04/26/05 **High Frequency Measurement**

Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: HITESH H. SOLANKI
Project #: 05U3315
Company: INVENSYS CONTROLS
EUT Descrip.: 802.15 - 4 ZIGBEE RADIO MODULE with 2 dBi MONOPOLE ANTENNA
EUT M/N:
Test Target: FCC CLASS B
Mode Oper: TX CONTINUOUSLY ON SPECIFIED CHANNELS
Average Power Meter: Low = xx dBm, Mid = xx dBm, High = xx dBm

Test Equipment:

EMCO Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz
T60; S/N: 2238 @3m	T63 Miteq 646456		

Hi Frequency Cables

2 foot cable	3 foot cable	4 foot cable	12 foot cable	HPF	Reject Filter
	3_Vien		12_Hitesh		

Peak Measurements
RBW=VBW=1MHz

Average Measurements
RBW=1MHz ; VBW=10Hz

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
HIGH CH. 2475 MHz															
4.950	3.0	61.1	49.8	33.7	3.9	-37.9	0.0	0.0	60.9	49.6	74	54	-13.1	-4.4	V
4.950	3.0	59.4	47.3	33.7	3.9	-37.9	0.0	0.0	59.2	47.1	74	54	-14.8	-6.9	V
4.950	3.0	57.9	46.6	33.7	3.9	-37.9	0.0	0.0	57.7	46.4	74	54	-16.3	-7.6	V
7.425	3.0	49.4	37.7	36.3	5.3	-36.8	0.0	0.0	54.2	42.5	74	54	-19.8	-11.5	V
9.900	3.0	46.5	33.5	38.3	6.6	-36.1	0.0	0.0	55.3	42.3	74	54	-18.7	-11.7	V
MID. CH. 2445 MHz															
4.890	3.0	60.7	49.5	33.7	3.9	-37.9	0.0	0.0	60.3	49.1	74	54	-13.7	-4.9	V
7.335	3.0	52.2	40.8	36.2	5.3	-36.9	0.0	0.0	56.7	45.3	74	54	-17.3	-8.7	V
9.780	3.0	44.7	30.9	38.2	6.5	-36.1	0.0	0.0	53.3	39.5	74	54	-20.7	-14.5	V
LOW CH. 2405 MHz															
4.810	3.0	60.6	49.5	33.6	3.8	-37.9	0.0	0.0	60.1	49.0	74	54	-13.9	-5.0	V
7.215	3.0	55.9	44.4	36.1	5.2	-37.0	0.0	0.0	60.2	48.7	74	54	-13.8	-5.3	V
9.620	3.0	45.0	31.5	38.0	6.4	-36.2	0.0	0.0	53.3	39.8	74	54	-20.7	-14.2	V
HIGH CH. 2475 MHz															
4.950	3.0	60.9	49.8	33.7	3.9	-37.9	0.0	0.0	60.7	49.6	74	54	-13.3	-4.4	H
7.425	3.0	50.2	37.5	36.3	5.3	-36.8	0.0	0.0	55.0	42.3	74	54	-19.0	-11.7	H
9.900	3.0	46.8	35.2	38.3	6.6	-36.1	0.0	0.0	55.6	44.0	74	54	-18.4	-10.0	H
MID. CH. 2445 MHz															
4.890	3.0	55.1	43.4	33.7	3.9	-37.9	0.0	0.0	54.7	43.0	74	54	-19.3	-11.0	H
7.335	3.0	48.0	36.2	36.2	5.3	-36.9	0.0	0.0	52.5	40.7	74	54	-21.5	-13.3	H
9.780	3.0	43.3	30.5	38.2	6.5	-36.1	0.0	0.0	51.9	39.1	74	54	-22.1	-14.9	H
LOW CH. 2405 MHz															
4.810	3.0	56.1	44.8	33.6	3.8	-37.9	0.0	0.0	55.6	44.3	74	54	-18.4	-9.7	H
7.215	3.0	51.8	40.3	36.1	5.2	-37.0	0.0	0.0	56.1	44.6	74	54	-17.9	-9.4	H
9.620	3.0	44.4	30.5	38.0	6.4	-36.2	0.0	0.0	52.7	38.8	74	54	-21.3	-15.2	H

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		