ACCREDITED
Certificate #2861.01

GRGTEST

TEST REPORT

Verified Code:483891

Report No.:	E202008101990-15	**Application No.:**	E202008101990
Client:	BY TECHDESIGN S.L.		
Address:	Calle Thomas Edison 5, Arganda del Rey Madrid, 28500, Spain		
Sample Description:	Access Control System - RF readers		
Model:	42272		
Test Specification:	FCC 47 CFR Part 15 Subpart C		
Receipt Date:	2020-08-12		
Test Date:	2020-09-08 to 2020-09-08		
Issue Date:	2020-12-21		
Test Result:	Pass		

Prepared By:	**Reviewed By:**	**Approved By:**
Test Engineer	Technical Manager	Manager
Xi'e Fang	Wu Haoting	wucheng rong

GUANGZHOU GRG METROLOGY & TEST CO., LTD. GRGTEST APPROVED(03)

Other Aspects:

Note: Note

Abbreviations: *ok / P = passed; fail / F = failed; n.a. / N = not applicable;*

The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.

DIRECTIONS OF TEST

1. **This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.**

2. **The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.**

3. **If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.**

TABLE OF CONTENTS

1. TEST RESULT SUMMARY

Technical Requirements		
FCC Part 15 Subpart C KDB 558074 D01: DTS measurement guidance v0502		
Limit / Severity	**Item**	**Result**
§15.207	Conducted emission AC power port	Pass
§15.247(b)(1)	Conducted output power for FHSS	N/A
§15.247(b)(3)	Conducted output power for DTS	Pass
§15.247(e)	Power spectral density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.247(a)(1)	20dB Occupied bandwidth	N/A
--	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	Pass
§15.247(d)	Band edge	Pass
§15.247(d) & §15.209 & §15.205	Spurious radiated emissions for transmitter	Pass
§15.203	Antenna requirement	Pass

The EUT has one antenna. The antenna is internal antenna.
The max gain of antenna is 1dBi.which accordance 15.203.is considered sufficient to comply with the provisions of this section.

2. GENERAL DESCRIPTION OF EUT

2.1. APPLICANT

Name:	BY TECHDESIGN S.L.
Address:	Calle Thomas Edison 5, Arganda del Rey Madrid, 28500, Spain

2.2. MANUFACTURER

Name:	BY TECHDESIGN S.L.
Address:	Calle Thomas Edison 5, Arganda del Rey Madrid, 28500, Spain

2.3. FACTORY

Name :	BY TECHDESIGN S.L.
Address :	Calle Thomas Edison 5, Arganda del Rey Madrid, 28500, Spain

2.4. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment:	Access Control System - RF readers
Model No.:	42272
Adding Model:	42328

Model Difference:

Type	Power supply and input /output	Difference
Air	SDU or SDU+ for NÜO Air; Input: 24VDC, 2.8W	All models are same included the hardware and software, except of the exterior's color and the model name.

Trade Name:	
FCC ID:	2ARQ3-MTA42272
Power supply:	SDU or SDU+ for NÜO Air; Input: 24VDC, 2.8W
Frequency Range:	2402 ~ 2480MHz
Transmit Power:	-0.39dBm
Modulation type:	GFSK for 1Mbps
Channel space:	2MHz
Antenna Specification:	Internal antenna 1dBi gain (Max.)
Temperature Range:	-25℃ ~ +60℃
Hardware Version:	SWM0533_SL3_BYV3_boot_01_00_05_00_app_00_00_05_00_release_135.byfw
Software Version:	SWM0533_SL3_BYV3_boot_01_00_05_00_app_00_00_05_00_release_135.byfw

Sample No: 0001, 0002

Note: /

2.5. TEST OPERATION MODE

Test Item	Mode No.	Description of the modes
Conducted Emission	1	Continuously Transmitting
Radiated Emission	1	Continuously Transmitting (CH0, CH19, CH39)

2.6. LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
DC power	Long wei	PS-305DM	180704473	/
Cable				
AC cable	/	/	/	Unshielded, 1.00m
DC cable	/	/	/	Shielded, 1.80m

Test software:

Software version	Test level
putty configuration	4dbm

3. LABORATORY AND ACCREDITATIONS

3.1. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co,. Ltd.

Add : Address: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China

P.C. : 518000

Tel : 0755-61180008

Fax : 0755-61180008

3.2. ACCREDITATIONS

A2LA	Certificate Number 2861.01

3.3. 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:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz～1000MHz	4.3dB
		1GHz～18GHz	5.6dB
	Vertical	30MHz～1000MHz	4.3dB
		1GHz～18GHz	5.6dB
Conduction Emission		9 kHz ~ 150 kHz	2.8 dB
		150 kHz ~ 10 MHz	2.8 dB
		10 MHz ~ 30 MHz	2.2 dB

This uncertainty represents an expanded uncertainty factor of *k*=2.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EMI TEST RECEIVER	R&S	ESCI	100783	2020/11/27
LISN(EUT)	R&S	ENV216	101543	2021/03/24
Test S/W	EZ	CCS-3A1-CE	/	/
Radiated Spurious Emission& Restricted bands of operation				
EMI TEST RECEIVER	R&S	ESPI	100529	2020/12/08
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/11/18
Bilog Antenna	Schwarzbeck	VULB 9163	01279	2021/03/14
Horn Antenna	Schwarzbeck	BBHA 9120D(1201)	02143	2020/12/28
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2020/11/30
Amplifier	Tonscend	TAP9E6343	AP20E806065	2021/06/28
Amplifier	Tonscend	TAP01018048	AP20E8060075	2021/06/28
Amplifier	Tonscend	TAP037030	AP20E8060081	2021/06/28
Test S/W	Tonscend	JS36-RE/2.5.1.5		
6 dB Bandwidth				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/11/18
Peak/AV Output Power				
Pulse Power Sentor	Agilent	MA2411B	1126150	2021/04/13
Power Meter	Anritsu	ML2495A	1204003	2021/04/13
Conducted band edges and Spurious Emission				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/11/18
Peak Output Spectral Density Measurement				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2020/11/18

5. CONDUCTED EMISSION MEASUREMENT

5.1. LIMITS

Frequency range	Limits (dBμV)	
	Quasi-peak	Average
150kHz ～ 0.5MHz	66～56	56～46
0.5 MHz ～ 5 MHz	56	46
5 MHz ～ 30 MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

5.2. TEST PROCEDURES

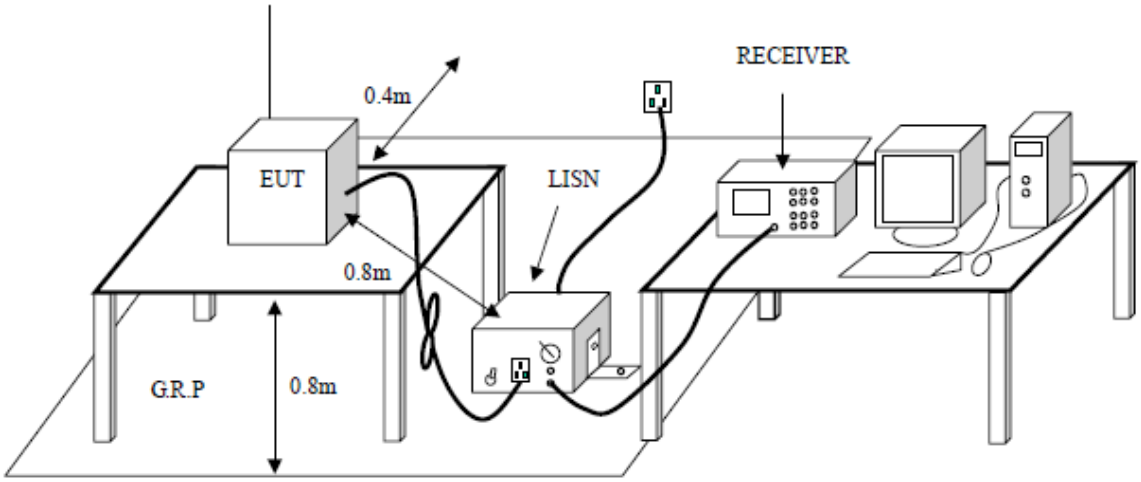
Procedure of Preliminary Test

Test procedures follow ANSI C63.4:2014.
For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:
– Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:
1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;
– All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
– The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;
– Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
– I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

5.3. TEST SETUP



5.4. DATA SAMPLE

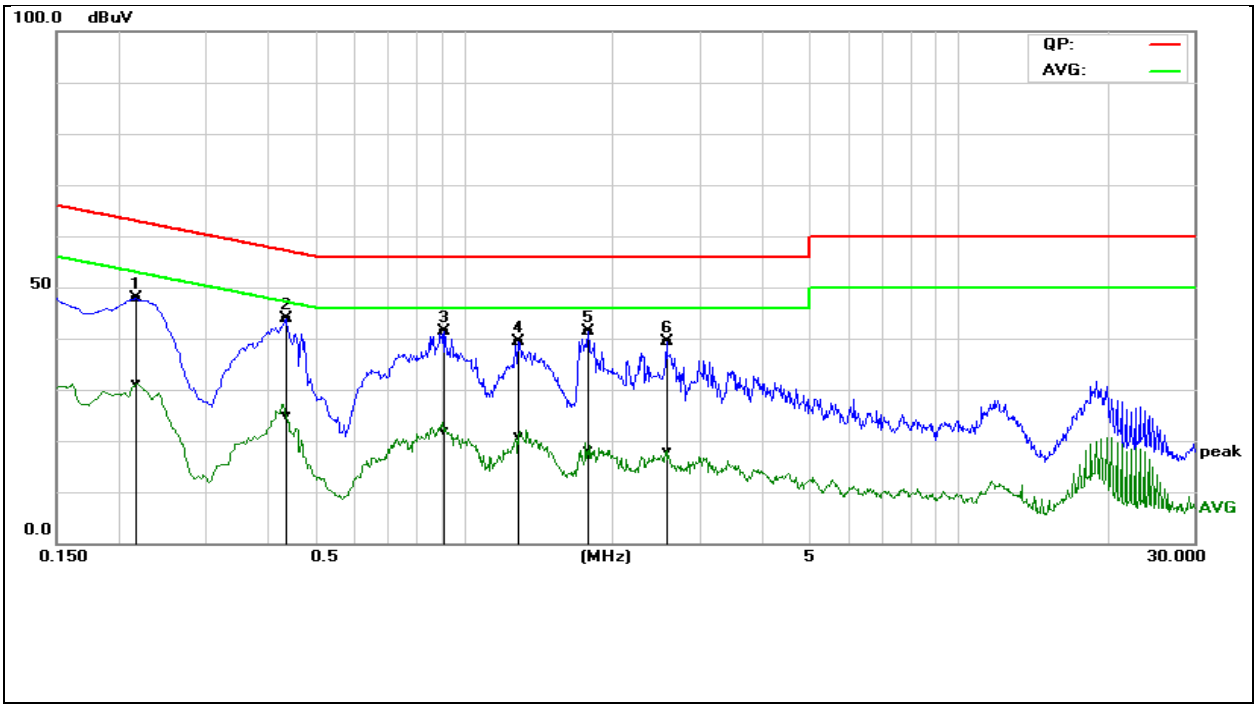
Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
Result = Quasi-peak Reading/ Average Reading + Factor
Limit =Limit stated in standard
Margin = Result (dBuV) – Limit (dBuV)

5.5. TEST RESULTS

Model No.	42272	RBW,VBW	9 kHz
Environmental Conditions	25.5℃/44%RH/101.7kPa	Test Mode	Mode 1
Tested By	WuJunLin	Line	L
Tested Date	2020/08/18	Test Voltage	AC120V/60Hz

(The chart below shows the highest readings taken from the final data.)

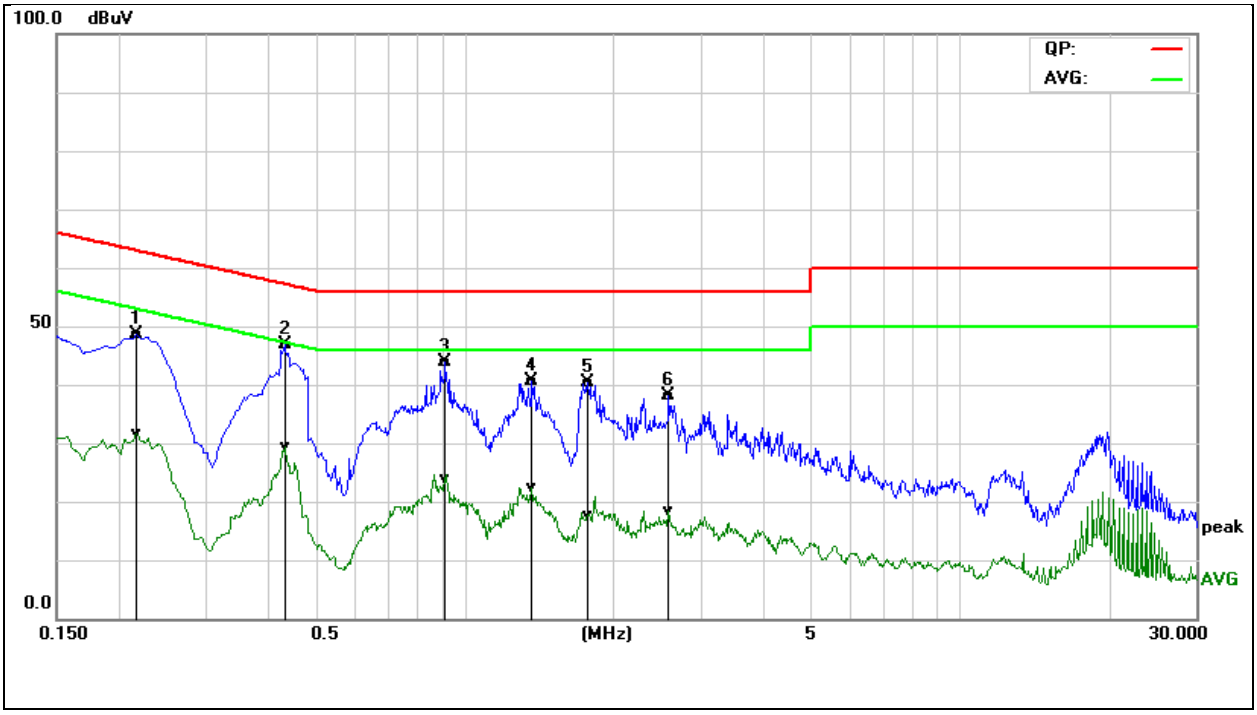


No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2180	38.18	21.39	9.68	47.86	31.07	62.89	52.89	-15.03	-21.82	Pass
2*	0.4380	34.17	15.17	9.67	43.84	24.84	57.10	47.10	-13.26	-22.26	Pass
3	0.9140	31.78	12.26	9.70	41.48	21.96	56.00	46.00	-14.52	-24.04	Pass
4	1.2940	29.61	11.14	9.72	39.33	20.86	56.00	46.00	-16.67	-25.14	Pass
5	1.7900	31.56	8.46	9.73	41.29	18.19	56.00	46.00	-14.71	-27.81	Pass
6	2.5700	29.68	8.25	9.75	39.43	18.00	56.00	46.00	-16.57	-28.00	Pass

REMARKS: *L = Live Line*

Model No.	42272	**RBW,VBW**	9 kHz
Environmental Conditions	25.5℃/44%RH/101.7kPa	**Test Mode**	Mode 1
Tested By	WuJunLin	**Line**	N
Tested Date	2020/08/18	**Test Voltage**	AC120V/60Hz

(The chart below shows the highest readings taken from the final data.)



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2180	38.97	21.87	9.68	48.65	31.55	62.89	52.89	-14.24	-21.34	Pass
2*	0.4340	37.26	19.81	9.67	46.93	29.48	57.18	47.18	-10.25	-17.70	Pass
3	0.9180	34.12	14.09	9.70	43.82	23.79	56.00	46.00	-12.18	-22.21	Pass
4	1.3700	30.98	12.77	9.72	40.70	22.49	56.00	46.00	-15.30	-23.51	Pass
5	1.7780	30.70	7.82	9.73	40.43	17.55	56.00	46.00	-15.57	-28.45	Pass
6	2.5820	28.40	8.61	9.75	38.15	18.36	56.00	46.00	-17.85	-27.64	Pass

REMARKS: *N = Neutral Line.*

6. RADIATED SPURIOUS EMISSIONS

6.1. LIMITS

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak(μV/m)	Measurement distance(m)	Quasi-peak(dBμV/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	53.8~88.5
0.490-1.705	24000/F(kHz)	30	43~53.8
1.705-30.0	30	30	49.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

6.2. TEST PROCEDURES (please refer to measurement standard)

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna height is 0.8 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45 °) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 315 °using 45 °steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height scan range is 1 meter to 2.5 meter.

--- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (±45°) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.

--- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz
Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 1 meter.

--- The EUT was set into operation.

Pre measurement:

--- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

--- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
--- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).

6.3. TEST SETUP

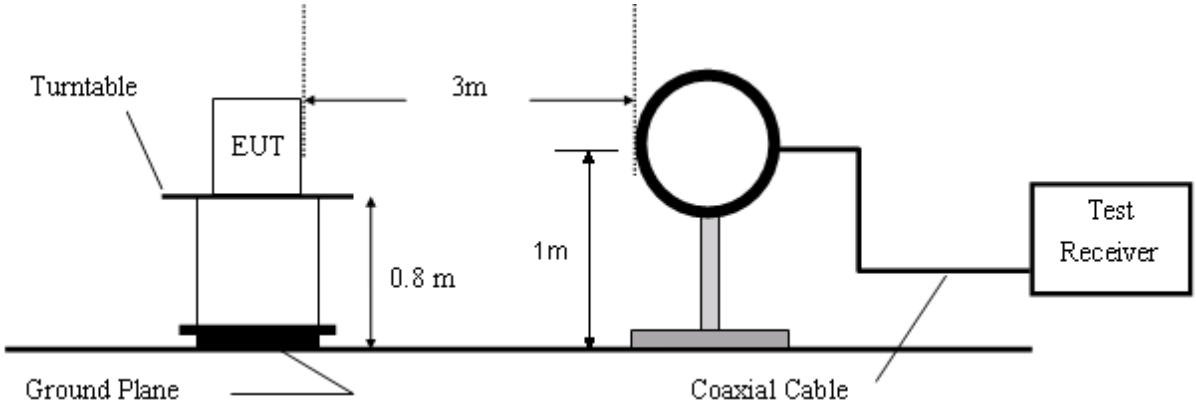


Figure 1. 9KHz to 30MHz radiated emissions test configuration

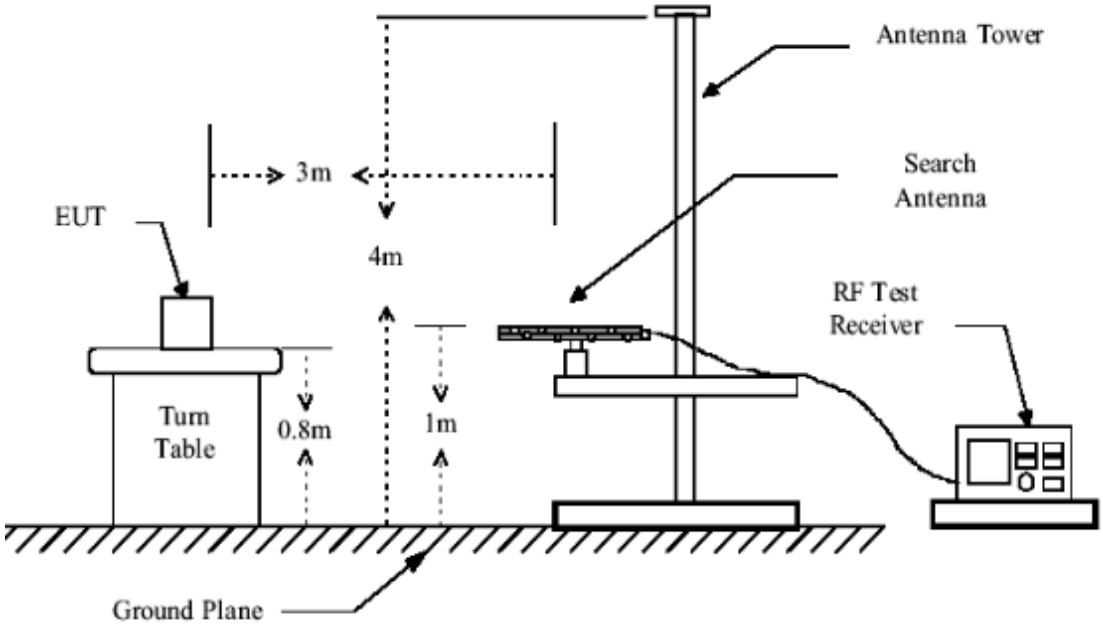


Figure 2. 30MHz to 1GHz radiated emissions test configuration

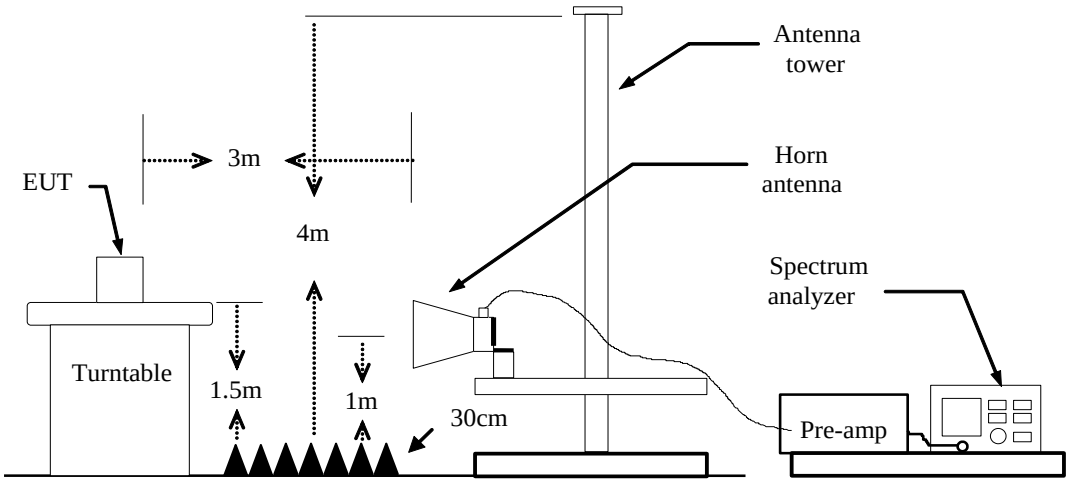


Figure 3. Above 1GHz radiated emissions test configuration

6.4. DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

Above 1 GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	Peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV) = Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m) = Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

Peak = Peak Reading

QP = Quasi-peak Reading

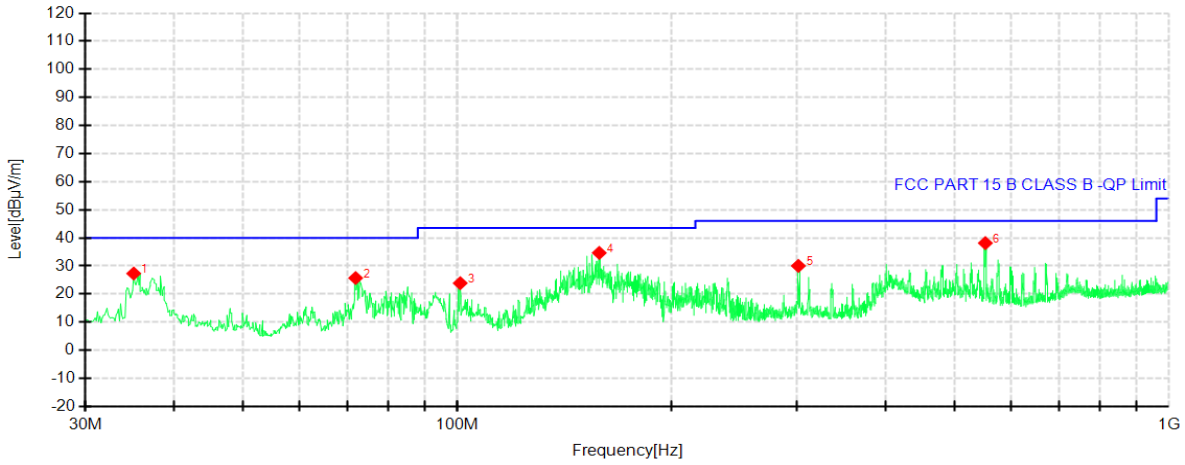
AVG = Average Reading

6.5. TEST RESULTS

30MHz to 1GHz:

Mode: TX

Lowest channel (2402MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	35.0925	57.47	27.32	-30.15	40.00	12.68	PK	100	199	Vertical
2	71.9525	57.65	25.70	-31.95	40.00	14.30	PK	100	147	Vertical
3	100.9313	55.60	23.88	-31.72	43.50	19.62	PK	100	138	Vertical
4	158.2825	61.82	34.65	-27.17	43.50	8.85	PK	100	180	Vertical
5	301.4788	57.17	30.03	-27.14	46.00	15.97	PK	100	222	Vertical
6	552.1025	59.33	38.16	-21.17	46.00	7.84	PK	100	273	Vertical

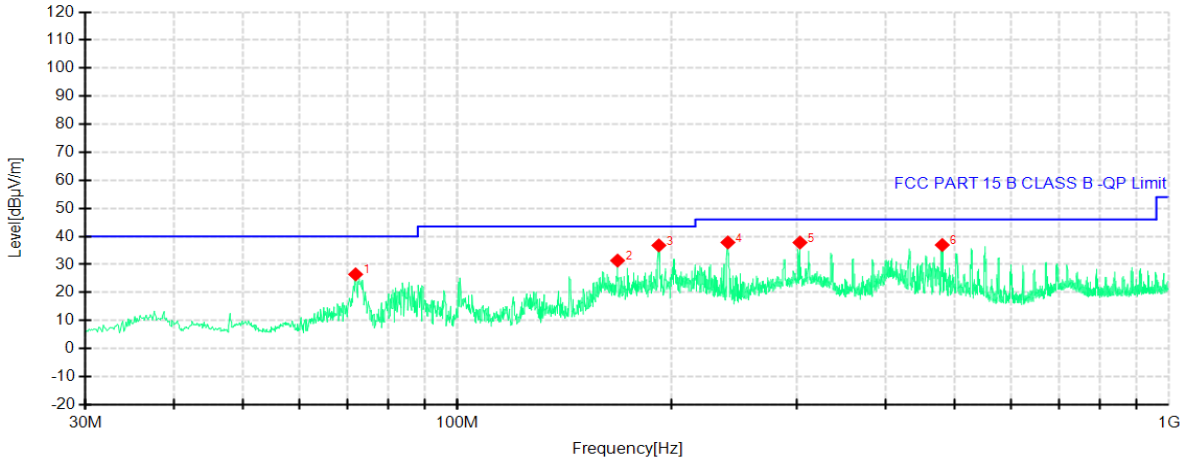
Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Mode: TX
Lowest channel (2402MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	71.9525	59.03	26.46	-32.57	40.00	13.54	PK	200	283	Horizontal
2	167.9825	63.16	31.38	-31.78	43.50	12.12	PK	100	254	Horizontal
3	191.9900	66.43	36.79	-29.64	43.50	6.71	PK	100	226	Horizontal
4	240.0050	66.40	37.84	-28.56	46.00	8.16	PK	100	236	Horizontal
5	303.0550	64.23	37.81	-26.42	46.00	8.19	PK	100	268	Horizontal
6	480.2013	59.11	36.93	-22.18	46.00	9.07	PK	200	199	Horizontal

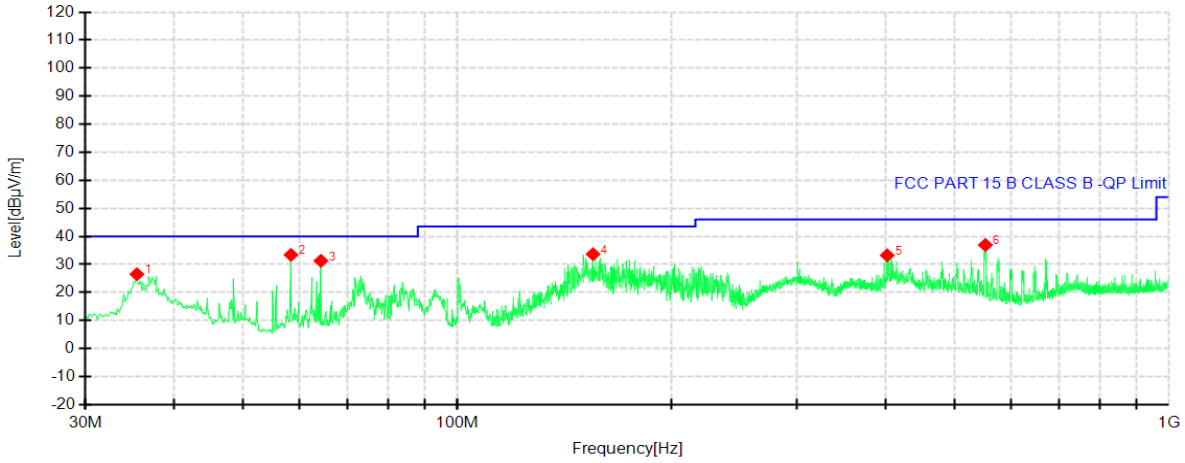
Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Mode: TX
Middle channel (2440MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	35.4563	56.65	26.52	-30.13	40.00	13.48	PK	100	255	Vertical
2	58.3725	63.98	33.41	-30.57	40.00	6.59	PK	200	230	Vertical
3	64.3138	62.44	31.29	-31.15	40.00	8.71	PK	200	26	Vertical
4	155.1300	60.63	33.66	-26.97	43.50	9.84	PK	100	195	Vertical
5	401.8738	57.45	33.26	-24.19	46.00	12.74	PK	100	236	Vertical
6	552.1025	58.10	36.93	-21.17	46.00	9.07	PK	100	167	Vertical

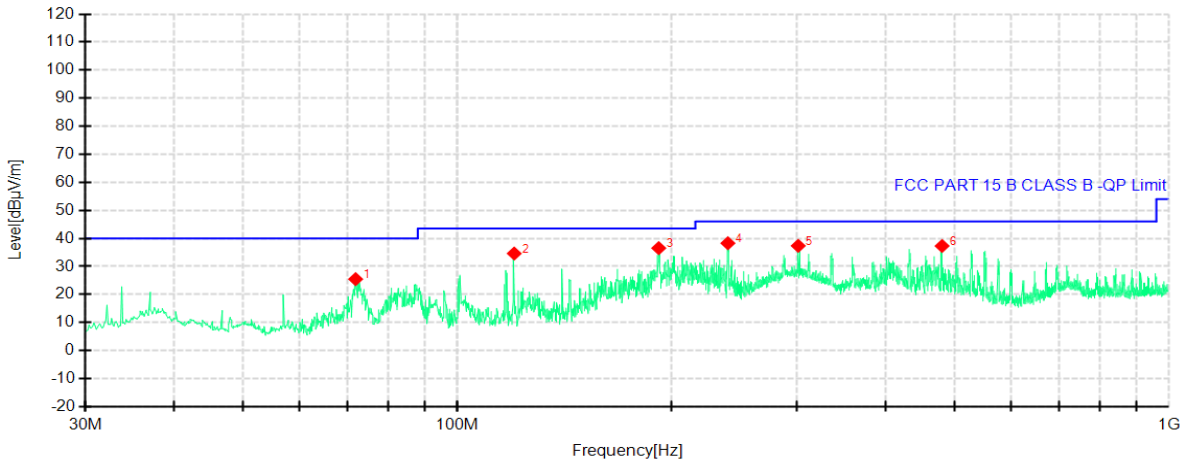
Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Mode: TX
Middle channel (2440MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	71.9525	58.04	25.47	-32.57	40.00	14.53	PK	200	113	Horizontal
2	120.2100	66.22	34.62	-31.60	43.50	8.88	PK	200	260	Horizontal
3	191.8688	66.18	36.54	-29.64	43.50	6.96	PK	100	224	Horizontal
4	240.0050	66.84	38.28	-28.56	46.00	7.72	PK	100	224	Horizontal
5	301.3575	63.80	37.35	-26.45	46.00	8.65	PK	100	357	Horizontal
6	479.9588	59.49	37.30	-22.19	46.00	8.70	PK	200	204	Horizontal

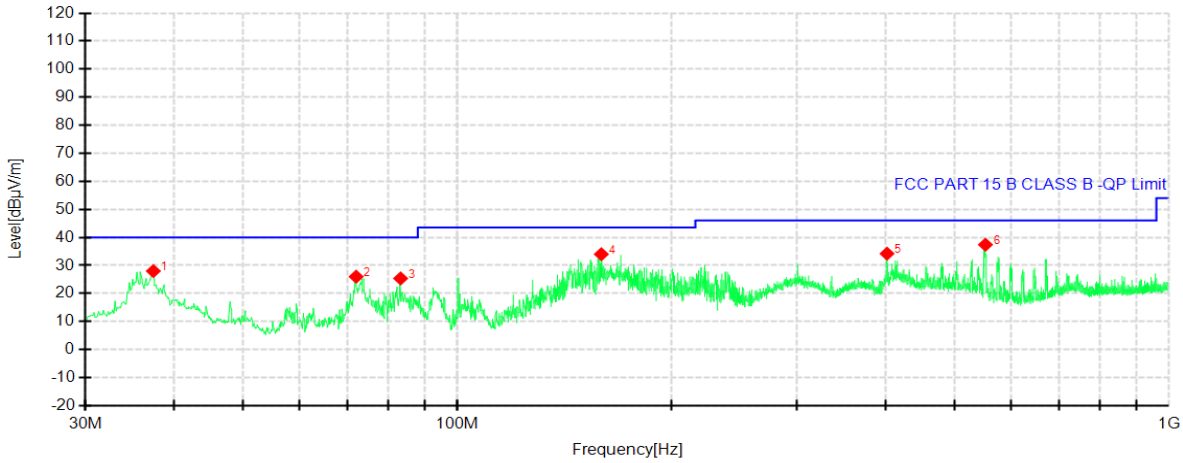
Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Mode: TX
Highest channel (2480MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	37.3963	58.00	28.00	-30.00	40.00	12.00	PK	100	278	Vertical
2	72.0738	57.95	25.99	-31.96	40.00	14.01	PK	100	127	Vertical
3	83.2288	57.88	25.37	-32.51	40.00	14.63	PK	100	264	Vertical
4	159.3738	61.24	34.00	-27.24	43.50	9.50	PK	100	174	Vertical
5	401.6313	58.40	34.20	-24.20	46.00	11.80	PK	100	240	Vertical
6	552.2238	58.57	37.40	-21.17	46.00	8.60	PK	100	278	Vertical

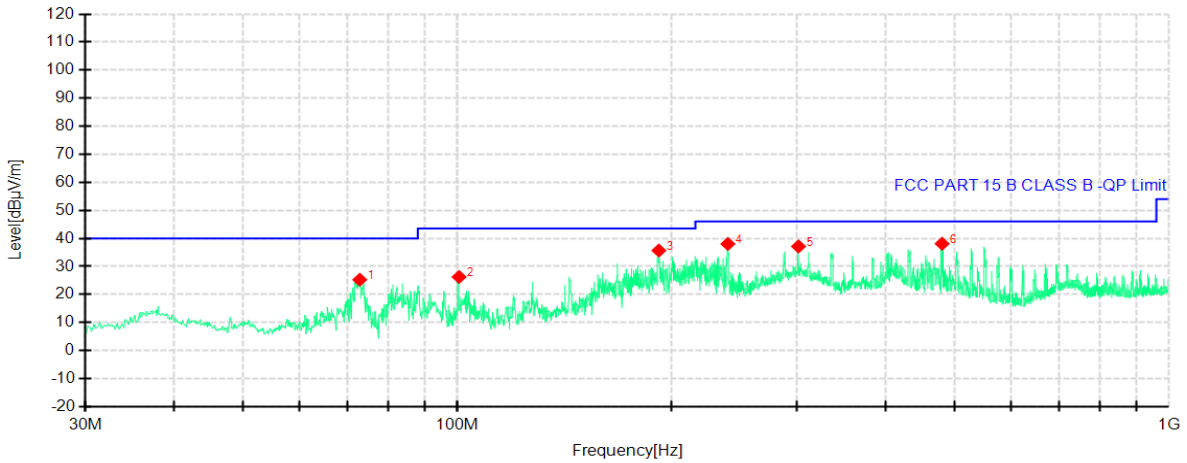
Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Mode: TX
Highest channel (2480MHz) Date: 2020/08/28



Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Trace	Height [cm]	Angle [°]	Polarity
1	72.9225	57.87	25.26	-32.61	40.00	14.74	PK	200	265	Horizontal
2	100.5675	56.21	26.26	-29.95	43.50	17.24	PK	200	121	Horizontal
3	191.9900	65.31	35.67	-29.64	43.50	7.83	PK	100	221	Horizontal
4	240.0050	66.59	38.03	-28.56	46.00	7.97	PK	100	235	Horizontal
5	301.6000	63.57	37.13	-26.44	46.00	8.87	PK	100	3	Horizontal
6	480.0800	60.30	38.11	-22.19	46.00	7.89	PK	200	218	Horizontal

Remark:

1 No emission found between lowest internal used/generated frequency to 30MHz.

2 Data of measurement within this frequency range in the table above the reading of PK detector are more 6dB than QP limit, therefore it's unnecessary to performed QP scan.

3 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Above 1GHz (For: Air):
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.

Mode: TX
Lowest channel (2402MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBµV/m]	PK Value [dBµV/m]	Factor [dB]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2401.9252	87.91	94.94	7.03	74.00	-20.94	155	193	Vertical
2	2474.1843	49.51	55.23	5.72	74.00	18.77	155	293	Vertical
3	4803.8627	52.56	41.94	-10.62	74.00	32.06	155	190	Vertical
4	5107.6317	49.94	41.95	-7.99	74.00	32.05	155	258	Vertical
5	5760.1725	54.39	45.48	-8.91	74.00	28.52	155	247	Vertical
6	6017.0636	52.94	44.88	-8.06	74.00	29.12	155	280	Vertical
7	7206.8254	55.92	53.10	-2.82	74.00	20.90	155	169	Vertical

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBµV/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.1509	-10.61	48.25	37.64	74.00	36.36	243	230.3	Vertical
2	7206.1768	-2.81	44.52	41.71	74.00	32.29	232	235.7	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.1509	-10.61	46.93	36.32	54.00	17.68	243	230.3	Vertical
2	7206.1768	-2.81	44.94	42.13	54.00	11.87	232	235.7	Vertical

Mode: TX
Lowest channel (2402 MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBµV/m]	PK Value [dBµV/m]	Factor [dB]	PK Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1749.0936	50.26	53.71	3.45	74.00	20.29	155	167	Horizontal
2	2401.9252	87.94	94.97	7.03	74.00	-20.97	155	195	Horizontal
3	3573.7859	53.41	39.18	-14.23	74.00	34.82	155	4	Horizontal
4	4804.8003	52.31	41.71	-10.60	74.00	32.29	155	204	Horizontal
5	5760.1725	54.02	45.11	-8.91	74.00	28.89	155	258	Horizontal
6	7206.8254	55.91	53.09	-2.82	74.00	20.91	155	171	Horizontal
7	11101.443	42.15	48.42	6.27	74.00	25.58	155	204	Horizontal

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBµV/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.1757	-10.61	48.74	38.13	74.00	35.87	114	197.8	Horizontal
2	7206.1768	-2.81	45.64	42.83	74.00	31.17	118	94.4	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBµV/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.1757	-10.61	49.00	38.39	54.00	15.61	114	197.8	Horizontal
2	7206.1768	-2.81	46.17	43.36	54.00	10.64	118	94.4	Horizontal

Mode: TX
Middle channel (2440MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBμV/m]	PK Value [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1897.6122	45.66	48.91	3.25	74.00	25.09	155	199	Vertical
2	2439.6800	81.04	87.39	6.35	74.00	-13.39	155	192	Vertical
3	3194.0746	59.73	44.16	-15.57	74.00	29.84	155	291	Vertical
4	4880.7425	53.07	43.74	-9.33	74.00	30.26	155	256	Vertical
5	5760.1725	57.66	48.75	-8.91	74.00	25.25	155	212	Vertical
6	6018.0011	55.37	47.31	-8.06	74.00	26.69	155	256	Vertical
7	7319.3325	55.89	52.35	-3.54	74.00	21.65	155	245	Vertical

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBμV/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4859.0232	-9.70	35.09	25.39	74.00	48.61	173	199.6	Vertical
2	7282.7358	-3.64	33.55	29.91	74.00	44.09	173	356.3	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4859.0232	-9.70	35.50	25.80	54.00	28.20	173	199.6	Vertical
2	7282.7358	-3.64	33.97	30.33	54.00	23.67	173	356.3	Vertical

Mode: TX
Middle channel (2440 MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBμV/m]	PK Value [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1746.0933	50.35	53.78	3.43	74.00	20.22	155	171	Horizon
2	2128.1410	45.91	51.10	5.19	74.00	22.90	155	128	Horizon
3	2439.9300	86.37	92.71	6.34	74.00	-18.71	155	187	Horizon
4	4879.8050	51.84	42.49	-9.35	74.00	31.51	155	215	Horizon
5	5760.1725	54.18	45.27	-8.91	74.00	28.73	155	269	Horizon
6	7321.2076	58.40	54.88	-3.52	74.00	19.12	155	193	Horizon
7	13976.936	38.90	49.13	10.23	74.00	24.87	155	303	Horizon

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBμV/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4859.1634	-9.70	35.11	25.41	74.00	48.59	173	198	Horizont
2	7284.6016	-3.66	33.53	29.87	74.00	44.13	173	356.3	Horizont

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4859.1634	-9.70	35.46	25.76	54.00	28.24	173	198	Horizont
2	7284.6016	-3.66	34.31	30.65	54.00	23.35	173	356.3	Horizont

Mode: TX
Highest channel (2480MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBμV/m]	PK Value [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1763.8455	51.65	55.19	3.54	74.00	18.81	155	140	Vertical
2	2479.9350	79.14	84.76	5.62	74.00	-10.76	155	197	Vertical
3	4960.4350	53.93	45.13	-8.80	74.00	28.87	155	213	Vertical
4	5760.1725	57.47	48.56	-8.91	74.00	25.44	155	257	Vertical
5	6018.9387	54.94	46.89	-8.05	74.00	27.11	155	257	Vertical
6	7441.2151	57.15	54.63	-2.52	74.00	19.37	155	246	Vertical
7	8368.4605	47.49	46.50	-0.99	74.00	27.50	155	268	Vertical

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBμV/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.1374	-8.80	43.42	34.62	74.00	39.38	196	191.5	Vertical
2	7404.0090	-2.37	31.78	29.41	74.00	44.59	173	356.3	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.1374	-8.80	43.64	34.84	54.00	19.16	196	191.5	Vertical
2	7404.0090	-2.37	32.25	29.88	54.00	24.12	173	356.3	Vertical

Mode: TX
Highest channel (2480MHz) Date: 2020/08/27

Suspected Data List									
NO.	Freq. [MHz]	PK Reading [dBμV/m]	PK Value [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1746.8434	50.87	54.31	3.44	74.00	19.69	155	343	Horizon
2	2126.8909	45.83	51.02	5.19	74.00	22.98	155	301	Horizon
3	2479.6850	84.75	90.38	5.63	74.00	-16.38	155	182	Horizon
4	4960.4350	52.41	43.61	-8.80	74.00	30.39	155	214	Horizon
5	5760.1725	53.52	44.61	-8.91	74.00	29.39	155	268	Horizon
6	6018.0011	51.31	43.25	-8.06	74.00	30.75	155	289	Horizon
7	7441.2151	58.87	56.35	-2.52	74.00	17.65	155	192	Horizon

PK Final Data List									
NO.	Freq. [MHz]	Factor [dB]	PK Reading [dBμV/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.1374	-8.80	44.26	35.46	74.00	38.54	103	191.9	Horizontal
2	7404.0090	-2.37	31.76	29.39	74.00	44.61	173	356.5	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4960.1374	-8.80	44.44	35.64	54.00	18.36	103	191.9	Horizontal
2	7404.0090	-2.37	32.33	29.96	54.00	24.04	173	356.5	Horizontal

Remark:

1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2 Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3 Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4 Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.

7. 6dB BANDWIDTH

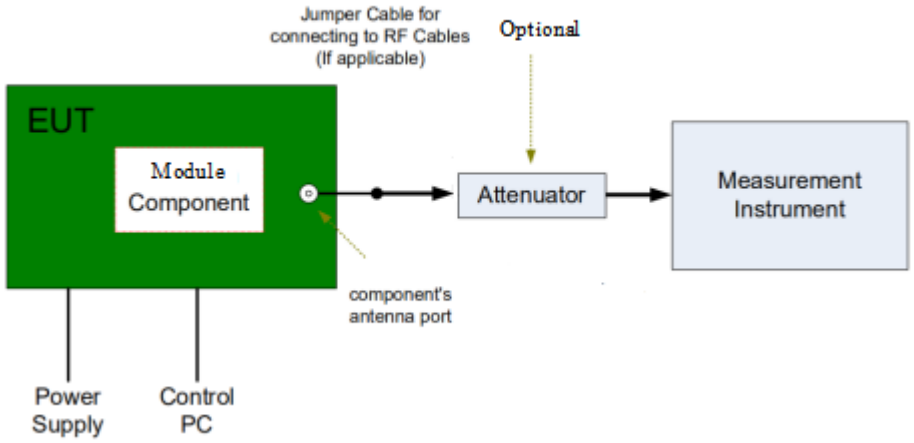
7.1. LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2. TEST PROCEDURES

1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer**.**
2) Set resolution bandwidth (RBW) = 100kHz.Set the video bandwidth (VBW) ≥ 3 x RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
3) Repeat above procedures until all frequencies measured were complete.

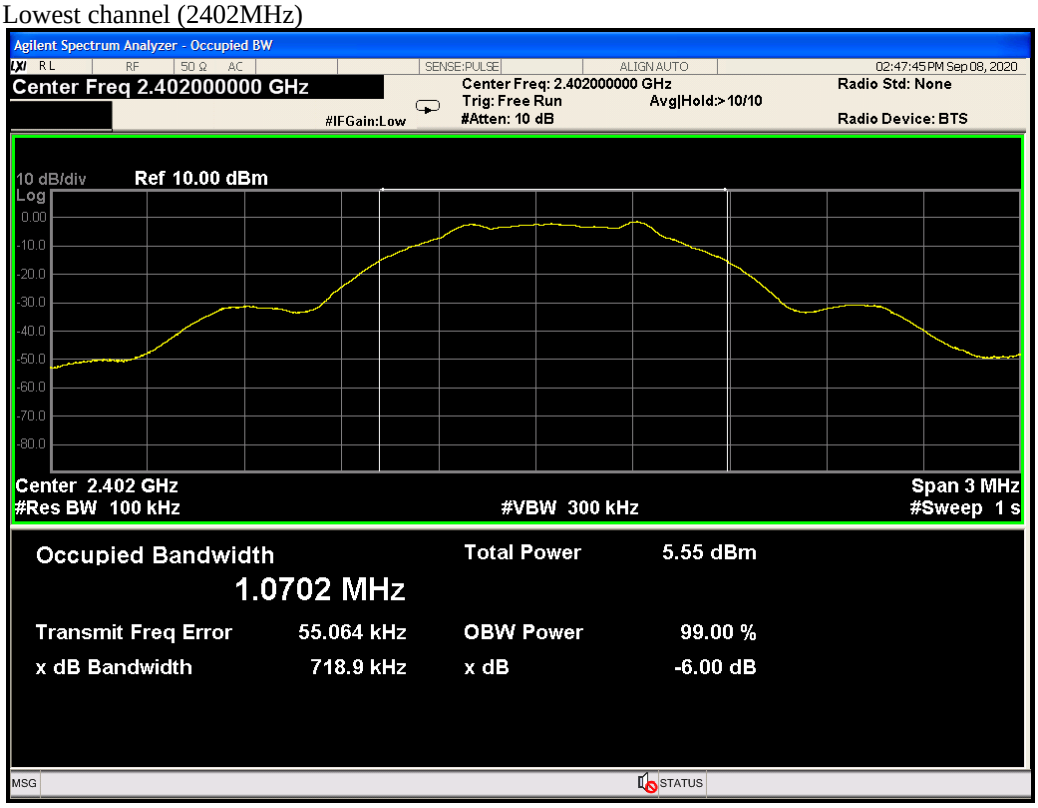
7.3. TEST SETUP



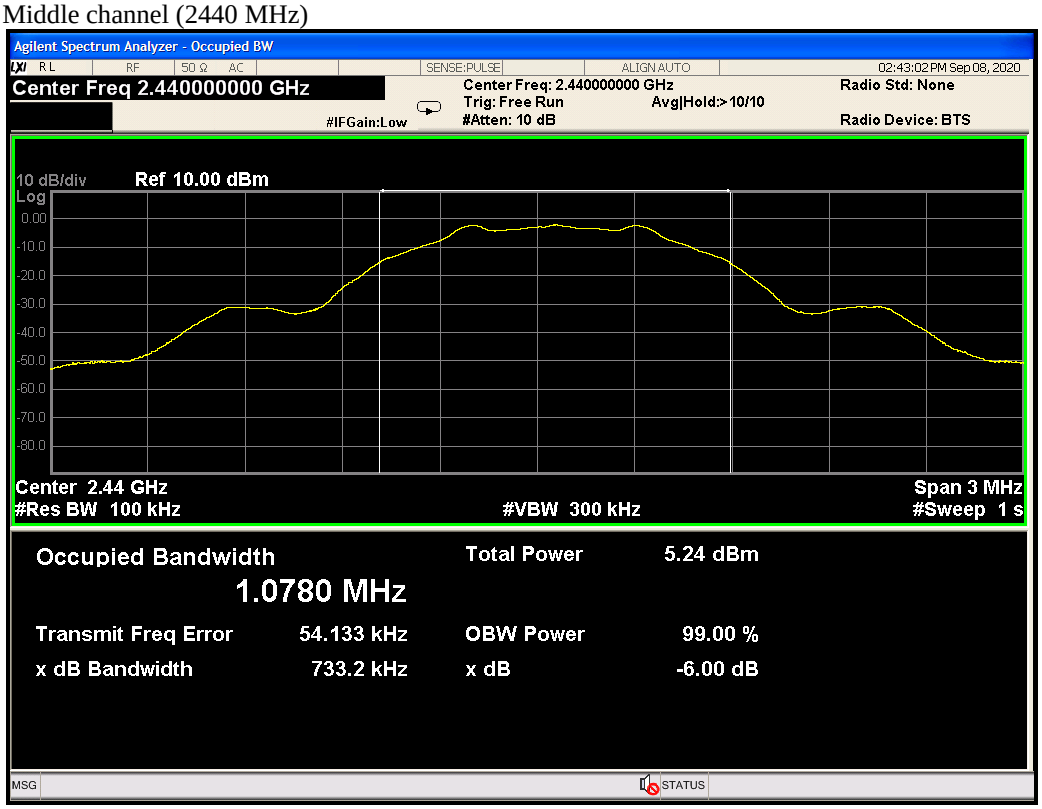
7.4. TEST RESULTS

Channel	Frequency (MHz)	Bandwidth (kHz)	Limit (kHz)	Test Result
Lowest	2402	718.9	>500	PASS
Middle	2440	733.2		PASS
Highest	2480	749.9		PASS

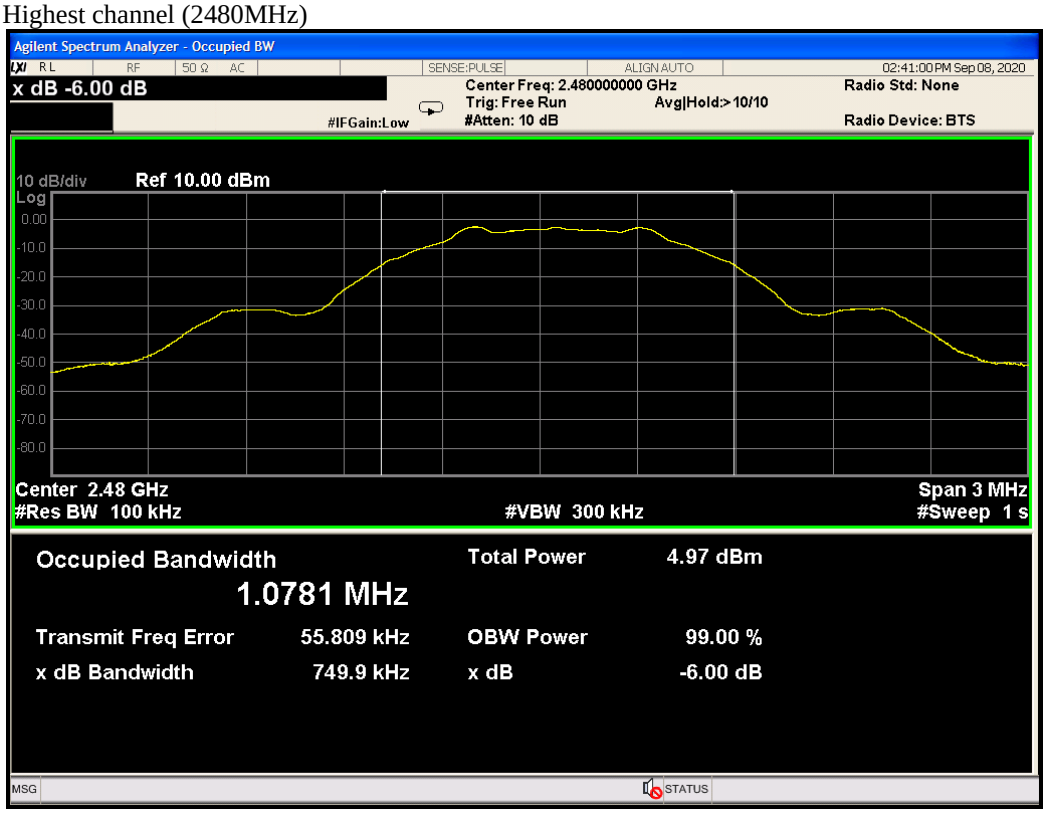
Lowest channel (2402MHz)



Middle channel (2440 MHz)



Highest channel (2480MHz)



8. MAXIMUM PEAK OUTPUT POWER

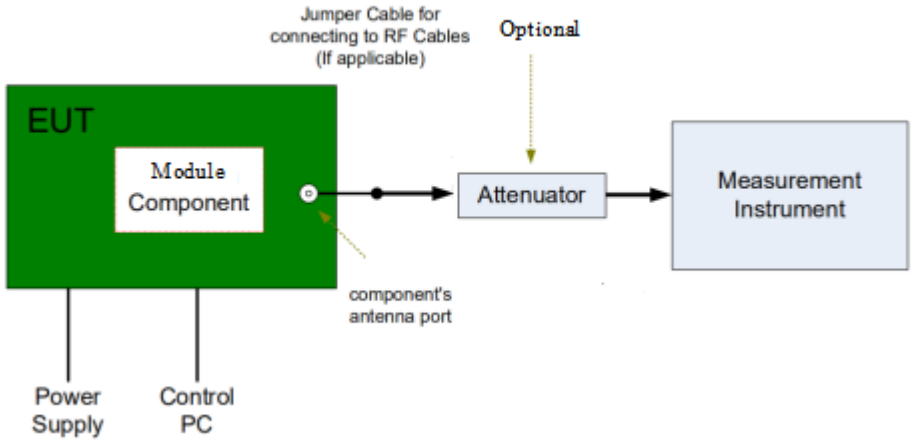
8.1.LIMITS

The maximum Peak output power measurement is 1W

8.2.TEST PROCEDURES

1) Place the EUT on a bench and set it in transmitting mode.
2) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

8.3.TEST SETUP



8.4.TEST RESULTS

Channel	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/ Average	Result
Lowest	2402	-0.41	1W (30dBm)	Peak	Pass
Middle	2440	-0.39			Pass
Highest	2480	-0.42			Pass
Lowest	2402	-0.98		Average	Pass
Middle	2440	-1.05			Pass
Highest	2480	-0.97			Pass

9. POWER SPECTRAL DENSITY

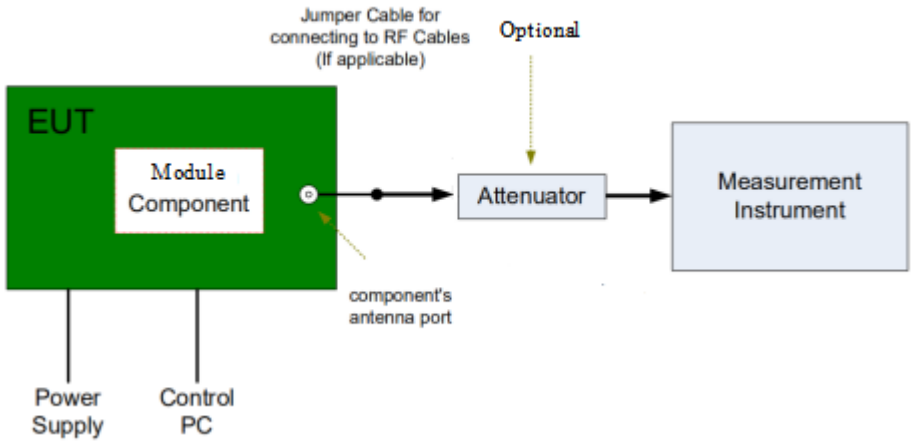
9.1. LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

9.2. TEST PROCEDURES

1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3) Set the analyzer span to 1.5 times the DTS bandwidth. Set the RBW = 3 kHz. Set the VBW ≥3 RBW. Detector = peak. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
4) Repeat above procedures until all frequencies measured were complete.

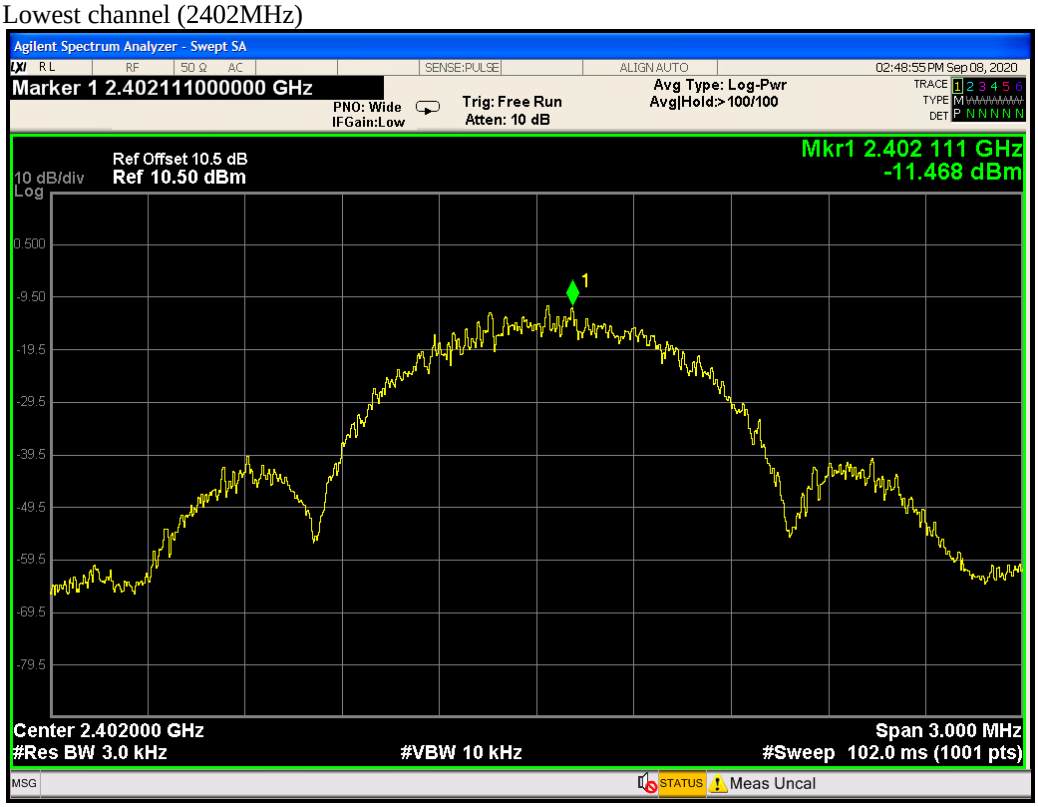
9.3. TEST SETUP



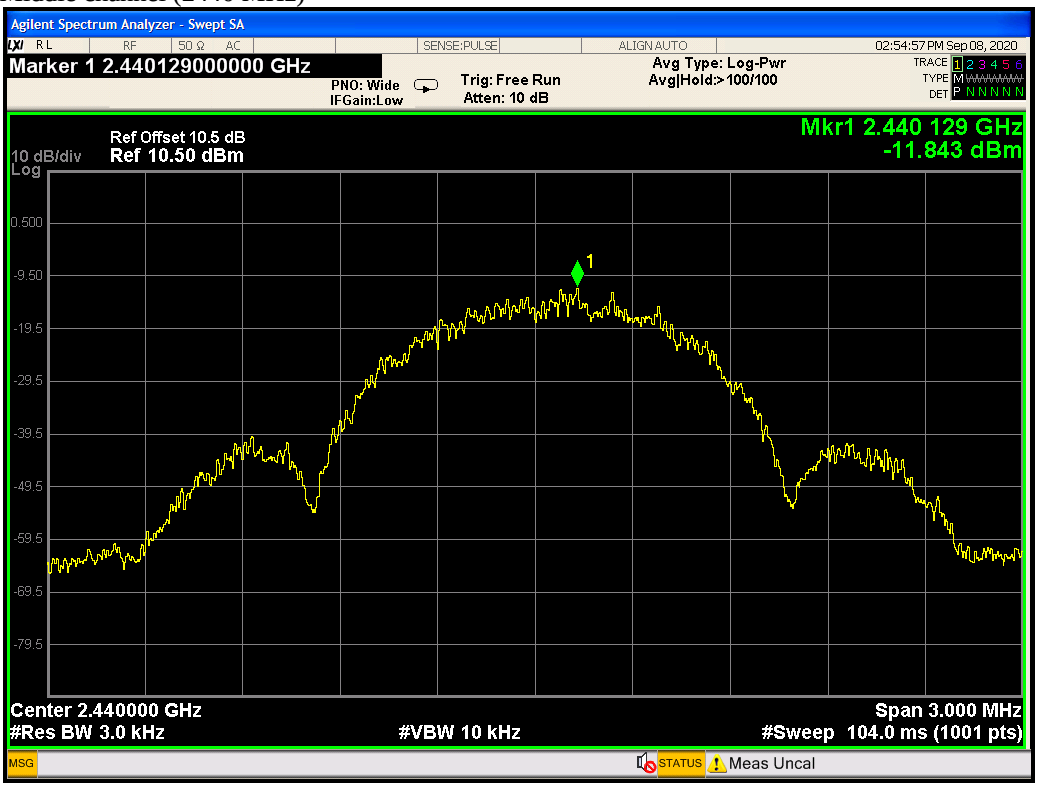
9.4. TEST RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm/3kHz)	Test Result
Lowest	2402	-11.468	8	PASS
Middle	2440	-11.843		PASS
Highest	2480	-13.646		PASS

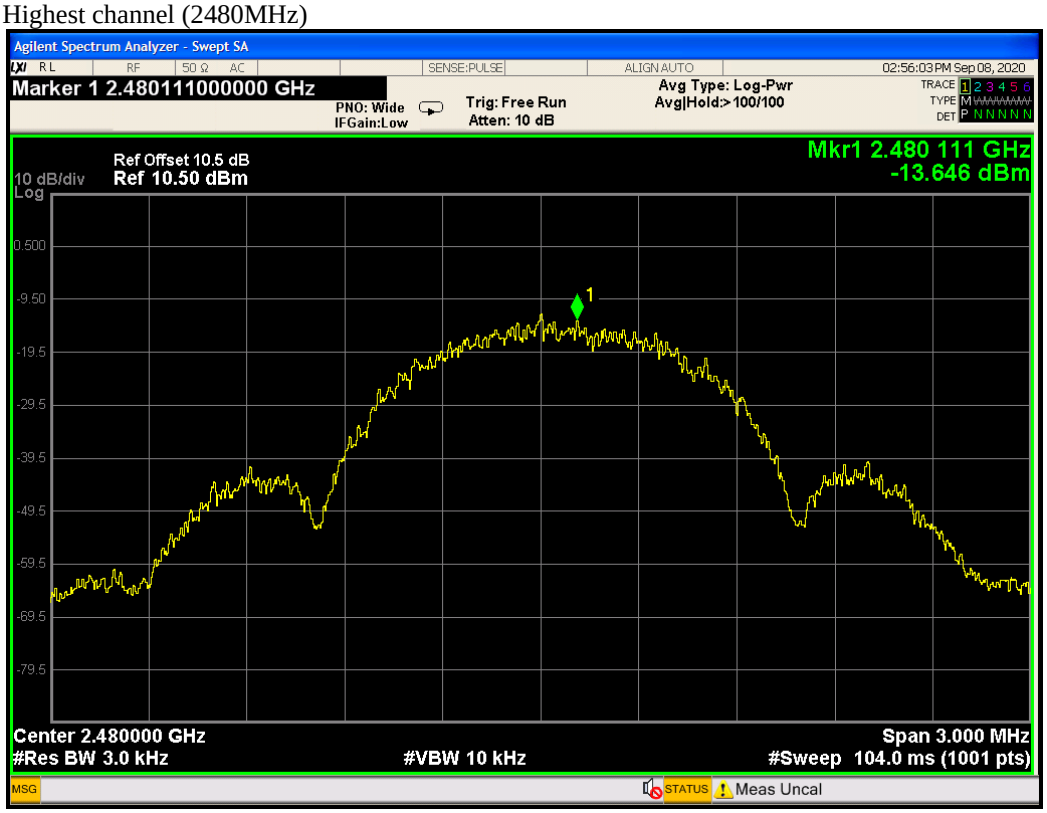
Lowest channel (2402MHz)



Middle channel (2440 MHz)



Highest channel (2480MHz)



10. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

10.1. LIMITS

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

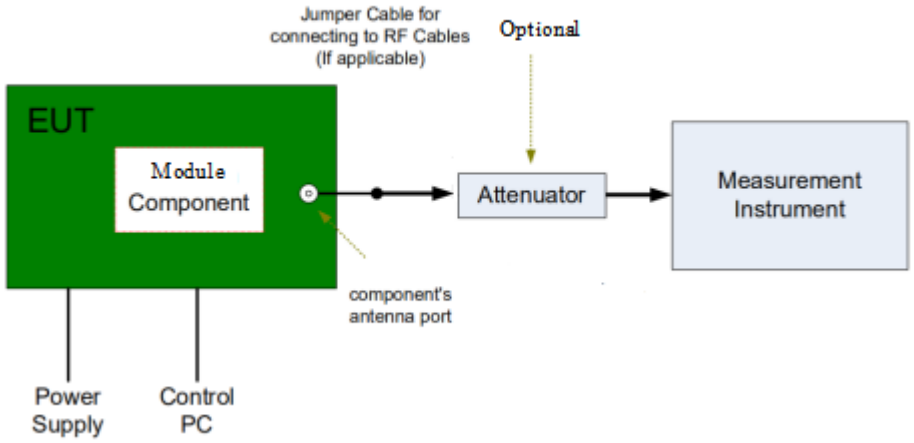
10.2. TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance v05r02.

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

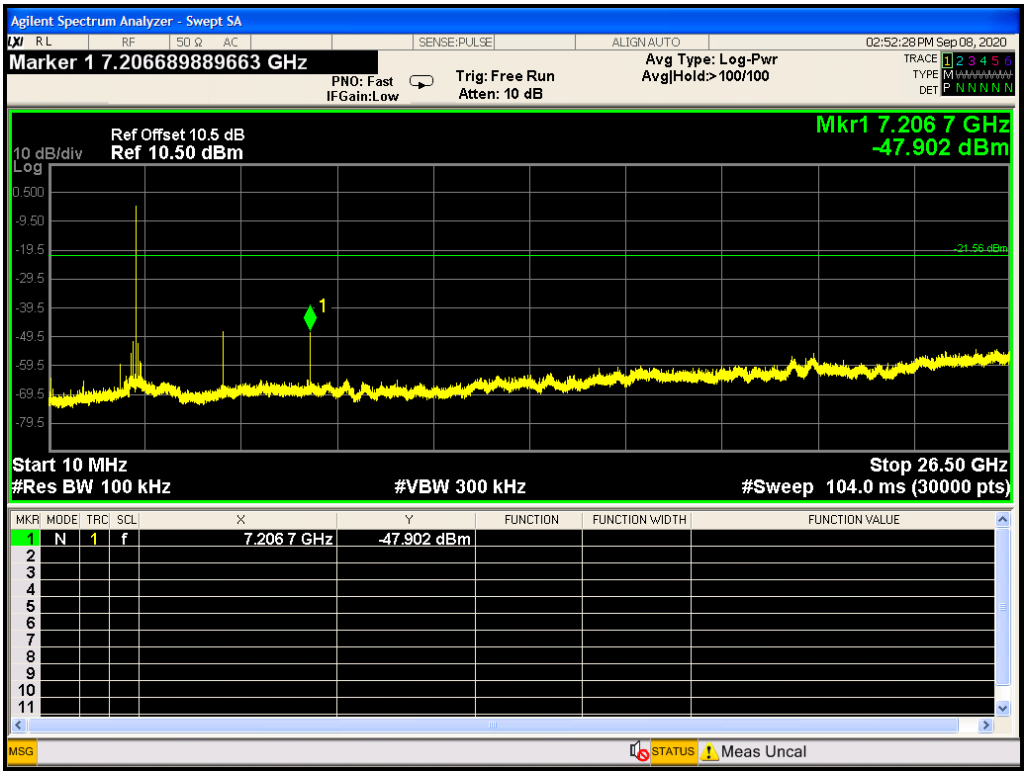
1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
2) Set the spectrum analyzer: RBW =100KHz; VBW =300KHz, Span = 10MHz to 26GHz; Sweep = auto; Detector Function = Peak. Trace = Max, hold.
3) Measure and record the results in the test report.
4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5) Measurements are made over the 9 kHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels. No emission found between lowest internal used/generated frequency to 10MHz，it is only recorded 10MHz to 26GHz.

10.3. TEST SETUP

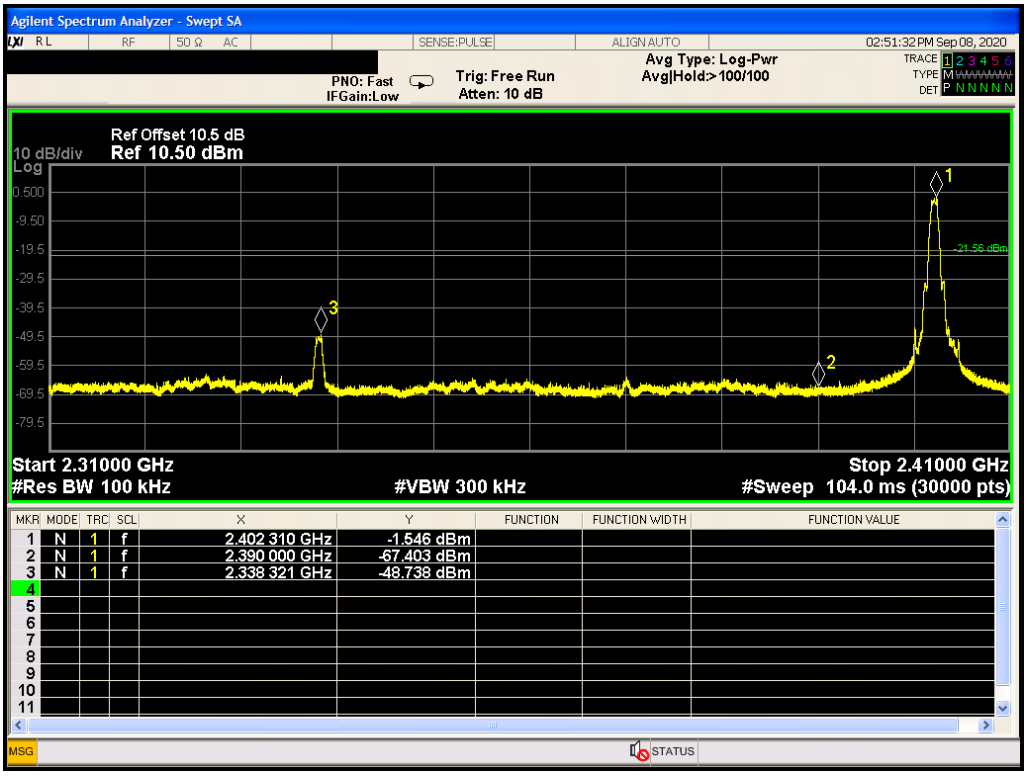


10.4. TEST RESULTS

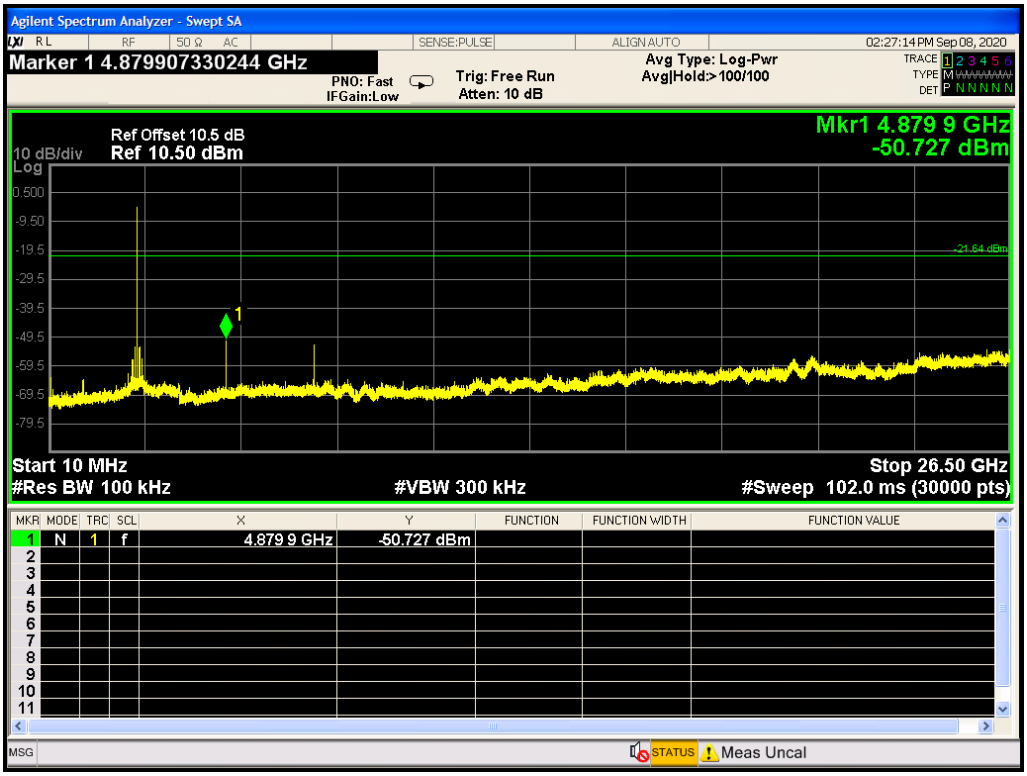
Lowest channel (2402MHz)
10MHz-26.5GHz

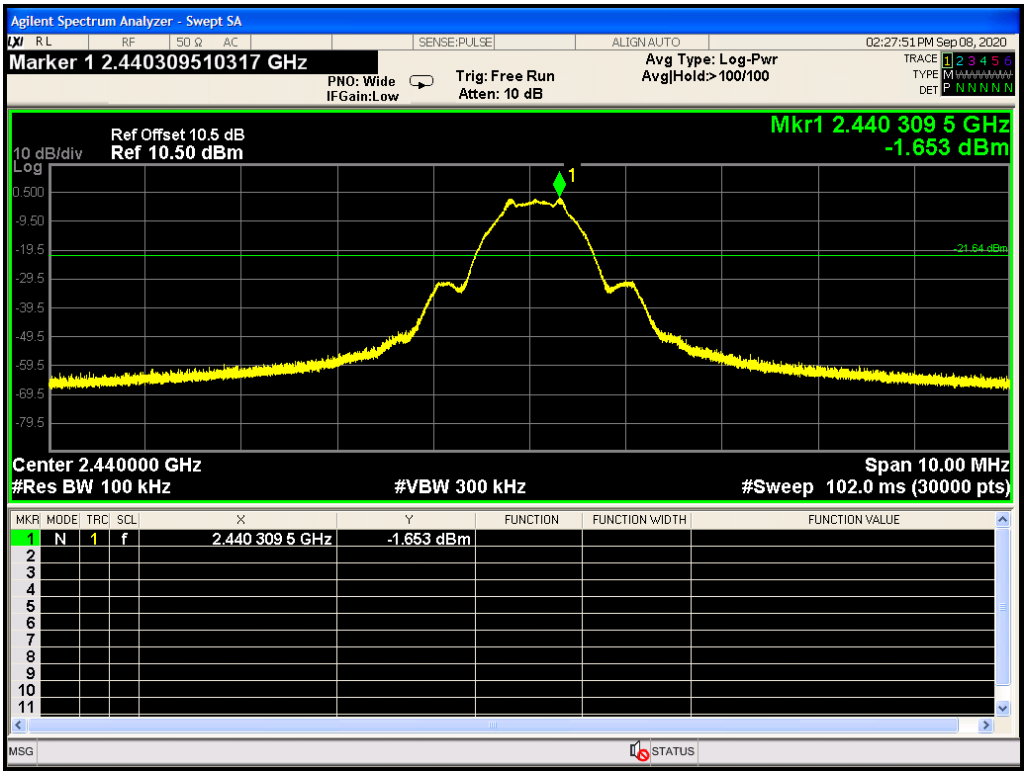


2.31GHz-2.41GHz

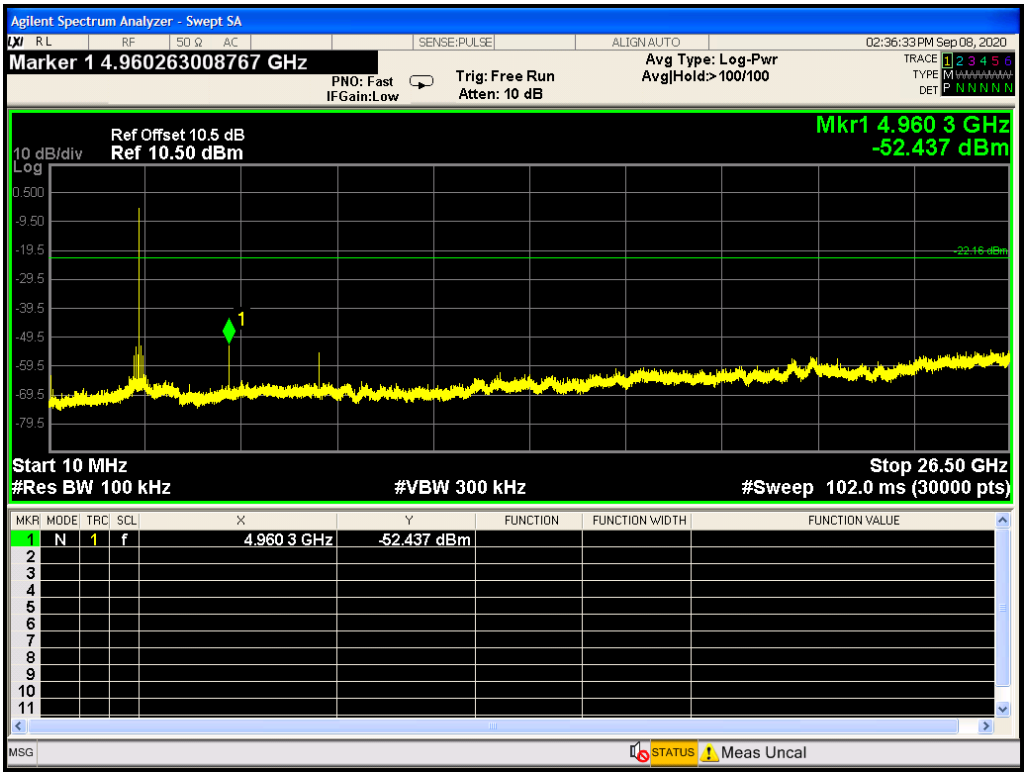


Middle channel (2440 MHz)
10MHz-26.5GHz

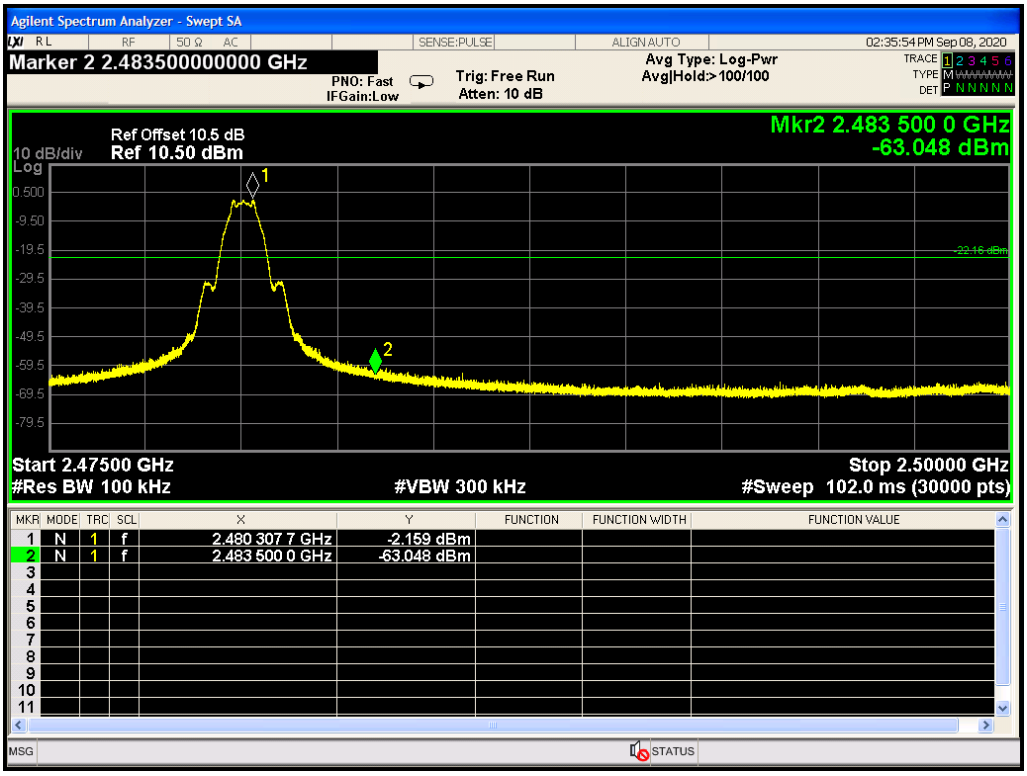




Highest channel (2480MHz)
10MHz-26.5GHz



2.475GHz-2.5GHz


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.483500000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 10 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:35:54 PM Sep 08, 2020
Ref Offset 10.5 dB
10 dB/div
Ref 10.50 dBm
Log
Mkr2 2.483 500 0 GHz
-63.048 dBm
-22.16 dBm
Start 2.47500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
#Sweep 102.0 ms (30000 pts)
1 N 1 f 2.480 307 7 GHz -2.159 dBm
2 N 1 f 2.483 500 0 GHz -63.048 dBm
MSG
STATUS

11. RESTRICTED BANDS OF OPERATION

11.1. LIMITS

Section 15.247(d) In addition, Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

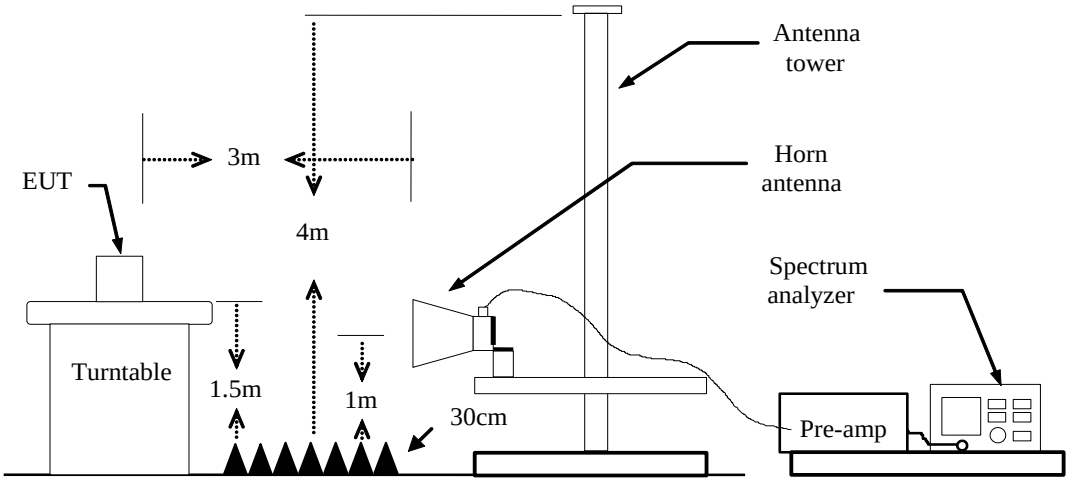
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 -	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.69525	960 - 1240	7.25 - 7.75
4.125 - 4.128	16.80425 -	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	16.80475	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	25.5 - 25.67	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	37.5 - 38.25	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	73 - 74.6	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	74.8 - 75.2	2200 - 2300	14.47 - 14.5
8.291 - 8.294	108 - 121.94	2310 - 2390	15.35 - 16.2
8.362 - 8.366	123 - 138	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	149.9 - 150.05	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.52475 -	3260 - 3267	23.6 - 24.0
12.29 - 12.293	156.52525	3332 - 3339	31.2 - 31.8
12.51975 -	156.7 - 156.9	3345.8 - 3358	36.43 - 36.5
12.52025	162.0125 - 167.17	3600 - 4400	
12.57675 -	167.72 - 173.2		
12.57725	240 - 285		
13.36 - 13.41	322 - 335.4		

11.2. TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Meas Guidance v03r01.

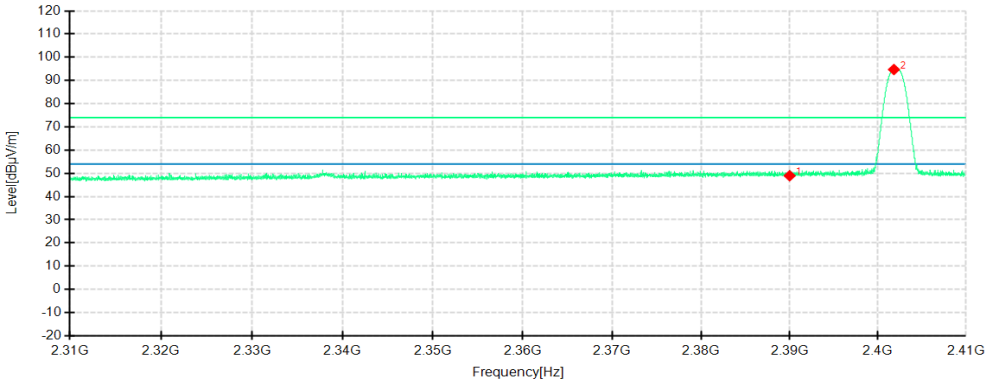
1) The EUT is placed on a turntable, which is 1.5m above the ground plane.
2) The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4) Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   a) PEAK: RBW=1MHz / VBW=1MHz / Sweep=AUTO
   b) AVERAGE: RBW=1MHz / VBW=1/T / Sweep=AUTO
5) Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

11.3. TEST SETUP

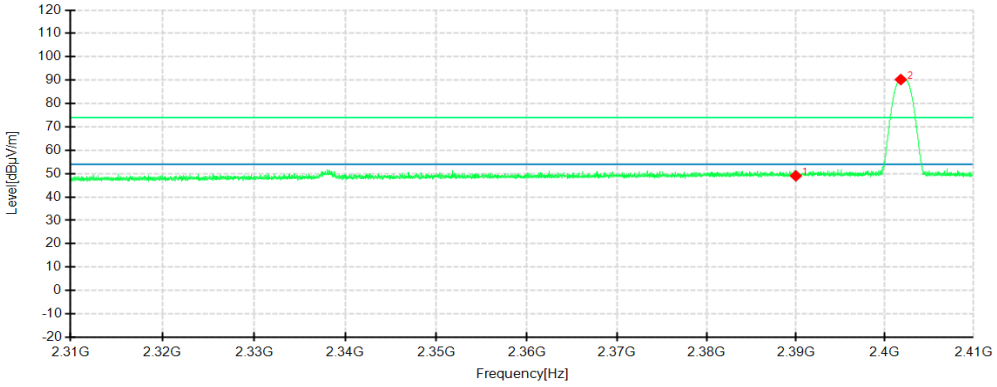


11.4. TEST RESULTS

Lowest Channel
Channel 2402MHz
Detector mode: Peak Polarity: Horizontal

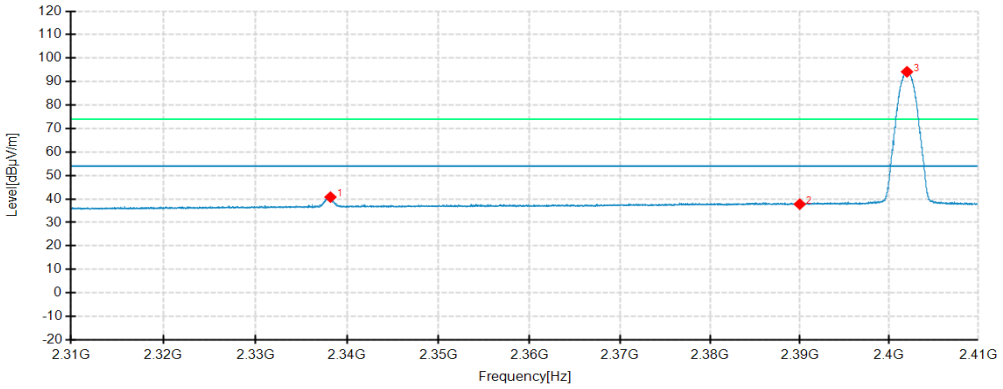


Detector mode: Peak Polarity: Vertical

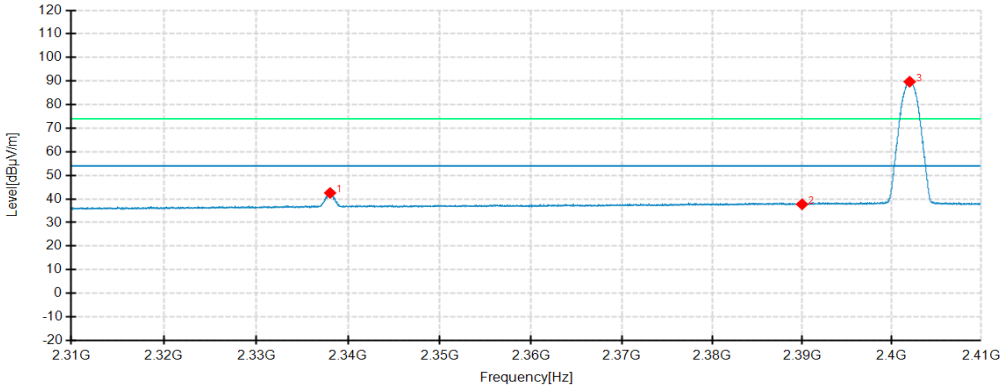


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole
1	2390.0000	42.11	48.96	6.85	74.00	25.04	155	301	Horizontal
2	2401.8153	87.68	94.71	7.03	74.00	-20.71	155	195	Horizontal
1	2390.0000	42.18	49.03	6.85	74.00	24.97	155	1	Vertical
2	2401.7986	83.24	90.27	7.03	74.00	-16.27	155	189	Vertical

Lowest Channel
Channel 2402MHz
Detector mode: Average Polarity: Horizontal

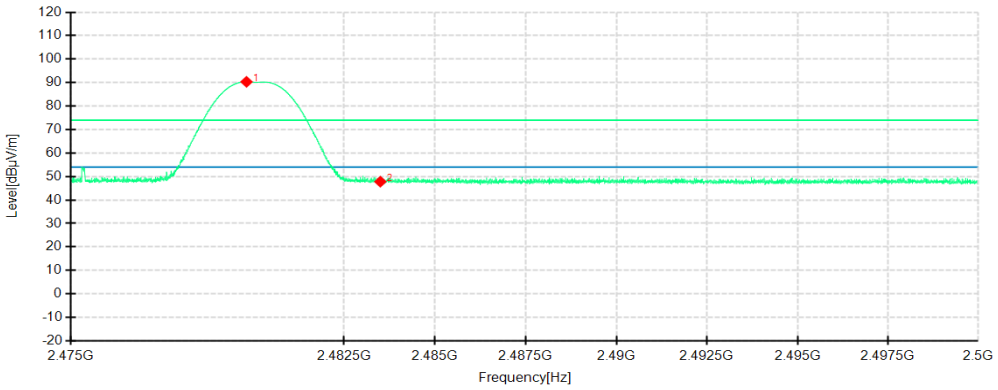


Detector mode: Average Polarity: Vertical

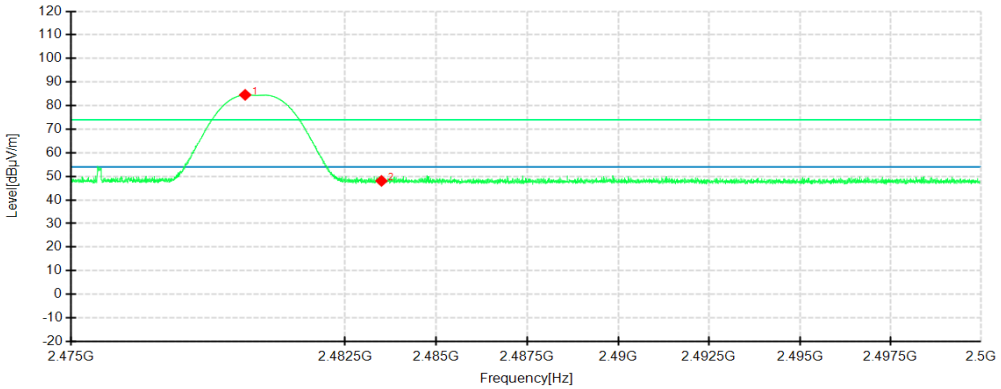


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole
1	2338.1880	35.06	40.79	5.73	54.00	13.21	155	177	Horizontal
2	2390.0000	30.94	37.79	6.85	54.00	16.21	155	189	Horizontal
3	2401.9987	87.16	94.18	7.02	54.00	-40.18	155	189	Horizontal
1	2338.0380	36.82	42.55	5.73	54.00	11.45	155	206	Vertical
2	2390.0000	30.89	37.74	6.85	54.00	16.26	155	162	Vertical
3	2401.9987	82.69	89.71	7.02	54.00	-35.71	155	200	Vertical

Highest Channel
Channel 2480MHz
Detector mode: Peak Polarity: Horizontal

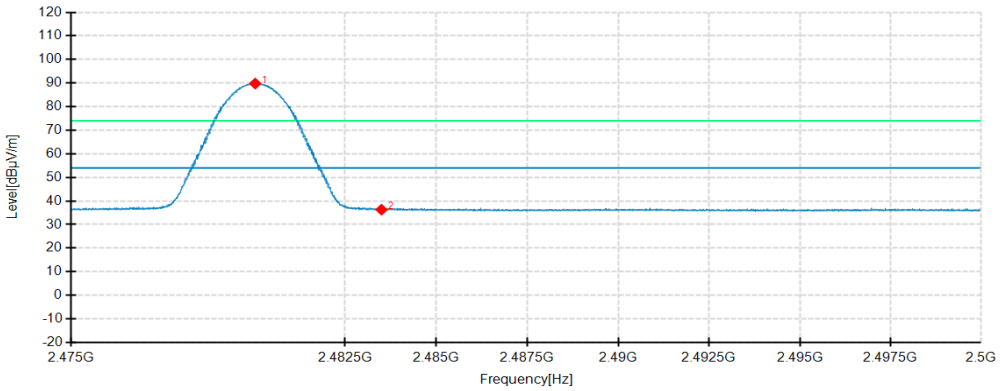


Detector mode: Peak Polarity: Vertical

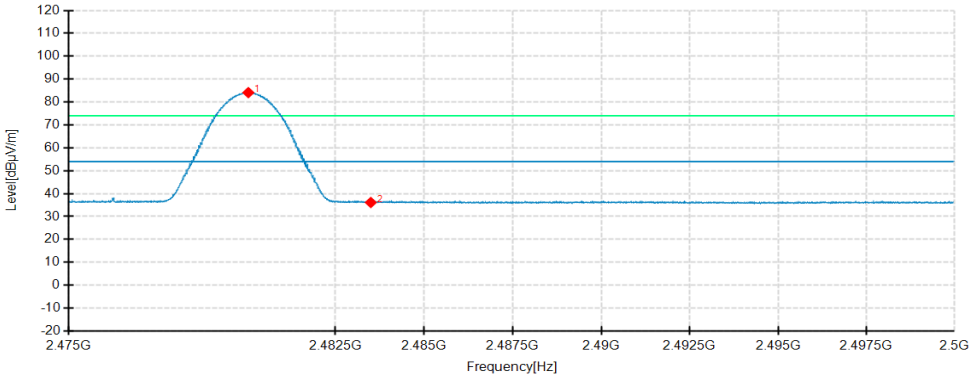


No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole
1	2479.8216	84.72	90.34	5.62	74.00	-16.34	155	188	Horizontal
2	2483.5000	42.24	47.80	5.56	74.00	26.20	155	206	Horizontal
1	2479.7633	78.95	84.57	5.62	74.00	-10.57	155	201	Vertical
2	2483.5000	42.52	48.08	5.56	74.00	25.92	155	194	Vertical

Highest Channel
Channel 2480MHz
Detector mode: Average Polarity: Horizontal



Detector mode: Average Polarity: Vertical



No.	Frequency MHz	Reading dBµV/m	Level dBµV/m	Factor dB	Limit dBuV/m	Margin dB	Height cm	Angle °	Pole
1	2480.0383	84.16	89.78	5.62	54.00	-35.78	155	183	Horizontal
2	2483.5000	30.74	36.30	5.56	54.00	17.70	155	9	Horizontal
1	2480.0508	78.49	84.11	5.62	54.00	-30.11	155	200	Vertical
2	2483.5000	30.56	36.12	5.56	54.00	17.88	155	310	Vertical

Remark: Max field strength in 3m distance. No any other emission which falls in restricted bands can be detected and be reported.

----------This is the last page of the report. ----------