

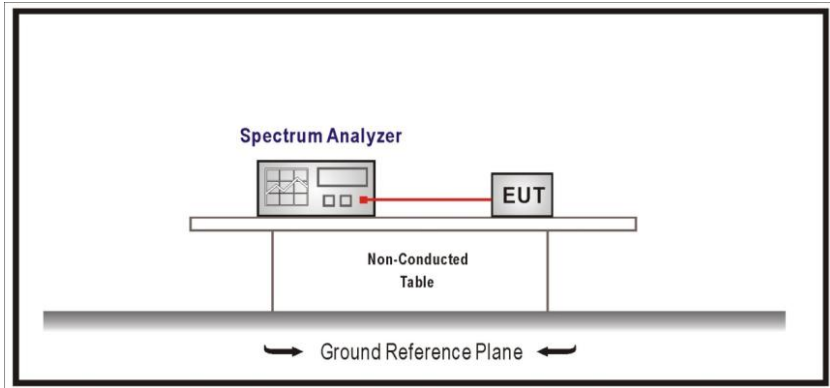
TEST D.5: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER)

LIMITS:	Product standard:	Part 15 Subpart C §15.407 and RSS-247
	Test standard:	Part 15 Subpart C §15.407(b)(1) and RSS-247 6.2.1.2

LIMITS

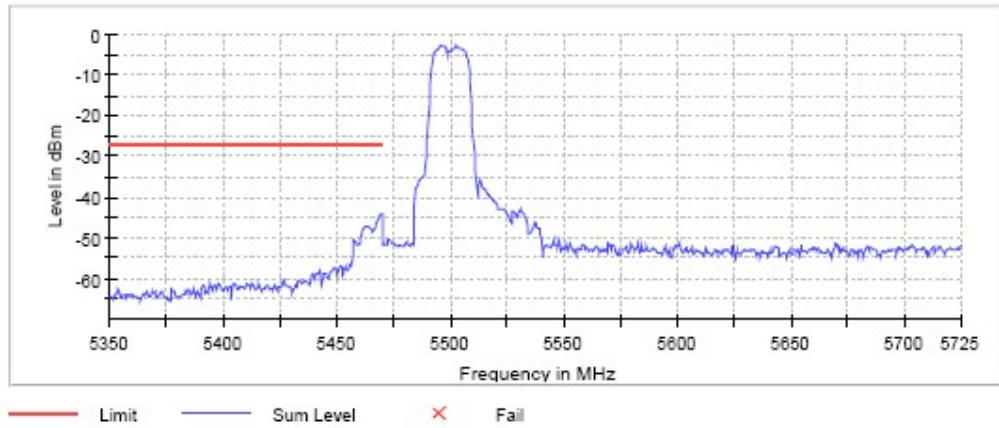
For transmitters operating in the 5.47 – 5.725 GHz band: all emissions outside the frequency band shall not exceed an EIRP of -27 dBm /MHz

TEST SETUP



TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (a mode)
TEST RESULTS:	PASS

Lowest Channel

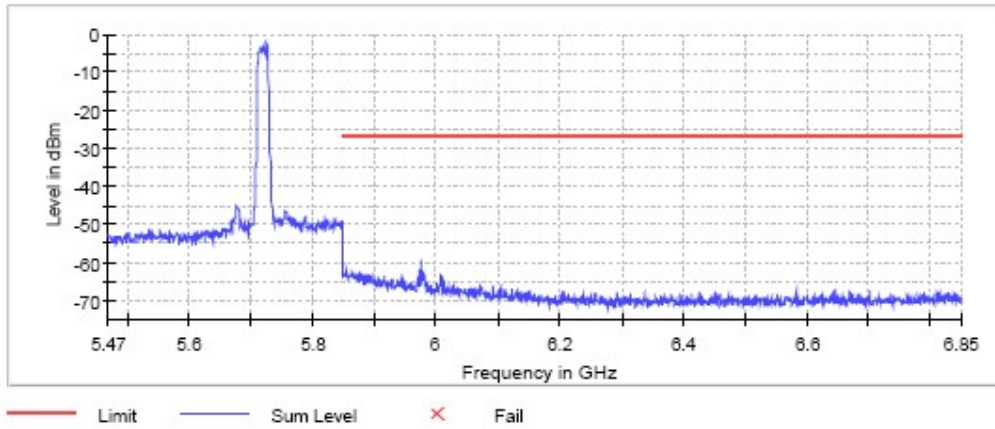


Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
SweepTime	34.313 μ s	17.156 μ s
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	16 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.40 dB	0.00 dB

TEST RESULTS (Cont.):

Highest Channel



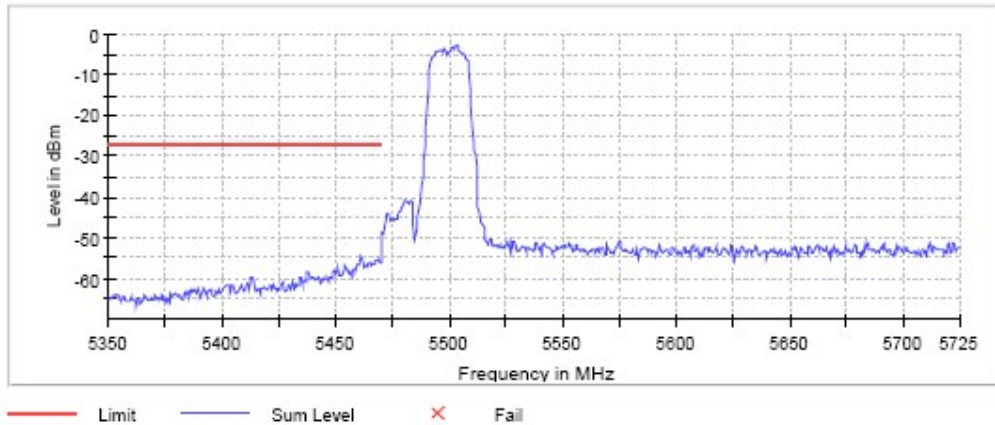
Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.85000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweeptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	23 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.11 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#02 (n mode)
TEST RESULTS:	PASS

Bandwidth: 20 MHz

Lowest Channel

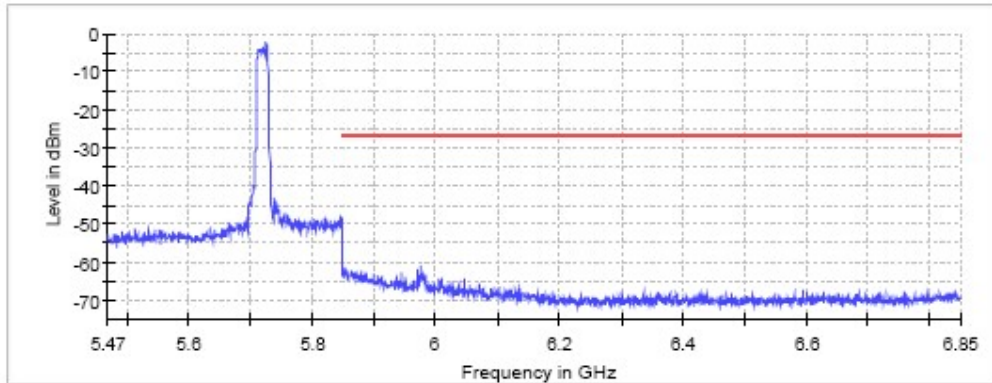


Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
Sweeptime	34.313 μ s	17.156 μ s
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	15 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable Difference	0.27 dB	0.00 dB

TEST RESULTS (Cont.):

Highest Channel



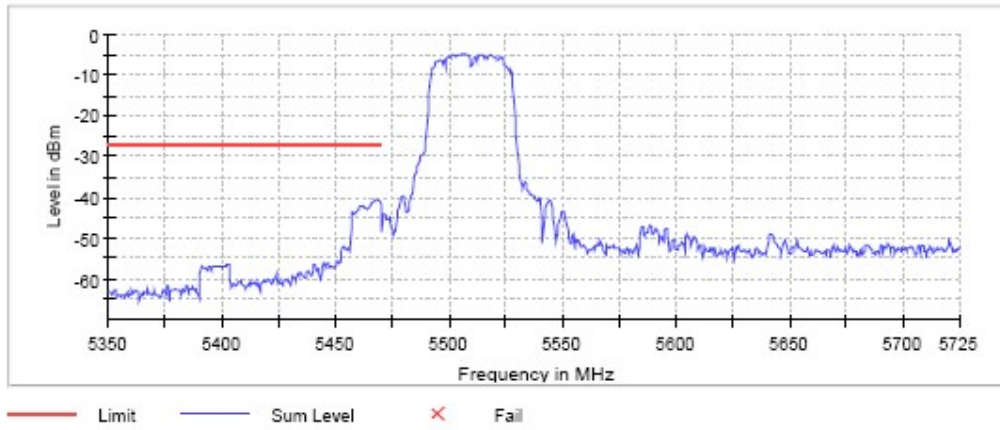
— Limit — Sum Level × Fail

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.85000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweeptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	18 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.00 dB	0.00 dB

TEST RESULTS (Cont.): **n Mode (40 MHz)**

Lowest Channel

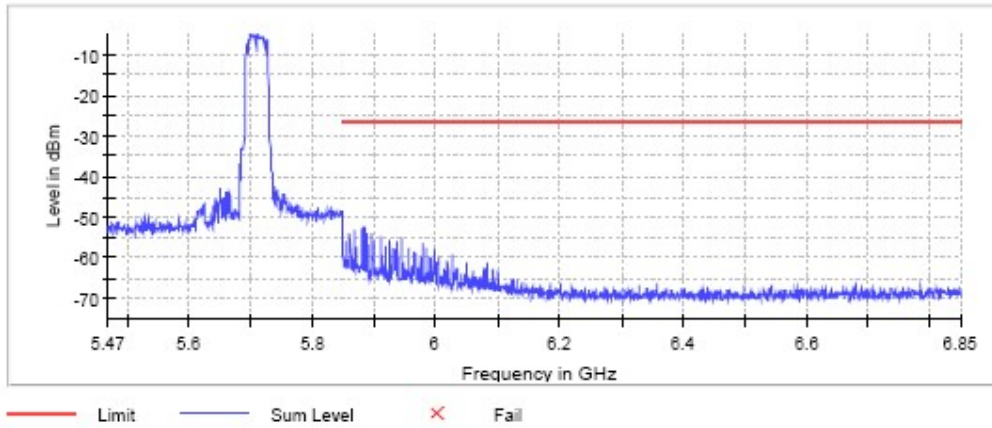


Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
SweepTime	34.313 μs	17.156 μs
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	18 / max. 150	13 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.00 dB	0.00 dB

TEST RESULTS (Cont.):

Highest Channel



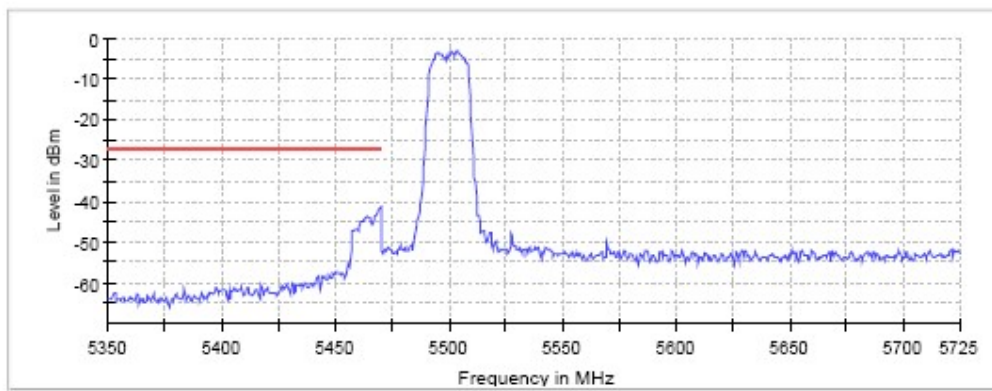
Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.5000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	25 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.30 dB	0.00 dB

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 (ac mdoe)
TEST RESULTS:	PASS

Bandwidth: 20 MHz

Lowest Channel:



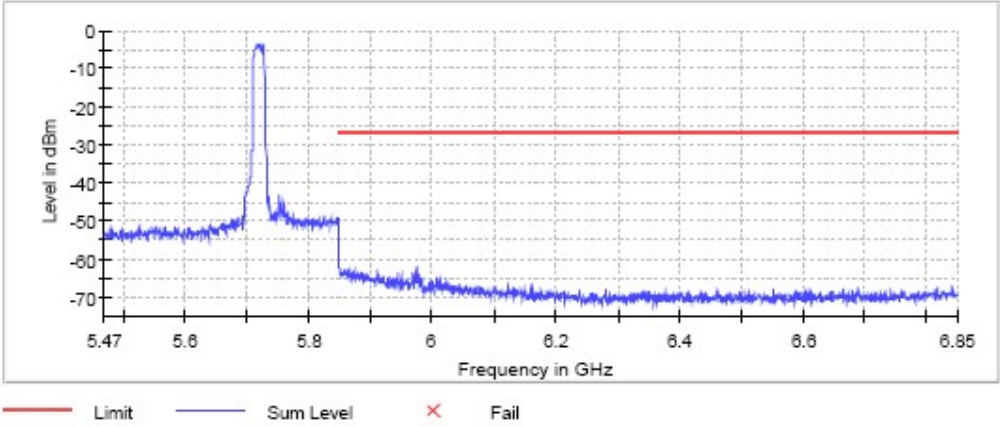
— Limit — Sum Level × Fail

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
Sweeptime	34.313 μ s	17.156 μ s
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	11 / max. 150	8 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.01 dB	0.00 dB

TEST RESULTS (Cont.):

Highest Channel



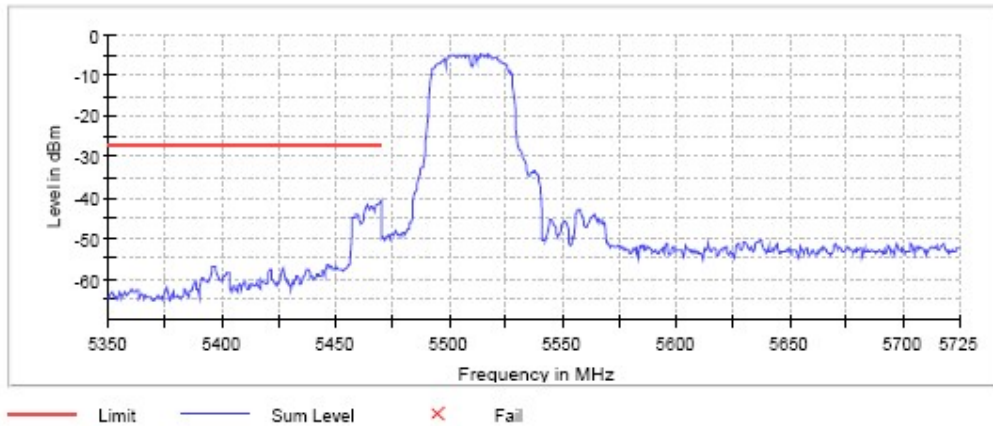
Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.85000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweeptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	24 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.45 dB	0.00 dB

TEST RESULTS (Cont.): **ac mode (40 MHz)**

Bandwidth: 40 MHz

Lowest Channel

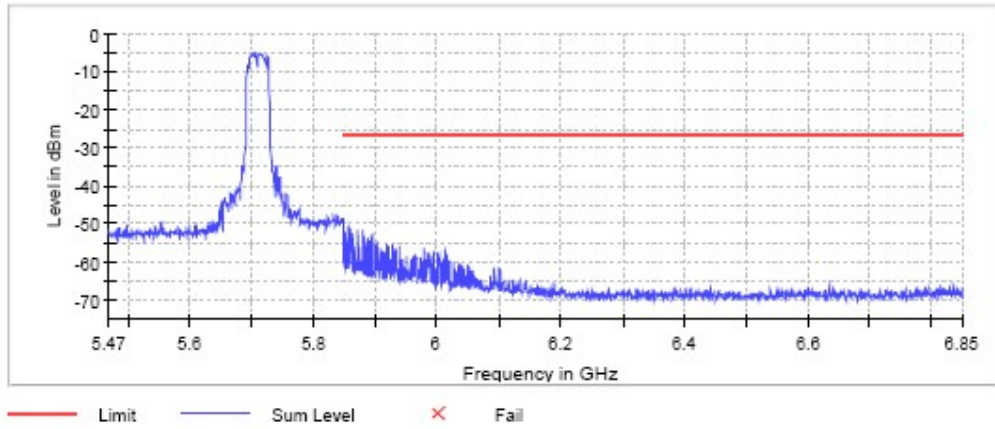


Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
SweepTime	34.313 μ s	17.156 μ s
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	23 / max. 150	4 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.39 dB	0.00 dB

TEST RESULTS (Cont.):

Highest Channel



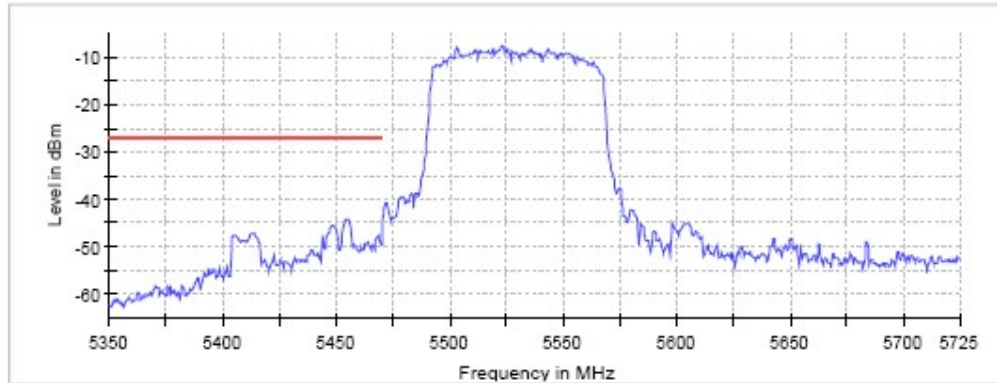
Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.85000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweeptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	22 / max. 150	12 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.20 dB	0.00 dB

TEST RESULTS (Cont.): **ac mode (80 MHz)**

Bandwidth: 80 MHz

Lowest Channel



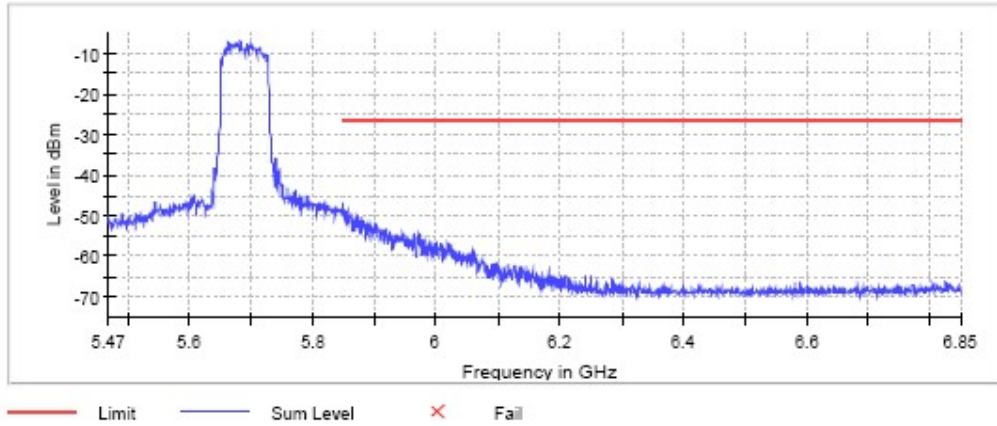
— Limit — Sum Level × Fail

Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.35000 GHz
Stop Frequency	5.72500 GHz	5.47000 GHz
Span	255.000 MHz	120.000 MHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	510	240
Sweeptime	34.313 μ s	17.156 μ s
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	32 / max. 150	6 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.18 dB	0.00 dB

TEST RESULTS (Cont.): **ac mode (80 MHz)**

Highest Channel



Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.47000 GHz	5.85000 GHz
Stop Frequency	5.85000 GHz	6.85000 GHz
Span	380.000 MHz	1.000 GHz
RBW	1.000 MHz	1.000 MHz
VBW	3.000 MHz	3.000 MHz
SweepPoints	760	2000
Sweeptime	51.469 μ s	2.00 ms
Reference Level	0.000 dBm	-20.000 dBm
Attenuation	20.000 dB	0.000 dB
Detector	Maxpeak	Maxpeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	31 / max. 150	92 / max. 150
Stable	3 / 3	3 / 3
Max Stable	0.14 dB	0.11 dB

TEST D.6: UNDESIRABLE RADIATED EMISSIONS (TRANSMITTER)

LIMITS:	Product standard:	Part 15 Subpart C §15.407 and RSS-247
	Test standard:	Part 15 Subpart C §15.407(b) (1)(6)(7) and RSS-247 6.2.1.2

LIMITS

For transmitters operating in the 5.15 – 5.25 GHz band: all emissions outside of the 5.15 – 5.25 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.23 dBμ V/m at 3m distance).

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c) / RSS-Gen):

Frequency Range (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705 - 30.0	30	-	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
960 - 25000	500	54	3

The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

For average radiated emission measurements above 1000 MHz, there is also a limit corresponding to 20 dB above the indicated values in the table is specified when measuring with peak detector function

TEST SETUP

All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at 3 m for the frequency range 30-1000 MHz (Bilog antenna) and at 1m for the frequency range 1-40 GHz (1 GHz-18 GHz and 18 GHz-40 GHz Double ridge horn antennas).

For radiated emissions in the range 1-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

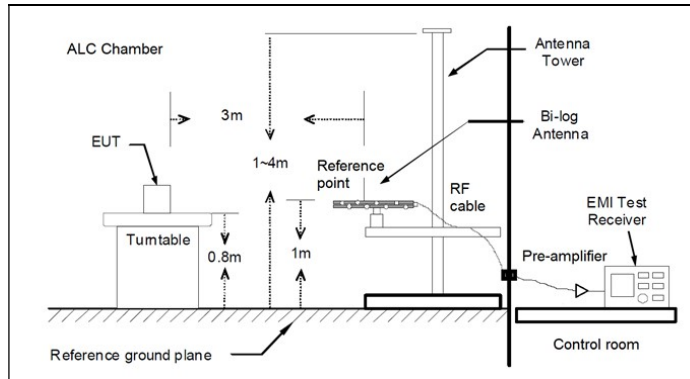
The equipment under test was set up on a non-conductive platform above the ground plane and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

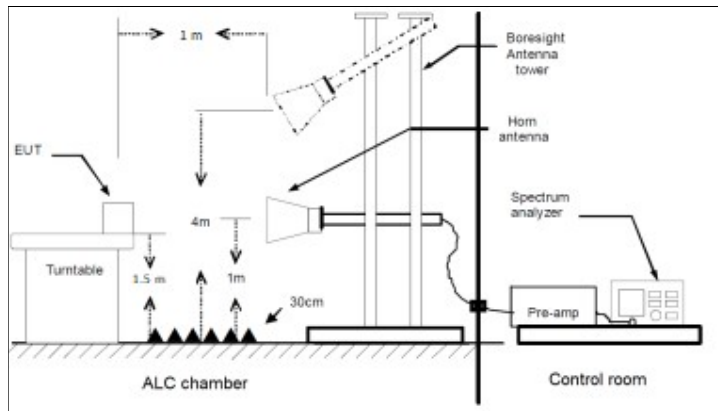
The field strength is calculated by adding correction factor to the measured level from the spectrum analyzer. This correction factor includes antenna factor, cable loss and pre-amplifiers gain.

TEST SETUP (CONT.)

Radiated measurements Setup $f < 1$ GHz



Radiated measurements setup $f > 1$ GHz



TESTED SAMPLES:	S/02
TESTED CONDITIONS MODES:	TC#02 (n mode)
TEST RESULTS:	PASS

For spurious emissions for OFDM modes 802.11a, 802.11n20/40 and 802.11ac20/40/80 a preliminary scan was performed to determine the worst case.

The tables and plots show the results for the worst case of modulation and data rate: MCS0 for 802.11n20

Frequency range 30 MHz – 1000 MHz

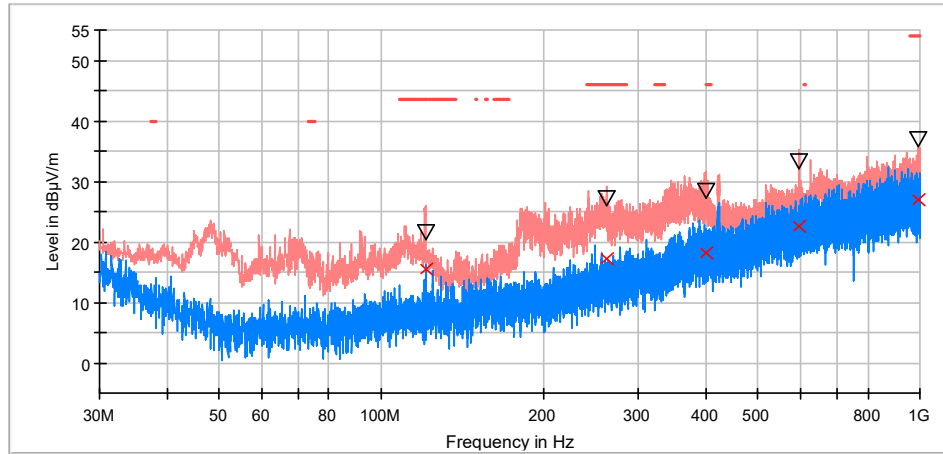
The spurious emissions below 1 GHz do not depend on the operating channel selected in the EUT. The results in the next tables and plots show the maximum measured levels in the 30 MHz – 1000 MHz range

Frequency range 1 GHz – 40 GHz

The results in the next tables and plots show the maximum measured levels in the 1-40 GHz range including the restricted bands 4.5-5.15 GHz and 5.35-5.46 GHz (see next plots).

FREQUENCY RANGE **30 MHz – 1000 MHz**

RF_FCC_15.407_E Field_30MHz_1GHz

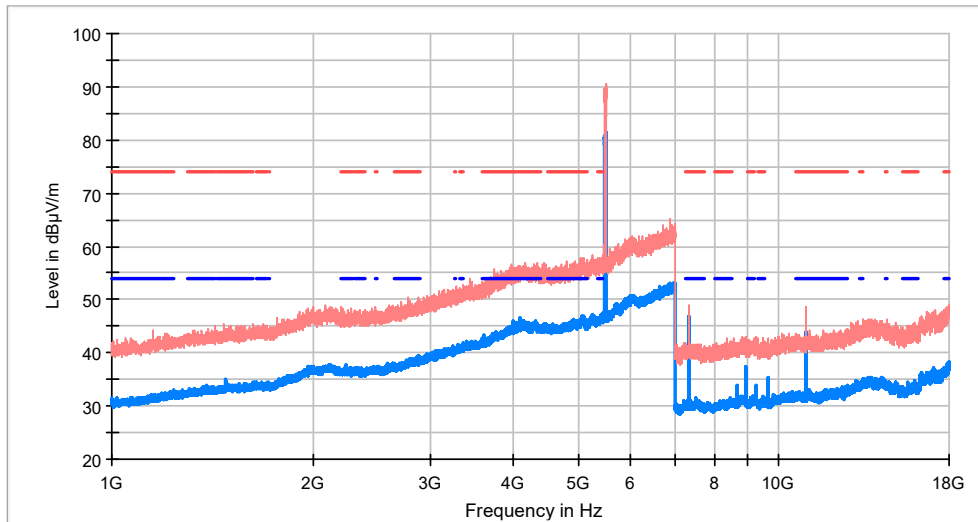


- PK+_MAXH
- PK+_CLRWR
- - - TX limits to Spurious Emission FCC15.407 (30MHz to 1GHz) Restricted Bands QPK Limit
- ▽ MaxPeak-PK+ (Single)
- × QuasiPeak-QPK (Single)

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)
596.383000	33.2	22.5
262.703000	27.2	17.2
400.831000	28.3	18.1
120.695000	21.7	15.4
996.265500	37.0	26.9

TEST RESULTS (Cont.)	n mode (20 MHz)
FREQUENCY RANGE	1 GHz – 18 GHz

Low Channel



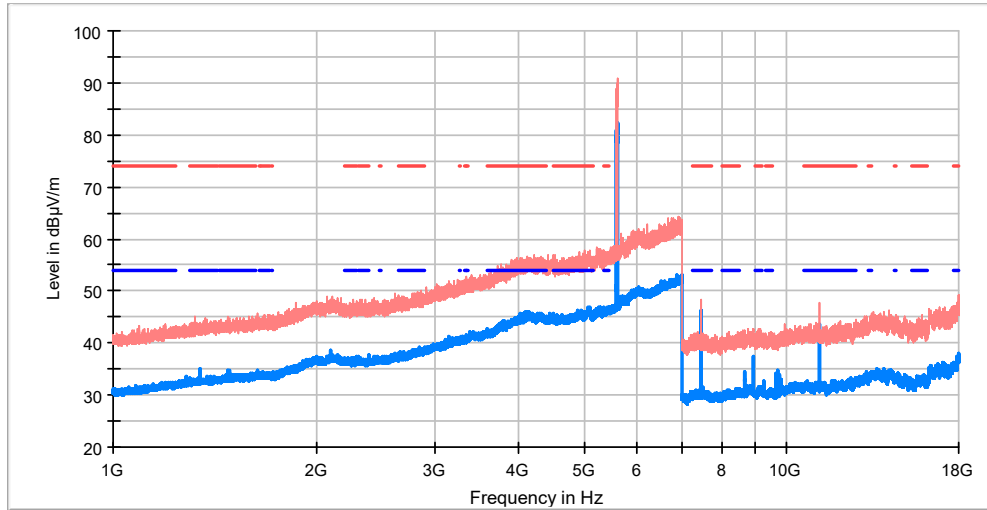
- AVG_MAXH
- PK+_MAXH
- - - TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- - - TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comments
5501.090909	90.00	81.42	V	Fundamental
7333.000000	48.83	46.85	H	
8909.500000	42.65	37.39	V	
11000.000000	48.64	44.02	V	

TEST RESULTS (Cont.)

Middle Channel



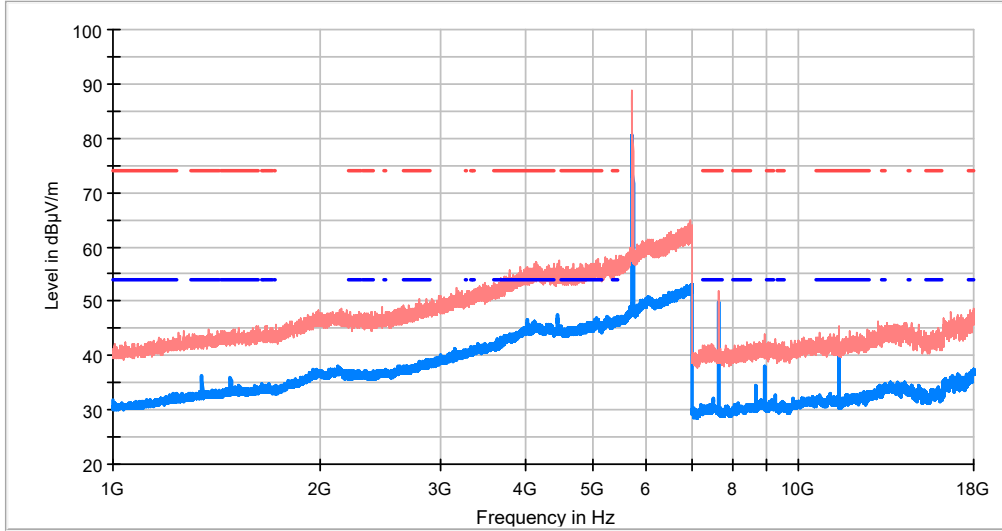
- AVG _MAXH
- PK+ _MAXH
- - - TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- - - TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Maximizations

Frequency (MHz)	PK+ _MAXH (dBuV/m)	AVG _MAXH (dBuV/m)	Pol	Comments
5597.363636	89.47	82.22	V	Fundamental
7466.500000	48.39	46.21	V	
8909.500000	42.05	37.54	V	
11200.000000	47.81	43.48	V	

TEST RESULTS (Cont.)

High Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

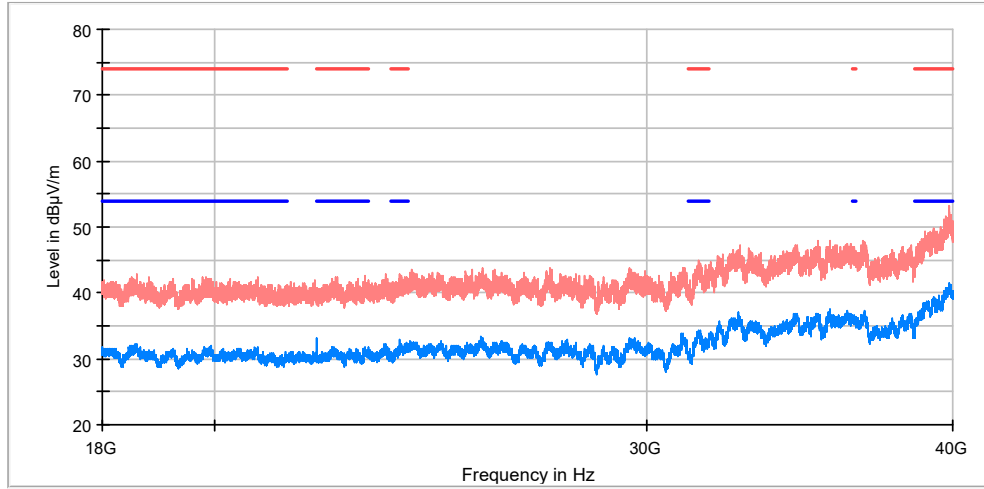
Maximizations

Frequency (MHz)	PK+_MAXH (dBµV/m)	AVG_MAXH (dBµV/m)	Pol	Comments
5721.181818	88.02	80.63	H	Fundamental
7626.500000	51.98	49.72	V	
8909.500000	43.93	38.06	V	
11440.000000	45.39	41.72	H	

TEST RESULTS (Cont.)	
----------------------	--

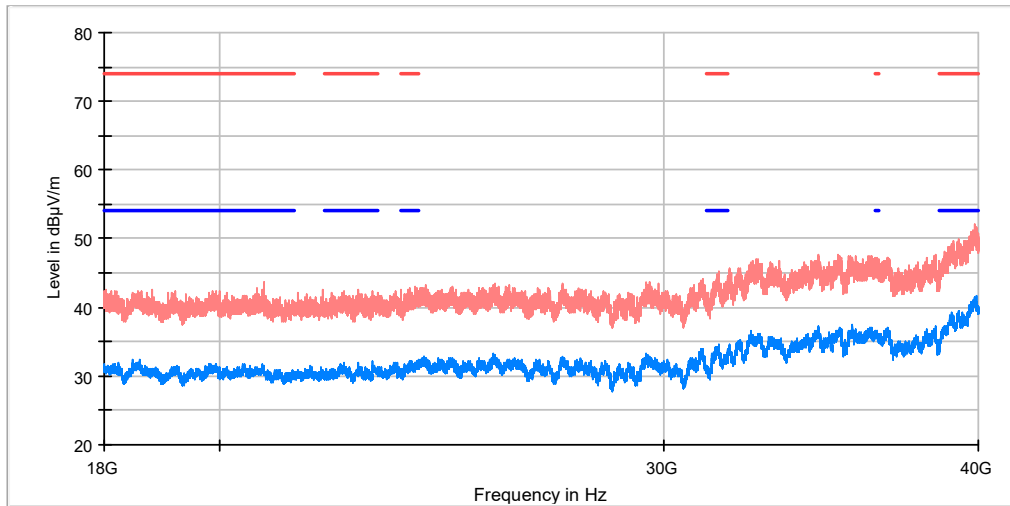
FREQUENCY RANGE	18 GHz – 40 GHz
-----------------	------------------------

Low Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit
- AVG_MAXH(1)@RE0117_HR_18GHz-40GHz_Low Channel

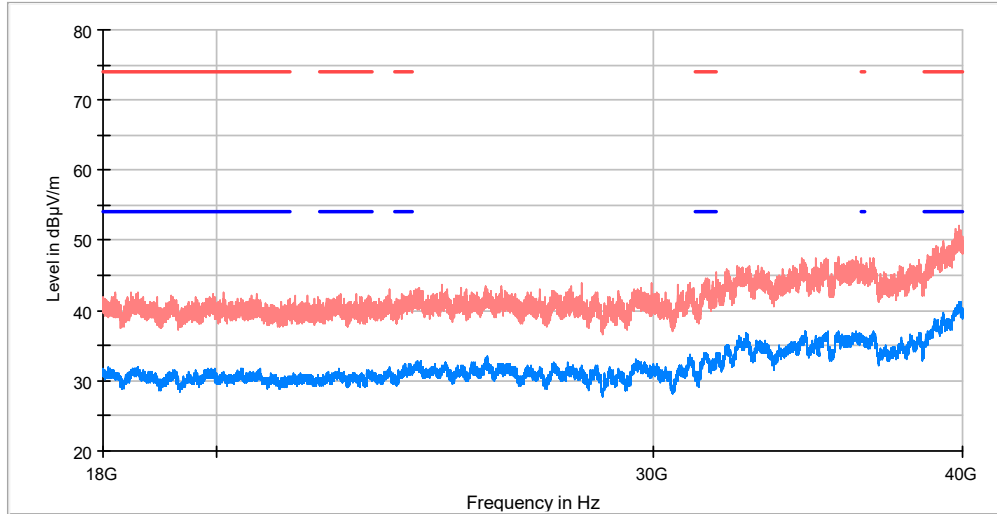
Middle Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.)

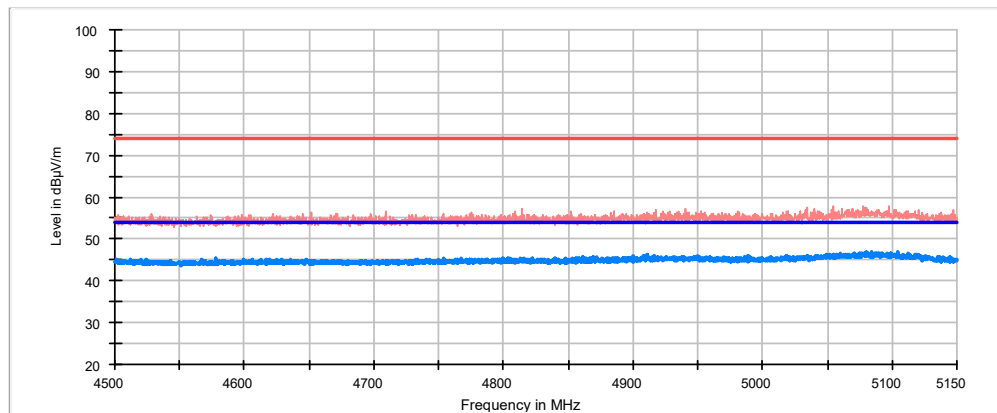
High Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

RESTRICTED BANDS **4.5 GHz – 5.15 GHz**

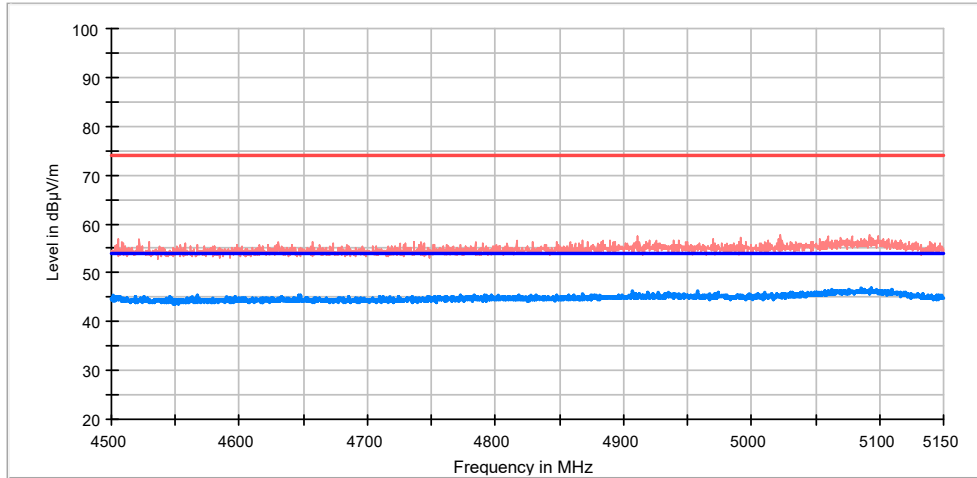
Low Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

TEST RESULTS (Cont.)

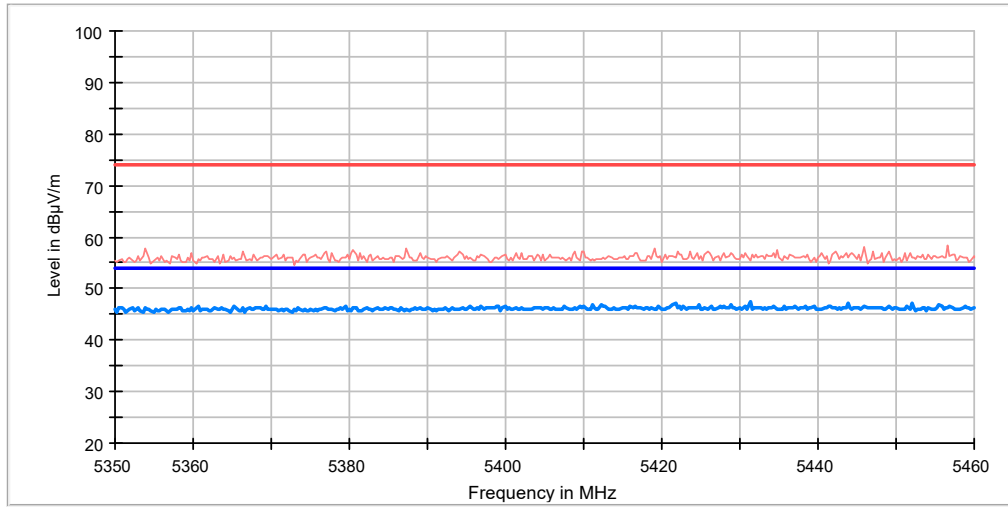
Middle Channel



- AVG_MAXH
- PK+_MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

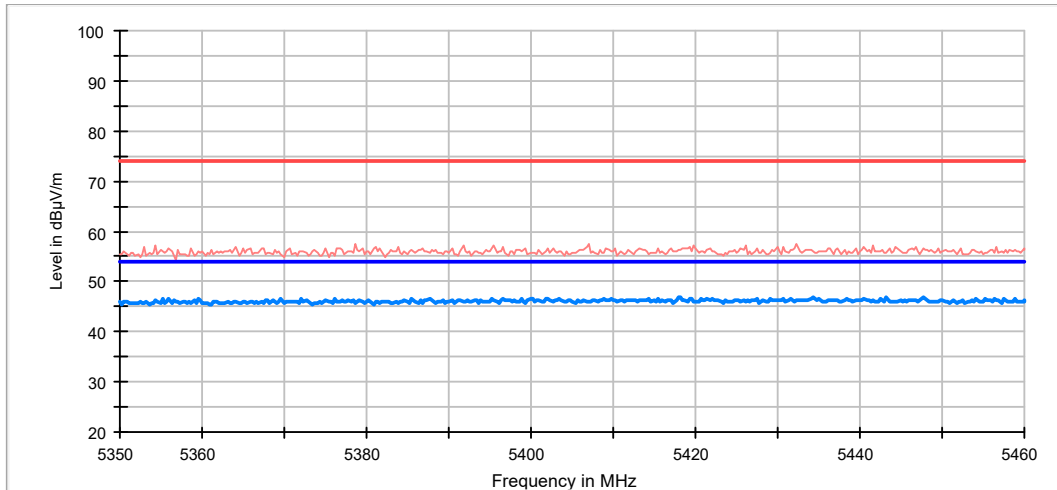
TEST RESULTS (Cont.)	
RESTRICTED BANDS	5.35 GHz – 5.46 GHz

Low Channel



- AVG_MAXH
- PK+ MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Middle Channel



- AVG_MAXH
- PK+ MAXH
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands PK Limit
- TX limits to Spurious Emission FCC15.407 (1GHz to 40 GHz) Restricted Bands AVG Limit

Appendix E: Test results 5.725 GHz – 5.85 GHz Band

Appendix E Content

DESCRIPTION OF TEST CONDITIONS	261
TEST E.1: 26DB EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH	262
TEST E.2: 6DB EMISSION BANDWIDTH.....	279
TEST E.3: POWER LIMITS. MAXIMUM OUTPUT POWER.....	291
TEST E.4: POWER SPECTRAL DENSITY	299
TEST E.5: BAND-EDGE EMISSIONS COMPLIANCE (TRANSMITTER).....	311
TEST E.6: UNDESIRABLE RADIATED EMISSIONS (TRANSMITTER)	324

DESCRIPTION OF TEST CONDITIONS

TEST CONDITIONS ^{(1) (2)}	DESCRIPTION
<p>TC#01 (a mode)</p>	<p><u>Power supply (V):</u> $V_{\text{nominal}} = 14.4 \text{ Vdc}$</p> <p><u>Test Frequencies for Radiated tests (20 MHz):</u> Lowest channel: 5745 MHz Middle channel: 5785 MHz Highest channel: 5825 MHz</p>
<p>TC#02 (n mode)</p>	<p><u>Power supply (V):</u> $V_{\text{nominal}} = 14.4 \text{ Vdc}$</p> <p><u>Test Frequencies for Radiated tests: (20 MHz)</u> Lowest channel: 5745 MHz Middle channel: 5785 MHz Highest channel: 5825 MHz</p> <p><u>Test Frequencies for Radiated tests: (40 MHz)</u> Lowest channel: 5755 MHz Highest channel: 5795 MHz</p>
<p>TC#03 (ac mode)</p>	<p><u>Power supply (V):</u> $V_{\text{nominal}} = 14.4 \text{ Vdc}$</p> <p><u>Test Frequencies for Radiated tests: (20 MHz)</u> Lowest channel: 5745 MHz Middle channel: 5785 MHz Highest channel: 5825 MHz</p> <p><u>Test Frequencies for Radiated tests: (40 MHz)</u> Lowest channel: 5755 MHz Highest channel: 5795 MHz</p> <p><u>Test Frequencies for Radiated tests: (80 MHz)</u> Middle channel: 5775 MHz</p>

Note (1): For radiated spurious emissions for OFDM modes 802.11a, 802.11n20/40 and 802.11ac20/40/80 a preliminary scan was performed to determine the worst case.

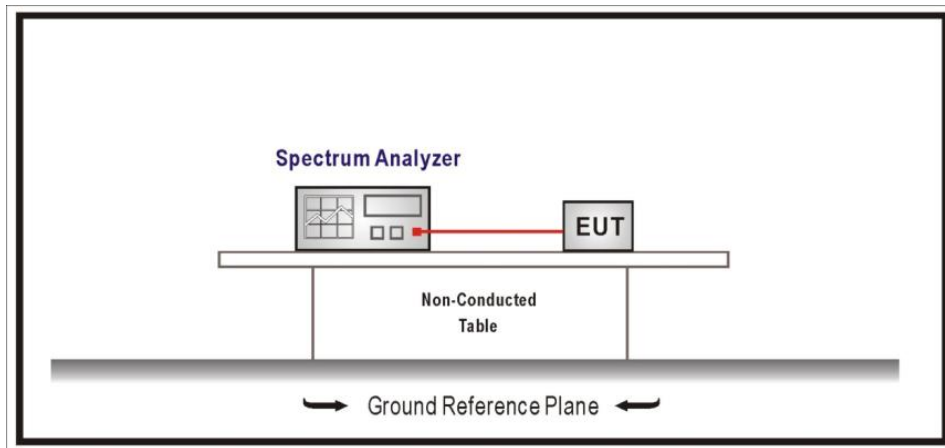
Note (2): For radiated/conducted measurements, a preliminary scan was performed to determine the worst case. The data rates of 6Mb/s for 802.11a, MCS0 for 802.11n20/n40, and MCS8 for 802.11ac20/ac40/ac80 were selected based on preliminary testing that identified those rates corresponding to the worst cases.

TEST E.1: 26DB EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

LIMITS:	Product standard:	Part 15 Subpart C §15.403 and RSS-247
	Test standard:	Part 15 Subpart C §15.403(i) and RSS-247 6.2.4

No requirements requested

TEST SETUP:



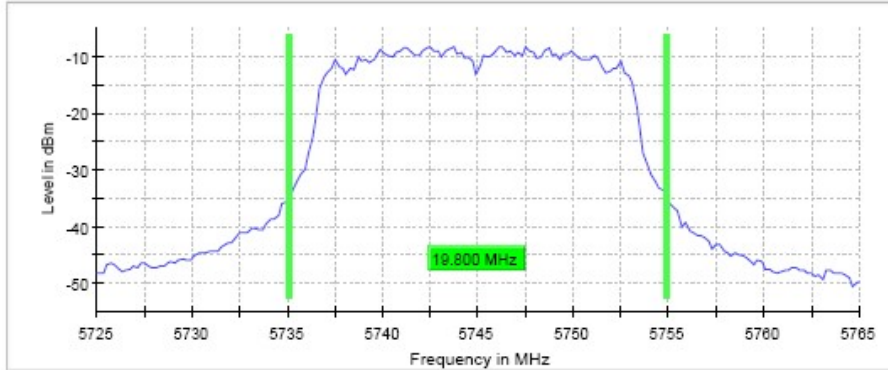
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (a mode)
TEST RESULTS:	PASS

Bandwidth: 20 MHz

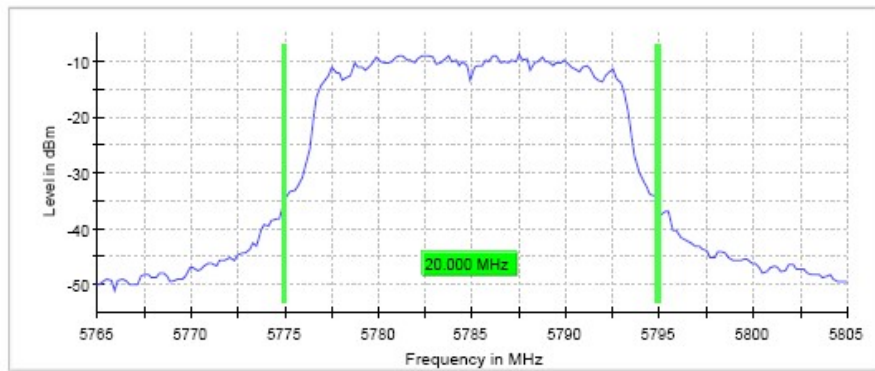
	Lowest frequency 5745 MHz	Middle frequency 5785 MHz	Highest frequency 5825 MHz
26dB Bandwidth (MHz)	19.8	20	20
Occupied bandwidth (MHz)	16.4	16.4	16.4
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.): **26 dB BANDWIDTH**

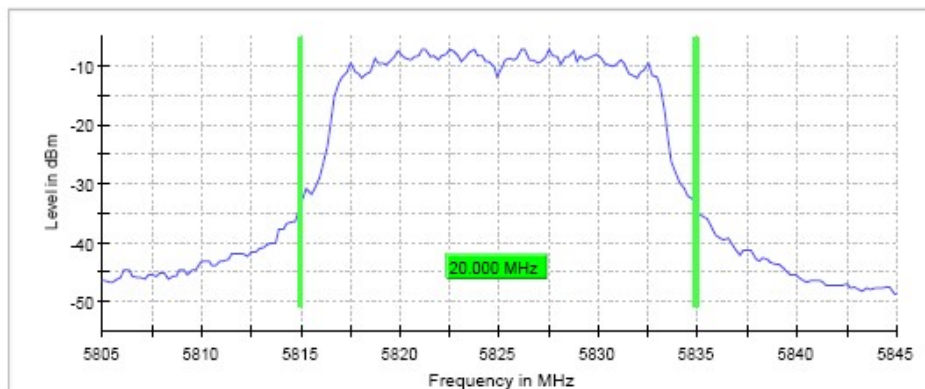
Lowest Channel



Middle Channel

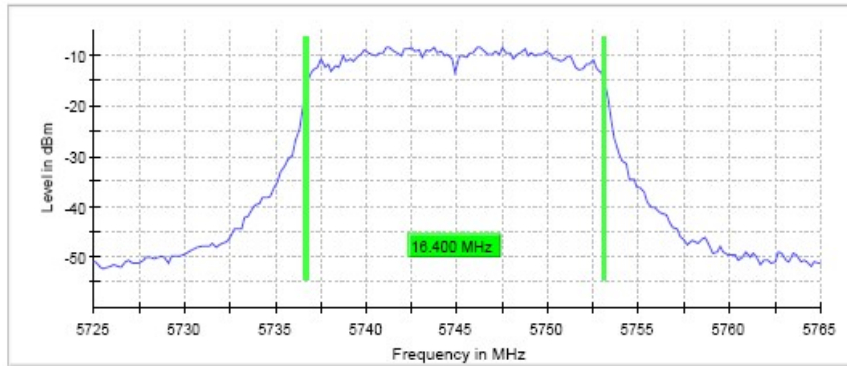


Highest Channel

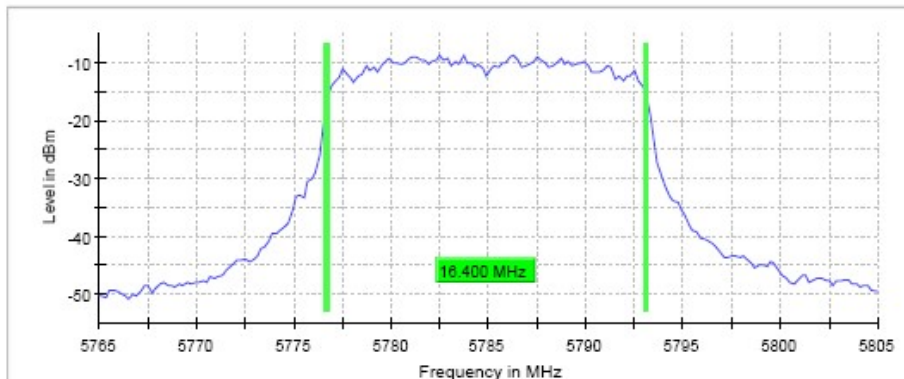


TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH
------------------------------	---------------------------

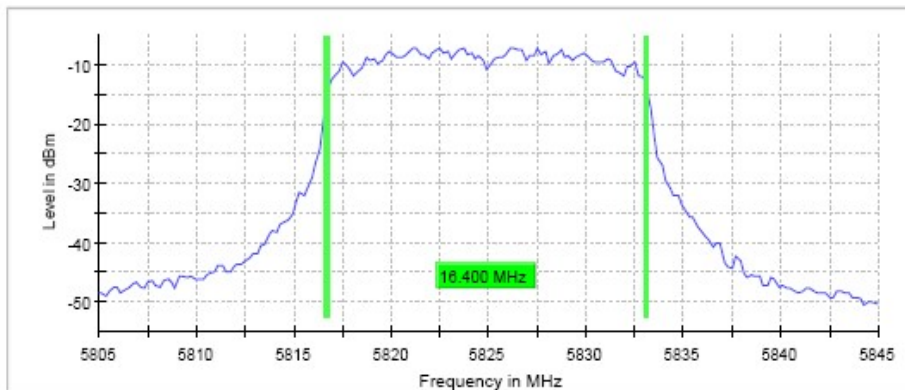
Lowest Channel



Middle Channel



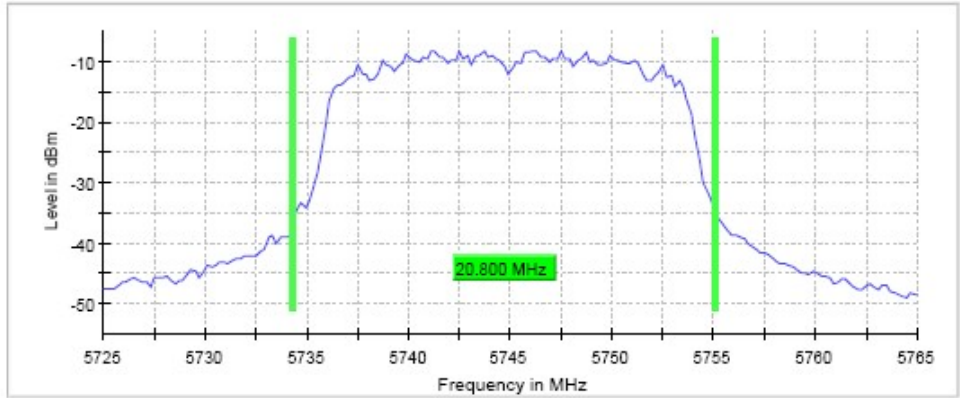
Highest Channel



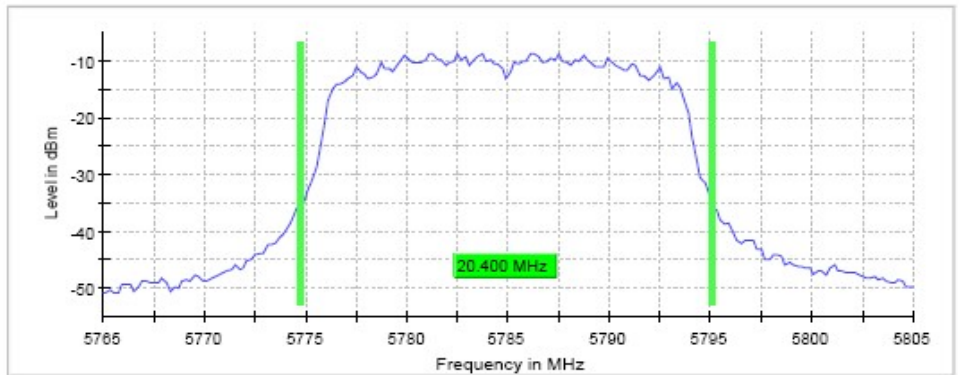
TEST RESULTS (Cont.)				
Measurement				
Setting	Instrument Value	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	200	200	200	200
Sweeptime	28.443 μ s	28.443 μ s	28.443 μ s	28.443 μ s
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200	200
Filter	3 dB	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold	Max Hold
SweepType	FFT	FFT	FFT	FFT
Preamp	off	off	off	off
Stablemode	Trace	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB	0.30 dB
Run	40 / max. 150	37 / max. 150	24 / max. 150	24 / max. 150
Stable	5 / 5	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.16 dB	0.13 dB	0.00 dB	0.00 dB
TESTED SAMPLES:		S/01		
TESTED CONDITIONS MODES:		TC#02 (n Mode)		
TEST RESULTS:		PASS		
Bandwidth: 20 MHz				
	Lowest frequency	Middle frequency	Highest frequency	
	5745 MHz	5785 MHz	5825 MHz	
26dB bandwidth (MHz)	20.8	20.4	20.8	
Occupied bandwidth (MHz)	17.4	17.6	17.4	
Measurement uncertainty (kHz)	< \pm 8.33			

TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

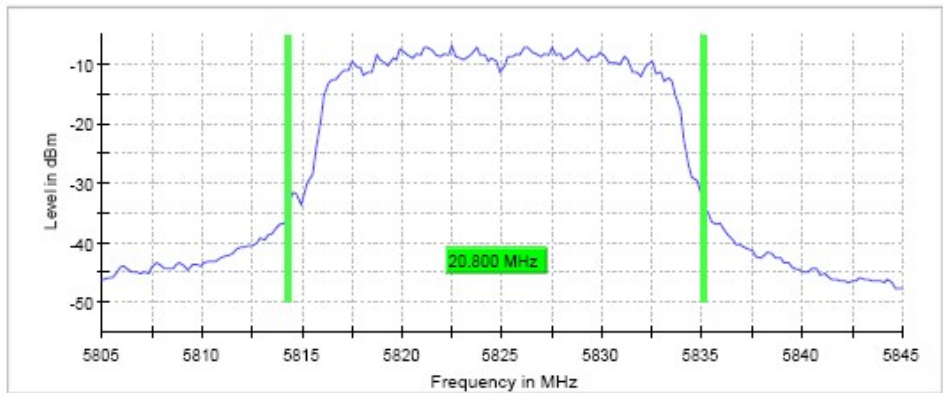
Lowest Channel



Middle Channel

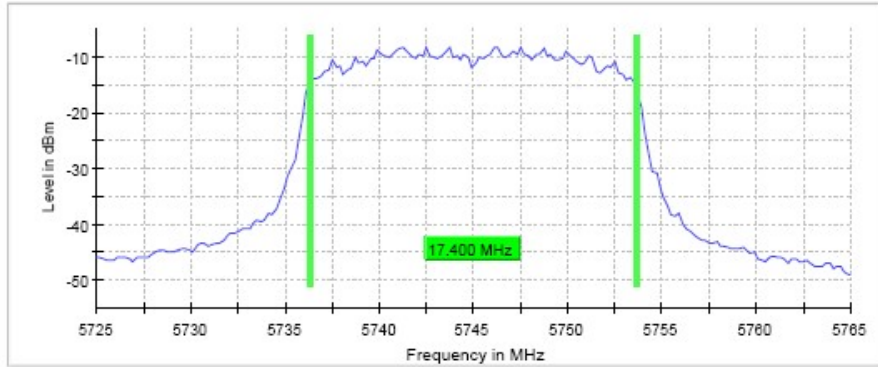


Highest Channel

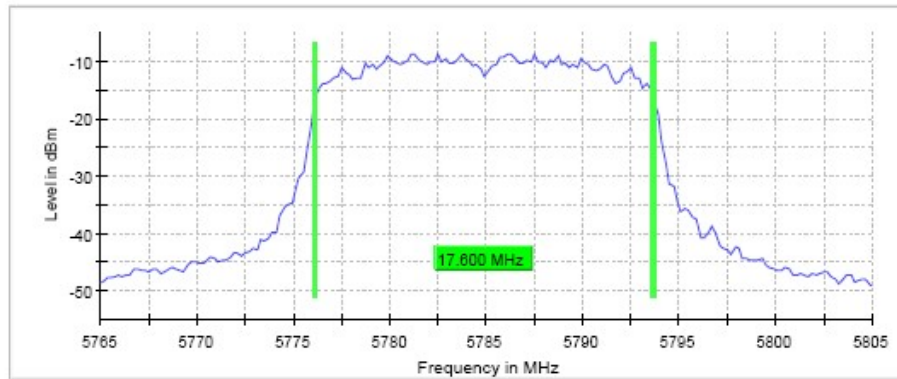


TEST RESULTS (Cont.):	OCCUPIED BANDWIDTH
------------------------------	---------------------------

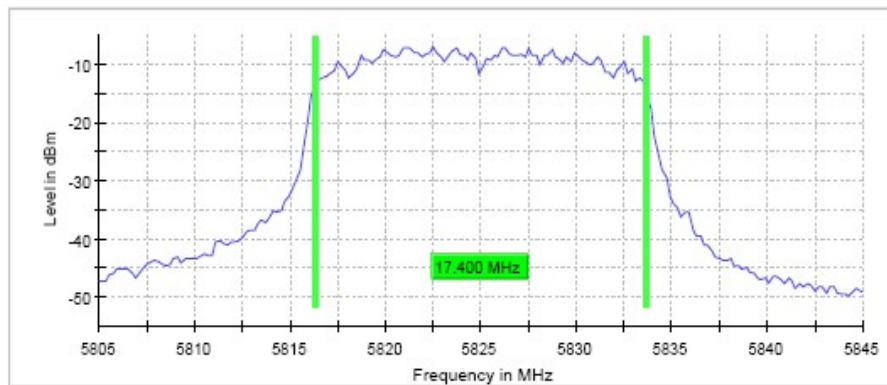
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)	
-----------------------------	--

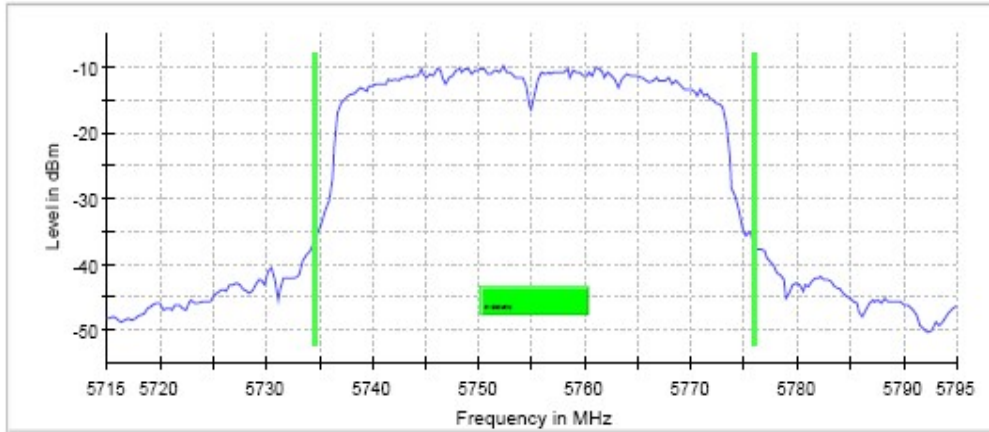
Measurement			
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	200	200	200
SweepTime	28.443 μ s	28.443 μ s	28.443 μ s
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
SweepType	FFT	FFT	FFT
Preamp	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	50 / max. 150	68 / max. 150	45 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB	0.23 dB

TEST RESULTS (Cont.)	n Mode (40MHz)
-----------------------------	-----------------------

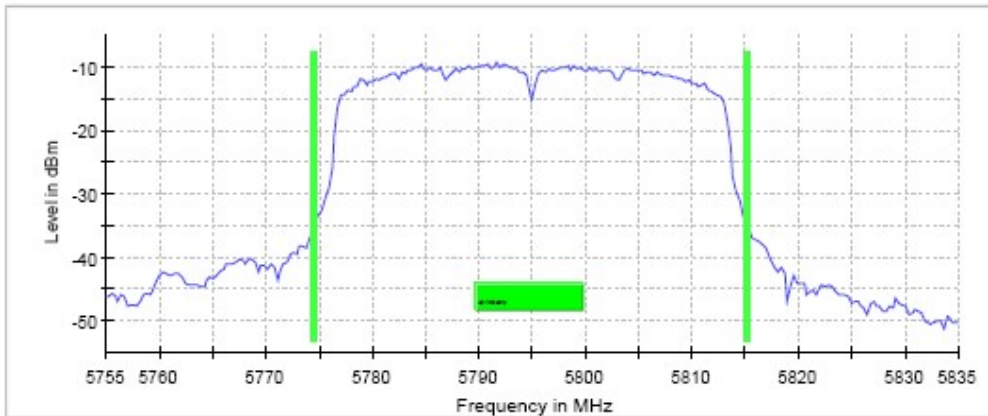
	Lowest frequency 5755 MHz	Highest frequency 5795 MHz
26dB bandwidth (MHz)	41.348	40.749
Occupied bandwidth (MHz)	36.5	36.5
Measurement uncertainty (kHz)	± 8.33	

TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

Lowest Channel

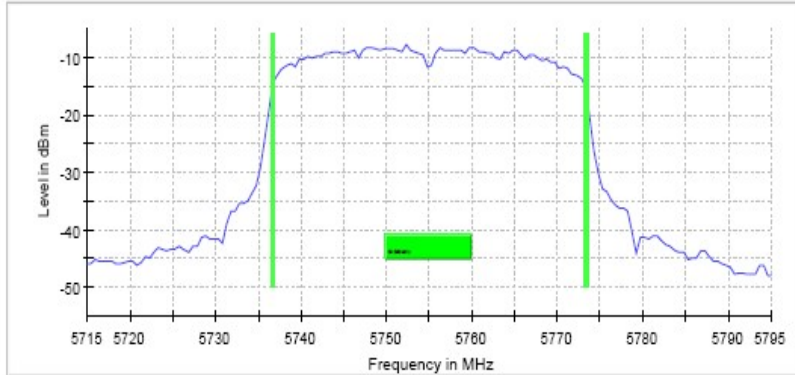


Highest Channel

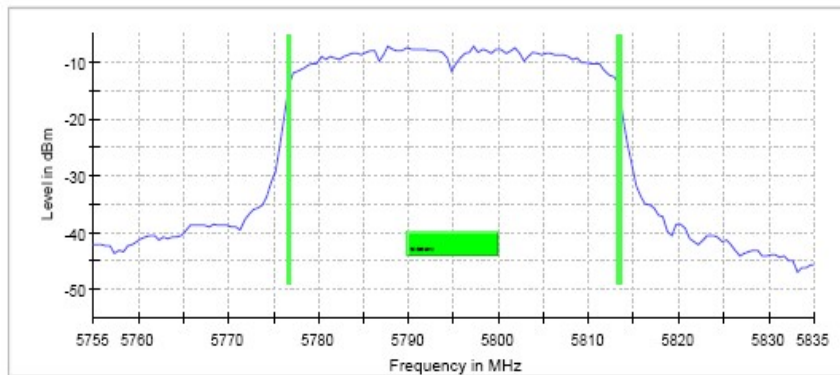


TEST RESULTS (Cont.): **OCCUPIED BANDWIDTH**

Lowest Channel



Highest Channel



Measurement

Setting	Instrument Value	Instrument Value
Start Frequency	5.71500 GHz	5.75500 GHz
Stop Frequency	5.79500 GHz	5.83500 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 kHz	500.000 kHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	267	267
Sweeptime	31.603 μ s	31.603 μ s
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	72 / max. 150	71 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.30 dB	0.27 dB

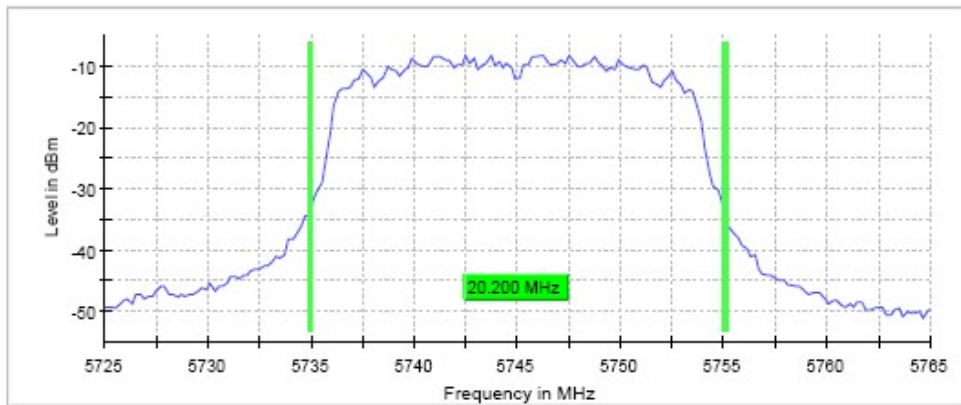
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#03 (ac mode)
TEST RESULTS :	PASS

Bandwidth: 20 MHz

	Lowest frequency	Middle frequency	Highest frequency
	5745 MHz	5785 MHz	5825 MHz
26db bandwidth (MHz)	20.2	20.2	20.4
Occupied bandwidth (MHz)	17.4	17.4	17.4
Measurement uncertainty (kHz)	<± 8.33		

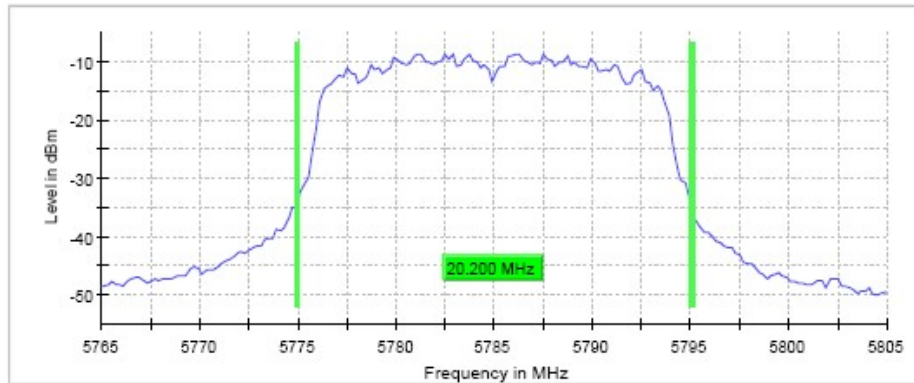
TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

Lowest Channel

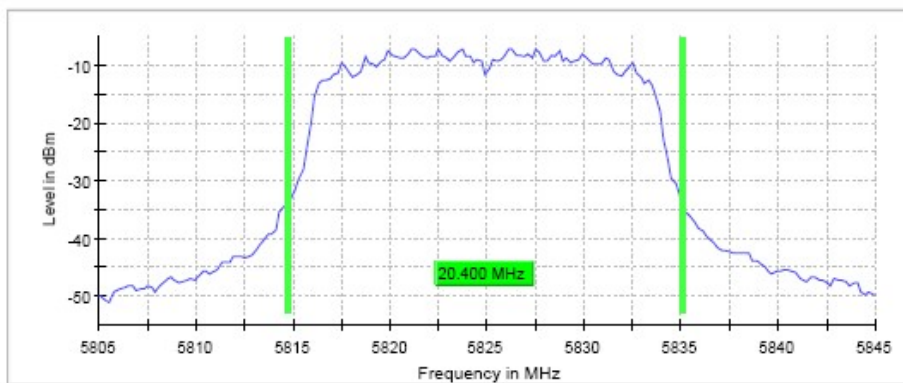


TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

Middle Channel

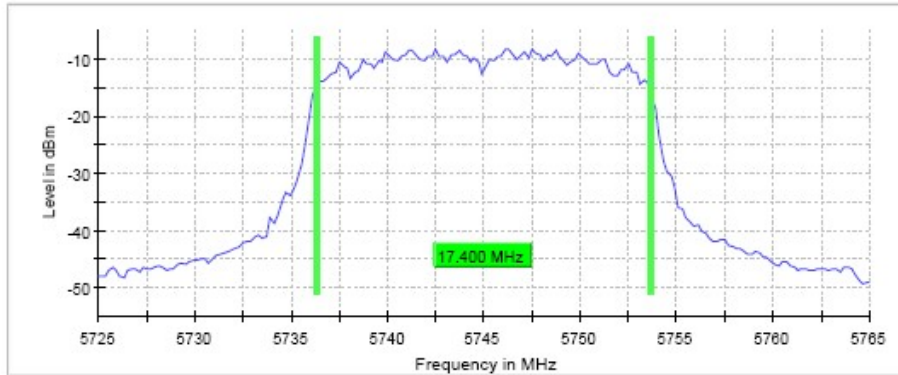


Highest Channel

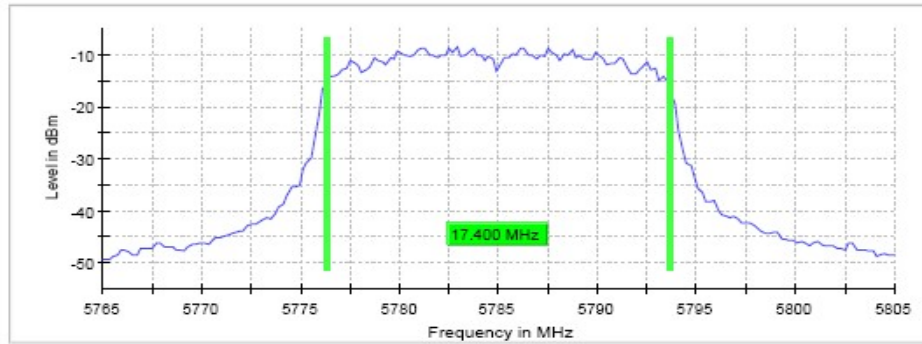


TEST RESULTS (Cont.)	OCCUPIED BANDWIDTH
-----------------------------	---------------------------

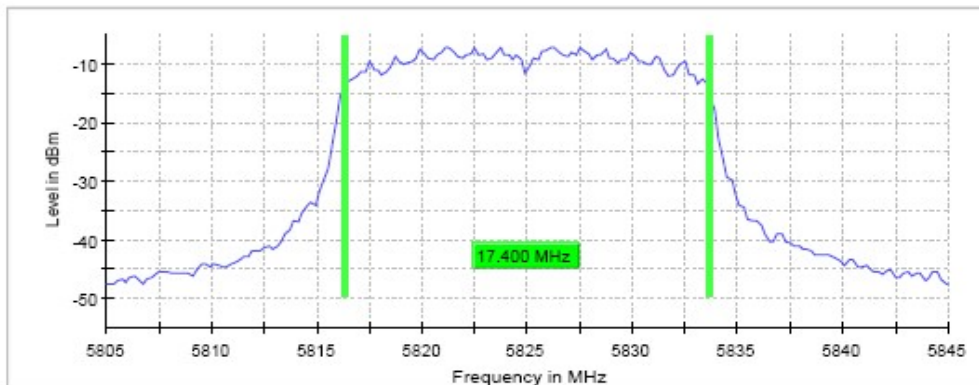
Lowest Channel



Middle Channel



Highest Channel



TEST RESULTS (Cont.)

Measurement

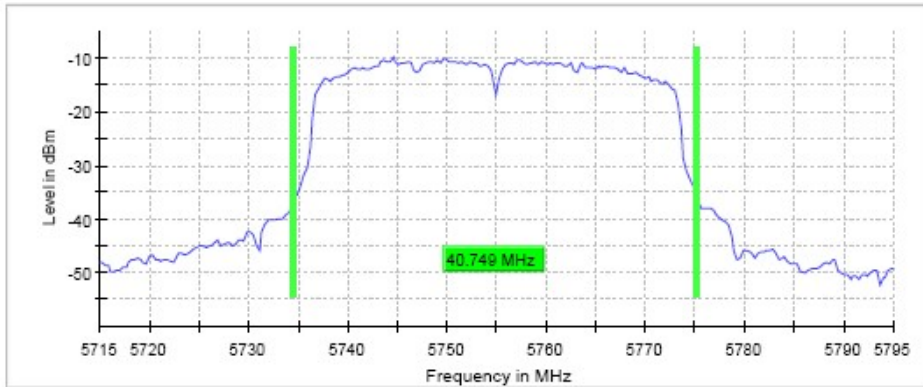
Setting	Instrument Value	Instrument Value	Instrument Value
Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
Span	40.000 MHz	40.000 MHz	40.000 MHz
RBW	200.000 kHz	200.000 kHz	200.000 kHz
VBW	1.000 MHz	1.000 MHz	1.000 MHz
SweepPoints	200	200	200
Sweptime	28.443 us	28.443 us	28.443 us
Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak	MaxPeak
SweepCount	200	200	200
Filter	3 dB	3 dB	3 dB
Trace Mode	Max Hold	Max Hold	Max Hold
SweepType	FFT	FFT	FFT
Preamplifier	off	off	off
Stablemode	Trace	Trace	Trace
Stablevalue	0.30 dB	0.30 dB	0.30 dB
Run	68 / max. 150	44 / max. 150	37 / max. 150
Stable	5 / 5	5 / 5	5 / 5
Max Stable Difference	0.24 dB	0.28 dB	0.00 dB

TEST RESULTS (Cont.)	ac Mode (40MHz)
-----------------------------	------------------------

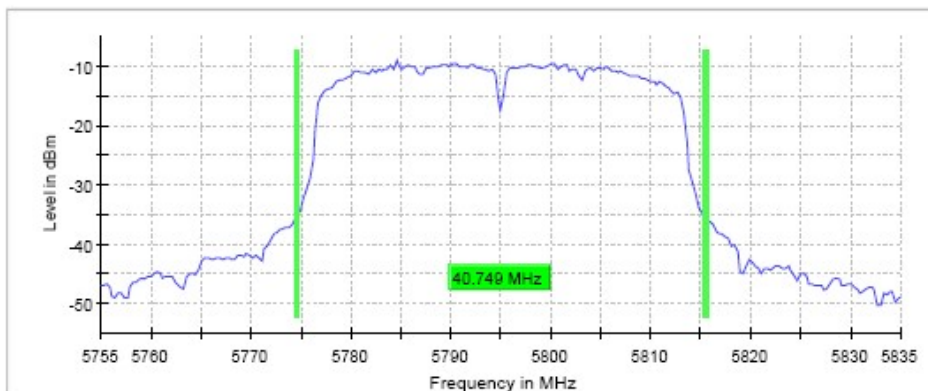
	Lowest frequency 5755 MHz	Highest frequency 5795 MHz
26dB bandwidth (MHz)	40.749	40.749
Occupied bandwidth (MHz)	36.5	36.5
Measurement uncertainty (kHz)	$<\pm 8.33$	

TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

Lowest Channel

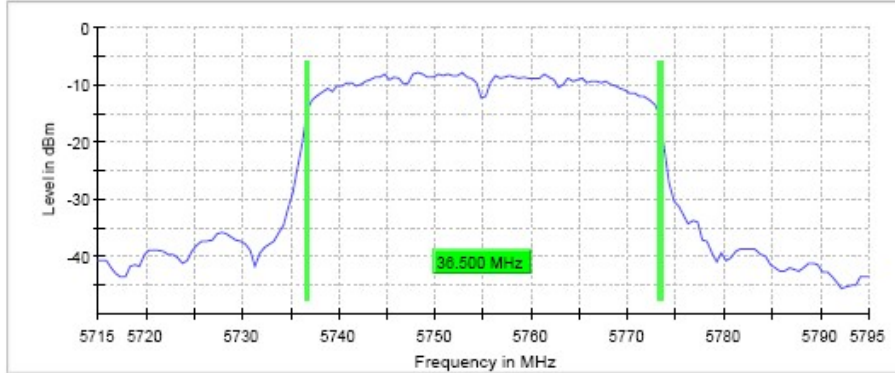


Highest Channel

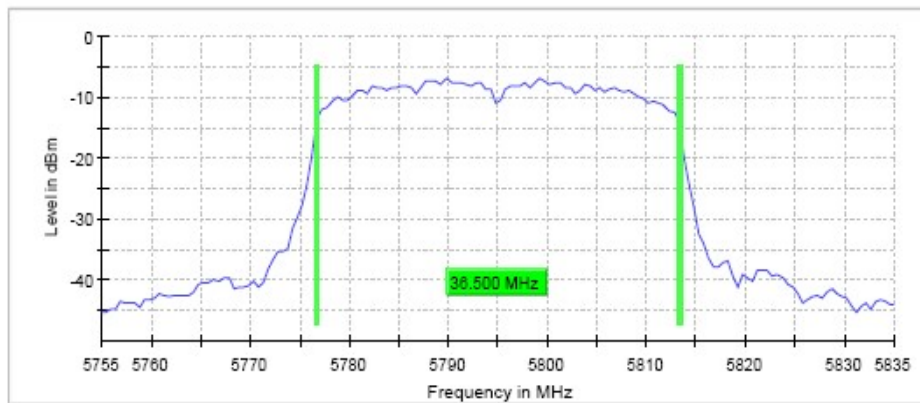


TEST RESULTS (Cont.): **OCCUPIED BANDWIDTH**

Lowest Channel



Highest Channel



Measurement

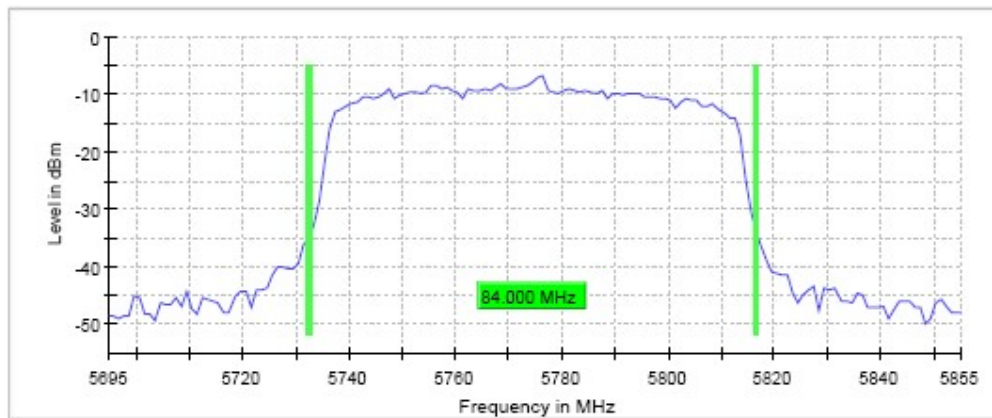
Setting	Instrument Value	Instrument Value
Start Frequency	5.71500 GHz	5.75500 GHz
Stop Frequency	5.79500 GHz	5.83500 GHz
Span	80.000 MHz	80.000 MHz
RBW	500.000 kHz	500.000 KHz
VBW	2.000 MHz	2.000 MHz
SweepPoints	267	267
Sweeptime	31.603 μs	31.603 μs
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	20.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	200	200
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	FFT
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	86 / max. 150	107 / max. 150
Stable	5 / 5	5 / 5
Max Stable Difference	0.00 dB	0.00 dB

TEST RESULTS (Cont.)	ac Mode (80MHz)
-----------------------------	------------------------

	Lowest frequency 5775 MHz
26dB bandwidth (MHz)	84
Occupied bandwidth (MHz)	75
Measurement uncertainty (kHz)	$<\pm 8.33$

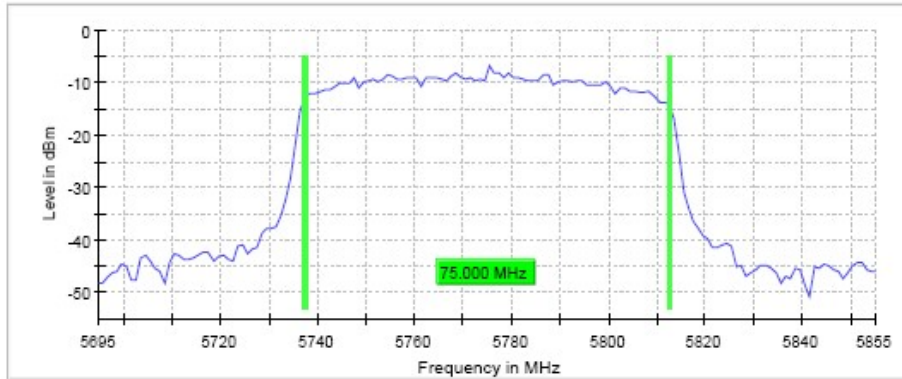
TEST RESULTS (Cont.):	26dB BANDWIDTH
------------------------------	-----------------------

Lowest Channel



TEST RESULTS (Cont.): **OCCUPIED BANDWIDTH**

Lowest Channel



Measurement

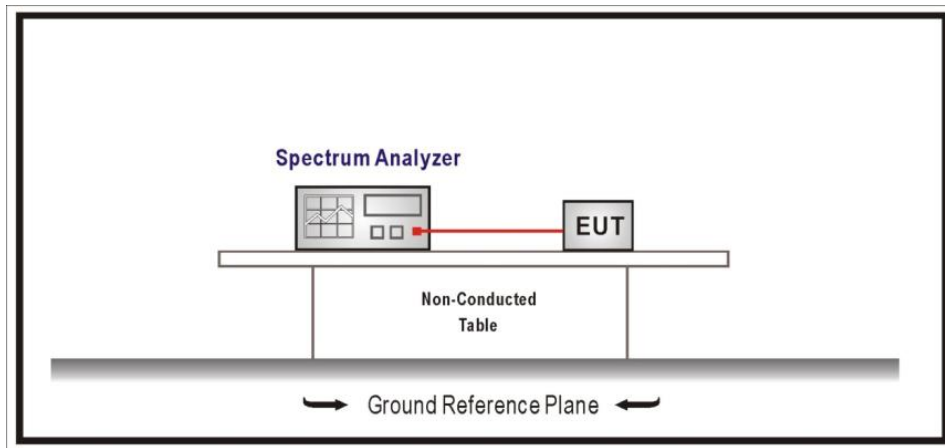
Setting	Instrument Value
Start Frequency	5.69500 GHz
Stop Frequency	5.85500 GHz
Span	160.000 MHz
RBW	1.000 MHz
VBW	3.000 MHz
SweepPoints	160
Sweeptime	22.754 μ s
Reference Level	0.000 dBm
Attenuation	20.000 dB
Detector	MaxPeak
SweepCount	200
Filter	3 dB
Trace Mode	Max Hold
SweepType	FFT
Preamplifier	off
Stablemode	Trace
Stablevalue	0.30 dB
Run	36 / max. 150
Stable	5 / 5
Max Stable	0.21 dB

TEST E.2: 6DB EMISSION BANDWIDTH

LIMITS:	Product standard:	Part 15 Subpart C §15.407 and RSS-247
	Test standard:	Part 15 Subpart C §15.407(e) and RSS-247 6.2.4.1

LIMITS:
 Within the 5.725 – 5.85 GHz band, the minimum 6dB bandwidth of U-NII devices shall be at least 500 KHz.

TEST SETUP:



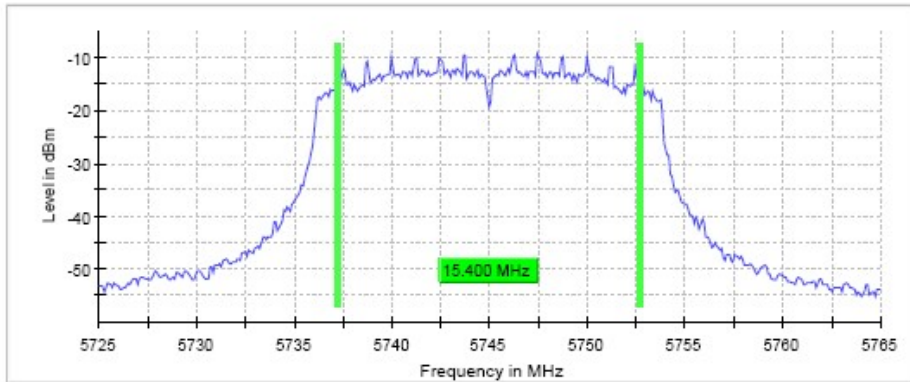
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (a mode)
TEST RESULTS:	PASS

Bandwidth: 20 MHz

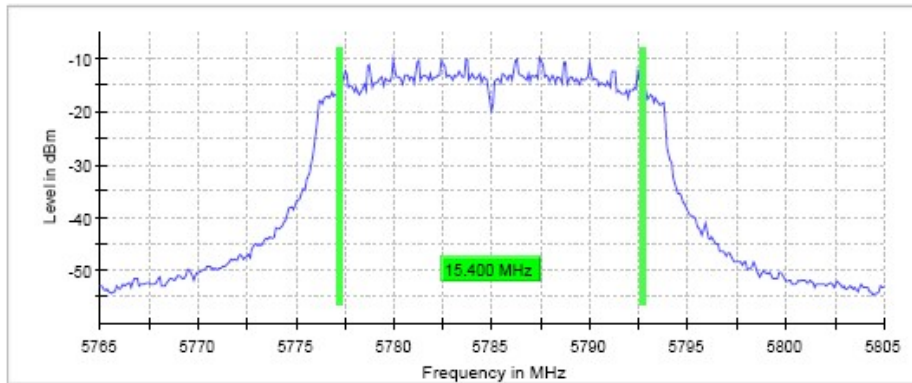
	Lowest frequency	Middle frequency	Highest frequency
	5745 MHz	5785 MHz	5825 MHz
6dB Bandwidth (MHz)	15.4	15.4	15.4
Measurement uncertainty (kHz)	<± 8.33		

TEST RESULTS (Cont.): **6 dB BANDWIDTH**

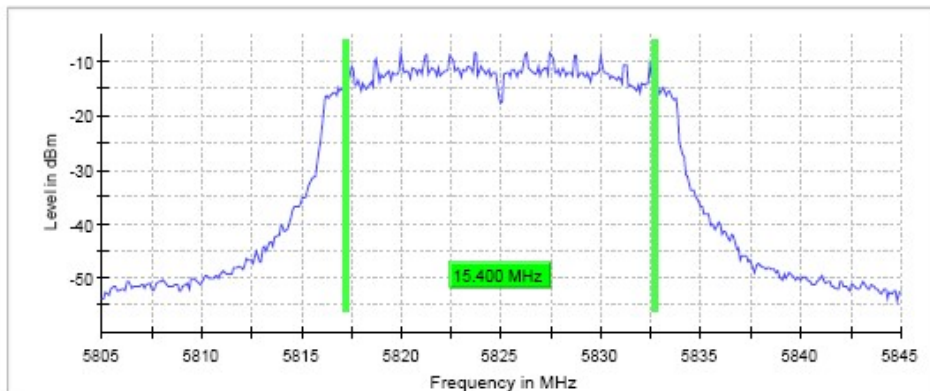
Lowest Channel



Middle Channel



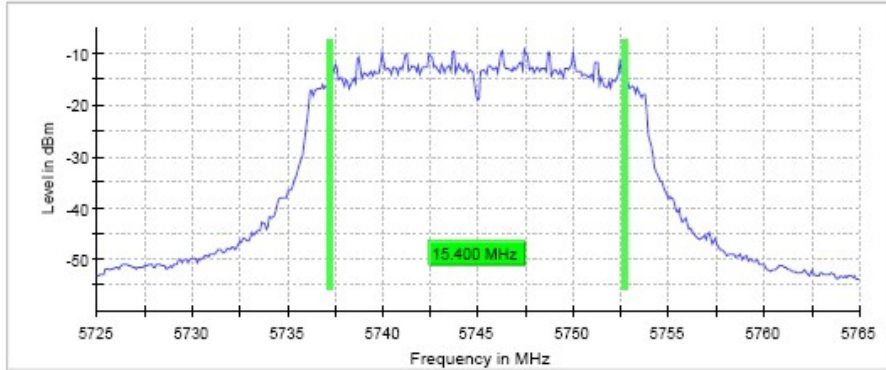
Highest Channel



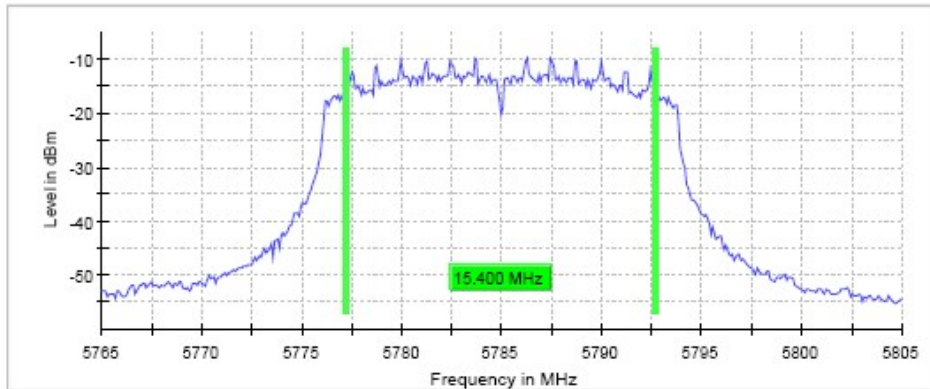
TEST RESULTS (Cont.)				
Measurement				
	Setting	Instrument Value	Instrument Value	Instrument Value
	Start Frequency	5.72500 GHz	5.76500 GHz	5.80500 GHz
	Stop Frequency	5.76500 GHz	5.80500 GHz	5.84500 GHz
	Span	40.000 MHz	40.000 MHz	40.000 MHz
	RBW	100.000 kHz	100.000 kHz	100.000 kHz
	VBW	300.000 KHz	300.000 KHz	300.000 KHz
	SweepPoints	400	400	400
	Sweeptime	56.886 μ s	56.886 μ s	56.886 μ s
	Reference Level	0.000 dBm	0.000 dBm	0.000 dBm
	Attenuation	20.000 dB	20.000 dB	20.000 dB
	Detector	MaxPeak	MaxPeak	MaxPeak
	SweepCount	200	200	200
	Filter	3 dB	3 dB	3 dB
	Trace Mode	Max Hold	Max Hold	Max Hold
	Sweeptype	FFT	FFT	FFT
	Preamp	off	off	off
	Stablemode	Trace	Trace	Trace
	Stablevalue	0.30 dB	0.30 dB	0.30 dB
	Run	68 / max. 150	74 / max. 150	68 / max. 150
	Stable	5 / 5	5 / 5	5 / 5
	Max Stable Difference	0.05 dB	0.08 dB	0.09 dB
TESTED SAMPLES:	S/01			
TESTED CONDITIONS MODES:	TC#02 (N Mode)			
TEST RESULTS :	PASS			
Bandwidth: 20 MHz				
	Lowest frequency	Middle frequency	Highest frequency	
	5745 MHz	5785 MHz	5825 MHz	
6dB bandwidth (MHz)	15.4	15.4	15.4	
Measurement uncertainty (kHz)	$<\pm 8.33$			

TEST RESULTS (Cont.): **6 dB BANDWIDTH**

Lowest Channel



Middle Channel



Highest Channel

