



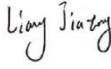
Test Report No.:
FCCSZ2023-0011-RF1

RF Test Report

FCC ID : O3Q10-8231
EUT : Smart PDM assembly
MODEL : 10-8231
BRAND NAME : N/A
APPLICANT : THERMASOL STEAMBATH CO.
Classification of Test : N/A

CVC Testing Technology (Shenzhen) Co., Ltd.



Applicant		Name: THERMASOL STEAMBATH CO. Address: 1958 STEAM WAY ROUND ROCK, TX 78665 USA	
Manufacturer		Name: Chengdu Vantron Technology Co., Ltd. Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China	
Equipment Under Test		Product Name: Smart PDM assembly Model/Type: 10-8231 Brand Name: N/A Serial NO.: N/A Sample NO.: 2-1	
Date of Receipt.	2023.10.07	Date of Testing	2023.10.07~2023.11.02
Test Specification		Test Result	
FCC Part 15, Subpart C (15.247)		PASS	
Evaluation of Test Result		The equipment under test was found to comply with the requirements of the standards applied. Seal of CVC Issue Date: 2023.11.06	
Tested by:  <u>Liang Jiatong</u> Name Signature		Reviewed by:  <u>Huang Meng</u> Name Signature	Approved by:  <u>Dong Sanbi</u> Name Signature
Other Aspects: NONE.			
Abbreviations: OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2023-0011-RF1	Original release	2023.11.06



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
FCC 15.207	AC Power Conducted Emission	PASS	See section 3.1
FCC 15.247(d) FCC 15.209	Radiated Emissions	PASS	See section 3.2
FCC 15.247(d) RSS-247 5.5	Out of band Emission Measurement	PASS	Appendix E&F&G of FCCSZ2023-0011-RF1-A1&A2
FCC 15.247(a)(2) RSS-247 5.2(a)	6dB bandwidth	PASS	Appendix A of FCCSZ2023-0011-RF1-A1&A2
---	Occupied Bandwidth Measurement	PASS	Appendix B of FCCSZ2023-0011-RF1-A1&A2
FCC 15.247(b)	Conducted Output power	PASS	Appendix C of FCCSZ2023-0011-RF1-A1&A2
FCC 15.247(e)	Power Spectral Density	PASS	Appendix D of FCCSZ2023-0011-RF1-A1&A2
FCC 15.203 FCC 15.247(b)	Antenna Requirement	PASS	See section 3.8



1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due
WIFI & Bluetooth Test System					/
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 30	104408	1 year	2024.5.21
#3Shielding room	MORI	443	N/A	3 year	2026.5.16
Wideband radio communication tester	Rohde&Schwarz	CMW 500	168778	1 year	2024.5.25
Analog signal Generator (100kHz ~ 40GHz)	Rohde&Schwarz	SMB 100A	181934	1 year	2024.5.21
Vector signal Generator (9kHz ~ 6GHz)	Keysight	N5182B	MY57301451	1 year	2024.4.25
Vector signal Generator (9kHz ~ 6GHz)	Rohde&Schwarz	SGT 100A	111724	1 year	2024.5.21
RF control unit(BT/WiFi)	Tonscend	JS0806-2-8CH	20E8060261	1 year	2024.5.21
Radiation Spurious(Above 1GHz)					/
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	1 year	2024.5.21
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2024.5.25
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB 9168	1133	1 year	2024.2.21
Horn antenna(1GHz-18GHz)	ETS	3117	227611	1 year	2024.3.25
Horn antenna(18GHz-40GHz)	QMS	QMS-00880	22051	1 year	2024.3.25
3m anechoic chamber	MORI	966	CS0300011	3 year	2026.5.18
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	1 year	2024.5.21
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	1 year	2024.5.21
Preamplifier(10kHz-1GHz)	Rohde&Schwarz	SCU-01F	100299	1 year	2024.5.21
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2024.5.21
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100801	1 year	2024.5.21
Preamplifier(18Gz-40GHz)	Rohde&Schwarz	SCU-40A	101209	1 year	2024.5.21
#2 control room	MORI	433	CS0300028	3 year	2024.5.21
Temperature and humidity meter	/	C193561517	C193561517	1 year	2024.5.21
Radiation Spurious(Below 1GHz)					/
EMI Test Receiver	Rohde&Schwarz	ESR 26	101718	1 year	2024.5.25
Loop antenna (8.3k~30MHz)	Rohde&Schwarz	HFH2-Z2E	100951	1 year	2024.5.26
Antenna(30MHz~1000MHz)	SCHWARZBECK	VULB 9168	1132	1 year	2024.2.14
3m anechoic chamber	MORI	966	CS0200019	3 year	2026.5.18
Attenuator	/	SJ-5dB	607684	1 year	2024.2.21
#1 control room	MORI	433	CS0300028	3 year	2026.5.16
Temperature and humidity meter	/	C193561473	CS0200071	1 year	2024.5.21
Conducted emission					/
EMI Test Receiver	Rohde&Schwarz	ESR3	102694	1 year	2024.5.25
limiter (10 dB)	Rohde&Schwarz	ESH3-Z2	102824	1 year	2024.5.16
Voltage probe	Rohde&Schwarz	CVP9222C	28	1 year	2024.5.16
Current probe	Rohde&Schwarz	EZ-17	101442	1 year	2024.5.21
ISN network	Rohde&Schwarz	ENV 81	100401	1 year	2024.5.16
ISN network	Rohde&Schwarz	ENV 81 Cat6	101896	1 year	2024.5.16
LISN (single-phase)	Rohde&Schwarz	ENV216	102569	1 year	2024.4.11
#1Shielding room	MORI	854	N/A	3 year	2026.5.16



1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Measurement Uncertainty
1	Conducted emission test	+/-2.7 dB
2	Radiated emission 9kHz-30MHz	+/-5.6 dB
3	Radiated emission 30MHz-1GHz	+/-4.6 dB
4	Radiated emission 1GHz-18GHz	+/-4.4 dB
5	Radiated emission 18GHz-40GHz	+/-5.1 dB
6	Occupied Bandwidth	+/-1.86%
Remark: 95% Confidence Levels, k=2.		

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology (Shenzhen) Co., Ltd.

CABID:CN0137

Lab Address: No. 1301, Guanguang Road, Xinlan Community, Guanlan Street, Longhua District, Shenzhen City, Guangdong Province 518110 P.R.China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn

<http://www.cvc.org.cn>



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	Smart PDM assembly
BRAND	N/A
TEST MODEL	10-8231
ADDITIONAL MODEL	N/A
POWER SUPPLY	DC 24V host unit
MODULATIONTECHNOLOGY	DSSS, OFDM, DTS
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM GFSK for BT-LE
OPERATING FREQUENCY	2412MHz ~ 2462MHz for 11b/g/n(HT20) 2422MHz ~ 2452MHz for 11n(HT40) 2402MHz ~ 2480MHz for BT-LE
NUMBER OF CHANNEL	802.11b/g/n(HT20): 11 802.11n(HT40): 7 BT-LE:40
PEAK OUTPUT POWER	19.82dBm for WiFi(Maximum) 5.74dBm for BT-LE(Maximum)
AVERAGE OUTPUT POWER	13.87dBm for WiFi(Maximum) 4.91dBm for BT-LE(Maximum)
ANTENNA TYPE(Note 4)	External antenna with gain 2.75dBi
FIX FREQUENCY SOFTWARE	adb
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

Note:

- For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- EUT photo refer to report (Report NO.: FCCSZ2023-0011-EUT).
- Since the above data and/or information is provided by the client, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
- EUT provides a complete transmitter and a receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX/1RX
802. 11g	1TX/1RX
802.11n	1TX/1RX
BT-LE	1TX/1RX



2.2 OTHER INFORMATION

Operating frequency of each channel

2.4G WIFI							
802.11b/g/n(HT20)							
CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)		
1	2412	5	2432	9	2452		
2	2417	6	2437	10	2457		
3	2422	7	2442	11	2462		
4	2427	8	2447				
802.11n(HT40)							
CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)		
3	2422	6	2437	9	2452		
4	2427	7	2442				
5	2432	8	2447				
BT-LE(1 Mbps+2Mbps)							
CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

- 1.
2. The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.
3. By means of test software which provided by manufacture, the power levels during the tests were set

2.4G							
802.11b		802.11g		802.11n(HT20)		BT-LE	
FREQUENCY (MHZ)	POWER SETTING	FREQUENCY (MHZ)	POWER SETTING	FREQUENCY (MHZ)	POWER SETTING	FREQUENCY (MHZ)	POWER SETTING
2412	15	2412	11	2412	12	2402	default
2437	15	2437	11	2437	12	2440	default
2462	15	2462	11	2462	12	2480	default



2.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports

EUT CONFIGURE MODE	APPLICABLE TEST ITEMS				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	√	√	2.4G WIFI Function
B	√	√	√	√	BT Function

Where **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

RE≥1G: Radiated Emission above 1GHz
APCM: Antenna Port Conducted Measurement

RADIATED EMISSION TEST (BELOW 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1	DSSS	DBPSK	1.0

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE PARAMETER
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0 Mbps
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0 Mbps
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0 Mbps
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	2.0 Mbps

**POWER LINE CONDUCTED EMISSION TEST:**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CONDITION
-	WIFI (2.4G) + BT-LE Link

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE PARAMETER
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0 Mbps
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0 Mbps
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0 Mbps
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	2.0 Mbps

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RE<1G	24deg. C, 55%RH	DC 24V from host unit	Liu Yuan
RE≥1G	24deg. C, 55%RH	DC 24V from host unit	Liu Yuan
PLC	24deg. C, 55%RH	DC 24V from host unit	Wang Zhiming
APCM	25deg. C, 58%RH	DC 24V from host unit	Liang Jiatong

2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC PART 15, Subpart C. Section 15.247
KDB 558074 D01 15.247 Meas Guidance v05r02
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards

2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support Equipment							
NO	Description	Brand		Model No.	Serial Number	Supplied by	
1	Laptop	Lenovo		K4e-ARE120	MP20kshe	Lab	
2	Adapter	MW		OWA-60U-24	CC37274540	Client	
3	10' display assembly	N/A		10-8229	N/A	Client	
Support Cable							
NO	Description	Quantity (Number)	Length (cm)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
1	HMDI+USB	N/A	N/A	yes	yes	N/A	Client

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 Limit

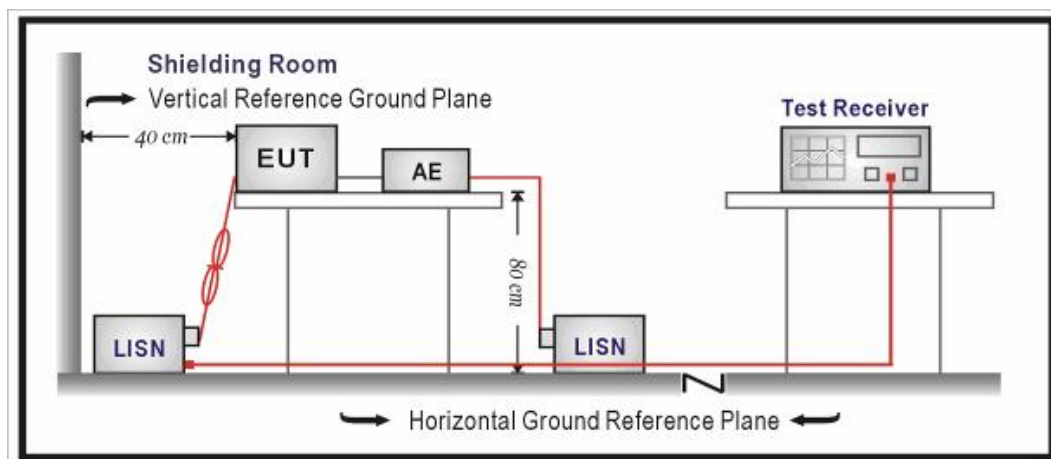
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.
NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

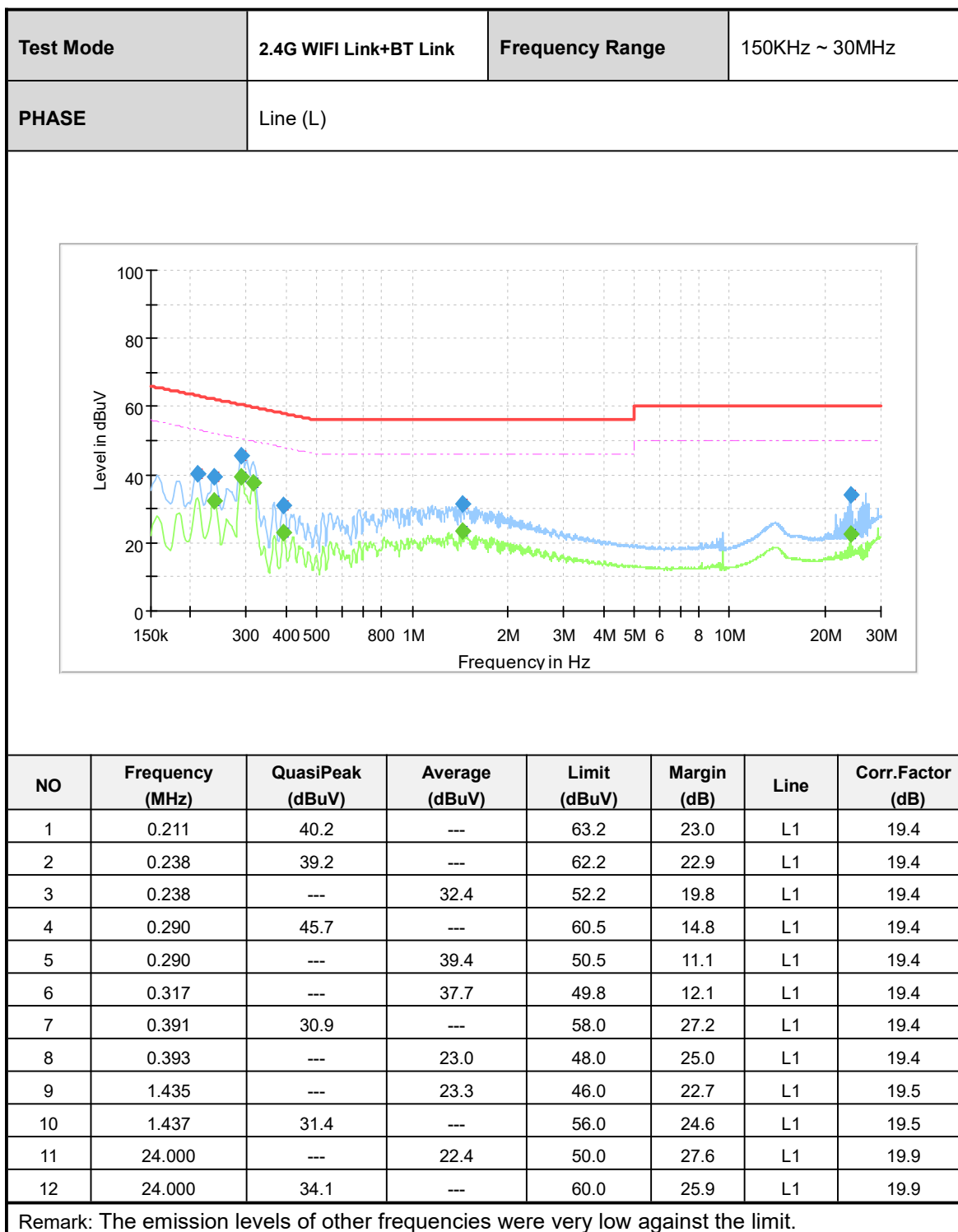
3.1.2 Measurement procedure

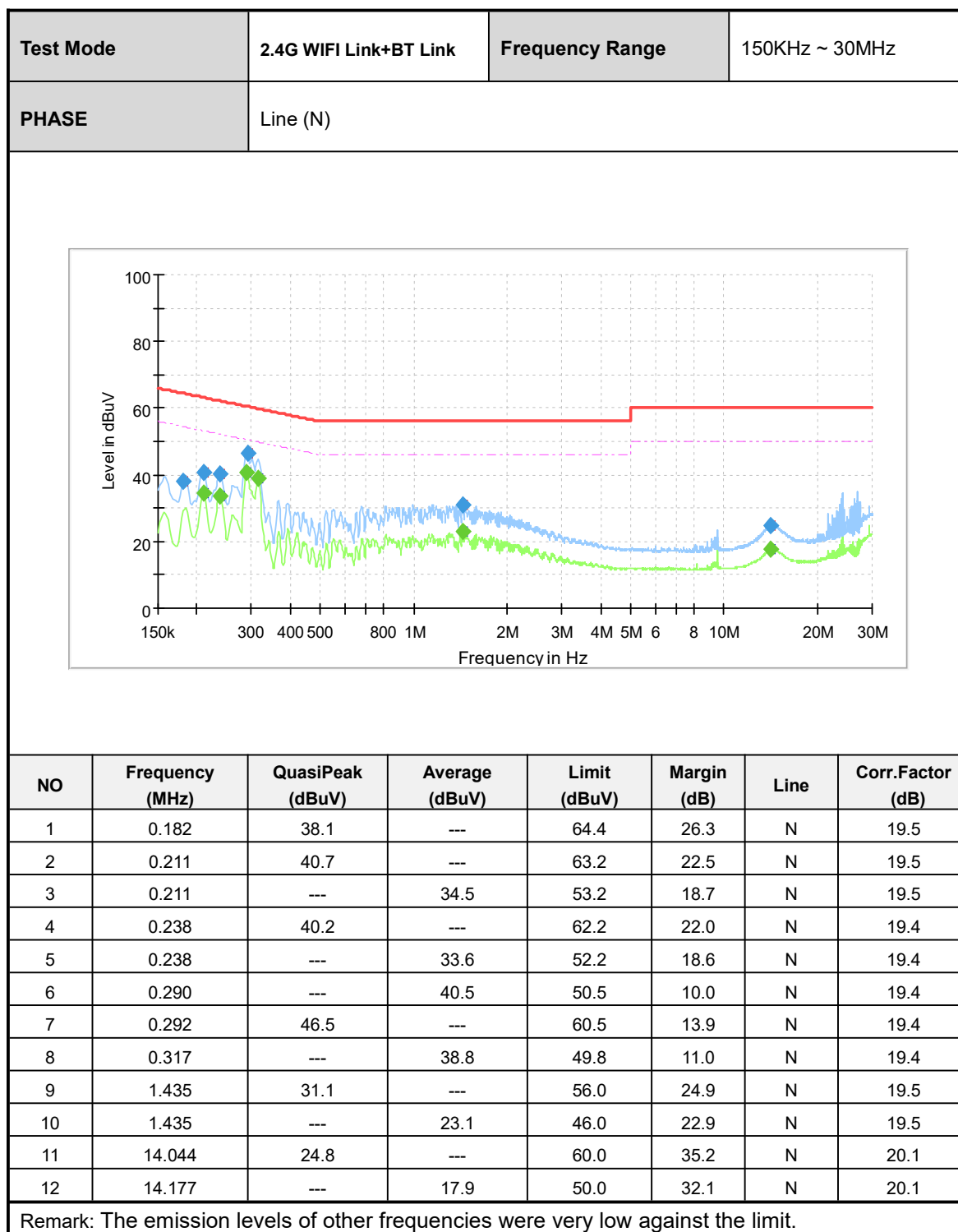
- The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The equipment under test shall be placed on a support of non-metallic material, the height of which shall be 1.5m above the ground,
- The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.1.3 Test setup



3.1.4 Test results







3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.2.1 Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (Microvolts/Meter)	MEASUREMENT DISTANCE (Meters)
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	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE: 1. The lower limit shall apply at the transition frequencies.
NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
NOTE: 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

3.2.2 Measurement procedure

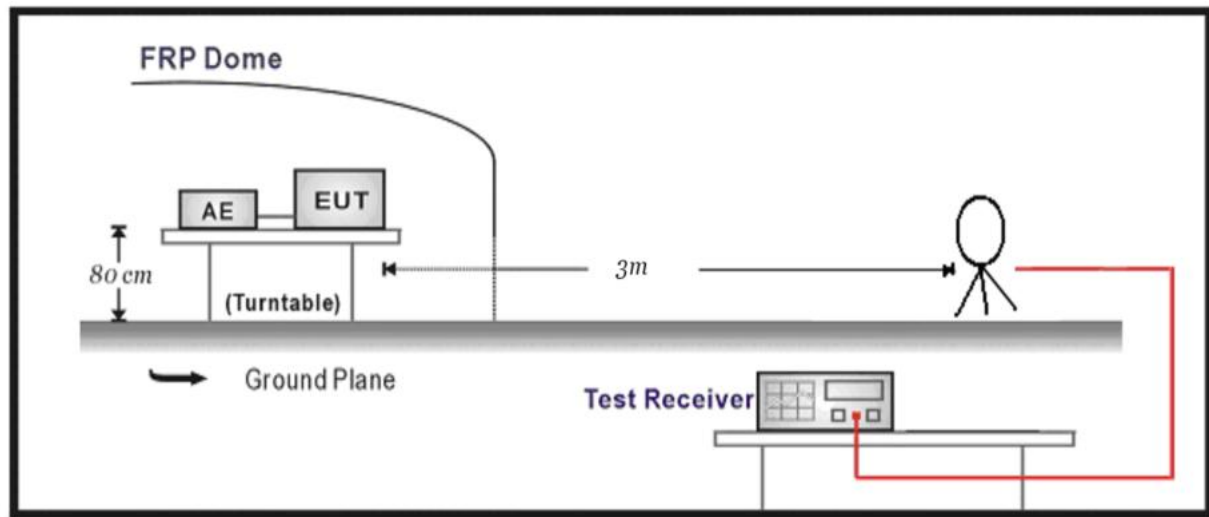
- The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

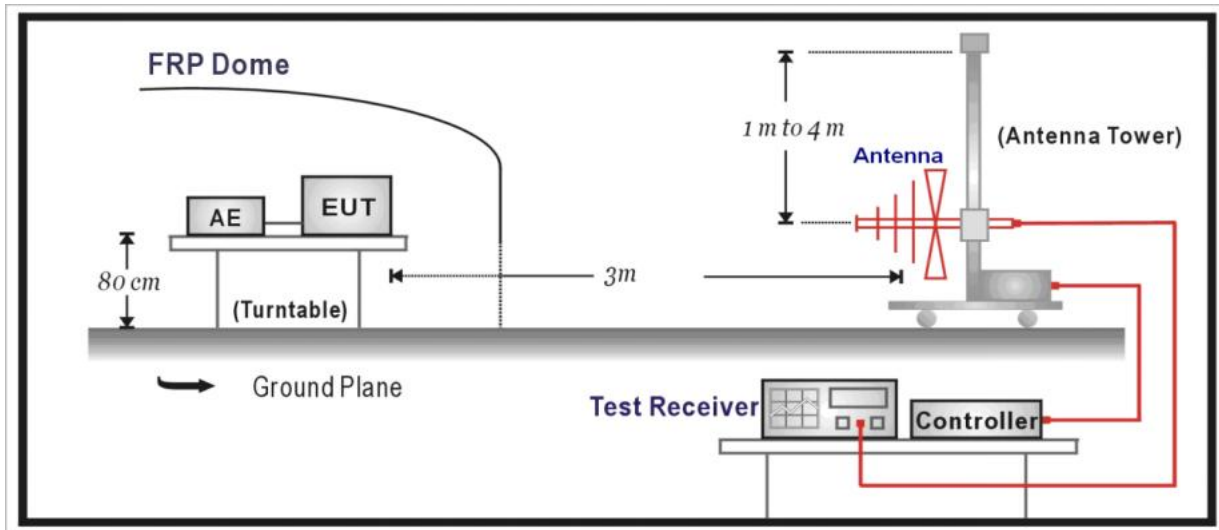
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

3.2.3 Test setup

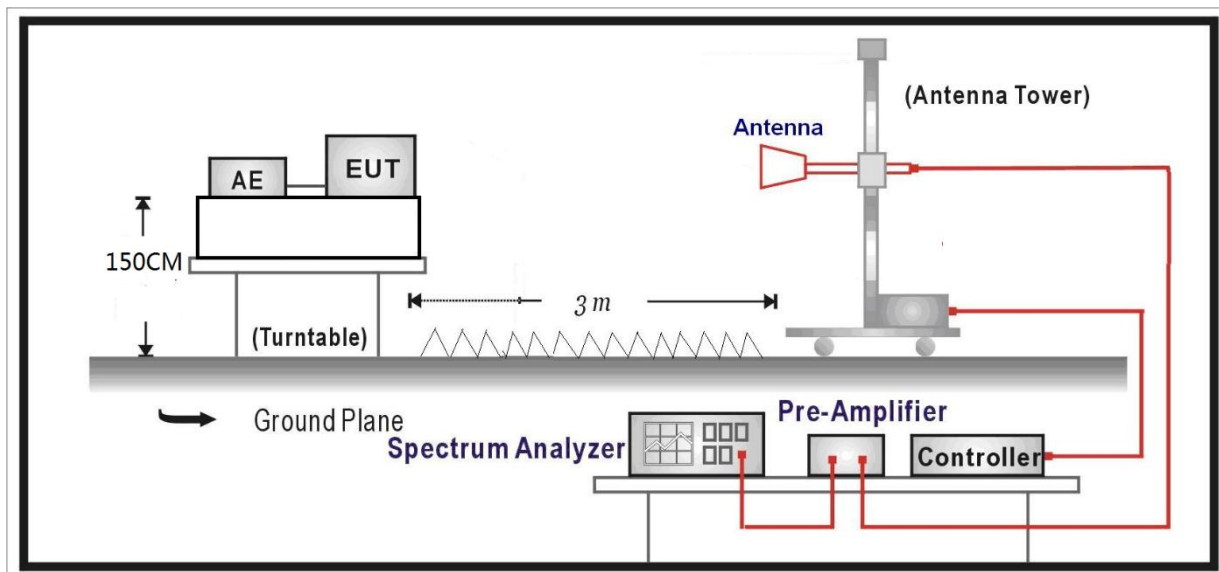
Below 30MHz Test Setup:



Below 1GHz Test Setup:

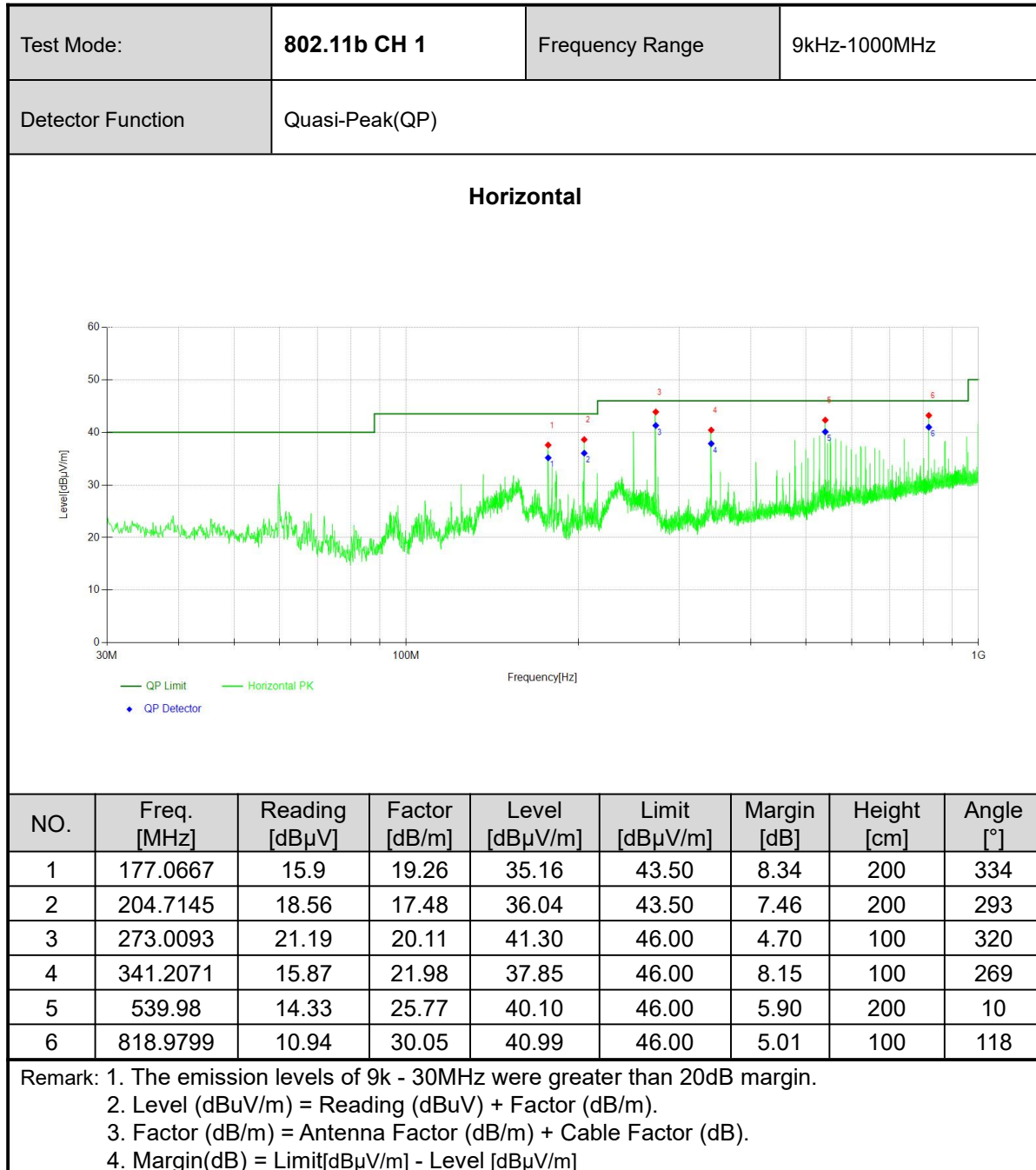


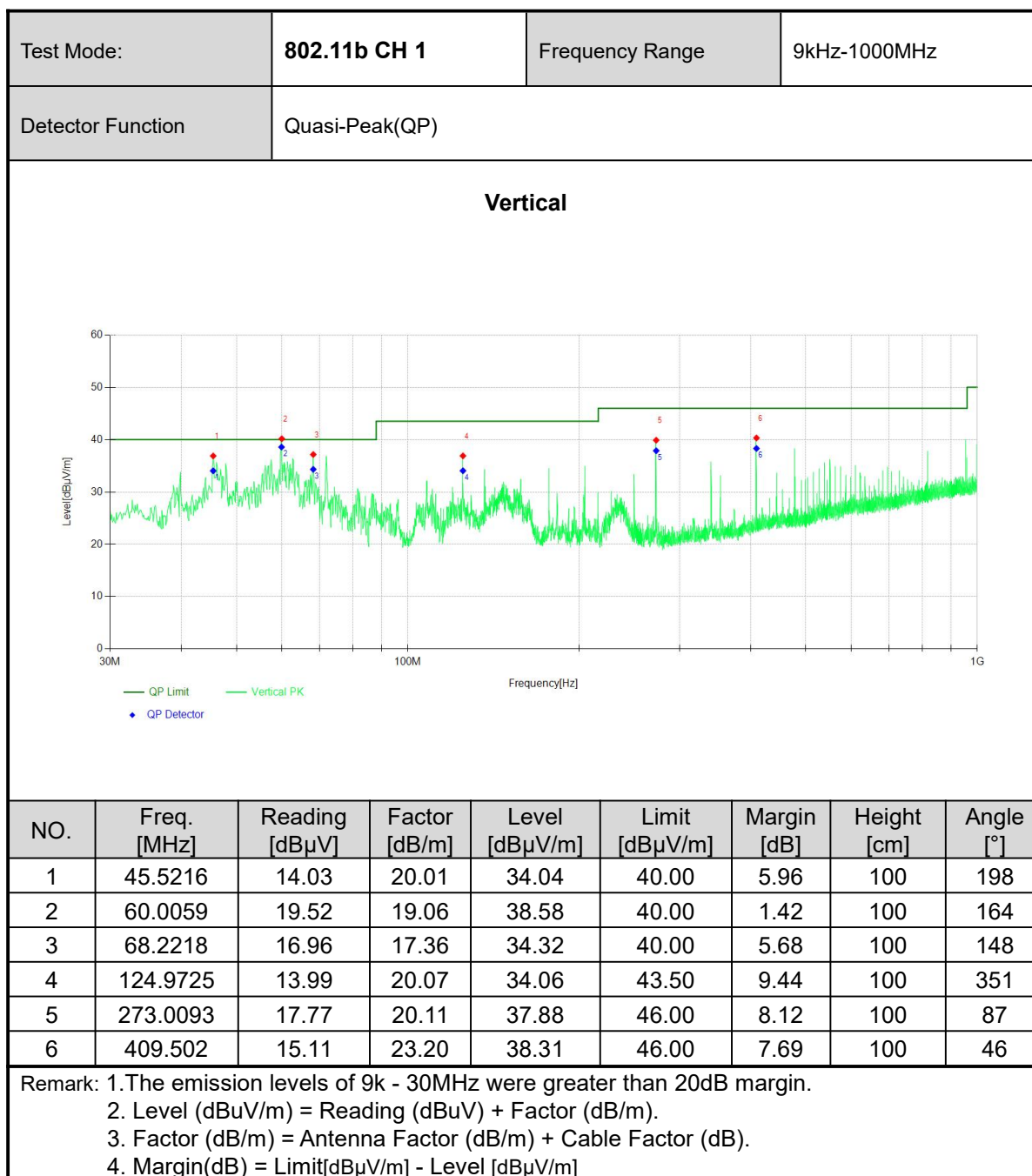
Above 1GHz Test Setup:



3.2.4 Test results

BELOW 1GHz WORST-CASE DATA:





ABOVE 1GHz DATA

Channel	802.11b CH 1	Frequency	2412MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2373.47	51.12	-0.27	50.85	74.00	23.15	100	102	PK	Horizonta
2	2375.08	41.11	-0.27	40.84	54.00	13.16	100	284	AV	Horizonta
3	2390.00	49.43	-0.15	49.28	74.00	24.72	400	192	PK	Horizonta
4	2390.00	39.51	-0.15	39.36	54.00	14.64	400	192	AV	Horizonta
5	2412.53	98.01	0.16	98.17			400	207	AV	Horizonta
6	2412.84	100.10	0.16	100.26			400	207	PK	Horizonta
7	4824.00	34.70	9.68	44.38	54.00	9.62	200	160	AV	Horizonta
8	4824.00	42.93	9.68	52.61	74.00	21.39	200	179	PK	Horizonta
9	7236.00	36.36	12.39	48.75	74.00	25.25	400	101	PK	Horizonta
10	7236.00	32.26	12.39	44.65	54.00	9.35	400	116	AV	Horizonta
11	9648.00	19.78	13.13	32.91	54.00	21.09	100	312	AV	Horizonta
12	9648.00	27.99	13.13	41.12	74.00	32.88	100	65	PK	Horizonta
13	2379.65	51.95	-0.29	51.66	74.00	22.34	100	150	PK	Vertical
14	2380.36	41.84	-0.29	41.55	54.00	12.45	100	142	AV	Vertical
15	2390.00	44.26	-0.15	44.11	54.00	9.89	200	142	AV	Vertical
16	2390.00	53.57	-0.15	53.42	74.00	20.58	200	136	PK	Vertical
17	2411.06	104.44	0.14	104.58			400	142	AV	Vertical
18	2412.86	106.53	0.16	106.69			400	13	PK	Vertical
19	4824.00	36.34	9.68	46.02	54.00	7.98	400	0	AV	Vertical
20	4824.00	44.14	9.68	53.82	74.00	20.18	400	359	PK	Vertical
21	7236.00	33.06	12.39	45.45	54.00	8.55	400	281	AV	Vertical
22	7236.00	36.87	12.39	49.26	74.00	24.74	400	281	PK	Vertical
23	9648.00	19.42	13.13	32.55	54.00	21.45	200	107	AV	Vertical
24	9648.00	27.41	13.13	40.54	74.00	33.46	200	336	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Channel	802.11b CH 6	Frequency	2437MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4874.00	34.41	9.71	44.12	54.00	9.88	400	314	AV	Horizontal
2	4874.00	42.48	9.71	52.19	74.00	21.81	400	9	PK	Horizontal
3	7311.00	31.87	11.03	42.90	54.00	11.10	400	123	AV	Horizontal
4	7311.00	37.08	11.03	48.11	74.00	25.89	400	123	PK	Horizontal
5	9748.00	19.17	13.24	32.41	54.00	21.59	300	52	AV	Horizontal
6	9748.00	26.27	13.24	39.51	74.00	34.49	300	108	PK	Horizontal
7	4874.00	34.76	9.71	44.47	54.00	9.53	100	357	AV	Vertical
8	4874.00	43.20	9.71	52.91	74.00	21.09	100	206	PK	Vertical
9	7311.00	33.54	11.03	44.57	54.00	9.43	100	269	AV	Vertical
10	7311.00	38.11	11.03	49.14	74.00	24.86	100	204	PK	Vertical
11	9748.00	18.71	13.24	31.95	54.00	22.05	300	344	AV	Vertical
12	9748.00	26.20	13.24	39.44	74.00	34.56	300	70	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11b CH 11	Frequency	2462MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2461.00	99.86	0.59	100.45			100	209	AV	Horizontal
2	2461.08	101.71	0.59	102.30			100	209	PK	Horizontal
3	2483.50	48.36	0.45	48.81	74.00	25.19	300	209	PK	Horizontal
4	2483.50	43.78	0.45	44.23	54.00	9.77	300	209	AV	Horizontal
5	2483.81	41.91	0.47	42.38	54.00	11.62	100	209	AV	Horizontal
6	2484.01	48.87	0.48	49.35	74.00	24.65	100	209	PK	Horizontal
7	4926.00	34.24	10.07	44.31	54.00	9.69	200	296	AV	Horizontal
8	4926.00	44.08	10.07	54.15	74.00	19.85	200	296	PK	Horizontal
9	7386.00	32.99	9.80	42.79	74.00	31.21	400	119	PK	Horizontal
10	7386.00	28.46	9.80	38.26	54.00	15.74	400	114	AV	Horizontal
11	9848.00	26.58	13.24	39.82	74.00	34.18	400	49	PK	Horizontal
12	9848.00	19.04	13.24	32.28	54.00	21.72	400	150	AV	Horizontal
13	2461.06	107.61	0.59	108.20			100	10	PK	Vertical
14	2462.84	105.76	0.64	106.40			100	10	AV	Vertical
15	2483.50	49.40	0.45	49.85	54.00	4.15	100	5	AV	Vertical
16	2483.50	54.70	0.45	55.15	74.00	18.85	100	334	PK	Vertical
17	2483.91	47.02	0.47	47.49	54.00	6.51	100	5	AV	Vertical
18	2484.57	54.02	0.50	54.52	74.00	19.48	100	43	PK	Vertical
19	4926.00	33.98	10.07	44.05	54.00	9.95	200	231	AV	Vertical
20	4926.00	42.13	10.07	52.20	74.00	21.80	200	297	PK	Vertical
21	7386.00	35.63	9.80	45.43	74.00	28.57	300	58	PK	Vertical
22	7386.00	31.10	9.80	40.90	54.00	13.10	300	277	AV	Vertical
23	9848.00	19.56	13.24	32.80	54.00	21.20	300	1	AV	Vertical
24	9848.00	26.91	13.24	40.15	74.00	33.85	300	3	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Channel	802.11g CH 1	Frequency	2412MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2387.19	52.25	-0.19	52.06	74.00	21.94	300	356	PK	Horizontal
2	2387.91	41.13	-0.18	40.95	54.00	13.05	300	177	AV	Horizontal
3	2390.00	40.35	-0.15	40.20	54.00	13.80	100	10	AV	Horizontal
4	2390.00	50.48	-0.15	50.33	74.00	23.67	100	118	PK	Horizontal
5	2412.51	98.78	0.16	98.94			200	198	PK	Horizontal
6	2413.00	91.26	0.17	91.43			200	206	AV	Horizontal
7	4824.00	34.60	9.68	44.28	54.00	9.72	100	115	AV	Horizontal
8	4824.00	43.03	9.68	52.71	74.00	21.29	100	115	PK	Horizontal
9	7236.00	21.42	12.39	33.81	54.00	20.19	300	128	AV	Horizontal
10	7236.00	30.05	12.39	42.44	74.00	31.56	300	137	PK	Horizontal
11	9648.00	19.33	13.13	32.46	54.00	21.54	300	137	AV	Horizontal
12	9648.00	27.84	13.13	40.97	74.00	33.03	300	263	PK	Horizontal
13	2386.94	60.95	-0.19	60.76	74.00	13.24	200	138	PK	Vertical
14	2388.40	48.39	-0.17	48.22	54.00	5.78	200	138	AV	Vertical
15	2390.00	59.37	-0.15	59.22	74.00	14.78	300	145	PK	Vertical
16	2390.00	47.99	-0.15	47.84	54.00	6.16	300	131	AV	Vertical
17	2412.64	98.12	0.16	98.28			100	138	AV	Vertical
18	2412.69	105.62	0.16	105.78			100	138	PK	Vertical
19	4824.00	34.31	9.68	43.99	54.00	10.01	300	144	AV	Vertical
20	4824.00	43.39	9.68	53.07	74.00	20.93	300	359	PK	Vertical
21	7236.00	36.70	12.39	49.09	74.00	24.91	200	205	PK	Vertical
22	7236.00	29.63	12.39	42.02	54.00	11.98	200	280	AV	Vertical
23	9648.00	19.29	13.13	32.42	54.00	21.58	400	86	AV	Vertical
24	9648.00	27.47	13.13	40.60	74.00	33.40	400	326	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11g CH 6	Frequency	2437MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4874.00	34.12	9.71	43.83	54.00	10.17	400	294	AV	Horizontal
2	4874.00	42.43	9.71	52.14	74.00	21.86	400	98	PK	Horizontal
3	7311.00	34.96	11.03	45.99	74.00	28.01	300	121	PK	Horizontal
4	7311.00	27.98	11.03	39.01	54.00	14.99	300	106	AV	Horizontal
5	9748.00	18.78	13.24	32.02	54.00	21.98	100	237	AV	Horizontal
6	9748.00	26.61	13.24	39.85	74.00	34.15	100	130	PK	Horizontal
7	4874.00	34.77	9.71	44.48	54.00	9.52	400	52	AV	Vertical
8	4874.00	43.39	9.71	53.10	74.00	20.90	400	27	PK	Vertical
9	7311.00	27.95	11.03	38.98	54.00	15.02	200	33	AV	Vertical
10	7311.00	38.24	11.03	49.27	74.00	24.73	200	193	PK	Vertical
11	9748.00	18.97	13.24	32.21	54.00	21.79	200	100	AV	Vertical
12	9748.00	26.35	13.24	39.59	74.00	34.41	200	100	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Channel	802.11g CH 11	Frequency	2462MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2462.51	100.69	0.63	101.32			300	196	PK	Horizontal
2	2462.77	94.18	0.64	94.82			300	203	AV	Horizontal
3	2483.50	54.62	0.45	55.07	74.00	18.93	400	196	PK	Horizontal
4	2483.50	43.85	0.45	44.30	54.00	9.70	400	203	AV	Horizontal
5	2484.06	45.26	0.48	45.74	54.00	8.26	200	203	AV	Horizontal
6	2484.29	55.59	0.48	56.07	74.00	17.93	200	203	PK	Horizontal
7	4926.00	42.12	10.07	52.19	74.00	21.81	400	148	PK	Horizontal
8	4926.00	34.03	10.07	44.10	54.00	9.90	400	359	AV	Horizontal
9	7386.00	30.36	9.80	40.16	74.00	33.84	100	42	PK	Horizontal
10	7386.00	21.51	9.80	31.31	54.00	22.69	100	319	AV	Horizontal
11	9848.00	26.55	13.24	39.79	74.00	34.21	300	123	PK	Horizontal
12	9848.00	18.61	13.24	31.85	54.00	22.15	300	128	AV	Horizontal
13	2460.93	100.13	0.59	100.72			400	19	AV	Vertical
14	2462.71	106.75	0.64	107.39			400	19	PK	Vertical
15	2483.50	49.64	0.45	50.09	54.00	3.91	400	32	AV	Vertical
16	2483.50	59.10	0.45	59.55	74.00	14.45	400	38	PK	Vertical
17	2483.90	63.05	0.47	63.52	74.00	10.48	400	6	PK	Vertical
18	2484.23	50.28	0.48	50.76	54.00	3.24	400	32	AV	Vertical
19	4926.00	34.65	10.07	44.72	54.00	9.28	200	28	AV	Vertical
20	4926.00	42.91	10.07	52.98	74.00	21.02	200	28	PK	Vertical
21	7386.00	35.26	9.80	45.06	74.00	28.94	100	203	PK	Vertical
22	7386.00	26.33	9.80	36.13	54.00	17.87	100	57	AV	Vertical
23	9848.00	18.87	13.24	32.11	54.00	21.89	400	333	AV	Vertical
24	9848.00	26.82	13.24	40.06	74.00	33.94	400	47	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH 1	Frequency	2412MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2374.99	41.21	-0.27	40.94	54.00	13.06	400	288	AV	Horizontal
2	2389.42	56.69	-0.16	56.53	74.00	17.47	400	38	PK	Horizontal
3	2390.00	40.17	-0.15	40.02	54.00	13.98	300	19	AV	Horizontal
4	2390.00	52.59	-0.15	52.44	74.00	21.56	300	46	PK	Horizontal
5	2412.47	92.10	0.16	92.26			300	207	AV	Horizontal
6	2413.04	99.56	0.17	99.73			300	207	PK	Horizontal
7	4824.00	34.91	9.68	44.59	54.00	9.41	300	129	AV	Horizontal
8	4824.00	42.63	9.68	52.31	74.00	21.69	300	272	PK	Horizontal
9	7236.00	29.97	12.39	42.36	74.00	31.64	400	122	PK	Horizontal
10	7236.00	22.50	12.39	34.89	54.00	19.11	400	122	AV	Horizontal
11	9648.00	19.25	13.13	32.38	54.00	21.62	300	172	AV	Horizontal
12	9648.00	27.15	13.13	40.28	74.00	33.72	300	157	PK	Horizontal
13	2384.52	63.08	-0.22	62.86	74.00	11.14	100	138	PK	Vertical
14	2389.12	49.38	-0.16	49.22	54.00	4.78	100	144	AV	Vertical
15	2390.00	47.34	-0.15	47.19	54.00	6.81	300	138	AV	Vertical
16	2390.00	63.95	-0.15	63.80	74.00	10.20	300	22	PK	Vertical
17	2409.95	107.27	0.13	107.40			300	0	PK	Vertical
18	2411.28	99.11	0.15	99.26			300	138	AV	Vertical
19	4824.00	42.74	9.68	52.42	74.00	21.58	100	309	PK	Vertical
20	4824.00	34.46	9.68	44.14	54.00	9.86	100	47	AV	Vertical
21	7233.75	39.74	12.42	52.16	74.00	21.84	200	199	PK	Vertical
22	7237.26	31.60	12.37	43.97	54.00	10.03	200	271	AV	Vertical
23	9648.00	26.44	13.13	39.57	74.00	34.43	300	55	PK	Vertical
24	9648.00	19.01	13.13	32.14	54.00	21.86	300	236	AV	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH 6	Frequency	2437MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4824.00	34.91	9.68	44.59	54.00	9.41	300	129	AV	Horizontal
2	4824.00	42.63	9.68	52.31	74.00	21.69	300	272	PK	Horizontal
3	7236.00	29.97	12.39	42.36	74.00	31.64	400	122	PK	Horizontal
4	7236.00	22.50	12.39	34.89	54.00	19.11	400	122	AV	Horizontal
5	9648.00	19.25	13.13	32.38	54.00	21.62	400	172	AV	Horizontal
6	9648.00	27.15	13.13	40.28	74.00	33.72	400	157	PK	Horizontal
7	4874.00	34.31	9.71	44.02	54.00	9.98	100	95	AV	Vertical
8	4874.00	43.13	9.71	52.84	74.00	21.16	100	277	PK	Vertical
9	7309.81	35.74	11.04	46.78	74.00	27.22	100	295	PK	Vertical
10	7311.00	24.66	11.03	35.69	54.00	18.31	100	280	AV	Vertical
11	9748.00	27.70	13.24	40.94	74.00	33.06	100	260	PK	Vertical
12	9748.00	19.47	13.24	32.71	54.00	21.29	100	78	AV	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH 11	Frequency	2462MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2460.83	101.38	0.59	101.97			200	201	PK	Horizontal
2	2462.64	94.99	0.63	95.62			200	201	AV	Horizontal
3	2483.50	48.14	0.45	48.59	74.00	25.41	100	181	PK	Horizontal
4	2483.50	40.82	0.45	41.27	54.00	12.73	100	201	AV	Horizontal
5	2483.88	55.15	0.47	55.62	74.00	18.38	200	4	PK	Horizontal
6	2483.96	43.05	0.47	43.52	54.00	10.48	200	208	AV	Horizontal
7	4874.00	42.63	9.71	52.34	74.00	21.66	100	138	PK	Horizontal
8	4874.00	34.66	9.71	44.37	54.00	9.63	100	118	AV	Horizontal
9	7311.00	28.92	11.03	39.95	74.00	34.05	200	247	PK	Horizontal
10	7311.00	20.65	11.03	31.68	54.00	22.32	200	354	AV	Horizontal
11	9748.00	27.45	13.24	40.69	74.00	33.31	100	278	PK	Horizontal
12	9748.00	18.77	13.24	32.01	54.00	21.99	100	49	AV	Horizontal
13	2461.18	101.01	0.60	101.61			400	12	AV	Vertical
14	2462.22	108.65	0.63	109.28			400	12	PK	Vertical
15	2483.50	57.76	0.45	58.21	74.00	15.79	300	7	PK	Vertical
16	2483.50	47.32	0.45	47.77	54.00	6.23	300	350	AV	Vertical
17	2483.90	50.19	0.47	50.66	54.00	3.34	300	360	AV	Vertical
18	2483.90	64.52	0.47	64.99	74.00	9.01	300	360	PK	Vertical
19	4926.00	33.90	10.07	43.97	54.00	10.03	200	180	AV	Vertical
20	4926.00	41.43	10.07	51.50	74.00	22.50	200	67	PK	Vertical
21	7386.00	23.61	9.80	33.41	54.00	20.59	100	47	AV	Vertical
22	7386.00	31.84	9.80	41.64	74.00	32.36	100	267	PK	Vertical
23	9848.00	19.30	13.24	32.54	54.00	21.46	100	175	AV	Vertical
24	9848.00	27.77	13.24	41.01	74.00	32.99	100	267	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	BT-LE 1Mbps	Frequency	2402MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2388.63	52.28	-0.17	52.11	74.00	21.89	300	223	PK	Horizontal
2	2388.65	41.69	-0.17	41.52	54.00	12.48	300	223	AV	Horizontal
3	2390.00	40.84	-0.15	40.69	54.00	13.31	400	242	AV	Horizontal
4	2390.00	48.06	-0.15	47.91	74.00	26.09	400	117	PK	Horizontal
5	2401.96	100.08	-0.04	100.04			200	309	AV	Horizontal
6	2402.21	100.92	-0.02	100.90			200	328	PK	Horizontal
7	4804.00	42.25	9.29	51.54	74.00	22.46	300	30	PK	Horizontal
8	4804.00	35.00	9.29	44.29	54.00	9.71	300	30	AV	Horizontal
9	7205.67	26.36	12.82	39.18	54.00	14.82	300	1	AV	Horizontal
10	7206.00	32.78	12.81	45.59	74.00	28.41	300	45	PK	Horizontal
11	9608.00	23.37	13.32	36.69	54.00	17.31	200	1	AV	Horizontal
12	9608.00	30.81	13.32	44.13	74.00	29.87	200	353	PK	Horizontal
13	2369.26	49.94	-0.23	49.71	74.00	24.29	100	248	PK	Vertical
14	2379.87	40.27	-0.29	39.98	54.00	14.02	100	254	AV	Vertical
15	2390.00	39.99	-0.15	39.84	54.00	14.16	300	65	AV	Vertical
16	2390.00	47.99	-0.15	47.84	74.00	26.16	300	207	PK	Vertical
17	2401.70	105.31	-0.04	105.27			400	52	PK	Vertical
18	2401.88	104.60	-0.04	104.56			400	52	AV	Vertical
19	4804.00	41.35	9.29	50.64	74.00	23.36	300	340	PK	Vertical
20	4804.00	34.75	9.29	44.04	54.00	9.96	300	10	AV	Vertical
21	7206.00	23.63	12.81	36.44	54.00	17.56	200	20	AV	Vertical
22	7206.00	31.55	12.81	44.36	74.00	29.64	200	270	PK	Vertical
23	9608.00	30.75	13.32	44.07	74.00	29.93	300	260	PK	Vertical
24	9608.00	23.30	13.32	36.62	54.00	17.38	300	110	AV	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Channel	BT-LE 1Mbps	Frequency	2440MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4880.00	43.71	9.79	53.50	74.00	20.50	400	289	PK	Horizontal
2	4880.00	34.69	9.79	44.48	54.00	9.52	400	256	AV	Horizontal
3	7320.00	27.06	11.02	38.08	54.00	15.92	400	354	AV	Horizontal
4	7320.00	35.85	11.02	46.87	74.00	27.13	400	359	PK	Horizontal
5	9760.00	30.96	13.25	44.21	74.00	29.79	100	270	PK	Horizontal
6	9760.00	22.86	13.25	36.11	54.00	17.89	100	230	AV	Horizontal
7	4880.00	34.91	9.79	44.70	54.00	9.30	400	180	AV	Vertical
8	4880.00	42.60	9.79	52.39	74.00	21.61	400	10	PK	Vertical
9	7320.00	31.86	11.02	42.88	74.00	31.12	200	110	PK	Vertical
10	7320.00	24.03	11.02	35.05	54.00	18.95	200	150	AV	Vertical
11	9760.00	22.79	13.25	36.04	54.00	17.96	400	300	AV	Vertical
12	9760.00	31.30	13.25	44.55	74.00	29.45	400	250	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	BT-LE 1Mbps	Frequency	2480MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2479.73	98.73	0.32	99.05			100	249	PK	Horizontal
2	2479.95	98.01	0.31	98.32			100	249	AV	Horizontal
3	2483.50	36.92	0.45	37.37	54.00	16.63	200	341	AV	Horizontal
4	2483.50	44.59	0.45	45.04	74.00	28.96	200	335	PK	Horizontal
5	2485.88	47.67	0.55	48.22	74.00	25.78	300	282	PK	Horizontal
6	2486.87	37.75	0.59	38.34	54.00	15.66	300	255	AV	Horizontal
7	4960.00	41.92	10.70	52.62	74.00	21.38	100	308	PK	Horizontal
8	4960.00	33.94	10.70	44.64	54.00	9.36	100	31	AV	Horizontal
9	7440.00	24.85	9.75	34.60	54.00	19.40	400	72	AV	Horizontal
10	7440.00	32.34	9.75	42.09	74.00	31.91	400	350	PK	Horizontal
11	9920.00	30.01	13.83	43.84	74.00	30.16	100	360	PK	Horizontal
12	9920.00	22.95	13.83	36.78	54.00	17.22	100	360	AV	Horizontal
13	2479.72	105.16	0.32	105.48			400	9	PK	Vertical
14	2479.87	104.51	0.32	104.83			400	16	AV	Vertical
15	2483.50	46.58	0.45	47.03	74.00	26.97	400	67	PK	Vertical
16	2483.50	38.82	0.45	39.27	54.00	14.73	400	67	AV	Vertical
17	2485.53	48.29	0.54	48.83	74.00	25.17	400	74	PK	Vertical
18	2486.00	38.60	0.55	39.15	54.00	14.85	400	87	AV	Vertical
19	4960.00	34.40	10.70	45.10	54.00	8.90	300	280	AV	Vertical
20	4960.00	42.60	10.70	53.30	74.00	20.70	300	310	PK	Vertical
21	7440.00	32.50	9.75	42.25	74.00	31.75	300	160	PK	Vertical
22	7440.00	24.28	9.75	34.03	54.00	19.97	300	330	AV	Vertical
23	9920.00	23.58	13.83	37.41	54.00	16.59	200	180	AV	Vertical
24	9920.00	30.95	13.83	44.78	74.00	29.22	200	320	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	BT-LE 2Mbps	Frequency	2402MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2362.67	50.61	-0.02	50.59	74.00	23.41	200	281	PK	Horizontal
2	2374.92	41.47	-0.27	41.20	54.00	12.80	200	194	AV	Horizontal
3	2390.00	39.10	-0.15	38.95	54.00	15.05	100	214	AV	Horizontal
4	2390.00	48.34	-0.15	48.19	74.00	25.81	100	107	PK	Horizontal
5	2401.99	99.25	-0.04	99.21			400	328	AV	Horizontal
6	2402.44	101.01	-0.02	100.99			400	335	PK	Horizontal
7	4804.00	42.10	9.29	51.39	74.00	22.61	300	72	PK	Horizontal
8	4804.00	34.28	9.29	43.57	54.00	10.43	300	256	AV	Horizontal
9	7206.00	32.02	12.81	44.83	74.00	29.17	400	354	PK	Horizontal
10	7206.00	25.22	12.81	38.03	54.00	15.97	400	354	AV	Horizontal
11	9608.00	31.48	13.32	44.80	74.00	29.20	300	309	PK	Horizontal
12	9608.00	23.88	13.32	37.20	54.00	16.80	300	163	AV	Horizontal
13	2370.09	50.72	-0.26	50.46	74.00	23.54	200	335	PK	Vertical
14	2370.58	40.18	-0.26	39.92	54.00	14.08	200	335	AV	Vertical
15	2390.00	38.90	-0.15	38.75	54.00	15.25	400	50	AV	Vertical
16	2390.00	48.10	-0.15	47.95	74.00	26.05	400	37	PK	Vertical
17	2401.50	105.24	-0.04	105.20			100	44	PK	Vertical
18	2402.03	103.60	-0.04	103.56			100	50	AV	Vertical
19	4804.00	34.19	9.29	43.48	54.00	10.52	400	274	AV	Vertical
20	4804.00	42.99	9.29	52.28	74.00	21.72	400	195	PK	Vertical
21	7206.00	32.77	12.81	45.58	74.00	28.42	100	217	PK	Vertical
22	7206.00	25.14	12.81	37.95	54.00	16.05	100	217	AV	Vertical
23	9608.00	23.32	13.32	36.64	54.00	17.36	300	157	AV	Vertical
24	9608.00	31.26	13.32	44.58	74.00	29.42	300	276	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	BT-LE 2Mbps	Frequency	2440MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4880.00	43.12	9.79	52.91	74.00	21.09	400	90	PK	Horizontal
2	4880.00	34.10	9.79	43.89	54.00	10.11	400	0	AV	Horizontal
3	7320.00	32.60	11.02	43.62	74.00	30.38	100	360	PK	Horizontal
4	7320.00	27.10	11.02	38.12	54.00	15.88	100	358	AV	Horizontal
5	9760.00	30.58	13.25	43.83	74.00	30.17	300	155	PK	Horizontal
6	9760.00	22.79	13.25	36.04	54.00	17.96	300	356	AV	Horizontal
7	4880.00	34.29	9.79	44.08	54.00	9.92	200	85	AV	Vertical
8	4880.00	41.94	9.79	51.73	74.00	22.27	200	316	PK	Vertical
9	7320.00	34.07	11.02	45.09	74.00	28.91	400	216	PK	Vertical
10	7320.00	27.21	11.02	38.23	54.00	15.77	400	184	AV	Vertical
11	9760.00	22.73	13.25	35.98	54.00	18.02	200	0	AV	Vertical
12	9760.00	30.50	13.25	43.75	74.00	30.25	200	91	PK	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	BT-LE 2Mbps	Frequency	2480MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Suspected Data List										
N O.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2479.48	98.86	0.34	99.20			100	254	PK	Horizontal
2	2479.91	97.09	0.31	97.40			100	117	AV	Horizontal
3	2483.50	47.27	0.45	47.72	74.00	26.28	100	84	PK	Horizontal
4	2483.50	39.41	0.45	39.86	54.00	14.14	100	78	AV	Horizontal
5	2488.26	37.84	0.65	38.49	54.00	15.51	100	97	AV	Horizontal
6	2491.70	48.50	0.67	49.17	74.00	24.83	100	274	PK	Horizontal
7	4960.00	34.48	10.70	45.18	54.00	8.82	200	185	AV	Horizontal
8	4960.00	42.98	10.70	53.68	74.00	20.32	200	244	PK	Horizontal
9	7440.00	32.90	9.75	42.65	74.00	31.35	100	357	PK	Horizontal
10	7440.00	26.11	9.75	35.86	54.00	18.14	100	359	AV	Horizontal
11	9920.00	23.08	13.83	36.91	54.00	17.09	400	156	AV	Horizontal
12	9920.00	30.81	13.83	44.64	74.00	29.36	400	97	PK	Horizontal
13	2479.52	105.21	0.33	105.54			100	14	PK	Vertical
14	2479.98	103.76	0.31	104.07			100	8	AV	Vertical
15	2483.50	44.24	0.45	44.69	54.00	9.31	400	14	AV	Vertical
16	2483.50	50.91	0.45	51.36	74.00	22.64	400	8	PK	Vertical
17	2483.60	43.83	0.46	44.29	54.00	9.71	100	14	AV	Vertical
18	2483.93	50.84	0.47	51.31	74.00	22.69	100	61	PK	Vertical
19	4960.00	42.42	10.70	53.12	74.00	20.88	200	295	PK	Vertical
20	4960.00	35.05	10.70	45.75	54.00	8.25	200	79	AV	Vertical
21	7440.00	26.55	9.75	36.30	54.00	17.70	400	203	AV	Vertical
22	7440.00	33.08	9.75	42.83	74.00	31.17	400	322	PK	Vertical
23	9920.00	30.64	13.83	44.47	74.00	29.53	300	110	PK	Vertical
24	9920.00	23.08	13.83	36.91	54.00	17.09	300	360	AV	Vertical

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV) + Factor (dB/m).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3.3 6DB BANDWIDTH MEASUREMENT

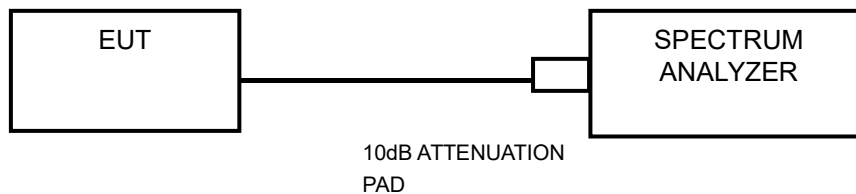
3.3.1 Limits

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 Measurement procedure

- Set resolution bandwidth (RBW) = 100KHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.3.3 Test setup



3.4 CONDUCTED OUTPUT POWER

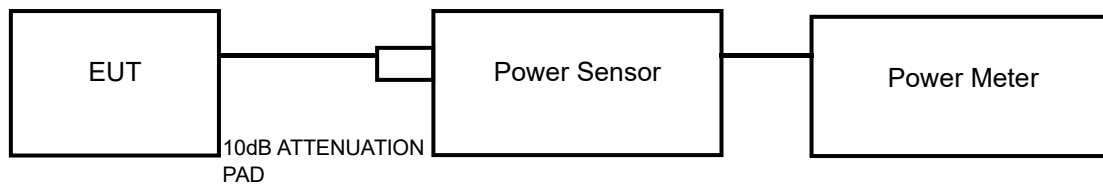
3.4.1 Limits

For DTS employing digital modulation techniques operating in the bands 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W,

3.4.2 Measurement procedure

- A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor and set the detector to PEAK. Record the power level.
- An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor and set the detector to AVERAGE. Record the power level.

3.4.3 Test setup



3.5 POWER SPECTRAL DENSITY MEASUREMENT

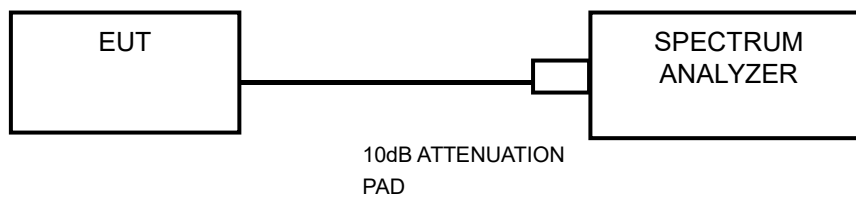
3.5.1 Limits

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

3.5.2 Measurement procedure

- Set instrument center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set RBW to: 3KHz
- Set VBW $\geq 3 \times$ RBW.
- Detector = peak
- Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
- Sweep time = auto couple.
- Use the peak marker function to determine the maximum amplitude level.

3.5.3 Test setup



3.6 OUT OF BAND EMISSION MEASUREMENT

3.6.1 Limits

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

3.6.2 Measurement procedure

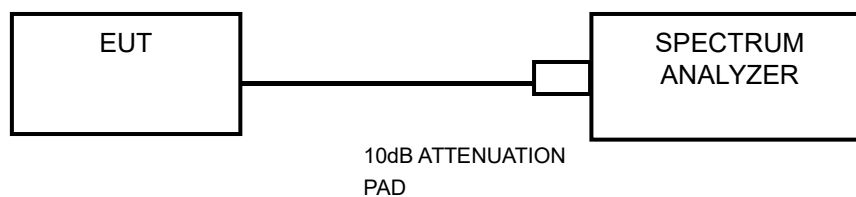
Measurement Procedure -Reference Level

- Set the RBW = 100 kHz.
- Set the VBW $\geq$ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHzband segment within the fundamental EBW.

Measurement Procedure –Unwanted Emission Level

- Set RBW = 100 kHz.
- Set VBW $\geq$ 300 kHz.
- Set span to encompass the spectrum to be examined
- Detector = peak.
- Trace Mode = max hold.
- Sweep = auto couple.

3.6.3 Test setup



3.7 OCCUPIED BANDWIDTH MEASUREMENT

3.7.1 Measurement procedure

The transmitter antenna output was connected to the spectrum analyzer through an attenuator. The resolution bandwidth shall be set to the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.
below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.7.2 TEST SETUP





3.8 ANTENNA REQUIREMENT

3.8.1 LIMITS OFFREQUENCY STABILITY

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b) , if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.8.2 ANTENNA ANTI-REPLACEMENT CONSTRUCTION

The antenna used for this product is External antenna and that no antenna other than that furnished by the responsible party shall be used with the device

3.8.3 ANTENNA GAIN

The maximum peak gain of the transmit antenna is 2.75 dBi.

4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Setup Photo).

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5 PHOTOGRAPHS OF THE EUT

Please refer to the attached file (External Photos report and Internal Photos).

----- End of the Report -----



Important

- (1) The test report is valid without the official stamp of CVC;
- (2) Any part photocopies of the test report are forbidden without the written permission from CVC;
- (3) The test report is invalid without the signatures of Approval and Reviewer;
- (4) The test report is invalid if altered;
- (5) Objections to the test report must be submitted to CVC within 15 days.
- (6) Generally, commission test is responsible for the tested samples only.
- (7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

The test data and test results given in this test report should only be used for purposes of scientific research, teaching and internal quality control when the CMA symbol is not presented.

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