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ELECTRICAL TESTING
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TEST REPORT

ACCORDING TO: FCC 47CFR part 96

FOR:

Airspan Networks Inc.
LTE Base Station Radio
Model: AirStrand AS1300T 3.55-3.7 GHz (B48)
FCC ID: PIDAS1300B48

This report is in conformity with ISO/ IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested. This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.

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1 Applicant information

Client name:	Airspan Networks Inc.
Address:	777 Yamato, Road Suite 310 Boca Raton, FL 33431, USA
Telephone:	+1 561 893 8670
Fax:	+1 561 893 8671
E-mail:	zlevi@airspan.com
Contact name:	Mr. Zion Levi

2 Equipment under test attributes

Product name:	LTE Base Station Radio
Product type:	Transceiver
Model(s):	AirStrand AS1300T 3.55-3.7 GHz (B48)
Serial number:	E6AF41004B90
Part number:	908-73-482CR
Hardware version:	1
Software release:	SR16.50
Receipt date	15-Jul-20

3 Manufacturer information

Manufacturer name:	Airspan Networks Inc.
Address:	777 Yamato, Road Suite 310 Boca Raton, FL 33431, USA
Telephone:	+1 561 893 8670
Fax:	+1 561 893 8671
E-Mail:	zlevi@airspan.com
Contact name:	Mr. Zion Levi

4 Test details

Project ID:	37550
Location:	Hermon Laboratories Ltd. P.O. Box 23, Binyamina 3055001, Israel
Test started:	29-Jul-20
Test completed:	30-Aug-20
Test specification(s):	FCC 47CFR part 96

5 Tests summary

Test	Status
Transmitter characteristics	
Section 96.41(b), Maximum EIRP and maximum power spectral density	Pass
Section 96.41(g), Peak-to- average power ratio	Pass
Section 2.1049, Occupied bandwidth	Pass
Section 96.41(e), Emission mask	Pass
Section 96.41(e)(2), Radiated spurious emissions	Pass
Section 96.41(e)(3), Conducted spurious emissions	Pass
Section 2.1055, Frequency stability	Pass

Testing was completed against all relevant requirements of the test standard. The results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mr. A. Morozov, test engineer, EMC & Radio	29-Jul-20 – 30-Aug-20	
Reviewed by:	Mrs. S. Peysahov Sheynin, test engineer, EMC & Radio	01-Sep-20	
Approved by:	Mr. S. Samokha, technical manager, EMC & Radio	03-Sep-20	

6 EUT description

Note: The following data in this clause is provided by the customer and represents his sole responsibility

6.1 General information

The EUT, Mobile Digital station, AirStrand 3.55-3.7GHz, Band 48, is part of a LTE broadband fixed cellular wireless access system. The system provides a radio link between an end-user (a subscriber) and a network to give high-speed data access. The AirSpeed's transceiver/receiver (Up to 64 QAM modulation, data rate up to 95 Mbps) equipped with a 11 dBi external antenna. Advanced Antenna Techniques 2x2 MIMO are supported. The maximum RF output power (not including antenna gain) is 27.96dBm for 11 dBi and it can be reduced by software.

The AirStrand 1300 is arranged the following way:
Antennas 1,2,5,6 arrange one sector. Antennas 1 and 5 are correlated. Antennas 2 and 6 are correlated.
Antenna 1 is cross polarized to Antenna 2, Antenna 5 is cross polarized to antenna 6.
Antennas 3,4,7,8 arrange another sector. Antennas 3 and 7 are correlated. Antennas 4 and 8 are correlated.
Antenna 3 is cross polarized to Antenna 4, Antenna 7 is cross polarized to antenna 8.
The sectors are NON overlapping by BOTH operation on different frequencies AND by coverage without overlapping of antenna beams.

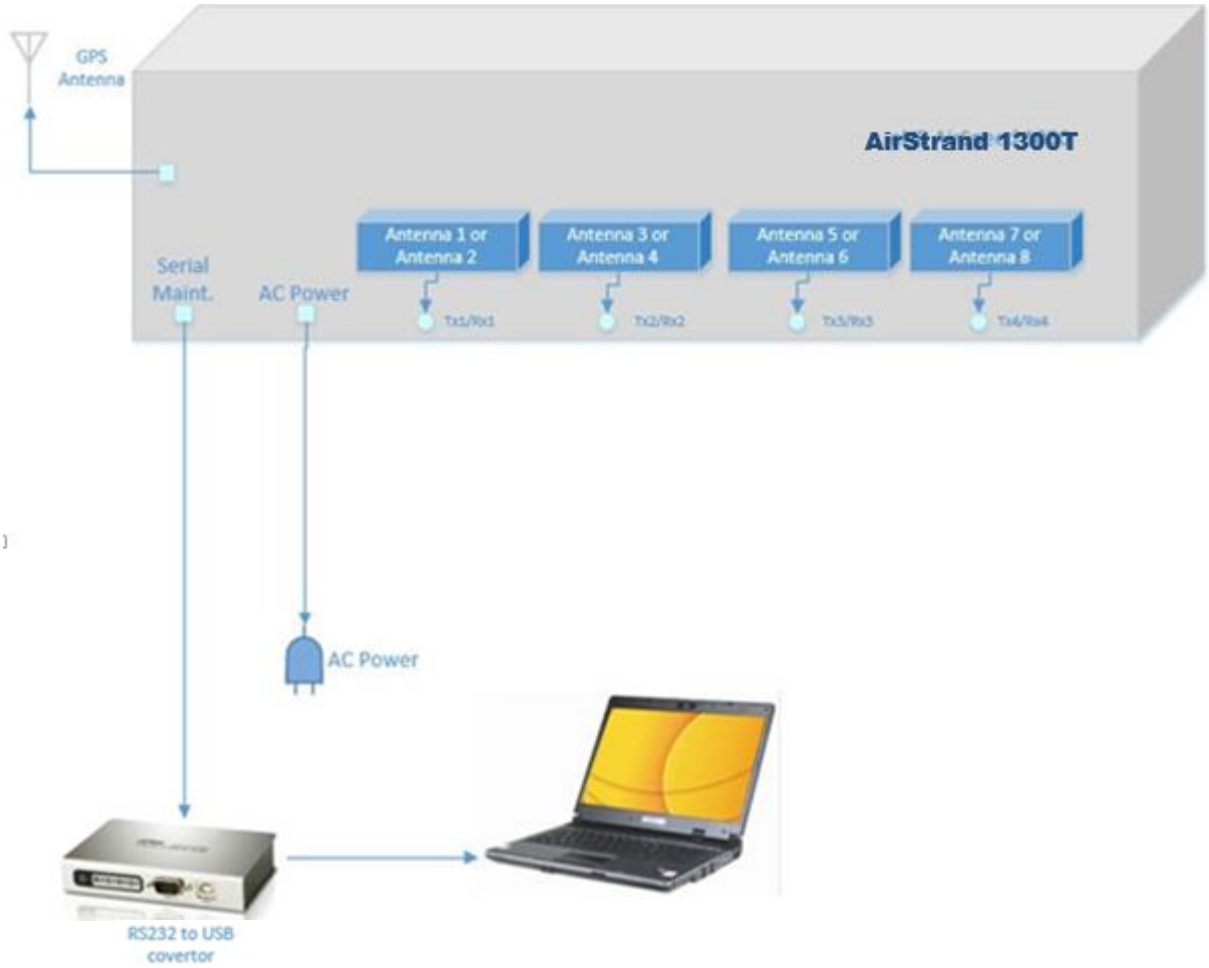
The AirStrand is installed outdoors. The Subscriber transmits and receives traffic to and from the base station respectively. The transceiver provides subscribers with "always-on" Internet, high speed data only, or data and voice (VoIP) services and is configured with a unique base station reference number, preventing the LTE UE from relocating to another subscriber premises without authorization.
Note:The AirStrand 1300 equipment defined as Category B CBSD (Citizens Broadband Radio Service Device)

According to manufacturer's declaration provided in Appendix F of the test report the following specific external antennas may be used in conjunction with this model radio at the appropriate listed power settings.

6.2 Changes made in the EUT

No changes were implemented in the EUT during testing.

6.3 Test configuration



6.4 Transmitter characteristics

Type of equipment	
V	Stand-alone (Equipment with or without its own control provisions)
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)
	Plug-in card (Equipment intended for a variety of host systems)

Intended use		**Condition of use**
V	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	3550.0 – 3700.0 MHz
Operating frequency (full bands)	3555.0 – 3695.0 MHz
RF channel spacing	10 MHz, 20 MHz
Maximum rated output power	At transmitter 50 Ω RF output connector (per port) 27.95 dBm

Is transmitter output power variable?					
	No				
V	Yes		continuous variable		
		V	stepped variable with step size	0.25 dB	
		minimum RF power		-30 dBm	
		maximum RF power at antenna connector		dBm	

Antenna connection					
unique coupling	**V**	standard connector	Integral	**V**	with temporary RF connector
					without temporary RF connector

Antenna/s technical characteristics

Type	Manufacturer	Model number	Gain
*External	ALPHA Wireless Ltd.	AW3652-2	11 dBi
*External	ALPHA Wireless Ltd.	AW3652-1	11 dBi
External	MTI Wireless Edge Ltd.	MT035S09DS-1	9.5 dBi

Transmitter aggregate data rate/s, Mbps

Transmitter 26dBc power bandwidth	Type of modulation		
	QPSK	16QAM	64QAM
10 MHz	10.7	22.7	47.3
20 MHz	23.4	45.4	95

Type of multiplexing	TDD
Modulating test signal (baseband)	PRBS
Maximum transmitter duty cycle in normal use	0.74

Transmitter power source

		Nominal rated voltage		Battery type	
	DC	**Nominal rated voltage**			
V	AC mains	**Nominal rated voltage**	63 VAC	Frequency	50 Hz

Common power source for transmitter and receiver	**V**	yes	no

* - The worst case of antennas configuration delivering the highest EIRP was tested

6.5 Table of calculations for the MAX EIRP at frequency range 3550 – 3700 MHz with different antenna configurations

Antenna configuration	Antenna Vendor	Antenna Model Number	Antenna Peak Gain (dB)	Signal Bandwidth (MHz)	Maximum Conducted Power (dBm)	EIRP (dBm/10MHz)	EIRP per Bandwidth (dBm)	Operational Category
1*	ALPHA Wireless Ltd.	AW3652-1	11.0	10.0	27.59	38.59	38.59	B
				20.0	27.95	36.43	38.95	
2*	ALPHA Wireless Ltd.	AW3652-2	11.0	10.0	27.59	38.59	38.59	B
				20.0	27.95	36.43	38.95	
3	MTI Wireless Edge Ltd	MT035S09DS-1	9.5	10.0	27.59	37.09	37.09	B
				20.0	27.95	34.93	37.45	

* - The worst case of antennas configuration delivering the highest EIRP was tested

Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

7 Transmitter tests according to 47CFR part 96

7.1 Maximum EIRP and maximum power spectral density

7.1.1 General

This test was performed to measure the maximum EIRP and maximum spectral power density at the transmitter RF antenna connector. Specification test limits are given in Table 7.1.1, Table 7.1.2.

Table 7.1.1 Maximum EIRP limits

Assigned frequency range, MHz	EIRP dBm/10 MHz
3550 - 3700	47.0

Table 7.1.2 Peak spectral power density limits

Assigned frequency range, MHz	Measurement bandwidth, MHz	Peak spectral power density, dBm
3550 - 3700	1.0	37.0

7.1.2 Test procedure

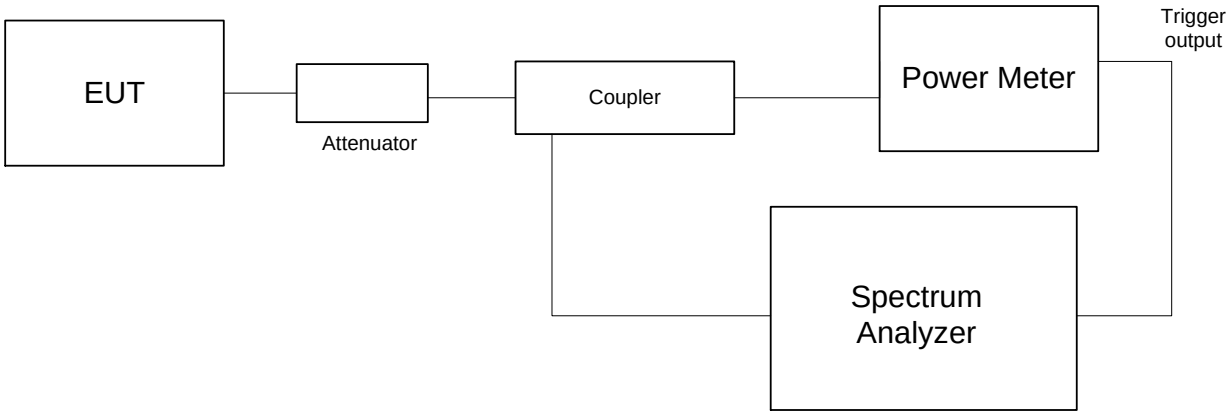
7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

7.1.2.2 The EUT was adjusted to produce maximum available to end user RF output power.

7.1.2.3 The frequency span of spectrum analyzer was set to capture the entire 6 dB band of the transmitter, in average mode with resolution bandwidth set to 1.0 MHz, video bandwidth wider than resolution bandwidth, sweep time and sufficient number of sweeps was allowed for trace stabilization.

7.1.2.4 Spectrum analyzer was set in average mode, sufficient number of sweeps was allowed for trace stabilization and peak spectral power density was measured as provided in Table 7.1.3, Table 7.1.4 and the associated plots.

Figure 7.1.1 Maximum EIRP and power spectral density test setup



Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

Table 7.1.3 Maximum EIRP test results

ASSIGNED FREQUENCY RANGE: 3550.0 – 3700.0 MHz
DETECTOR USED: Average (gated)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
CHANNEL SPACING: 10 MHz

NUMBER OF CHAINS: 4

Frequency, MHz	Power meter reading, dBm/MHz				Antenna gain, dBi	Total EIRP*, dBm/10MHz	Limit, dBm/10MHz	Margin, dB**	Verdict
	Antenna Chain RF#1,	Antenna Chain RF#5,	Antenna Chain RF#2,	Antenna Chain RF#6,					
Modulation QPSK									
3555.0	22.97	24.03	22.75	23.11	11.0	37.53	47.0	-9.47	Pass
3625.0	23.29	24.56	23.27	23.52	11.0	37.97	47.0	-9.03	Pass
3695.0	23.32	24.43	23.15	23.64	11.0	37.91	47.0	-9.09	Pass
Modulation 16QAM									
3555.0	23.80	24.10	23.08	23.21	11.0	37.95	47.0	-9.05	Pass
3625.0	24.51	24.62	23.14	23.57	11.0	38.57	47.0	-8.43	Pass
3695.0	24.52	24.59	23.23	23.67	11.0	38.56	47.0	-8.44	Pass
Modulation 64QAM									
3555.0	23.76	24.07	23.01	23.12	11.0	37.92	47.0	-9.08	Pass
3625.0	24.39	24.59	23.15	23.61	11.0	38.49	47.0	-8.51	Pass
3695.0	24.31	24.44	23.10	23.62	11.0	38.38	47.0	-8.62	Pass

* - Total EIRP = Max calculated result [(10*LOG(10^(Antenna chain #1/10)+10^(Antenna chain #5/10)) or 10*LOG(10^(Antenna chain #2/10)+10^(Antenna chain #6/10))] + Antenna Gain
** - Margin = Total EIRP, dBm – specification limit.

NUMBER OF CHAINS: 4

Frequency, MHz	Power meter reading, dBm/MHz				Antenna gain, dBi	Total EIRP*, dBm/10MHz	Limit, dBm/10MHz	Margin, dB	Verdict
	Antenna Chain RF#3,	Antenna Chain RF#7,	Antenna Chain RF#4,	Antenna Chain RF#8,					
Modulation QPSK									
3555.0	23.91	23.87	22.94	23.01	11.0	37.89	47.0	-9.11	Pass
3625.0	24.45	24.44	23.47	23.71	11.0	38.45	47.0	-8.55	Pass
3695.0	24.58	24.41	23.09	23.63	11.0	38.50	47.0	-8.50	Pass
Modulation 16QAM									
3555.0	23.91	23.95	23.01	23.06	11.0	37.93	47.0	-9.07	Pass
3625.0	23.67	24.50	23.41	23.79	11.0	38.11	47.0	-8.89	Pass
3695.0	24.66	24.51	23.16	23.67	11.0	38.59	47.0	-8.41	Pass
Modulation 64QAM									
3555.0	23.88	23.87	22.97	23.14	11.0	37.88	47.0	-9.12	Pass
3625.0	24.45	24.41	23.43	23.68	11.0	38.43	47.0	-8.57	Pass
3695.0	24.55	24.20	23.43	23.61	11.0	38.38	47.0	-8.62	Pass

* - Total EIRP = Max calculated result [(10*LOG(10^(Antenna chain #3/10)+10^(Antenna chain #7/10)) or 10*LOG(10^(Antenna chain #4/10)+10^(Antenna chain #8/10))] + Antenna Gain
** - Margin = Total EIRP, dBm – specification limit.
Note: The transmitter output signals are completely uncorrelated, antennas 1/5 (2/6) is one sector and antennas 3/7 (4/8) are another sector.

Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

Table 7.1.4 Maximum EIRP test results

ASSIGNED FREQUENCY RANGE: 3550.0 – 3700.0 MHz
DETECTOR USED: Average (gated)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
CHANNEL SPACING: 20 MHz

NUMBER OF CHAINS: 4

Frequency, MHz	Power meter reading, dBm/MHz				Antenna gain, dBi	Total EIRP*, dBm	Calculated EIRP**, dBm/10MHz	Limit, dBm/10MHz	Margin, dB***	Verdict
	Antenna Chain RF#1,	Antenna Chain RF#5,	Antenna Chain RF#2,	Antenna Chain RF#6,						
Modulation QPSK										
3560.0	23.89	24.04	22.67	23.07	11.0	37.97	35.45	47.0	-11.55	Pass
3625.0	24.47	24.60	23.21	23.62	11.0	38.54	36.02	47.0	-10.98	Pass
3690.0	24.41	24.53	23.35	23.91	11.0	38.47	35.95	47.0	-11.05	Pass
Modulation 16QAM										
3560.0	24.30	24.25	22.93	23.34	11.0	38.28	35.76	47.0	-11.24	Pass
3625.0	24.96	24.94	23.51	24.05	11.0	38.95	36.43	47.0	-10.57	Pass
3690.0	24.90	24.83	23.63	24.09	11.0	38.87	36.35	47.0	-10.65	Pass
Modulation 64QAM										
3560.0	24.03	23.98	22.66	23.11	11.0	38.01	35.49	47.0	-11.51	Pass
3625.0	24.66	24.61	23.21	23.58	11.0	38.64	36.12	47.0	-10.88	Pass
3690.0	24.52	24.52	23.34	23.78	11.0	38.52	36.00	47.0	-11.00	Pass

* - Total EIRP = Max calculated result [(10*LOG(10^(Antenna chain #1/10)+10^(Antenna chain #5/10)) or 10*LOG(10^(Antenna chain #2/10)+10^(Antenna chain #6/10))] + Antenna Gain
** - Calculated EIRP = Total EIRP - 10*log[OBW(MHz) / 10 MHz = Total EIRP – 2.52dB
*** - Margin = Calculated EIRP, dBm – specification limit.

NUMBER OF CHAINS: 4

Frequency, MHz	Power meter reading, dBm/MHz				Antenna gain, dBi	Total EIRP*, dBm	Calculated EIRP**, dBm/10MHz	Limit, dBm/10MHz	Margin, dB	Verdict
	Antenna Chain RF#3,	Antenna Chain RF#7,	Antenna Chain RF#4,	Antenna Chain RF#8,						
Modulation QPSK										
3560.0	23.26	23.77	22.73	22.89	11.0	37.52	35.00	47.0	-12.00	Pass
3625.0	24.10	24.24	23.26	23.56	11.0	38.17	35.65	47.0	-11.35	Pass
3690.0	24.41	24.44	23.14	23.47	11.0	38.43	35.91	47.0	-11.09	Pass
Modulation 16QAM										
3560.0	23.93	23.97	23.04	23.18	11.0	37.95	35.43	47.0	-11.57	Pass
3625.0	24.46	24.49	23.58	23.83	11.0	38.48	35.96	47.0	-11.04	Pass
3690.0	24.79	24.77	23.51	23.80	11.0	38.78	36.26	47.0	-10.74	Pass
Modulation 64QAM										
3560.0	23.21	23.83	22.74	22.85	11.0	37.53	35.01	47.0	-11.99	Pass
3625.0	24.23	24.21	23.23	23.51	11.0	38.22	35.70	47.0	-11.30	Pass
3690.0	24.50	24.45	23.21	23.37	11.0	38.48	35.96	47.0	-11.04	Pass

* - Total EIRP = Max calculated result [(10*LOG(10^(Antenna chain #3/10)+10^(Antenna chain #7/10)) or 10*LOG(10^(Antenna chain #4/10)+10^(Antenna chain #8/10))] + Antenna Gain
** - Calculated EIRP = Total EIRP - 10*log[OBW(MHz) / 10 MHz = Total EIRP – 2.52
*** - Margin = Calculated EIRP, dBm – specification limit.
Note: The transmitter output signals are completely uncorrelated, antennas 1/5 (2/6) is one sector and antennas 3/7 (4/8) are another sector.

Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

Table 7.1.5 Peak spectral power density test results

ASSIGNED FREQUENCY RANGE: 3550.0 – 3700.0 MHz
DETECTOR USED: Average
VIDEO BANDWIDTH: ≥ Resolution bandwidth
CHANNEL SPACING: 10 MHz

NUMBER OF CHAINS: 4

Frequency, MHz	SA Reading, dBm/MHz				Duty cycle factor, dB	Antenna gain, dBi	Total PSD*, dBm/ MHz	Limit, dBm/MHz	Margin, dB**	Verdict
	Antenna Chain RF#1,	Antenna Chain RF#5,	Antenna Chain RF#2,	Antenna Chain RF#6,						
Modulation QPSK										
3555.0	13.45	14.64	13.21	13.64	1.67	11.0	29.76	37.0	-7.24	Pass
3625.0	13.83	14.77	13.66	14.25	1.67	11.0	30.00	37.0	-7.00	Pass
3695.0	14.11	15.38	13.94	15.16	1.67	11.0	30.46	37.0	-6.54	Pass
Modulation 16QAM										
3555.0	15.38	15.44	14.36	14.68	1.67	11.0	31.08	37.0	-5.92	Pass
3625.0	15.89	15.79	14.54	15.33	1.67	11.0	31.51	37.0	-5.49	Pass
3695.0	16.24	15.33	14.53	15.27	1.67	11.0	31.48	37.0	-5.52	Pass
Modulation 64QAM										
3555.0	14.46	14.59	13.27	13.99	1.67	11.0	30.20	37.0	-6.80	Pass
3625.0	14.95	14.72	13.78	14.00	1.67	11.0	30.51	37.0	-6.49	Pass
3695.0	15.07	15.10	13.89	14.28	1.67	11.0	30.76	37.0	-6.24	Pass

* - Total PSD = Max calculated result [(10*LOG(10^(Antenna chain #1/10)+10^(Antenna chain #5/10)) or 10*LOG(10^(Antenna chain #2/10)+10^(Antenna chain #6/10))] + Antenna Gain + Duty Cycle Factor
** - Margin = Total PSD, dBm – specification limit.

NUMBER OF CHAINS: 4

Frequency, MHz	SA Reading, dBm/MHz				Duty cycle factor, dB	Antenna gain, dBi	Total PSD*, dBm/ MHz	Limit, dBm/MHz	Margin, dB**	Verdict
	Antenna Chain RF#3,	Antenna Chain RF#7,	Antenna Chain RF#4,	Antenna Chain RF#8,						
Modulation QPSK										
3555.0	14.49	14.33	13.50	13.91	1.67	11.0	30.08	37.0	-6.92	Pass
3625.0	14.88	14.55	13.83	14.04	1.67	11.0	30.39	37.0	-6.61	Pass
3695.0	14.92	14.87	13.65	14.83	1.67	11.0	30.57	37.0	-6.43	Pass
Modulation 16QAM										
3555.0	15.19	15.38	14.54	14.52	1.67	11.0	30.96	37.0	-6.04	Pass
3625.0	16.02	16.23	14.78	14.62	1.67	11.0	31.80	37.0	-5.20	Pass
3695.0	15.16	15.91	14.83	14.62	1.67	11.0	31.22	37.0	-5.78	Pass
Modulation 64QAM										
3555.0	14.35	14.62	13.36	13.64	1.67	11.0	30.16	37.0	-6.84	Pass
3625.0	14.63	15.03	13.90	14.38	1.67	11.0	30.50	37.0	-6.50	Pass
3695.0	15.36	15.15	13.84	14.34	1.67	11.0	30.93	37.0	-6.07	Pass

* - Total PSD = Max calculated result [(10*LOG(10^(Antenna chain #3/10)+10^(Antenna chain #7/10)) or 10*LOG(10^(Antenna chain #4/10)+10^(Antenna chain #8/10))] + Antenna Gain + Duty Cycle Factor
** - Margin = Total PSD, dBm – specification limit.
Note: The transmitter output signals are completely uncorrelated, antennas 1/5 (2/6) is one sector and antennas 3/7 (4/8) are another sector.

Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

Table 7.1.6 Peak spectral power density test results

ASSIGNED FREQUENCY RANGE: 3550.0 – 3700.0 MHz
DETECTOR USED: Average (gated)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
CHANNEL SPACING: 20 MHz

NUMBER OF CHAINS: 4

Frequency, MHz	SA Reading, dBm/MHz				Duty cycle factor, dB	Antenna gain, dBi	Total PSD*, dBm/ MHz	Limit, dBm/MHz	Margin, dB	Verdict
	Antenna Chain RF#1,	Antenna Chain RF#5,	Antenna Chain RF#2,	Antenna Chain RF#6,						
Modulation QPSK										
3560.0	11.54	11.61	10.01	10.54	1.72	11.0	27.30	37.0	-9.70	Pass
3625.0	12.07	12.10	10.56	11.04	1.72	11.0	27.81	37.0	-9.19	Pass
3690.0	12.46	12.94	11.38	11.70	1.72	11.0	28.43	37.0	-8.57	Pass
Modulation 16QAM										
3560.0	12.36	12.51	10.99	11.4	1.72	11.0	28.16	37.0	-8.84	Pass
3625.0	12.82	12.96	11.63	11.98	1.72	11.0	28.61	37.0	-8.39	Pass
3690.0	13.88	13.32	11.97	13.45	1.72	11.0	29.33	37.0	-7.67	Pass
Modulation 64QAM										
3560.0	11.61	11.53	10.00	10.56	1.72	11.0	27.29	37.0	-9.71	Pass
3625.0	11.97	12.00	10.35	11.10	1.72	11.0	27.71	37.0	-9.29	Pass
3690.0	12.56	12.67	11.68	11.28	1.72	11.0	28.34	37.0	-8.66	Pass

* - Total PSD = Max calculated result [(10*LOG(10^(Antenna chain #1/10)+10^(Antenna chain #5/10)) or 10*LOG(10^(Antenna chain #2/10)+10^(Antenna chain #6/10))] + Antenna Gain + Duty Cycle Factor
** - Margin = Total PSD, dBm – specification limit.

Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

Table 7.1.7 Peak spectral power density test results

ASSIGNED FREQUENCY RANGE: 3550.0 – 3700.0 MHz
DETECTOR USED: Average (gated)
VIDEO BANDWIDTH: ≥ Resolution bandwidth
CHANNEL SPACING: 20 MHz

NUMBER OF CHAINS: 4

Frequency, MHz	SA Reading, dBm/MHz				Duty cycle factor, dB	Antenna gain, dBi	Total PSD*, dBm/ MHz	Limit, dBm/MHz	Margin, dB	Verdict
	Antenna Chain RF#3,	Antenna Chain RF#7,	Antenna Chain RF#4,	Antenna Chain RF#8,						
Modulation QPSK										
3560.0	11.08	11.44	10.23	10.34	1.72	11.0	26.98	37.0	-10.02	Pass
3625.0	11.84	11.61	10.48	11.23	1.72	11.0	27.45	37.0	-9.55	Pass
3690.0	12.28	12.65	10.87	11.46	1.72	11.0	28.19	37.0	-8.81	Pass
Modulation 16QAM										
3560.0	12.14	12.08	11.24	11.1	1.72	11.0	27.83	37.0	-9.17	Pass
3625.0	12.51	12.34	11.49	11.64	1.72	11.0	28.15	37.0	-8.85	Pass
3690.0	12.74	12.33	11.72	11.43	1.72	11.0	28.26	37.0	-8.74	Pass
Modulation 64QAM										
3560.0	10.83	11.36	10.14	10.3	1.72	11.0	26.82	37.0	-10.18	Pass
3625.0	11.15	11.82	10.54	10.78	1.72	11.0	27.22	37.0	-9.78	Pass
3690.0	12.18	11.84	11.03	11.09	1.72	11.0	27.73	37.0	-9.27	Pass

* - Total EIRP = Max calculated result [(10*LOG(10^(Antenna chain #3/10)+10^(Antenna chain #7/10)) or 10*LOG(10^(Antenna chain #4/10)+10^(Antenna chain #8/10))] + Antenna Gain+ Duty Cycle Factor
** - Margin = Total EIRP, dBm – specification limit.
Note: The transmitter output signals are completely uncorrelated, antennas 1/5 (2/6) is one sector and antennas 3/7 (4/8) are another sector.

Reference numbers of test equipment used

HL 2909	HL 5409	HL 4366	HL 3301	HL 3302	HL 5376	HL 3901	

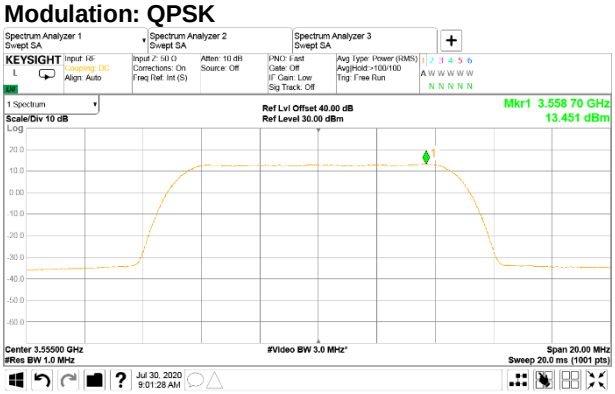
Full description is given in Appendix A.

Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

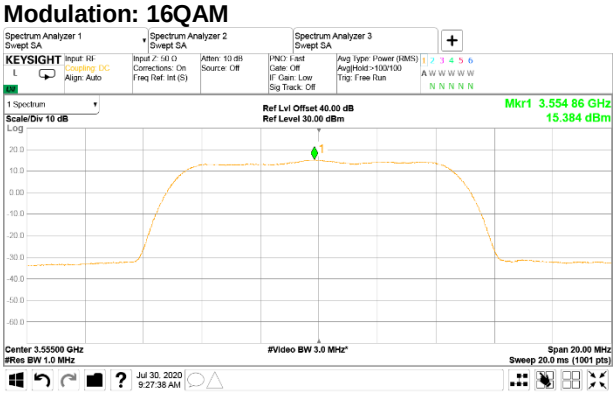
Plot 7.1.1 Peak spectral power density at low frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 1

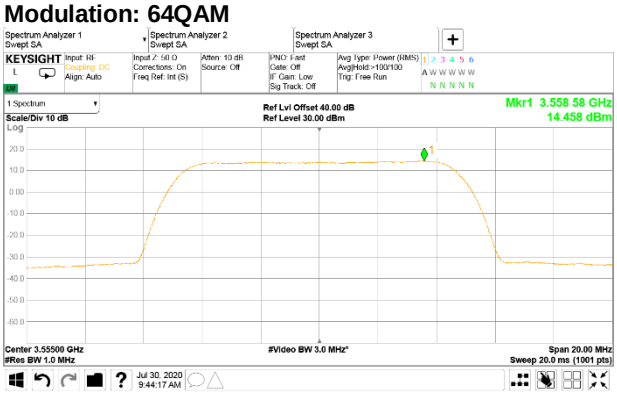
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

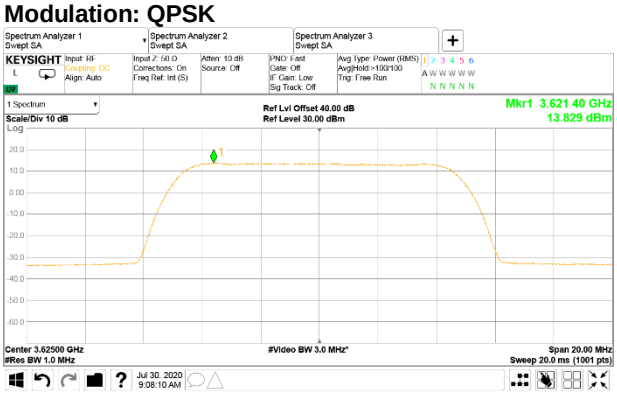


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

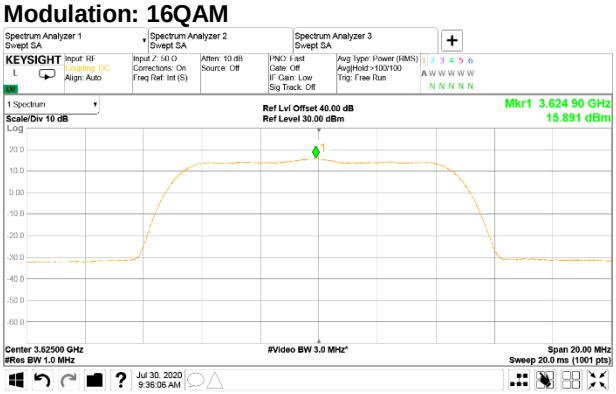
Plot 7.1.2 Peak spectral power density at mid frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 1

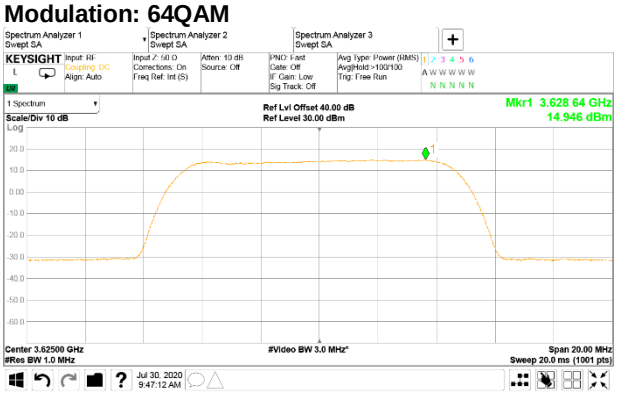
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

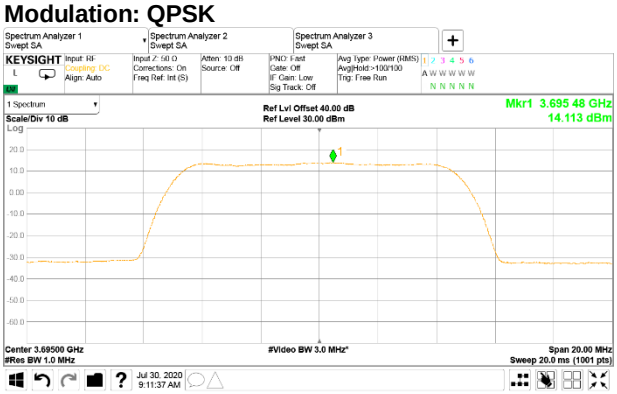


Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

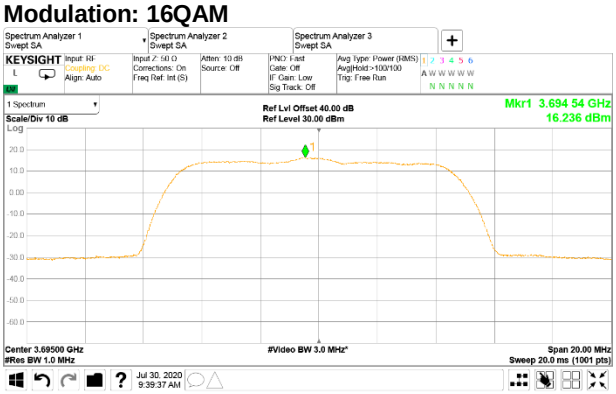
Plot 7.1.3 Peak spectral power density at high frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 1

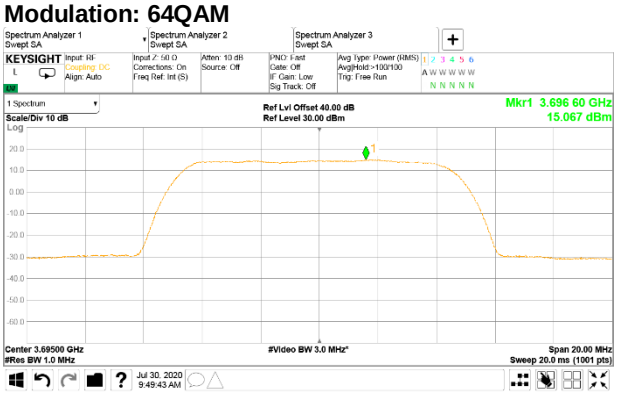
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

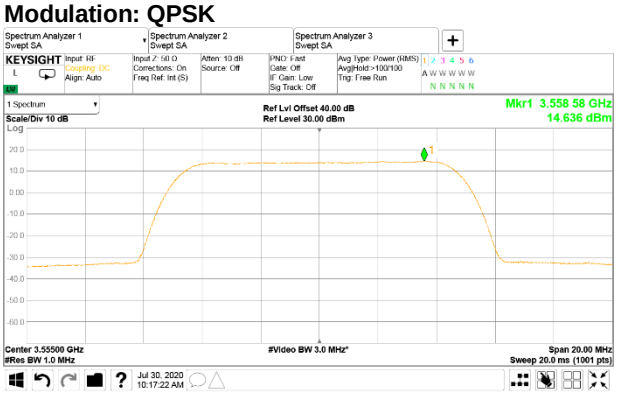


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

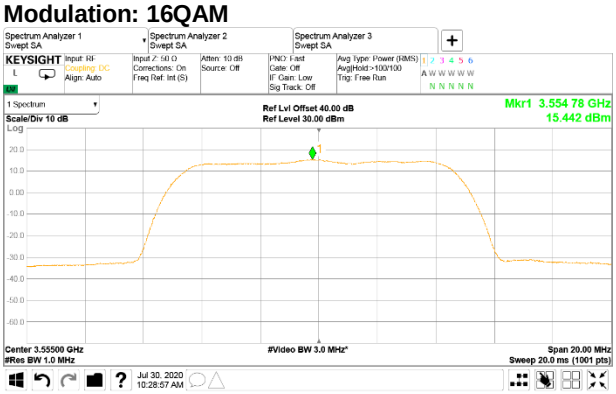
Plot 7.1.4 Peak spectral power density at low frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 5

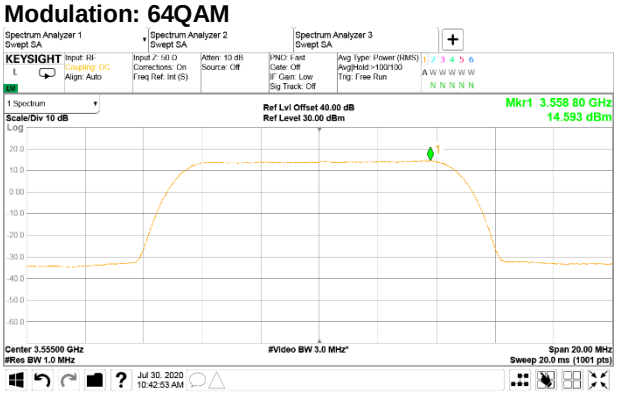
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

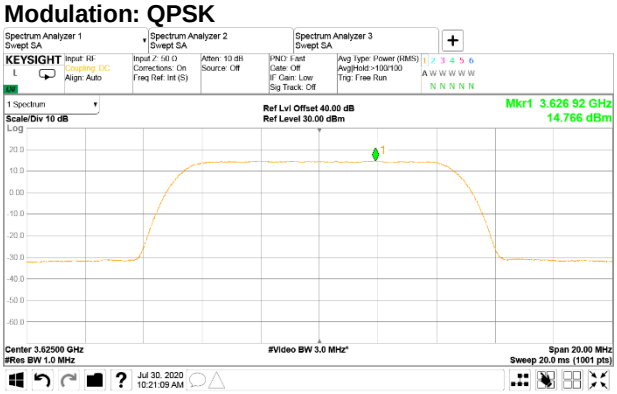


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

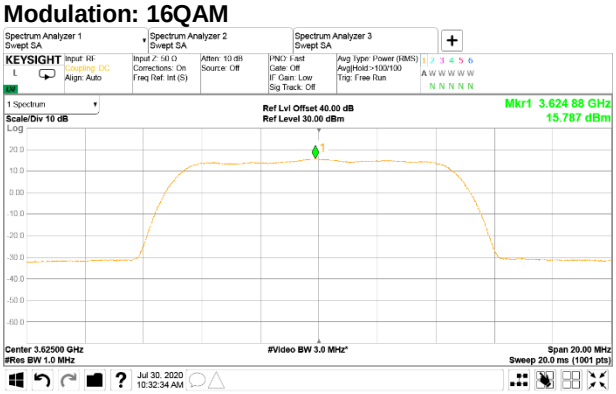
Plot 7.1.5 Peak spectral power density at mid frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 5

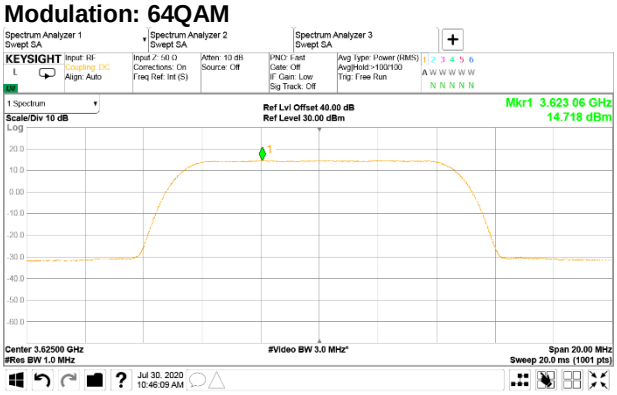
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

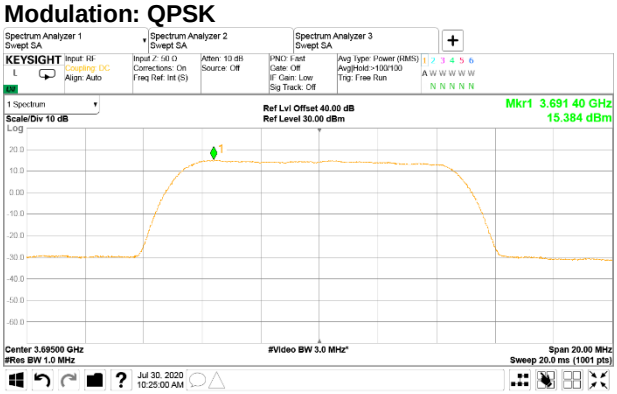


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

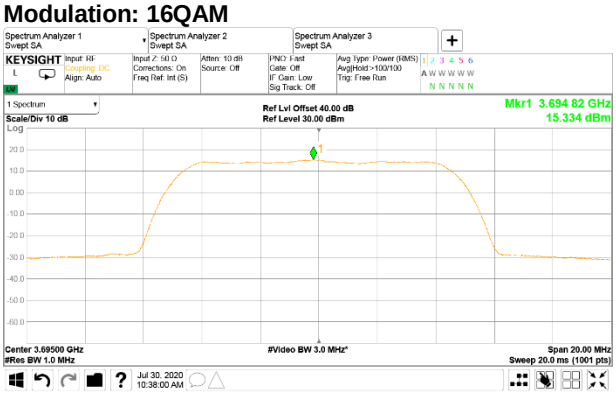
Plot 7.1.6 Peak spectral power density at high frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 5

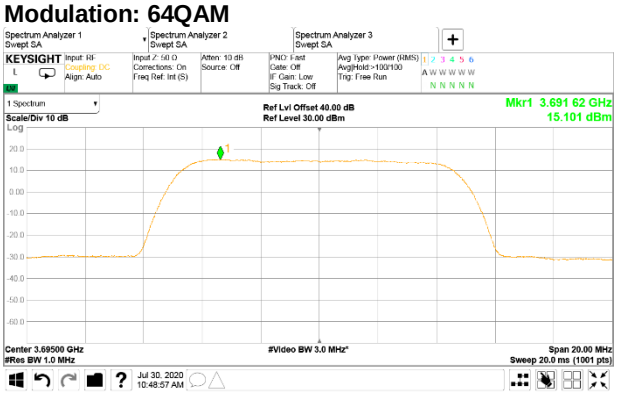
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

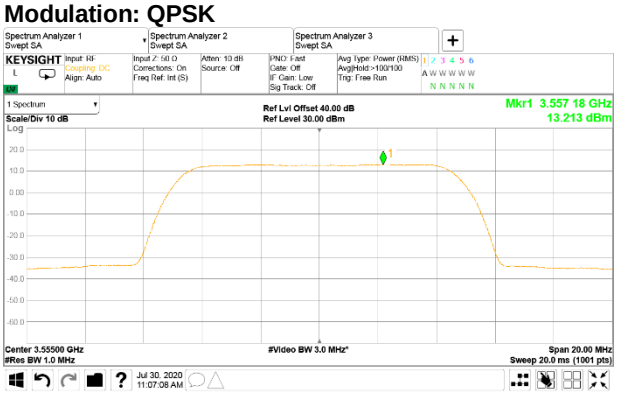


Test specification:	**Section 96.41(b), Maximum EIRP and maximum power spectral density**		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	**Verdict:**	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	**Relative Humidity:** 55 %	**Air Pressure:** 1011 hPa	**Power:** 63 VAC, 50 Hz
Remarks:			

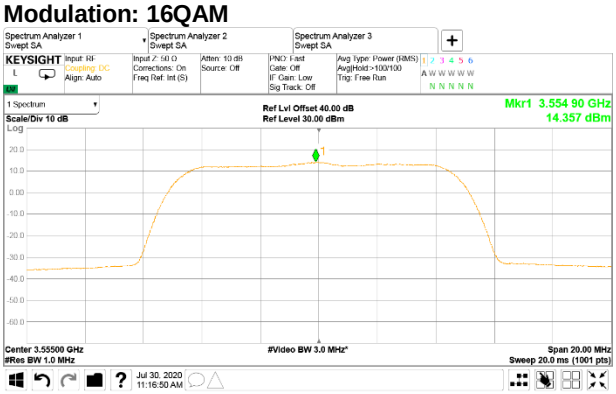
Plot 7.1.7 Peak spectral power density at low frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 2

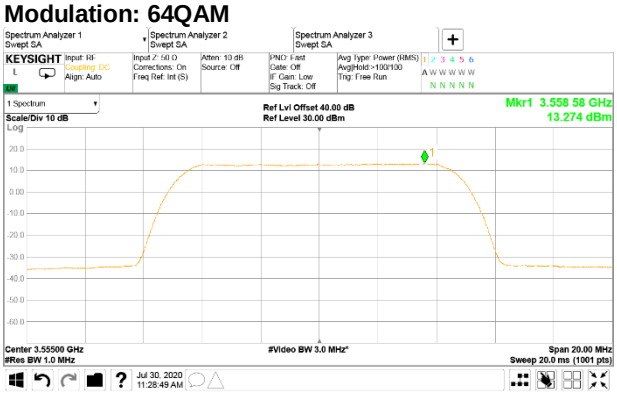
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

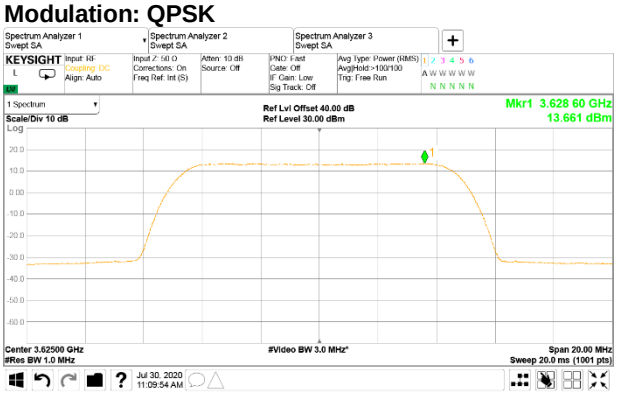


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

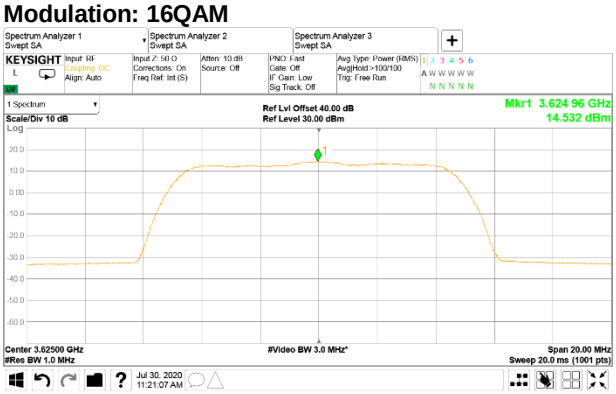
Plot 7.1.8 Peak spectral power density at mid frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 2

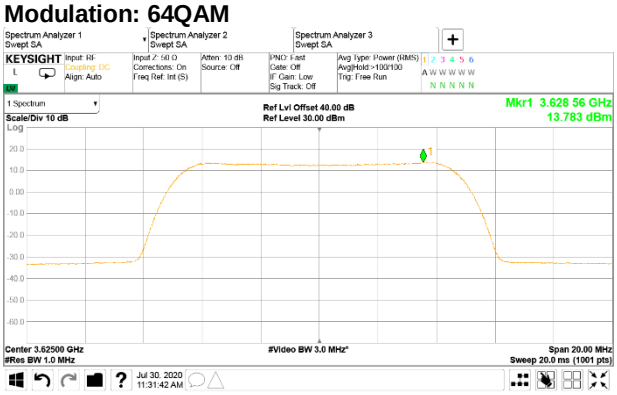
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

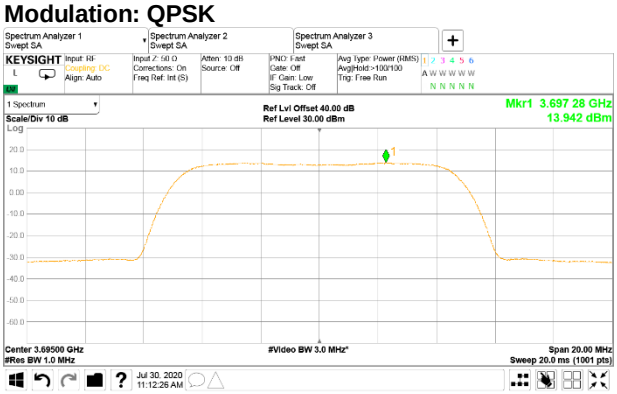


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

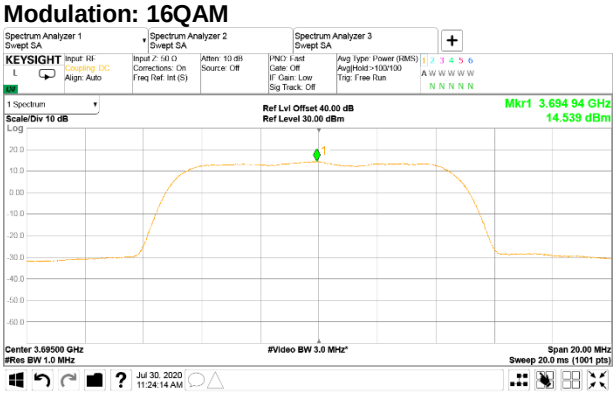
Plot 7.1.9 Peak spectral power density at high frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 2

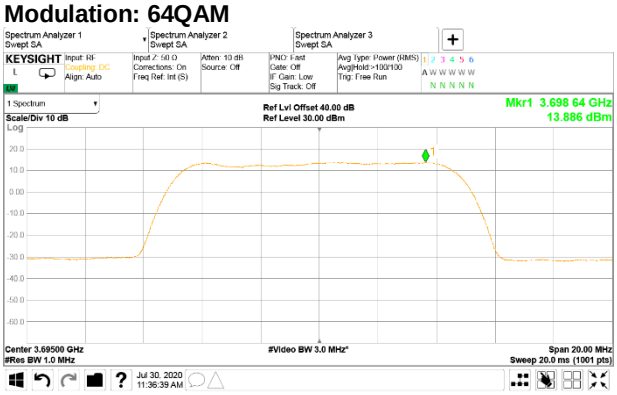
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

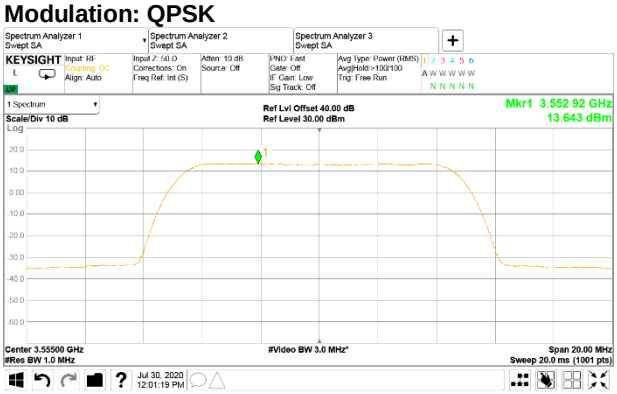


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

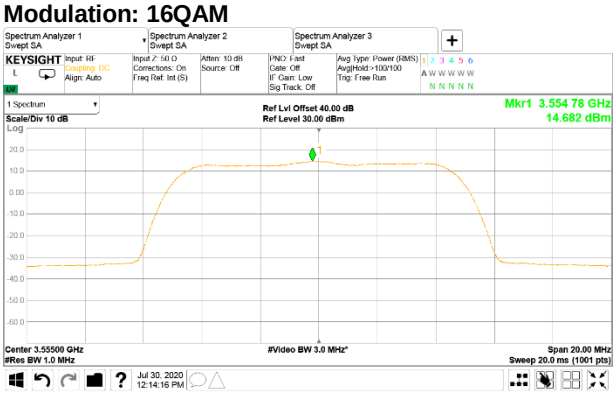
Plot 7.1.10 Peak spectral power density at low frequency within

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 6

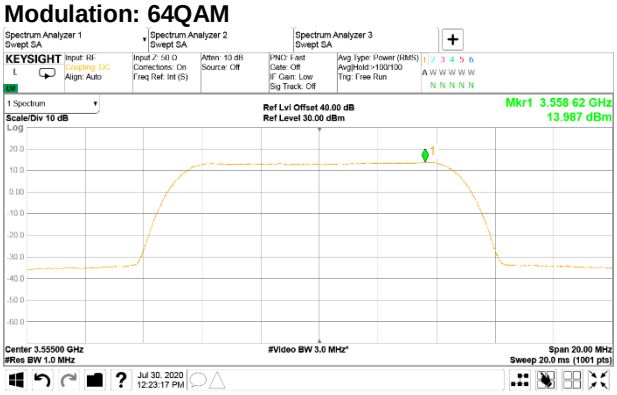
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

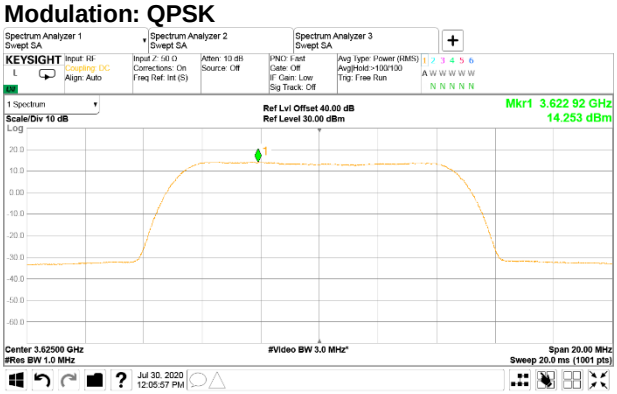


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

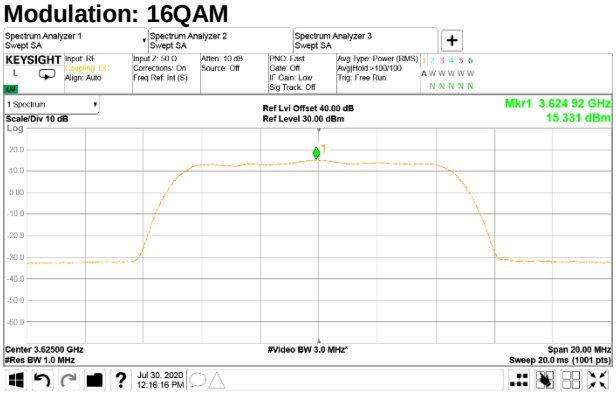
Plot 7.1.11 Peak spectral power density at mid frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 6

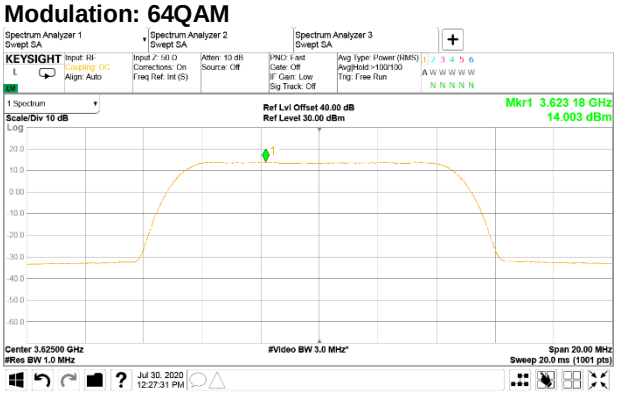
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

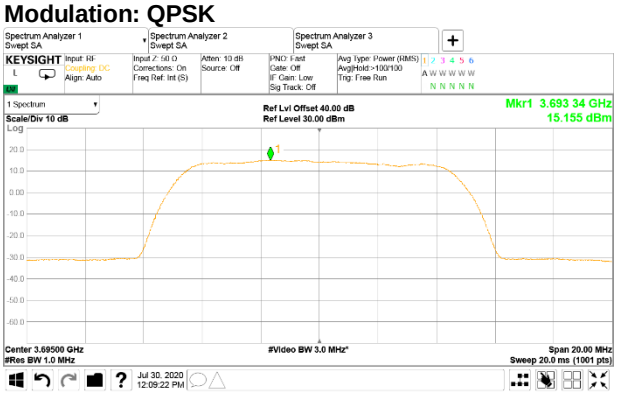


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

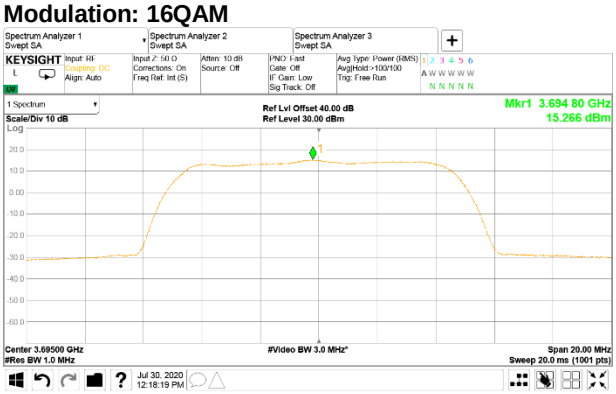
Plot 7.1.12 Peak spectral power density at high frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 6

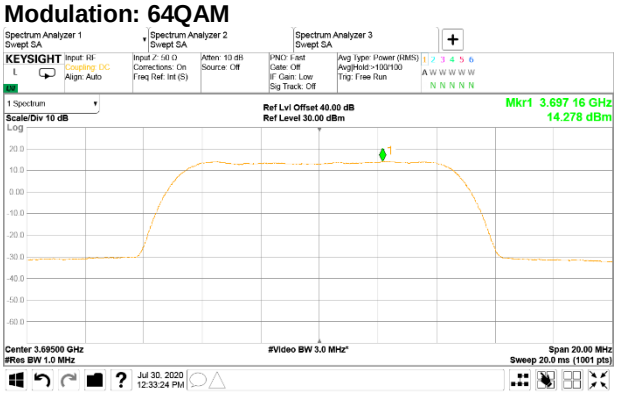
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

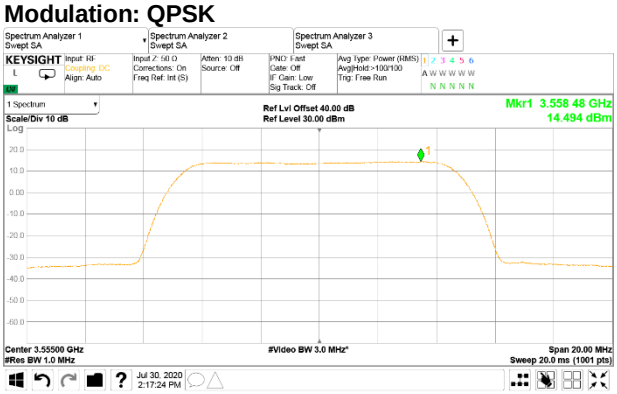


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

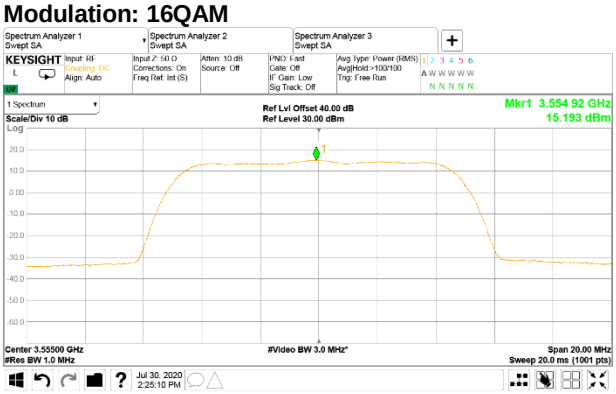
Plot 7.1.13 Peak spectral power density at low frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 3

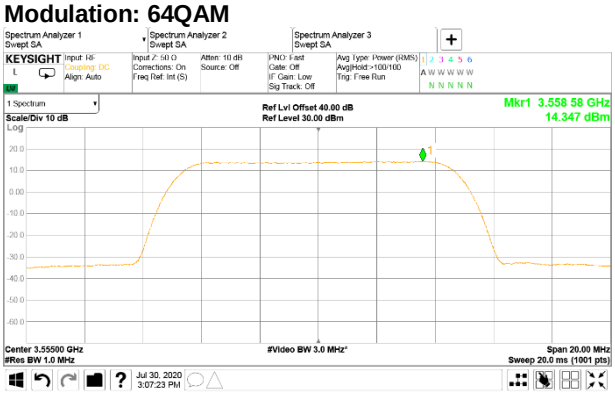
Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM

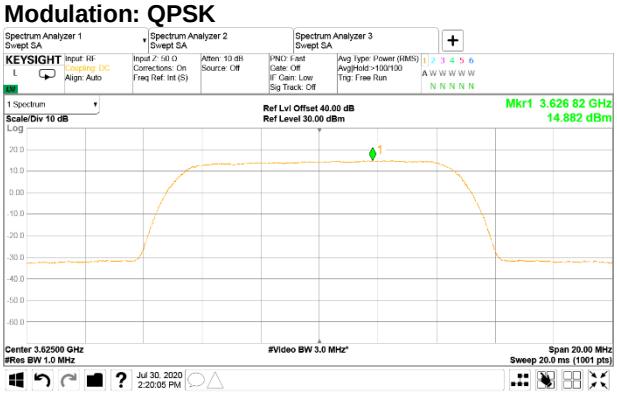


Test specification:	Section 96.41(b), Maximum EIRP and maximum power spectral density		
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	29-Jul-20		
Temperature: 24 ºC	Relative Humidity: 55 %	Air Pressure: 1011 hPa	Power: 63 VAC, 50 Hz
Remarks:			

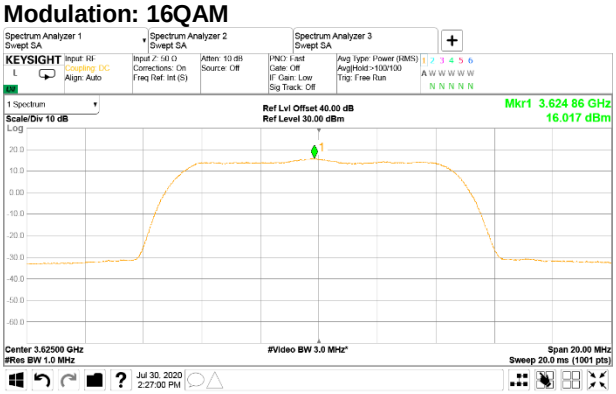
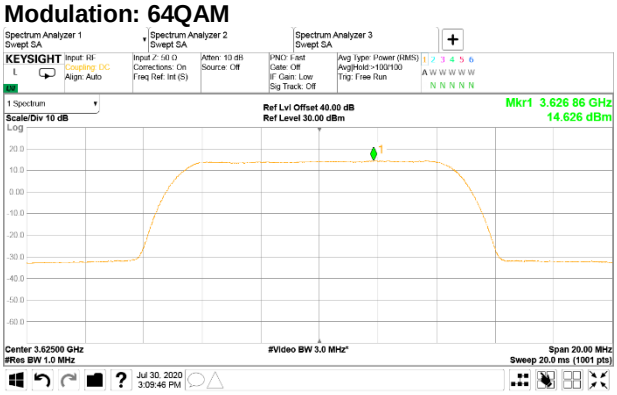
Plot 7.1.14 Peak spectral power density at mid frequency

CHANNEL SPACING: 10 MHz
ANTENNA CHAIN: 3

Modulation: QPSK



Modulation: 16QAM



Modulation: 64QAM