

FCC Radio Test Report

FCC ID: SI5VRE3000

This report concerns: Original Grant

Project No. : 1807T004
Equipment : Verizon 5G Home Wi-Fi Extender
Test Model : VRE3000
Series Model : N/A
Applicant : U-MEDIA Communications, Inc.
Address : 9F, No.1, Jin-shan 7th St. Hsinchu Taiwan

Date of Receipt : Jul. 02, 2018
Date of Test : Jul. 02, 2018 ~ Jul. 27, 2018
Issued Date : Jul. 30, 2018
Tested by : BTL Inc.

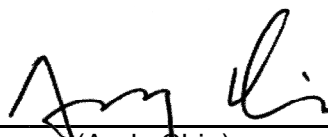
Testing Engineer :


(Kay Wu)

Technical Manager :


(James Chiu)

Authorized Signatory :


(Andy Chiu)

B T L I N C .

No.18, Ln. 171, Sec. 2, Jiuzong Rd.,
Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
TEL: +886-2-2657-3299 FAX: +886-2-2657-3331



Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

CONTENTS

REPORT ISSUED HISTORY	5
1 CERTIFICATION	6
2 SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 GENERAL INFORMATION	10
3.1 DESCRIPTION OF EUT	10
3.2 TEST MODES	12
3.3 PARAMETERS OF TEST SOFTWARE	13
3.4 DUTY CYCLE	14
3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	15
3.6 SUPPORT UNITS	15
4 AC POWER LINE CONDUCTED EMISSIONS TEST	16
4.1 LIMIT	16
4.2 TEST PROCEDURE	16
4.3 DEVIATION FROM TEST STANDARD	16
4.4 TEST SETUP	17
4.5 EUT OPERATING CONDITIONS	17
4.6 TEST RESULT	17
5 RADIATED EMISSIONS TEST	18
5.1 LIMIT	18
5.2 TEST PROCEDURE	19
5.3 DEVIATION FROM TEST STANDARD	19
5.4 TEST SETUP	20
5.5 EUT OPERATING CONDITIONS	21
5.6 TEST RESULT – 9 KHZ TO 30 MHZ	21
5.7 TEST RESULT – 30MHZ TO 1000 MHZ	21
5.8 TEST RESULT – ABOVE 1000 MHZ	22
6 BANDWIDTH TEST	23
6.1 LIMIT	23
6.2 TEST PROCEDURE	23
6.3 DEVIATION FROM TEST STANDARD	23
6.4 TEST SETUP	23
6.5 EUT OPERATING CONDITIONS	23
6.6 TEST RESULT	23
7 PEAK OUTPUT POWER TEST	24
7.1 LIMIT	24
7.2 TEST PROCEDURE	24
7.3 DEVIATION FROM TEST STANDARD	24
7.4 TEST SETUP	24
7.5 EUT OPERATING CONDITIONS	24

7.6	TEST RESULT	24
8	ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST	25
8.1	LIMIT	25
8.2	TEST PROCEDURE	25
8.3	DEVIATION FROM TEST STANDARD	25
8.4	TEST SETUP	25
8.5	EUT OPERATING CONDITIONS	25
8.6	TEST RESULT	25
9	POWER SPECTRAL DENSITY	26
9.1	LIMIT	26
9.2	TEST PROCEDURE	26
9.3	DEVIATION FROM TEST STANDARD	26
9.4	TEST SETUP	26
9.5	EUT OPERATING CONDITIONS	26
9.6	TEST RESULT	26
10	LIST OF MEASURING EQUIPMENTS	27
11	EUT TEST PHOTO	29
APPENDIX A	AC POWER LINE CONDUCTED EMISSIONS	33
APPENDIX B	RADIATED EMISSIONS - 9 KHZ TO 30 MHZ	36
APPENDIX C	RADIATED EMISSIONS - 30 MHZ TO 1000 MHZ	41
APPENDIX D	RADIATED EMISSIONS - ABOVE 1000 MHZ	44
APPENDIX E	BANDWIDTH	93
APPENDIX F	PEAK OUTPUT POWER	98
APPENDIX G	ANTENNA CONDUCTED SPURIOUS EMISSIONS	103
APPENDIX H	POWER SPECTRAL DENSITY	112

REPORT ISSUED HISTORY

Issue No.	Description	Issued Date
BTL-FCCP-1-1807T004	Original Issue.	Jul. 30, 2018

1 CERTIFICATION

Equipment : Verizon 5G Home Wi-Fi Extender
Brand Name : Verizon
Test Model : VRE3000
Series Model : N/A
Applicant : U-MEDIA Communications, Inc.
Manufacturer : U-MEDIA Communications, Inc.
Address : No. 90, Kuang Fu Nth.Rd., Hsinchu Industrial Park, Hu Kou, Hsinchu, 303,
Taiwan
Date of Test : Jul. 02, 2018 ~ Jul. 27, 2018
Test Sample : Engineering Sample
Standard(s) : FCC Part15, Subpart C (§15.247)
ANSI C63.10-2013

The above equipment has been tested and found in compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1807T004) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Test results included in this report is only for the WLAN 2.4 GHz part.

2 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

FCC Part15, Subpart C (§15.247)				
FCC Clause No	Description	Test Result	Judgement	Remark
§15.207	AC Power Line Conducted Emissions	APPENDIX A	Pass	-----
§15.205 §15.209 §15.247(d)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	Pass	-----
§15.247(a)	Bandwidth	APPENDIX E	Pass	-----
§15.247(b)	Peak Output Power	APPENDIX F	Pass	-----
§15.247(d)	Antenna Conducted Spurious Emissions	APPENDIX G	Pass	-----
§15.247(e)	Power Spectral Density	APPENDIX H	Pass	-----
§15.203	Antenna Requirement	-----	Pass	-----

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

CB05: (FCC RN:674415; FCC DN:TW0659)

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

CB15: (VCCI RN: R-20020; FCC RN:674415; FCC DN:TW0659; ISED Assigned

Code:20088-5)

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{CISPR} requirement.

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U (dB)
C05	CISPR	150 kHz ~ 30MHz	2.68	C05

B. Radiated emissions below 1 GHz test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U (dB)
CB15 (3m)	CISPR	30 MHz ~ 200 MHz	V	4.20
		30 MHz ~ 200 MHz	H	3.64
		200 MHz ~ 1,000 MHz	V	4.56
		200 MHz ~ 1,000 MHz	H	3.90

C. Radiated emissions above 1 GHz test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U (dB)
CB15 (3m)	CISPR	1 GHz ~ 6 GHz	V	4.46
		1 GHz ~ 6 GHz	H	4.40
		6 GHz ~ 18 GHz	V	3.88
		6 GHz ~ 18 GHz	H	4.00

Test Site	Method	Measurement Frequency Range	U (dB)
CB15 (1m)	CISPR	18 GHz ~ 26.5 GHz	4.62
		26.5 GHz ~ 40 GHz	5.12

D. Conducted tests:

Item	Method	U
Bandwidth	ANSI	3.8 %
Output Power	ANSI	0.95 dB
Power Spectral Density	ANSI	0.86 dB
Conducted Spurious Emissions	ANSI	2.71 dB

NOTE:

Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

3 GENERAL INFORMATION

3.1 DESCRIPTION OF EUT

Equipment	Verizon 5G Home Wi-Fi Extender	
Brand Name	Verizon	
Test Model	VRE3000	
Series Model	N/A	
Model Difference	N/A	
Power Source	DC Voltage supplied from AC/DC adapter.	
Power Rating	#1 Ktec / KSA-24W-120200HU I/P: 100-240V~50/60Hz, 0.6A O/P: 12V 2.0A #2 UMEC / UP0251M-12PA I/P: 100-240V~50/60Hz, 0.6A MAX O/P: +12V 2A, 24W MAX	
Product Specification	Operation Frequency	2412 MHz to 2462 MHz
	Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
	Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 300 Mbps
	Maximum Output Power	IEEE 802.11b: 23.49 dBm (0.2234 W) IEEE 802.11g: 27.08 dBm (0.5108 W) IEEE 802.11n (HT20): 26.23 dBm (0.4200 W) IEEE 802.11n (HT40): 26.17 dBm (0.4136 W)
Product Covered	2 * Adapter: (1) Ktec / KSA-24W-120200HU (2) UMEC / UP0251M-12PA	

NOTE:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

(2) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	05	2432	09	2452
02	2417	06	2437	10	2457
03	2422	07	2442	11	2462
04	2427	08	2447		

(3) Table for Filed Antenna:

Group 1:

Ant.	Brand	Model	Type	Connector	Gain (dBi)
JC6	Galtronics	02102140-06808Ax	PCB	iPEX	2.9
JC7	Galtronics	02102140-06808Ax	PCB	iPEX	2.9

Group 2:

Ant.	Brand	Model	Type	Connector	Gain (dBi)
JC6	Galtronics	02102140-06808Bx	PCB	iPEX	1.1
JC7	Galtronics	02102140-06808Bx	PCB	iPEX	1.1

NOTE:

- (a) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (2T2R). 2.4 GHz and 5GHz can transmit simultaneously.
- (b) For Power Spectral Density (CDD mode)
 $\text{Directional Gain} = 10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{\text{ANT}}] = 5.91 \text{ dBi}.$
 The Direction gain is less than 6 dBi, so conducted power limits will not be reduced.
- (c) For Conducted Output Power (CDD mode)
 For $N_{\text{ANT}} = 2 < 5,$
 $\text{Direction gain} = G_{\text{ANT}} + 0 = 2.9 + 0 = 2.9 \text{ dBi}.$
 The Direction gain is less than 6 dBi, so conducted power limits will not be reduced.
- (d) The WLAN 2.4 GHz does not support beamforming function.

3.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
1	TX B MODE CHANNEL 01/06/11
2	TX G MODE CHANNEL 01/06/11
3	TX N (HT20) MODE CHANNEL 01/06/11
4	TX N (HT40) MODE CHANNEL 03/06/09

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test	
Test Mode	Description
3	TX N (HT20) MODE CHANNEL 01

Radiated emissions test	
Test Mode	Description
1	TX B MODE CHANNEL 01/06/11
2	TX G MODE CHANNEL 01/06/11
3	TX N (HT20) MODE CHANNEL 01/06/11
4	TX N (HT40) MODE CHANNEL 03/06/09

Conducted test	
Test Mode	Description
1	TX B MODE CHANNEL 01/06/11
2	TX G MODE CHANNEL 01/06/11
3	TX N (HT20) MODE CHANNEL 01/06/11
4	TX N (HT40) MODE CHANNEL 03/06/09

NOTE:

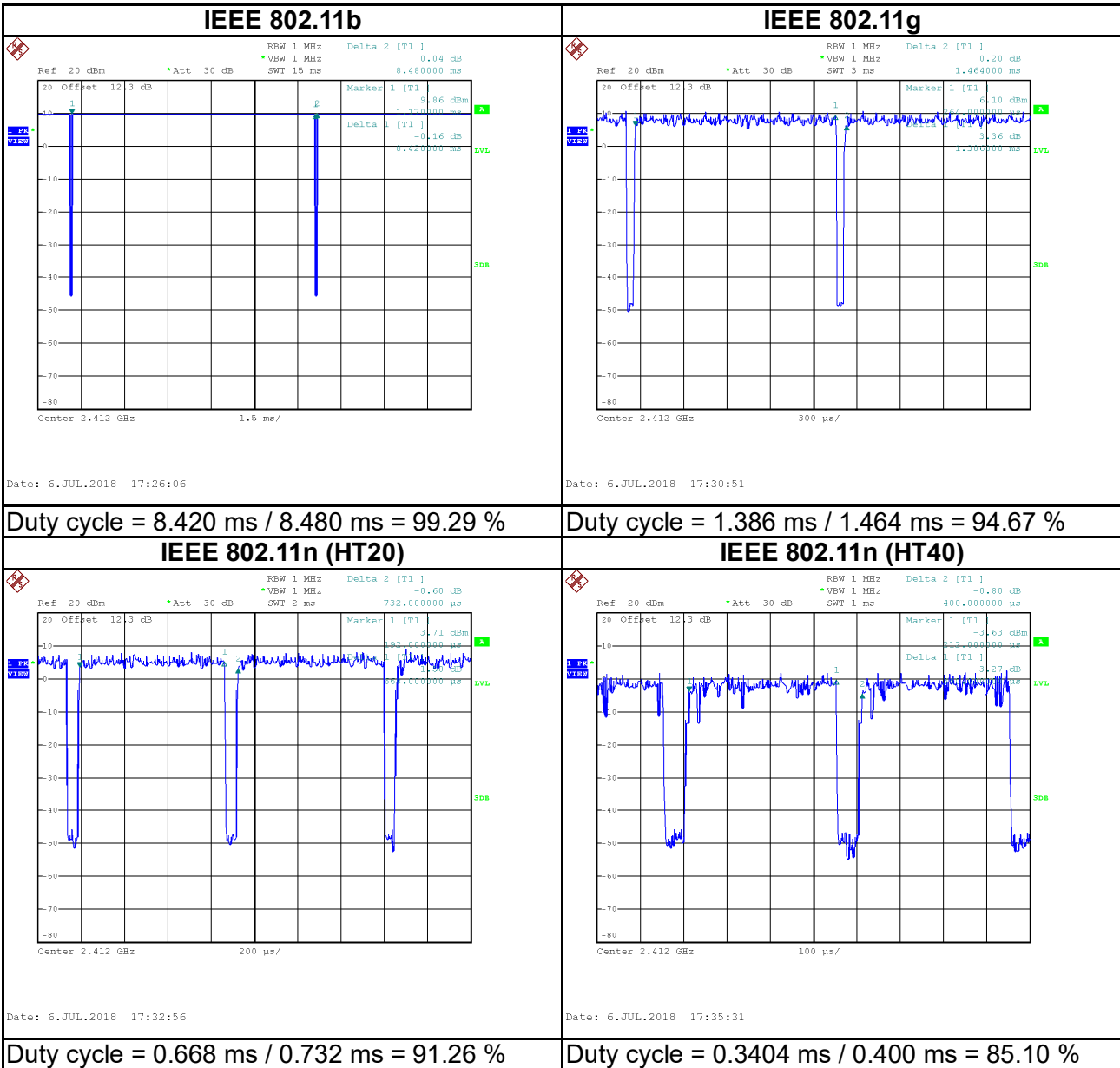
- (1) The measurements are performed at the low, middle and high available channels.
- (2) The adapter KSA-24W-120200HU was found to be the worst case and used for final test.
- (3) For radiated emission tests, the highest output powers were set for final test.
- (4) For radiated emission below 1 GHz test, the IEEE 802.11n (HT20) was found to be the worst case and recorded.
- (5) The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98 %.

3.3 PARAMETERS OF TEST SOFTWARE

Test Software	QATool(0.0.1.85)			
Mode	2412 MHz	2437 MHz	2462 MHz	Data Rate
IEEE 802.11b	19	1A	1B	1 Mbps
IEEE 802.11g	1F	21	1D	6 Mbps
IEEE 802.11n (HT20)	1A	1D	1C	MCS 0
Mode	2422 MHz	2437 MHz	2452 MHz	Data Rate
IEEE 802.11n (HT40)	16	1F	1A	MCS 0

3.4 DUTY CYCLE

If duty cycle is $\geq 98\%$, duty factor is not required.
If duty cycle is $< 98\%$, duty factor shall be considered.



NOTE:

For IEEE 802.11g and IEEE 802.11n (HT20):

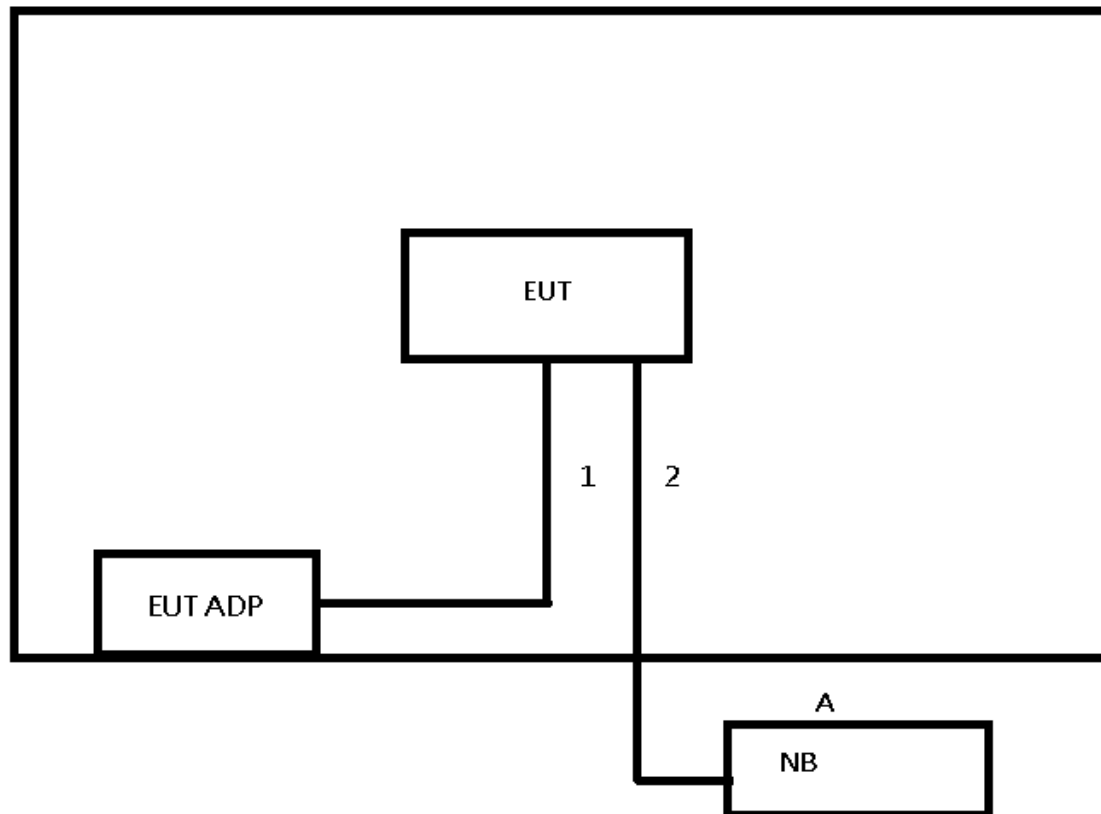
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle $< 98\%$).

For IEEE 802.11n (HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle $< 98\%$).

3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 3.6.



3.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.	Remarks
A	NB	HP	TPN-I119	5CG7032BNS	Furnished at test lab

Item	Shielded	Ferrite Core	Length	Cable Type	Remarks
1	NO	NO	1 m	Power Cable	Furnished at test lab
2	NO	NO	4 m	RJ45 Cable	Furnished at test lab

4 AC POWER LINE CONDUCTED EMISSIONS TEST

4.1 LIMIT

Frequency (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56 *	56 - 46 *
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)
 Margin Level = Measurement Value – Limit Value

The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

4.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).
 All other support equipment were powered from an additional LISN(s).
 The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.
 The end of the cable will be terminated, using the correct terminating impedance.
 The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item - EUT Test Photos.

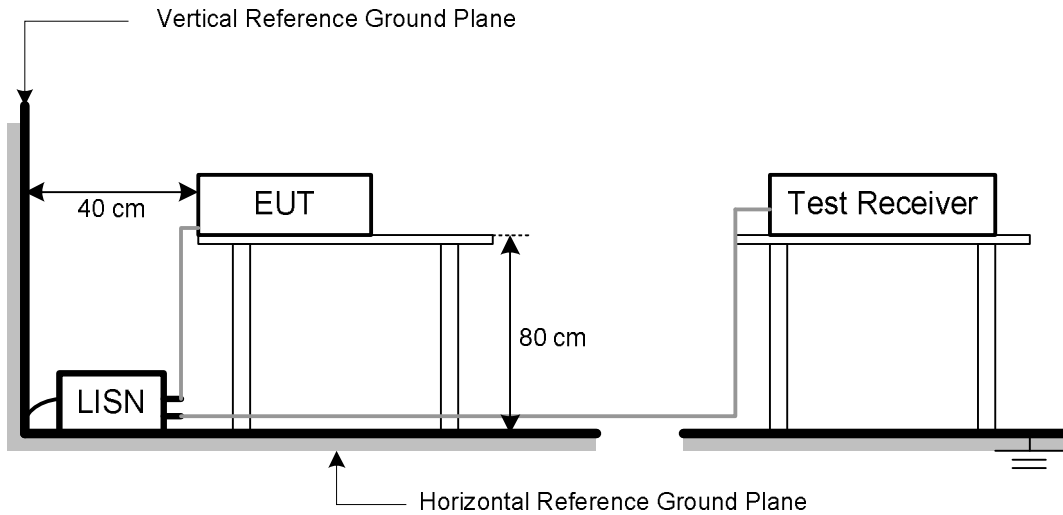
NOTE:

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used.
 BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

4.3 DEVIATION FROM TEST STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in normal link mode.

4.6 TEST RESULT

Temperature: 25 °C Relative Humidity: 45 % Test Voltage: AC 120V/50Hz

Please refer to the APPENDIX A.

5 RADIATED EMISSIONS TEST

5.1 LIMIT

In case the emission fall within the restricted band specified on §15.205, then the §15.209 limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

Frequency (MHz)	Radiated Emissions (dBuV/m)		Measurement Distance (meters)
	Peak	Average	
Above 1000	74	54	3

NOTE:

- (1) The limit for radiated test was performed according to FCC Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
 Margin Level = Measurement Value - Limit Value

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9KHz~90KHz for PK/AVG detector
Start ~ Stop Frequency	90KHz~110KHz for QP detector
Start ~ Stop Frequency	110KHz~490KHz for PK/AVG detector
Start ~ Stop Frequency	490KHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

5.2 TEST PROCEDURE

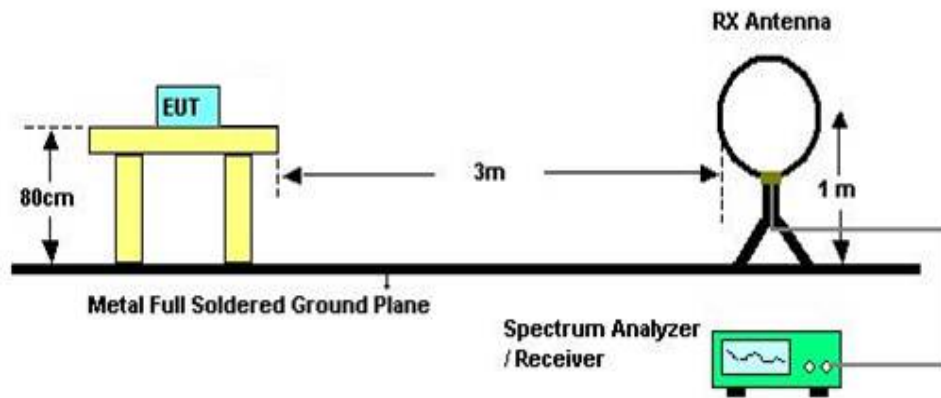
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

5.3 DEVIATION FROM TEST STANDARD

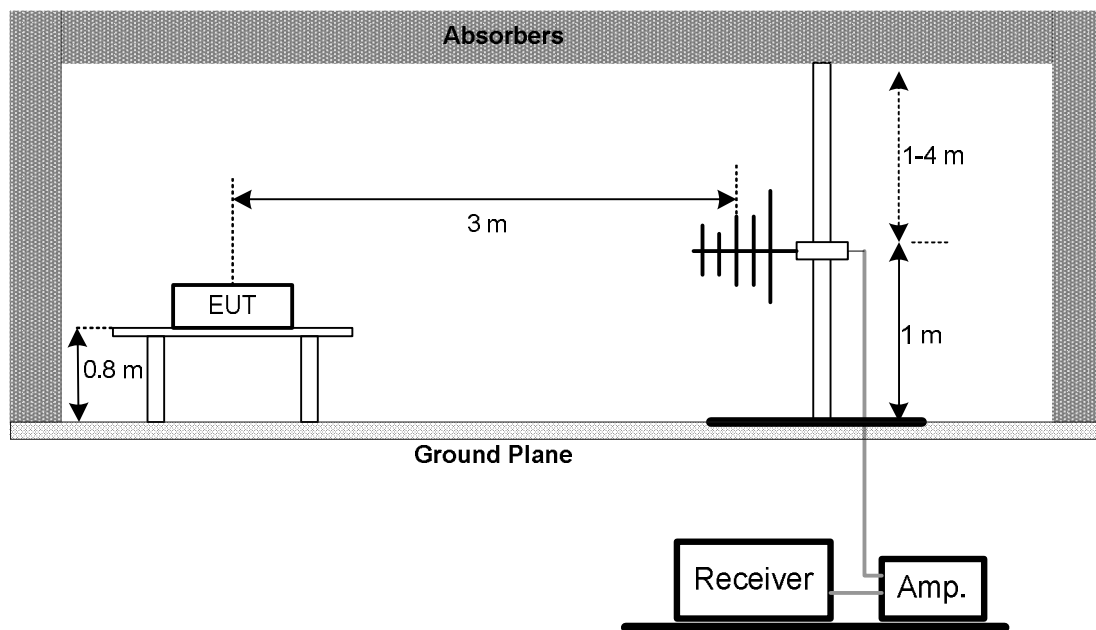
No deviation.

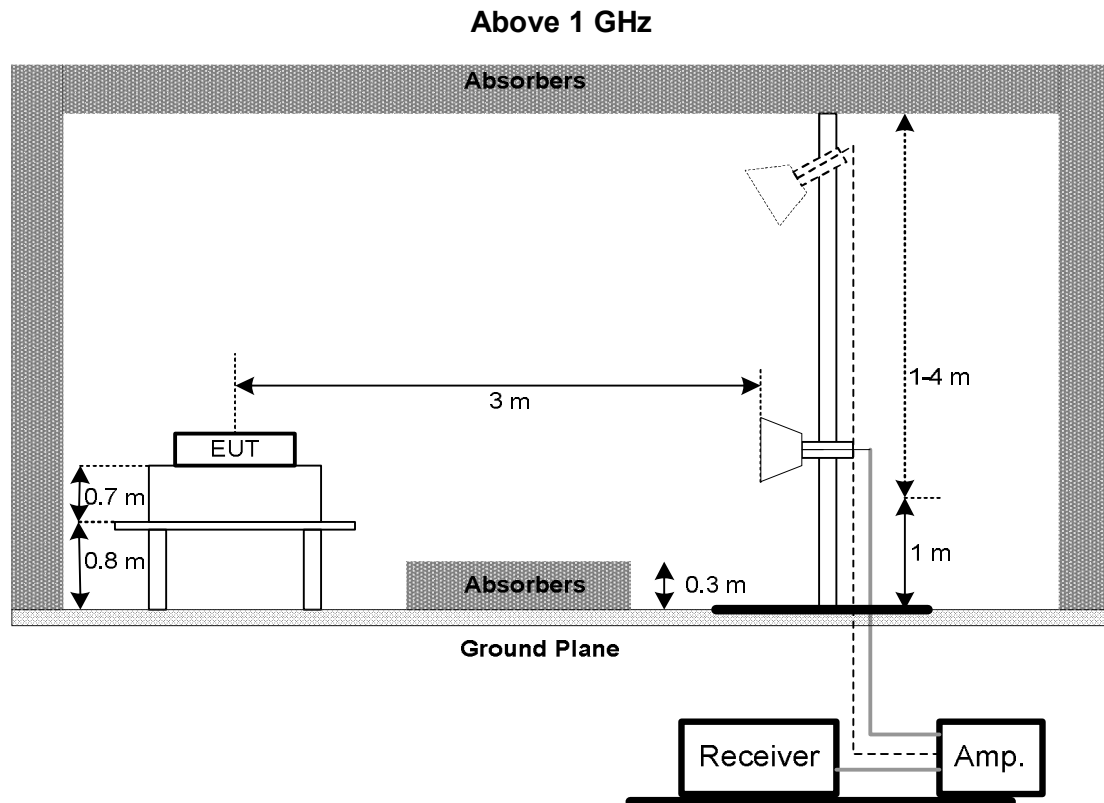
5.4 TEST SETUP

Below 30 MHz



30 MHz to 1 GHz





5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULT – 9 KHZ TO 30 MHZ

Temperature: 23 °C Relative Humidity: 70 % Test Voltage: AC 120V/50Hz

Please refer to the APPENDIX B.

NOTE:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB).
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

5.7 TEST RESULT – 30MHZ TO 1000 MHZ

Temperature: 23 °C Relative Humidity: 70 % Test Voltage: AC 120V/50Hz

Please refer to the APPENDIX C.

5.8 TEST RESULT – ABOVE 1000 MHZ

Temperature: 23 °C Relative Humidity: 70 % Test Voltage: AC 120V/50Hz

Please refer to the APPENDIX D.

NOTE:

- (1) No limit: This is fundamental signal, the judgment is not applicable.
For fundamental signal judgment was referred to Peak output test.

6 BANDWIDTH TEST

6.1 LIMIT

FCC Part15, Subpart C (§15.247)		
Section	Test Item	Limit
§15.247(a)	6 dB Bandwidth	500 kHz

6.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

6.3 DEVIATION FROM TEST STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULT

Please refer to the APPENDIX E.

7 PEAK OUTPUT POWER TEST

7.1 LIMIT

FCC Part15, Subpart C (§15.247)		
Section	Test Item	Limit
§15.247(b)	Maximum Output Power	1 Watt or 30dBm

7.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance.

7.3 DEVIATION FROM TEST STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULT

Please refer to the APPENDIX F.

8 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST

8.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits.

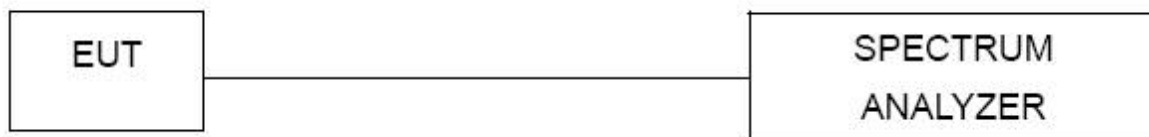
8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW = 100 kHz, VBW=300 kHz, Sweep time = Auto.
- Offset = antenna gain + cable loss.

8.3 DEVIATION FROM TEST STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULT

Please refer to the APPENDIX G.

9 POWER SPECTRAL DENSITY

9.1 LIMIT

FCC Part15, Subpart C (§15.247)		
Section	Test Item	Limit
§15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)

9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW = 3 kHz, VBW = 10 kHz, Sweep time = Auto.

9.3 DEVIATION FROM TEST STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 TEST RESULT

Please refer to the APPENDIX H.

10 LIST OF MEASURING EQUIPMENTS

AC Power Line Conducted Emissions

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Mar. 08, 2019
2	Test Cable	EMCI	EMCCFD300-BM-BMR-6000	170715	Aug. 08, 2018
3	EMI Test Receiver	R&S	ESR7	101433	Dec. 10, 2018
4	Measurement Software	EZ	EZ EMC (Version NB-03A)	N/A	N/A

Radiated Emissions

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Preamplifier	EMCI	012645B	980267	Feb. 27, 2019
2	Preamplifier	EMCI	EMC02325	980217	Dec. 28, 2018
3	Preamplifier	EMCI	EMC2654045	980030	Feb. 13, 2019
4	Test Cable	EMCI	EMC104-SM-SM-8000	8m	Jan. 03, 2019
5	Test Cable	EMCI	EMC104-SM-SM-800	150207	Mar. 15, 2019
6	Test Cable	EMCI	EEMC104-SM-SM-3000	151205	Jan. 03, 2019
7	MXE EMI Receiver	Agilent	N9038A	MY55420127	Jan. 08, 2019
8	Signal Analyzer	Agilent	N9010A	MY52220990	Feb. 21, 2019
9	Loop Ant	EMCI	LPA600	274	May 03, 2019
10	Horn Ant	SCHWARZBECK	BBHA 9120D	9120D-1342	Feb. 27, 2019
11	Horn Ant	Schwarzbeck	BBHA 9170	187	Dec. 05, 2018
12	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-548	Jan. 15, 2019
13	5dB Attenuator	EMCI	EMCI-N-6-05	AT-N0623	Jan. 15, 2019

Bandwidth

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 24, 2019

Peak Output Power

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Power Meter	Anritsu	ML2495A	1128008	Aug. 16, 2018
2	Power Sensor	Anritsu	MA2411B	1126001	Aug. 16, 2018

Antenna Conducted Spurious Emissions

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 24, 2019

Power Spectral Density

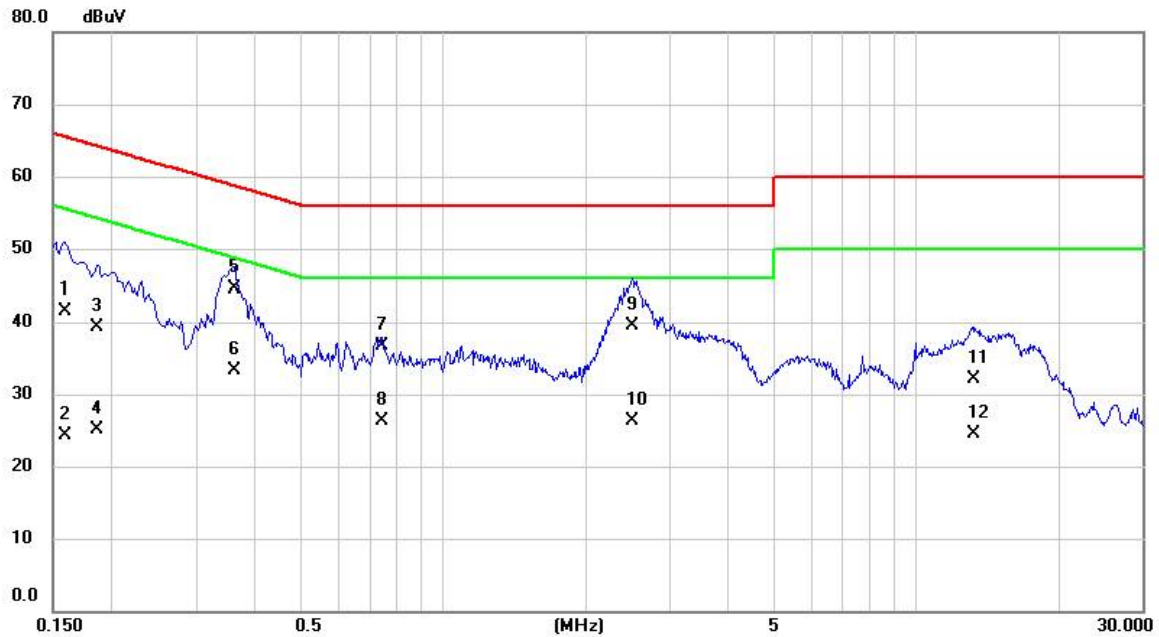
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	R&S/FSP30	100854	May 24, 2019

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.
All calibration period of equipment list is one year.

APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

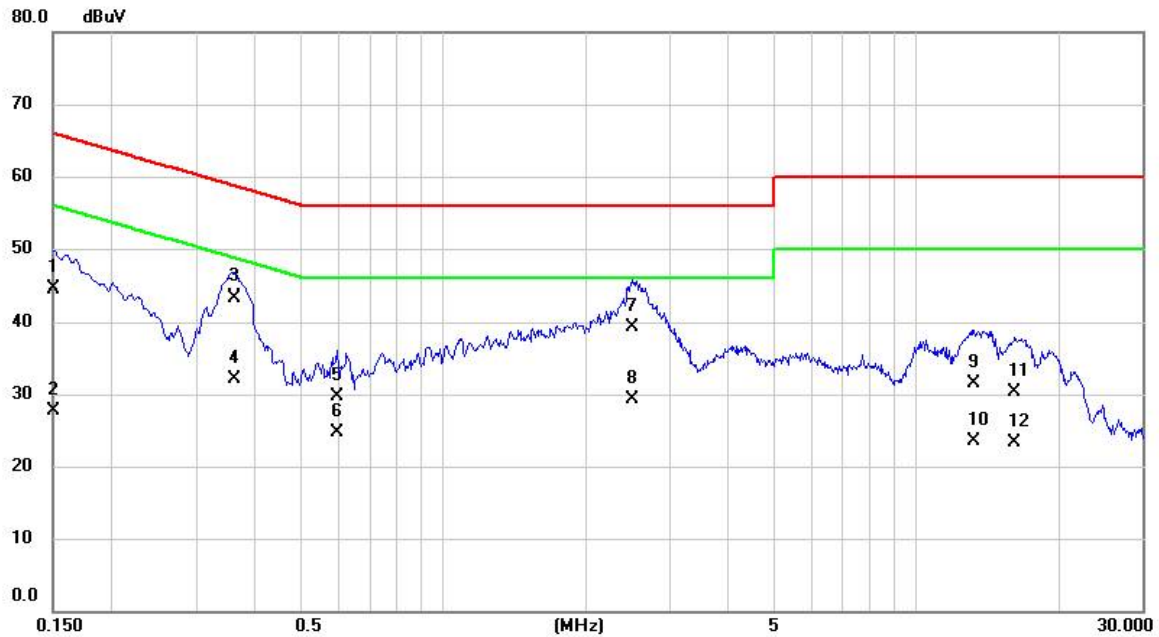
CONTINUE ON NEXT PAGE

Test Mode	TX N (HT20) MODE CHANNEL 2412 MHz	Phase	Line
-----------	-----------------------------------	-------	------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1590	31.90	9.63	41.53	65.52	-23.99	QP	
2		0.1590	14.60	9.63	24.23	55.52	-31.29	AVG	
3		0.1860	29.70	9.63	39.33	64.21	-24.88	QP	
4		0.1860	15.50	9.63	25.13	54.21	-29.08	AVG	
5	*	0.3615	34.90	9.65	44.55	58.69	-14.14	QP	
6		0.3615	23.60	9.65	33.25	48.69	-15.44	AVG	
7		0.7440	27.05	9.67	36.72	56.00	-19.28	QP	
8		0.7440	16.70	9.67	26.37	46.00	-19.63	AVG	
9		2.5125	29.80	9.70	39.50	56.00	-16.50	QP	
10		2.5125	16.60	9.70	26.30	46.00	-19.70	AVG	
11		13.2698	22.20	9.94	32.14	60.00	-27.86	QP	
12		13.2698	14.60	9.94	24.54	50.00	-25.46	AVG	

Test Mode	TX N (HT20) MODE CHANNEL 2412 MHz	Phase	Neutral
-----------	-----------------------------------	-------	---------

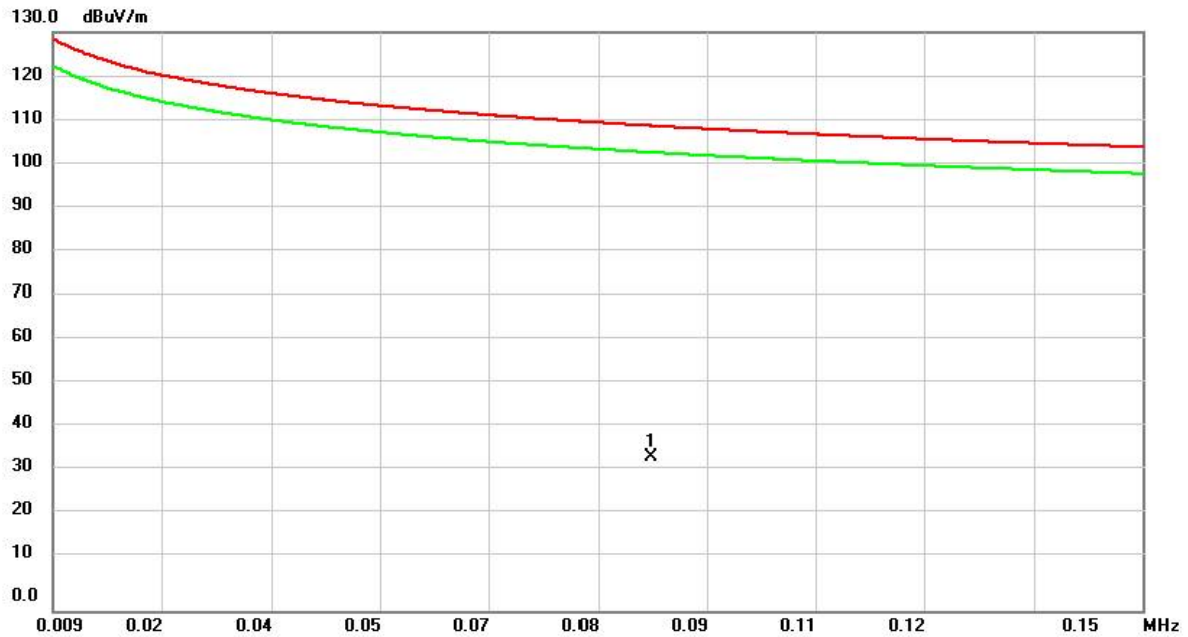


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1500	34.90	9.62	44.52	66.00	-21.48	QP	
2		0.1500	18.10	9.62	27.72	56.00	-28.28	AVG	
3	*	0.3615	33.70	9.64	43.34	58.69	-15.35	QP	
4		0.3615	22.50	9.64	32.14	48.69	-16.55	AVG	
5		0.5955	20.10	9.65	29.75	56.00	-26.25	QP	
6		0.5955	15.00	9.65	24.65	46.00	-21.35	AVG	
7		2.5080	29.70	9.69	39.39	56.00	-16.61	QP	
8		2.5080	19.70	9.69	29.39	46.00	-16.61	AVG	
9		13.2900	21.50	9.94	31.44	60.00	-28.56	QP	
10		13.2900	13.50	9.94	23.44	50.00	-26.56	AVG	
11		16.1048	20.30	9.95	30.25	60.00	-29.75	QP	
12		16.1048	13.30	9.95	23.25	50.00	-26.75	AVG	

APPENDIX B RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

CONTINUE ON NEXT PAGE

Test Mode	TX N (HT20) MODE 2412MHz	Azimuth Angle	90°
-----------	--------------------------	---------------	-----



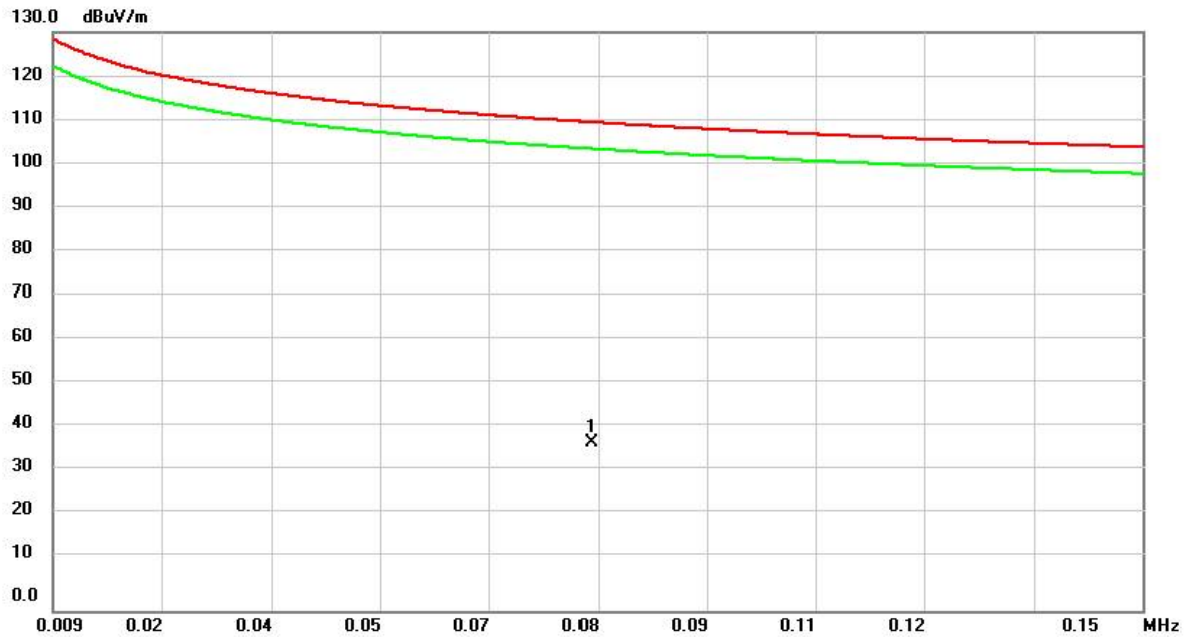
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	0.0864	17.05	17.63	34.68	108.87	-74.19	peak	

Test Mode	TX N (HT20) MODE 2412MHz	Azimuth Angle	90°
-----------	--------------------------	---------------	-----



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.5480	29.95	3.07	33.02	72.83	-39.81	peak	
2	*	1.4236	28.99	-1.45	27.54	64.54	-37.00	peak	
3		2.8166	29.29	-3.53	25.76	69.54	-43.78	peak	
4		5.0852	28.98	-3.94	25.04	69.54	-44.50	peak	
5		9.1050	28.50	-4.71	23.79	69.54	-45.75	peak	
6		11.7318	28.88	-4.82	24.06	69.54	-45.48	peak	

Test Mode	TX N (HT20) MODE 2412MHz	Azimuth Angle	0°
-----------	--------------------------	---------------	----



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	0.0786	19.43	18.35	37.78	109.70	-71.92	peak	

Test Mode	TX N (HT20) MODE 2412MHz	Azimuth Angle	0°
-----------	--------------------------	---------------	----

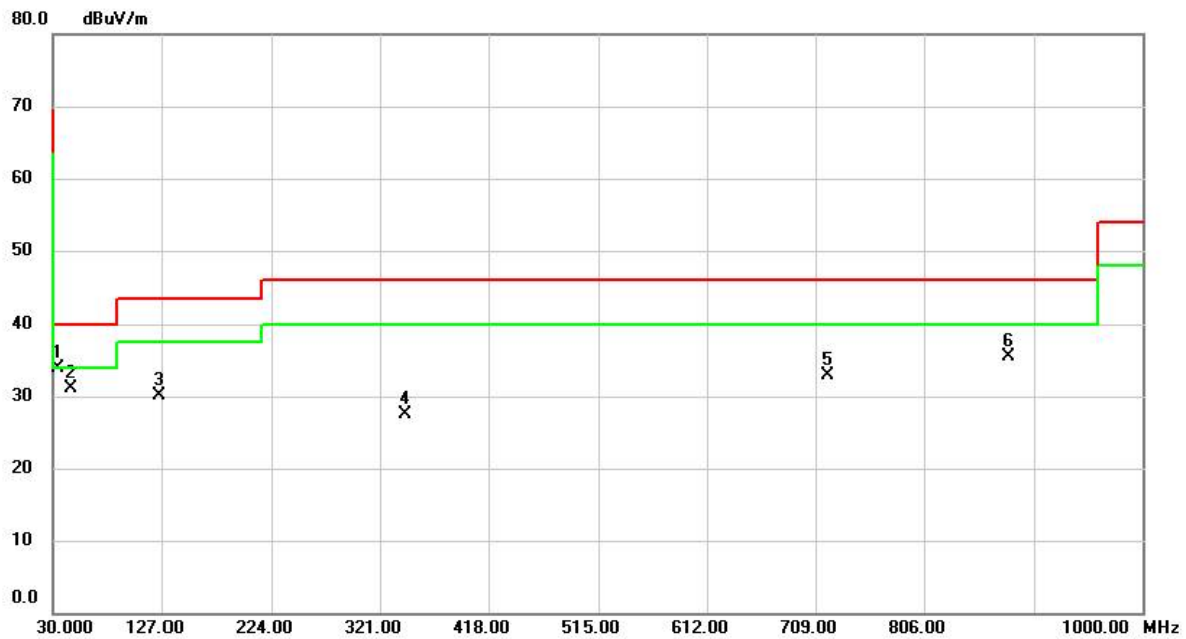


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		0.3490	29.69	5.95	35.64	96.75	-61.11	peak	
2	*	1.5430	29.22	-1.75	27.47	63.84	-36.37	peak	
3		3.3738	27.96	-3.71	24.25	69.54	-45.29	peak	
4		5.6424	28.79	-3.99	24.80	69.54	-44.74	peak	
5		8.1896	28.99	-4.40	24.59	69.54	-44.95	peak	
6		10.5378	28.92	-4.76	24.16	69.54	-45.38	peak	

APPENDIX C RADIATED EMISSIONS - 30 MHZ TO 1000 MHZ

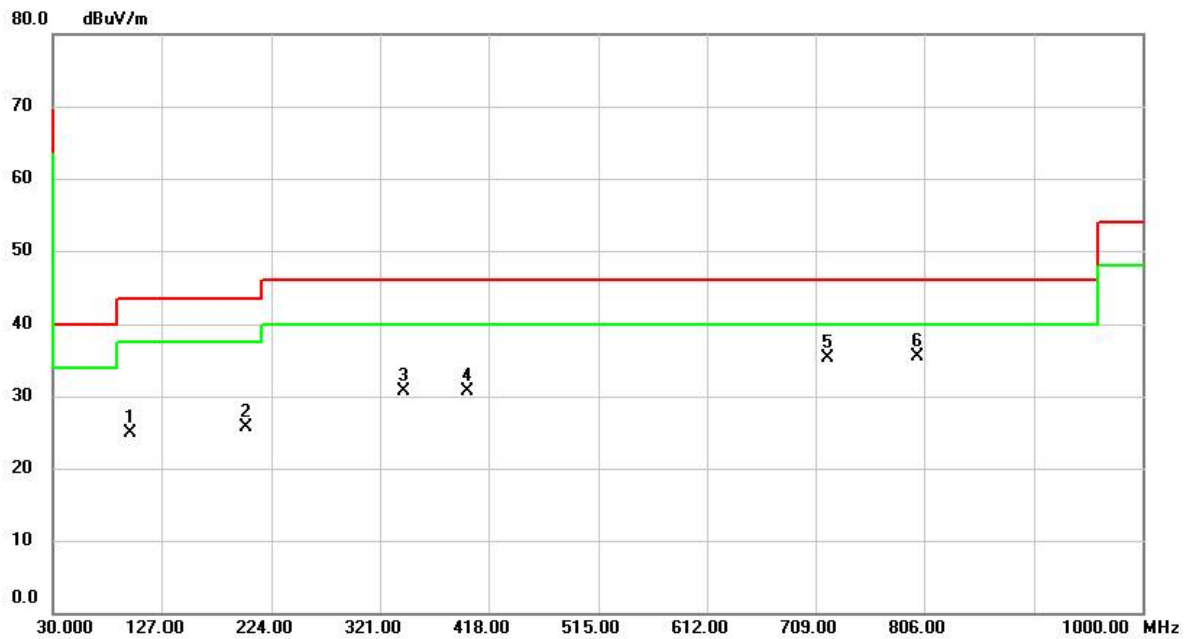
CONTINUE ON NEXT PAGE

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	*	33.8800	42.93	-9.02	33.91	40.00	-6.09	peak	
2		45.5200	39.30	-8.20	31.10	40.00	-8.90	peak	
3		125.0600	40.36	-10.31	30.05	43.50	-13.45	peak	
4		343.3100	33.92	-6.37	27.55	46.00	-18.45	peak	
5		719.6700	31.19	1.69	32.88	46.00	-13.12	peak	
6		879.7200	30.94	4.58	35.52	46.00	-10.48	peak	

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------

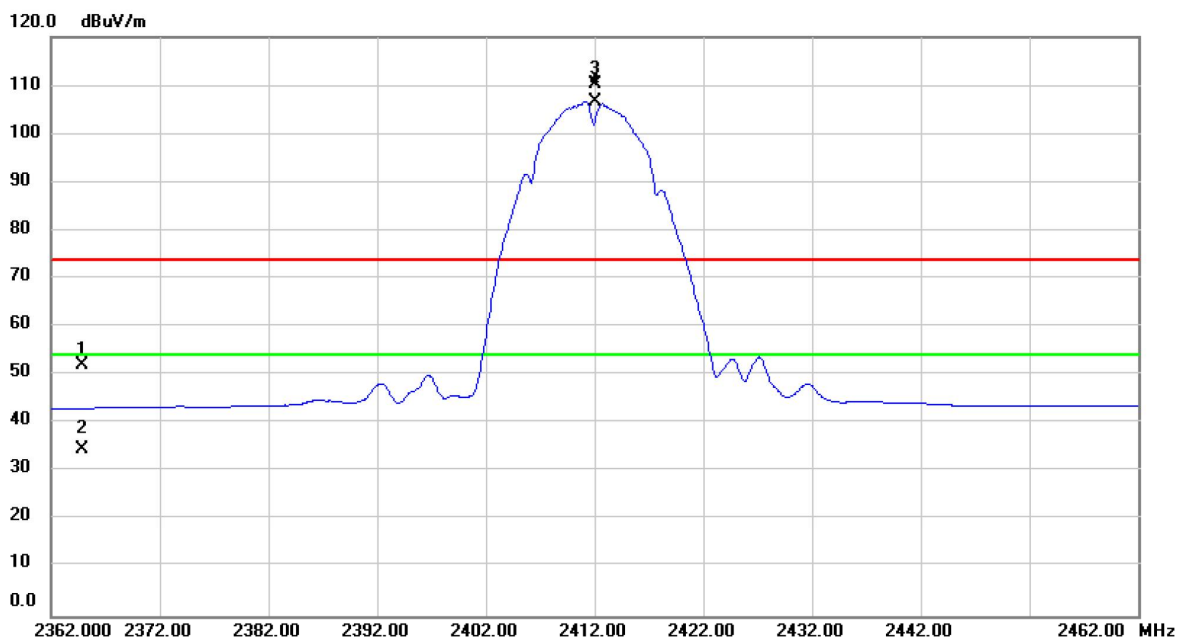


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		98.8700	37.97	-13.00	24.97	43.50	-18.53	peak	
2		201.6900	36.64	-10.87	25.77	43.50	-17.73	peak	
3		342.3400	37.13	-6.39	30.74	46.00	-15.26	peak	
4		399.5700	35.85	-5.08	30.77	46.00	-15.23	peak	
5		719.6700	33.52	1.69	35.21	46.00	-10.79	peak	
6	*	800.1800	32.41	3.06	35.47	46.00	-10.53	peak	

APPENDIX D RADIATED EMISSIONS - ABOVE 1000 MHZ

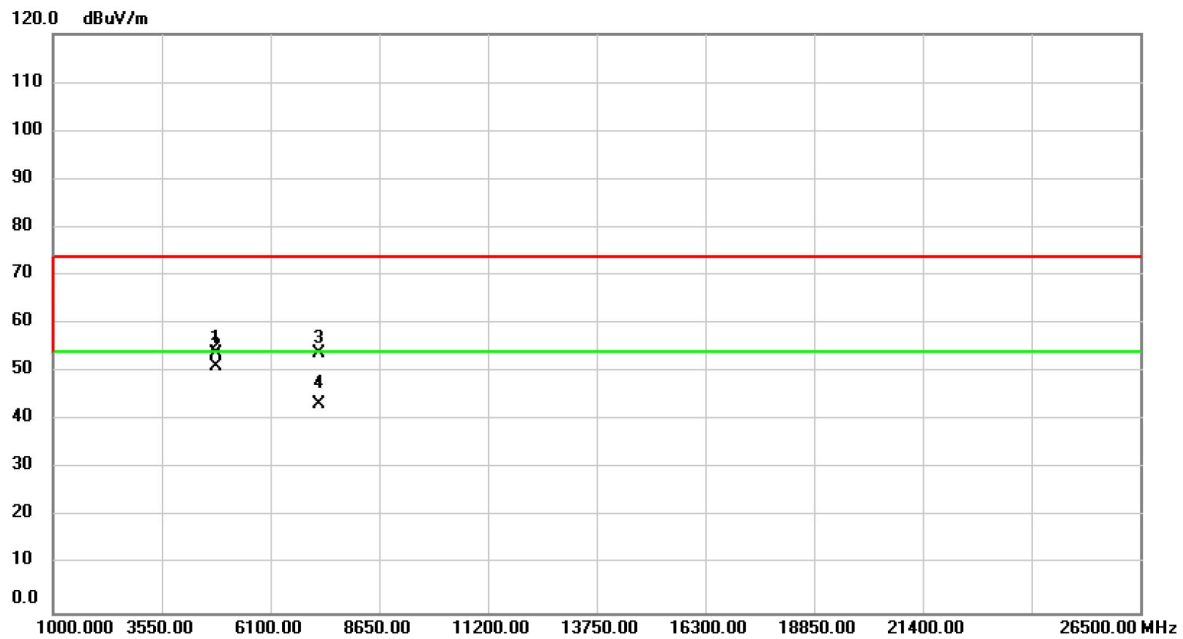
CONTINUE ON NEXT PAGE

Test Mode	TX B MODE 2412MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



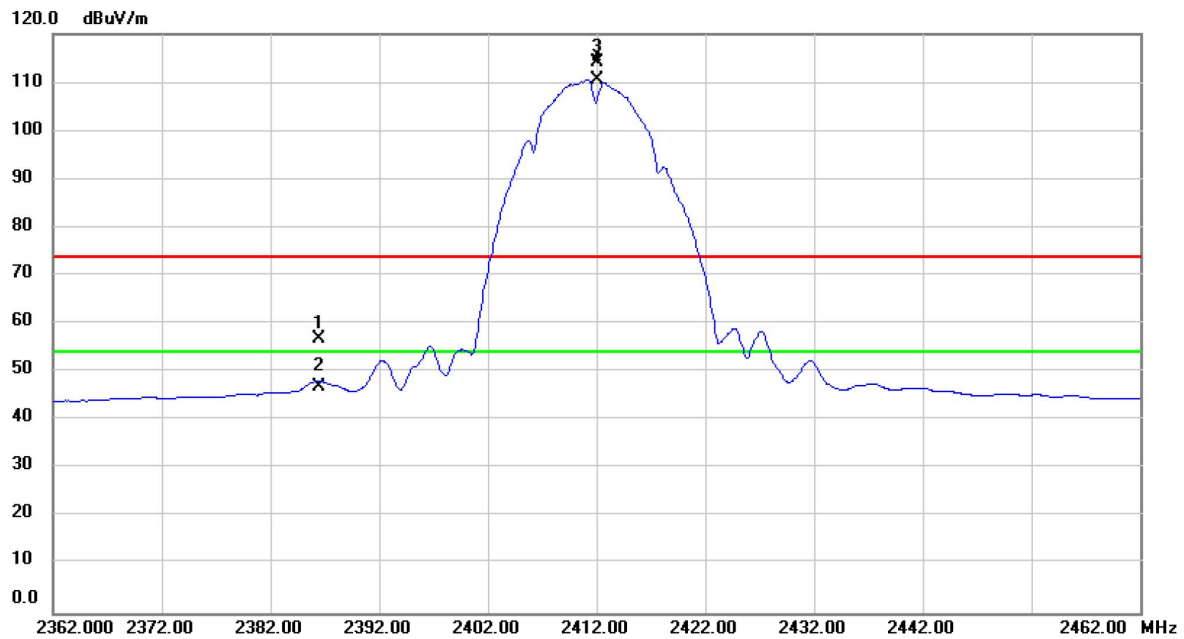
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2364.828	21.41	30.76	52.17	74.00	-21.83	peak	
2		2364.828	3.99	30.76	34.75	54.00	-19.25	AVG	
3	X	2412.000	79.37	30.92	110.29	74.00	36.29	peak	No Limit
4	*	2412.000	75.81	30.92	106.73	54.00	52.73	AVG	No Limit

Test Mode	TX B MODE 2412MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



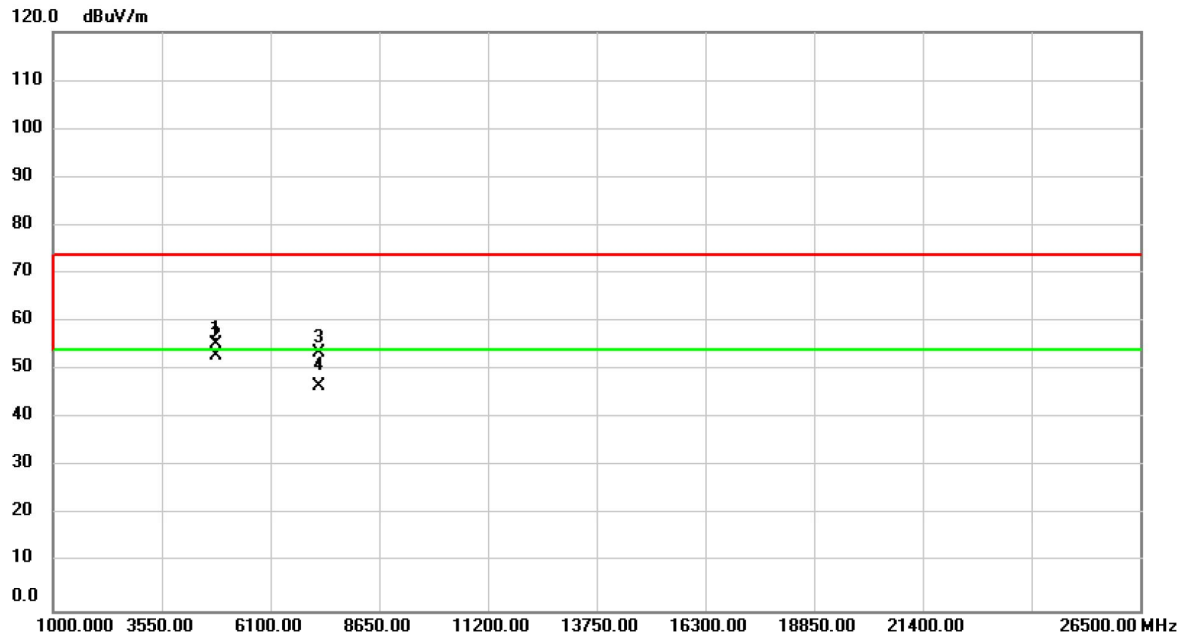
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	65.48	-11.48	54.00	74.00	-20.00	peak	
2	*	4824.000	62.59	-11.48	51.11	54.00	-2.89	AVG	
3		7236.000	59.01	-5.26	53.75	74.00	-20.25	peak	
4		7236.000	48.52	-5.26	43.26	54.00	-10.74	AVG	

Test Mode	TX B MODE 2412MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



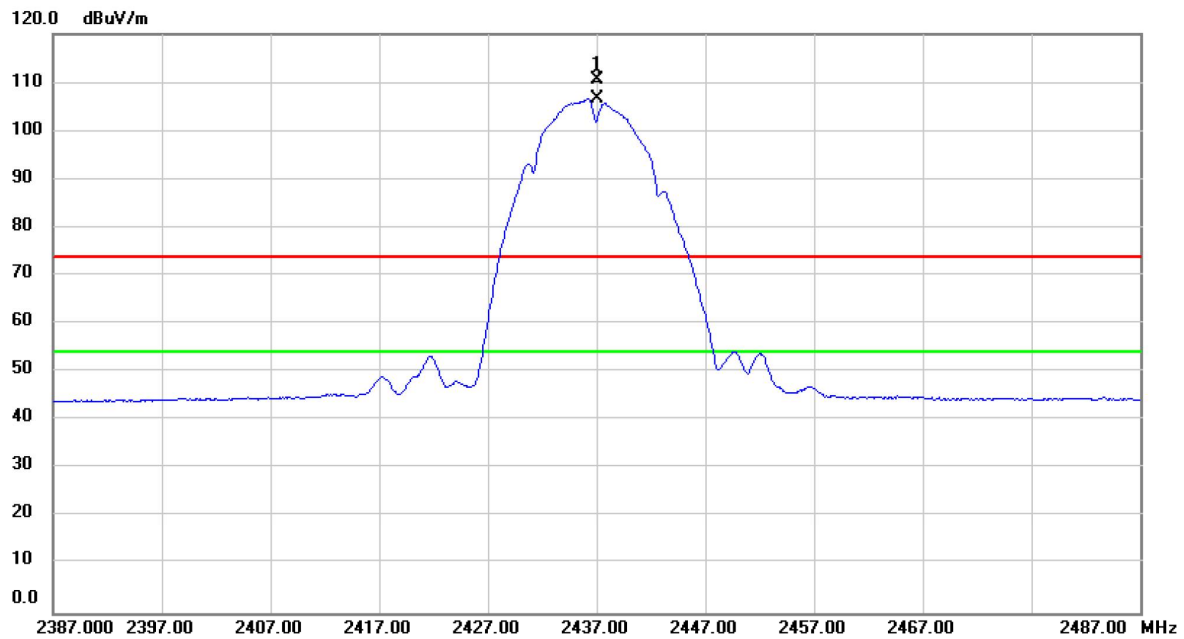
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2386.400	26.11	30.83	56.94	74.00	-17.06	peak	
2		2386.400	16.19	30.83	47.02	54.00	-6.98	AVG	
3	X	2412.000	83.27	30.92	114.19	74.00	40.19	peak	No Limit
4	*	2412.000	79.74	30.92	110.66	54.00	56.66	AVG	No Limit

Test Mode	TX B MODE 2412MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



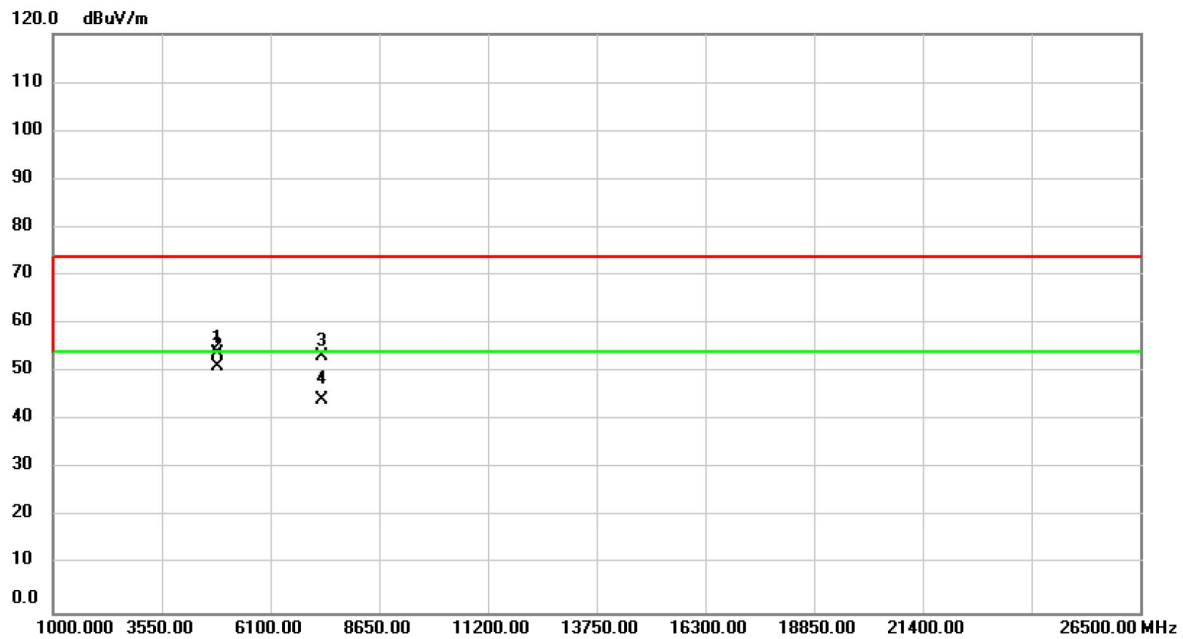
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4824.000	66.94	-11.48	55.46	74.00	-18.54	peak	
2	*	4824.000	64.30	-11.48	52.82	54.00	-1.18	AVG	
3		7236.000	58.94	-5.26	53.68	74.00	-20.32	peak	
4		7236.000	51.93	-5.26	46.67	54.00	-7.33	AVG	

Test Mode	TX B MODE 2437MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



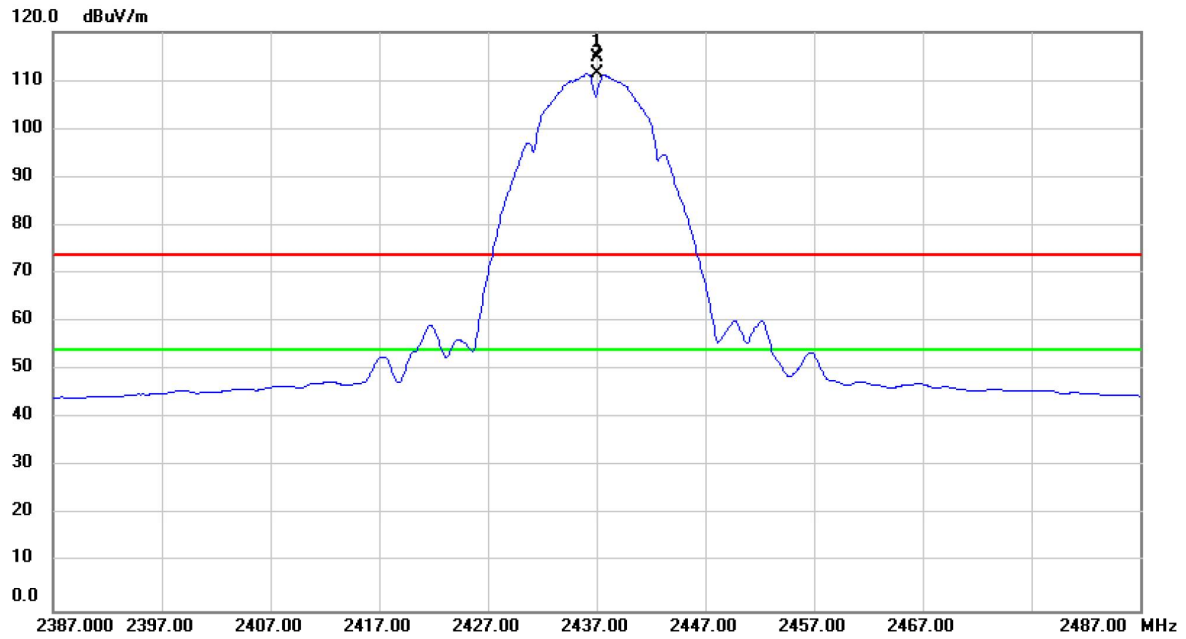
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	79.59	31.01	110.60	74.00	36.60	peak	No Limit
2	*	2437.000	75.59	31.01	106.60	54.00	52.60	AVG	No Limit

Test Mode	TX B MODE 2437MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



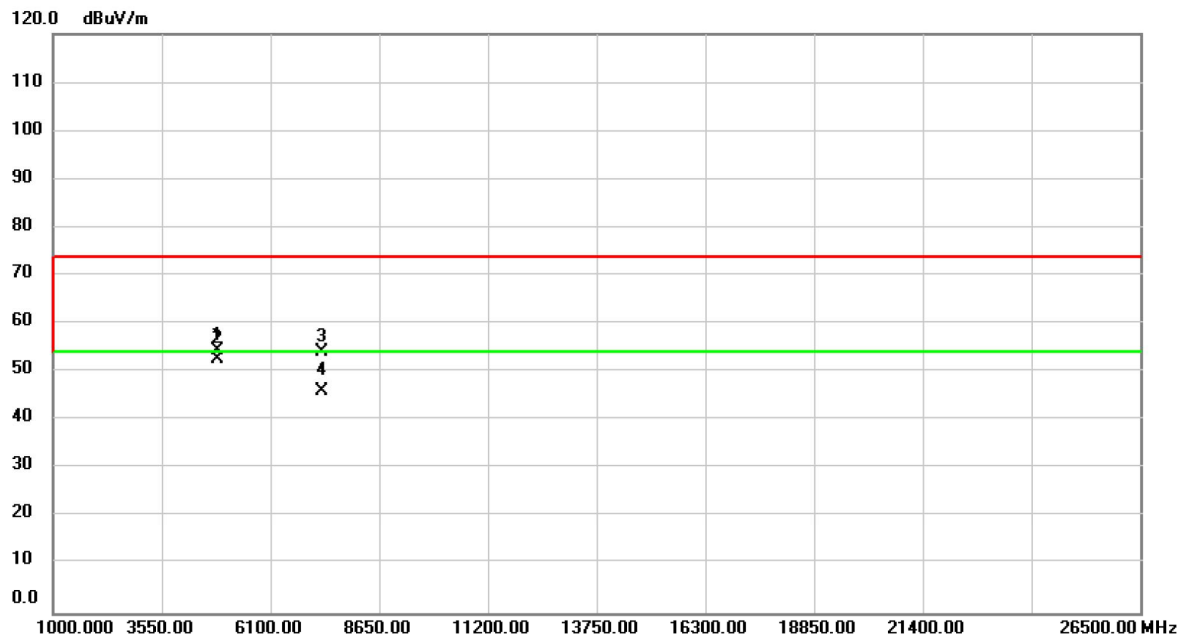
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	65.37	-11.42	53.95	74.00	-20.05	peak	
2	*	4874.000	62.57	-11.42	51.15	54.00	-2.85	AVG	
3		7311.000	58.37	-4.99	53.38	74.00	-20.62	peak	
4		7311.000	49.19	-4.99	44.20	54.00	-9.80	AVG	

Test Mode	TX B MODE 2437MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



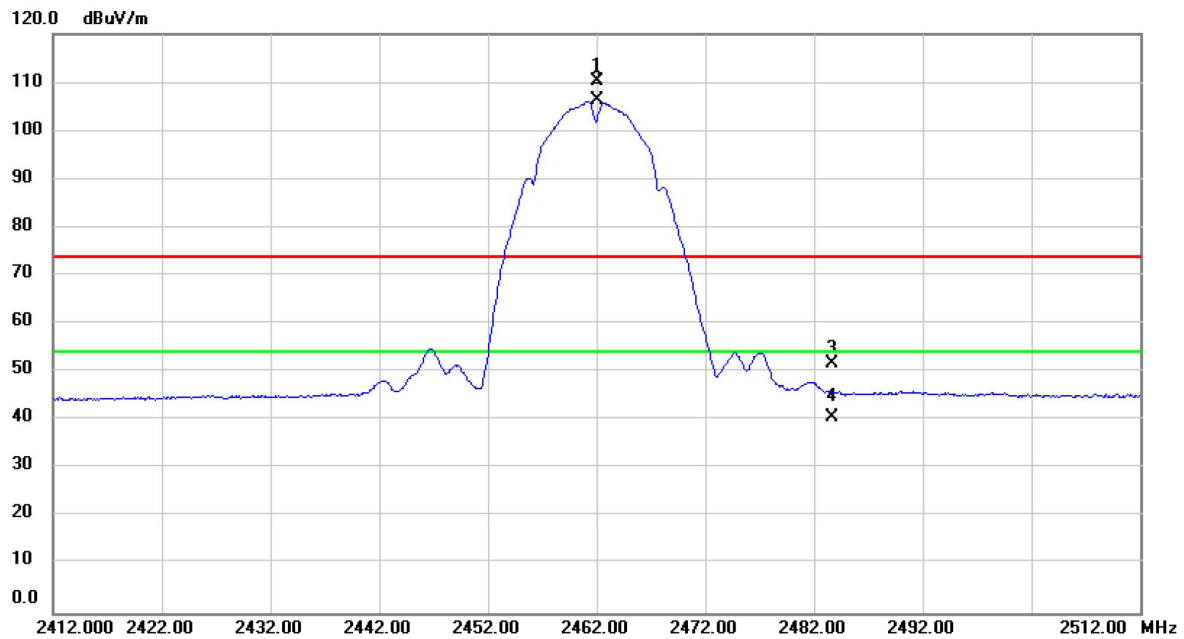
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	83.85	31.01	114.86	74.00	40.86	peak	No Limit
2	*	2437.000	80.42	31.01	111.43	54.00	57.43	AVG	No Limit

Test Mode	TX B MODE 2437MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



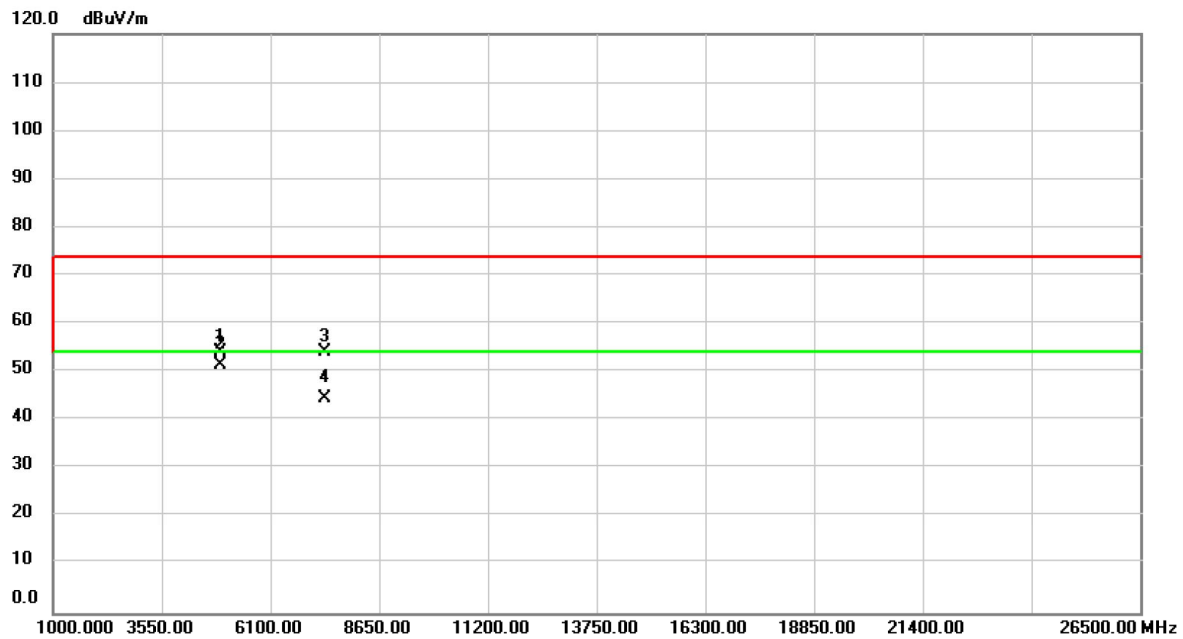
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	65.78	-11.42	54.36	74.00	-19.64	peak	
2	*	4874.000	64.19	-11.42	52.77	54.00	-1.23	AVG	
3		7311.000	59.01	-4.99	54.02	74.00	-19.98	peak	
4		7311.000	50.99	-4.99	46.00	54.00	-8.00	AVG	

Test Mode	TX B MODE 2462MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



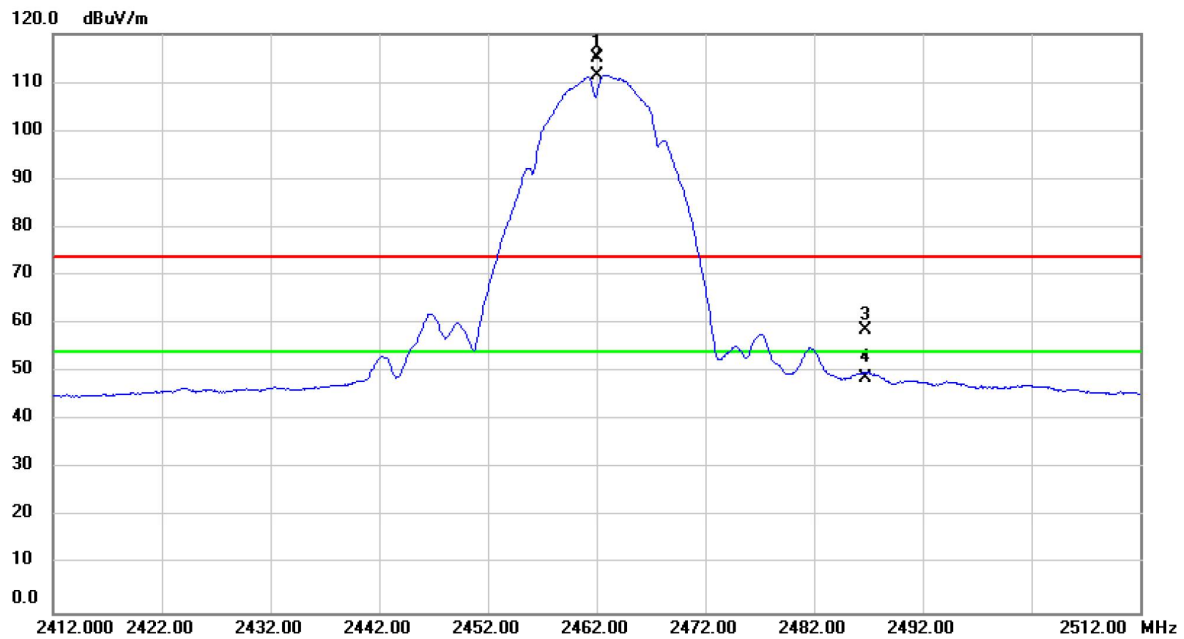
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	79.25	31.09	110.34	74.00	36.34	peak	No Limit
2	*	2462.000	75.22	31.09	106.31	54.00	52.31	AVG	No Limit
3		2483.698	20.54	31.17	51.71	74.00	-22.29	peak	
4		2483.698	9.42	31.17	40.59	54.00	-13.41	AVG	

Test Mode	TX B MODE 2462MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



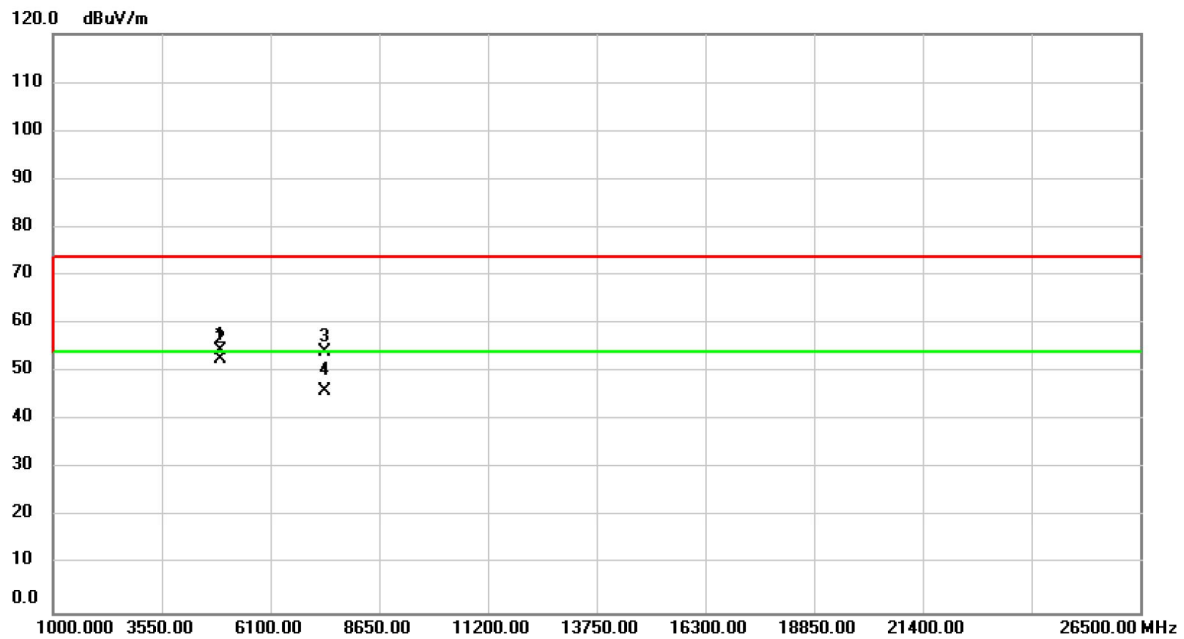
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	65.60	-11.37	54.23	74.00	-19.77	peak	
2	*	4924.000	62.69	-11.37	51.32	54.00	-2.68	AVG	
3		7386.000	58.73	-4.72	54.01	74.00	-19.99	peak	
4		7386.000	49.18	-4.72	44.46	54.00	-9.54	AVG	

Test Mode	TX B MODE 2462MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



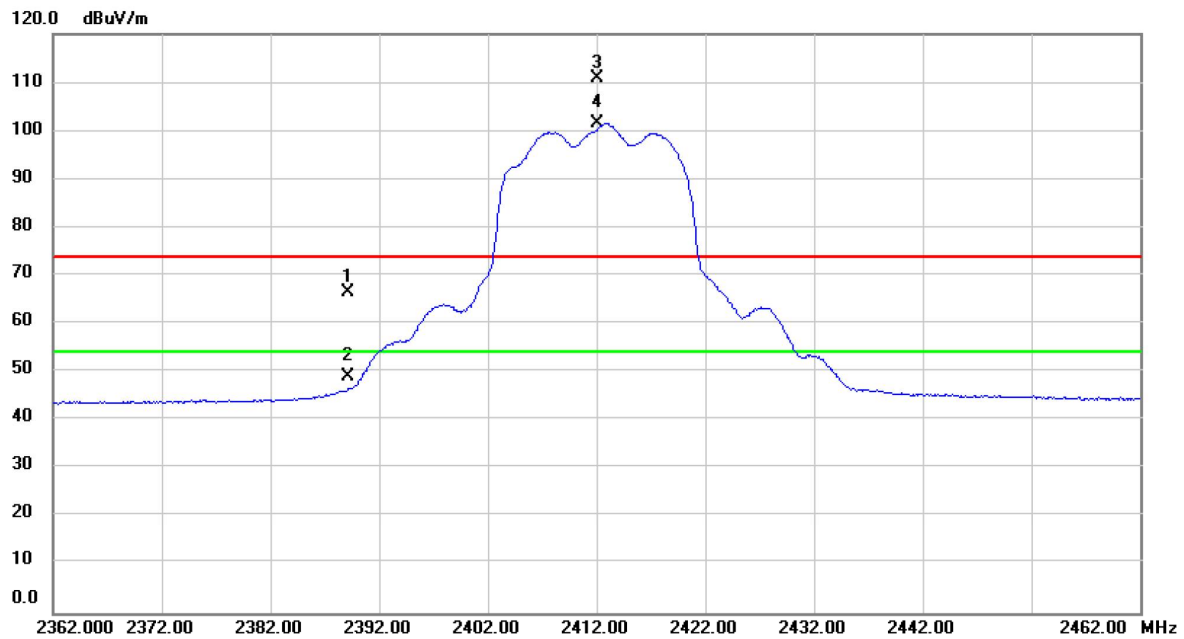
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	83.90	31.09	114.99	74.00	40.99	peak	No Limit
2	*	2462.000	80.47	31.09	111.56	54.00	57.56	AVG	No Limit
3		2486.751	27.59	31.18	58.77	74.00	-15.23	peak	
4		2486.751	17.51	31.18	48.69	54.00	-5.31	AVG	

Test Mode	TX B MODE 2462MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



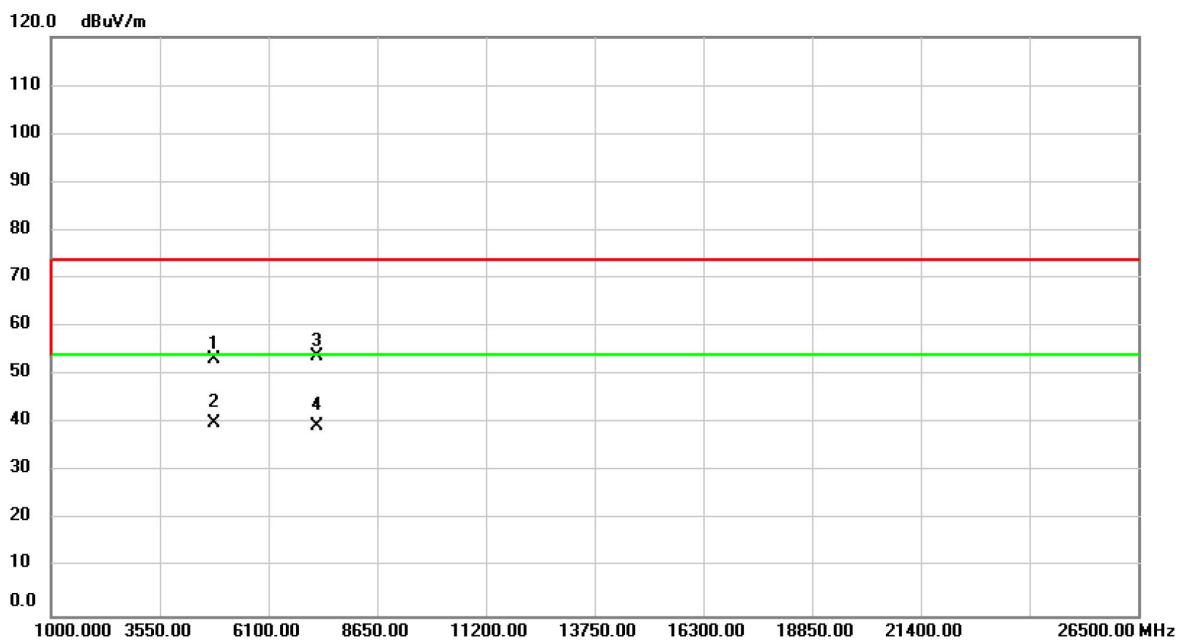
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	65.71	-11.37	54.34	74.00	-19.66	peak	
2	*	4924.000	63.95	-11.37	52.58	54.00	-1.42	AVG	
3		7386.000	58.95	-4.72	54.23	74.00	-19.77	peak	
4		7386.000	50.88	-4.72	46.16	54.00	-7.84	AVG	

Test Mode	TX G MODE 2412MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



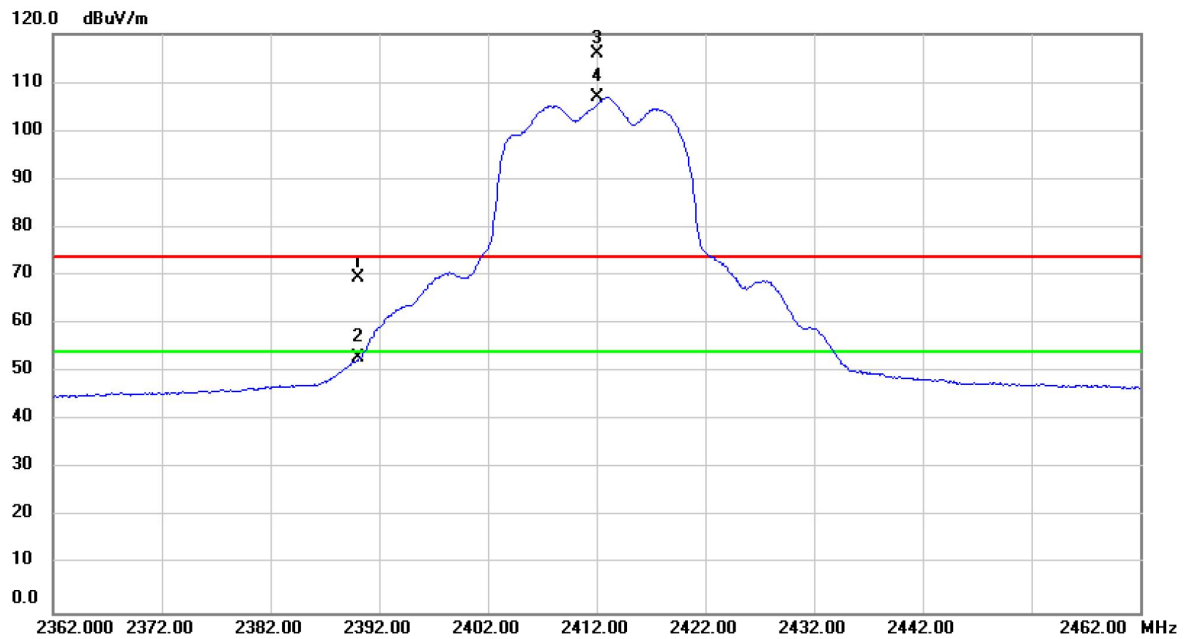
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2389.068	35.73	30.84	66.57	74.00	-7.43	peak	
2		2389.068	18.18	30.84	49.02	54.00	-4.98	AVG	
3	X	2412.000	79.90	30.92	110.82	74.00	36.82	peak	No Limit
4	*	2412.000	70.69	30.92	101.61	54.00	47.61	AVG	No Limit

Test Mode	TX G MODE 2412MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



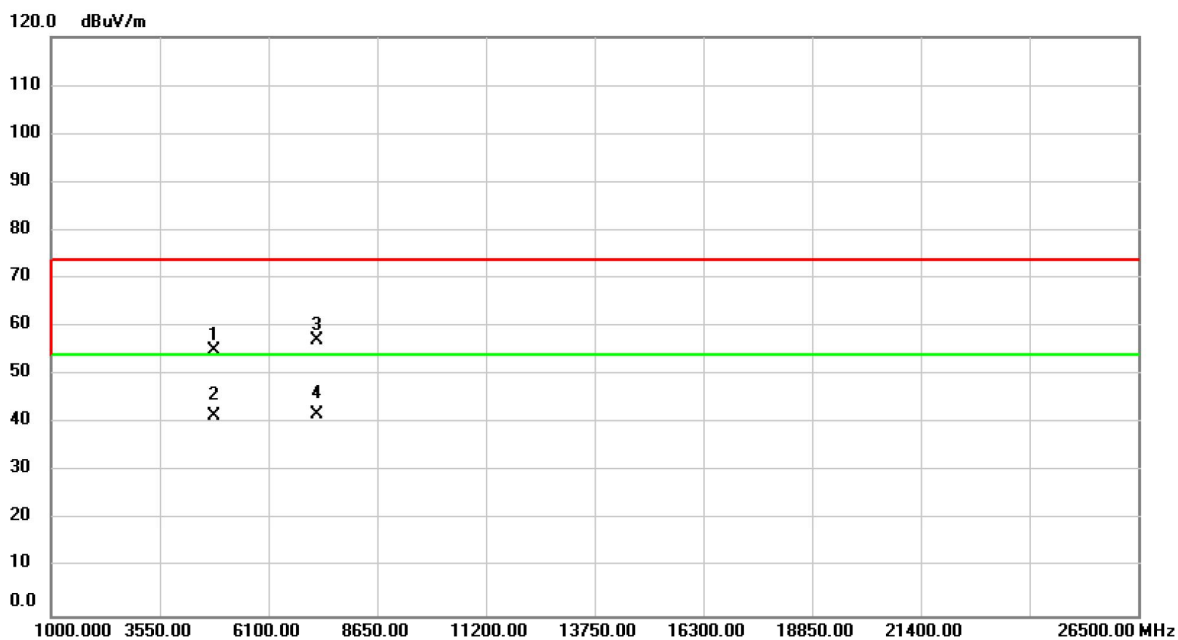
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	64.78	-11.48	53.30	74.00	-20.70	peak	
2	*	4824.000	51.47	-11.48	39.99	54.00	-14.01	AVG	
3		7236.000	59.24	-5.26	53.98	74.00	-20.02	peak	
4		7236.000	44.63	-5.26	39.37	54.00	-14.63	AVG	

Test Mode	TX G MODE 2412MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



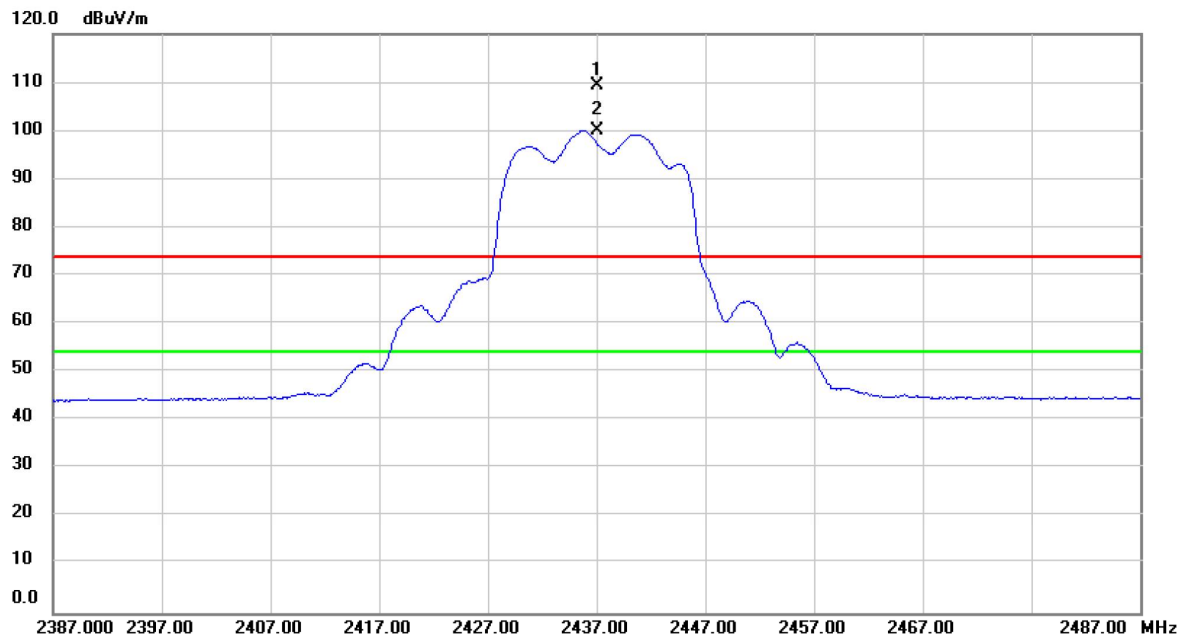
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2390.000	38.64	30.84	69.48	74.00	-4.52	peak	
2		2390.000	22.06	30.84	52.90	54.00	-1.10	AVG	
3	X	2412.000	84.98	30.92	115.90	74.00	41.90	peak	No Limit
4	*	2412.000	76.04	30.92	106.96	54.00	52.96	AVG	No Limit

Test Mode	TX G MODE 2412MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



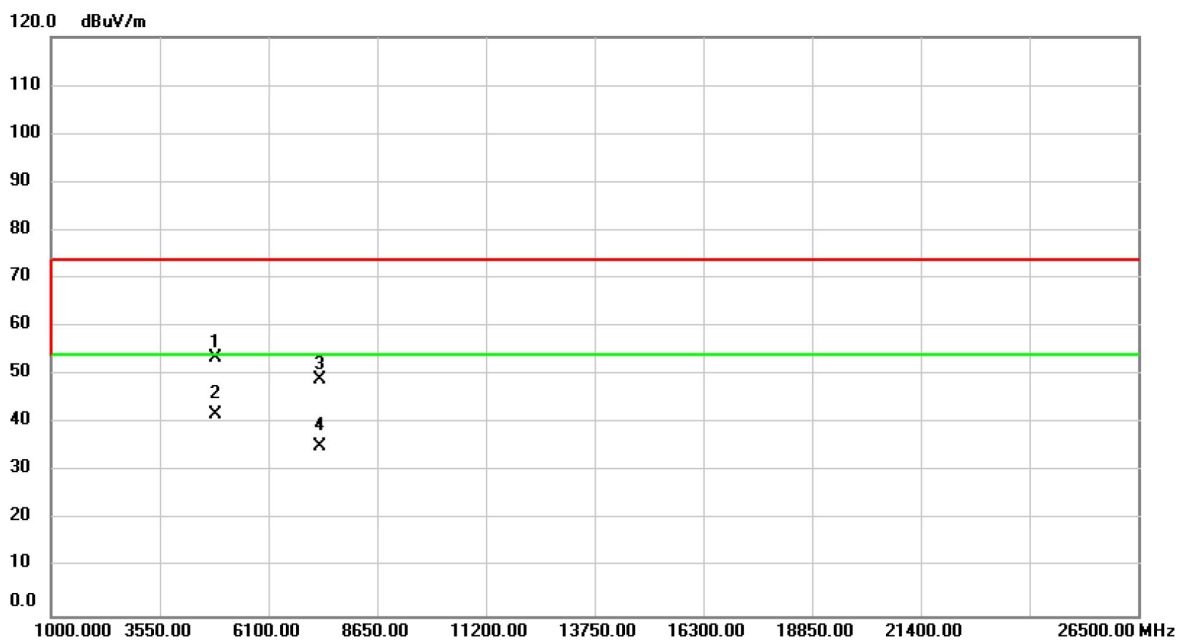
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	66.60	-11.48	55.12	74.00	-18.88	peak	
2		4824.000	52.90	-11.48	41.42	54.00	-12.58	AVG	
3		7236.000	62.53	-5.26	57.27	74.00	-16.73	peak	
4	*	7236.000	47.15	-5.26	41.89	54.00	-12.11	AVG	

Test Mode	TX G MODE 2437MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



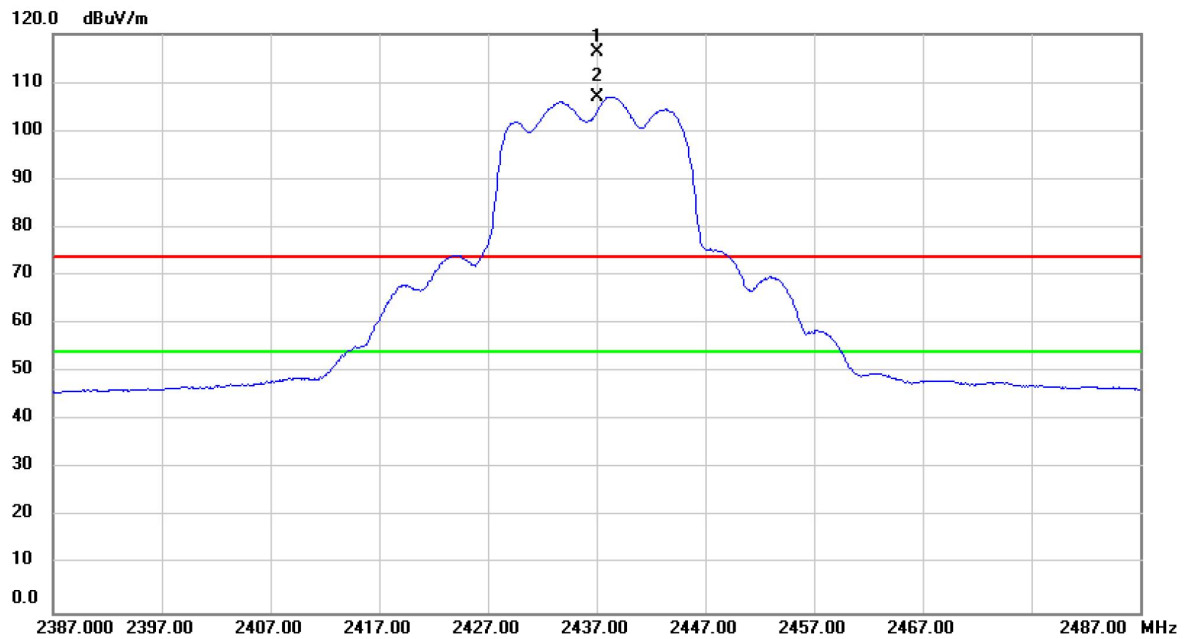
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	78.38	31.01	109.39	74.00	35.39	peak	No Limit
2	*	2437.000	69.07	31.01	100.08	54.00	46.08	AVG	No Limit

Test Mode	TX G MODE 2437MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



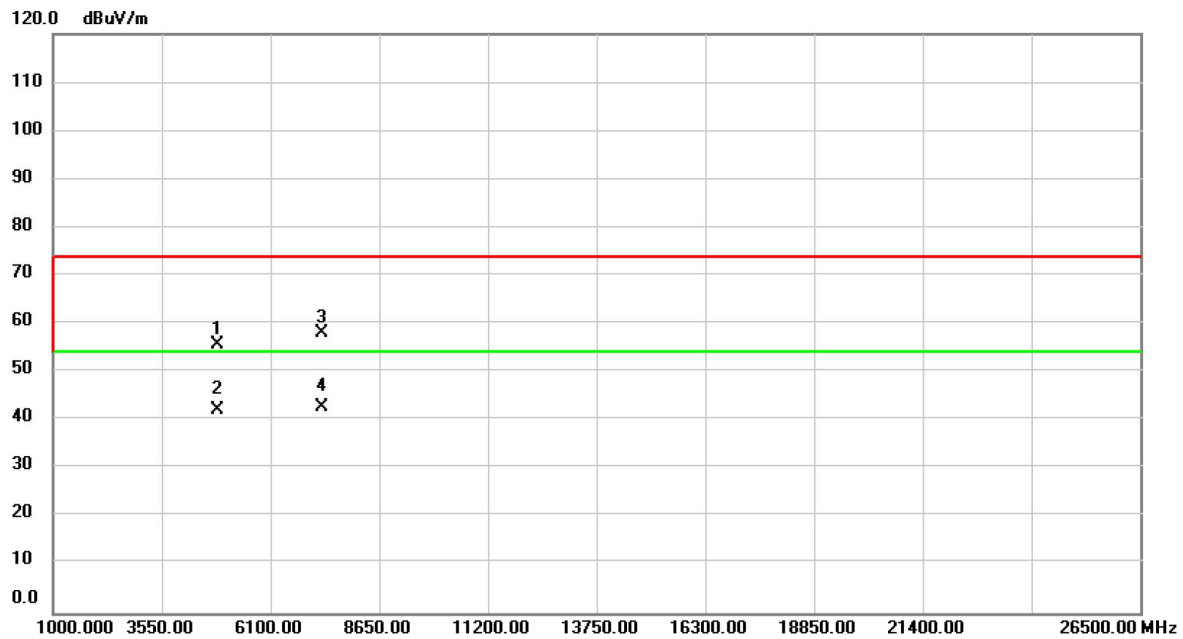
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	64.94	-11.42	53.52	74.00	-20.48	peak	
2	*	4874.000	53.24	-11.42	41.82	54.00	-12.18	AVG	
3		7311.000	54.16	-4.99	49.17	74.00	-24.83	peak	
4		7311.000	40.10	-4.99	35.11	54.00	-18.89	AVG	

Test Mode	TX G MODE 2437MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



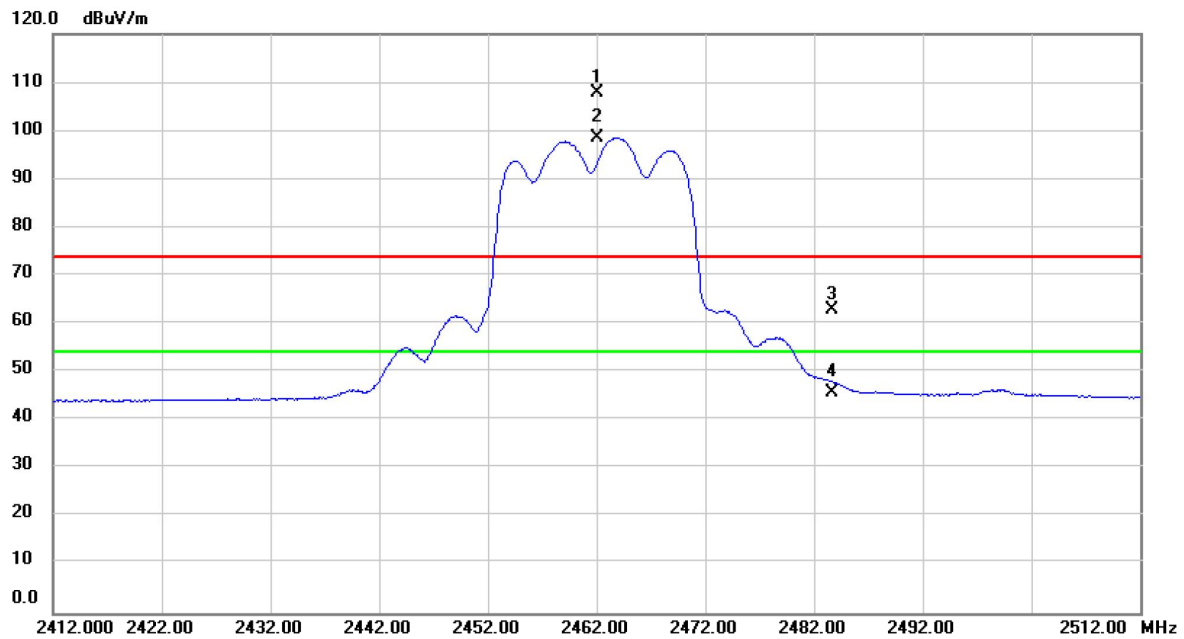
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	85.38	31.01	116.39	74.00	42.39	peak	No Limit
2	*	2437.000	75.97	31.01	106.98	54.00	52.98	AVG	No Limit

Test Mode	TX G MODE 2437MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



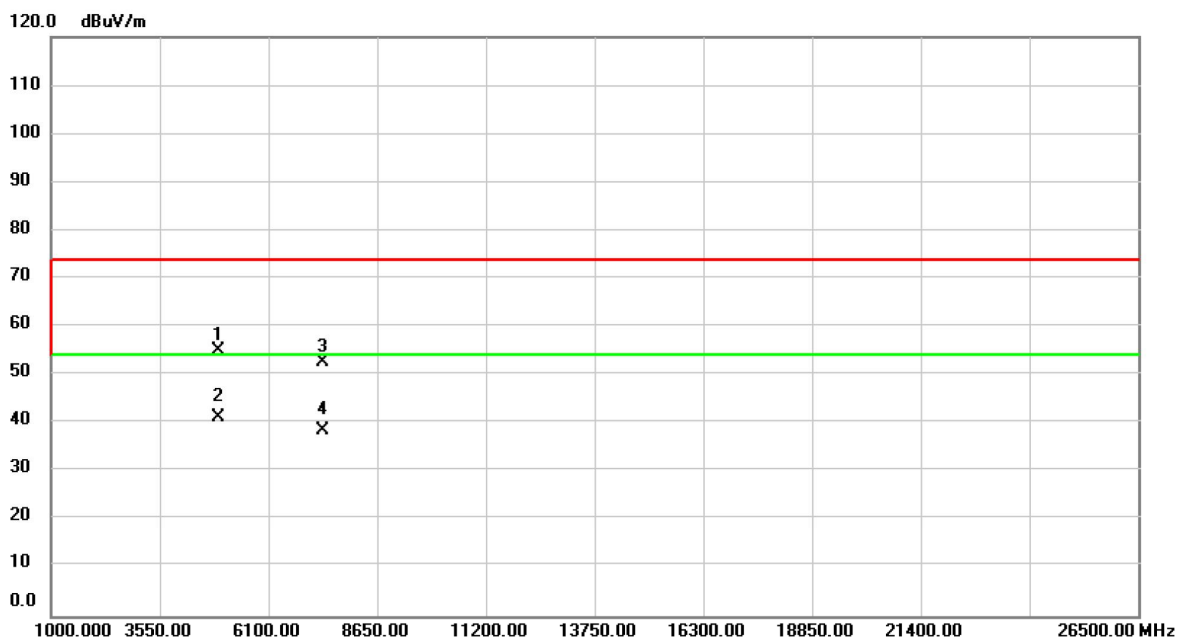
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	67.10	-11.42	55.68	74.00	-18.32	peak	
2		4874.000	53.50	-11.42	42.08	54.00	-11.92	AVG	
3		7311.000	62.94	-4.99	57.95	74.00	-16.05	peak	
4	*	7311.000	47.87	-4.99	42.88	54.00	-11.12	AVG	

Test Mode	TX G MODE 2462MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



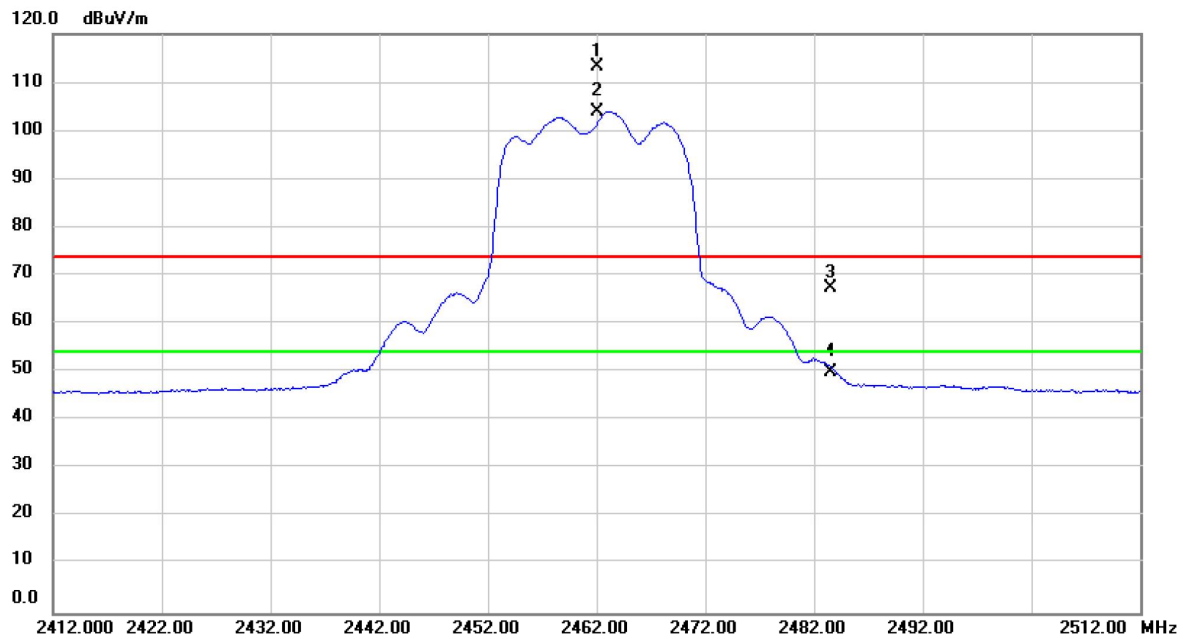
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	76.66	31.09	107.75	74.00	33.75	peak	No Limit
2	*	2462.000	67.43	31.09	98.52	54.00	44.52	AVG	No Limit
3		2483.682	31.75	31.17	62.92	74.00	-11.08	peak	
4		2483.682	14.47	31.17	45.64	54.00	-8.36	AVG	

Test Mode	TX G MODE 2462MHz	Polarization	Vertical
-----------	-------------------	--------------	----------



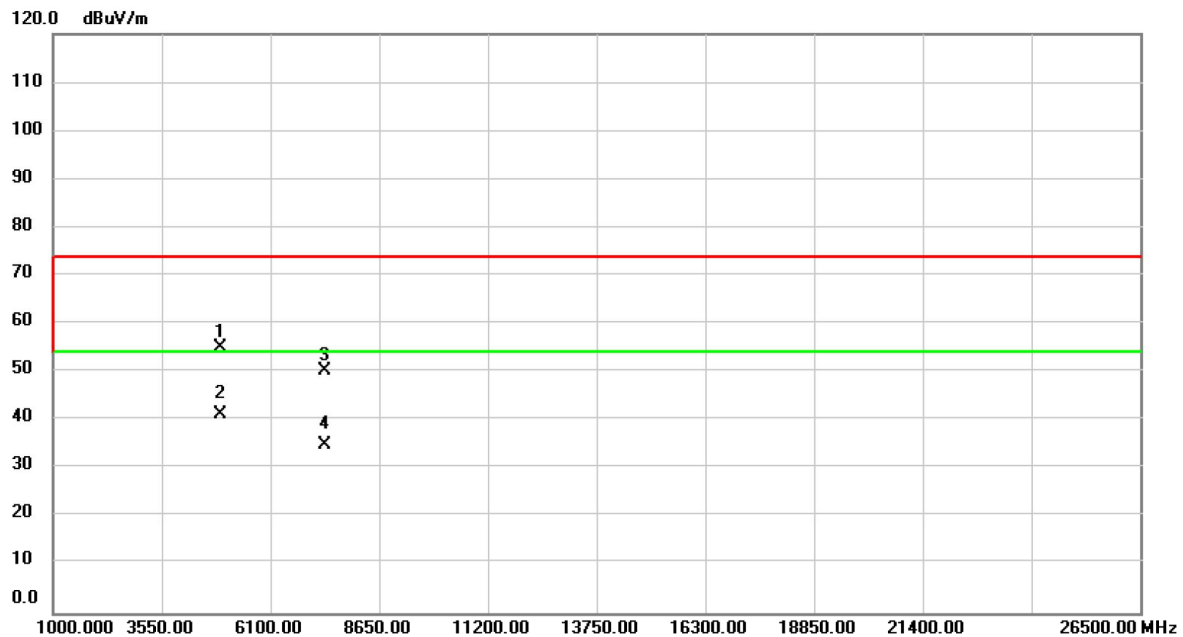
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	66.45	-11.37	55.08	74.00	-18.92	peak	
2	*	4924.000	52.62	-11.37	41.25	54.00	-12.75	AVG	
3		7386.000	57.39	-4.72	52.67	74.00	-21.33	peak	
4		7386.000	43.34	-4.72	38.62	54.00	-15.38	AVG	

Test Mode	TX G MODE 2462MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



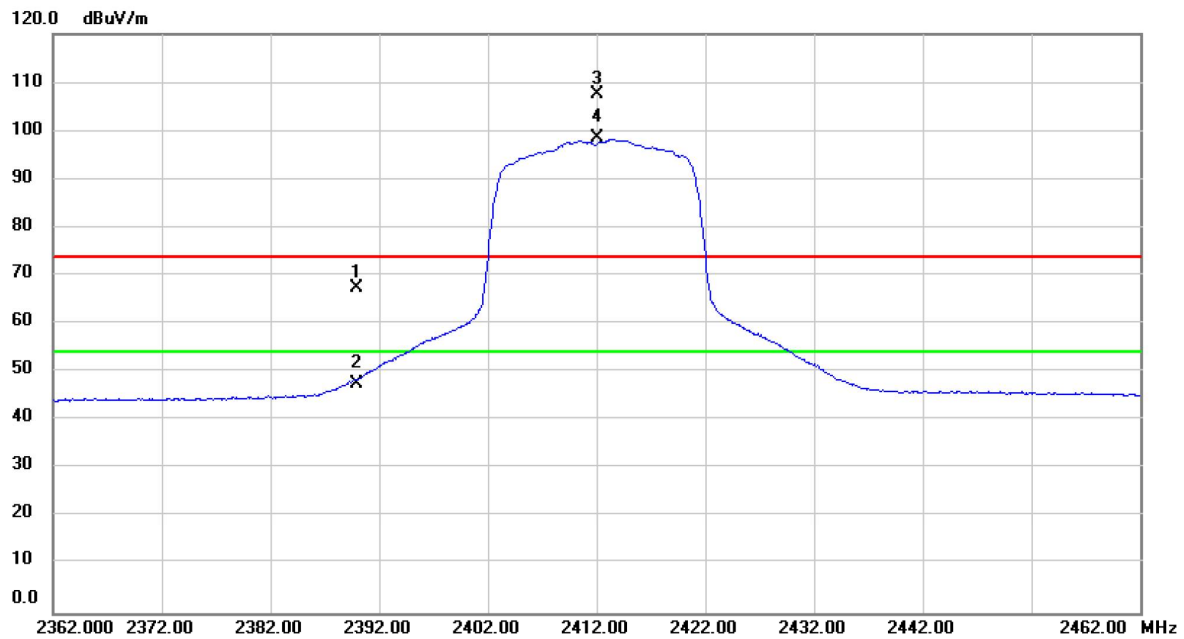
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	82.15	31.09	113.24	74.00	39.24	peak	No Limit
2	*	2462.000	72.92	31.09	104.01	54.00	50.01	AVG	No Limit
3		2483.517	36.03	31.17	67.20	74.00	-6.80	peak	
4		2483.517	18.85	31.17	50.02	54.00	-3.98	AVG	

Test Mode	TX G MODE 2462MHz	Polarization	Horizontal
-----------	-------------------	--------------	------------



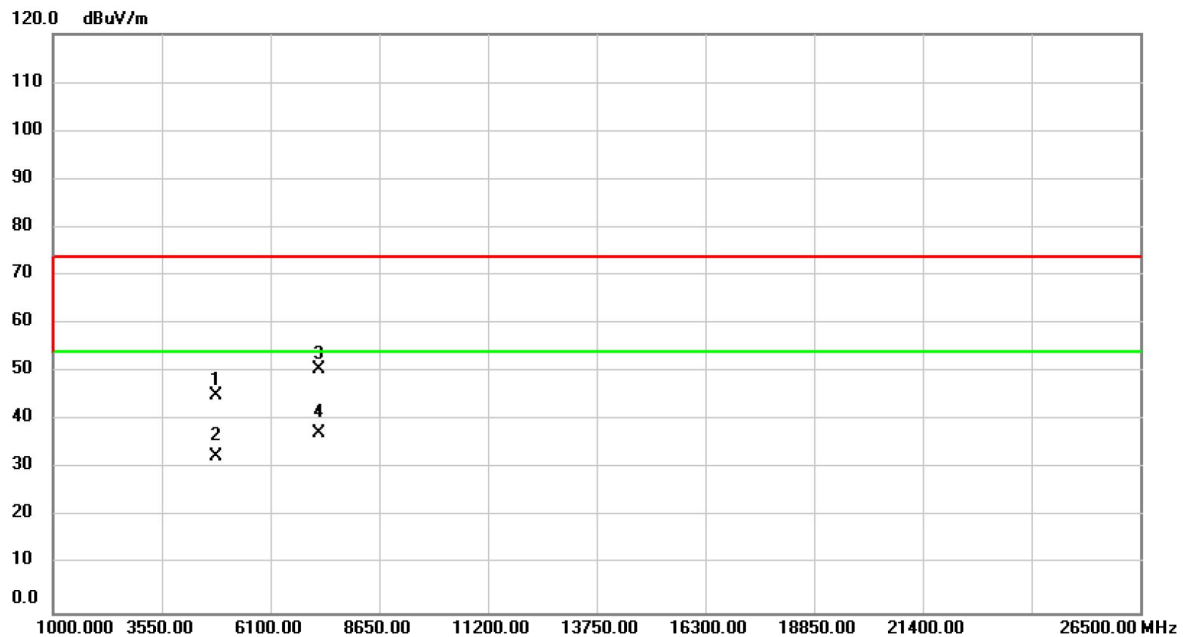
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	66.52	-11.37	55.15	74.00	-18.85	peak	
2	*	4924.000	52.65	-11.37	41.28	54.00	-12.72	AVG	
3		7386.000	55.10	-4.72	50.38	74.00	-23.62	peak	
4		7386.000	39.79	-4.72	35.07	54.00	-18.93	AVG	

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



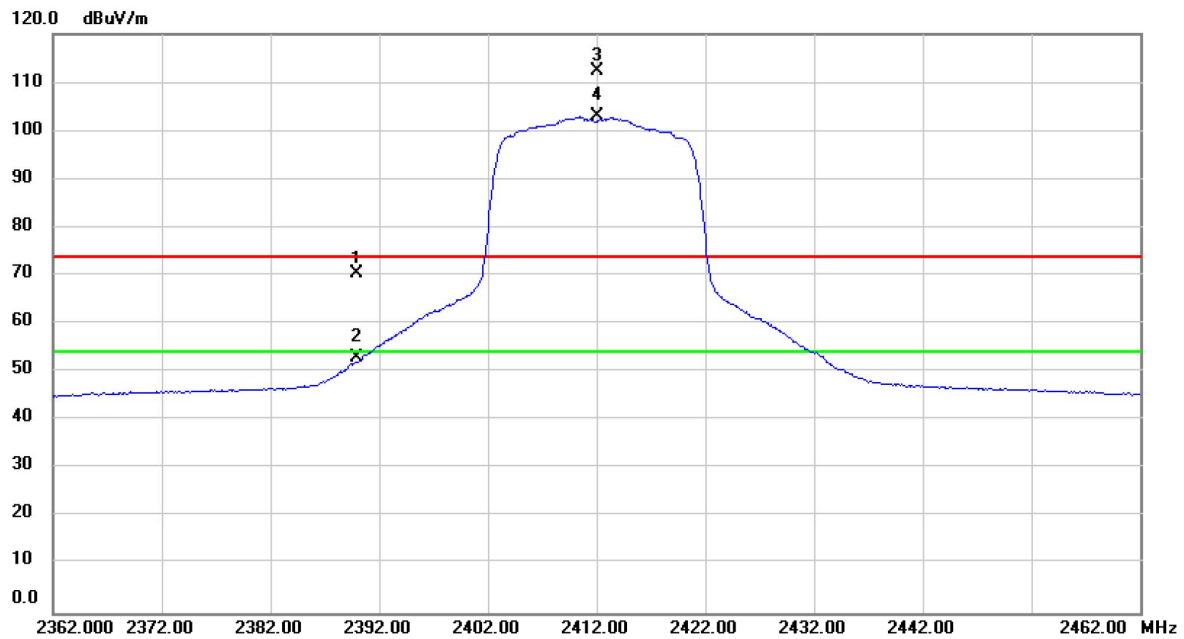
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2389.944	36.58	30.84	67.42	74.00	-6.58	peak	
2		2389.944	16.64	30.84	47.48	54.00	-6.52	AVG	
3	X	2412.000	76.78	30.92	107.70	74.00	33.70	peak	No Limit
4	*	2412.000	67.48	30.92	98.40	54.00	44.40	AVG	No Limit

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



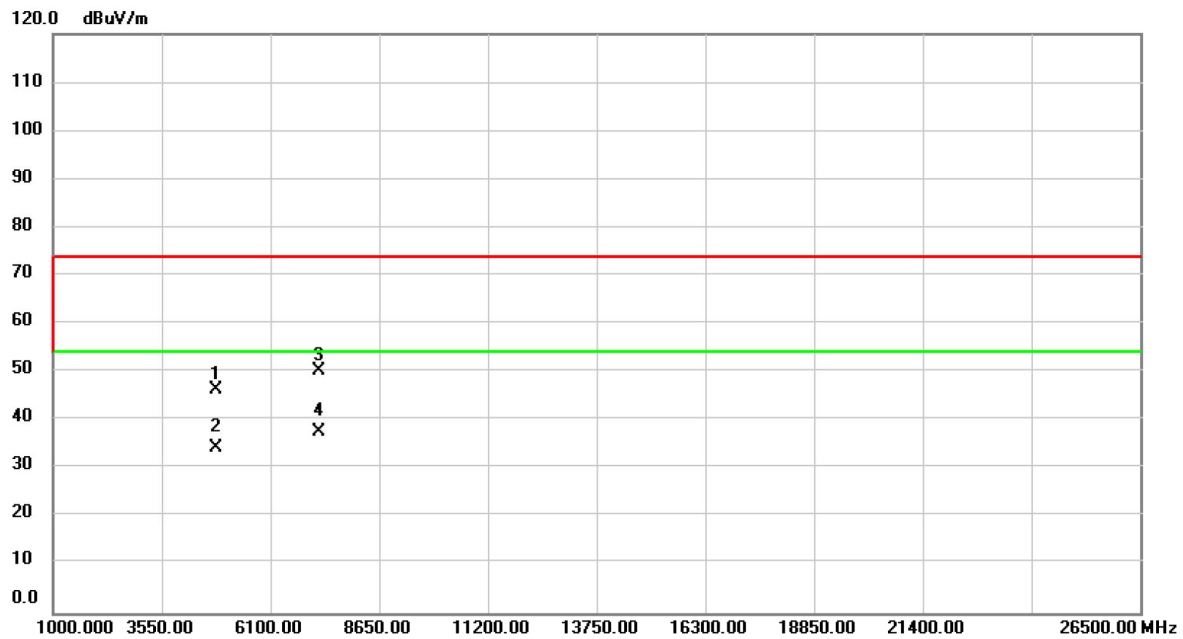
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	56.49	-11.48	45.01	74.00	-28.99	peak	
2		4824.000	44.03	-11.48	32.55	54.00	-21.45	AVG	
3		7236.000	55.80	-5.26	50.54	74.00	-23.46	peak	
4	*	7236.000	42.56	-5.26	37.30	54.00	-16.70	AVG	

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



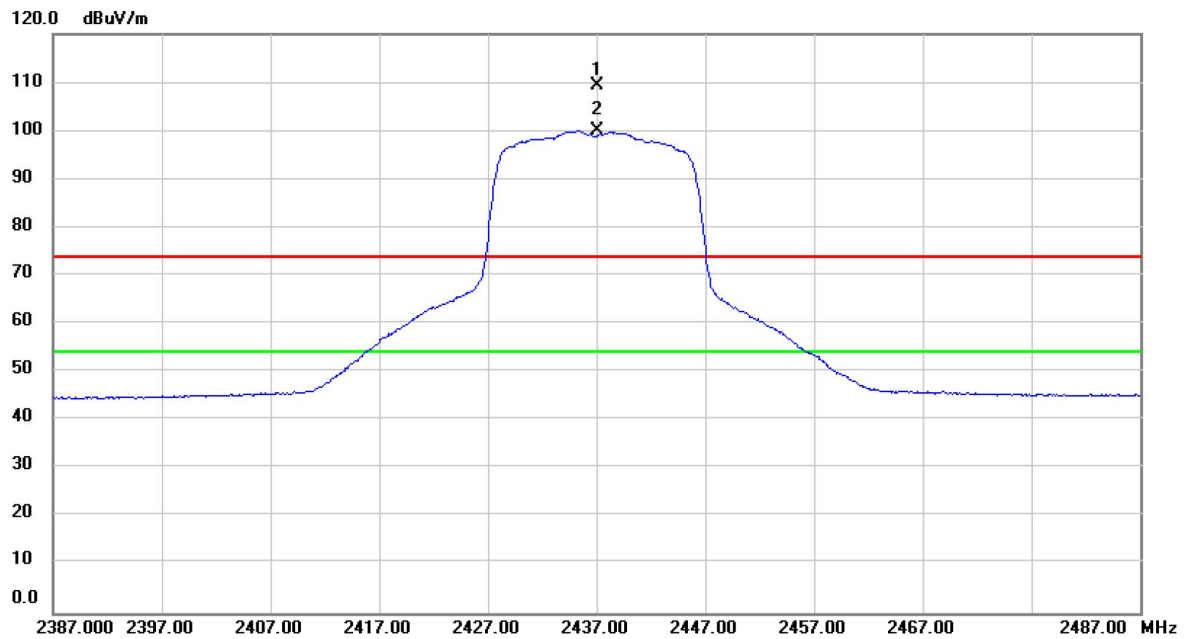
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		2389.972	39.47	30.84	70.31	74.00	-3.69	peak	
2		2389.972	22.07	30.84	52.91	54.00	-1.09	AVG	
3	X	2412.000	81.35	30.92	112.27	74.00	38.27	peak	No Limit
4	*	2412.000	72.01	30.92	102.93	54.00	48.93	AVG	No Limit

Test Mode	TX N (HT20) MODE 2412MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



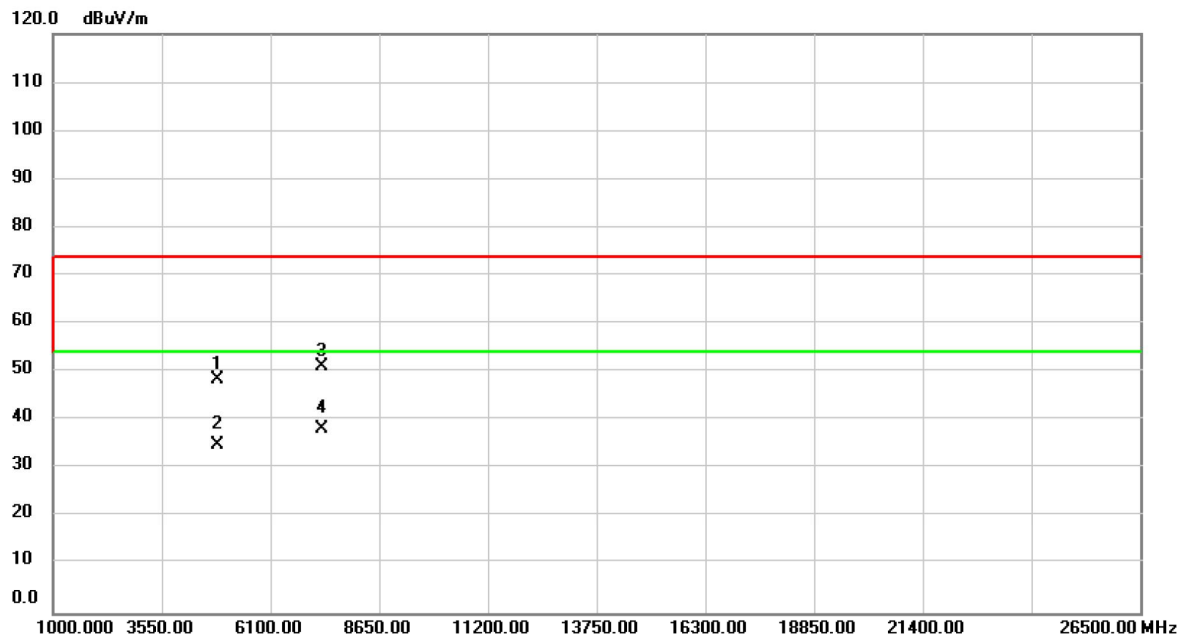
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4824.000	57.84	-11.48	46.36	74.00	-27.64	peak	
2		4824.000	45.69	-11.48	34.21	54.00	-19.79	AVG	
3		7236.000	55.66	-5.26	50.40	74.00	-23.60	peak	
4	*	7236.000	42.90	-5.26	37.64	54.00	-16.36	AVG	

Test Mode	TX N (HT20) MODE 2437MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



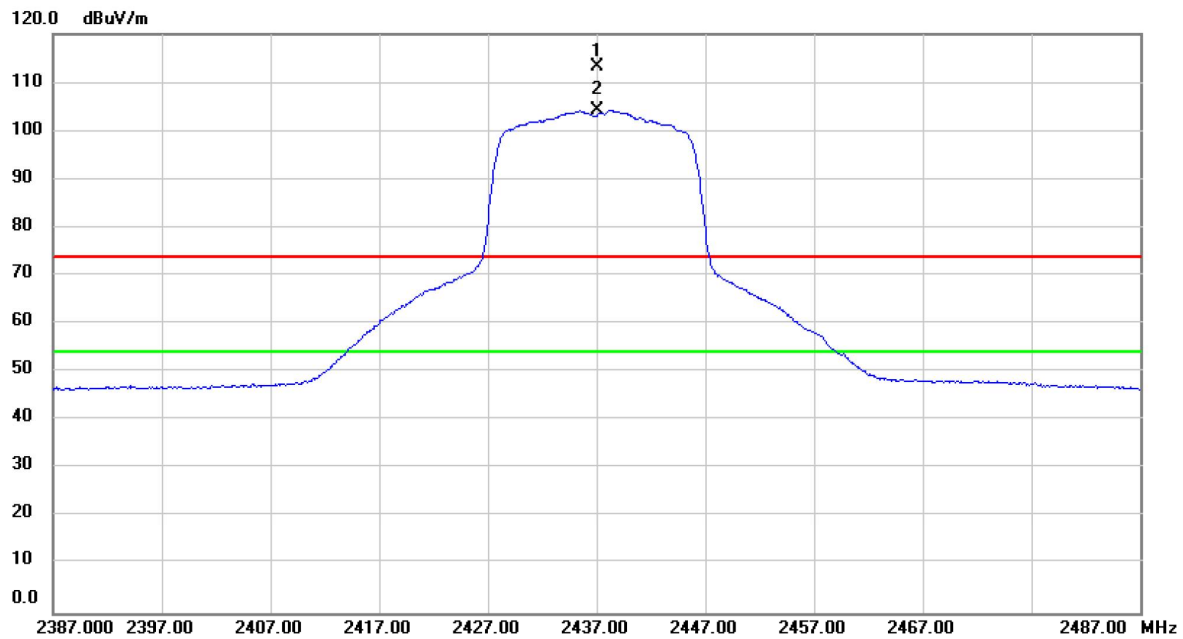
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	78.28	31.01	109.29	74.00	35.29	peak	No Limit
2	*	2437.000	69.00	31.01	100.01	54.00	46.01	AVG	No Limit

Test Mode	TX N (HT20) MODE 2437MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



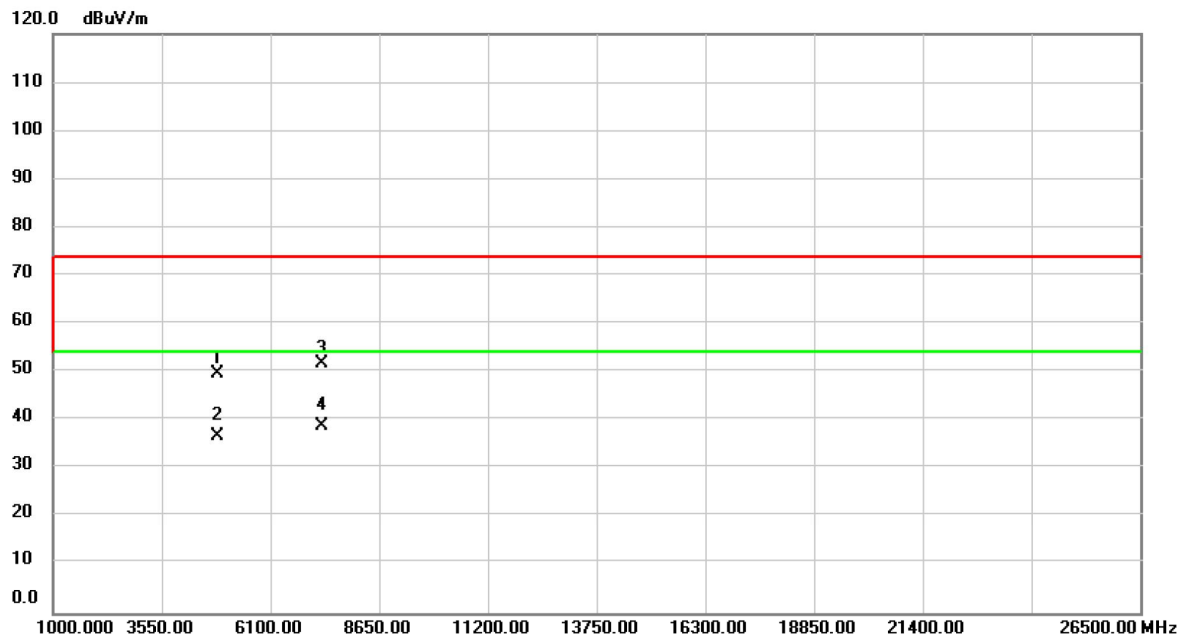
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	60.02	-11.42	48.60	74.00	-25.40	peak	
2		4874.000	46.47	-11.42	35.05	54.00	-18.95	AVG	
3		7311.000	56.20	-4.99	51.21	74.00	-22.79	peak	
4	*	7311.000	43.20	-4.99	38.21	54.00	-15.79	AVG	

Test Mode	TX N (HT20) MODE 2437MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



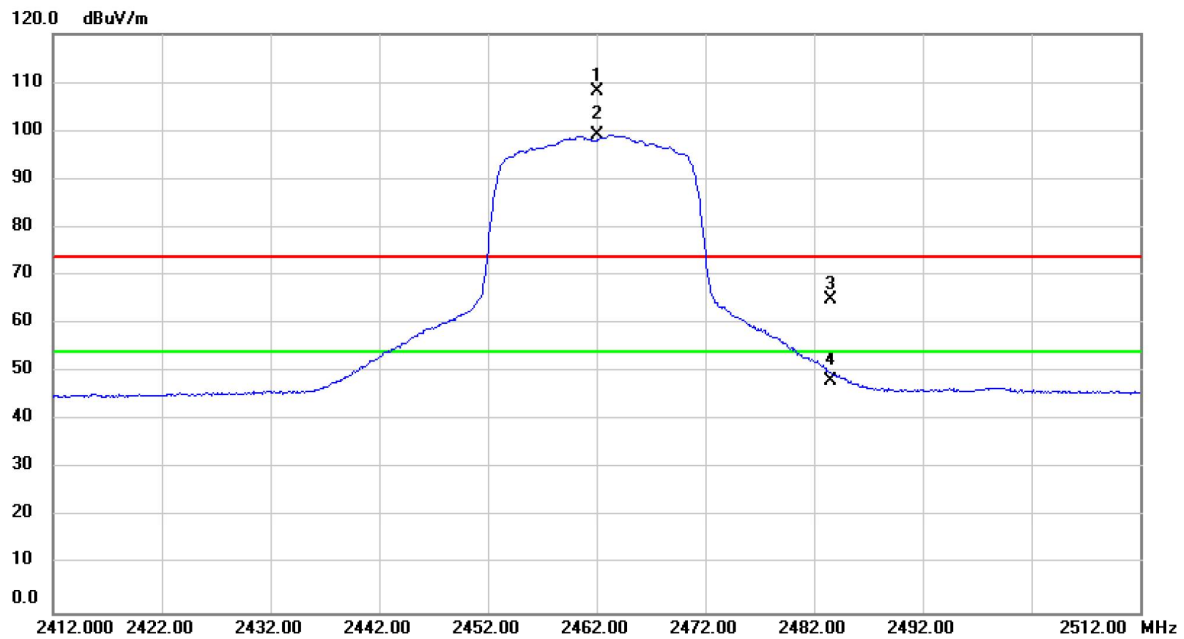
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2437.000	82.24	31.01	113.25	74.00	39.25	peak	No Limit
2	*	2437.000	73.17	31.01	104.18	54.00	50.18	AVG	No Limit

Test Mode	TX N (HT20) MODE 2437MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



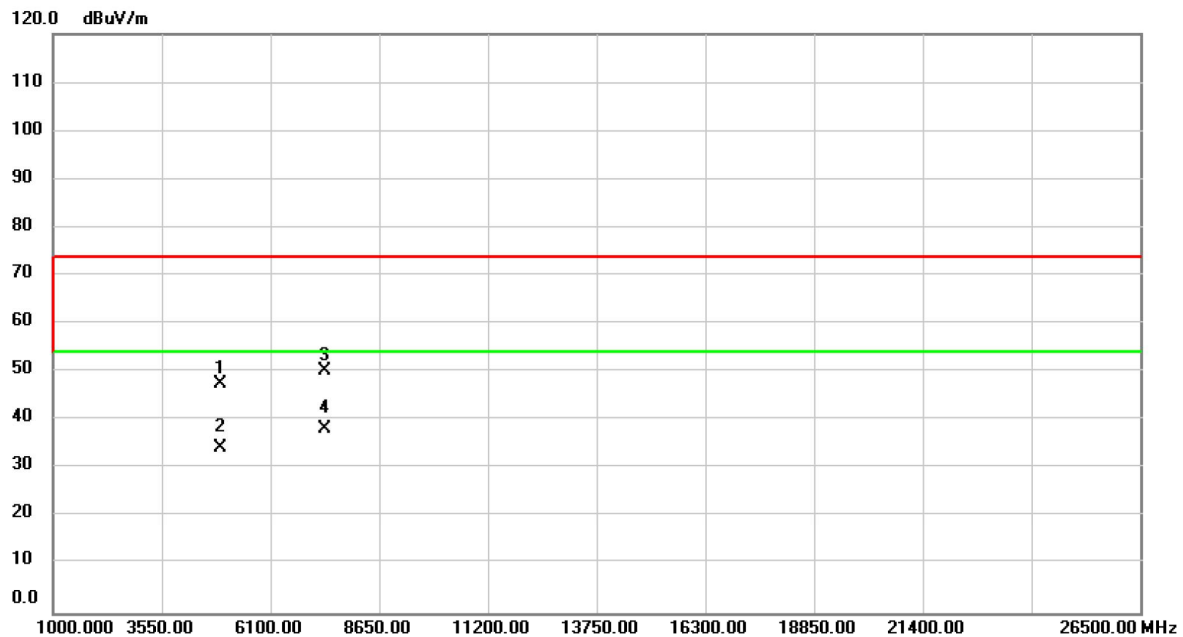
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4874.000	61.16	-11.42	49.74	74.00	-24.26	peak	
2		4874.000	48.20	-11.42	36.78	54.00	-17.22	AVG	
3		7311.000	56.80	-4.99	51.81	74.00	-22.19	peak	
4	*	7311.000	43.92	-4.99	38.93	54.00	-15.07	AVG	

Test Mode	TX N (HT20) MODE 2462MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



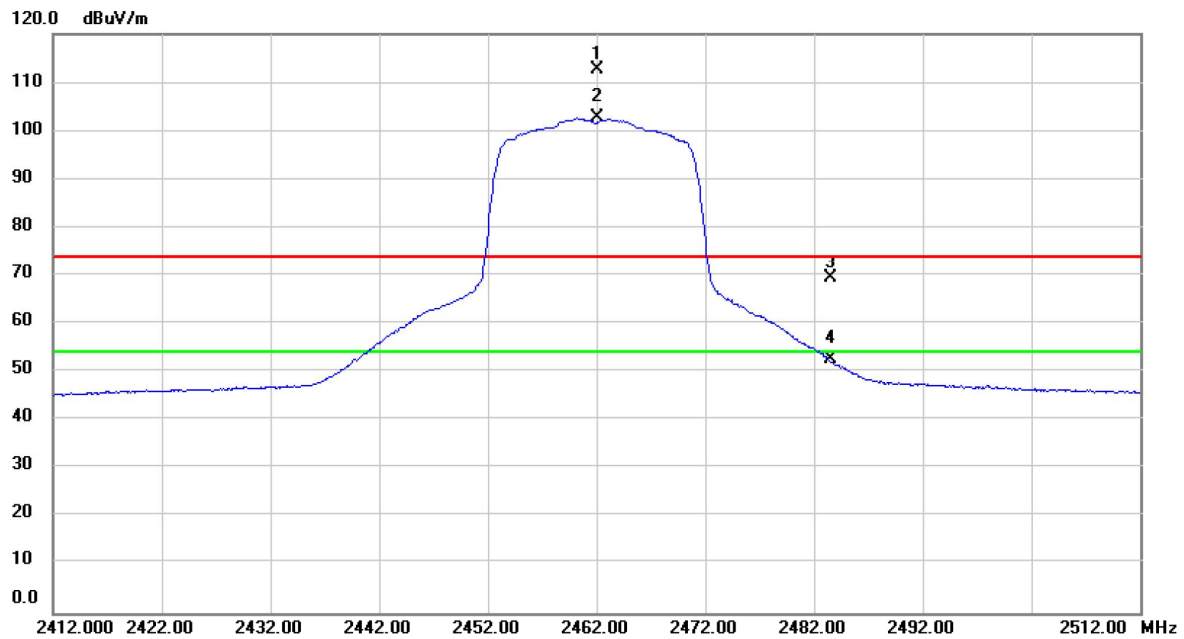
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	77.12	31.09	108.21	74.00	34.21	peak	No Limit
2	*	2462.000	68.16	31.09	99.25	54.00	45.25	AVG	No Limit
3		2483.500	33.83	31.17	65.00	74.00	-9.00	peak	
4		2483.500	16.91	31.17	48.08	54.00	-5.92	AVG	

Test Mode	TX N (HT20) MODE 2462MHz	Polarization	Vertical
-----------	--------------------------	--------------	----------



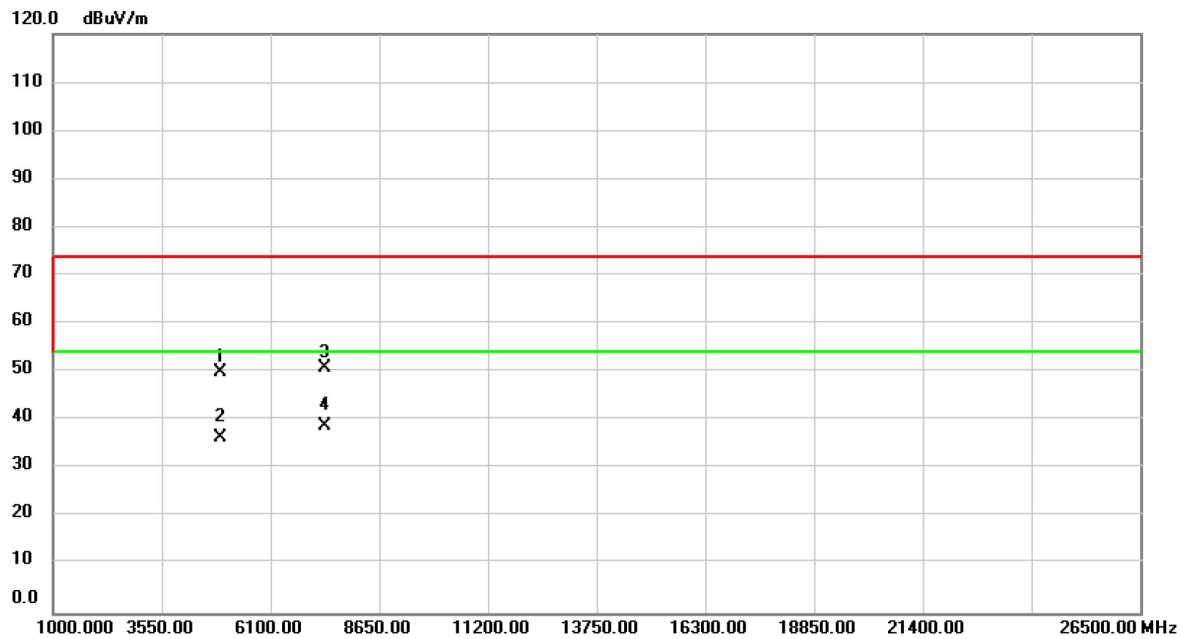
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	58.95	-11.37	47.58	74.00	-26.42	peak	
2		4924.000	45.86	-11.37	34.49	54.00	-19.51	AVG	
3		7386.000	54.96	-4.72	50.24	74.00	-23.76	peak	
4	*	7386.000	43.09	-4.72	38.37	54.00	-15.63	AVG	

Test Mode	TX N (HT20) MODE 2462MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1	X	2462.000	81.52	31.09	112.61	74.00	38.61	peak	No Limit
2	*	2462.000	71.68	31.09	102.77	54.00	48.77	AVG	No Limit
3		2483.500	38.26	31.17	69.43	74.00	-4.57	peak	
4		2483.500	21.56	31.17	52.73	54.00	-1.27	AVG	

Test Mode	TX N (HT20) MODE 2462MHz	Polarization	Horizontal
-----------	--------------------------	--------------	------------



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector	Comment
1		4924.000	61.18	-11.37	49.81	74.00	-24.19	peak	
2		4924.000	47.95	-11.37	36.58	54.00	-17.42	AVG	
3		7386.000	55.46	-4.72	50.74	74.00	-23.26	peak	
4	*	7386.000	43.71	-4.72	38.99	54.00	-15.01	AVG	