

FCC REPORT

(LTE)

Applicant: Guizhou Fortuneship Technology Co., Ltd

Address of Applicant: (No. 4 Plant, High-tech Industrial Park, Xinpu Economic Development Zone) Jingkai Road, Xinpu Jingkai District, Xinpu New District, Zunyi City, Guizhou Province, P. R. China

Equipment Under Test (EUT)

Product Name: 4G Smart Phone

Model No.: PCD509

Trade mark: PCD

FCC ID: 2ALQJ-PCD509

Applicable standards: FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 27 Subpart L

Date of sample receipt: 09 Mar., 2017

Date of Test: 10 Mar., to 31 Mar., 2017

Date of report issued: 05 Apr., 2017

Test Result: PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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2. Version

Version No.	Date	Description
00	05 Apr., 2017	Original

Tested by:**Date:**

05 Apr., 2017

Test Engineer**Reviewed by:****Date:**

05 Apr., 2017

Project Engineer

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4. Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 27.50 (d)(4)	Pass
Peak-to-Average Ratio	Part 24.232 (d)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 27.53(h)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53 (h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 27.53 (h)	Pass
Out of band emission, Band Edge	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

Pass: The EUT complies with the essential requirements in the standard.

5. General Information

5.1 Client Information

Applicant:	Guizhou Fortuneship Technology Co., Ltd
Address of Applicant:	(No. 4 Plant, High-tech Industrial Park, Xinpu Economic Development Zone) Jingkai Road, Xinpu Jingkai District, Xinpu New District, Zunyi City, Guizhou Province, P. R. China
Manufacturer:	Guizhou Fortuneship Technology Co., Ltd
Address of Manufacturer:	(No. 4 Plant, High-tech Industrial Park, Xinpu Economic Development Zone) Jingkai Road, Xinpu Jingkai District, Xinpu New District, Zunyi City, Guizhou Province, P. R. China

5.2 General Description of E.U.T.

Product Name:	4G Smart Phone
Model No.:	PCD509
Operation Frequency range:	LTE Band 4:TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz
Modulation type:	QPSK, 16QAM
Antenna type:	Internal Antenna
Antenna gain:	LTE Band 4:-1.2dBi
Power supply:	Rechargeable Li-ion Battery DC3.8V-2500mAh
AC adapter :	Model: FJ-SW1160501000UA Input: AC100-240V 50/60Hz 0.3A Output: DC 5.0V, 1000mA

Operation Frequency List:

LTE Band 4(1.4MHz)		LTE Band 4(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19957	1710.70	19965	1711.50
19958	1710.80	19966	1711.60
....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...
20392	1754.20	20384	1753.40
20393	1754.30	20385	1753.50
LTE Band 4(5MHz)		LTE Band 4(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19975	1712.50	20000	1715.00
19976	1712.60	20001	1715.10
....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...
20374	1752.40	20349	1749.90
20375	1752.50	20350	1750.00
LTE Band 4(15MHz)		LTE Band 4(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20025	1717.50	20050	1720.00
20026	1717.60	20051	1720.10
....
20174	1732.40	20174	1732.40
20175	1732.50	20175	1732.50
20176	1732.60	20176	1732.60
...
20324	1747.40	20299	1744.90
20325	1747.50	20300	1745.00

Regards to the operating frequency range, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channels as below:

LTE Band 4(1.4MHz)			LTE Band 4(3MHz)		
Channel:		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19957	1710.70	Lowest channel	19965	1711.50
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20393	1754.30	Highest channel	20385	1753.50
LTE Band 4(5MHz)			LTE Band 4(10MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	19975	1712.50	Lowest channel	20000	1715.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20375	1752.50	Highest channel	20350	1750.00
LTE Band 4(15MHz)			LTE Band 4(20MHz)		
Channel		Frequency (MHz)	Channel		Frequency (MHz)
Lowest channel	20025	1717.50	Lowest channel	20050	1720.00
Middle channel	20175	1732.50	Middle channel	20175	1732.50
Highest channel	20325	1747.50	Highest channel	20300	1745.00

5.3 Test modes

Data mode (LTE band 4(QPSK))	Keep the EUT in data communicating mode on LTE band 4(QPSK). <i>(LTE band 4(1.4MHz), LTE band 4(3MHz), LTE band 4(5MHz), LTE band 4(10MHz), LTE band 4(15MHz), LTE band 4(20MHz))</i>
Data mode (LTE band 4(16QAM))	Keep the EUT in data communicating mode on LTE band 4(16QAM). <i>(LTE band 4(1.4MHz), LTE band 4(3MHz), LTE band 4(5MHz), LTE band 4(10MHz), LTE band 4(15MHz), LTE band 4(20MHz))</i>
Remark :	Just the worst case data were shown in the report.

5.4 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 24 subpart E, Part 27 subpart L of the FCC CFR 47 Rules.

5.5 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47 clause 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

5.6 Laboratory Facility

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

● **FCC - Registration No.: 817957**

Shenzhen ZhongjianNanfang Testing 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 out files. Registration 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen ZhongjianNanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen ZhongjianNanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.7 Laboratory Location

Shenzhen ZhongjianNanfang Testing Co., Ltd.

Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282

Fax: +86-755-23116366

5.8 Test Instruments list

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	02-25-2017	02-24-2018
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	02-25-2017	02-24-2018
Horn Antenna	ETS-LINDGREN	3160	GTS217	02-25-2017	02-24-2018
Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP 30	CCIS0023	02-25-2017	02-24-2018
EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	02-25-2017	02-24-2018
EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
Loop antenna	Laplace instrument	RF300	EMC0701	02-25-2017	02-24-2018
Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	02-25-2017	02-24-2018
Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	02-25-2017	02-24-2018
DC Power Supply	Shenzhen XinNuoEr Technologies Co., Ltd.	WYK-10020K	CCIS0201	10-31-2016	10-30-2017
Temperature Humidity Chamber	Fo Shan HengPu Electronics Co., Ltd.	HPGDS-500	CCIS0240	11-18-2016	11-27-2017

6. System test configuration

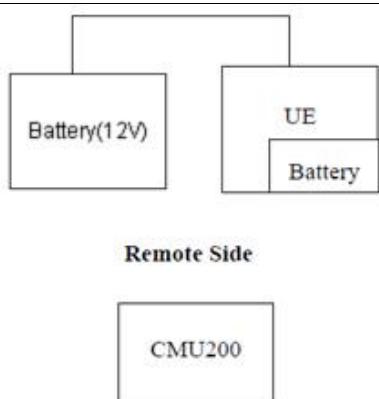
6.1 EUT Configuration

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

6.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

6.3 Configuration of Tested System



6.4 Description of Test Modes

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for three modes (LTE Band 4) with power adaptor, earphone and Data cable. The worst-case H mode for LTE Band 4.

6.5 Conducted Output Power

Test Requirement:	Part 24.232 (c), part 27.50(d)		
Test Method:	FCC part2.1046		
Limit:	LTE Band 4: 1W		
Test setup:	 <p><i>Note: Measurement setup for testing on Antenna connector</i></p>		
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMW500. Transmitter output power was read off in dBm.		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

Measurement Data:**LTE Band 4 part**

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19957	20175	20393
					1710.7MHz	1732.5MHz	1754.3MHz
4	1.4	QPSK	1	0	21.06	21.04	20.93
			1	2	21.03	21.04	20.91
			1	5	21.07	21.04	20.93
			3	0	21.19	21.12	20.98
			3	1	21.05	21.05	20.99
			3	2	21.09	21.08	21.02
			6	0	20.19	20.17	20.01
		16QAM	1	0	20.01	20.30	20.16
			1	2	20.51	20.28	20.15
			1	5	20.18	20.04	20.02
			3	0	20.50	20.27	20.14
			3	1	20.20	20.36	20.05
			3	2	20.24	20.18	19.92
			6	0	19.22	19.26	19.04
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19965	20175	20385
					1711.5MHz	1732.5MHz	1753.5MHz
4	3	QPSK	1	0	21.07	21.07	20.95
			1	7	21.14	21.11	20.99
			1	14	21.06	21.05	20.88
			8	0	20.23	20.16	20.08
			8	4	20.25	20.21	20.05
			8	7	20.24	20.15	20.06
			15	0	20.24	20.16	20.06
		16QAM	1	0	20.33	20.04	20.08
			1	7	20.33	20.23	20.49
			1	14	19.97	20.25	20.01
			8	0	19.30	19.20	19.10
			8	4	19.21	19.25	19.11
			8	7	19.22	19.23	19.09
			15	0	19.26	19.14	19.05
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					19975	20175	20375
					1712.5MHz	1732.5MHz	1752.5MHz
4	5	QPSK	1	0	21.06	21.15	21.02
			1	12	21.00	21.10	20.30
			1	24	21.01	20.32	20.87
			12	0	20.05	19.28	20.11
			12	6	19.95	20.27	20.05
			12	11	20.98	20.01	20.06
			25	0	20.19	20.33	20.27
		16QAM	1	0	20.37	20.32	19.58
			1	12	20.43	19.10	19.24
			1	24	20.26	19.85	19.15
			12	0	20.26	18.41	18.03
			12	6	19.30	19.45	18.66
			12	11	19.26	19.48	19.15
			25	0	19.27	19.20	19.16

LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20000	20175	20350
					1715.0MHz	1732.5MHz	1750.0MHz
4	10	QPSK	1	0	21.18	21.15	21.07
			1	24	21.07	21.04	20.90
			1	49	21.02	21.24	20.86
			25	0	20.20	20.19	20.13
			25	12	20.14	20.14	20.04
			25	24	20.14	20.16	19.96
			50	0	20.17	20.18	20.07
		16QAM	1	0	20.72	20.30	20.31
			1	24	19.95	20.27	20.20
			1	49	20.15	20.03	20.40
			25	0	19.24	19.18	19.16
			25	12	18.48	19.19	19.17
			25	24	18.17	19.24	19.03
			50	0	19.52	19.23	19.12
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20025	20175	20325
					1717.5MHz	1732.5MHz	1747.5MHz
4	15	QPSK	1	0	21.20	21.12	21.15
			1	37	21.09	21.13	20.99
			1	74	21.02	21.03	20.82
			36	0	20.25	20.22	20.19
			36	16	20.21	20.19	20.14
			36	35	20.17	20.19	20.03
			75	0	20.20	20.20	20.06
		16QAM	1	0	20.48	20.39	20.57
			1	37	20.79	20.40	20.43
			1	74	20.04	20.81	20.25
			36	0	19.29	19.30	19.22
			36	16	19.27	19.25	19.19
			36	35	19.24	19.26	19.10
			75	0	19.25	19.18	19.13
LTE Band	Bandwidth (MHz)	Modulation	RB Size	RB Offset	Average Power (dBm)		
					20050	20175	20300
					1720.0MHz	1732.5MHz	1745.0MHz
4	20	QPSK	1	0	21.20	21.21	21.20
			1	49	21.03	21.14	20.99
			1	99	21.02	21.01	20.85
			50	0	20.27	20.23	20.19
			50	24	20.19	20.20	20.13
			50	49	20.17	20.15	20.01
			100	0	20.38	20.13	20.08
		16QAM	1	0	20.64	20.45	20.24
			1	49	20.37	20.78	20.73
			1	99	20.70	20.42	20.10
			50	0	19.28	19.31	19.26
			50	24	19.21	19.23	19.23
			50	49	19.21	19.16	19.12
			100	0	19.21	19.25	19.15

6.6 Peak-to-Average Ratio

Test Requirement:	FCC part 24.232(d)
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test setup:	<pre> graph LR EUT[EUT] --- Splitter[Splitter] Splitter --- CommTester[Communication Tester] Splitter --- ATT[ATT] ATT --- SPA[SPA] </pre>
<i>Note: Measurement setup for testing on Antenna connector</i>	
Test Procedure:	<ol style="list-style-type: none"> 1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 Set the CCDF option in spectrum analyzer, $RBW \geq OBW$, 3 Set the EUT working in highest power level, measured and recorded the 0.1% as PAPR level. 4 Repeat step 1~3 at other frequency and modulations.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

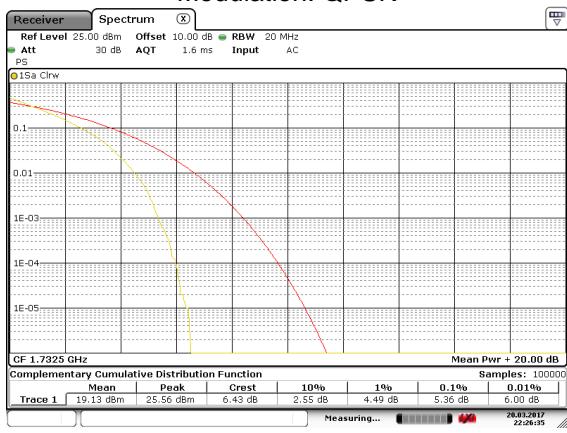
Measurement Data:

BW(MHz)	Modulation	RB Size	RB Offset	PAPR
LTE Band 4 (Middle Channel)				
20MHz	QPSK	100	0	5.36
	16QAM	100	0	6.20

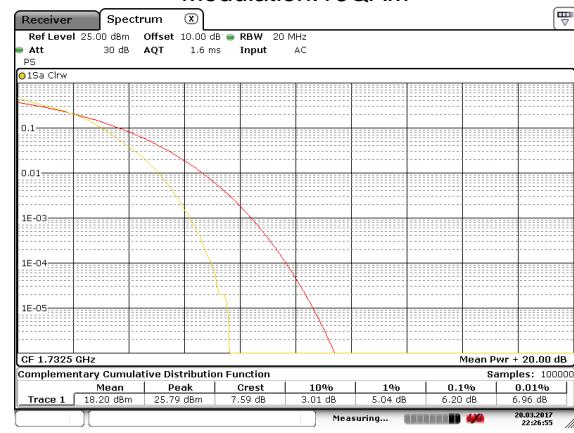
Test plots as below:

LTE Band 4 Middle channel

Modulation: QPSK



Modulation:16QAM



Date: 20.MAR.2017 22:26:34

Date: 20.MAR.2017 22:26:56

6.7 Occupy Bandwidth

Test Requirement:	Part 27.53(h)
Test Method:	FCC part2.1049
Test setup:	<pre> graph LR EUT[EUT] --- Splitter[Splitter] Splitter --- SPA[SPA] Splitter --- CT[Communication Tester] </pre> <p><i>Note: Measurement setup for testing on Antenna connector</i></p>
Test Procedure:	
<ol style="list-style-type: none"> 1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% ~ 5% 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 Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:**LTE Band 4 part:**

EUT Mode	Channel	Frequency(MHz)	Modulation	99% OBW (kHz)	-26dBcEBW (kHz)
1.4MHz	19957	1710.7	16QAM	1098	1260
			QPSK	1104	1248
	20175	1732.5	16QAM	1098	1260
			QPSK	1098	1278
	20393	1754.3	16QAM	1092	1248
			QPSK	1104	1260
3MHz	19965	1711.5	16QAM	2724	3000
			QPSK	2736	3048
	20175	1732.5	16QAM	2712	3000
			QPSK	2736	3012
	20385	1750.5	16QAM	2736	3000
			QPSK	2736	3036
5MHz	19975	1712.5	16QAM	4500	4900
			QPSK	4520	4960
	20175	1732.5	16QAM	4500	4860
			QPSK	4520	5020
	20375	1752.5	16QAM	4500	4880
			QPSK	4540	4940
10MHz	20000	1715.0	16QAM	9040	10080
			QPSK	9120	10240
	20175	1732.5	16QAM	9080	10080
			QPSK	9120	10200
	20350	1750.0	16QAM	9040	9960
			QPSK	9080	10160
15MHz	20025	1717.5	16QAM	13560	14760
			QPSK	13500	14760
	20175	1732.5	16QAM	13560	14880
			QPSK	13560	14820
	20325	1747.5	16QAM	13440	14880
			QPSK	13500	14820
20MHz	20050	1720.0	16QAM	18000	19120
			QPSK	18000	19600
	20175	1732.5	16QAM	18000	19120
			QPSK	18080	19680
	20300	1745.0	16QAM	17920	19280
			QPSK	17920	19440

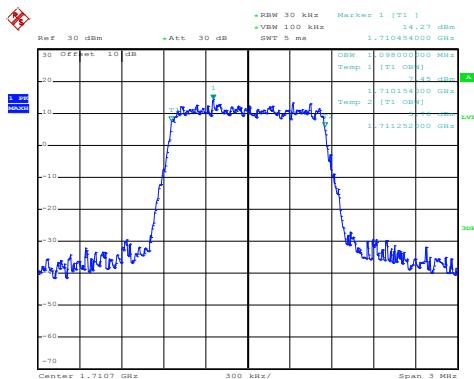
Test plot as follows:

LTE Band 4 part

Test Item:99% Occupy bandwidth

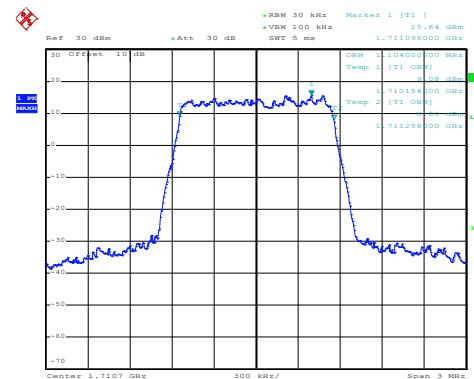
BW: 1.4MHz

Modulation:16QAM



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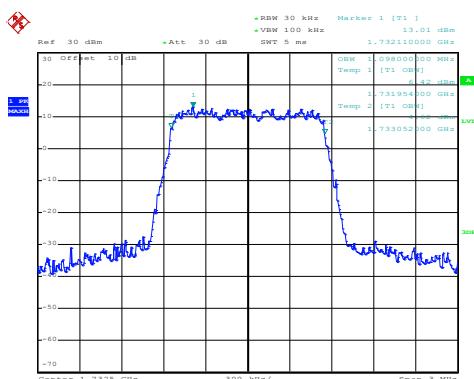
Modulation: QPSK



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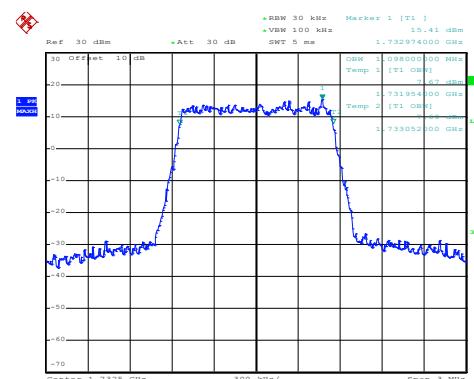
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:48:21

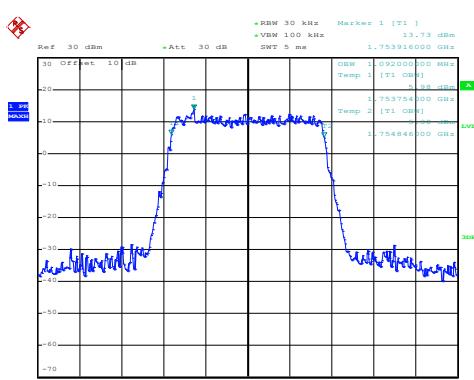
Modulation: QPSK



Date: 19.MAR.2017 18:48:16

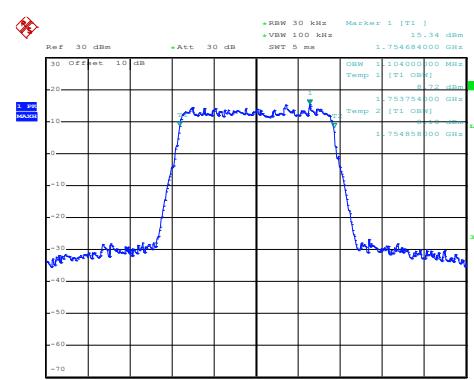
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:48:51

Modulation: QPSK



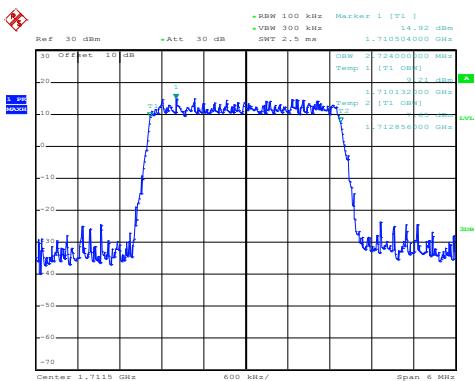
Date: 19.MAR.2017 18:48:42

Highest channel

Test Item:99% Occupy bandwidth

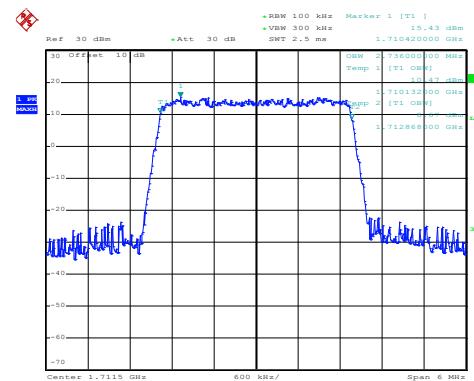
BW: 3MHz

Modulation:16QAM



Date: 19.MAR.2017 18:49:51

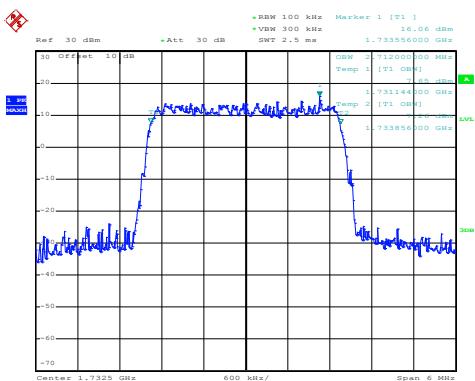
Modulation: QPSK



Date: 19.MAR.2017 18:49:47

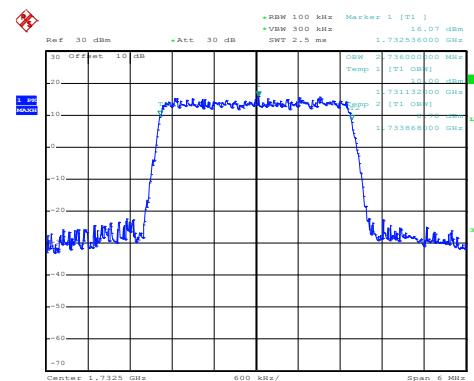
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:50:07

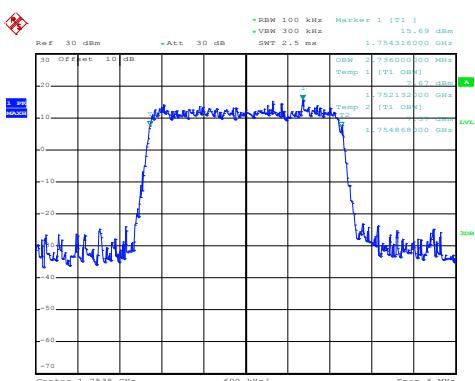
Modulation: QPSK



Date: 19.MAR.2017 18:50:25

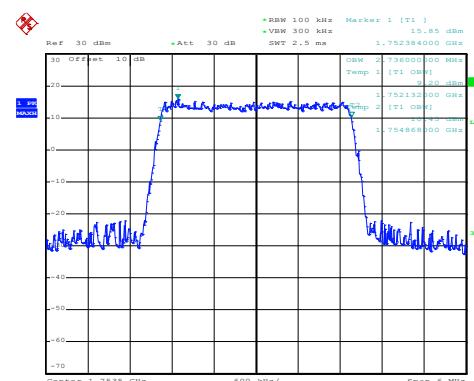
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:50:50

Modulation: QPSK



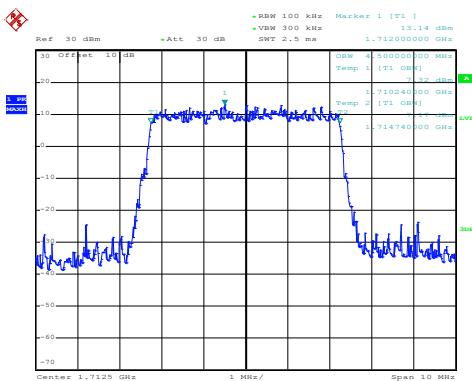
Date: 19.MAR.2017 18:51:34

Highest channel

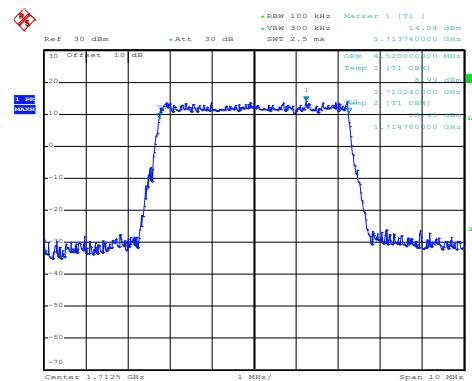
Test Item:99% Occupy bandwidth

BW: 5MHz

Modulation:16QAM

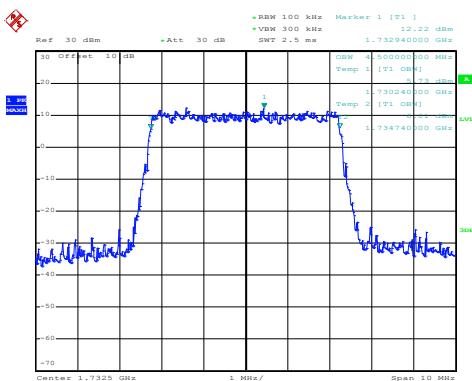


Modulation: QPSK

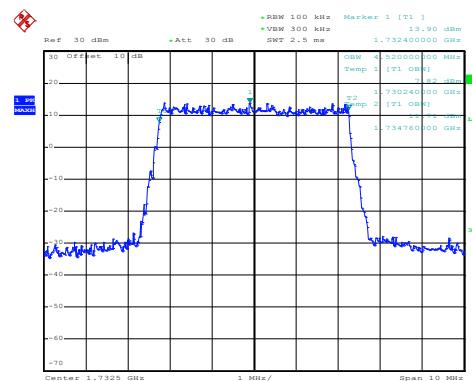


Lowest channel

Modulation:16QAM

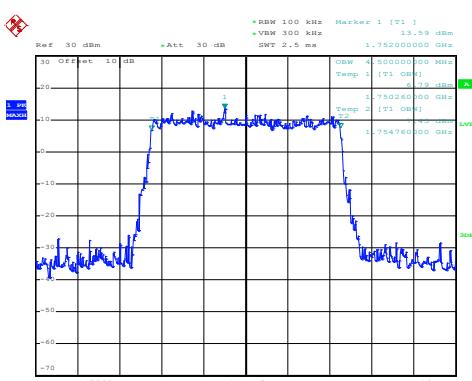


Modulation: QPSK

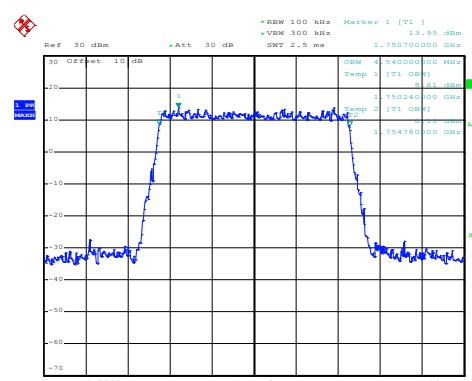


Middle channel

Modulation:16QAM



Modulation: QPSK

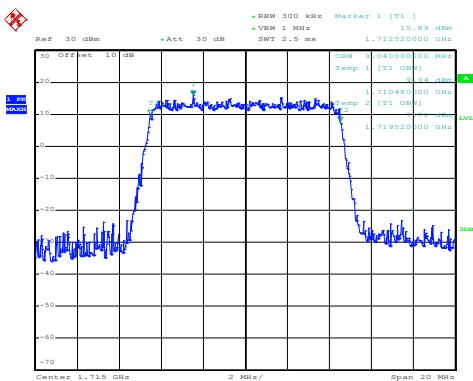


Highest channel

Test Item:99% Occupy bandwidth

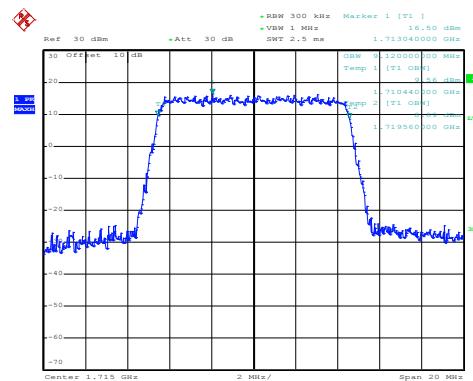
BW: 10MHz

Modulation:16QAM



Date: 19.MAR.2017 18:54:15

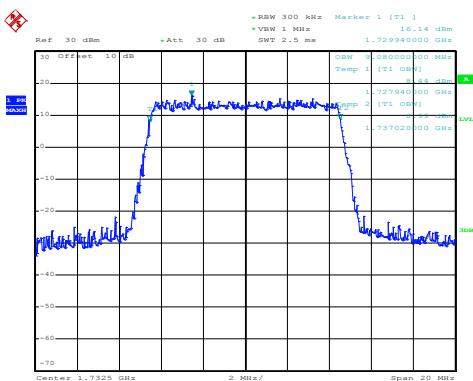
Modulation: QPSK



Date: 19.MAR.2017 18:54:09

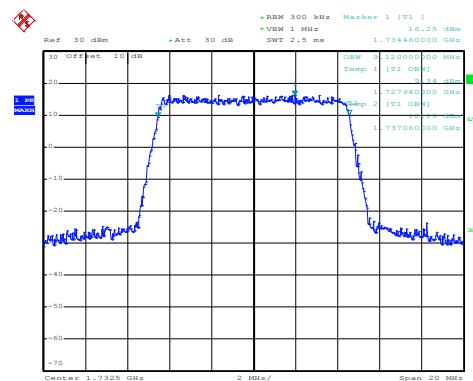
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:54:35

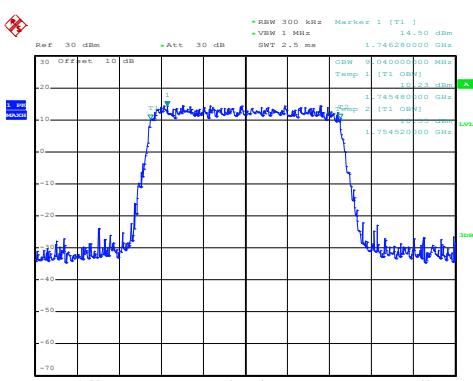
Modulation: QPSK



Date: 19.MAR.2017 18:54:31

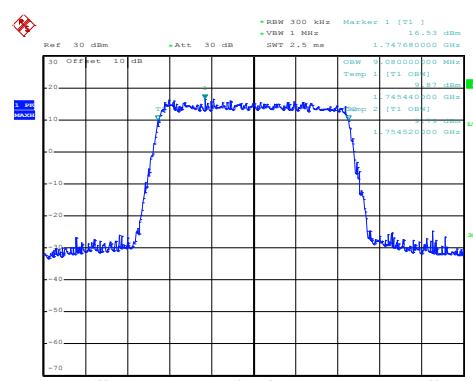
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:55:13

Modulation: QPSK



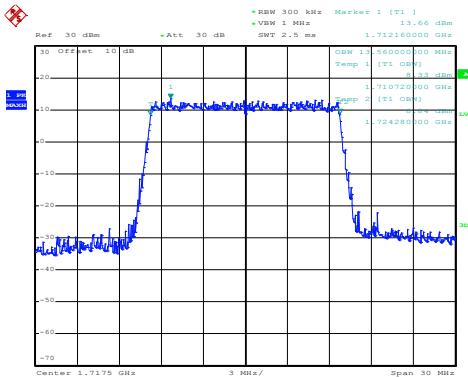
Date: 19.MAR.2017 18:55:09

Highest channel

Test Item:99% Occupy bandwidth

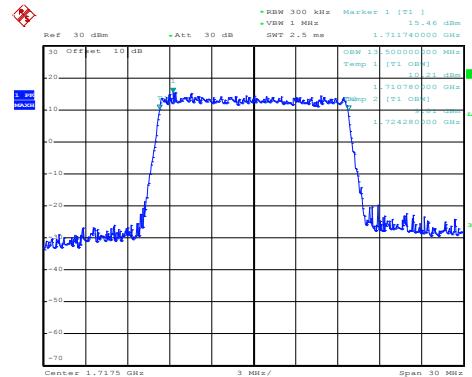
BW: 15MHz

Modulation:16QAM



Date: 19.MAR.2017 18:55:54

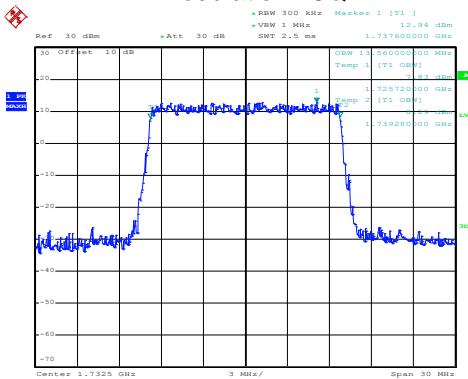
Modulation: QPSK



Date: 19.MAR.2017 18:55:50

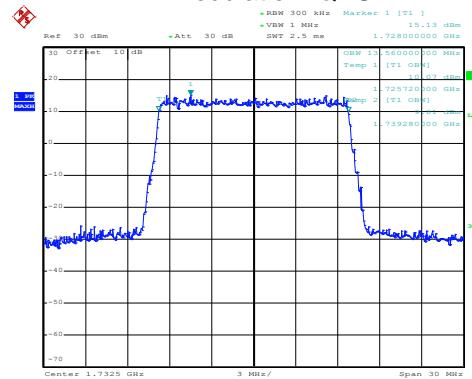
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:56:34

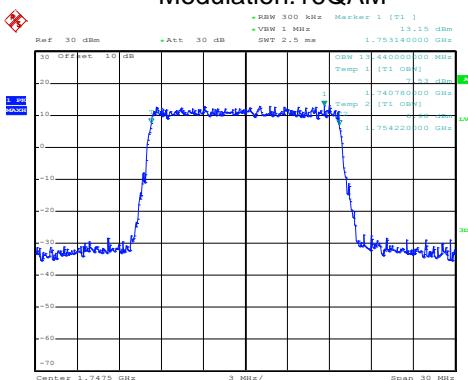
Modulation: QPSK



Date: 19.MAR.2017 18:56:30

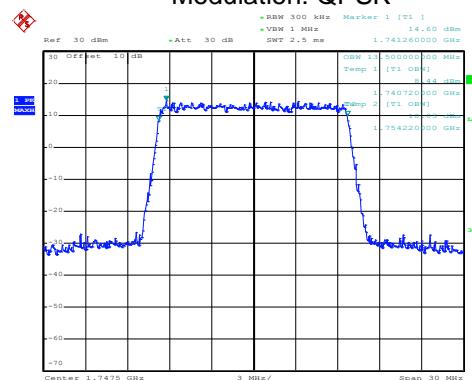
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:56:50

Modulation: QPSK

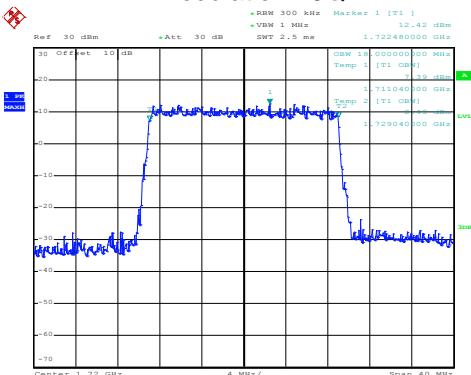


Date: 19.MAR.2017 18:56:46

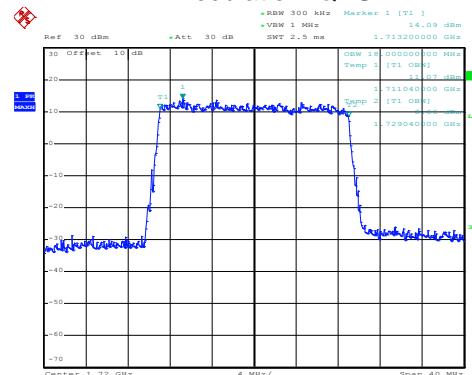
Highest channel

Test Item:99% Occupy bandwidth
BW: 20MHz

Modulation:16QAM



Modulation: QPSK

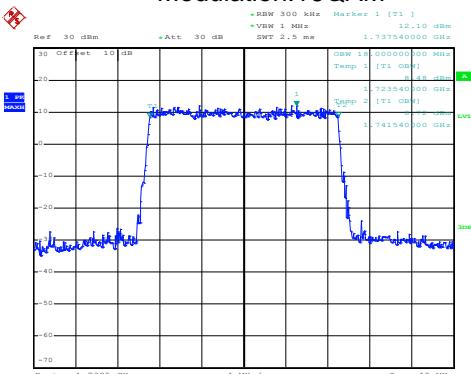


Date: 19.MAR.2017 18:58:04

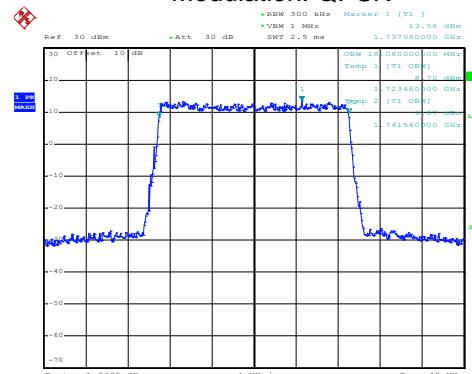
Date: 19.MAR.2017 18:58:00

Lowest channel

Modulation:16QAM



Modulation: QPSK

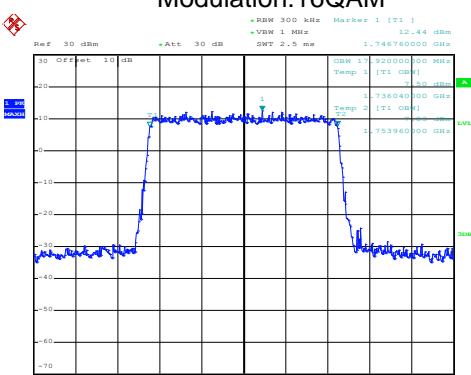


Date: 19.MAR.2017 18:58:20

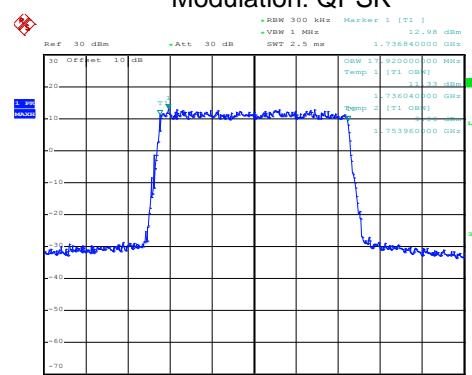
Date: 19.MAR.2017 18:58:17

Middle channel

Modulation:16QAM



Modulation: QPSK



Date: 19.MAR.2017 18:59:02

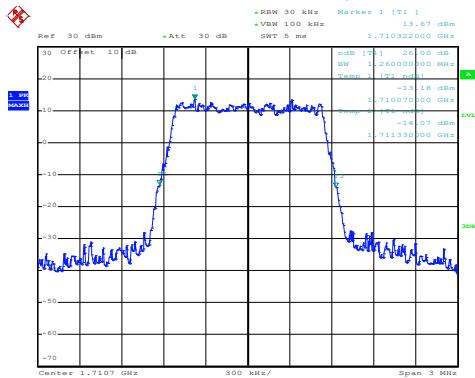
Date: 19.MAR.2017 18:58:58

Highest channel

Test Item:-26dBc bandwidth

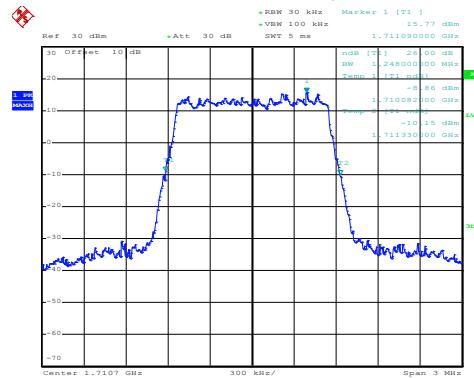
BW: 1.4MHz

Modulation:16QAM



Date: 19.MAR.2017 18:47:44

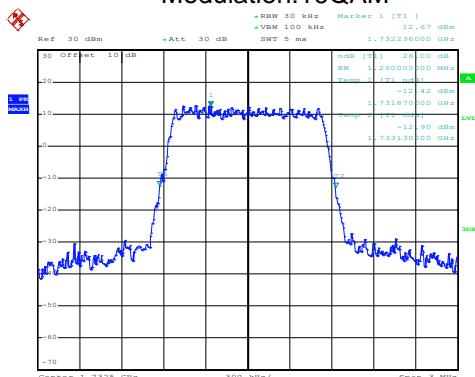
Modulation: QPSK



Date: 19.MAR.2017 18:47:40

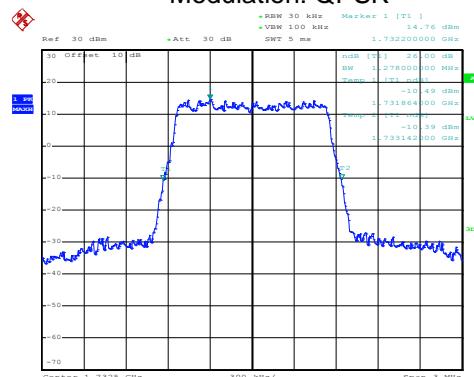
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:48:08

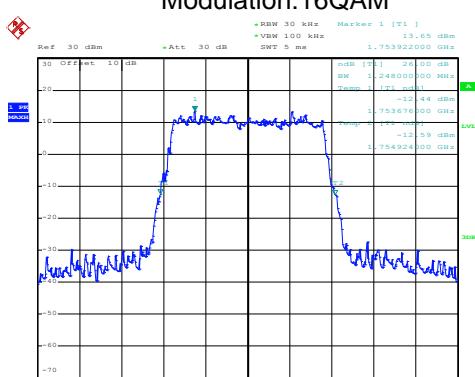
Modulation: QPSK



Date: 19.MAR.2017 18:48:05

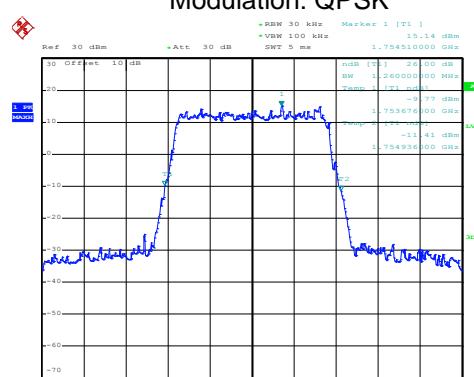
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:48:59

Modulation: QPSK

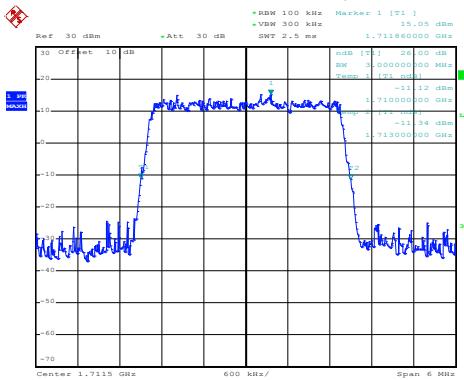


Date: 19.MAR.2017 18:48:56

Highest channel

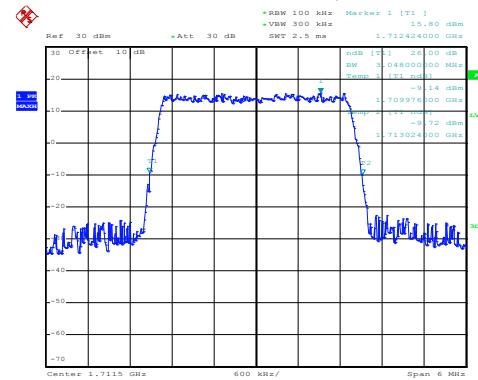
Test Item:-26dBc bandwidth
BW: 3MHz

Modulation:16QAM



Date: 19.MAR.2017 18:49:38

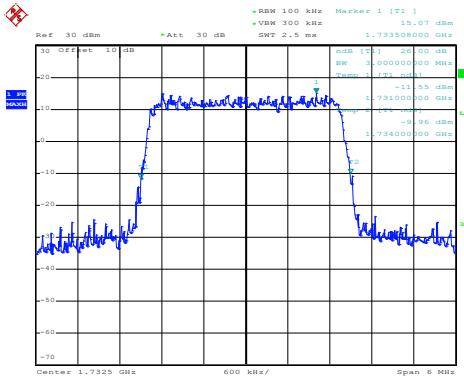
Modulation: QPSK



Date: 19.MAR.2017 18:49:34

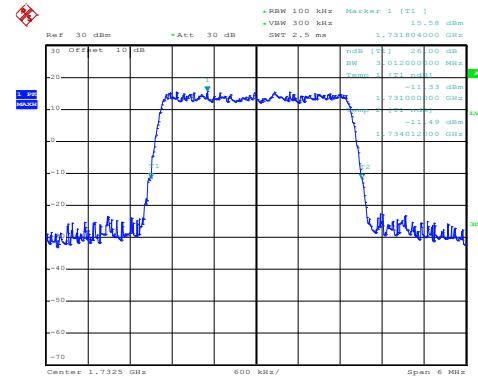
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:50:15

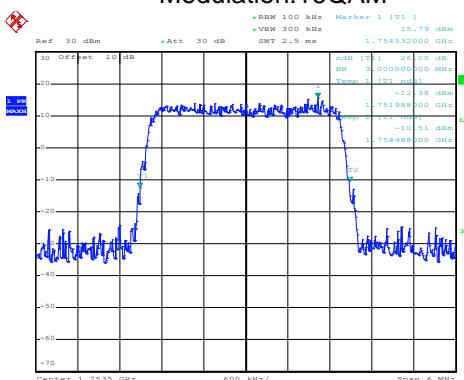
Modulation: QPSK



Date: 19.MAR.2017 18:50:12

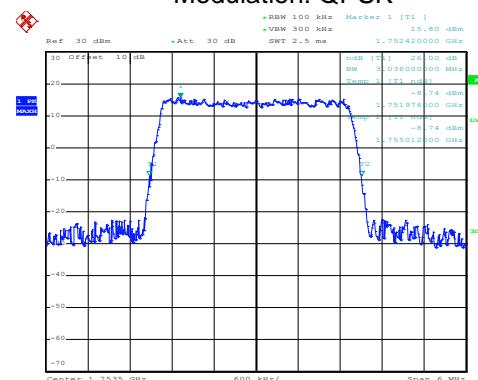
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:51:06

Modulation: QPSK



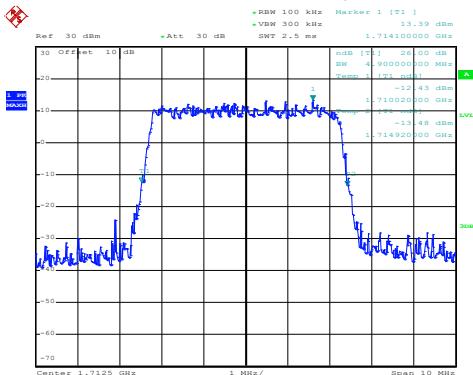
Date: 19.MAR.2017 18:51:02

Highest channel

Test Item:-26dBc bandwidth

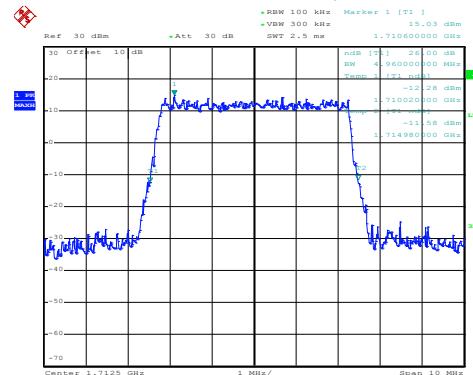
BW: 5MHz

Modulation:16QAM



Date: 19.MAR.2017 18:52:24

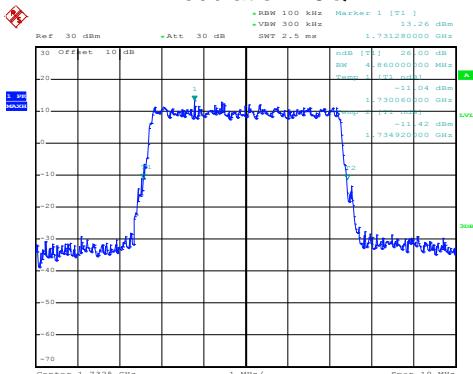
Modulation: QPSK



Date: 19.MAR.2017 18:52:19

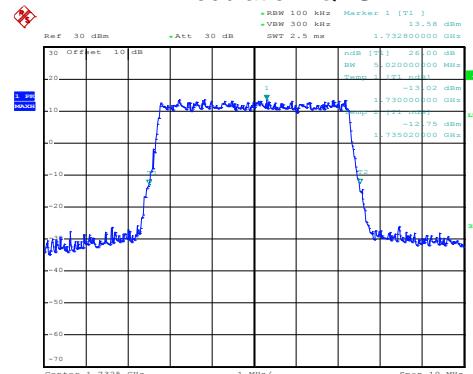
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:52:42

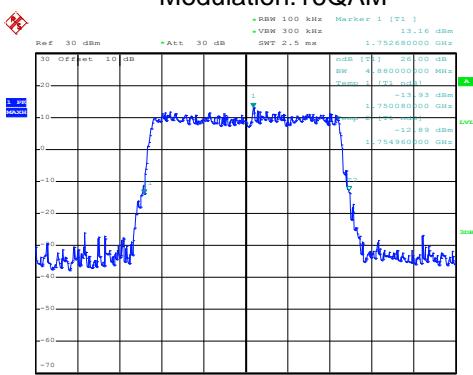
Modulation: QPSK



Date: 19.MAR.2017 18:52:38

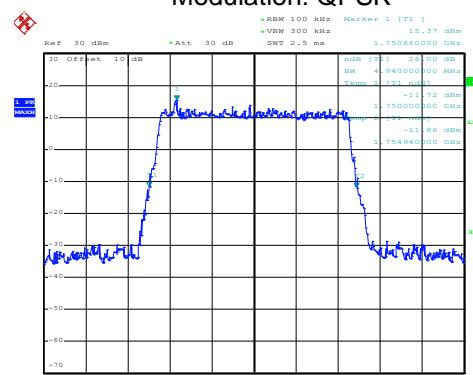
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:53:20

Modulation: QPSK



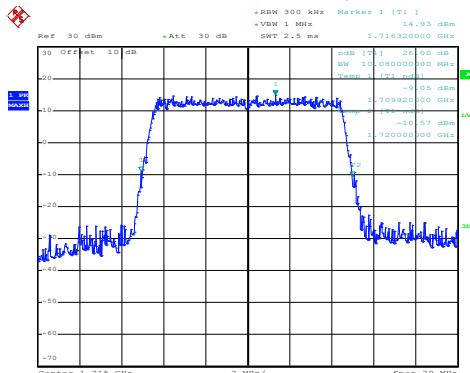
Date: 19.MAR.2017 18:53:16

Highest channel

Test Item:-26dBc bandwidth

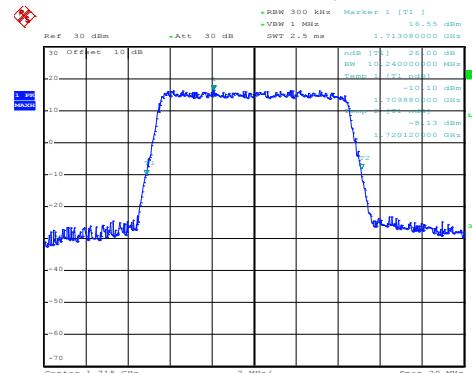
BW: 10MHz

Modulation:16QAM



Date: 19.MAR.2017 18:54:01

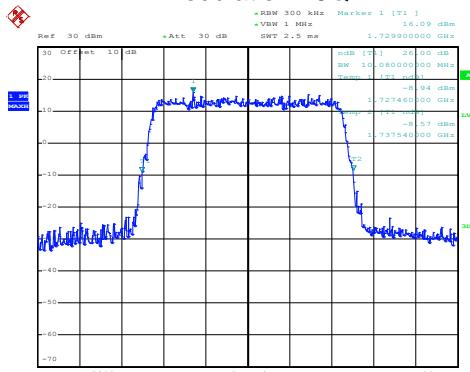
Modulation: QPSK



Date: 19.MAR.2017 18:53:57

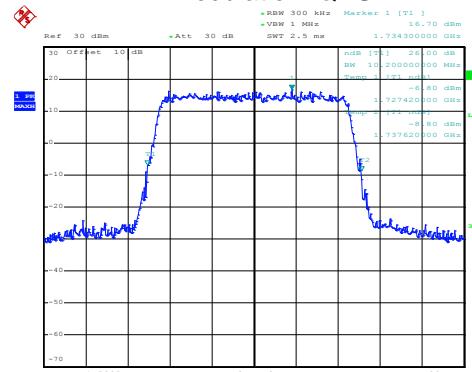
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:54:45

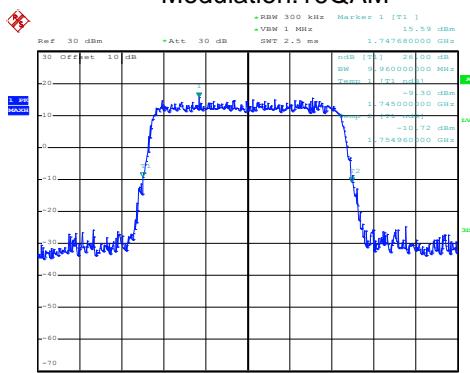
Modulation: QPSK



Date: 19.MAR.2017 18:54:41

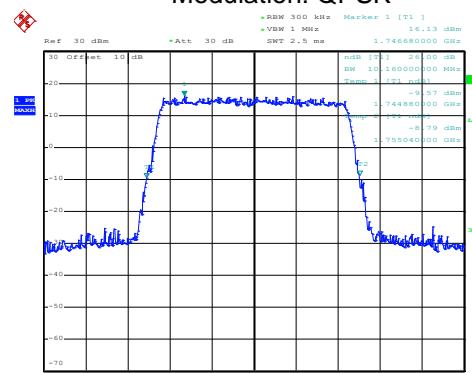
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:55:03

Modulation: QPSK



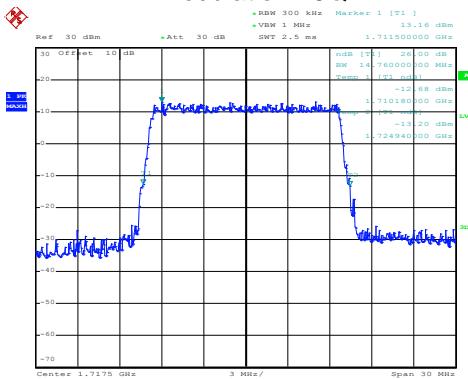
Date: 19.MAR.2017 18:54:59

Highest channel

Test Item:-26dBc bandwidth

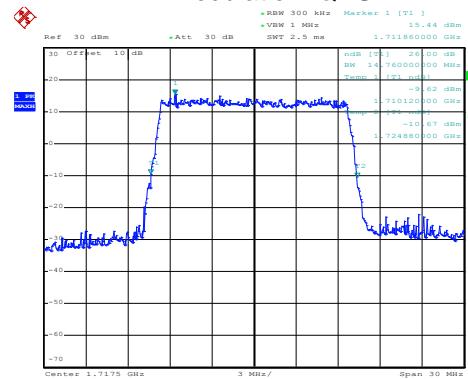
BW: 15MHz

Modulation:16QAM



Date: 19.MAR.2017 18:56:06

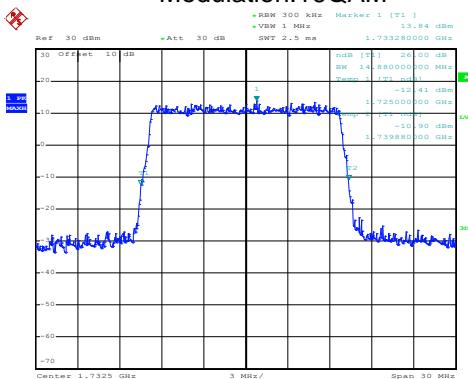
Modulation: QPSK



Date: 19.MAR.2017 18:56:02

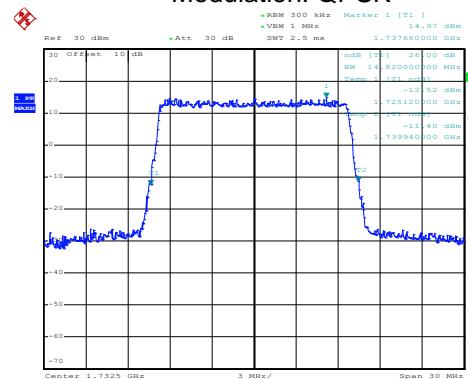
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:56:24

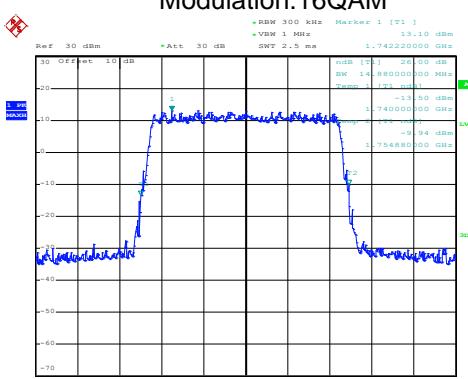
Modulation: QPSK



Date: 19.MAR.2017 18:56:20

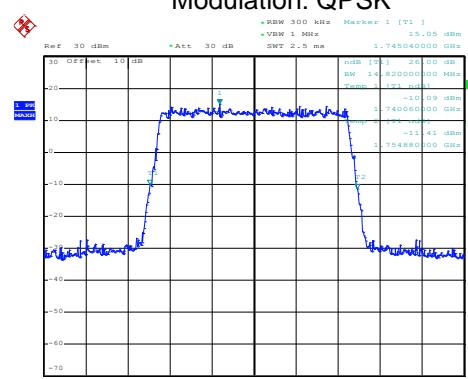
Middle channel

Modulation:16QAM



Date: 19.MAR.2017 18:57:01

Modulation: QPSK



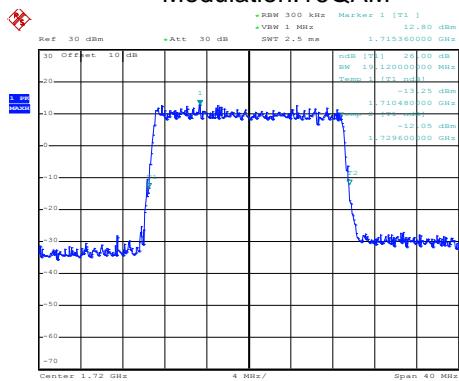
Date: 19.MAR.2017 18:56:57

Highest channel

Test Item:-26dBc bandwidth

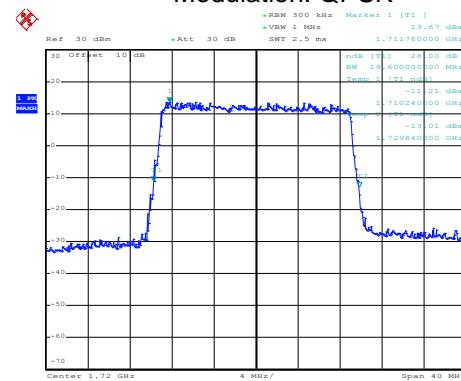
BW: 20MHz

Modulation:16QAM



Date: 19.MAR.2017 18:57:36

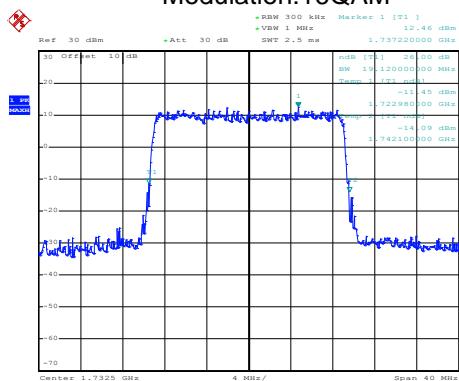
Modulation: QPSK



Date: 19.MAR.2017 18:57:32

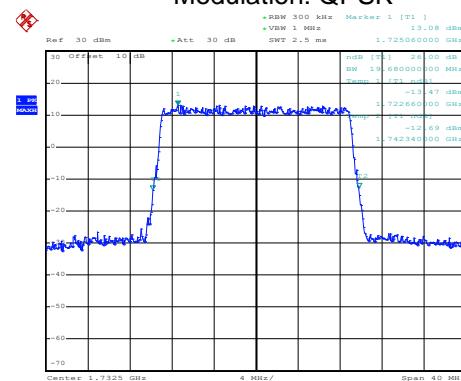
Lowest channel

Modulation:16QAM



Date: 19.MAR.2017 18:58:31

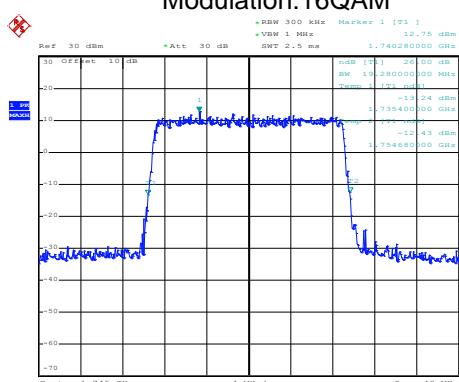
Modulation: QPSK



Date: 19.MAR.2017 18:58:28

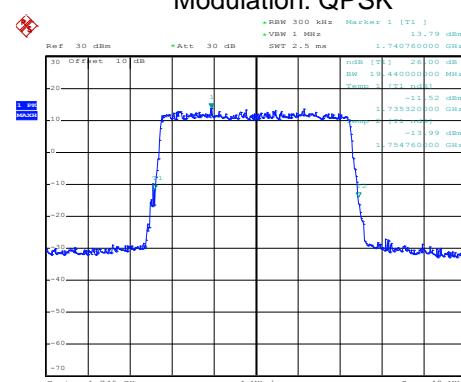
Middle channel

Modulation: 16QAM



Date: 19.MAR.2017 18:58:52

Modulation: QPSK



Date: 19.MAR.2017 18:58:48

Highest channel

6.8 Modulation Characteristic

According to FCC § 2.1047(d), 27L there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

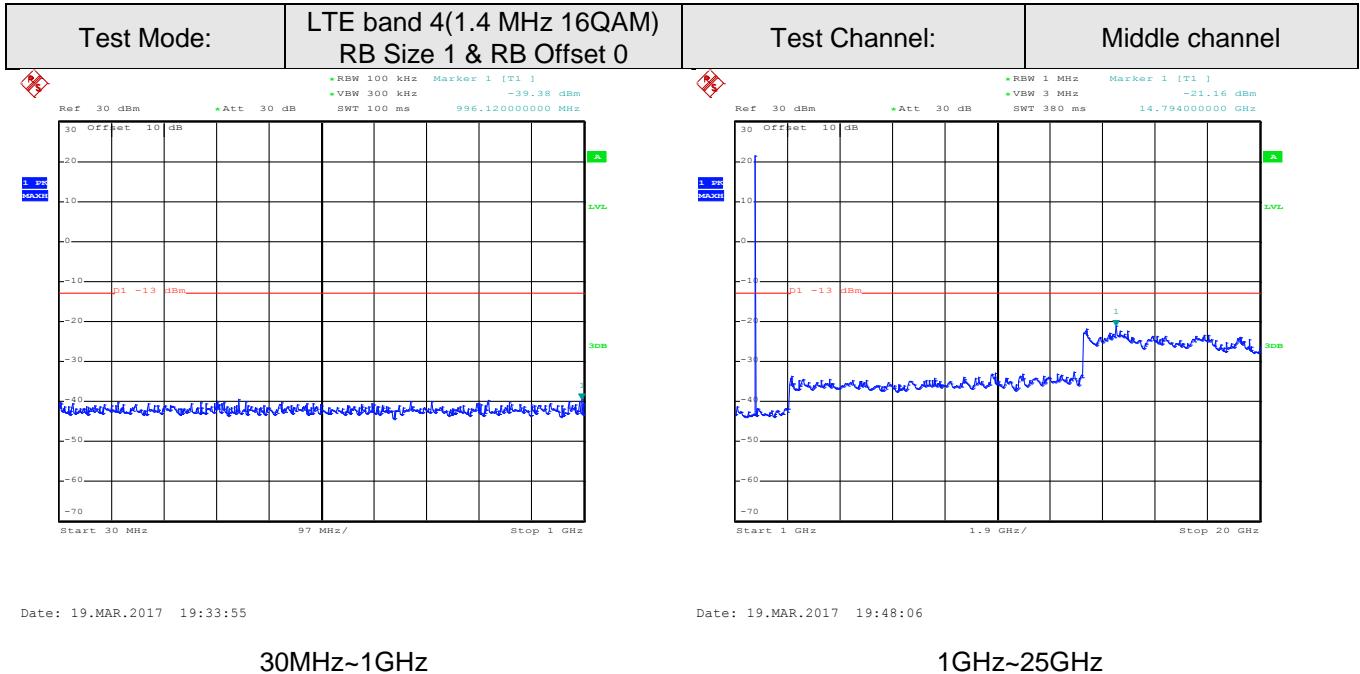
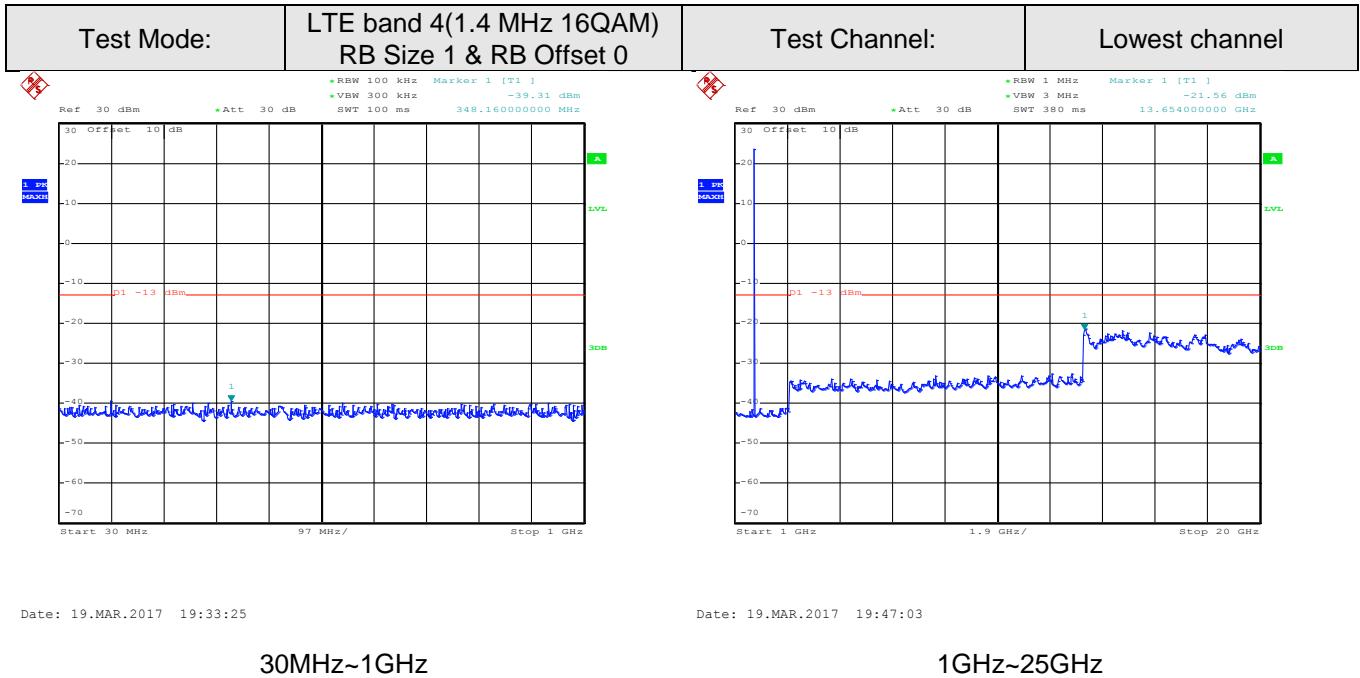
6.9 Out of band emission at antenna terminals

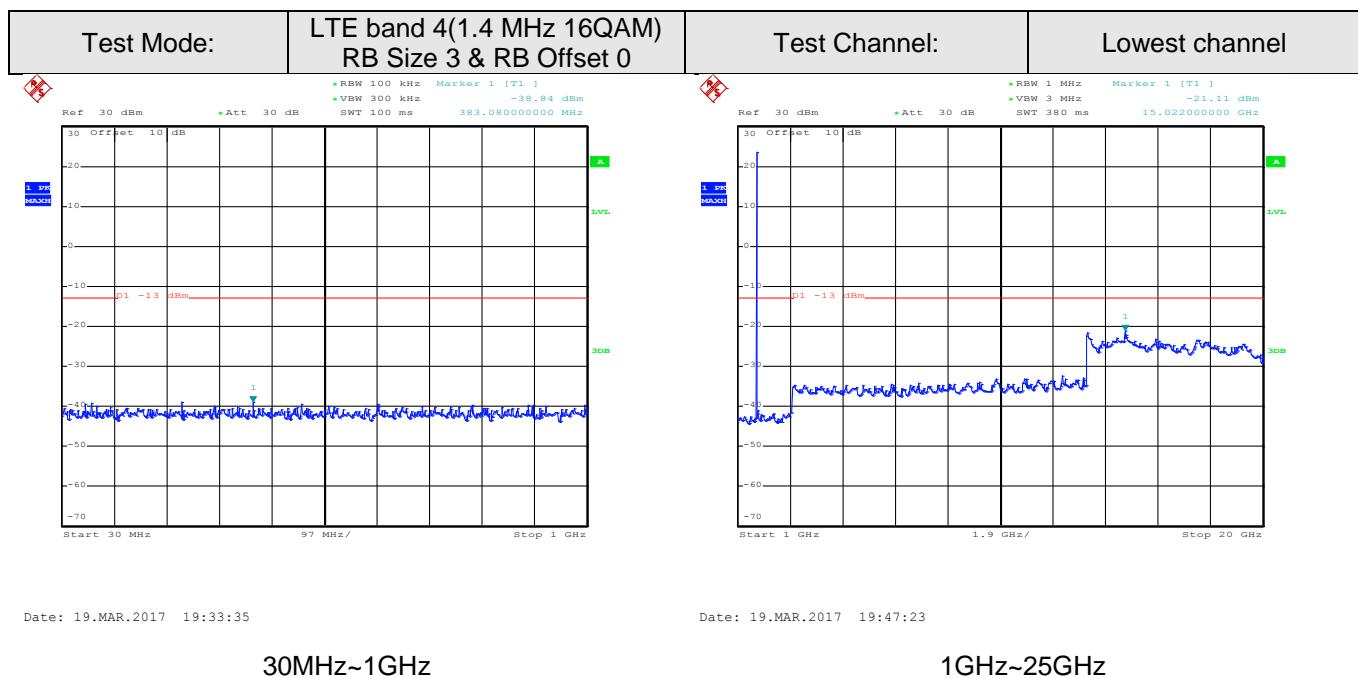
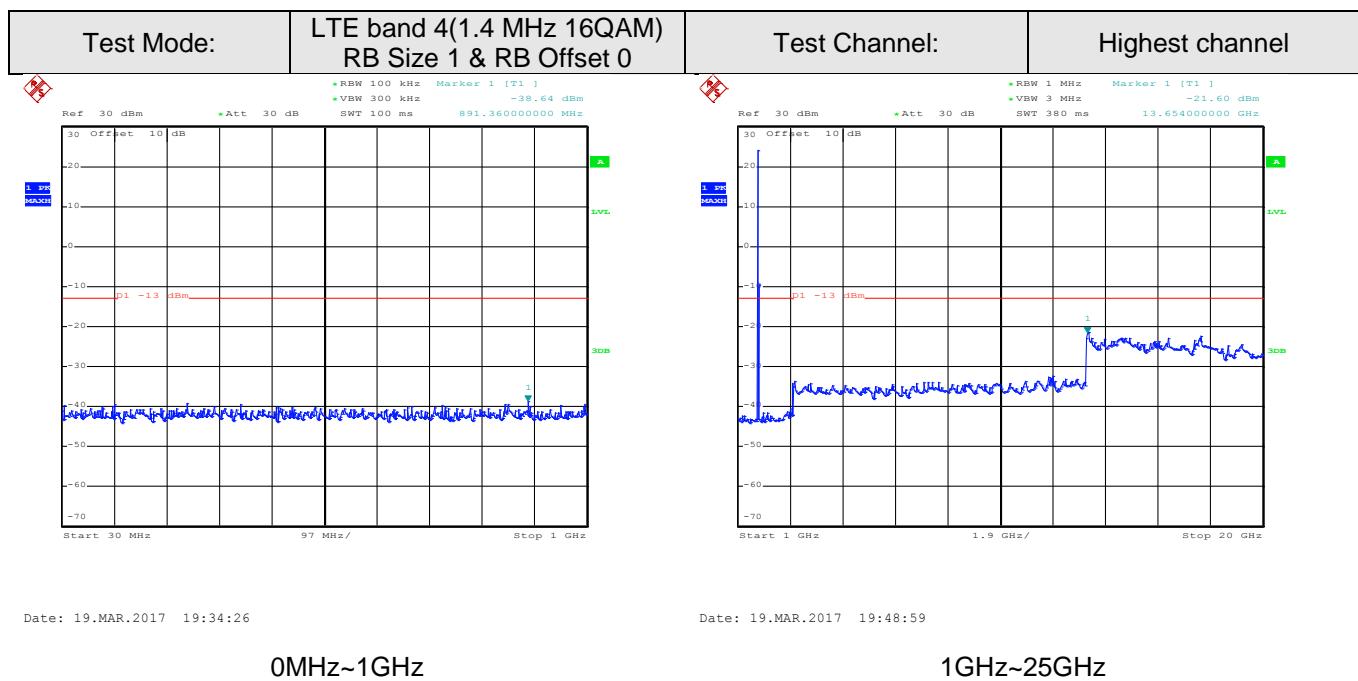
Test Requirement:	Part 27.53(h)
Test Method:	FCC part2.1051
Limit:	Band2, Band4: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ dB (-13 dBm).
Test setup:	<p><i>Note: Measurement setup for testing on Antenna connector</i></p>
Test Procedure: <ol style="list-style-type: none"> 1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. 	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

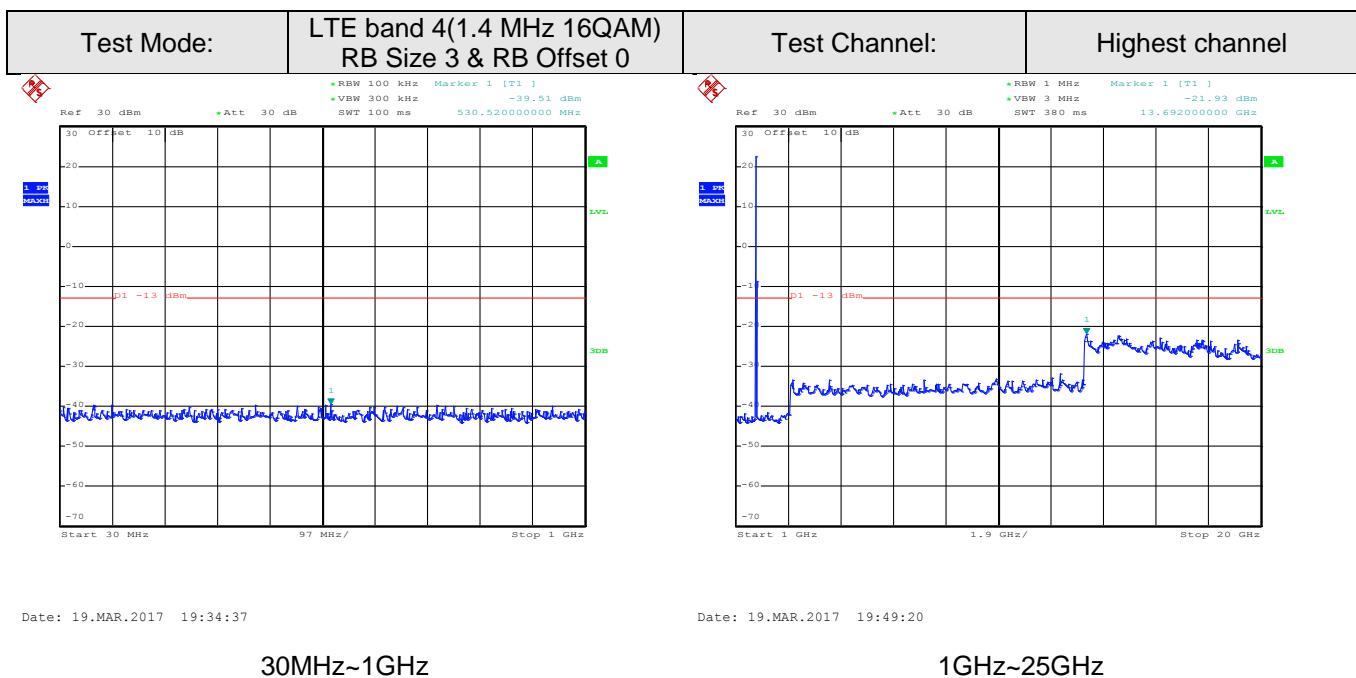
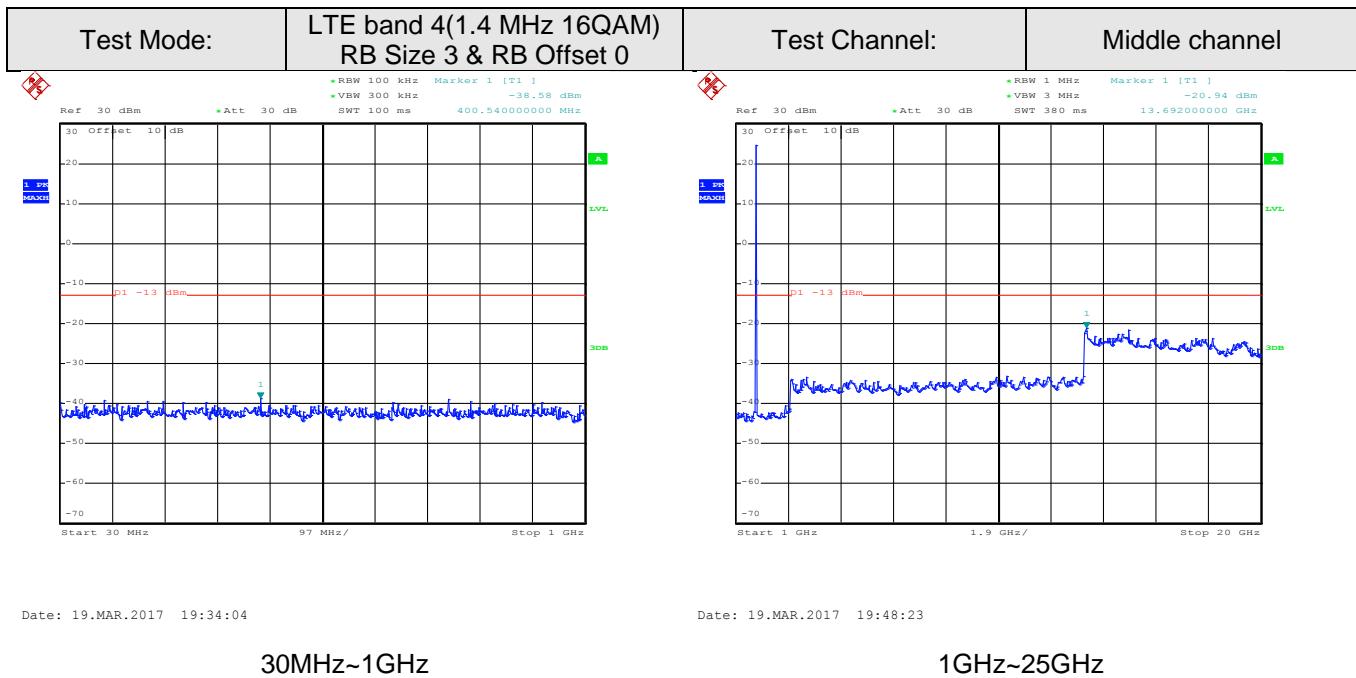
Test plots as follows:

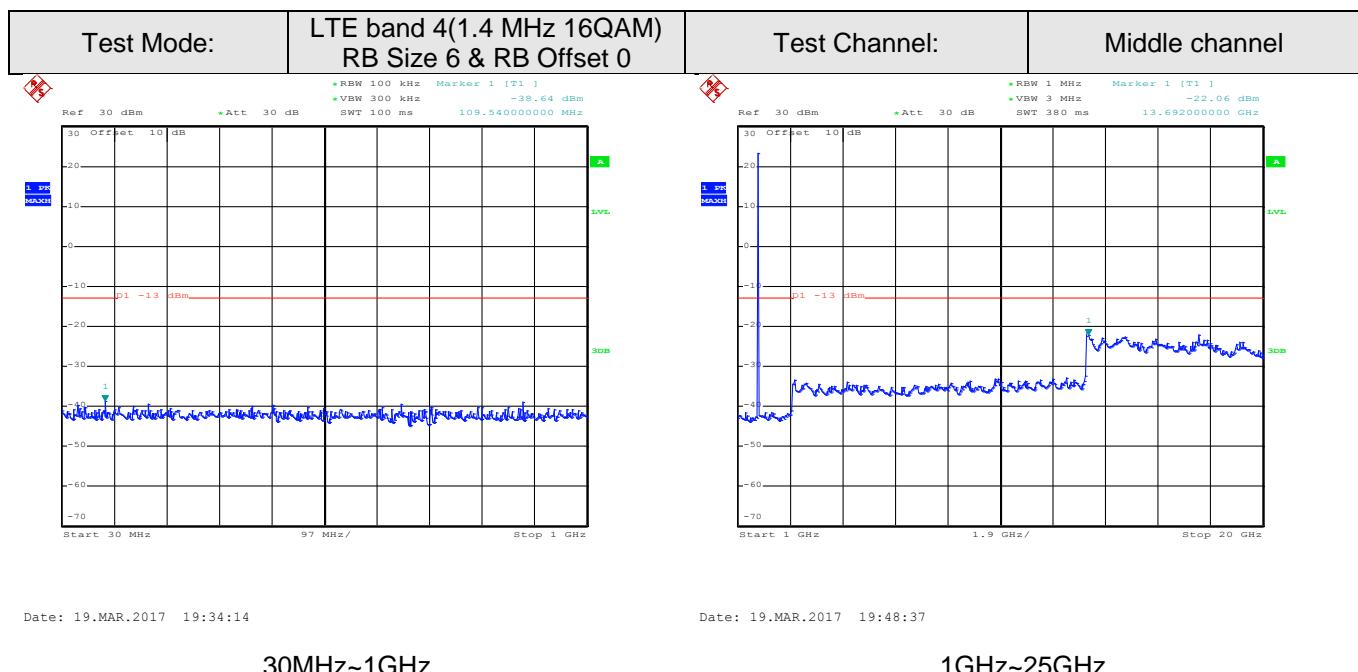
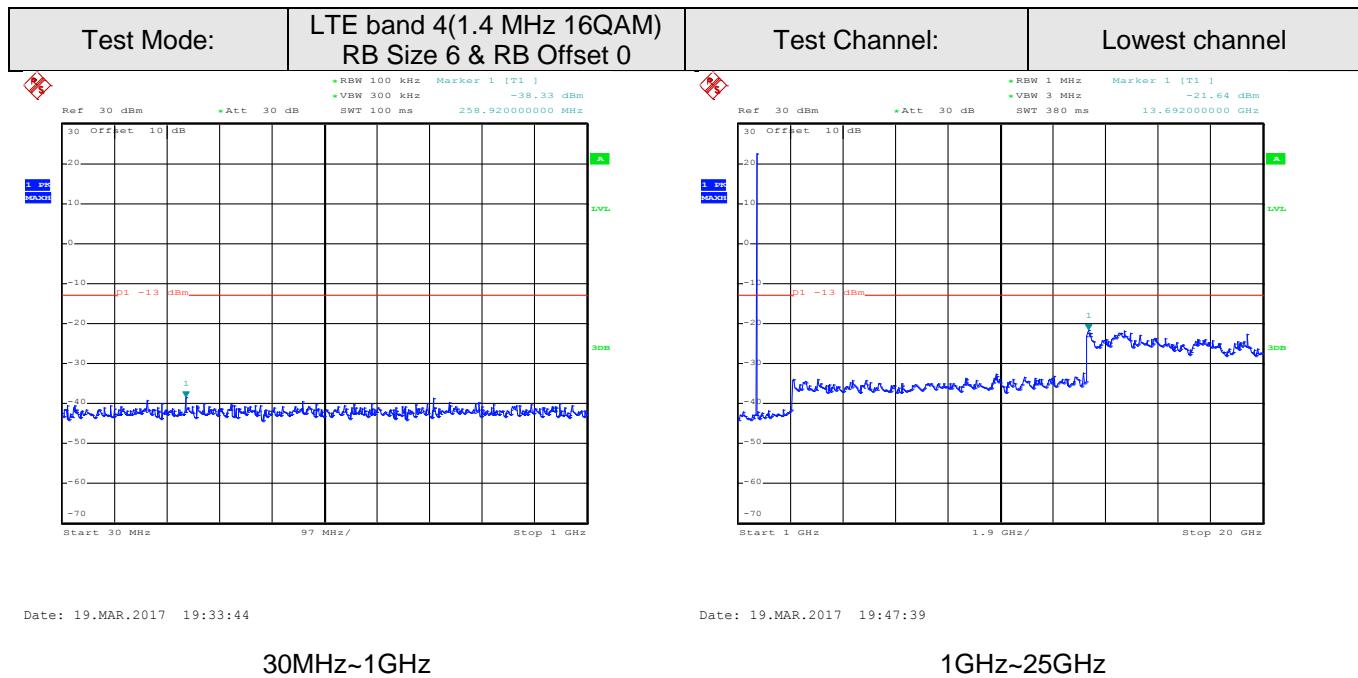
Spurious emission

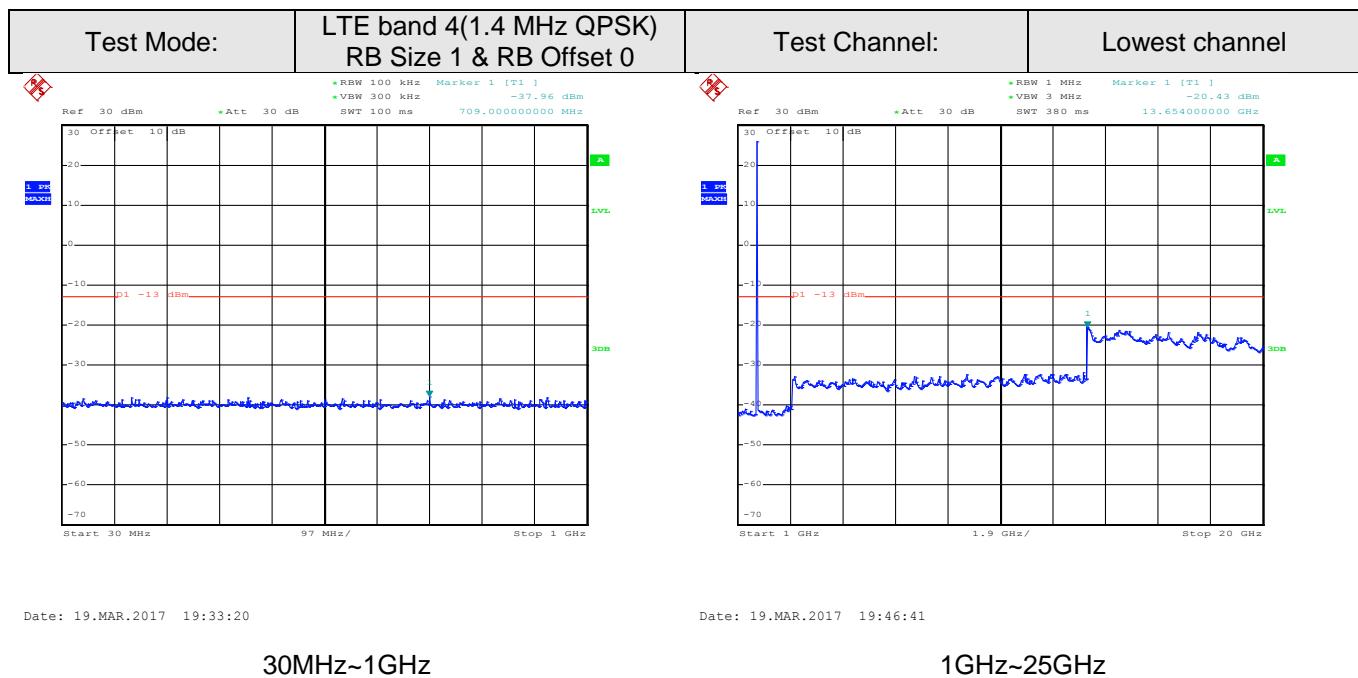
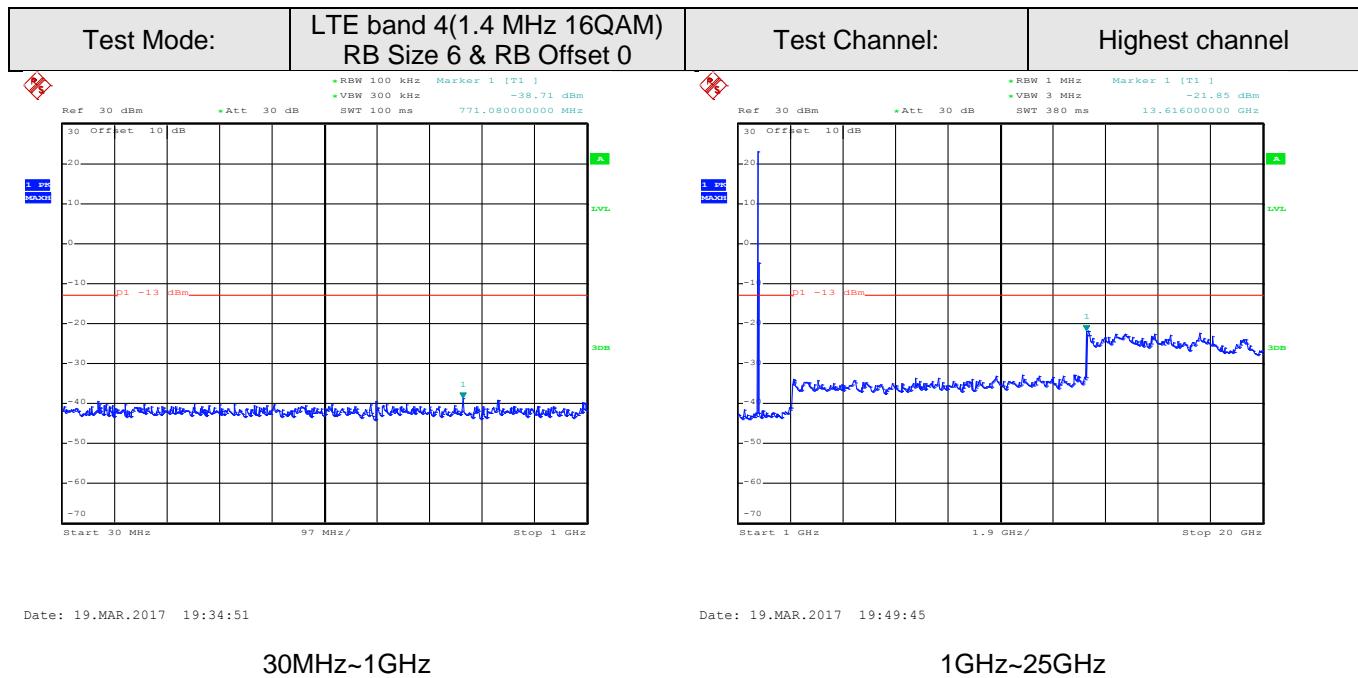
LTE band 4 Part:1.4MHz

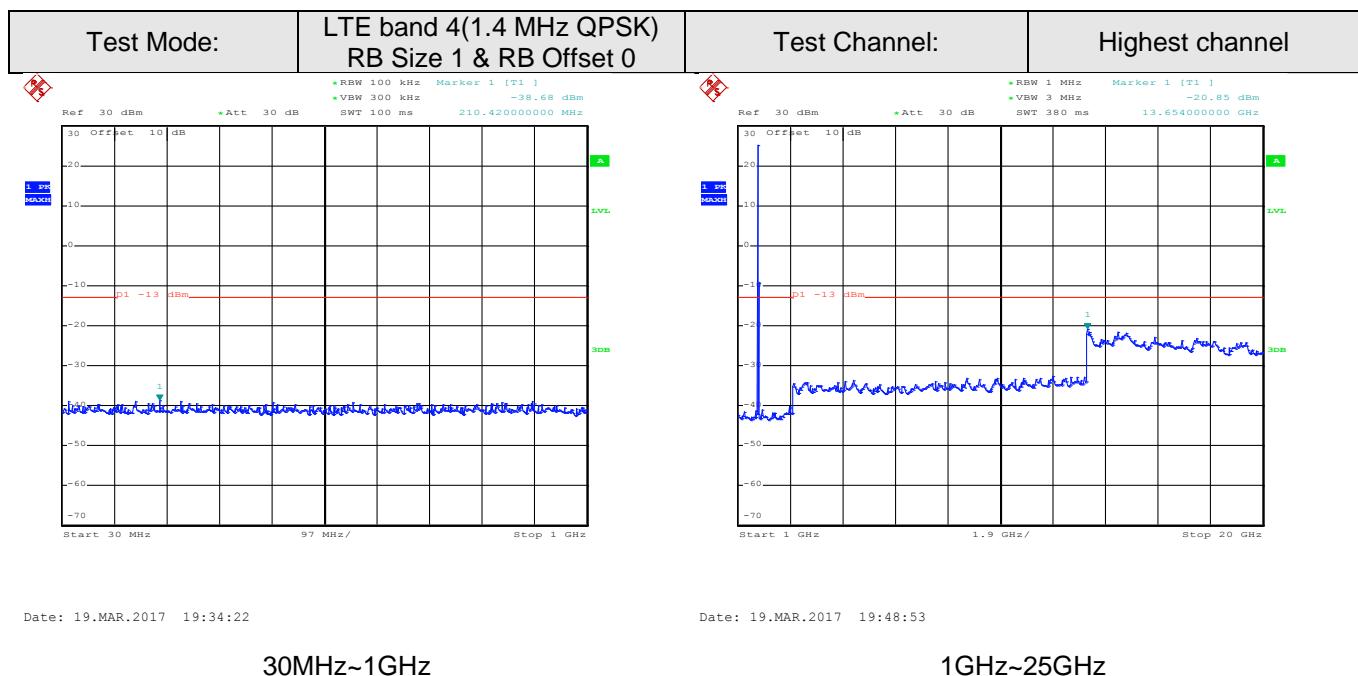
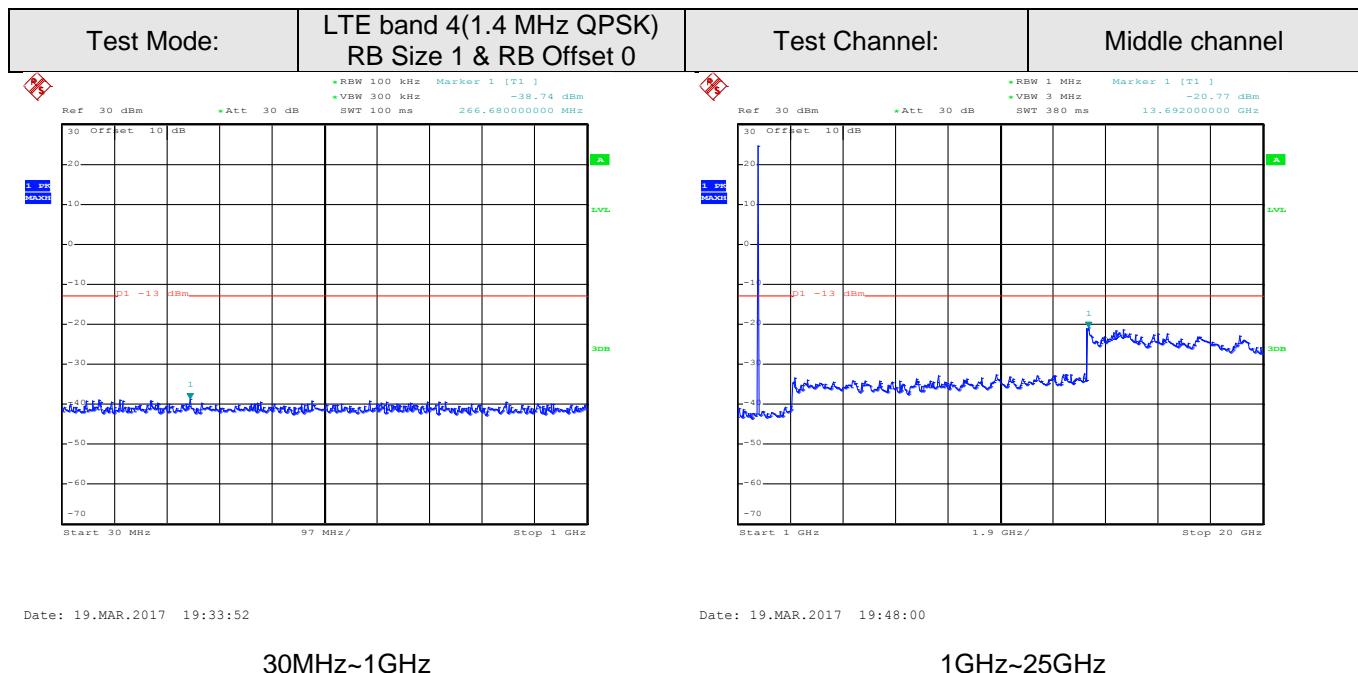


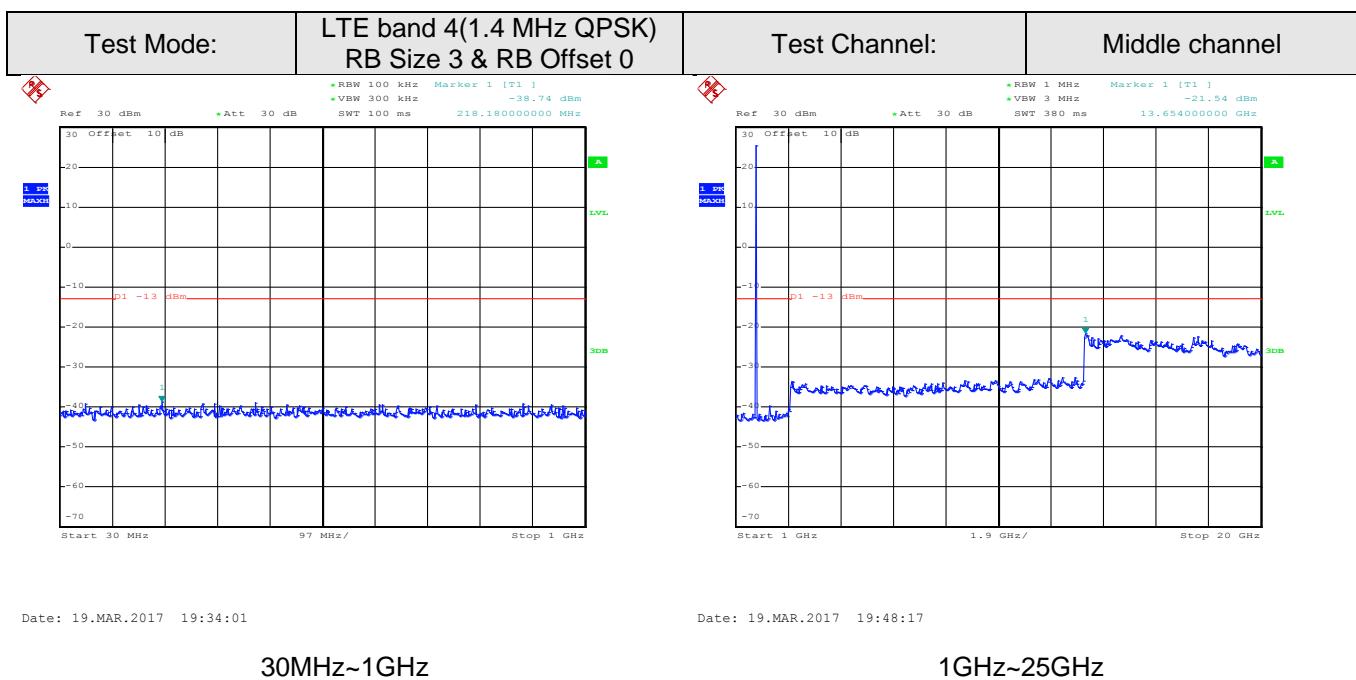
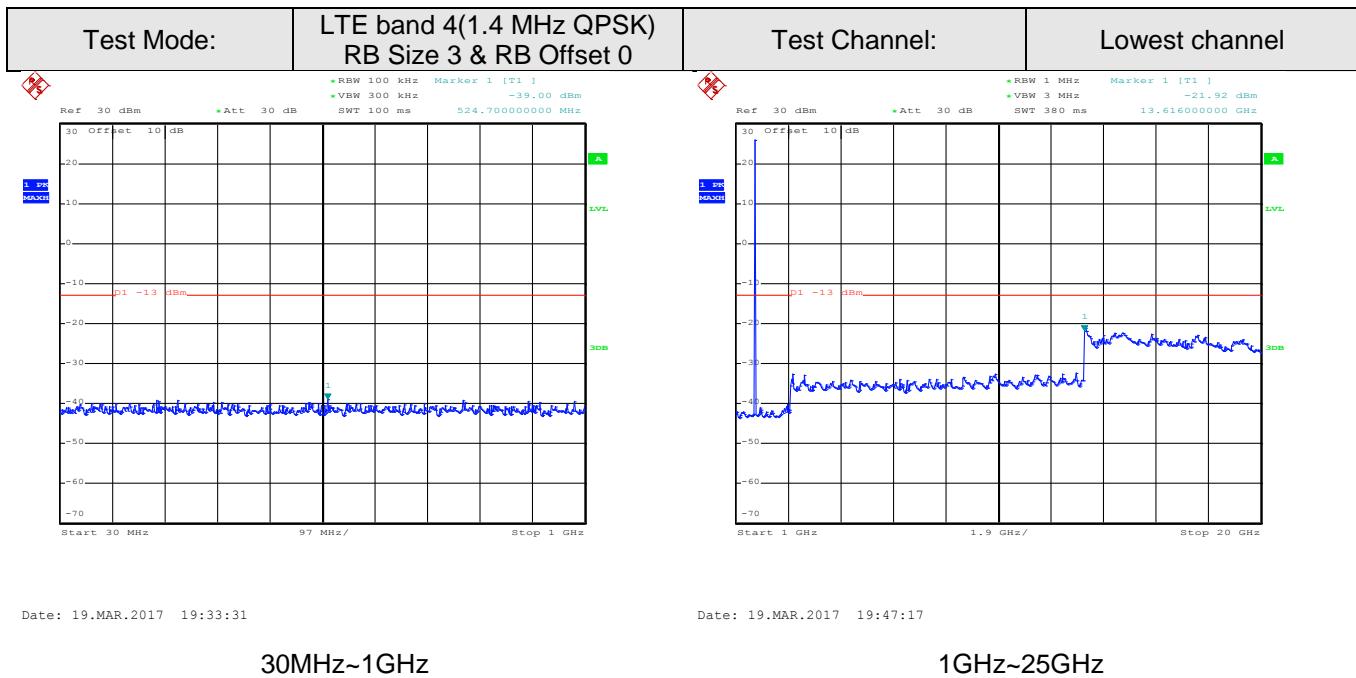


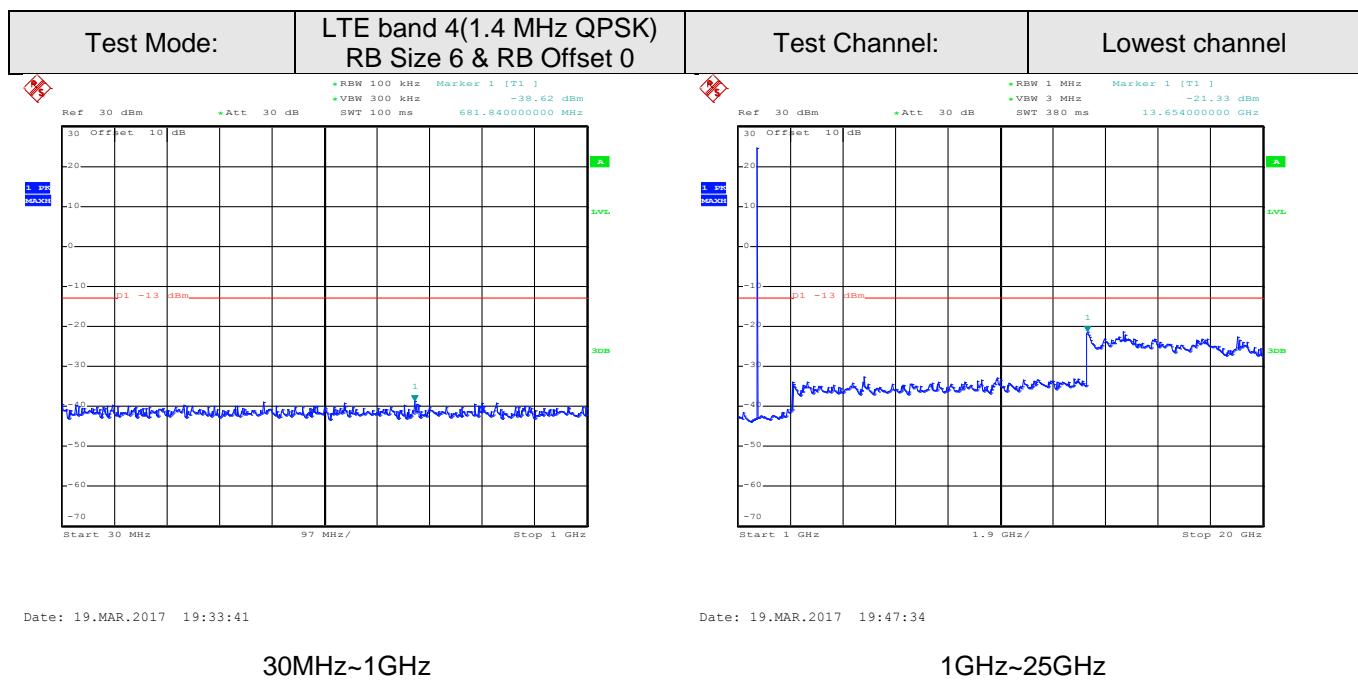
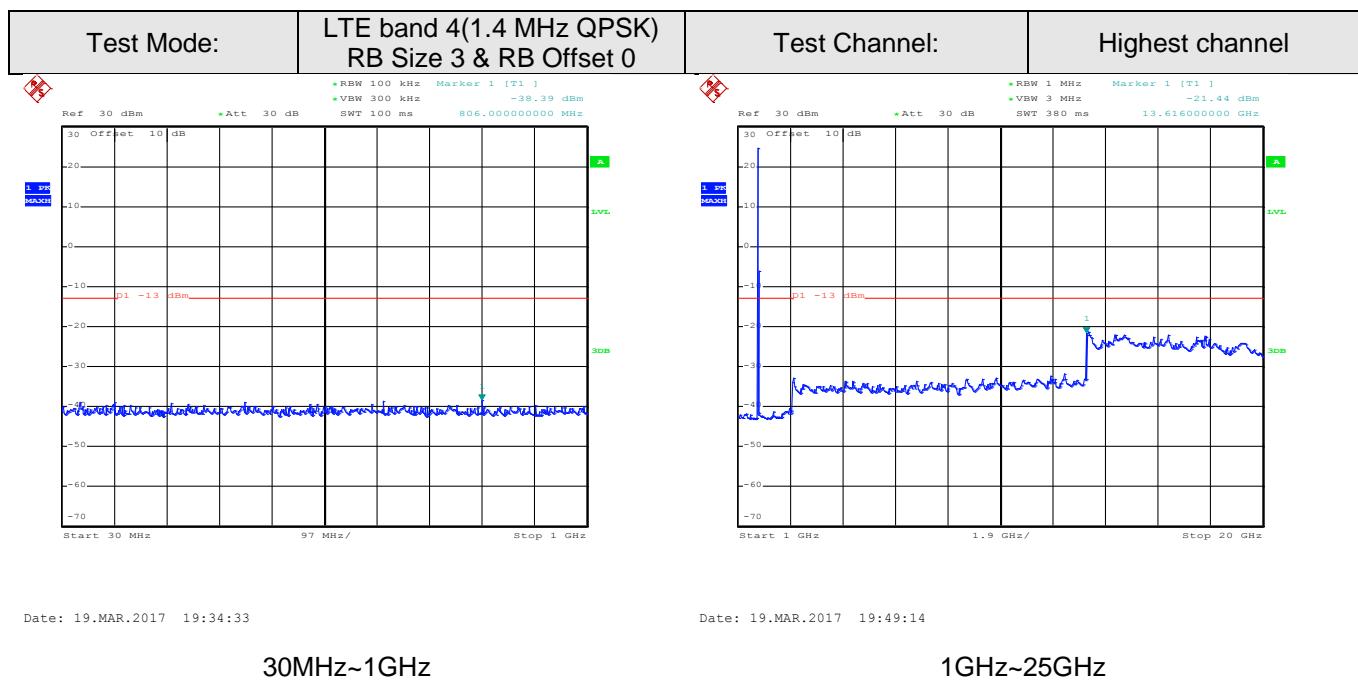


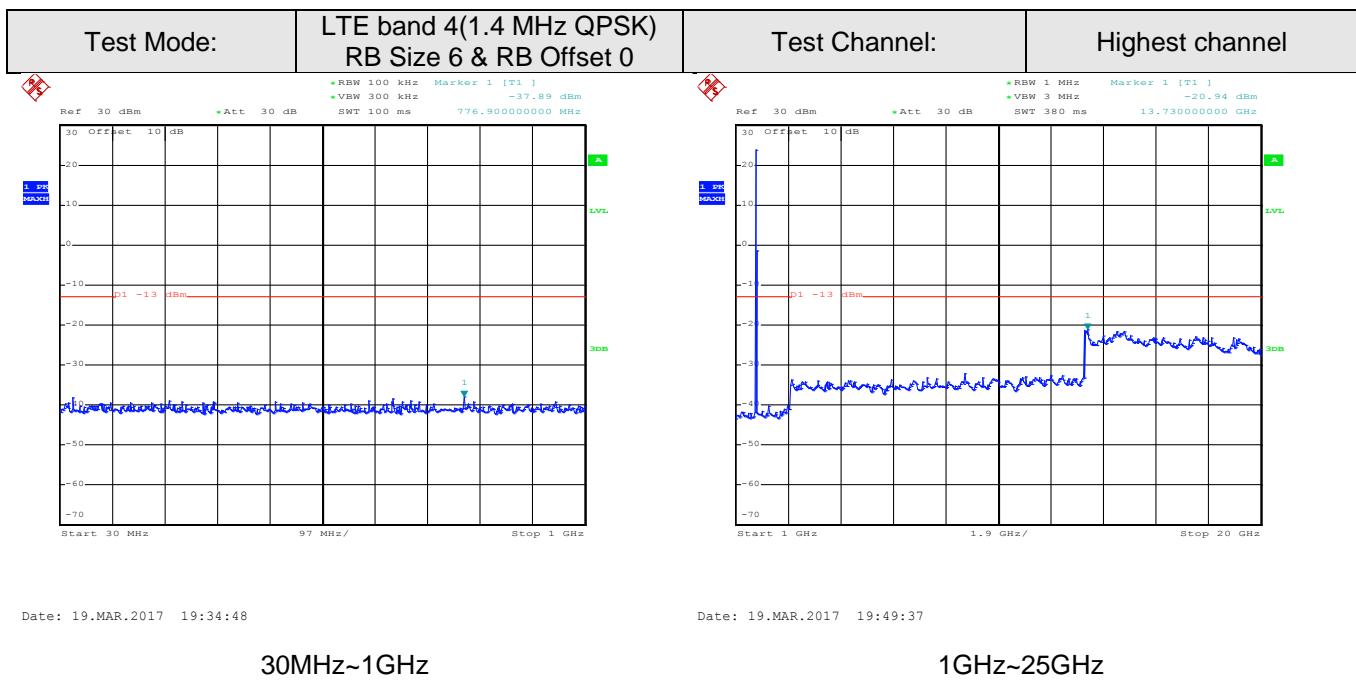
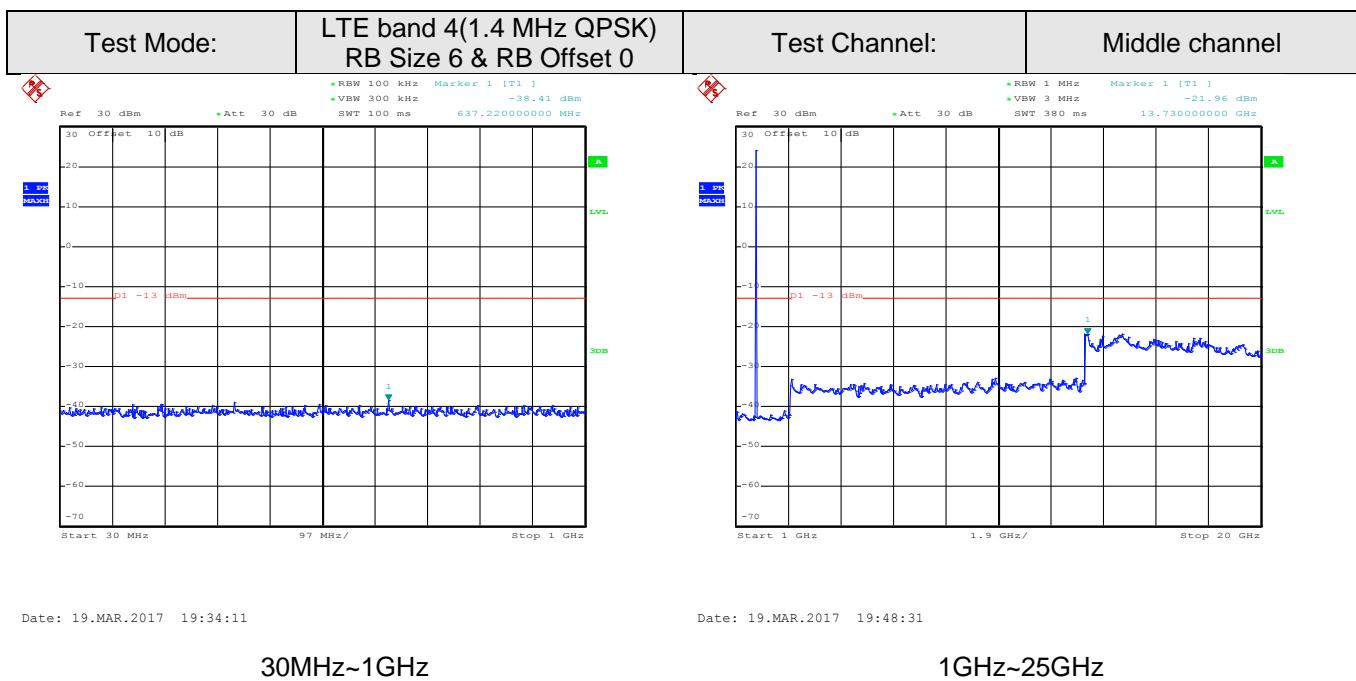




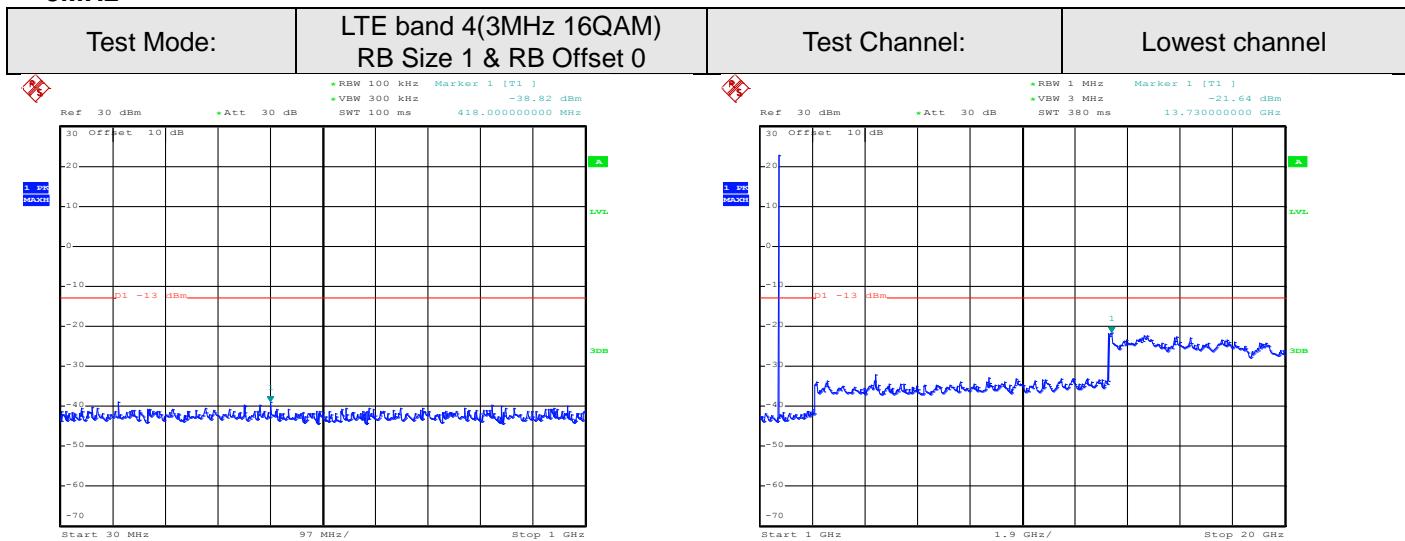








3MHz

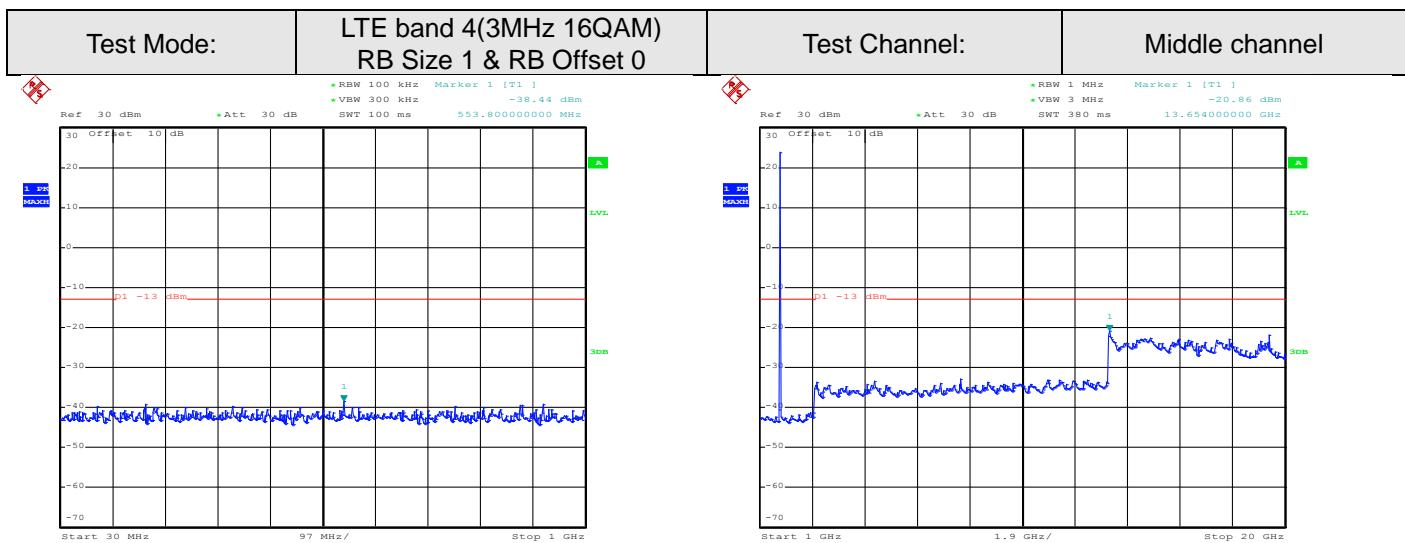


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Date: 19.MAR.2017 19:50:33

30MHz~1GHz

1GHz~25GHz

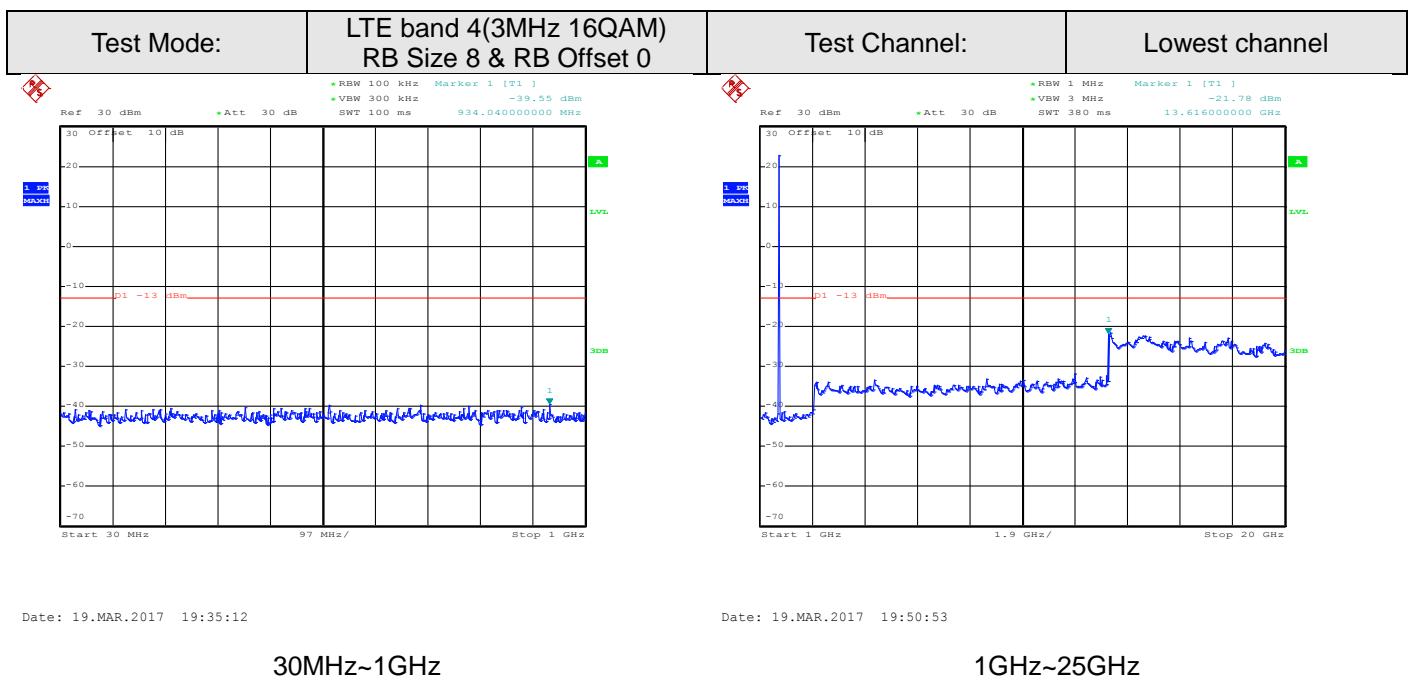
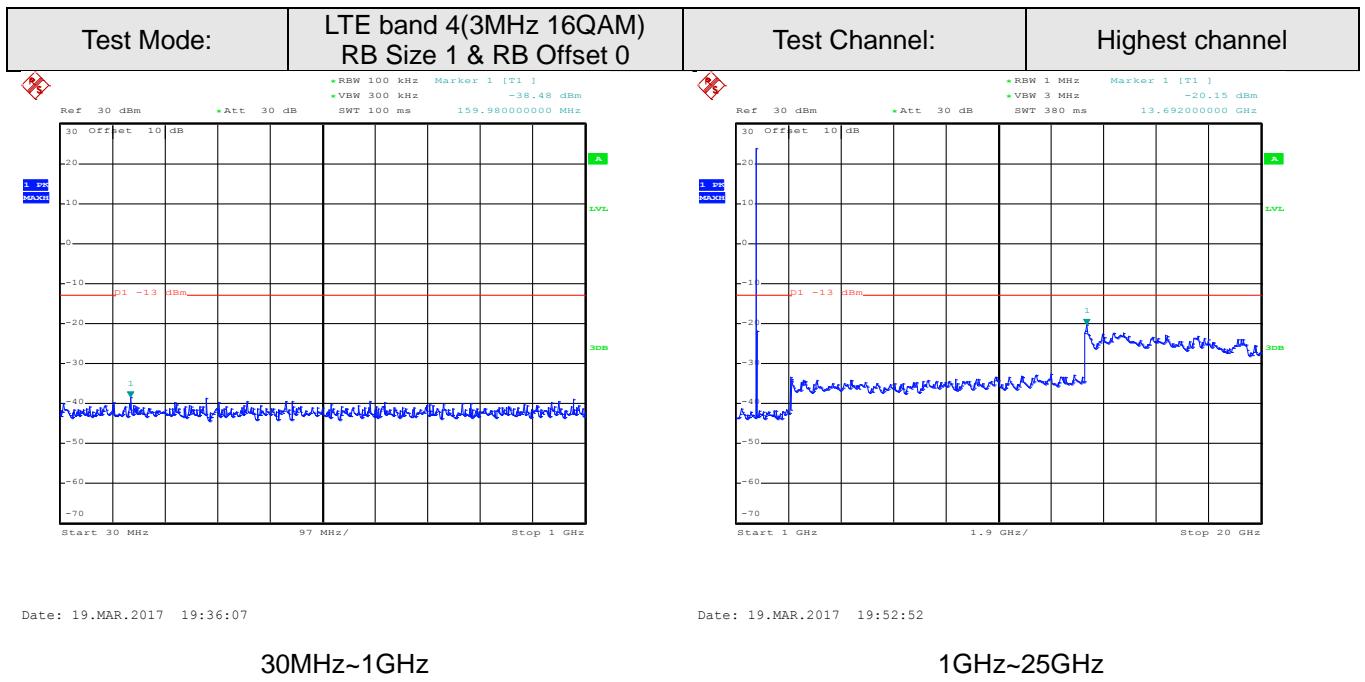


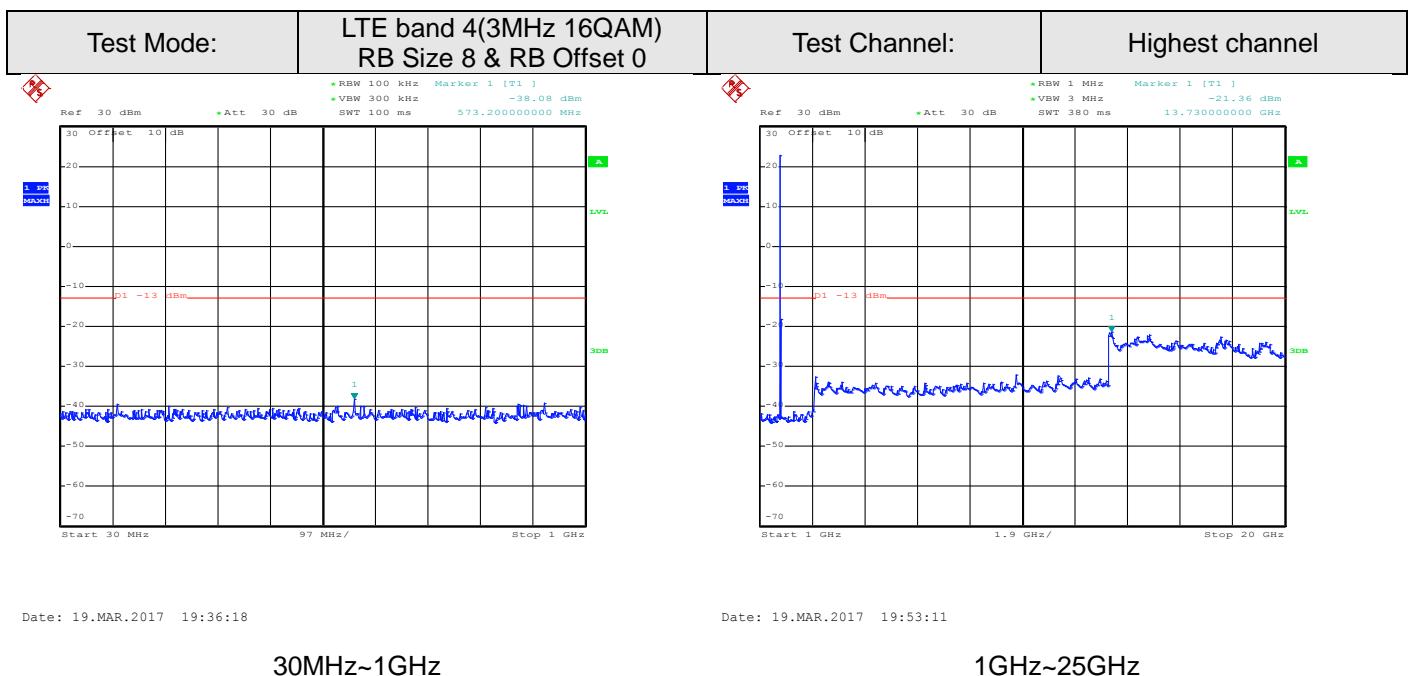
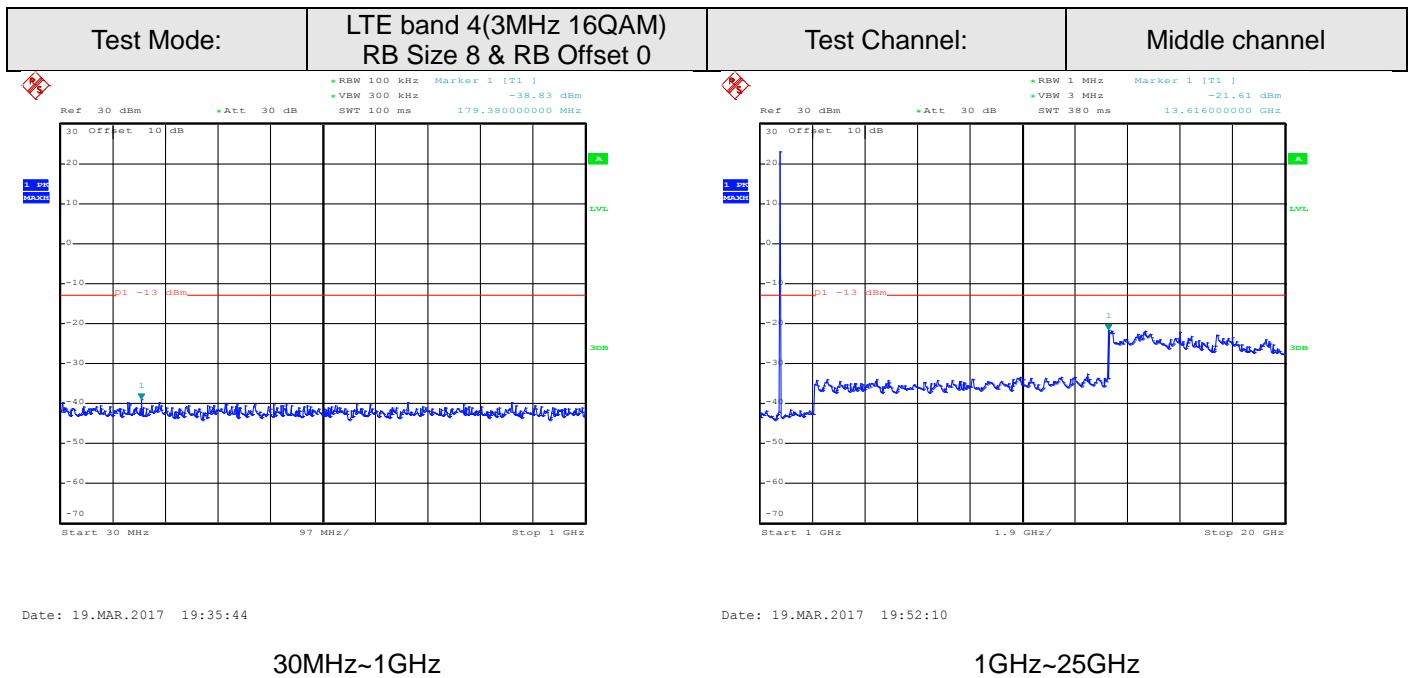
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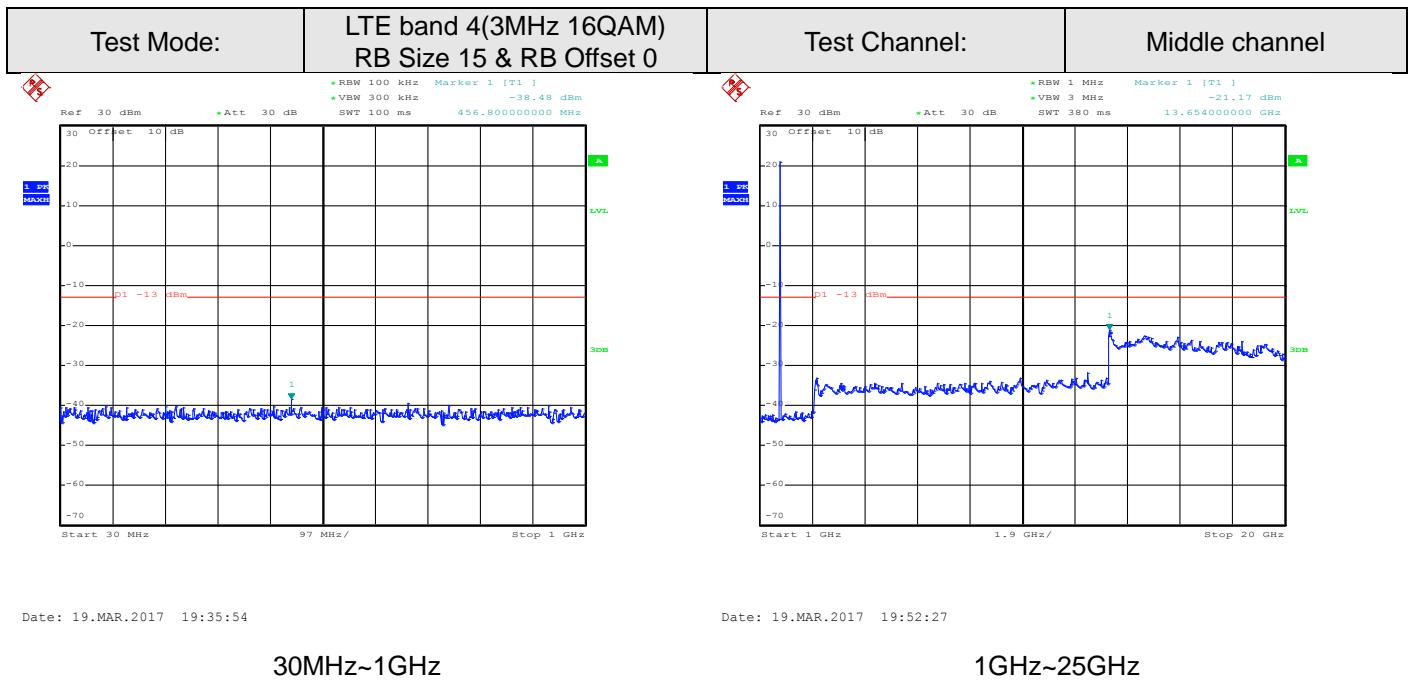
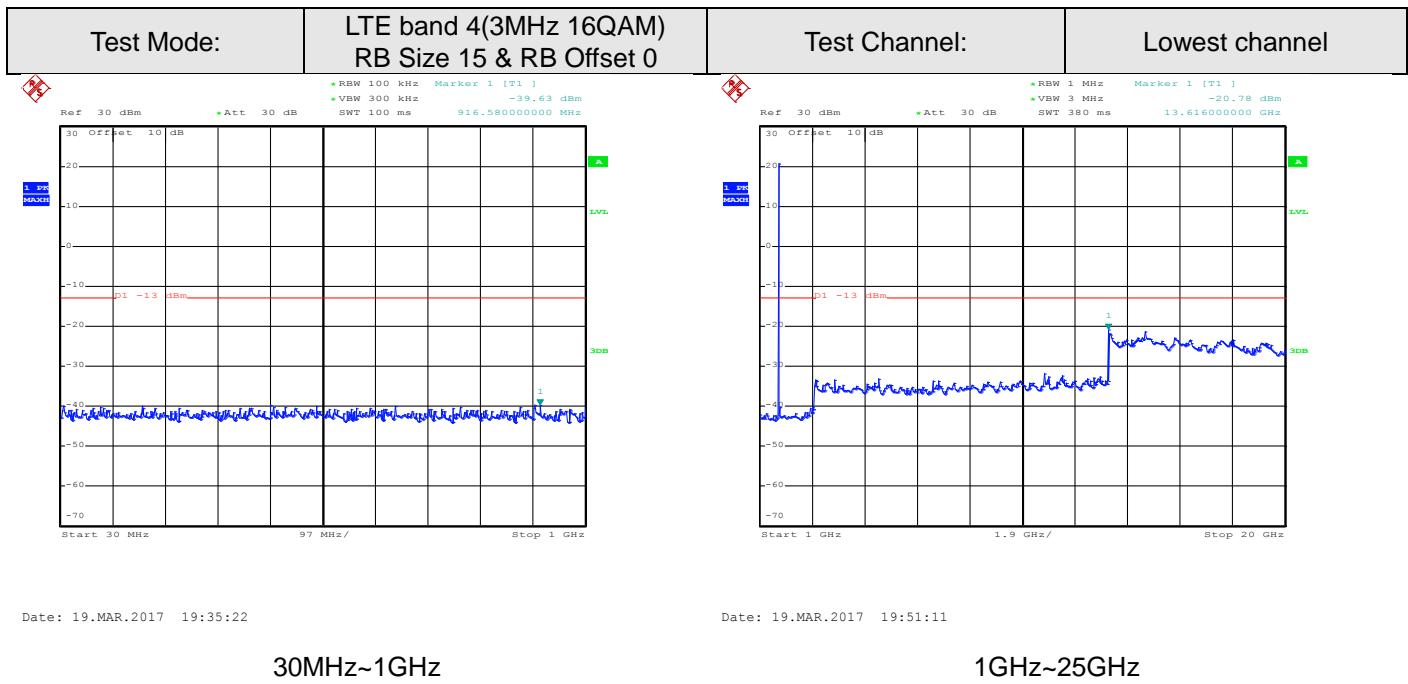
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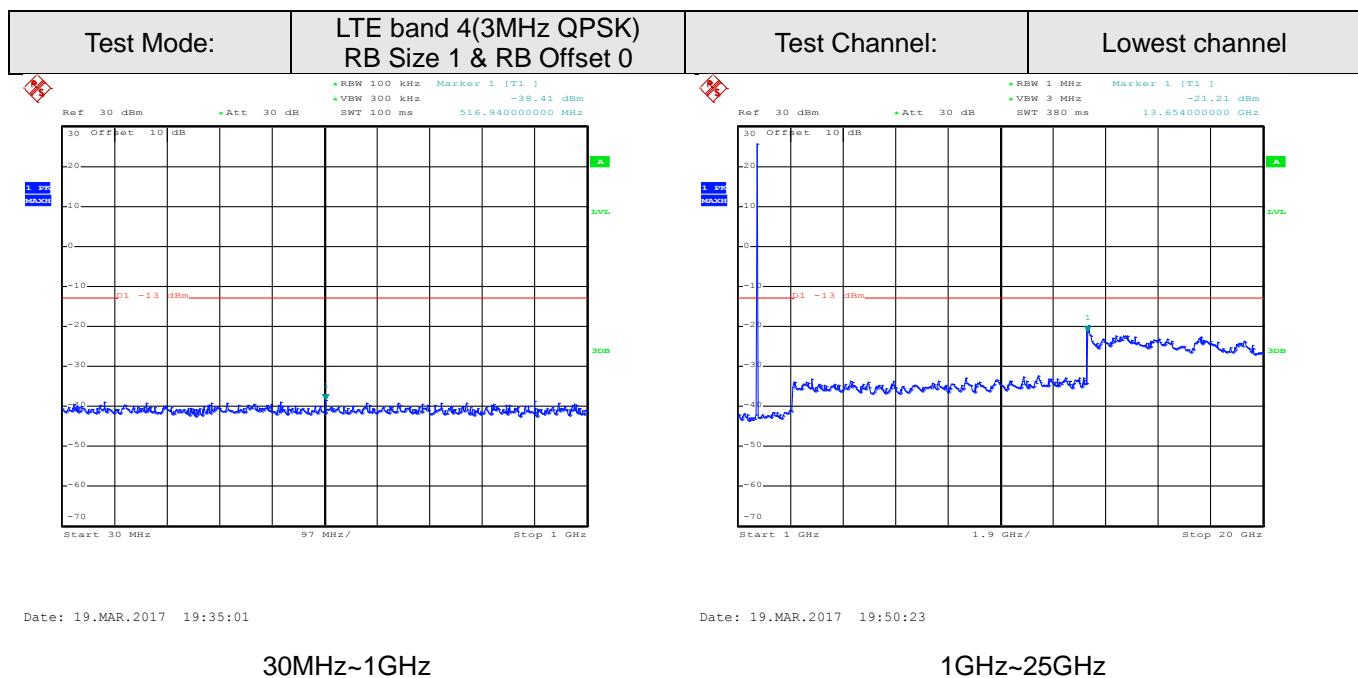
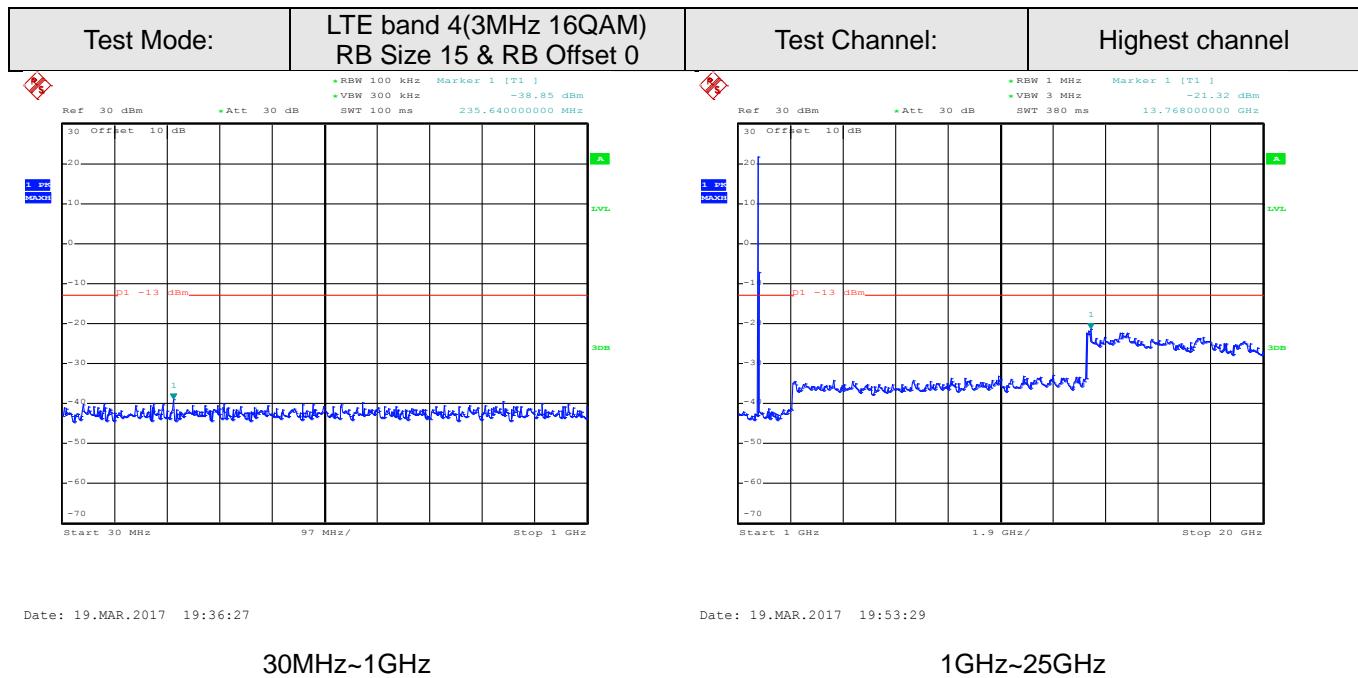
30MHz~1GHz

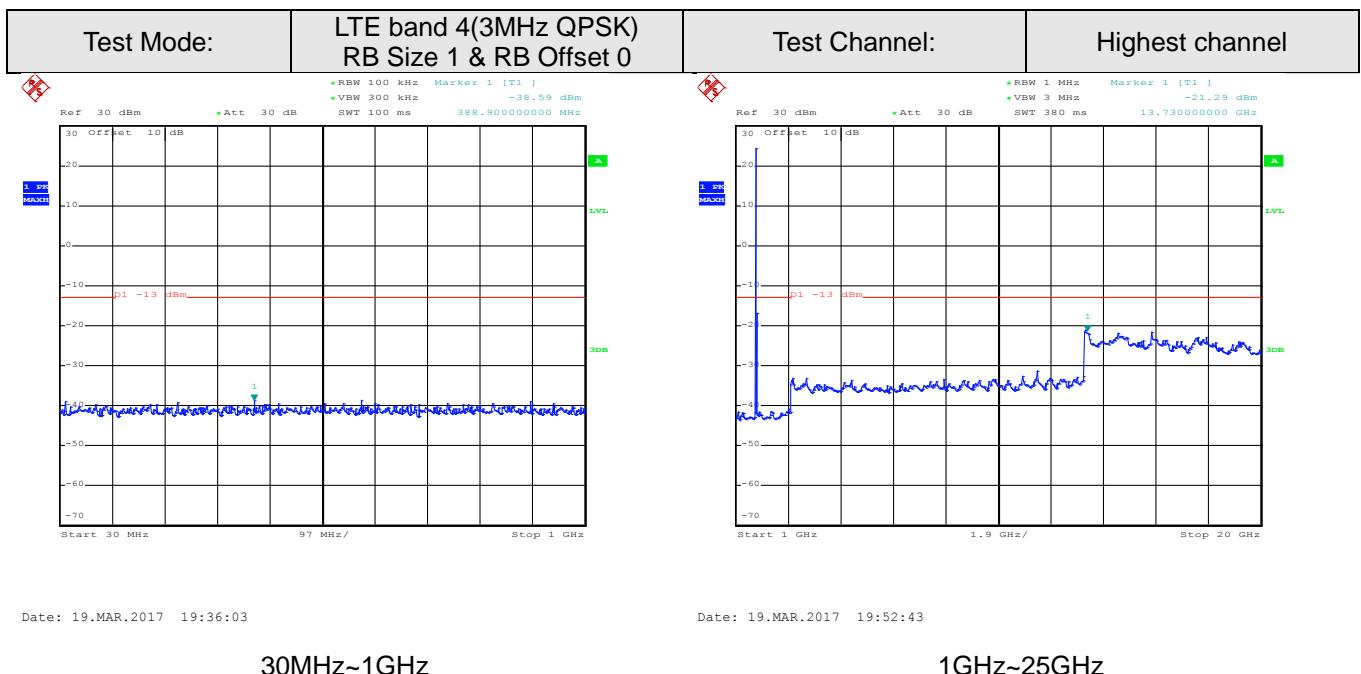
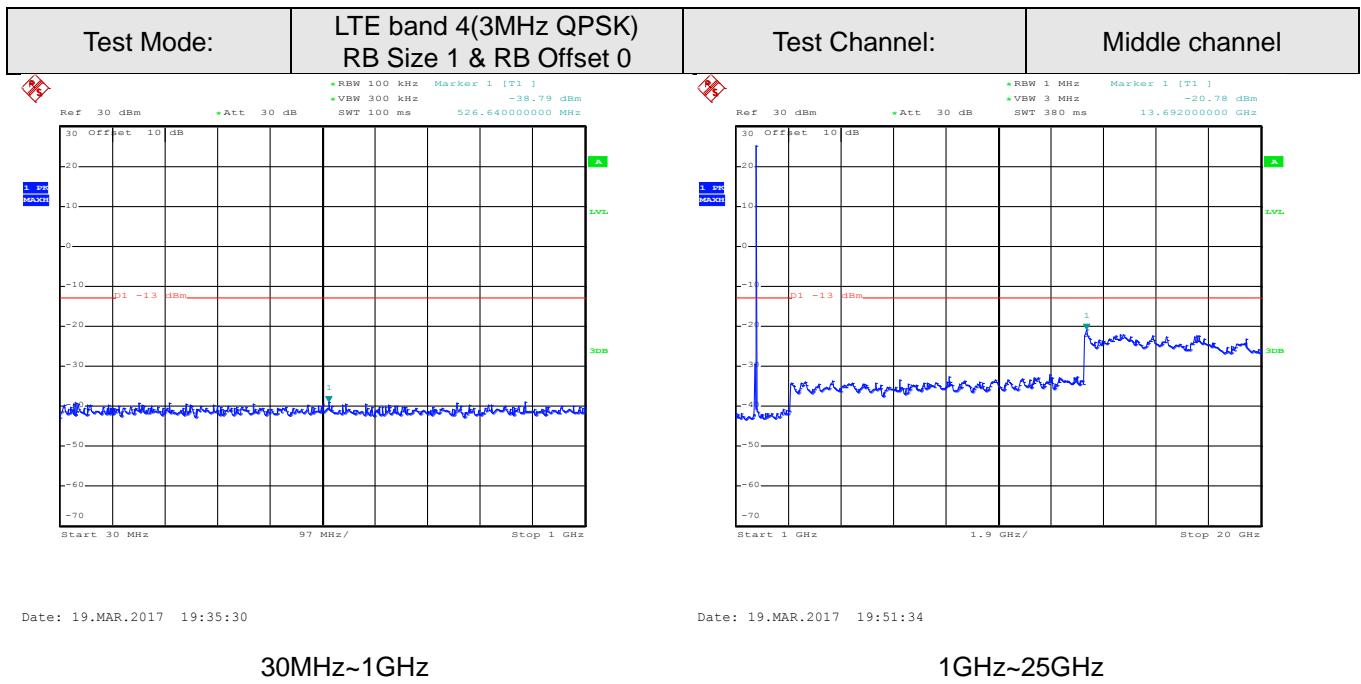
1GHz~25GHz

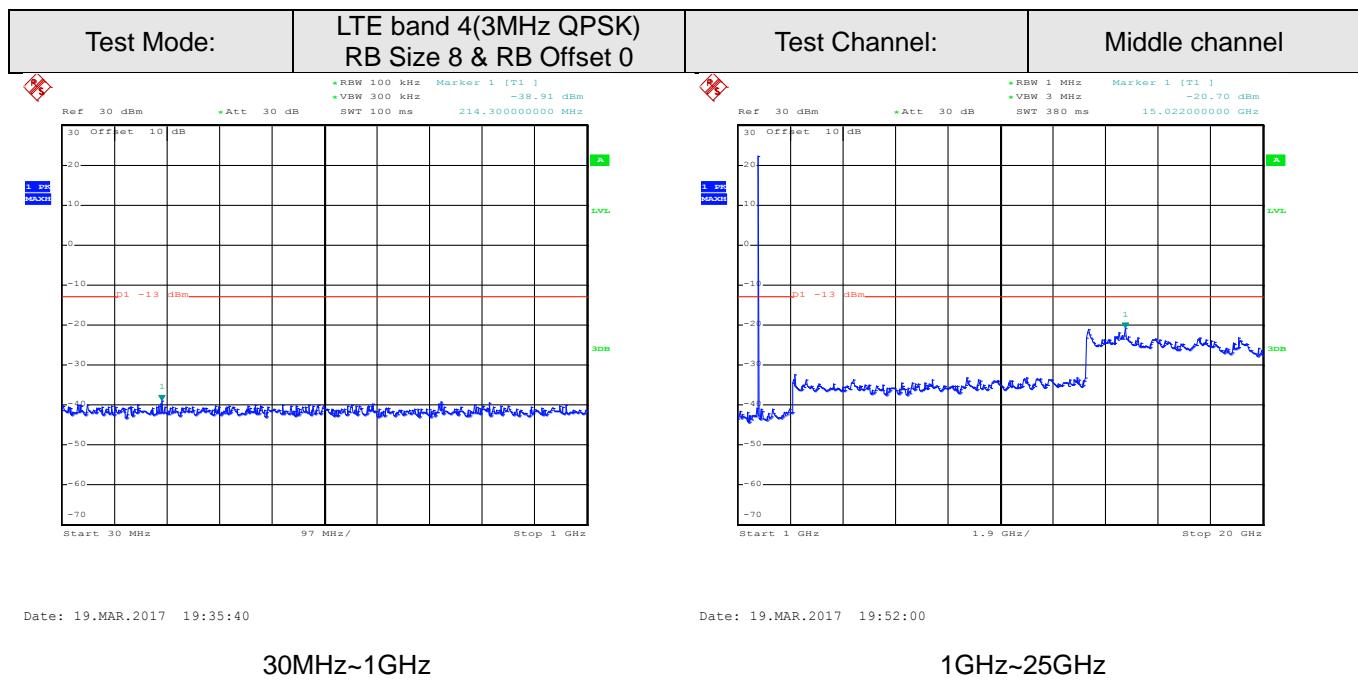
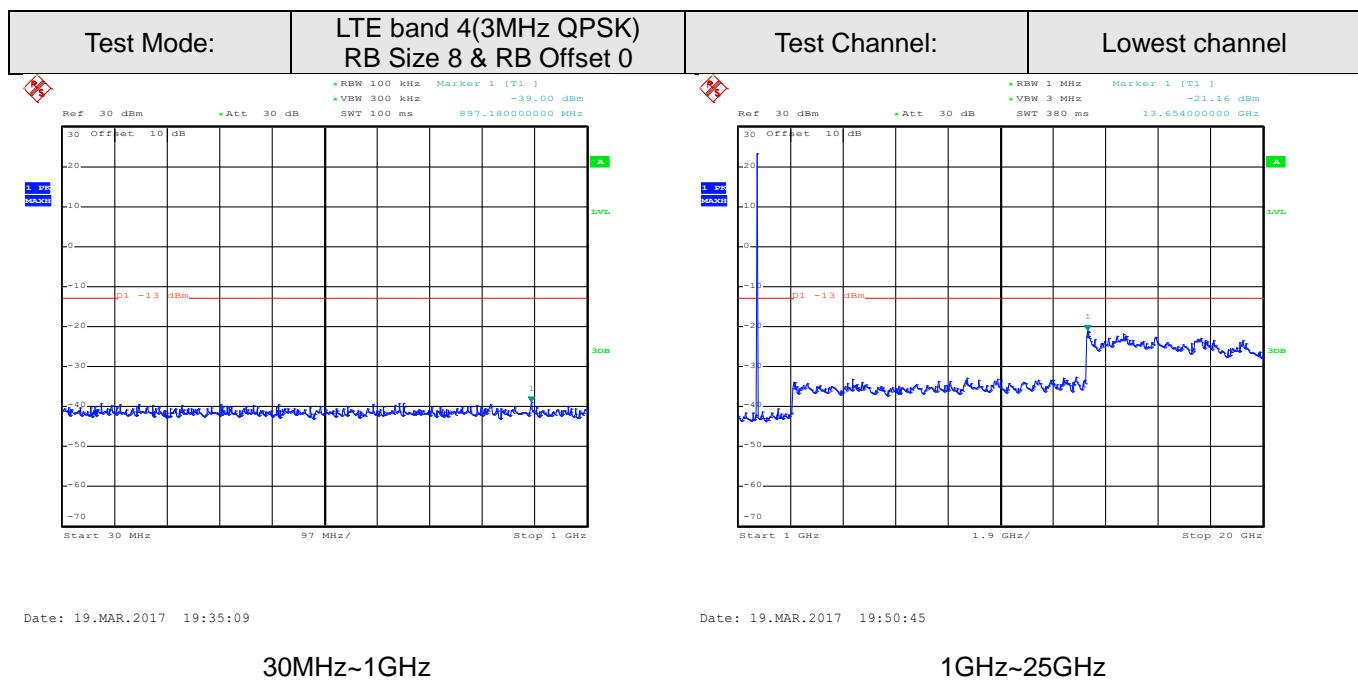


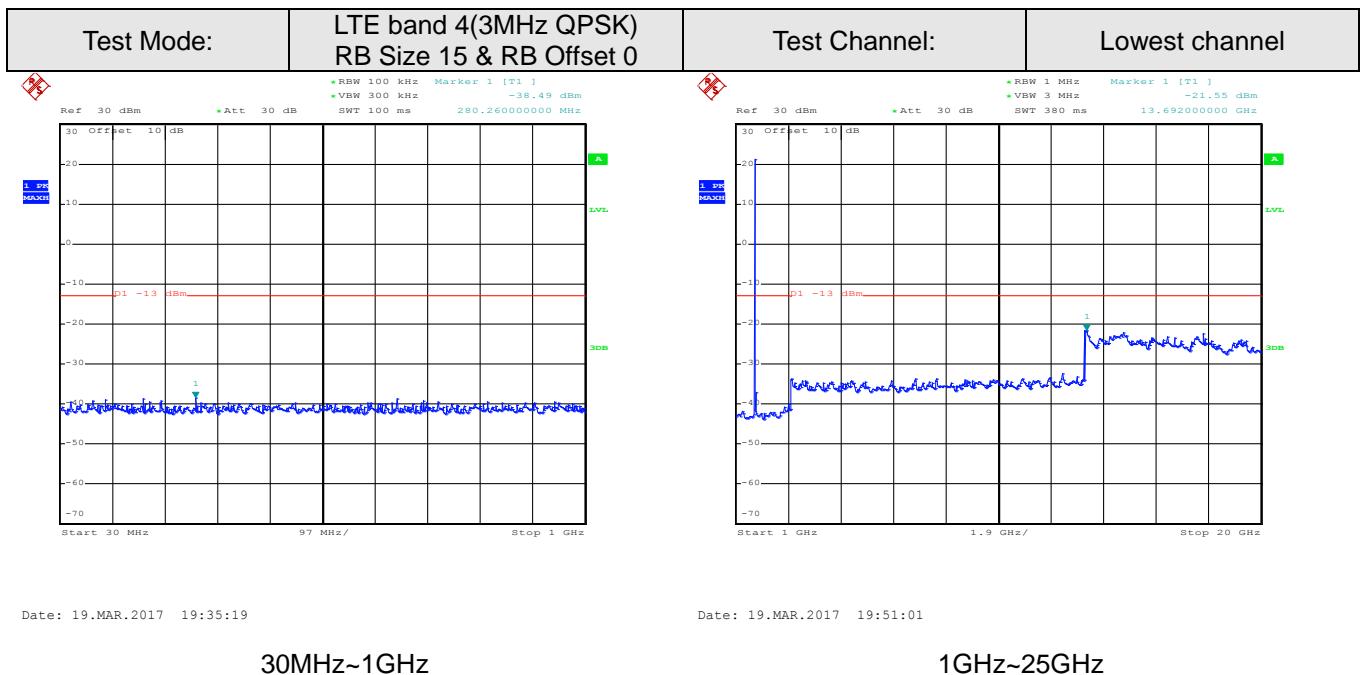
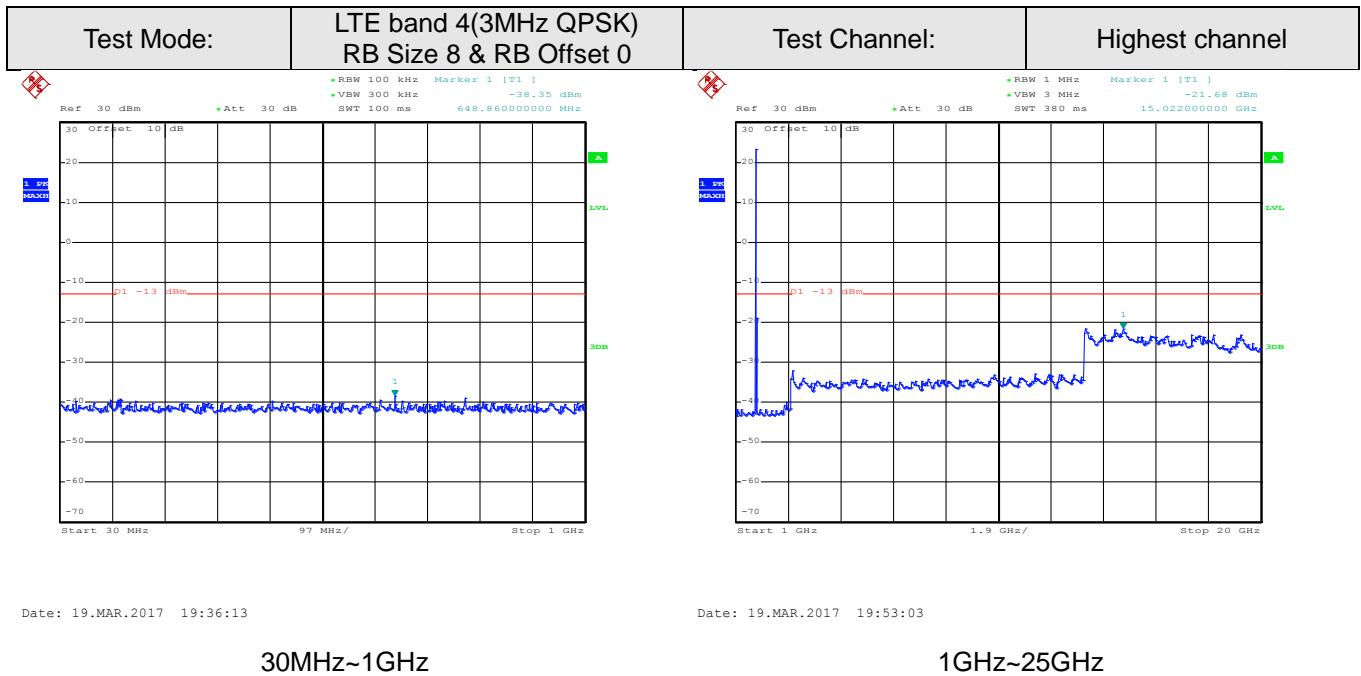


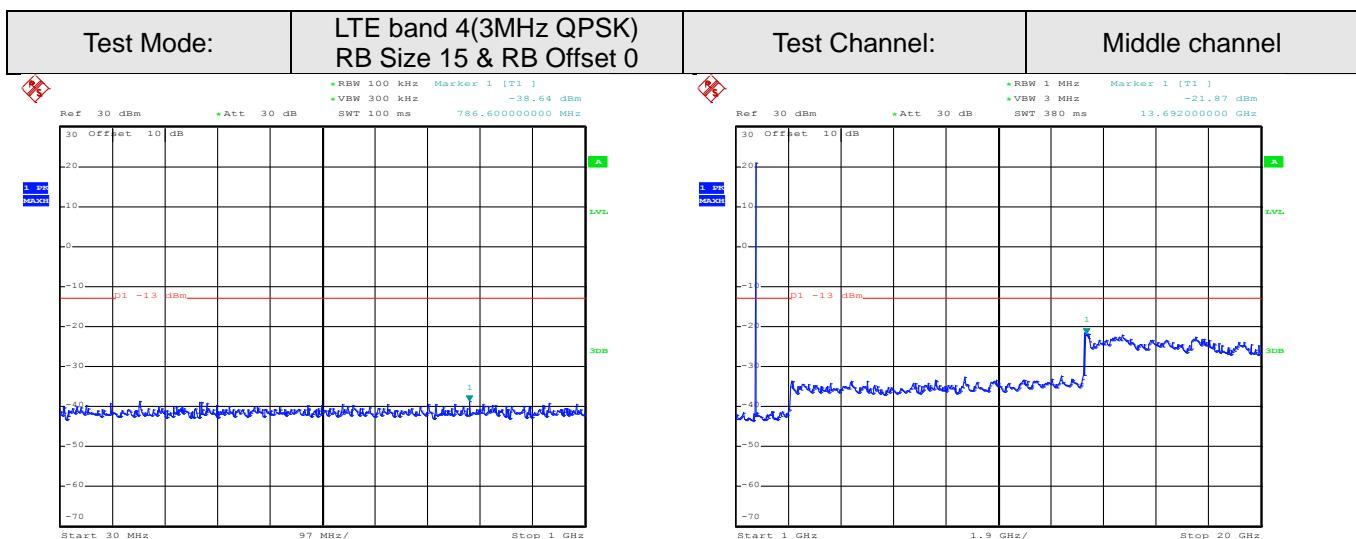










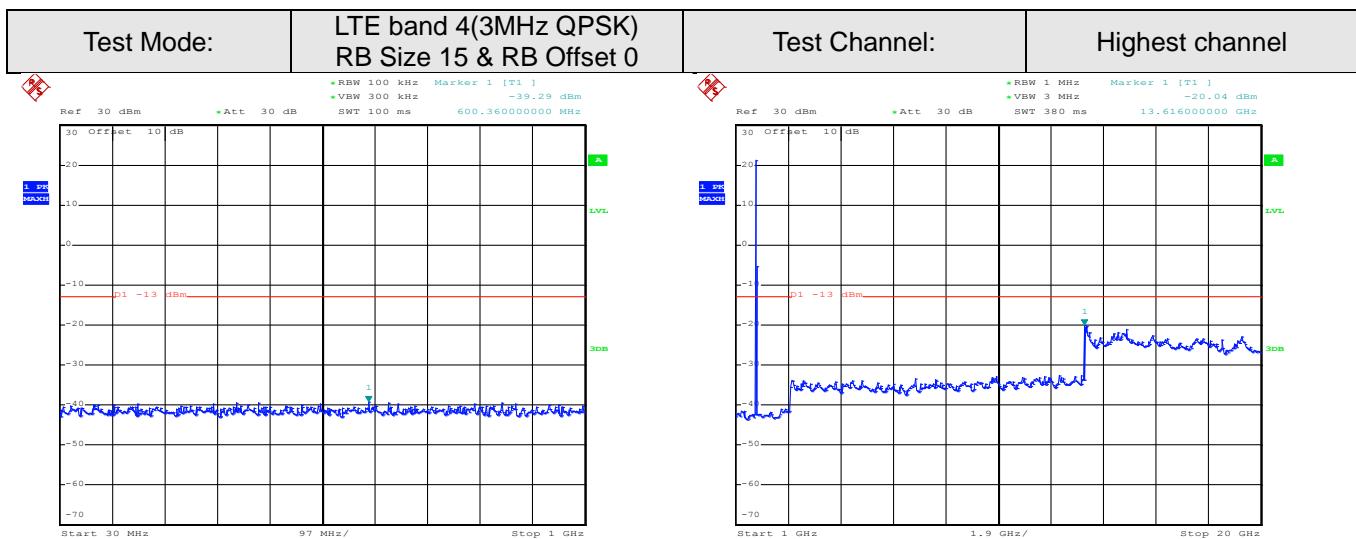


Date: 19.MAR.2017 19:35:50

30MHz~1GHz

Date: 19.MAR.2017 19:52:21

1GHz~25GHz



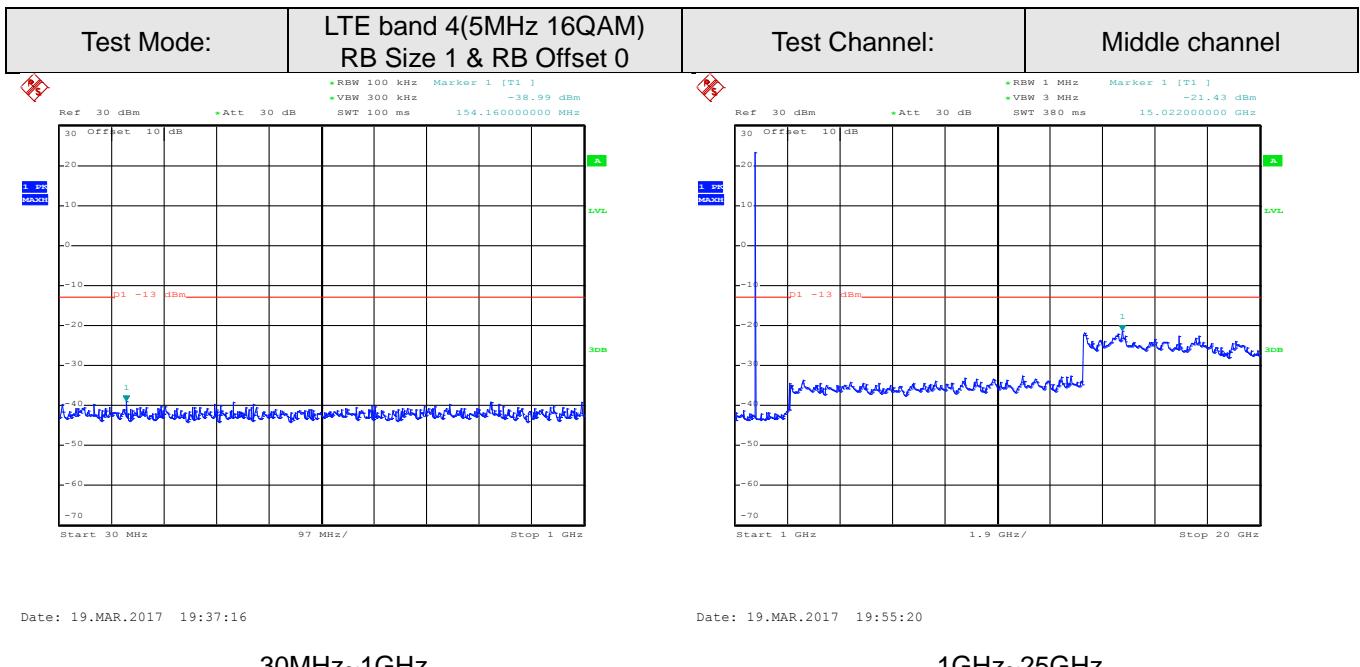
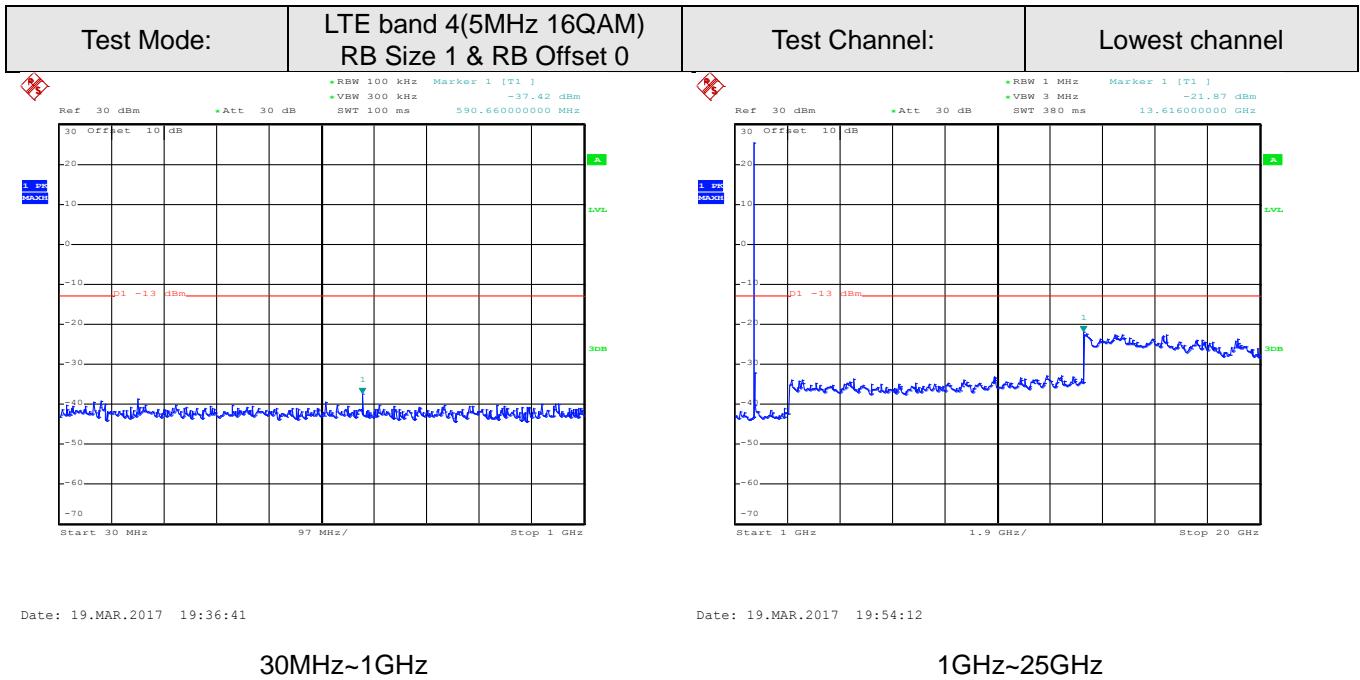
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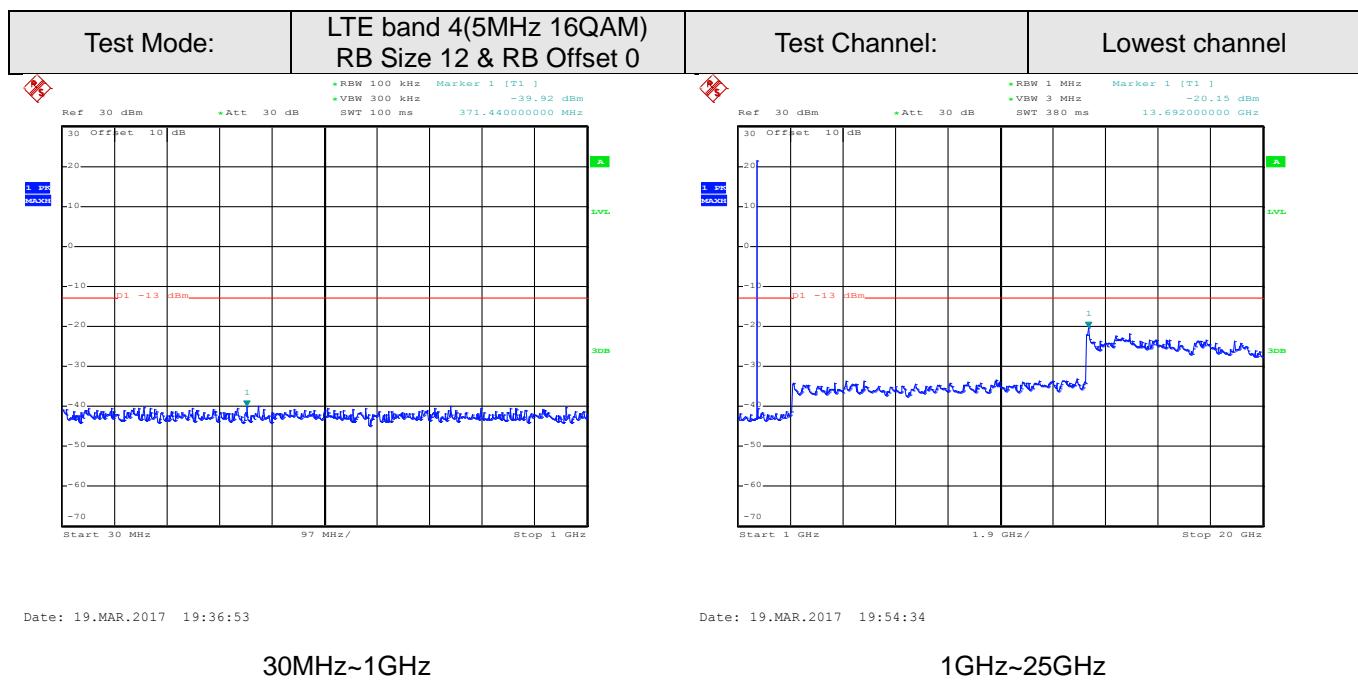
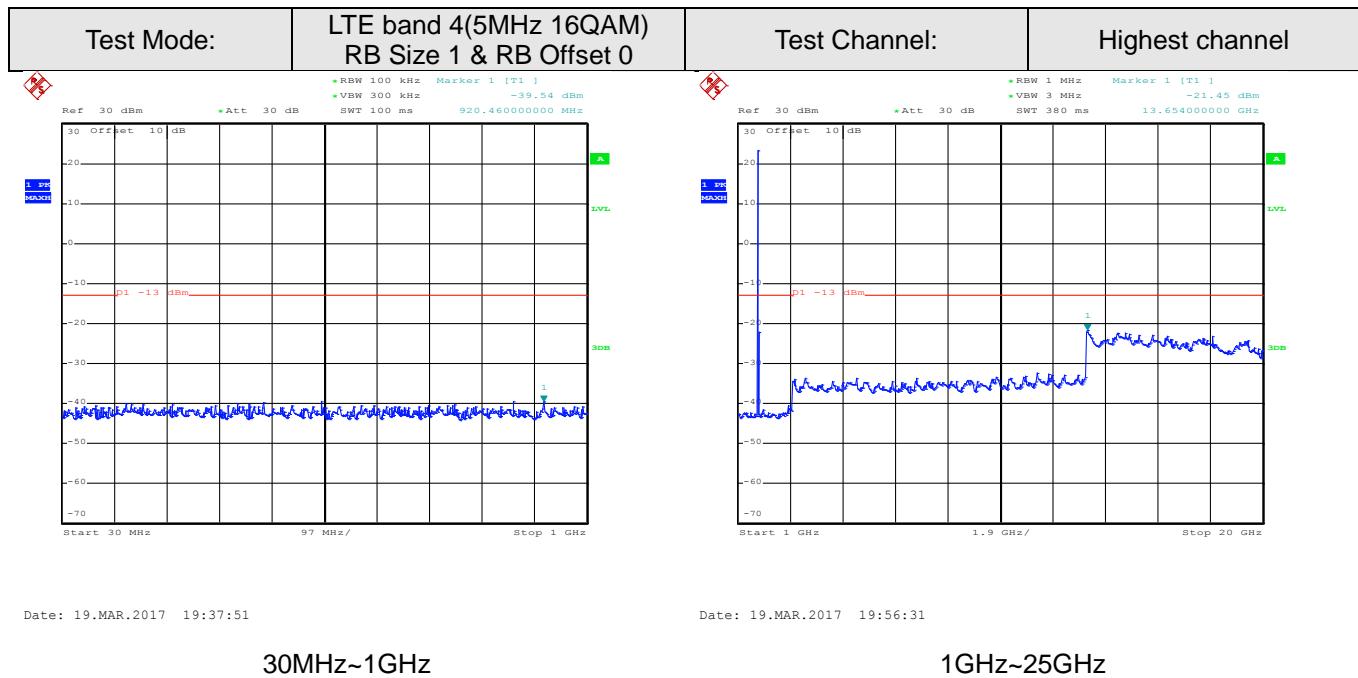
30MHz~1GHz

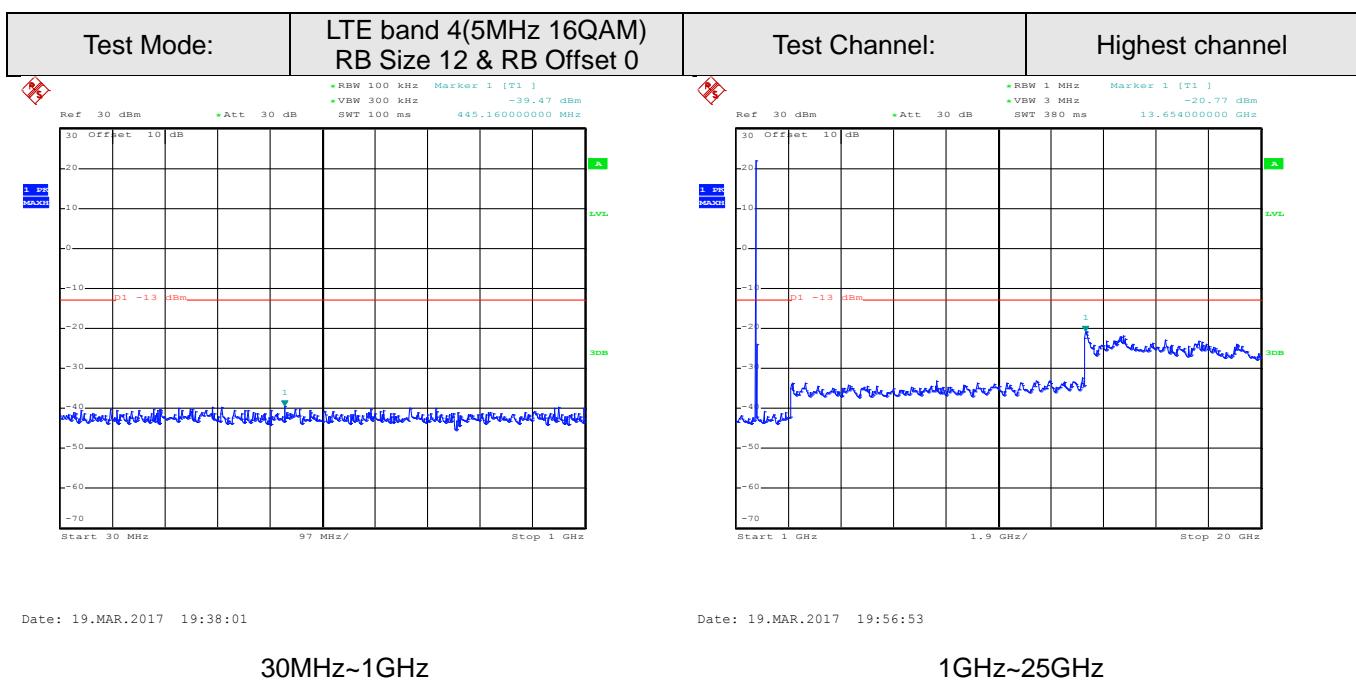
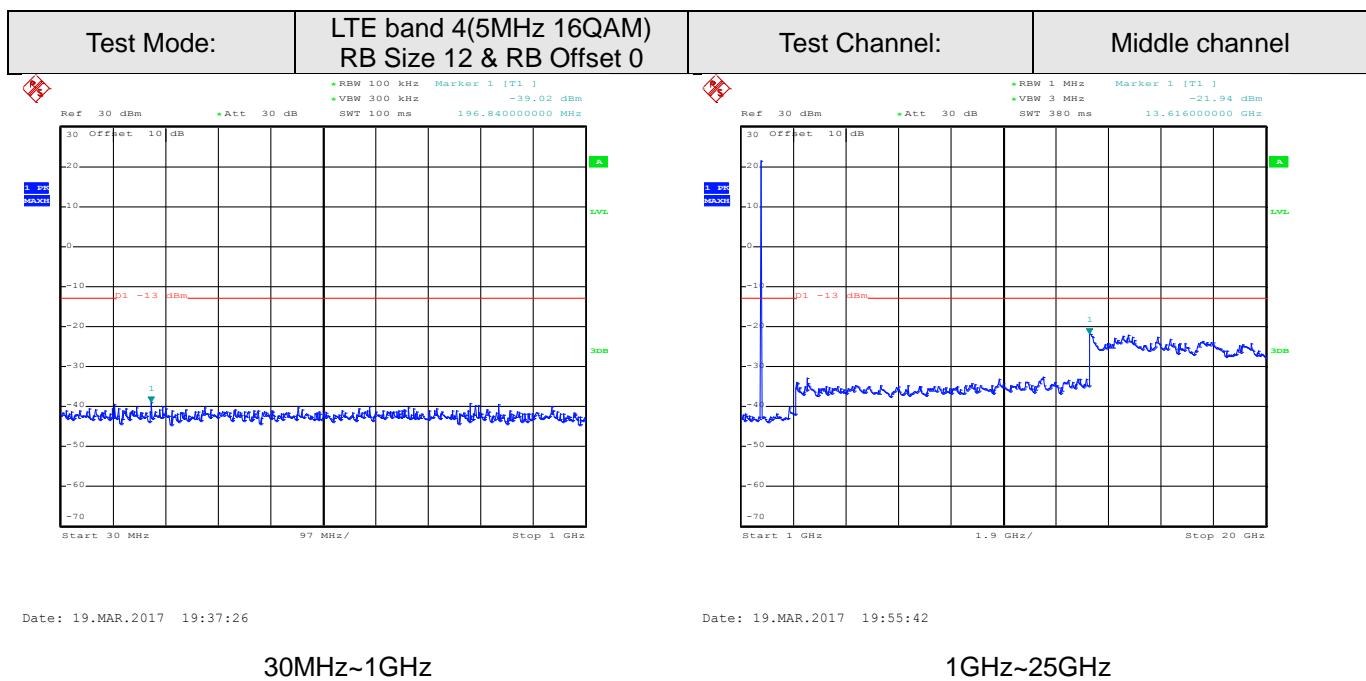
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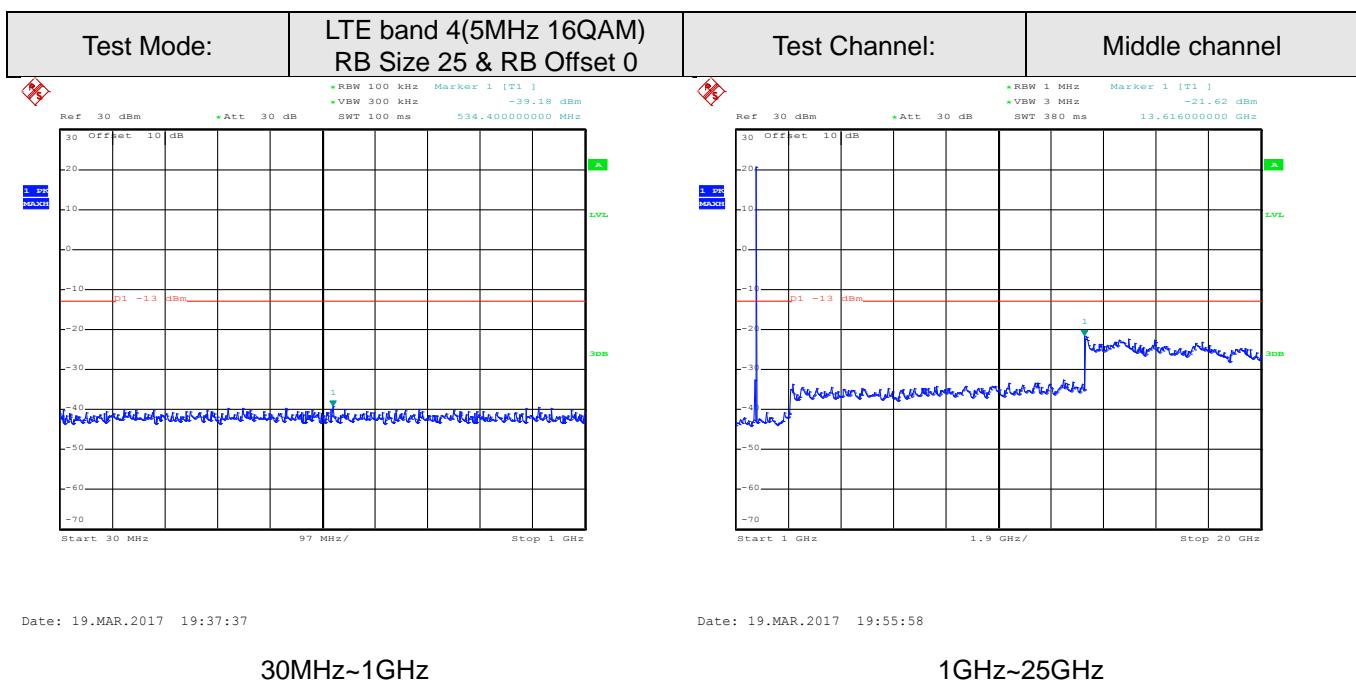
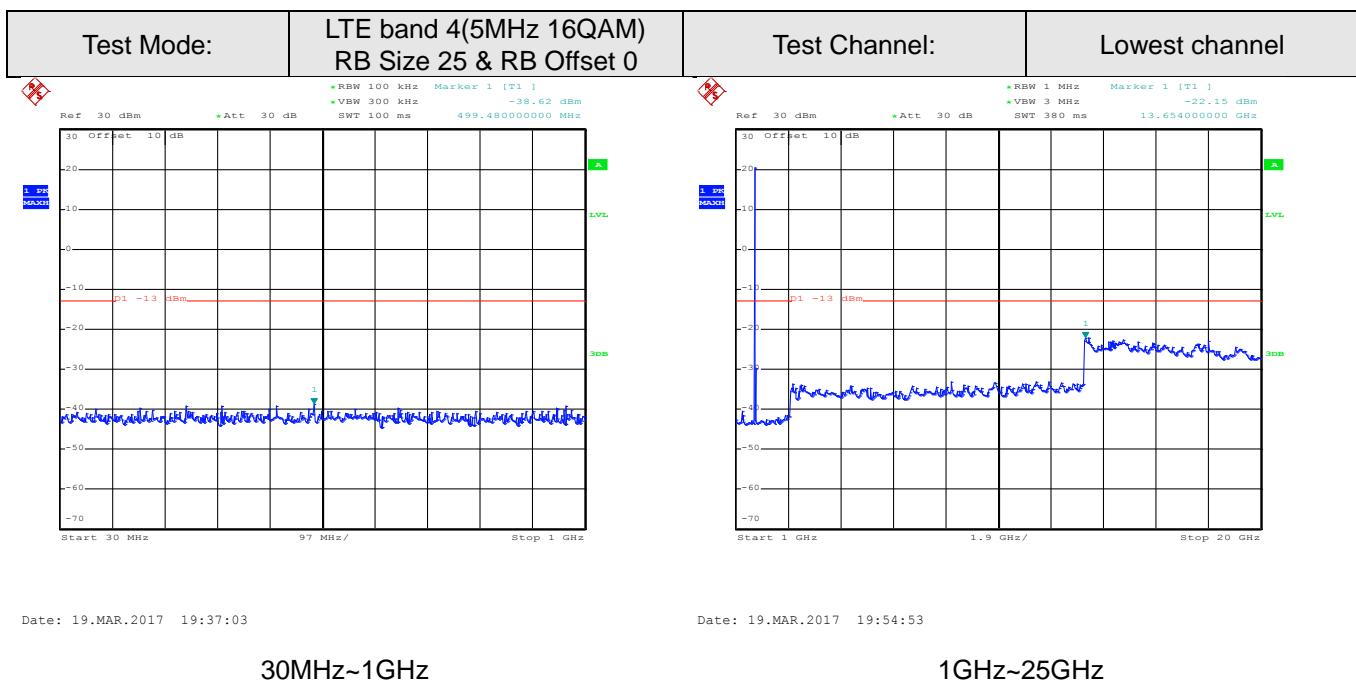
1GHz~25GHz

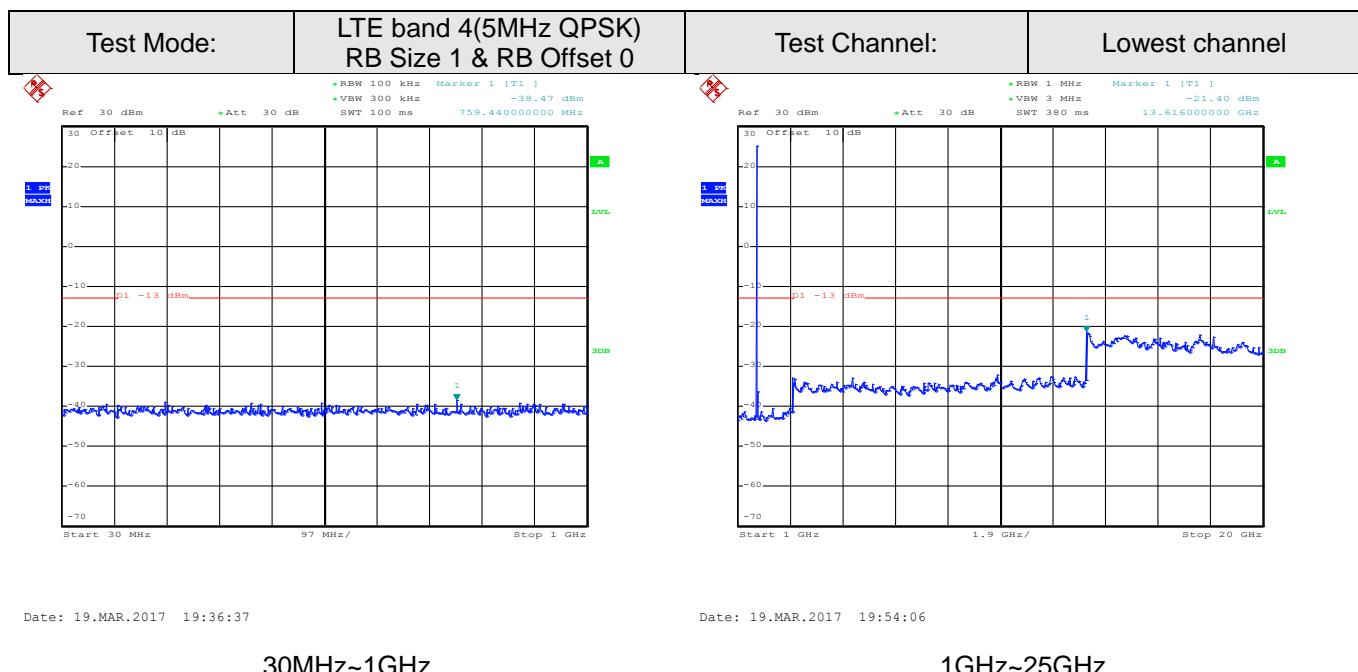
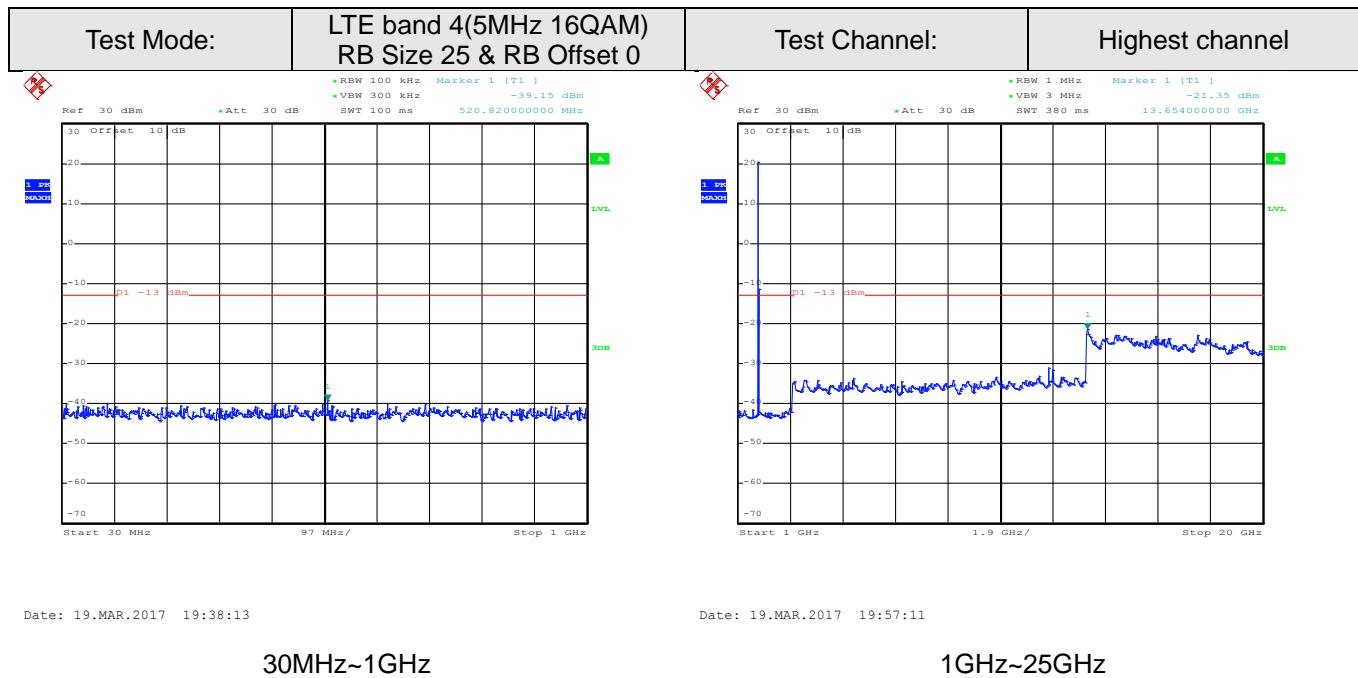
5MHz

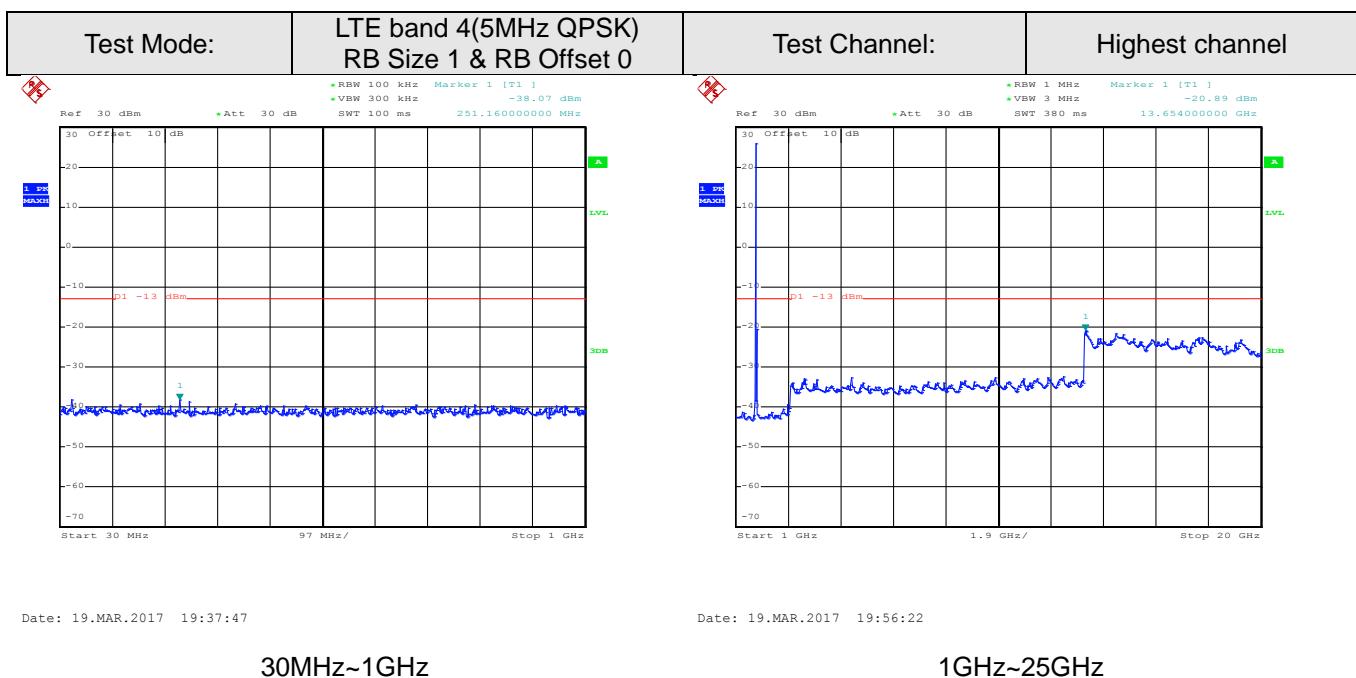
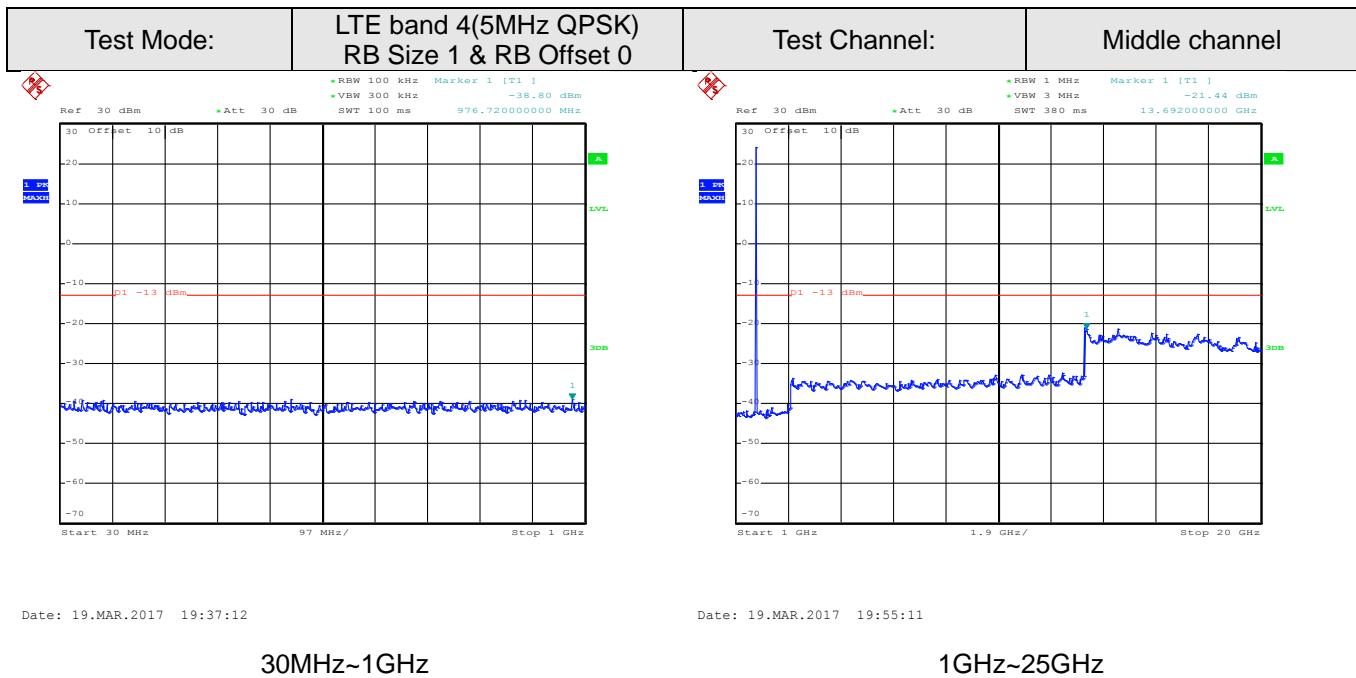


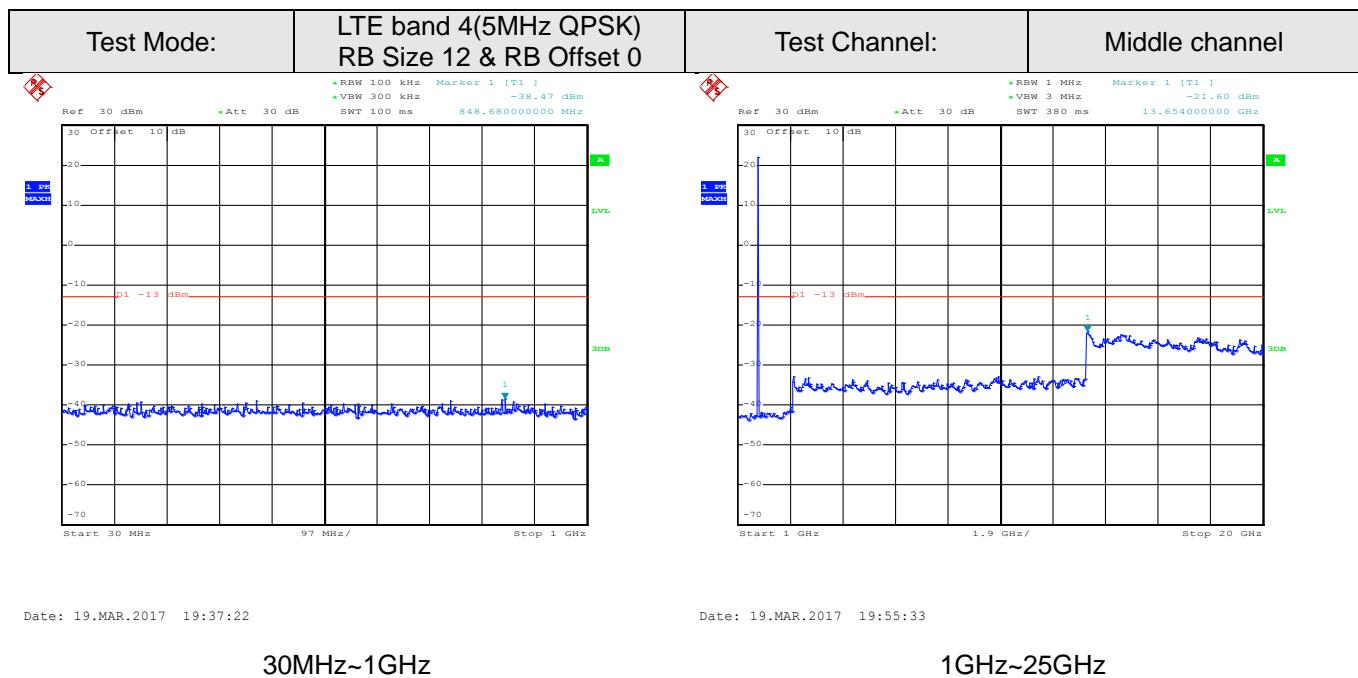
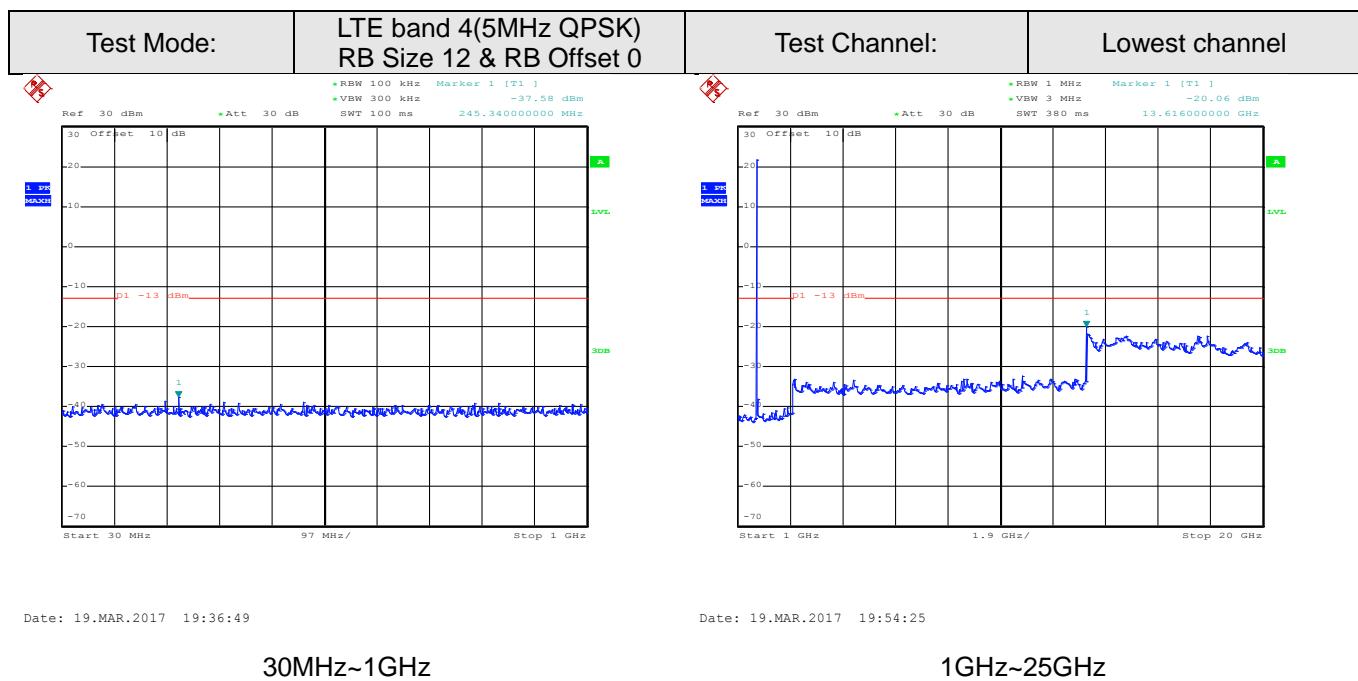


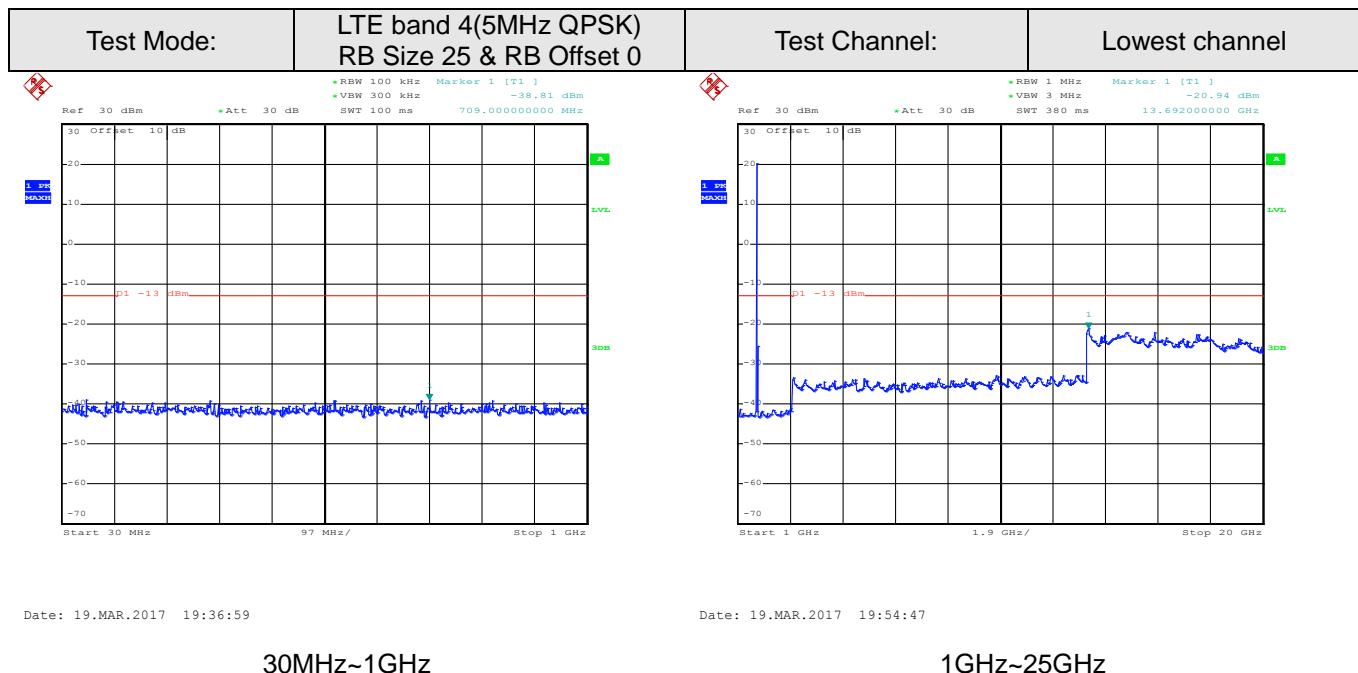
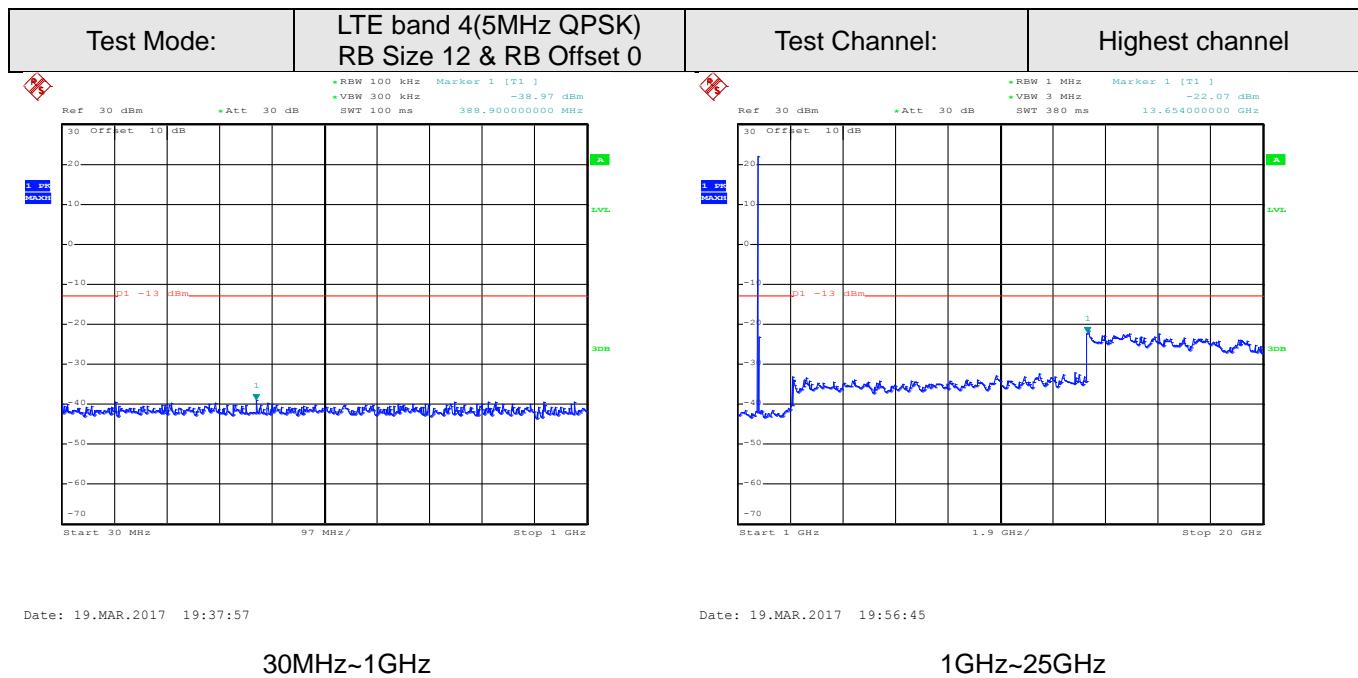


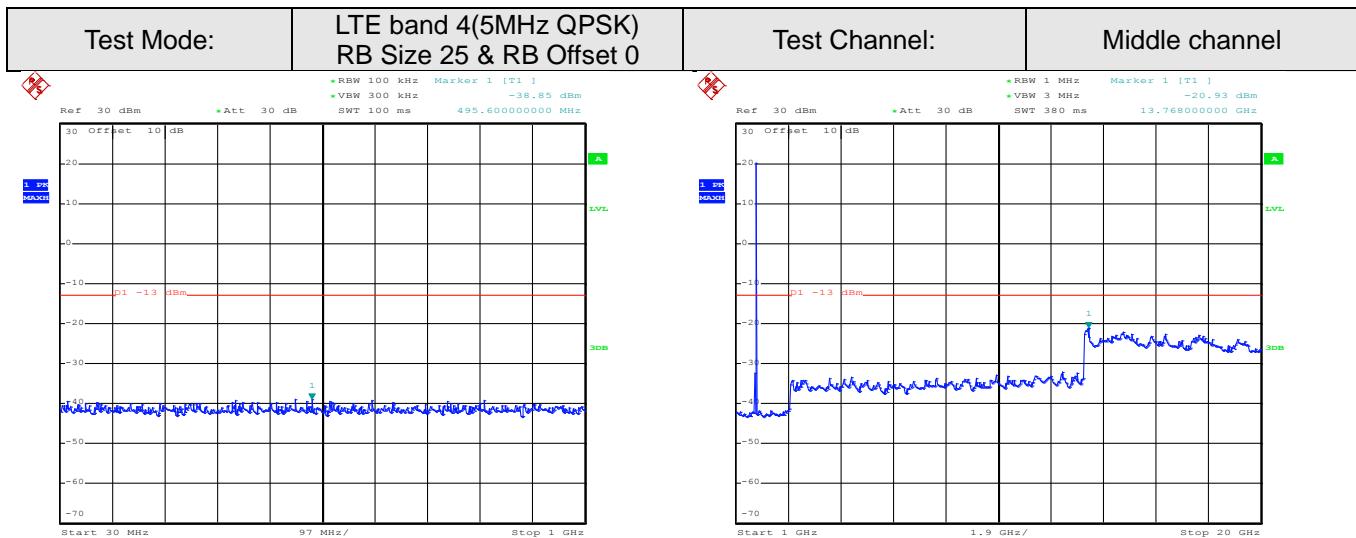










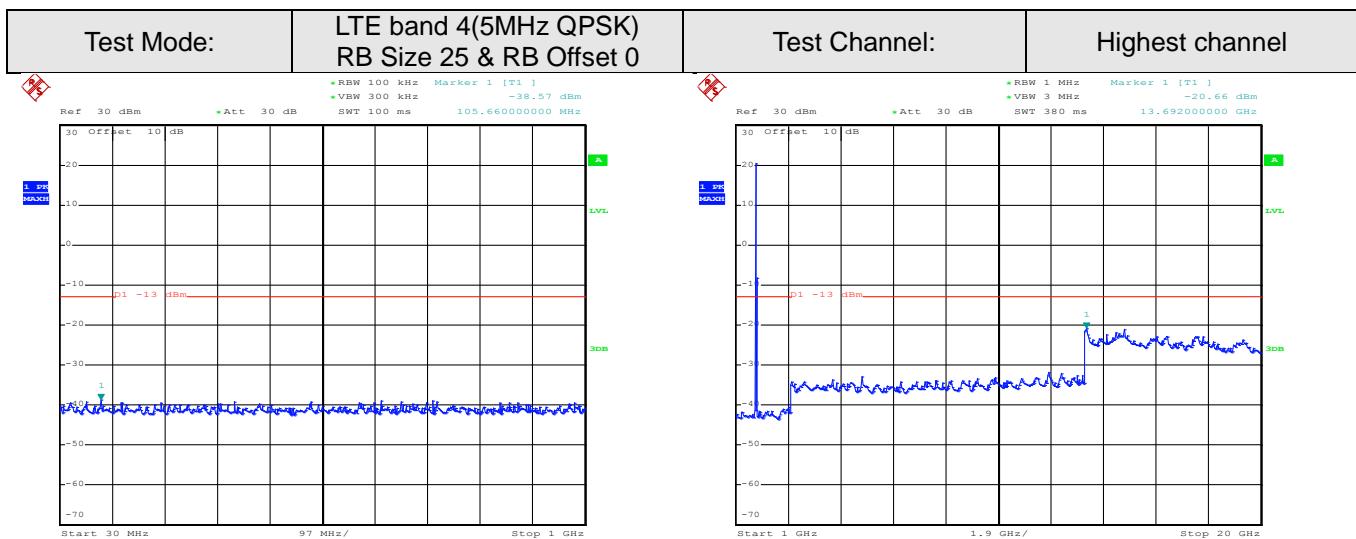


Date: 19.MAR.2017 19:37:32

30MHz~1GHz

Date: 19.MAR.2017 19:55:52

1GHz~25GHz



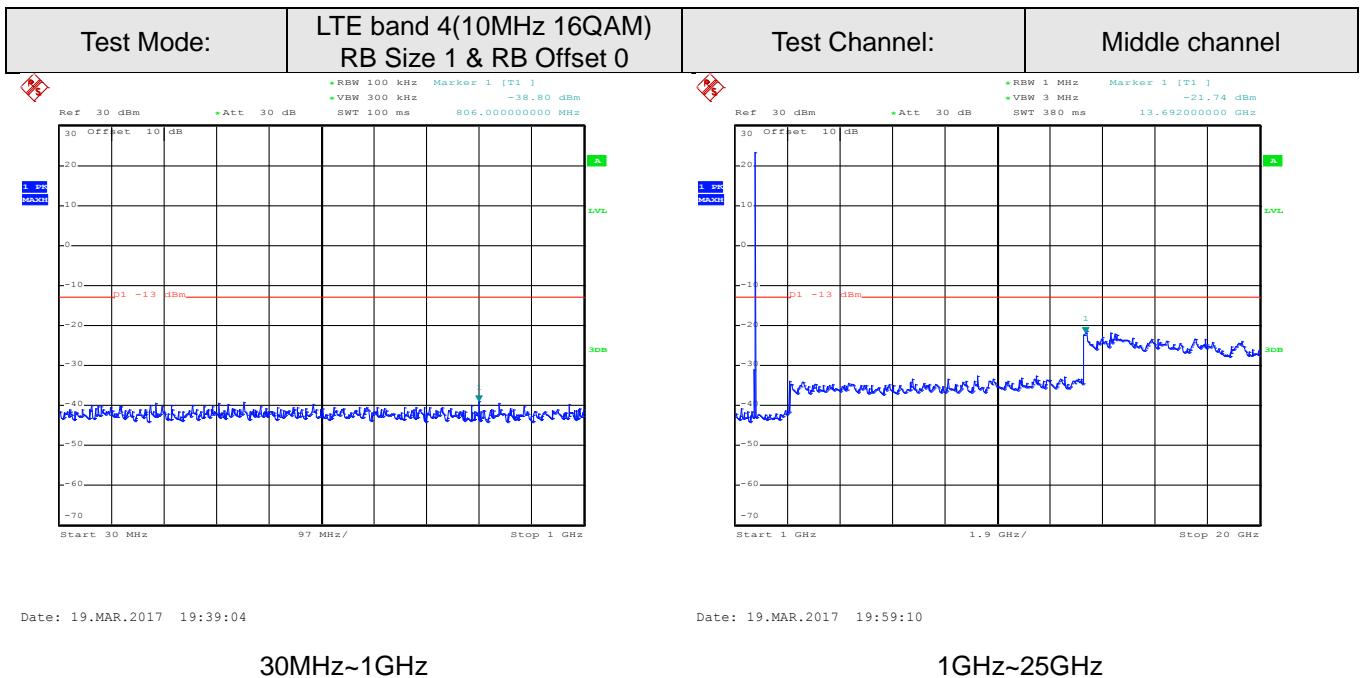
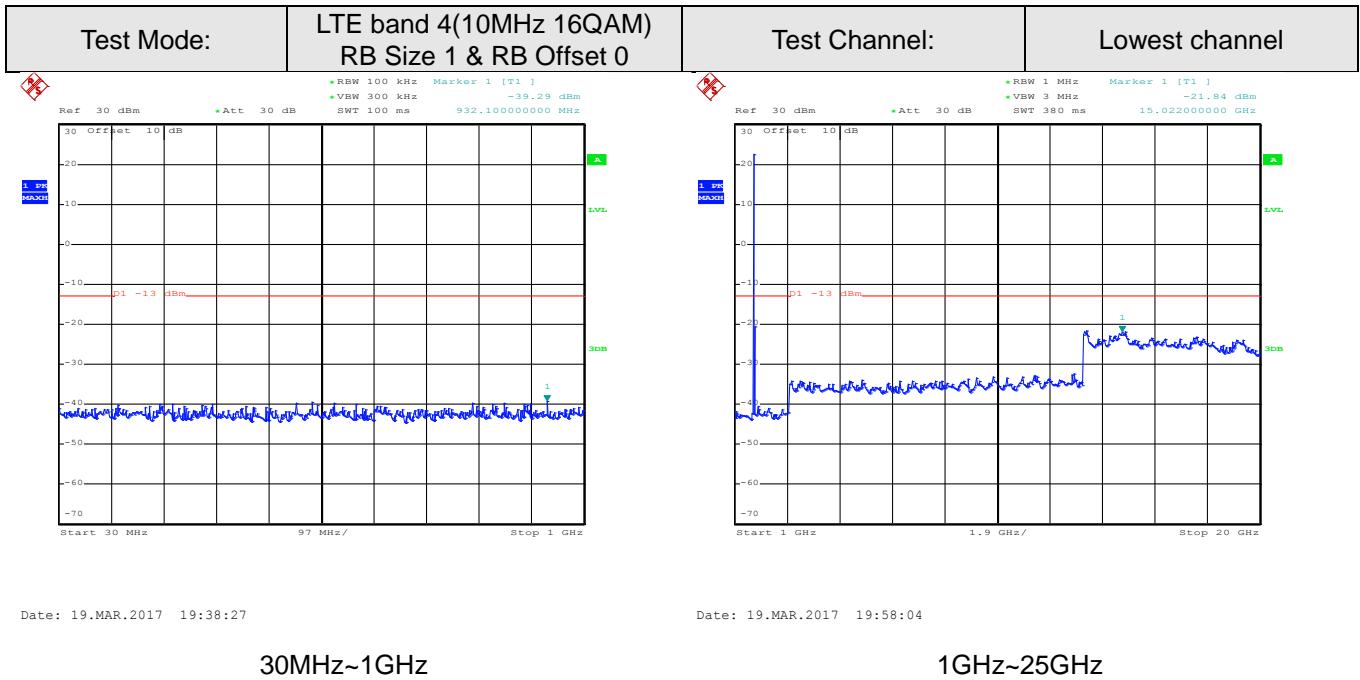
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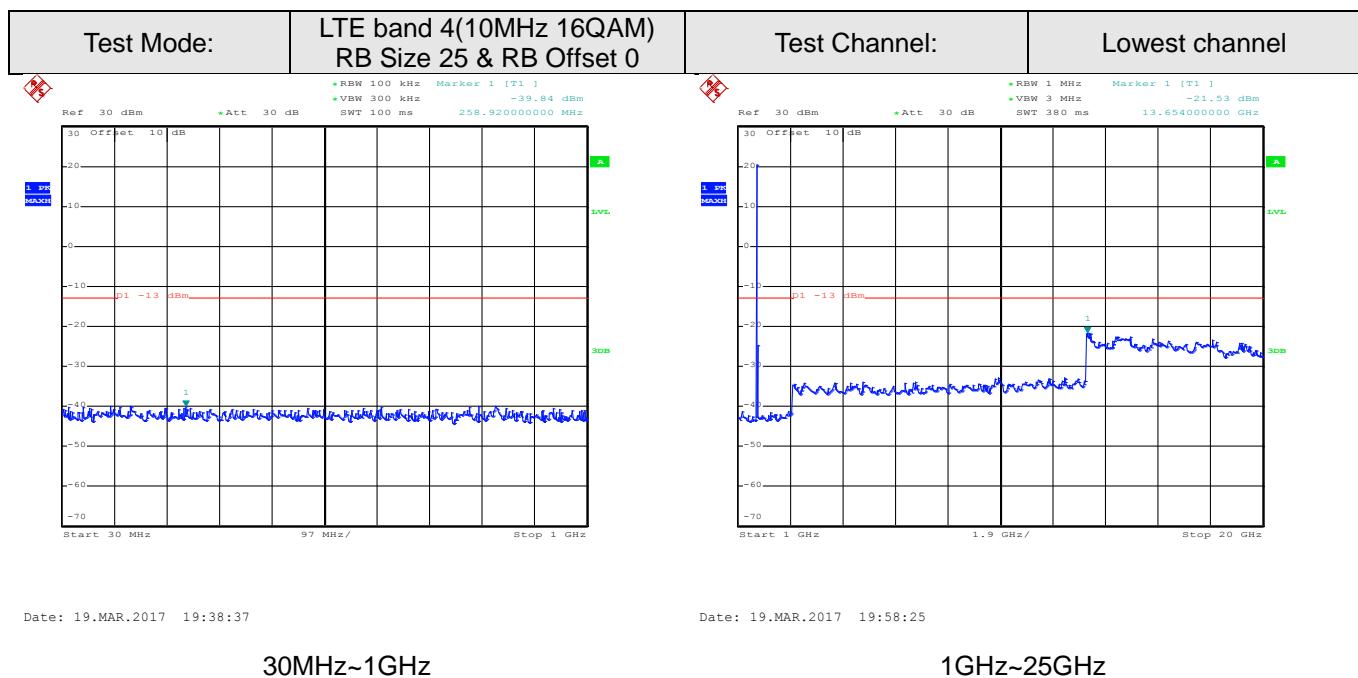
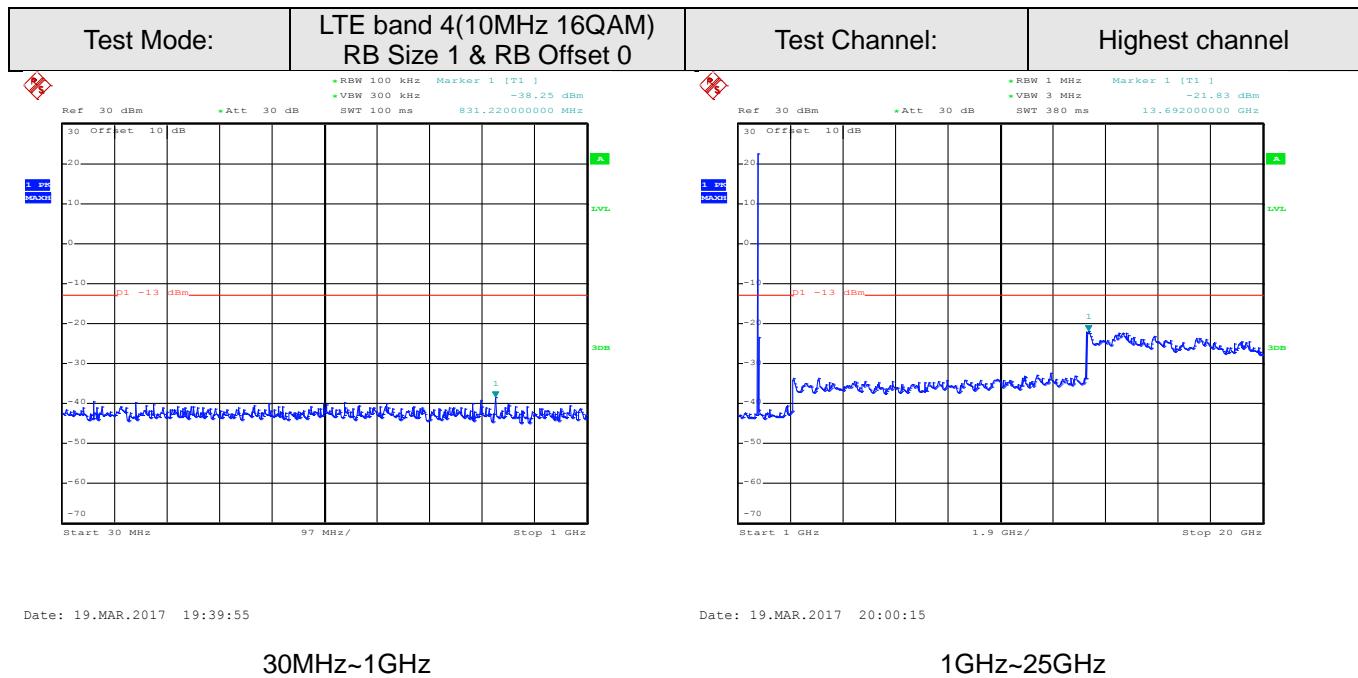
30MHz~1GHz

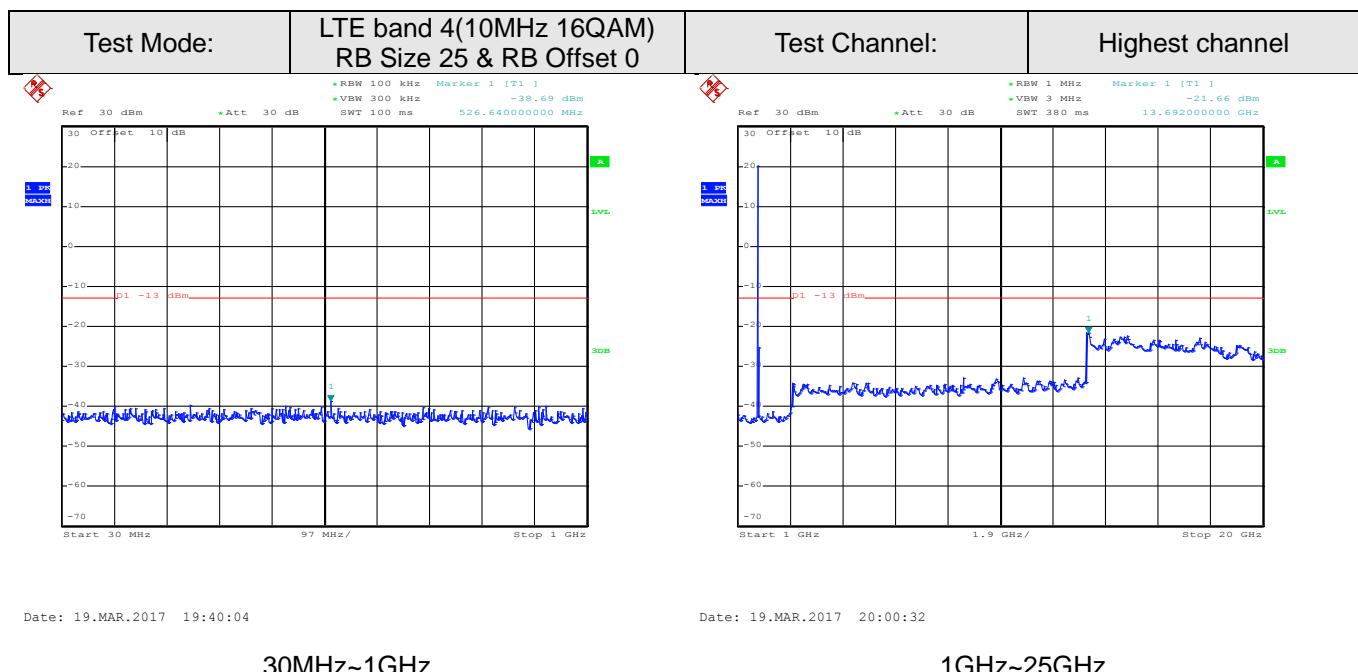
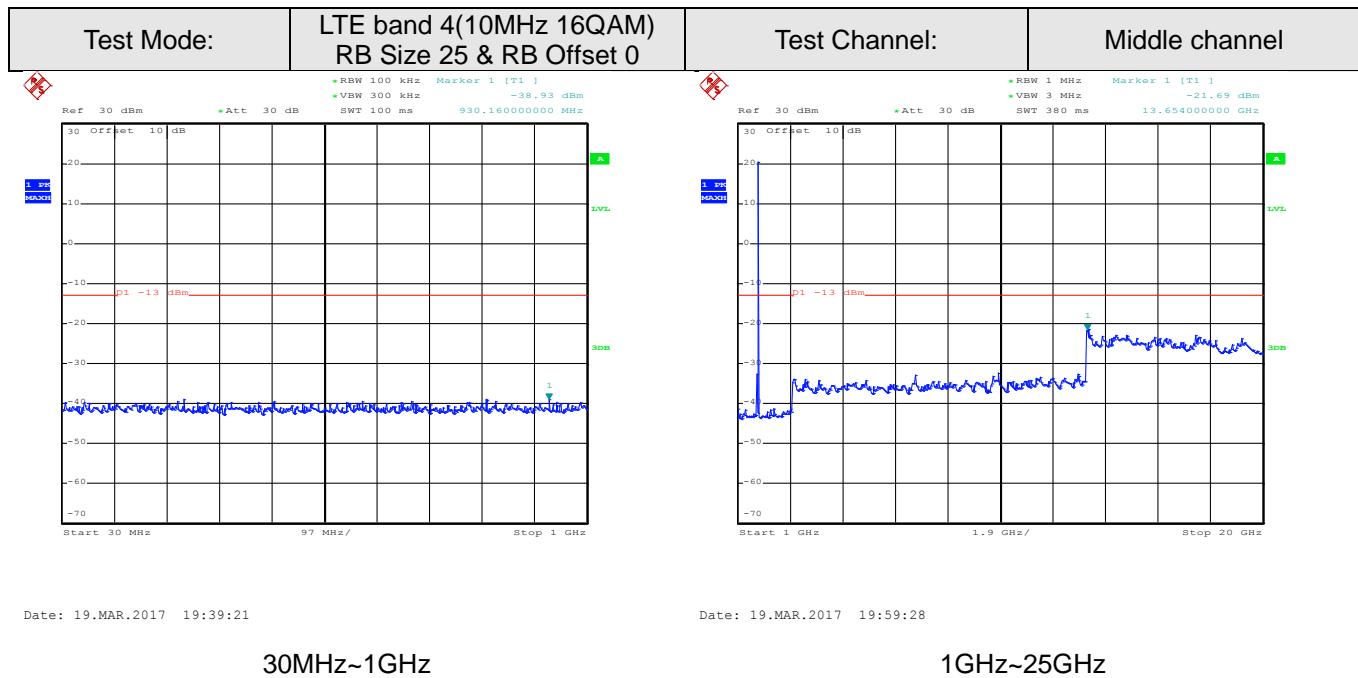
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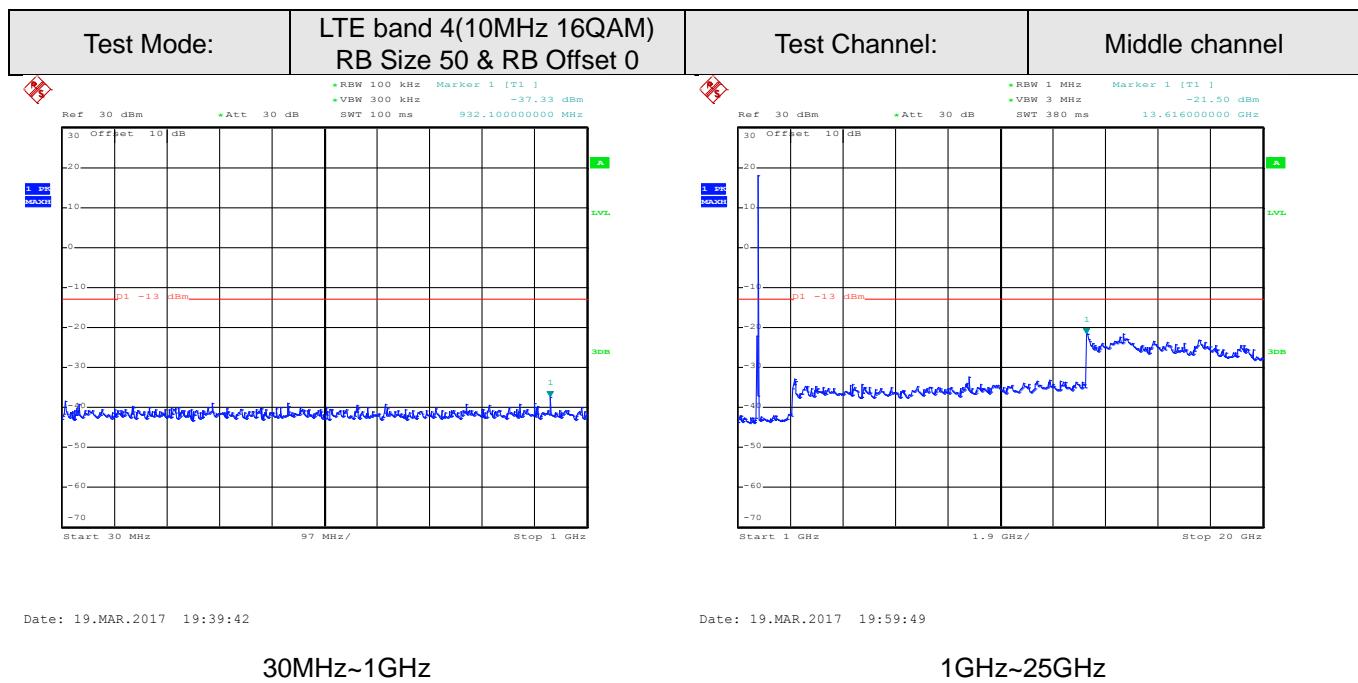
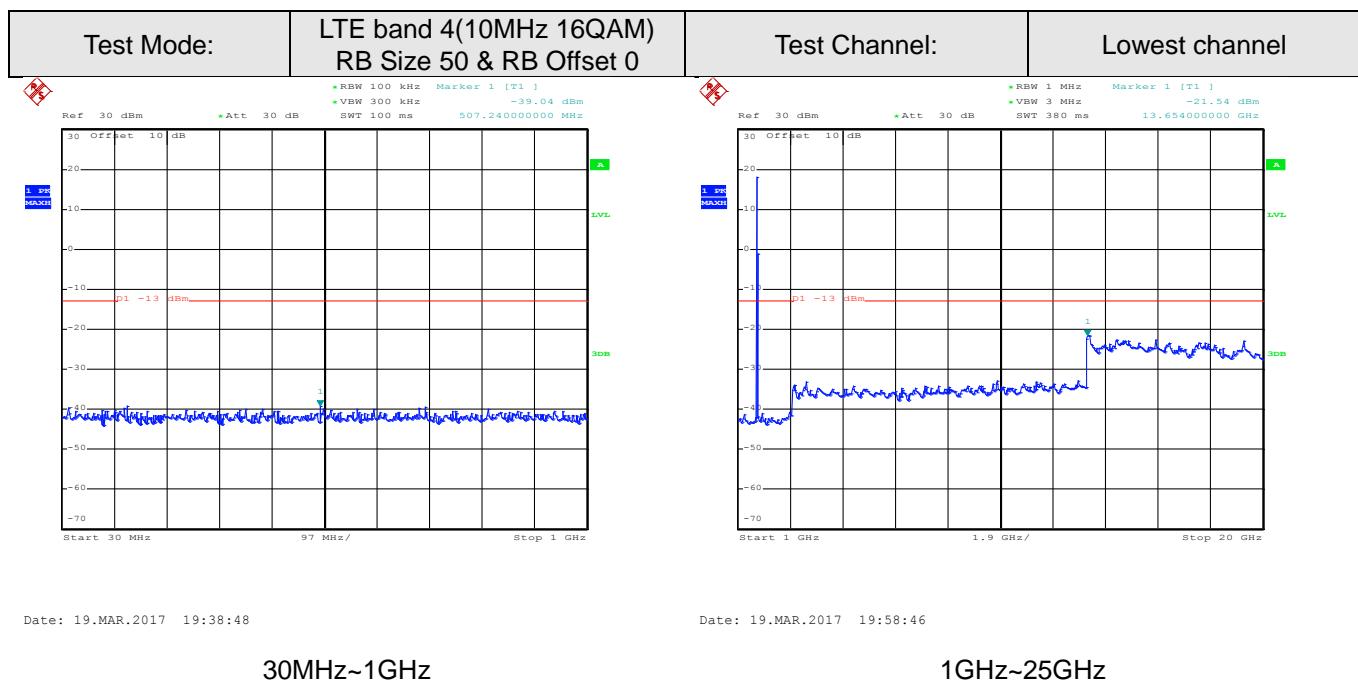
1GHz~25GHz

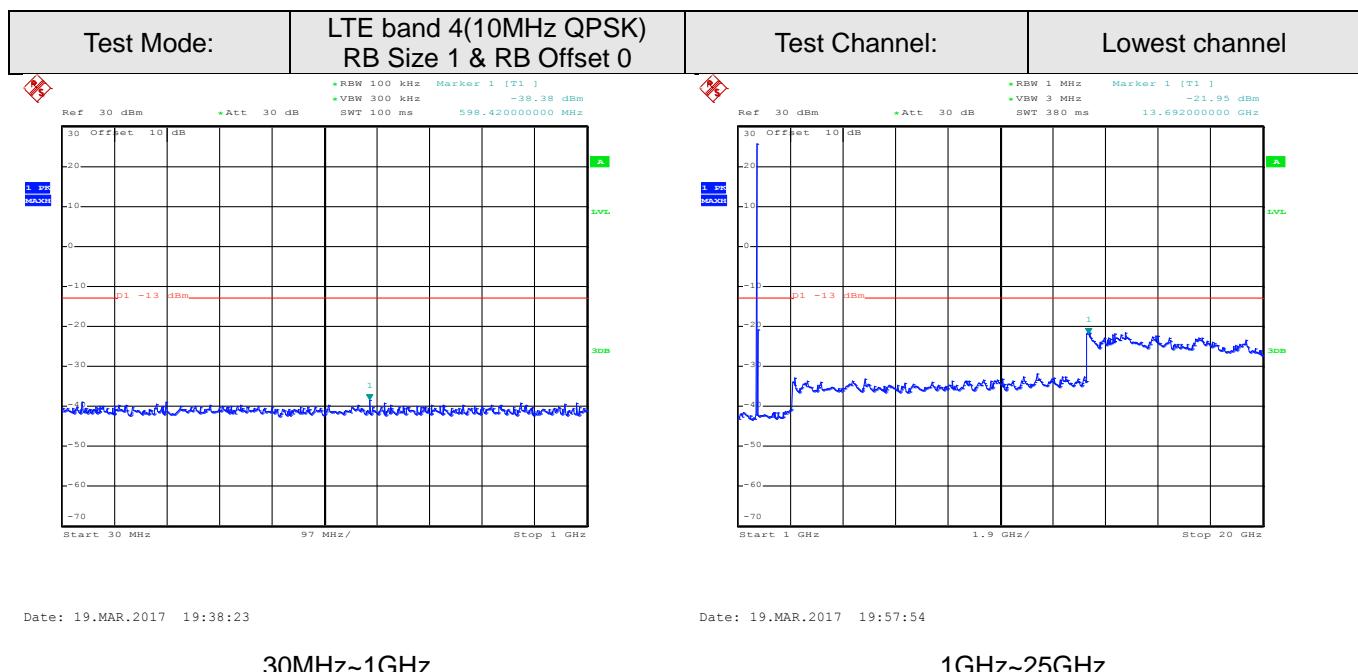
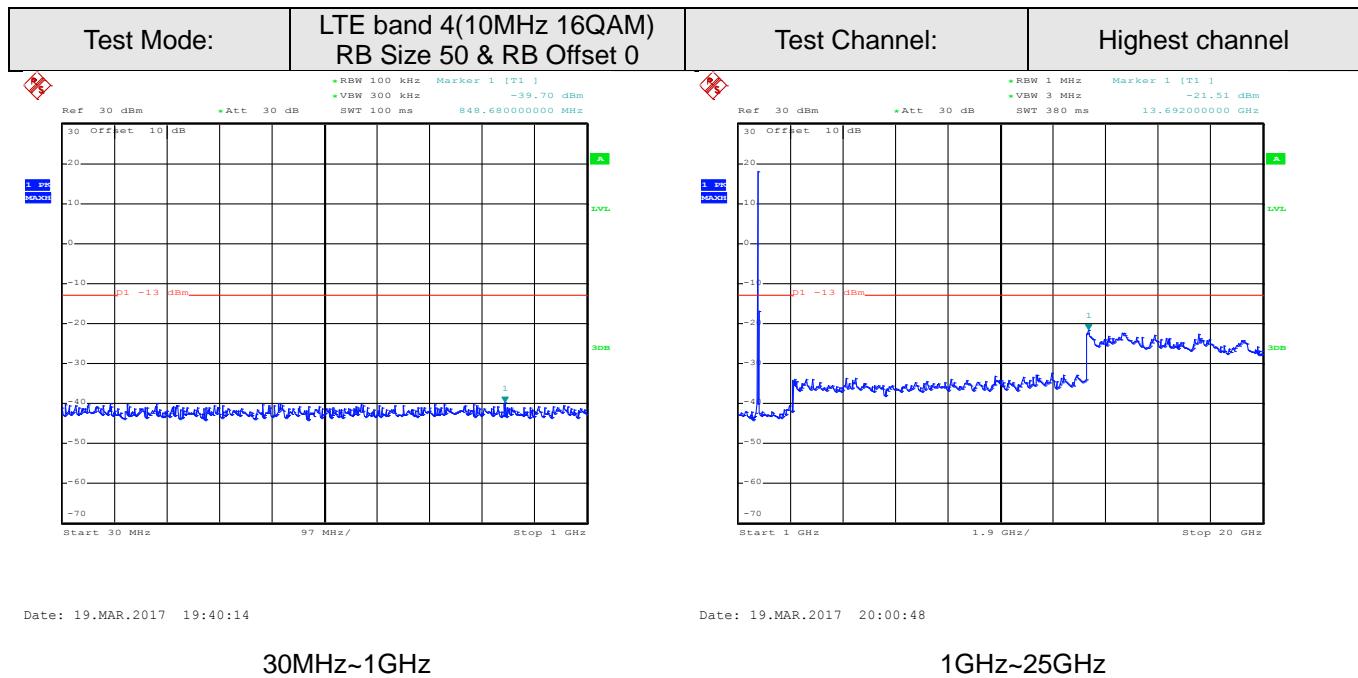
10MHz

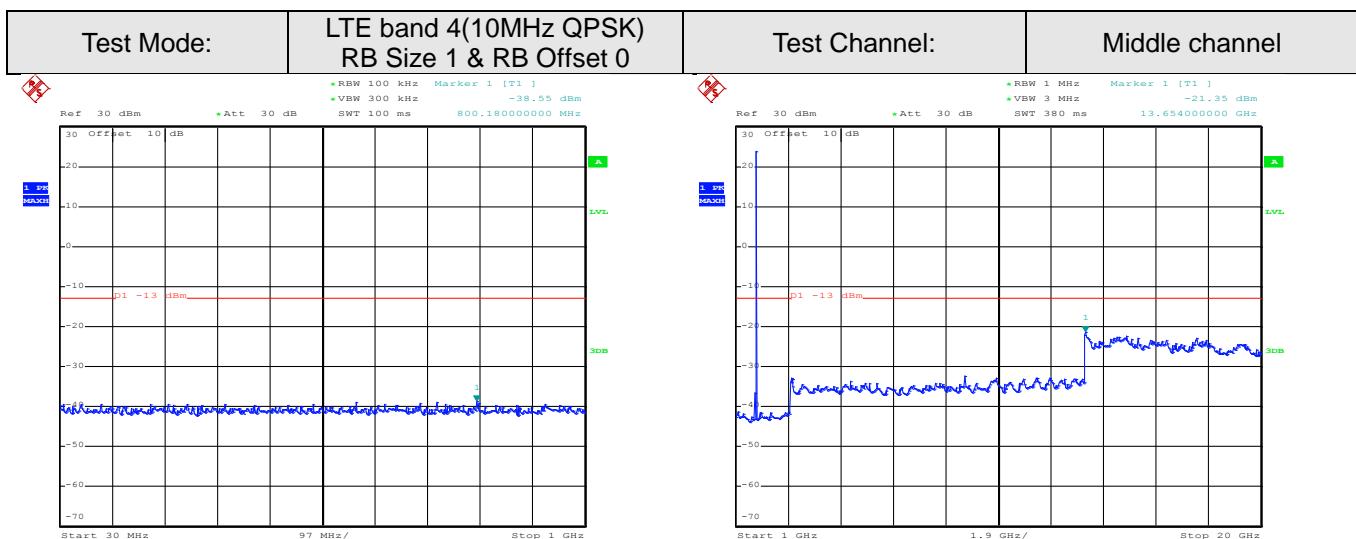










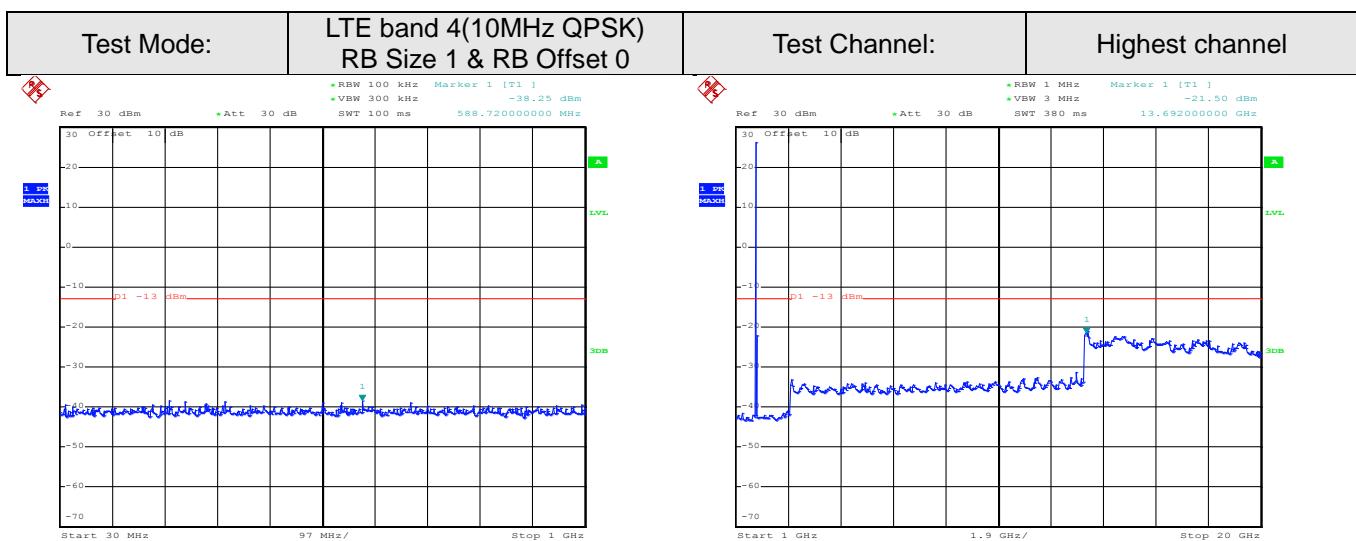


Date: 19.MAR.2017 19:39:00

30MHz~1GHz

Date: 19.MAR.2017 19:59:02

1GHz~25GHz

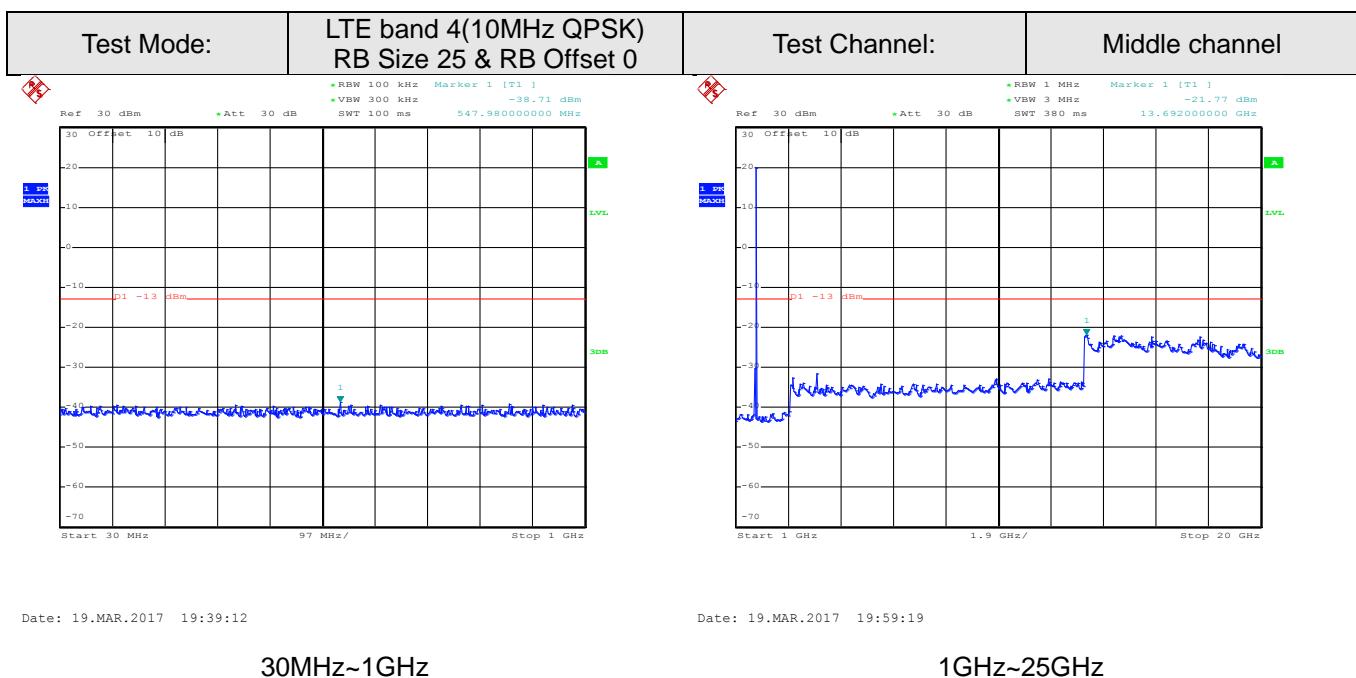
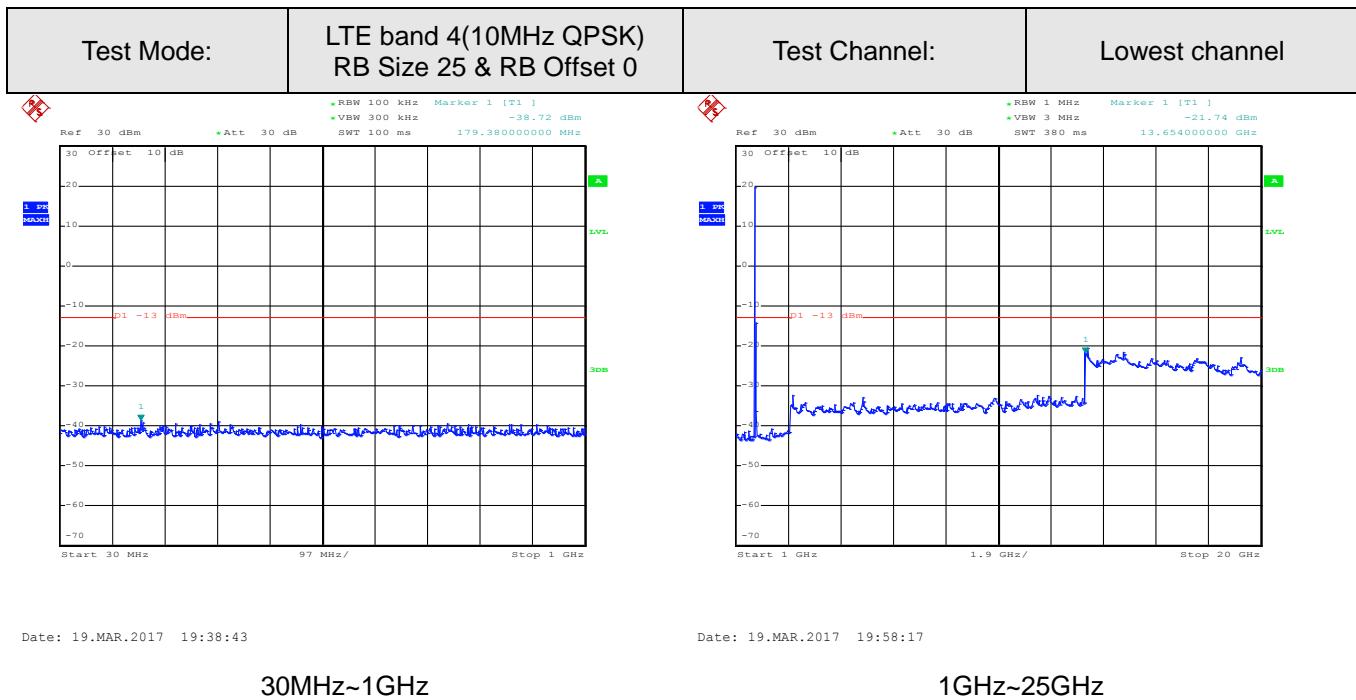


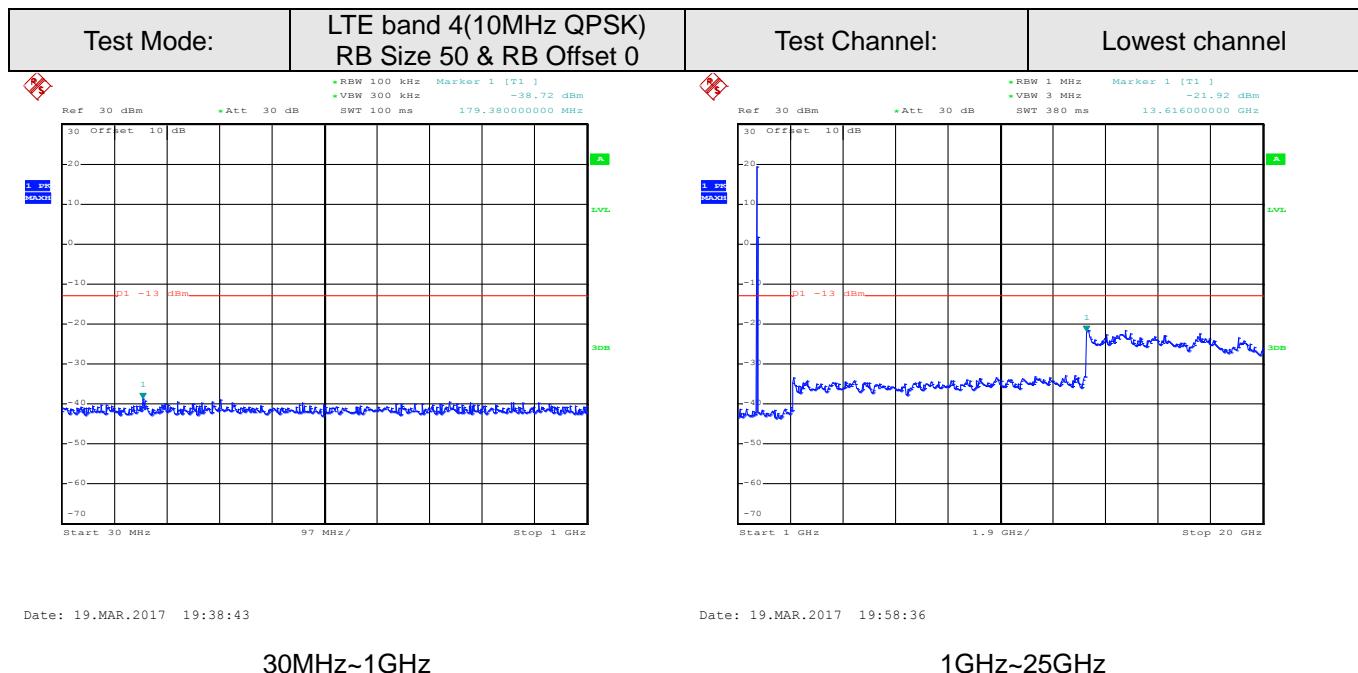
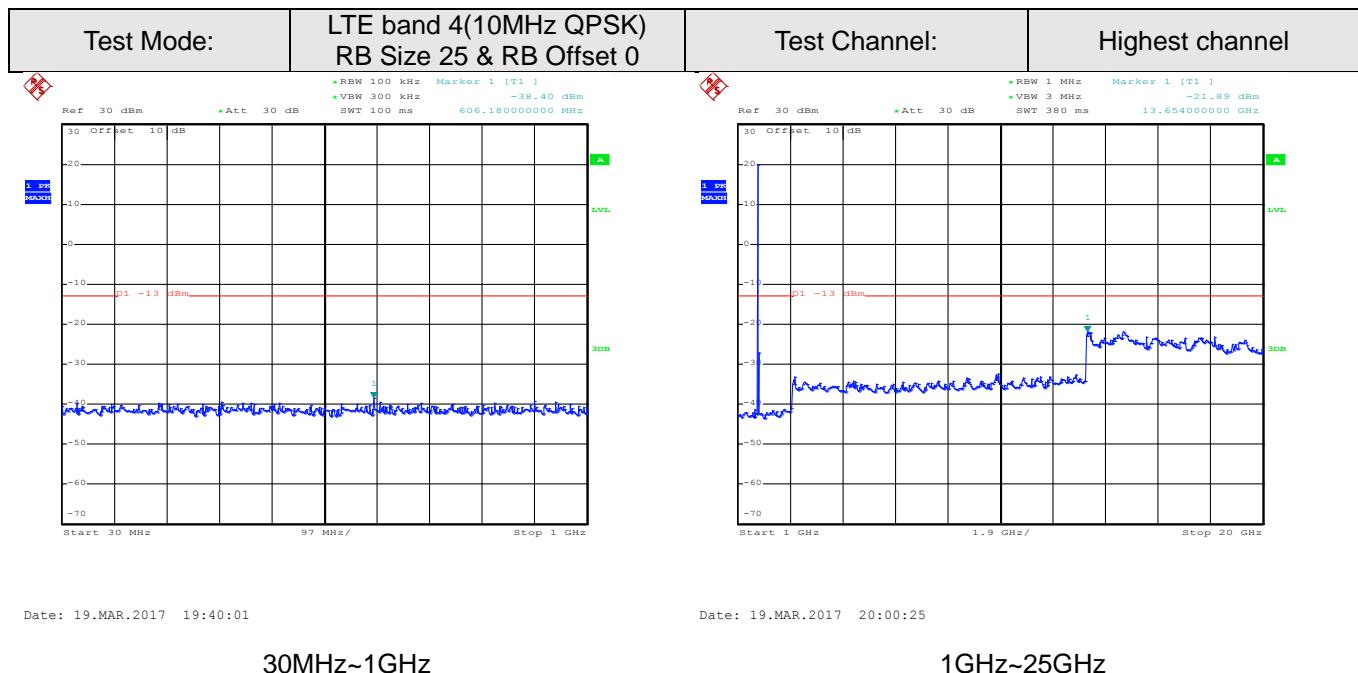
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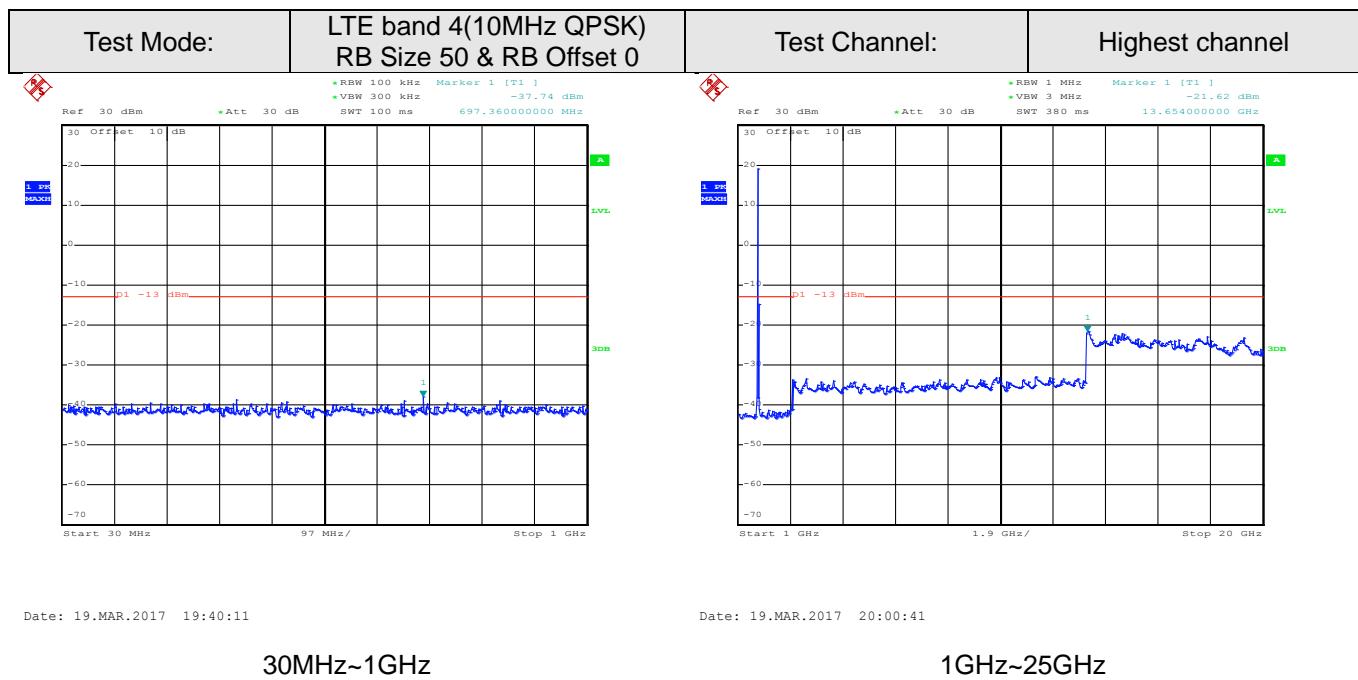
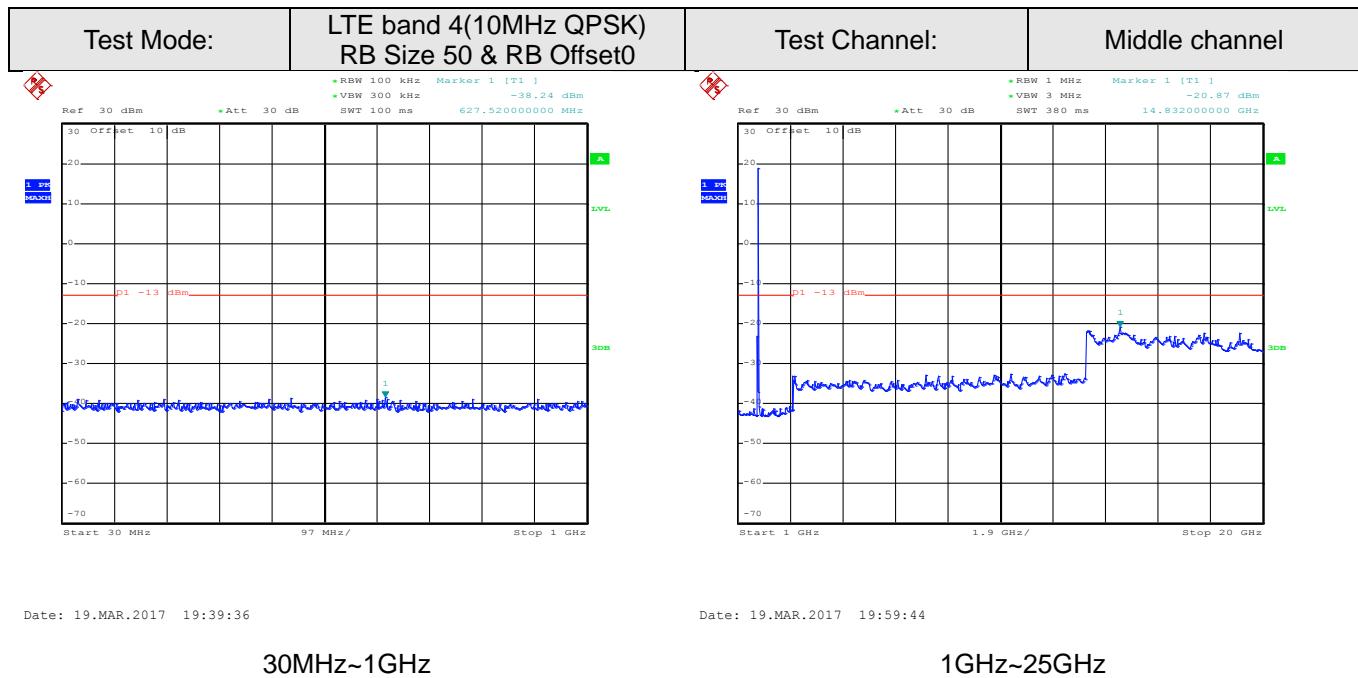
30MHz~1GHz

Date: 19.MAR.2017 20:00:07

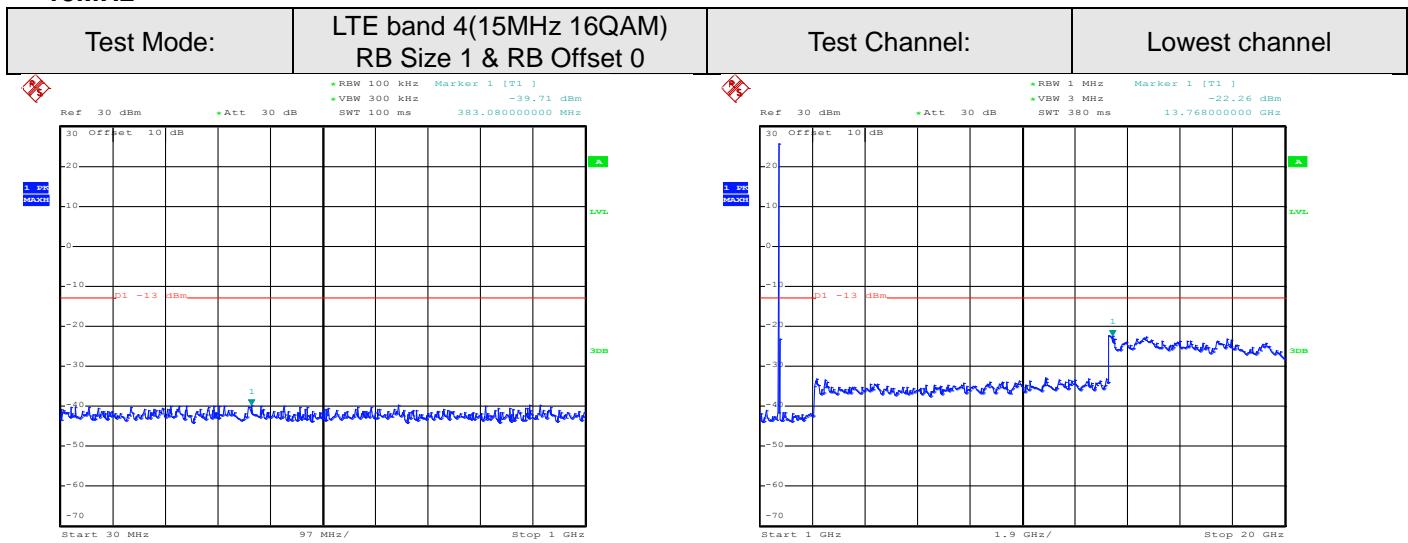
1GHz~25GHz







15MHz

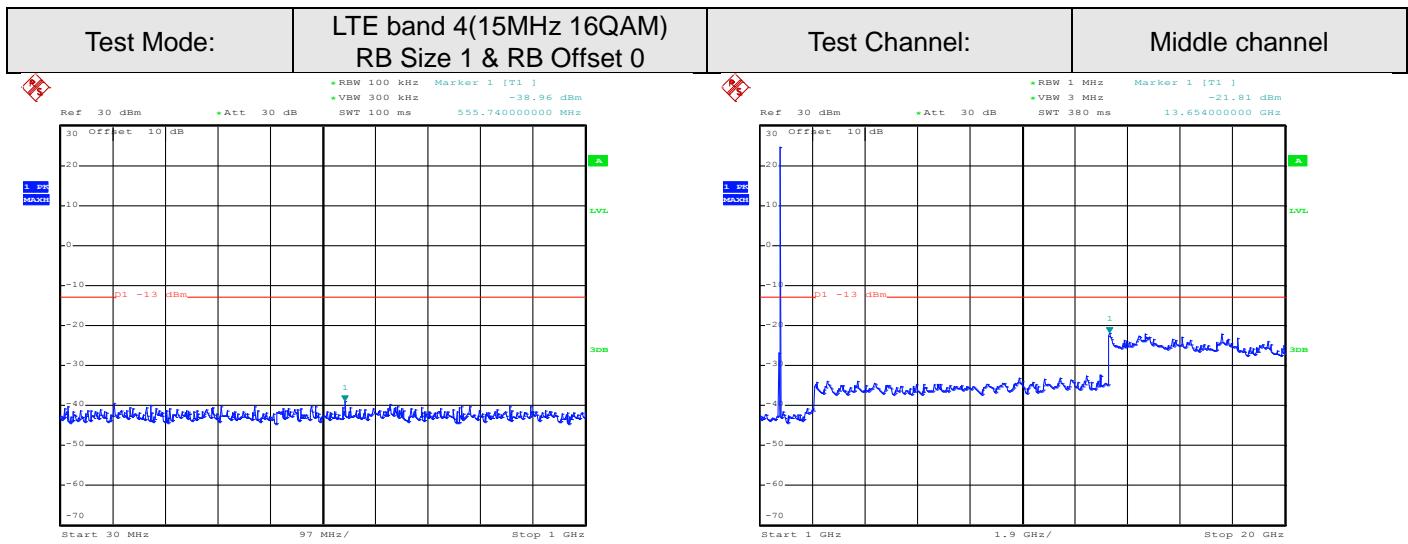


Date: 19.MAR.2017 19:40:27

Date: 19.MAR.2017 20:01:29

30MHz~1GHz

1GHz~25GHz

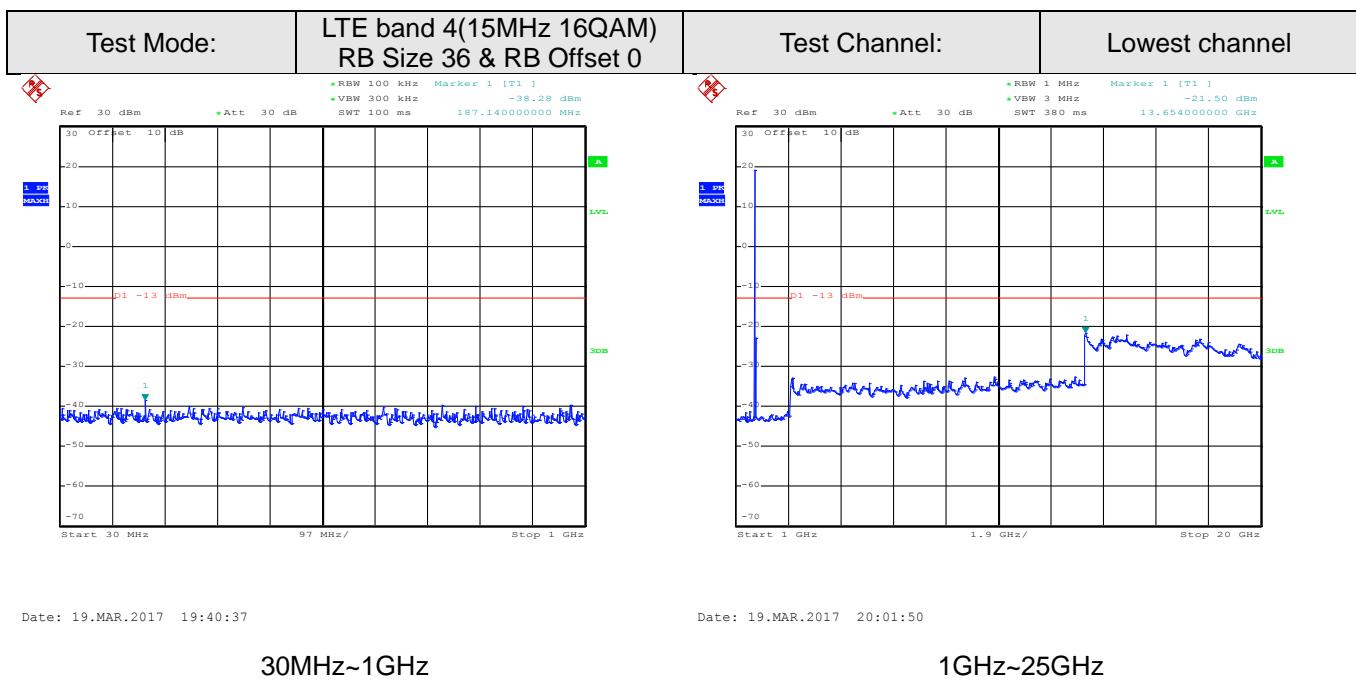
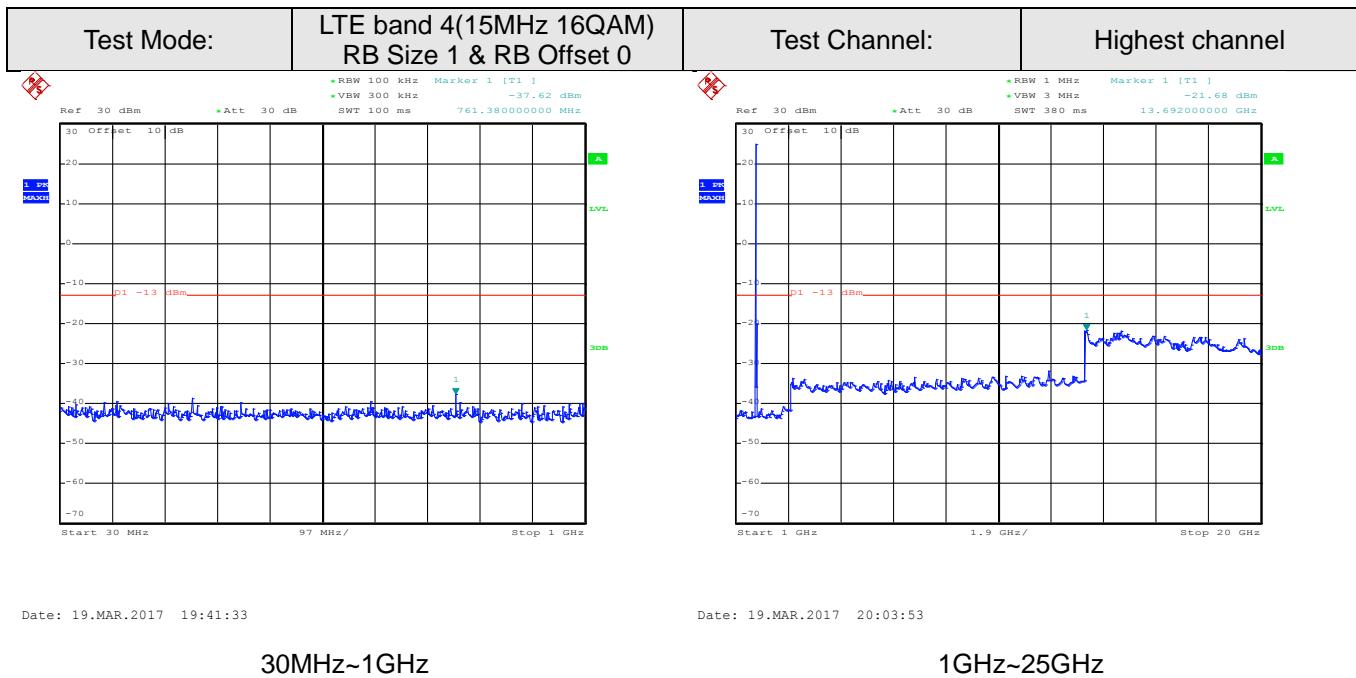


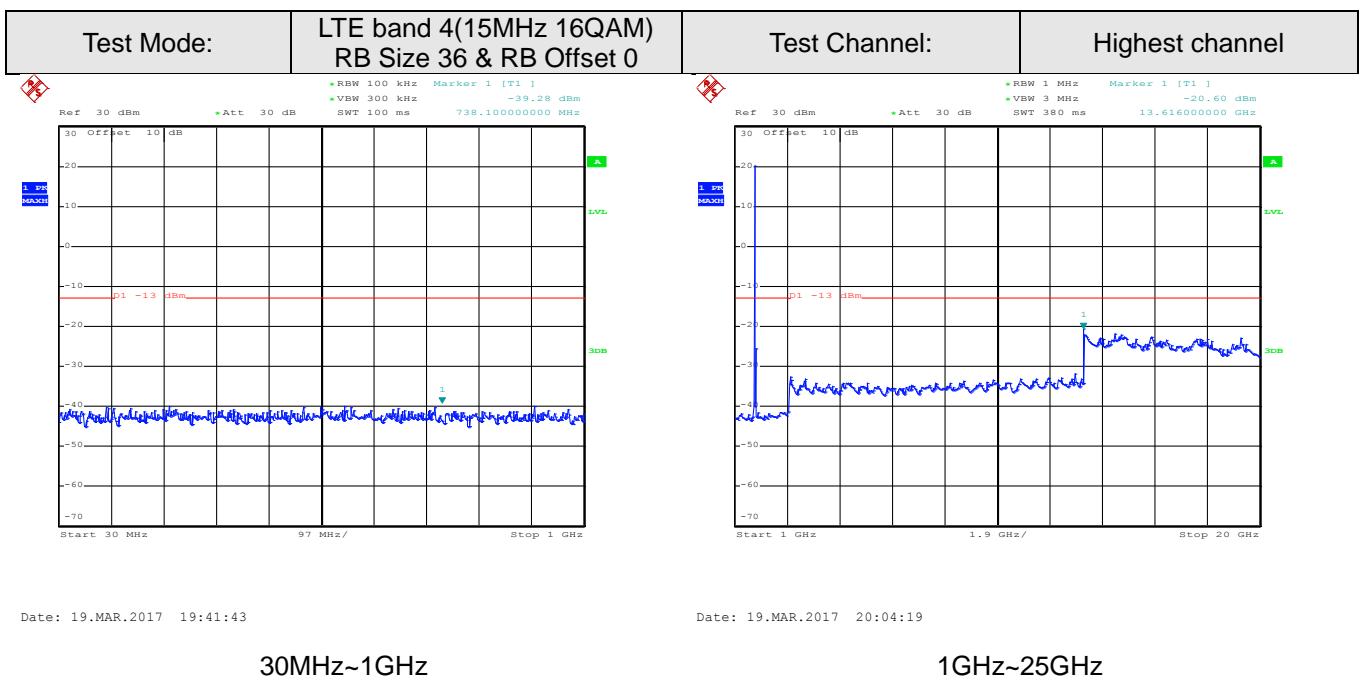
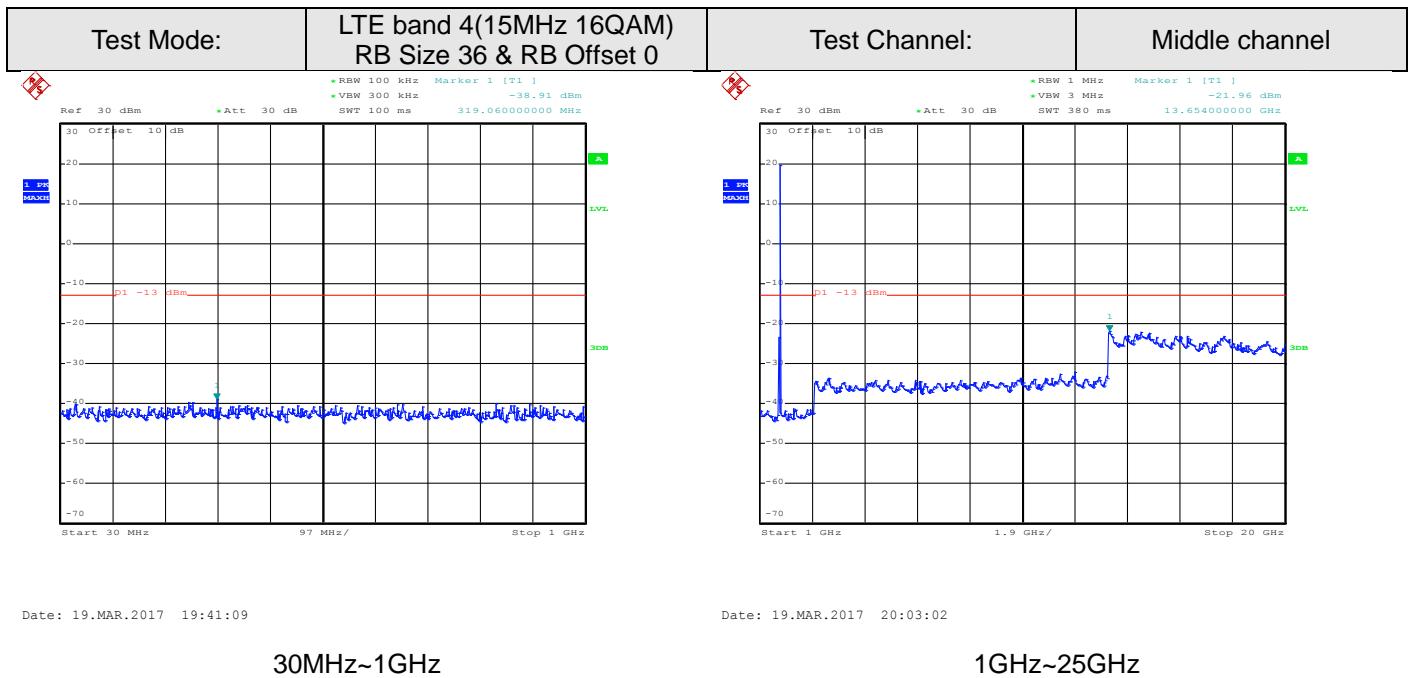
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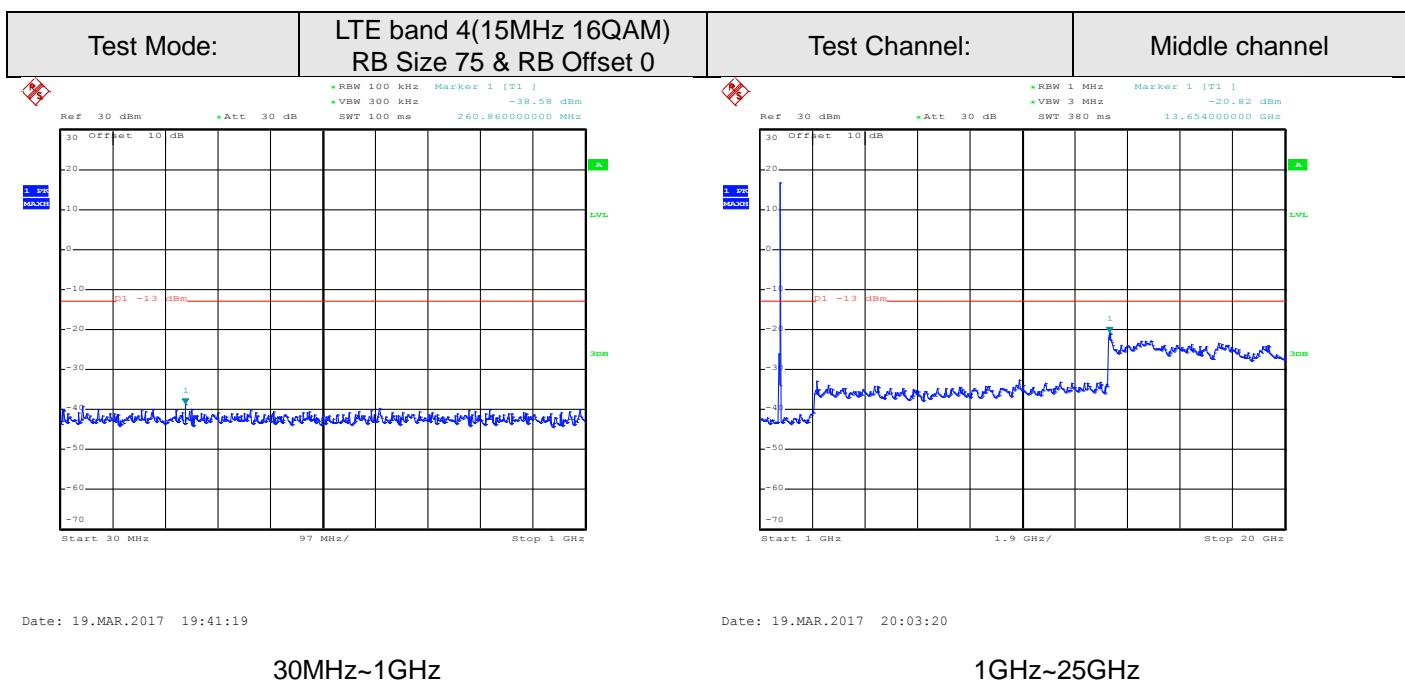
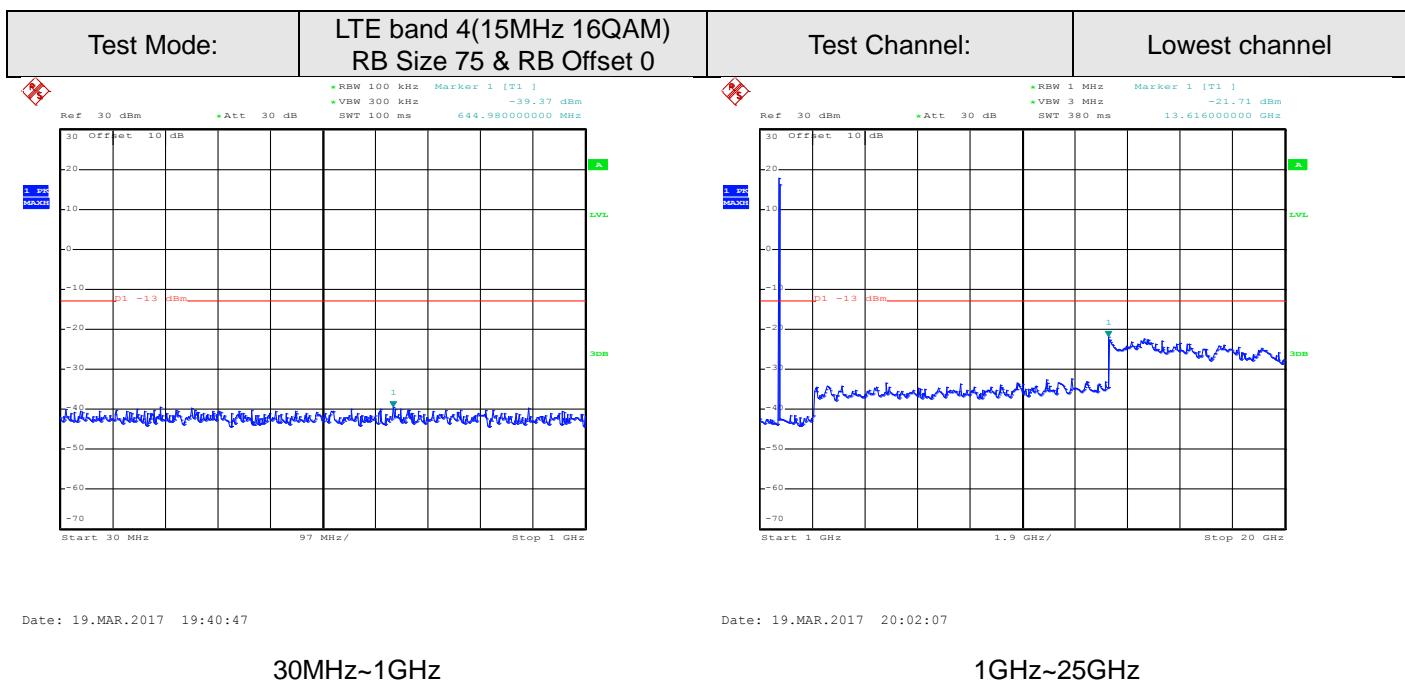
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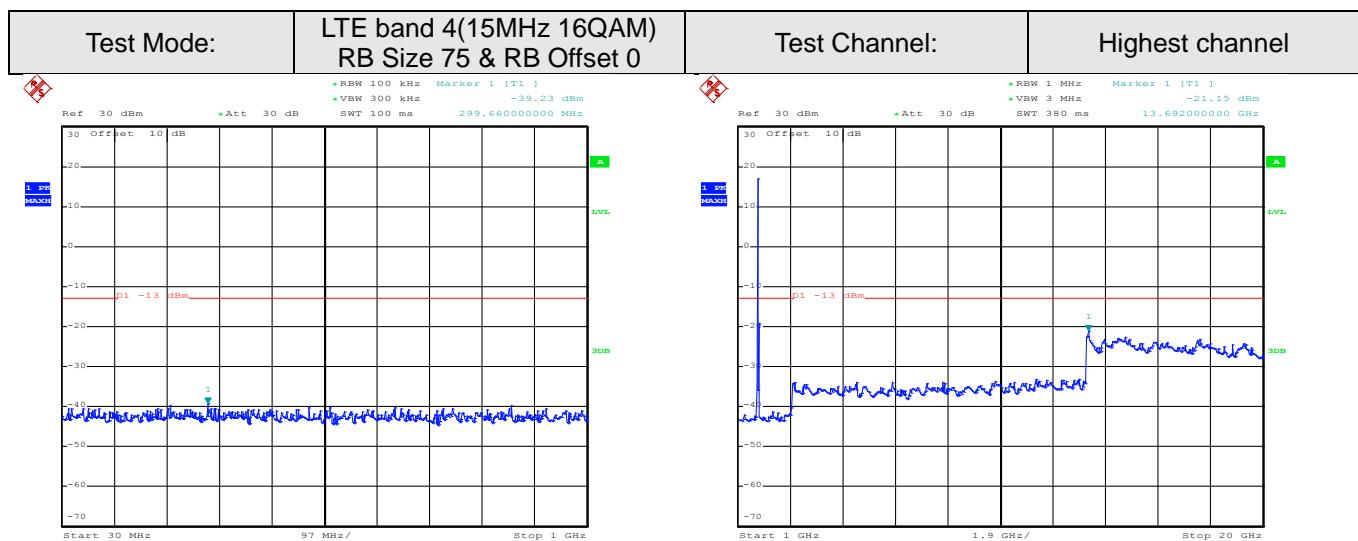
30MHz~1GHz

1GHz~25GHz







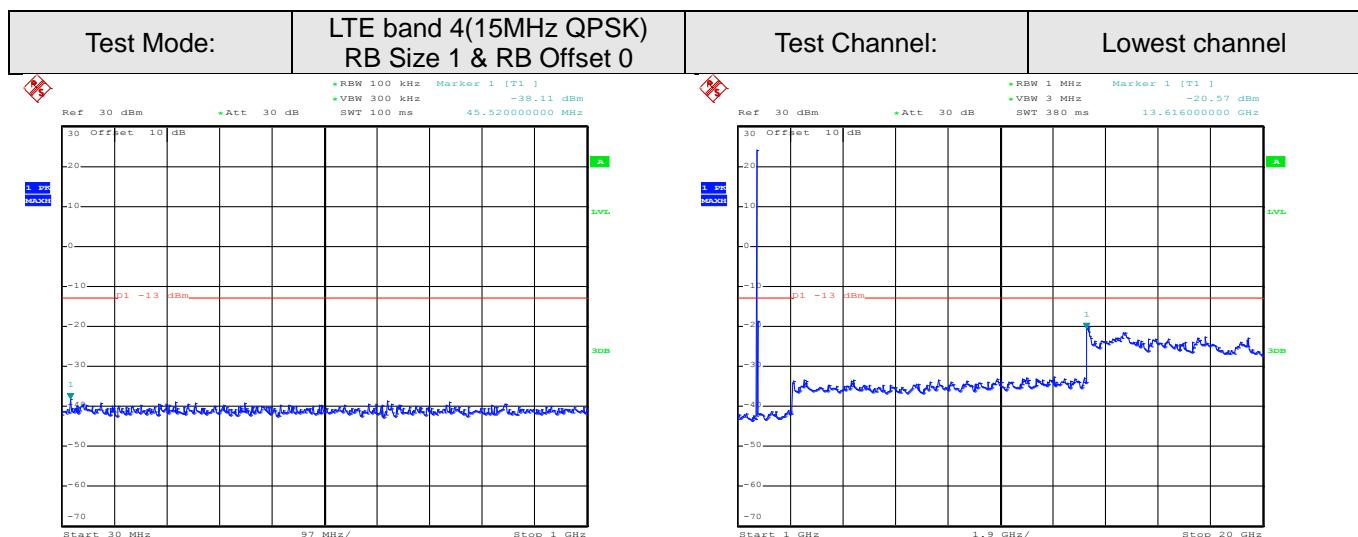


Date: 19.MAR.2017 19:41:51

30MHz~1GHz

Date: 19.MAR.2017 20:04:36

1GHz~25GHz

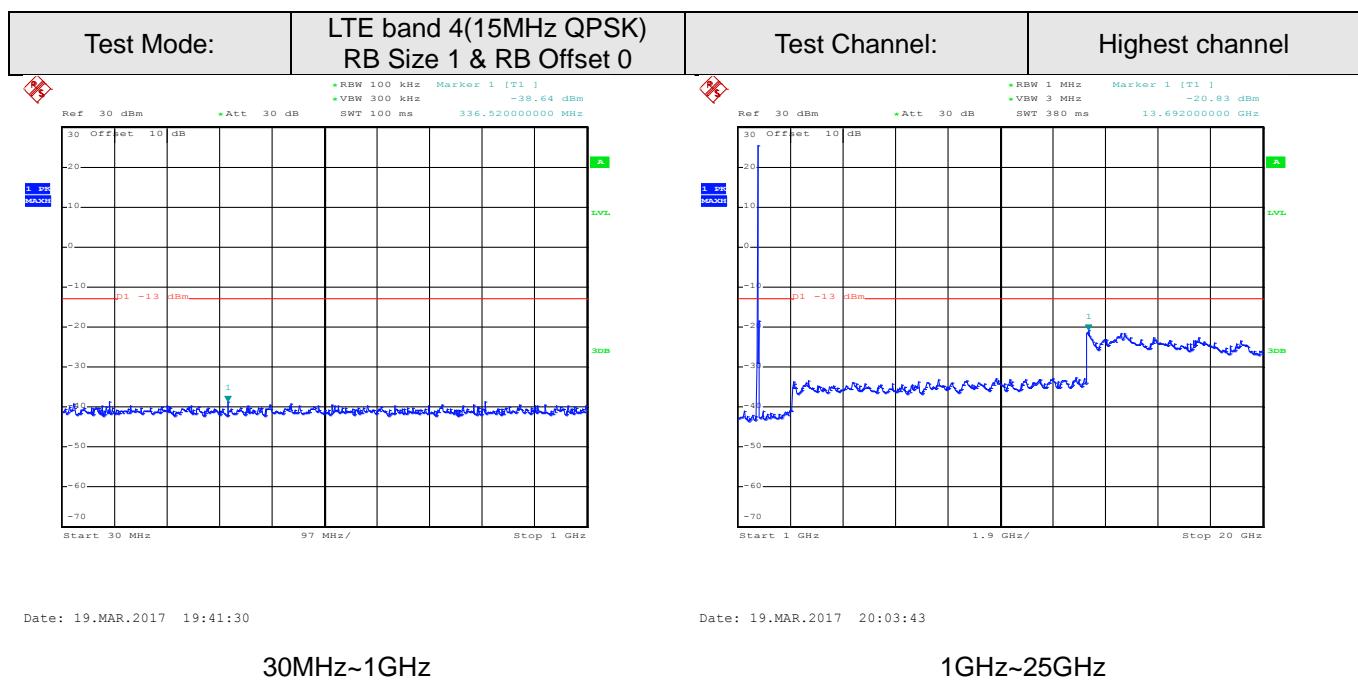
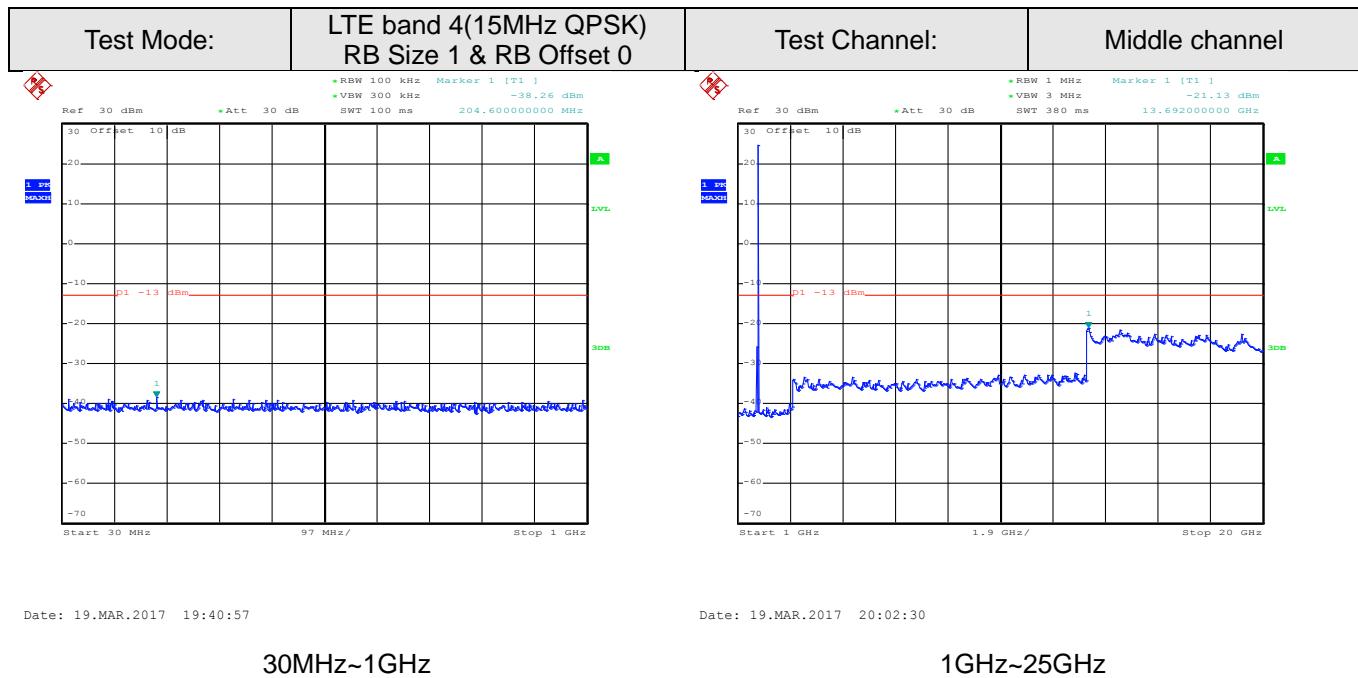


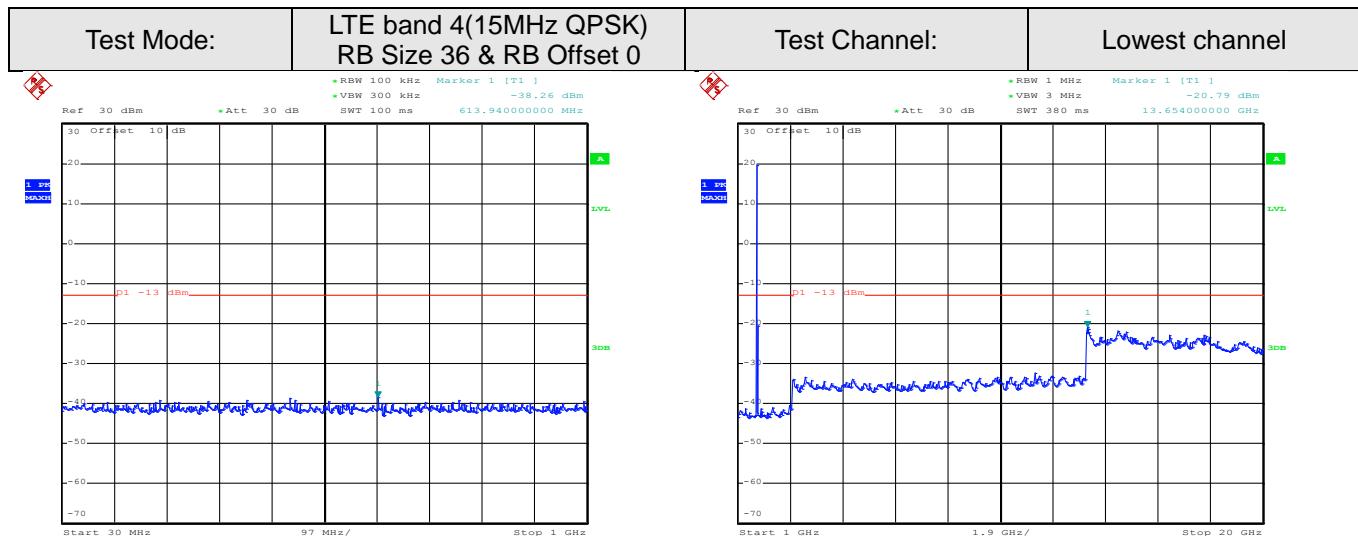
Date: 19.MAR.2017 19:40:23

30MHz~1GHz

Date: 19.MAR.2017 20:01:21

1GHz~25GHz



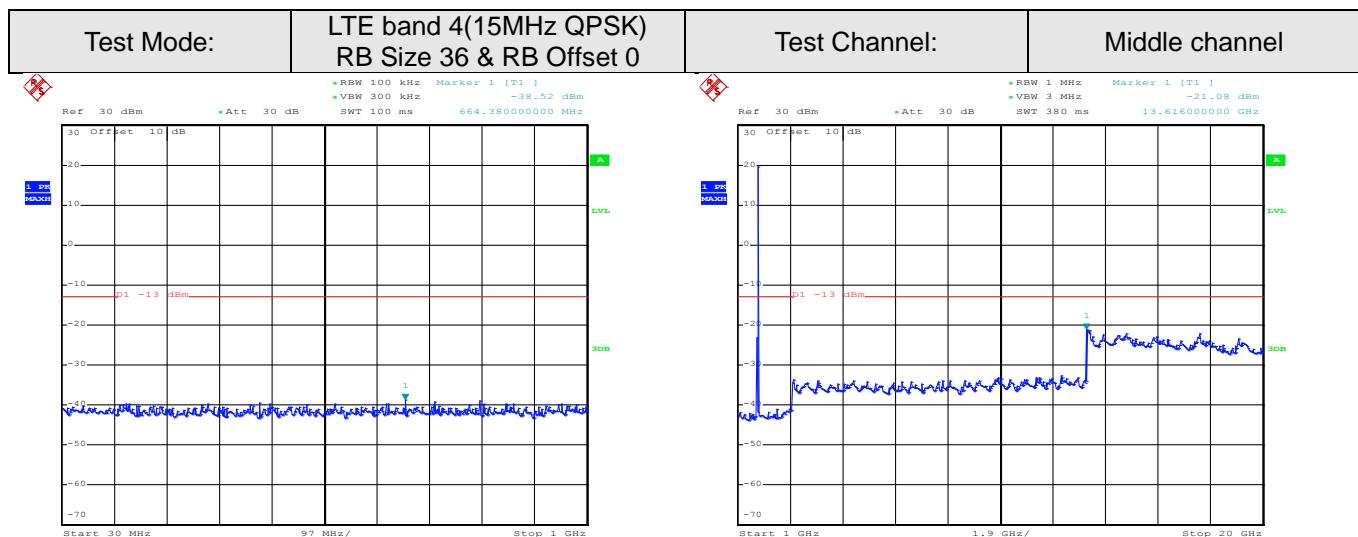


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30MHz~1GHz

Date: 19.MAR.2017 20:01:42

1GHz~25GHz

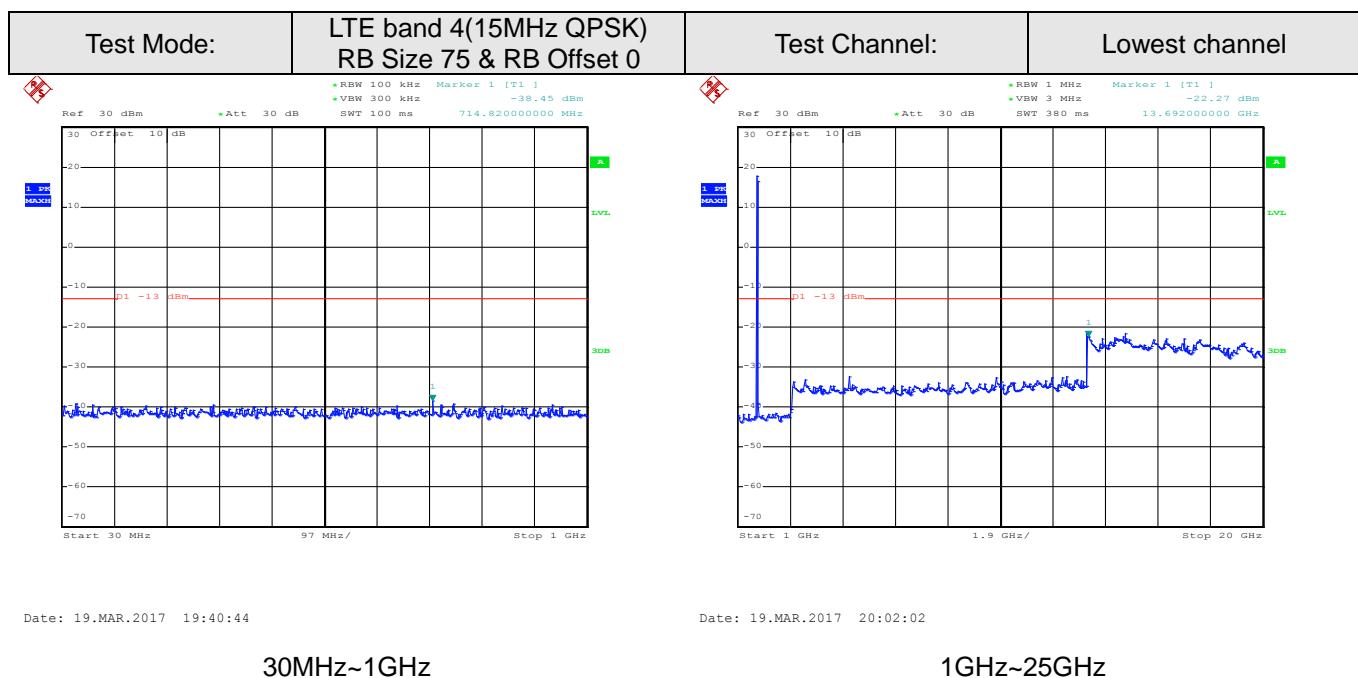
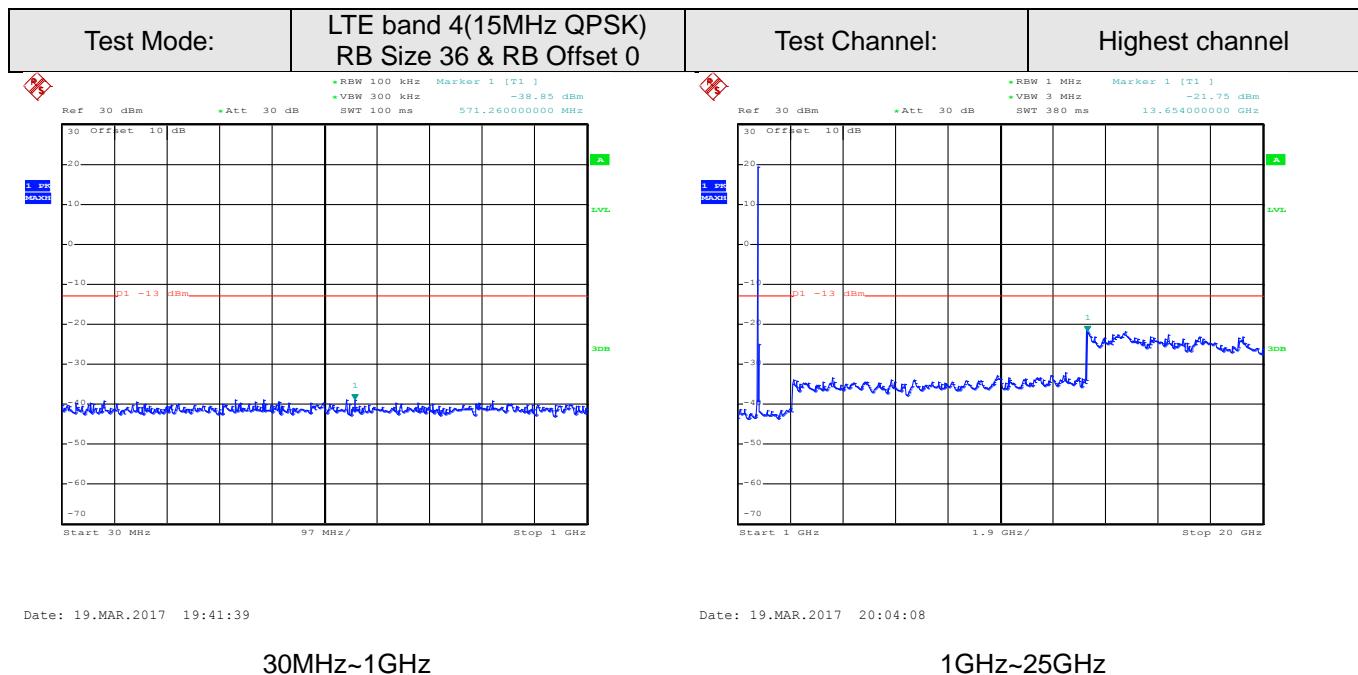


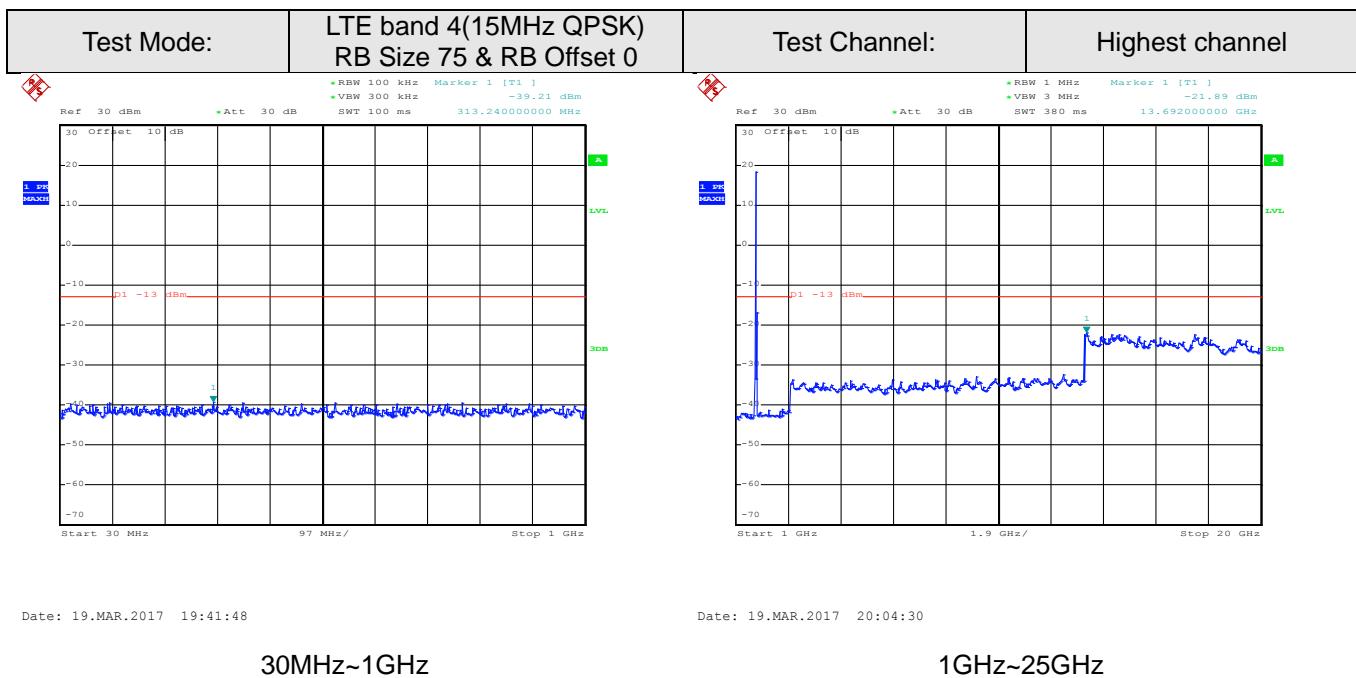
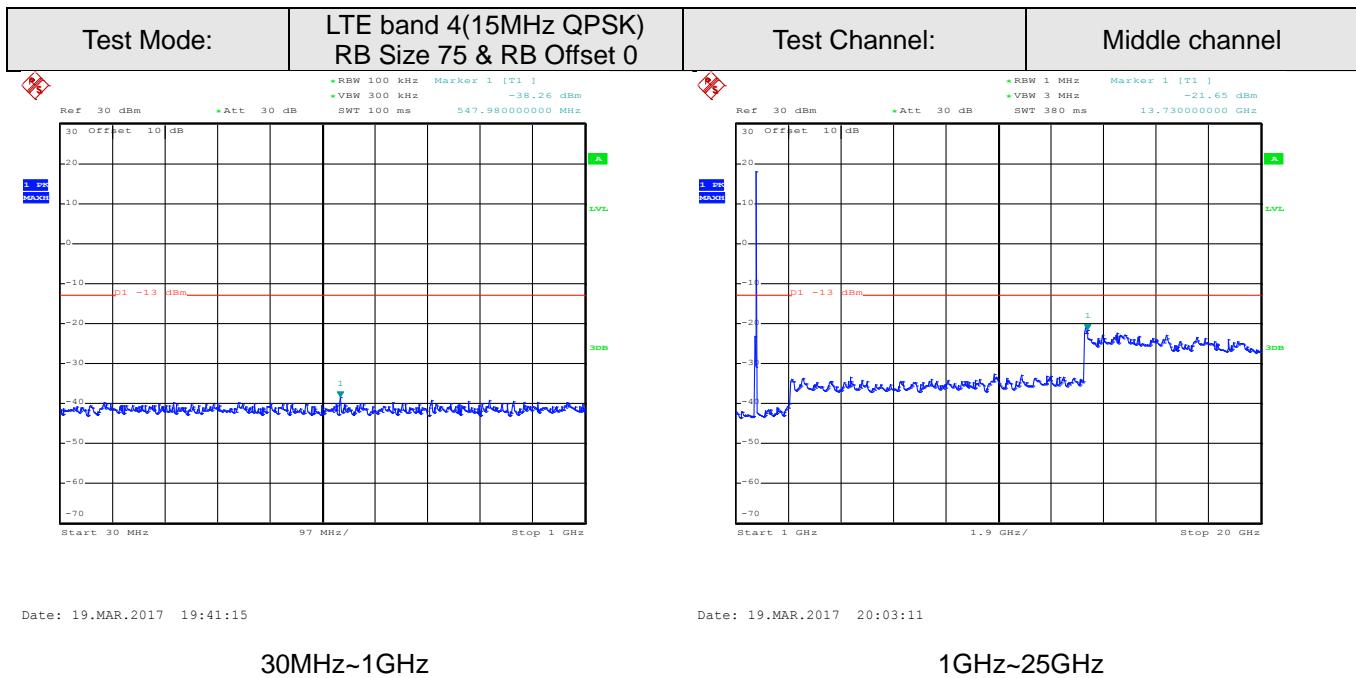
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30MHz~1GHz

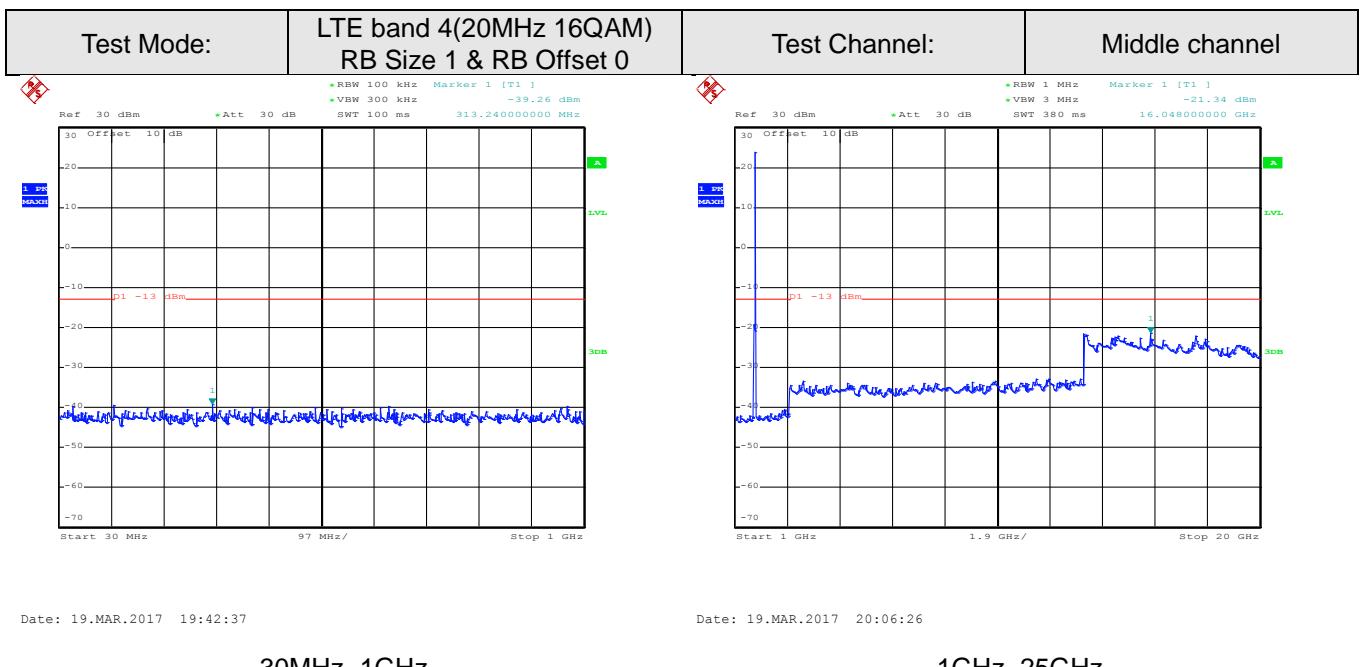
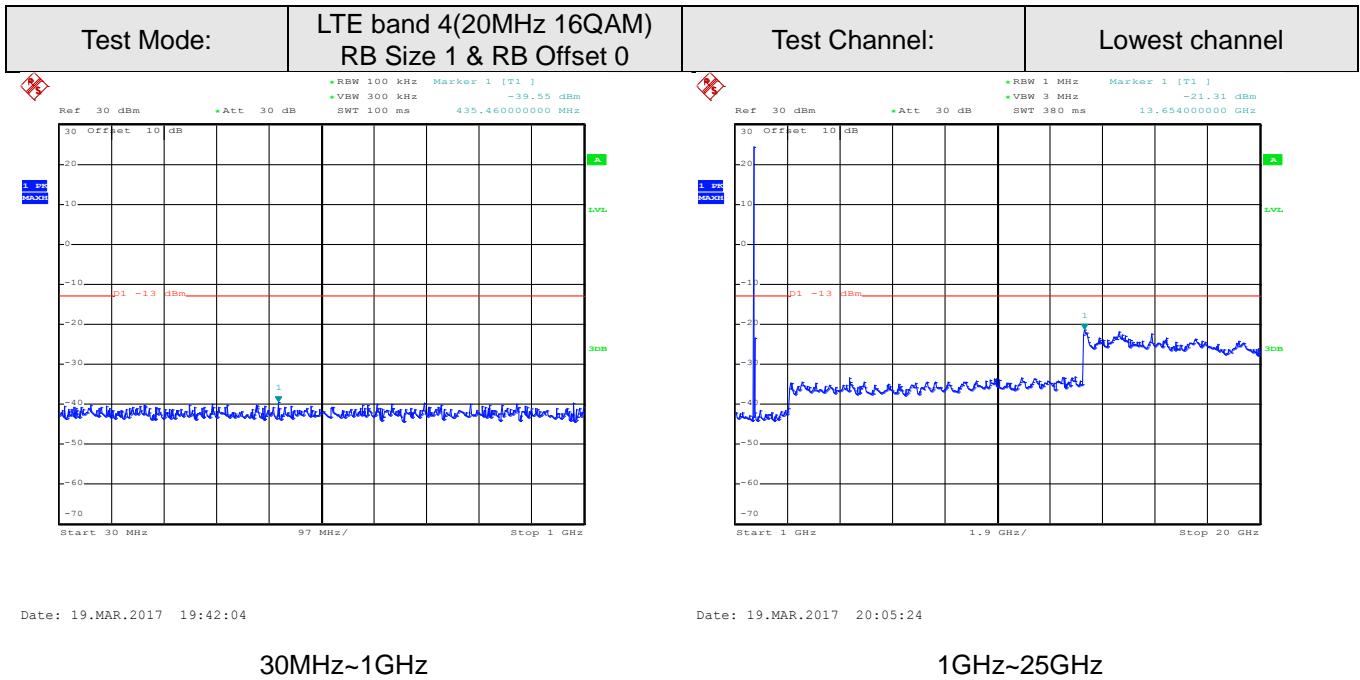
Date: 19.MAR.2017 20:02:53

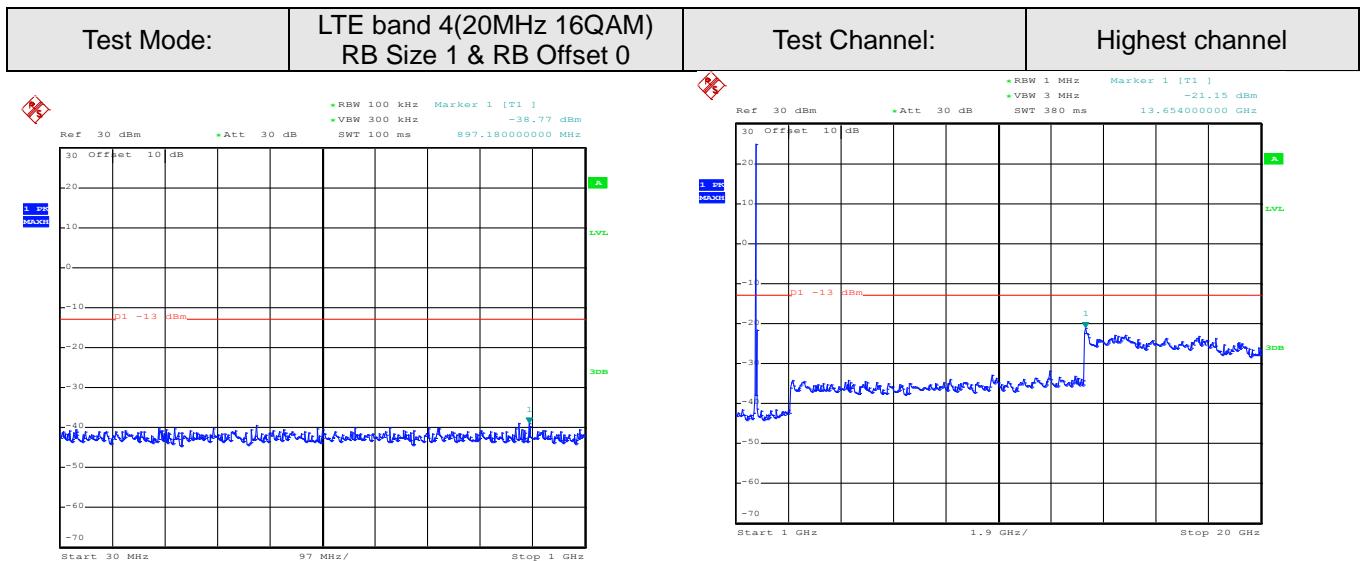
1GHz~25GHz





20MHz



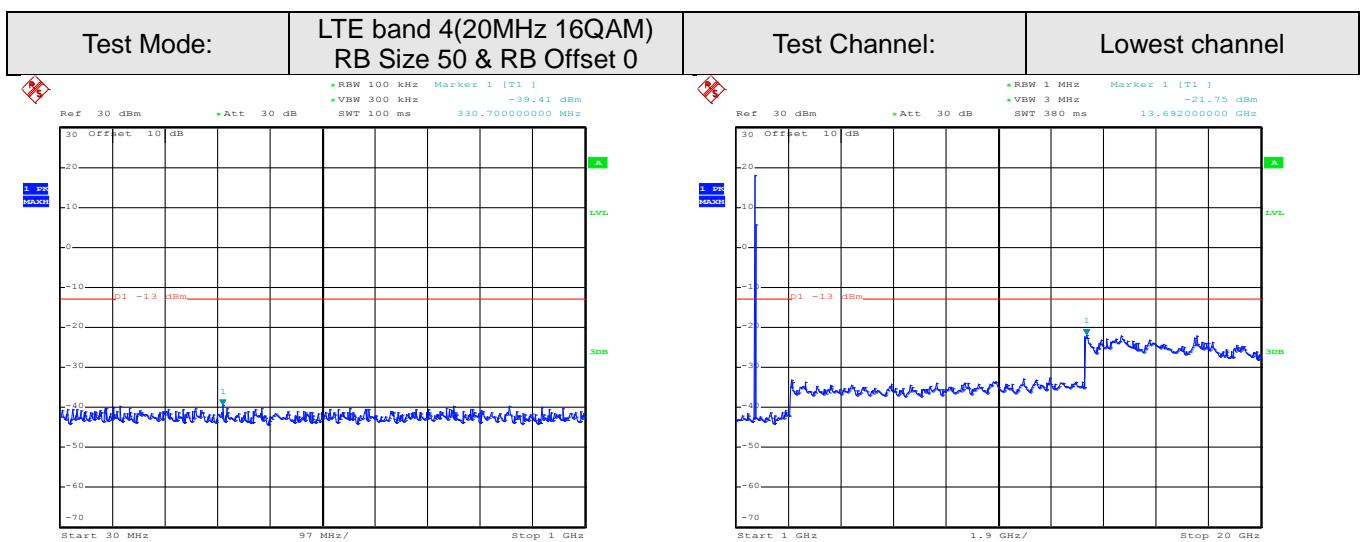


Date: 19.MAR.2017 19:43:13

Date: 19.MAR.2017 20:07:25

30MHz~1GHz

1GHz~25GHz

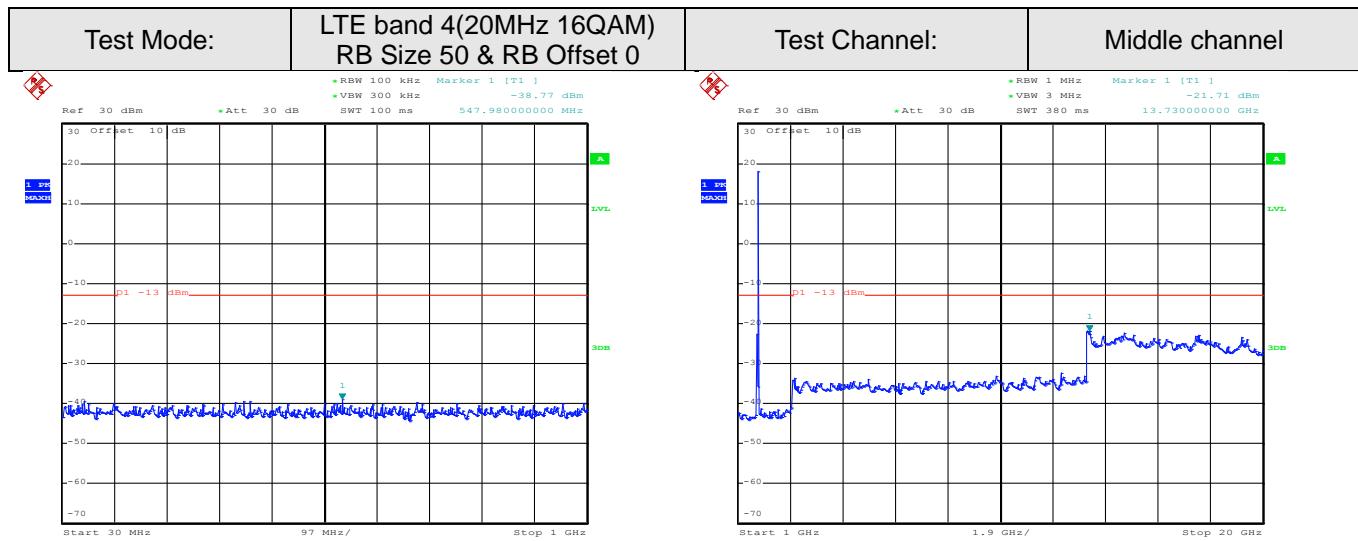


Date: 19.MAR.2017 19:42:14

Date: 19.MAR.2017 20:05:41

30MHz~1GHz

1GHz~25GHz

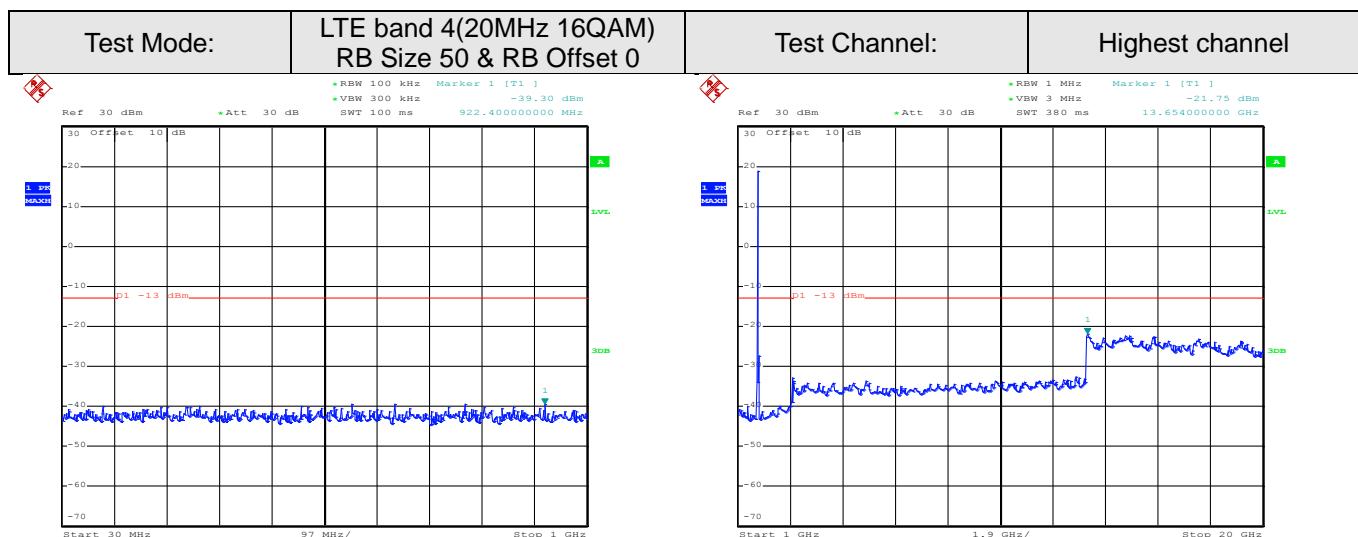


Date: 19.MAR.2017 19:42:51

30MHz~1GHz

Date: 19.MAR.2017 20:06:45

1GHz~25GHz



Date: 19.MAR.2017 19:43:22

30MHz~1GHz

Date: 19.MAR.2017 20:07:45

1GHz~25GHz

