



# FCC REPORT

**Report Reference No.**..... : **TRE1611010502** R/C.....: 23530  
**FCC ID**..... : **2AAA6-LS5**  
**Applicant's name**..... : **SENWA MEXICO,S.A.DE C.V**  
**Address**..... : Av. Javier Barros Sierra 540,Torre I, Piso 5; COL. LOMAS DE SANTA FE DELEGACION ALVARO OBREGON C.P. 01210 MEXICO,DISTRITO FEDERAL  
**Manufacturer**..... : Senwa Mobile HK Ltd  
**Address**..... : Room 910, International Trade Centre 11-19 Sha Tsui Road, Tsuen Wan, NT, HK  
**Test item description** ..... : Mobile Phone  
**Trade Mark** ..... : SENWA  
**Model/Type reference**..... : LS5  
**Listed Model(s)** ..... : -  
**Standard** ..... : **FCC Part 22: PUBLIC MOBILE SERVICES**  
**FCC Part 24:PERSONAL COMMUNICATIONS SERVICES**  
**FCC Part 27: MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES**  
**Date of receipt of test sample**..... : Nov. 18, 2016  
**Date of testing**..... : Nov. 21, 2016 - Nov. 30, 2016  
**Date of issue**..... : Nov. 30, 2016  
**Result**..... : **Pass**

**Compiled by**  
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**Testing Laboratory Name** ..... : **Shenzhen Huatongwei International Inspection Co., Ltd.**  
**Address**..... : 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

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*The test report merely corresponds to the test sample.  
 It is not permitted to copy extracts of these test result without the written permission of the test laboratory.*

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# 1. TEST STANDARDS AND TEST DESCRIPTION

## 1.1. Test Standards

The tests were performed according to following standards:

[FCC Part 22\(10-1-13 Edition\)](#):PRIVATE LAND MOBILE RADIO SERVICES.

[FCC Part 24\(10-1-13 Edition\)](#):PUBLIC MOBILE SERVICES

[FCC Part 27](#):MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

[TIA/EIA 603 D June 2010](#):Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

[47 CFR FCC Part 15 Subpart B](#): - Unintentional Radiators

[FCC Part 2](#):FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

[971168 D01 Power Meas License Digital Systems v02r02](#): provides a methodology for fully characterizing the fundamental power of wideband (> 1 MHz) digitally modulated RF signals acceptable to the FCC for demonstrating compliance for licensed transmitters.

## 1.2. Test Description

Test Item	Section in CFR 47	Result
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50 (d)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass
Peak-Average Ratio	Part 24.232 (d) Part 27.50 (d)	Pass

Remark: The measurement uncertainty is not included in the test result.

## 2. SUMMARY

### 2.1. Client Information

Applicant:	SENWA MEXICO,S.A.DE C.V
Address:	Av. Javier Barros Sierra 540,Torre I, Piso 5; COL. LOMAS DE SANTA FE DELEGACION ALVARO OBREGON C.P. 01210MEXICO,DISTRITO FEDERAL
Manufacturer:	Senwa Mobile HK ltd
Address:	Room 910, International Trade Centre 11-19 Sha Tsui Road, Tsuen Wan, NT, HK

### 2.2. Product Description

Name of EUT	Mobile Phone
Trade Mark:	SENWA
Model No.:	LS5
Listed Model(s):	-
IMEI :	359434070000383
Power supply:	DC 3.7V From internal battery
Adapter information:	Model: LS5 Input: 100-240Va.c., 50-60Hz, 0.15A Output: 5Vd.c., 500mA
Hardware version:	F61_MB_V1.0_20160422
Software version:	FS089_YL_DRV_ONLY_S50A1_L519M_M16BT
<b>RF Technical Description</b>	
<input checked="" type="checkbox"/> FDD Band 2	
Operation Frequency:	Uplink:1850.7 MHz – 1909.3 MHz Downlink: 1930.7 MHz – 1989.3 MHz
Channel bandwidth:	<input checked="" type="checkbox"/> 1.4MHz <input checked="" type="checkbox"/> 3MHz <input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input checked="" type="checkbox"/> 15MHz
<input checked="" type="checkbox"/> FDD Band 4	
Operation Frequency:	Uplink:1710.7 MHz – 1754.3 MHz Downlink: 2110.7 MHz – 2154.3 MHz
Channel bandwidth:	<input checked="" type="checkbox"/> 1.4MHz <input checked="" type="checkbox"/> 3MHz <input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input checked="" type="checkbox"/> 15MHz <input checked="" type="checkbox"/> 20MHz
<input checked="" type="checkbox"/> FDD Band 7	
Operation Frequency:	Uplink:2502.5 MHz – 2567.5 MHz Downlink: 2622.5 MHz – 2687.5 MHz
Channel bandwidth:	<input type="checkbox"/> 1.4MHz <input type="checkbox"/> 3MHz <input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input type="checkbox"/> 15MHz <input type="checkbox"/> 20MHz
<input checked="" type="checkbox"/> FDD Band 17	
Operation Frequency:	Uplink:706.5 MHz – 713.5 MHz Downlink: 736.5MHz – 743.5 MHz
Channel bandwidth:	<input type="checkbox"/> 1.4MHz <input type="checkbox"/> 3MHz <input checked="" type="checkbox"/> 5MHz <input checked="" type="checkbox"/> 10MHz <input type="checkbox"/> 15MHz <input type="checkbox"/> 20MHz
Power Class:	<input type="checkbox"/> Class 1 <input type="checkbox"/> Class 2 <input checked="" type="checkbox"/> Class 3 <input type="checkbox"/> Class 4
Modulation type:	<input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM <input type="checkbox"/> 64QAM
Antenna type:	IntegralAntennna
Antenna gain:	1dBi

Test Frequency:

FDD Band 2					
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15 <sup>[1]</sup>	18675	1857.5	675	1937.5
20 <sup>[1]</sup>	18700	1860	700	1940	
Mid Range	1.4/3/5/10 15 <sup>[1]</sup> /20 <sup>[1]</sup>	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15 <sup>[1]</sup>	19125	1902.5	1125	1982.5
20 <sup>[1]</sup>	19100	1900	1100	1980	
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.					
FDD Band 4					
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	1.4	19957	1710.7	1957	2110.7
	3	19965	1711.5	1965	2111.5
	5	19975	1712.5	1975	2112.5
	10	20000	1715	2000	2115
	15	20025	1717.5	2025	2117.5
20	20050	1720	2050	2120	
Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5
High Range	1.4	20393	1754.3	2393	2154.3
	3	20385	1753.5	2385	2153.5
	5	20375	1752.5	2375	2152.5
	10	20350	1750	2350	2150
	15	20325	1747.5	2325	2147.5
20	20300	1745	2300	2145	
FDD Band 7					
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	5	20775	2502.5	2775	2622.5
	10	20800	2505	2800	2625
	15	20825	2507.5	2825	2627.5
	20 <sup>[1]</sup>	20850	2510	2850	2630
Mid Range	5/10/15 20 <sup>[1]</sup>	21100	2535	3100	2655
High Range	5	21425	2567.5	3425	2687.5
	10	21400	2565	3400	2685
	15	21375	2562.5	3375	2682.5
	20 <sup>[1]</sup>	21350	2560	3350	2680
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.					
FDD Band 17					
Test Frequency ID	Bandwidth [MHz]	N <sub>UL</sub>	Frequency of Uplink [MHz]	N <sub>DL</sub>	Frequency of Downlink [MHz]
Low Range	5 <sup>[1]</sup>	23755	706.5	5755	736.5
	10 <sup>[1]</sup>	23780	709	5780	739
Mid Range	5 <sup>[1]</sup> /10 <sup>[1]</sup>	23790	710	5790	740
High Range	5 <sup>[1]</sup>	23825	713.5	5825	743.5
	10 <sup>[1]</sup>	23800	711	5800	741
NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.					

### 2.3. EUT operation mode

1.The EUT has been tested under typical operating condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max OutputPower	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	17	-	-	v	v	-	-	v	v	v	v	v	v	v	v
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v			v	v	v	v
	4	v	v	v	v	v	v	v	v			v	v	v	v
	7	-	-	v	v	v	v	v	v			v	v	v	v
	17	-	-	v	v	-	-	v	v			v	v	v	v
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v		v	v		v
	4	v	v	v	v	v	v	v	v	v		v	v		v
	7	-	-	v	v	v	v	v	v	v		v	v		v
	17	-	-	v	v	-	-	v	v	v		v	v		v
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v			v	v	v
E.R.P./ E.I.R.P.	2	v	v	v	v	v	v	v	v	v			v	v	v
	4	v	v	v	v	v	v	v	v	v			v	v	v
	7	-	-	v	v	v	v	v	v	v			v	v	v
	17	-	-	v	v	-	-	v	v	v			v	v	v
Radiated Spurious Emission	2	v	v	v	v	v	v	v		v			v	v	v
	4	v	v	v	v	v	v	v		v			v	v	v
	7	-	-	v	v	v	v	v		v			v	v	v
	17	-	-	v	v	-	-	v		v			v	v	v
Frequency Stability	2						v	v	v			v		v	
	4						v	v	v			v		v	
	7						v	v	v			v		v	
	17	-	-	v	v	-	-	v	v			v		v	
Peak-to-AverageRatio	2						v	v	v	v		v	v	v	v
	4						v	v	v	v		v	v	v	v
	7						v	v	v	v		v	v	v	v
	17	-	-	v	v	-	-	v	v	v		v	v	v	v
Remark	1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

## 2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

	Length (m) :	/
	Shield :	/
	Detachable :	/
	Manufacturer :	/
	Model No. :	/

## 2.5. Modifications

No modifications were implemented to meet testing criteria.

### **3. TEST ENVIRONMENT**

#### **3.1. Address of the test laboratory**

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Phone: 86-755-26748019 Fax: 86-755-26748089

#### **3.2. Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

##### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: February 28, 2015. Valid time is until February 27, 2018.

##### **A2LA-Lab Cert. No. 3902.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until December 31, 2016.

##### **FCC-Registration No.: 317478**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 317478, Renewal date Jul. 18, 2014, valid time is until Jul. 18, 2017.

##### **IC-Registration No.: 5377A&5377B**

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec. 31, 2013, valid time is until Dec. 31, 2016.

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B on Dec.03, 2014, valid time is until Dec.03, 2017.

##### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.



### 3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature/Tnor:	15~35°C
Relative Humidity	30~60 %
Air Pressure	950-1050 hPa

### 3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Frequency stability	25 Hz	(1)
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emission 1~18GHz	5.16 dB	(1)
Radiated Emission 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)
Emission Mask	-----	(1)
Modulation Characteristic	-----	(1)
Transmitter Frequency Behavior	-----	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=1.96$ .

### 3.5. Equipments Used during the Test

<b>Output Power(Conducted) &amp;Occupied Bandwidth&amp;Emission Bandwidth&amp;Band Edge Compliance&amp;Conducted Spurious Emission</b>					
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	11/13/2016
2	WIDEB.RADIO COMM.TESRER	Rohde&Schwarz	CMW500	1201.0002K50	11/13/2016
3	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	11/13/2016
4	Splitter	Mini-Circuit	ZAPD-4	400059	11/13/2016

<b>Frequency Stability</b>					
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	11/13/2016
2	WIDEB.RADIO COMM.TESRER	Rohde&Schwarz	CMW500	1201.0002K50	11/13/2016
3	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	11/13/2016
4	Climate Chamber	ESPEC	EL-10KA	05107008	11/13/2016
5	Splitter	Mini-Circuit	ZAPD-4	400059	11/13/2016

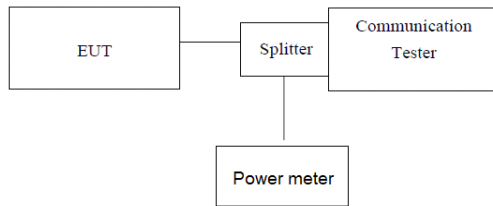
<b>Output Power (Radiated) &amp;Radiated Spurious Emission</b>					
No.	Equipment	Manufacturer	Model No.	SerialNo.	Last Cal.
1	UNIVERSAL RADIO COMMUNICATION	Rohde&Schwarz	CMU200	112012	11/13/2016
2	Spectrum Analyzer	Rohde&Schwarz	FSU26	201141	11/13/2016
3	HORNANTENNA	ShwarzBeck	9120D	1012	11/13/2016
4	HORNANTENNA	ShwarzBeck	9120D	1011	11/13/2016
5	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	538	11/13/2016
6	Ultra-Broadband Antenna	ShwarzBeck	VULB9163	539	11/13/2016
7	TURNTABLE	MATURO	TT2.0	----	N/A
8	ANTENNA MAST	MATURO	TAM-4.0-P	----	N/A
9	EMI Test Software	Audix	E3	N/A	N/A
10	EMI Test Receiver	Rohde&Schwarz	ESIB 26	100009	11/13/2016
11	RF Test Panel	Rohde&Schwarz	TS / RSP	335015/ 0017	11/13/2016
12	High pass filter	Compliance Direction systems	BSU-6	34202	11/13/2016
13	Splitter	Mini-Circuit	ZAPD-4	400059	11/13/2016
14	Horn Antenna	SCHWARZBECK	BBHA9170	25841	11/13/2016
15	Horn Antenna	SCHWARZBECK	BBHA9170	25842	11/13/2016
16	Preamplifier	ShwarzBeck	BBV 9718	BBV 9718	11/13/2016
17	Broadband Preamplifier	ShwarzBeck	BBV743	9743-0079	11/13/2016
18	Signal Generator	Rohde&Schwarz	SMF100A	101932	11/13/2016
19	Amplifier	Compliance Direction systems	PAP1-4060	120	11/13/2016
20	TURNTABLE	ETS	2088	2149	11/13/2016
21	ANTENNA MAST	ETS	2075	2346	11/13/2016
22	HORNANTENNA	Rohde&Schwarz	HF906	100068	11/13/2016
23	HORNANTENNA	Rohde&Schwarz	HF906	100039	11/13/2016
24	WIDEB.RADIO COMM.TESRER	R&S	CMW500	1201.0002K50	11/13/2016

The calibration interval was one year.

## 4. TEST CONDITIONS AND RESULTS

### 4.1. Conducted Output Power

#### TEST CONFIGURATION



*Note: Measurement setup for testing on Antenna connector*

#### TEST PROCEDURE

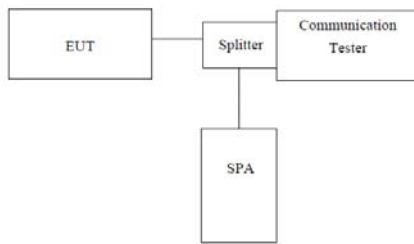
1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure the maximum burst average power.

#### TEST RESULTS

EUT Mode	Frequency (MHz)	Max Avg.Power QPSK (dBm)	Max Avg.Power 16QAM (dBm)
LTE Band 2	1850.70 – 1909.30	21.81	21.34
LTE Band 4	1710.70 – 1754.30	21.31	21.63
LTE Band 7	2502.5– 2567.5	21.79	21.40
LTE Band 17	706.50 – 713.50	21.73	21.50

## 4.2. Occupy Bandwidth

### TEST CONFIGURATION



*Note: Measurement setup for testing on Antenna connector*

### TEST PROCEDURE

1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer
2. RBW was set to about 1% of emission BW, VBW= 3 times RBW.
3. -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

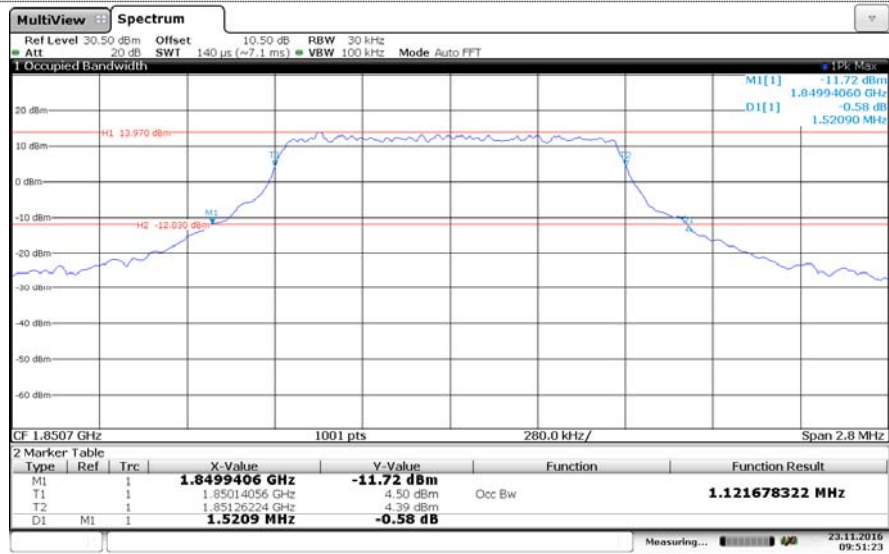
LTE Band 2					
Bandwidth	Channel	99% Occupy bandwidth (MHz)		-26dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
1.4MHz	Low	1.12	1.11	1.52	1.58
	Mid	1.11	1.13	1.52	1.58
	High	1.12	1.13	1.56	1.60
3MHz	Low	2.69	2.68	3.02	3.04
	Mid	2.69	2.69	3.04	3.06
	High	2.69	2.68	3.06	3.06
5MHz	Low	4.53	4.56	5.34	5.46
	Mid	4.55	4.53	5.42	5.34
	High	4.52	4.58	5.33	5.54
10MHz	Low	8.95	8.97	9.84	10.03
	Mid	8.97	8.97	9.88	9.86
	High	8.97	8.97	10.02	10.01
15MHz	Low	13.49	13.55	15.36	15.34
	Mid	13.55	13.55	15.39	15.08
	High	13.52	13.55	15.57	15.44
20MHz	Low	17.98	18.06	20.19	20.21
	Mid	18.02	18.06	20.30	20.38
	High	18.02	17.98	20.24	20.20

LTE Band 4					
Bandwidth	Channel	99% Occupy bandwidth (MHz)		-26dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
1.4MHz	Low	1.12	1.11	1.50	1.60
	Mid	1.11	1.13	1.49	1.56
	High	1.12	1.12	1.56	1.63
3MHz	Low	2.69	2.68	2.99	3.02
	Mid	2.69	2.69	3.04	3.04
	High	2.69	2.69	3.04	3.07
5MHz	Low	4.53	4.56	5.40	5.40
	Mid	4.55	4.54	5.38	5.34
	High	4.52	4.57	5.29	5.53
10MHz	Low	8.95	8.95	9.87	9.98
	Mid	8.97	8.95	9.86	9.81
	High	8.97	8.97	10.01	10.11
15MHz	Low	13.49	13.55	15.27	15.31
	Mid	13.49	13.52	15.27	15.08
	High	13.55	13.52	15.49	14.85
20MHz	Low	17.90	17.98	19.85	19.89
	Mid	17.94	17.98	19.92	19.97
	High	18.02	17.94	20.07	19.95

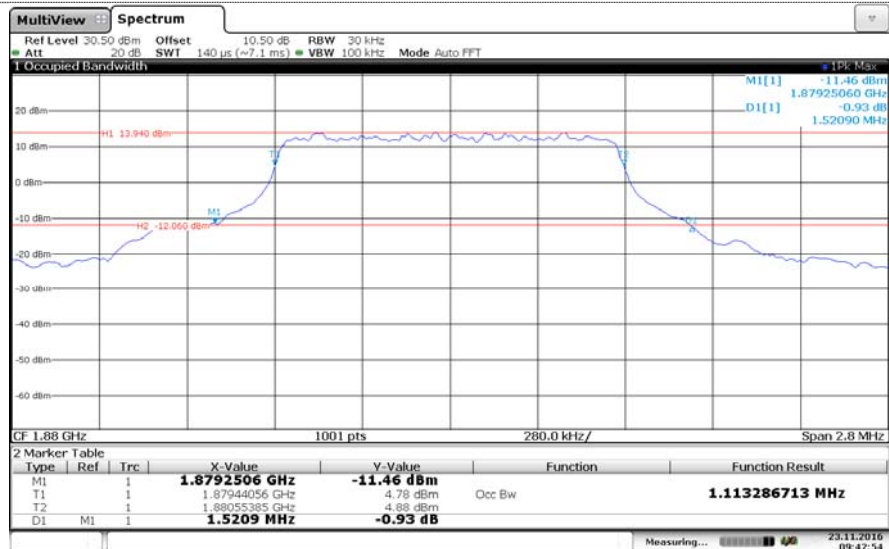
LTE Band 7					
Bandwidth	Channel	99% Occupy bandwidth (MHz)		-26dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
5MHz	Low	4.54	4.57	5.51	5.49
	Mid	4.55	4.54	5.47	5.45
	High	4.53	4.57	5.38	5.56
10MHz	Low	8.95	8.97	9.96	10.00
	Mid	8.97	8.97	10.07	9.83
	High	8.97	8.97	10.04	9.98
15MHz	Low	13.52	13.55	15.31	15.32
	Mid	13.55	13.55	15.43	14.87
	High	13.55	13.55	15.47	15.03
20MHz	Low	18.02	18.02	19.96	20.17
	Mid	17.94	18.02	20.07	19.97
	High	18.02	18.02	20.08	20.15

LTE Band 17					
Bandwidth	Channel	99% Occupy bandwidth (MHz)		-26dB bandwidth (MHz)	
		QPSK	16QAM	QPSK	16QAM
5MHz	Low	4.53	4.56	5.40	5.39
	Mid	4.55	4.54	5.43	5.53
	High	4.51	4.56	5.40	5.46
10MHz	Low	8.97	8.99	9.90	10.05
	Mid	8.99	8.97	9.89	9.87
	High	8.97	8.99	10.00	10.12

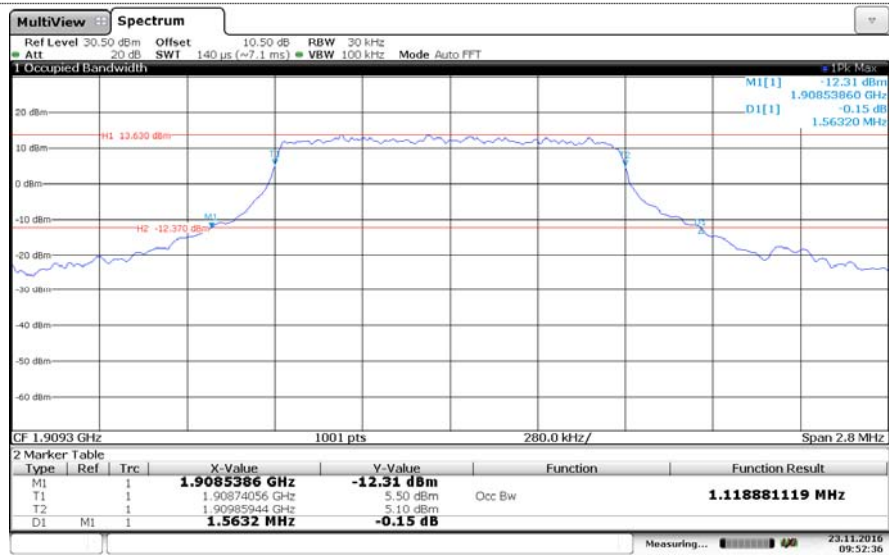
LTE Band 2-1.4MHz  
QPSK



Channel Low

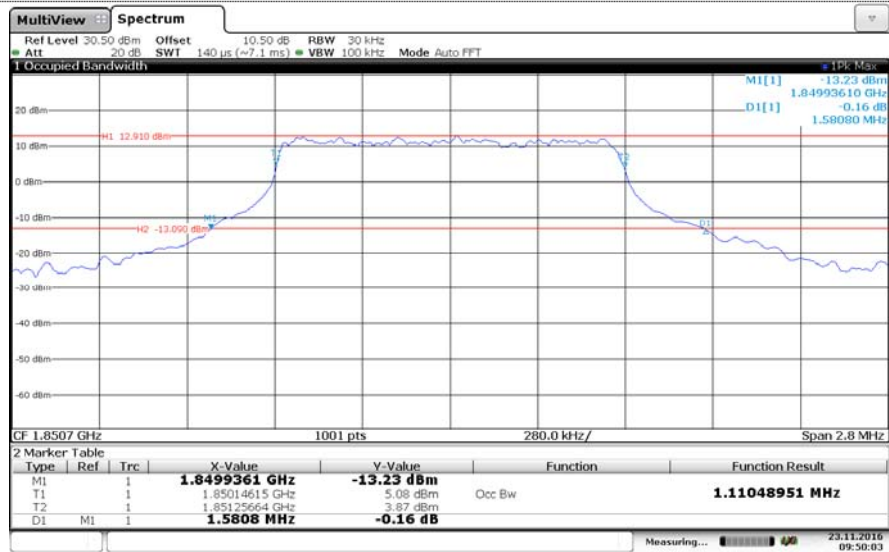


Channel Mid

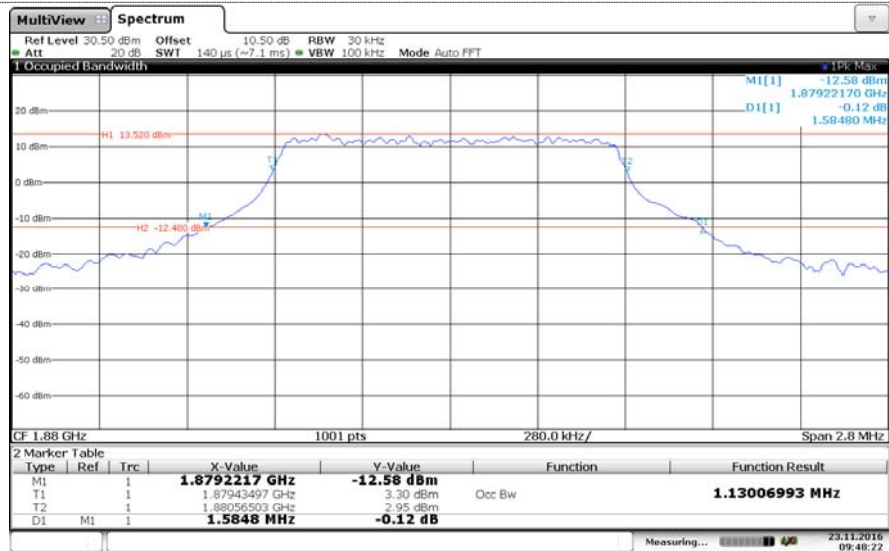


Channel High

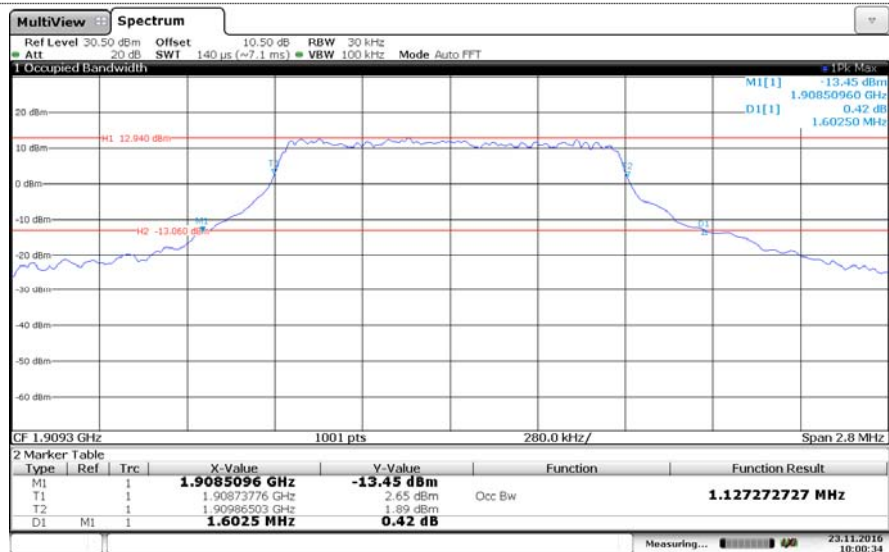
LTE Band 2-1.4MHz  
16QAM



Channel Low



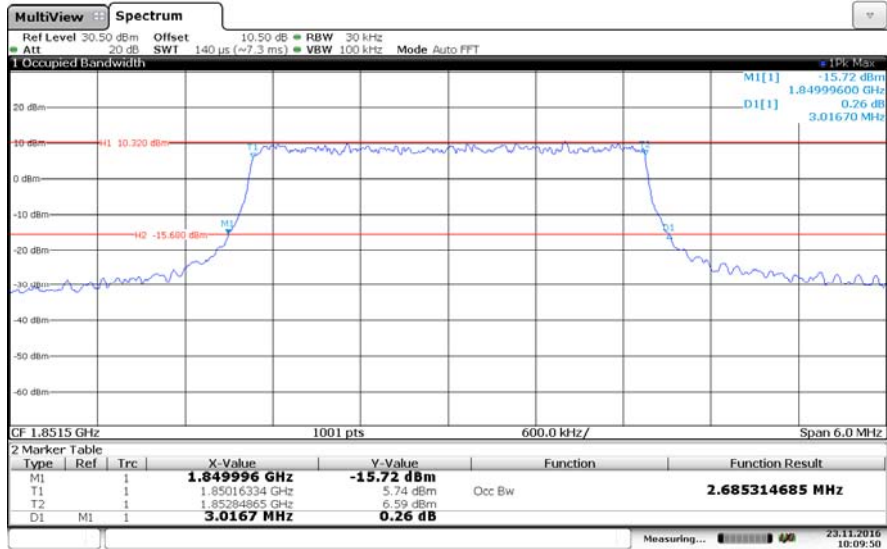
Channel Mid



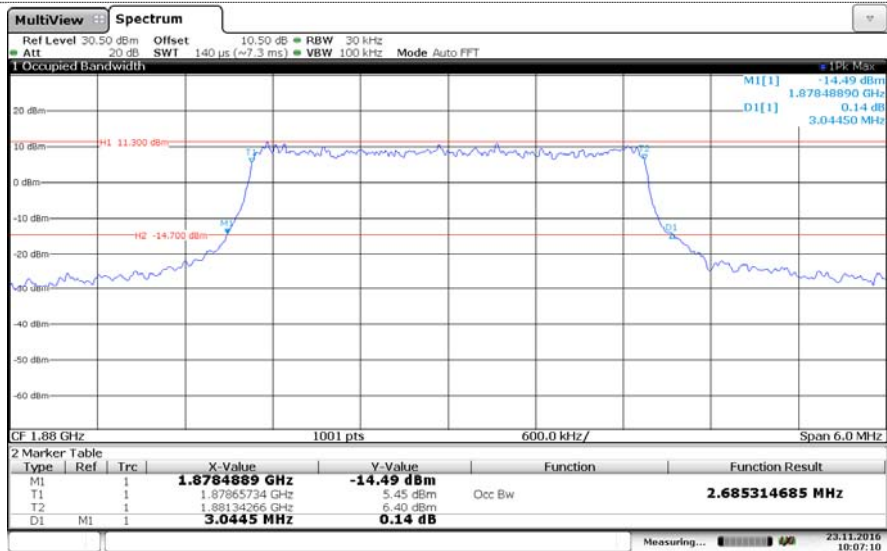
Channel High



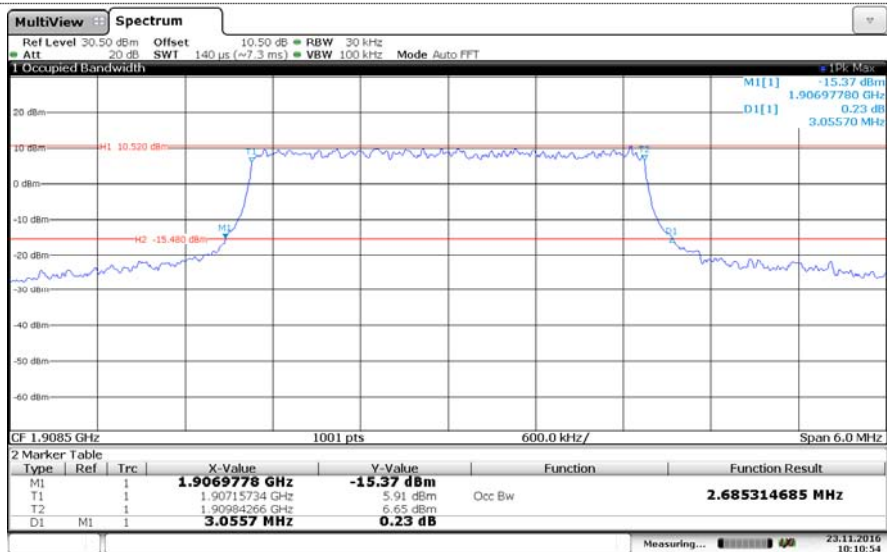
LTE Band 2-3MHz  
QPSK



Channel Low

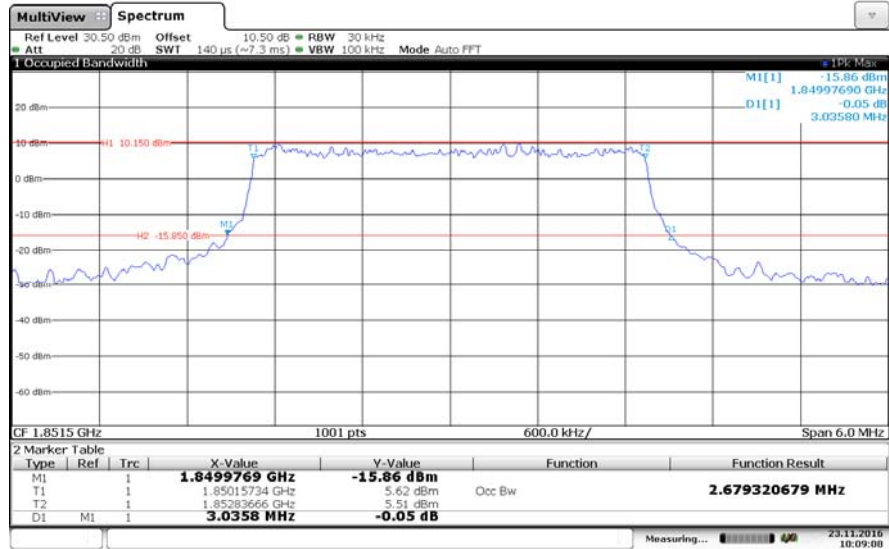


Channel Mid

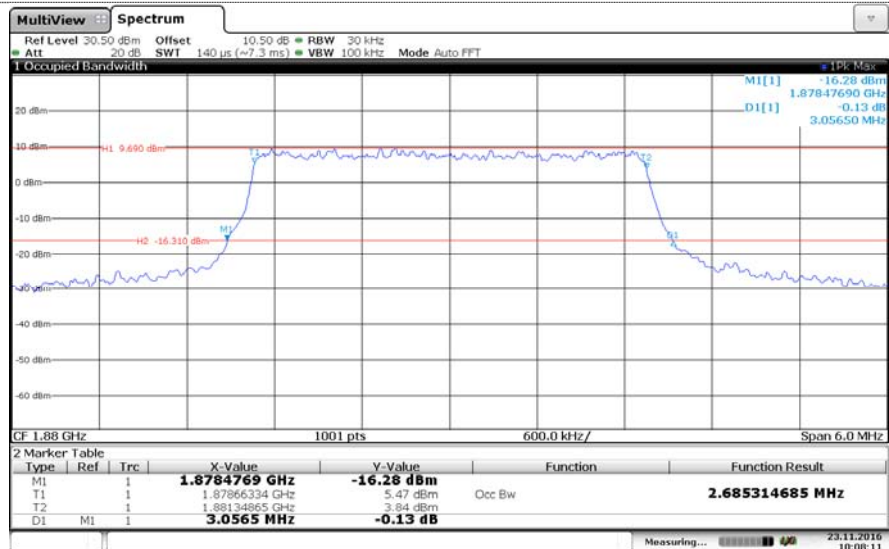


Channel High

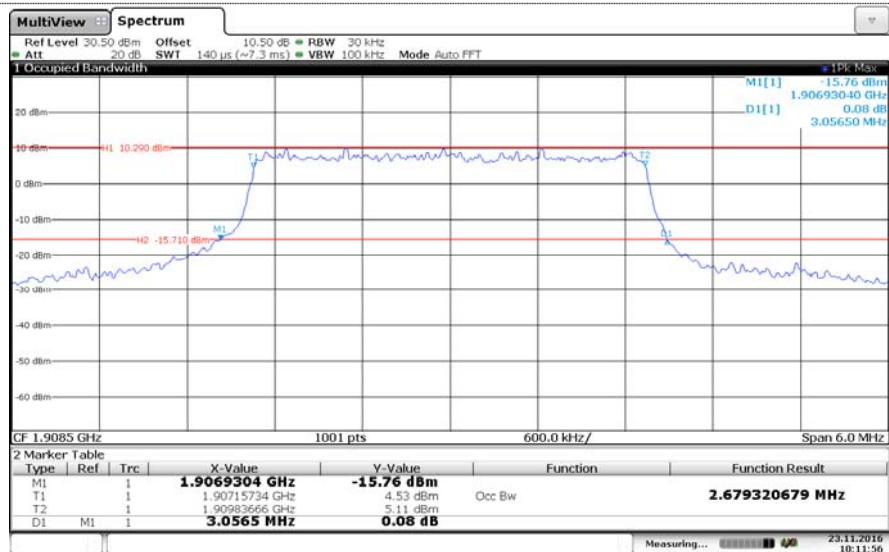
LTE Band 2-3MHz  
16QAM



Channel Low

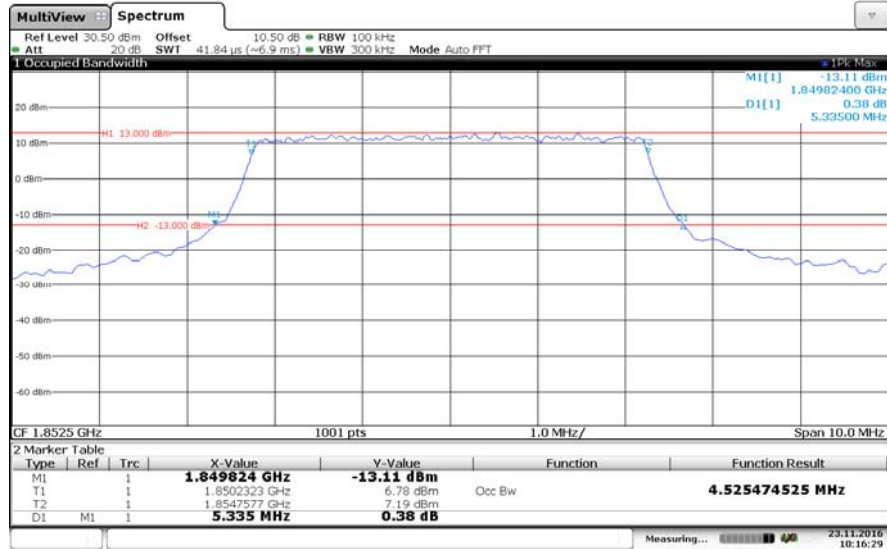


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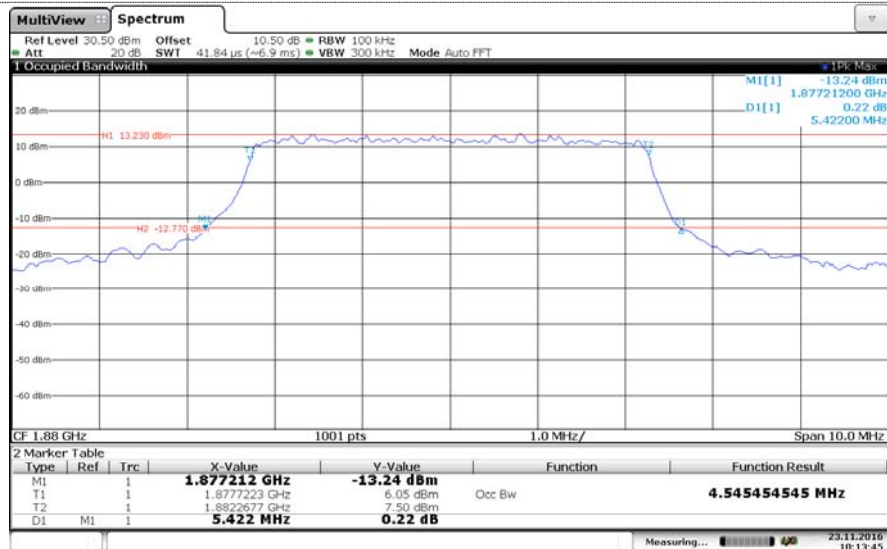


Channel High

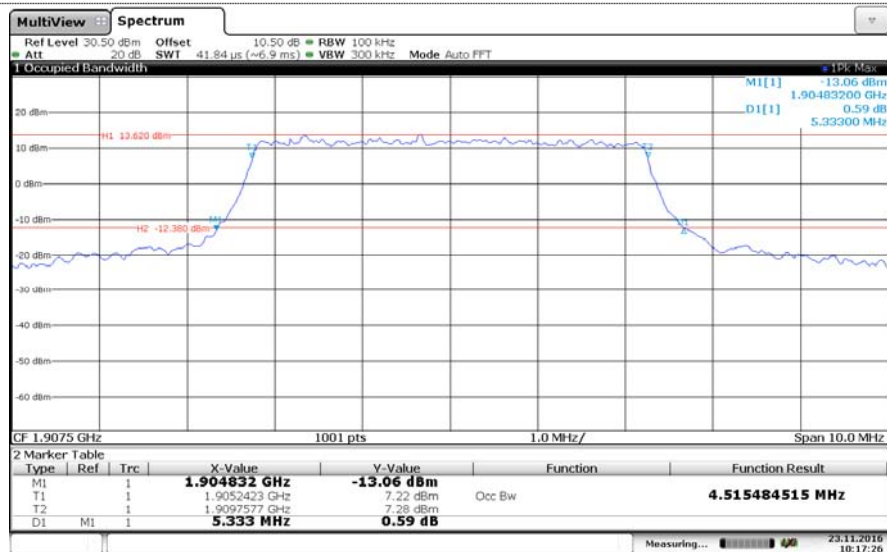
LTE Band 2-5MHz  
QPSK



Channel Low

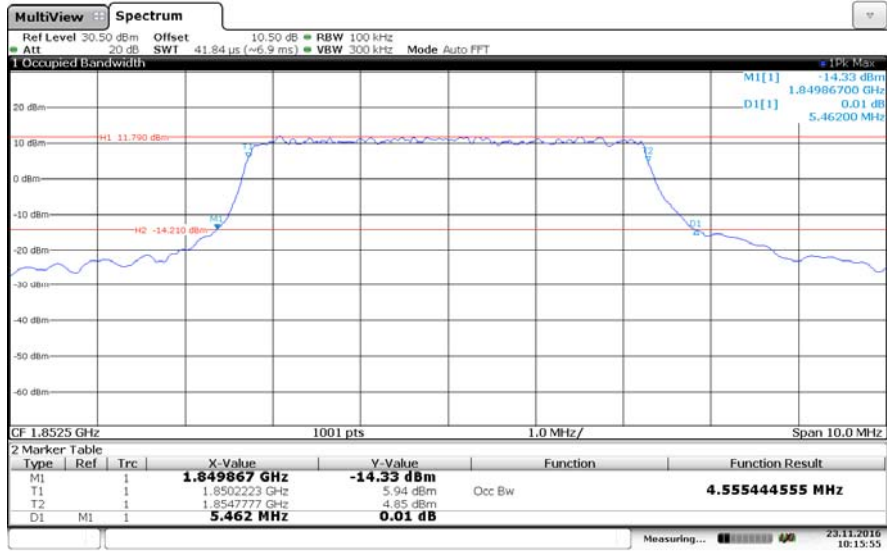


Channel Mid

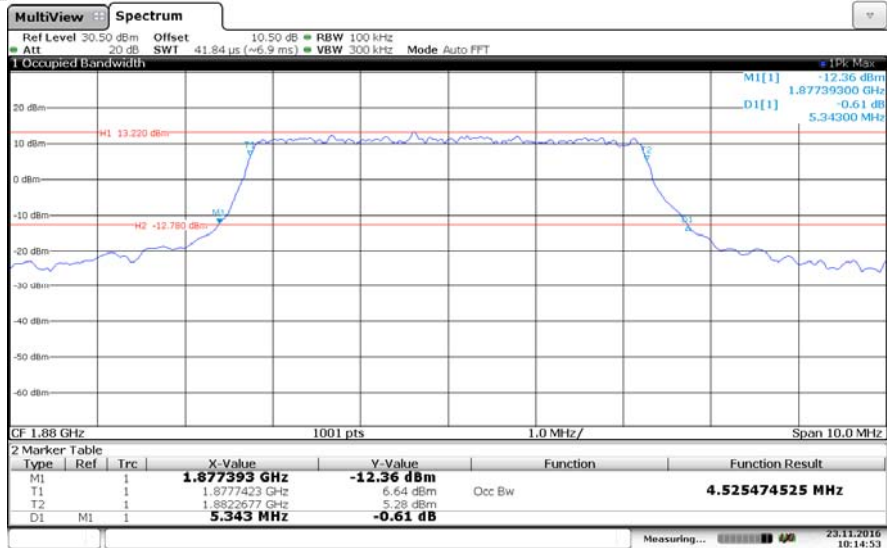


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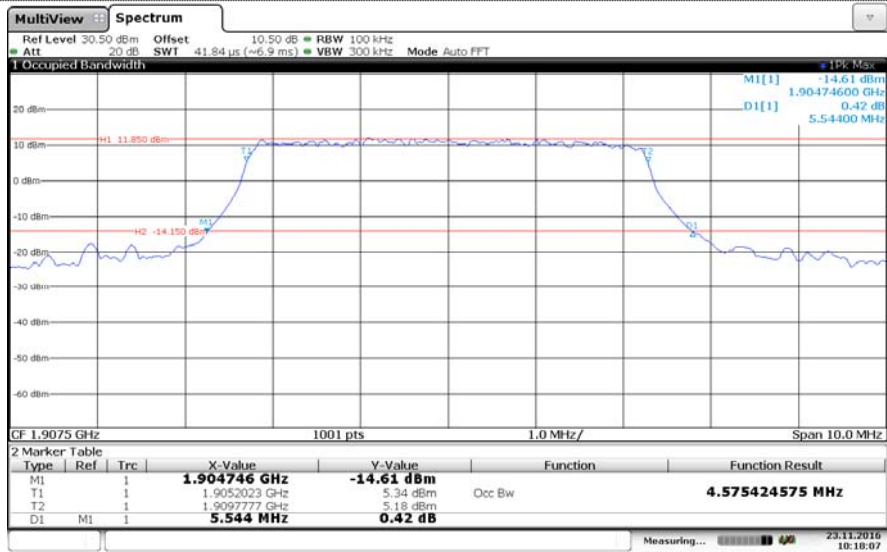
LTE Band 2-5MHz  
16QAM



Channel Low

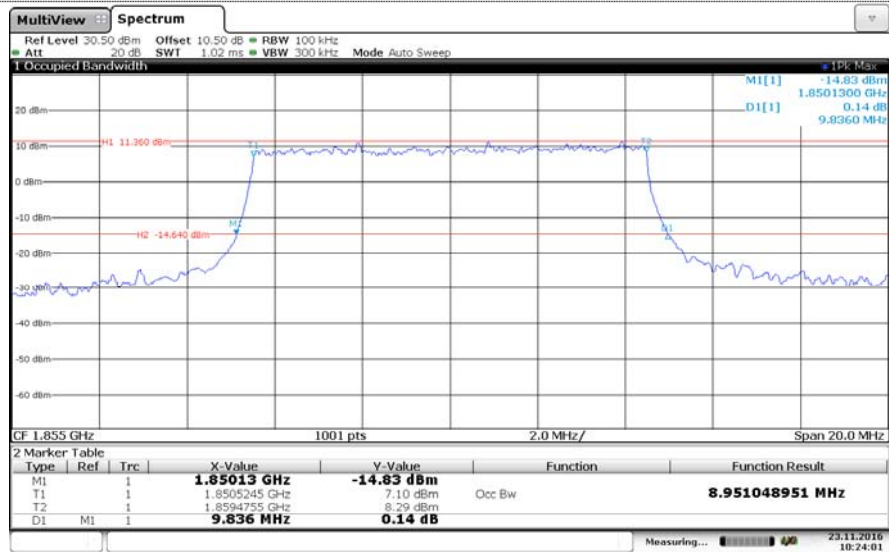


Channel Mid

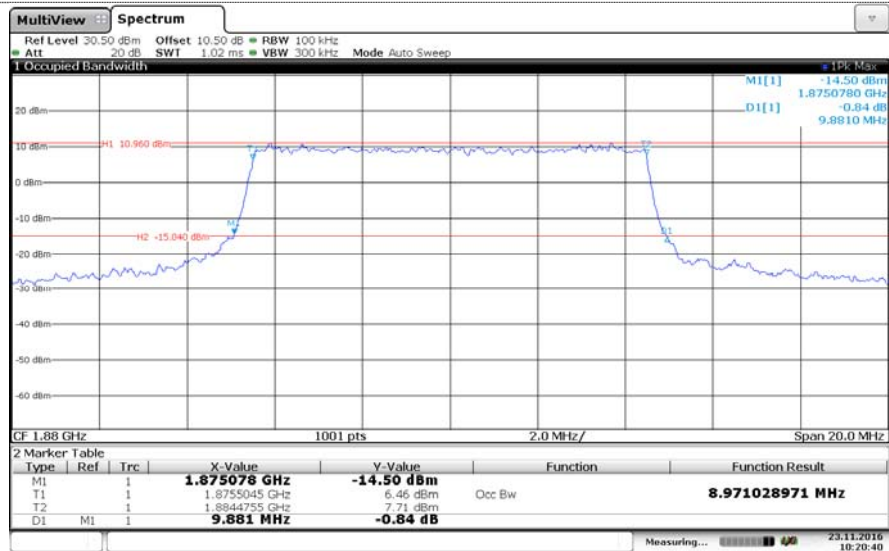


Channel High

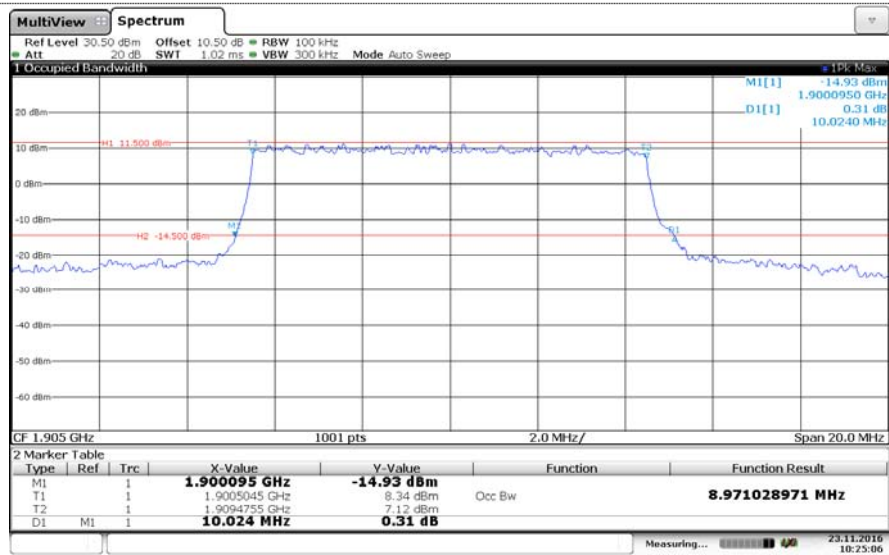
LTE Band 2-10MHz  
QPSK



Channel Low



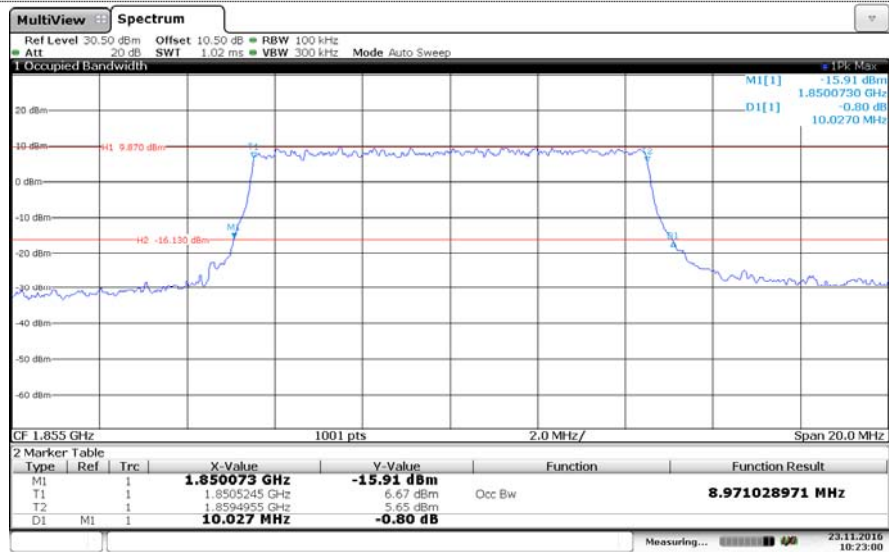
Channel Mid



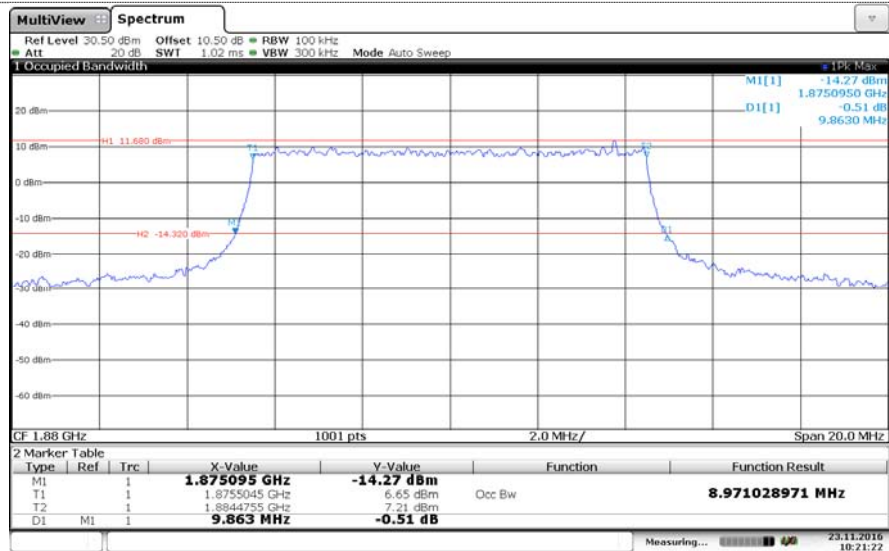
Channel High



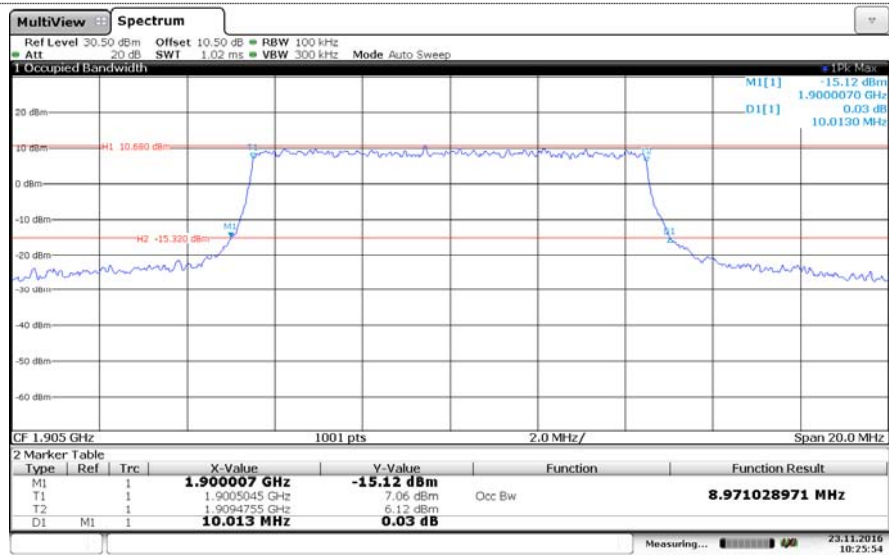
LTE Band 2-10MHz  
16QAM



Channel Low

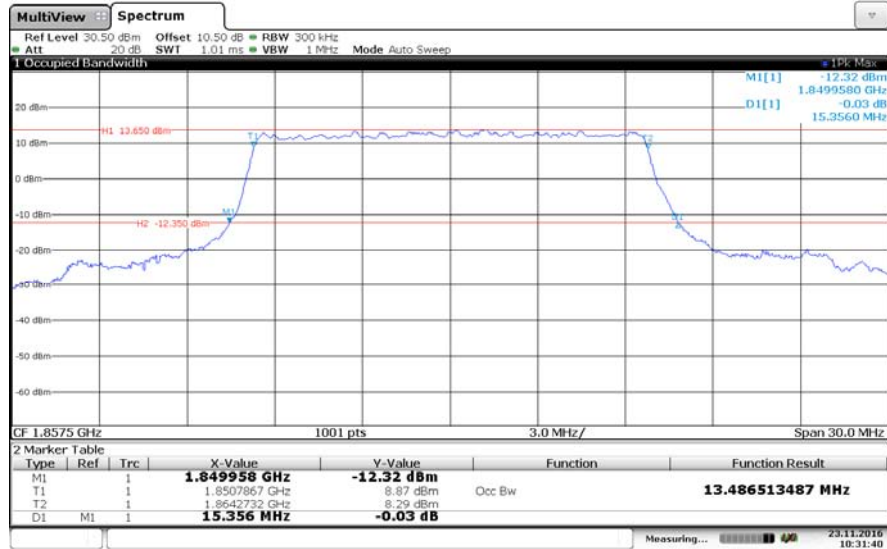


Channel Mid

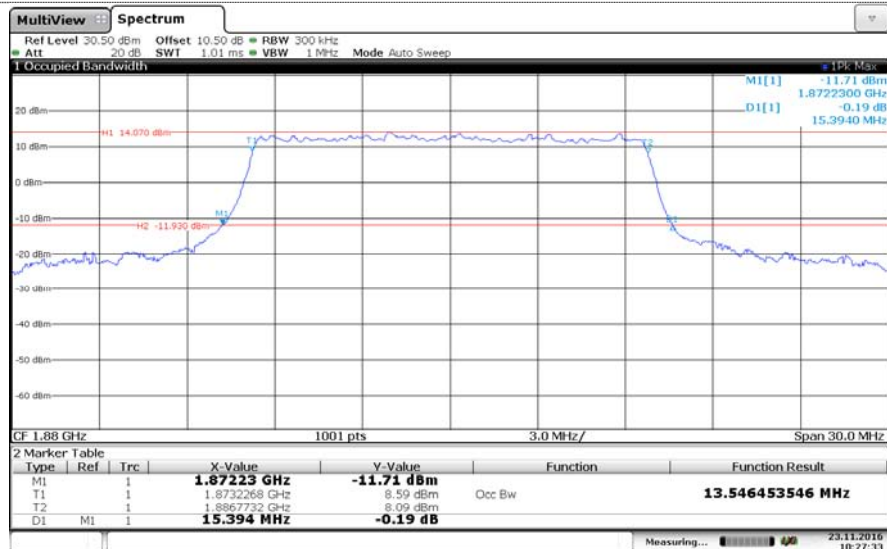


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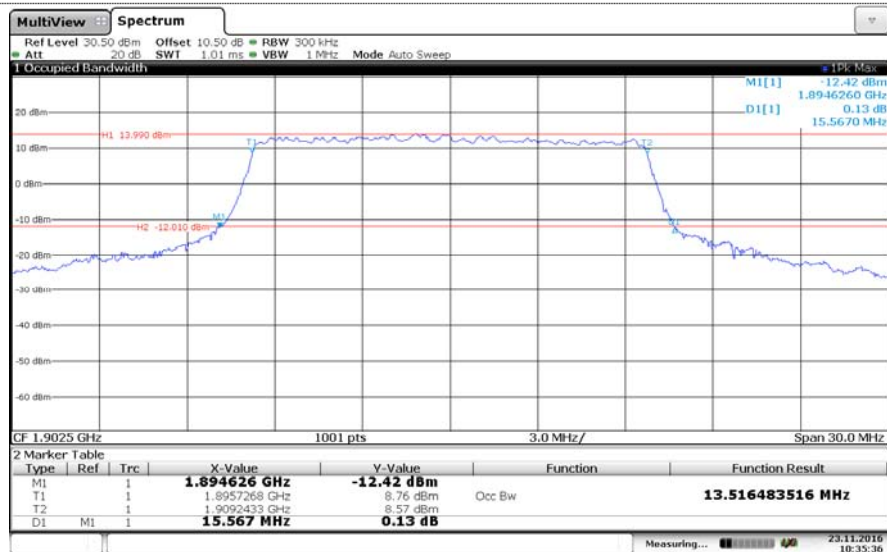
LTE Band 2-15MHz  
QPSK



Channel Low

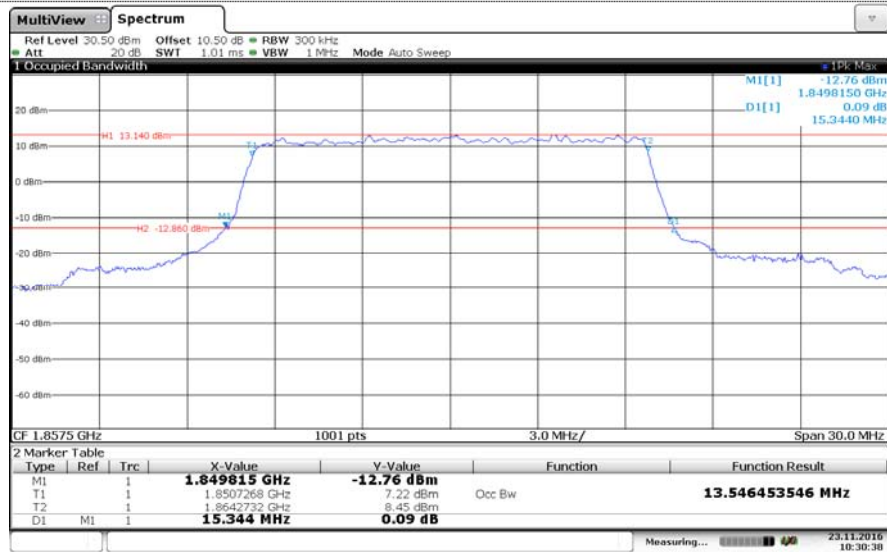


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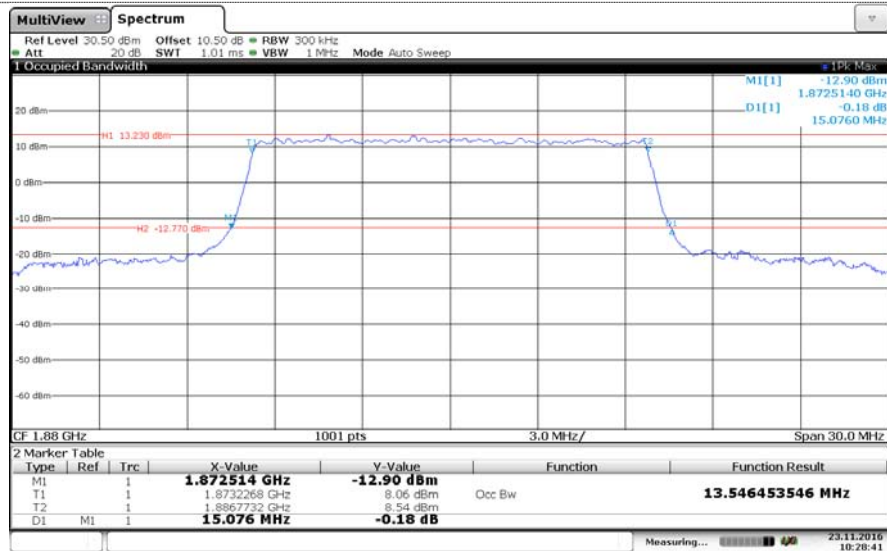


Channel High

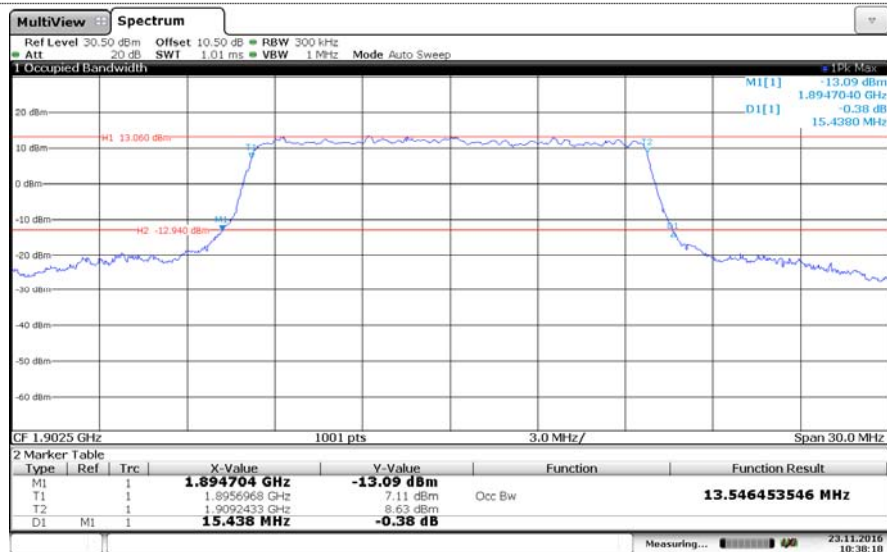
LTE Band 2-15MHz  
16QAM



Channel Low



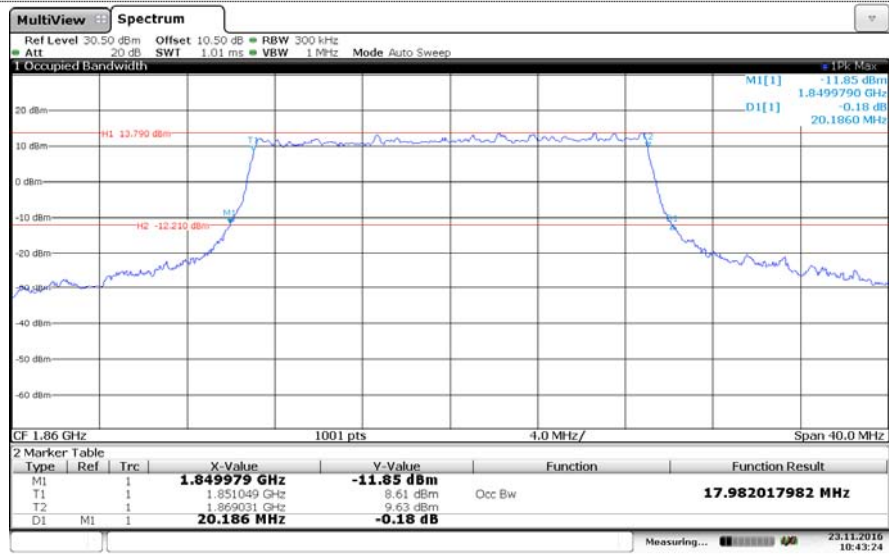
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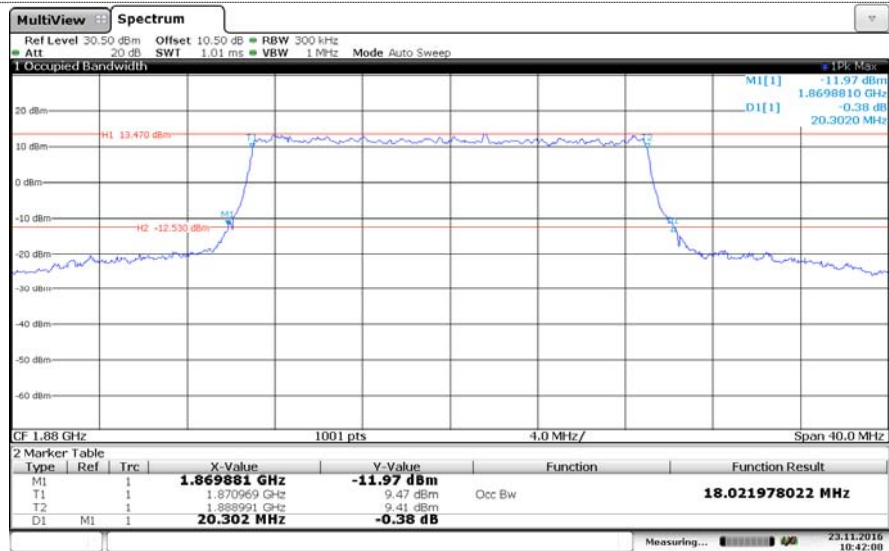
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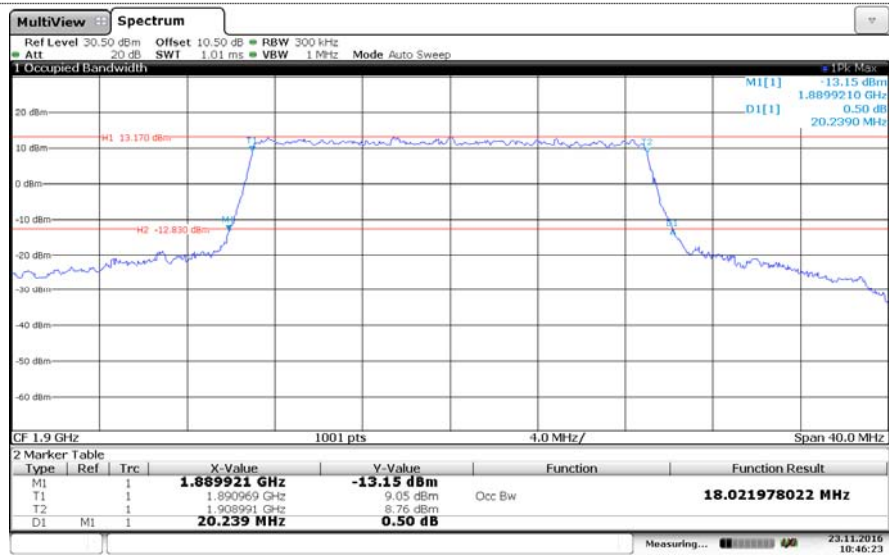
LTE Band 2-20MHz  
QPSK



Channel Low

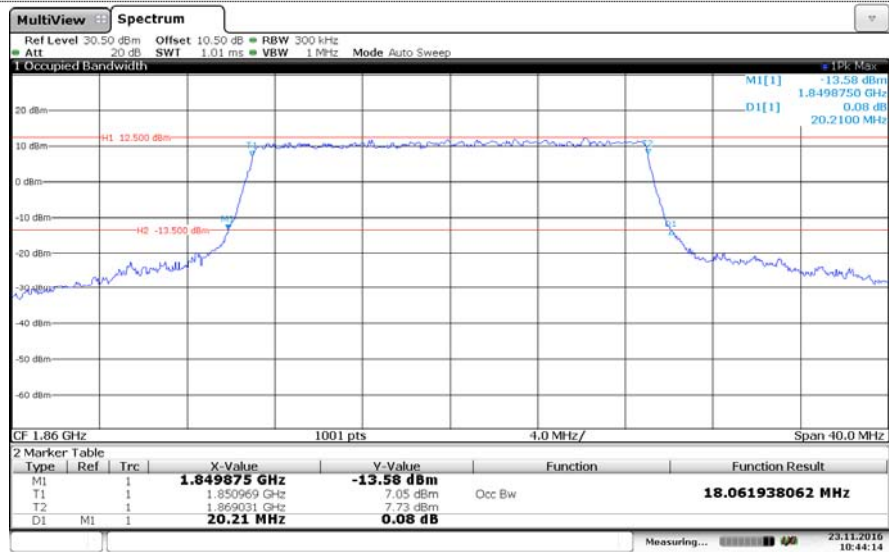


Channel Mid

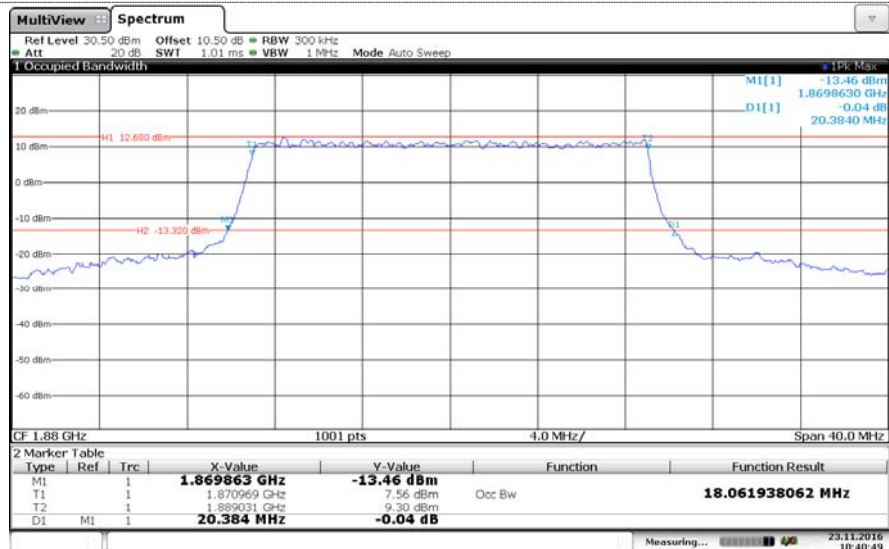


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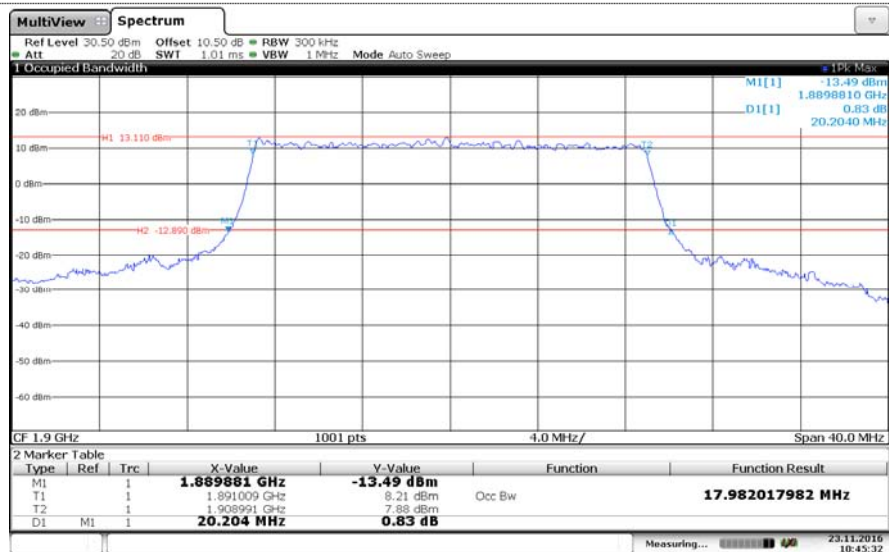
LTE Band 2-20MHz  
16QAM



Channel Low

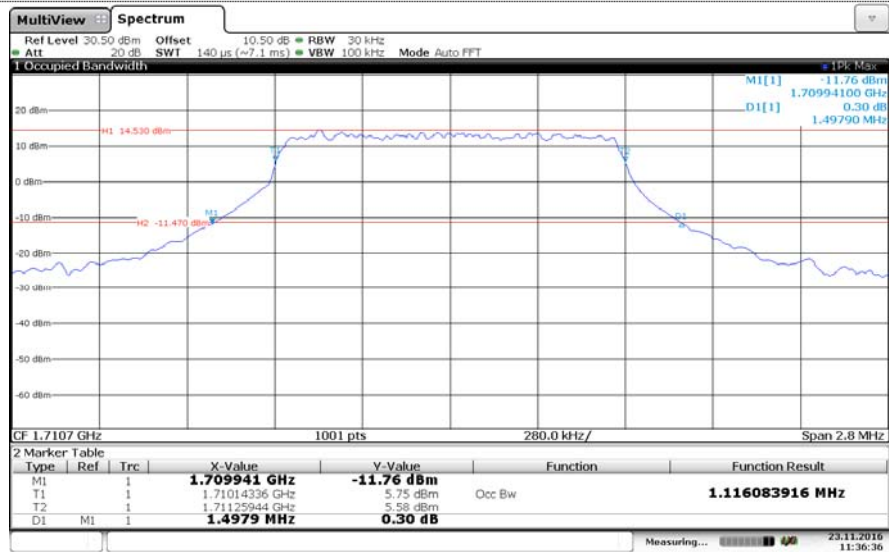


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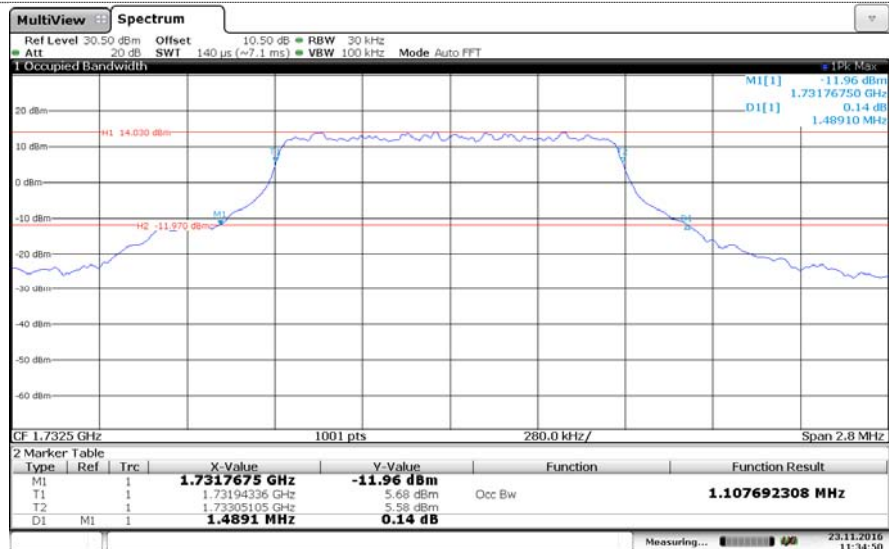


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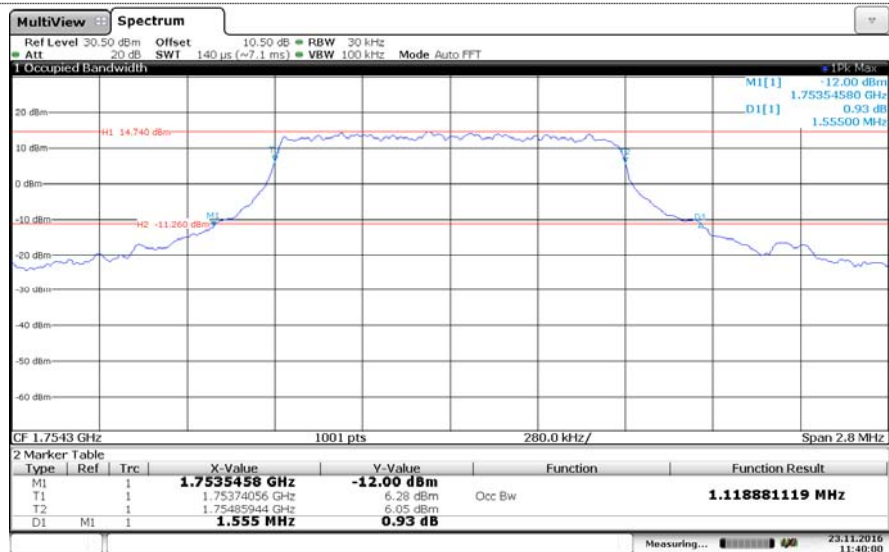
LTE Band 4-1.4MHz  
QPSK



Channel Low

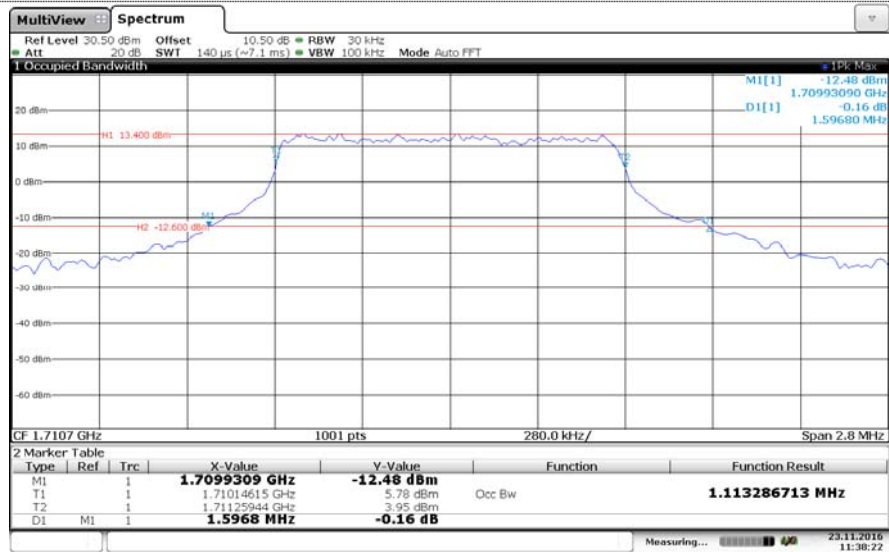


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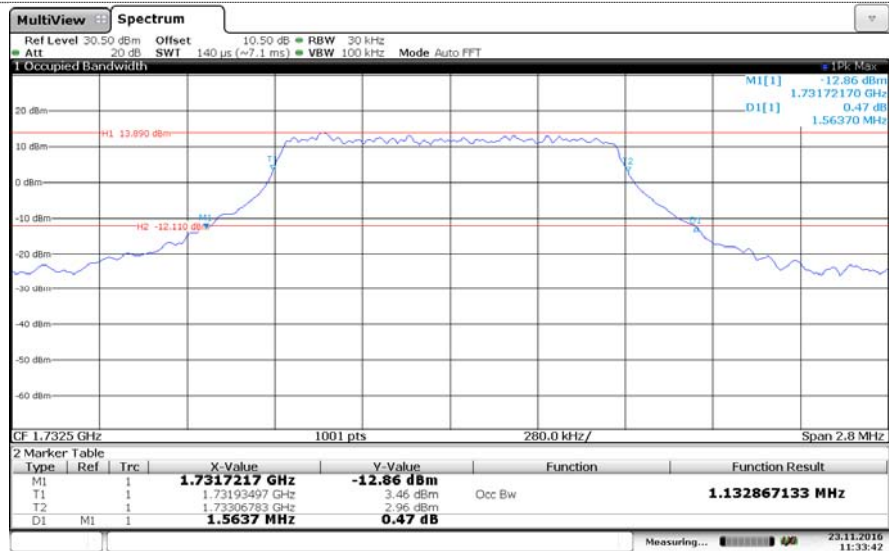


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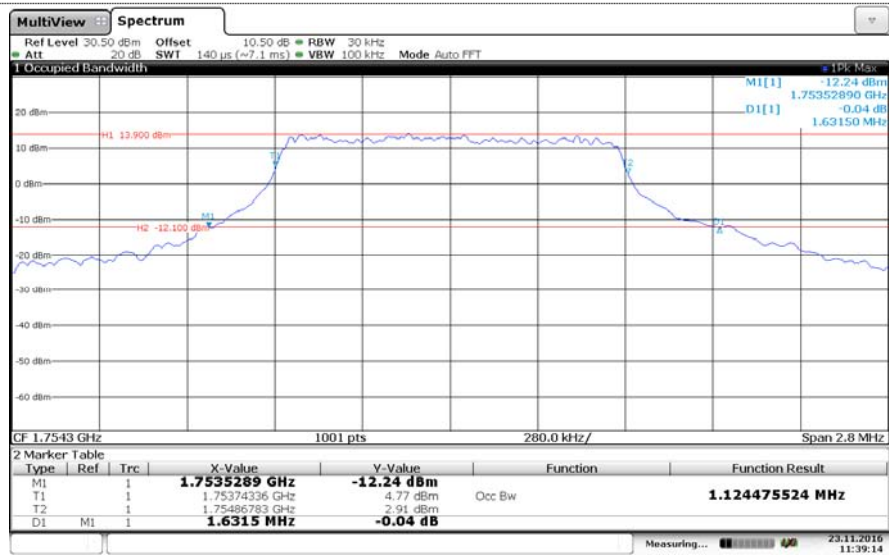
LTE Band 4-1.4MHz  
16QAM



Channel Low

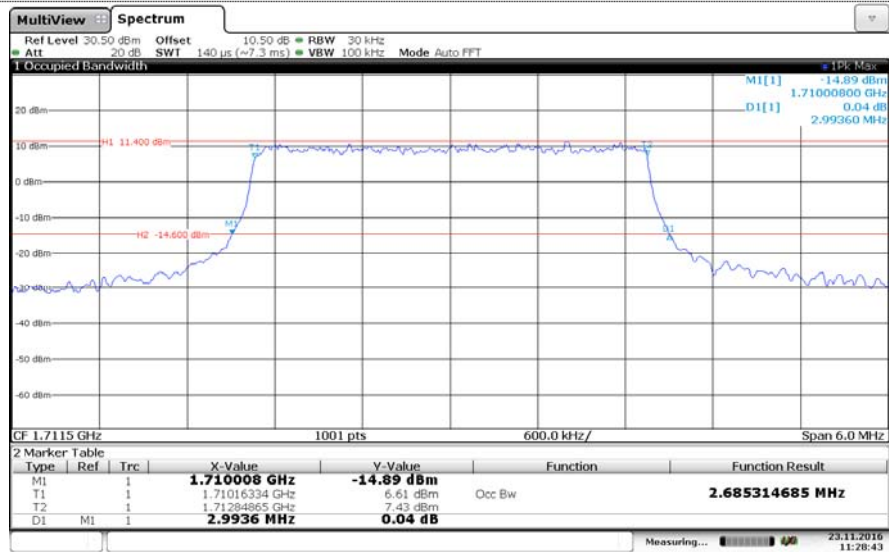


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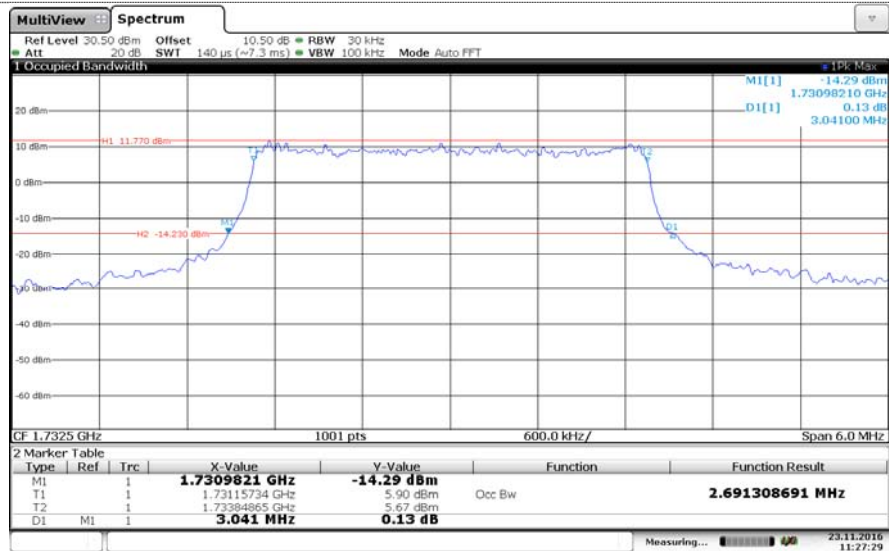


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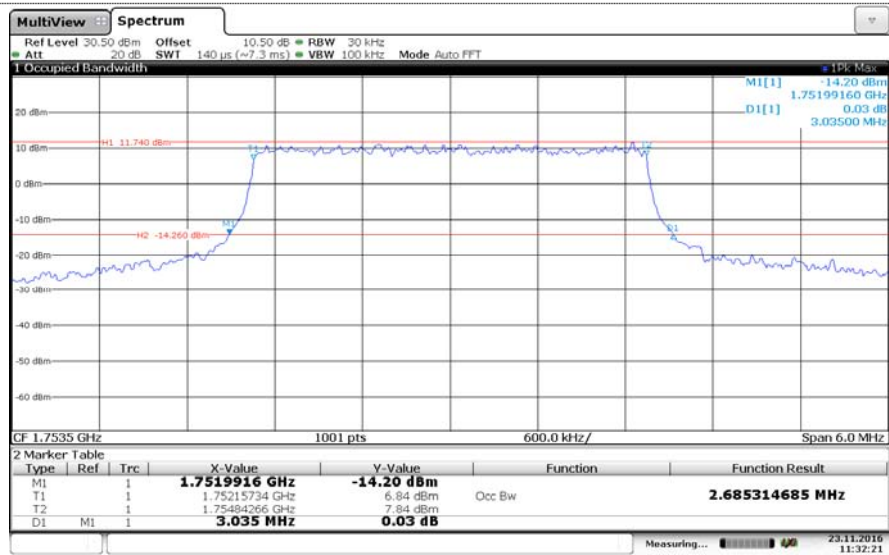
LTE Band 4-3MHz  
QPSK



Channel Low



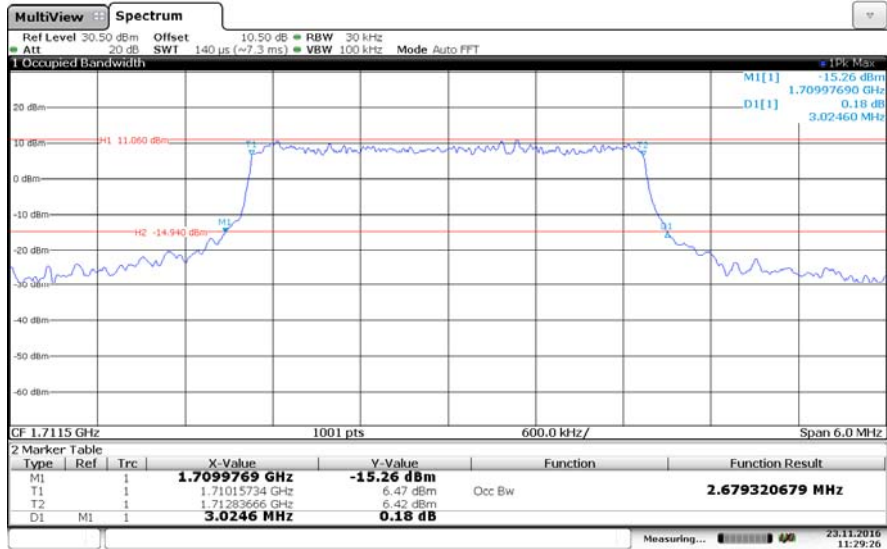
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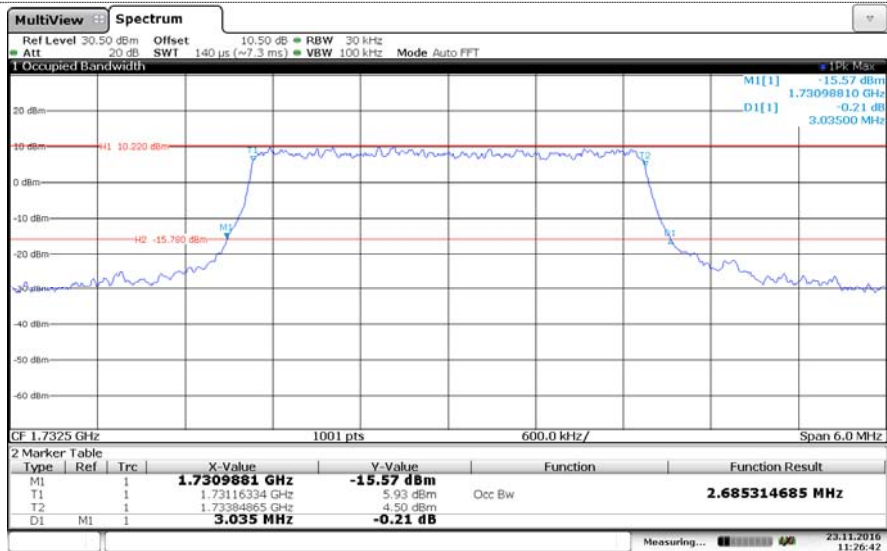
Channel High



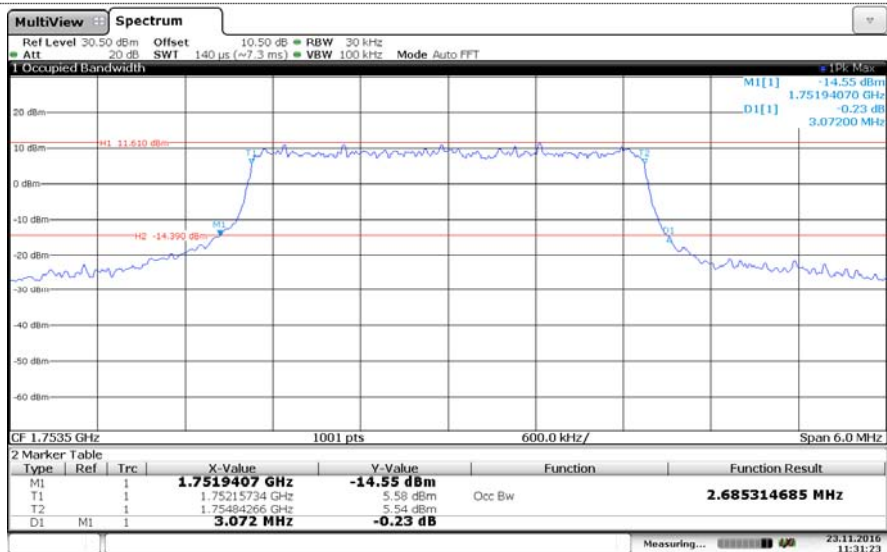
LTE Band 4-3MHz  
16QAM



Channel Low

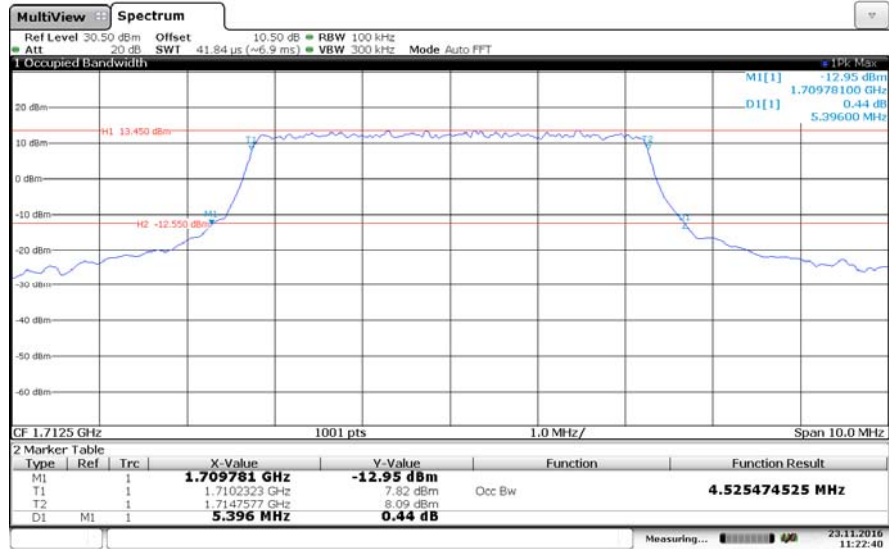


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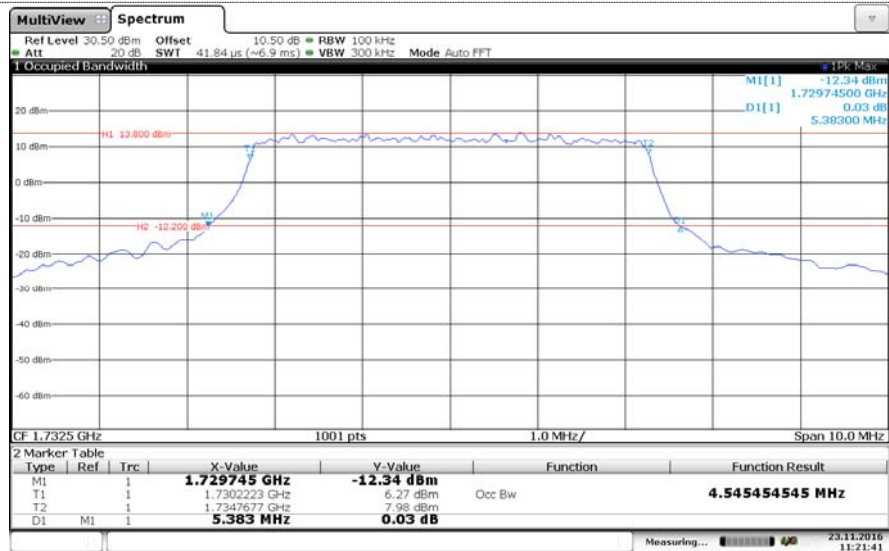


Channel High

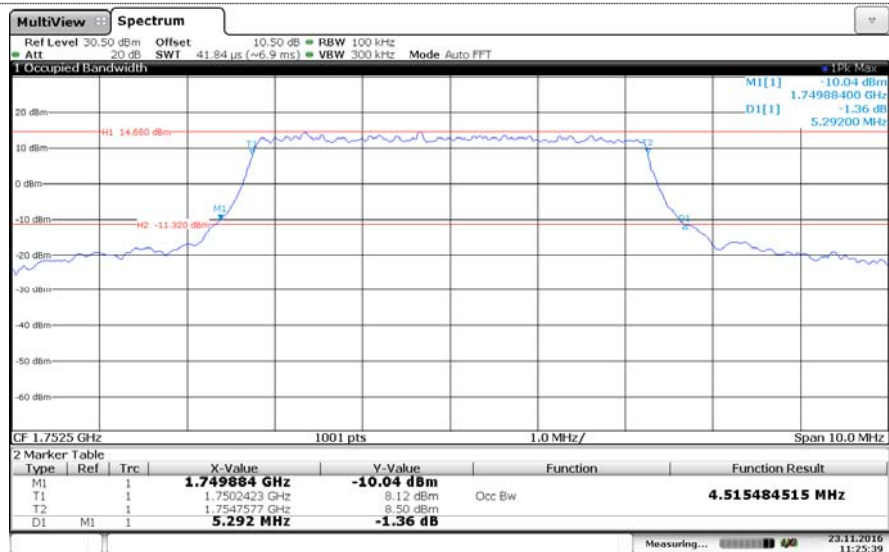
LTE Band 4-5MHz  
QPSK



Channel Low

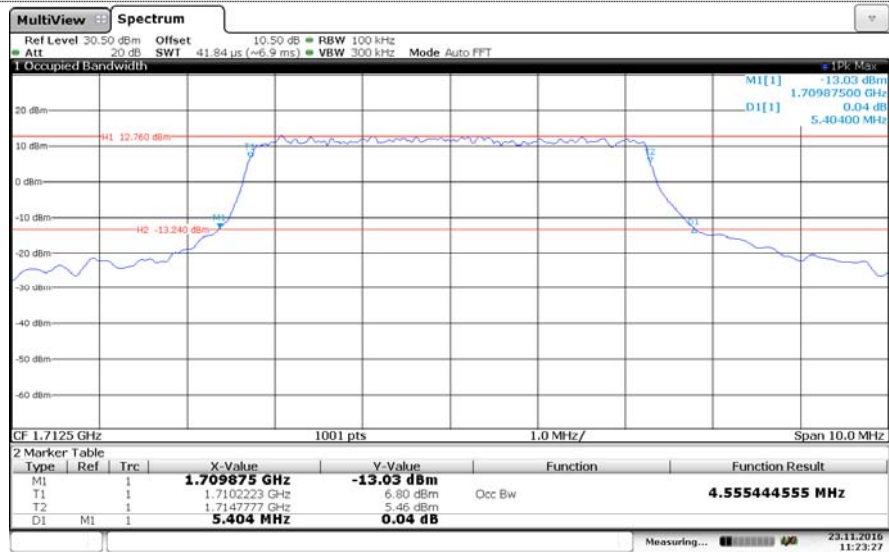


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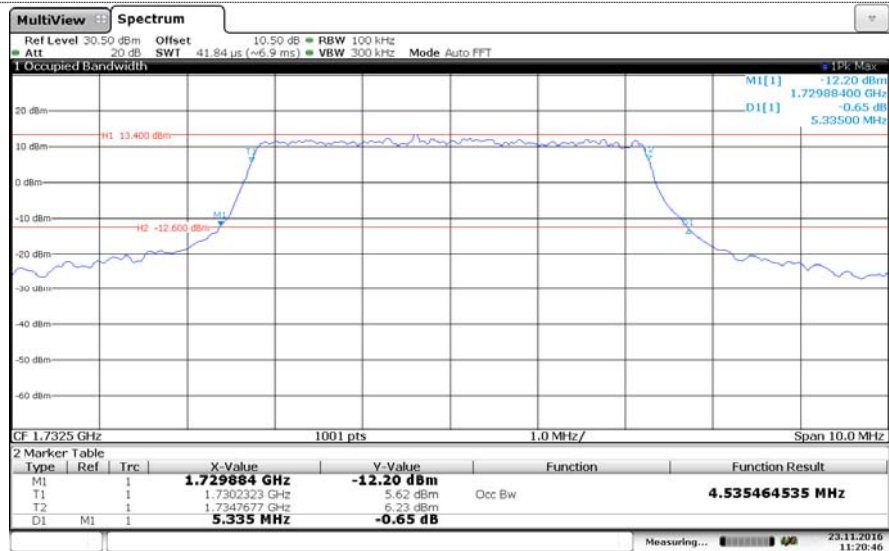


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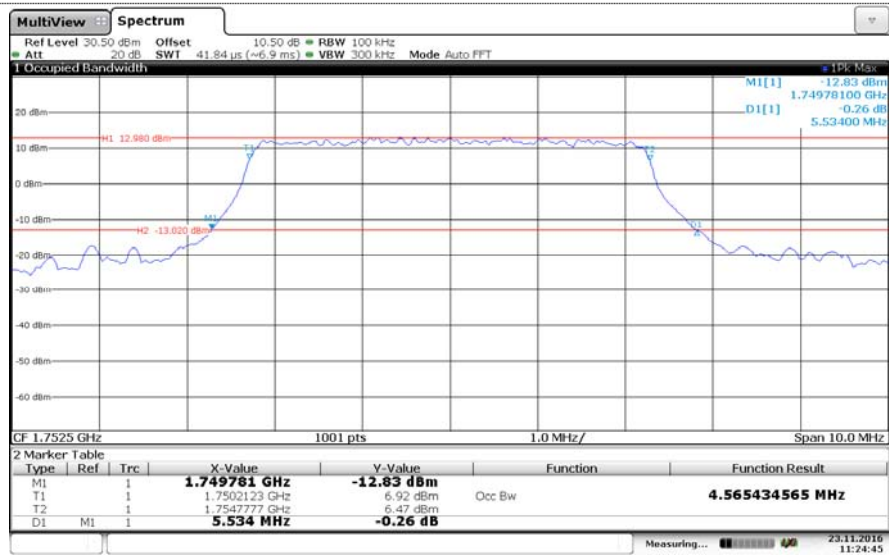
LTE Band 4-5MHz  
16QAM



Channel Low



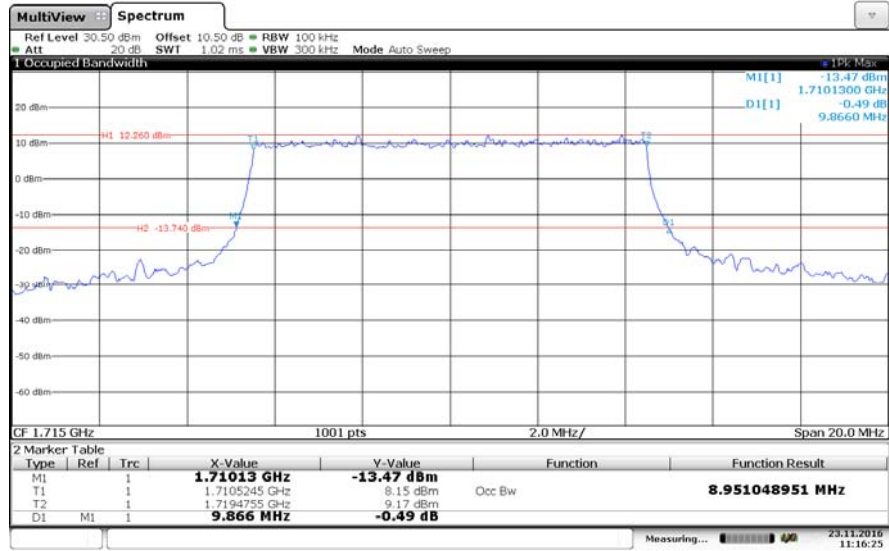
Channel Mid



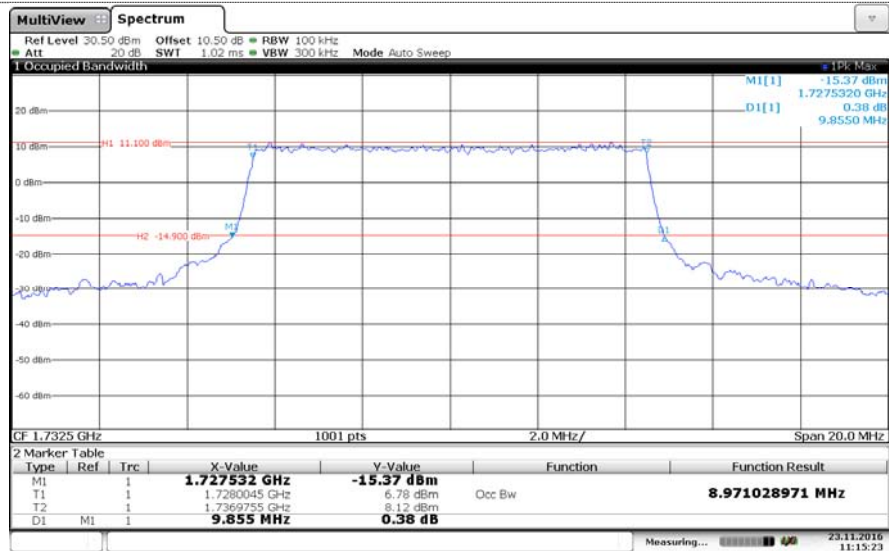
Channel High



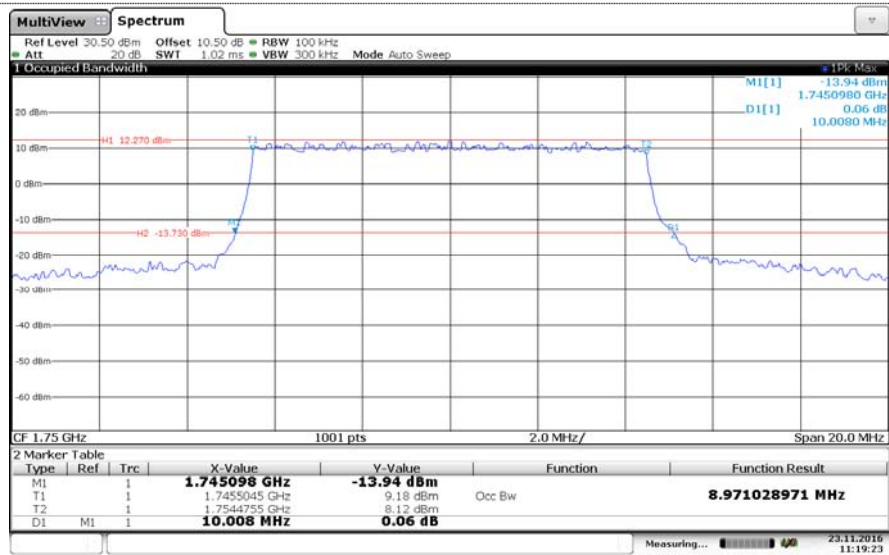
LTE Band 4-10MHz  
QPSK



Channel Low

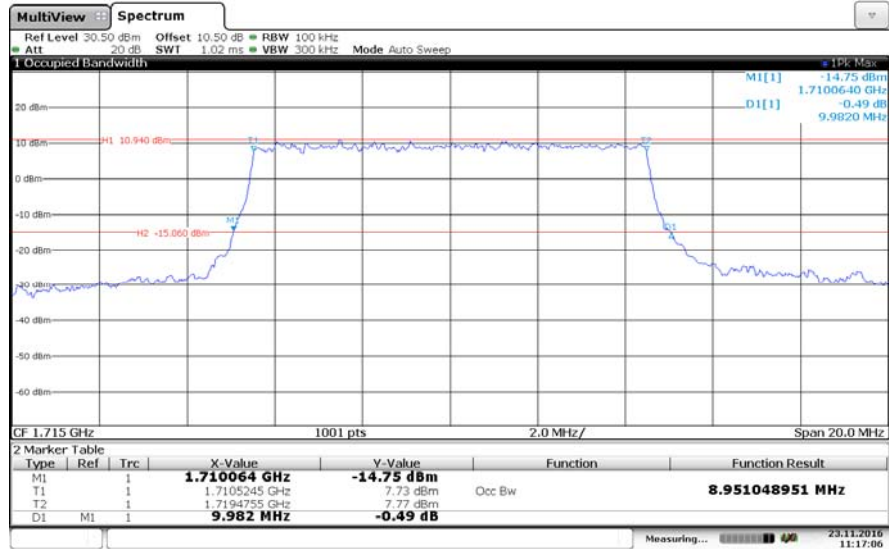


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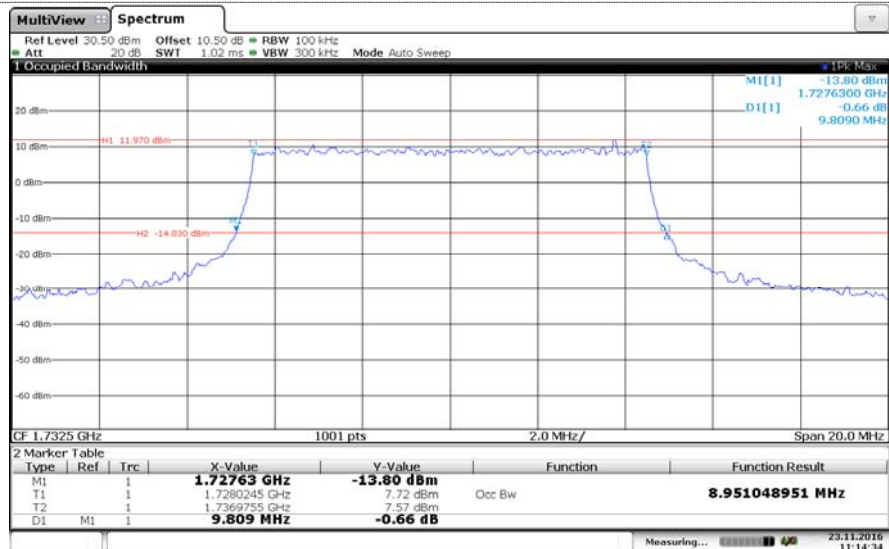


Channel High

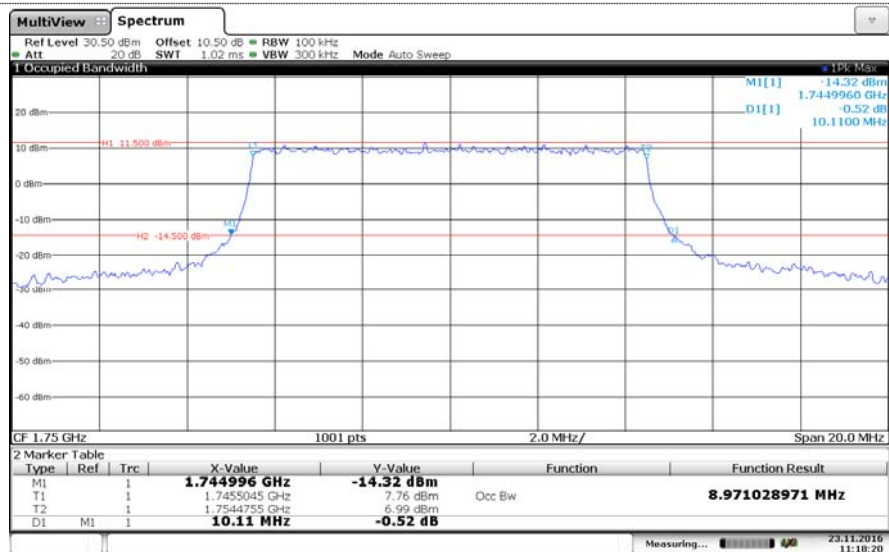
LTE Band 4-10MHz  
16QAM



Channel Low

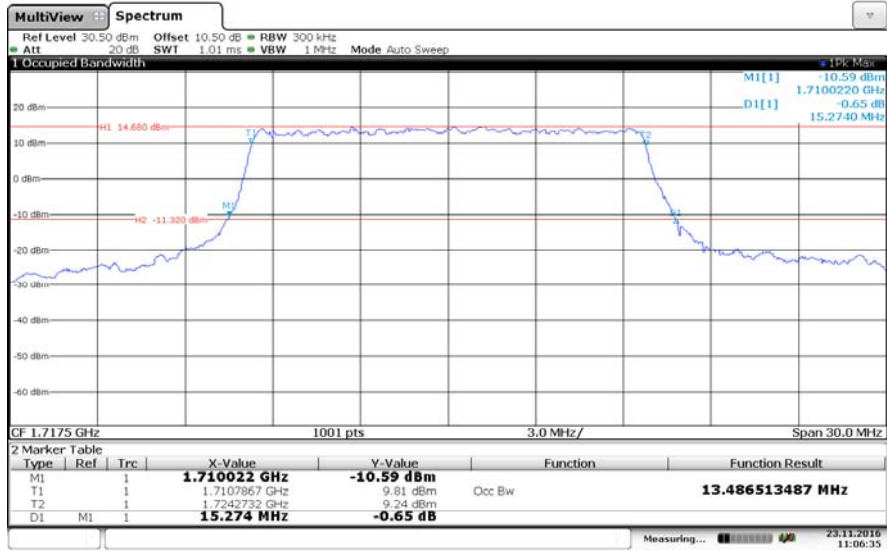


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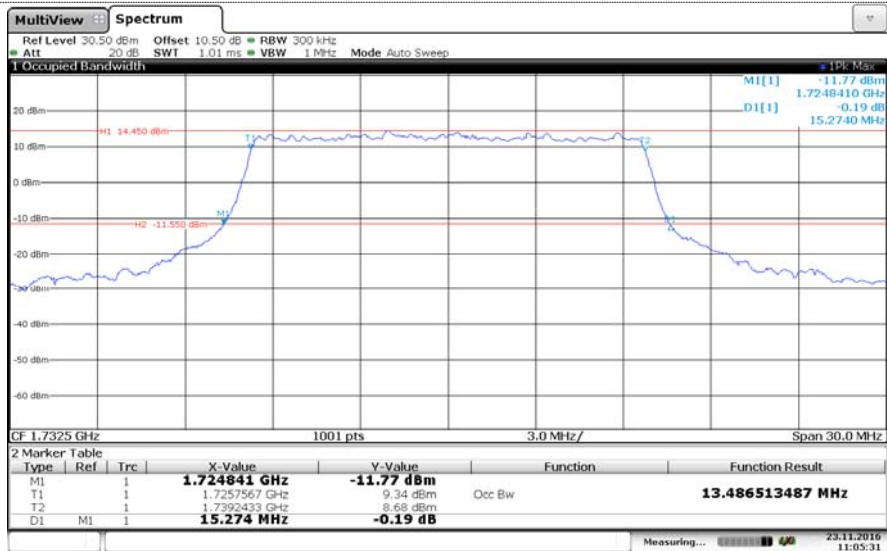


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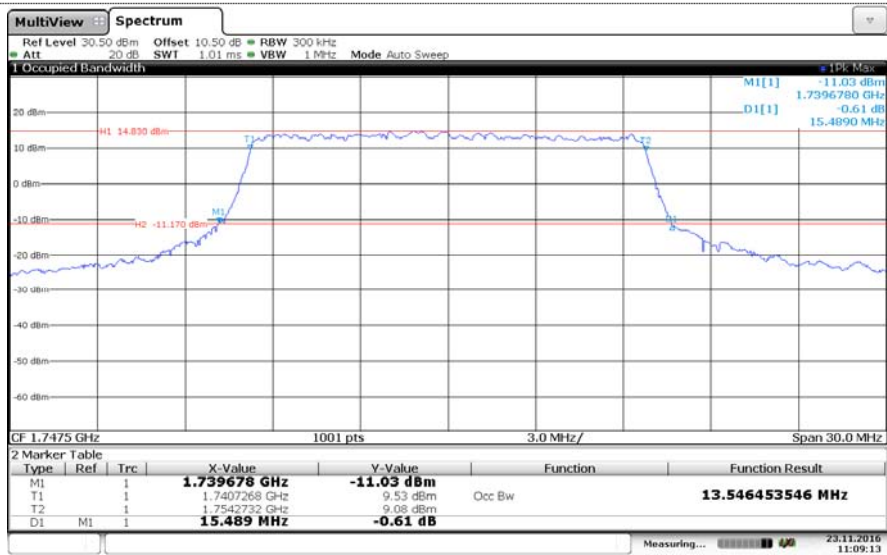
LTE Band 4-15MHz  
QPSK



Channel Low



Channel Mid



Channel High