FCC TEST REPORT

For

LINKHUB

Model Number: HH41NH

FCC ID: 2ACCJB106

Report Number : WT188005740

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection
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Test report declaration

Applicant	:	TCL Communication Ltd
Address	:	7/F, Block F4, TCL International E City Zhong Shan Yuan Road, Nanshan District Shenzhen, China
Manufacturer	:	TCL Communication Ltd
Address	:	7/F, Block F4, TCL International E City Zhong Shan Yuan Road, Nanshan District Shenzhen, China
EUT Description	:	LINKHUB
Model No	:	HH41NH
Trade mark	:	Alcatel
Serial Number	:	/
FCC ID	:	2ACCJB106

Test Standards:

FCC PART 22H , 24E AND 27 (2017)

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.26 (2015) & KDB971168 and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 22H , 24E AND 27.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer:	(Chen Silin 陈司林)	Date:	Oct.31, 2018
Checked by:	(Lin Yixiang 林奕翔)	Date:	Oct.31, 2018
Approved by:	(Lin Bin 林斌)	Date:	Oct.31, 2018

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TEST Results Summary

Table 1 Test Results Summary

FCC Measurement Specification	FCC Limits Part(s)	Description	Result
2.1046	22.913 24.232 27.50 (b) 27.50(c) 27.50(d) 27.50(h)	Effective Radiated Power of Transmitter	PASS
2.1046	22.913 24.232 27.50 (b) 27.50(c) 27.50(d) 27.50(h)	Conducted Power of Transmitter	PASS
2.1046	22.913 24.232 27.50 (b) 27.50(c) 27.50(d) 27.50(h)	Peak to Average Radio	PASS
2.1049	22.917(b) 24.238(b) 27.53	Occupied Bandwidth	PASS
2.1051	22.917 24.238 27.53	Spurious Emission at Antenna Terminal	PASS
2.1053	22.917 24.238 27.53	Radiated Spurious Emissions	PASS
2.1055	22.355 24.235 27.54	Frequency Stability	PASS

CFR 47 (FCC) part 22 subpart H, part 24 subpart E and part 27 .

Remark: “N/A” means “Not applicable.”
The tests documented in this report were performed in accordance with ANSI/TIA-603-D (2010) & KDB971168, FCC CFR 47 Part 2, Part 22 ,Part 24 and Part 27.

1. GENERAL INFORMATION

1.1. Report information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

The samples mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

1.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is Accredited Testing Laboratory of FCC with Designation number CN1165 and Site registration number 582918.

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is 11177A.

1.3. Measurement Uncertainty

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:
Radiated Emission
30MHz~1000MHz 4.5dB
1GHz~26.5GHz 4.6dB

26dB & Occupied Bandwidth: ±0.39%

Frequency Stability: ±0.42%

Peak to Average Ratio:0.45 dB

Conducted power :0.3 dB

Temperature: ±0.698

Supply voltages:±0.15%

2. PRODUCT DESCRIPTION

2.1. EUT Description

Table 2 Specification of the Equipment under Test

Product Type:	LINKHUB		
Hardware Version:	V04		
Software Version :	HH41_00_02.00_13		
FCC-ID:	2ACCJB106		
Frequency Range	GSM850: TX 824MHz~849MHz RX 869MHz~894MHz PCS1900: TX 1850MHZ~1910MHz RX 1930MHz~1990MHz WCDMA 850: TX 824MHz~849MHz RX 869MHz~894MHz WCDMA 1700: TX: 1710MHz~1755MHz RX 2110MHz~2155MHz WCDMA 1900: TX 1850MHZ~1910MHz RX 1930MHz~1990MHz LTE Band 2: TX 1850MHZ~1910MHz RX 1930MHz~1990MHz LTE Band 4: TX: 1710MHz~1755MHz RX 2110MHz~2155MHz LTE Band 5: TX 824MHz~849MHz RX 869MHz~894MHz LTE Band 7: TX 2500MHz~2570MHz RX 2620MHz~2690MHz LTE Band 12: TX 698 ~ 716 MHz RX 728 ~ 746MHz LTE Band 13: TX 777 ~ 787 MHz RX 746 ~ 756MHz LTE Band 17: TX 704 ~ 716 MHz RX 734 ~ 746MHz LTE Band 66: TX: 1710MHz~1780MHz RX 2110MHz~2200MHz		
Type(s) of Modulation:	GSM850/PCS1900 :GMSK 8PSK WCDMA:QPSK LTE:QPSK, 16QAM		
LTE Supported Channel Bandwidth:	Band 2:	1.4 MHz	Supported
		3 MHz	Supported
		5 MHz	Supported
		10 MHz	Supported
		15 MHz	Supported
		20 MHz	Supported
	Band 4:	1.4 MHz	Supported

		3 MHz	Supported
		5 MHz	Supported
		10 MHz	Supported
		15 MHz	Supported
		20 MHz	Supported
	Band 5:	1.4 MHz	Supported
		3 MHz	Supported
		5 MHz	Supported
		10 MHz	Supported
	Band 7:	5 MHz	Supported
		10 MHz	Supported
		15 MHz	Supported
		20 MHz	Supported
	Band 12:	1.4 MHz	Supported
		3 MHz	Supported
		5 MHz	Supported
		10 MHz	Supported
	Band 13:	5 MHz	Supported
		10 MHz	Supported
	Band 17:	5 MHz	Supported
		10 MHz	Supported
	Band 66:	1.4 MHz	Supported
		3 MHz	Supported
		5 MHz	Supported
		10 MHz	Supported
		15 MHz	Supported
		20 MHz	Supported
Antenna Designation:	Fixed External antenna		
Antenna Gain	698MHz~800MHz: 0.5dBi 824MHz~849MHz: 0.5dBi 1710MHz~1780MHz: 1.0dBi 1850MHZ~1910MHz: 1.0dBi 2500MHz~2570MHz: 1.5dBi		
Operating voltage:	120V AC Adapter; 4.5V (Low)/5.0V (Nominal)/ 5.5V (Max)		

Remark: This is test report is for application of FCC ID:2ACCJB106, which consists of reuse data of FCC ID: 2ACCJB092. The EUT in this test report expand support of LTE band 4 to B66, other RF bands remains unchange. The PCB layout is not mofified, while the B4 TX & RX SAW Filter is changed to B66 TX & RX SAW Filter. Considering above changes, full test of LTE B66 & WCDMA B4 are performed, Other band was spot checked(RF Power, Bandwidth& Frequency Stability), test data from Test Report: WT178002938 are reused in this report to cover other test items.

Table 3 Identification of the Equipment Under Test (EUT)

EUT	Serial Number/IMEI	HW Version	SW Version	Notes
1	014993000201236	V04	HH41_00_02.00_13	Conducted testing sample.
2	014993000201251	V04	HH41_00_02.00_13	Radiated testing sample.

Table 4 Identification of Accessory equipment

Name	Model No	S/N	Manufacturer
Adaptor 1# for EUT	UC13US	---	AOHAI
Adaptor 1# for EUT	UC13US	---	TEN PAO

2.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2ACCJB106** filing to comply with FCC PART 22H,24E AND 27.

2.3. Operating Condition of EUT

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (X plane).

TM1: GPRS Mode with GMSK Modulation
TM2: EDGE Mode with 8PSK Modulation
TM3: WCDMA Mode with QPSK Modulation
TM4: LTE Mode with QPSK Modulation
TM5: LTE Mode with 16QAM Modulation

The maximum power levels are GPRS mode for GMSK link, Edge mode for 8PSK link, WCDMA mode for QPSK link, LTE Mode for QPSK link , LTE mode for 16QAM link.only these modes were used for all tests.
The conducted power tables are as follows:

Band: GSM850	**Average Power [dBm]**		
Channel	**128**	**190**	**251**
Frequency (MHz)	**824.2**	**836.6**	**848.8**
GSM (GMSK, 1 Tx slot)	32.27	32.32	32.14
GPRS (GMSK, 1 Tx slot)	**32.58**	**32.55**	**32.37**
GPRS (GMSK, 2 Tx slots)	32.05	32.05	31.85
GPRS (GMSK, 3 Tx slots)	31.20	30.21	31.00
GPRS (GMSK, 4 Tx slots)	30.18	30.05	29.90
EDGE (8PSK, 1 Tx slot)	**27.86**	**27.77**	**27.48**
EDGE (8PSK, 2 Tx slot)	27.64	27.54	27.27
EDGE (8PSK, 3 Tx slot)	27.05	26.92	26.63
EDGE (8PSK, 4 Tx slot)	25.99	25.77	25.52

Band: GSM1900	Average Power [dBm]		
Channel	**512**	**661**	**810**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**
GSM (GMSK, 1 Tx slot)	29.71	29.84	29.99
GPRS (GMSK, 1 Tx slot)	**29.93**	**30.12**	**30.27**
GPRS (GMSK, 2 Tx slots)	29.25	29.39	29.78
GPRS (GMSK, 3 Tx slots)	28.50	28.58	28.67
GPRS (GMSK, 4 Tx slots)	27.37	27.43	27.60
EDGE (8PSK, 1 Tx slot)	**25.87**	**25.77**	**25.88**
EDGE (8PSK, 2 Tx slot)	25.36	25.30	25.52
EDGE (8PSK, 3 Tx slot)	24.77	24.69	24.81
EDGE (8PSK, 4 Tx slot)	23.56	23.50	23.59

Band: WCDMA Band II	Average Power [dBm]		
Channel	**9262**	**9400**	**9538**
Frequency (MHz)	**1852.4**	**1880.0**	**1907.6**
RMC 12.2K	**22.23**	**22.19**	**22.35**
HSDPA Subtest-1	21.15	21.65	21.69
HSDPA Subtest-2	20.68	21.07	21.31
HSDPA Subtest-3	21.07	21.18	21.24
HSDPA Subtest-4	20.76	21.11	21.05
HSUPA Subtest-1	20.75	21.23	21.38
HSUPA Subtest-2	20.11	20.57	20.72
HSUPA Subtest-3	20.34	20.11	20.29
HSUPA Subtest-4	20.51	20.96	20.92
HSUPA Subtest-5	21.27	21.29	21.56

Band: WCDMA Band IV	Average Power [dBm]		
Channel	**1312**	**1413**	**1513**
Frequency (MHz)	**1712.4**	**1732.6**	**1752.6**
RMC 12.2K	21.78	22.14	22.21
HSDPA Subtest-1	21.24	21.56	21.47
HSDPA Subtest-2	20.52	20.92	20.94
HSDPA Subtest-3	20.55	20.98	21.01
HSDPA Subtest-4	20.65	21.04	20.93
HSUPA Subtest-1	21.54	21.56	21.47
HSUPA Subtest-2	20.29	20.98	21.04
HSUPA Subtest-3	19.74	20.56	20.65
HSUPA Subtest-4	20.60	21.03	20.94
HSUPA Subtest-5	21.30	21.61	21.59

Band :WCDMA Band V	Average Power [dBm]		
Channel	**4,132**	**4,182**	**4,233**
Frequency (MHz)	**826.4**	**836.4**	**846.6**
RMC 12.2K	**22.75**	**22.58**	**22.34**
HSDPA Subtest-1	21.97	21.75	21.48
HSDPA Subtest-2	21.17	20.95	20.73
HSDPA Subtest-3	21.07	20.96	20.74
HSDPA Subtest-4	21.07	20.93	20.64
HSUPA Subtest-1	21.39	21.43	21.26
HSUPA Subtest-2	20.69	20.15	20.11
HSUPA Subtest-3	20.26	19.85	20.30
HSUPA Subtest-4	21.13	20.99	20.74
HSUPA Subtest-5	21.78	21.54	21.39

LTE Band 2(1.4MHz)

	Channel Bandwidth: 1.4 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18607	1850.7	1	0	23.13
			1	3	23.46
			1	5	23.15
			3	0	23.05
			3	2	23.11
			3	3	23.17
			6	0	22.11
	18900	1880	1	0	23.16
			1	3	23.13
			1	5	23.00
			3	0	23.09
			3	2	23.14
			3	3	22.91
			6	0	22.06
	19193	1909.3	1	0	23.05
			1	3	23.02
			1	5	22.92
			3	0	23.06
			3	2	23.05
			3	3	22.98
			6	0	22.03
16QAM	18607	1850.7	1	0	22.03
			1	3	21.94
			1	5	21.95
			3	0	22.07
			3	2	22.11
			3	3	21.92
			6	0	21.02
	18900	1880	1	0	22.05
			1	3	22.12
			1	5	21.89
			3	0	22.15
			3	2	22.08
			3	3	22.11
			6	0	20.89
	19193	1909.3	1	0	21.88
			1	3	22.02
			1	5	21.81
			3	0	22.13
			3	2	22.15
			3	3	21.79
			6	0	21.39

LTE Band 2(3MHz)

	Channel Bandwidth: 3 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18615	1851.5	1	0	23.17
			1	7	23.07
			1	14	23.33
			8	0	22.23
			8	4	22.33
			8	7	22.34
			15	0	22.18
	18900	1880	1	0	23.04
			1	7	23.10
			1	14	23.19
			8	0	22.02
			8	4	22.17
			8	7	22.14
			15	0	22.12
	19185	1908.5	1	0	23.08
			1	7	22.97
			1	14	23.24
			8	0	22.12
			8	4	22.10
			8	7	22.03
			15	0	22.08
16QAM	18615	1851.5	1	0	22.82
			1	7	22.55
			1	14	22.85
			8	0	21.18
			8	4	21.26
			8	7	21.24
			15	0	21.07
	18900	1880	1	0	22.29
			1	7	22.27
			1	14	22.29
			8	0	20.76
			8	4	20.81
			8	7	20.79
			15	0	21.01
	19185	1908.5	1	0	21.83
			1	7	21.85
			1	14	22.25
			8	0	21.09
			8	4	21.19
			8	7	21.11
			15	0	21.10

LTE Band 2 (5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18625	1852.5	1	0	23.22
			1	12	23.06
			1	24	23.17
			12	0	22.19
			12	6	21.93
			12	13	22.10
			25	0	21.99
	18900	1880	1	0	22.93
			1	12	23.20
			1	24	23.09
			12	0	22.04
			12	6	22.03
			12	13	22.19
			25	0	21.92
	19175	1907.5	1	0	23.12
			1	12	23.01
			1	24	23.11
			12	0	22.23
			12	6	21.91
			12	13	22.09
			25	0	22.19
16QAM	18625	1852.5	1	0	22.53
			1	12	23.07
			1	24	22.73
			12	0	21.17
			12	6	20.84
			12	13	21.23
			25	0	21.08
	18900	1880	1	0	22.37
			1	12	22.60
			1	24	22.57
			12	0	20.93
			12	6	20.98
			12	13	21.08
			25	0	20.98
	19175	1907.5	1	0	22.14
			1	12	21.71
			1	24	21.61
			12	0	21.25
			12	6	21.08
			12	13	21.11
			25	0	21.13

LTE Band 2 (10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18650	1855	1	0	23.39
			1	24	23.23
			1	49	23.17
			25	0	22.30
			25	12	22.09
			25	25	22.22
			50	0	22.17
	18900	1880	1	0	23.09
			1	24	23.20
			1	49	23.19
			25	0	22.10
			25	12	22.23
			25	25	22.26
			50	0	22.10
	19150	1905	1	0	23.15
			1	24	23.10
			1	49	23.11
			25	0	22.27
			25	12	22.08
			25	25	22.20
			50	0	22.24
16QAM	18650	1855	1	0	22.64
			1	24	23.17
			1	49	22.81
			25	0	21.19
			25	12	21.03
			25	25	21.38
			50	0	21.17
	18900	1880	1	0	22.52
			1	24	22.79
			1	49	22.63
			25	0	21.02
			25	12	21.15
			25	25	21.26
			50	0	21.14
	19150	1905	1	0	22.24
			1	24	21.87
			1	49	21.75
			25	0	21.30
			25	12	21.09
			25	25	21.27
			50	0	21.20

LTE Band 2 (15MHz)

	Channel Bandwidth: 15 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18675	1857.5	1	0	23.37
			1	37	23.26
			1	74	23.01
			37	0	22.21
			37	18	22.12
			37	38	22.10
			75	0	22.26
	18900	1880	1	0	23.05
			1	37	23.33
			1	74	23.28
			37	0	22.15
			37	18	22.21
			37	38	22.30
			75	0	22.14
	19125	1902.5	1	0	23.34
			1	37	23.22
			1	74	23.14
			37	0	22.22
			37	18	22.07
			37	38	22.14
			75	0	22.18
16QAM	18675	1857.5	1	0	23.15
			1	37	22.90
			1	74	22.40
			37	0	21.11
			37	18	21.03
			37	38	21.03
			75	0	21.21
	18900	1880	1	0	22.52
			1	37	22.78
			1	74	22.94
			37	0	21.10
			37	18	21.15
			37	38	21.28
			75	0	21.26
	19125	1902.5	1	0	22.13
			1	37	21.66
			1	74	21.44
			37	0	21.34
			37	18	21.03
			37	38	21.08
			75	0	21.11

LTE Band 2 (20MHz)

	Channel Bandwidth: 20 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	18700	1860	1	0	23.29
			1	49	22.97
			1	99	22.65
			50	0	22.24
			50	25	22.02
			50	50	21.88
			100	0	22.12
	18900	1880	1	0	22.88
			1	49	23.38
			1	99	23.39
			50	0	22.13
			50	25	22.17
			50	50	22.24
			100	0	22.13
	19100	1900	1	0	23.02
			1	49	22.94
			1	99	22.80
			50	0	22.14
			50	25	22.09
			50	50	22.09
			100	0	22.21
16QAM	18700	1860	1	0	21.95
			1	49	21.95
			1	99	21.24
			50	0	21.10
			50	25	20.93
			50	50	20.82
			100	0	21.12
	18900	1880	1	0	21.85
			1	49	22.13
			1	99	22.26
			50	0	21.06
			50	25	21.12
			50	50	21.13
			100	0	21.02
	19100	1900	1	0	22.35
			1	49	22.21
			1	99	21.39
			50	0	21.00
			50	25	21.03
			50	50	21.04
			100	0	21.26

LTE Band 4/66(1.4MHz)

	Channel Bandwidth: 1.4 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	131979	1710.7	1	0	23.65
			1	3	23.77
			1	5	23.58
			3	0	23.62
			3	2	23.77
			3	3	23.65
			6	0	22.70
	132322	1745	1	0	22.97
			1	3	23.02
			1	5	22.78
			3	0	23.02
			3	2	23.13
			3	3	23.06
			6	0	21.96
	132665	1779.3	1	0	22.71
			1	3	22.91
			1	5	22.90
			3	0	22.94
			3	2	22.83
			3	3	22.81
			6	0	21.81
16QAM	131979	1710.7	1	0	22.84
			1	3	23.12
			1	5	22.95
			3	0	22.78
			3	2	22.77
			3	3	22.73
			6	0	21.62
	132322	1745	1	0	22.09
			1	3	22.20
			1	5	21.98
			3	0	21.95
			3	2	21.97
			3	3	21.89
			6	0	21.30
	132665	1779.3	1	0	22.10
			1	3	22.23
			1	5	22.26
			3	0	21.98
			3	2	21.89
			3	3	22.00
			6	0	20.84

LTE Band 4/66 (3MHz)

	Channel Bandwidth: 3 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	131987	1711.5	1	0	23.50
			1	7	23.65
			1	14	23.69
			8	0	22.76
			8	4	22.73
			8	7	22.68
			15	0	22.65
	132322	1745	1	0	23.18
			1	7	22.98
			1	14	22.90
			8	0	22.04
			8	4	22.01
			8	7	21.98
			15	0	22.04
	132657	1778.5	1	0	23.00
			1	7	22.75
			1	14	22.78
			8	0	21.82
			8	4	21.78
			8	7	21.87
			15	0	21.84
16QAM	131987	1711.5	1	0	23.08
			1	7	22.85
			1	14	23.21
			8	0	21.74
			8	4	21.74
			8	7	21.77
			15	0	21.65
	132322	1745	1	0	22.55
			1	7	22.36
			1	14	22.22
			8	0	20.97
			8	4	20.92
			8	7	21.06
			15	0	20.95
	132657	1778.5	1	0	22.45
			1	7	21.70
			1	14	21.74
			8	0	20.84
			8	4	20.82
			8	7	20.89
			15	0	20.80

LTE Band 4/66 (5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	131997	1712.5	1	0	22.52
			1	12	22.58
			1	24	22.17
			12	0	21.33
			12	6	21.26
			12	13	21.16
			25	0	21.33
	132322	1745	1	0	22.13
			1	12	22.81
			1	24	22.74
			12	0	21.18
			12	6	21.33
			12	13	21.24
			25	0	21.15
	132647	1777.5	1	0	22.50
			1	12	22.10
			1	24	22.20
			12	0	21.22
			12	6	21.12
			12	13	21.14
			25	0	21.15
16QAM	131997	1712.5	1	0	21.58
			1	12	21.46
			1	24	21.45
			12	0	20.00
			12	6	19.89
			12	13	19.75
			25	0	20.51
	132322	1745	1	0	21.09
			1	12	21.75
			1	24	21.71
			12	0	20.46
			12	6	20.55
			12	13	20.36
			25	0	20.17
	132647	1777.5	1	0	21.15
			1	12	20.95
			1	24	20.66
			12	0	20.52
			12	6	20.54
			12	13	20.21
			25	0	20.20

LTE Band 4/66 (10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	132022	1715	1	0	23.76
			1	24	23.97
			1	49	23.55
			25	0	22.96
			25	12	22.95
			25	25	22.80
			50	0	22.94
	132322	1745	1	0	23.66
			1	24	23.51
			1	49	23.25
			25	0	22.54
			25	12	22.24
			25	25	22.18
			50	0	22.35
	132622	1775	1	0	23.69
			1	24	23.47
			1	49	22.91
			25	0	22.73
			25	12	22.46
			25	25	22.07
			50	0	22.51
16QAM	132022	1715	1	0	23.22
			1	24	23.44
			1	49	22.92
			25	0	21.95
			25	12	21.97
			25	25	21.94
			50	0	21.97
	132322	1745	1	0	22.91
			1	24	23.02
			1	49	22.71
			25	0	21.37
			25	12	21.20
			25	25	21.22
			50	0	21.21
	132622	1775	1	0	22.58
			1	24	22.89
			1	49	21.90
			25	0	21.82
			25	12	21.54
			25	25	21.05
			50	0	21.71

LTE Band 4/66 (15MHz)

	Channel Bandwidth: 15 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	132047	1717.5	1	0	23.67
			1	37	23.67
			1	74	23.20
			37	0	22.84
			37	18	22.65
			37	38	22.32
			75	0	22.49
	132322	1745	1	0	23.52
			1	37	23.07
			1	74	23.06
			37	0	22.47
			37	18	22.26
			37	38	22.07
			75	0	22.20
	132597	1772.5	1	0	23.59
			1	37	23.05
			1	74	23.02
			37	0	22.44
			37	18	22.23
			37	38	22.04
			75	0	22.27
16QAM	132047	1717.5	1	0	23.13
			1	37	23.00
			1	74	22.51
			37	0	21.71
			37	18	21.64
			37	38	21.38
			75	0	21.64
	132322	1745	1	0	23.10
			1	37	22.42
			1	74	22.59
			37	0	21.44
			37	18	21.23
			37	38	20.82
			75	0	21.22
	132597	1772.5	1	0	22.76
			1	37	22.55
			1	74	22.63
			37	0	21.41
			37	18	21.13
			37	38	20.97
			75	0	21.31

LTE Band 4/66 (20MHz)

	Channel Bandwidth: 20 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	132072	1720	1	0	24.21
			1	49	23.80
			1	99	23.48
			50	0	22.94
			50	25	22.67
			50	50	22.26
			100	0	22.58
	132322	1745	1	0	23.94
			1	49	23.80
			1	99	23.25
			50	0	22.76
			50	25	22.38
			50	50	22.21
			100	0	22.49
	132572	1770	1	0	23.26
			1	49	23.75
			1	99	23.13
			50	0	22.54
			50	25	22.71
			50	50	22.70
			100	0	22.54
16QAM	132072	1720	1	0	22.87
			1	49	23.14
			1	99	22.28
			50	0	22.03
			50	25	21.70
			50	50	21.25
			100	0	21.63
	132322	1745	1	0	22.64
			1	49	22.64
			1	99	21.98
			50	0	21.70
			50	25	21.36
			50	50	21.22
			100	0	21.51
	132572	1770	1	0	22.25
			1	49	22.52
			1	99	22.12
			50	0	21.52
			50	25	21.83
			50	50	21.80
			100	0	21.63

LTE Band 5(1.4MHz)

	Channel Bandwidth: 1.4 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20407	824.7	1	0	22.99
			1	3	23.13
			1	5	22.92
			3	0	22.91
			3	2	22.97
			3	3	22.93
			6	0	21.82
	20525	836.5	1	0	22.85
			1	3	23.02
			1	5	22.84
			3	0	22.84
			3	2	22.94
			3	3	22.87
			6	0	21.89
	20643	848.3	1	0	22.50
			1	3	22.53
			1	5	22.39
			3	0	22.50
			3	2	22.56
			3	3	22.46
			6	0	21.72
16QAM	20407	824.7	1	0	21.68
			1	3	21.85
			1	5	21.68
			3	0	21.65
			3	2	21.71
			3	3	21.62
			6	0	21.39
	20525	836.5	1	0	22.31
			1	3	22.54
			1	5	22.42
			3	0	22.03
			3	2	22.10
			3	3	22.02
			6	0	20.92
	20643	848.3	1	0	21.88
			1	3	21.98
			1	5	21.78
			3	0	21.64
			3	2	21.64
			3	3	21.56
			6	0	20.51

LTE Band 5(3MHz)

	Channel Bandwidth: 3 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20415	825.5	1	0	22.94
			1	7	23.17
			1	14	23.08
			8	0	22.02
			8	4	22.10
			8	7	21.96
			15	0	21.95
	20525	836.5	1	0	22.74
			1	7	22.82
			1	14	23.01
			8	0	21.79
			8	4	21.87
			8	7	21.80
			15	0	21.73
	20635	847.5	1	0	22.64
			1	7	22.46
			1	14	22.54
			8	0	21.65
			8	4	21.62
			8	7	21.50
			15	0	21.59
16QAM	20415	825.5	1	0	22.44
			1	7	22.56
			1	14	22.48
			8	0	21.21
			8	4	21.36
			8	7	21.28
			15	0	21.11
	20525	836.5	1	0	22.05
			1	7	22.02
			1	14	22.13
			8	0	20.58
			8	4	20.90
			8	7	21.10
			15	0	20.75
	20635	847.5	1	0	22.23
			1	7	22.02
			1	14	21.80
			8	0	20.64
			8	4	20.63
			8	7	20.57
			15	0	20.50

LTE Band 5(5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20425	826.5	1	0	22.61
			1	12	22.76
			1	24	22.60
			12	0	21.89
			12	6	21.77
			12	13	21.69
			25	0	21.74
	20525	836.5	1	0	22.77
			1	12	22.84
			1	24	22.79
			12	0	21.66
			12	6	21.79
			12	13	21.76
			25	0	21.79
	20625	846.5	1	0	22.81
			1	12	22.92
			1	24	22.61
			12	0	21.61
			12	6	21.65
			12	13	21.56
			25	0	21.53
16QAM	20425	826.5	1	0	22.90
			1	12	22.58
			1	24	21.56
			12	0	20.87
			12	6	20.88
			12	13	20.68
			25	0	21.03
	20525	836.5	1	0	21.40
			1	12	21.96
			1	24	22.07
			12	0	20.69
			12	6	20.77
			12	13	20.81
			25	0	20.68
	20625	846.5	1	0	22.21
			1	12	22.39
			1	24	21.67
			12	0	20.66
			12	6	20.62
			12	13	20.47
			25	0	20.65

LTE Band 5 (10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20450	829	1	0	22.72
			1	24	22.92
			1	49	22.71
			25	0	22.02
			25	12	21.94
			25	25	21.81
			50	0	21.91
	20525	836.5	1	0	22.82
			1	24	22.96
			1	49	22.86
			25	0	21.74
			25	12	21.86
			25	25	21.86
			50	0	21.80
	20600	844	1	0	22.92
			1	24	22.94
			1	49	22.75
			25	0	21.71
			25	12	21.75
			25	25	21.62
			50	0	21.63
16QAM	20450	829	1	0	22.93
			1	24	22.74
			1	49	21.67
			25	0	20.96
			25	12	20.88
			25	25	20.79
			50	0	21.05
	20525	836.5	1	0	21.52
			1	24	22.13
			1	49	22.16
			25	0	20.78
			25	12	20.81
			25	25	20.83
			50	0	20.84
	20600	844	1	0	22.34
			1	24	22.47
			1	49	21.79
			25	0	20.74
			25	12	20.70
			25	25	20.58
			50	0	20.67

LTE Band 7 (5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20775	2502.5	1	0	22.58
			1	12	22.57
			1	24	22.38
			12	0	21.91
			12	6	21.65
			12	13	21.58
			25	0	21.80
	21100	2535	1	0	22.47
			1	12	22.82
			1	24	22.51
			12	0	21.42
			12	6	21.65
			12	13	21.72
			25	0	21.78
	21425	2567.5	1	0	22.97
			1	12	23.11
			1	24	23.25
			12	0	21.74
			12	6	21.76
			12	13	22.02
			25	0	21.85
16QAM	20775	2502.5	1	0	22.51
			1	12	21.89
			1	24	21.49
			12	0	20.93
			12	6	20.69
			12	13	20.56
			25	0	20.82
	21100	2535	1	0	21.91
			1	12	22.35
			1	24	22.04
			12	0	20.60
			12	6	20.56
			12	13	20.80
			25	0	20.73
	21425	2567.5	1	0	21.18
			1	12	21.79
			1	24	21.71
			12	0	20.90
			12	6	21.03
			12	13	21.04
			25	0	20.79

LTE Band 7 (10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20800	2505	1	0	22.69
			1	24	22.59
			1	49	22.46
			25	0	21.95
			25	12	21.70
			25	25	21.72
			50	0	21.82
	21100	2535	1	0	22.54
			1	24	22.91
			1	49	22.54
			25	0	21.62
			25	12	21.75
			25	25	21.85
			50	0	21.79
	21400	2565	1	0	23.01
			1	24	23.28
			1	49	23.31
			25	0	21.78
			25	12	21.94
			25	25	22.10
			50	0	21.96
16QAM	20800	2505	1	0	22.67
			1	24	22.06
			1	49	21.51
			25	0	20.97
			25	12	20.73
			25	25	20.75
			50	0	20.97
	21100	2535	1	0	22.06
			1	24	22.46
			1	49	22.06
			25	0	20.62
			25	12	20.71
			25	25	20.80
			50	0	20.82
	21400	2565	1	0	21.28
			1	24	21.85
			1	49	21.88
			25	0	21.00
			25	12	21.19
			25	25	21.18
			50	0	20.93

LTE Band 7 (15MHz)

	Channel Bandwidth: 15 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20825	2507.5	1	0	22.84
			1	37	22.61
			1	74	22.50
			37	0	21.94
			37	18	21.77
			37	38	21.73
			75	0	21.87
	21100	2535	1	0	22.46
			1	37	22.92
			1	74	22.57
			37	0	21.63
			37	18	21.78
			37	38	21.82
			75	0	21.78
	21375	2562.5	1	0	22.72
			1	37	23.34
			1	74	23.21
			37	0	21.89
			37	18	22.09
			37	38	22.08
			75	0	21.83
16QAM	20825	2507.5	1	0	22.88
			1	37	22.14
			1	74	21.82
			37	0	20.98
			37	18	20.70
			37	38	20.63
			75	0	21.03
	21100	2535	1	0	22.39
			1	37	22.61
			1	74	22.16
			37	0	20.77
			37	18	20.95
			37	38	20.80
			75	0	20.79
	21375	2562.5	1	0	21.59
			1	37	22.10
			1	74	22.03
			37	0	20.91
			37	18	21.07
			37	38	21.13
			75	0	20.81

LTE Band 7 (20MHz)

	Channel Bandwidth: 20 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	20850	2510	1	0	22.90
			1	49	22.42
			1	99	22.41
			50	0	21.86
			50	25	21.70
			50	50	21.65
			100	0	21.84
	21100	2535	1	0	22.46
			1	49	22.86
			1	99	22.52
			50	0	21.62
			50	25	21.79
			50	50	21.79
			100	0	21.76
	21350	2560	1	0	22.70
			1	49	23.45
			1	99	23.44
			50	0	21.79
			50	25	22.14
			50	50	22.01
			100	0	21.87
16QAM	20850	2510	1	0	21.73
			1	49	20.92
			1	99	20.80
			50	0	20.99
			50	25	20.73
			50	50	20.61
			100	0	20.88
	21100	2535	1	0	21.04
			1	49	21.82
			1	99	21.21
			50	0	20.74
			50	25	20.91
			50	50	20.80
			100	0	20.87
	21350	2560	1	0	21.06
			1	49	22.03
			1	99	22.26
			50	0	20.75
			50	25	21.12
			50	50	21.05
			100	0	20.87

LTE Band 12(1.4MHz)

	Channel Bandwidth: 1.4 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23017	699.7	1	0	23.00
			1	3	23.15
			1	5	22.94
			3	0	23.00
			3	2	22.97
			3	3	22.92
			6	0	22.04
	23095	707.5	1	0	23.00
			1	3	23.25
			1	5	23.14
			3	0	23.09
			3	2	23.09
			3	3	22.95
			6	0	21.98
	23173	715.3	1	0	23.00
			1	3	23.14
			1	5	23.29
			3	0	22.96
			3	2	23.10
			3	3	23.10
			6	0	22.04
16QAM	23017	699.7	1	0	22.27
			1	3	22.42
			1	5	22.16
			3	0	22.23
			3	2	22.18
			3	3	22.22
			6	0	21.09
	23095	707.5	1	0	22.18
			1	3	22.33
			1	5	22.11
			3	0	22.12
			3	2	22.21
			3	3	22.00
			6	0	20.84
	23173	715.3	1	0	21.91
			1	3	22.09
			1	5	22.04
			3	0	22.10
			3	2	22.17
			3	3	22.10
			6	0	21.09

LTE Band 12(3MHz)

	Channel Bandwidth: 3 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23025	700.5	1	0	22.86
			1	7	22.68
			1	14	22.88
			8	0	21.90
			8	4	21.89
			8	7	21.82
			15	0	21.85
	23095	707.5	1	0	22.86
			1	7	22.93
			1	14	22.95
			8	0	22.01
			8	4	22.16
			8	7	22.03
			15	0	22.05
	23165	714.5	1	0	23.19
			1	7	22.94
			1	14	23.17
			8	0	22.28
			8	4	22.22
			8	7	22.22
			15	0	22.23
16QAM	23025	700.5	1	0	22.63
			1	7	22.29
			1	14	22.31
			8	0	21.23
			8	4	21.24
			8	7	21.07
			15	0	21.03
	23095	707.5	1	0	22.11
			1	7	22.13
			1	14	21.99
			8	0	21.09
			8	4	21.12
			8	7	21.07
			15	0	20.86
	23165	714.5	1	0	22.10
			1	7	21.98
			1	14	22.49
			8	0	20.98
			8	4	21.10
			8	7	21.05
			15	0	21.10

LTE Band 12(5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23035	701.5	1	0	22.46
			1	12	22.65
			1	24	22.87
			12	0	21.79
			12	6	21.97
			12	13	22.12
			25	0	21.85
	23095	707.5	1	0	22.74
			1	12	23.29
			1	24	22.77
			12	0	21.74
			12	6	21.95
			12	13	21.77
			25	0	21.92
	23155	713.5	1	0	23.08
			1	12	23.09
			1	24	22.69
			12	0	22.14
			12	6	22.01
			12	13	21.96
			25	0	21.99
16QAM	23035	701.5	1	0	21.75
			1	12	22.01
			1	24	22.19
			12	0	20.69
			12	6	20.78
			12	13	20.92
			25	0	20.78
	23095	707.5	1	0	21.98
			1	12	22.69
			1	24	22.04
			12	0	20.82
			12	6	20.95
			12	13	20.79
			25	0	20.73
	23155	713.5	1	0	22.23
			1	12	22.37
			1	24	22.11
			12	0	20.96
			12	6	21.05
			12	13	20.87
			25	0	21.07

LTE Band 12(10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23060	704	1	0	22.58
			1	24	22.79
			1	49	22.98
			25	0	21.85
			25	12	22.02
			25	25	22.14
			50	0	21.95
	23095	707.5	1	0	22.83
			1	24	23.33
			1	49	22.84
			25	0	21.94
			25	12	22.05
			25	25	21.94
			50	0	22.00
	23130	711	1	0	23.12
			1	24	23.17
			1	49	22.85
			25	0	22.16
			25	12	22.08
			25	25	22.03
			50	0	22.13
16QAM	23060	704	1	0	21.94
			1	24	22.07
			1	49	22.28
			25	0	20.83
			25	12	20.93
			25	25	21.03
			50	0	20.94
	23095	707.5	1	0	22.07
			1	24	22.87
			1	49	22.05
			25	0	20.94
			25	12	21.05
			25	25	20.95
			50	0	20.84
	23130	711	1	0	22.33
			1	24	22.42
			1	49	22.20
			25	0	21.12
			25	12	21.07
			25	25	21.00
			50	0	21.12

LTE Band 13(5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23205	779.5	1	0	22.20
			1	12	22.58
			1	24	22.36
			12	0	21.59
			12	6	21.63
			12	13	21.46
			25	0	21.52
	23230	782	1	0	22.27
			1	12	22.65
			1	24	22.44
			12	0	21.58
			12	6	21.62
			12	13	21.52
			25	0	21.51
	23255	784.5	1	0	22.46
			1	12	22.64
			1	24	22.46
			12	0	21.56
			12	6	21.61
			12	13	21.51
			25	0	21.49
16QAM	23205	779.5	1	0	22.08
			1	12	22.47
			1	24	21.83
			12	0	20.62
			12	6	20.68
			12	13	20.49
			25	0	20.56
	23230	782	1	0	21.70
			1	12	21.99
			1	24	21.69
			12	0	20.61
			12	6	20.67
			12	13	20.58
			25	0	20.55
	23255	784.5	1	0	21.52
			1	12	21.88
			1	24	21.69
			12	0	20.59
			12	6	20.53
			12	13	20.57
			25	0	20.54

LTE Band 13(10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23230	782	1	0	22.10
			1	24	22.58
			1	49	22.28
			25	0	21.49
			25	12	21.51
			25	25	21.45
			50	0	21.35
16QAM	23230	782	1	0	21.51
			1	24	21.88
			1	49	21.56
			25	0	20.50
			25	12	20.67
			25	25	20.38
			50	0	20.49

LTE Band 17(5MHz)

	Channel Bandwidth: 5 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23755	706.5	1	0	22.53
			1	12	22.68
			1	24	22.46
			12	0	21.58
			12	6	21.57
			12	13	21.46
			25	0	21.57
	23790	710	1	0	22.61
			1	12	22.77
			1	24	22.54
			12	0	21.64
			12	6	21.60
			12	13	21.41
			25	0	21.59
	23825	713.5	1	0	22.53
			1	12	22.53
			1	24	22.33
			12	0	21.64
			12	6	21.46
			12	13	21.47
			25	0	21.61
16QAM	23755	706.5	1	0	21.90
			1	12	21.78
			1	24	21.57
			12	0	20.45
			12	6	20.50
			12	13	20.58
			25	0	20.73
	23790	710	1	0	21.79
			1	12	21.96
			1	24	21.64
			12	0	20.68
			12	6	20.46
			12	13	20.46
			25	0	20.63
	23825	713.5	1	0	21.92
			1	12	22.07
			1	24	22.12
			12	0	20.83
			12	6	20.52
			12	13	20.48
			25	0	20.44

LTE Band 17(10MHz)

	Channel Bandwidth: 10 MHz				
Modulation	Channel	Frequency (MHz)	RB Configuration		Average Power [dBm]
			Size	Offset	
QPSK	23780	709	1	0	22.65
			1	24	22.76
			1	49	22.49
			25	0	21.73
			25	12	21.72
			25	25	21.53
			50	0	21.69
	23790	710	1	0	22.71
			1	24	22.81
			1	49	22.62
			25	0	21.79
			25	12	21.68
			25	25	21.53
			50	0	21.72
	23800	711	1	0	22.54
			1	24	22.53
			1	49	22.49
			25	0	21.74
			25	12	21.61
			25	25	21.56
			50	0	21.73
16QAM	23780	709	1	0	21.99
			1	24	21.87
			1	49	21.68
			25	0	20.50
			25	12	20.62
			25	25	20.59
			50	0	20.74
	23790	710	1	0	21.96
			1	24	22.03
			1	49	21.83
			25	0	20.73
			25	12	20.64
			25	25	20.51
			50	0	20.78
	23800	711	1	0	21.93
			1	24	22.16
			1	49	22.18
			25	0	20.92
			25	12	20.60
			25	25	20.51
			50	0	20.64

2.4. Support Equipment List

Table 5 Support Equipment List

Name	Model No	S/N	Manufacturer
N/A	---	---	---

2.5. Test Conditions

Date of test：May.24,2017- Jun.19, 2017　Sep.25, 2018 - Oct.31, 2018
Date of EUT Receive：May.24,2017
Temperature: -30 ~ 55 ℃
Relative Humidity: 42-56%

2.6. Special Accessories

Not available for this EUT intended for grant.

2.7. Equipment Modifications

Not available for this EUT intended for grant.

3. TEST EQUIPMENT USED

Table 6 Test Equipment for Reference test data

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB8501/09	EMI Test Receiver	Rohde & Schwarz	ESU40	Mar.21, 2017	1 Year
SB8501/04	Bilog Antenna	Schwarzbeck	VULB9163	Mar.22, 2017	1 Year
SB5472/02	Bilog Antenna	Schwarzbeck	VULB9163	Jan.03, 2017	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.03, 2017	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.03, 2017	1 Year
SB8501/11	Horn Antenna	Rohde & Schwarz	3160-09	Mar.21, 2017	3 Year
SB8501/14	Preamplifier	Rohde & Schwarz	SCU-03	Mar.19, 2017	1 Year
SB8501/17	Preamplifier	Rohde & Schwarz	SCU-18	Mar.06, 2017	1 Year
SB8501/16	Preamplifier	Rohde & Schwarz	SCU-26	Mar.06, 2017	1 Year
SB8501/02	Communication Test Unit	Rohde & Schwarz	CMU200	Dec.04, 2016	1 Year
SB9054/02	Wideband Radio communication Tester	Rohde & Schwarz	CMW500	Oct.28, 2016	1 Year
SB9721/07	DC Power Supply	Agilent	66319D	---	---
SB12733	Temperature&Humidity Test chamber	SANMU	SG-1500-CC-3	Jul.08, 2016	1 Year
SB9060	Signal Analyzer	Rohde & Schwarz	FSQ40	Mar.21,2017	1 Year

Table 7 Test Equipment for Re-test

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB8501/09	EMI Test Receiver	Rohde & Schwarz	ESU40	Mar.20, 2018	1 Year
SB8501/04	Bilog Antenna	Schwarzbeck	VULB9163	Jun.12, 2018	1 Year
SB5472/02	Bilog Antenna	Schwarzbeck	VULB9163	Jun.12, 2018	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.02, 2018	1 Year
SB3434	Horn Antenna	Rohde & Schwarz	HF906	Jan.02, 2018	1 Year
SB8501/11	Horn Antenna	Rohde & Schwarz	3160-09	Mar.21, 2017	3 Year
SB8501/14	Preamplifier	Rohde & Schwarz	SCU-03	Mar.08, 2018	1 Year
SB8501/17	Preamplifier	Rohde & Schwarz	SCU-18	Mar.05, 2018	1 Year
SB8501/16	Preamplifier	Rohde & Schwarz	SCU-26	Mar.05, 2018	1 Year
SB8501/02	Communication Test Unit	Rohde & Schwarz	CMU200	Dec.04, 2018	1 Year
SB9054/02	Wideband Radio communication Tester	Rohde & Schwarz	CMW500	Oct.31, 2017	1 Year
SB9721/07	DC Power Supply	Agilent	66319D	---	---
SB12733	Temperature&Humidity Test chamber	SANMU	SG-1500-CC-3	Jul.03, 2018	1 Year
SB9060	Signal Analyzer	Rohde & Schwarz	FSQ40	Feb.27,2018	1 Year
SB9721/02	Spectrum Analyzer	Agilent	9020A	Dec.04,2017	1 Year
SB12829	Spectrum Analyzer	Rohde & Schwarz	FSL18	Jun.15,2018	1 Year

4. TEST RESULTS

4.1. RF Power Output

4.1.1. Test Standard

FCC: CFR Part 2.1046, CFR Part 22.913, CFR Part 24.232 CFR Part 27

4.1.2. Test Limit

FCC 22.913 (a) Effective radiated power limits.
The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts.
FCC 24.232 (b)(c) Power limits.
(b) Mobile/portable stations are limited to 2 Watts effective isotropic radiated power (EIRP). (c) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement over the full bandwidth of the channel.
27.50 (b)(10)Portable stations (hand-held de-vices) transmitting in the 746–757 MHz, 776–788 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (c) The following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band (10) Portable stations (hand-held de-vices) are limited to 3 watts ERP.
27.50 (h) (2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to2.0 watts transmitter output power.

4.1.3. Test Procedure

Radiated Output Power Measurement procedure
Ref: ANSI/TIA-603-D (2010) & KDB971168-2.2.17.2 Effective Radiated Power (ERP) or Effective Isotropic

1. Connect the equipment as shown in the above diagram with the EUT's antenna in a vertical orientation.
2. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to the channel frequency. Set the analyzer to measure peak hold with the required settings.
4. Rotate the EUT 360 . Record the peak level in dBm (LVL).
5. Replace the EUT with a vertically polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (LOSS). LOSS = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the ERP using the following equation:

ERP (dBm) = LVL (dBm) + LOSS (dB)

8. Determine the EIRP using the following equation:
EIRP (dBm) = ERP (dBm) + 2.15 (dB)
9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

4.1.4.Test Data

Table 8 Substitution Results

Test Mode	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBd]	Substitution Level (ERP) [dBm]	Polarization	Limit [dBm]	Result
TM1	824.2	23.22	0.5	5.28	**28.0**	V	38.5	Pass
	836.6	22.92	0.5	5.28	27.7	V	38.5	Pass
	848.8	22.42	0.5	5.28	27.2	V	38.5	Pass
TM2	824.2	19.22	0.5	5.28	24.0	V	38.5	Pass
	836.6	19.92	0.5	5.28	24.7	V	38.5	Pass
	848.8	20.32	0.5	5.28	**25.1**	V	38.5	Pass
TM3	826.4	14.22	0.5	5.28	19.0	V	38.5	Pass
	836.4	14.42	0.5	5.28	19.2	V	38.5	Pass
	846.6	14.52	0.5	5.28	**19.3**	V	38.5	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 9 Substitution Results

Test Mode	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polarization	Limit [dBm]	Result
TM3	1712.4	14.08	0.91	6.83	20.0	V	30	Pass
	1732.6	13.78	0.91	6.83	19.7	V	30	Pass
	1752.6	14.48	0.91	6.83	**20.4**	V	30	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 10 Substitution Results

Test Mode	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polarization	Limit [dBm]	Result
TM1	1850.2	19.35	0.97	8.92	27.3	V	33	Pass
	1880	20.15	0.97	8.92	**28.1**	V	33	Pass
	1909.8	19.95	0.97	8.92	27.9	V	33	Pass
TM2	1850.2	15.95	0.97	8.92	23.9	V	33	Pass
	1880	16.35	0.97	8.92	24.3	V	33	Pass
	1909.8	17.25	0.97	8.92	**25.2**	V	33	Pass
TM3	1852.4	11.85	0.97	8.92	**19.8**	V	33	Pass
	1880	11.65	0.97	8.92	19.6	V	33	Pass
	1907.6	11.85	0.97	8.92	19.8	V	33	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 11 Substitution Results (LTE Band 2)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	1.4	1RB	1850.7	13.75	0.97	8.92	**21.7**	V	33	Pass
	1.4		1880	13.55	0.97	8.92	21.5	V	33	Pass
	1.4		1909.3	13.45	0.97	8.92	21.4	V	33	Pass
	3		1851.5	13.55	0.97	8.92	**21.5**	V	33	Pass
	3		1880	13.55	0.97	8.92	21.5	V	33	Pass
	3		1908.5	13.45	0.97	8.92	21.4	V	33	Pass
	5		1852.5	13.75	0.97	8.92	**21.7**	V	33	Pass
	5		1880	13.55	0.97	8.92	21.5	V	33	Pass
	5		1907.5	13.65	0.97	8.92	21.6	V	33	Pass
	10		1855	13.55	0.97	8.92	**21.5**	V	33	Pass
	10		1880	13.55	0.97	8.92	21.5	V	33	Pass
	10		1905	13.35	0.97	8.92	21.3	V	33	Pass
	15		1857.5	13.55	0.97	8.92	21.5	V	33	Pass
	15		1880	13.75	0.97	8.92	**21.7**	V	33	Pass
	15		1902.5	13.65	0.97	8.92	21.6	V	33	Pass
	20		1860	13.55	0.97	8.92	21.5	V	33	Pass
	20		1880	13.55	0.97	8.92	21.5	V	33	Pass
	20		1900	13.65	0.97	8.92	**21.6**	V	33	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 12 Substitution Results (LTE Band 2)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM5	1.4	1RB	1850.7	12.65	0.97	8.92	20.6	V	33	Pass
	1.4		1880	12.55	0.97	8.92	20.5	V	33	Pass
	1.4		1909.3	12.85	0.97	8.92	**20.8**	V	33	Pass
	3		1851.5	12.75	0.97	8.92	**20.7**	V	33	Pass
	3		1880	12.65	0.97	8.92	20.6	V	33	Pass
	3		1908.5	12.65	0.97	8.92	20.6	V	33	Pass
	5		1852.5	12.75	0.97	8.92	20.7	V	33	Pass
	5		1880	12.65	0.97	8.92	20.6	V	33	Pass
	5		1907.5	12.75	0.97	8.92	**20.7**	V	33	Pass
	10		1855	12.55	0.97	8.92	20.5	V	33	Pass
	10		1880	12.65	0.97	8.92	**20.6**	V	33	Pass
	10		1905	12.55	0.97	8.92	20.5	V	33	Pass
	15		1857.5	12.75	0.97	8.92	**20.7**	V	33	Pass
	15		1880	12.65	0.97	8.92	20.6	V	33	Pass
	15		1902.5	12.55	0.97	8.92	20.5	V	33	Pass
	20		1860	12.35	0.97	8.92	20.3	V	33	Pass
	20		1880	12.55	0.97	8.92	**20.5**	V	33	Pass
	20		1900	12.55	0.97	8.92	20.5	V	33	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 13 Substitution Results (LTE Band 4)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	1.4	1RB	1710.7	15.28	0.91	6.83	21.2	V	30	Pass
	1.4		1732.5	15.18	0.91	6.83	21.1	V	30	Pass
	1.4		1754.3	15.48	0.91	6.83	**21.4**	V	30	Pass
	3		1711.5	15.48	0.91	6.83	**21.4**	V	30	Pass
	3		1732.5	14.98	0.91	6.83	20.9	V	30	Pass
	3		1753.5	15.18	0.91	6.83	21.1	V	30	Pass
	5		1712.5	15.28	0.91	6.83	21.2	V	30	Pass
	5		1732.5	15.38	0.91	6.83	**21.3**	V	30	Pass
	5		1752.5	15.38	0.91	6.83	21.3	V	30	Pass
	10		1715	15.18	0.91	6.83	**21.1**	V	30	Pass
	10		1732.5	14.88	0.91	6.83	20.8	V	30	Pass
	10		1750	15.38	0.91	6.83	21.0	V	30	Pass
	15		1717.5	15.18	0.91	6.83	21.1	V	30	Pass
	15		1732.5	15.38	0.91	6.83	**21.3**	V	30	Pass
	15		1747.5	14.98	0.91	6.83	20.9	V	30	Pass
	20		1720	15.38	0.91	6.83	**21.2**	V	30	Pass
	20		1732.5	15.08	0.91	6.83	21.0	V	30	Pass
	20		1745	15.08	0.91	6.83	21.0	V	30	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 14 Substitution Results (LTE Band 4)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM5	1.4	1RB	1710.7	14.78	0.91	6.83	20.7	V	30	Pass
	1.4		1732.5	14.88	0.91	6.83	**20.8**	V	30	Pass
	1.4		1754.3	14.68	0.91	6.83	20.6	V	30	Pass
	3		1711.5	14.58	0.91	6.83	20.5	V	30	Pass
	3		1732.5	14.78	0.91	6.83	**20.7**	V	30	Pass
	3		1753.5	14.78	0.91	6.83	20.7	V	30	Pass
	5		1712.5	14.68	0.91	6.83	20.6	V	30	Pass
	5		1732.5	14.98	0.91	6.83	**20.9**	V	30	Pass
	5		1752.5	14.48	0.91	6.83	20.4	V	30	Pass
	10		1715	14.98	0.91	6.83	20.6	V	30	Pass
	10		1732.5	14.88	0.91	6.83	**20.7**	V	30	Pass
	10		1750	14.88	0.91	6.83	20.3	V	30	Pass
	15		1717.5	14.58	0.91	6.83	20.6	V	30	Pass
	15		1732.5	15.08	0.91	6.83	**20.8**	V	30	Pass
	15		1747.5	14.58	0.91	6.83	20.3	V	30	Pass
	20		1720	14.68	0.91	6.83	20.5	V	30	Pass
	20		1732.5	14.78	0.91	6.83	**20.8**	V	30	Pass
	20		1745	14.88	0.91	6.83	20.6	V	30	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 15 Substitution Results (LTE Band 66)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	1.4	1RB	1710.7	15.18	0.91	6.83	21.1	V	30	Pass
	1.4		1745	15.28	0.91	6.83	**21.2**	V	30	Pass
	1.4		1779.3	15.08	0.91	6.83	21.0	V	30	Pass
	3		1711.5	15.28	0.91	6.83	**21.2**	V	30	Pass
	3		1745	15.28	0.91	6.83	21.2	V	30	Pass
	3		1778.5	14.98	0.91	6.83	20.9	V	30	Pass
	5		1712.5	15.58	0.91	6.83	**21.5**	V	30	Pass
	5		1745	15.28	0.91	6.83	21.2	V	30	Pass
	5		1777.5	15.08	0.91	6.83	21.0	V	30	Pass
	10		1715	15.18	0.91	6.83	21.1	V	30	Pass
	10		1745	15.18	0.91	6.83	21.1	V	30	Pass
	10		1775	15.28	0.91	6.83	**21.2**	V	30	Pass
	15		1717.5	14.98	0.91	6.83	20.9	V	30	Pass
	15		1745	15.48	0.91	6.83	**21.4**	V	30	Pass
	15		1772.5	14.98	0.91	6.83	20.9	V	30	Pass
	20		1720	15.28	0.91	6.83	**21.2**	V	30	Pass
	20		1745	15.28	0.91	6.83	21.2	V	30	Pass
	20		1770	15.28	0.91	6.83	21.2	V	30	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 16 Substitution Results (LTE Band 66)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM5	1.4	1RB	1710.7	14.58	0.91	6.83	20.5	V	30	Pass
	1.4		1745	14.68	0.91	6.83	**20.6**	V	30	Pass
	1.4		1779.3	14.68	0.91	6.83	20.6	V	30	Pass
	3		1711.5	14.68	0.91	6.83	**20.6**	V	30	Pass
	3		1745	14.58	0.91	6.83	20.5	V	30	Pass
	3		1778.5	14.58	0.91	6.83	20.5	V	30	Pass
	5		1712.5	14.48	0.91	6.83	20.4	V	30	Pass
	5		1745	14.58	0.91	6.83	**20.5**	V	30	Pass
	5		1777.5	14.38	0.91	6.83	20.3	V	30	Pass
	10		1715	14.78	0.91	6.83	**20.7**	V	30	Pass
	10		1745	14.48	0.91	6.83	20.4	V	30	Pass
	10		1775	14.68	0.91	6.83	20.6	V	30	Pass
	15		1717.5	14.28	0.91	6.83	20.2	V	30	Pass
	15		1745	14.68	0.91	6.83	**20.6**	V	30	Pass
	15		1772.5	14.28	0.91	6.83	20.2	V	30	Pass
	20		1720	14.38	0.91	6.83	20.3	V	30	Pass
	20		1745	14.48	0.91	6.83	20.4	V	30	Pass
	20		1770	14.58	0.91	6.83	**20.5**	V	30	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 17 Substitution Results (LTE Band 5)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	1.4	1RB	824.7	15.92	0.5	5.28	20.7	V	38.5	Pass
	1.4		836.5	16.02	0.5	5.28	**20.8**	V	38.5	Pass
	1.4		848.3	15.72	0.5	5.28	20.5	V	38.5	Pass
	3		825.5	15.52	0.5	5.28	20.3	V	38.5	Pass
	3		836.5	15.62	0.5	5.28	**20.4**	V	38.5	Pass
	3		847.5	15.22	0.5	5.28	20.0	V	38.5	Pass
	5		826.5	15.22	0.5	5.28	20.0	V	38.5	Pass
	5		836.5	15.62	0.5	5.28	20.4	V	38.5	Pass
	5		846.5	15.72	0.5	5.28	**20.5**	V	38.5	Pass
	10		829	15.72	0.5	5.28	**20.5**	V	38.5	Pass
	10		836.5	15.42	0.5	5.28	20.2	V	38.5	Pass
	10		844	15.22	0.5	5.28	20.0	V	38.5	Pass
TM5	1.4	1RB	824.7	15.22	0.5	5.28	20.0	V	38.5	Pass
	1.4		836.5	14.92	0.5	5.28	19.7	V	38.5	Pass
	1.4		848.3	15.42	0.5	5.28	**20.2**	V	38.5	Pass
	3		825.5	15.72	0.5	5.28	**20.5**	V	38.5	Pass
	3		836.5	15.22	0.5	5.28	20.0	V	38.5	Pass
	3		847.5	15.12	0.5	5.28	19.9	V	38.5	Pass
	5		826.5	15.02	0.5	5.28	19.8	V	38.5	Pass
	5		836.5	15.72	0.5	5.28	**20.5**	V	38.5	Pass
	5		846.5	15.32	0.5	5.28	20.1	V	38.5	Pass
	10		829	14.92	0.5	5.28	19.7	V	38.5	Pass
	10		836.5	15.22	0.5	5.28	20.0	V	38.5	Pass
	10		844	15.32	0.5	5.28	**20.1**	V	38.5	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 18 Substitution Results (LTE Band 7)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	5	1RB	2502.5	16.65	2.1	7.45	22.0	V	33	Pass
	5		2535	16.75	2.1	7.45	**22.1**	V	33	Pass
	5		2567.5	16.65	2.1	7.45	22.0	V	33	Pass
	10		2505	16.95	2.1	7.45	22.3	V	33	Pass
	10		2535	16.95	2.1	7.45	22.3	V	33	Pass
	10		2565	17.05	2.1	7.45	**22.4**	V	33	Pass
	15		2507.5	16.65	2.1	7.45	22.0	V	33	Pass
	15		2535	16.85	2.1	7.45	**22.2**	V	33	Pass
	15		2562.5	16.75	2.1	7.45	22.1	V	33	Pass
	20		2510	16.85	2.1	7.45	**22.2**	V	33	Pass
	20		2535	16.35	2.1	7.45	21.7	V	33	Pass
	20		2560	16.85	2.1	7.45	22.2	V	33	Pass
TM5	5	1RB	2502.5	16.35	2.1	7.45	**21.7**	V	33	Pass
	5		2535	16.15	2.1	7.45	21.5	V	33	Pass
	5		2567.5	16.15	2.1	7.45	21.5	V	33	Pass
	10		2505	16.45	2.1	7.45	**21.8**	V	33	Pass
	10		2535	16.35	2.1	7.45	21.7	V	33	Pass
	10		2565	15.95	2.1	7.45	21.3	V	33	Pass
	15		2507.5	16.15	2.1	7.45	**21.5**	V	33	Pass
	15		2535	15.95	2.1	7.45	21.3	V	33	Pass
	15		2562.5	15.95	2.1	7.45	21.3	V	33	Pass
	20		2510	16.05	2.1	7.45	21.4	V	33	Pass
	20		2535	16.25	2.1	7.45	21.6	V	33	Pass
	20		2560	16.35	2.1	7.45	**21.7**	V	33	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 19 Substitution Results (LTE Band 12)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	1.4	1RB	699.7	15.69	0.5	5.21	20.4	V	34.77	Pass
	1.4		707.5	15.79	0.5	5.21	**20.5**	V	34.77	Pass
	1.4		715.3	15.39	0.5	5.21	20.1	V	34.77	Pass
	3		700.5	15.39	0.5	5.21	**20.1**	V	34.77	Pass
	3		707.5	15.29	0.5	5.21	20.0	V	34.77	Pass
	3		714.5	15.19	0.5	5.21	19.9	V	34.77	Pass
	5		701.5	15.49	0.5	5.21	20.2	V	34.77	Pass
	5		707.5	15.69	0.5	5.21	**20.4**	V	34.77	Pass
	5		713.5	15.49	0.5	5.21	20.2	V	34.77	Pass
	10		704	15.49	0.5	5.21	20.2	V	34.77	Pass
	10		707.5	15.59	0.5	5.21	20.3	V	34.77	Pass
	10		711	15.99	0.5	5.21	**20.7**	V	34.77	Pass
TM5	1.4	1RB	699.7	14.89	0.5	5.21	19.6	V	34.77	Pass
	1.4		707.5	15.49	0.5	5.21	**20.2**	V	34.77	Pass
	1.4		715.3	14.99	0.5	5.21	19.7	V	34.77	Pass
	3		700.5	15.09	0.5	5.21	**19.8**	V	34.77	Pass
	3		707.5	14.79	0.5	5.21	19.5	V	34.77	Pass
	3		714.5	14.89	0.5	5.21	19.6	V	34.77	Pass
	5		701.5	15.19	0.5	5.21	**19.9**	V	34.77	Pass
	5		707.5	14.79	0.5	5.21	19.5	V	34.77	Pass
	5		713.5	14.69	0.5	5.21	19.4	V	34.77	Pass
	10		704	14.79	0.5	5.21	19.5	V	34.77	Pass
	10		707.5	15.29	0.5	5.21	**20.0**	V	34.77	Pass
	10		711	14.99	0.5	5.21	19.7	V	34.77	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 20 Substitution Results (LTE Band 13)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	5	1RB	779.5	15.69	0.5	5.21	20.4	V	34.77	Pass
	5		782	15.79	0.5	5.21	**20.5**	V	34.77	Pass
	5		784.5	15.59	0.5	5.21	20.3	V	34.77	Pass
	10		782	15.09	0.5	5.21	**19.8**	V	34.77	Pass
TM5	5	1RB	779.5	14.89	0.5	5.21	19.6	V	34.77	Pass
	5		782	14.89	0.5	5.21	19.6	V	34.77	Pass
	5		784.5	15.19	0.5	5.21	**19.9**	V	34.77	Pass
	10		782	14.69	0.5	5.21	**19.4**	V	34.77	Pass

Note: both of Vertical and Horizontal polarization are evaluated, and only the worst case is recorded in this report

Table 21 Substitution Results (LTE Band 17)

Test Mode	Band width (MHz)	RB Size	Freq. [MHz]	SG. Level [dBm]	Cable Loss [dB]	Antenna Gain [dBi]	Substitution Level (EIRP) [dBm]	Polari-zation	Limit [dBm]	Result
TM4	5	1RB	706.5	15.29	0.5	5.21	**20.0**	V	34.77	Pass
	5		710	15.29	0.5	5.21	20.0	V	34.77	Pass
	5		713.5	14.99	0.5	5.21	19.7	V	34.77	Pass
	10		709	14.89	0.5	5.21	19.6	V	34.77	Pass
	10		710	14.99	0.5	5.21	**19.7**	V	34.77	Pass
	10		711	14.69	0.5	5.21	19.4	V	34.77	Pass
TM5	5	1RB	706.5	14.99	0.5	5.21	**19.7**	V	34.77	Pass
	5		710	14.49	0.5	5.21	19.2	V	34.77	Pass
	5		713.5	14.99	0.5	5.21	19.7	V	34.77	Pass
	10		709	14.69	0.5	5.21	**19.4**	V	34.77	Pass
	10		710	14.49	0.5	5.21	19.2	V	34.77	Pass
	10		711	14.59	0.5	5.21	19.3	V	34.77	Pass

4.2. Peak to Average Ratio

4.2.1. Test Standard

CFR 47 (FCC) part 24 subpart E, part 27

4.2.2. Test Limit

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

4.2.3. Test Procedure

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode. For LTE operating mode: a. The EUT was connected to spectrum and system simulator via a power divider. b. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer. c. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%. d. Record the deviation as Peak to Average Ratio.

4.2.4. Test Data

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM1900	GPRS/TM1	1850.2	0.94	<13	PASS
		1880	0.92	<13	PASS
		1909.8	0.97	<13	PASS
GSM1900	EDGE/TM2	1850.2	3.11	<13	PASS
		1880	3.22	<13	PASS
		1909.8	3.10	<13	PASS

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1700	UMTS/TM3	1712.4	3.14	<13	PASS
		1732.6	3.19	<13	PASS
		1752.6	3.04	<13	PASS
WCDMA1900	UMTS/TM3	1852.4	3.67	<13	PASS
		1880	3.71	<13	PASS
		1907.6	3.68	<13	PASS

LTE Band 2:

Channel Bandwidth: 1.4 MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1850.7	1	0	4.7	<13	PASS
	1880	1	0	4.87	<13	PASS
	1909.3	1	0	4.64	<13	PASS
16QAM	1850.7	1	0	5.54	<13	PASS
	1880	1	0	5.78	<13	PASS
	1909.3	1	0	5.5	<13	PASS

Channel Bandwidth: 3MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1851.5	1	0	4.75	<13	PASS
	1880	1	0	5.27	<13	PASS
	1908.5	1	0	4.65	<13	PASS
16QAM	1851.5	1	0	5.59	<13	PASS
	1880	1	0	5.76	<13	PASS
	1908.5	1	0	5.62	<13	PASS

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1852.5	1	0	4.76	<13	PASS
	1880	1	0	4.84	<13	PASS
	1907.5	1	0	4.68	<13	PASS
16QAM	1852.5	1	0	5.7	<13	PASS
	1880	1	0	5.72	<13	PASS
	1907.5	1	0	5.49	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1855	1	0	4.87	<13	PASS
	1880	1	0	4.94	<13	PASS
	1905	1	0	4.82	<13	PASS
16QAM	1855	1	0	5.58	<13	PASS
	1880	1	0	5.84	<13	PASS
	1905	1	0	5.82	<13	PASS

Channel Bandwidth: 15MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1857.5	1	0	4.26	<13	PASS
	1880	1	0	4.55	<13	PASS
	1902.5	1	0	4.39	<13	PASS
16QAM	1857.5	1	0	4.95	<13	PASS
	1880	1	0	5.47	<13	PASS
	1902.5	1	0	5.51	<13	PASS

Channel Bandwidth: 20MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1860	1	0	4.61	<13	PASS
	1880	1	0	4.51	<13	PASS
	1900	1	0	4.65	<13	PASS
16QAM	1860	1	0	5.22	<13	PASS
	1880	1	0	5.57	<13	PASS
	1900	1	0	5.48	<13	PASS

LTE Band 4/66:

Channel Bandwidth: 1.4 MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1710.7	1	0	4.07	<13	PASS
	1745	1	0	4.64	<13	PASS
	1779.3	1	0	4.44	<13	PASS
16QAM	1710.7	1	0	4.99	<13	PASS
	1745	1	0	5.55	<13	PASS
	1779.3	1	0	5.27	<13	PASS

Channel Bandwidth: 3MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1711.5	1	0	4.12	<13	PASS
	1745	1	0	4.65	<13	PASS
	1778.5	1	0	4.44	<13	PASS
16QAM	1711.5	1	0	4.95	<13	PASS
	1745	1	0	5.71	<13	PASS
	1778.5	1	0	5.19	<13	PASS

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1712.5	1	0	4.03	<13	PASS
	1745	1	0	4.66	<13	PASS
	1777.5	1	0	4.38	<13	PASS
16QAM	1712.5	1	0	5.03	<13	PASS
	1745	1	0	5.42	<13	PASS
	1777.5	1	0	5.49	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1715	1	0	4.18	<13	PASS
	1745	1	0	4.69	<13	PASS
	1775	1	0	4.29	<13	PASS
16QAM	1715	1	0	5.03	<13	PASS
	1745	1	0	5.58	<13	PASS
	1775	1	0	5.41	<13	PASS

Channel Bandwidth: 15MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1717.5	1	0	4.10	<13	PASS
	1745	1	0	4.78	<13	PASS
	1772.5	1	0	5.01	<13	PASS
16QAM	1717.5	1	0	4.89	<13	PASS
	1745	1	0	5.62	<13	PASS
	1772.5	1	0	6.06	<13	PASS

Channel Bandwidth: 20MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	1720	1	0	4.32	<13	PASS
	1745	1	0	4.68	<13	PASS
	1770	1	0	4.69	<13	PASS
16QAM	1720	1	0	4.39	<13	PASS
	1745	1	0	4.87	<13	PASS
	1770	1	0	4.78	<13	PASS

LTE Band 5:

Channel Bandwidth: 1.4 MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	824.7	1	0	4.71	<13	PASS
	836.5	1	0	4.78	<13	PASS
	848.3	1	0	4.53	<13	PASS
16QAM	824.7	1	0	5.46	<13	PASS
	836.5	1	0	5.64	<13	PASS
	848.3	1	0	5.43	<13	PASS

Channel Bandwidth: 3MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	825.5	1	0	4.66	<13	PASS
	836.5	1	0	4.77	<13	PASS
	847.5	1	0	4.54	<13	PASS
16QAM	825.5	1	0	5.56	<13	PASS
	836.5	1	0	5.69	<13	PASS
	847.5	1	0	5.31	<13	PASS

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	826.5	1	0	4.7	<13	PASS
	836.5	1	0	4.82	<13	PASS
	846.5	1	0	4.57	<13	PASS
16QAM	826.5	1	0	5.52	<13	PASS
	836.5	1	0	5.54	<13	PASS
	846.5	1	0	5.45	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	829	1	0	4.77	<13	PASS
	836.5	1	0	4.7	<13	PASS
	844	1	0	4.87	<13	PASS
16QAM	829	1	0	5.48	<13	PASS
	836.5	1	0	5.66	<13	PASS
	844	1	0	5.57	<13	PASS

LTE Band 7:

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	2502.5	1	0	4.44	<13	PASS
	2535	1	0	4.75	<13	PASS
	2567.5	1	0	4.88	<13	PASS
16QAM	2502.5	1	0	5.38	<13	PASS
	2535	1	0	5.54	<13	PASS
	2567.5	1	0	5.63	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	2505	1	0	4.54	<13	PASS
	2535	1	0	4.93	<13	PASS
	2565	1	0	4.72	<13	PASS
16QAM	2505	1	0	5.39	<13	PASS
	2535	1	0	5.7	<13	PASS
	2565	1	0	5.68	<13	PASS

Channel Bandwidth: 15MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	2507.5	1	0	5.45	<13	PASS
	2535	1	0	5.83	<13	PASS
	2562.5	1	0	6.22	<13	PASS
16QAM	2507.5	1	0	5.75	<13	PASS
	2535	1	0	6.32	<13	PASS
	2562.5	1	0	6.07	<13	PASS

Channel Bandwidth: 20MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	2510	1	0	6.38	<13	PASS
	2535	1	0	6.54	<13	PASS
	2560	1	0	6.84	<13	PASS
16QAM	2510	1	0	5.56	<13	PASS
	2535	1	0	6.11	<13	PASS
	2560	1	0	7.31	<13	PASS

LTE Band 12:

Channel Bandwidth: 1.4MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	699.7	1	0	3.92	<13	PASS
	707.5	1	0	4.23	<13	PASS
	715.3	1	0	3.79	<13	PASS
16QAM	699.7	1	0	4.86	<13	PASS
	707.5	1	0	5.2	<13	PASS
	715.3	1	0	4.81	<13	PASS

Channel Bandwidth: 3MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	700.5	1	0	3.82	<13	PASS
	707.5	1	0	4.28	<13	PASS
	714.5	1	0	3.75	<13	PASS
16QAM	700.5	1	0	4.41	<13	PASS
	707.5	1	0	5.23	<13	PASS
	714.5	1	0	4.73	<13	PASS

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	701.5	1	0	3.96	<13	PASS
	707.5	1	0	4.04	<13	PASS
	713.5	1	0	4.12	<13	PASS
16QAM	701.5	1	0	4.86	<13	PASS
	707.5	1	0	5.24	<13	PASS
	713.5	1	0	4.99	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	704	1	0	3.91	<13	PASS
	707.5	1	0	4.11	<13	PASS
	711	1	0	4.16	<13	PASS
16QAM	704	1	0	4.64	<13	PASS
	707.5	1	0	5.0	<13	PASS
	711	1	0	5.22	<13	PASS

LTE Band 13:

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	799.5	1	0	4.53	<13	PASS
	782	1	0	4.63	<13	PASS
	784.5	1	0	4.62	<13	PASS
16QAM	799.5	1	0	5.37	<13	PASS
	782	1	0	5.44	<13	PASS
	784.5	1	0	5.54	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	782	1	0	4.49	<13	PASS
16QAM	782	1	0	5.44	<13	PASS

LTE Band 17:

Channel Bandwidth: 5MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	706.5	1	0	4.65	<13	PASS
	710	1	0	4.56	<13	PASS
	713.5	1	0	4.35	<13	PASS
16QAM	706.5	1	0	5.42	<13	PASS
	710	1	0	5.48	<13	PASS
	713.5	1	0	5.45	<13	PASS

Channel Bandwidth: 10MHz						
Modulation	Test Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	709	1	0	4.46	<13	PASS
	710	1	0	4.49	<13	PASS
	711	1	0	4.47	<13	PASS
16QAM	709	1	0	4.92	<13	PASS
	710	1	0	5.42	<13	PASS
	711	1	0	5.54	<13	PASS

4.3. Occupied Bandwidth/Emission Bandwidth

4.3.1. Test Standard

FCC: CFR Part 2.1049, CFR Part 22.917, CFR Part 24.238, CRF Part 27

4.3.2. Test Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable.

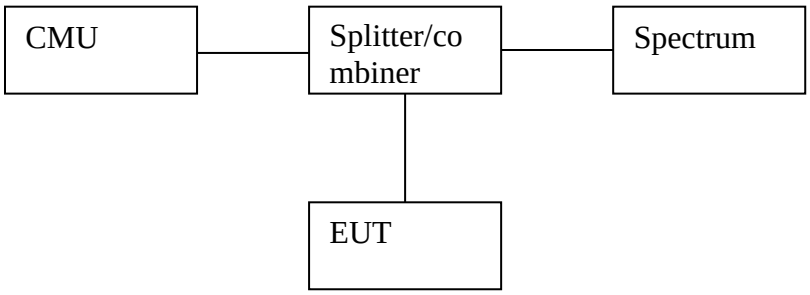
(h) Transmitters employing digital modulation techniques-when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated.

4.3.3. Test Procedure

1. Connect the equipment as shown in the above diagram.
2. Adjust the settings of the Universal Radio Communication Tester (CMU) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to measure the 99% occupied bandwidth. Record the value.
4. Set the spectrum analyzer to measure the -26 dB emission bandwidth. Record the value.
5. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

Spectrum analyzer settings: Measurement bandwidth of at least 1% of the occupied bandwidth.

4.3.4. Test Setup



4.3.5.Test Data

Table 22 Occupied Bandwidth Test Data

Test Band	Test Mode	Test Channel	99% OBW (kHz)	26dBc BANDWIDTH (kHz)	Verdict
GSM850	GPRS/TM1	LCH	244.87	310.19	PASS
		MCH	**247.12**	314.07	PASS
		HCH	245.74	315.12	PASS
	EDGE/TM2	LCH	247.06	309.00	PASS
		MCH	**247.08**	310.52	PASS
		HCH	243.47	300.37	PASS
GSM1900	GPRS/TM1	LCH	246.23	314.12	PASS
		MCH	**248.25**	312.45	PASS
		HCH	244.42	314.27	PASS
	EDGE/TM2	LCH	**247.76**	312.08	PASS
		MCH	245.69	305.37	PASS
		HCH	244.30	311.82	PASS

Table 23 Occupied Bandwidth Test Data

Test Band	Test Mode	Test Channel	99% OBW (kHz)	26dBc BANDWIDTH (kHz)	Verdict
WCDMA850	UMTS/TM3	LCH	4138.3	4721	PASS
		MCH	4124.4	4697	PASS
		HCH	**4157.6**	4734	PASS
WCDMA1700	UMTS/TM3	LCH	4115.4	4700	PASS
		MCH	**4127.4**	4699	PASS
		HCH	4125.5	4695	PASS
WCDMA1900	UMTS/TM3	LCH	4126.4	4695	PASS
		MCH	**4128.4**	4689	PASS
		HCH	4127.6	4702	PASS

LTE Band 2:

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	**1.088**	1.245	PASS
	MCH	6	0	1.083	1.220	PASS
	HCH	6	0	1.088	1.240	PASS
16QAM	LCH	6	0	**1.093**	1.260	PASS
	MCH	6	0	1.088	1.255	PASS
	HCH	6	0	1.093	1.260	PASS

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	**2.686**	2.870	PASS
	MCH	15	0	2.676	2.870	PASS
	HCH	15	0	2.686	2.860	PASS
16QAM	LCH	15	0	**2.696**	2.870	PASS
	MCH	15	0	2.676	2.880	PASS
	HCH	15	0	2.686	2.910	PASS

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	**4.466**	4.720	PASS
	MCH	25	0	4.466	4.710	PASS
	HCH	25	0	4.456	4.720	PASS
16QAM	LCH	25	0	**4.476**	4.730	PASS
	MCH	25	0	4.456	4.710	PASS
	HCH	25	0	4.476	4.770	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	8.885	9.267	PASS
	MCH	50	0	**8.918**	9.267	PASS
	HCH	50	0	8.885	9.333	PASS
16QAM	LCH	50	0	**8.918**	9.200	PASS
	MCH	50	0	8.918	9.267	PASS
	HCH	50	0	8.885	9.333	PASS

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	75	0	**13.328**	13.750	PASS
	MCH	75	0	13.328	13.800	PASS
	HCH	75	0	13.328	13.750	PASS
16QAM	LCH	75	0	13.328	13.750	PASS
	MCH	75	0	**13.378**	13.800	PASS
	HCH	75	0	13.328	13.750	PASS

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	100	0	17.704	18.267	PASS
	MCH	100	0	**17.837**	18.333	PASS
	HCH	100	0	17.77	18.267	PASS
16QAM	LCH	100	0	17.77	18.267	PASS
	MCH	100	0	**17.837**	18.400	PASS
	HCH	100	0	17.77	18.267	PASS

LTE Band 4:

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	1.1092	1.278	PASS
	MCH	6	0	1.1061	1.287	PASS
	HCH	6	0	**1.1129**	1.284	PASS
16QAM	LCH	6	0	**1.1136**	1.290	PASS
	MCH	6	0	1.1125	1.292	PASS
	HCH	6	0	1.1096	1.292	PASS

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	2.6943	2.923	PASS
	MCH	15	0	2.6937	2.897	PASS
	HCH	15	0	**2.6996**	2.915	PASS
16QAM	LCH	15	0	2.6962	2.910	PASS
	MCH	15	0	2.6949	2.922	PASS
	HCH	15	0	**2.6985**	2.935	PASS

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	4.4758	4.794	PASS
	MCH	25	0	**4.4791**	4.786	PASS
	HCH	25	0	4.4790	4.829	PASS
16QAM	LCH	25	0	4.4754	4.752	PASS
	MCH	25	0	4.4746	4.808	PASS
	HCH	25	0	**4.4786**	4.805	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	8.8912	9.306	PASS
	MCH	50	0	**8.9176**	9.337	PASS
	HCH	50	0	8.9088	9.399	PASS
16QAM	LCH	50	0	8.9088	9.264	PASS
	MCH	50	0	8.9030	9.374	PASS
	HCH	50	0	**8.9206**	9.378	PASS

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	75	0	13.340	13.89	PASS
	MCH	75	0	**13.352**	13.83	PASS
	HCH	75	0	13.337	13.84	PASS
16QAM	LCH	75	0	13.331	13.78	PASS
	MCH	75	0	**13.366**	13.86	PASS
	HCH	75	0	13.356	13.89	PASS

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	100	0	17.786	18.34	PASS
	MCH	100	0	**17.804**	18.36	PASS
	HCH	100	0	17.772	18.36	PASS
16QAM	LCH	100	0	17.770	18.37	PASS
	MCH	100	0	**17.817**	18.43	PASS
	HCH	100	0	17.799	18.39	PASS

LTE Band 66:

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	1.088	1.225	PASS
	MCH	6	0	**1.093**	1.240	PASS
	HCH	6	0	1.088	1.245	PASS
16QAM	LCH	6	0	1.088	1.245	PASS
	MCH	6	0	**1.093**	1.255	PASS
	HCH	6	0	1.093	1.240	PASS

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	**2.686**	2.870	PASS
	MCH	15	0	2.676	2.870	PASS
	HCH	15	0	2.686	2.870	PASS
16QAM	LCH	15	0	2.686	2.880	PASS
	MCH	15	0	**2.696**	2.880	PASS
	HCH	15	0	2.676	2.880	PASS

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	**4.466**	4.750	PASS
	MCH	25	0	4.466	4.740	PASS
	HCH	25	0	4.466	4.760	PASS
16QAM	LCH	25	0	**4.466**	4.750	PASS
	MCH	25	0	4.466	4.710	PASS
	HCH	25	0	4.456	4.750	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	8.885	9.233	PASS
	MCH	50	0	8.885	9.233	PASS
	HCH	50	0	**8.918**	9.300	PASS
16QAM	LCH	50	0	8.885	9.300	PASS
	MCH	50	0	**8.918**	9.233	PASS
	HCH	50	0	8.885	9.233	PASS

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	75	0	13.328	13.800	PASS
	MCH	75	0	13.328	13.800	PASS
	HCH	75	0	**13.350**	13.800	PASS
16QAM	LCH	75	0	13.328	13.800	PASS
	MCH	75	0	13.378	13.800	PASS
	HCH	75	0	**13.400**	13.800	PASS

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	100	0	17.77	18.333	PASS
	MCH	100	0	17.77	18.267	PASS
	HCH	100	0	**17.837**	18.333	PASS
16QAM	LCH	100	0	17.77	18.333	PASS
	MCH	100	0	17.77	18.333	PASS
	HCH	100	0	**17.837**	18.333	PASS

LTE Band 5:

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	**1.088**	1.235	PASS
	MCH	6	0	1.088	1.240	PASS
	HCH	6	0	1.088	1.250	PASS
16QAM	LCH	6	0	1.088	1.250	PASS
	MCH	6	0	**1.093**	1.245	PASS
	HCH	6	0	1.088	1.240	PASS

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	**2.686**	2.870	PASS
	MCH	15	0	2.676	2.870	PASS
	HCH	15	0	2.676	2.860	PASS
16QAM	LCH	15	0	2.676	2.880	PASS
	MCH	15	0	**2.686**	2.870	PASS
	HCH	15	0	2.676	2.860	PASS

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	4.456	4.730	PASS
	MCH	25	0	**4.476**	4.740	PASS
	HCH	25	0	4.456	4.750	PASS
16QAM	LCH	25	0	4.466	4.720	PASS
	MCH	25	0	**4.476**	4.760	PASS
	HCH	25	0	4.466	4.740	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	8.885	9.200	PASS
	MCH	50	0	**8.918**	9.267	PASS
	HCH	50	0	8.885	9.233	PASS
16QAM	LCH	50	0	8.885	9.200	PASS
	MCH	50	0	**8.918**	9.333	PASS
	HCH	50	0	8.885	9.200	PASS

LTE Band 7:

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	4.466	4.770	PASS
	MCH	25	0	4.466	4.710	PASS
	HCH	25	0	**4.476**	4.780	PASS
16QAM	LCH	25	0	**4.476**	4.700	PASS
	MCH	25	0	4.456	4.720	PASS
	HCH	25	0	4.476	4.760	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	**8.918**	9.300	PASS
	MCH	50	0	8.885	9.267	PASS
	HCH	50	0	8.918	9.267	PASS
16QAM	LCH	50	0	8.852	9.233	PASS
	MCH	50	0	**8.918**	9.233	PASS
	HCH	50	0	8.918	9.267	PASS

Channel Bandwidth: 15 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	75	0	13.328	13.750	PASS
	MCH	75	0	**13.378**	13.800	PASS
	HCH	75	0	13.378	13.800	PASS
16QAM	LCH	75	0	13.328	13.800	PASS
	MCH	75	0	13.328	13.850	PASS
	HCH	75	0	**13.378**	13.750	PASS

Channel Bandwidth: 20 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	100	0	**17.77**	18.333	PASS
	MCH	100	0	17.77	18.400	PASS
	HCH	100	0	17.77	18.267	PASS
16QAM	LCH	100	0	**17.77**	18.333	PASS
	MCH	100	0	17.77	18.333	PASS
	HCH	100	0	17.77	18.267	PASS

LTE Band 12:

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	**1.088**	1.240	PASS
	MCH	6	0	1.088	1.210	PASS
	HCH	6	0	1.088	1.240	PASS
16QAM	LCH	6	0	1.088	1.240	PASS
	MCH	6	0	1.088	1.235	PASS
	HCH	6	0	**1.093**	1.230	PASS

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	15	0	2.676	2.880	PASS
	MCH	15	0	2.676	2.860	PASS
	HCH	15	0	**2.686**	2.880	PASS
16QAM	LCH	15	0	**2.686**	2.870	PASS
	MCH	15	0	2.686	2.870	PASS
	HCH	15	0	2.686	2.880	PASS

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	**4.466**	4.730	PASS
	MCH	25	0	4.466	4.720	PASS
	HCH	25	0	4.466	4.720	PASS
16QAM	LCH	25	0	**4.476**	4.750	PASS
	MCH	25	0	4.476	4.710	PASS
	HCH	25	0	4.476	4.740	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	**8.918**	9.267	PASS
	MCH	50	0	8.918	9.267	PASS
	HCH	50	0	8.885	9.200	PASS
16QAM	LCH	50	0	**8.918**	9.233	PASS
	MCH	50	0	8.885	9.200	PASS
	HCH	50	0	8.918	9.233	PASS

LTE Band 13:

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	4.456	4.720	PASS
	MCH	25	0	4.466	4.730	PASS
	HCH	25	0	**4.476**	4.690	PASS
16QAM	LCH	25	0	4.466	4.720	PASS
	MCH	25	0	**4.476**	4.730	PASS
	HCH	25	0	4.466	4.760	PASS

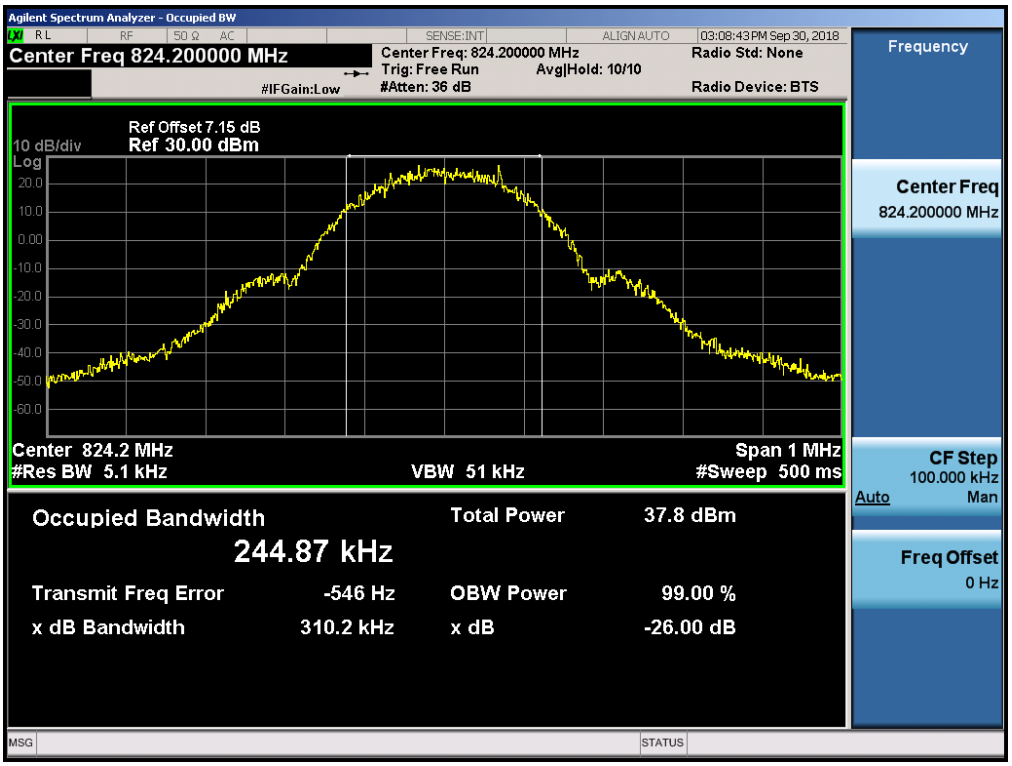
Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	---	50	0	**8.885**	9.233	PASS
16QAM	---	50	0	**8.885**	9.267	PASS

LTE Band 17:

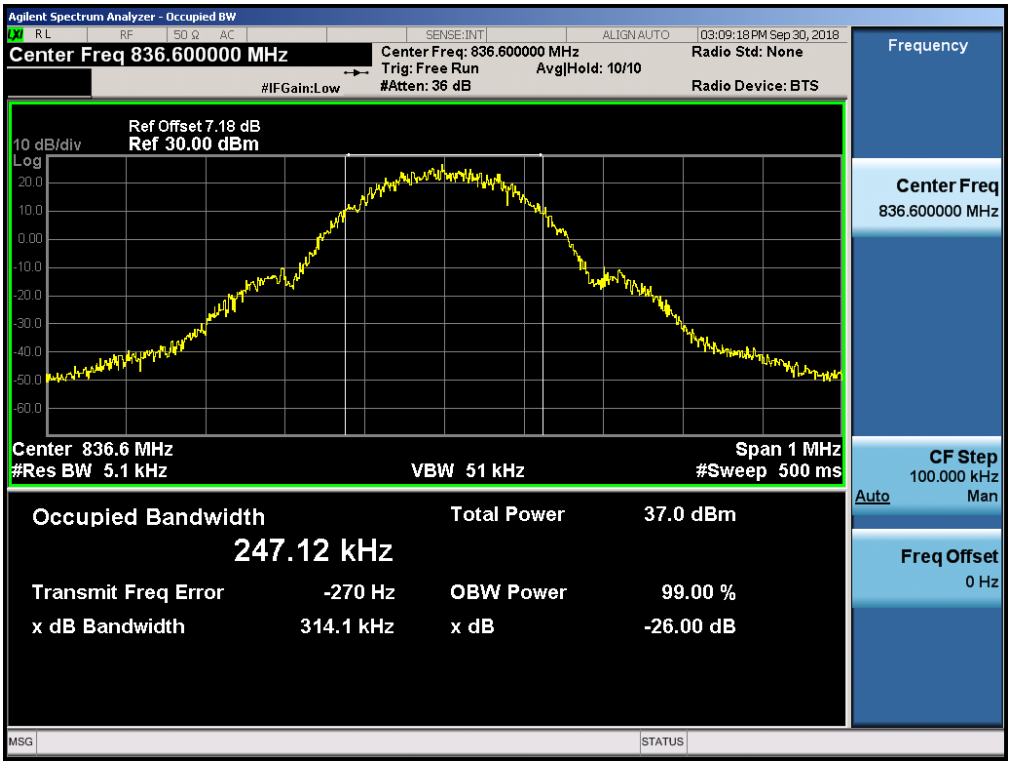
Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	25	0	**4.466**	4.760	PASS
	MCH	25	0	4.456	4.700	PASS
	HCH	25	0	4.466	4.730	PASS
16QAM	LCH	25	0	4.466	4.770	PASS
	MCH	25	0	**4.476**	4.690	PASS
	HCH	25	0	4.466	4.740	PASS

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	50	0	**8.918**	9.300	PASS
	MCH	50	0	8.885	9.200	PASS
	HCH	50	0	8.918	9.267	PASS
16QAM	LCH	50	0	**8.918**	9.233	PASS
	MCH	50	0	8.918	9.233	PASS
	HCH	50	0	8.885	9.233	PASS

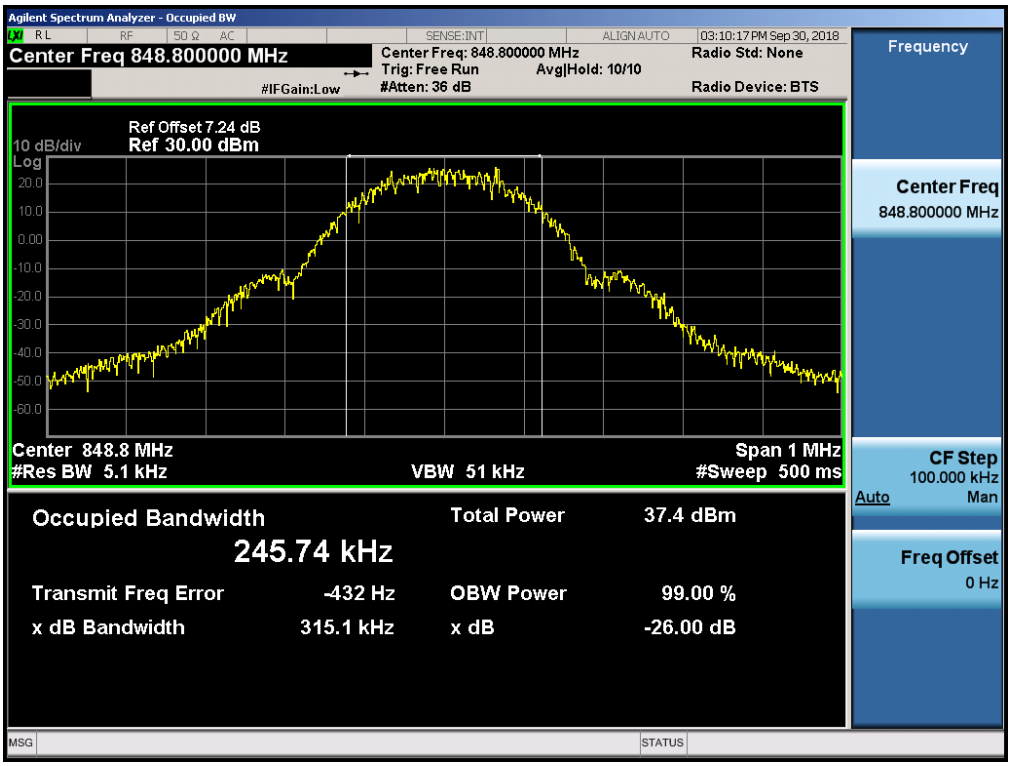
Test Band = GSM850
Test Mode = GPRS/TM1
Test Channel = LCH



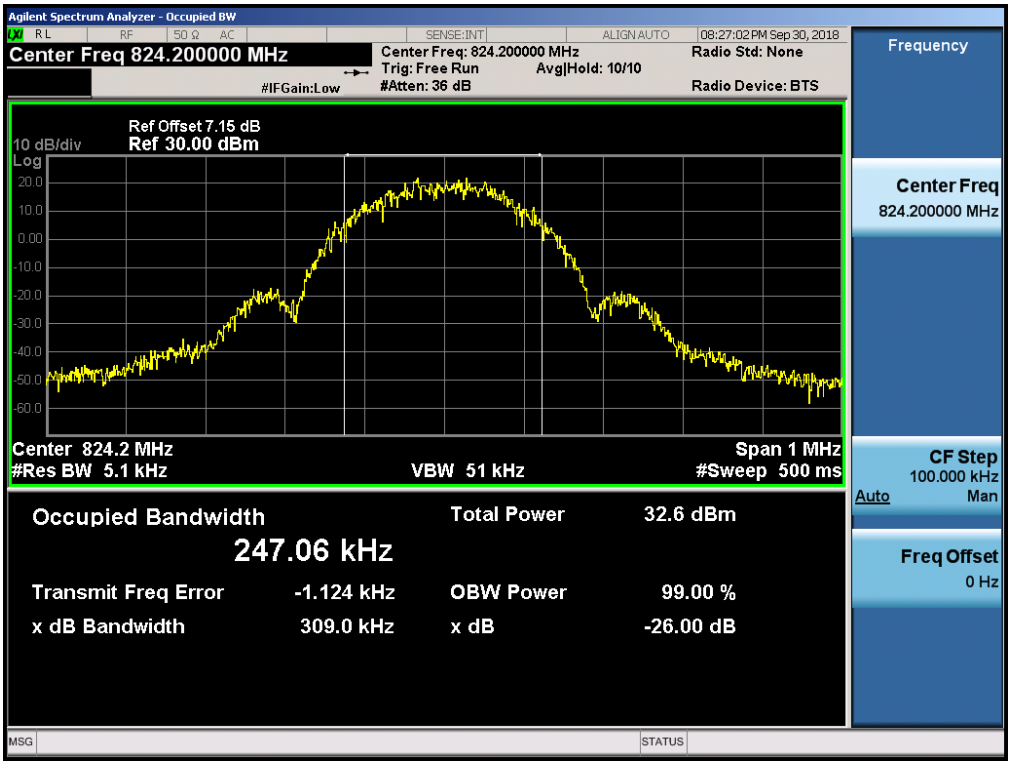
Test Band = GSM850
Test Mode = GPRS/TM1
Test Channel = MCH



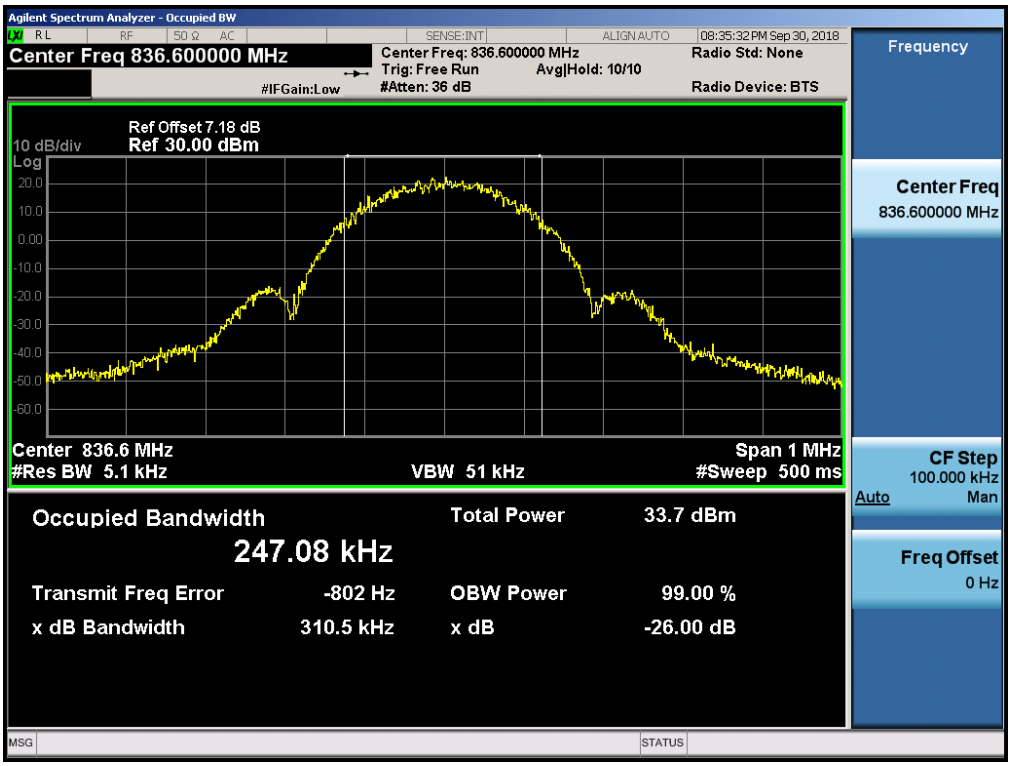
Test Band = GSM850
GPRS/TM1
Test Channel = HCH



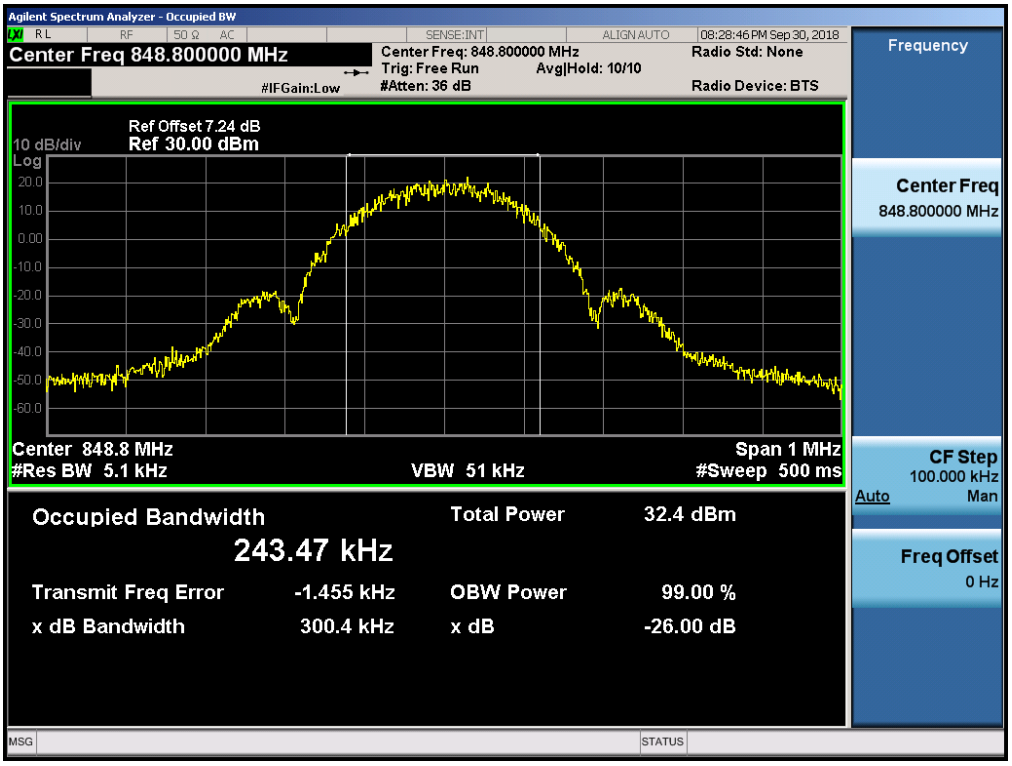
Test Band = GSM850
Test Mode = EDGE/TM2
Test Channel = LCH



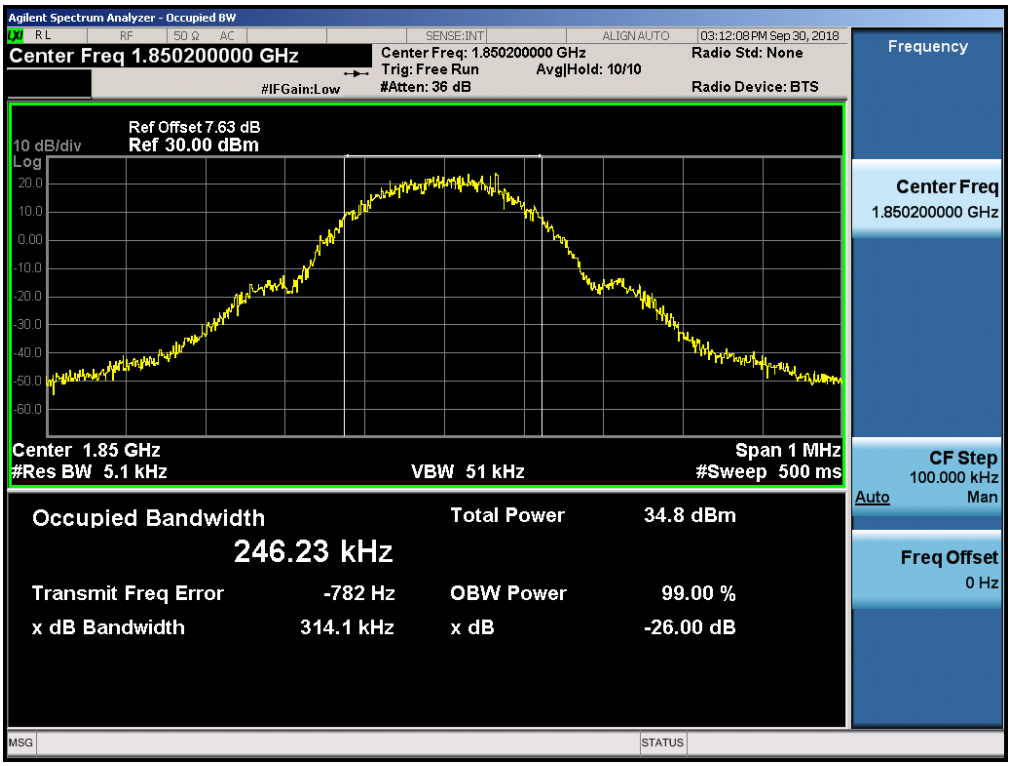
Test Band = GSM850
Test Mode = EDGE/TM2
Test Channel = MCH



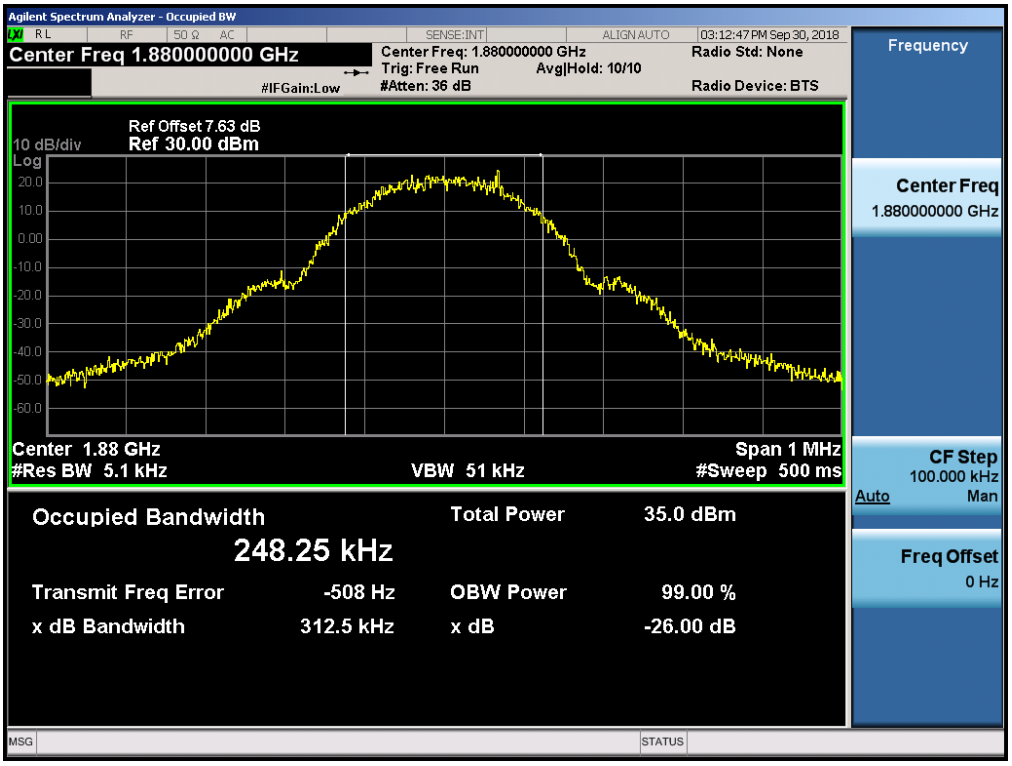
Test Band = GSM850
Test Mode = EDGE/TM2
Test Channel = HCH



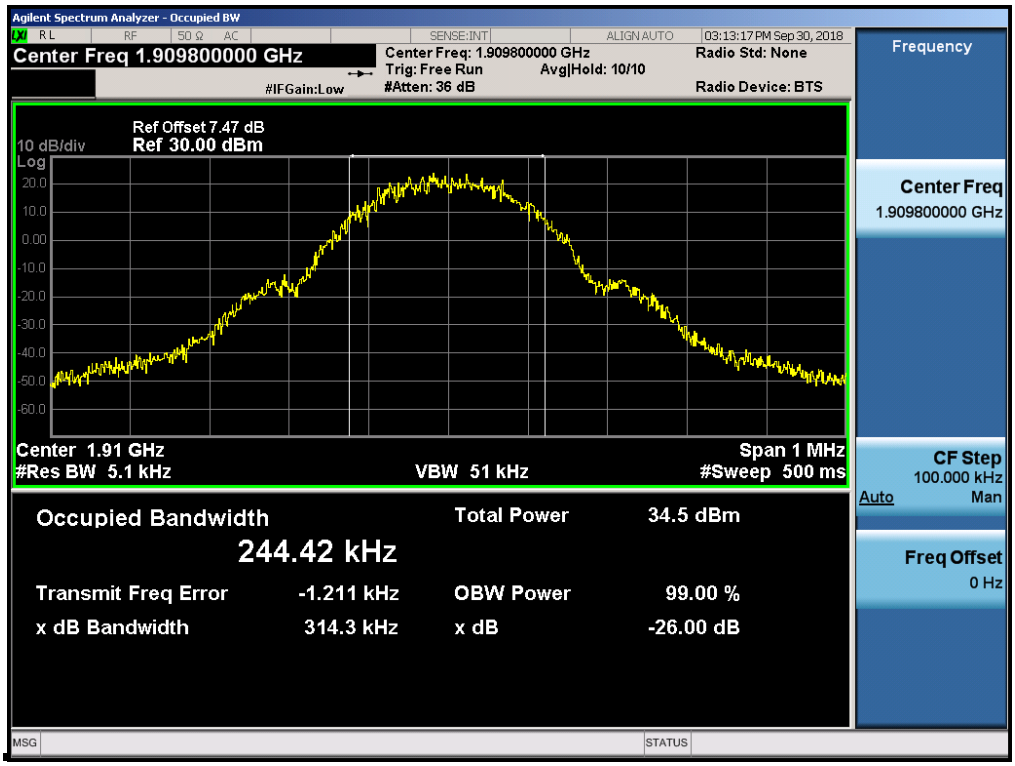
Test Band = GSM1900
Test Mode = GPRS/TM1
Test Channel = LCH



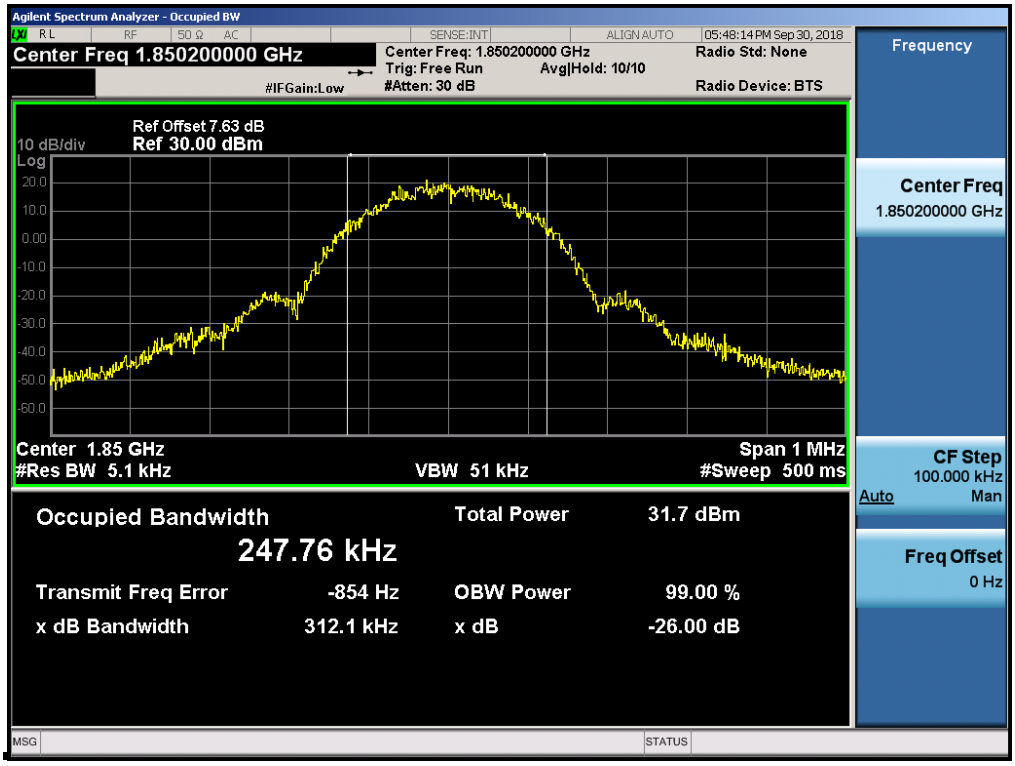
Test Band = GSM1900
Test Mode = GPRS/TM1
Test Channel = MCH



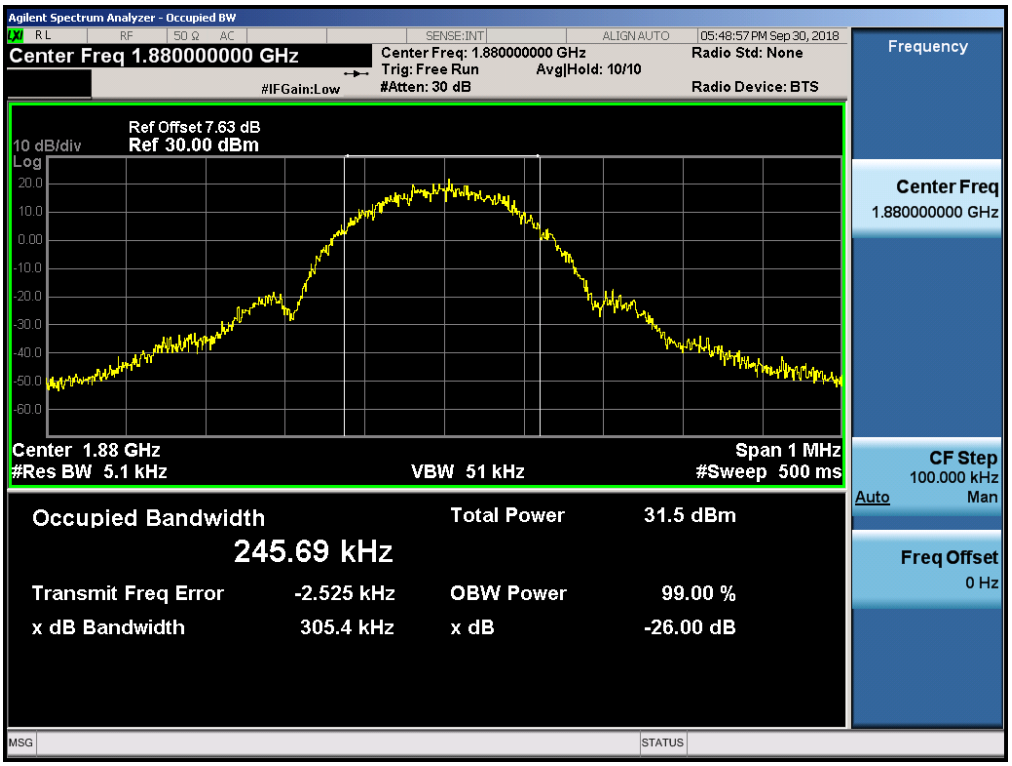
Test Band = GSM1900
Test Mode = GPRS/TM1
Test Channel = HCH



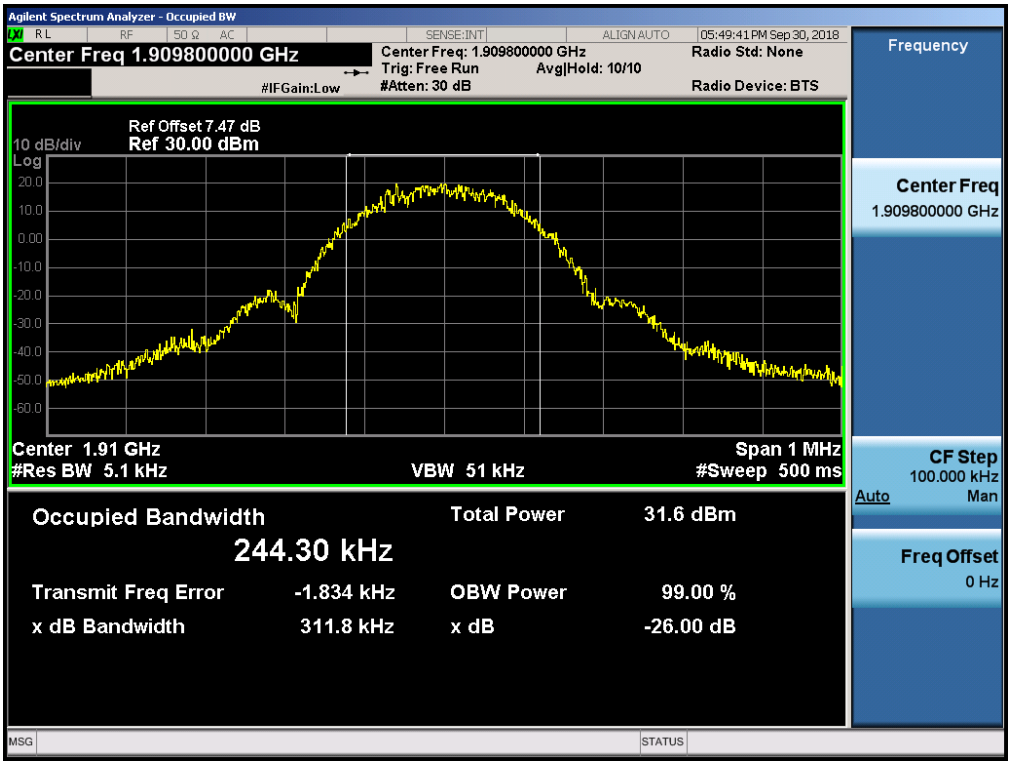
Test Band = GSM1900
Test Mode = EDGE /TM2
Test Channel = LCH



Test Band = GSM1900
Test Mode = EDGE /TM2
Test Channel = MCH



Test Band = GSM1900
Test Mode = EDGE /TM2
Test Channel = HCH



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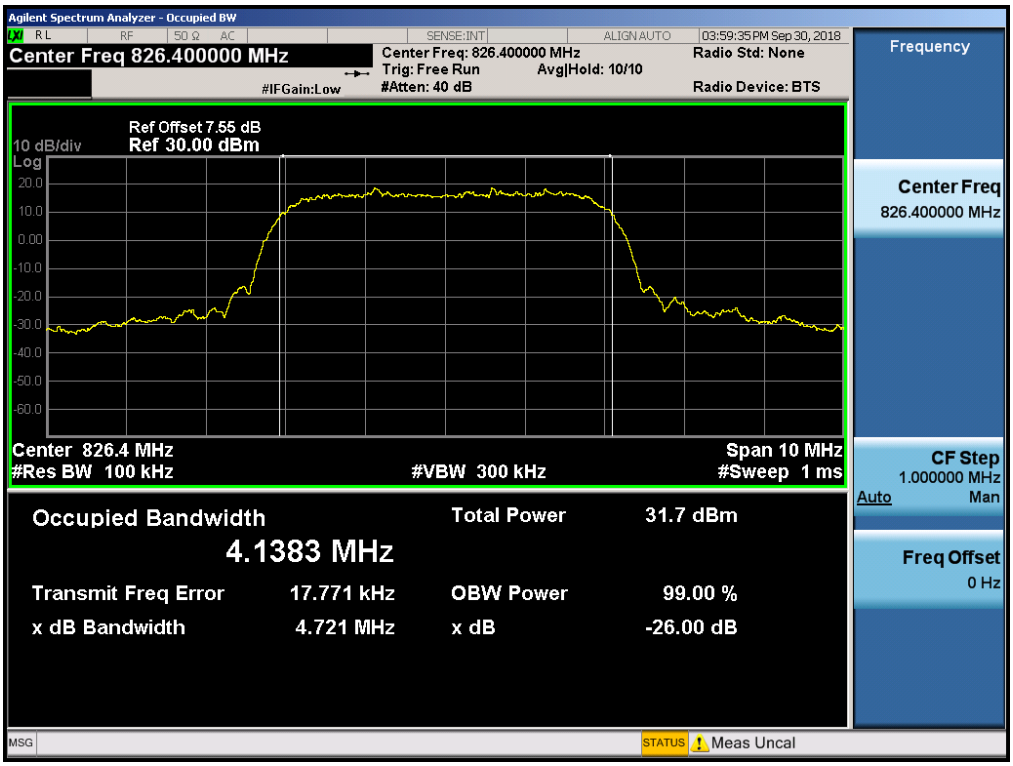
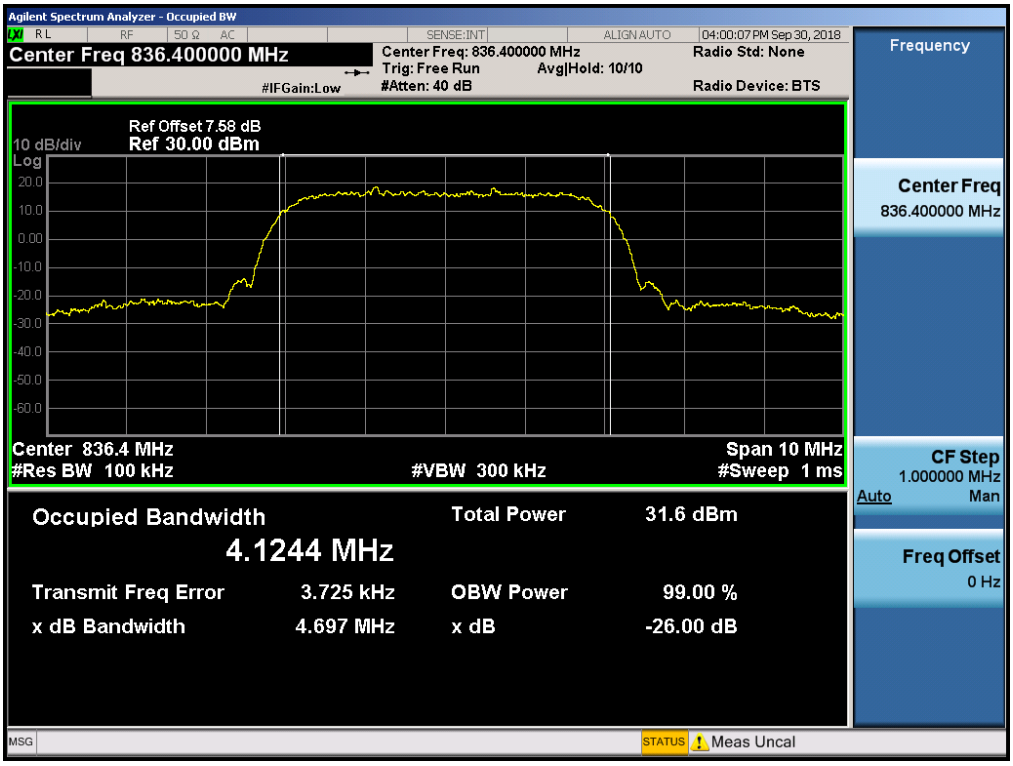
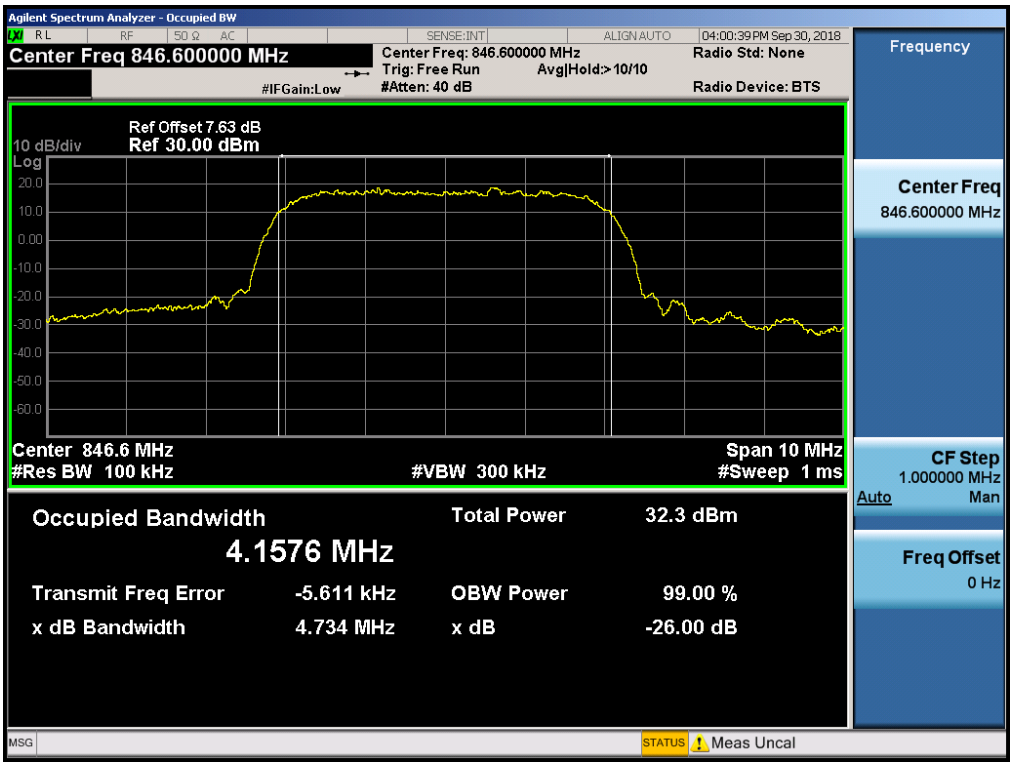
Test Mode=UMTS/TM3
Test Channel=LCH



Test Band=WCDMA850
Test Mode=UMTS/TM3
Test Channel=MCH



Test Band=WCDMA850
Test Mode=UMTS/TM3
Test Channel=HCH



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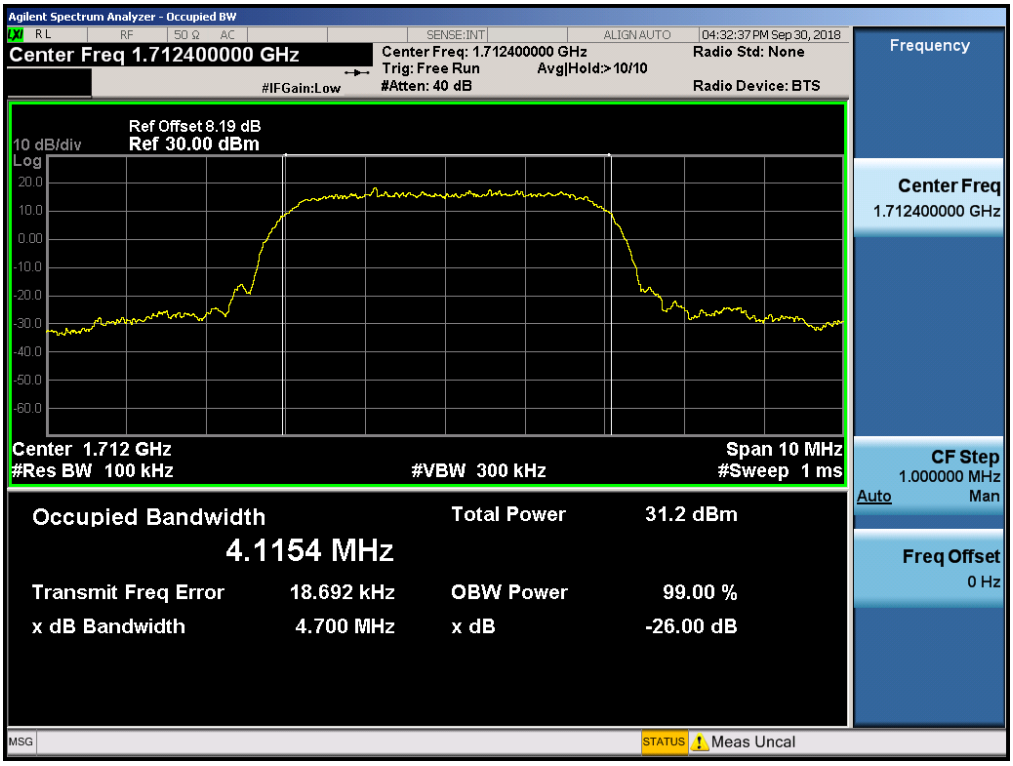
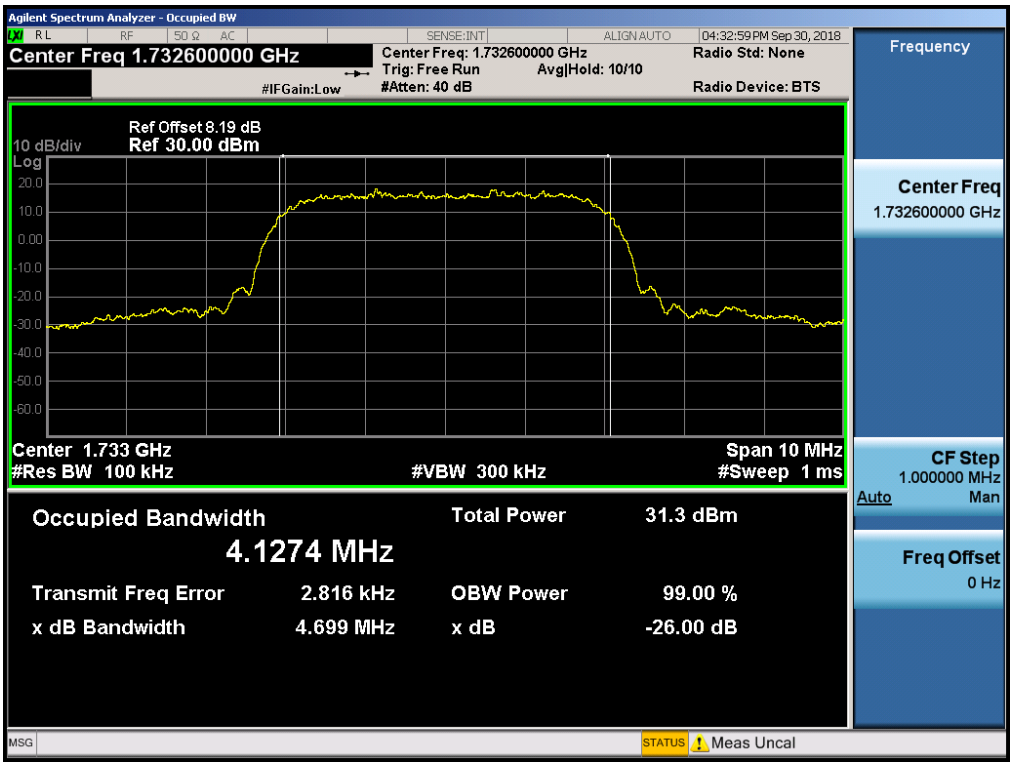
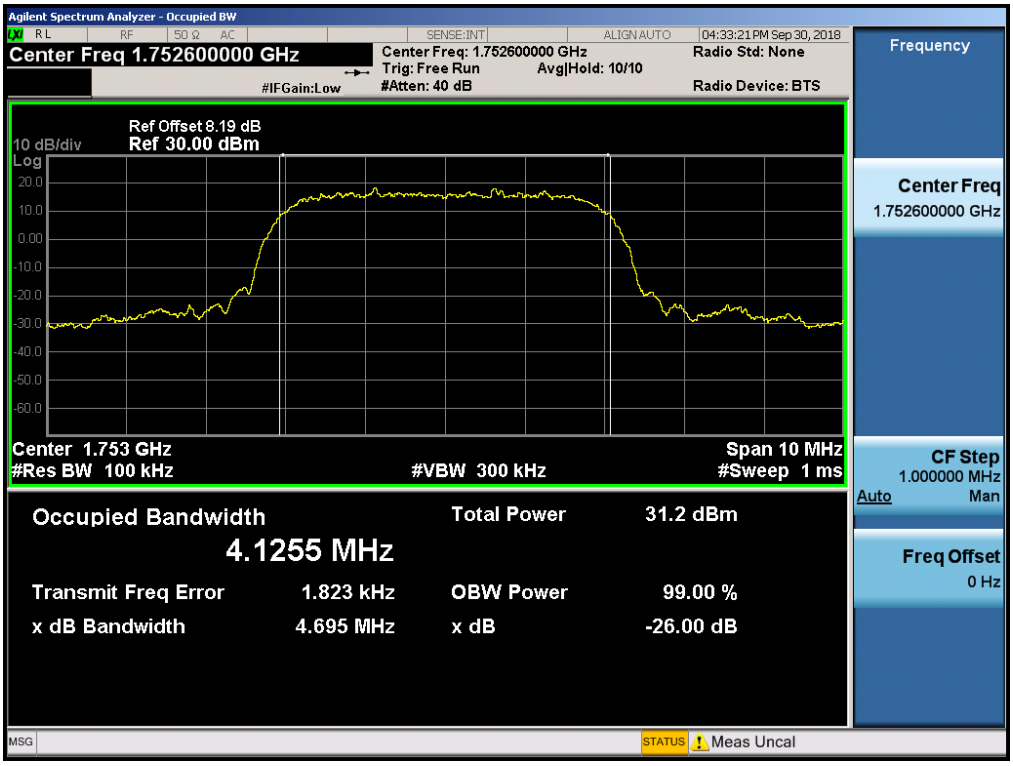
Test Mode=UMTS/TM3
Test Channel=LCH



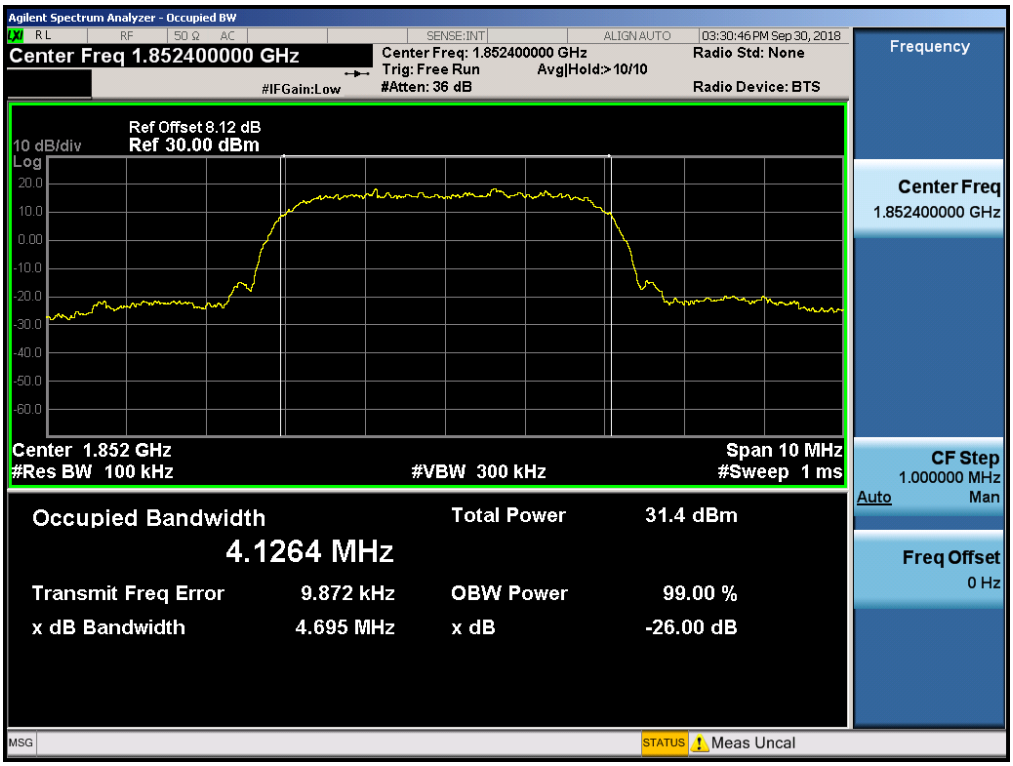
Test Band=WCDMA1700
Test Mode=UMTS/TM3
Test Channel=MCH



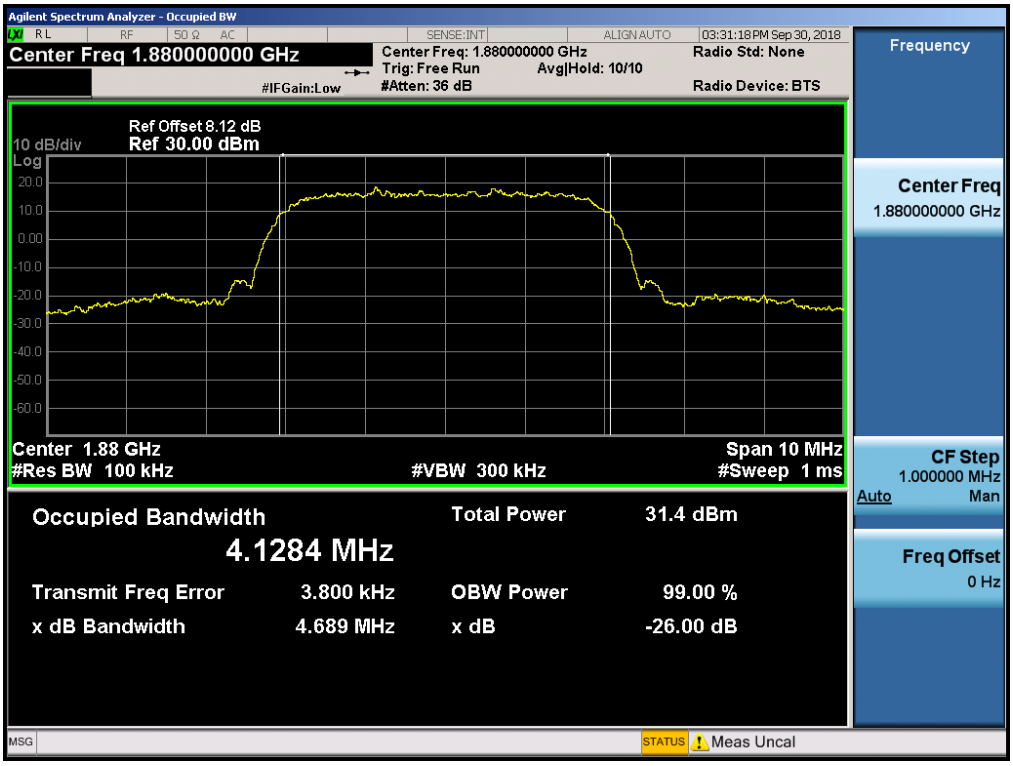
Test Band=WCDMA1700
Test Mode=UMTS/TM3
Test Channel=HCH



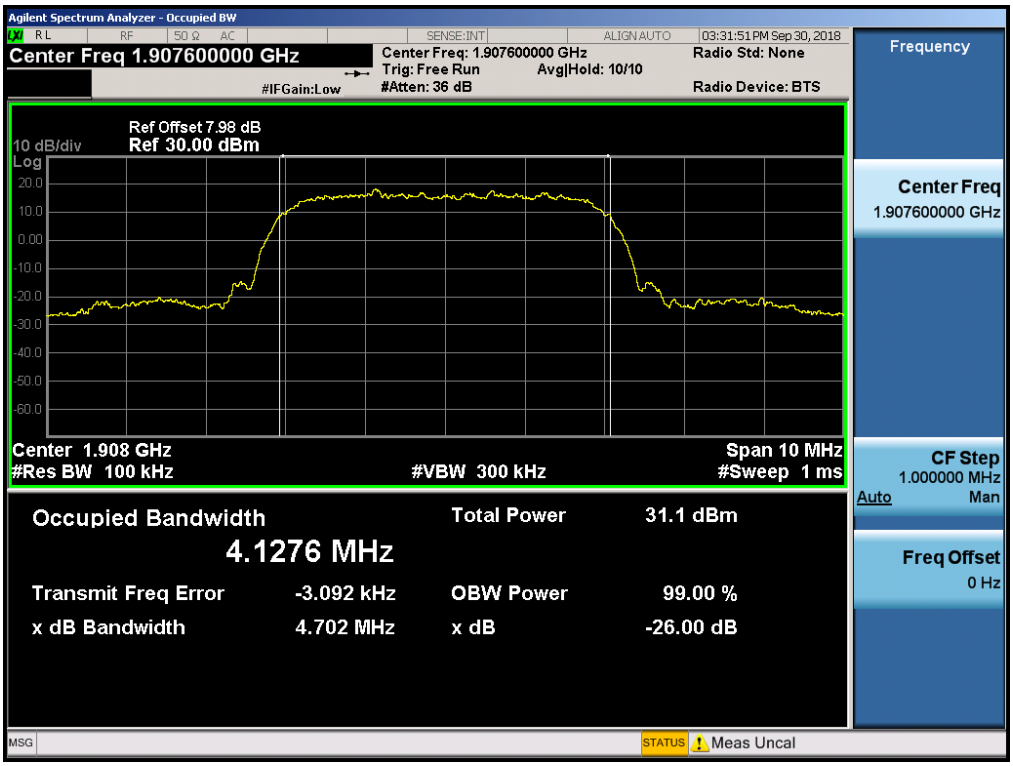
Test Band=WCDMA1900
Test Mode=UMTS/TM3
Test Channel=LCH



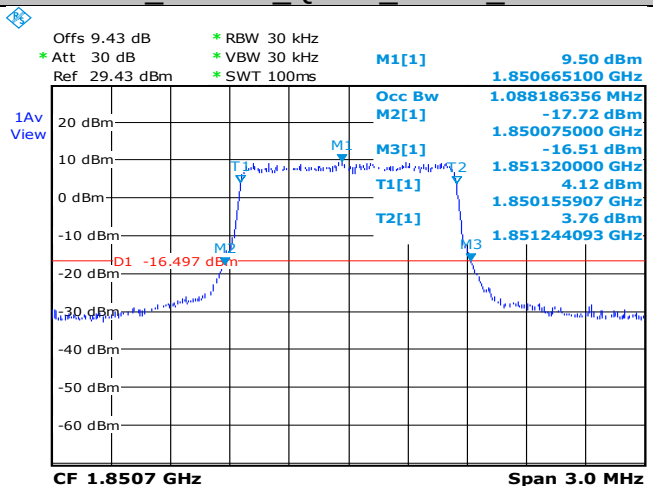
Test Band=WCDMA1900
Test Mode=UMTS/TM3
Test Channel=MCH



Test Band=WCDMA1900
Test Mode=UMTS/TM3
Test Channel=HCH

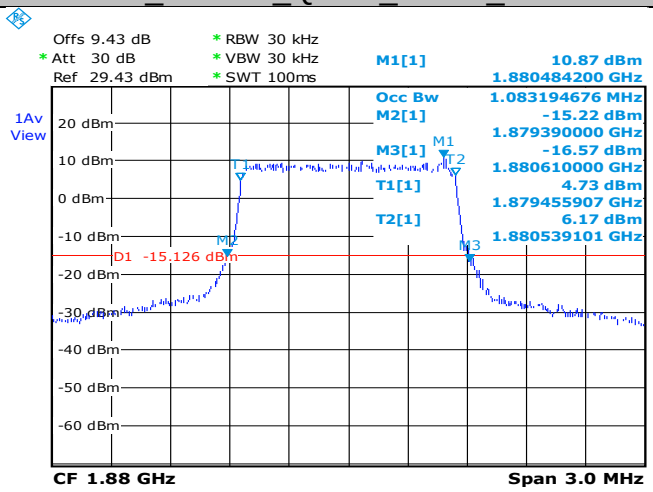


Band2_1.4MHz_QPSK_18607_6RB#0



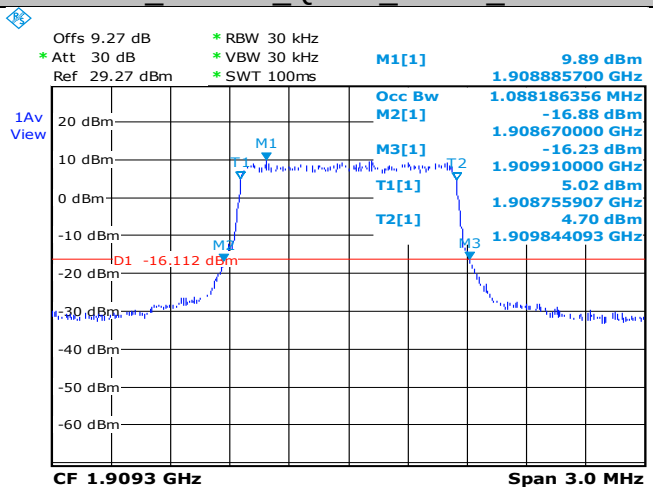
Date: 26.SEP.2018 22:52:36

Band2_1.4MHz_QPSK_18900_6RB#0



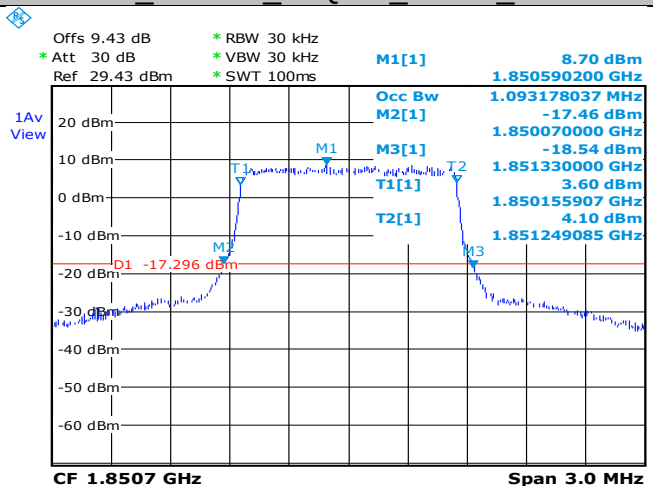
Date: 26.SEP.2018 22:52:58

Band2_1.4MHz_QPSK_19193_6RB#0



Date: 26.SEP.2018 22:53:18

Band2_1.4MHz_16QAM_18607_6RB#0



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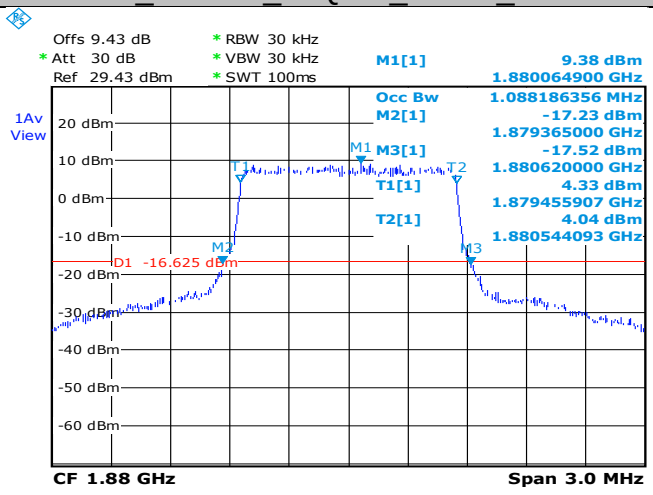
Band2_1.4MHz_16QAM_18900_6RB#0



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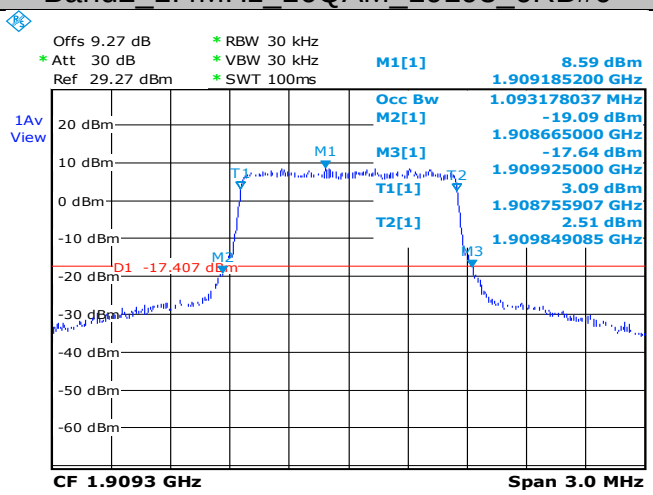
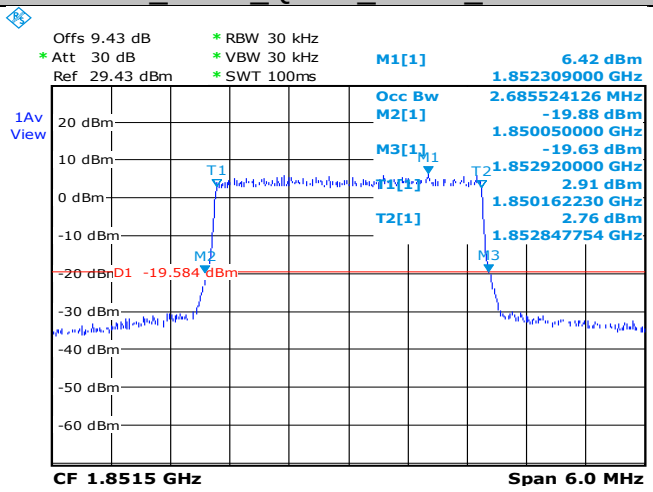
Band2_1.4MHz_16QAM_19193_6RB#0



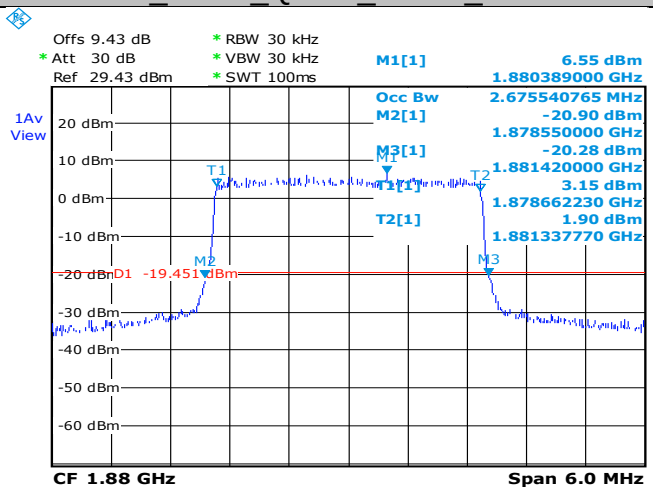
Date: 26.SEP.2018 22:53:28

Band2_3MHz_QPSK_18615_15RB#0



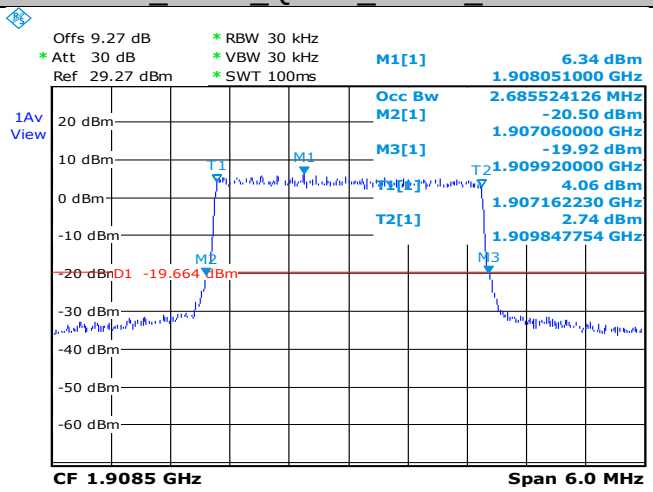
Date: 26.SEP.2018 22:54:59

Band2_3MHz_QPSK_18900_15RB#0



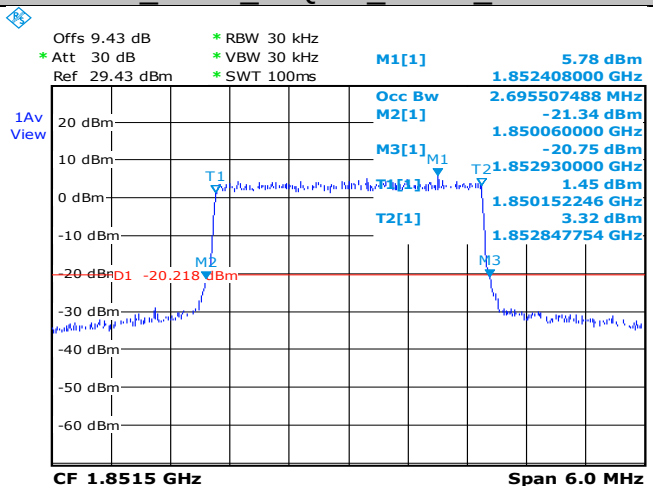
Date: 26.SEP.2018 22:55:20

Band2_3MHz_QPSK_19185_15RB#0



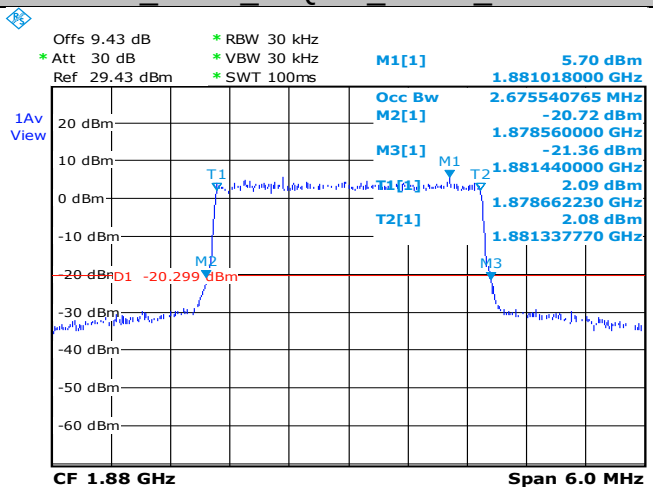
Date: 26.SEP.2018 22:55:43

Band2_3MHz_16QAM_18615_15RB#0



Date: 26.SEP.2018 22:55:09

Band2_3MHz_16QAM_18900_15RB#0



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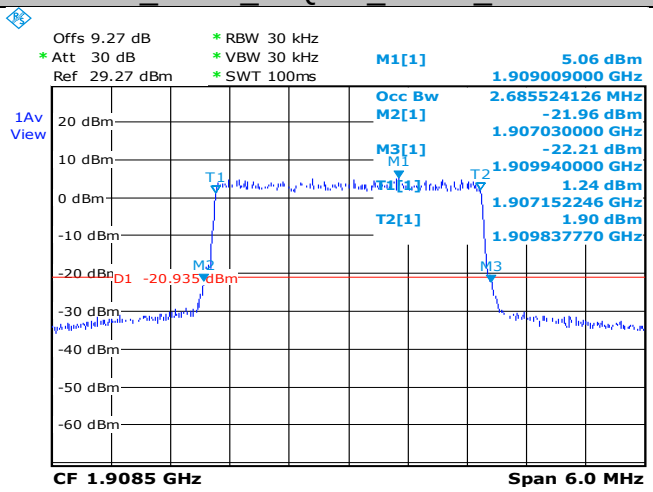
Band2_3MHz_16QAM_19185_15RB#0



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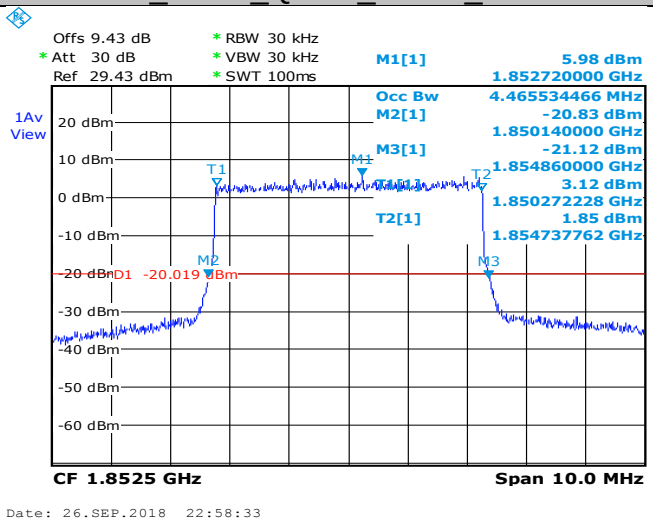
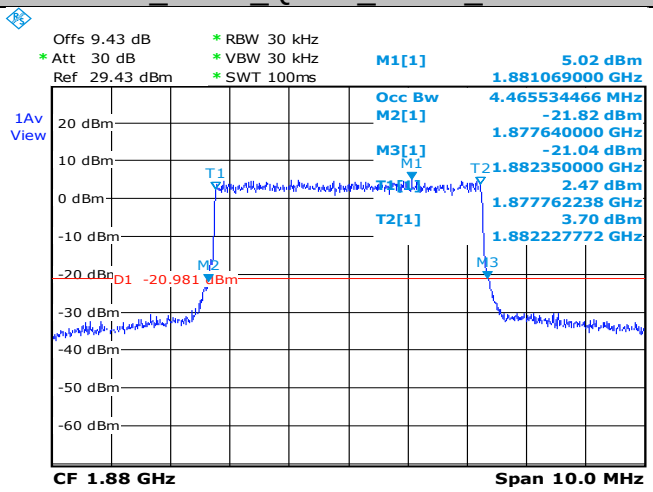
Band2_5MHz_QPSK_18625_25RB#0



Date: 26.SEP.2018 22:58:33

Band2_5MHz_QPSK_18900_25RB#0



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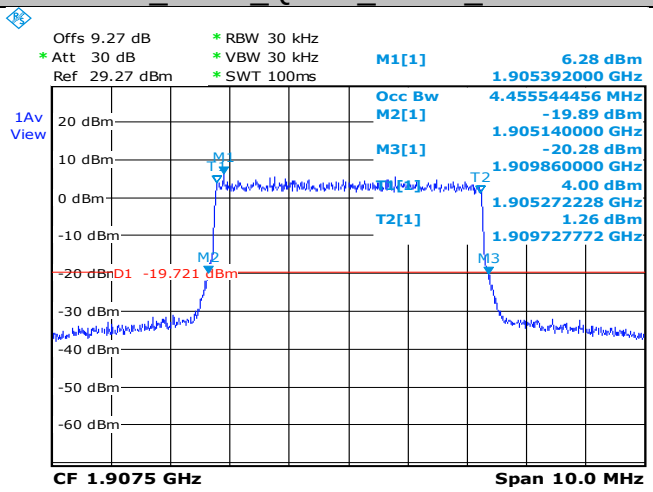
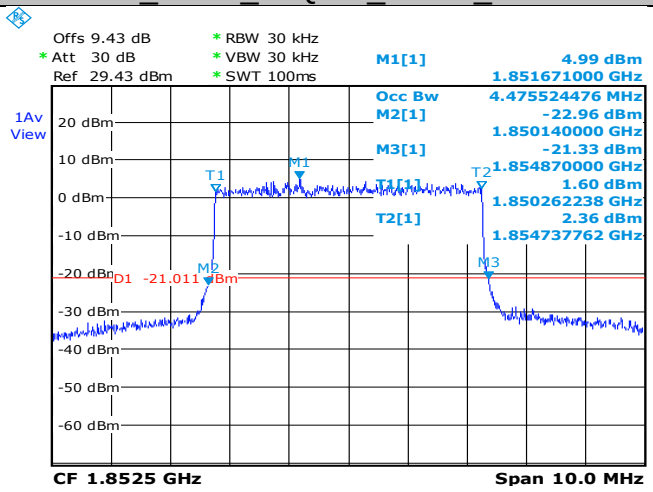
Band2_5MHz_QPSK_19175_25RB#0



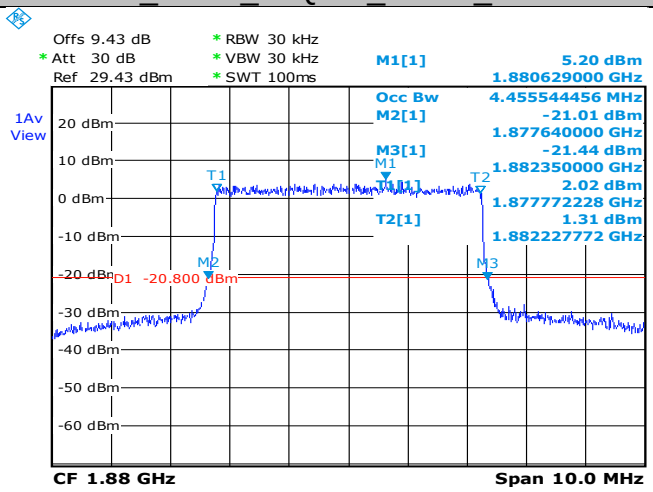
Date: 26.SEP.2018 22:59:45

Band2_5MHz_16QAM_18625_25RB#0



Date: 26.SEP.2018 22:58:49

Band2_5MHz_16QAM_18900_25RB#0



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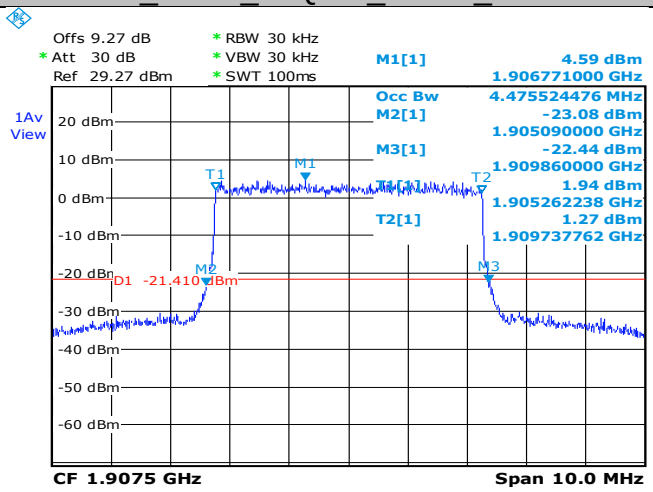
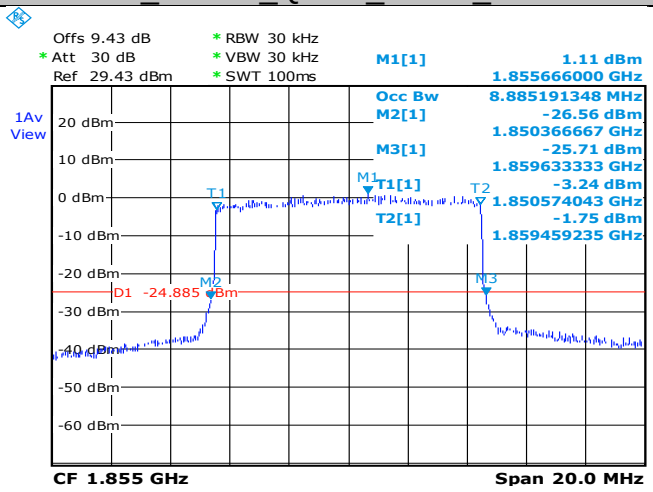
Band2_5MHz_16QAM_19175_25RB#0



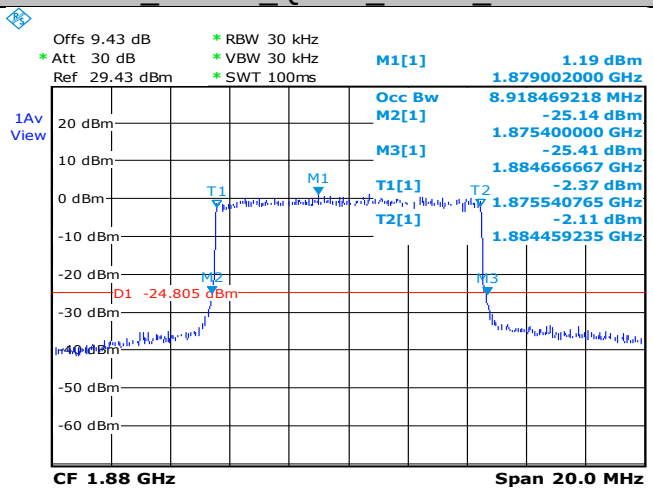
Date: 26.SEP.2018 23:00:01

Band2_10MHz_QPSK_18650_50RB#0



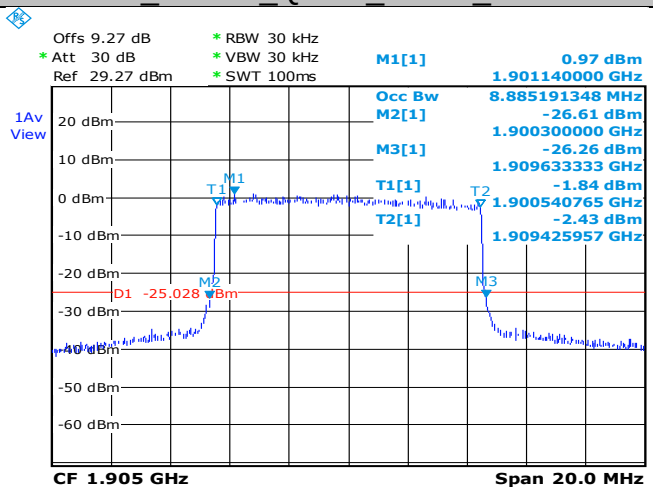
Date: 26.SEP.2018 23:01:33

Band2_10MHz_QPSK_18900_50RB#0



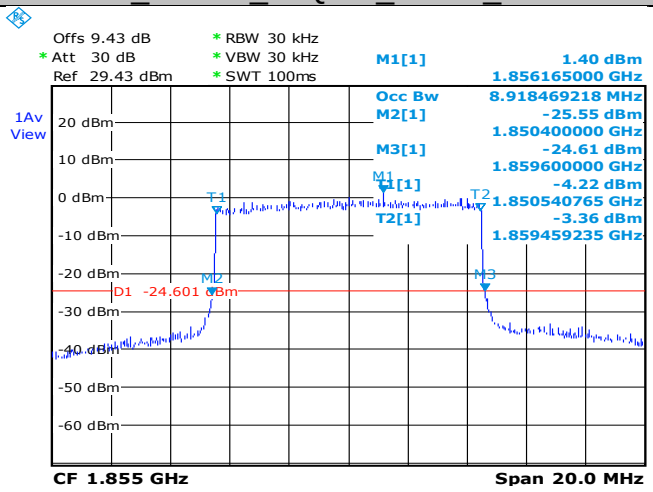
Date: 26.SEP.2018 23:01:54

Band2_10MHz_QPSK_19150_50RB#0



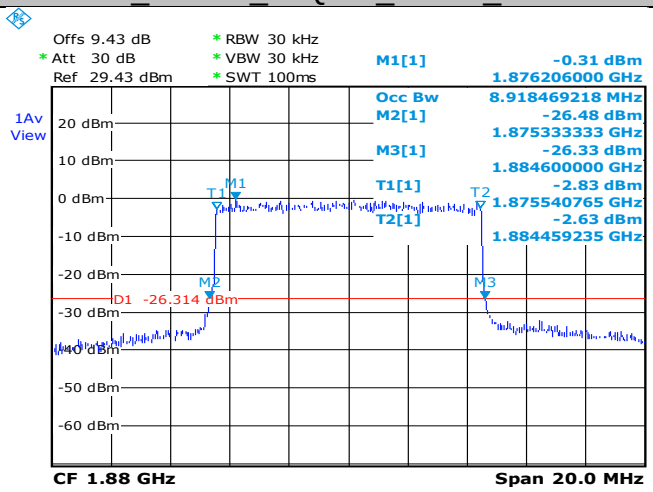
Date: 26.SEP.2018 23:02:17

Band2_10MHz_16QAM_18650_50RB#0



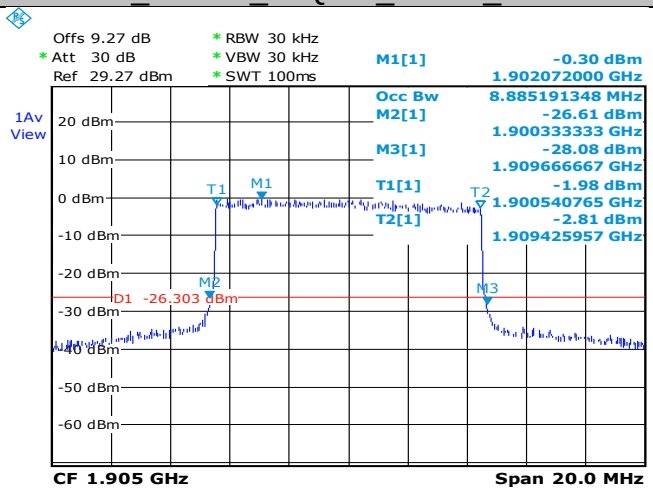
Date: 26.SEP.2018 23:01:42

Band2_10MHz_16QAM_18900_50RB#0



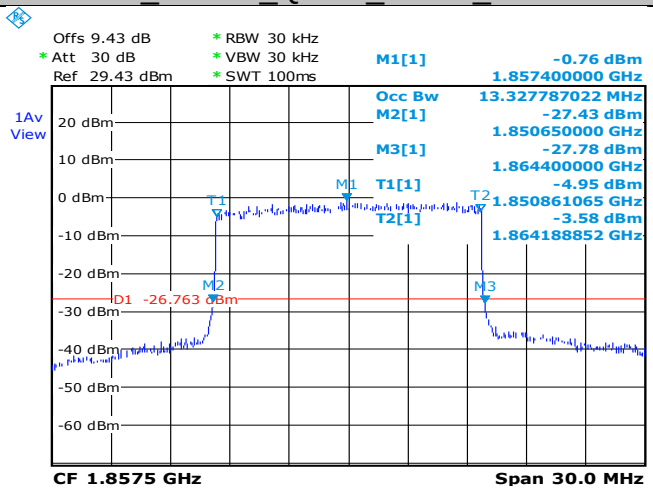
Date: 26.SEP.2018 23:02:03

Band2_10MHz_16QAM_19150_50RB#0



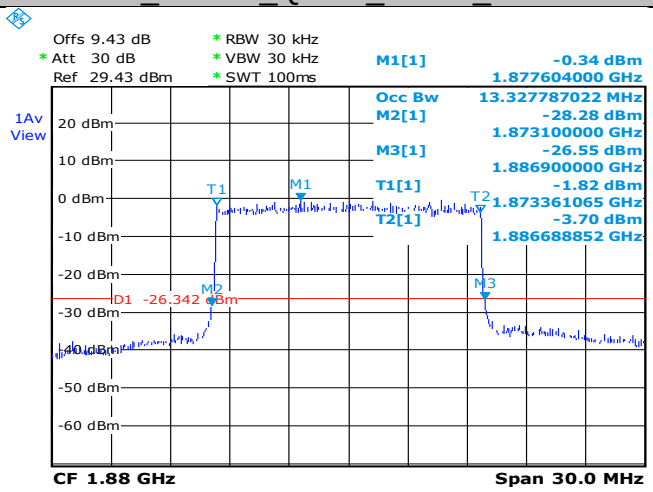
Date: 26.SEP.2018 23:02:26

Band2_15MHz_QPSK_18675_75RB#0



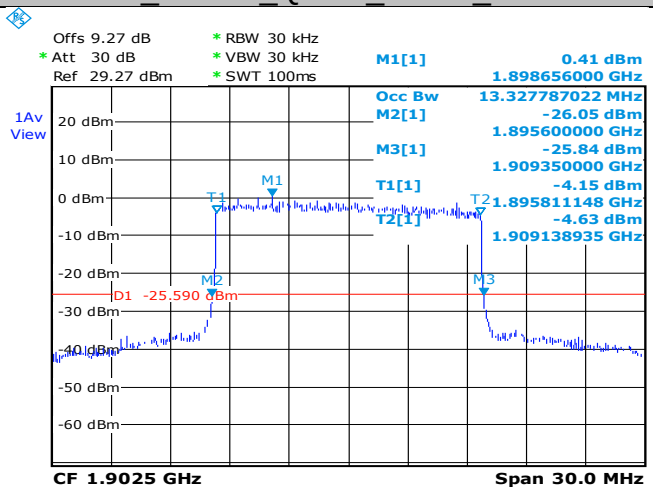
Date: 26.SEP.2018 23:04:59

Band2_15MHz_QPSK_18900_75RB#0



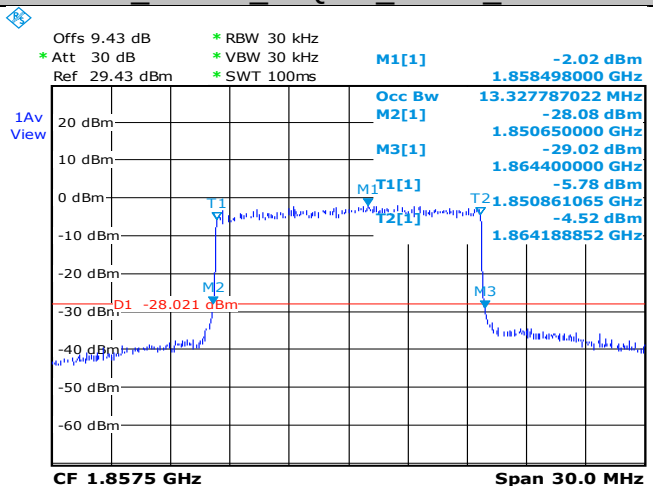
Date: 26.SEP.2018 23:05:20

Band2_15MHz_QPSK_19125_75RB#0



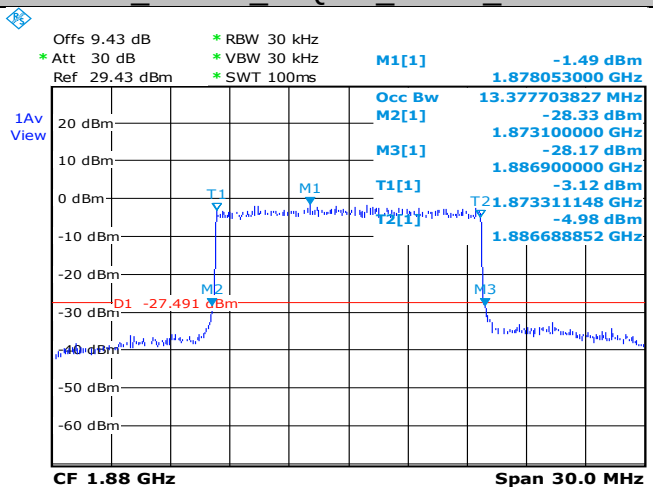
Date: 26.SEP.2018 23:05:44

Band2_15MHz_16QAM_18675_75RB#0



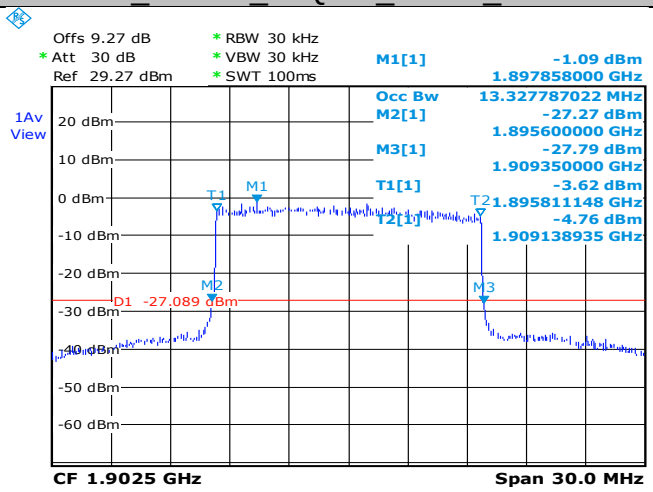
Date: 26.SEP.2018 23:05:09

Band2_15MHz_16QAM_18900_75RB#0



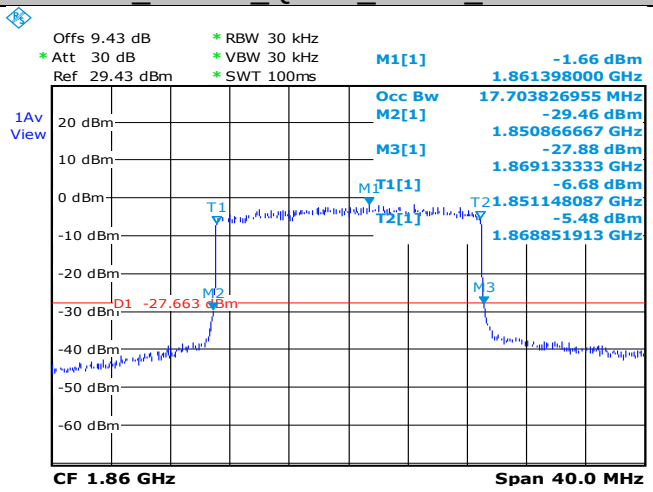
Date: 26.SEP.2018 23:05:30

Band2_15MHz_16QAM_19125_75RB#0



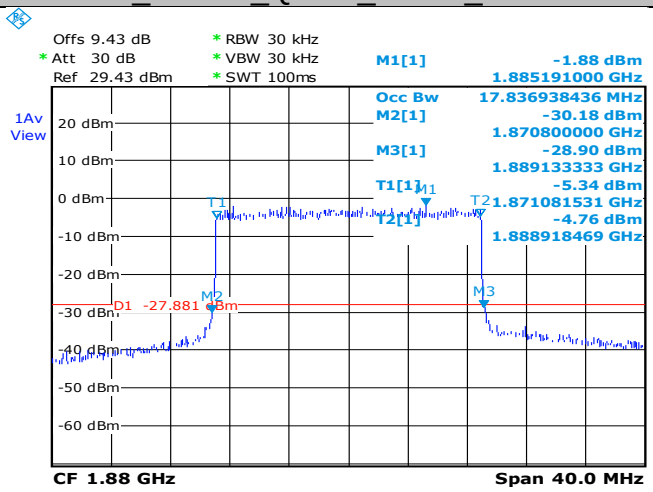
Date: 26.SEP.2018 23:05:53

Band2_20MHz_QPSK_18700_100RB#0



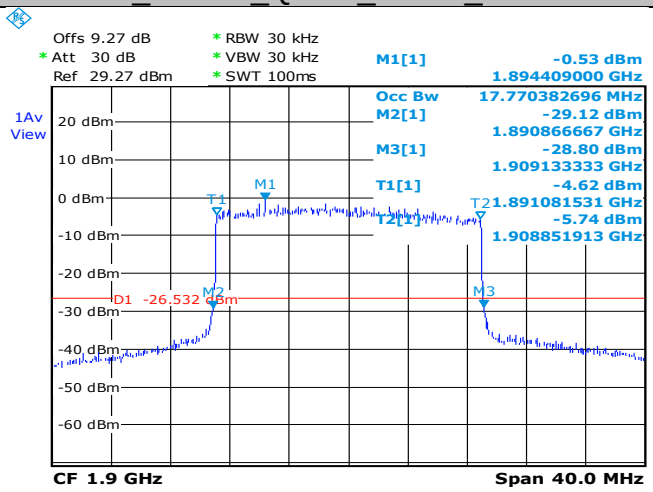
Date: 26.SEP.2018 23:07:25

Band2_20MHz_QPSK_18900_100RB#0



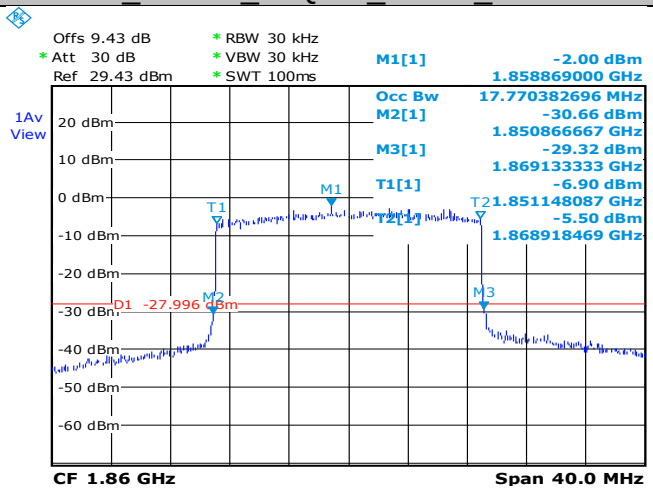
Date: 26.SEP.2018 23:07:46

Band2_20MHz_QPSK_19100_100RB#0



Date: 26.SEP.2018 23:08:10

Band2_20MHz_16QAM_18700_100RB#0



Date: 26.SEP.2018 23:07:35

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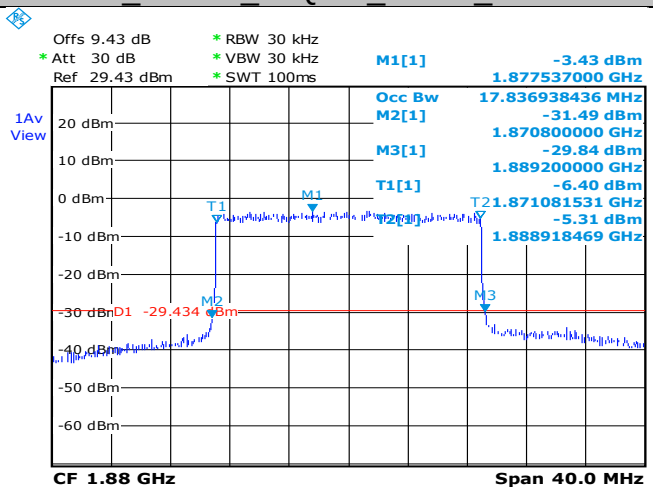

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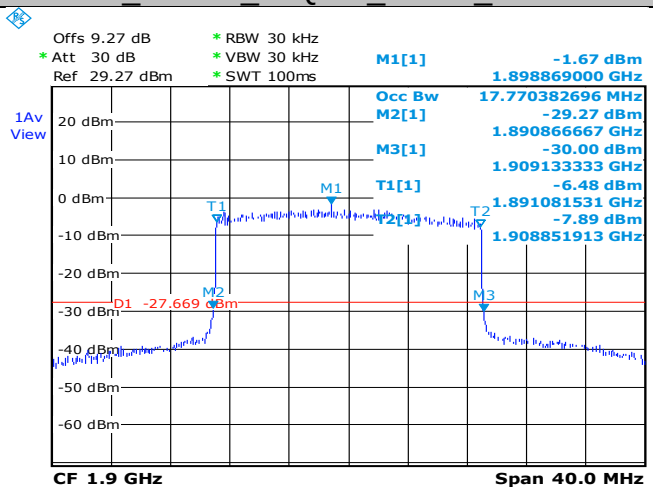
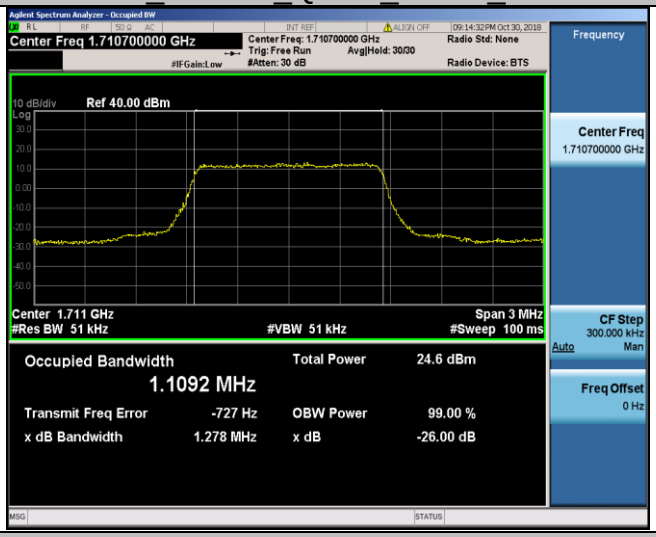
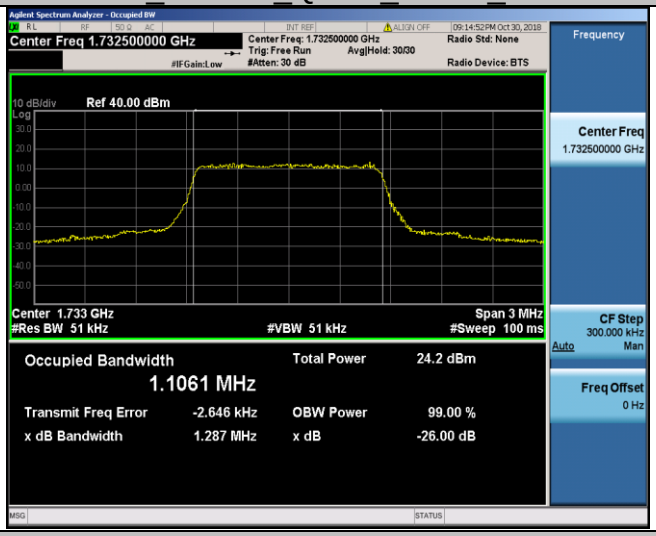
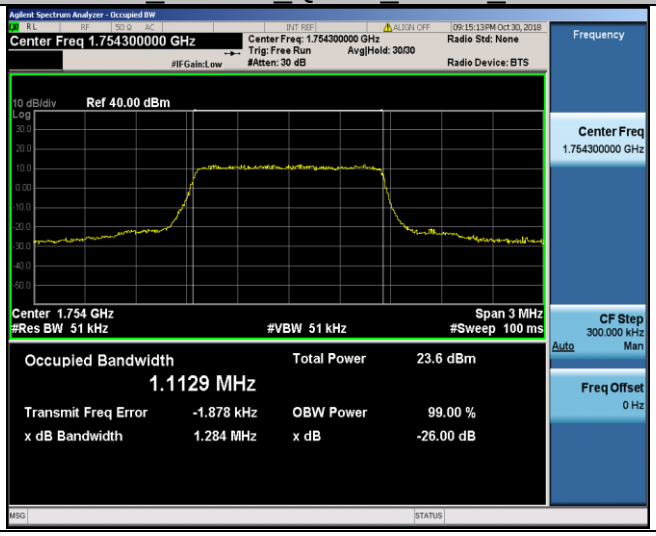
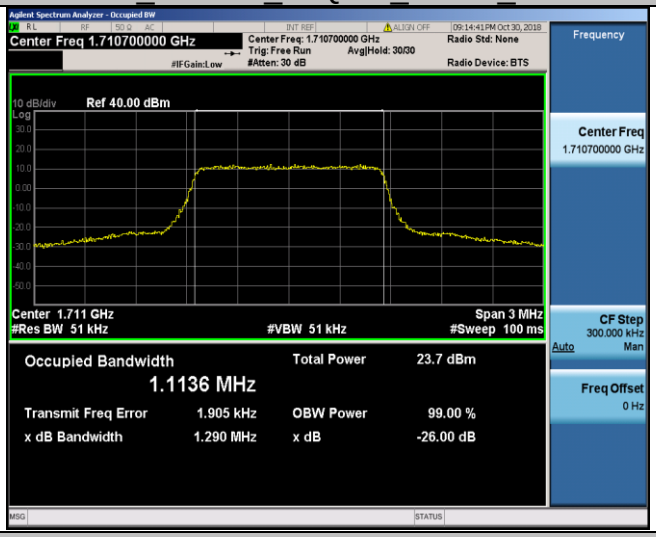
Band2_20MHz_16QAM_19100_100RB#0



Date: 26.SEP.2018 23:08:20

Band4_1.4MHz_QPSK_19957_6RB#0

Band4_1.4MHz_QPSK_20175_6RB#0

Band4_1.4MHz_QPSK_20393_6RB#0


Band4_1.4MHz_16QAM_19957_6RB#0


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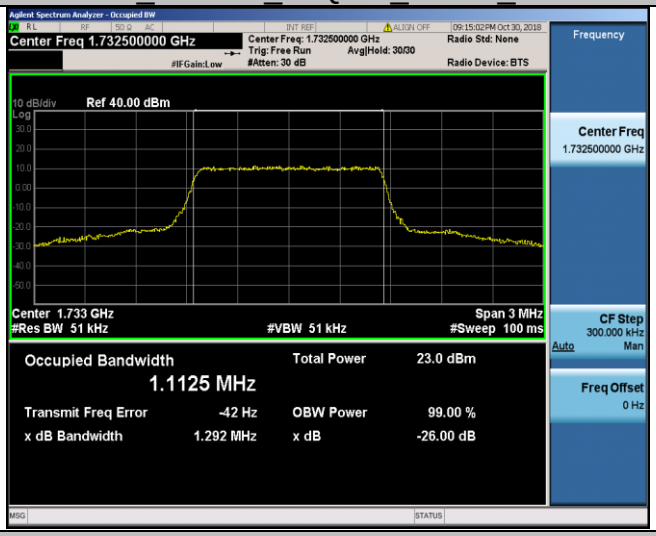

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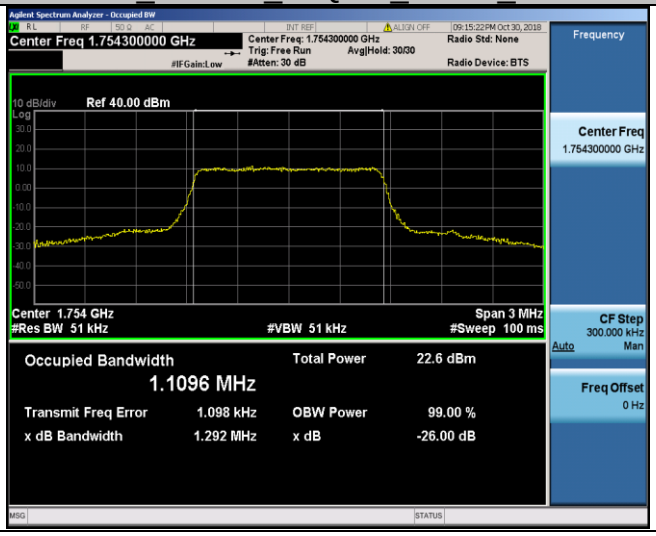
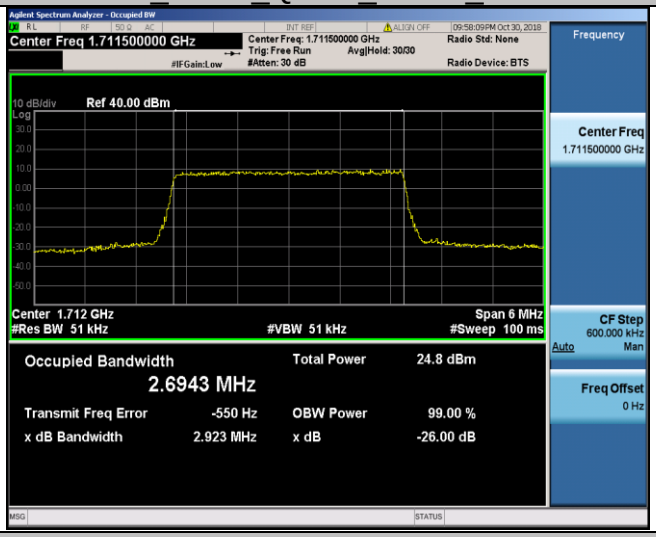


Band4_3MHz_QPSK_19965_15RB#0

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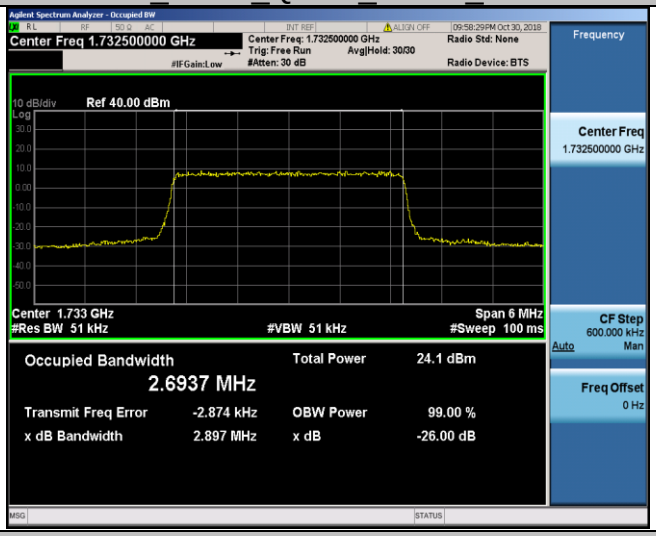
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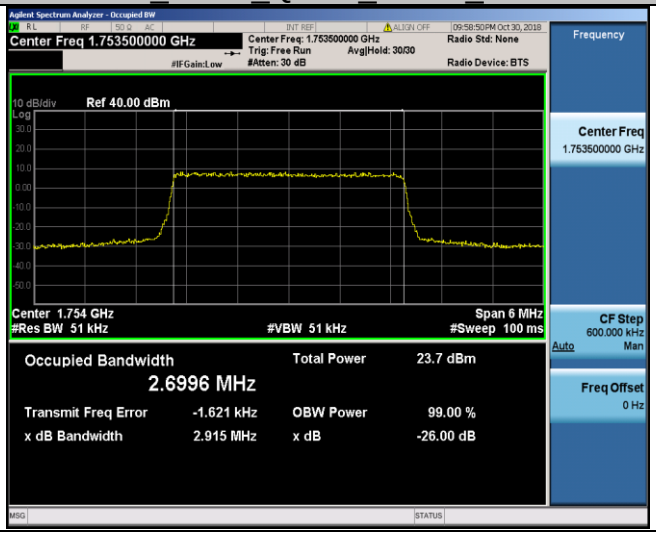
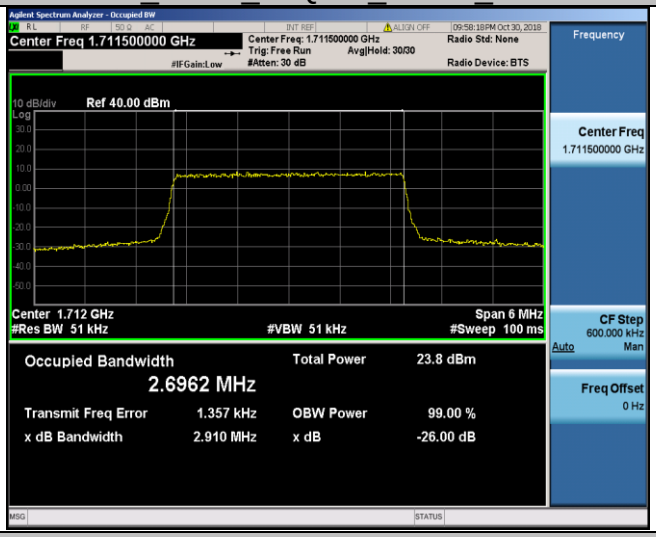


Band4_3MHz_16QAM_19965_15RB#0

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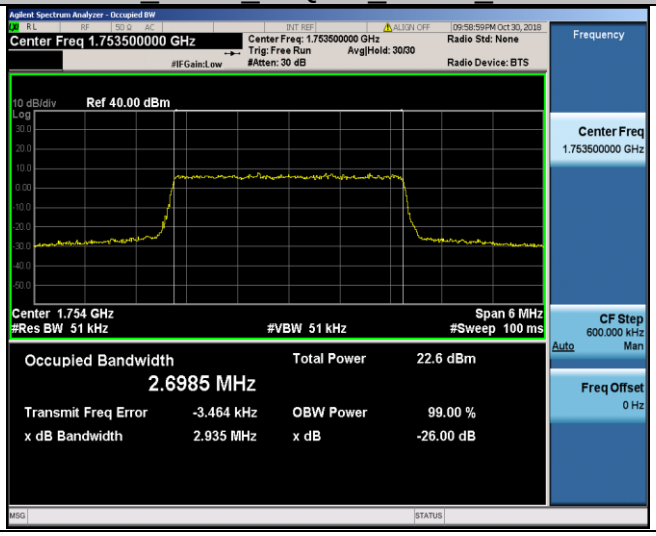
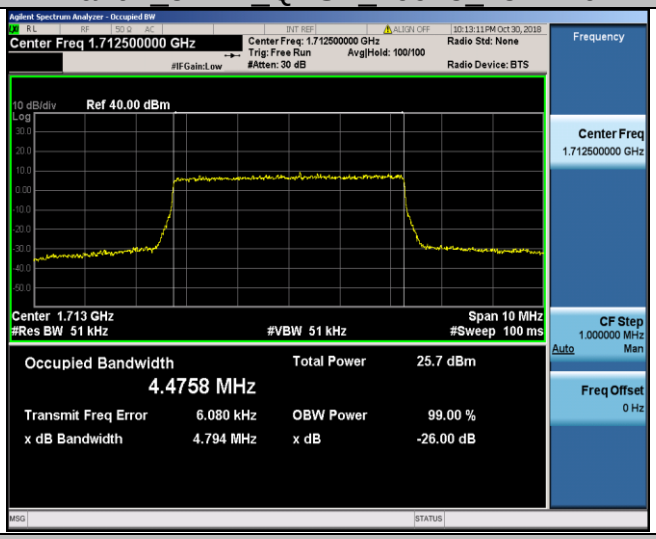
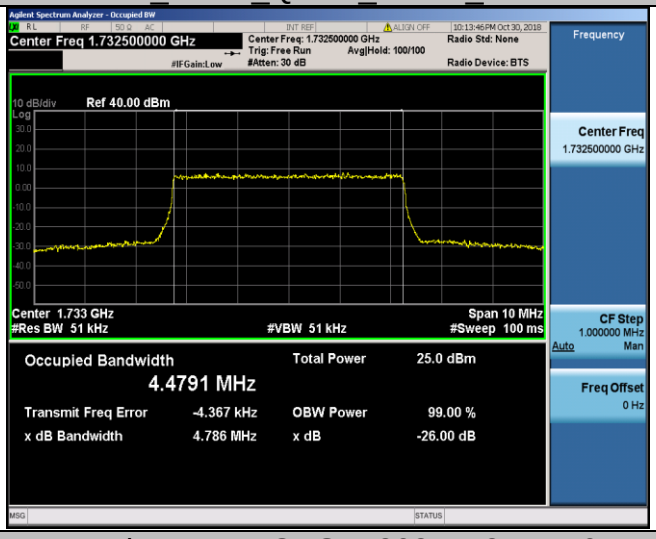
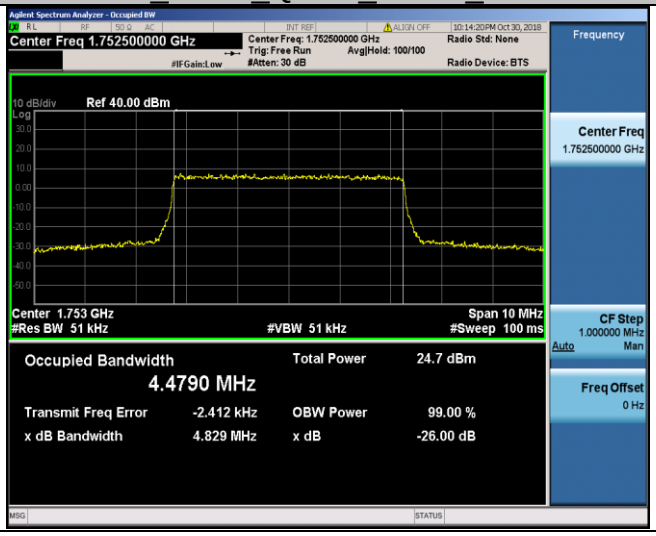
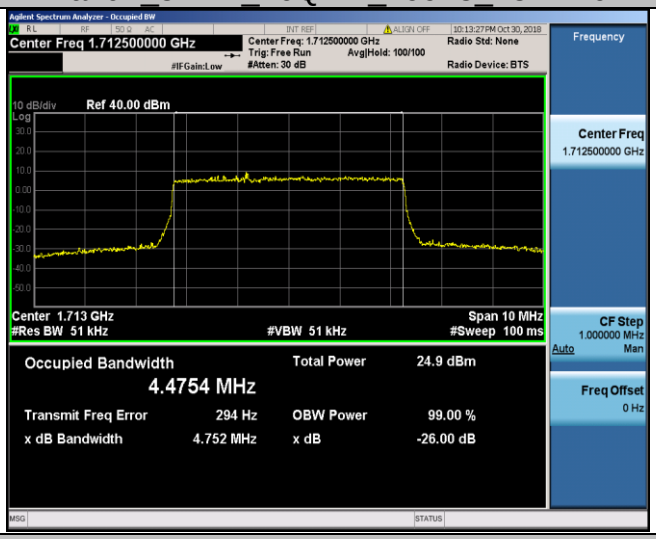
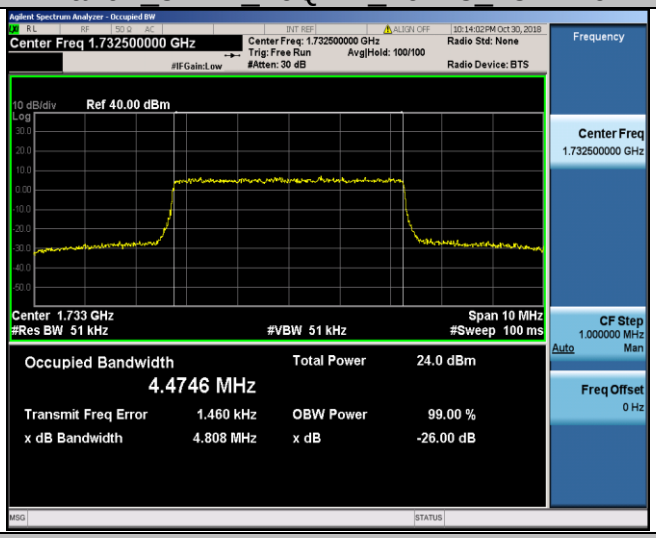


Band4_5MHz_QPSK_19975_25RB#0

Band4_5MHz_QPSK_20175_25RB#0

Band4_5MHz_QPSK_20375_25RB#0


Band4_5MHz_16QAM_19975_25RB#0

Band4_5MHz_16QAM_20175_25RB#0

Band4_5MHz_16QAM_20375_25RB#0