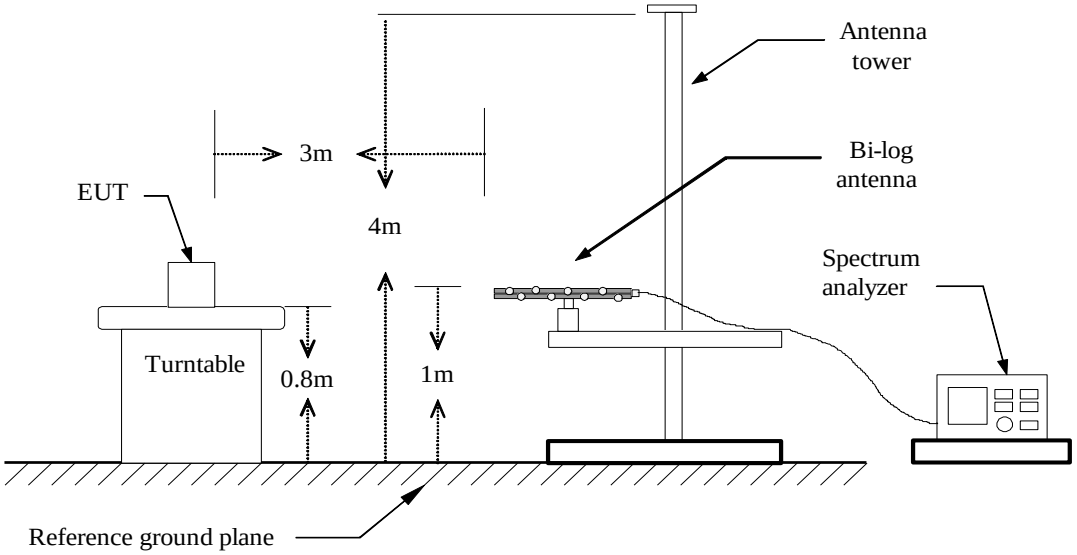
According to FCC §2.1046

FCC 22.913(b): The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

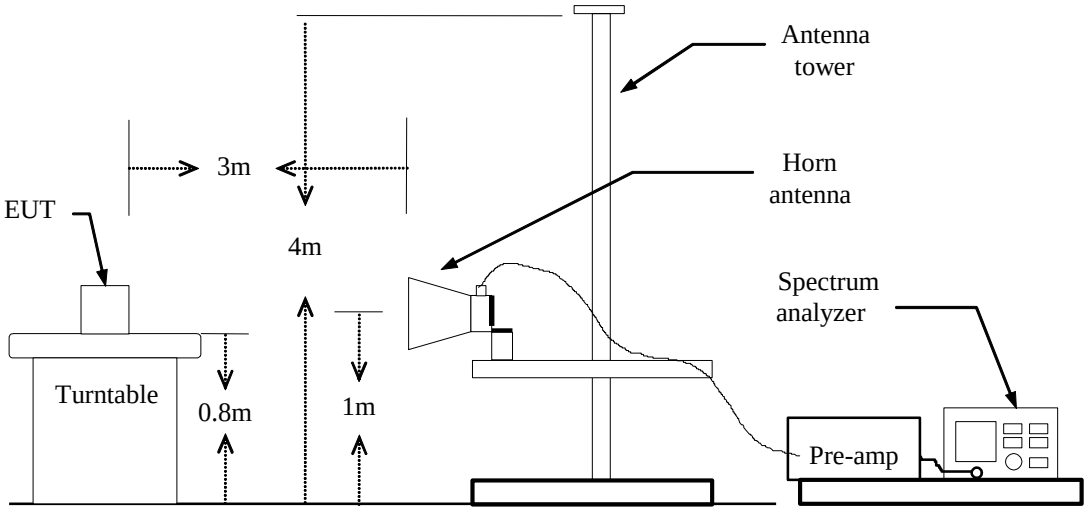
FCC 24.232(b): The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

Test Configuration

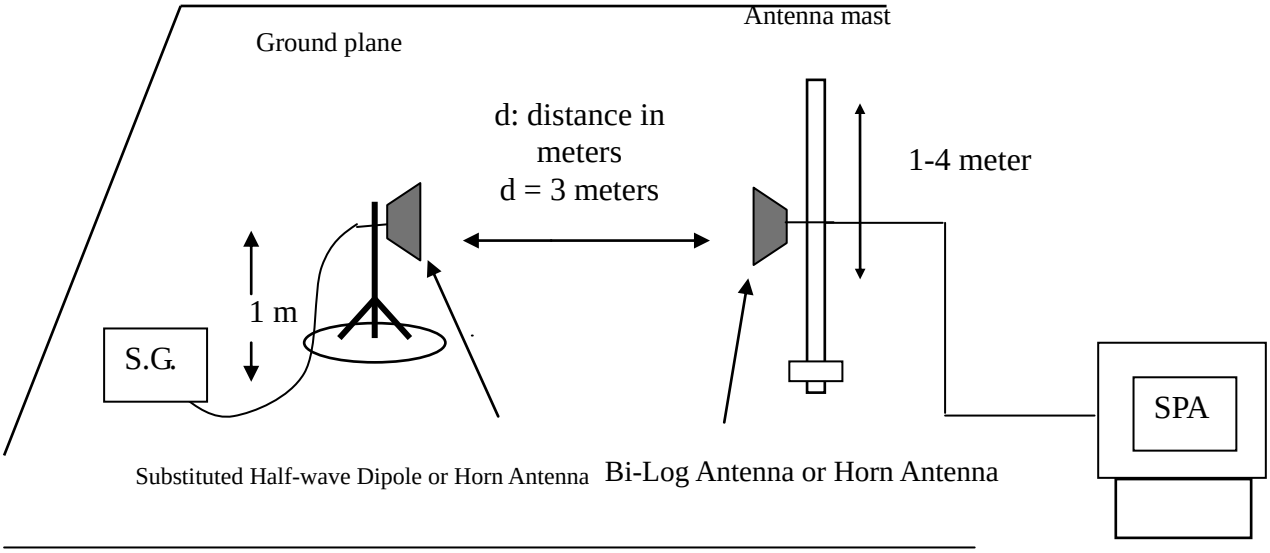
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



TEST PROCEDURE

The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement of the EUT, the resolution bandwidth was set to 5MHz and the average bandwidth was set to 50MHz. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824-849MHz, and EIRP in frequency band 1851.25 –1910MHz were measured using a substitution method. The EUT was replaced by half-wave dipole (824-849MHz) or horn antenna (1851.25-1910MHz) connected to a signal generator. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)-2.15
EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable (dB)

TEST RESULTS

No non-compliance noted.

LTE Band 25

Channel Bandwidth: 1.4MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26047	1850.550	V	25.74	5.37	5.67	26.04	33.00	-6.96
	1850.700	H	23.32	5.37	5.67	23.62	33.00	-9.38
26365	1882.350	V	26.7	5.42	5.61	***26.89**	33.00	-6.11
	1882.650	H	24.04	5.42	5.61	24.23	33.00	-8.77
26683	1914.600	V	24.98	5.49	5.55	25.04	33.00	-7.96
	1914.450	H	22.83	5.49	5.55	22.89	33.00	-10.11

Channel Bandwidth: 1.4MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26047	1850.850	V	25.56	5.37	5.67	25.86	33.00	-7.14
	1850.100	H	21.44	5.37	5.67	21.74	33.00	-11.26
26365	1882.200	V	26.19	5.42	5.61	***26.38**	33.00	-6.62
	1882.500	H	22.94	5.42	5.61	23.13	33.00	-9.87
26683	1914.150	V	23.85	5.49	5.55	23.91	33.00	-9.09
	1914.150	H	21.14	5.49	5.55	21.20	33.00	-11.80

Channel Bandwidth: 5MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26065	1850.100	V	25.89	5.37	5.67	26.19	33.00	-6.81
	1850.700	H	23.2	5.37	5.67	23.50	33.00	-9.50
26365	1880.100	V	26.14	5.42	5.62	***26.34**	33.00	-6.66
	1880.250	H	23.96	5.42	5.62	24.16	33.00	-8.84
26665	1910.400	V	25.24	5.48	5.56	25.32	33.00	-7.68
	1910.250	H	23.22	5.48	5.56	23.30	33.00	-9.70

Channel Bandwidth: 5MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26065	1854.300	V	22.35	5.38	5.66	22.63	33.00	-10.37
	1853.700	H	19.03	5.38	5.66	19.31	33.00	-13.69
26365	1882.500	V	23.16	5.42	5.61	***23.35**	33.00	-9.65
	1882.950	H	19.71	5.42	5.61	19.90	33.00	-13.10
26665	1910.700	V	23.09	5.48	5.56	23.17	33.00	-9.83
	1911.000	H	19.83	5.48	5.56	19.91	33.00	-13.09

Channel Bandwidth: 10MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26090	1858.650	V	21.29	5.38	5.65	21.56	33.00	-11.44
	1858.050	H	19.28	5.38	5.66	19.56	33.00	-13.44
26365	1886.100	V	21.91	5.43	5.61	22.09	33.00	-10.91
	1885.350	H	19.26	5.43	5.61	19.44	33.00	-13.56
26640	1913.100	V	22.68	5.49	5.56	***22.75**	33.00	-10.25
	1912.500	H	20.46	5.48	5.56	20.54	33.00	-12.46

Channel Bandwidth: 10MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26090	1857.300	V	21.03	5.38	5.66	21.31	33.00	-11.69
	1858.050	H	18.56	5.38	5.66	18.84	33.00	-14.16
26365	1885.350	V	21.6	5.43	5.61	21.78	33.00	-11.22
	1879.500	H	18.43	5.42	5.62	18.63	33.00	-14.37
26640	1912.500	V	22.24	5.48	5.56	***22.32**	33.00	-10.68
	1912.350	H	19.16	5.48	5.56	19.24	33.00	-13.76

Channel Bandwidth: 20MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26140	1860.300	V	19.98	5.39	5.65	20.24	33.00	-12.76
	1860.000	H	18.14	5.39	5.65	18.40	33.00	-14.60
26365	1889.850	V	20.62	5.43	5.6	20.79	33.00	-12.21
	1890.300	H	18.54	5.43	5.6	18.71	33.00	-14.29
26590	1911.750	V	21.03	5.48	5.56	***21.11**	33.00	-11.89
	1912.500	H	19.15	5.48	5.56	19.23	33.00	-13.77

Channel Bandwidth: 20MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
26140	1860.750	V	19.64	5.39	5.65	19.90	33.00	-13.10
	1859.400	H	17.12	5.39	5.65	17.38	33.00	-15.62
26365	1888.800	V	20.06	5.43	5.6	***20.23**	33.00	-12.77
	1888.950	H	16.48	5.43	5.6	16.65	33.00	-16.35
26590	1898.100	V	20.06	5.45	5.58	20.19	33.00	-12.81
	1897.200	H	16.42	5.45	5.59	16.56	33.00	-16.44

Remark:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.
3. The value in bold is the worst.

LTE BAND 5

Channel Bandwidth: 1.4MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20407	824.7200	V	16.05	3.39	6.24	18.90	38.45	-19.55
	824.4800	H	21.15	3.39	6.24	24.00	38.45	-14.45
20525	836.4800	V	17.07	3.4	6.36	20.03	38.45	-18.42
	836.3000	H	21.32	3.4	6.36	***24.28**	38.45	-14.17
20643	848.0600	V	16.78	3.4	6.4	19.78	38.45	-18.67
	848.6000	H	21.06	3.4	6.4	24.06	38.45	-14.39

Channel Bandwidth: 1.4MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20407	824.5400	V	17.57	3.39	6.24	20.42	38.45	-18.03
	824.6600	H	21.33	3.39	6.24	***24.18**	38.45	-14.27
20525	836.6600	V	17.6	3.4	6.37	20.57	38.45	-17.88
	836.6600	H	17.81	3.4	6.37	20.78	38.45	-17.67
20643	848.2400	V	17.92	3.4	6.4	20.92	38.45	-17.53
	848.3600	H	21.05	3.4	6.4	24.05	38.45	-14.40

Channel Bandwidth: 5MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20425	825.0800	V	14.29	3.39	6.25	17.15	38.45	-21.30
	824.9600	H	19	3.39	6.25	***21.86**	38.45	-16.59
20525	838.1600	V	14.74	3.41	6.38	17.71	38.45	-20.74
	837.8000	H	18.61	3.41	6.38	21.58	38.45	-16.87
20625	847.8800	V	14.77	3.4	6.4	17.77	38.45	-20.68
	847.4000	H	18.35	3.4	6.4	21.35	38.45	-17.10

Channel Bandwidth: 5MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20425	826.5800	V	14.71	3.39	6.26	17.58	38.45	-20.87
	826.7000	H	18.97	3.39	6.26	***21.84**	38.45	-16.61
20525	836.9000	V	15.21	3.4	6.37	18.18	38.45	-20.27
	836.7800	H	18.83	3.4	6.37	21.80	38.45	-16.65
20625	846.4400	V	15.26	3.4	6.4	18.26	38.45	-20.19
	846.9200	H	18.68	3.4	6.4	21.68	38.45	-16.77

Channel Bandwidth: 10MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20450	825.6800	V	13.53	3.39	6.25	16.39	38.45	-22.06
	825.4400	H	17.87	3.39	6.25	20.73	38.45	-17.72
20525	833.1200	V	12.76	3.4	6.33	15.69	38.45	-22.76
	833.0000	H	19.25	3.4	6.33	***22.18**	38.45	-16.27
20600	840.7400	V	13.95	3.41	6.4	16.94	38.45	-21.51
	840.5600	H	17.58	3.41	6.4	20.57	38.45	-17.88

Channel Bandwidth: 10MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
20450	825.6800	V	13.82	3.39	6.25	16.68	38.45	-21.77
	825.8000	H	18.01	3.39	6.25	***20.87**	38.45	-17.58
20525	839.0600	V	13.8	3.41	6.39	16.78	38.45	-21.67
	839.3600	H	17.16	3.41	6.39	20.14	38.45	-18.31
20600	840.6200	V	14.41	3.41	6.4	17.40	38.45	-21.05
	840.3800	H	17.48	3.41	6.4	20.47	38.45	-17.98

Remark:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.

3. The value in bold is the worst.

LTE BAND 2

Channel Bandwidth: 1.4MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18607	1850.040	V	22.26	5.37	5.67	22.56	33.00	-10.44
	1850.400	H	22.32	5.37	5.67	22.62	33.00	-10.38
18900	1879.800	V	22.93	5.42	5.62	23.13	33.00	-9.87
	1879.680	H	24.45	5.42	5.62	***24.65**	33.00	-8.35
19193	1909.080	V	22.01	5.47	5.56	22.10	33.00	-10.90
	1908.840	H	23.7	5.47	5.56	23.79	33.00	-9.21

Channel Bandwidth: 1.4MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18607	1849.800	V	20.95	5.37	5.67	21.25	33.00	-11.75
	1850.040	H	24.07	5.37	5.67	24.37	33.00	-8.63
18900	1879.440	V	22.77	5.42	5.62	22.97	33.00	-10.03
	1879.560	H	26	5.42	5.62	***26.20**	33.00	-6.80
19193	1909.080	V	21.03	5.47	5.56	21.12	33.00	-11.88
	1909.080	H	24.73	5.47	5.56	24.82	33.00	-8.18

Channel Bandwidth: 5MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18625	1854.000	V	17.66	5.38	5.66	17.94	33.00	-15.06
	1854.240	H	20.06	5.38	5.66	20.34	33.00	-12.66
18900	1881.480	V	19.45	5.42	5.61	19.64	33.00	-13.36
	1878.480	H	21.83	5.42	5.62	***22.03**	33.00	-10.97
19175	1908.840	V	19.26	5.47	5.56	19.35	33.00	-13.65
	1908.840	H	21.87	5.47	5.56	21.96	33.00	-11.04

Channel Bandwidth: 5MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18625	1854.000	V	18.41	5.38	5.66	18.69	33.00	-14.31
	1852.800	H	21.17	5.37	5.66	21.46	33.00	-11.54
18900	1879.080	V	19.99	5.42	5.62	20.19	33.00	-12.81
	1878.840	H	23.31	5.42	5.62	***23.51**	33.00	-9.49
19175	1908.840	V	18.94	5.47	5.56	19.03	33.00	-13.97
	1909.200	H	23.35	5.47	5.56	23.44	33.00	-9.56

Channel Bandwidth: 10MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18650	1850.760	V	21.25	5.37	5.67	21.55	33.00	-11.45
	1850.760	H	23.28	5.37	5.67	23.58	33.00	-9.42
18900	1875.720	V	22.56	5.41	5.62	22.77	33.00	-10.23
	1875.480	H	24.72	5.41	5.62	***24.93**	33.00	-8.07
19150	1900.440	V	20.51	5.45	5.58	20.64	33.00	-12.36
	1900.680	H	23.21	5.45	5.58	23.34	33.00	-9.66

Channel Bandwidth: 10MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18650	1858.200	V	17.25	5.38	5.66	17.53	33.00	-15.47
	1858.200	H	20.15	5.38	5.66	20.43	33.00	-12.57
18900	1881.960	V	18.18	5.42	5.61	18.37	33.00	-14.63
	1880.040	H	21.26	5.42	5.62	***21.46**	33.00	-11.54
19150	1907.760	V	16.84	5.47	5.57	16.94	33.00	-16.06
	1908.000	H	20.34	5.47	5.57	20.44	33.00	-12.56

Channel Bandwidth: 20MHz / QPSK

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18700	1861.440	V	16.45	5.39	5.65	16.71	33.00	-16.29
	1862.040	H	16.62	5.39	5.65	16.88	33.00	-16.12
18900	1872.960	V	16.98	5.41	5.63	17.20	33.00	-15.80
	1887.720	H	17.82	5.43	5.6	17.99	33.00	-15.01
19100	1894.200	V	16.96	5.44	5.59	17.11	33.00	-15.89
	1894.800	H	18.65	5.44	5.59	***18.80**	33.00	-14.20

Channel bandwidth: 20MHz / 16QAM

Channel	Frequency (MHz)	Antenna Pol.	S.G. (dBm)	Cable loss (dB)	Ant.Gain (dBi)	Emission level (dBm)	Limit (dBm)	Margin (dB)
18700	1860.600	V	16.21	5.39	5.65	16.47	33.00	-16.53
	1860.360	H	19.27	5.39	5.65	19.53	33.00	-13.47
18900	1880.400	V	16.93	5.42	5.62	17.13	33.00	-15.87
	1879.080	H	20.04	5.42	5.62	***20.24**	33.00	-12.76
19100	1895.880	V	16.82	5.44	5.59	16.97	33.00	-16.03
	1894.680	H	19.95	5.44	5.59	20.10	33.00	-12.90

Remark:

1. Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = S.G Level + Gain of Substitution horn + TX cable loss.

3. The value in bold is the worst.

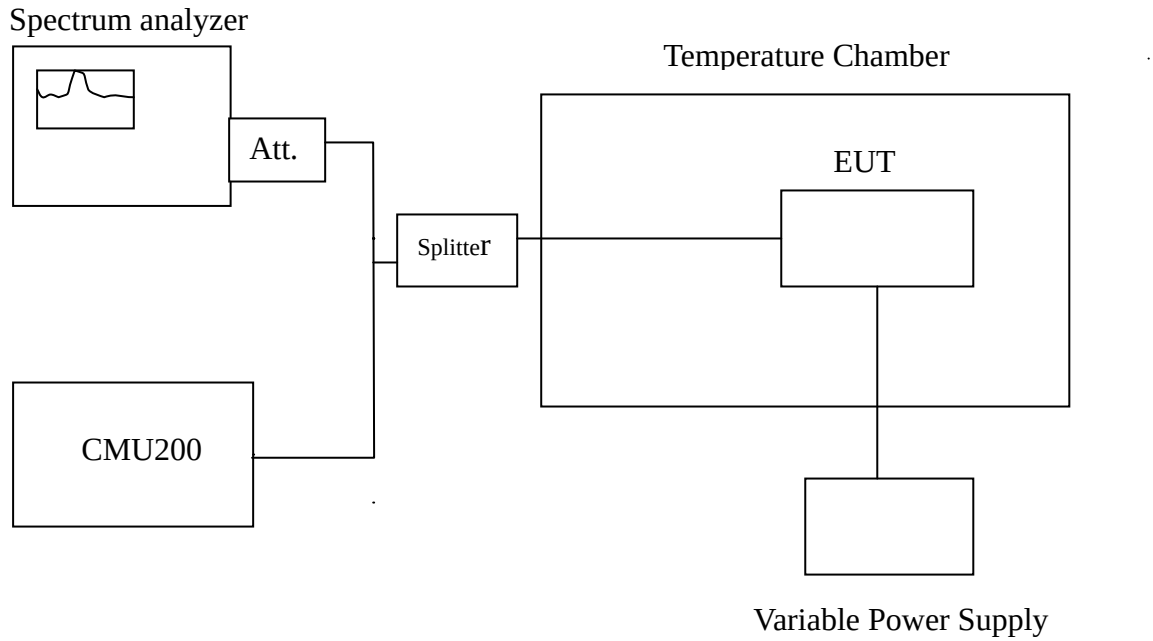
7.3 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20^{o}C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30^{o}C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10^{o}C increased per stage until the highest temperature of +50^{o}C reached.

TEST RESULTS

No non-compliance noted.

Test Results

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:

LTE Band 25

Reference Frequency: LTE Band 25 1882.5 MHz @ 20°C						
Limit: ± 2.5 ppm = 4706.25Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Frequency Error(ppm)	10M Frequency Error(Hz)	Frequency Error(ppm)	Limit (ppm)
12	50	-5.53	-0.0029	-6.72	-0.0036	2.5
12	40	-6.02	-0.0032	-5.20	-0.0028	
12	30	-6.89	-0.0037	-6.26	-0.0033	
12	20	-12.34	-0.0066	-15.93	-0.0085	
12	10	-12.84	-0.0068	-12.77	-0.0068	
12	0	-6.12	-0.0033	-13.38	-0.0071	
12	-10	-10.17	-0.0054	-10.17	-0.0054	
12	-20	-9.13	-0.0048	-9.13	-0.0048	
12	-30	-1.27	-0.0007	-10.25	-0.0054	

LTE Band 5

Reference Frequency: LTE Band 5 836.5 MHz @ 20°C						
Limit: ± 2.5 ppm = 2091.25Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Frequency Error(ppm)	10M Frequency Error(Hz)	Frequency Error(ppm)	Limit (ppm)
12	50	5.53	0.0066	-10.17	-0.0122	2.5
12	40	-6.02	-0.0072	-9.13	-0.0109	
12	30	-6.89	-0.0082	-10.25	-0.0123	
12	20	-10.42	-0.0125	-7.87	-0.0094	
12	10	-10.48	-0.0125	-8.16	-0.0098	
12	0	-9.86	-0.0118	4.41	0.0053	
12	-10	-12.34	-0.0148	-6.72	-0.0080	
12	-20	-12.84	-0.0153	-5.20	-0.0062	
12	-30	-6.12	-0.0073	-6.26	-0.0075	

LTE Band 2

Reference Frequency: LTE Band 2 1880 MHz @ 20°C								
Limit: ± 2.5 ppm = 4700Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Frequency Error(ppm)	10M Frequency Error(Hz)	Frequency Error(ppm)	20M Frequency Error(Hz)	Frequency Error(ppm)	Limit (ppm)
12	50	-5.16	-0.0027	-5.40	-0.0029	-6.72	-0.0036	2.5
12	40	-6.89	-0.0037	3.61	0.0019	-5.20	-0.0028	
12	30	-6.23	-0.0033	-1.27	-0.0007	-6.26	-0.0033	
12	20	-7.87	-0.0042	-5.44	-0.0029	5.53	0.0029	
12	10	-8.16	-0.0043	-6.59	-0.0035	-6.02	-0.0032	
12	0	4.41	0.0023	-6.23	-0.0033	-6.89	-0.0037	
12	-10	-10.12	-0.0054	-10.42	-0.0055	-10.17	-0.0054	
12	-20	-11.03	-0.0059	-10.48	-0.0056	-9.13	-0.0049	
12	-30	-11.46	-0.0061	-9.86	-0.0052	-10.25	-0.0055	

FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT:

LTE Band 25

Reference Frequency: LTE Band 25 1882.5 MHz @ 20°C						
Limit: ± 2.5 ppm = 4706.25Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (ppm)
10.2	20	-13.52	-0.0072	-13.58	-0.0072	2.5
12		-12.34	-0.0066	-15.93	-0.0085	
13.8		-11.99	-0.0064	-14.56	-0.0077	

LTE Band 5

Reference Frequency: LTE Band 5 836.5 MHz @ 20°C						
Limit: ± 2.5 ppm = 2091.25Hz						
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	Limit (ppm)
10.2	20	-10.95	-0.0131	-8.52	-0.0102	2.5
12		-10.42	-0.0125	-7.87	-0.0094	
13.8		-11.11	-0.0133	-7.95	-0.0095	

LTE Band 2

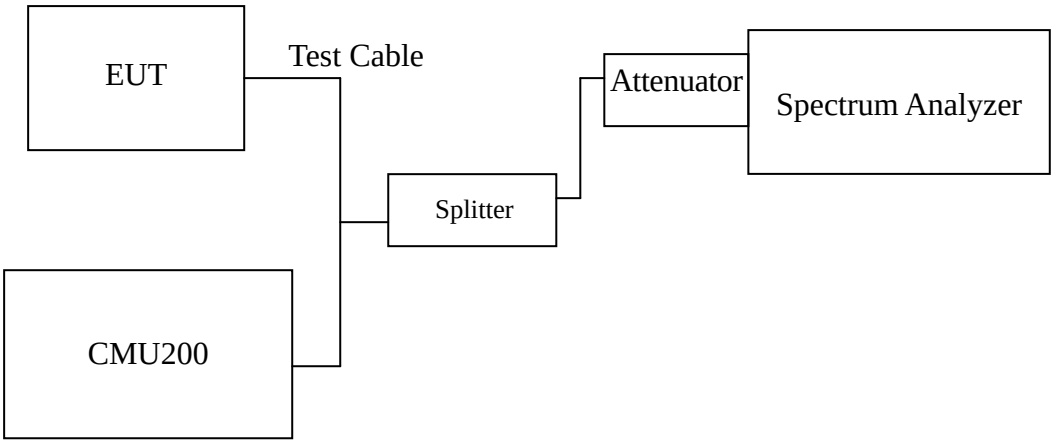
Reference Frequency: LTE Band 2 1880 MHz @ 20°C								
Limit: ± 2.5 ppm = 4700Hz								
Power Supply Vdc	Environment Temperature (°C)	5M Frequency (Hz)	Delta (Hz)	10M Frequency (Hz)	Delta (Hz)	20M Frequency (Hz)	Delta (Hz)	Limit (ppm)
10.2	20	-8.25	-0.0044	-6.58	-0.0035	-6.32	-0.0034	2.5
12		-7.87	-0.0042	-5.44	-0.0029	-5.53	-0.0029	
13.8		-9.51	-0.0051	-5.89	-0.0031	-7.41	-0.0039	

7.4 OCCUPIED BANDWIDTH MEASUREMENT

LIMIT

According to §FCC 2.1049.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

No non-compliance noted

LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26047	1850.7	1.0984
26365	1882.5	1.0984
26683	1914.3	1.0984

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26047	1850.7	1.0897
26365	1882.5	1.0897
26683	1914.3	1.0940

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26065	1852.50	4.4717
26365	1882.50	4.4862
26665	1912.50	4.4573

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26065	1852.50	4.4717
26365	1882.50	4.4573
26665	1912.50	4.4573

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26090	1855.00	8.9435
26365	1882.50	8.9435
26640	1910.00	8.9146

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26090	1855.00	8.9146
26365	1882.50	8.9435
26640	1910.00	8.9146

CHANNEL BANDWIDTH: 20MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26140	1860.00	17.6555
26365	1882.50	17.9450
26590	1905.00	17.9450

CHANNEL BANDWIDTH: 20MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
26140	1860.00	17.7713
26365	1882.50	17.9450
26590	1905.00	17.9450

LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20407	824.7	1.0940
20525	836.5	1.0897
20643	848.3	1.0940

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20407	824.7	1.0940
20525	836.5	1.0897
20643	848.3	1.0940

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20425	826.50	4.4717
20525	836.50	4.4717
20625	846.50	4.4717

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20425	826.50	4.4717
20525	836.50	4.4717
20625	846.50	4.4717

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20450	829.00	8.9146
20525	836.50	8.9146
20600	844.00	8.9435

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
20450	829.00	8.9146
20525	836.50	8.9146
20600	844.00	8.9146

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18607	1850.7	1.0940
18900	1880	1.0940
19193	1909.3	1.0940

CHANNEL BANDWIDTH: 1.4MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18607	1850.7	1.0940
18900	1880	1.0940
19193	1909.3	1.0897

CHANNEL BANDWIDTH: 5MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18625	1852.50	4.4717
18900	1880.00	4.4862
19175	1907.50	4.4717

CHANNEL BANDWIDTH: 5MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18625	1852.50	4.4717
18900	1880.00	4.4717
19175	1907.50	4.4717

CHANNEL BANDWIDTH: 10MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18650	1855.00	8.9146
18900	1880.00	8.9435
19150	1905.00	8.9725

CHANNEL BANDWIDTH: 10MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18650	1855.00	8.9146
18900	1880.00	8.9146
19150	1905.00	8.9435

CHANNEL BANDWIDTH: 20MHz / QPSK

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18700	1860.00	17.7713
18900	1880.00	17.8871
19100	1900.00	17.8292

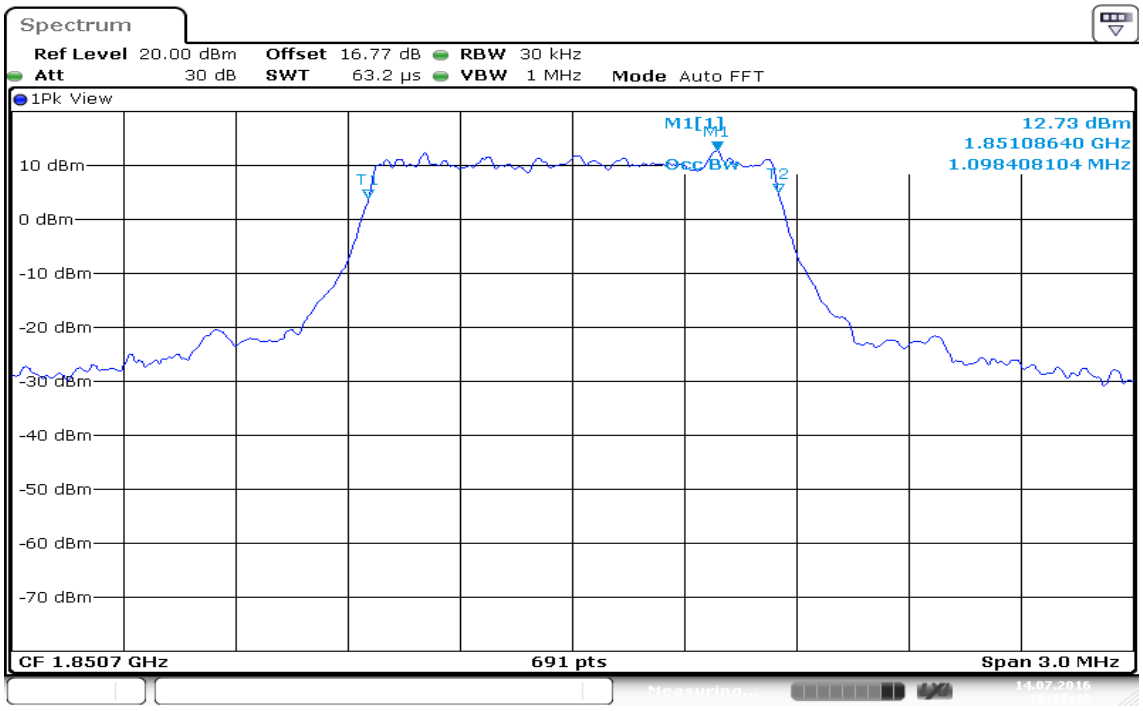
CHANNEL BANDWIDTH: 20MHz / 16QAM

Channel	FREQUENCY (MHz)	Occupied bandwidth (MHz)
18700	1860.00	17.7713
18900	1880.00	17.8871
19100	1900.00	17.8292

LTE Band 25

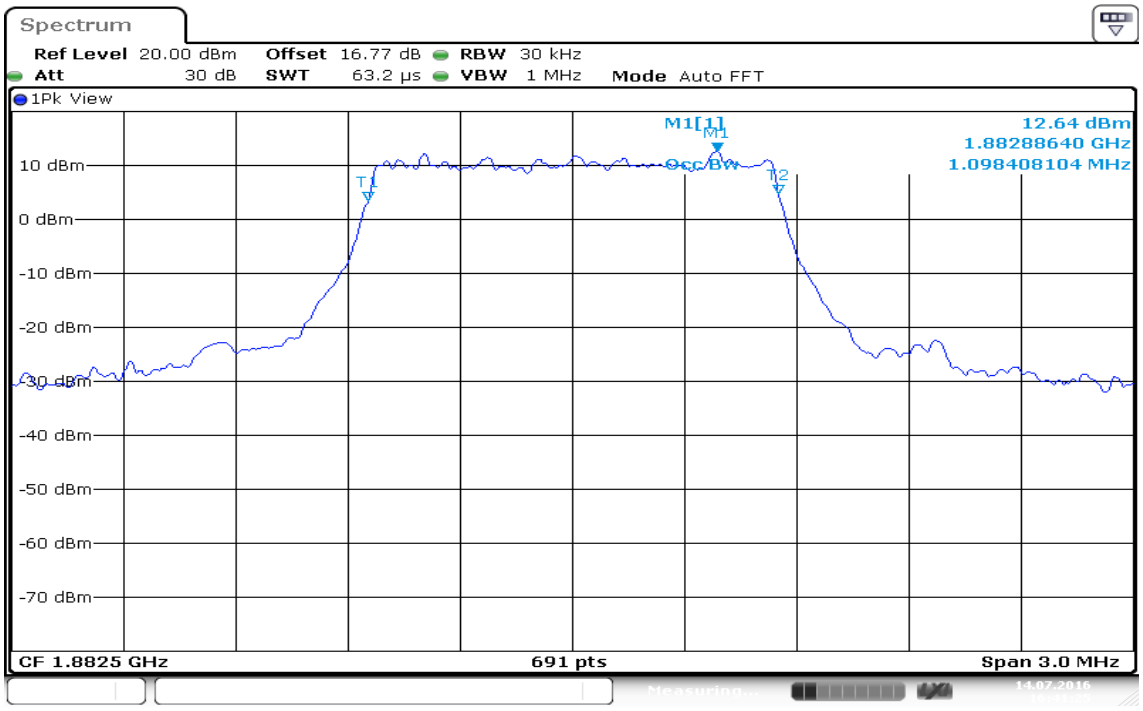
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Low



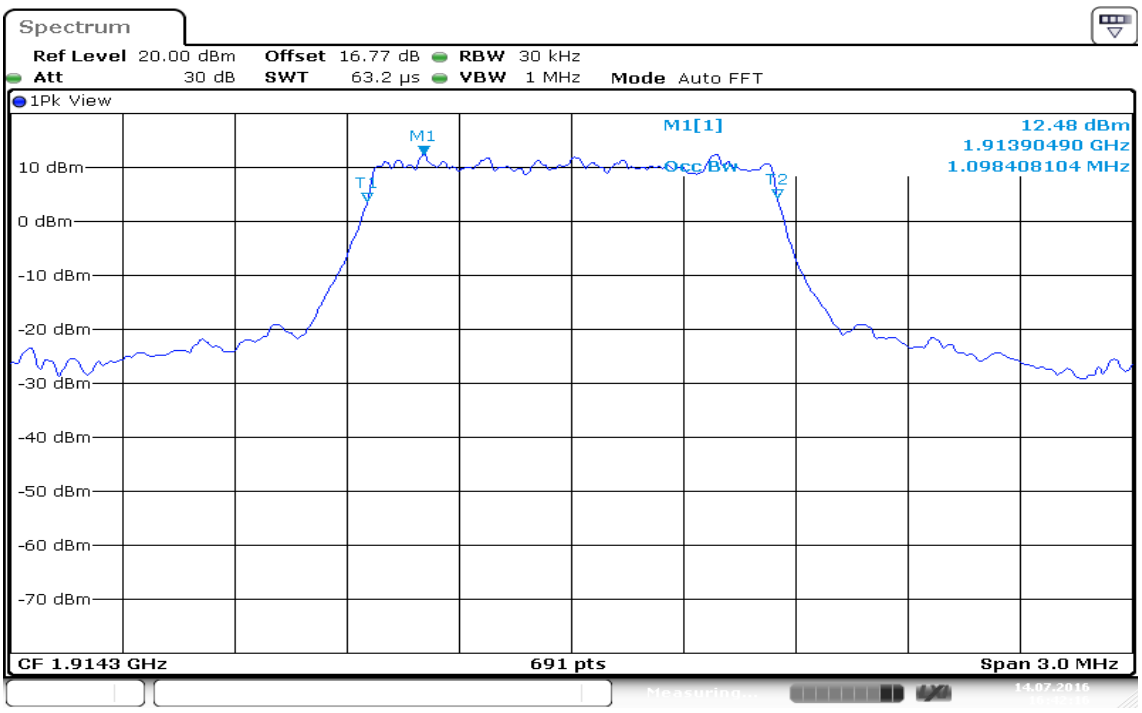
Date: 14.JUL.2016 16:37:46

CH Mid



Date: 14.JUL.2016 16:41:26

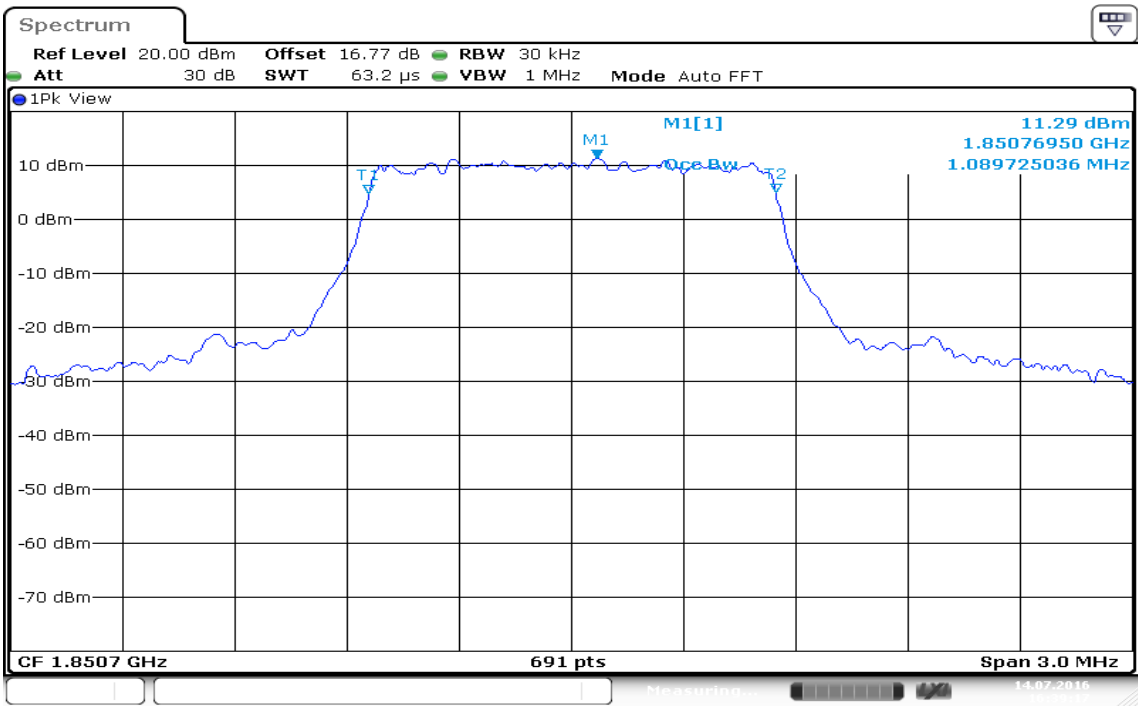
CH High



Date: 14.JUL.2016 16:42:16

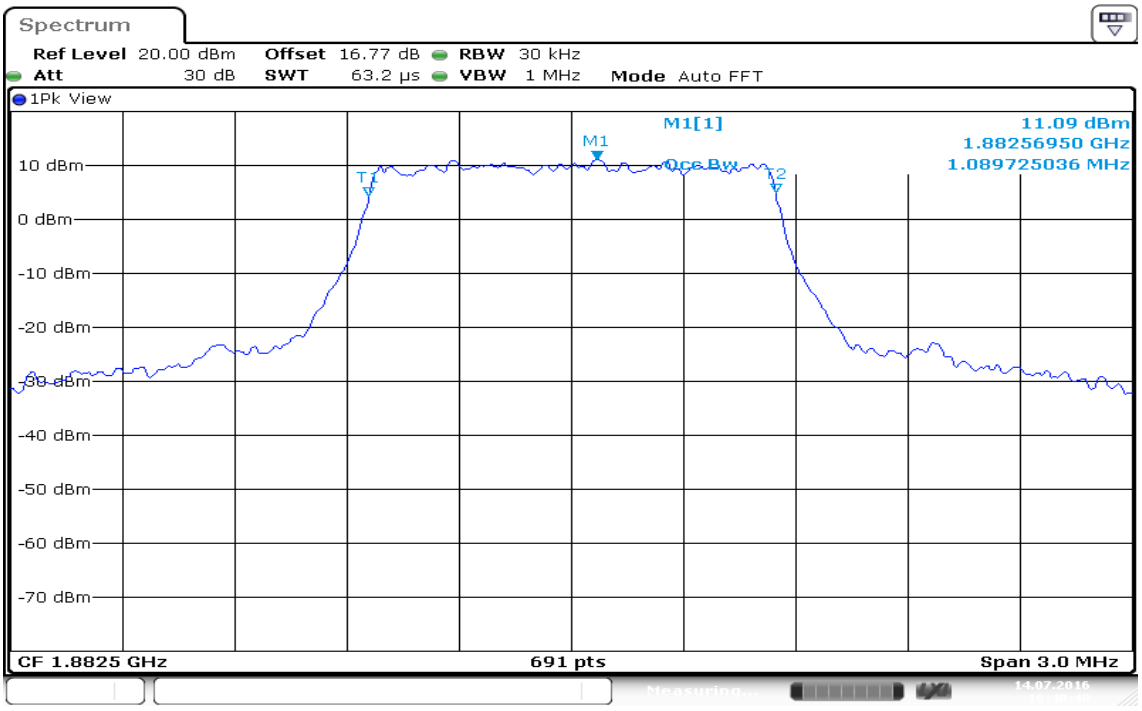
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Low



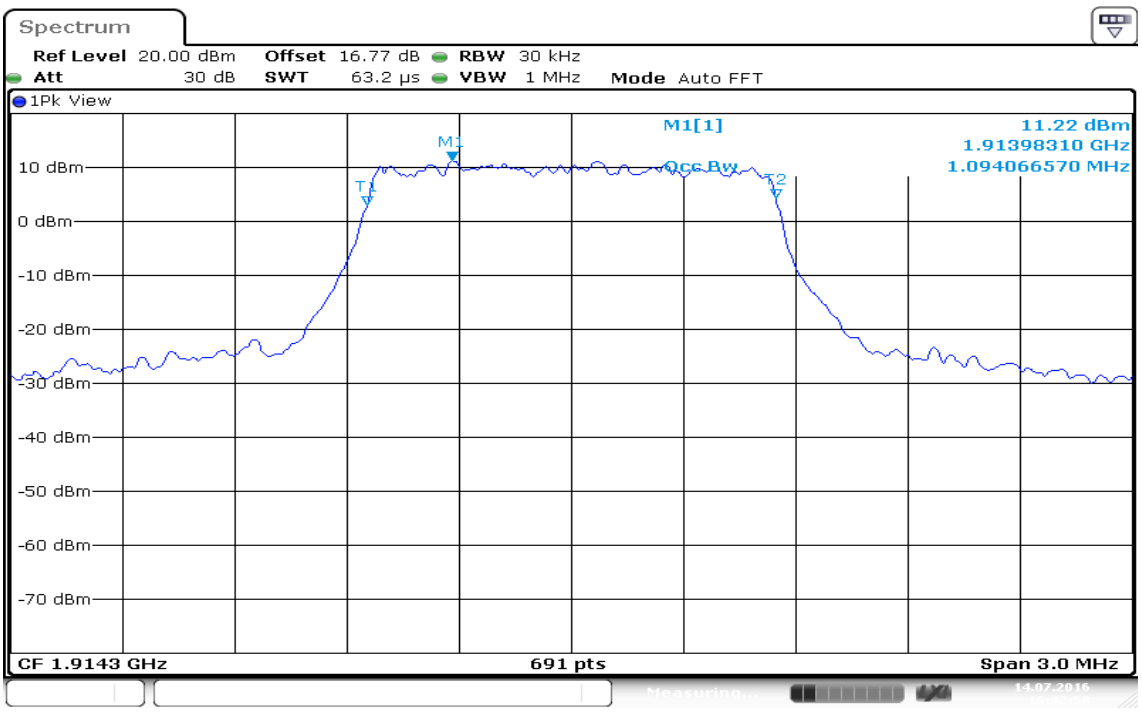
Date: 14.JUL.2016 16:39:18

CH Mid



Date: 14.JUL.2016 16:40:40

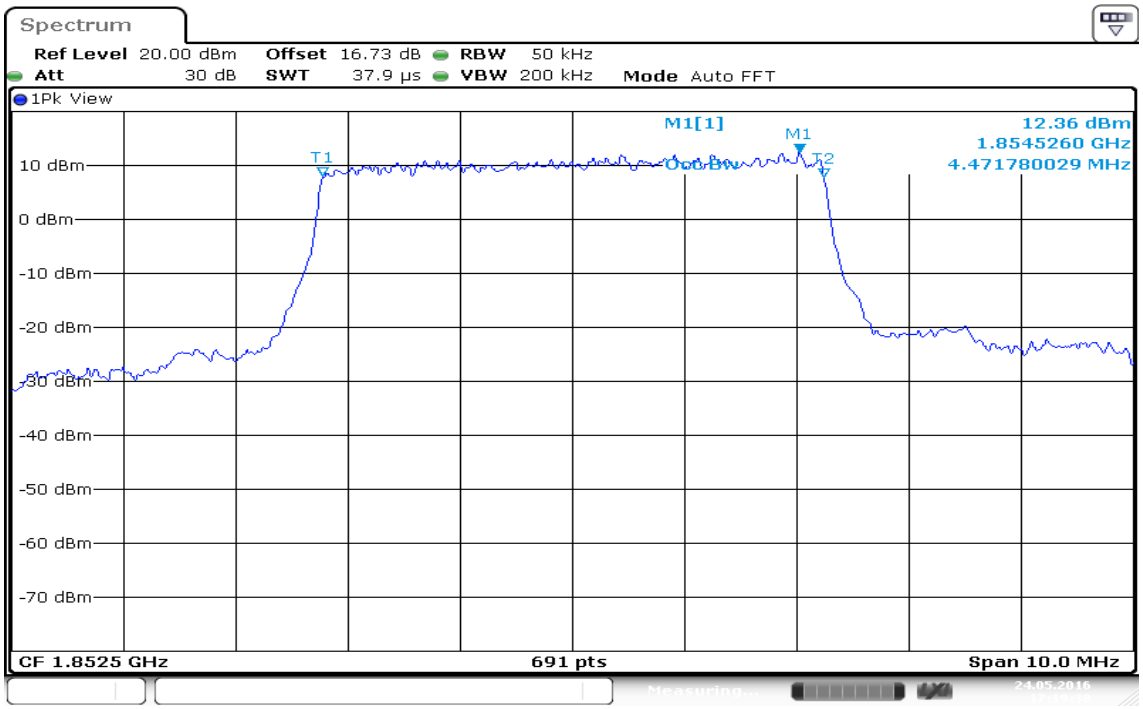
CH High



Date: 14.JUL.2016 16:42:58

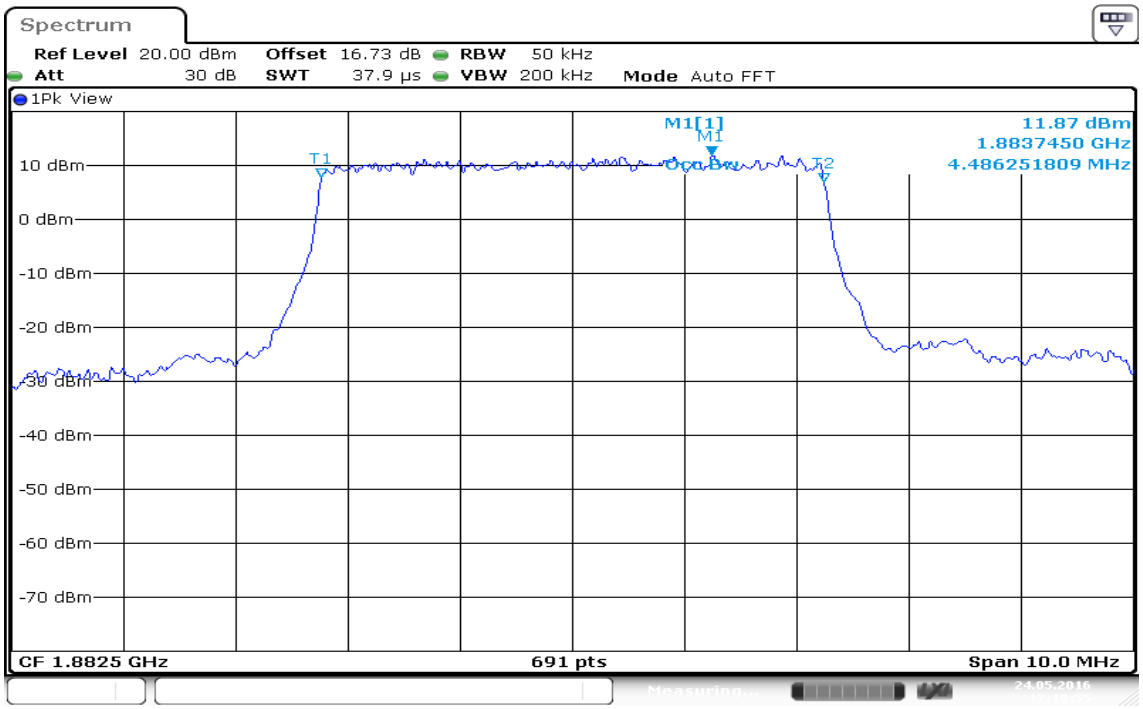
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



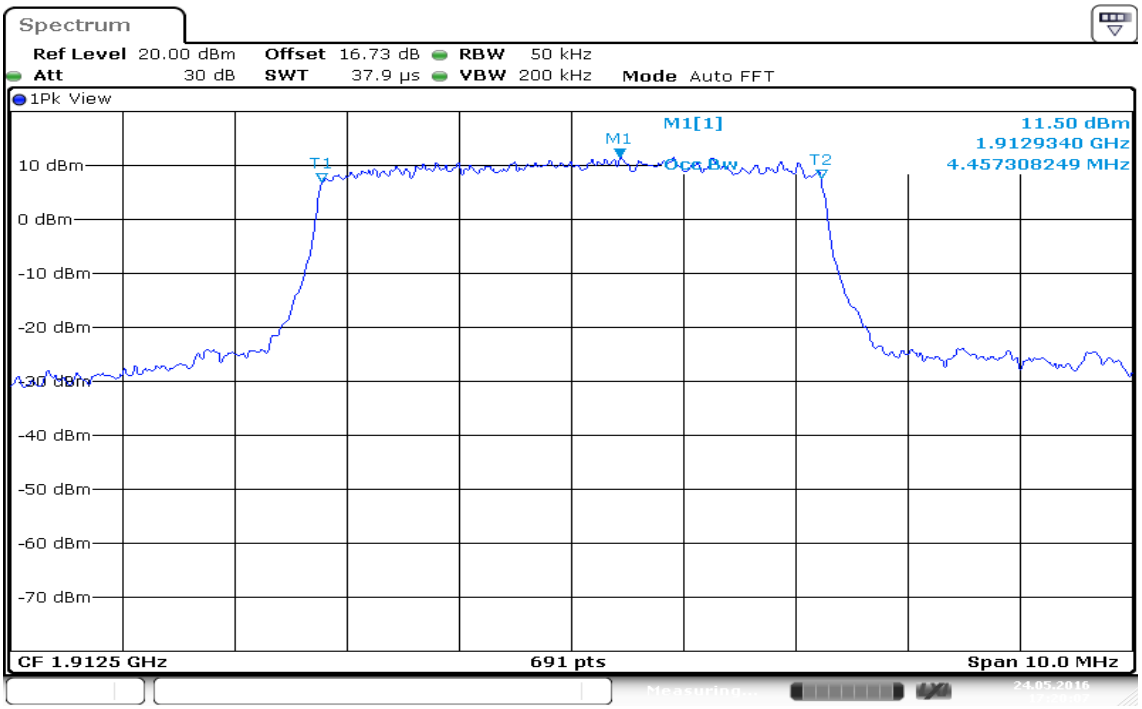
Date: 24.MAY.2016 17:19:38

CH Mid



Date: 24.MAY.2016 17:18:55

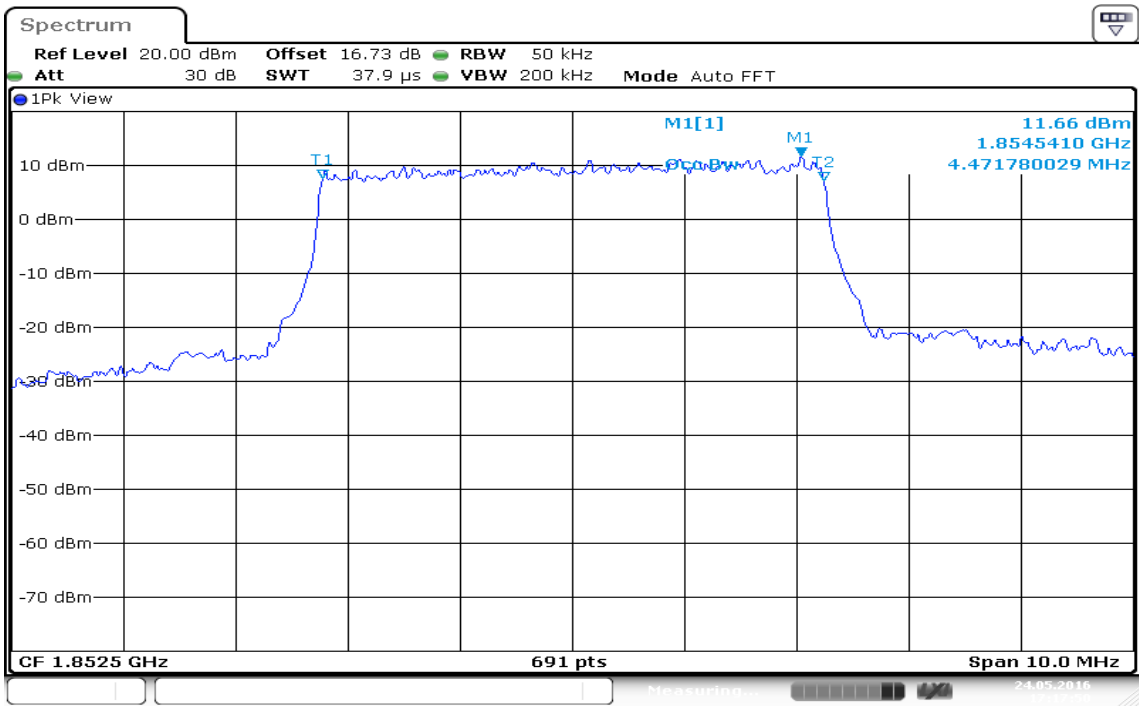
CH High



Date: 24.MAY.2016 17:20:07

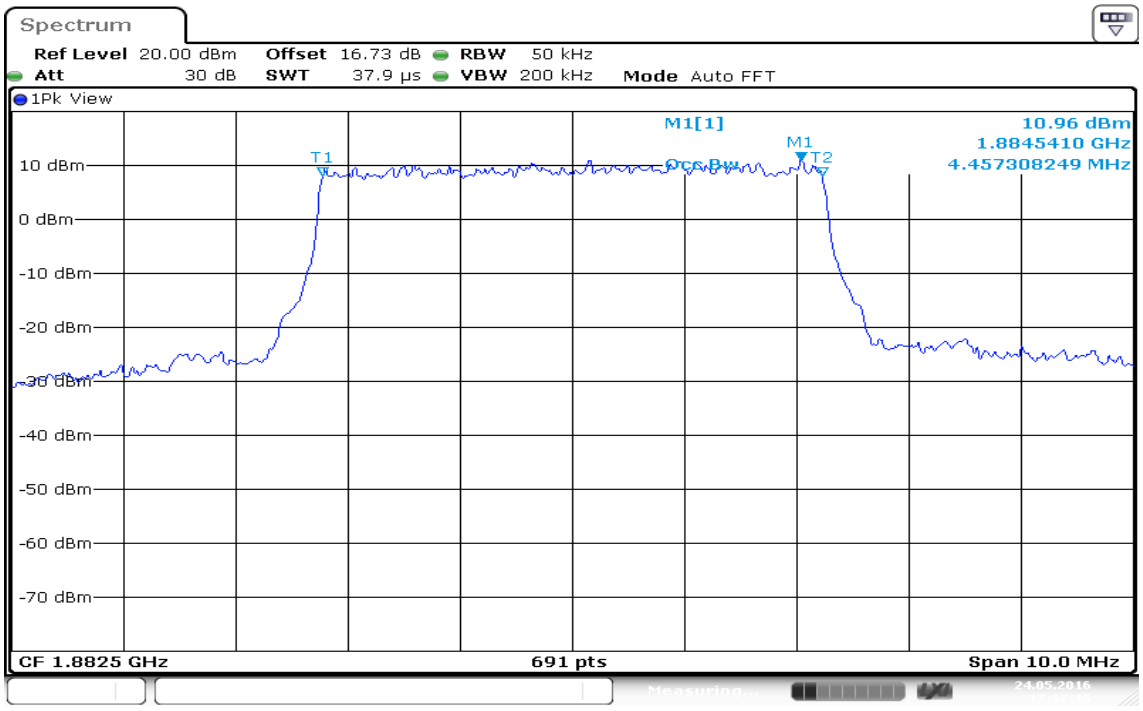
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



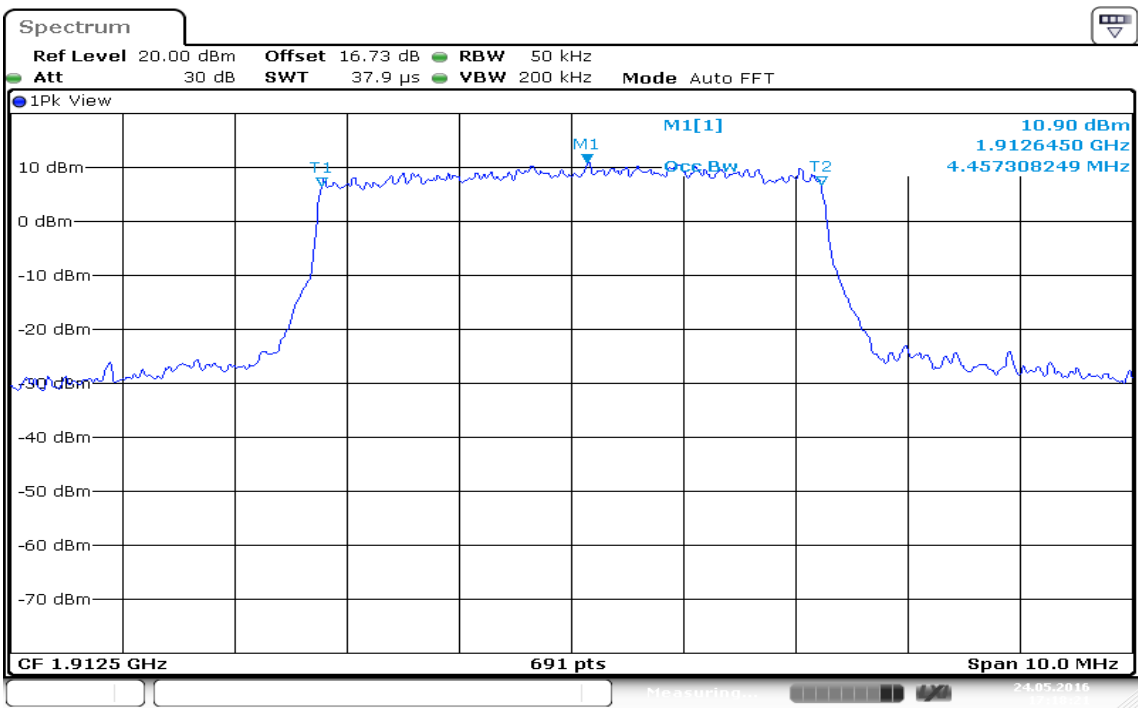
Date: 24.MAY.2016 17:17:50

CH Mid



Date: 24.MAY.2016 17:17:15

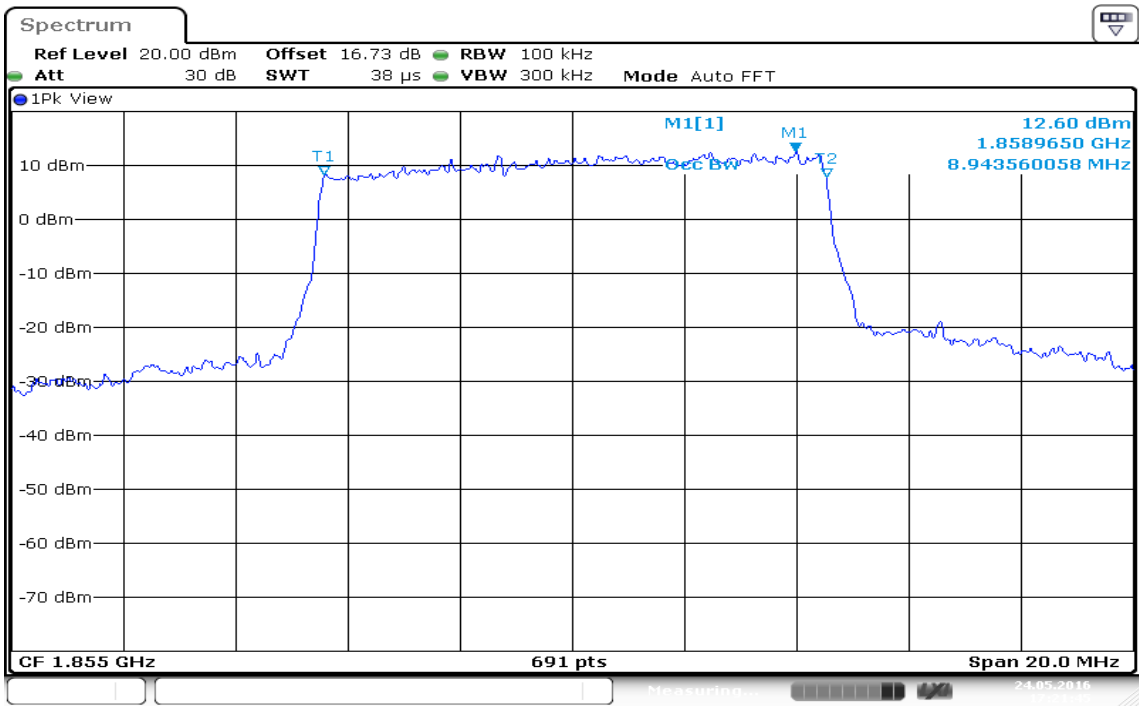
CH High



Date: 24.MAY.2016 17:18:21

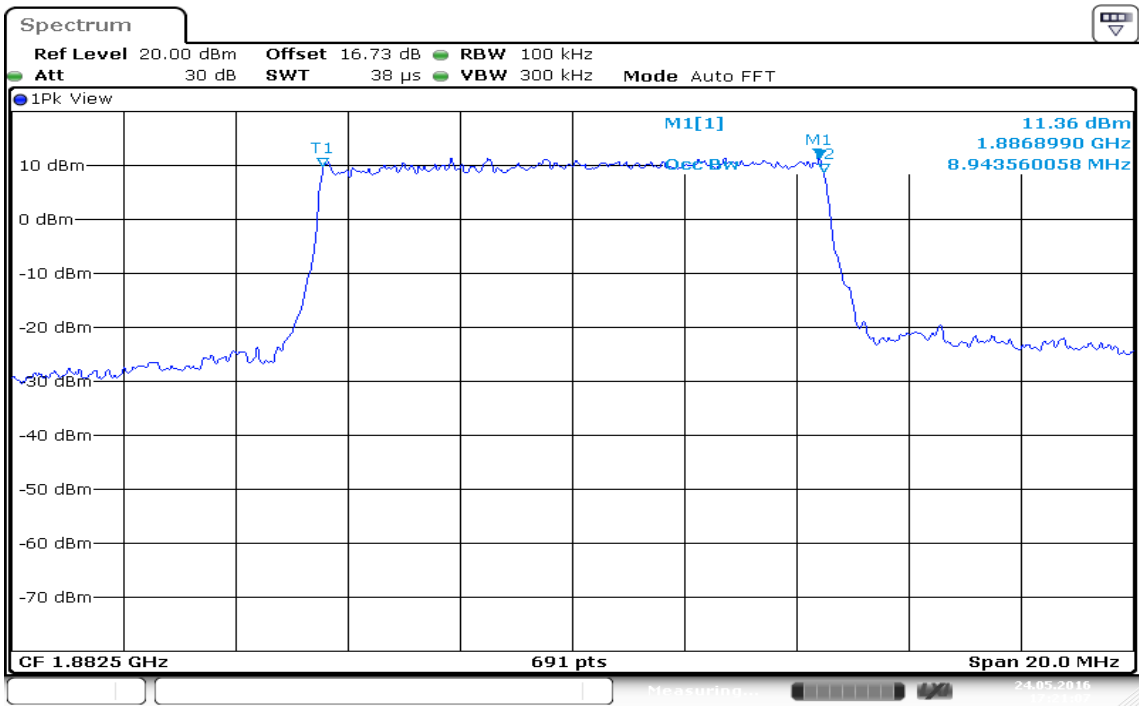
CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low



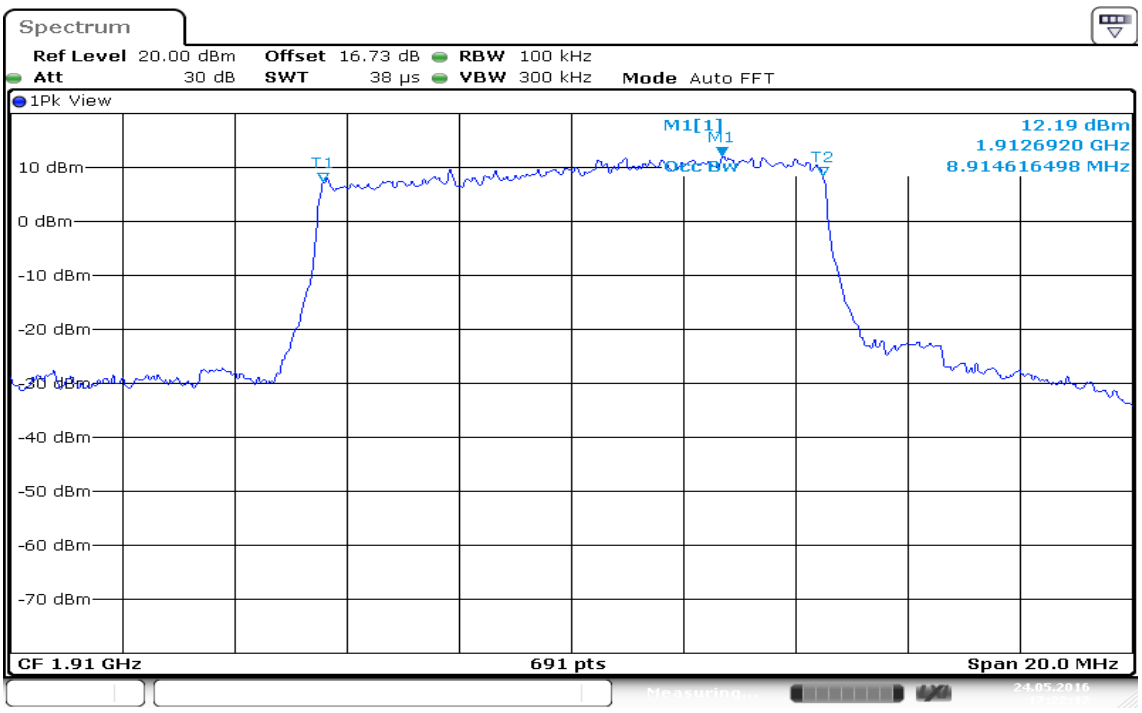
Date: 24.MAY.2016 17:21:45

CH Mid



Date: 24.MAY.2016 17:21:07

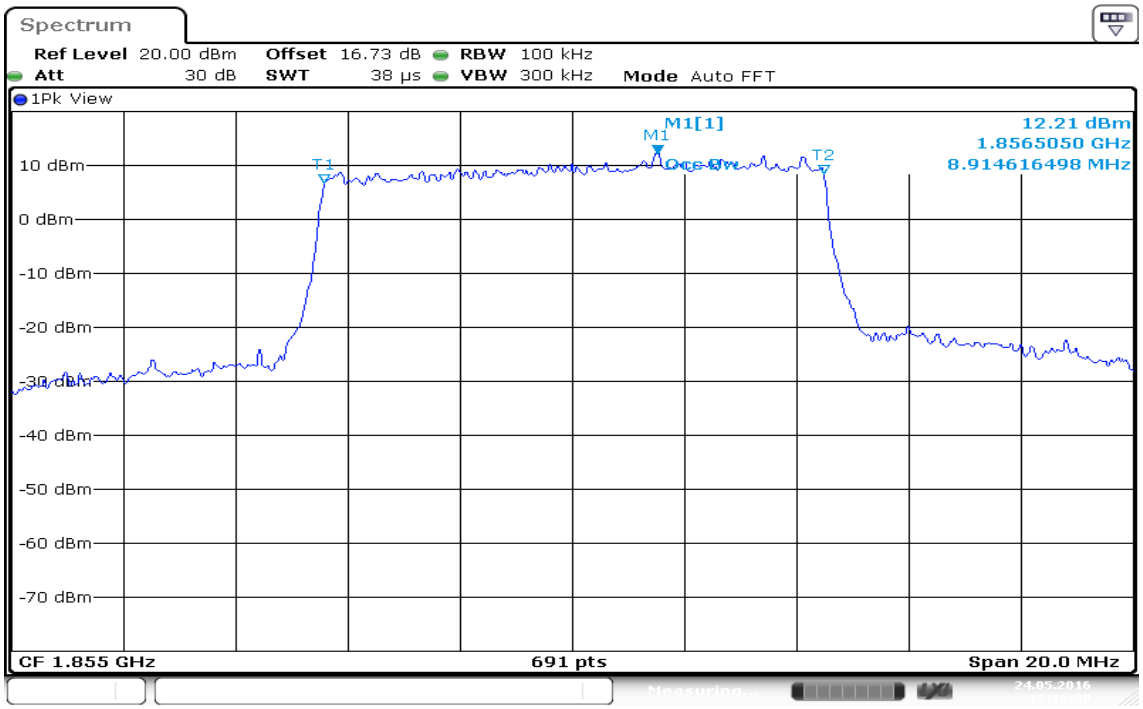
CH High



Date: 24.MAY.2016 17:22:12

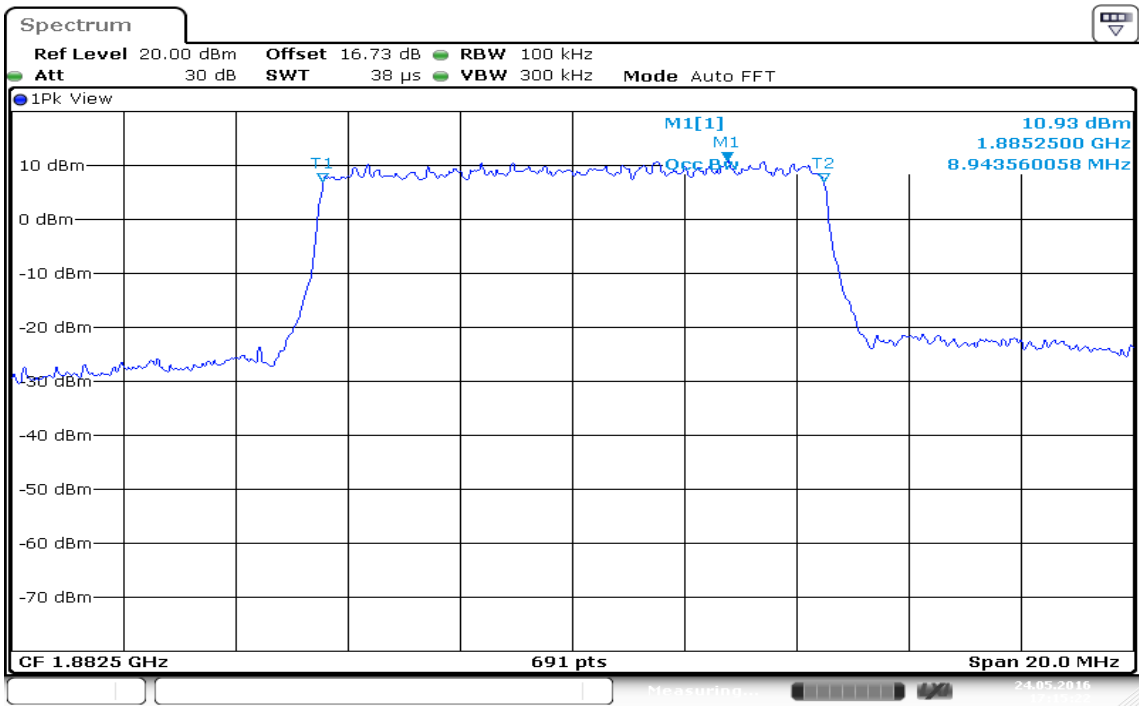
CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Low



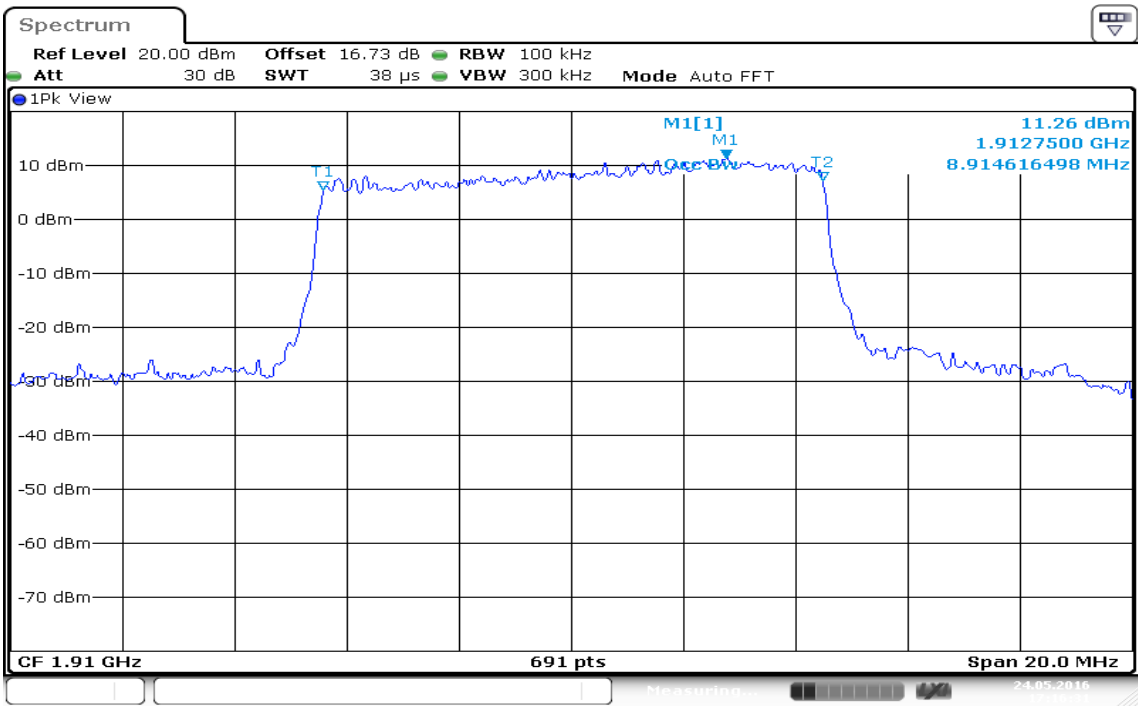
Date: 24.MAY.2016 17:16:00

CH Mid



Date: 24.MAY.2016 17:15:22

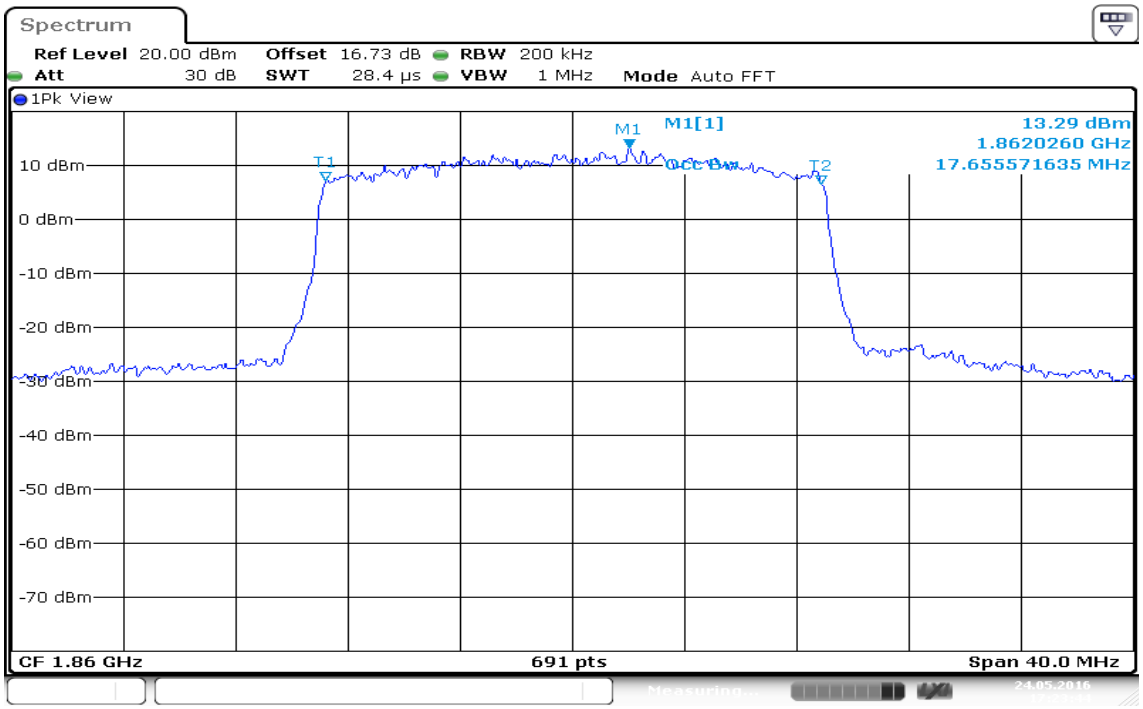
CH High



Date: 24.MAY.2016 17:16:31

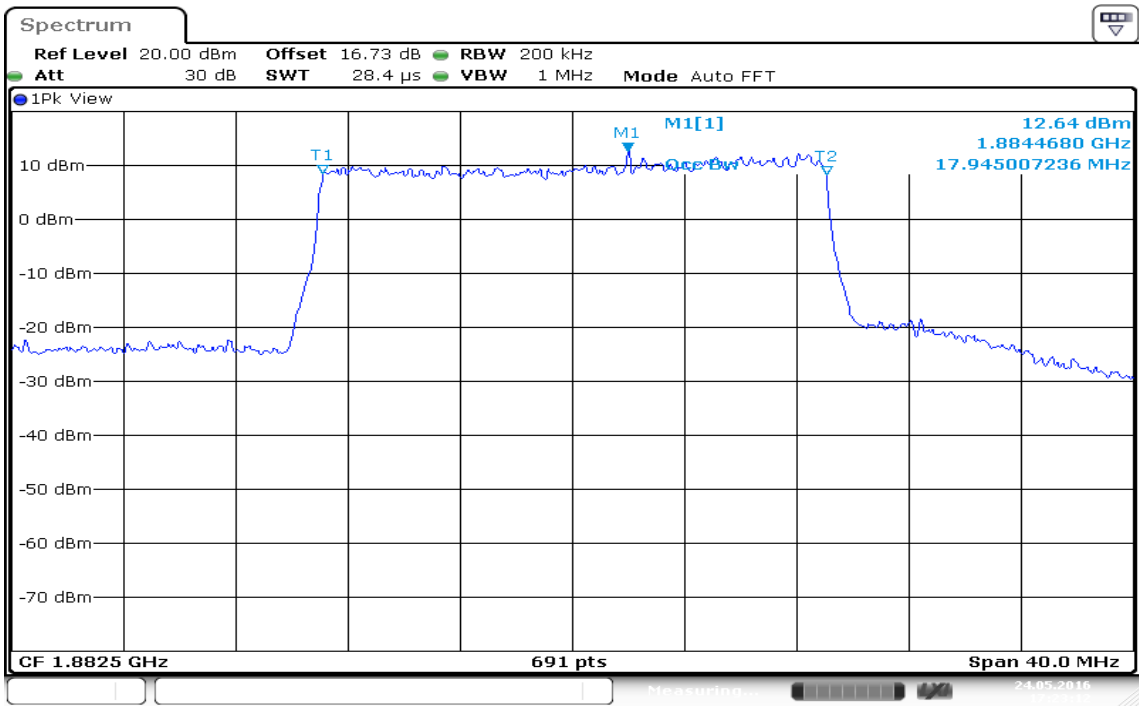
CHANNEL BANDWIDTH: 20MHz / QPSK

CH Low



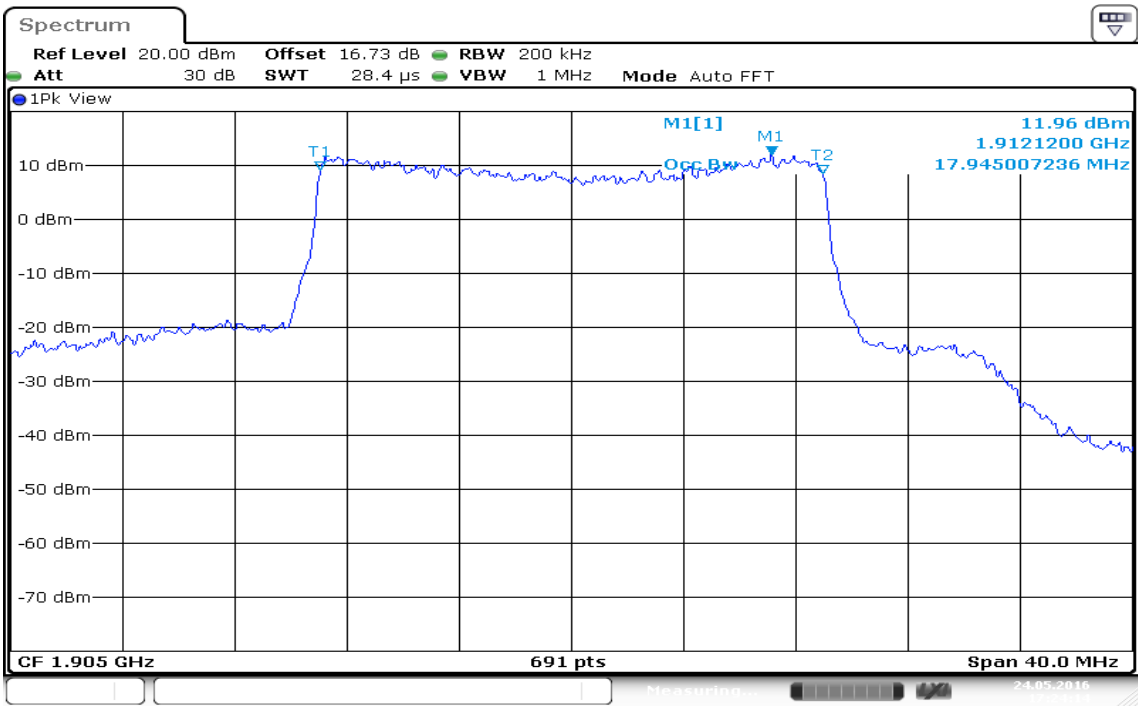
Date: 24.MAY.2016 17:23:44

CH Mid



Date: 24.MAY.2016 17:23:12

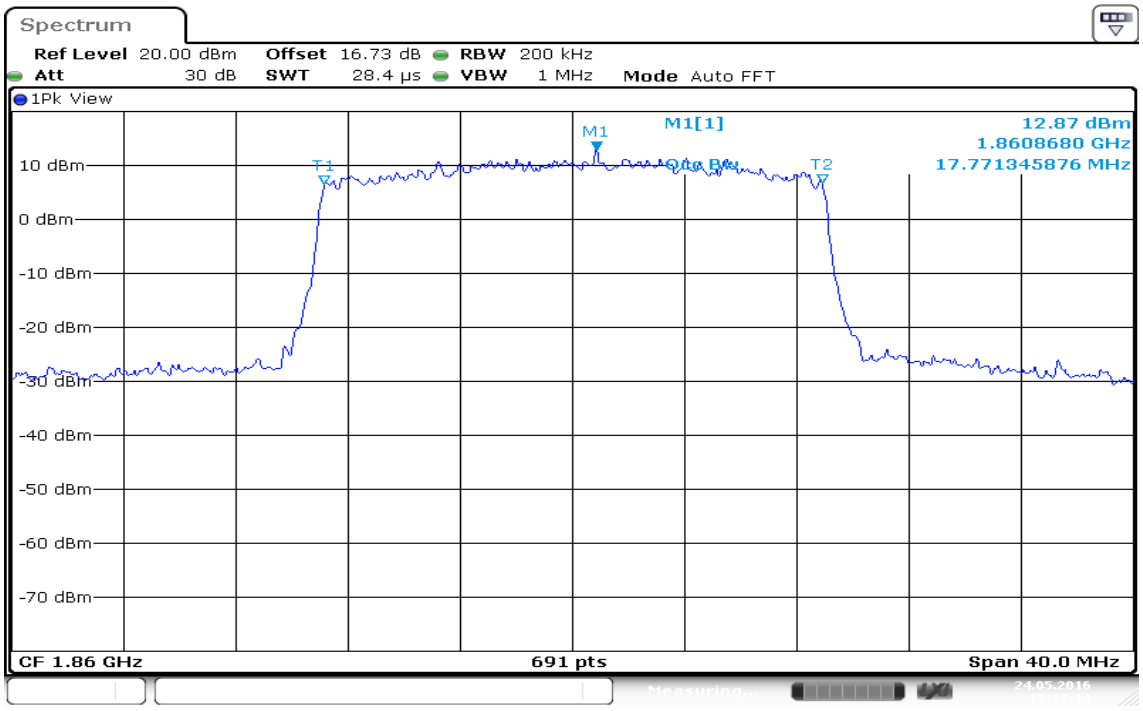
CH High



Date: 24.MAY.2016 17:24:14

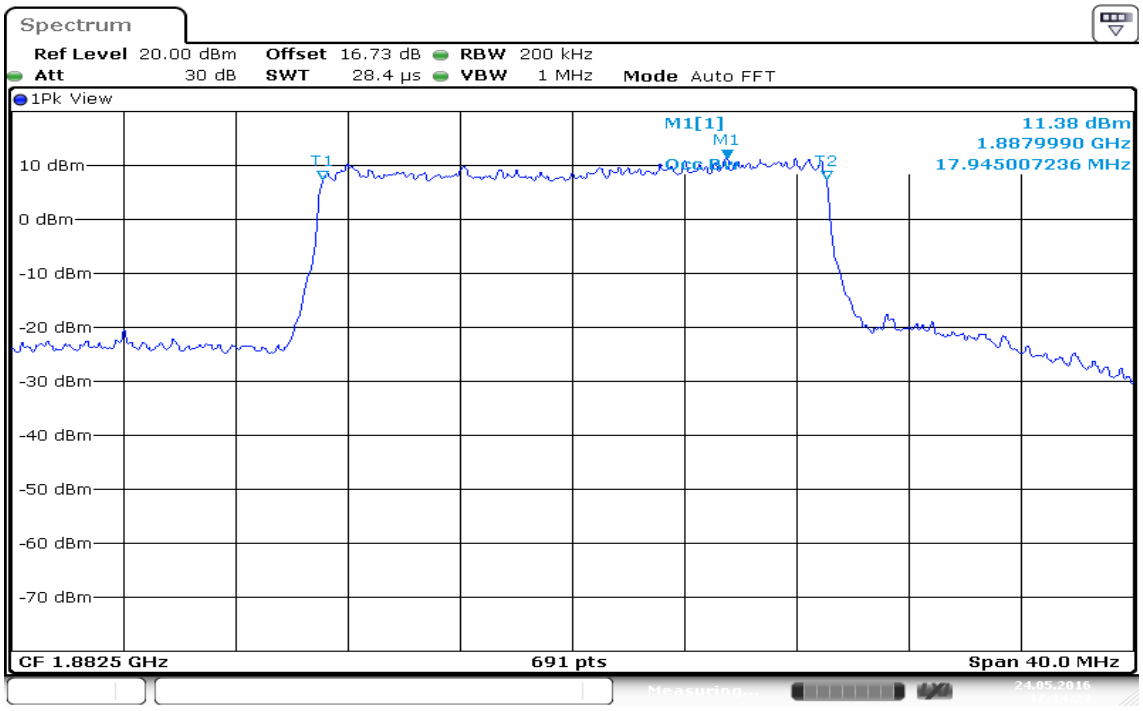
CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Low



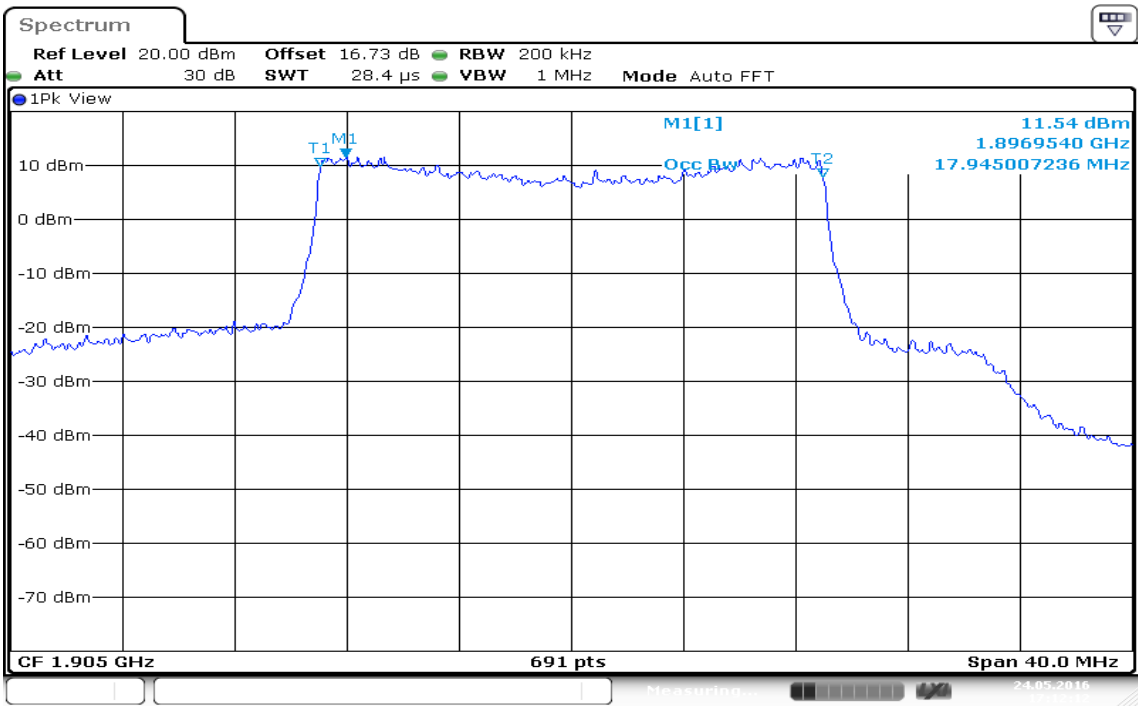
Date: 24.MAY.2016 17:13:14

CH Mid



Date: 24.MAY.2016 17:14:24

CH High

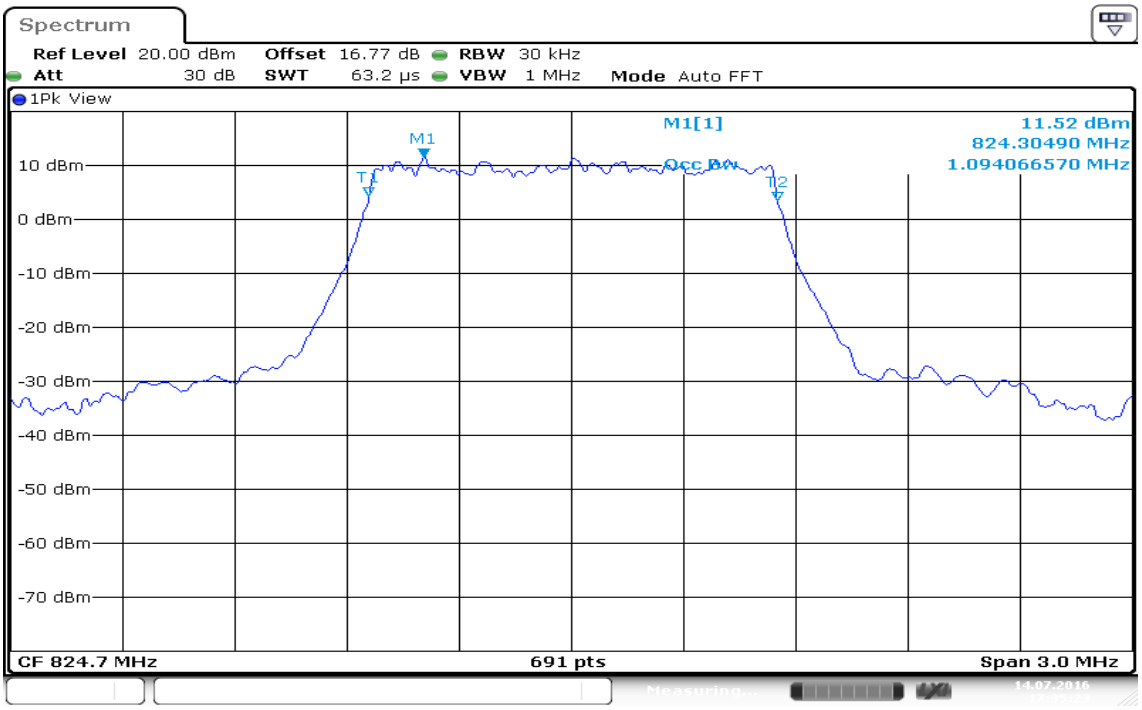


Date: 24.MAY.2016 17:12:12

LTE Band 5

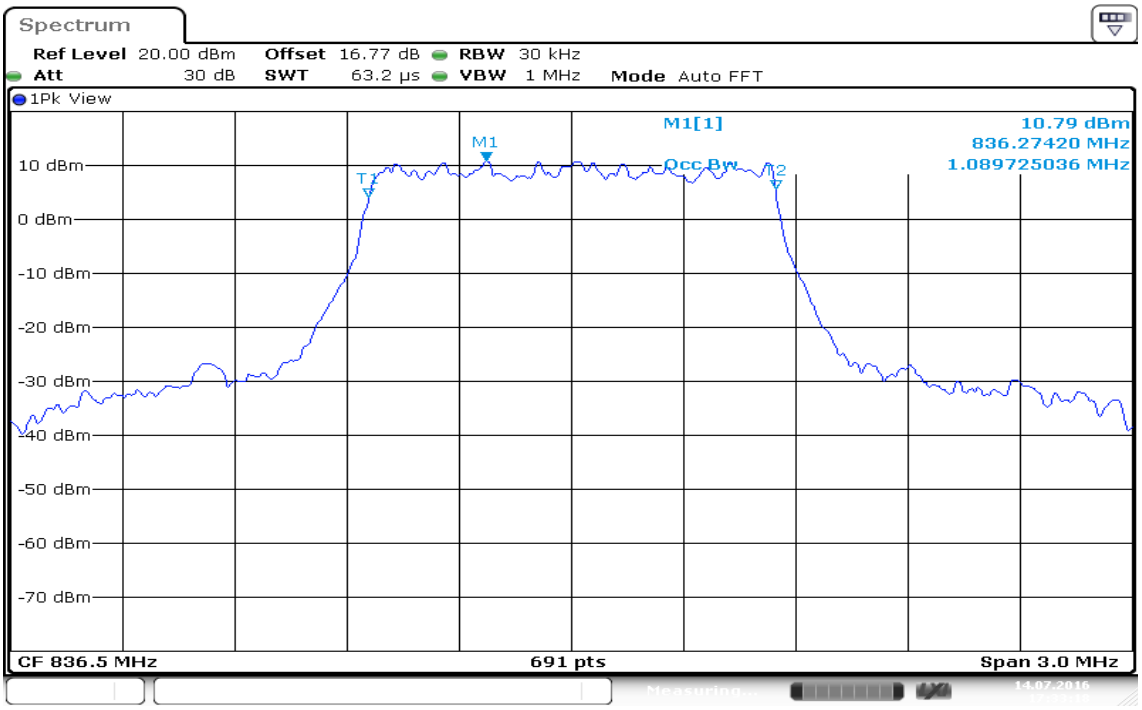
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Low



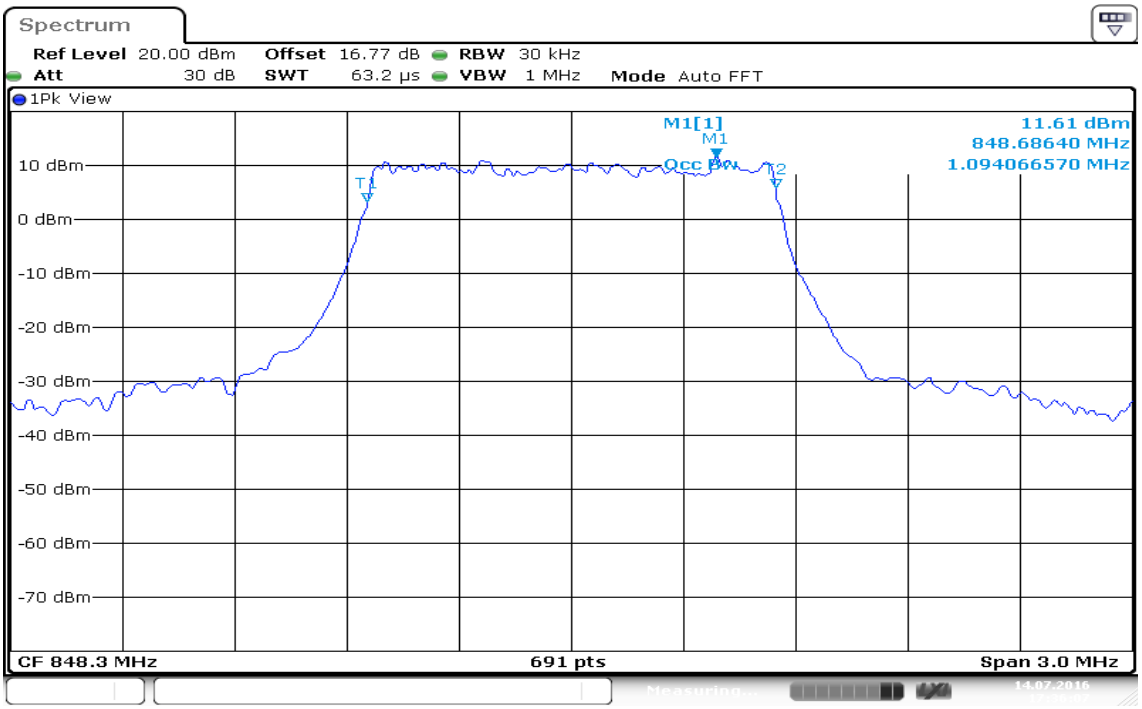
Date: 14.JUL.2016 17:35:23

CH Mid



Date: 14.JUL.2016 17:33:18

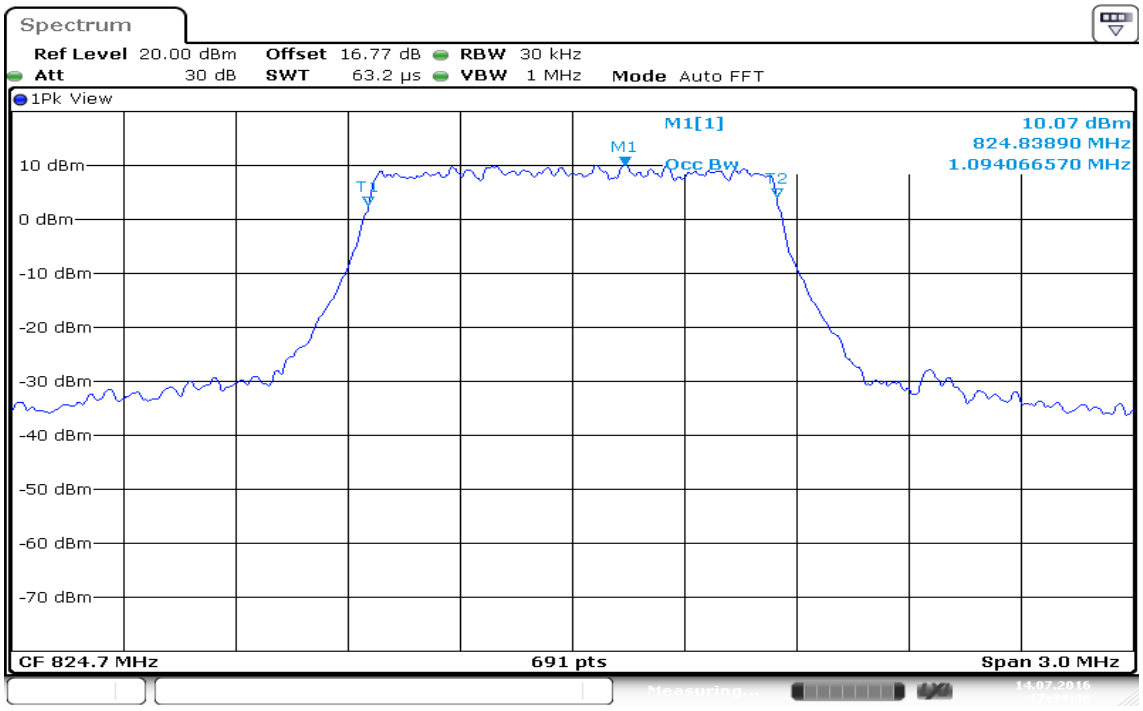
CH High



Date: 14.JUL.2016 17:36:07

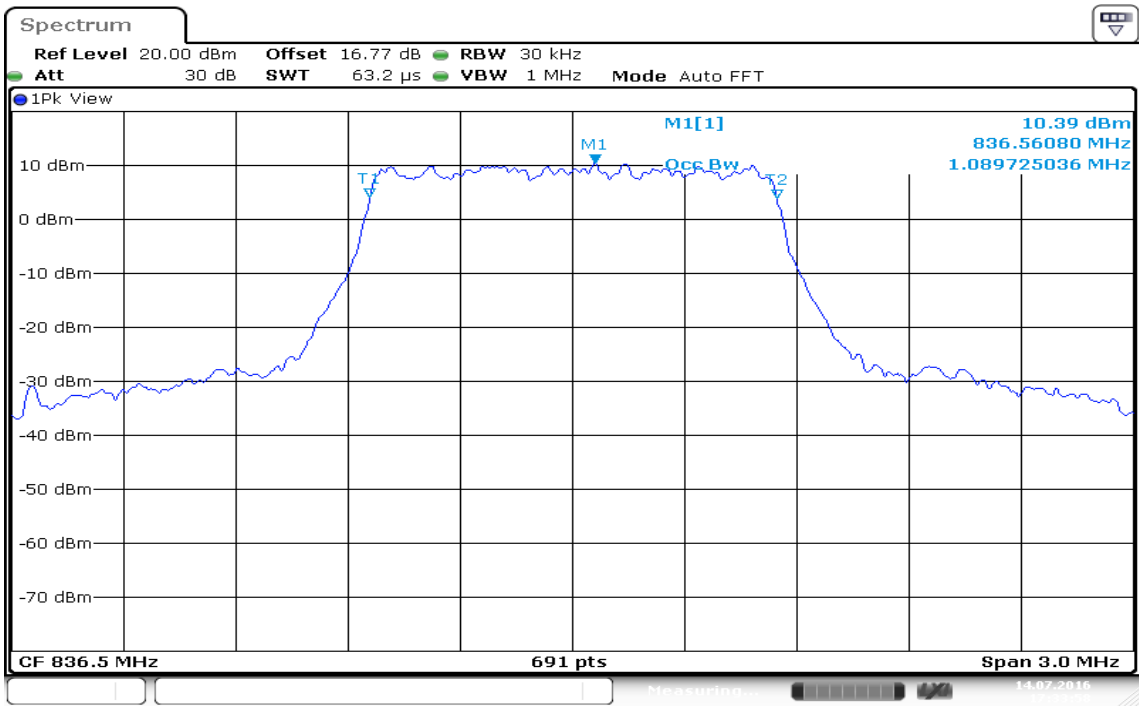
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Low



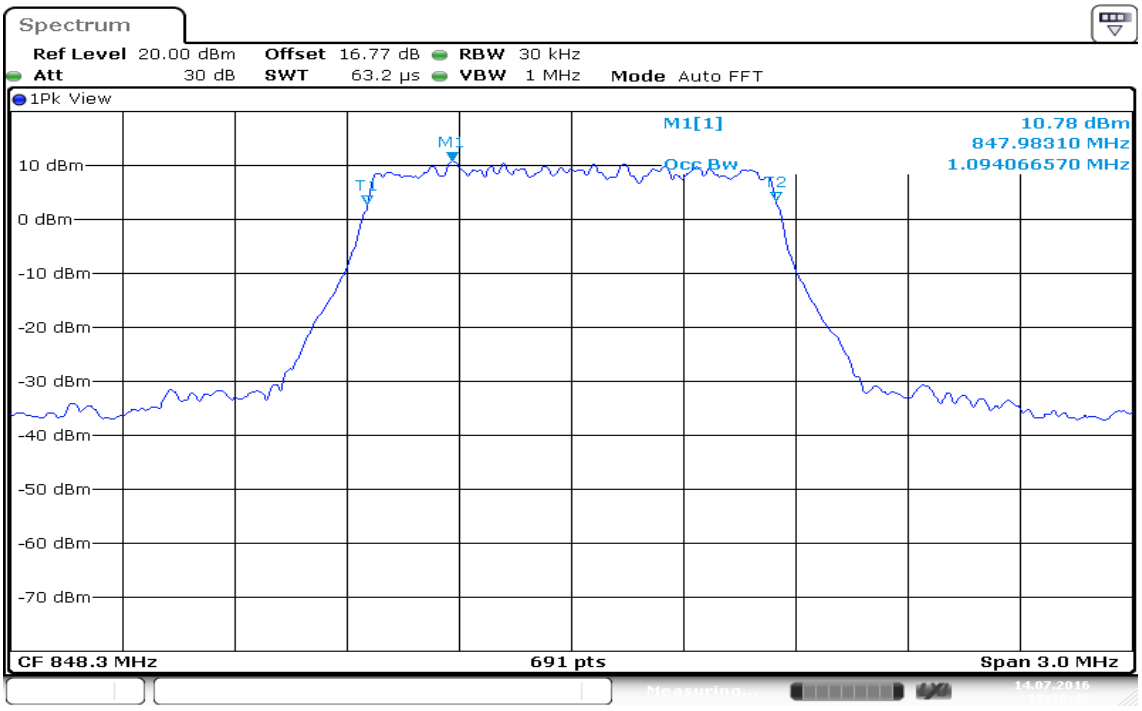
Date: 14.JUL.2016 17:34:46

CH Mid



Date: 14.JUL.2016 17:33:58

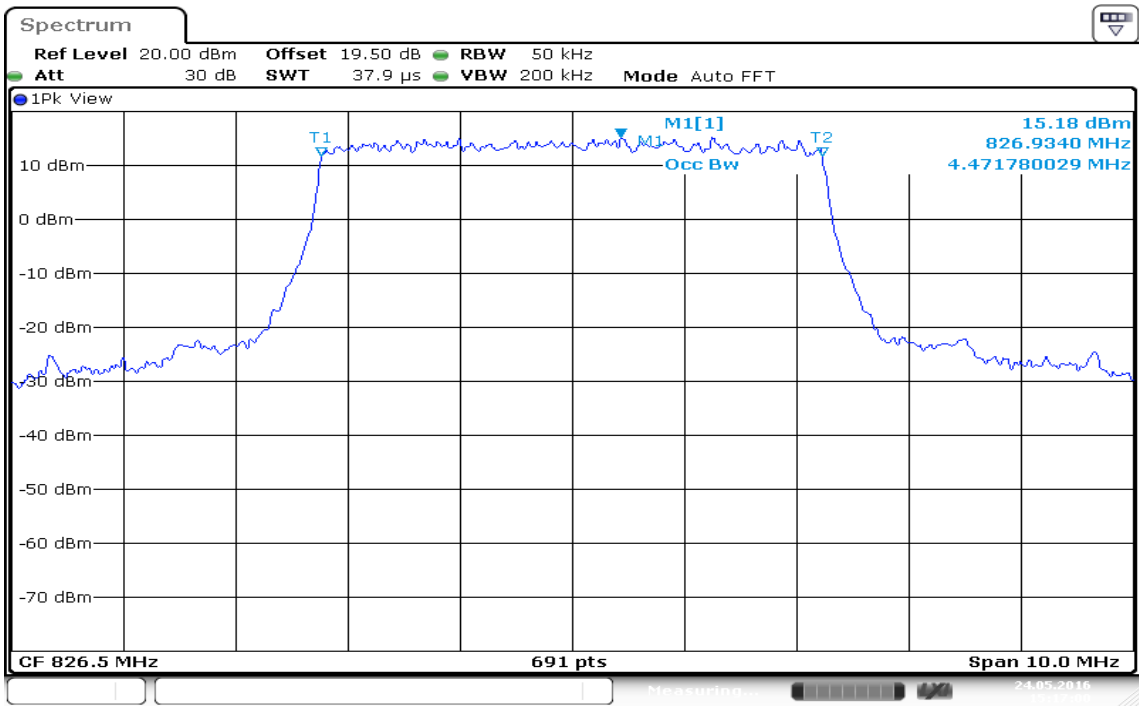
CH High



Date: 14.JUL.2016 17:38:45

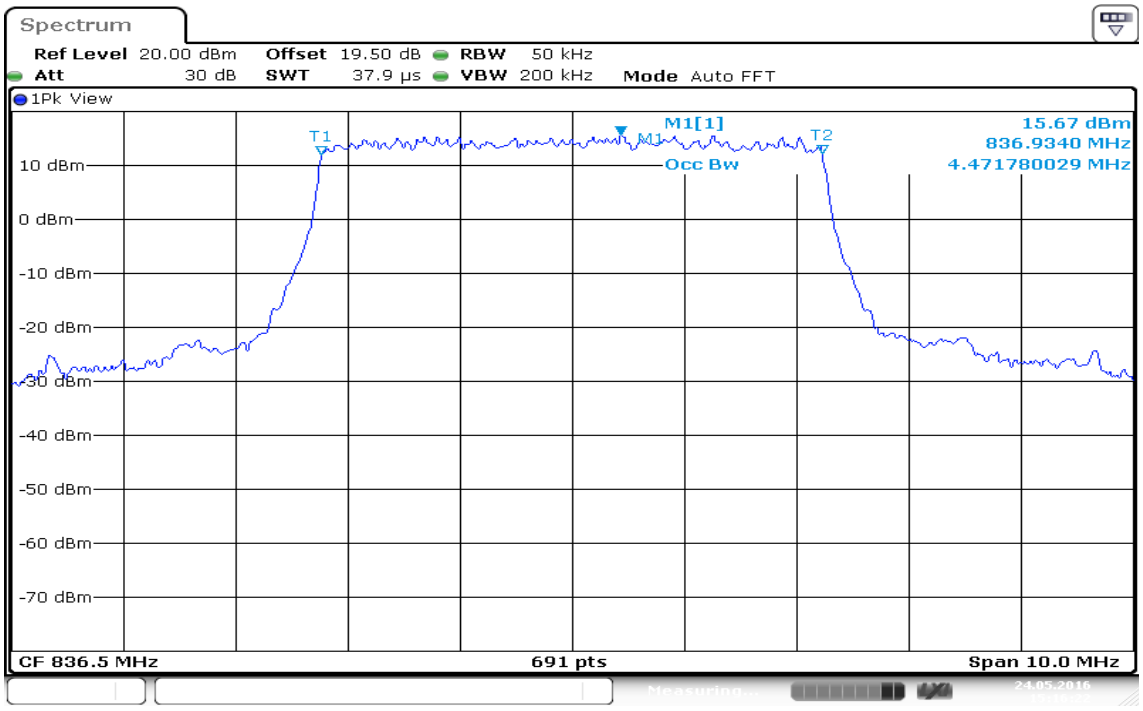
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



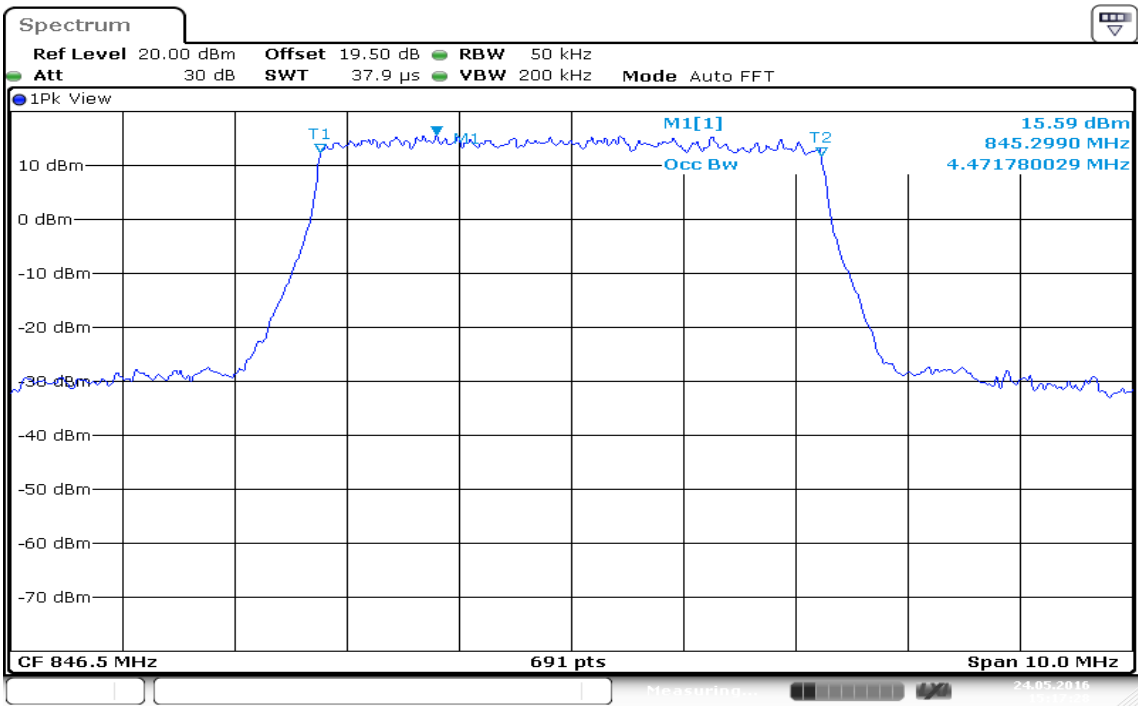
Date: 24.MAY.2016 15:17:00

CH Mid



Date: 24.MAY.2016 15:16:22

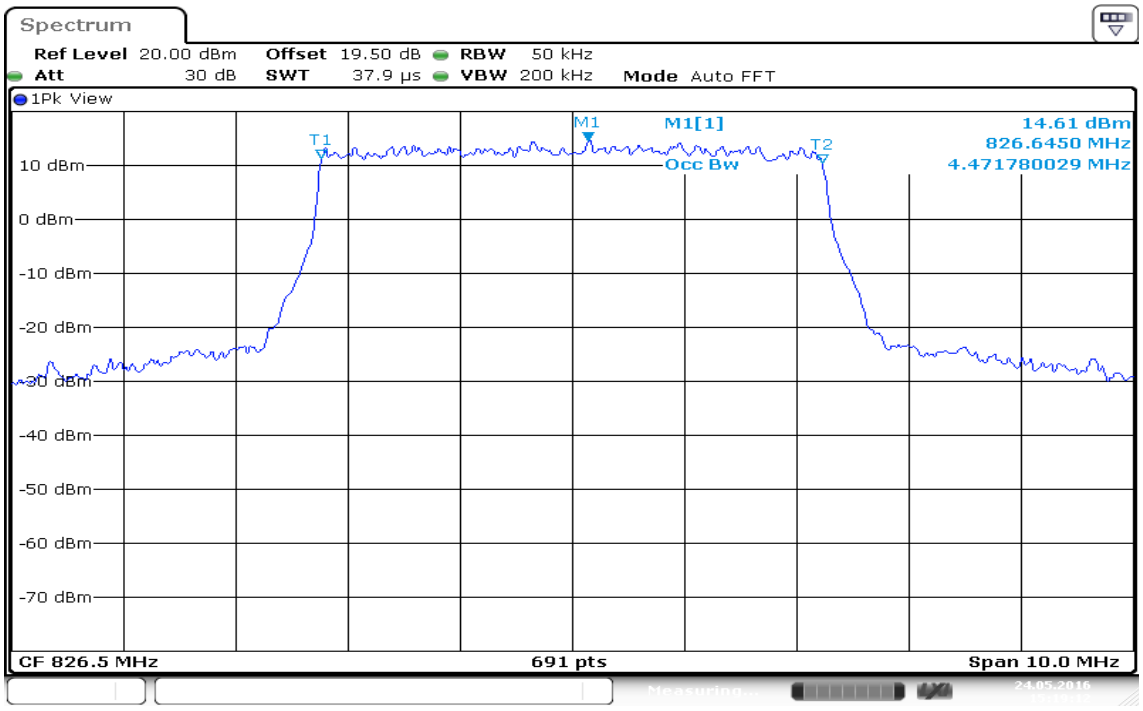
CH High



Date: 24.MAY.2016 15:17:28

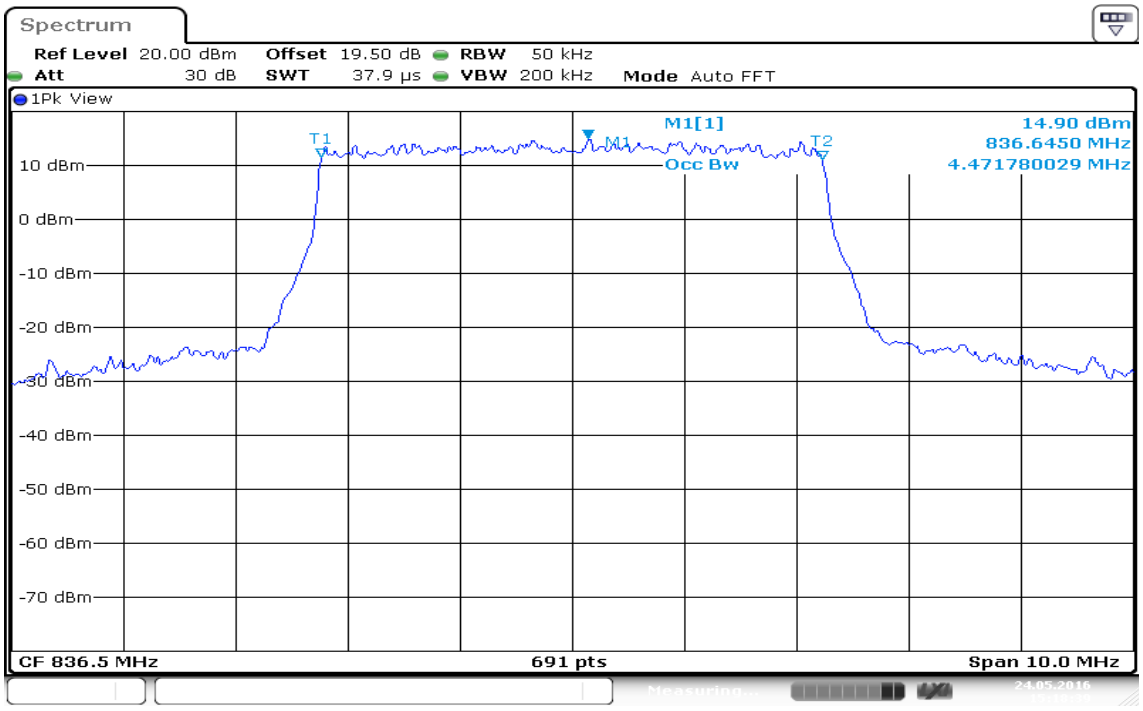
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



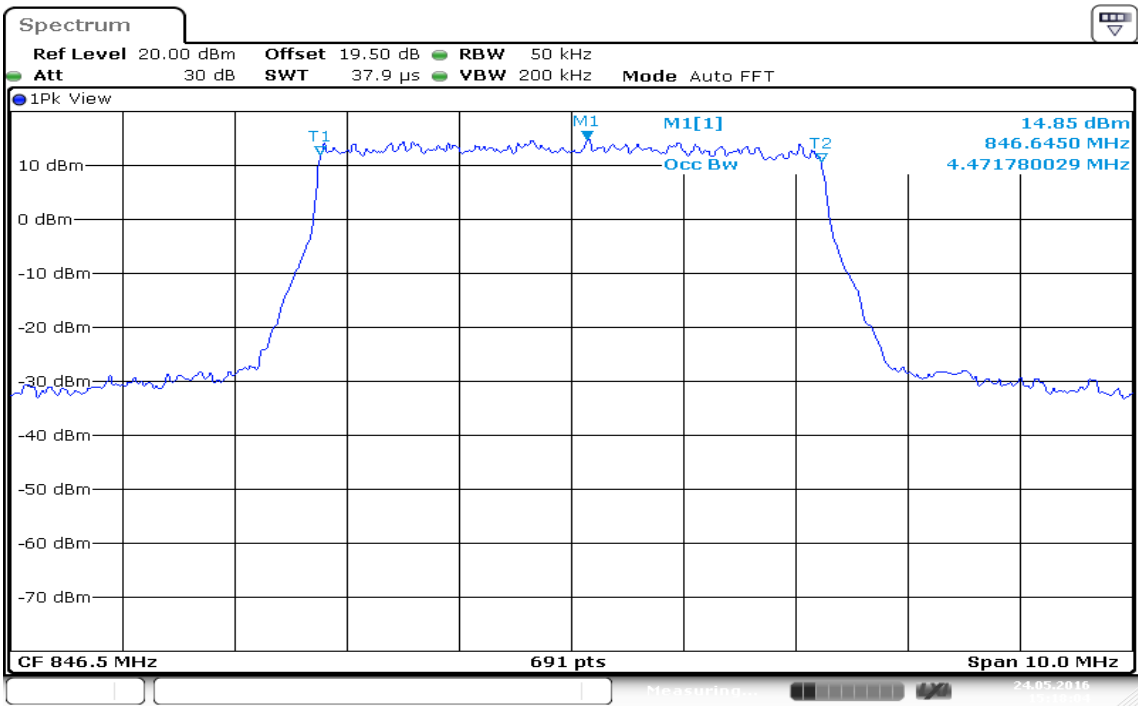
Date: 24.MAY.2016 15:19:12

CH Mid



Date: 24.MAY.2016 15:18:39

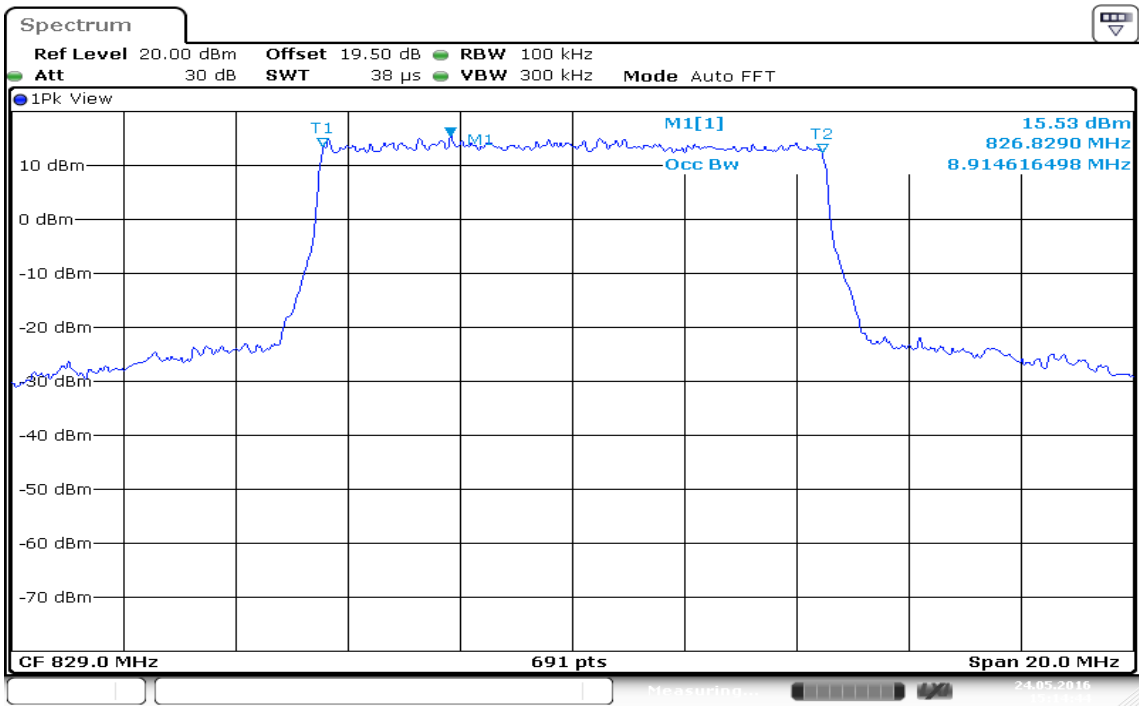
CH High



Date: 24.MAY.2016 15:18:04

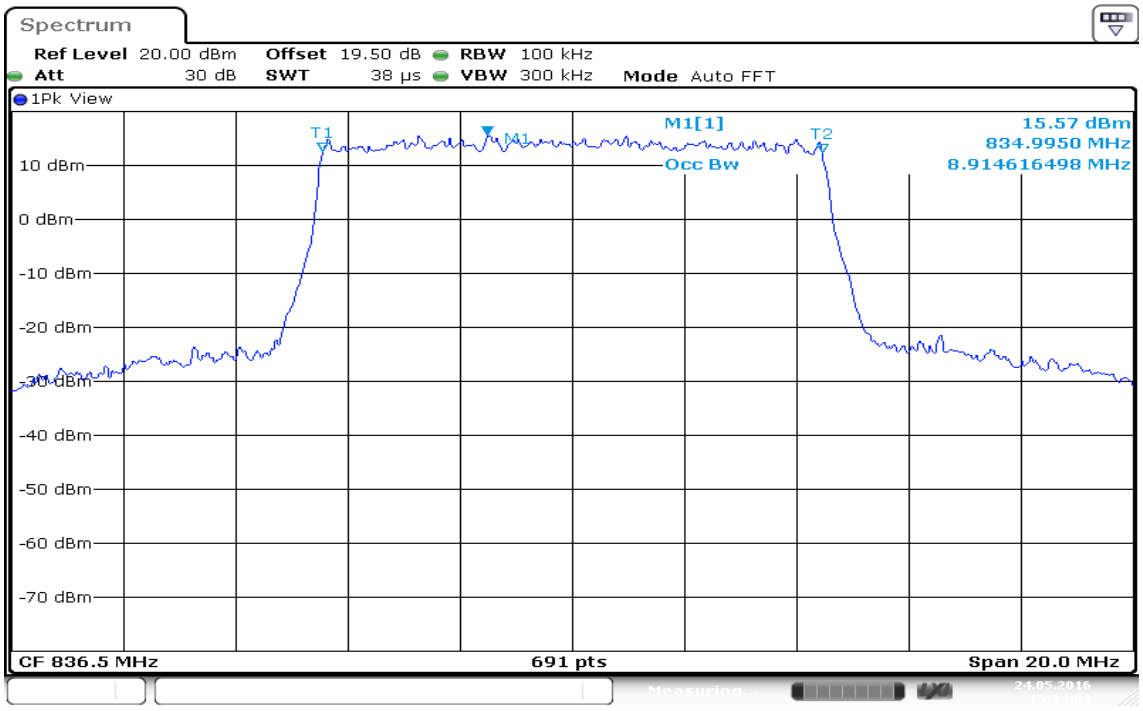
CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low



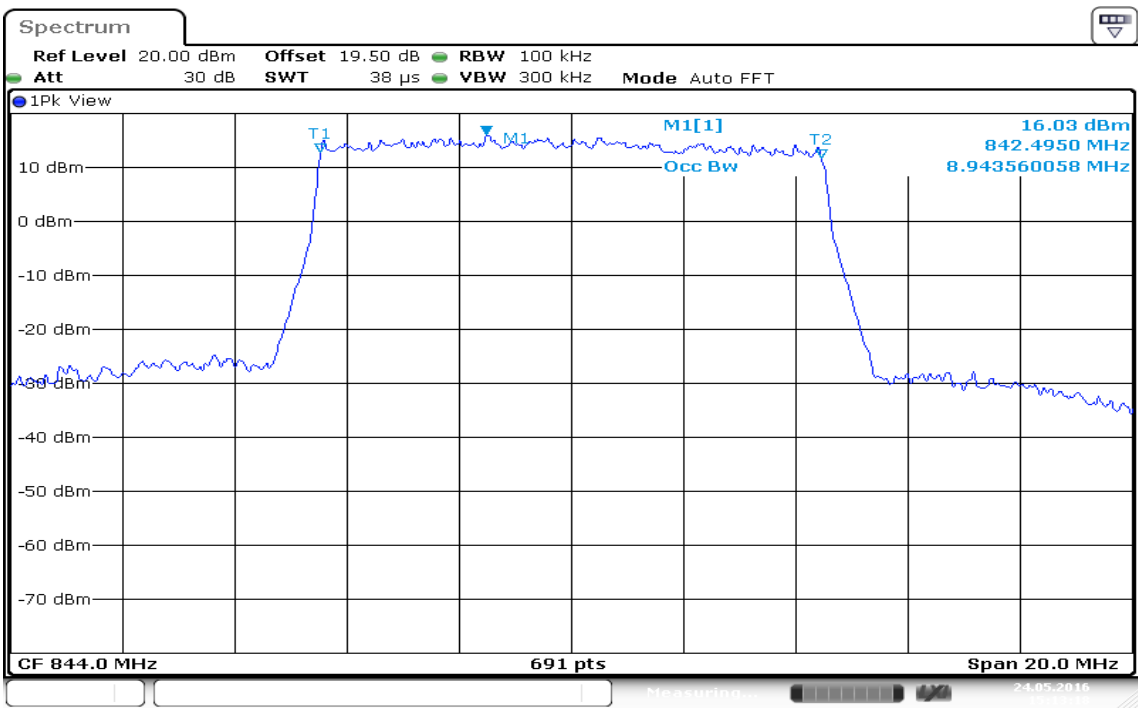
Date: 24.MAY.2016 15:14:44

CH Mid



Date: 24.MAY.2016 15:14:01

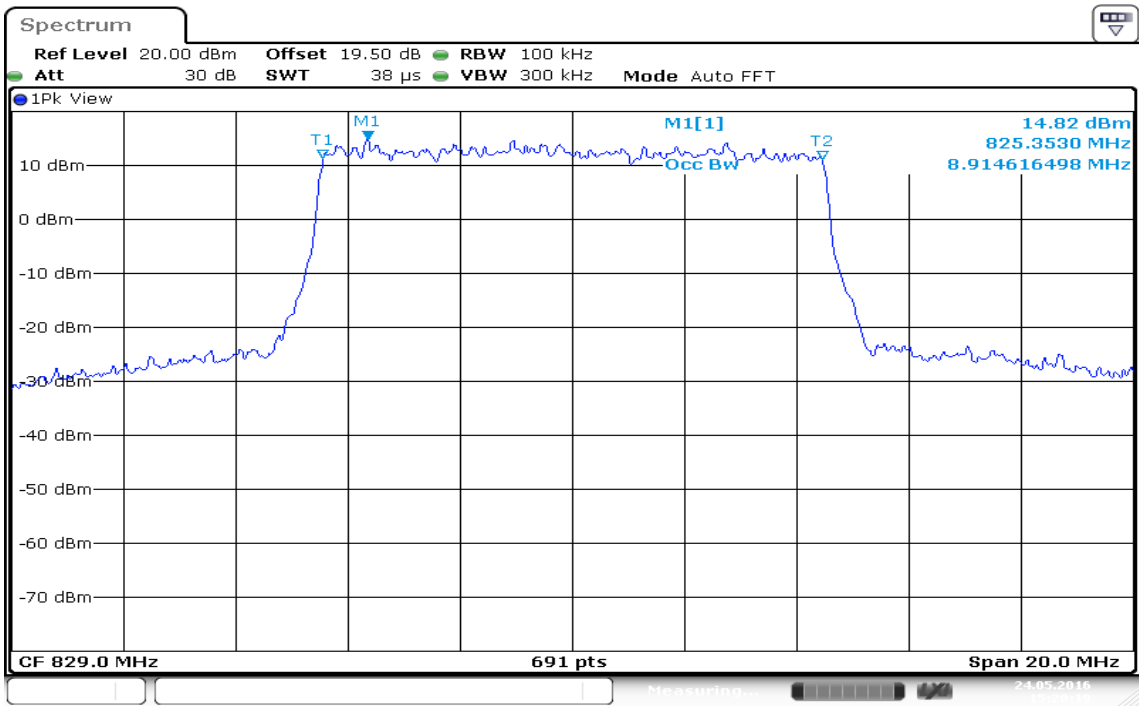
CH High



Date: 24.MAY.2016 15:13:18

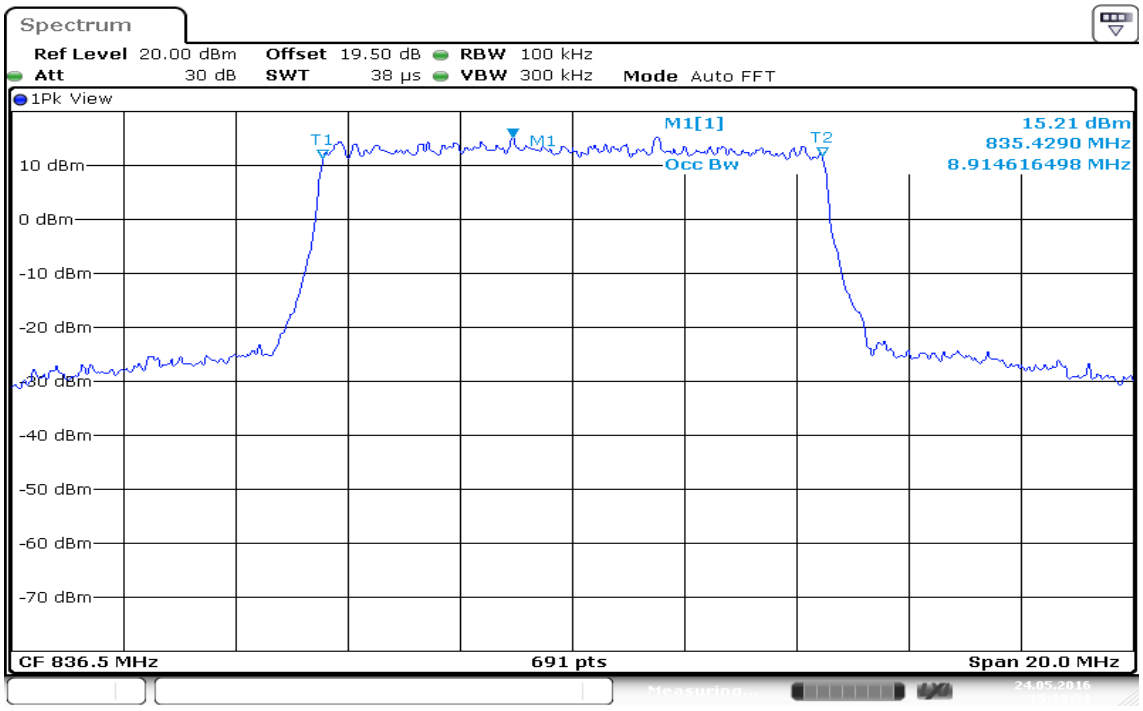
CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Low



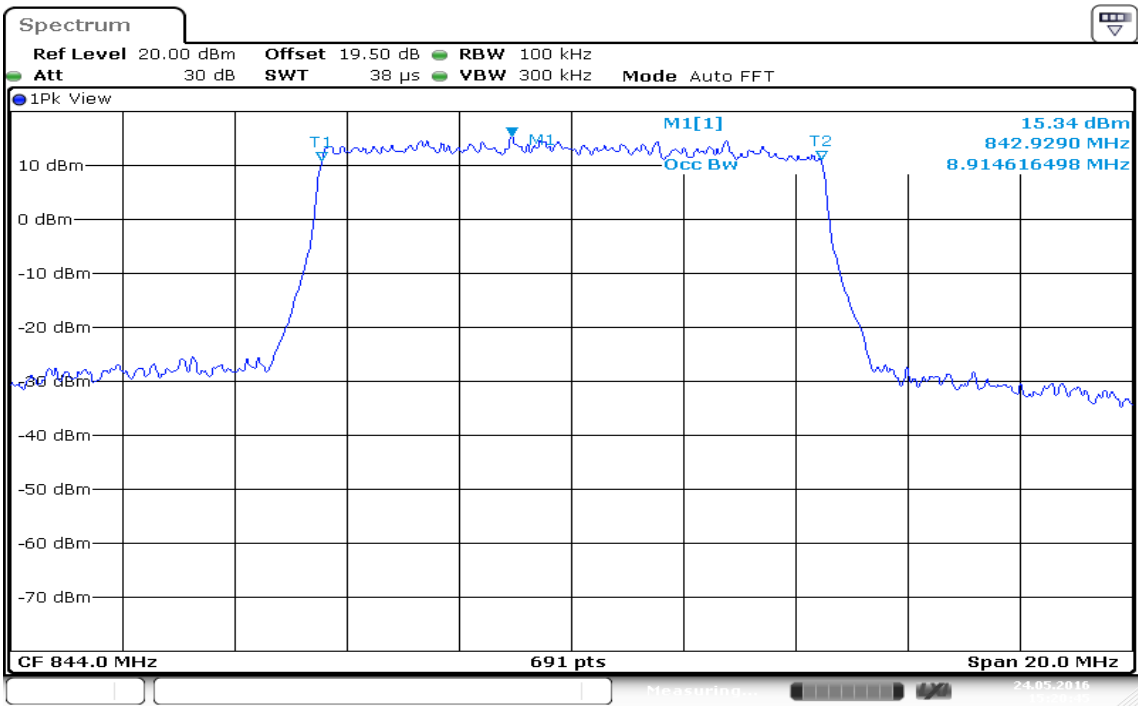
Date: 24.MAY.2016 15:20:18

CH Mid



Date: 24.MAY.2016 15:19:51

CH High

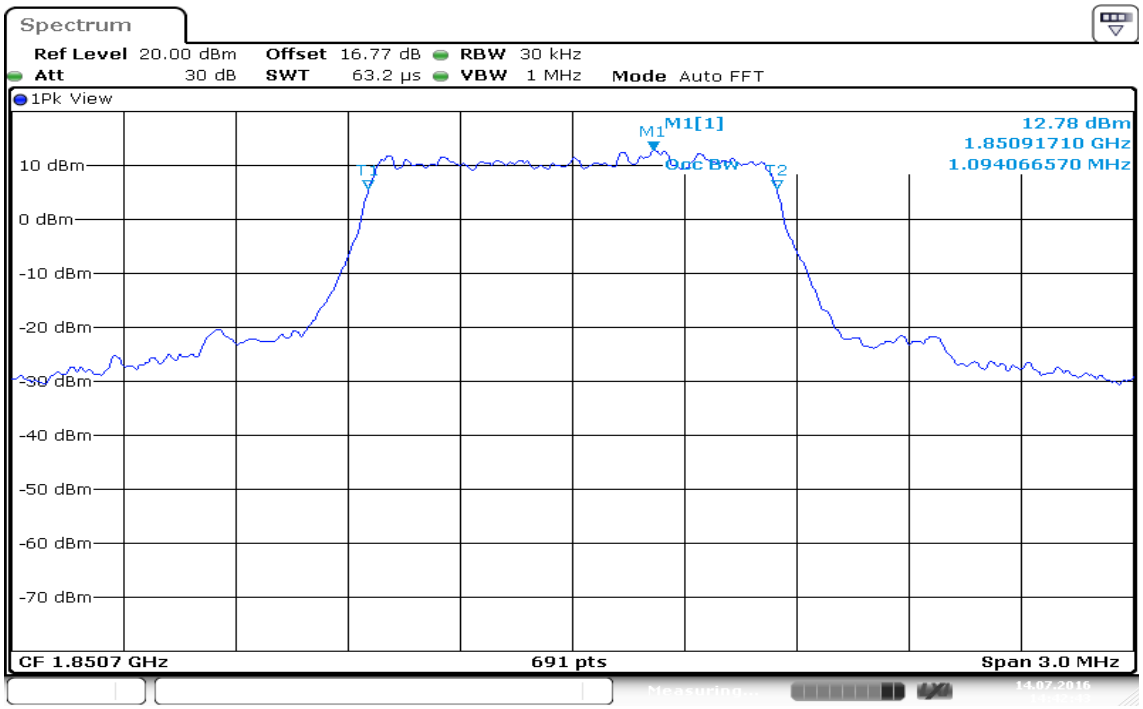


Date: 24.MAY.2016 15:20:45

LTE Band 2

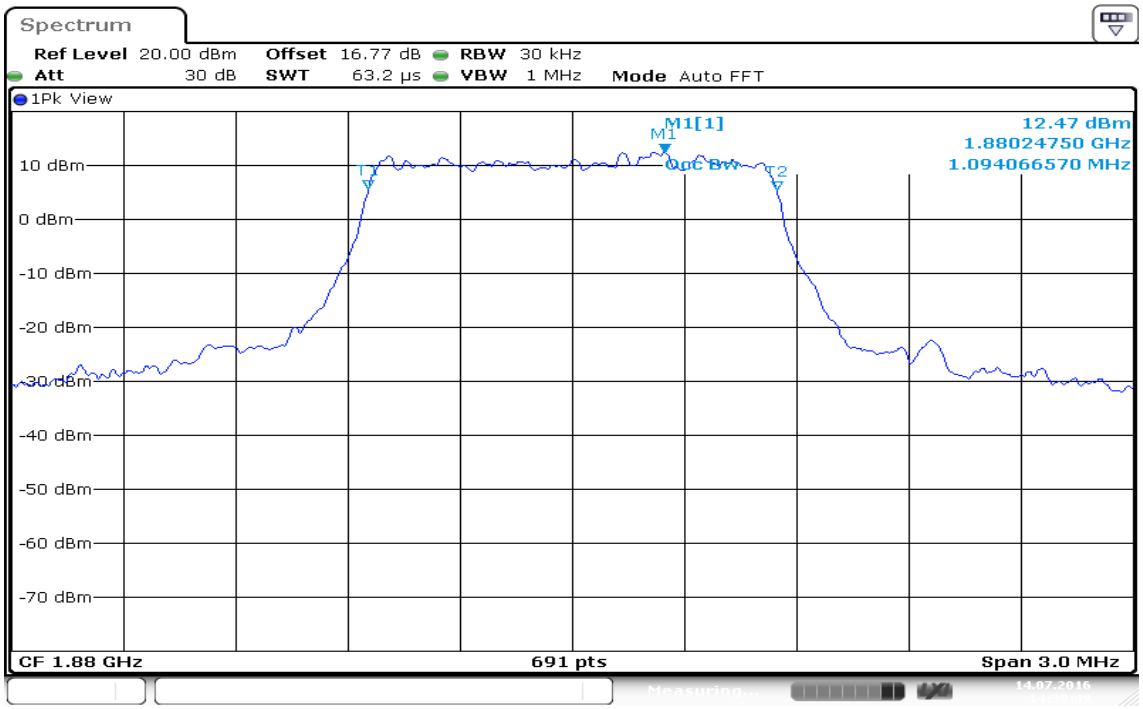
CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Low



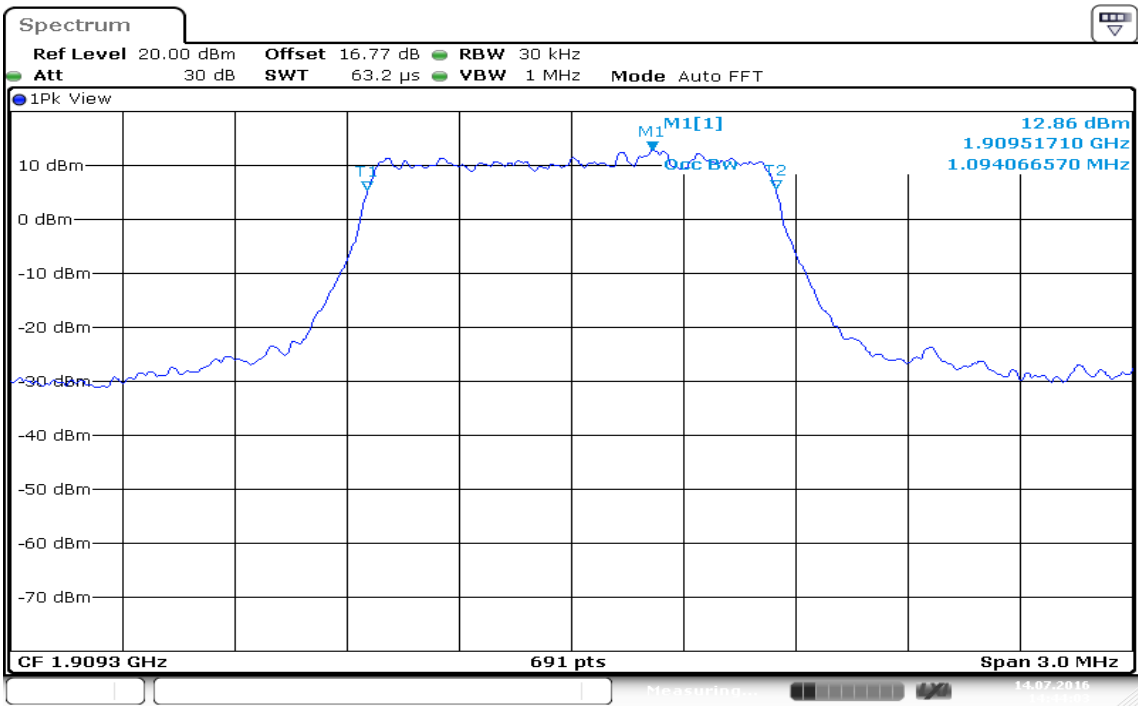
Date: 14.JUL.2016 14:42:43

CH Mid



Date: 14.JUL.2016 14:39:49

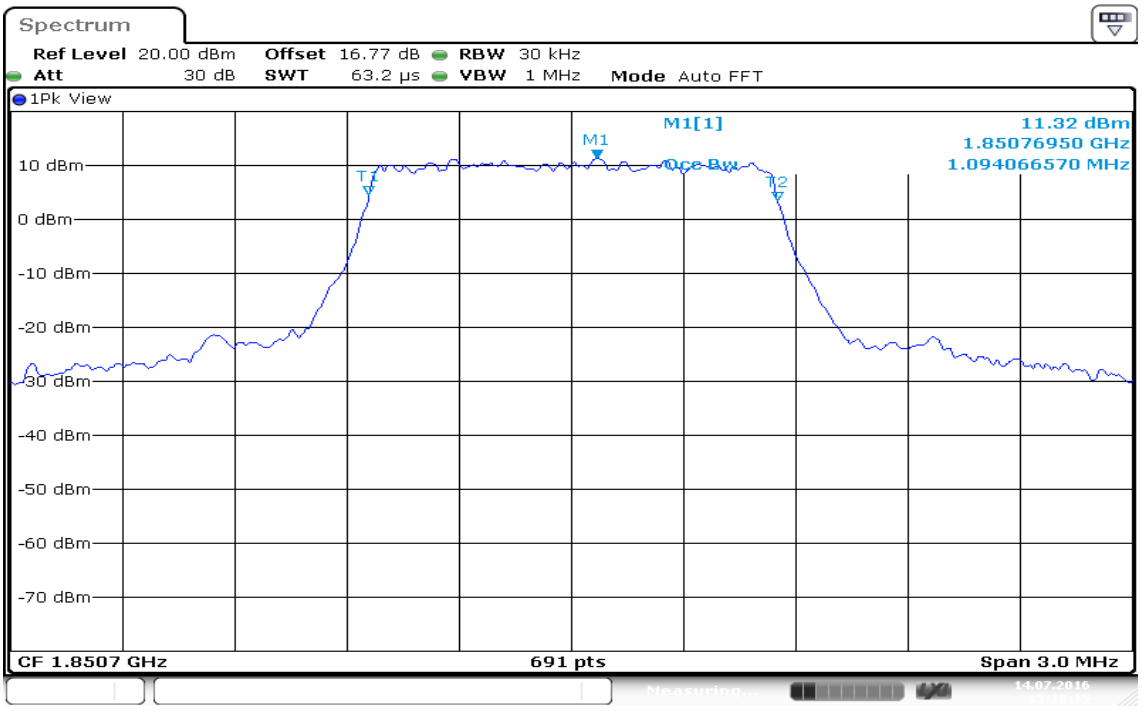
CH High



Date: 14.JUL.2016 14:44:03

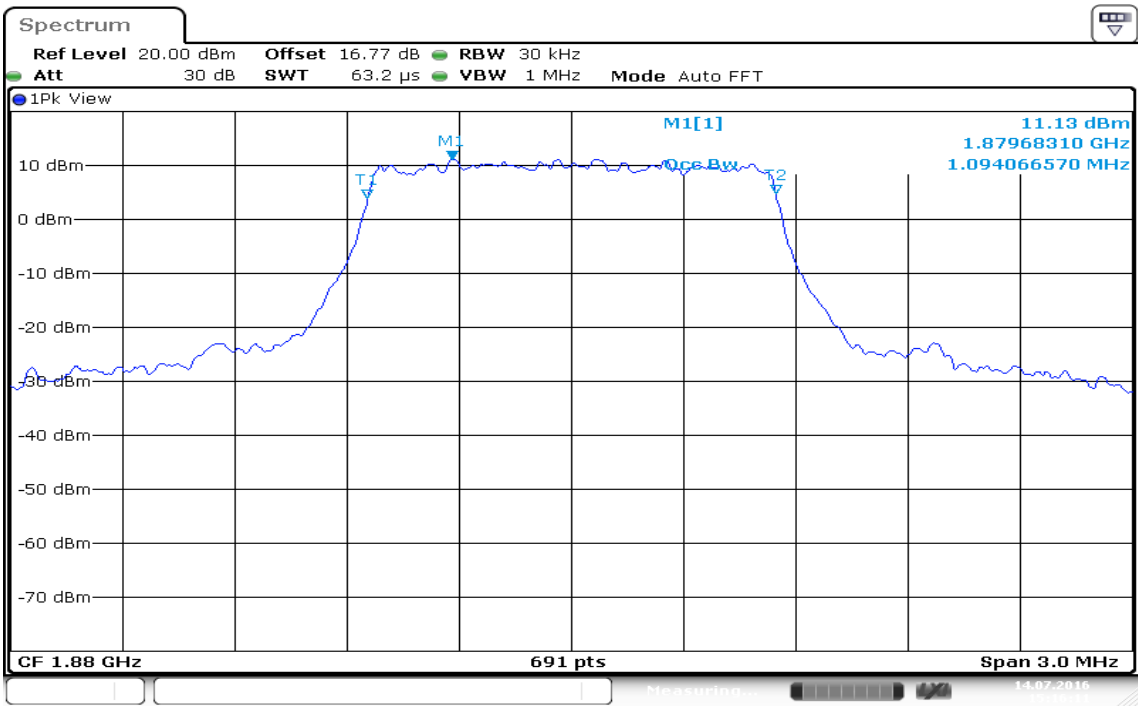
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Low



Date: 14.JUL.2016 15:18:15

CH Mid



Date: 14.JUL.2016 15:16:12

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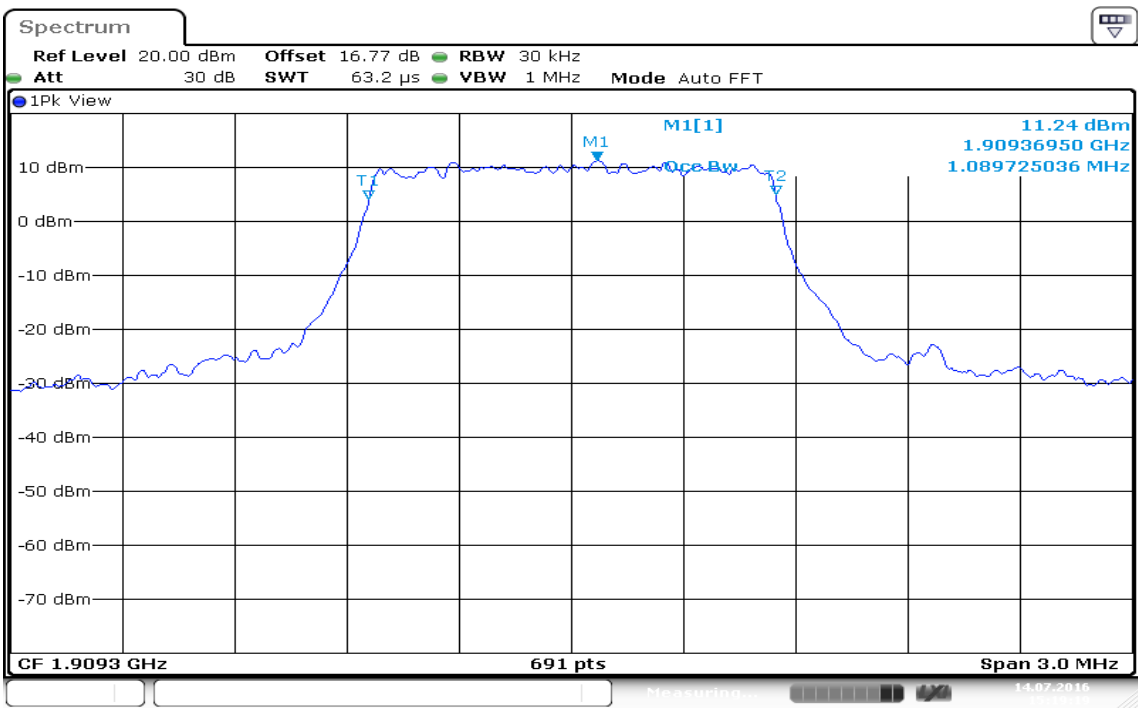
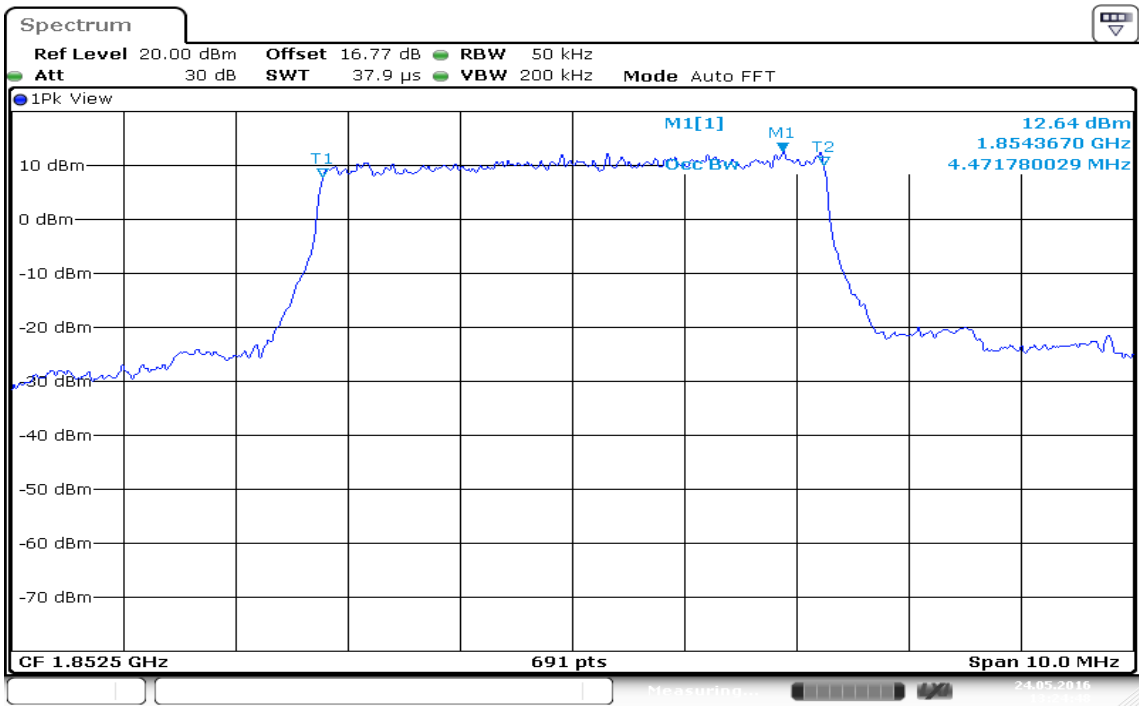


Date: 14.JUL.2016 15:19:20

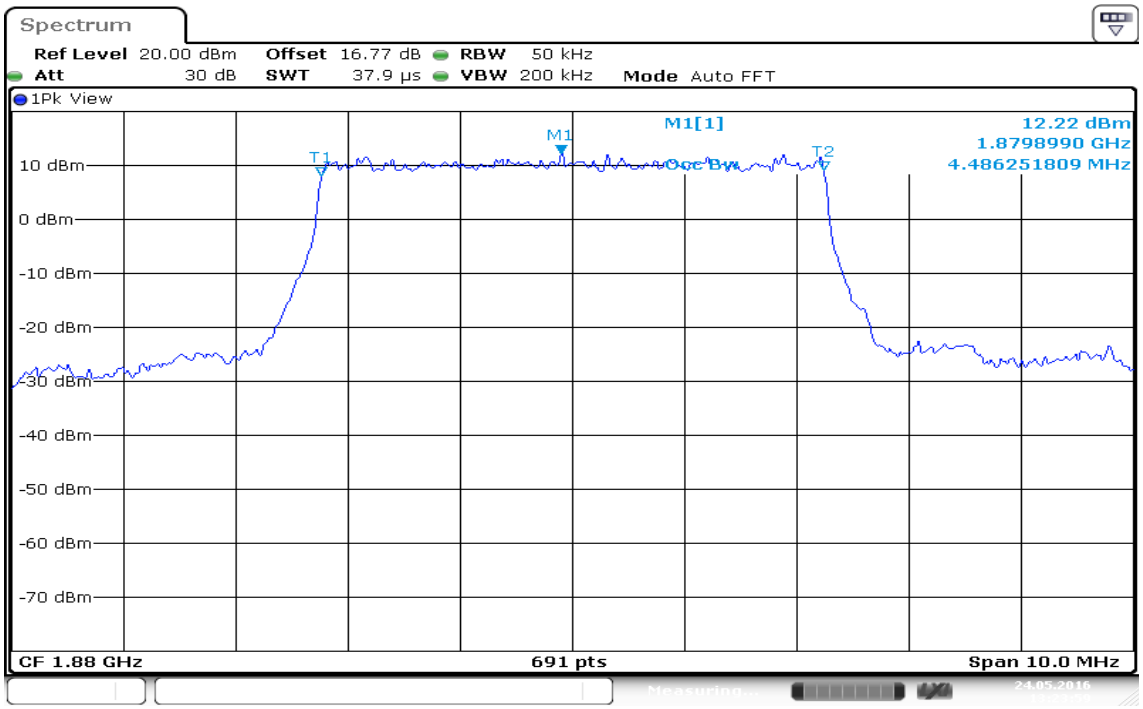
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



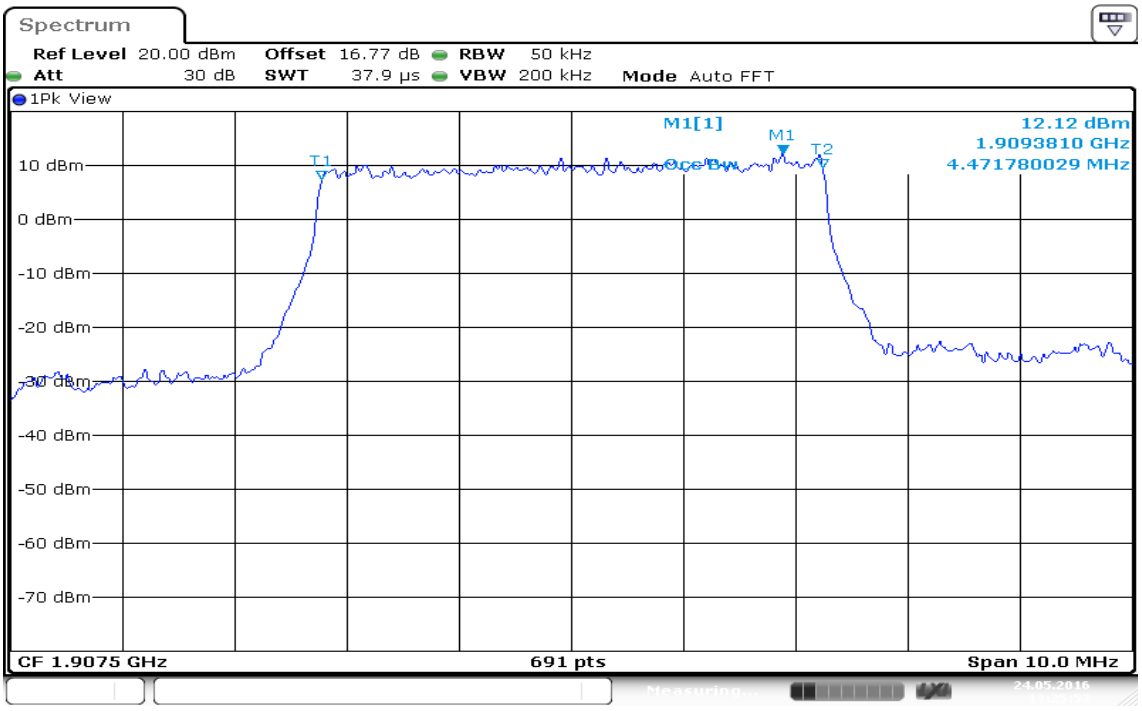
Date: 24.MAY.2016 13:24:48

CH Mid



Date: 24.MAY.2016 13:23:59

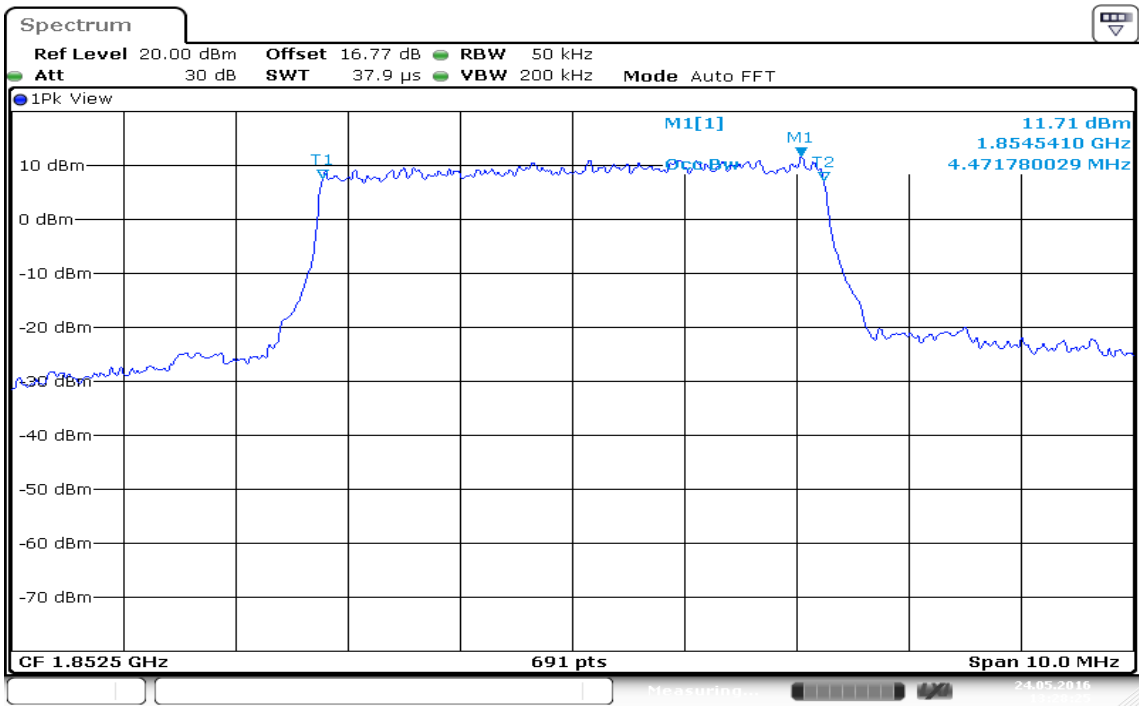
CH High



Date: 24.MAY.2016 13:25:53

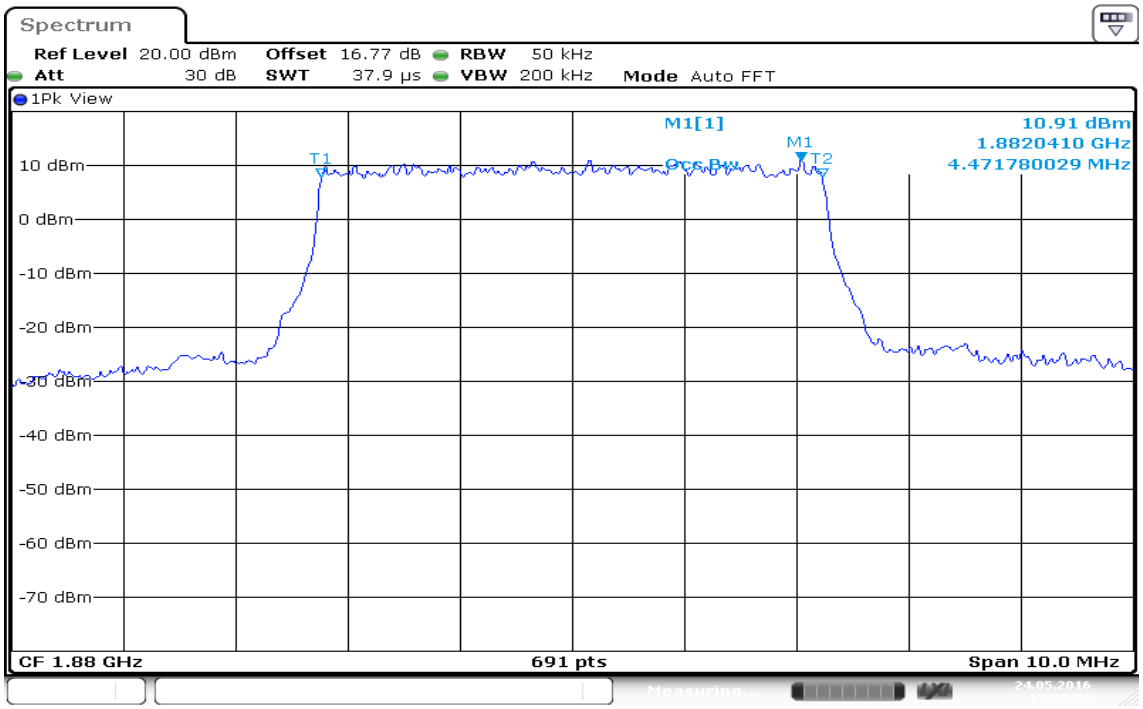
CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



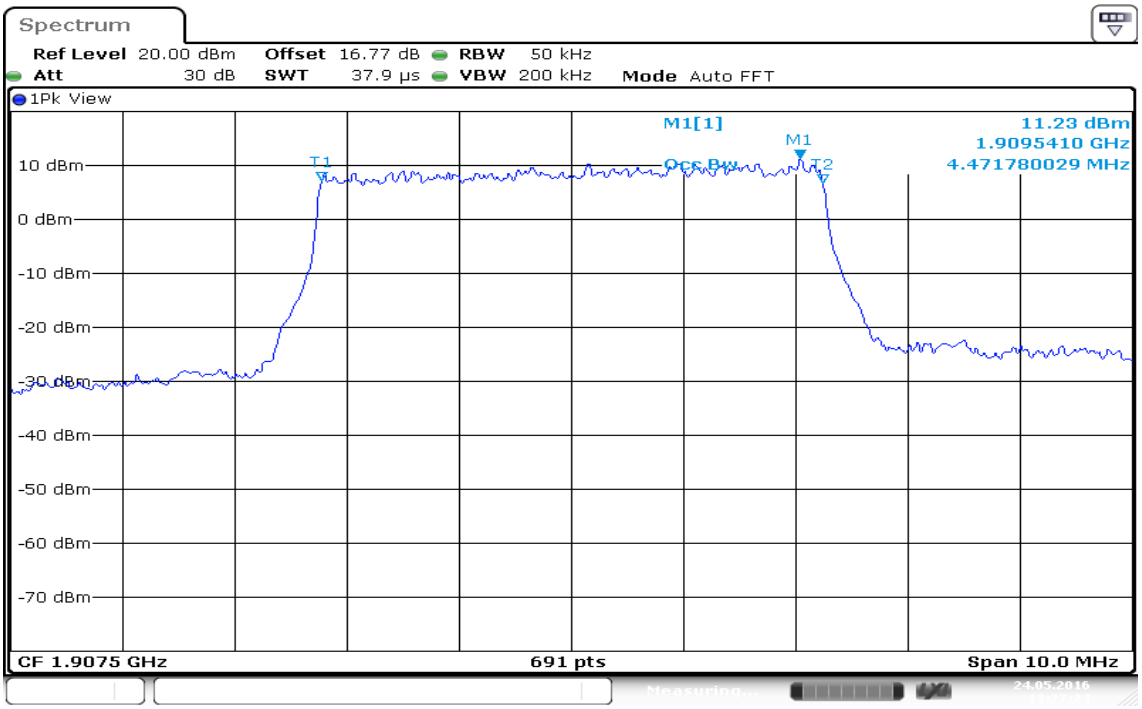
Date: 24.MAY.2016 13:28:25

CH Mid



Date: 24.MAY.2016 13:27:56

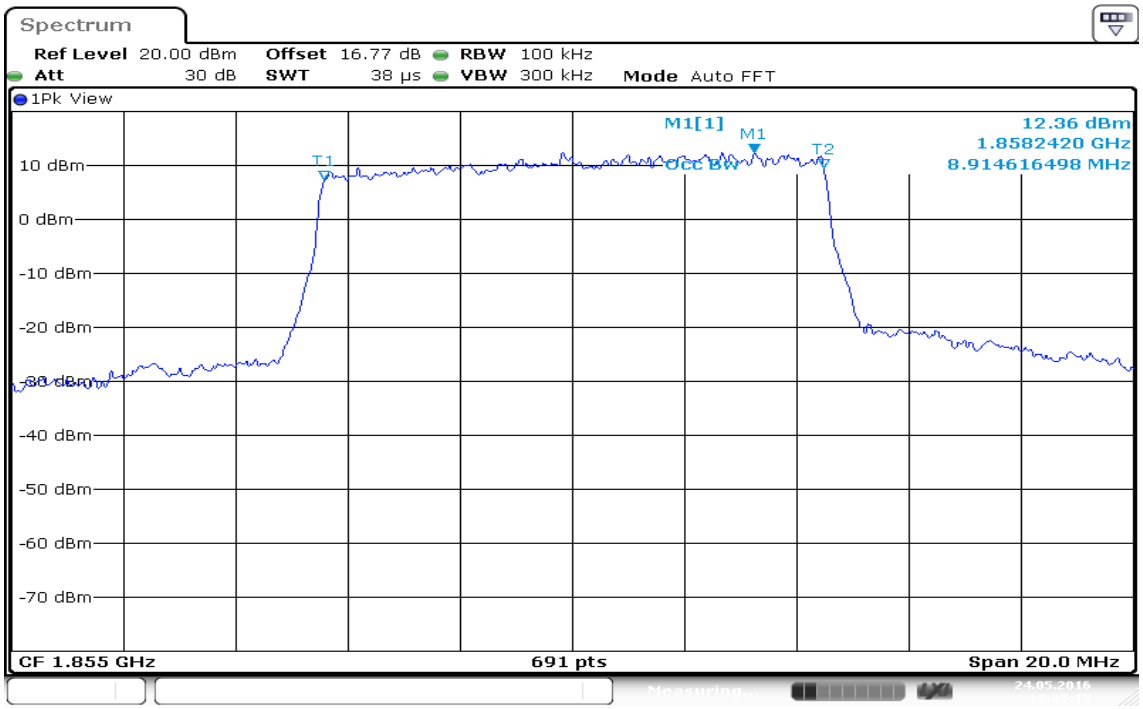
CH High



Date: 24.MAY.2016 13:27:24

CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low



Date: 24.MAY.2016 12:05:15

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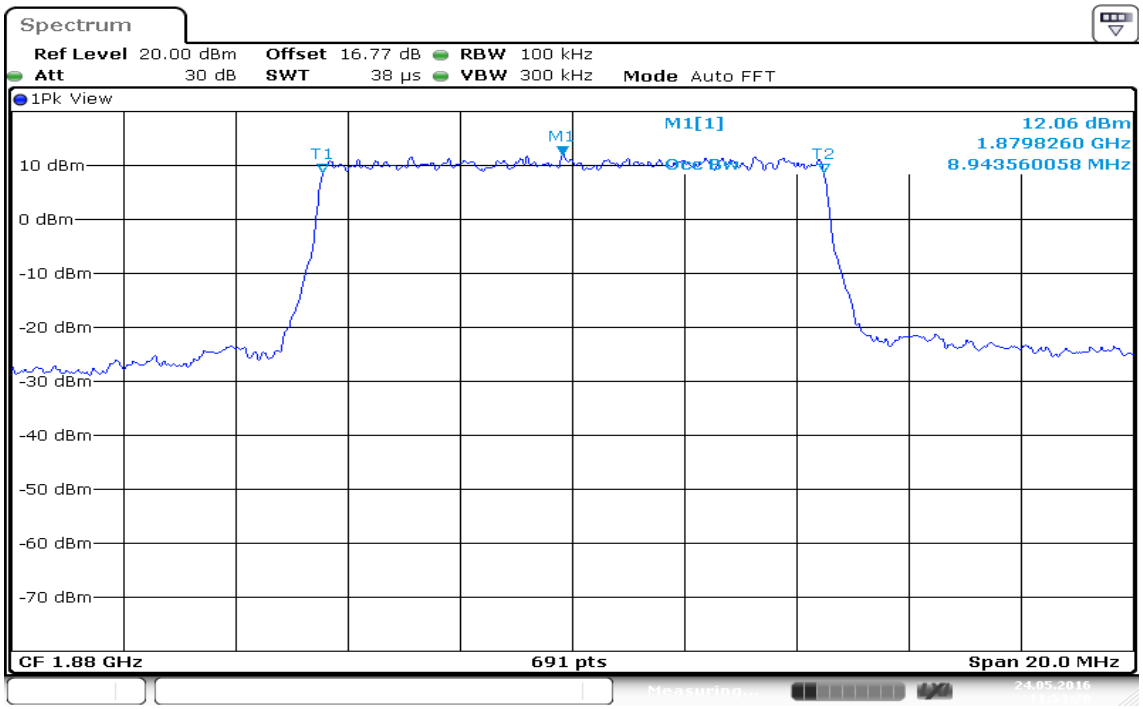
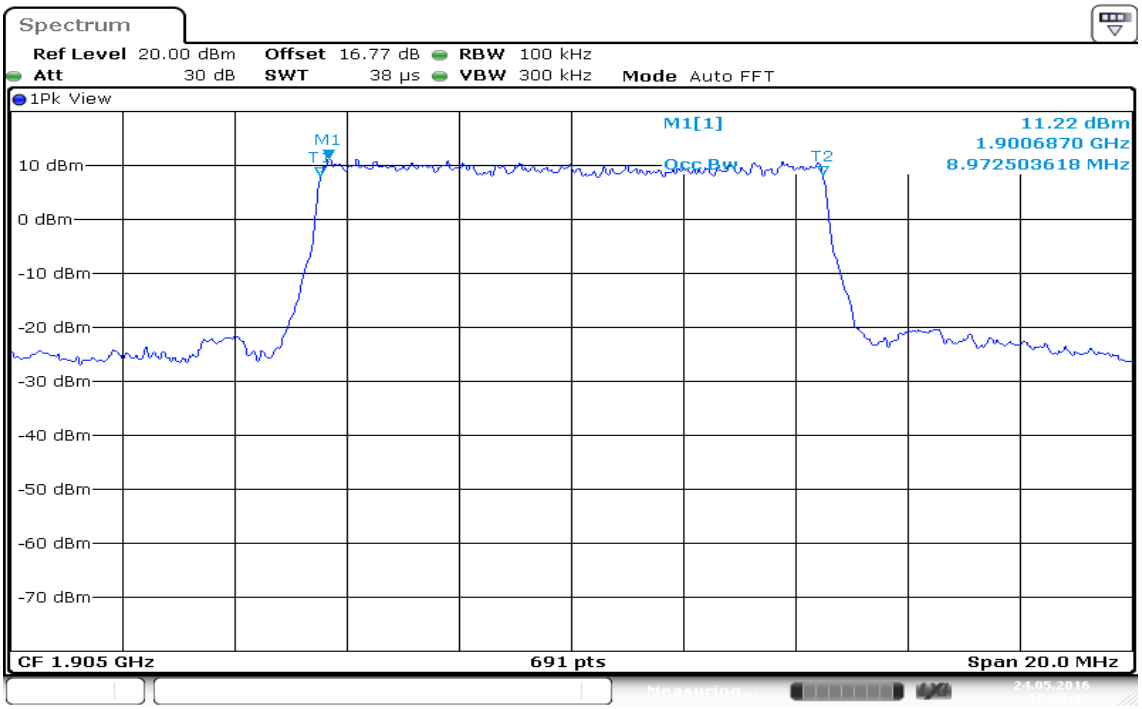


Date: 24.MAY.2016 11:53:20

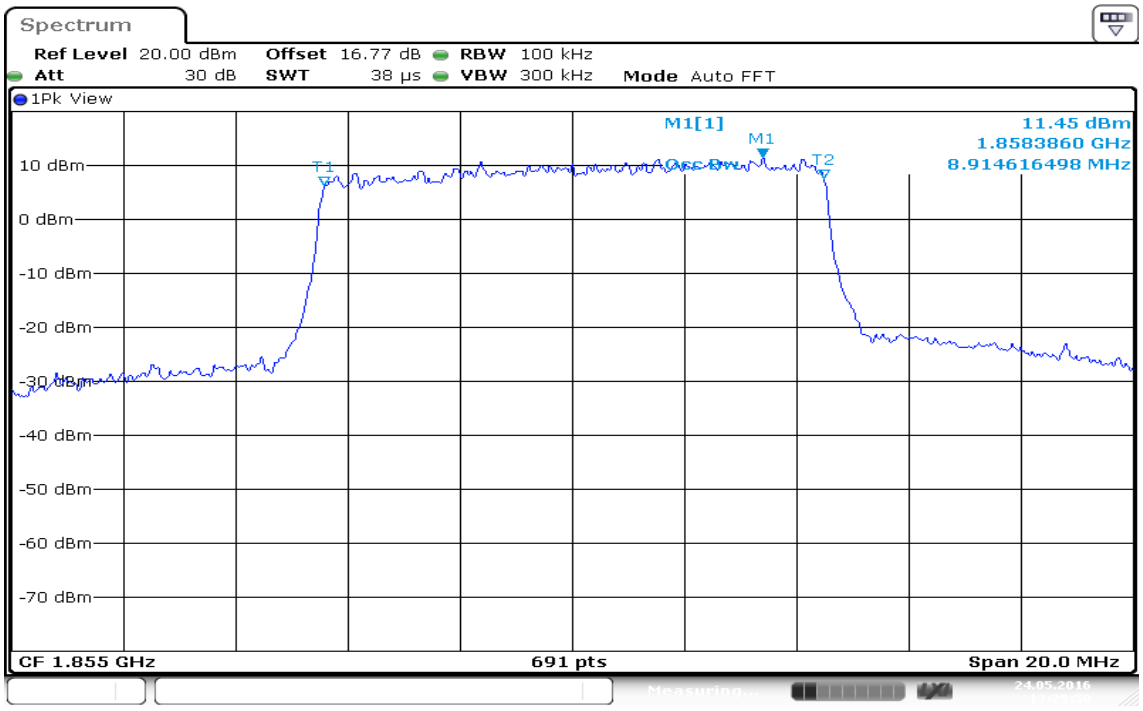
CH High



Date: 24.MAY.2016 12:06:15

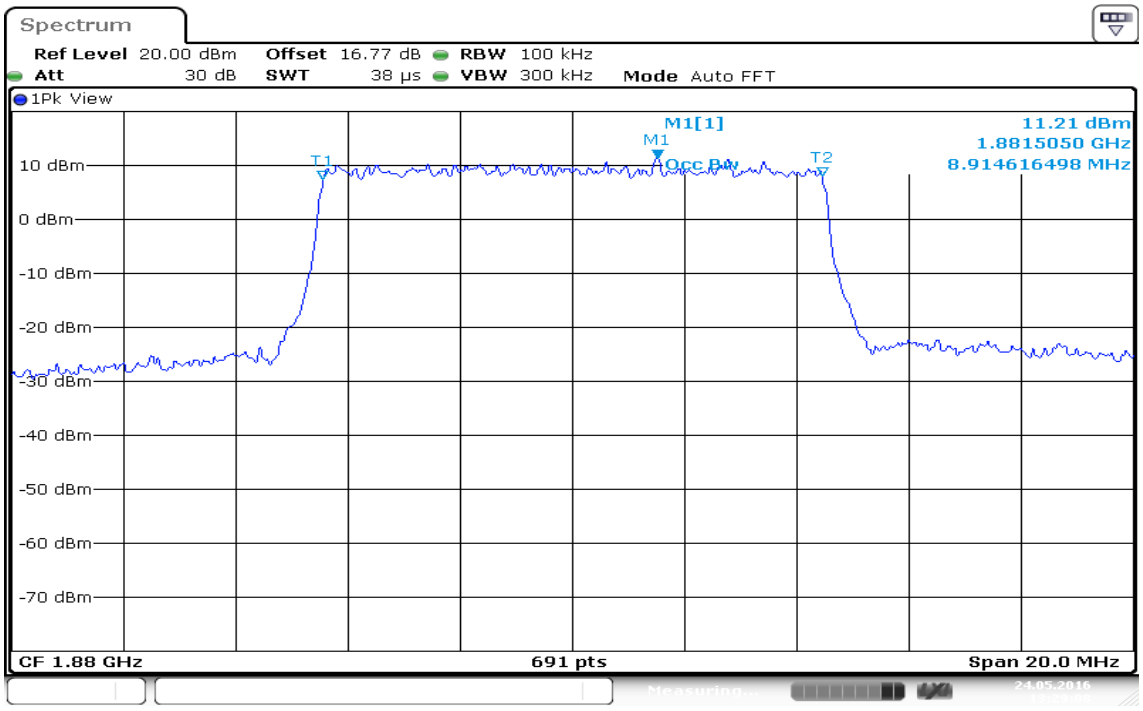
CHANNEL BANDWIDTH: 10MHz / 16QAM

CH Low



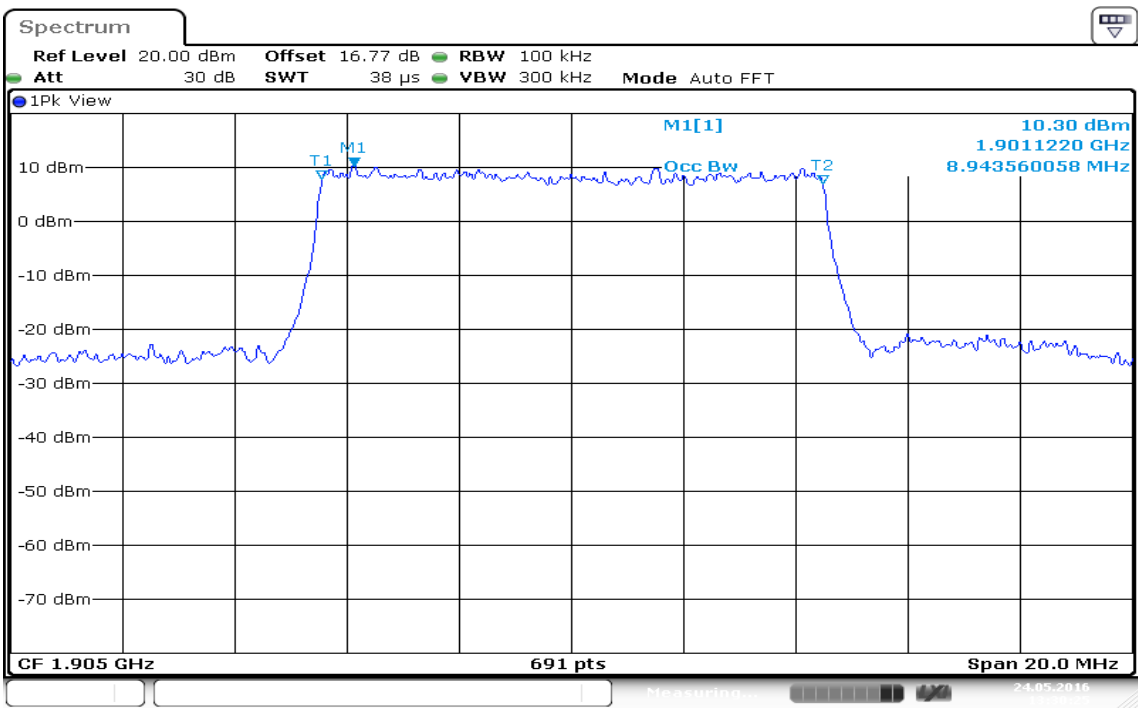
Date: 24.MAY.2016 13:29:50

CH Mid



Date: 24.MAY.2016 13:29:08

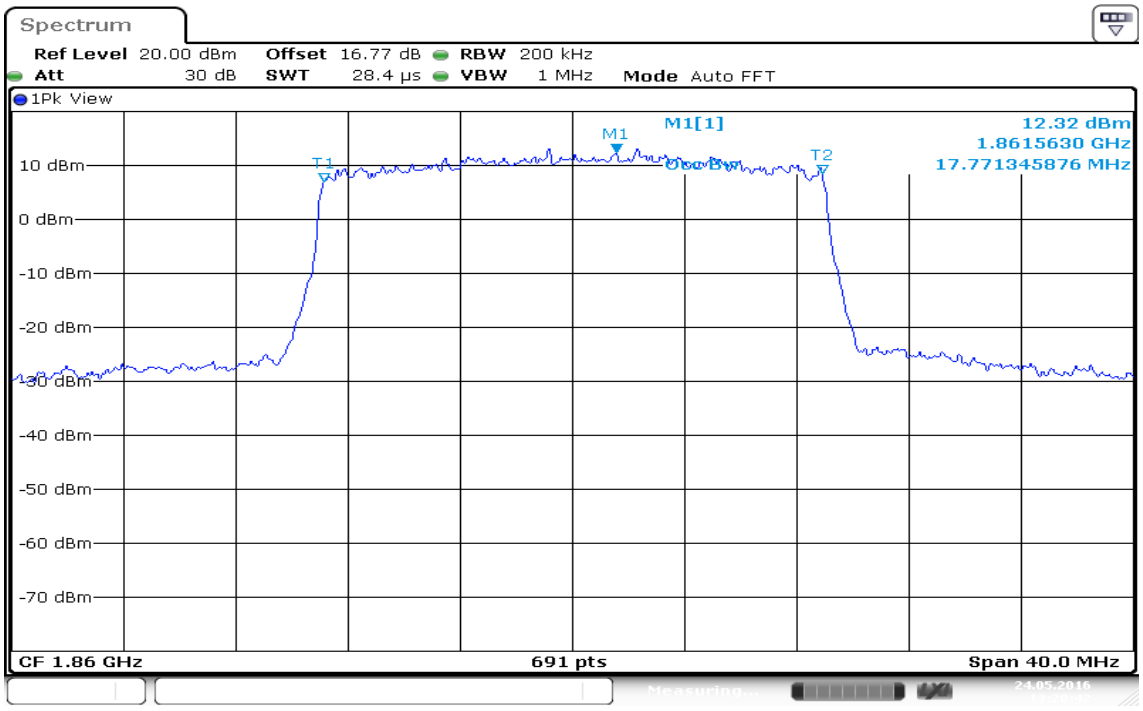
CH High



Date: 24.MAY.2016 13:30:25

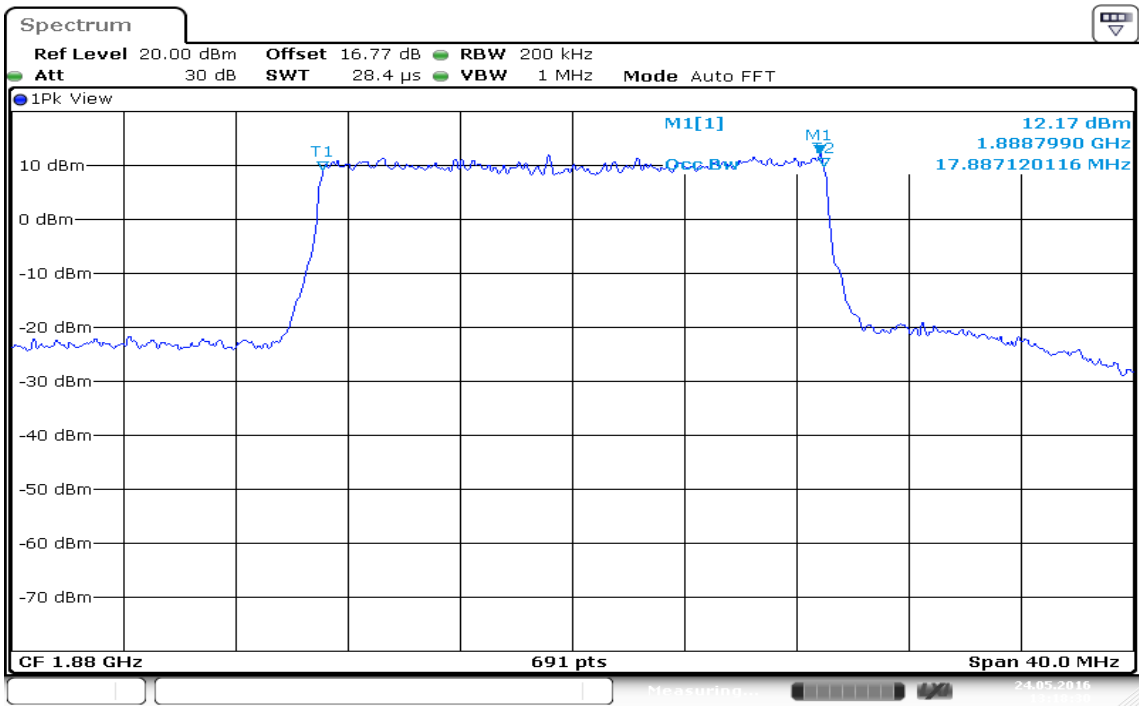
CHANNEL BANDWIDTH: 20MHz / QPSK

CH Low



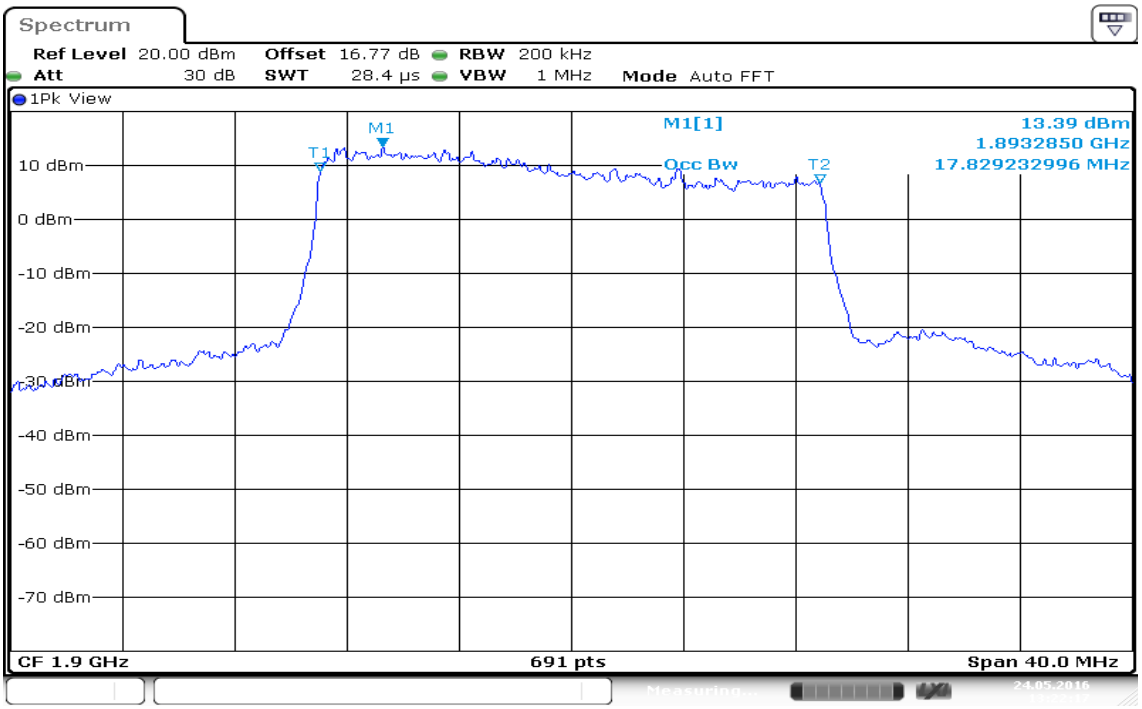
Date: 24.MAY.2016 13:20:42

CH Mid



Date: 24.MAY.2016 13:18:30

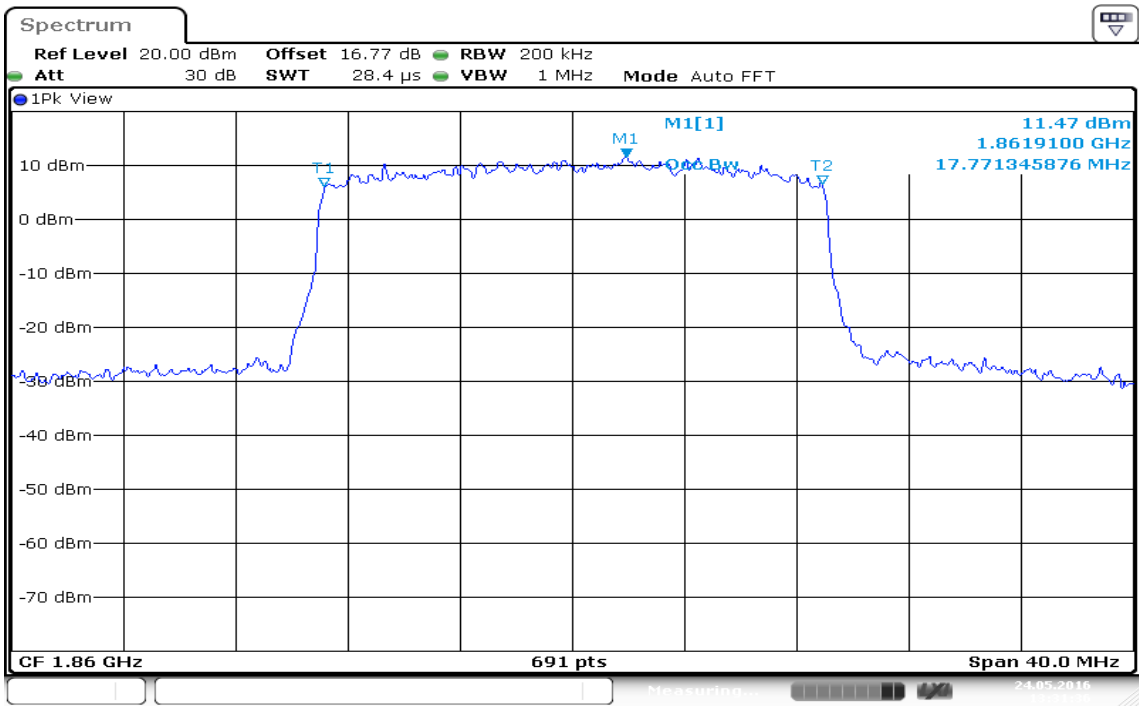
CH High



Date: 24.MAY.2016 13:22:17

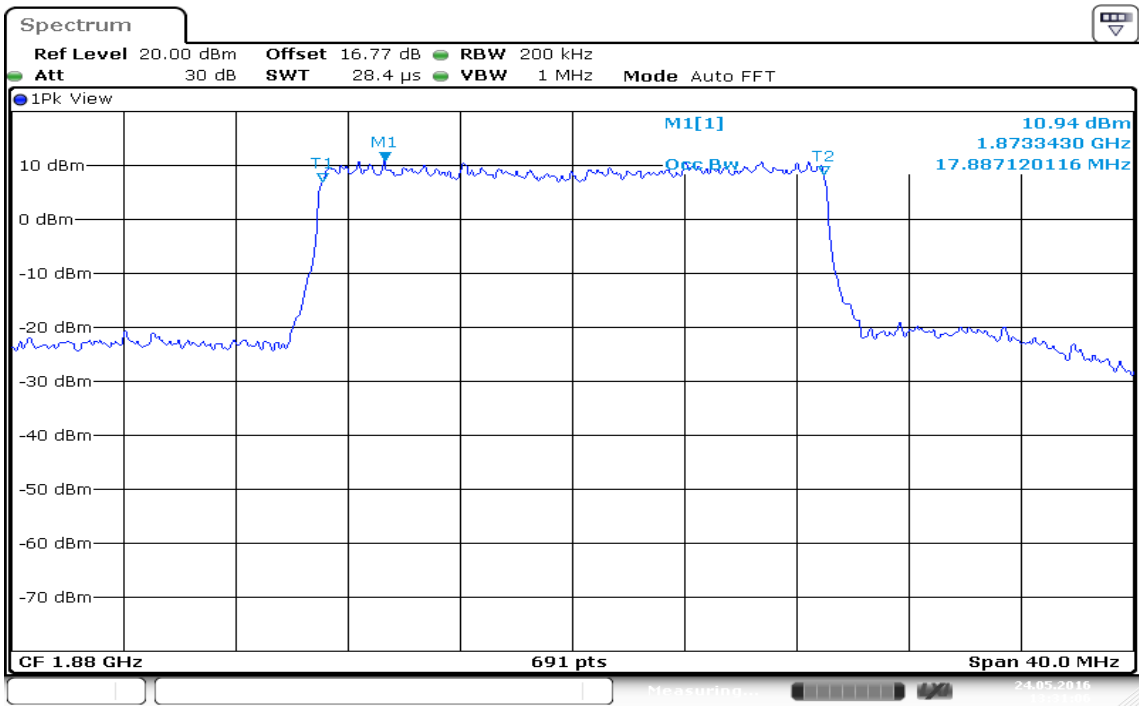
CHANNEL BANDWIDTH: 20MHz / 16QAM

CH Low



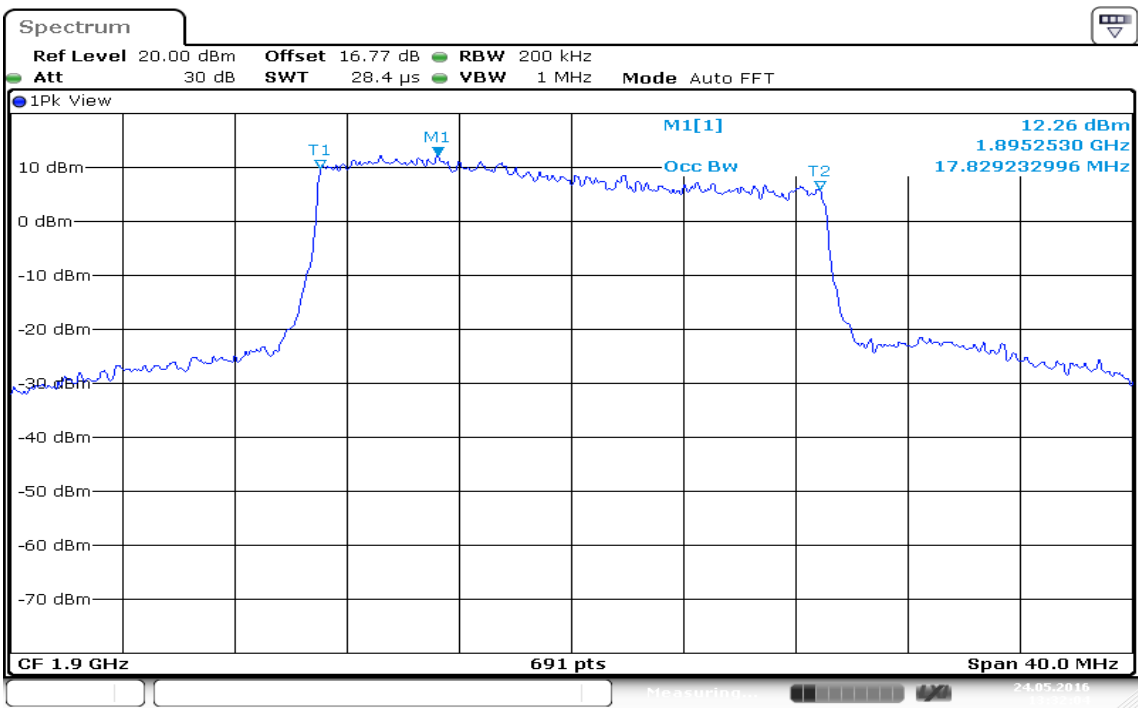
Date: 24.MAY.2016 13:31:35

CH Mid



Date: 24.MAY.2016 13:31:06

CH High



Date: 24.MAY.2016 13:32:04

7.5 PEAK TO AVERAGE RATIO

Limit

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test Procedures

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PAPR level associated with a probability of 0.1%.

Test Results

LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26047	1850.7	6.00
26365	1882.5	5.83
26683	1914.3	4.84

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26047	1850.7	6.72
26365	1882.5	6.72
26683	1914.3	5.71

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26065	1852.50	5.59
26365	1882.50	5.51
26665	1912.50	4.46

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26065	1852.50	6.58
26365	1882.50	6.35
26665	1912.50	5.45

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26090	1855.00	5.54
26365	1882.50	5.57
26640	1910.00	5.10

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26090	1855.00	6.38
26365	1882.50	6.26
26640	1910.00	6.00

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26140	1860.00	5.01
26365	1882.50	5.77
26590	1905.00	5.68

CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
26140	1860.00	6.03
26365	1882.50	6.64
26590	1905.00	6.58

LTE Band 5

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20407	824.7	6.43
20525	836.5	6.14
20643	848.3	5.51

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20407	824.7	5.91
20525	836.5	5.91
20643	848.3	6.23

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20425	826.50	5.74
20525	836.50	5.65
20625	846.50	5.28

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20425	826.50	6.70
20525	836.50	6.49
20625	846.50	6.32

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20450	829.00	5.80
20525	836.50	5.42
20600	844.00	5.33

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
20450	829.00	6.55
20525	836.50	6.49
20600	844.00	6.20

LTE Band 2

CHANNEL BANDWIDTH: 1.4MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18607	1850.7	5.94
18900	1880	5.80
19193	1909.3	5.39

CHANNEL BANDWIDTH: 1.4MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18607	1850.7	5.91
18900	1880	6.78
19193	1909.3	6.41

CHANNEL BANDWIDTH: 5MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18625	1852.50	5.65
18900	1880.00	5.42
19175	1907.50	5.13

CHANNEL BANDWIDTH: 5MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18625	1852.50	6.43
18900	1880.00	6.26
19175	1907.50	6.14

CHANNEL BANDWIDTH: 10MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18650	1855.00	5.28
18900	1880.00	5.42
19150	1905.00	5.51

CHANNEL BANDWIDTH: 10MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18650	1855.00	6.32
18900	1880.00	6.32
19150	1905.00	6.26

CHANNEL BANDWIDTH: 20MHz / QPSK / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18700	1860.00	4.99
18900	1880.00	5.74
19100	1900.00	5.48

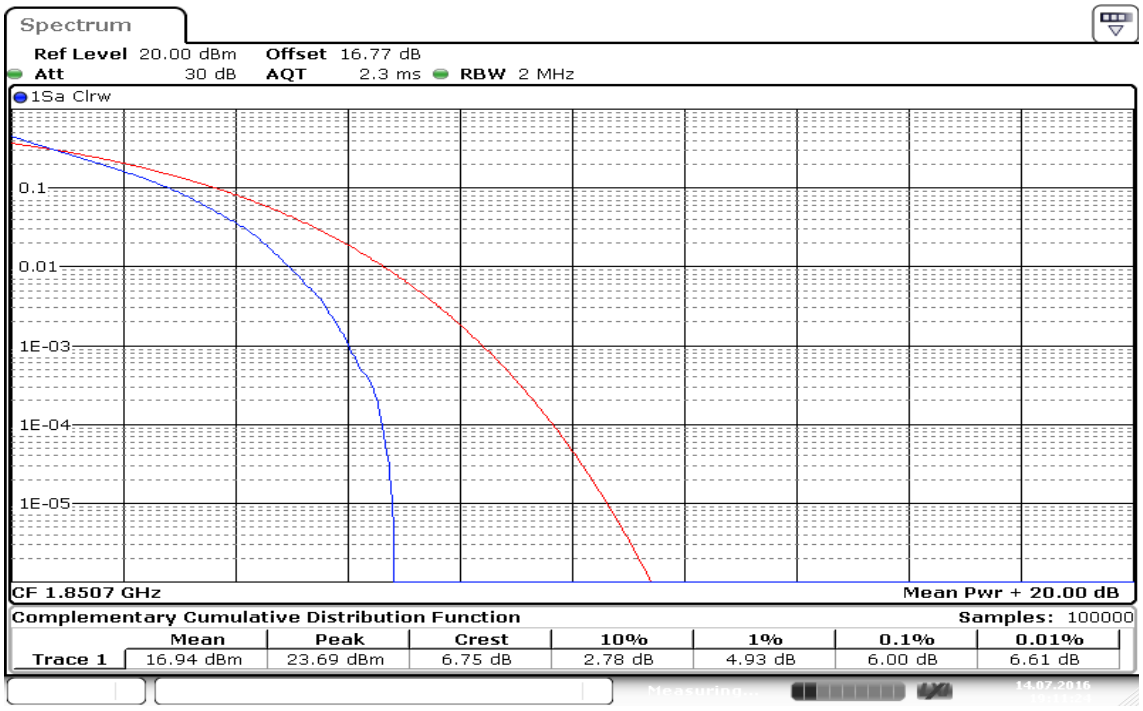
CHANNEL BANDWIDTH: 20MHz / 16QAM / 100%RB

Channel	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
18700	1860.00	6.12
18900	1880.00	6.58
19100	1900.00	6.38

LTE Band 25

CHANNEL BANDWIDTH: 1.4MHz / QPSK

CH Low



Date: 14.JUL.2016 19:11:24

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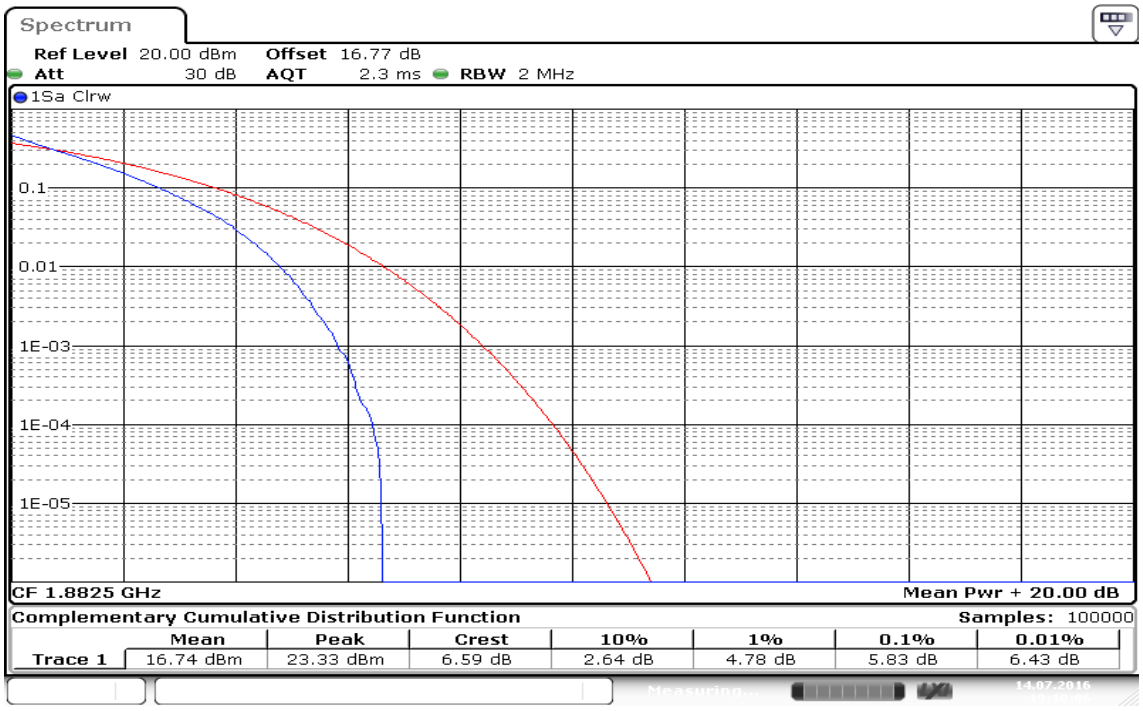
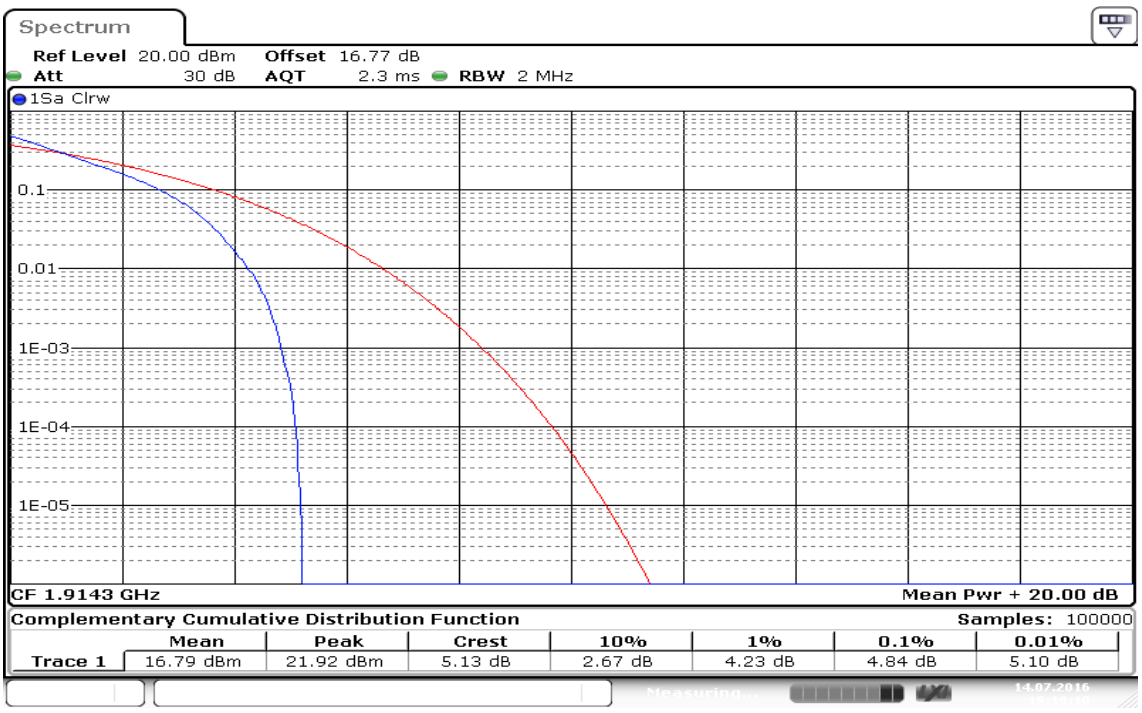


Date: 14.JUL.2016 19:10:06

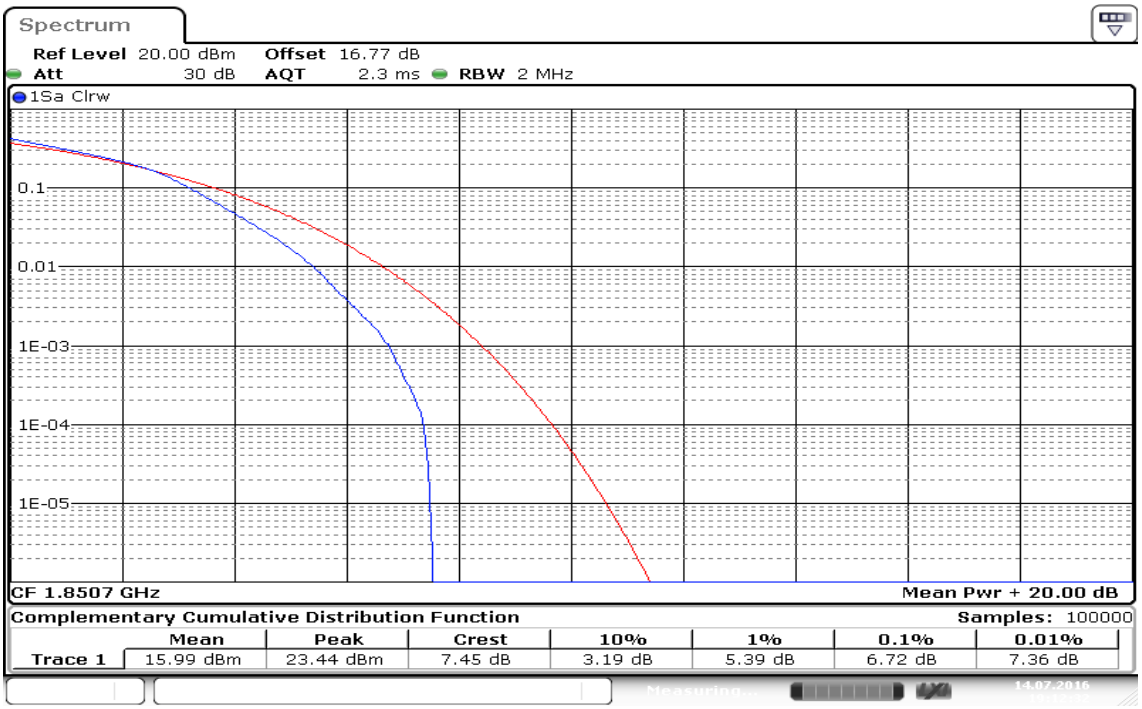
CH High



Date: 14.JUL.2016 19:19:10

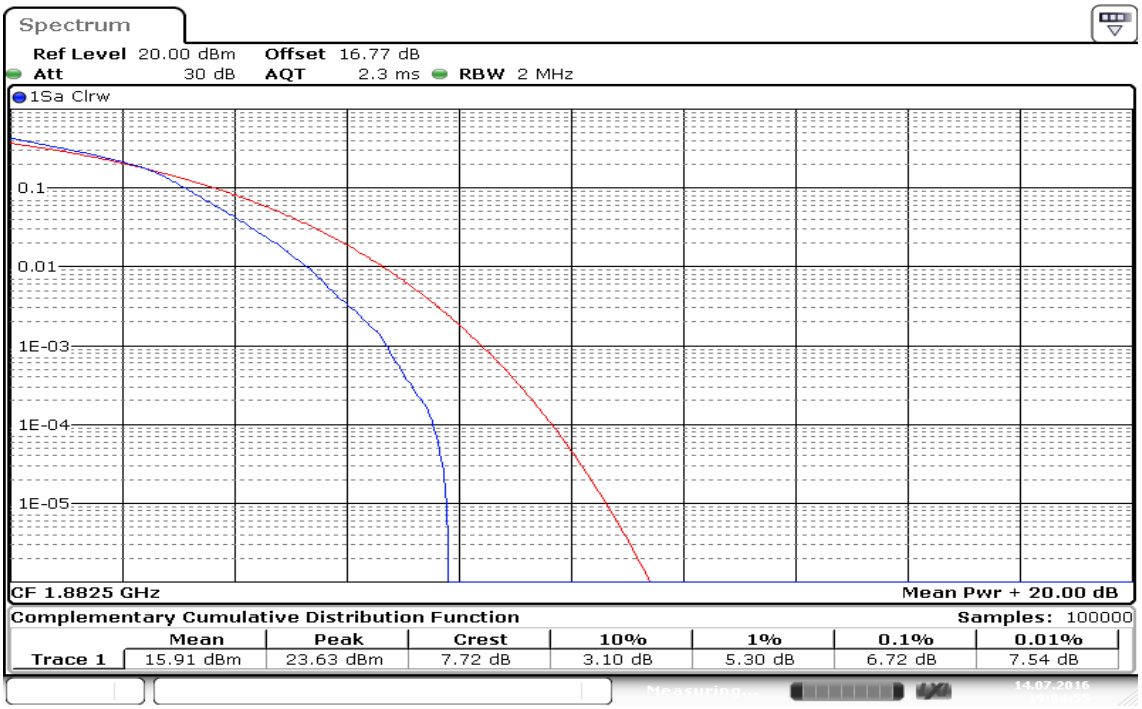
CHANNEL BANDWIDTH: 1.4MHz / 16QAM

CH Low



Date: 14.JUL.2016 19:12:32

CH Mid



Date: 14.JUL.2016 19:04:55

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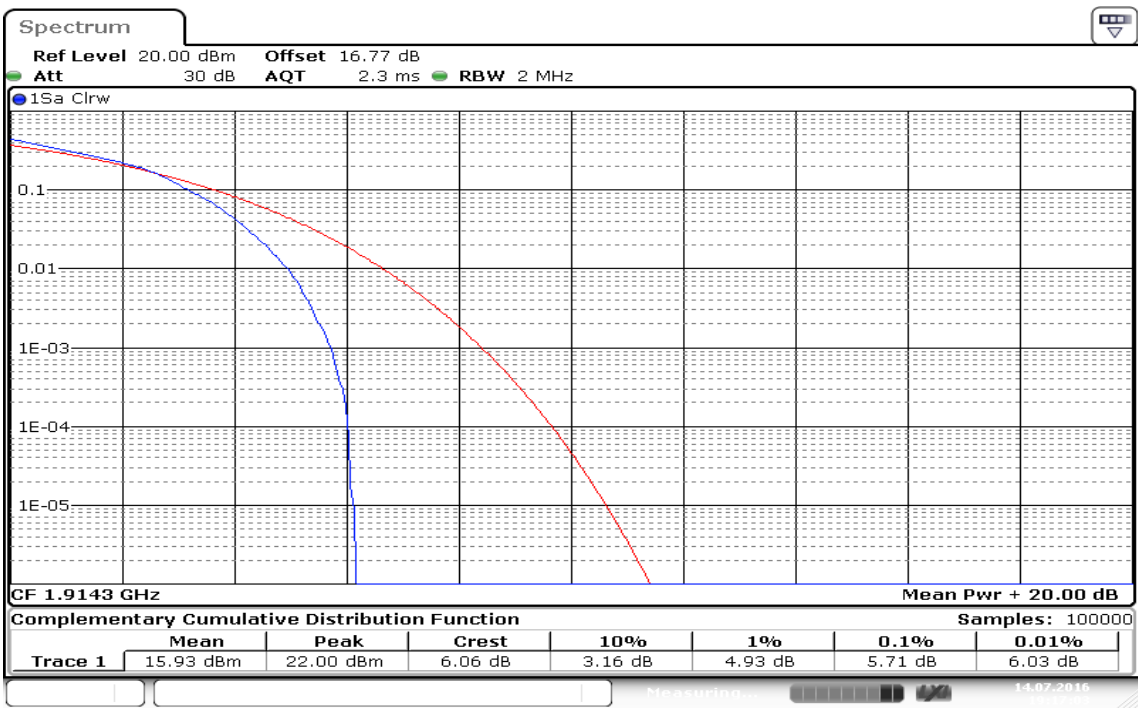
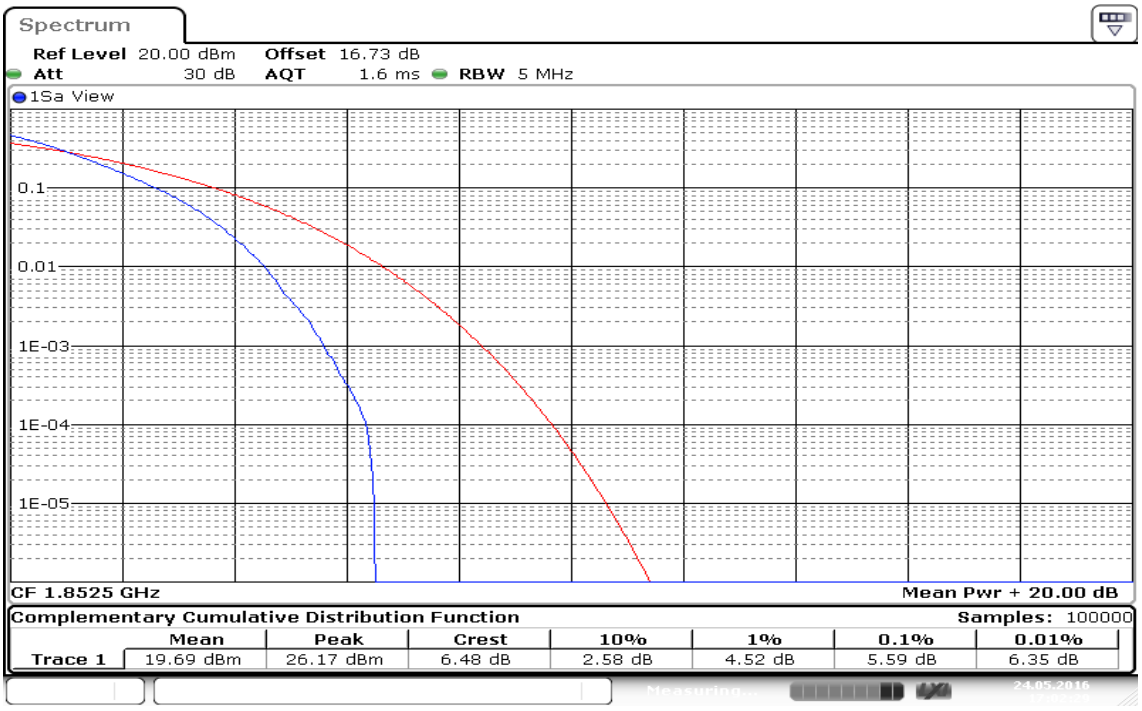


Date: 14.JUL.2016 19:17:04

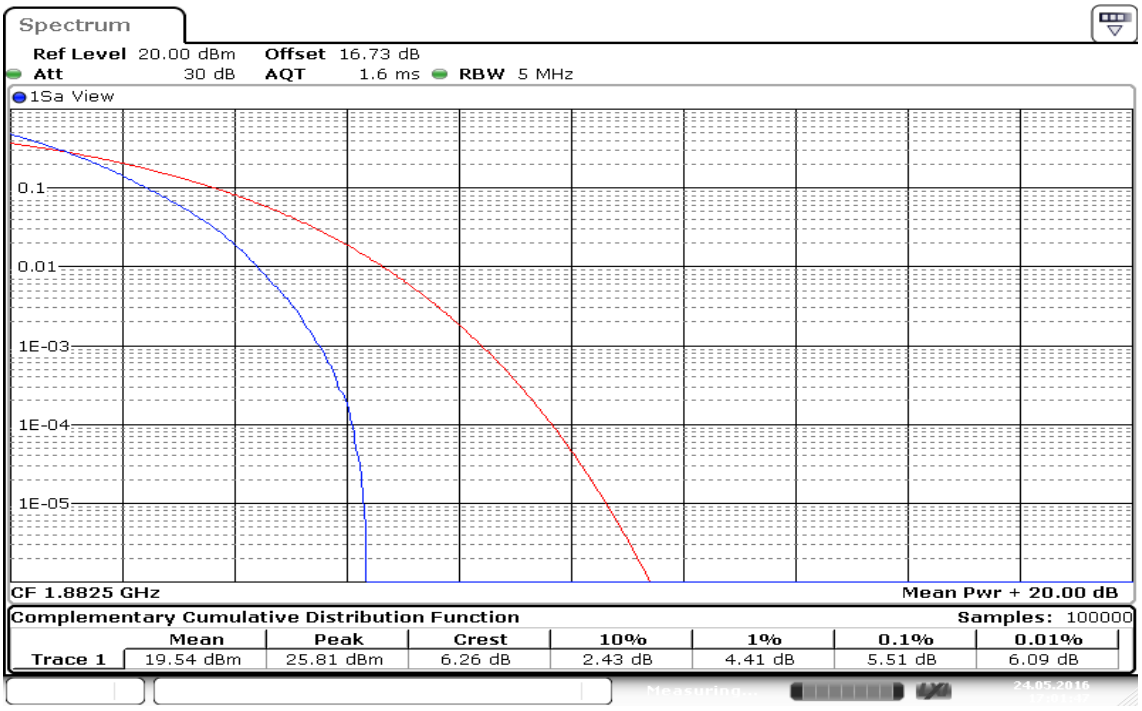
CHANNEL BANDWIDTH: 5MHz / QPSK

CH Low



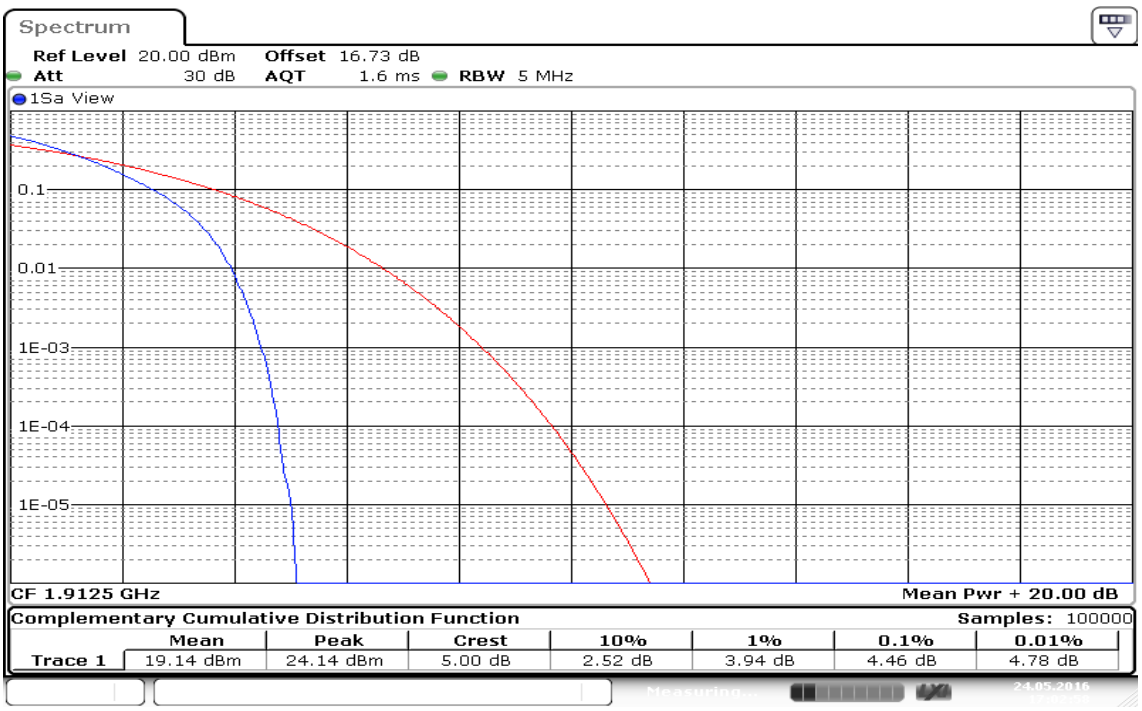
Date: 24.MAY.2016 17:02:29

CH Mid



Date: 24.MAY.2016 17:01:47

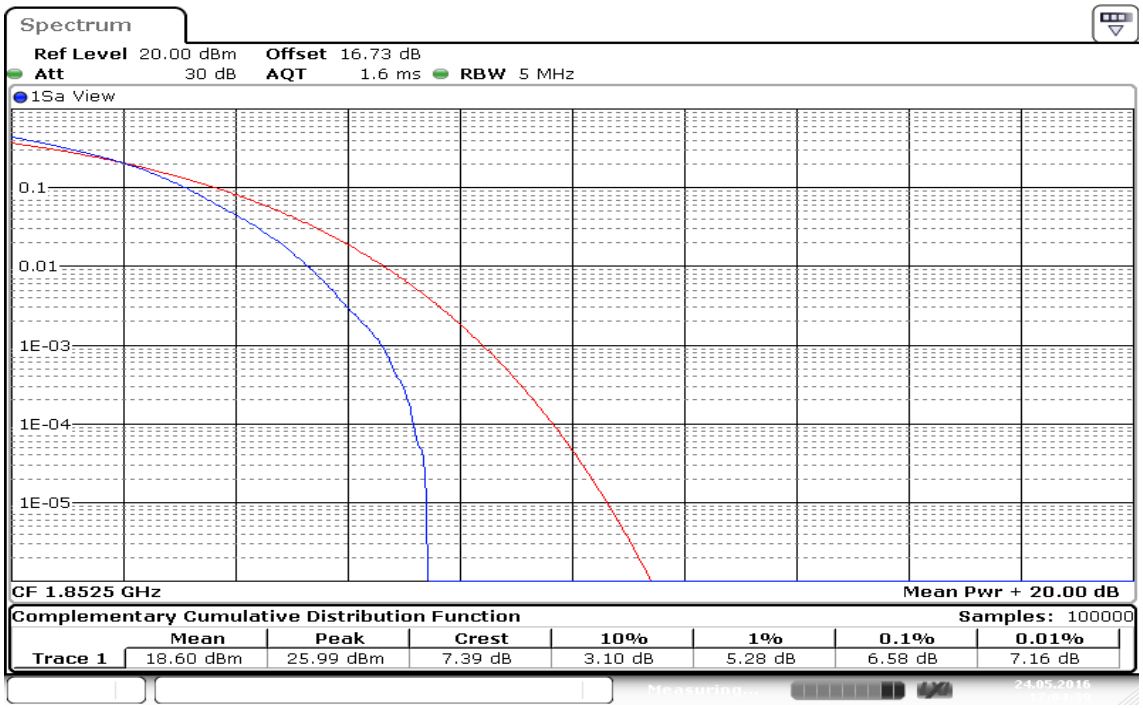
CH High



Date: 24.MAY.2016 17:02:57

CHANNEL BANDWIDTH: 5MHz / 16QAM

CH Low



Date: 24.MAY.2016 17:04:39

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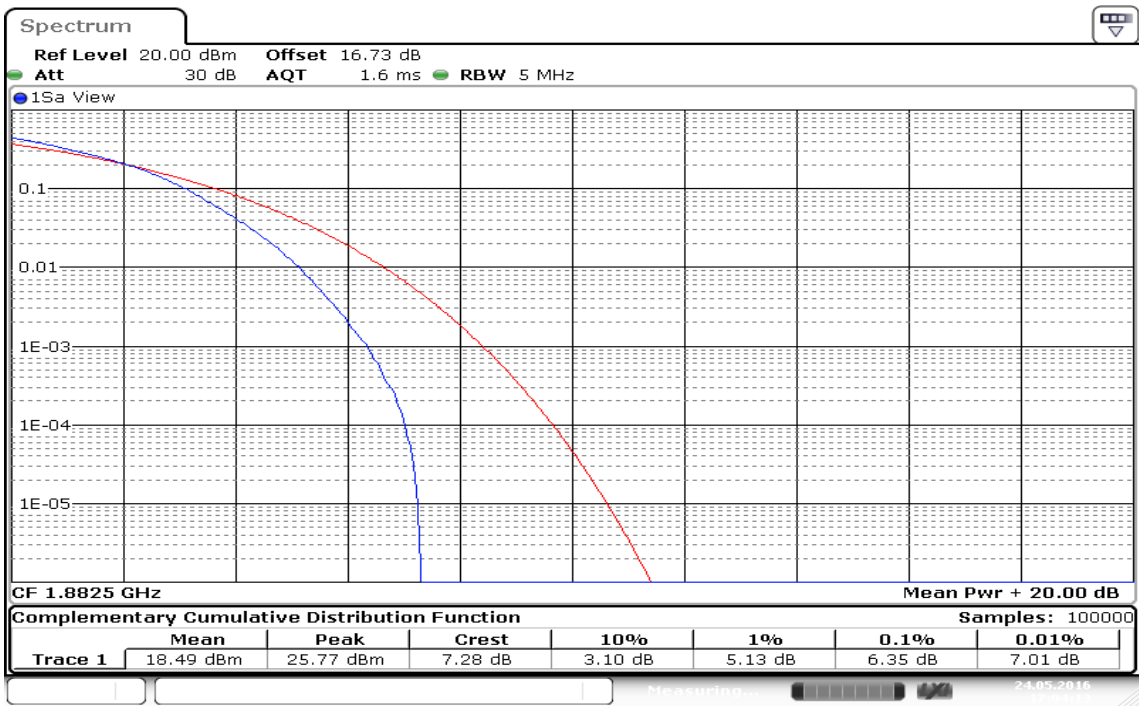
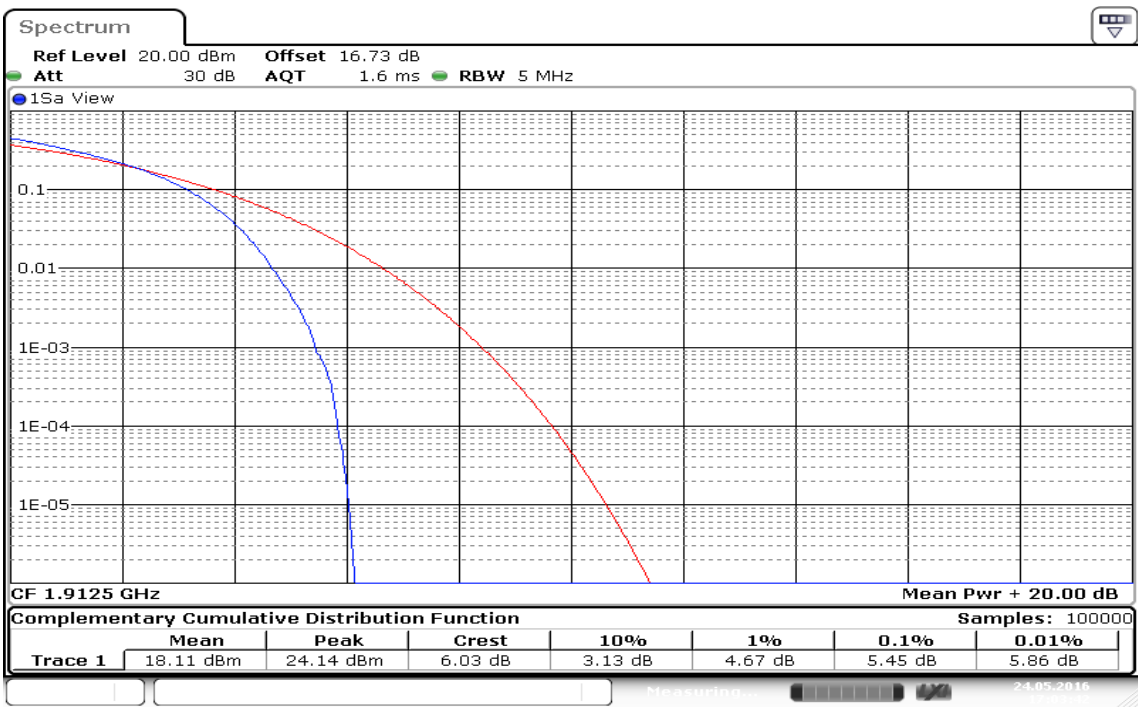


Date: 24.MAY.2016 17:04:13

CH High



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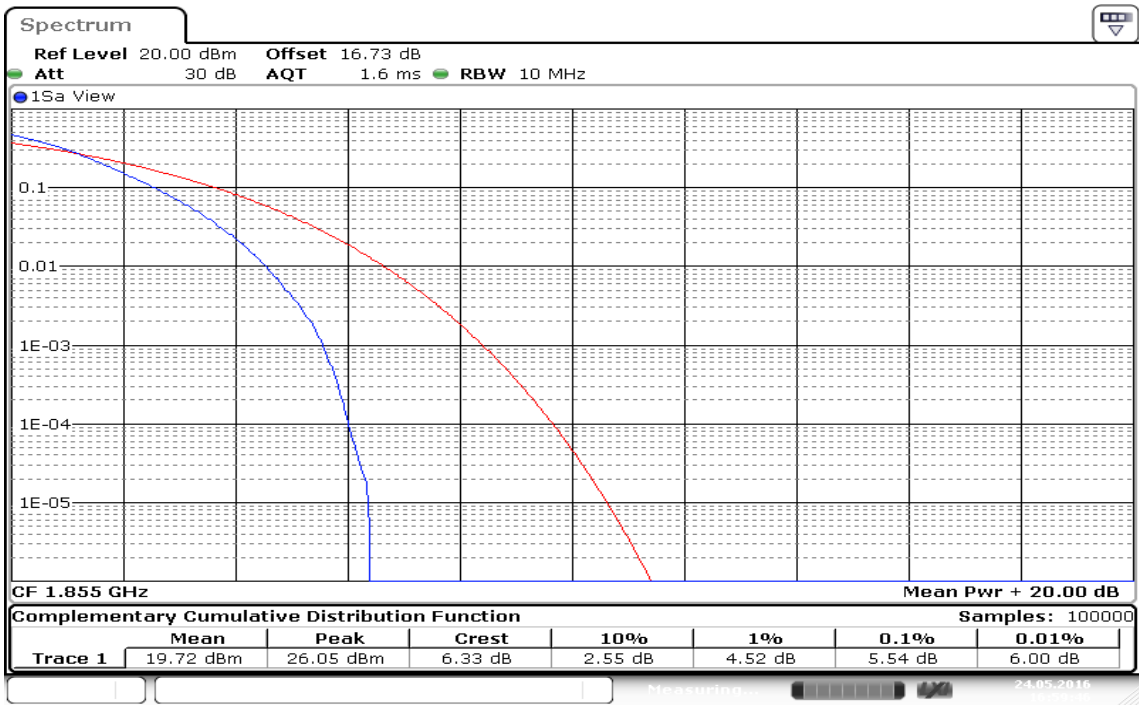
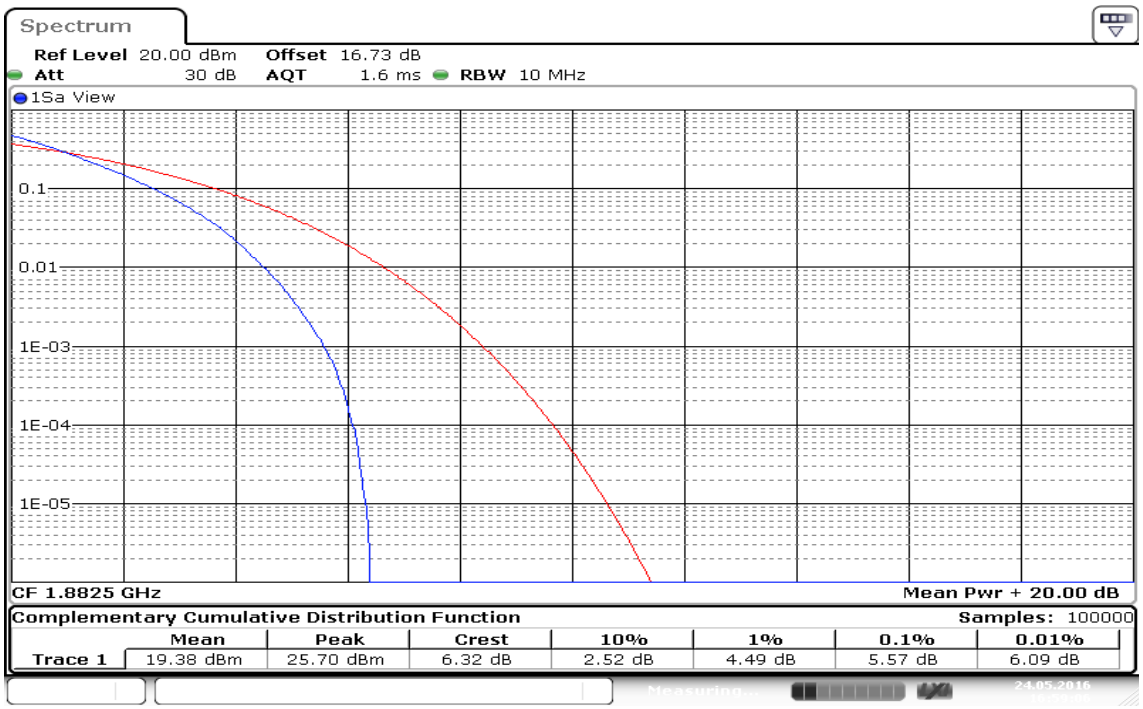
CHANNEL BANDWIDTH: 10MHz / QPSK

CH Low



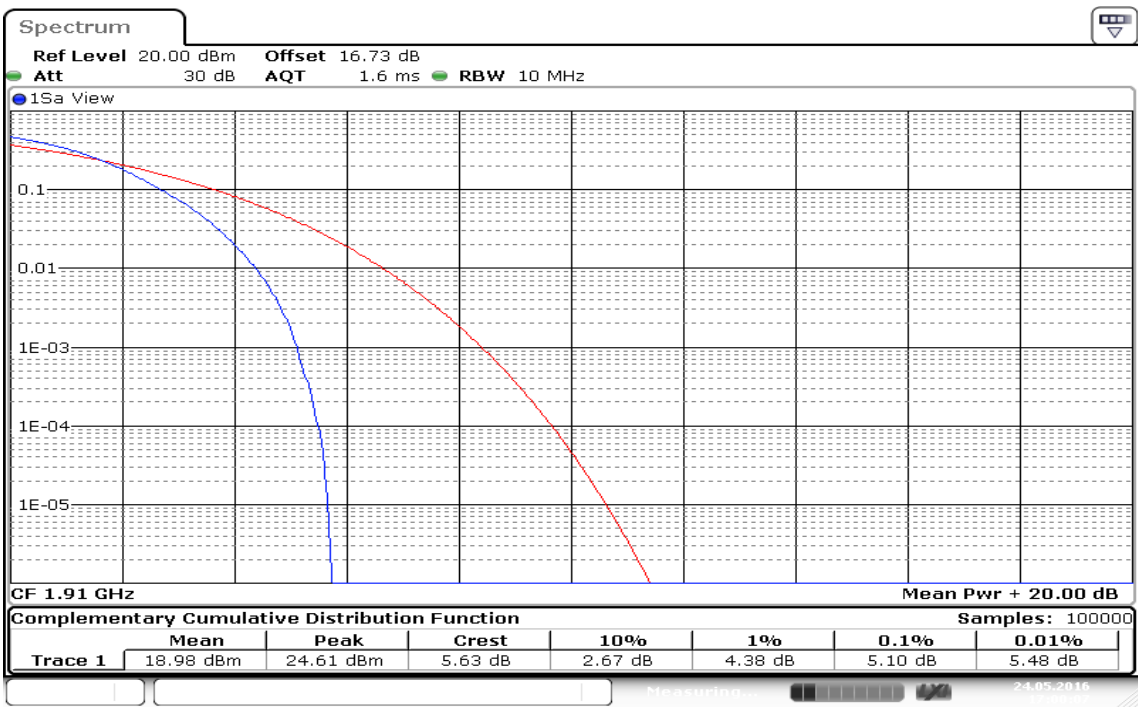
Date: 24.MAY.2016 16:59:45

CH Mid



Date: 24.MAY.2016 16:59:06

CH High



Date: 24.MAY.2016 17:00:07