

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 25
47 CFR FCC Part 2

Report No.: RFBCUN-WTW-P25020520-9

FCC ID: H8NPCTE020

Product: Mobile Computer

Brand: Askey

Model No.: RC40

Received Date: 2025/3/11

Test Date: 2025/4/22 ~ 2025/6/4

Issued Date: 2025/7/4

Applicant: Askey Computer Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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FCC Registration / 788550 / TW0003

Designation Number:

Approved by: Jeremy Lin , **Date:** 2025/7/4
Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBCUN-WTW-P25020520-9	Original Release	2025/7/4

1 Certificate

Product: Mobile Computer

Brand: Askey

Test Model: RC40

Sample Status: Engineering sample

Applicant: Askey Computer Corporation

Test Date: 2025/4/22 ~ 2025/6/4

Standard: 47 CFR FCC Part 25
47 CFR FCC Part 2

**Measurement
procedure:** ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc Rev Approv License Devices v02r02

KDB 412172 D01 Determining ERP and EIRP v01r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
25.149 (c)(4)(iii)	RF Conducted Output Power	Pass	Meet the requirement of limit.
25.149 (c)(4)(iii)	Equivalent Isotropic Radiated	Pass	Meet the requirement of limit.
25.149 (c)(4)(iv)	Maximum Power Spectral Density	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
25.149 (c)(4) (ii)	6 dB Bandwidth	Pass	Meet the requirement of limit.
2.1051, 25.149 (c) (4) (v), (vi)	Band Edge and Emission Mask	Pass	Meet the requirement of limit.
2.1051, 25.149 (c) (4) (v), (vi)	Out of Band Emissions	Pass	Meet the requirement of limit.
25.202 (d)	Frequency Stability	Pass	Meet the requirement of limit.
2.1053, 25.149 (c) (4) (v), (vi)	Field Strength of Spurious Radiation	Pass	Minimum passing margin is -3.27 dB at 1590.00 MHz
25.216 (i)	Carrier-Off-State Emissions Radiation	Pass	Meet the requirement of limit.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
RF Output Power and Equivalent Isotropically Radiated Power	-	1.371 dB
Power Spectral Density	-	1.017 dB
Bandwidth	-	960 Hz
6 dB Bandwidth	-	206.5 Hz
Conducted Spurious Emissions	-	2.12 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB
Frequency Stability	-	0.176 ppm

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	Mobile Computer
Brand	Askey
Test Model	RC40
Status of EUT	Engineering sample
Power Supply Rating	5 / 9 / 12 / 15 / 20Vdc (from adapter) 3.85Vdc (from battery) 12Vdc (from Charging Cradle)
Modulation Type	LTE: QPSK, 16QAM, 64QAM, 256QAM 5G NR: DFT-s-OFDM, CP-OFDM
Support Bands	LTE Band 53 5G NR n53

Note:

1. The EUT contains following accessories.

Battery	Brand	Askey
	Model	RC40-BR-SBL500
	Nominal Voltage	3.85V
	Nominal Capacity	5000mAh, 19.25Wh
	Rated Capacity	4900mAh, 18.865Wh
	Limited Charging Voltage	4.4V
AC Adapter 1 (for Charging Cradle) (Optional)	Brand	Sunny Computer Technology Co.,LTD.
	Model	SYS1649-5012-T3
	Input	100-240V~, 1.5A MAX,50-60Hz
	Output	+12.0V=4.16A
	Output Power	50.0W MAX.
	Description	1.2M / 1core
Power Cord (for AC Adapter 1 & 3) (Optional)	Brand	I-SHENG
	Model	V5BVS33161218002
	Description	1.8M
AC Adapter 2 (Optional)	Brand	CHANNEL WELL TECHNOLOGY
	Model	A1C030AC
	Input	100-240V~, 50-60Hz, 1.2A
	Output	5.0V= 3.0A 15.0W
		9.0V= 3.0A 27.0W
12.0V= 2.5A 30.0W		
15.0V= 2.0A 30.0W		
20.0V=1.5A 30.0W		
AC Adapter 3 (for Charging Cradle) (Optional)	Brand	MASS POWER
	Model	S050-1A120416B3
	Input	100-240V~ 50-60Hz, 1.5A
	Output	12.0V 4.16A, 49.92W
Charging Cradle (Optional)	Brand	Askey
	Model	RC40-CD-TBE100
Scan Handle (Optional)	Brand	Askey
	Model	RC40-PT-TGH000

2. The EUT uses following support unit.

USB C to C Cable	Brand	HOTRON
	Model	D0018100R7XYY
	Description	0.92m

3. EUT overview

LTE Band 53

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
1.4 MHz	2484.2 ~ 2494.3	QPSK	0.159	22.01	1M09G7D
		16QAM	0.112	20.51	1M09D7W
		64QAM	0.089	19.50	1M09D7W
		256QAM	0.058	17.60	1M09D7W
3 MHz	2485 ~ 2493.5	QPSK	0.158	21.98	2M70G7D
		16QAM	0.113	20.53	2M70D7W
		64QAM	0.091	19.58	2M70D7W
		256QAM	0.057	17.58	2M70D7W
5 MHz	2486 ~ 2492.5	QPSK	0.160	22.05	4M50G7D
		16QAM	0.114	20.55	4M51D7W
		64QAM	0.090	19.55	4M50D7W
		256QAM	0.058	17.61	4M50D7W
10 MHz	2488.5 ~ 2490	QPSK	0.163	22.11	9M00G7D
		16QAM	0.115	20.59	8M99D7W
		64QAM	0.091	19.58	8M99D7W
		256QAM	0.058	17.61	8M99D7W

NR n53 SCS 30 kHz

Bandwidth	TX Frequency Range (MHz)	Modulation	Max. EIRP (W)	Max. EIRP (dBm)	Emission Designator
10 MHz	2488.5 ~ 2490	BPSK	0.175	22.42	8M63G7D
		QPSK	0.178	22.5	8M66G7D
		16QAM	0.109	20.36	8M64D7W
		64QAM	0.099	19.97	8M64D7W
		256QAM	0.064	18.07	8M63D7W

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna	Ant. 1
Antenna Type	Loop
Connector Type	I-PEX(4)
Brand	Bang-Tec
Model	BDY1511C03V02
Frequency Band	Antenna Gain (dBi)
LTE Band 53 / 5G NR n53	1.63

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. EUT can be used in the following ways: X-axis / Y-axis / Z-axis. Pre-scan these ways and find the worst case as a representative test condition. 2. EUT can be used in the following ways: EUT only + Adapter 2 / EUT + Charging Cradle + Adapter 3 / EUT + Scan Handle + Charging Cradle + Adapter 1. 3. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	1. X-axis / Y-axis / Z-axis Worst Condition: Y-axis 2. EUT only + Adapter 2 / EUT + Charging Cradle + Adapter 3 / EUT + Scan Handle + Charging Cradle + Adapter 1 Worst Condition: EUT only + Adapter 2

3.3.1 LTE Band 53

Following channel(s) was (were) selected for the final test as listed below:

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
RF Output Power and Equivalent Isotropically Radiated Power	60147 (2484.2 MHz) 60197 (2489.2 MHz) 60248 (2494.3 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	60155 (2485 MHz) 60197 (2489.2 MHz) 60240 (2493.5 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	60165 (2486 MHz) 60197 (2489.2 MHz) 60230 (2492.5 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
	60190 (2488.5 MHz) 60197 (2489.2 MHz) 60205 (2490 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Power Spectral Density	60147 (2484.2 MHz) 60197 (2489.2 MHz) 60248 (2494.3 MHz)	1.4 MHz	QPSK	1 RB
	60155 (2485 MHz) 60197 (2489.2 MHz) 60240 (2493.5 MHz)	3 MHz	QPSK	1 RB
	60165 (2486 MHz) 60197 (2489.2 MHz) 60230 (2492.5 MHz)	5 MHz	QPSK	1 RB
	60190 (2488.5 MHz) 60197 (2489.2 MHz) 60205 (2490 MHz)	10 MHz	QPSK	1 RB Full RB
Occupied Bandwidth / 6 dB Bandwidth	60147 (2484.2 MHz) 60197 (2489.2 MHz) 60248 (2494.3 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	60155 (2485 MHz) 60197 (2489.2 MHz) 60240 (2493.5 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	60165 (2486 MHz) 60197 (2489.2 MHz) 60230 (2492.5 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB
	60190 (2488.5 MHz) 60197 (2489.2 MHz) 60205 (2490 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	Full RB

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
Conducted Spurious Emissions	60147 (2484.2 MHz) 60197 (2489.2 MHz) 60248 (2494.3 MHz)	1.4 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Full RB
	60155 (2485 MHz) 60197 (2489.2 MHz) 60240 (2493.5 MHz)	3 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Full RB
	60165 (2486 MHz) 60197 (2489.2 MHz) 60230 (2492.5 MHz)	5 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Full RB
	60190 (2488.5 MHz) 60197 (2489.2 MHz) 60205 (2490 MHz)	10 MHz	QPSK / 16QAM / 64QAM / 256QAM	1 RB Full RB
Frequency Stability	60190 (2488.5 MHz) 60205 (2490 MHz)	10 MHz	QPSK	Full RB
Radiated Spurious Emissions below 1GHz	60190 (2488.5 MHz)	10 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	60147 (2484.2 MHz) 60197 (2489.2 MHz) 60248 (2494.3 MHz)	1.4 MHz	QPSK	1 RB
	60165 (2486 MHz) 60197 (2489.2 MHz) 60230 (2492.5 MHz)	5 MHz	QPSK	1 RB
	60190 (2488.5 MHz) 60197 (2489.2 MHz) 60205 (2490 MHz)	10 MHz	QPSK	1 RB

3.3.2 NR n53 SCS 30 kHz

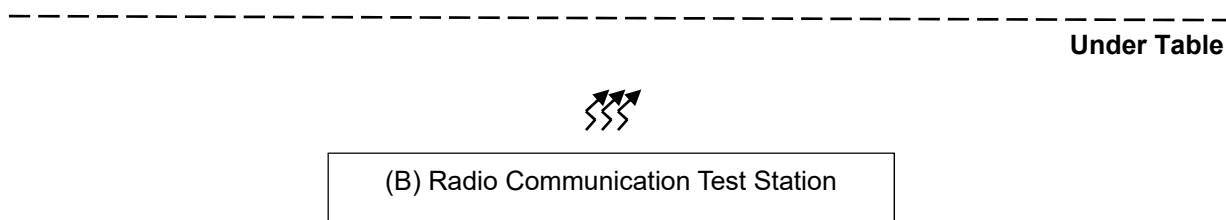
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Tested Channel	Channel Bandwidth	Modulation	Mode
RF Output Power and Equivalent Isotropically Radiated Power	497700 (2488.5 MHz) 497840 (2489.2 MHz) 498000 (2490 MHz)	10 MHz	BPSK / QPSK / 16QAM / 64QAM / 256QAM	1 RB Half RB Full RB
Power Spectral Density	497700 (2488.5 MHz) 497840 (2489.2 MHz) 498000 (2490 MHz)	10 MHz	QPSK	1 RB Full RB
Occupied Bandwidth / 6 dB Bandwidth	497700 (2488.5 MHz) 497840 (2489.2 MHz) 498000 (2490 MHz)	10 MHz	BPSK / QPSK / 16QAM / 64QAM / 256QAM	Full RB
Conducted Spurious Emissions	497700 (2488.5 MHz) 497840 (2489.2 MHz) 498000 (2490 MHz)	10 MHz	QPSK	1 RB Full RB
Frequency Stability	497700 (2488.5 MHz) 498000 (2490 MHz)	10 MHz	QPSK	Full RB
Radiated Spurious Emissions below 1GHz	497700 (2488.5 MHz)	10 MHz	QPSK	1 RB
Radiated Spurious Emissions above 1GHz	497700 (2488.5 MHz) 497840 (2489.2 MHz) 498000 (2490 MHz)	10 MHz	QPSK	1 RB

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	CHANNEL WELL TECHNOLOGY	A1C030AC	NA	NA	Supplied by applicant
B.	Radio Communication Test Station	Anritsu	MT8821C	6272278310	NA	Provided by Lab (for LTE)
		Anritsu	MT8000A	6272278595	NA	Provided by Lab (for 5G NR)

No.	Cable Descriptions	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Qty.)	Remark
1.	USB C to C Cable	1	0.92	No	0	Supplied by applicant

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2024/5/29	2025/5/28
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2025/2/19	2026/2/18
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/4/30

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2024/5/29	2025/5/28
Signal & Spectrum Analyzer R&S	FSV3044	101504	2024/6/18	2025/6/17
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/4/22 ~ 2025/5/9

4.3 Occupied Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.5 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and information of the instruments.

4.6 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
3-channel DC power supply OWON	ODP3033	ODP30332128138	N/A	N/A
Digital Multimeter Fluke	8050A	4660081	2024/6/14	2025/6/13
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
PXA Signal Analyzer Keysight	N9030B	MY57140938	2025/3/24	2026/3/23
Radio Communication Analyzer Anritsu	MT8821C	6261806803	2025/2/19	2026/2/18
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	MHU-225AU	920842	2024/6/21	2025/6/20

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/6/4

4.7 Radiated Spurious Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-160	2024/10/9	2025/10/8
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Agilent	N9038A	MY51210203	2024/8/27	2025/8/26
Preamplifier Agilent	8447D	2944A10638	2024/5/1	2025/4/30
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2024/5/1	2025/4/30
Signal & Spectrum Analyzer R&S	FSW43	101866	2025/3/25	2026/3/24
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2025/4/28

4.8 Radiated Spurious Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2024/11/10	2025/11/9
	BBHA 9170	9170-480	2024/11/10	2025/11/9
		BBHA9170243	2024/11/10	2025/11/9
MXE EMI Receiver Agilent	N9038A	MY51210203	2024/8/27	2025/8/26
Preamplifier Agilent	8449B	3008A02367	2025/1/5	2026/1/4
Preamplifier EMCI	EMC 184045	980116	2024/9/24	2025/9/23
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2024/7/6	2025/7/5
	EMC102-KM-KM-3000	150929	2024/7/6	2025/7/5
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2025/1/5	2026/1/4
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2025/1/5	2026/1/4
Signal & Spectrum Analyzer R&S	FSW43	101866	2025/3/25	2026/3/24
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2025/4/29 ~ 2025/5/16

5 Limits of Test Items

5.1 RF Output Power and Equivalent Isotropically Radiated Power

The maximum transmit power is no more than 1 W (30dBm) with a peak EIRP of no more than 6 dBW.

5.2 Power Spectral Density

The maximum power spectral density conducted to the antenna is not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.3 Occupied Bandwidth

The results are for reference only.

5.4 6 dB Bandwidth

The 6 dB bandwidth shall be at least 500 kHz.

5.5 Conducted Out of Band Emissions

Emission Mask and Bandedge

§25.149

(c) Equipment certification. (4) Applications for equipment authorization of terrestrial low-power system equipment that will operate in the 2483.5-2495 MHz band shall demonstrate the following:

- (v) Emissions below 2483.5 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least $40 + 10 \log (P)$ dB at the channel edge at 2483.5 MHz, $43 + 10 \log (P)$ dB at 5 MHz from the channel edge, and $55 + 10 \log (P)$ dB at X MHz from the channel edge where X is the greater of 6 MHz or the actual emission bandwidth.
- (vi) Emissions above 2495 MHz are attenuated below the transmitter power (P) measured in watts by a factor of at least $43 + 10 \log (P)$ dB on all frequencies between the channel edge at 2495 MHz and X MHz from this channel edge and $55 + 10 \log (P)$ dB on all frequencies more than X MHz from this channel edge, where X is the greater of 6 MHz or the actual emission bandwidth;

5.6 Frequency Stability

Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

5.7 Radiated Spurious Emissions below 1 GHz

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

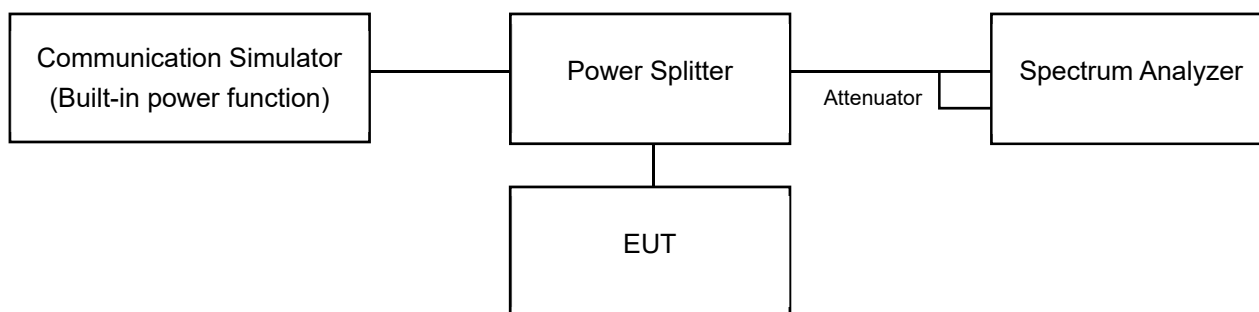
5.8 Radiated Spurious Emissions above 1 GHz

The minimum permissible attenuation level of any spurious emissions is $55 + 10 \log (P)$ dB where transmitting power (P) in Watts.

6 Test Arrangements

6.1 RF Output Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology and link to spectrum analyzer measurements. Set the EUT to transmit under low, middle and high channel and record the power level shown on spectrum analyzer. Power measurements use detector average (rms).

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

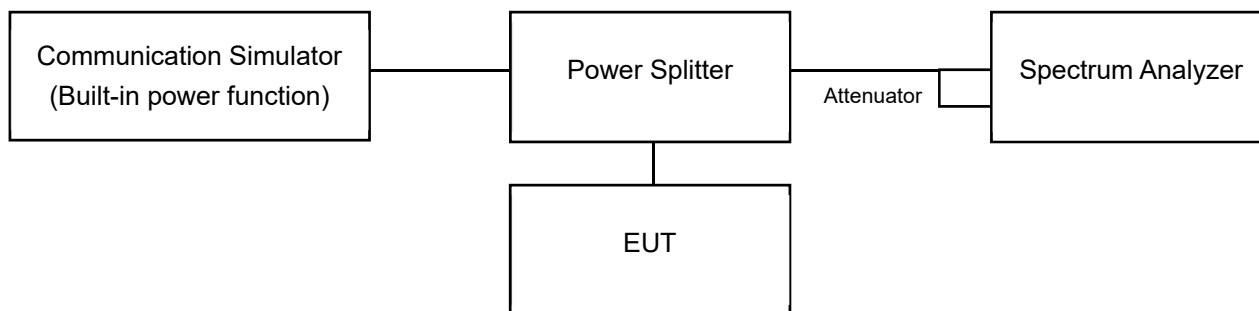
(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

6.2 Power Spectral Density

6.2.1 Test Setup



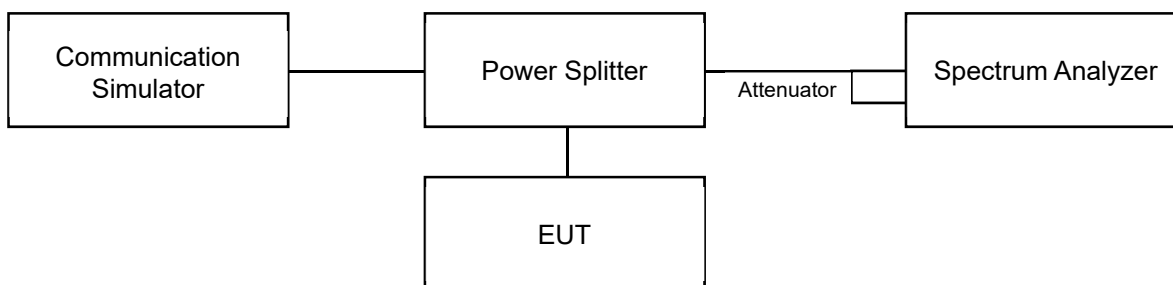
6.2.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology and link to spectrum analyzer measurements. Set the EUT to transmit under low, middle and high channel and record the power level shown on spectrum analyzer. Where $RBW=3\text{kHz}$, $VBW \geq 3 * RBW$, detector= RMS (power averaging)

6.3 Occupied Bandwidth

6.3.1 Test Setup



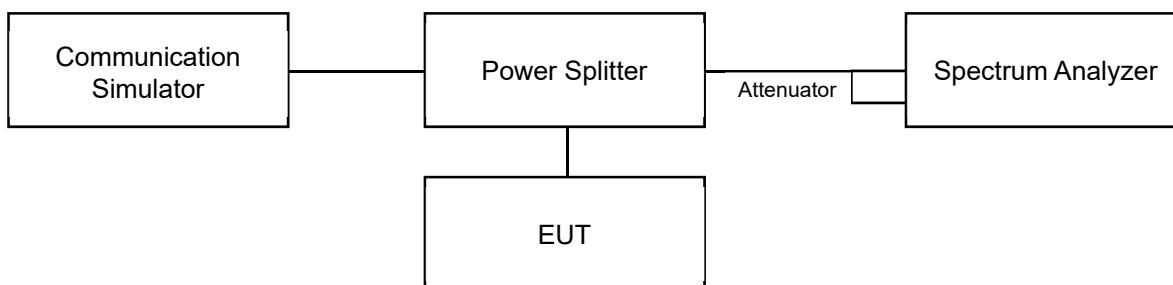
6.3.2 Test Procedure

For the occupied bandwidth measurement method, please refer to section 5.4.4 of ANSI C63.26.

- a. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement.
- b. The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times$ RBW.
- c. Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.
- d. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 36 dB below the reference level.
- e. Set spectrum analyzer detection mode to peak, and the trace mode to max hold.
- f. Determine the reference value by either of the following:
 - g. 1) Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
 - h. 2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.
- i. Determine the “-X dB amplitude” as equal to (Reference Value - X). Alternatively, this calculation can be performed on the spectrum analyzer using the delta-marker measurement function.
- j. If the reference value was determined using an unmodulated carrier, turn the EUT modulation on, then either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise the trace from step f) shall be used for step i).
- k. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB amplitude” determined in step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.”
- l. The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

6.4 6 dB Bandwidth

6.4.1 Test Setup

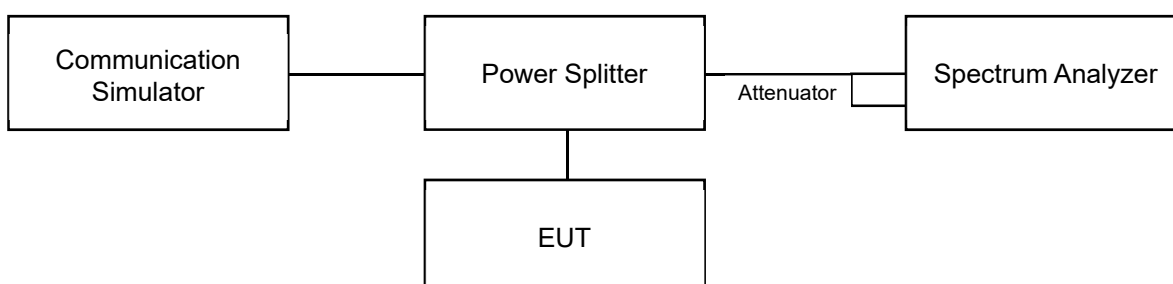


6.4.2 Test Procedure

The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be wide enough to see sufficient roll off of the signal to make the measurement. The 6dB bandwidth was measured with the spectrum analyzer at the low/ middle/high channel in each band where RBW is 1%-5% of EBW, VBW $\geq 3 * RBW$, Peak detector and max hold.

6.5 Conducted Out of Band Emissions

6.5.1 Test Setup

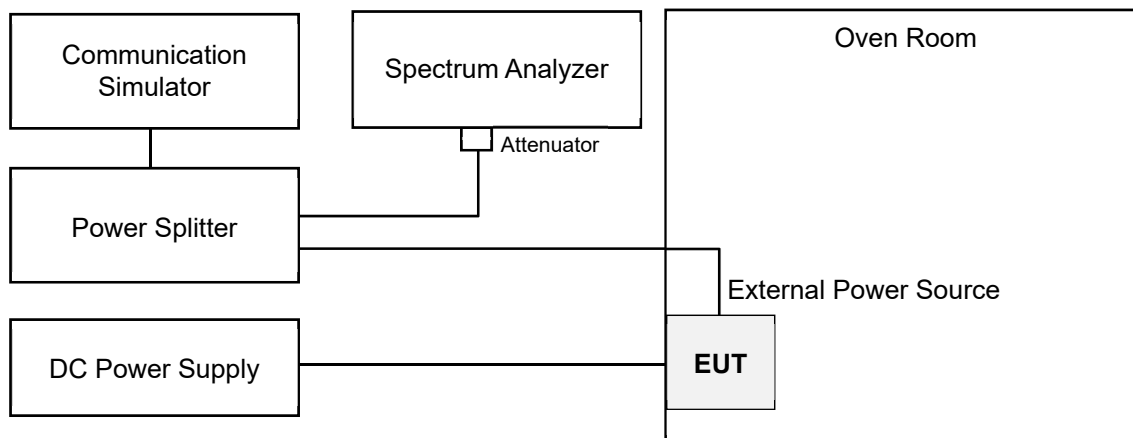


6.5.2 Test Procedure

- All measurements were done at 3 channels: low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower. 20 dB attenuation pad is connected with spectrum.
- The fundamental frequency above 1 GHz, the spectrum set RBW = 1 MHz, VBW = 3 MHz, Detector = Average.
- The fundamental frequency below 1 GHz, the spectrum set RBW ≥ 100 kHz, VBW $\geq 3 \times RBW$, Detector = Average.
- Measuring frequency band edge, narrow RBW (no less than 1% of the OBW) is used for conducted emission measurement.
- Record the maximum power value test plot.

6.6 Frequency Stability

6.6.1 Test Setup



6.6.2 Test Procedure

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology.

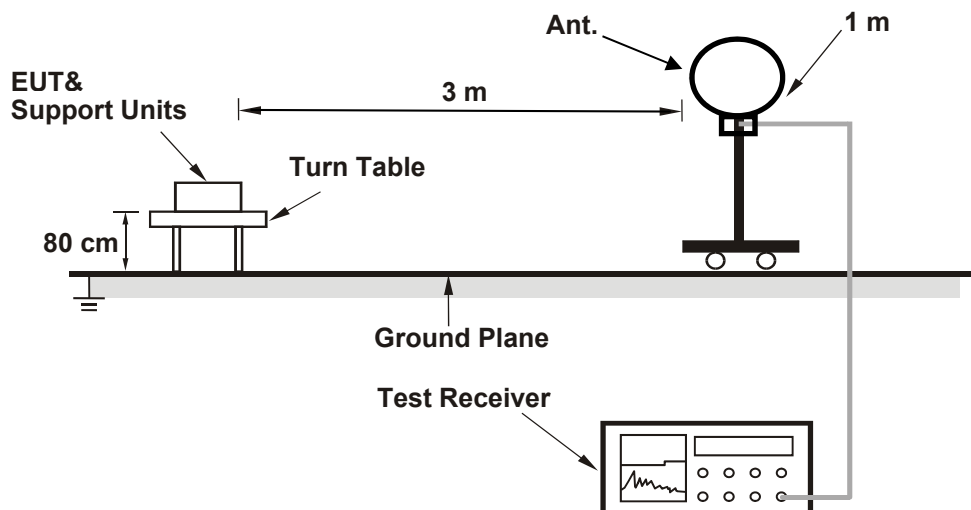
- Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}\text{C}$ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

Note: The frequency error was recorded frequency error from the communication simulator.

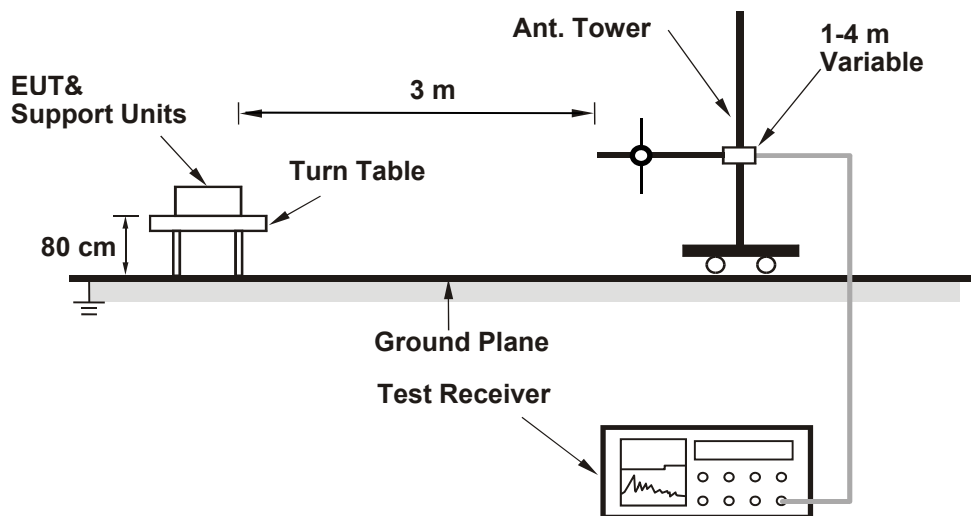
6.7 Radiated Spurious Emissions below 1 GHz

6.7.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- a. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following ANSI C63.26 section 5.5 and 5.2.7
- e. $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- f. $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

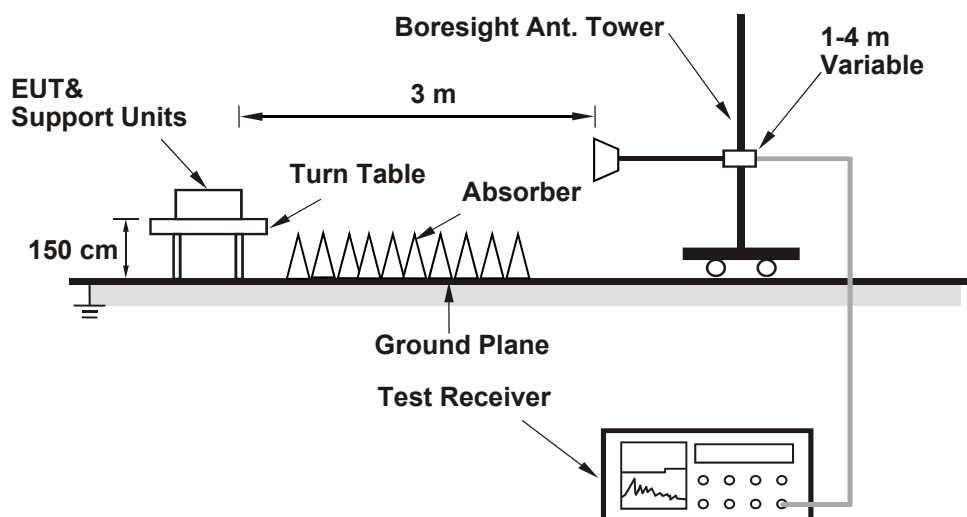
Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.
2. The amplitude of spurious emissions in the range 9 kHz to 30 MHz which are attenuated more than 20 dB below the permissible value need not be reported.

6.8 Radiated Spurious Emissions above 1 GHz

6.8.1 Test Setup

For radiated emission above 1 GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.8.2 Test Procedure

The EUT is configured to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 1.5 m height of turn table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

7 Test Results of Test Item

7.1 RF Output Power and Equivalent Isotropically Radiated Power

Input Power:	3.85 Vdc	Environmental Conditions:	25°C, 66% RH	Tested By:	James Yang
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7.1.1 LTE Band 53

LTE Band 53, Channel Bandwidth: 1.4 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 60147	CH 60197	CH 60248
			2484.2 MHz	2489.2 MHz	2494.3 MHz
QPSK	1	0	20.35	20.38	20.21
	1	2	20.24	20.16	20.06
	1	5	20.14	20.22	20.15
	3	0	20.22	20.16	20.06
	3	1	20.16	20.18	20.15
	3	3	20.22	20.2	20.21
	6	0	19.33	19.38	19.47
16QAM	1	0	18.8	18.77	18.88
	1	2	18.77	18.68	18.78
	1	5	18.52	18.47	18.54
	3	0	18.33	18.15	18.41
	3	1	18.2	18.13	18.27
	3	3	18.13	18.11	18.25
	6	0	17.75	17.54	17.95
64QAM	1	0	17.73	17.34	17.87
	1	2	17.52	17.23	17.65
	1	5	17.45	17.2	17.51
	3	0	17.11	17.15	17.39
	3	1	17.02	17.11	17.13
	3	3	17.01	17.06	17.08
	6	0	16.73	16.44	16.68
256QAM	1	0	15.97	15.92	15.84
	1	2	15.8	15.89	15.66
	1	5	15.59	15.86	15.53
	3	0	15.42	15.73	15.39
	3	1	15.23	15.69	15.22
	3	3	14.94	15.47	15.01
	6	0	14.74	15.17	14.77

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.33	20.38	20.96	22.01	36
16QAM	17.54	18.88	19.17	20.51	36
64QAM	16.44	17.87	18.07	19.50	36
256QAM	14.74	15.97	16.37	17.60	36

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 53, Channel Bandwidth: 3 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 60155	CH 60197	CH 60240
			2485 MHz	2489.2 MHz	2493.5 MHz
QPSK	1	0	20.29	20.35	20.26
	1	7	20.24	20.21	20.25
	1	14	20.02	20.18	20
	8	0	19.35	19.56	19.44
	8	3	19.41	19.5	19.34
	8	7	19.37	19.48	19.36
	15	0	19.4	19.41	19.29
16QAM	1	0	18.78	18.82	18.9
	1	7	18.81	18.55	18.72
	1	14	18.52	18.41	18.64
	8	0	18.35	18.17	18.38
	8	3	18.1	17.92	18.3
	8	7	17.9	17.72	18.17
	15	0	17.79	17.62	17.98
64QAM	1	0	17.64	17.43	17.95
	1	7	17.59	17.18	17.68
	1	14	17.34	17.06	17.59
	8	0	17.24	16.89	17.4
	8	3	17.09	16.75	17.2
	8	7	16.97	16.6	17.02
	15	0	16.86	16.46	16.8
256QAM	1	0	15.95	15.93	15.9
	1	7	15.8	15.72	15.69
	1	14	15.58	15.48	15.53
	8	0	15.46	15.31	15.37
	8	3	15.26	15.21	15.32
	8	7	14.97	15.1	15.05
	15	0	14.81	14.88	14.87

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.29	20.35	20.92	21.98	36
16QAM	17.62	18.90	19.25	20.53	36
64QAM	16.46	17.95	18.09	19.58	36
256QAM	14.81	15.95	16.44	17.58	36

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 53, Channel Bandwidth: 5 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 60165	CH 60197	CH 60230
			2486 MHz	2489.2 MHz	2492.5 MHz
QPSK	1	0	20.37	20.42	20.29
	1	12	20.17	20.29	20.15
	1	24	20.1	20.26	20.15
	12	0	19.19	19.27	19.2
	12	6	19.4	19.43	19.31
	12	13	19.35	19.33	19.29
	25	0	19.32	19.3	19.28
16QAM	1	0	18.92	18.85	18.86
	1	12	18.76	18.58	18.72
	1	24	18.55	18.35	18.63
	12	0	18.25	18.16	18.49
	12	6	18.17	17.97	18.37
	12	13	17.91	17.83	18.26
	25	0	17.76	17.56	18.02
64QAM	1	0	17.65	17.35	17.92
	1	12	17.5	17.13	17.6
	1	24	17.4	17.08	17.57
	12	0	17.19	16.91	17.38
	12	6	17.12	16.71	17.13
	12	13	16.97	16.68	16.96
	25	0	16.86	16.5	16.75
256QAM	1	0	15.94	15.98	15.96
	1	12	15.8	15.77	15.8
	1	24	15.54	15.62	15.65
	12	0	15.49	15.45	15.45
	12	6	15.25	15.33	15.35
	12	13	15.02	15.14	15.15
	25	0	14.87	14.99	14.9

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.19	20.42	20.82	22.05	36
16QAM	17.56	18.92	19.19	20.55	36
64QAM	16.50	17.92	18.13	19.55	36
256QAM	14.87	15.98	16.50	17.61	36

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

LTE Band 53, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 60190	CH 60197	CH 60205
			2488.5 MHz	2489.2 MHz	2490 MHz
QPSK	1	0	20.42	20.48	20.38
	1	24	20.22	20.25	20.1
	1	49	20.04	20.26	20.19
	25	0	19.27	19.3	19.2
	25	12	19.33	19.54	19.48
	25	25	19.23	19.31	19.27
	50	0	19.3	19.27	19.29
16QAM	1	0	18.92	18.92	18.96
	1	24	18.81	18.7	18.84
	1	49	18.6	18.49	18.66
	25	0	18.4	18.3	18.52
	25	12	18.2	18.06	18.39
	25	25	18.03	17.84	18.27
	50	0	17.89	17.65	18.07
64QAM	1	0	17.75	17.44	17.95
	1	24	17.59	17.23	17.75
	1	49	17.47	17.1	17.61
	25	0	17.26	16.97	17.43
	25	12	17.14	16.78	17.25
	25	25	17.01	16.68	17.02
	50	0	16.86	16.54	16.83
256QAM	1	0	15.97	15.98	15.94
	1	24	15.83	15.78	15.77
	1	49	15.66	15.63	15.64
	25	0	15.56	15.49	15.5
	25	12	15.34	15.37	15.36
	25	25	15.13	15.15	15.15
	50	0	14.9	15	14.96

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
QPSK	19.20	20.48	20.83	22.11	36
16QAM	17.65	18.96	19.28	20.59	36
64QAM	16.54	17.95	18.17	19.58	36
256QAM	14.90	15.98	16.53	17.61	36

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 NR n53 SCS 30kHz

NR n53 SCS 30kHz, Channel Bandwidth: 10 MHz

Modulation	RB Size	RB Offset	Measurement Conducted Power (dBm)		
			CH 497700	CH 497840	CH 498000
			2488.5 MHz	2489.2 MHz	2490 MHz
BPSK	1	1	20.73	20.79	20.74
	1	0	20.34	20.44	20.25
QPSK	1	1	20.85	20.87	20.82
	1	0	19.81	19.9	19.74
	1	12	20.81	20.84	20.79
	1	22	20.7	20.79	20.61
	1	22	20.69	20.74	20.61
	12	0	19.89	19.92	19.85
	12	6	20.71	20.72	20.7
	12	12	19.88	19.88	19.78
	24	0	19.75	19.83	19.71
16QAM	1	0	18.71	18.73	18.65
64QAM	1	0	18.28	18.34	18.27
256QAM	1	0	16.35	16.44	16.31

Output Power					
Modulation	Minimum Cond. Power (dBm)	Maximum Cond. Power (dBm)	Minimum EIRP (dBm)	Maximum EIRP (dBm)	EIRP Limit (dBm)
BPSK	20.25	20.79	21.88	22.42	36
QPSK	19.71	20.87	21.34	22.5	36
16QAM	18.65	18.73	20.28	20.36	36
64QAM	18.27	18.34	19.9	19.97	36
256QAM	16.31	16.44	17.94	18.07	36

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

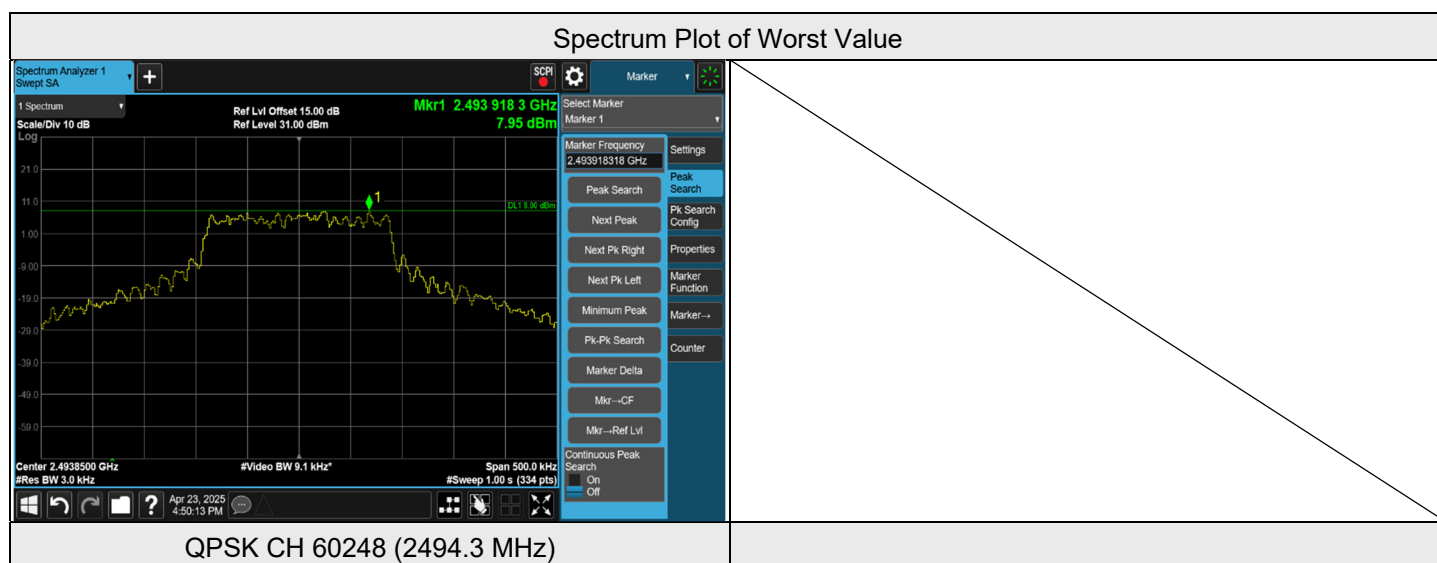
7.2 Power Spectral Density

Input Power:	3.85 Vdc	Environmental Conditions:	25°C, 66% RH	Tested By:	James Yang
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7.2.1 LTE Band 53

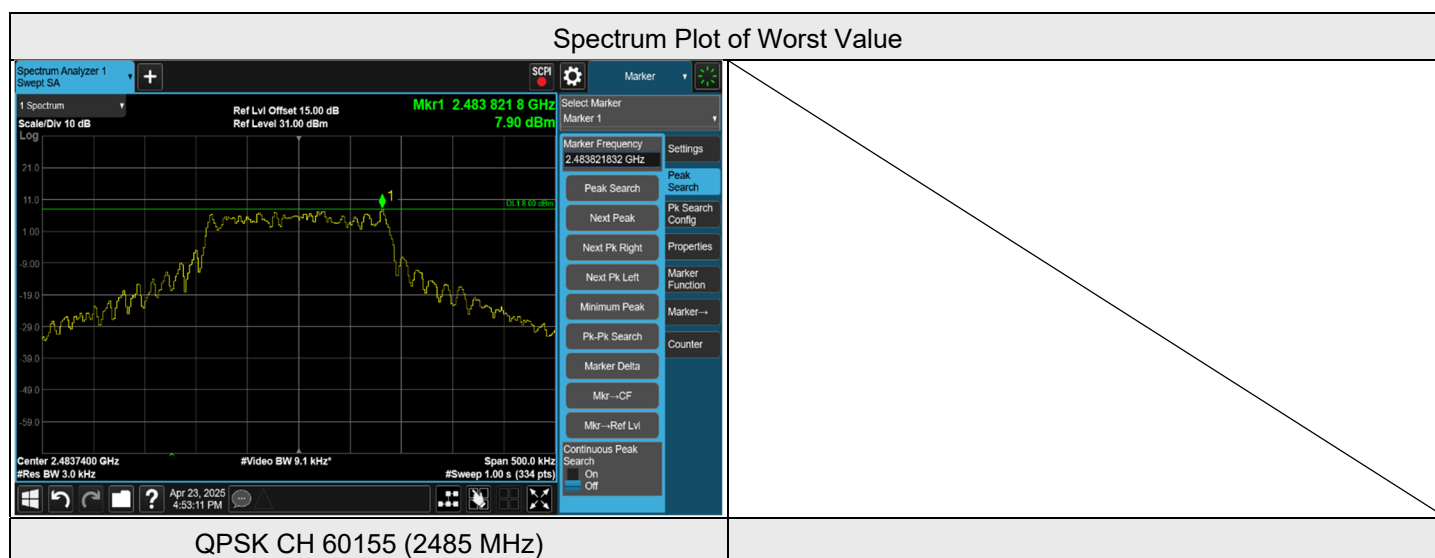
LTE Band 53, Channel Bandwidth: 1.4 MHz

Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	PSD(dBm/3kHz)	PSD Limit (dBm/3kHz)	Result
QPSK	60147	1/0	2484.2	7.49	8	PASS
QPSK	60197	1/0	2489.2	7.9	8	PASS
QPSK	60248	1/0	2494.3	7.95	8	PASS



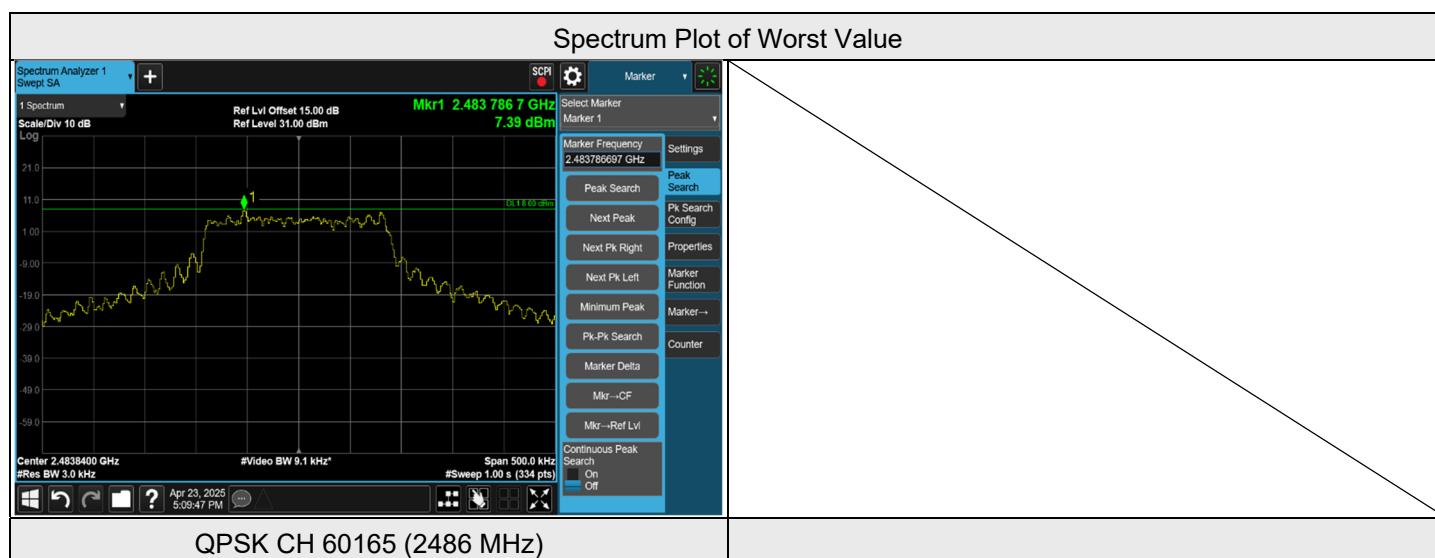
LTE Band 53, Channel Bandwidth: 3 MHz

Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	PSD(dBm/3kHz)	PSD Limit (dBm/3kHz)	Result
QPSK	60155	1/0	2485	7.9	8	PASS
QPSK	60197	1/0	2489.2	7.65	8	PASS
QPSK	60240	1/0	2493.5	7.66	8	PASS



LTE Band 53, Channel Bandwidth: 5 MHz

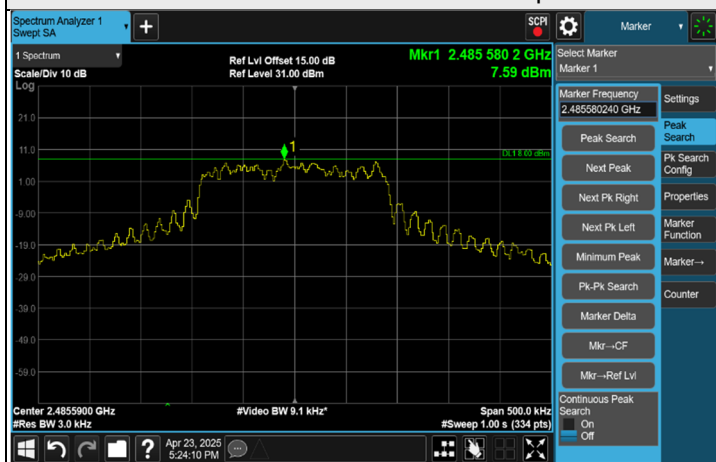
Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	PSD(dBm/3kHz)	PSD Limit (dBm/3kHz)	Result
QPSK	60165	1/0	2486	7.39	8	PASS
QPSK	60197	1/0	2489.2	7.08	8	PASS
QPSK	60230	1/0	2492.5	7.03	8	PASS



LTE Band 53, Channel Bandwidth: 10 MHz

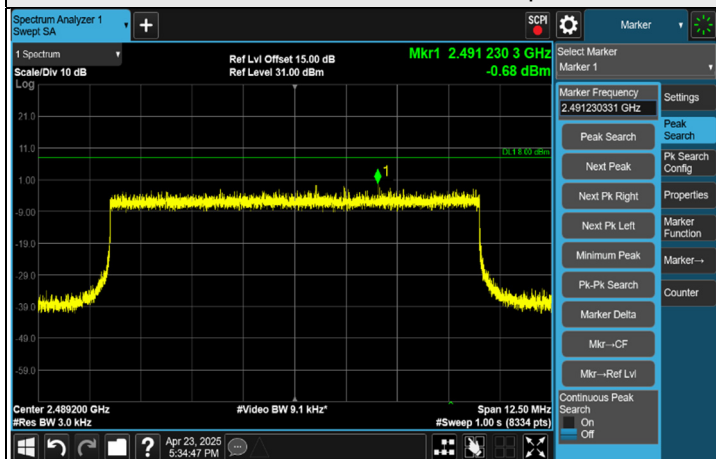
Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	PSD(dBm/3kHz)	PSD Limit (dBm/3kHz)	Result
QPSK	60190	1/0	2488.5	6.36	8	PASS
QPSK	60197	1/0	2489.2	7.44	8	PASS
QPSK	60205	1/0	2490	7.59	8	PASS
QPSK	60190	50/0	2488.5	-0.96	8	PASS
QPSK	60197	50/0	2489.2	-0.68	8	PASS
QPSK	60205	50/0	2490	-0.9	8	PASS

Spectrum Plot of Worst Value (1/0)



QPSK CH 60205 (2490 MHz)

Spectrum Plot of Worst Value (50/0)



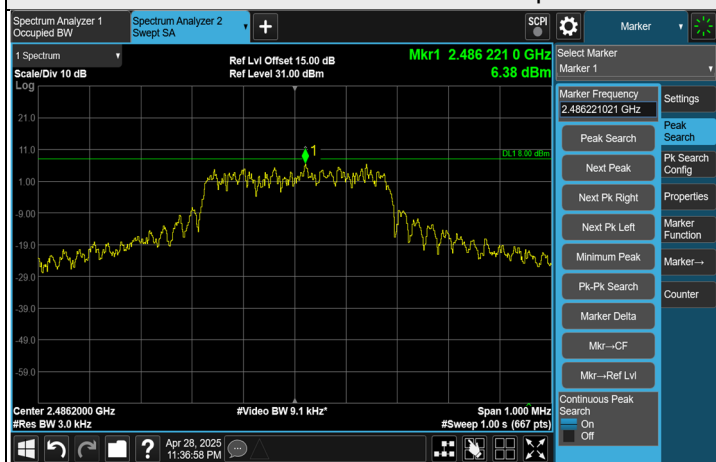
QPSK CH 60197 (2489.2MHz)

7.2.2 NR n53 SCS 30kHz

NR n53 SCS 30kHz, Channel Bandwidth: 10 MHz

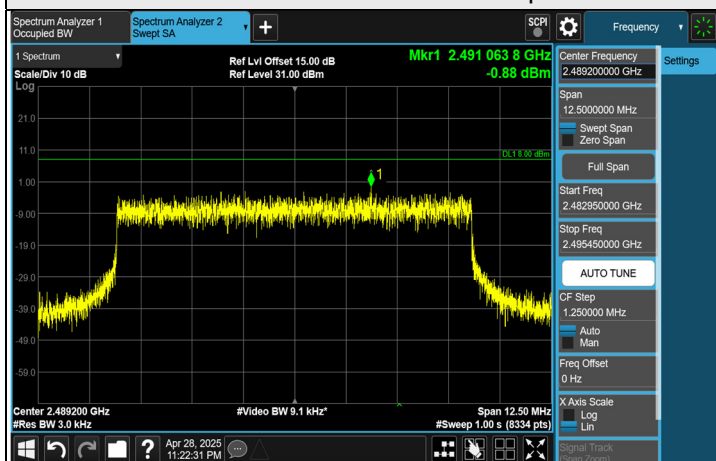
Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	PSD(dBm/3kHz)	PSD Limit (dBm/3kHz)	Result
QPSK	497700	1/1	2488.5	5.47	8	PASS
QPSK	497840	1/1	2489.2	6.01	8	PASS
QPSK	498000	1/1	2490	6.38	8	PASS
QPSK	497700	24/0	2488.5	-1.15	8	PASS
QPSK	497840	24/0	2489.2	-0.88	8	PASS
QPSK	498000	24/0	2490	-1.93	8	PASS

Spectrum Plot of Worst Value (1/1)



QPSK CH 498000 (2490 MHz)

Spectrum Plot of Worst Value (24/0)



QPSK CH 497840 (2489.2MHz)

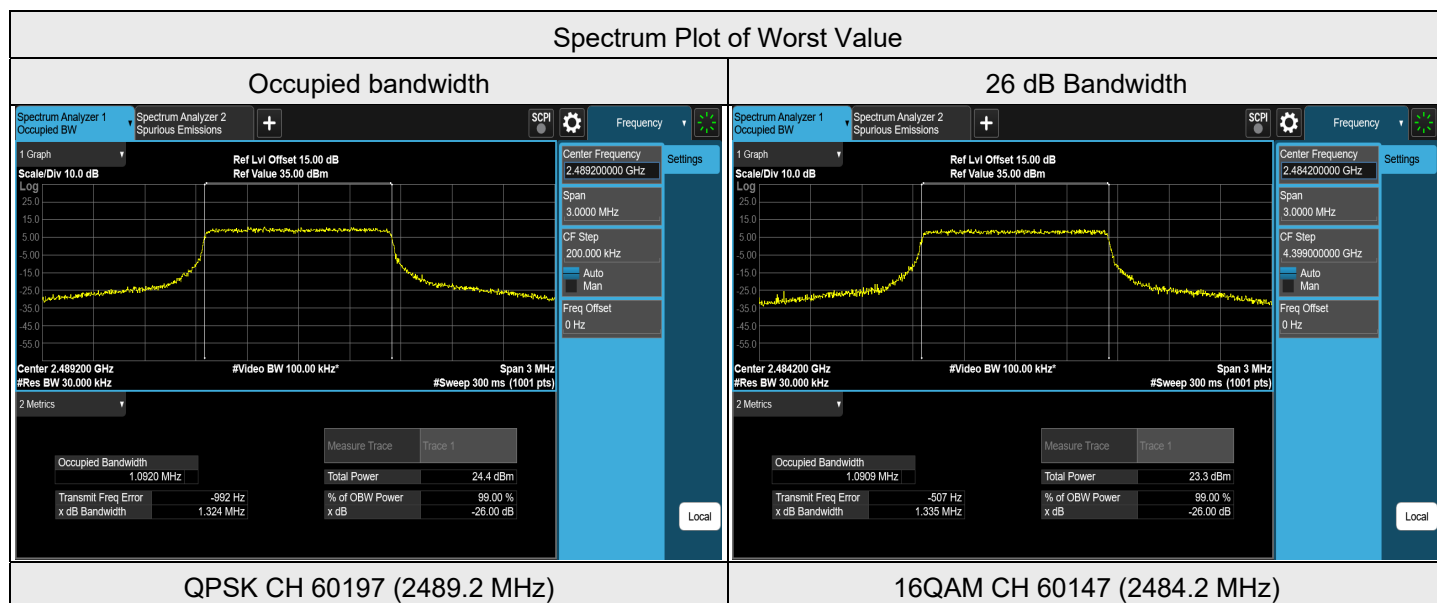
7.3 Occupied Bandwidth

Input Power:	3.85 Vdc	Environmental Conditions:	25°C, 66% RH	Tested By:	James Yang
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7.3.1 LTE Band 53

LTE Band 53, Channel Bandwidth: 1.4 MHz

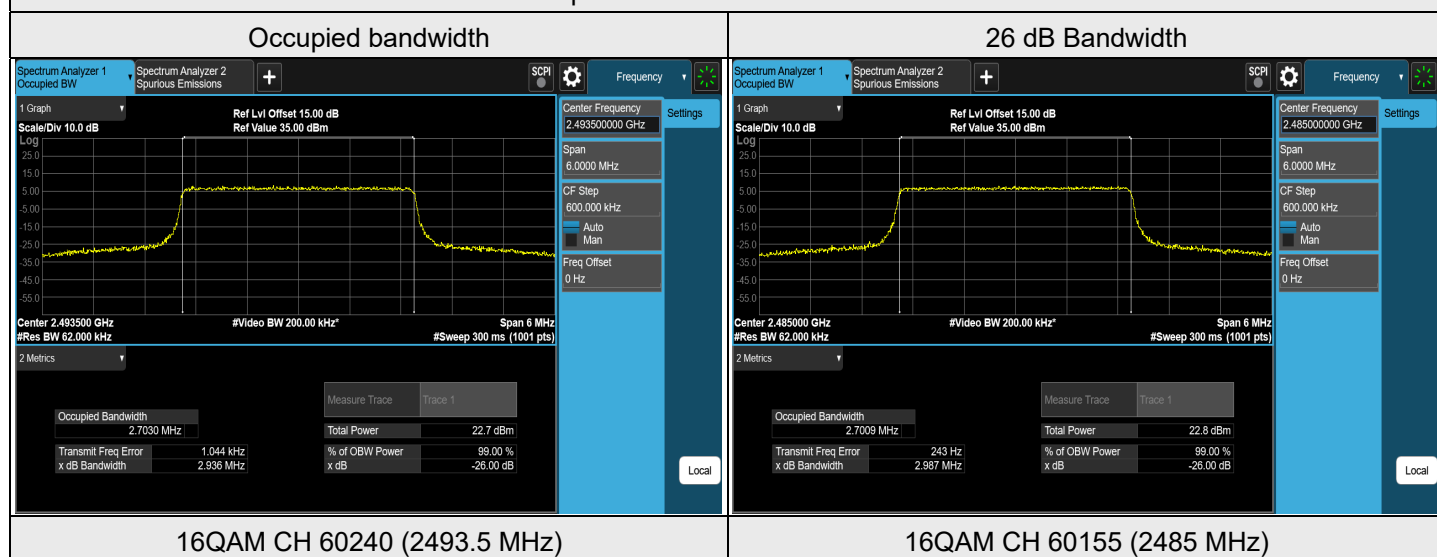
Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	60147	2484.2	1.0891	1.304
QPSK	60197	2489.2	1.0920	1.324
QPSK	60248	2494.3	1.0886	1.310
16QAM	60147	2484.2	1.0909	1.335
16QAM	60197	2489.2	1.0903	1.296
16QAM	60248	2494.3	1.0911	1.305
64QAM	60147	2484.2	1.0891	1.294
64QAM	60197	2489.2	1.0887	1.275
64QAM	60248	2494.3	1.0911	1.324
256QAM	60147	2484.2	1.0889	1.300
256QAM	60197	2489.2	1.0914	1.295
256QAM	60248	2494.3	1.0875	1.301



LTE Band 53, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	60155	2485	2.6985	2.958
QPSK	60197	2489.2	2.7021	2.975
QPSK	60240	2493.5	2.6963	2.960
16QAM	60155	2485	2.7009	2.987
16QAM	60197	2489.2	2.6970	2.960
16QAM	60240	2493.5	2.7030	2.936
64QAM	60155	2485	2.6980	2.974
64QAM	60197	2489.2	2.7014	2.944
64QAM	60240	2493.5	2.6960	2.931
256QAM	60155	2485	2.6998	2.928
256QAM	60197	2489.2	2.7002	2.970
256QAM	60240	2493.5	2.7025	2.941

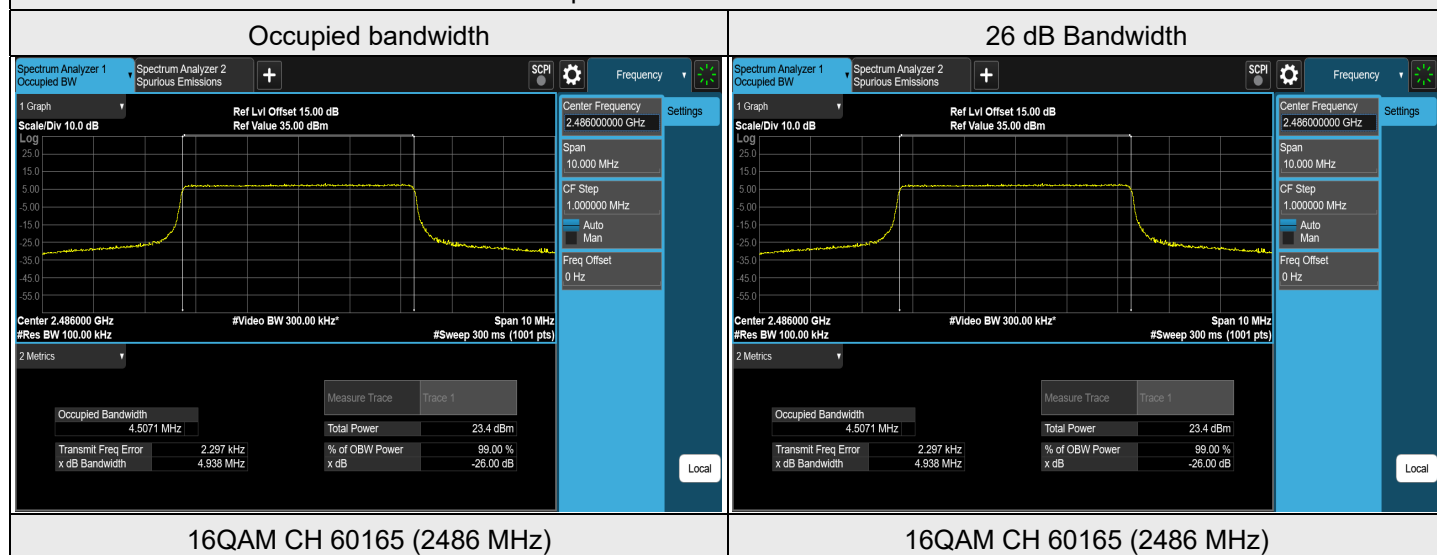
Spectrum Plot of Worst Value



LTE Band 53, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	60165	2486	4.5002	4.894
QPSK	60197	2489.2	4.4922	4.926
QPSK	60230	2492.5	4.5000	4.908
16QAM	60165	2486	4.5071	4.938
16QAM	60197	2489.2	4.4994	4.898
16QAM	60230	2492.5	4.4953	4.900
64QAM	60165	2486	4.4955	4.877
64QAM	60197	2489.2	4.4924	4.892
64QAM	60230	2492.5	4.4947	4.891
256QAM	60165	2486	4.4979	4.897
256QAM	60197	2489.2	4.5006	4.870
256QAM	60230	2492.5	4.4950	4.875

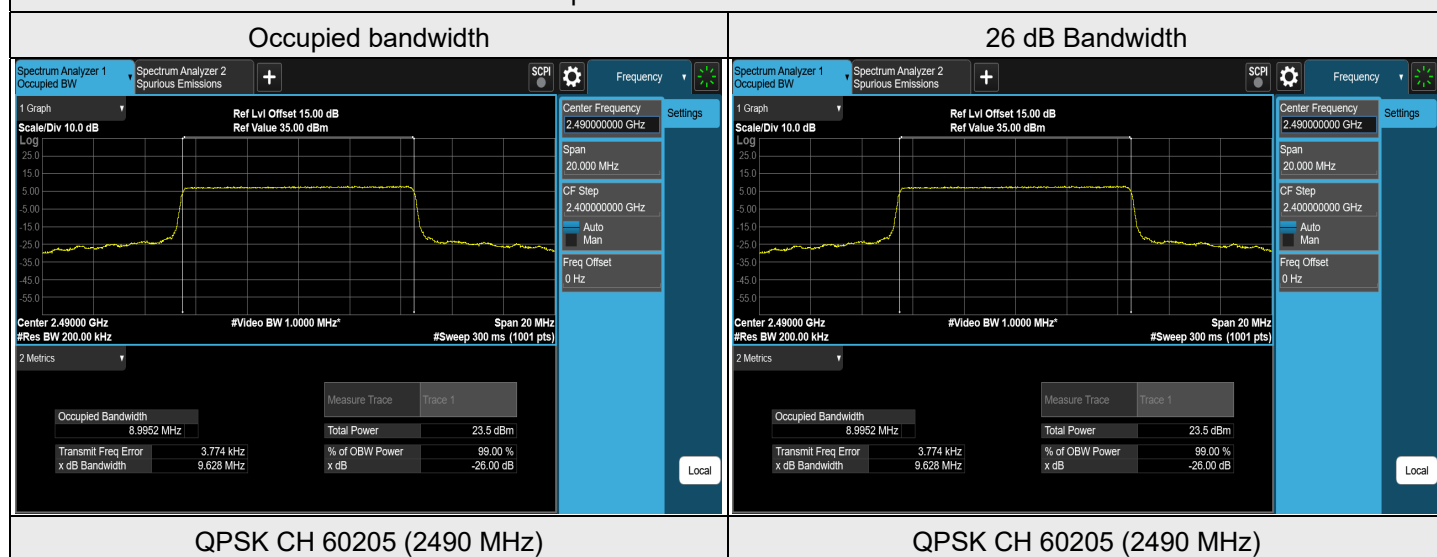
Spectrum Plot of Worst Value



LTE Band 53, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
QPSK	60190	2488.5	8.9913	9.604
QPSK	60197	2489.2	8.9863	9.615
QPSK	60205	2490	8.9952	9.628
16QAM	60190	2488.5	8.9881	9.574
16QAM	60197	2489.2	8.9882	9.586
16QAM	60205	2490	8.9868	9.604
64QAM	60190	2488.5	8.9867	9.583
64QAM	60197	2489.2	8.9814	9.551
64QAM	60205	2490	8.9888	9.607
256QAM	60190	2488.5	8.9900	9.555
256QAM	60197	2489.2	8.9770	9.558
256QAM	60205	2490	8.9704	9.579

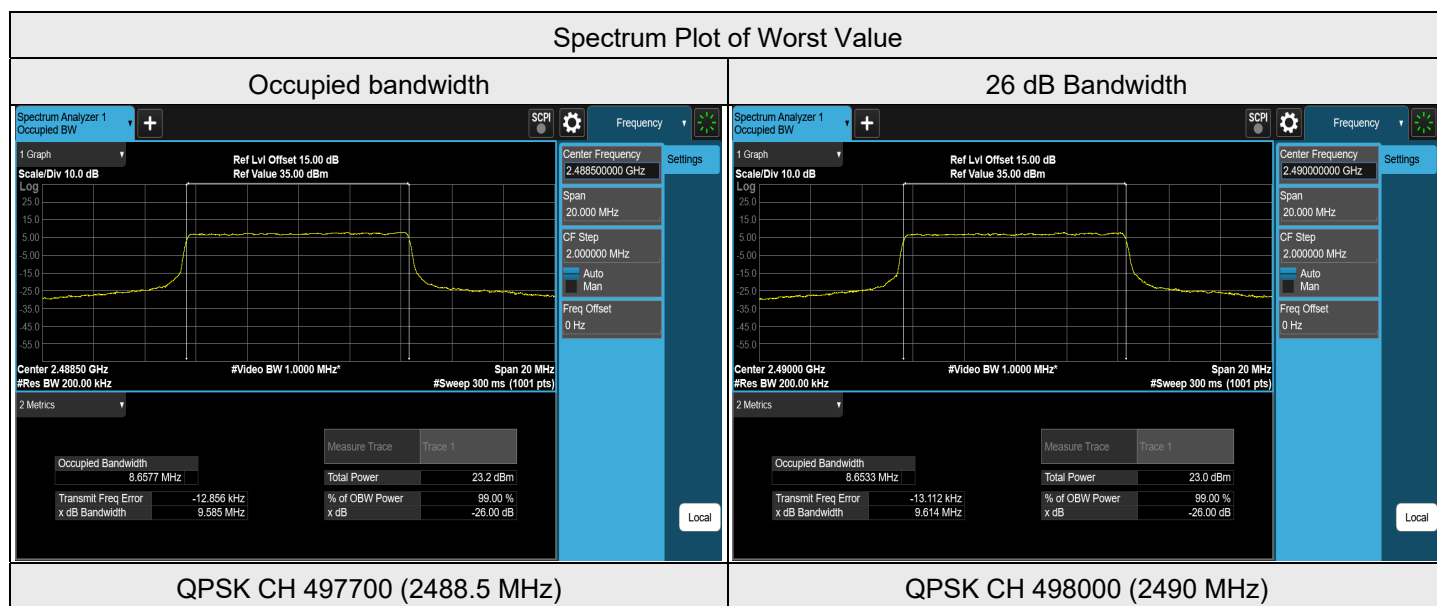
Spectrum Plot of Worst Value



7.3.2 NR n53 SCS 30kHz

NR n53 SCS 30kHz, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	26 dB Bandwidth (MHz)
BPSK	497700	2488.5	8.6200	9.588
BPSK	497840	2489.2	8.6179	9.491
BPSK	498000	2490	8.6252	9.564
QPSK	497700	2488.5	8.6577	9.585
QPSK	497840	2489.2	8.6566	9.567
QPSK	498000	2490	8.6533	9.614
16QAM	497700	2488.5	8.6407	9.417
16QAM	497840	2489.2	8.6384	9.395
16QAM	498000	2490	8.6410	9.558
64QAM	497700	2488.5	8.6375	9.499
64QAM	497840	2489.2	8.6350	9.442
64QAM	498000	2490	8.6371	9.475
256QAM	497700	2488.5	8.6303	9.440
256QAM	497840	2489.2	8.6300	9.434
256QAM	498000	2490	8.6224	9.287



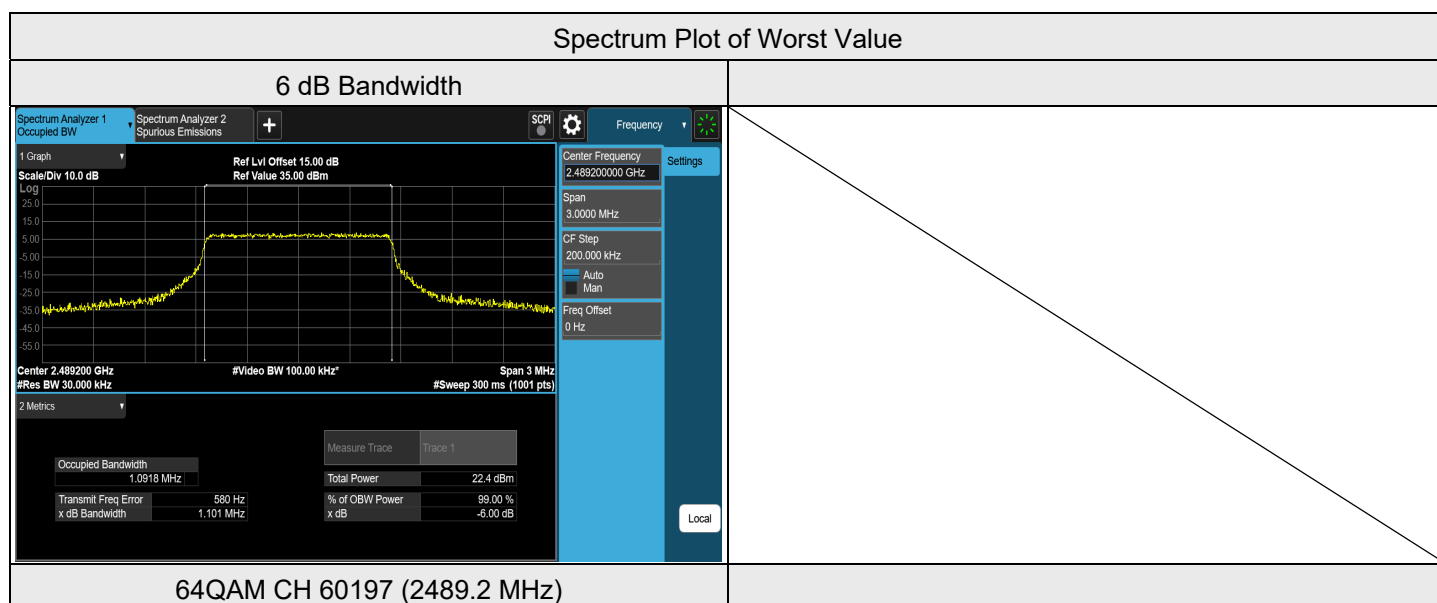
7.4 6 dB Bandwidth

Input Power:	3.85 Vdc	Environmental Conditions:	25°C, 66% RH	Tested By:	James Yang
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7.4.1 LTE Band 53

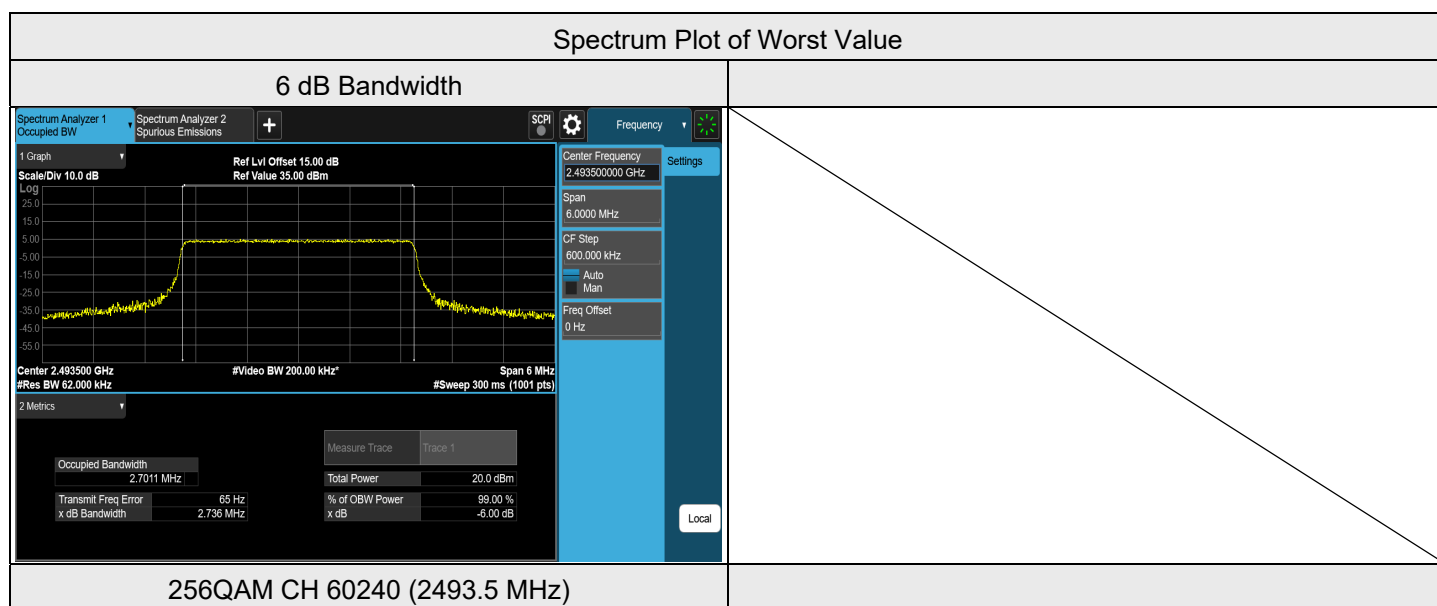
LTE Band 53, Channel Bandwidth: 1.4 MHz

Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Limit (MHz)	Result
QPSK	60147	2484.2	1.091	0.5	PASS
QPSK	60197	2489.2	1.094	0.5	PASS
QPSK	60248	2494.3	1.086	0.5	PASS
16QAM	60147	2484.2	1.093	0.5	PASS
16QAM	60197	2489.2	1.087	0.5	PASS
16QAM	60248	2494.3	1.092	0.5	PASS
64QAM	60147	2484.2	1.095	0.5	PASS
64QAM	60197	2489.2	1.101	0.5	PASS
64QAM	60248	2494.3	1.089	0.5	PASS
256QAM	60147	2484.2	1.086	0.5	PASS
256QAM	60197	2489.2	1.095	0.5	PASS
256QAM	60248	2494.3	1.091	0.5	PASS



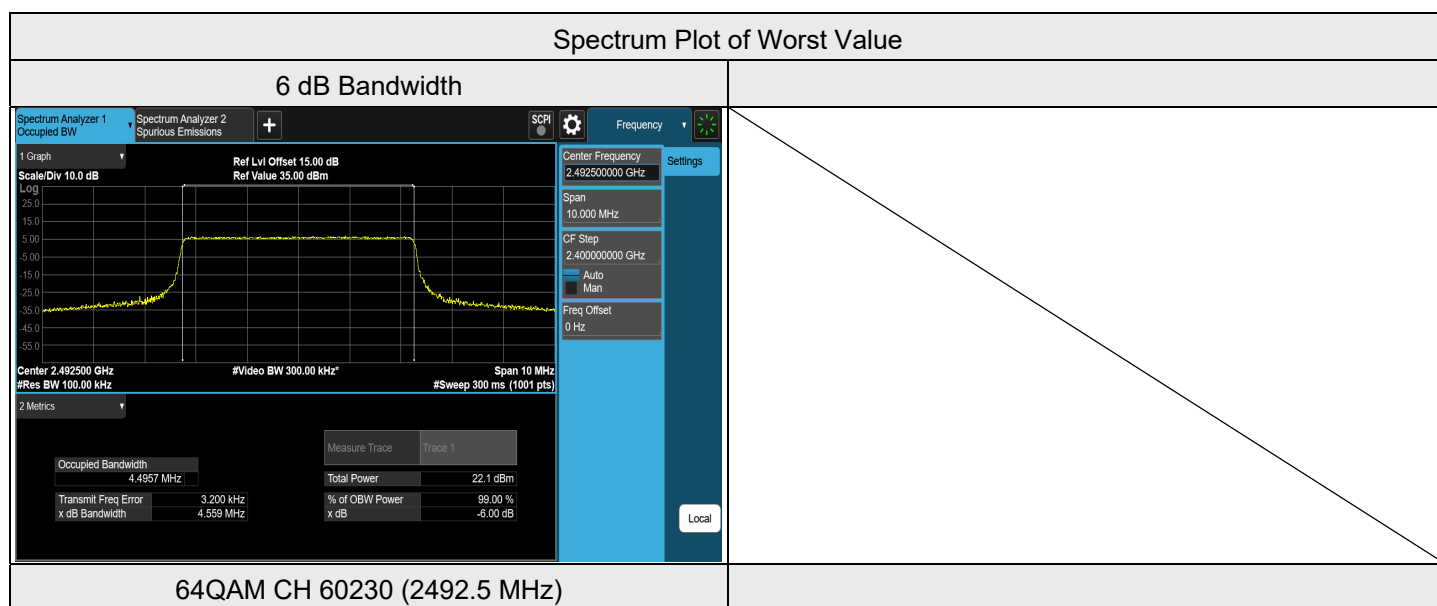
LTE Band 53, Channel Bandwidth: 3 MHz

Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Limit (MHz)	Result
QPSK	60155	2485	2.725	0.5	PASS
QPSK	60197	2489.2	2.725	0.5	PASS
QPSK	60240	2493.5	2.716	0.5	PASS
16QAM	60155	2485	2.725	0.5	PASS
16QAM	60197	2489.2	2.724	0.5	PASS
16QAM	60240	2493.5	2.724	0.5	PASS
64QAM	60155	2485	2.727	0.5	PASS
64QAM	60197	2489.2	2.722	0.5	PASS
64QAM	60240	2493.5	2.727	0.5	PASS
256QAM	60155	2485	2.728	0.5	PASS
256QAM	60197	2489.2	2.725	0.5	PASS
256QAM	60240	2493.5	2.736	0.5	PASS



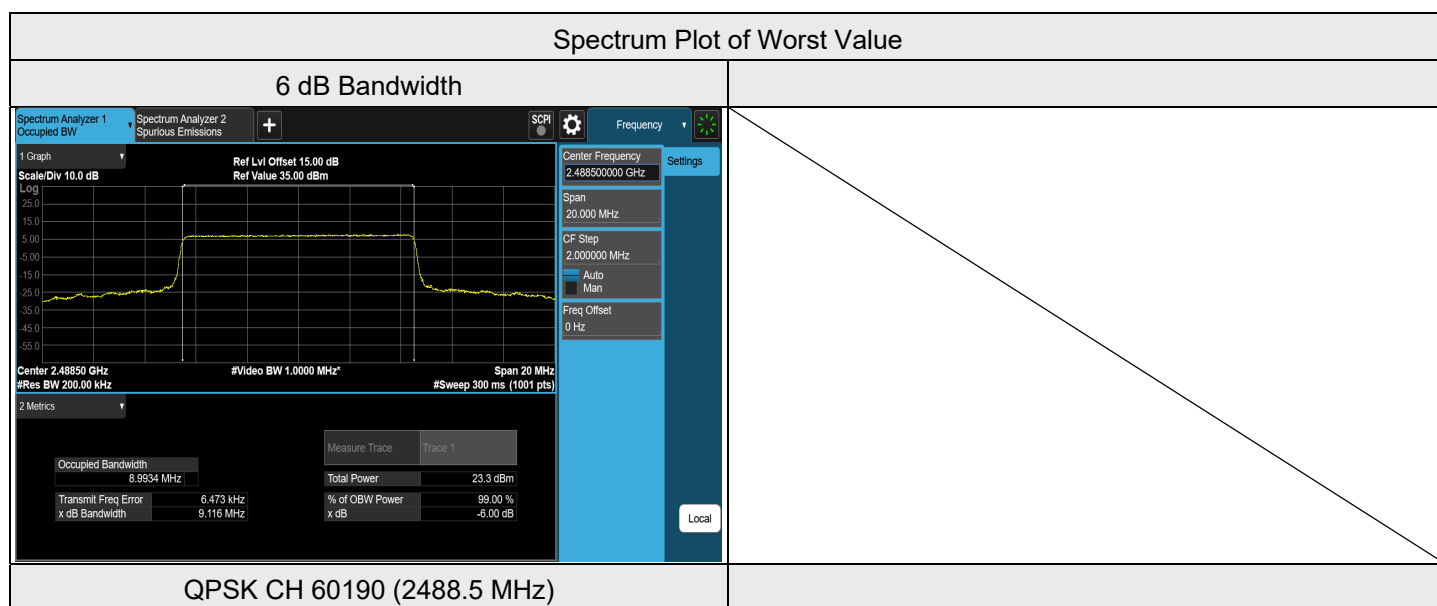
LTE Band 53, Channel Bandwidth: 5 MHz

Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Limit (MHz)	Result
QPSK	60165	2486	4.545	0.5	PASS
QPSK	60197	2489.2	4.544	0.5	PASS
QPSK	60230	2492.5	4.533	0.5	PASS
16QAM	60165	2486	4.545	0.5	PASS
16QAM	60197	2489.2	4.542	0.5	PASS
16QAM	60230	2492.5	4.539	0.5	PASS
64QAM	60165	2486	4.556	0.5	PASS
64QAM	60197	2489.2	4.550	0.5	PASS
64QAM	60230	2492.5	4.559	0.5	PASS
256QAM	60165	2486	4.544	0.5	PASS
256QAM	60197	2489.2	4.543	0.5	PASS
256QAM	60230	2492.5	4.557	0.5	PASS



LTE Band 53, Channel Bandwidth: 10 MHz

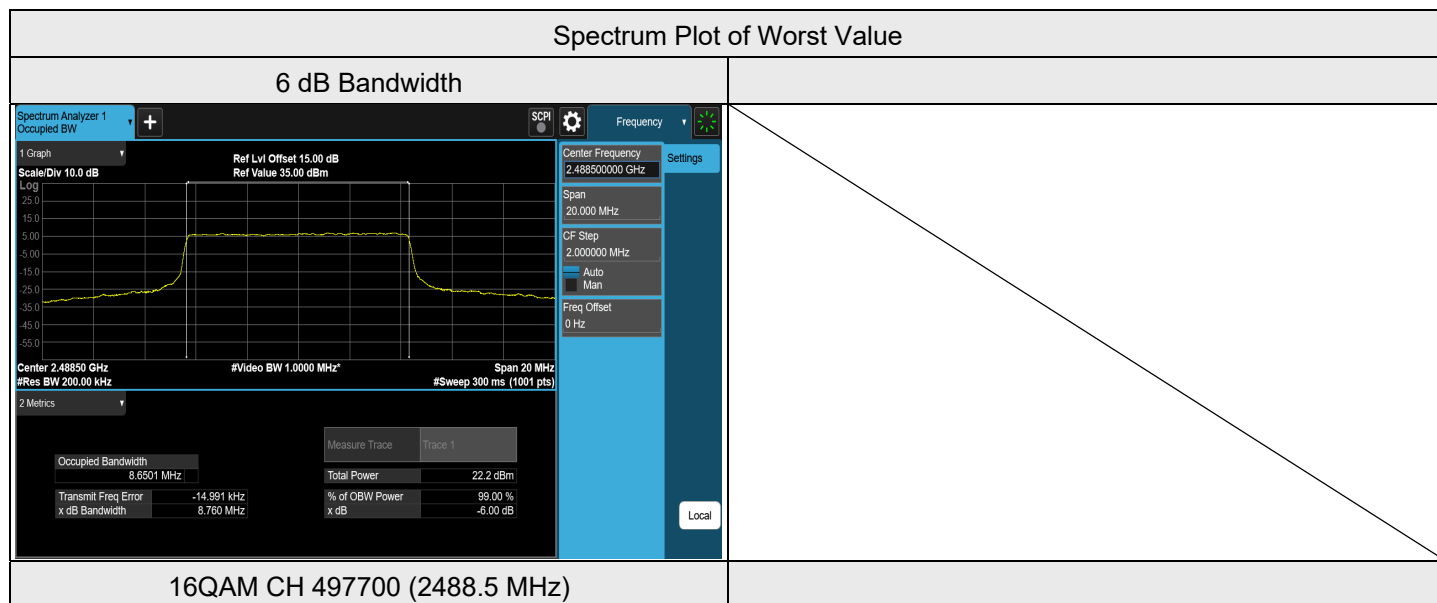
Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Limit (MHz)	Result
QPSK	60190	2488.5	9.116	0.5	PASS
QPSK	60197	2489.2	9.107	0.5	PASS
QPSK	60205	2490	9.102	0.5	PASS
16QAM	60190	2488.5	9.097	0.5	PASS
16QAM	60197	2489.2	9.096	0.5	PASS
16QAM	60205	2490	9.098	0.5	PASS
64QAM	60190	2488.5	9.113	0.5	PASS
64QAM	60197	2489.2	9.098	0.5	PASS
64QAM	60205	2490	9.110	0.5	PASS
256QAM	60190	2488.5	9.097	0.5	PASS
256QAM	60197	2489.2	9.096	0.5	PASS
256QAM	60205	2490	9.098	0.5	PASS



7.4.2 NR n53 SCS 30kHz

NR n53 SCS 30kHz, Channel Bandwidth: 10 MHz

Modulation	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Limit (MHz)	Result
BPSK	497700	2488.5	8.725	0.5	PASS
BPSK	497840	2489.2	8.709	0.5	PASS
BPSK	498000	2490	8.696	0.5	PASS
QPSK	497700	2488.5	8.744	0.5	PASS
QPSK	497840	2489.2	8.741	0.5	PASS
QPSK	498000	2490	8.739	0.5	PASS
16QAM	497700	2488.5	8.760	0.5	PASS
16QAM	497840	2489.2	8.752	0.5	PASS
16QAM	498000	2490	8.746	0.5	PASS
64QAM	497700	2488.5	8.738	0.5	PASS
64QAM	497840	2489.2	8.733	0.5	PASS
64QAM	498000	2490	8.750	0.5	PASS
256QAM	497700	2488.5	8.734	0.5	PASS
256QAM	497840	2489.2	8.740	0.5	PASS
256QAM	498000	2490	8.726	0.5	PASS

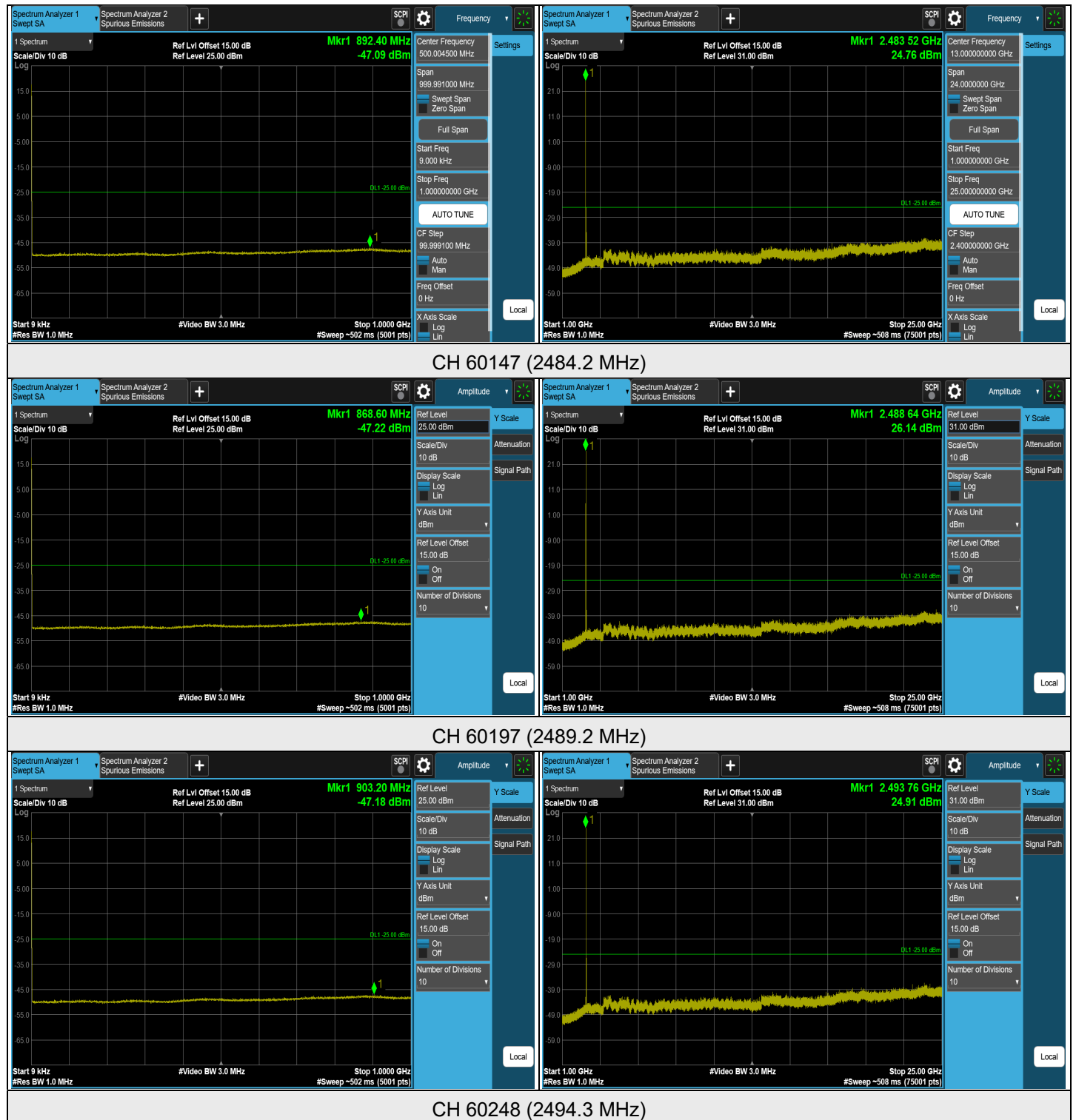


7.5 Conducted Out of Band Emissions

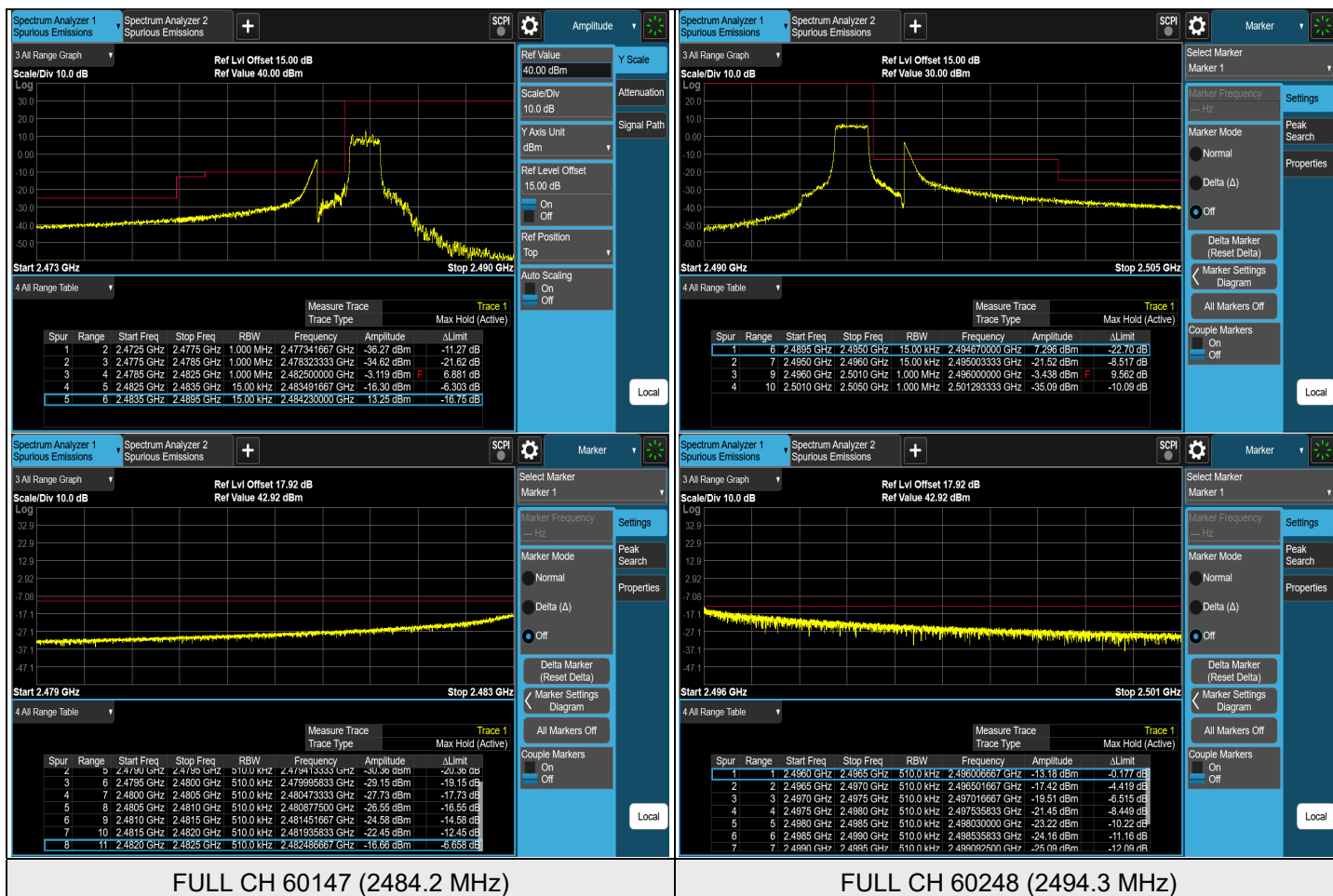
Input Power:	3.85 Vdc	Environmental Conditions:	25°C, 66% RH	Tested By:	James Yang
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7.5.1 LTE Band 53

LTE Band 53, Channel Bandwidth: 1.4 MHz



Note: The signal at 9 kHz is IF signal from spectrum analyzer.



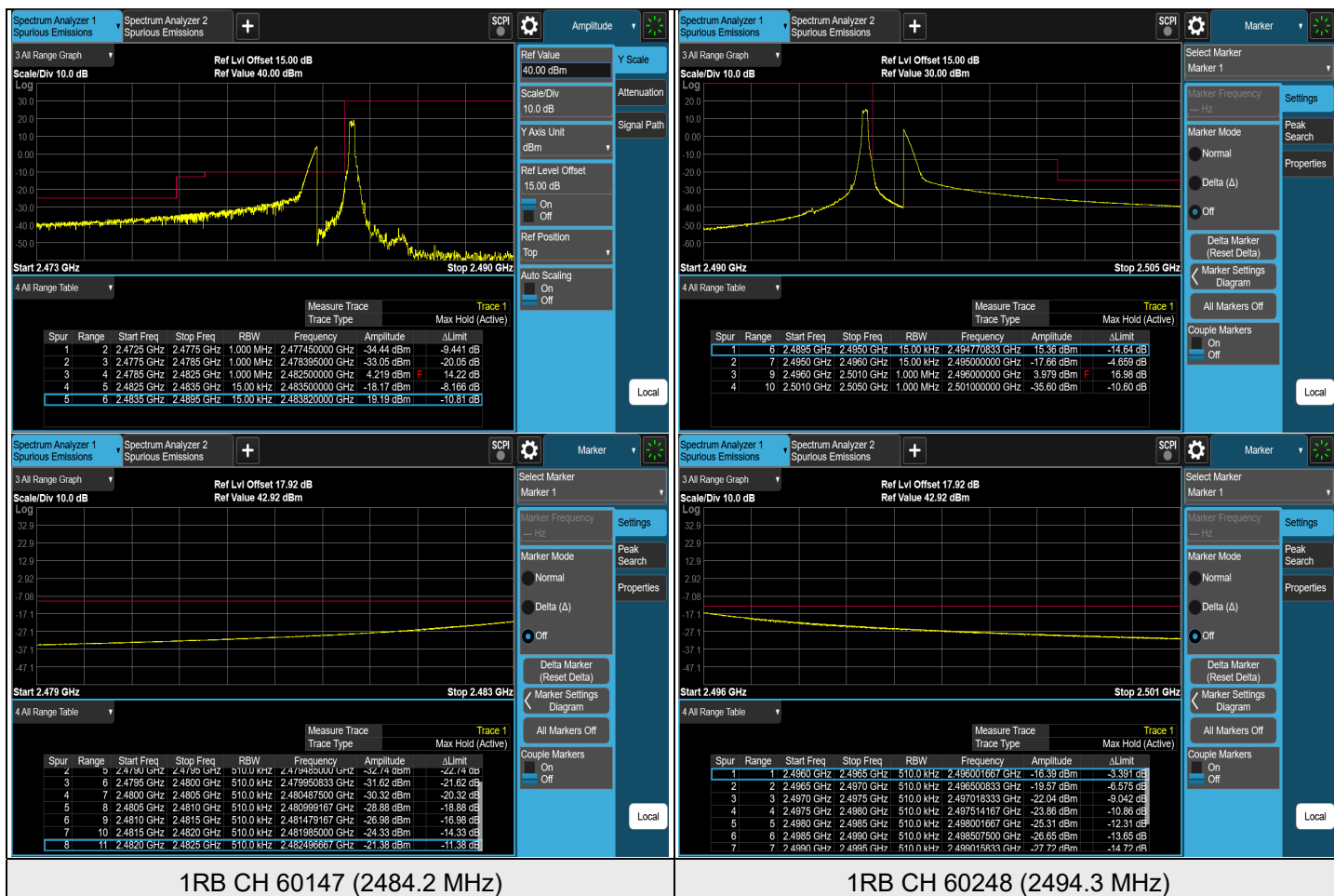
Note:

[RBW = 510 kHz / Reference RBW = 1 MHz]

Worst-case integrated BW power = [Max Measured Value (dBm) with RBW=510kHz] + 10log(1000/510)

To compensate for this integration before comparison to the limit, 2.92 dB was added to Ref Lvl Offset.

i.e. 15.00 dB CF + 2.92 dB integration compensation factor = 17.92 dB Ref Lvl Offset



Note:

[RBW = 510 kHz / Reference RBW = 1 MHz]

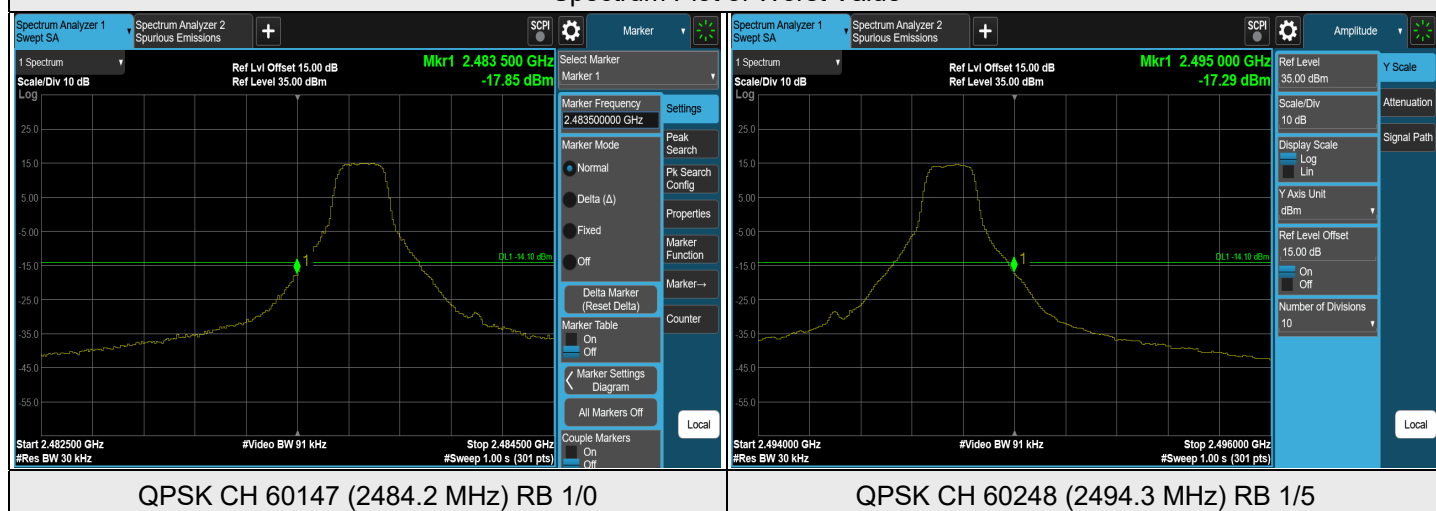
Worst-case integrated BW power = [Max Measured Value (dBm) with RBW=510kHz] + 10log(1000/510)

To compensate for this integration before comparison to the limit, 2.92 dB was added to Ref Lvl Offset.

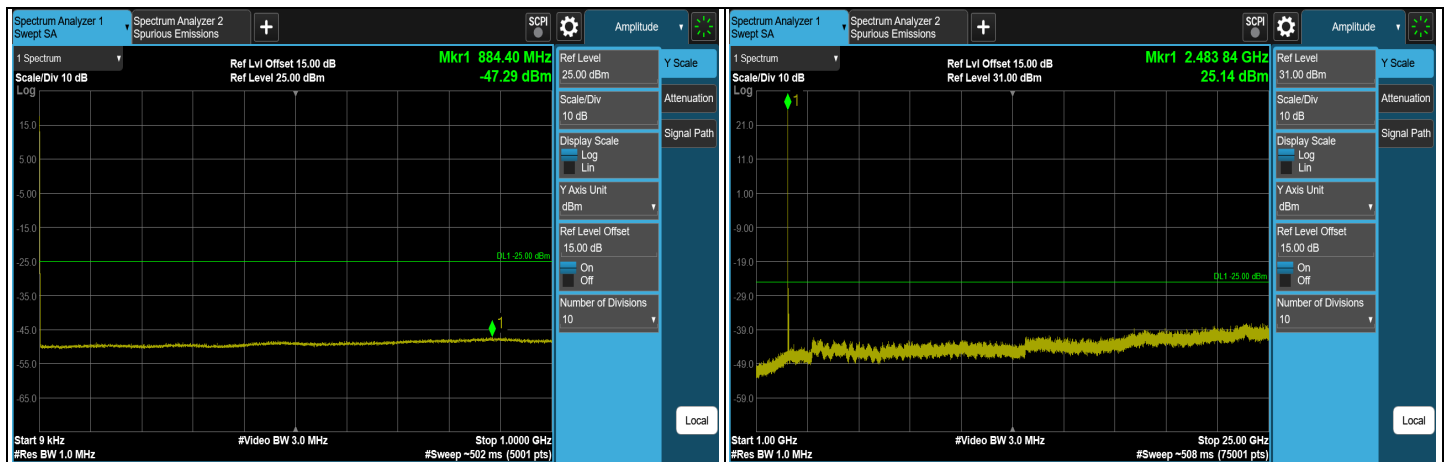
i.e. 15.00 dB CF + 2.92 dB integration compensation factor = 17.92 dB Ref Lvl Offset

Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	Cond Power Density(dBm/30kHz)	Antenna Gain (dBi)	EIRP Density (dBm/30kHz)	EIRP Density Limit (dBm/30kHz)	Result
QPSK	60147	1/0	2484.2	-17.85	1.63	-16.22	-14.1	PASS
QPSK	60147	6/0	2484.2	-19.8	1.63	-18.17	-14.1	PASS
QPSK	60248	1/5	2494.3	-17.29	1.63	-15.66	-14.1	PASS
QPSK	60248	6/0	2494.3	-21.56	1.63	-19.93	-14.1	PASS

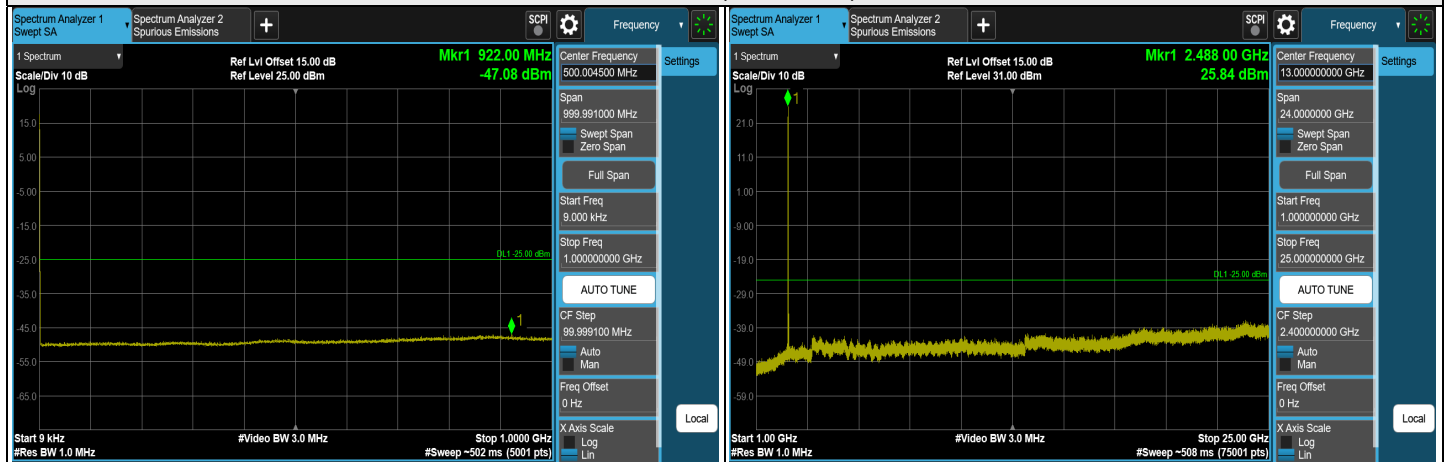
Spectrum Plot of Worst Value



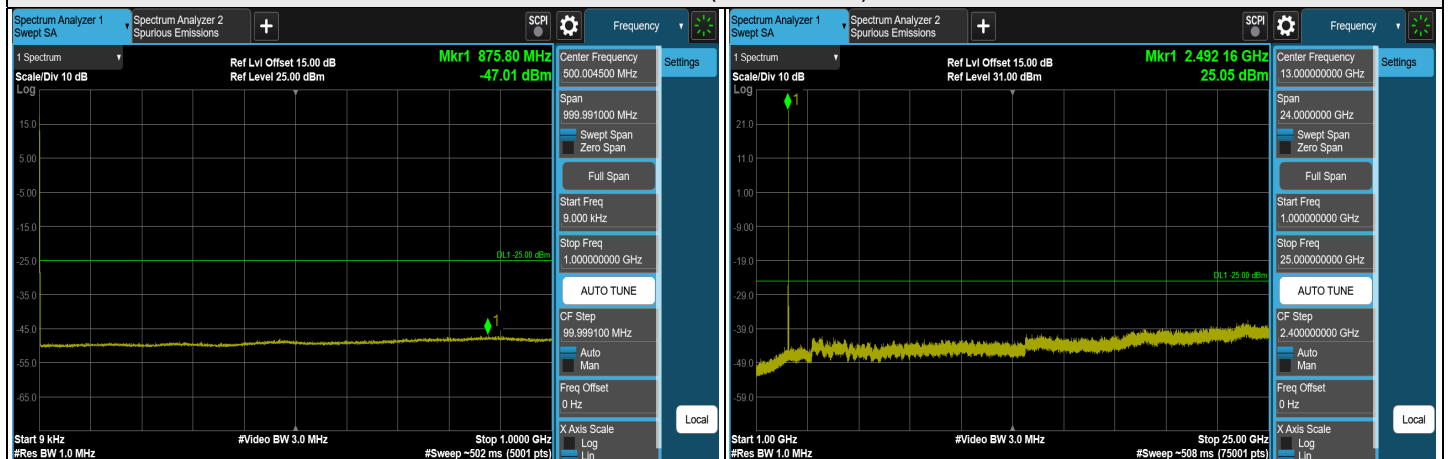
LTE Band 53, Channel Bandwidth: 3 MHz



CH 60155 (2485 MHz)

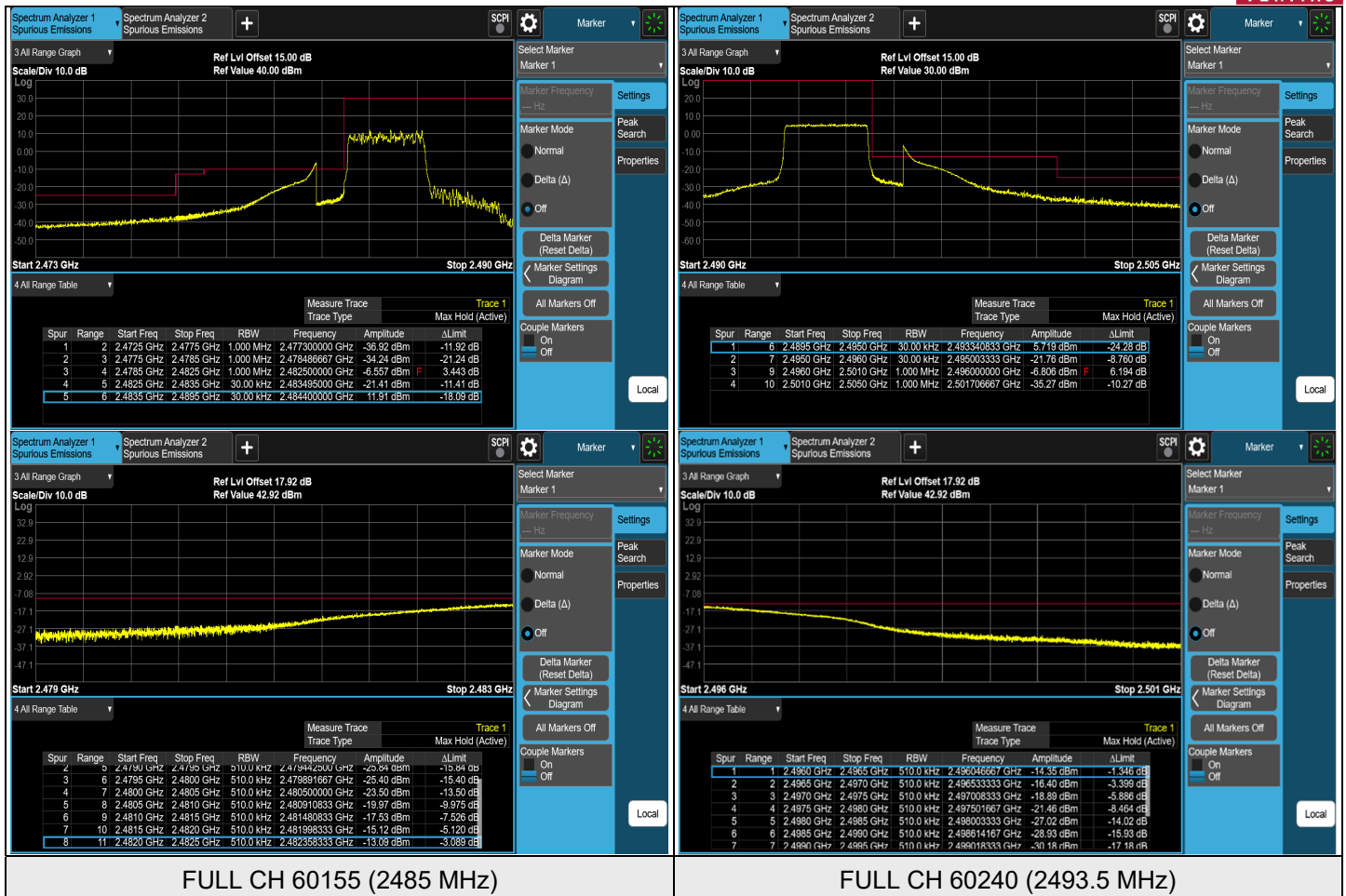


CH 60197 (2489.2 MHz)



CH 60240 (2493.5 MHz)

Note: The signal at 9 kHz is IF signal from spectrum analyzer.



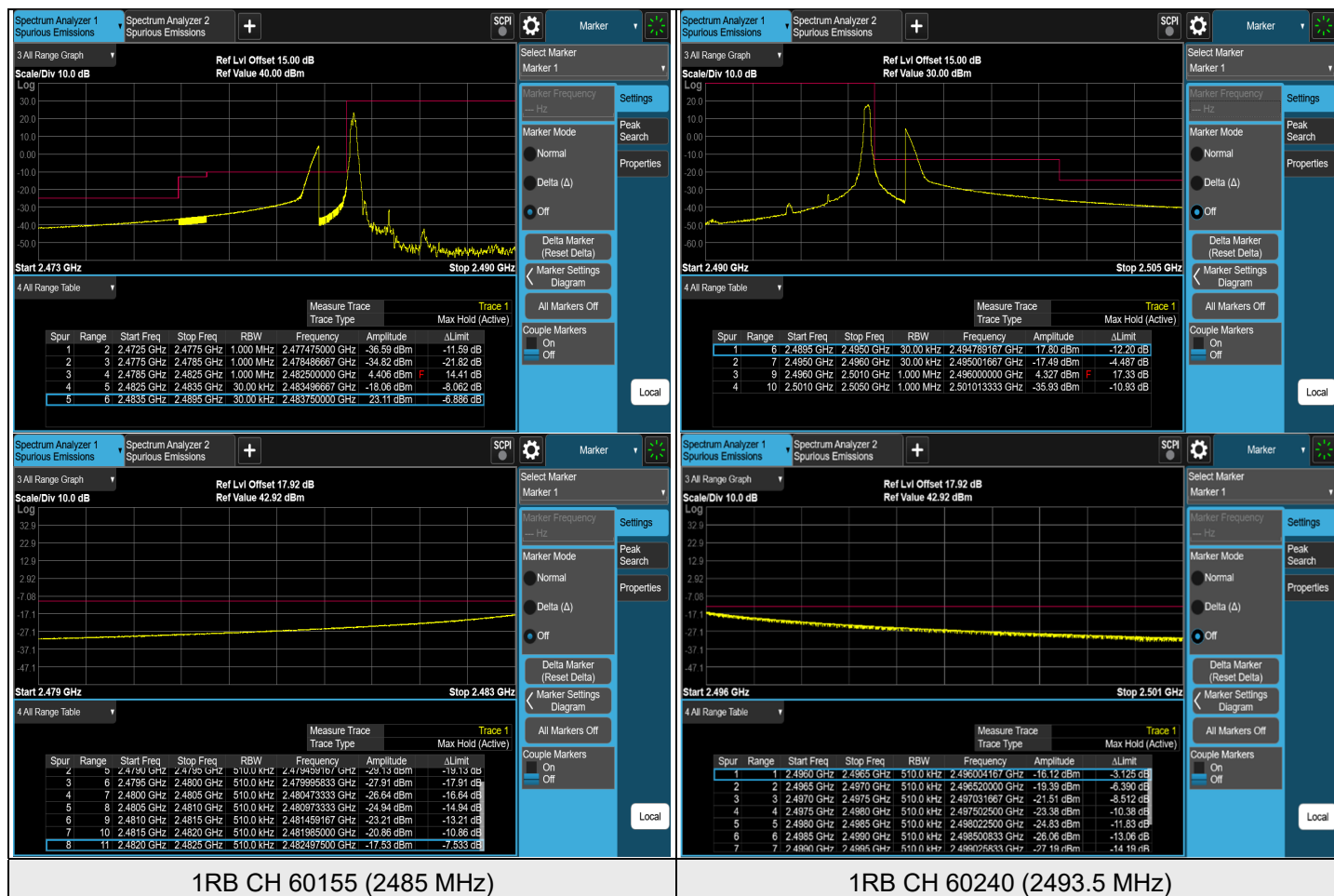
Note:

[RBW = 510 kHz / Reference RBW = 1 MHz]

Worst-case integrated BW power = [Max Measured Value (dBm) with RBW=510kHz] + 10log(1000/510)

To compensate for this integration before comparison to the limit, 2.92 dB was added to Ref Lvl Offset.

i.e. 15.00 dB CF + 2.92 dB integration compensation factor = 17.92 dB Ref Lvl Offset



Note:

[RBW = 510 kHz / Reference RBW = 1 MHz]

Worst-case integrated BW power = [Max Measured Value (dBm) with RBW=510kHz] + 10log(1000/510)

To compensate for this integration before comparison to the limit, 2.92 dB was added to Ref Lvl Offset.

i.e. 15.00 dB CF + 2.92 dB integration compensation factor = 17.92 dB Ref Lvl Offset

Modulation	Channel	RB Allocation/RB Offset	Frequency (MHz)	Cond Power Density(dBm/30kHz)	Antenna Gain (dBi)	EIRP Density (dBm/30kHz)	EIRP Density Limit (dBm/30kHz)	Result
QPSK	60155	1/0	2485	-20.91	1.63	-19.28	-14.1	PASS
QPSK	60155	15/0	2485	-24.47	1.63	-22.84	-14.1	PASS
QPSK	60240	1/14	2493.5	-19.92	1.63	-18.29	-14.1	PASS
QPSK	60240	15/0	2493.5	-24.36	1.63	-22.73	-14.1	PASS

