

3.5 Field Strength of Spurious Radiation Measurement

3.5.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

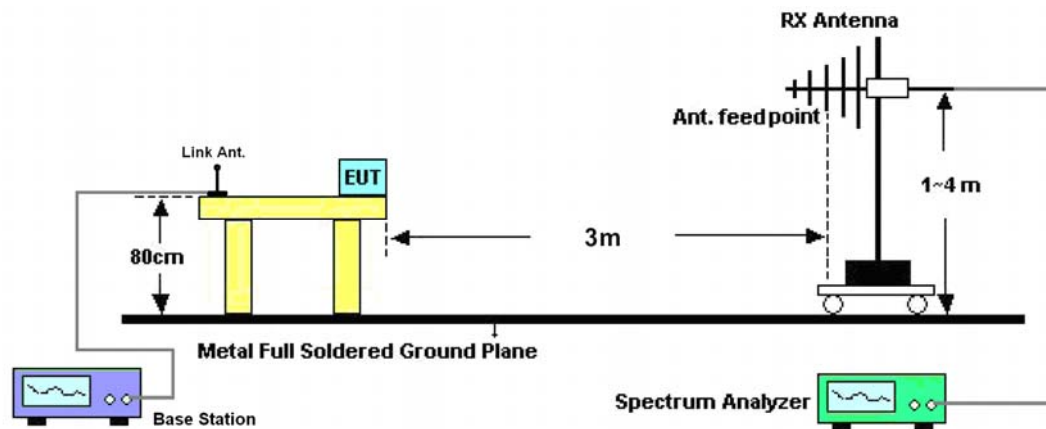
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

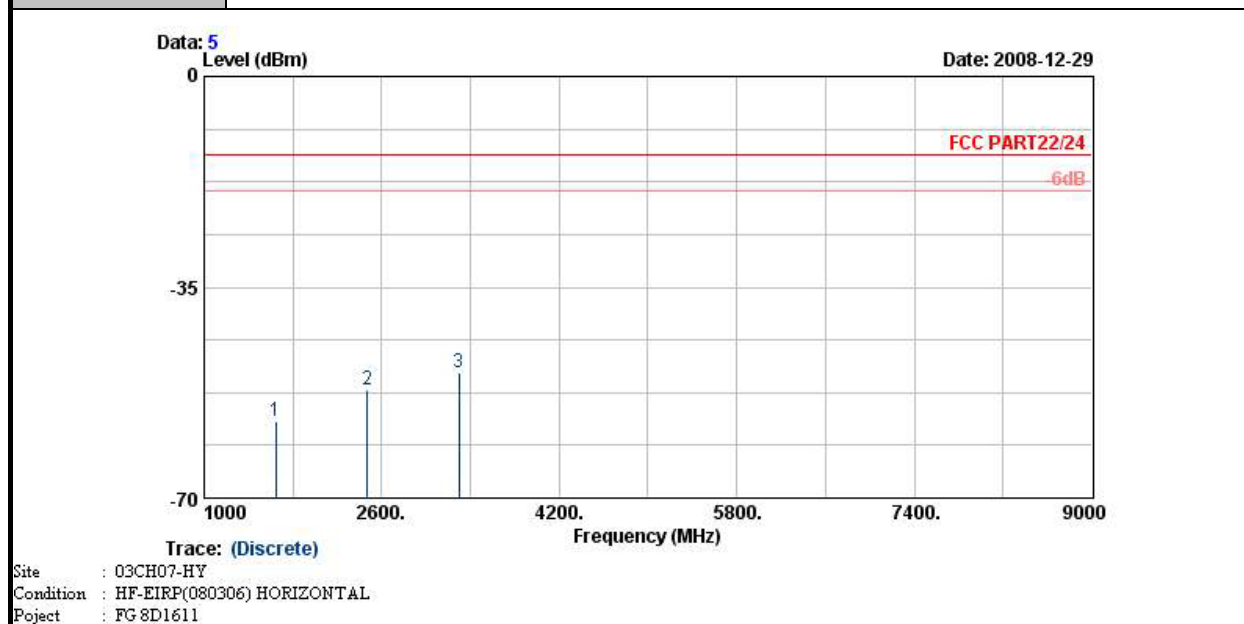
4. The EUT was placed on a rotatable wooden table with 0.8 meter about ground.
5. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
6. The table was rotated 360 degrees to determine the position of the highest spurious emission.
7. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
8. Taking the record of maximum spurious emission.
9. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
10. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
11. Taking the record of output power at antenna port.
12. Repeat step 7 to step 8 for another polarization.
13. Emission level (dBm) = output power + substitution Gain.

3.5.4 Test Setup



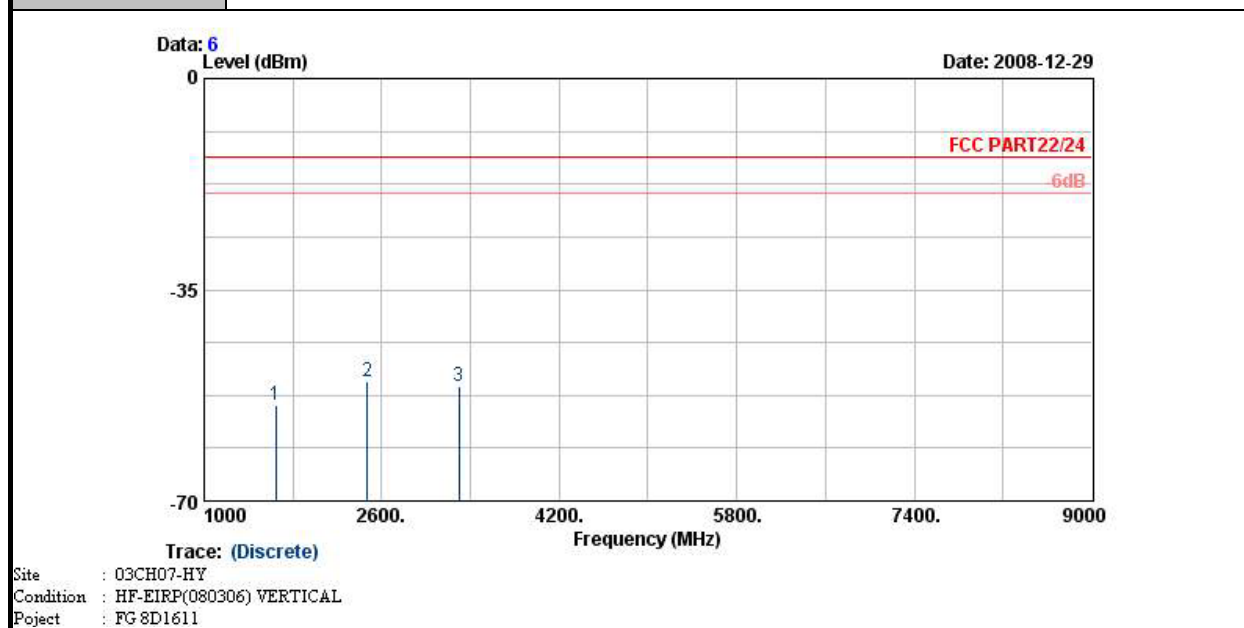
3.5.5 Test Result of Field Strength of Spurious Radiated

Band :	GSM850	Temperature :	21~23°C
Channel :	CH128	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-57.16	-13	-44.16	-60.96	-56.51	3.1	4.60	H	Pass
2470	-52.15	-13	-39.15	-62.09	-51.9	3.89	5.79	H	Pass
3298	-49.11	-13	-36.11	-59.97	-49.98	4.16	7.18	H	Pass

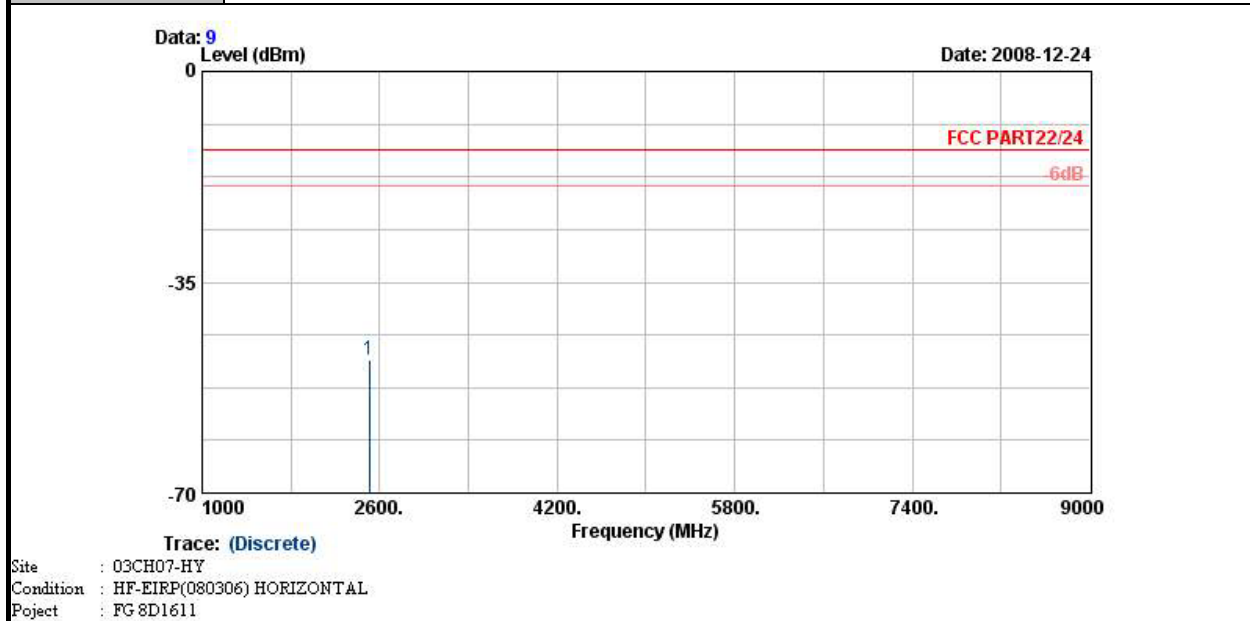
Band :	GSM850	Temperature :	21~23°C
Channel :	CH128	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-54.16	-13	-41.16	-61.99	-53.1	3.1	4.19	V	Pass
2470	-50.12	-13	-37.12	-58.65	-49.67	3.89	5.59	V	Pass
3298	-50.90	-13	-37.90	-63.36	-52.01	4.16	7.42	V	Pass

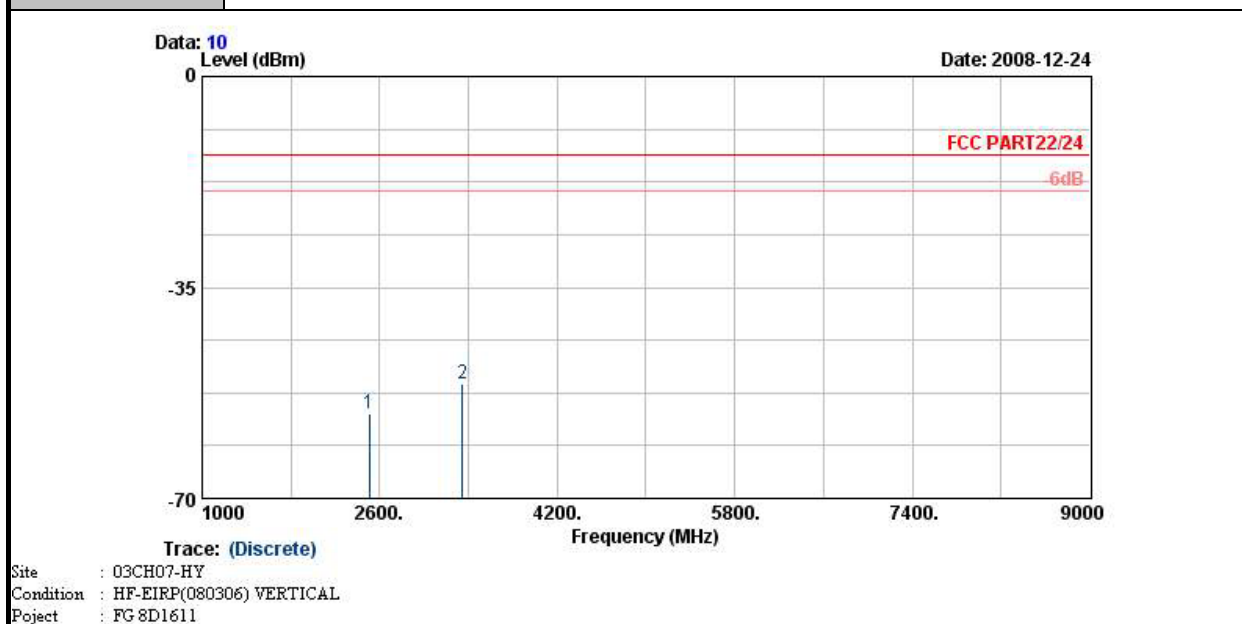


Band :	GSM850	Temperature :	21~23°C
Channel :	CH189	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
2509	-47.89	-13	-34.89	-58.03	-47.95	3.71	5.92	H	Pass

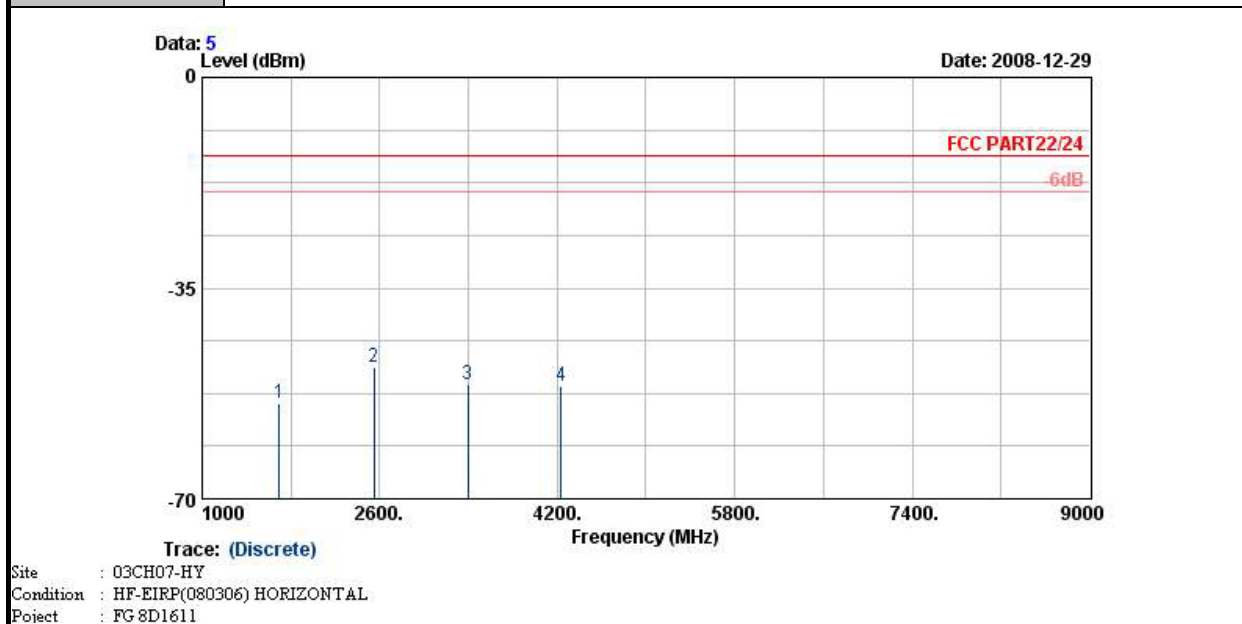
Band :	GSM850	Temperature :	21~23°C
Channel :	CH189	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
2509	-55.88	-13	-42.88	-59.7	-55.74	3.71	5.72	V	Pass
3346	-50.95	-13	-37.95	-63.39	-53.15	3.13	7.48	V	Pass

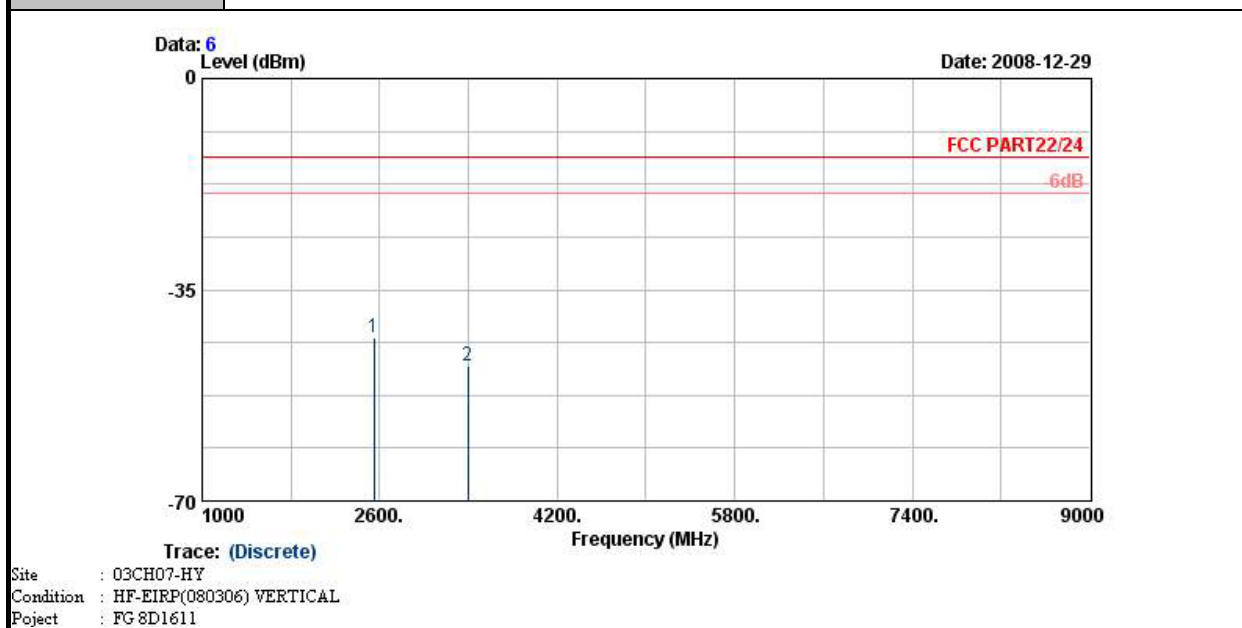


Band :	GSM850	Temperature :	21~23°C
Channel :	CH251	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



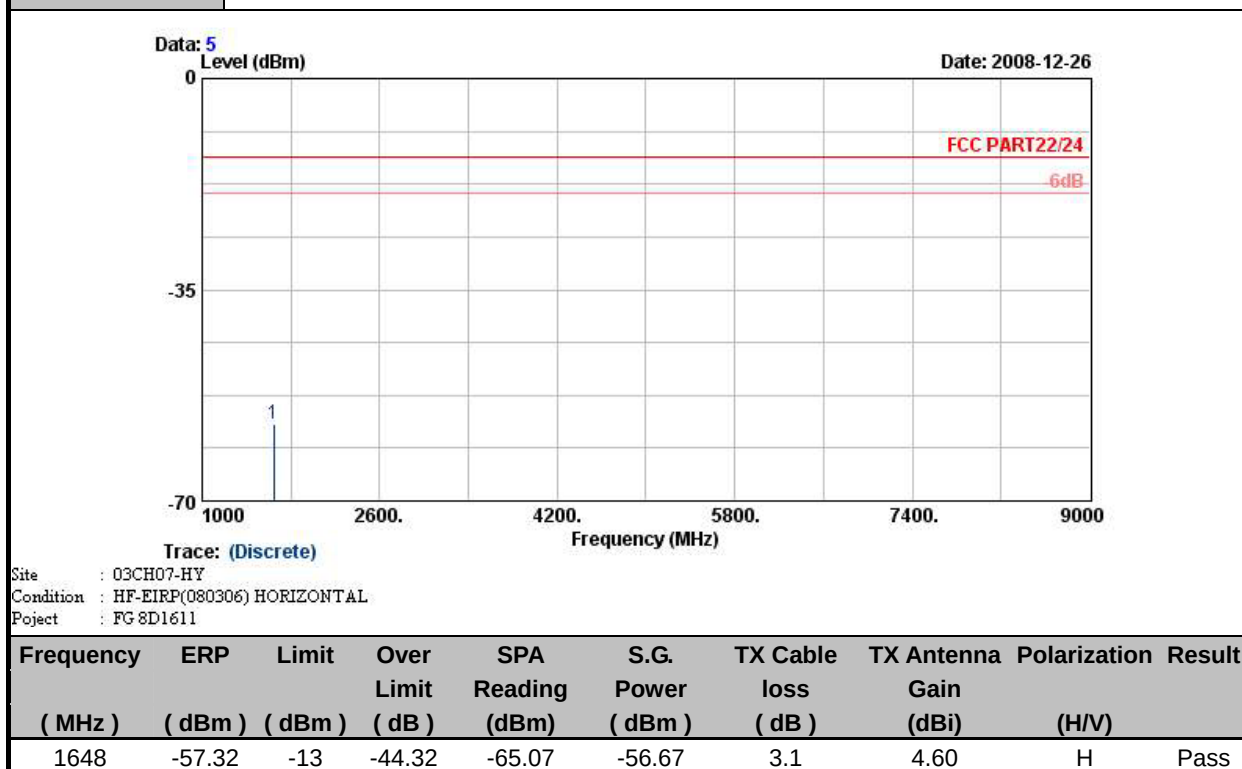
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1693	-54.14	-13	-41.14	-59.39	-53.47	3.02	4.50	H	Pass
2545	-48.27	-13	-35.27	-58.42	-48.39	3.73	6.00	H	Pass
3394	-50.88	-13	-37.88	-61.91	-51.99	3.98	7.24	H	Pass
4235	-51.14	-13	-38.14	-64.23	-51.75	4.84	7.60	H	Pass

Band :	GSM850	Temperature :	21~23°C
Channel :	CH251	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



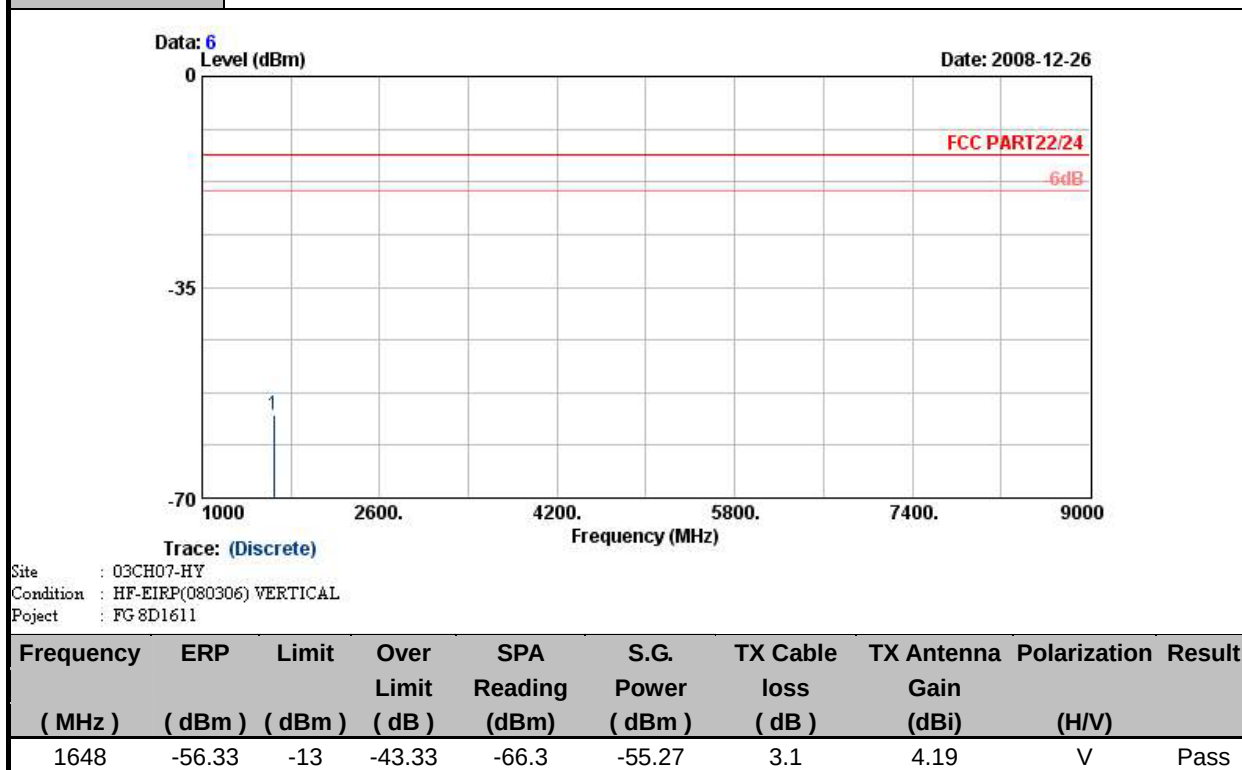
Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
2545	-43.06	-13	-30.06	-53.84	-43	3.73	5.82	V	Pass
3394	-47.73	-13	-34.73	-60.15	-49.15	3.98	7.55	V	Pass

Band :	GSM850	Temperature :	21~23°C
Channel :	CH128	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



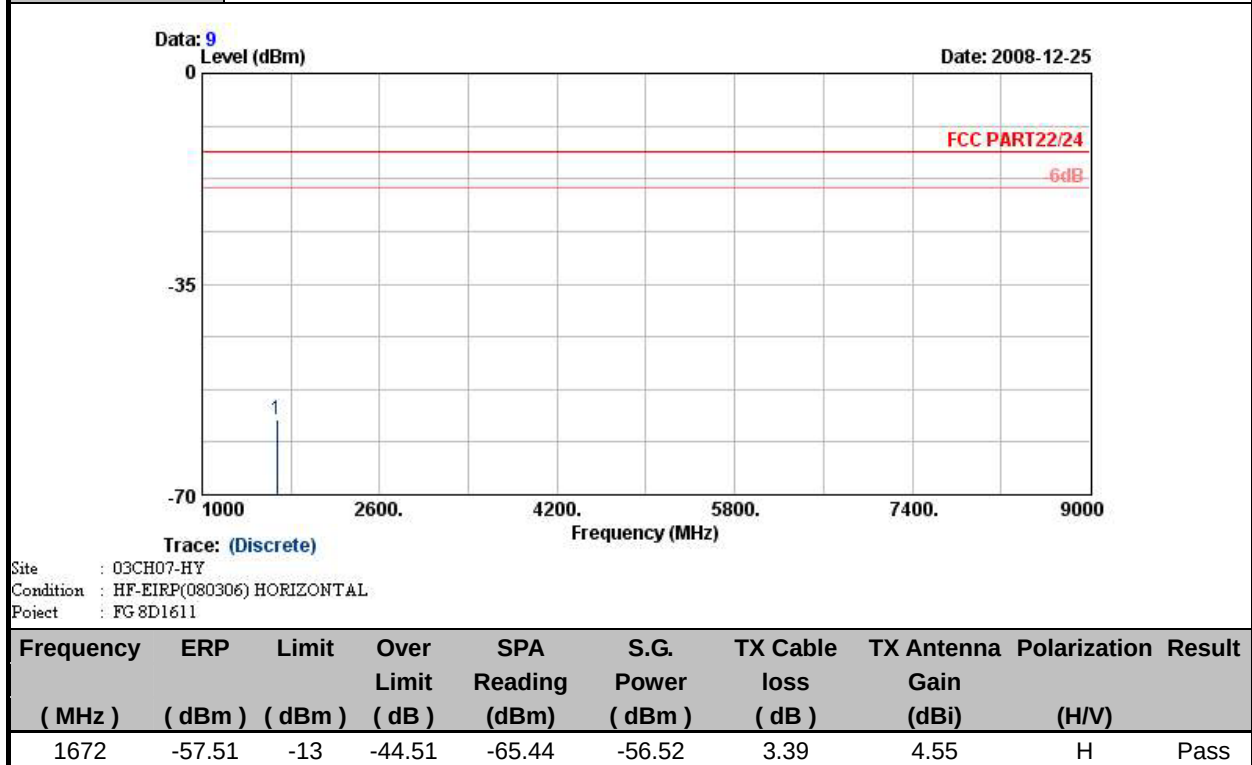


Band :	GSM850	Temperature :	21~23°C
Channel :	CH128	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



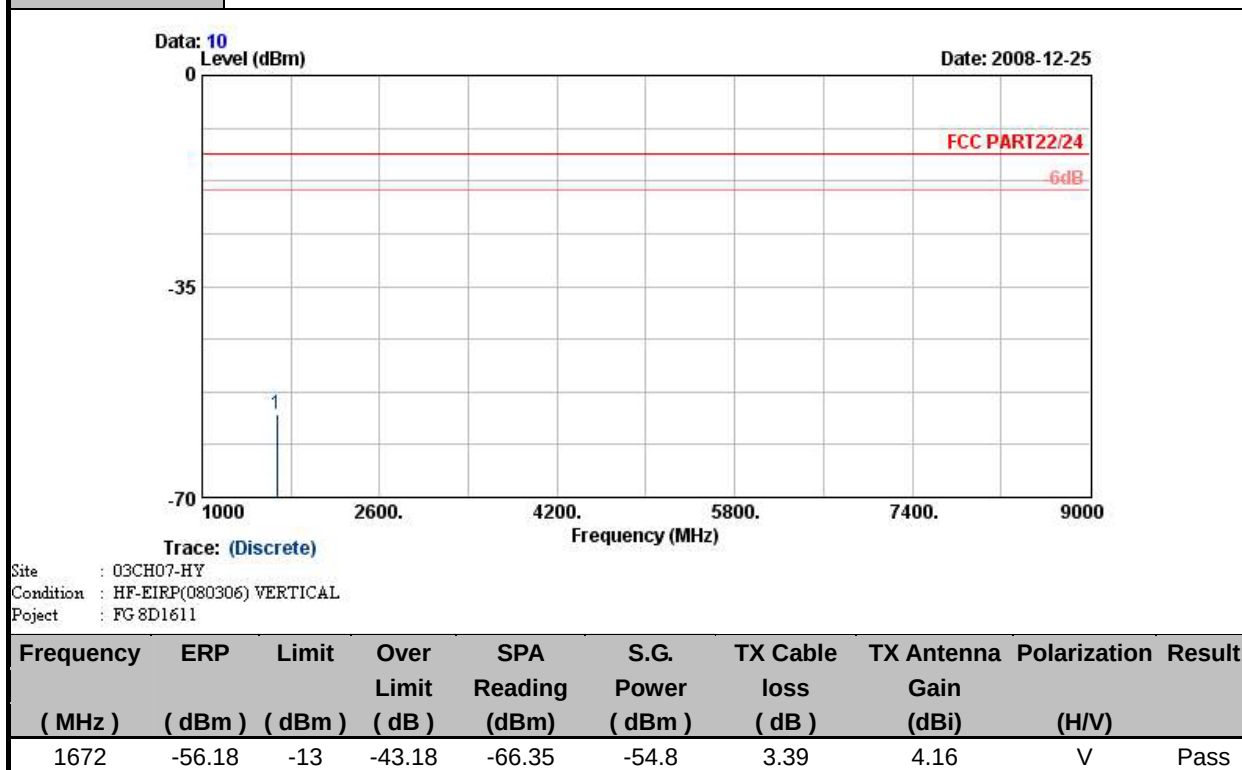


Band :	GSM850	Temperature :	21~23°C
Channel :	CH189	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



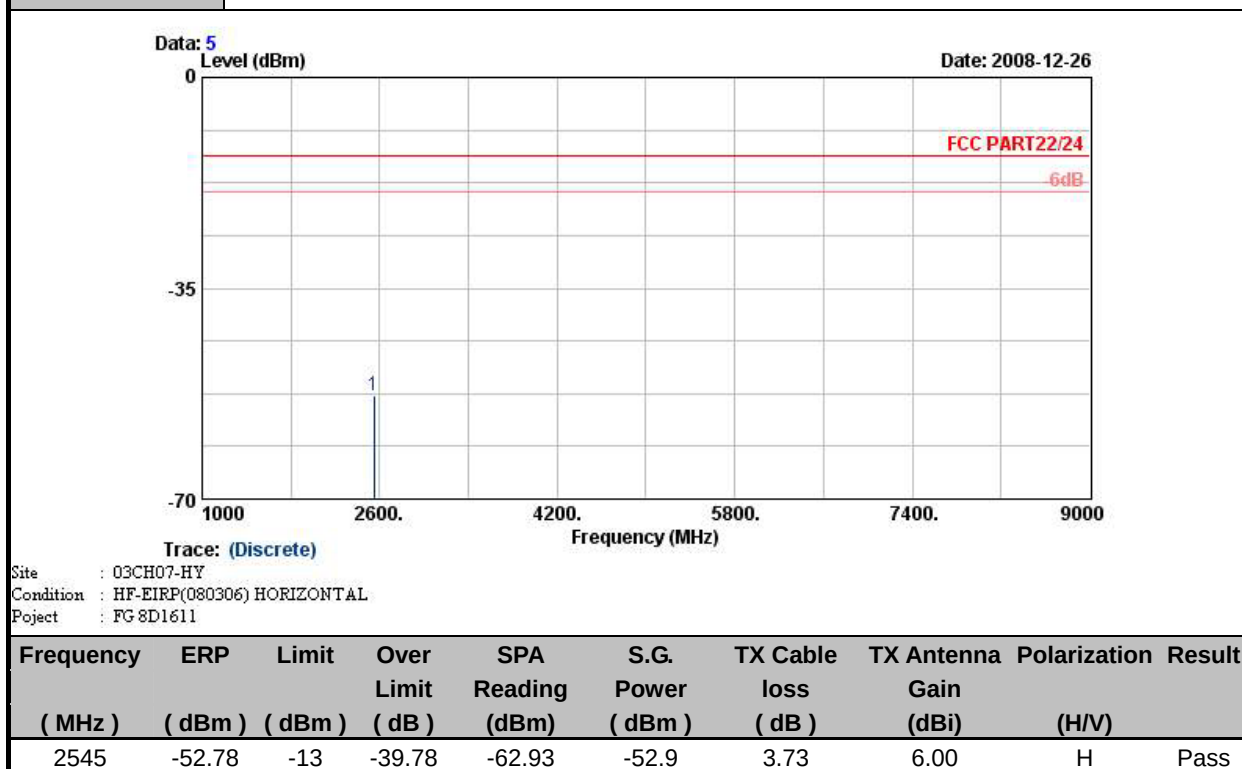


Band :	GSM850	Temperature :	21~23°C
Channel :	CH189	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

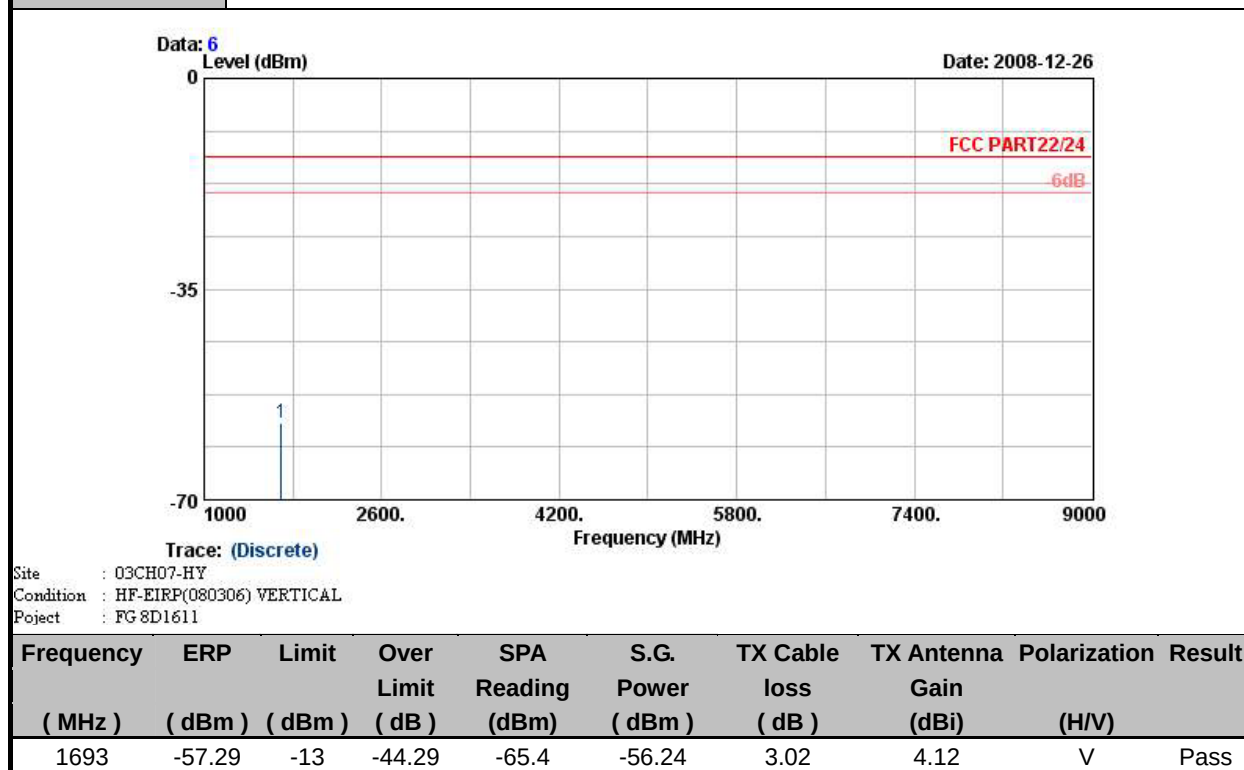




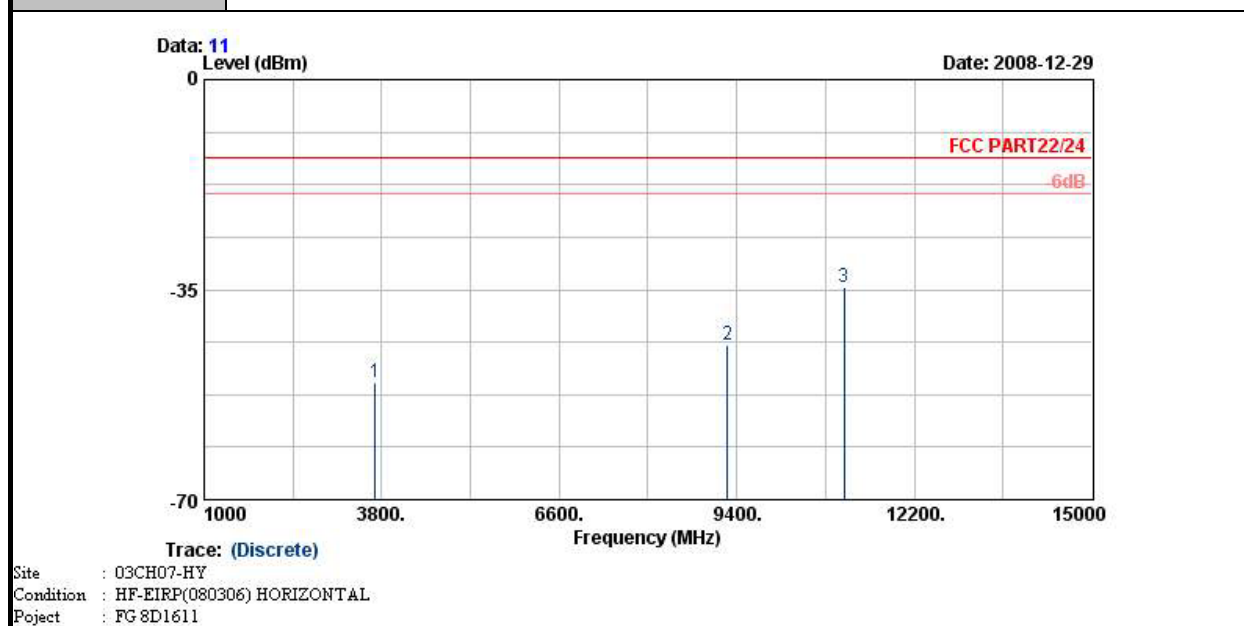
Band :	GSM850	Temperature :	21~23°C
Channel :	CH251	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Band :	GSM850	Temperature :	21~23°C
Channel :	CH251	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

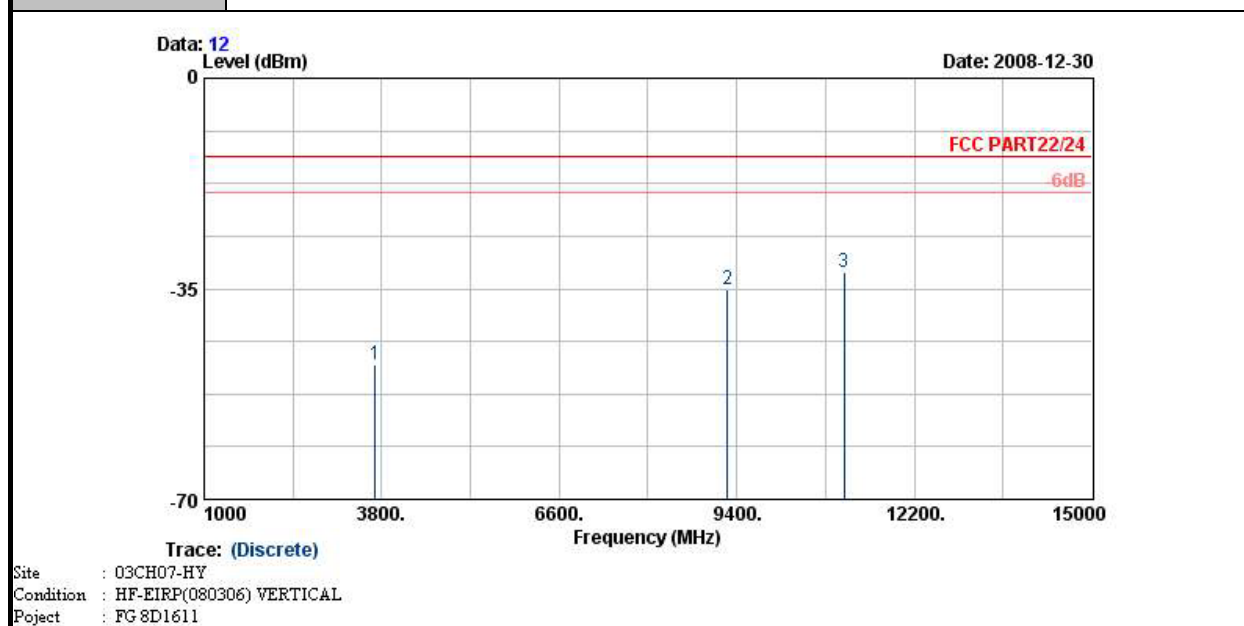


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH512	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3696	-50.42	-13	-37.42	-62.41	-53.28	4.52	7.38	H	Pass
9248	-44.12	-13	-31.12	-64.87	-47.41	7.46	10.75	H	Pass
11092	-34.54	-13	-21.54	-65.77	-36.41	8.85	10.72	H	Pass

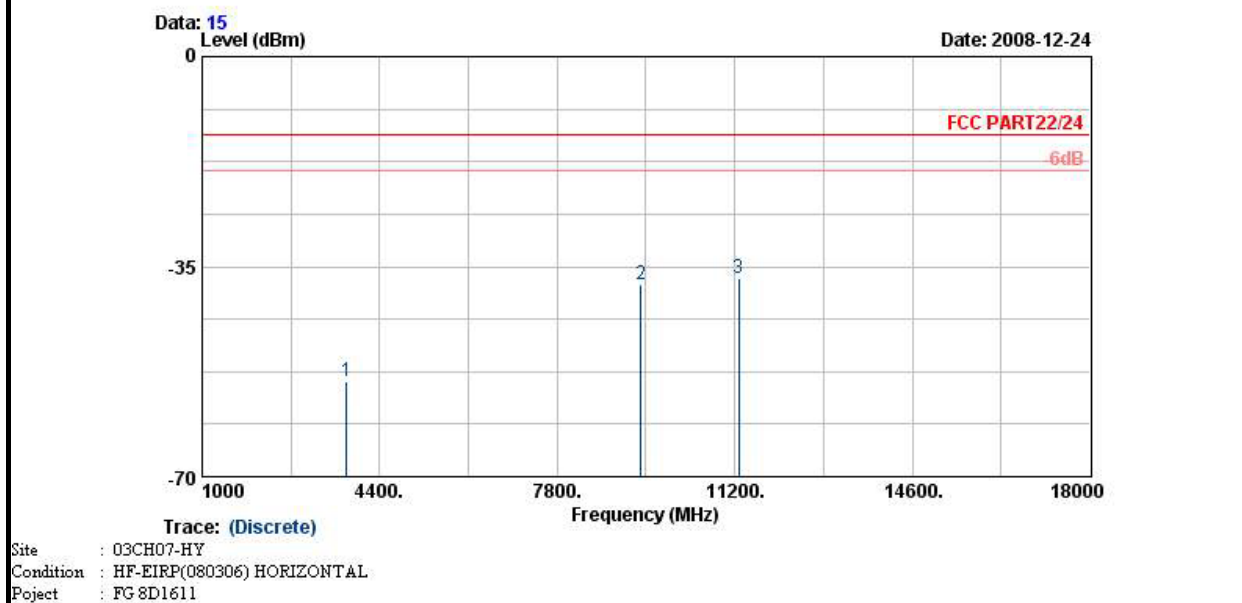
Band :	GSM1900	Temperature :	21~23°C
Channel :	CH512	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3696	-47.72	-13	-34.72	-62.68	-51.06	4.52	7.86	V	Pass
9248	-35.10	-13	-22.10	-62.57	-39.19	7.46	11.55	V	Pass
11092	-32.38	-13	-19.38	-64.55	-34.85	8.85	11.32	V	Pass

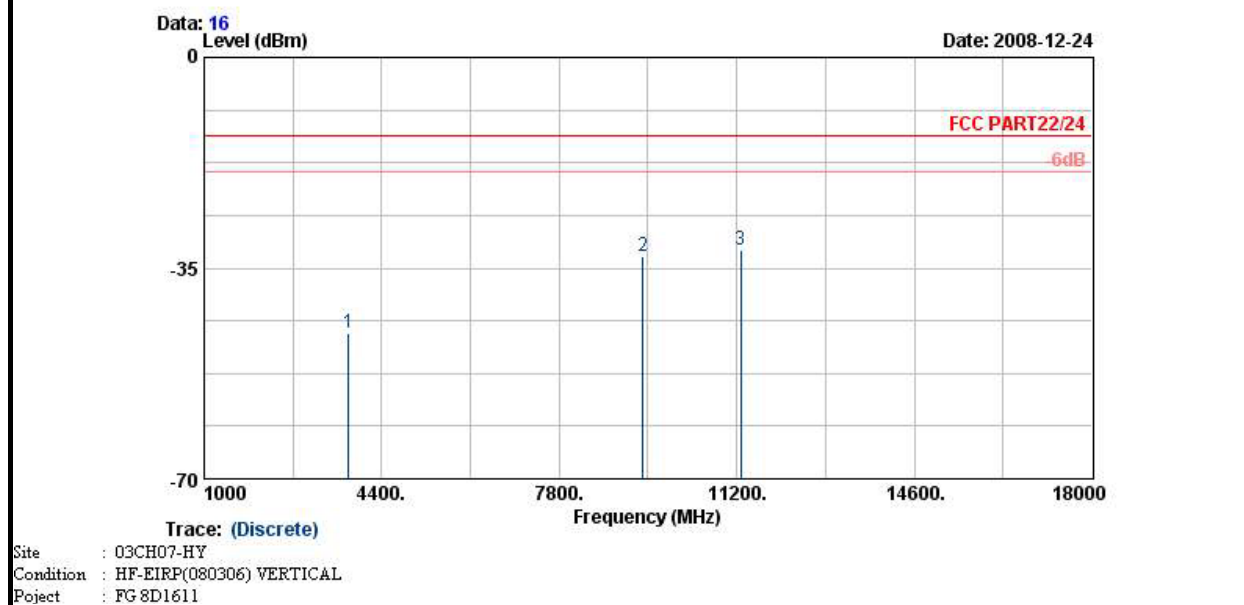


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH661	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-54.12	-13	-41.12	-64.57	-57.49	4.03	7.40	H	Pass
9396	-38.01	-13	-25.01	-61.94	-42.71	6.02	10.72	H	Pass
11280	-36.85	-13	-23.85	-67.48	-39.13	8.48	10.76	H	Pass

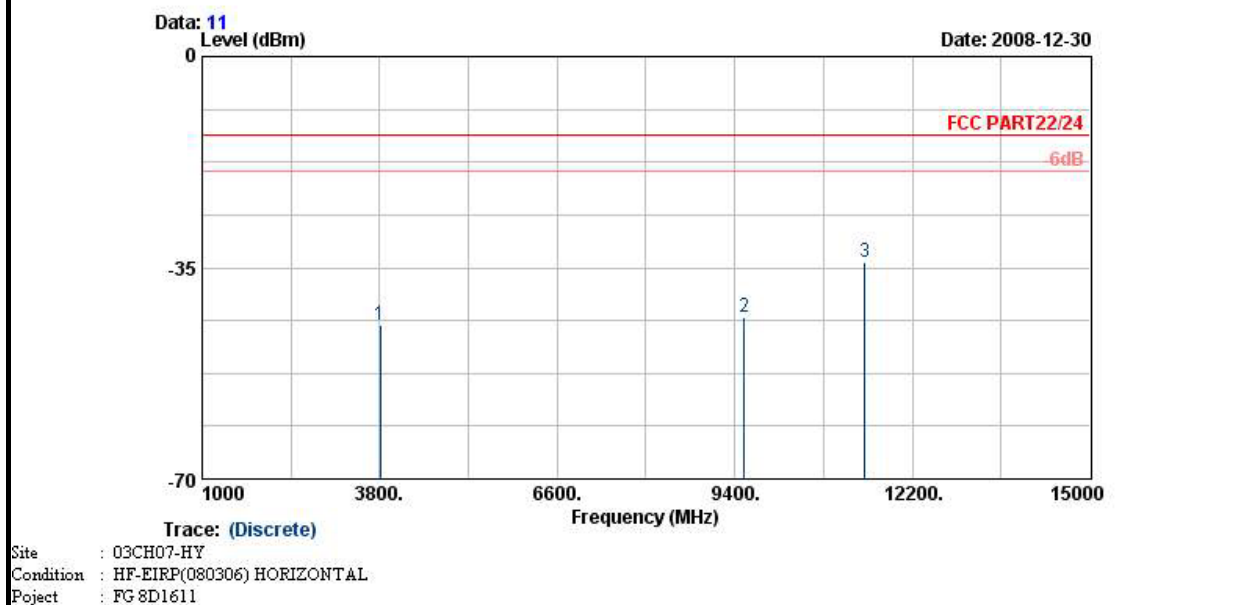
Band :	GSM1900	Temperature :	21~23°C
Channel :	CH661	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-45.86	-13	-32.86	-61.76	-49.74	4.03	7.91	V	Pass
9396	-32.98	-13	-19.98	-61.94	-38.48	6.02	11.52	V	Pass
11280	-32.04	-13	-19.04	-64.62	-34.92	8.48	11.36	V	Pass

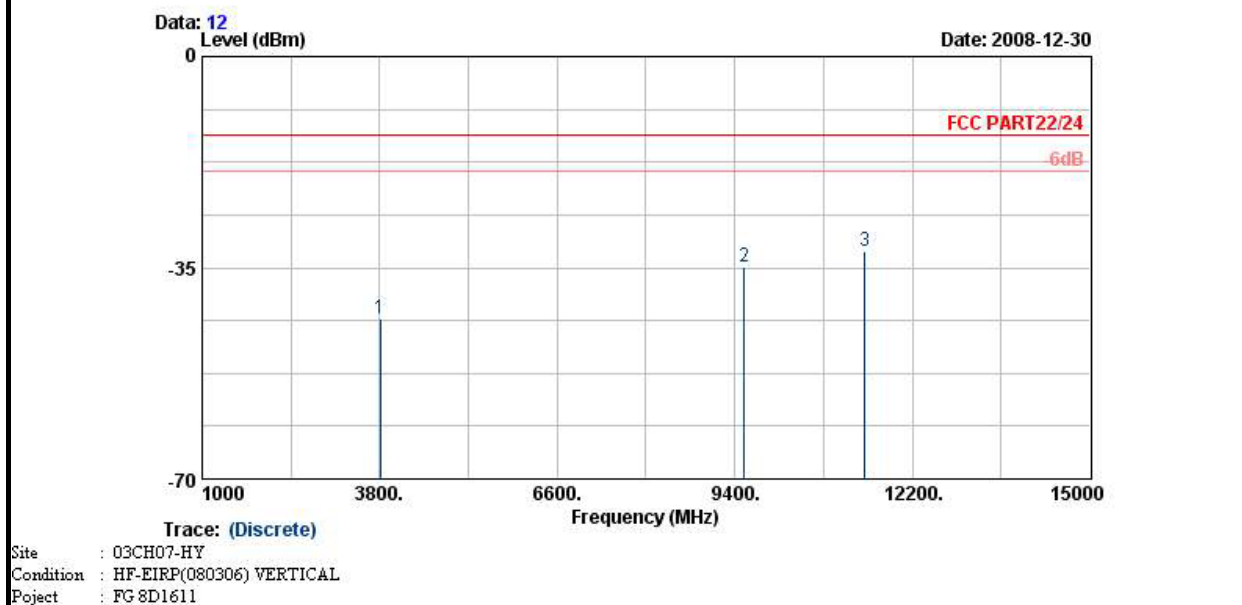


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH810	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3812	-44.41	-13	-31.41	-58.18	-47.06	4.78	7.43	H	Pass
9552	-43.10	-13	-30.10	-64.26	-46.58	7.2	10.68	H	Pass
11456	-34.10	-13	-21.10	-65.66	-36.3	8.59	10.79	H	Pass

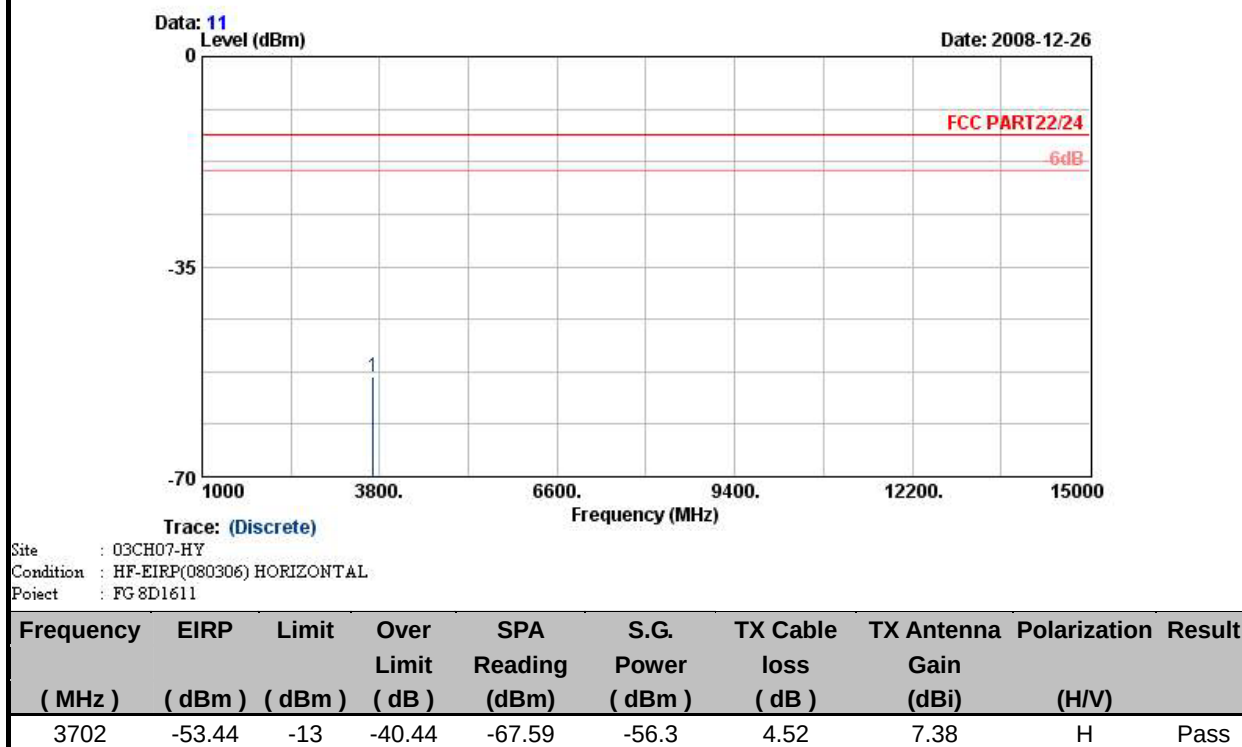
Band :	GSM1900	Temperature :	21~23°C
Channel :	CH810	Relative Humidity :	49~51%
Test Mode :	GPRS Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3812	-43.52	-13	-30.52	-59.47	-46.7	4.78	7.96	V	Pass
9552	-34.87	-13	-21.87	-62.55	-39.17	7.2	11.50	V	Pass
11456	-32.15	-13	-19.15	-64.65	-34.95	8.59	11.39	V	Pass

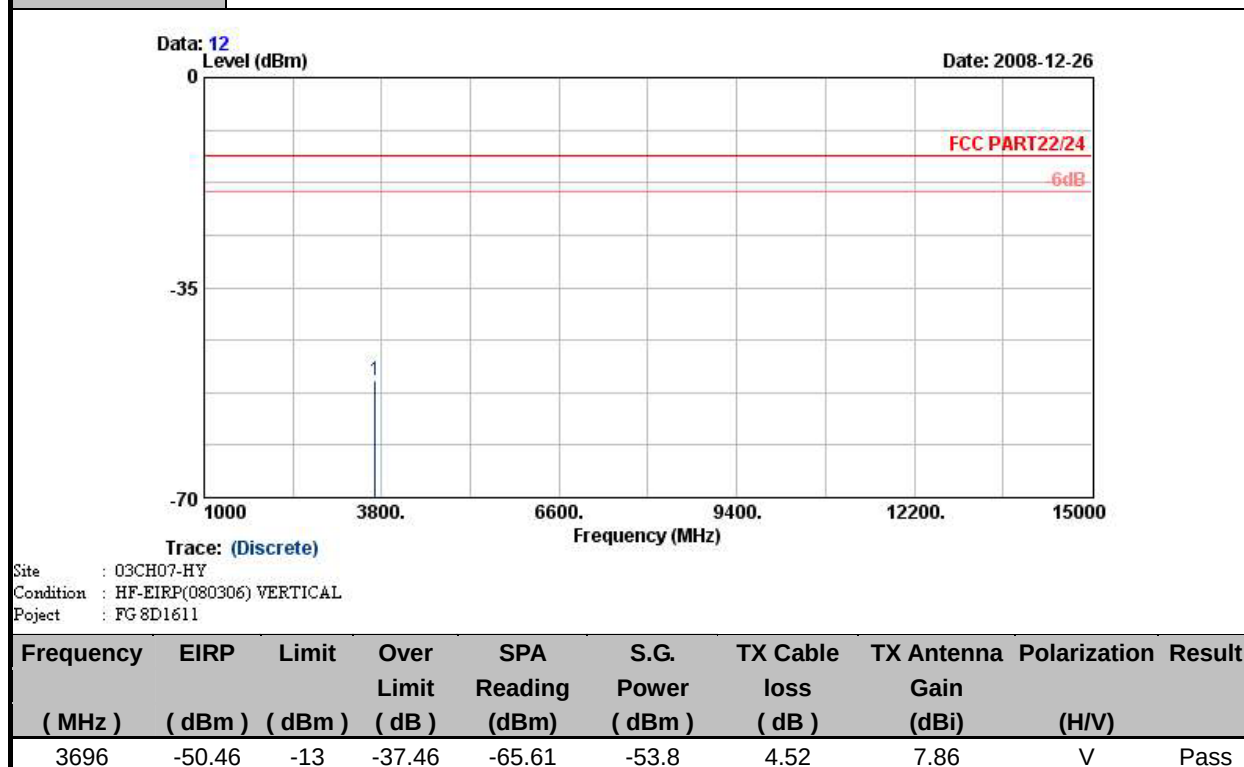


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH512	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



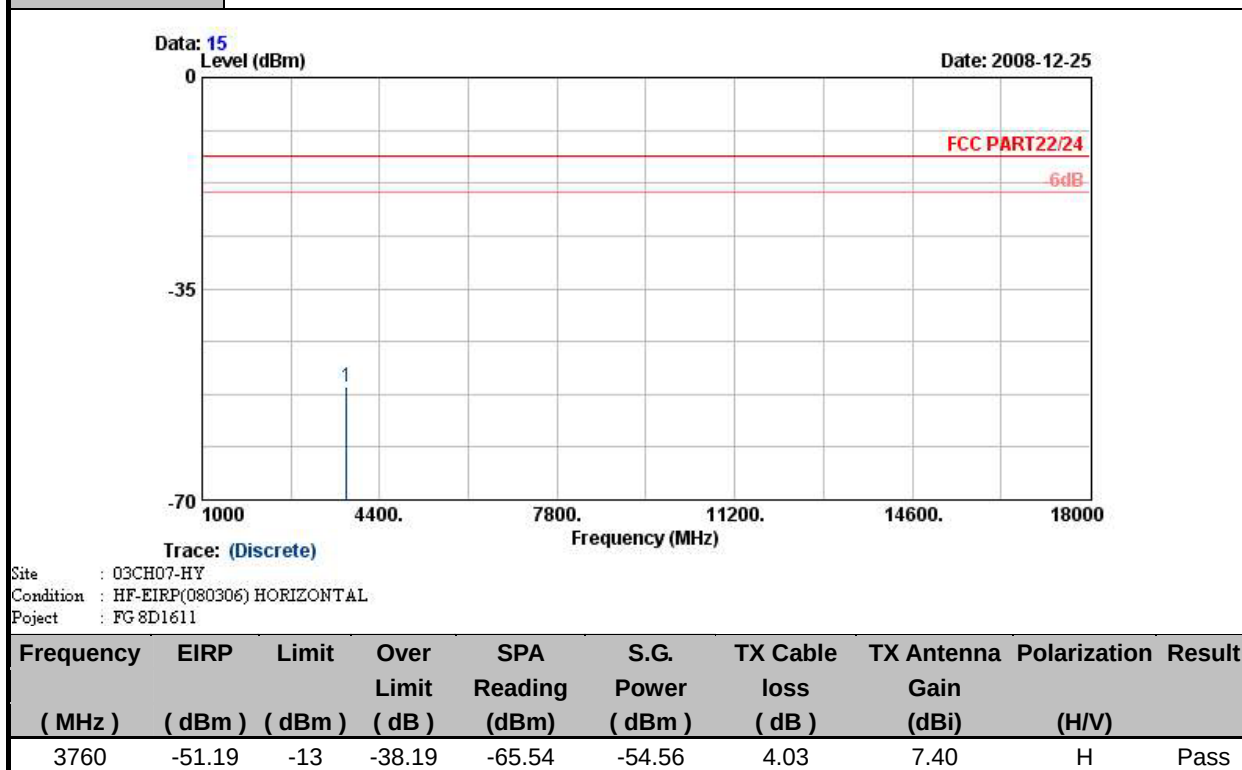


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH512	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



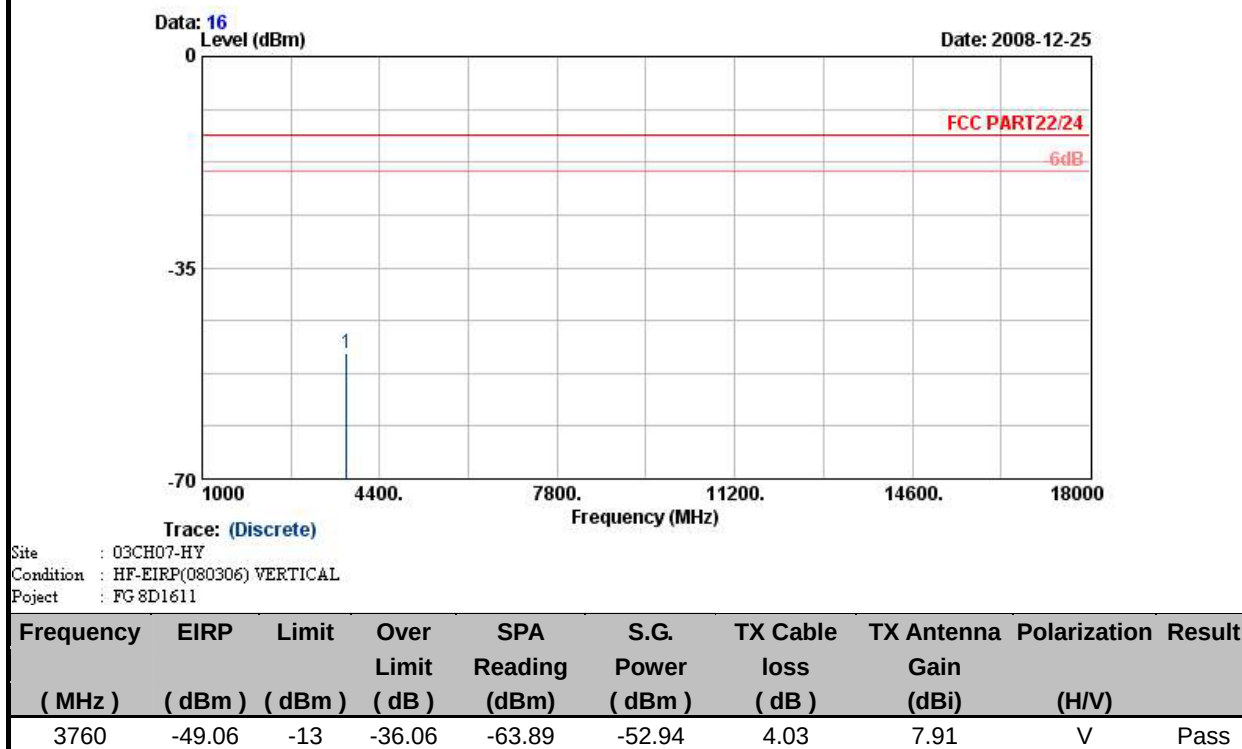


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH661	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



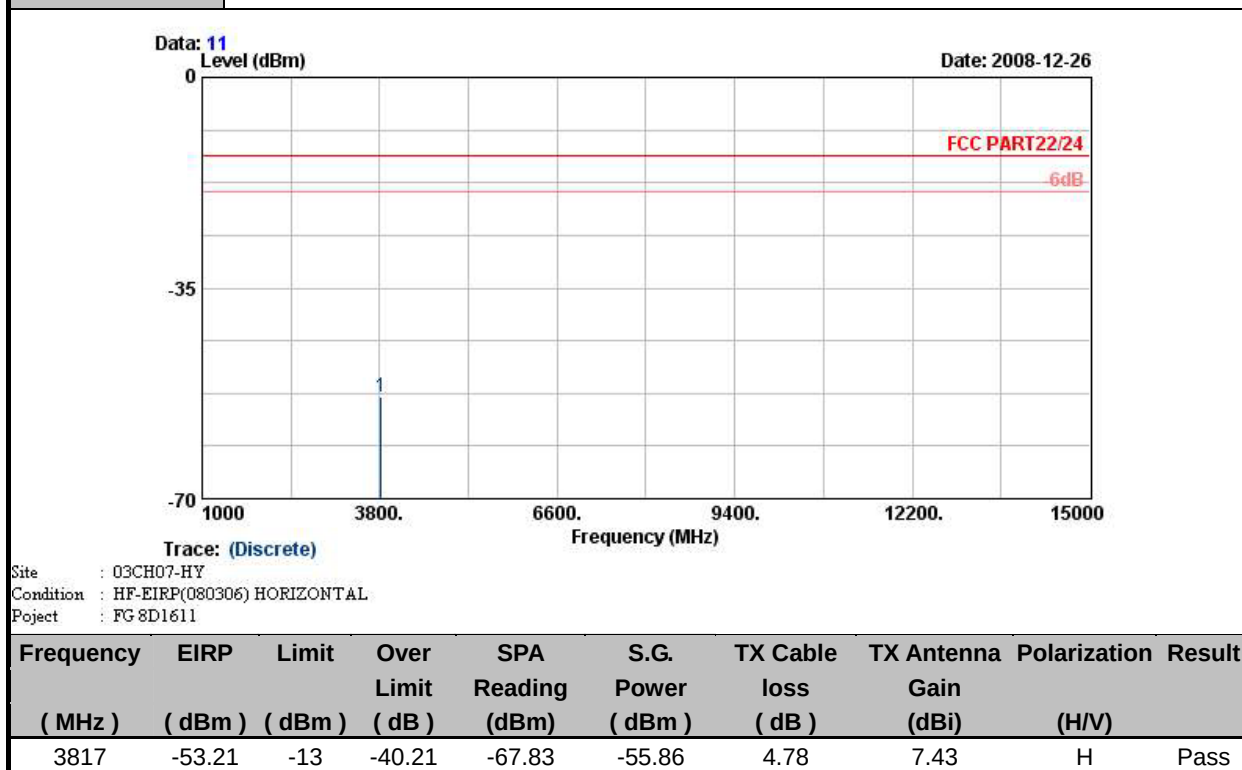


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH661	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



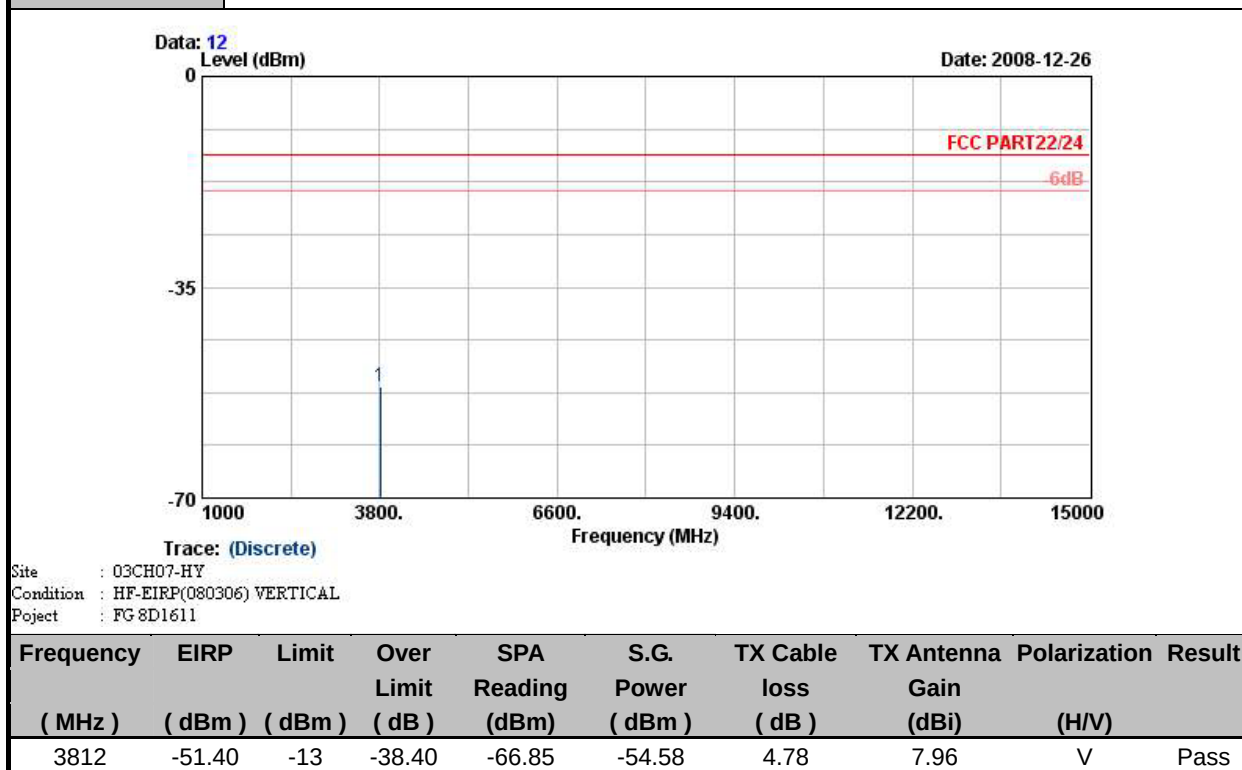


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH810	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



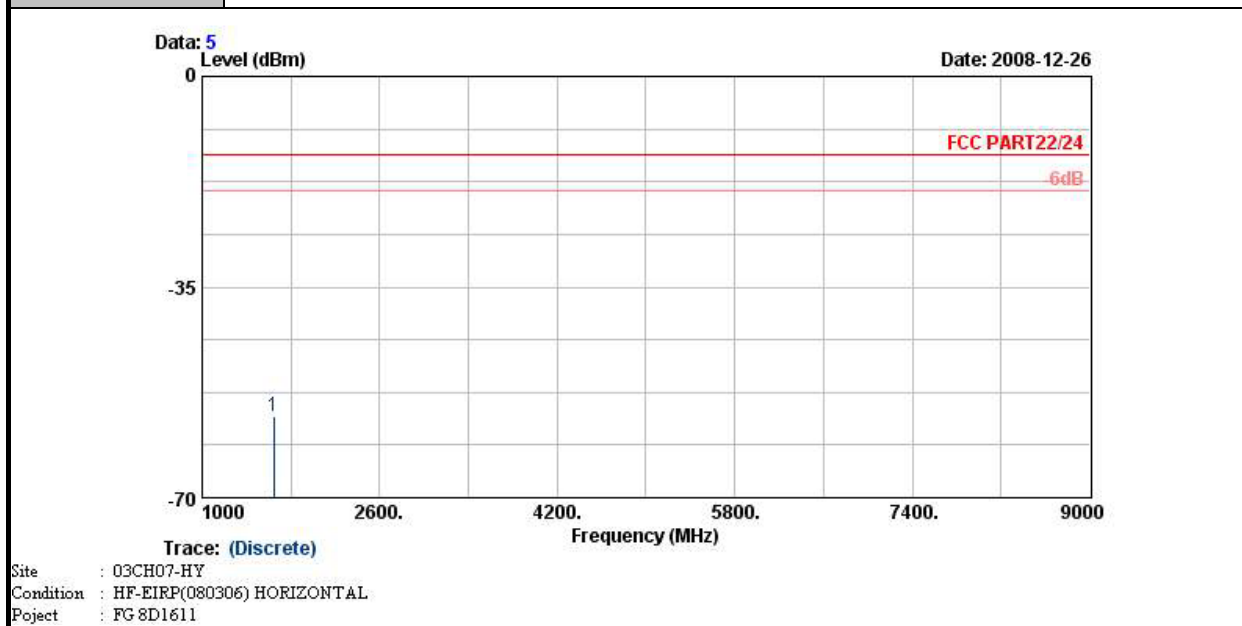


Band :	GSM1900	Temperature :	21~23°C
Channel :	CH810	Relative Humidity :	49~51%
Test Mode :	EDGE Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		





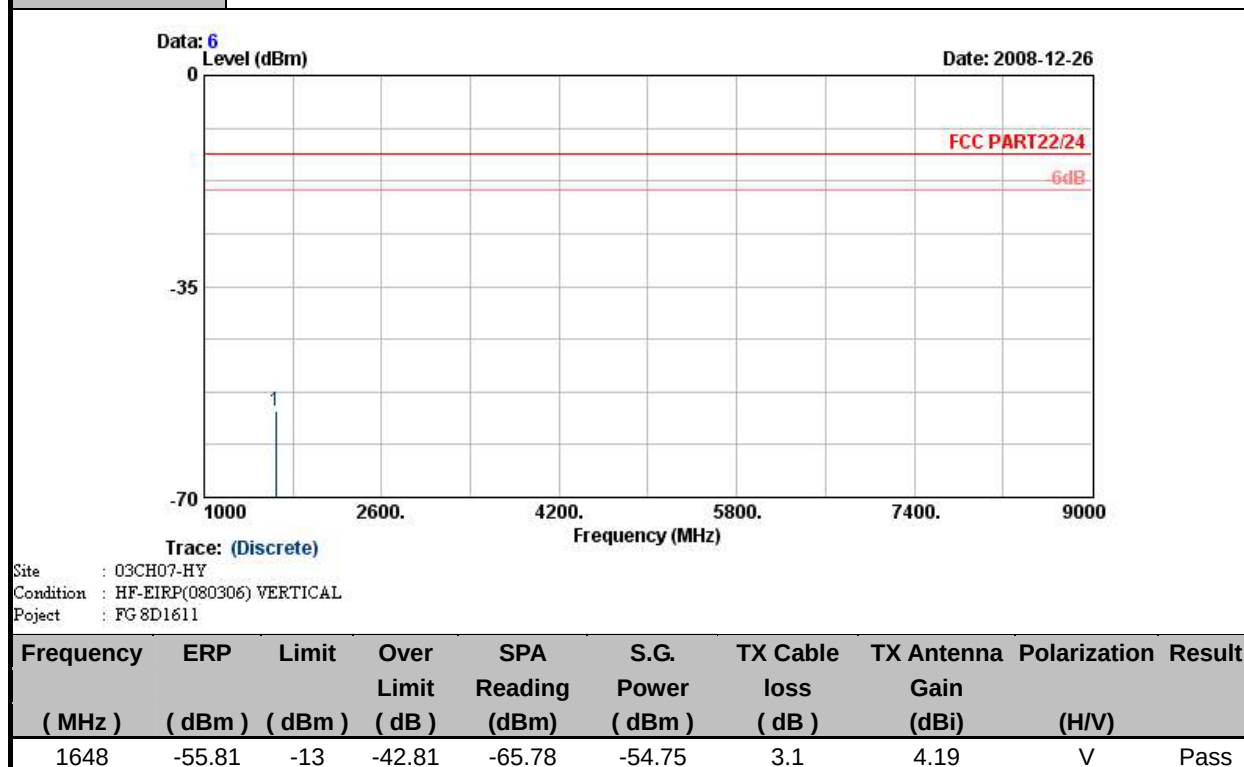
Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4132	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-56.60	-13	-43.60	-64.35	-55.95	3.1	4.60	H	Pass

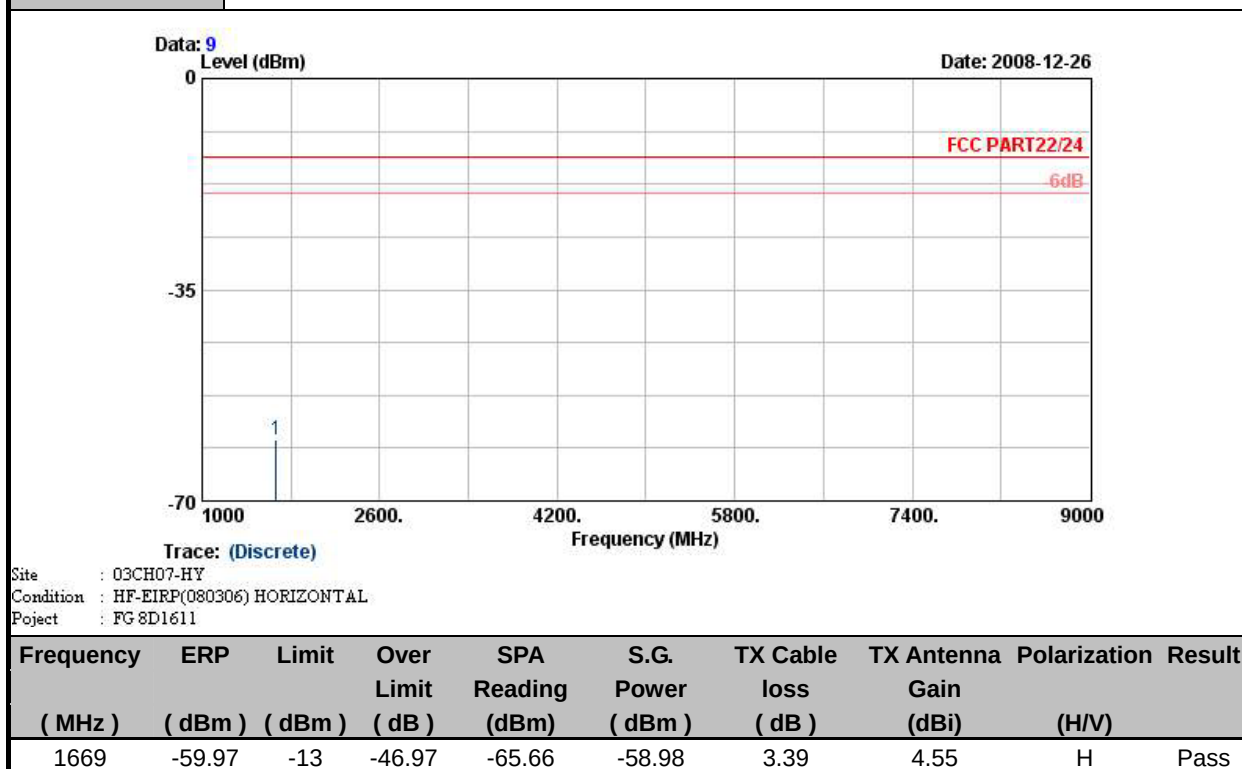


Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4132	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



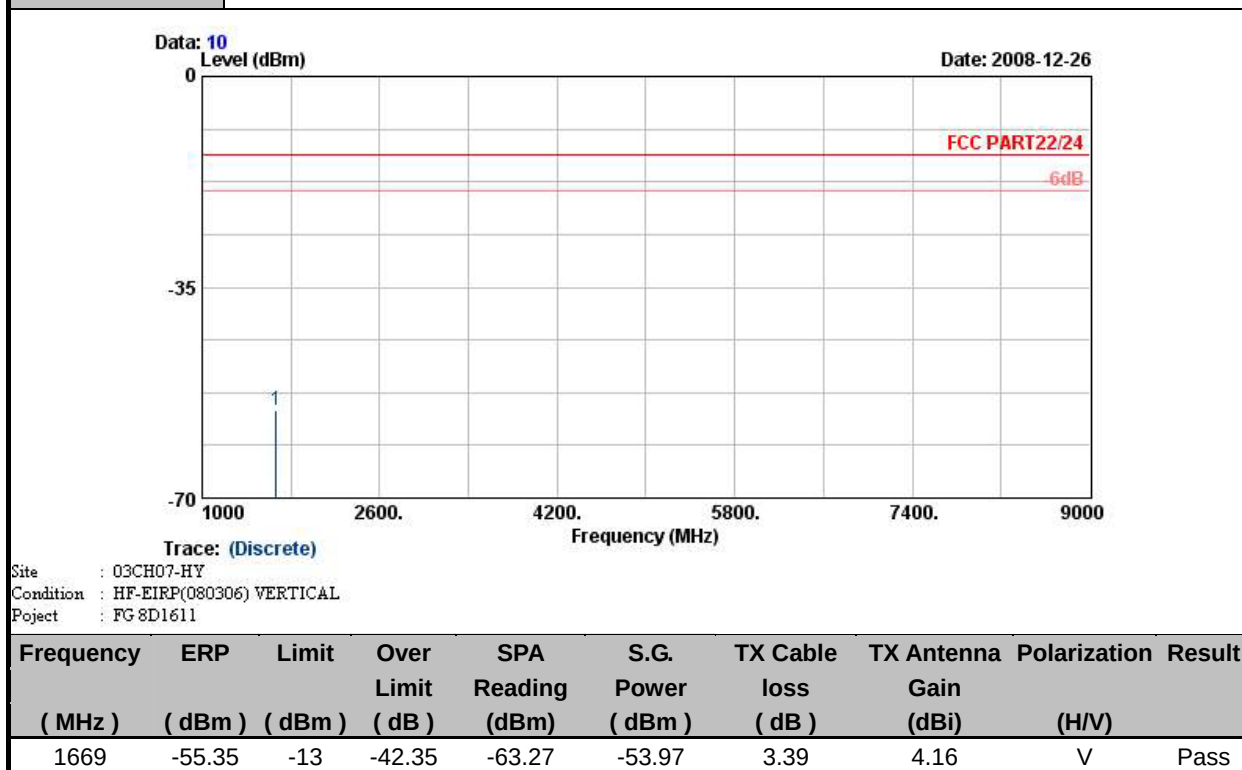


Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4182	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



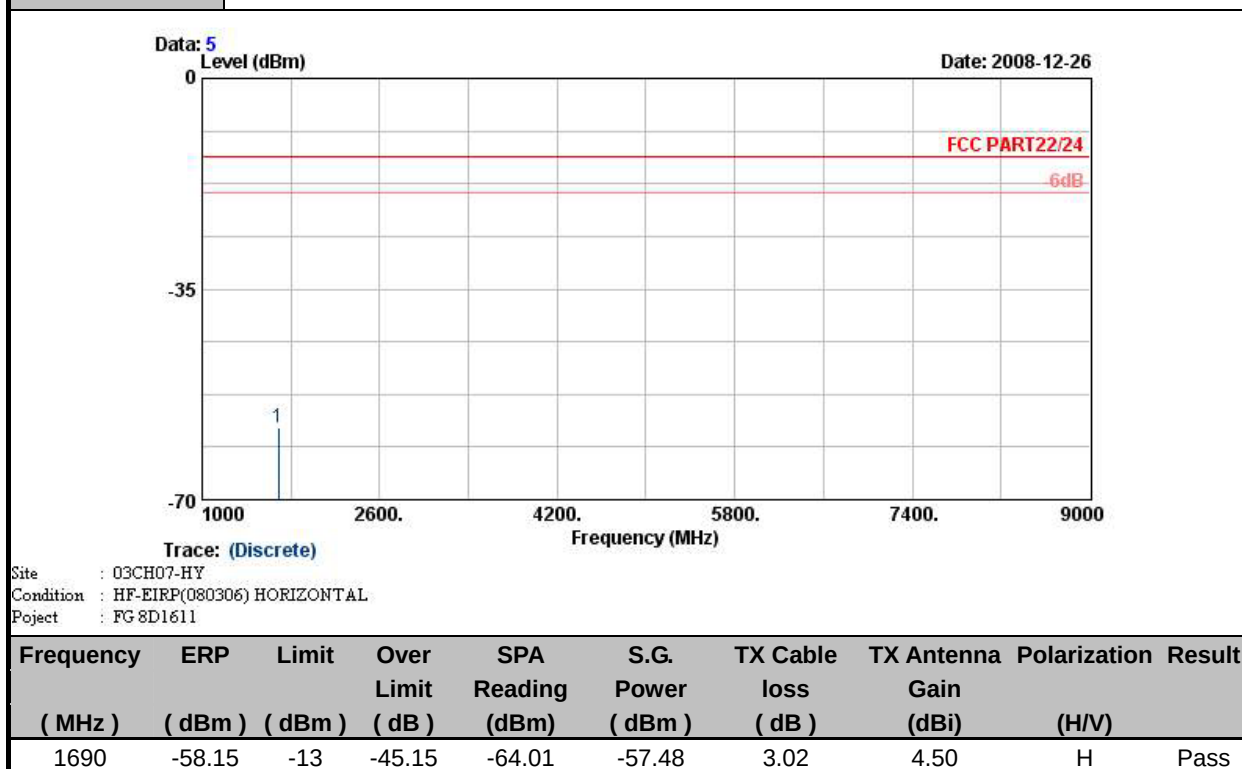


Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4182	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

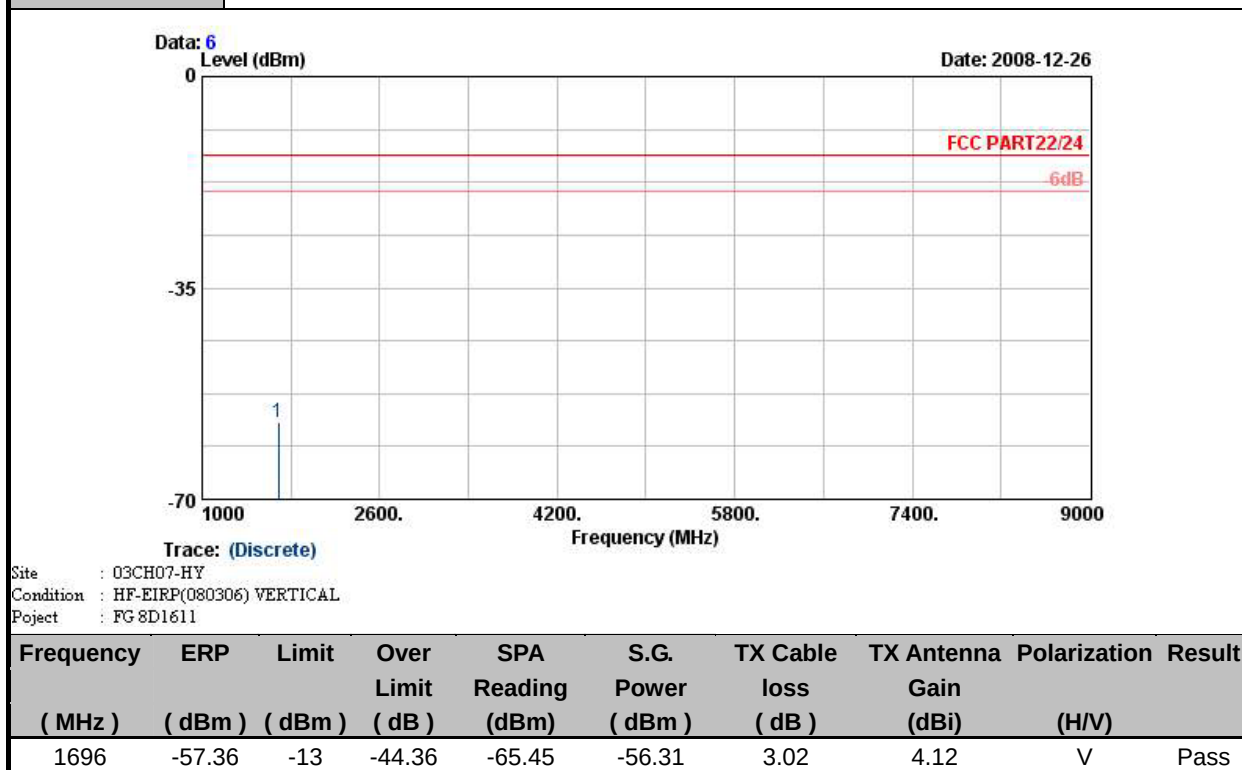




Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4233	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Horizontal
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Band :	WCDMA Band V	Temperature :	21~23°C
Channel :	CH4233	Relative Humidity :	49~51%
Test Mode :	WCDMA Link	Polarization :	Vertical
Test Engineer :	Kay Wu		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



3.6 Frequency Stability Measurement

3.6.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

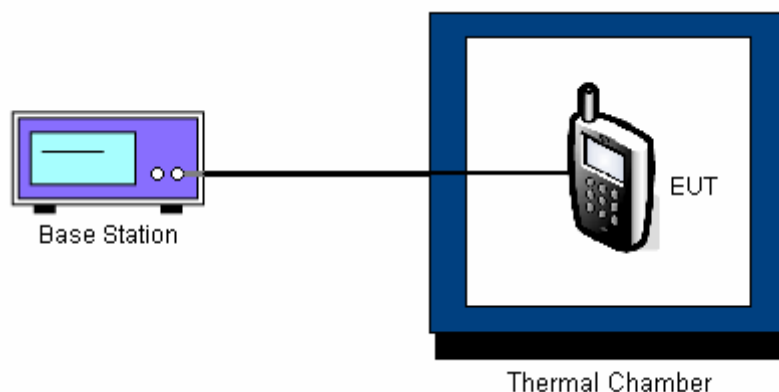
3.6.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. If the EUT can not be turned on at -30°C , the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

3.6.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the base station.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.6.5 Test Setup



3.6.6 Test Result of Temperature Variation

Band :	GSM 850	Channel :	189
Limit (ppm) :	2.5		

Temperature (°C)	GPRS		EDGE		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-10	-0.01	-28	-0.03	PASS
-20	-21	-0.02	-27	-0.03	
-10	17	0.02	-38	-0.04	
0	13	0.02	-12	-0.01	
10	-23	-0.03	-33	-0.04	
20	-14	-0.02	-34	-0.04	
30	-21	-0.02	-25	-0.03	
40	-16	-0.02	-27	-0.03	
50	-12	-0.01	-32	-0.04	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	2.5		

Temperature (°C)	GPRS		EDGE		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
-30	26	0.01	40	0.02	



-20	20	0.01	33	0.02	
-10	32	0.02	36	0.02	
0	25	0.01	28	0.01	
10	31	0.02	24	0.01	
20	21	0.01	29	0.02	
30	38	0.02	31	0.02	
40	24	0.01	27	0.01	
50	29	0.02	34	0.02	



Band :	WCDMA Band V	Channel :	4182
Limit (ppm) :	2.5		

Temperature (°C)	WCDMA		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
-30	-13	-0.02	PASS
-20	-10	-0.01	
-10	-6	-0.01	
0	-12	-0.01	
10	-10	-0.01	
20	-9	-0.01	
30	-7	-0.01	
40	-9	-0.01	
50	-11	-0.01	

3.6.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GPRS	5	9	0.01	2.5	PASS
		BEP	8	0.01		
		5.5	7	0.01		
	EDGE	5	-22	-0.03		
		BEP	-26	-0.03		
		5.5	-23	-0.03		
GSM 1900 CH661	GPRS	5	18	0.01		
		BEP	15	0.01		
		5.5	25	0.01		
	EDGE	5	32	0.02		
		BEP	30	0.02		
		5.5	27	0.01		
WCDMA Band V CH4182	WCDMA	5	-12	-0.01		
		BEP	-11	-0.01		
		5.5	-9	-0.01		

Remark:

1. Normal Voltage = 5V.
2. Battery End Point (BEP) = 4.2 V.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Base Station	R&S	CMU200	105934	NA	Nov. 08, 2008	Nov. 07, 2009	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9KHz~40GHz	Jun. 26, 2008	Jun. 25, 2009	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Aug. 01, 2008	Jul. 31, 2009	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz~1GHz	Nov. 20, 2008	Nov. 19, 2009	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9kHz~30GHz	Dec. 02, 2008	Dec. 01, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1G~18GHz	Aug. 13, 2008	Aug. 12, 2009	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1G~26.5GHz	Dec. 17, 2008	Dec. 16, 2009	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10~1000MHz. 32dB.GAIN	Mar. 31, 2008	Mar. 30, 2009	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	66584	1G~18GHz	Aug. 06, 2008	Aug. 05, 2009	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.10	Normal(k=2)	0.05
Cable loss	0.10	Normal(k=2)	0.05
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.39	Rectangular	0.80
Mismatch	+0.34/-0.35	U-shape	0.24
Combined standard uncertainty Uc(y)	1.13		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
Combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of x_i		$u(x_i)$	C_i	$C_i * u(x_i)$
	dB	Probability Distribution			
Receiver reading	± 0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	± 1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	± 0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20 \log(1 - \Gamma_1 * \Gamma_2)$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	4.72				

6 Certification of TAF Accreditation



Certificate No. : L1190-070110

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2007 to January 09, 2010
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : January 10, 2007

PI, total 9 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when used without the Appendix.



Appendix A. Photographs of EUT

Please refer to Sporton report number EP8D1611 as below.