FCC&IC Radio Test Report

FCC ID: 2AANU-HTL3150BV37

IC: 11260A-HTL3150BV37

This report concerns (check one): ☒Original Grant ☐Class II Change

Project No.	:	1507C373
Equipment	:	SoundBar Speaker
Model Name	:	HTL3150B/37
Applicant	:	GIBSON Innovations Ltd
Address	:	5/F., Philips Electronics Building,5 Science Park East Avenue, Hong Kong Science Park,Shatin, New Territories, Hong Kong

Date of Receipt	:	Jul. 31, 2015
Date of Test	:	Jul. 31, 2015 ~ Aug. 12, 2015
Issued Date	:	Aug. 14, 2015
Tested by	:	BTL Inc.

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

Authorized Signatory : Steven Lu
(Steven Lu)

BTL INC.

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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 the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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.

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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.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FICP-2-1507C373	Original Issue.	Aug. 14, 2015

1. CERTIFICATION

Equipment	:	SoundBar Speaker
Brand Name	:	PHILIPS
Model Name	:	HTL3150B/37
Applicant	:	GIBSON Innovations Ltd
Manufacturer	:	GIBSON Innovations Ltd
Address	:	5/F., Philips Electronics Building,5 Science Park East Avenue, Hong Kong Science Park,Shatin, New Territories, Hong Kong
Date of Test	:	Jul. 31, 2015 ~ Aug. 12, 2015
Test Sample	:	Engineering Sample
Standard(s)	:	FCC Part15, Subpart C :2014 (15.249)/ ANSI C63.4-2013 Canada RSS-210 Issue 8 Dec 2010 RSS-GEN Issue 4, Nov 2014

The above equipment has been tested and found 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-FICP-2-1507C373) 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).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.249) Canada RSS-210 Issue 8 Dec 2010, RSS-GEN Issue 4, Nov 2014				
StandardSection		Test Item	Judgment	Remark
FCC	IC			
15.207(a)	RSS-GEN 8.8	Conducted Emission	PASS	
15.205	RSS-210 Annex 8 (A2.9)	Restricted Band of Operation	PASS	
15.209 15.249(a)	RSS-210 Annex 8 (A8.1(a))	Radiated Emissions	PASS	
15.215(c)	RSS-GEN 8.8	20dB Bandwidth Test	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 is at the location of No.3,Jinshagang 1st Road, Shixia,Dalang Town, Dongguan, Guangdong, China.
BTL's test firm number for FCC: 319330
BTL's test firm number for IC 4428B-1

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 ± U, where expanded uncertainty U is based on astandard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U,(dB)	Note
DG-C02	CISPR	150 KHz~30MHz	2.32	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	Note
DG-CB03	CISPR	9KHz~30MHz	V	3.79	
		9KHz~30MHz	H	3.57	
		30MHz~200MHz	V	3.82	
		30MHz~200MHz	H	3.78	
		200MHz~ 1,000MHz	V	4.10	
		200MHz~ 1,000MHz	H	4.06	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	

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

3.GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	SoundBar Speaker	
Brand Name	PHILIPS	
Model Name	HTL3150B/37	
Model Difference	N/A	
Product Description	Operation Frequency	2405.35~2477.35 MHz
	Modulation Technology	Pi/4-DQPSK
	Bit Rate of Transmitter	2Mbps
	Output Power Max.	90.25 dBuV/m(Peak Max) 85.88 dBuV/m (AVG Max)
PowerSource	DC voltage supplied from AC/DC adapter. Brand/ Model: PHILIPS / NU040A320125	
Power Rating	I/P:100-240V~50/60Hz 1.5A max O/P:DC 32V 1.25A	
RF Module Model	AVMD6100-SWA15	

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)	Channel	Frequency (MHz)
02	**2405.35**	12	2425.35	22	2445.35	32	2465.35
03	2407.35	13	2427.35	23	2447.35	33	2467.35
04	2409.35	14	2429.35	24	2449.35	34	2469.35
05	2411.35	15	2431.35	25	2451.35	35	2471.35
06	2413.35	16	2433.35	26	2453.35	36	2473.35
07	2415.35	17	2435.35	27	2455.35	37	2475.35
08	2417.35	18	2437.35	28	2457.35	**38**	**2477.35**
09	2419.35	19	2439.35	29	2459.35		
10	2421.35	20	2441.35	30	2461.35		
11	2423.35	21	2443.35	31	2463.35		

3. Table for Filed Antenna:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	Note
0	N/A	N/A	Printed	N/A	3.90	TX&RX
1	N/A	N/A	Printed	N/A	3.90	TX&RX

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

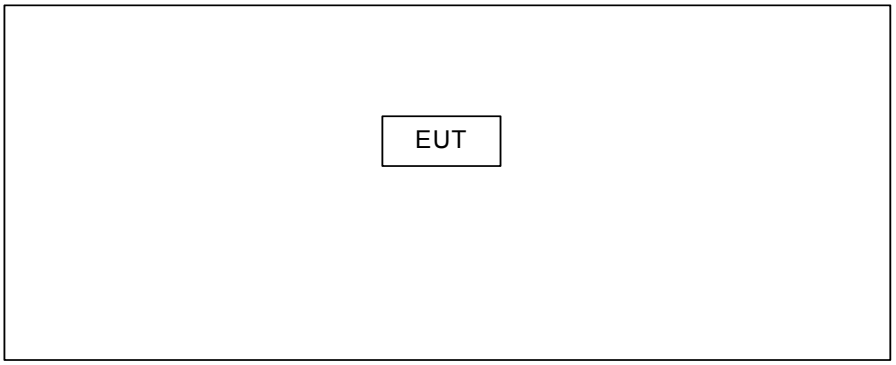
Pretest Mode	Description
Mode 1	TX Mode (Note (1))

For Conducted Test	
Final Test Mode	Description
Mode 1	TX Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	TX Mode (Note (1))

Note:
(1) The measurements are performed at the high, middle, low available channels.

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
-	-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

4.EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-p ak	Average
0.15 -0 5	66 to 56*	56 to 46*
0.50 -5.0	56	46
.0 -30.0	60	50

Note:

(1) The limit of " * " decreases with the logarithm of the frequency

(2) 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 Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.1.2 TESTPROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipmentspowered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

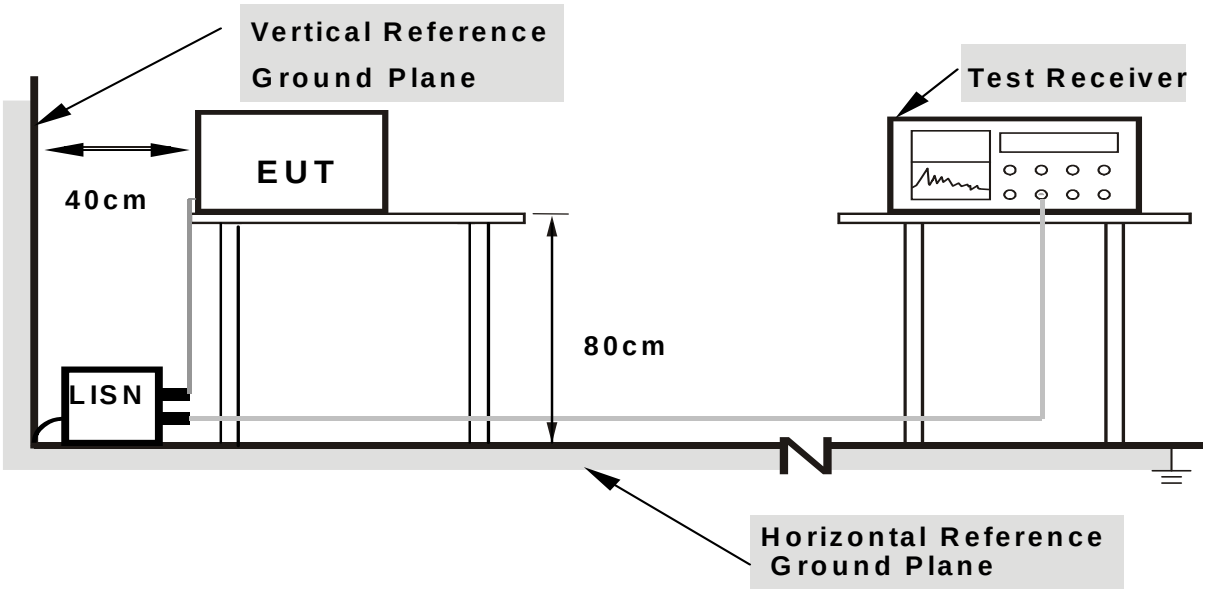
d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATIONFROMTESTSTANDARD

No deviation

4.1.4 TESTSETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it).The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.
The EUT was programmed to be in continuously transmitting mode.

4.1.6 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

4.1.7 TEST RESULTS

Please refer to the Attachment A.

Remark:

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits,the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "*" marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150KHz to 30MHz.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9KHz -1000MHz)

20dB in any 100 KHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a) & RSS-247 5.5, then the 15.209(a) & RSS-Gen limit in the table below has to be followed.

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

Note:

(1) The tighter limit applies at the band edges.

(2) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	(dBuV/m) (at 3m)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(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

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC Part 15.249)

FCC Part15 (15.249) , Subpart C	
Limit	Frequency Range(MHz)
Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400-2483.5
Field strength of harmonics 500 μV/m (54 dBμV/m) @ 3 m	Above 2483.5

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic

Receiver 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

4.2.2 TEST PROCEDURE

a. The measuring distance of at 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 at 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 1.5m, 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. The initial step in collecting conducted 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.

e. 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)

f. 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)

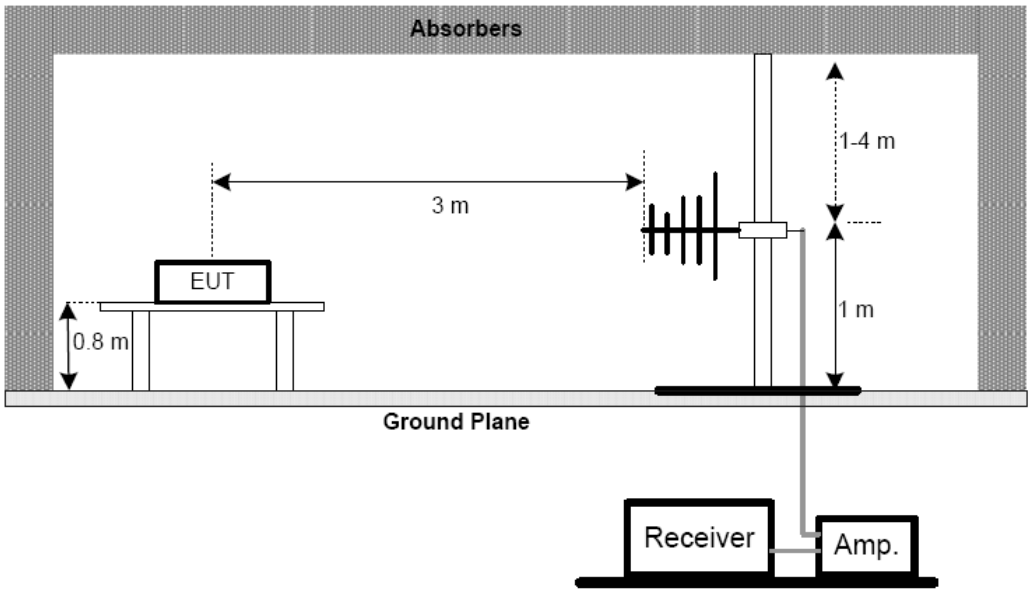
g. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.3DEVIATION FROM TEST STANDARD

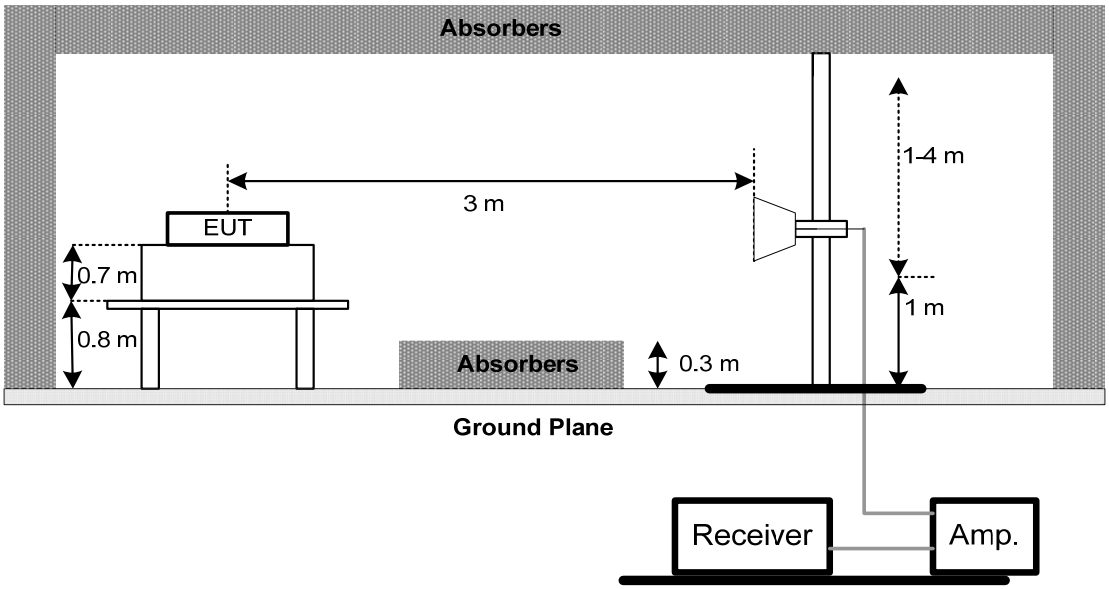
No deviation

4.2.4 TEST SETUP

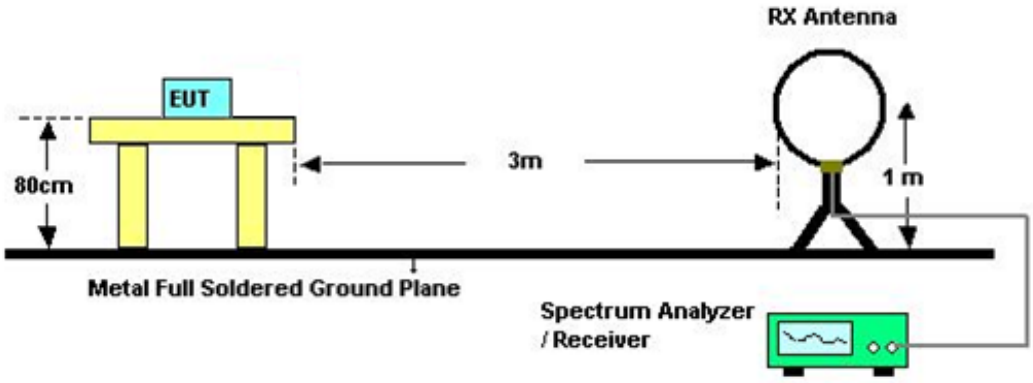
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.6 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

4.2.7 TEST RESULTS (BELOW 30MHz)

Please refer to the Attachment B.

Remark:

(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 (specific distance / test distance) (dB);.
(3) Limit line = specific limits (dBuV) + distance extrapolation factor..

4.2.8 TEST RESULTS (30 to 1000 MHz)

Please refer to the Attachment C

Remark:

(1) 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.
(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission .

4.2.9 TEST RESULTS(ABOVE1000 MHz)

Please refer to the Attachment D

Remark:

(1) 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.

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(3) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(4) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(5) EUT Orthogonal Axis:
"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand

(6) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

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

5. BANDWIDTH TEST

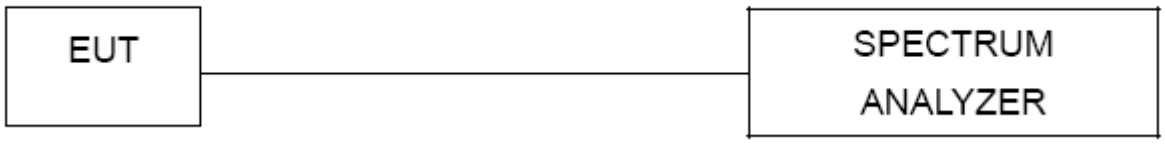
5.1 TEST PROCEDURE

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

5.2 DEVIATION FROM STANDARD

No deviation.

5.3 TEST SETUP



5.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.5 EUT TEST CONDITIONS

Temperature: 25°C
Relative Humidity: 55%
Test Voltage: AC 120V/60Hz

5.6 TEST RESULTS

Please refer to the Attachment E

6. MEASUREMENT INSTRUMENTS LIST AND SETTING

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	Mar. 28, 2016
2	LISN	R&S	ENV216	101447	Mar. 28, 2016
3	Test Cable	emci	RG223(9KHz-30MHz)	C_17	Mar. 13, 2016
4	EMI TEST RECEIVER	R&S	ESCS30	833364/017	Mar. 28, 2016
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Mar. 28, 2016
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Mar. 28, 2016
2	Amplifier	HP	8447D	2944A09673	Nov. 17, 2015
3	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
4	Test Cable	emci	LMR-400(30MHz-1GHz)	C-01	Jul. 01, 2016
5	Controller	CT	SC100	N/A	N/A
6	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
7	Antenna	ETS	3115	00075789	Mar. 28, 2016
8	Amplifier	Agilent	8449B	3008A02274	Nov. 02, 2015
9	Receiver	AGILENT	N9038A	MY52130039	Sep. 30, 2015
10	Test Cable	emci	EMC104-SM-SM-10000(1GHz－26.5GHz)	C-68	Jul. 01, 2016
11	Controller	CT	SC100	N/A	N/A
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Mar. 28, 2016
13	Microwave Preamplifier With Adaptor	EMC INSTRUMENT	EMC2654045	980039 & HA01	Mar. 28, 2016
14	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Aug. 16, 2015

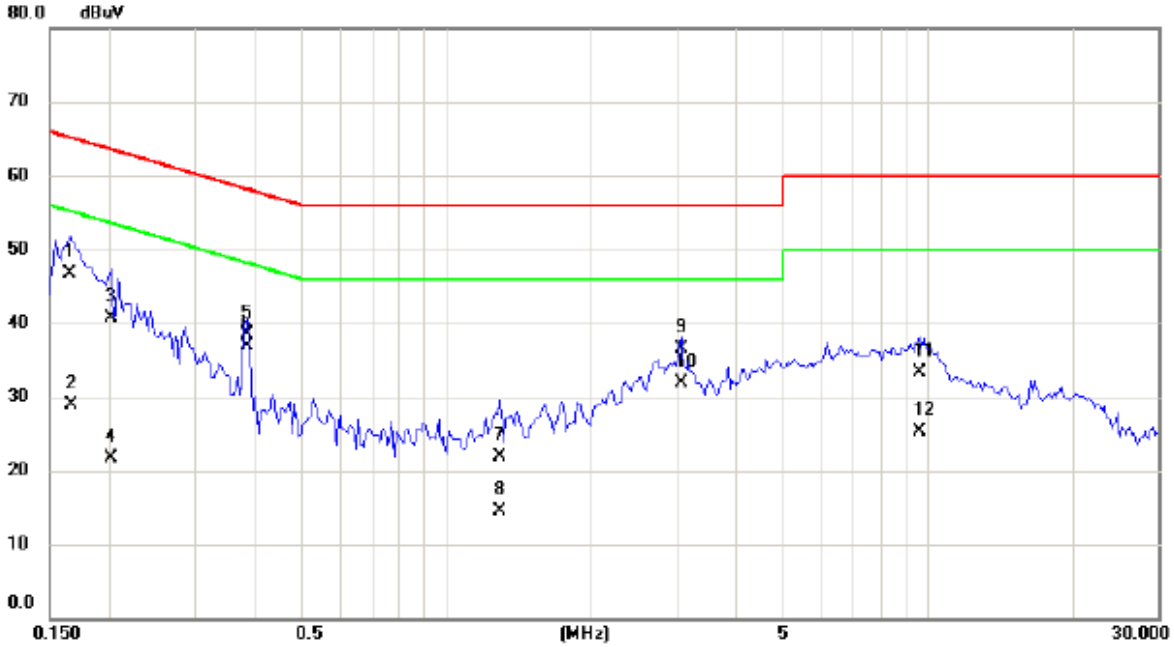
Bandwidth					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 02, 2015

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

ATTACHMENT A - CONDUCTED EMISSION

Test Mode:	TX Mode

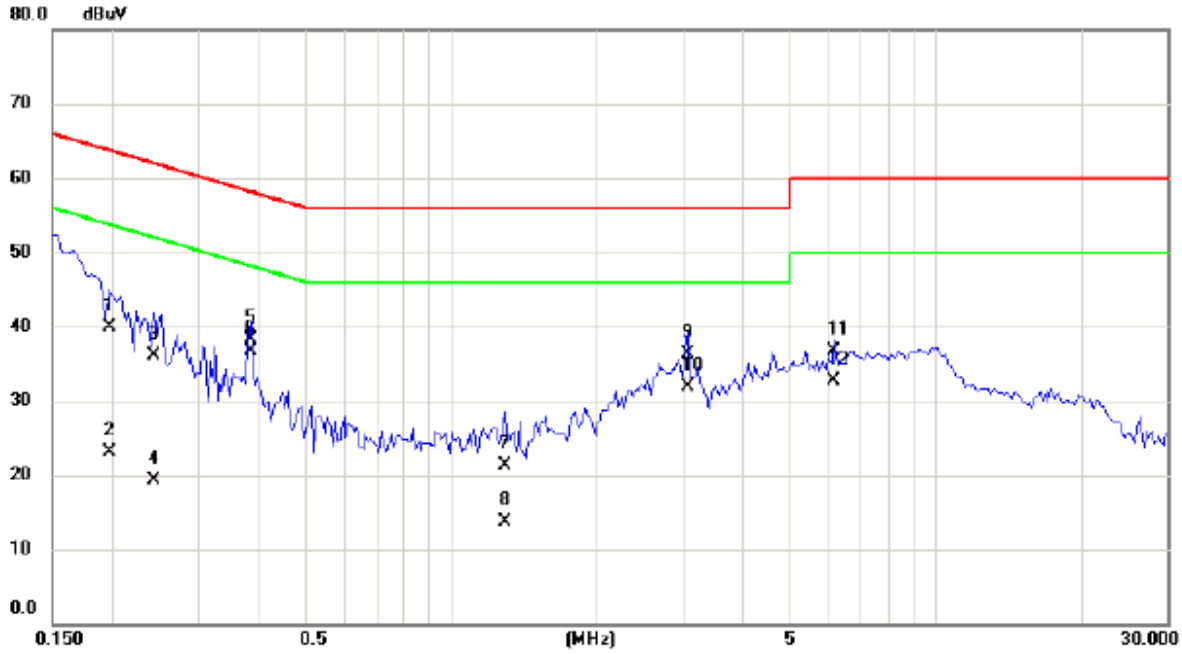
Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1655	37.20	9.48	46.68	65.18	-18.50	QP	
2		0.1660	19.40	9.48	28.88	55.16	-26.28	AVG	
3		0.2008	31.20	9.50	40.70	63.58	-22.88	QP	
4		0.2008	12.30	9.50	21.80	53.58	-31.78	AVG	
5		0.3844	29.00	9.53	38.53	58.18	-19.65	QP	
6	*	0.3844	27.40	9.53	36.93	48.18	-11.25	AVG	
7		1.2867	12.20	9.64	21.84	56.00	-34.16	QP	
8		1.2867	4.80	9.64	14.44	46.00	-31.56	AVG	
9		3.0703	26.70	9.82	36.52	56.00	-19.48	QP	
10		3.0703	22.10	9.82	31.92	46.00	-14.08	AVG	
11		9.5820	23.40	9.85	33.25	60.00	-26.75	QP	
12		9.5820	15.40	9.85	25.25	50.00	-24.75	AVG	

Test Mode:	TX Mode

Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1970	30.40	9.50	39.90	63.74	-23.84	QP	
2		0.1970	13.60	9.50	23.10	53.74	-30.64	AVG	
3		0.2437	26.60	9.51	36.11	61.97	-25.86	QP	
4		0.2437	9.70	9.51	19.21	51.97	-32.76	AVG	
5		0.3844	28.80	9.53	38.33	58.18	-19.85	QP	
6	*	0.3844	27.10	9.53	36.63	48.18	-11.55	AVG	
7		1.2906	11.70	9.64	21.34	56.00	-34.66	QP	
8		1.2906	4.10	9.64	13.74	46.00	-32.26	AVG	
9		3.0703	26.40	9.82	36.22	56.00	-19.78	QP	
10		3.0703	22.00	9.82	31.82	46.00	-14.18	AVG	
11		6.1445	26.80	9.87	36.67	60.00	-23.33	QP	
12		6.1445	22.90	9.87	32.77	50.00	-17.23	AVG	

ATTACHMENT B -RADIATED EMISSION (9KHZ to 30MHZ)

Test Mode:	TX Mode

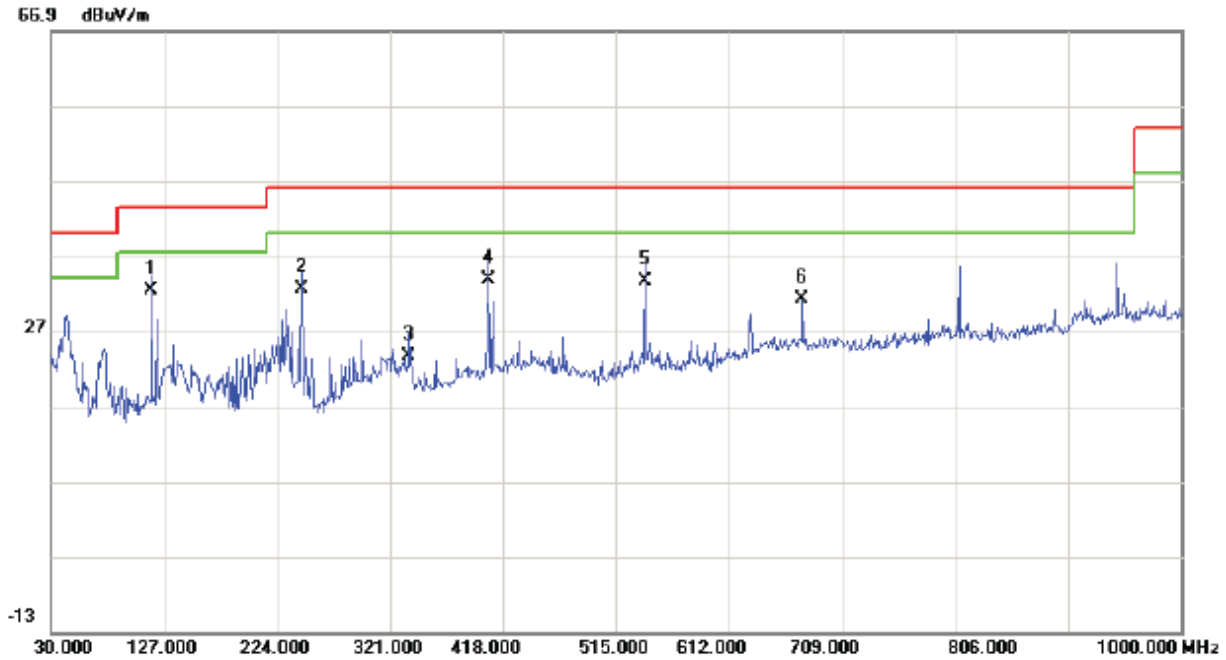
Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
0.0095	0°	13.38	24.97	38.35	128.08	-89.73	AVG
0.0095	0°	14.30	24.97	39.27	148.08	-108.81	PEAK
0.0227	0°	6.80	24.13	30.93	120.48	-89.55	AVG
0.0227	0°	8.11	24.13	32.24	140.48	-108.24	PEAK
0.0318	0°	3.24	23.55	26.79	117.56	-90.77	AVG
0.0318	0°	5.61	23.55	29.16	137.56	-108.40	PEAK
0.0430	0°	1.24	22.84	24.08	114.93	-90.85	AVG
0.0430	0°	2.61	22.84	25.45	134.93	-109.48	PEAK
0.4922	0°	19.55	19.82	39.37	73.76	-34.39	QP
1.7164	0°	23.86	19.53	43.39	69.54	-26.15	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Note
0.0094	90°	13.11	24.30	37.41	128.11	-90.70	AVG
0.0094	90°	15.13	24.30	39.43	148.11	-108.68	PEAK
0.0260	90°	7.34	23.92	31.26	119.30	-88.04	AVG
0.0260	90°	8.89	23.92	32.81	139.30	-106.49	PEAK
0.0341	90°	5.41	23.41	28.82	116.95	-88.13	AVG
0.0341	90°	6.27	23.41	29.68	136.95	-107.27	PEAK
0.0433	90°	1.60	22.82	24.42	114.87	-90.45	AVG
0.0433	90°	2.97	22.82	25.79	134.87	-109.08	PEAK
0.4950	90°	22.32	19.81	42.13	73.71	-31.58	QP
1.7131	90°	24.43	19.53	43.96	69.54	-25.58	QP

ATTACHMENT C -RADIATED EMISSION (30MHZ TO 1000MHZ)

Test Mode:	TX Low Channel

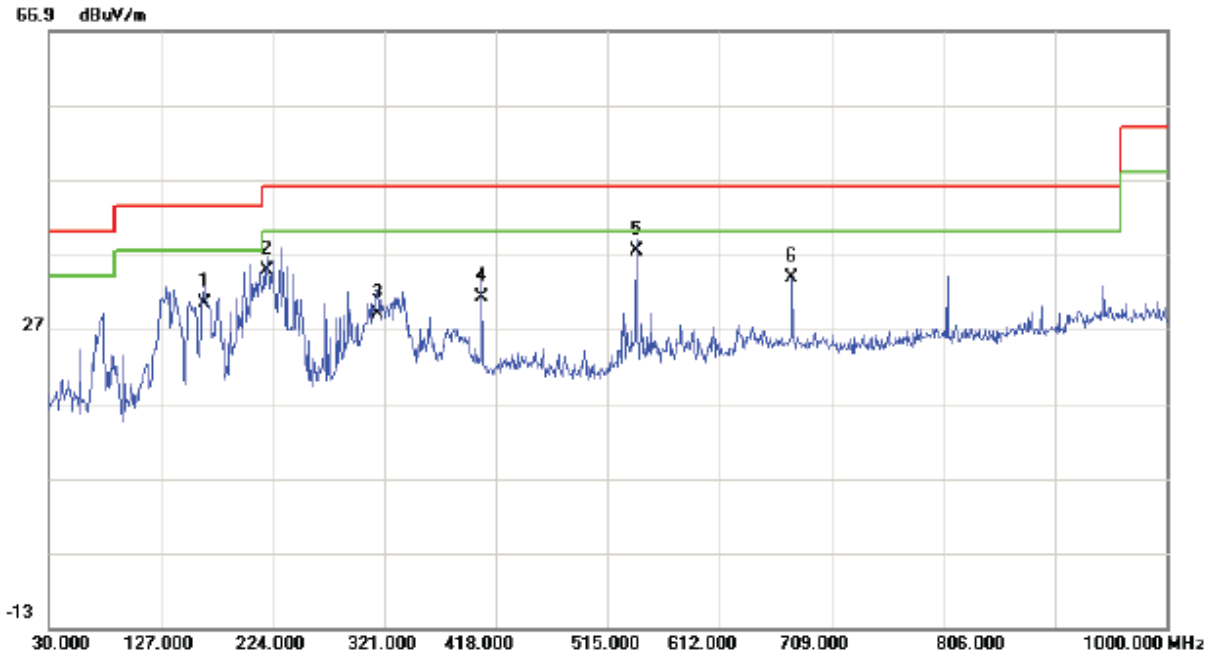
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	116.3300	45.33	-13.01	32.32	43.50	-11.18	QP	
2		245.3400	45.17	-12.54	32.63	46.00	-13.37	QP	
3		337.4900	33.46	-9.84	23.62	46.00	-22.38	QP	
4		405.3900	40.98	-7.12	33.86	46.00	-12.14	QP	
5		540.2200	38.76	-5.17	33.59	46.00	-12.41	QP	
6		675.0500	32.76	-1.56	31.20	46.00	-14.80	QP	

Test Mode:	TXLow Channel

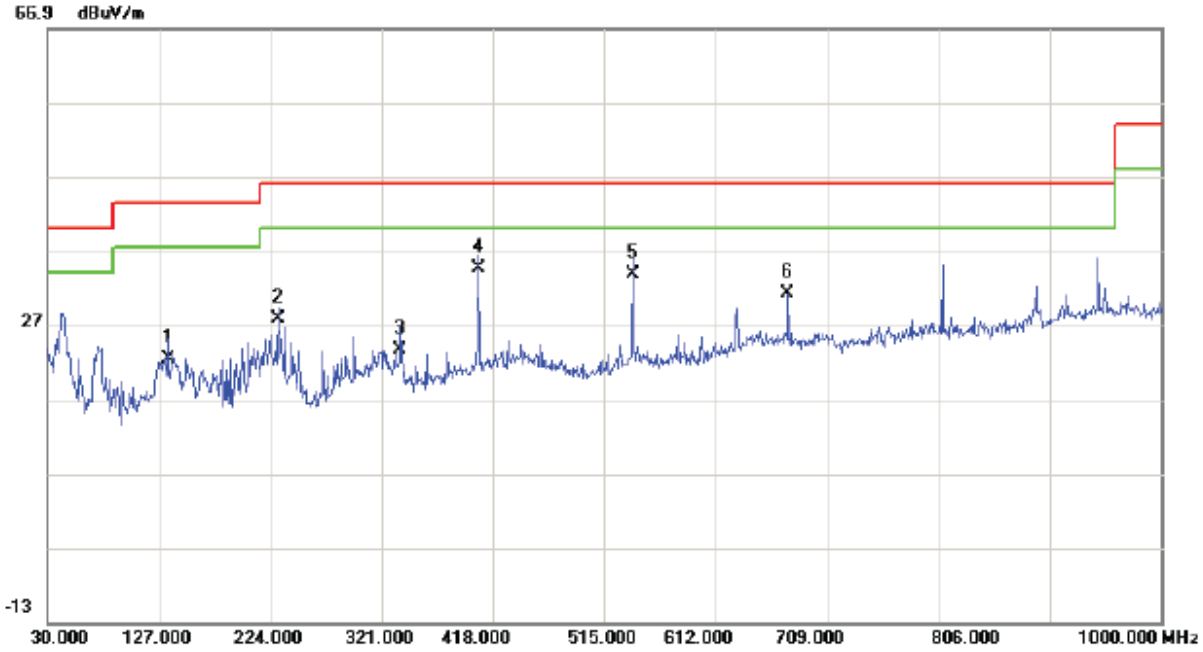
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		164.8300	42.13	-11.71	30.42	43.50	-13.08	QP	
2		219.1500	48.22	-13.42	34.80	46.00	-11.20	QP	
3		315.1800	38.73	-9.68	29.05	46.00	-16.95	QP	
4		405.3900	38.41	-7.12	31.29	46.00	-14.71	QP	
5	*	540.2200	42.66	-5.17	37.49	46.00	-8.51	QP	
6		675.0500	35.41	-1.56	33.85	46.00	-12.15	QP	

Test Mode:	TX Middle Channel

Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		134.7600	33.88	-11.54	22.34	43.50	-21.16	QP	
2		230.7900	40.56	-12.74	27.82	46.00	-18.18	QP	
3		337.4900	33.45	-9.84	23.61	46.00	-22.39	QP	
4	*	405.3900	41.71	-7.12	34.59	46.00	-11.41	QP	
5		540.2200	38.91	-5.17	33.74	46.00	-12.26	QP	
6		675.0500	32.76	-1.56	31.20	46.00	-14.80	QP	

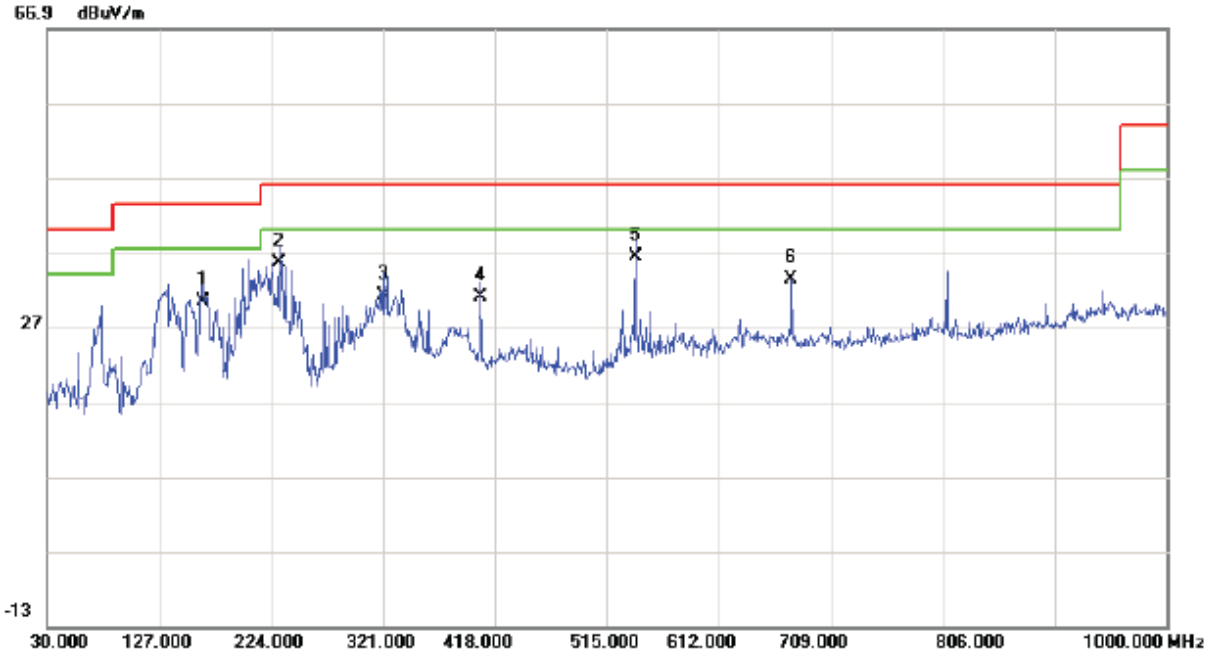
Test Mode:	TX Middle Channel

Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		134.7600	43.22	-11.54	31.68	43.50	-11.82	QP	
2	*	230.7900	49.31	-12.74	36.57	46.00	-9.43	QP	
3		331.6700	40.67	-9.80	30.87	46.00	-15.13	QP	
4		405.3900	37.46	-7.12	30.34	46.00	-15.66	QP	
5		540.2200	41.54	-5.17	36.37	46.00	-9.63	QP	
6		675.0500	35.55	-1.56	33.99	46.00	-12.01	QP	

Test Mode:	TX High Channel

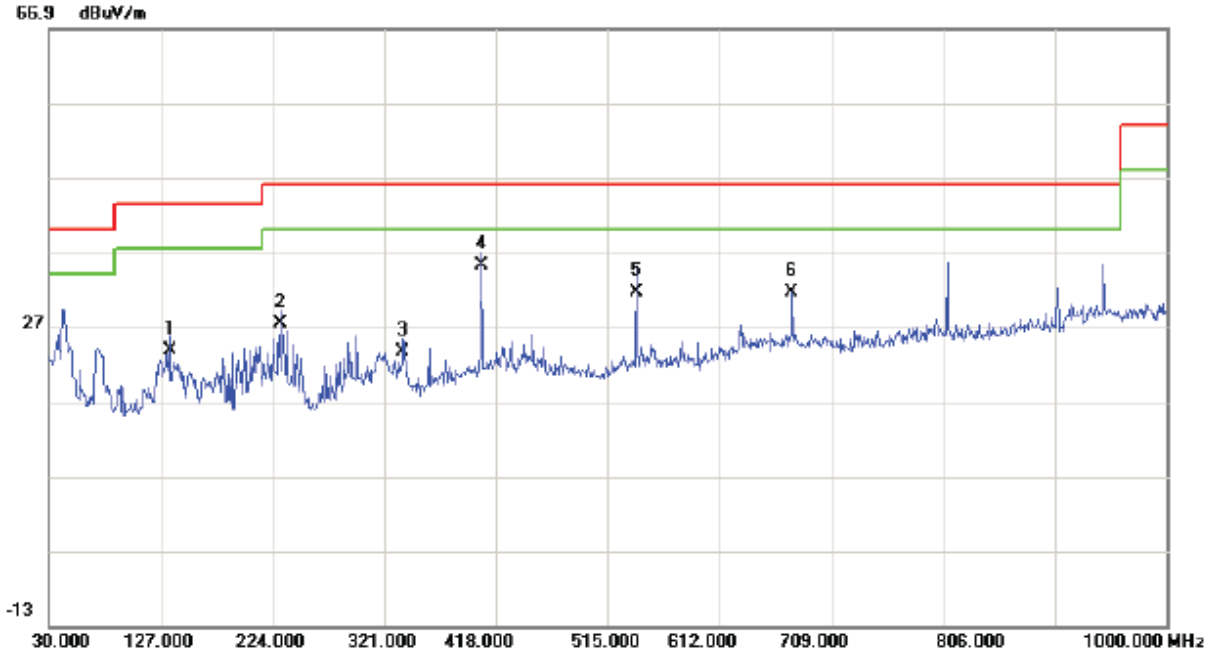
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		164.8300	42.10	-11.71	30.39	43.50	-13.11	QP	
2		230.7900	48.33	-12.74	35.59	46.00	-10.41	QP	
3		321.0000	40.87	-9.72	31.15	46.00	-14.85	QP	
4		405.3900	38.14	-7.12	31.02	46.00	-14.98	QP	
5	*	540.2200	41.64	-5.17	36.47	46.00	-9.53	QP	
6		675.0500	34.90	-1.56	33.34	46.00	-12.66	QP	

Test Mode:	TX High Channel

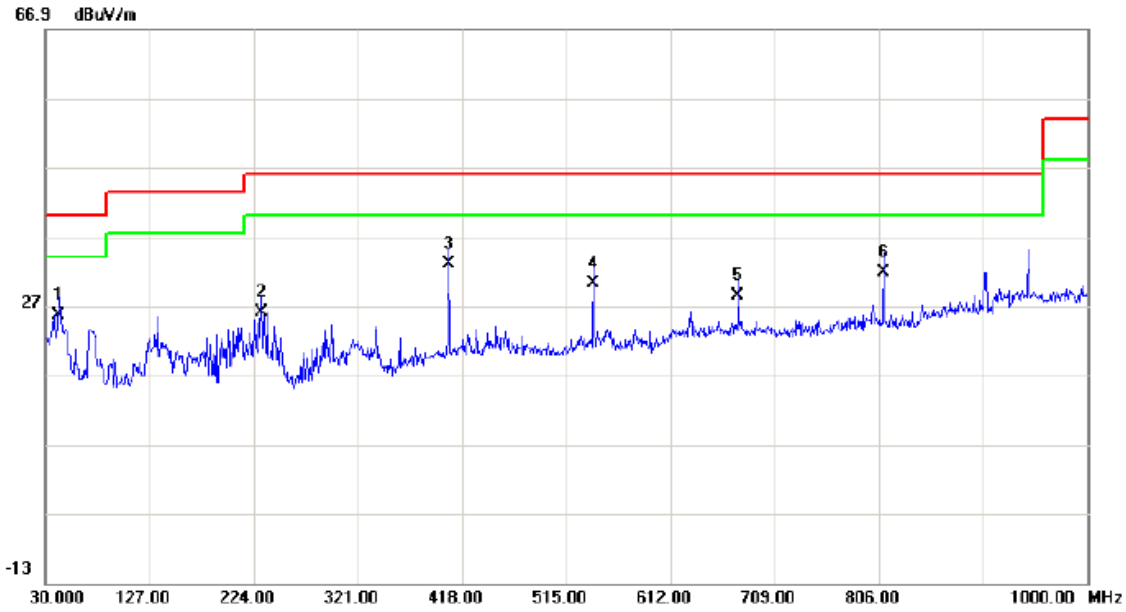
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		134.7600	35.41	-11.54	23.87	43.50	-19.63	QP	
2		230.7900	40.16	-12.74	27.42	46.00	-18.58	QP	
3		337.4900	33.54	-9.84	23.70	46.00	-22.30	QP	
4	*	405.3900	42.37	-7.12	35.25	46.00	-10.75	QP	
5		540.2200	36.78	-5.17	31.61	46.00	-14.39	QP	
6		675.0500	33.22	-1.56	31.66	46.00	-14.34	QP	

Test Mode:	TX BT+ Wireless

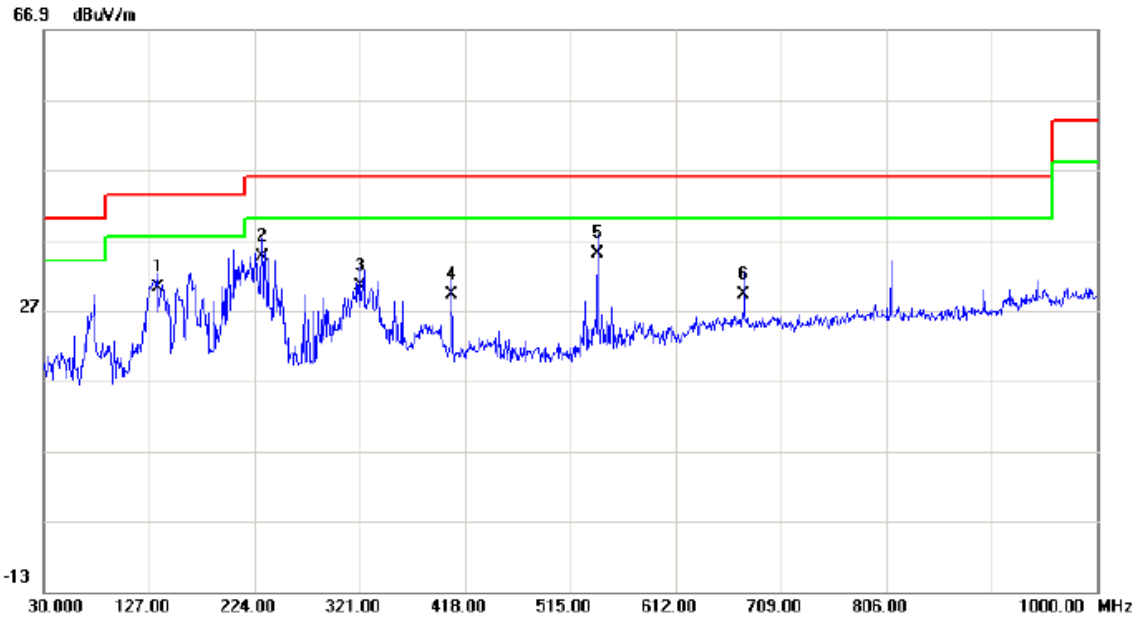
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		42.6100	37.69	-12.15	25.54	40.00	-14.46	QP	
2		230.7900	38.76	-12.74	26.02	46.00	-19.98	QP	
3	*	405.3900	40.17	-7.12	33.05	46.00	-12.95	QP	
4		540.2200	35.28	-5.17	30.11	46.00	-15.89	QP	
5		675.0500	30.05	-1.56	28.49	46.00	-17.51	QP	
6		809.8800	31.59	0.15	31.74	46.00	-14.26	QP	

Test Mode:	TX BT+ Wireless

Horizontal

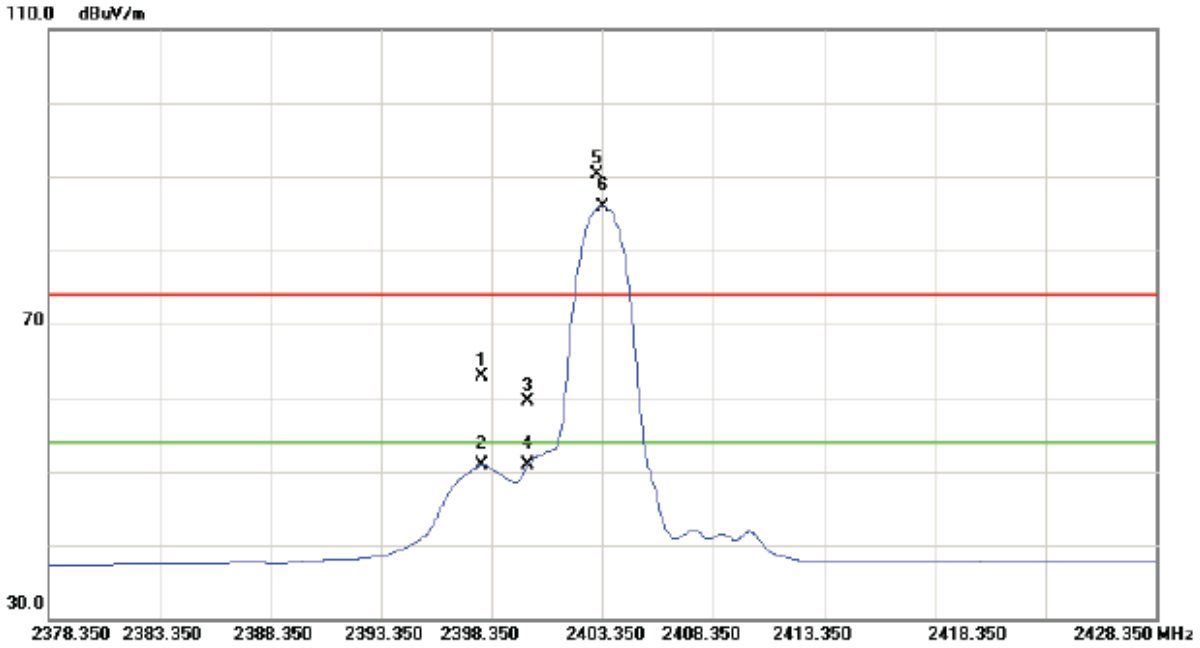


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		134.7600	41.72	-11.54	30.18	43.50	-13.32	QP	
2		230.7900	47.36	-12.74	34.62	46.00	-11.38	QP	
3		321.0000	40.11	-9.72	30.39	46.00	-15.61	QP	
4		405.3900	36.27	-7.12	29.15	46.00	-16.85	QP	
5	*	540.2200	40.18	-5.17	35.01	46.00	-10.99	QP	
6		675.0500	30.86	-1.56	29.30	46.00	-16.70	QP	

ATTACHMENT D -RADIATED EMISSION (ABOVE 1000MHZ)

Orthogonal Axis :	X
Test Mode :	TX Low Channel

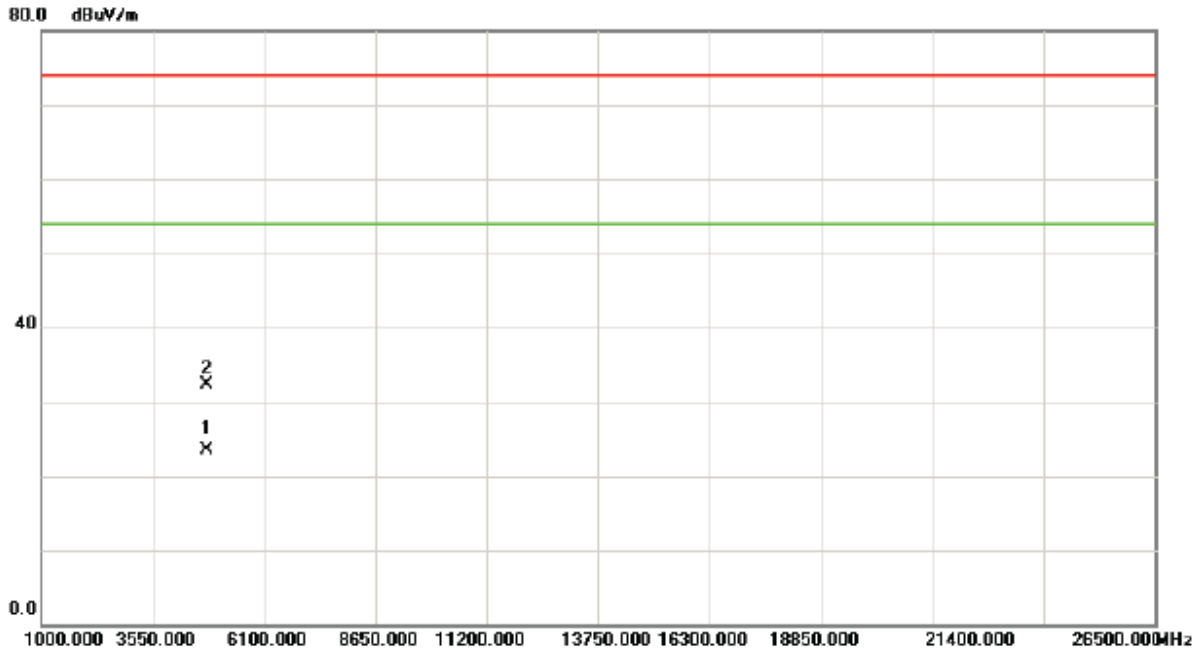
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2397.950	28.65	34.28	62.93	74.00	-11.07	peak	
2		2397.950	16.64	34.28	50.92	54.00	-3.08	AVG	
3		2400.000	25.19	34.29	59.48	74.00	-14.52	peak	
4		2400.000	16.61	34.29	50.90	54.00	-3.10	AVG	
5	X	2403.100	55.94	34.31	90.25	74.00	16.25	peak	No Limit
6	*	2403.350	51.57	34.31	85.88	54.00	31.88	AVG	No Limit

Orthogonal Axis :	X
Test Mode :	TX Low Channel

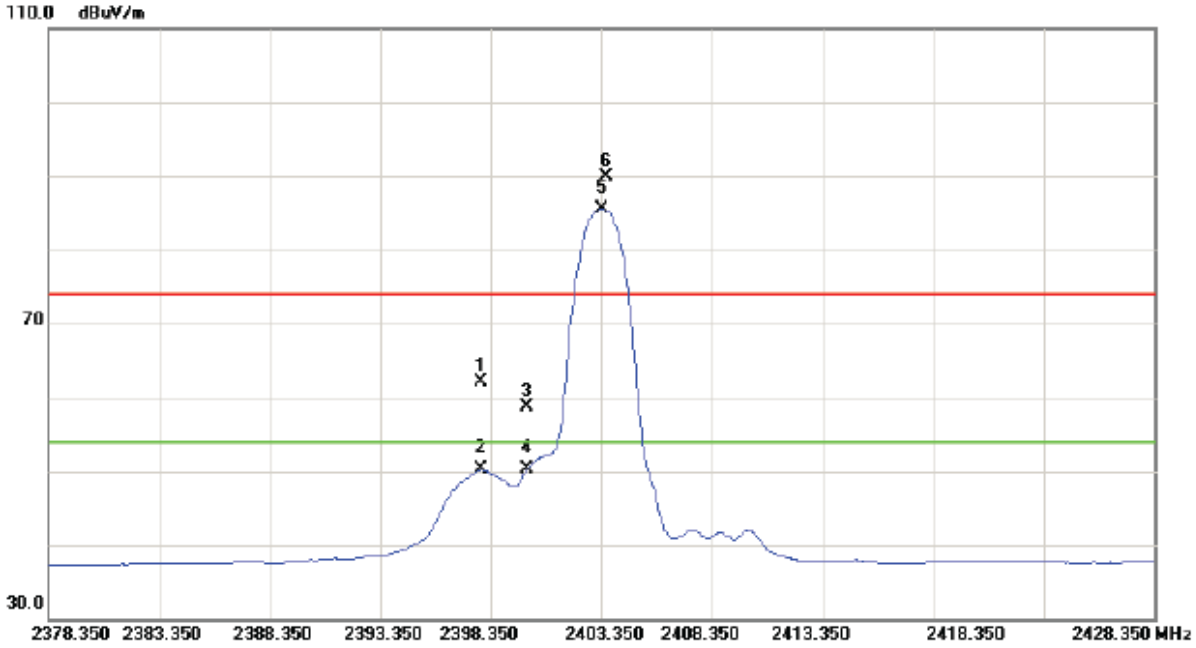
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4806.730	20.50	3.00	23.50	54.00	-30.50	AVG	
2		4806.800	29.40	3.00	32.40	74.00	-41.60	peak	

Orthogonal Axis :	X
Test Mode :	TX Low Channel

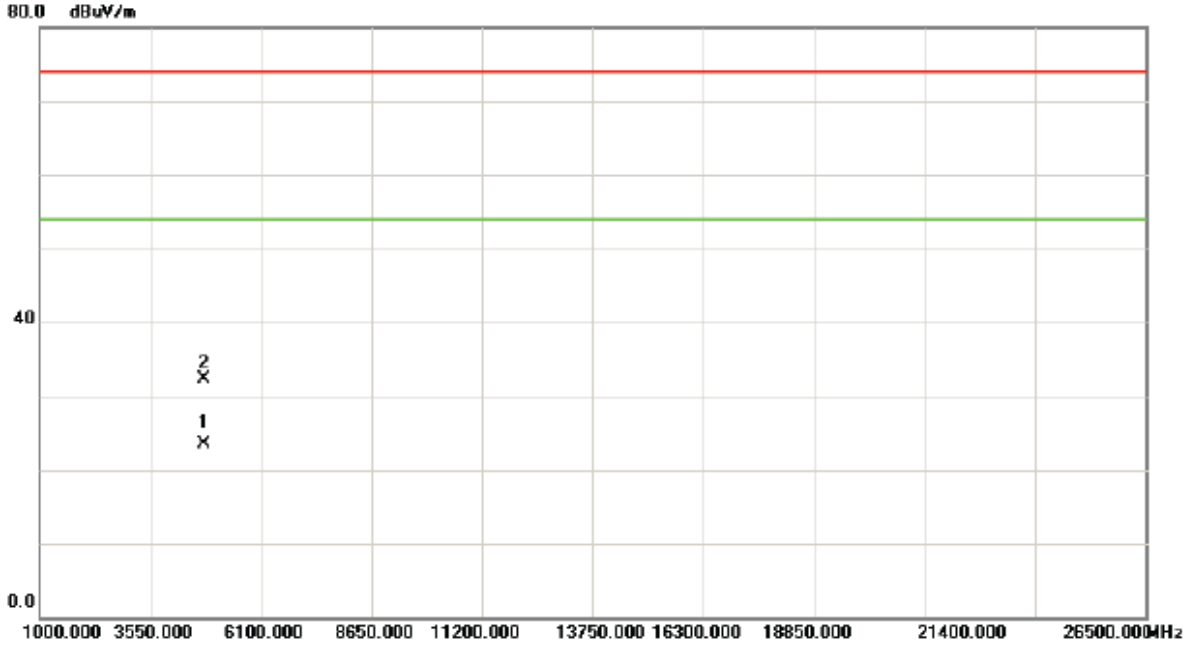
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		2397.950	27.74	34.28	62.02	74.00	-11.98	peak	
2		2397.950	15.94	34.28	50.22	54.00	-3.78	AVG	
3		2400.000	24.49	34.29	58.78	74.00	-15.22	peak	
4		2400.000	16.09	34.29	50.38	54.00	-3.62	AVG	
5	*	2403.350	51.14	34.31	85.45	54.00	31.45	AVG	No Limit
6	X	2403.550	55.50	34.31	89.81	74.00	15.81	peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX Low Channel

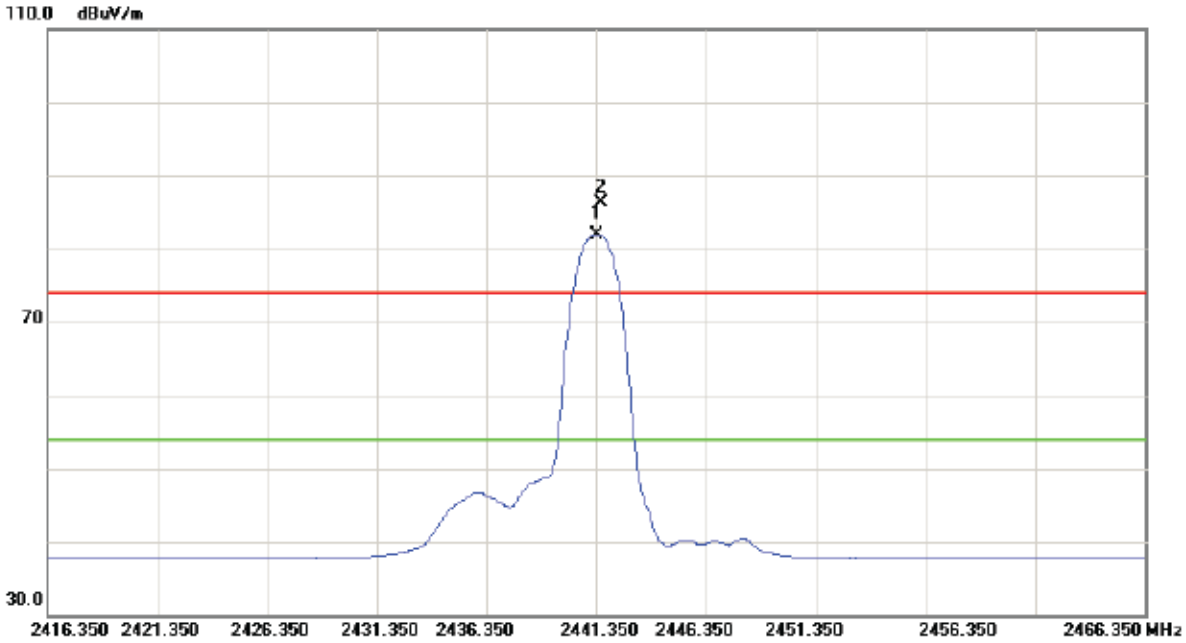
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4806.800	20.52	3.00	23.52	54.00	-30.48	AVG	
2		4806.650	29.21	3.00	32.21	74.00	-41.79	peak	

Orthogonal Axis :	X
Test Mode :	TX Middle Channel

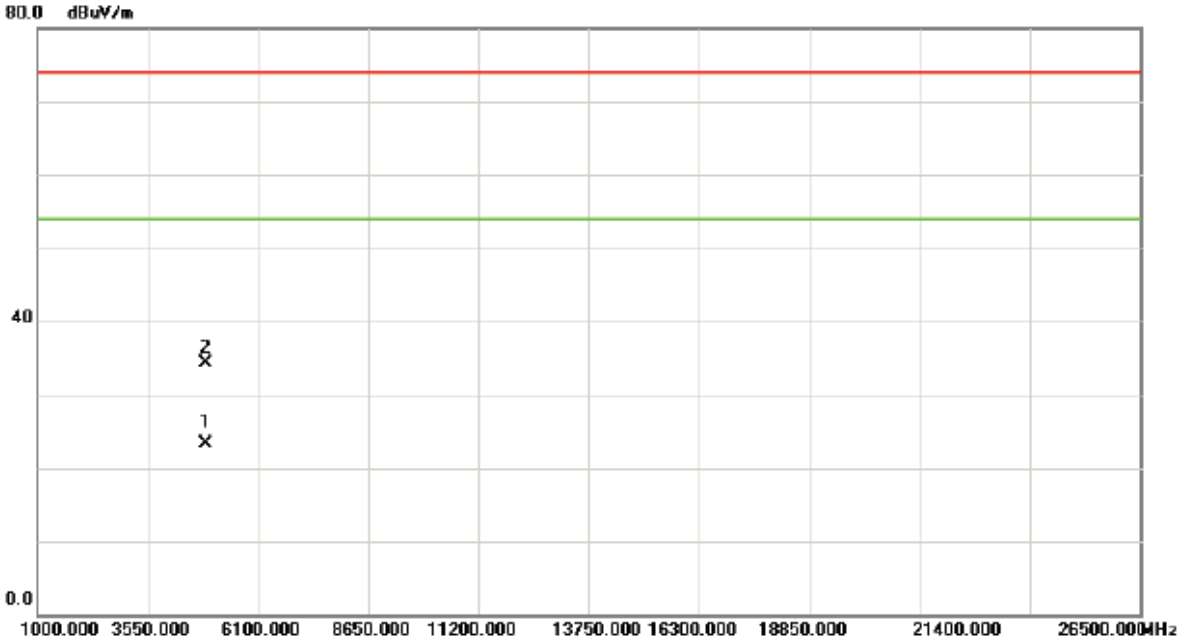
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2441.350	47.39	34.53	81.92	54.00	27.92	AVG	No Limit
2	X	2441.600	51.79	34.53	86.32	74.00	12.32	peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX Middle Channel

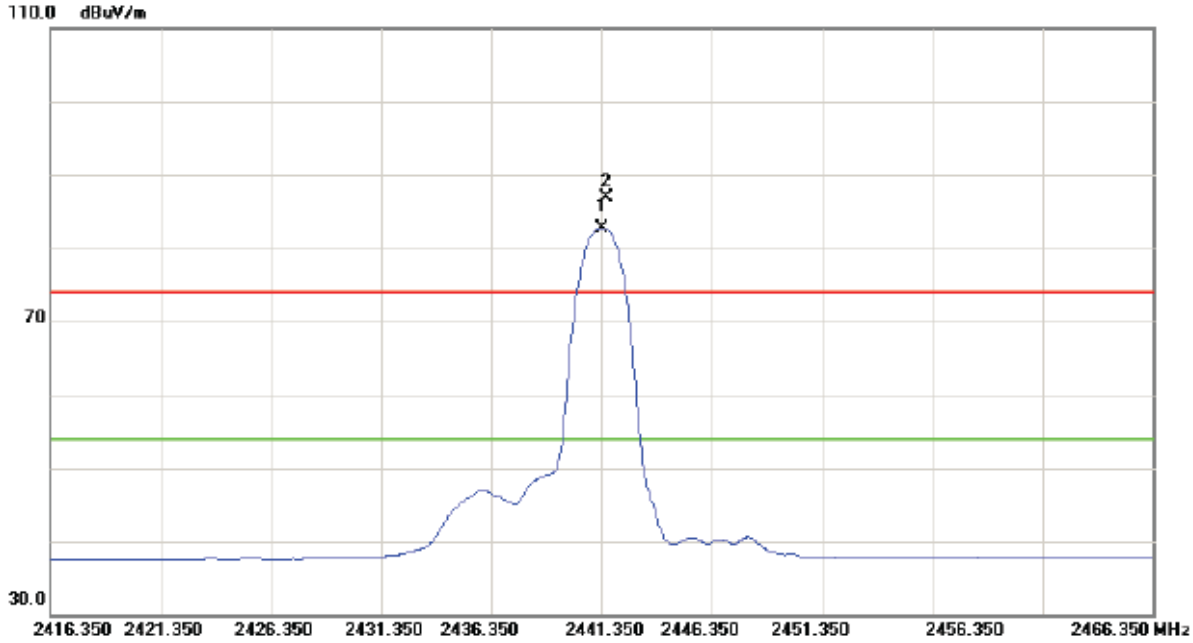
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4882.690	20.27	3.02	23.29	54.00	-30.71	AVG	
2		4882.620	31.27	3.02	34.29	74.00	-39.71	peak	

Orthogonal Axis :	X
Test Mode :	TX Middle Channel

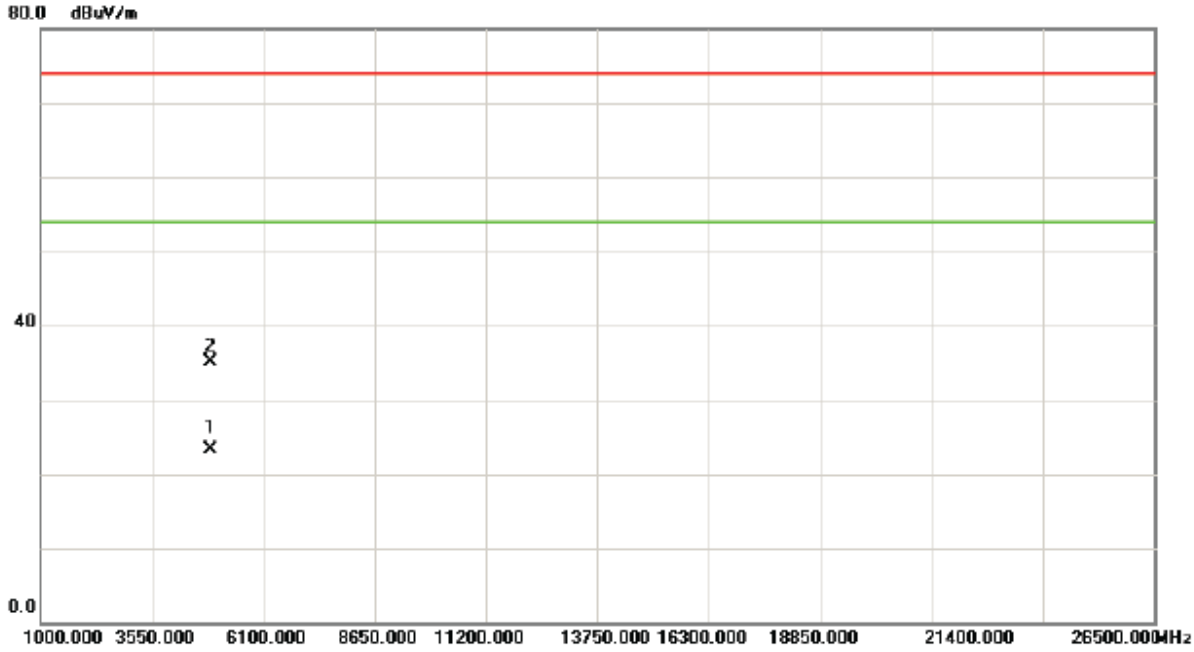
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2441.350	48.18	34.53	82.71	54.00	28.71	AVG	No Limit
2	X	2441.600	52.46	34.53	86.99	74.00	12.99	peak	No Limit

Orthogonal Axis :	X
Test Mode :	TX Middle Channel

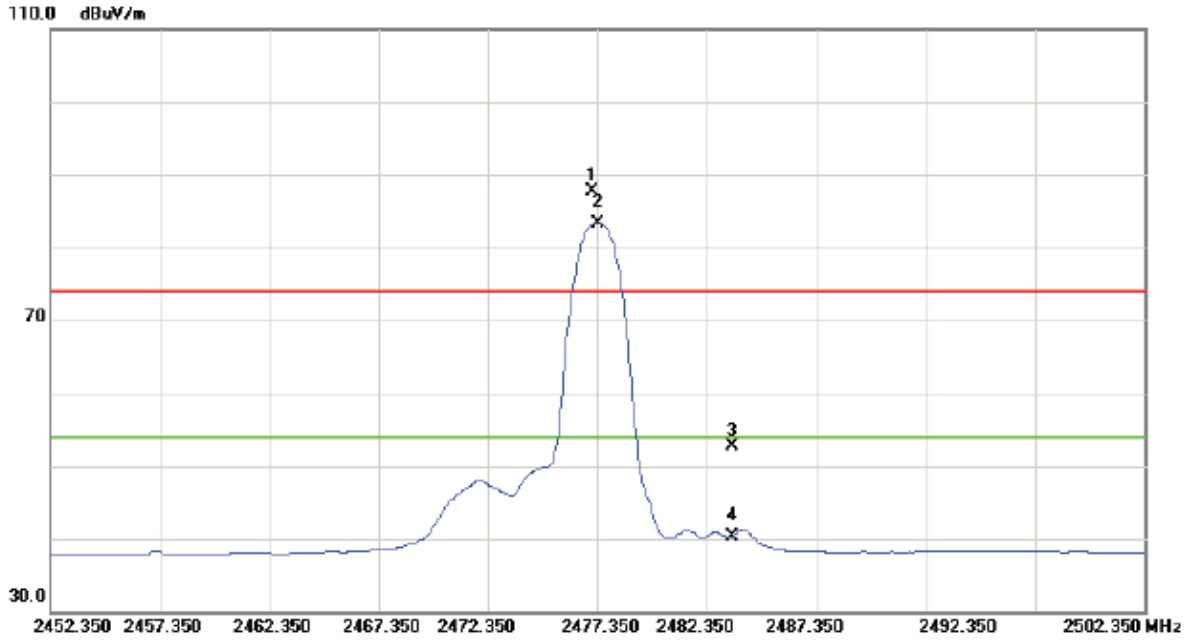
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4882.700	20.25	3.02	23.27	54.00	-30.73	AVG	
2		4882.900	32.04	3.02	35.06	74.00	-38.94	peak	

Orthogonal Axis :	X
Test Mode :	TX High Channel

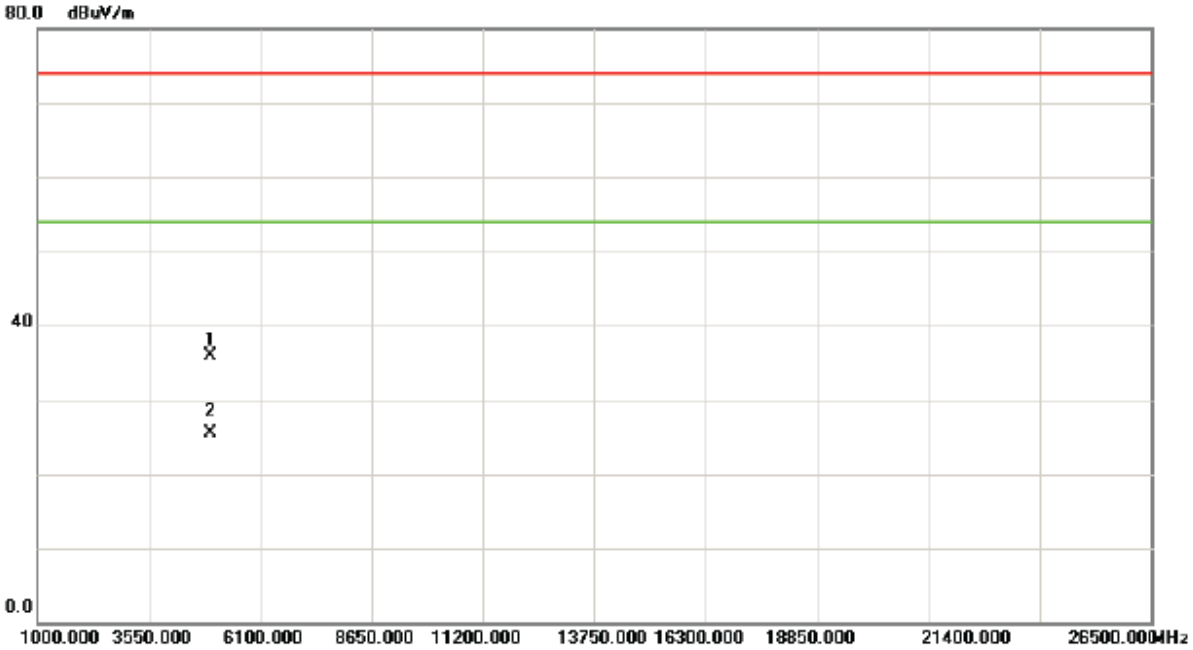
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	X	2477.100	53.05	34.74	87.79	74.00	13.79	peak	No Limit
2	*	2477.350	48.64	34.74	83.38	54.00	29.38	AVG	No Limit
3		2483.500	17.84	34.78	52.62	74.00	-21.38	peak	
4		2483.500	5.58	34.78	40.36	54.00	-13.64	AVG	

Orthogonal Axis :	X
Test Mode :	TX High Channel

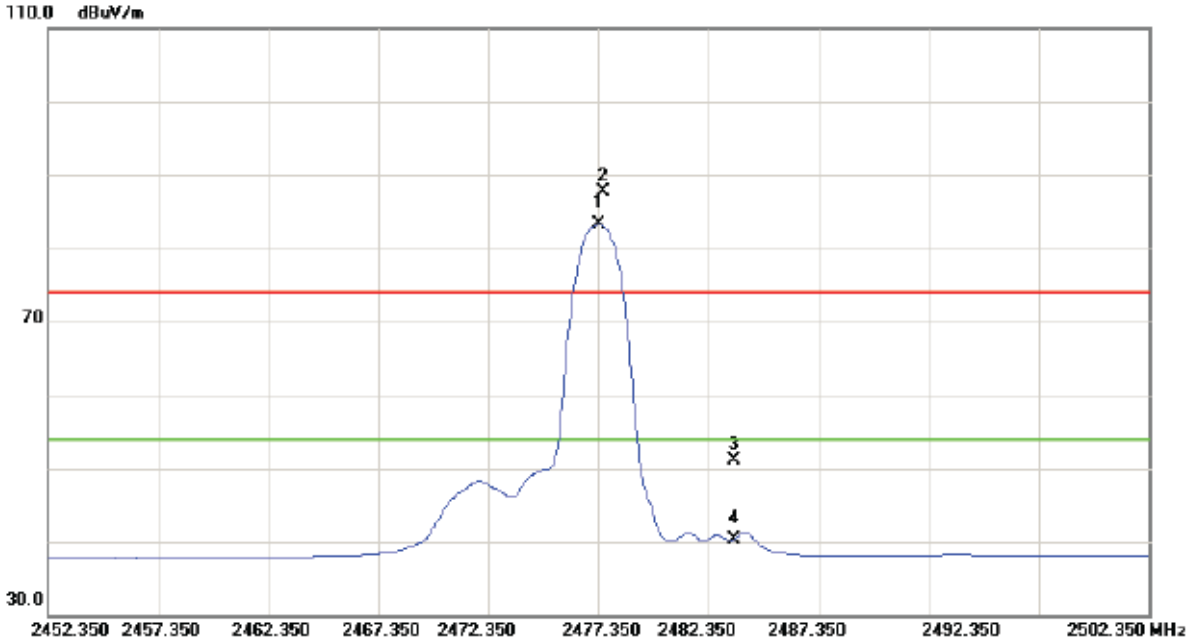
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		4951.900	32.77	3.06	35.83	74.00	-38.17	peak	
2	*	4951.960	22.53	3.06	25.59	54.00	-28.41	AVG	

Orthogonal Axis :	X
Test Mode :	TX High Channel

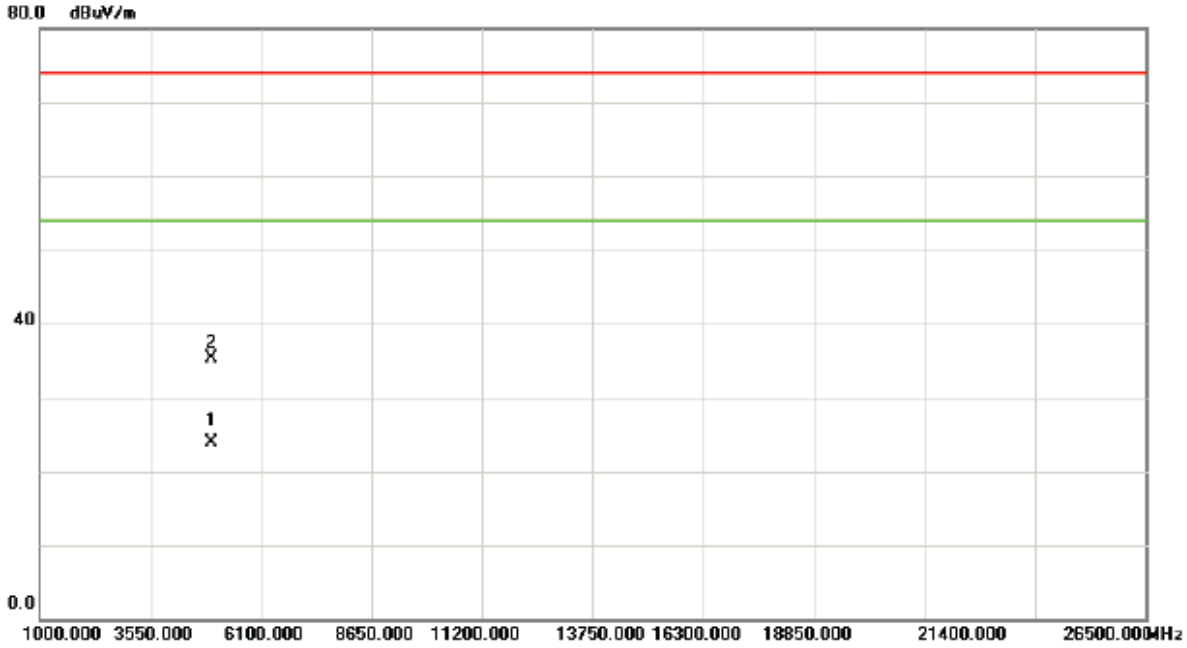
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	2477.350	48.48	34.74	83.22	54.00	29.22	AVG	No Limit
2	X	2477.550	52.90	34.74	87.64	74.00	13.64	peak	No Limit
3		2483.500	16.36	34.78	51.14	74.00	-22.86	peak	
4		2483.500	5.55	34.78	40.33	54.00	-13.67	AVG	

Orthogonal Axis :	X
Test Mode :	TX High Channel

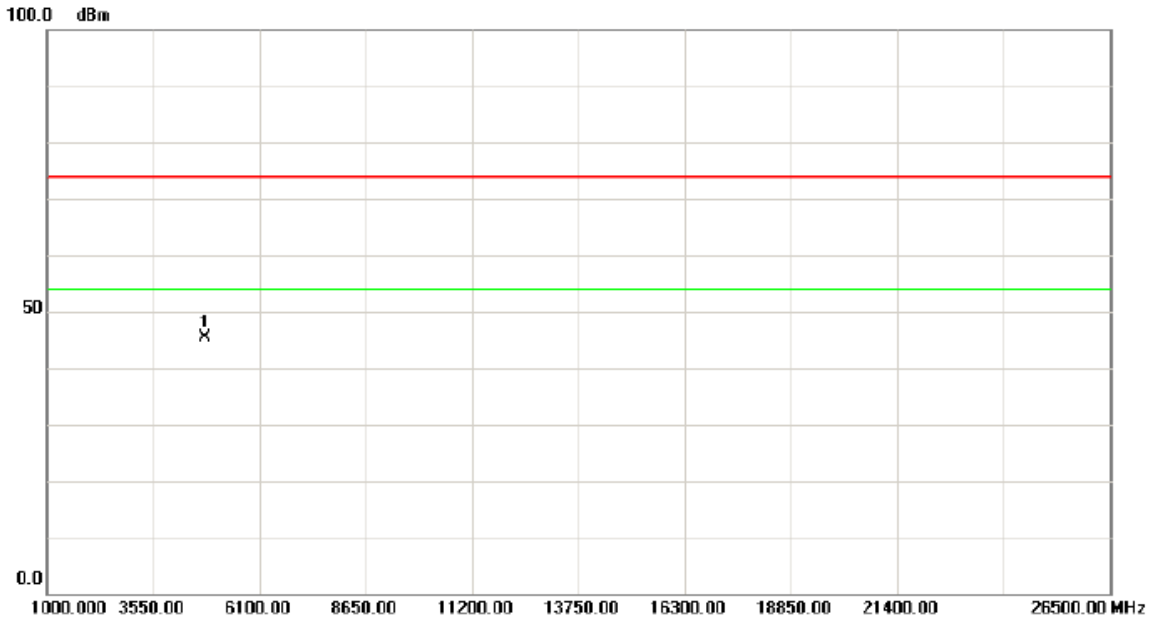
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	4954.700	20.82	3.06	23.88	54.00	-30.12	AVG	
2		4955.600	32.34	3.06	35.40	74.00	-38.60	peak	

Test Mode:	TX BT+ Wireless

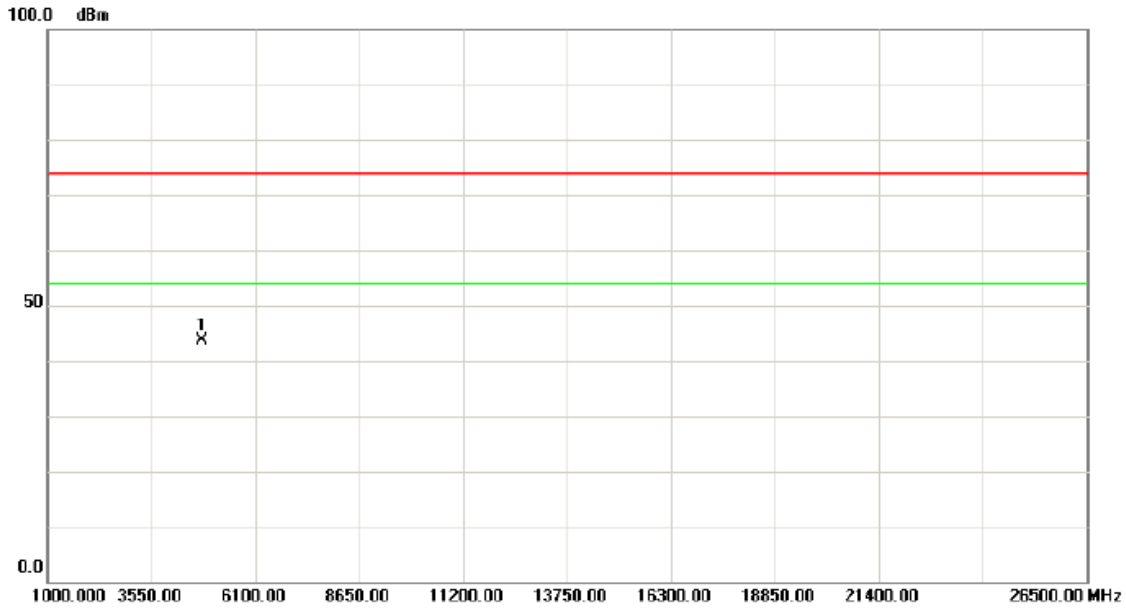
Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4806.130	45.39	-0.12	45.27	74.00	-28.73	peak	

Test Mode:	TX BT+ Wireless

Horizontal



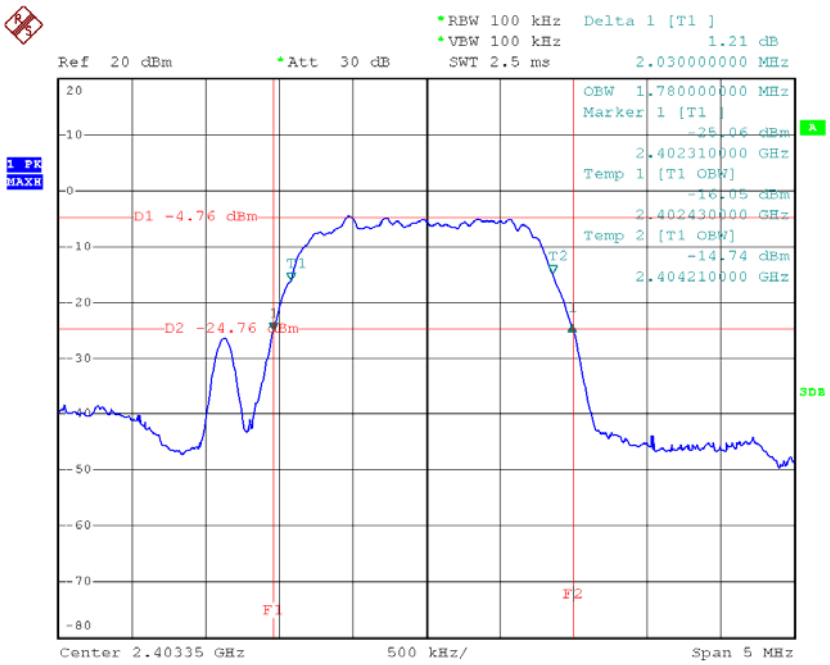
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBm	dB	dBm	dBm	dB	Detector	Comment
1	*	4805.180	43.69	-0.12	43.57	74.00	-30.43	peak	

ATTACHMENT E - BANDWIDTH

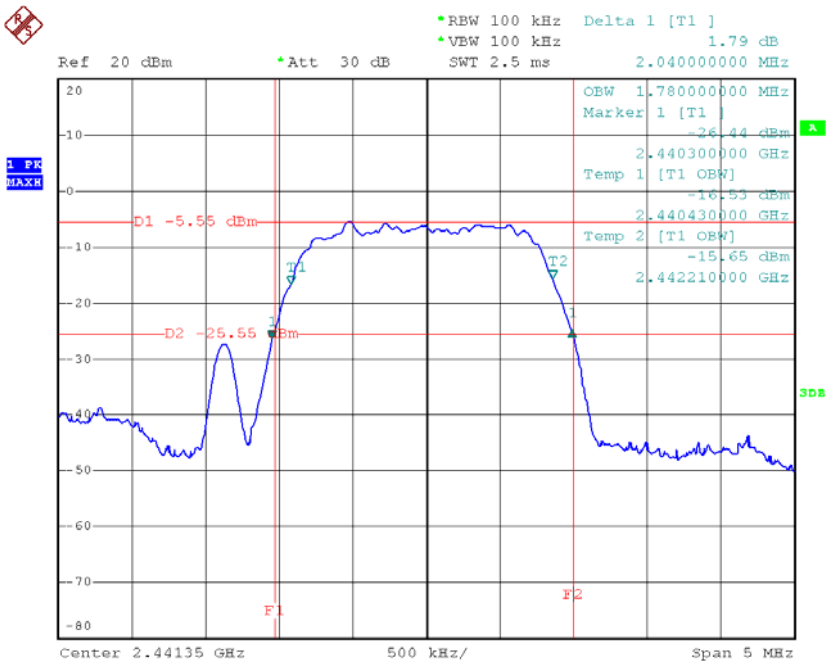
Test Mode:	TX Mode

Frequency (MHz)	20dB Bandwidth (MHz)	99% Occupied BW (MHz)
2403.35	2.03	1.78
2441.35	2.04	1.78
2477.35	2.04	1.79

TX Low Channel



TX Middle Channel



TX High Channel