CE Test Report

Equipment	:	**802.11abgn PCI-E module**
Model No.	:	**SDC-PE15N**
Brand Name	:	**Laird Technologies**
Applicant	:	**Laird Technologies**
Address	:	**11160 Thompson Ave. / Lenexa, Kansas / 66219 / USA**
Standard	:	**EN 301 893 V1.7.1 (2012-06)**
Received Date	:	**May 08, 2013**
Tested Date	:	**May 12 ~ May 17, 2013** **Jul. 26, 2014**

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

Gary Chang / Manager

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
ER350803-01AN	Rev. 01	Initial issue	Aug. 22, 2014

Summary of Test Result

Ref. Std. Clause	Test Items	Measured	Result
4.2	Centre Frequencies	Meet the requirement of limit.	Pass
4.3	Nominal Channel Bandwidth and Occupied Channel Bandwidth	Meet the requirement of limit.	Pass
4.4	RF Output Power & Transmit Power Control (TPC)	5.15-5.25GHz: 22.12dBm 5.25-5.35GHz: 21.90dBm 5.47-5.725GHz: 22.43dBm	Pass
4.4	Power Density	Meet the requirement of limit.	Pass
4.5	Transmitter Unwanted Emissions	Meet the requirement of limit.	Pass
4.6	Receiver Spurious Emissions	Meet the requirement of limit.	Pass
4.7	Dynamic Frequency Selection (DFS)	Meet the requirement of limit.	Pass
4.9	Adaptivity (Channel Access Mechanism)	Meet the requirement of limit.	Pass

NOTE: The DFS measurement was recorded in Report No.: EY350803-01.

1 General Description

1.1 Information

1.1.1 Specification of the Equipment under Test (EUT)

RF General Information					
IEEE Std. 802.11	**Frequency Range (MHz)**	**Ch. Freq. (MHz)**	**Channel Number**	**Transmit Chains (N_{TX})**	**Data Rate / MCS**
a	5150-5250 5250-5350 5500-5700	5180-5240 5260-5320 5500-5700	36-48 [4] 52-64 [4] 100-140 [11]	1	6-54 Mbps
n (HT20)	5150-5250 5250-5350 5500-5700	5180-5240 5260-5320 5500-5700	36-48 [4] 52-64 [4] 100-140 [11]	2	MCS 0-15
n (HT40)	5150-5250 5250-5350 5500-5700	5190-5230 5270-5310 5510-5670	38-46 [2] 54-62 [2] 102-134 [5]	2	MCS 0-15
Note 1: 802.11a/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
				2400~2483.5	**5150~5350**	**5470~5725**
1	Radiall Larsen R380.500.314	Dipole	UFL	1.6	5	5
2	Cisco AIR-ANT 4941	Dipole	RP-TNC plug	2	---	---

1.1.3 EUT Operational Condition

Power Supply Type	3.3 Vdc from host		
Operational Voltage	☒ Vnom (230 V)	☒ Vmax (253 V)	☒ Vmin (207 V)
Operational Climatic	☒ Tnom (20°C)	☒ Tmax (55°C)	☒ Tmin (-20°C)

1.1.4 Accessories

N/A

1.1.5 Adaptive Equipment

Adaptive Equipment			
☒	For total occupied bandwidth ≤ 40 MHz w/o adaptivity function but have medium access protocol facilitate spectrum sharing with other devices in the wireless network.		
☒	Adaptive Equipment without the possibility to switch to a non-adaptive mode:		
	☐	The equipment has implemented an LBT based DAA mechanism:	
		☐	The equipment is Frame Based equipment
		☒	The equipment is Load Based equipment
		☐	The equipment can switch dynamically between Frame Based and Load Based equipment
	☐	The equipment has implemented an non-LBT based DAA mechanism	
	☐	The equipment can operate in more than one adaptive mode	
☐	Adaptive Equipment which can also operate in a non-adaptive mode		

1.1.6 Channel List

Frequency band (MHz)		5150~5350	
802.11 a / n HT20		802.11n HT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	--	--
56	5280	--	--
60	5300	--	--
64	5320	--	--

Frequency band (MHz)		5500~5700	
802.11 a / n HT20		802.11n HT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
100	5500	102	5510
104	5520	110	5550
108	5540	118	5590
112	5560	126	5630
116	5580	134	5670
120	5600	--	--
124	5620	--	--
128	5640	--	--
132	5660	--	--
136	5680	--	--
140	5700	--	--

1.1.7 Test Tool and Duty Cycle

Test tool	SRU XP, v3.03.10.00
Duty Cycle Of Test Signal (%)	100% - IEEE 802.11a 100% - IEEE 802.11n (HT20) 100% - IEEE 802.11n (HT40)
Duty Factor	0 - IEEE 802.11a 0 - IEEE 802.11n (HT20) 0 - IEEE 802.11n (HT40)

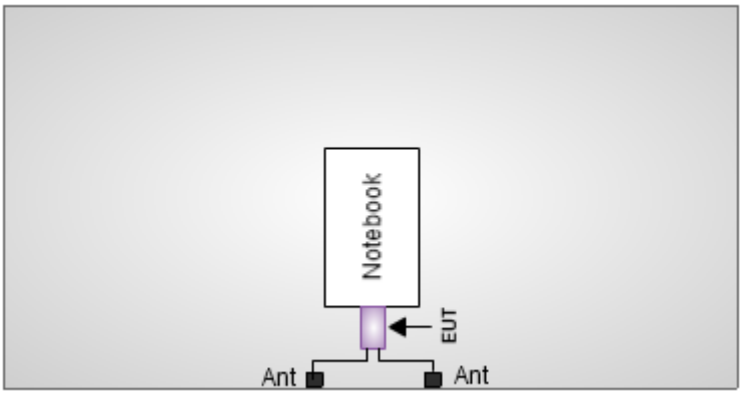
1.1.8 Power Setting

Modulation Mode	Test Frequency (MHz)							
	a / HT20				HT40			
	5180	5320	5500	5700	5190	5310	5510	5670
a	100	100	100	100	--	--	--	--
n (HT20)	100	100	100	100	--	--	--	--
n (HT40)	--	--	--	--	100	100	100	100

1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Signal cable / Length (m)
1	Notebook	DELL	E6430	DoC	---

1.3 Test Setup Chart

Test Setup Diagram


1.4 Test Equipment and Calibration Data

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	May 12, 2013				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV 40	101063	Feb. 18, 2013	Feb. 17, 2014
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 29, 2012	Nov. 28, 2013
Power Meter	Anritsu	ML2495A	1241002	Oct. 15, 2012	Oct. 14, 2013
Power Sensor	Anritsu	MA2411B	1027366	Oct. 24, 2012	Oct. 23, 2013
MXG-B RF Vector Signal Generator	Agilent	N5182B	MY53050081	Apr. 08, 2014	Apr. 07, 2015
Signal Generator	R&S	SMB100A	175727	Jan. 07, 2014	Jan. 06, 2015
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted (For Adaptivity Test only)				
Test Site	(TH01-WS)				
Tested Date	Jul. 26, 2014				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2014	Feb. 16, 2015
Power Sensor	Agilent	U2021XA	MY53480019	Feb. 23, 2014	Feb. 22, 2015
Power Sensor	Agilent	U2021XA	MY53510003	Feb. 25, 2014	Feb. 24, 2015
Power Sensor	Agilent	U2021XA	MY54070003	Feb. 23, 2014	Feb. 22, 2015
Power Sensor	Agilent	U2021XA	MY54060013	Feb. 23, 2014	Feb. 22, 2015
Signal Generator	R&S	SMB100A	175727	Jan. 07, 2014	Jan. 06, 2015
MXG-B RF Vector Signal Generator	Agilent	N5182B	MY53050081	Apr. 08, 2014	Apr. 07, 2015
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emissions				
Test Site	Fully-anechoic chamber / (05CH01-WS)				
Tested Date	May 16 ~ May 17, 2013				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101486	Nov. 14, 2012	Nov. 13, 2013
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-523	Jan. 21, 2013	Jan. 20, 2014
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1094	Jan. 29, 2013	Jan. 28, 2014
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170508	Jan. 14, 2013	Jan. 13, 2014
Preamplifier	Agilent	83017A	MY39501310	Dec. 18, 2012	Dec. 17, 2013
Preamplifier	EMC	EMC02325	980146	Jan. 02, 2013	Jan. 01, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16617/4	Feb. 08, 2013	Feb. 07, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16609/4	Feb. 08, 2013	Feb. 07, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16608/4	Feb. 08, 2013	Feb. 07, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16126/4	Dec. 25, 2012	Dec. 24, 2013
LF cable 3M	woken	CFD400NL-LW	CFD400NL-005	Dec. 25, 2012	Dec. 24, 2013
LF cable 10M	woken	CFD400NL-LW	CFD400NL-006	Dec. 25, 2012	Dec. 24, 2013
Power Meter	Anritsu	ML2495A	1218007	Oct. 22, 2012	Oct. 21, 2013
Power Sensor	Anritsu	MA2411B	1207367	Oct. 22, 2012	Oct. 21, 2013
Note: Calibration Interval of instruments listed above is one year.					

1.5 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

EN 301 893 V1.7.1 (2012-06)

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty		
Parameters	**Uncertainty**	**Limit**
Radio Frequency	±1.4 x 10^{-9}	±1 × 10^{-5}
RF power conducted	±0.808 dB	±1,5 dB
RF power radiated	±3.401 dB	±6 dB
Spurious emission, conducted	±2.994 dB	±3 dB
Spurious emission, radiated	±3.401 dB	±6 dB
Humidity	±0.6 ^{o}C	±5 %
Temperature	±0.29 %	±1 °C
Time	±0.1 %	±10 %

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
RF Conducted	TH01-WS	22.1°C / 61%	Jack Li
Radiated Emission	05CH01-WS	19°C / 70%	Walker Hou

2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
Centre Frequencies	11a HT20 HT40	5180 / 5320 / 5500 / 5700 5180 / 5320 / 5500 / 5700 5190 / 5310 / 5510 / 5670	6 Mbps MCS 0 MCS 0	---
Occupied Channel Bandwidth				
RF Output Power				
Power Spectral Density				
Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands	11a HT20 HT40	5180 / 5700 5180 / 5700 5190 / 5670	6 Mbps MCS 0 MCS 0	---
Transmitter Unwanted Emissions within the 5 GHz RLAN Band	11a HT20 HT40	5180 / 5320 / 5500 / 5700 5180 / 5320 / 5500 / 5700 5190 / 5310 / 5510 / 5670	6 Mbps MCS 0 MCS 0	---
Receiver Spurious Emissions	11a HT20 HT40	5180 / 5700 5180 / 5700 5190 / 5670	6 Mbps MCS 0 MCS 0	---
Adaptivity	HT40	5190 / 5510	MCS 0	---

3 Transmitter Test Results

3.1 Carrier Frequencies

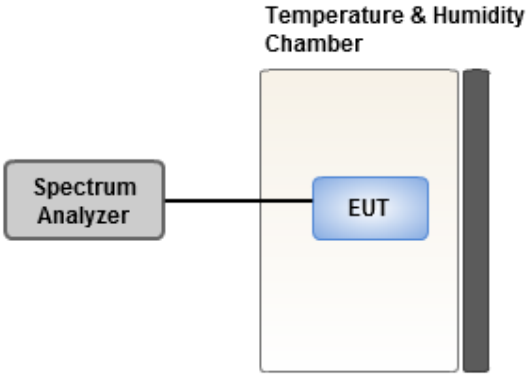
3.1.1 Limit of Carrier Frequencies

The actual centre frequency for any given channel declared by the manufacturer shall be maintained within the range f_c ± 20 ppm.

3.1.2 Test Procedures

Reference to clause 5.3.2.2 of ETSI EN 301 893 V1.7.1 (2012-06).

3.1.3 Test Setup



3.1.4 Test Result of Carrier Frequencies

Condition	Modulation Mode	Freq. (MHz)	Carrier Centre Frequencies (ppm)		Limit (ppm)
			Freqeuncy (MHz)	Carrier Stability	
$T_{nom}V_{nom}$	802.11a	5180	5179.95260	-9.15	20
$T_{min}V_{max}$	802.11a	5180	5179.95910	-7.90	20
$T_{min}V_{min}$	802.11a	5180	5179.95910	-7.90	20
$T_{max}V_{max}$	802.11a	5180	5179.95230	-9.21	20
$T_{max}V_{min}$	802.11a	5180	5179.95230	-9.21	20
$T_{nom}V_{nom}$	802.11a	5320	5319.95290	-8.85	20
$T_{min}V_{max}$	802.11a	5320	5319.95950	-7.61	20
$T_{min}V_{min}$	802.11a	5320	5319.95950	-7.61	20
$T_{max}V_{max}$	802.11a	5320	5319.95280	-8.87	20
$T_{max}V_{min}$	802.11a	5320	5319.95280	-8.87	20
$T_{nom}V_{nom}$	802.11a	5500	5499.95260	-8.62	20
$T_{min}V_{max}$	802.11a	5500	5499.95870	-7.51	20
$T_{min}V_{min}$	802.11a	5500	5499.95870	-7.51	20
$T_{max}V_{max}$	802.11a	5500	5499.95290	-8.56	20
$T_{max}V_{min}$	802.11a	5500	5499.95290	-8.56	20
$T_{nom}V_{nom}$	802.11a	5700	5699.95270	-8.30	20
$T_{min}V_{max}$	802.11a	5700	5699.95960	-7.09	20
$T_{min}V_{min}$	802.11a	5700	5699.95960	-7.09	20
$T_{max}V_{max}$	802.11a	5700	5699.95210	-8.40	20
$T_{max}V_{min}$	802.11a	5700	5699.95210	-8.40	20

Condition	Modulation Mode	Freq. (MHz)	Carrier Centre Frequencies (ppm)		Limit (ppm)
			Freqeuncy (MHz)	Carrier Stability	
$T_{nom}V_{nom}$	802.11n HT20	5180	5179.95230	-9.21	20
$T_{min}V_{max}$	802.11n HT20	5180	5179.95912	-7.89	20
$T_{min}V_{min}$	802.11n HT20	5180	5179.95912	-7.89	20
$T_{max}V_{max}$	802.11n HT20	5180	5179.95250	-9.17	20
$T_{max}V_{min}$	802.11n HT20	5180	5179.95250	-9.17	20
$T_{nom}V_{nom}$	802.11n HT20	5320	5319.95270	-8.89	20
$T_{min}V_{max}$	802.11n HT20	5320	5319.95930	-7.65	20
$T_{min}V_{min}$	802.11n HT20	5320	5319.95930	-7.65	20
$T_{max}V_{max}$	802.11n HT20	5320	5319.95250	-8.93	20
$T_{max}V_{min}$	802.11n HT20	5320	5319.95250	-8.93	20
$T_{nom}V_{nom}$	802.11n HT20	5500	5499.95260	-8.62	20
$T_{min}V_{max}$	802.11n HT20	5500	5499.95850	-7.55	20
$T_{min}V_{min}$	802.11n HT20	5500	5499.95850	-7.55	20
$T_{max}V_{max}$	802.11n HT20	5500	5499.95290	-8.56	20
$T_{max}V_{min}$	802.11n HT20	5500	5499.95290	-8.56	20
$T_{nom}V_{nom}$	802.11n HT20	5700	5699.95230	-8.37	20
$T_{min}V_{max}$	802.11n HT20	5700	5699.95960	-7.09	20
$T_{min}V_{min}$	802.11n HT20	5700	5699.95960	-7.09	20
$T_{max}V_{max}$	802.11n HT20	5700	5699.95270	-8.30	20
$T_{max}V_{min}$	802.11n HT20	5700	5699.95270	-8.30	20

Condition	Modulation Mode	Freq. (MHz)	Carrier Centre Frequencies (ppm)		Limit (ppm)
			Freqeuncy (MHz)	Carrier Stability	
$T_{nom}V_{nom}$	802.11n HT40	5190	5189.95290	-9.08	20
$T_{min}V_{max}$	802.11n HT40	5190	5189.95950	-7.80	20
$T_{min}V_{min}$	802.11n HT40	5190	5189.95950	-7.80	20
$T_{max}V_{max}$	802.11n HT40	5190	5189.95250	-9.15	20
$T_{max}V_{min}$	802.11n HT40	5190	5189.95250	-9.15	20
$T_{nom}V_{nom}$	802.11n HT40	5310	5309.95270	-8.91	20
$T_{min}V_{max}$	802.11n HT40	5310	5309.95930	-7.66	20
$T_{min}V_{min}$	802.11n HT40	5310	5309.95930	-7.66	20
$T_{max}V_{max}$	802.11n HT40	5310	5309.95230	-8.98	20
$T_{max}V_{min}$	802.11n HT40	5310	5309.95230	-8.98	20
$T_{nom}V_{nom}$	802.11n HT40	5510	5509.95370	-8.40	20
$T_{min}V_{max}$	802.11n HT40	5510	5509.95870	-7.50	20
$T_{min}V_{min}$	802.11n HT40	5510	5509.95870	-7.50	20
$T_{max}V_{max}$	802.11n HT40	5510	5509.95390	-8.37	20
$T_{max}V_{min}$	802.11n HT40	5510	5509.95390	-8.37	20
$T_{nom}V_{nom}$	802.11n HT40	5670	5669.95330	-8.24	20
$T_{min}V_{max}$	802.11n HT40	5670	5669.95860	-7.30	20
$T_{min}V_{min}$	802.11n HT40	5670	5669.95860	-7.30	20
$T_{max}V_{max}$	802.11n HT40	5670	5669.95360	-8.18	20
$T_{max}V_{min}$	802.11n HT40	5670	5669.95360	-8.18	20

3.2 Occupied Channel Bandwidth

3.2.1 Limit of Occupied Channel Bandwidth

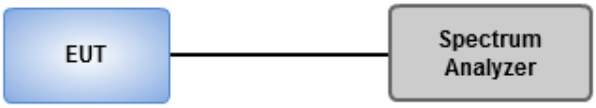
The Nominal Channel Bandwidth shall be at least 5 MHz at all times.

The Occupied Channel Bandwidth shall be between 80 % and 100 % of the declared Nominal Channel Bandwidth. In case of smart antenna systems (devices with multiple transmit chains) each of the transmit chains shall meet this requirement.

3.2.2 Test Procedures

Reference to clause 5.3.3.2 of ETSI EN 301 893 V1.7.1 (2012-06).

3.2.3 Test Setup



3.2.4 Test Result of Occupied Channel Bandwidth

Modulation Mode	Frequency (MHz)	Occupied Channel Bandwidth (MHz)	Occupied Channel Bandwidth Limit (MHz)
802.11a	5180	16.64	16-20
802.11a	5320	16.64	16-20
802.11a	5500	16.57	16-20
802.11a	5700	16.64	16-20
802.11n HT20	5180	17.65	16-20
802.11n HT20	5320	17.65	16-20
802.11n HT20	5500	17.65	16-20
802.11n HT20	5700	17.65	16-20
802.11n HT40	5190	36.03	32-40
802.11n HT40	5310	36.03	32-40
802.11n HT40	5510	36.17	32-40
802.11n HT40	5670	36.17	32-40

3.3 RF Output Power, Transmit Power Control (TPC) and Power density

3.3.1 Limit of RF Output Power, Transmit Power Control (TPC) and Power density

E.I.R.P limits for RF output power and power density at the highest power level

Frequency range (MHz)	Mean e.i.r.p. limit [dBm]		Mean e.i.r.p. density limit [dBm/MHz]	
	With TPC	Without TPC	With TPC	Without TPC
5150 to 5350	23	20 / 23 (see note 1)	10	7 / 10 (see note 2)
5470 to 5725	30 (see note 3)	27 (see note 3)	17 (see note 3)	14 (see note 3)

Note 1: The applicable limit is 20 dBm, except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 23 dBm.
Note 2: The applicable limit is 7 dBm/MHz except for transmissions whose nominal bandwidth falls completely within the band 5150 MHz to 5250 MHz, in which case the applicable limit is 10 dBm/MHz.
Note 3: Slave devices without a Radar Interference Detection function shall comply with the limits for the band 5250 MHz to 5350 MHz.

E.I.R.P limits for RF output power at the lowest power level

Frequency range (MHz)	Mean e.i.r.p. [dBm]
5250 to 5350	17
5470 to 5725	24 (see note)

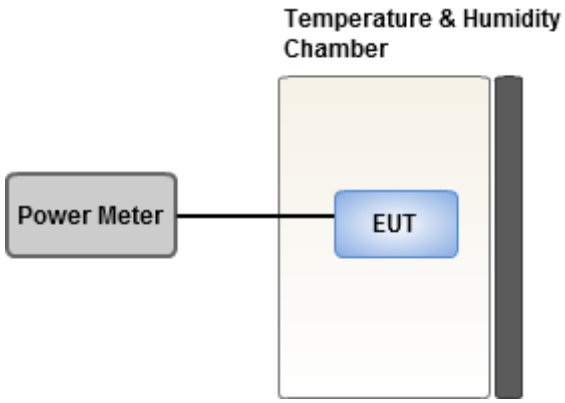
Note: Slave devices without a Radar Interference Detection function shall comply with the limits for the band 5250 MHz to 5350 MHz.

3.3.2 Test Procedures

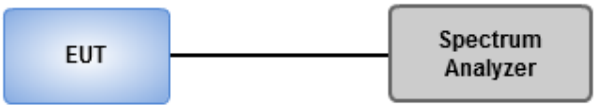
Reference to clause 5.3.4.2 of ETSI EN 301 893 V1.7.1 (2012-06).

3.3.3 Test Setup

For RF Output Power, Transmit Power Control (TPC)



For Power Density



3.3.4 Test Result of RF Output Power at the Highest Power

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11a**	**Limit (dBm)**
$T_{nom}V_{nom}$	5180	20.73	23
$T_{min}V_{max}$	5180	22.10	23
$T_{min}V_{min}$	5180	22.12	23
$T_{max}V_{max}$	5180	20.30	23
$T_{max}V_{min}$	5180	20.27	23
$T_{nom}V_{nom}$	5320	20.62	23
$T_{min}V_{max}$	5320	21.87	23
$T_{min}V_{min}$	5320	21.90	23
$T_{max}V_{max}$	5320	20.51	23
$T_{max}V_{min}$	5320	20.49	23
$T_{nom}V_{nom}$	5500	18.04	23
$T_{min}V_{max}$	5500	19.47	23
$T_{min}V_{min}$	5500	19.49	23
$T_{max}V_{max}$	5500	17.46	23
$T_{max}V_{min}$	5500	17.43	23
$T_{nom}V_{nom}$	5700	18.64	23
$T_{min}V_{max}$	5700	19.70	23
$T_{min}V_{min}$	5700	19.73	23
$T_{max}V_{max}$	5700	17.88	23
$T_{max}V_{min}$	5700	17.86	23

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11n HT20**	**Limit (dBm)**
$T_{nom}V_{nom}$	5180	19.41	23
$T_{min}V_{max}$	5180	20.65	23
$T_{min}V_{min}$	5180	20.68	23
$T_{max}V_{max}$	5180	19.28	23
$T_{max}V_{min}$	5180	19.26	23
$T_{nom}V_{nom}$	5320	19.53	23
$T_{min}V_{max}$	5320	20.60	23
$T_{min}V_{min}$	5320	20.62	23
$T_{max}V_{max}$	5320	19.45	23
$T_{max}V_{min}$	5320	19.43	23
$T_{nom}V_{nom}$	5500	21.19	23
$T_{min}V_{max}$	5500	22.36	23
$T_{min}V_{min}$	5500	22.39	23
$T_{max}V_{max}$	5500	20.24	23
$T_{max}V_{min}$	5500	20.22	23
$T_{nom}V_{nom}$	5700	21.22	23
$T_{min}V_{max}$	5700	22.41	23
$T_{min}V_{min}$	5700	22.43	23
$T_{max}V_{max}$	5700	20.82	23
$T_{max}V_{min}$	5700	20.80	23

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11n HT40**	**Limit (dBm)**
$T_{nom}V_{nom}$	5190	20.42	23
$T_{min}V_{max}$	5190	21.92	23
$T_{min}V_{min}$	5190	21.94	23
$T_{max}V_{max}$	5190	20.24	23
$T_{max}V_{min}$	5190	20.22	23
$T_{nom}V_{nom}$	5310	20.43	23
$T_{min}V_{max}$	5310	21.74	23
$T_{min}V_{min}$	5310	21.76	23
$T_{max}V_{max}$	5310	20.28	23
$T_{max}V_{min}$	5310	20.26	23
$T_{nom}V_{nom}$	5510	20.56	23
$T_{min}V_{max}$	5510	21.68	23
$T_{min}V_{min}$	5510	21.70	23
$T_{max}V_{max}$	5510	19.90	23
$T_{max}V_{min}$	5510	19.88	23
$T_{nom}V_{nom}$	5670	20.70	23
$T_{min}V_{max}$	5670	21.89	23
$T_{min}V_{min}$	5670	21.91	23
$T_{max}V_{max}$	5670	19.82	23
$T_{max}V_{min}$	5670	19.80	23

3.3.5 Test Result of RF Output Power at the Lowest Power

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11a**	**Limit (dBm)**
$T_{nom}V_{nom}$	5320	14.62	17
$T_{min}V_{max}$	5320	15.87	17
$T_{min}V_{min}$	5320	15.90	17
$T_{max}V_{max}$	5320	14.51	17
$T_{max}V_{min}$	5320	14.49	17
$T_{nom}V_{nom}$	5500	12.04	17
$T_{min}V_{max}$	5500	13.47	17
$T_{min}V_{min}$	5500	13.49	17
$T_{max}V_{max}$	5500	11.46	17
$T_{max}V_{min}$	5500	11.43	17
$T_{nom}V_{nom}$	5700	12.64	17
$T_{min}V_{max}$	5700	13.70	17
$T_{min}V_{min}$	5700	13.73	17
$T_{max}V_{max}$	5700	11.88	17
$T_{max}V_{min}$	5700	11.86	17

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11n HT20**	**Limit (dBm)**
$T_{nom}V_{nom}$	5320	13.53	17
$T_{min}V_{max}$	5320	14.60	17
$T_{min}V_{min}$	5320	14.62	17
$T_{max}V_{max}$	5320	13.45	17
$T_{max}V_{min}$	5320	13.43	17
$T_{nom}V_{nom}$	5500	15.19	17
$T_{min}V_{max}$	5500	16.36	17
$T_{min}V_{min}$	5500	16.39	17
$T_{max}V_{max}$	5500	14.24	17
$T_{max}V_{min}$	5500	14.22	17
$T_{nom}V_{nom}$	5700	15.22	17
$T_{min}V_{max}$	5700	16.41	17
$T_{min}V_{min}$	5700	16.43	17
$T_{max}V_{max}$	5700	14.82	17
$T_{max}V_{min}$	5700	14.80	17

Maximum Transmit Power (dBm)			
Condition	**Freq. (MHz)**	**802.11n HT40**	**Limit (dBm)**
$T_{nom}V_{nom}$	5310	14.43	17
$T_{min}V_{max}$	5310	15.74	17
$T_{min}V_{min}$	5310	15.76	17
$T_{max}V_{max}$	5310	14.28	17
$T_{max}V_{min}$	5310	14.26	17
$T_{nom}V_{nom}$	5510	14.56	17
$T_{min}V_{max}$	5510	15.68	17
$T_{min}V_{min}$	5510	15.70	17
$T_{max}V_{max}$	5510	13.90	17
$T_{max}V_{min}$	5510	13.88	17
$T_{nom}V_{nom}$	5670	14.70	17
$T_{min}V_{max}$	5670	15.89	17
$T_{min}V_{min}$	5670	15.91	17
$T_{max}V_{max}$	5670	13.82	17
$T_{max}V_{min}$	5670	13.80	17

3.3.6 Test Result of Power Density

Modulation Mode	Freq. (MHz)	Power Density (dBm/1MHz) e.i.r.p.	Limit (dBm/1MHz) e.i.r.p.	Results
802.11a	5180	9.86	10	Pass
802.11a	5320	9.52	10	Pass
802.11a	5500	7.23	10	Pass
802.11a	5700	7.34	10	Pass
802.11n HT20	5180	8.49	10	Pass
802.11n HT20	5320	8.20	10	Pass
802.11n HT20	5500	9.55	10	Pass
802.11n HT20	5700	9.68	10	Pass
802.11n HT40	5190	5.91	10	Pass
802.11n HT40	5310	5.67	10	Pass
802.11n HT40	5510	5.45	10	Pass
802.11n HT40	5670	5.58	10	Pass

3.4 Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands

3.4.1 Limit of Transmitter Unwanted Emissions outside the 5 GHz RLAN Bands

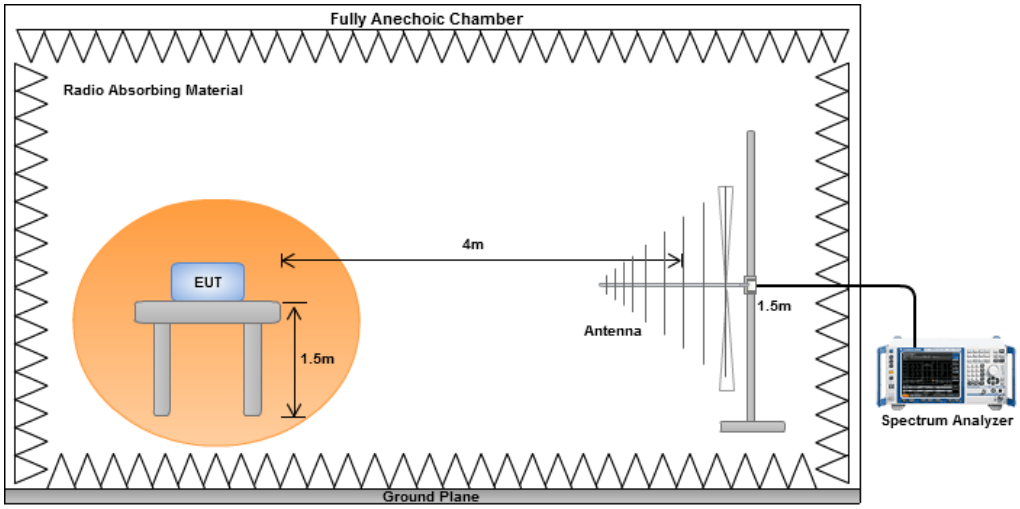
Frequency Range	Maximum Power	Bandwidth
30 MHz to 47 MHz	-36 dBm	100 kHz
47 MHz to 74 MHz	-54 dBm	100 kHz
74 MHz to 87,5 MHz	-36 dBm	100 kHz
87,5 MHz to 118 MHz	-54 dBm	100 kHz
118 MHz to 174 MHz	-36 dBm	100 kHz
174 MHz to 230 MHz	-54 dBm	100 kHz
230 MHz to 470 MHz	-36 dBm	100 kHz
470 MHz to 862 MHz	-54 dBm	100 kHz
862 MHz to 1 GHz	-36 dBm	100 kHz
1 GHz to 5,15 GHz	-30 dBm	1 MHz
5,35 GHz to 5,47 GHz	-30 dBm	1 MHz
5,725 GHz to 26 GHz	-30 dBm	1 MHz

3.4.2 Test Procedures

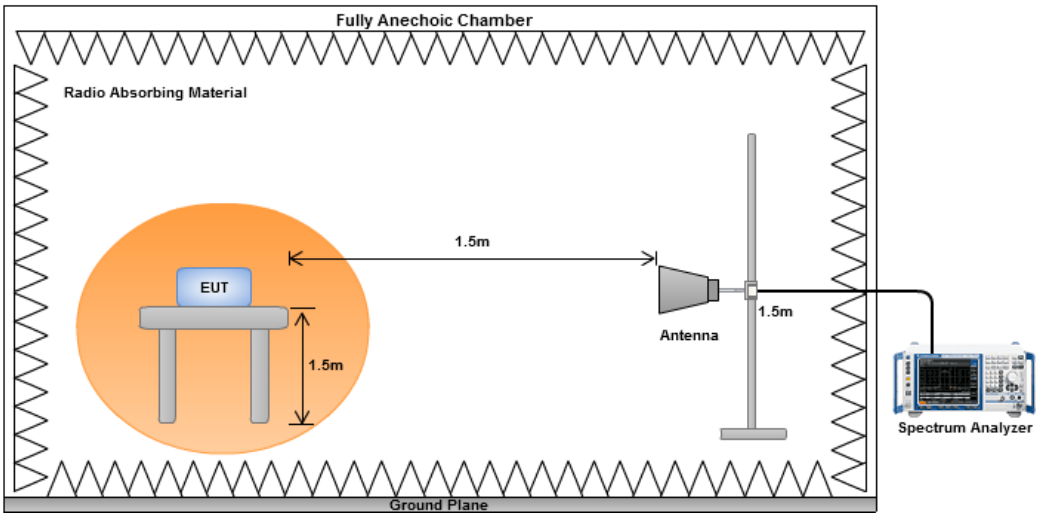
Reference to clause 5.3.5.2 of ETSI EN 301 893 V1.7.1 (2012-06).

3.4.3 Test Setup

Below 1GHz

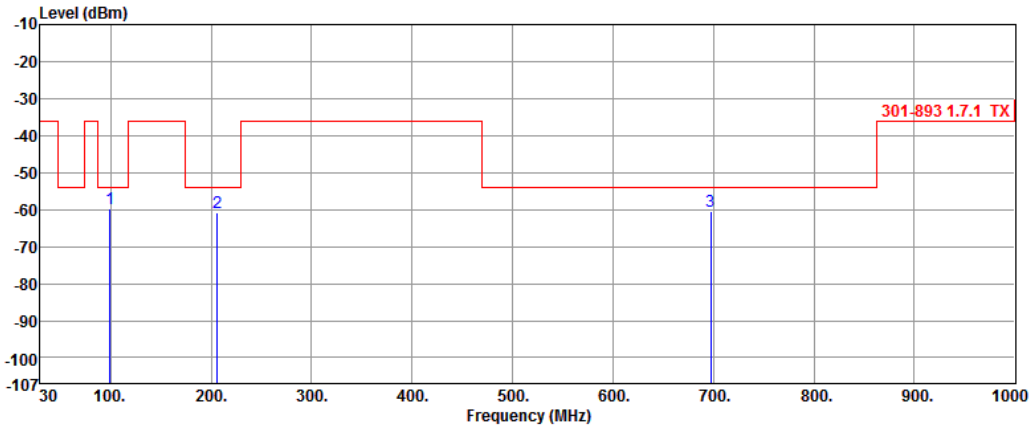


Above 1 GHz



3.4.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

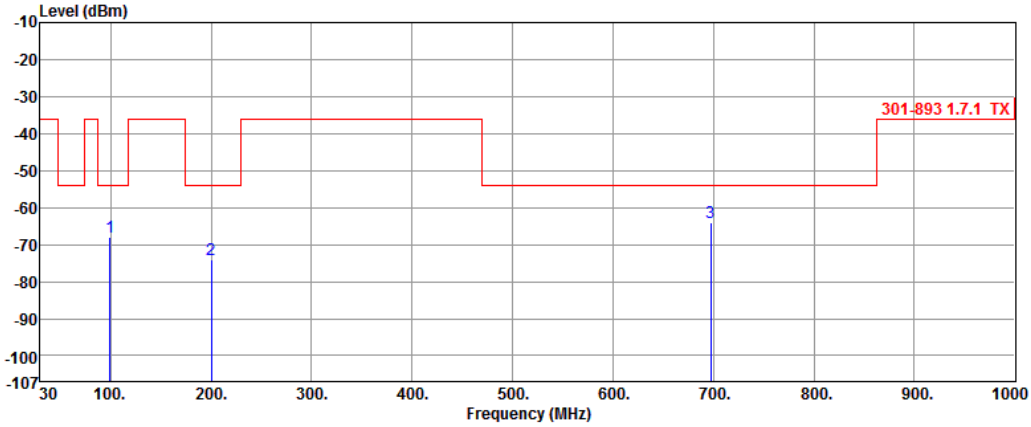
Modulation	11a	**Test Freq. (MHz)**	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.45	-59.65	-54.00	-5.65	-6.68	-52.97
2	206.07	-60.68	-54.00	-6.68	-4.61	-56.07
3	697.22	-60.57	-54.00	-6.57	7.35	-67.92

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

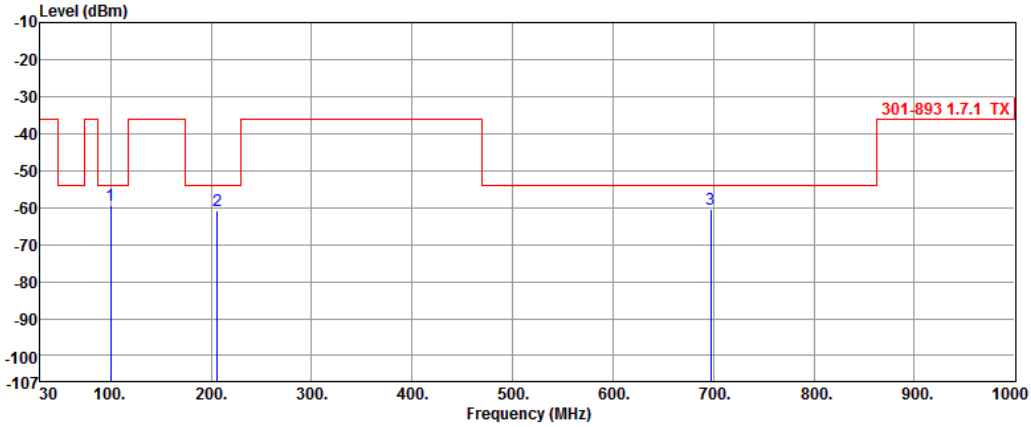
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.36	-68.09	-54.00	-14.09	-6.08	-62.01
2	199.85	-73.92	-54.00	-19.92	-4.68	-69.24
3	697.44	-64.15	-54.00	-10.15	7.27	-71.42

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

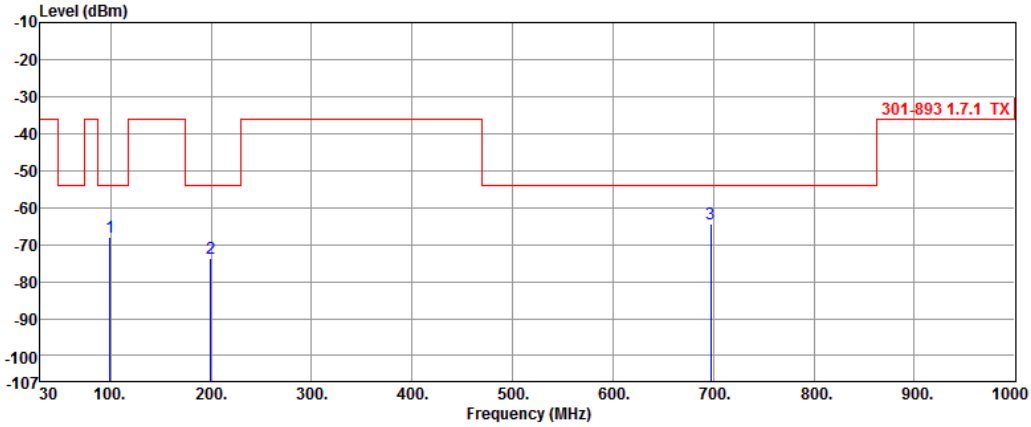
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.95	-59.37	-54.00	-5.37	-6.58	-52.79
2	206.19	-60.70	-54.00	-6.70	-4.59	-56.11
3	697.10	-60.44	-54.00	-6.44	7.35	-67.79

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

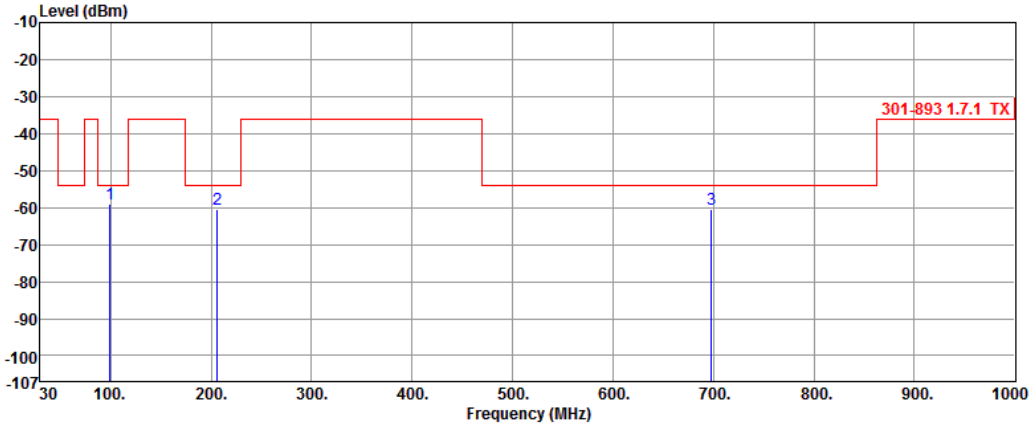
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.46	-68.12	-54.00	-14.12	-6.06	-62.06
2	199.59	-73.63	-54.00	-19.63	-4.64	-68.99
3	697.39	-64.25	-54.00	-10.25	7.27	-71.52

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

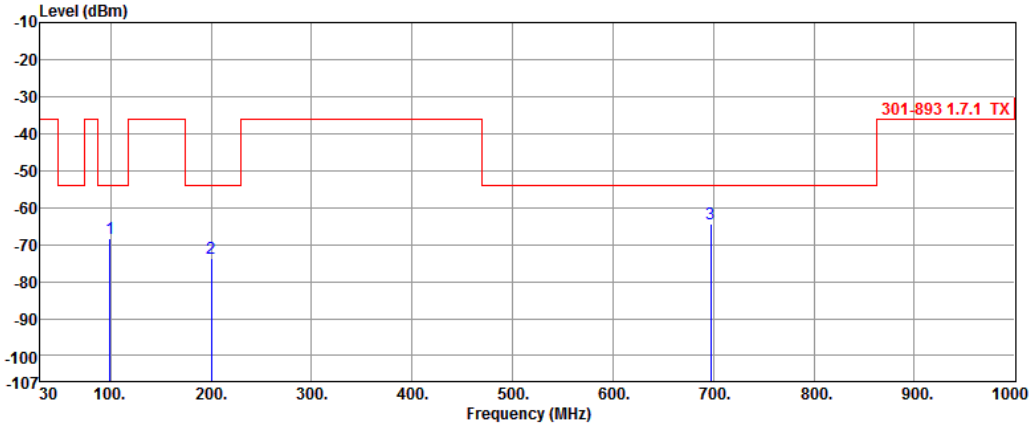
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.45	-59.18	-54.00	-5.18	-6.68	-52.50
2	206.07	-60.32	-54.00	-6.32	-4.61	-55.71
3	697.84	-60.31	-54.00	-6.31	7.34	-67.65

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

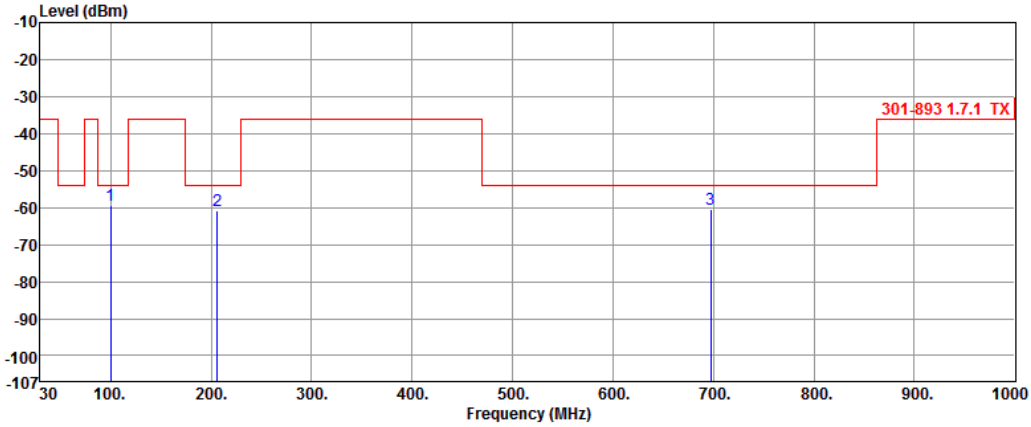
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.31	-68.17	-54.00	-14.17	-6.10	-62.07
2	199.85	-73.83	-54.00	-19.83	-4.68	-69.15
3	697.40	-64.47	-54.00	-10.47	7.27	-71.74

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

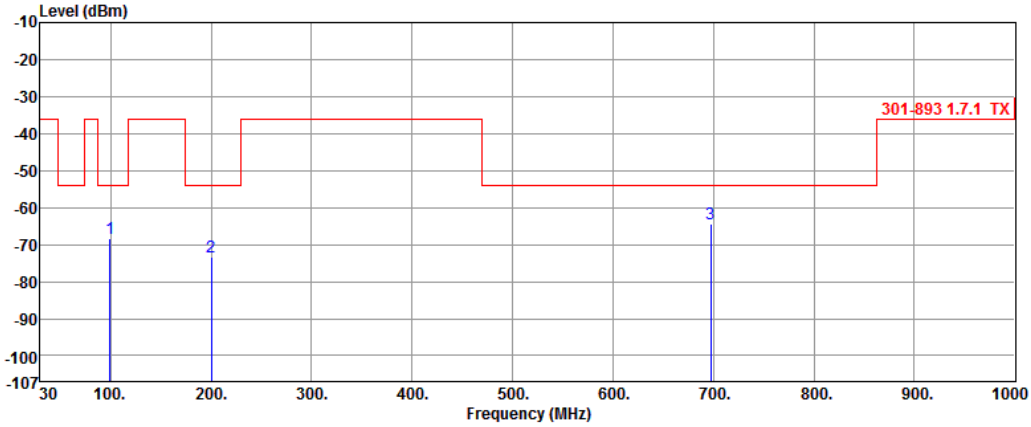
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.95	-59.37	-54.00	-5.37	-6.58	-52.79
2	206.19	-60.70	-54.00	-6.70	-4.59	-56.11
3	697.54	-60.31	-54.00	-6.31	7.34	-67.65

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

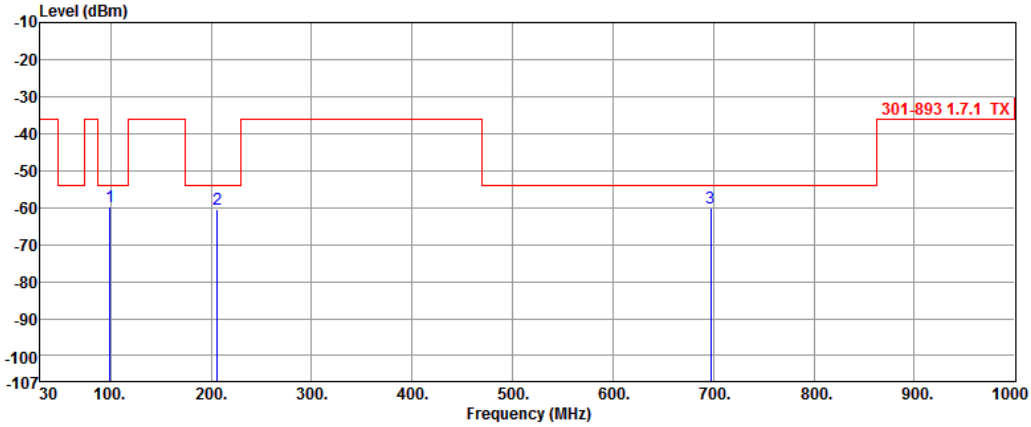
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.46	-68.17	-54.00	-14.17	-6.06	-62.11
2	199.84	-73.34	-54.00	-19.34	-4.68	-68.66
3	697.35	-64.47	-54.00	-10.47	7.27	-71.74

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

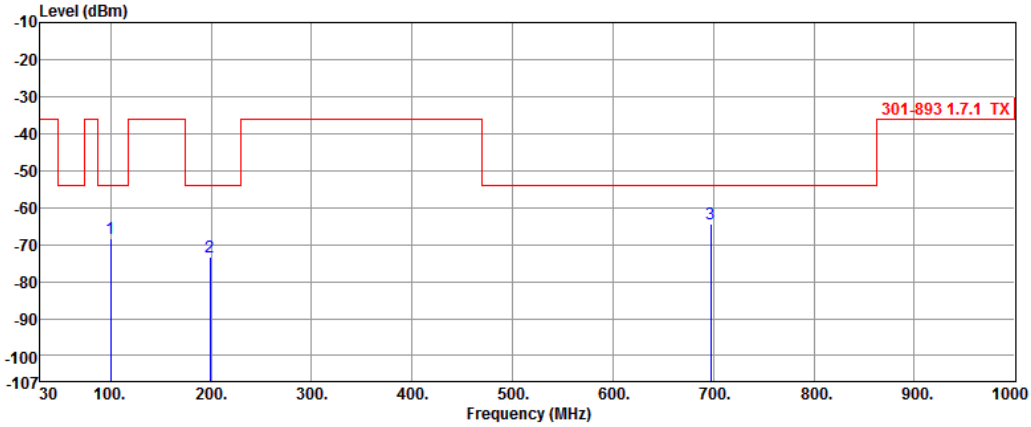
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.07	-59.92	-54.00	-5.92	-6.75	-53.17
2	206.20	-60.31	-54.00	-6.31	-4.59	-55.72
3	697.00	-60.10	-54.00	-6.10	7.36	-67.46

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

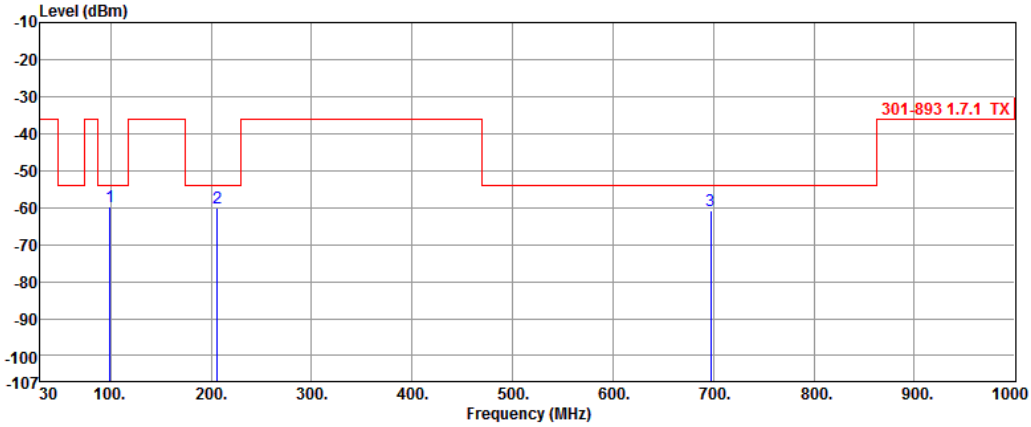
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.65	-68.19	-54.00	-14.19	-6.00	-62.19
2	199.07	-73.23	-54.00	-19.23	-4.54	-68.69
3	697.59	-64.38	-54.00	-10.38	7.27	-71.65

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

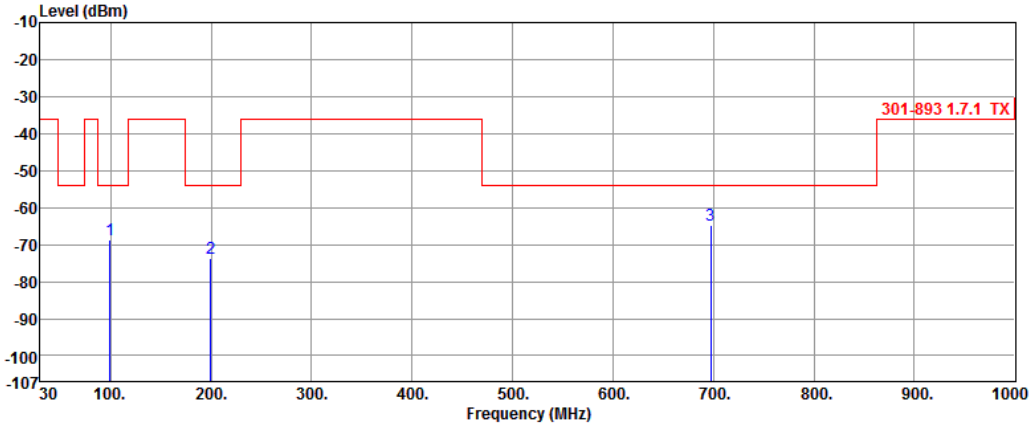
Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.49	-59.65	-54.00	-5.65	-6.67	-52.98
2	206.05	-60.21	-54.00	-6.21	-4.62	-55.59
3	697.59	-60.72	-54.00	-6.72	7.34	-68.06

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Vertical		

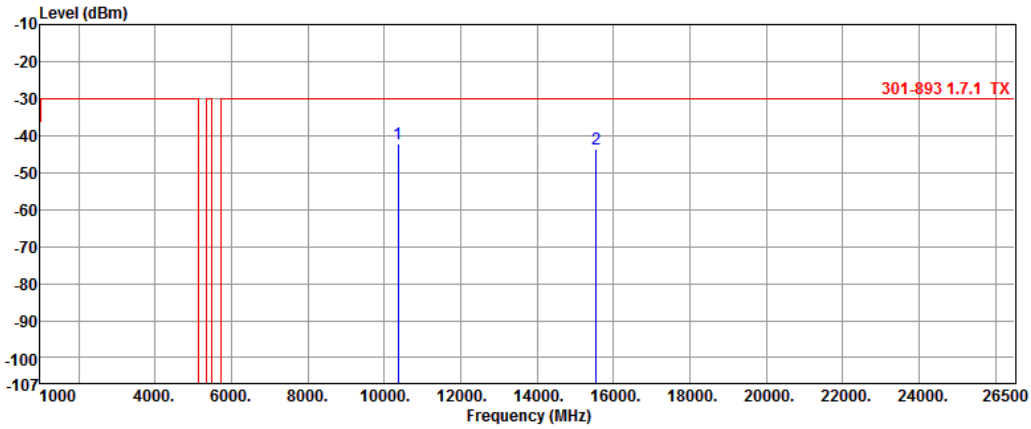


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.56	-68.84	-54.00	-14.84	-6.03	-62.81
2	199.49	-73.67	-54.00	-19.67	-4.62	-69.05
3	697.48	-64.93	-54.00	-10.93	7.27	-72.20

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

3.4.5 Transmitter Radiated Unwanted Emissions (Above 1GHz)

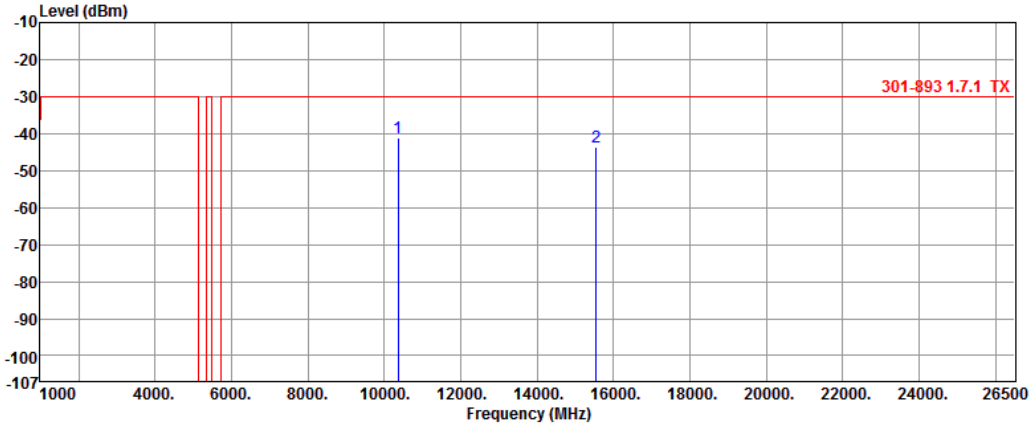
Modulation	11a	**Test Freq. (MHz)**	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10359.56	-42.05	-30.00	-12.05	20.17	-62.22
2	15538.80	-43.60	-30.00	-13.60	15.46	-59.06

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

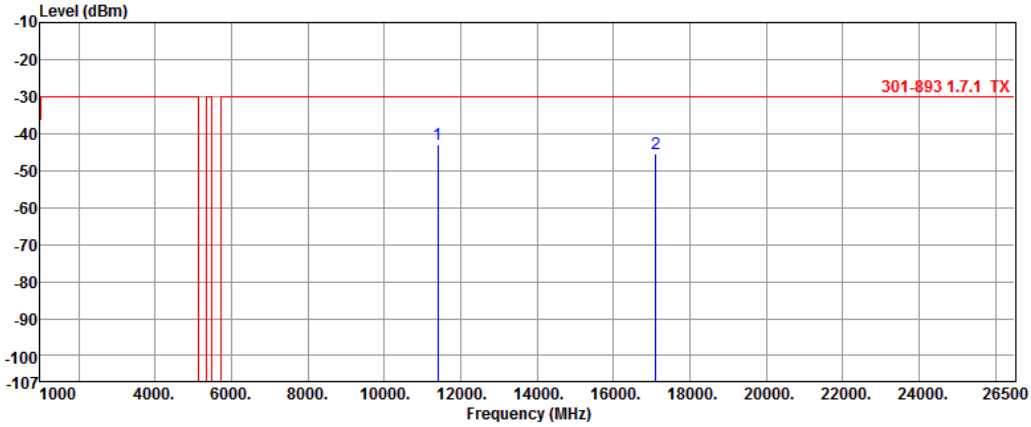
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10361.60	-41.21	-30.00	-11.21	20.45	-61.66
2	15538.70	-43.51	-30.00	-13.51	15.30	-58.81

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

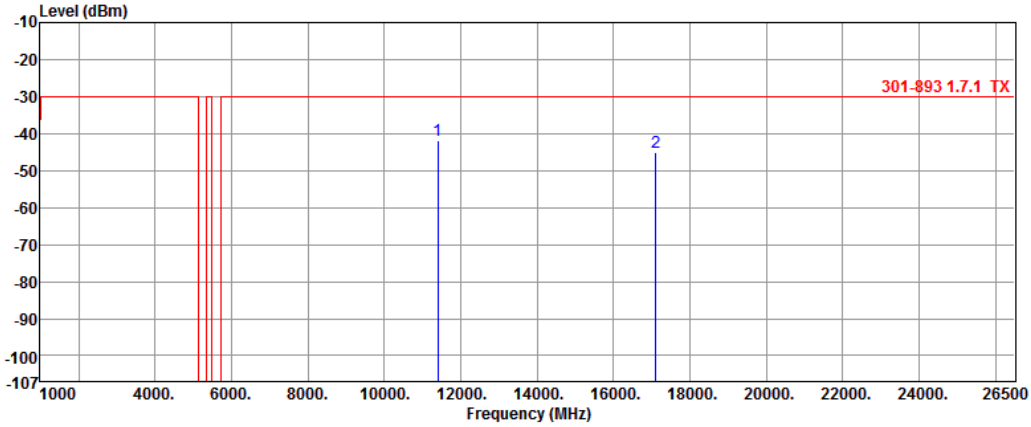
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	11401.14	-42.89	-30.00	-12.89	18.47	-61.36
2	17098.78	-45.32	-30.00	-15.32	15.87	-61.19

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

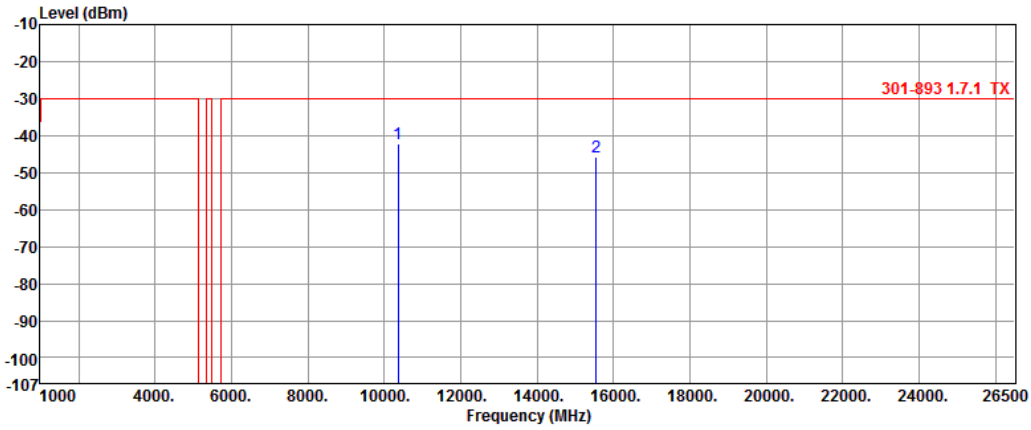
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	11401.44	-42.01	-30.00	-12.01	18.54	-60.55
2	17098.58	-45.06	-30.00	-15.06	15.95	-61.01

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

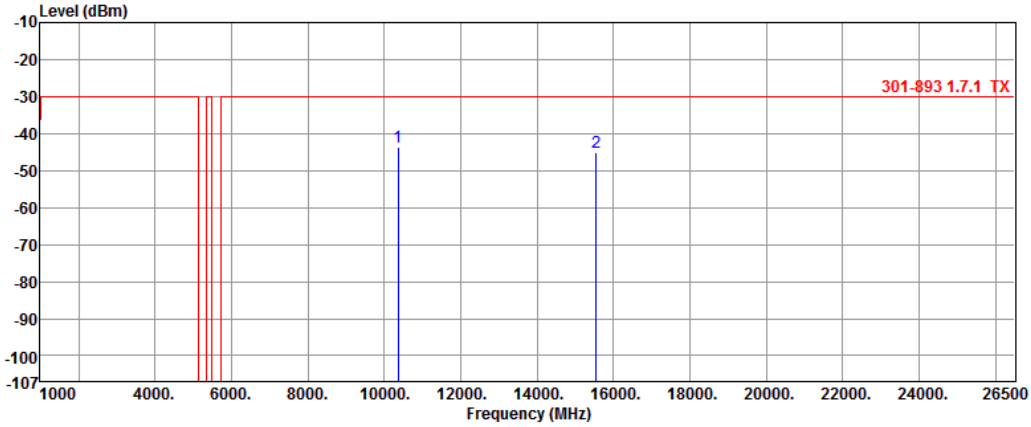
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10362.31	-42.33	-30.00	-12.33	20.19	-62.52
2	15540.52	-45.75	-30.00	-15.75	15.46	-61.21

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

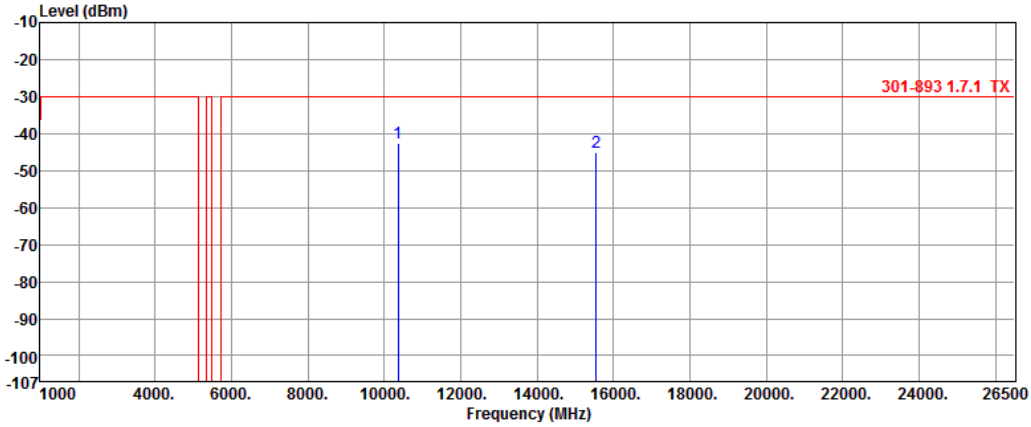
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10360.25	-43.49	-30.00	-13.49	20.45	-63.94
2	15539.21	-45.23	-30.00	-15.23	15.30	-60.53

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

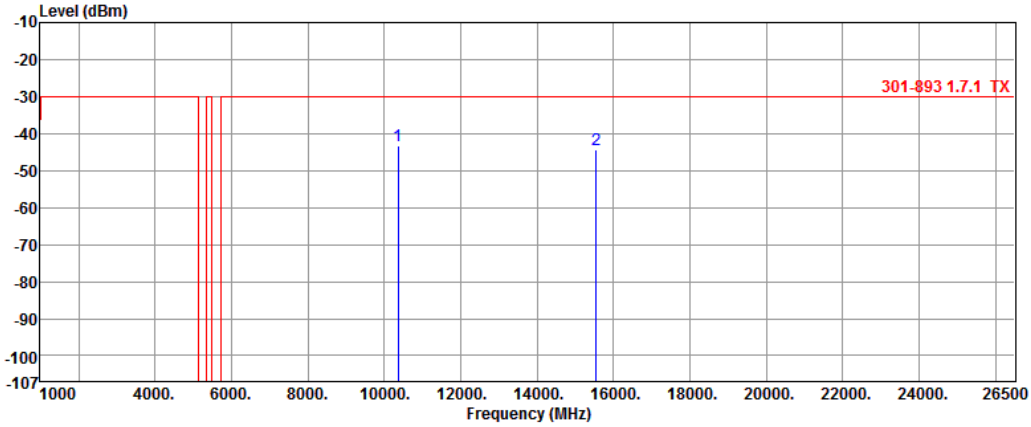
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10360.25	-42.74	-30.00	-12.74	20.17	-62.91
2	15540.84	-45.09	-30.00	-15.09	15.46	-60.55

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

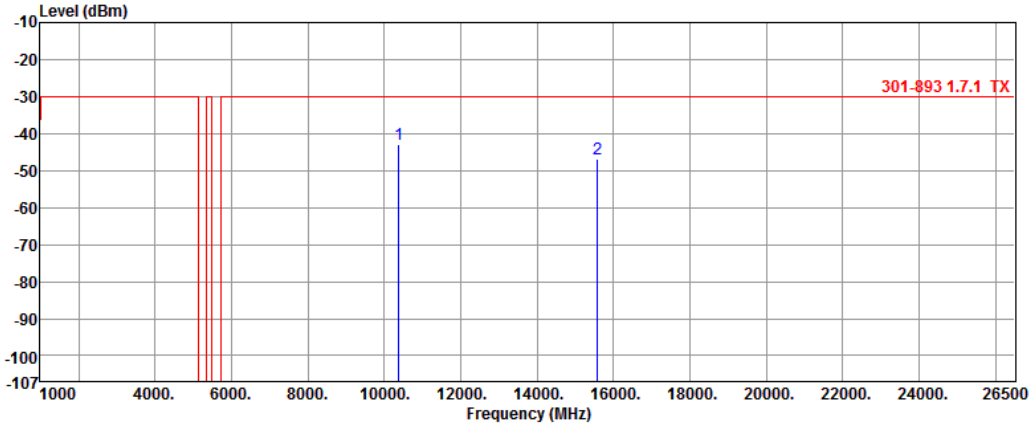
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10359.55	-43.28	-30.00	-13.28	20.44	-63.72
2	15541.54	-44.25	-30.00	-14.25	15.30	-59.55

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

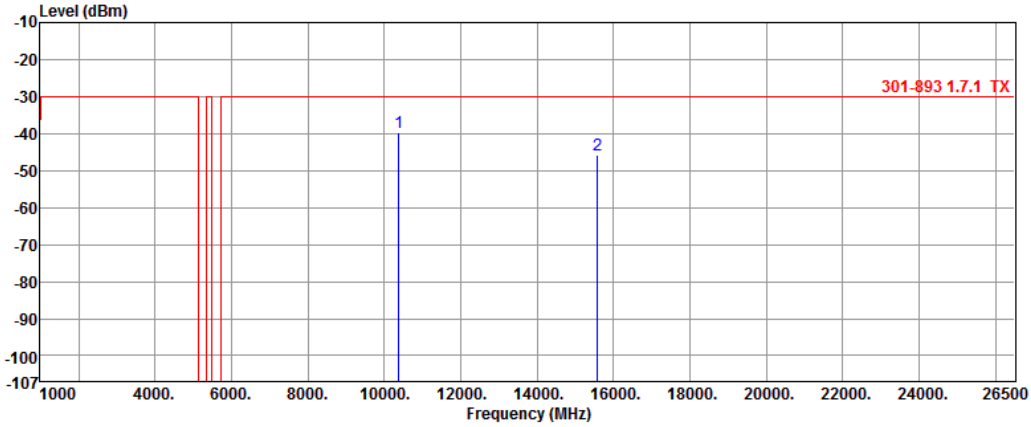
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10380.85	-42.97	-30.00	-12.97	20.36	-63.33
2	15570.85	-46.81	-30.00	-16.81	15.45	-62.26

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

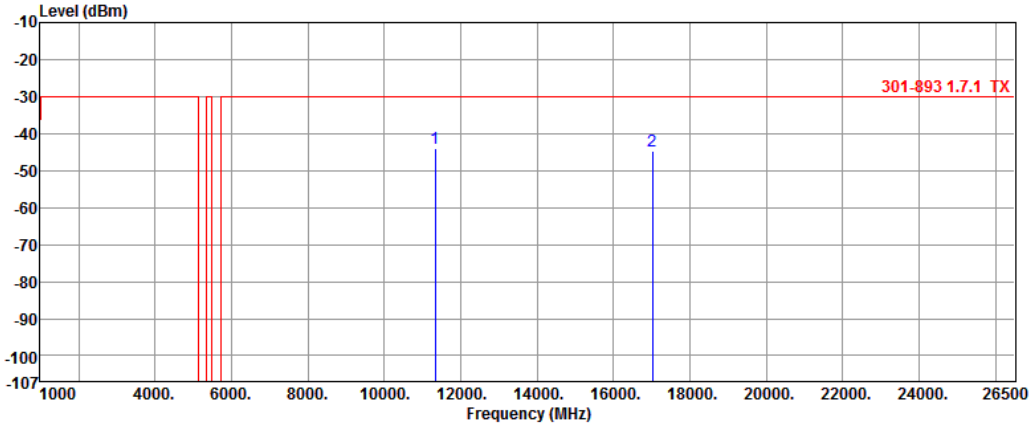
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	10377.12	-39.56	-30.00	-9.56	20.52	-60.08
2	15571.57	-45.69	-30.00	-15.69	15.31	-61.00

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

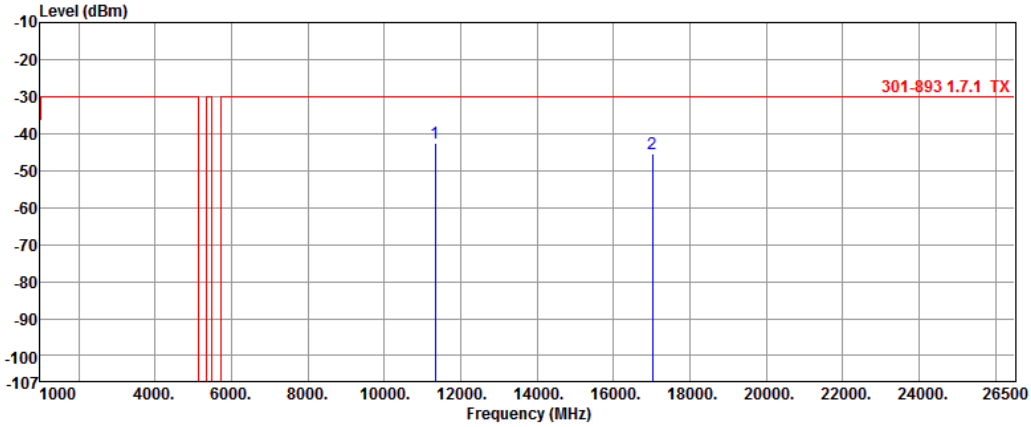
Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	11337.58	-44.16	-30.00	-14.16	18.17	-62.33
2	17010.85	-44.76	-30.00	-14.76	15.88	-60.64

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Vertical		

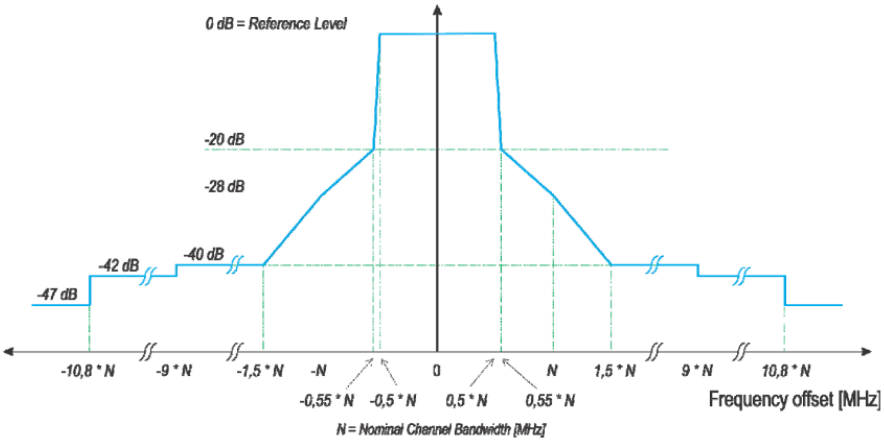


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	11338.16	-42.60	-30.00	-12.60	18.28	-60.88
2	17010.25	-45.31	-30.00	-15.31	15.96	-61.27

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

3.5 Transmitter Unwanted Emissions within the 5 GHz RLAN Band

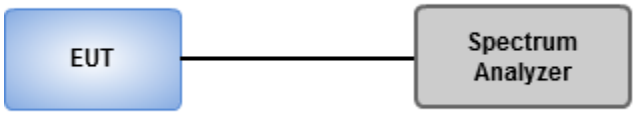
3.5.1 Limit of Transmitter Unwanted Emissions within the 5 GHz RLAN Band



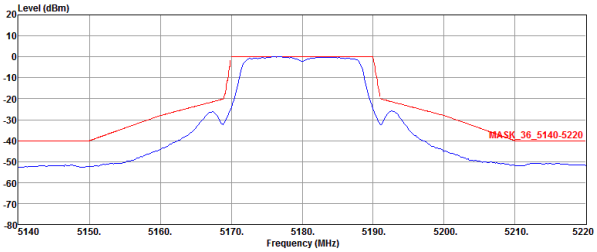
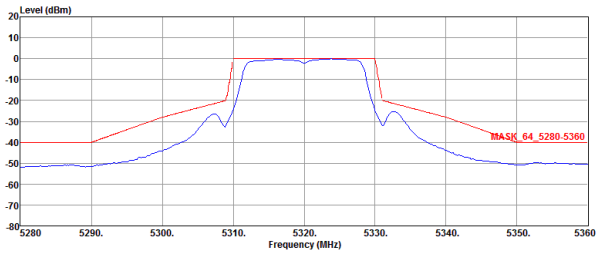
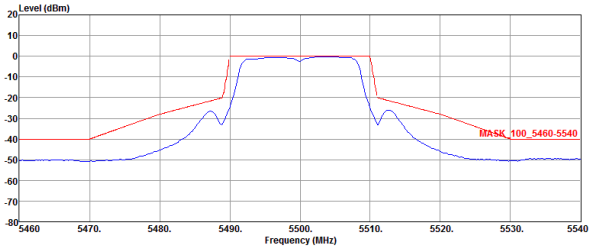
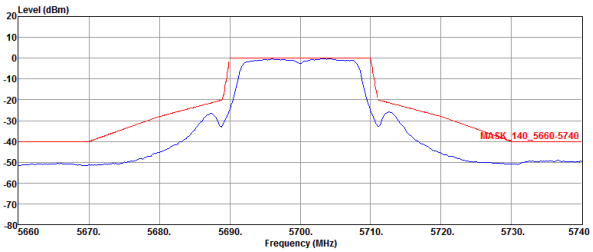
3.5.2 Test Procedures

Reference to clause 5.3.6.2 of ETSI EN 301 893 V1.7.1 (2012-06).

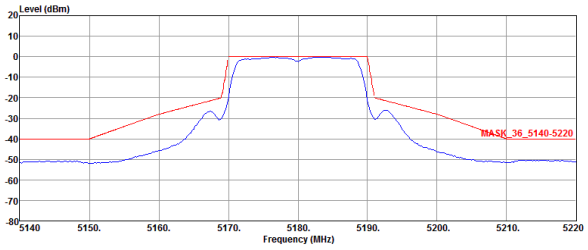
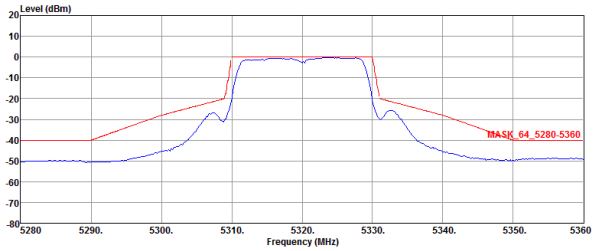
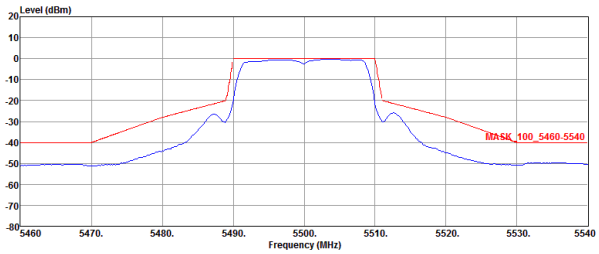
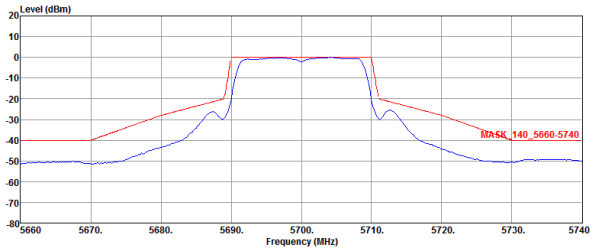
3.5.3 Test Setup



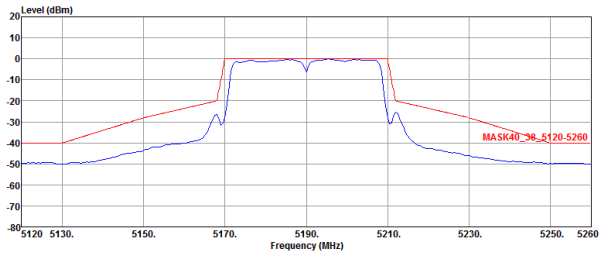
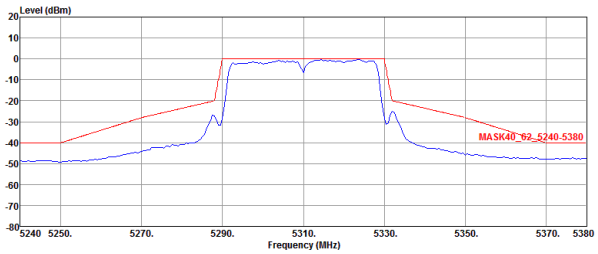
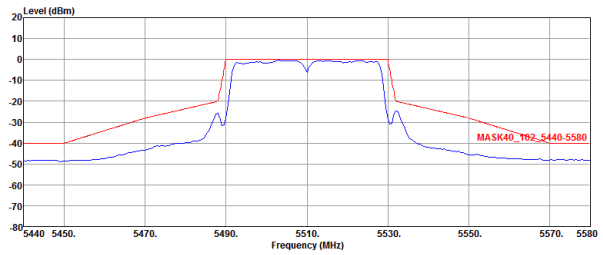
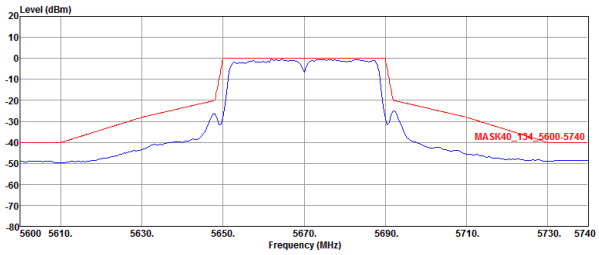
3.5.4 Test Result of Transmitter Unwanted Emissions within the 5 GHz RLAN Band for 802.11a

5180MHz	5320MHz
	
5500MHz	**5700MHz**
	

3.5.5 Test Result of Transmitter Unwanted Emissions within the 5 GHz RLAN Band for 802.11n HT20

5180MHz	5320MHz
	
5500MHz	**5700MHz**
	

3.5.6 Test Result of Transmitter Unwanted Emissions within the 5 GHz RLAN Band for 802.11n HT40

5190MHz	5310MHz
	
5510MHz	**5670MHz**
	

4 Receiver Test Results

4.1 Receiver Spurious Emissions

4.1.1 Limit of Receiver Spurious Emissions

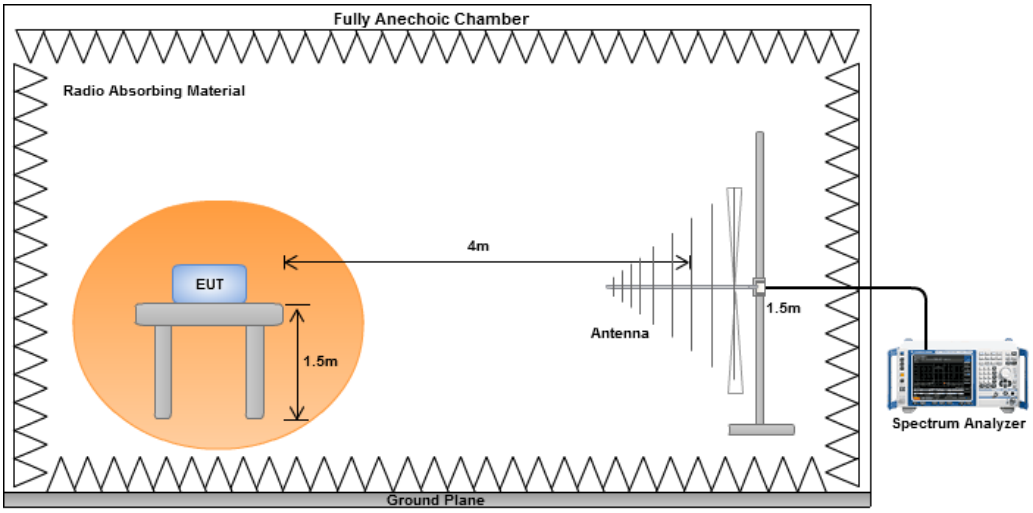
Frequency Range	Limit
30 MHz to 1 GHz	-57 dBm / 100kHz (E.R.P)
1 GHz to 26 GHz	-47 dBm / 1MHz (E.I.R.P)

4.1.2 Test Procedures

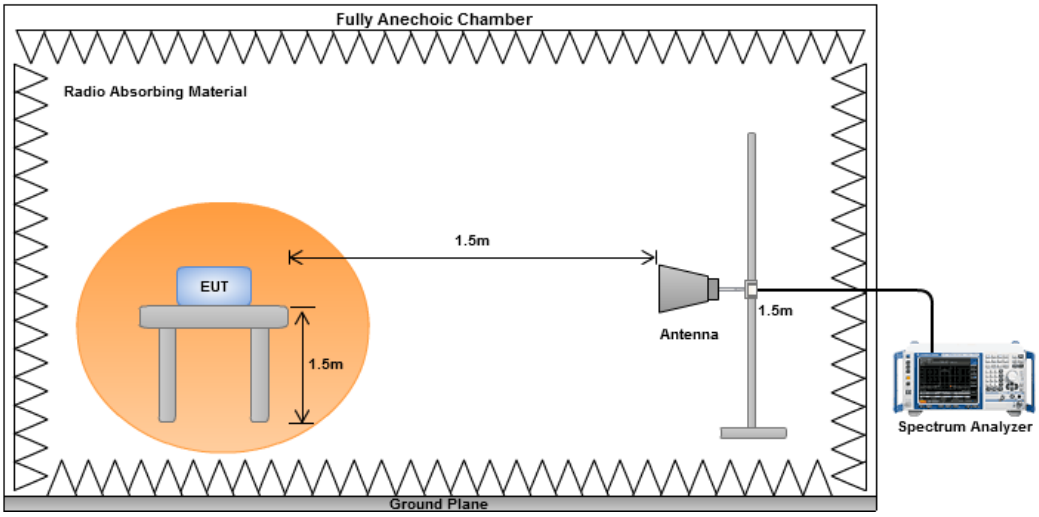
Reference to clause 5.3.7.2 of ETSI EN 301 893 V1.7.1 (2012-06).

4.1.3 Test Setup

Below 1GHz

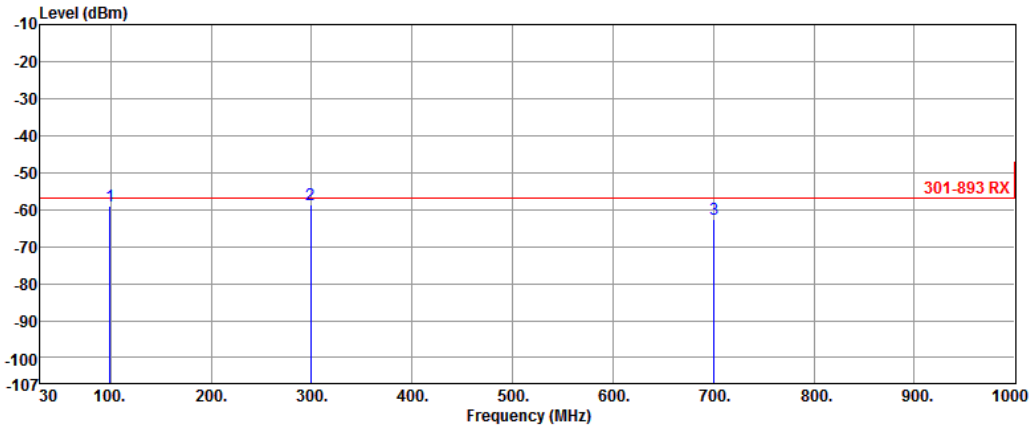


Above 1 GHz



4.1.4 Receiver Spurious Emissions (Below 1GHz)

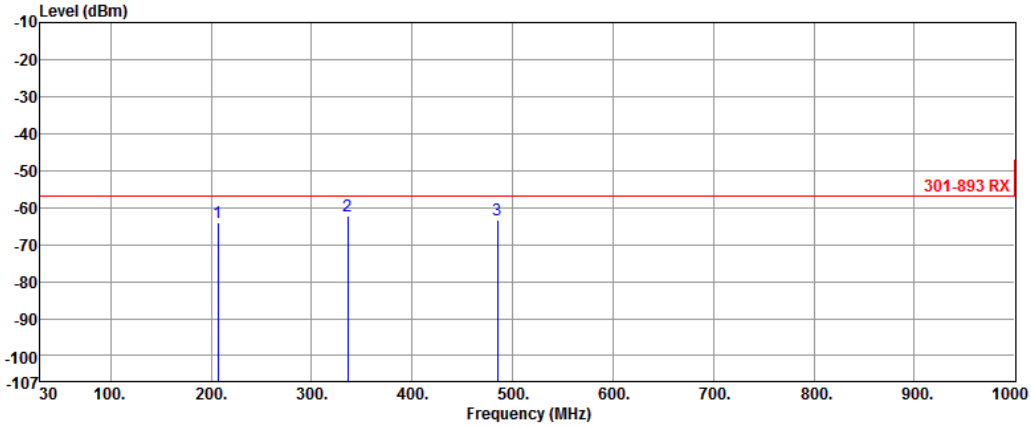
Modulation	11a	**Test Freq. (MHz)**	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.14	-59.14	-57.00	-2.14	-6.74	-52.40
2	298.89	-58.65	-57.00	-1.65	-0.40	-58.25
3	700.38	-62.50	-57.00	-5.50	7.28	-69.78

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

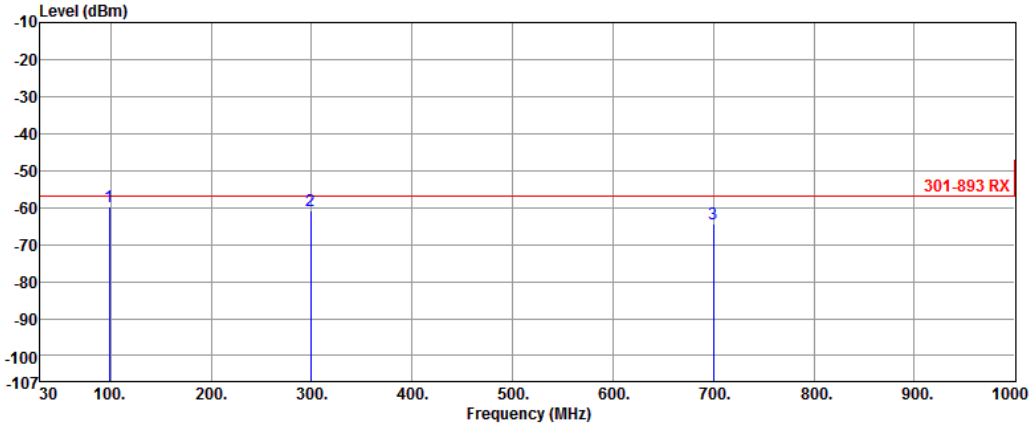
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.87	-64.03	-57.00	-7.03	-4.77	-59.26
2	335.68	-62.33	-57.00	-5.33	0.51	-62.84
3	484.79	-63.43	-57.00	-6.43	3.91	-67.34

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

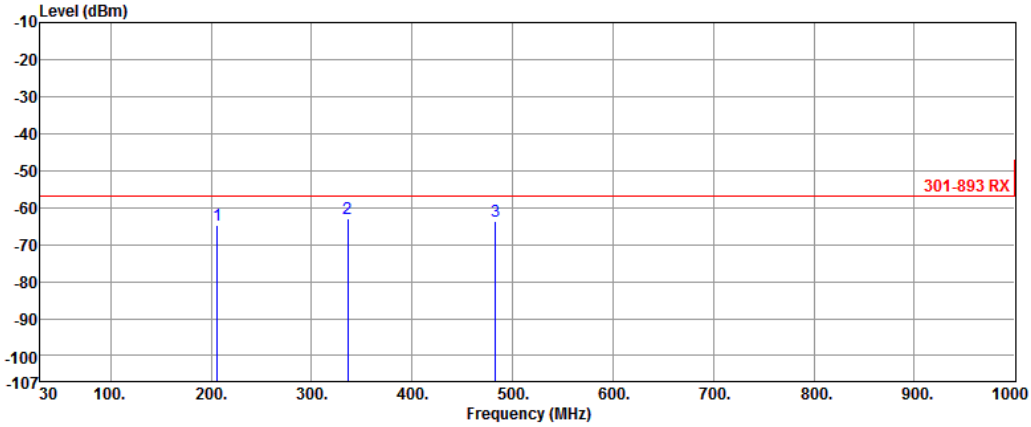
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	98.55	-59.66	-57.00	-2.66	-6.85	-52.81
2	298.98	-60.71	-57.00	-3.71	-0.40	-60.31
3	700.08	-64.51	-57.00	-7.51	7.29	-71.80

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

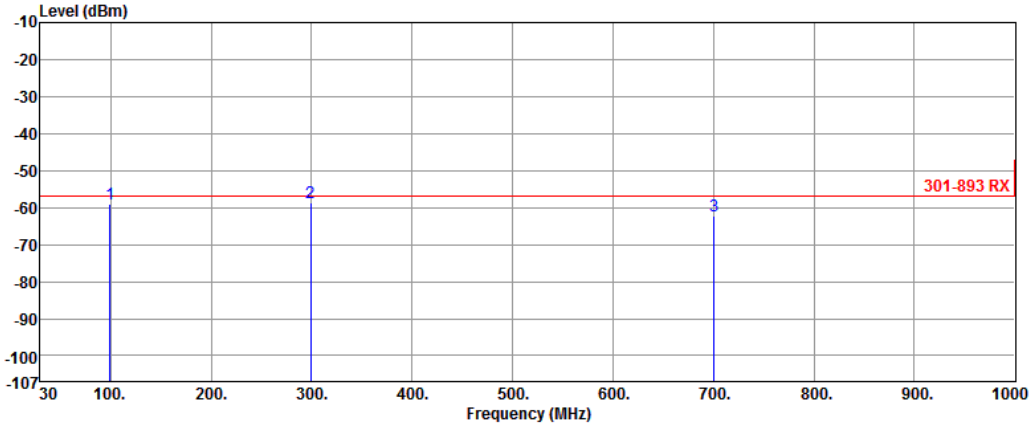
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.08	-64.88	-57.00	-7.88	-4.95	-59.93
2	335.67	-62.93	-57.00	-5.93	0.51	-63.44
3	482.99	-63.52	-57.00	-6.52	3.88	-67.40

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

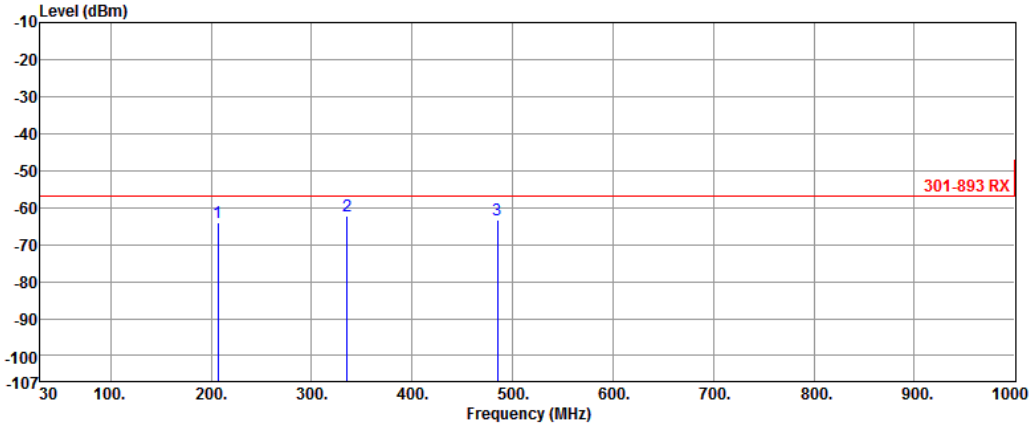
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.11	-59.19	-57.00	-2.19	-6.74	-52.45
2	298.84	-58.77	-57.00	-1.77	-0.41	-58.36
3	700.38	-62.31	-57.00	-5.31	7.28	-69.59

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

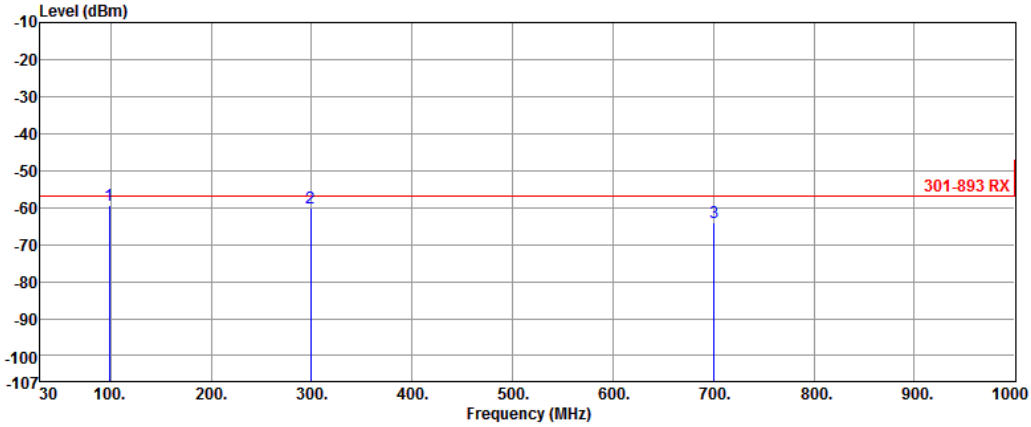
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.81	-64.16	-57.00	-7.16	-4.78	-59.38
2	335.61	-62.43	-57.00	-5.43	0.51	-62.94
3	484.71	-63.30	-57.00	-6.30	3.91	-67.21

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

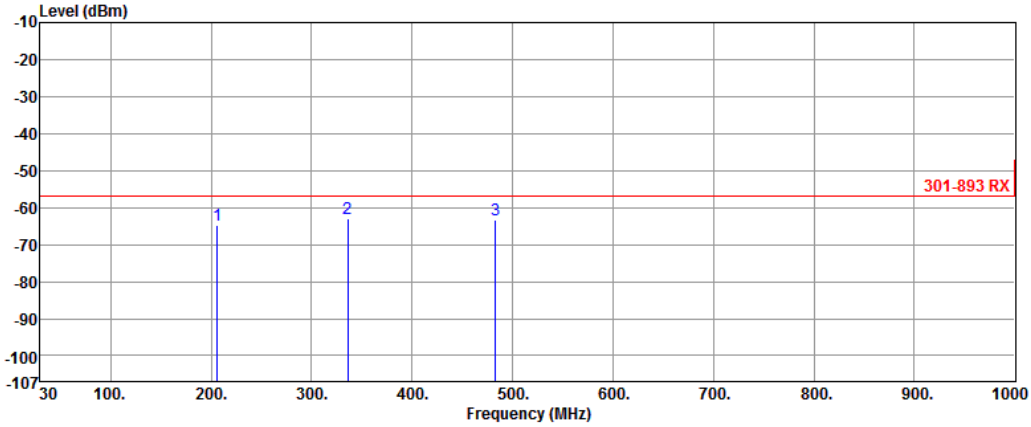
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	98.55	-59.44	-57.00	-2.44	-6.85	-52.59
2	298.98	-60.28	-57.00	-3.28	-0.40	-59.88
3	700.84	-64.13	-57.00	-7.13	7.27	-71.40

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

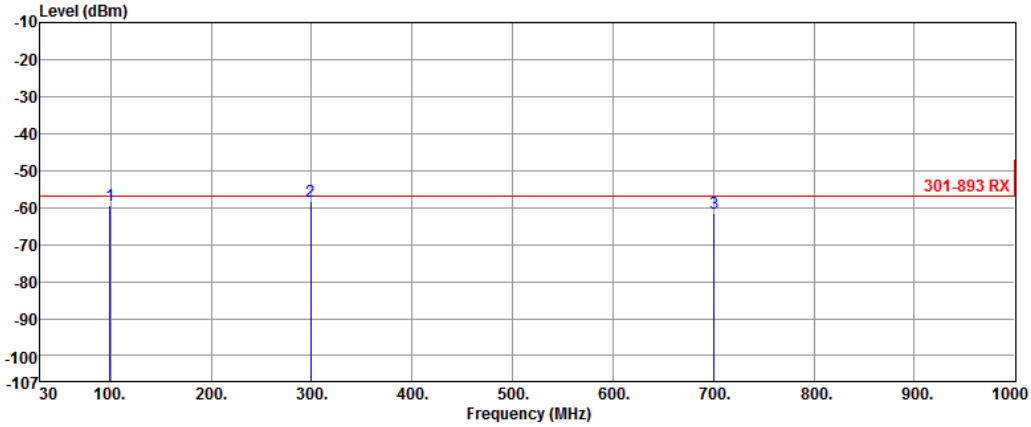
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.08	-64.65	-57.00	-7.65	-4.95	-59.70
2	335.67	-62.83	-57.00	-5.83	0.51	-63.34
3	482.99	-63.22	-57.00	-6.22	3.88	-67.10

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

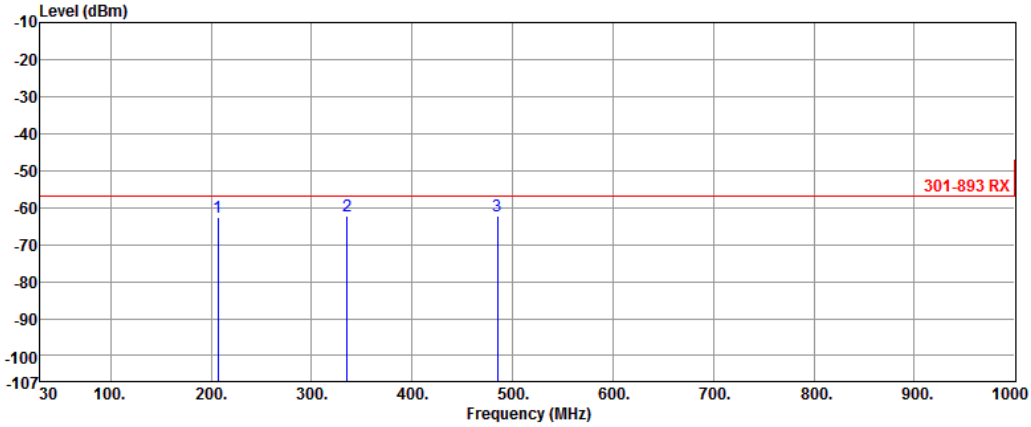
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	99.11	-59.39	-57.00	-2.39	-6.74	-52.65
2	299.25	-58.37	-57.00	-1.37	-0.39	-57.98
3	700.59	-61.64	-57.00	-4.64	7.28	-68.92

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

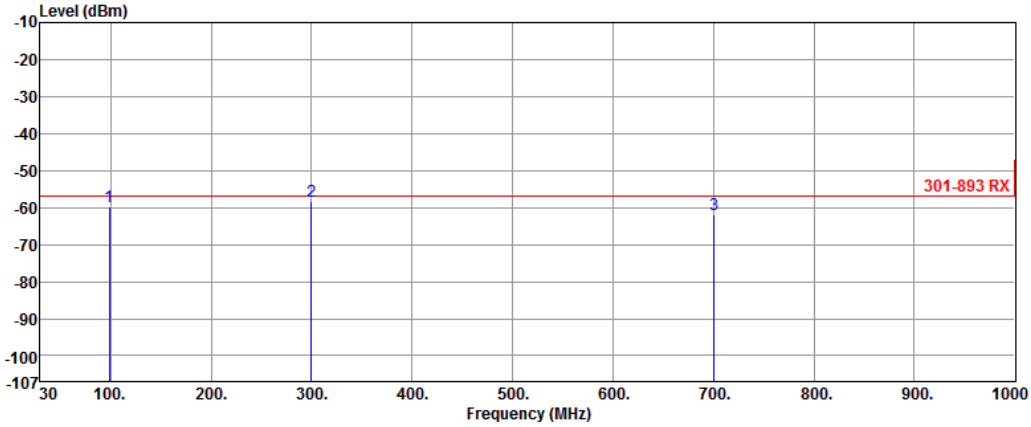
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.48	-62.66	-57.00	-5.66	-4.86	-57.80
2	335.52	-62.27	-57.00	-5.27	0.51	-62.78
3	484.75	-62.40	-57.00	-5.40	3.91	-66.31

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

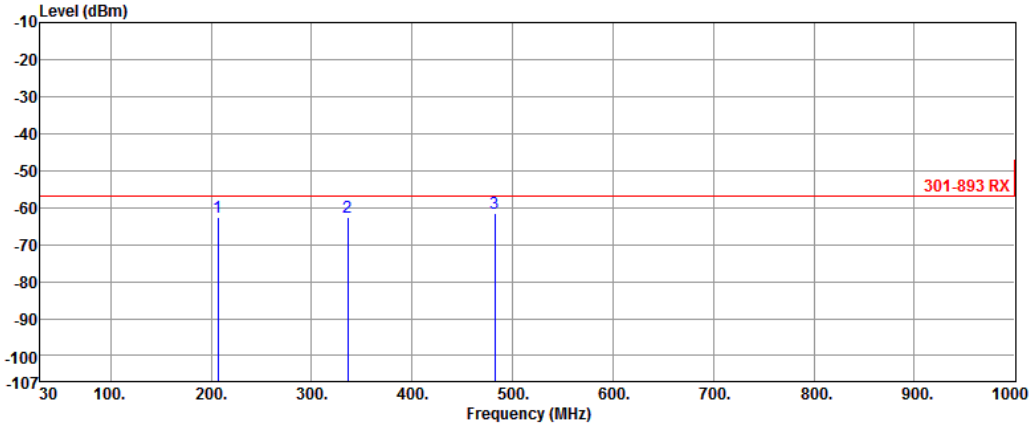
Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	98.57	-59.62	-57.00	-2.62	-6.85	-52.77
2	299.84	-58.29	-57.00	-1.29	-0.36	-57.93
3	700.83	-62.05	-57.00	-5.05	7.27	-69.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Vertical		

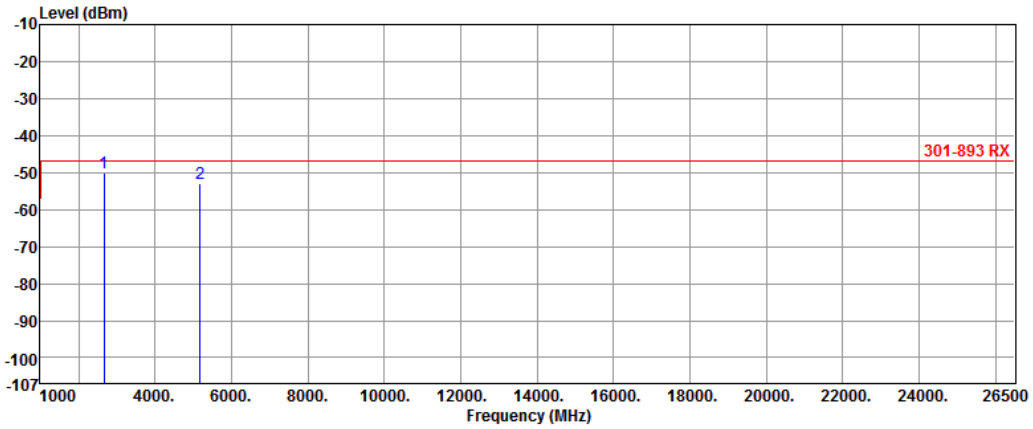


	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	206.44	-62.66	-57.00	-5.66	-4.87	-57.79
2	335.67	-62.70	-57.00	-5.70	0.51	-63.21
3	482.08	-61.68	-57.00	-4.68	3.86	-65.54

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

4.1.5 Receiver Spurious Emissions (Above 1GHz)

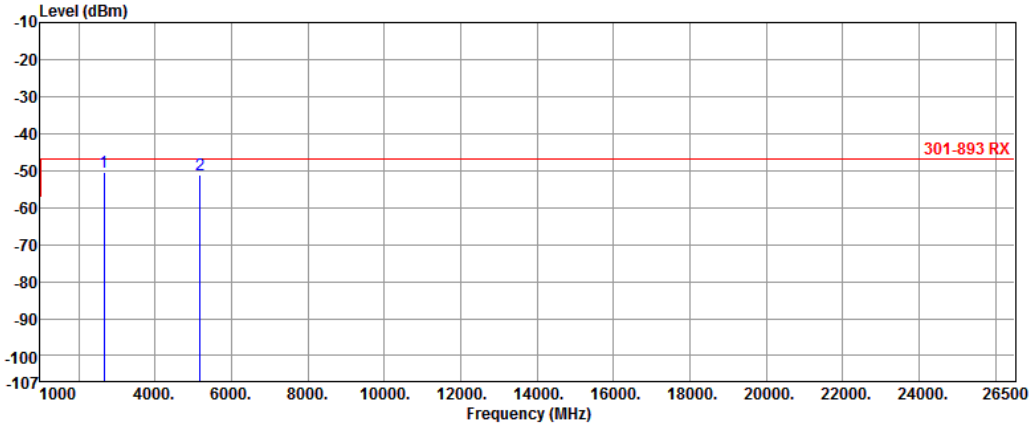
Modulation	11a	**Test Freq. (MHz)**	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2658.25	-50.27	-47.00	-3.27	2.78	-53.05
2	5179.76	-53.10	-47.00	-6.10	9.73	-62.83

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

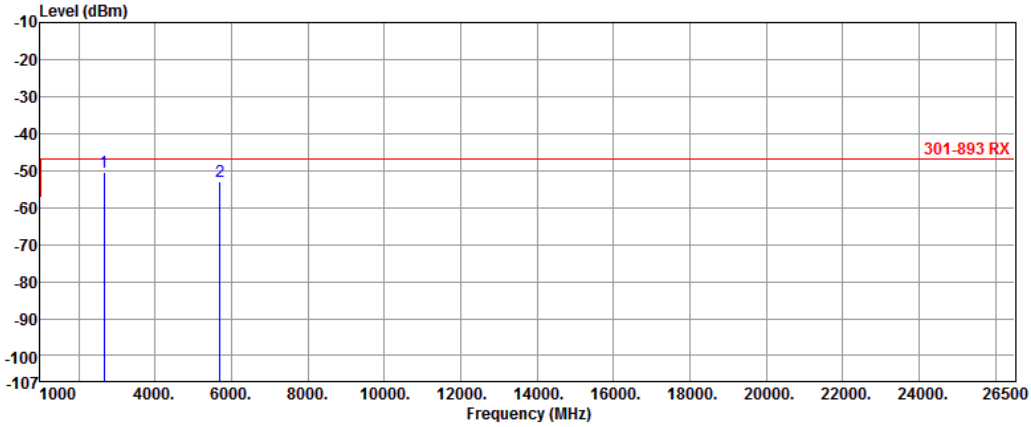
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.55	-50.35	-47.00	-3.35	2.43	-52.78
2	5179.72	-51.06	-47.00	-4.06	8.43	-59.49

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

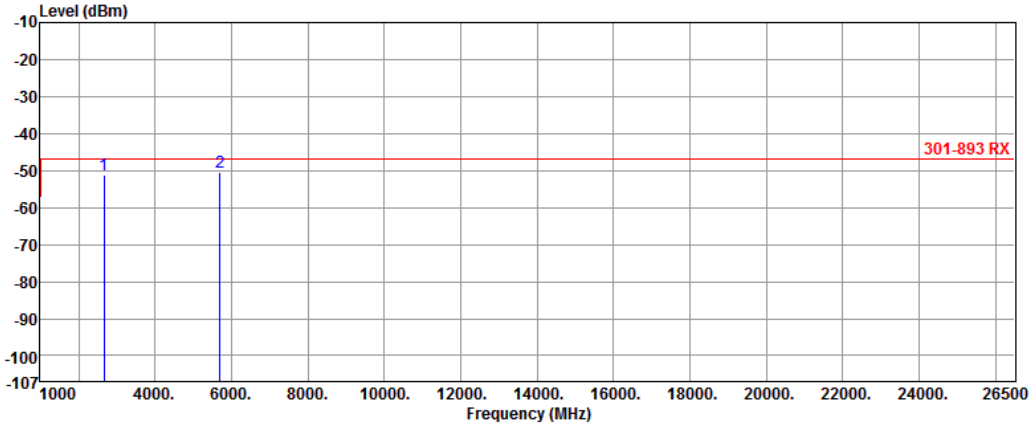
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.48	-50.28	-47.00	-3.28	2.77	-53.05
2	5700.15	-52.99	-47.00	-5.99	9.91	-62.90

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

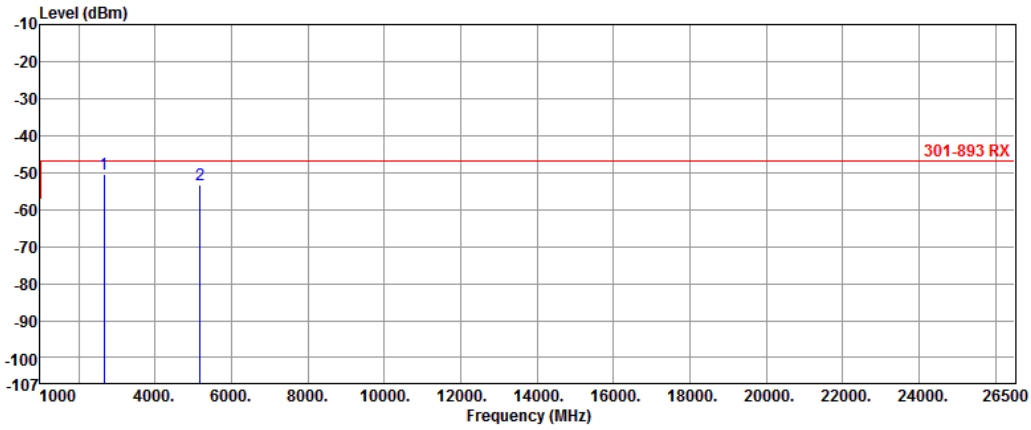
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.55	-51.20	-47.00	-4.20	2.43	-53.63
2	5699.85	-50.36	-47.00	-3.36	9.91	-60.27

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

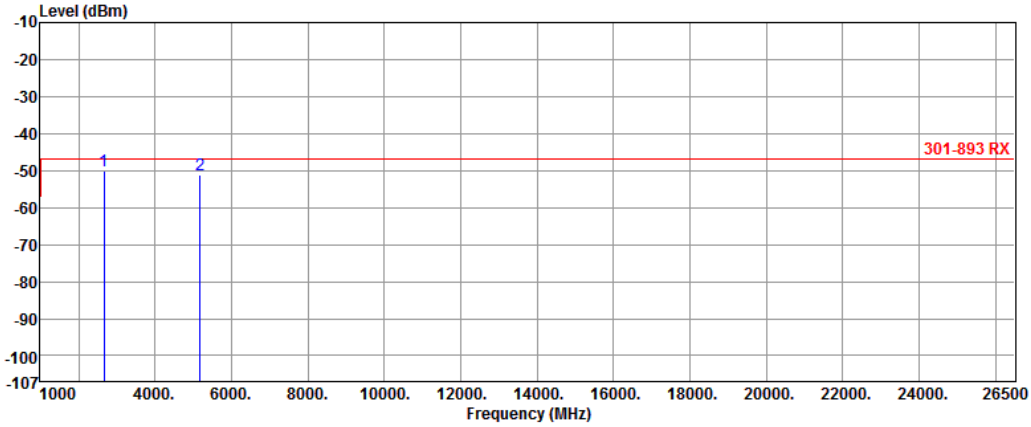
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2658.25	-50.37	-47.00	-3.37	2.78	-53.15
2	5179.78	-53.20	-47.00	-6.20	9.73	-62.93

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

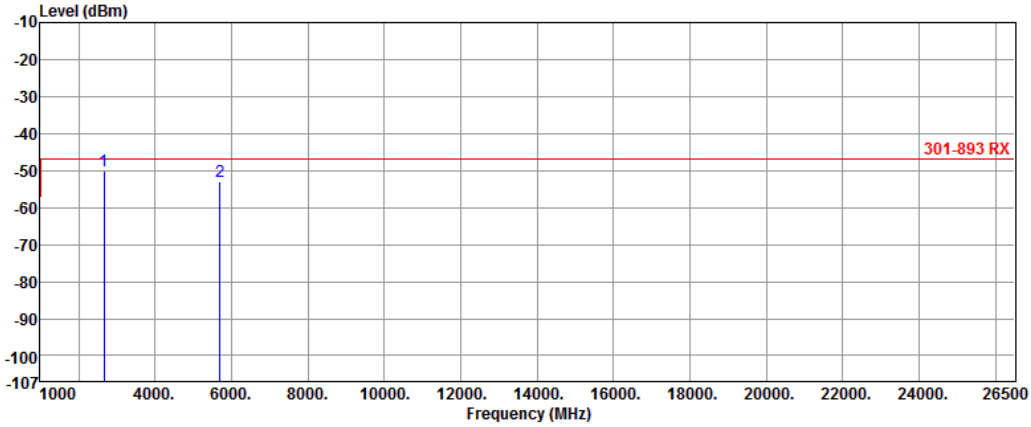
Modulation	HT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.55	-50.24	-47.00	-3.24	2.43	-52.67
2	5179.73	-51.11	-47.00	-4.11	8.43	-59.54

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

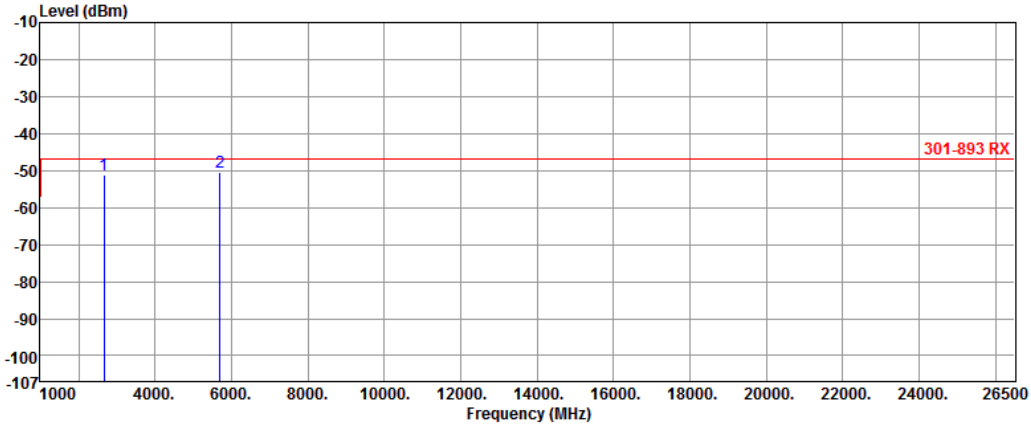
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.48	-50.12	-47.00	-3.12	2.77	-52.89
2	5700.15	-52.86	-47.00	-5.86	9.91	-62.77

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

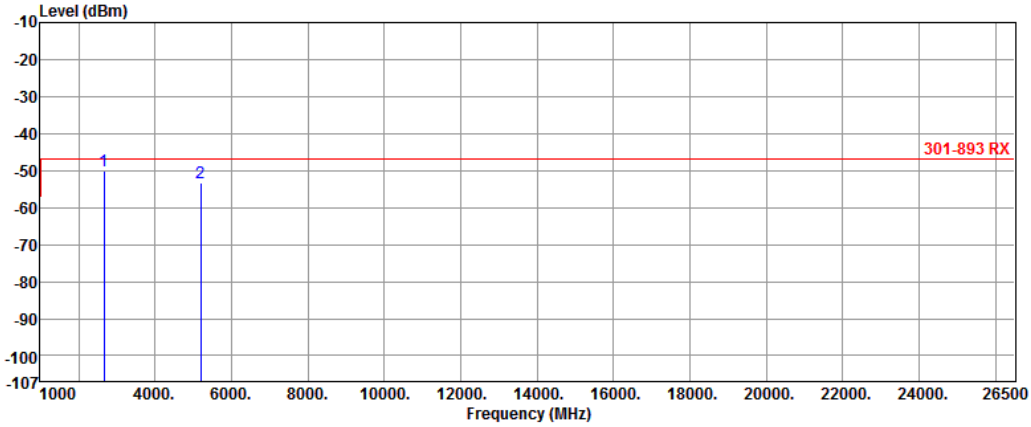
Modulation	HT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2657.55	-51.12	-47.00	-4.12	2.43	-53.55
2	5699.85	-50.30	-47.00	-3.30	9.91	-60.21

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

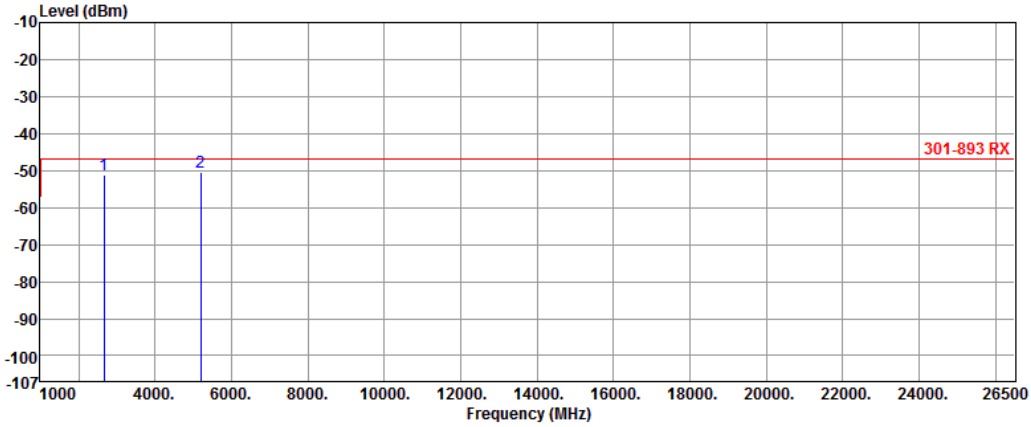
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2660.58	-50.26	-47.00	-3.26	2.79	-53.05
2	5190.35	-53.15	-47.00	-6.15	9.75	-62.90

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

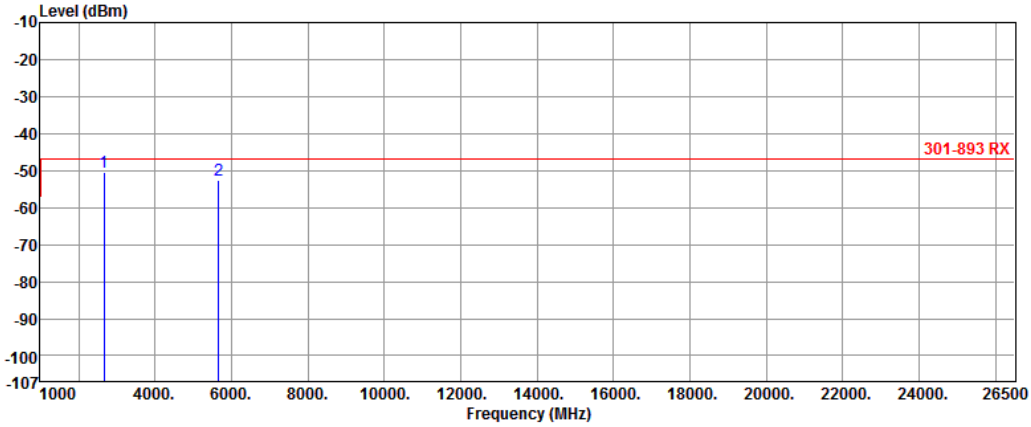
Modulation	HT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2656.46	-51.15	-47.00	-4.15	2.43	-53.58
2	5190.46	-50.52	-47.00	-3.52	8.35	-58.87

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

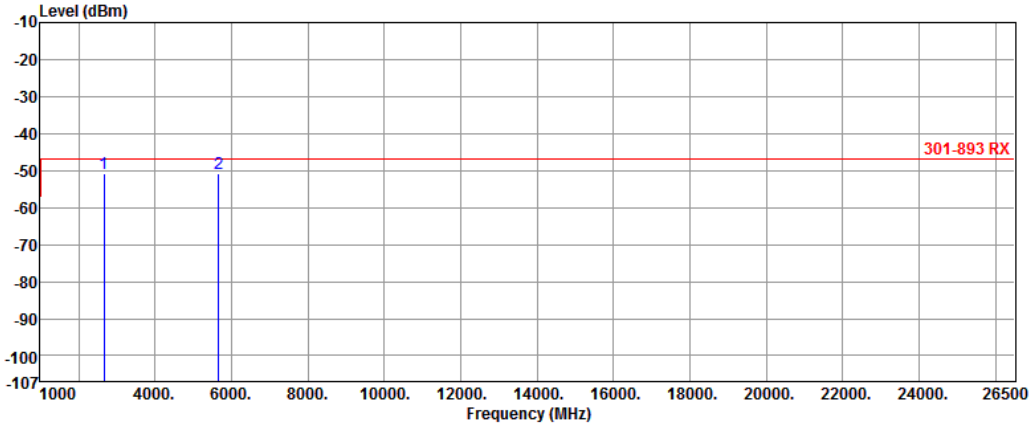
Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Horizontal		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2658.56	-50.56	-47.00	-3.56	2.78	-53.34
2	5669.44	-52.64	-47.00	-5.64	9.85	-62.49

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

Modulation	HT40	Test Freq. (MHz)	5670
Polarization	Vertical		



	Freq.	Measured value	Limit	Margin	Factor	Reading
	MHz	dBm	dBm	dB	dB	dBm
1	2658.65	-50.75	-47.00	-3.75	2.43	-53.18
2	5670.52	-50.66	-47.00	-3.66	9.66	-60.32

Note 1: Measured Value (dBm) = Reading (dBm) + Factor (dB)
Note 2: Margin (dB) = Measured Value (dBm) – Limit (dBm)

5 Adaptivity Test Results

5.1 Adaptivity

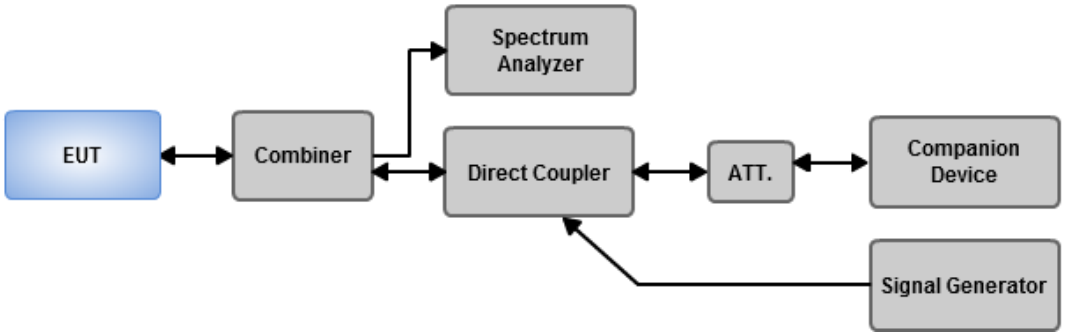
5.1.1 Adaptivity Limit

This requirement applies to equipment when transmitting using a Total Occupied Bandwidth greater than 40 MHz. The present document defines 2 types of Adaptive equipment: Frame Based Equipment and Load Based Equipment. Whilst the mechanisms described in this clause define conditions under which the equipment may transmit, transmissions are only allowed providing they are not prohibited by any of the DFS requirements in EN 301 893 clause 4.7.

5.1.2 Test Procedures

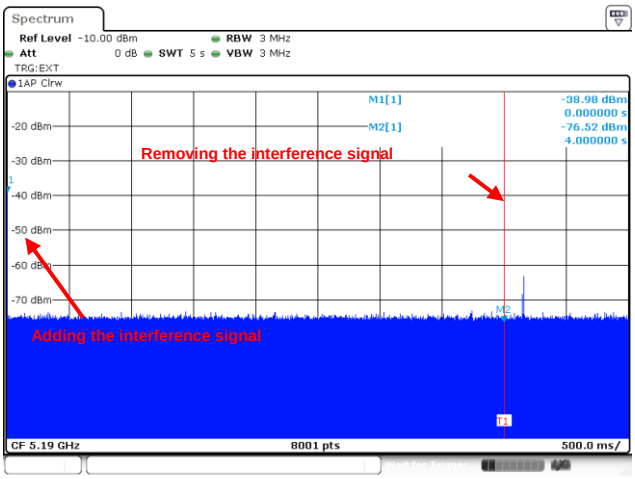
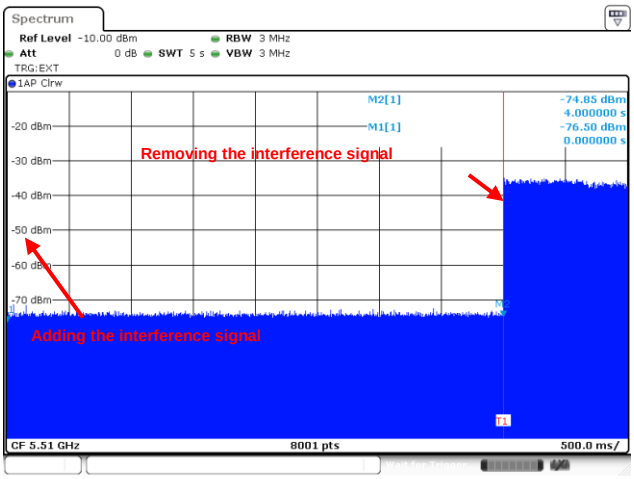
Reference to clause 5.3.9.2 of ETSI EN 301 893 V1.7.1 (2012-06).

5.1.3 Test Setup

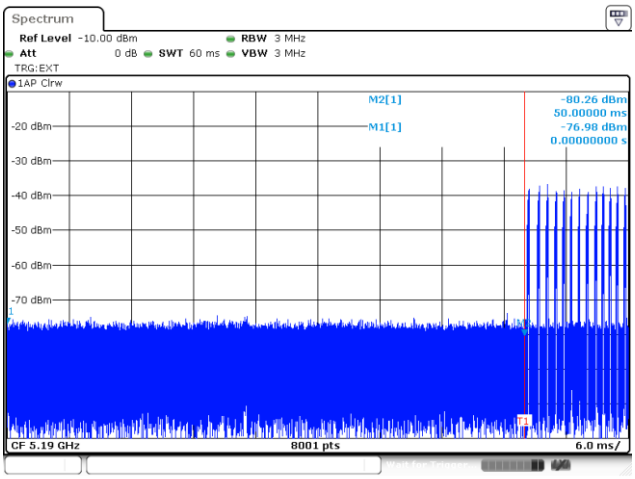
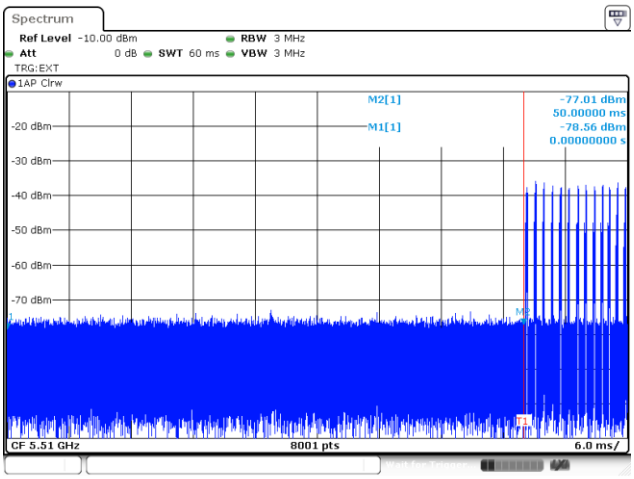
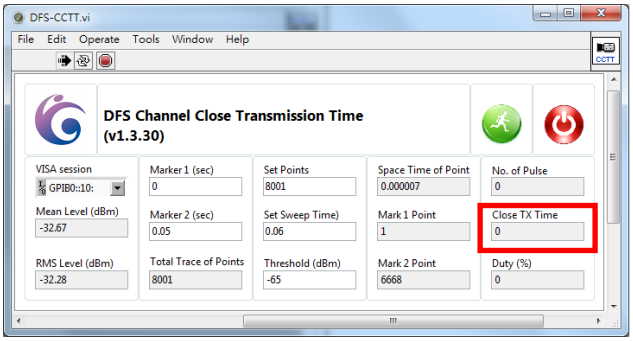
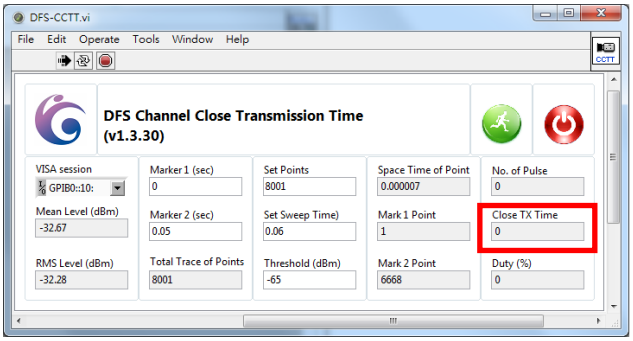


5.1.4 Test Result of Adaptivity and Short Control Signalling Transmissions

Adaptivity Result			
Adaptivity Detection Threshold Level (dBm)		-65.7	
Modulation Mode	**Freq. (MHz)**	**Adaptivity**	**Short Control Signalling Transmissions (ms)**
802.11an (HT40)	5190	Pass	0
802.11an (HT40)	5510	Pass	0
Limit		N/A	2.5

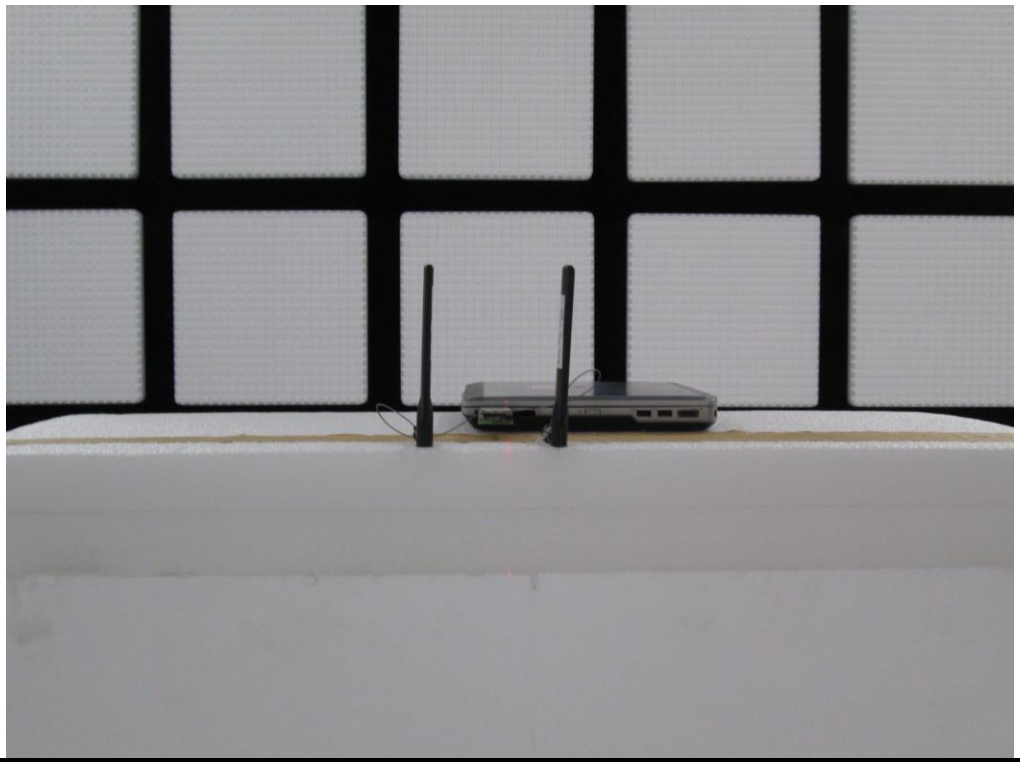
Adaptivity Result Plots	
802.11an (HT40) - 5190MHz	**802.11an (HT40) - 5510MHz**
	

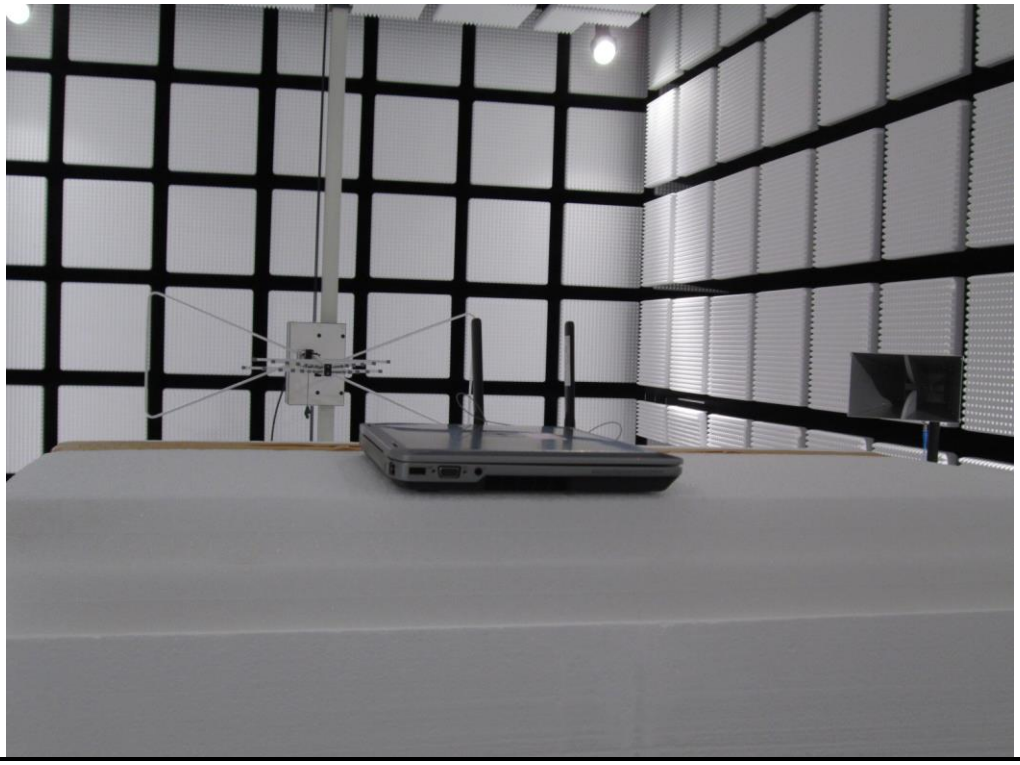
Short Control Signalling Transmissions Plots

802.11an (HT40) - 5190MHz	802.11an (HT40) - 5510MHz
	
802.11an (HT40) - 5190MHz	802.11an (HT40) - 5510MHz
	

6 Photographs of the Test Configuration

Spurious Emission Test





Adaptivity, Receiver Blocking and Short Control Signalling Transmissions Test

7 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan Hsiang. Location map can be found on our website http://www.icertifi.com.tw.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

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