

FCC/ISED Test Report

Product Name : ME910C1-WW
Trade Name : 
Model No. : ME910C1-WW
FCC ID : RI7ME910C1WW
IC ID : 5131A-ME910C1WW

Applicant : Telit communications Spa
Address : Via Stazione di Prosecco 5/B
34010 Sgonico
Trieste-Italy

Date of Receipt : Jun. 14, 2018
Issued Date : Sep. 14, 2018
Report No. : 1860156R-HPUSP50V00-A
Report Version : V1.0



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Test Report Certification

Issued Date : Sep. 14, 2018
Report No. : 1860156R-HPUSP50V00-A



Product Name : ME910C1-WW
 Applicant : Telit communications Spa
 Address : Via Stazione di Prosecco 5/B
 34010 Sgonico
 Trieste-Italy
 Manufacturer : Telit Wireless Solutions Co., LTD
 Model No. : ME910C1-WW
 FCC ID : RI7ME910C1WW
 IC : 5131A-ME910C1WW
 EUT Voltage : DC 3.8V
 Testing Voltage : DC 3.8V
 Trade Name :

Applicable Standard : FCC CFR Title 47 Part 22 Subpart H
 FCC CFR Title 47 Part 24 Subpart E
 FCC CFR Title 47 Part 27 Subpart L
 FCC CFR Title 47 Part 90 Subpart S
 ANSI/TIA-603
 KDB 971168 D01 Power Meas License Digital Systems v03,
 RSS-132 Issue3, RSS-133 Issue6, RSS-139 Issue3

Test Lab : Hsin Chu Laboratory
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Test Result : Complied

Documented By :

 (Lyla Yang / Engineering Adm. Specialist)

Tested By :

 (Clemens Fang / Engineer)

Approved By :

 (Roy Wang / Director)

Revision History

Report No.	Version	Description	Issued Date
1860156R-HPUSP50V00-A	V1.0	Initial issue of report	Sep. 14, 2018


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1. General Information

1.1. EUT Description

Product Name	ME910C1-WW
Trade Name	
Model No.	ME910C1-WW
Uplink Frequency Range	LTE_NB-IoT_Band 2:1850~1910MHz LTE_NB-IoT_Band 4:1710~1755MHz LTE_NB-IoT_Band 5: 824~849MHz LTE_NB-IoT_Band 26: 814~849MHz
Downlink Frequency Range	LTE_NB-IoT_Band 2:1930~1990MHz LTE_NB-IoT_Band 4:2110~2155MHz LTE_NB-IoT_Band 5: 869~894MHz LTE_NB-IoT_Band 26: 859~894MHz
Modulation	BPSK / QPSK
HW Version	0.0
SW Version	MOB.800003
IMEI No.	353081099991658 #7 353081099992102 #8

Accessories Information	
Antenna	1 pcs

Antenna Information	
MFR. / Model	ATEL-CAB / T-AT305
Antenna Type	Dipole Antenna
Antenna Gain	2.14dBi

Note:

- Regarding frequency band operation, the lowest, middle and highest frequency of channel were selected to perform the test, and the details were shown on this report.
- LTE NB-IoT/Cat M1 Band 26 from 824~849 MHz (CH26791-27039) complies with Part 22, and 814~824 MHz (CH26692-26788) is following Part 90 rule.
- The LTE band 26 frequency range is 824-849MHz for ISED.
- We have pre-scanned the RF output power on all mode. According to the results, the worst case was selected from RF output power to test other test item

1.2. Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

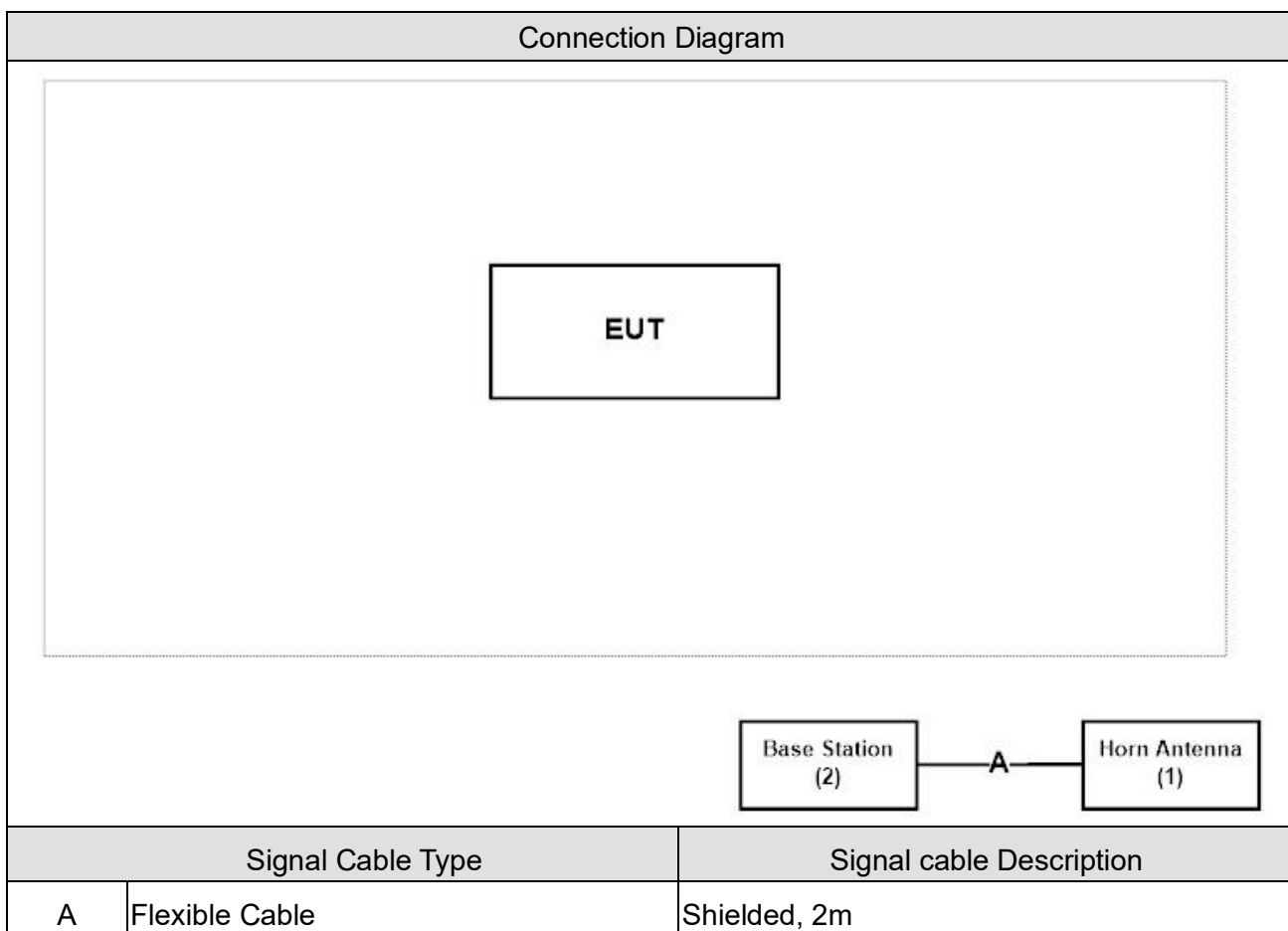
Test Mode
Mode 1: LTE_NB-IoT_Band 2
Mode 2: LTE_NB-IoT_Band 4
Mode 3: LTE_NB-IoT_Band 5
Mode 4: LTE_NB-IoT_Band 26

1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Horn Antenna	ELECTRO METRICS	EM-6961	103326	--
2 Base Station	R&S	CMW500	106071	Non-Shielded, 2m.

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on 1.4.
2	Turn on the power of all equipment.
3	The EUT will continue receive the signal from LTE NB-IoT function.
4	Repeat the above procedure (3)

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
 Deviations from the test standards as below description:

Band 2

Uplink: 1850-1910MHz

Downlink: 1930-1990MHz

LTE Band 2					
FCC Part 24 Subpart E					
Industry Canada RSS-133, Issue 6, Industry Canada RSS-GEN					
Test item	FCC Reference section	FCC Limit	IC Reference section	IC Limit	Result
RF Output Power	§2.1033 §2.1046 §24.232	<2 Watts	§6.4	<2 Watts	Pass
Occupied Bandwidth	§2.1049	N/A	RSS-GEN §4.2	N/A	Pass
Peak-to-average power ratio	§24.232	<13 dB	§6.4	<13 dB	Pass
Spurious Emissions	§2.1053 §24.238	<-13dBm	§6.5	<-13dBm	Pass
Spurious Emissions at Antenna Terminals	§24.238	<-13dBm	§6.5	<-13dBm	Pass
Frequency Stability	§2.1055 §24.235	<±2.5 ppm	§6.3	<±2.5 ppm	Pass

Band 4

Uplink: 1710-1755MHz

Downlink: 2100-2155MHz

LTE Band 4					
FCC Part 27 Subpart L					
Industry Canada RSS-139, Issue 3, Industry Canada RSS-GEN					
Test item	FCC Reference section	FCC Limit	IC Reference section	IC Limit	Result
RF Output Power	§2.1033 §2.1046 §27.50	<1 Watt	§6.5	<1 Watt	Pass
Occupied Bandwidth	§2.1049	N/A	RSS-GEN §4.2	N/A	Pass
Peak-to-average power ratio	§27.50	<13 dB	§6.5	<13 dB	Pass
Spurious Emissions	§2.1053 §27.53	<-13dBm	§6.6	<-13dBm	Pass
Spurious Emissions at Antenna Terminals	§27.53	<-13dBm	§6.6	<-13dBm	Pass
Frequency Stability	§2.1055 §27.54	<2.5 ppm	§6.4	Within the frequency range	Pass

Band 5

Uplink: 824-849MHz

Downlink: 869-894MHz

LTE Band 5					
FCC Part 22 Subpart H					
Industry Canada RSS-132, Issue 3, Industry Canada RSS-GEN					
Test item	FCC Reference section	FCC Limit	IC Reference section	IC Limit	Result
RF Output Power	§2.1033 §2.1046 §22.913	<7 Watts	§5.4	<7 Watts EIRP: <11.5 Watts	Pass
Occupied Bandwidth	§2.1049	N/A	RSS-GEN §4.2	N/A	Pass
Peak-to-average power ratio	§22.913	<13 dB	§5.4	<13 dB	Pass
Spurious Emissions	§2.1053 §22.917	<-13dBm	§5.5	<-13dBm	Pass
Spurious Emissions at Antenna Terminals	§22.917	<-13dBm	§5.5	<-13dBm	Pass
Frequency Stability	§2.1055 §22.335	<±2.5 ppm	§5.3	<±2.5 ppm for mobile stations <±1.5 ppm for base stations	Pass

Band 26

Uplink: 814~849MHz (ISDE not support 814~824 MHz)

Downlink: 859~894MHz

LTE Band 26					
FCC Part 22 Subpart H					
FCC Part 90 Subpart S					
Industry Canada RSS-132, Issue 3, Industry Canada RSS-GEN					
Test item	FCC Reference section	FCC Limit	IC Reference section	IC Limit	Result
RF Output Power	§2.1033 §2.1046 §90.635(b) §22.913	<7 Watts <100 Watts	§5.4	<11.5 Watts	Pass
Occupied Bandwidth	§2.1049	N/A	RSS-GEN §4.2	N/A	Pass
Peak-to-average power ratio	§22.913	<13 dB	§5.4	<13 dB	Pass
Spurious Emissions	§2.1053 §90.691 §22.917	<-13dBm	§5.5	<-13dBm	Pass
Spurious Emissions at Antenna Terminals	§90.691 §22.917	<-13dBm	§5.5	<-13dBm	Pass
Frequency Stability	§2.1055 §90.213	<±2.5 ppm	§5.2	<±2.5ppm	Pass

2.2. Test Environment

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	RF Output Power	15 - 35	25	3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	Occupied Bandwidth	15 - 35	25	3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	Peak To Average Ratio	15 - 35	25	3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	Spurious Emission	15 - 35	25	2/3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	Spurious Emissions at Antenna Terminals	15 - 35	25	3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	Frequency Stability	15 - 35	25	3
Humidity (%RH)		20 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test site information refers to Laboratory Information.

USA : FCC Registration Number: TW3024
Canada : IC Registration Number: 22397-1 / 22397-2 / 22397-3

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site : http://www.dekra.com.tw/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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2.3. List of Test Equipment

RF Output Power / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/01/02	2019/01/01
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Peak To Average Ratio / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Conducted Band Edge Emissions / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Spurious Emission / CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2018/01/31	2019/01/30
Pre-Amplifier	Dekra	AP-025C	201801236	2018/02/26	2019/02/25
Pre-Amplifier	EMCI	EMC11830I	980366	2018/01/08	2019/01/07
Pre-Amplifier	Dekra	AP-400C	201801231	2017/12/13	2018/12/12
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Spurious Emissions at Antenna Terminals / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

Frequency Stability Under Temperature & Voltage Variations / SR10-H

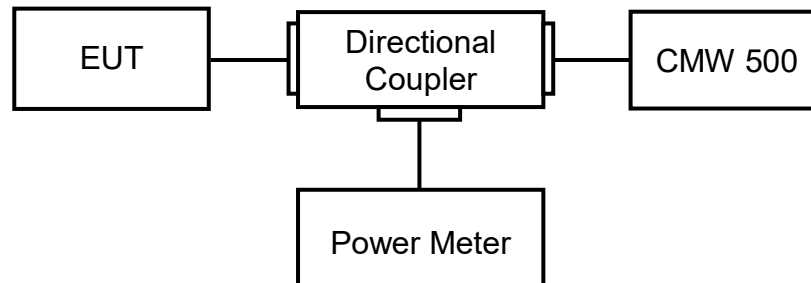
Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2017/11/21	2018/11/20
Wideband Radio Communication Tester	R&S	CMW500	150246	2018/03/30	2019/03/29
Directional Coupler	Agilent	778D	20402	2017/09/25	2018/09/24
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04

2.4. Measurement Uncertainty

Test Item	Uncertainty
RF Output Power	± 1.27 dB.
Occupied Bandwidth	± 10 Hz
Peak To Average Ratio	not exceed 13 dB.
Spurious Emissions	± 1.27 dB for Conducted Measurement. ± 3.2 dB for Radiated Measurement.
Spurious Emissions at Antenna Terminals	± 3.2 dB
Frequency Stability	± 10 Hz

3. RF Output Power

3.1. Test Setup



3.2. Test Procedure

- a) The RF output of the transmitter was connected to base station simulator.
- b) The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement..
- c) Set EUT at maximum average power by base station emulator.
- d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.

Effective Isotropic Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi)

Effective Radiated Power = Conducted Power(dBm) + Antenna Gain(dBi) - 2.15dB

3.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause5.2.4

ANSI C63.26-2015 Sub-clause 5.2.4.2

3.4. Test Result

Product	ME910C1-WW		
Test Item	RF Output Power		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
18601	1850.1	BPSK	3.75	1	0	23.36	0.355	2
				1	47	23.35	0.354	2
			15	1	0	22.42	0.286	2
				1	11	22.39	0.284	2
		QPSK	3.75	1	0	22.24	0.274	2
				1	47	22.19	0.271	2
			15	1	0	22.41	0.285	2
				1	11	22.38	0.283	2
				3	3	23.50	0.366	2
				3	3	23.50	0.366	2
18900	1880	BPSK	3.75	1	0	23.25	0.346	2
				1	47	23.24	0.345	2
			15	1	0	22.62	0.299	2
				1	11	22.61	0.299	2
		QPSK	3.75	1	0	22.33	0.282	2
				1	47	22.36	0.296	2
			15	1	0	22.58	0.297	2
				1	11	22.59	0.297	2
				3	3	24.04	0.415	2
				3	3	24.04	0.415	2
19199	1909.9	BPSK	3.75	1	0	22.73	0.31	2
				1	47	22.78	0.244	2
			15	1	0	21.73	0.243	2
				1	11	21.72	0.23	2
		QPSK	3.75	1	0	21.47	0.23	2
				1	47	21.49	0.231	2
			15	1	0	21.70	0.242	2
				1	11	21.71	0.243	2
				3	3	23.31	0.351	2
				3	3	23.31	0.351	2

Product	ME910C1-WW		
Test Item	RF Output Power		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) EIRP	Limit (W) EIRP
19951	1710.1	BPSK	3.75	1	0	22.39	0.284	1
				1	47	22.40	0.284	1
			15	1	0	21.14	0.213	1
				1	11	21.13	0.212	1
		QPSK	3.75	1	0	21.02	0.207	1
				1	47	21.03	0.207	1
			15	1	0	21.11	0.211	1
				1	11	21.12	0.212	1
				3	3	22.47	0.289	1
20175	1732.5	BPSK	3.75	1	0	22.09	0.265	1
				1	47	22.10	0.265	1
			15	1	0	21.23	0.217	1
				1	11	21.24	0.218	1
		QPSK	3.75	1	0	21.13	0.212	1
				1	47	21.12	0.212	1
			15	1	0	21.22	0.217	1
				1	11	21.21	0.216	1
				3	3	22.58	0.296	1
20399	1754.9	BPSK	3.75	1	0	21.98	0.258	1
				1	47	21.95	0.256	1
			15	1	0	21.20	0.216	1
				1	11	21.18	0.215	1
		QPSK	3.75	1	0	21.07	0.209	1
				1	47	21.09	0.21	1
			15	1	0	21.14	0.213	1
				1	11	21.16	0.214	1
				3	3	22.51	0.292	1

Product	ME910C1-WW		
Test Item	RF Output Power		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
20401	824.1	BPSK	3.75	1	0	23.62	0.230	7
				1	47	23.61	0.229	7
			15	1	0	21.86	0.251	7
				1	11	21.85	0.251	7
		QPSK	3.75	1	0	21.61	0.237	7
				1	47	21.64	0.239	7
			15	1	0	21.82	0.152	7
				1	11	21.84	0.152	7
				3	3	23.94	0.247	7
				3	3	23.94	0.247	7
20525	836.5	BPSK	3.75	1	0	23.49	0.223	7
				1	47	23.48	0.222	7
			15	1	0	21.75	0.149	7
				1	11	21.74	0.149	7
		QPSK	3.75	1	0	21.53	0.142	7
				1	47	21.51	0.141	7
			15	1	0	21.72	0.148	7
				1	11	21.70	0.148	7
				3	3	23.96	0.248	7
				3	3	23.96	0.248	7
20649	848.9	BPSK	3.75	1	0	23.28	0.212	7
				1	47	23.29	0.213	7
			15	1	0	22.67	0.303	7
				1	11	22.66	0.302	7
		QPSK	3.75	1	0	22.52	0.292	7
				1	47	22.49	0.29	7
			15	1	0	22.65	0.184	7
				1	11	22.64	0.183	7
				3	3	23.88	0.244	7
				3	3	23.88	0.244	7

Product	ME910C1-WW		
Test Item	RF Output Power		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/08/28	Test Site	SR10-H

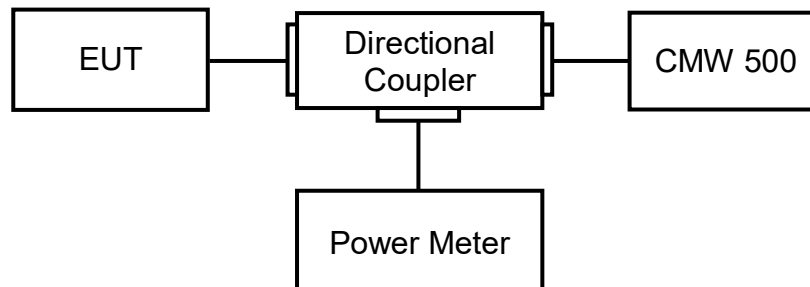
Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
26791	824.1	BPSK	3.75	1	0	23.68	0.233	7
				1	47	23.67	0.232	7
			15	1	0	23.66	0.380	7
				1	11	23.65	0.379	7
		QPSK	3.75	1	0	23.62	0.377	7
				1	47	23.59	0.374	7
			15	1	0	23.66	0.232	7
				1	11	23.65	0.231	7
				3	3	23.87	0.243	7
				3	3	23.87	0.243	7
26915	836.5	BPSK	3.75	1	0	23.49	0.223	7
				1	47	23.48	0.222	7
			15	1	0	21.75	0.149	7
				1	11	21.73	0.149	7
		QPSK	3.75	1	0	21.48	0.140	7
				1	47	21.47	0.140	7
			15	1	0	21.72	0.148	7
				1	11	21.73	0.149	7
				3	3	23.73	0.236	7
				3	3	23.73	0.236	7
27039	848.9	BPSK	3.75	1	0	23.28	0.212	7
				1	47	23.29	0.213	7
			15	1	0	22.65	0.301	7
				1	11	22.64	0.301	7
		QPSK	3.75	1	0	22.30	0.278	7
				1	47	22.28	0.277	7
			15	1	0	22.56	0.180	7
				1	11	22.55	0.179	7
				3	3	23.76	0.237	7
				3	3	23.76	0.237	7

Product	ME910C1-WW		
Test Item	RF Output Power		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Conducted Output Power (dBm)	RF Output Power (W) ERP	Limit (W) ERP
26692	814.2	BPSK	3.75	1	0	23.69	0.233	100
				1	47	23.68	0.233	100
			15	1	0	21.94	0.256	100
				1	11	21.93	0.255	100
		QPSK	3.75	1	0	21.75	0.245	100
				1	47	21.73	0.244	100
			15	1	0	21.93	0.156	100
				1	11	21.92	0.155	100
				3	3	23.74	0.236	100
26740	819	BPSK	3.75	1	0	23.67	0.232	100
				1	47	23.66	0.232	100
			15	1	0	22.02	0.159	100
				1	11	22.01	0.158	100
		QPSK	3.75	1	0	21.94	0.156	100
				1	47	21.91	0.155	100
			15	1	0	22.01	0.158	100
				1	11	22.00	0.158	100
				3	3	23.84	0.242	100
26788	823.8	BPSK	3.75	1	0	23.68	0.233	100
				1	47	23.66	0.232	100
			15	1	0	23.66	0.380	100
				1	11	23.64	0.378	100
		QPSK	3.75	1	0	23.56	0.372	100
				1	47	23.58	0.373	100
			15	1	0	23.62	0.230	100
				1	11	23.63	0.230	100
				3	3	23.88	0.244	100

4. Occupied Bandwidth

4.1. Test Setup



4.2. Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The 26 dB bandwidth and 99% occupied bandwidth of the low & middle & high channel for the highest RF powers were measured.

4.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 4.2 & 4.3
ANSI C63.26-2015 Sub-clause 5.4.3 & 5.4.4

4.4. Test Result

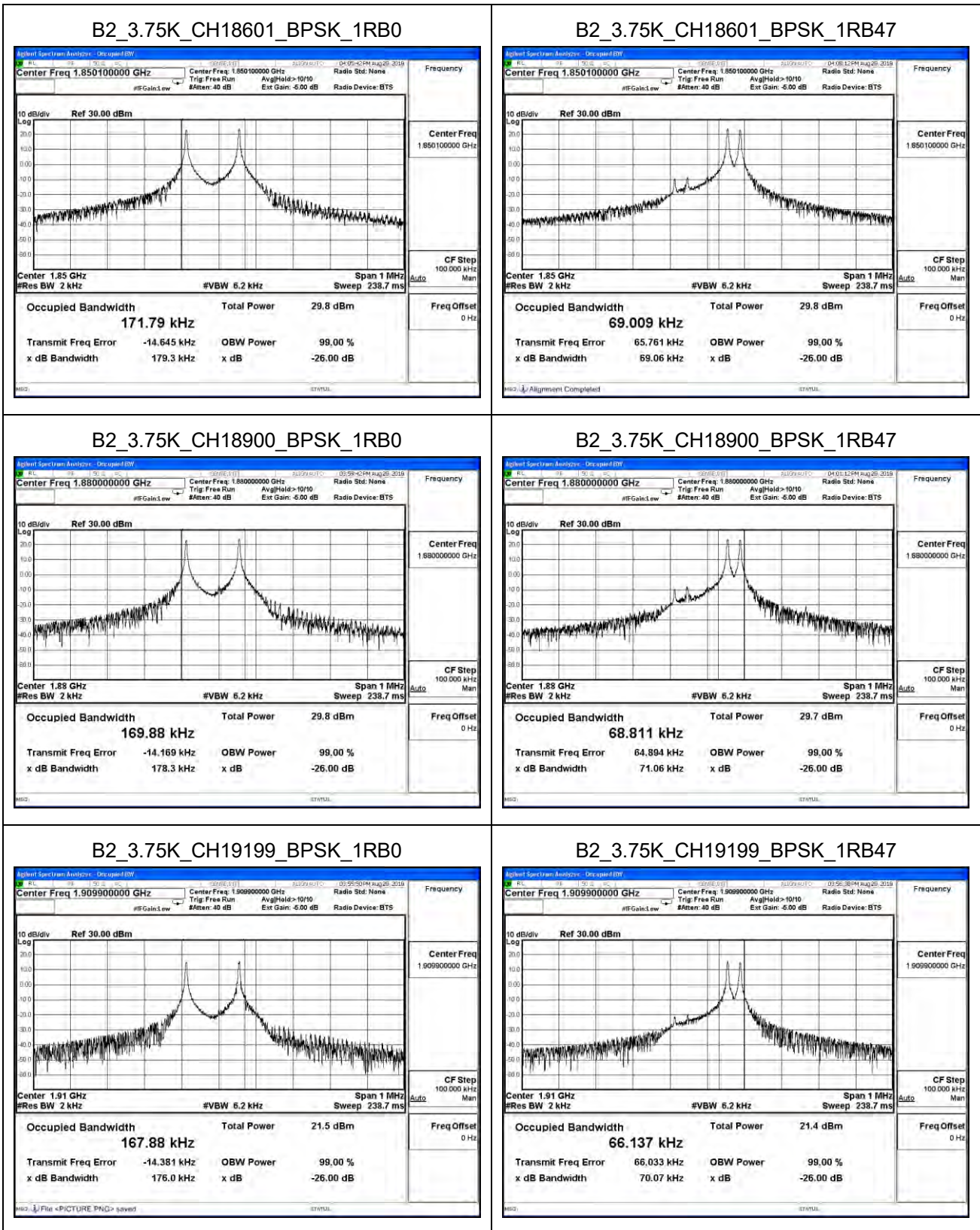
Product	ME910C1-WW		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/08/28	Test Site	SR10-H

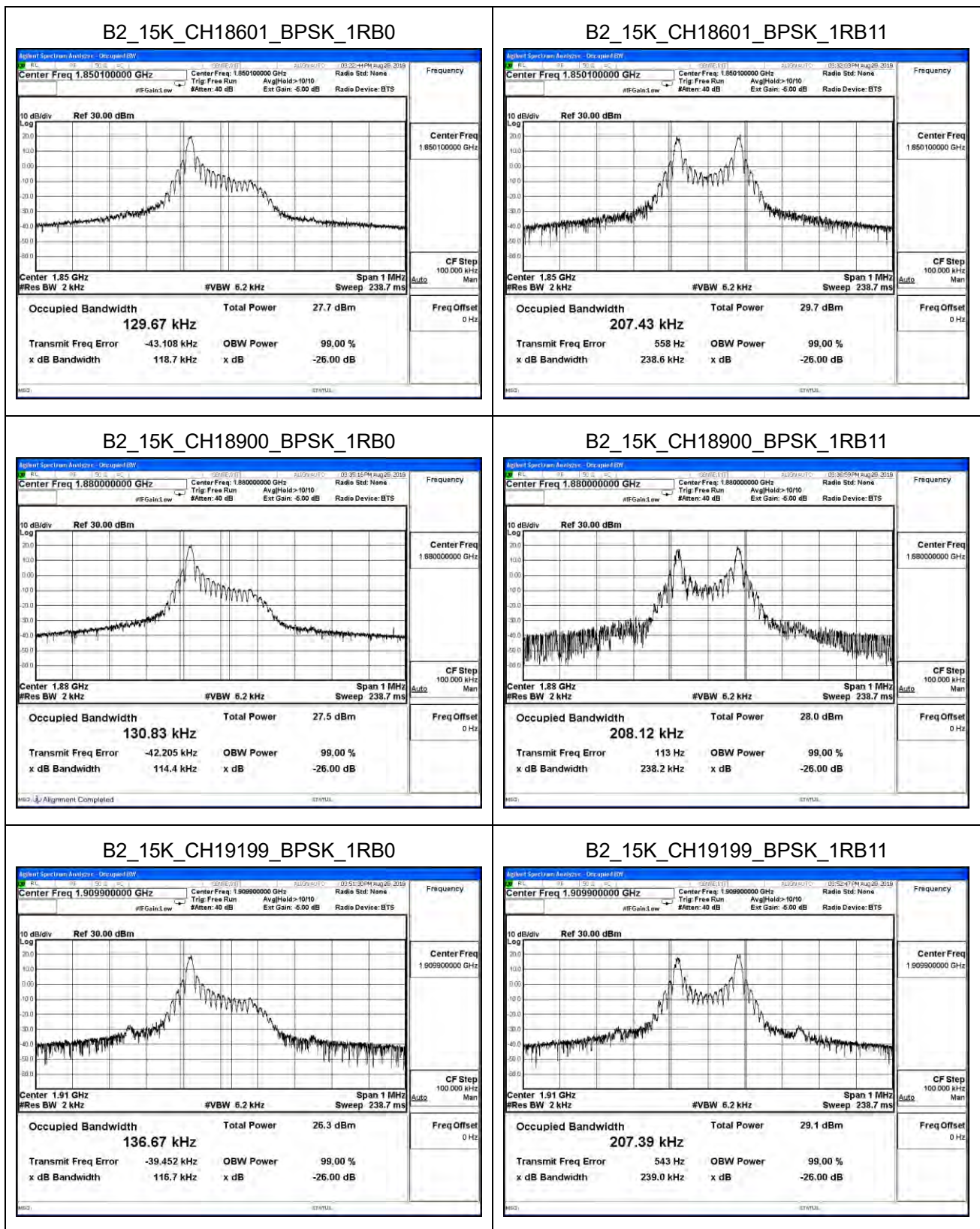
NB-IoT Band 2_3.75K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	179.300	171.790	N/A
1880	178.300	169.880	N/A
1909.9	176.000	167.880	N/A

NB-IoT Band 2_3.75K_BPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	69.060	69.009	N/A
1880	71.060	68.811	N/A
1909.9	70.070	66.137	N/A

NB-IoT Band 2_15K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	118.700	129.670	N/A
1880	114.400	130.830	N/A
1909.9	116.700	136.670	N/A

NB-IoT Band 2_15K_BPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	238.600	207.430	N/A
1880	238.200	208.120	N/A
1909.9	239.000	207.390	N/A





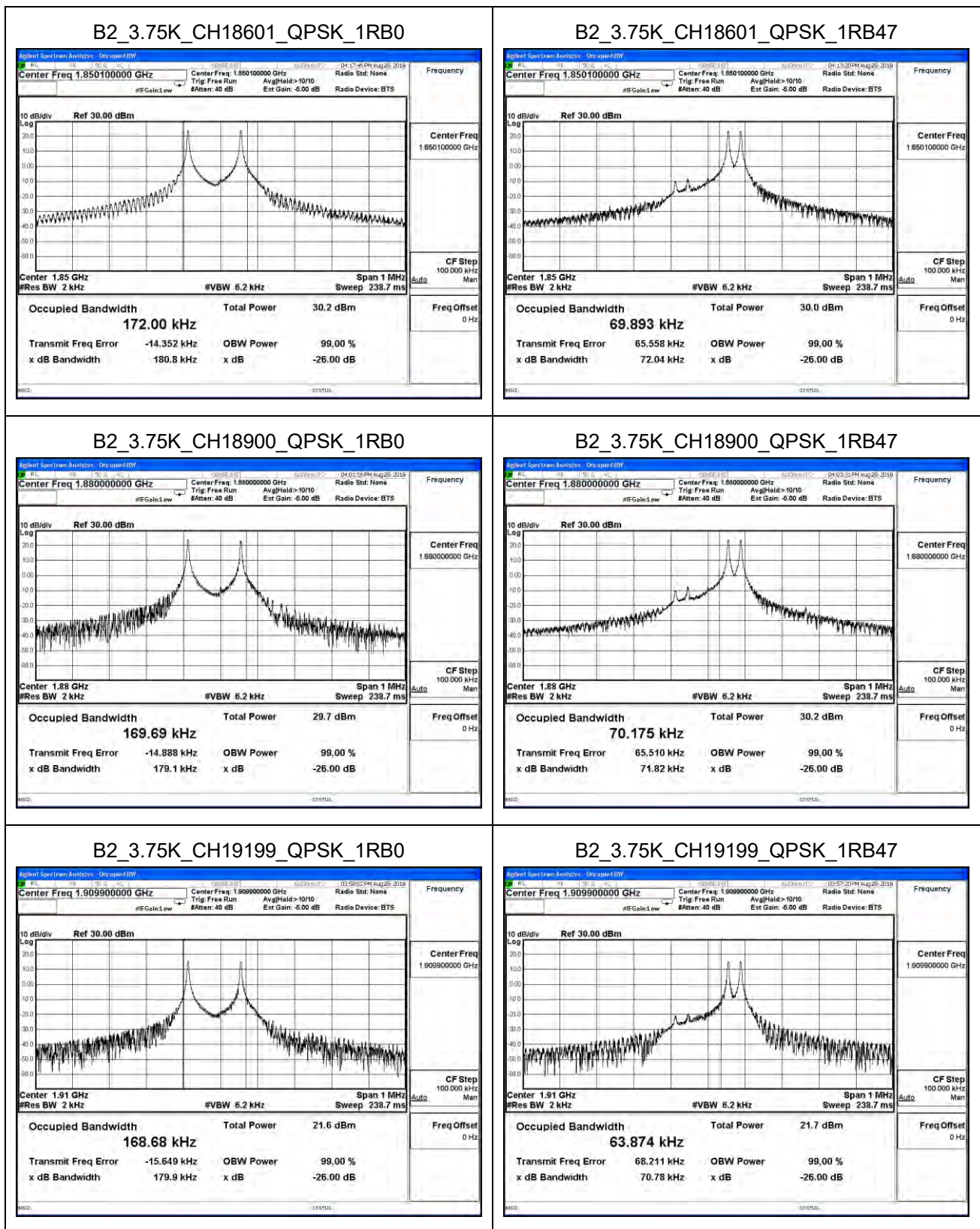
NB-IoT Band 2_3.75K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	180.800	172.000	N/A
1880	179.100	169.690	N/A
1909.9	179.900	168.680	N/A

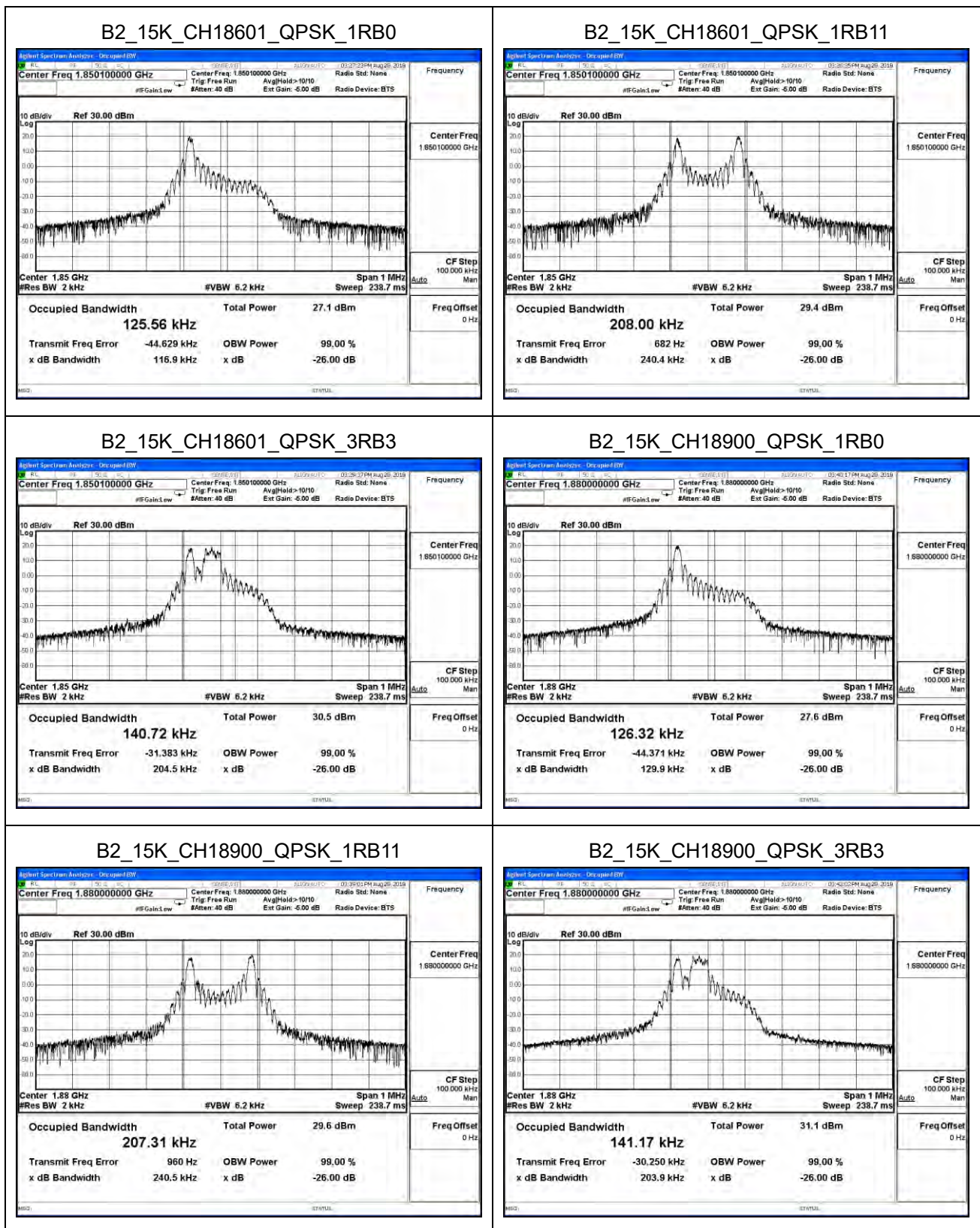
NB-IoT Band 2_3.75K_QPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	72.040	69.893	N/A
1880	71.820	70.175	N/A
1909.9	70.780	63.874	N/A

NB-IoT Band 2_15K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	116.900	125.560	N/A
1880	129.900	126.320	N/A
1909.9	116.700	126.050	N/A

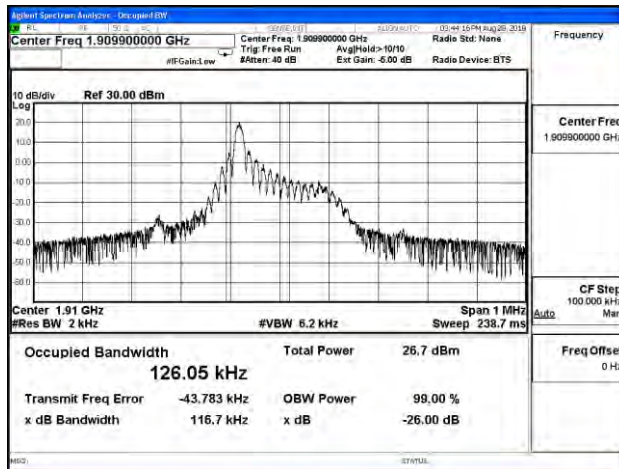
NB-IoT Band 2_15K_QPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	240.400	208.000	N/A
1880	240.500	207.310	N/A
1909.9	241.000	207.210	N/A

NB-IoT Band 2_15K_QPSK_12RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1850.1	204.500	140.720	N/A
1880	203.900	141.170	N/A
1909.9	205.200	140.600	N/A

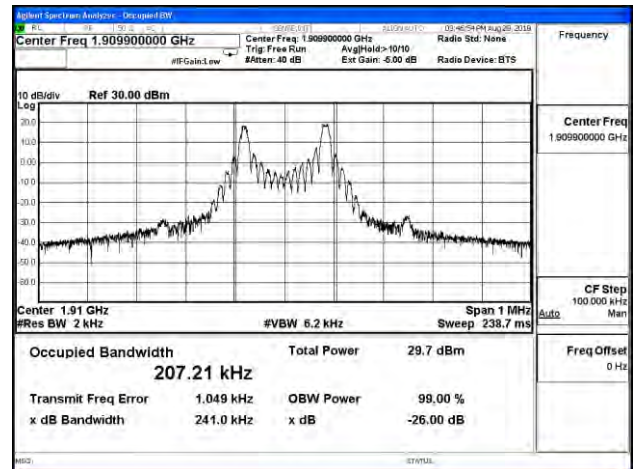




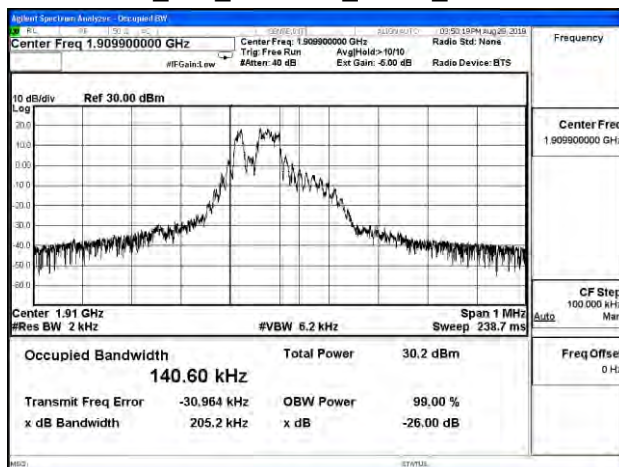
B2_15K_CH19199_QPSK_1RB0



B2_15K_CH19199_QPSK_1RB11



B2_15K_CH19199_QPSK_3RB3



Product	ME910C1-WW		
Test Item	Occupied Bandwidth		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/08/28	Test Site	SR10-H

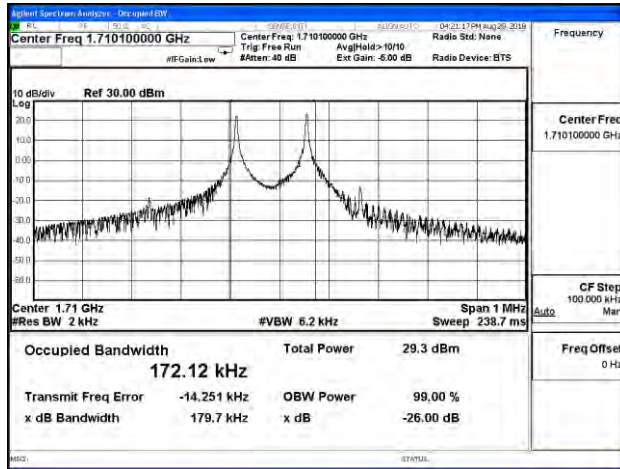
NB-IoT Band 4_3.75K_ BPSK_ 1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	179.700	172.120	N/A
1732.5	178.900	170.310	N/A
1754.9	175.700	166.860	N/A

NB-IoT Band 4_3.75K_ BPSK_ 1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	69.500	64.242	N/A
1732.5	76.410	67.399	N/A
1754.9	68.820	63.404	N/A

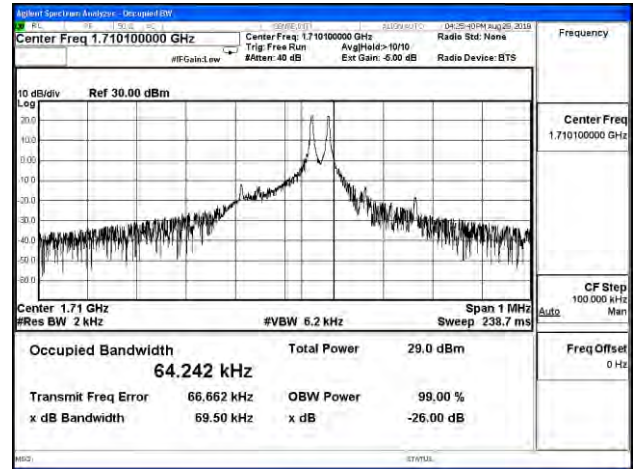
NB-IoT Band 4_15K_ BPSK_ 1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	115.800	127.730	N/A
1732.5	112.500	126.520	N/A
1754.9	116.000	131.360	N/A

NB-IoT Band 4_15K_ BPSK_ 1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	239.100	206.550	N/A
1732.5	240.100	206.580	N/A
1754.9	240.300	206.870	N/A

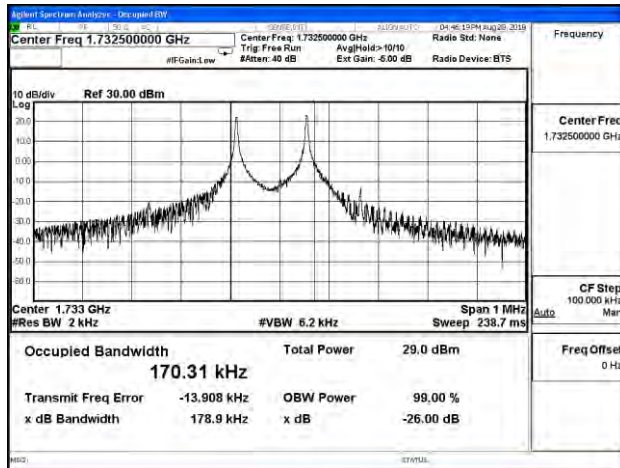
B4_3.75K_CH19951_BPSK_1RB0



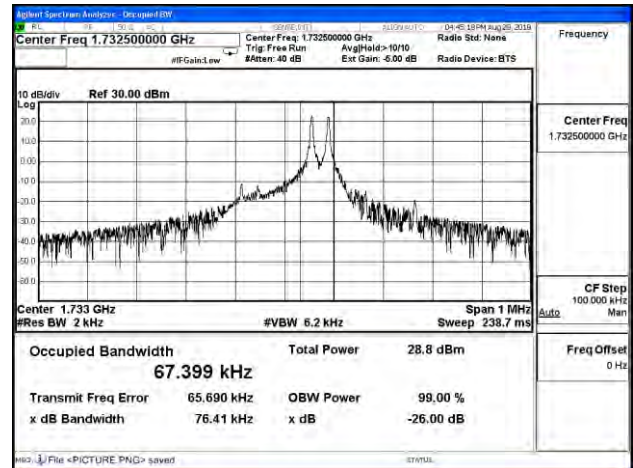
B4_3.75K_CH19951_BPSK_1RB47



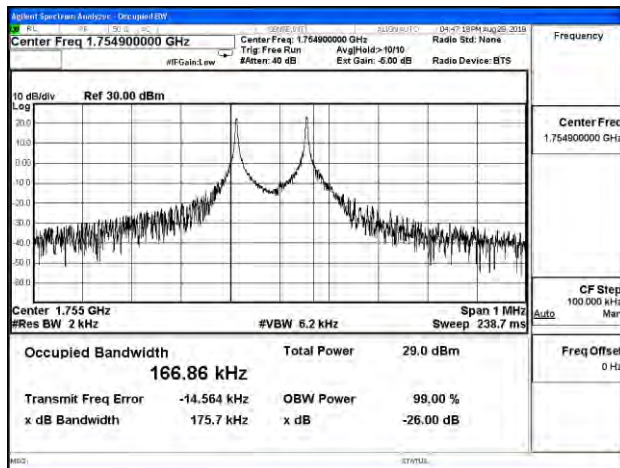
B4_3.75K_CH20175_BPSK_1RB0



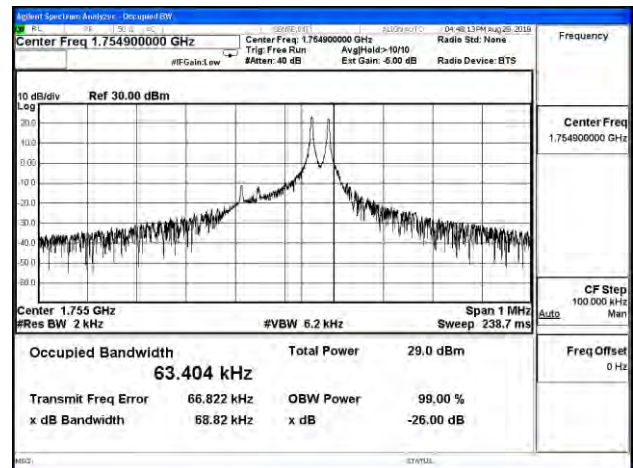
B4_3.75K_CH20175_BPSK_1RB47



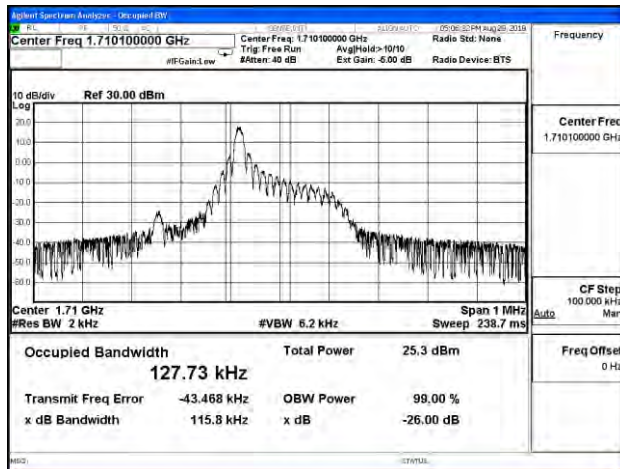
B4_3.75K_CH20399_BPSK_1RB0



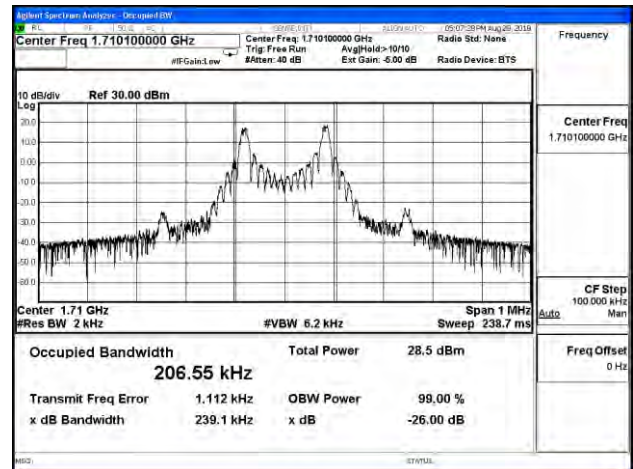
B4_3.75K_CH20399_BPSK_1RB47



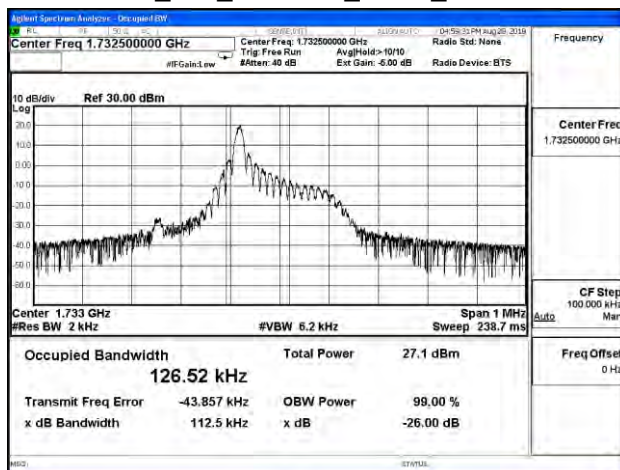
B4_15K_CH19951_BPSK_1RB0



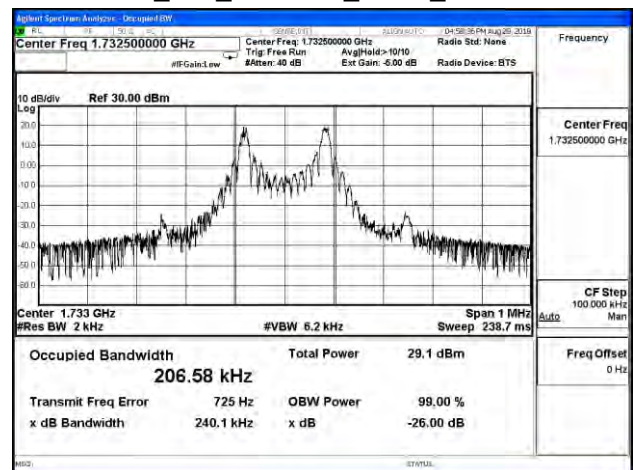
B4_15K_CH19951_BPSK_1RB11



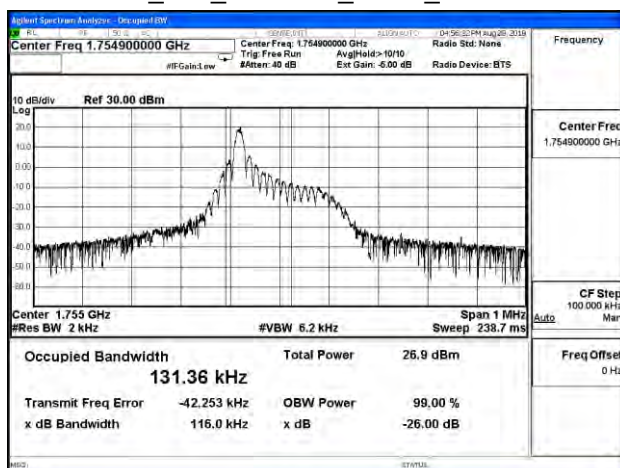
B4_15K_CH20175_BPSK_1RB0



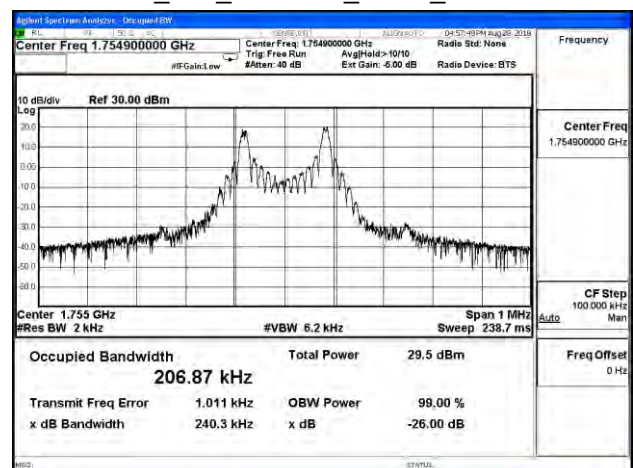
B4_15K_CH20175_BPSK_1RB11



B2_15K_CH18900_BPSK_1RB11



B4_15K_CH20399_BPSK_1RB11



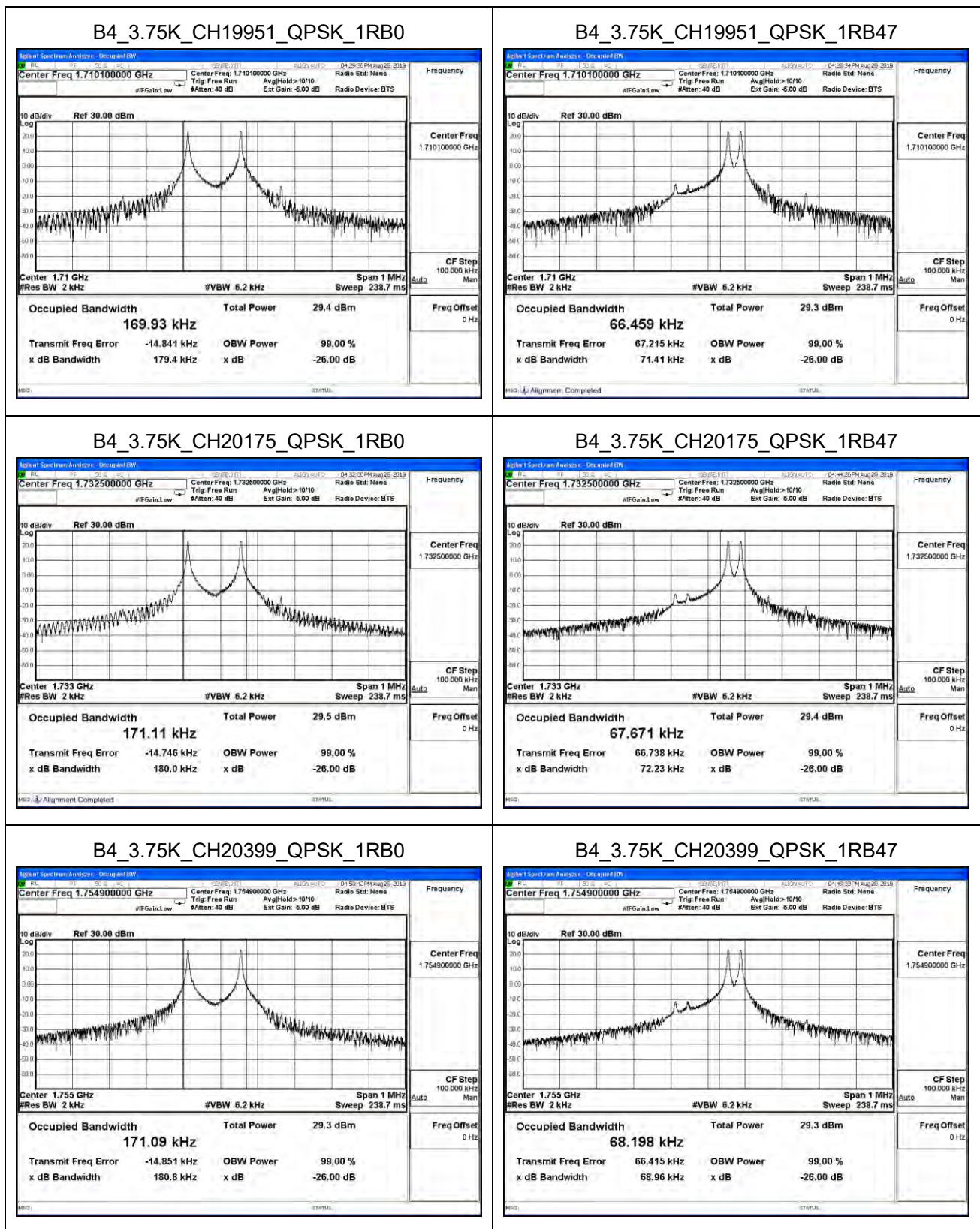
NB-IoT Band 4_3.75K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	179.400	169.930	N/A
1732.5	180.000	171.110	N/A
1754.9	180.800	171.090	N/A

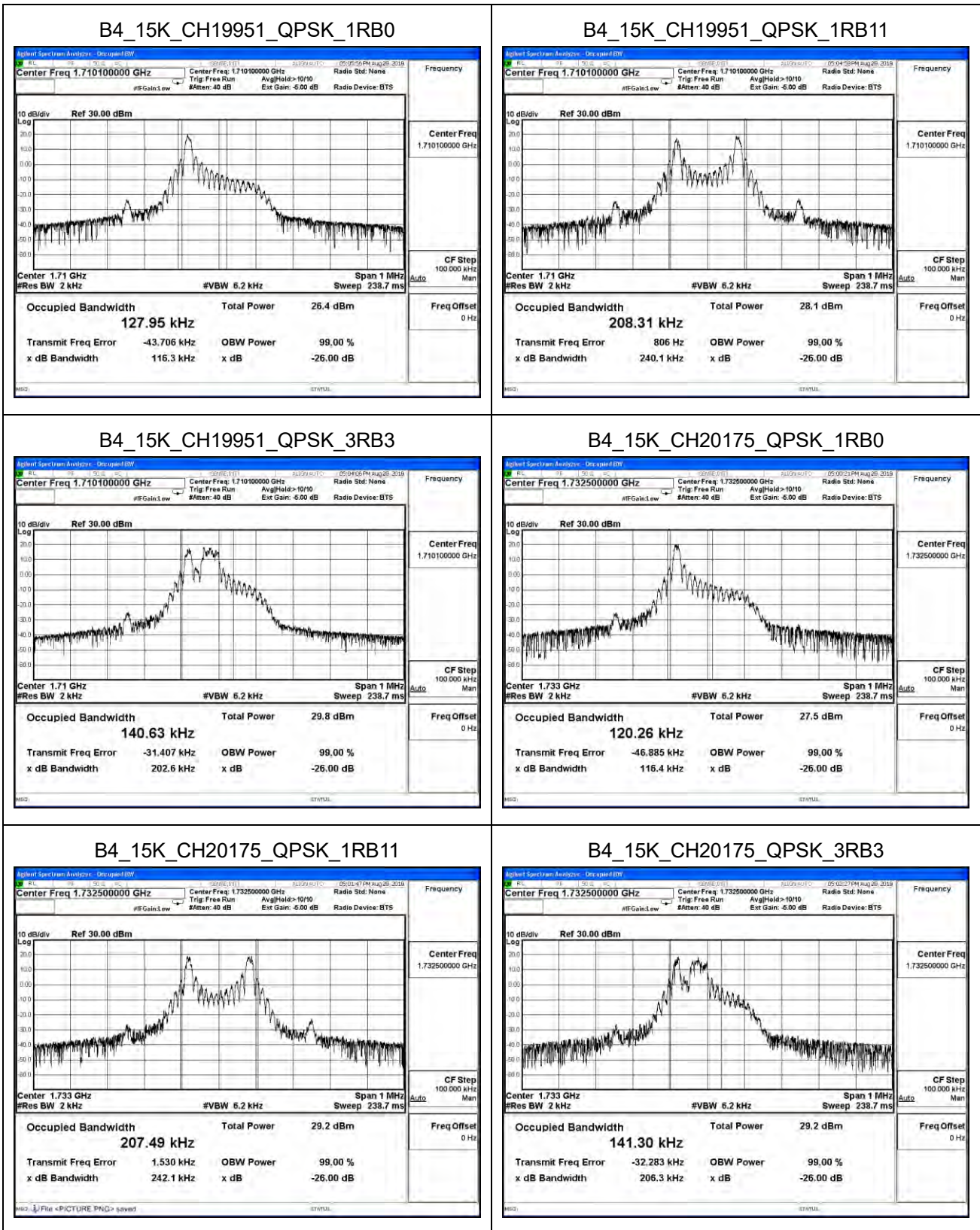
NB-IoT Band 4_3.75K_QPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	71.410	66.459	N/A
1732.5	72.230	67.671	N/A
1754.9	68.960	68.198	N/A

NB-IoT Band 4_15K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	116.300	127.950	N/A
1732.5	116.400	120.260	N/A
1754.9	117.800	130.370	N/A

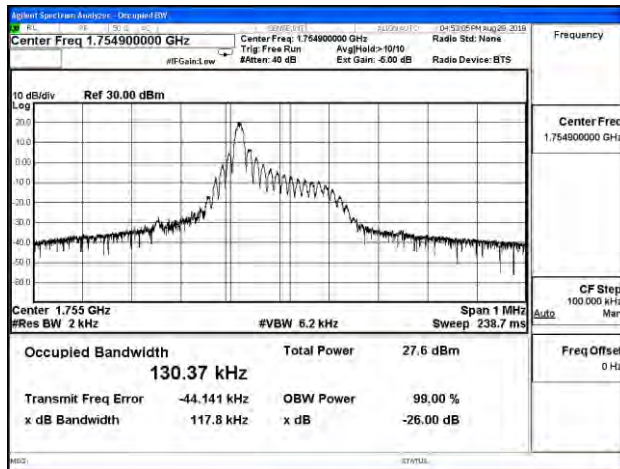
NB-IoT Band 4_15K_QPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	240.100	208.310	N/A
1732.5	242.100	207.490	N/A
1754.9	240.500	206.600	N/A

NB-IoT Band 4_15K_QPSK_3RB3			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
1710.1	202.600	140.630	N/A
1732.5	206.300	141.300	N/A
1754.9	206.000	141.620	N/A

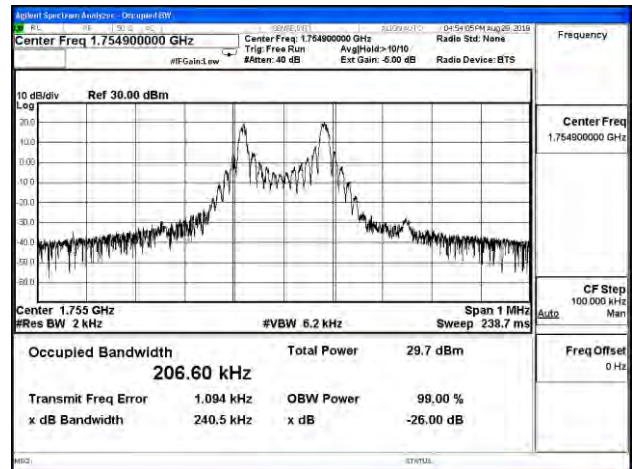




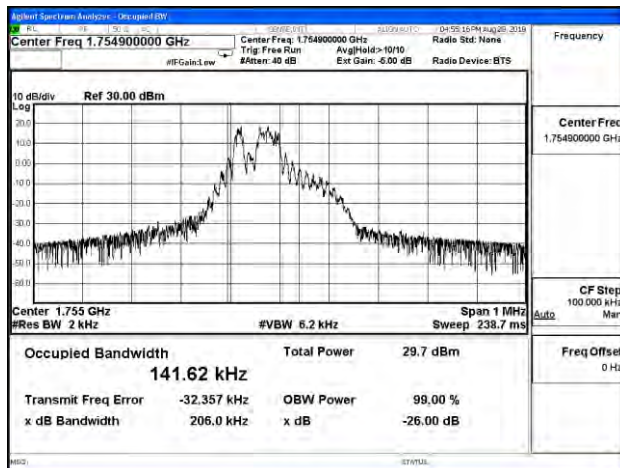
B4_15K_CH20399_QPSK_1RB0



B4_15K_CH20399_QPSK_1RB11



B4_15K_CH20399_QPSK_3RB3



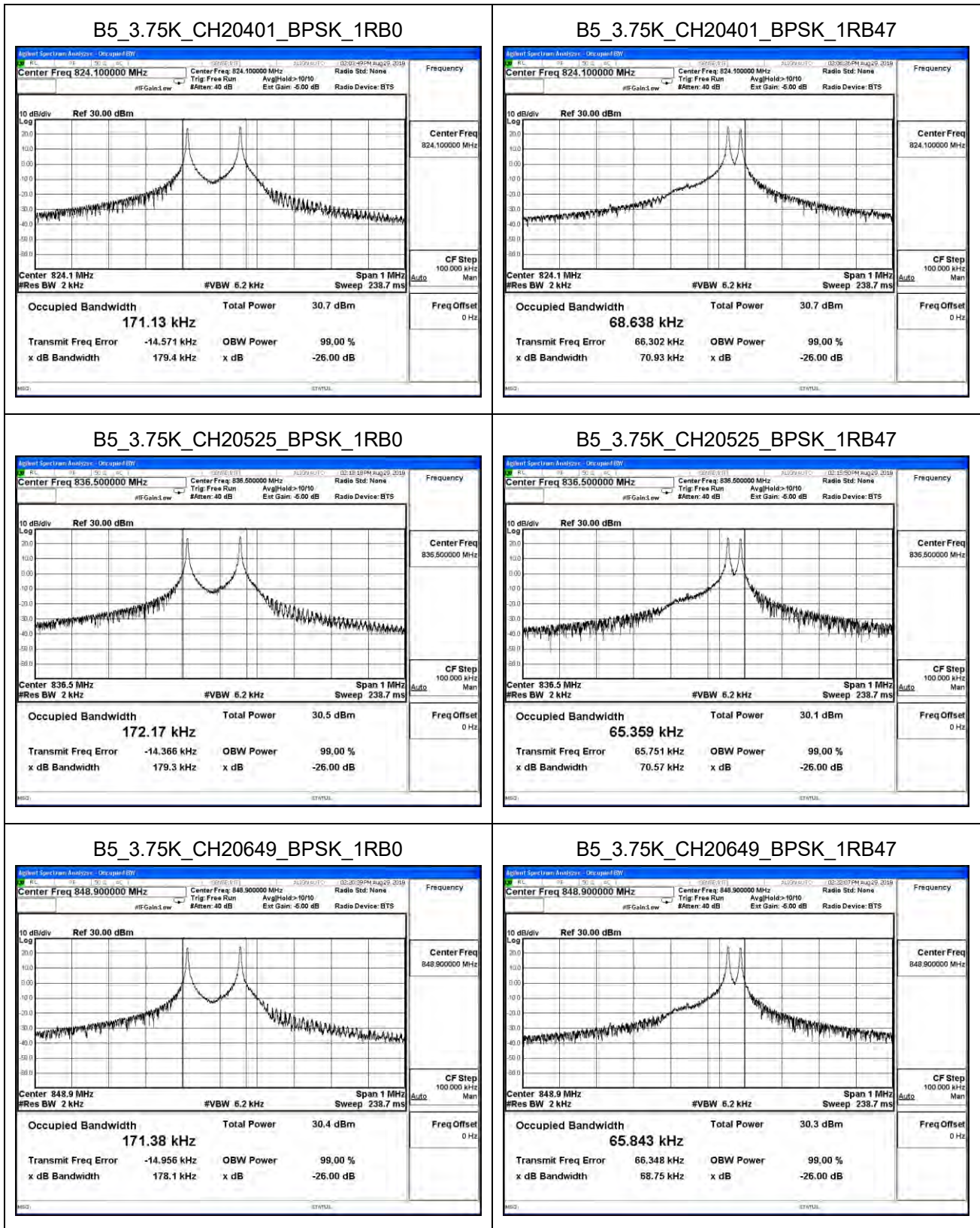
Product	ME910C1-WW		
Test Item	Occupied Bandwidth		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/08/28	Test Site	SR10-H

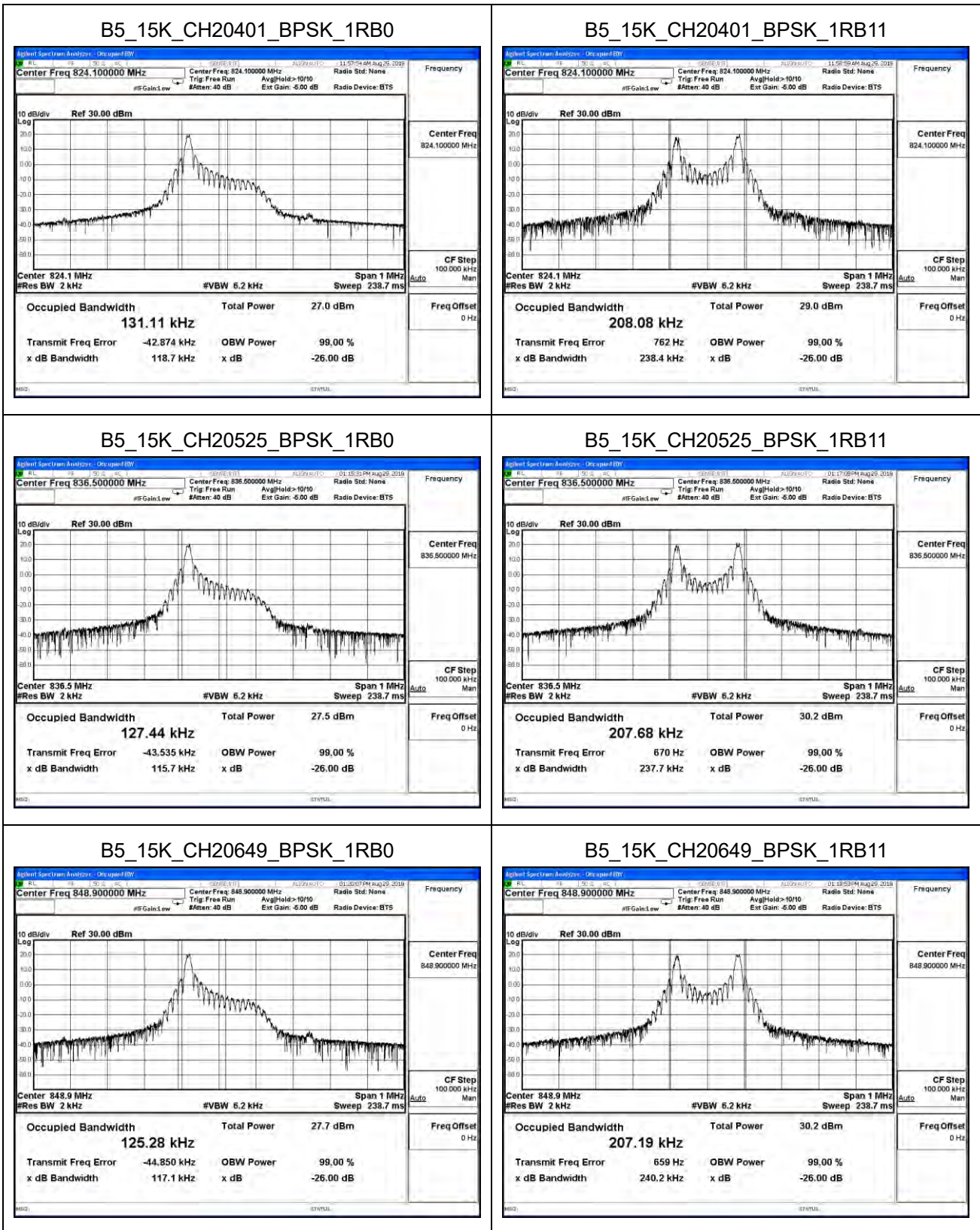
NB-IoT Band 5_3.75K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	179.400	171.130	N/A
836.5	179.300	172.170	N/A
848.9	178.100	171.380	N/A

NB-IoT Band 5_3.75K_BPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	70.930	68.638	N/A
836.5	70.570	65.359	N/A
848.9	68.750	65.843	N/A

NB-IoT Band 5_15K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	118.700	131.110	N/A
836.5	115.700	127.440	N/A
848.9	117.100	125.280	N/A

NB-IoT Band 5_15K_BPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	238.400	208.080	N/A
836.5	237.700	207.680	N/A
848.9	240.200	207.190	N/A





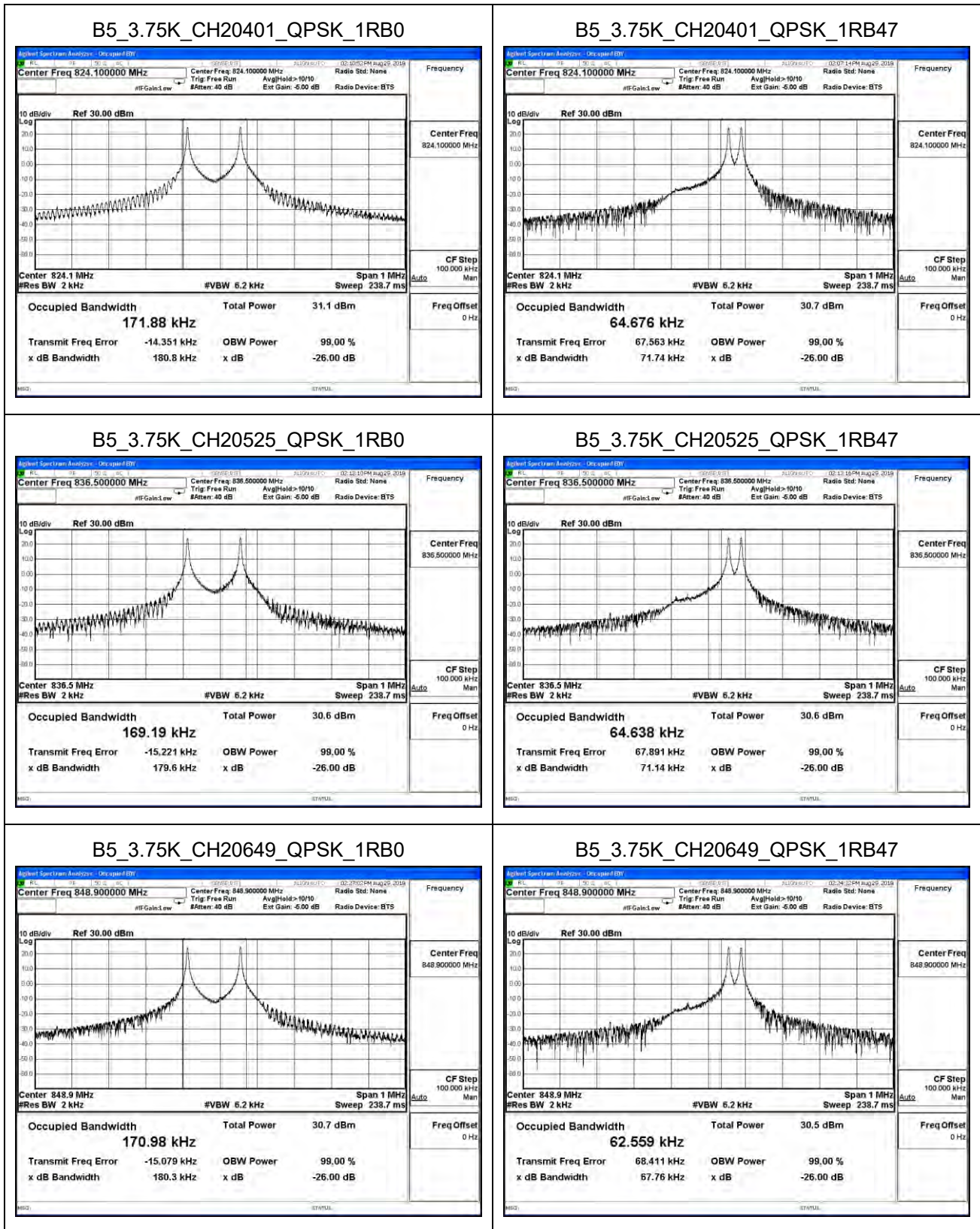
NB-IoT Band 5_3.75K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	180.800	171.880	N/A
836.5	179.600	169.190	N/A
848.9	180.300	170.980	N/A

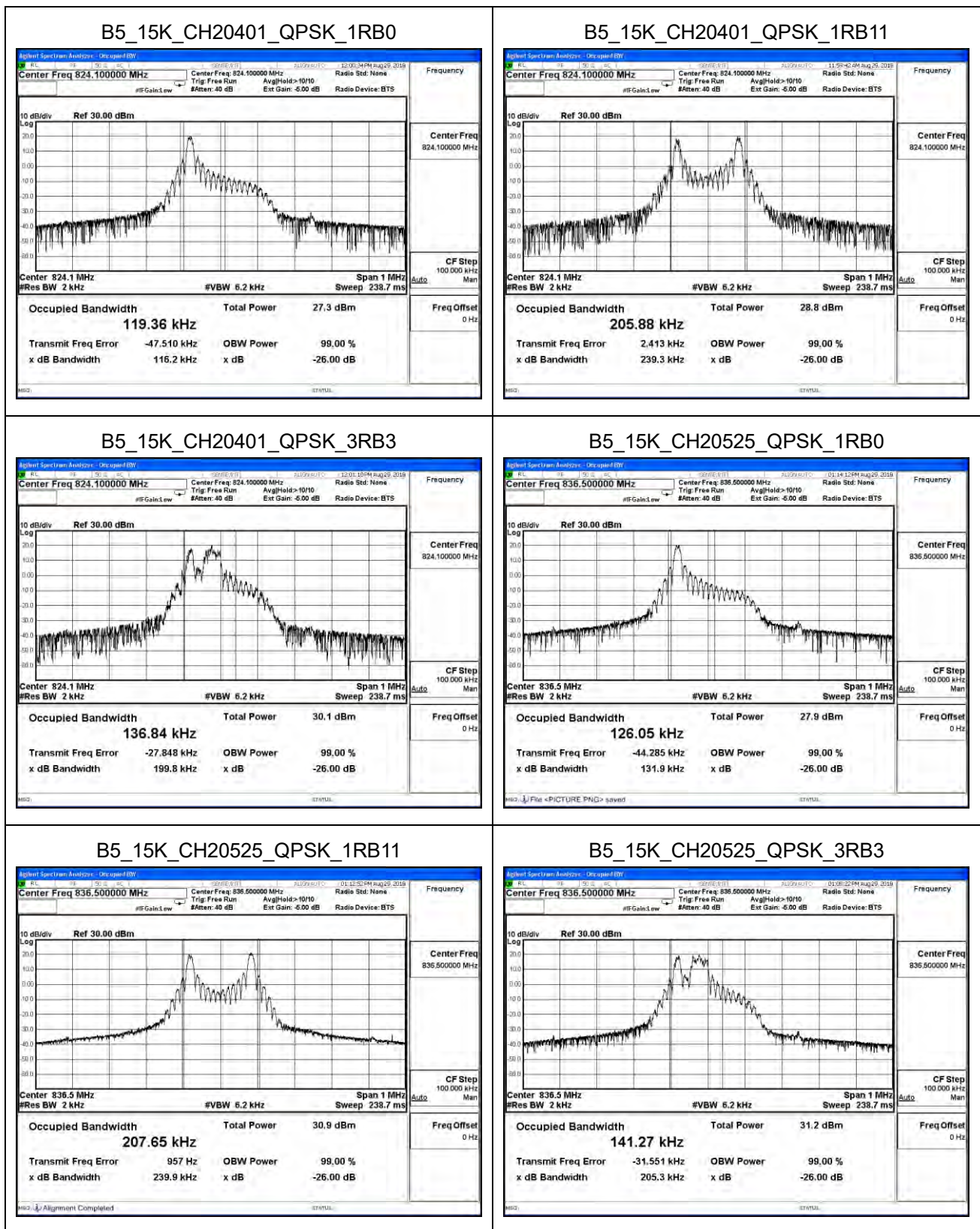
NB-IoT Band 5_3.75K_QPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	71.740	64.676	N/A
836.5	71.140	64.638	N/A
848.9	67.760	62.559	N/A

NB-IoT Band 5_15K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	116.200	119.360	N/A
836.5	131.900	126.050	N/A
848.9	130.600	126.670	N/A

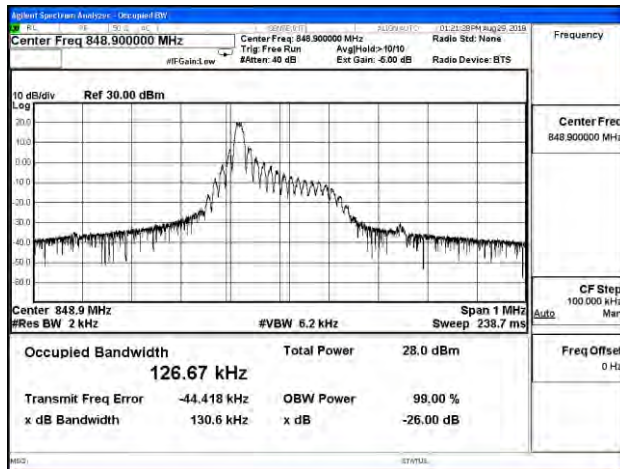
NB-IoT Band 5_15K_QPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	239.300	205.880	N/A
836.5	239.900	207.650	N/A
848.9	238.500	207.360	N/A

NB-IoT Band 5_15K_QPSK_3RB3			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	199.800	136.840	N/A
836.5	205.300	141.270	N/A
848.9	202.700	140.860	N/A

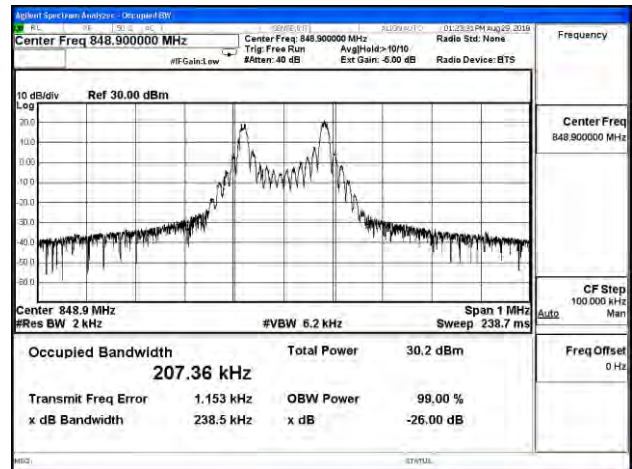




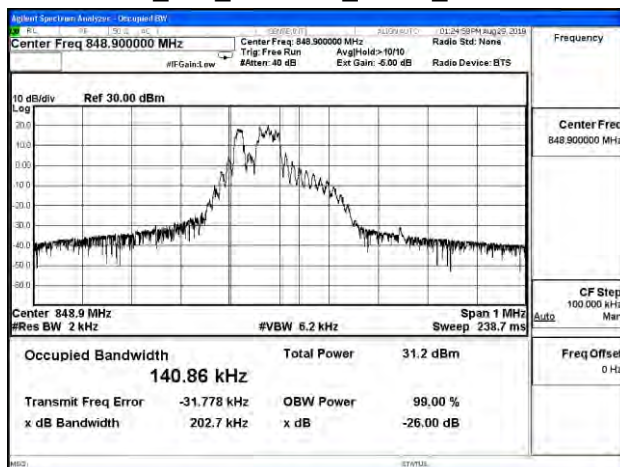
B5_15K_CH20649_QPSK_1RB0



B5_15K_CH20649_QPSK_1RB11



B5_15K_CH20649_QPSK_3RB3



Product	ME910C1-WW		
Test Item	Occupied Bandwidth		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/08/28	Test Site	SR10-H

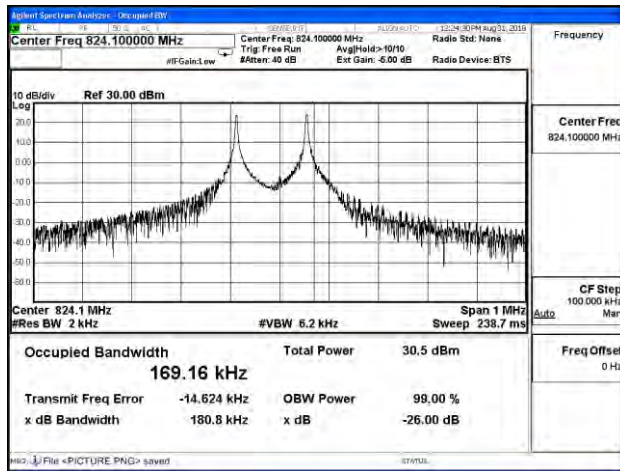
NB-IoT Band 26_3.75K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	180.800	169.160	N/A
836.5	179.000	169.970	N/A
848.9	176.900	168.540	N/A

NB-IoT Band 26_3.75K_BPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	70.450	67.775	N/A
836.5	73.820	67.069	N/A
848.9	69.600	67.323	N/A

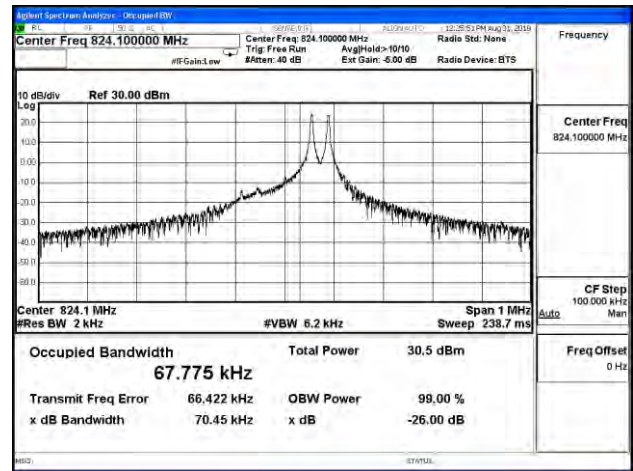
NB-IoT Band 26_15K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	117.900	129.120	N/A
836.5	113.900	122.660	N/A
848.9	101.100	114.570	N/A

NB-IoT Band 26_15K_BPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	237.700	206.700	N/A
836.5	240.300	207.900	N/A
848.9	237.500	207.670	N/A

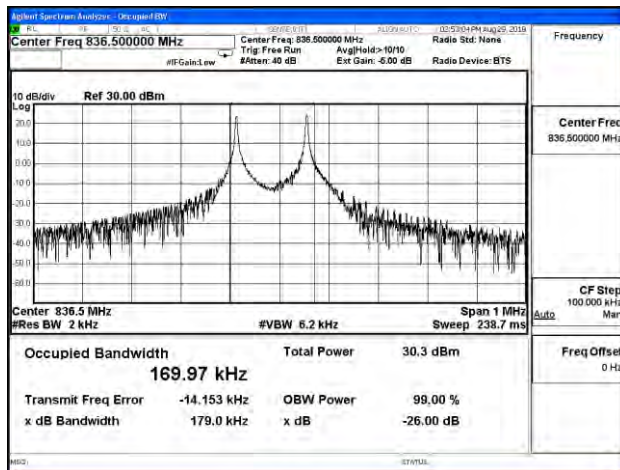
B26_3.75K_CH26791_BPSK_1RB0



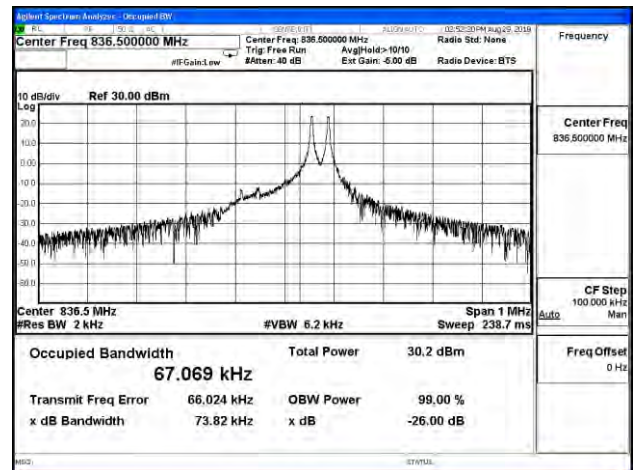
B26_3.75K_CH26791_BPSK_1RB47



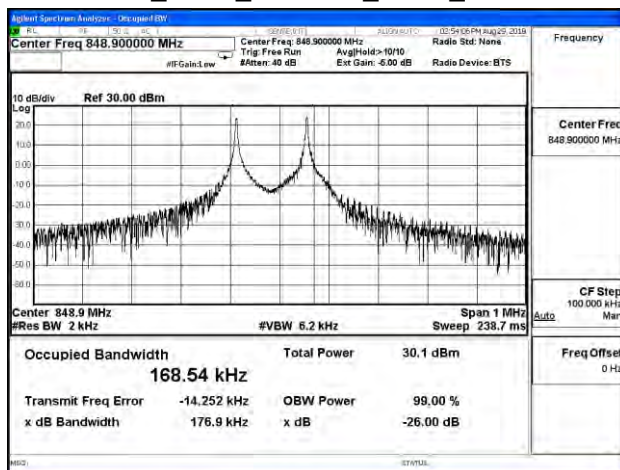
B26_3.75K_CH26915_BPSK_1RB0



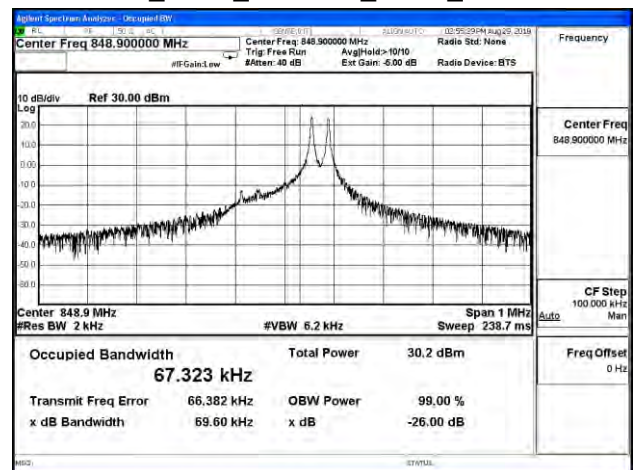
B26_3.75K_CH26915_BPSK_1RB47

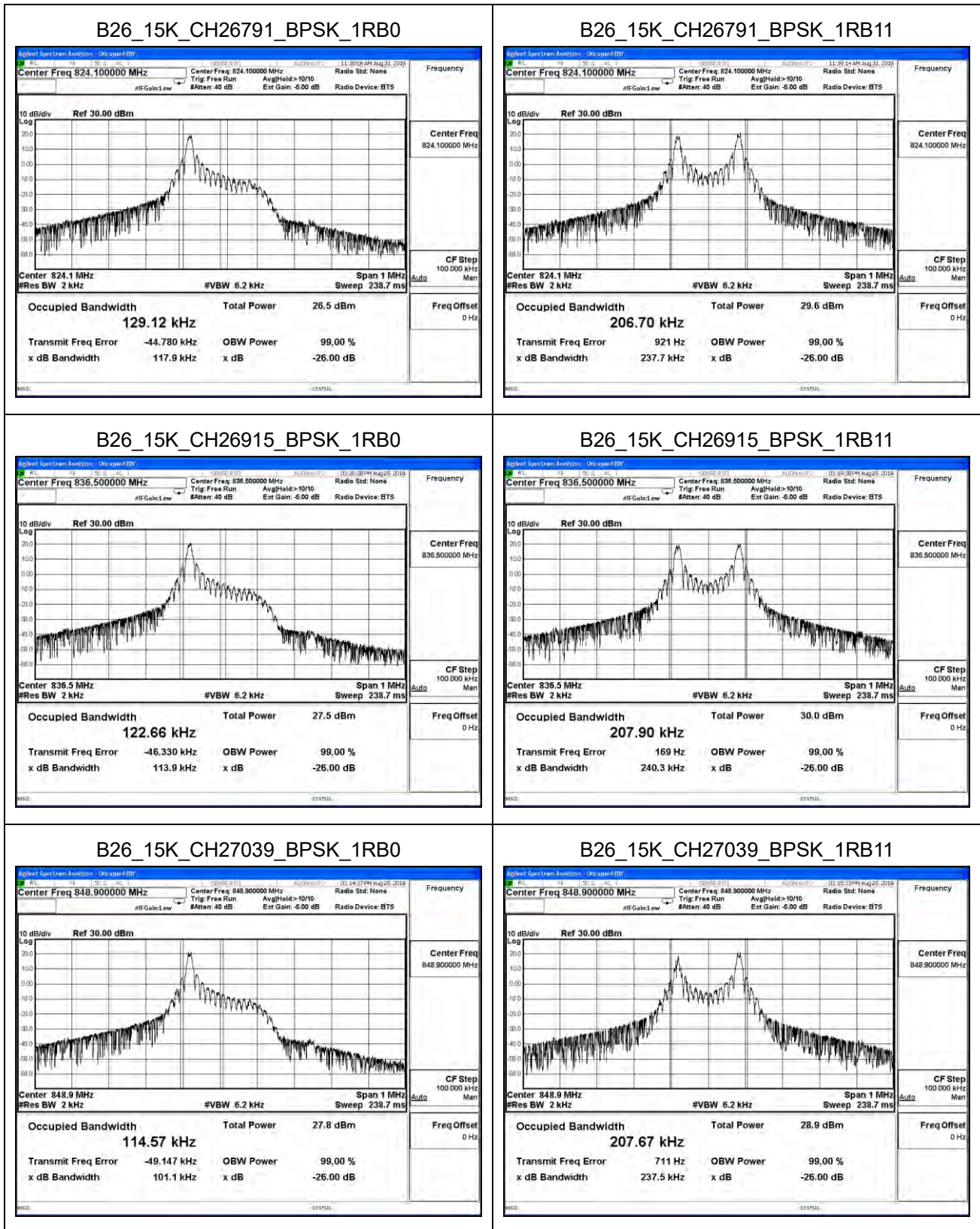


B26_3.75K_CH27039_BPSK_1RB0



B26_3.75K_CH27039_BPSK_1RB47





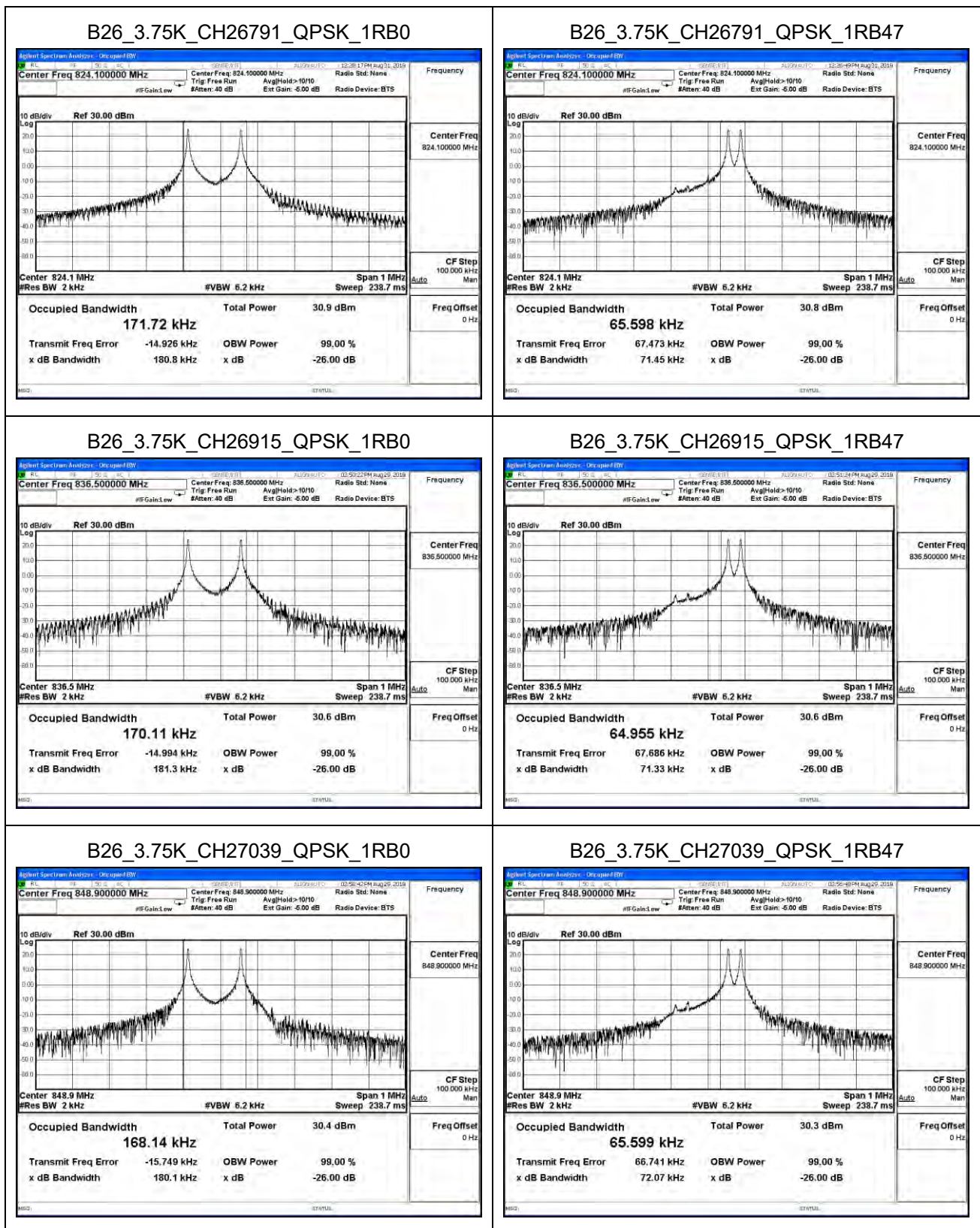
NB-IoT Band 26_3.75K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	180.800	171.720	N/A
836.5	181.300	170.110	N/A
848.9	180.100	168.140	N/A

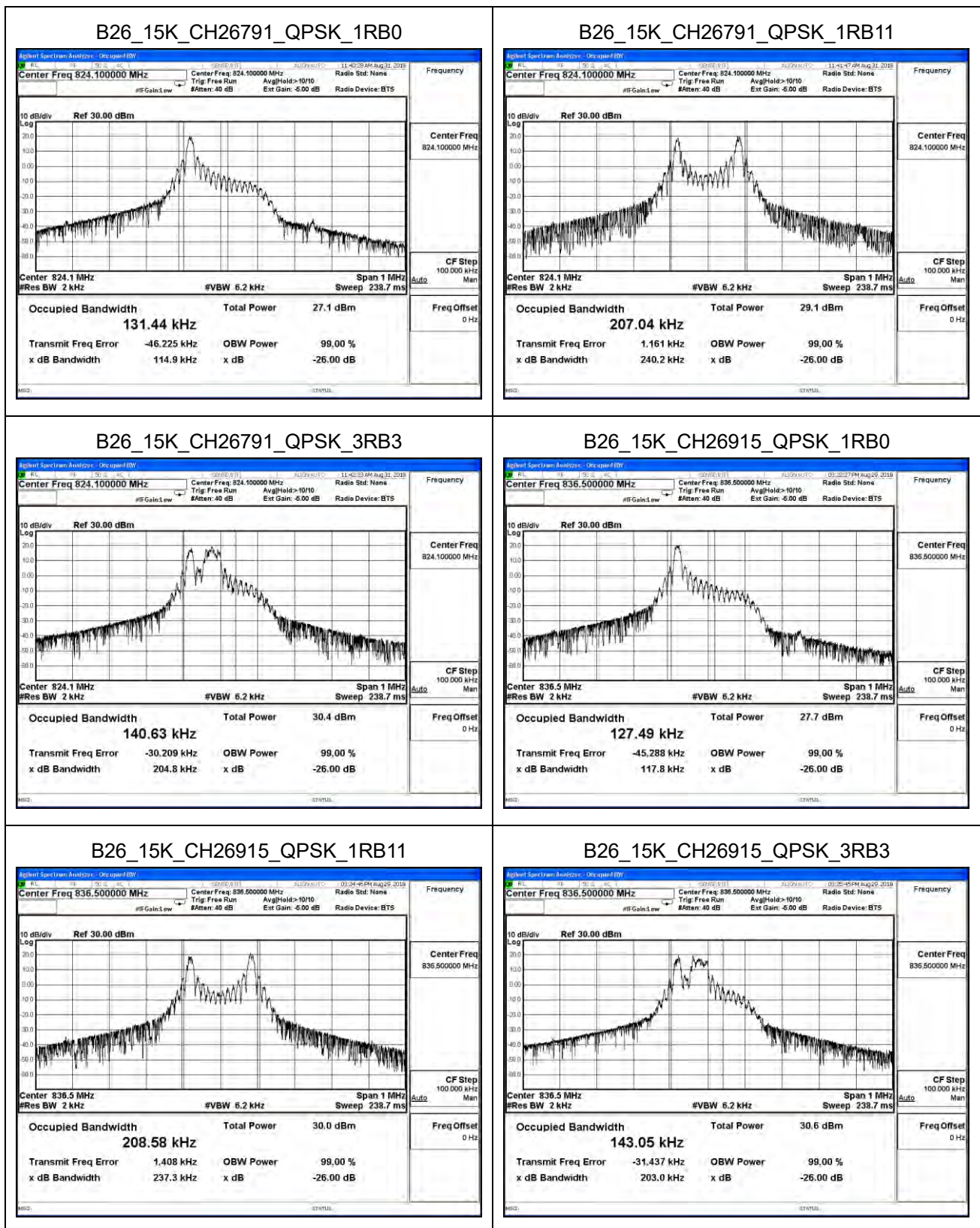
NB-IoT Band 26_3.75K_QPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	71.450	65.598	N/A
836.5	71.330	64.955	N/A
848.9	72.070	65.599	N/A

NB-IoT Band 26_15K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	114.900	131.440	N/A
836.5	117.800	127.490	N/A
848.9	129.000	128.080	N/A

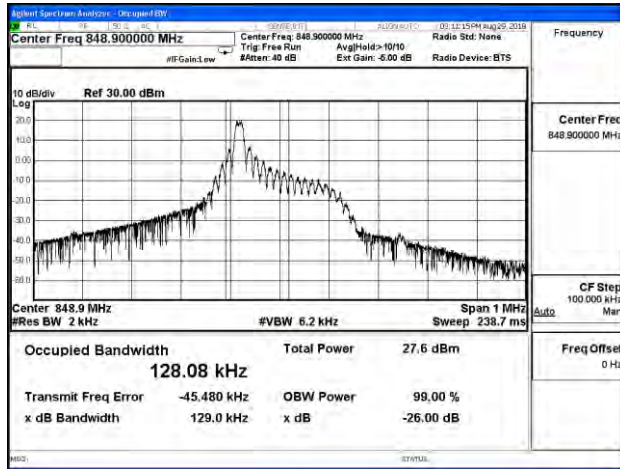
NB-IoT Band 26_15K_QPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	240.200	207.060	N/A
836.5	237.300	208.580	N/A
848.9	235.200	208.920	N/A

NB-IoT Band 26_15K_QPSK_3RB3			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
824.1	204.800	140.630	N/A
836.5	203.000	143.050	N/A
848.9	203.800	141.700	N/A

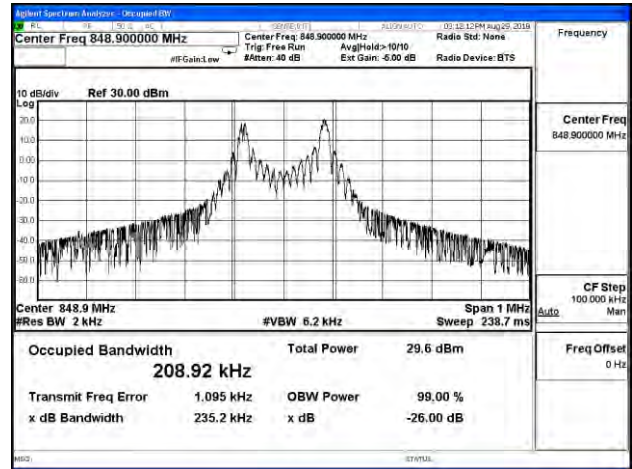




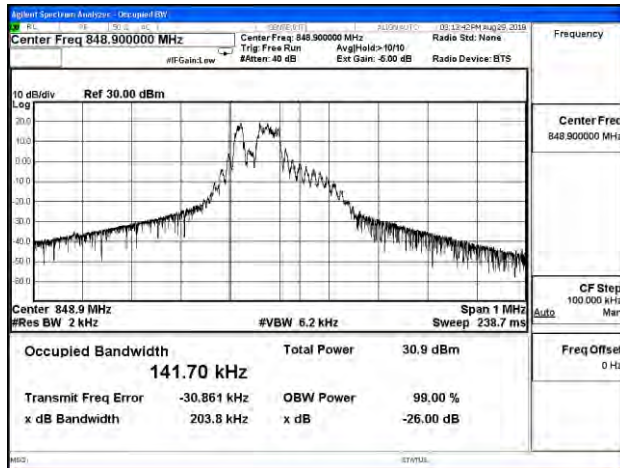
B26_15K_CH27039_QPSK_1RB0



B26_15K_CH27039_QPSK_1RB11



B26_15K_CH27039_QPSK_3RB3



Product	ME910C1-WW		
Test Item	Occupied Bandwidth		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/08/28	Test Site	SR10-H

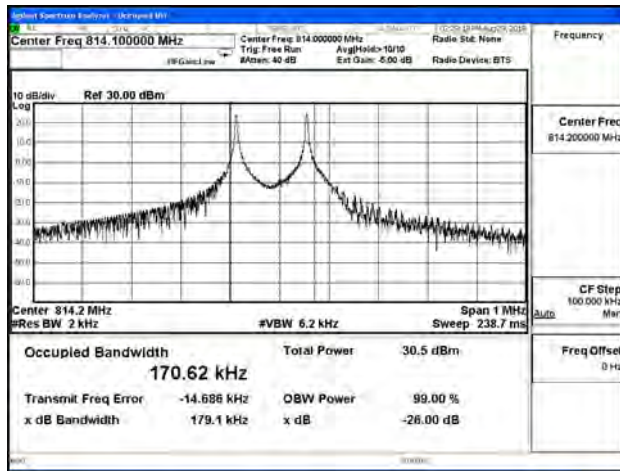
NB-IoT Band 26_3.75K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	179.100	170.620	N/A
819	179.200	168.190	N/A
823.8	179.600	172.680	N/A

NB-IoT Band 26_3.75K_BPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	70.020	66.010	N/A
819	70.030	67.841	N/A
823.8	71.810	65.765	N/A

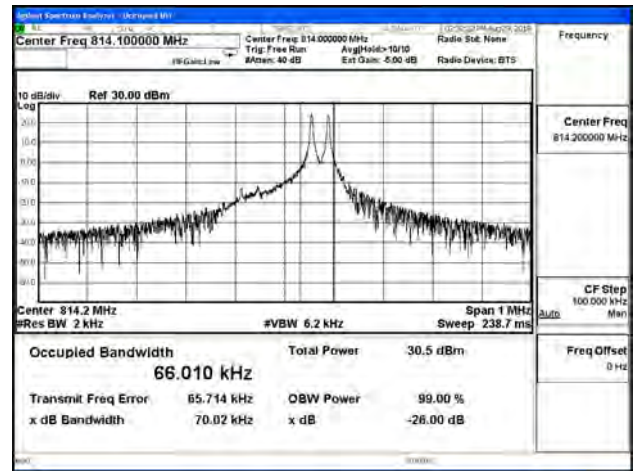
NB-IoT Band 26_15K_BPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	99.010	115.840	N/A
819	117.200	127.880	N/A
823.8	116.500	128.450	N/A

NB-IoT Band 26_15K_BPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	240.500	206.400	N/A
819	239.900	208.640	N/A
823.8	237.200	209.430	N/A

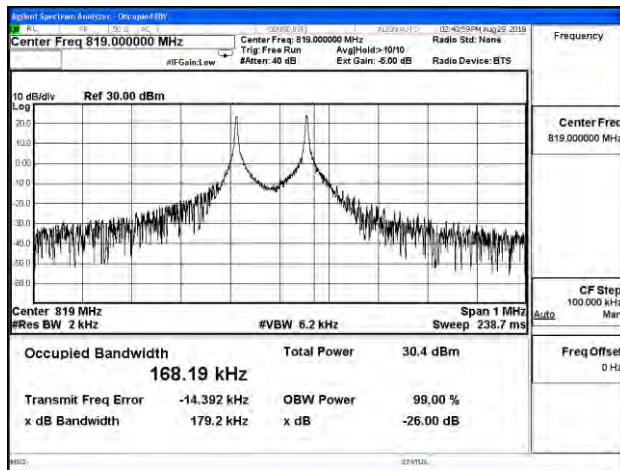
B26_3.75K_CH26692_BPSK_1RB0



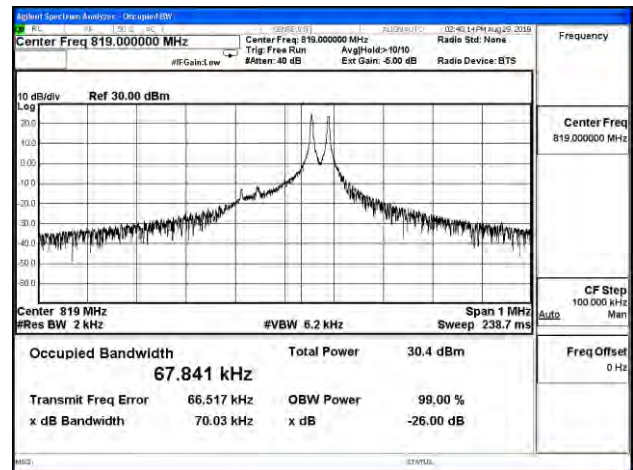
B26_3.75K_CH26692_BPSK_1RB47



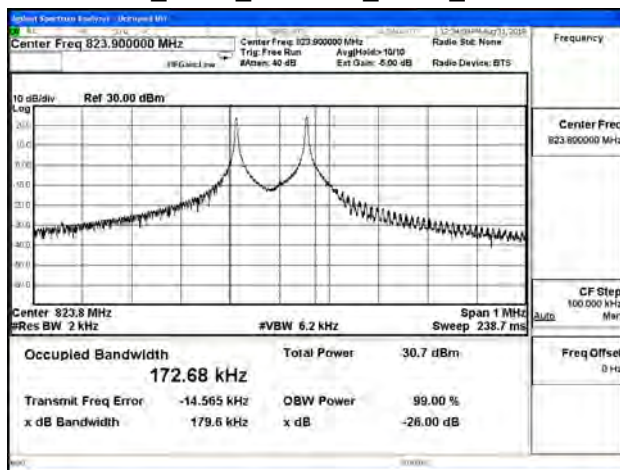
B26_3.75K_CH26740_BPSK_1RB0



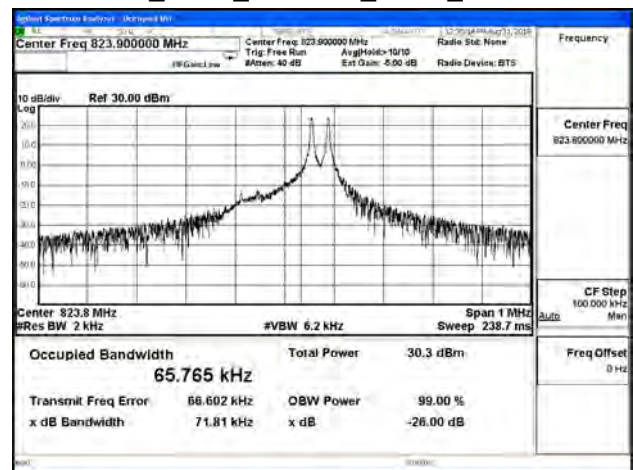
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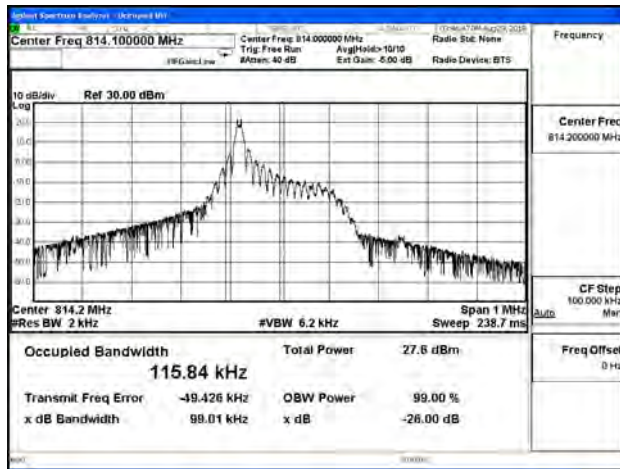
B26_3.75K_CH26788_BPSK_1RB0



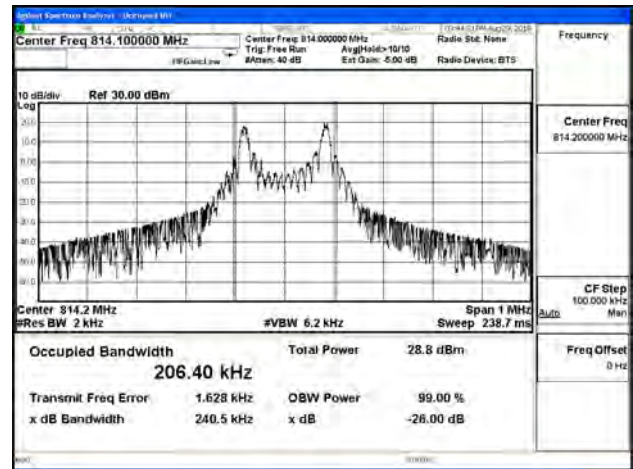
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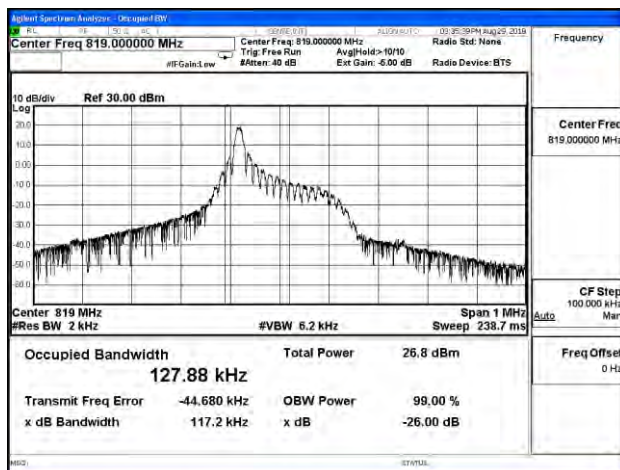
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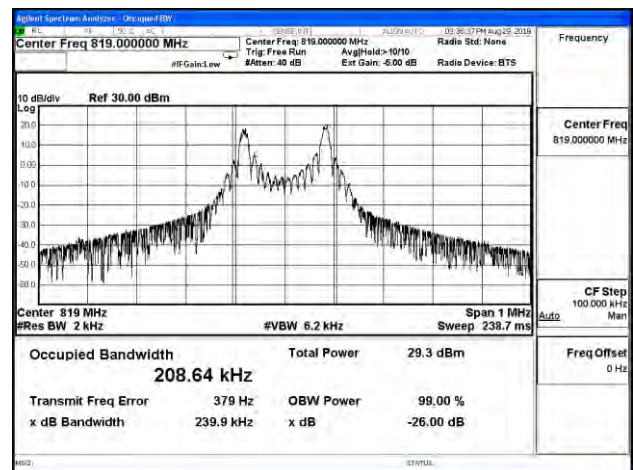
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B26_15K_CH26740_BPSK_1RB0



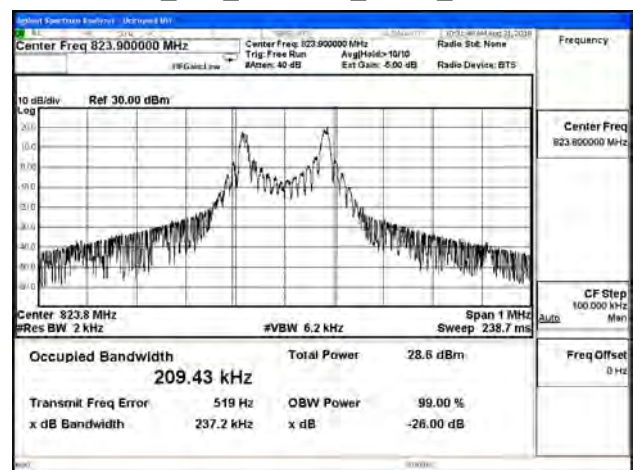
B26_15K_CH26740_BPSK_1RB11



B26_15K_CH26788_BPSK_1RB0



B26_15K_CH26788_BPSK_1RB11



NB-IoT Band 26_3.75K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	178.100	171.010	N/A
819	179.000	169.950	N/A
823.8	179.600	168.630	N/A

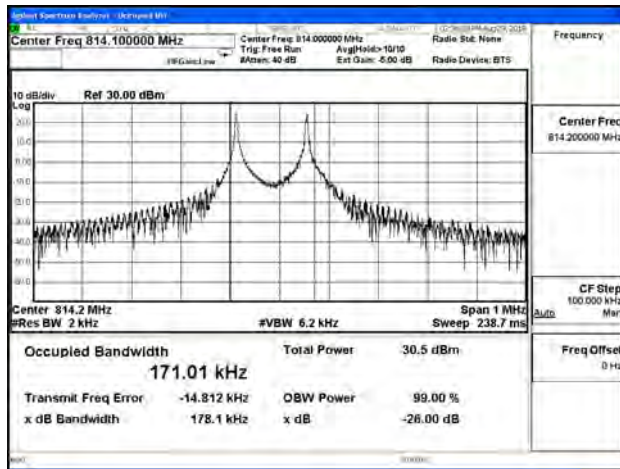
NB-IoT Band 26_3.75K_QPSK_1RB47			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	70.960	64.632	N/A
819	71.450	65.774	N/A
823.8	70.910	64.850	N/A

NB-IoT Band 26_15K_QPSK_1RB0			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	116.100	116.500	N/A
819	129.400	127.880	N/A
823.8	130.200	126.980	N/A

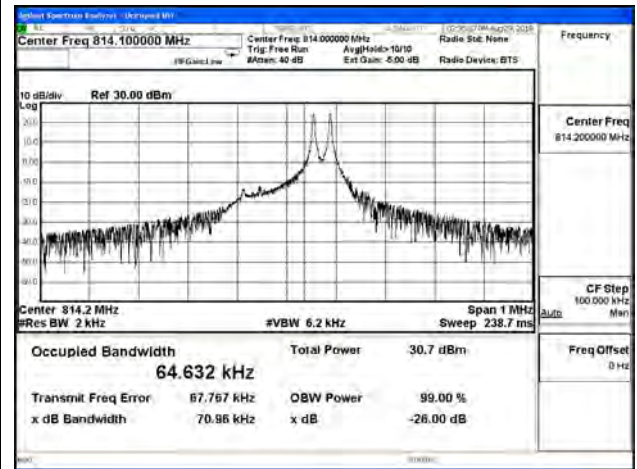
NB-IoT Band 26_15K_QPSK_1RB11			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	240.500	207.790	N/A
819	238.900	205.640	N/A
823.8	239.600	205.060	N/A

NB-IoT Band 26_15K_QPSK_3RB3			
Frequency (MHz)	26dB BW Measure Level (kHz)	99% BW Measure Level (kHz)	Limit (MHz)
814.2	202.200	140.080	N/A
819	201.800	139.360	N/A
823.8	204.800	142.340	N/A

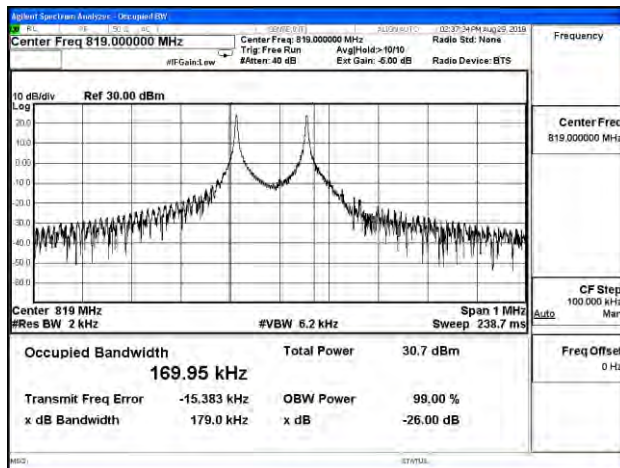
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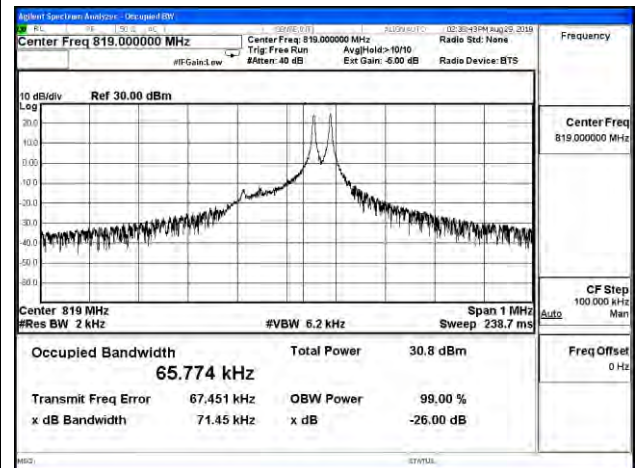
B26_3.75K_CH26692_QPSK_1RB47



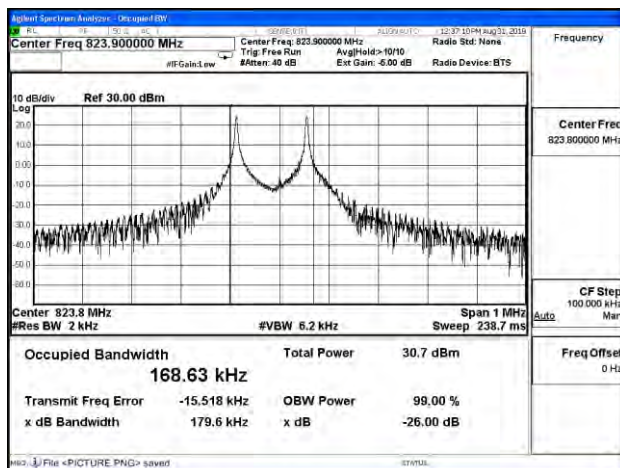
B26_3.75K_CH26740_QPSK_1RB0



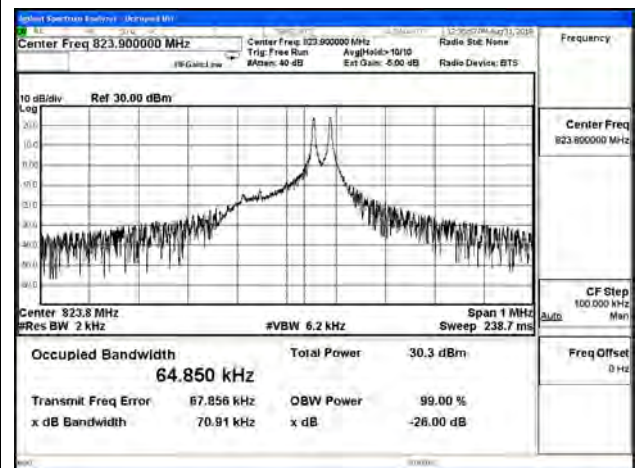
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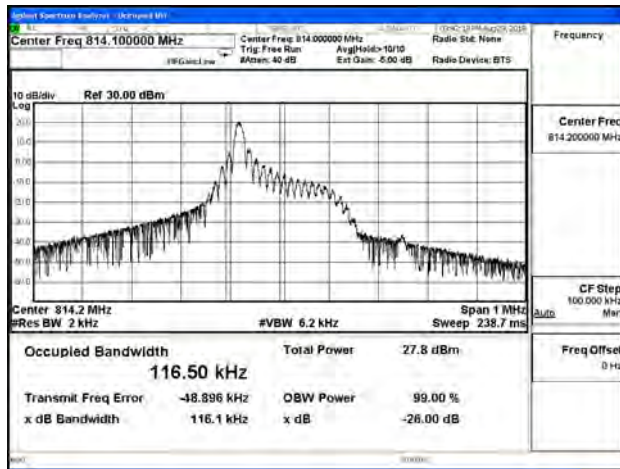
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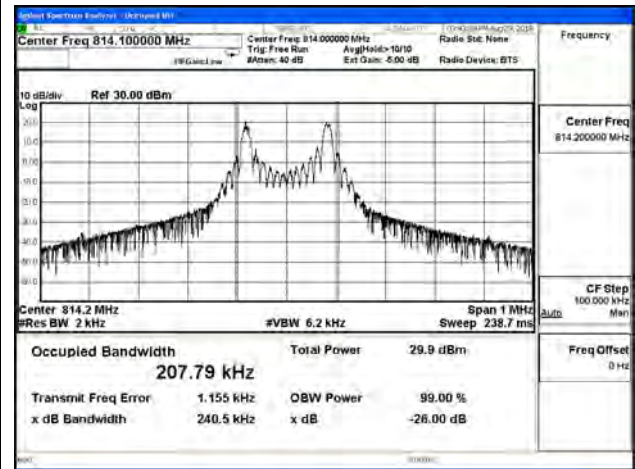
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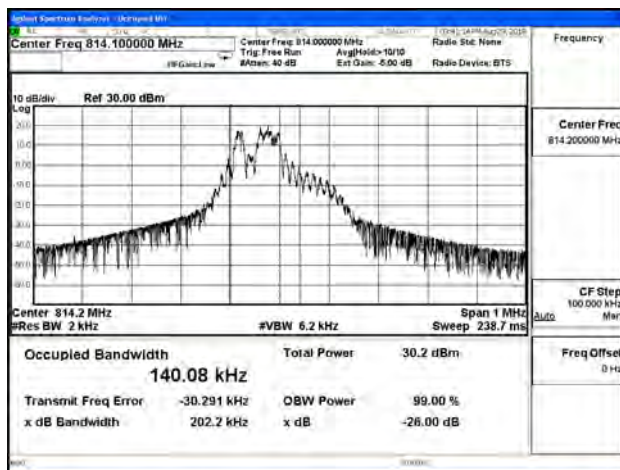
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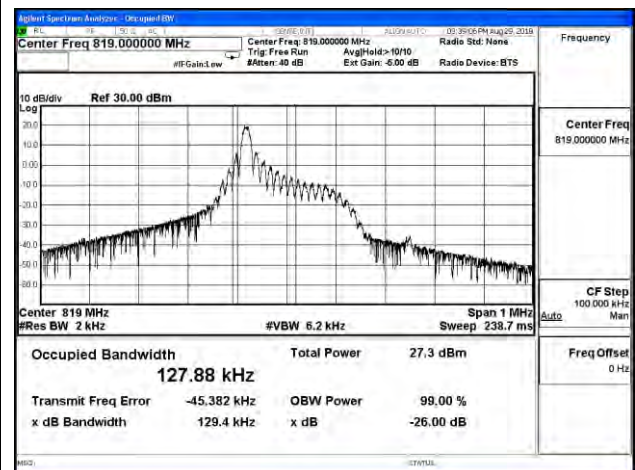
B26_15K_CH26692_QPSK_1RB11



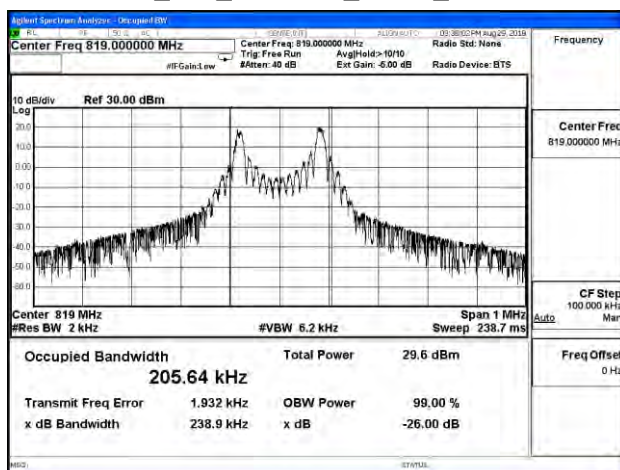
B26_15K_CH26692_QPSK_3RB3



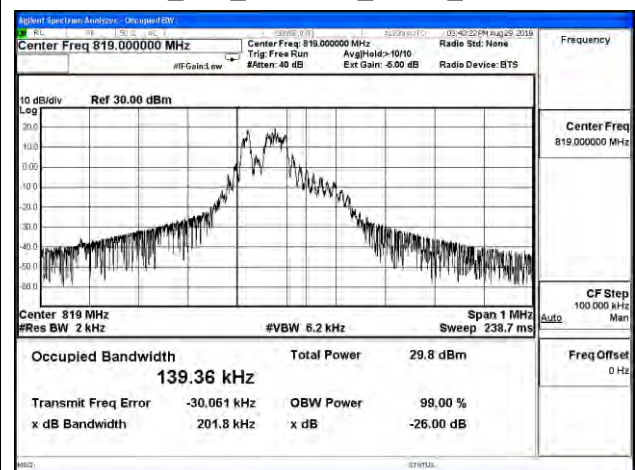
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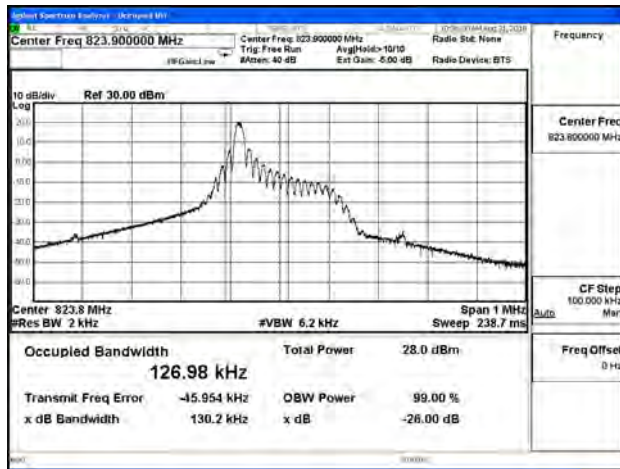
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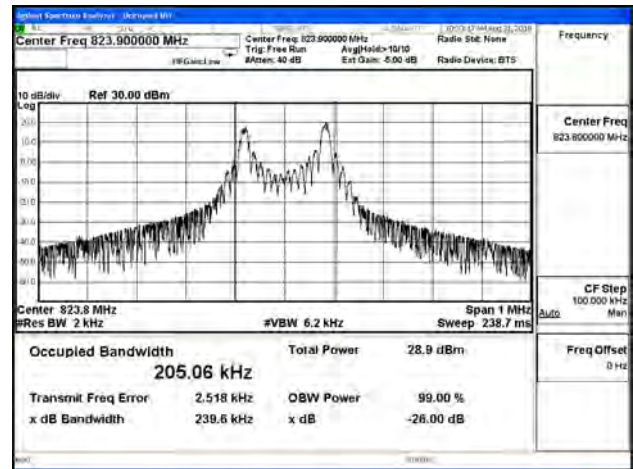
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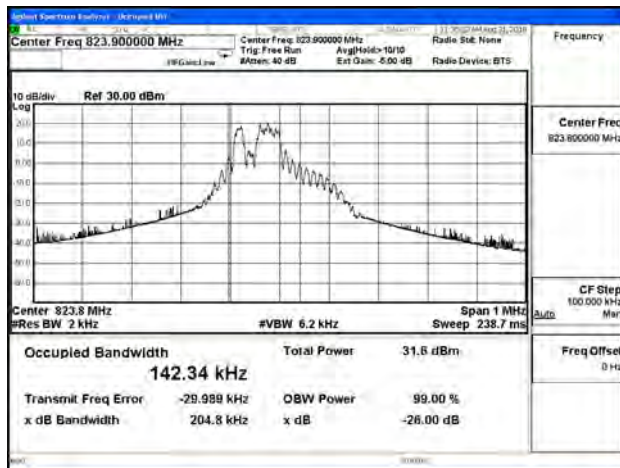
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B26_15K_CH26788_QPSK_1RB11

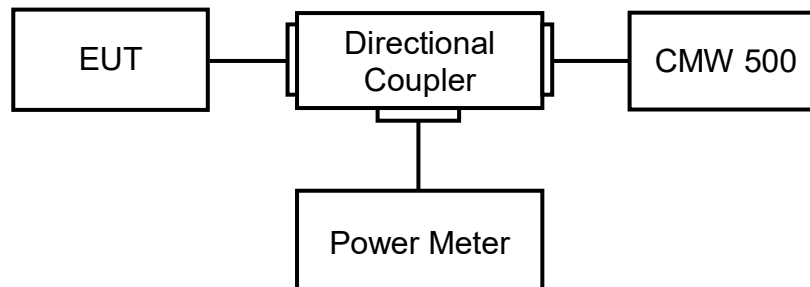


B26_15K_CH26788_QPSK_3RB3



5. Peak To Average Ratio

5.1. Test Setup



5.2. Test Procedure

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

5.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 5.7.2
ANSI C63.26-2015 Sub-clause 5.2.3.4

5.4. Test Result

Product	ME910C1-WW		
Test Item	Peak To Average Ratio		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Peak (dBm)	Average (dBm)	PAPR (dB)
18601	1850.1	BPSK	3.75	1	0	25.9	23.23	2.67
		QPSK	15	3	3	28.33	23.93	4.4
18900	1880	BPSK	3.75	1	0	26.12	23.49	2.63
		QPSK	15	3	3	28.86	24.24	4.62
19199	1909.9	BPSK	3.75	1	47	26.42	23.35	3.07
		QPSK	15	3	3	28.73	23.47	5.26

Product	ME910C1-WW		
Test Item	Peak To Average Ratio		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Peak (dBm)	Average (dBm)	PAPR (dB)
19951	1710.1	BPSK	3.75	1	47	25.03	22.60	2.43
		QPSK	15	3	3	27.46	22.62	4.84
20175	1732.5	BPSK	3.75	1	47	24.91	22.32	2.59
		QPSK	15	3	3	27.42	22.02	5.4
20399	1754.9	BPSK	3.75	1	0	24.79	22.29	2.5
		QPSK	15	3	3	27.48	23.19	4.29

Product	ME910C1-WW		
Test Item	Peak To Average Ratio		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Peak (dBm)	Average (dBm)	PAPR (dB)
20401	824.1	BPSK	3.75	1	0	25.58	22.43	3.15
		QPSK	15	3	3	28.62	21.81	6.81
20525	836.5	BPSK	3.75	1	0	26.08	23.86	2.22
		QPSK	15	3	3	28.51	24.33	4.18
20649	848.9	BPSK	3.75	1	47	25.93	23.71	2.22
		QPSK	15	3	3	28.69	22.02	6.67

Product	ME910C1-WW		
Test Item	Peak To Average Ratio		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Peak (dBm)	Average (dBm)	PAPR (dB)
26791	824.1	BPSK	3.75	1	0	26.29	24.13	2.16
		QPSK	15	3	3	28.61	22.71	5.9
26915	836.5	BPSK	3.75	1	0	26.3	23.81	2.49
		QPSK	15	3	3	28.35	22.75	5.6
27039	848.9	BPSK	3.75	1	47	25.89	23.70	2.19
		QPSK	15	3	3	28.43	23.42	5.01

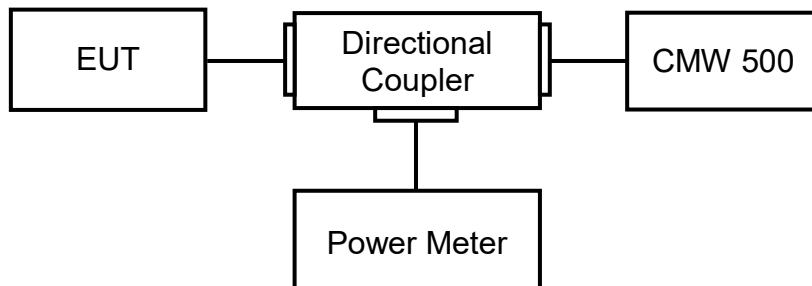
Product	ME910C1-WW		
Test Item	Peak To Average Ratio		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/08/28	Test Site	SR10-H

Channel	Freq. (MHz)	Modulation	BW (kHz)	RB No.	RB offset	Peak (dBm)	Average (dBm)	PAPR (dB)
26692	814.2	BPSK	3.75	1	0	26.3	24.23	2.07
		QPSK	15	3	3	28.16	22.53	5.63
26740	819	BPSK	3.75	1	0	26.11	24.07	2.04
		QPSK	15	3	3	28.67	24.57	4.1
26788	823.8	BPSK	3.75	1	0	26.24	24.13	2.11
		QPSK	15	3	3	28.64	23.67	4.97

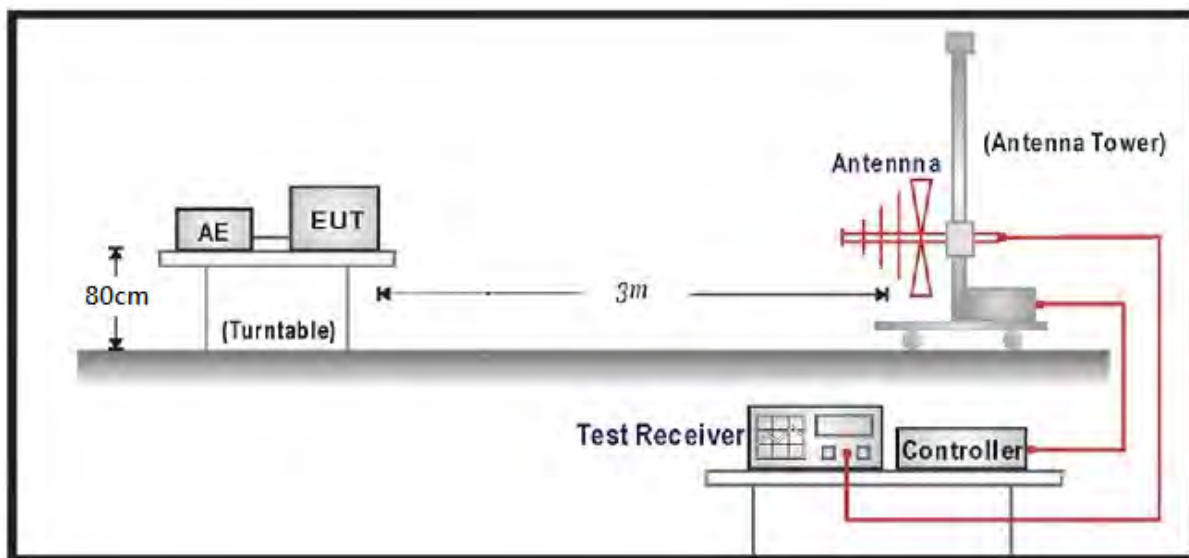
6. Spurious Emissions

6.1. Test Setup

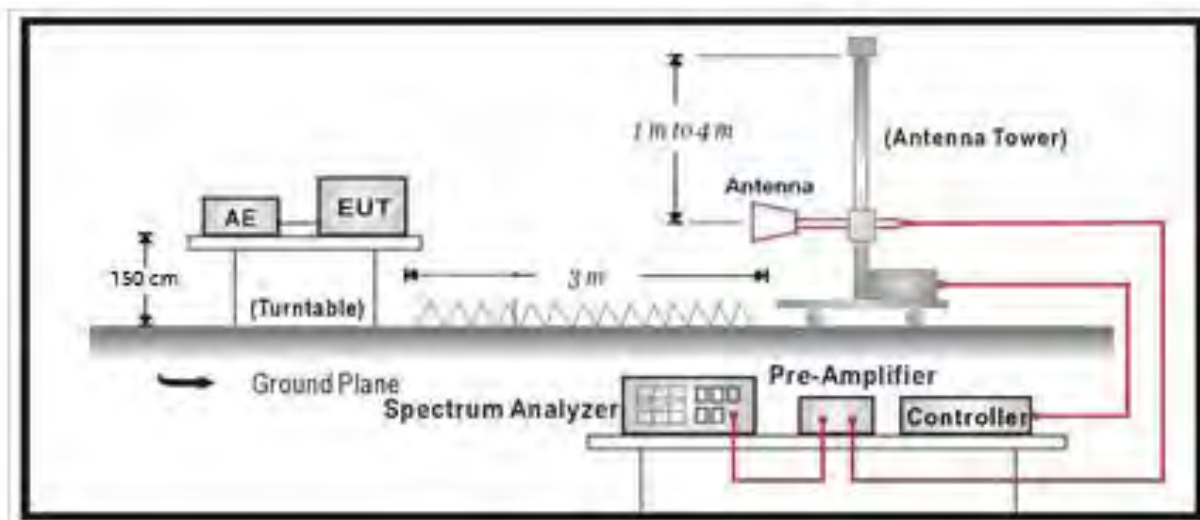
Conducted Spurious Measurement: below 1GHz



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



6.2. Test Procedure

Conducted Spurious Measurement:

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- c) EUT Communicate with CMW500, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.
- e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

Radiated Spurious Measurement:

- a) The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
- b) The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- c) The table was rotated 360 degrees to determine the position of the highest spurious emission.
- d) The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- e) Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 1MHz, Sweep 500ms, Taking the record of maximum spurious emission.
- f) A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- g) Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- h) Taking the record of output power at antenna port.
- i) Repeat step 7 to step 8 for another polarization.
- j) $EIRP = SG - \text{Cable loss} + \text{Antenna Gain}$

6.3. Test Method

Conducted Spurious Measurement:

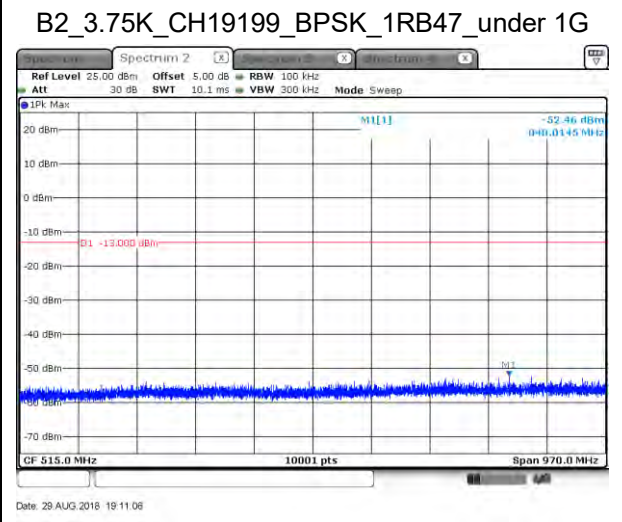
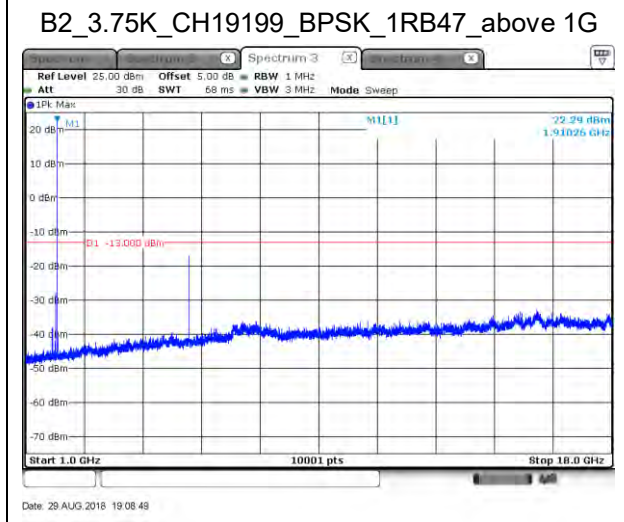
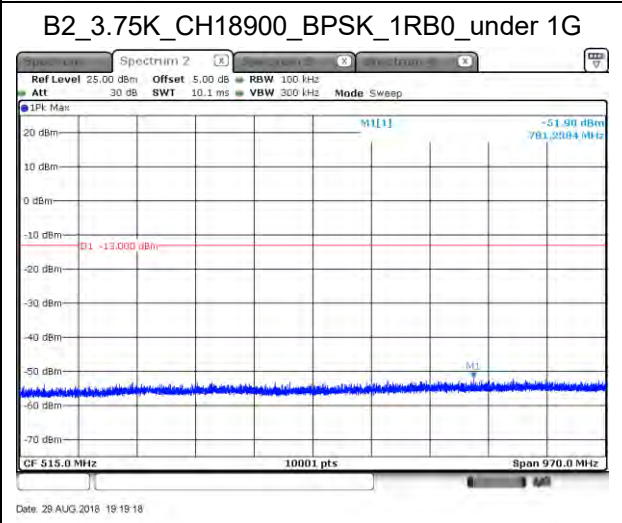
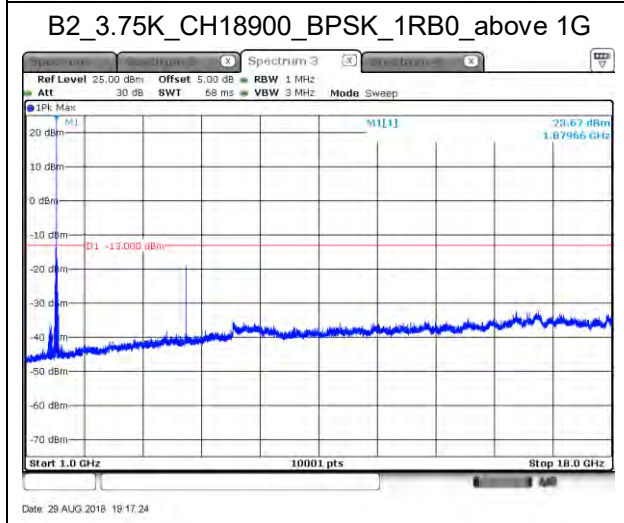
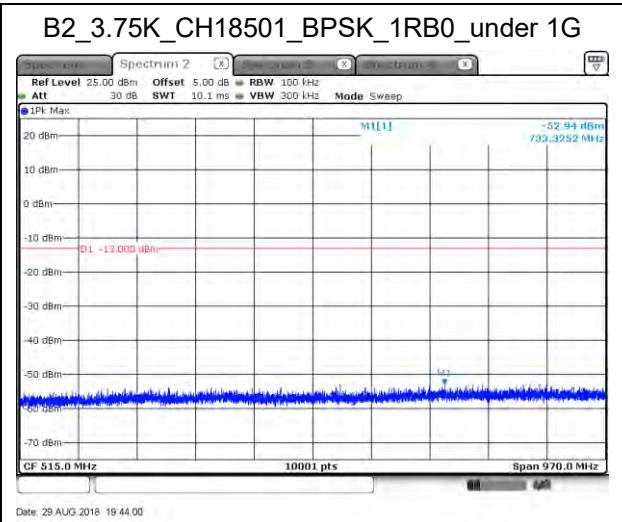
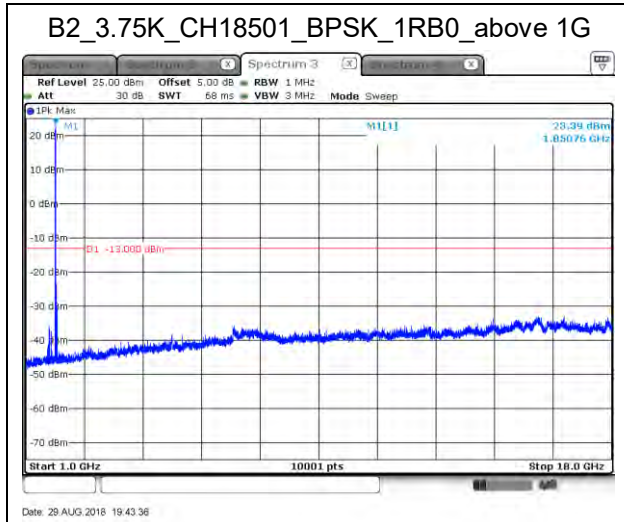
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause6.1
ANSI C63.26-2015 Sub-clause 5.7

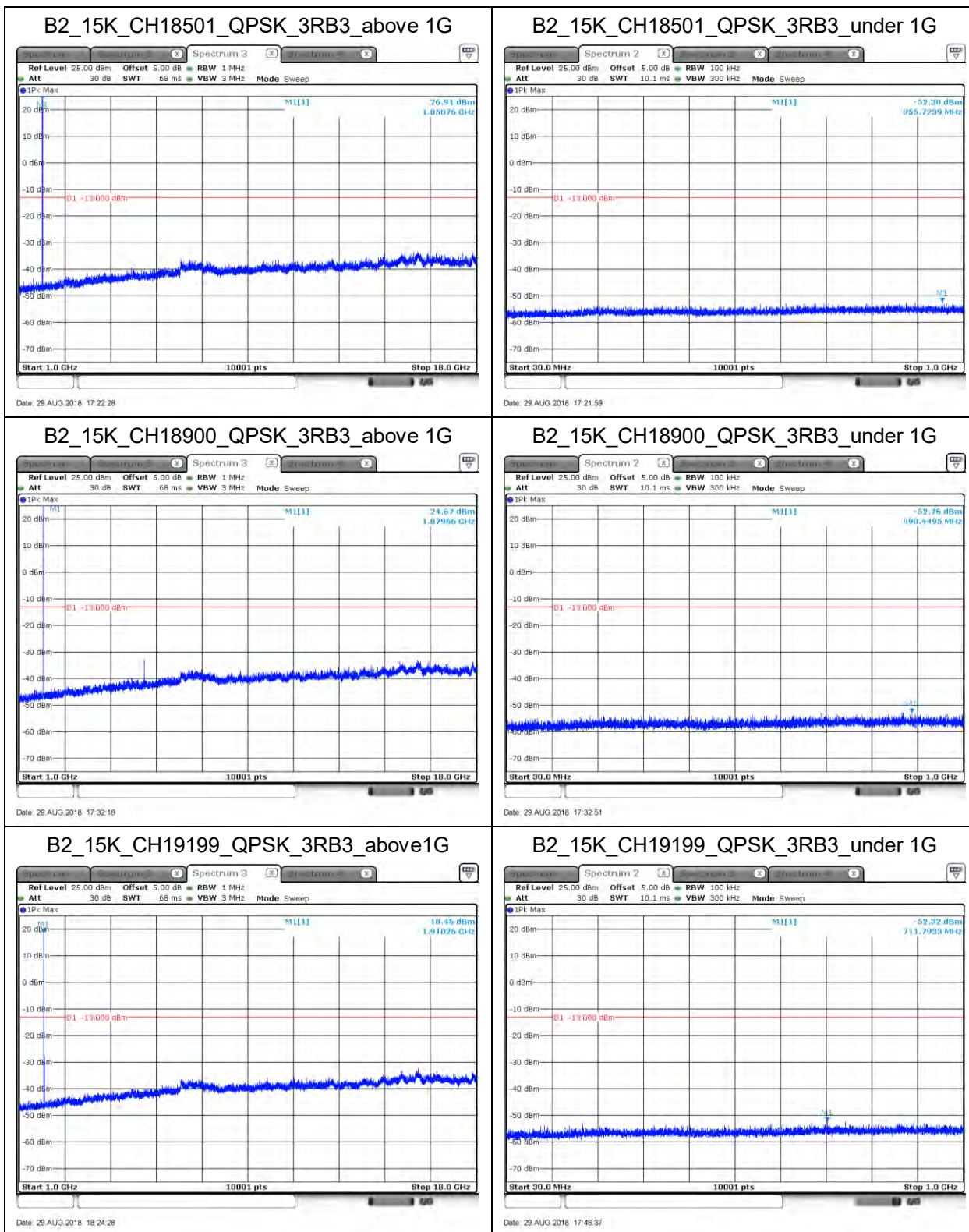
Radiated Spurious Measurement:

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause5.8
ANSI C63.26-2015 Sub-clause 5.5.3.2

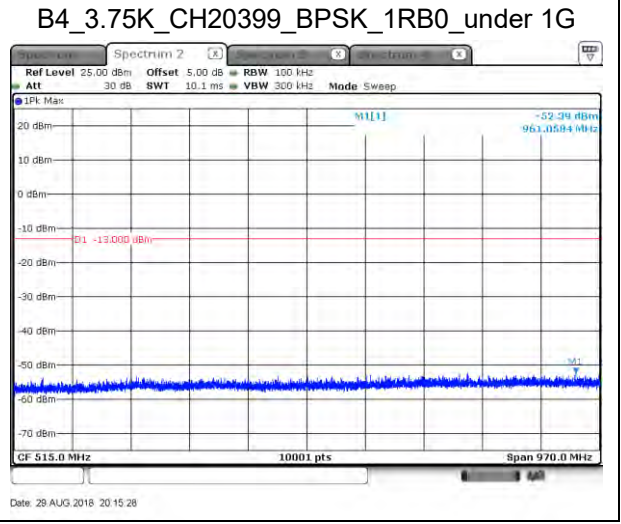
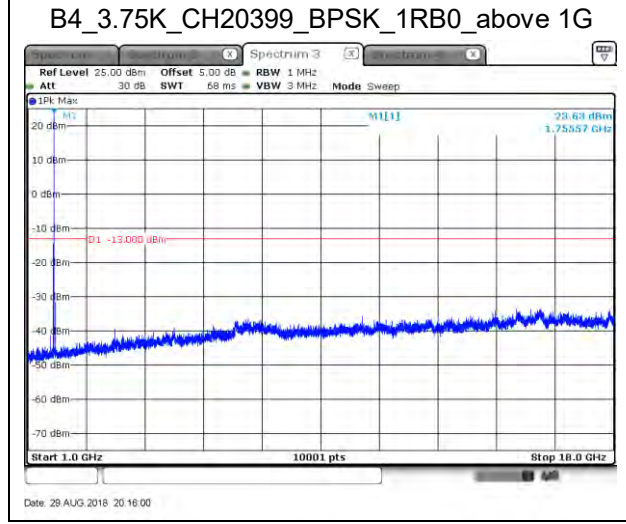
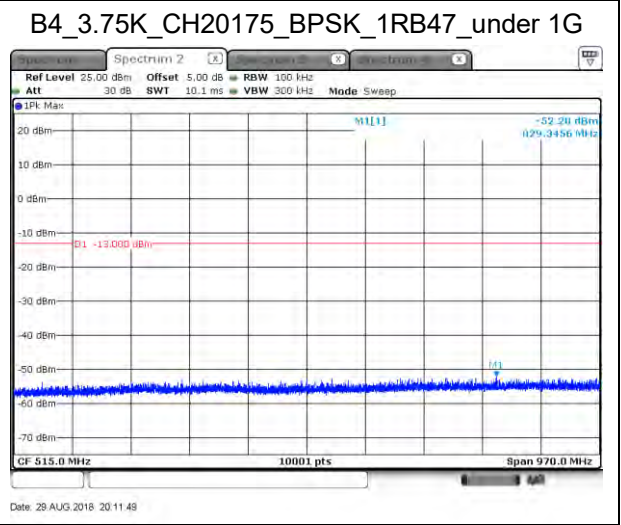
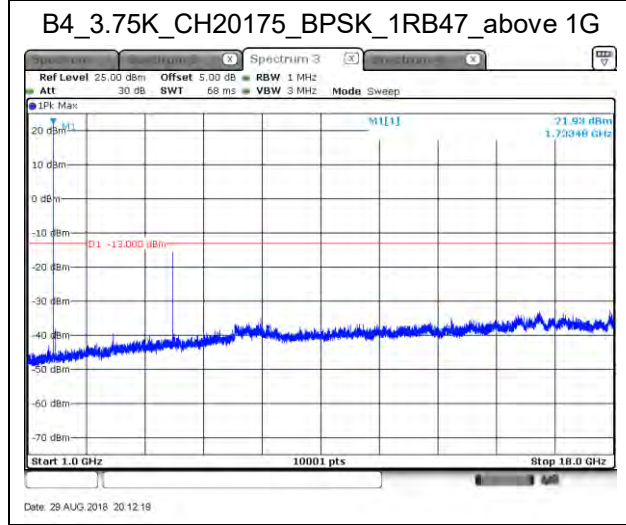
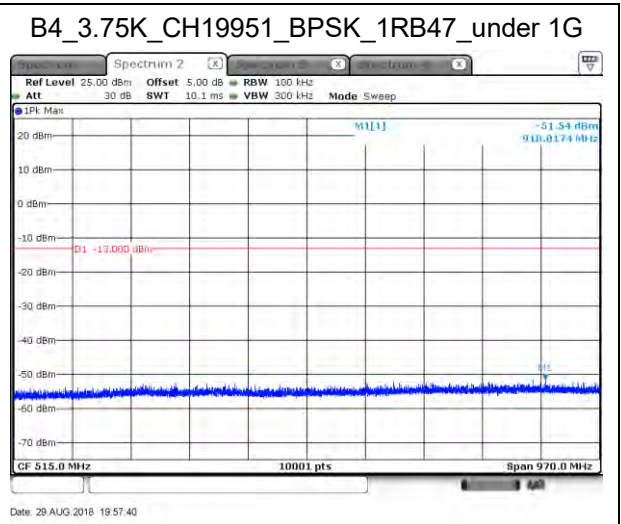
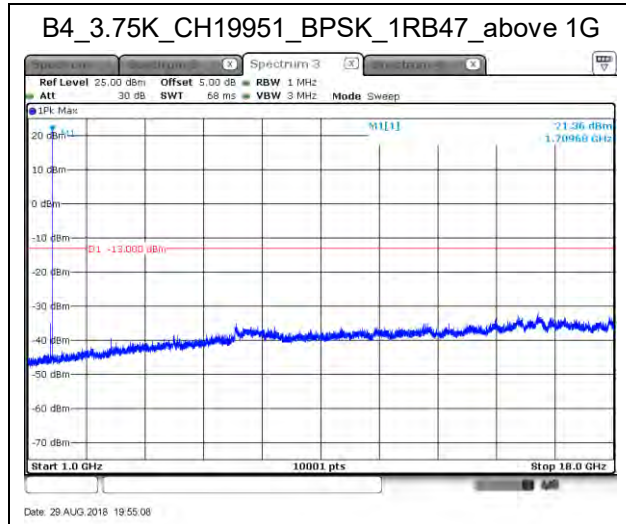
6.4. Test Result

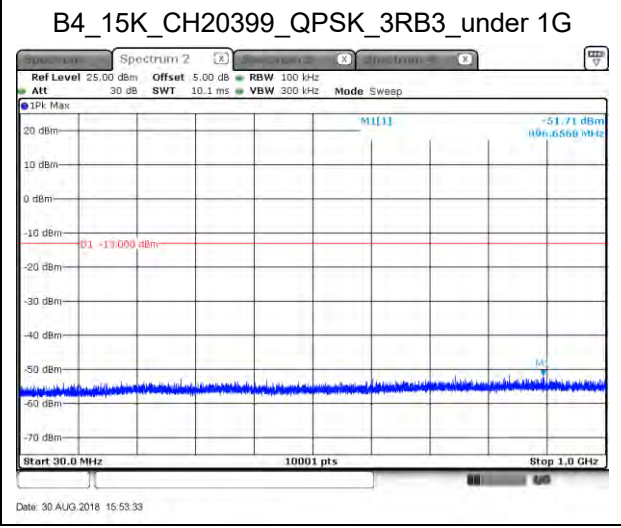
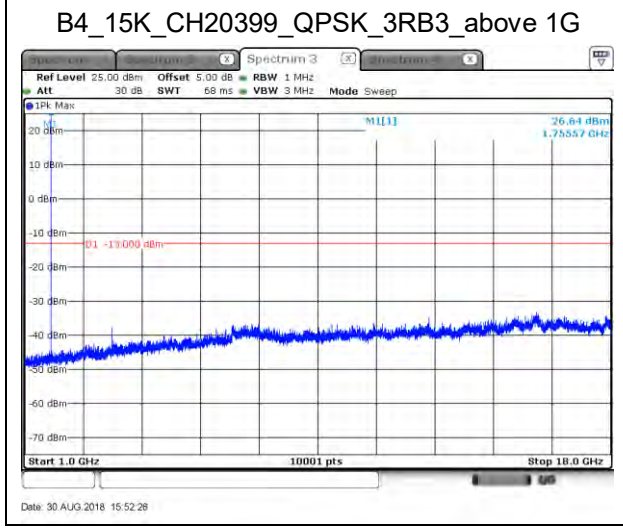
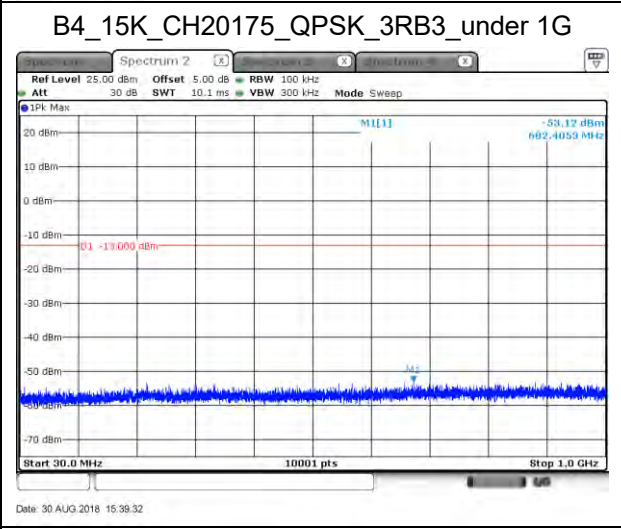
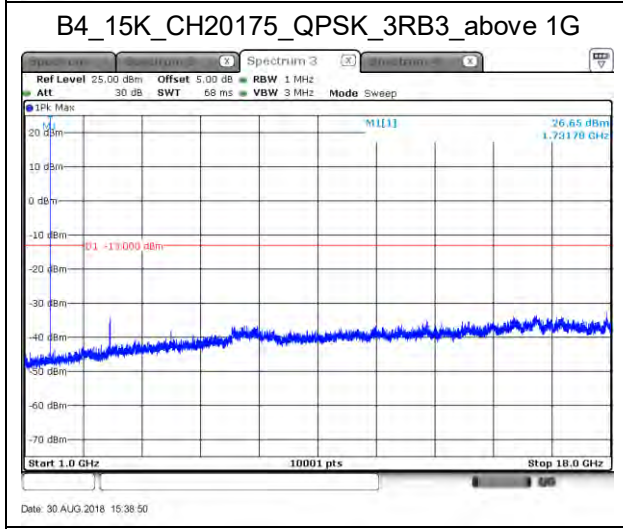
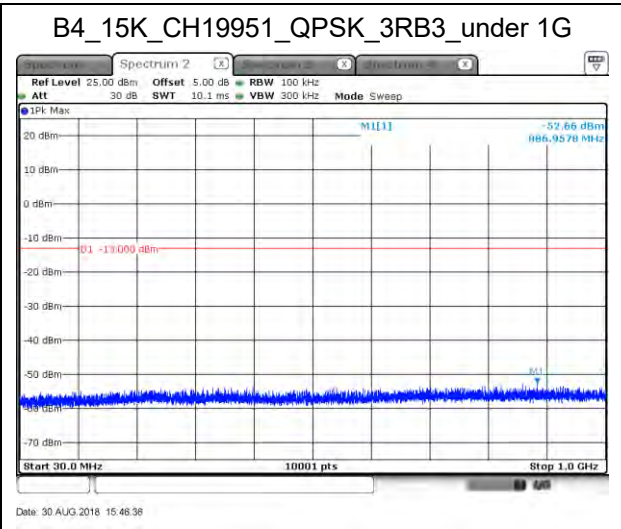
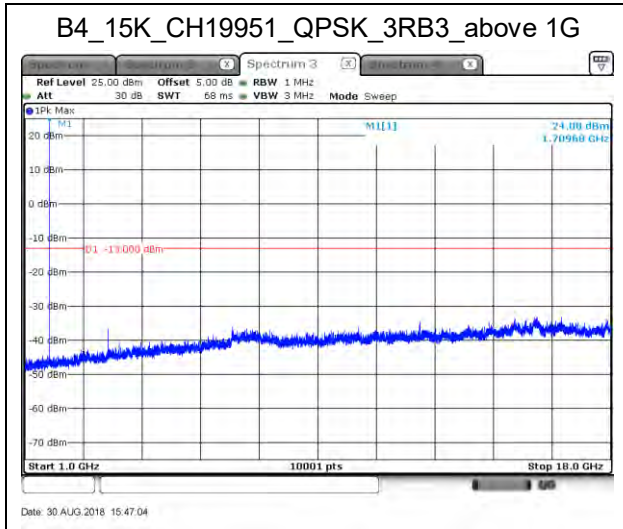
Product	ME910C1-WW		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/08/29	Test Site	SR10-H



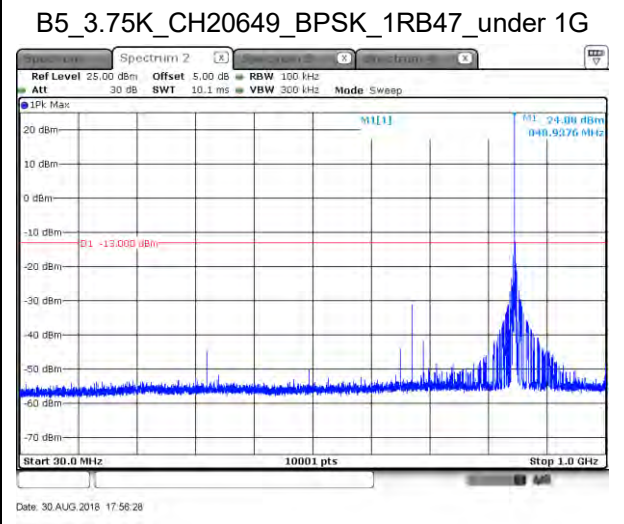
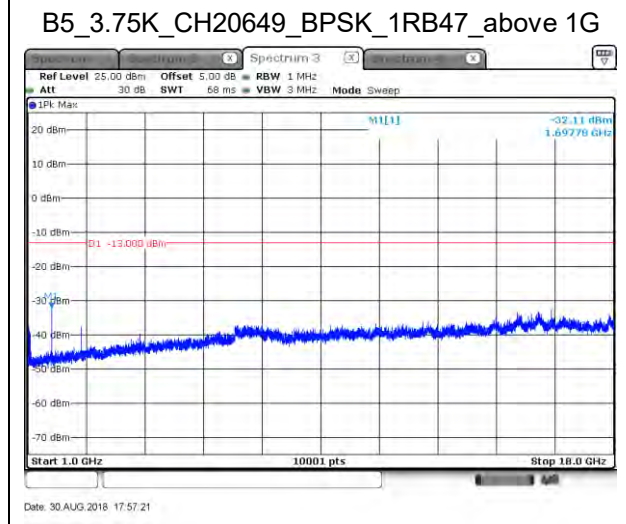
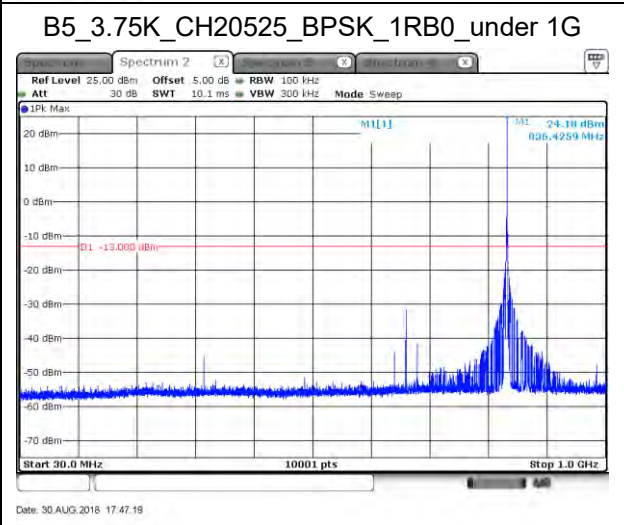
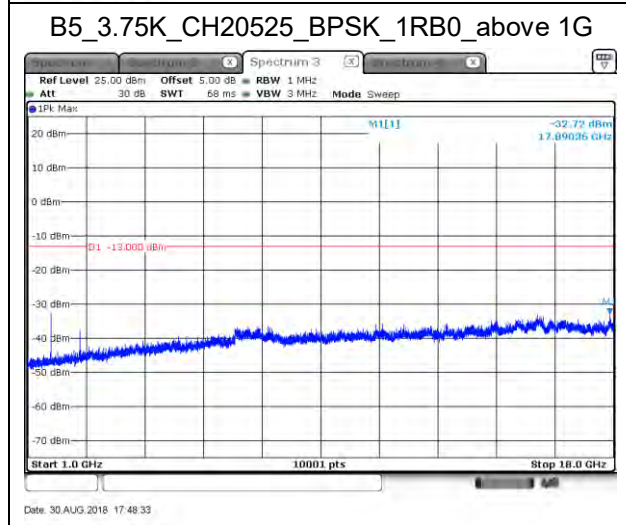
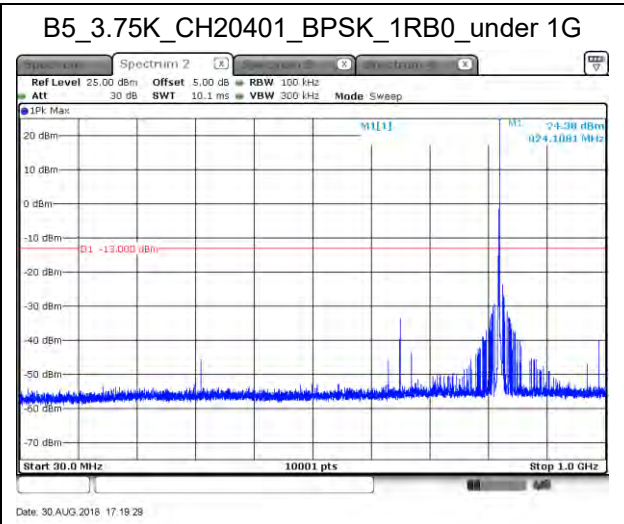
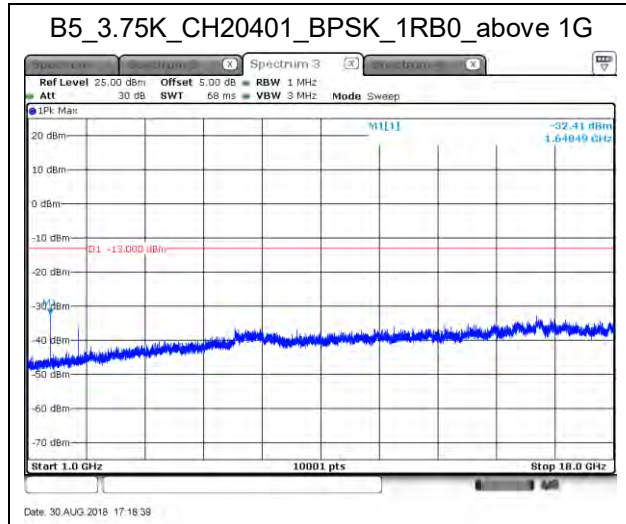


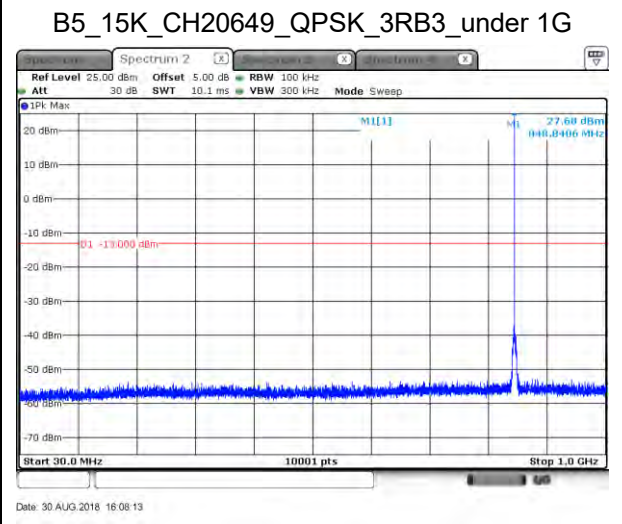
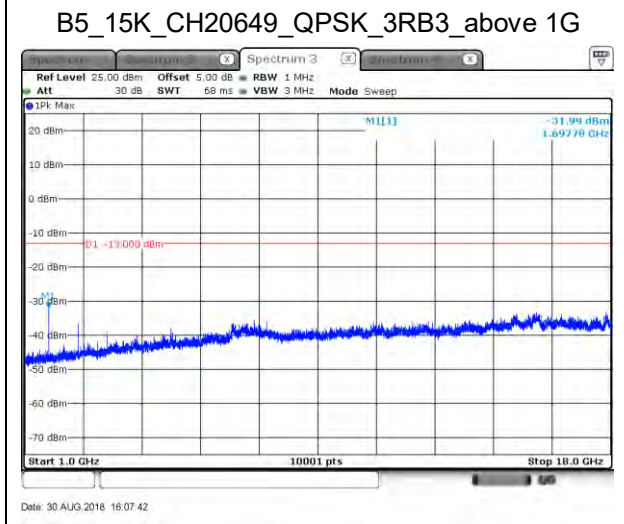
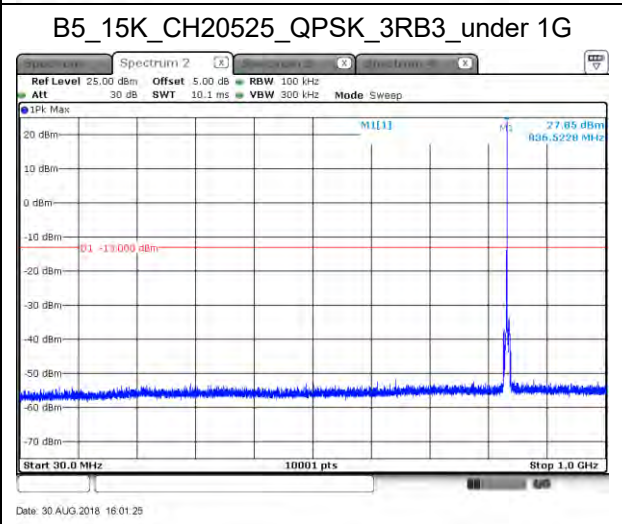
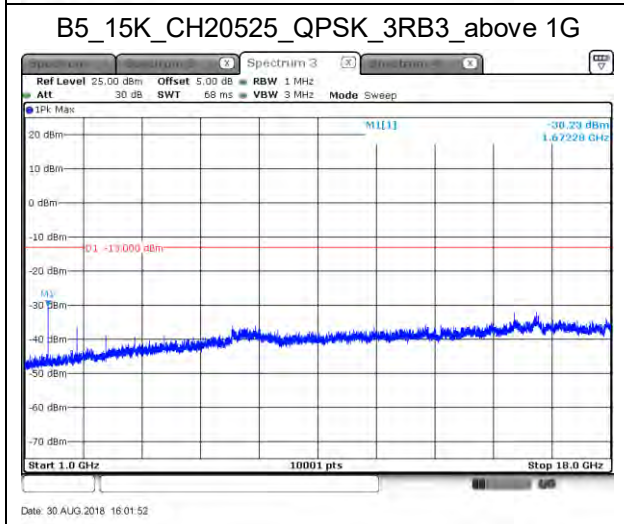
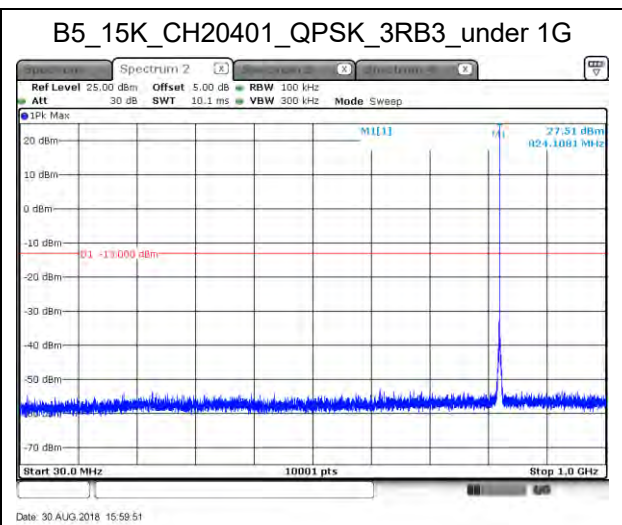
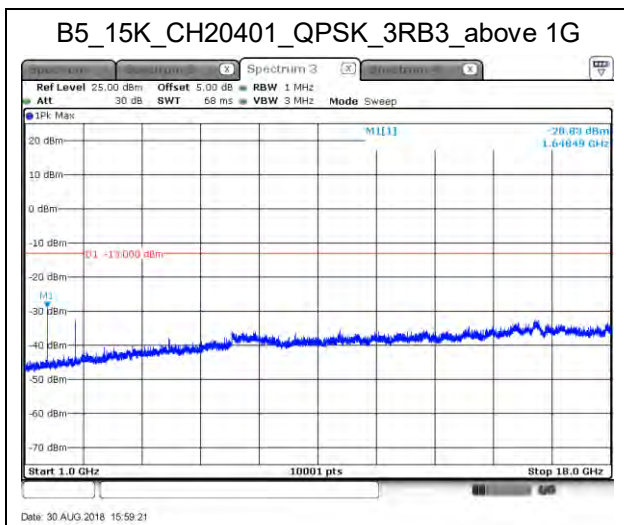
Product	ME910C1-WW		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/08/29	Test Site	SR10-H



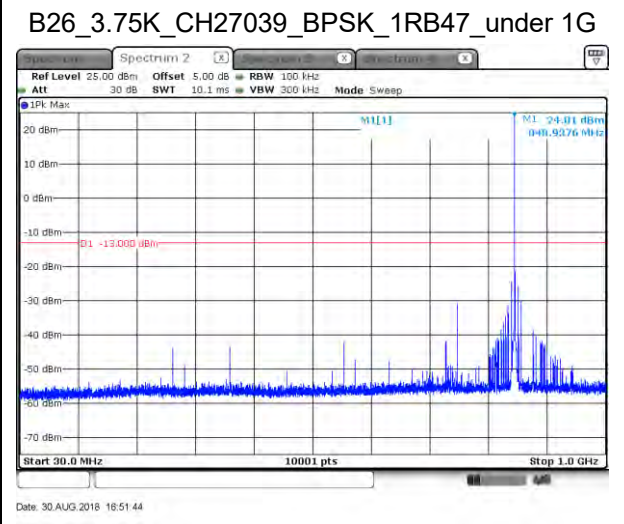
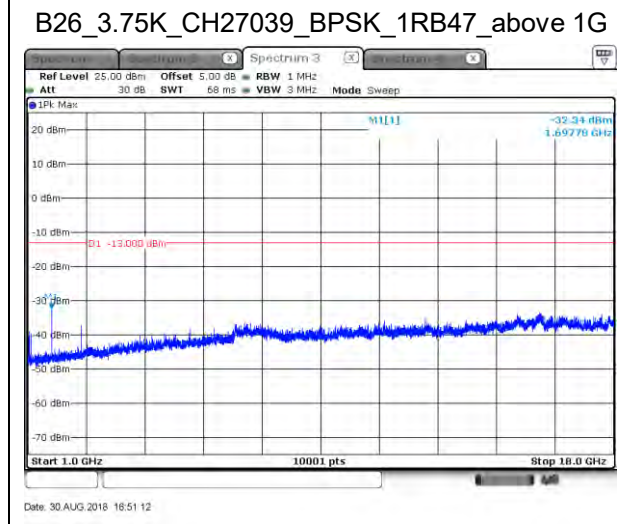
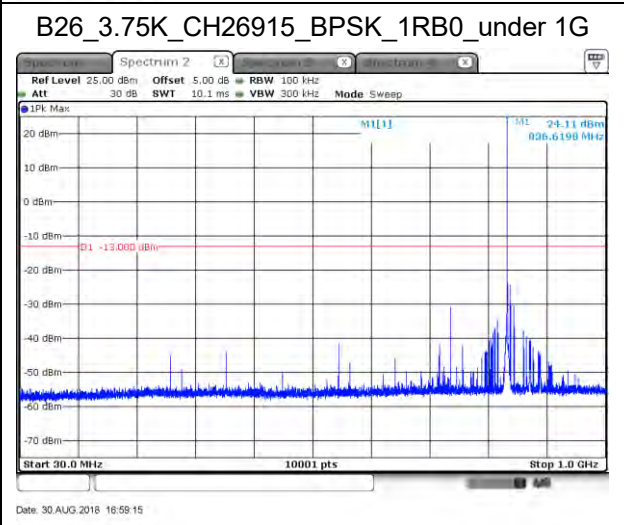
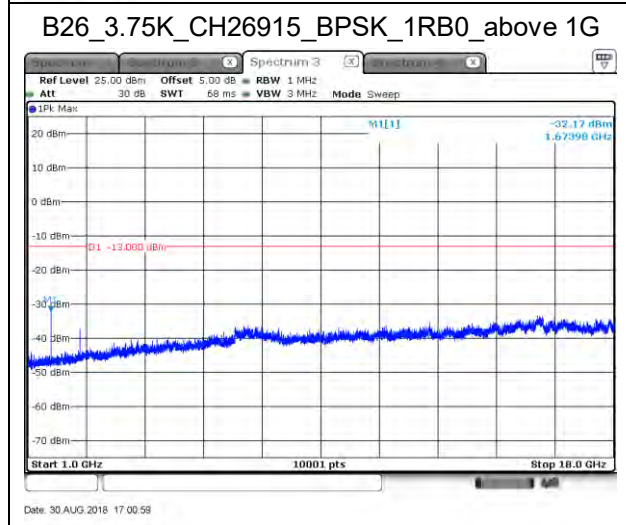
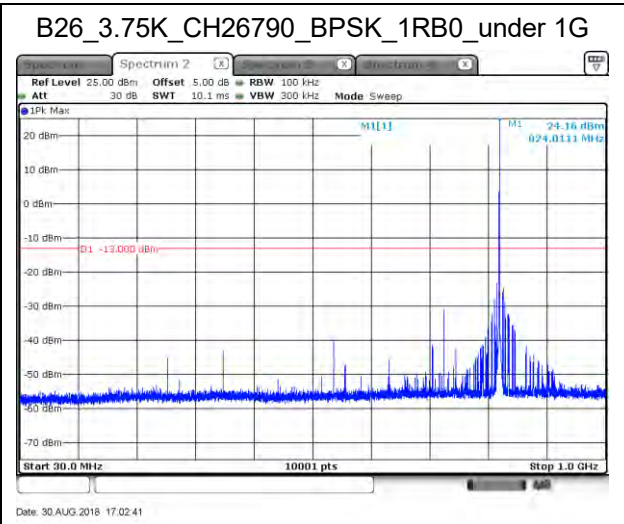
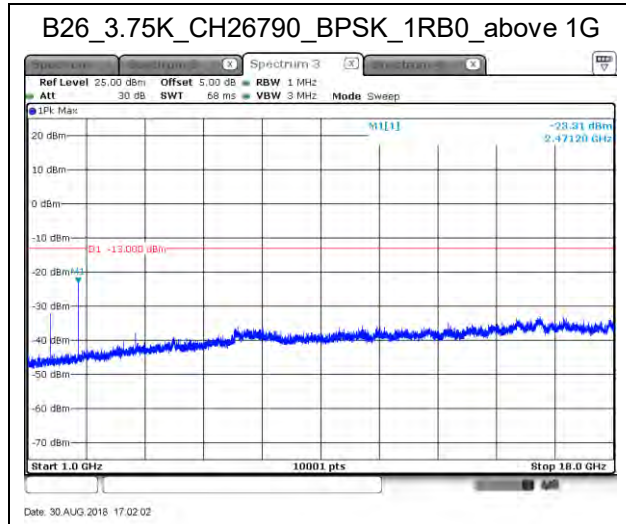


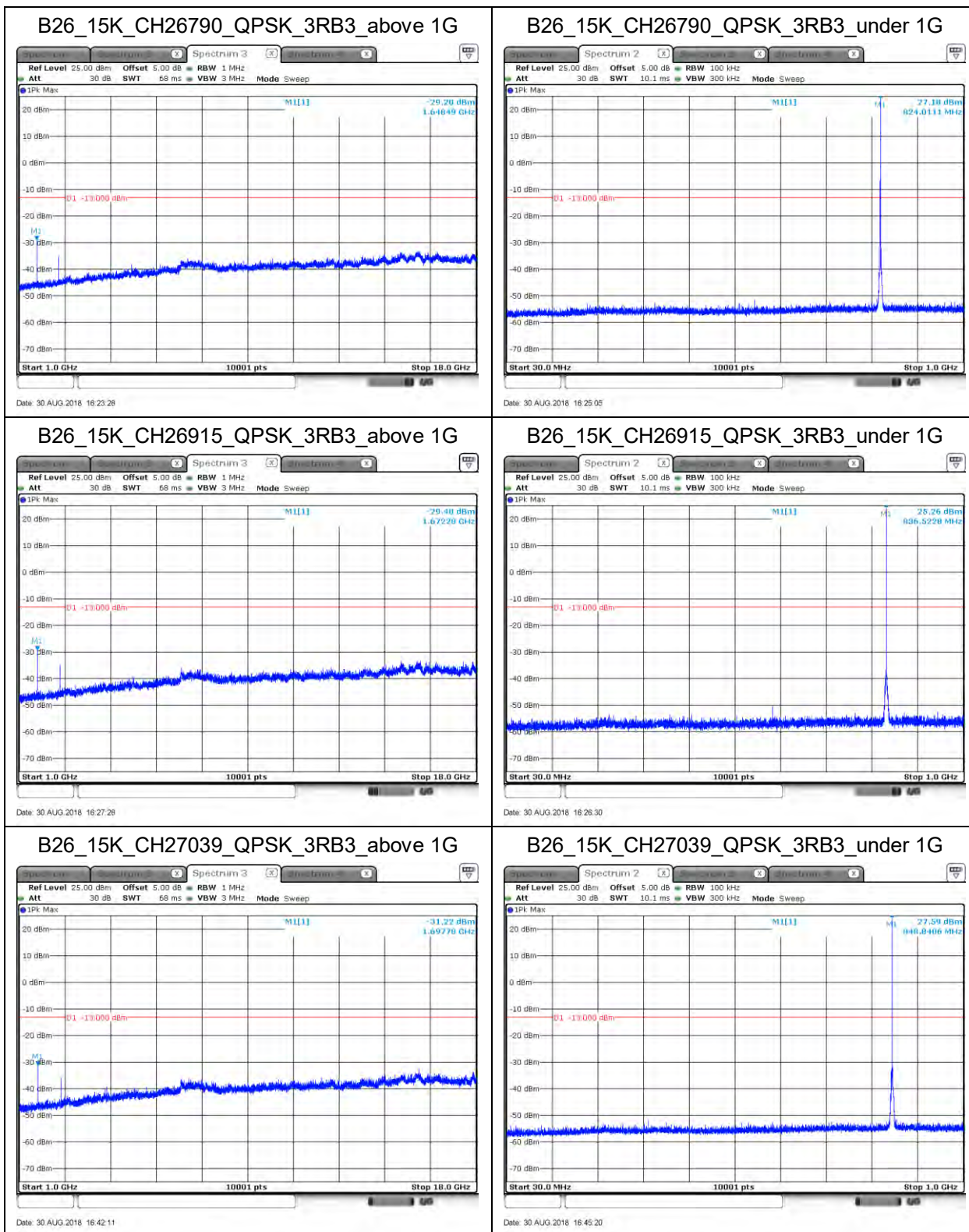
Product	ME910C1-WW		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/08/29	Test Site	SR10-H



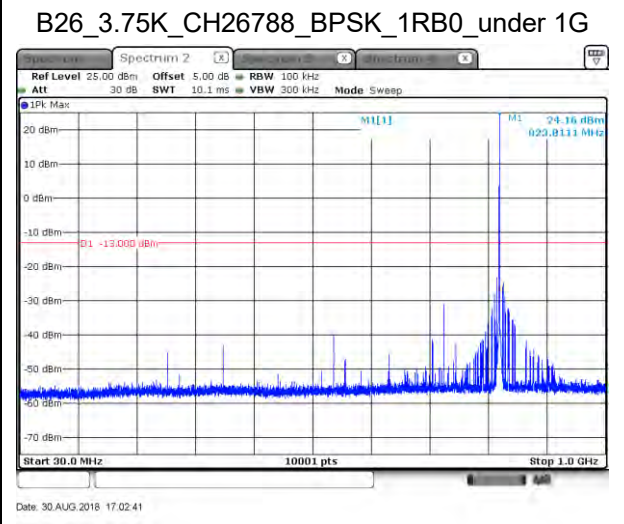
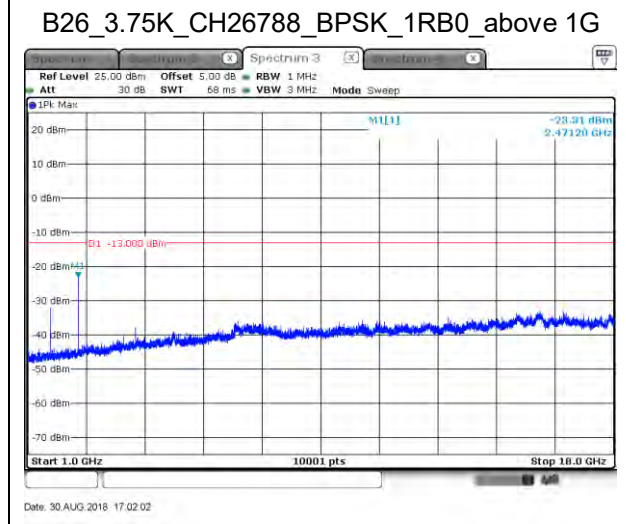
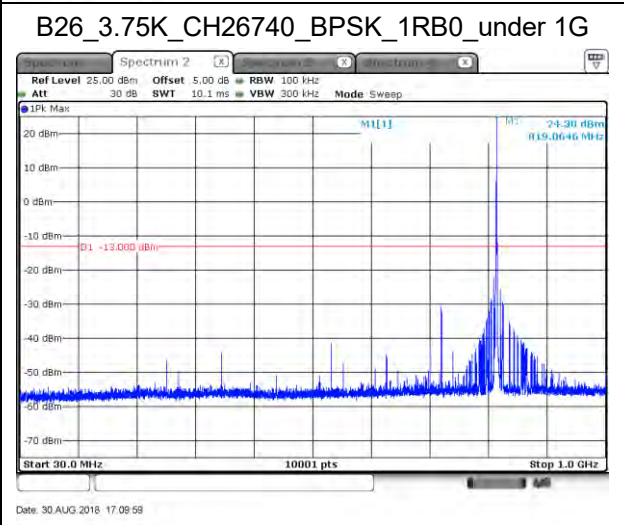
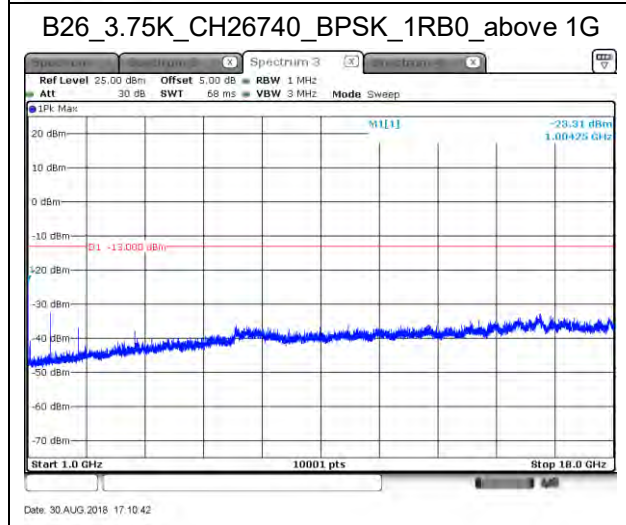
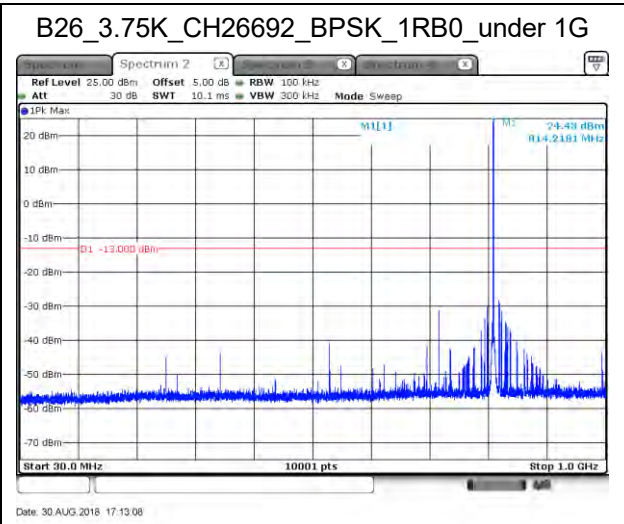
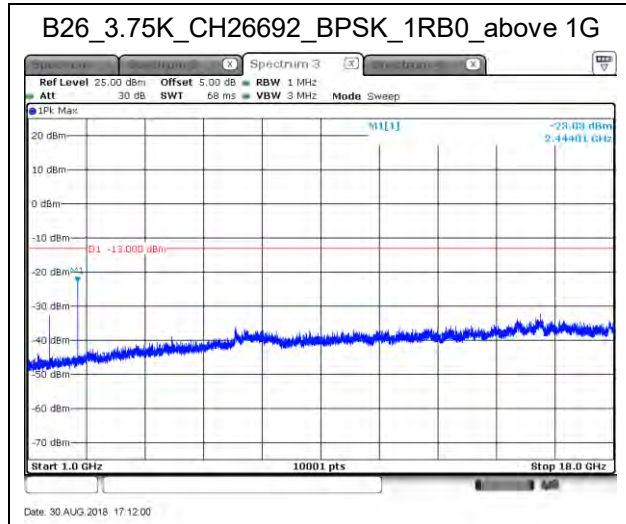


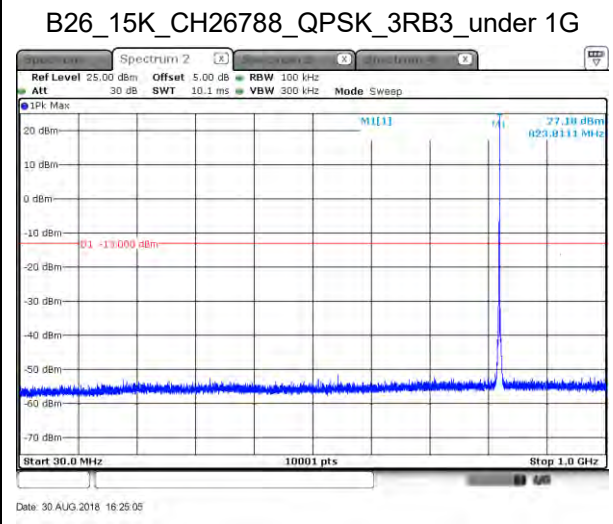
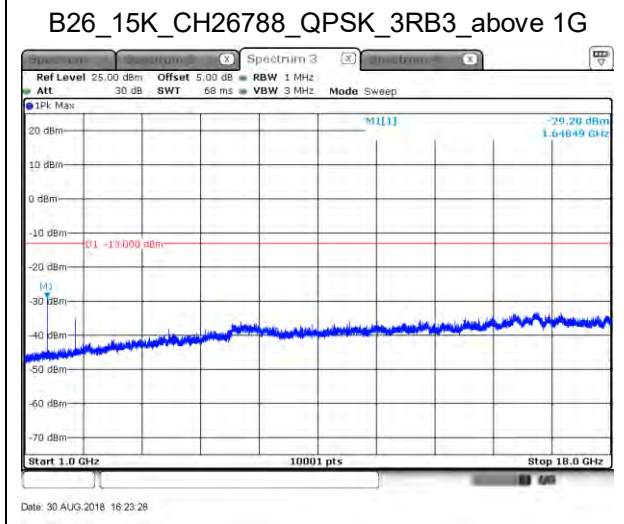
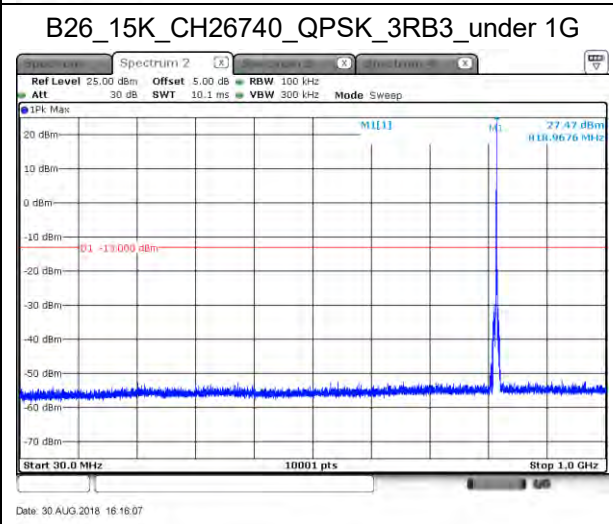
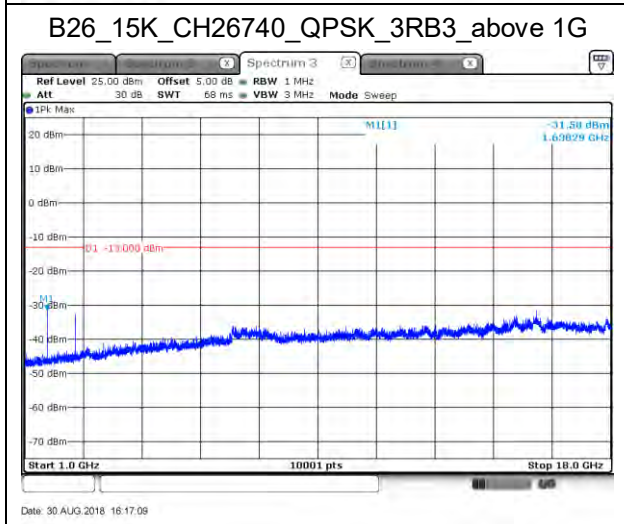
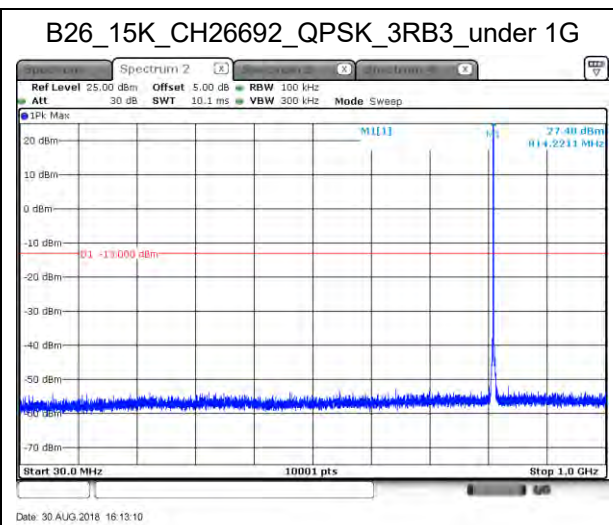
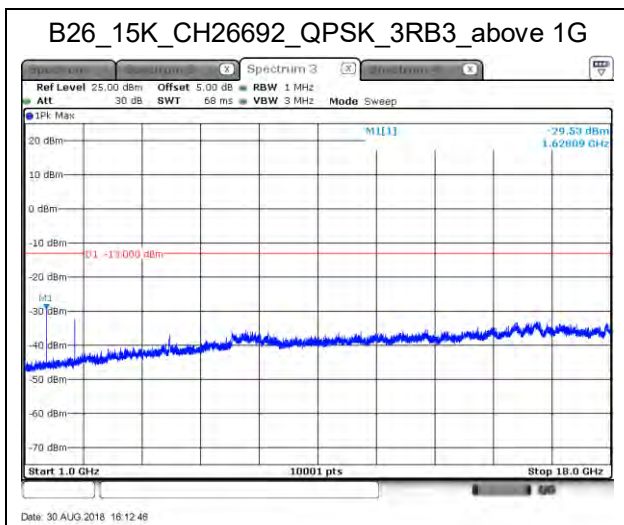
Product	ME910C1-WW		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/08/29	Test Site	SR10-H





Product	ME910C1-WW		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/08/29	Test Site	SR10-H





Product	ME910C1-WW		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/09/05	Test Site	CB4-H

NB-IoT_Band2_BPSK_3.75K_1RB0

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 18601 (1850.1MHz)								
3700.20	-62.060	H	-54.176	4.283	11.940	-46.520	-13	-33.520
5550.30	-71.390	H	-62.939	5.201	12.900	-55.240	-13	-42.240
3700.20	-54.560	V	-46.676	4.283	11.940	-39.020	-13	-26.020
5550.30	-68.370	V	-59.919	5.201	12.900	-52.220	-13	-39.220
Middle Channel 18900 (1880MHz)								
3760.00	-56.860	H	-49.527	4.335	11.832	-42.030	-13	-29.030
5640.00	-70.740	H	-61.795	5.235	12.900	-54.130	-13	-41.130
3760.00	-56.680	V	-48.557	4.335	11.832	-41.060	-13	-28.060
5640.00	-69.870	V	-61.075	5.235	12.900	-53.410	-13	-40.410
High Channel 19199 (1909.9MHz)								
3819.80	-60.840	H	-53.268	4.386	11.724	-45.930	-13	-32.930
5729.70	-72.320	H	-63.020	5.270	12.900	-55.390	-13	-42.390
3819.80	-58.170	V	-49.828	4.386	11.724	-42.490	-13	-29.490
5729.70	-70.820	V	-61.680	5.270	12.900	-54.050	-13	-41.050

NB-IoT_Band2_QPSK_15K_3RB3

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 18601 (1850.1MHz)								
3700.20	-61.930	H	-54.846	4.283	11.940	-47.190	-13	-34.190
5550.30	-71.090	H	-62.489	5.201	12.900	-54.790	-13	-41.790
3700.20	-56.640	V	-48.756	4.283	11.940	-41.100	-13	-28.100
5550.30	-71.540	V	-63.089	5.201	12.900	-55.390	-13	-42.390
Middle Channel 18900 (1880MHz)								
3760.00	-55.700	H	-48.367	4.335	11.832	-40.870	-13	-27.870
5640.00	-70.720	H	-61.775	5.235	12.900	-54.110	-13	-41.110
3760.00	-55.440	V	-47.317	4.335	11.832	-39.820	-13	-26.820
5640.00	-71.420	V	-62.625	5.235	12.900	-54.960	-13	-41.960
High Channel 19199 (1909.9MHz)								
3819.80	-58.160	H	-50.588	4.386	11.724	-43.250	-13	-30.250
5729.70	-71.320	H	-62.020	5.270	12.900	-54.390	-13	-41.390
3819.80	-53.550	V	-45.208	4.386	11.724	-37.870	-13	-24.870
5729.70	-70.580	V	-61.440	5.270	12.900	-53.810	-13	-40.810

Product	ME910C1-WW		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/09/05	Test Site	CB4-H

NB-IoT_Band4_BPSK_3.75K_1RB47

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 19951 (1710.1MHz)								
3420.20	-57.380	H	-51.239	4.064	12.093	-43.210	-13	-30.210
5130.30	-67.780	H	-59.080	5.075	12.235	-51.920	-13	-38.920
3420.20	-57.210	V	-50.339	4.064	12.093	-42.310	-13	-29.310
5130.30	-69.780	V	-61.400	5.075	12.235	-54.240	-13	-41.240
Middle Channel 20175 (1732.5MHz)								
3465.00	-55.730	H	-49.589	4.090	12.209	-41.470	-13	-28.470
5197.50	-71.820	H	-63.182	5.094	12.356	-55.920	-13	-42.920
3465.00	-57.490	V	-50.569	4.090	12.209	-42.450	-13	-29.450
5197.50	-71.370	V	-63.012	5.094	12.356	-55.750	-13	-42.750
High Channel 20399 (1754.9MHz)								
3509.80	-59.120	H	-52.943	4.119	12.282	-44.780	-13	-31.780
5264.70	-66.620	H	-58.023	5.113	12.476	-50.660	-13	-37.660
3509.80	-60.600	V	-53.613	4.119	12.282	-45.450	-13	-32.450
5264.70	-68.450	V	-60.103	5.113	12.476	-52.740	-13	-39.740

NB-IoT_Band4_QPSK_15K_3RB3

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 19951 (1710.1MHz)								
3420.20	-53.070	H	-46.929	4.064	12.093	-38.900	-13	-25.900
5130.30	-71.180	H	-62.480	5.075	12.235	-55.320	-13	-42.320
3420.20	-53.470	V	-46.599	4.064	12.093	-38.570	-13	-25.570
5130.30	-71.290	V	-62.910	5.075	12.235	-55.750	-13	-42.750
Middle Channel 20175 (1732.5MHz)								
3465.00	-50.370	H	-44.229	4.090	12.209	-36.110	-13	-23.110
5197.50	-72.380	H	-63.742	5.094	12.356	-56.480	-13	-43.480
3465.00	-50.380	V	-43.459	4.090	12.209	-35.340	-13	-22.340
5197.50	-71.630	V	-63.272	5.094	12.356	-56.010	-13	-43.010
High Channel 20399 (1754.9MHz)								
3509.80	-54.300	H	-48.123	4.119	12.282	-39.960	-13	-26.960
5264.70	-71.430	H	-62.833	5.113	12.476	-55.470	-13	-42.470
3509.80	-53.770	V	-46.783	4.119	12.282	-38.620	-13	-25.620
5264.70	-71.820	V	-63.473	5.113	12.476	-56.110	-13	-43.110

Product	ME910C1-WW		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/09/06	Test Site	CB4-H

NB-IoT_Band5_BPSK_3.75K_1RB0

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20401 (824.1MHz)								
1648.20	-36.070	H	-34.375	2.790	8.745	-28.420	-13	-15.420
2472.30	-59.690	H	-54.789	3.437	10.556	-47.670	-13	-34.670
1648.20	-35.550	V	-33.335	2.790	8.745	-27.380	-13	-14.380
2472.30	-57.150	V	-51.939	3.437	10.556	-44.820	-13	-31.820
Middle Channel 20525 (836.5MHz)								
1673.00	-41.170	H	-39.597	2.812	8.819	-33.590	-13	-20.590
2509.50	-63.430	H	-58.615	3.463	10.608	-51.470	-13	-38.470
1673.00	-42.170	V	-40.027	2.812	8.819	-34.020	-13	-21.020
2509.50	-64.090	V	-58.915	3.463	10.608	-51.770	-13	-38.770
High Channel 20649 (848.9MHz)								
1697.80	-39.940	H	-38.448	2.835	8.893	-32.390	-13	-19.390
2546.70	-62.950	H	-58.128	3.489	10.637	-50.980	-13	-37.980
1697.80	-41.660	V	-39.568	2.835	8.893	-33.510	-13	-20.510
2546.70	-63.920	V	-58.728	3.489	10.637	-51.580	-13	-38.580

NB-IoT_Band5_QPSK_15K_3RB3

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 20401 (824.1MHz)								
1648.20	-32.780	H	-31.085	2.790	8.745	-25.130	-13	-12.130
2472.30	-59.370	H	-54.469	3.437	10.556	-47.350	-13	-34.350
1648.20	-35.600	V	-33.385	2.790	8.745	-27.430	-13	-14.430
2472.30	-60.650	V	-55.439	3.437	10.556	-48.320	-13	-35.320
Middle Channel 20525 (836.5MHz)								
1673.00	-36.240	H	-34.667	2.812	8.819	-28.660	-13	-15.660
2509.50	-65.280	H	-60.465	3.463	10.608	-53.320	-13	-40.320
1673.00	-37.490	V	-35.347	2.812	8.819	-29.340	-13	-16.340
2509.50	-68.080	V	-62.905	3.463	10.608	-55.760	-13	-42.760
High Channel 20649 (848.9MHz)								
1697.80	-40.110	H	-38.618	2.835	8.893	-32.560	-13	-19.560
2546.70	-67.070	H	-62.248	3.489	10.637	-55.100	-13	-42.100
1697.80	-40.980	V	-38.888	2.835	8.893	-32.830	-13	-19.830
2546.70	-66.990	V	-61.798	3.489	10.637	-54.650	-13	-41.650

Product	ME910C1-WW		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/09/06	Test Site	CB4-H

NB-IoT_Band26_BPSK_3.75K_1RB0

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 26791 (824.1MHz)								
1648.20	-38.350	H	-36.655	2.790	8.745	-30.700	-13	-17.700
2472.30	-59.580	H	-54.679	3.437	10.556	-47.560	-13	-34.560
1648.20	-40.520	V	-38.305	2.790	8.745	-32.350	-13	-19.350
2472.30	-59.090	V	-53.879	3.437	10.556	-46.760	-13	-33.760
Middle Channel 26915 (836.5MHz)								
1673.00	-39.320	H	-37.747	2.812	8.819	-31.740	-13	-18.740
2509.50	-63.570	H	-58.755	3.463	10.608	-51.610	-13	-38.610
1673.00	-42.900	V	-40.757	2.812	8.819	-34.750	-13	-21.750
2509.50	-64.370	V	-59.195	3.463	10.608	-52.050	-13	-39.050
High Channel 27039 (848.9MHz)								
1697.80	-43.080	H	-41.588	2.835	8.893	-35.530	-13	-22.530
2546.70	-63.890	H	-59.068	3.489	10.637	-51.920	-13	-38.920
1697.80	-42.190	V	-40.098	2.835	8.893	-34.040	-13	-21.040
2546.70	-63.260	V	-58.068	3.489	10.637	-50.920	-13	-37.920

NB-IoT_Band26_QPSK_15K_3RB3

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 26791 (824.1MHz)								
1648.20	-38.820	H	-37.125	2.790	8.745	-31.170	-13	-18.170
2472.30	-61.830	H	-56.929	3.437	10.556	-49.810	-13	-36.810
1648.20	-42.080	V	-39.865	2.790	8.745	-33.910	-13	-20.910
2472.30	-65.970	V	-60.759	3.437	10.556	-53.640	-13	-40.640
Middle Channel 26915 (836.5MHz)								
1673.00	-39.030	H	-37.457	2.812	8.819	-31.450	-13	-18.450
2509.50	-63.330	H	-58.515	3.463	10.608	-51.370	-13	-38.370
1673.00	-41.860	V	-39.717	2.812	8.819	-33.710	-13	-20.710
2509.50	-65.740	V	-60.565	3.463	10.608	-53.420	-13	-40.420
High Channel 27039 (848.9MHz)								
1697.80	-38.430	H	-36.938	2.835	8.893	-30.880	-13	-17.880
2546.70	-63.650	H	-58.828	3.489	10.637	-51.680	-13	-38.680
1697.80	-39.600	V	-37.508	2.835	8.893	-31.450	-13	-18.450
2546.70	-66.560	V	-61.368	3.489	10.637	-54.220	-13	-41.220

Product	ME910C1-WW		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/09/07	Test Site	CB4-H

NB-IoT_Band26_BPSK_3.75K_1RB0

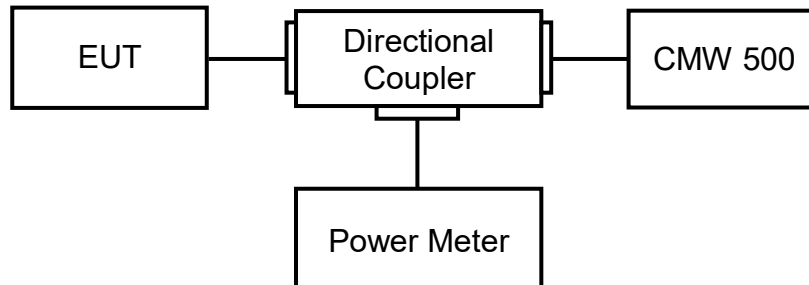
Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 26691 (814.1MHz)								
1628.40	-38.950	H	-37.163	2.772	8.685	-31.250	-13	-18.250
2442.60	-63.930	H	-58.952	3.416	10.508	-51.860	-13	-38.860
1628.40	-41.320	V	-39.053	2.772	8.685	-33.140	-13	-20.140
2442.60	-65.630	V	-60.382	3.416	10.508	-53.290	-13	-40.290
Middle Channel 26740 (819MHz)								
1638.00	-36.980	H	-35.243	2.781	8.714	-29.310	-13	-16.310
2457.00	-64.480	H	-59.535	3.426	10.531	-52.430	-13	-39.430
1638.00	-39.230	V	-36.993	2.781	8.714	-31.060	-13	-18.060
2457.00	-65.430	V	-60.195	3.426	10.531	-53.090	-13	-40.090
High Channel 26789 (823.9MHz)								
1647.60	-40.790	H	-39.104	2.789	8.743	-33.150	-13	-20.150
2471.40	-65.810	H	-60.908	3.436	10.555	-53.790	-13	-40.790
1647.60	-41.710	V	-39.504	2.789	8.743	-33.550	-13	-20.550
2471.40	-66.050	V	-60.838	3.436	10.555	-53.720	-13	-40.720

NB-IoT_Band26_QPSK_15K_3RB3

Frequency (MHz)	SA Reading (dBm)	Ant.Pol. (H/V)	SG Reading (dBm)	Cable Loss (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
Low Channel 26691 (814.1MHz)								
1628.40	-38.750	H	-36.963	2.772	8.685	-31.050	-13	-18.050
2442.60	-64.390	H	-59.412	3.416	10.508	-52.320	-13	-39.320
1628.40	-40.860	V	-38.593	2.772	8.685	-32.680	-13	-19.680
2442.60	-64.700	V	-59.452	3.416	10.508	-52.360	-13	-39.360
Middle Channel 26740 (819MHz)								
1638.00	-40.850	H	-39.113	2.781	8.714	-33.180	-13	-20.180
2457.00	-65.110	H	-60.165	3.426	10.531	-53.060	-13	-40.060
1638.00	-42.440	V	-40.203	2.781	8.714	-34.270	-13	-21.270
2457.00	-65.430	V	-60.195	3.426	10.531	-53.090	-13	-40.090
High Channel 26789 (823.9MHz)								
1647.60	-38.210	H	-36.524	2.789	8.743	-30.570	-13	-17.570
2471.40	-64.430	H	-59.528	3.436	10.555	-52.410	-13	-39.410
1647.60	-40.840	V	-38.634	2.789	8.743	-32.680	-13	-19.680
2471.40	-65.890	V	-60.678	3.436	10.555	-53.560	-13	-40.560

7. Spurious Emissions at Antenna Terminals

7.1. Test Setup



7.2. Test Procedure

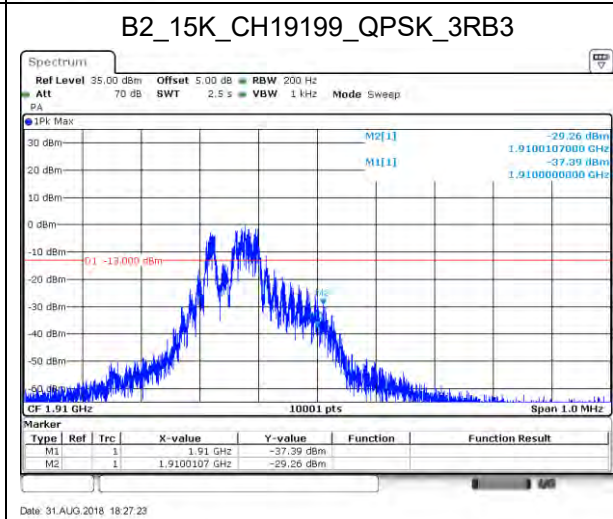
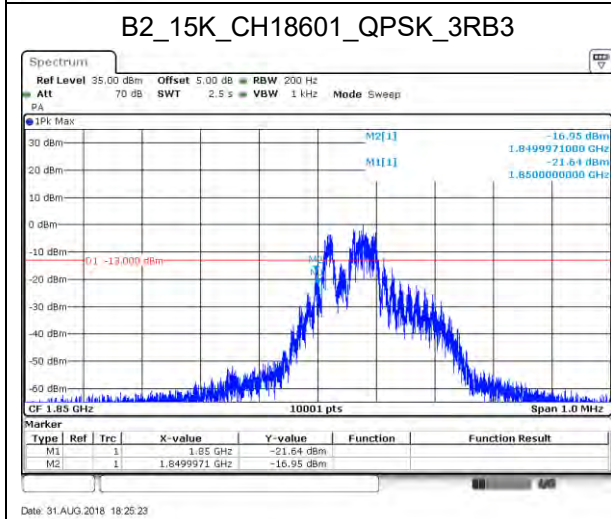
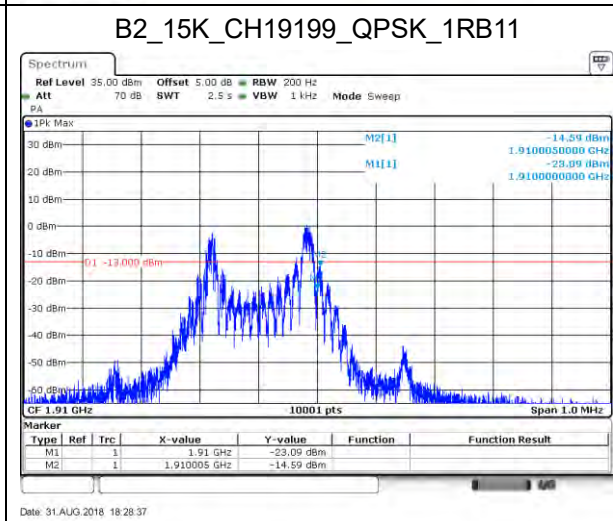
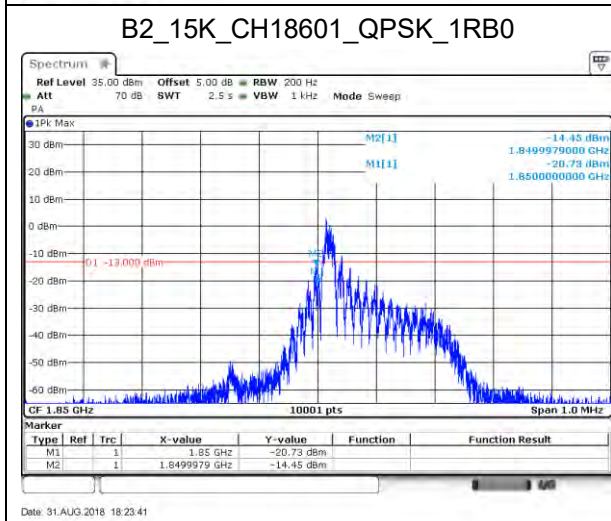
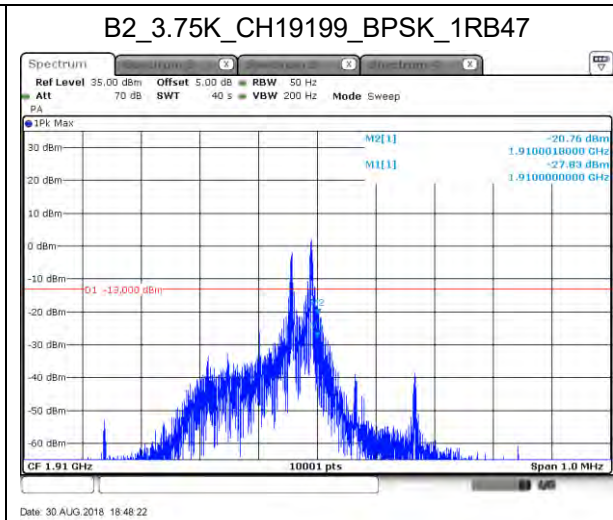
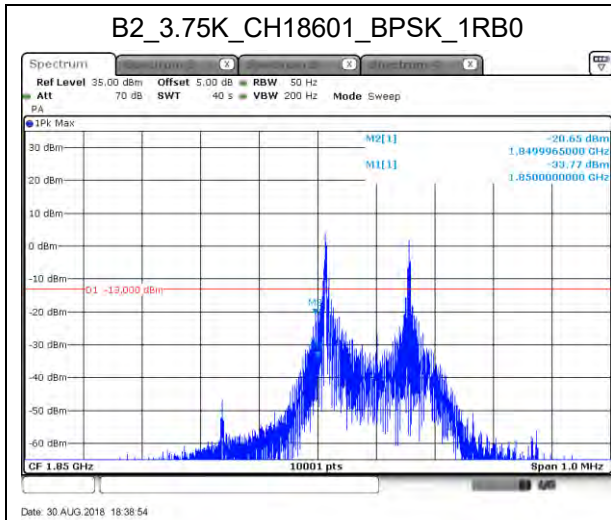
- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Coupler.
- c) EUT Communicate with CMW500, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.
- e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

7.3. Test Method

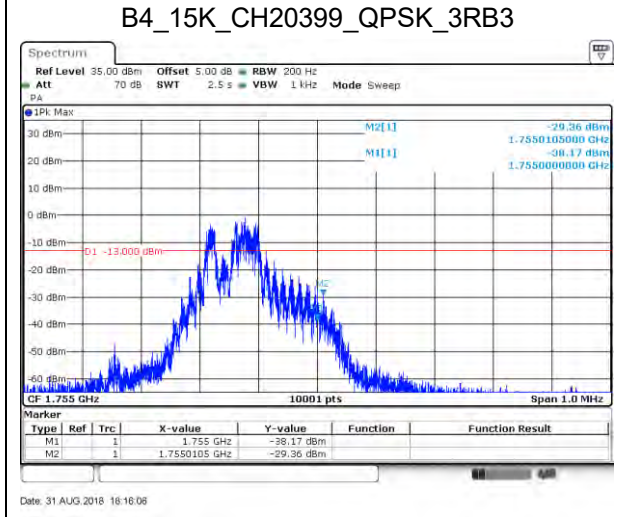
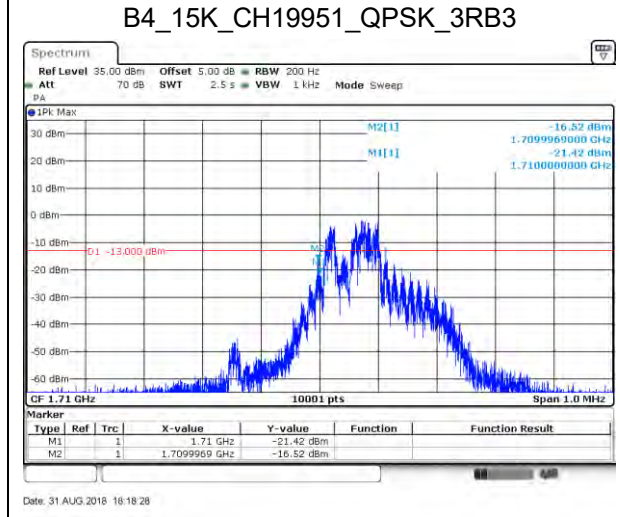
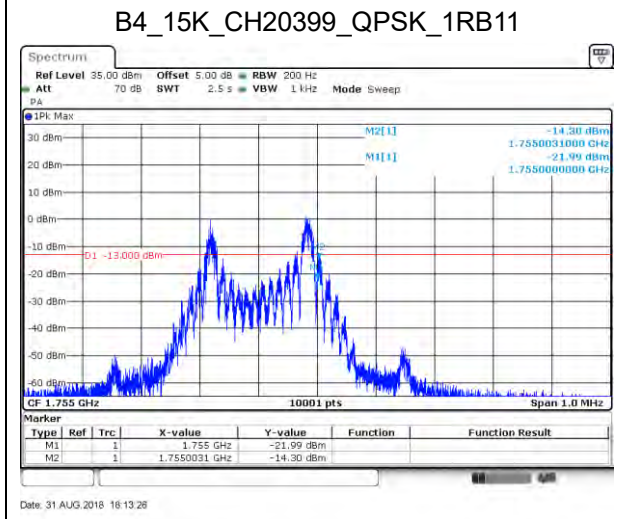
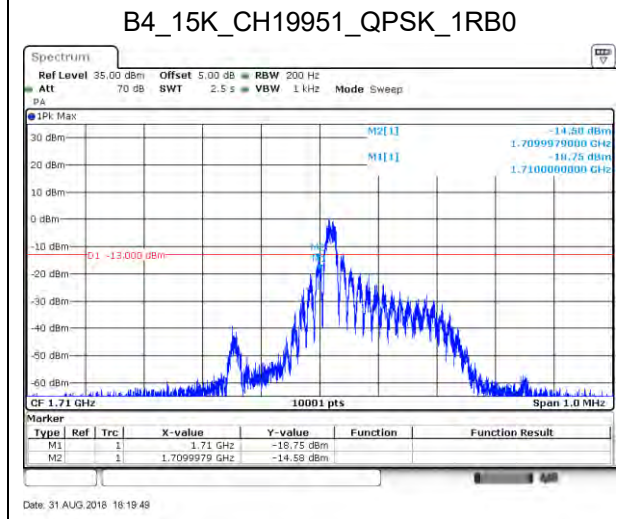
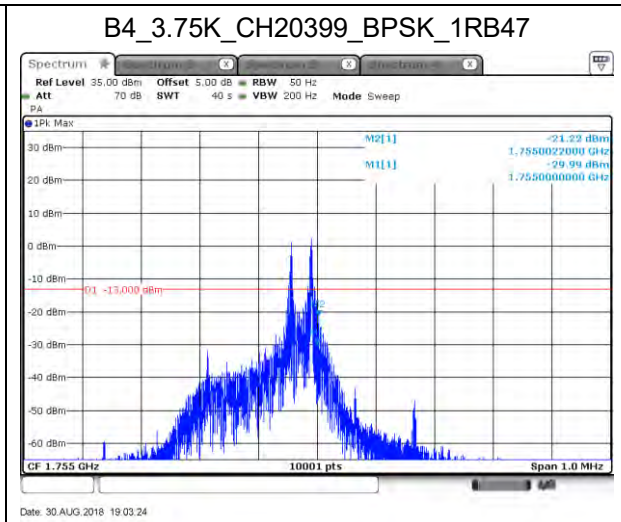
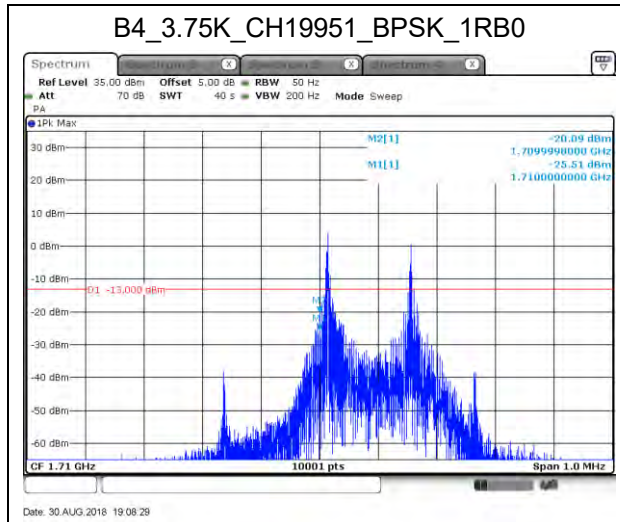
KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1
ANSI C63.26-2015 Sub-clause 5.7

7.4. Test Result

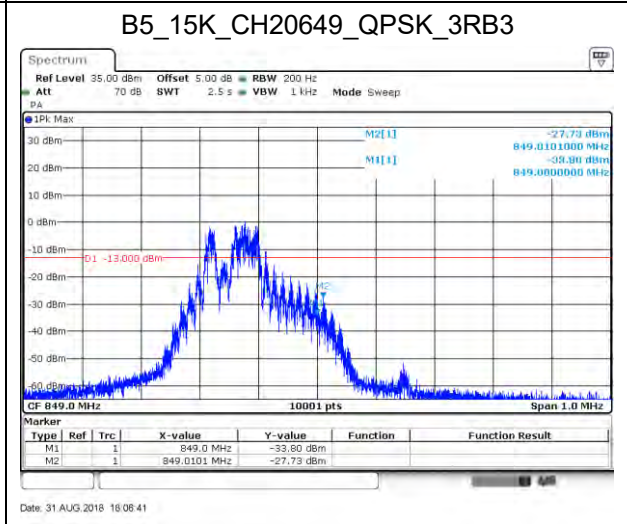
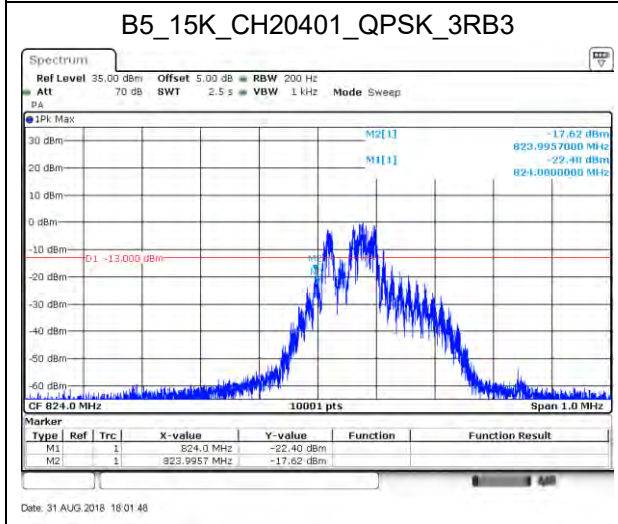
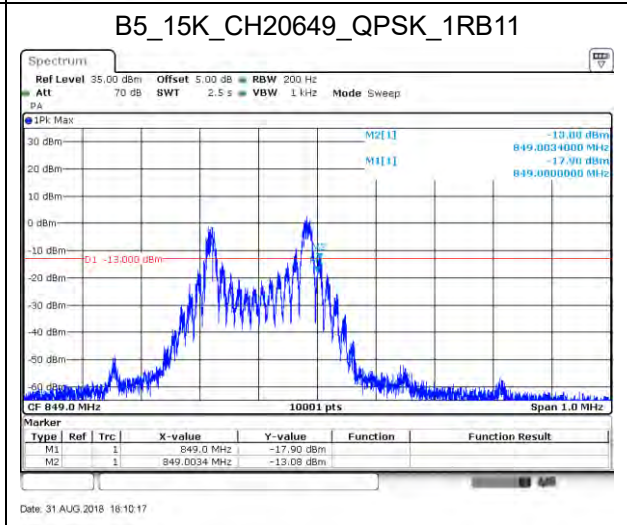
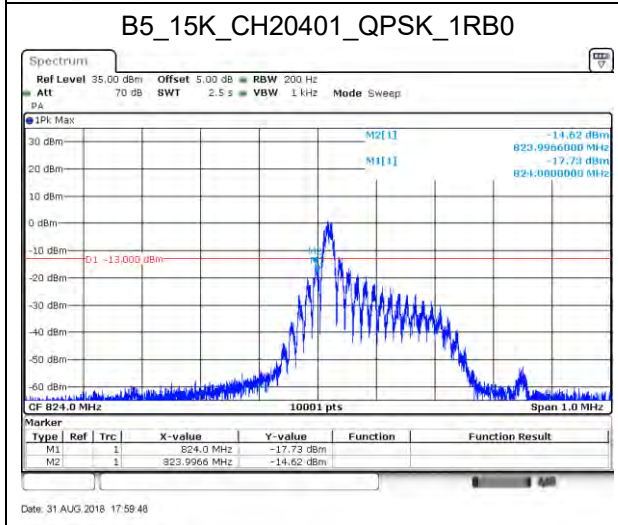
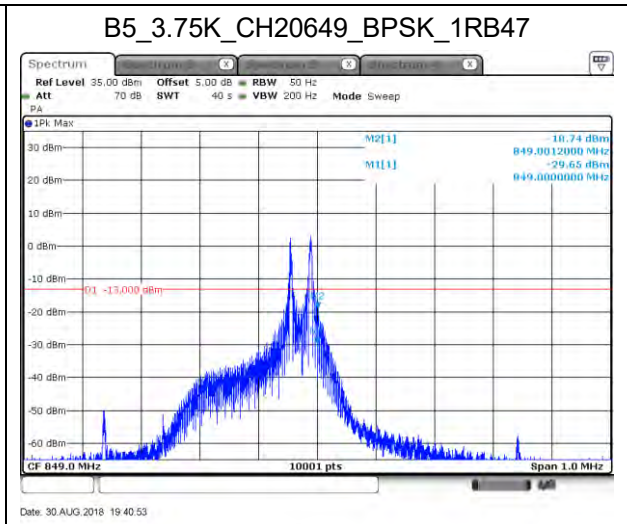
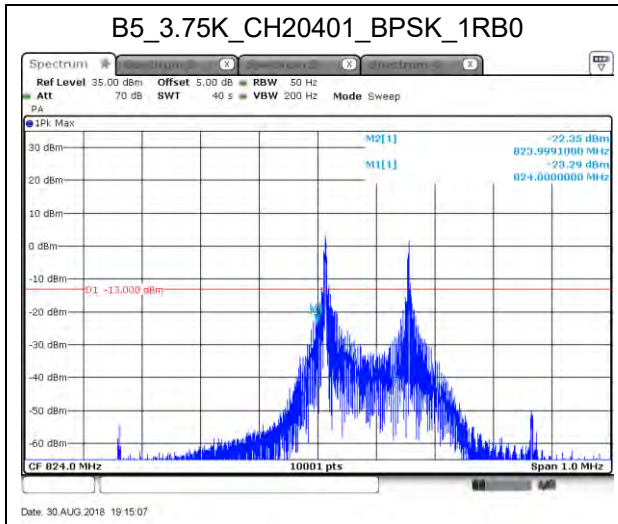
Product	ME910C1-WW		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/08/30	Test Site	SR10-H



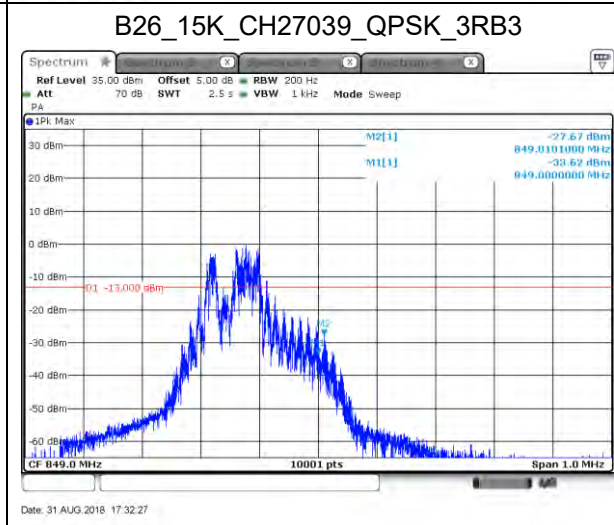
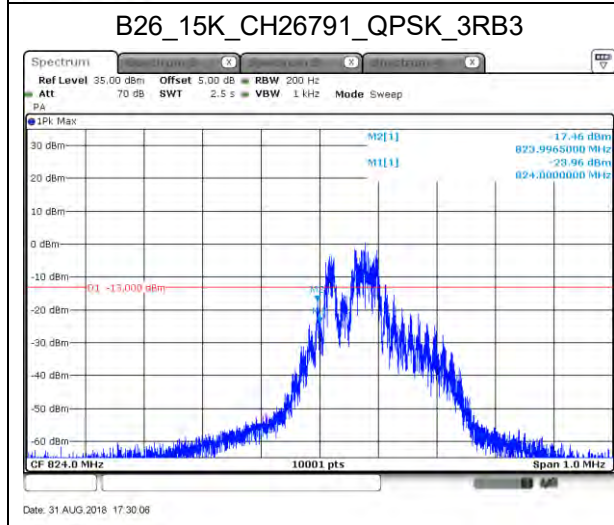
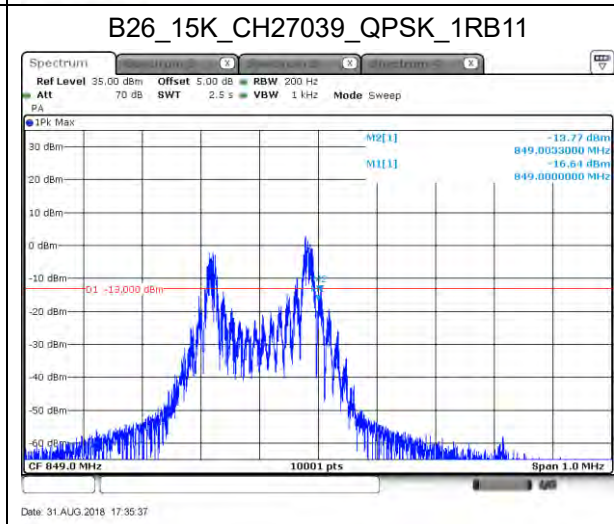
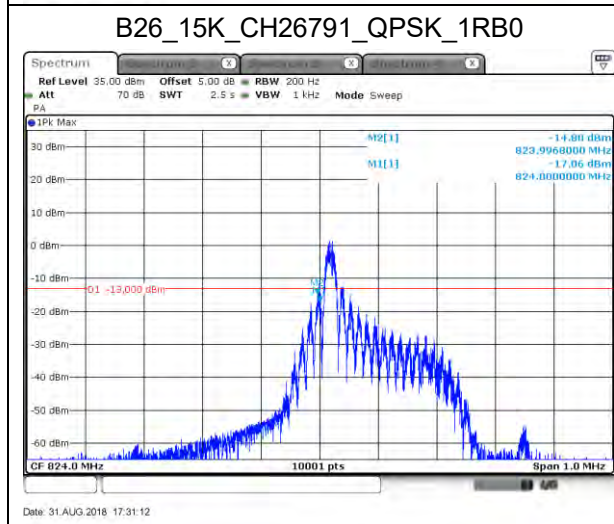
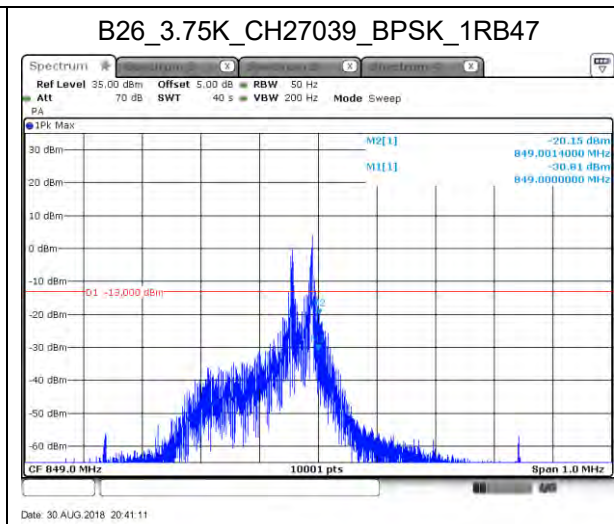
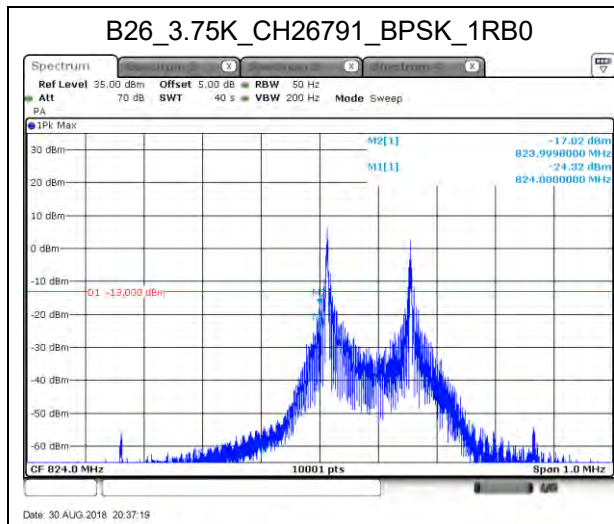
Product	ME910C1-WW		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/08/30	Test Site	SR10-H



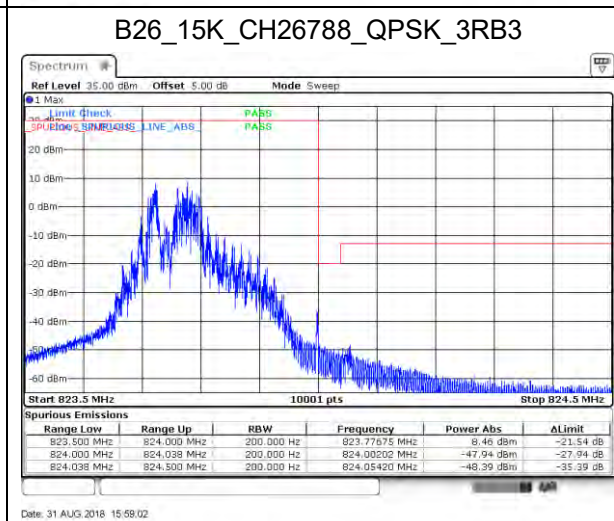
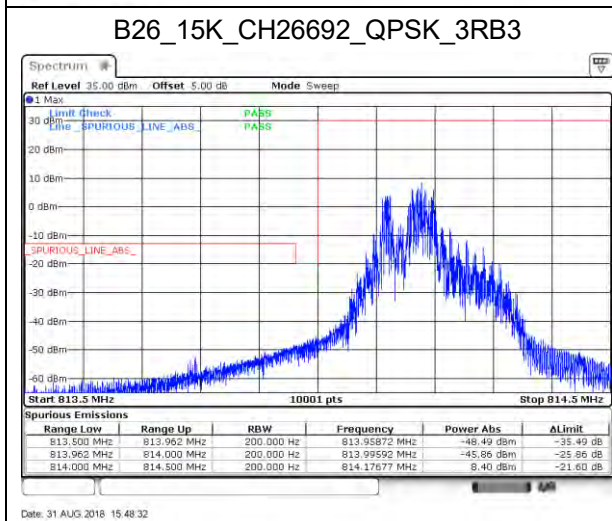
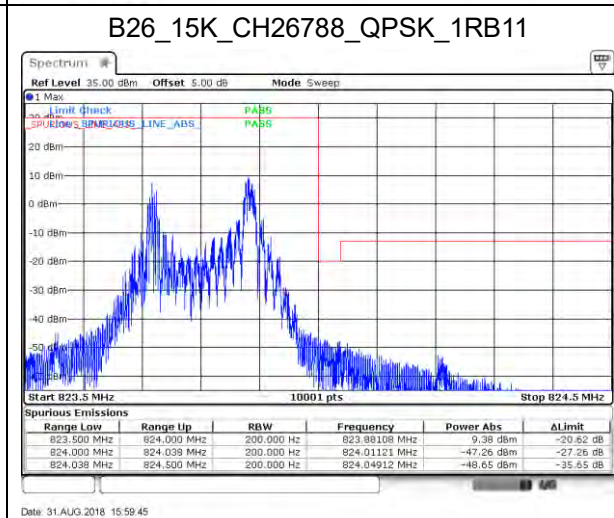
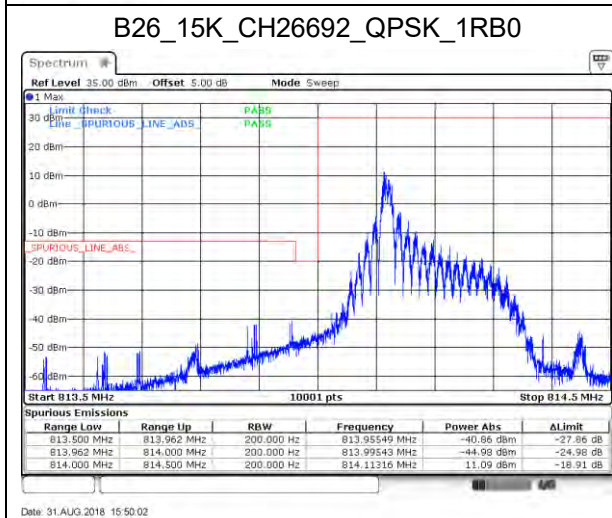
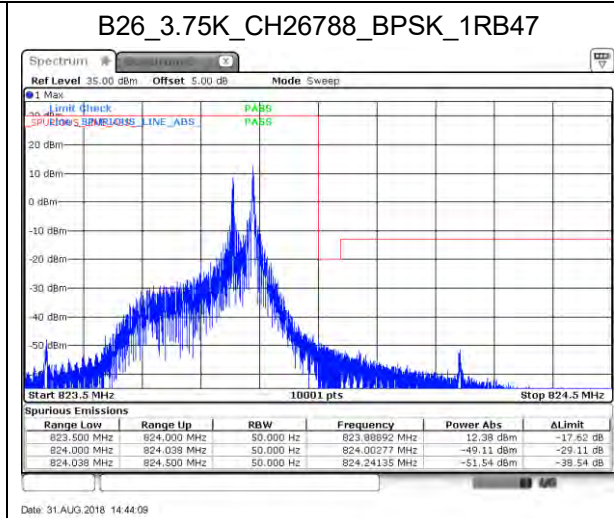
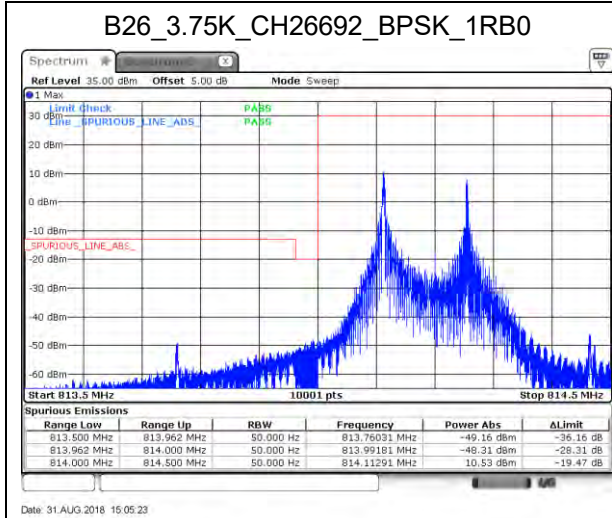
Product	ME910C1-WW		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/08/30	Test Site	SR10-H



Product	ME910C1-WW		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/08/30	Test Site	SR10-H

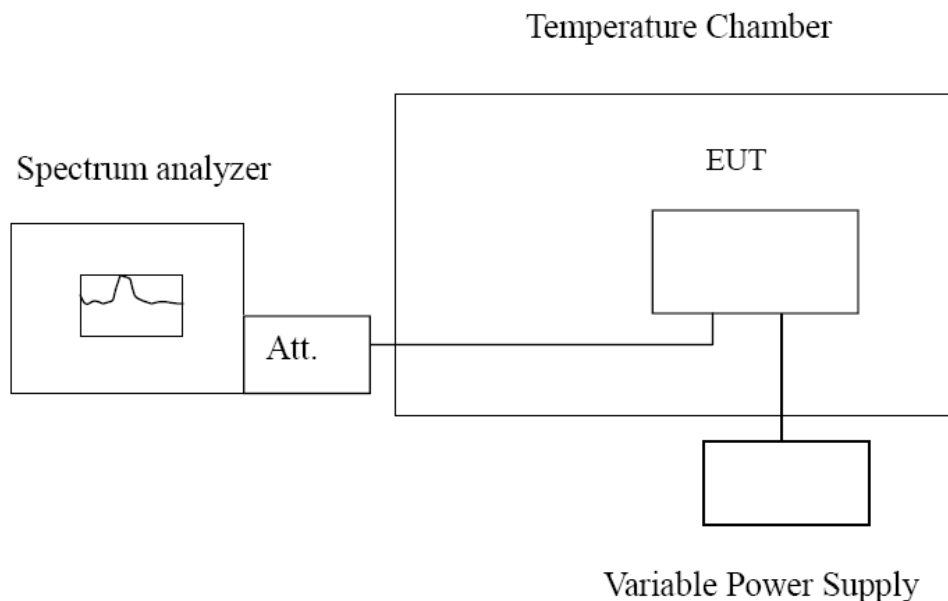


Product	ME910C1-WW		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/08/30	Test Site	SR10-H



8. Frequency Stability

8.1. Test Setup



8.2. Test Procedure

Frequency Stability Under Temperature Variations:

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

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

8.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 9

ANSI C63.26-2015 Sub-clause 5.6

8.4. Test Result

Product	ME910C1-WW		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: LTE_NB-IoT_Band 2		
Date of Test	2018/09/04	Test Site	SR10-H

NB-IoT Band 2_1850.1MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	-5	0.0074
3.8	4	-0.0059
3.4	-21	0.0312

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	21	-0.0312
-20	2	-0.0030
-10	-2	0.0029
0	4	-0.0058
10	8	-0.0119
20	16	-0.0238
30	3	-0.0045
40	-7	0.0103
50	-23	0.0331

NB-IoT Band 2_1880MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	4	-0.0058
3.4	-15	0.0216

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	20	-0.0288
-20	-18	0.0259
-10	-20	0.0288
0	25	-0.0359
10	-24	0.0345
20	10	-0.0144
30	-41	0.0590
40	19	-0.0273
50	-10	0.0144

NB-IoT Band 2_1900MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	-18	0.0265
3.8	-23	0.0338
3.4	8	-0.0118

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-31	0.0456
-20	-25	0.0367
-10	8	-0.0118
0	2	-0.0029
10	-18	0.0265
20	-24	0.0353
30	-23	0.0338
40	12	-0.0176
50	-21	0.0309

Product	ME910C1-WW		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 2: LTE_NB-IoT_Band 4		
Date of Test	2018/09/04	Test Site	SR10-H

NB-IoT Band 4_1720MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	-13	0.0193
3.8	7	-0.0104
3.4	11	-0.0163

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	10	-0.0149
-20	3	-0.0045
-10	-32	0.0475
0	18	-0.0267
10	-38	0.0565
20	21	-0.0312
30	18	-0.0267
40	16	-0.0238
50	-22	0.0327

NB-IoT Band 4_1732.5MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	-11	0.0158
3.4	-2	0.0029

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-36	0.0518
-20	-18	0.0259
-10	-27	0.0388
0	7	-0.0101
10	-15	0.0216
20	-38	0.0546
30	-2	0.0029
40	23	-0.0331
50	17	-0.0244

NB-IoT Band 4_1745MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	5	-0.0072
3.4	-6	0.0086

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-21	0.0309
-20	-6	0.0088
-10	4	-0.0059
0	-6	0.0088
10	7	-0.0104
20	-18	0.0267
30	19	-0.0279
40	-7	0.0103
50	3	-0.0044

Product	ME910C1-WW		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 3: LTE_NB-IoT_Band 5		
Date of Test	2018/09/04	Test Site	SR10-H

NB-IoT Band 5_829MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	1	-0.0014
3.8	-4	0.0058
3.4	-13	0.0187

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-10	0.0144
-20	-30	0.0431
-10	-13	0.0187
0	14	-0.0201
10	-28	0.0403
20	-10	0.0144
30	16	-0.0230
40	-25	0.0359
50	-24	0.0345

NB-IoT Band 5_836.5MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	-15	0.0216
3.4	-15	0.0216

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	5	-0.0072
-20	13	-0.0187
-10	19	-0.0273
0	14	-0.0201
10	8	-0.0115
20	8	-0.0115
30	-27	0.0388
40	-6	0.0088
50	18	-0.0259

NB-IoT Band 5_844MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	15	-0.0223
3.8	16	-0.0238
3.4	-18	0.0267

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-36	0.0518
-20	-32	0.0460
-10	23	-0.0331
0	24	-0.0345
10	-30	0.0431
20	-25	0.0359
30	-7	0.0101
40	-37	0.0532
50	2	-0.0029

Product	ME910C1-WW		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 22)		
Date of Test	2018/09/04	Test Site	SR10-H

NB-IoT Band 26_824.1MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	-5	0.0072
3.4	-41	0.0590

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-2	0.0029
-20	11	-0.0162
-10	-41	0.0602
0	-3	0.0044
10	-6	0.0088
20	-26	0.0382
30	9	-0.0132
40	4	-0.0059
50	16	-0.0235

NB-IoT Band 26_836.5MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	3	-0.0045
3.8	3	-0.0045
3.4	5	-0.0074

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	25	-0.0371
-20	-22	0.0327
-10	-33	0.0490
0	-11	0.0163
10	25	-0.0371
20	14	-0.0208
30	-34	0.0505
40	19	-0.0282
50	22	-0.0327

NB-IoT Band 26_848.9MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	7	-0.0103
3.8	7	-0.0103
3.4	-32	0.0470

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	24	-0.0353
-20	-4	0.0059
-10	11	-0.0162
0	-26	0.0382
10	12	-0.0176
20	24	-0.0353
30	-20	0.0294
40	4	-0.0059
50	-5	0.0073

Product	ME910C1-WW		
Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 4: LTE_NB-IoT_Band 26 (Part 90)		
Date of Test	2018/09/04	Test Site	SR10-H

NB-IoT Band 26_814.2MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	19	-0.0282
3.8	19	-0.0282
3.4	-7	0.0104

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	-20	0.0294
-20	-34	0.0500
-10	-10	0.0147
0	-33	0.0485
10	-2	0.0029
20	7	-0.0103
30	7	-0.0103
40	-24	0.0353
50	-41	0.0602

NB-IoT Band 26_819MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	5	-0.0072
3.8	-10	0.0144
3.4	-15	0.0216

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	3	-0.0043
-20	-39	0.0561
-10	11	-0.0158
0	-33	0.0474
10	21	-0.0302
20	2	-0.0029
30	-7	0.0101
40	-31	0.0446
50	-15	0.0216

NB-IoT Band 26_823.8MHz

Voltage

Voltage (VDC)	Frequency Error (Hz)	Frequency Error (ppm)
4.2	18	-0.0259
3.8	-6	0.0088
3.4	-3	0.0043

Temperature

Temperature	Frequency Error (Hz)	Frequency Error (ppm)
-30	21	-0.0302
-20	23	-0.0331
-10	7	-0.0101
0	15	-0.0216
10	-24	0.0345
20	9	-0.0129
30	8	-0.0115
40	-29	0.0417
50	21	-0.0302