TEST REPORT

For

Communication Module

In conformity with

FCC Part 15C / RSS-247 Issue 2

Model Name:	**Type1YA** **Type1YB**
FCC ID:	**VPYLB1YA**
ISED Cert No.:	**772C-LB1YA**
Report No.:	**WE200619BC1-14**
Issue Date:	**10 Nov. 2020**

Prepared for

Murata Manufacturing Co., Ltd.
1-10-1 Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan

Prepared by

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History

Report No.	Date	Revisions	Issued By
WE200619BC1-11	14 Oct. 2020	Initial Issue	T. Kato
WE200619BC1-12	06 Nov. 2020	Add the information of antenna requirement (Sec. 1.1)	T. Kato
WE200619BC1-13	09 Nov. 2020	Add the information of RSS antenna requirement (Sec. 1.1) Add Setup photo of RF conducted test (Sec 3)	T. Kato
WE200619BC1-14	10 Nov. 2020	Revised the information of Tx average power (Sec 1.1)	T. Kato

1 General information

1.1 Product description from supplier

Test item	: Communication Module
Manufacturer	: Murata Manufacturing Co., Ltd.
Address	: 1-10-1 Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan
Model	: Type1YA
FCC ID	: VPYLB1YA
ISED No.	: 772C-LB1YA
Serial number	: No.1 (for RF conducted test) No.2 (for receiver radiated test) No.3 (for transmitter radiated test)
Hardware version	: Ver.1
Software version	: Ver.1.1.30
Operating frequency	: 2412 - 2462 MHz
Modulation	: DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM (WLAN 11b/11g/11n HT20)
Tx average power	: +13.0 ± 1.5 dBm (for 11b_5.5/11Mbps, 11g and 11n_HT20 mode) : +10.5 ± 1.5 dBm (for 11b_1/2Mbps mode)
Antenna Gain (Inverted F type)	: +1.3 dBi (2400 MHz) +1.4 dBi (2442 MHz) +1.6 dBi (2484 MHz) This antenna comply with FCC 15.203/RSS-Gen Sec. 6.8 requirement.
Receipt date of EUT	: 06 Aug. 2020
Nominal power source voltages	: DC 14 V
Valiant model	: Type1YB
Difference from original model	:

Model	5 pin connector on the surface of the module	20 pin connector on the back of the module
Type1YA	✓	-
Type1YB	-	✓

1.2 Test(s) performed/ Summary of test result

Test specification(s)	: FCC CFR 47 Part 15 Subpart C RSS-247 Issue 2
Test method(s)	: ANSI C63.10: 2013
Test(s) started	: 07 Aug. 2020
Test(s) completed	: 06 Oct. 2020
Summary of test result	: *Complied*

Note: The above judgment is only based on the measurement data and it does not include the measurement uncertainty. Accordingly, the statement below is applied to the test result.
The EUT complies with the limit required in the standard in case that the margin is not less than the measurement uncertainty in the Laboratory.
Compliance of the EUT is more probable than non-compliance is case that the margin is less than the measurement uncertainty in the Laboratory.

Test engineer : T. Kato (Testing engineer, RF/EMC Lab.)

Reviewer : K. Onishi (Testing leader, RF/EMC Lab.)

1.3 Test facility

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at SGS Japan Inc., located in 472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, Japan, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 15, section 2.948. The description of the test facilities has been filed under registration number JP5001 at the Office of the Federal Communications Commission. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.
The list of all public test facilities is available on the Internet at http://www.fcc.gov.

Registered by Innovation, Science and Economic Development Canada (ISED):
The registered CAB identifier is JP0009.

Accredited by **National Voluntary Laboratory Accreditation Program** (NVLAP) for the emission tests stated in the scope of the certificate under Certificate Number 200780-0

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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NVLAP LAB CODE 200780-0

1.4 Measurement uncertainty

The treatment of uncertainty is based on the general matters on the definition of uncertainty in “Guide to the expression of uncertainty in measurement (GUM)” published by ISO. The Lab’s uncertainty is determined by referring ETSI TR 100 028-1 V1.4.1.
The uncertainty of the measurement result in the level of confidence of approximately 95% (k=2) is as follows;

AC Conducted emission	: ± 3.3 dB (150 kHz - 30 MHz)
Radiated emission	: ± 5.0 dB (9 kHz - 30 MHz)
	: ± 5.2 dB (30 MHz - 1000 MHz)
	: ± 4.9 dB (1 GHz - 6 GHz)
	: ± 4.9 dB (6 GHz - 18 GHz)
	: ± 5.5 dB (18 GHz - 26 GHz)

1.5 Summary of test results

Requirement	Section in FCC	Section in RSS-247	Result	Section in this report
Occupied Bandwidth (99 %)	2.1049	6.7 (RSS-Gen)	Complied	2.1
6 dB Bandwidth	15.247 (a) (2)	5.2 (a)	Complied	2.2
Conducted Output Power	15.247 (b) (3)	5.4 (d)	Complied	2.3
Conducted Spurious Emission	15.247 (d)	5.5	Complied	2.4
Power Spectral Density	15.247 (e)	5.2 (b)	Complied	2.5
Radiated Emissions	15.247(d) 15.205 (a)	8.10 (RSS-Gen)	Complied	2.6
AC power line conducted emissions	15.207	8.8 (RSS-Gen)	Complied	2.7
Radiated Emissions (Receiver)	-	7.3 (RSS-Gen)	Complied	2.8
AC power line conducted emissions (Receiver)	-	7.2 (RSS-Gen)	Complied	2.9

1.6 Setup of equipment under test (EUT)

1.6.1 Test configuration of EUT

Equipment(s) under test

No.	Item	Manufacture	Model No.	Serial No.
A1	Communication Module (for conducted test)	Murata	Type1YA	No.1
A2	Communication Module (for Rx radiated test)	Murata	Type1YA	No.2
A3	Communication Module (for Tx radiated test)	Murata	Type1YA	No.3

Support Equipment(s)

No.	Item	Manufacture	Model No.	Serial No.
B	AC adapter	POWERNET Technologies Corp.	PS30W-14J1	-
-	-	-	-	-

Connected cable(s)

No.	Item	Identification (Manu.etc.)	Cable Shielded	Ferrite Core	Length [m]
1	DC cable 1	-	No	No	1.5
2	DC cable 2	-	No	No	1.5

1.6.2 Operating condition:

- Tx (2412MHz): The EUT is in normal transmission mode at 2412MHz
- Tx (2437MHz): The EUT is in normal transmission mode at 2437MHz
- Tx (2462MHz): The EUT is in normal transmission mode at 2462MHz

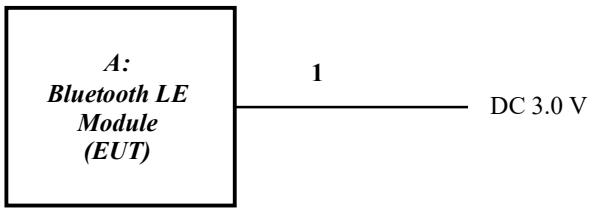
[Tx mode]

11b:	1/2/5.5/11 Mbps
11g:	6/9/12/18/24/36/48/54 Mbps
11n HT20:	MCS 0/1/2/3/4/5/6/7

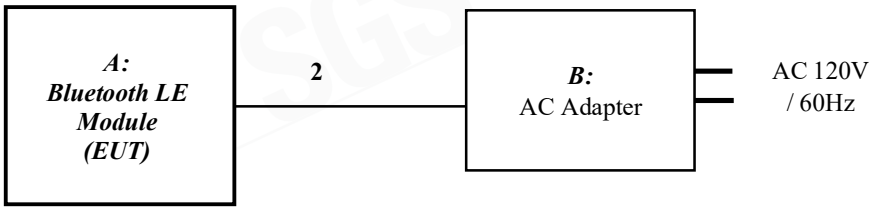
- Rx (2412MHz): The EUT is in normal receiving mode at 2412MHz
- Rx (2437MHz): The EUT is in normal receiving mode at 2437MHz
- Rx (2462MHz): The EUT is in normal receiving mode at 2462MHz

1.6.3 Setup diagram of tested system

[Configuration 1]



[Configuration 2]



1.7 Equipment modifications

No modifications have been made to the equipment in order to achieve compliance with the applicable standards described in clause 1.2.

1.8 Deviation from the standard

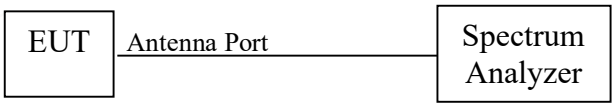
No deviations from the standards described in clause 1.2.

2 Test procedure and test data

2.1 Occupied Bandwidth (99%)

Test setup

Test setup is the following drawing. The antenna port of EUT was connected to the spectrum analyzer.



Test procedure

Spectrum analyzer is set as below according to ANSI C63.10 clause 6.9

- RBW : 1 to 5 % of OBW
- VBW > 3 x RBW
- Span : OBW x 1.5 to 5
- Trace : Max hold

Limitation

There are no limitations.
The measurement value is used for the emission designator.

Test equipment used (refer to List of utilized test equipment)

TR09	CL31	-

Test results

Tested sample: A1
Configuration: 1

Occupied Bandwidth [MHz]

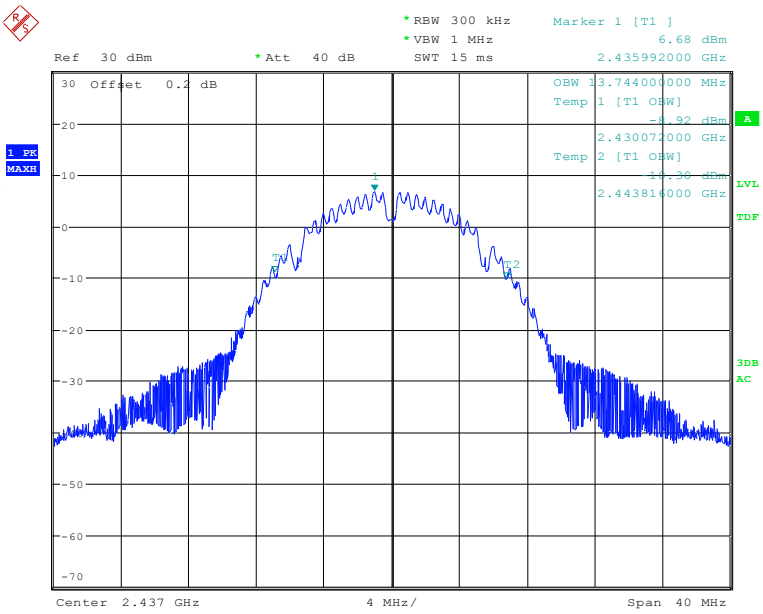
Operating Mode	Operating Frequency		
	2412MHz	2437MHz	2462MHz
11b 1Mbps	13.776	13.744	13.712
11b 2Mbps	13.664	13.648	13.664
11b 5.5Mbps	13.520	13.520	13.504
11b 11Mbps	13.584	13.568	13.552
11g 6Mbps	17.584	17.616	17.616
11g 9Mbps	17.552	17.568	17.568
11g 12Mbps	17.184	17.232	17.200
11g 18Mbps	16.912	16.912	16.928
11g 24Mbps	16.880	16.880	16.864
11g 36Mbps	16.992	16.992	17.008
11g 48Mbps	16.784	16.800	16.816
11g 54Mbps	17.184	17.216	17.200
11n HT20 MCS0	***18.320***	18.320	18.304
11n HT20 MCS1	18.304	18.304	18.320
11n HT20 MCS2	18.080	18.096	18.096
11n HT20 MCS3	18.048	18.064	18.064
11n HT20 MCS4	18.144	18.128	18.144
11n HT20 MCS5	17.920	17.920	17.920
11n HT20 MCS6	18.000	18.000	18.000
11n HT20 MCS7	18.272	18.256	18.272

Note: 11n HT20 MCS0 is widest bandwidth. So this mode is used for band edge testing as worst mode.

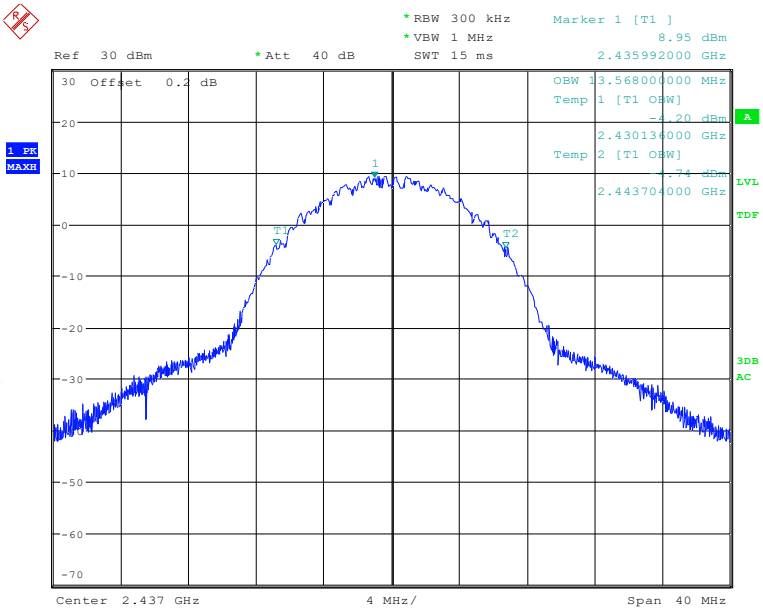
Tested Date: 07 Aug. 2020 Temperature: 27 degC
Humidity: 45 % Atmos. Press: 1012 hPa

[Chart]

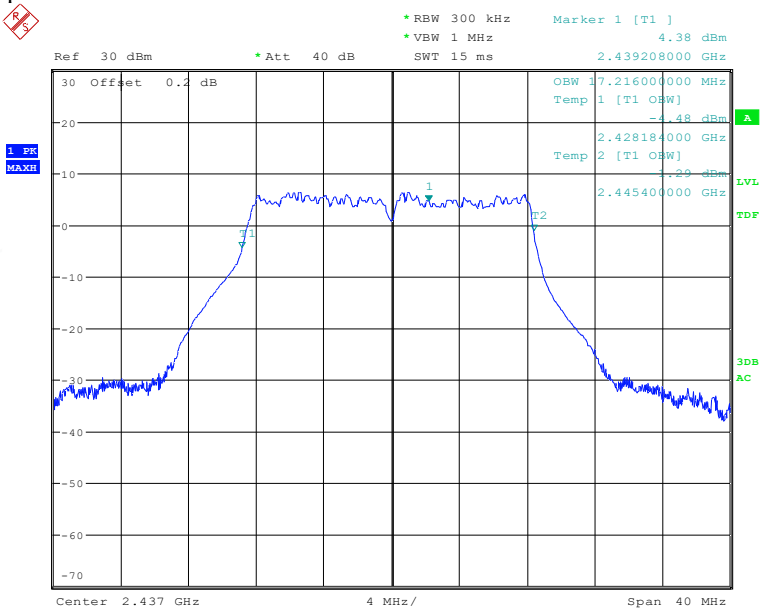
11b 6ch 1Mbps



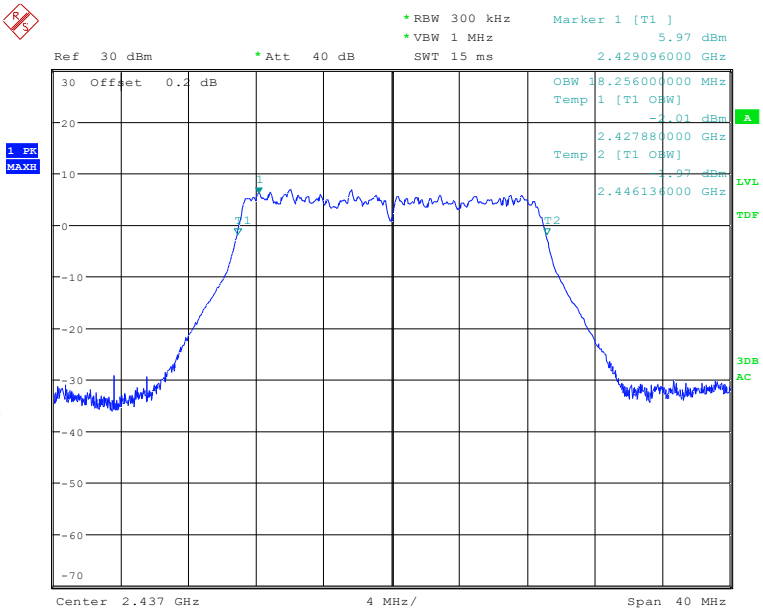
11b 6ch 11M



11g 6ch 54Mbps



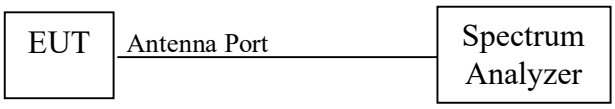
11n HT20 6ch MCS7



2.2 6dB Bandwidth

Test setup

Test setup is the following drawing. The antenna port of EUT was connected to the spectrum analyzer.



Test procedure

Spectrum analyzer is set as below according to ANSI C63.10 clause 11.8

- RBW = 100 kHz
- VBW : 300 kHz
- Detector : Peak
- Trace : Max hold

Applicable rule and limitation

FCC 15.247 (a) (2)
RSS-247 Sec. 5.2(a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

Test equipment used (refer to List of utilized test equipment)

TR06	CL31	

Test results - *Complied with requirement*

Test Data

Tested sample: A1
Configuration: 1

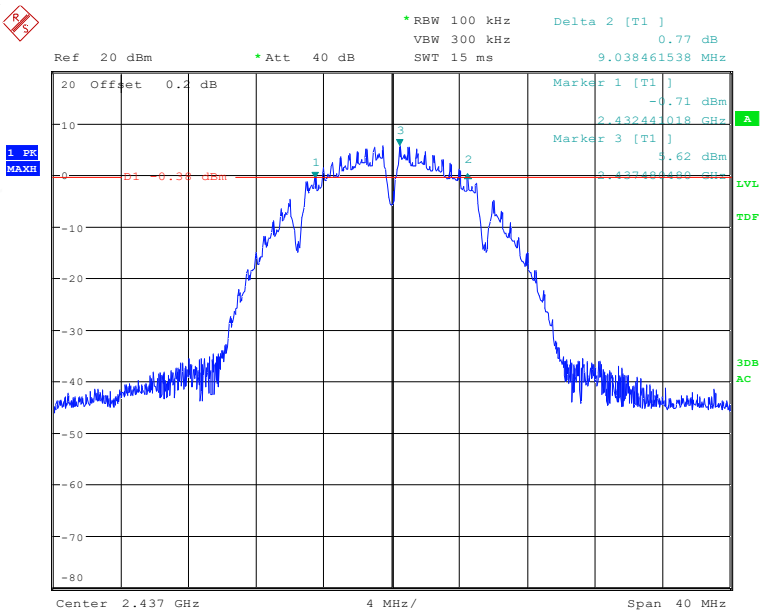
6dB Bandwidth [MHz]

Operating Mode	Operating Frequency		
	2412MHz	2437MHz	2462MHz
11b 1Mbps	9.038	9.038	8.967
11b 2Mbps	8.782	8.733	8.590
11b 5.5Mbps	8.526	8.220	7.822
11b 11Mbps	8.590	8.605	8.719
11g 6Mbps	16.474	16.510	16.474
11g 9Mbps	16.474	16.479	16.487
11g 12Mbps	16.474	16.474	16.551
11g 18Mbps	16.483	16.474	16.551
11g 24Mbps	16.503	16.538	16.551
11g 36Mbps	16.503	16.533	16.487
11g 48Mbps	16.547	16.538	16.538
11g 54Mbps	16.483	16.538	16.538
11n HT20 MCS0	17.695	17.628	17.756
11n HT20 MCS1	17.739	17.756	17.759
11n HT20 MCS2	17.756	17.692	17.695
11n HT20 MCS3	17.756	17.756	17,767
11n HT20 MCS4	17.756	17.756	17.748
11n HT20 MCS5	17.748	17.756	17.748
11n HT20 MCS6	17.748	17.756	17.736
11n HT20 MCS7	17.701	17.756	17.821

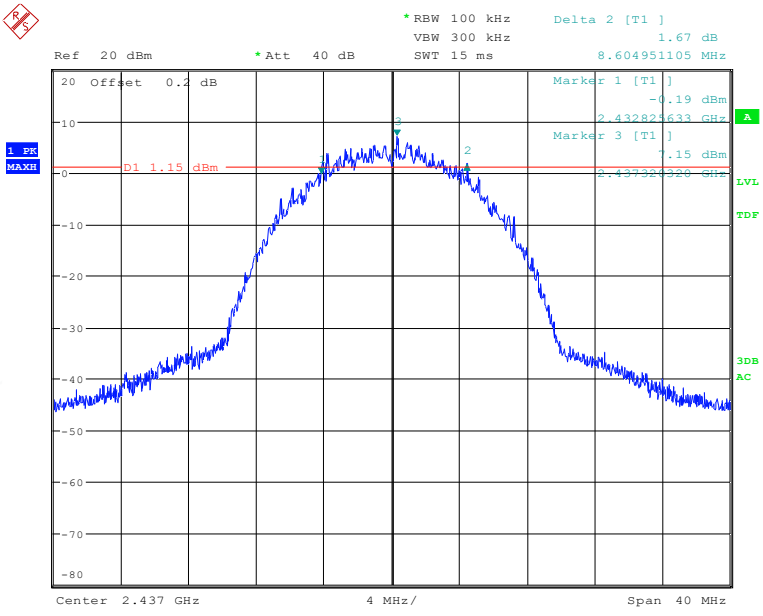
Tested Date: 11 Aug. 2020 Temperature: 22 degC
Humidity: 53 % Atmos. Press: 1012 hPa

[Chart]

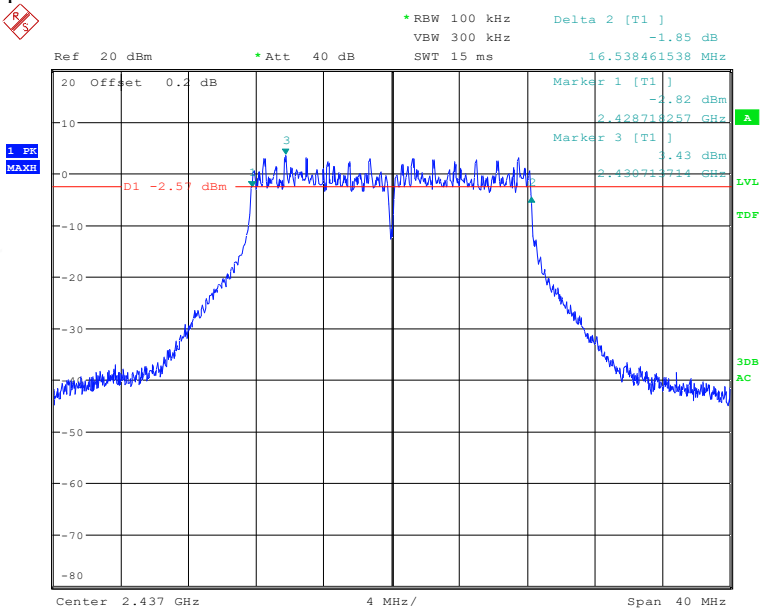
11b 6ch 1Mbps



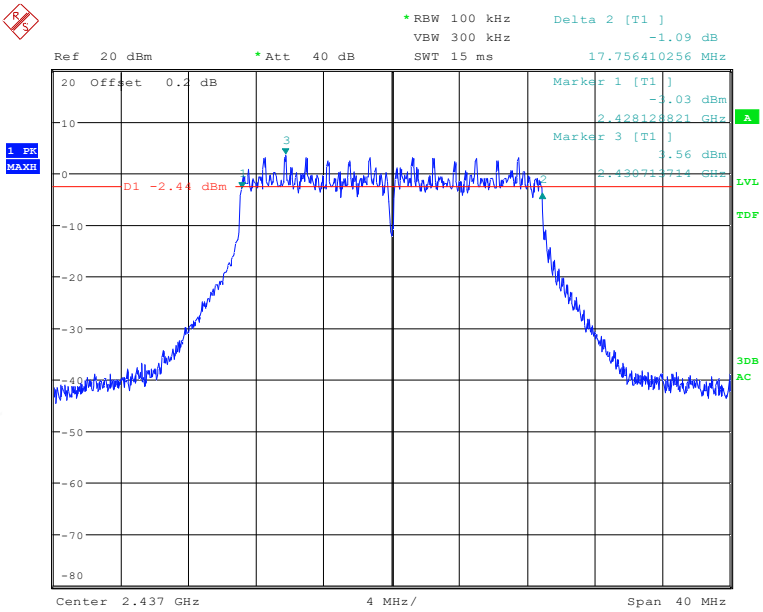
11b 6ch 11M



11g 6ch 54Mbps



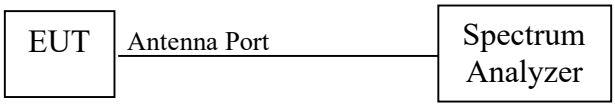
11n HT20 6ch MCS7



2.3 Peak Output Power

Test setup

Test setup is the following drawing. The antenna port of EUT was connected to the spectrum analyzer.



Test procedure

Spectrum analyzer is set as below according to ANSI C63.10 clause 11.9

- RBW > 6dB BW
- Span > 3 x RBW
- Trace : Max hold
- VBW > 3 x RBW
- Detector : Peak

Applicable rule and limitation

FCC 15.247(b) (3)
RSS-247 Sec. 5.4(d)

Output power shall be less than 1 Watt (30 dBm).

Test equipment used (refer to List of utilized test equipment)

TR09	CL31	

Test results - *Complied with requirement*

Test Data

Tested sample: A1
Configuration: 1

Peak Output Power [dBm]

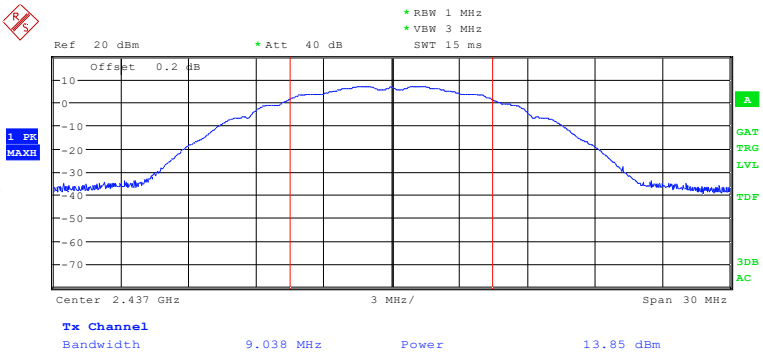
Operating Mode	Operating Frequency		
	2412MHz	2437MHz	2462MHz
11b 1Mbps	13.55	13.85	14.27
11b 2Mbps	13.64	13.99	14.38
11b 5.5Mbps	19.32	19.03	18.79
11b 11Mbps	20.35	20.13	20.08
11g 6Mbps	19.45	18.80	19.01
11g 9Mbps	19.39	18.89	19.10
11g 12Mbps	19.83	18.91	19.10
11g 18Mbps	20.61	19.16	19.36
11g 24Mbps	20.37	18.91	18.95
11g 36Mbps	19.64	18.67	18.71
11g 48Mbps	20.73	19.04	19.03
11g 54Mbps	20.22	19.51	19.19
11n HT20 MCS0	19.45	19.05	19.19
11n HT20 MCS1	19.65	19.29	19.37
11n HT20 MCS2	19.59	19.15	19.32
11n HT20 MCS3	20.12	18.96	18.97
11n HT20 MCS4	20.01	18.87	18.74
11n HT20 MCS5	20.13	19.15	19.05
11n HT20 MCS6	19.72	18.91	18.87
11n HT20 MCS7	19.20	19.09	19.02

[Day 1]
Tested Date: 01 Sep. 2020 Temperature: 25 degC
Humidity: 54 % Atmos. Press: 1010 hPa

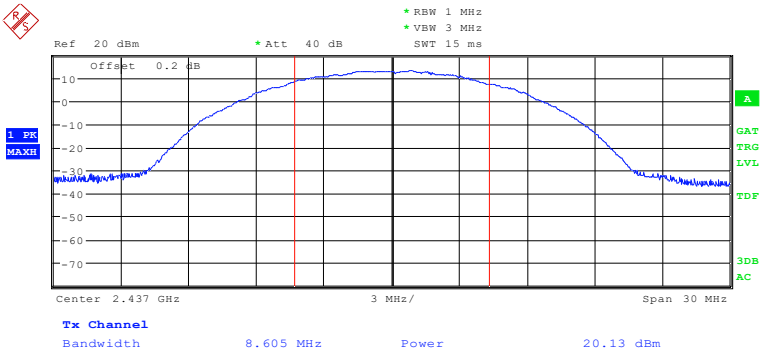
[Day 2]
Tested Date: 26 Sep. 2020 Temperature: 23 degC
Humidity: 71 % Atmos. Press: 1008 hPa

[Chart]

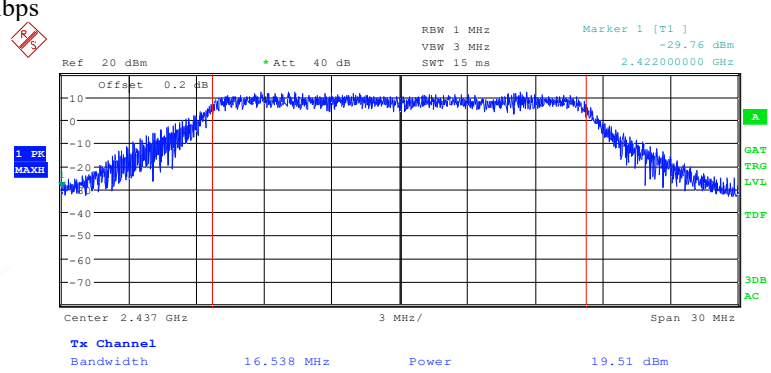
11b 6ch 1Mbps



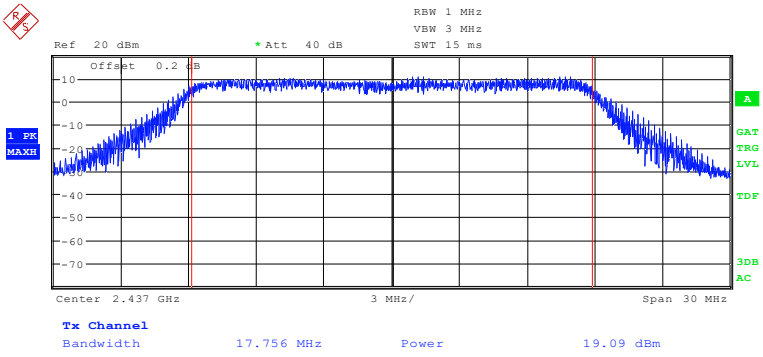
11b 6ch 11M



11g 6ch 54Mbps



11n HT20 6ch MCS7



Average Output Power [dBm] (*)

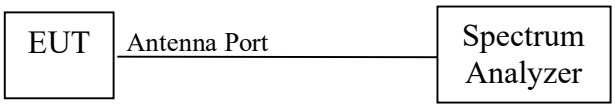
Operating Mode	Operating Frequency		
	2412MHz	2437MHz	2462MHz
11b 1Mbps	11.59	11.86	11.77
11b 2Mbps	11.61	11.84	11.74
11b 5.5Mbps	14.27	14.29	14.30
11b 11Mbps	14.45	14.45	14.41
11g 6Mbps	14.22	13.97	13.79
11g 9Mbps	14.23	13.99	13.93
11g 12Mbps	14.30	13.98	13.98
11g 18Mbps	14.39	14.19	14.16
11g 24Mbps	14.00	13.90	13.52
11g 36Mbps	13.77	13.68	13.57
11g 48Mbps	14.09	14.06	13.84
11g 54Mbps	14.14	14.07	13.83
11n HT20 MCS0	14.25	13.85	13.96
11n HT20 MCS1	14.23	13.87	13.98
11n HT20 MCS2	14.49	14.12	14.18
11n HT20 MCS3	13.95	13.94	13.85
11n HT20 MCS4	13.74	13.70	13.55
11n HT20 MCS5	13.94	13.91	13.71
11n HT20 MCS6	13.96	13.86	13.75
11n HT20 MCS7	14.09	14.04	13.84

(*) This is just a refence data for RF exposure.

2.4 Conducted Spurious Emissions

Test setup

Test setup is the following drawing. The antenna port of EUT was connected to the spectrum analyzer.



Test procedure

Spectrum analyzer is set as below according to ANSI C63.10 clause 7.8.8

- RBW : 100 kHz
- VBW : 300 kHz
- Detector : Peak
- Trace : Max hold

Limitation

FCC 15.247(d)
RSS-247 Sec. 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test equipment used (refer to List of utilized test equipment)

TR06	CL31	

Test results - *Complied with requirement*

Test Data

Tested sample: A1
Configuration: 1

Operating mode 1: 11b 5.5Mbps (worst case of target power 13.0 dBm)

Tx 2412 MHz

Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

Note: All emissions have more than 20 dB margin.

Tx 2437 MHz

Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

Note: All emissions have more than 20 dB margin.

Tx 2462 MHz

Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

Note: All emissions have more than 20 dB margin.

Operating mode 2: 11b 1Mbps (worst case of target power 10.5 dBm)

Tx 2412 MHz

Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

Note: All emissions have more than 20 dB margin.

Tx 2437 MHz

Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

Note: All emissions have more than 20 dB margin.

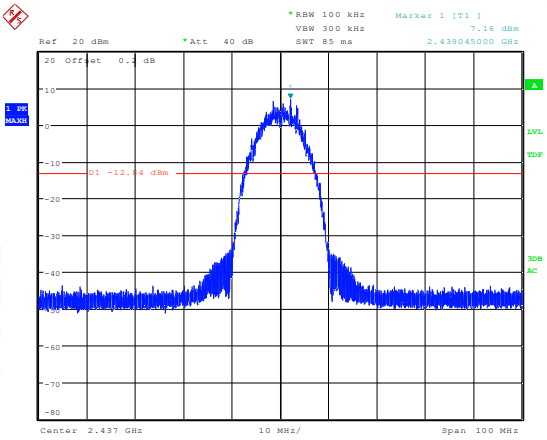
Tx 2462 MHz

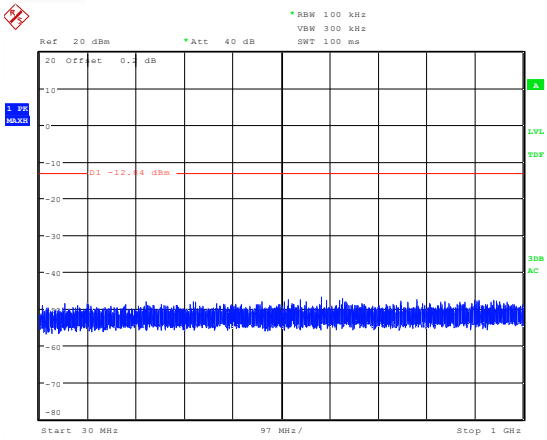
Frequency [MHz]	Spurious level [dBm]	Carrier level [dBm]	20dB below [dBm]
-	-	-	-
-	-	-	-

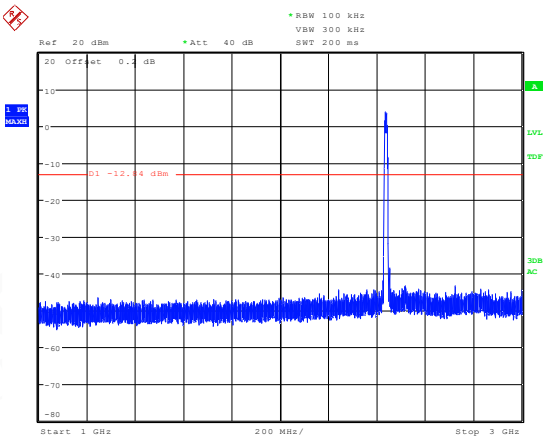
Note: All emissions have more than 20 dB margin.

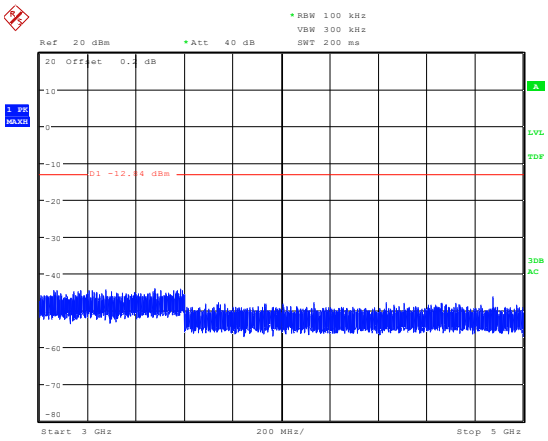
[Chart]

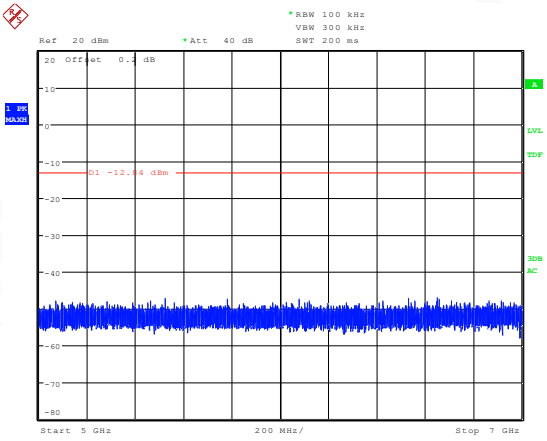
Operating mode: 11b 5.5Mbps 6ch (2437 MHz)

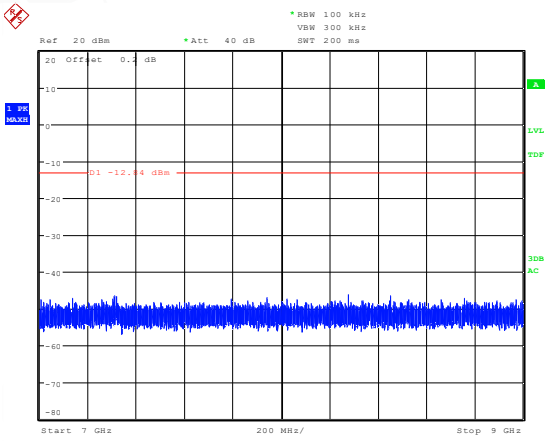


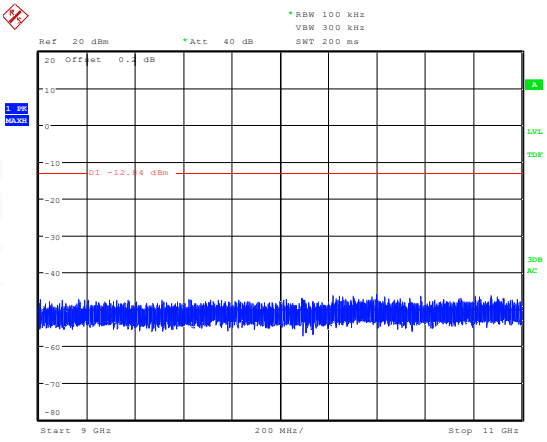


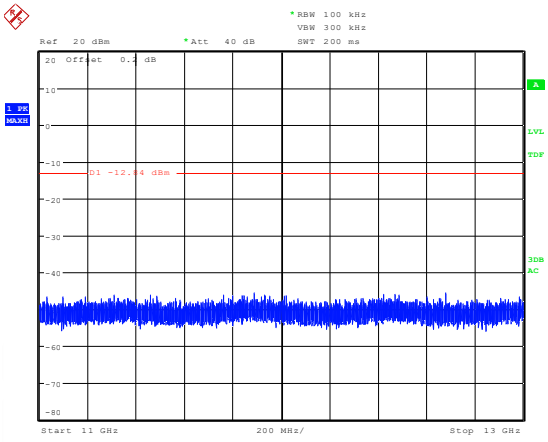


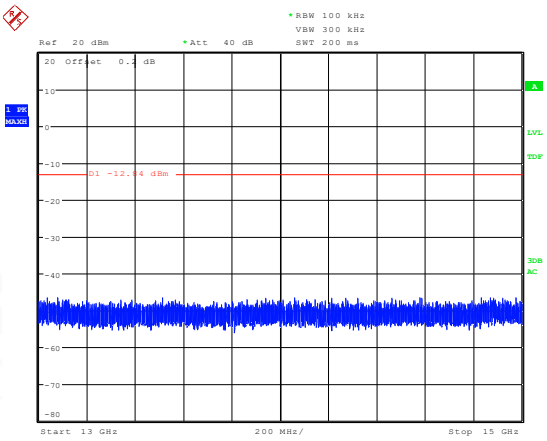


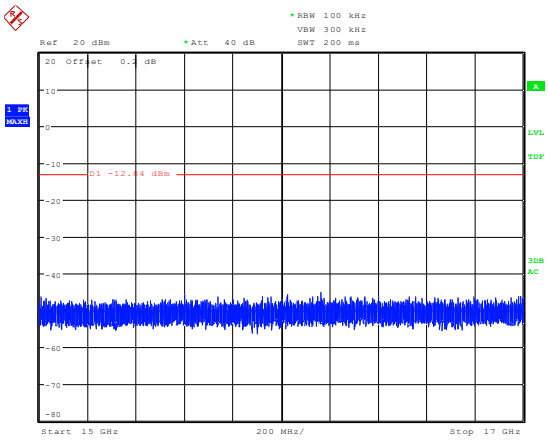


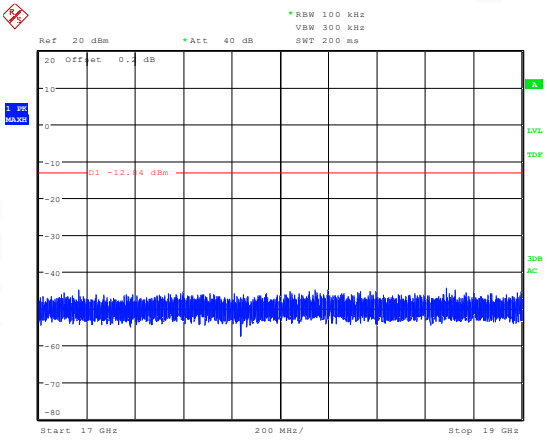


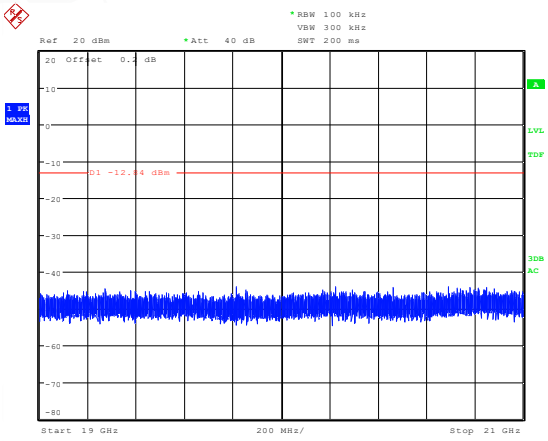


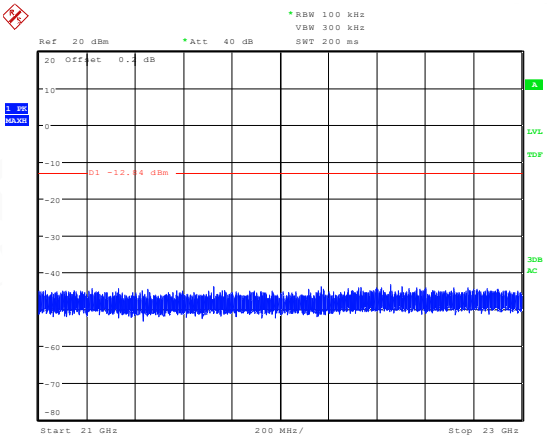


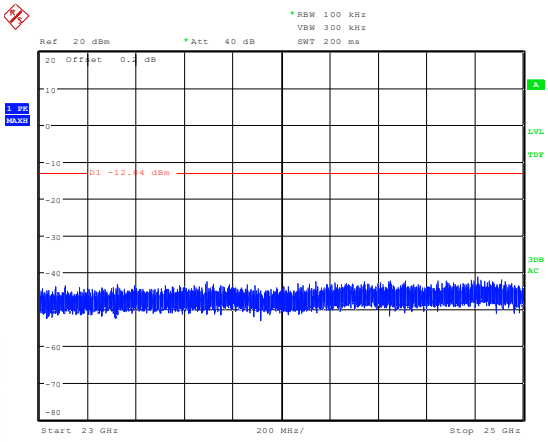






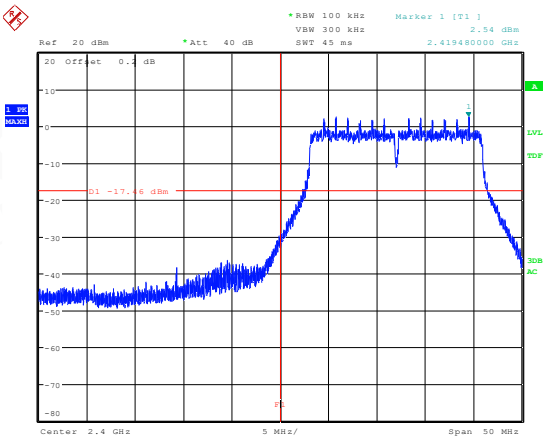


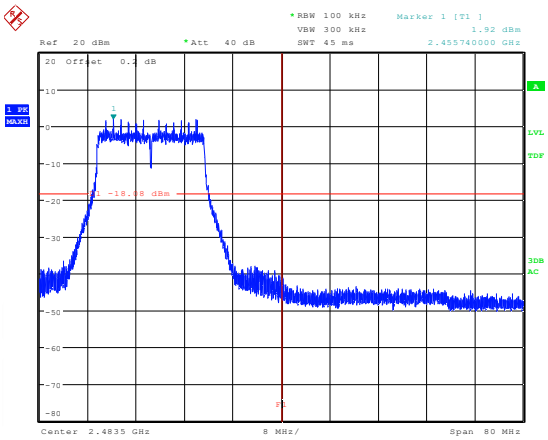




[Band edge]

Operating mode: 11n HT20 MCS0





[Day 1]

Tested Date:	01 Sep. 2020	Temperature:	25 degC
Humidity:	54 %	Atmos. Press:	1010 hPa

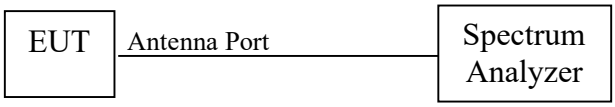
[Day 2]

Tested Date:	28 Sep. 2020	Temperature:	22 degC
Humidity:	70 %	Atmos. Press:	1017 hPa

2.5 Power Spectral density

Test setup

Test setup is the following drawing. The antenna port of EUT was connected to the spectrum analyzer.



Test procedure

Spectrum analyzer is set as below according to ANSI C63.10 clause 11.10

- RBW : 30 kHz
- VBW : 100 kHz
- Span > 1.5 x 6dB BW
- Detector : Peak
- Trace : Max hold

Limitation

FCC 15.247(e)
RSS-247 Sec. 5.2(b)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

Test equipment used (refer to List of utilized test equipment)

TR09	CL31	

Test results - *Complied with requirement*

Test Data

Tested sample: A1
Configuration: 1

Power Spectral Density in 30 kHz range [dBm]

Operating Mode	Operating Frequency		
	2412MHz	2437MHz	2462MHz
11b 1Mbps	-3.28	-3.15	***-2.81***
11b 2Mbps	-3.43	-3.15	-3.35
11b 5.5Mbps	***0.28***	-0.25	-0.37
11b 11Mbps	0.02	-0.20	-0.83
11g 6Mbps	-3.04	-3.91	-3.65
11g 9Mbps	-2.44	-3.50	-3.66
11g 12Mbps	-2.84	-3.18	-3.16
11g 18Mbps	-4.10	-4.09	-4.17
11g 24Mbps	-3.74	-3.88	-3.62
11g 36Mbps	-3.31	-3.98	-3.97
11g 48Mbps	-3.15	-3.73	-3.54
11g 54Mbps	-2.68	-3.34	-3.32
11n HT20 MCS0	-3.20	-3.63	-3.35
11n HT20 MCS1	-2.97	-4.73	-4.15
11n HT20 MCS2	-3.93	-3.97	-4.33
11n HT20 MCS3	-4.03	-3.90	-3.74
11n HT20 MCS4	-2.61	-3.90	-4.28
11n HT20 MCS5	-2.52	-3.83	-4.08
11n HT20 MCS6	-3.01	-3.34	-3.65
11n HT20 MCS7	-2.04	-3.24	-3.31

Note: 11b 5.5Mbps is maximum density for the target power 13.0 dBm (11b 5.5/11Mbps, 11g and 11n HT20).
So this mode is used for spurious emission testing as worst mode.

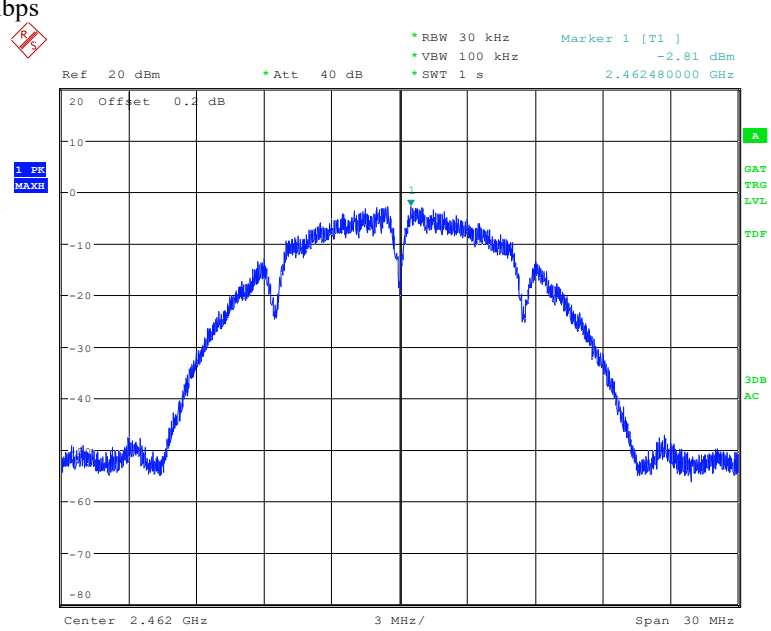
11b 1Mbps is maximum density for the target power 10.5 dBm (11b 1/2Mbps).
So this mode is used for spurious emission testing as worst mode.

[Day 1]
Tested Date: 04 Sep. 2020 Temperature: 25 degC
Humidity: 65 % Atmos. Press: 1014 hPa

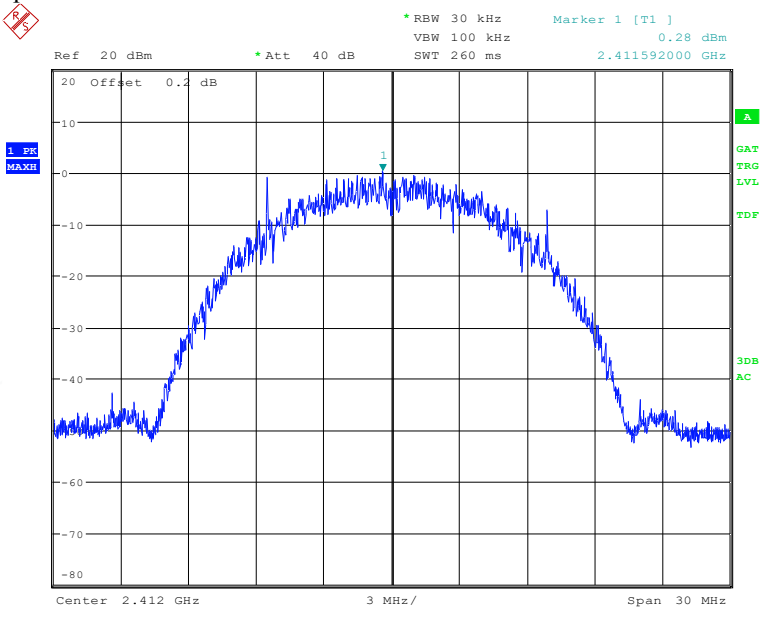
[Day 2]
Tested Date: 26 Sep. 2020 Temperature: 23 degC
Humidity: 71 % Atmos. Press: 1008 hPa

[Chart]

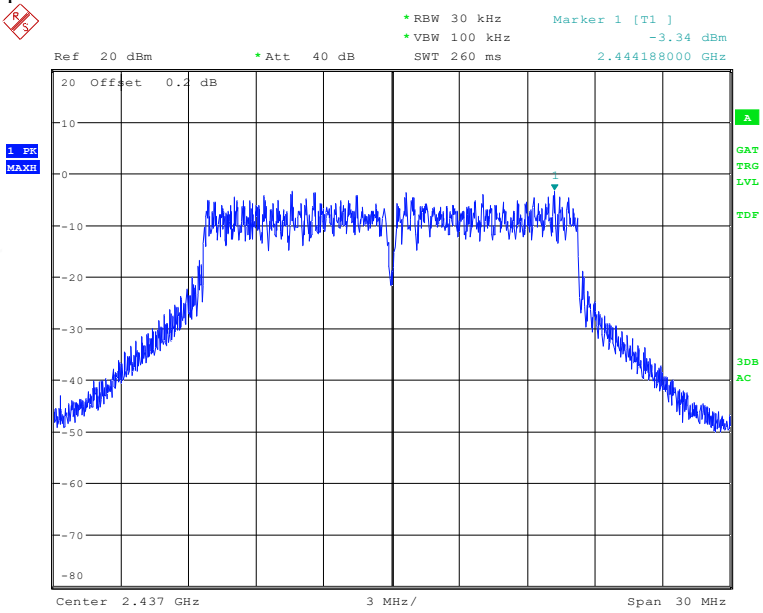
11b 11ch 1Mbps



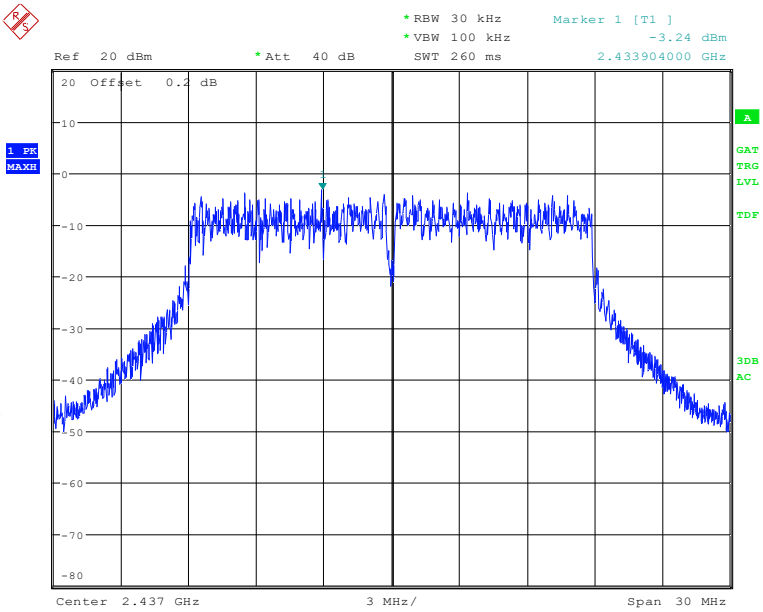
11b 1ch 5.5Mbps



11g 6ch 54Mbps



11n HT20 6ch MCS7



2.6 Radiated emissions (for restricted frequency band)

Test setup

Test setup was implemented according to the method of ANSI C63.10 clause 6 .

Test procedure

Measurement procedures were implemented according to the method of ANSI C63.10 clauses 6.
The test receiver is set as below

[9 - 150 kHz]
RBW: 200 Hz, Detector: QP

[150 kHz - 30 MHz]
RBW: 9 kHz, Detector: QP

[30 - 1000 MHz]
RBW: 120 kHz, Detector: QP

[above 1000 MHz]
RBW: 1 MHz, Detector: Ave/PK

Applicable rule and limitation

RSS-Gen Sec. 8.10
FCC 15.205 restricted bands of operation
Except as shown in paragraph 15.205 (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.490 - 0.510	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	38.6 -

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in FCC 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in FCC 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions.

FCC 15.209 / RSS-Gen Sec. 8.9 Field strength limits

Frequency [MHz]	Field Strength [µV/m]	Measurement Distance [m]	Field Strength [dBµV/m]
30 – 88	100	3	40.0
88 –216	150	3	43.5
216 – 960	200	3	46.0
Above 960	500	3	53.9

In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a quasi-peak detector.

Test results - *Complied with requirement*

Test equipment used (refer to List of utilized test equipment)

AC01	CL11	TR06	PR21	BA07	CL38	CL39	PR12
DH06	CH01	SH01	LP06	LPF1	HPF11	BRF11	CL31

Test software used

EMI1 Ver. 6.1

Calculation method

The Correction Factor and Result are calculated as followings.

Correction Factor [dB/m] = Ant. Factor [dB/m] + Loss [dB] – Gain [dB]
Result [dBµV/m] = Reading [dBµV] + Correction Factor [dB/m]

Test Data (below 1GHz)

Tested sample: *A3*
Configuration: *1*

Operating mode 1: 11b 5.5Mbps (worst case of target power 13.0 dBm)

Tx 2412MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.979	32.4	20.2	6.9	30.4	29.1	40.0	10.9	Vert.
2	76.502	48.3	7.9	7.5	30.3	33.4	40.0	6.6	Vert.
3	113.667	36.6	12.1	8.0	30.2	26.5	43.5	17.0	Vert.
4	150.762	37.3	11.7	8.3	30.2	27.1	43.5	16.4	Vert.
5	214.206	35.4	11.9	9.0	30.1	26.2	43.5	17.3	Vert.
6	725.367	27.3	19.2	12.2	30.2	28.5	46.0	17.5	Vert.

Tx 2412MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.947	29.0	20.2	6.9	30.4	25.7	40.0	14.3	Vert.
2	78.621	48.0	7.7	7.6	30.3	33.0	40.0	7.0	Vert.
3	115.775	36.9	12.3	8.0	30.2	27.0	43.5	16.5	Vert.
4	150.692	37.4	11.7	8.3	30.2	27.2	43.5	16.3	Vert.
5	220.529	34.1	12.1	9.0	30.1	25.1	46.0	20.9	Vert.
6	539.147	28.7	17.9	11.4	30.1	27.9	46.0	18.1	Vert.
7	655.185	28.2	18.8	11.9	30.2	28.7	46.0	17.3	Vert.

Tx 2412MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.957	32.2	20.2	6.9	30.4	28.9	40.0	11.1	Vert.
2	76.459	46.5	7.9	7.5	30.3	31.6	40.0	8.4	Vert.
3	113.595	37.0	12.1	8.0	30.2	26.9	43.5	16.6	Vert.
4	150.767	37.4	11.7	8.3	30.2	27.2	43.5	16.3	Vert.
5	214.087	35.3	11.9	9.0	30.1	26.1	43.5	17.4	Vert.
6	725.421	26.0	19.2	12.2	30.2	27.2	46.0	18.8	Vert.

Tx 2437MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.949	28.6	20.2	6.9	30.4	25.3	40.0	14.7	Vert.
2	76.466	45.6	7.9	7.5	30.3	30.7	40.0	9.3	Vert.
3	111.383	35.3	11.8	7.9	30.2	24.8	43.5	18.7	Vert.
4	152.888	35.6	11.5	8.3	30.2	25.2	43.5	18.3	Vert.
5	509.033	30.8	17.5	11.2	30.1	29.4	46.0	16.6	Vert.
6	727.167	29.8	19.2	12.2	30.2	31.0	46.0	15.0	Vert.

Tx 2437MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.956	30.1	20.2	6.9	30.4	26.8	40.0	13.2	Vert.
2	78.641	48.9	7.7	7.6	30.3	33.9	40.0	6.1	Vert.
3	113.603	37.7	12.1	8.0	30.2	27.6	43.5	15.9	Vert.
4	152.961	38.2	11.5	8.3	30.2	27.8	43.5	15.7	Vert.
5	214.174	35.7	11.9	9.0	30.1	26.5	43.5	17.0	Vert.
6	544.179	30.0	17.9	11.4	30.1	29.2	46.0	16.8	Vert.

Tx 2437MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.932	29.4	20.3	6.9	30.4	26.2	40.0	13.8	Vert.
2	76.447	46.2	7.9	7.5	30.3	31.3	40.0	8.7	Vert.
3	111.360	35.4	11.8	7.9	30.2	24.9	43.5	18.6	Vert.
4	152.846	35.5	11.5	8.3	30.2	25.1	43.5	18.4	Vert.
5	216.132	34.2	12.0	9.0	30.1	25.1	46.0	20.9	Vert.
6	508.837	28.5	17.5	11.2	30.1	27.1	46.0	18.9	Vert.
7	635.609	25.4	18.7	11.8	30.2	25.7	46.0	20.3	Vert.
8	731.336	27.3	19.3	12.3	30.2	28.7	46.0	17.3	Vert.

Tx 2462MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	956.064	21.1	21.0	13.5	28.6	27.0	46.0	19.0	Hori.
2	34.956	34.9	20.2	6.9	30.4	31.6	40.0	8.4	Vert.
3	78.645	42.3	7.7	7.6	30.3	27.3	40.0	12.7	Vert.
4	511.312	27.8	17.5	11.2	30.1	26.4	46.0	19.6	Vert.
5	524.467	29.0	17.7	11.3	30.1	27.9	46.0	18.1	Vert.
6	673.142	28.3	18.9	12.0	30.2	29.0	46.0	17.0	Vert.

Tx 2462MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.975	28.0	20.2	6.9	30.4	24.7	40.0	15.3	Vert.
2	76.486	43.3	7.9	7.5	30.3	28.4	40.0	11.6	Vert.
3	111.453	36.2	11.8	7.9	30.2	25.7	43.5	17.8	Vert.
4	150.791	35.4	11.7	8.3	30.2	25.2	43.5	18.3	Vert.
5	211.930	35.4	11.9	8.9	30.1	26.1	43.5	17.4	Vert.
6	751.706	28.5	19.5	12.4	30.2	30.2	46.0	15.8	Vert.

Tx 2462MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	65.206	22.6	9.6	7.4	30.3	9.3	40.0	30.7	Hori.
2	626.887	24.0	18.7	11.7	30.2	24.2	46.0	21.8	Hori.
3	34.956	34.6	20.2	6.9	30.4	31.3	40.0	8.7	Vert.
4	78.643	42.0	7.7	7.6	30.3	27.0	40.0	13.0	Vert.
5	211.916	34.6	11.9	8.9	30.1	25.3	43.5	18.2	Vert.
6	732.603	26.0	19.3	12.3	30.2	27.4	46.0	18.6	Vert.
7	785.941	25.1	19.8	12.5	30.0	27.4	46.0	18.6	Vert.

Operating mode 2: 11b 1Mbps (worst case of target power 10.5 dBm)

Tx 2412MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.946	28.9	20.2	6.9	30.4	25.6	40.0	14.4	Vert.
2	78.622	48.1	7.7	7.6	30.3	33.1	40.0	6.9	Vert.
3	115.774	36.8	12.3	8.0	30.2	26.9	43.5	16.6	Vert.
4	150.693	37.5	11.7	8.3	30.2	27.3	43.5	16.2	Vert.
5	220.528	34.0	12.1	9.0	30.1	25.0	46.0	21.0	Vert.
6	539.148	28.8	17.9	11.4	30.1	28.0	46.0	18.0	Vert.
7	655.184	28.1	18.8	11.9	30.2	28.6	46.0	17.4	Vert.

Tx 2412MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.958	32.3	20.2	6.9	30.4	29.0	40.0	11.0	Vert.
2	76.458	46.4	7.9	7.5	30.3	31.5	40.0	8.5	Vert.
3	113.596	37.1	12.1	8.0	30.2	27.0	43.5	16.5	Vert.
4	150.766	37.3	11.7	8.3	30.2	27.1	43.5	16.4	Vert.
5	214.088	35.4	11.9	9.0	30.1	26.2	43.5	17.3	Vert.
6	725.420	25.9	19.2	12.2	30.2	27.1	46.0	18.9	Vert.

Tx 2412MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.978	32.3	20.2	6.9	30.4	29.0	40.0	11.0	Vert.
2	76.503	48.4	7.9	7.5	30.3	33.5	40.0	6.5	Vert.
3	113.666	36.5	12.1	8.0	30.2	26.4	43.5	17.1	Vert.
4	150.763	37.4	11.7	8.3	30.2	27.2	43.5	16.3	Vert.
5	214.205	35.3	11.9	9.0	30.1	26.1	43.5	17.4	Vert.
6	725.368	27.4	19.2	12.2	30.2	28.6	46.0	17.4	Vert.

Tx 2437MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.937	29.2	20.2	6.9	30.4	25.9	40.0	14.1	Vert.
2	76.448	46.3	7.9	7.5	30.3	31.4	40.0	8.6	Vert.
3	111.358	35.2	11.8	7.9	30.2	24.7	43.5	18.8	Vert.
4	152.847	35.6	11.5	8.3	30.2	25.2	43.5	18.3	Vert.
5	216.130	34.0	12.0	9.0	30.1	24.9	46.0	21.1	Vert.
6	508.838	28.6	17.5	11.2	30.1	27.2	46.0	18.8	Vert.
7	635.607	25.2	18.7	11.8	30.2	25.5	46.0	20.5	Vert.
8	731.337	27.4	19.3	12.3	30.2	28.8	46.0	17.2	Vert.

Tx 2437MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.951	28.8	20.2	6.9	30.4	25.5	40.0	14.5	Vert.
2	76.465	45.5	7.9	7.5	30.3	30.6	40.0	9.4	Vert.
3	111.385	35.5	11.8	7.9	30.2	25.0	43.5	18.5	Vert.
4	152.887	35.5	11.5	8.3	30.2	25.1	43.5	18.4	Vert.
5	509.035	31.0	17.5	11.2	30.1	29.6	46.0	16.4	Vert.
6	727.166	29.7	19.2	12.2	30.2	30.9	46.0	15.1	Vert.

Tx 2437MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.957	30.2	20.2	6.9	30.4	26.9	40.0	13.1	Vert.
2	78.642	49.0	7.7	7.6	30.3	34.0	40.0	6.0	Vert.
3	113.604	37.8	12.1	8.0	30.2	27.7	43.5	15.8	Vert.
4	152.962	38.3	11.5	8.3	30.2	27.9	43.5	15.6	Vert.
5	214.175	35.8	11.9	9.0	30.1	26.6	43.5	16.9	Vert.
6	544.180	30.1	17.9	11.4	30.1	29.3	46.0	16.7	Vert.

Tx 2462MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	34.974	27.9	20.2	6.9	30.4	24.6	40.0	15.4	Vert.
2	76.485	43.2	7.9	7.5	30.3	28.3	40.0	11.7	Vert.
3	111.452	36.1	11.8	7.9	30.2	25.6	43.5	17.9	Vert.
4	150.790	35.3	11.7	8.3	30.2	25.1	43.5	18.4	Vert.
5	211.929	35.3	11.9	8.9	30.1	26.0	43.5	17.5	Vert.
6	751.705	28.4	19.5	12.4	30.2	30.1	46.0	15.9	Vert.

Tx 2462MHz Y-plane

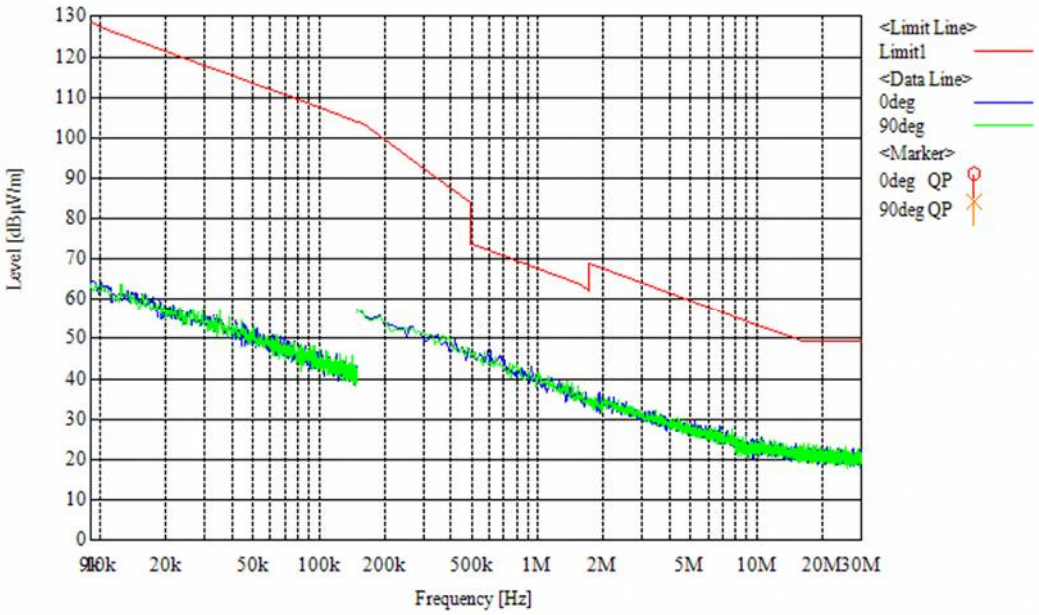
No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	65.207	22.7	9.6	7.4	30.3	9.4	40.0	30.6	Hori.
2	626.888	24.1	18.7	11.7	30.2	24.3	46.0	21.7	Hori.
3	34.957	34.7	20.2	6.9	30.4	31.4	40.0	8.6	Vert.
4	78.644	42.1	7.7	7.6	30.3	27.1	40.0	12.9	Vert.
5	211.917	34.7	11.9	8.9	30.1	25.4	43.5	18.1	Vert.
6	732.604	26.1	19.3	12.3	30.2	27.5	46.0	18.5	Vert.
7	785.942	25.2	19.8	12.5	30.0	27.5	46.0	18.5	Vert.

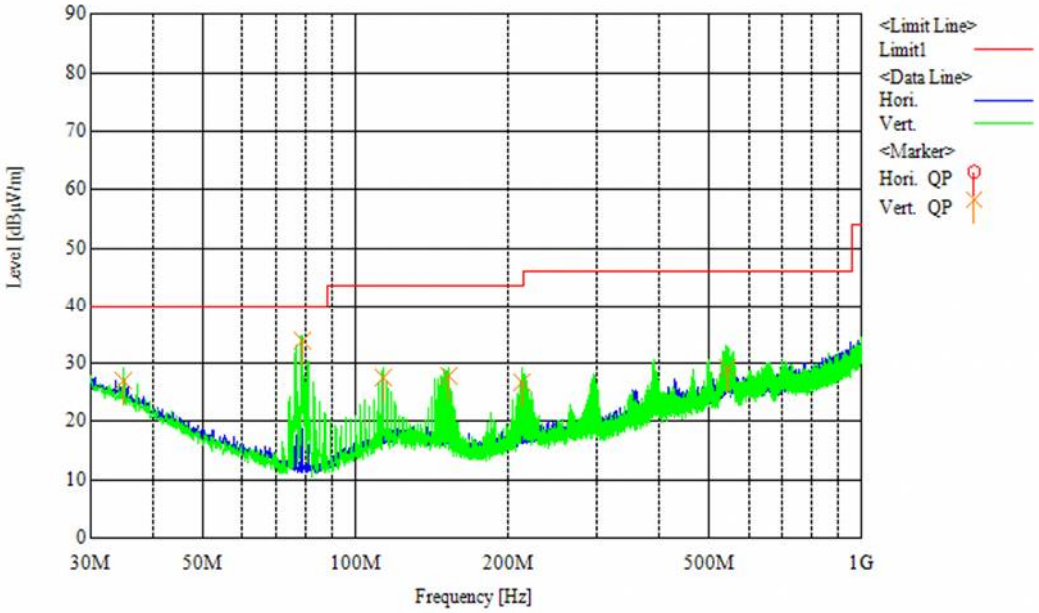
Tx 2462MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	956.063	21.0	21.0	13.5	28.6	26.9	46.0	19.1	Hori.
2	34.957	35.0	20.2	6.9	30.4	31.7	40.0	8.3	Vert.
3	78.644	42.2	7.7	7.6	30.3	27.2	40.0	12.8	Vert.
4	511.313	27.9	17.5	11.2	30.1	26.5	46.0	19.5	Vert.
5	524.466	28.9	17.7	11.3	30.1	27.8	46.0	18.2	Vert.
6	673.143	28.4	18.9	12.0	30.2	29.1	46.0	16.9	Vert.

[Chart (Worst)]

Operating mode: Tx 2437MHz 11b 1Mbps Z-plane





Test Data (Above 1000MHz)

Tested sample: *A3*
Configuration: *1*

Operating mode 1: 11b 5.5Mbps (worst case of target power 13.0 dBm)

Tx 2412MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2333.247	49.0	36.6	4.2	53.2	41.3	73.9	53.9	20.7	12.6	Hori.
2	2491.563	49.7	38.5	5.5	55.2	44.5	73.9	53.9	18.7	9.4	Hori.
3	4824.000	55.1	38.6	2.3	57.4	41.4	73.9	53.9	16.5	12.5	Hori.
4	4824.000	49.8	33.6	2.3	52.1	36.4	73.9	53.9	21.8	17.5	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2412MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2332.387	48.6	36.4	4.2	52.8	41.1	73.9	53.9	21.1	12.8	Hori.
2	2491.843	50.4	38.9	5.5	55.9	44.9	73.9	53.9	18.0	9.0	Hori.
3	4824.000	53.9	37.5	2.3	56.2	40.3	73.9	53.9	17.7	13.6	Hori.
4	2491.923	49.8	38.6	5.5	55.3	44.6	73.9	53.9	18.6	9.3	Vert.
5	4824.000	55.2	38.6	2.3	57.5	41.4	73.9	53.9	16.4	12.5	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2412MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4824.000	52.4	36.3	2.3	54.7	39.1	73.9	53.9	19.2	14.8	Hori.
2	2332.707	48.1	35.9	4.2	52.3	40.6	73.9	53.9	21.6	13.3	Vert.
3	2491.843	52.3	40.9	5.5	57.8	46.9	73.9	53.9	16.1	7.0	Vert.
4	4824.000	55.9	39.8	2.3	58.2	42.6	73.9	53.9	15.7	11.3	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2437MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2356.937	49.2	37.8	4.4	53.6	42.7	73.9	53.9	20.3	11.2	Hori.
2	4874.000	53.7	37.3	2.5	56.2	40.3	73.9	53.9	17.7	13.6	Hori.
3	7310.119	48.2	32.4	6.7	54.9	39.6	73.9	53.9	19.0	14.3	Hori.
4	4874.000	49.2	32.8	2.5	51.7	35.8	73.9	53.9	22.2	18.1	Vert.
5	7310.119	47.2	31.5	6.7	53.9	38.7	73.9	53.9	20.0	15.2	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2437MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2357.097	49.5	37.8	4.4	53.9	42.7	73.9	53.9	20.0	11.2	Hori.
2	4874.000	53.2	36.8	2.5	55.7	39.8	73.9	53.9	18.2	14.1	Hori.
3	7311.669	49.4	33.3	6.7	56.1	40.5	73.9	53.9	17.8	13.4	Hori.
4	4874.000	55.2	38.9	2.5	57.7	41.9	73.9	53.9	16.2	12.0	Vert.
5	7311.669	45.7	30.2	6.7	52.4	37.4	73.9	53.9	21.5	16.5	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2437MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4874.000	54.3	37.8	2.5	56.8	40.8	73.9	53.9	17.1	13.1	Hori.
2	7310.119	49.7	33.4	6.7	56.4	40.6	73.9	53.9	17.5	13.3	Hori.
3	2357.017	50.2	38.5	4.4	54.6	43.4	73.9	53.9	19.3	10.5	Vert.
4	4874.000	55.2	38.9	2.5	57.7	41.9	73.9	53.9	16.2	12.0	Vert.
5	7310.119	50.1	33.7	6.7	56.8	40.9	73.9	53.9	17.1	13.0	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2462MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2382.047	50.4	38.7	4.6	55.0	43.8	73.9	53.9	18.9	10.1	Hori.
2	4924.000	55.1	38.5	2.7	57.8	41.7	73.9	53.9	16.1	12.2	Hori.
3	7386.661	48.7	32.6	6.5	55.2	39.6	73.9	53.9	18.7	14.3	Hori.
4	4924.000	49.5	33.1	2.7	52.2	36.3	73.9	53.9	21.7	17.6	Vert.
5	7386.661	48.1	32.2	6.5	54.6	39.2	73.9	53.9	19.3	14.7	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2462MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2382.127	51.9	40.1	4.6	56.5	45.2	73.9	53.9	17.4	8.7	Hori.
2	4924.000	53.9	37.4	2.7	56.6	40.6	73.9	53.9	17.3	13.3	Hori.
3	7385.161	49.4	33.4	6.5	55.9	40.4	73.9	53.9	18.0	13.5	Hori.
4	2381.967	49.8	38.3	4.6	54.4	43.4	73.9	53.9	19.5	10.5	Vert.
5	4924.000	55.0	38.6	2.7	57.7	41.8	73.9	53.9	16.2	12.1	Vert.
6	7385.161	47.0	31.0	6.5	53.5	38.0	73.9	53.9	20.4	15.9	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Tx 2462MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4924.000	53.4	36.8	2.7	56.1	40.0	73.9	53.9	17.8	13.9	Hori.
2	7386.711	48.9	32.8	6.5	55.4	39.8	73.9	53.9	18.5	14.1	Hori.
3	2381.807	51.2	40.6	4.6	55.8	45.7	73.9	53.9	18.1	8.2	Vert.
4	4924.000	53.8	37.4	2.7	56.5	40.6	73.9	53.9	17.4	13.3	Vert.
5	7386.711	49.5	33.3	6.5	56.0	40.3	73.9	53.9	17.9	13.6	Vert.

Note: All emissions are under noise floor.
Note: 0.5 dB was added to the average result as the duty cycle correction (94.6%).

Operating mode 2: 11b 1Mbps (worst case of target power 10.5 dBm)

Tx 2412MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2332.947	47.3	36.4	4.2	51.5	40.6	73.9	53.9	22.4	13.3	Hori.
2	2490.964	47.6	36.8	5.5	53.1	42.3	73.9	53.9	20.8	11.6	Hori.
3	4824.000	51.7	48.7	2.3	54.0	51.0	73.9	53.9	19.9	2.9	Hori.
4	4824.000	48.3	43.9	2.3	50.6	46.2	73.9	53.9	23.3	7.7	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2412MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2332.707	47.6	36.8	4.2	51.8	41.0	73.9	53.9	22.1	12.9	Hori.
2	2492.883	48.0	37.6	5.6	53.6	43.2	73.9	53.9	20.3	10.7	Hori.
3	4824.000	50.4	47.2	2.3	52.7	49.5	73.9	53.9	21.2	4.4	Hori.
4	4824.000	52.1	49.3	2.3	54.4	51.6	73.9	53.9	19.5	2.3	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2412MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4824.000	49.3	45.3	2.3	51.6	47.6	73.9	53.9	22.3	6.3	Hori.
2	2332.707	47.2	36.2	4.2	51.4	40.4	73.9	53.9	22.5	13.5	Vert.
3	2492.723	48.7	38.6	5.6	54.3	44.2	73.9	53.9	19.6	9.7	Vert.
4	4824.000	52.0	48.9	2.3	54.3	51.2	73.9	53.9	19.6	2.7	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2437MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2357.737	48.6	37.8	4.4	53.0	42.2	73.9	53.9	20.9	11.7	Hori.
2	4874.000	50.4	47.1	2.5	52.9	49.6	73.9	53.9	21.0	4.3	Hori.
3	7310.219	44.8	37.3	6.7	51.5	44.0	73.9	53.9	22.4	9.9	Hori.
4	4874.000	46.7	40.9	2.5	49.2	43.4	73.9	53.9	24.7	10.5	Vert.
5	7310.219	43.7	35.2	6.7	50.4	41.9	73.9	53.9	23.5	12.0	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2437MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2357.657	47.8	37.4	4.4	52.2	41.8	73.9	53.9	21.7	12.1	Hori.
2	4874.000	49.4	45.4	2.5	51.9	47.9	73.9	53.9	22.0	6.0	Hori.
3	7311.669	45.3	37.8	6.7	52.0	44.5	73.9	53.9	21.9	9.4	Hori.
4	4874.000	51.5	48.3	2.5	54.0	50.8	73.9	53.9	19.9	3.1	Vert.
5	7311.669	42.8	33.2	6.7	49.5	39.9	73.9	53.9	24.4	14.0	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2437MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4874.000	50.5	47.3	2.5	53.0	49.8	73.9	53.9	20.9	4.1	Hori.
2	7310.119	45.0	37.8	6.7	51.7	44.5	73.9	53.9	22.2	9.4	Hori.
3	2357.817	48.2	38.5	4.4	52.6	42.9	73.9	53.9	21.3	11.0	Vert.
4	4874.000	51.0	47.5	2.5	53.5	50.0	73.9	53.9	20.4	3.9	Vert.
5	7310.119	46.0	38.3	6.7	52.7	45.0	73.9	53.9	21.2	8.9	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2462MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2382.687	47.8	36.9	4.6	52.4	41.5	73.9	53.9	21.5	12.4	Hori.
2	4924.000	50.3	47.1	2.7	53.0	49.8	73.9	53.9	20.9	4.1	Hori.
3	7385.111	44.3	36.5	6.5	50.8	43.0	73.9	53.9	23.1	10.9	Hori.
4	4924.000	46.9	41.7	2.7	49.6	44.4	73.9	53.9	24.3	9.5	Vert.
5	7385.111	44.2	35.4	6.5	50.7	41.9	73.9	53.9	23.2	12.0	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

Tx 2462MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2382.687	48.3	37.7	4.6	52.9	42.3	73.9	53.9	21.0	11.6	Hori.
2	4924.000	49.9	46.2	2.7	52.6	48.9	73.9	53.9	21.3	5.0	Hori.
3	7386.461	45.6	36.8	6.5	52.1	43.3	73.9	53.9	21.8	10.6	Hori.
4	2382.767	47.0	35.7	4.6	51.6	40.3	73.9	53.9	22.3	13.6	Vert.
5	4924.000	50.0	46.6	2.7	52.7	49.3	73.9	53.9	21.2	4.6	Vert.
6	7386.461	44.1	34.5	6.5	50.6	41.0	73.9	53.9	23.3	12.9	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

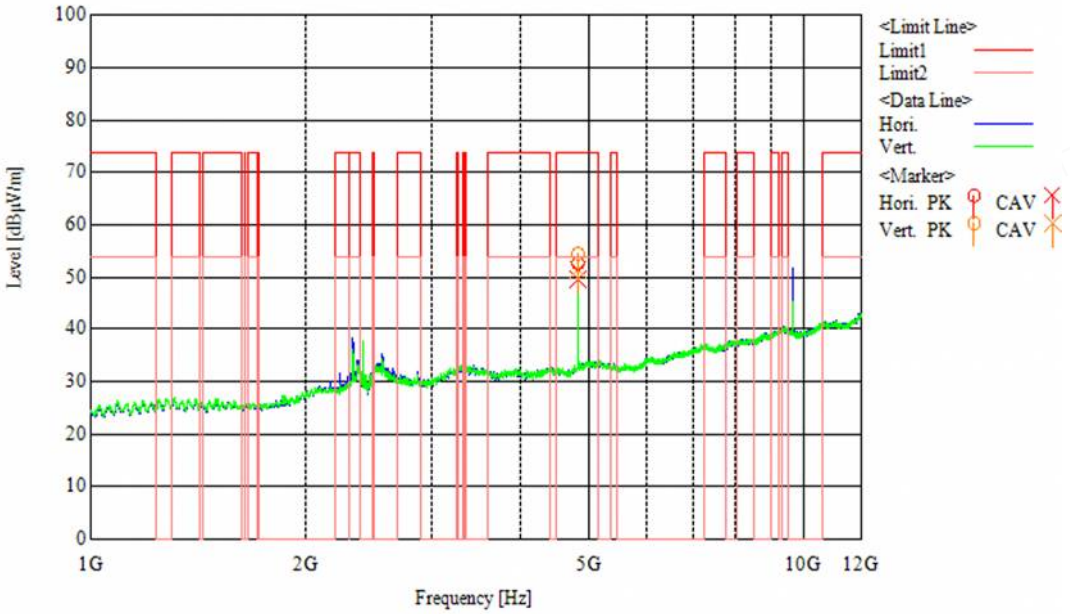
Tx 2462MHz Z-plane

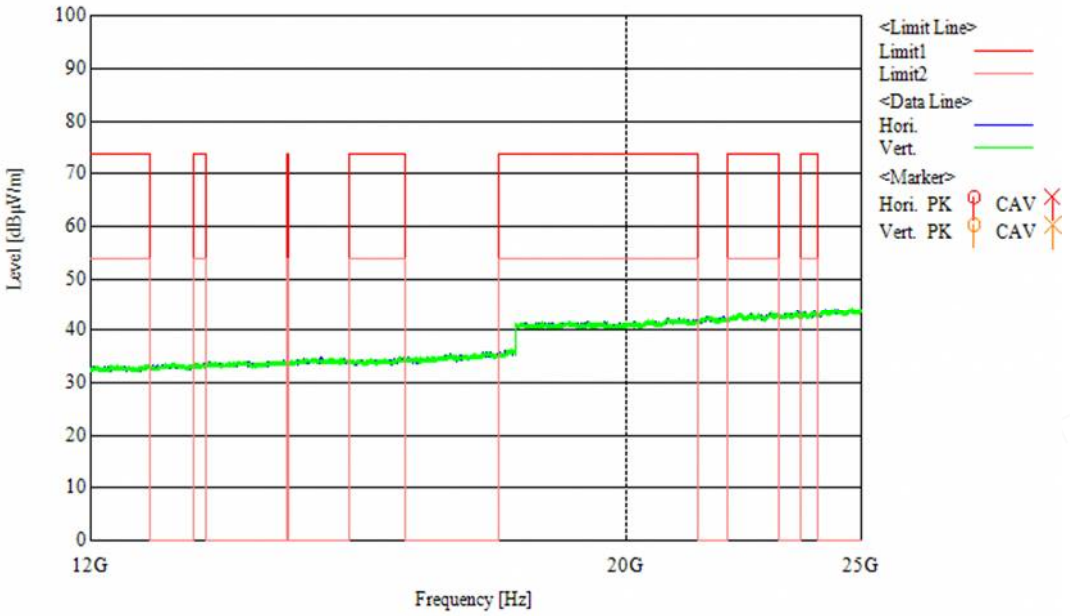
No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	4924.000	50.1	46.3	2.7	52.8	49.0	73.9	53.9	21.1	4.9	Hori.
2	7386.461	45.2	36.6	6.5	51.7	43.1	73.9	53.9	22.2	10.8	Hori.
3	2382.687	48.3	38.2	4.6	52.9	42.8	73.9	53.9	21.0	11.1	Vert.
4	4924.000	49.1	45.3	2.7	51.8	48.0	73.9	53.9	22.1	5.9	Vert.
5	7386.461	46.1	37.9	6.5	52.6	44.4	73.9	53.9	21.3	9.5	Vert.

Note: All emissions are under noise floor.
Note: No duty cycle correction was applied (Duty cycle: 98.7%).

[Chart (Worst)]

Operating mode: Tx 2412MHz 11b 1Mbps Y-plane





Restricted bandedge measurement

Tested sample: A3
Configuration: 1

Operating mode: 11n HT20 MCS0 (Widest bandwidth mode)

Tx 2412MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2380.050	57.3	40.1	4.5	61.8	45.2	73.9	53.9	12.1	8.7	Hori.
2	2390.000	60.9	40.7	4.6	65.5	45.9	73.9	53.9	8.4	8.0	Hori.

Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

Tx 2412MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2379.995	58.0	40.2	4.5	62.5	45.3	73.9	53.9	11.4	8.6	Hori.
2	2390.000	61.9	41.1	4.6	66.5	46.3	73.9	53.9	7.4	7.6	Hori.

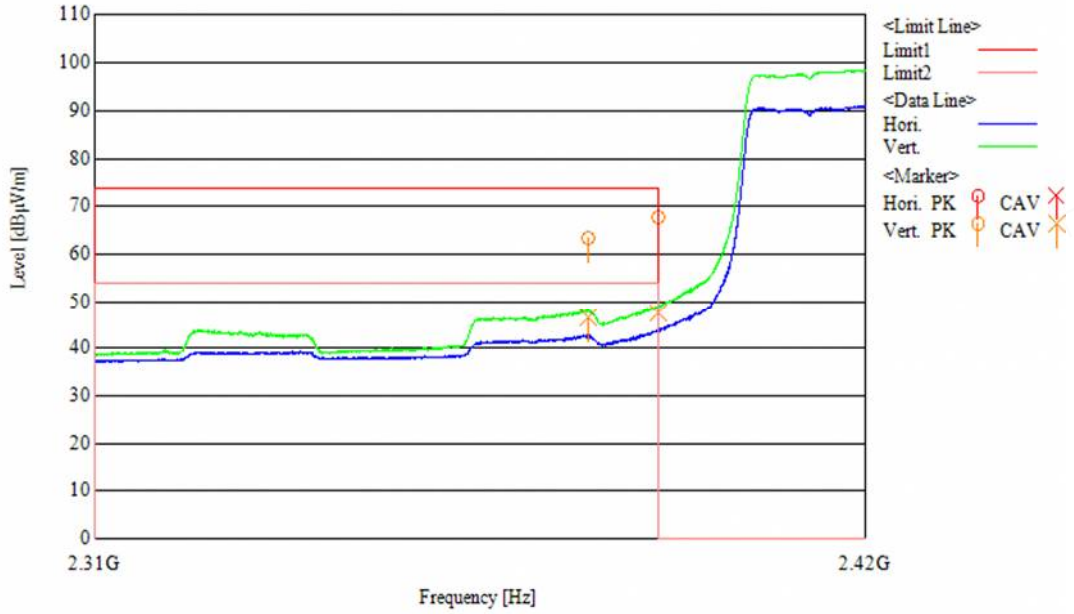
Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

Tx 2412MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2379.975	58.9	41.4	4.5	63.4	46.5	73.9	53.9	10.5	7.4	Vert.
2	2390.000	63.2	42.2	4.6	67.8	47.4	73.9	53.9	6.1	6.5	Vert.

Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

[Chart (Z-plane)]



Tx 2462MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2483.500	61.9	41.8	5.5	67.4	47.9	73.9	53.9	6.5	6.0	Hori.
2	2493.697	57.4	40.4	5.6	63.0	46.6	73.9	53.9	10.9	7.3	Hori.

Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

Tx 2462MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2483.500	67.5	44.1	5.5	73.0	50.2	73.9	53.9	0.9	3.7	Hori.
2	2493.997	62.2	41.6	5.6	67.8	47.8	73.9	53.9	6.1	6.1	Hori.

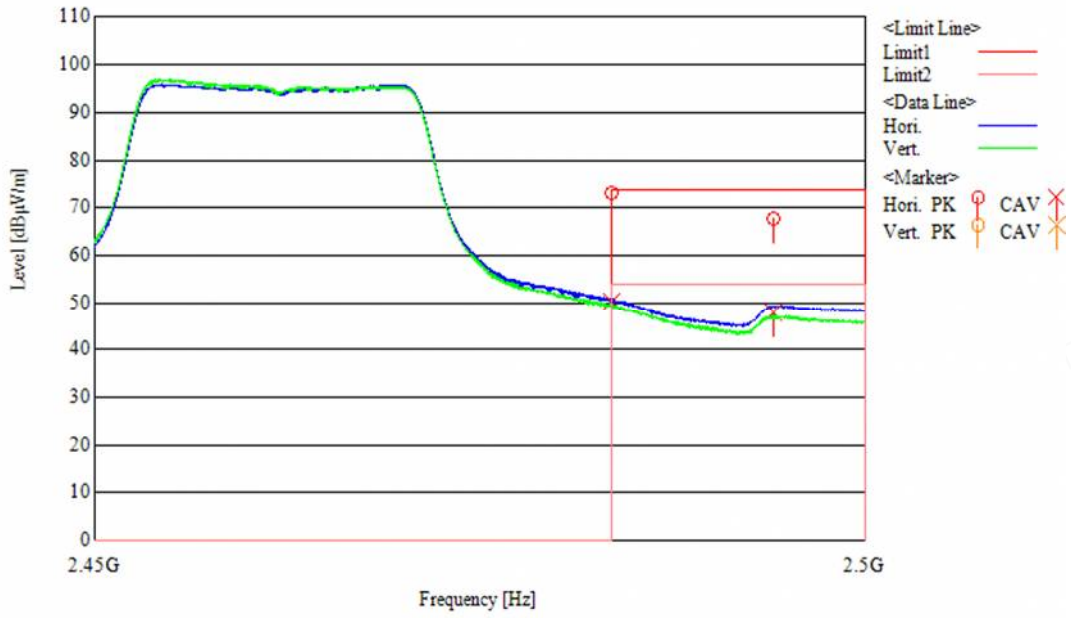
Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

Tx 2462MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	2483.500	65.9	45.2	5.5	71.4	51.3	73.9	53.9	2.5	2.6	Vert.
2	2493.772	60.9	43.8	5.6	66.5	50.0	73.9	53.9	7.4	3.9	Vert.

Note: 0.6 dB was added to the average result as the duty cycle correction (93.0%).

[Chart (Y-plane)]



[Test Day1]

Tested Date:	28 Sep. 2020	Temperature:	22 degC
Humidity:	70 %	Atmos. Press:	1017 hPa

[Test Day2]

Tested Date:	30 Sep. 2020	Temperature:	22 degC
Humidity:	55 %	Atmos. Press:	1010 hPa

[Test Day3]

Tested Date:	05 Oct. 2020	Temperature:	23 degC
Humidity:	53 %	Atmos. Press:	1008 hPa

2.7 AC power line conducted emissions

Test setup

Test setup was implemented according to the method of ANSI C63.10 clause 6.2 .

Test procedure

Measurement procedures were implemented according to the method of ANSI C63.10 clause 6.2.

Applicable rule and limitation

FCC 15.207
RSS-Gen Sec. 8.8

AC power line conducted emissions limits

Frequency of Emission [MHz]	Conducted emissions Limit [dBµV]	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency. The lower limit applies at the band edges.

Test equipment used (refer to List of utilized test equipment)

TR09	CL18	LN05

Test software used

EMI Ver. 6.1

Calculation method

The Correction Factor and Result are calculated as followings.

Correction Factor [dB] = ISN Factor [dB] + Loss [dB]
Result [dBµV] = Reading [dBµV] + Correction Factor [dB]

Test results - *Complied with requirement*

Test Data

Tested sample: *A3*
Configuration: *2*

Operating mode 1: 11b 5.5Mbps (worst case of target power 13.0 dBm)

Tx 2412 MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.16054	24.7	8.2	10.2	34.9	18.4	65.4	55.4	30.5	37.0	Va
2	0.19504	29.6	19.9	10.1	39.7	30.0	63.8	53.8	24.1	23.8	Va
3	0.27611	25.3	8.1	10.1	35.4	18.2	60.9	50.9	25.5	32.7	Va
4	0.47633	28.1	11.7	10.0	38.1	21.7	56.4	46.4	18.3	24.7	Va
5	0.48976	27.1	9.8	10.0	37.1	19.8	56.2	46.2	19.1	26.4	Va
6	0.19963	30.1	12.5	10.2	40.3	22.7	63.6	53.6	23.3	30.9	Vb
7	0.27509	24.8	7.2	10.1	34.9	17.3	61.0	51.0	26.1	33.7	Vb
8	0.46444	27.4	12.3	10.1	37.5	22.4	56.6	46.6	19.1	24.2	Vb
9	0.47939	26.6	10.2	10.1	36.7	20.3	56.3	46.3	19.6	26.0	Vb

Tx 2437 MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.19946	29.3	12.7	10.1	39.4	22.8	63.6	53.6	24.2	30.8	Va
2	0.20966	25.5	6.9	10.1	35.6	17.0	63.2	53.2	27.6	36.2	Va
3	0.27238	25.5	8.5	10.1	35.6	18.6	61.0	51.0	25.4	32.4	Va
4	0.39985	26.5	10.5	10.1	36.6	20.6	57.9	47.9	21.3	27.3	Va
5	0.48228	27.8	11.2	10.0	37.8	21.2	56.3	46.3	18.5	25.1	Va
6	0.19963	29.2	12.3	10.2	39.4	22.5	63.6	53.6	24.2	31.1	Vb
7	0.26099	24.2	10.9	10.1	34.3	21.0	61.4	51.4	27.1	30.4	Vb
8	0.48670	26.3	9.4	10.1	36.4	19.5	56.2	46.2	19.8	26.7	Vb

Tx 2462 MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.15187	25.7	6.1	10.2	35.9	16.3	65.9	55.9	30.0	39.6	Va
2	0.19504	29.8	19.6	10.1	39.9	29.7	63.8	53.8	23.9	24.1	Va
3	0.20592	28.9	9.6	10.1	39.0	19.7	63.4	53.4	24.4	33.7	Va
4	0.47396	28.2	12.0	10.0	38.2	22.0	56.4	46.4	18.2	24.4	Va
5	0.19844	28.7	13.5	10.2	38.9	23.7	63.7	53.7	24.8	30.0	Vb
6	0.46818	27.6	11.5	10.1	37.7	21.6	56.5	46.5	18.8	24.9	Vb
7	0.48398	26.3	9.7	10.1	36.4	19.8	56.3	46.3	19.9	26.5	Vb
8	18.81424	18.9	9.9	10.5	29.4	20.4	60.0	50.0	30.6	29.6	Vb

Operating mode 2: 11b 1Mbps (worst case of target power 10.5 dBm)

Tx 2412 MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.19487	30.5	13.3	10.1	40.6	23.4	63.8	53.8	23.2	30.4	Va
2	0.27934	26.7	9.0	10.1	36.8	19.1	60.8	50.8	24.0	31.7	Va
3	0.47413	28.1	11.7	10.0	38.1	21.7	56.4	46.4	18.3	24.7	Va
4	0.19674	30.2	13.0	10.2	40.4	23.2	63.7	53.7	23.3	30.5	Vb
5	0.26881	28.3	12.0	10.1	38.4	22.1	61.2	51.2	22.8	29.1	Vb
6	0.40308	29.1	12.8	10.1	39.2	22.9	57.8	47.8	18.6	24.9	Vb
7	0.46818	29.4	13.3	10.1	39.5	23.4	56.5	46.5	17.0	23.1	Vb

Tx 2437 MHz

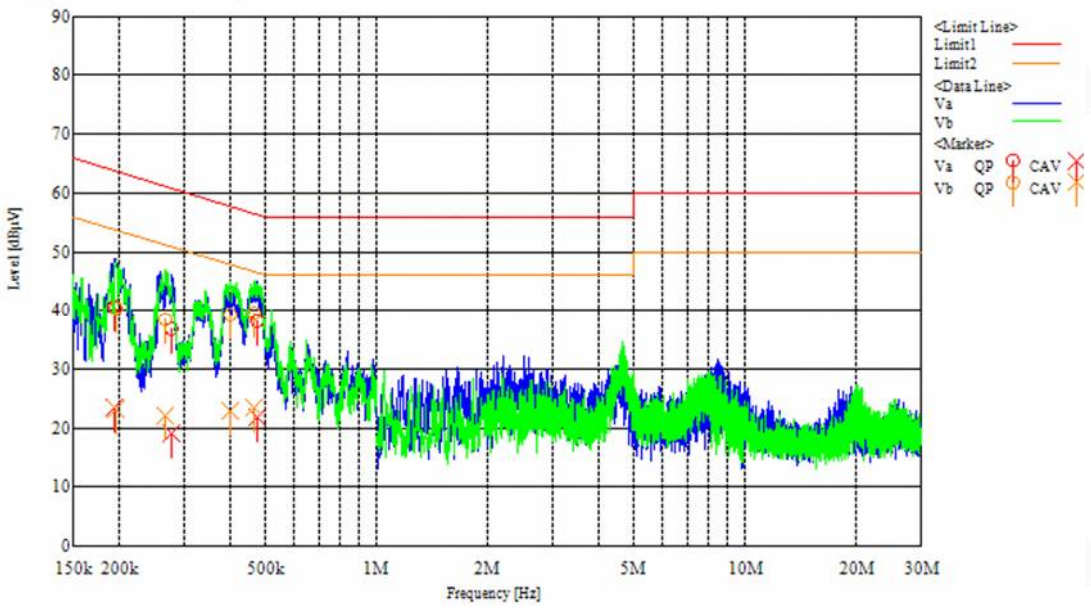
	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.20728	29.3	11.6	10.1	39.4	21.7	63.3	53.3	23.9	31.6	Va
2	0.27883	27.1	9.2	10.1	37.2	19.3	60.9	50.9	23.7	31.6	Va
3	0.48585	27.7	10.4	10.0	37.7	20.4	56.2	46.2	18.5	25.8	Va
4	0.17142	21.2	11.2	10.2	31.4	21.4	64.9	54.9	33.5	33.5	Vb
5	0.20286	29.9	12.9	10.2	40.1	23.1	63.5	53.5	23.4	30.4	Vb
6	0.27747	27.7	9.8	10.1	37.8	19.9	60.9	50.9	23.1	31.0	Vb
7	0.40240	29.1	12.7	10.1	39.2	22.8	57.8	47.8	18.6	25.0	Vb
8	0.48619	28.6	11.1	10.1	38.7	21.2	56.2	46.2	17.5	25.0	Vb

Tx 2462 MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.20014	31.0	14.7	10.1	41.1	24.8	63.6	53.6	22.5	28.8	Va
2	0.27594	28.2	10.7	10.1	38.3	20.8	60.9	50.9	22.6	30.1	Va
3	0.47531	28.2	11.7	10.0	38.2	21.7	56.4	46.4	18.2	24.7	Va
4	0.19555	29.4	12.2	10.2	39.6	22.4	63.8	53.8	24.2	31.4	Vb
5	0.26796	28.0	11.8	10.1	38.1	21.9	61.2	51.2	23.1	29.3	Vb
6	0.42144	26.6	10.7	10.1	36.7	20.8	57.4	47.4	20.7	26.6	Vb
7	0.48279	28.5	11.7	10.1	38.6	21.8	56.3	46.3	17.7	24.5	Vb

[Chart]

Operating mode: 11b 1Mbps 2412MHz



Tested Date: 06 Oct. 2020 Temperature: 25 degC
Humidity: 44 % Atmos. Press: 1016 hPa

2.8 Radiated emissions (Receiver)

Test setup

Test setup was implemented according to the method of ANSI C63.4 clause 6 “General requirements for EUT equipment arrangements and operation”, clause 8.2 and Annex H.3 “Radiated emission measurements setup”.

Test procedure

Measurement procedures were implemented according to the method of ANSI C63.4 clauses 8.2.
The EUT is place on a non-conducted table which is 0.8 m height from a ground plane and the measurement antenna to EUT distance is 3 meters. The turn table is rotated for 360 degrees to determine the maximum emission level.
The antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.
The spectrum analyzer and receiver are set to the followings;

RBW=100 kHz (up to 1000 MHz) or 1 MHz (above 1000 MHz) ,
VBW= 300 kHz (up to 1000 MHz) or 3 MHz (above 1000 MHz)
Final measurement is carried out with a receiver RBW of 120 kHz (up to 1000 MHz), or 1 MHz (above 1000 MHz).

Applicable rule and limitation

RSS-Gen Sec.7.3 Radiated emissions limits

Frequency [MHz]	Field Strength [µV/m]	Measurement Distance [m]	Field Strength [dBµV/m]
30 – 88	100	3	40.0
88 –216	150	3	43.5
216 – 960	200	3	46.0
Above 960	500	3	53.9

In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a QP detector (up to 1000 MHz) or AVE/PEAK detector (above 1000 MHz).

Test results - *Complied with requirement*

Test equipment used (refer to List of utilized test equipment)

AC01	TR06	CL11	PR12	BA07	CL38	CL39	PR12
DH06							

Test software used

EMI1 Ver. 6.1

Calculation method

The Correction Factor and Result are calculated as followings.

Correction Factor [dB/m] = Ant. Factor [dB/m] + Loss [dB] – Gain [dB]
Result [dBµV/m] = Reading [dBµV] + Correction Factor [dB/m]

Test Data (below 1GHz)

Tested sample: *A2*
Configuration: *1*

Operating mode: *Rx 2412MHz X-plane*

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	39.2	7.5	7.6	30.3	24.0	40.0	16.0	Vert.
2	476.543	23.7	17.1	11.1	30.2	21.7	46.0	24.3	Vert.
3	542.594	24.2	17.9	11.4	30.1	23.4	46.0	22.6	Vert.
4	567.132	24.3	18.2	11.5	30.1	23.9	46.0	22.1	Vert.
5	888.170	21.2	20.5	13.1	29.4	25.4	46.0	20.6	Vert.
6	960.000	20.9	21.1	13.6	28.6	27.0	46.0	19.0	Vert.

Operating mode: *Rx 2412MHz Y-plane*

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	41.4	7.5	7.6	30.3	26.2	40.0	13.8	Vert.
2	559.082	23.8	18.1	11.4	30.1	23.2	46.0	22.8	Vert.
3	677.895	25.1	18.9	12.0	30.2	25.8	46.0	20.2	Vert.
4	726.390	22.2	19.2	12.2	30.2	23.4	46.0	22.6	Vert.
5	918.528	20.9	20.7	13.3	29.1	25.8	46.0	20.2	Vert.
6	960.000	20.9	21.1	13.6	28.6	27.0	46.0	19.0	Vert.

Operating mode: *Rx 2412MHz Z-plane*

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	40.2	7.5	7.6	30.3	25.0	40.0	15.0	Vert.
2	545.697	24.8	18.0	11.4	30.1	24.1	46.0	21.9	Vert.
3	591.768	23.4	18.5	11.6	30.1	23.4	46.0	22.6	Vert.
4	620.380	24.0	18.7	11.7	30.2	24.2	46.0	21.8	Vert.
5	676.246	25.6	18.9	12.0	30.2	26.3	46.0	19.7	Vert.
6	960.000	20.8	21.1	13.6	28.6	26.9	46.0	19.1	Vert.

Operating mode: Rx 2437MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	38.8	7.5	7.6	30.3	23.6	40.0	16.4	Vert.
2	547.152	24.6	18.0	11.4	30.1	23.9	46.0	22.1	Vert.
3	572.467	24.4	18.3	11.5	30.1	24.1	46.0	21.9	Vert.
4	730.658	21.6	19.3	12.3	30.2	23.0	46.0	23.0	Vert.
5	919.401	20.9	20.7	13.3	29.0	25.9	46.0	20.1	Vert.
6	960.000	20.9	21.1	13.6	28.6	27.0	46.0	19.0	Vert.

Operating mode: Rx 2437MHz Y-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	40.0	7.5	7.6	30.3	24.8	40.0	15.2	Vert.
2	628.430	22.3	18.7	11.8	30.2	22.6	46.0	23.4	Vert.
3	661.116	23.0	18.8	11.9	30.2	23.5	46.0	22.5	Vert.
4	760.725	22.2	19.6	12.4	30.1	24.1	46.0	21.9	Vert.
5	917.655	21.4	20.7	13.3	29.1	26.3	46.0	19.7	Vert.
6	960.000	21.7	21.1	13.6	28.6	27.8	46.0	18.2	Vert.

Operating mode: Rx 2437MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	40.3	7.5	7.6	30.3	25.1	40.0	14.9	Vert.
2	549.189	23.0	18.0	11.4	30.1	22.3	46.0	23.7	Vert.
3	641.427	23.9	18.8	11.8	30.2	24.3	46.0	21.7	Vert.
4	667.711	23.9	18.8	11.9	30.2	24.4	46.0	21.6	Vert.
5	841.227	21.5	20.2	12.9	29.7	24.9	46.0	21.1	Vert.
6	960.000	21.5	21.1	13.6	28.6	27.6	46.0	18.4	Vert.

Operating mode: Rx 2462MHz X-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	78.301	36.6	7.7	7.6	30.3	21.6	40.0	18.4	Vert.
2	80.000	41.2	7.5	7.6	30.3	26.0	40.0	14.0	Vert.
3	578.965	24.1	18.4	11.5	30.1	23.9	46.0	22.1	Vert.
4	660.049	26.5	18.8	11.9	30.2	27.0	46.0	19.0	Vert.
5	714.170	23.3	19.1	12.2	30.2	24.4	46.0	21.6	Vert.
6	960.000	20.9	21.1	13.6	28.6	27.0	46.0	19.0	Vert.

Operating mode: Rx 2462MHz Y-plane

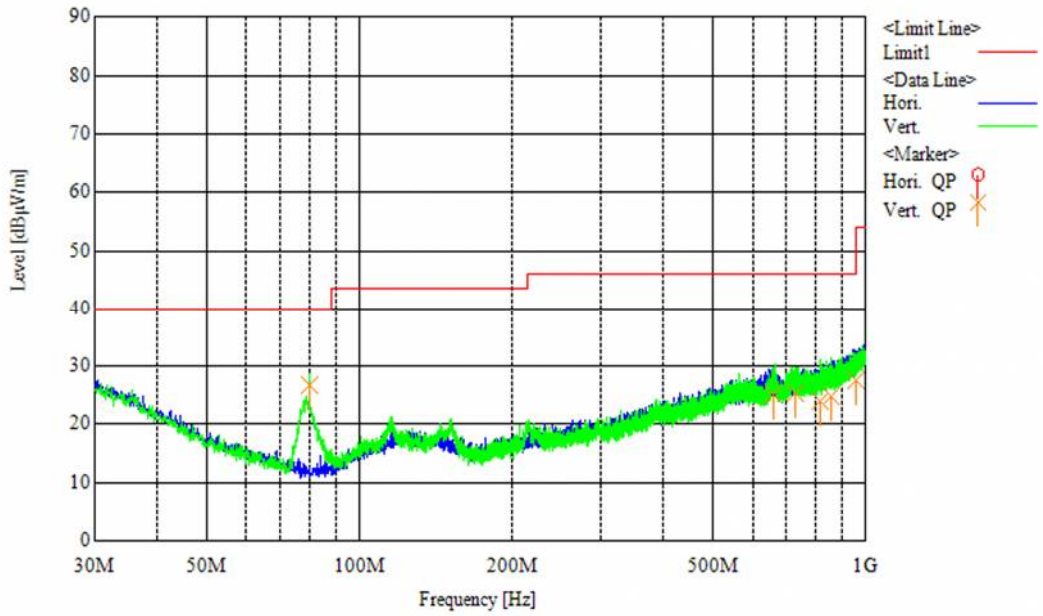
No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	78.204	36.3	7.7	7.6	30.3	21.3	40.0	18.7	Vert.
2	80.000	39.3	7.5	7.6	30.3	24.1	40.0	15.9	Vert.
3	646.276	24.3	18.8	11.8	30.2	24.7	46.0	21.3	Vert.
4	720.959	25.1	19.2	12.2	30.2	26.3	46.0	19.7	Vert.
5	869.548	21.1	20.4	13.0	29.5	25.0	46.0	21.0	Vert.
6	960.000	21.3	21.1	13.6	28.6	27.4	46.0	18.6	Vert.

Operating mode: Rx 2462MHz Z-plane

No.	Frequency [MHz]	Reading [dBµV]	Factor [dB/m]	Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant.
1	80.000	42.0	7.5	7.6	30.3	26.8	40.0	13.2	Vert.
2	661.698	24.7	18.8	11.9	30.2	25.2	46.0	20.8	Vert.
3	727.651	24.2	19.2	12.2	30.2	25.4	46.0	20.6	Vert.
4	817.852	21.3	20.0	12.7	29.9	24.1	46.0	21.9	Vert.
5	857.424	21.2	20.3	13.0	29.6	24.9	46.0	21.1	Vert.
6	960.000	21.4	21.1	13.6	28.6	27.5	46.0	18.5	Vert.

[Chart (Worst)]

Operating mode: Rx 2462MHz Z-plane



Test Data (Above 1000MHz)

Tested sample: *A2*
Configuration: *1*

Operating mode: Rx 2412MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	44.0	31.2	-1.6	42.4	29.6	73.9	53.9	31.5	24.3	Hori.
2	9648.000	44.2	36.0	8.2	52.4	44.2	73.9	53.9	21.5	9.7	Hori.
3	3600.000	47.3	33.9	-1.6	45.7	32.3	73.9	53.9	28.2	21.6	Vert.
4	9648.000	44.9	37.4	8.2	53.1	45.6	73.9	53.9	20.8	8.3	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2412MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	43.6	30.3	-1.6	42.0	28.7	73.9	53.9	31.9	25.2	Hori.
2	9648.000	47.7	42.4	8.2	55.9	50.6	73.9	53.9	18.0	3.3	Hori.
3	3600.000	44.0	30.2	-1.6	42.4	28.6	73.9	53.9	31.5	25.3	Vert.
4	9648.000	45.3	37.9	8.2	53.5	46.1	73.9	53.9	20.4	7.8	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2412MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	43.8	30.3	-1.6	42.2	28.7	73.9	53.9	31.7	25.2	Hori.
2	9648.000	44.6	36.2	8.2	52.8	44.4	73.9	53.9	21.1	9.5	Hori.
3	3600.000	43.8	30.2	-1.6	42.2	28.6	73.9	53.9	31.7	25.3	Vert.
4	9648.000	48.0	43.6	8.2	56.2	51.8	73.9	53.9	17.7	2.1	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2437MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	43.5	30.3	-1.6	41.9	28.7	73.9	53.9	32.0	25.2	Hori.
2	9748.000	44.1	35.8	8.2	52.3	44.0	73.9	53.9	21.6	9.9	Hori.
3	3600.000	43.5	30.2	-1.6	41.9	28.6	73.9	53.9	32.0	25.3	Vert.
4	9748.000	44.5	37.1	8.2	52.7	45.3	73.9	53.9	21.2	8.6	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2437MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	43.9	30.2	-1.6	42.3	28.6	73.9	53.9	31.6	25.3	Hori.
2	9748.000	48.4	44.3	8.2	56.6	52.5	73.9	53.9	17.3	1.4	Hori.
3	3600.000	43.9	30.1	-1.6	42.3	28.5	73.9	53.9	31.6	25.4	Vert.
4	9748.000	45.4	38.8	8.2	53.6	47.0	73.9	53.9	20.3	6.9	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2437MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	44.0	30.2	-1.6	42.4	28.6	73.9	53.9	31.5	25.3	Hori.
2	9748.000	44.6	36.8	8.2	52.8	45.0	73.9	53.9	21.1	8.9	Hori.
3	3600.000	44.3	30.1	-1.6	42.7	28.5	73.9	53.9	31.2	25.4	Vert.
4	9748.000	48.7	45.0	8.2	56.9	53.2	73.9	53.9	17.0	0.7	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2462MHz X-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	43.7	30.3	-1.6	42.1	28.7	73.9	53.9	31.8	25.2	Hori.
2	9848.000	43.7	34.4	8.2	51.9	42.6	73.9	53.9	22.0	11.3	Hori.
3	3600.000	43.8	30.1	-1.6	42.2	28.5	73.9	53.9	31.7	25.4	Vert.
4	9848.000	44.4	37.4	8.2	52.6	45.6	73.9	53.9	21.3	8.3	Vert.

Note: All emissions are under noise floor.

Operating mode: Rx 2462MHz Y-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	44.5	30.3	-1.6	42.9	28.7	73.9	53.9	31.0	25.2	Hori.
2	9848.000	48.9	45.2	8.2	57.1	53.4	73.9	53.9	16.8	0.5	Hori.
3	3600.000	43.8	30.2	-1.6	42.2	28.6	73.9	53.9	31.7	25.3	Vert.
4	9848.000	44.9	37.6	8.2	53.1	45.8	73.9	53.9	20.8	8.1	Vert.

Note: All emissions are under noise floor.

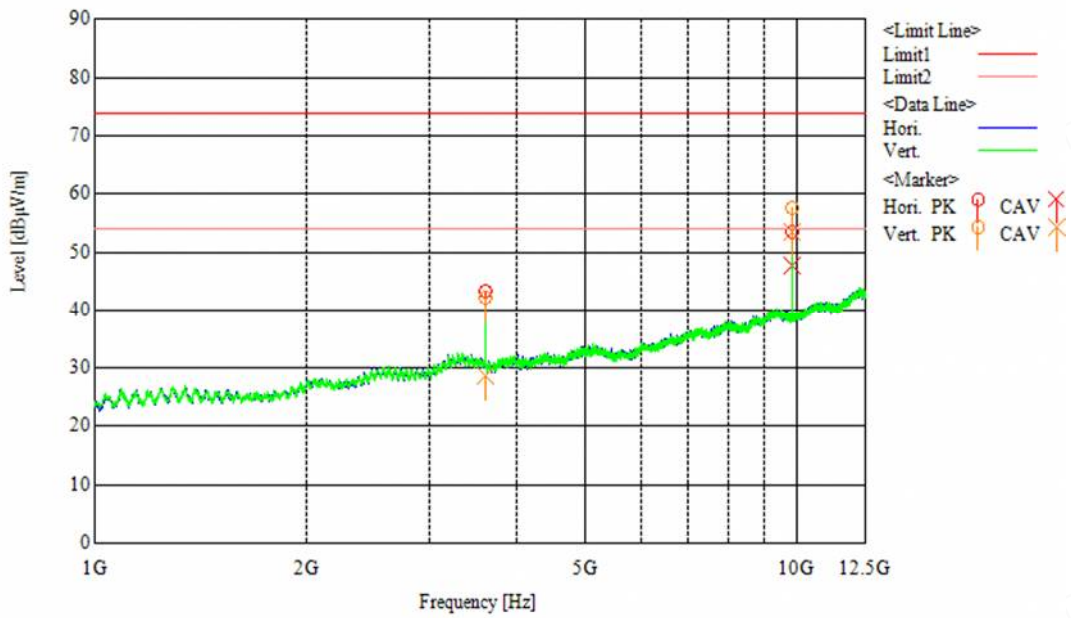
Operating mode: Rx 2462MHz Z-plane

No.	Frequency [MHz]	Reading PK [dBµV]	Reading Ave [dBµV]	C.Factor [dB]	Result PK [dBµV/m]	Result Ave [dBµV/m]	Limit PK [dBµV/m]	Limit Ave [dBµV/m]	Margin PK [dB]	Margin Ave [dB]	Ant.
1	3600.000	44.8	30.3	-1.6	43.2	28.7	73.9	53.9	30.7	25.2	Hori.
2	9848.000	45.4	39.5	8.2	53.6	47.7	73.9	53.9	20.3	6.2	Hori.
3	3600.000	43.7	30.2	-1.6	42.1	28.6	73.9	53.9	31.8	25.3	Vert.
4	9848.000	49.3	45.4	8.2	57.5	53.6	73.9	53.9	16.4	0.3	Vert.

Note: All emissions are under noise floor.

[Chart (Worst)]

Operating mode: Rx 2462MHz Z-plane



[Test Day1]

Tested Date:	12 Aug. 2020	Temperature:	20 degC
Humidity:	57 %	Atmos. Press:	1014 hPa

[Test Day2]

Tested Date:	02 Sep. 2020	Temperature:	20 degC
Humidity:	65 %	Atmos. Press:	1014 hPa

2.9 AC power line conducted emissions (Receiver)

Test setup

Test setup was implemented according to the method of ANSI C63.4 clause 6 “General requirements for EUT equipment arrangements and operation” and Annex H.1 “AC power line conducted emission measurements setup”.

Test procedure

Measurement procedures were implemented according to the method of ANSI C63.4 clauses 7, clause 13.1.3 and Annex H.2 “AC power line conducted emission measurements”.
Exploratory measurements were used the spectrum analyzer to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement.
Final ac power line conducted emission measurements were performed based on the exploratory tests.
The EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit are selected for the final measurement.
When the measurement value is grater than average limitation the average detection measurements were performed.

Applicable rule and limitation

RSS-Gen Sec.7.3 AC power line conducted emissions limits

Frequency of Emission [MHz]	Conducted emissions Limit [dBµV]	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46 *
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency. The lower limit applies at the band edges.

Test equipment used (refer to List of utilized test equipment)

TR09	CL18	LN05

Test software used

EMI Ver. 6.1

Calculation method

The Correction Factor and Result are calculated as followings.

Correction Factor [dB] = ISN Factor [dB] + Loss [dB]
Result [dBµV] = Reading [dBµV] + Correction Factor [dB]

Test results - *Complied with requirement*

Test Data

Tested sample: *A2*
Configuration: *2*

Operating mode: Rx 2412MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.20099	27.4	7.4	10.1	37.5	17.5	63.6	53.6	26.1	36.1	Va
2	0.27068	26.1	5.8	10.1	36.2	15.9	61.1	51.1	24.9	35.2	Va
3	0.46087	27.3	7.6	10.0	37.3	17.6	56.7	46.7	19.4	29.1	Va
4	0.19521	26.4	5.8	10.2	36.6	16.0	63.8	53.8	27.2	37.8	Vb
5	0.26711	25.5	5.6	10.1	35.6	15.7	61.2	51.2	25.6	35.5	Vb
6	0.40699	26.1	5.7	10.1	36.2	15.8	57.7	47.7	21.5	31.9	Vb
7	0.45951	27.9	8.2	10.1	38.0	18.3	56.7	46.7	18.7	28.4	Vb
8	0.47565	25.7	5.4	10.1	35.8	15.5	56.4	46.4	20.6	30.9	Vb
9	0.49129	23.7	3.2	10.1	33.8	13.3	56.1	46.1	22.3	32.8	Vb

Operating mode: Rx 2437MHz

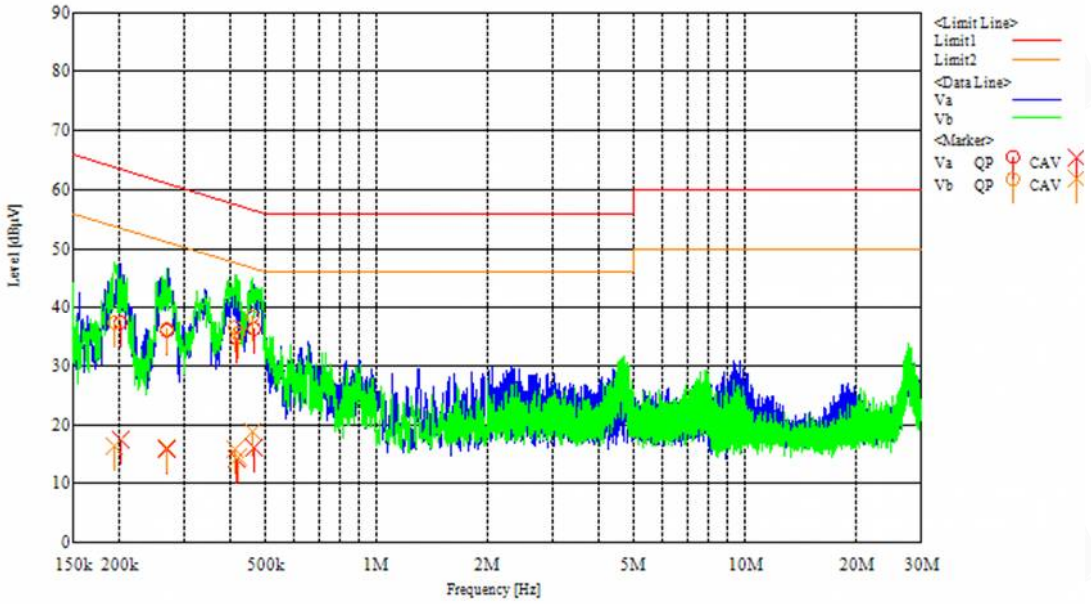
	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.20303	27.1	6.9	10.1	37.2	17.0	63.5	53.5	26.3	36.5	Va
2	0.27068	26.0	5.8	10.1	36.1	15.9	61.1	51.1	25.0	35.2	Va
3	0.45645	26.0	7.3	10.0	36.0	17.3	56.8	46.8	20.8	29.5	Va
4	0.19844	26.9	6.7	10.2	37.1	16.9	63.7	53.7	26.6	36.8	Vb
5	0.27000	26.1	5.9	10.1	36.2	16.0	61.1	51.1	24.9	35.1	Vb
6	0.39390	26.0	5.3	10.1	36.1	15.4	58.0	48.0	21.9	32.6	Vb
7	0.42297	25.1	4.5	10.1	35.2	14.6	57.4	47.4	22.2	32.8	Vb
8	0.46818	27.0	6.6	10.1	37.1	16.7	56.5	46.5	19.4	29.8	Vb
9	0.49248	23.3	3.0	10.1	33.4	13.1	56.1	46.1	22.7	33.0	Vb

Operating mode: Rx 2462MHz

	Freq. [MHz]	Reading QP [dBµV]	Reading Ave [dBµV]	Factor [dB]	Result QP [dBµV]	Result Ave [dBµV]	Limit QP [dBµV]	Limit Ave [dBµV]	Margin QP [dB]	Margin Ave [dB]	Line
1	0.20167	27.2	7.3	10.1	37.3	17.4	63.5	53.5	26.2	36.1	Va
2	0.27136	26.0	5.7	10.1	36.1	15.8	61.1	51.1	25.0	35.3	Va
3	0.41991	24.6	4.2	10.0	34.6	14.2	57.4	47.4	22.8	33.2	Va
4	0.46699	26.2	6.2	10.0	36.2	16.2	56.6	46.6	20.4	30.4	Va
5	0.19470	27.1	6.1	10.2	37.3	16.3	63.8	53.8	26.5	37.5	Vb
6	0.27034	26.2	5.9	10.1	36.3	16.0	61.1	51.1	24.8	35.1	Vb
7	0.41583	26.4	5.8	10.1	36.5	15.9	57.5	47.5	21.0	31.6	Vb
8	0.42382	25.2	4.4	10.1	35.3	14.5	57.4	47.4	22.1	32.9	Vb
9	0.46019	28.4	8.7	10.1	38.5	18.8	56.7	46.7	18.2	27.9	Vb

[Chart (worst)]

Operating mode: Rx 2462MHz



Tested Date: 04 Sep. 2020 Temperature: 25 degC
Humidity: 65 % Atmos. Press: 1014 hPa

4 List of utilized test equipment / calibration

ID No.	Kind of Equipment	Manufacturer	Model No.	Serial Number	Cal. Date	Cal. until
AC01(EM)	Anechoic Chamber (1st test room)	JSE	203397C	-	2020/4/17	2021/4/30
AC01(EG)	Anechoic Chamber (1st test room)	JSE	203397C	-	2020/3/28	2021/3/31
BA07	Bilogical Antenna	TESEQ	CBL6143A	26670	2019/12/9	2020/12/31
BRF12	Band Reject Filter (2400MHz)	M-City	BRF2440-01	RF0012-02	2020/3/25	2021/3/31
CH01	Conical Horn Antenna (12-18GHz)	ETS-Lindgren	3163-05	00126641	2019/3/4	2021/3/31
CL11	RF Cable for RE	RFT	-	-	2020/3/25	2021/3/31
CL18	RF Cable for CE	RFT	-	-	2020/3/25	2021/3/31
CL31	RF Cable 1 m	Junkosha	MWX221	1303S118	2020/1/30	2021/1/31
CL38	RF Cable 2 m	Junkosha	MWX221	1603S626	2020/1/30	2021/1/31
CL39	RF Cable 5 m	SUHNER	SUCOFLEX126E	523222	2020/2/3	2021/2/28
DH06	DRG Horn Antenna	A.H. Systems	SAS-571	1339	2020/6/27	2022/6/30
HPF11	High Pass Filter (3500MHz)	Wainwright	[illegible]6-2765-3500-2650	2	2020/4/28	2021/4/30
LN05	LISN	Kyoritsu	KNW-407F	8-1773-2	2020/5/19	2021/5/31
LP06	Loop Antenna	ETS-Lindgren	6502	00164299	2020/4/13	2021/4/30
LPF1	Low Pass Filter (1000MHz)	M-City	LPF1000-04	RF0012-01	2020/3/25	2021/3/31
PR12	Pre. Amplifier (1-26G)	Agilent Technologies	8449B	3008A02513	2020/1/29	2021/1/31
PR21	Pre. Amplifier	Anritsu	MH648A	6200467119	2019/12/3	2020/12/31
SH01	Standard Horn Antenna (18-26G)	A.H. Systems	SAS-572	208	2020/7/4	2022/7/31
TR06	Test Receiver (F/W : 4.73 SP4)	Rohde & Schwarz	ESU26	100002	2019/10/7	2020/10/31
TR09	Test Receiver (F/W : 4.43 SP3)	Rohde & Schwarz	ESU8	100386	2020/6/23	2021/6/30

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.