SENTON

EMV-Prüfzentrum ■ EMI/EMC-Testcenter ■

Straubing, July 21, 2000

T E S T - R E P O R T

No. 55503-00192

for

RF-Modem Module

FRH-SD06TU

Applicant:	Futaba Corporation of America
Purpose of testing:	To show compliance with FCC Code of Federal Regulations, Part 15 Subpart C, Section §15.249

Table of Contents

1. Administrative Data

Equipment Under Test (EUT):	FRH-SD06TU
Type of equipment:	RF Modem Module
Parts/accessories:	---
Serial number:	FCC Sample 01
Version of EUT:	As delivered
FCC-ID:	AZPFRH-SD06TU

Applicant: (full address)	Futaba Corporation of America Industrial Radio Control Department 1605 Penny Lane Schaumburg, IL 60173, USA
Contract identification:	N/A
Contact person:	Mr. Satoru Ishii
Manufacturer:	Futaba Corporation, Japan

Receipt of EUT:	March 27, 2000
Date of test:	April 2000

Responsible for testing:	Mr. Johann Roidt
Responsible for test report:	Mr. Johann Roidt

2. Summary of Test Results

The tested sample fully complies with the requirements for intentional radiators set forth in the

Code of Federal Regulations CFR 47
Part 15 Subpart C, Section §15.249
of the
Federal Communication Commission (FCC).

Johann Roidt
Technical Manager

3. Operation Mode of EUT

During all test the EUT was operated on a dedicated interface board on which the level conversion from RS 232 to TTL is done.

The EUT was operated in test modi to give access to individual RF channels and RX or TX mode. The EUT was modulated with internal test modulation.

All radiated emission tests were made with antennae supplied by the applicant connected to the EUT.

The EUT was powered from an external DC power supply.

Assembly of parts including antennae

4. Changes made to the EUT during this certification test

No changes have been made to the EUT during this certification test.

5. Configuration of EUT and Peripheral Devices

Configuration of cables of EUT

Not applicable

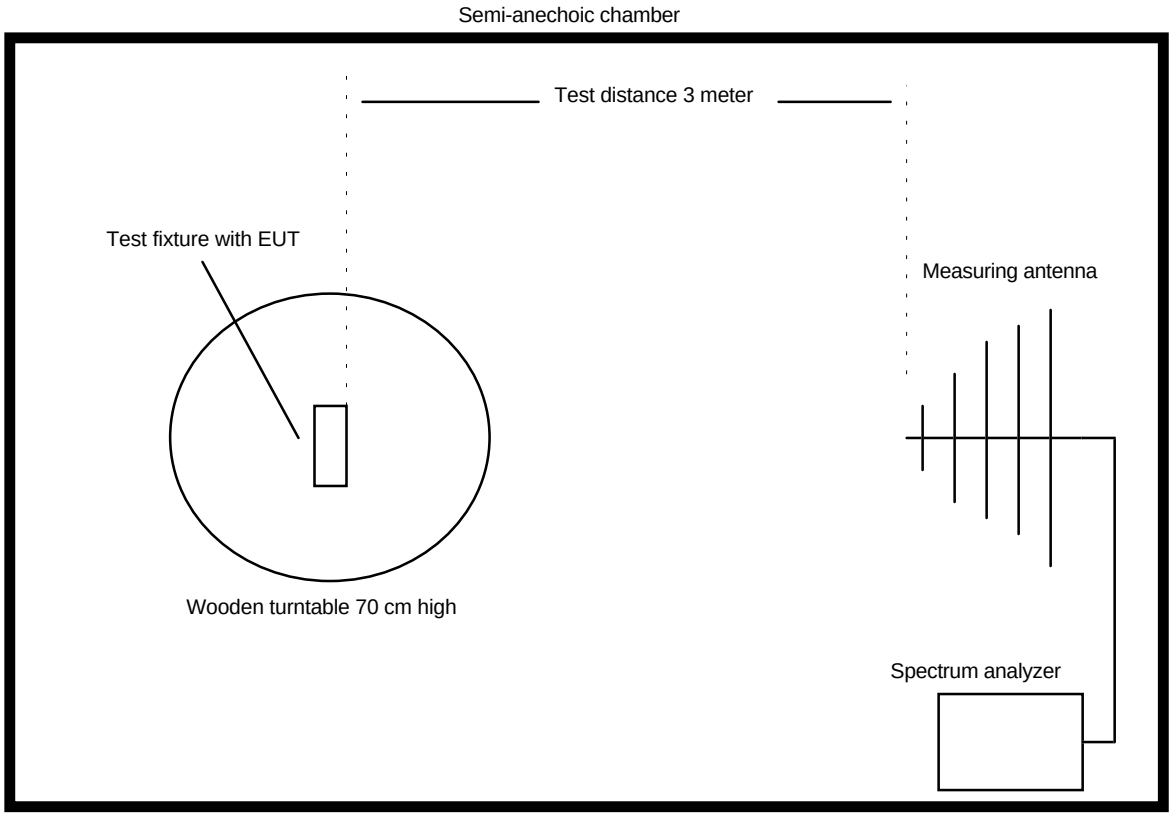
Configuration of peripheral devices connected to EUT

Not applicable

6. Measuring Methods

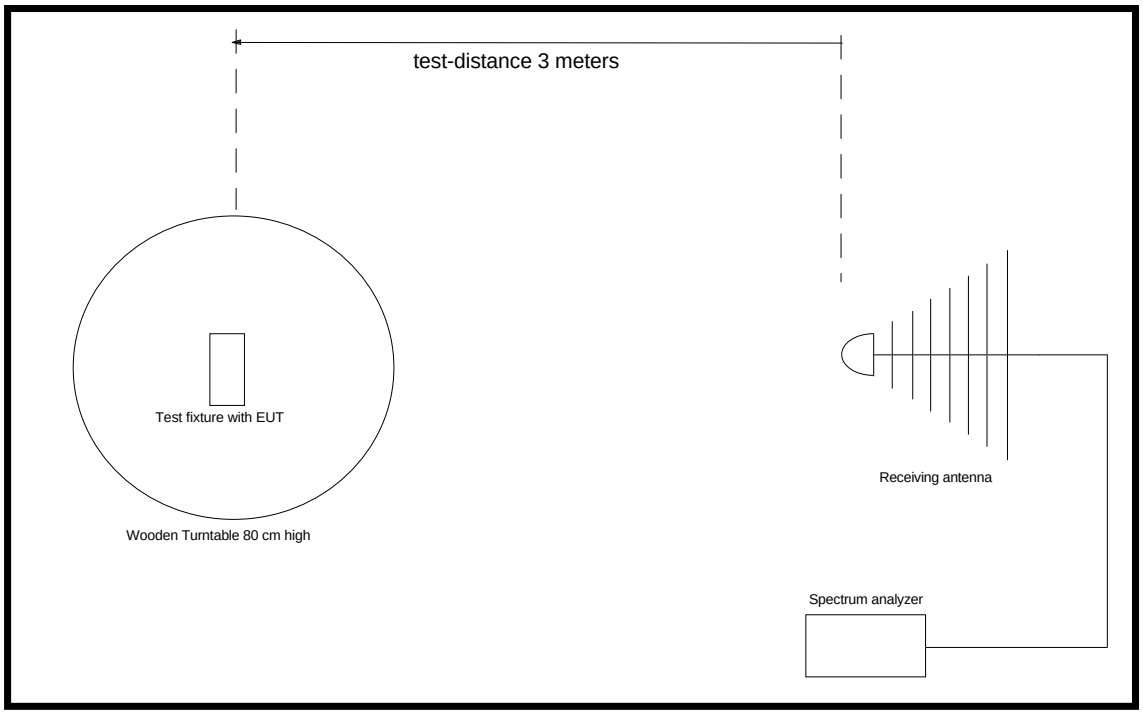
6.1. Transmitter Parameter Tests (§ 15.249 (a)).

All transmitter parameter tests were performed at a test-distance of 3 meters in a semi-anechoic room (radiated). During the tests the EUT was rotated all around and the receiving-antenna was raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions. Measurements were made in horizontal and vertical polarization.
EUT was operating in transmit mode at the appropriate frequency with its internal modulation.
The bandwidth of the emission was measured with a spectrum analyzer. Resolution (RBW) and video bandwidth (VBW) were set to 10 kHz (RBW and VBW)



6.2. Radiated Emissions 30 MHz - 1 GHz (§15.209, §15.249)

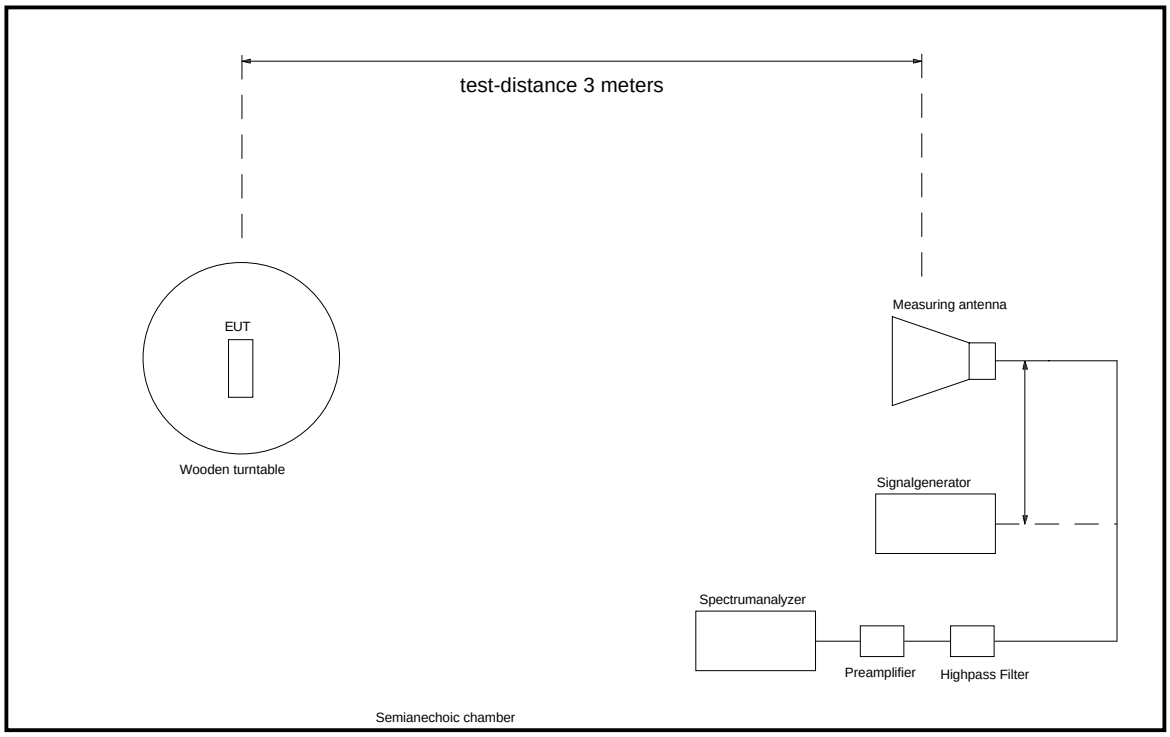
Radiated emissions were measured over the frequency range from 30 MHz to 1 GHz. The bandwidth of the EMI-receiver was set to 100 kHz and the detector-function was set to CISPR quasi-peak.
The test setup was made in accordance with ANSI C63.4-1992. Measurements were made in horizontal and vertical polarization. Preliminary scans were taken in a semi-anechoic room using a spectrum analyzer with the detector function set to peak. All tests were performed at a test-distance of 3 meters. For final testing an open-area test-site was used. During the tests the EUT was rotated all around and the receiving-antenna was raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions.



6.3. Radiated Emissions above 1 GHz

Radiated emissions were measured in the frequency range 1 GHz to 3.15 GHz in transmit mode .The resolution bandwidth and the video bandwidth of the spectrum analyzer was set to 1 MHz. Prescans with video bandwidth 1 MHz (peak mode) were taken to check out the highest levels (with reference to the limits), see 6.4 for details to prescan procedure. Final measurements were performed at the three highest emissions per band. EUT was rotated all around and receiving antenna was raised and lowered to find the maximum levels of emission. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions. Measurements were made in horizontal and vertical polarization.
All tests were performed in a semi-anechoic chamber with a test-distance of 3 meters.
To avoid overload in transmit mode a high pass filter was connected to the input of the preamplifier (in case when a preamplifier was necessary)). In this case a signal generator was used for substitution to eliminate the influence of filter and preamplifier.
Substitution was performed in the following steps:

- antenna cable was disconnected from receiving antenna and connected to signal generator output
- level of signal generator was increased until the reading value of the analyzer was the same as caused by EUT
- level of signal generator was noted
- final value was calculated by converting the signal generator level to dBµV/m and adding the antenna correction factor.


test-distance 3 meters
EUT
Wooden turntable
Measuring antenna
Signalgenerator
Spectrumanalyzer
Preamplifier
Highpass Filter
Semianechoic chamber

6.4. Procedure for Preliminary Radiated Emission Tests

The procedure for preliminary radiated emission tests follows section 13.4.1 of ANSI C63.4-1992.

Therefore the prescanning procedure is as follows:

Prescans are made in the frequency ranges:

30 - 230 MHz
230 -1000 MHz
1000-25000 MHz

with the receiving antenna set to horizontal and vertical polarization.

The following step-by-step procedure will be used:

1) Monitor the frequency range at a fixed antenna height and and EUT azimuth
2) Rotate the EUT 360° to maximize the suspected highes azimuth signals. Note the amplitude and frequency of the signals. Orient the EUT azimuth for maximum emission.
3) Move the antenna over its full allowed range of travel to maximize the emission. If the signal or another at a different frequency is observed to exceed the previously noted highest amplitude signal by 1 dB or more, return to step 2) with the antenna fixed at this height. Otherwise move the antenna to the height that repeats the highest amplitude observation and proceed.

4) Make a hardcopy of the spectrum.

5) Repeat steps 1 through 4 for the other orthogonal axes of the EUT.

6) Repeat steps 1 through 5 for orthogonal antenna polarisation

6.5. Method for comparing spectrum analyzer output to the limit

The following procedure will be used:

1) Maximize the emission according to 6.4.

2) Set the spectrum analyzer to **Max Hold**

3) Wait until the noise is fully maximized.

4) Put the **marker** on top of the investigated signal

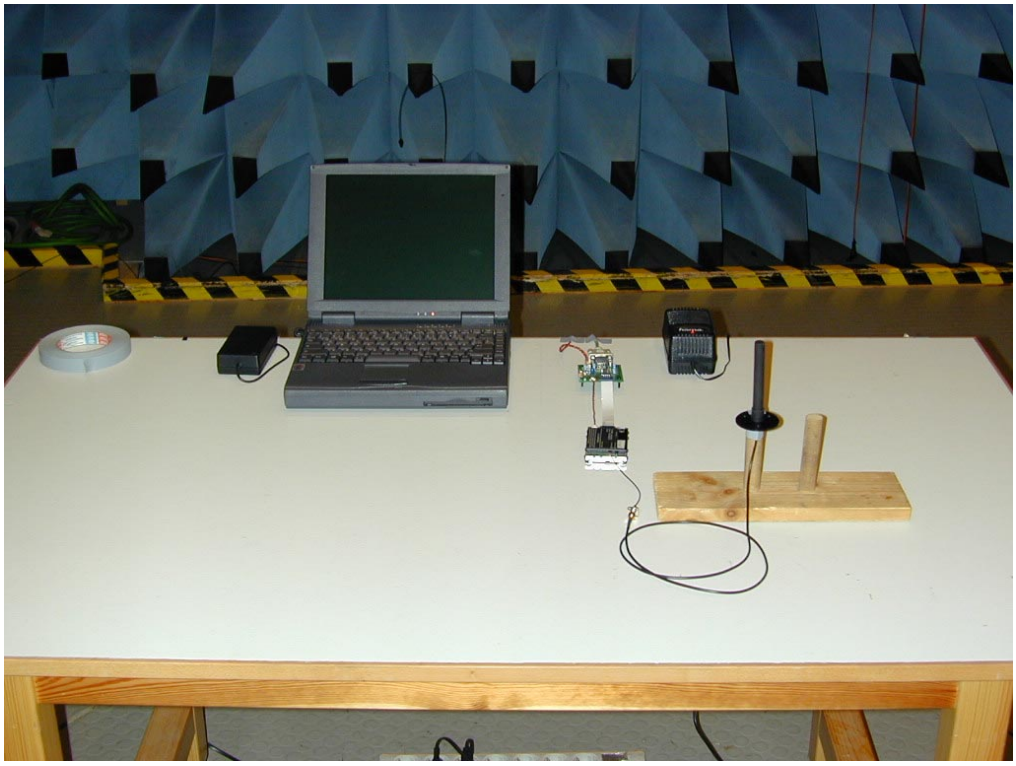
5) Note frequency and level of the investigated signal

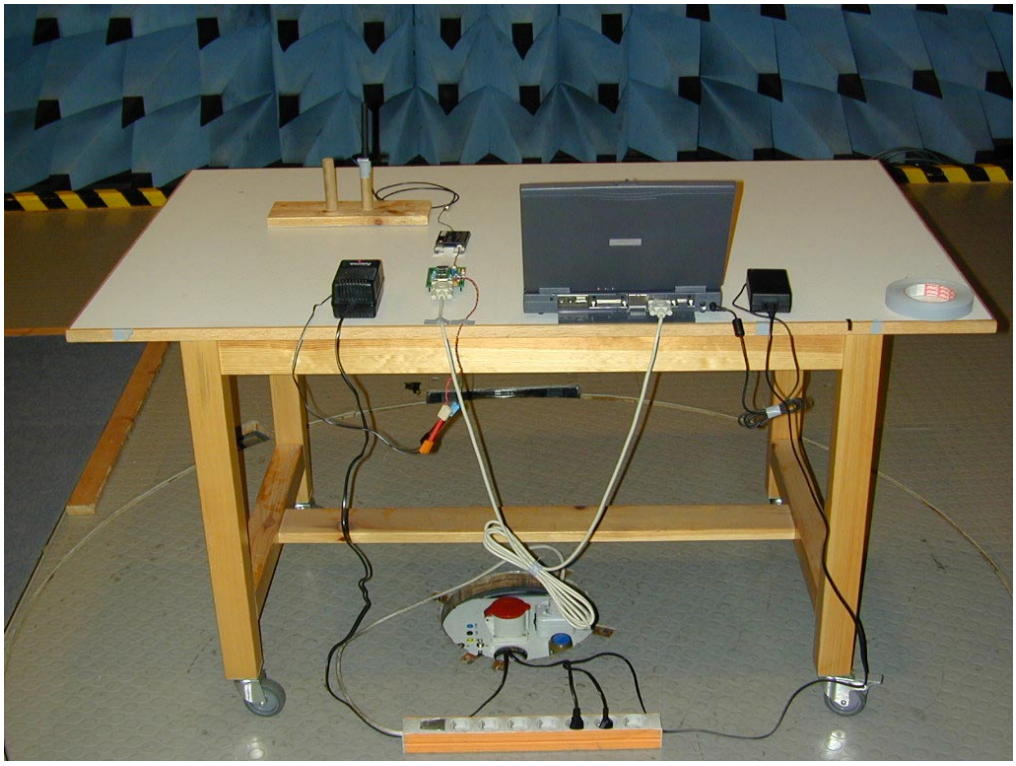
6.6. Spectrum analyzer settings for final test

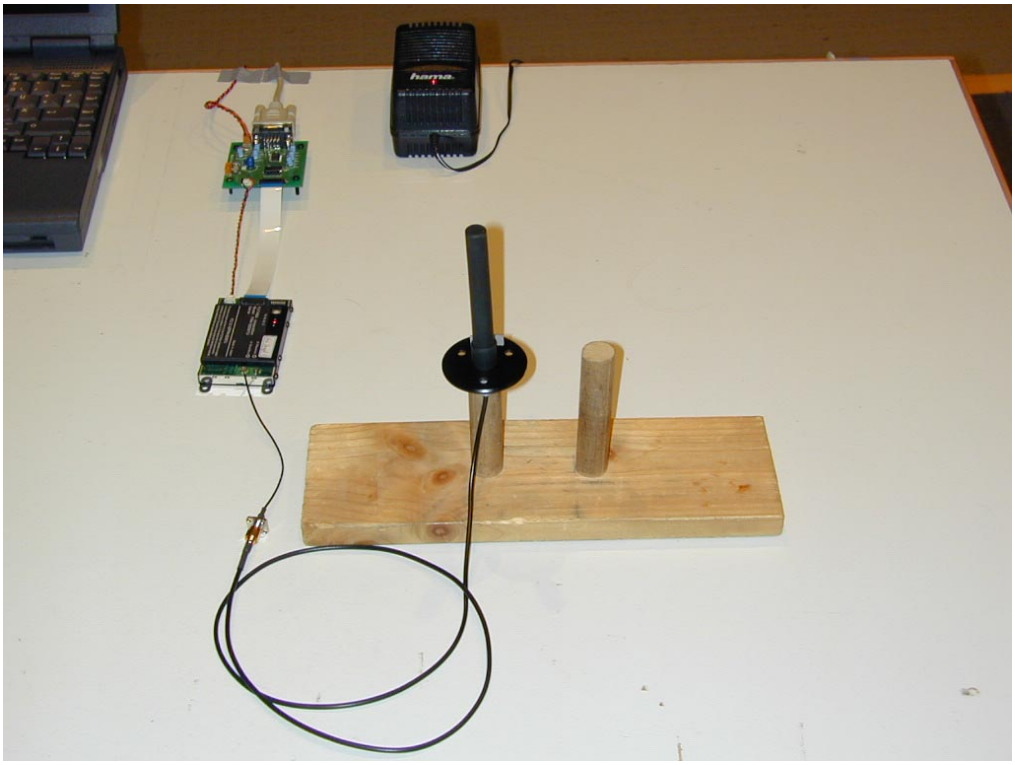
Frequency range	Detector	Resolution Bandwidth	Video Bandwidth	Trace Mode
30 - 1000 MHz	Quasi Peak	100 kHz	1 MHz	Max Hold
> 1000 MHz	Peak	1 MHz	1 MHz	Max Hold

7. Photographs Taken During Testing

Radiated emission testing in semianechoic chamber







8. List of Measurements

FCC Part 15 Subpart C			
Section(s):	**Test**	**Page**	**Result**
	Transmit mode (TX):		
§15.249.a	Field strength of emissions (fundamental and harmonics)	19/20	passed
§15.249.c	Field strength of emissions (except fundamental and harmonics)	21	passed
DA 00-1407	Modular Transmitter Approval Requirements		passed
	Receive mode (RX)		
§ 15.209	Field strength of emissions	22	passed

9. Test Results

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.249 (a)

Model:	FRH-SD06TU
Type:	RF Modem Module
Serial No.:	FCC Sample 1
Applicant:	Futaba Corporation
Test Site:	Open Field Test Site (< 1GHz) Semi-anechoic chamber (>1GHz)
Distance:	3 Meter
Date of test:	April 2000

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBµV)	Correction Factor (dB)	Field Strength (dBµV/m)
2443.0	Peak	Vertical	67.77	31.2	98.97
2454.0	Peak	Vertical	66.67	31.2	97.87
2479.0	Peak	Vertical	67.56	31.2	98.76
4957.0	Peak	Horizontal	20.4	28.2	48.6
6150.0	Peak	Vertical	21.42	30.9	52.32
7434.9	Peak	Vertical	11.83	31.1	42.93

Sample calculation of field strength values:

Field Strength (dBµV/m) = Analyzer Reading (dBµV) + Correction Factor (dB)

Test instruments used: (see equipment list for details)
02, 13, 14, 16, 38, 40 ,42, 57, 64, 67

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.249 (c) Calculation of final result using the duty cycle correction factor

Model:	FRH-SD06TU
Type:	RF Modem Module
Serial No.:	FCC Sample 1
Applicant:	Futaba Corporation
Test Site:	Open Field Test Site (< 1GHz) Semi-anechoic chamber (>1GHz)
Distance:	3 Meter
Date of test:	April 2000

Frequency (MHz)	Field Strength (dBµV/m)	Duty Cycle Correction Factor (dB)	Corrected Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2443.0	98.97	6.0	92.97	**94.0**	**1.03**
2454.0	97.87	6.0	91.87	**94.0**	**2.13**
2479.0	98.76	6.0	92.76	**94.0**	**1.24**
4957.0	48.6	6.0	42.6	**54.0**	**11.4**
6150.0	52.32	6.0	46.32	**54.0**	**7.68**
7434.9	42.93	6.0	36.63	**54.0**	**17.37**

Note: For frequencies < 1000 MHz, the Quasi Peak detector has been used, no correction

Requirements for Approval of Modular Transmitters according to Public Notice DA 00-1407

Model:	FRH-SD06TU
Type:	RF Modem Module
Serial No.:	FCC Sample 1
Applicant:	Futaba Corporation

The EUT complies with the requirements for modular approval as stated below:

1.	The modular transmitter must have its ow RF shielding:	☑ Complied
2.	The modular transmitter must have buffered modulation data inputs	☑ Complied
3.	The modular transmitter must have its own power supply regulation	☑ Complied
4.	The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204 (c)	☑ Complied
5.	The modular transmitter must be tested in a stand-alone configuratíon	☑ Complied
6.	The modular transmitter must be labeled with its own FCC ID number	☑ Complied
7.	The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter	**Not applicable**[1]
8.	The modular transmitter must comply with any applicable RF exposure requirements	**Not applicable**[2]

[1] The unit operates under section 15.249 of the rules
[2] TX output power complies with section 15.249 of the rules

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.209 - Receive Mode -

Model:	FRH-SD06TU
Type:	RF Modem Module
Serial No.:	FCC Sample 1
Applicant:	Futaba Corporation
Test Site:	Open Field Test Site (< 1GHz) Semi-anechoic chamber (>1GHz)
Distance:	3 Meter
Date of test:	April 2000

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBµV)	Correction Factor (dB)	Field Strength (dBµV/m)
46.97	Quasipeak	Vertical	18.8	16.1	**34.9**
55.07	Quasipeak	Horizontal	22.2	15.4	**37.6**
55.46	Quasipeak	Vertical	20.4	15.4	**35.8**
95.57	Quasipeak	Vertical	16.9	16.2	**33.1**
2050.0	Peak	Vertical	19.35	29.7	**49.05**
4103.3	Peak	Vertical	13.2	35.2	**48.4**
6156.6	Peak	Vertical	5.00	37.3	**42.3**

Sample calculation of field strength values:

Field Strength (dBµV/m) = Analyzer Reading (dBµV) + Correction Factor (dB)

Test instruments used: (see equipment list for details)
02, 13, 14, 16, 38, 40 ,42, 57, 64, 67

10. Equipment List

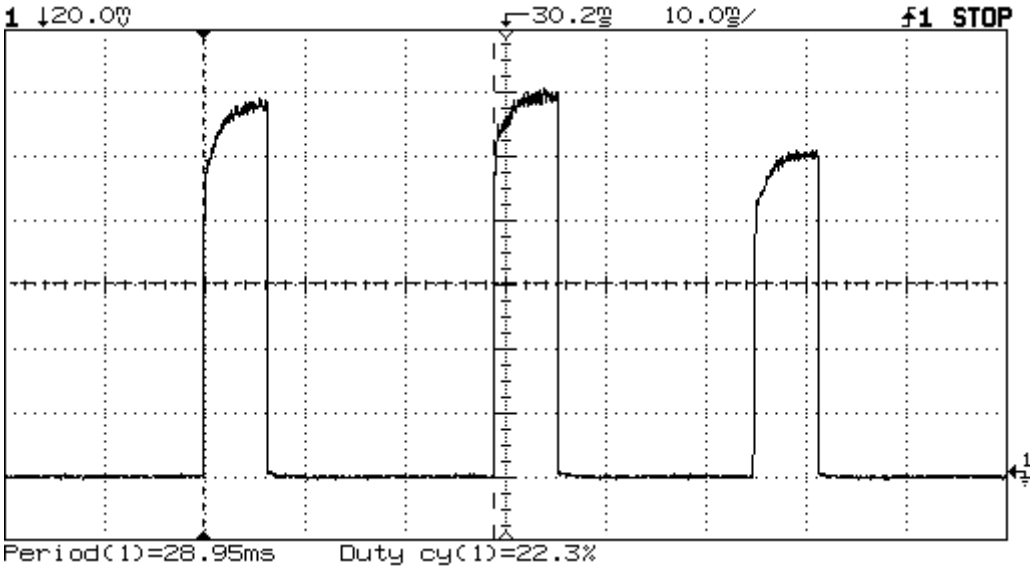
To facilitate reference to test equipment used for related tests, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory.

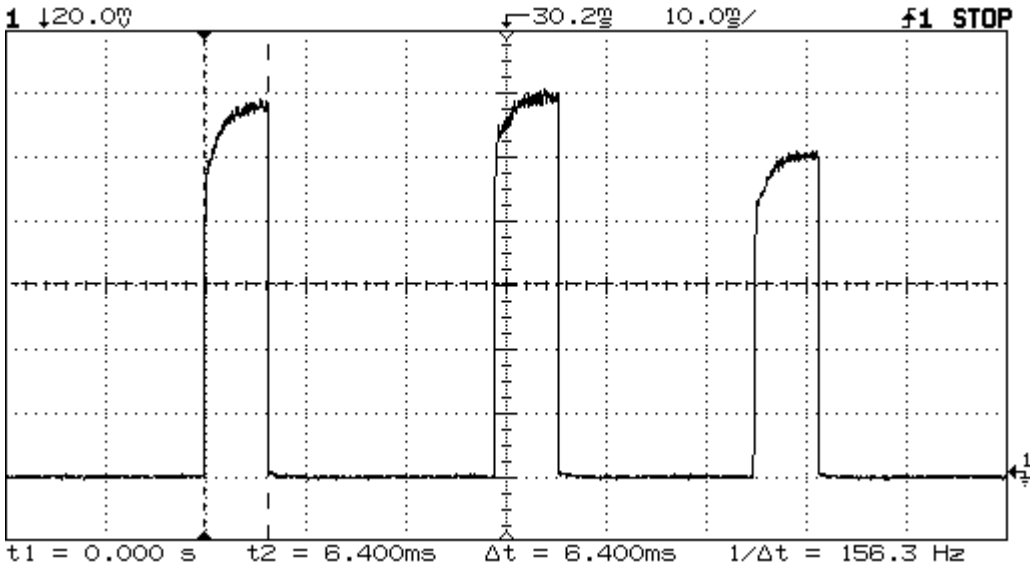
No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	R 3261 A	91720155	Advantest
02	Spectrum Analyzer	R 3271	05050023	Advantest
03	Test Receiver	ESH 3	880112/032	Rohde & Schwarz
04	Test Receiver	ESHS 10	860043/016	Rohde & Schwarz
05	Test Receiver	ESV	881414/009	Rohde & Schwarz
06	Test Receiver	ESVP	881120/024	Rohde & Schwarz
07	Audio Analyzer	UPA	862954	Rohde & Schwarz
08	Power Meter	NRVS	836856/015	Rohde & Schwarz
09	Power Sensor	NRV-Z52	837901/030	Rohde & Schwarz
10	Power Sensor	NRV-Z4	863828/015	Rohde & Schwarz
11	Preamplifier	ESV-Z3	860907/004	Rohde & Schwarz
12	Preamplifier	R14601		Advantest
13	Preamplifier	ACX/080-3030	32640	CTT
14	Preamplifier	ACO/180-3530	32641	CTT
15	Signal Generator	SMS	872166/039	Rohde & Schwarz
16	Signal Generator	HP 8673 D	2930A00966	Hewlett Packard
17	Waveform Generator	HP 33120 A	US34005375	Hewlett Packard
18	UHF Attenuator Set	DPU	300771/075	Rohde & Schwarz
19	UHF Attenuator Set	DPU	300788/006	Rohde & Schwarz
20	Pulse Limiter	ESH 3-Z2	1144	Rohde & Schwarz
21	Pulse Limiter	11947 A	3107A00566	Hewlett Packard
22	V-Network	ESH 3-Z5	862770/018	Rohde & Schwarz
23	V-Network	ESH 3-Z5	894785/005	Rohde & Schwarz
24	V-Network	ESH 3-Z5	830952/025	Rohde & Schwarz
25	V-Network	ESH 3-Z6	830722/010	Rohde & Schwarz
26	V-Network	NSLK 8127	8127152	Schwarzbeck
27	V-Network	NNLA 8119	8119148	Schwarzbeck
28	V-Network	SE 01	01	Senton
29	T-Network	ESH 3-Z4	890602/011	Rohde & Schwarz
30	T-Network	ESH 3-Z4	890602/012	Rohde & Schwarz
31	High Impedance Probe	TK 9416	01	Schwarzbeck
32	High Impedance Probe	TK 9416	02	Schwarzbeck
33	Current Probe	ESH 2-Z1	863366/18	Rohde & Schwarz
34	Current Probe	ESV-Z1	862553/3	Rohde & Schwarz

No.	Type	Model	Serial Number	Manufacturer
35	Absorbing Clamp	MDS 21	80911	Lüthi
36	Absorbing Clamp	MDS 21	79690	Lüthi
37	Loop Antenna	HFH2-Z2	882964/1	Rohde & Schwarz
38	Biconical Antenna	HK 116	836239/02	Rohde & Schwarz
39	Biconical Antenna	BBA 9106	A0379 324	Schwarzbeck
40	Log. Periodic Antenna	HL 223	834408/12	Rohde & Schwarz
41	Log. Periodic Antenna	UHALP 9107	9107150	Schwarzbeck
42	Horn Antenna	3115	9508-4553	Emco
43	Horn Antenna	3160-03	9112-1003	Emco
44	Horn Antenna	3160-04	9112-1001	Emco
45	Horn Antenna	3160-05	9112-1001	Emco
46	Horn Antenna	3160-06	9112-1001	Emco
47	Horn Antenna	3160-07	9112-1008	Emco
48	Horn Antenna	3160-08	9112-1002	Emco
49	Horn Antenna	3160-09	9403-1025	Emco
50	Digital multimeter	199	463386	Keithley
51	DC Power Supply	NGSM 32/10	203	Rohde & Schwarz
52	DC Power Supply	NGB	2455	Rohde & Schwarz
53	DC Power Supply	NGA	386	Rohde & Schwarz
54	Temperature Test Chamber	HT4010	07065550	Heraeus
55	Cable	RG214	1309	Senton
56	Cable	150CM_001	1479	Rosenberger
57	Cable	150CM_002	1480	Rosenberger
58	Cable Set EG1	RG214	1189 - 1191	Senton
59	Cable Set Cabine 1	RG214		Senton
60	Cable Set Cabine 2	RG214		Senton
61	Cable Set Cabine 3	RG214		Senton
62	Shielded Room	Nr. 1	1451	Senton
63	Shielded Room	Nr. 2	1452	Senton
64	Semi-anechoic Chamber	Nr. 3	1453	Siemens
65	Shielded Room	Nr. 4	1454	Euroshield
66	Open Area Test Site	EG 1		Senton
67	High pass filter			AT & T

11. Charts Taken During Testing

Calculation of Duty Cycle Correction Factor





Calculation of duty cycle correction factor:
Period of pulse train: 28.95 ms
Length of pulse train: 6.4 ms

The duty cycle correction factor is:

Sum of pulse widths in one period divided by the length of one period

=

6.4 ms / 28.95 ms = 0.221

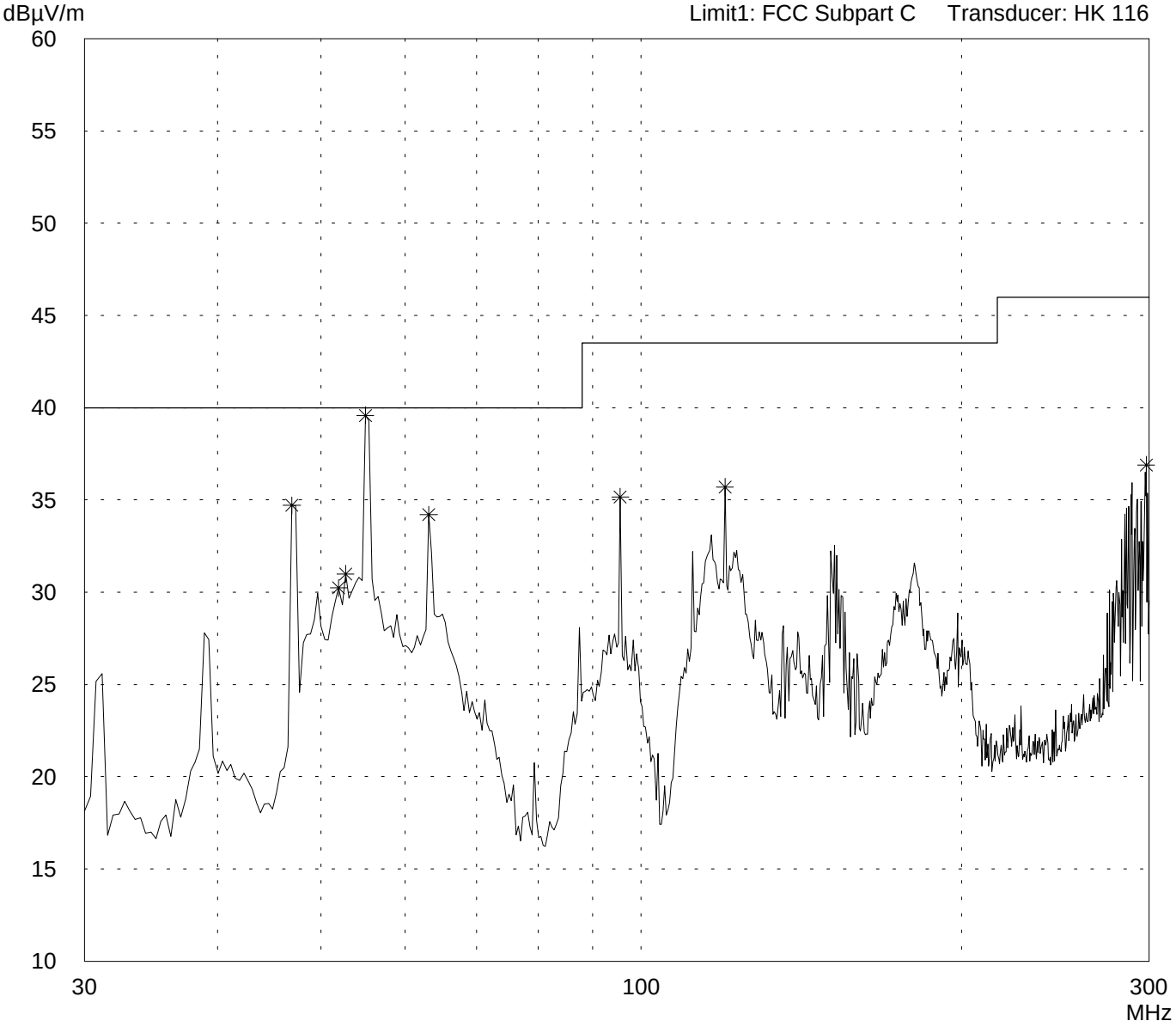
Note: The applicant indicated that a duty cycle of 0.5 = 6 dB will apply for certain conditions and should be used for testing. This duty cycle was used for calculating final results.

11.1. Charts for RX

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup RX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 55503-00169

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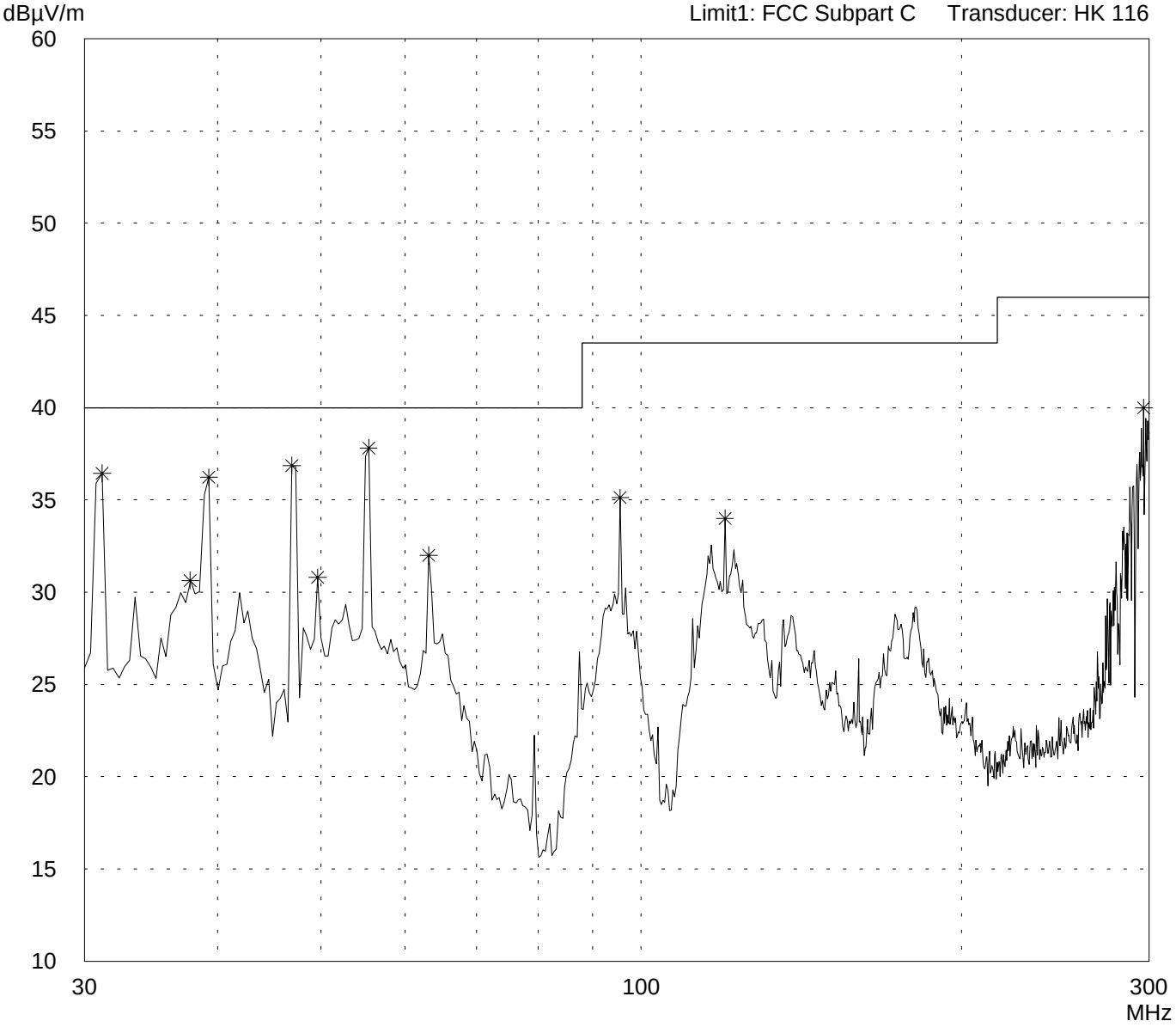
Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup RX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

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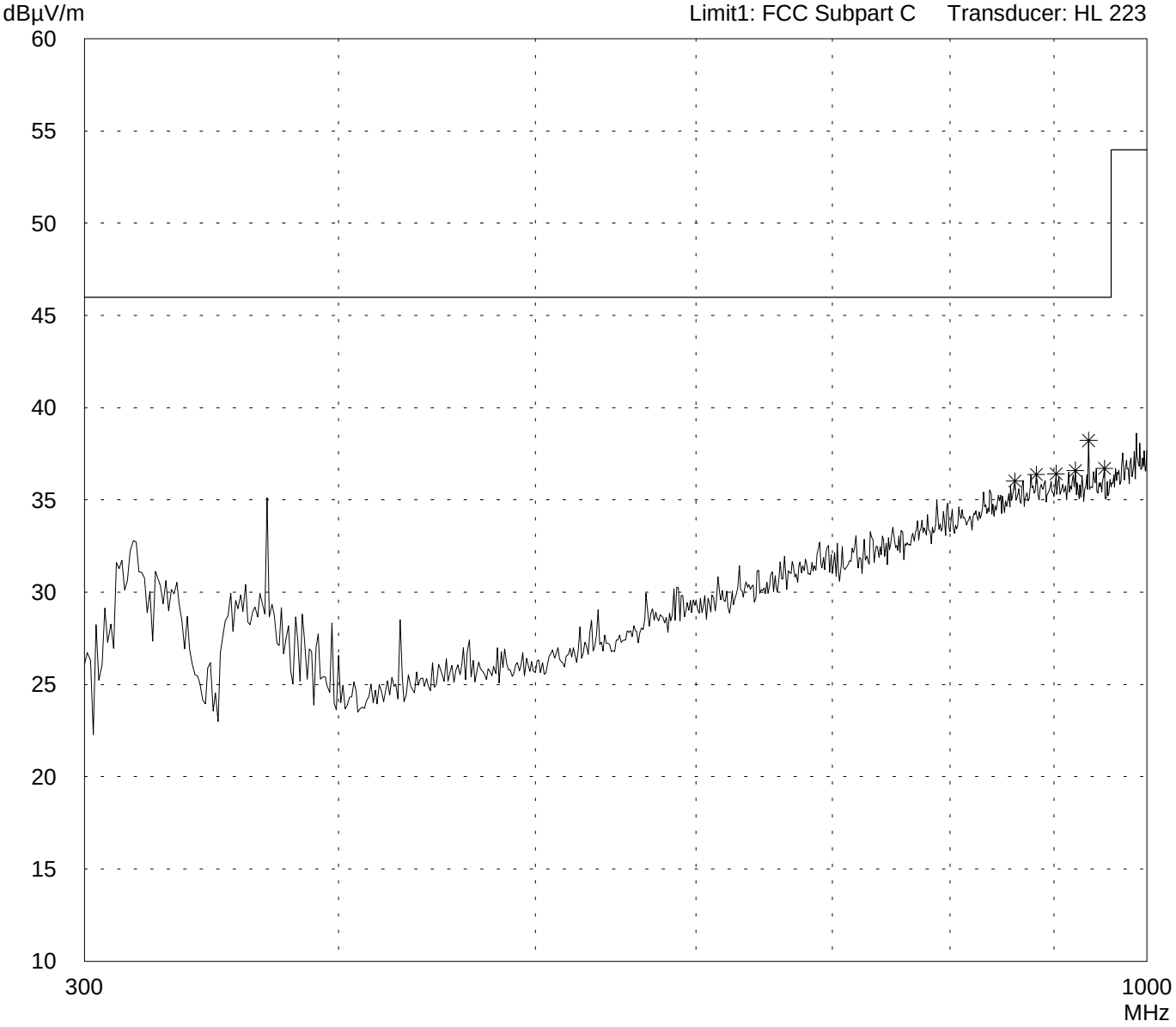
Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup RX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 55503-00169

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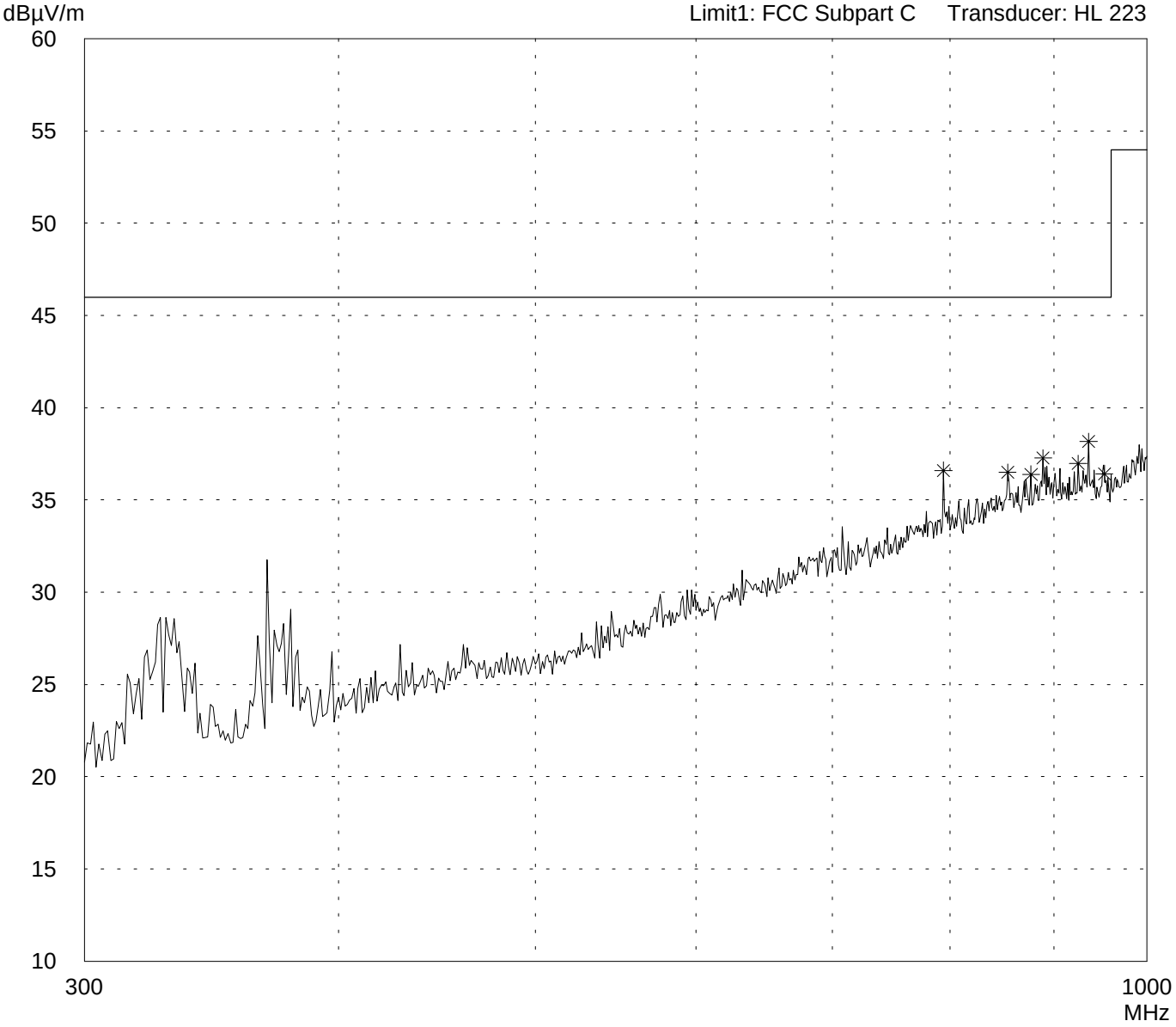
Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup RX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 55503-00169

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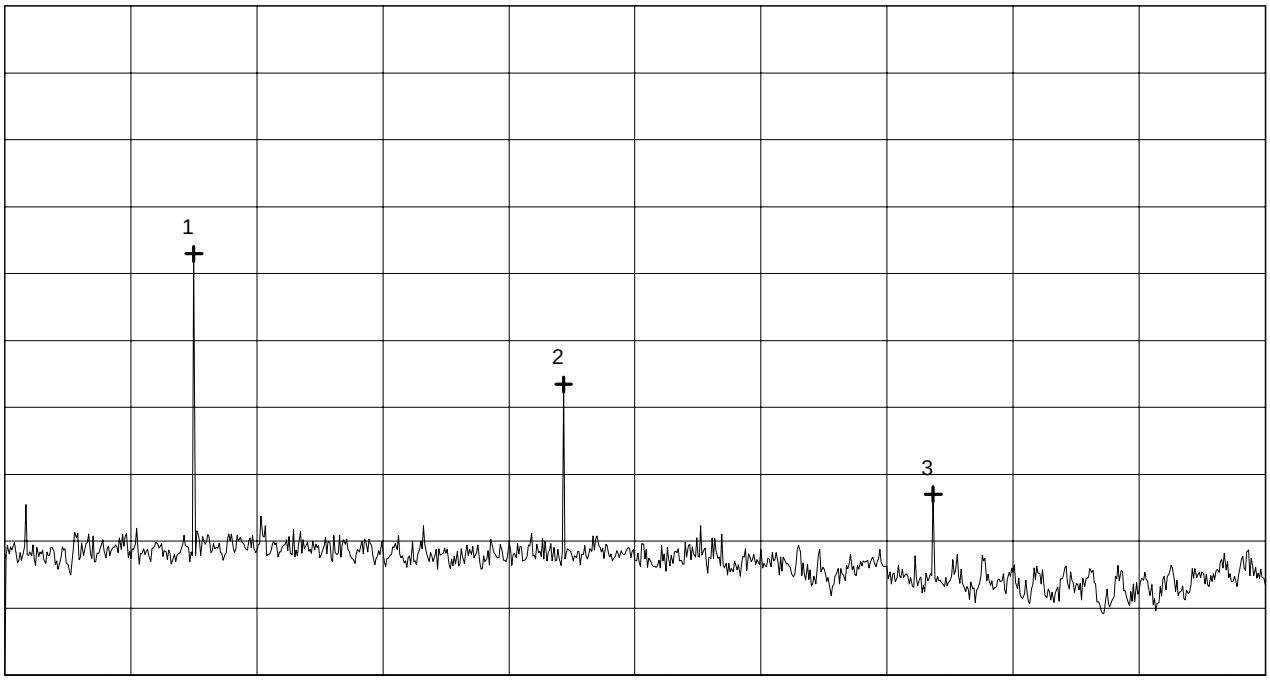
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 41.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 1.000 GHz Stop 8.000 GHz
RBW 300 kHz VBW 300 kHz SWP 240 ms

**** Multi Marker ****

Nr.1	2.050000 GHz	22.98 dBµV
Nr.2	4.103333 GHz	13.22 dBµV
Nr.3	6.156667 GHz	5.01 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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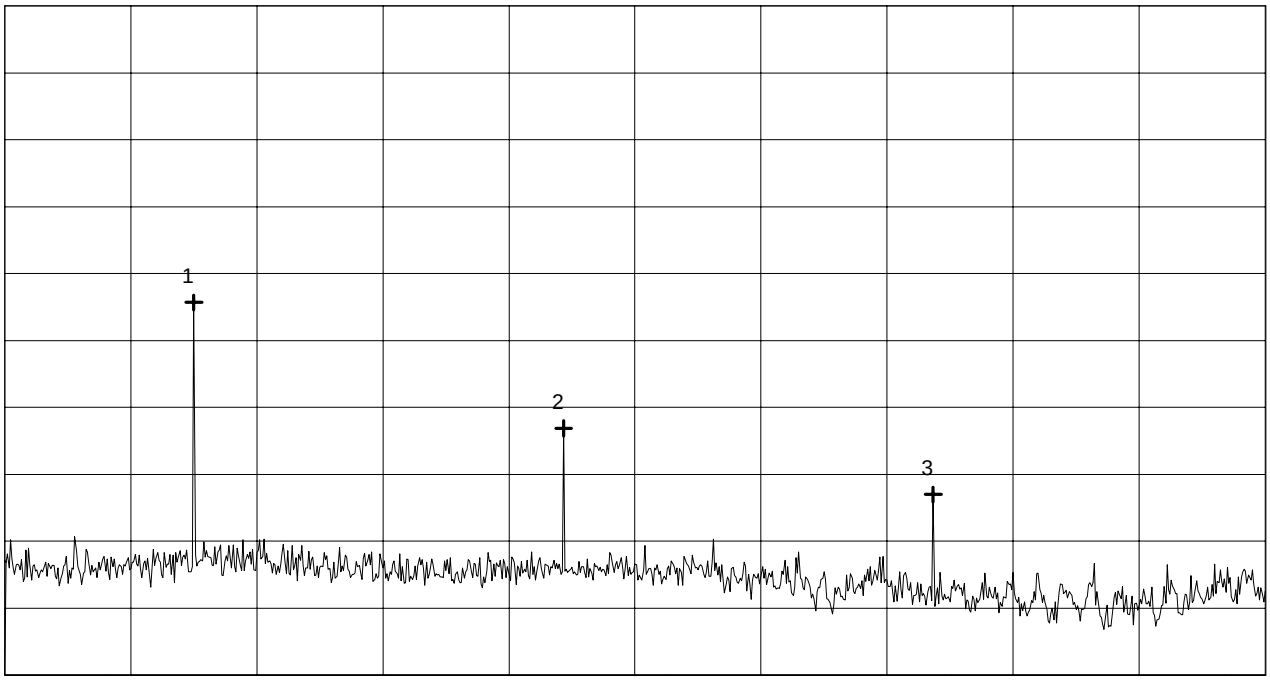
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 41.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 1.000 GHz Stop 8.000 GHz
RBW 300 kHz VBW 300 kHz SWP 240 ms

**** Multi Marker ****

Nr.1	2.050000 GHz	19.35 dBµV
Nr.2	4.103333 GHz	9.93 dBµV
Nr.3	6.156667 GHz	4.99 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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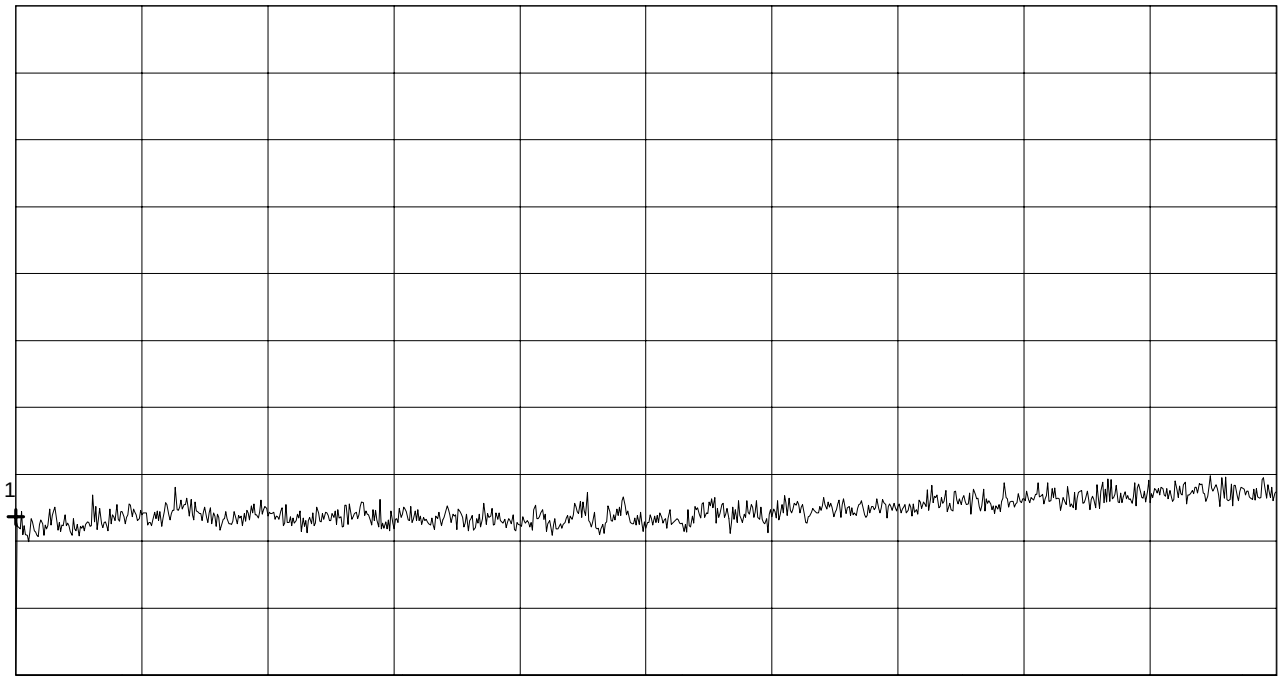
Date: Aprill 22, 2000	Page 33 of 90 Pages

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 37 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB dB/Div.



Start 8.000 GHz Stop 12.400 GHz
RBW 300 kHz VBW 300 kHz SWP 160 ms

**** Multi Marker ****

Nr.1	8.000000 GHz	-1.20 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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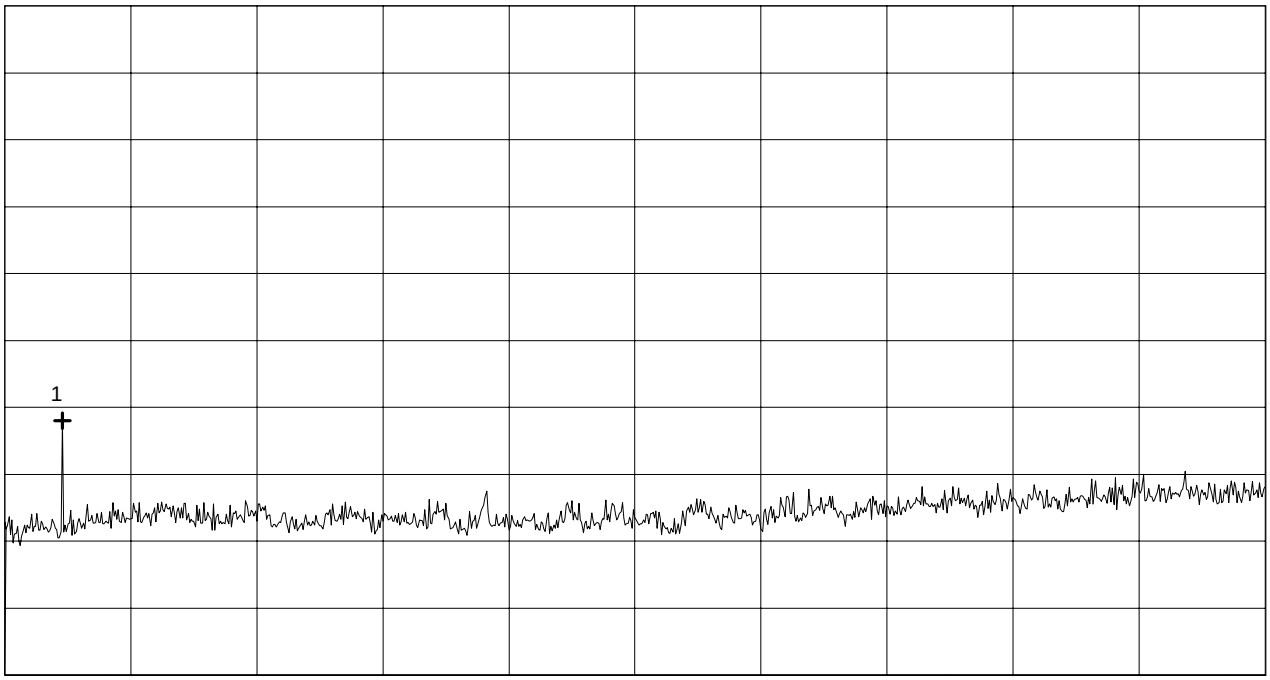
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 37 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB dB/Div.



Start 8.000 GHz Stop 12.400 GHz
RBW 300 kHz VBW 300 kHz SWP 160 ms

**** Multi Marker ****

Nr.1	8.200444 GHz	6.00 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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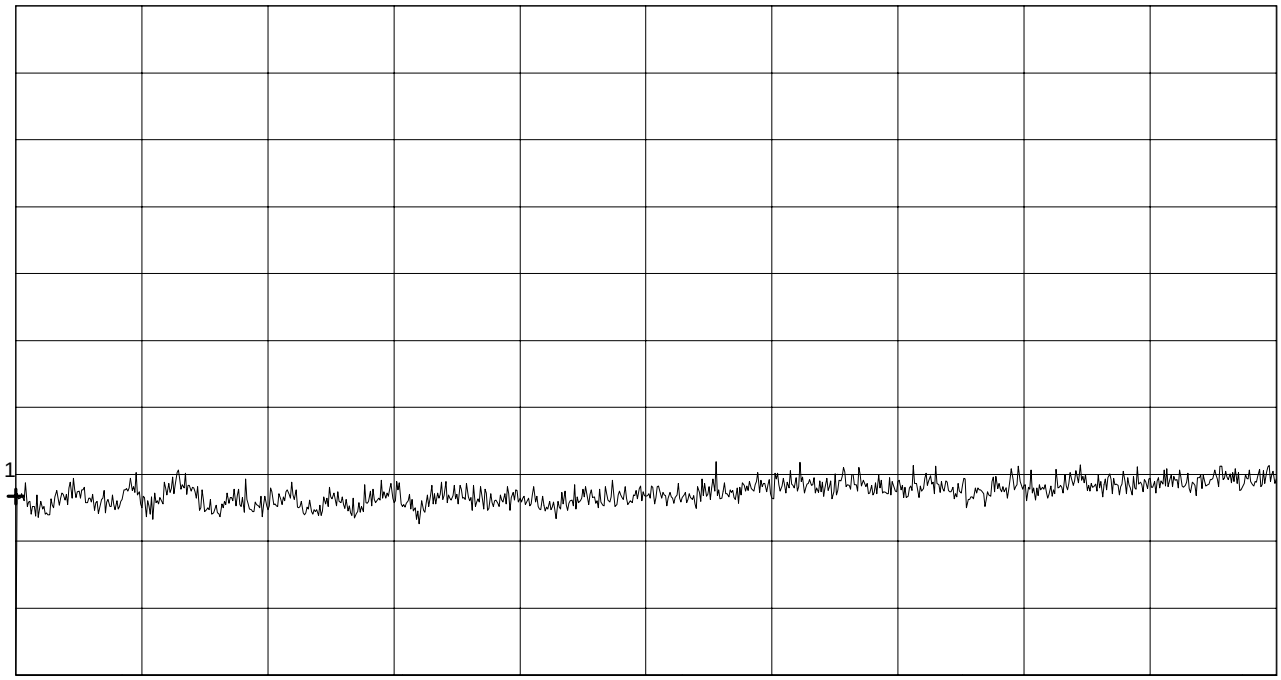
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 37 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	0.34 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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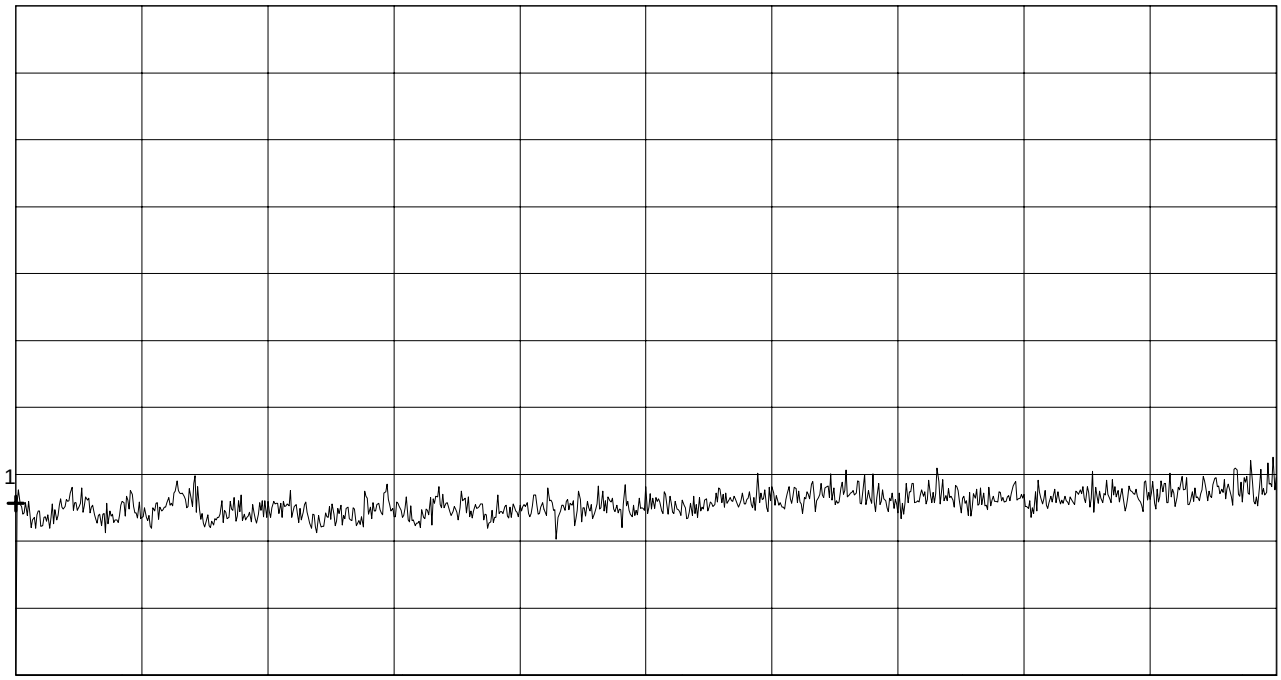
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T	Mode: - RX at 2450 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 37 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB dB/Div.



Start 12.400 GHz Stop 18.000 GHz
RBW 300 kHz VBW 300 kHz SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	-0.18 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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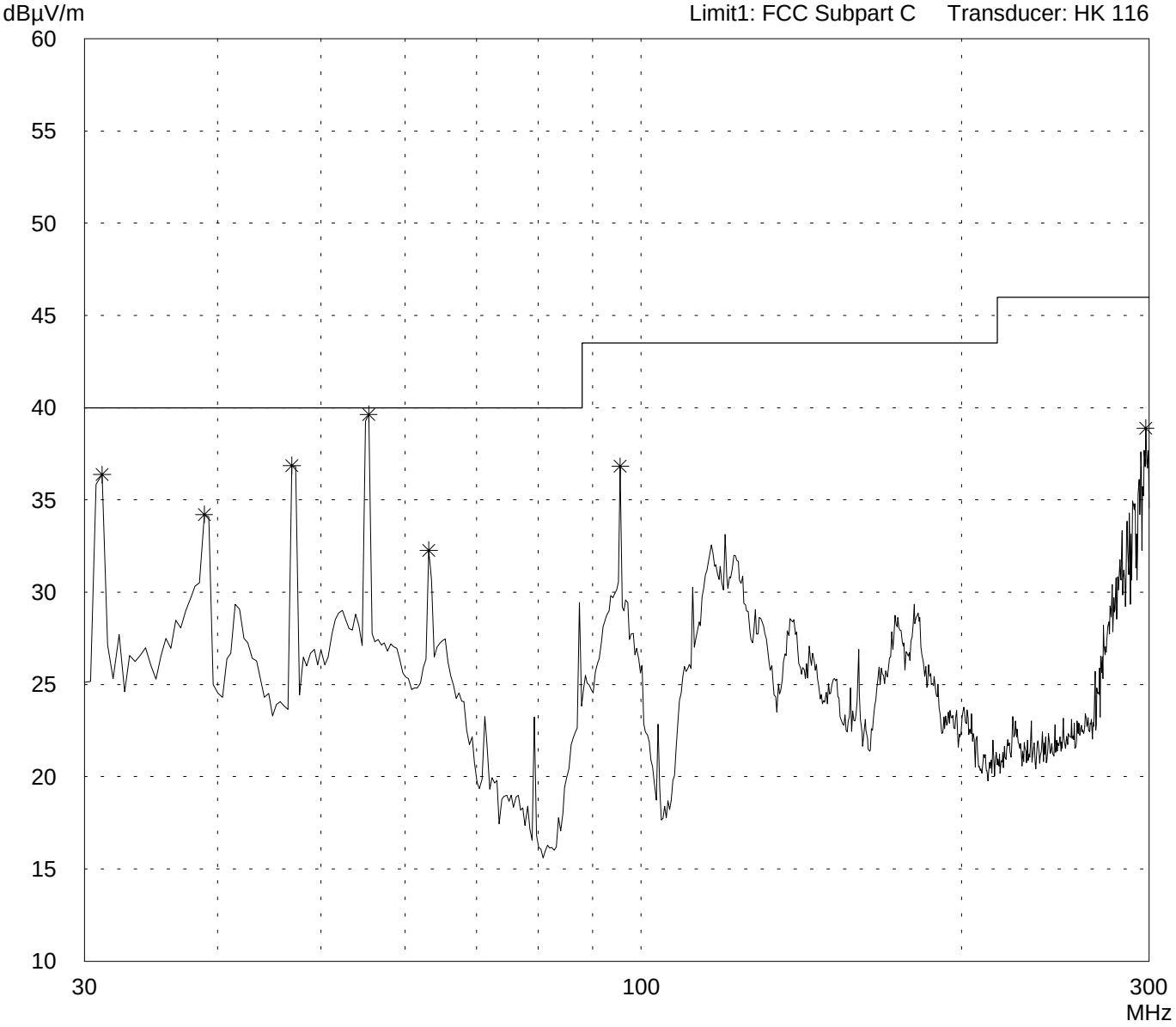
11.2. Charts for TX 2433 MHz

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

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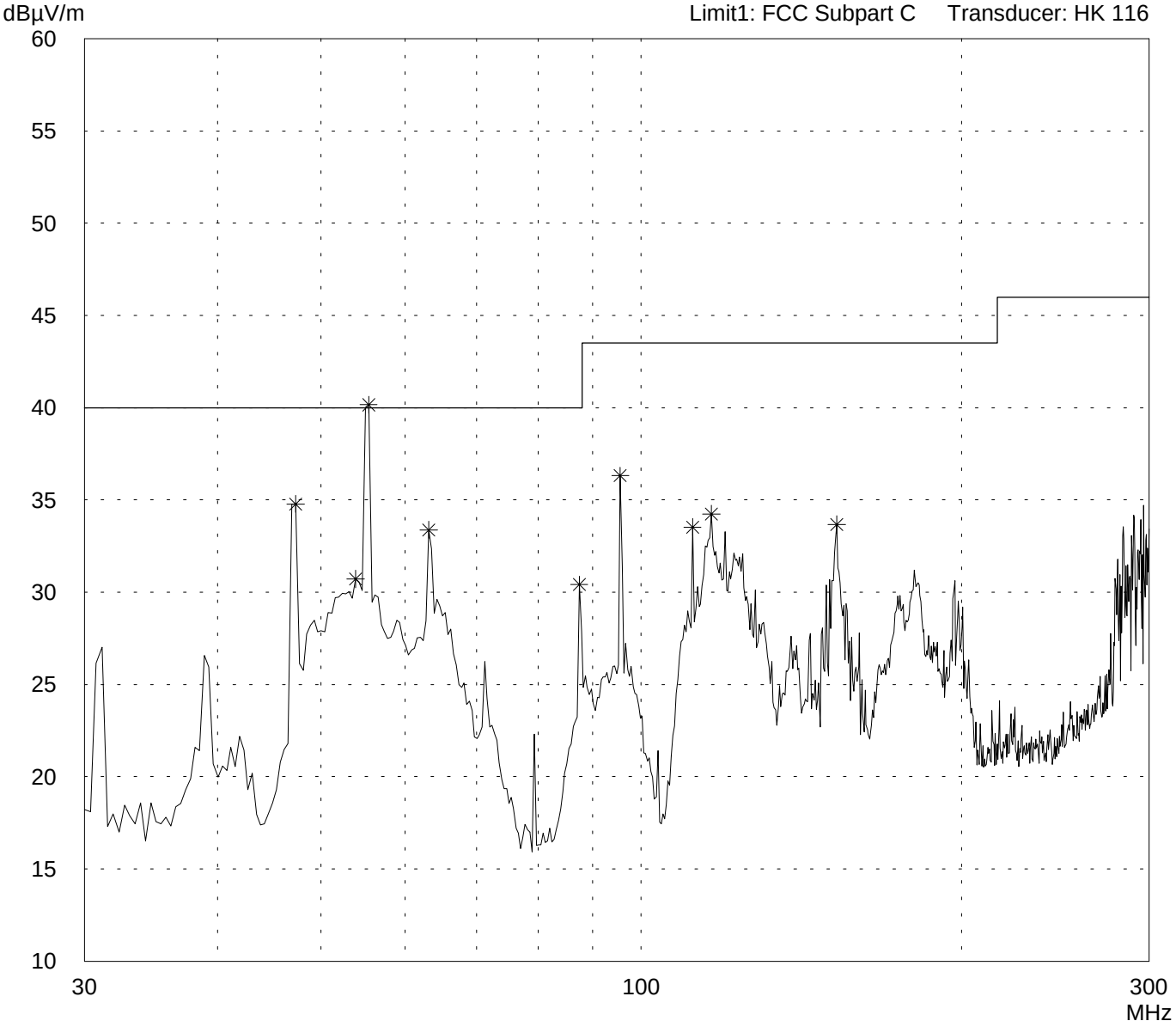
Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

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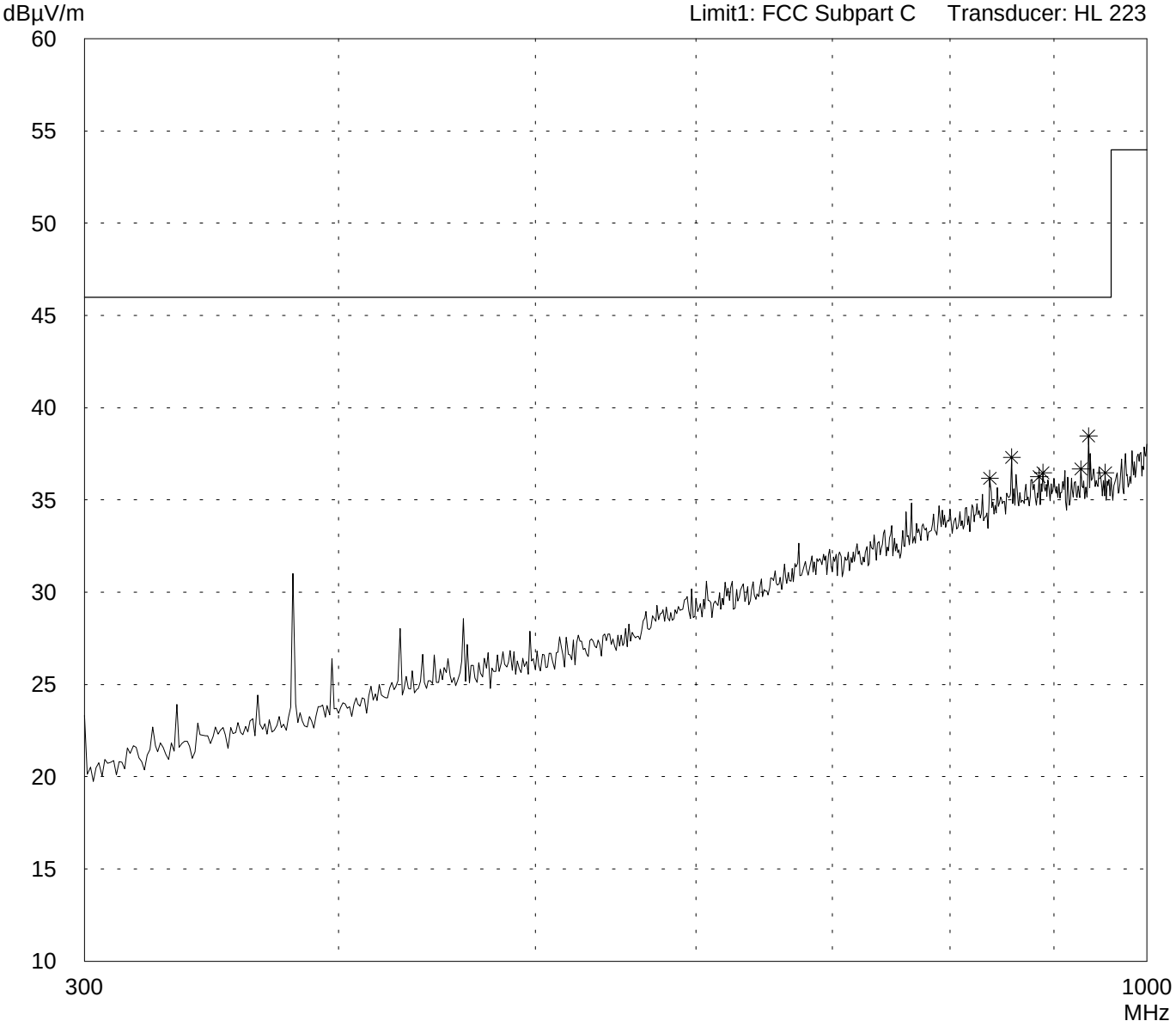
Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 55503-00169

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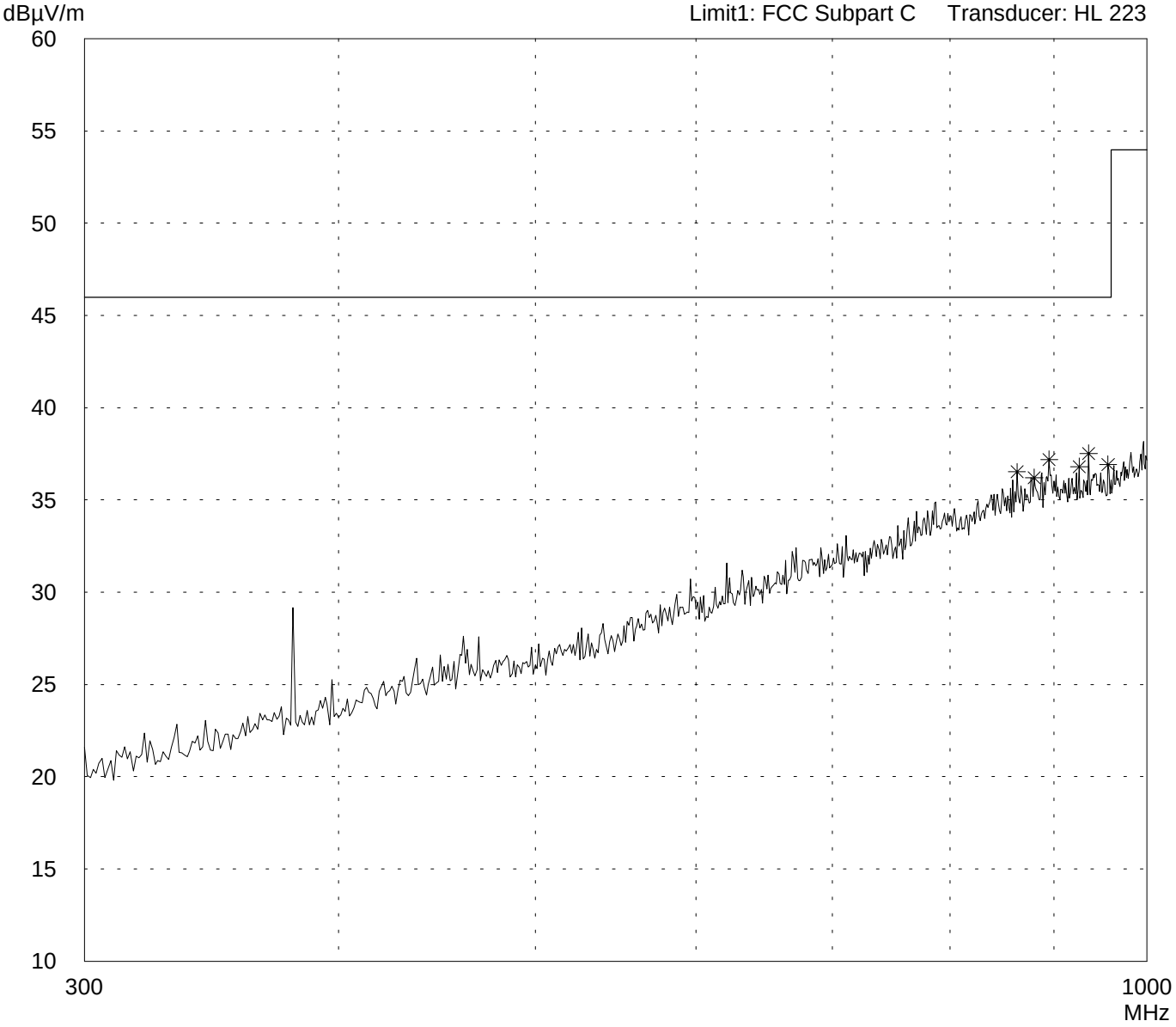
Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2433 MHz (lowest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 55503-00169

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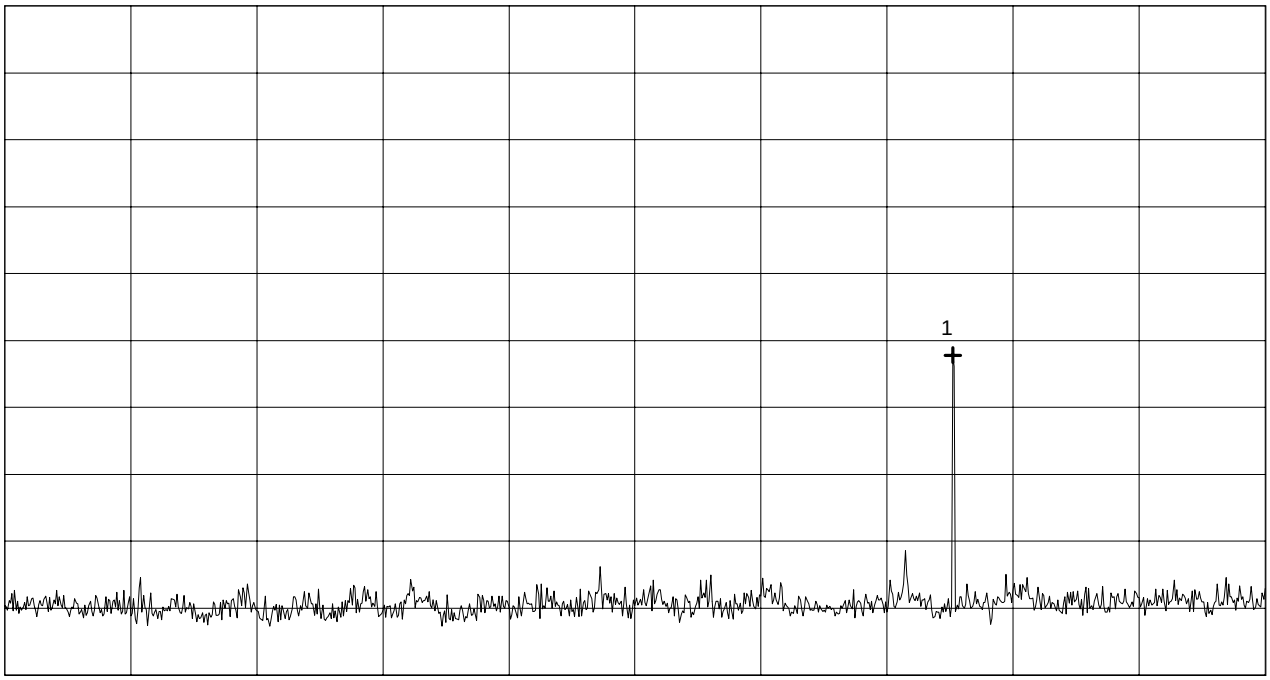
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 300 kHz VBW 300 kHz SWP 60 ms

**** Multi Marker ****

Nr.1	2.053111 GHz	18.41 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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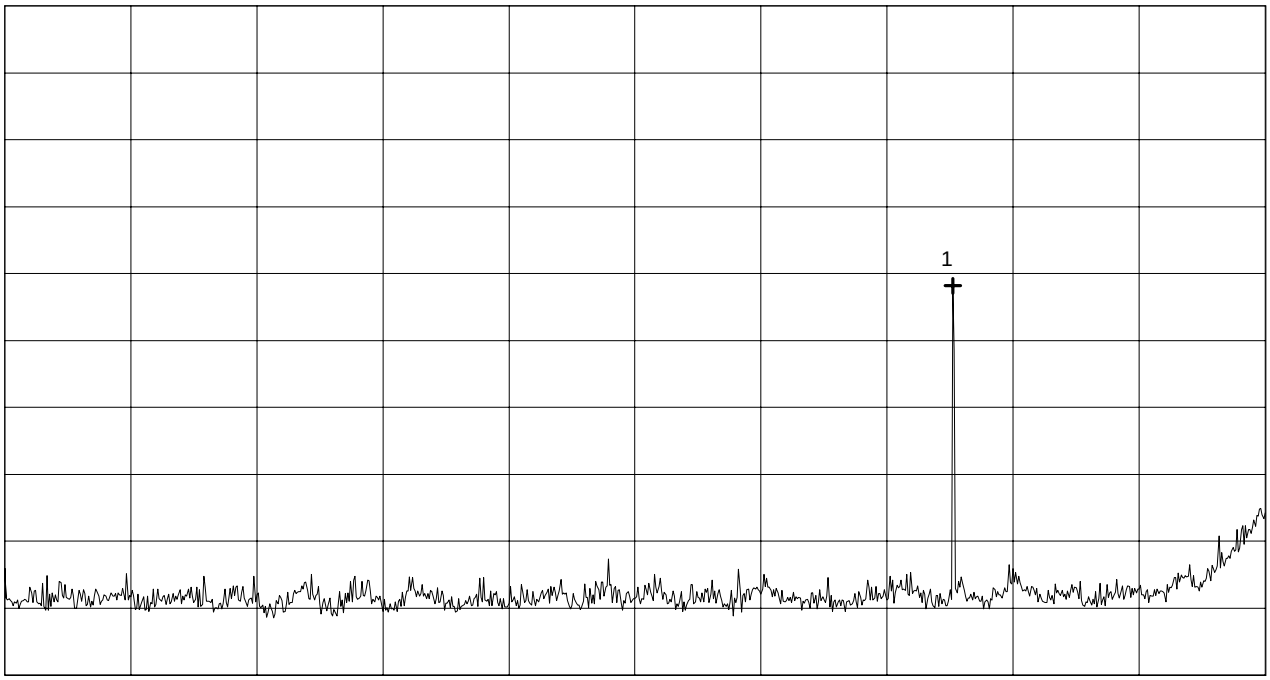
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 300 kHz VBW 300 kHz SWP 60 ms

**** Multi Marker ****

Nr.1	2.053111 GHz	23.58 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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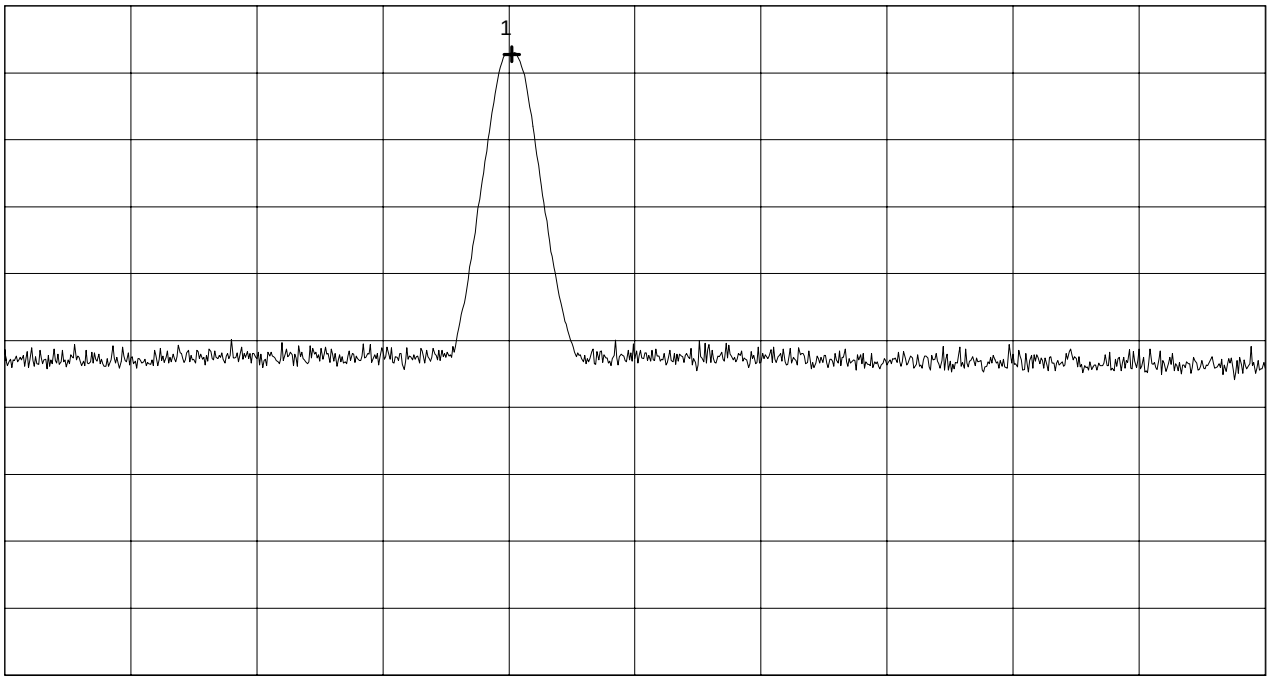
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2443 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.433384 GHz	69.77 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
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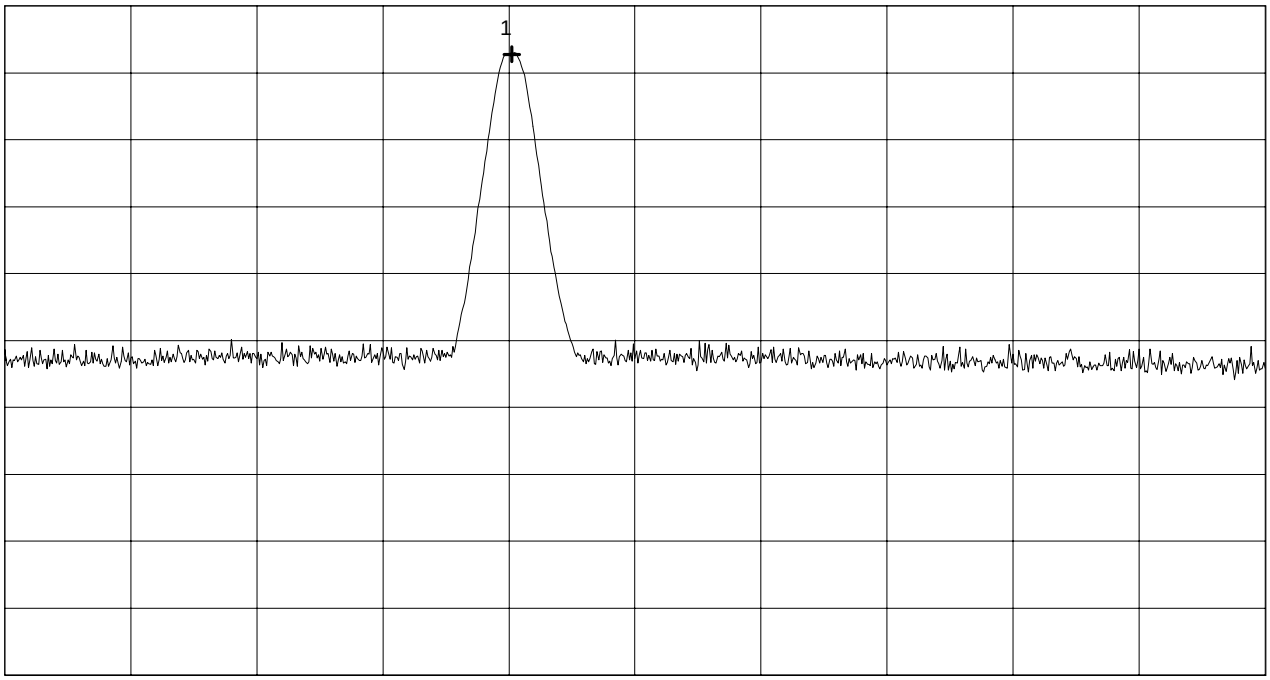
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2443 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.433384 GHz	69.77 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
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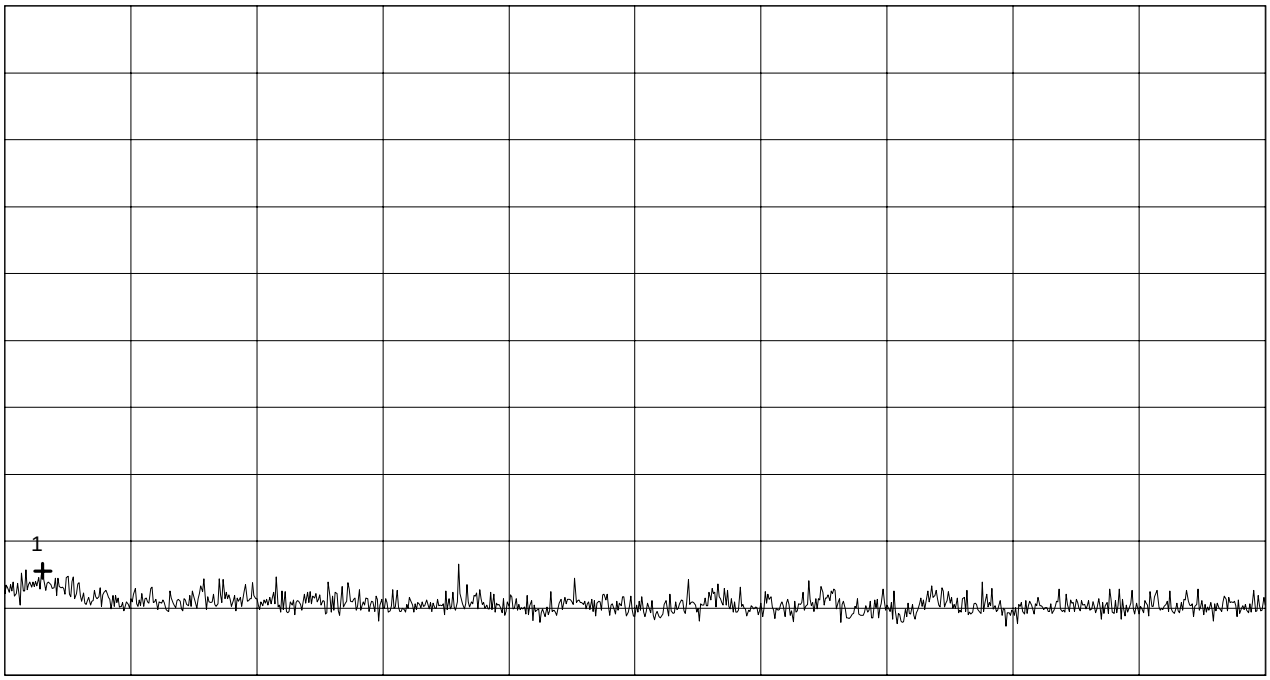
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 2.483 GHz Stop 3.950 GHz
RBW 300 kHz VBW 300 kHz SWP 60 ms

**** Multi Marker ****

Nr.1	2.527010 GHz	2.26 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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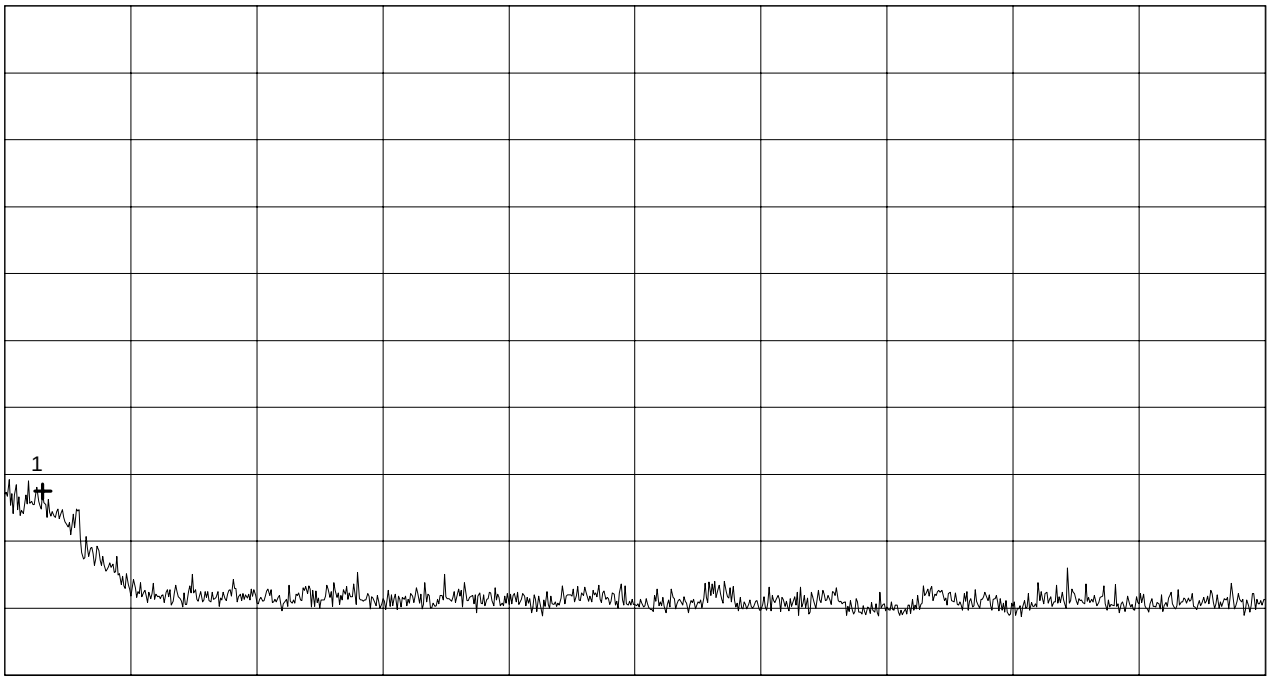
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 2.483 GHz Stop 3.950 GHz
RBW 300 kHz VBW 300 kHz SWP 60 ms

**** Multi Marker ****

Nr.1	2.527010 GHz	8.23 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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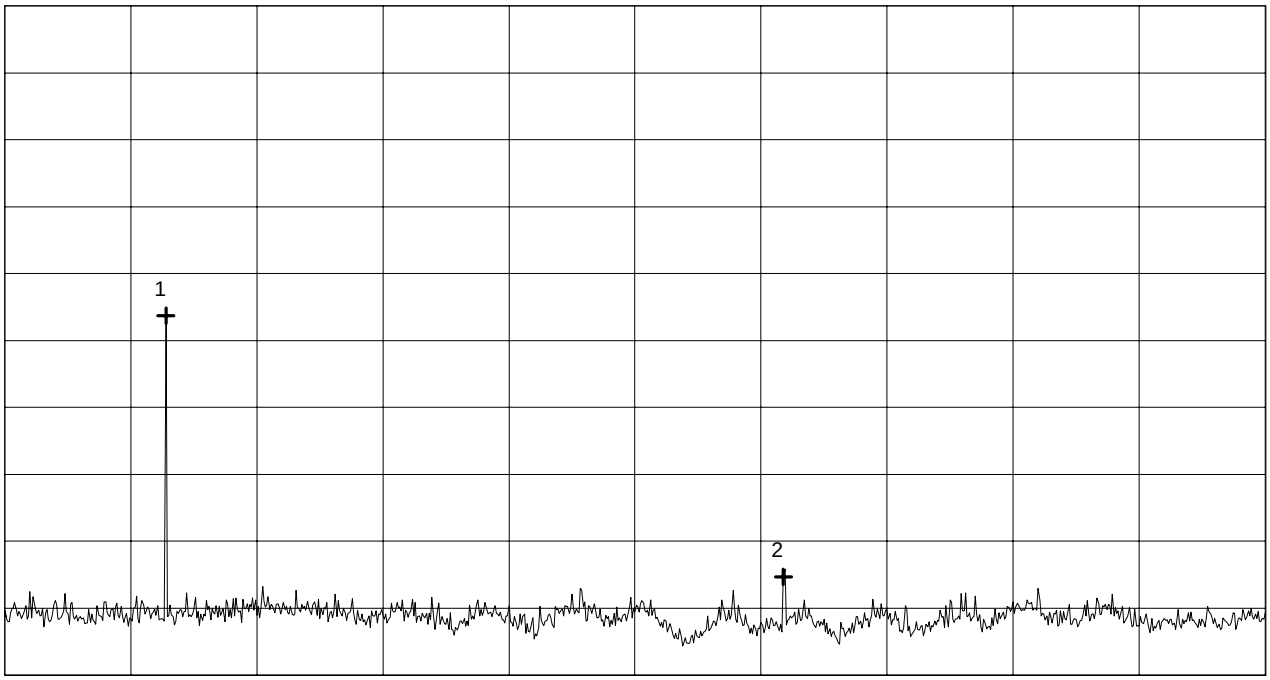
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 300 kHz VBW 300 kHz SWP 80 ms

**** Multi Marker ****

Nr.1	6.150278 GHz	21.35 dBµV
Nr.2	7.301778 GHz	1.83 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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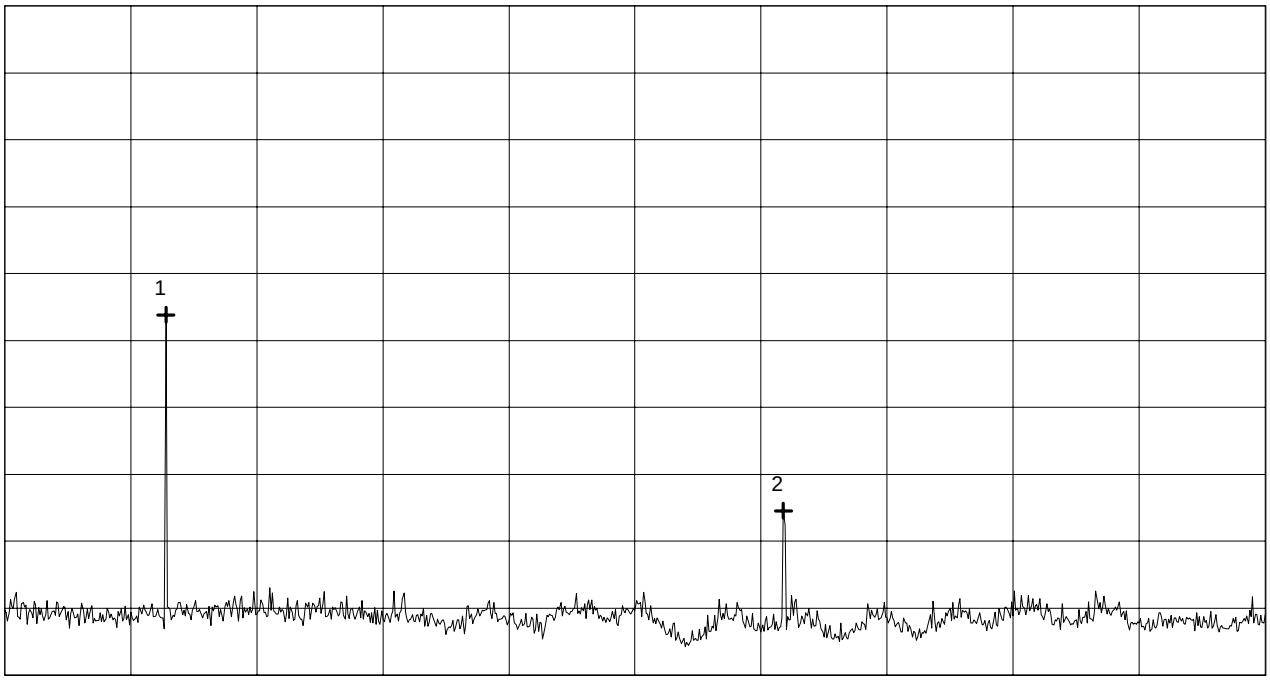
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 300 kHz VBW 300 kHz SWP 80 ms

**** Multi Marker ****

Nr.1	6.150278 GHz	21.42 dBµV
Nr.2	7.301778 GHz	6.77 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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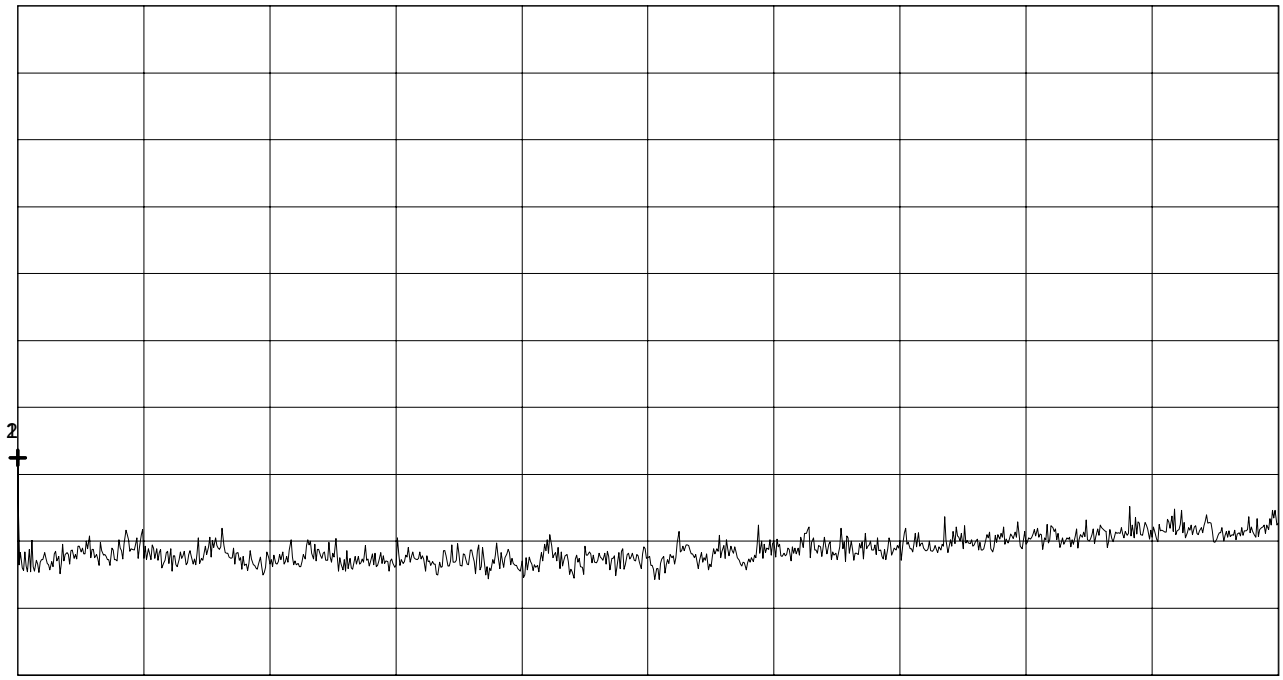
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 8.200 GHz
RBW 300 kHz

VBW 300 kHz

Stop 12.400 GHz
SWP 140 ms

**** Multi Marker ****

Nr.1	8.200000 GHz	6.23 dBµV
Nr.2	8.200000 GHz	6.23 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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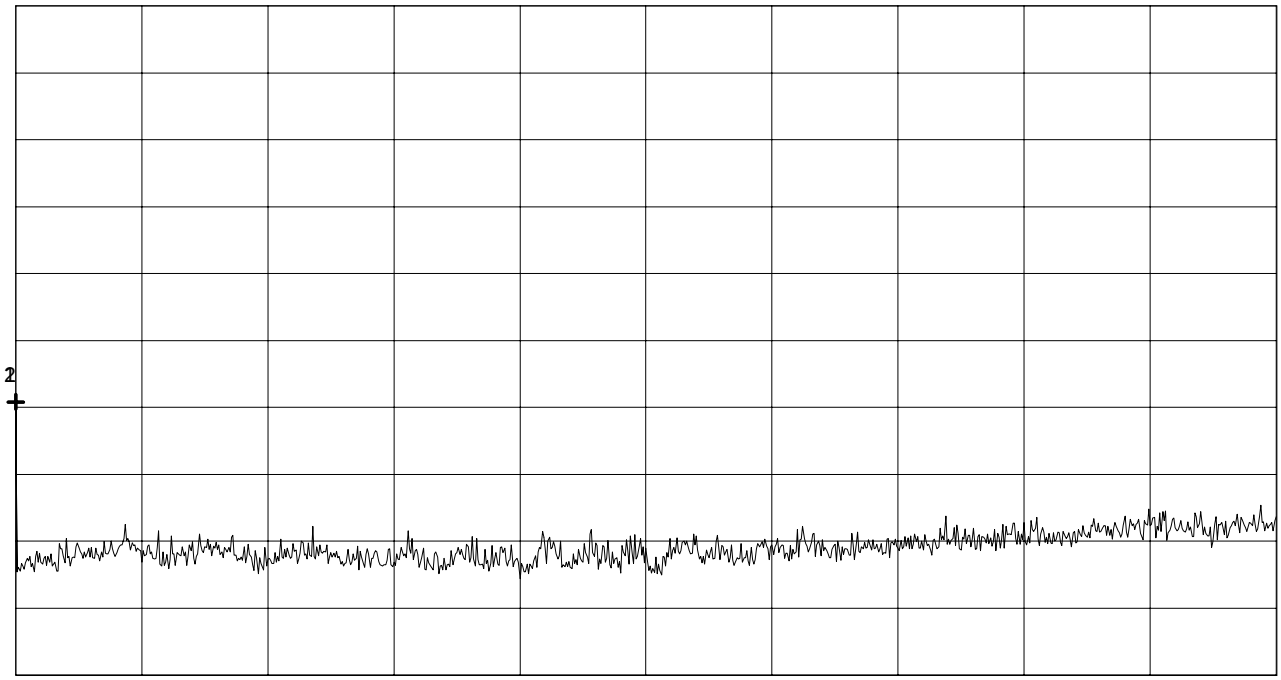
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 300 kHz VBW 300 kHz SWP 140 ms

**** Multi Marker ****

Nr.1	8.200000 GHz	10.41 dBµV
Nr.2	8.200000 GHz	10.41 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
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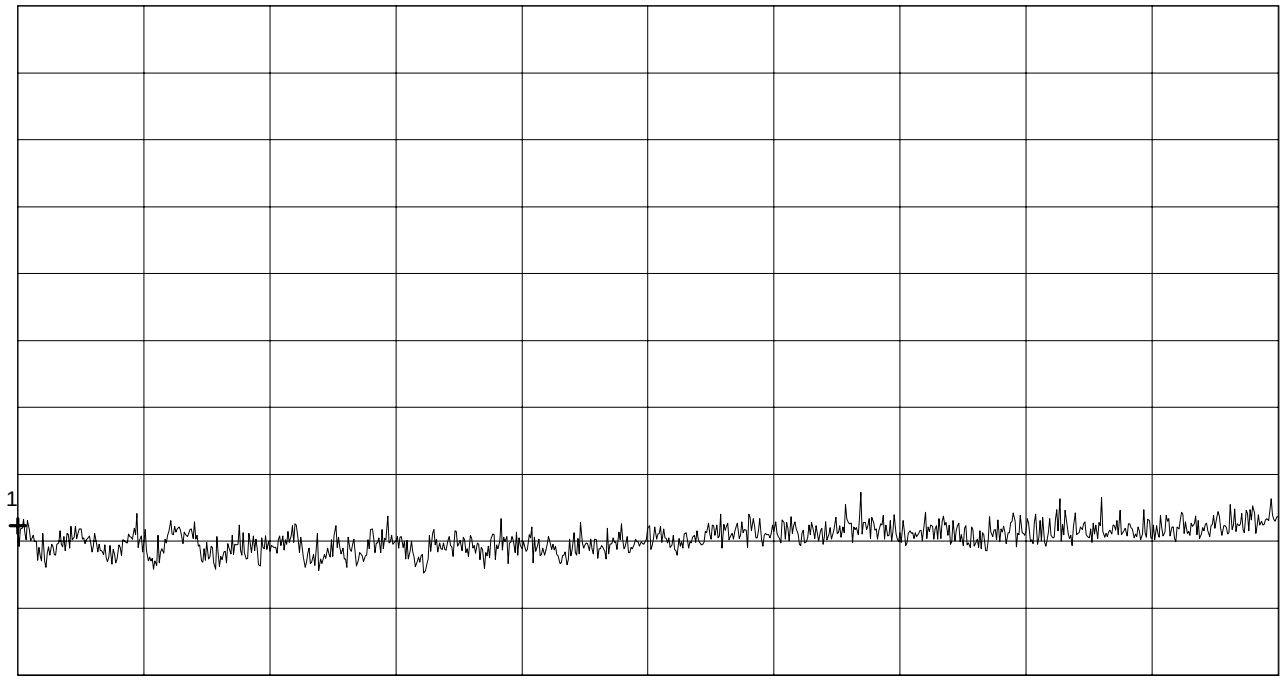
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	1.14 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

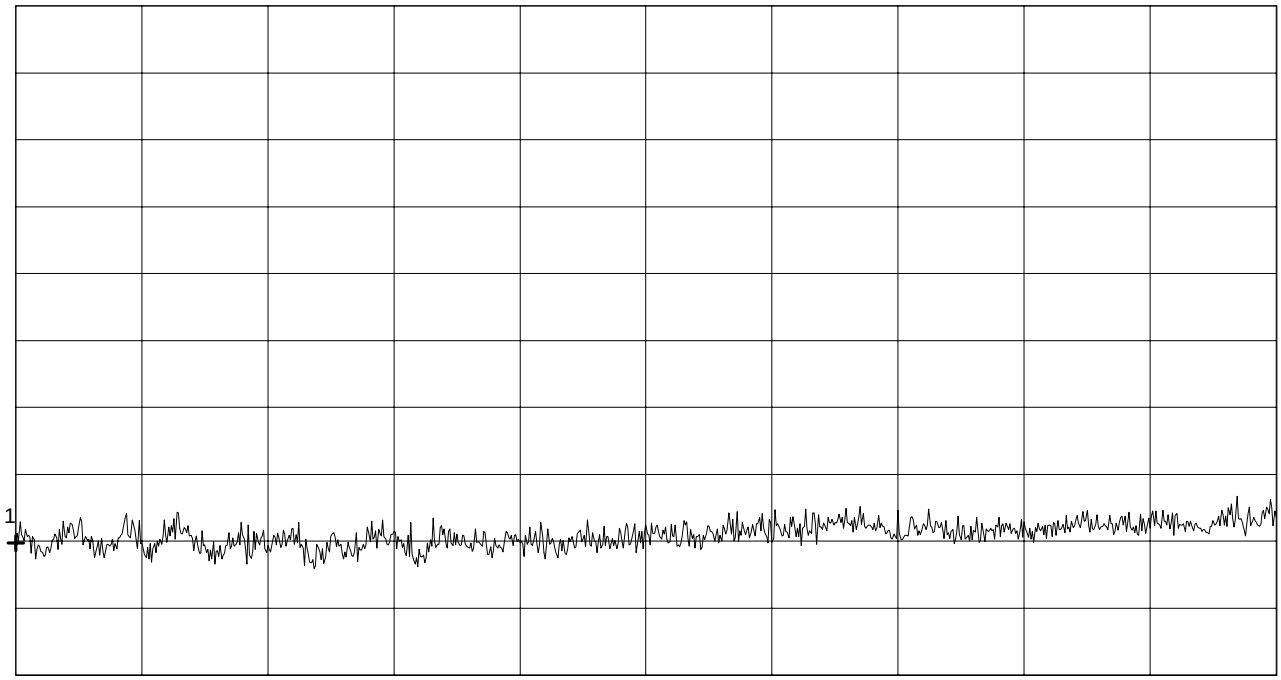
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	-0.15 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
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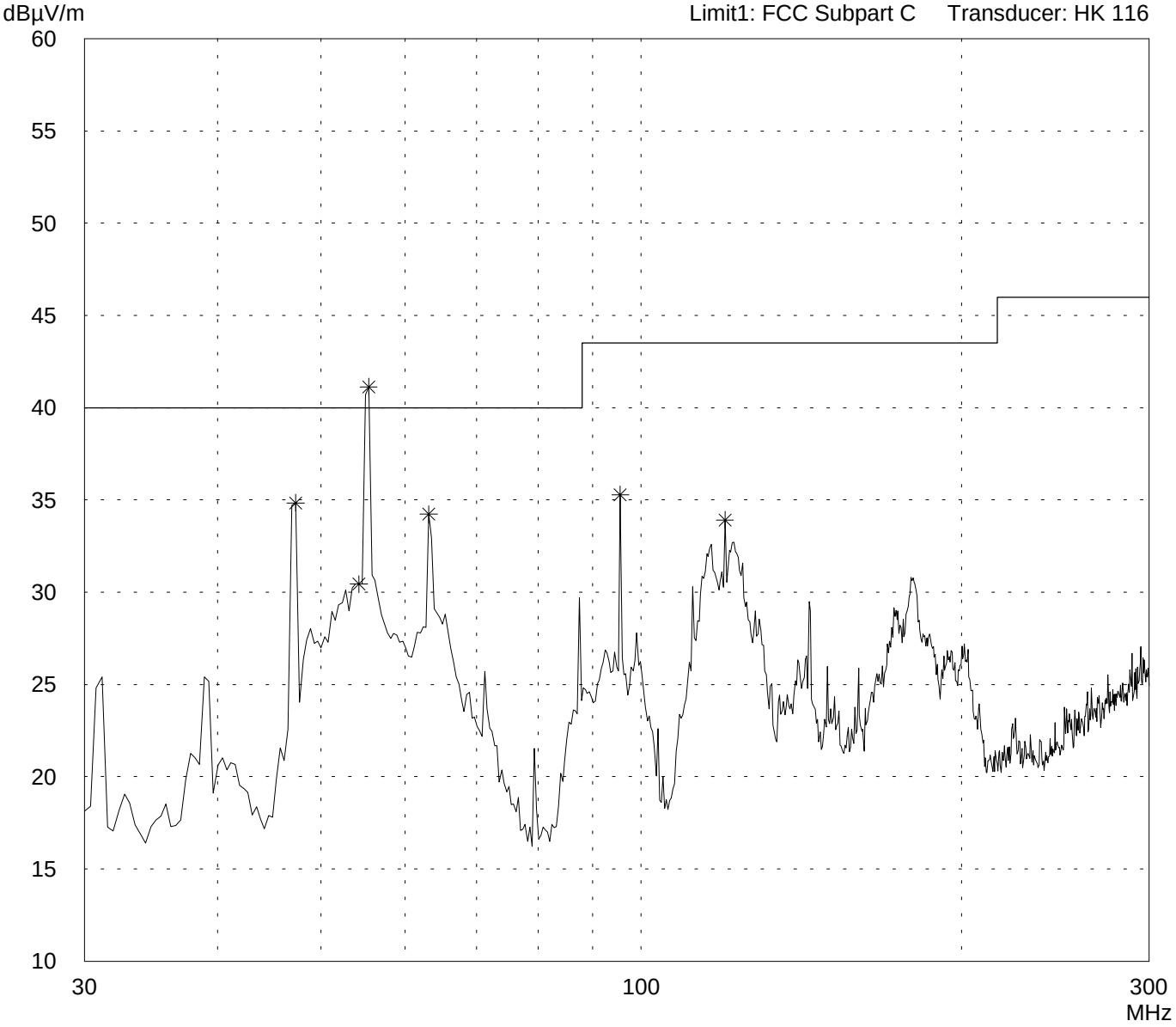
11.3. Charts for TX 2450 MHz

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2454 MHz (middle Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

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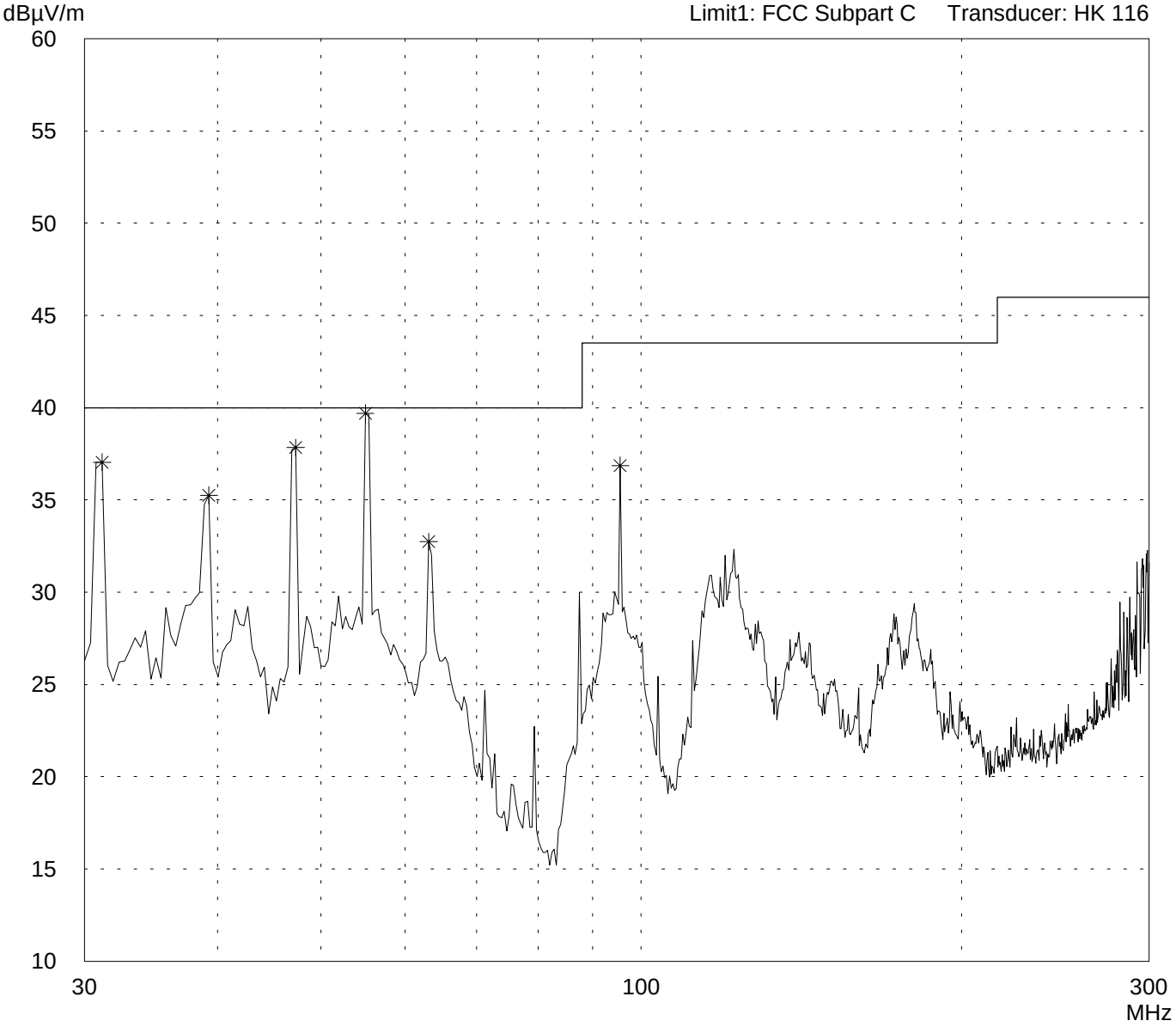
Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2454 MHz (middle Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

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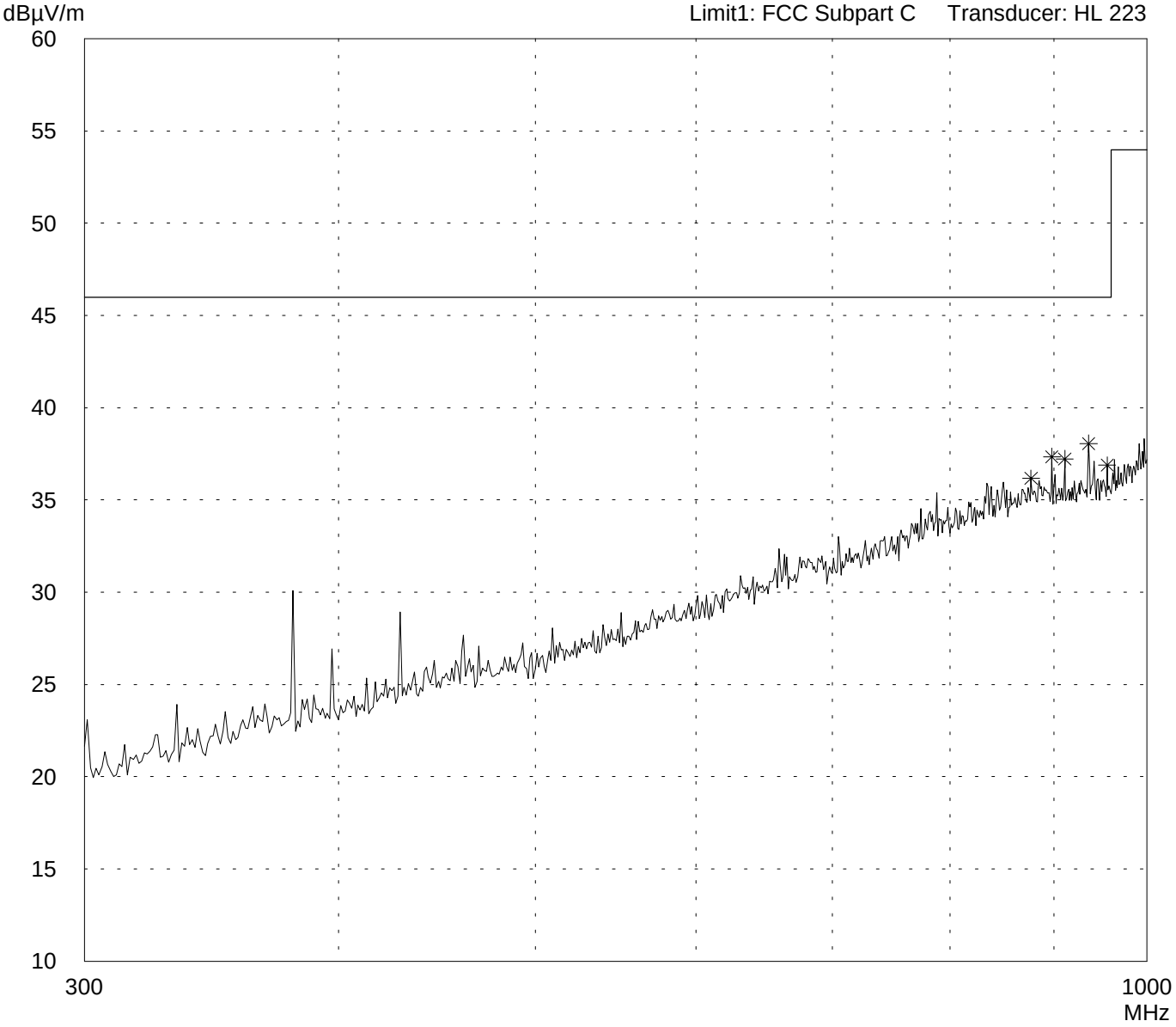
Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2454 MHz (middle Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges

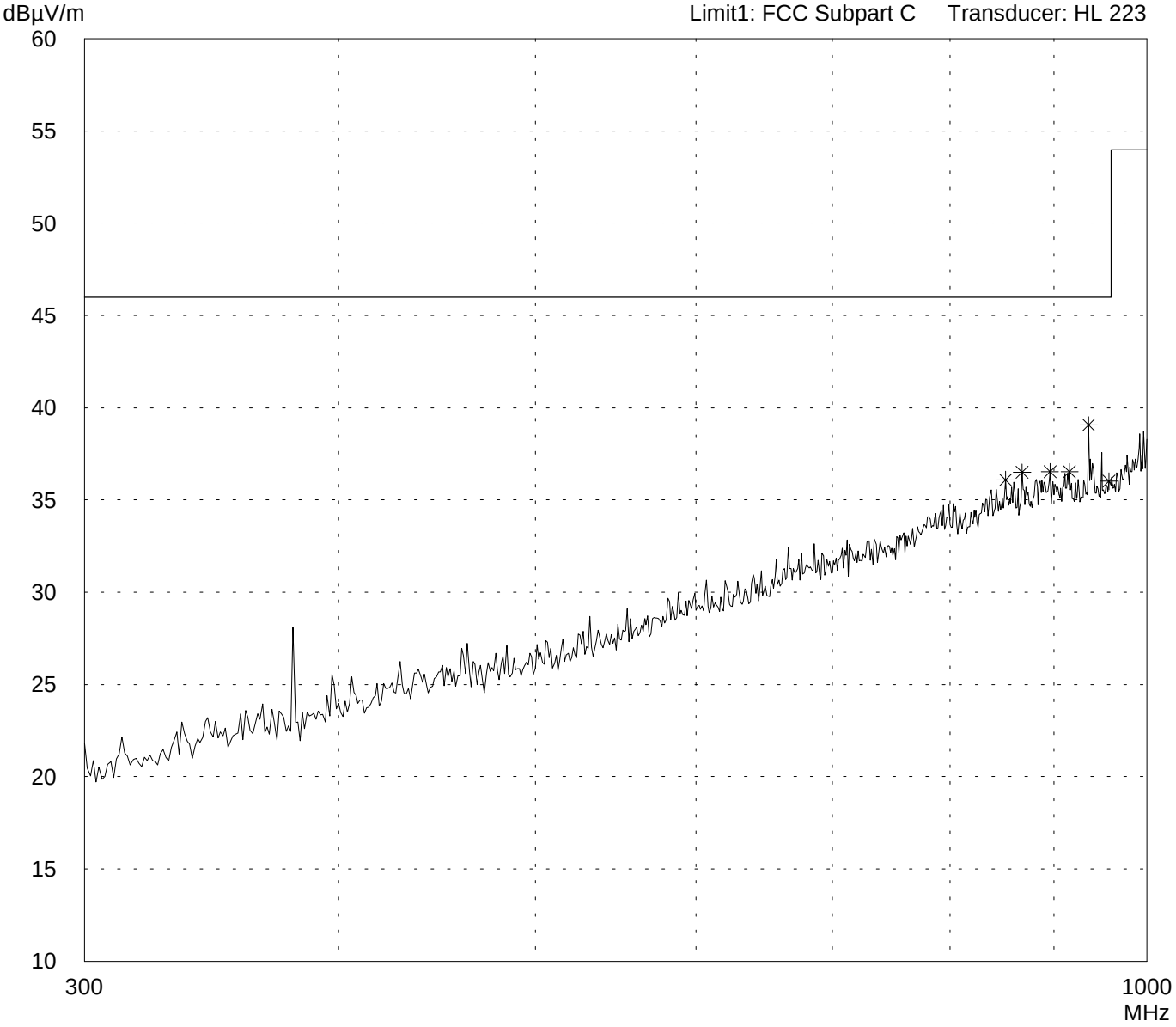


Result: Prescan	Project file: 55503-00169 / Page 58 of 90 Pages

Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2454 MHz (middle Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169 / Page 59 of 90 Pages

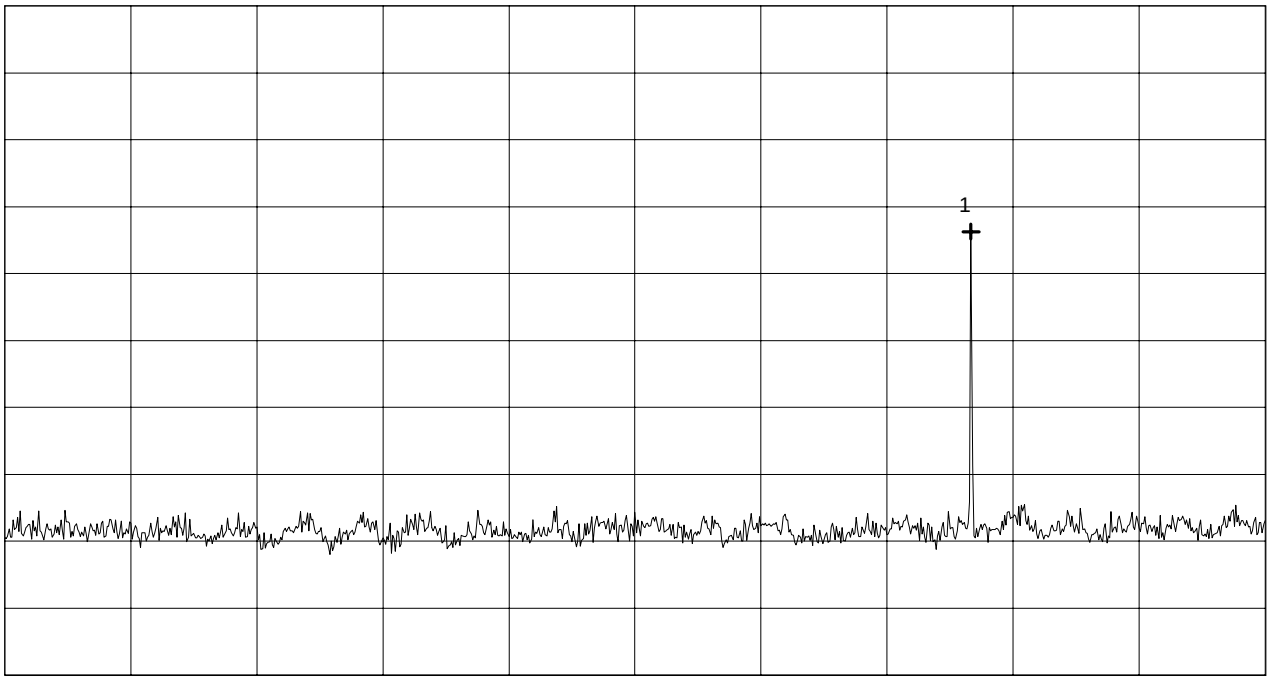
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 2.400 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.073333 GHz	23.13 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 60 of 90 Pages

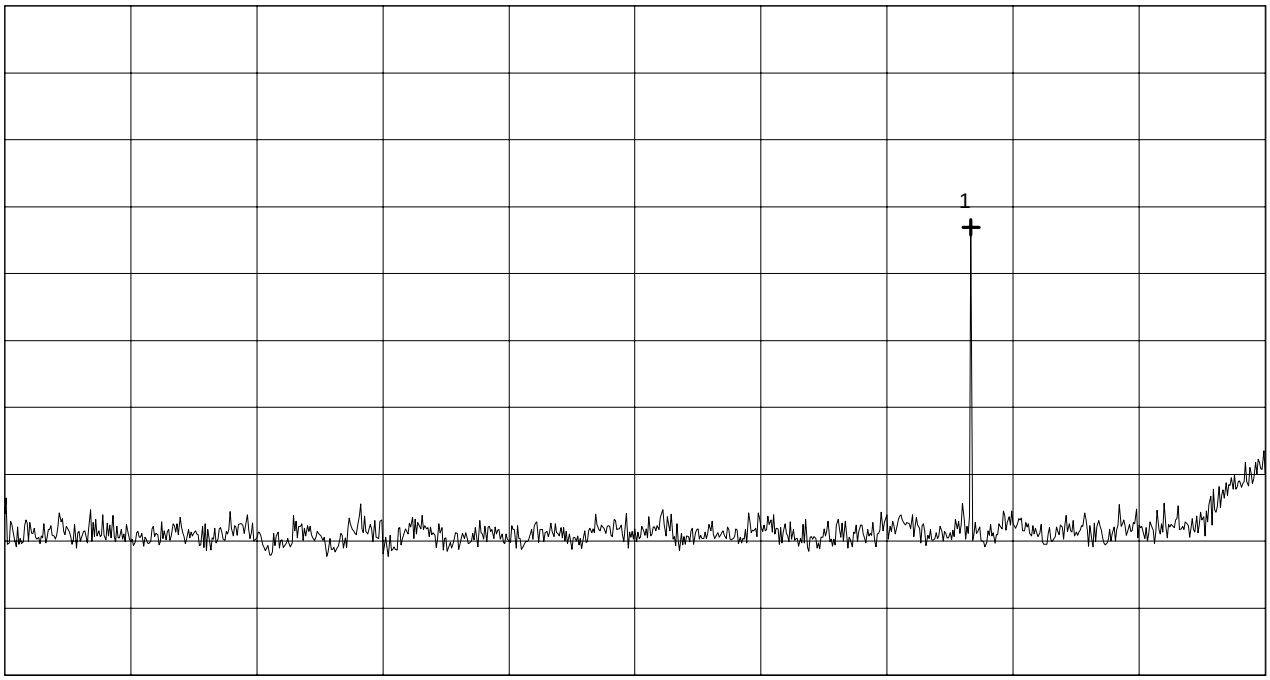
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 2.400 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.073333 GHz	23.45 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

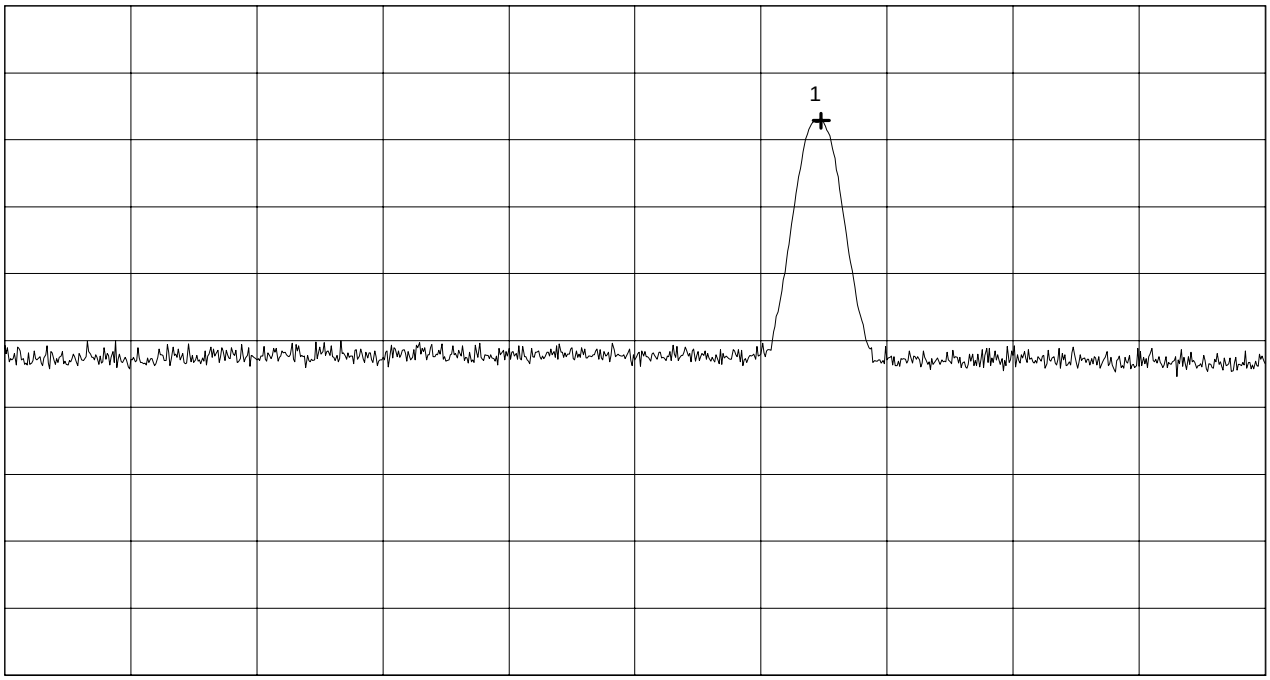
Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 61 of 90 Pages

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.453766 GHz	59.84 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

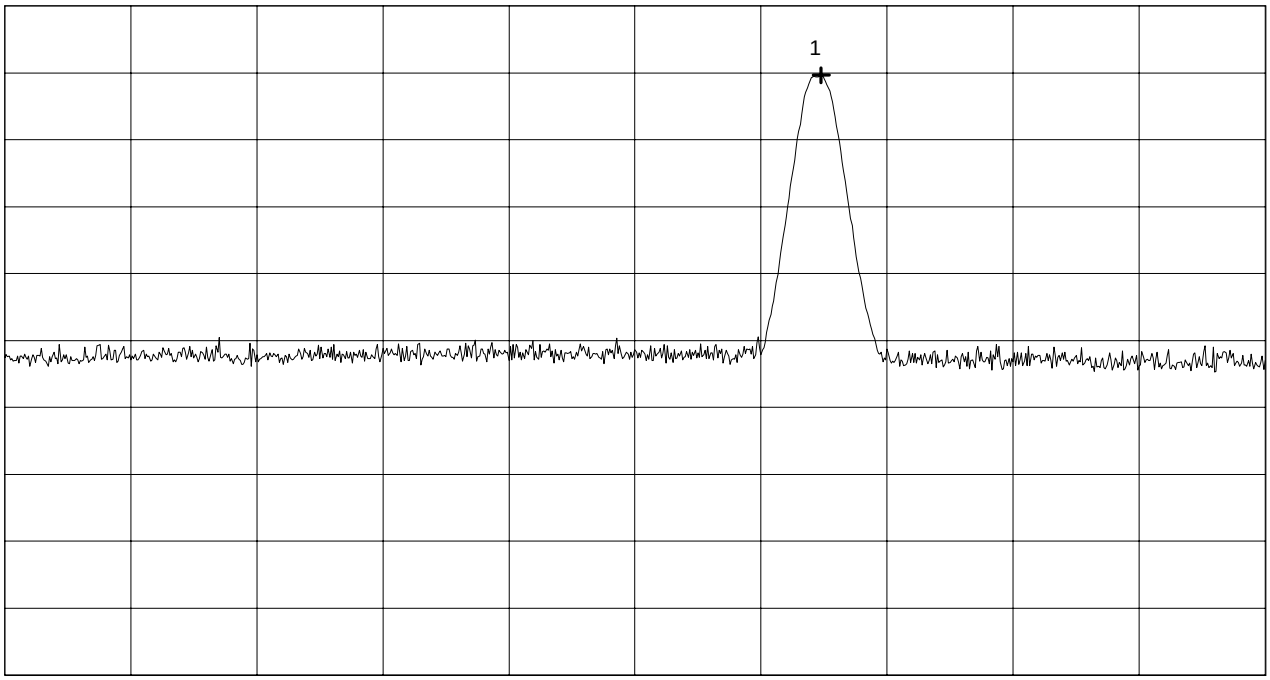
Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 62 of 90 Pages

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.453766 GHz	66.67 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

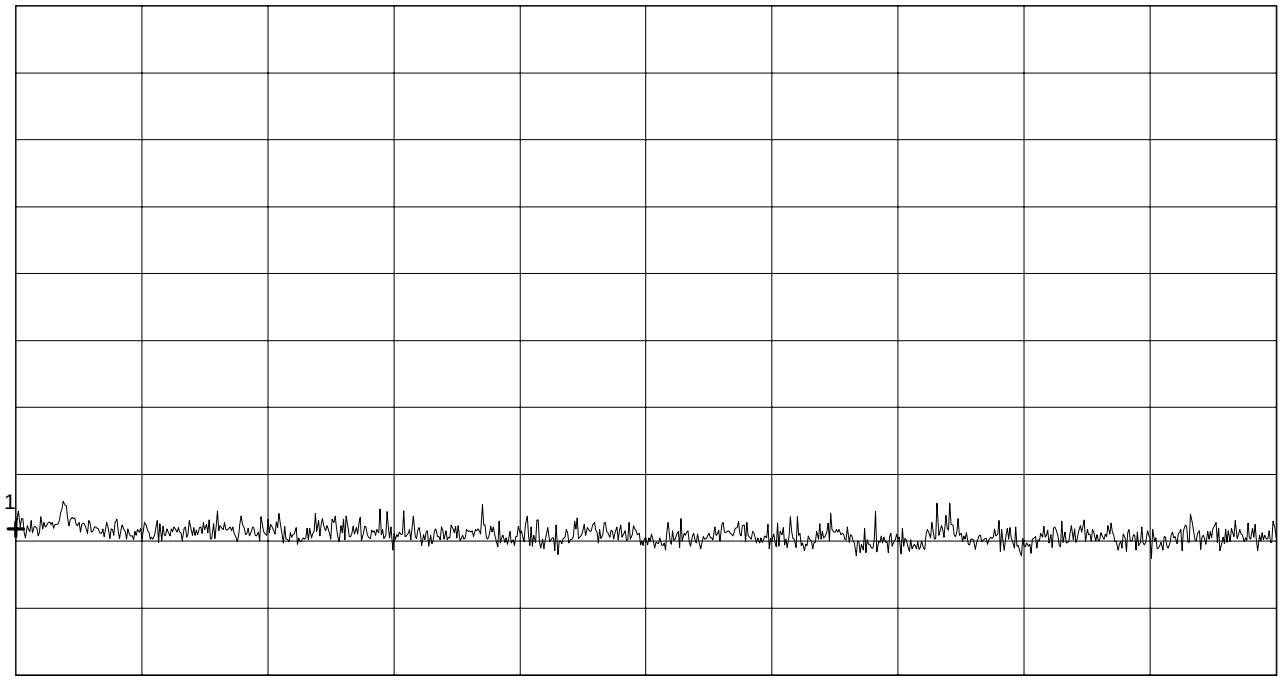
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 2.483 GHz
RBW 300 kHz

VBW 300 kHz

Stop 3.950 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.483000 GHz	0.90 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 64 of 90 Pages

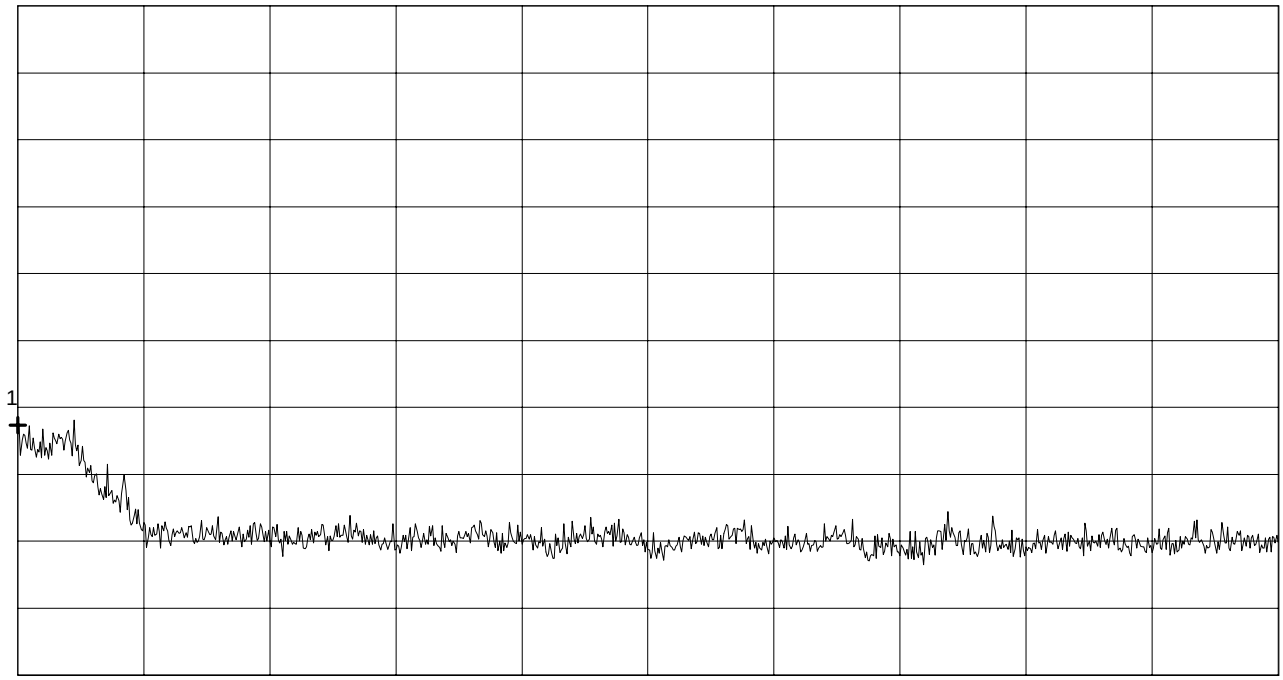
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 2.483 GHz
RBW 300 kHz

VBW 300 kHz

Stop 3.950 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.483000 GHz	8.67 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 65 of 90 Pages

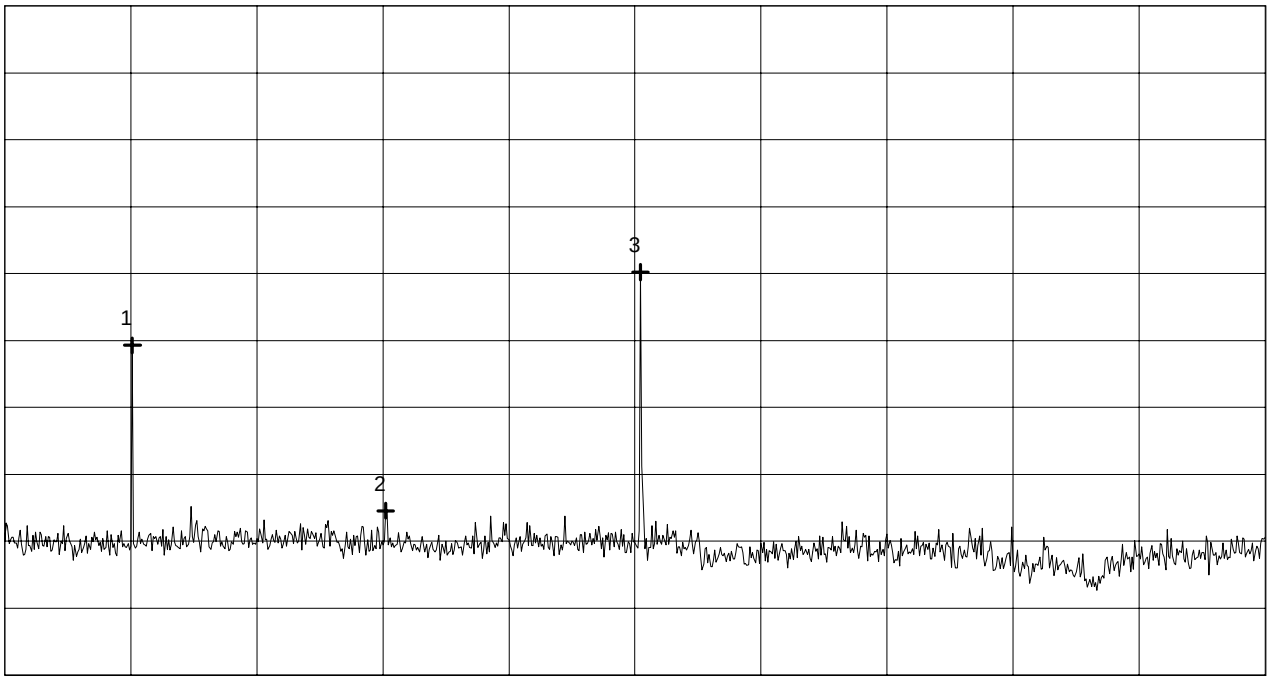
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 3.950 GHz
RBW 300 kHz

VBW 300 kHz

Stop 5.850 GHz
SWP 80 ms

**** Multi Marker ****

Nr.1	4.142111 GHz	14.64 dBµV
Nr.2	4.524222 GHz	2.27 dBµV
Nr.3	4.908444 GHz	20.10 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 66 of 90 Pages

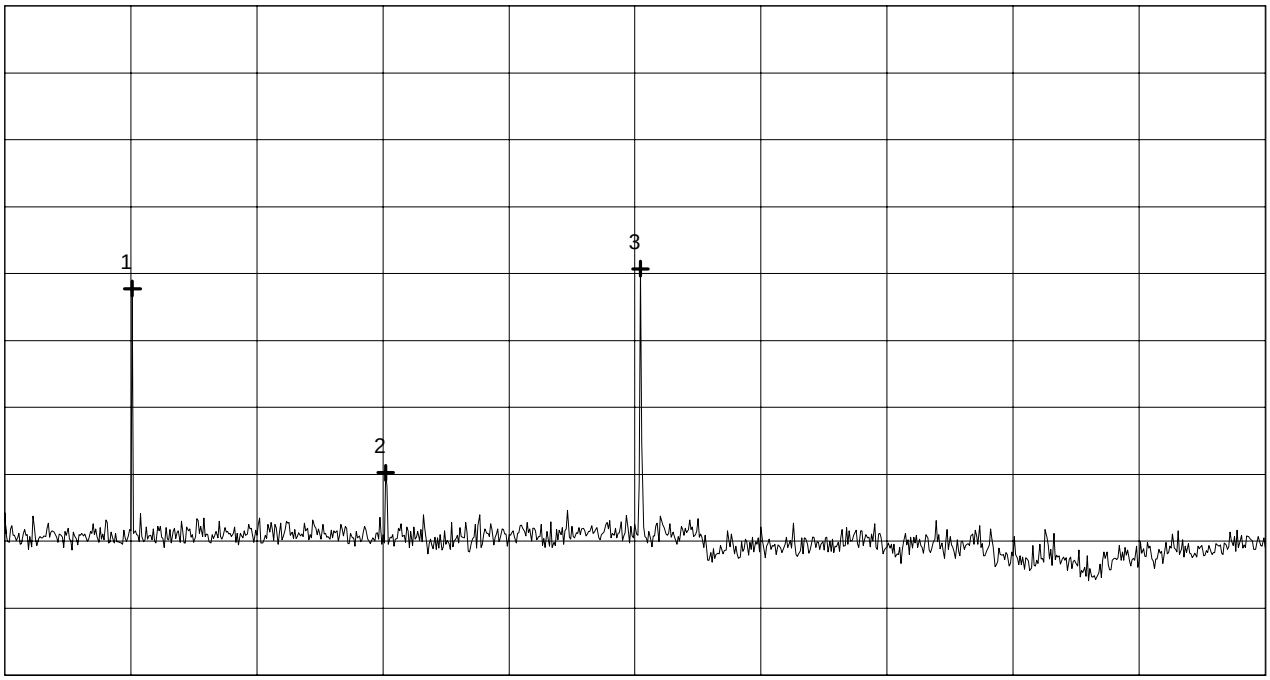
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 3.950 GHz
RBW 300 kHz

VBW 300 kHz

Stop 5.850 GHz
SWP 80 ms

**** Multi Marker ****

Nr.1	4.142111 GHz	18.88 dBµV
Nr.2	4.524222 GHz	5.11 dBµV
Nr.3	4.908444 GHz	20.35 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

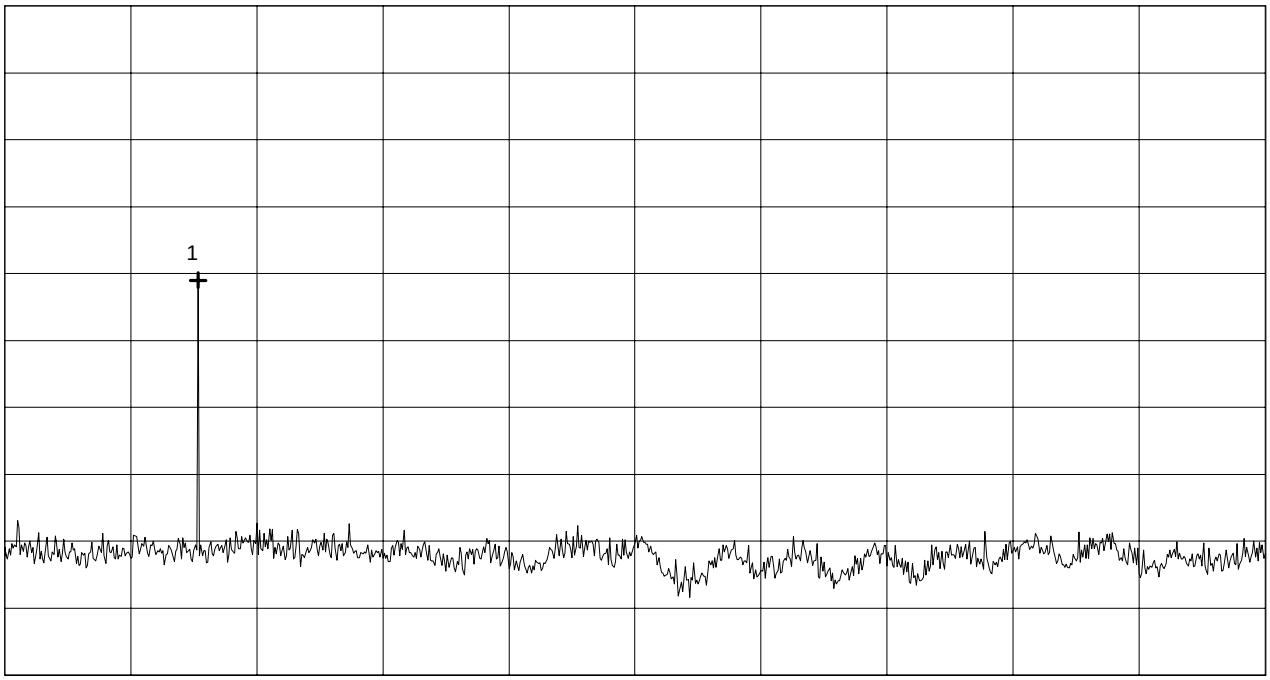
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 5.850 GHz
RBW 300 kHz

VBW 300 kHz

Stop 8.200 GHz
SWP 80 ms

**** Multi Marker ****

Nr.1	6.210333 GHz	19.50 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

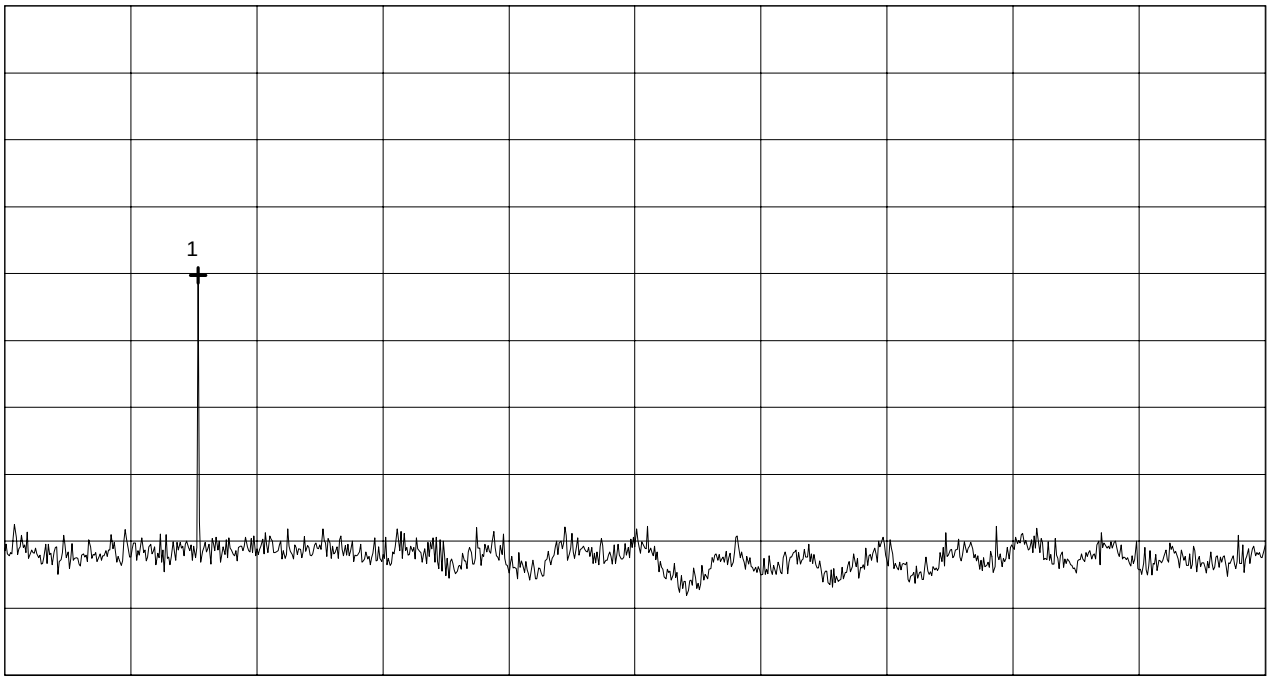
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 5.850 GHz
RBW 300 kHz

VBW 300 kHz

Stop 8.200 GHz
SWP 80 ms

**** Multi Marker ****

Nr.1	6.210333 GHz	19.86 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 69 of 90 Pages

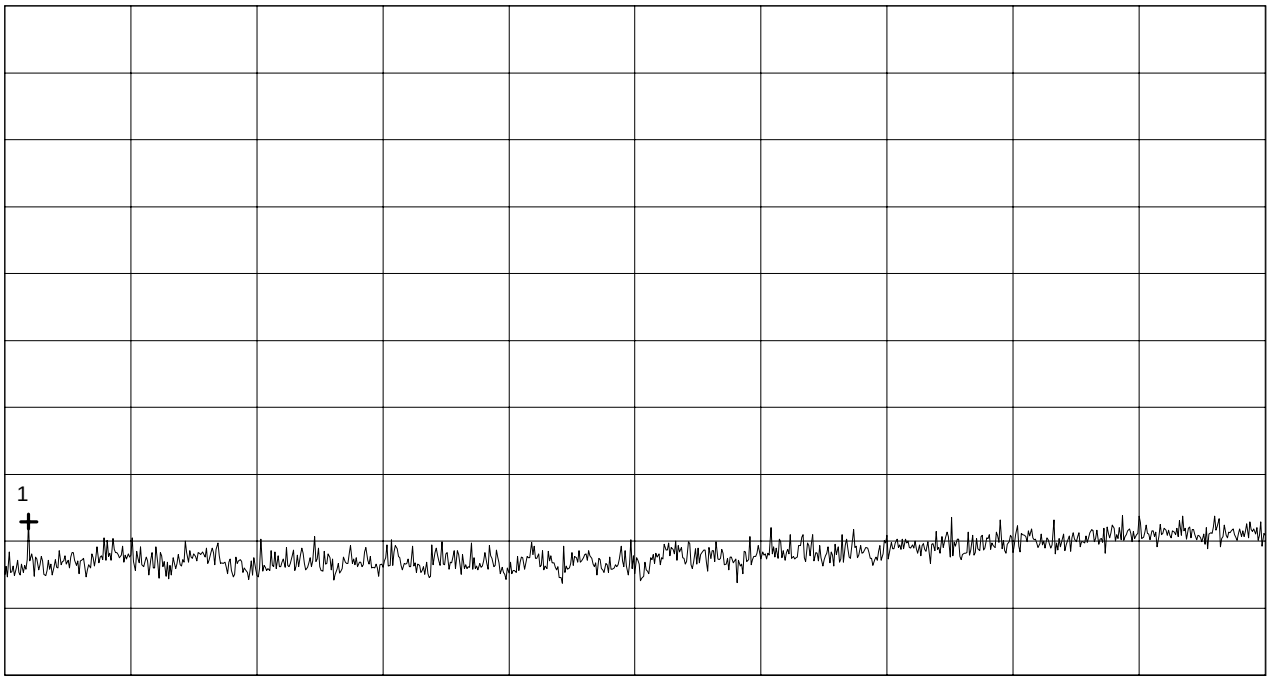
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 8.200 GHz
RBW 300 kHz

VBW 300 kHz

Stop 12.400 GHz
SWP 140 ms

**** Multi Marker ****

Nr.1	8.279333 GHz	1.46 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 70 of 90 Pages

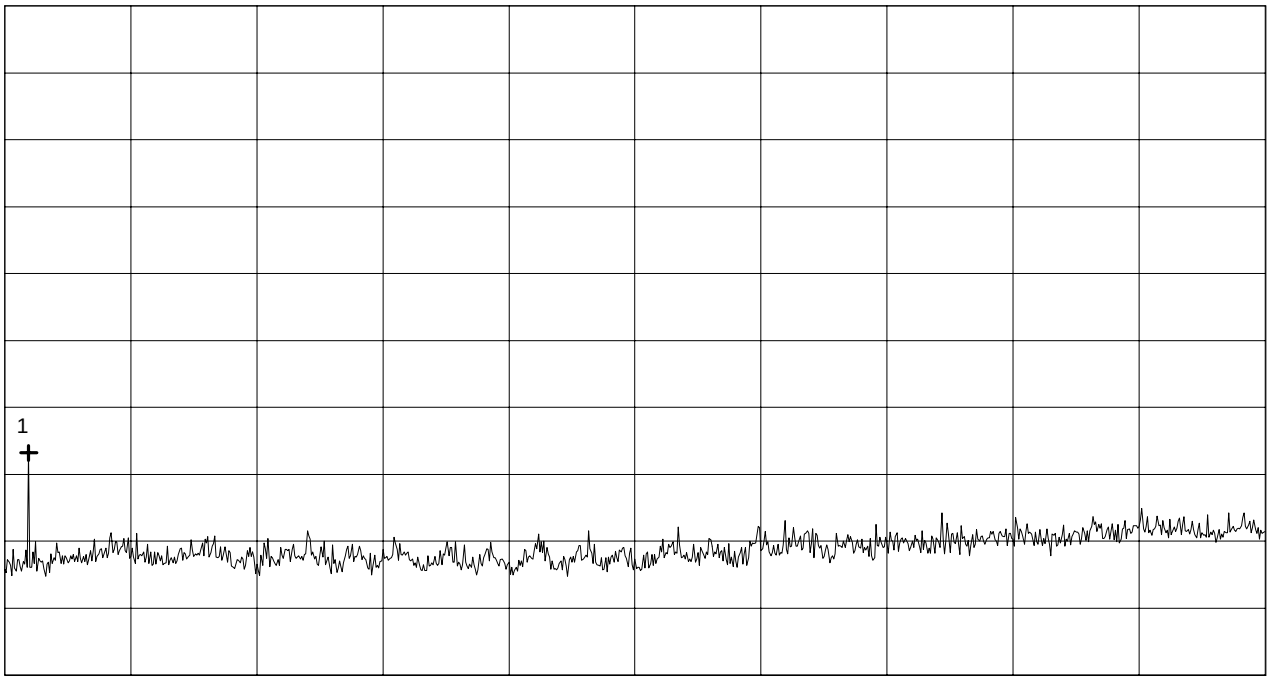
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 8.200 GHz
RBW 300 kHz

VBW 300 kHz

Stop 12.400 GHz
SWP 140 ms

**** Multi Marker ****

Nr.1	8.279333 GHz	6.59 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 71 of 90 Pages

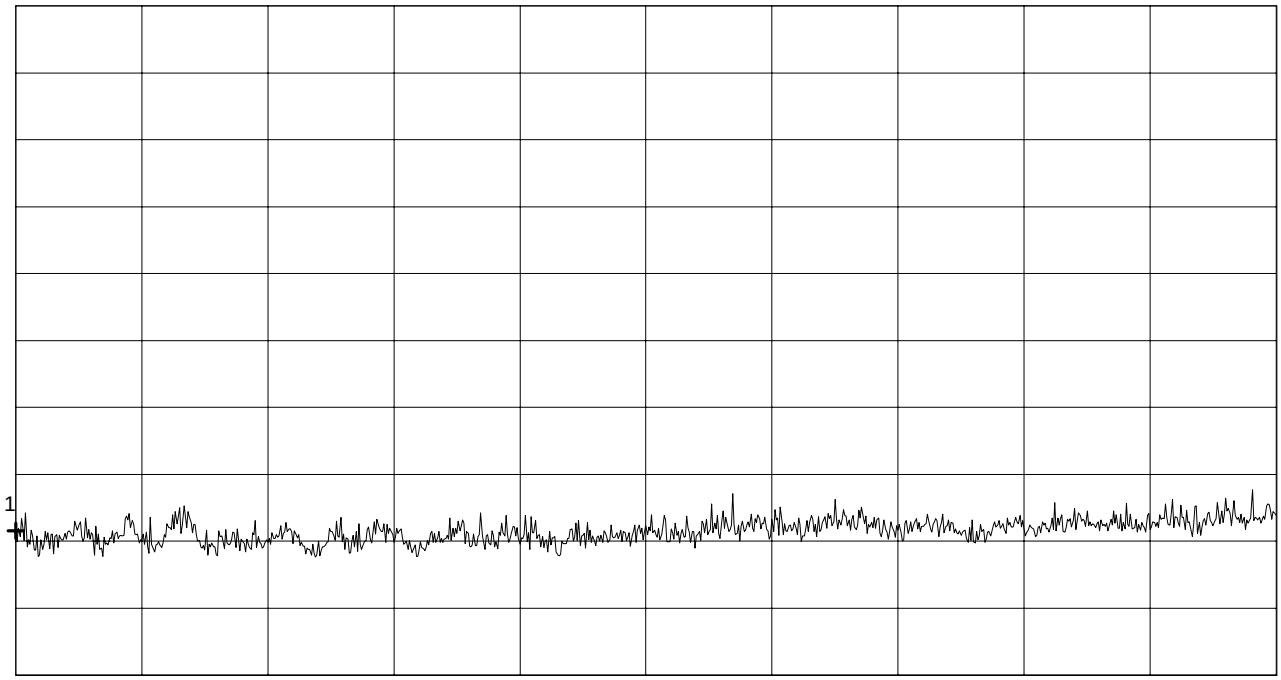
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	0.78 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 72 of 90 Pages

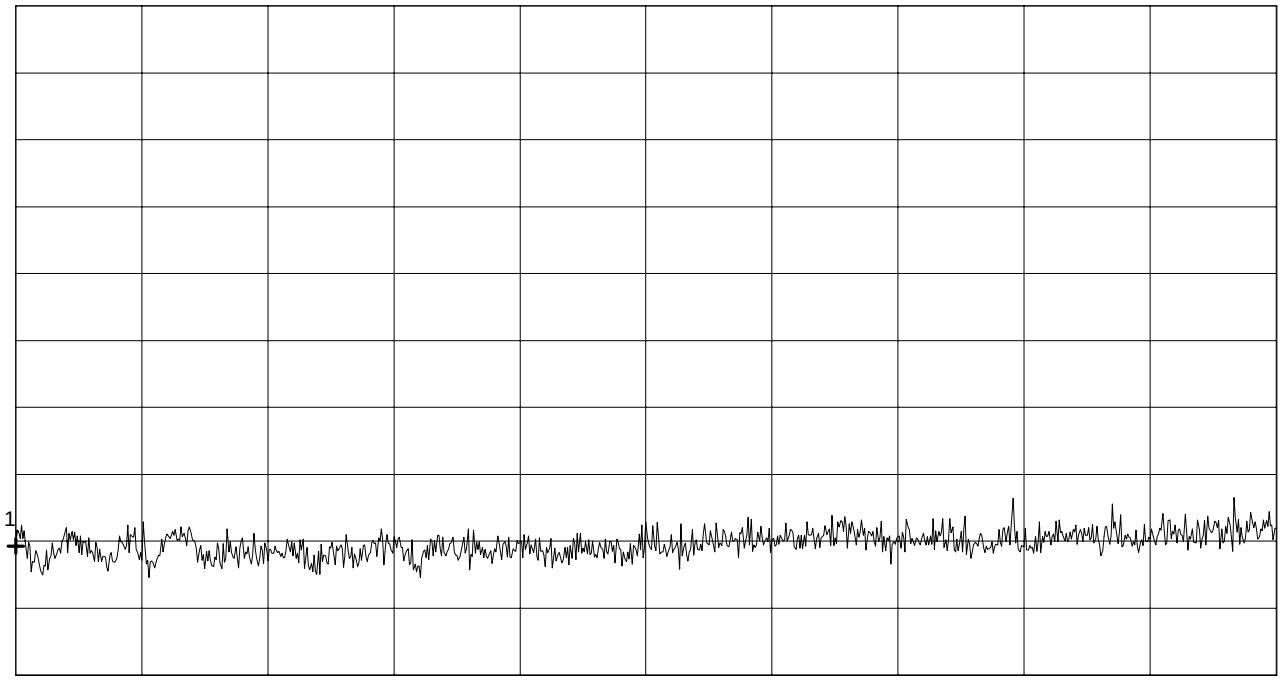
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2454 MHz (middle channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	-0.36 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

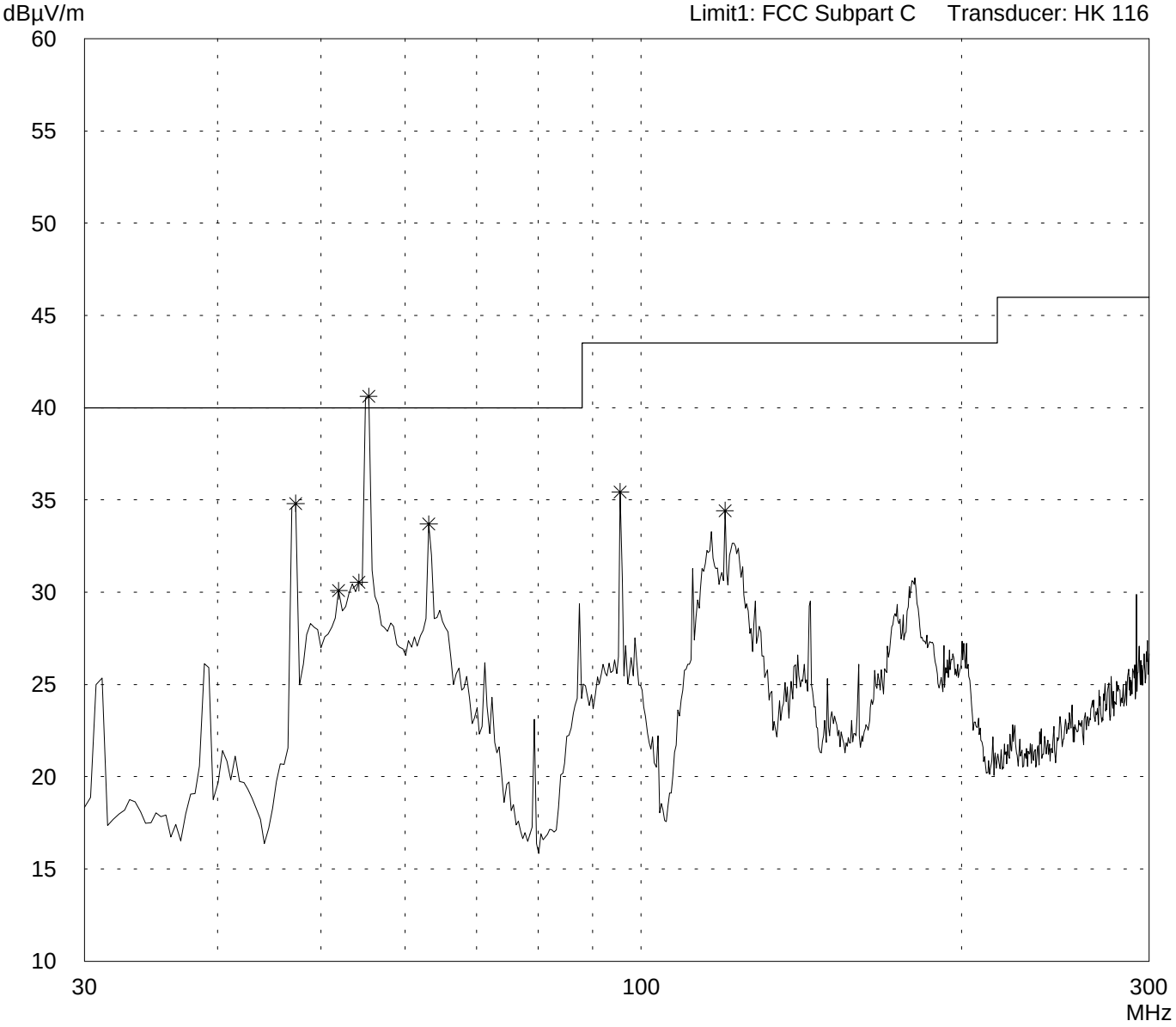
Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

11.4. Charts for TX 2473 MHz

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2479 MHz (highest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



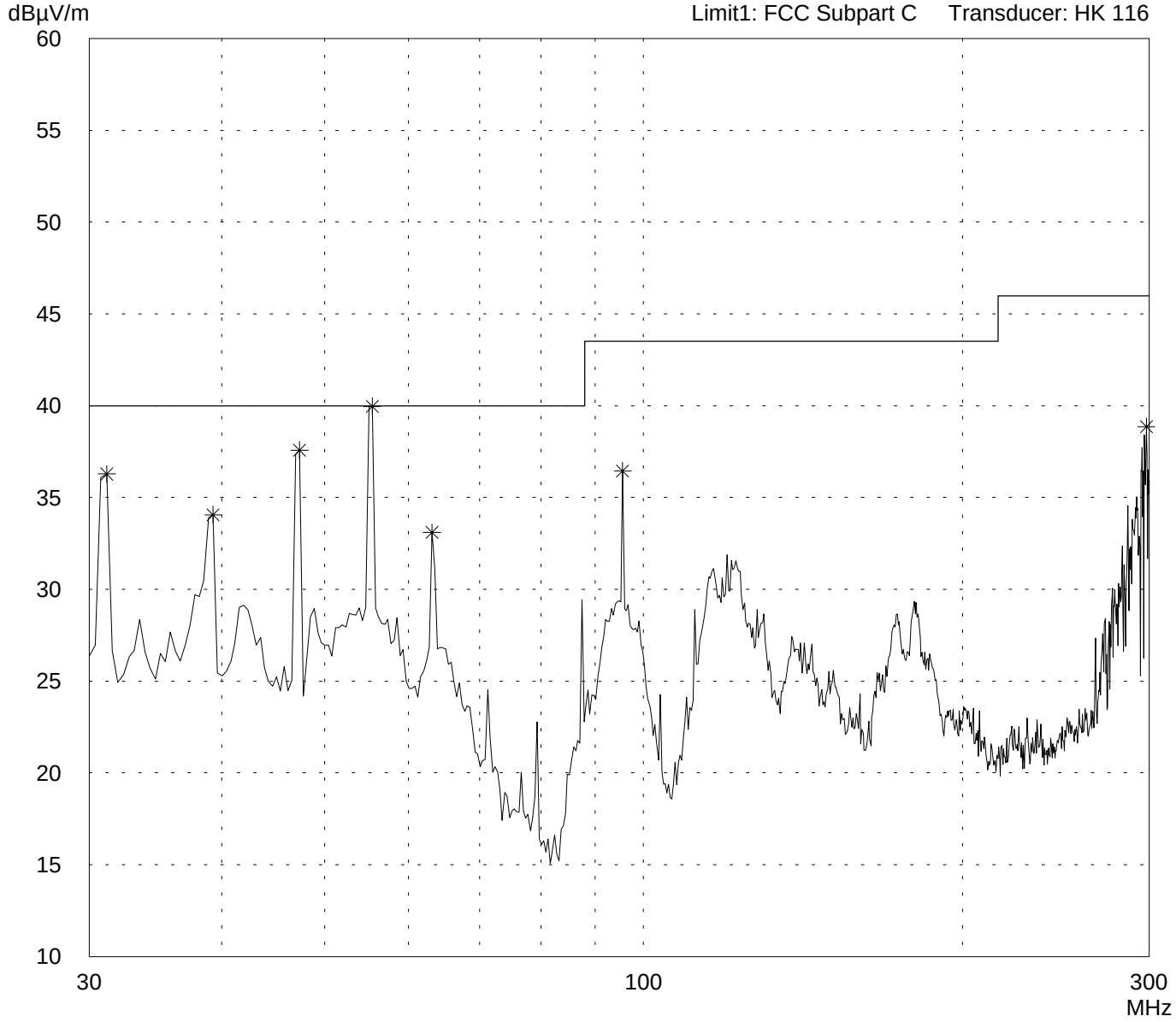
Result: Prescan	Project file: 55503-00169

Senton GmbH / EMI/EMC Laboratories / Aeussere Fruehlingsstrasse 45 / D-94315 Straubing / Tel. +49 9421 55220

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2479 MHz (highest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



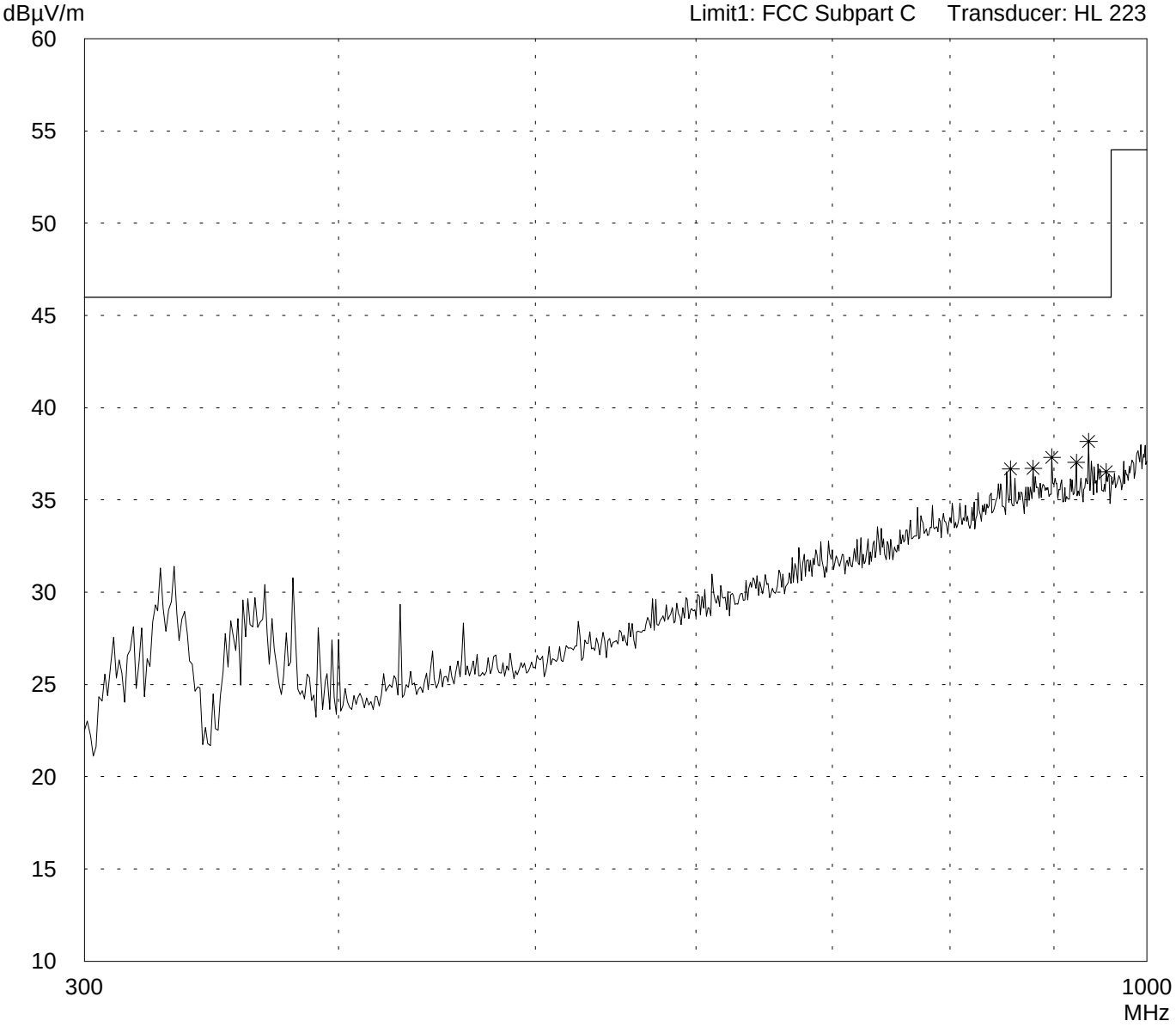
Result: Prescan	Project file: 55503-00169

Senton GmbH / EMI/EMC Laboratories / Aeussere Fruehlingsstrasse 45 / D-94315 Straubing / Tel. +49 9421 55220

Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2479 MHz (highest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges

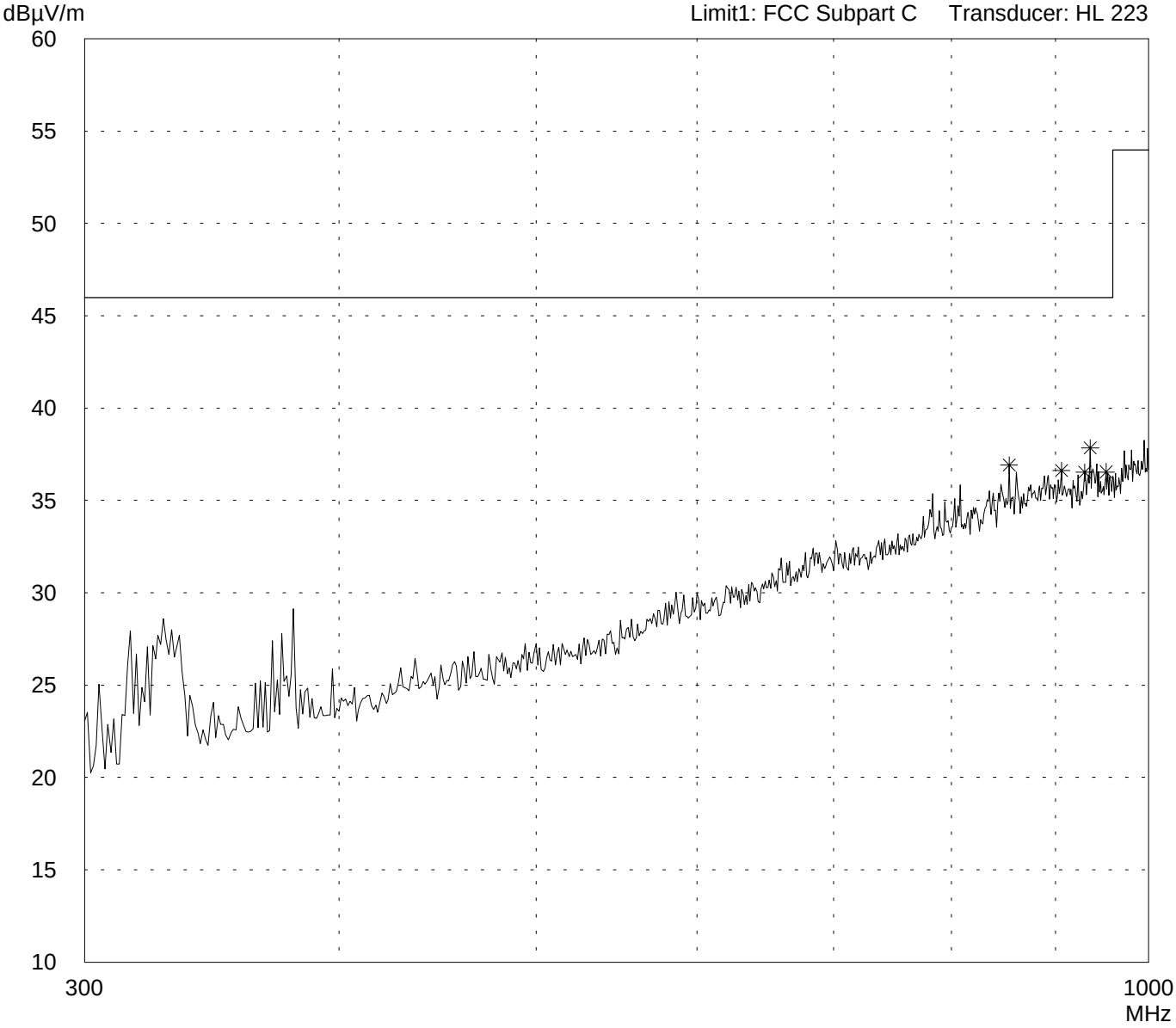


Result: Prescan	Project file: 55503-00169 / Page 77 of 90 Pages

Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: FRH-Sd06TU	Mode: FCC Test Setup CW-TX at 2479 MHz (highest Channel)
Serial no.: FCC Sample 1	
Applicant: Futaba Corporation	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: April 22, 2000 / Operator: J. Roidt	
Test performed: automatically / File name:	

Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Result: Prescan	Project file: 55503-00169

Senton GmbH / EMI/EMC Laboratories / Aeussere Fruehlingsstrasse 45 / D-94315 Straubing / Tel. +49 9421 55220

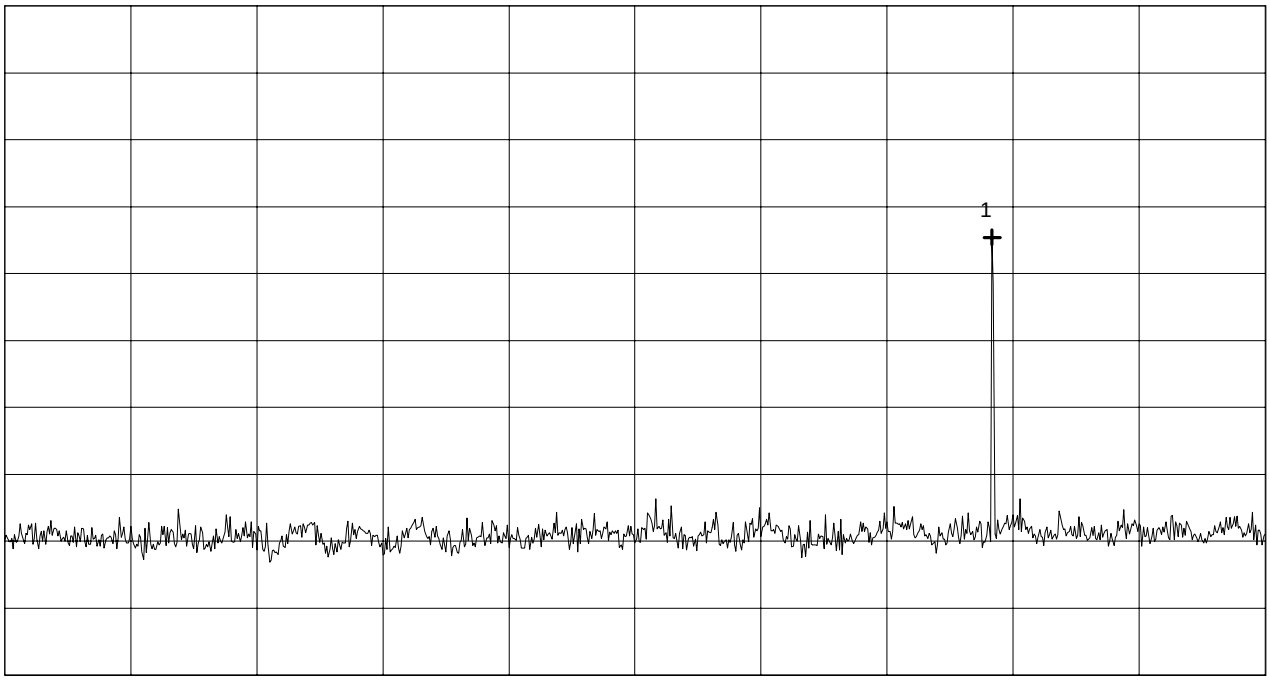
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 2.400 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.096667 GHz	22.71 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

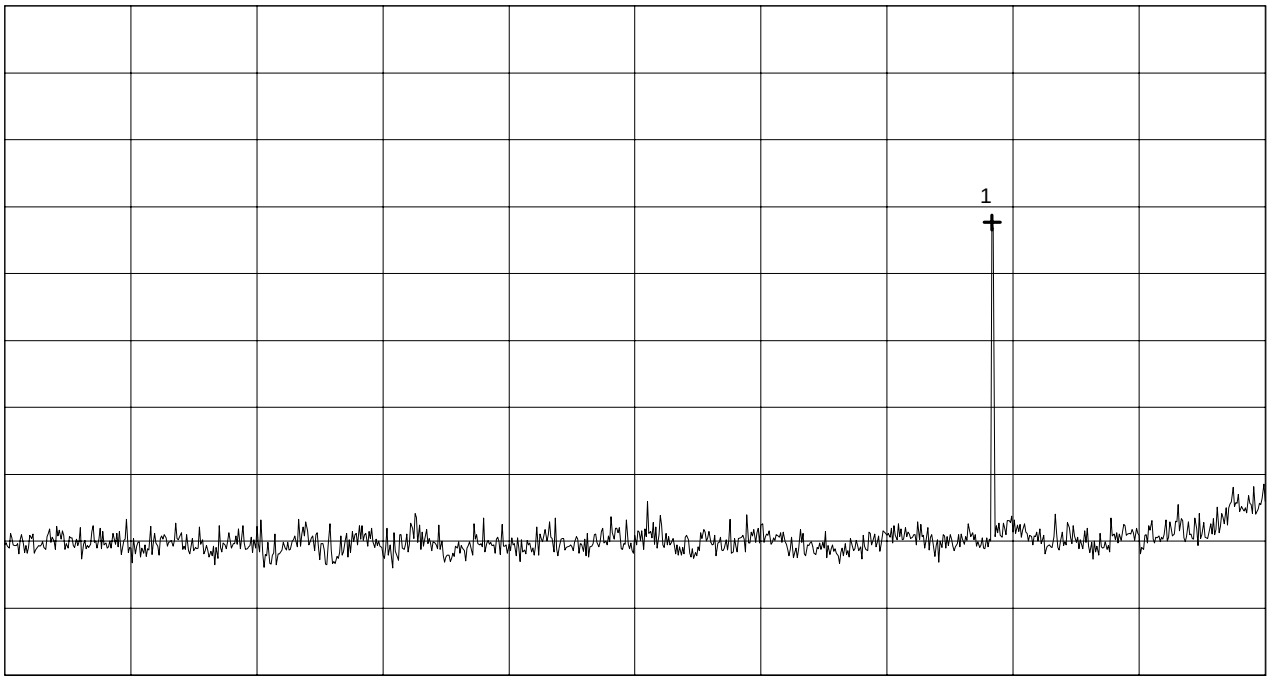
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 2.400 GHz
SWP 60 ms

**** Multi Marker ****

Nr.1	2.096667 GHz	23.83 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

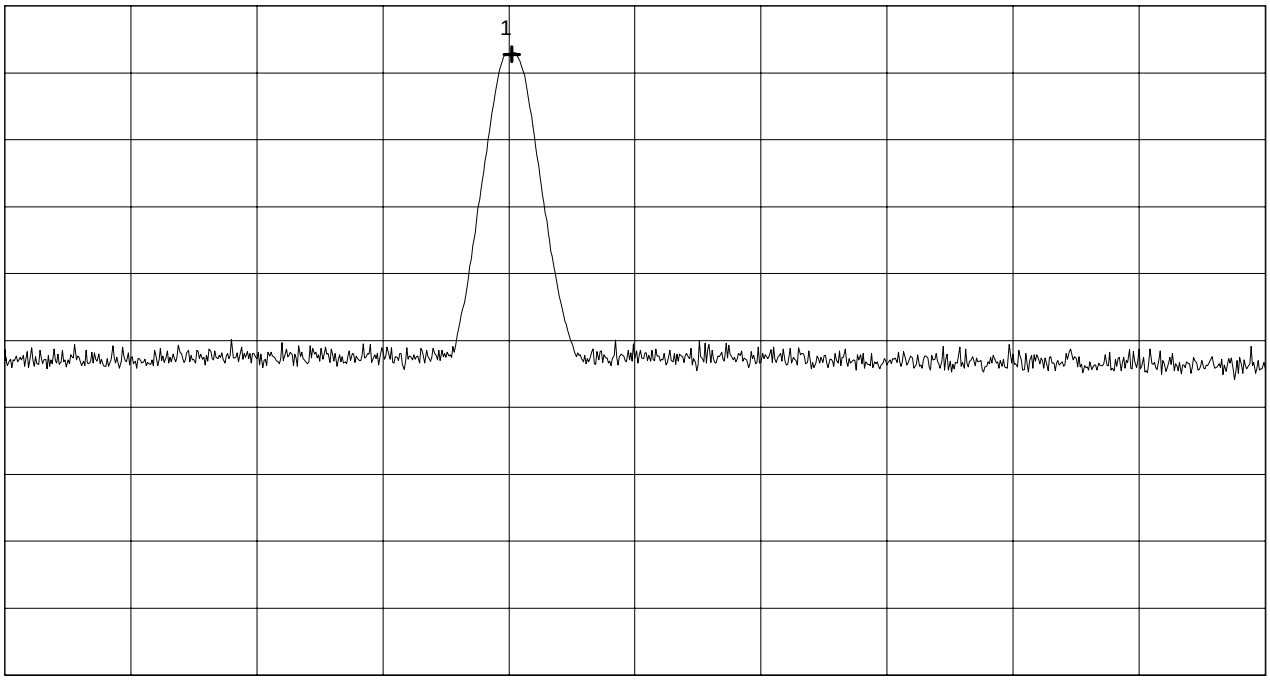
Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.433384 GHz	69.77 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

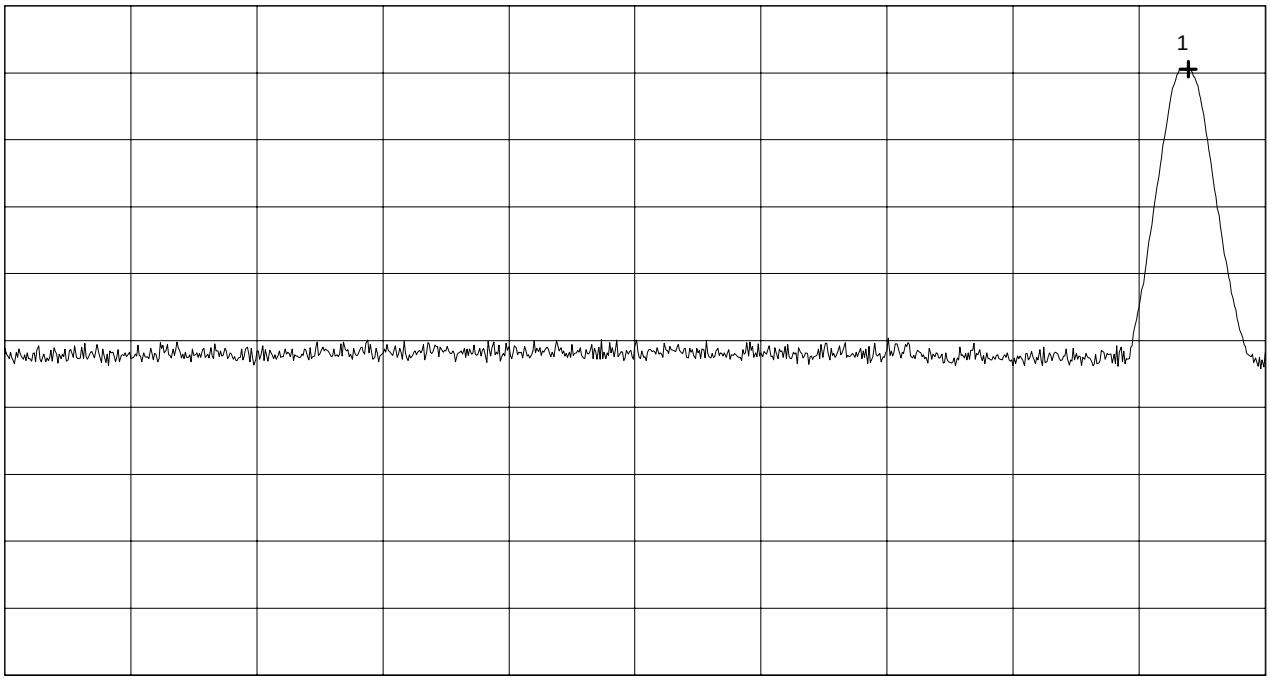
Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 77 dBµV
10 dB dB/Div.

ATT 0 dB



Start 2.400 GHz
RBW 1 MHz

VBW 1 MHz

Stop 2.483 GHz
SWP 20 ms

**** Multi Marker ****

Nr.1	2.477928 GHz	67.56 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	Page 82 of 90 Pages

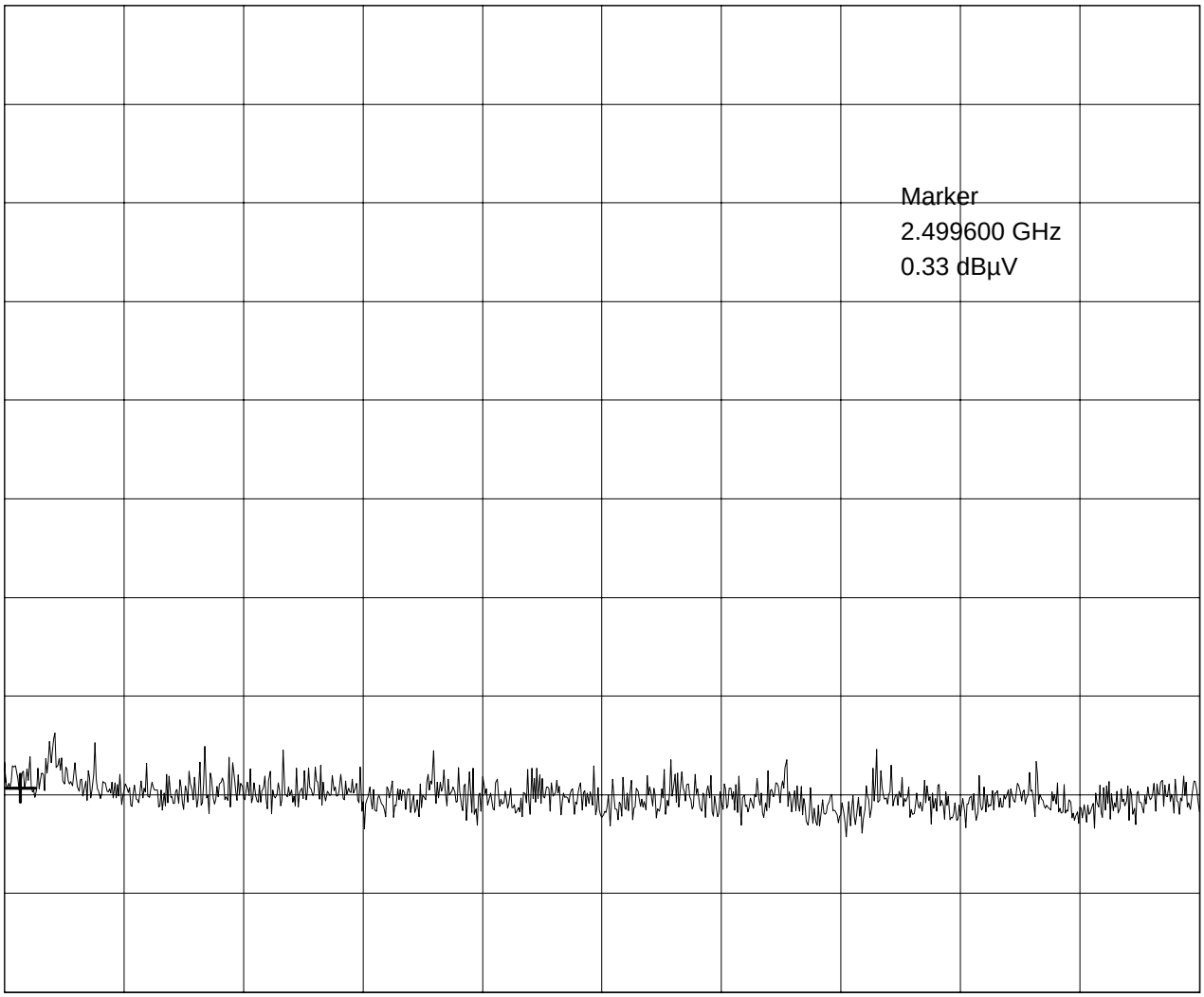
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 2.480 GHz
RBW 300 kHz

VBW 300 kHz

Stop 3.950 GHz
SWP 60 ms

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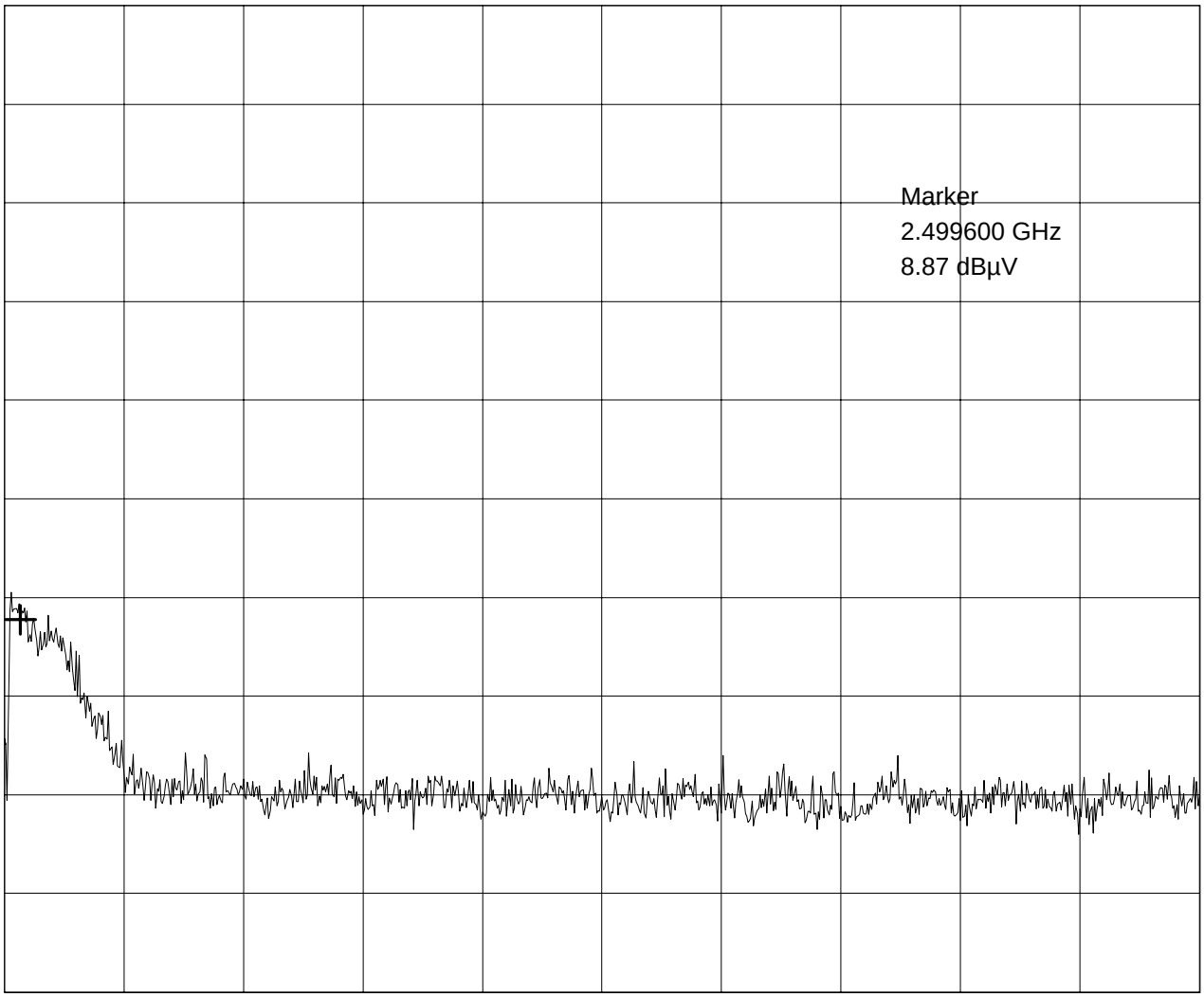
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 2.480 GHz
RBW 300 kHz

VBW 300 kHz

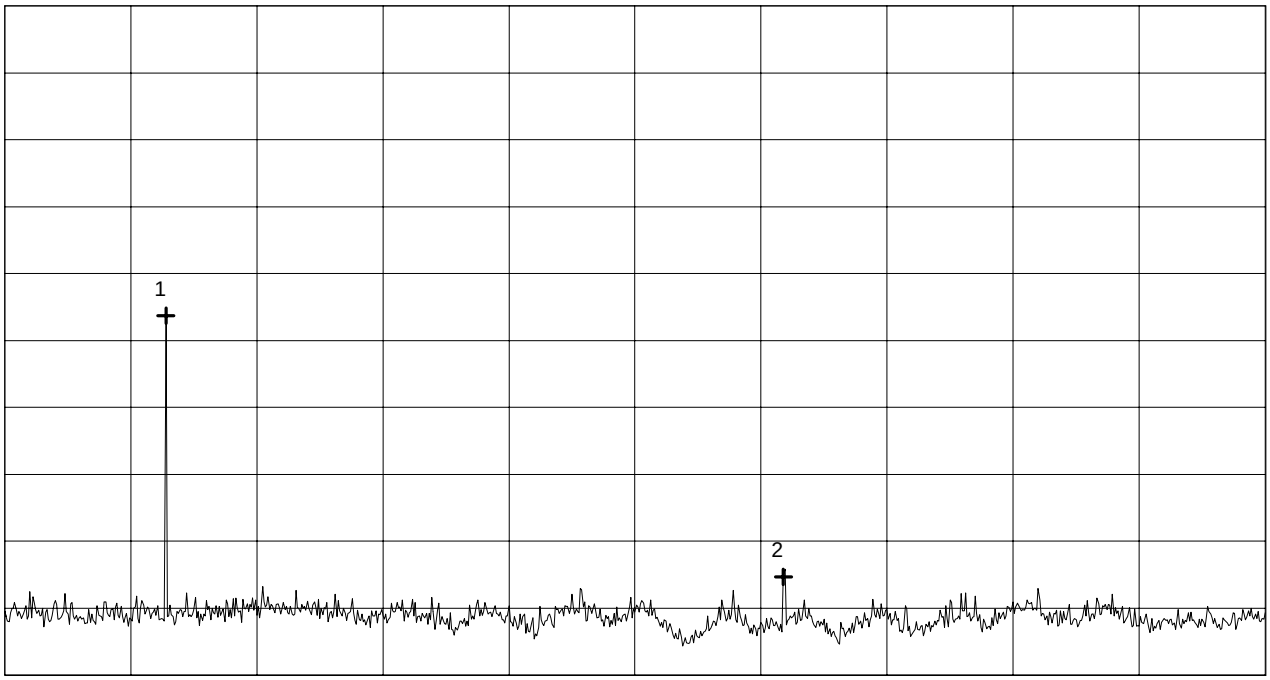
Stop 3.950 GHz
SWP 60 ms

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2433 MHz (lowest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 44.5 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 300 kHz VBW 300 kHz SWP 80 ms

**** Multi Marker ****

Nr.1	6.150278 GHz	21.35 dBµV
Nr.2	7.301778 GHz	1.83 dBµV
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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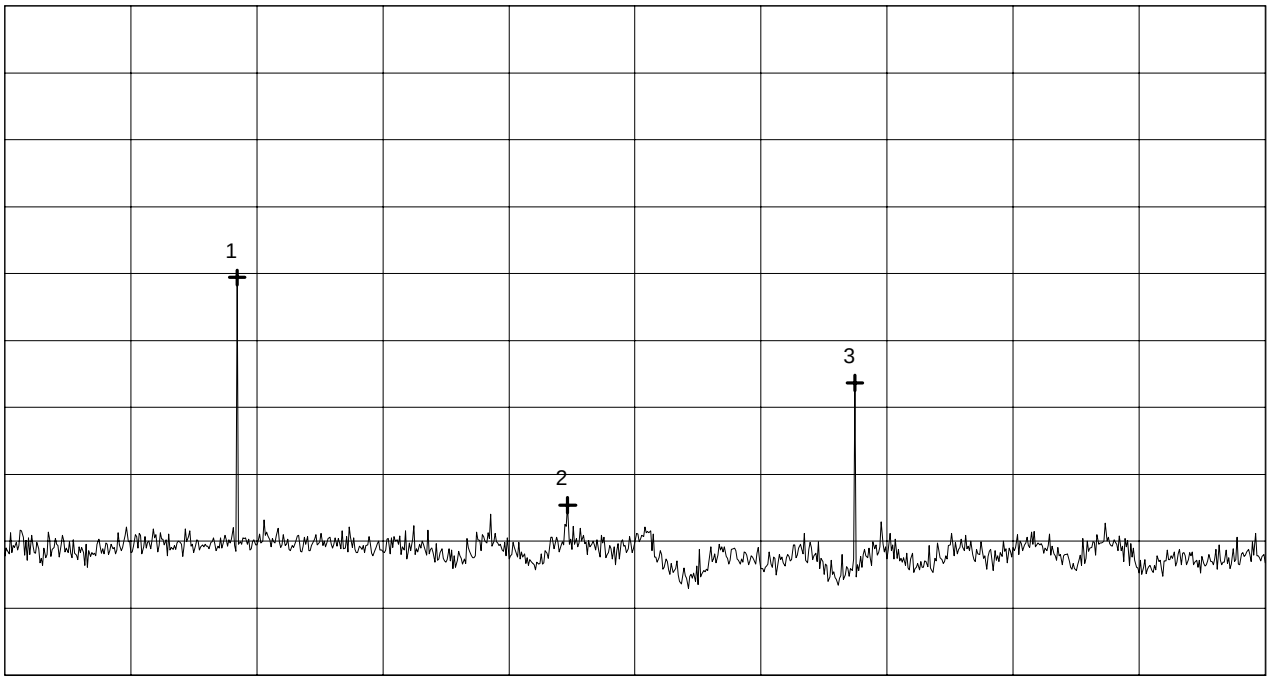
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -30.5 dB



Start 5.850 GHz
RBW 300 kHz

VBW 300 kHz

Stop 8.200 GHz
SWP 80 ms

**** Multi Marker ****

Nr.1	6.283444 GHz	19.70 dBµV
Nr.2	6.899667 GHz	2.68 dBµV
Nr.3	7.434944 GHz	11.83 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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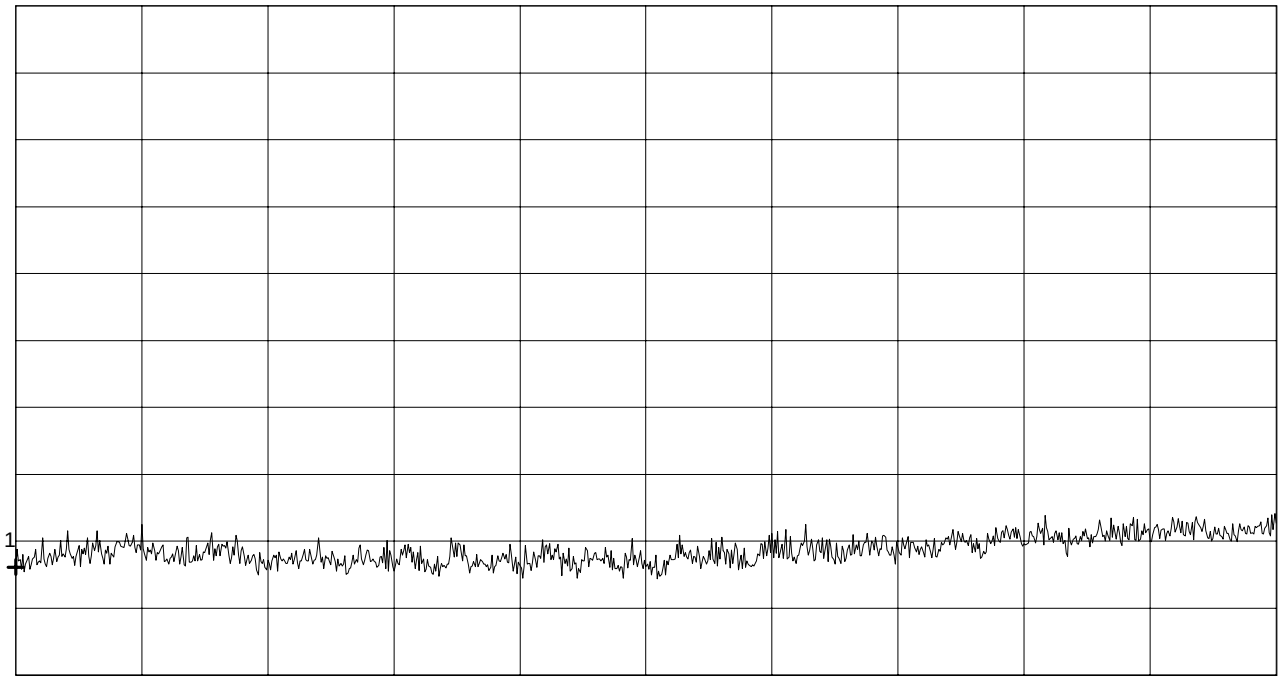
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 8.200 GHz
RBW 300 kHz

VBW 300 kHz

Stop 12.400 GHz
SWP 140 ms

**** Multi Marker ****

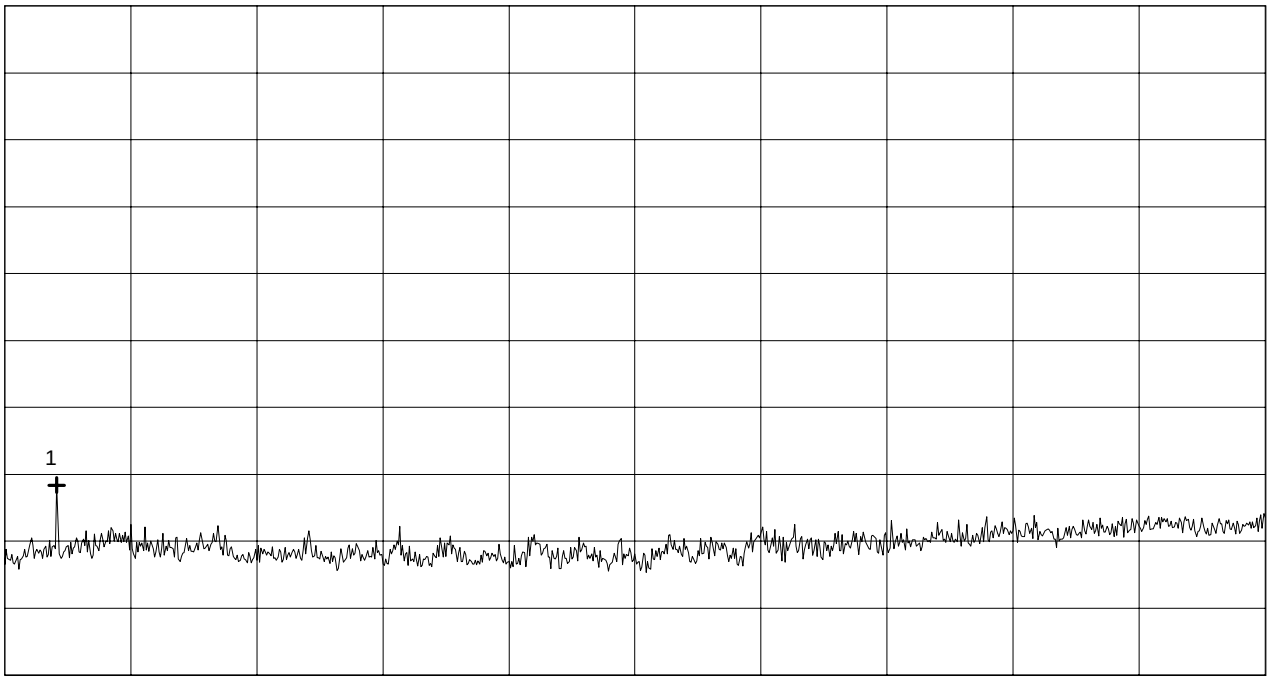
Nr.1	8.200000 GHz	-1.93 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 300 kHz VBW 300 kHz SWP 140 ms

**** Multi Marker ****

Nr.1	8.372667 GHz	4.19 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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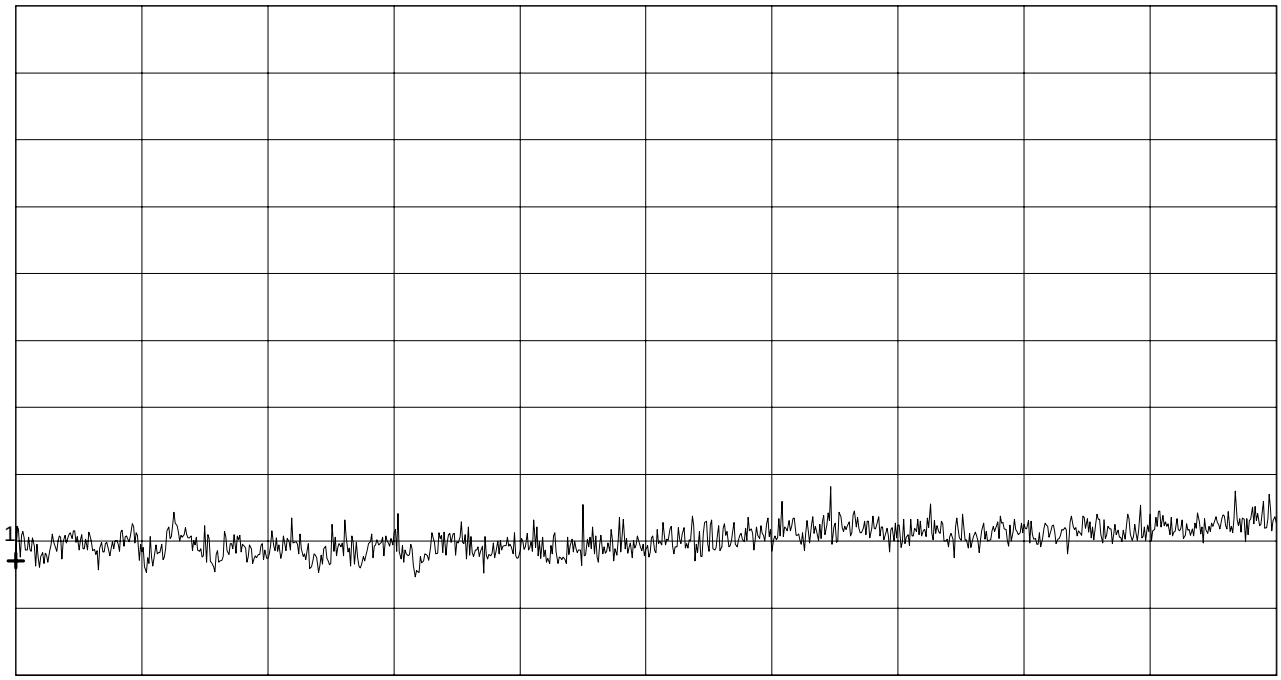
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Horizontal Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	-1.45 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.: 55503-00169
Date: Aprill 22, 2000	

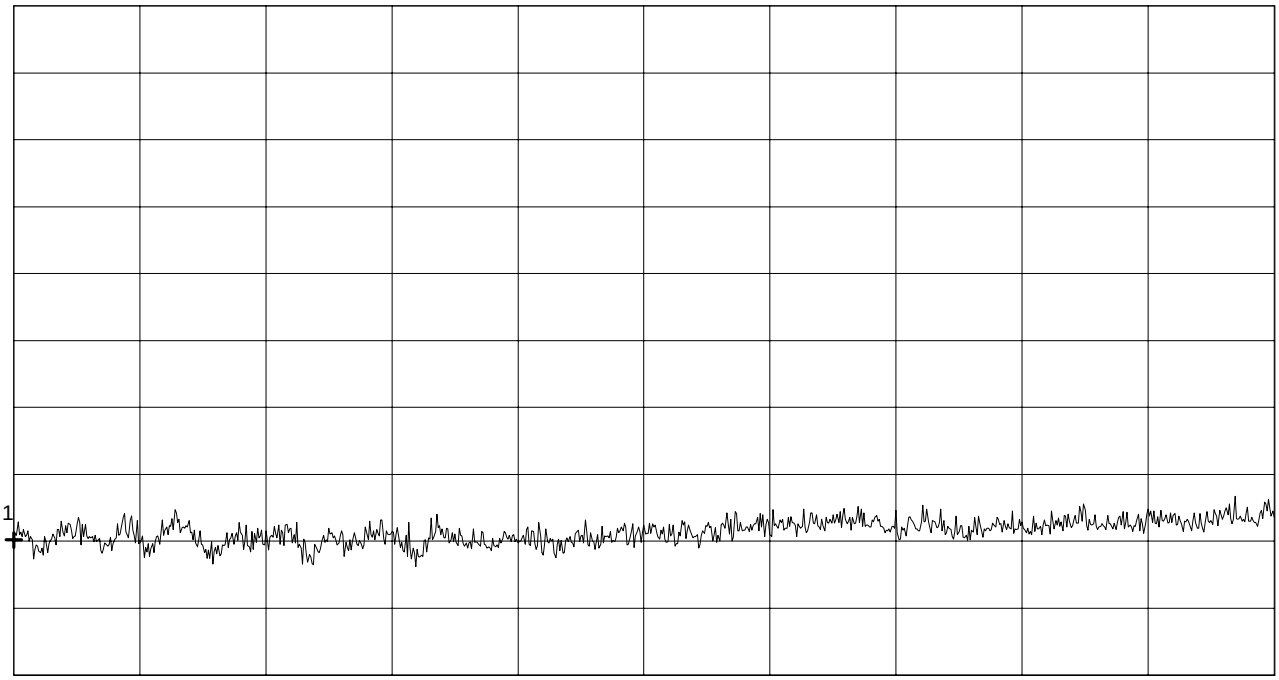
Radiated Emission Measurement acc. to FCC Rules

Model: FRH-SD06T-B	Mode: - TX at 2479 MHz (highest channel) - Vertical Polarization
Serial No.: FCC Sample 1	
Applicant: Futaba Corporation	

Ref.Level 40 dBµV
5 dB dB/Div.

ATT 0 dB

Ref. Offset -35 dB



Start 12.400 GHz
RBW 300 kHz

VBW 300 kHz

Stop 18.000 GHz
SWP 200 ms

**** Multi Marker ****

Nr.1	12.400000 GHz	0.09 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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