Test Report No.:
FCC2022-0068-RF1A1

RF Test Report

EUT	:	**WIFI Module**
MODEL	:	**WF-U21DS-SSC1**
BRAND NAME	:	**N/A**
CLIENT	:	**Sichuan AI-Link Technology Co.,Ltd.**
Classification Of Test	:	**N/A**

CVC Testing Technology Co., Ltd.

Client	**Name : Sichuan AI-Link Technology Co.,Ltd.** **Address : Anzhou Industrial Park, Mianyang, Sichuan, P.R.C**
Manufacturer	**Name : Sichuan AI-Link Technology Co.,Ltd.** **Address : Anzhou Industrial Park, Mianyang, Sichuan, P.R.C**
Equipment Under Test	**Name : WIFI Module** **Model/Type: WF-U21DS-SSC1** **Trade mark : N/A** **Serial NO.:N/A** **Sample NO.:1-1**

Date of Receipt.	**2021.11.10**	Date of Testing	**2022.02.21～2023.01.04**

Test Specification	**Test Result**
FCC Part 15, Subpart C, Section 15.247	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Issue Date: 2023.06.19**

Tested by:	Reviewed by:	Approved by:
Xu ZhenFei	**Liu YongHai**	**Chen HuaWen**
Name Signature	Name Signature	Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2022-0068-RF1	Original release	2023.01.05
FCC2022-0068-RF1A1	Update Testing Date	2023.06.19

Note:After the release of a new report, it will replace the original report.

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**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit.
15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.247(d) 15.209 8.10 Table 7 8.9 Table 5	Band Edge Measurement	PASS	Meet the requirement of limit.
15.247(d) 5.5	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(a)(2) 5.2(a)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(b) 5.4(d)	Power Spectral Density	PASS	Meet the requirement of limit.
15.247(e) 5.2(b)	Antenna Requirement	PASS	Meet the requirement of limit.

1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
WIFI & Bluetooth Test System 1					/
Communication Shielded Room 2	4m*3m*3m	CRTDSWKSR44301	VGDS-0700	CRT	2024/04/24
Bluetooth system integration	/	/	-	Tonscend	/
Spectrum Analyzer	FSV40	101580	DZ-000238-3	R&S	2023/06/05
Comprehensive Test Instrument	CMW270	100304	DZ-000240-1	R&S	2023/12/06
Analog Signal Generator	SMB100A	181858	DZ-000238-2	R&S	2023/06/05
Vector Signal Generator	SGT100A	111661	DZ-000238-1	R&S	2023/06/05
RF Radio Frequency Switch	JS0806-2	19H9080187	`	Tonscend	2023/06/06
Programmable DC Power Supply	E3644A	MY58036222	DZ-000178	KEYSIGHT	2023/04/21
Radiation SpuriousTest System					/
3m Semi-Anechoic Chamber	FACT-4	ST08035	WKNA-0024	ETS	2024/12/12
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2023/03/02
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2023/03/02
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2023/06/25
Waveguide Horn Antenna	HF906	360306/008	EM-000093	R&S	2023/03/04
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZBECK	2023/07/31
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2023/06/05
5G Bandstop Filters	WRCJV12-4900-5100-5900-6100-50EE	851770	DZ-000186	WI	2023/12/06
Comprehensive tester	CMW500	159000	DZ-000240-2	R&S	2023/12/06
Conducted emission					/
EMI Test Receiver	ESR3	102394	VGDY-0705	R&S	2023-03-04
LISN	NSLK 8128	8128-316	VGDY-0149	SCHWARZBECK	2023-09-04
DC LISN	PVDC8301-017	PVDC8301#17	VGDY-0692	SCHWARZBECK	2023-10-08
LISN	NSLK 8129	8129-268	EM-000388	SCHWARZBECK	2023-03-03
Plus Limiter（#1）	VTSD 9561 F-N	00515	VGDY-0808	SCHWARZBECK	2023-03-04
Impedance Stabilization Network	ISN T800	27095	WKNE-0195	TESEQ	2023-09-04
Impedance Stabilization Network	NTFM8158	8158-0092	VGDY-0356	SCHWARZBECK	2023-06-07
ImpedanceStabilizationNetwork	NTFM8131	#184	EM-000498	SCHWARZBECK	2023-06-07
Voltage Probe	TK9420	9420-499	VGDY-0128	SCHWARZBECK	2023-03-04
Power Divider	4901.17.B	22643830	DB-0016	HUBER+SUHNER	2023-09-01
Video Signal Generator	GV-798+	151064920001	VGDS-0215	PROMAX	2023-05-30
Shielding Room(#1)	GP1A	001	WKNF-0001	LEINING	2024-08-08

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	FREQUENCY	UNCERTAINTY
1	Conducted emissions	9kHz~30MHz	±2.66dB
2	Radiated emissions	9KHz ~ 30MHz	±0.769dB
		30MHz ~ 1GMHz	±0.877dB
		1GHz ~ 18GHz	±0.777dB
		18GHz ~ 40GHz	±1.315dB

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

1.3 TEST LOCATION

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

Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China
Post Code：510663 Tel：020-32293888
FAX：020-32293889 E-mail：office@cvc.org.cn

2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	WIFI Module
BRAND	N/A
MODEL	WF-U21DS-SSC1
ADDITIONAL MODEL	/
FCC ID	2AOKI-AL5621D1
POWER SUPPLY	DC 3.3V
MODULATIONTECHNOLOGY	DSSS, GFKS,OFDM, OFDMA
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 64QAM, 16QAM, QPSK, BPSK for OFDMA GKSK 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	WLAN: 20.22dBm (Maximum) BLE:2.02dBm (Maximum)
ANTENNA TYPE（Remark 4）	WLAN: ANT0:External Antenna, with 3.46dBi gain ANT1:External Antenna, with 3.46dBi gain BT-LE: External Antenna, with 3.46dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document for detailed product photo. (Report NO.: FCC2022-0068-E)
4. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
5. The EUT have MIMO function, provides 2 completed transmitter and 2 receiver.
6. The Test Model is the same with the the original model WF-U21DS-SSA1 in Test Report No.FCC2022-0012 except that the model under test this time is added the shield.Therefore,we only test the radiated emission and as for the other test items ,we refer to the data in Test Report No.FCC2022-0012-RF1.

2.2 Description of Accessories

N/A

2.3 OTHER INFORMATION

Operating frequency of each channel

2.4G WIFI					
802.11b/g/n (HT20)/ax(HE20)					
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		
802.11/n (HT40) ax(HE40)					
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)							
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. 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.

2. By means of test software which provided by manufacture, the power levels during the tests were set according to the following codes:

2.4G WIFI							
802.11b		802.11g		802.11n(HT20)		802.11n(HT40)	
FREQUENCY(MHZ)	**POWER SETTING**	**FREQUENCY(MHZ)**	**POWER SETTING**	**FREQUENCY(MHZ)**	**POWER SETTING**	**FREQUENCY(MHZ)**	**POWER SETTING**
2412	17	**2412**	15	**2412**	13	**2422**	13
2437	17	**2437**	15	**2437**	13	**2437**	13
2462	17	**2462**	15	**2462**	13	**2452**	13

BT-LE(1 Mbps)

GFSK					
CHANNEL	POWER SETTING	CHANNEL	POWER SETTING	CHANNEL	POWER SETTING
0	DEFAULT	19	DEFAULT	39	DEFAULT

2.4 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 **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **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	6.0

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 Mbit/s
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0 Mbit/s
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
A	802.11n(HT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0 Mbit/s

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
-	BT LINK + WIFI (2.4G) 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 (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0 Mbit/s
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0 Mbit/s
A	802.11n(HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
A	802.11n(HT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
B	BT-LE	0 to 39	0,19, 39	DTS	GFSK	1.0 Mbit/s

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RE<1G	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
RE≥1G	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
PLC	24deg. C, 55%RH	DC 3.3V from USB host unit	Liu ShiWei
APCM	25deg. C, 58%RH	DC 3.3V from USB host unit	Liu ShiWei

2.5 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 C63.10-2020

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

2.6 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
N/A	N/A	N/A	N/A	N/A	N/A

Support Cable							
NO	Description	Quantity (Number)	Length (cm)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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.		

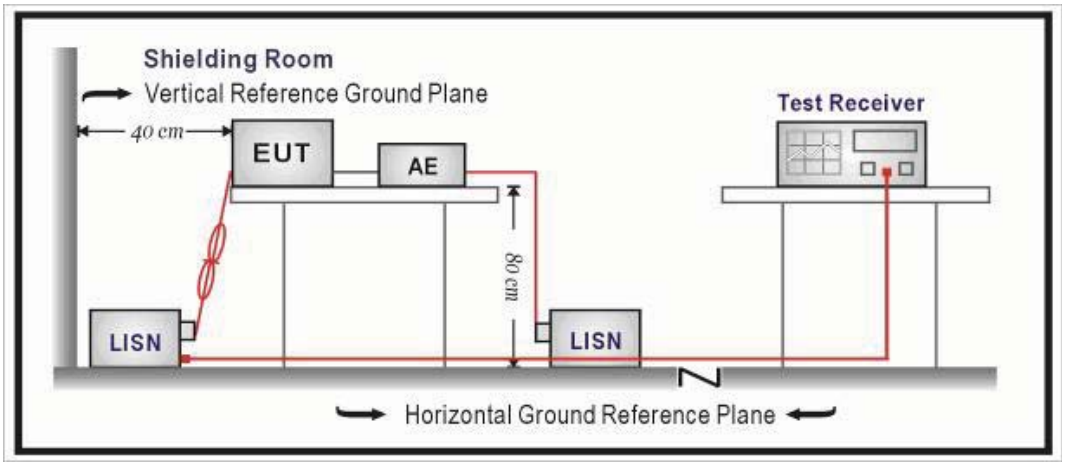
3.1.2 Measurement procedure

a. 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 be1.5m above the ground,

b. 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.

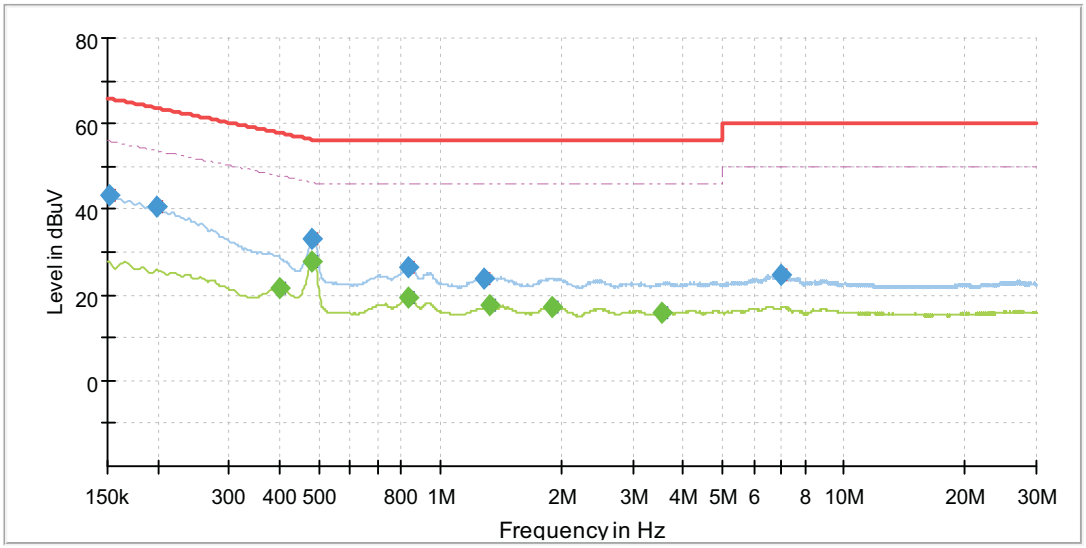
c. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.1.3 Test setup



3.1.4 Test results

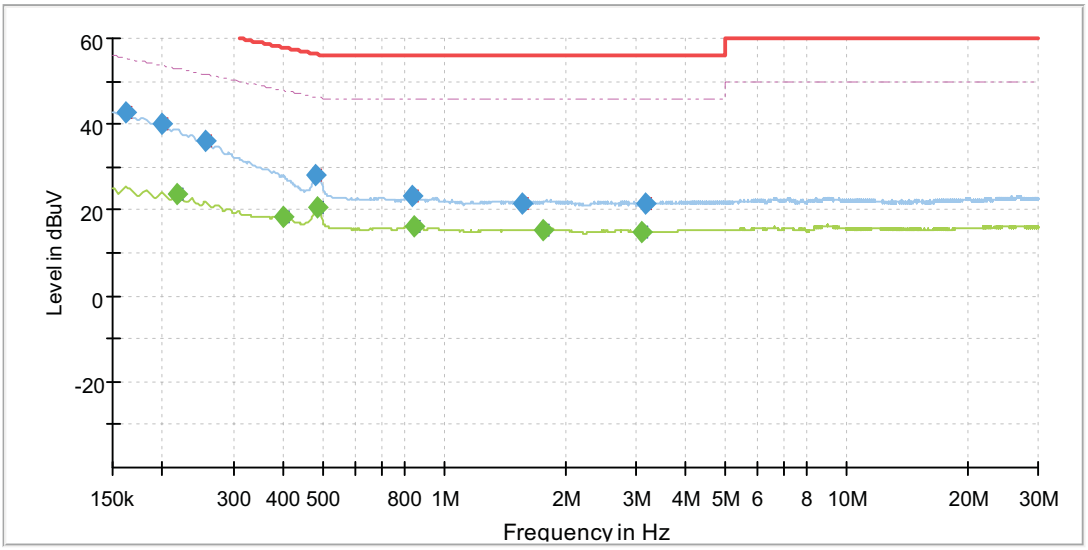
Test Mode	BT Link+2.4G WIFI Link	Frequency Range	150KHz ~ 30MHz
PHASE	Line (L)		



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.152	43.2	---	65.9	22.7	L1	19.5
2	0.200	40.4	---	63.6	23.2	L1	19.5
3	0.400	---	21.6	47.9	26.3	L1	19.5
4	**0.483**	**---**	**27.9**	**46.3**	**18.3**	**L1**	**19.5**
5	0.483	32.9	---	56.3	23.4	L1	19.5
6	0.832	26.3	---	56.0	29.7	L1	19.6
7	0.834	---	19.4	46.0	26.6	L1	19.6
8	1.291	23.8	---	56.0	32.2	L1	19.5
9	1.329	---	17.6	46.0	28.4	L1	19.5
10	1.885	---	17.2	46.0	28.8	L1	19.6
11	3.539	---	15.9	46.0	30.1	L1	19.6
12	6.979	24.6	---	60.0	35.4	L1	19.7

Remark: The emission levels of other frequencies were very low against the limit.

Test Mode	BT Link+2.4G WIFI Link	Frequency Range	150KHz ~ 30MHz
PHASE	Line (N)		



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	**0.161**	**42.6**	**---**	**65.4**	**22.8**	**N**	**19.5**
2	0.200	40.2	---	63.6	23.5	N	19.5
3	0.218	---	23.5	52.9	29.4	N	19.5
4	0.256	36.0	---	61.6	25.5	N	19.6
5	0.400	---	18.3	47.9	29.5	N	19.6
6	0.479	28.3	---	56.4	28.1	N	19.6
7	0.485	---	20.5	46.2	25.7	N	19.6
8	0.836	23.4	---	56.0	32.6	N	19.6
9	0.841	---	16.3	46.0	29.7	N	19.6
10	1.561	21.7	---	56.0	34.3	N	19.6
11	1.754	---	15.1	46.0	30.9	N	19.6
12	3.104	---	14.9	46.0	31.1	N	19.6

Remark: The emission levels of other frequencies were very low against the limit.

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

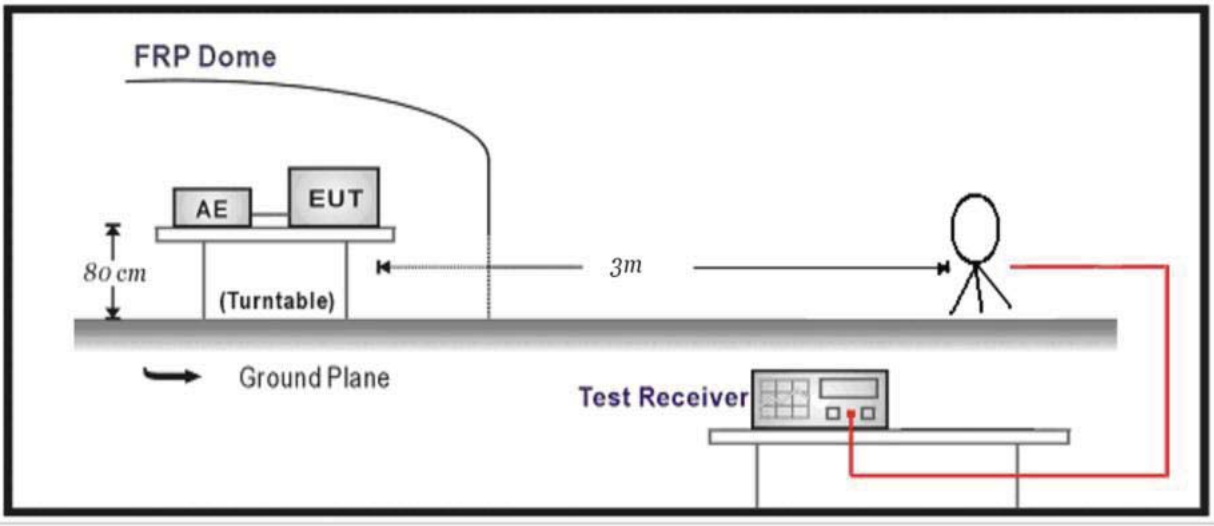
a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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.
g. 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:

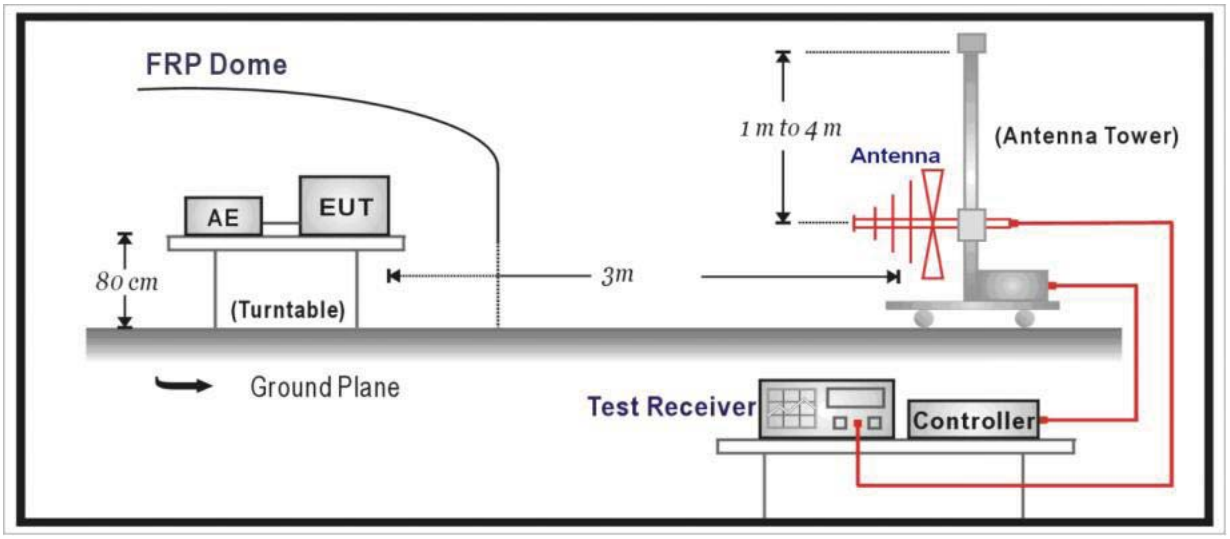
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ⩾ 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

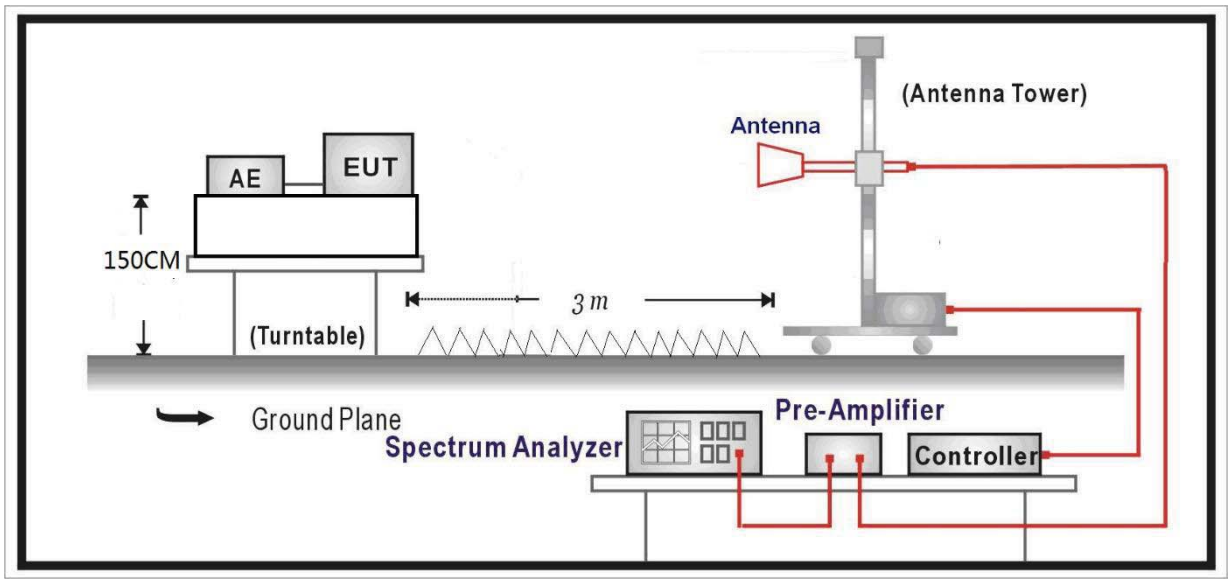
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:

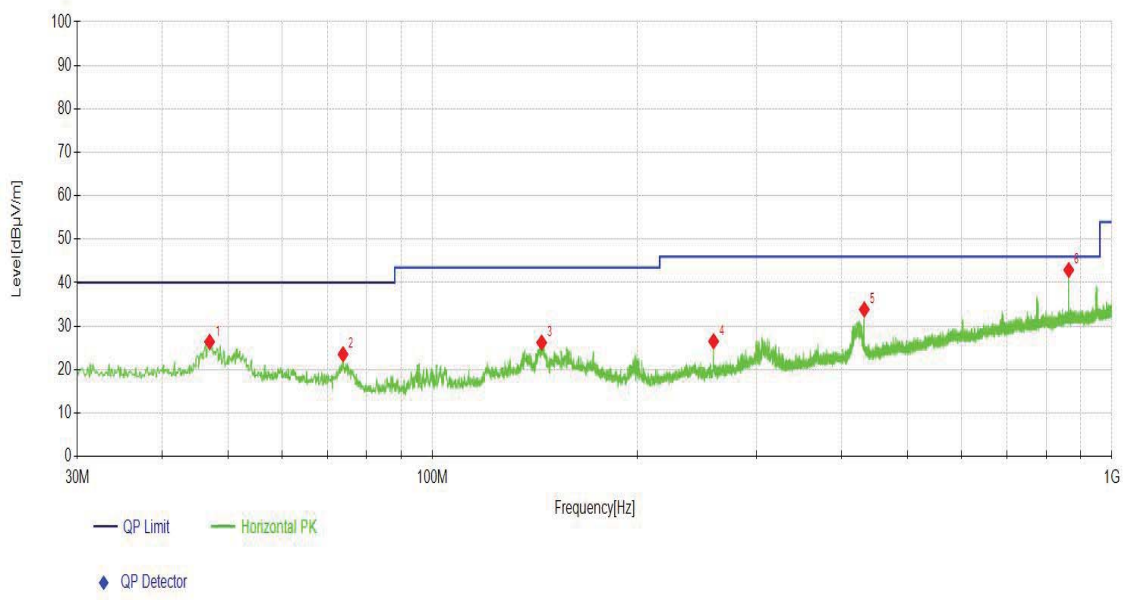


3.2.4 Test results

BELOW 1GHz WORST-CASE DATA:

Worst Test Mode	**802.11b**	**Channel**	CH 1
Frequency Range	9KHz ~ 1GHz	**Detector Function**	Quasi-Peak (QP)

Horizontal

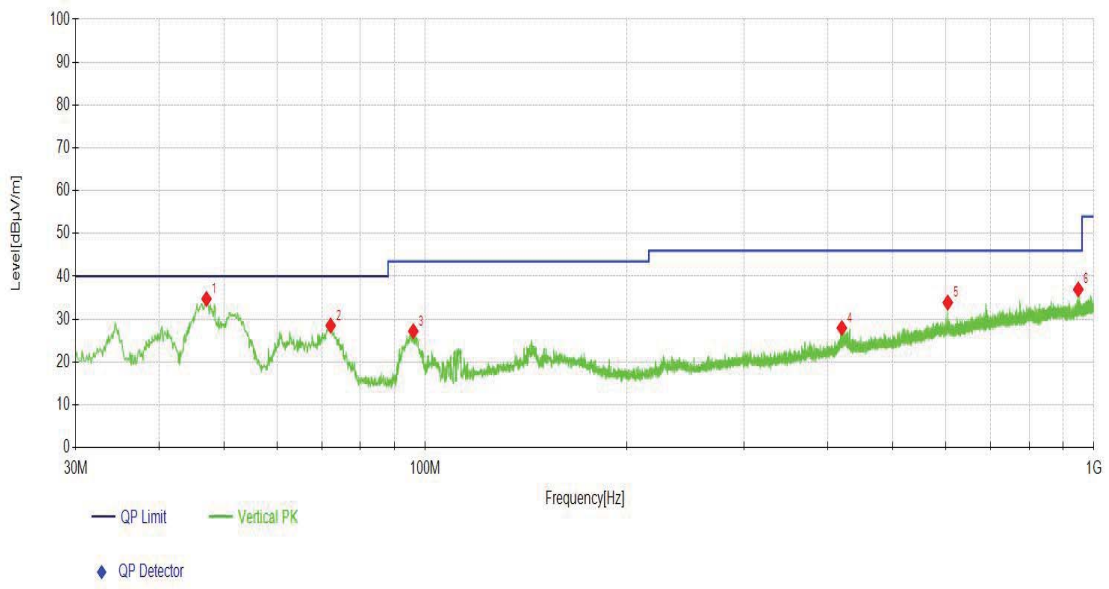


NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]
1	46.9767	7.09	19.30	26.39	40.00	13.61	200	334
2	73.8484	7.43	16.10	23.53	40.00	16.47	300	358
3	144.7625	6.32	19.89	26.21	43.50	17.29	200	156
4	259.2339	8.48	18.03	26.51	46.00	19.49	100	109
5	432.0082	11.22	22.61	33.83	46.00	12.17	200	356
6	**863.9924**	**13.61**	**29.31**	**42.92**	**46.00**	**3.08**	**100**	**81**

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.
3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
5. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

Worst Test Mode	**802.11b**	**Channel**	CH 1
Frequency Range	9KHz ~ 1GHz	**Detector Function**	Quasi-Peak (QP)

Vertical



NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]
1	108.7719	15.43	19.30	34.73	40.00	5.27	200	72
2	122.8383	12.13	16.37	28.50	40.00	11.50	100	103
3	134.1884	11.32	15.86	27.18	43.50	16.32	100	87
4	159.7990	5.58	22.37	27.95	46.00	18.05	100	334
5	230.5191	8.14	25.73	33.87	46.00	12.13	100	0
6	863.9924	6.96	29.99	36.95	46.00	9.05	100	357

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.
2. The emission levels of other frequencies were greater than 20dB margin.
3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
5. Margin(dB) = Limit[dBµV/m] - Level [dBµV/m]

ABOVE 1GHz DATA

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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390.0000	37.08	-0.15	36.93	54.00	17.07	150	270	AV
2	2390.0000	45.08	-0.15	44.93	74.00	29.07	150	158	PK
3	2413.9024	87.76	0.18	87.94			150	270	RMS
4	2414.7005	89.78	0.19	89.97			150	262	PK
5	4824.0000	46.61	9.68	56.29	74.00	17.71	150	248	PK
6	4824.0000	42.14	9.68	51.82	54.00	2.18	150	248	AV
7	7236.0000	21.20	12.39	33.59	54.00	20.41	150	247	AV
8	7236.0000	30.02	12.39	42.41	74.00	31.59	150	128	PK
9	9648.0000	27.52	13.13	40.65	74.00	33.35	150	0	PK
10	9648.0000	19.92	13.13	33.05	54.00	20.95	150	280	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	36.99	-0.15	36.84	54.00	17.16	150	111	AV
2	2390.0000	45.47	-0.15	45.32	74.00	28.68	150	51	PK
3	2414.0354	87.42	0.18	87.60			150	287	RMS
4	2414.7195	89.47	0.19	89.66			150	280	PK
5	4824.0000	41.08	9.68	50.76	54.00	3.24	150	231	AV
6	4824.0000	46.25	9.68	55.93	74.00	18.07	150	231	PK
7	7236.0000	29.86	12.39	42.25	74.00	31.75	150	15	PK
8	7236.0000	22.61	12.39	35.00	54.00	19.00	150	52	AV
9	9648.0000	19.75	13.13	32.88	54.00	21.12	150	292	AV
10	9648.0000	27.83	13.13	40.96	74.00	33.04	150	333	PK

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	4874.0000	45.51	9.70	55.21	74.00	18.79	150	174	PK
2	4874.0000	39.57	9.70	49.27	54.00	4.73	150	252	AV
3	7311.0000	23.38	11.03	34.41	54.00	19.59	150	292	AV
4	7311.0000	30.74	11.03	41.77	74.00	32.23	150	24	PK
5	9748.0000	27.29	13.23	40.52	74.00	33.48	150	226	PK
6	9748.0000	19.33	13.23	32.56	54.00	21.44	150	337	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874.0000	45.74	9.70	55.44	74.00	18.56	150	230	PK
2	4874.0000	39.80	9.70	49.50	54.00	4.50	150	235	AV
3	7311.0000	24.86	11.03	35.89	54.00	18.11	150	84	AV
4	7311.0000	31.00	11.03	42.03	74.00	31.97	150	51	PK
5	9748.0000	27.16	13.23	40.39	74.00	33.61	150	101	PK
6	9748.0000	19.49	13.23	32.72	54.00	21.28	150	101	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2459.2599	95.42	0.56	95.98			150	263	PK
2	2464.0294	93.41	0.68	94.09			150	263	RMS
3	2483.5000	39.27	0.46	39.73	54.00	14.27	150	263	AV
4	2483.5000	46.51	0.46	46.97	74.00	27.03	150	257	PK
5	4924.0924	41.41	10.14	51.55	54.00	2.45	150	253	RMS
6	4924.0924	47.24	10.14	57.38	74.00	16.62	150	257	PK
7	7386.0000	32.83	9.80	42.63	74.00	31.37	150	259	PK
8	7386.0000	26.90	9.80	36.70	54.00	17.30	150	13	AV
9	9848.0000	28.12	13.24	41.36	74.00	32.64	150	275	PK
10	9848.0000	19.53	13.24	32.77	54.00	21.23	150	275	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2459.2599	93.33	0.56	93.89			150	288	PK
2	2459.9250	91.23	0.56	91.79			150	281	RMS
3	2483.5000	38.02	0.46	38.48	54.00	15.52	150	288	AV
4	2483.5000	45.91	0.46	46.37	74.00	27.63	150	241	PK
5	4924.0924	41.29	10.14	51.43	54.00	2.57	150	234	RMS
6	4924.0924	45.89	10.14	56.03	74.00	17.97	150	234	PK
7	7386.0000	34.97	9.80	44.77	74.00	29.23	150	84	PK
8	7386.0000	30.55	9.80	40.35	54.00	13.65	150	84	AV
9	9848.0000	27.99	13.24	41.23	74.00	32.77	150	166	PK
10	9848.0000	19.38	13.24	32.62	54.00	21.38	150	297	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390.0000	42.41	-0.15	42.26	54.00	11.74	150	257	AV
2	2390.0000	53.63	-0.15	53.48	74.00	20.52	150	323	PK
3	2418.4628	88.55	0.24	88.79			150	264	RMS
4	2418.6149	94.91	0.24	95.15			150	264	PK
5	4824.0000	46.89	9.68	56.57	74.00	17.43	150	248	PK
6	4824.0000	38.47	9.68	48.15	54.00	5.85	150	248	AV
7	7236.0000	24.05	12.39	36.44	54.00	17.56	150	292	AV
8	7236.0000	32.53	12.39	44.92	74.00	29.08	150	292	PK
9	9648.0000	27.66	13.13	40.79	74.00	33.21	150	346	PK
10	9648.0000	19.65	13.13	32.78	54.00	21.22	150	121	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	42.06	-0.15	41.91	54.00	12.09	150	78	AV
2	2390.0000	53.20	-0.15	53.05	74.00	20.95	150	117	PK
3	2415.4415	94.25	0.20	94.45			150	280	PK
4	2418.8049	87.28	0.24	87.52			150	280	RMS
5	4824.0000	37.39	9.68	47.07	54.00	6.93	150	226	AV
6	4824.0000	45.77	9.68	55.45	74.00	18.55	150	226	PK
7	7236.0000	33.76	12.39	46.15	74.00	27.85	150	84	PK
8	7236.0000	26.47	12.39	38.86	54.00	15.14	150	56	AV
9	9648.0000	19.75	13.13	32.88	54.00	21.12	150	56	AV
10	9648.0000	28.14	13.13	41.27	74.00	32.73	150	92	PK

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	4874.0000	44.66	9.70	54.36	74.00	19.64	150	217	PK
2	4874.0000	36.22	9.70	45.92	54.00	8.08	150	249	AV
3	7311.0000	26.86	11.03	37.89	54.00	16.11	150	11	AV
4	7311.0000	34.58	11.03	45.61	74.00	28.39	150	11	PK
5	9748.0000	27.29	13.23	40.52	74.00	33.48	150	271	PK
6	9748.0000	19.81	13.23	33.04	54.00	20.96	150	217	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874.0000	44.09	9.70	53.79	74.00	20.21	150	57	PK
2	4874.0000	36.85	9.70	46.55	54.00	7.45	150	230	AV
3	7311.0000	29.66	11.03	40.69	54.00	13.31	150	69	AV
4	7311.0000	36.81	11.03	47.84	74.00	26.16	150	69	PK
5	9748.0000	28.12	13.23	41.35	74.00	32.65	150	102	PK
6	9748.0000	19.33	13.23	32.56	54.00	21.44	150	163	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2457.4357	98.90	0.56	99.46			150	265	PK
2	2458.5569	91.95	0.56	92.51			150	265	RMS
3	2483.5000	61.42	0.46	61.88	74.00	12.12	150	265	PK
4	2483.5000	49.85	0.46	50.31	54.00	3.69	150	7	AV
5	4926.0000	45.49	10.07	55.56	74.00	18.44	150	261	PK
6	4926.0000	36.05	10.07	46.12	54.00	7.88	150	64	AV
7	7386.0000	26.20	9.80	36.00	54.00	18.00	150	0	AV
8	7386.0000	34.93	9.80	44.73	74.00	29.27	150	30	PK
9	9848.0000	27.59	13.24	40.83	74.00	33.17	150	317	PK
10	9848.0000	19.41	13.24	32.65	54.00	21.35	150	309	AV

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2458.2528	97.10	0.56	97.66			150	288	PK
2	2459.8300	89.94	0.56	90.50			150	288	RMS
3	2483.5000	59.43	0.46	59.89	74.00	14.11	150	275	PK
4	2483.5000	48.48	0.46	48.94	54.00	5.06	150	275	AV
5	4922.4422	47.74	10.19	57.93	74.00	16.07	150	230	PK
6	4926.0000	36.27	10.07	46.34	54.00	7.66	150	234	AV
7	7386.0000	36.92	9.80	46.72	74.00	27.28	150	69	PK
8	7386.0000	29.24	9.80	39.04	54.00	14.96	150	85	AV
9	9848.0000	19.81	13.24	33.05	54.00	20.95	150	134	AV
10	9848.0000	28.04	13.24	41.28	74.00	32.72	150	220	PK

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390.0000	43.35	-0.15	43.20	54.00	10.80	150	92	AV
2	2390.0000	56.89	-0.15	56.74	74.00	17.26	150	92	PK
3	2419.0329	95.35	0.25	95.60			150	263	PK
4	2419.2609	88.80	0.25	89.05			150	270	RMS
5	4824.0000	47.17	9.68	56.85	74.00	17.15	150	255	PK
6	4824.0000	37.85	9.68	47.53	54.00	6.47	150	251	AV
7	7236.0000	23.51	12.39	35.90	54.00	18.10	150	113	AV
8	7236.0000	31.14	12.39	43.53	74.00	30.47	150	256	PK
9	9648.0000	28.04	13.13	41.17	74.00	32.83	150	256	PK
10	9648.0000	19.86	13.13	32.99	54.00	21.01	150	64	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	43.09	-0.15	42.94	54.00	11.06	150	312	AV
2	2390.0000	57.35	-0.15	57.20	74.00	16.80	150	122	PK
3	2417.5128	94.74	0.23	94.97			150	279	PK
4	2419.2989	87.66	0.25	87.91			150	279	RMS
5	4824.0000	44.06	9.68	53.74	74.00	20.26	150	178	PK
6	4824.0000	36.78	9.68	46.46	54.00	7.54	150	27	AV
7	7231.4131	27.13	12.46	39.59	54.00	14.41	150	71	RMS
8	7247.7948	37.56	12.28	49.84	74.00	24.16	150	48	PK
9	9648.0000	29.86	13.13	42.99	74.00	31.01	150	158	PK
10	9648.0000	20.33	13.13	33.46	54.00	20.54	150	337	AV

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	4874.0000	45.36	9.70	55.06	74.00	18.94	150	142	PK
2	4874.0000	36.98	9.70	46.68	54.00	7.32	150	142	AV
3	7311.0000	27.34	11.03	38.37	54.00	15.63	150	12	AV
4	7311.0000	38.46	11.03	49.49	74.00	24.51	150	12	PK
5	9748.0000	27.04	13.23	40.27	74.00	33.73	150	70	PK
6	9748.0000	19.37	13.23	32.60	54.00	21.40	150	225	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874.0000	36.43	9.70	46.13	54.00	7.87	150	234	AV
2	4874.0000	43.15	9.70	52.85	74.00	21.15	150	29	PK
3	7311.0000	38.64	11.03	49.67	74.00	24.33	150	85	PK
4	7311.0000	28.82	11.03	39.85	54.00	14.15	150	73	AV
5	9748.0000	19.54	13.23	32.77	54.00	21.23	150	64	AV
6	9748.0000	27.34	13.23	40.57	74.00	33.43	150	356	PK

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2454.5475	91.61	0.57	92.18			150	264	RMS
2	2458.9179	98.34	0.56	98.90			150	270	PK
3	2483.5000	51.24	0.46	51.70	54.00	2.30	150	264	AV
4	2483.5000	67.04	0.46	67.50	74.00	6.50	150	0	PK
5	4926.0000	45.51	10.07	55.58	74.00	18.42	150	252	PK
6	4926.0000	37.59	10.07	47.66	54.00	6.34	150	256	AV
7	7368.3168	37.58	10.05	47.63	74.00	26.37	150	260	PK
8	7386.0000	26.25	9.80	36.05	54.00	17.95	150	9	AV
9	9848.0000	19.24	13.24	32.48	54.00	21.52	150	247	AV
10	9848.0000	26.77	13.24	40.01	74.00	33.99	150	354	PK

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2454.2434	96.33	0.57	96.90			150	278	PK
2	2459.0509	89.69	0.56	90.25			150	284	RMS
3	2483.5000	47.84	0.46	48.30	54.00	5.70	150	116	AV
4	2483.5000	61.53	0.46	61.99	74.00	12.01	150	344	PK
5	4926.0000	43.70	10.07	53.77	74.00	20.23	150	259	PK
6	4926.0000	35.99	10.07	46.06	54.00	7.94	150	251	AV
7	7381.1881	31.20	9.92	41.12	54.00	12.88	150	68	RMS
8	7382.3582	42.12	9.90	52.02	74.00	21.98	150	84	PK
9	9848.0000	27.69	13.24	40.93	74.00	33.07	150	360	PK
10	9848.0000	19.14	13.24	32.38	54.00	21.62	150	265	AV

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

Channel	802.11n40 CH 3	Frequency	2422MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390.0000	42.28	-0.15	42.13	54.00	11.87	150	275	AV
2	2390.0000	54.88	-0.15	54.73	74.00	19.27	150	321	PK
3	2438.6809	93.82	0.43	94.25			150	262	PK
4	2439.5170	86.65	0.44	87.09			150	269	RMS
5	4844.0000	36.50	9.94	46.44	54.00	7.56	150	255	AV
6	4844.0000	44.86	9.94	54.80	74.00	19.20	150	255	PK
7	7266.0000	30.43	11.99	42.42	74.00	31.58	150	293	PK
8	7266.0000	22.60	11.99	34.59	54.00	19.41	150	293	AV
9	9688.0000	19.85	13.15	33.00	54.00	21.00	150	244	AV
10	9688.0000	28.40	13.15	41.55	74.00	32.45	150	244	PK

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	42.57	-0.15	42.42	54.00	11.58	150	64	AV
2	2390.0000	52.84	-0.15	52.69	74.00	21.31	150	84	PK
3	2432.2582	91.73	0.38	92.11			150	116	PK
4	2433.5694	84.44	0.39	84.83			150	110	RMS
5	4844.0000	35.87	9.94	45.81	54.00	8.19	150	232	AV
6	4844.0000	44.07	9.94	54.01	74.00	19.99	150	256	PK
7	7266.0000	31.93	11.99	43.92	74.00	30.08	150	73	PK
8	7266.0000	25.41	11.99	37.40	54.00	16.60	150	73	AV
9	9688.0000	19.83	13.15	32.98	54.00	21.02	150	44	AV
10	9688.0000	28.49	13.15	41.64	74.00	32.36	150	36	PK

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

Channel	802.11n40 CH 6	Frequency	2422MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	4874.0000	45.12	9.70	54.82	74.00	19.18	150	159	PK
2	4874.0000	35.59	9.70	45.29	54.00	8.71	150	163	AV
3	7311.0000	22.91	11.03	33.94	54.00	20.06	150	292	AV
4	7311.0000	30.82	11.03	41.85	74.00	32.15	150	296	PK
5	9748.0000	27.88	13.23	41.11	74.00	32.89	150	178	PK
6	9748.0000	19.91	13.23	33.14	54.00	20.86	150	252	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4874.0000	43.03	9.70	52.73	74.00	21.27	150	58	PK
2	4874.0000	35.67	9.70	45.37	54.00	8.63	150	58	AV
3	7305.1305	26.69	11.14	37.83	54.00	16.17	150	68	RMS
4	7322.6823	34.84	10.98	45.82	74.00	28.18	150	88	PK
5	9748.0000	27.89	13.23	41.12	74.00	32.88	150	240	PK
6	9748.0000	19.25	13.23	32.48	54.00	21.52	150	240	AV

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

Channel	**802.11n40 CH 9**	**Frequency**	2452MHz
Frequency Range	Above 1G	**Detector Function**	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2446.1106	94.34	0.52	94.86			150	273	PK
2	2449.6450	86.83	0.56	87.39			150	266	RMS
3	2483.5000	48.19	0.46	48.65	54.00	5.35	150	253	AV
4	2483.5000	64.58	0.46	65.04	74.00	8.96	150	253	PK
5	4904.0000	36.09	10.10	46.19	54.00	7.81	150	254	AV
6	4904.0000	42.99	10.10	53.09	74.00	20.91	150	161	PK
7	7356.0000	31.93	10.31	42.24	74.00	31.76	150	30	PK
8	7356.0000	23.66	10.31	33.97	54.00	20.03	150	35	AV
9	9808.0000	19.67	13.20	32.87	54.00	21.13	150	35	AV
10	9808.0000	27.40	13.20	40.60	74.00	33.40	150	215	PK

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2449.4549	84.96	0.56	85.52			150	288	RMS
2	2454.6615	92.10	0.57	92.67			150	288	PK
3	2483.5000	44.52	0.46	44.98	54.00	9.02	150	346	AV
4	2483.5000	59.78	0.46	60.24	74.00	13.76	150	124	PK
5	4904.0000	45.24	10.10	55.34	74.00	18.66	150	231	PK
6	4904.0000	36.06	10.10	46.16	54.00	7.84	150	231	AV
7	7356.0000	26.57	10.31	36.88	54.00	17.12	150	68	AV
8	7374.1674	37.66	9.98	47.64	74.00	26.36	150	85	PK
9	9808.0000	19.77	13.20	32.97	54.00	21.03	150	265	AV
10	9808.0000	28.16	13.20	41.36	74.00	32.64	150	138	PK

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

Channel	**BT-LE CH0**	**Frequency**	2402MHz
Frequency Range	Above 1G	**Detector Function**	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2390.0000	36.67	-0.15	36.52	54.00	17.48	150	254	AV
2	2390.0000	45.17	-0.15	45.02	74.00	28.98	150	14	PK
3	2401.7412	95.98	-0.04	95.94			150	254	PK
4	2401.8172	95.19	-0.03	95.16			150	254	RMS
5	4803.9604	47.82	9.28	57.10	74.00	16.90	150	59	PK
6	4804.2904	42.98	9.29	52.27	54.00	1.73	150	59	RMS
7	7205.6706	34.75	12.82	47.57	74.00	26.43	150	241	PK
8	7205.6706	30.42	12.82	43.24	54.00	10.76	150	74	RMS
9	9565.7966	30.18	13.26	43.44	74.00	30.56	150	74	PK
10	9607.9208	23.95	13.32	37.27	54.00	16.73	150	47	RMS

Vertical

NO.	Freq. [MHz]	Reading [dBµV/m]	Factor [dB]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2390.0000	46.30	-0.15	46.15	74.00	27.85	150	339	PK
2	2390.0000	36.53	-0.15	36.38	54.00	17.62	150	332	AV
3	2401.7222	93.59	-0.04	93.55			150	218	PK
4	2401.7222	93.59	-0.04	93.55			150	218	PK
5	4804.0000	35.84	9.29	45.13	54.00	8.87	150	154	AV
6	4804.0000	42.55	9.29	51.84	74.00	22.16	150	154	PK
7	7205.6706	32.70	12.82	45.52	54.00	8.48	150	360	RMS
8	7205.6706	37.88	12.82	50.70	74.00	23.30	150	360	PK
9	9607.9208	34.33	13.32	47.65	74.00	26.35	150	159	PK
10	9607.9208	31.15	13.32	44.47	54.00	9.53	150	159	RMS

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

Channel	BT-LE CH19	Frequency	2440MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	4879.8680	45.48	9.79	55.27	74.00	18.73	150	47	PK
2	4879.8680	39.77	9.79	49.56	54.00	4.44	150	242	RMS
3	7318.0018	41.18	11.02	52.20	74.00	21.80	150	13	PK
4	7319.1719	34.57	11.02	45.59	54.00	8.41	150	59	RMS
5	9760.0360	30.48	13.25	43.73	74.00	30.27	150	280	PK
6	9760.0360	23.96	13.25	37.21	54.00	16.79	150	280	RMS

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	4883.4984	45.21	9.86	55.07	74.00	18.93	150	247	PK
2	4899.6700	36.78	10.11	46.89	54.00	7.11	150	166	RMS
3	7319.1719	34.24	11.02	45.26	54.00	8.74	150	13	RMS
4	7319.1719	39.03	11.02	50.05	74.00	23.95	150	39	PK
5	9760.0360	35.40	13.25	48.65	74.00	25.35	150	147	PK
6	9760.0360	29.98	13.25	43.23	54.00	10.77	150	147	RMS

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

Channel	BT-LE CH39	Frequency	2480MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	2480.1620	94.67	0.32	94.99			150	221	RMS
2	2480.2570	95.91	0.32	96.23			150	221	PK
3	2483.5000	37.86	0.46	38.32	54.00	15.68	150	348	AV
4	2483.5000	44.94	0.46	45.40	74.00	28.60	150	348	PK
5	4960.0000	42.16	10.69	52.85	74.00	21.15	150	218	PK
6	4960.0000	33.93	10.69	44.62	54.00	9.38	150	69	AV
7	7440.0000	20.38	9.75	30.13	54.00	23.87	150	167	AV
8	7440.0000	27.75	9.75	37.50	74.00	36.50	150	142	PK
9	9920.0000	26.48	13.83	40.31	74.00	33.69	150	156	PK
10	9920.0000	18.48	13.83	32.31	54.00	21.69	150	107	AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	2479.7630	92.85	0.33	93.18			150	212	PK
2	2479.7630	92.01	0.33	92.34			150	212	RMS
3	2483.5000	37.58	0.46	38.04	54.00	15.96	150	25	AV
4	2483.5000	45.38	0.46	45.84	74.00	28.16	150	38	PK
5	4960.0000	41.89	10.69	52.58	74.00	21.42	150	277	PK
6	4960.0000	34.65	10.69	45.34	54.00	8.66	150	147	AV
7	7440.0000	20.39	9.75	30.14	54.00	23.86	150	13	AV
8	7440.0000	28.40	9.75	38.15	74.00	35.85	150	178	PK
9	9920.0000	19.08	13.83	32.91	54.00	21.09	150	318	AV
10	9920.0000	27.47	13.83	41.30	74.00	32.70	150	283	PK

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
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

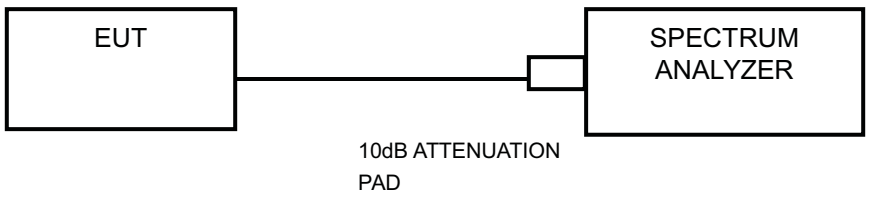
3.3.1 Limits

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

3.3.2 Measurement procedure

a. Set resolution bandwidth (RBW) = 100KHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associatedwith the two amplitude points (upper and lower) that are attenuated by 6 dB relative to themaximum level measured in the fundamental emission.

3.3.3 Test setup



3.3.4 Test result

Please refer Annex A

3.4 CONDUCTED OUTPUT POWER

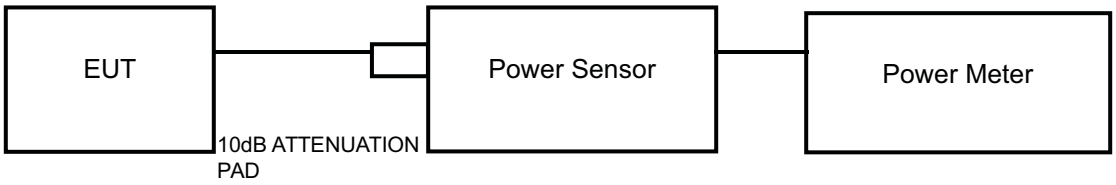
3.4.1 Limits

Forsystems using digital modulation in the 2400–2483.5 MHz band: 1 Watt (30dBm).

3.4.2 Measurement procedure

a. 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.
b. Anaverage power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power senso and set the detector to AVERAGE. Record the power level.

3.4.3 Test setup



3.4.4 Test result

Please refer Annex A.

3.5 POWER SPECTRAL DENSITY MEASUREMENT

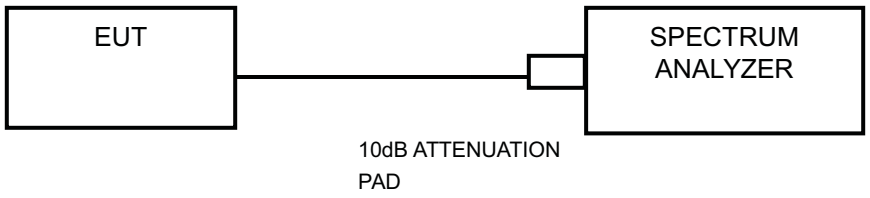
3.5.1 Limits

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

3.5.2 Measurement procedure

a. Set instrument center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set RBW to: 3KHz
d. Set VBW ≥3 x RBW.
e. Detector = peak
f. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g. Sweep time = auto couple.
h. Use the peak marker function to determine the maximum amplitude level.

3.5.3 Test setup



3.5.4 Test result

Please refer Annex A.

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

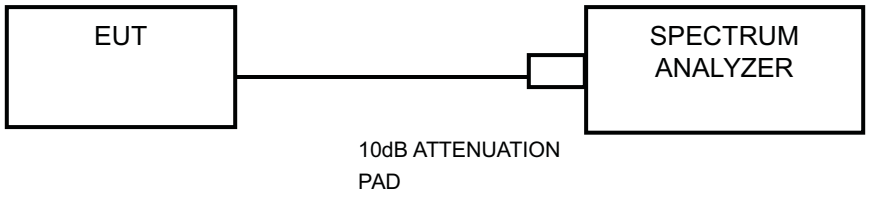
Measurement Procedure -Reference Level

a. Set the RBW = 100 kHz.
b. Set the VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep time = auto couple.
e. Trace mode = max hold.
f. Allow trace to fully stabilize.
g. 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

a. Set RBW = 100 kHz.
b. Set VBW ≥ 300 kHz.
c. Set span to encompass the spectrum to be examined
d. Detector = peak.
e. Trace Mode = max hold.
f. Sweep = auto couple.

3.6.3 Test setup



3.6.4 Test result

Please refer Annex A.

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

3.7.3 Test result

Please refer Annex A.

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).

6 Appendix A

Please refer to the following pages for test results.

6.1 6DB BANDWIDTH MEASUREMENT

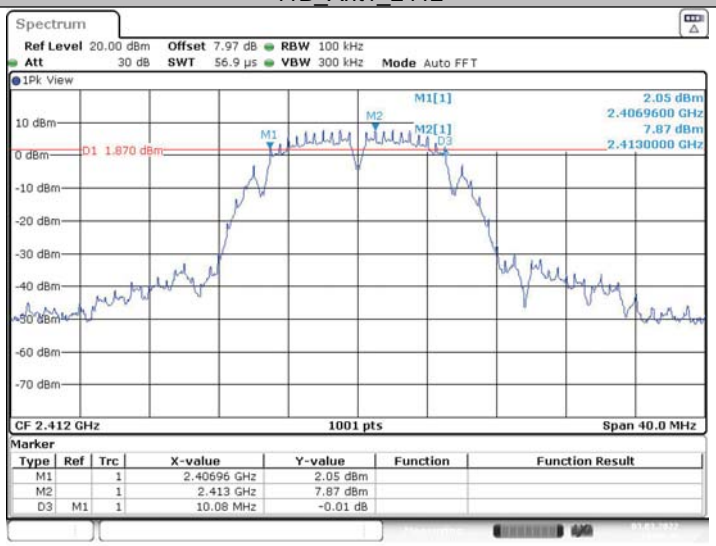
6.1.1 Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.08	2406.96	2417.04	0.5	PASS
	Ant2	2412	9.04	2407.48	2416.52	0.5	PASS
	Ant1	2437	10.04	2431.96	2442.00	0.5	PASS
	Ant2	2437	9.52	2432.00	2441.52	0.5	PASS
	Ant1	2462	10.08	2456.96	2467.04	0.5	PASS
	Ant2	2462	9.04	2457.48	2466.52	0.5	PASS
11G	Ant1	2412	16.32	2403.84	2420.16	0.5	PASS
	Ant2	2412	16.32	2403.84	2420.16	0.5	PASS
	Ant1	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant2	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant1	2462	16.32	2453.84	2470.16	0.5	PASS
	Ant2	2462	16.32	2453.84	2470.16	0.5	PASS
11N20MIMO	Ant1	2412	17.52	2403.24	2420.76	0.5	PASS
	Ant2	2412	17.32	2403.44	2420.76	0.5	PASS
	Ant1	2437	17.36	2428.20	2445.56	0.5	PASS
	Ant2	2437	16.32	2428.20	2444.52	0.5	PASS
	Ant1	2462	17.28	2453.48	2470.76	0.5	PASS
	Ant2	2462	16.96	2453.20	2470.16	0.5	PASS
11N40MIMO	Ant1	2422	16.48	2404.24	2420.72	0.5	PASS
	Ant2	2422	16.88	2403.84	2420.72	0.5	PASS
	Ant1	2437	17.28	2418.44	2435.72	0.5	PASS
	Ant2	2437	17.04	2418.44	2435.48	0.5	PASS
	Ant1	2452	16.88	2433.84	2450.72	0.5	PASS
	Ant2	2452	17.28	2433.20	2450.48	0.5	PASS

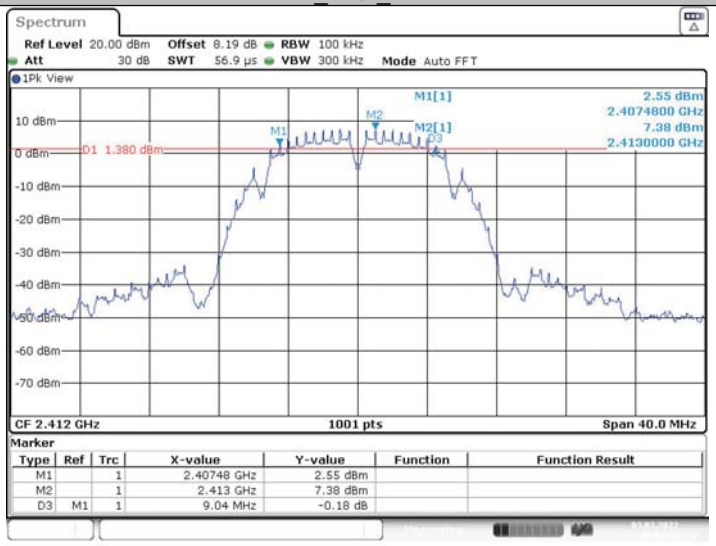
TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.66	2401.68	2402.34	0.5	PASS
		2440	0.66	2439.68	2440.34	0.5	PASS
		2480	0.66	2479.68	2480.34	0.5	PASS
BLE_2M	Ant1	2402	1.13	2401.43	2402.56	0.5	PASS
		2440	1.12	2439.43	2440.55	0.5	PASS
		2480	1.13	2479.43	2480.56	0.5	PASS

6.1.2 Test Graphs

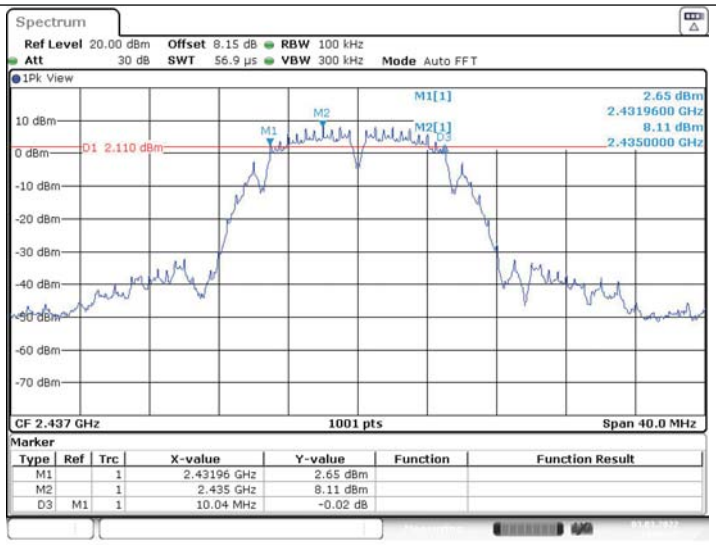
11B_Ant1_2412



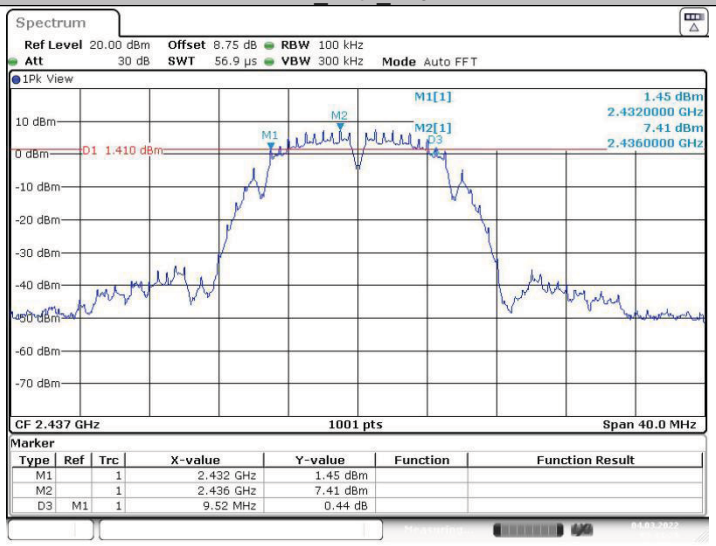
11B_Ant2_2412



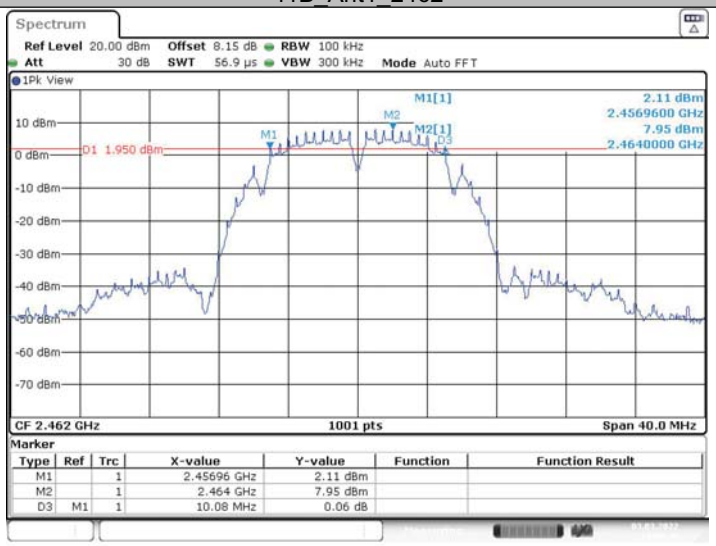
11B_Ant1_2437



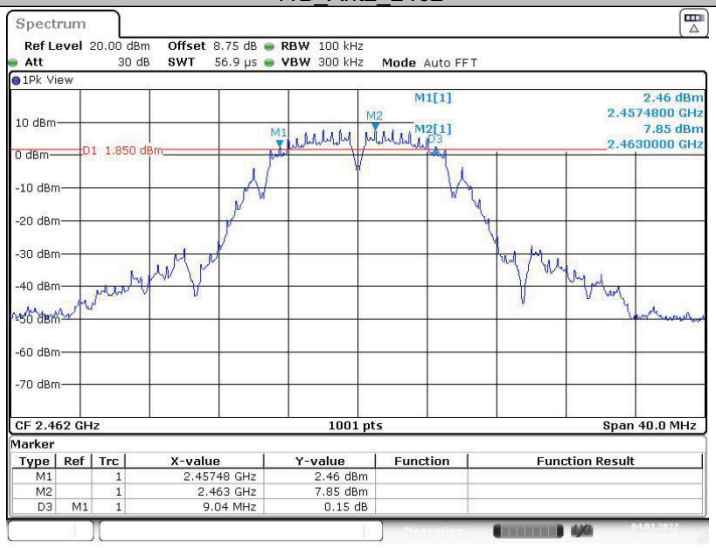
11B_Ant2_2437



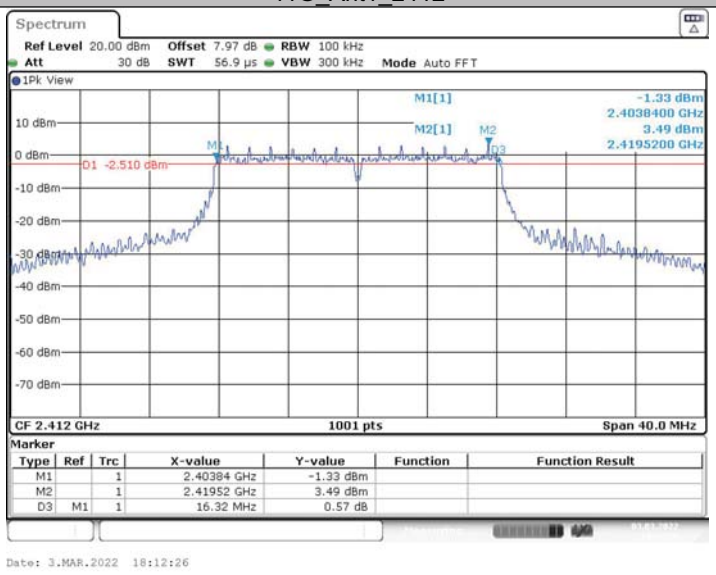
11B_Ant1_2462



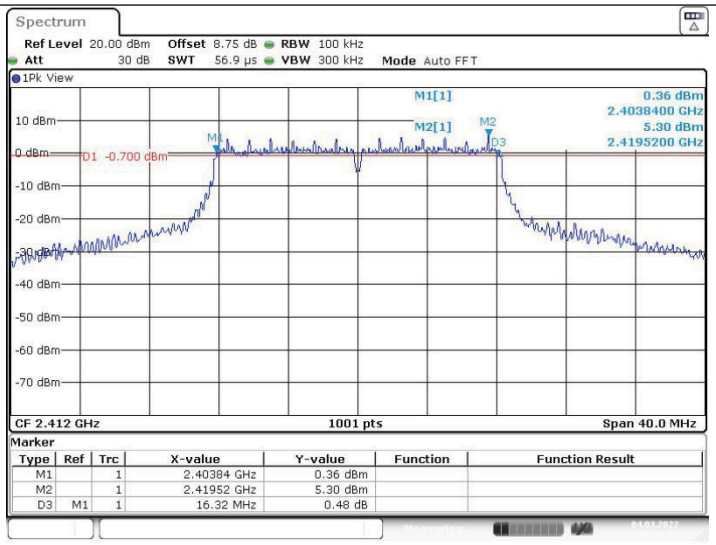
11B_Ant2_2462



11G_Ant1_2412



11G_Ant2_2412



Date: 4.MAR.2022 09:36:33

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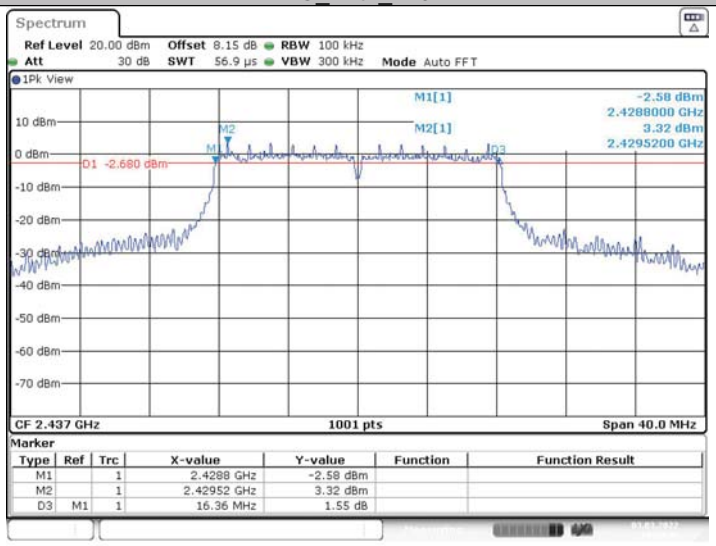

Date: 3.MAR.2022 19:23:40

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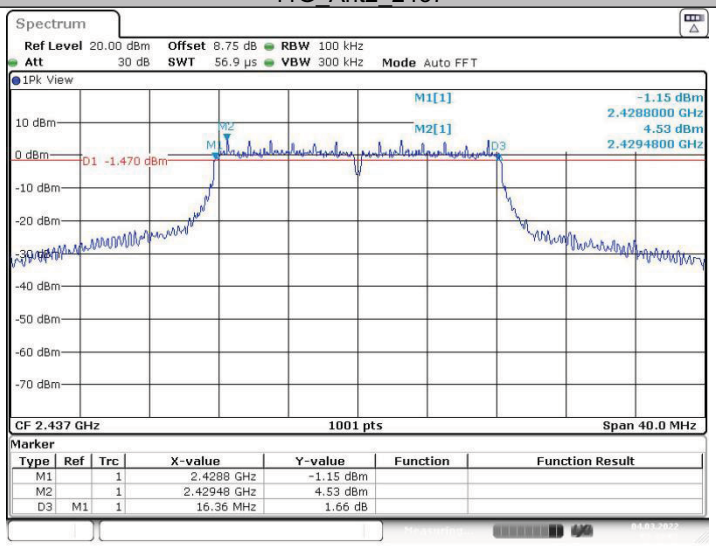

Date: 4.MAR.2022 09:38:03

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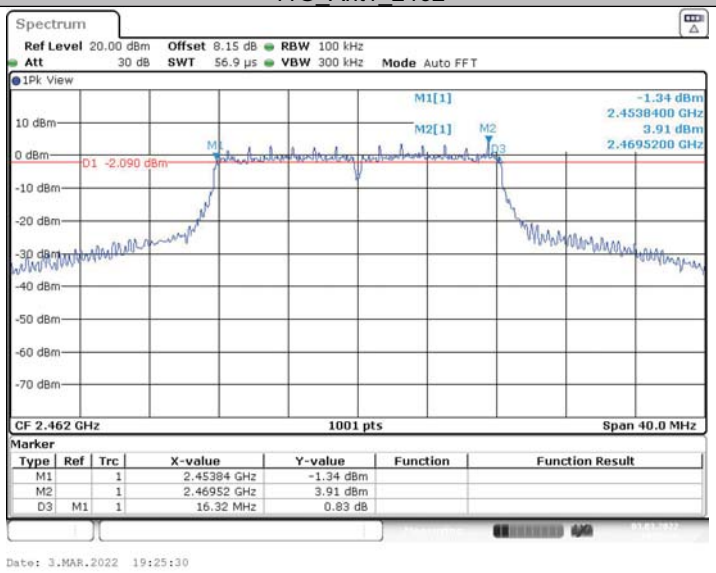
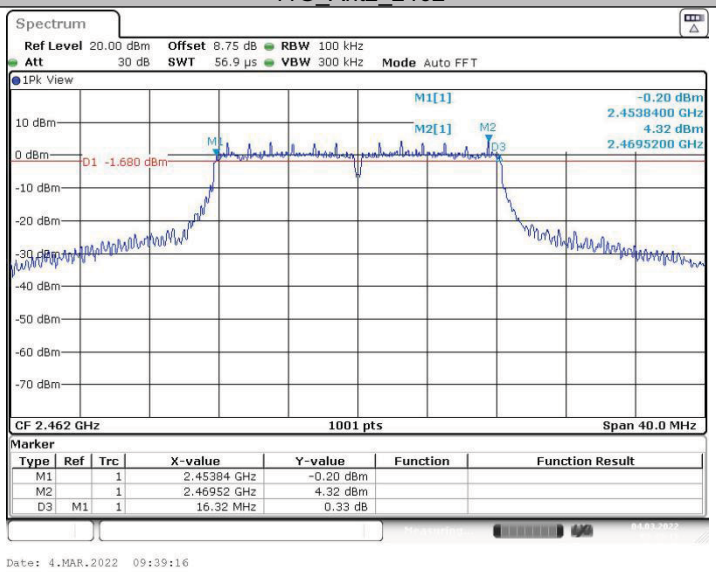
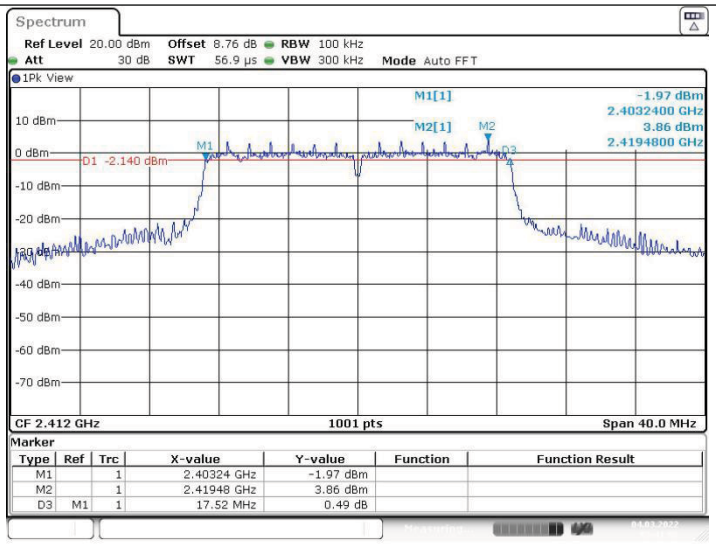


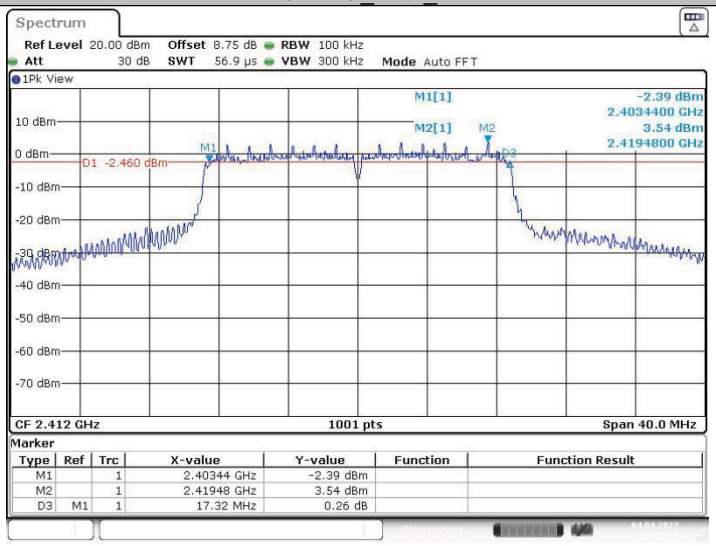
11G_Ant2_2462



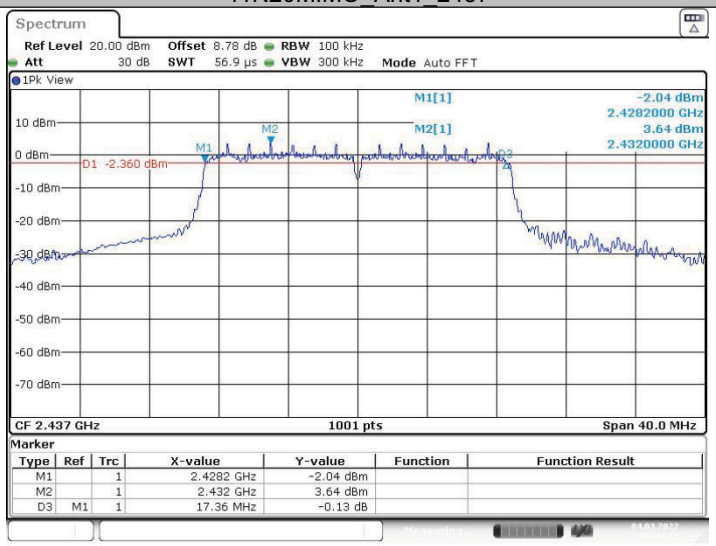
11N20MIMO_Ant1_2412



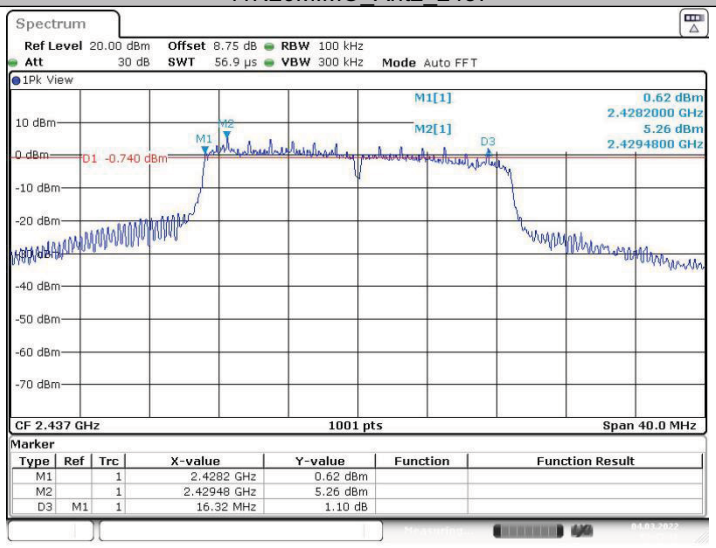
11N20MIMO_Ant2_2412



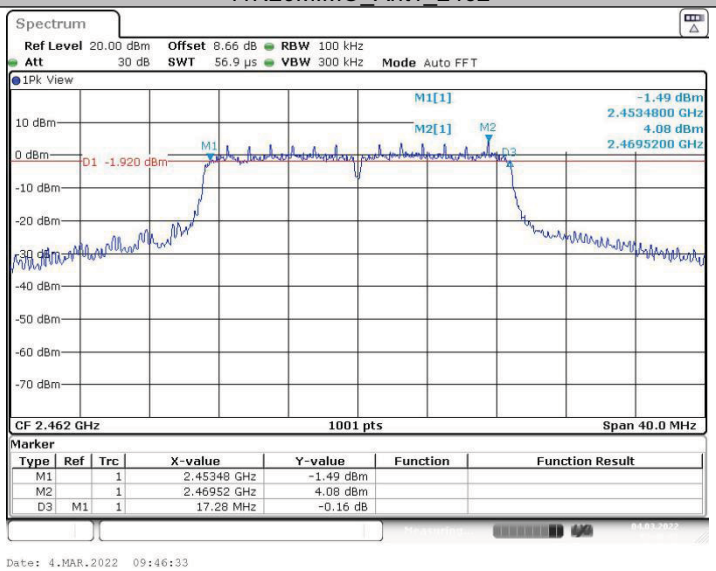
11N20MIMO_Ant1_2437



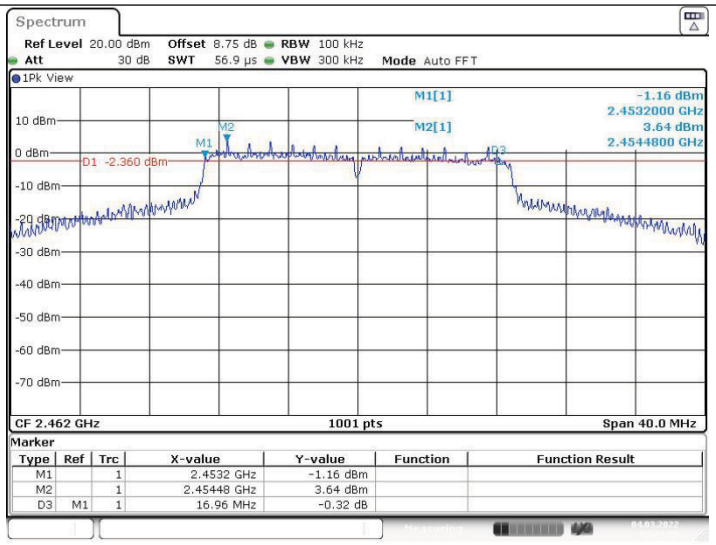
11N20MIMO_Ant2_2437



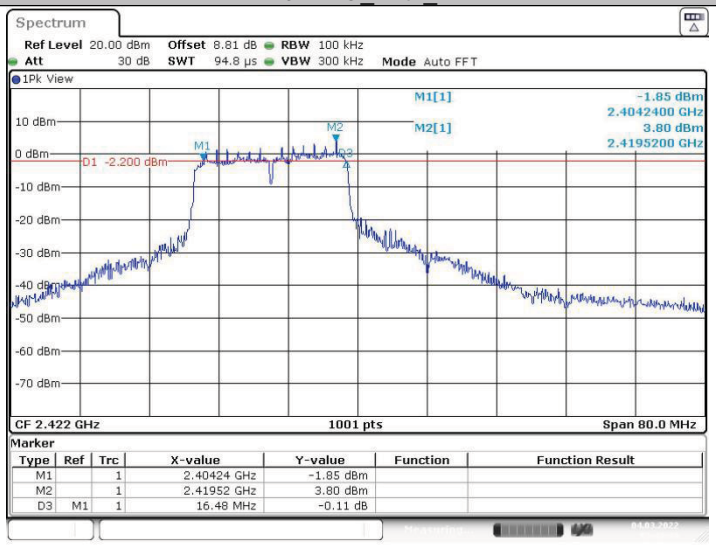
11N20MIMO_Ant1_2462



11N20MIMO_Ant2_2462



11N40MIMO_Ant1_2422



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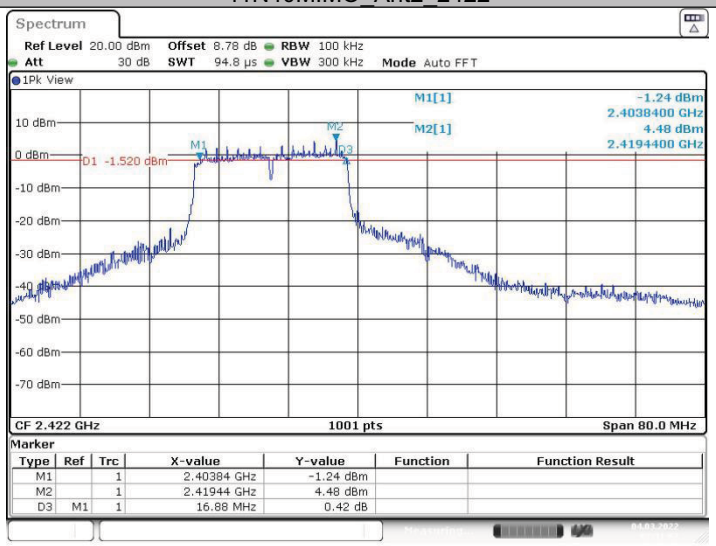

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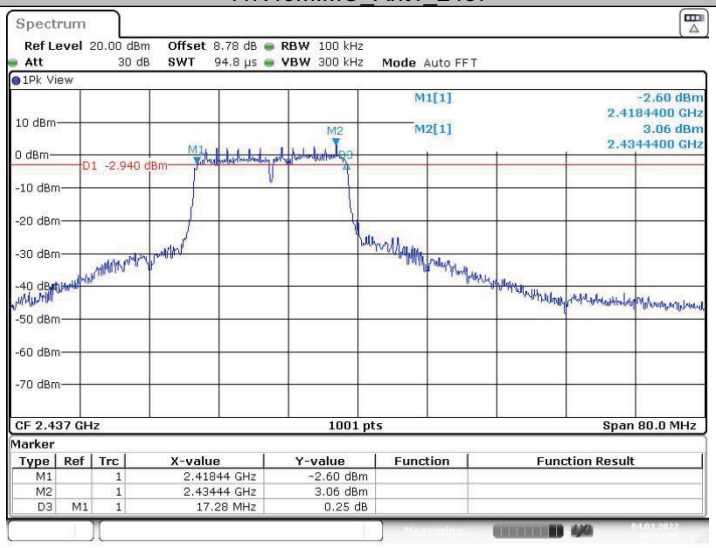
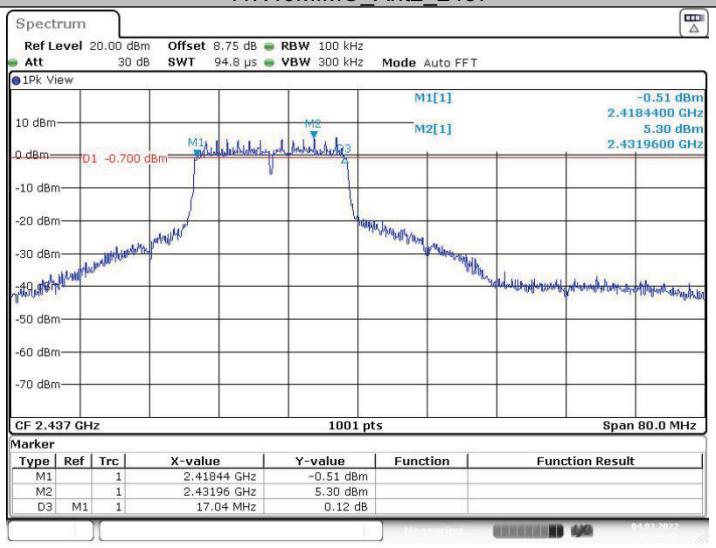
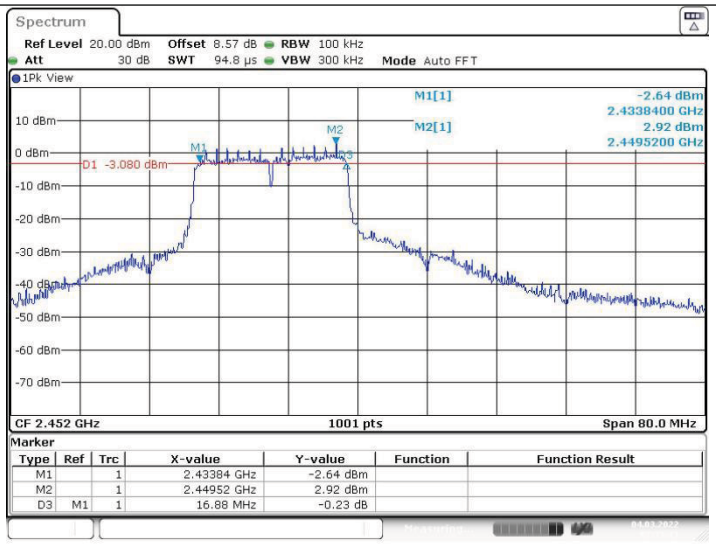


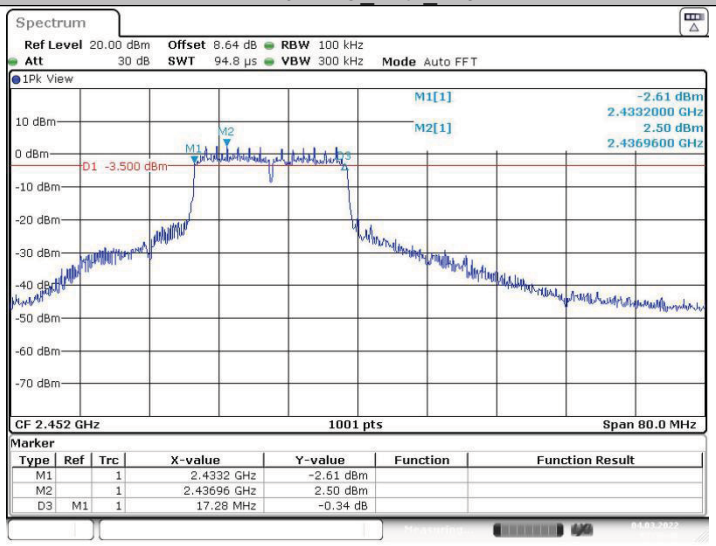
11N40MIMO_Ant2_2437



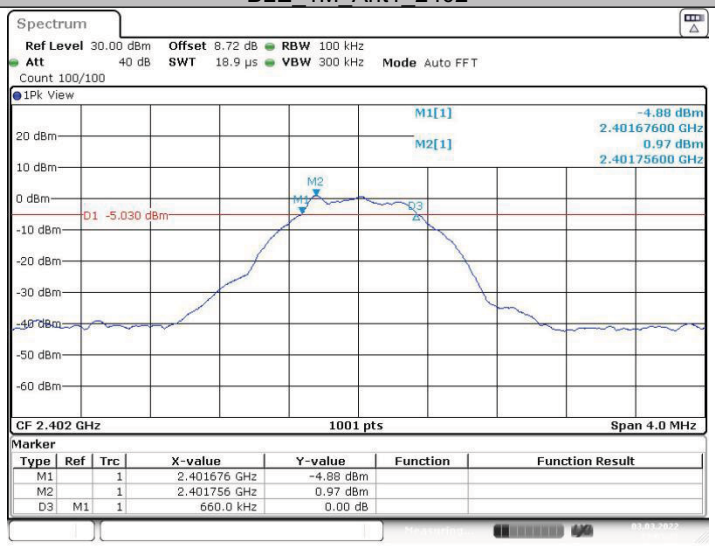
11N40MIMO_Ant1_2452



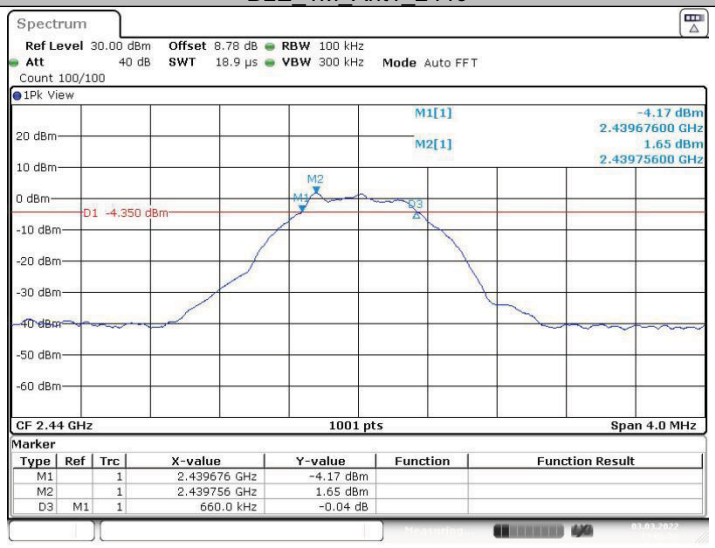
11N40MIMO_Ant2_2452



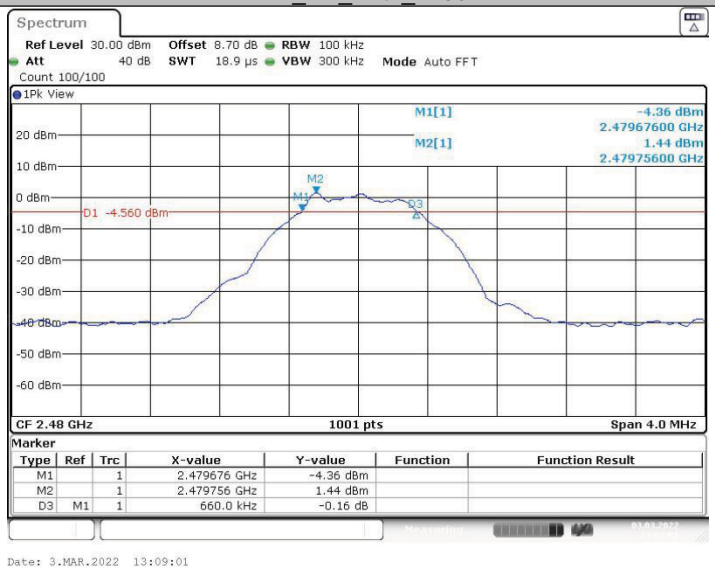
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



BLE_2M_Ant1_2402