Company: Rockwell Collins

Test of: SSR-7610

To: FCC Part 22, 27 & IC RSS 132,RSS-199

Report No.: ROCK25-U7 Rev B

TEST REPORT

COMBINED TEST REPORT

FROM

Test of: SSR-7610

To: FCC CFR 47 Part 22, 27 & IC RSS-132, RSS-199

Test Report Serial No.: ROCK25-U7 Rev B

This report supersedes: ROCK25-U7 Rev A

Applicant:	Rockwell Collins 400 Collins Road NE Cedar Rapids, IA 52498 USA
Product Function:	Secure Server Router
Issue Date:	16th March 2018

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2005. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

ilac-MRA A2LA

Accredited Laboratory

A2LA has accredited

MICOM LABS

Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 4th day of February 2016.

President and CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to March 31, 2018
Revised February 28, 2018

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

1.2. RECOGNITION

MiCOM Labs, Inc has widely recognized wireless testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA countries. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

EU MRA – European Union Mutual Recognition Agreement.
NB – Notified Body
APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. Recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing
Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf

Accredited Product Certification Body

A2LA has accredited

MICOM LABS

Pleasanton, CA

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 *Requirements for bodies certifying products, processes and services*. This product certification body also meets the *A2LA R322 – Specific Requirements – Notified Body Accreditation Requirements* and *A2LA R308 - Specific Requirements - ISO-IEC 17065 - Telecommunication Certification Body Accreditation Program*. This accreditation demonstrates technical competence for a defined scope and the operation of a management system.

Presented this 4th day of February 2016.

President and CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to March 31, 2018
Revised February 28, 2018

For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation.

United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	9th March 2018	Draft report for client review
Rev A	13th March 2018	Initial Release
Rev B	16th March 2018	Updated standard section references throughout report

In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Rockwell Collins Inc. 400 Collins Road NE Cedar Rapids, IA 52498 USA
Model:	SSR-7610
Equipment Type:	Secure Server Router
S/N's:	4CY592
Test Date(s):	13th -27th February 2018

Tested By:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Telephone:	+1 925 462 0304
Fax:	+1 925 462 0306
Website:	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 22, 27 IC RSS-132,RSS-199	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.

2. Details of test methods used have been recorded and kept on file by the laboratory.

3. Test results apply only to the item(s) tested.

A2LA ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 971168 D01	October 27, 2017	Power Measurements License Digital Systems v03
II	KDB 971168 D02	November 3, 2018	Miscellaneous OOBE License Digital Systems v02r01
III	KDB 981606	March 5, 2008	Alternative out-of-band emission limits, Parts 22 and 24
IV	A2LA	August 2017	R105 - Requirement's When Making Reference to A2LA Accreditation Status
V	ANSI C63.26	2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
VI	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
VII	FCC 47 CFR Part 22	2016	Personal Communications Services; Subpart H –Cellular Radiotelephone Service
VIII	FCC 47 CFR Part 27	2016	Miscellaneous Wireless Communications Services; Subpart M –Broadband Radio Service
IX	RSS-132	Issue 3 Jan. 2013	Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
X	RSS-199	Issue 9 Dec.2016	BRS Equipment Operating in the Band 2500-2690 MHz
XI	RSS-GEN	Issue 4 Nov. 2014	General Requirements for Compliance of Radio Apparatus
XII	M 3003	Edition 3 Nov.2012	Expression of Uncertainty and Confidence in Measurements
XIII	TIA-603	Rev. E 2016	Land Mobile FM or PM Communications Equipment Measurement and Performance
XIV	DO-160G	2014	Environmental Conditions and Test Procedures for Airborne Equipment
XX	TIA-603-D -2010	2010	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.26 listed in the Normative References section of this report.

Internal testing was performed by Rockwell Collins in accordance with DO-160G, Environmental Conditions and Test Procedures for Airborne Equipment. See Test report numbers 201723075 (EMI Report) and 201724077 (ENV Report).

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Rockwell Collins SSR-7610 to FCC CFR 47 Part 22 Subpart H, Part 27 Subpart M
Applicant:	Rockwell Collins Inc. 400 Collins Road NE Cedar Rapids, IA 52498 USA
Manufacturer:	As applicant
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	ROCK25-U7
Date EUT received:	5th February, 2018
Standard(s) applied:	to FCC CFR 47 Part 22 Subpart H, Part 27 Subpart M
Dates of test (from - to):	13th -27th February 2018
No of Units Tested:	1
Product Family Name:	Rockwell Collins SSR-7610
Model(s):	SSR-7610
Location for use:	Indoors/ Vehicle
Declared Frequency Range(s):	LTE Band 5: UL: 824-849 MHz, DL: 869-894 MHz LTE Band 7: UL: 2500-2570 MHz, DL: 2620 – 2690 MHz LTE Band 41: Shared Band: 2496 – 2690 MHz (USA only)
Type of Modulation:	QPSK, 16QAM
EUT Modes of Operation:	Bandwidths 3 MHz, 5 MHz, 10 MHz, 20 MHz*
Declared Nominal Output Power (dBm):	+30
Transmit/Receive Operation:	Transceiver
Rated Input Voltage and Current:	115 Vac 400Hz
Operating Temperature Range:	-40ºC to +70ºC
ITU Emission Designator:	See Table in Section 5.7
Equipment Dimensions (LxWxH):	15.22in x 2.43in x 7.64in
Weight:	7.8 lbs
Hardware Rev:	822-3543-100 Revision
Software Rev:	Bootloader: 072-2836-002B Factory ETS: 072-2838-001

*Depending on Band of Operation

5.2. Scope Of Test Program

Rockwell Collins SSR-7610 to FCC CFR 47 Part 22 Subpart H, Part 27 Subpart M

The scope of the test program was to test the Rockwell Collins SSR-7610 configurations in the frequency ranges 824-849 MHz, 869-894 MHz, 2496 – 2690 MHz for compliance against the following specification:

FCC CFR 47 Part 22 Subpart H
Compliance Measurement Procedures for Cellular Radiotelephone Service.

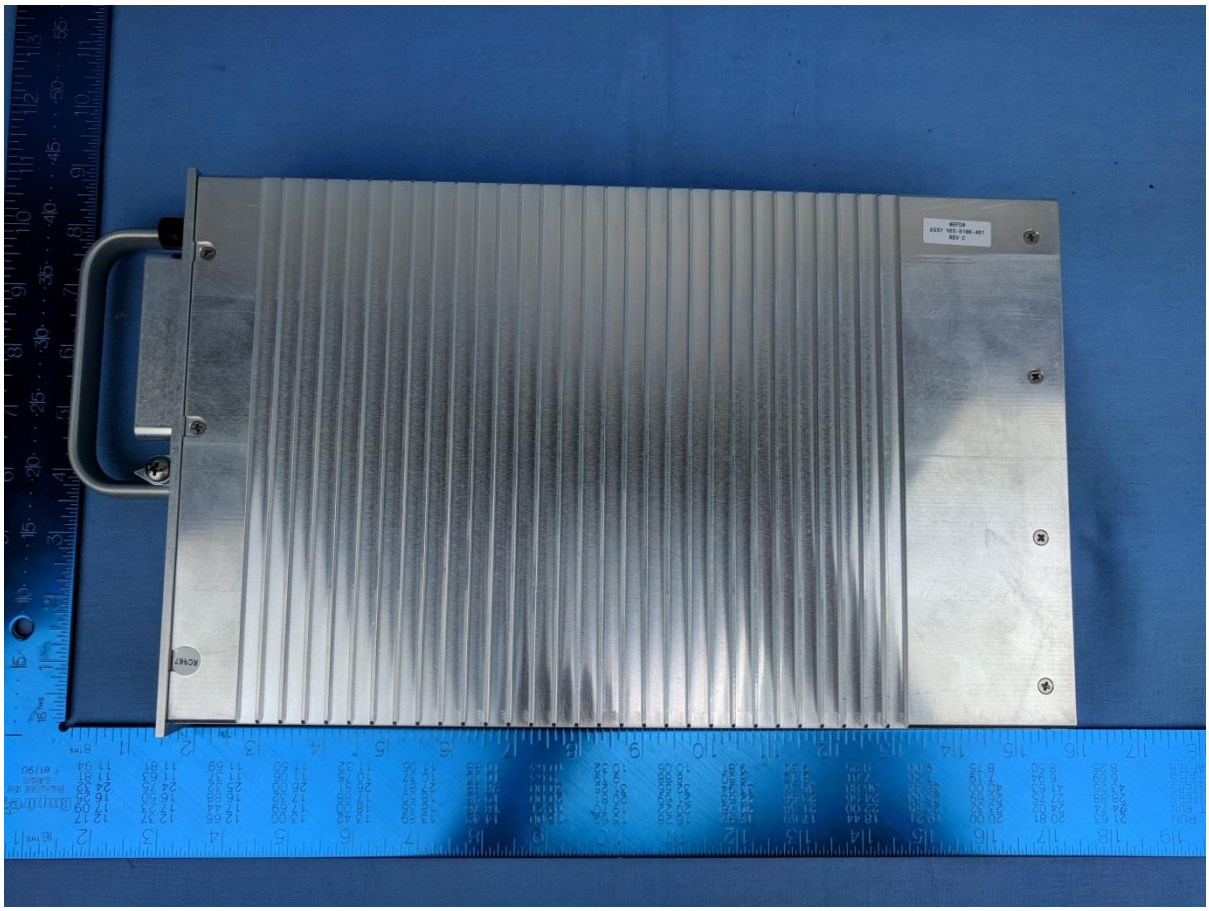
FCC CFR 47 Part 27 Subpart M
Compliance Measurement Procedures for Broadband Radio Service and Educational Broadband Service

ISED RSS-132:
Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz

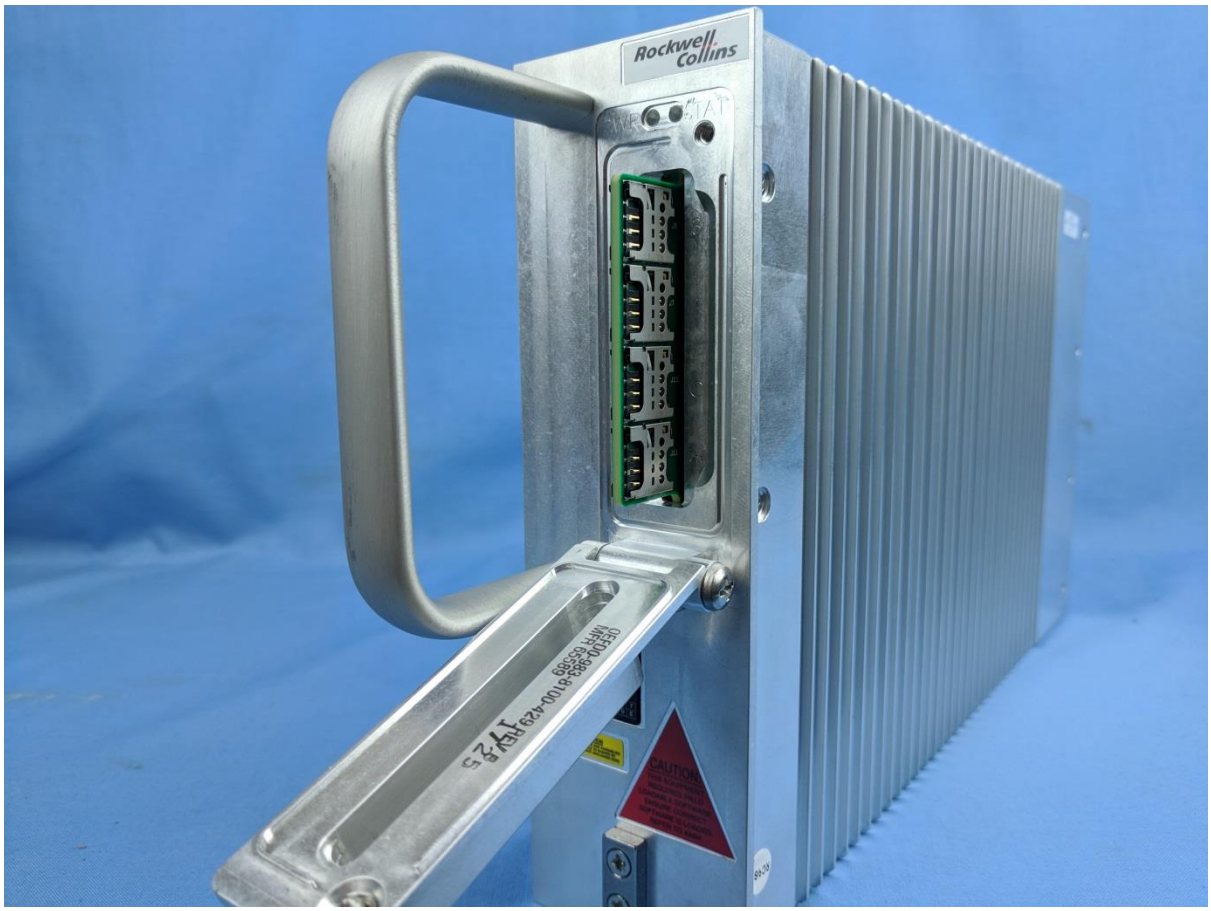
ISED RSS-199:
Broadband Radio Service (BRS) Equipment Operating in the Band 2500-2690

Rockwell Collins SSR-7610, Top

Rockwell Collins SSR-7610, Bottom



Rockwell Collins SSR-7610, Front



5.3. Equipment Model(s) and Serial Number(s)

The following is a description of supporting equipment used during the test program.

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Executable RCPN & Revision
EUT	Rockwell Collins	SSR-7610
Support	Rockwell Collins SSR-7610 Unit Qualification Software (GUI)	072-1178-001
Support	Test PC (Linux OS) Dell Optiplex 2010	N/A
Support	Rockwell Collins Test PC (SSR-76100) Software GUI	072-1313-001
Support	Ethernet Isolation Card	PN: 1012002003R
Support	A429/A717/RS422/Discrete EMI Test Card (Main Load Card)	828-2248-003 Rev A
Support	Ballard A717/USB Converter UA1401	UA1401
Support	RS232 EMI Test Card	PROJ-0004253
Support	Bulkhead, Aircraft Bulkhead Simulator	983-9994-009 Rev B
Support	WLAN Antenna, Quantity 2	822-3357-001 Rev -
Support	Gatelink Antenna, Quantity 2	822-1531-001 Rev C
Support	RF Combiner	PD2120 “INSTOCK WIRELESS”
Support	RF Attenuator	Aeroflex Model 3054
Support	Power Supply	Elgar
Support	RF Interface Card	828-4826-001 Rev A
Support	Netgear 5 Port Gigabit Switch	GS105
Support	TP-Link Gigabit Switch	TLSG1008D
Support	Wi-Fi Range Extender	Amped- Wireless Model SR300
Support	Power Cable Extender	983-9994-017

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
External	Rockwell Collins	AT2400-36R	Stub	0	-	-	-	700 - 2700

5.5. Cabling and I/O Ports

The following is a description of the cable and input, output ports available on the EUT;
Number and type of I/O ports;

Port Type	Port Description	Qty.	Screened (Yes/ No)	Length
Ethernet	Ethernet	9	Yes	> 3m
Gatelink Wi-Fi	RF	1	Yes	> 3m
Gatelink 1 Cellular	RF	1	Yes	> 3m
Gatelink 2 Cellular	RF	1	Yes	> 3m
Discrete I/O	I/O	19	Yes	> 3m
ARINC 717 Receivers	I/O	8	Yes	> 3m
ARINC 429 Receivers	I/O	16	Yes	> 3m
ARINC 429 Transmitters	I/O	1	Yes	> 3m
RS422	I/O	2	Yes	> 3m
SIM cards	SIM	4	Yes	N/A
RS232	RS232	2	No	N/A

5.6. Test Configurations

Results for the following configurations are provided in this report:

Modulation Scheme	Channel Bandwidth(s)	Channel Frequency (MHz)		
		Low	Mid	High
LTE Band 5				
QPSK	3 MHz	825.5	836.5	847.5
QPSK	5 MHz	826.5	836.5	846.5
QPSK	10 MHz	829	836.5	844
16QAM	3 MHz	825.5	836.5	847.5
16QAM	5 MHz	826.5	836.5	846.5
16QAM	10 MHz	829	836.5	844
LTE Band 7				
QPSK	5MHz	2502.5	2535	2567.5
QPSK	10MHz	2505	2535	2565
QPSK	15MHz	2507.5	2535	2562.5
QPSK	20MHz	2510	2535	2560
16QAM	5MHz	2502.5	2535	2567.5
16QAM	10MHz	2505	2535	2565
16QAM	15MHz	2507.5	2535	2562.5
16QAM	20MHz	2510	2535	2560
LTE Band 41				
QPSK	5MHz	2498.5	2593	2687.5
QPSK	10MHz	2501	2593	2685
QPSK	15MHz	2503.5	2593	2682.5
QPSK	20MHz	2506	2593	2680
16QAM	5MHz	2498.5	2593	2687.5
16QAM	10MHz	2501	2593	2685
16QAM	15MHz	2503.5	2593	2682.5
16QAM	20MHz	2506	2593	2680

5.7. ITU Emissions Designators

LTE Band 5		QPSK	16QAM
Bandwidth (MHz)	**Frequency Range (MHz)**	**Emissions Designator**	**Emissions Designator**
3	824-849	2M69G7D	2M69W7D
5	824-849	4M51G7D	4M51W7D
10	824-849	8M98G7D	8M98GWD
LTE Band 7		**QPSK**	**16QAM**
Bandwidth (MHz)	**Frequency Range (MHz)**	**Emissions Designator**	**Emissions Designator**
5	2500-2570	4M48G7D	4M47W7D
10	2500-2570	8M98G7D	8M94W7D
15	2500-2570	13M5G7D	13M5W7D
20	2500-2570	18M0G7D	18M0W7D
LTE Band 41*		**QPSK**	**16QAM**
Bandwidth (MHz)	**Frequency Range (MHz)**	**Emissions Designator**	**Emissions Designator**
5	2496 – 2690	4M47G7D	4M49G7D
10	2496 – 2690	8M94G7D	8M94W7D
15	2496 – 2690	13M5G7D	13M5W7D
20	2496 – 2690	18M0G7D	17M9W7D

*USA only

5.8. Equipment Modifications

The following modifications were required to bring the equipment into compliance:
1. NONE

5.9. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:
1. NONE

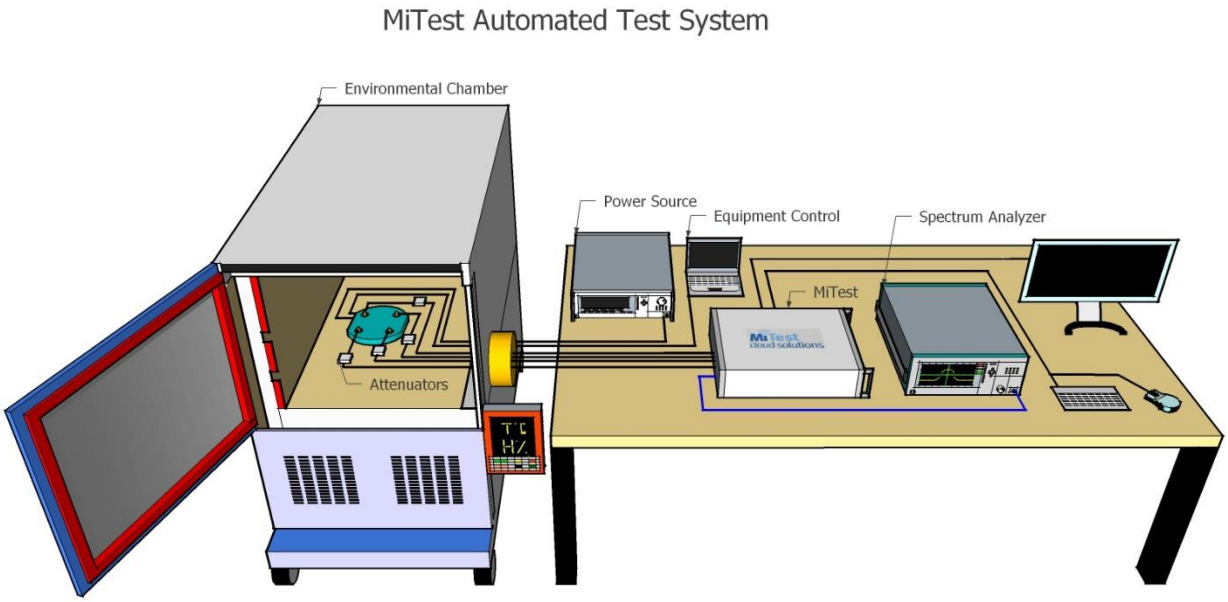
6. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
26 dB & 99% Bandwidth	Complies	View Data
Frequency Stability	Complies	View Data
Peak Transmit Power	Complies	View Data
Peak to Average Ratio	Complies	View Data
Radiated Spurious Emissions	Complies	View Data
Conducted Spurious Emissions	--	--
Spurious Emissions	Complies	View Data
Band-Edge Emissions	Complies	View Data

7. TEST EQUIPMENT CONFIGURATION(S)

7.1. Conducted

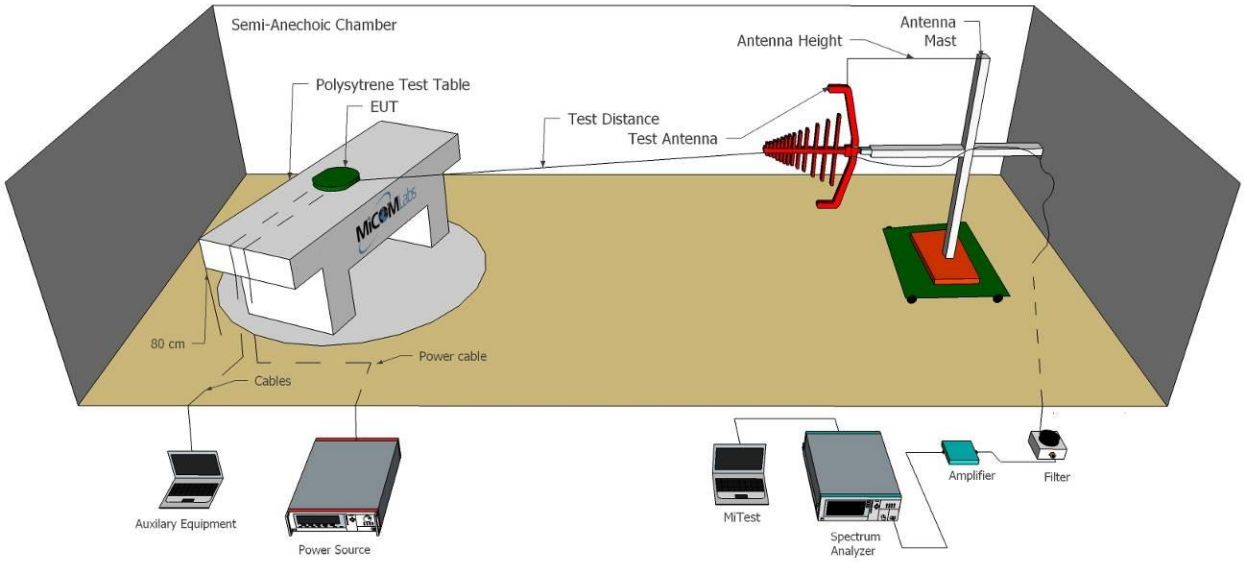


A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

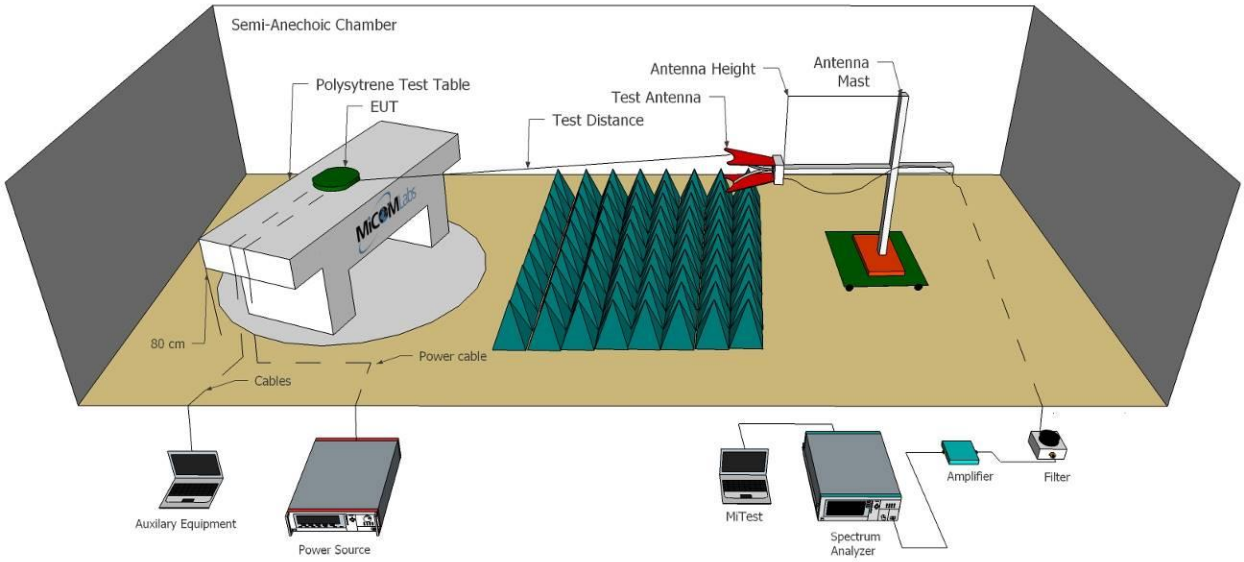
Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	8 May 2018
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	8 May 2018
#3P2	EUT to MiTest box port 2	Fairview Microwave	SCA1814-0101-72	#3P2	8 May 2018
#3P3	EUT to MiTest box port 3	Fairview Microwave	SCA1814-0101-72	#3P3	8 May 2018
#3P4	EUT to MiTest box port 4	Fairview Microwave	SCA1812-0101-72	#3P4	8 May 2018
249	Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	30 Oct 2018
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	2 May 2018
361	Desktop for RF#1, Labview Software installed	Dell	Vostro 220	WS RF#1	Not Required
390	USB Power Head 50MHz - 24GHz -60 to +20dBm	Agilent	U2002A	MY50000103	17 Dec 2018
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.1	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
436	USB Wideband Power Sensor	Boonton	55006	8731	14 Sep 2018
441	USB Wideband Power Sensor	Boonton	55006	9179	20 Sep 2018
443	4x4 RF Switch Box	MiCOM Labs	MiTest 4X4 RF Switch Box	MIC003	8 May 2018
445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	20 Sep 2018
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2018
75	Environmental Chamber	Thermatron	SE-300-2-2	27946	24 Dec 2018

7.2. Radiated Emissions - 3m Chamber

Radiated Emissions Below 1GHz Test Setup



Radiated Emissions Above 1GHz Test Setup



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Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
287	Rohde & Schwarz 40 GHz Receiver	Rhode & Schwarz	ESIB40	100201	2 May 2018
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	28 Mar 2018
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	5 Oct 2018
342	2.4 GHz Notch Filter	EWT	EWT-14-0203	H1	6 Oct 2018
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	12 Oct 2018
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	12 Oct 2018
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	12 Oct 2018
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	4 Oct 2018
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	4 Oct 2018
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	4 Oct 2018
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	6 Oct 2018
466	Low Pass Filter DC-1500 MHz	Mini-Circuits	NLP-1750+	VUU10401438	6 Oct 2018
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	6 Oct 2018
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	6 Oct 2018
482	Cable - Amp to Antenna	SRC Haverhill	157-3051574	482	6 Oct 2018
510	Barometer/Thermometer	Control Company	68000-49	170871375	11 Dec 2018
CC05	Confidence Check	MiCOM	CC05	None	19 Jul 2018
VLF-1700	Low pass filter DC-1700 MHz	Mini Circuits	VLF-1700	None	6 Oct 2018

8. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by MiTest. MiTest is an automated test system developed by MiCOM Labs. MiTest is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.

The MiCOM Labs "MiTest" Automated Test System" (Patent Pending)

9. TEST RESULTS

9.1. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
Rules and Sections:	FCC CFR 47:2.1049 FCC CFR 47:22.917 FCC CFR 47:27.53 RSS-Gen: 6.6 RSS-199: 4.2	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	26 dB and 99 % Bandwidth	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	ANSI C63.26:2016:5.4.3 & 5.4.4	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for 26 dB and 99% Bandwidth Measurement

The bandwidth at 26 dB and 99 % was measured with a spectrum analyzer connected to the antenna terminal, while the EUT is operating in transmission mode at the appropriate frequency.

Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up specified in this document.

5.4.3 Occupied bandwidth—Relative measurement procedure

The OBW is measured as the width of the spectral envelope of the modulated signal, at an amplitude level reduced from a reference value by a specified ratio (or in decibels, a specified number of dB down from the reference value). The typical ratio for transmitters is −26 dB, corresponding to the 26 dB BW; however, other ratios can be specified. In this sub clause, the ratio is designated by "−X dB."

NOTE—This parameter, when expressed in relative terms, is often referred to in regulations as the EBW.

The reference level is either the amplitude of the unmodulated carrier, or the highest amplitude of the spectral envelope of the modulated signal, as stated by the applicable requirement. Some requirements can specify a particular maximum or minimum value for the "−X dB" bandwidth; other requirements can specify that the "−X dB" bandwidth be entirely contained within the authorized or designated frequency band.

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 ≥ 3 × 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.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

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:

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).

2) Set the EUT to transmit an unmodulated carrier. Set the spectrum analyzer marker to the level of the carrier.

g) 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.

h) 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).

i) 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."

j) 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).

5.4.4 Occupied bandwidth—Power bandwidth (99%) measurement procedure[30]

The OBW is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring (99%) power bandwidth:31

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of 1.5 × OBW is sufficient).

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × 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.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) Set the detection mode to peak, and the trace mode to max-hold.

e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.

f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Limits for 26 dB and 99% Bandwidth

Measurements were performed for reporting purposes only.

9.6.4 Band 5 26 dB and 99% Bandwidth

9.6.4.1 QPSK

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
825.5	2.957	-	-	-	2.957	2.957		
836.5	2.978	-	-	-	2.978	2.978		
847.5	2.969	-	-	-	2.969	2.969		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
825.5	2.693	-	-	-	2.693	2.693		
836.5	2.693	-	-	-	2.693	2.693		
847.5	2.693	-	-	-	2.693	2.693		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
826.5	4.989	-	-	-	4.989	4.989		
836.5	4.949	-	-	-	4.949	4.949		
846.5	4.989	-	-	-	4.989	4.989		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
826.5	4.509	-	-	-	4.509	4.509		
836.5	4.509	-	-	-	4.509	4.509		
846.5	4.509	-	-	-	4.509	4.509		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
829.0	9.739	-	-	-	9.739	9.739		
836.5	9.744	-	-	-	9.744	9.744		
844.0	9.739	-	-	-	9.739	9.739		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
829.0	8.977	-	-	-	8.977	8.977		
836.5	8.977	-	-	-	8.977	8.977		
844.0	8.977	-	-	-	8.977	8.977		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.6.4.1 16QAM

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
825.5	2.958	-	-	-	2.958	2.958		
836.5	2.978	-	-	-	2.978	2.978		
847.5	2.969	-	-	-	2.969	2.969		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
825.5	2.693	-	-	-	2.693	2.693		
836.5	2.693	-	-	-	2.693	2.693		
847.5	2.693	-	-	-	2.693	2.693		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
826.5	4.989	-	-	-	4.989	4.989		
836.5	4.949	-	-	-	4.949	4.949		
846.5	4.989	-	-	-	4.989	4.989		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
826.5	4.509	-	-	-	4.509	4.509		
836.5	4.509	-	-	-	4.509	4.509		
846.5	4.509	-	-	-	4.509	4.509		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
829.0	9.729	-	-	-	9.729	9.729		
836.5	9.774	-	-	-	9.774	9.774		
844.0	9.739	-	-	-	9.739	9.739		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
829.0	8.977	-	-	-	8.977	8.977		
836.5	8.977	-	-	-	8.977	8.977		
844.0	8.978	-	-	-	8.978	8.978		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.6.4 Band 7 26 dB and 99% Bandwidth

9.6.4.1 QPSK

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2502.5	4.889	-	-	-	4.889	4.889		
2535.0	4.879	-	-	-	4.879	4.879		
2567.5	4.879	-	-	-	4.879	4.879		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2502.5	4.488	-	-	-	4.488	4.488		
2535.0	4.488	-	-	-	4.488	4.488		
2567.5	4.488	-	-	-	4.488	4.488		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2505.0	9.649	-	-	-	9.649	9.649		
2535.0	9.599	-	-	-	9.599	9.599		
2565.0	9.719	-	-	-	9.719	9.719		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2505.0	8.977	-	-	-	8.977	8.977		
2535.0	8.977	-	-	-	8.977	8.977		
2565.0	8.937	-	-	-	8.937	8.937		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2507.5	14.609	-	-	-	14.609	14.609		
2535.0	14.699	-	-	-	14.699	14.699		
2562.5	14.579	-	-	-	14.579	14.579		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2507.5	13.406	-	-	-	13.406	13.406		
2535.0	13.466	-	-	-	13.466	13.466		
2562.5	13.466	-	-	-	13.466	13.466		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2510.0	19.278	-	-	-	19.278	19.278		
2535.0	19.278	-	-	-	19.278	19.278		
2560.0	19.198	-	-	-	19.198	19.198		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2510.0	17.875	-	-	-	17.875	17.875		
2535.0	17.955	-	-	-	17.955	17.955		
2560.0	17.955	-	-	-	17.955	17.955		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.6.4.1 16QAM

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2502.5	4.889	-	-	-	4.889	4.889		
2535.0	4.799	-	-	-	4.799	4.799		
2567.5	4.879	-	-	-	4.879	4.879		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2502.5	4.468	-	-	-	4.468	4.468		
2535.0	4.468	-	-	-	4.468	4.468		
2567.5	4.468	-	-	-	4.468	4.468		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2505.0	9.679	-	-	-	9.679	9.679		
2535.0	9.679	-	-	-	9.679	9.679		
2565.0	9.719	-	-	-	9.719	9.719		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2505.0	8.937	-	-	-	8.937	8.937		
2535.0	8.937	-	-	-	8.937	8.937		
2565.0	8.977	-	-	-	8.977	8.977		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2507.5	14.549	-	-	-				
2535.0	14.699	-	-	-				
2562.5	14.579	-	-	-				

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2507.5	13.406	-	-	-				
2535.0	13.466	-	-	-				
2562.5	13.466	-	-	-				

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2510.0	19.118	-	-	-	19.118	19.118		
2535.0	19.118	-	-	-	19.118	19.118		
2560.0	19.118	-	-	-	19.118	19.118		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2510.0	17.875	-	-	-	17.875	17.875		
2535.0	17.955	-	-	-	17.955	17.955		
2560.0	17.875	-	-	-	17.875	17.875		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.6.4 Band 41 26 dB and 99% Bandwidth

9.6.4.1 QPSK

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2498.5	4.849	-	-	-	4.849	4.849		
2593.0	4.849	-	-	-	4.849	4.849		
2687.5	4.899	-	-	-	4.899	4.899		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	A	B	C	D	Highest	Lowest		
2498.5	4.468	-	-	-	4.468	4.468		
2593.0	4.468	-	-	-	4.468	4.468		
2687.5	4.468	-	-	-	4.468	4.468		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2501.0	9.659	-	-	-	9.659	9.659		
2593.0	9.659	-	-	-	9.659	9.659		
2685.0	9.639	-	-	-	9.639	9.639		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2501.0	8.897	-	-	-	8.897	8.897		
2593.0	8.937	-	-	-	8.937	8.937		
2685.0	8.937	-	-	-	8.937	8.937		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2503.5	14.669	-	-	-	14.669	14.669		
2593.0	14.639	-	-	-	14.639	14.639		
2682.5	14.759	-	-	-	14.759	14.759		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2503.5	13.466	-	-	-	13.466	13.466		
2593.0	13.406	-	-	-	13.406	13.406		
2682.5	13.406	-	-	-	13.406	13.406		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2506.0	19.318	-	-	-	19.318	19.318		
2593.0	19.078	-	-	-	19.078	19.078		
2680.0	19.488	-	-	-	19.488	19.488		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2506.0	17.955	-	-	-	17.955	17.955		
2593.0	17.876	-	-	-	17.876	17.876		
2680.0	17.955	-	-	-	17.955	17.955		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.6.4.1 16QAM

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2498.5	4.849	-	-	-	4.849	4.849		
2593.0	4.909	-	-	-	4.909	4.909		
2687.5	4.879	-	-	-	4.879	4.879		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2498.5	4.468	-	-	-	4.468	4.468		
2593.0	4.488	-	-	-	4.488	4.488		
2687.5	4.488	-	-	-	4.488	4.488		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2501.0	9.619	-	-	-	9.619	9.619		
2593.0	9.739	-	-	-	9.739	9.739		
2685.0	9.897	-	-	-	9.897	9.897		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2501.0	8.897	-	-	-	8.897	8.897		
2593.0	8.937	-	-	-	8.937	8.937		
2685.0	8.897	-	-	-	8.897	8.897		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2503.5	14.909	-	-	-	14.909	14.909		
2593.0	14.819	-	-	-	14.819	14.819		
2682.5	14.759	-	-	-	14.759	14.759		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2503.5	13.466	-	-	-	13.466	13.466		
2593.0	13.406	-	-	-	13.406	13.406		
2682.5	13.406	-	-	-	13.406	13.406		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

Equipment Configuration for 26 dB & 99% Occupied Bandwidth			
Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2506.0	19.398	-	-	-	19.398	19.398		
2593.0	18.997	-	-	-	18.997	18.997		
2680.0	19.649	-	-	-	19.649	19.649		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
MHz	**A**	**B**	**C**	**D**	**Highest**	**Lowest**		
2506.0	17.875	-	-	-	17.875	17.875		
2593.0	17.715	-	-	-	17.715	17.715		
2680.0	17.875	-	-	-	17.875	17.875		

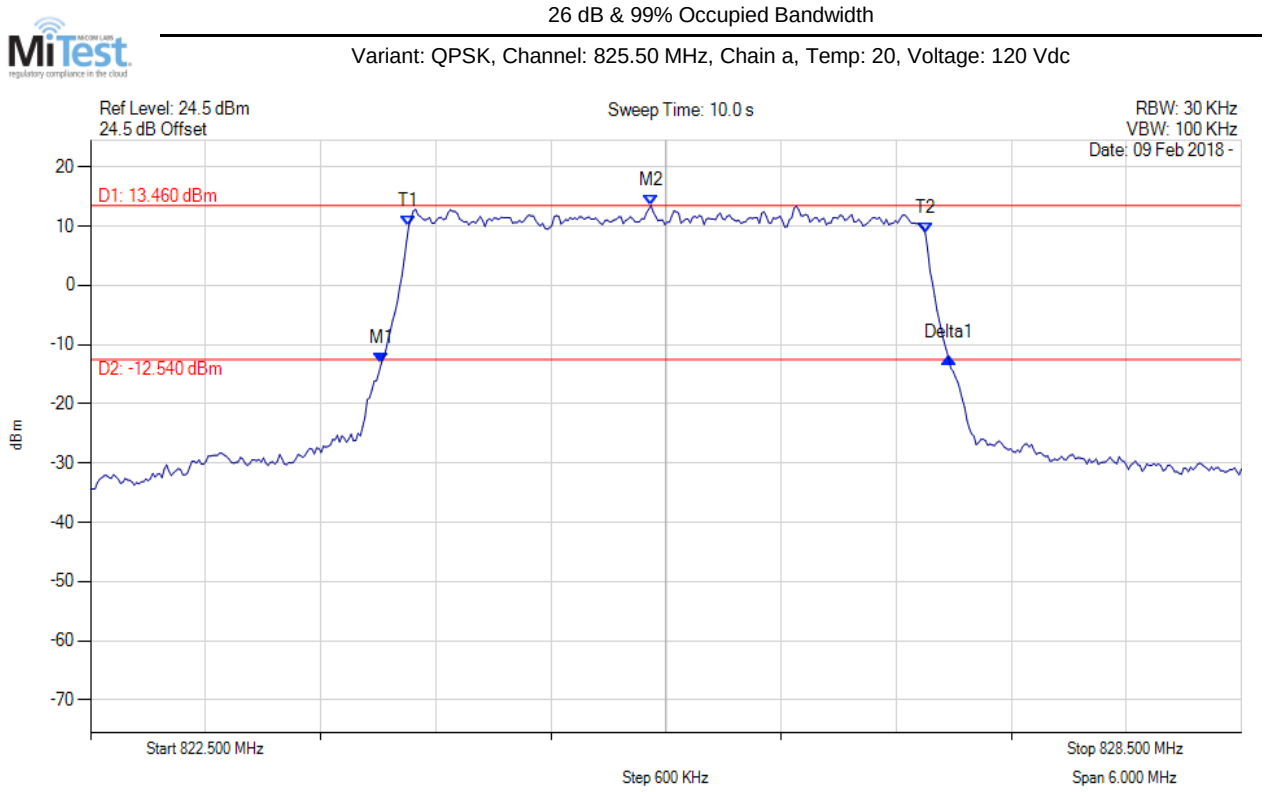
Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

9.1.2 26 dB & 99% Bandwidth - Plots

9.1.2.1 Band 5: 26 dB & 99% Bandwidth

9.1.2.1.1 QPSK:

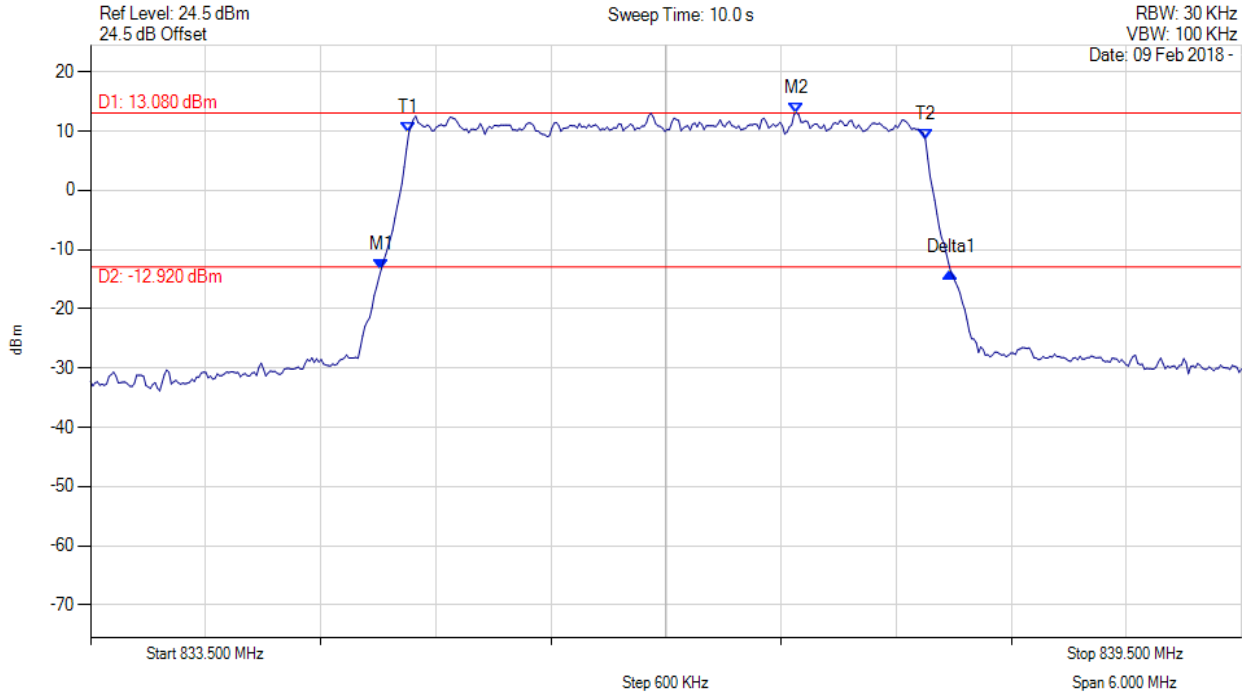


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 824.015 MHz : -13.256 dBm M2 : 825.422 MHz : 13.462 dBm Delta1 : 2.958 MHz : 1.023 dB T1 : 824.159 MHz : 10.040 dBm T2 : 826.853 MHz : 8.710 dBm OBW : 2.693 MHz	Channel Frequency: 825.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

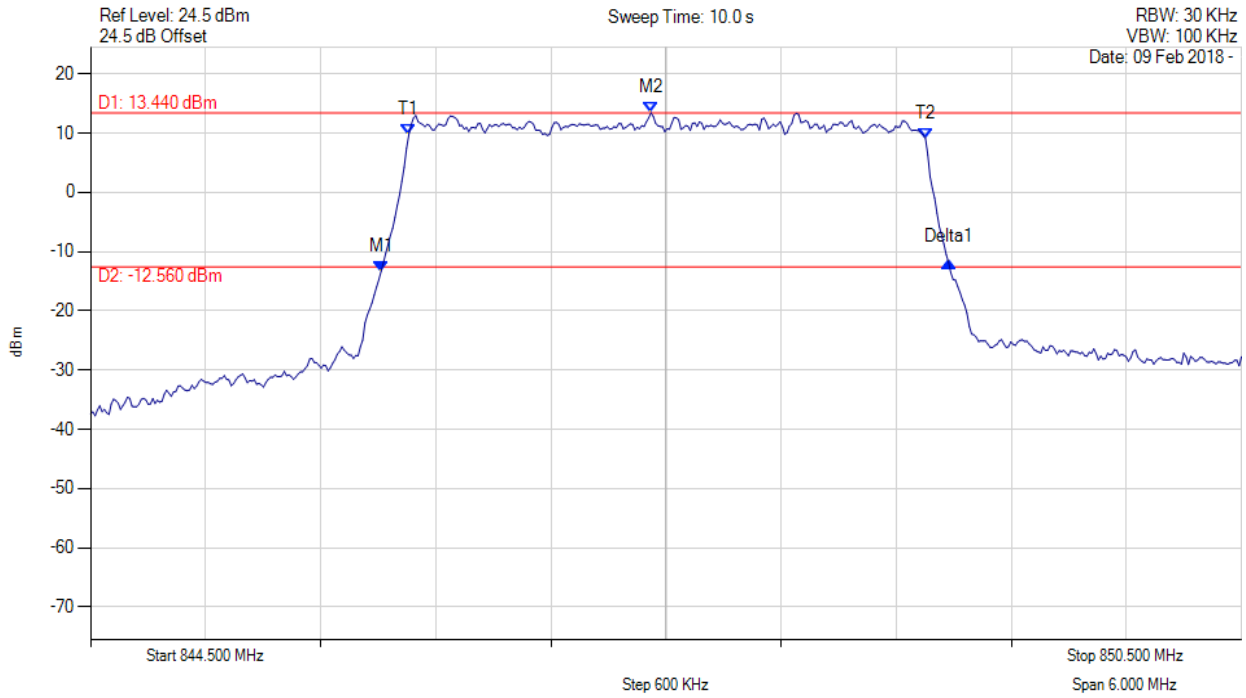


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 835.015 MHz : -13.361 dBm M2 : 837.179 MHz : 13.081 dBm Delta1 : 2.970 MHz : -0.433 dB T1 : 835.159 MHz : 9.670 dBm T2 : 837.853 MHz : 8.530 dBm OBW : 2.693 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 847.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

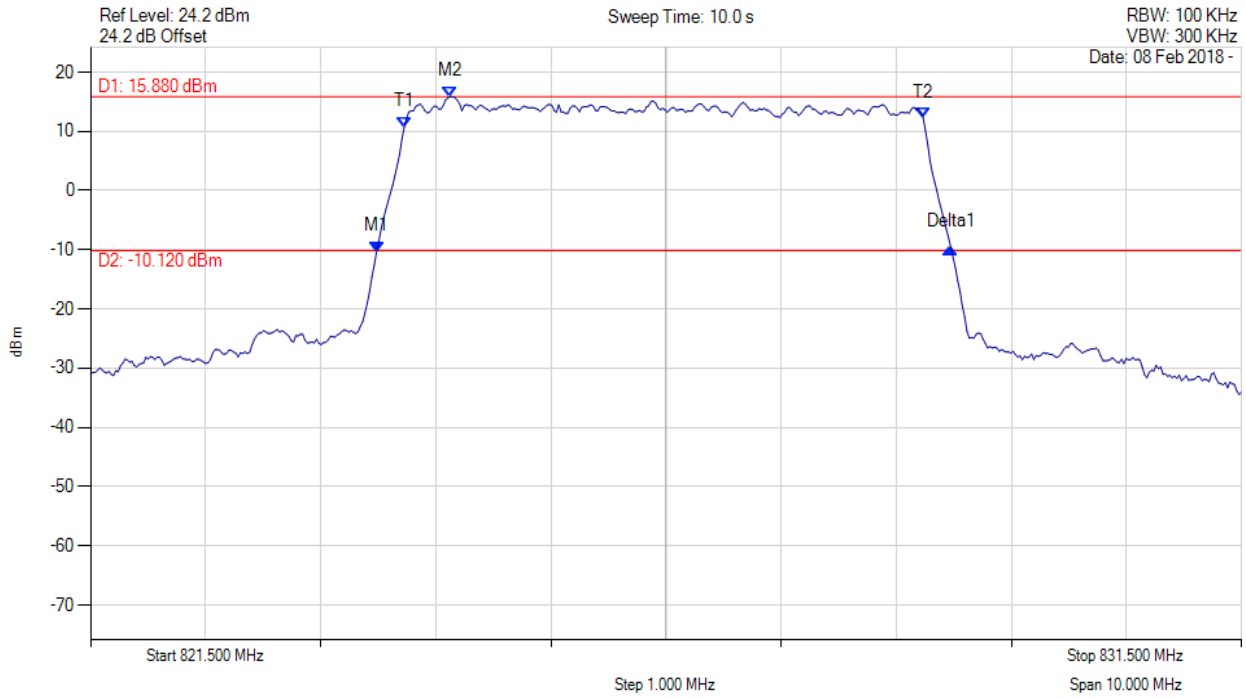


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 846.015 MHz : -13.292 dBm M2 : 847.422 MHz : 13.437 dBm Delta1 : 2.958 MHz : 1.468 dB T1 : 846.159 MHz : 9.710 dBm T2 : 848.853 MHz : 9.130 dBm OBW : 2.693 MHz	Channel Frequency: 847.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 826.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

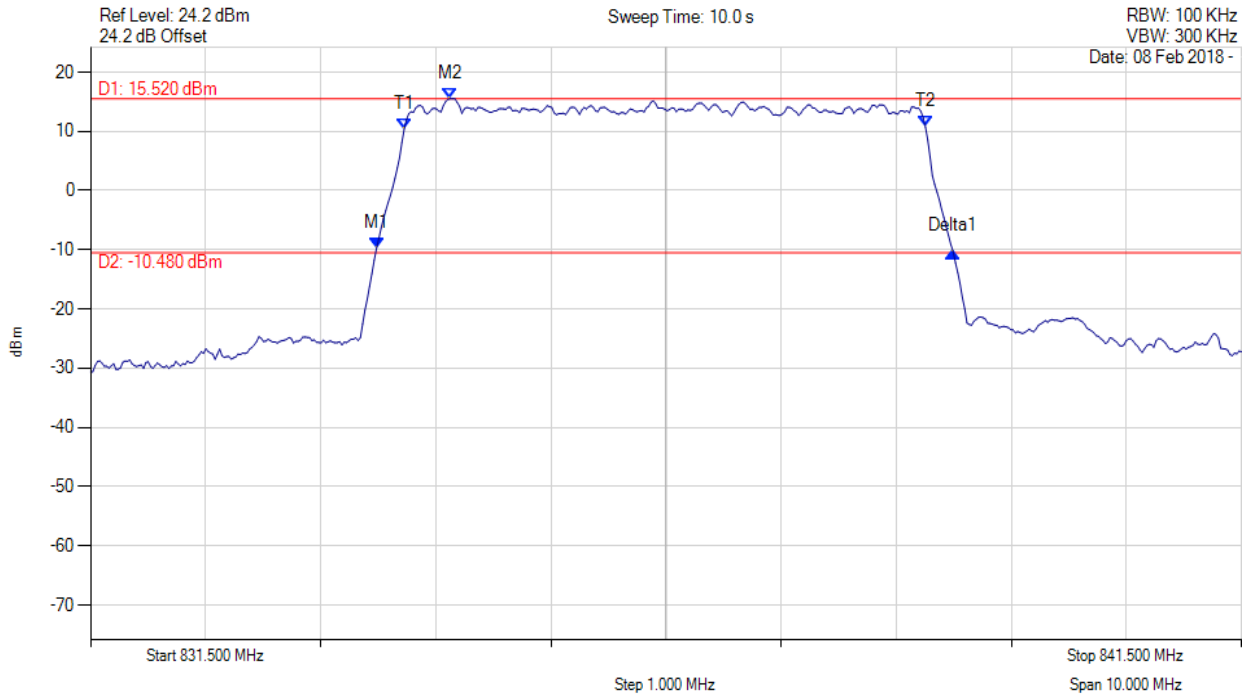


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 823.985 MHz : -10.301 dBm M2 : 824.626 MHz : 15.884 dBm Delta1 : 4.990 MHz : 0.702 dB T1 : 824.225 MHz : 10.722 dBm T2 : 828.734 MHz : 12.265 dBm OBW : 4.509 MHz	Channel Frequency: 826.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

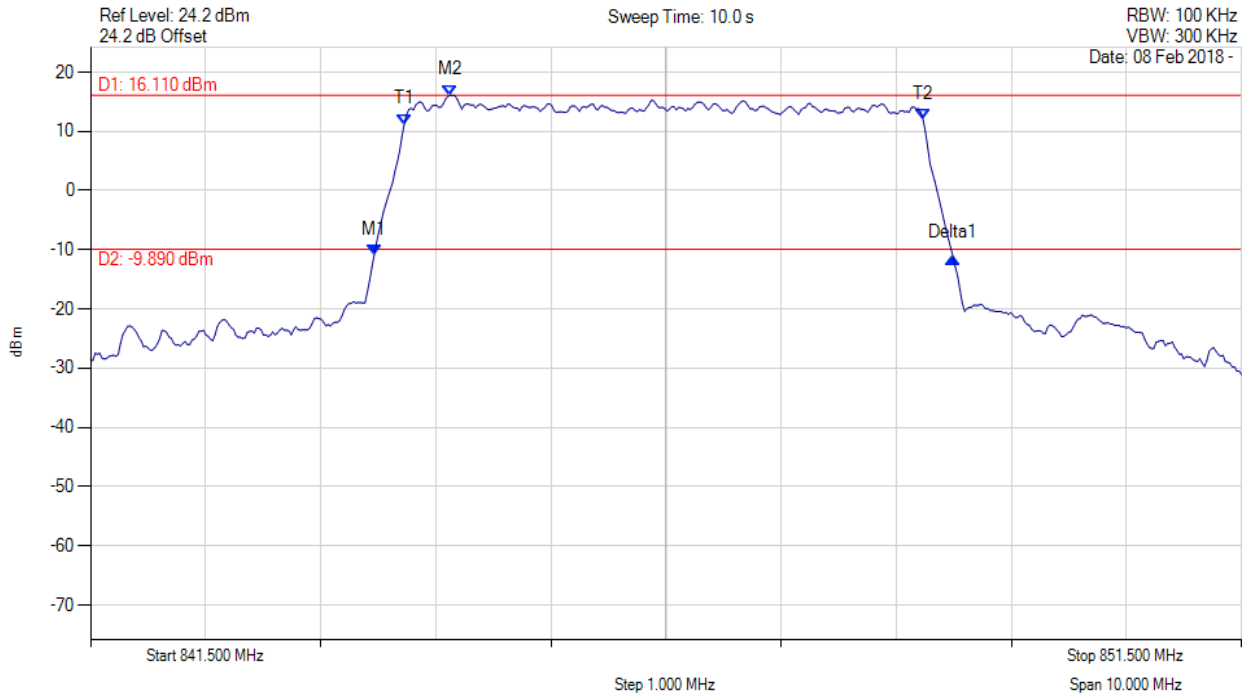


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 833.985 MHz : -9.705 dBm M2 : 834.626 MHz : 15.524 dBm Delta1 : 5.010 MHz : -0.604 dB T1 : 834.225 MHz : 10.380 dBm T2 : 838.755 MHz : 10.750 dBm OBW : 4.529 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 846.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

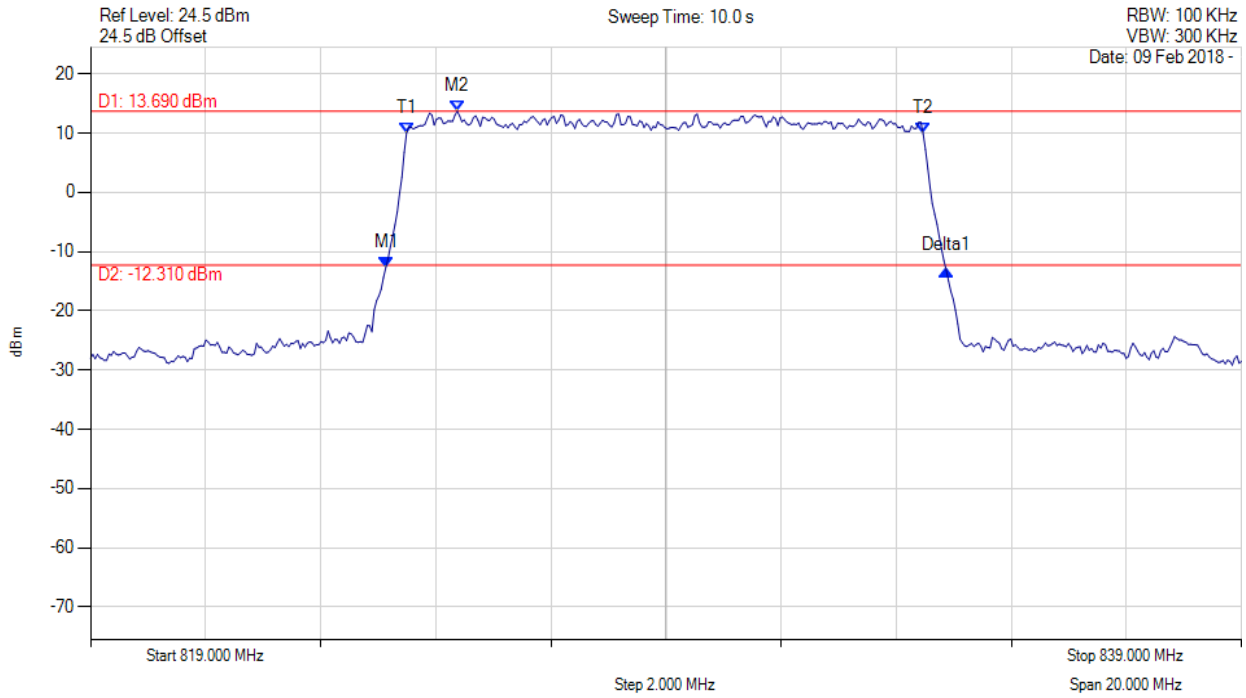


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 843.965 MHz : -10.832 dBm M2 : 844.626 MHz : 16.109 dBm Delta1 : 5.030 MHz : -0.419 dB T1 : 844.225 MHz : 11.194 dBm T2 : 848.734 MHz : 11.916 dBm OBW : 4.509 MHz	Channel Frequency: 846.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 829.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

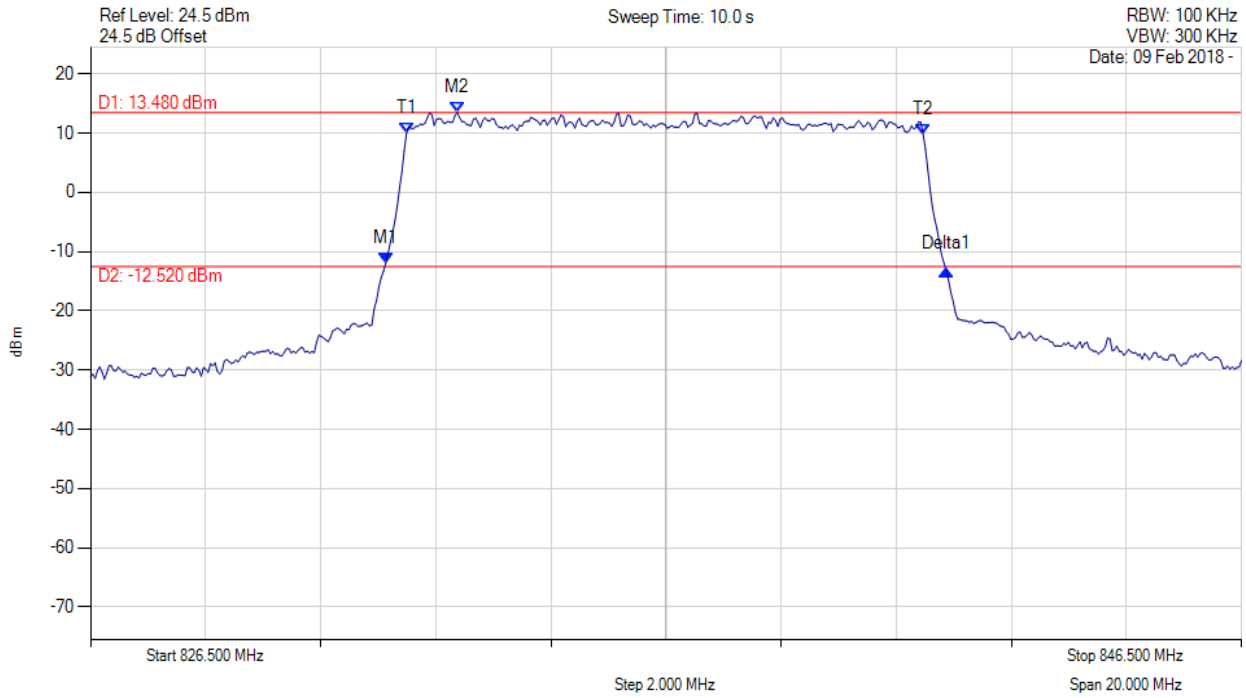


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 824.140 MHz : -12.684 dBm M2 : 825.373 MHz : 13.691 dBm Delta1 : 9.739 MHz : -0.407 dB T1 : 824.491 MHz : 9.996 dBm T2 : 833.469 MHz : 9.888 dBm OBW : 8.978 MHz	Channel Frequency: 829.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

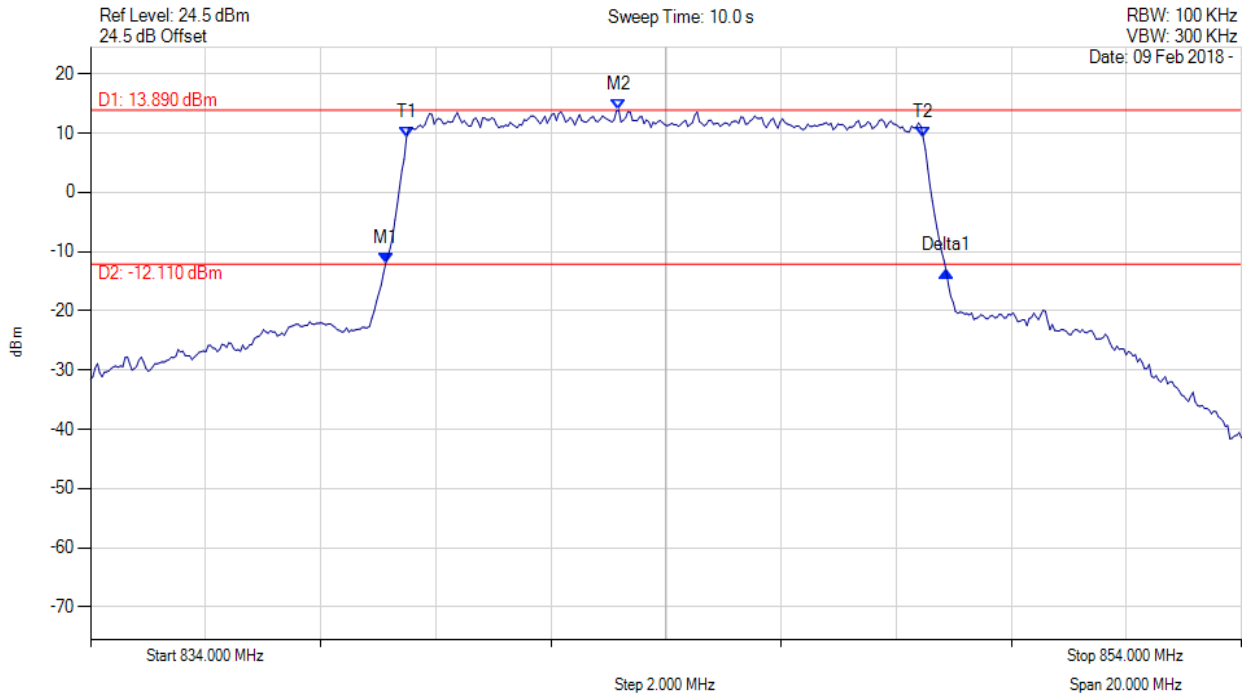


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 831.630 MHz : -11.905 dBm M2 : 832.873 MHz : 13.482 dBm Delta1 : 9.744 MHz : -1.141 dB T1 : 831.991 MHz : 10.025 dBm T2 : 840.969 MHz : 9.709 dBm OBW : 8.978 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

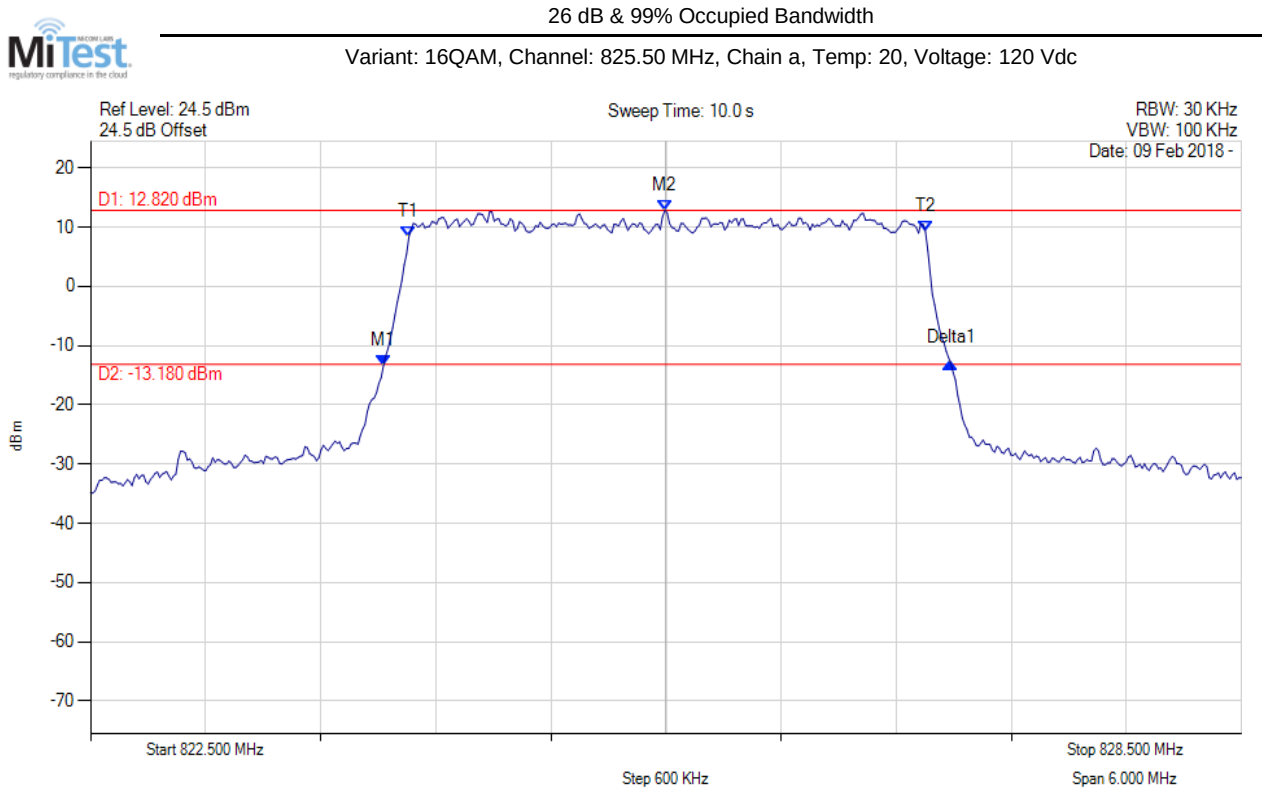
Variant: QPSK, Channel: 844.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 839.130 MHz : -11.934 dBm M2 : 843.178 MHz : 13.891 dBm Delta1 : 9.739 MHz : -1.330 dB T1 : 839.491 MHz : 9.366 dBm T2 : 848.469 MHz : 9.201 dBm OBW : 8.978 MHz	Channel Frequency: 844.00 MHz

back to matrix

A.1.1.2 16QAM:

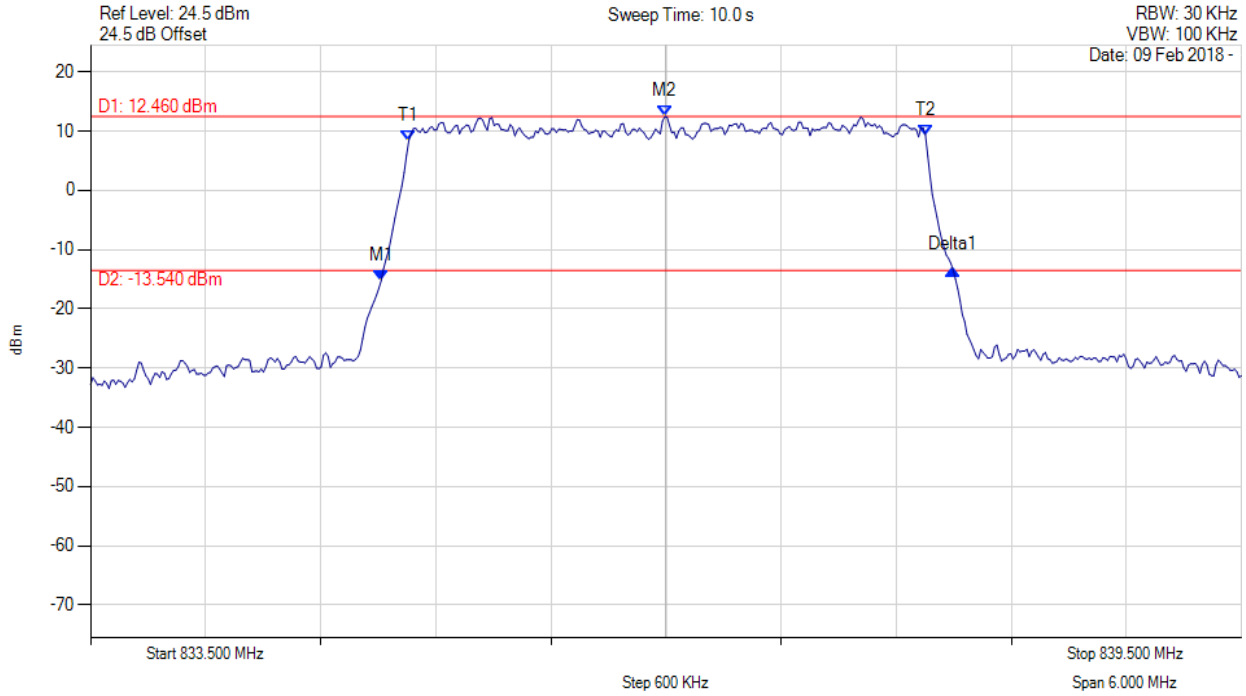


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 824.027 MHz : -13.392 dBm M2 : 825.494 MHz : 12.819 dBm Delta1 : 2.958 MHz : 0.429 dB T1 : 824.159 MHz : 8.249 dBm T2 : 826.853 MHz : 9.250 dBm OBW : 2.693 MHz	Channel Frequency: 825.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

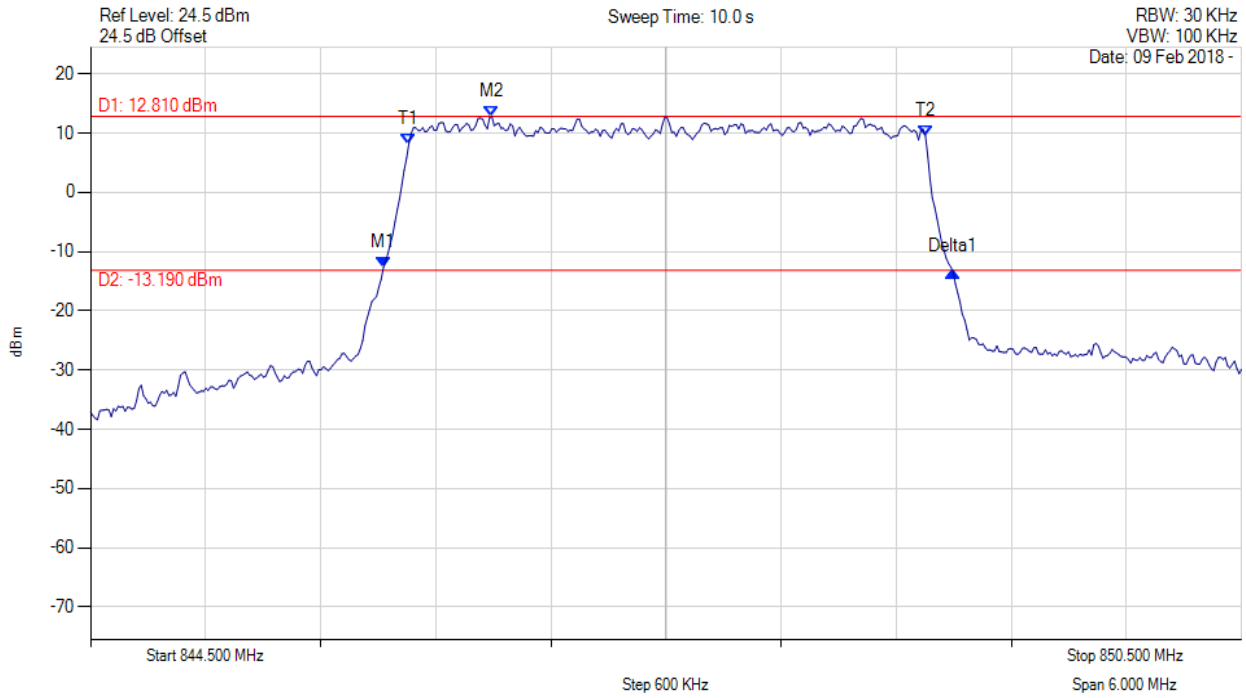


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 835.015 MHz : -15.251 dBm M2 : 836.494 MHz : 12.459 dBm Delta1 : 2.979 MHz : 1.773 dB T1 : 835.159 MHz : 8.369 dBm T2 : 837.853 MHz : 9.319 dBm OBW : 2.693 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 847.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

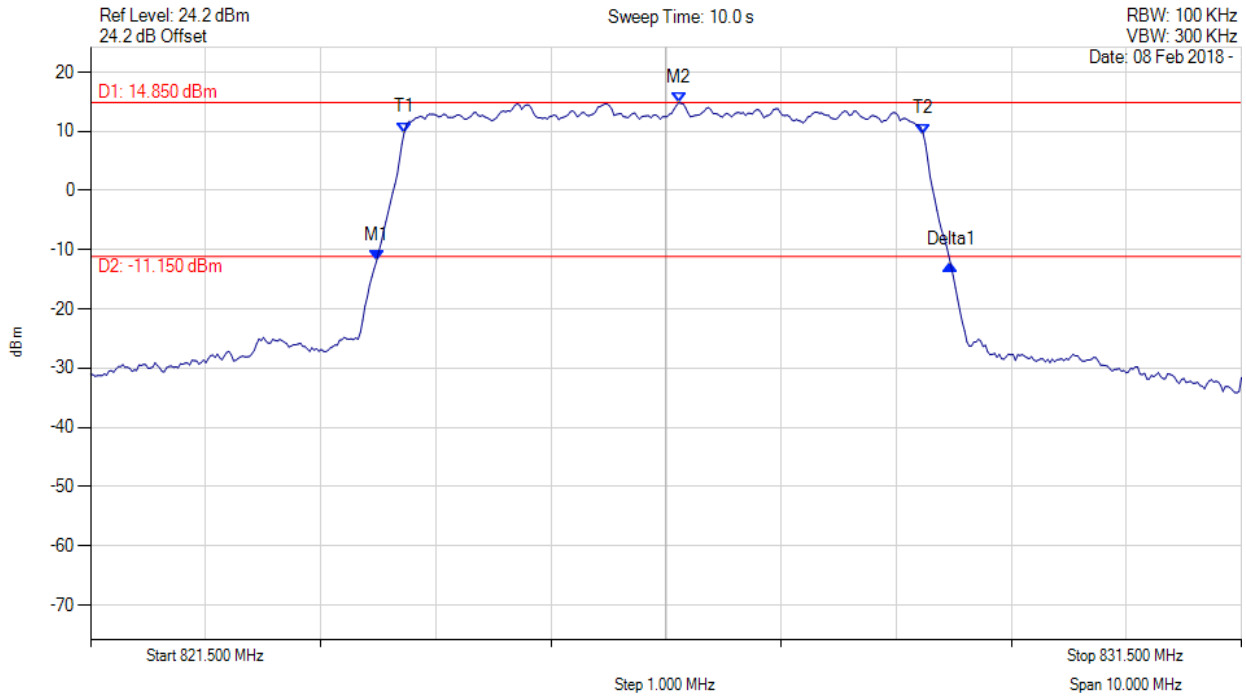


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 846.027 MHz : -12.700 dBm M2 : 846.592 MHz : 12.815 dBm Delta1 : 2.970 MHz : -0.767 dB T1 : 846.159 MHz : 8.178 dBm T2 : 848.853 MHz : 9.528 dBm OBW : 2.693 MHz	Channel Frequency: 847.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 826.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

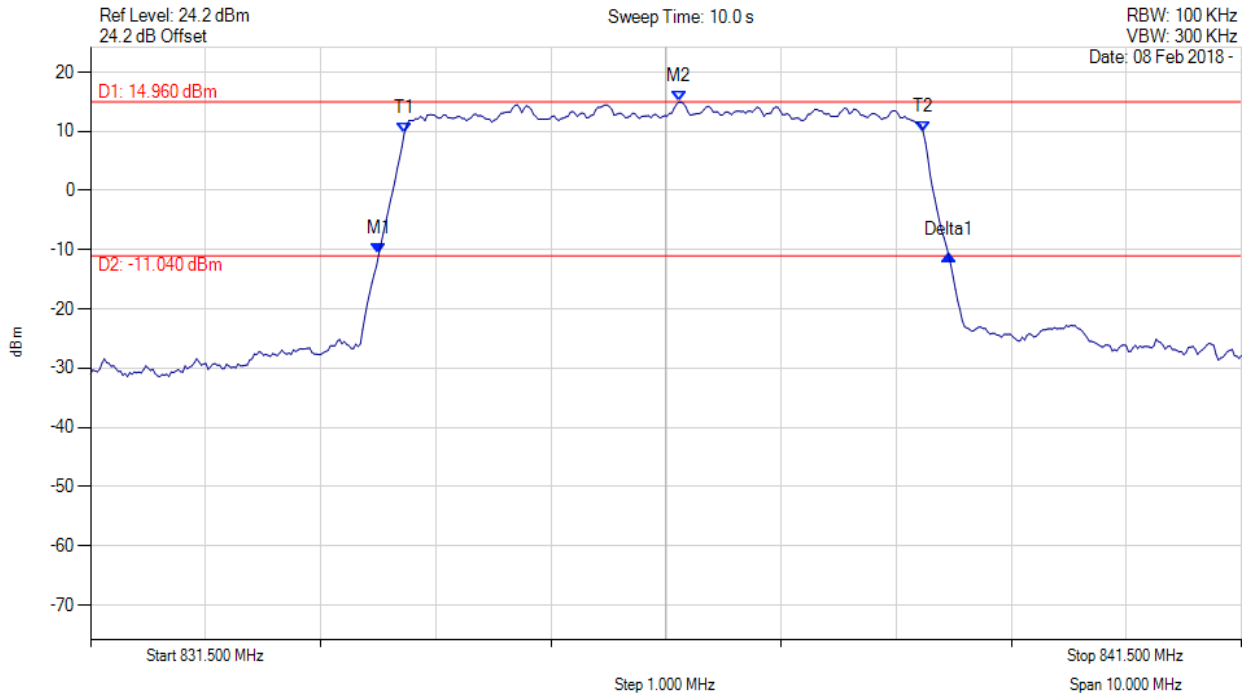


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 823.985 MHz : -11.899 dBm M2 : 826.610 MHz : 14.848 dBm Delta1 : 4.990 MHz : -0.694 dB T1 : 824.225 MHz : 9.811 dBm T2 : 828.734 MHz : 9.569 dBm OBW : 4.509 MHz	Channel Frequency: 826.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

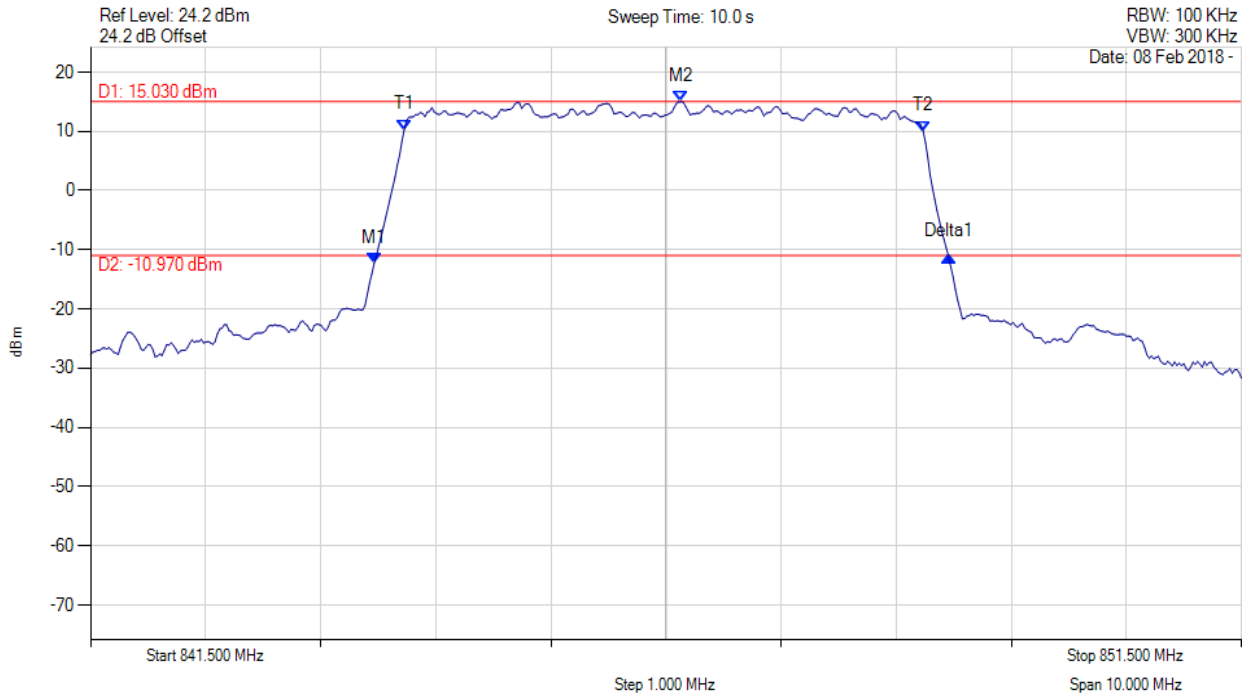


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 834.005 MHz : -10.738 dBm M2 : 836.610 MHz : 14.960 dBm Delta1 : 4.950 MHz : -0.047 dB T1 : 834.225 MHz : 9.646 dBm T2 : 838.734 MHz : 9.874 dBm OBW : 4.509 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 846.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

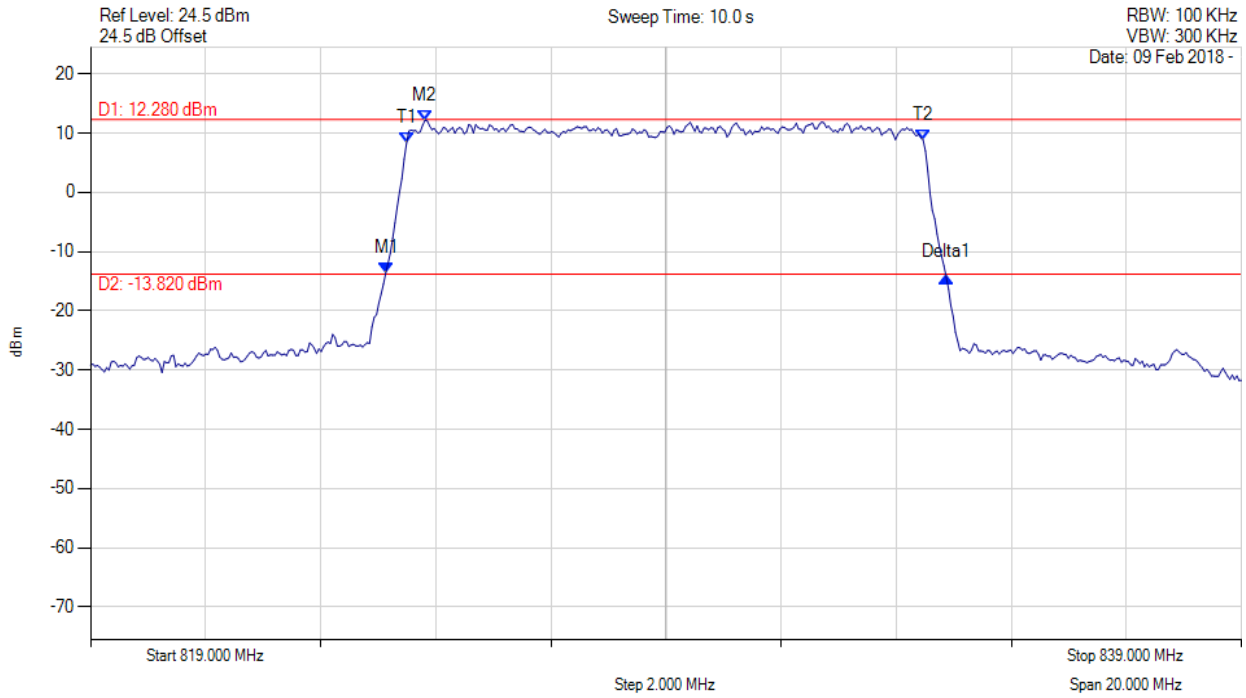


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 843.965 MHz : -12.251 dBm M2 : 846.630 MHz : 15.031 dBm Delta1 : 4.990 MHz : 1.125 dB T1 : 844.225 MHz : 10.254 dBm T2 : 848.734 MHz : 10.028 dBm OBW : 4.509 MHz	Channel Frequency: 846.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 829.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

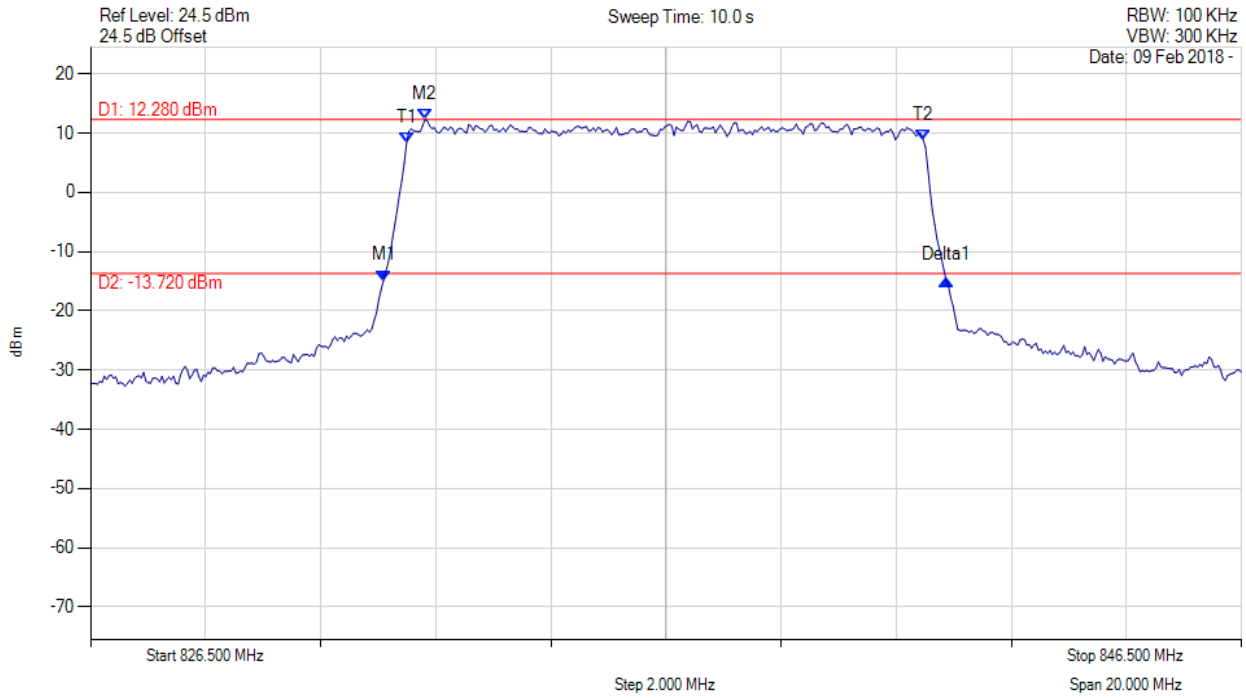


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 824.140 MHz : -13.555 dBm M2 : 824.812 MHz : 12.176 dBm Delta1 : 9.729 MHz : -0.724 dB T1 : 824.491 MHz : 8.290 dBm T2 : 833.469 MHz : 8.784 dBm OBW : 8.978 MHz	Channel Frequency: 829.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 836.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

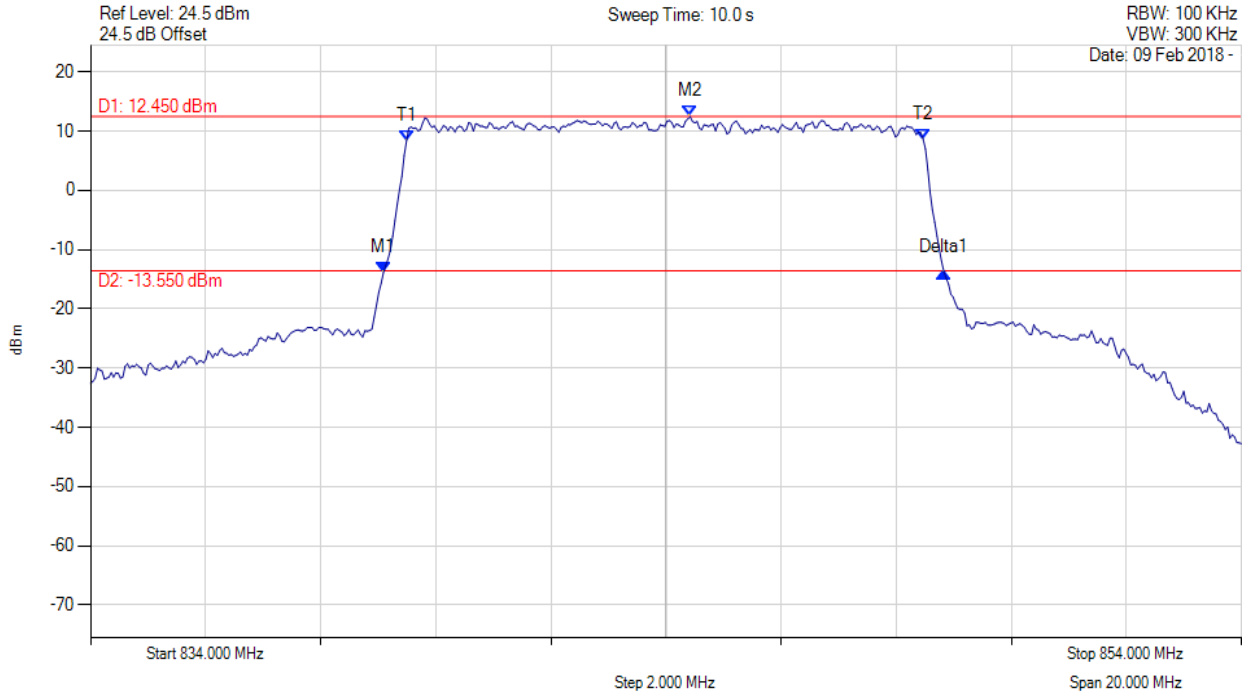


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 831.595 MHz : -14.905 dBm M2 : 832.312 MHz : 12.284 dBm Delta1 : 9.775 MHz : 0.020 dB T1 : 831.991 MHz : 8.314 dBm T2 : 840.969 MHz : 8.876 dBm OBW : 8.978 MHz	Channel Frequency: 836.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 844.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

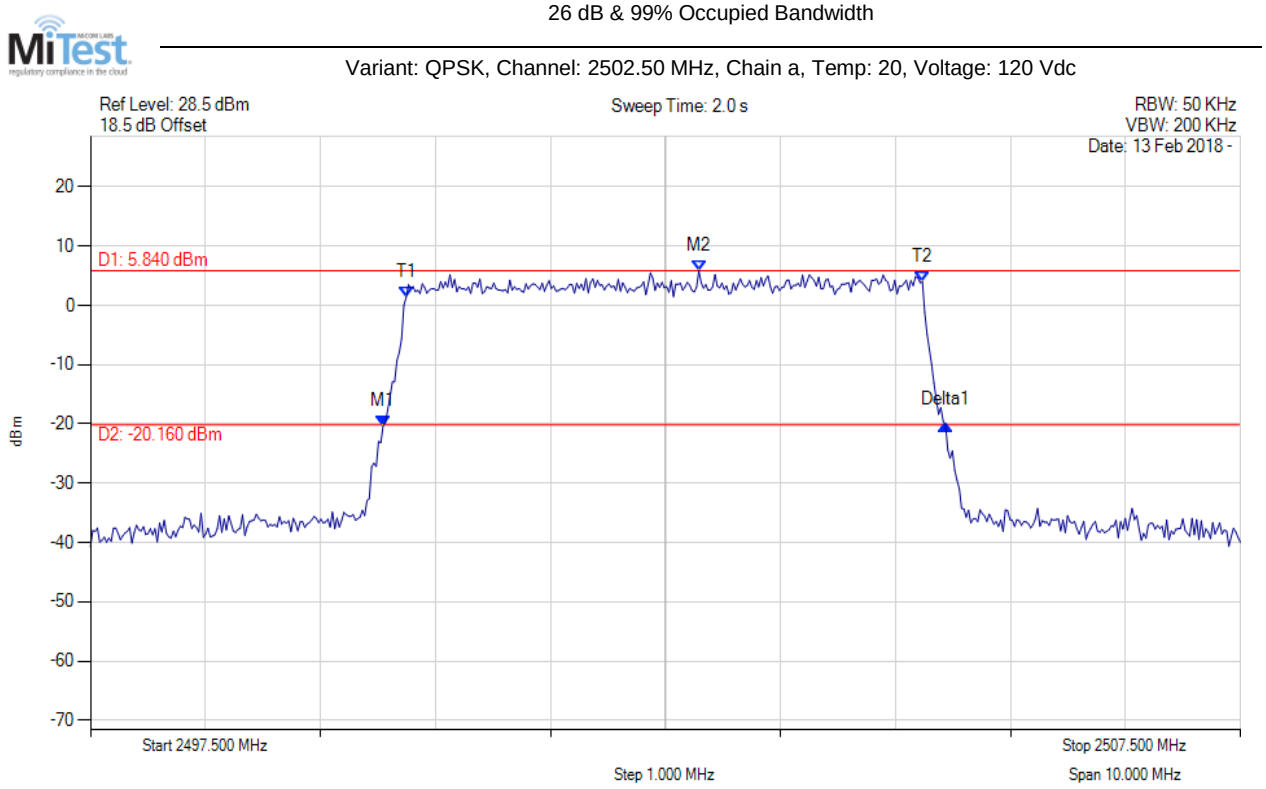


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 839.090 MHz : -13.882 dBm M2 : 844.421 MHz : 12.455 dBm Delta1 : 9.739 MHz : 0.112 dB T1 : 839.491 MHz : 8.375 dBm T2 : 848.469 MHz : 8.589 dBm OBW : 8.978 MHz	Channel Frequency: 844.00 MHz

back to matrix

9.1.2.2 Band 7: 26 dB & 99% Bandwidth

9.1.2.2.1 QPSK:

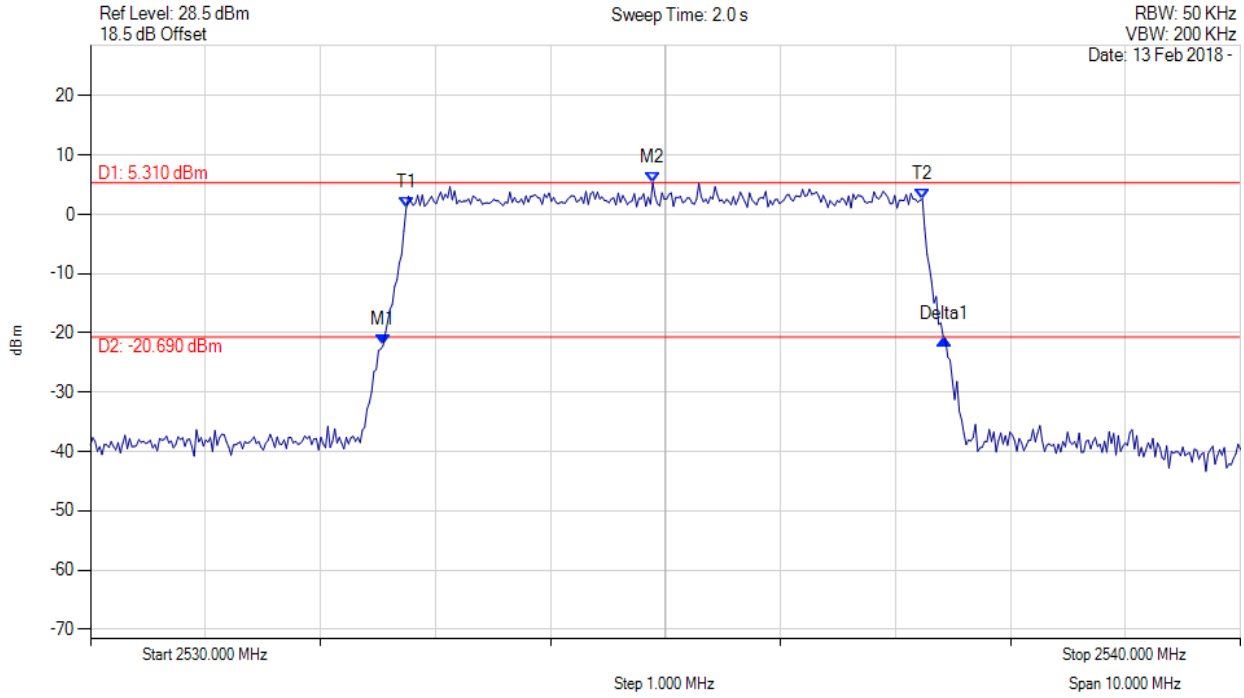


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.046 MHz : -20.273 dBm M2 : 2502.791 MHz : 5.838 dBm Delta1 : 4.890 MHz : 0.230 dB T1 : 2500.245 MHz : 1.384 dBm T2 : 2504.734 MHz : 3.955 dBm OBW : 4.489 MHz	Channel Frequency: 2502.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

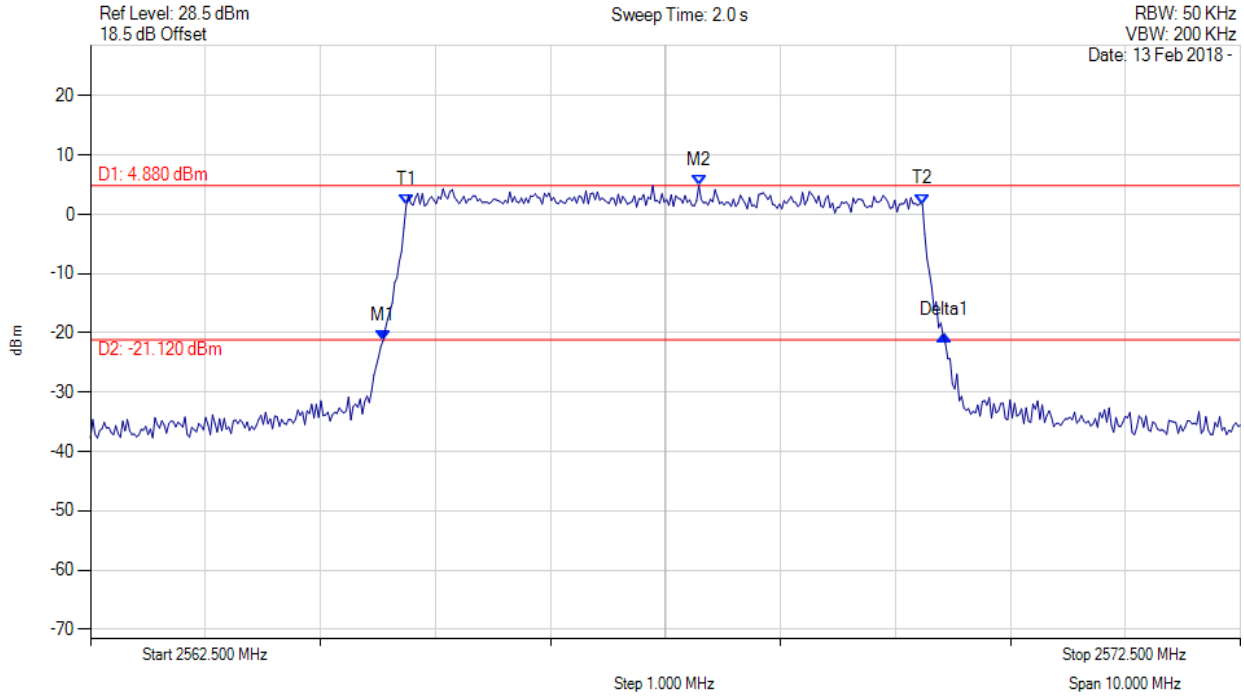


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2532.545 MHz : -22.110 dBm M2 : 2534.890 MHz : 5.309 dBm Delta1 : 4.880 MHz : 1.043 dB T1 : 2532.745 MHz : 1.105 dBm T2 : 2537.234 MHz : 2.584 dBm OBW : 4.489 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2567.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

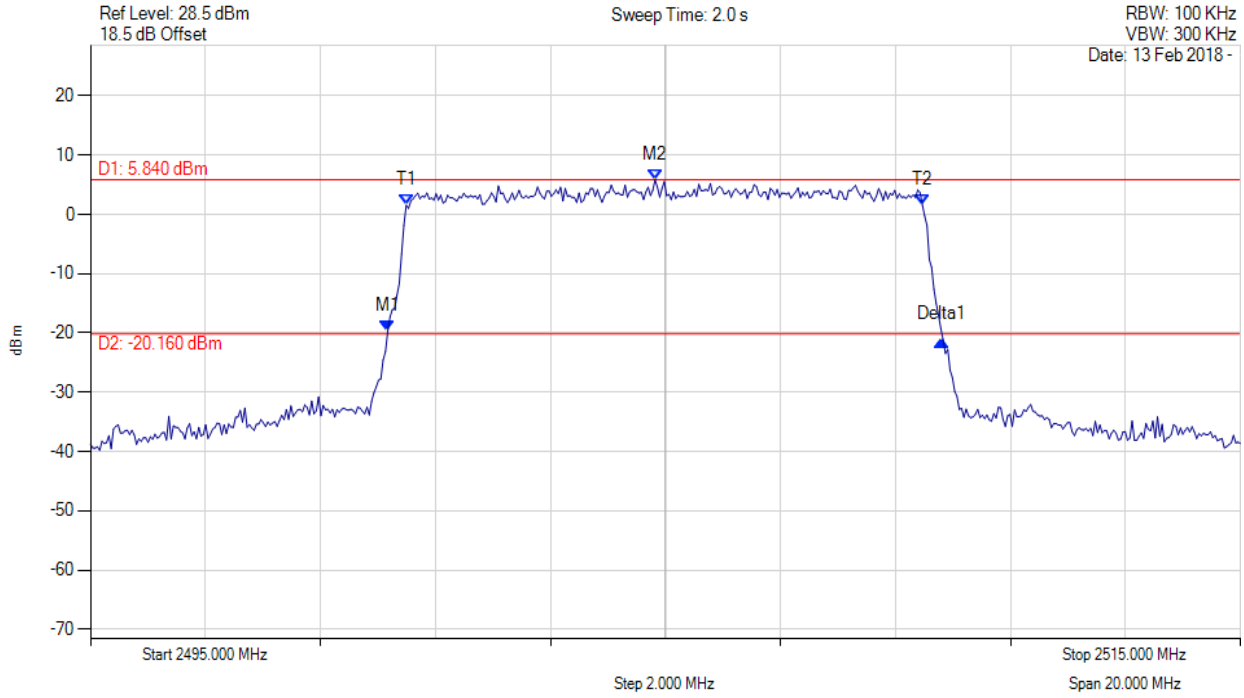


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2565.045 MHz : -21.264 dBm M2 : 2567.791 MHz : 4.880 dBm Delta1 : 4.880 MHz : 0.848 dB T1 : 2565.245 MHz : 1.526 dBm T2 : 2569.734 MHz : 1.705 dBm OBW : 4.489 MHz	Channel Frequency: 2567.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2505.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

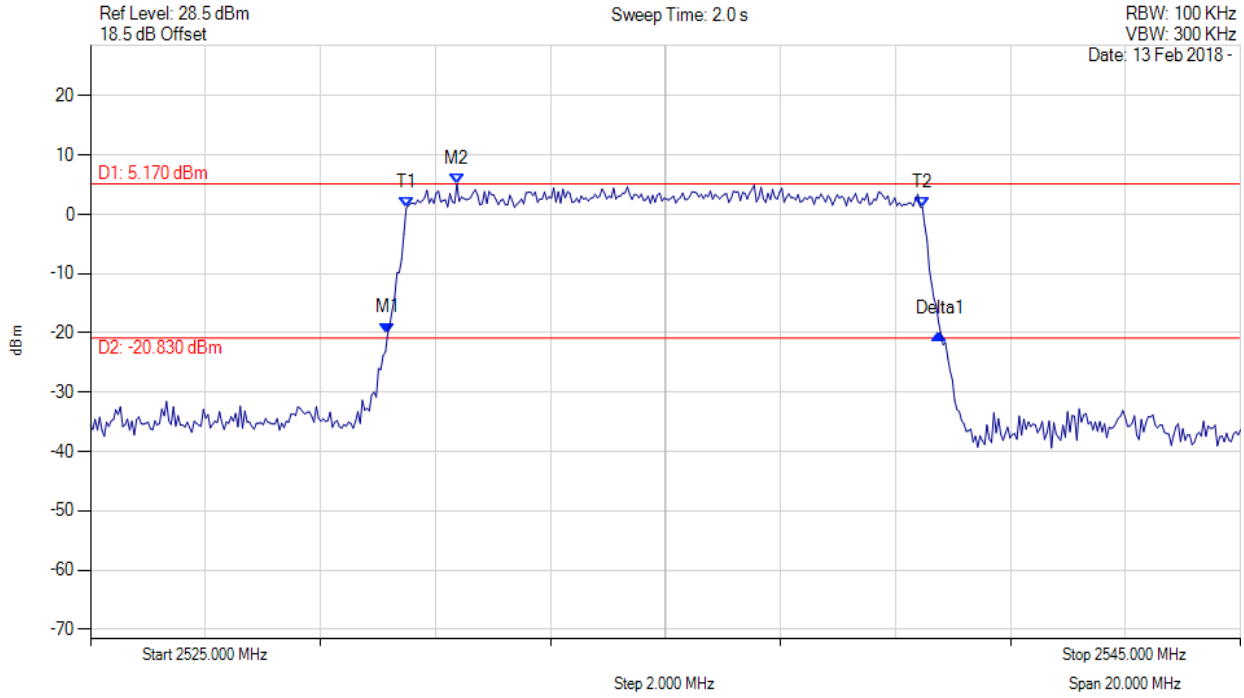


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.170 MHz : -19.686 dBm M2 : 2504.820 MHz : 5.836 dBm Delta1 : 9.639 MHz : -1.499 dB T1 : 2500.491 MHz : 1.547 dBm T2 : 2509.469 MHz : 1.535 dBm OBW : 8.978 MHz	Channel Frequency: 2505.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

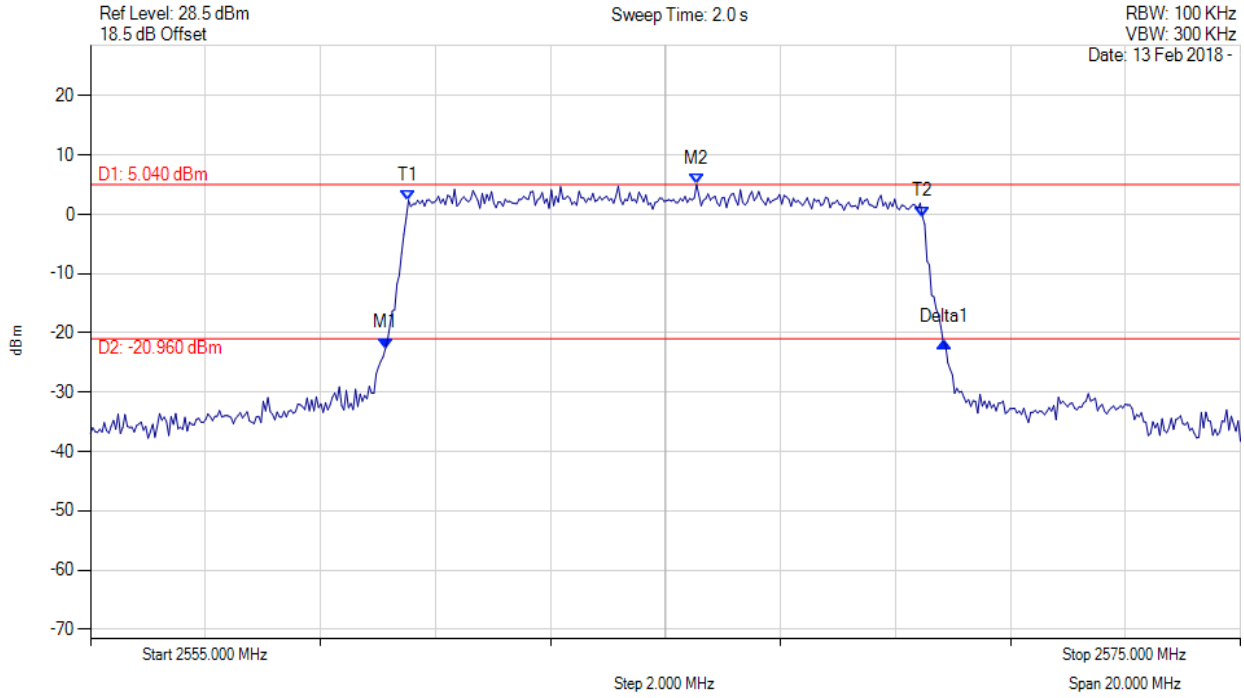


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2530.170 MHz : -20.035 dBm M2 : 2531.373 MHz : 5.171 dBm Delta1 : 9.599 MHz : -0.083 dB T1 : 2530.491 MHz : 1.032 dBm T2 : 2539.469 MHz : 1.191 dBm OBW : 8.978 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2565.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

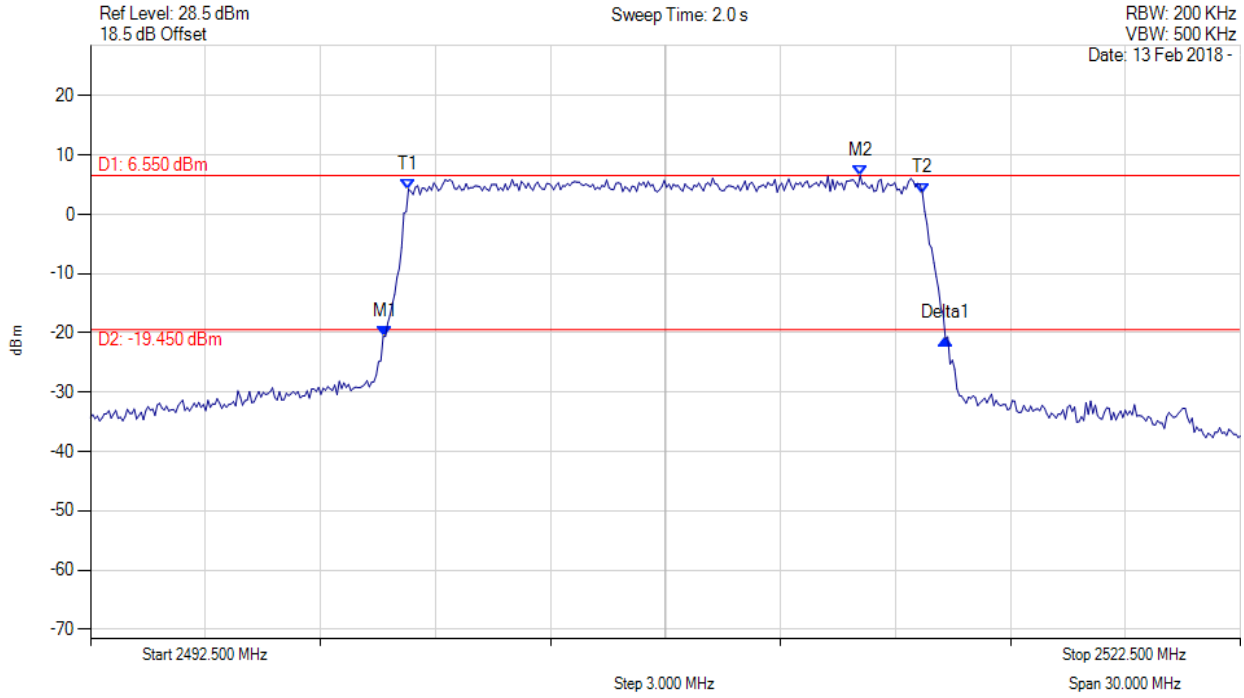


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2560.130 MHz : -22.604 dBm M2 : 2565.541 MHz : 5.037 dBm Delta1 : 9.719 MHz : 1.139 dB T1 : 2560.531 MHz : 2.352 dBm T2 : 2569.469 MHz : -0.381 dBm OBW : 8.938 MHz	Channel Frequency: 2565.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2507.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

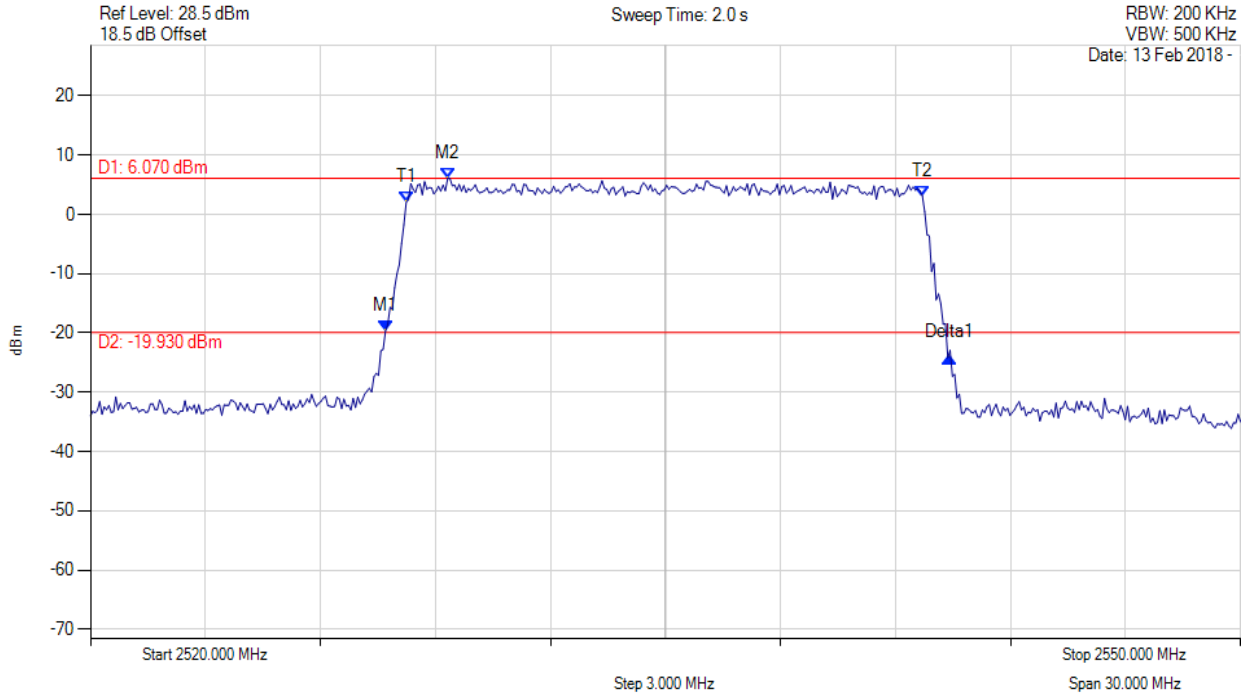


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.185 MHz : -20.572 dBm M2 : 2512.580 MHz : 6.554 dBm Delta1 : 14.609 MHz : -0.393 dB T1 : 2500.797 MHz : 4.260 dBm T2 : 2514.203 MHz : 3.578 dBm OBW : 13.407 MHz	Channel Frequency: 2507.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

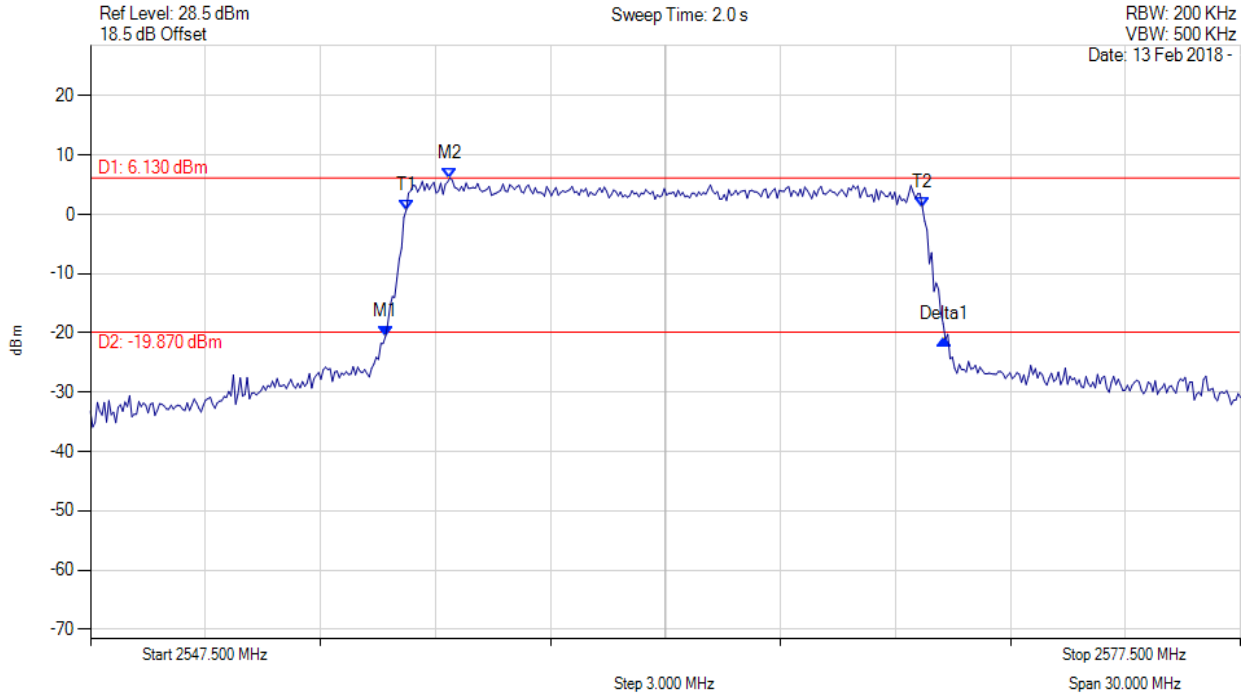


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2527.695 MHz : -19.681 dBm M2 : 2529.319 MHz : 6.072 dBm Delta1 : 14.699 MHz : -4.531 dB T1 : 2528.236 MHz : 2.035 dBm T2 : 2541.703 MHz : 3.031 dBm OBW : 13.467 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2562.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

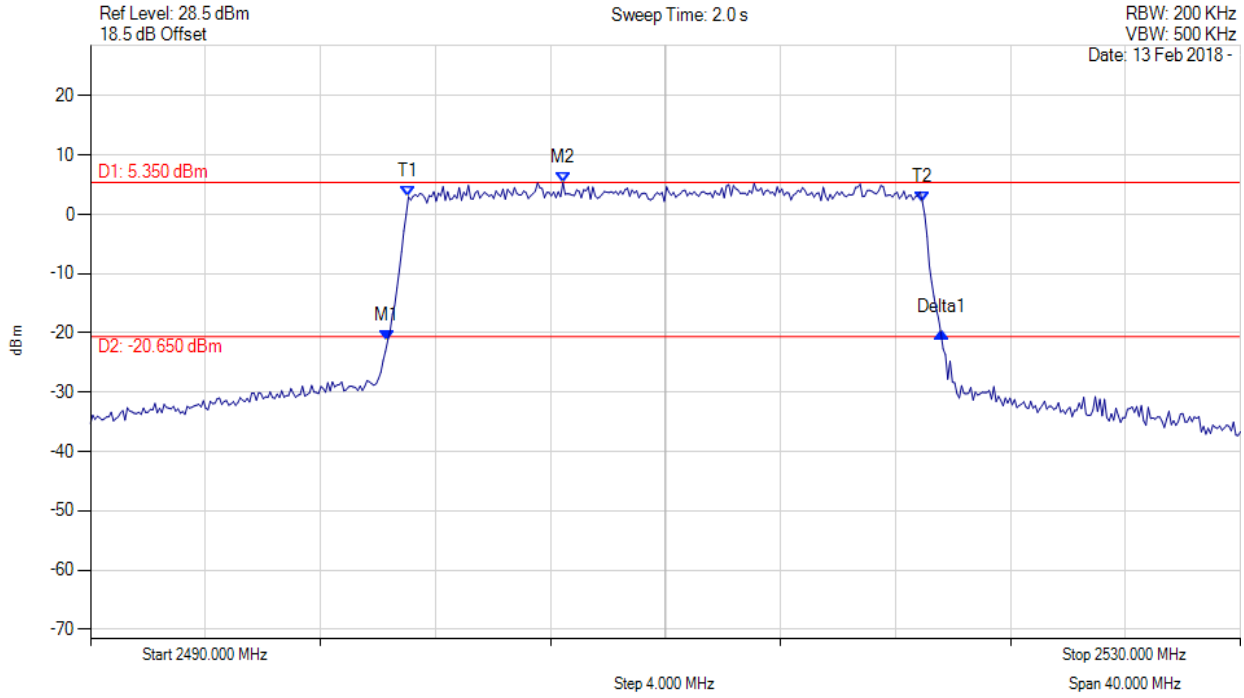


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2555.195 MHz : -20.605 dBm M2 : 2556.879 MHz : 6.133 dBm Delta1 : 14.579 MHz : -0.454 dB T1 : 2555.736 MHz : 0.721 dBm T2 : 2569.203 MHz : 1.107 dBm OBW : 13.467 MHz	Channel Frequency: 2562.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2510.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

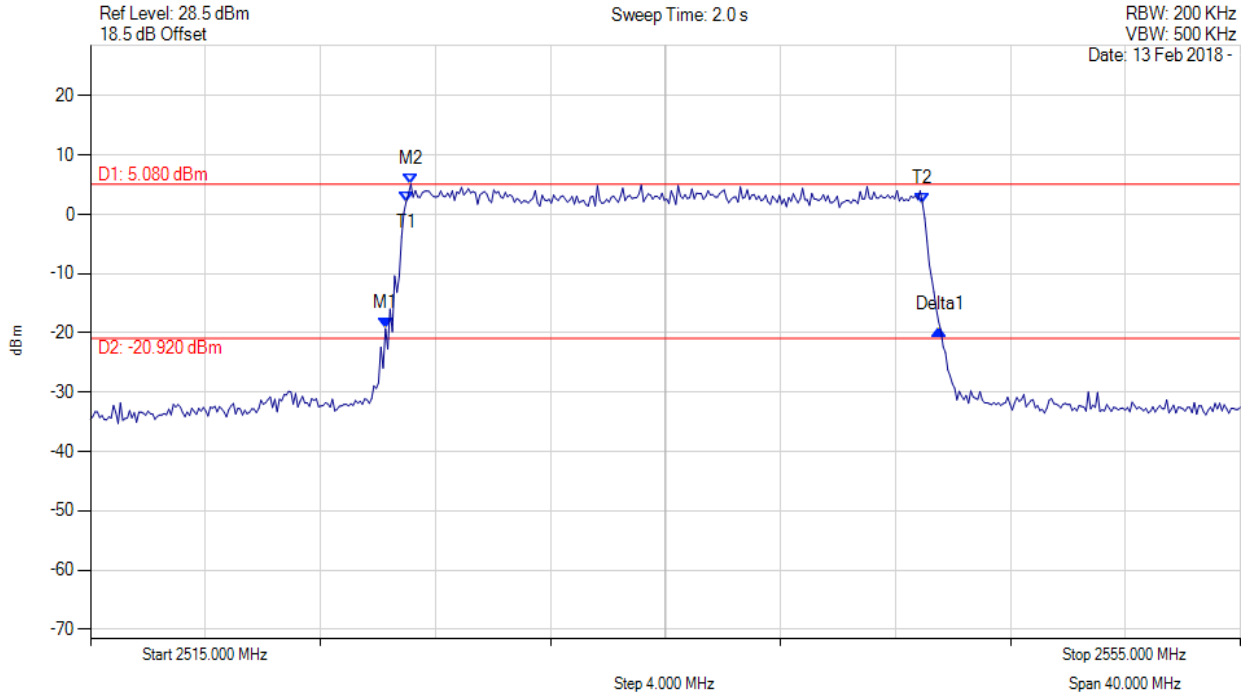


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.311 MHz : -21.270 dBm M2 : 2506.433 MHz : 5.352 dBm Delta1 : 19.279 MHz : 1.291 dB T1 : 2501.062 MHz : 2.958 dBm T2 : 2518.938 MHz : 2.037 dBm OBW : 17.876 MHz	Channel Frequency: 2510.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

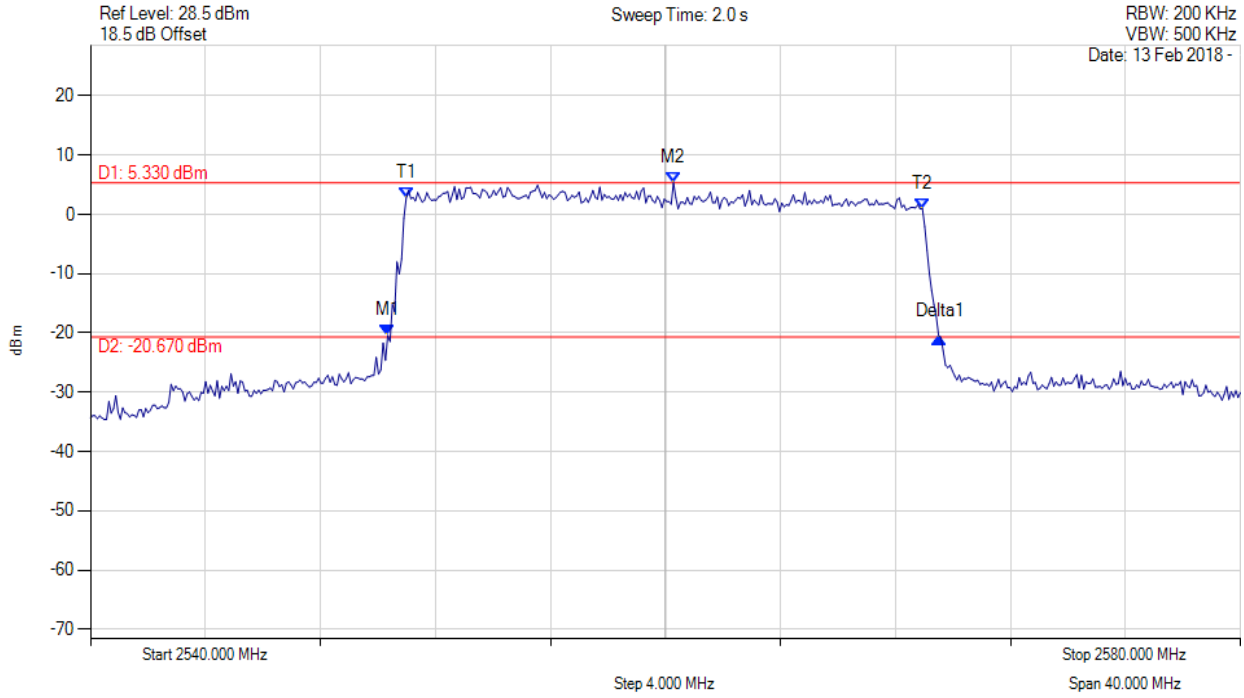


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2525.261 MHz : -19.240 dBm M2 : 2526.142 MHz : 5.077 dBm Delta1 : 19.279 MHz : -0.270 dB T1 : 2525.982 MHz : 2.167 dBm T2 : 2543.938 MHz : 1.848 dBm OBW : 17.956 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

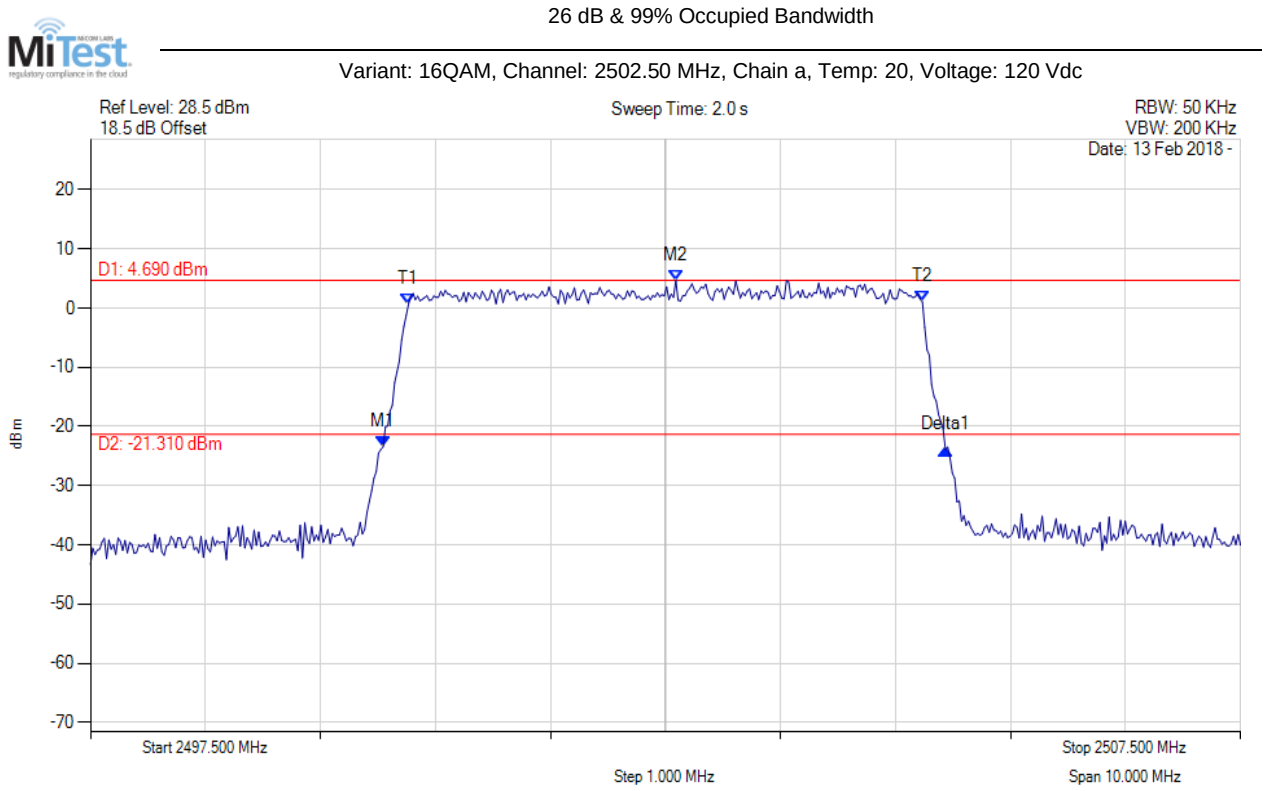
Variant: QPSK, Channel: 2560.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2550.341 MHz : -20.403 dBm M2 : 2560.281 MHz : 5.325 dBm Delta1 : 19.198 MHz : -0.311 dB T1 : 2550.982 MHz : 2.728 dBm T2 : 2568.938 MHz : 0.939 dBm OBW : 17.956 MHz	Channel Frequency: 2560.00 MHz

back to matrix

9.1.2.2.2 16QAM:

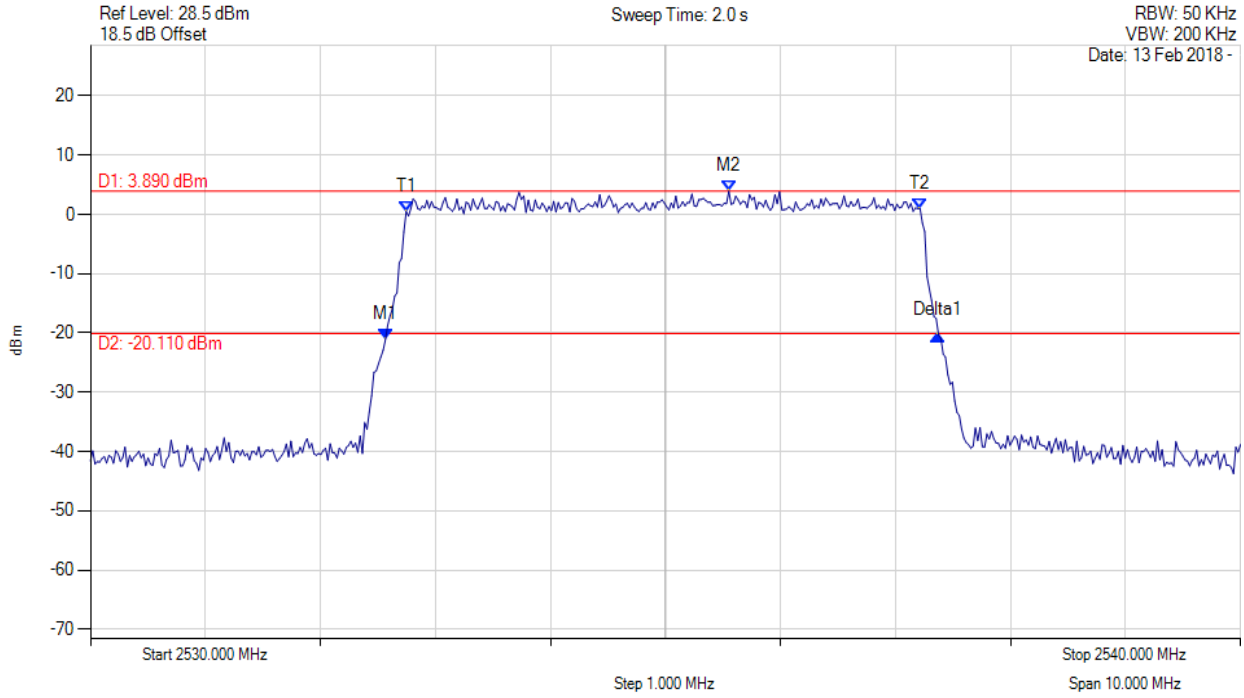


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.046 MHz : -23.452 dBm M2 : 2502.590 MHz : 4.689 dBm Delta1 : 4.890 MHz : -0.429 dB T1 : 2500.266 MHz : 0.654 dBm T2 : 2504.734 MHz : 1.038 dBm OBW : 4.469 MHz	Channel Frequency: 2502.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

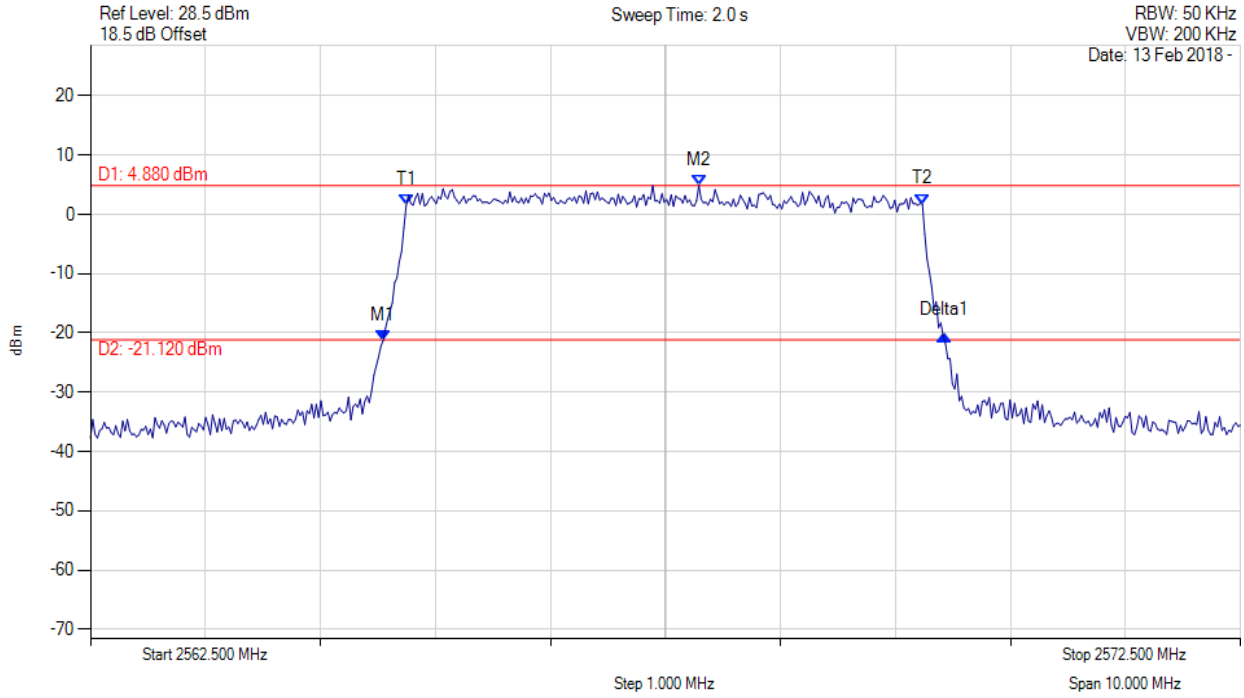


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2532.565 MHz : -21.087 dBm M2 : 2535.551 MHz : 3.890 dBm Delta1 : 4.800 MHz : 0.710 dB T1 : 2532.745 MHz : 0.493 dBm T2 : 2537.214 MHz : 0.943 dBm OBW : 4.469 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2567.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

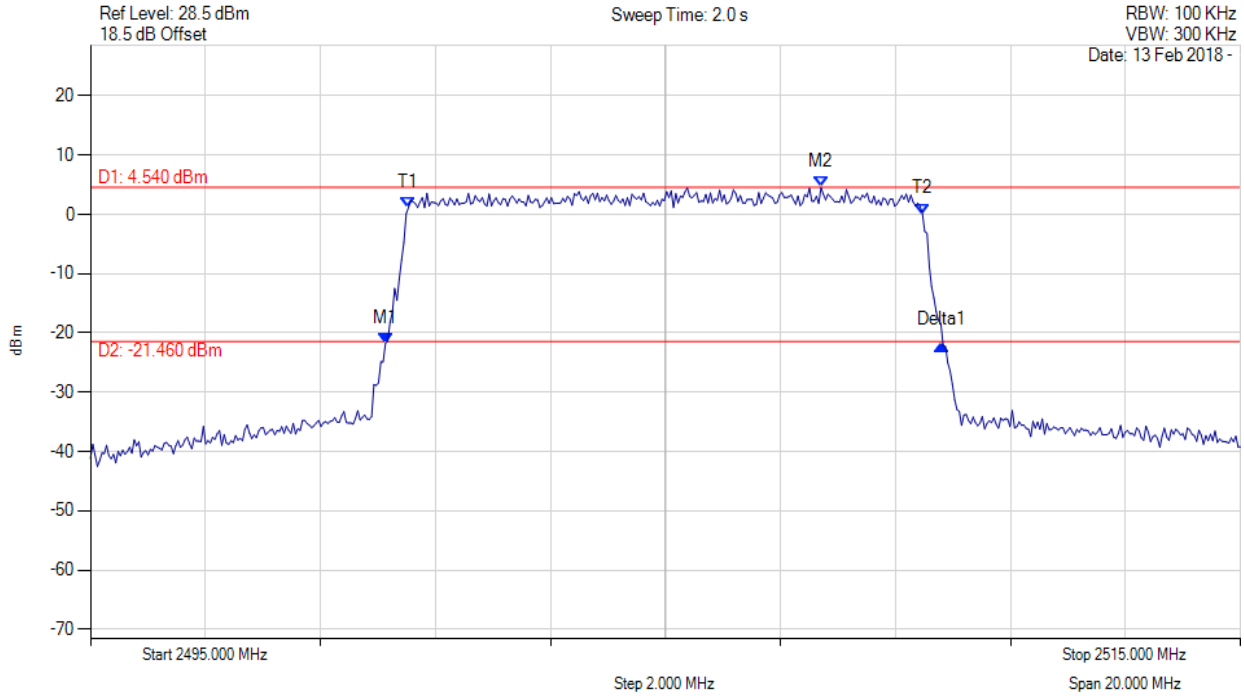


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2565.045 MHz : -21.264 dBm M2 : 2567.791 MHz : 4.880 dBm Delta1 : 4.880 MHz : 0.848 dB T1 : 2565.245 MHz : 1.526 dBm T2 : 2569.734 MHz : 1.705 dBm OBW : 4.489 MHz	Channel Frequency: 2567.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2505.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

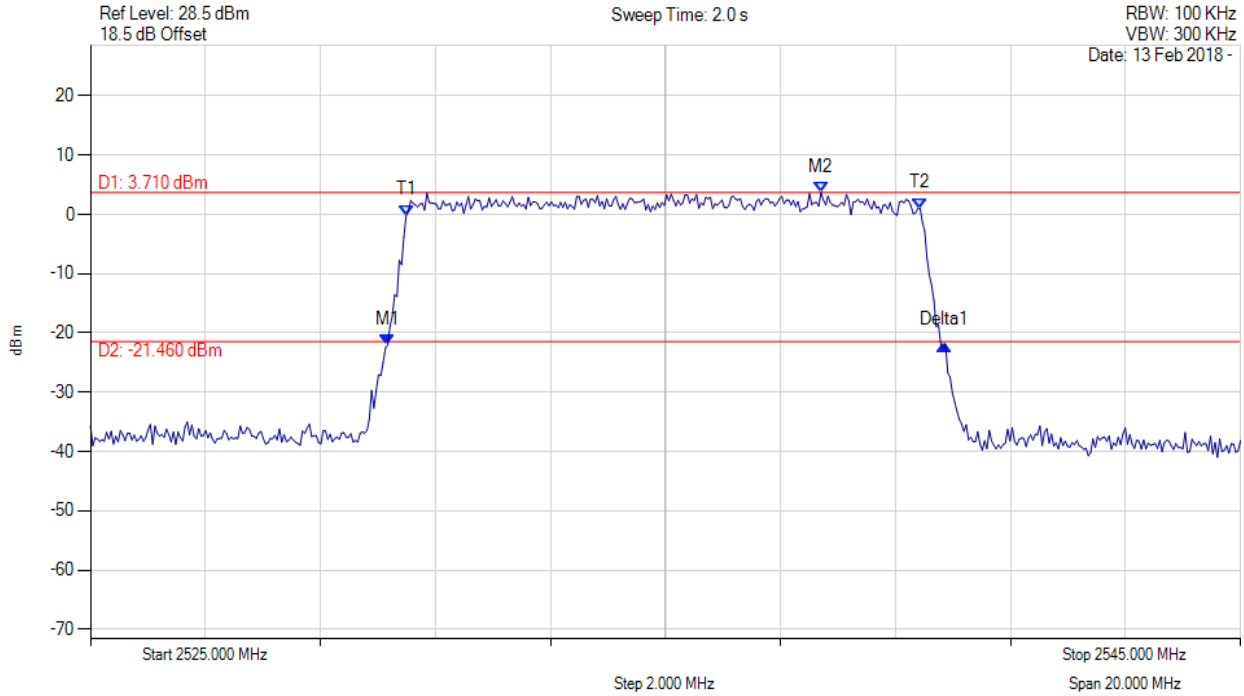


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.130 MHz : -21.738 dBm M2 : 2507.705 MHz : 4.536 dBm Delta1 : 9.679 MHz : -0.370 dB T1 : 2500.531 MHz : 1.144 dBm T2 : 2509.469 MHz : 0.089 dBm OBW : 8.938 MHz	Channel Frequency: 2505.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

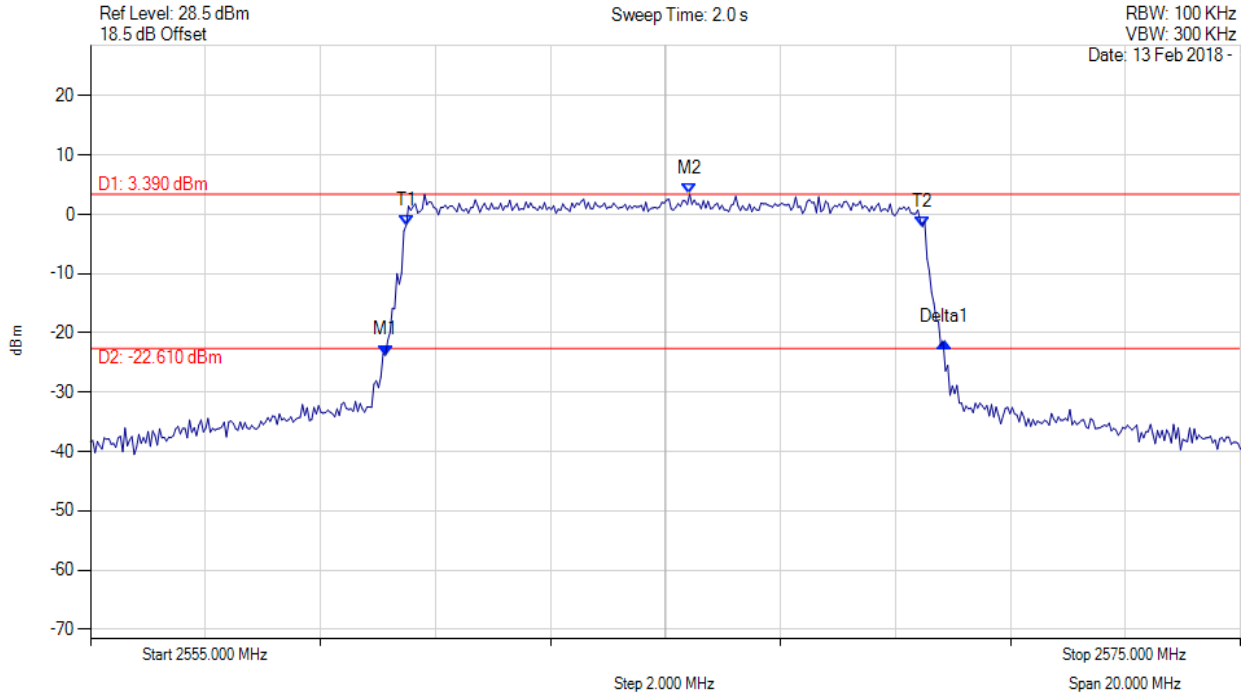


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2530.170 MHz : -22.026 dBm M2 : 2537.705 MHz : 3.709 dBm Delta1 : 9.679 MHz : 0.108 dB T1 : 2530.491 MHz : -0.155 dBm T2 : 2539.429 MHz : 0.998 dBm OBW : 8.938 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2565.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

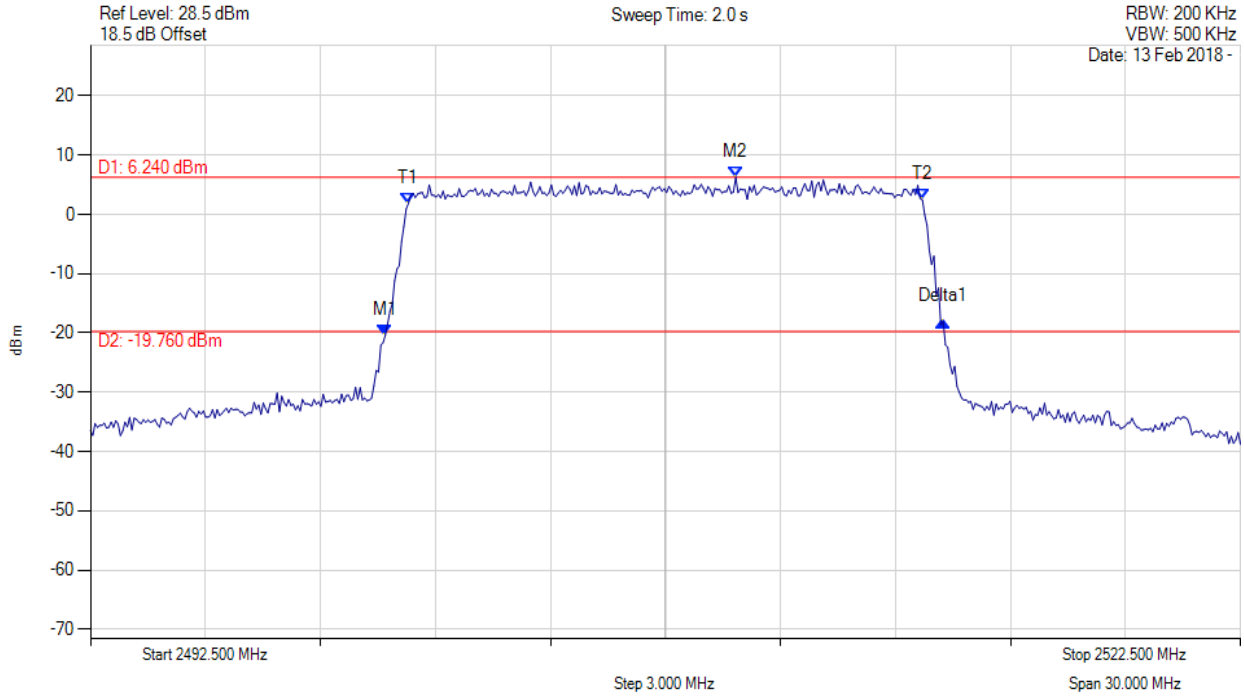


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2560.130 MHz : -23.773 dBm M2 : 2565.421 MHz : 3.389 dBm Delta1 : 9.719 MHz : 2.262 dB T1 : 2560.491 MHz : -1.825 dBm T2 : 2569.469 MHz : -2.057 dBm OBW : 8.978 MHz	Channel Frequency: 2565.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2507.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

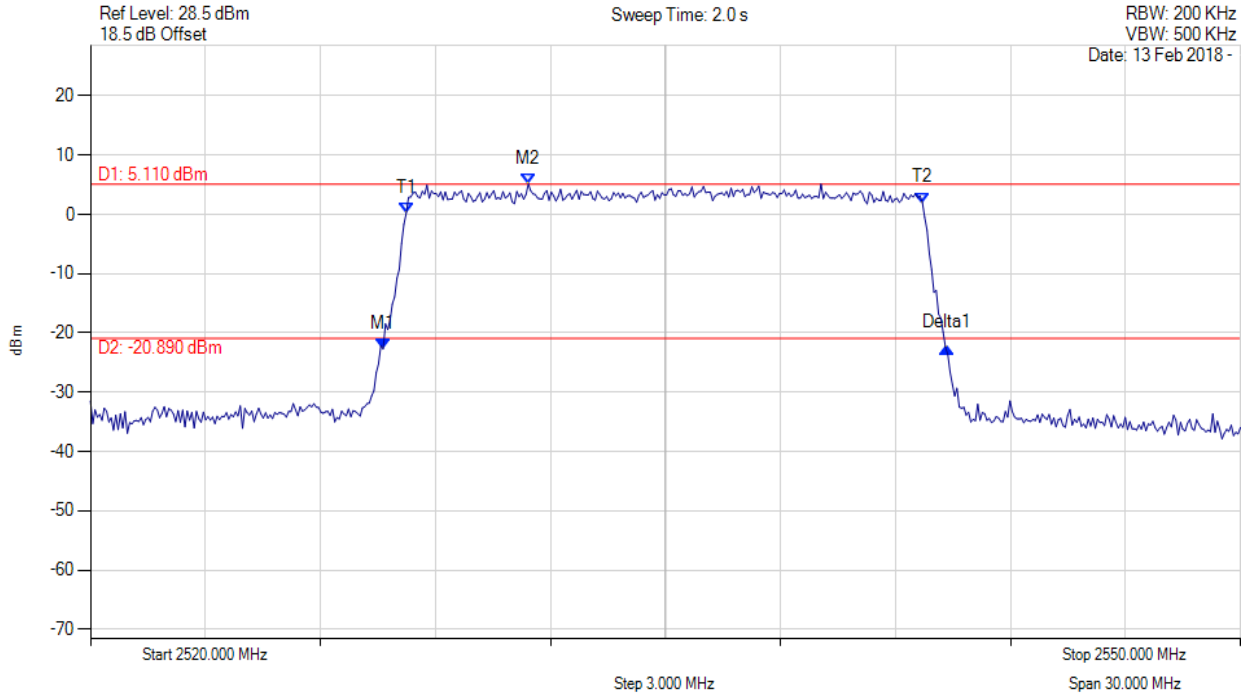


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.185 MHz : -20.271 dBm M2 : 2509.334 MHz : 6.239 dBm Delta1 : 14.549 MHz : 2.207 dB T1 : 2500.797 MHz : 1.876 dBm T2 : 2514.203 MHz : 2.429 dBm OBW : 13.407 MHz	Channel Frequency: 2507.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

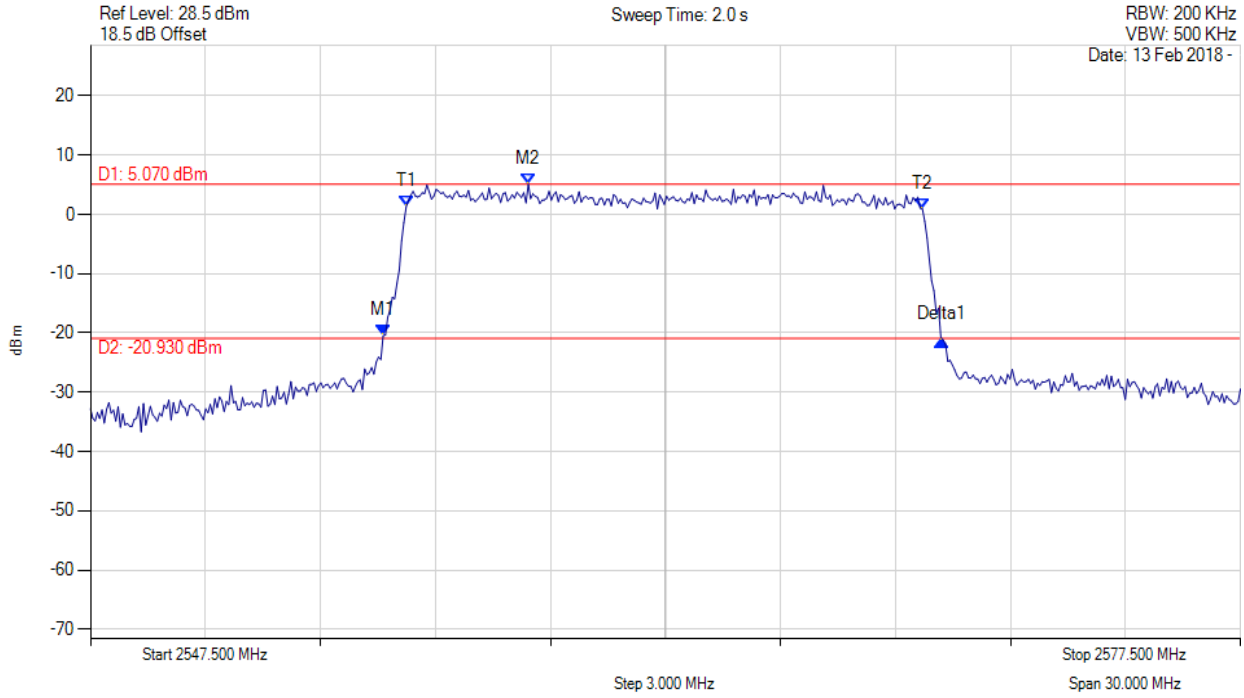


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2527.635 MHz : -22.704 dBm M2 : 2531.423 MHz : 5.108 dBm Delta1 : 14.699 MHz : 0.303 dB T1 : 2528.236 MHz : 0.180 dBm T2 : 2541.703 MHz : 1.937 dBm OBW : 13.467 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2562.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

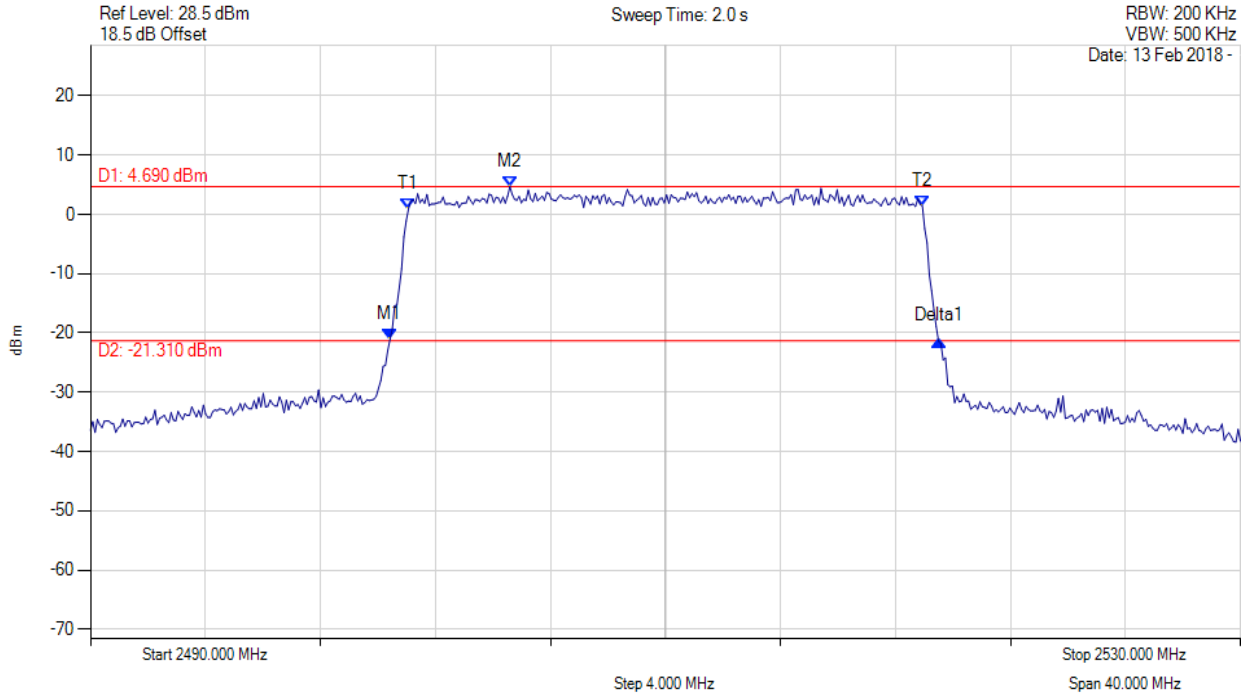


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2555.135 MHz : -20.473 dBm M2 : 2558.923 MHz : 5.071 dBm Delta1 : 14.579 MHz : -0.708 dB T1 : 2555.736 MHz : 1.295 dBm T2 : 2569.203 MHz : 0.888 dBm OBW : 13.467 MHz	Channel Frequency: 2562.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2510.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

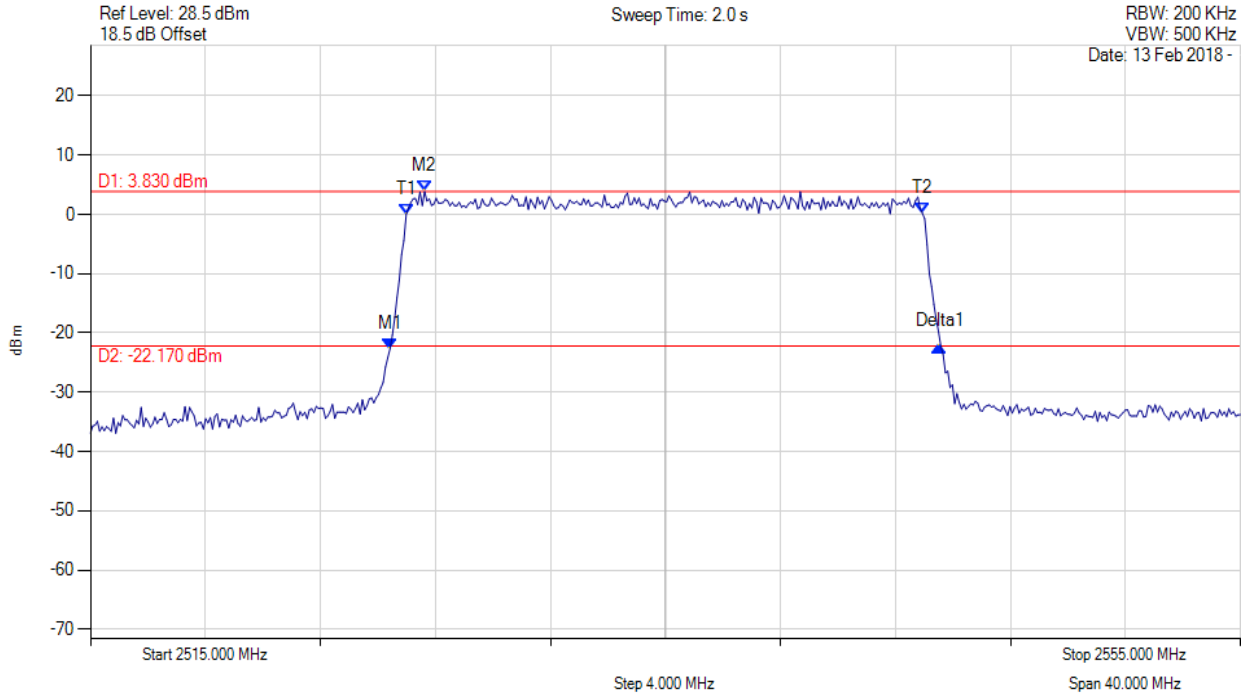


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2500.391 MHz : -21.073 dBm M2 : 2504.589 MHz : 4.693 dBm Delta1 : 19.118 MHz : -0.325 dB T1 : 2501.062 MHz : 0.914 dBm T2 : 2518.938 MHz : 1.343 dBm OBW : 17.876 MHz	Channel Frequency: 2510.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2535.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

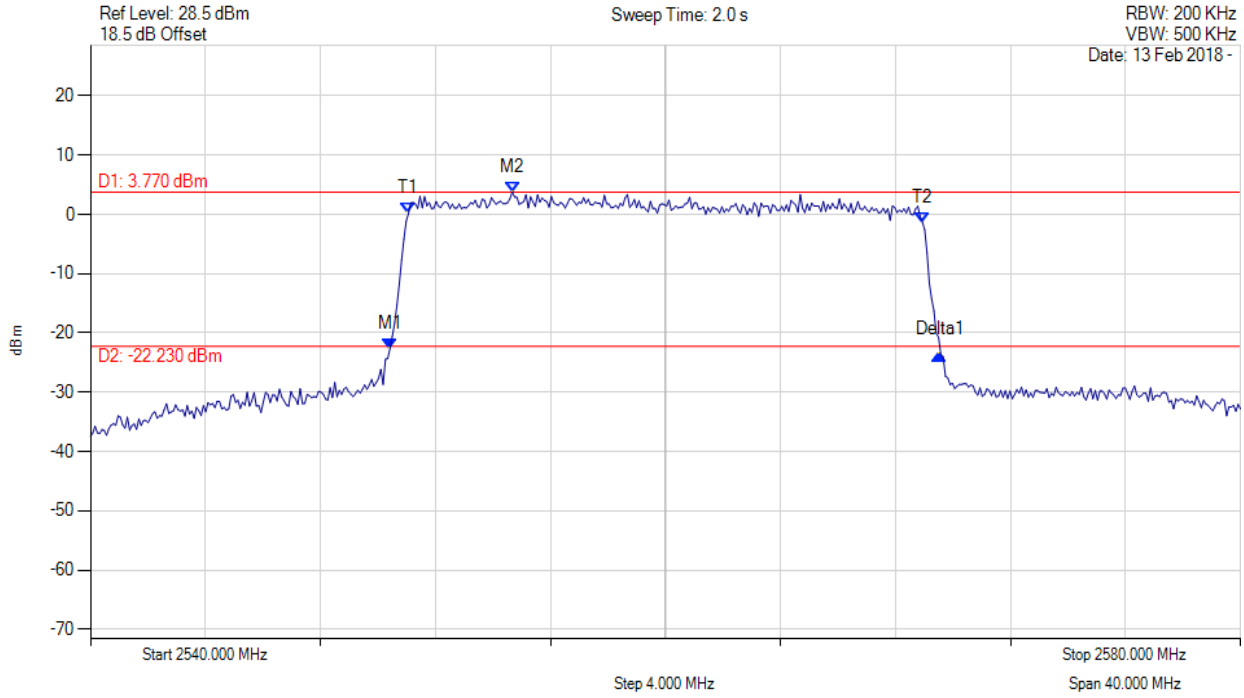


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2525.421 MHz : -22.675 dBm M2 : 2526.623 MHz : 3.835 dBm Delta1 : 19.118 MHz : 0.437 dB T1 : 2525.982 MHz : -0.009 dBm T2 : 2543.938 MHz : 0.150 dBm OBW : 17.956 MHz	Channel Frequency: 2535.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2560.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

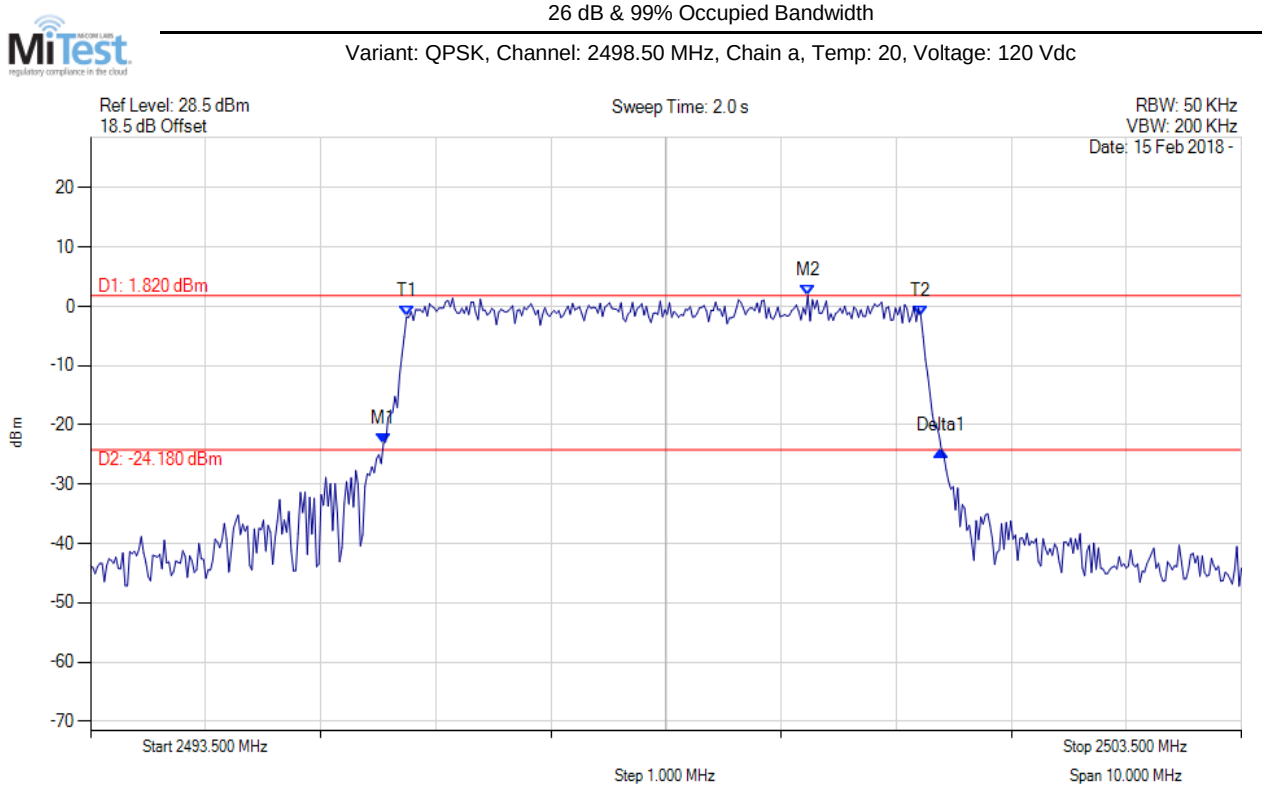


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2550.421 MHz : -22.608 dBm M2 : 2554.669 MHz : 3.772 dBm Delta1 : 19.118 MHz : -1.011 dB T1 : 2551.062 MHz : 0.152 dBm T2 : 2568.938 MHz : -1.353 dBm OBW : 17.876 MHz	Channel Frequency: 2560.00 MHz

back to matrix

9.1.2.3 Band 41: 26 dB & 99% Bandwidth

9.1.2.3.1 QPSK:

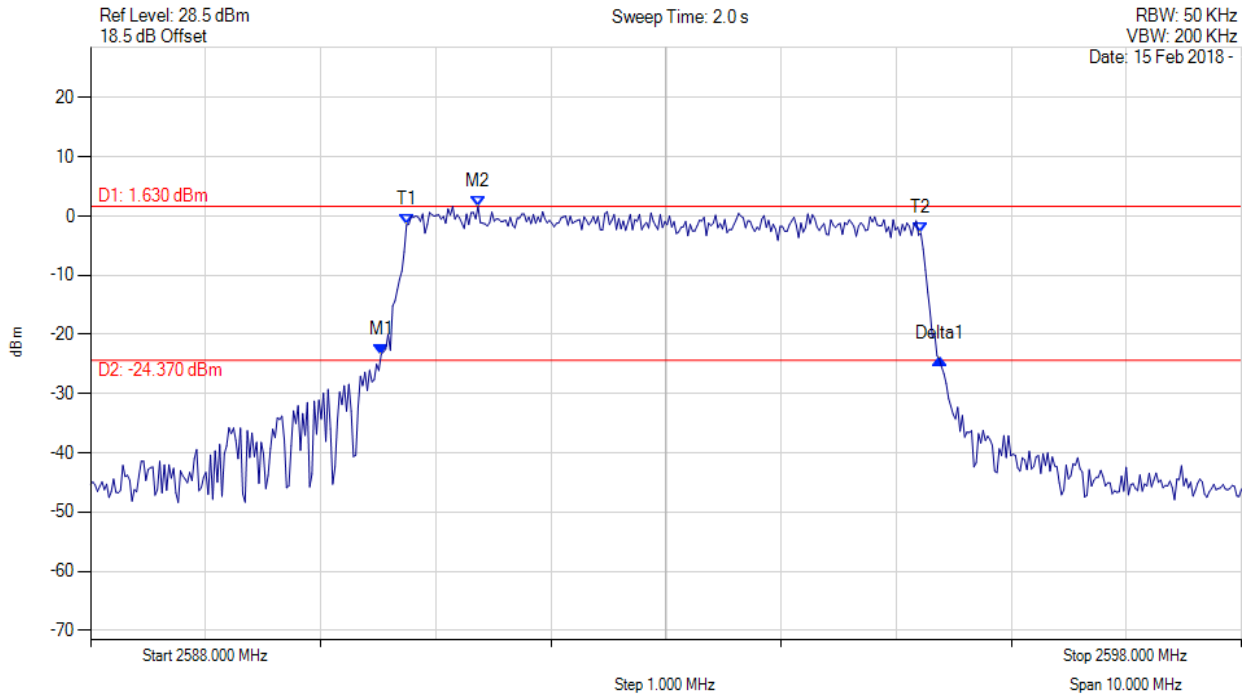


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.045 MHz : -23.096 dBm M2 : 2499.732 MHz : 1.821 dBm Delta1 : 4.850 MHz : -1.300 dB T1 : 2496.245 MHz : -1.768 dBm T2 : 2500.714 MHz : -1.630 dBm OBW : 4.469 MHz	Channel Frequency: 2498.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

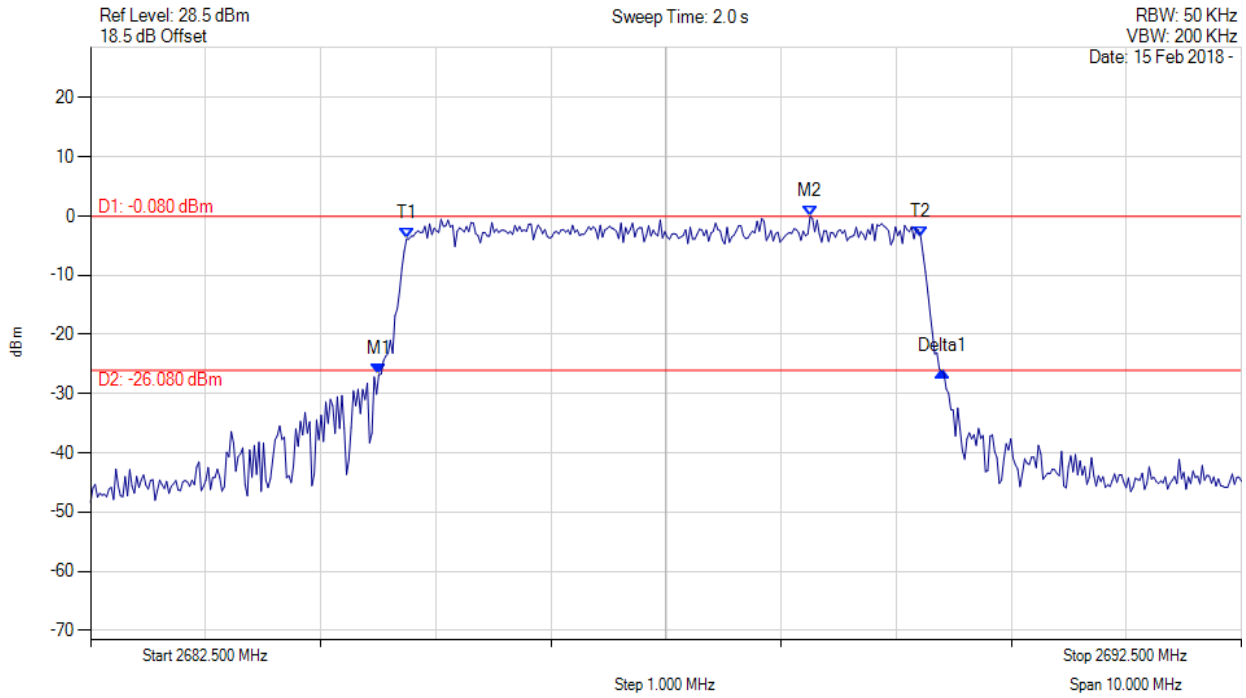


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2590.525 MHz : -23.328 dBm M2 : 2591.367 MHz : 1.626 dBm Delta1 : 4.850 MHz : -0.752 dB T1 : 2590.745 MHz : -1.475 dBm T2 : 2595.214 MHz : -2.887 dBm OBW : 4.469 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2687.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

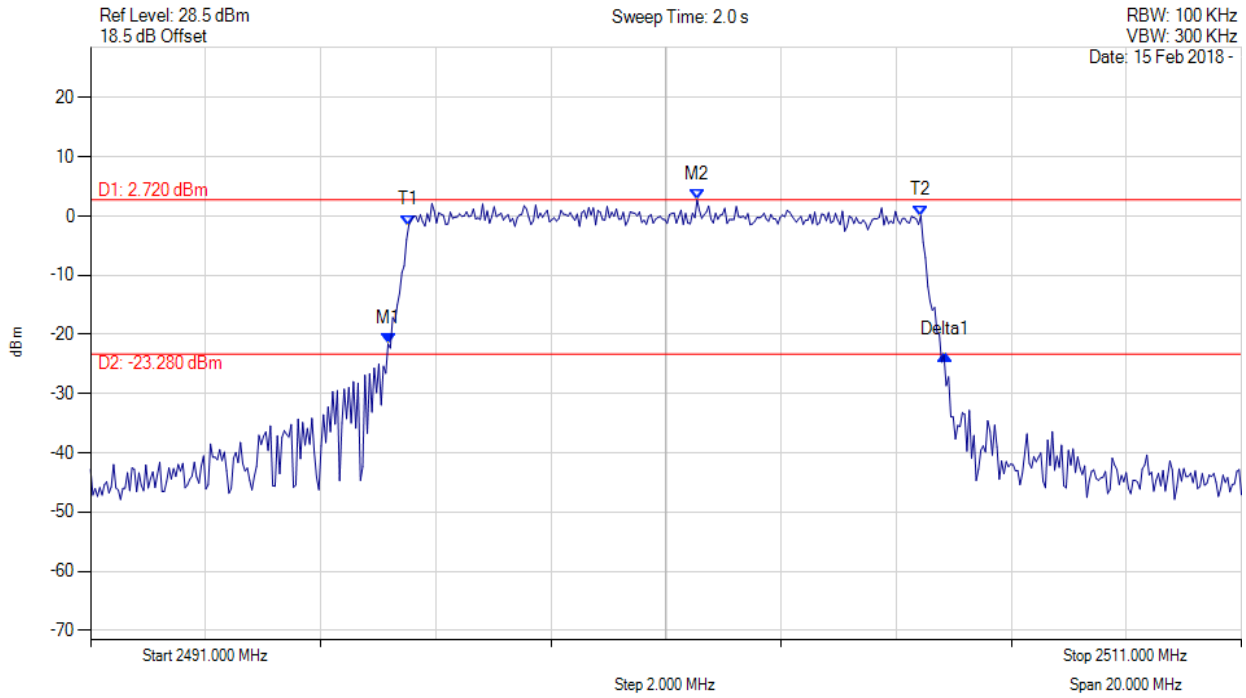


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2685.005 MHz : -26.785 dBm M2 : 2688.753 MHz : -0.080 dBm Delta1 : 4.900 MHz : 0.606 dB T1 : 2685.245 MHz : -3.869 dBm T2 : 2689.714 MHz : -3.631 dBm OBW : 4.469 MHz	Channel Frequency: 2687.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2501.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

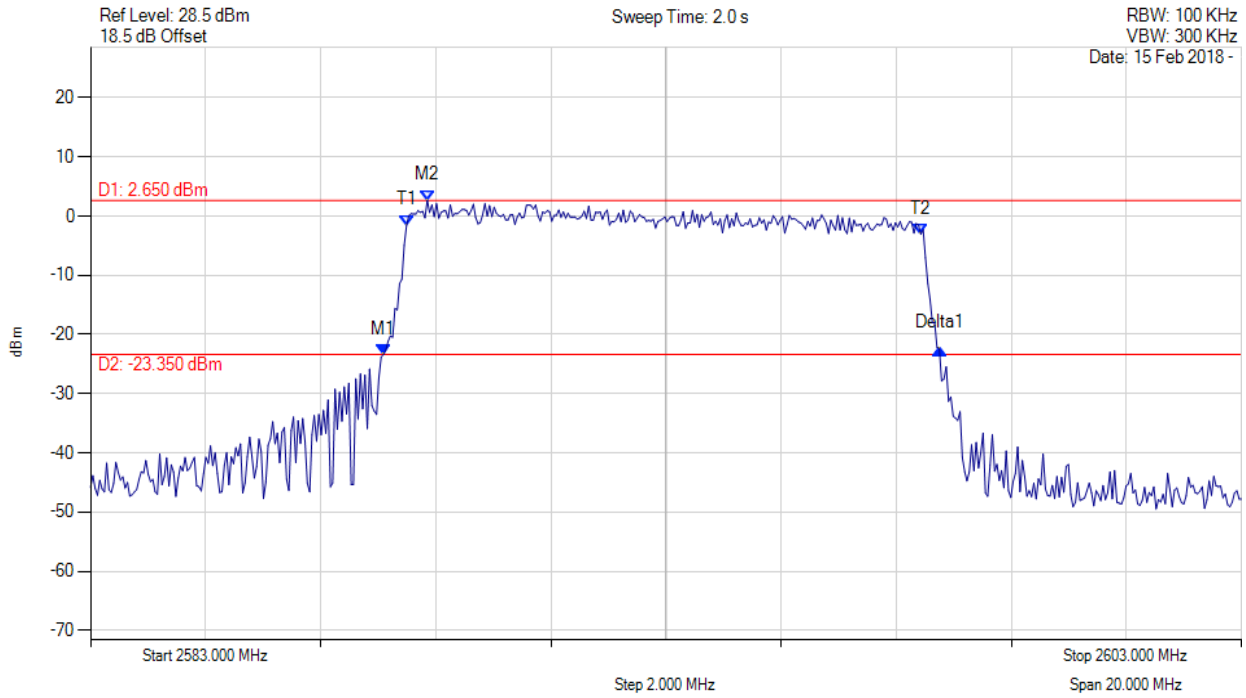


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.180 MHz : -21.567 dBm M2 : 2501.541 MHz : 2.718 dBm Delta1 : 9.659 MHz : -1.944 dB T1 : 2496.531 MHz : -1.551 dBm T2 : 2505.429 MHz : 0.068 dBm OBW : 8.898 MHz	Channel Frequency: 2501.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

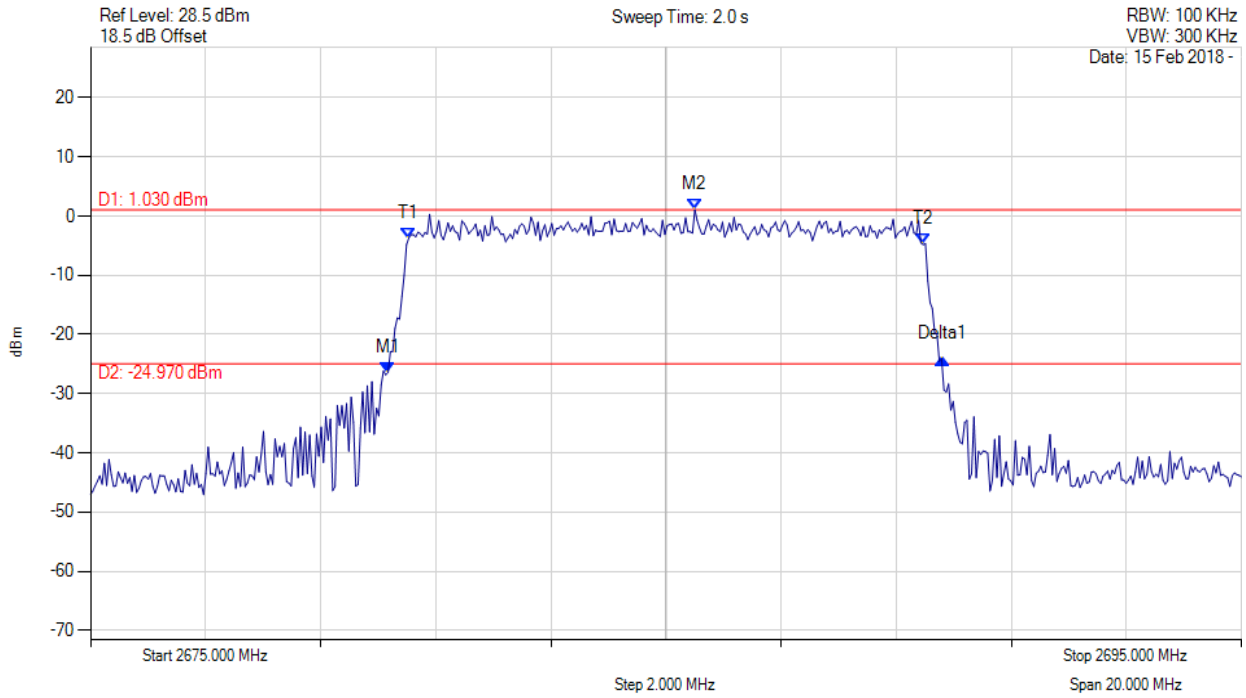


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2588.090 MHz : -23.385 dBm M2 : 2588.852 MHz : 2.651 dBm Delta1 : 9.659 MHz : 1.023 dB T1 : 2588.491 MHz : -1.553 dBm T2 : 2597.429 MHz : -3.070 dBm OBW : 8.938 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2685.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

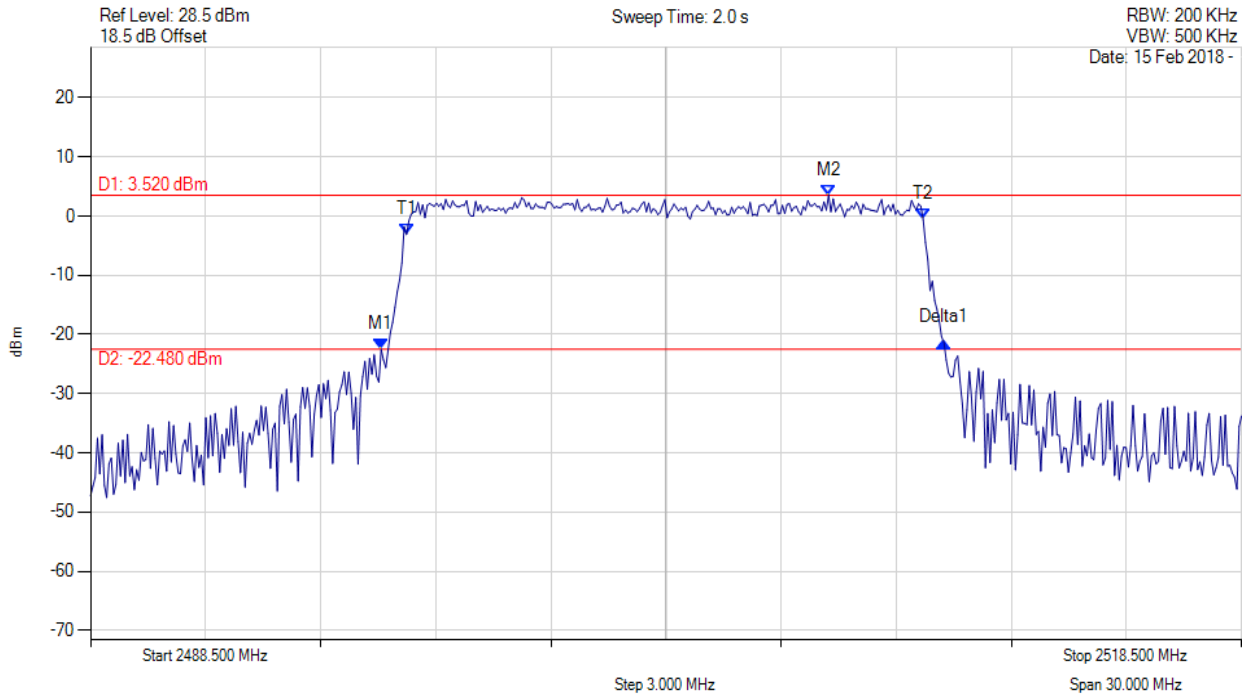


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2680.170 MHz : -26.405 dBm M2 : 2685.501 MHz : 1.026 dBm Delta1 : 9.639 MHz : 2.292 dB T1 : 2680.531 MHz : -3.698 dBm T2 : 2689.469 MHz : -4.815 dBm OBW : 8.938 MHz	Channel Frequency: 2685.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2503.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

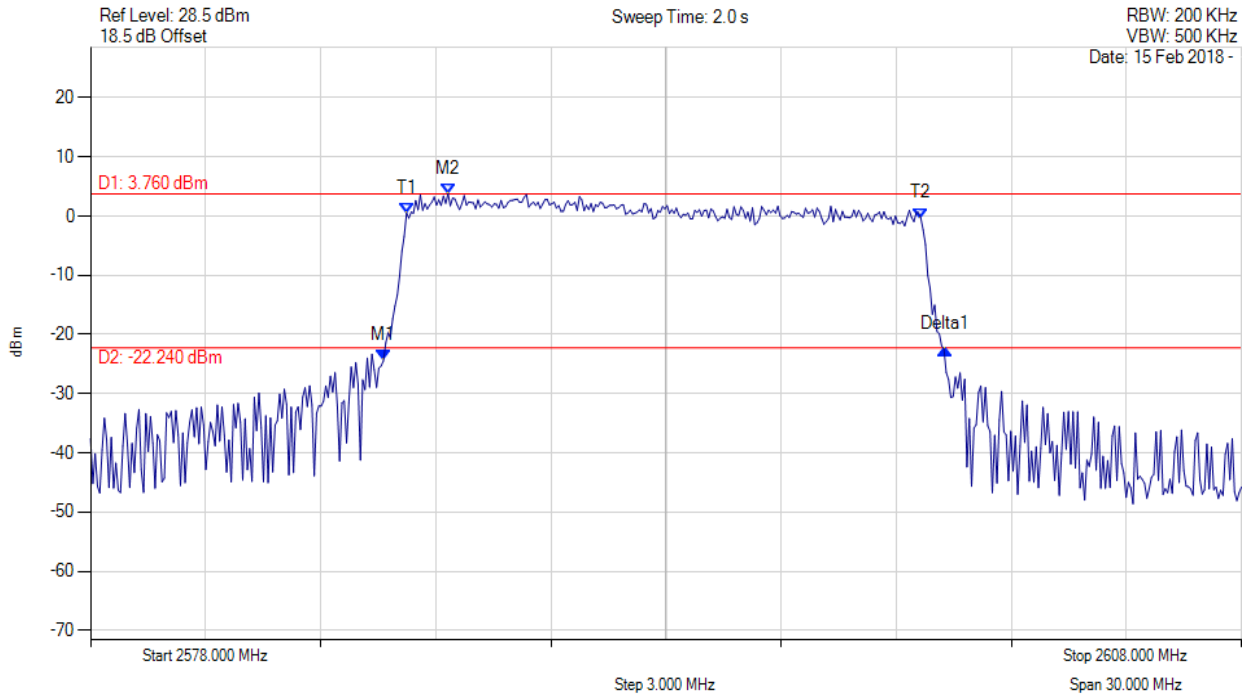


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.065 MHz : -22.523 dBm M2 : 2507.738 MHz : 3.517 dBm Delta1 : 14.669 MHz : 1.218 dB T1 : 2496.736 MHz : -3.117 dBm T2 : 2510.203 MHz : -0.599 dBm OBW : 13.467 MHz	Channel Frequency: 2503.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

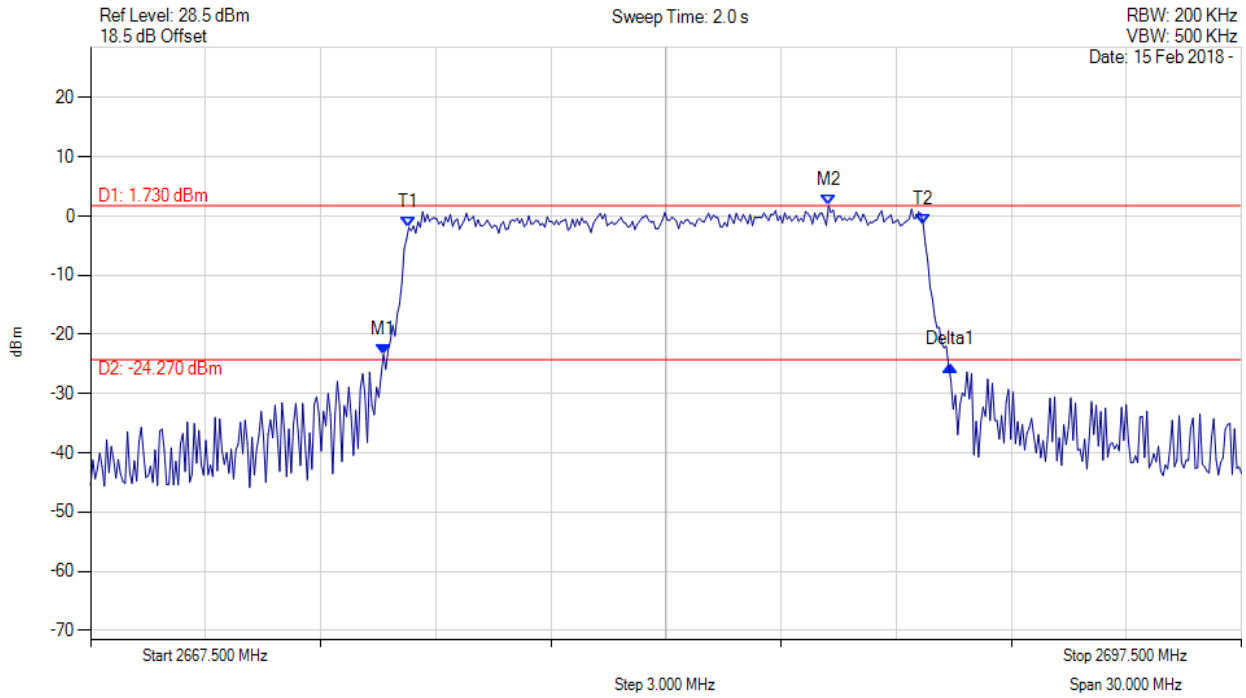


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2585.635 MHz : -24.410 dBm M2 : 2587.319 MHz : 3.764 dBm Delta1 : 14.639 MHz : 1.963 dB T1 : 2586.236 MHz : 0.516 dBm T2 : 2599.643 MHz : -0.389 dBm OBW : 13.407 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2682.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

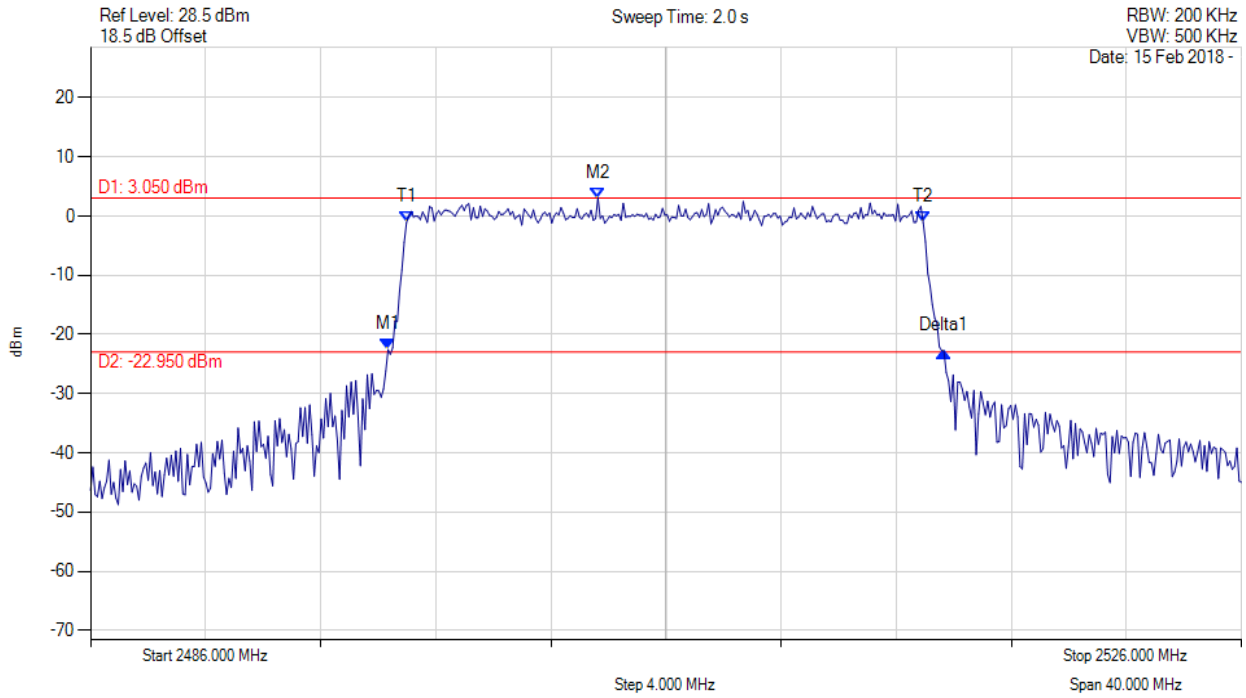


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2675.135 MHz : -23.356 dBm M2 : 2686.738 MHz : 1.728 dBm Delta1 : 14.760 MHz : -1.806 dB T1 : 2675.797 MHz : -1.959 dBm T2 : 2689.203 MHz : -1.394 dBm OBW : 13.407 MHz	Channel Frequency: 2682.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2506.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

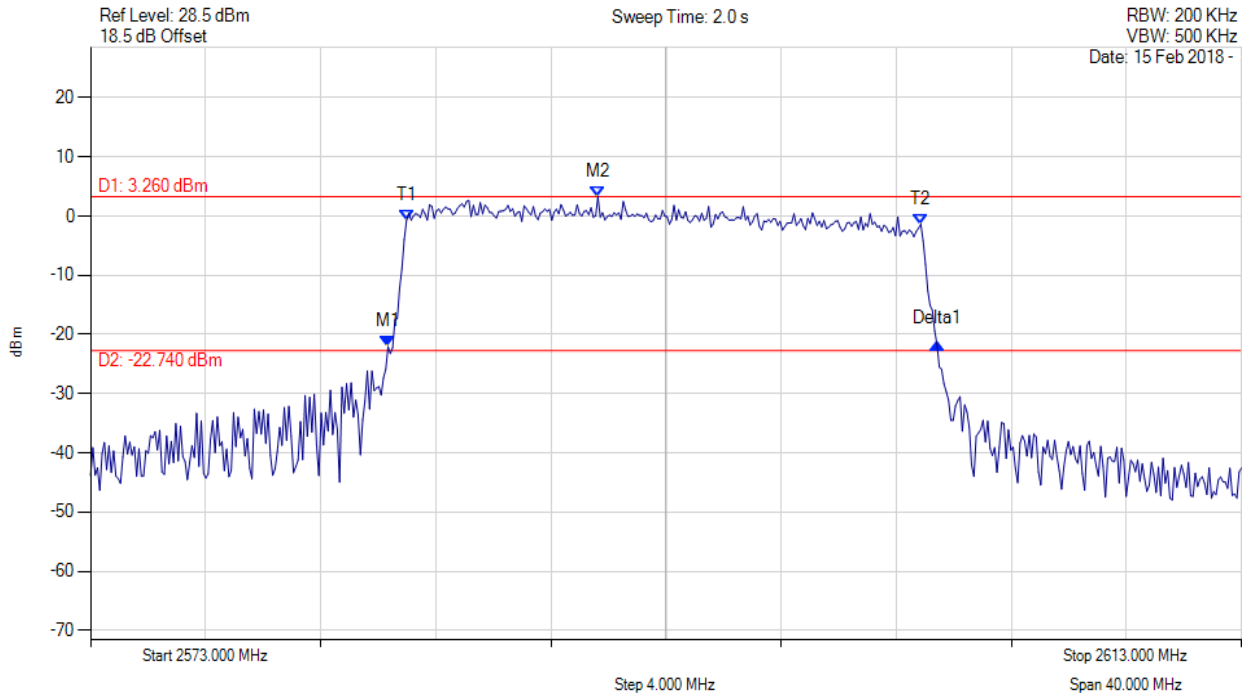


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.341 MHz : -22.559 dBm M2 : 2503.635 MHz : 3.048 dBm Delta1 : 19.319 MHz : -0.262 dB T1 : 2496.982 MHz : -1.075 dBm T2 : 2514.938 MHz : -1.065 dBm OBW : 17.956 MHz	Channel Frequency: 2506.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

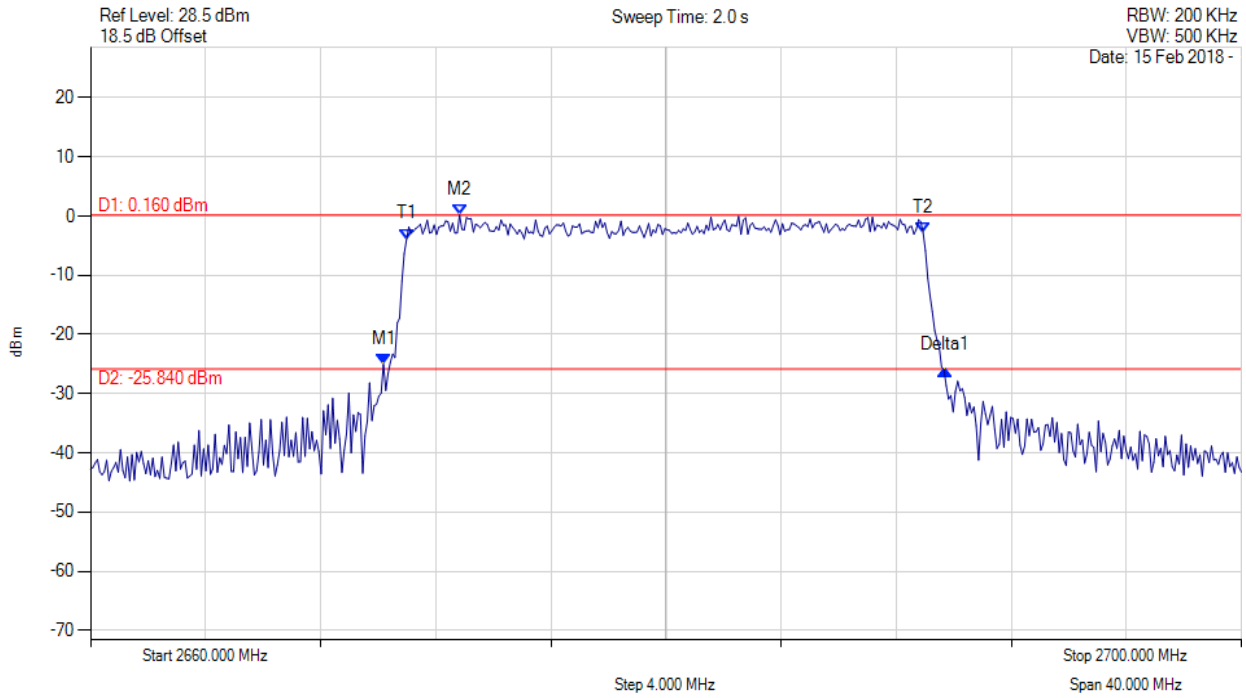


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2583.341 MHz : -22.057 dBm M2 : 2590.635 MHz : 3.259 dBm Delta1 : 19.078 MHz : 0.439 dB T1 : 2583.982 MHz : -0.725 dBm T2 : 2601.858 MHz : -1.374 dBm OBW : 17.876 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: QPSK, Channel: 2680.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc



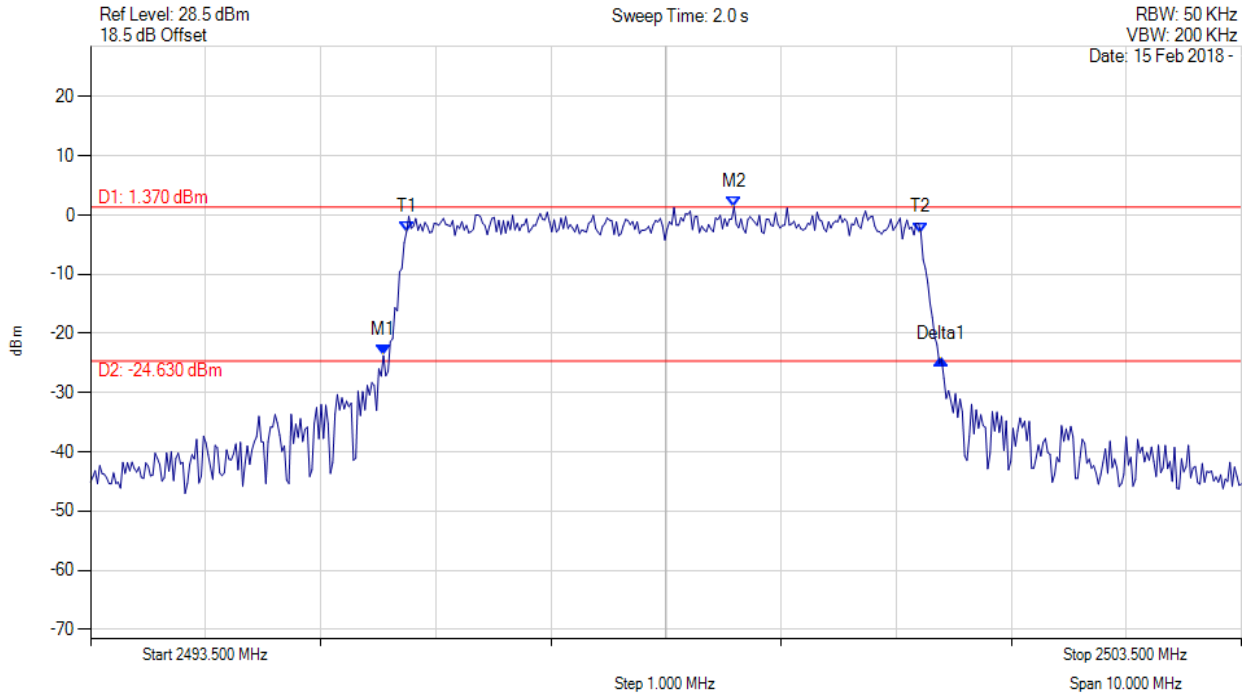
Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2670.205 MHz : -25.010 dBm M2 : 2672.826 MHz : 0.160 dBm Delta1 : 19.489 MHz : -0.931 dB T1 : 2670.982 MHz : -3.885 dBm T2 : 2688.938 MHz : -2.879 dBm OBW : 17.956 MHz	Channel Frequency: 2680.00 MHz

back to matrix

9.1.2.3.2 16QAM:

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2498.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

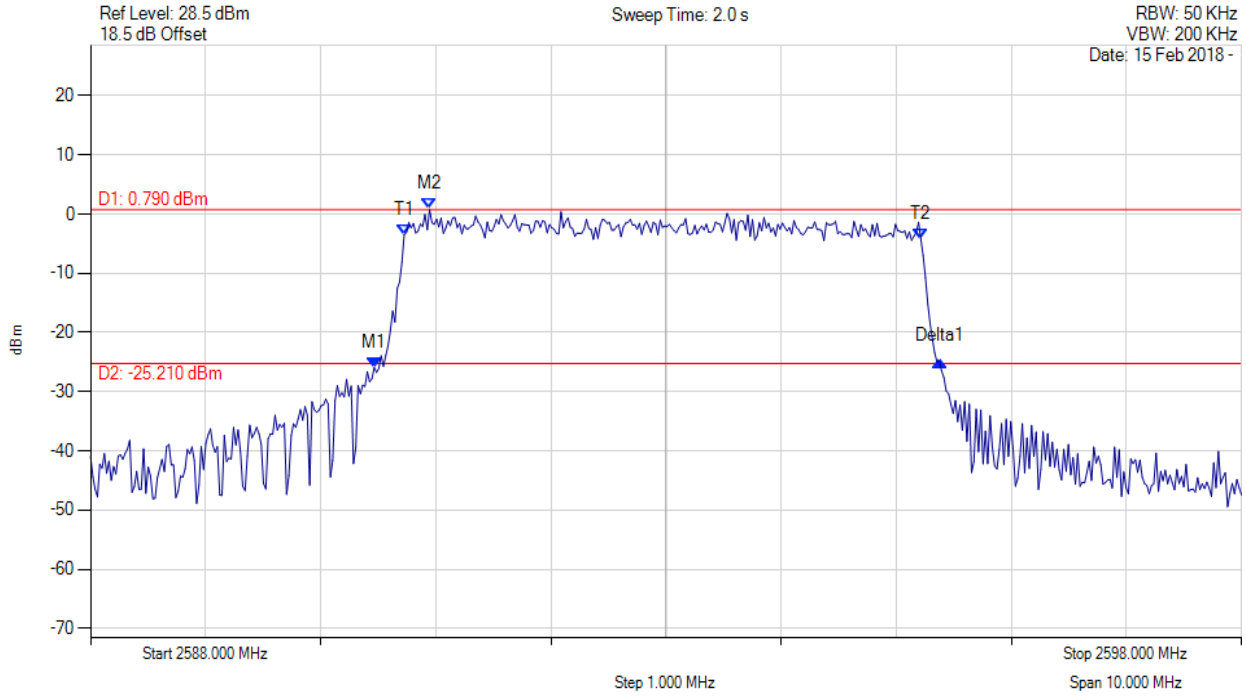


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.045 MHz : -23.725 dBm M2 : 2499.091 MHz : 1.374 dBm Delta1 : 4.850 MHz : -0.651 dB T1 : 2496.245 MHz : -2.818 dBm T2 : 2500.714 MHz : -2.960 dBm OBW : 4.469 MHz	Channel Frequency: 2498.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

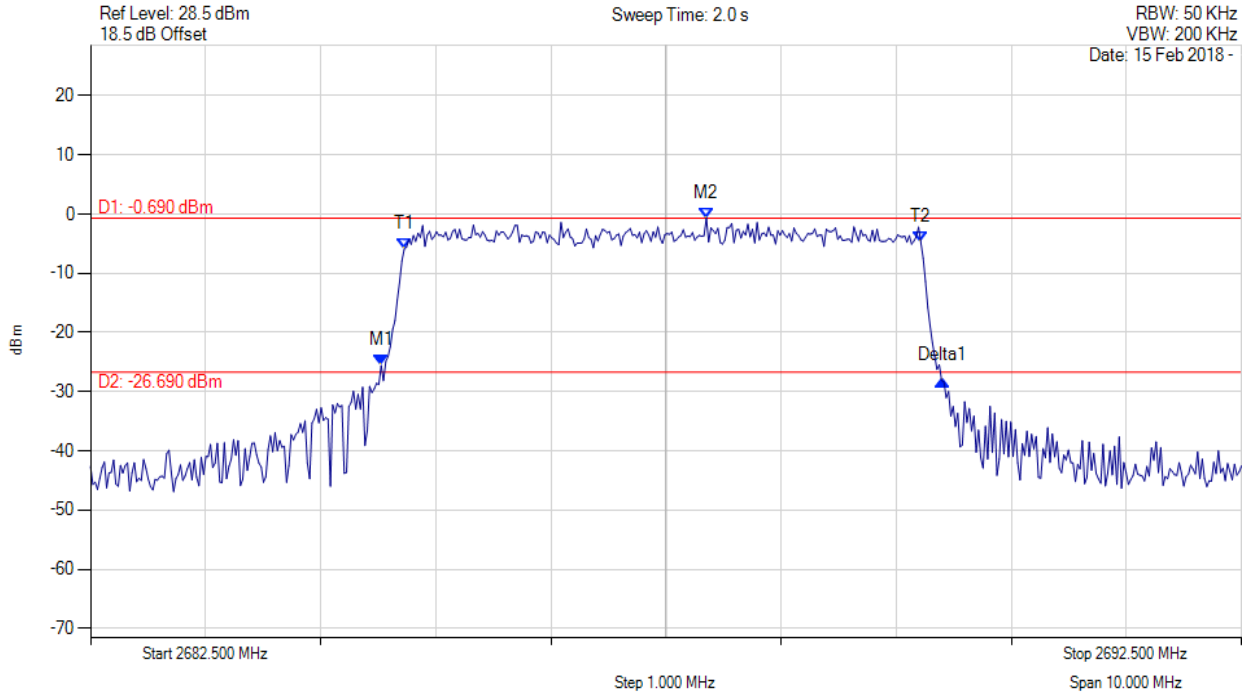


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2590.465 MHz : -25.929 dBm M2 : 2590.946 MHz : 0.792 dBm Delta1 : 4.910 MHz : 1.161 dB T1 : 2590.725 MHz : -3.487 dBm T2 : 2595.214 MHz : -4.233 dBm OBW : 4.489 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2687.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

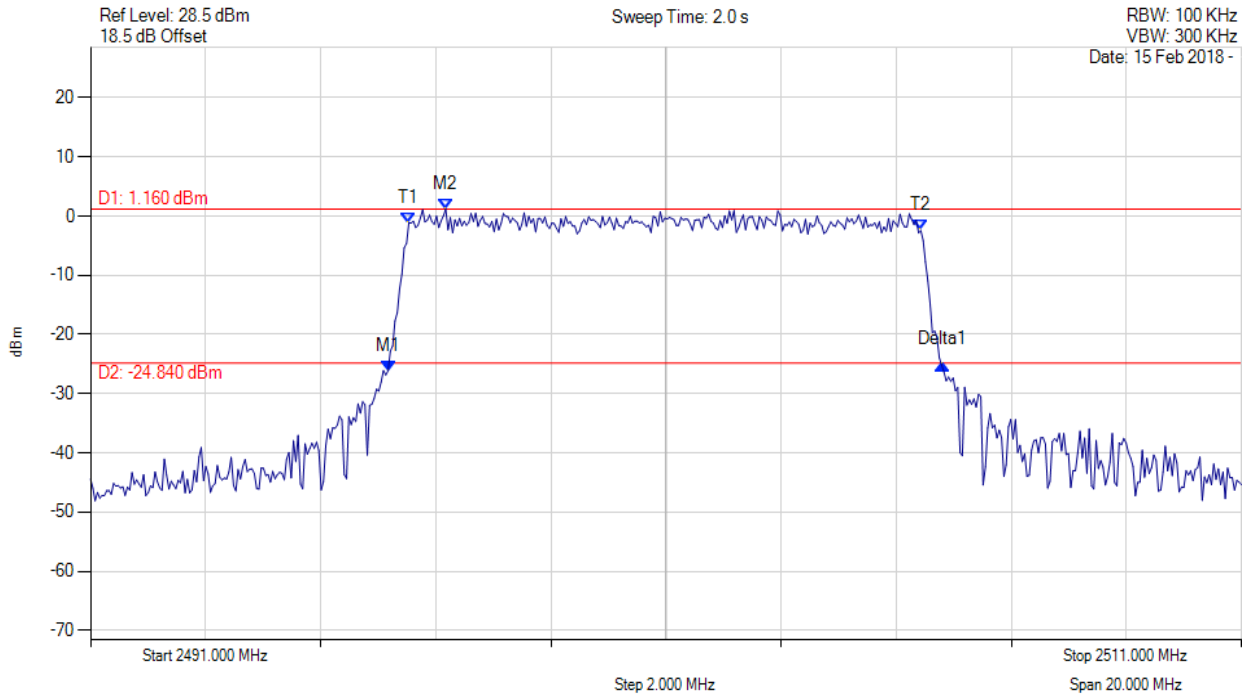


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2685.025 MHz : -25.581 dBm M2 : 2687.851 MHz : -0.690 dBm Delta1 : 4.880 MHz : -2.491 dB T1 : 2685.225 MHz : -5.941 dBm T2 : 2689.714 MHz : -4.776 dBm OBW : 4.489 MHz	Channel Frequency: 2687.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2501.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

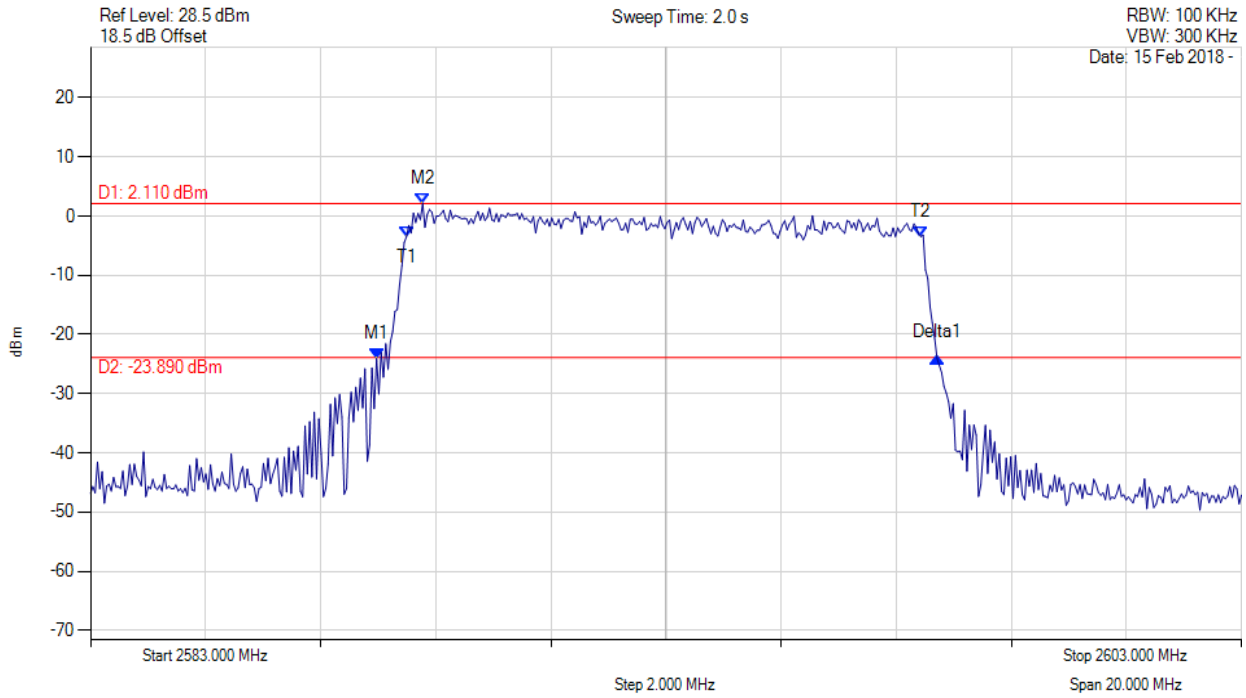


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.180 MHz : -26.151 dBm M2 : 2497.172 MHz : 1.158 dBm Delta1 : 9.619 MHz : 1.005 dB T1 : 2496.531 MHz : -1.162 dBm T2 : 2505.429 MHz : -2.439 dBm OBW : 8.898 MHz	Channel Frequency: 2501.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

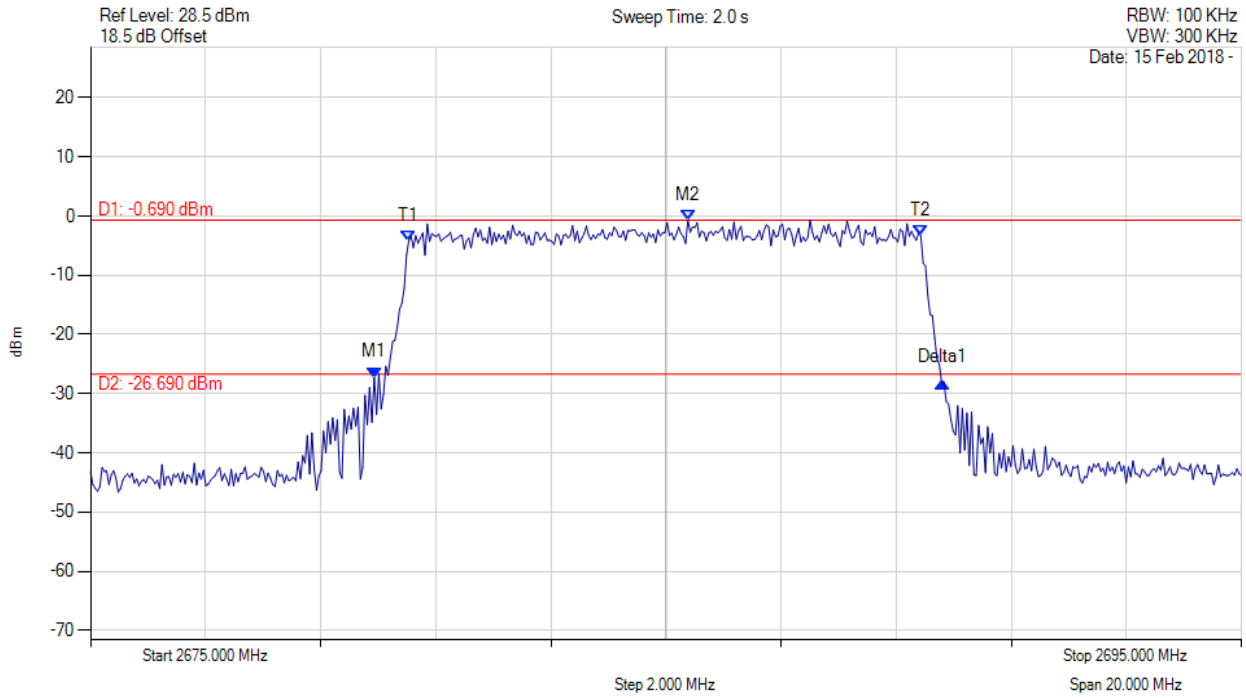


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2587.970 MHz : -24.068 dBm M2 : 2588.772 MHz : 2.112 dBm Delta1 : 9.739 MHz : 0.128 dB T1 : 2588.491 MHz : -3.434 dBm T2 : 2597.429 MHz : -3.456 dBm OBW : 8.938 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2685.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

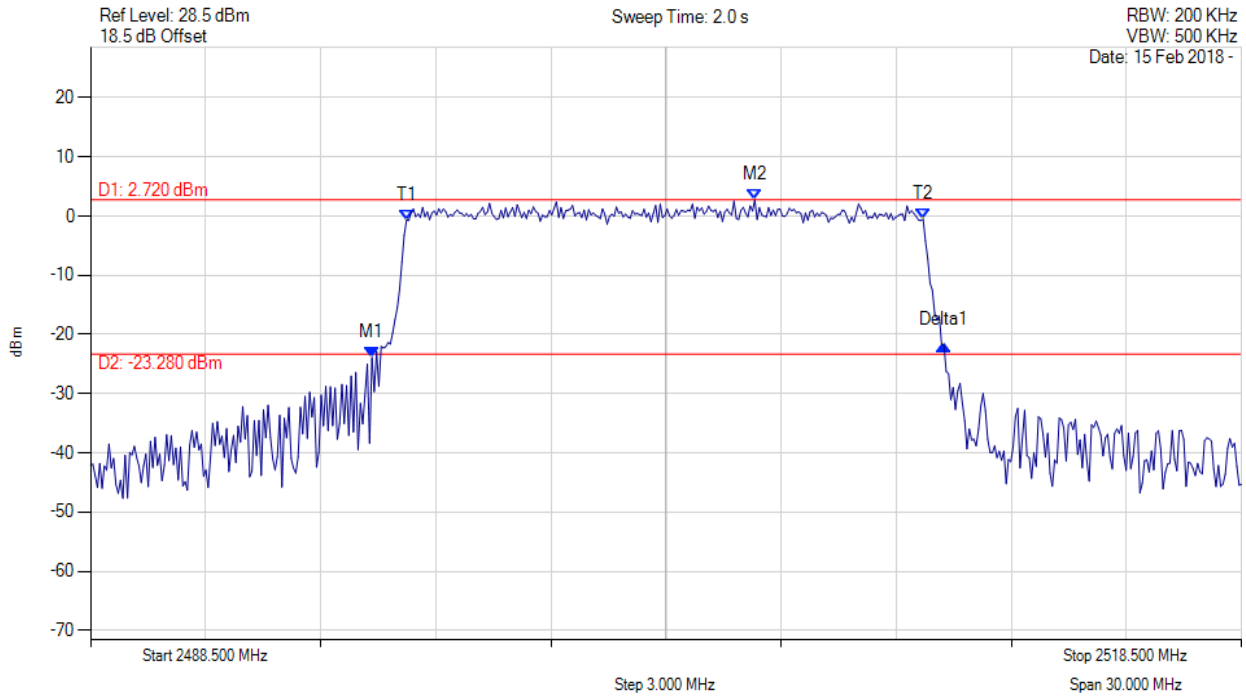


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2679.930 MHz : -27.271 dBm M2 : 2685.381 MHz : -0.694 dBm Delta1 : 9.880 MHz : -0.824 dB T1 : 2680.531 MHz : -4.152 dBm T2 : 2689.429 MHz : -3.326 dBm OBW : 8.898 MHz	Channel Frequency: 2685.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2503.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

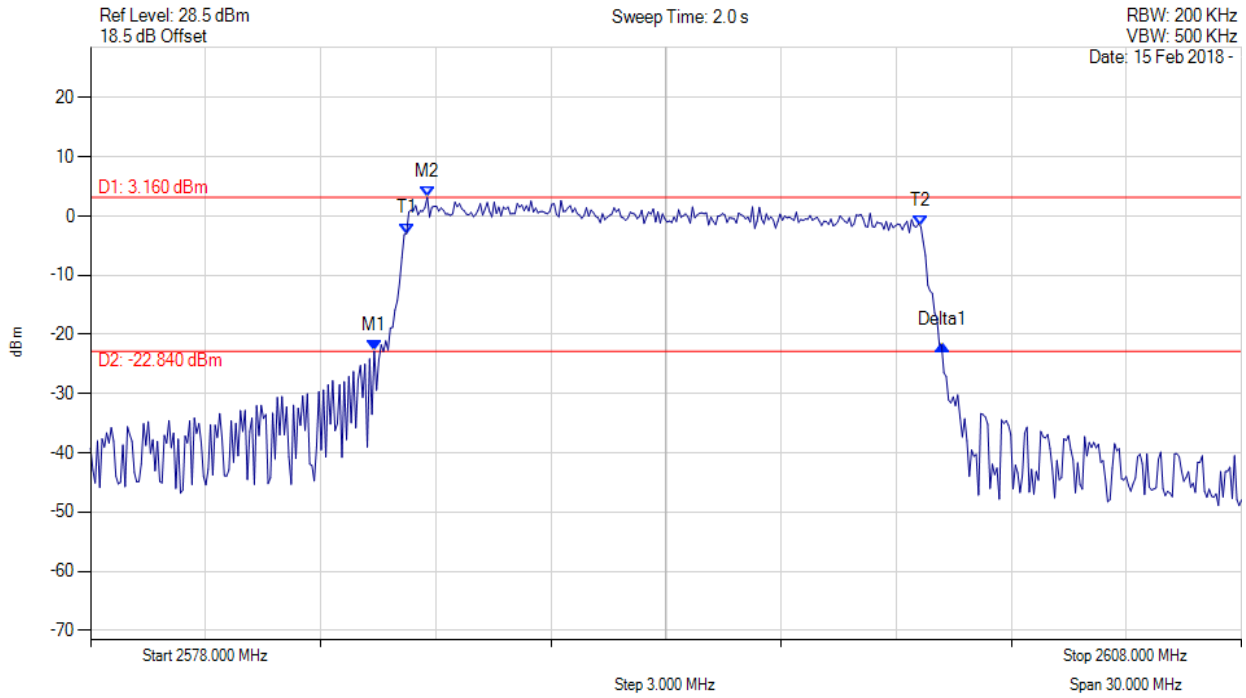


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2495.825 MHz : -23.891 dBm M2 : 2505.815 MHz : 2.718 dBm Delta1 : 14.910 MHz : 2.131 dB T1 : 2496.736 MHz : -0.688 dBm T2 : 2510.203 MHz : -0.542 dBm OBW : 13.467 MHz	Channel Frequency: 2503.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

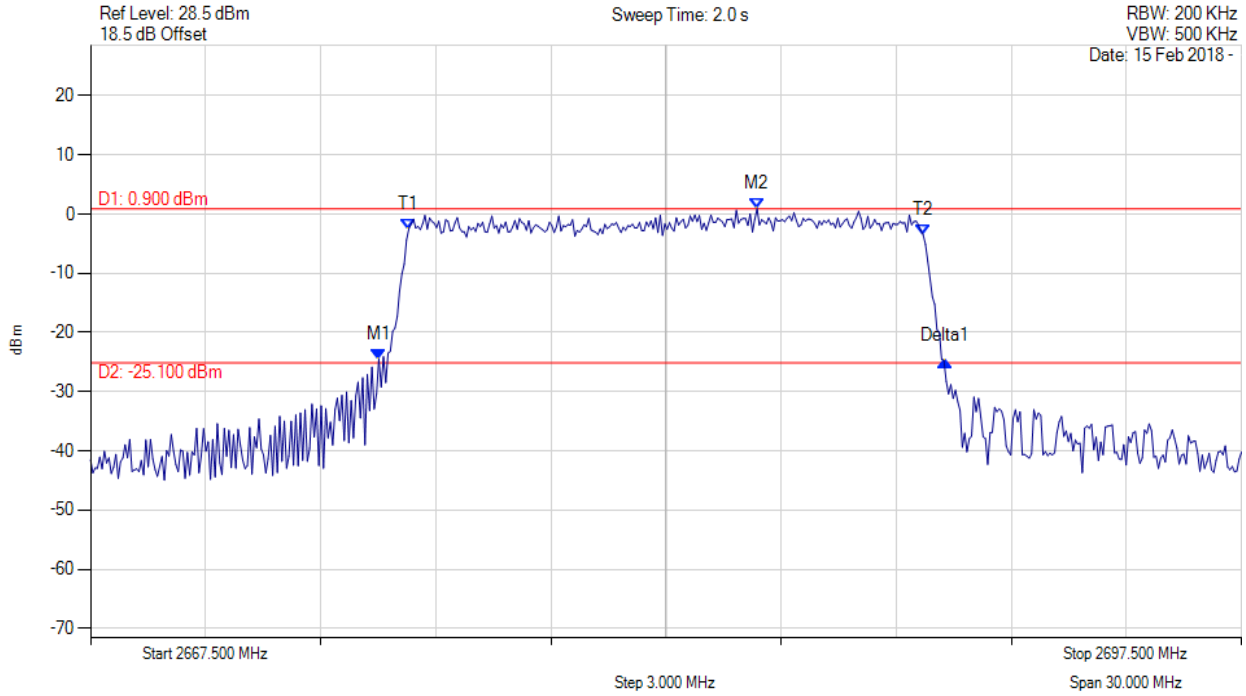


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2585.395 MHz : -22.807 dBm M2 : 2586.778 MHz : 3.164 dBm Delta1 : 14.820 MHz : 0.933 dB T1 : 2586.236 MHz : -2.954 dBm T2 : 2599.643 MHz : -1.774 dBm OBW : 13.407 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2682.50 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

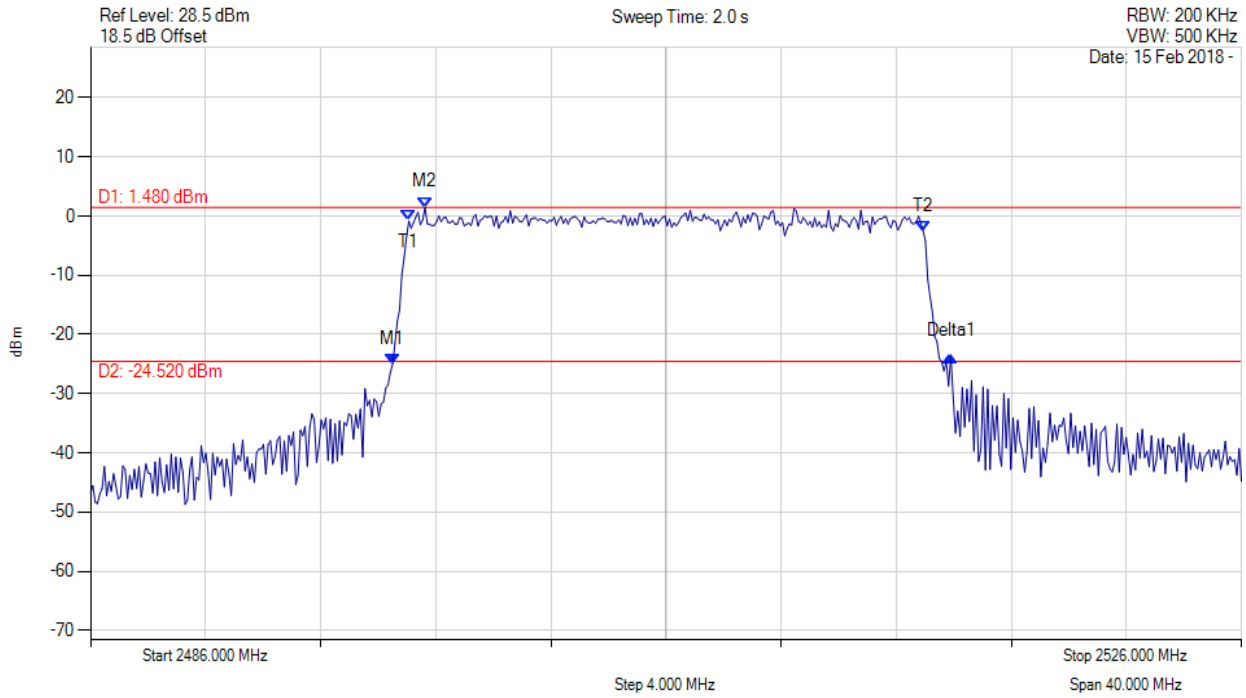


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2675.015 MHz : -24.520 dBm M2 : 2684.875 MHz : 0.900 dBm Delta1 : 14.760 MHz : -0.240 dB T1 : 2675.797 MHz : -2.515 dBm T2 : 2689.203 MHz : -3.534 dBm OBW : 13.407 MHz	Channel Frequency: 2682.50 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2506.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

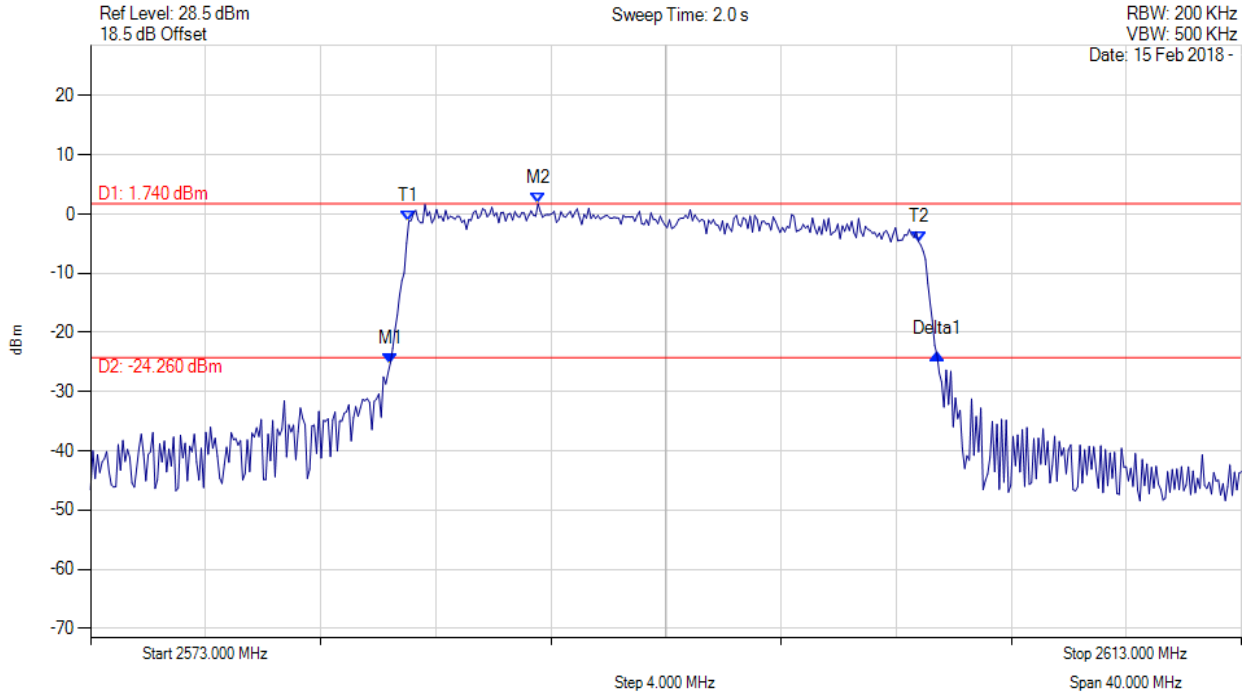


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2496.501 MHz : -24.973 dBm M2 : 2497.623 MHz : 1.484 dBm Delta1 : 19.399 MHz : 1.277 dB T1 : 2497.062 MHz : -0.835 dBm T2 : 2514.938 MHz : -2.531 dBm OBW : 17.876 MHz	Channel Frequency: 2506.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2593.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc

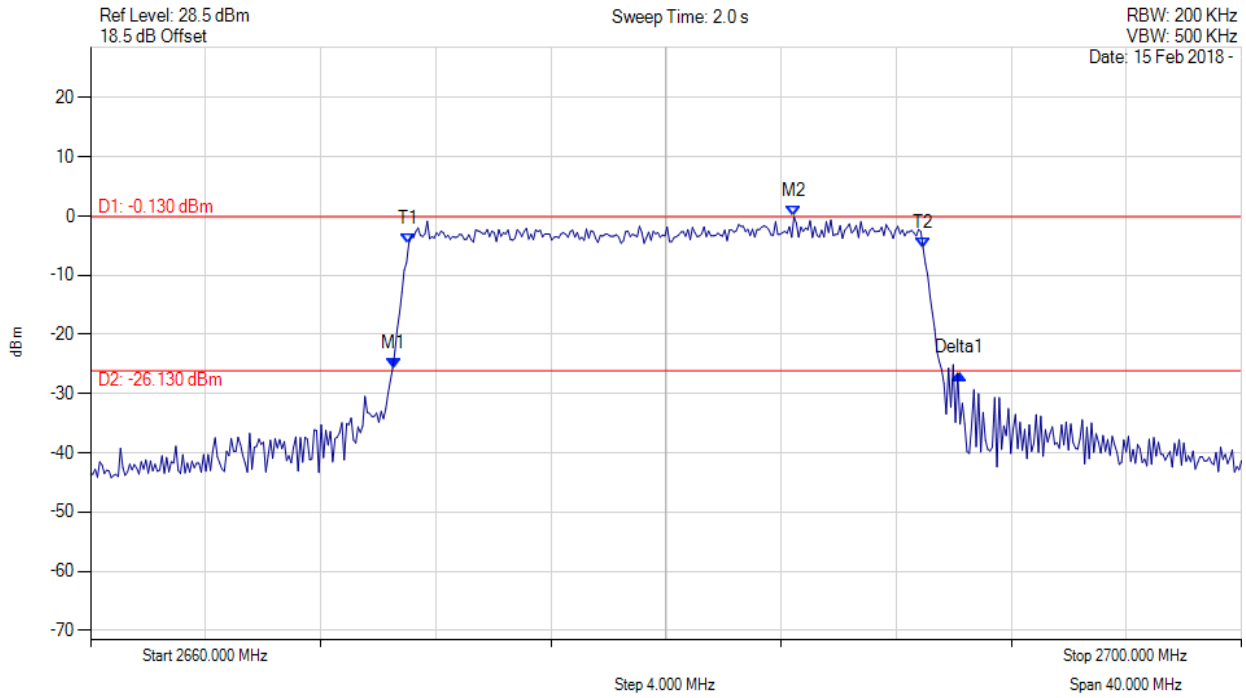


Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2583.421 MHz : -25.207 dBm M2 : 2588.551 MHz : 1.740 dBm Delta1 : 18.998 MHz : 1.499 dB T1 : 2584.062 MHz : -1.242 dBm T2 : 2601.778 MHz : -4.683 dBm OBW : 17.715 MHz	Channel Frequency: 2593.00 MHz

back to matrix

26 dB & 99% Occupied Bandwidth

Variant: 16QAM, Channel: 2680.00 MHz, Chain a, Temp: 20, Voltage: 120 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = MAX PEAK Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = CLR/WRITE	M1 : 2670.526 MHz : -25.718 dBm M2 : 2684.449 MHz : -0.127 dBm Delta1 : 19.649 MHz : -0.852 dB T1 : 2671.062 MHz : -4.652 dBm T2 : 2688.938 MHz : -5.480 dBm OBW : 17.876 MHz	Channel Frequency: 2680.00 MHz

back to matrix

9.2. Frequency Stability

Conducted Test Conditions for Frequency Stability			
Rules and Sections:	FCC CFR 47:2.1055 RSS-132:5.3 RSS-199: 4.3	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Frequency Stability	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	ANSI C63.26-2015:5.6.3	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Frequency Stability Measurement

Frequency Stability was measured with a spectrum analyzer connected to the antenna terminal, while the EUT is operating in transmission mode at the appropriate frequency.

5.6.3 Procedure for frequency stability testing

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. The operating carrier frequency shall be set up in accordance with the manufacturer's published operation and instruction manual prior to the commencement of these tests. No adjustment of any frequency determining circuit element shall be made subsequent to this initial set-up. Frequency stability is tested:

a) At 10 °C intervals of temperatures between −30 °C and +50 °C at the manufacturer's rated supply voltage, and

b) At +20 °C temperature and ±15% supply voltage variations. If a product is specified to operate over a range of input voltage then the −15% variation is applied to the lowermost voltage and the +15% is applied to the uppermost voltage.

During the test all necessary settings, adjustments and control of the EUT have to be performed without disturbing the test environment, i.e., without opening the environmental chamber. The frequency stabilities can be maintained to a lesser temperature range provided that the transmitter is automatically inhibited from operating outside the lesser temperature range. For handheld equipment that is only capable of operating from internal batteries and the supply voltage cannot be varied, the frequency stability tests shall be performed at the nominal battery voltage and the battery end point voltage specified by the manufacturer. An external supply voltage can be used and set at the internal battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer. If an unmodulated carrier is not available, the mean frequency of a modulated carrier can be obtained by using a frequency counter with gating time set to an appropriately large multiple of bit periods (gating time depending on the required accuracy). Full details on the choice of values shall be included in the test report.

Limits for Frequency Stability

Part 22: < 2.5ppm

Part 27: Within Authorized Band.

9.2.1. Band 5 Frequency Stability

Test frequency	836.5 MHz	Measured Frequency	Frequency Error	Frequency Error	Limit	Margin
Temperature	Voltage	Hz	kHz	ppm	ppm	ppm
20 °C	230	836499485.00	-0.52	-6.16E-01	± 2.5	-1.88433
20 °C	110	836499485.00	-0.52	-6.16E-01	± 2.5	-1.88433
70 °C	120	836500005.00	0.01	5.98E-03	± 2.5	-2.49402
60 °C	120	836499979.96	-0.02	-2.40E-02	± 2.5	-2.47604
50 °C	120	836499979.96	-0.02	-2.40E-02	± 2.5	-2.47604
40 °C	120	836500030.00	0.03	3.59E-02	± 2.5	-2.46414
30 °C	120	836500015.00	0.01	1.79E-02	± 2.5	-2.48207
20 °C	120	836499500.00	-0.50	-5.98E-01	± 2.5	-1.90227
10 °C	120	836500010.00	0.01	1.19E-02	± 2.5	-2.48805
0 °C	120	836500100.00	0.10	1.20E-01	± 2.5	-2.38046
-10 °C	120	836500150.00	0.15	1.79E-01	± 2.5	-2.32069
-20 °C	120	836499950.00	-0.05	-5.98E-02	± 2.5	-2.44022
-30 °C	120	836500100.00	0.10	1.20E-01	± 2.5	-2.38046
-40 °C	120	836500055.00	0.05	6.57E-02	± 2.5	-2.43426

9.2.2. Band 7 Frequency Stability

Test frequency	836.5 MHz	Measured Frequency	Frequency Error	Frequency Error	Limit	Margin
Temperature	Voltage	Hz	kHz	ppm	ppm	ppm
20 °C	230	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
20 °C	110	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
70 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
60 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
50 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
40 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
30 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
20 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
10 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
0 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
-10 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
-20 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
-30 °C	120	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32
-40 °C	120	2534994529.96	-5.47	-2.16E+00	± 2.5	-0.34
20 °C	230	2534994479.96	-5.52	-2.18E+00	± 2.5	-0.32

9.2.2.1 Frequency Stability; Temperature Variations, and Voltage Variations, RSS-199

Per RSS-199 sec 4.3:
The applicant shall ensure frequency stability by showing that fL minus the frequency offset and fH plus the frequency offset shall be within the 2500-2570 MHz band.

Band 7: QPSK

Frequency Stability (RSS-199) Band Edge = 2500 MHz					
Frequency (MHz)	**Variant**	**Bandwidth (MHz)**	**Reference Point F_L (MHz)**	**Worst Case Frequency Error (MHz)**	**F_L - Offset**
2502.5	QPSK	5	2500.2125	0.0055	2500.207
2505.0	QPSK	10	2500.4308	0.0055	2500.4253
2507.5	QPSK	15	2500.6412	0.0055	2500.6357
2510.0	QPSK	20	2500.9118	0.0055	2500.9063

Frequency Stability (RSS-199) Band Edge = 2570 MHz					
Frequency (MHz)	**Variant**	**Bandwidth (MHz)**	**Reference Point F_H (MHz)**	**Worst Case Frequency Error (MHz)**	**F_H + Offset**
2567.5	QPSK	5	2569.7495	0.0055	2569.755
2565.0	QPSK	10	2569.4489	0.0055	2569.4544
2562.5	QPSK	15	2569.2384	0.0055	2569.2439
2560.0	QPSK	20	2568.9378	0.0055	2568.9433

Band 7: 16QAM

Frequency Stability (RSS-199) Band Edge = 2500 MHz					
Frequency (MHz)	**Variant**	**Bandwidth (MHz)**	**Reference Point F_L (MHz)**	**Worst Case Frequency Error (MHz)**	**F_L - Offset**
2502.5	16QAM	5	2500.1903	0.0055	2500.1848
2505.0	16QAM	10	2500.4609	0.0055	2500.4554
2507.5	16QAM	15	2500.6412	0.0055	2500.6357
2510.0	16QAM	20	2500.9719	0.0055	2500.9664

Frequency Stability (RSS-199) Band Edge = 2570 MHz					
Frequency (MHz)	**Variant**	**Bandwidth (MHz)**	**Reference Point F_H (MHz)**	**Worst Case Frequency Error (MHz)**	**F_H + Offset**
2567.5	16QAM	5	2569.6893	0.0055	2569.6948
2565.0	16QAM	10	2569.4489	0.0055	2569.4544
2562.5	16QAM	15	2569.2084	0.0055	2569.2139
2560.0	16QAM	20	2568.9378	0.0055	2568.9433

9.2.3. Band 41 Frequency Stability

Test frequency	2593 MHz	Measured Frequency	Frequency Error	Frequency Error	Limit	Margin
Temperature	Voltage	Hz	kHz	ppm	ppm	ppm
20 °C	230	2592995450.00	-4.55	-1.75E+00	± 2.5	-0.75
20 °C	110	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
70 °C	120	2592994940.00	-5.06	-1.95E+00	± 2.5	-0.55
60 °C	120	2592994920.00	-5.08	-1.96E+00	± 2.5	-0.54
50 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
40 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
30 °C	120	2592994940.00	-5.06	-1.95E+00	± 2.5	-0.55
20 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
10 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
0 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
-10 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
-20 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
-30 °C	120	2592994960.00	-5.04	-1.94E+00	± 2.5	-0.56
-40 °C	120	2592994950.00	-5.05	-1.95E+00	± 2.5	-0.55
20 °C	230	2592995450.00	-4.55	-1.75E+00	± 2.5	-0.75

9.3. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
Standard:	FCC CFR 47:2.1046 FCC CFR 47:22.913 FCC CFR 47:27.50 RSS-132: 5.4 RSS-199: 4.4	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	RF power output	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	ANSI C63.26:2015:5.2.3.2	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

5.2.3.2 Measurement of peak power with a peak power meter

The total peak output power may best be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the EUT OBW, and utilize a fast responding diode detector. See item r) of 4.1 for more information regarding power meter functional requirements and limitations and consult the instrumentation-specific application literature for proper setup and use.

Limits for Maximum Conducted Output Power

Band 5: Shall not exceed 7 W (38.45dBm)

Band 7: Shall not exceed 2 W (33dBm)

Band 41: Shall not exceed 2 W (33dBm)

9.3.1. Band 5 Peak Output Power

9.3.1.1 QPSK

Equipment Configuration for Average Output Power

Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
825.5	19.08	-	-	-	19.08	38.45	-19.37	Max
836.5	18.67	-	-	-	18.67	38.45	-19.78	Max
847.5	18.77	-	-	-	18.77	38.45	-19.68	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
826.5	19.05	-	-	-	19.05	38.45	-19.4	Max
836.5	19.41	-	-	-	19.41	38.45	-19.04	Max
846.5	18.82	-	-	-	18.82	38.45	-19.63	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
829.0	19.31	-	-	-	19.31	38.45	-19.14	Max
836.5	18.80	-	-	-	18.8	38.45	-19.65	Max
844.0	18.85	-	-	-	18.85	38.45	-19.6	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.3.1.2 16QAM

Equipment Configuration for Average Output Power

Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
825.5	18.28	-	-	-	18.28	38.45	-20.17	Max
836.5	18.57	-	-	-	18.57	38.45	-19.88	Max
847.5	17.85	-	-	-	17.85	38.45	-20.6	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
826.5	18.01	-	-	-	18.01	38.45	-20.44	Max
836.5	17.77	-	-	-	17.77	38.45	-20.68	Max
846.5	17.8	-	-	-	17.8	38.45	-20.65	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
829.0	18.26	-	-	-	18.26	38.45	-20.19	Max
836.5	17.79	-	-	-	17.79	38.45	-20.66	Max
844.0	17.89	-	-	-	17.89	38.45	-20.56	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.3.2. Band 7 Peak Output Power

9.3.2.1 QPSK

Equipment Configuration for Average Output Power

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2502.5	15.67	-	-	-	15.67	33.00	-17.33	Max
2535.0	15.82	-	-	-	15.82	33.00	-17.18	Max
2567.5	15.70	-	-	-	15.70	33.00	-17.30	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2505.0	15.87	-	-	-	15.87	33.00	-17.13	Max
2535.0	15.92	-	-	-	15.92	33.00	-17.08	Max
2565.0	15.29	-	-	-	15.29	33.00	-17.71	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2507.5	15.91	-	-	-	15.91	33.00	-17.09	Max
2535.0	15.97	-	-	-	15.97	33.00	-17.03	Max
2562.5	15.30	-	-	-	15.30	33.00	-17.70	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2510.0	16.00	-	-	-	16.00	33.00	-17.00	Max
2535.0	15.80	-	-	-	15.80	33.00	-17.20	Max
2560.0	15.51	-	-	-	15.51	33.00	-17.49	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.3.2.1 16QAM

Equipment Configuration for Average Output Power

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2502.5	14.66	-	-	-	14.66	33.00	-18.34	Max
2535.0	14.79	-	-	-	14.79	33.00	-18.21	Max
2567.5	14.38	-	-	-	14.38	33.00	-18.62	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2505.0	14.82	-	-	-	14.82	33.00	-18.18	Max
2535.0	14.87	-	-	-	14.87	33.00	-18.13	Max
2565.0	14.28	-	-	-	14.28	33.00	-18.72	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2507.5	14.85	-	-	-	14.85	33.00	-18.15	Max
2535.0	14.97	-	-	-	14.97	33.00	-18.03	Max
2562.5	14.41	-	-	-	14.41	33.00	-18.59	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2510.0	14.91	-	-	-	14.91	33.00	-18.09	Max
2535.0	14.73	-	-	-	14.73	33.00	-18.27	Max
2560.0	14.42	-	-	-	14.42	33.00	-18.58	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.3.3. Band 41 Peak Output Power

9.3.3.1 QPSK

Equipment Configuration for Average Output Power

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2498.5	16.68	-	-	-	16.68	33.00	-16.32	Max
2593.0	16.30	-	-	-	16.30	33.00	-16.70	Max
2687.5	16.23	-	-	-	16.23	33.00	-16.77	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2501.0	16.85	-	-	-	16.85	33.00	-16.15	Max
2593.0	16.70	-	-	-	16.70	33.00	-16.30	Max
2685.0	16.48	-	-	-	16.48	33.00	-16.52	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2503.5	16.81	-	-	-	16.81	33.00	-16.19	Max
2593.0	16.33	-	-	-	16.33	33.00	-16.67	Max
2682.5	16.17	-	-	-	16.17	33.00	-16.83	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power			
Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2506.0	16.72	-	-	-	16.72	33.00	-16.28	Max
2593.0	15.72	-	-	-	15.72	33.00	-17.28	Max
2680.0	16.18	-	-	-	16.18	33.00	-16.82	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.3.3.1 16QAM

Equipment Configuration for Average Output Power			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2498.5	15.58	-	-	-	15.58	33.00	-17.42	Max
2593.0	15.19	-	-	-	15.19	33.00	-17.81	Max
2687.5	15.22	-	-	-	15.22	33.00	-17.78	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
	Port(s)							
MHz	a	b	c	d	dBm	dBm	dB	
2501.0	15.47	-	-	-	15.47	33.00	-17.53	Max
2593.0	15.35	-	-	-	15.35	33.00	-17.65	Max
2685.0	15.36	-	-	-	15.36	33.00	-17.64	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2503.5	15.77	-	-	-	15.77	33.00	-17.23	Max
2593.0	15.37	-	-	-	15.37	33.00	-17.63	Max
2682.5	15.22	-	-	-	15.22	33.00	-17.78	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

Equipment Configuration for Average Output Power

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	Measured Output Power (dBm) Port(s)				Calculated Total Power Σ Port(s)	Limit	Margin	EUT Power Setting
MHz	a	b	c	d	dBm	dBm	dB	
2506.0	15.52	-	-	-	15.52	33.00	-17.48	Max
2593.0	15.22	-	-	-	15.22	33.00	-17.78	Max
2680.0	15.15	-	-	-	15.15	33.00	-17.85	Max

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

9.4. Peak to Average Power Ratio

Conducted Test Conditions for Peak to Average Power Ratio			
Rules and Sections:	RSS-132: 5.4 RSS-199: 4.4	**Ambient Temp. (ºC):**	24.0 - 27.5
Test Heading:	Transmitter Output Power	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	ANSI C63.26 Section 5.2.6	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Peak to Average Power Ratio

Test configuration and setup used for the measurement was per the Conducted Test Set-up specified in this document.

The CCDF function of the spectrum analyzer was used to calculate the peak-to-average ratio using the following formula:

PAPR (dB) = P_{Pk} (dBm) − P_{Avg} (dBm)

Where

PAPR peak-to-average power ratio, in dB
P_{Pk} measured peak power or peak PSD level, in dBm
P_{Avg} measured average power or average PSD level, in dBm

Limits for Maximum Peak to Average Power Ratio

Shall not exceed 13 dB

9.4.1. Band 5 Peak to Average Ratio

9.4.1.1 QPSK

Equipment Configuration for Peak to Average Power Ratio

Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average* Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
825.5	5.26	13.0	-7.74	5.93	13.0	-7.07
836.5	4.94	13.0	-8.06	6.2	13.0	-6.8
847.5	4.74	13.0	-8.26	6.12	13.0	-6.88

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
826.5	-	13.0	-	6.31	13.0	-6.69
836.5	-	13.0	-	6.15	13.0	-6.85
846.5	-	13.0	-	6.32	13.0	-6.68

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
829.0	-	13.0	-	5.04	13.0	-7.96
836.5	-	13.0	-	5.04	13.0	-7.96
844.0	-	13.0	-	5.79	13.0	-7.21

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.4.2.1 16QAM

Equipment Configuration for Peak to Average Power Ratio			
Variant:	3 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average* Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
825.5	6.21	13	-6.79	7.44	13.0	-5.56
836.5	5.85	13	-7.15	7.02	13.0	-5.98
847.5	6.00	13	-7.00	7.03	13.0	-5.97

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
826.5	-	13.0	-	7.27	13.0	-5.73
836.5	-	13.0	-	7.15	13.0	-5.85
846.5	-	13.0	-	7.08	13.0	-5.92

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
829.0	-	13.0	-	7.51	13.0	-5.49
836.5	-	13.0	-	7.15	13.0	-5.85
844.0	-	13.0	-	7.34	13.0	-5.66

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.4.2. Band 7 Peak to Average Ratio

9.4.2.1 QPSK

Equipment Configuration for Peak to Average Power Ratio			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2502.5	-	13.0	-	5.72	13	-7.28
2535.0	-	13.0	-	5.45	13	-7.55
2567.5	-	13.0	-	5.21	13	-7.79

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2505.0	-	13.0	-	6.04	13	-6.96
2535.0	-	13.0	-	5.38	13	-7.62
2565.0	-	13.0	-	5.27	13	-7.73

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2507.5	-	13.0	-	6.39	13	-6.61
2535.0	-	13.0	-	6.42	13	-6.58
2562.5	-	13.0	-	7.31	13	-5.69

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2510.0	-	13.0	-	7.38	13	-5.62
2535.0	-	13.0	-	9.24	13	-3.76
2560.0	-	13.0	-	7.60	13	-5.4

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.4.2.2 16QAM

Equipment Configuration for Peak to Average Power Ratio			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2502.5	-	13.0	-	6.41	13	-6.59
2535.0	-	13.0	-	6.48	13	-6.52
2567.5	-	13.0	-	6.20	13	-6.8

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2505.0	-	13.0	-	7.32	13	-5.68
2535.0	-	13.0	-	7.49	13	-5.51
2565.0	-	13.0	-	6.93	13	-6.07

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2507.5	-	13.0	-	8.19	13	-4.81
2535.0	-	13.0	-	8.00	13	-5.00
2562.5	-	13.0	-	8.06	13	-4.94

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2510.0	-	13.0	-	8.94	13	-4.06
2535.0	-	13.0	-	8.47	13	-4.53
2560.0	-	13.0	-	9.42	13	-3.58

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.4.3. Band 41 Peak to Average Ratio

9.4.2.1 QPSK

Equipment Configuration for Peak to Average Power Ratio

Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2498.5	-	13.0	-	8.63	13	-4.37
2593.0	-	13.0	-	8.41	13	-4.59
2687.5	-	13.0	-	11.03	13	-1.97

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2501.0	-	13.0	-	9.75	13	-3.25
2593.0	-	13.0	-	10.97	13	-2.03
2685.0	-	13.0	-	7.84	13	-5.16

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2503.5	-	13.0	-	9.76	13	-3.24
2593.0	-	13.0	-	10.98	13	-2.02
2682.5	-	13.0	-	8.83	13	-4.17

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	QPSK	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2506.0	-	13.0	-	9.63	13	-3.37
2593.0	-	13.0	-	11.31	13	-1.69
2680.0	-	13.0	-	10.30	13	-2.7

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.4.2.2 16QAM

Equipment Configuration for Peak to Average Power Ratio			
Variant:	5 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2498.5	-	13.0	-	11.35	13	-1.65
2593.0	-	13.0	-	8.58	13	-4.42
2687.5	-	13.0	-	9.13	13	-3.87

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	10 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2501.0	-	13.0	-	9.84	13	-3.16
2593.0	-	13.0	-	10.06	13	-2.94
2685.0	-	13.0	-	8.98	13	-4.02

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	15 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2503.5	-	13.0	-	10.14	13	-2.86
2593.0	-	13.0	-	11.95	13	-1.05
2682.5	-	13.0	-	11.67	13	-1.33

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

Equipment Configuration for Peak to Average Power Ratio

Variant:	20 MHz Bandwidth	**Duty Cycle (%):**	100
Data Rate:	-	**Antenna Gain (dBi):**	0
Modulation:	16QAM	**Beam Forming Gain (Y)(dB):**	Not Applicable
TPC:	Not Applicable	**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Test Frequency	1 Resource Block*			Full Resource Blocks		
MHz	**Peak to Average Ratio (dB)**	**Limit**	**Margin**	**Peak to Average Ratio (dB)**	**Limit**	**Margin**
2506.0	-	13.0	-	9.89	13	-3.11
2593.0	-	13.0	-	11.85	13	-1.15
2680.0	-	13.0	-	12.14	13	-0.86

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-01 MEASURING RF OUTPUT POWER
Measurement Uncertainty:	1.33 dB

*1 Resource Block data shows full Resource Blocks are worst case.

9.5. Radiated Spurious Emissions and Band-Edge

Radiated Test Conditions for Radiated Spurious			
Rules and Sections:	FCC CFR 47:2.1053, FCC CFR 47:22.917, FCC CFR 47:27.53 RSS-132: 5.5 RSS-199: 4.5 RSS-Gen: 6:13	**Ambient Temp. (ºC):**	20.0 - 24.5
Test Heading:	Radiated Spurious	**Rel. Humidity (%):**	32 - 45
Standard Section(s):	ANSI/TIA-603	**Pressure (mBars):**	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious Emissions

ANSI/TIA-603

Measurements were performed in accordance with TIA/EIA 603.

Measurements were made while EUT was operating in modulated mode of operation at the appropriate center frequency. The antenna port was attenuated with a 50 Ω termination.

The measurement equipment was set to measure in peak hold mode. The emissions were measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode.

The highest emissions relative to the limit are listed for each frequency band measured.

Limits for Maximum Spurious Emissions
Band 5: < 43+10log10(P[Watts])Band 7: < 55+10log10(P[Watts])
Band 41: < 55+10log10(P[Watts])

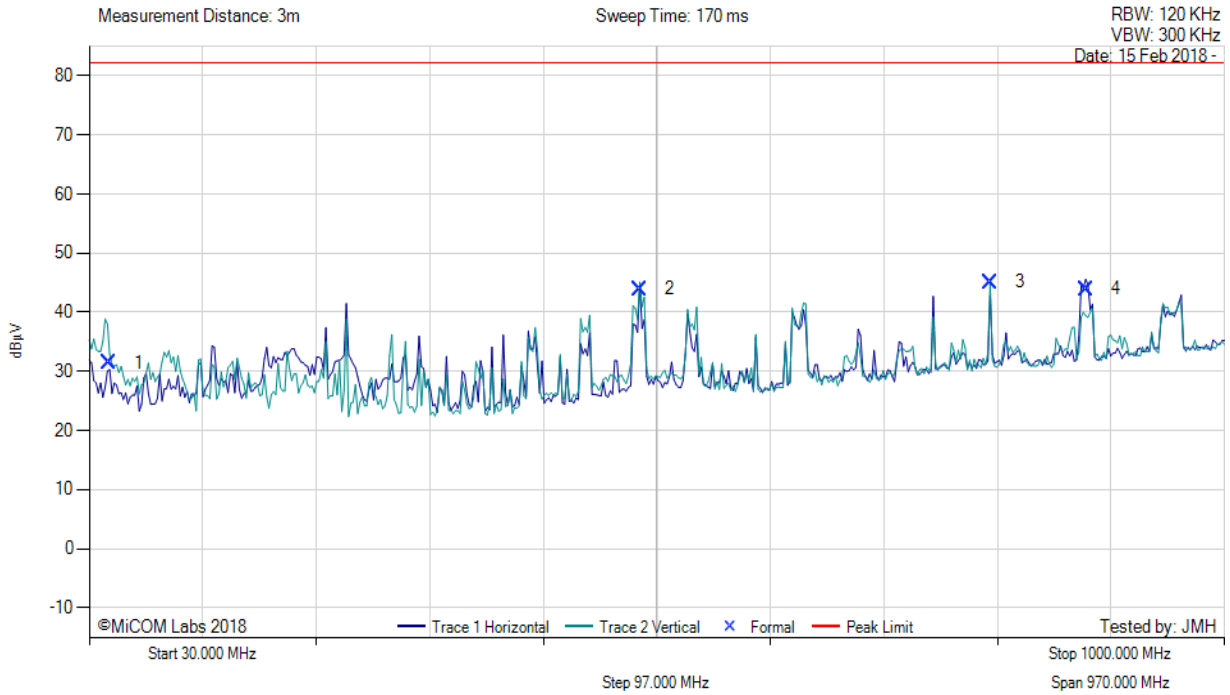
9.5.1. Band 5 Radiated Spurious Emissions

30-1000 MHz:

Equipment Configuration for Radiated Digital Emissions			
Antenna:	Terminated in Callbox	**Variant:**	LTE Band 5
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	
Channel Frequency (MHz):	836.5	**Data Rate:**	-
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results

Test Freq: 836.5 MHz, Power Setting: MAX



30.00 - 1000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	46.73	49.52	3.52	-21.61	31.43	MaxQP	Vertical	99	104	82.2	-50.8	Pass
2	500.04	52.04	5.18	-13.27	43.95	MaxQP	Vertical	117	10	82.2	-38.3	Pass
3	799.81	48.15	5.98	-9.02	45.11	MaxQP	Vertical	135	188	82.2	-37.1	Pass
4	881.81	45.82	6.20	-8.09	43.93	MaxQP	Horizontal	101	68	82.2	-38.3	Pass

Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 5 836.5 , WiFi 2.4GHz active. TX Spur limit is 82.23

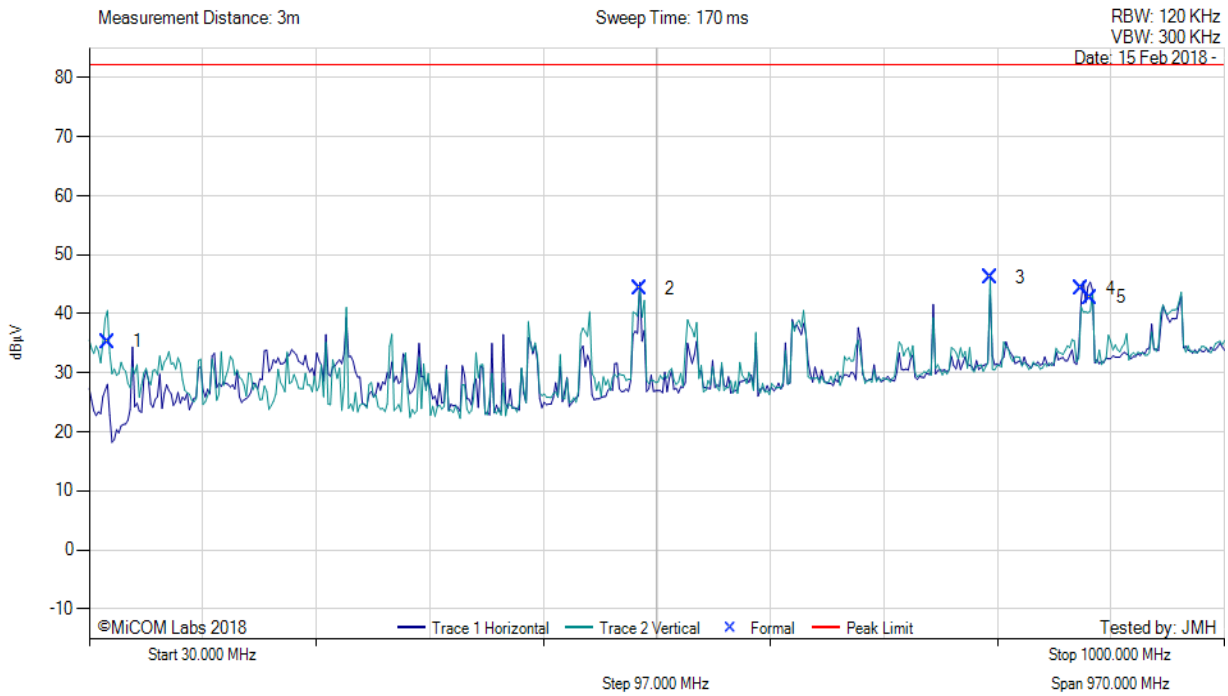
9.6.4 30-1000 MHz: LTE Band 5 & WCDMA Colocation Emissions 836.5, 844 MHz,

Equipment Configuration for Transmitter Spurious

Antenna:	Terminated in Callbox	**Variant:**	LTE Band 5, WCDMA
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK, 16QAM
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	
Channel Frequency (MHz):	836.5, 844	**Data Rate:**	
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results

Test Freq: 836.5, 844 MHz, Power Setting: MAX



30.00 - 1000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	45.62	52.75	3.52	-21.00	35.27	MaxQP	Vertical	98	269	82.2	-46.5	Pass
2	500.02	52.43	5.18	-13.27	44.34	MaxQP	Horizontal	107	12	82.2	-37.9	Pass
3	799.80	49.13	5.98	-9.02	46.09	MaxQP	Vertical	102	188	82.2	-36.1	Pass
4	877.47	46.09	6.18	-7.99	44.28	MaxQP	Horizontal	101	331	82.2	-38.0	Pass
5	885.68	44.54	6.19	-8.00	42.73	MaxQP	Horizontal	100	326	82.2	-39.5	Pass

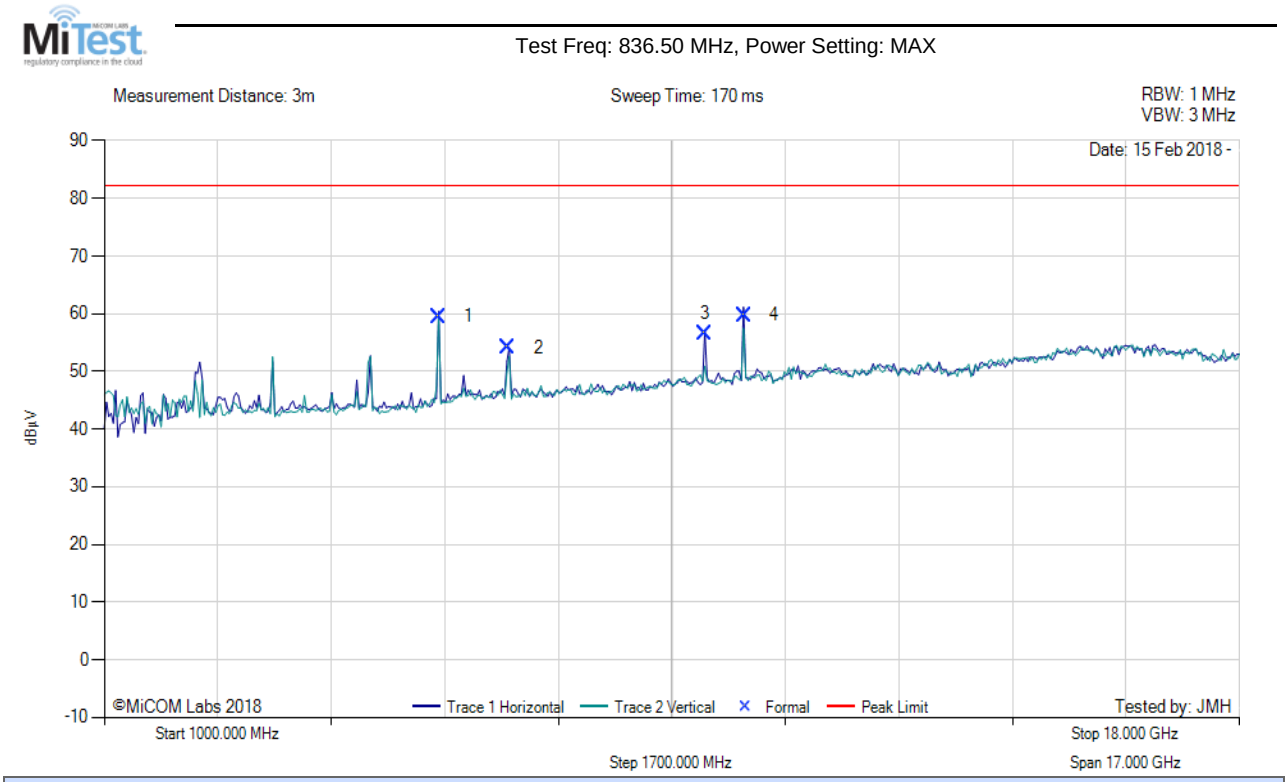
Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 5 836.5, WDCMA 844 MHz , WiFi 2.4GHz active. TX Spur limit is 82.23

1-18 GHz TX Spurious and Colocation:

Equipment Configuration for Radiated Digital Emissions

Antenna:	Terminated in Callbox	**Variant:**	LTE Band 5, WCDMA
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	-
Channel Frequency (MHz):	836.5	**Data Rate:**	-
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results



1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	6000.02	66.43	3.26	-10.14	59.55	Max Avg	Horizontal	114	330	82.2	-22.7	Pass
2	7052.02	58.25	3.29	-7.44	54.10	Max Avg	Horizontal	144	108	82.2	-28.1	Pass
3	10000.17	59.27	4.53	-7.24	56.56	Max Avg	Horizontal	101	42	82.2	-45.6	Pass
4	10577.99	60.90	4.54	-5.66	59.78	Max Avg	Horizontal	98	3	82.2	-22.4	Pass

Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 5 836.5, WDCMA 844 MHz , WiFi 2.4GHz active. TX Spur limit is 82.23

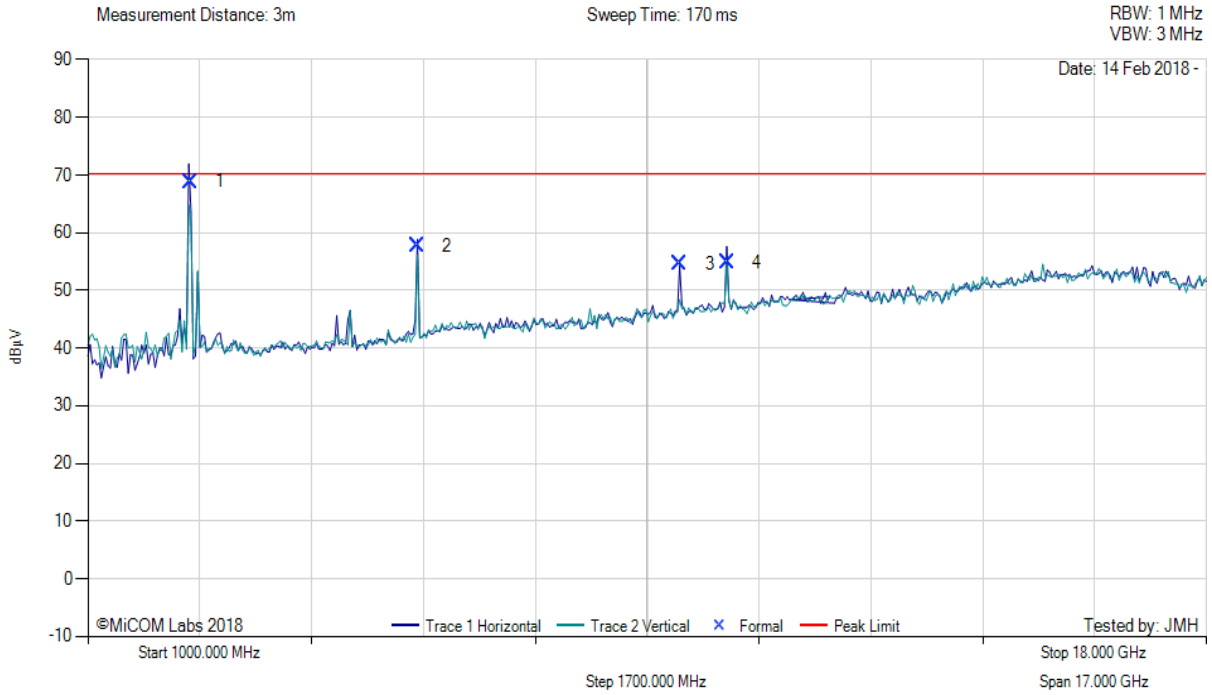
9.5.2. Band 7 Radiated Spurious Emissions

1-18 GHz TX Spurious:

Equipment Configuration for Radiated Digital Emissions			
Antenna:	Terminated in Callbox	**Variant:**	LTE Band 7
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	-
Channel Frequency (MHz):	2570	**Data Rate:**	-
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results

Test Freq: 2570.0 MHz, Power Setting: Max



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2562.40	78.37	2.32	-11.85	68.84	Fundamental	Horizontal	174	254	--	--	Pass
2	6000.05	64.57	3.26	-10.14	57.69	Max Avg	Horizontal	106	61	70.2	-12.5	Pass
3	10000.10	57.28	4.53	-7.24	54.57	Max Avg	Horizontal	137	41	70.2	-15.7	Pass
4	10719.90	54.55	4.56	-4.25	54.86	Max Avg	Horizontal	101	13	70.2	-15.4	Pass

Test Notes: EUT powered by 115 V 400 Hz. Transmitting on 2570 MHz band 7. max attenuation for max power from Cell Modem. Band 7 freq controlled by call box. Worst Case Limit is 70.23

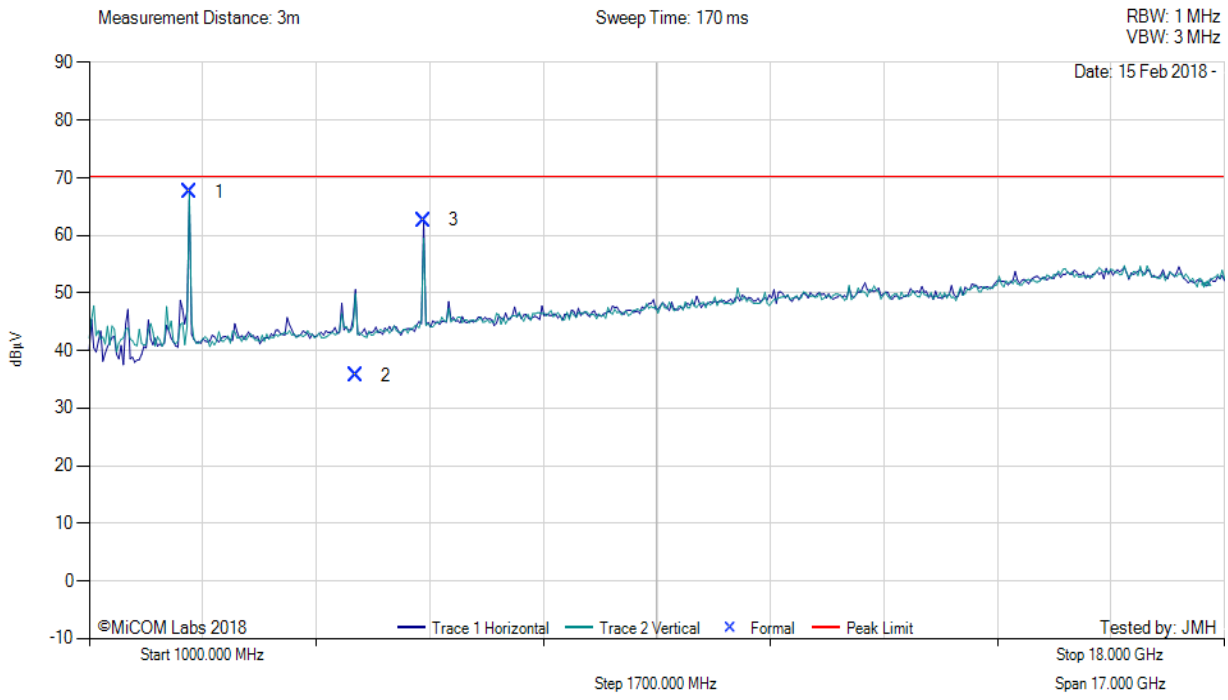
1-18 GHz Colocation:

Equipment Configuration for Radiated Spurious Emissions

Antenna:	Terminated in Callbox	**Variant:**	LTE Band 7
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	-
Channel Frequency (MHz):	2502.5	**Data Rate:**	-
Power Setting:	Max	**Tested By:**	JMH

Test Measurement Results

Test Freq: 2502.50 MHz, Power Setting: MAX



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2499.71	77.45	2.26	-12.14	67.57	Fundamental	Vertical	100	199	--	--	Pass
2	4995.50	44.82	3.03	-12.15	35.70	Max Avg	Horizontal	101	348	70.2	-34.5	Pass
3	5999.88	69.45	3.26	-10.12	62.59	Max Avg	Horizontal	107	32	70.2	-7.3	Pass

Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 7 2502.5,, WiFi 2.4GHz active. Worst Case TX Spurious limit is 70.23

9.5.3. Band 41 Radiated Spurious Emissions

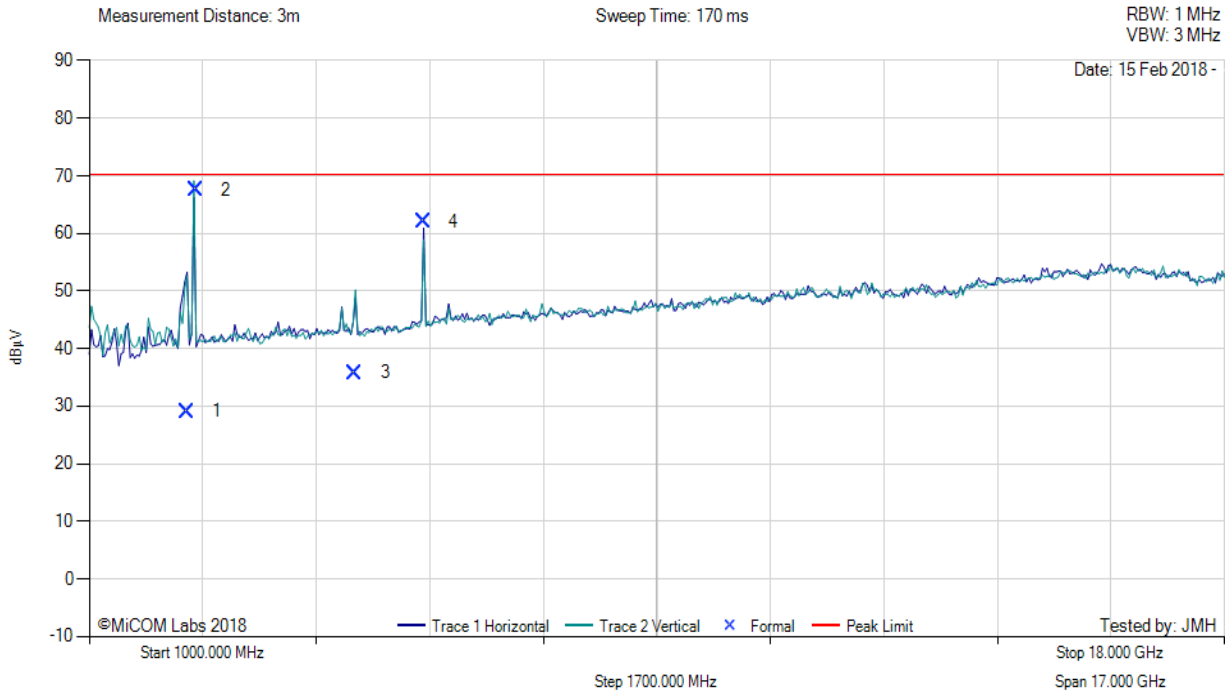
1-18 GHz TX Spurious:

Equipment Configuration for Radiated Spurious Emissions

Antenna:	Terminated in Callbox	**Variant:**	LTE Band 41
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	-
Channel Frequency (MHz):	2590	**Data Rate:**	-
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results

Test Freq: 2590 MHz, Power Setting: MAX



1000.00 - 18000.00 MHz												
Num	**Frequency MHz**	**Raw dBµV**	**Cable Loss dB**	**AF dB**	**Level dBµV/m**	**Measurement Type**	**Pol**	**Hgt cm**	**Azt Deg**	**Limit dBµV/m**	**Margin dB**	**Pass /Fail**
1	2462.03	58.79	2.27	8.03	29.09	Fundamental	Horizontal	111	232	--	--	Pass
2	2593.20	77.21	2.33	-12.01	67.53	Fundamental	Vertical	100	159	--	--	Pass
3	4982.04	44.96	3.00	-12.20	35.76	Max Avg	Vertical	105	20	80.0	-44.2	Pass
4	5999.93	68.89	3.26	-10.12	62.03	Max Avg	Horizontal	101	32	80.0	-18.0	Pass

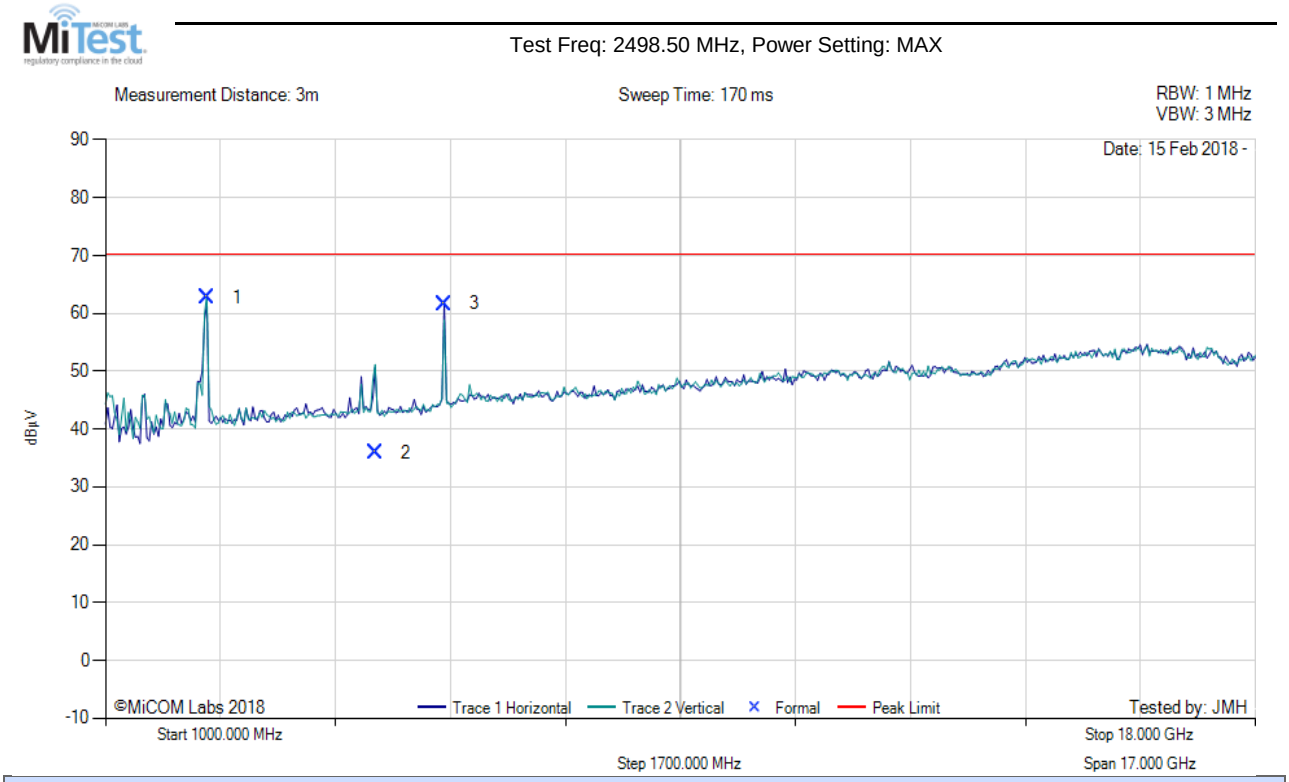
Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 41 2590, WiFi 2.4GHz active. Worst Case TX Spur limit is 70.23

1-18 GHz Colocation:

Equipment Configuration for Radiated Spurious Emissions

Antenna:	Terminated in Callbox	**Variant:**	LTE Band 41
Antenna Gain (dBi):	Not Applicable	**Modulation:**	QPSK
Beam Forming Gain (Y):	Not Applicable	**Duty Cycle (%):**	-
Channel Frequency (MHz):	2498.5	**Data Rate:**	-
Power Setting:	MAX	**Tested By:**	JMH

Test Measurement Results



1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
1	2497.51	72.55	2.26	-12.13	62.68	Fundamental	Vertical	100	152	--	--	Pass
2	4991.91	45.07	3.02	-12.17	35.92	Max Avg	Vertical	105	346	70.2	-34.3	Pass
3	6000.04	68.51	3.26	-10.14	61.63	Max Avg	Horizontal	101	32	70.2	-8.6	Pass

Test Notes: EUT powered by 115V 400 Hz. Cell active on LTE Band 41 2498.5, WiFi 2.4GHz active. Worst Case TX Spur limit is 70.23