FCC - TEST REPORT

Report Number	: **64.790.19.04771.01**	Date of Issue:	July 15, 2021
Model	: UC-32A, UC-32B, UC-32A Vet, UC-32B Vet		
Product Type	: Urine analyzer		
Applicant	: URIT Medical Electronic Co., Ltd		
Address	: No.D-07 Information Industry District, High-Tech Zone, Guilin, Guangxi, China		
Manufacturer	: URIT Medical Electronic Co., Ltd		
Address	: No.D-07 Information Industry District, High-Tech Zone, Guilin, Guangxi, China		
Test Result	: ■ **Positive**	☐ **Negative**	
Total pages including Appendices	: 46		

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2 Details about the Test Laboratory

Details about the Test Laboratory
Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2, Nanshan District,
Shenzhen City, 518052,
P. R. China

Telephone: 86 755 8828 6998
Fax: 86 755 8828 5299

FCC Registration No.: 514049
IC registration number: 10320A

3 Description of the Equipment Under Test

Product:	Urine analyzer
Model no.:	UC-32A, UC-32B, UC-32A Vet, UC-32B Vet
FCC ID:	2AZS3UYUC32AB
Options and accessories:	Nil
Rating Input:	DC 5V, 3A or two AA alkaline batteries for models UC-32A and UC-32A Vet, the lithium battery for models UC-32B, UC-32B Vet Adapter input: 100-240V~, 50/60Hz, output: 5VDC, 3.0A
RF Transmission Frequency:	2402MHz-2480MHz
No. of Operated Channel:	40
Modulation:	GFSK
Antenna Type:	Integral Antenna
Antenna Gain:	0.0dBi
Description of the EUT:	The EUTs are Urine analyzer with Bluetooth function

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4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C 10-1-2020 Edition	PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators

All the test methods were according to KDB558074 v05r02 and ANSI C63.10 (2013).

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5 Summary of Test Results

Technical Requirements			
FCC Part 15 Subpart C			
Test Condition		Pages	Test Result
§15.207	Conducted emission AC power port	10	Pass
§15.247(b)(1)	Conducted peak output power	15	Pass
§15.247(e)	Power spectral density	16	Pass
§15.247(a)(2)	6dB bandwidth	18	Pass
§15.247(a)(1)	20dB bandwidth and 99% Occupied Bandwidth	--	N/A
§15.247(a)(1)	Carrier frequency separation	--	N/A
§15.247(a)(1)(iii)	Number of hopping frequencies	--	N/A
§15.247(a)(1)(iii)	Dwell Time	--	N/A
§15.247(d)	Spurious RF conducted emissions	20	Pass
§15.247(d)	Band edge	25	Pass
§15.247(d) & §15.209	Spurious radiated emissions for transmitter	28	Pass
§15.203	Antenna requirement	See note 2	Pass

Note 1: N/A=Not Applicable.
Note 2: The EUT uses a integral antenna, which gain is 0.0dBi. In accordance to §15.203, it is considered sufficiently to comply with the provisions of this section.

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6 General Remarks

EUTs are Urine analyzer supports Bluetooth function. The TX and RX range is 2402MHz-2480MHz, and all models used the same module.
The two models UC-32A, UC-32A Vet are identical except the model name.
The two models UC-32B, UC-32B Vet are identical except the model name.
The difference between UC-32A and UC-32B in PCBA is that UC-32B has lithium battery charging management circuit and soft reset circuit, while UC-32A does not. In addition, UC-32A uses entity keys and UC-32B uses touch keys.
So the model UC-32B was selected to perform full test and the model UC-32A was selected to perform conducted emission, conducted peak output power and spurious radiated test.
This submittal(s) (test report) is intended for FCC ID:2AZS3UYUC32AB.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: 2020-12-20

Testing Date: 2020-12-24~2020-12-31

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Reviewed by: Tony Liu

Prepared by: Kevin Ouyang

Test by: Louise Liu

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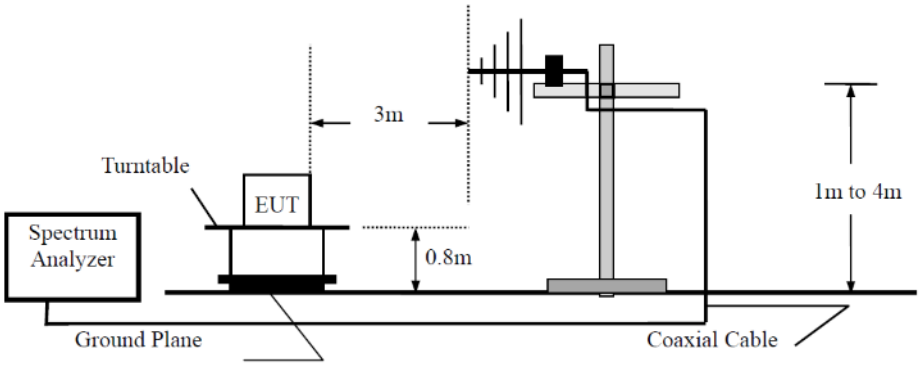
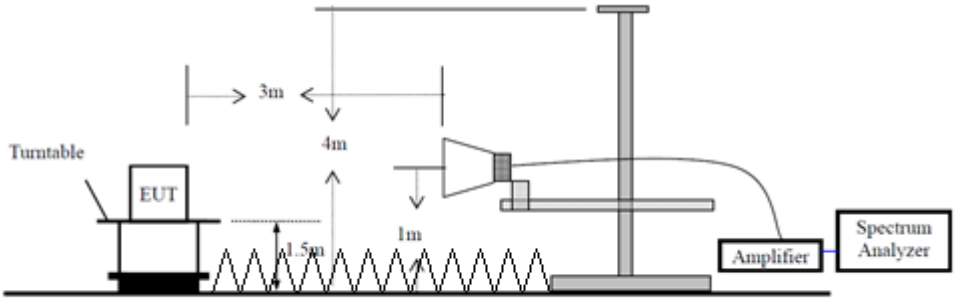
7 Test Setups

7.1 Radiated test setups

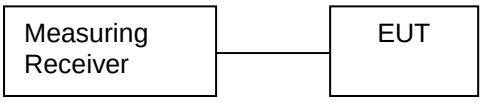
Below 1GHz



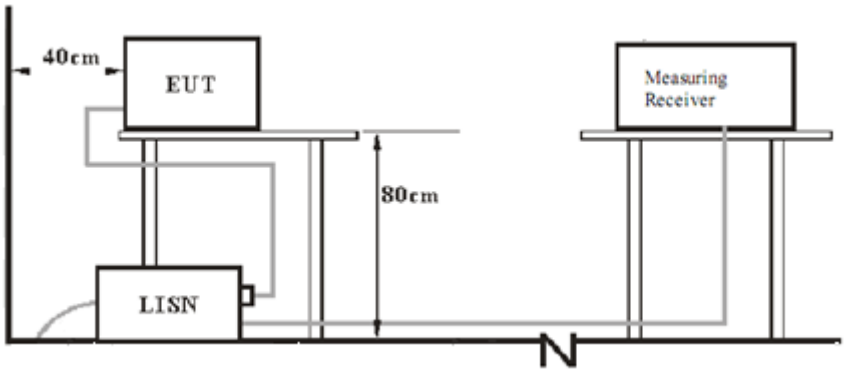
Above 1GHz



7.2 Conducted RF test setups



7.3 AC Power Line Conducted Emission test setups



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8 Systems test configuration

Auxiliary Equipment Used during Test:

Test channel & mode:
The was Interactive Tablet configured using a proprietary communication interface provided by the client. The interface allows channel control required to support the evaluation.

Duty cycle during test: 100%

Test mode	Channel	Frequency (MHz)
TX	0	2402
TX	19	2440
TX	39	2480

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9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

Frequency MHz	QP Limit dBµV	AV Limit dBµV
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linear

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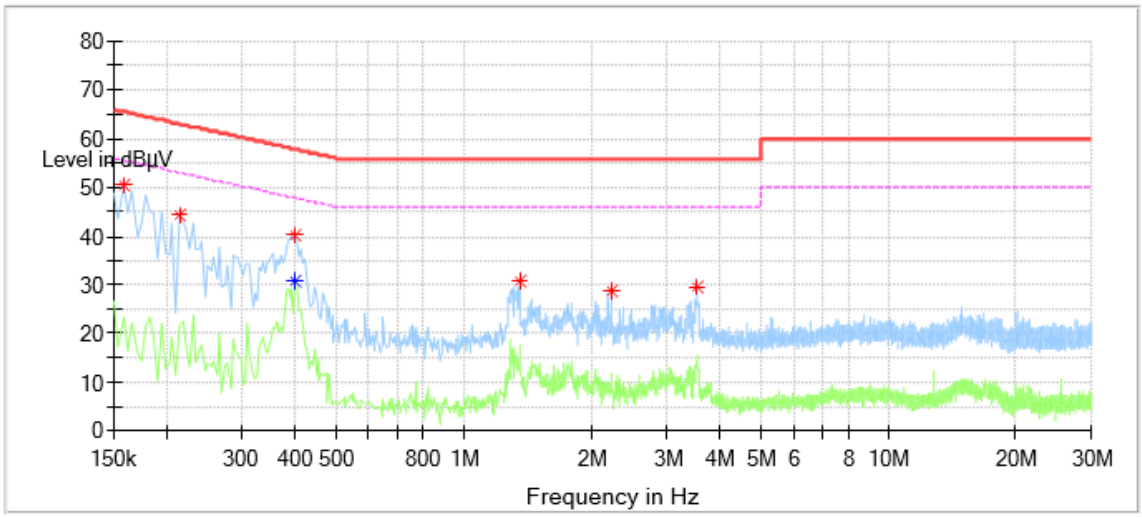
Product Type	:	Urine analyzer
M/N	:	UC-32A
Operating Condition	:	EUT on + BT Link
Test Specification	:	Line
Comment	:	120VAC (Supplied by adapter)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.158000	50.37	---	65.57	15.19	L1	10.4
0.214000	44.51	---	63.05	18.54	L1	10.4
0.402000	40.05	---	57.81	17.76	L1	10.4
0.402000	---	30.72	47.81	17.09	L1	10.4
1.354000	30.78	---	56.00	25.22	L1	10.4
2.230000	28.70	---	56.00	27.30	L1	10.4
3.546000	29.44	---	56.00	26.56	L1	10.4

Remark：
Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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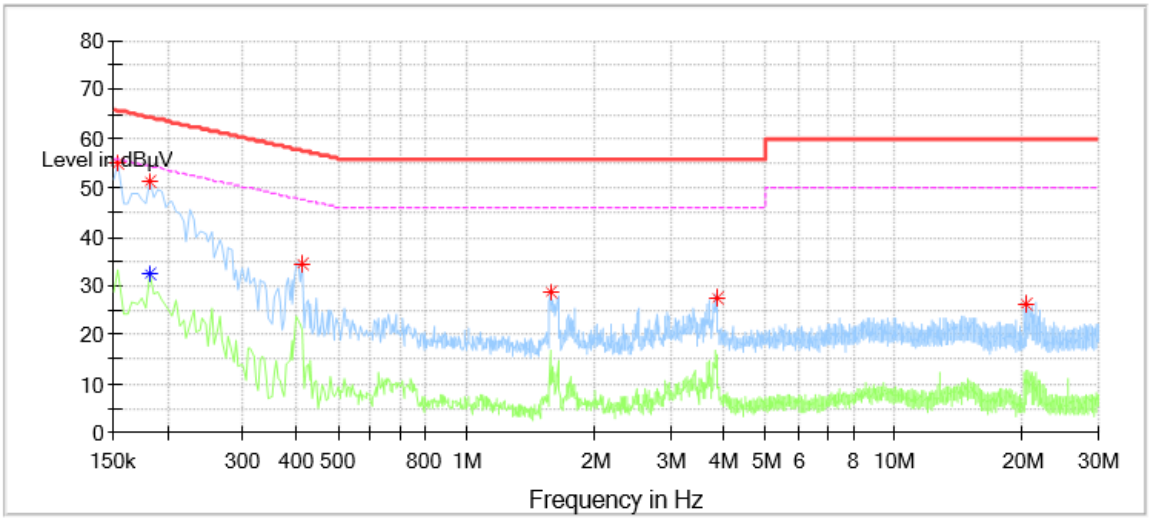
Product Type	:	Urine analyzer
M/N	:	UC-32A
Operating Condition	:	EUT on + BT Link
Test Specification	:	Neutral
Comment	:	120VAC (Supplied by adapter)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	54.98	---	65.78	10.80	N	10.4
0.182000	---	32.32	54.39	22.08	N	10.4
0.182000	51.22	---	64.39	13.18	N	10.4
0.414000	34.47	---	57.57	23.10	N	10.4
1.570000	28.69	---	56.00	27.31	N	10.4
3.842000	27.56	---	56.00	28.44	N	10.4
20.362000	26.15	---	60.00	33.85	N	10.4

Remark：
Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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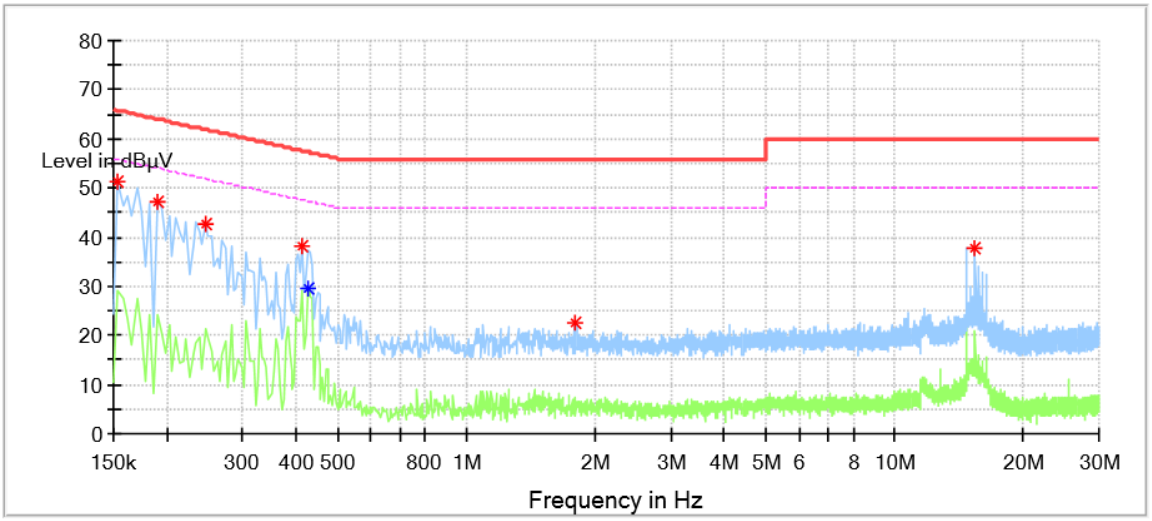
Product Type	:	Urine analyzer
M/N	:	UC-32B
Operating Condition	:	Charging + EUT on +BT Link
Test Specification	:	Line
Comment	:	120VAC (Supplied by adapter)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	51.35	---	65.78	14.43	L1	9.5
0.190000	47.33	---	64.04	16.70	L1	9.5
0.246000	42.61	---	61.89	19.29	L1	9.5
0.414000	38.05	---	57.57	19.52	L1	9.5
0.426000	---	29.74	47.33	17.59	L1	9.5
1.786000	22.63	---	56.00	33.37	L1	9.6
15.334000	37.91	---	60.00	22.09	L1	9.7

Remark：
Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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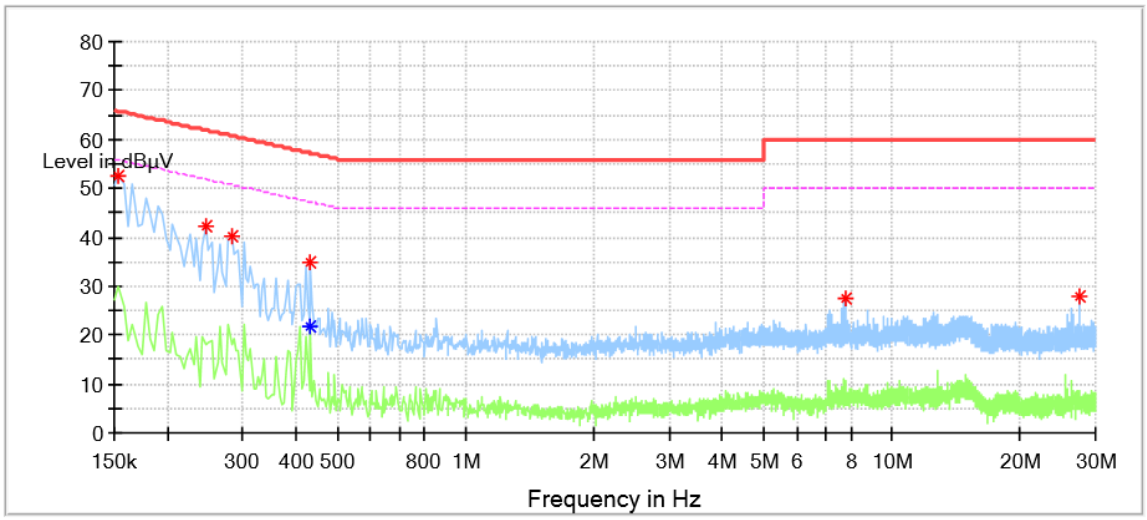
Product Type	:	Urine analyzer
M/N	:	UC-32B
Operating Condition	:	Charging + EUT on +BT Link
Test Specification	:	Neutral
Comment	:	120VAC (Supplied by adapter)



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)
0.154000	52.47	---	65.78	13.31	N	9.6
0.246000	42.40	---	61.89	19.50	N	9.6
0.282000	40.09	---	60.76	20.67	N	9.6
0.434000	34.77	---	57.18	22.41	N	9.6
0.434000	---	21.58	47.18	25.60	N	9.6
7.782000	27.39	---	60.00	32.61	N	9.7
27.390000	28.07	---	60.00	31.93	N	9.9

Remark：
Level=Reading Level + Correction Factor
Correction Factor=Cable Loss + LISN Factor
(The Reading Level is recorded by software which is not shown in the sheet)

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9.2 Conducted peak output power

Test Method

1. Connect the power meter to the EUT
a) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.
b) At all times the EUT is transmitting at its maximum power control level.
c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Adjust the measurement in dBm by adding 10log (1/x), where x is the duty cycle to the measurement result.

Limits

According to §15.247 (b) (1), conducted peak output power limit as below:

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤1	≤30

Conducted peak output power

Model	Test Mode	Antenna	Channel (MHz)	Total Power (dBm)	Limit(dBm)	Verdict
UC-32A	BLE_BT4.0	Ant1	2402	-2.23	<=30	PASS
			2440	-0.86	<=30	PASS
			2480	0.48	<=30	PASS
UC-32B	BLE_BT4.0	Ant1	2402	-1.91	<=30	PASS
			2440	-0.49	<=30	PASS
			2480	0.65	<=30	PASS

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9.3 Power spectral density

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Set analyzer center frequency to DTS channel center frequency. RBW=3kHz, VBW≥3RBW, Span=1.5 times DTS bandwidth, Detector=Peak, Sweep=auto, Trace= max hold.
3. Allow trace to fully stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
4. Repeat above procedures until other frequencies measured were completed.

Limit

Limit [dBm/3KHz]

≤ 8

Test Mode	Antenna	Channel (MHz)	PSD (dBm/3KHz)	Limit(dBm/3KHz)	Verdict
BLE_BT4.0	Ant1	2402	-17.76	<=8	PASS
		2440	-16.54	<=8	PASS
		2480	-15.28	<=8	PASS

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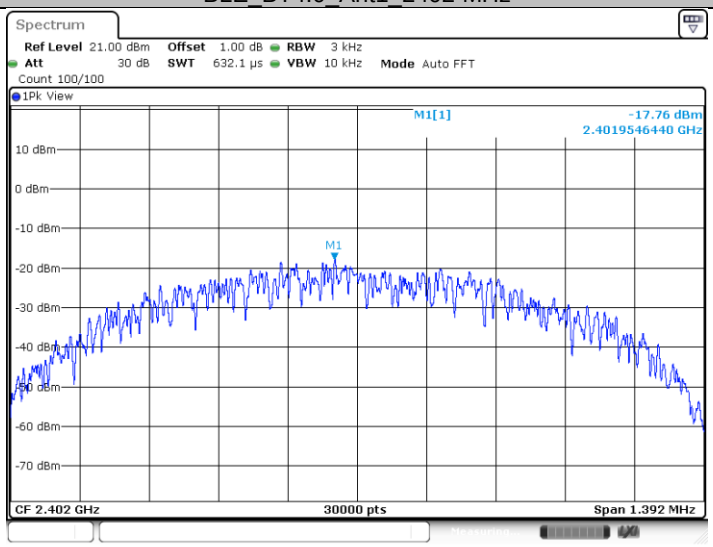
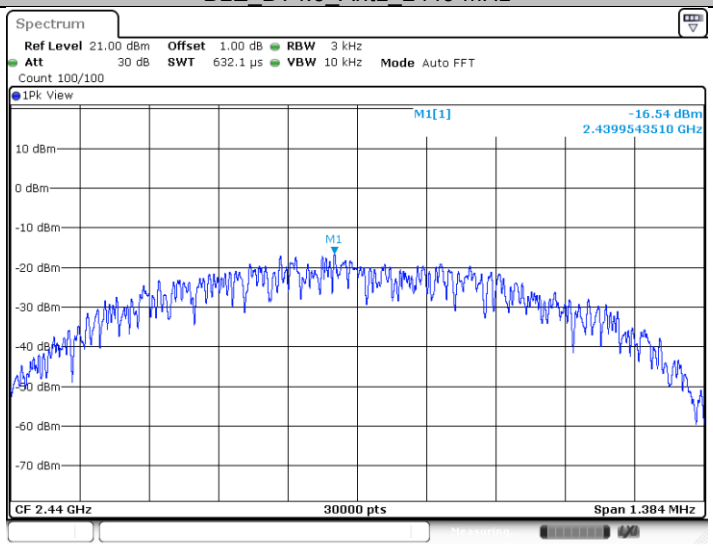
Test Graphs

BLE_BT4.0_Ant1_2402 MHz



Date: 25.DEC.2020 17:29:18

BLE_BT4.0_Ant1_2440 MHz



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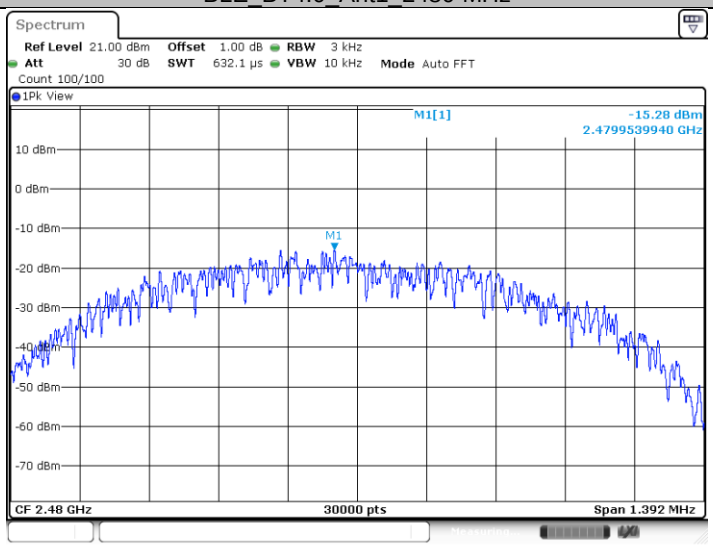
BLE_BT4.0_Ant1_2480 MHz



Date: 25.DEC.2020 17:33:51

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9.4 6 dB Bandwidth

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Use the following spectrum analyzer settings:
   Set RBW ≥ 1% of the 99% bandwidth, VBW ≥ RBW.
   Sweep = auto, Detector function = peak, Trace = max hold
3. Use the automatic bandwidth measurement capability of an instrument, may be employed using the X dB bandwidth mode with X set to 6 dB, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.
4. Allow the trace to stabilize, record the X dB Bandwidth value.

Limit

Limit [kHz]
≥500

Test Mode	Antenna	Channel (MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit [MHz]
BLE_BT4.0	Ant1	2402	0.696	2401.640	2402.336	0.5
		2440	0.692	2439.640	2440.332	0.5
		2480	0.696	2479.608	2480.304	0.5

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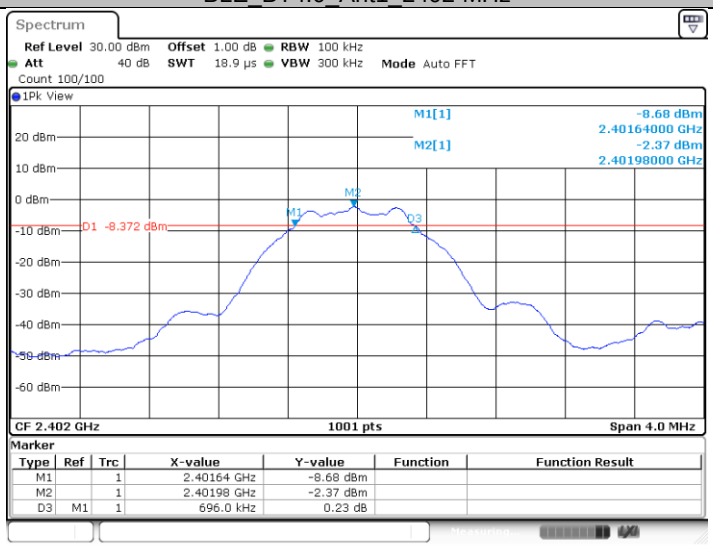
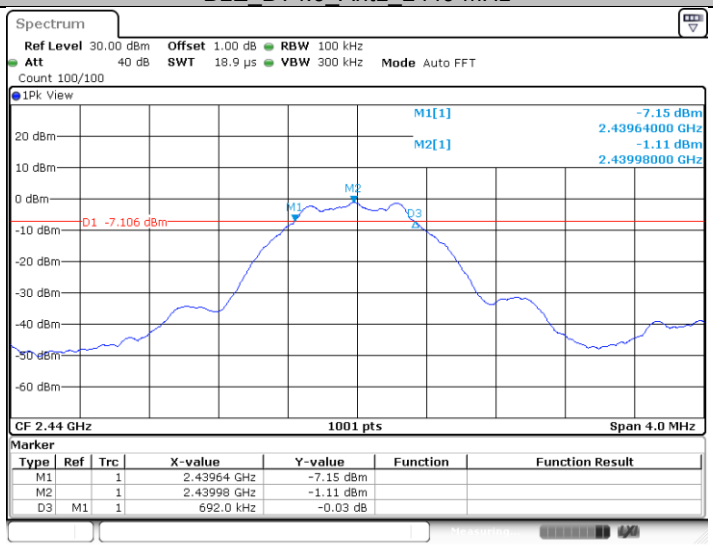
Test Graphs

BLE_BT4.0_Ant1_2402 MHz



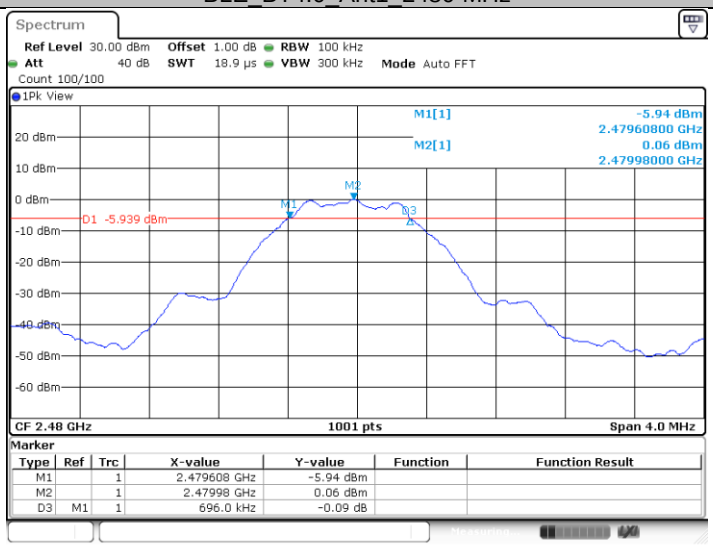
Date: 25.DEC.2020 17:28:54

BLE_BT4.0_Ant1_2440 MHz



Date: 25.DEC.2020 17:30:58

BLE_BT4.0_Ant1_2480 MHz



Date: 25.DEC.2020 17:33:28

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9.5 Spurious RF conducted emissions

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Establish a reference level by using the following procedure:
   a. Set RBW=100 kHz. VBW≥3RBW. Detector =peak, Sweep time = auto couple, Trace mode = max hold.
   b. Allow trace to fully stabilize, use the peak marker function to determine the maximum PSD level.
3. Use the maximum PSD level to establish the reference level.
   a. Set the center frequency and span to encompass frequency range to be measured.
   b. Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements, report the three highest emissions relative to the limit.
4. Repeat above procedures until other frequencies measured were completed.

Limit

Frequency Range MHz	Limit (dBc)
30-25000	-20

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Spurious RF conducted emissions

Test Result

Test Mode	Antenna	Channel (MHz)	FreqRange (MHz)	RefLevel (dBm)	Result (dBm)	Limit (dBm)	Verdict
BLE_BT4.0	Ant1	2402	Reference	-2.49	-2.49	---	PASS
			30~1000	30~1000	-52.11	<=-22.49	PASS
			1000~26500	1000~26500	-48.35	<=-22.49	PASS
		2440	Reference	-1.11	-1.11	---	PASS
			30~1000	30~1000	-52.26	<=-21.11	PASS
			1000~26500	1000~26500	-44.01	<=-21.11	PASS
		2480	Reference	0.07	0.07	---	PASS
			30~1000	30~1000	-52.34	<=-19.93	PASS
			1000~26500	1000~26500	-42.49	<=-19.93	PASS

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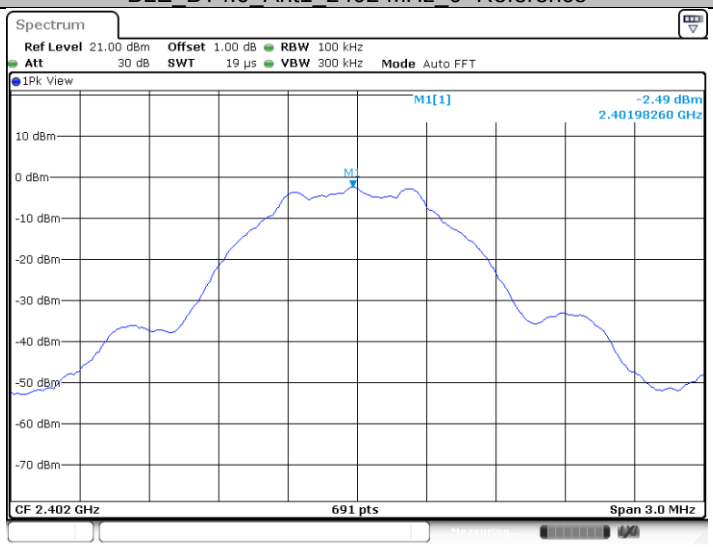
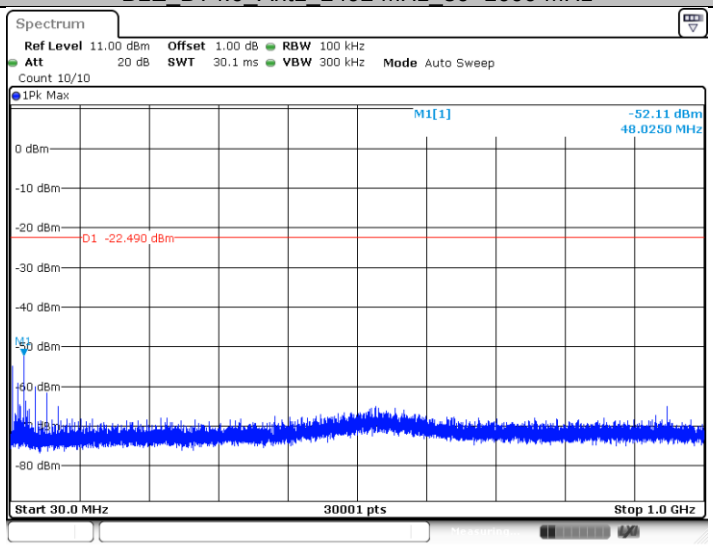
Test Graphs

BLE_BT4.0_Ant1_2402 MHz_0~Reference



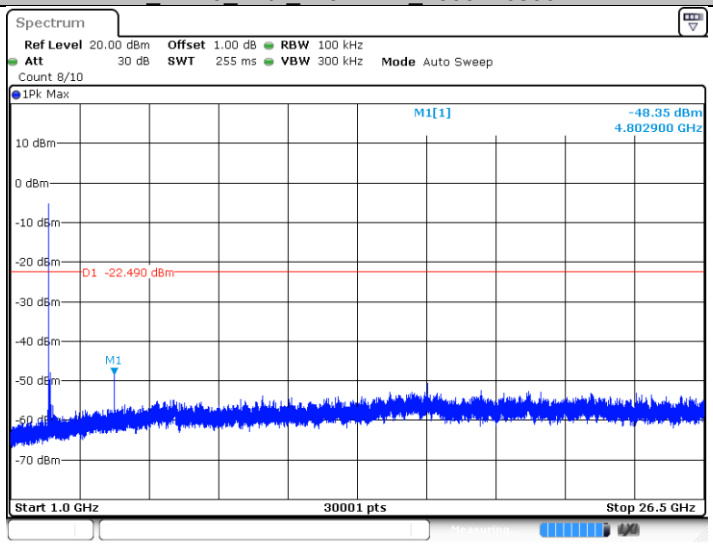
Date: 25.DEC.2020 17:29:33

BLE_BT4.0_Ant1_2402 MHz_30~1000 MHz



Date: 25.DEC.2020 17:29:39

BLE_BT4.0_Ant1_2402 MHz_1000~26500 MHz



Date: 25.DEC.2020 17:29:47

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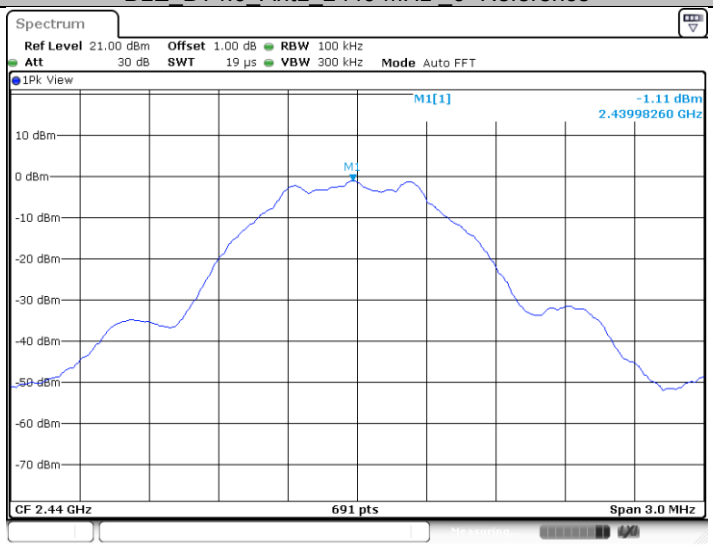
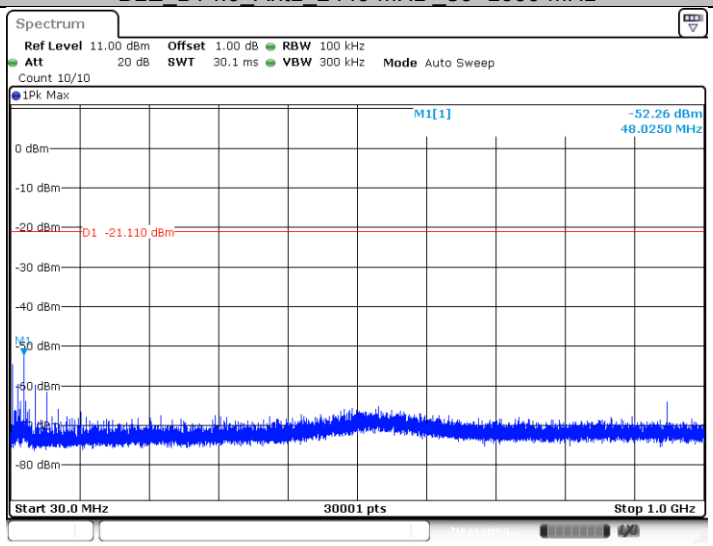
BLE_BT4.0_Ant1_2440 MHz _0~Reference



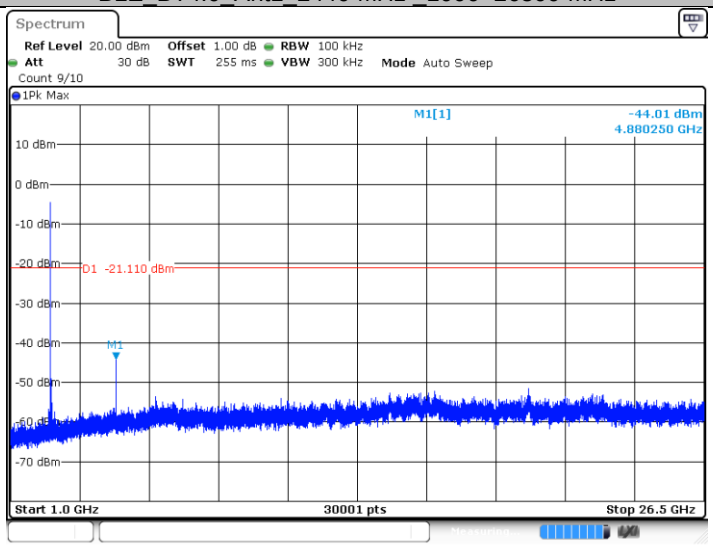
Date: 25.DEC.2020 17:31:27

BLE_BT4.0_Ant1_2440 MHz _30~1000 MHz



Date: 25.DEC.2020 17:31:33

BLE_BT4.0_Ant1_2440 MHz _1000~26500 MHz



Date: 25.DEC.2020 17:31:41

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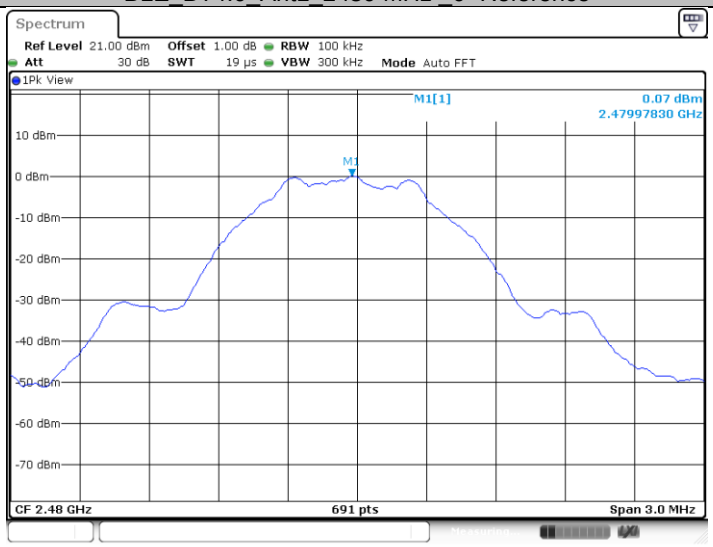
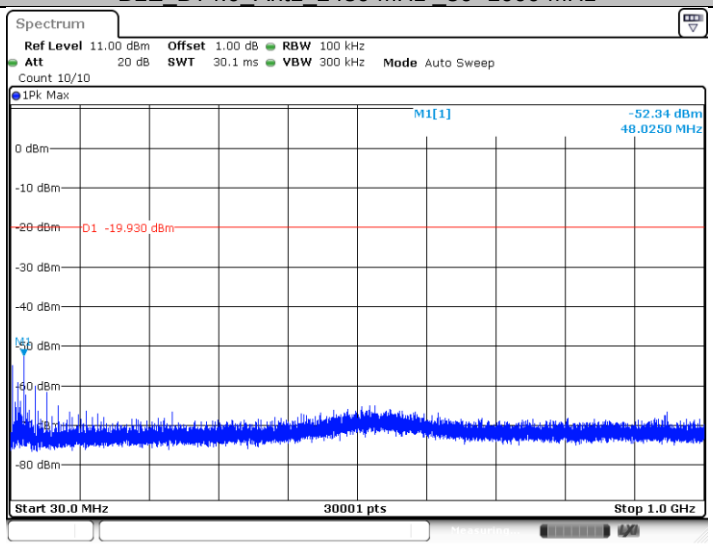
BLE_BT4.0_Ant1_2480 MHz _0~Reference



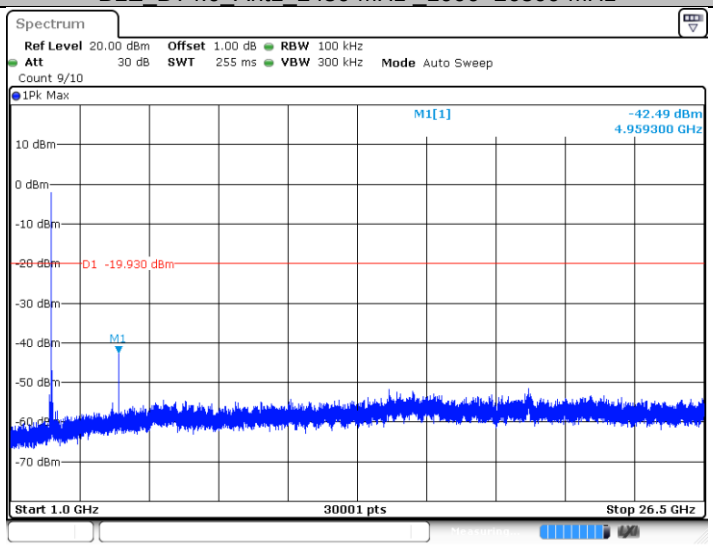
Date: 25.DEC.2020 17:34:06

BLE_BT4.0_Ant1_2480 MHz _30~1000 MHz



Date: 25.DEC.2020 17:34:12

BLE_BT4.0_Ant1_2480 MHz _1000~26500 MHz



Date: 25.DEC.2020 17:34:20

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9.6 Band edge testing

Test Method

1. Connect EUT test port to spectrum analyzer.
2. Set spectrum analyzer setting as below:
   Set RBW ≥ 1% of the span, VBW ≥ RBW.
   Set Sweep = auto. Set Detector function = peak. Allow the trace to stabilize.
   Set Span = wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation.
3. Repeat above procedures until all frequencies measured were complete.

Limit:

Frequency Range MHz	Limit (dBc)
30-25000	-20

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Band edge testing

Test result

Test Mode	Antenna	ChName	Channel (MHz)	RefLevel (dBm)	Result (dBm)	Limit (dBm)	Verdict
BLE_BT4.0	Ant1	Low	2402	-2.49	-52.66	<=-22.49	PASS
		High	2480	0.05	-44.89	<=-19.95	PASS

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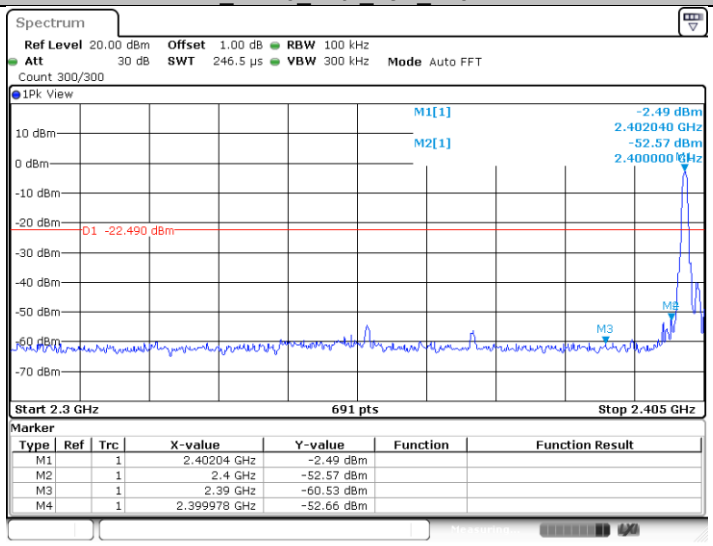
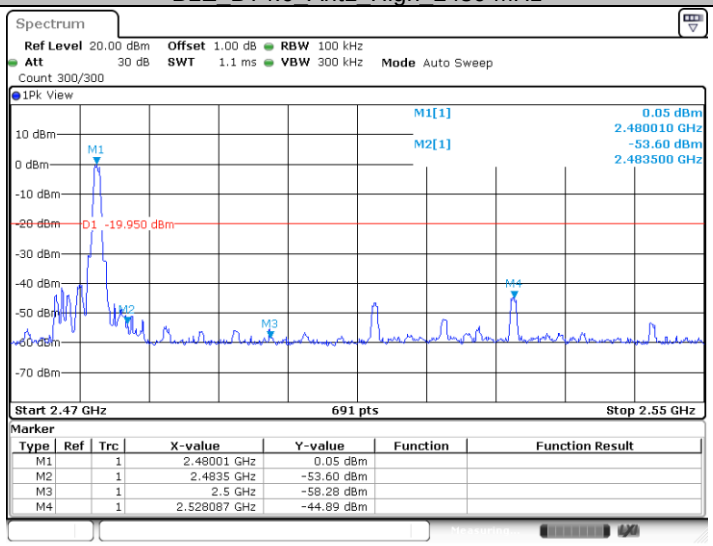
Test Graphs

BLE_BT4.0_Ant1_Low_2402 MHz



Date: 25.DEC.2020 17:29:27

BLE_BT4.0_Ant1_High_2480 MHz



Date: 25.DEC.2020 17:34:00

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9.7 Spurious radiated emissions for transmitter

Test Method

1: The EUT was place on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2: The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3: The height of antenna 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.
4: 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.
5: Use the following spectrum analyzer settings According to C63.10:
For Below 1GHz
Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 100 KHz to 120KHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions Above 1GHz:
Span = wide enough to capture the peak level of the in-band emission and all spurious RBW = 1MHz, VBW≥RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.
Procedures for average unwanted emissions measurements above 1000 MHz
a) RBW = 1 MHz.
b) VBW \ [3 × RBW].
c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
e) Sweep time = auto.
f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D,where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)
g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:
1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is [10 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.
2) If linear voltage averaging mode was used in the preceding step e), then the correction

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factor is [20 log (1 / D)], where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.
3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission.

Limit

The radio emission outside the operating frequency band shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Radiated emissions which fall in the restricted bands, as defined in section15.205, must comply with the radiated emission limits specified in section 15.209.

Frequency MHz	Field Strength uV/m	Field Strength dBµV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

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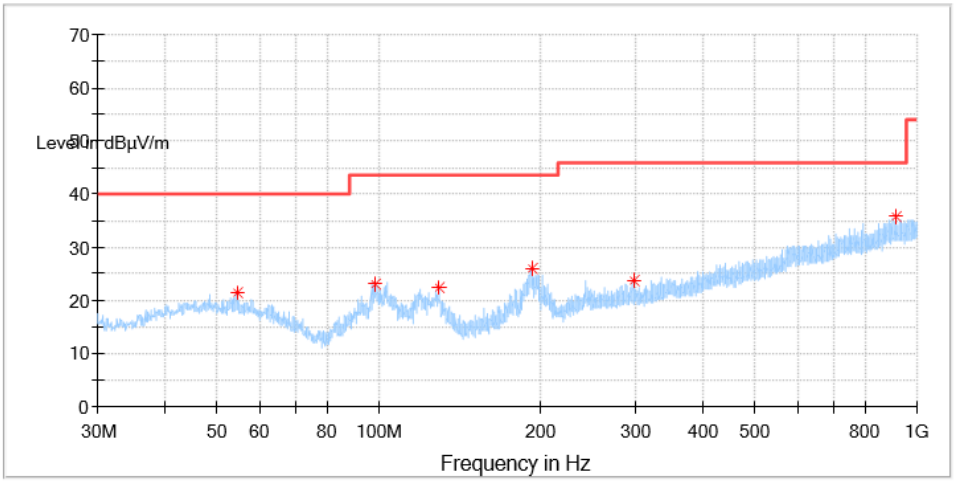
Spurious radiated emissions for transmitter

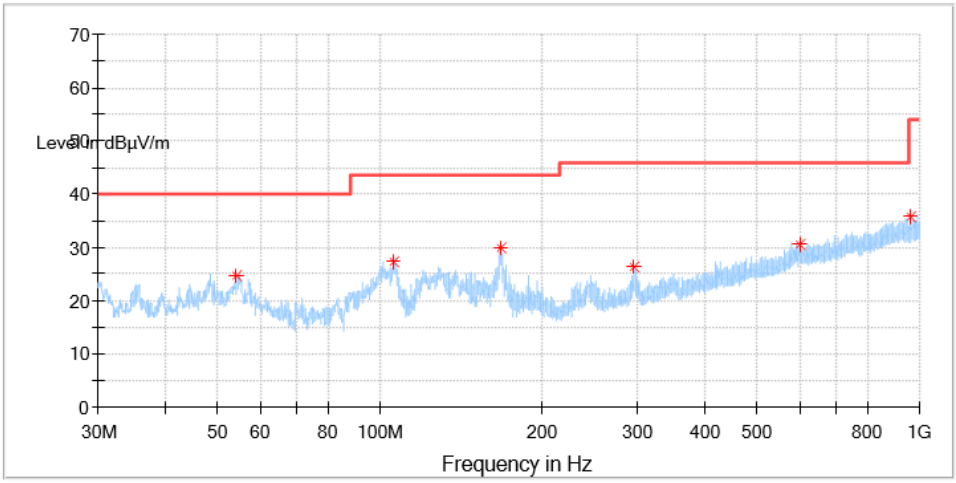
According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Transmitting spurious emission test result as below:
For model: UC-32B

Emission below 1GHz



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.371250	21.58	40.00	18.42	100.0	H	204.0	18
98.445625	23.10	43.50	20.4	100.0	H	337.0	16
129.667500	22.36	43.50	21.14	100.0	H	158.0	13
192.475000	26.07	43.50	17.43	100.0	H	204.0	16
298.447500	23.64	46.00	22.36	100.0	H	135.0	19
917.792500	35.69	46.00	10.31	100.0	H	31.0	30



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
54.310625	24.63	40.00	15.37	100.0	V	129.0	18
106.205625	27.40	43.50	16.10	100.0	V	129.0	16
167.558125	29.93	43.50	13.57	100.0	V	129.0	13
296.265000	26.44	46.00	19.56	100.0	V	108.0	19
602.845625	30.69	46.00	15.31	100.0	V	98.0	26
961.624375	35.66	54.00	18.34	100.0	V	0.0	30

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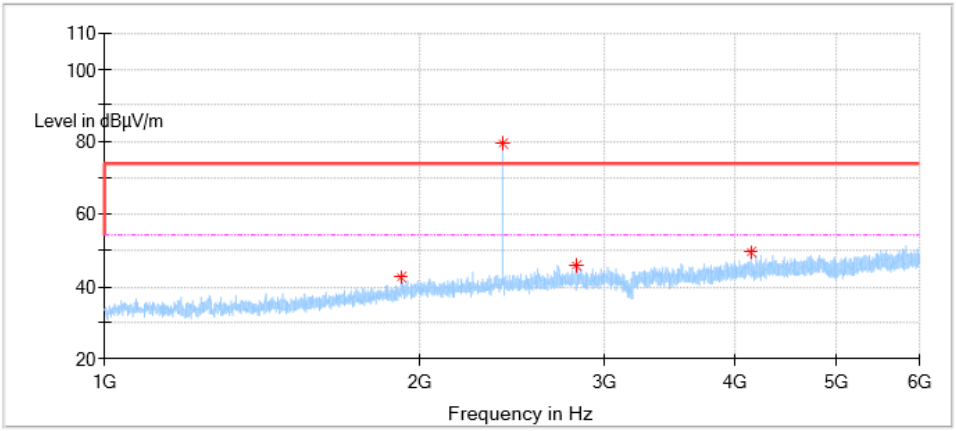
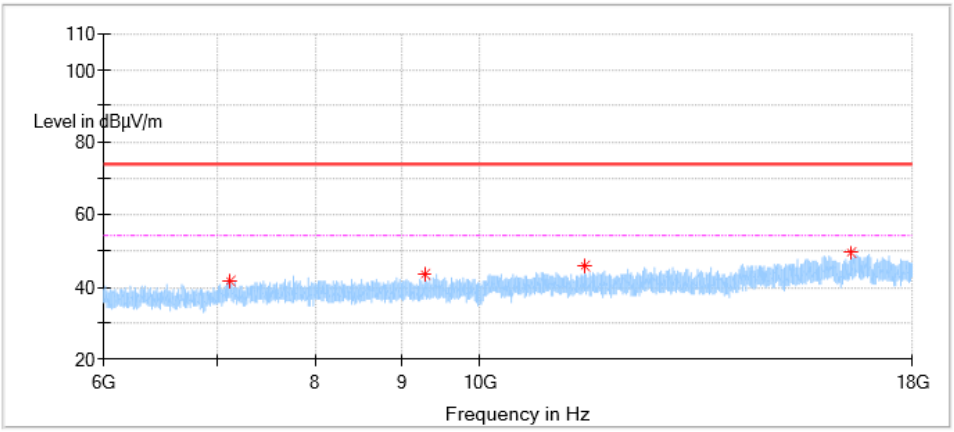
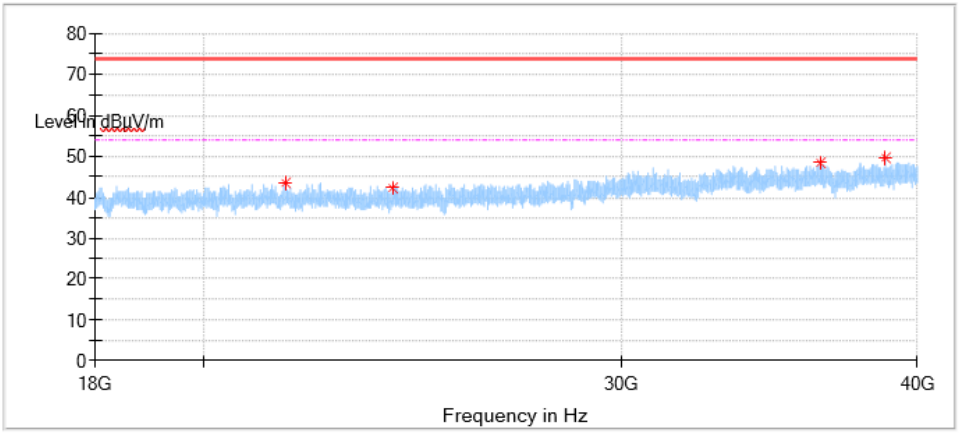
Emission between 1G-40GHz

2402MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1920.000000	42.68	74.00	31.32	150.0	H	166.0	-5.28
2818.500000	45.90	74.00	28.10	150.0	H	356.0	-2.93
4140.500000	49.70	74.00	24.30	150.0	H	134.0	0.61
7123.000000	41.89	74.00	32.11	150.0	H	355.0	4.93
9275.000000	43.48	74.00	30.52	150.0	H	34.0	6.95
11531.500000	45.76	74.00	28.24	150.0	H	0.0	8.18
16554.500000	49.32	74.00	24.68	150.0	H	241.0	15.69
21664.375000	43.44	74.00	30.56	150.0	H	29.0	0.43
24042.437500	42.40	74.00	31.60	150.0	H	56.0	1.15
36387.187500	48.50	74.00	25.50	150.0	H	0.0	6.18
38801.000000	49.45	74.00	24.55	150.0	H	274.0	7.10

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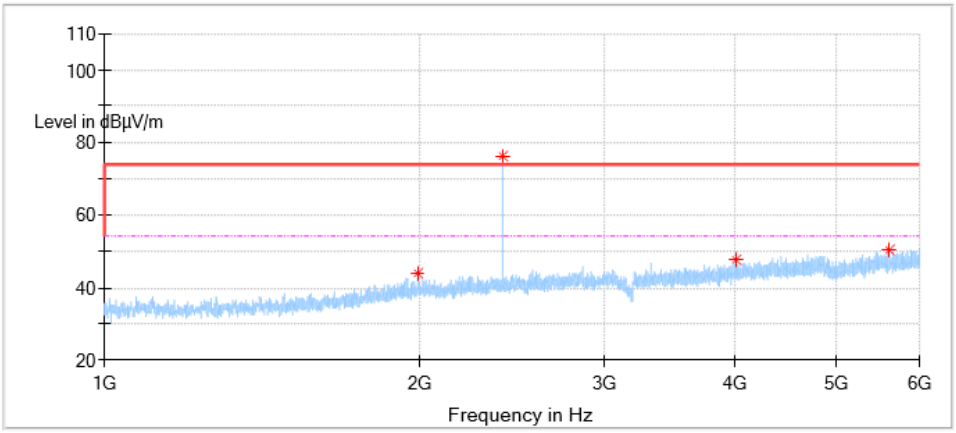

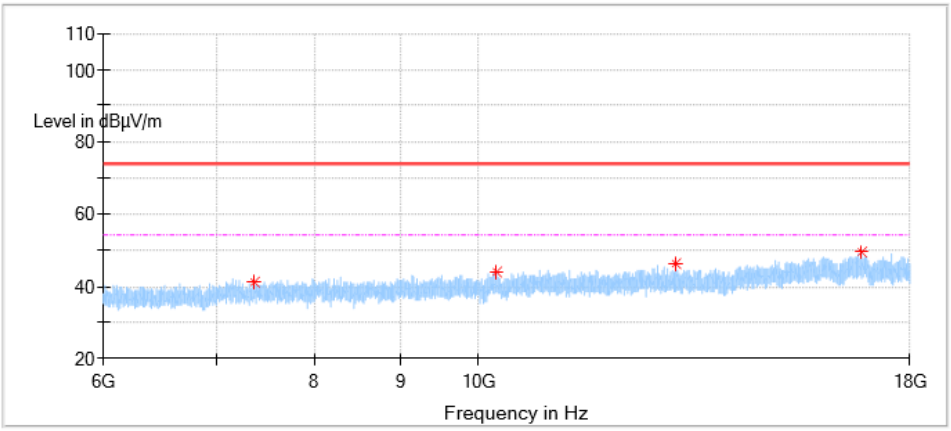

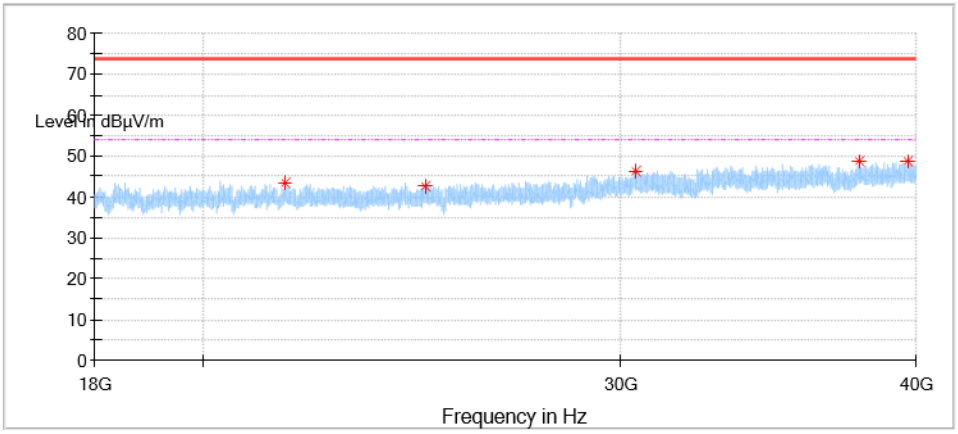

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1994.500000	43.86	74.00	30.14	150.0	V	188.0	-5.04
4016.500000	47.78	74.00	26.22	150.0	V	314.0	0.20
5619.500000	50.43	74.00	23.57	150.0	V	149.0	3.04
7375.500000	41.46	74.00	32.54	150.0	V	94.0	5.51
10249.000000	44.09	74.00	29.91	150.0	V	212.0	8.99
13080.500000	46.17	74.00	27.83	150.0	V	0.0	9.40
16853.000000	49.52	74.00	24.48	150.0	V	0.0	16.47
21654.062500	43.30	74.00	30.70	150.0	V	209.0	0.42
24824.812500	42.59	74.00	31.41	150.0	V	4.0	1.41
30463.687500	46.33	74.00	27.67	150.0	V	30.0	3.11
37830.250000	48.65	74.00	25.35	150.0	V	303.0	6.65
39662.437500	48.86	74.00	25.14	150.0	V	359.0	9.20

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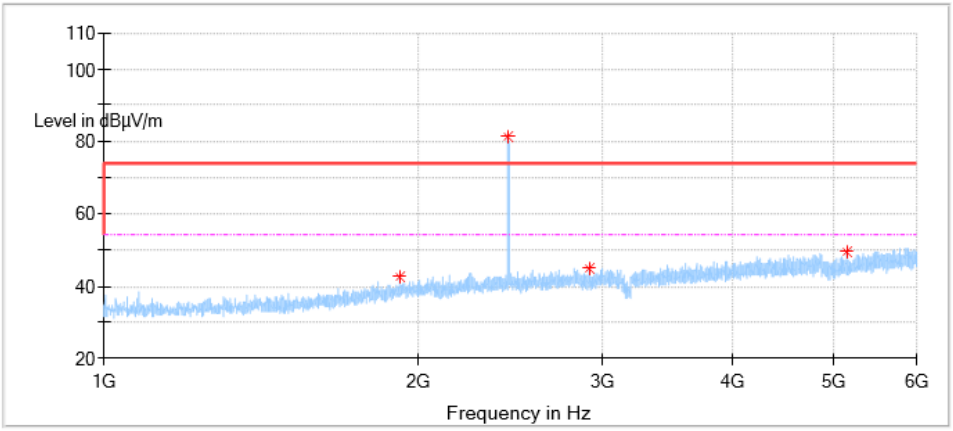
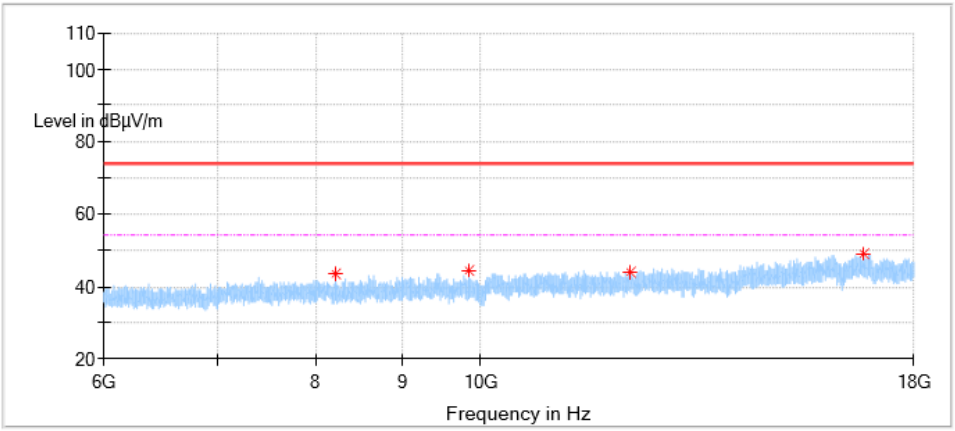
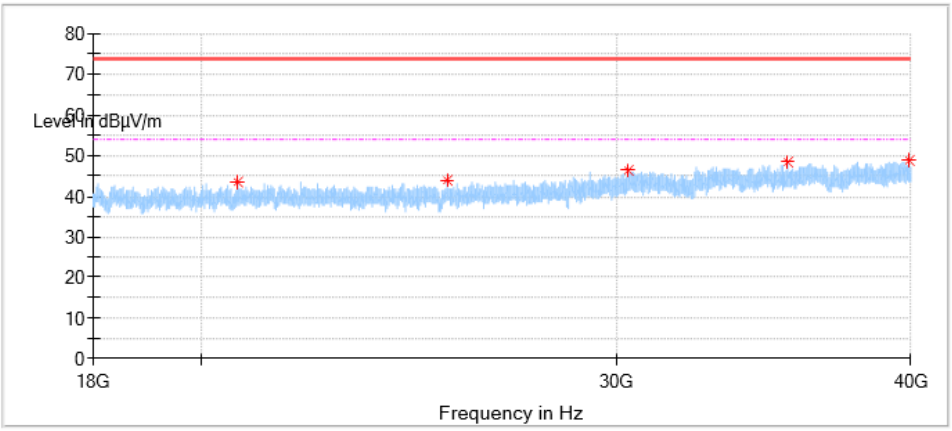
2440MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1920.000000	42.40	74.00	31.60	150.0	H	165.0	-5.28
2915.500000	44.72	74.00	29.28	150.0	H	357.0	-2.71
5136.000000	49.50	74.00	24.50	150.0	H	0.0	2.12
8221.500000	43.59	74.00	30.41	150.0	H	347.0	6.16
9848.000000	44.55	74.00	29.45	150.0	H	209.0	7.90
12253.000000	44.16	74.00	29.84	150.0	H	24.0	9.02
16827.500000	49.15	74.00	24.85	150.0	H	24.0	16.38
20739.687500	43.51	74.00	30.49	150.0	H	180.0	-0.30
25449.062500	43.89	74.00	30.11	150.0	H	193.0	1.83
30375.000000	46.25	74.00	27.75	150.0	H	260.0	3.02
35469.375000	48.49	74.00	25.51	150.0	H	358.0	5.44
39960.812500	48.89	74.00	25.11	150.0	H	45.0	9.86

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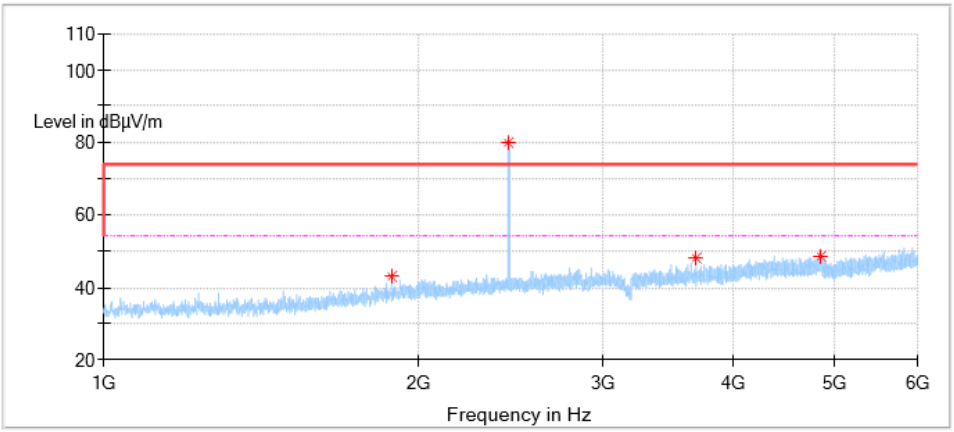

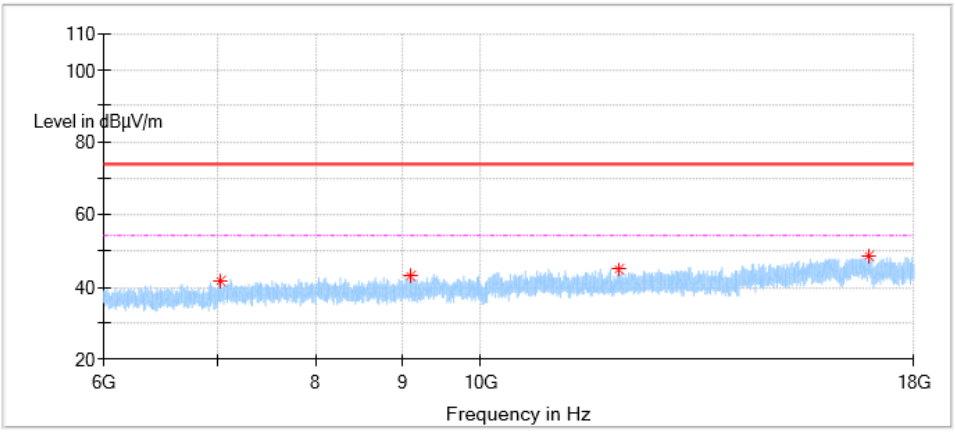

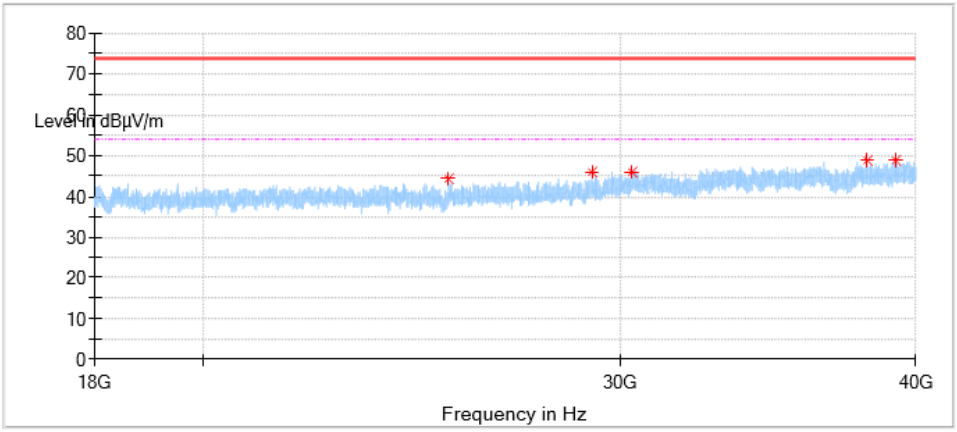

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1884.000000	42.92	74.00	31.08	150.0	V	195.0	-5.76
3686.000000	47.95	74.00	26.05	150.0	V	141.0	-0.72
4856.000000	48.71	74.00	25.29	150.0	V	11.0	1.80
7032.000000	41.91	74.00	32.09	150.0	V	243.0	4.83
9087.500000	43.26	74.00	30.74	150.0	V	266.0	6.81
12063.500000	44.82	74.00	29.18	150.0	V	356.0	8.95
16936.000000	48.59	74.00	25.41	150.0	V	35.0	16.48
25392.687500	44.26	74.00	29.74	150.0	V	1.0	1.79
29180.125000	46.09	74.00	27.91	150.0	V	31.0	2.41
30356.437500	46.04	74.00	27.96	150.0	V	1.0	3.00
38150.625000	48.83	74.00	25.17	150.0	V	345.0	7.07
39241.687500	48.77	74.00	25.23	150.0	V	0.0	7.88

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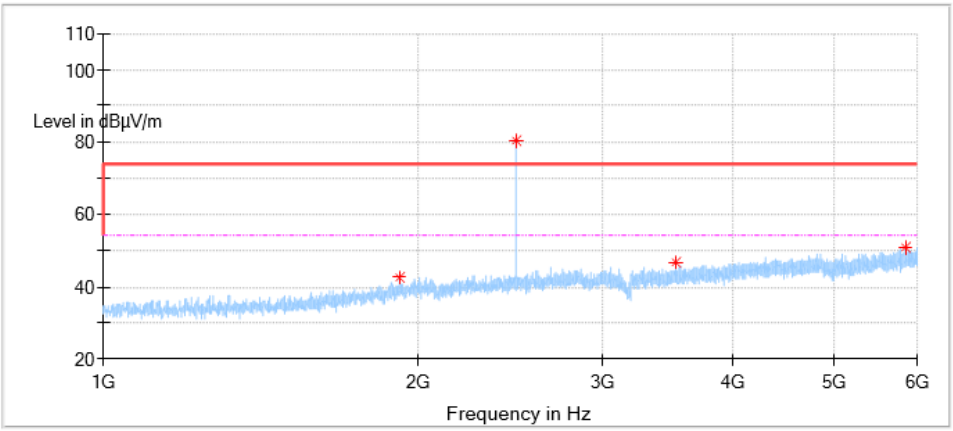
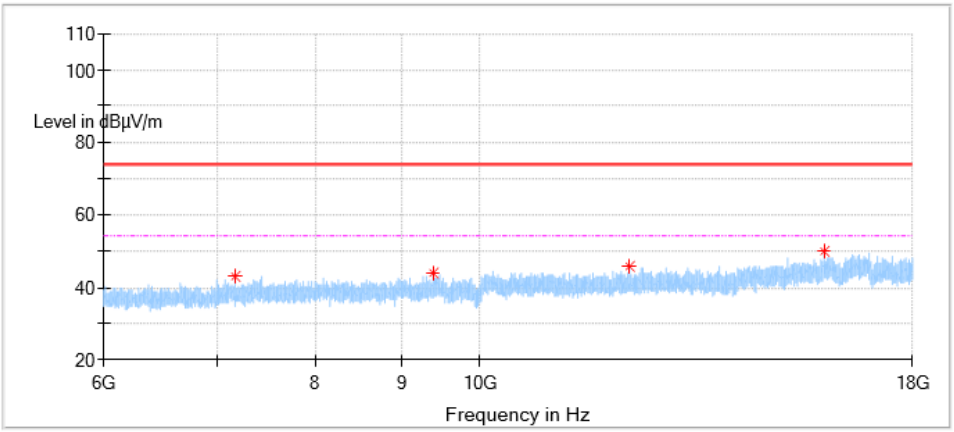
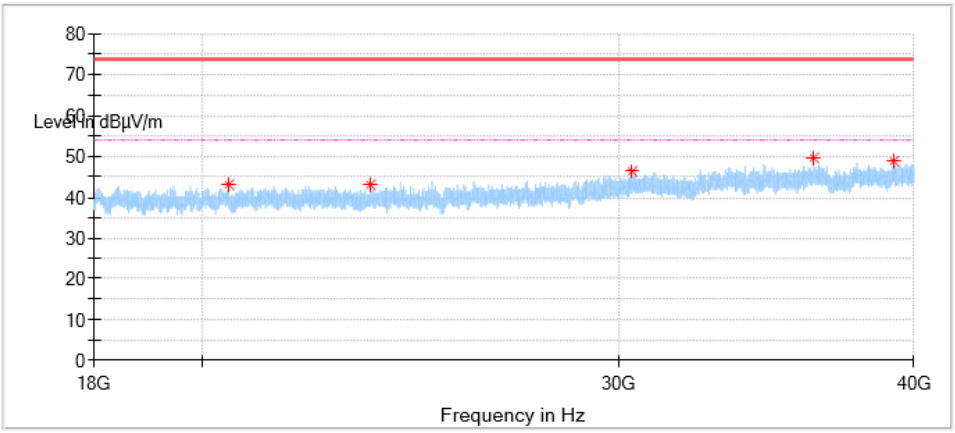
2480MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1920.000000	42.64	74.00	31.36	150.0	H	187.0	-5.28
3522.500000	46.60	74.00	27.40	150.0	H	140.0	-1.26
5848.500000	50.74	74.00	23.26	150.0	H	15.0	3.94
7170.000000	42.90	74.00	31.10	150.0	H	0.0	4.91
9390.500000	44.06	74.00	29.94	150.0	H	356.0	7.09
12254.000000	45.67	74.00	28.33	150.0	H	197.0	9.03
15976.000000	49.79	74.00	24.21	150.0	H	35.0	14.31
20527.937500	43.22	74.00	30.78	150.0	H	0.0	-0.49
23548.812500	43.06	74.00	30.94	150.0	H	9.0	0.73
30385.312500	46.35	74.00	27.65	150.0	H	274.0	3.03
36310.187500	49.81	74.00	24.19	150.0	H	330.0	6.10
39260.250000	48.73	74.00	25.27	150.0	H	0.0	7.94

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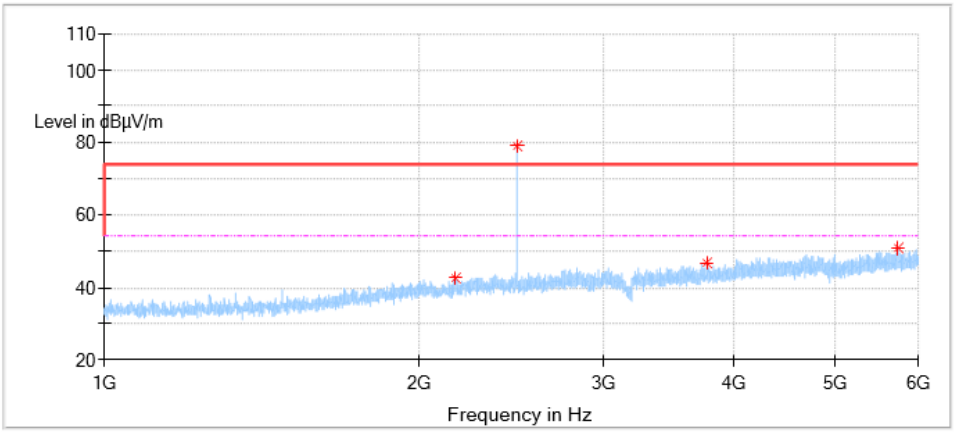

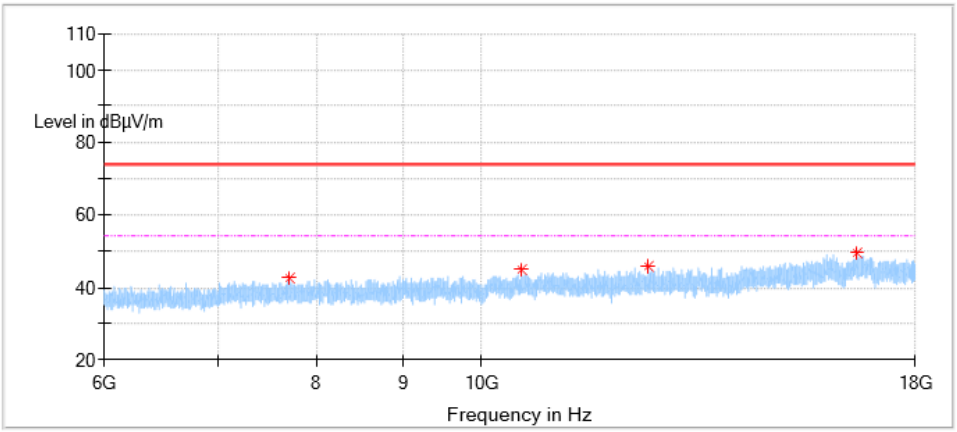

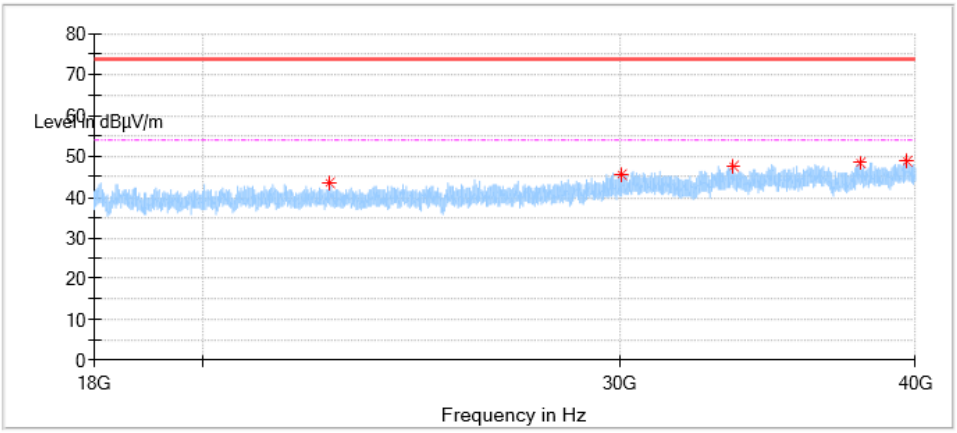

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2163.000000	42.82	74.00	31.18	150.0	V	80.0	-4.60
3772.000000	46.93	74.00	27.07	150.0	V	314.0	-0.53
5740.000000	50.80	74.00	23.20	150.0	V	181.0	3.50
7713.500000	42.40	74.00	31.60	150.0	V	255.0	5.63
10554.500000	45.15	74.00	28.85	150.0	V	94.0	8.55
12548.000000	45.83	74.00	28.17	150.0	V	279.0	9.26
16622.000000	49.40	74.00	24.60	150.0	V	4.0	15.79
22617.250000	43.65	74.00	30.35	150.0	V	184.0	0.91
30058.062500	45.45	74.00	28.55	150.0	V	60.0	2.68
33531.312500	47.54	74.00	26.46	150.0	V	224.0	4.54
37899.687500	48.49	74.00	25.51	150.0	V	211.0	6.83
39666.562500	49.02	74.00	24.98	150.0	V	0.0	9.21

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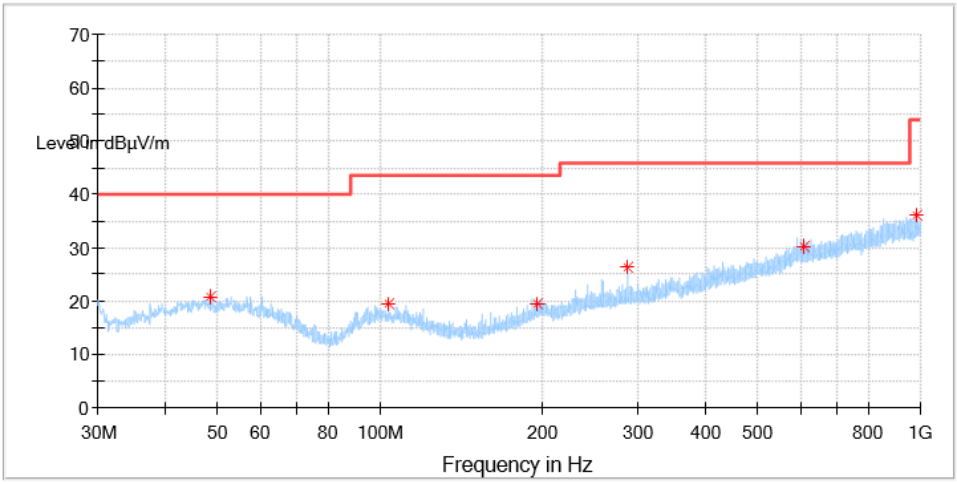
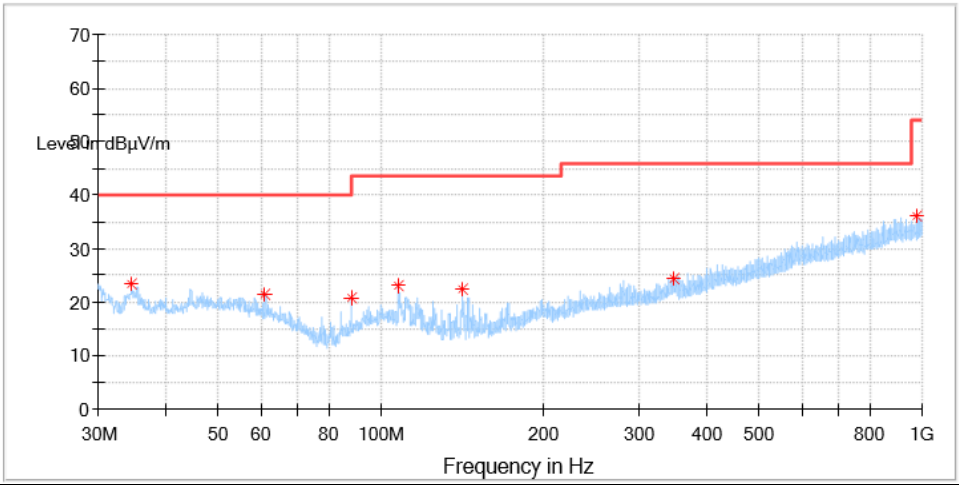
For model: UC-32A

Emission below 1GHz



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
48.490625	20.80	40.00	19.20	100.0	H	110.0	18
103.720000	19.44	43.50	24.06	100.0	H	0.0	16
195.263750	19.48	43.50	24.02	100.0	H	187.0	16
287.959375	26.41	46.00	19.59	100.0	H	72.0	19
608.786875	30.13	46.00	15.87	100.0	H	0.0	26
988.117500	36.14	54.00	17.86	100.0	H	218.0	30



Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
34.486250	23.40	40.00	16.60	100.0	V	146.0	14
61.161250	21.48	40.00	18.52	100.0	V	0.0	17
88.139375	20.94	43.50	22.56	100.0	V	22.0	13
107.842500	23.22	43.50	20.28	100.0	V	358.0	16
141.125625	22.36	43.50	21.14	100.0	V	0.0	12
347.311250	24.29	46.00	21.71	100.0	V	198.0	21
981.085000	36.07	54.00	17.93	100.0	V	277.0	30

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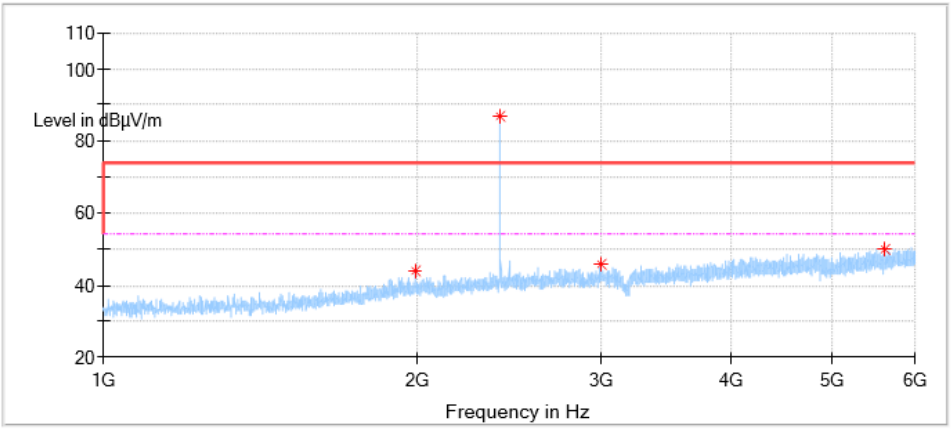
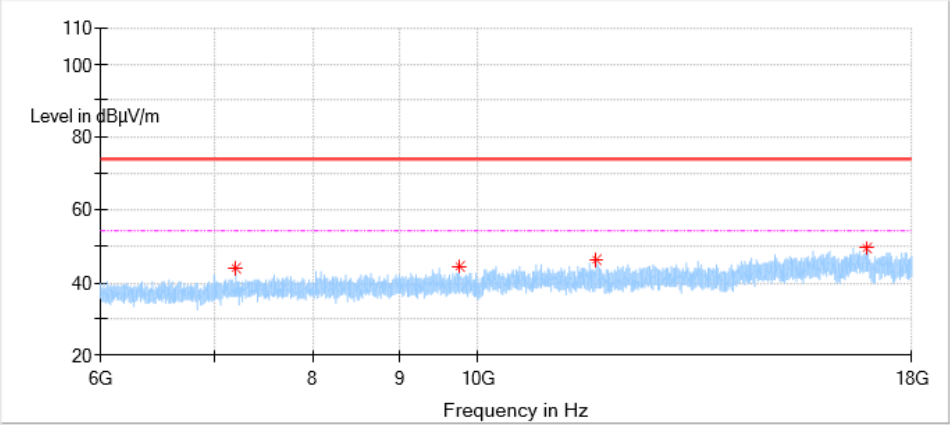
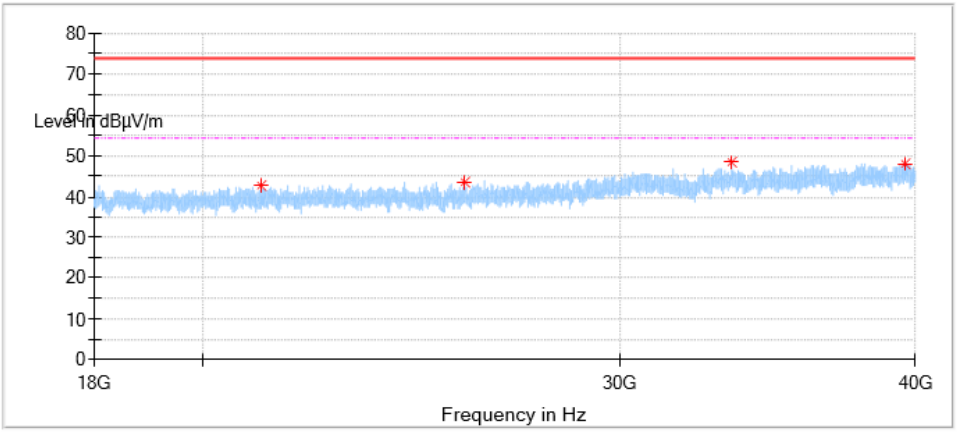
Emission between 1G-40GHz

2402MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1993.000000	44.22	74.00	29.78	150.0	H	41.0	-5.05
3000.000000	46.04	74.00	27.96	150.0	H	251.0	-2.21
5619.000000	50.17	74.00	23.83	150.0	H	95.0	3.04
7206.500000	43.90	74.00	30.10	150.0	H	279.0	5.12
9757.500000	44.49	74.00	29.51	150.0	H	325.0	7.81
11734.000000	46.50	74.00	27.50	150.0	H	0.0	8.51
16941.500000	49.73	74.00	24.27	150.0	H	24.0	16.47
21169.375000	42.85	74.00	31.15	150.0	H	0.0	0.30
25799.687500	43.41	74.00	30.59	150.0	H	60.0	2.06
33458.437500	48.42	74.00	25.58	150.0	H	287.0	4.51
39643.875000	48.17	74.00	25.83	150.0	H	287.0	9.14

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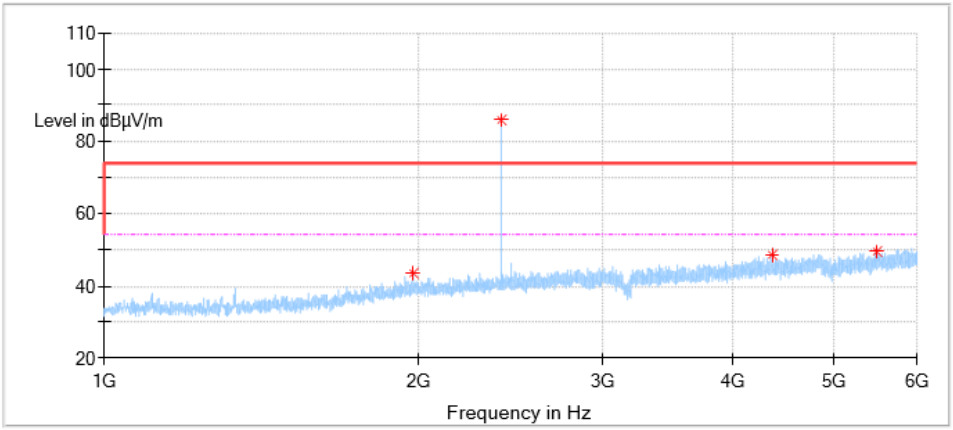

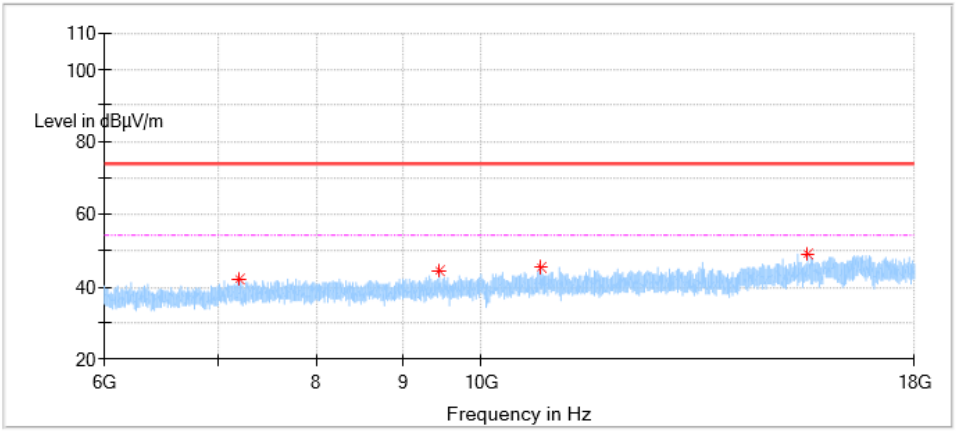

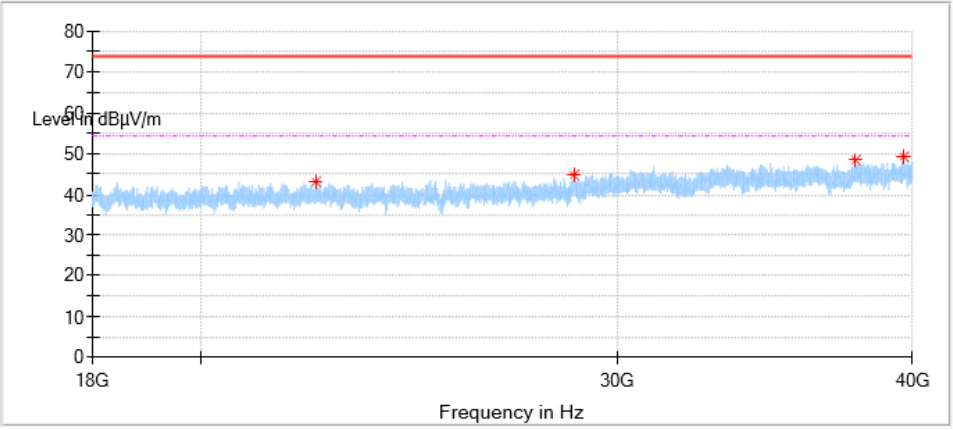

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1976.000000	43.56	74.00	30.44	150.0	V	197.0	-5.10
4362.000000	48.63	74.00	25.37	150.0	V	127.0	0.89
5492.000000	49.76	74.00	24.24	150.0	V	56.0	3.23
7210.000000	42.16	74.00	31.84	150.0	V	0.0	5.14
9445.000000	44.55	74.00	29.45	150.0	V	151.0	7.47
10852.000000	45.30	74.00	28.70	150.0	V	336.0	8.45
15565.000000	49.17	74.00	24.83	150.0	V	81.0	13.25
22360.812500	43.23	74.00	30.77	150.0	V	60.0	1.02
28776.562500	44.86	74.00	29.14	150.0	V	316.0	2.47
37854.312500	48.23	74.00	25.77	150.0	V	169.0	6.71
39645.250000	49.37	74.00	24.63	150.0	V	209.0	9.15

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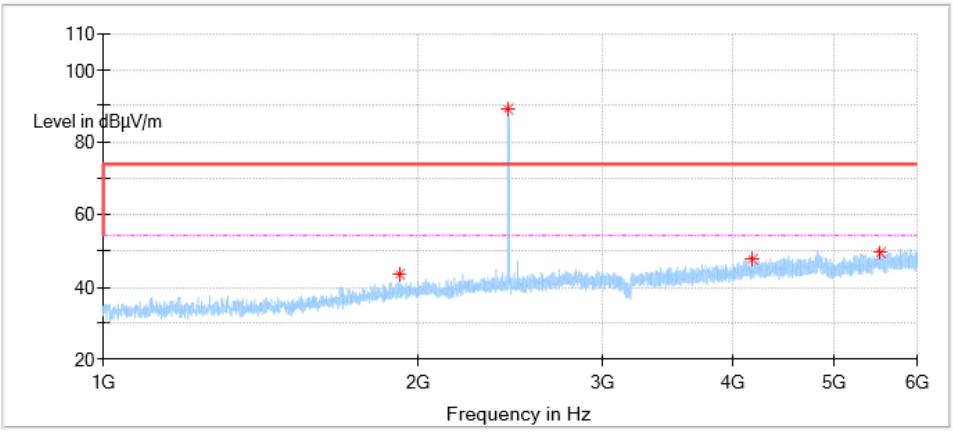
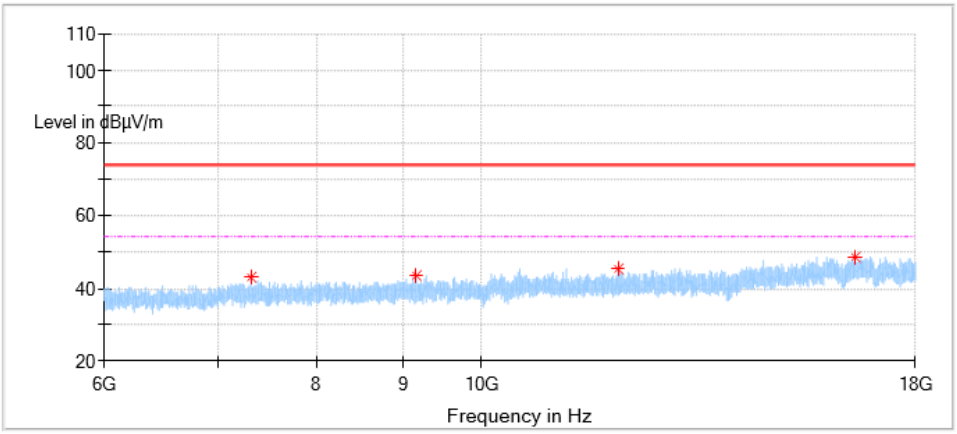
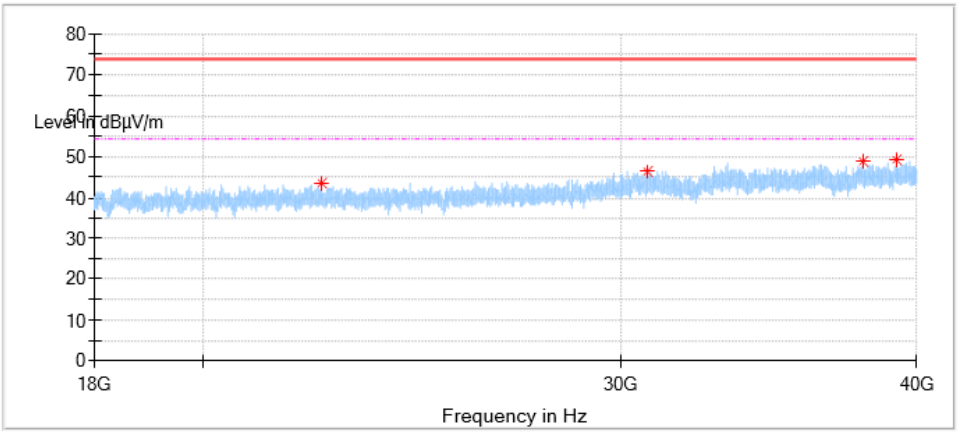
2440MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1920.000000	43.32	74.00	30.68	150.0	H	212.0	-5.28
2440.500000	89.04	74.00	-15.04	150.0	H	0.0	-3.86
4175.500000	47.83	74.00	26.17	150.0	H	259.0	0.62
5530.000000	49.31	74.00	24.69	150.0	H	345.0	3.36
7320.000000	43.03	74.00	30.97	150.0	H	312.0	5.29
9157.500000	43.74	74.00	30.26	150.0	H	13.0	6.74
12048.500000	45.56	74.00	28.44	150.0	H	128.0	9.00
16574.500000	48.83	74.00	25.17	150.0	H	35.0	15.72
22437.125000	43.67	74.00	30.33	150.0	H	100.0	1.06
30784.062500	46.53	74.00	27.47	150.0	H	30.0	2.95
37947.125000	48.90	74.00	25.10	150.0	H	45.0	6.96
39243.750000	49.10	74.00	24.90	150.0	H	86.0	7.89

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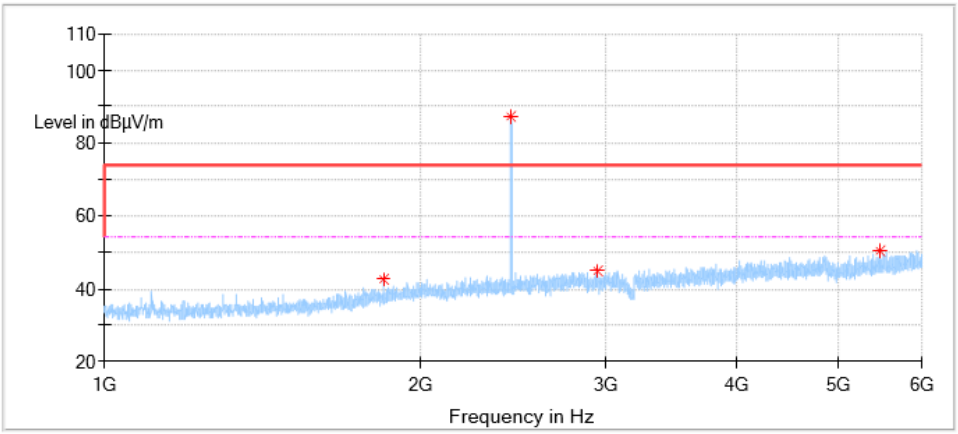

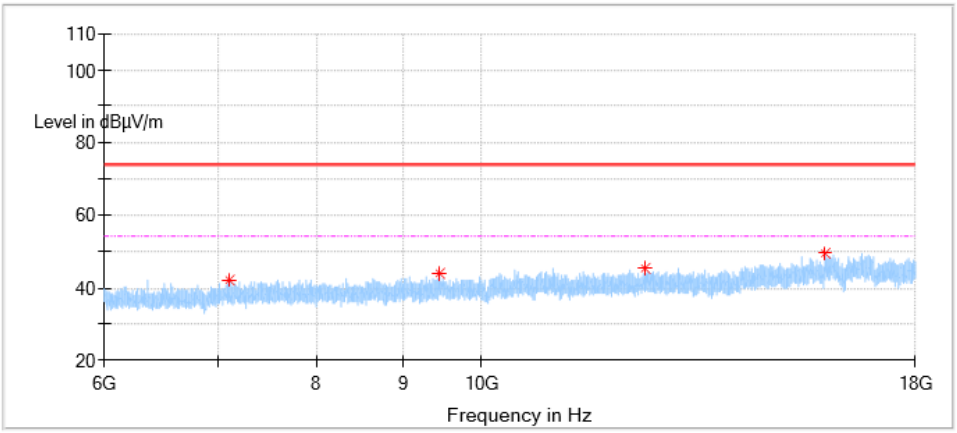

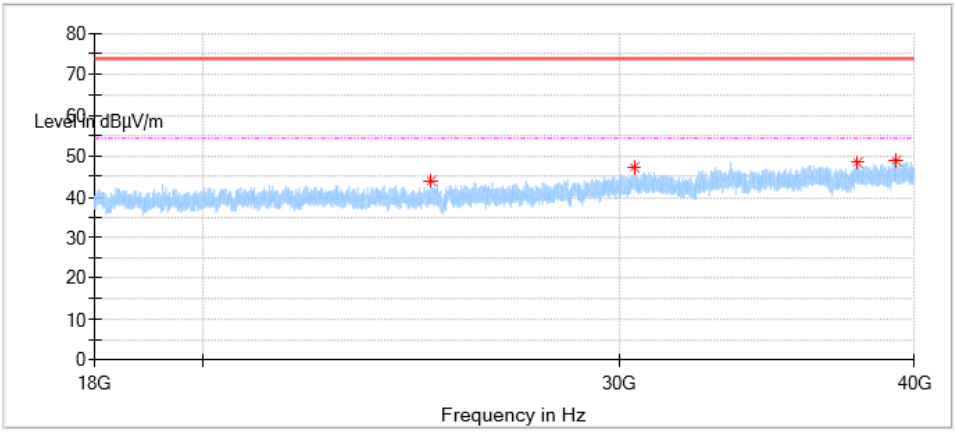

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1842.000000	42.53	74.00	31.47	150.0	V	291.0	-6.12
2947.000000	45.03	74.00	28.97	150.0	V	259.0	-2.56
5479.500000	50.25	74.00	23.75	150.0	V	275.0	3.18
7105.000000	42.27	74.00	31.73	150.0	V	232.0	4.94
9442.500000	43.83	74.00	30.17	150.0	V	209.0	7.45
12492.500000	45.39	74.00	28.61	150.0	V	279.0	9.17
15949.500000	49.61	74.00	24.39	150.0	V	24.0	14.14
24980.187500	43.86	74.00	30.14	150.0	V	31.0	1.74
30446.500000	47.07	74.00	26.93	150.0	V	356.0	3.09
37842.625000	48.26	74.00	25.74	150.0	V	138.0	6.68
39289.812500	48.91	74.00	25.09	150.0	V	44.0	8.04

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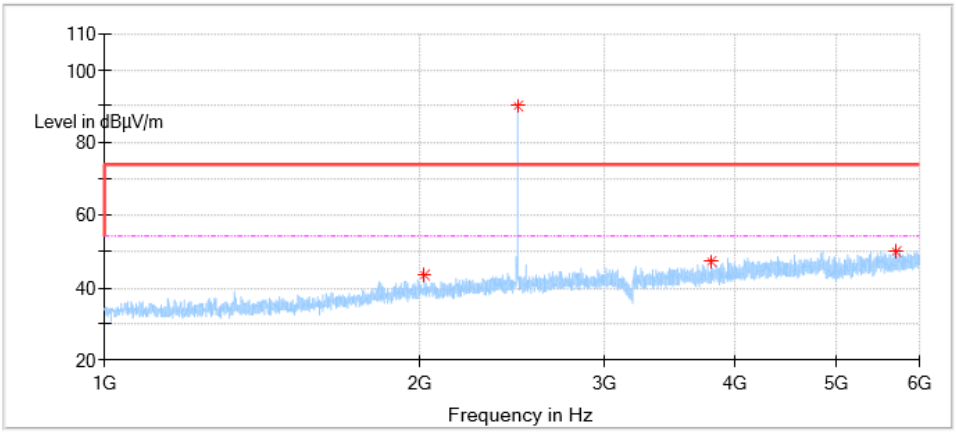
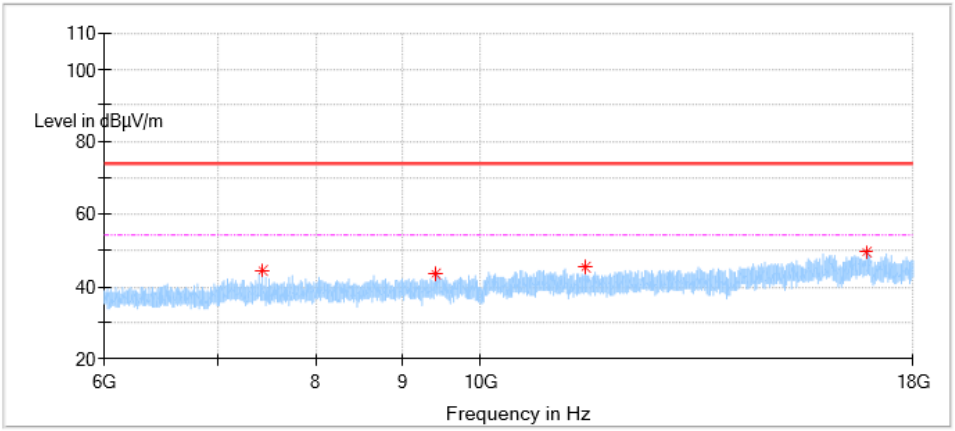
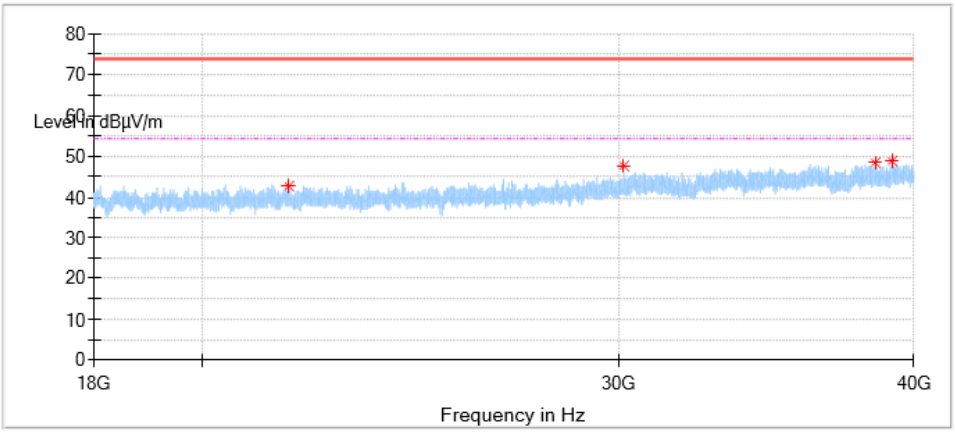
2480MHz Test Result







Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
2019.500000	43.50	74.00	30.50	150.0	H	33.0	-4.96
3794.000000	47.39	74.00	26.61	150.0	H	356.0	-0.50
5698.500000	50.23	74.00	23.77	150.0	H	345.0	3.36
7439.500000	44.49	74.00	29.51	150.0	H	258.0	5.49
9416.000000	43.61	74.00	30.39	150.0	H	97.0	7.27
11527.500000	45.33	74.00	28.67	150.0	H	281.0	8.18
16908.000000	49.71	74.00	24.29	150.0	H	0.0	16.52
21770.250000	42.53	74.00	31.47	150.0	H	316.0	0.48
30153.625000	47.41	74.00	26.59	150.0	H	76.0	2.78
38517.062500	48.49	74.00	25.51	150.0	H	45.0	7.02
39186.687500	48.79	74.00	25.21	150.0	H	329.0	7.70

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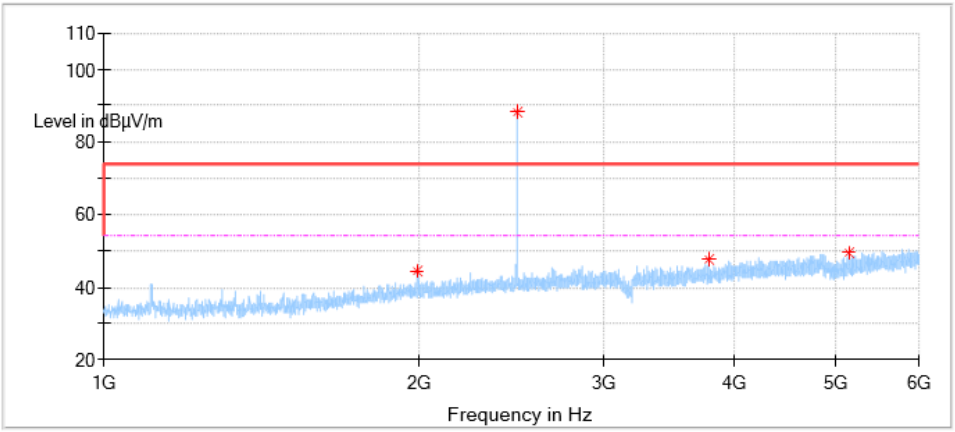

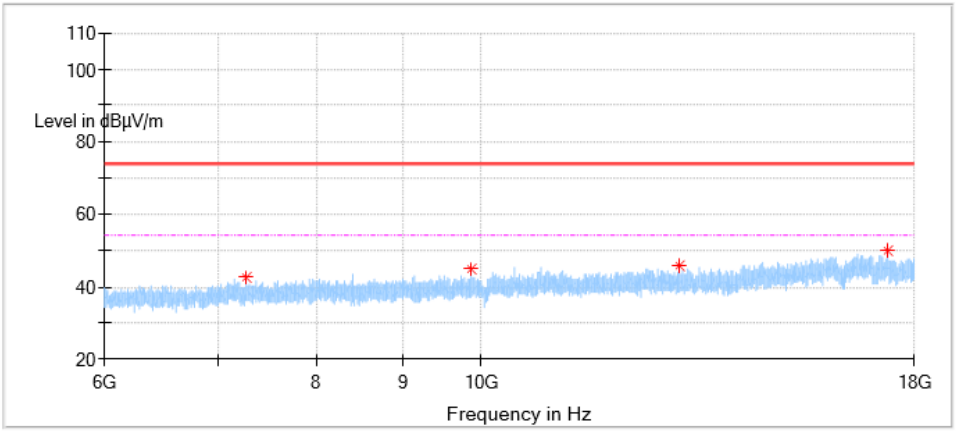

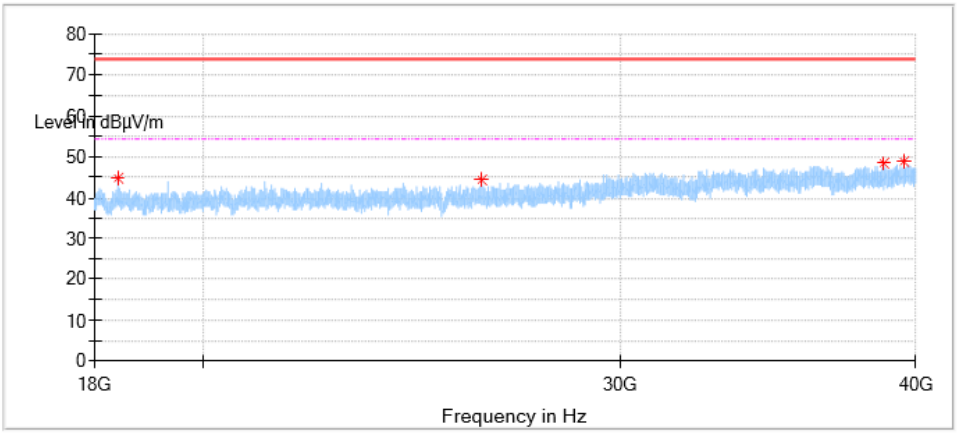

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1995.000000	44.51	74.00	29.49	150.0	V	187.0	-5.04
3785.000000	47.59	74.00	26.41	150.0	V	62.0	-0.51
5136.000000	49.52	74.00	24.48	150.0	V	171.0	2.12
7277.500000	42.53	74.00	31.48	150.0	V	197.0	5.31
9859.500000	44.73	74.00	29.27	150.0	V	11.0	7.91
13076.000000	45.92	74.00	28.08	150.0	V	128.0	9.41
17352.000000	49.81	74.00	24.19	150.0	V	174.0	16.29
18416.625000	44.63	74.00	29.37	150.0	V	207.0	-1.92
26245.187500	44.12	74.00	29.88	150.0	V	356.0	2.03
38768.000000	48.46	74.00	25.54	150.0	V	154.0	7.07
39577.187500	49.00	74.00	25.00	150.0	V	154.0	8.95

Remark:

(1) Data of measurement within frequency range 18Hz-26GHz are the noise floor or attenuated more than 10dB below the permissible limits or the field strength is too small to be measured.
(2) Level=Reading Level + Correction Factor

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Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
(The Reading Level is recorded by software which is not shown in the sheet)

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10 Test Equipment List

List of Test Instruments

Radiated Emission Test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2021-6-22
High Pass Filter (HPF)	UCL	UCL-BPF1-7G	1504005103	2021-7-3
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2021-8-5
Horn Antenna	Rohde & Schwarz	HF907	102295	2021-8-5
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2021-9-2
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2021-6-21
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2021-7-30
Attenuator	Agilent	8491A	MY39264334	2022-12-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2022-12-6
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

RF conducted test

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2021-6-21
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2021-6-21
Power Splitter	Weinschel	1580	SC319	2021-7-16
Vector Signal Generator	Rohde & Schwarz	SMBV100A	262825	2021-6-21
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2021-6-21
Test software	Tonscend	System for BT/WIFI	Version 2.6	N/A

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth
- 20dB bandwidth and 99% Occupied Bandwidth
- Carrier frequency separation
- Number of hopping frequencies
- Dwell Time
- Power spectral density
- Spurious RF conducted emissions
- Band edge

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11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty	
Test Items	Extended Uncertainty
Uncertainty for Radiated Spurious Emission 25MHz-3000MHz	Horizontal: 4.80dB; Vertical: 4.87dB;
Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz	Horizontal: 4.59dB; Vertical: 4.58dB;
Uncertainty for Radiated Spurious Emission 18000MHz-40000MHz	Horizontal: 5.05dB; Vertical: 5.04dB;
Uncertainty for Conducted RF test with TS 8997	RF Power Conducted: 1.16dB Frequency test involved: 0.6×10^{-7} or 1%
Uncertainty Evaluation for Power Spectral Density Conducted measurement	1.17dB
Uncertainty Evaluation for Spurious emissions Conducted measurement	1.43dB

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.

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