

4.9. Receiver Radiated Spurious Emission

TEST APPLICABLE

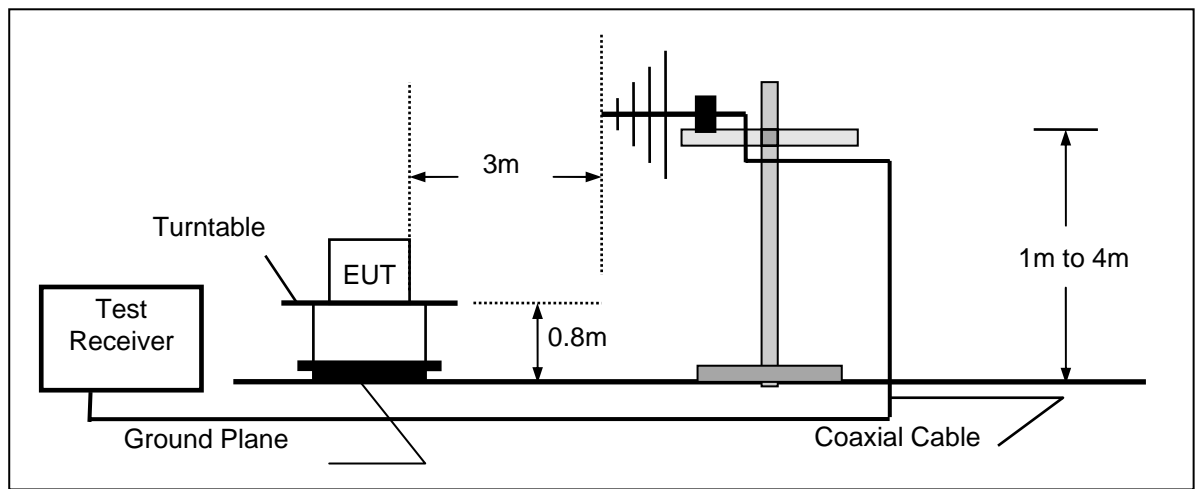
The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

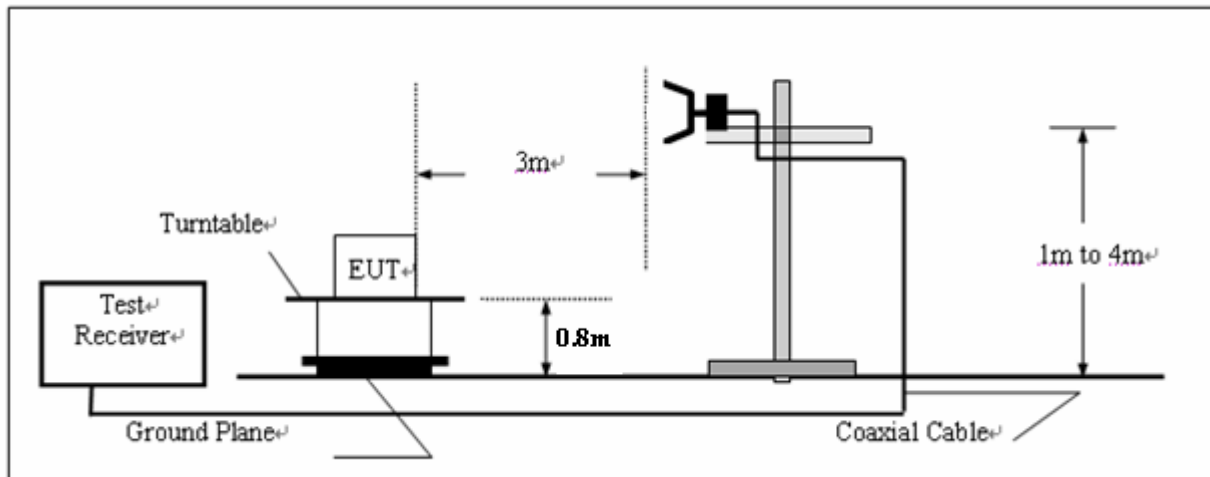
Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency below 1000MHz



(B) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

- 1 The EUT was placed on a turn table which is 0.8m above ground plane.
- 2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
- 3 And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 4 Repeat above procedures until all frequency measurements have been completed.

RECEIVER RADIATED SPOUIOUS LIMIT

For unintentional device, according to § 15.109(a) and RSS-Gen, except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

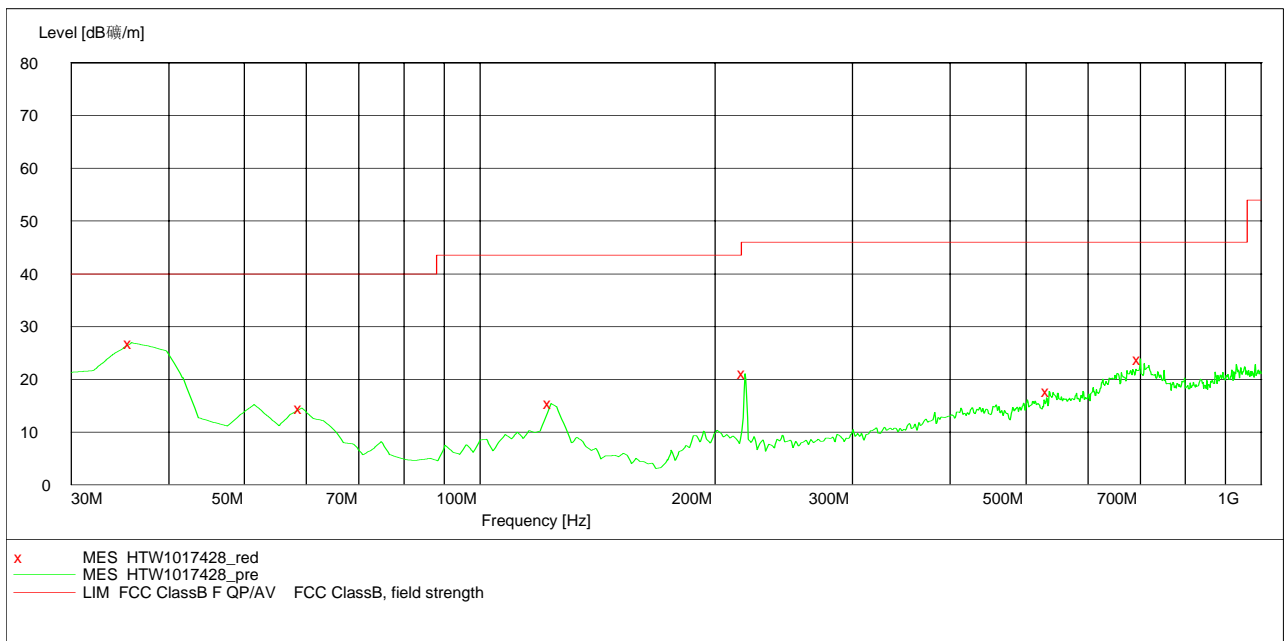
TEST RESULTS

The Radiated Measurement are performed to the three channels (the top channel, the middle channel and the bottom channel), the datum recorded below is the worst case for each channel separation;and the EUT shall be scanned from 30 MHz to the 5th harmonic of the highest oscillator frequency in the digital devices or 1 GHz whichever is higher.

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		FCC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	25 KHz	173.92	H	951.40	22.90	40.0
			V	35.83	26.90	46.0
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength
 Start Stop Detector Meas. IF Transducer
 Frequency Frequency Time Bandw.
 30.0 MHz 1.0 GHz MaxPeak Coupled 120 kHz HL562 10



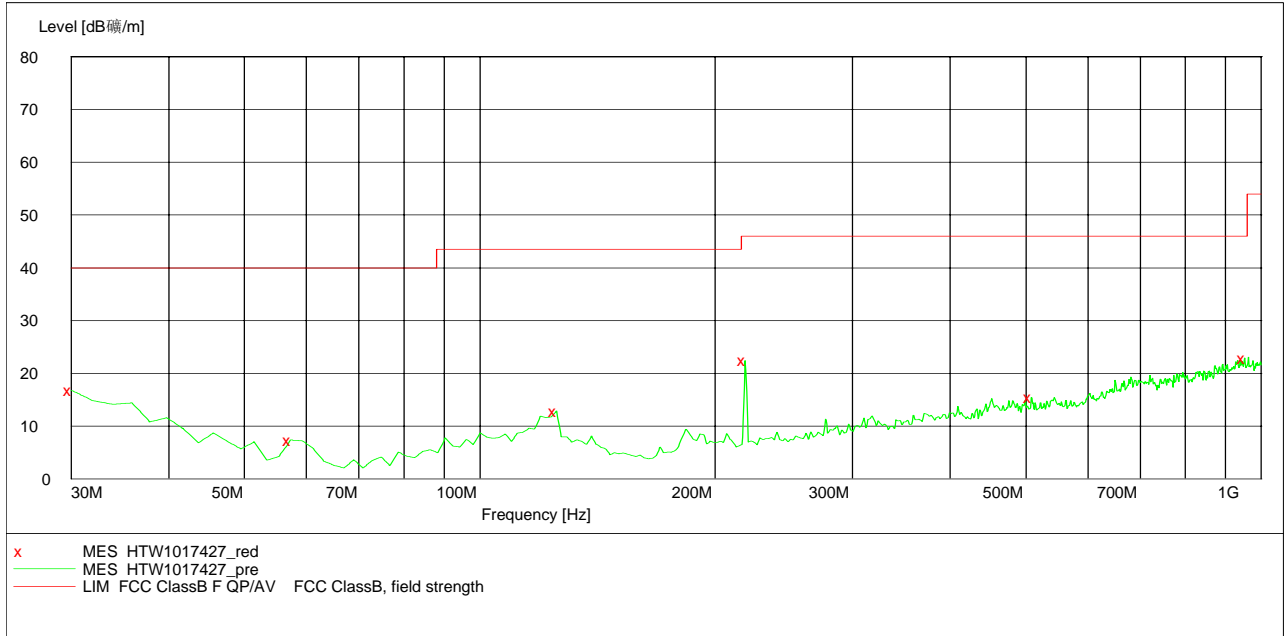
MEASUREMENT RESULT: "HTW1017428_red"

10/17/2010 9:06PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
35.831663	26.90	-13.0	40.0	13.1	Peak	100.0	55.00	VERTICAL
59.158317	14.50	-24.7	40.0	25.5	Peak	100.0	209.00	VERTICAL
123.306613	15.40	-18.4	43.5	28.1	Peak	100.0	151.00	VERTICAL
218.557114	21.10	-20.5	46.0	24.9	Peak	100.0	110.00	VERTICAL
535.410822	17.70	-13.2	46.0	28.3	Peak	100.0	270.00	VERTICAL
700.641283	23.90	-10.3	46.0	22.1	Peak	100.0	0.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 10



MEASUREMENT RESULT: "HTW1017427_red"

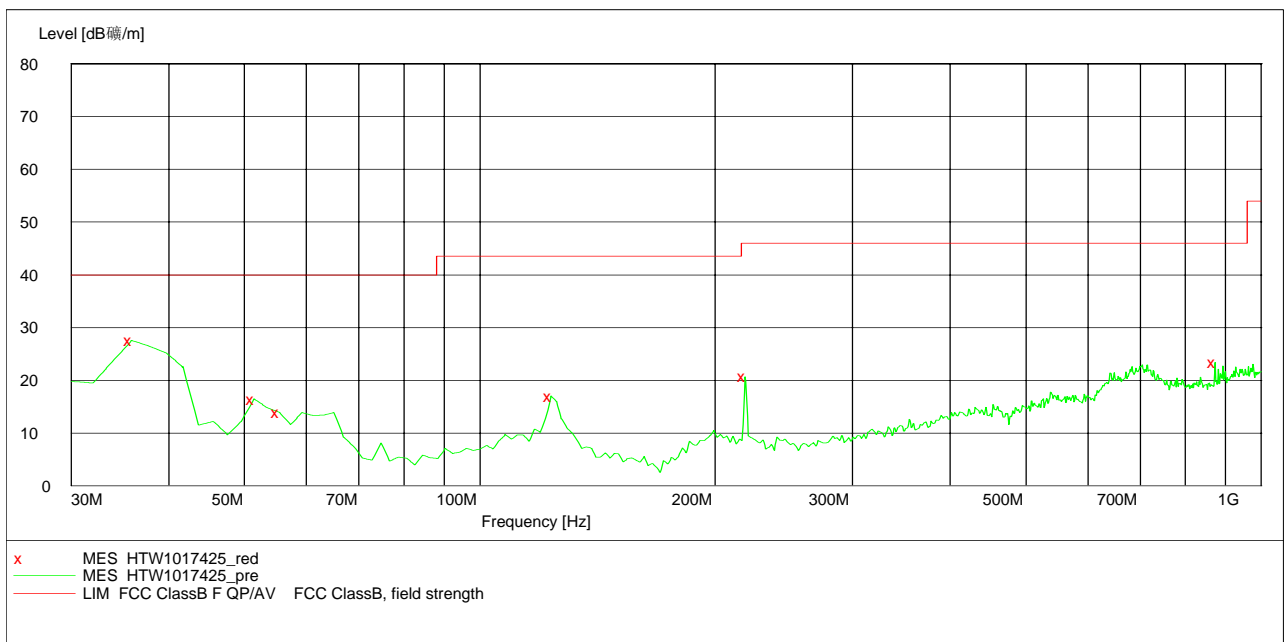
10/17/2010 9:04PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	16.80	-10.1	40.0	23.2	Peak	100.0	211.00	HORIZONTAL
57.214429	7.40	-24.0	40.0	32.6	Peak	300.0	119.00	HORIZONTAL
125.250501	12.80	-18.5	43.5	30.7	Peak	300.0	321.00	HORIZONTAL
218.557114	22.40	-20.5	46.0	23.6	Peak	100.0	337.00	HORIZONTAL
508.196393	15.40	-13.8	46.0	30.6	Peak	100.0	255.00	HORIZONTAL
951.402806	22.90	-4.8	46.0	23.1	Peak	100.0	104.00	HORIZONTAL

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		FCC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
FM	12.5 KHz	173.922	H	30.00	17.40	40.0
			V	35.83	27.60	40.0
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength
 Start Stop Detector Meas. IF Transducer
 Frequency Frequency Time Bandw.
 30.0 MHz 1.0 GHz MaxPeak Coupled 120 kHz HL562 10



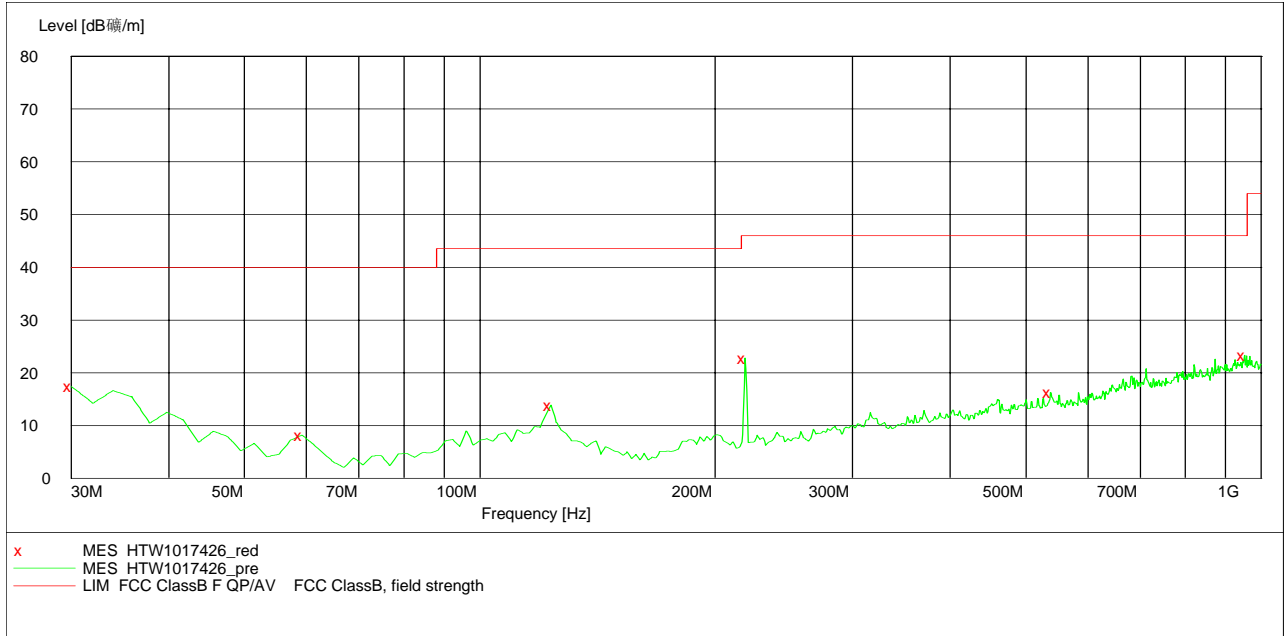
MEASUREMENT RESULT: "HTW1017425_red"

10/17/2010 9:00PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
35.831663	27.60	-13.0	40.0	12.4	Peak	100.0	136.00	VERTICAL
51.382766	16.50	-21.7	40.0	23.5	Peak	100.0	56.00	VERTICAL
55.270541	14.00	-23.5	40.0	26.0	Peak	100.0	14.00	VERTICAL
123.306613	17.00	-18.4	43.5	26.5	Peak	100.0	154.00	VERTICAL
218.557114	20.70	-20.5	46.0	25.3	Peak	100.0	97.00	VERTICAL
873.647295	23.40	-7.5	46.0	22.6	Peak	100.0	285.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 10



MEASUREMENT RESULT: "HTW1017426_red"

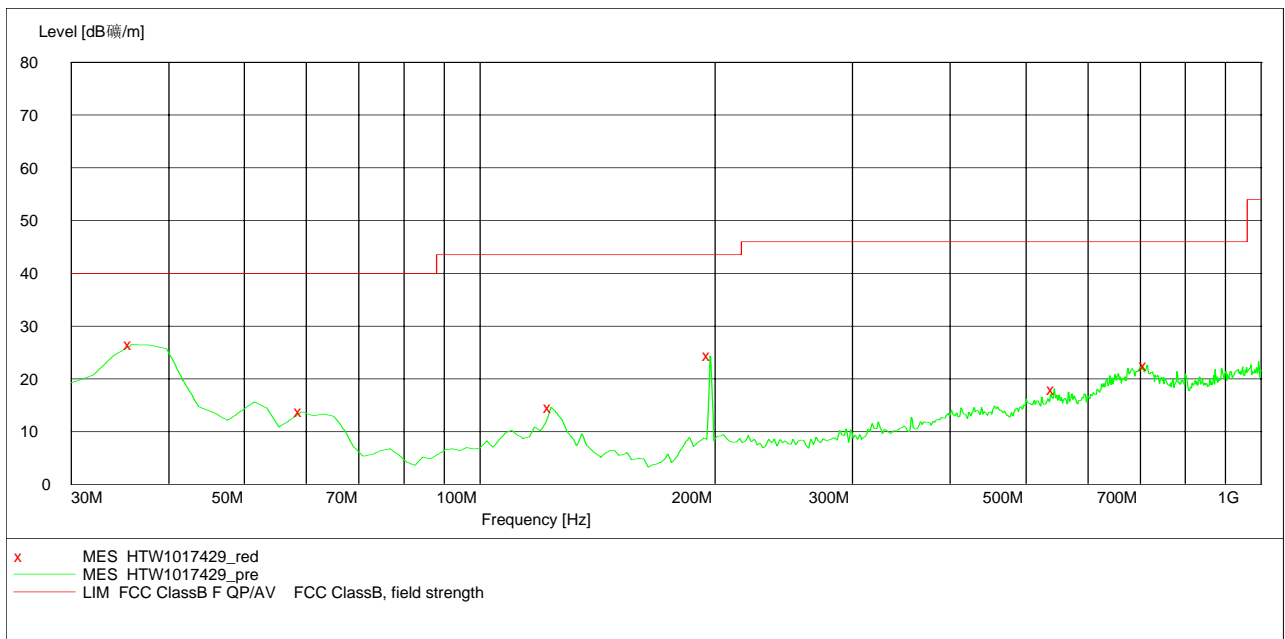
10/17/2010 9:02PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	17.40	-10.1	40.0	22.6	Peak	100.0	110.00	HORIZONTAL
59.158317	8.20	-24.7	40.0	31.8	Peak	300.0	141.00	HORIZONTAL
123.306613	13.90	-18.4	43.5	29.6	Peak	300.0	351.00	HORIZONTAL
218.557114	22.80	-20.5	46.0	23.2	Peak	100.0	339.00	HORIZONTAL
537.354709	16.30	-13.0	46.0	29.7	Peak	100.0	207.00	HORIZONTAL
951.402806	23.30	-4.8	46.0	22.7	Peak	100.0	258.00	HORIZONTAL

Modulation Type	Channel Separation	Test Frequency (MHz)	Polar.	Maximum Radiated Emissions		FCC Limit (dBuV/m)
				Frequency (MHz)	Datum (dBuV/m)	
4FSK	12.5 KHz	152.122	H	197.17	27.40	43.5
			V	35.83	26.50	40.0
Test Results			Compliance			

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength
 Start Stop Detector Meas. IF Transducer
 Frequency Frequency Time Bandw.
 30.0 MHz 1.0 GHz MaxPeak Coupled 120 kHz HL562 10



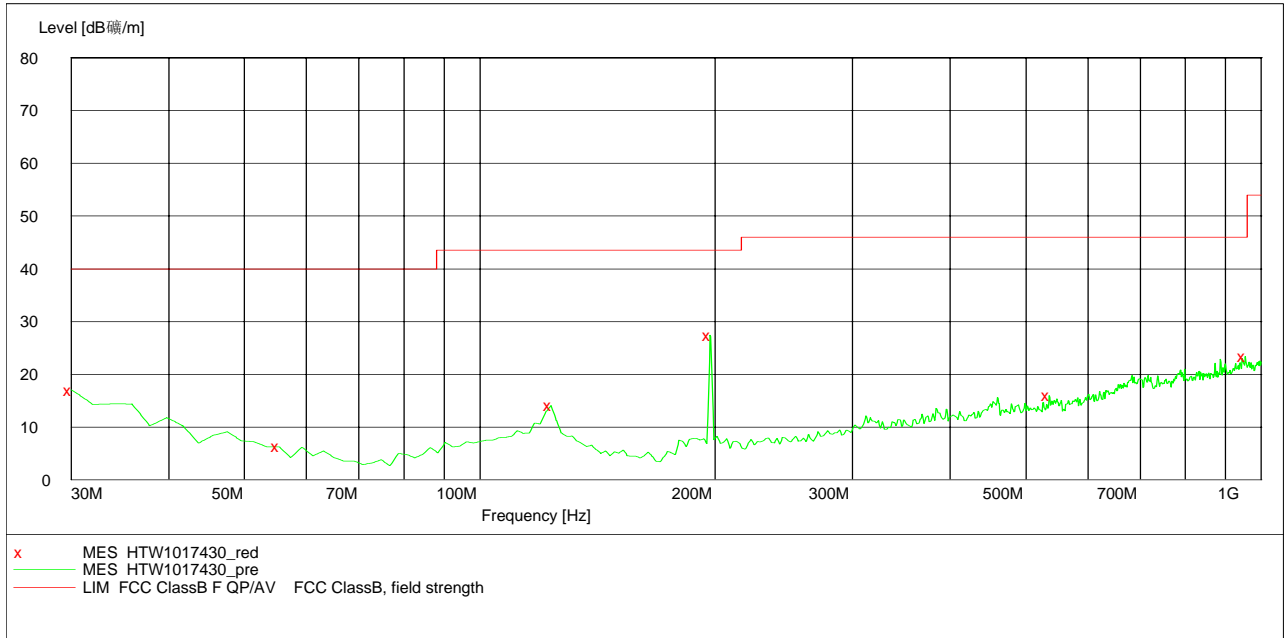
MEASUREMENT RESULT: "HTW1017429_red"

10/17/2010 9:08PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
35.831663	26.50	-13.0	40.0	13.5	Peak	100.0	117.00	VERTICAL
59.158317	13.80	-24.7	40.0	26.2	Peak	100.0	14.00	VERTICAL
123.306613	14.60	-18.4	43.5	28.9	Peak	100.0	143.00	VERTICAL
197.174349	24.40	-21.3	43.5	19.1	Peak	100.0	45.00	VERTICAL
543.186373	18.10	-12.8	46.0	27.9	Peak	100.0	36.00	VERTICAL
714.248497	22.60	-10.4	46.0	23.4	Peak	100.0	354.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	HL562 10



MEASUREMENT RESULT: "HTW1017430_red"

10/17/2010 9:10PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	17.00	-10.1	40.0	23.0	Peak	300.0	216.00	HORIZONTAL
55.270541	6.30	-23.5	40.0	33.7	Peak	300.0	165.00	HORIZONTAL
123.306613	14.10	-18.4	43.5	29.4	Peak	300.0	175.00	HORIZONTAL
197.174349	27.40	-21.3	43.5	16.1	Peak	100.0	109.00	HORIZONTAL
535.410822	16.00	-13.2	46.0	30.0	Peak	100.0	279.00	HORIZONTAL
953.346693	23.40	-4.9	46.0	22.6	Peak	300.0	72.00	HORIZONTAL

4.10. Receiver Conducted Spurious Emission

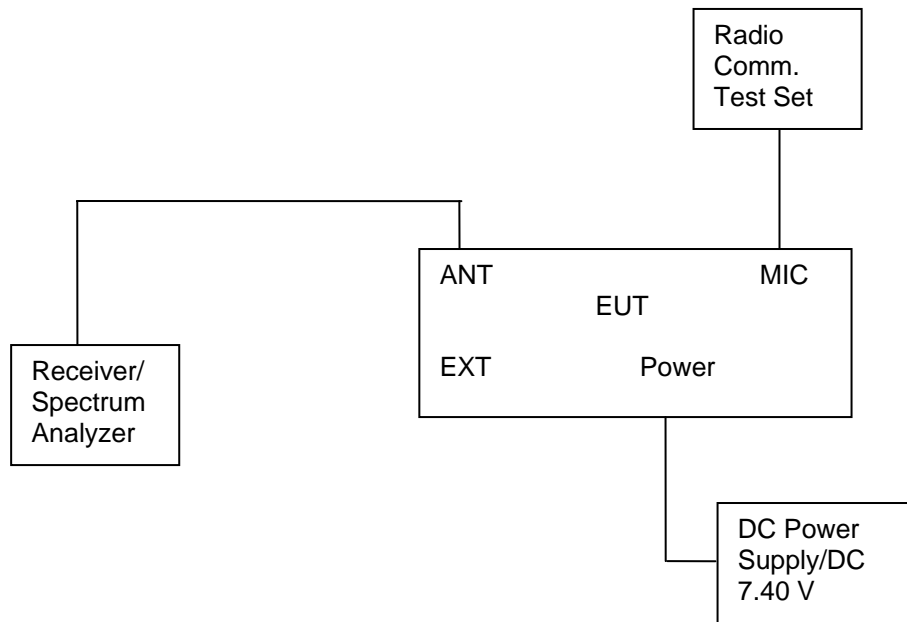
TEST APPLICABLE

The same as Section 4.3

TEST PROCEDURE

The spectrum analyzer was connected to the RF output power of the EUT, the EUT was setup in receiving mode; The RBW of the spectrum analyzer was set to 100 kHz and the VBW set to 300 KHz below the test frequency 1GHz. While the RBW of the spectrum analyzer was set to the 1MHz and VBW set to the 3MHz from 1GHz to the 10th harmonic.

TEST CONFIGURATION



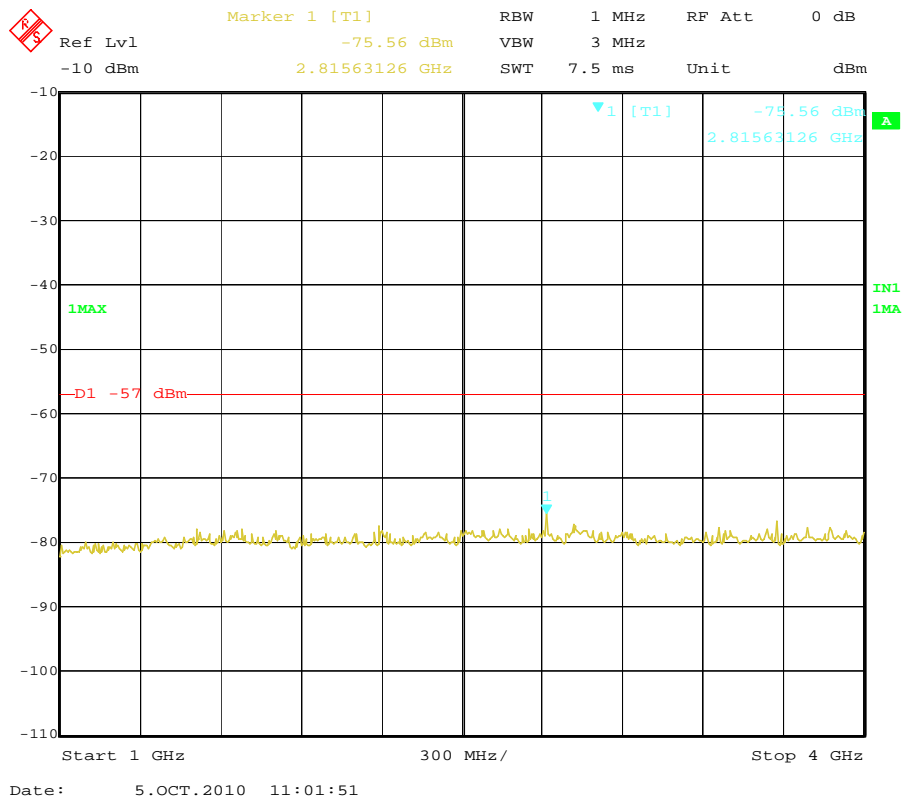
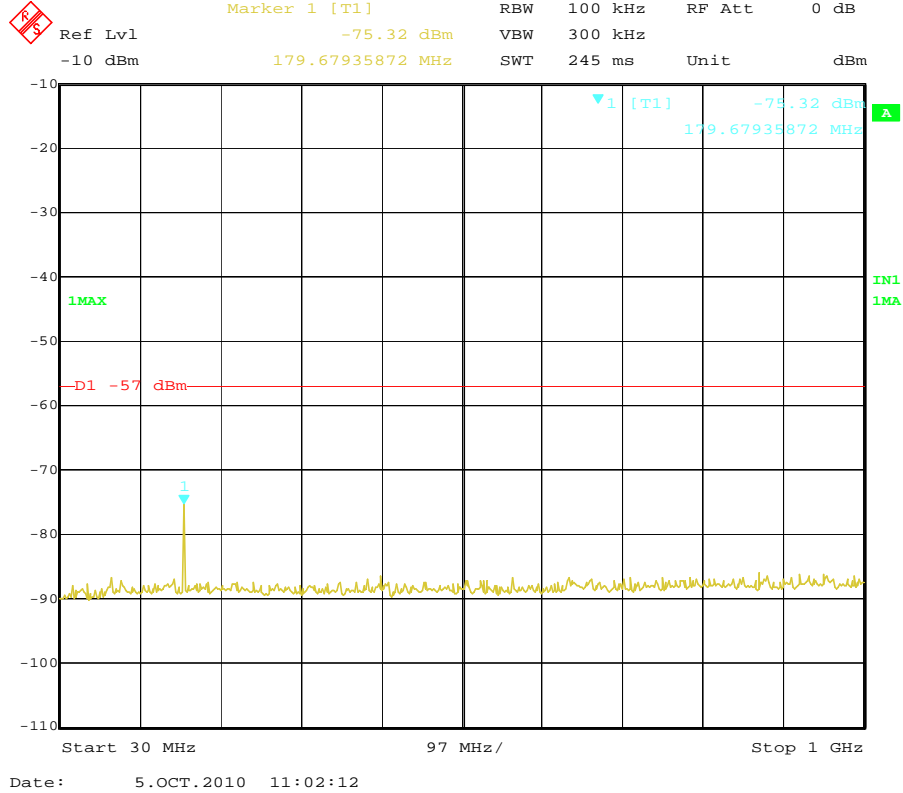
LIMIT

The power at the antenna terminal shall not exceed 2.0 nanowatts (-57dBm).

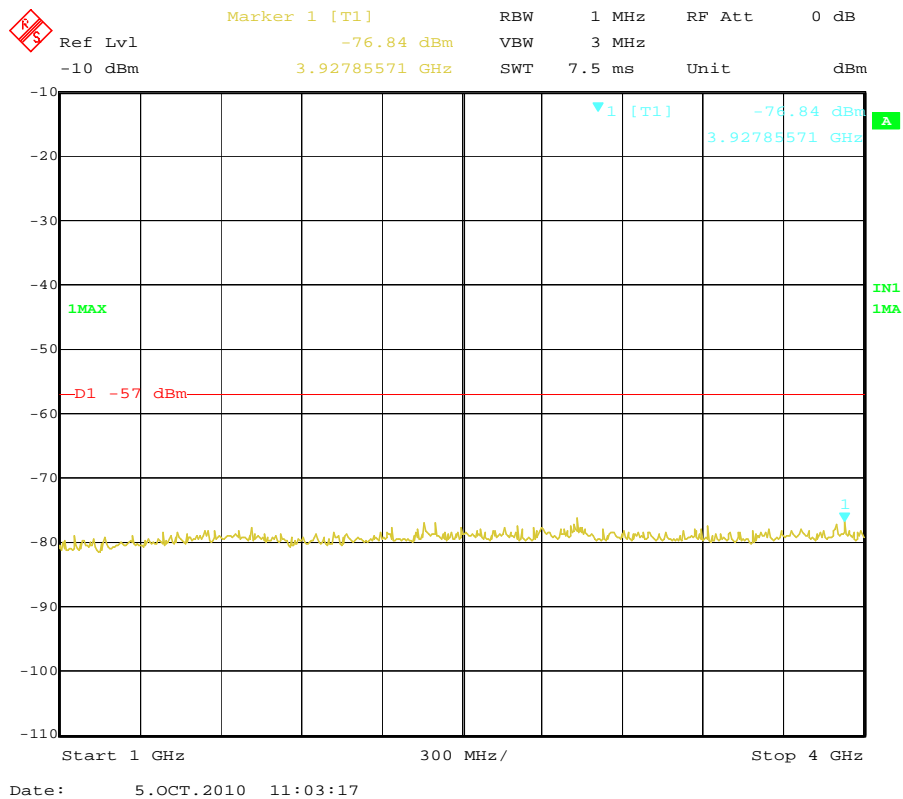
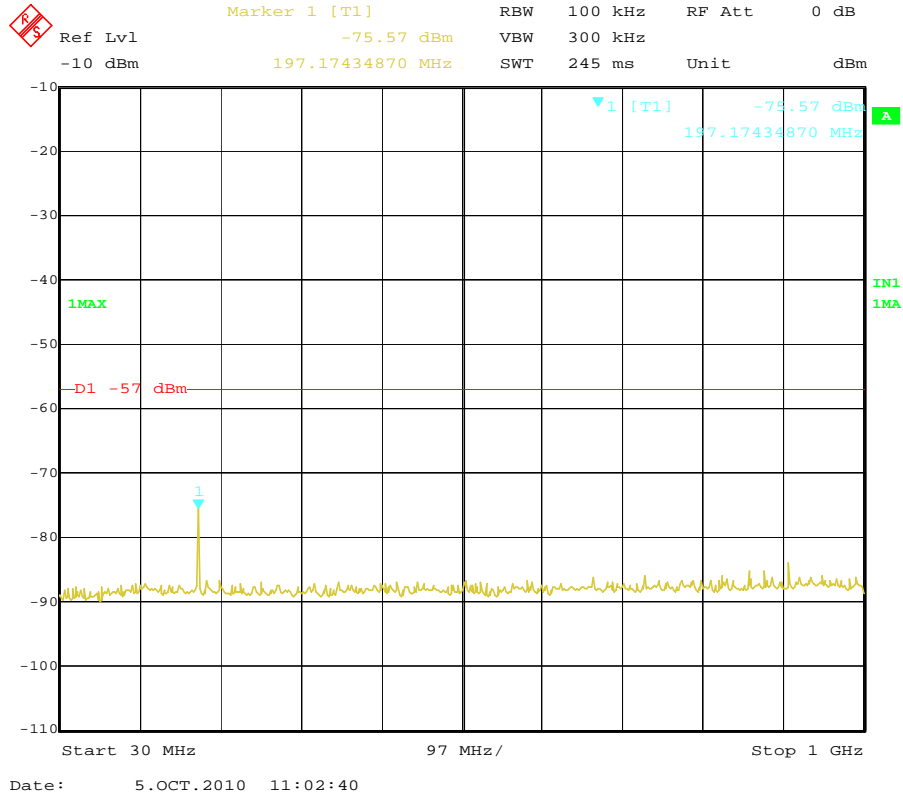
TEST RESULTS

The Receiver Conducted Spurious Emissions Measurement is performed to the three channels (the top channel, the middle channel and the bottom channel), the datums recorded below were for the three channels; and the EUT shall be scanned from 30 MHz to the 5 GHz.

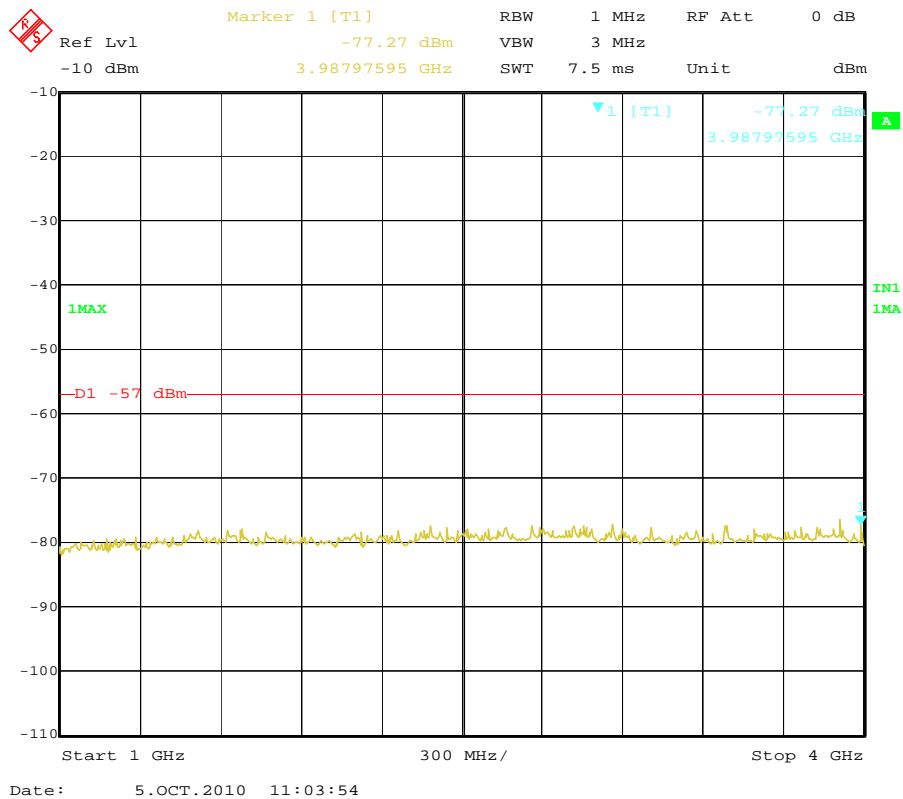
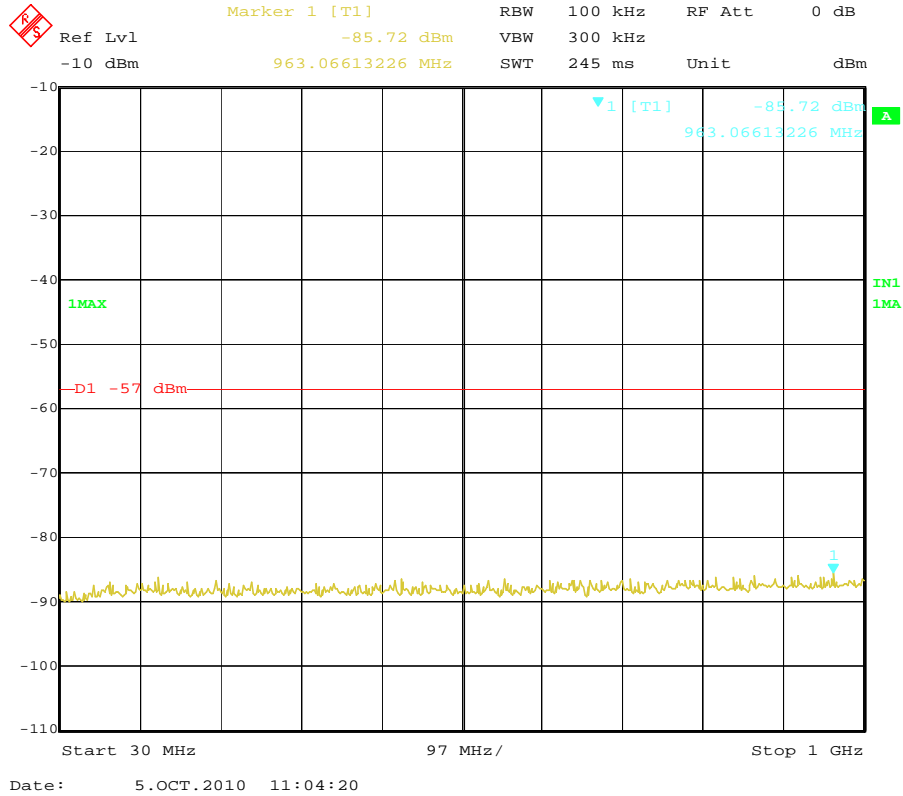
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Low	136.1220	179.68	-75.32	2815.63	-75.56	-57dBm
Test Results				Compliance				



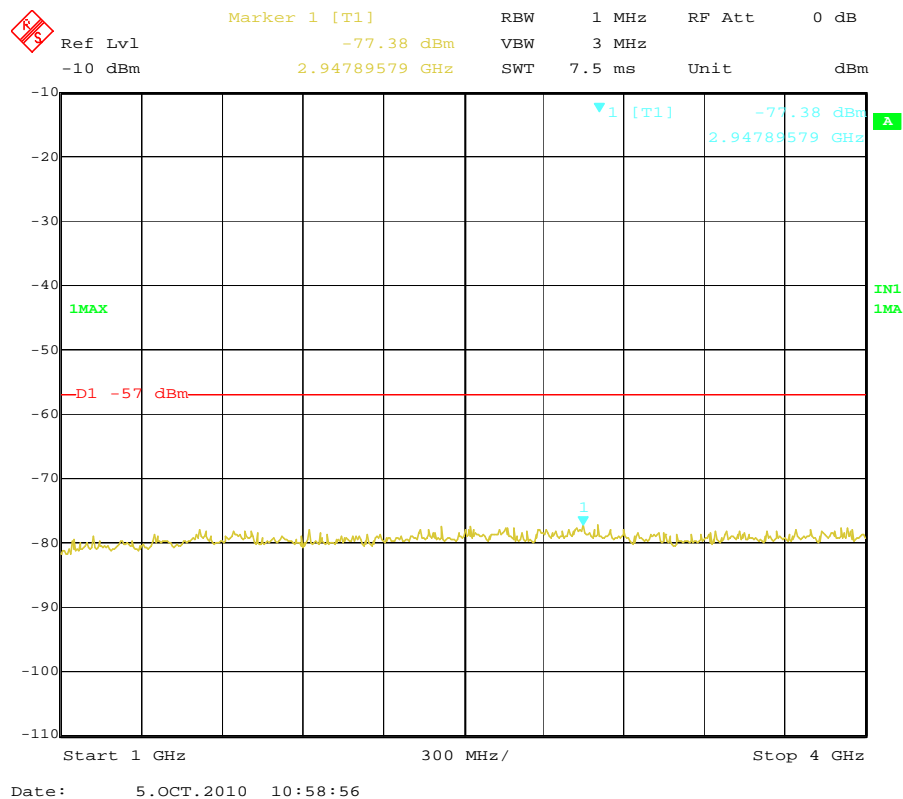
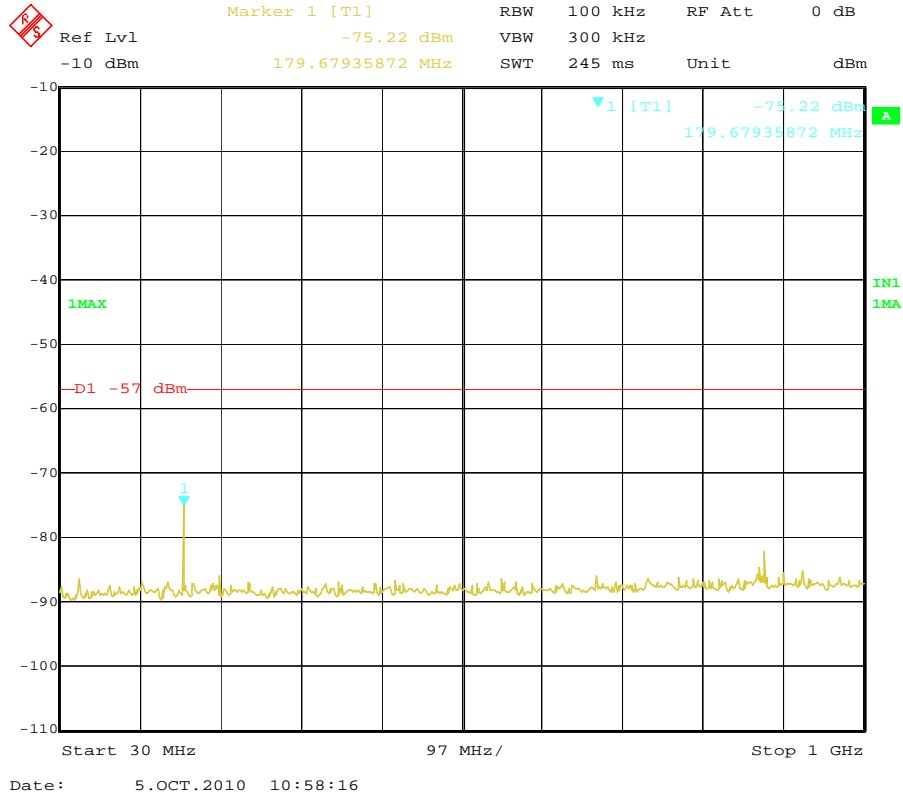
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Middle	152.1220	197.17	-75.57	3927.86	-76.84	-57dBm
Test Results				Compliance				



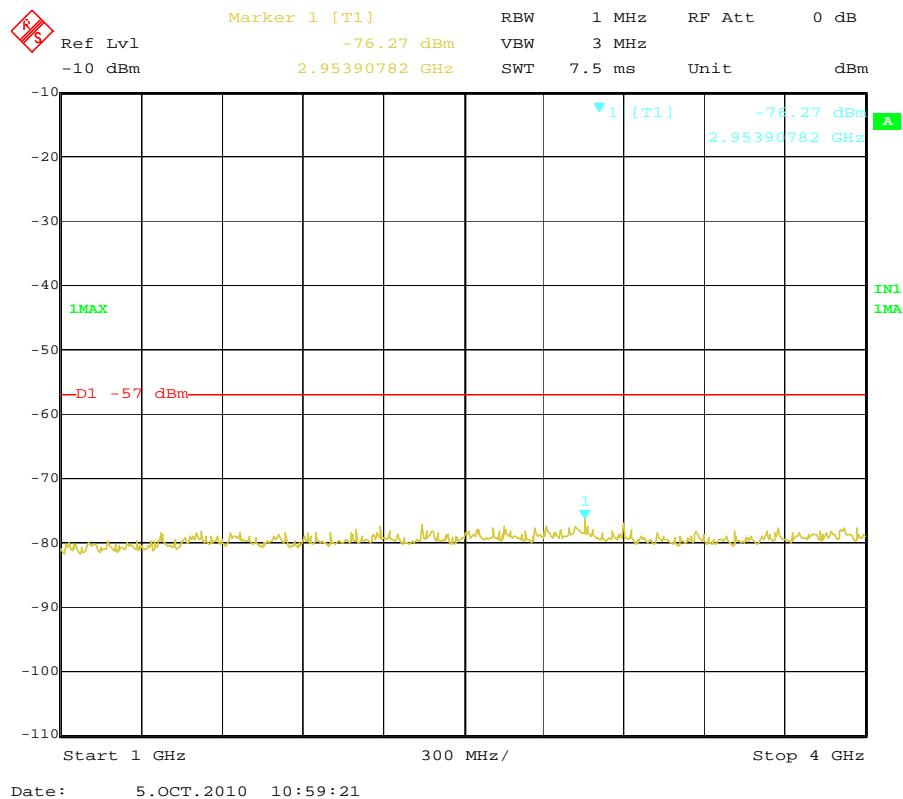
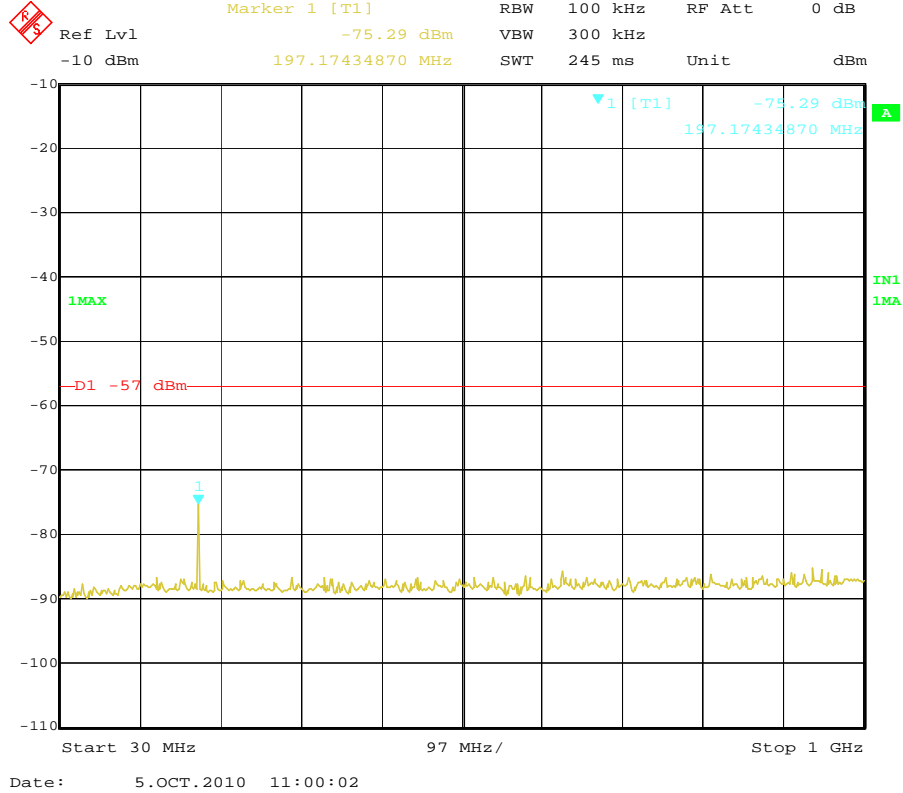
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	25KHz	Higjh	173.9220	963.07	-85.72	3987.98	-77.27	-57dBm
Test Results				Compliance				



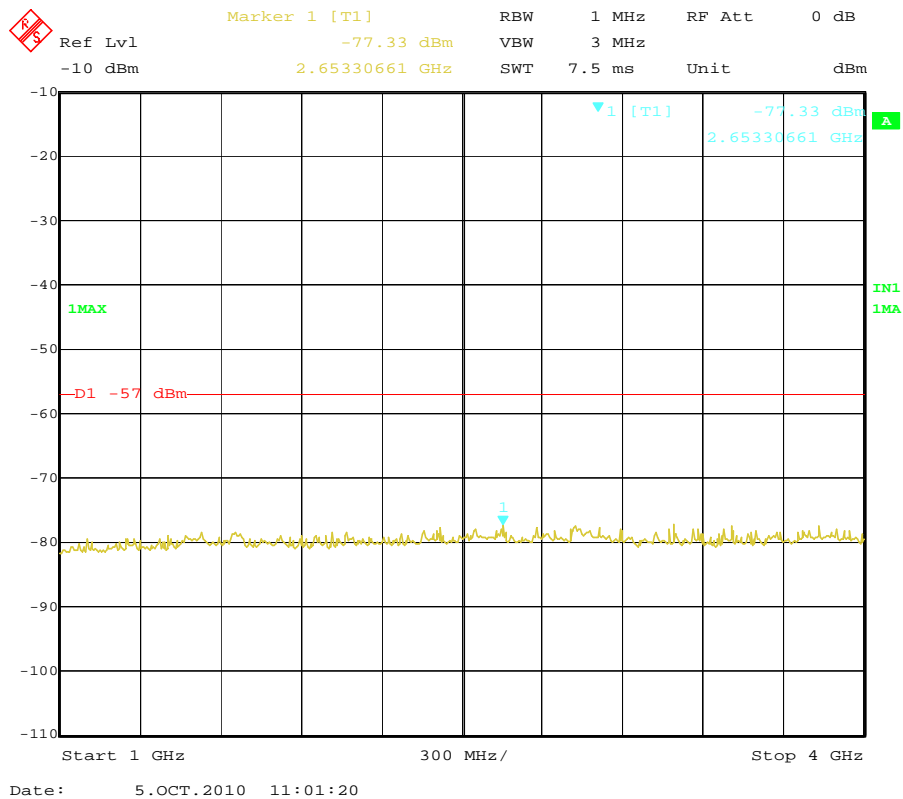
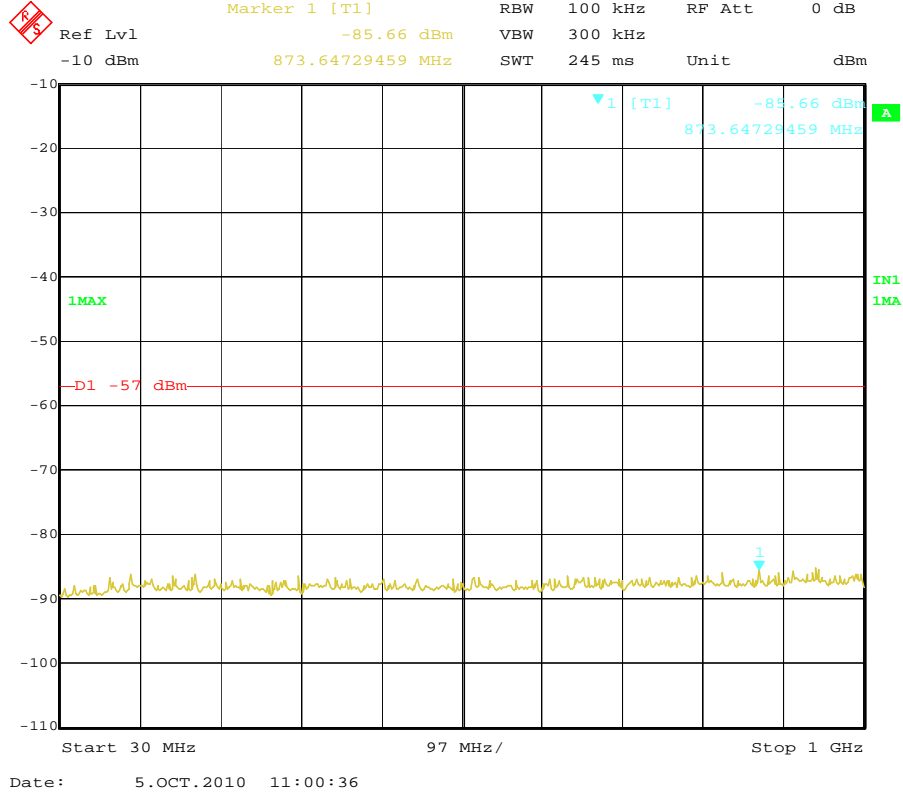
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Low	136.1220	179.68	-75.22	2947.90	-77.38	-57dBm
Test Results				Compliance				



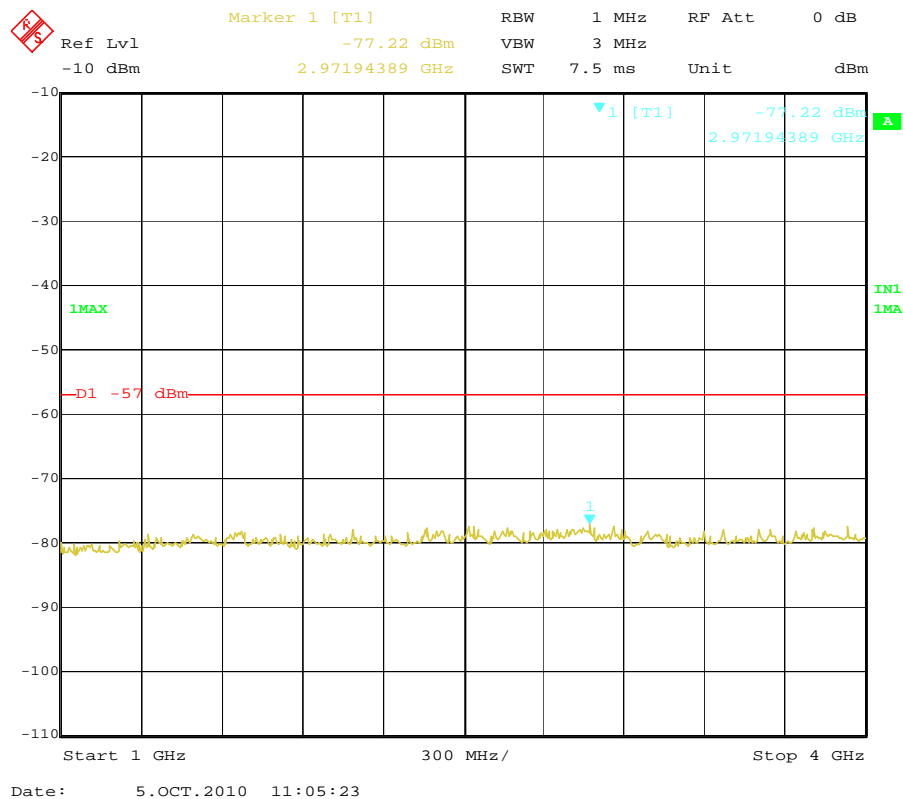
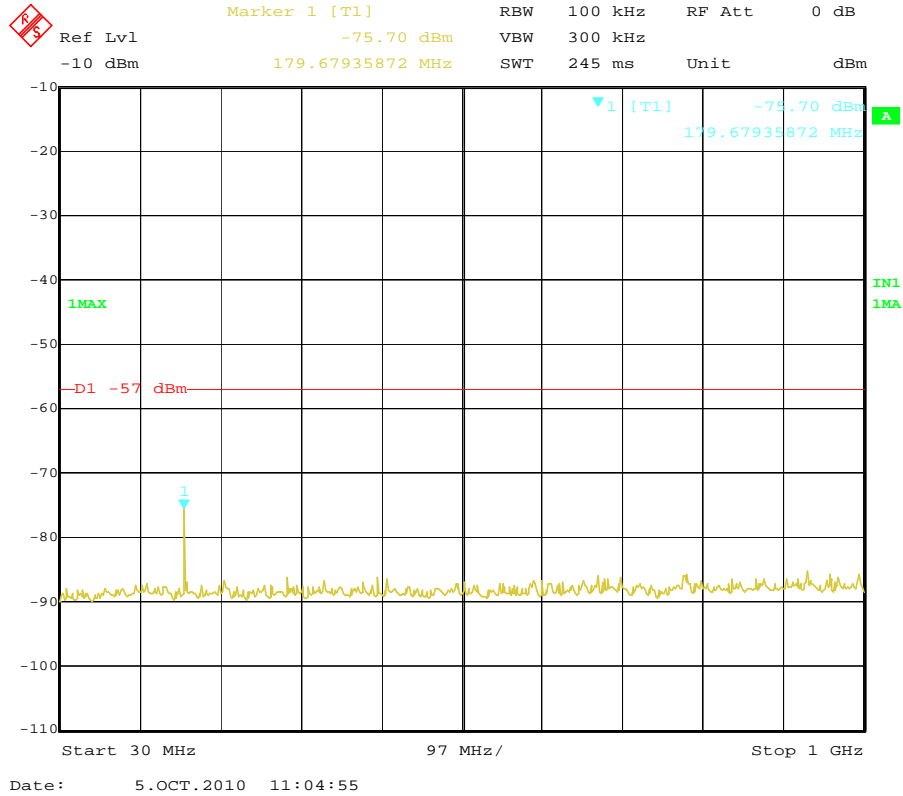
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	Middle	152.1220	197.17	-75.29	2953.91	-76.27	-57dBm
Test Results				Compliance				



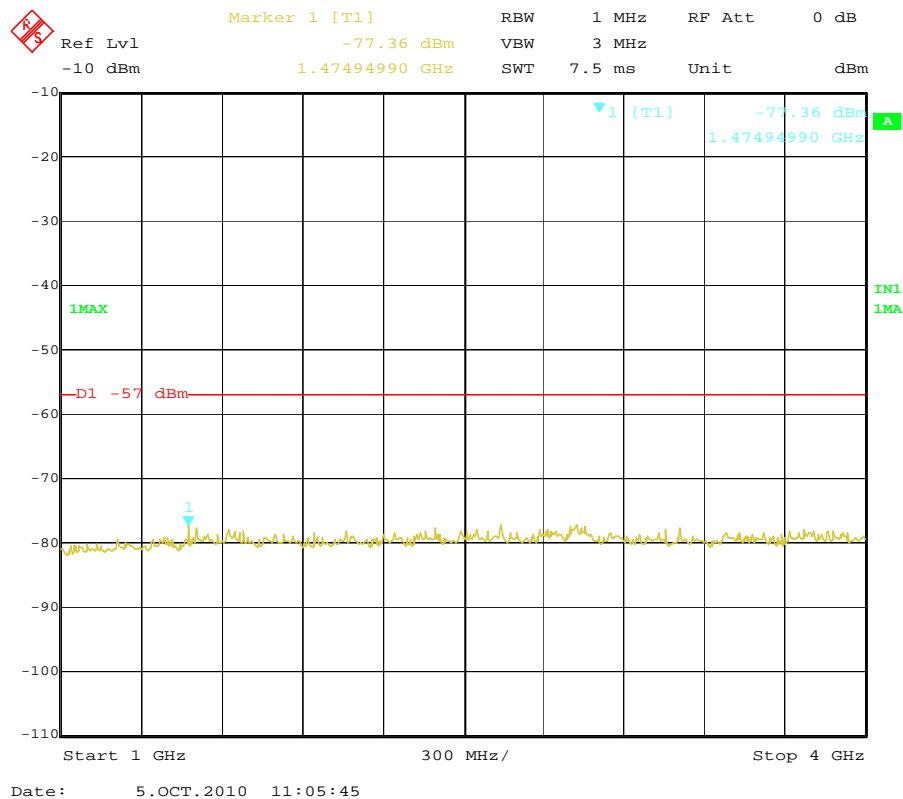
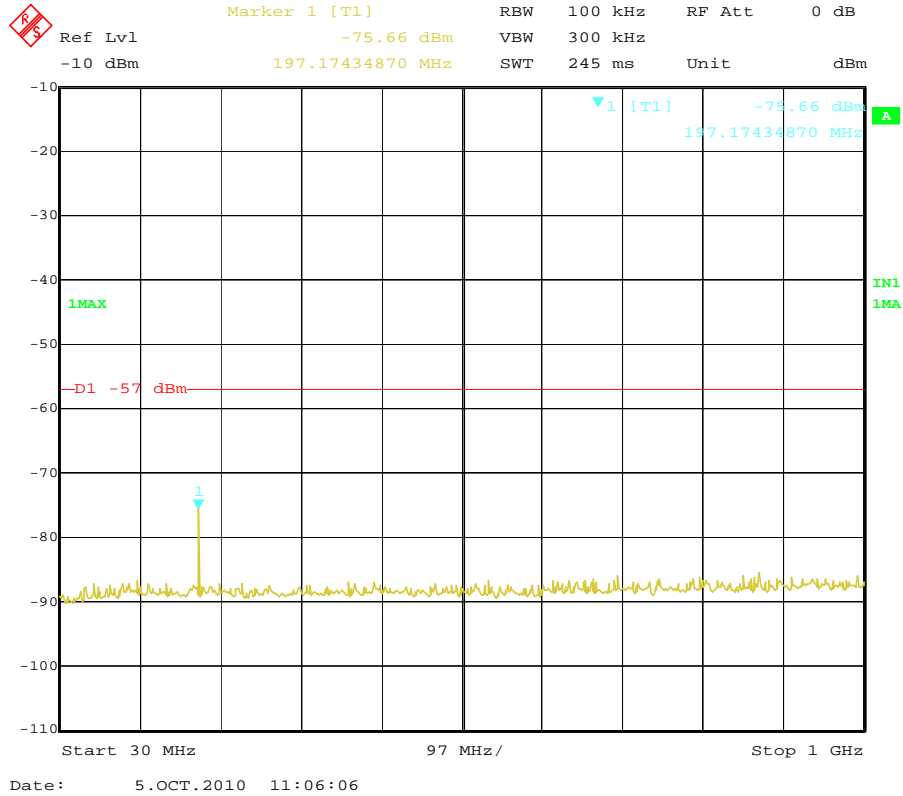
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
FM	12.5KHz	High	173.9220	873.65	-85.66	2653.31	-77.33	-57dBm
Test Results				Compliance				



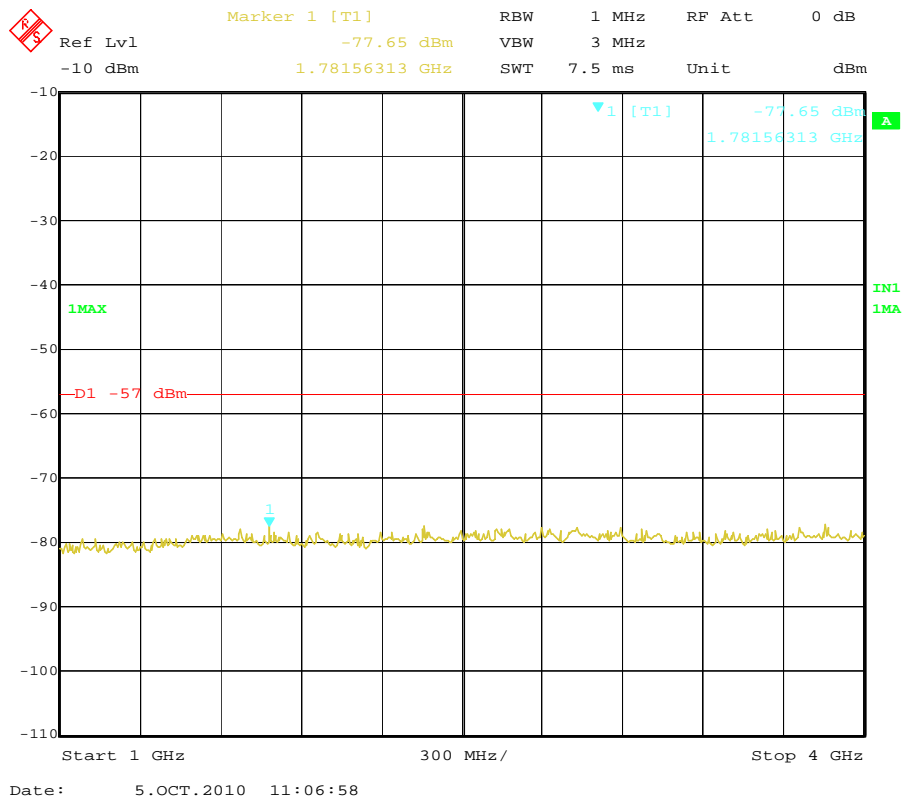
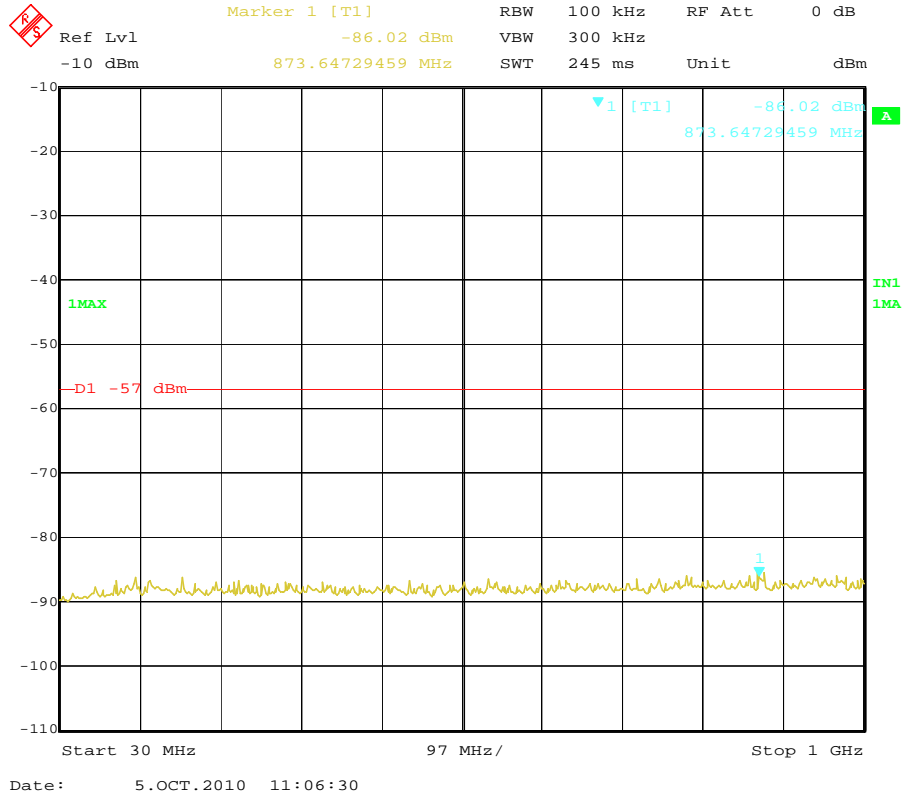
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
4FSK	12.5KHz	Low	136.1220	179.68	-75.70	2971.94	-77.22	-57dBm
Test Results				Compliance				



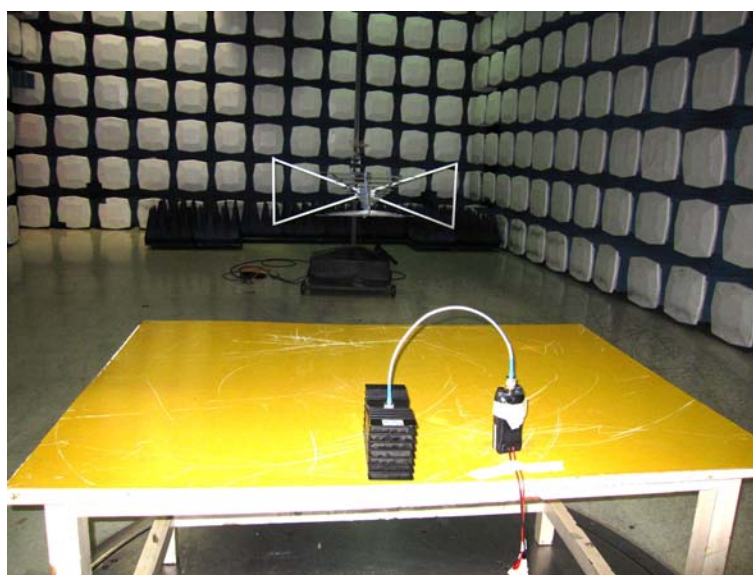
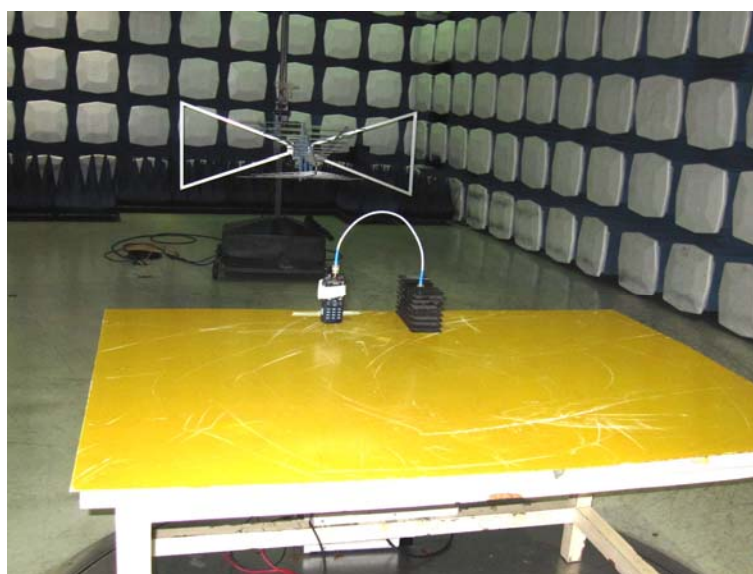
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
4FSK	12.5KHz	Middle	152.1220	197.17	-75.66	1474.95	-77.36	-57dBm
Test Results				Compliance				

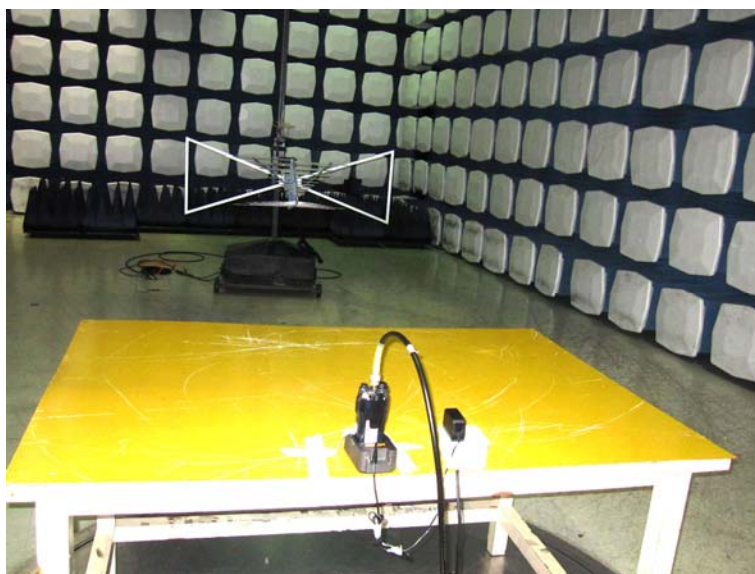
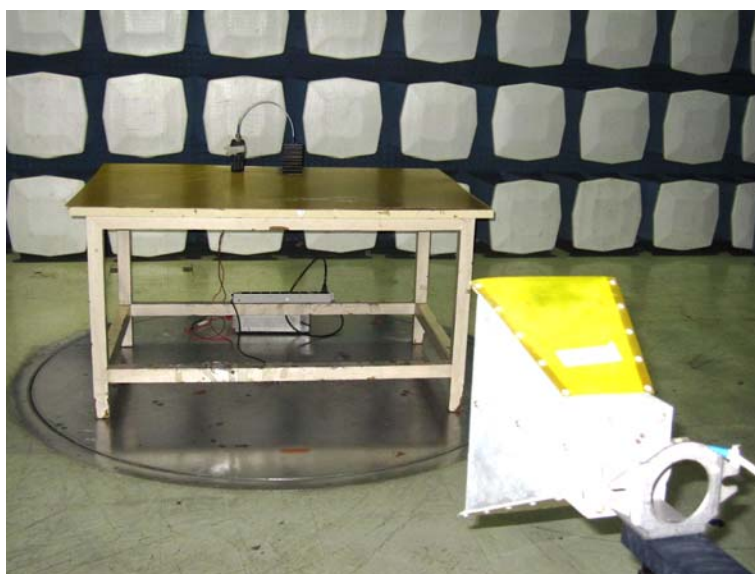
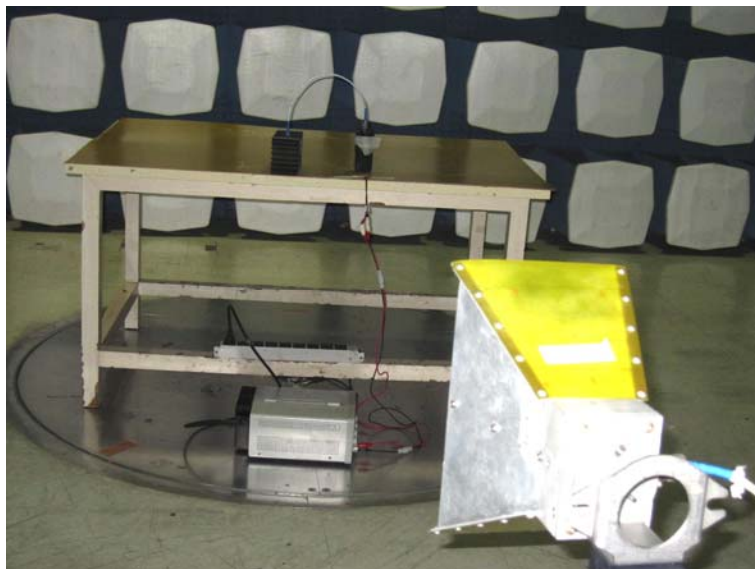


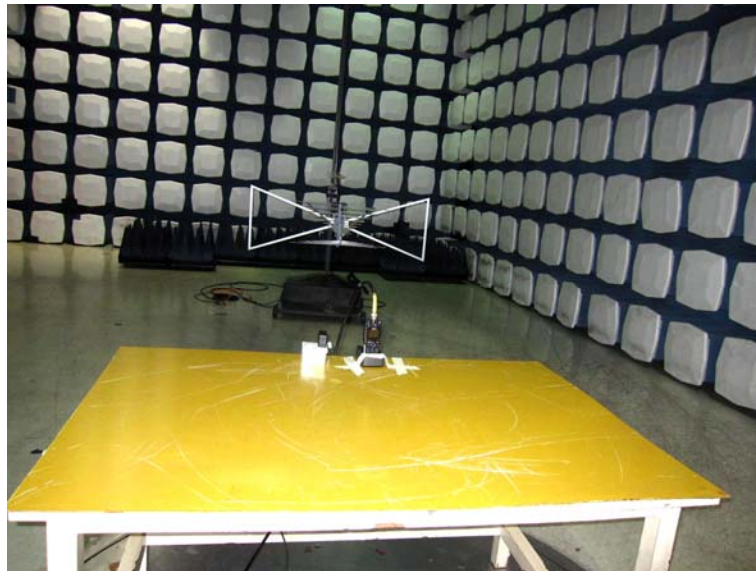
Modulation Type	Channel Separation	Test Channel	Test Frequency (MHz)	Maximum Conducted Spurious Emissions Below 1GHz		Maximum Conducted Spurious Emissions Above 1GHz		FCC Limit
				Frequency (MHz)	Datum (dBm)	Frequency (MHz)	Datum (dBm)	
4FSK	12.5KHz	High	173.9220	873.65	-86.02	1781.56	-77.65	-57dBm
Test Results				Compliance				



5. Test Setup Photos of the EUT







6. External and Internal Photos of the EUT

External Photos



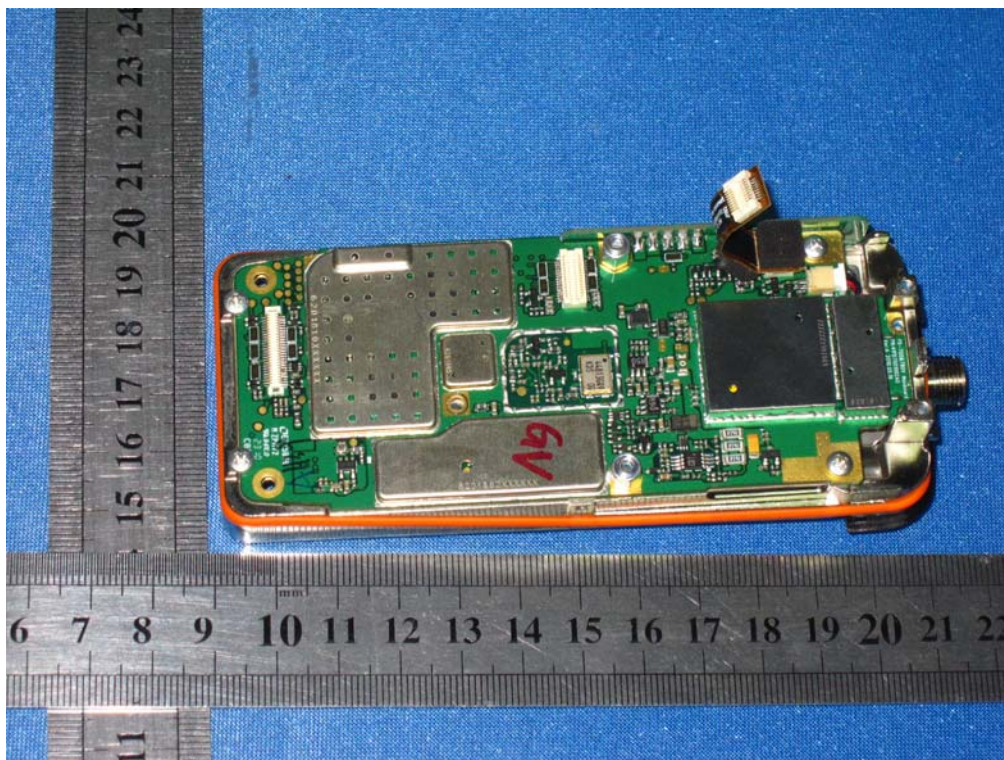
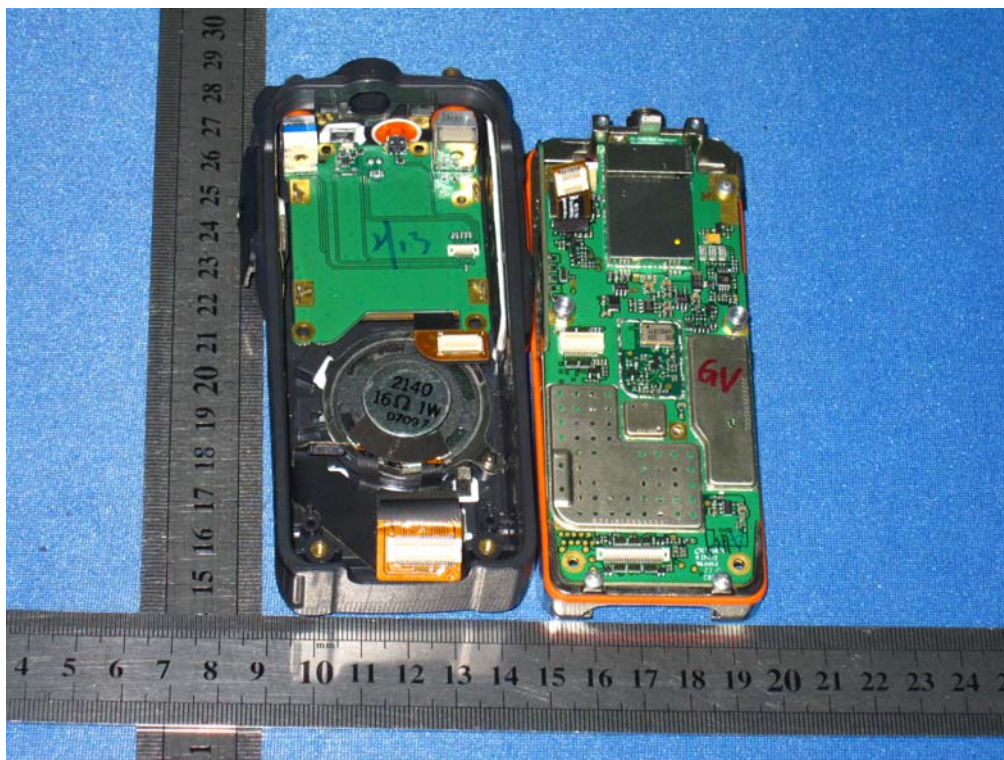


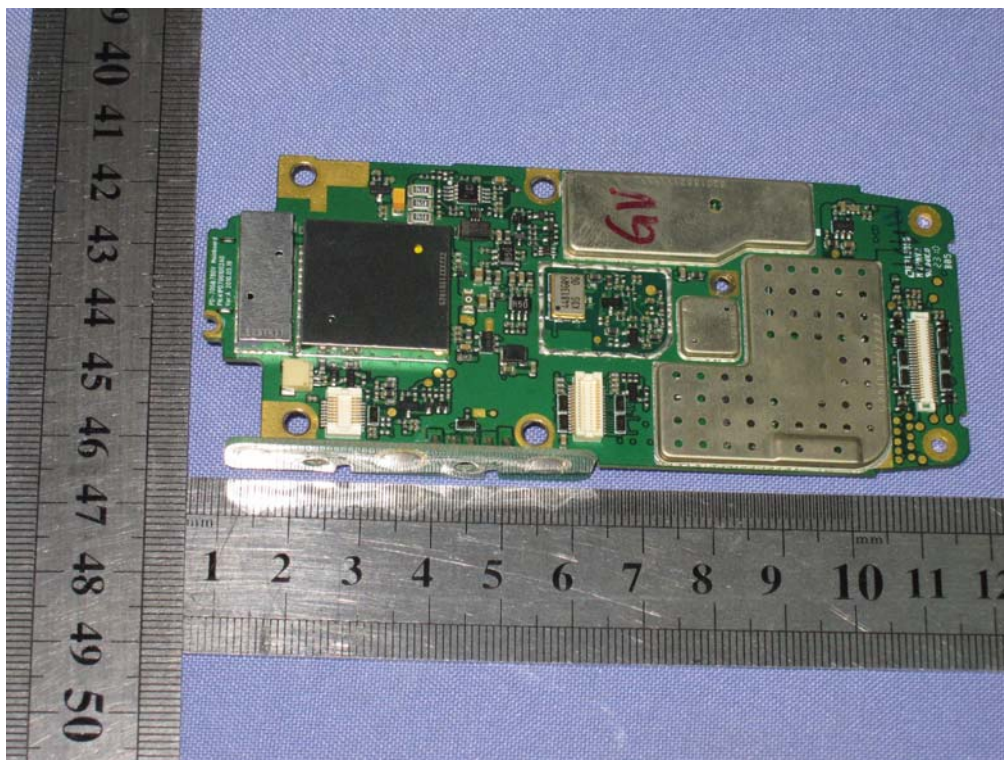
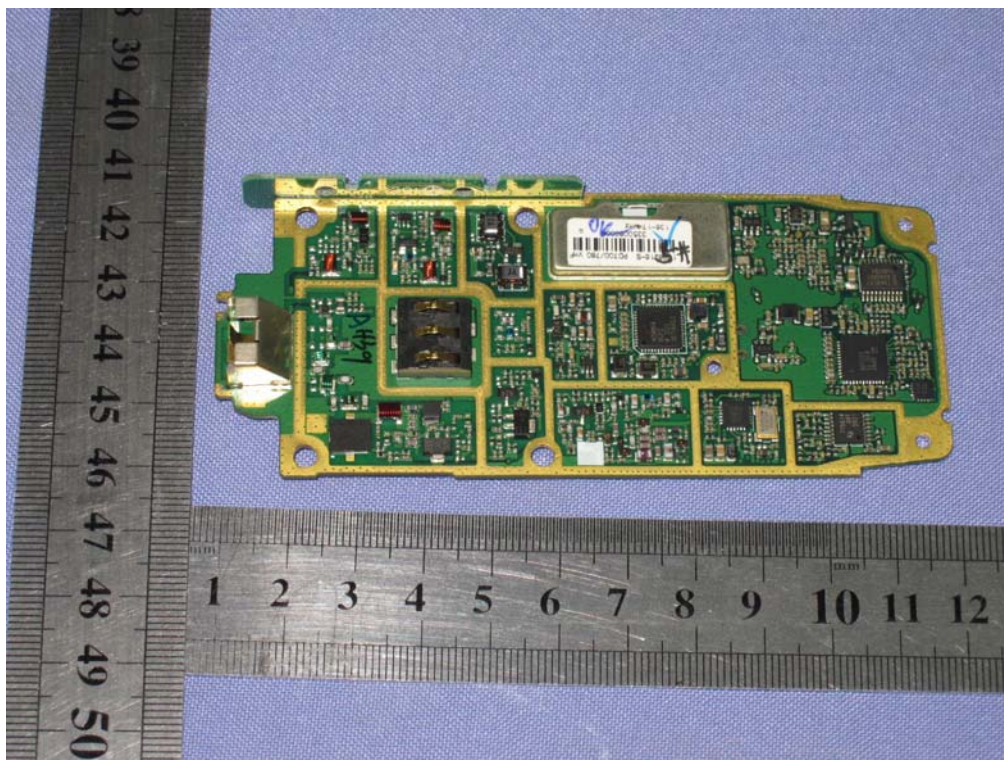


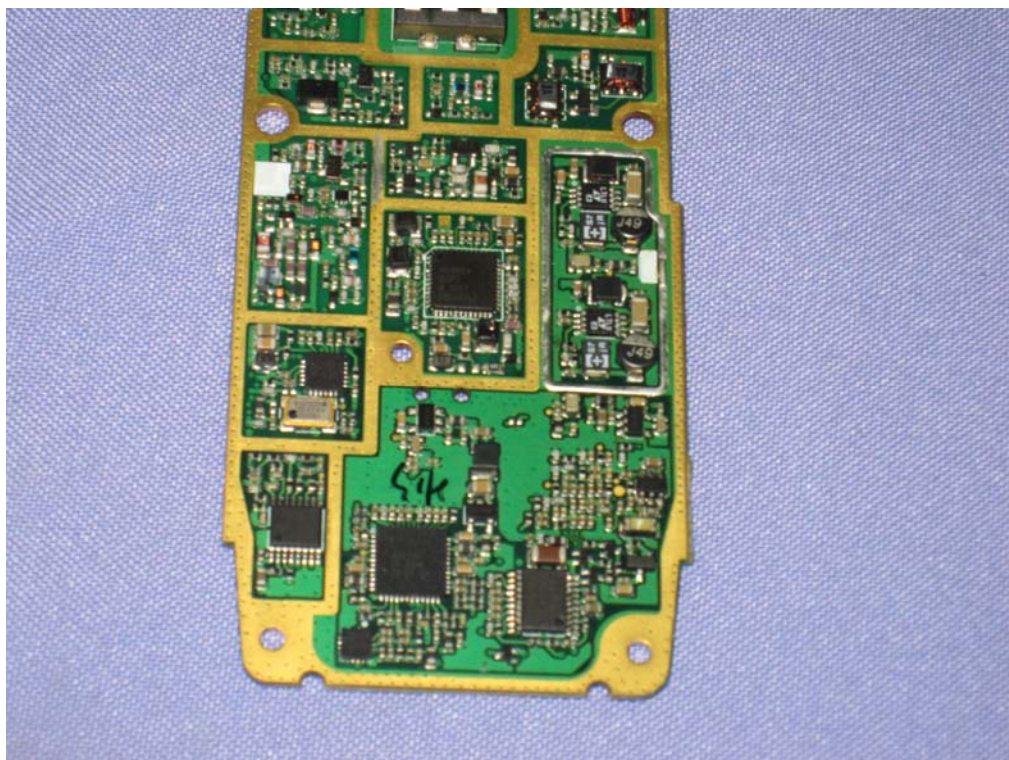
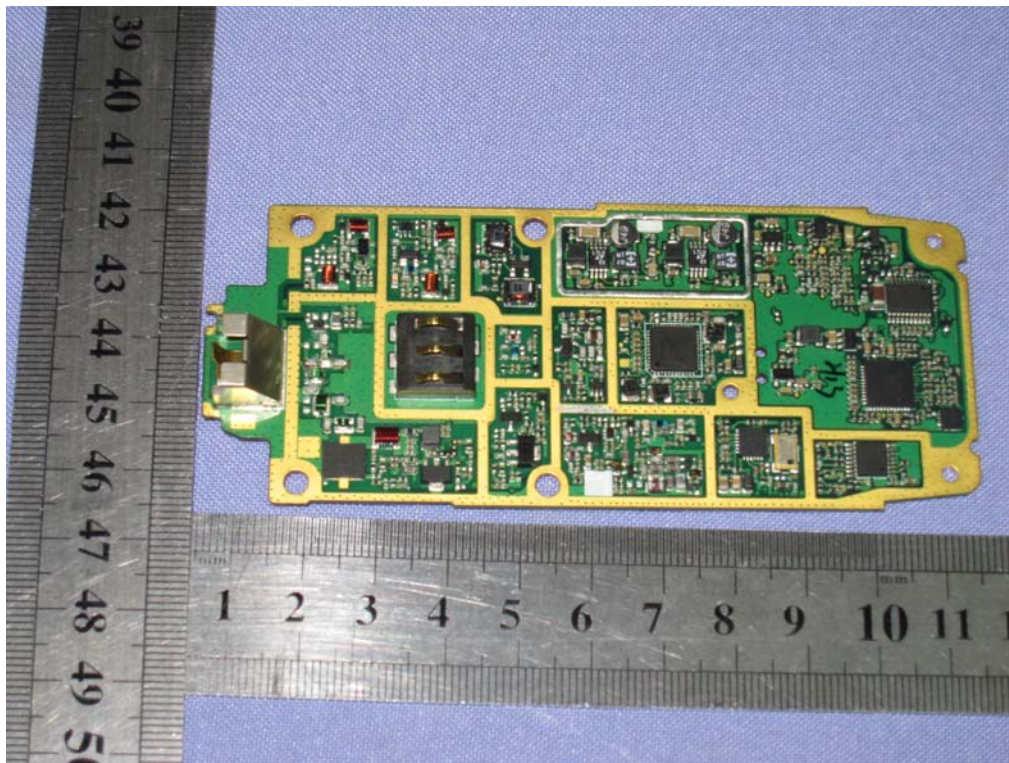


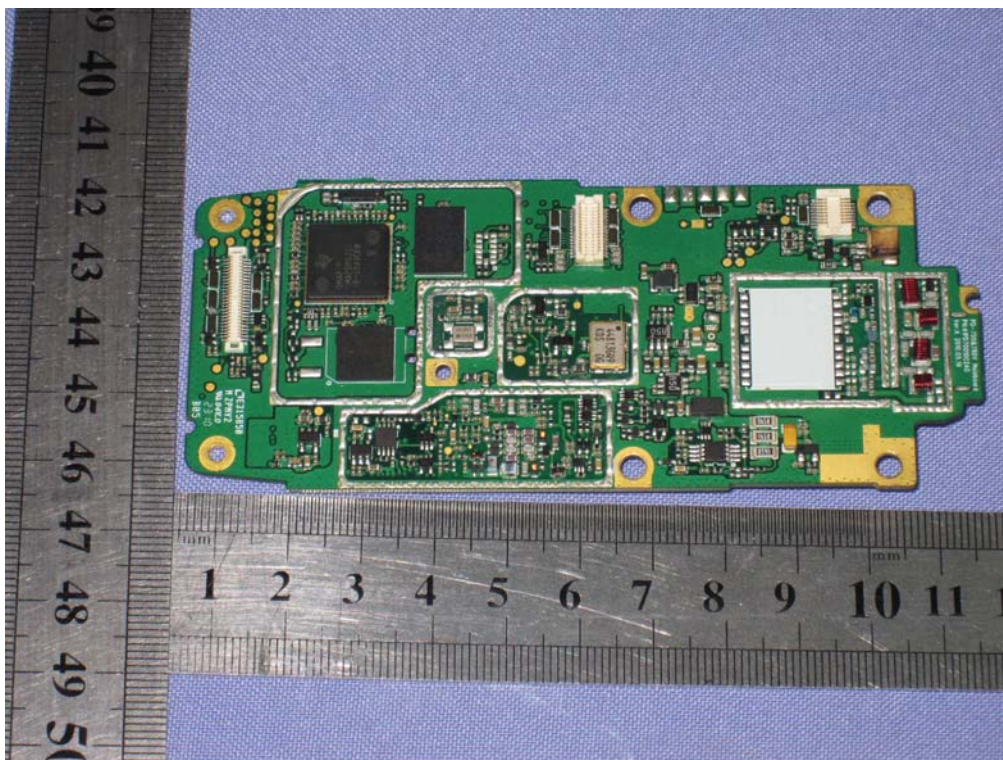
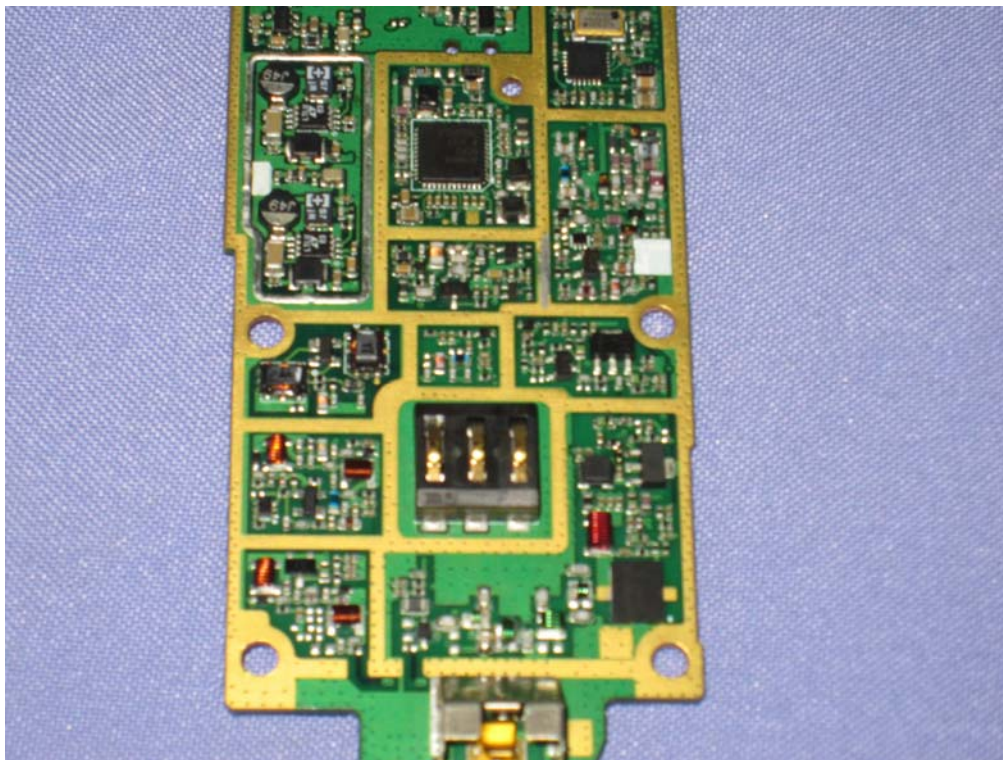
Internal Photos

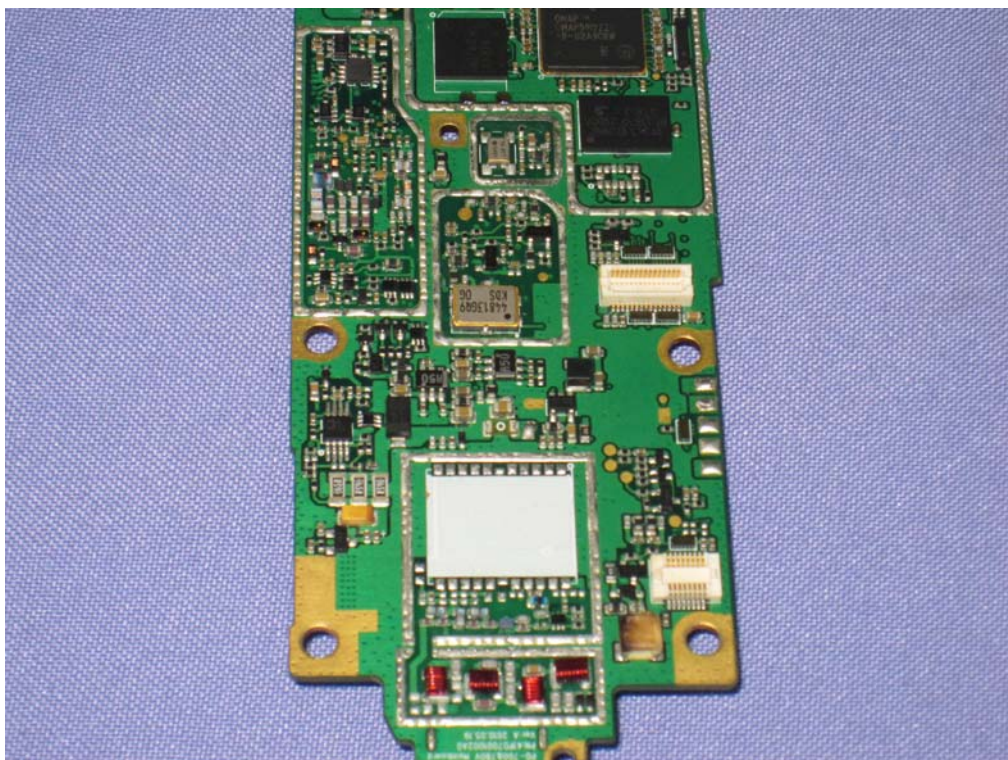
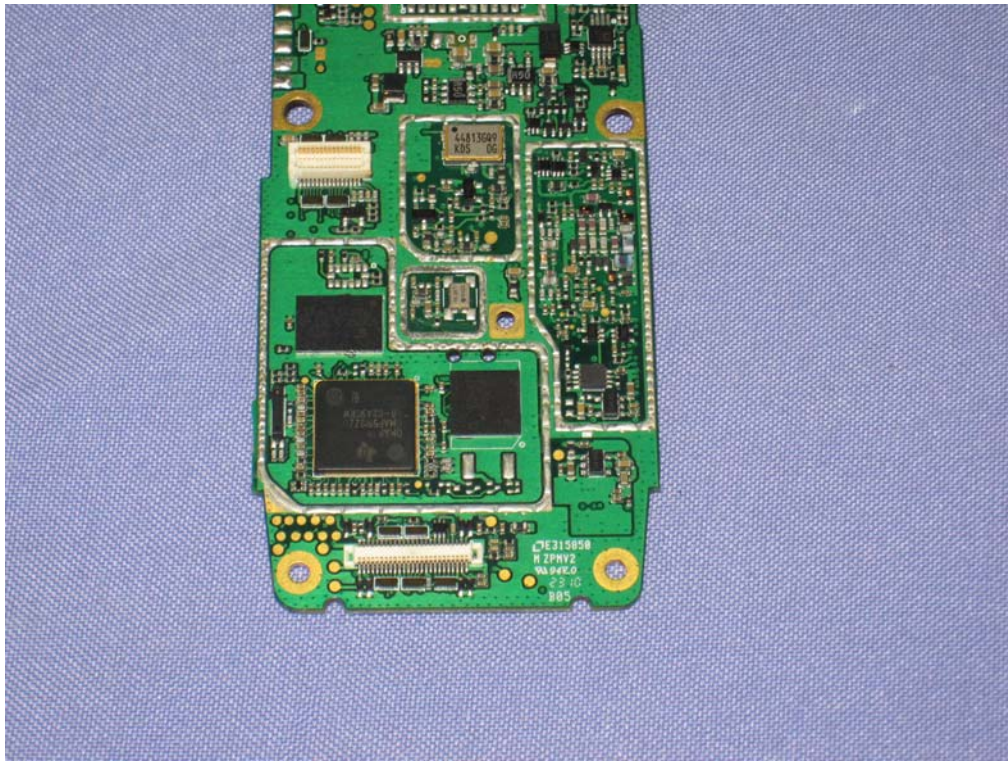


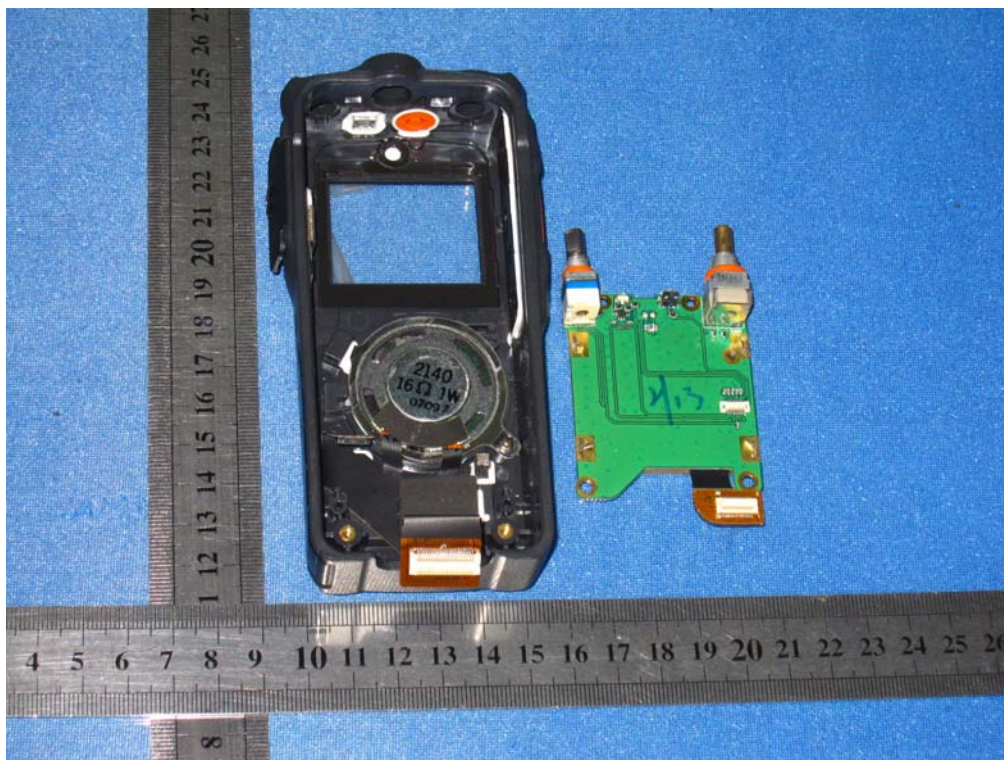
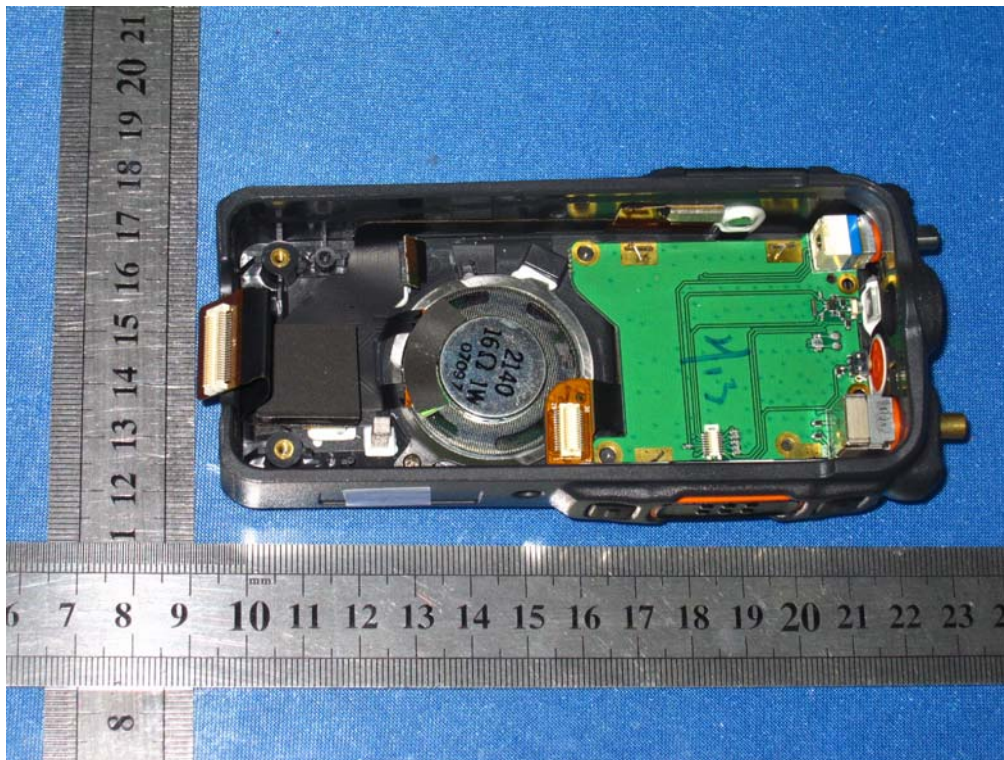


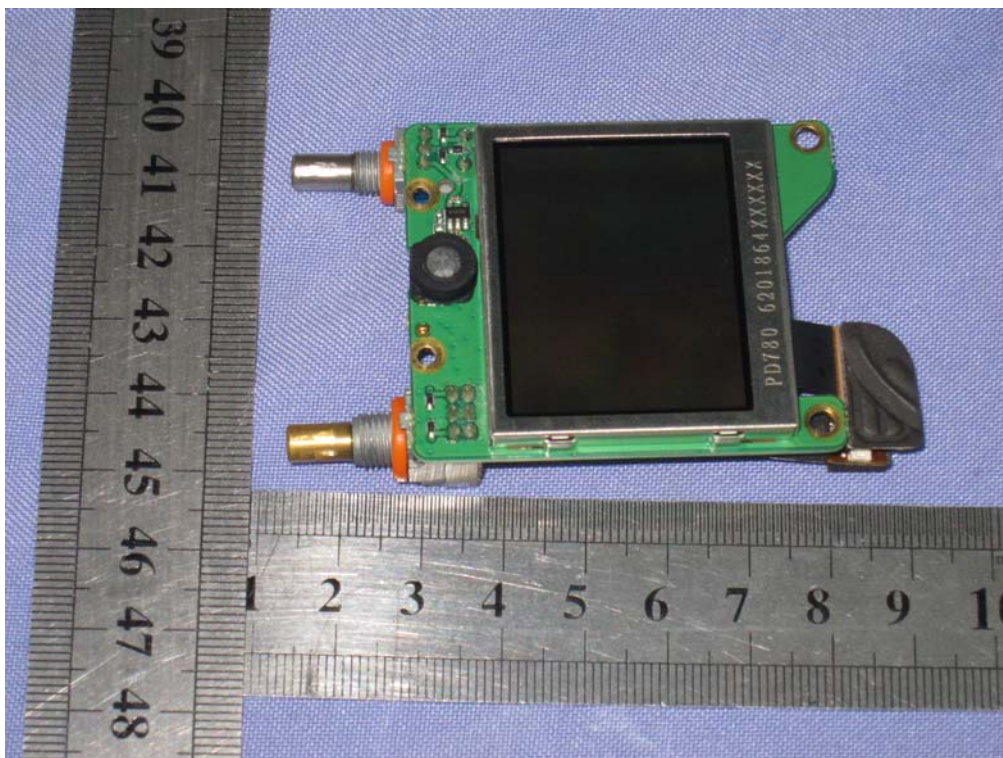
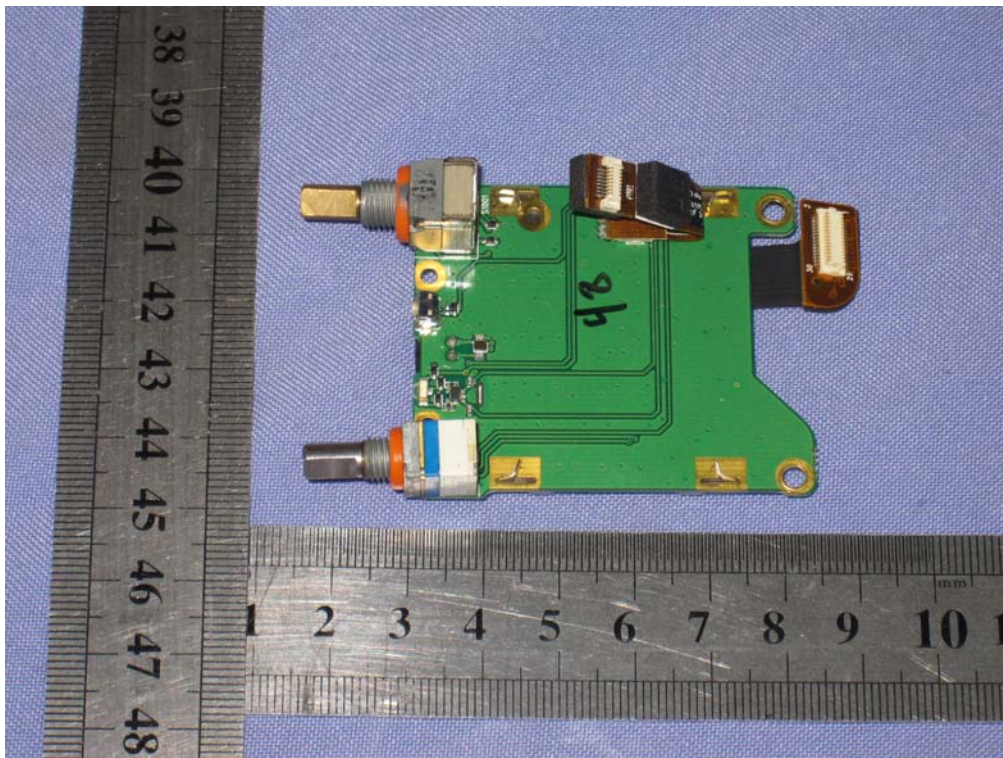












.....End of Report.....